Appendix G. Slip 4 Sediment Chemistry Laboratory Data Package, Data Rules, and Data Validation Report

Laboratory Data Package

Analytical Resources, Incorporated
Analytical Chemists and Consultants

19 September 2019

Amara Vandervort
Windward Environmental, LLC
200 West Mercer Street, Suite 401
Seattle, WA 98119-3958

RE: Slip 4 LTM (Yr 5) / City of Seattle

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
19H0024	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Susan Dunnihoo, Director, Client Services

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Cert# 100006-012

PJLA Testing
Accreditation # 66169

1 of 1 19H0024

CHAIN-OF-CUSTODY/TEST REQUEST FORM

№ 3828

Project/Client Name: Slip 4 LTM (Yr 7)/City of Seattle
Project Number:
Contact Name: Amara Vandervort
Sampled By: J. Love, TDo

Ship to: ARI
Attn: Sue Dannihoo
Shipper: Hand del'd.
Form filled out by: TDo

Shipping Date: 08.01.2019
Airbill Number:
Turnaround requested: STD

Sample Collection Date (m/d/y)	Time	Sample Identification	Volume of Sample / # of Containers	Matrix	Test(s) Requested (check test(s) required) PCB Aroclors	SVOCs	Metals Hg	TOC/TS	Grain Size			Comments / Instructions [Jar tag number(s)]
08.01.19	0730	SL4-SG-WC3-FB-2019	3	filter paper	X	X	X					1-3
	0730	SL4-SG-WC3-FW-2019	3	↓	X	X	X					4-6
	0816	SL4-SG-WC3-2019	5	sediment	X	X	X	X	X			7-11 (lab QC)
	0839	SL4-SG-WC7-2019	4		X	X	X	X	X			12-15
	0839	SL4-SG-WC7-FD-2019	4		X	X	X	X	X			16-19
	0908	SL4-SG-WC8-2019	4		X	X	X	X	X			20-23
	1008	SL4-SG-WC4-2019	4		X	X	X	X	X			24-27
	1030	SL4-SG-WC2-2019	4		X	X	X	X	X			28-31
	1043	SL4-SG-WC1-2019	4		X	X	X	X	X			32-35
	1145	SL4-IC-SC2-2019	4		X	X	X	X	X			36-39
↓	1210	SL4-IC-SC3-2019	4	↓	X	X	X	X	X			40-43
		Total Number of Containers	43	Purchase Order / Statement of Work #								

1) Released by: Jenny Love	1) Rec'd by: Jacobwalter	2) Released by:	2) Rec'd by:
Print name:		Print name:	
Signature: Jenny Love	Company: ARI 2.6° 4.0°C	Signature:	Company:
Company: Windward Environmental		Company:	
Date/Time: 8-1-19 / 13:05	Date/Time: 08/01/19 1305	Date/Time:	Date/Time:

* Distribution: White copies accompany shipment; yellow retained by consignor.

Wind Ward environmental LLC
200 West Mercer Street
Suite 401
Seattle, WA 98119
Tel: (206) 378-1364
Fax: (206) 217-9343

To be completed by Laboratory upon sample receipt:

Date of receipt::	Laboratory W.O. #:
Condition upon receipt:	Time of receipt:
Cooler temperature:	Received by:

Harold L Benny & Associates, LLC

Project:	19H0024	**Client:**	Analytical Resources, Inc.
Date Received:	August 2, 2019	**HLB Project #:**	2019-042
Date Started:	August 12, 2019	**Tested By:**	H Benny
Date Finished:	August 14, 2019		

CASE NARRATIVE

1. Nine samples were submitted for grain size analysis according to Puget Sound Estuary Protocol (PSEP) methodology on August 2, 2019.
2. The samples were run in a single batch and one sample from the job was chosen for triplicate analysis. The triplicate data is reported on the QA summary.
3. The samples contained organic matter which may have broken down during the oven drying and sieving process, affecting the grain size analysis.
4. The data is provided in summary tables and plots.
5. There were no noted anomalies in the testing or samples on project.

Reviewed by:

Harold L Benny & Associates, LLC

Project: 19H0024
Date Received: August 2, 2019
Date Started: August 12, 2019
Date Finished: August 14, 2019

Client: Analytical Resources, Inc.
Project #: 2019-042
Tested by: H Benny

Apparent Grain Size Distribution Summary
Percent Finer Than Indicated Size

Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay	
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
Sieve Size (microns)	3/8"	#4 (4750)	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (63)	31.0	15.6	7.8	3.9	2.0	1.0
19H0042-03	100.0	100.0	98.8	91.9	88.4	85.3	82.3	78.9	63.6	41.3	25.0	16.0	11.5	8.6
	100.0	100.0	98.8	92.2	87.6	84.2	81.0	77.5	60.6	41.9	25.2	15.6	11.0	8.0
	100.0	100.0	98.1	91.0	87.0	83.5	80.5	77.0	65.3	43.1	25.9	16.2	11.8	8.2
19H0042-04	100.0	100.0	99.9	97.5	96.1	94.9	93.9	90.9	76.8	51.4	29.6	18.3	12.9	8.8
19H0042-05	100.0	100.0	99.9	97.7	96.2	94.8	93.7	91.0	77.5	52.7	30.0	19.0	12.9	8.9
19H0042-06	100.0	39.5	32.1	25.5	20.8	17.2	14.6	12.7	12.4	8.8	6.3	4.4	3.0	2.0
19H0042-07	100.0	49.6	40.5	31.0	23.0	18.4	16.4	15.0	13.5	10.4	6.5	3.9	2.7	1.6
19H0042-08	100.0	47.5	45.6	42.9	39.4	34.0	25.3	19.7	13.4	9.7	6.5	4.3	3.1	2.2
19H0042-09	100.0	100.0	98.9	93.1	86.8	79.0	67.9	53.0	41.5	15.0	9.2	6.4	5.1	4.2
19H0042-10	100.0	90.0	81.3	67.1	46.3	22.5	14.1	11.3	9.7	7.4	5.2	3.1	2.0	1.1
19H0042-11	100.0	99.8	83.5	66.3	47.4	29.9	20.5	17.0	16.8	9.5	4.9	3.4	2.7	2.0

Organic matter was not removed prior to testing, the reported values are the "apparent" grain size distribution.

Reviewed by:

Corporate ~ 777 Chrysler Drive • Burlington, WA 98233 • Phone (360) 755-1990 • Fax (360) 755-1980
Regional Offices: Olympia ~ 360.534.9777 Bellingham ~ 360.647.6111 Silverdale ~ 360.698.6787 Tukwila ~ 206.241.1974
Visit our website: www.mtc-inc.net

Harold L Benny & Associates, LLC

Project: 19H0024
Date Received: August 2, 2019
Date Started: August 12, 2019
Date Finished: August 14, 2019

Client: Analytical Resources, Inc.
HLB Project #: 2019-042
Tested by: H Benny

Apparent Grain Size Distribution Summary
Percent Retained in Each Size Fraction

Sample No.	Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Coarse Silt	Medium Silt	Fine Silt	Very Fine Silt	Clay			Total Fines
Phi Size	< -1	-1 to 0	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	> 10	> 4
Sieve Size (microns)	> #10 (2000)	10-18 (2000-1000)	18-35 (1000-500)	35-60 (500-250)	60-120 (250-125)	120-230 (125-62)	62.5-31.0	31.0-15.6	15.6-7.8	7.8-3.9	3.9-2.0	2.0-1.0	<1.0	<230 (<62)
19H0042-03	1.2	6.9	3.6	3.1	3.0	3.4	15.3	22.3	16.3	9.0	4.5	2.9	8.6	78.9
	1.2	6.6	4.6	3.4	3.2	3.6	16.9	18.6	16.7	9.6	4.7	2.9	8.0	77.5
	1.9	7.1	4.0	3.5	3.1	3.4	11.7	22.2	17.2	9.7	4.5	3.5	8.2	77.0
19H0042-04	0.1	2.4	1.3	1.2	1.0	2.9	14.2	25.4	21.7	11.3	5.4	4.1	8.8	90.9
19H0042-05	0.1	2.2	1.5	1.4	1.1	2.6	13.5	24.8	22.7	11.0	6.1	4.0	8.9	91.0
19H0042-06	67.9	6.6	4.7	3.7	2.5	1.9	0.4	3.6	2.5	1.9	1.4	1.0	2.0	12.7
19H0042-07	59.5	9.5	7.9	4.6	2.0	1.4	1.5	3.1	3.9	2.6	1.2	1.0	1.6	15.0
19H0042-08	54.4	2.7	3.5	5.4	8.7	5.6	6.3	3.7	3.2	2.2	1.2	0.9	2.2	19.7
19H0042-09	1.1	5.8	6.4	7.7	11.1	14.9	11.5	26.5	5.8	2.8	1.3	0.9	4.2	53.0
19H0042-10	18.7	14.2	20.9	23.7	8.5	2.8	1.5	2.3	2.2	2.1	1.1	0.8	1.1	11.3
19H0042-11	16.5	17.2	18.9	17.4	9.4	3.4	0.2	7.3	4.7	1.5	0.7	0.7	2.0	17.0

Organic matter was not removed prior to testing, the reported values are the "apparent" grain size distribution.

Reviewed by:

Harold L Benny & Associates, LLC

Project: 19H0024
Date Received: August 2, 2019
Date Started: August 12, 2019
Date Finished: August 14, 2019

Client: Analytical Resources, Inc.
HLB Project #: 2019-042
Tested by: H Benny

Relative Standard Deviation, By Phi Size

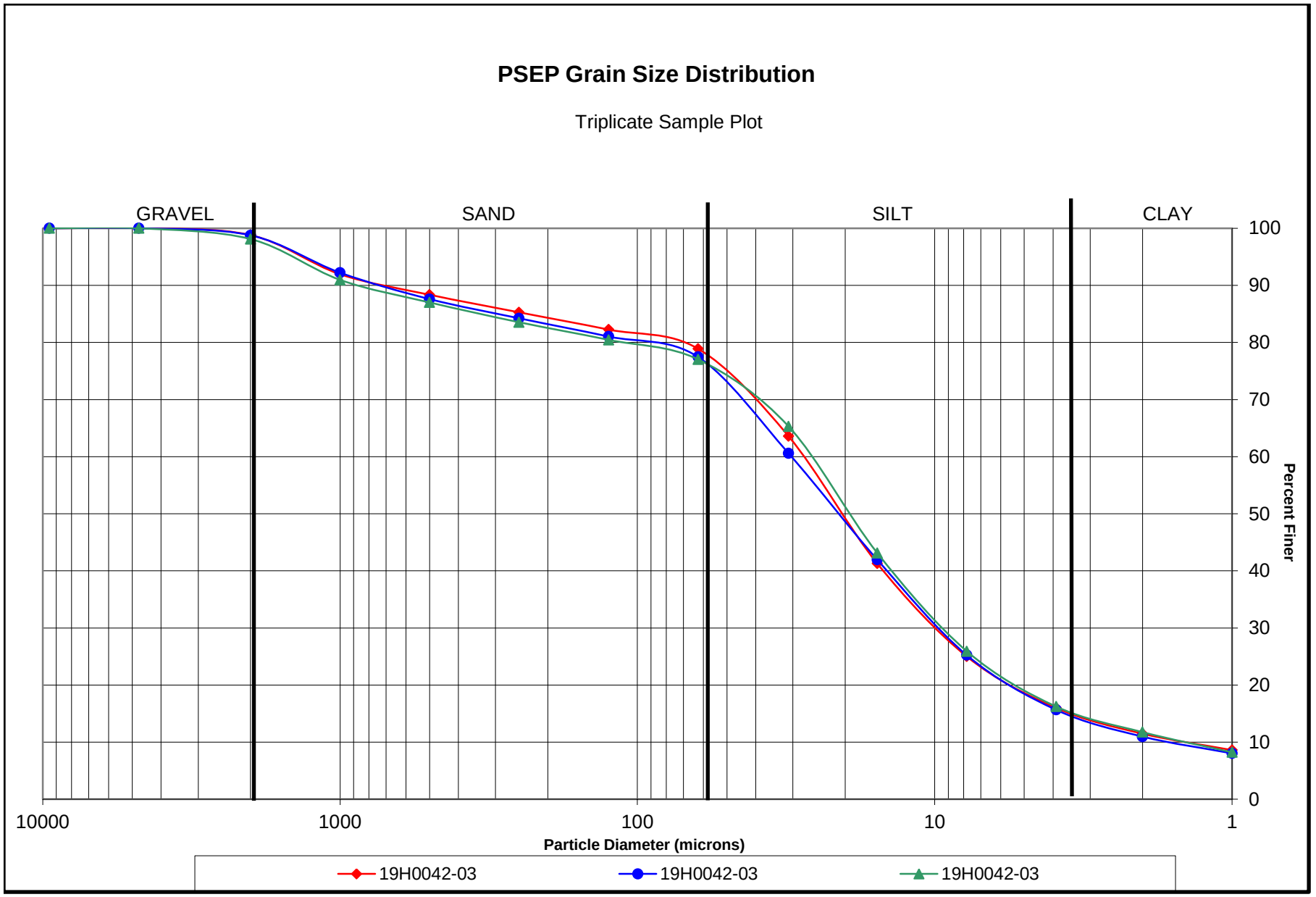
Sample ID	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
19H0042-03	100.0	100.0	98.8	91.9	88.4	85.3	82.3	78.9	63.6	41.3	25.0	16.0	11.5	8.6
	100.0	100.0	98.8	92.2	87.6	84.2	81.0	77.5	60.6	41.9	25.2	15.6	11.0	8.0
	100.0	100.0	98.1	91.0	87.0	83.5	80.5	77.0	65.3	43.1	25.9	16.2	11.8	8.2
AVE	100.0	100.0	98.6	91.7	87.7	84.4	81.2	77.8	63.1	42.1	25.4	15.9	11.4	8.3
STDEV	0.0	0.0	0.3	0.5	0.6	0.7	0.8	0.8	2.0	0.8	0.4	0.2	0.3	0.2
%RSD	0.0	0.0	0.3	0.6	0.6	0.8	0.9	1.0	3.1	1.8	1.5	1.5	2.8	2.9

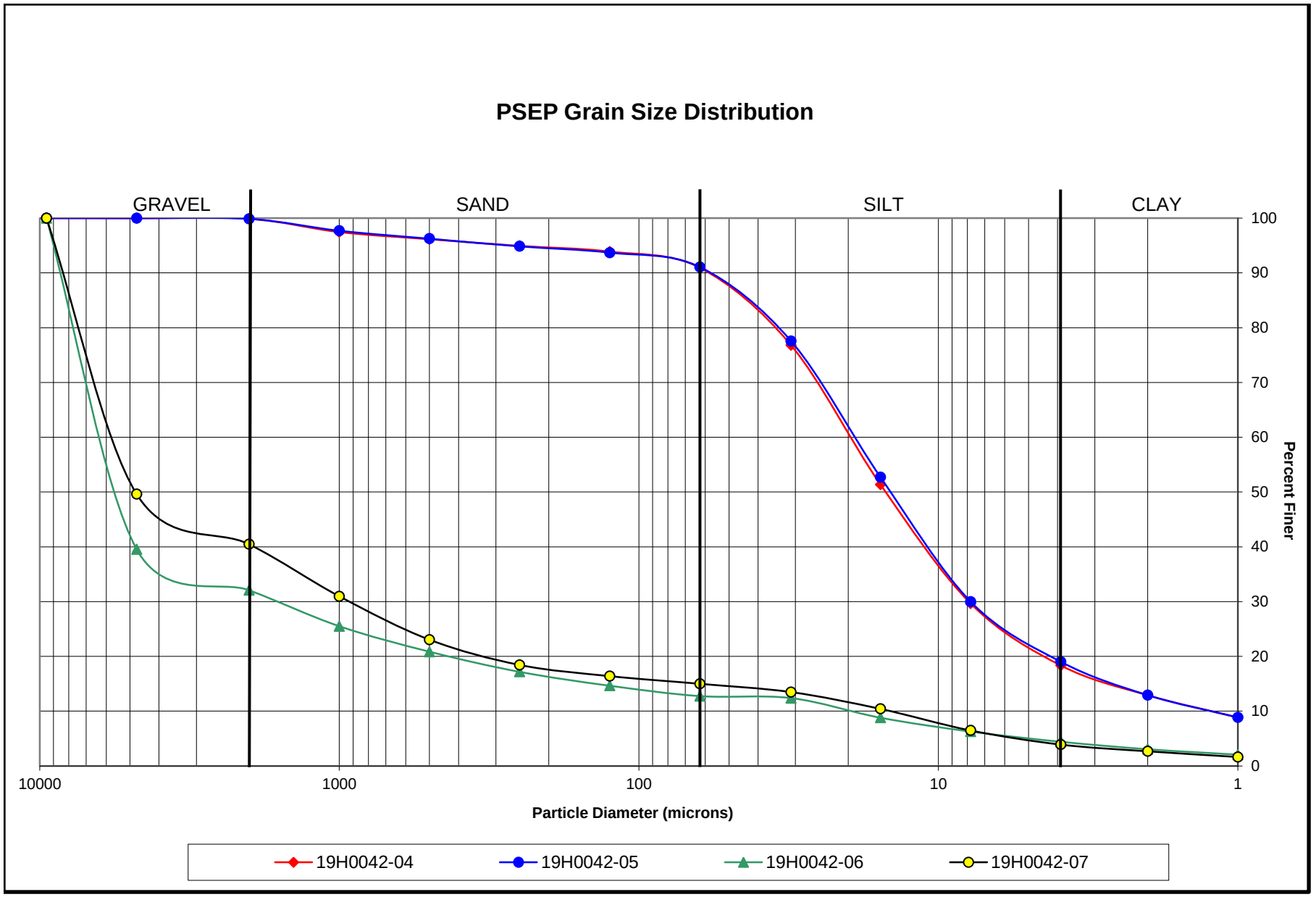
The Triplicate Applies To The Following Samples

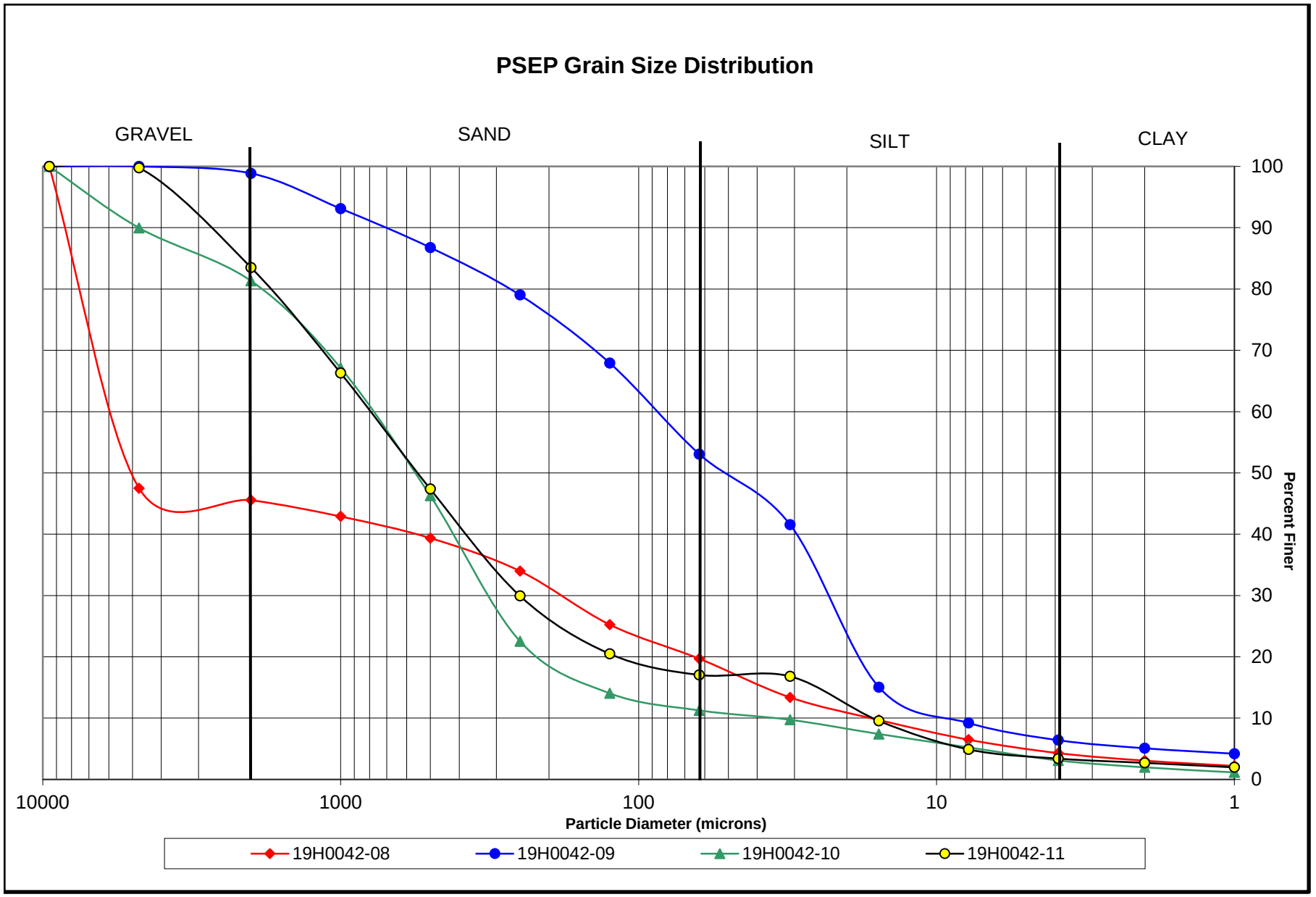
Client ID	Date Sampled	Date Extracted	Date Complete	QA Ratio (95-105)	Data Qualifiers	Pipette Portion (5.0-25.0g)
19H0042-03	8/1/2019	8/2/2019	8/14/2019	98.3		13.3
	8/1/2019	8/2/2019	8/14/2019	98.6		13.4
	8/1/2019	8/2/2019	8/14/2019	97.1		12.3
19H0042-04	8/1/2019	8/2/2019	8/14/2019	98.9		18.3
19H0042-05	8/1/2019	8/2/2019	8/14/2019	99.1		19.8
19H0042-06	8/1/2019	8/2/2019	8/14/2019	101.0		13.0
19H0042-07	8/1/2019	8/2/2019	8/14/2019	97.9		14.2
19H0042-08	8/1/2019	8/2/2019	8/14/2019	99.3		13.9
19H0042-09	8/1/2019	8/2/2019	8/14/2019	99.4		10.0
19H0042-10	8/1/2019	8/2/2019	8/14/2019	99.2		9.2
19H0042-11	8/1/2019	8/2/2019	8/14/2019	98.0		7.3

Organic matter was not removed prior to testing, the reported values are the "apparent" grain size distribution.

Reviewed by:


PSEP Grain Size Distribution
Triplicate Sample Plot
GRAVEL
SAND
SILT
CLAY
100
90
80
70
60
50
40
30
20
10
0
Percent Finer
10000
1000
100
10
1
Particle Diameter (microns)
19H0042-03
19H0042-03
19H0042-03


PSEP Grain Size Distribution
GRAVEL
SAND
SILT
CLAY
100
90
80
70
60
50
40
30
20
10
0
Percent Finer
10000
1000
100
10
1
Particle Diameter (microns)
19H0042-04
19H0042-05
19H0042-06
19H0042-07


PSEP Grain Size Distribution
GRAVEL
SAND
SILT
CLAY
100
90
80
70
60
50
40
30
20
10
0
Percent Finer
10000
1000
100
10
1
Particle Diameter (microns)
19H0042-08
19H0042-09
19H0042-10
19H0042-11

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Windward

Project Name: Slip 4 LTM

COC No(s): ~~NA~~

Delivered by: Fed-Ex UPS Courier ~~Hand Delivered~~ Other: _____

Assigned ARI Job No: 19H0024

Tracking No: _____ ~~NA~~

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	~~NO~~
Were custody papers included with the cooler?	~~YES~~	NO
Were custody papers properly filled out (ink, signed, etc.)	~~YES~~	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1305 2.6°C 4.0°C

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: DOO ~~5~~ 206

Cooler Accepted by: JBu Date: 08/01/19 Time: 1305

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	~~NO~~
What kind of packing material was used? ... ~~Bubble Wrap~~ ~~Wet Ice~~ ~~Gel Packs~~ ~~Baggies~~ Foam Block Paper Other: Trashbags			
Was sufficient ice used (if appropriate)?	NA	~~YES~~	NO
How were bottles sealed in plastic bags?	Individually	~~Grouped~~	Not
Did all bottles arrive in good condition (unbroken)?		~~YES~~	NO
Were all bottle labels complete and legible?		~~YES~~	NO
Did the number of containers listed on COC match with the number of containers received?		~~YES~~	NO
Did all bottle labels and tags agree with custody papers?		~~YES~~	NO
Were all bottles used correct for the requested analyses?		~~YES~~	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ...	~~NA~~	YES	NO
Were all VOC vials free of air bubbles?	~~NA~~	YES	NO
Was sufficient amount of sample sent in each bottle?		~~YES~~	NO
Date VOC Trip Blank was made at ARI	~~NA~~		

Were the sample(s) split by ARI? ~~NA~~ YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JBu Date: 08/01/19 Time: 1733 Labels checked by: JBu

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Windward Environmental, LLC	Project: Slip 4 LTM (Yr 5) / City of Seattle	
200 West Mercer Street, Suite 401	Project Number: COS Slip 4 Monitoring 2017	**Reported:**
Seattle WA, 98119-3958	Project Manager: Amara Vandervort	19-Sep-2019 14:59

Case Narrative

Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Work Order: 19H0024

Sample receipt

Samples as listed on the preceding page were received 01-Aug-2019 13:05 under ARI work order 19H0024. For details regarding sample receipt, please refer to the Cooler Receipt Form.

The CoC requested analysis for all samples, including the filter blank. Per previous instructions and confirmed with the client, the filter blank was placed on hold.

Grainsize

The samples were submitted to Harold L. Benny & Associates, LLC for grainsize analysis. The report is included here in its entirety.

PCB Aroclors - EPA Method SW8082A

The samples were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.
Internal standard areas were within limits.

The recovery of decachlorobiphenyl (DCBP) on Column 1 has been flagged NRS due to interference. The surrogate recovery of DCBP on column 2 and the recovery of tetrachloro-m-xylene (TCMX) was within limits.

The method blanks were clean at the reporting limits.

The LCS percent recoveries were within control limits.

The solids Matrix Spike/Matrix Spike duplicate recoveries and RPD were within limits.

Semivolatiles - EPA Method SW8270D

The samples were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with an acceptable number of results outside the 20% RSD or 20% drift. Positive results with calibration results outside the 20% RSD or 20% drift have been "Q"-flagged.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits, with the exception of d14-p- Terphenyl in the initial analysis of SL4-SG-WC2-2019 and the matrix spike and matrix spike duplicate. The outlier is attributed to matrix effect and has been flagged on the summary sheets.

The method blanks were clean at the reporting limits.

The LCS percent recoveries were within control limits.

The solids matrix spike/matrix spike duplicate recoveries and RPD were high of limits for several compounds, and results "E"-flagged, noting results over the calibrated range of the instrument. Outliers are attributed to concentrations in the parent sample. Outliers have been flagged on the summary sheet.

Windward Environmental, LLC	Project: Slip 4 LTM (Yr 5) / City of Seattle	
200 West Mercer Street, Suite 401	Project Number: COS Slip 4 Monitoring 2017	**Reported:**
Seattle WA, 98119-3958	Project Manager: Amara Vandervort	19-Sep-2019 14:59

Case Narrative

Total Metals - EPA Method 6010C/7471B

The samples were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blanks were clean at the reporting limits, with response of chromium and zinc below the reporting limit in the wipe method blank.

The LCS percent recoveries were within control limits.

The solids duplicate RPD was within limits.

The solids matrix spike and matrix spike duplicate recoveries and RPD were within limits.

Wet Chemistry (Total Organic Carbon/TS)

The samples were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank was clean at the reporting limits.

The LCS percent recoveries were within control limits.

Replicate analyses had recoveries within limits.

The matrix spike recovery was within limits.

Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle	
200 West Mercer Street, Suite 401	Project Number:	COS Slip 4 Monitoring 2017	**Reported:**
Seattle, WA 98119-3958	Project Manager:	Amara Vandervort	09/19/2019 14:59

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
19H0024-01	SL4-SG-WC3-FB-2019	Wipes	08/01/19 07:30	08/01/19 13:05
19H0024-02	SL4-SG-WC3-FW-2019	Wipes	08/01/19 07:30	08/01/19 13:05
19H0024-03	SL4-SG-WC3-2019	Solid	08/01/19 08:16	08/01/19 13:05
19H0024-04	SL4-SG-WC7-2019	Solid	08/01/19 08:39	08/01/19 13:05
19H0024-05	SL4-SG-WC7-FD-2019	Solid	08/01/19 08:39	08/01/19 13:05
19H0024-06	SL4-SG-WC8-2019	Solid	08/01/19 09:08	08/01/19 13:05
19H0024-07	SL4-SG-WC4-2019	Solid	08/01/19 10:08	08/01/19 13:05
19H0024-08	SL4-SG-WC2-2019	Solid	08/01/19 10:30	08/01/19 13:05
19H0024-09	SL4-SG-WC1-2019	Solid	08/01/19 10:43	08/01/19 13:05
19H0024-10	SL4-IC-SC2-2019	Solid	08/01/19 11:45	08/01/19 13:05
19H0024-11	SL4-IC-SC3-2019	Solid	08/01/19 12:10	08/01/19 13:05

INTERNAL CHAIN OF CUSTODY

Work Order: 19H0024

Client:	Windward Environmental, LLC	Received:	01-Aug-2019 13:05
Project:	Slip 4 LTM (Yr 5) / City of Seattle	Received By:	Jacob Walter
Number:	COS Slip 4 Monitoring 2017	Temp (°C):	2.60

19H0024-02 (SL4-SG-WC3-FW-2019) Sampled 08/01/2019 07:30

Current Status	*Out*	*Location*	*In*
19H0024-02 A [Glass WM, Clear, 8 oz]			*Hazard Info:*
Sample Receiving	08/01/2019 17:38 by JBW	***START***	08/01/2019 17:38 by JBW
	08/01/2019 17:38 by JBW	***START***	08/01/2019 17:38 by JBW
	08/01/2019 17:38 by JBW	***START***	08/01/2019 17:38 by JBW
	08/01/2019 17:38 by JBW	***START***	08/01/2019 17:38 by JBW
	08/01/2019 17:38 by JBW	***START***	08/01/2019 17:38 by JBW
	08/01/2019 17:38 by JBW	***START***	08/01/2019 17:38 by JBW
	08/01/2019 17:38 by JBW	***START***	08/01/2019 17:38 by JBW
19H0024-02 A 01 [Glass WM, Clear, 8 oz]			*Hazard Info:*
Metals	08/13/2019 09:42 by JPK	Metals Prep Lab	08/13/2019 12:20 by JPK
	08/13/2019 12:20 by JPK	Metals Digest Shelf	08/13/2019 12:36 by TCH
	08/13/2019 12:36 by TCH	Metals Analysis Lab	08/15/2019 12:07 by TCH
	08/15/2019 12:07 by TCH	X-93	by
19H0024-02 B [Glass WM, Clear, 4 oz]			*Hazard Info:*
Sample Receiving	08/01/2019 17:38 by JBW	***START***	08/01/2019 17:38 by JBW
Extractions	08/07/2019 08:39 by CT	Organic Extractions	08/13/2019 14:24 by CT
	08/13/2019 14:24 by CT	R-35 S2	by
19H0024-02 C [Glass WM, Clear, 4 oz]			*Hazard Info:*
Sample Receiving	08/01/2019 17:38 by JBW	***START***	08/01/2019 17:38 by JBW
Extractions	08/07/2019 08:39 by CT	Organic Extractions	08/07/2019 11:49 by CT
	08/07/2019 11:49 by CT	R-35 S1	08/13/2019 09:57 by CT
	08/13/2019 09:57 by CT	Organic Extractions	08/13/2019 11:21 by YQL
	08/13/2019 11:21 by YQL	Consumed	by

19H0024-03 (SL4-SG-WC3-2019) Sampled 08/01/2019 08:16

Current Status	*Out*	*Location*	*In*
19H0024-03 C [Glass WM, Clear, 8 oz]			*Hazard Info:Sodium-1 [18393.69mg/kg];Total Carbon [5.697644%];Acenaphthene*
Sample Receiving	08/01/2019 17:39 by JBW	***START***	08/01/2019 17:39 by JBW
	08/01/2019 17:39 by JBW	***START***	08/01/2019 17:39 by JBW
Extractions	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 15:55 by CT	R-35 S2	by
	08/13/2019 15:55 by CT	R-35 S2	by
19H0024-03 E [Glass WM, Clear, 4 oz]			*Hazard Info:Sodium-1 [18393.69mg/kg];Total Carbon [5.697644%];Acenaphthene*
Sample Receiving	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW

INTERNAL CHAIN OF CUSTODY

Work Order: 19H0024

Client:	Windward Environmental, LLC	Received:	01-Aug-2019 13:05
Project:	Slip 4 LTM (Yr 5) / City of Seattle	Received By:	Jacob Walter
Number:	COS Slip 4 Monitoring 2017	Temp (°C):	2.60

19H0024-03 (SL4-SG-WC3-2019) Sampled 08/01/2019 08:16

Current Status	*Out*	*Location*	*In*
19H0024-03 E [Glass WM, Clear, 4 oz]		*Hazard Info:Sodium-1 [18393.69mg/kg];Total Carbon [5.697644%];Acenaphthene*	
Sample Receiving	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
Metals	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:42 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:42 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:42 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:42 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:42 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:42 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:42 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:42 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:42 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:42 by JPK
	08/12/2019 08:26 by JPK	Metals Prep Lab	08/12/2019 10:23 by JPK
	08/12/2019 08:26 by JPK	Metals Prep Lab	08/12/2019 10:23 by JPK
	08/12/2019 08:26 by JPK	Metals Prep Lab	08/12/2019 10:23 by JPK
	08/12/2019 08:26 by JPK	Metals Prep Lab	08/12/2019 10:23 by JPK
	08/12/2019 08:26 by JPK	Metals Prep Lab	08/12/2019 10:23 by JPK
	08/12/2019 08:26 by JPK	Metals Prep Lab	08/12/2019 10:23 by JPK
	08/12/2019 08:26 by JPK	Metals Prep Lab	08/12/2019 10:23 by JPK
	08/12/2019 08:26 by JPK	Metals Prep Lab	08/12/2019 10:23 by JPK
	08/12/2019 08:26 by JPK	Metals Prep Lab	08/12/2019 10:23 by JPK
Conventionals	08/12/2019 16:06 by CDE	R-36 SB05	08/12/2019 17:59 by CDE
	08/12/2019 16:06 by CDE	R-36 SB05	08/12/2019 17:59 by CDE
	08/12/2019 16:06 by CDE	R-36 SB05	08/12/2019 17:59 by CDE
	08/12/2019 16:06 by CDE	R-36 SB05	08/12/2019 17:59 by CDE
	08/12/2019 16:06 by CDE	R-36 SB05	08/12/2019 17:59 by CDE
	08/12/2019 16:06 by CDE	R-36 SB05	08/12/2019 17:59 by CDE
	08/12/2019 16:06 by CDE	R-36 SB05	08/12/2019 17:59 by CDE
	08/12/2019 16:06 by CDE	R-36 SB05	08/12/2019 17:59 by CDE
	08/12/2019 16:06 by CDE	R-36 SB05	08/12/2019 17:59 by CDE
	08/12/2019 16:06 by CDE	R-36 SB05	08/12/2019 17:59 by CDE
Sample Receiving	08/27/2019 09:20 by EIS	R-01 L-26	by
	08/27/2019 09:20 by EIS	R-01 L-26	by
	08/27/2019 09:20 by EIS	R-01 L-26	by
	08/27/2019 09:20 by EIS	R-01 L-26	by
	08/27/2019 09:20 by EIS	R-01 L-26	by
	08/27/2019 09:20 by EIS	R-01 L-26	by
	08/27/2019 09:20 by EIS	R-01 L-26	by
	08/27/2019 09:20 by EIS	R-01 L-26	by
	08/27/2019 09:20 by EIS	R-01 L-26	by
	08/27/2019 09:20 by EIS	R-01 L-26	by
	08/27/2019 09:20 by EIS	R-01 L-26	by

INTERNAL CHAIN OF CUSTODY

Work Order: 19H0024

Client:	Windward Environmental, LLC	Received:	01-Aug-2019 13:05
Project:	Slip 4 LTM (Yr 5) / City of Seattle	Received By:	Jacob Walter
Number:	COS Slip 4 Monitoring 2017	Temp (°C):	2.60

19H0024-04 (SL4-SG-WC7-2019) Sampled 08/01/2019 08:39

Current Status	*Out*	*Location*	*In*
19H0024-04 B [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [3.621281%];Phenanthrene [105.9833ug/kg];Anthracen*	
Sample Receiving	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
	08/01/2019 17:45 by JBW	***START***	08/01/2019 17:45 by JBW
Metals	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
19H0024-04 C [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [3.621281%];Phenanthrene [105.9833ug/kg];Anthracen*	
Sample Receiving	08/01/2019 17:40 by JBW	***START***	08/01/2019 17:40 by JBW
	08/01/2019 17:40 by JBW	***START***	08/01/2019 17:40 by JBW
Extractions	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 15:55 by CT	R-35 S2	by
	08/13/2019 15:55 by CT	R-35 S2	by
19H0024-04 D [Glass WM, Clear, 4 oz]		*Hazard Info:Total Carbon [3.621281%];Phenanthrene [105.9833ug/kg];Anthracen*	
Sample Receiving	08/01/2019 17:40 by JBW	***START***	08/01/2019 17:40 by JBW
	08/01/2019 17:40 by JBW	***START***	08/01/2019 17:40 by JBW

19H0024-05 (SL4-SG-WC7-FD-2019) Sampled 08/01/2019 08:39

Current Status	*Out*	*Location*	*In*
19H0024-05 B [Glass WM, Clear, 8 oz]		*Hazard Info:Phenanthrene [109.8787ug/kg];Anthracene [57.00186ug/kg];Fluorant*	
Sample Receiving	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW

INTERNAL CHAIN OF CUSTODY

Work Order: 19H0024

Client:	Windward Environmental, LLC	Received:	01-Aug-2019 13:05
Project:	Slip 4 LTM (Yr 5) / City of Seattle	Received By:	Jacob Walter
Number:	COS Slip 4 Monitoring 2017	Temp (°C):	2.60

19H0024-05 (SL4-SG-WC7-FD-2019) Sampled 08/01/2019 08:39

Current Status	*Out*	*Location*	*In*
19H0024-05 B [Glass WM, Clear, 8 oz]		*Hazard Info:Phenanthrene [109.8787ug/kg];Anthracene [57.00186ug/kg];Fluorant*	
Sample Receiving	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
Metals	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
19H0024-05 C [Glass WM, Clear, 8 oz]		*Hazard Info:Phenanthrene [109.8787ug/kg];Anthracene [57.00186ug/kg];Fluorant*	
Sample Receiving	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
Extractions	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 15:55 by CT	R-35 S2	by
	08/13/2019 15:55 by CT	R-35 S2	by
19H0024-05 D [Glass WM, Clear, 4 oz]		*Hazard Info:Phenanthrene [109.8787ug/kg];Anthracene [57.00186ug/kg];Fluorant*	
Sample Receiving	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW

19H0024-06 (SL4-SG-WC8-2019) Sampled 08/01/2019 09:08

Current Status	*Out*	*Location*	*In*
19H0024-06 B [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [1.664986%];Phenanthrene [36.71419ug/kg];Fluoranth*	
Sample Receiving	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW

INTERNAL CHAIN OF CUSTODY

Work Order: 19H0024

Client:	Windward Environmental, LLC	Received:	01-Aug-2019 13:05
Project:	Slip 4 LTM (Yr 5) / City of Seattle	Received By:	Jacob Walter
Number:	COS Slip 4 Monitoring 2017	Temp (°C):	2.60

19H0024-06 (SL4-SG-WC8-2019) Sampled 08/01/2019 09:08

Current Status	*Out*	*Location*	*In*
19H0024-06 B [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [1.664986%];Phenanthrene [36.71419ug/kg];Fluoranth*	
Sample Receiving	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
Metals	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
19H0024-06 C [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [1.664986%];Phenanthrene [36.71419ug/kg];Fluoranth*	
Sample Receiving	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
Extractions	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 15:55 by CT	R-35 S2	by
	08/13/2019 15:55 by CT	R-35 S2	by
19H0024-06 D [Glass WM, Clear, 4 oz]		*Hazard Info:Total Carbon [1.664986%];Phenanthrene [36.71419ug/kg];Fluoranth*	
Sample Receiving	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW

19H0024-07 (SL4-SG-WC4-2019) Sampled 08/01/2019 10:08

Current Status	*Out*	*Location*	*In*
19H0024-07 B [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [2.388212%];Phenanthrene [79.26125ug/kg];Fluoranth*	
Sample Receiving	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
Metals	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK

INTERNAL CHAIN OF CUSTODY

Work Order: 19H0024

Client:	Windward Environmental, LLC	Received:	01-Aug-2019 13:05
Project:	Slip 4 LTM (Yr 5) / City of Seattle	Received By:	Jacob Walter
Number:	COS Slip 4 Monitoring 2017	Temp (°C):	2.60

19H0024-07 (SL4-SG-WC4-2019) Sampled 08/01/2019 10:08

Current Status	*Out*	*Location*	*In*
19H0024-07 B [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [2.388212%];Phenanthrene [79.26125ug/kg];Fluoranth*	
Metals	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
19H0024-07 C [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [2.388212%];Phenanthrene [79.26125ug/kg];Fluoranth*	
Sample Receiving	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
Extractions	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 15:55 by CT	R-35 S2	by
	08/13/2019 15:55 by CT	R-35 S2	by
19H0024-07 D [Glass WM, Clear, 4 oz]		*Hazard Info:Total Carbon [2.388212%];Phenanthrene [79.26125ug/kg];Fluoranth*	
Sample Receiving	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW
	08/01/2019 17:41 by JBW	***START***	08/01/2019 17:41 by JBW

19H0024-08 (SL4-SG-WC2-2019) Sampled 08/01/2019 10:30

Current Status	*Out*	*Location*	*In*
19H0024-08 B [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [4.801498%];Phenanthrene [247.792ug/kg];Fluoranthen*	
Sample Receiving	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
Extractions	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 15:55 by CT	R-35 S2	by
	08/13/2019 15:55 by CT	R-35 S2	by
19H0024-08 C [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [4.801498%];Phenanthrene [247.792ug/kg];Fluoranthen*	
Sample Receiving	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW

INTERNAL CHAIN OF CUSTODY

Work Order: 19H0024

Client:	Windward Environmental, LLC	Received:	01-Aug-2019 13:05
Project:	Slip 4 LTM (Yr 5) / City of Seattle	Received By:	Jacob Walter
Number:	COS Slip 4 Monitoring 2017	Temp (°C):	2.60

19H0024-08 (SL4-SG-WC2-2019) Sampled 08/01/2019 10:30

Current Status	*Out*	*Location*	*In*
19H0024-08 C [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [4.801498%];Phenanthrene [247.792ug/kg];Fluoranthen*	
Sample Receiving	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
Metals	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
19H0024-08 D [Glass WM, Clear, 4 oz]		*Hazard Info:Total Carbon [4.801498%];Phenanthrene [247.792ug/kg];Fluoranthen*	
Sample Receiving	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW

19H0024-09 (SL4-SG-WC1-2019) Sampled 08/01/2019 10:43

Current Status	*Out*	*Location*	*In*
19H0024-09 B [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [8.699803%];Fluorene [34.43976ug/kg];Phenanthrene [*	
Sample Receiving	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
Metals	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK

INTERNAL CHAIN OF CUSTODY

Work Order: 19H0024

Client:	Windward Environmental, LLC	Received:	01-Aug-2019 13:05
Project:	Slip 4 LTM (Yr 5) / City of Seattle	Received By:	Jacob Walter
Number:	COS Slip 4 Monitoring 2017	Temp (°C):	2.60

19H0024-09 (SL4-SG-WC1-2019) Sampled 08/01/2019 10:43

Current Status	*Out*	*Location*	*In*
19H0024-09 B [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [8.699803%];Fluorene [34.43976ug/kg];Phenanthrene [*	
Metals	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
19H0024-09 C [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [8.699803%];Fluorene [34.43976ug/kg];Phenanthrene [*	
Sample Receiving	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
Extractions	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 15:55 by CT	R-35 S2	by
	08/13/2019 15:55 by CT	R-35 S2	by
19H0024-09 D [Glass WM, Clear, 4 oz]		*Hazard Info:Total Carbon [8.699803%];Fluorene [34.43976ug/kg];Phenanthrene [*	
Sample Receiving	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW

19H0024-10 (SL4-IC-SC2-2019) Sampled 08/01/2019 11:45

Current Status	*Out*	*Location*	*In*
19H0024-10 B [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [2.539815%];Phenanthrene [70.67721ug/kg];Fluoranth*	
Sample Receiving	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
Metals	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by

INTERNAL CHAIN OF CUSTODY

Work Order: 19H0024

Client:	Windward Environmental, LLC	Received:	01-Aug-2019 13:05
Project:	Slip 4 LTM (Yr 5) / City of Seattle	Received By:	Jacob Walter
Number:	COS Slip 4 Monitoring 2017	Temp (°C):	2.60

19H0024-10 (SL4-IC-SC2-2019) Sampled 08/01/2019 11:45

Current Status	*Out*	*Location*	*In*
19H0024-10 B [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [2.539815%];Phenanthrene [70.67721ug/kg];Fluoranth*	
Metals	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
19H0024-10 C [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [2.539815%];Phenanthrene [70.67721ug/kg];Fluoranth*	
Sample Receiving	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
Extractions	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 15:55 by CT	R-35 S2	by
	08/13/2019 15:55 by CT	R-35 S2	by
19H0024-10 D [Glass WM, Clear, 4 oz]		*Hazard Info:Total Carbon [2.539815%];Phenanthrene [70.67721ug/kg];Fluoranth*	
Sample Receiving	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW

19H0024-11 (SL4-IC-SC3-2019) Sampled 08/01/2019 12:10

Current Status	*Out*	*Location*	*In*
19H0024-11 B [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [1.75478%];Acenaphthene [99.73924ug/kg];Fluorene [7*	
Sample Receiving	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
Metals	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/07/2019 11:12 by JPK	Metals Prep Lab	08/07/2019 16:40 by JPK
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by

INTERNAL CHAIN OF CUSTODY

Work Order: 19H0024

Client:	Windward Environmental, LLC	Received:	01-Aug-2019 13:05
Project:	Slip 4 LTM (Yr 5) / City of Seattle	Received By:	Jacob Walter
Number:	COS Slip 4 Monitoring 2017	Temp (°C):	2.60

19H0024-11 (SL4-IC-SC3-2019) Sampled 08/01/2019 12:10

Current Status	*Out*	*Location*	*In*
19H0024-11 B [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [1.75478%];Acenaphthene [99.73924ug/kg];Fluorene [7*	
Metals	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
	08/12/2019 10:25 by JPK	R02 D-25	by
19H0024-11 C [Glass WM, Clear, 8 oz]		*Hazard Info:Total Carbon [1.75478%];Acenaphthene [99.73924ug/kg];Fluorene [7*	
Sample Receiving	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
Extractions	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/12/2019 16:05 by CT	Organic Extractions	08/12/2019 16:37 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 08:38 by CT	Organic Extractions	08/13/2019 15:55 by CT
	08/13/2019 15:55 by CT	R-35 S2	by
	08/13/2019 15:55 by CT	R-35 S2	by
19H0024-11 D [Glass WM, Clear, 4 oz]		*Hazard Info:Total Carbon [1.75478%];Acenaphthene [99.73924ug/kg];Fluorene [7*	
Sample Receiving	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW
	08/01/2019 17:42 by JBW	***START***	08/01/2019 17:42 by JBW

QUALIFIERS AND NOTES

Qualifier	Definition
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
NRS	This surrogate not reported due to chromatographic interference
J	Estimated concentration value detected below the reporting limit.
H	Hold time violation - Hold time was exceeded.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
D	The reported value is from a dilution
B	This analyte was detected in the method blank.
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

SL4-SG-WC3-FW-2019

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D
Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Wipes	Laboratory ID:	19H0024-02 C	SDG:	19H0024
Sampled:	08/01/19 07:30	Prepared:	08/13/19 11:20	File ID:	NT1019082123.D
% Solids:		Preparation:	EPA 3580A (Shake Out)	Analyzed:	08/21/19 23:52
Batch:	BHH0299	Sequence:	SHH0303	Initial/Final:	1 Wipe Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040

CAS NO.	COMPOUND	DILUTION	CONC. (ug/Wipe)	Q	DL	RL
108-95-2	Phenol	1	0.2	U		0.2
100-51-6	Benzyl Alcohol	1	0.2	U		0.2
65-85-0	Benzoic acid	1	2.0	U		2.0
86-30-6	N-Nitrosodiphenylamine	1	0.2	U		0.2
85-01-8	Phenanthrene	1	0.2	U		0.2
206-44-0	Fluoranthene	1	0.2	U		0.2
129-00-0	Pyrene	1	0.2	U		0.2
85-68-7	Butylbenzylphthalate	1	0.2	U		0.2
56-55-3	Benzo(a)anthracene	1	0.2	U		0.2
218-01-9	Chrysene	1	0.2	U		0.2
117-81-7	bis(2-Ethylhexyl)phthalate	1	0.5	U		0.5
117-84-0	Di-n-Octylphthalate	1	0.2	U		0.2
	Benzofluoranthenes, Total	1	0.4	U		0.4
50-32-8	Benzo(a)pyrene	1	0.2	U		0.2
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.2	U		0.2
53-70-3	Dibenzo(a,h)anthracene	1	0.2	U		0.2
191-24-2	Benzo(g,h,i)perylene	1	0.2	U		0.2

SURROGATES	ADDED (ug/Wipe)	CONC (ug/Wipe)	% REC	QC LIMITS	Q
2-Fluorophenol	7.5000	4.32	57.6	27 - 120	Q
Phenol-d5	7.5000	4.43	59.0	29 - 120	Q
2-Chlorophenol-d4	7.5000	5.92	79.0	31 - 120	
1,2-Dichlorobenzene-d4	5.0000	4.11	82.2	32 - 120	
Nitrobenzene-d5	5.0000	3.63	72.6	30 - 120	
2-Fluorobiphenyl	5.0000	4.25	84.9	35 - 120	
2,4,6-Tribromophenol	7.5000	6.26	83.5	24 - 134	
p-Terphenyl-d14	5.0000	5.37	107	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082123.D

Date : 21-AUG-2019 23:52

Client ID:

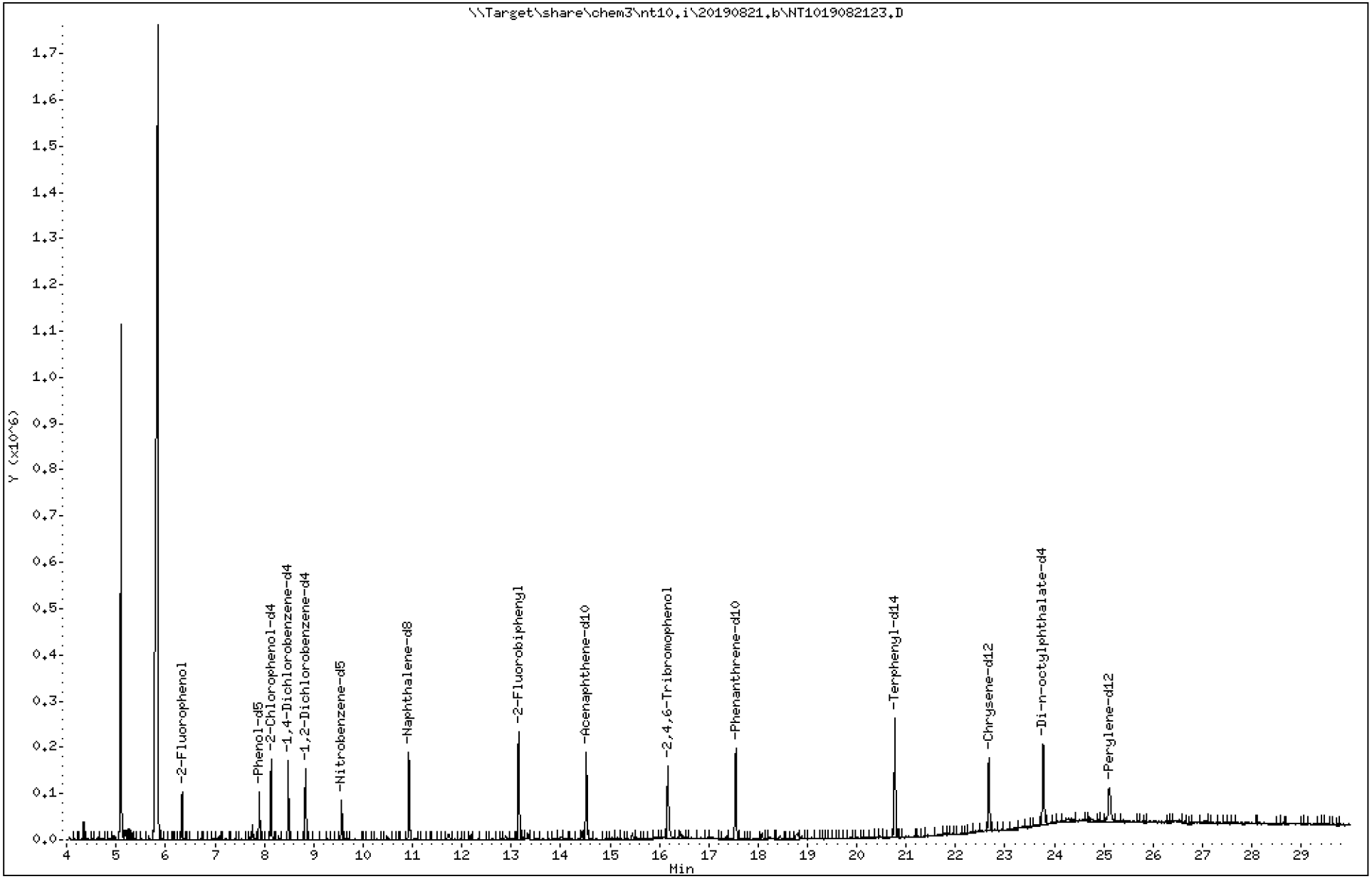
Instrument: nt10.i

Sample Info: 19H0024-02

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082123.D
Lab Smp Id: 19H0024-02
Inj Date : 21-AUG-2019 23:52
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-02
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 19
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.335	6.311	(0.747)	42042	4.31904	4.319
$	2 Phenol-d5	99	7.903	7.888	(0.932)	48276	4.42526	4.425
	3 Phenol	94	Compound Not Detected.					
$	5 2-Chlorophenol-d4	132	8.135	8.127	(0.959)	69576	5.92455	5.925
	4 Bis(2-Chloroethyl)ether	93	Compound Not Detected.					
	6 2-Chlorophenol	128	Compound Not Detected.					
	7 1,3-Dichlorobenzene	146	Compound Not Detected.					
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	34665	4.00000	
	9 1,4-Dichlorobenzene	146	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	152	8.840	8.832	(1.042)	32995	4.10948	4.109
	12 1,2-Dichlorobenzene	146	Compound Not Detected.					
	11 Benzyl alcohol	108	Compound Not Detected.					
	14 2,2'-oxybis(1-Chloropropane)	121	Compound Not Detected.					
	13 2-Methylphenol	108	Compound Not Detected.					
	17 Hexachloroethane	117	Compound Not Detected.					
	16 N-Nitroso-di-n-propylamine	70	Compound Not Detected.					
	15 4-Methylphenol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.562	9.554	(0.875)	38153	3.63204	3.632
	19 Nitrobenzene	77	Compound Not Detected.					
	20 Isophorone	82	Compound Not Detected.					
	21 2-Nitrophenol	139	Compound Not Detected.					
	22 2,4-Dimethylphenol	107	Compound Not Detected.					
	23 Bis(2-Chloroethoxy)methane	93	Compound Not Detected.					
	24 Benzoic acid	105	Compound Not Detected.					
	25 2,4-Dichlorophenol	162	Compound Not Detected.					
	26 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.929	10.929	(1.000)	134311	4.00000	
	28 Naphthalene	128	Compound Not Detected.					
	29 4-Chloroaniline	127	Compound Not Detected.					
	30 Hexachlorobutadiene	225	Compound Not Detected.					
	31 4-Chloro-3-methylphenol	107	Compound Not Detected.					
	32 2-Methylnaphthalene	142	Compound Not Detected.					
	33 Hexachlorocyclopentadiene	237	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/mL)	(ug/mL)	
	34	2,4,6-Trichlorophenol	196	Compound Not Detected.						
	35	2,4,5-Trichlorophenol	196	Compound Not Detected.						
$	36	2-Fluorobiphenyl	172	13.150	13.142	(0.906)	111524	4.24637	4.246	
	37	2-Chloronaphthalene	162	Compound Not Detected.						
	38	2-Nitroaniline	65	Compound Not Detected.						
	39	Dimethylphthalate	163	Compound Not Detected.						
	40	Acenaphthylene	152	Compound Not Detected.						
	41	2,6-Dinitrotoluene	165	Compound Not Detected.						
*	42	Acenaphthene-d10	164	14.520	14.512	(1.000)	68664	4.00000		
	43	3-Nitroaniline	138	Compound Not Detected.						
	44	Acenaphthene	153	Compound Not Detected.						
	45	2,4-Dinitrophenol	184	Compound Not Detected.						
	46	Dibenzofuran	168	Compound Not Detected.						
	47	4-Nitrophenol	109	Compound Not Detected.						
	48	2,4-Dinitrotoluene	165	Compound Not Detected.						
	50	Diethylphthalate	149	Compound Not Detected.						
	49	Fluorene	166	Compound Not Detected.						
	51	4-Chlorophenyl-phenylether	204	Compound Not Detected.						
	52	4-Nitroaniline	138	Compound Not Detected.						
	53	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.						
	54	N-Nitrosodiphenylamine	169	Compound Not Detected.						
$	55	2,4,6-Tribromophenol	330	16.173	16.142	(1.114)	32516	6.26274	6.263	
	56	4-Bromophenyl-phenylether	248	Compound Not Detected.						
	57	Hexachlorobenzene	284	Compound Not Detected.						
	58	Pentachlorophenol	266	Compound Not Detected.						
*	59	Phenanthrene-d10	188	17.549	17.525	(1.000)	139333	4.00000		
	60	Phenanthrene	178	Compound Not Detected.						
	61	Anthracene	178	Compound Not Detected.						
	62	Carbazole	167	Compound Not Detected.						
	63	Di-n-butylphthalate	149	Compound Not Detected.						
	64	Fluoranthene	202	Compound Not Detected.						
	65	Pyrene	202	Compound Not Detected.						
$	66	Terphenyl-d14	244	20.767	20.744	(0.916)	129453	5.36734	5.367	
	67	Butylbenzylphthalate	149	Compound Not Detected.						
	68	Benzo(a)anthracene	228	Compound Not Detected.						
*	69	Chrysene-d12	240	22.672	22.633	(1.000)	111445	4.00000		
	70	3,3'-Dichlorobenzidine	252	Compound Not Detected.						
	71	Chrysene	228	Compound Not Detected.						
	72	bis(2-Ethylhexyl)phthalate	149	Compound Not Detected.						
*	134	Di-n-octylphthalate-d4	153	23.771	23.756	(1.000)	216586	4.00000		
	73	Di-n-octylphthalate	149	Compound Not Detected.						
	74	Benzo(b)fluoranthene	252	Compound Not Detected.						
	75	Benzo(k)fluoranthene	252	Compound Not Detected.						
	76	Benzo(a)pyrene	252	Compound Not Detected.						
*	77	Perylene-d12	264	25.103	25.056	(1.000)	70636	4.00000		(M)
	78	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.						
	79	Dibenzo(a,h)anthracene	278	Compound Not Detected.						
	80	Benzo(g,h,i)perylene	276	Compound Not Detected.						
	90	N-Nitrosodimethylamine	74	Compound Not Detected.						
	91	Aniline	93	Compound Not Detected.						
	93	Benzidine	184	Compound Not Detected.						
	103	Pyridine	79	Compound Not Detected.						
	105	1-methylnaphthalene	142	Compound Not Detected.						
	111	Azobenzene (1,2-DP-Hydrazine)	77	Compound Not Detected.						

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
187	Total Benzofluoranthenes	252	Compound Not Detected.					
99	Perylene	252	Compound Not Detected.					
98	Retene	219	Compound Not Detected.					
120	2,3,4,6-Tetrachlorophenol	232	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082123.D
Lab Smp Id: 19H0024-02
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	34665	5.88
27 Naphthalene-d8	117487	58744	234974	134311	14.32
42 Acenaphthene-d10	61859	30930	123718	68664	11.00
59 Phenanthrene-d10	113574	56787	227148	139333	22.68
69 Chrysene-d12	105788	52894	211576	111445	5.35
134 Di-n-octylphthala	252823	126412	505646	216586	-14.33
77 Perylene-d12	113992	56996	227984	70636	-38.03

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.52	0.05
59 Phenanthrene-d10	17.53	17.03	18.03	17.55	0.13
69 Chrysene-d12	22.63	22.13	23.13	22.67	0.17
134 Di-n-octylphthala	23.76	23.26	24.26	23.77	0.07
77 Perylene-d12	25.06	24.56	25.56	25.10	0.19

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082123.D

Lab ID: 19H0024-02
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 23:52

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.000	1.130	-0.1302	2-Methylnaphthalene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate

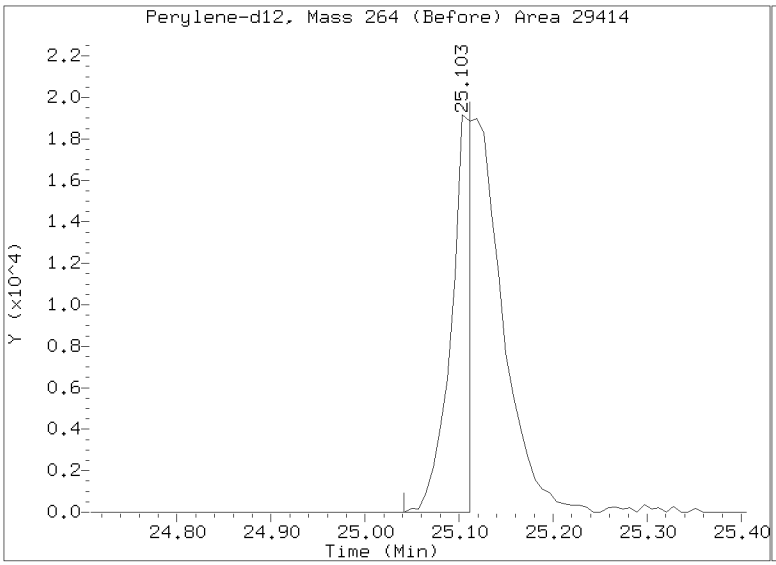
RRT check based on Ccal File: NT1019082105.D

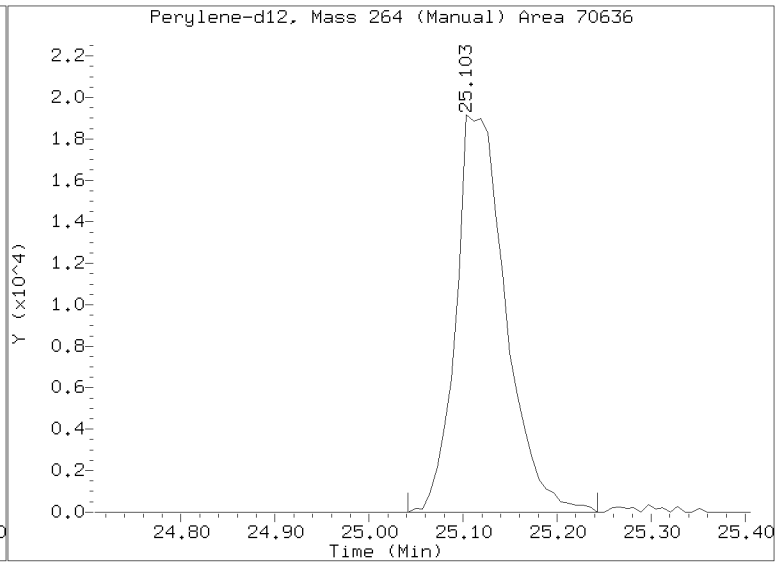
On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082123.D
Injection Date: 21-AUG-2019 23:52
Lab ID:19H0024-02 Client ID:
Report Date: 08/22/2019 12:51





SL4-SG-WC3-2019

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D
Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory: Analytical Resources, Inc.

Client: Windward Environmental, LLC

Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix:	Solid	Laboratory ID:	19H0024-03 C	SDG:	19H0024
Sampled:	08/01/19 08:16	Prepared:	08/13/19 12:40	File ID:	NT1019082112.D
% Solids:	39.71	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/21/19 17:00
Batch:	BHH0289	Sequence:	SHH0303	Initial/Final:	25.2 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040

Cleanups: GPC

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	1	48.4	Q	8.2	20.0
100-51-6	Benzyl Alcohol	1	16.7	J	14.9	20.0
65-85-0	Benzoic acid	1	99.9	J	59.1	200
86-30-6	N-Nitrosodiphenylamine	1	12.8	J	9.6	20.0
85-01-8	Phenanthrene	1	392		4.7	20.0
206-44-0	Fluoranthene	1	1440		4.5	20.0
129-00-0	Pyrene	1	1020		5.5	20.0
85-68-7	Butylbenzylphthalate	1	42.4		8.0	20.0
56-55-3	Benzo(a)anthracene	1	174		5.2	20.0
218-01-9	Chrysene	1	715		5.2	20.0
117-81-7	bis(2-Ethylhexyl)phthalate	1	2090	E	28.8	50.0
117-84-0	Di-n-Octylphthalate	1	20.0	U	8.7	20.0
	Benzofluoranthenes, Total	1	819		10.2	40.0
50-32-8	Benzo(a)pyrene	1	599		6.5	20.0
193-39-5	Indeno(1,2,3-cd)pyrene	1	147		6.0	20.0
53-70-3	Dibenzo(a,h)anthracene	1	20.0	U	6.2	20.0
191-24-2	Benzo(g,h,i)perylene	1	124		5.8	20.0

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	749.48	386	51.5	27 - 120	Q
Phenol-d5	749.48	404	53.9	29 - 120	Q
2-Chlorophenol-d4	749.48	533	71.2	31 - 120	
1,2-Dichlorobenzene-d4	499.65	355	71.1	32 - 120	
Nitrobenzene-d5	499.65	326	65.3	30 - 120	
2-Fluorobiphenyl	499.65	448	89.6	35 - 120	
2,4,6-Tribromophenol	749.48	582	77.7	24 - 134	
p-Terphenyl-d14	499.65	558	112	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

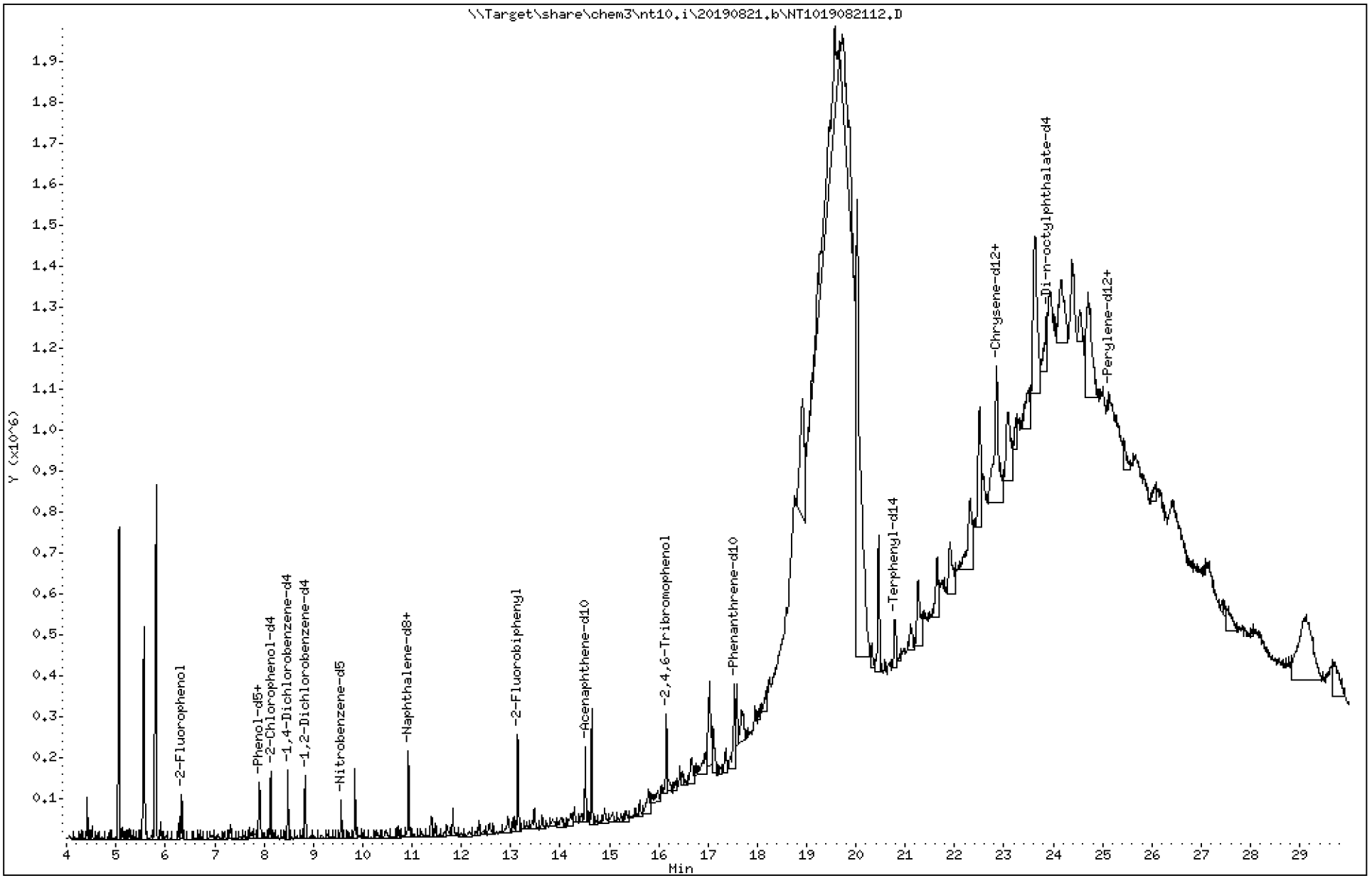
Instrument: nt10.i

Sample Info: 19H0024-03

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

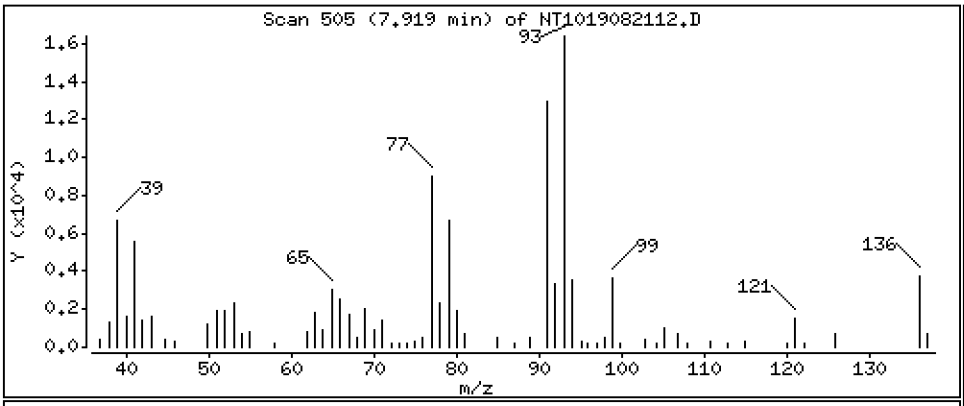
Operator: YZ

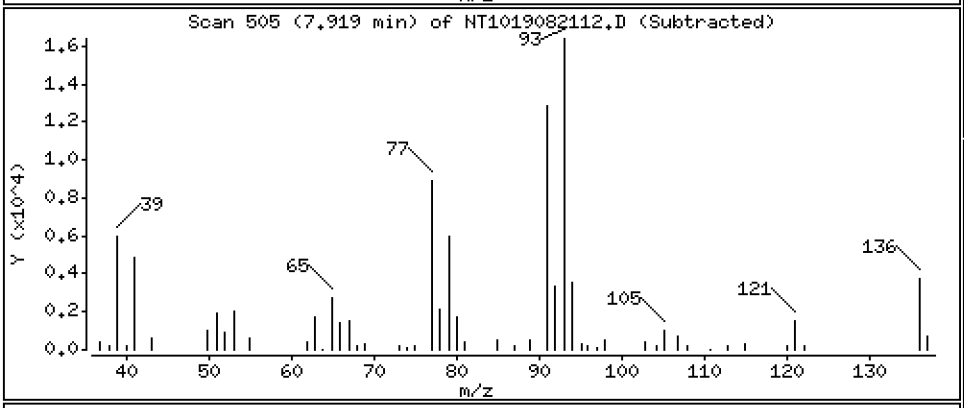
Column phase: ZB-5msi

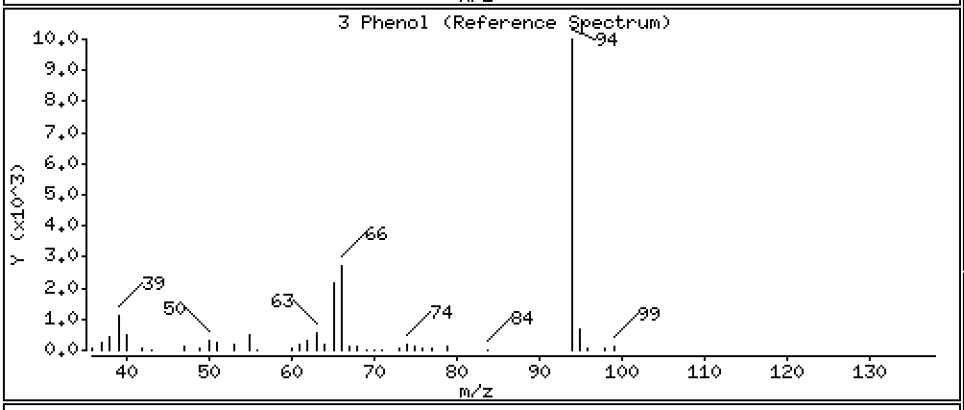
Column diameter: 0.25

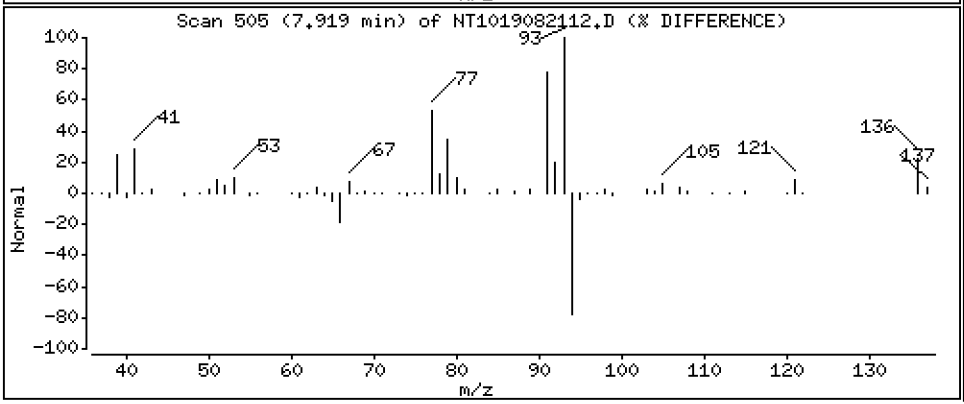
3 Phenol

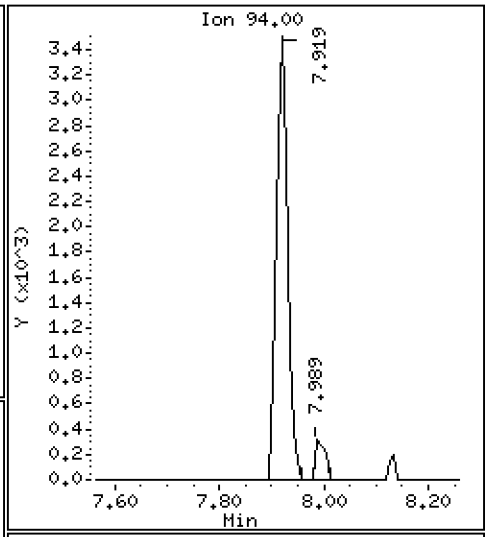
Concentration: 0.4843 ug/mL

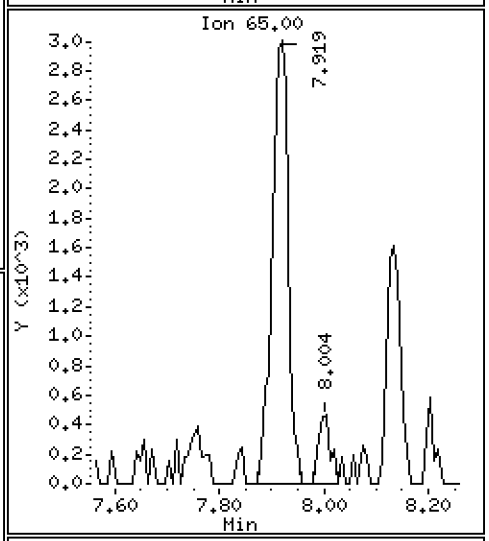


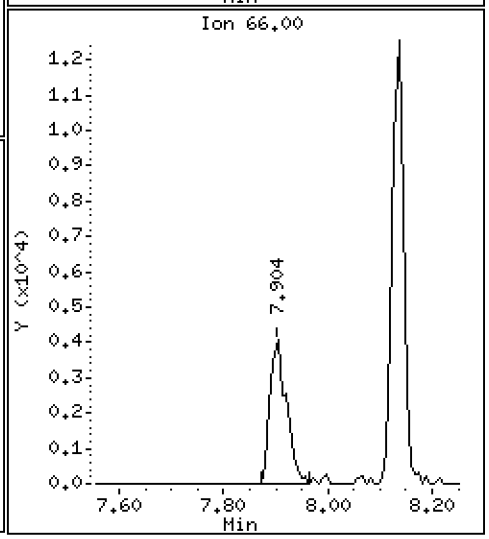












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Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

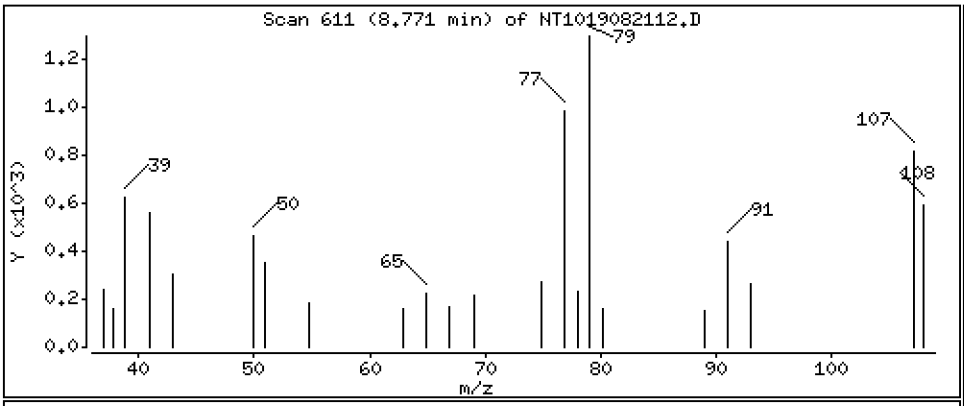
Operator: YZ

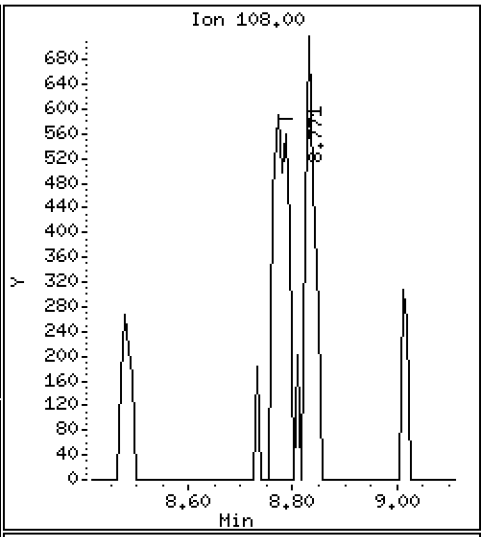
Column phase: ZB-5msi

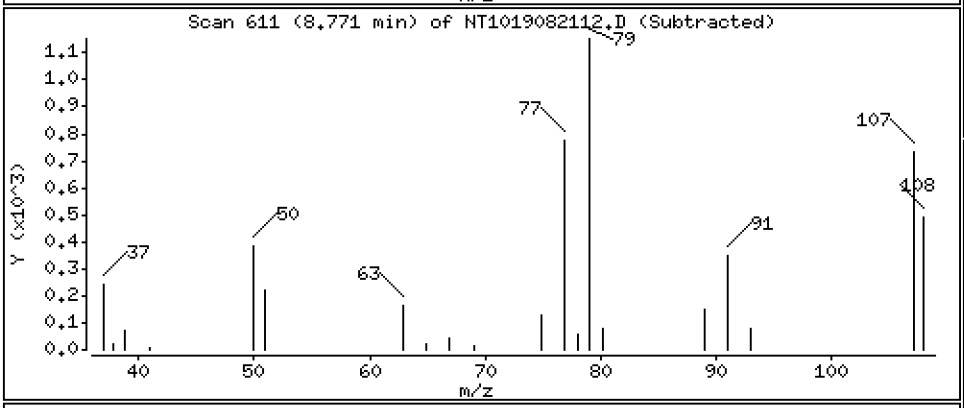
Column diameter: 0.25

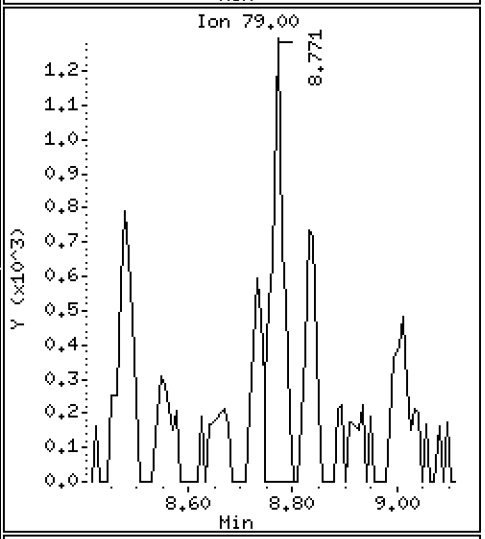
11 Benzyl alcohol

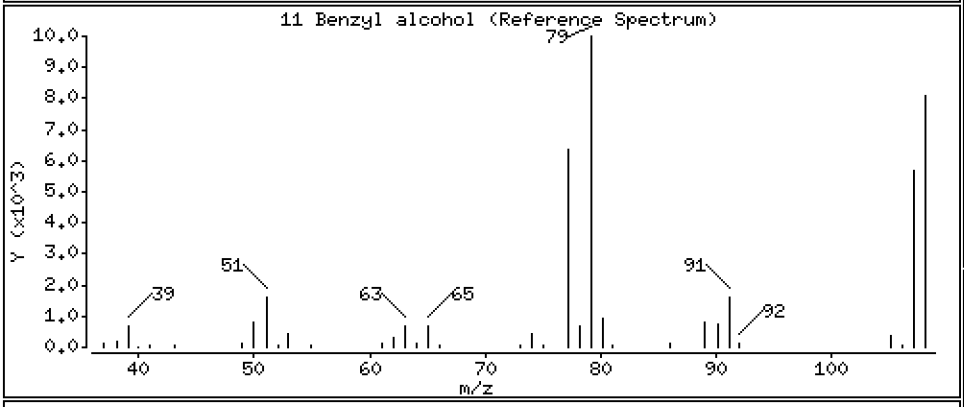
Concentration: 0.1672 ug/mL

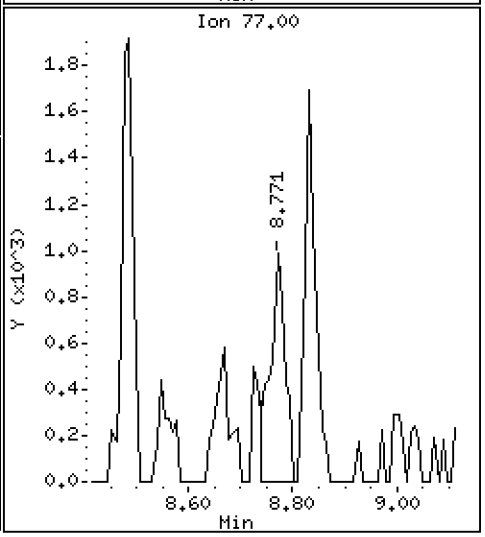


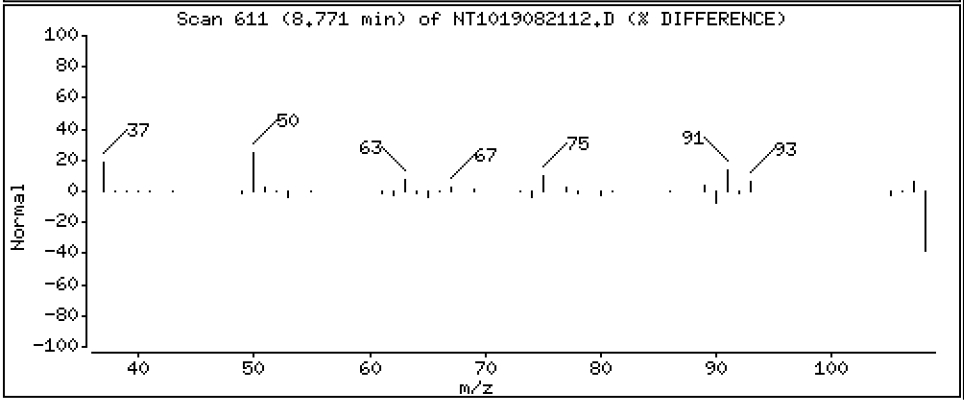












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Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

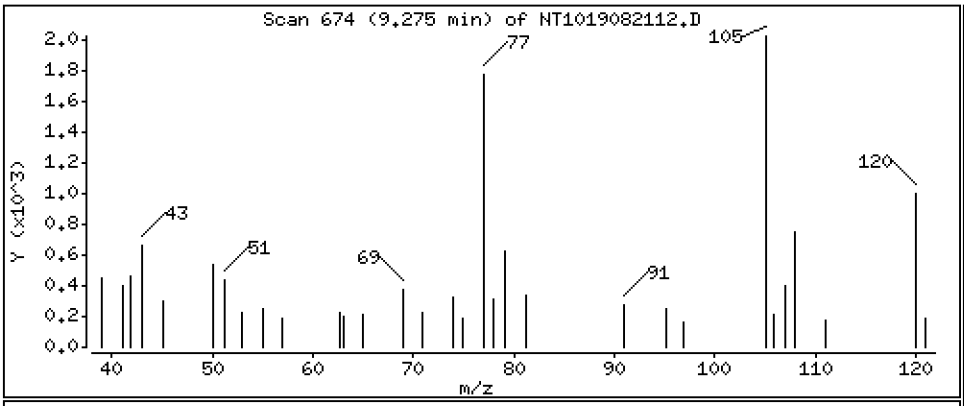
Operator: YZ

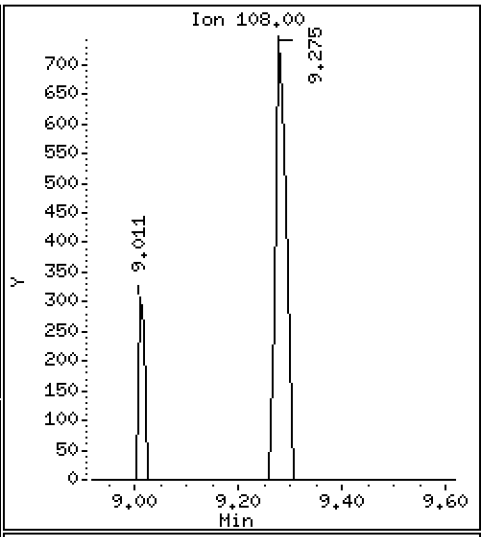
Column phase: ZB-5msi

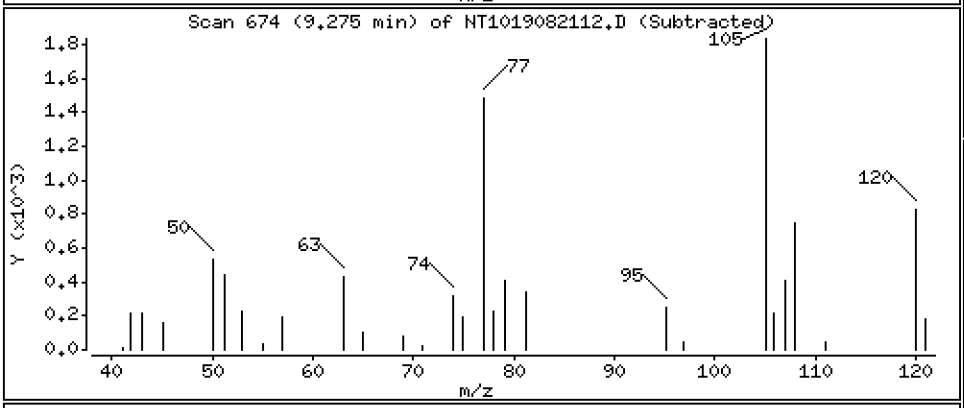
Column diameter: 0.25

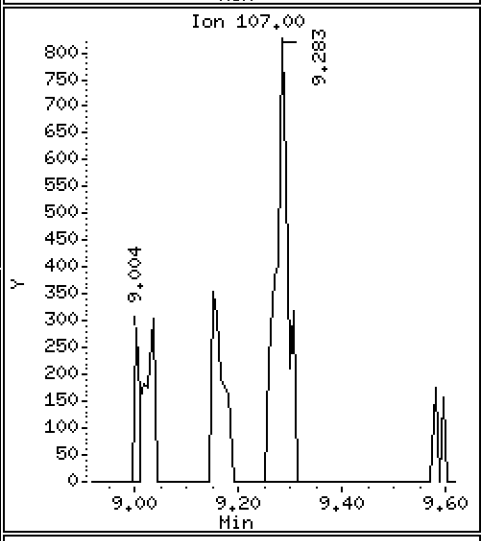
15 4-Methylphenol

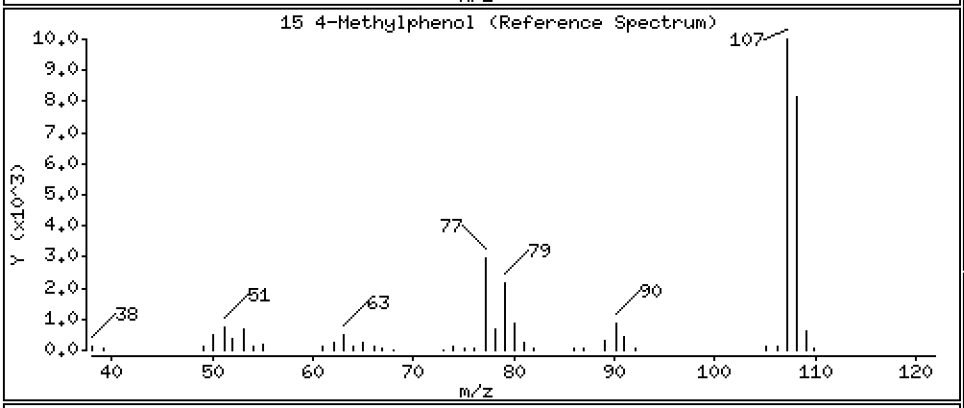
Concentration: 0.1270 ug/mL

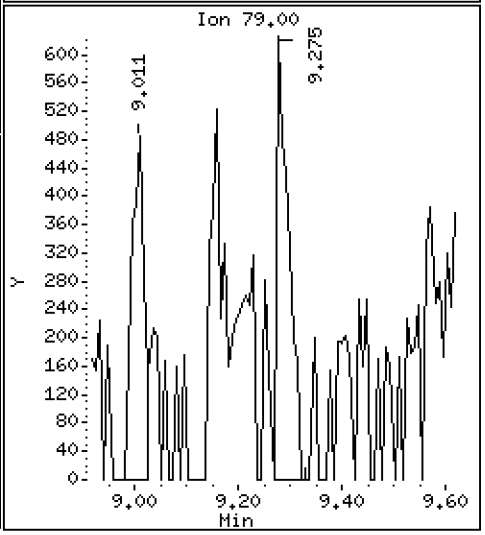


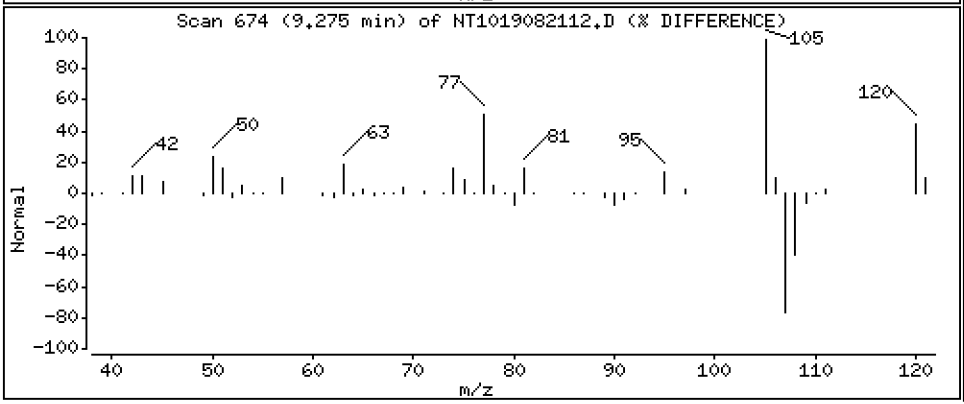












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Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

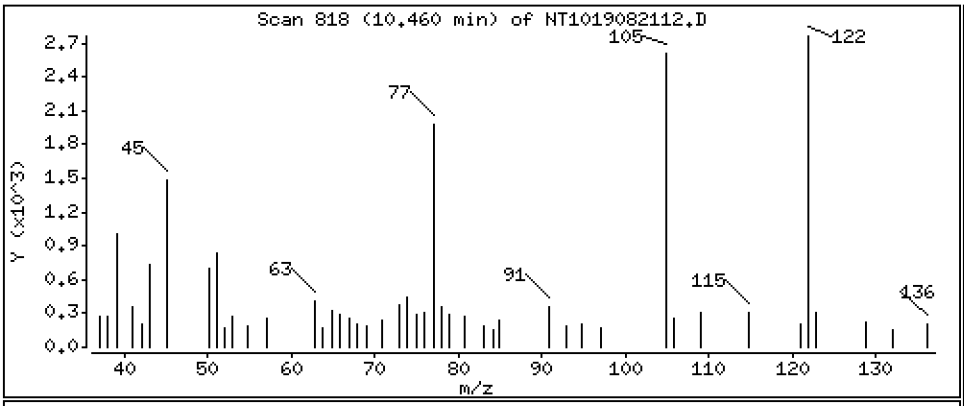
Operator: YZ

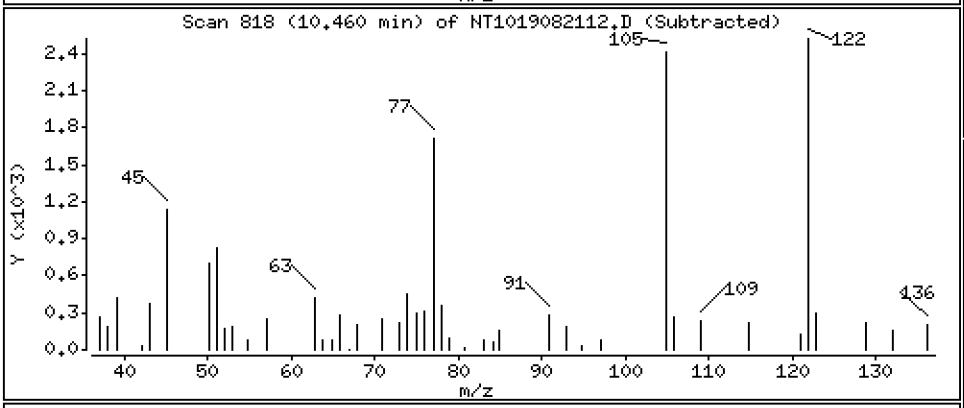
Column phase: ZB-5msi

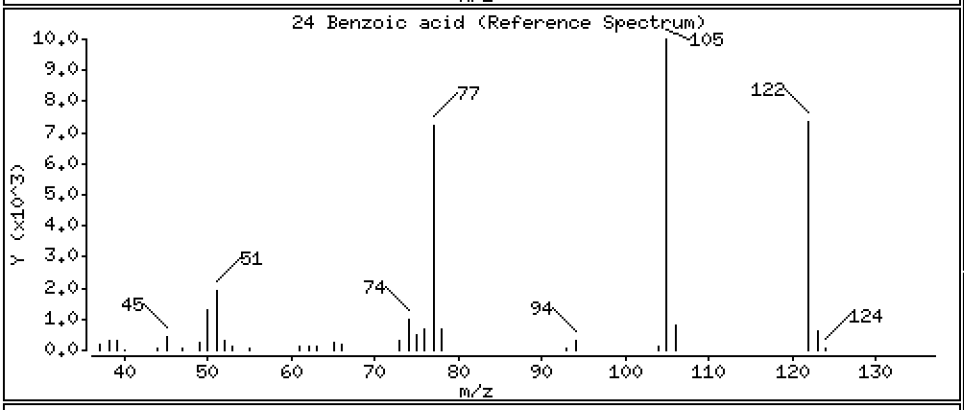
Column diameter: 0.25

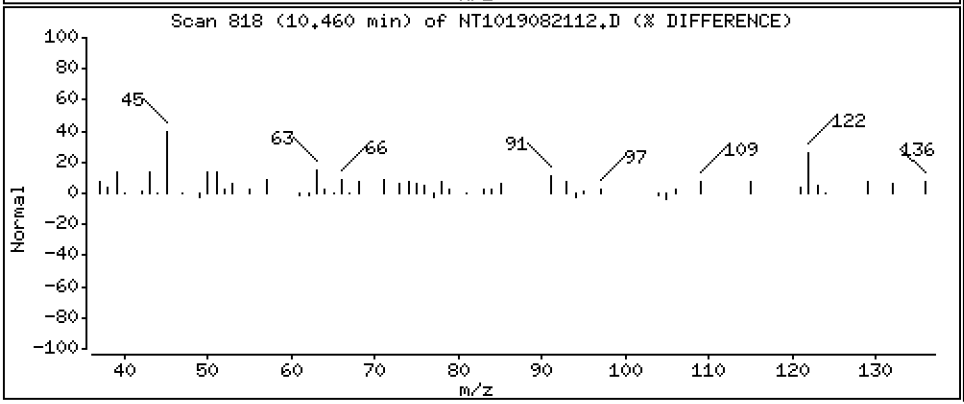
24 Benzoic acid

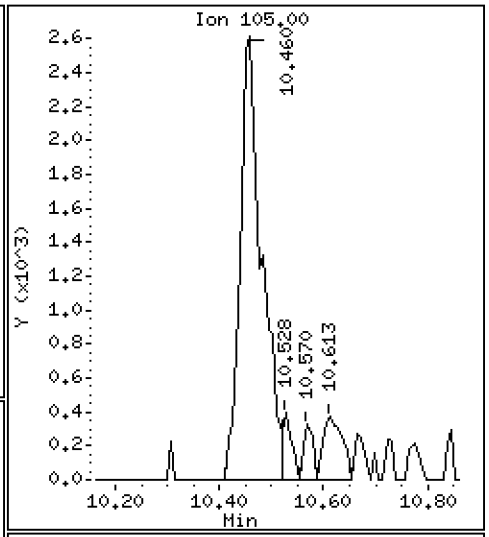
Concentration: 1.0000 ug/mL

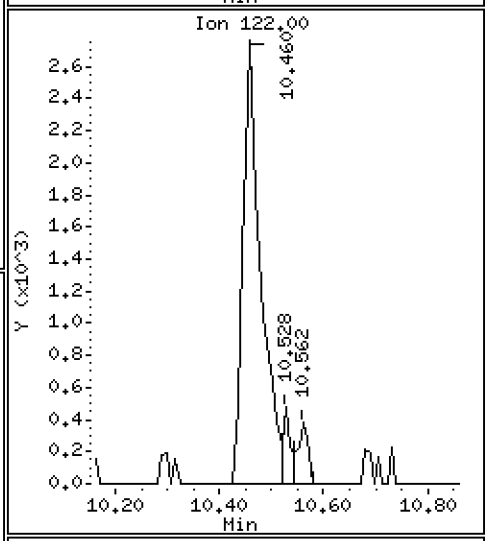


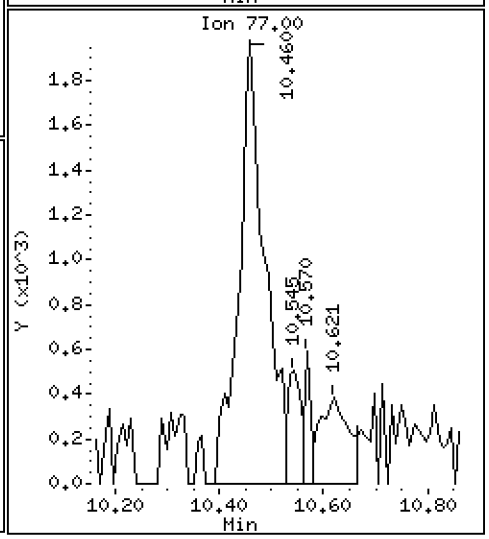












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

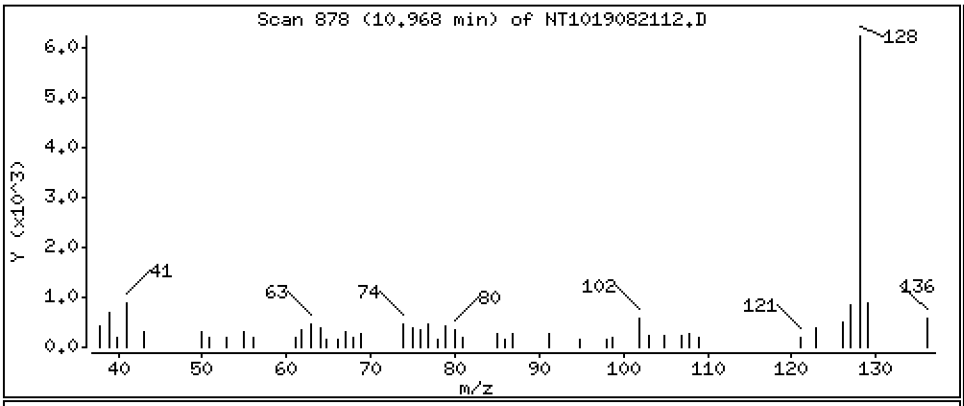
Operator: YZ

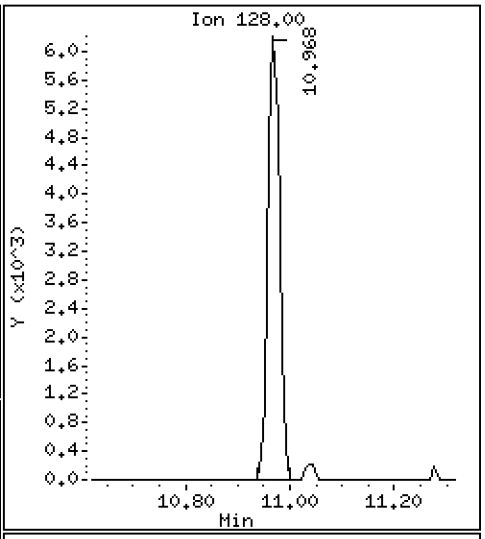
Column phase: ZB-5msi

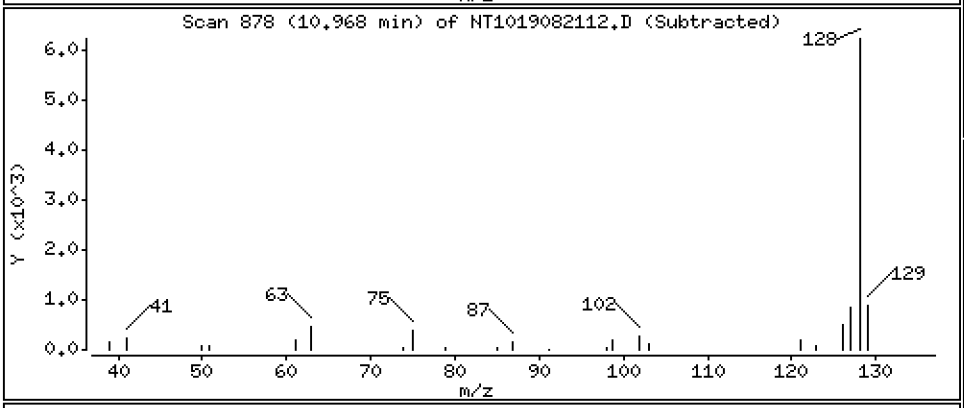
Column diameter: 0.25

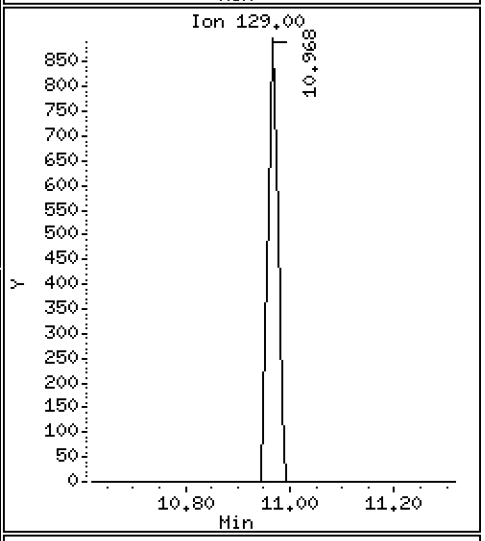
28 Naphthalene

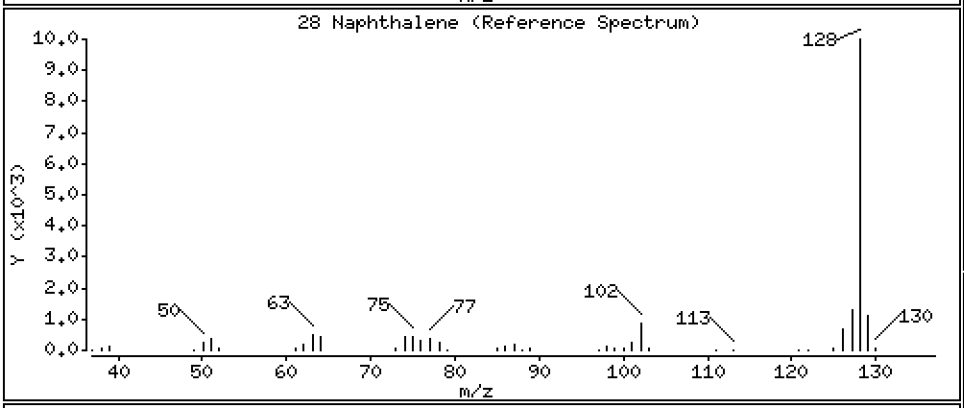
Concentration: 0.2900 ug/mL

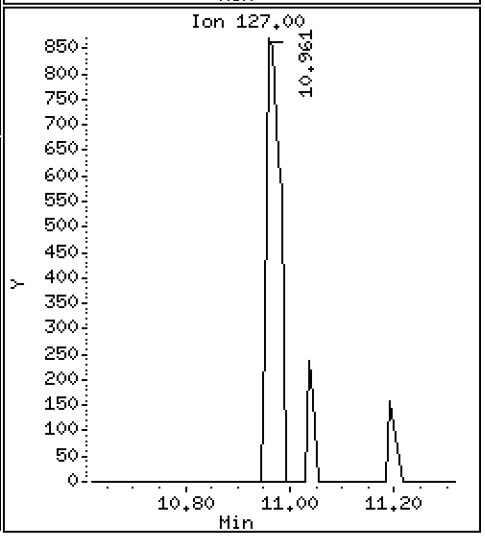


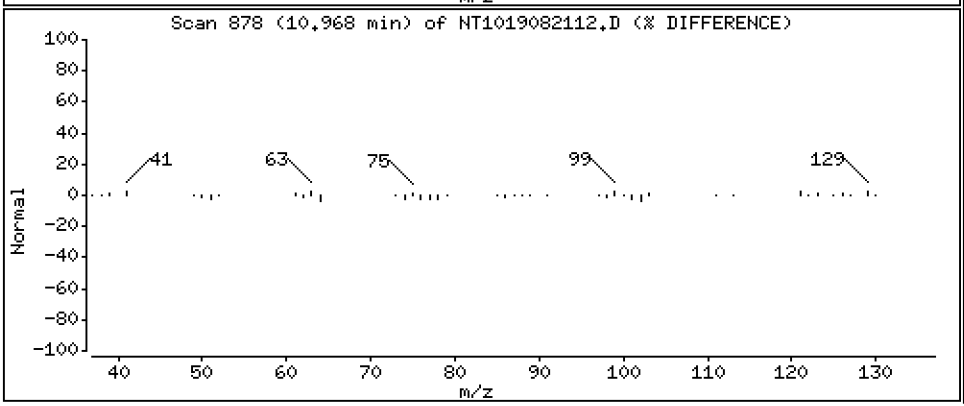












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Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

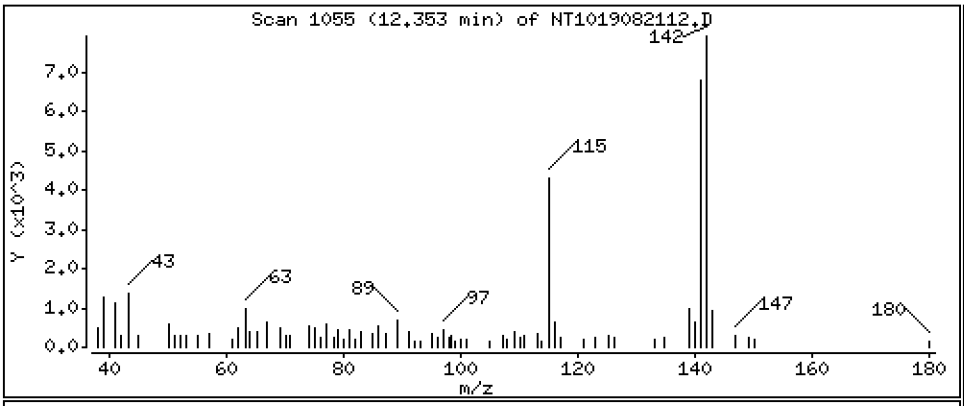
Operator: YZ

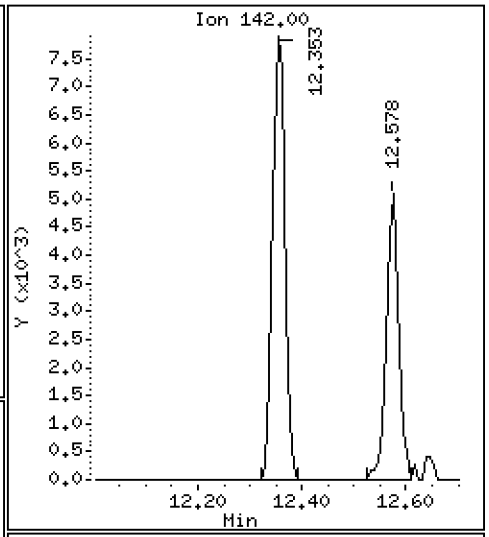
Column phase: ZB-5msi

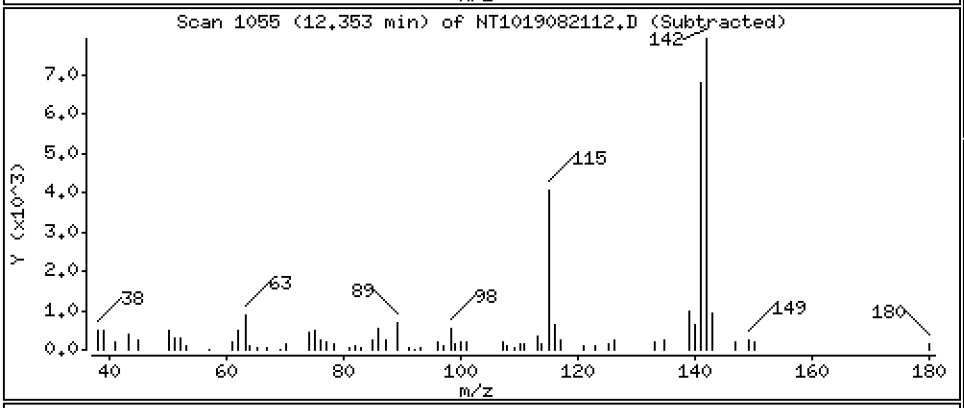
Column diameter: 0.25

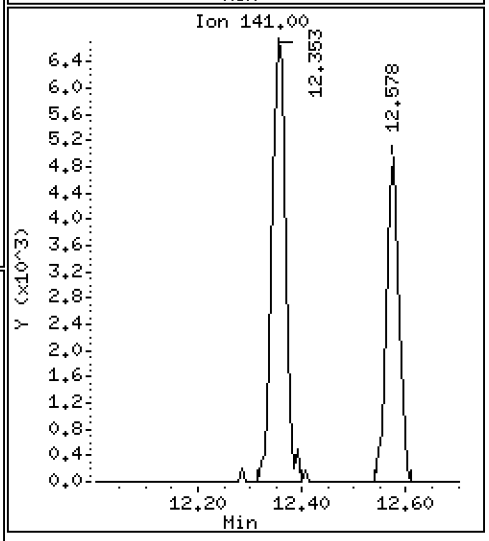
32 2-Methylnaphthalene

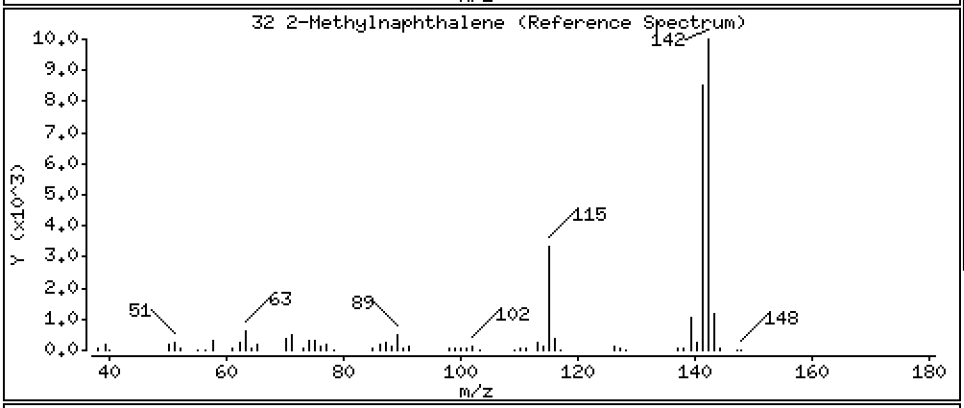
Concentration: 0.4639 ug/mL

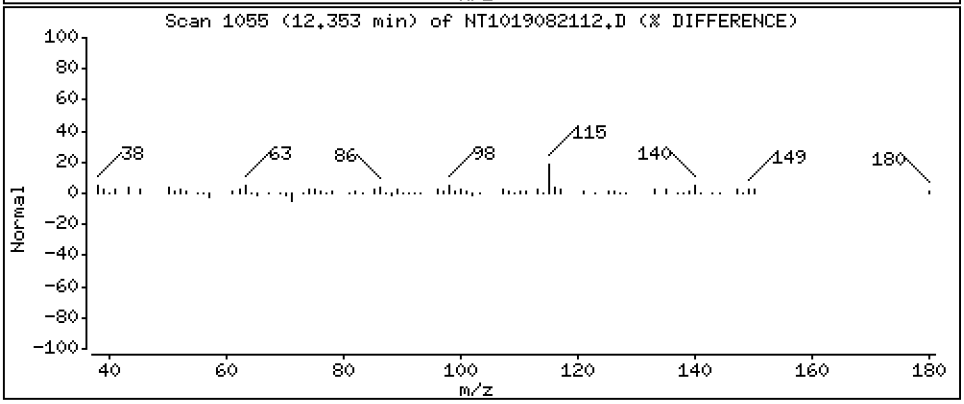












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Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

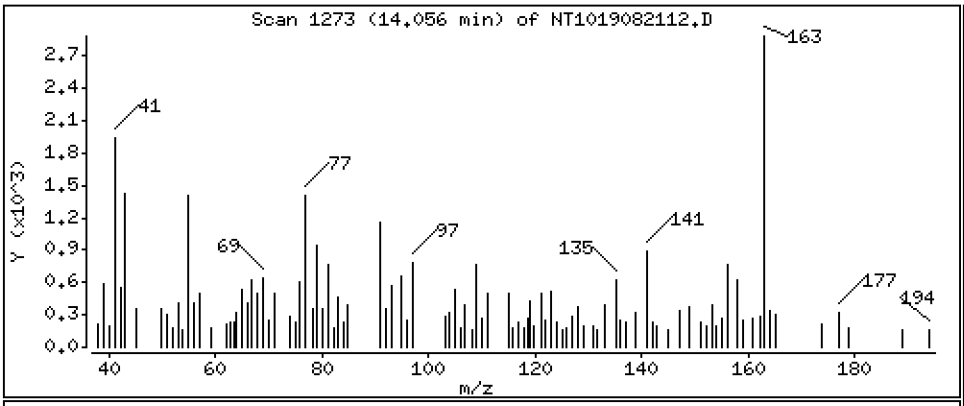
Operator: YZ

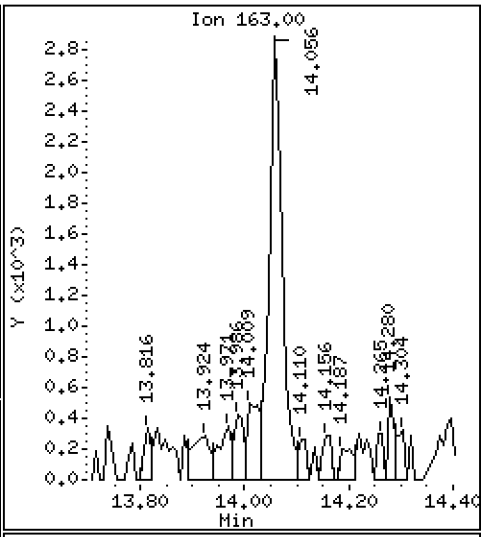
Column phase: ZB-5msi

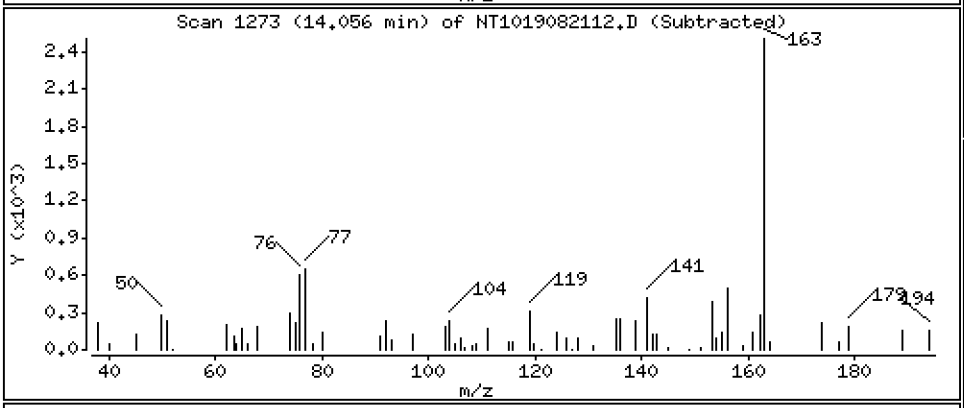
Column diameter: 0.25

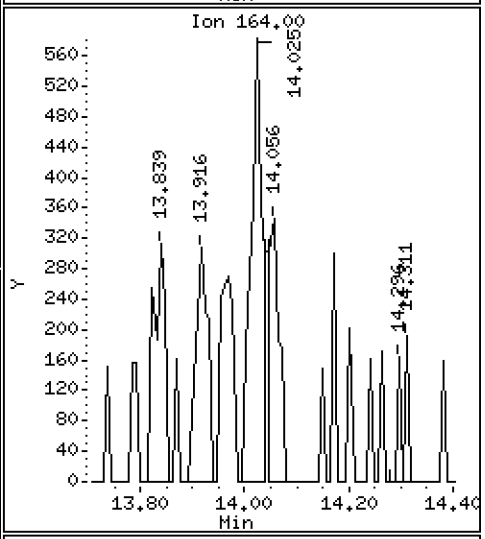
39 Dimethylphthalate

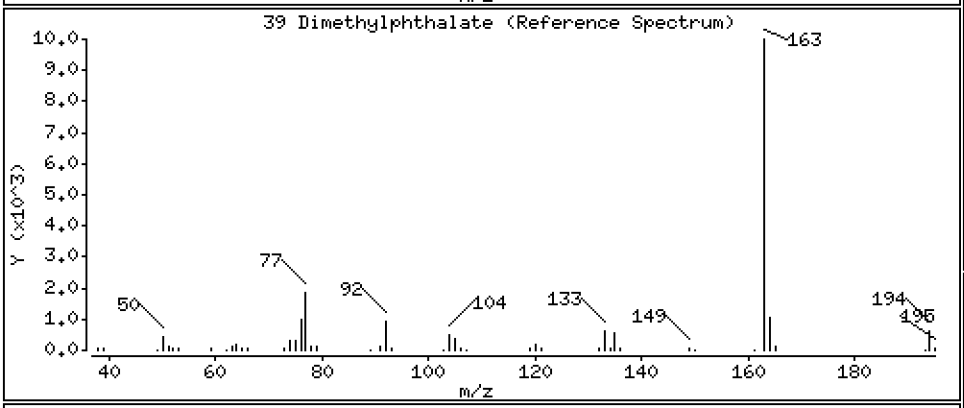
Concentration: 0.1977 ug/mL

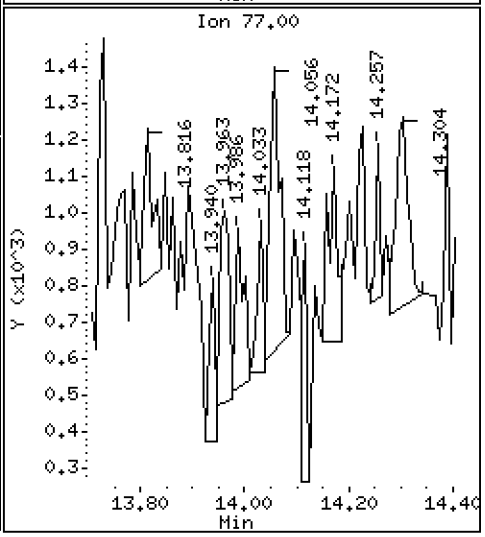


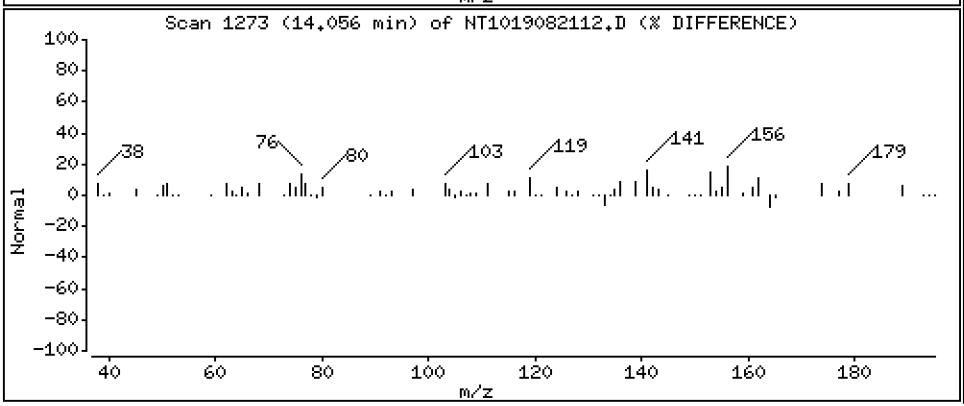












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

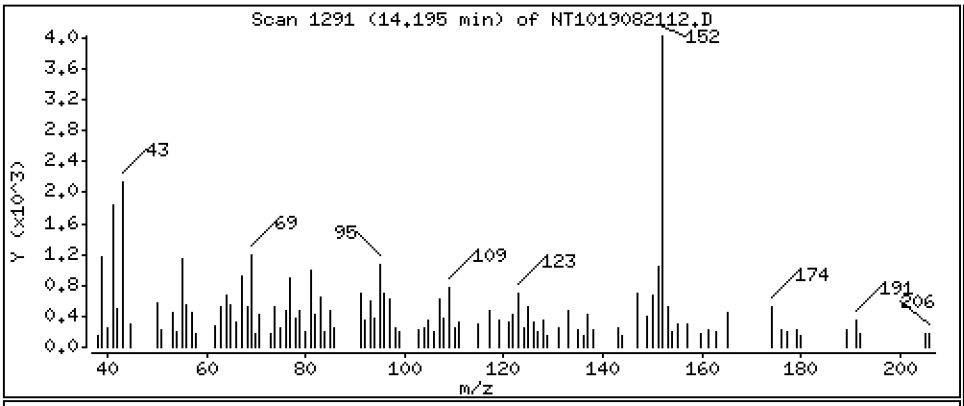
Operator: YZ

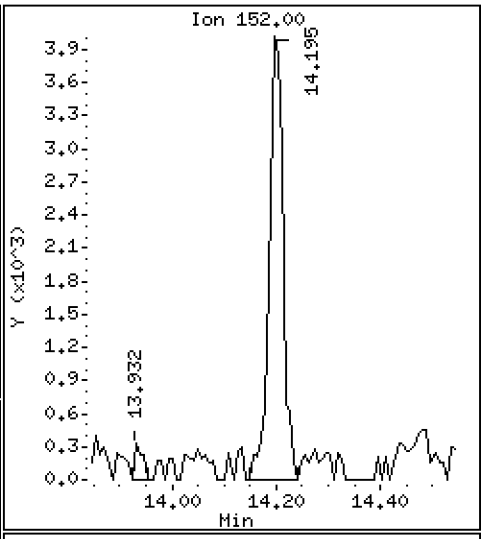
Column phase: ZB-5msi

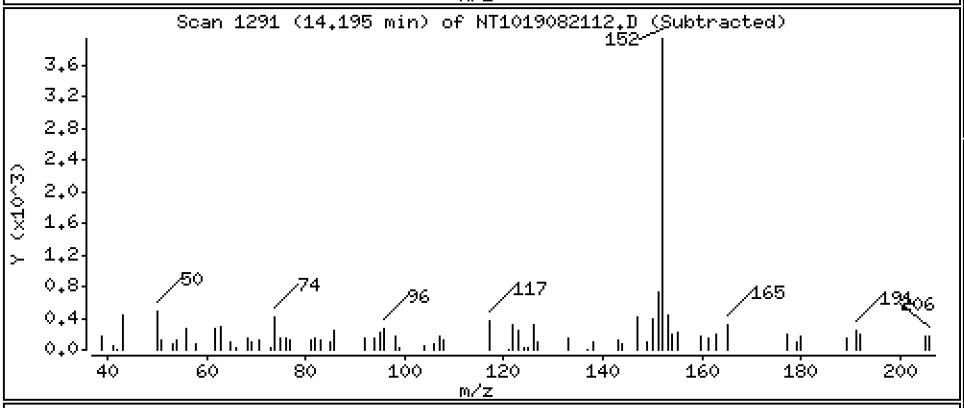
Column diameter: 0.25

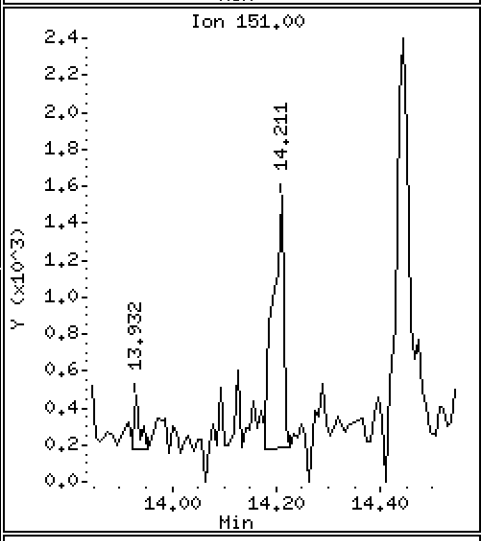
40 Acenaphthylene

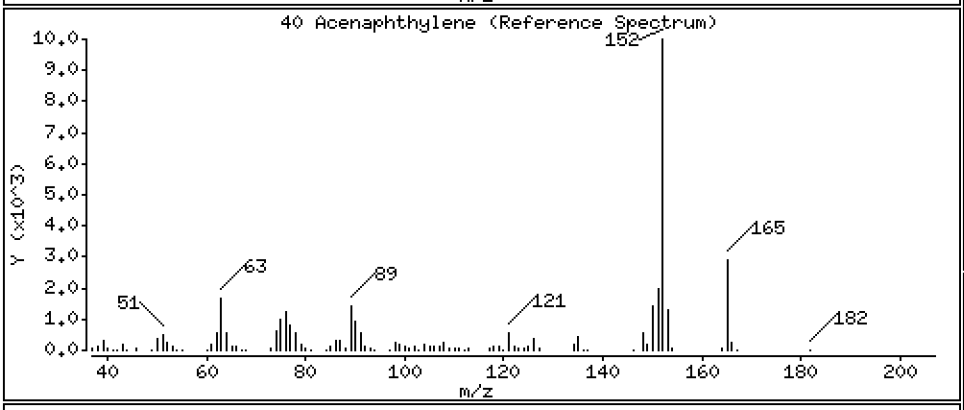
Concentration: 0.2255 ug/mL

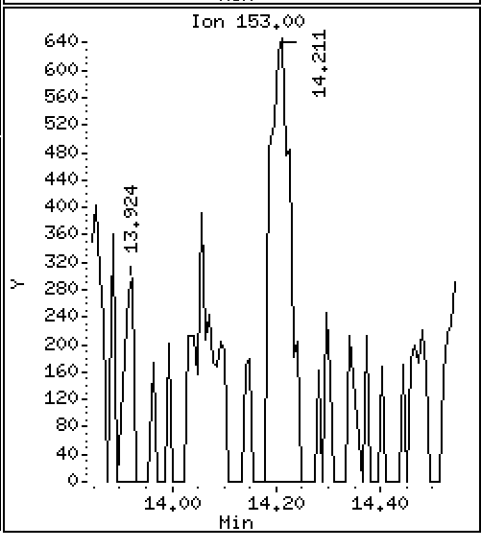


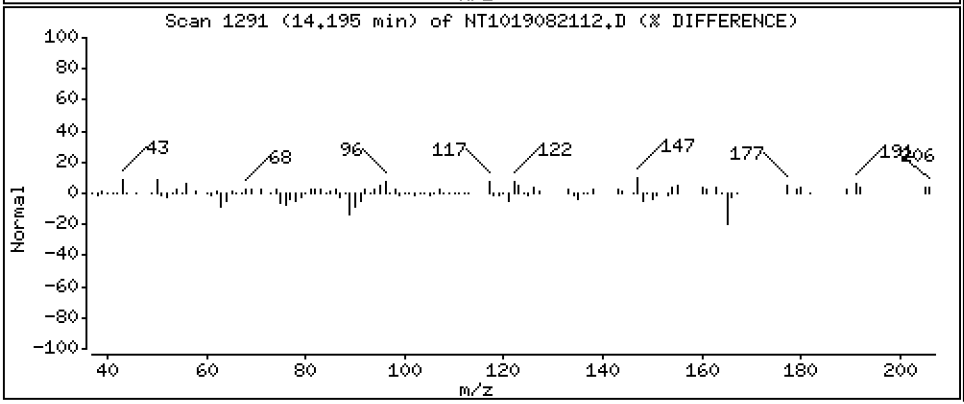












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

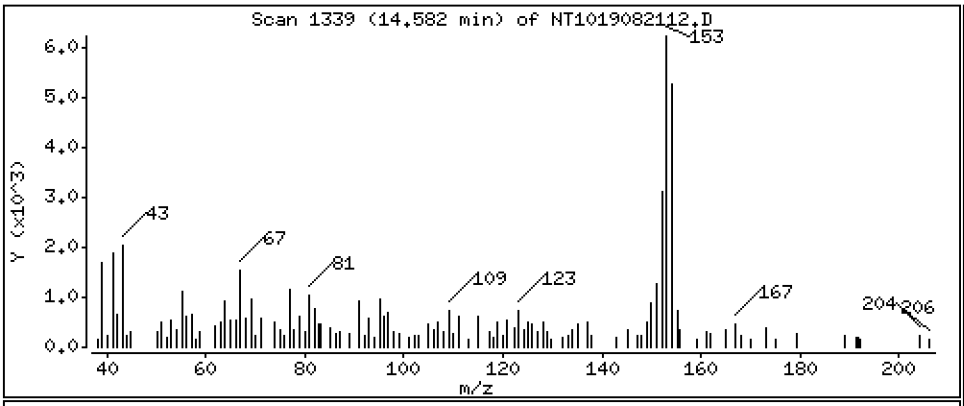
Operator: YZ

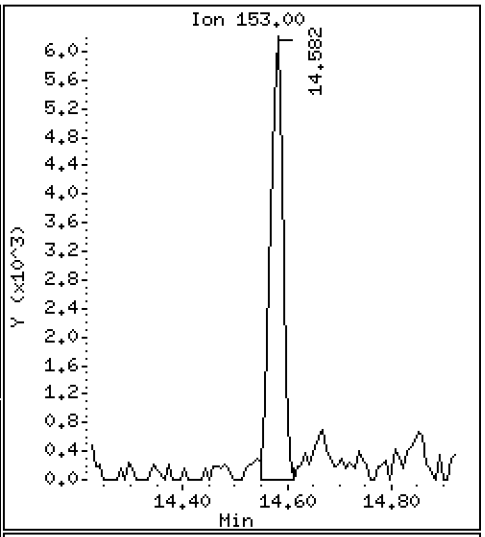
Column phase: ZB-5msi

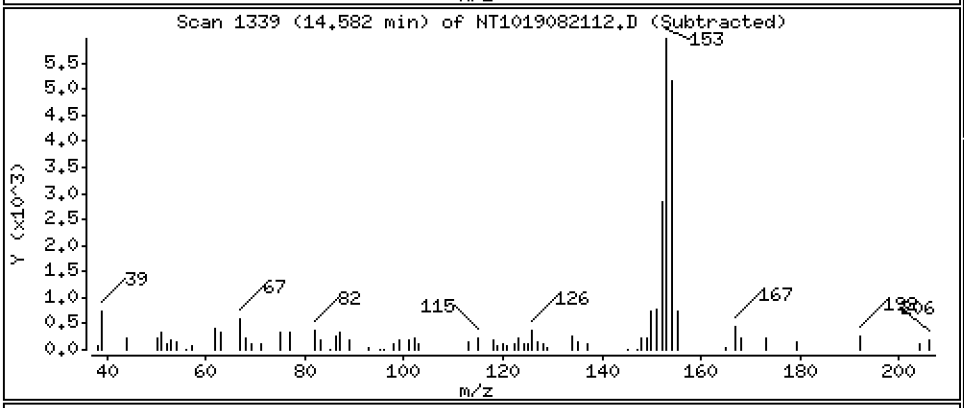
Column diameter: 0.25

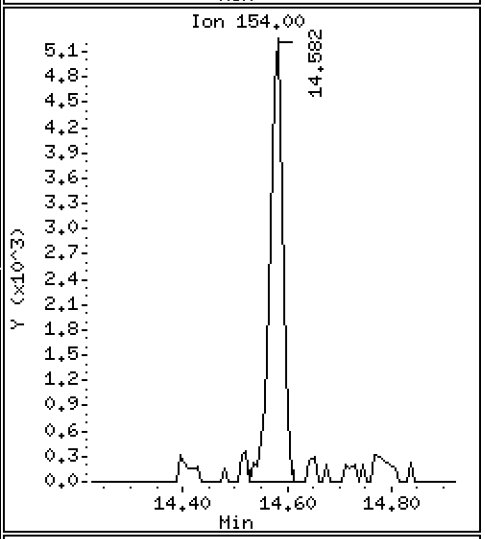
44 Acenaphthene

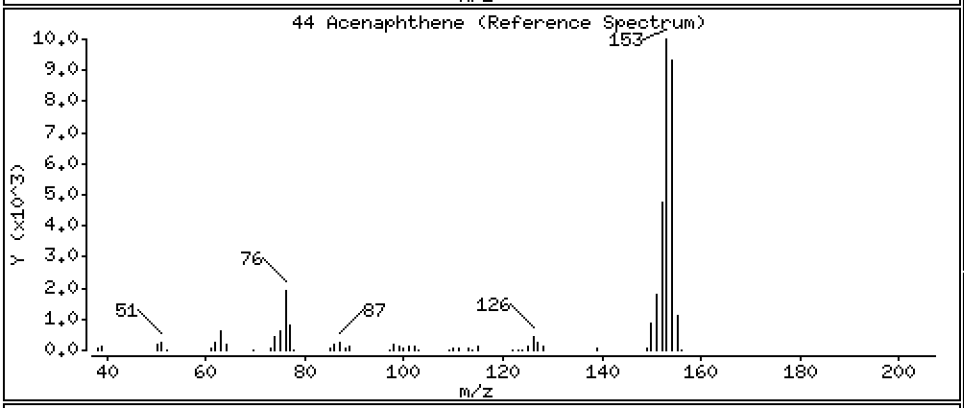
Concentration: 0.5023 ug/mL

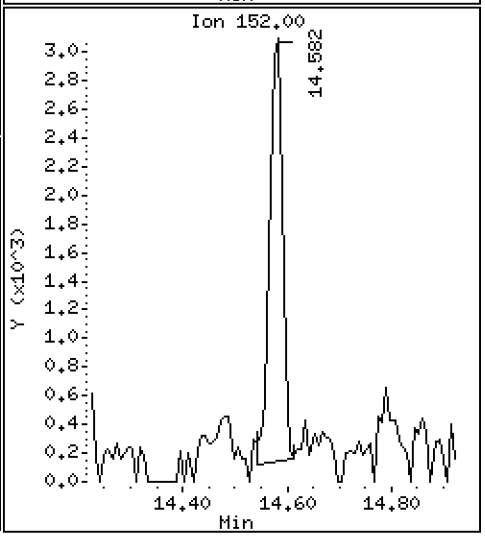


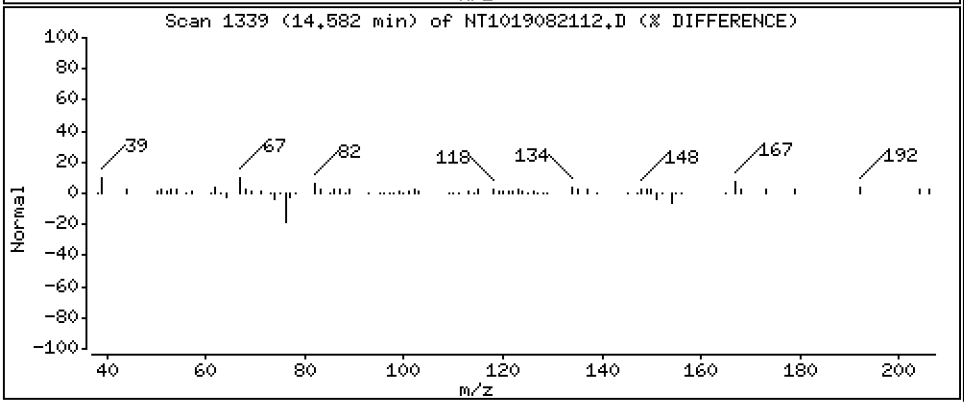












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Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

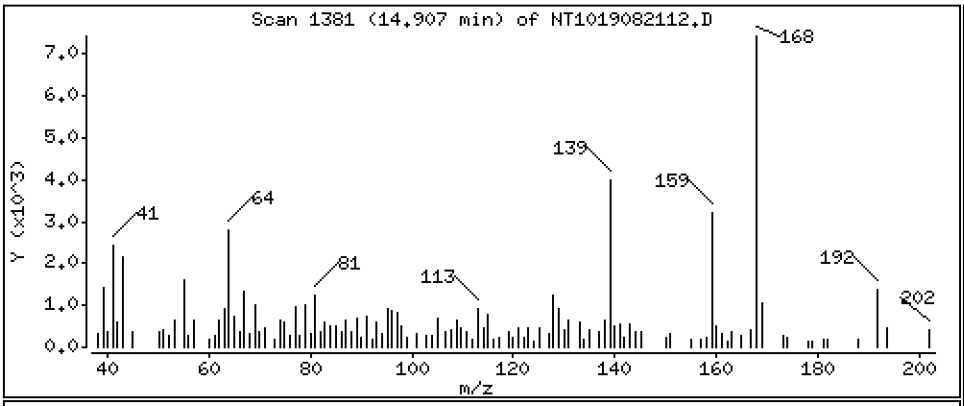
Operator: YZ

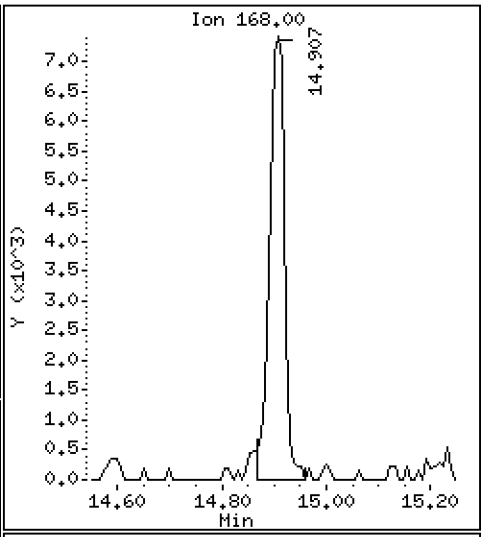
Column phase: ZB-5msi

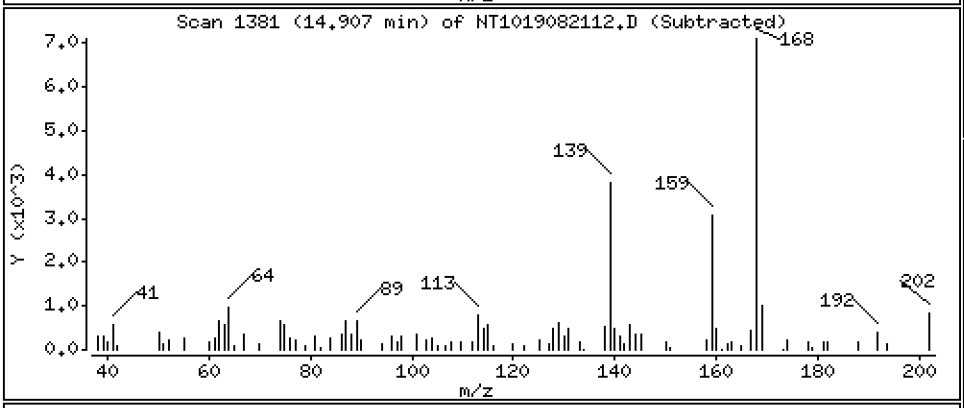
Column diameter: 0.25

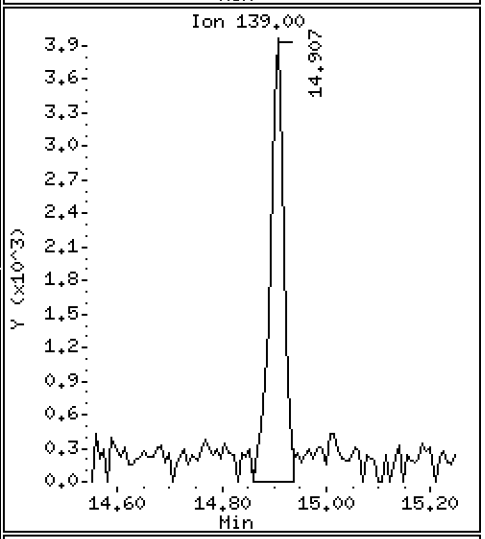
46 Dibenzofuran

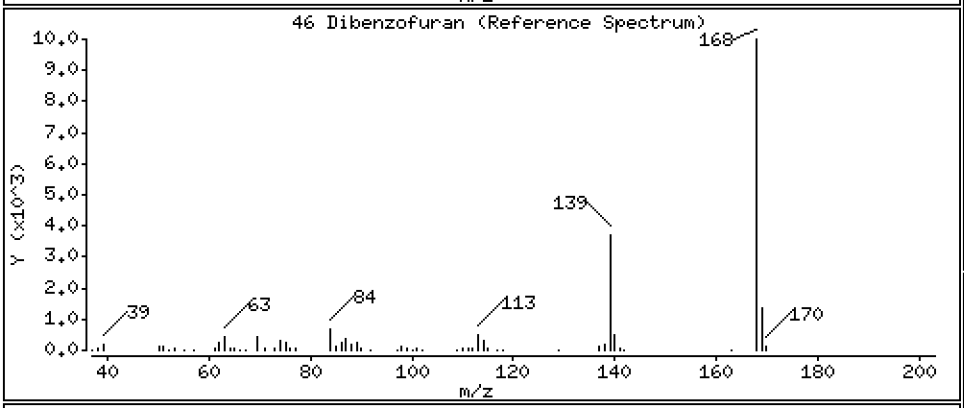
Concentration: 0.4430 ug/mL

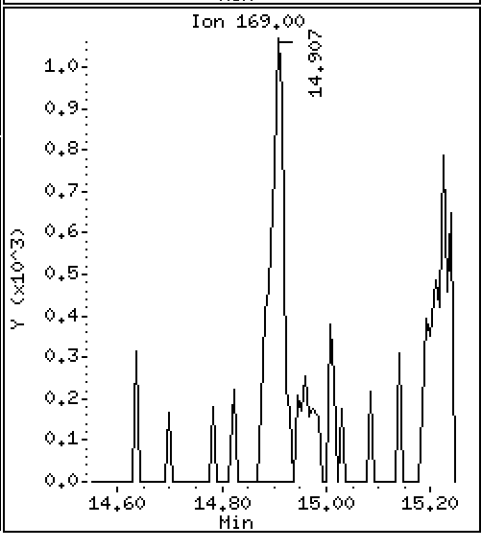


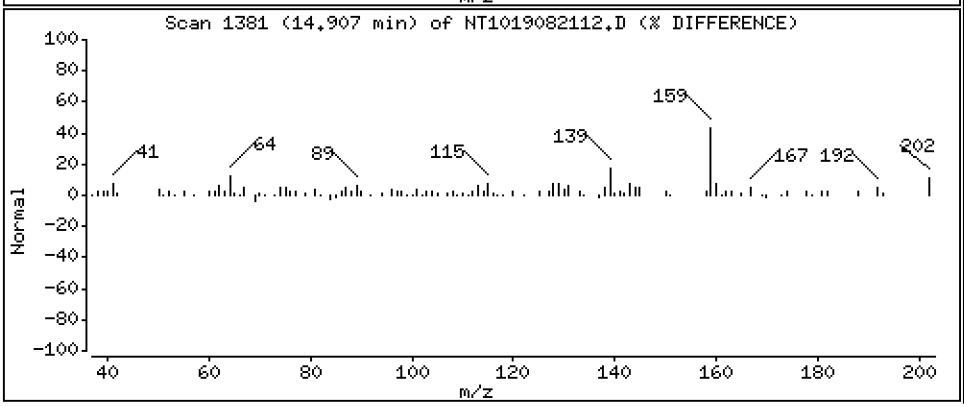












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Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

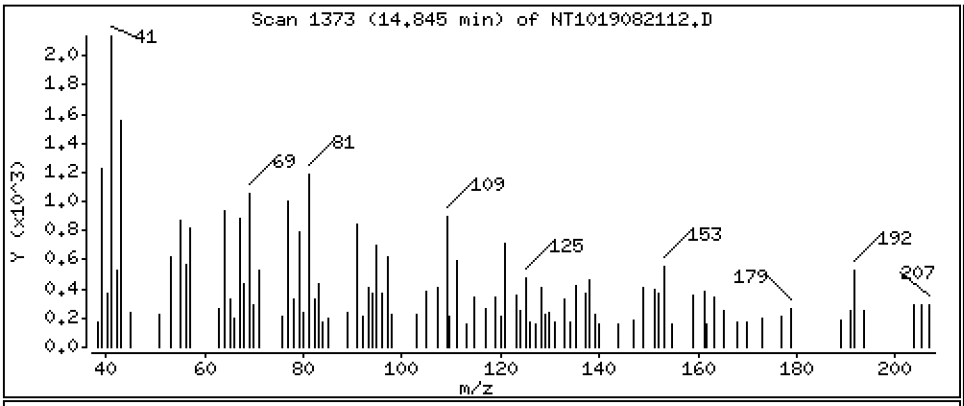
Operator: YZ

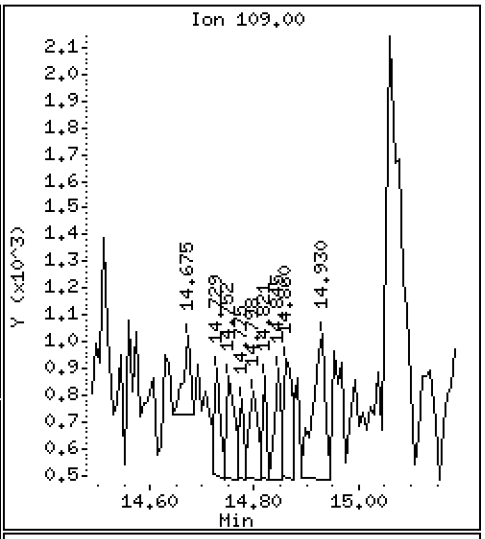
Column phase: ZB-5msi

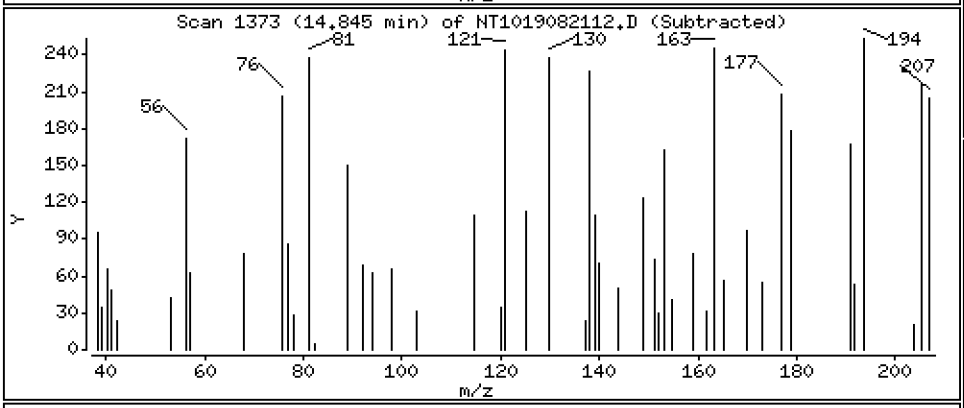
Column diameter: 0.25

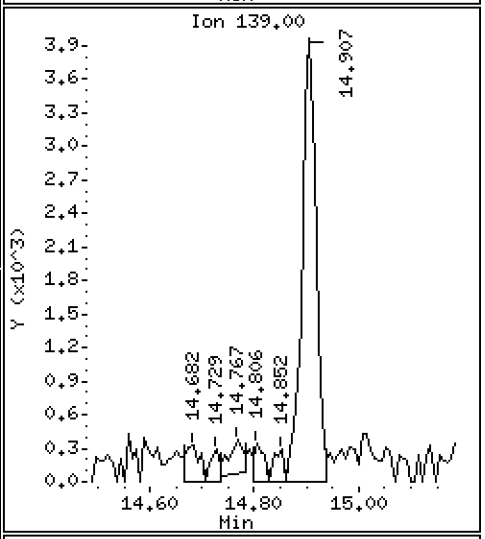
47 4-Nitrophenol

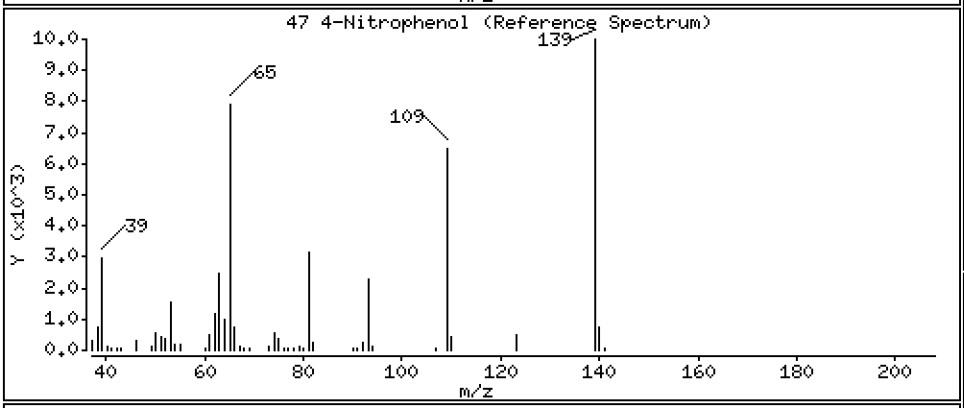
Concentration: 0.09310 ug/mL

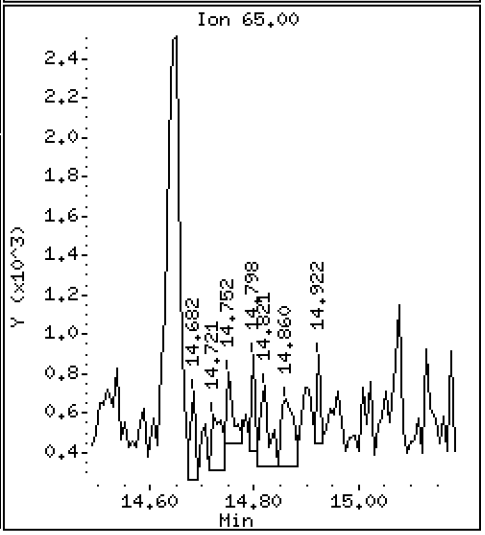


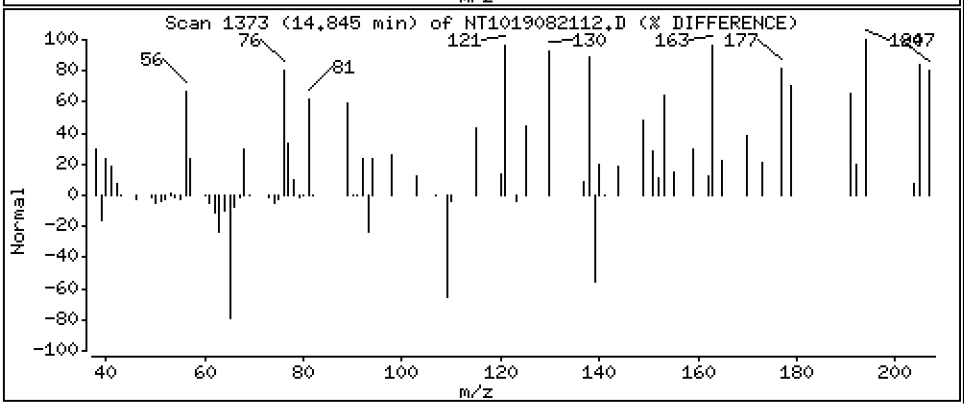












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

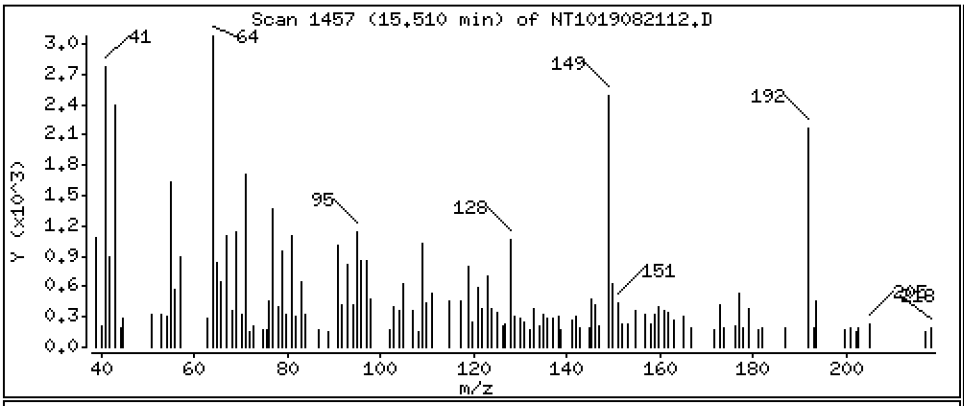
Operator: YZ

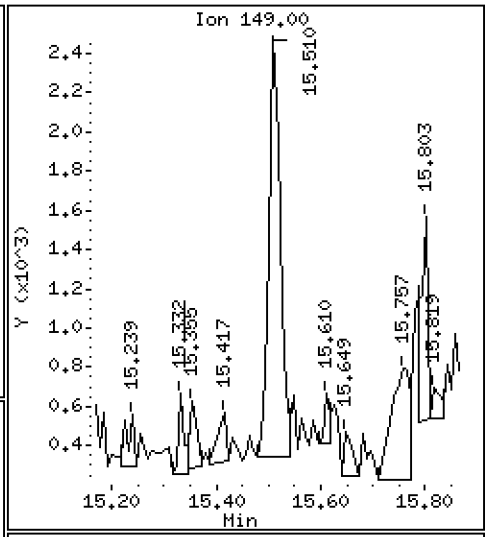
Column phase: ZB-5msi

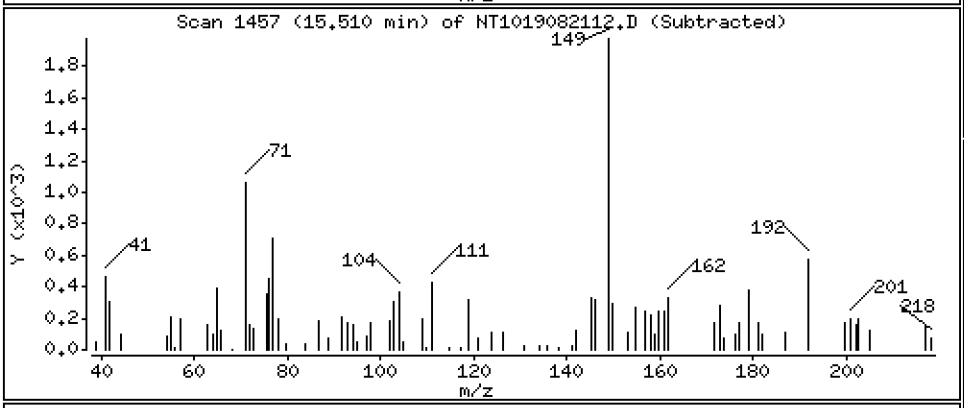
Column diameter: 0.25

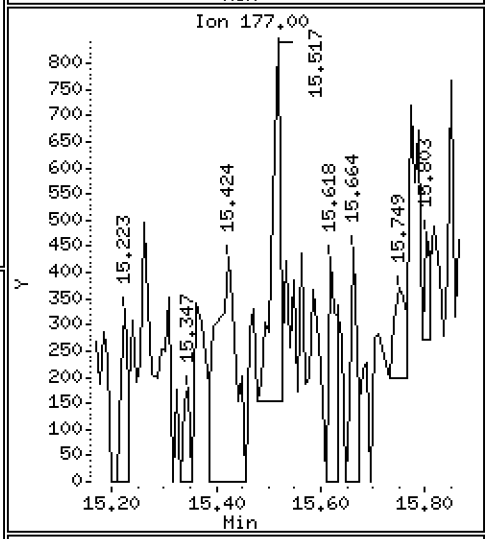
50 Diethylphthalate

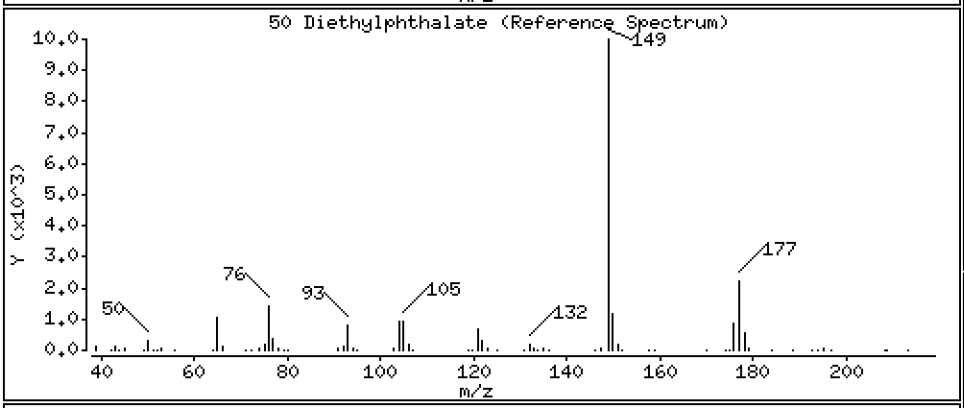
Concentration: 0.1283 ug/mL

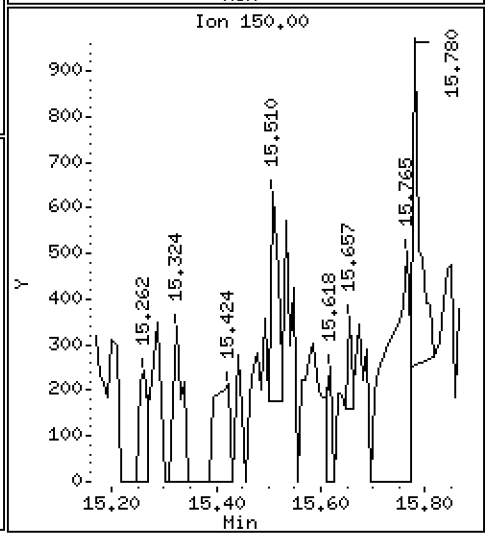


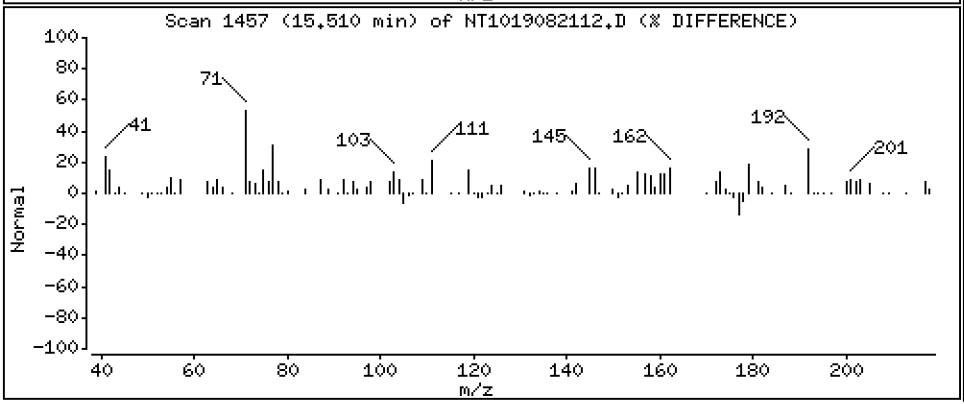












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

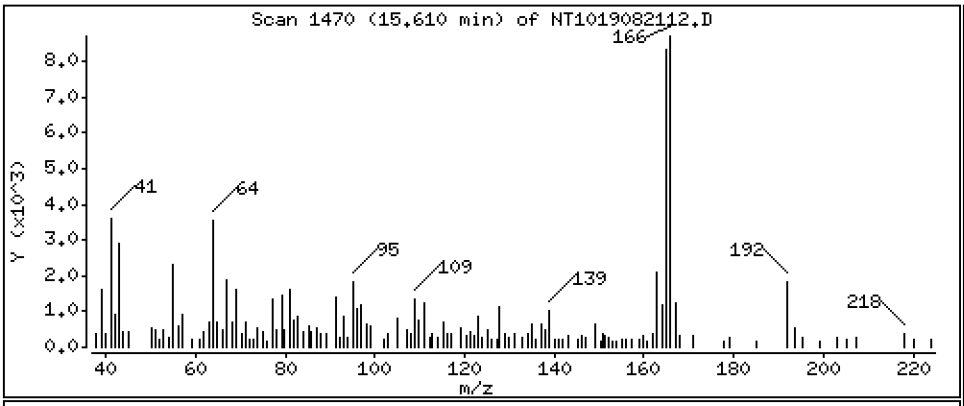
Operator: YZ

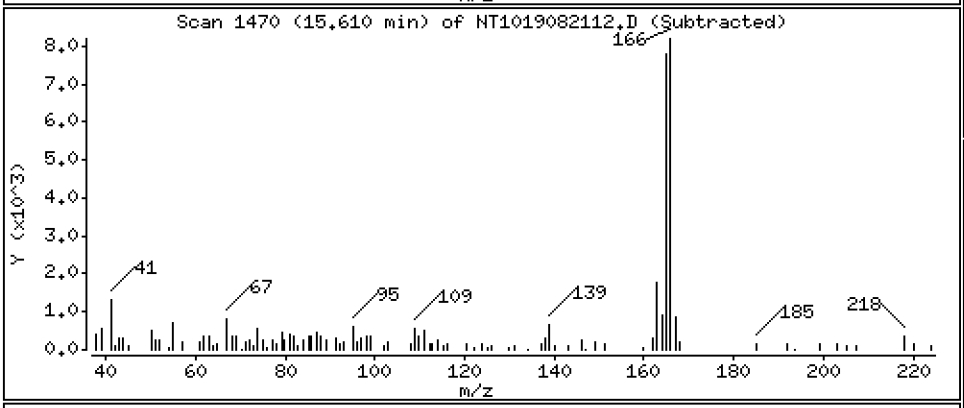
Column phase: ZB-5msi

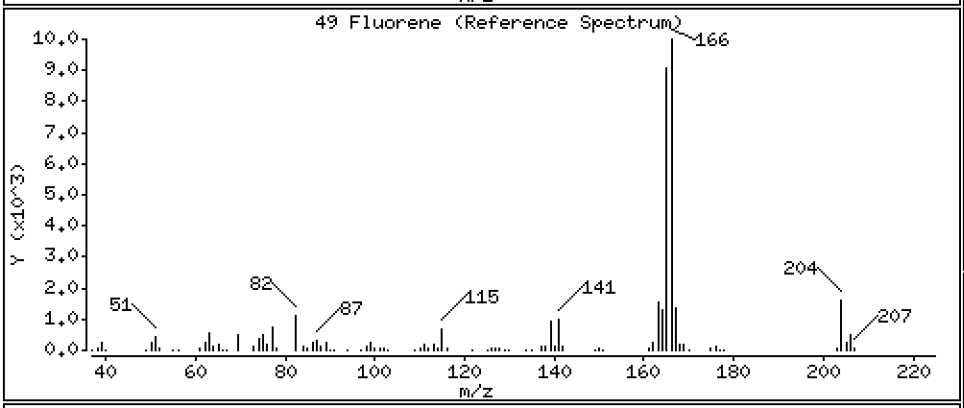
Column diameter: 0.25

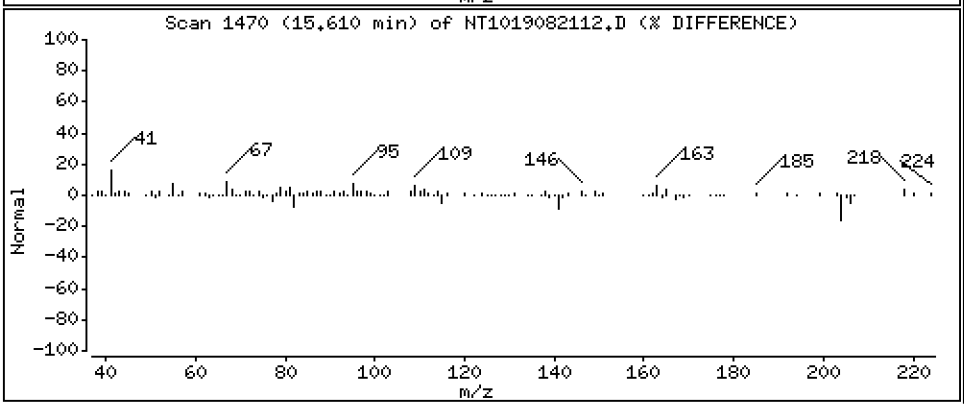
49 Fluorene

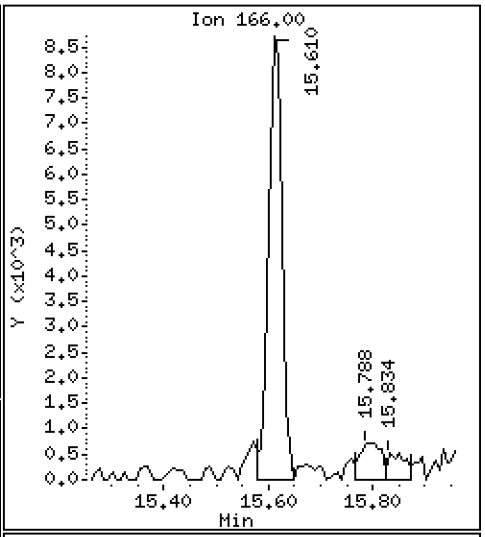
Concentration: 0.6667 ug/mL

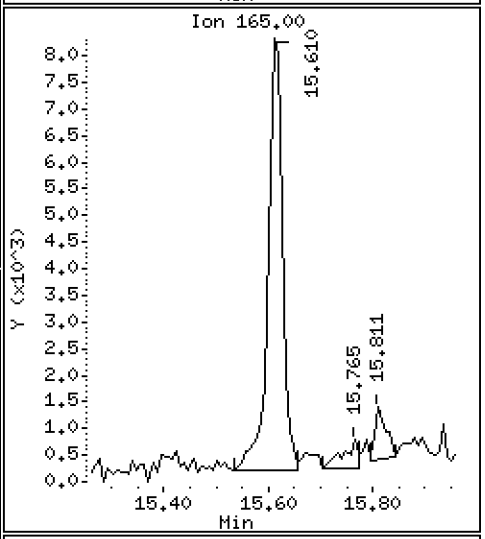


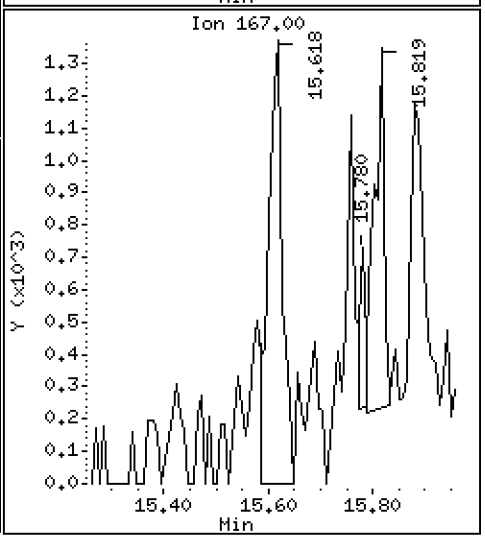












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

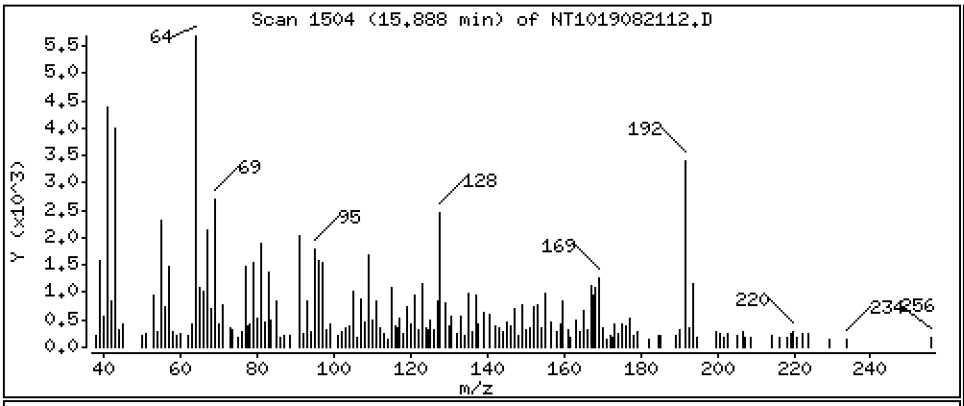
Operator: YZ

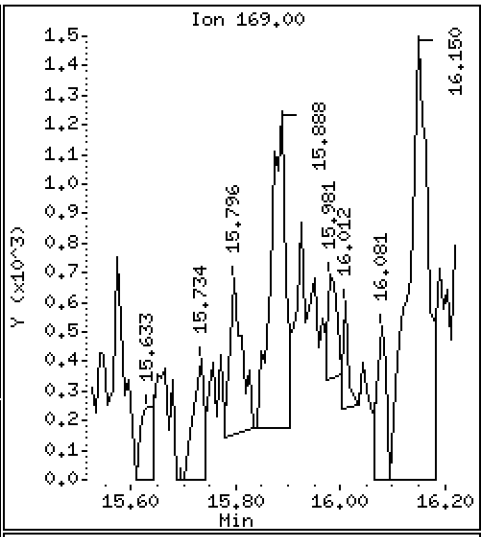
Column phase: ZB-5msi

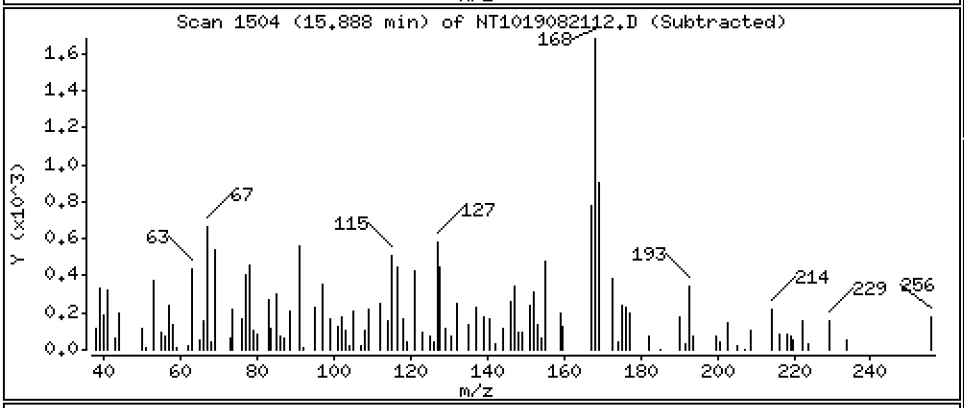
Column diameter: 0.25

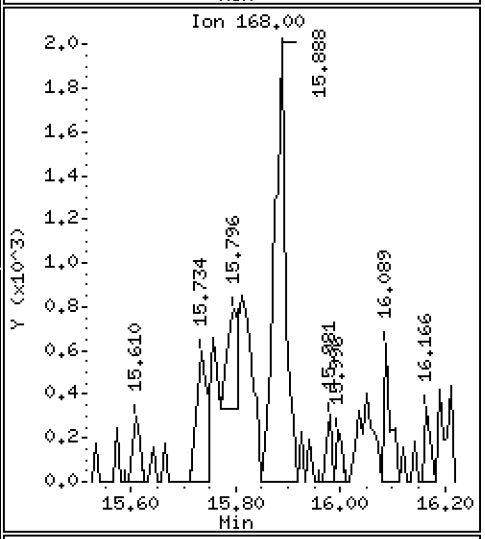
54 N-Nitrosodiphenylamine

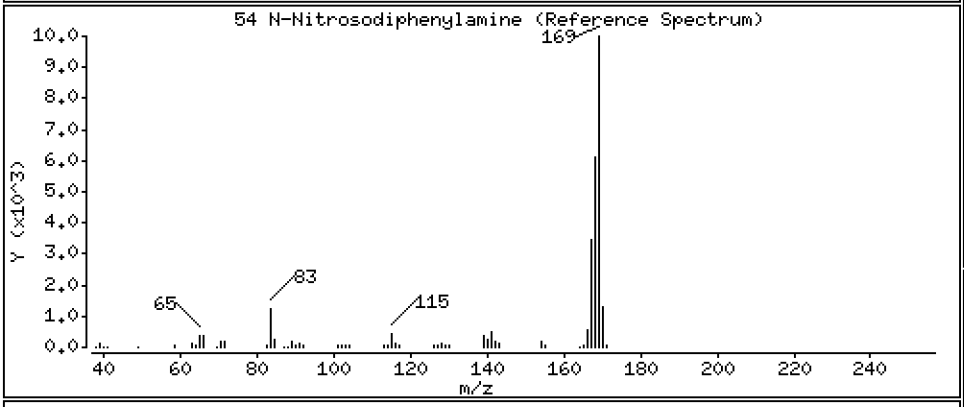
Concentration: 0.1283 ug/mL

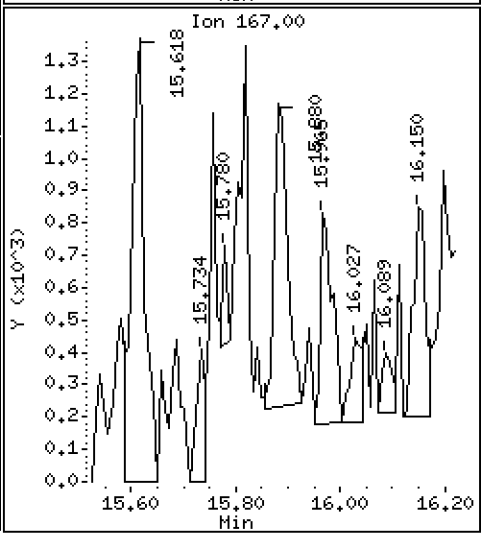


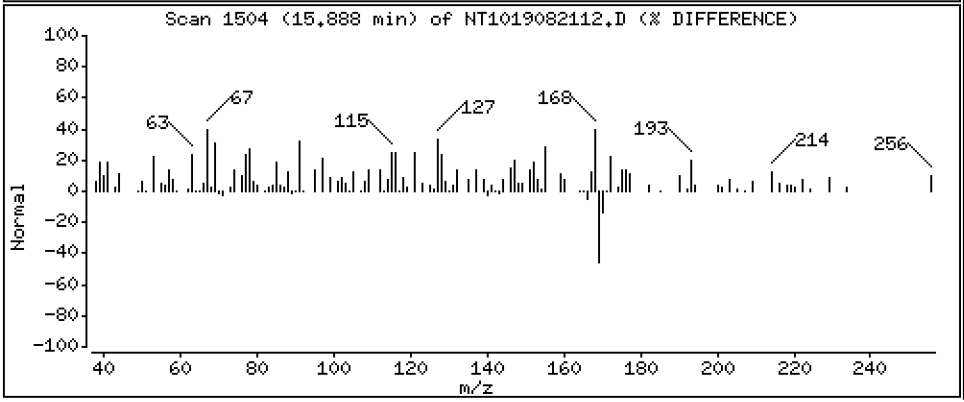












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

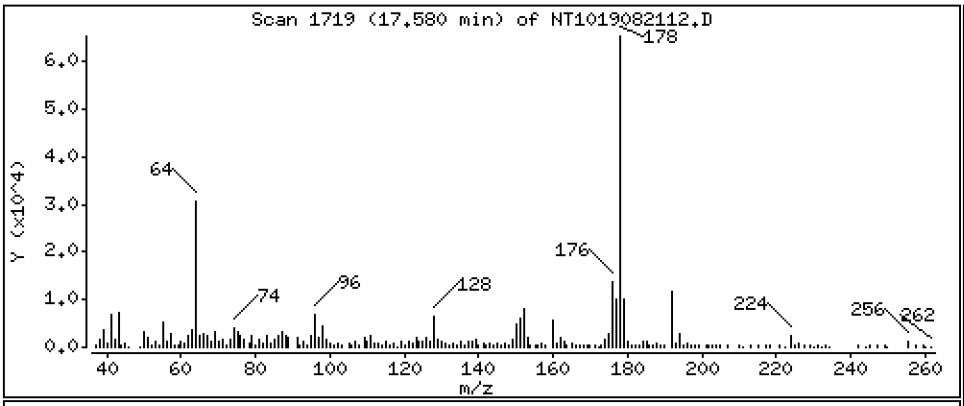
Operator: YZ

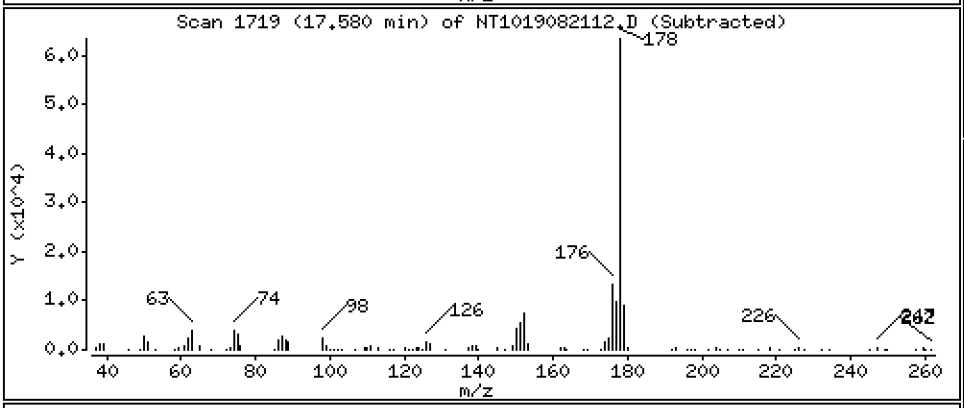
Column phase: ZB-5msi

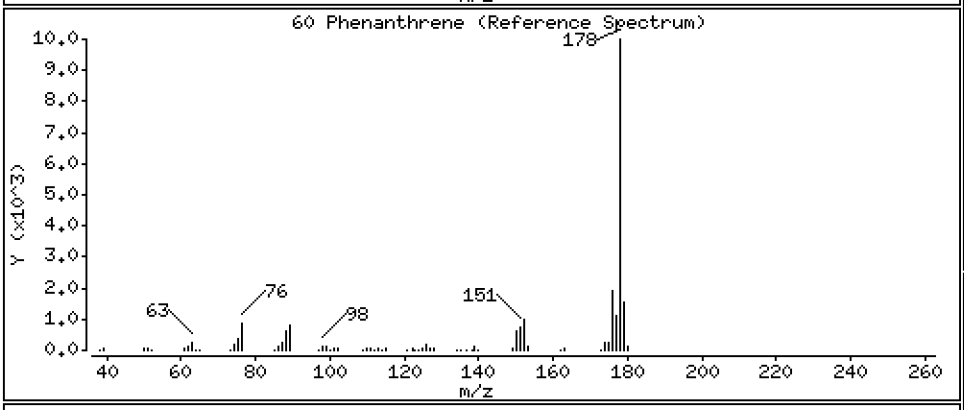
Column diameter: 0.25

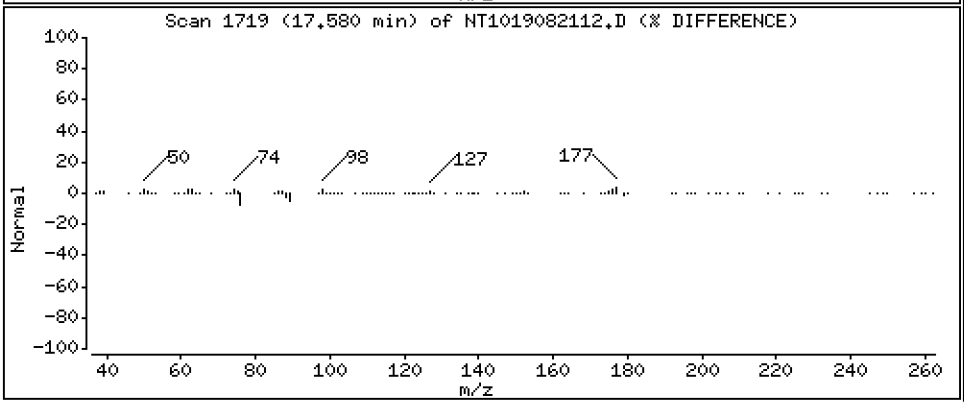
60 Phenanthrene

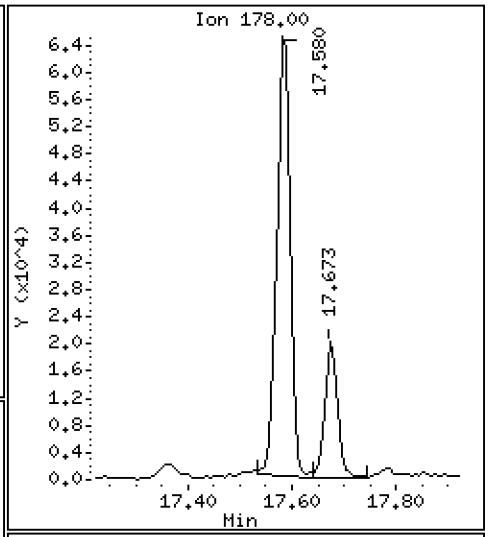
Concentration: 3.922 ug/mL

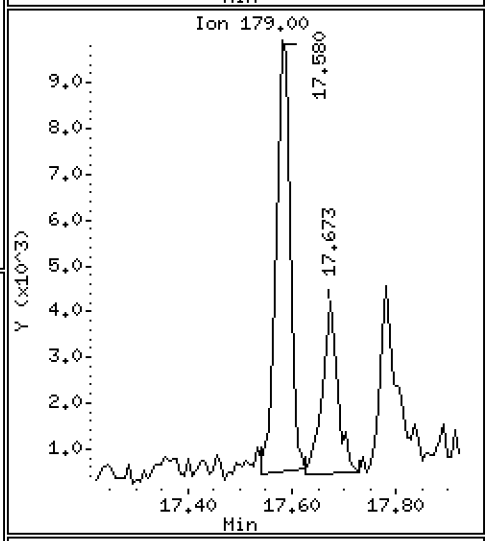


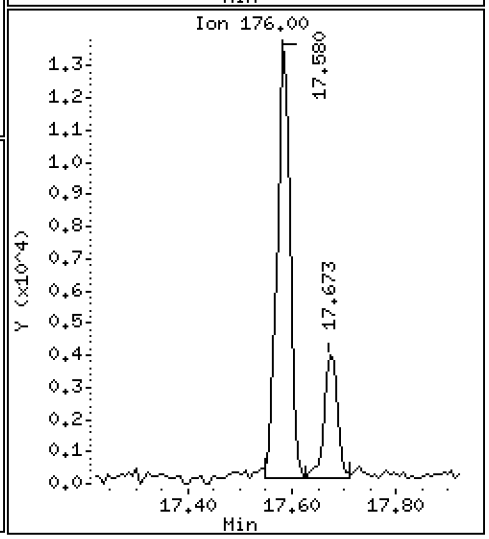












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

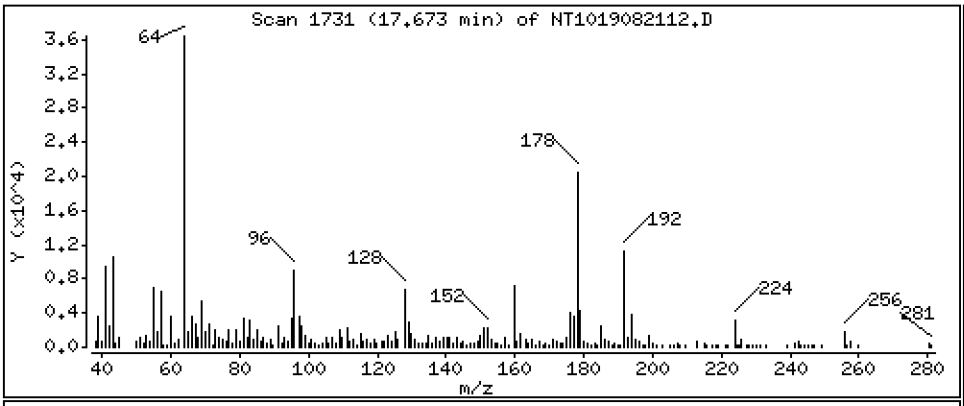
Operator: YZ

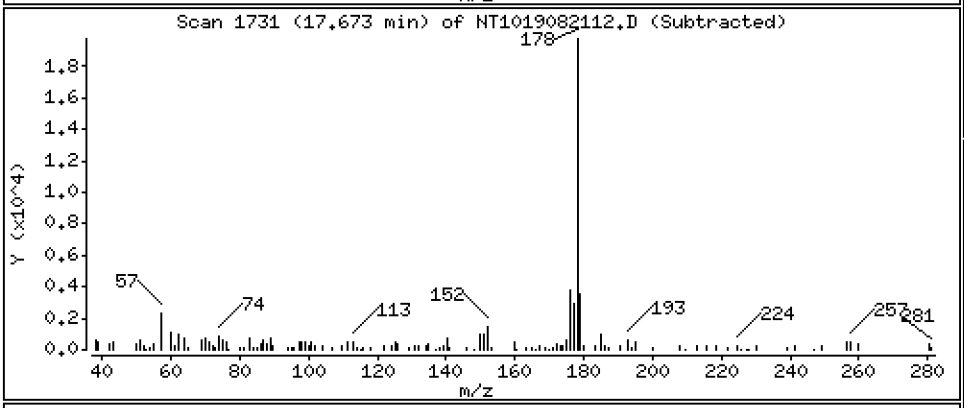
Column phase: ZB-5msi

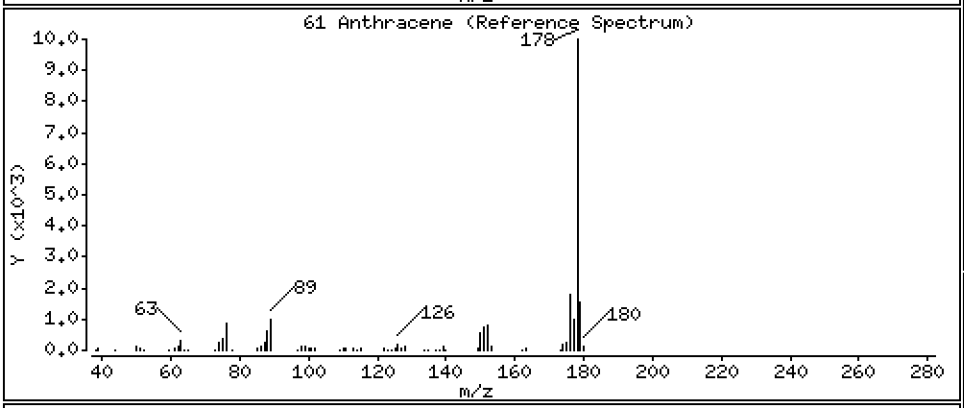
Column diameter: 0.25

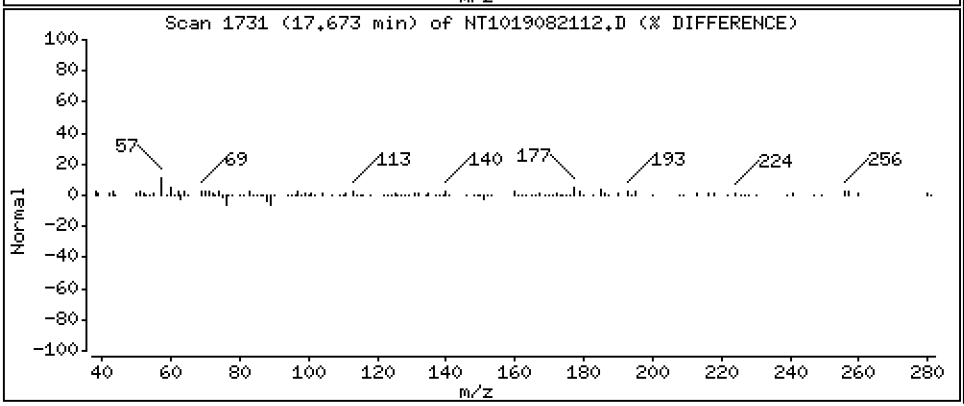
61 Anthracene

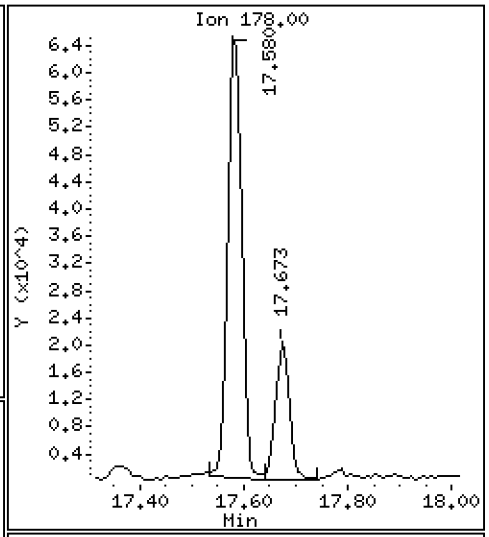
Concentration: 1.167 ug/mL

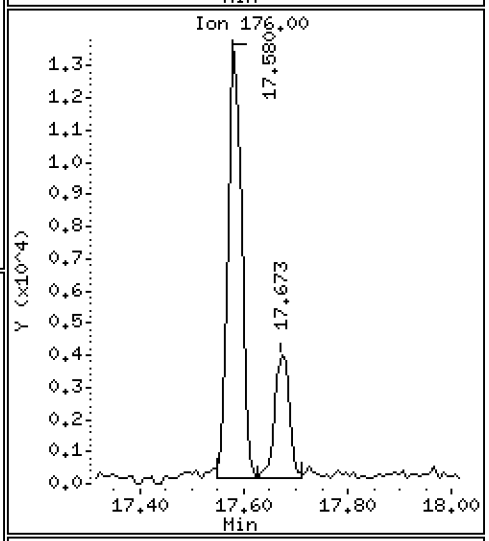


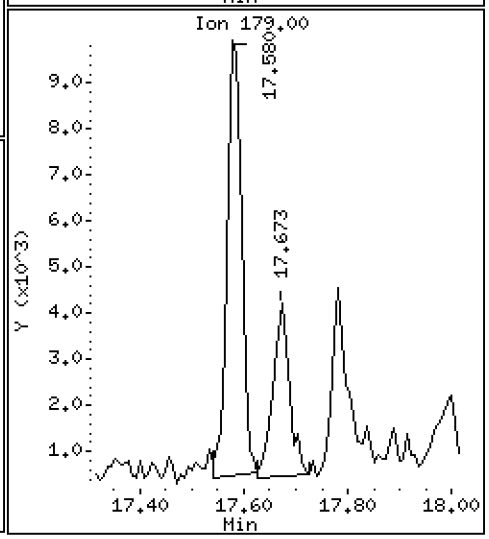












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

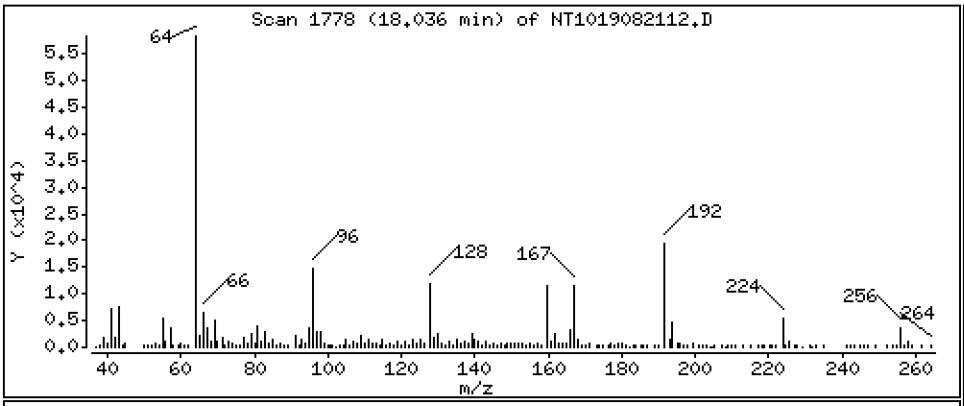
Operator: YZ

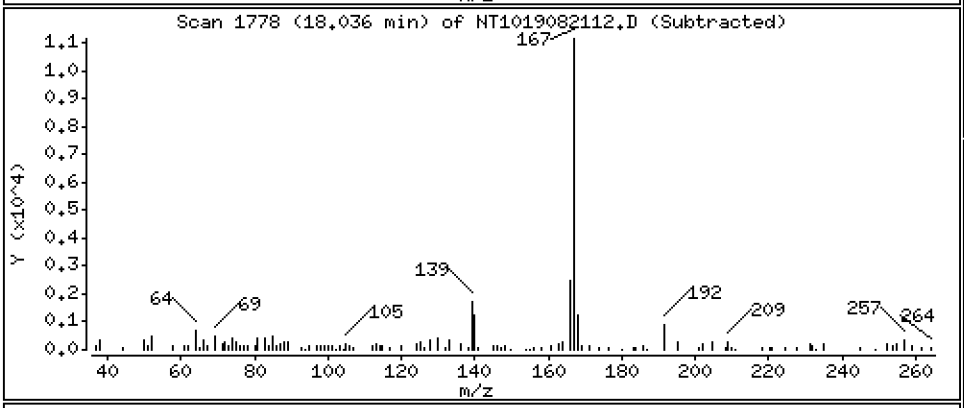
Column phase: ZB-5msi

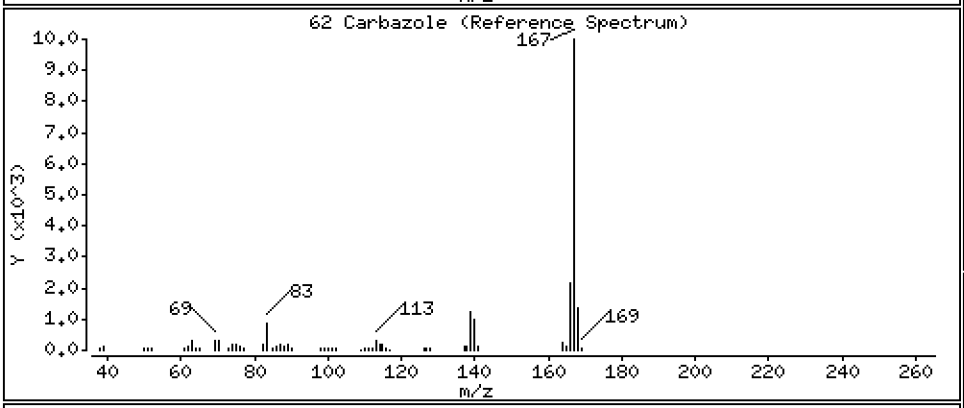
Column diameter: 0.25

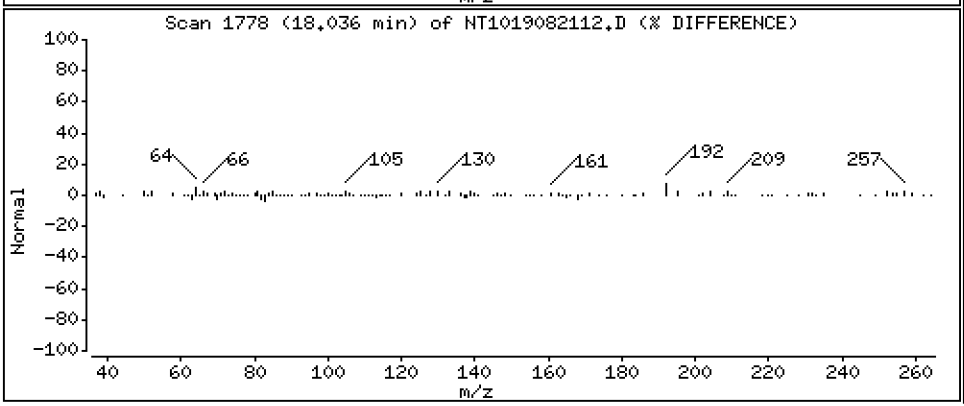
62 Carbazole

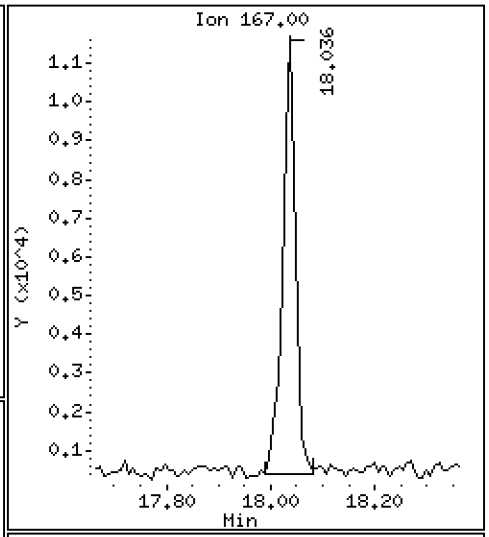
Concentration: 0.6982 ug/mL

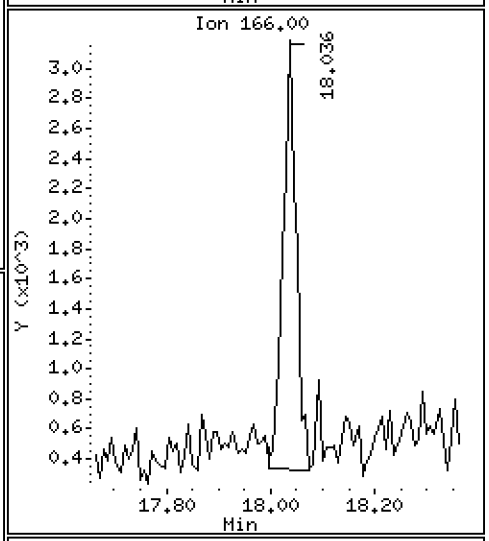


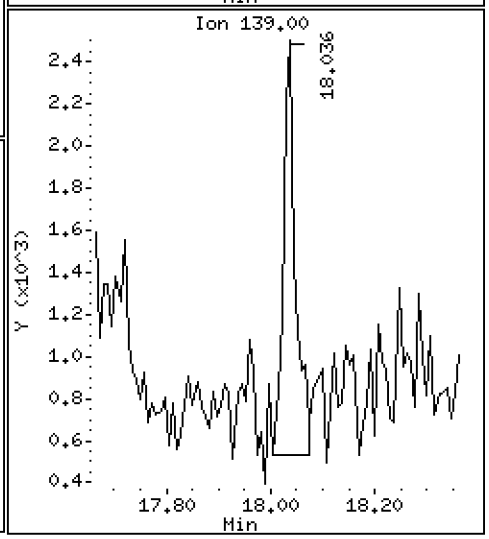












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

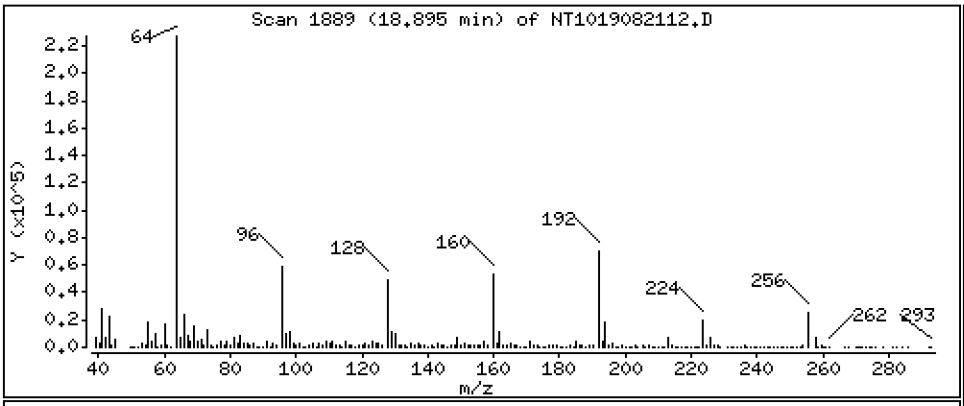
Operator: YZ

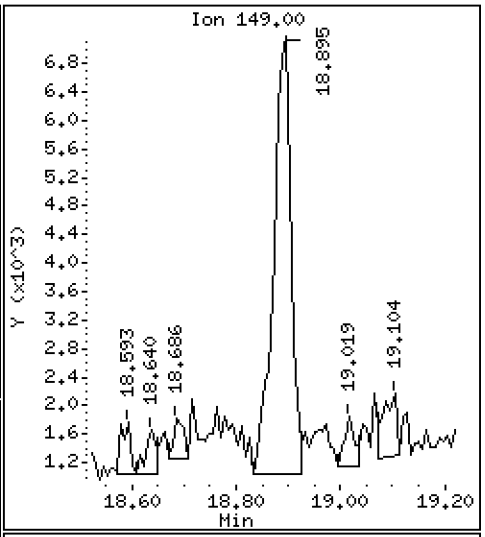
Column phase: ZB-5msi

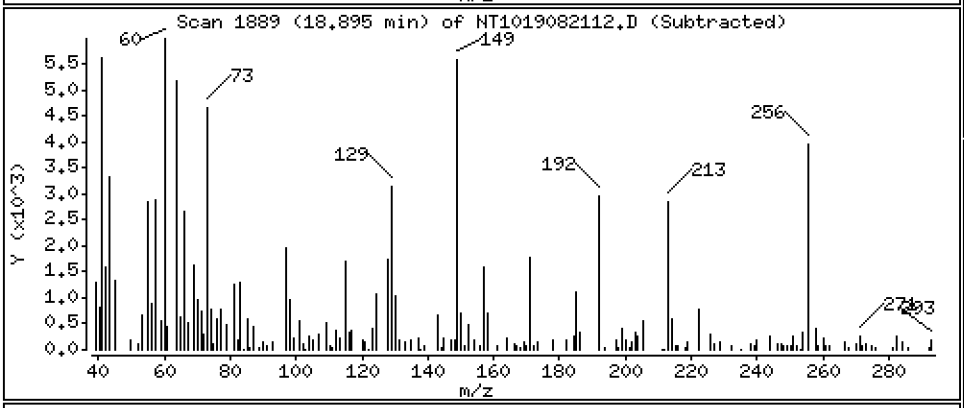
Column diameter: 0.25

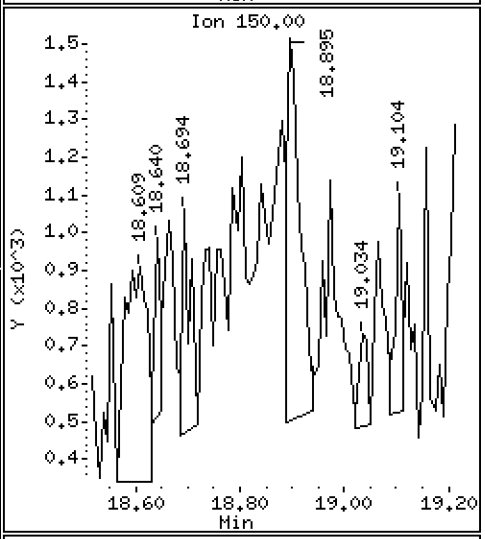
63 Di-n-butylphthalate

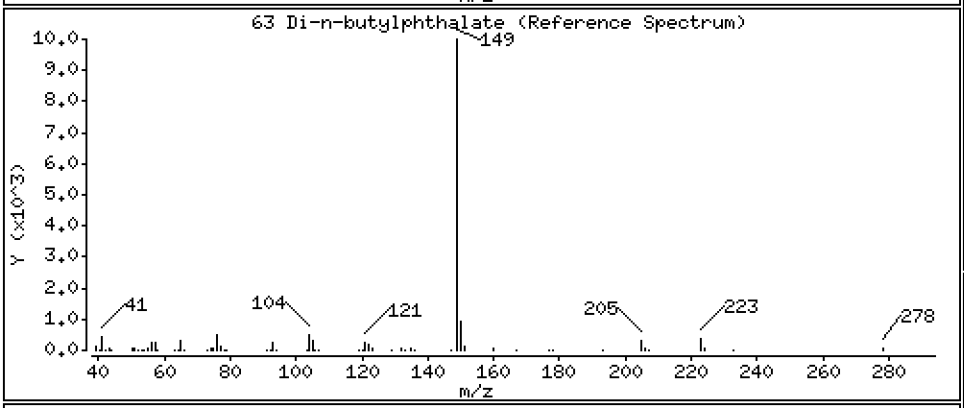
Concentration: 0.3557 ug/mL

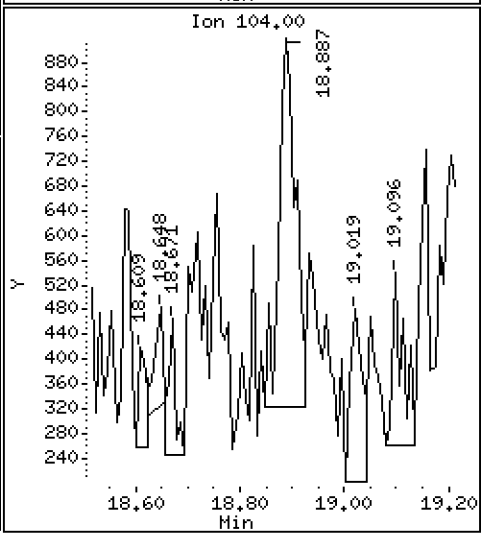


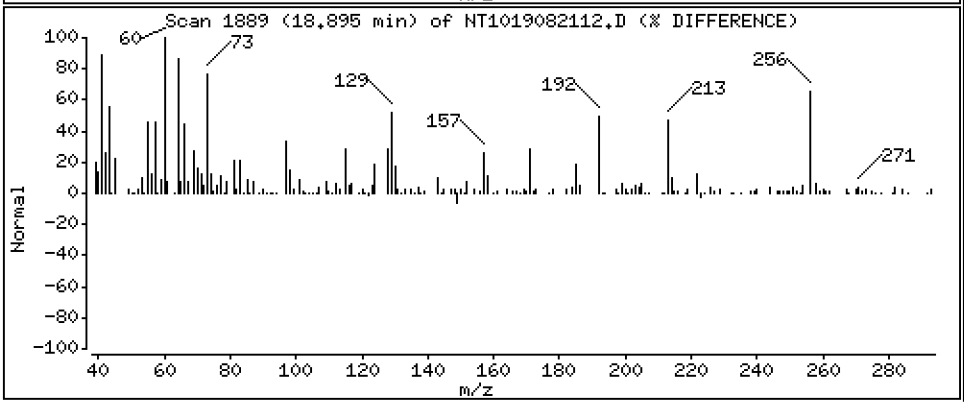












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

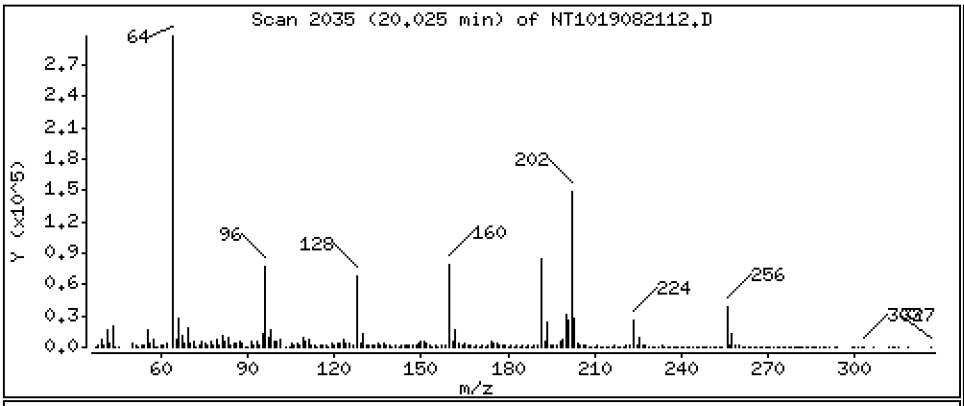
Operator: YZ

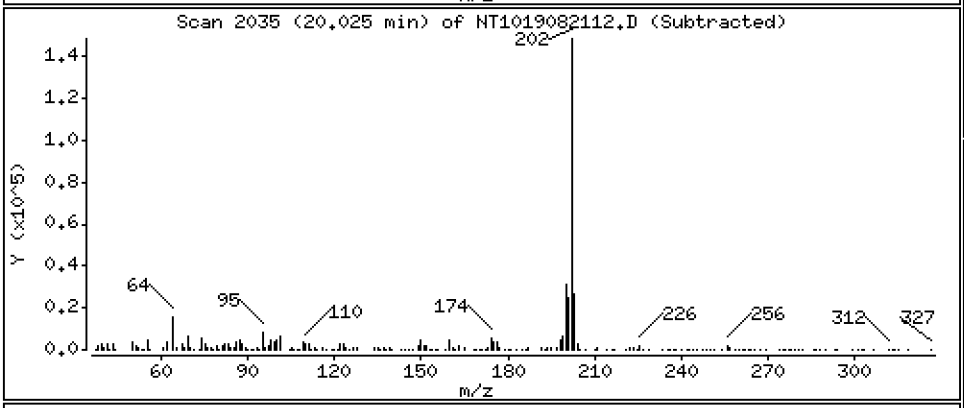
Column phase: ZB-5msi

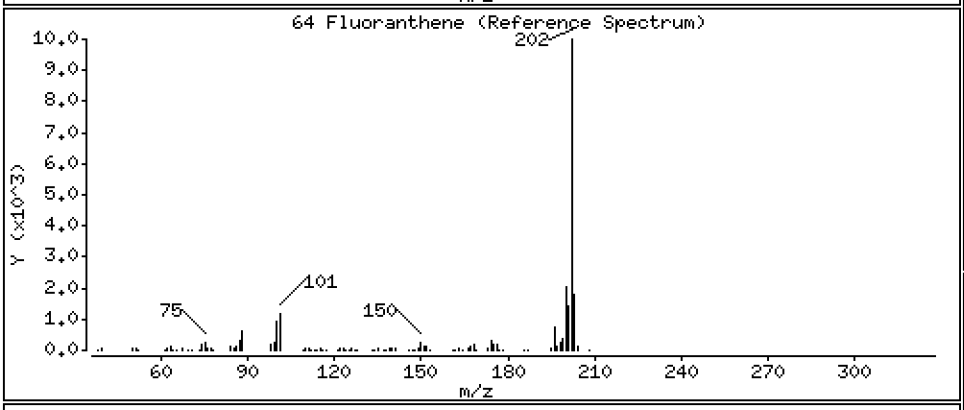
Column diameter: 0.25

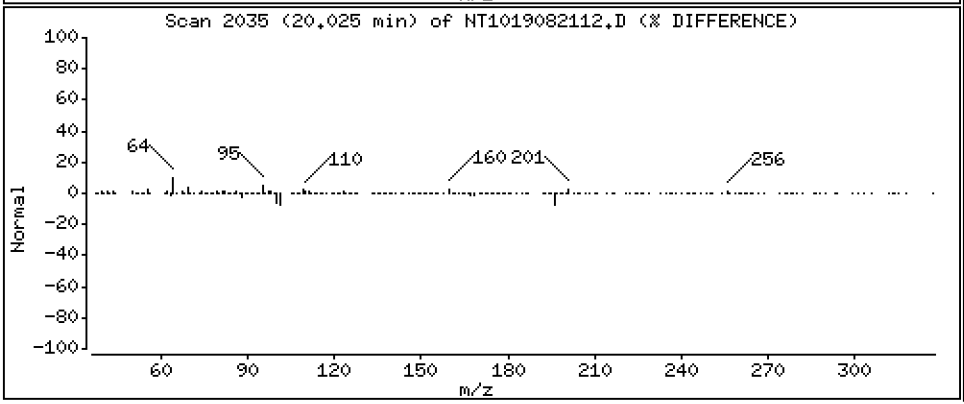
64 Fluoranthene

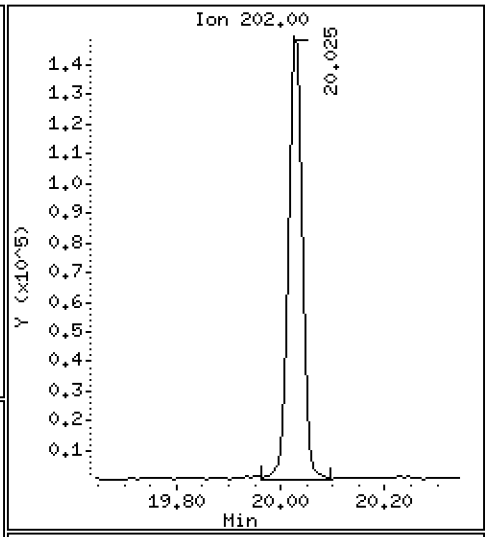
Concentration: 14.42 ug/mL

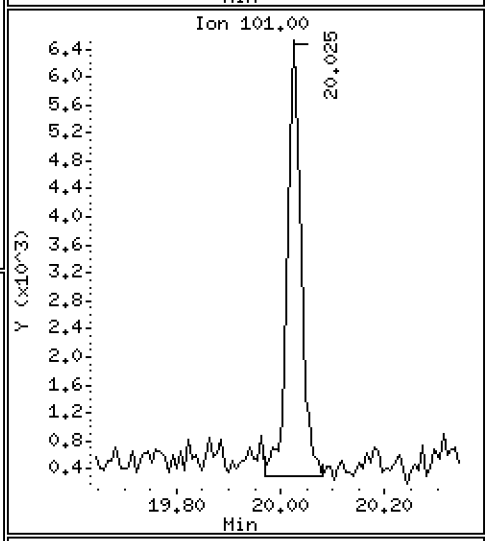


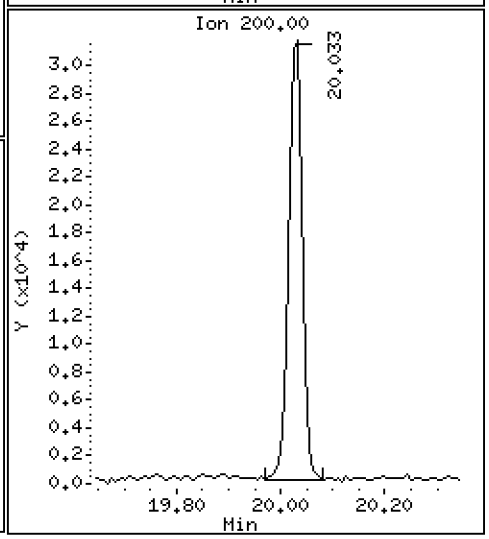












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

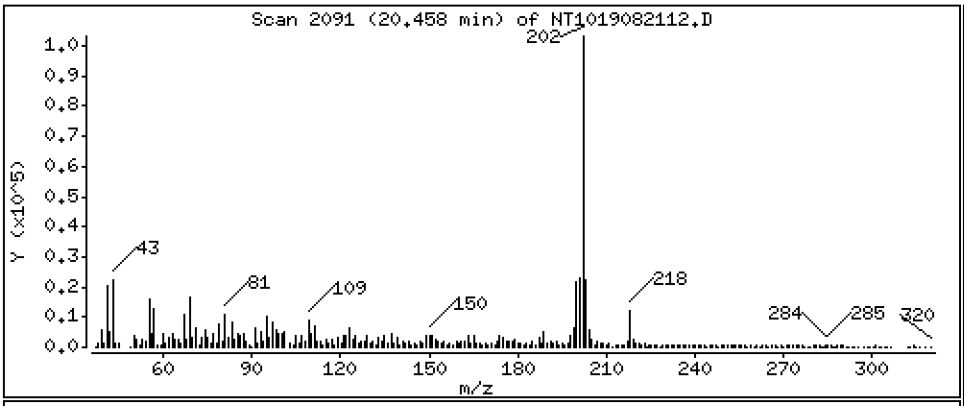
Operator: YZ

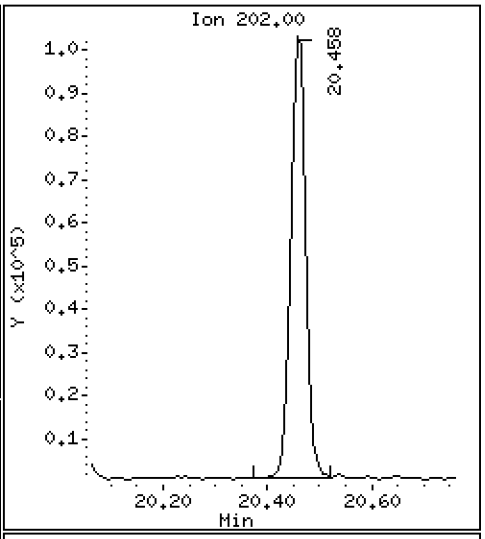
Column phase: ZB-5msi

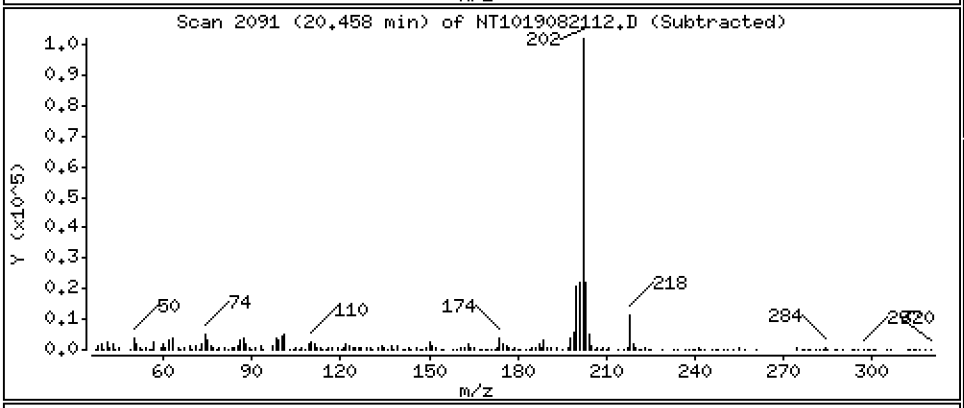
Column diameter: 0.25

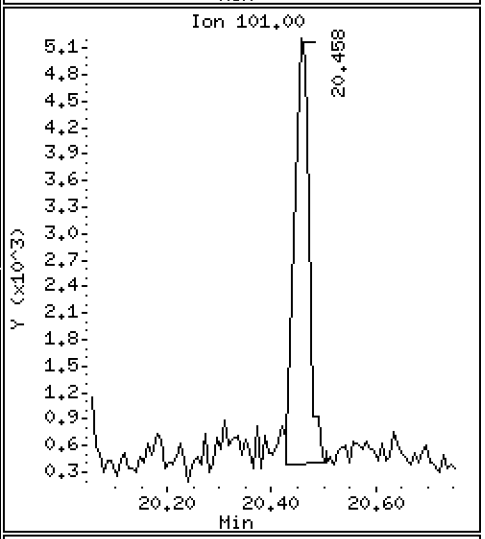
65 Pyrene

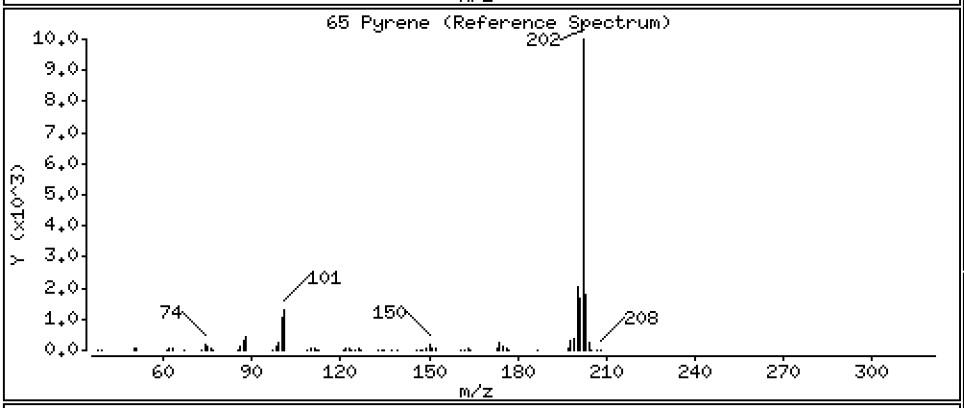
Concentration: 10.19 ug/mL

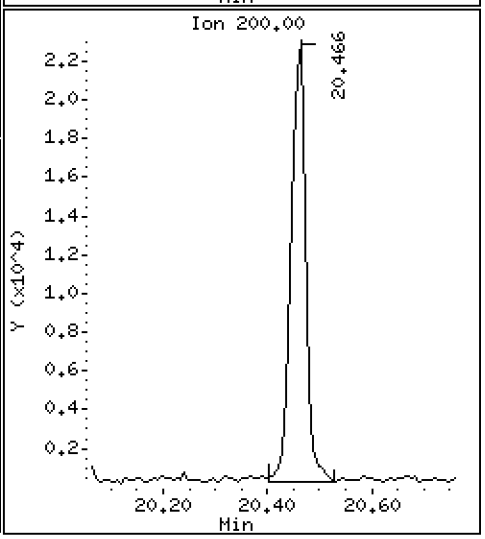


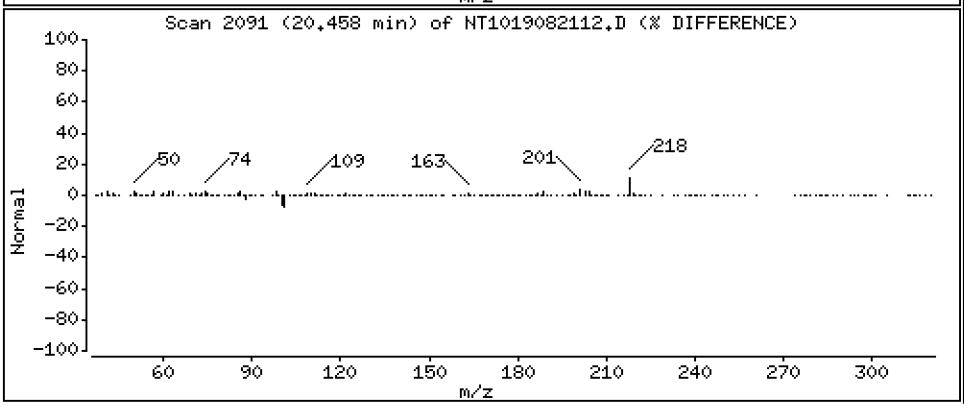












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

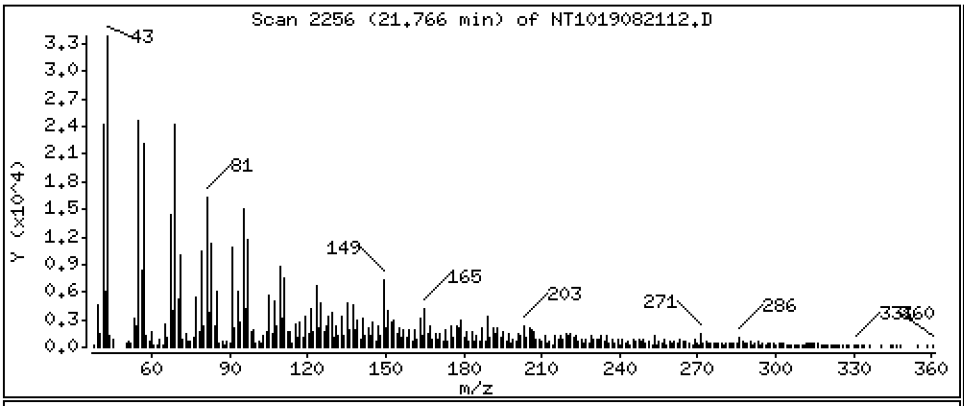
Operator: YZ

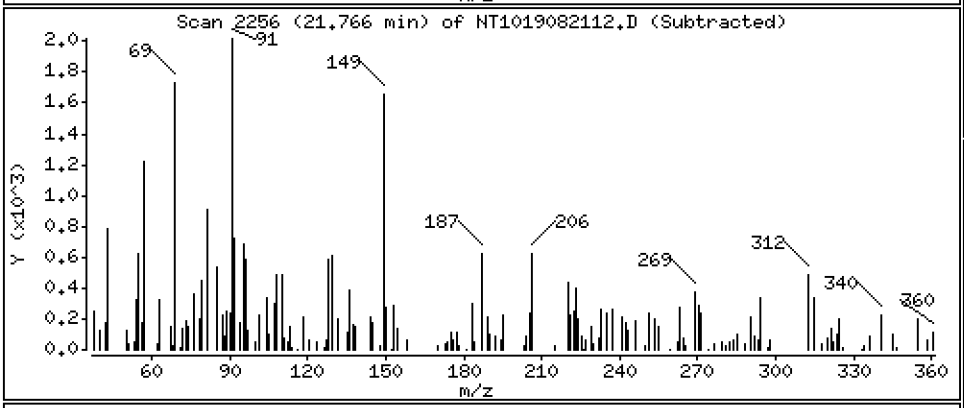
Column phase: ZB-5msi

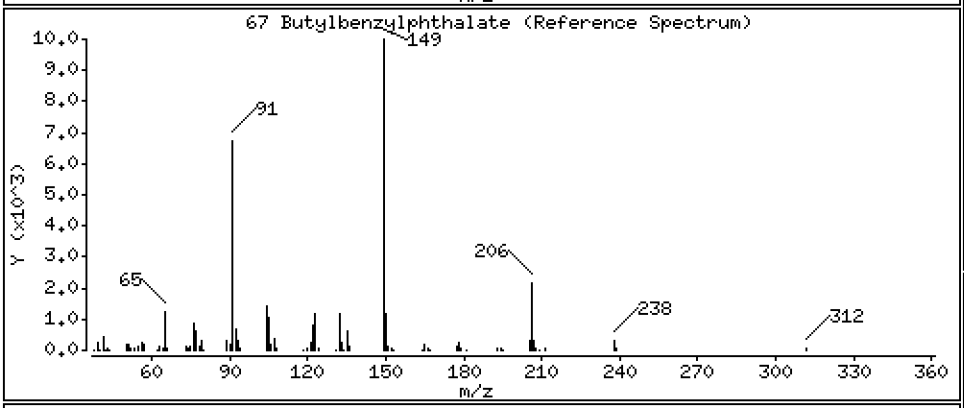
Column diameter: 0.25

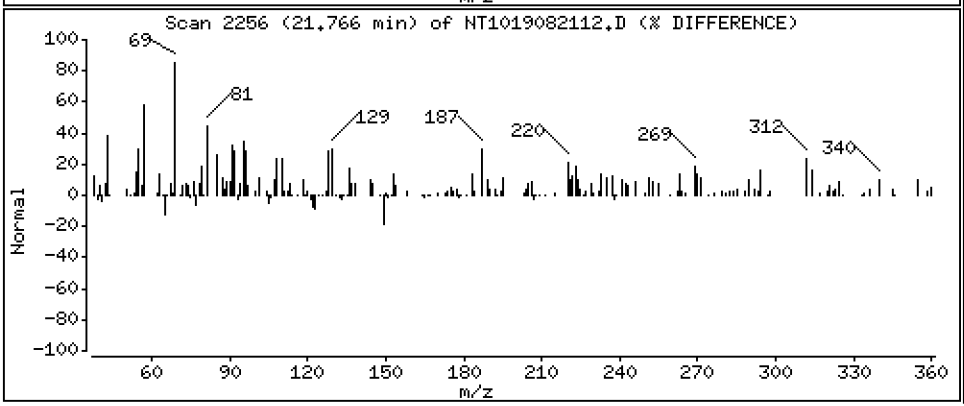
67 Butylbenzylphthalate

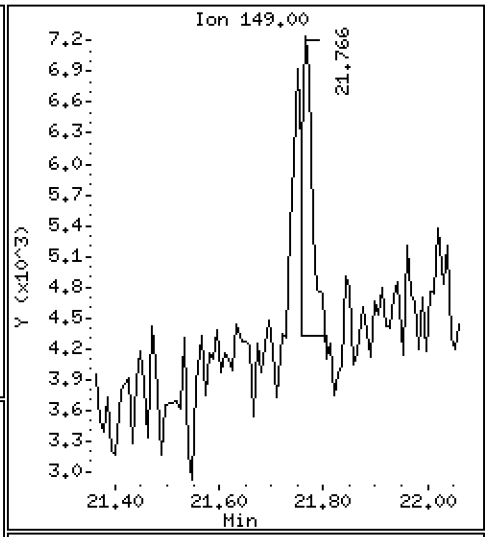
Concentration: 0.4244 ug/mL

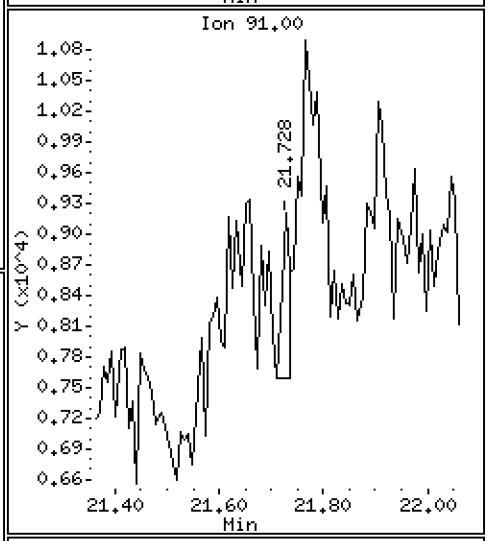


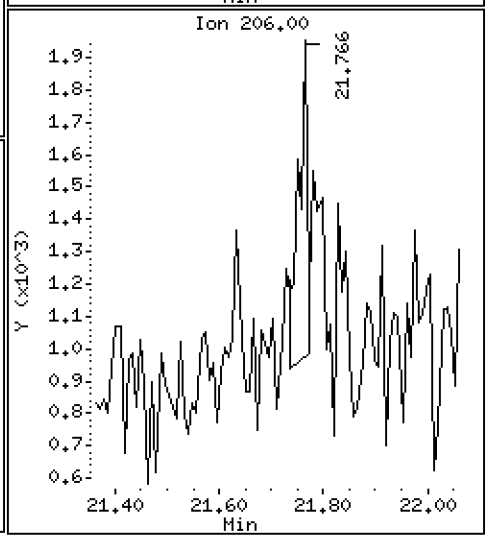












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

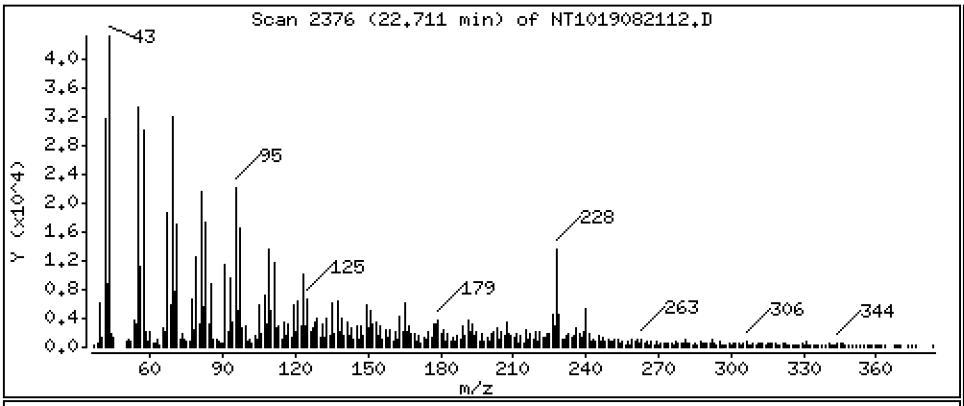
Operator: YZ

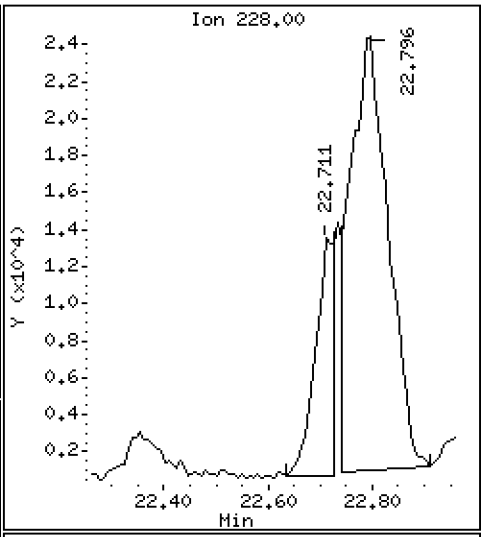
Column phase: ZB-5msi

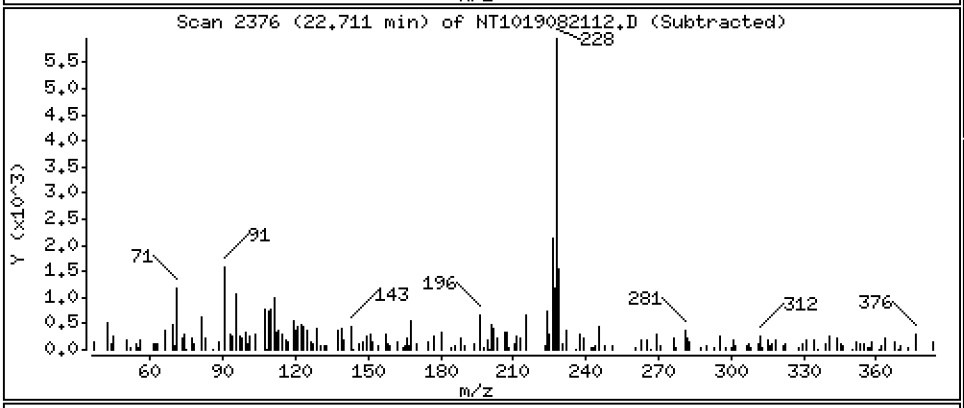
Column diameter: 0.25

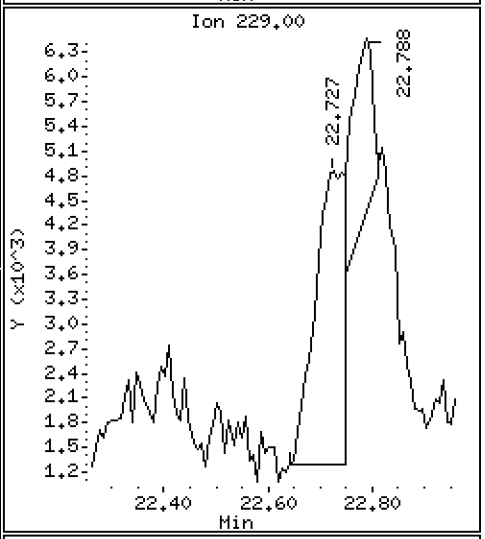
68 Benzo(a)anthracene

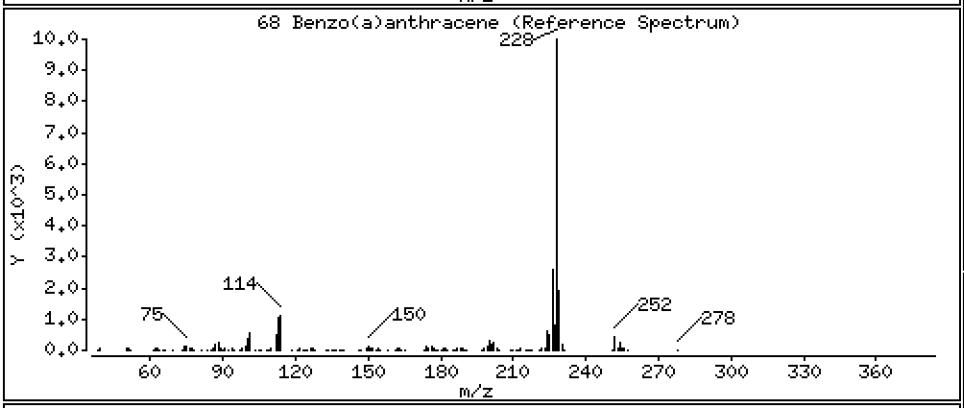
Concentration: 1.746 ug/mL

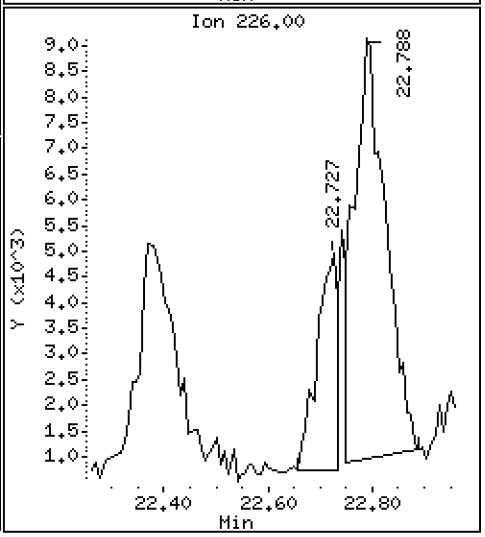


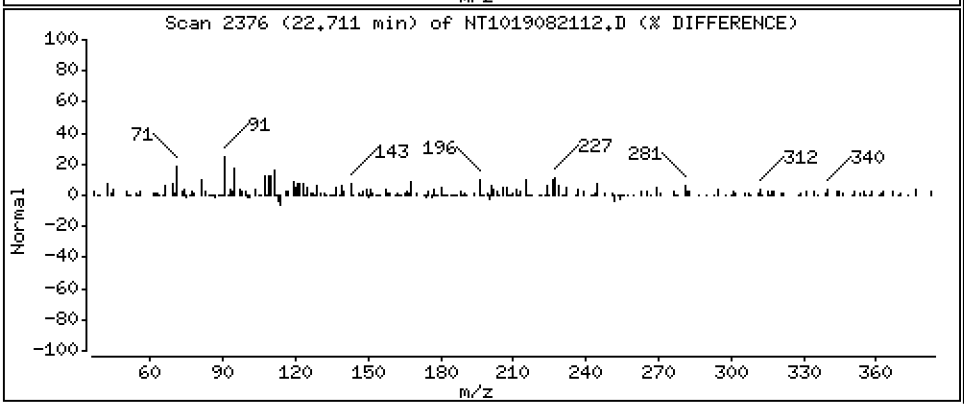












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

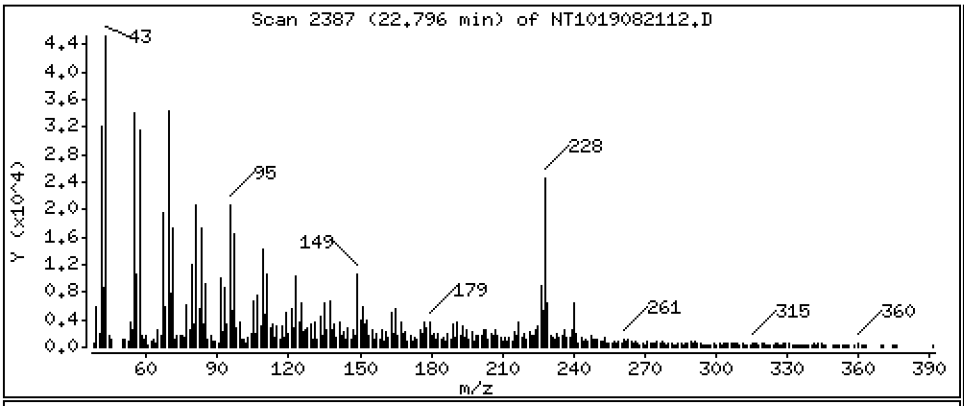
Operator: YZ

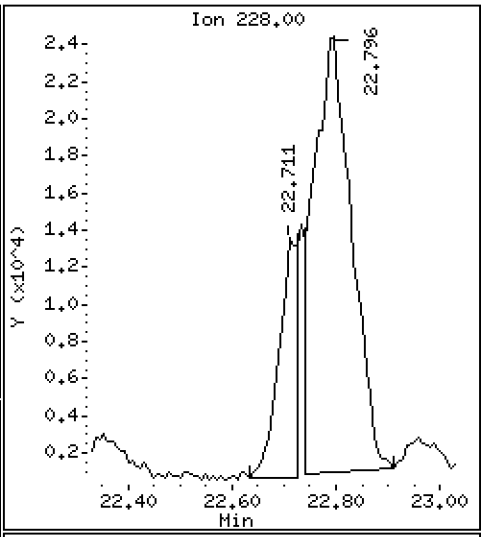
Column phase: ZB-5msi

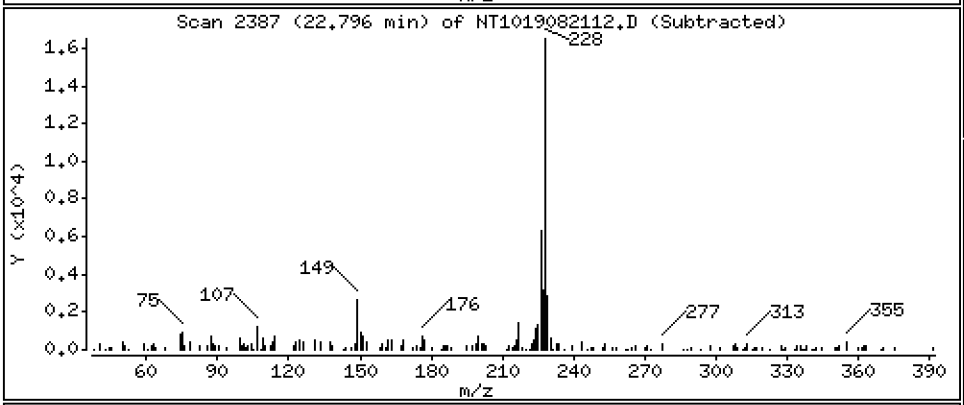
Column diameter: 0.25

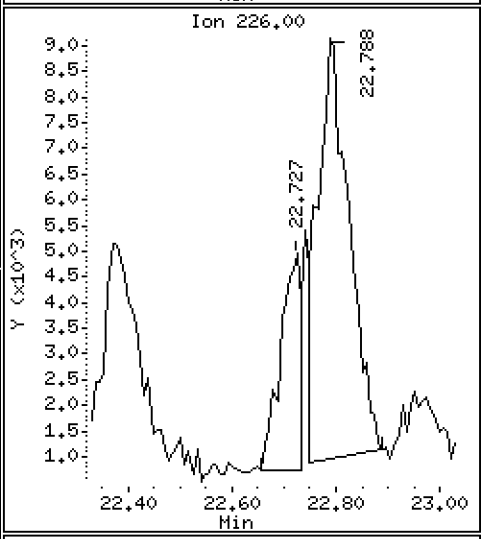
71 Chrysene

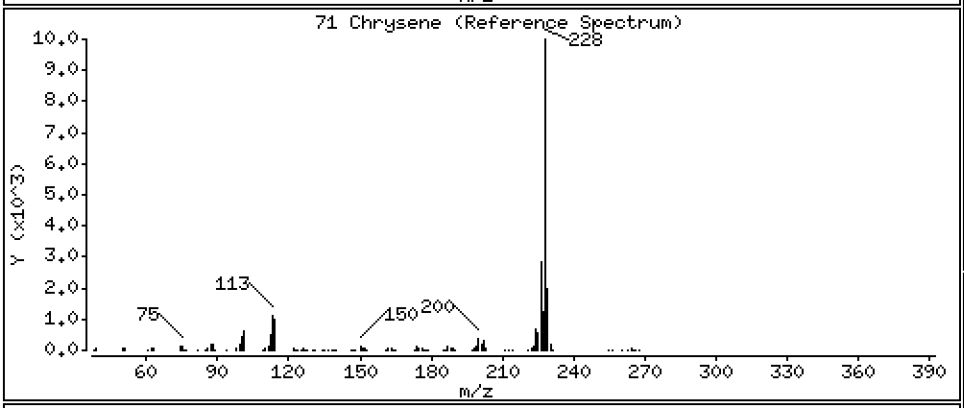
Concentration: 7.158 ug/mL

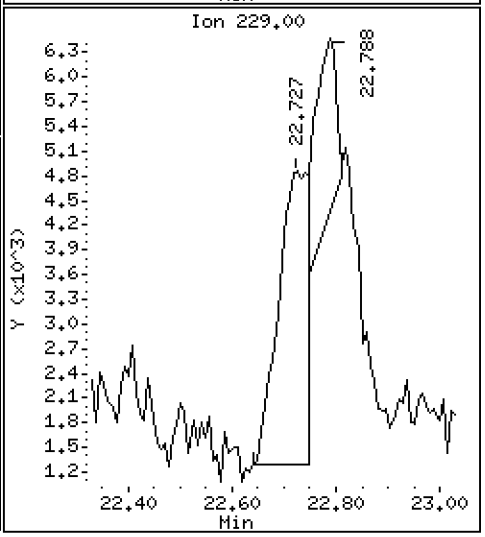


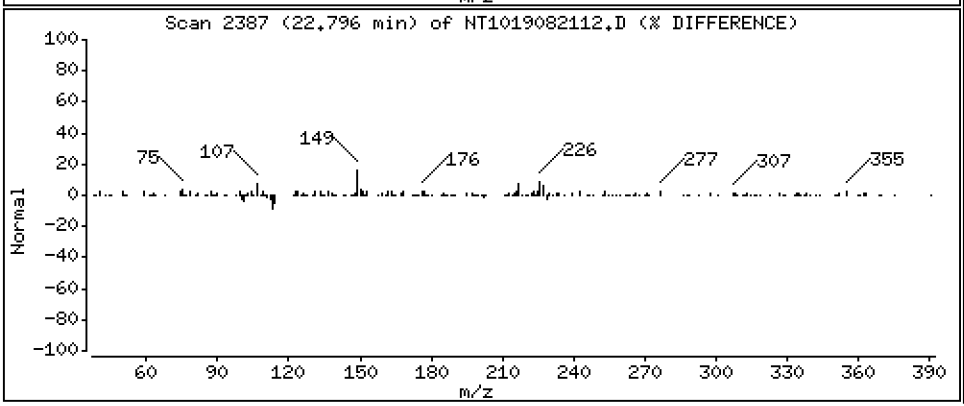












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

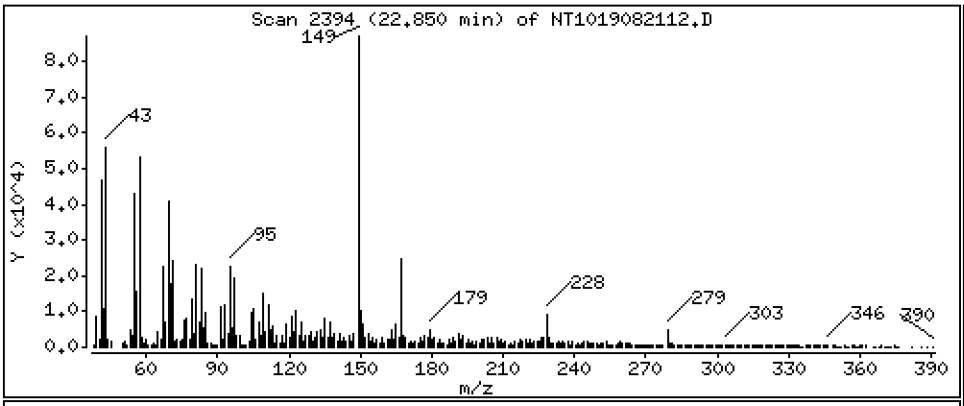
Operator: YZ

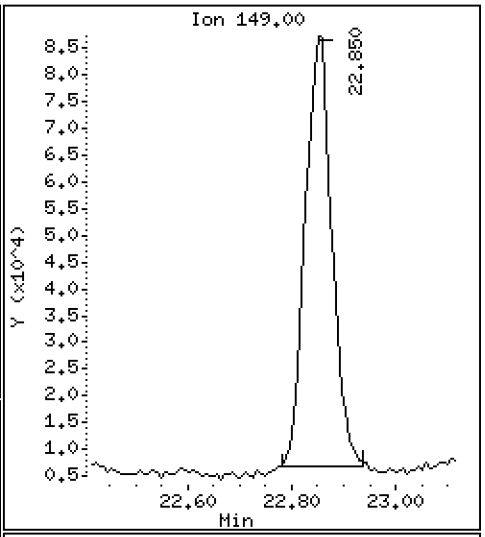
Column phase: ZB-5msi

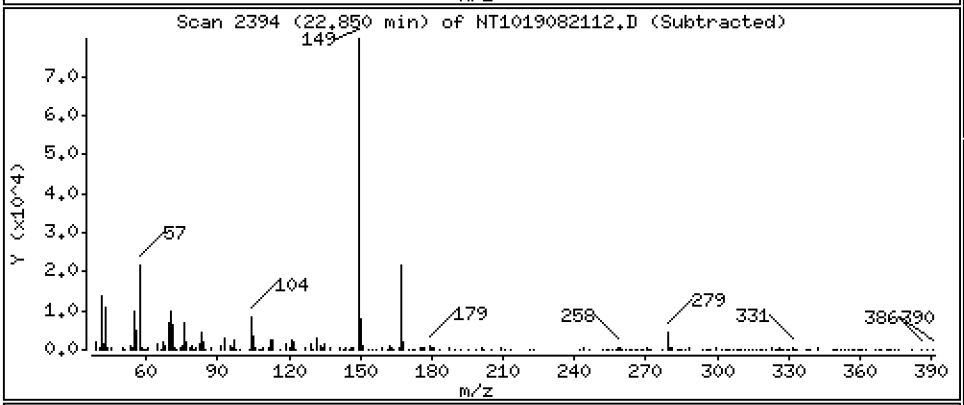
Column diameter: 0.25

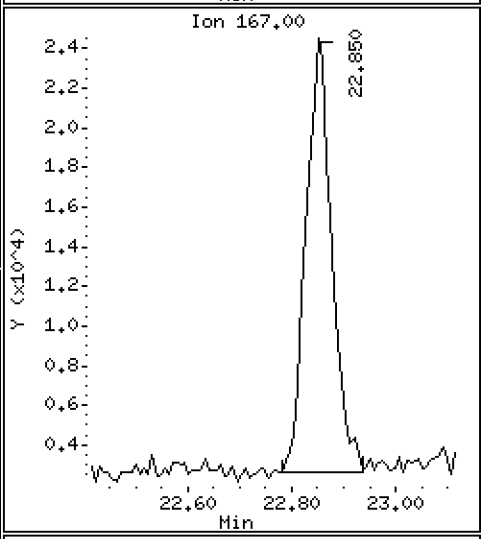
72 bis(2-Ethylhexyl)phthalate

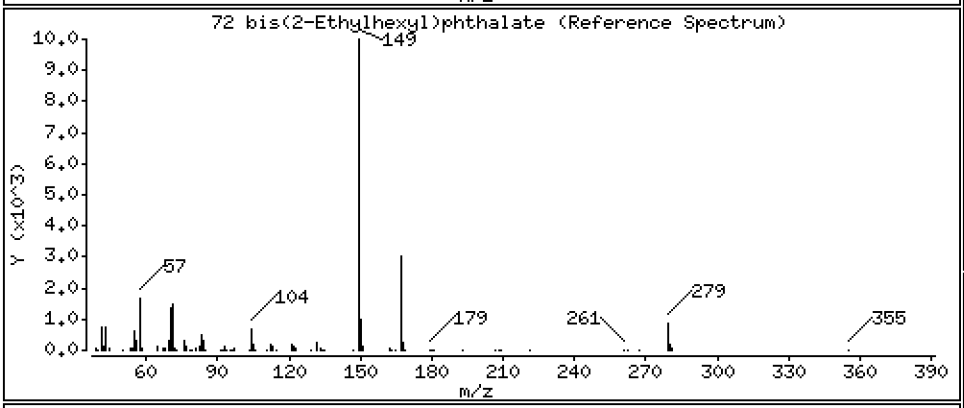
Concentration: 20.93 ug/mL

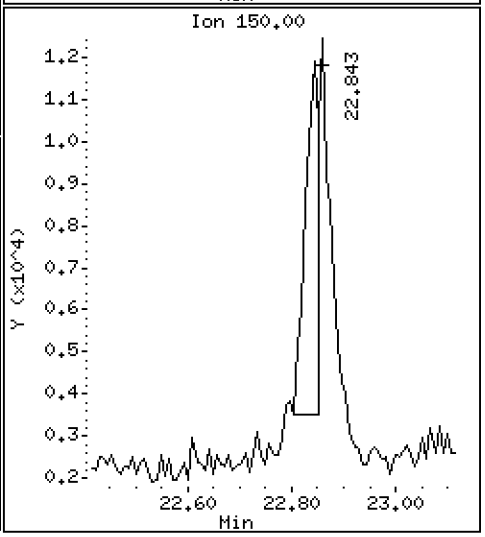


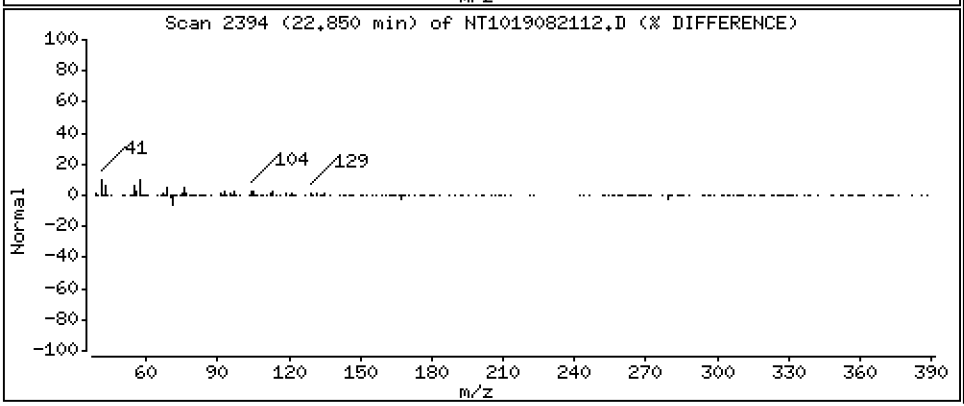












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

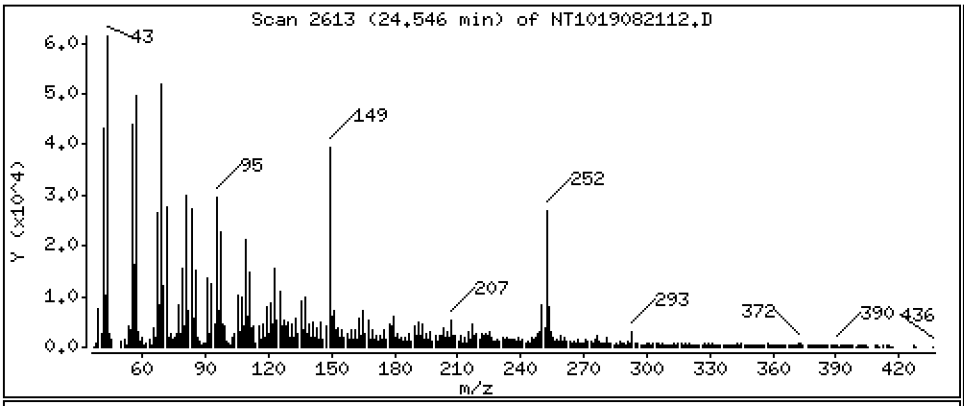
Operator: YZ

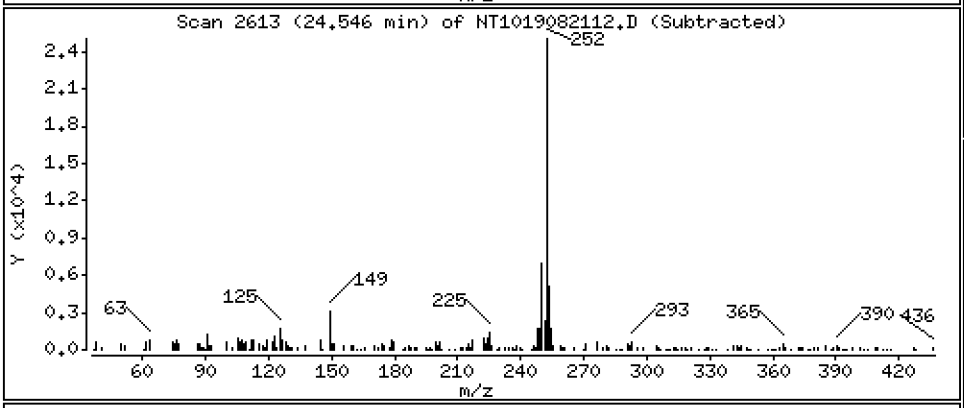
Column phase: ZB-5msi

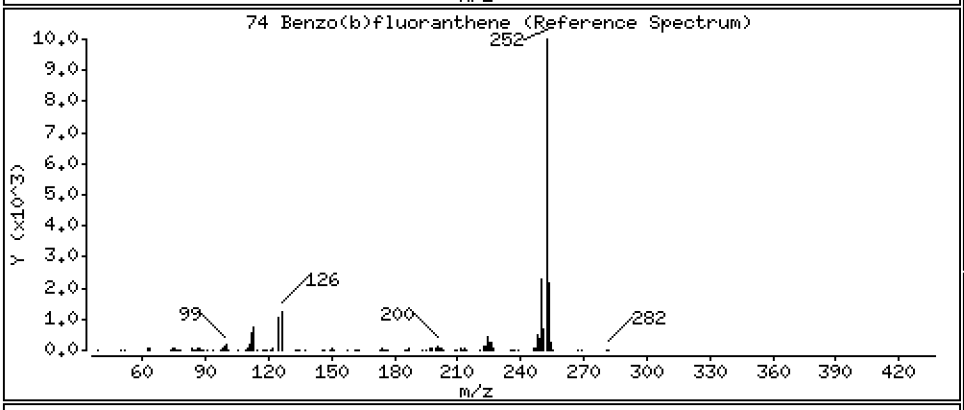
Column diameter: 0.25

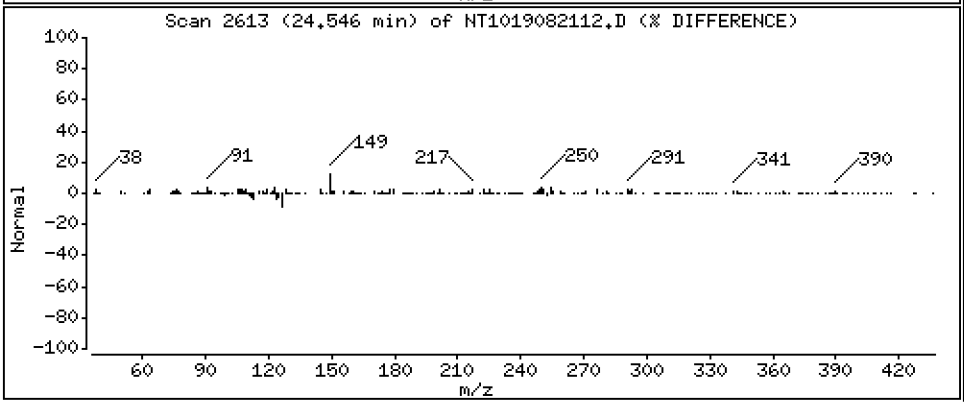
74 Benzo(b)fluoranthene

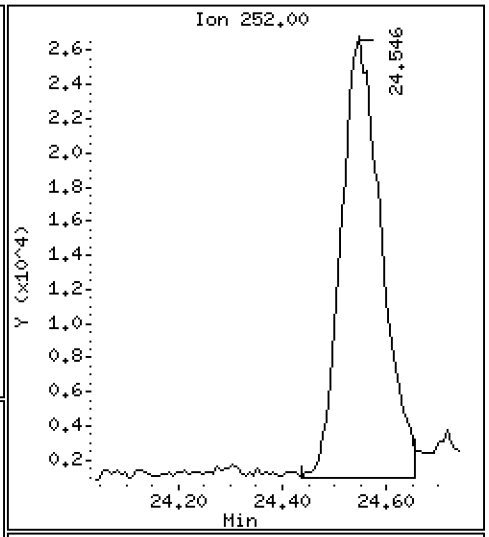
Concentration: 7.901 ug/mL

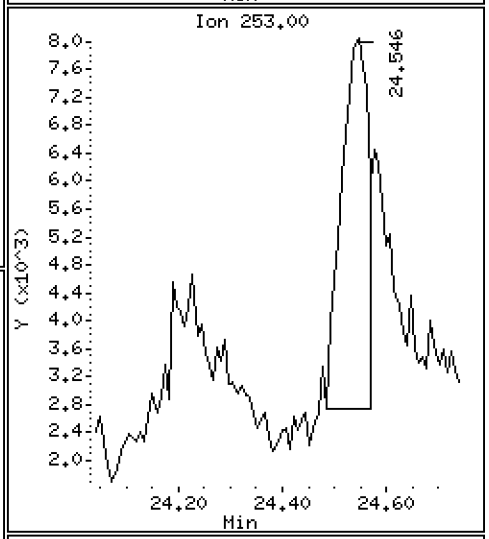


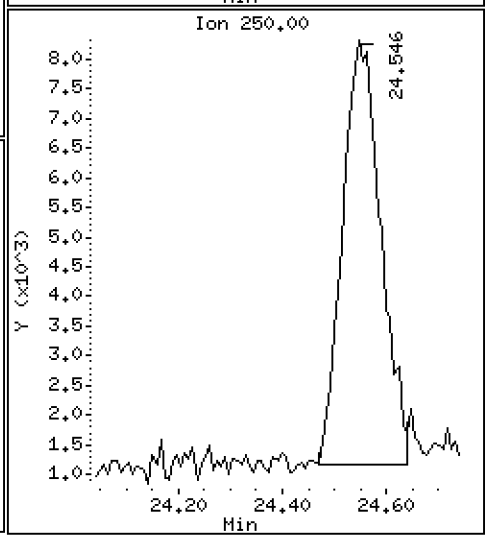












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

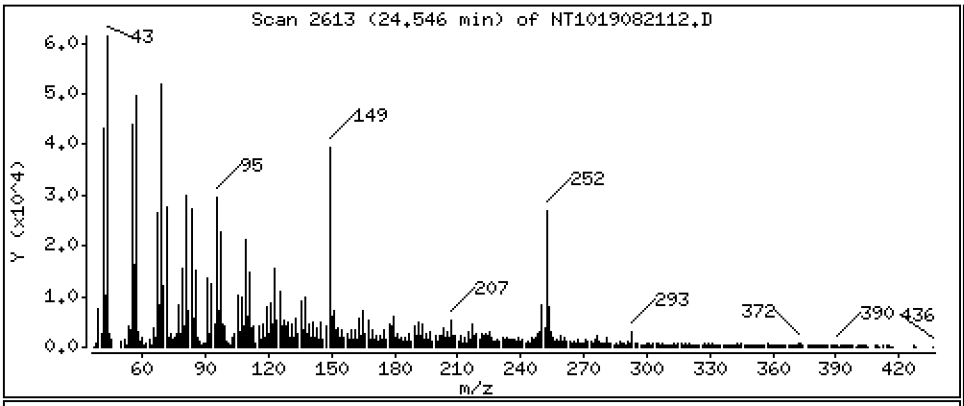
Operator: YZ

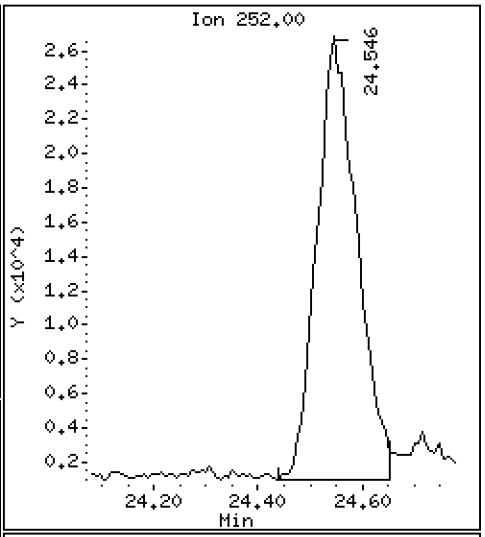
Column phase: ZB-5msi

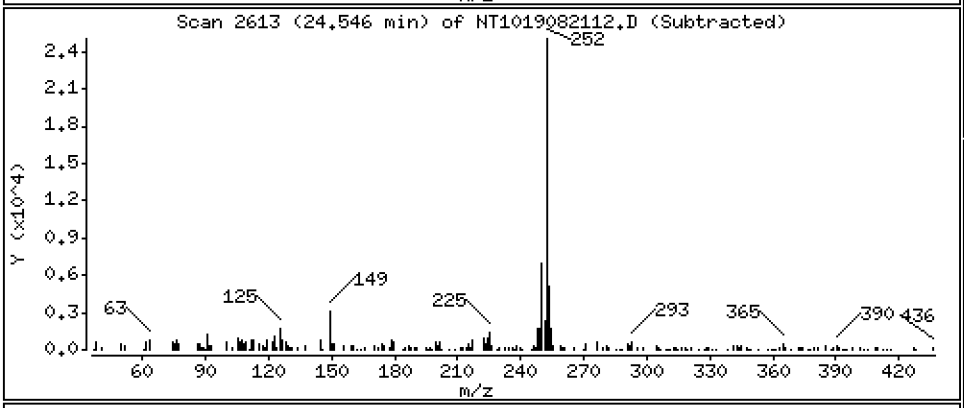
Column diameter: 0.25

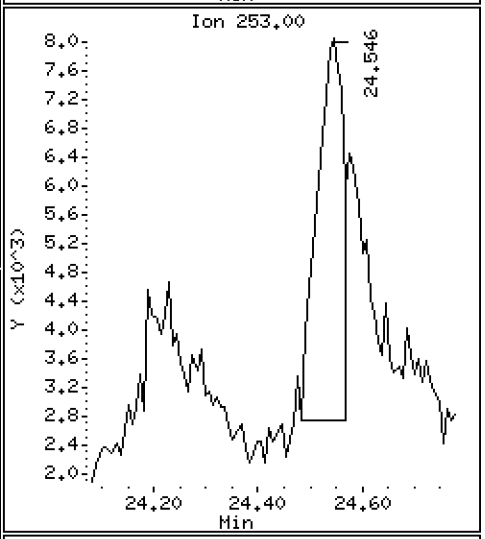
75 Benzo(k)fluoranthene

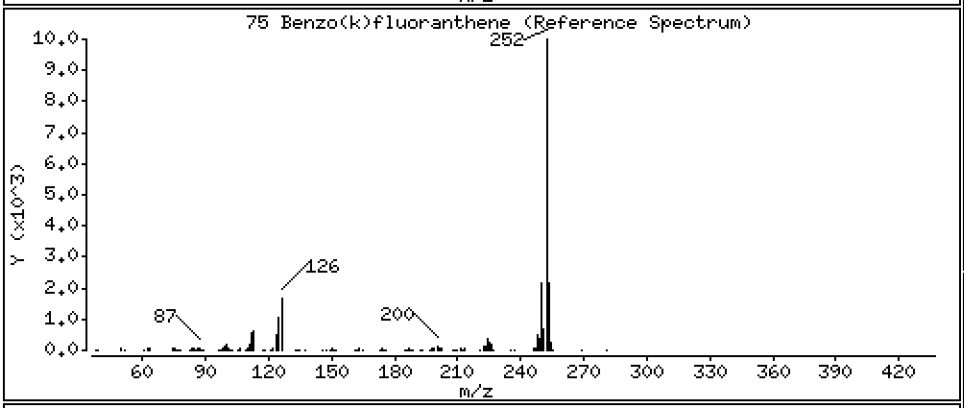
Concentration: 7.854 ug/mL

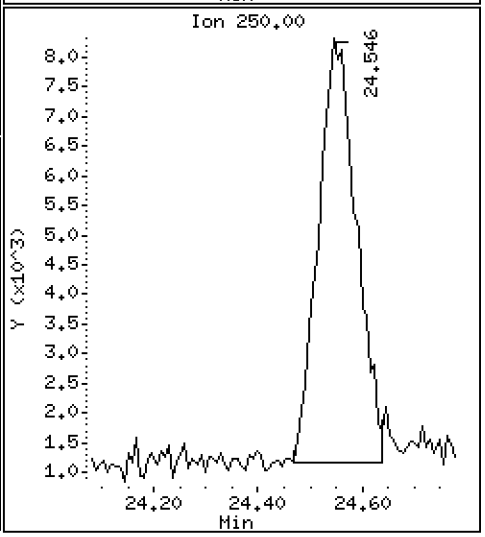


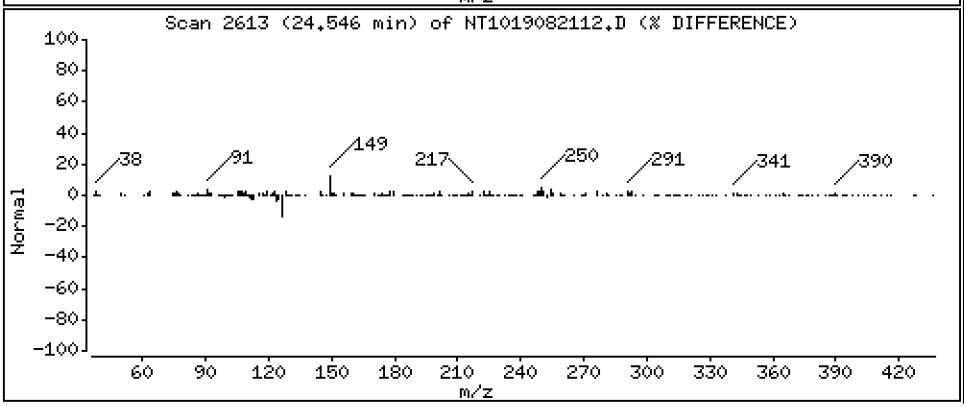












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

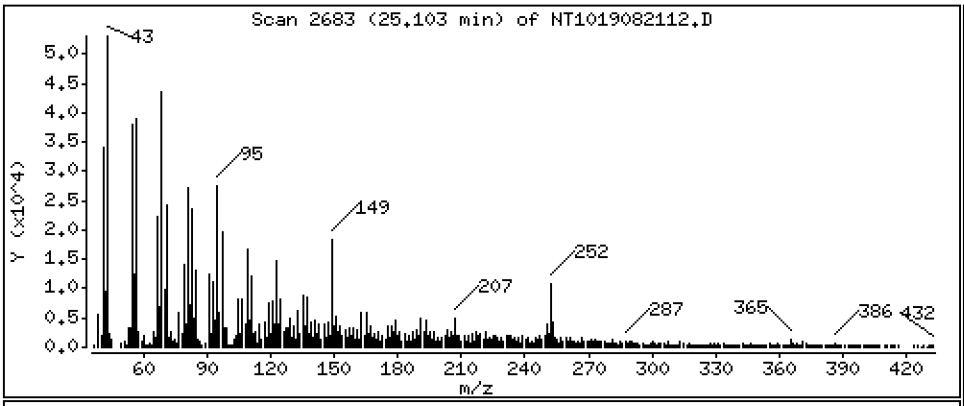
Operator: YZ

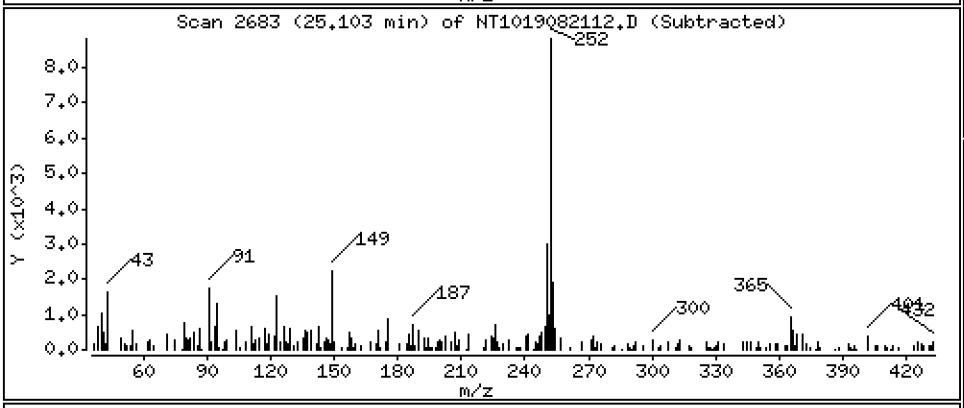
Column phase: ZB-5msi

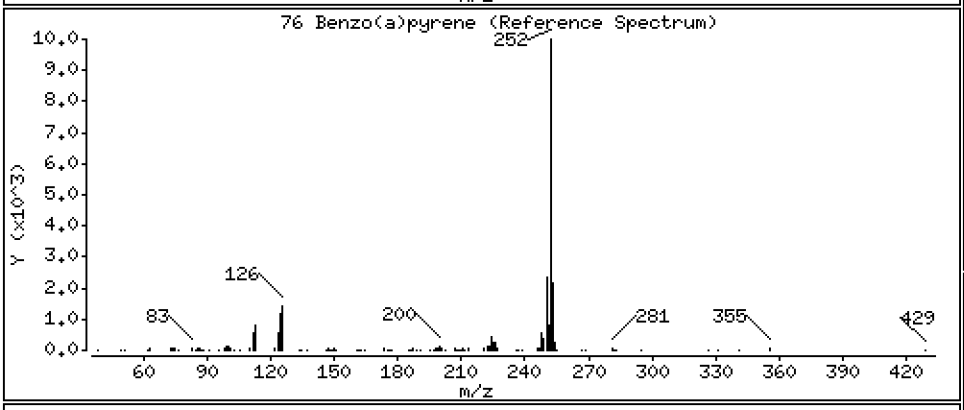
Column diameter: 0.25

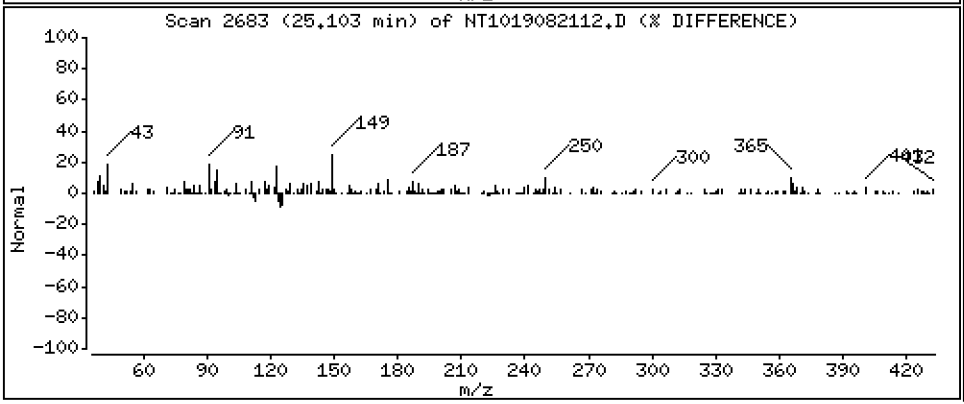
76 Benzo(a)pyrene

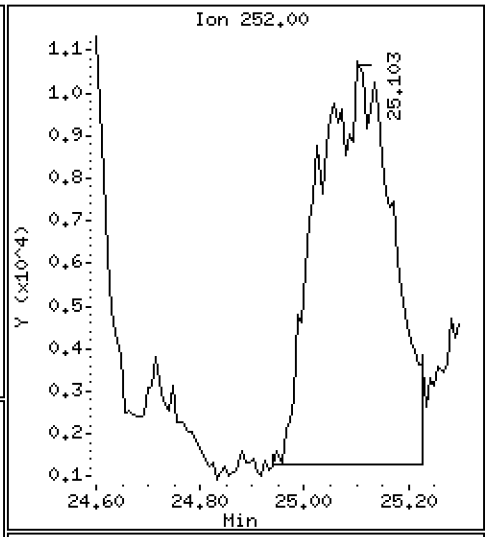
Concentration: 5.989 ug/mL

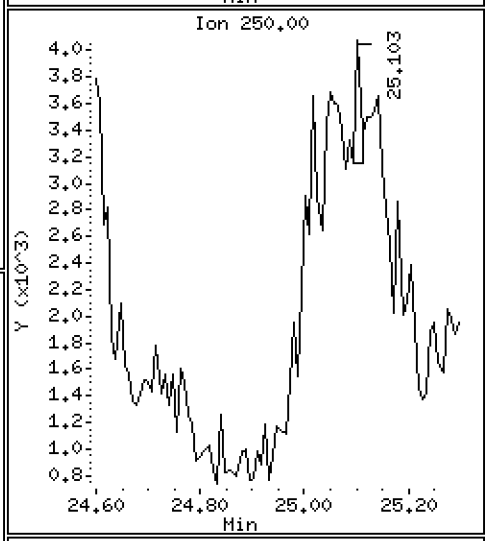


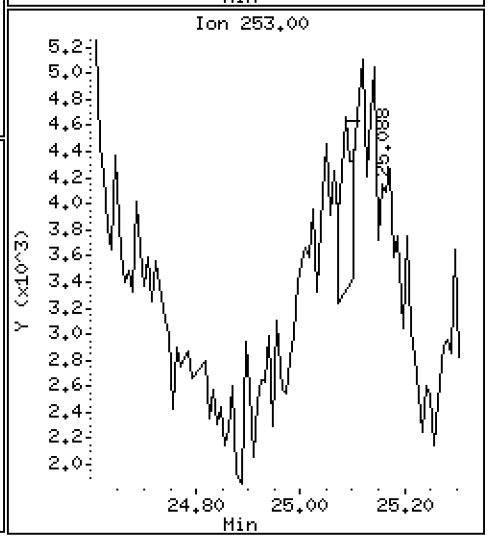












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

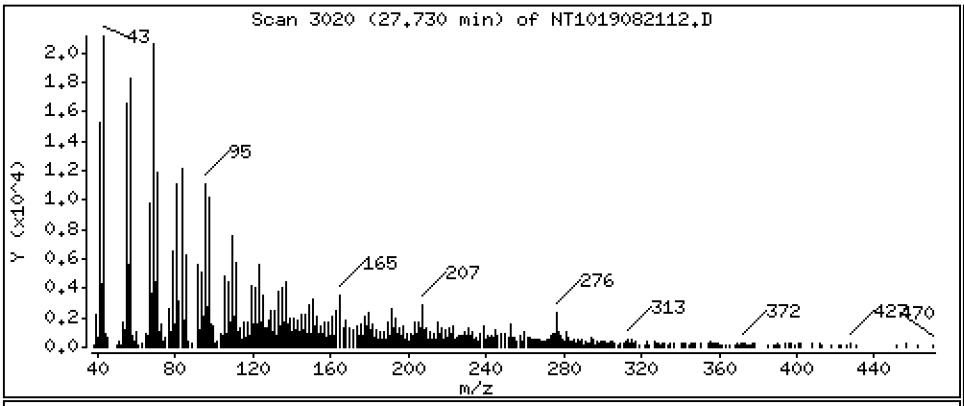
Operator: YZ

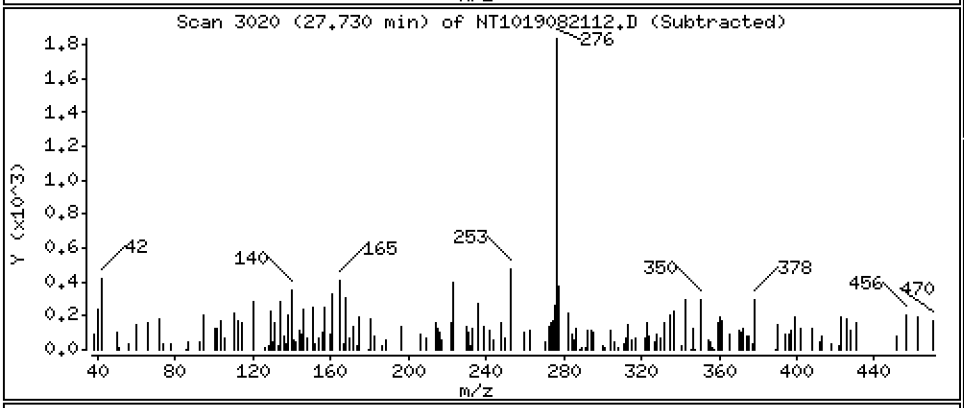
Column phase: ZB-5msi

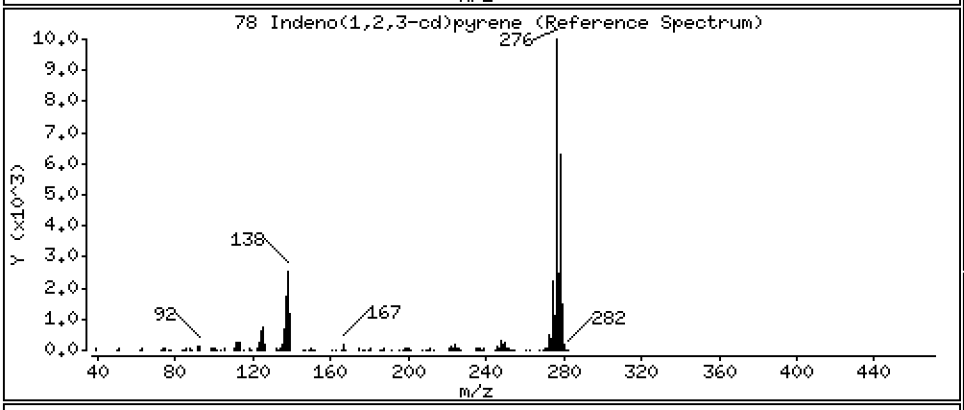
Column diameter: 0.25

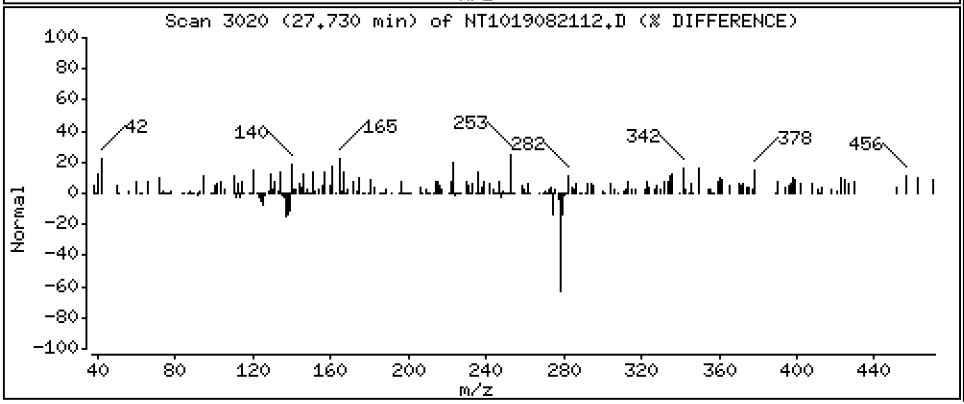
78 Indeno(1,2,3-cd)pyrene

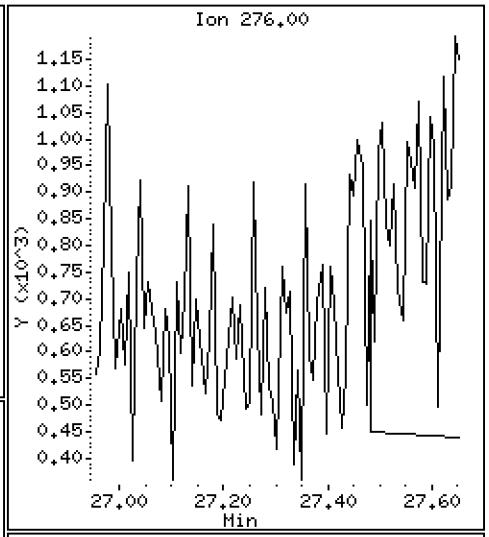
Concentration: 1.474 ug/mL

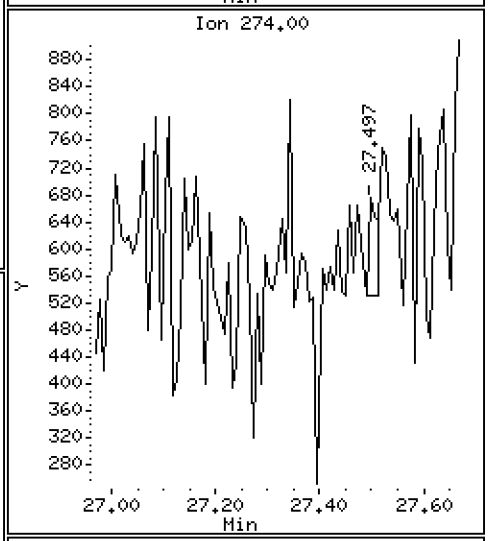


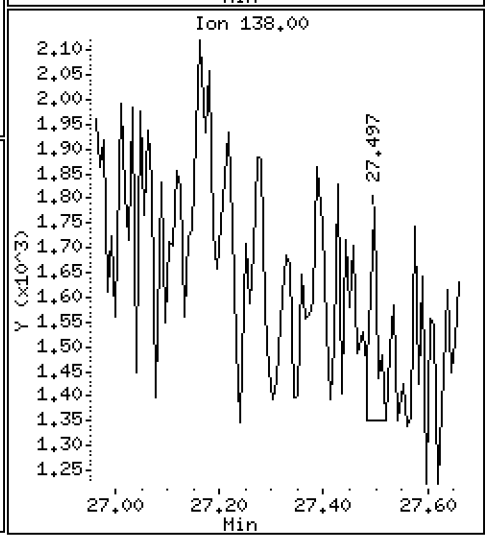












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

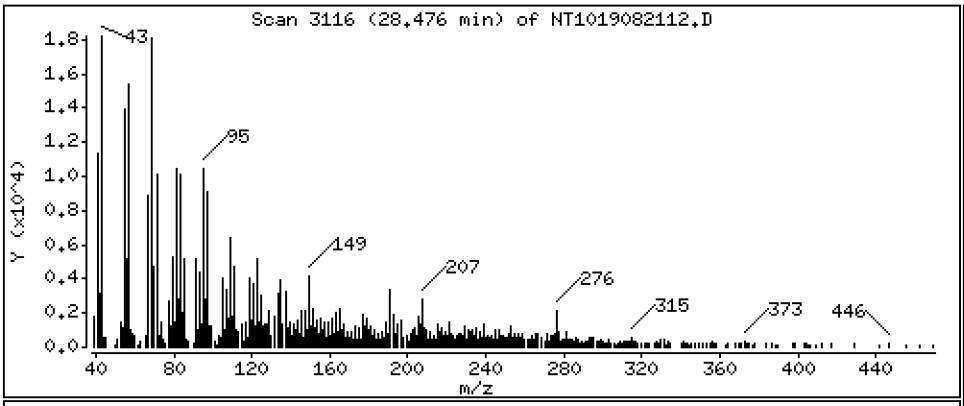
Operator: YZ

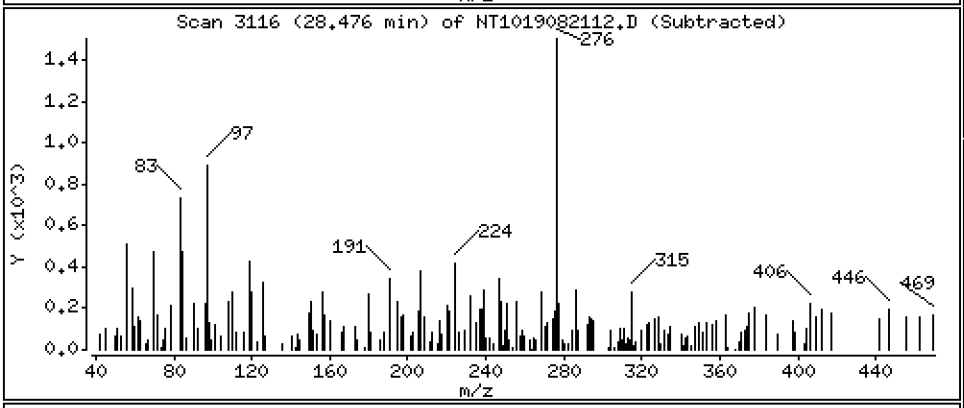
Column phase: ZB-5msi

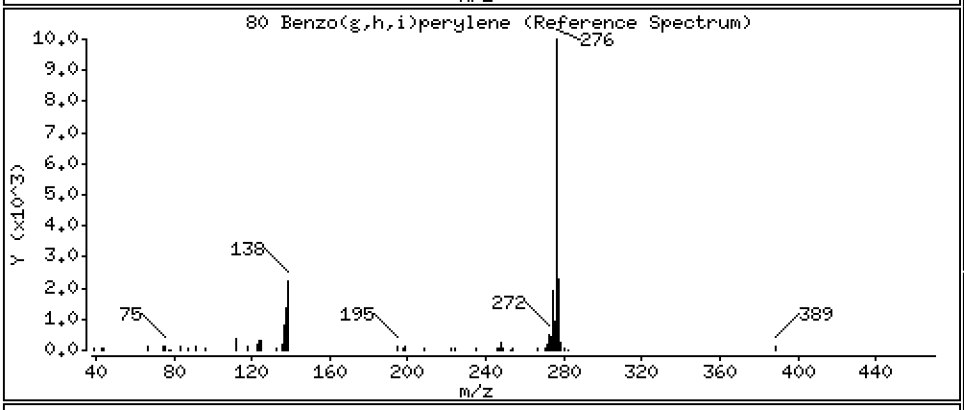
Column diameter: 0.25

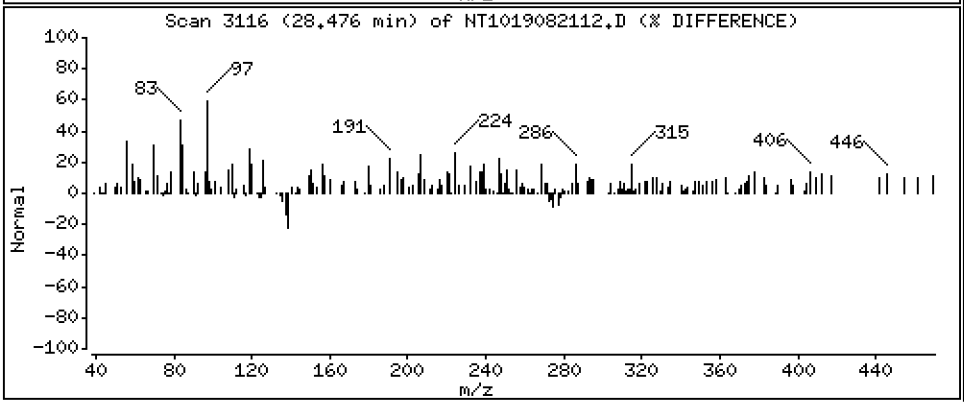
80 Benzo(g,h,i)perylene

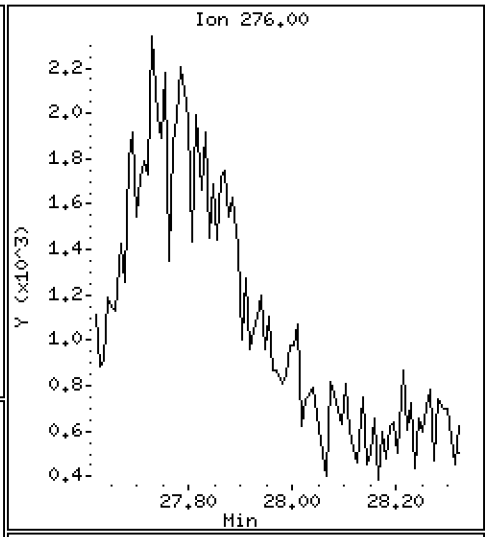
Concentration: 1.237 ug/mL

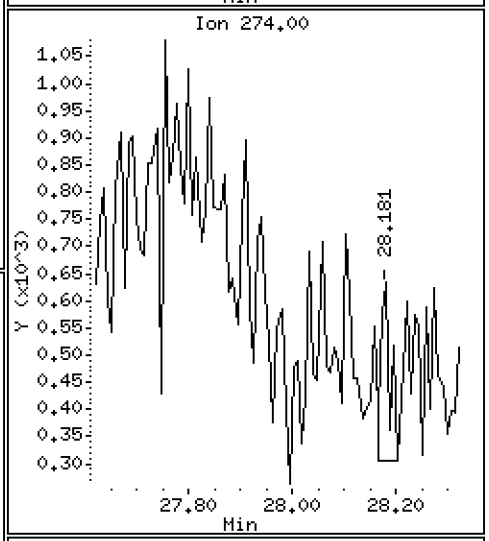


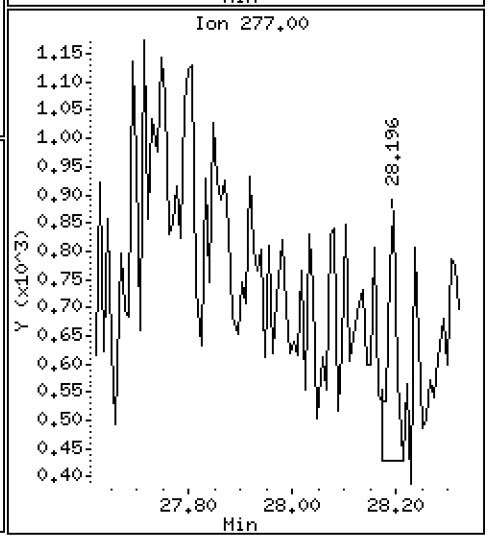












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

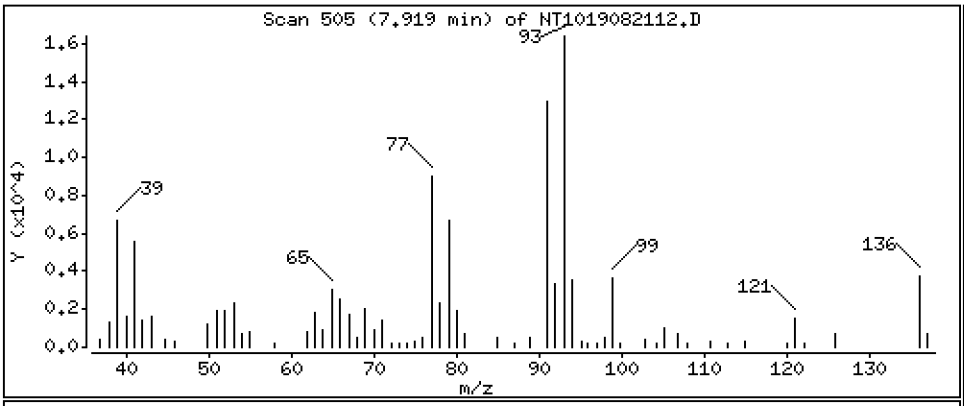
Operator: YZ

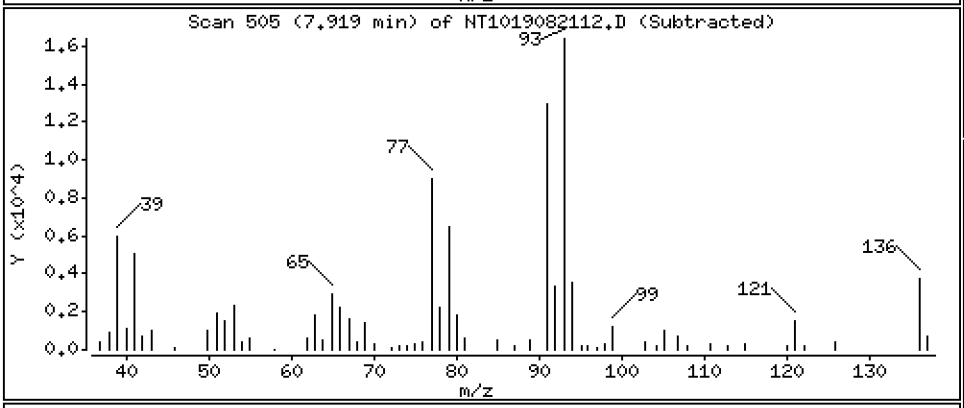
Column phase: ZB-5msi

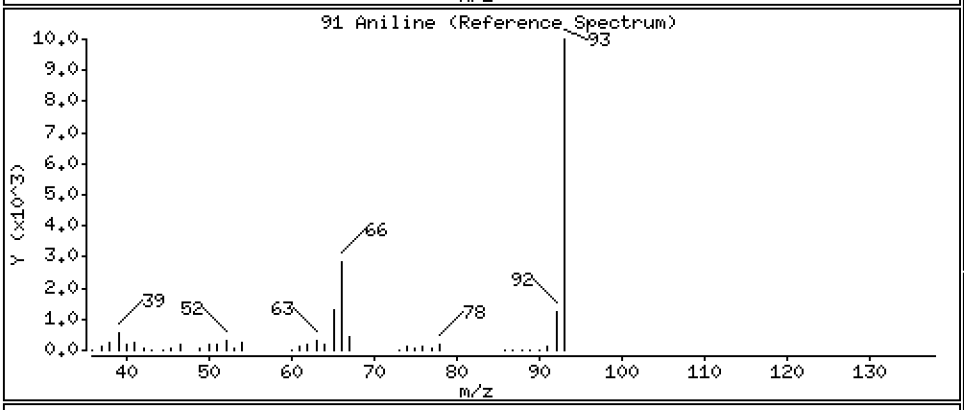
Column diameter: 0.25

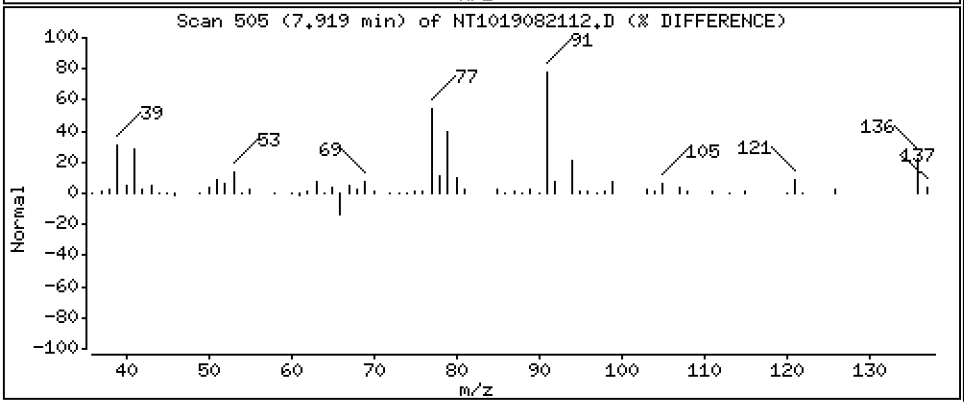
91 Aniline

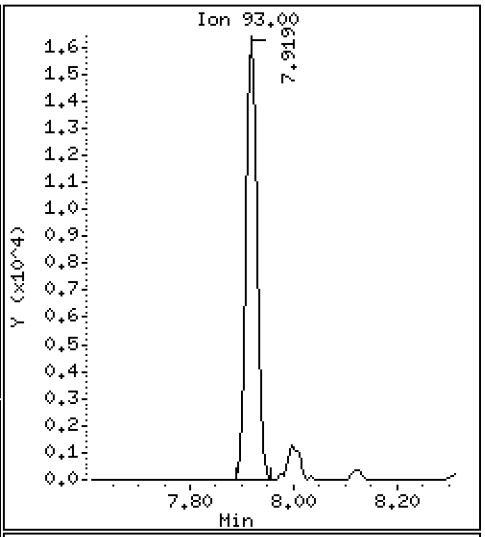
Concentration: 2.692 ug/mL

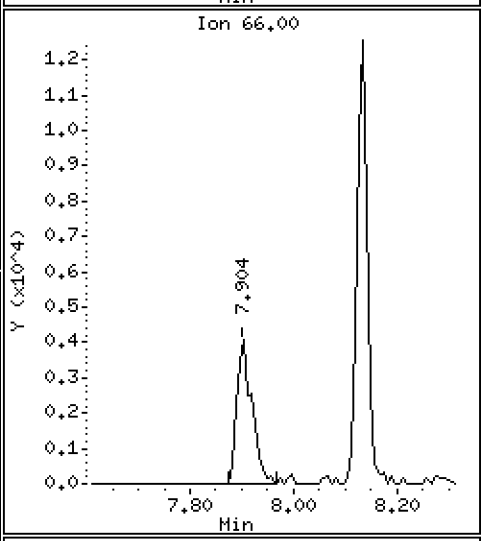


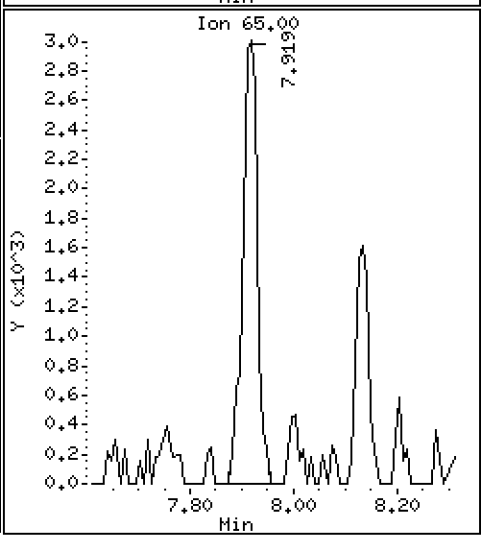












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

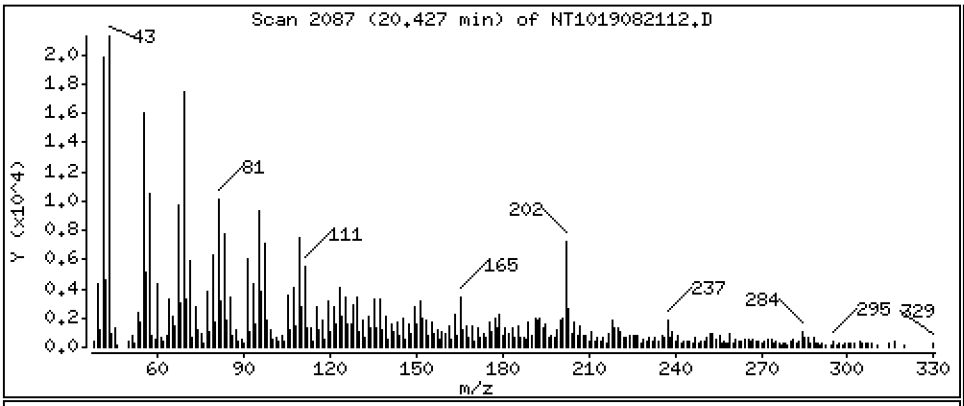
Operator: YZ

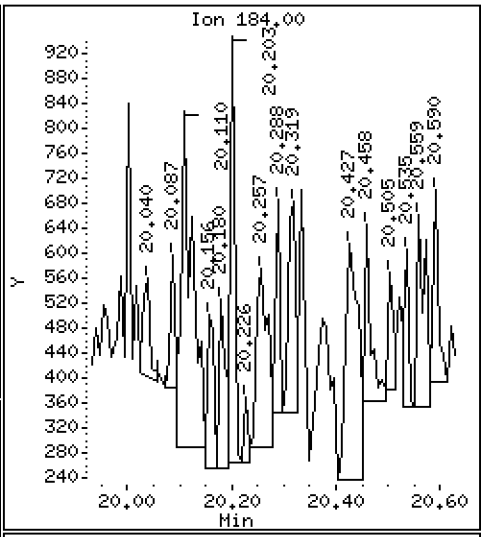
Column phase: ZB-5msi

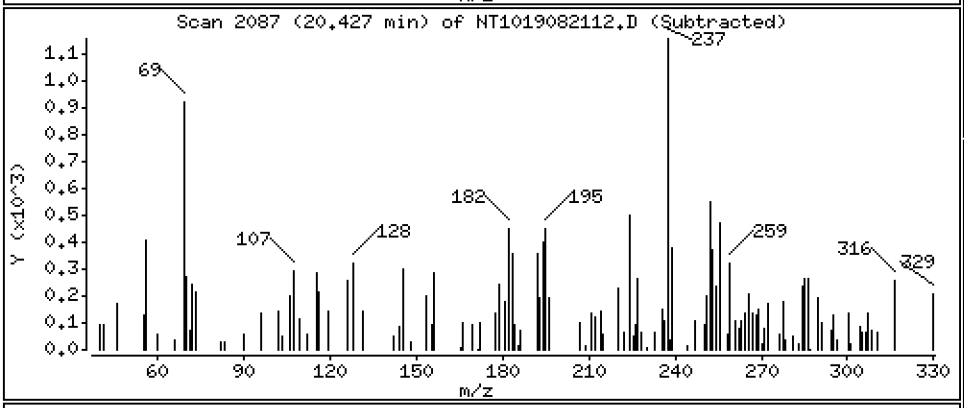
Column diameter: 0.25

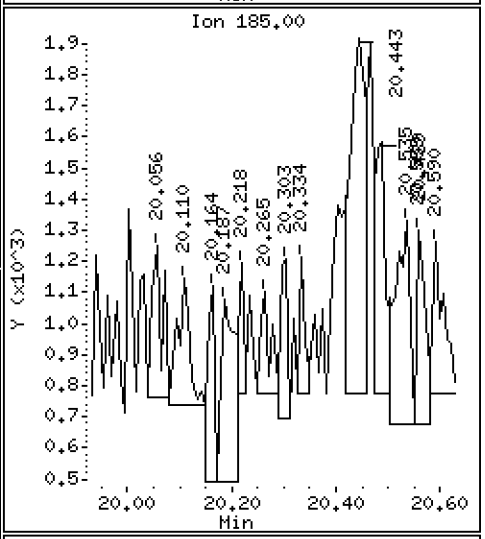
93 Benzidine

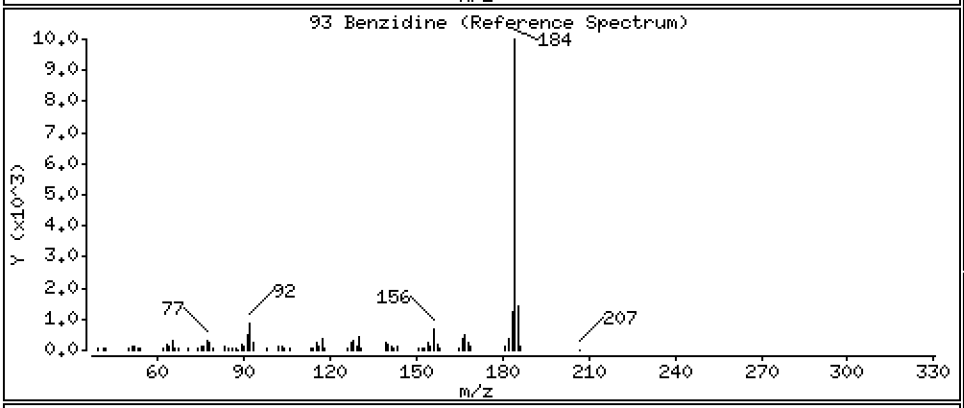
Concentration: 0.4712 ug/mL

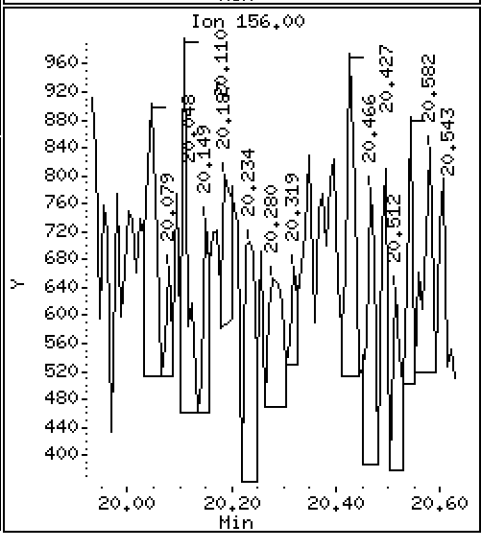


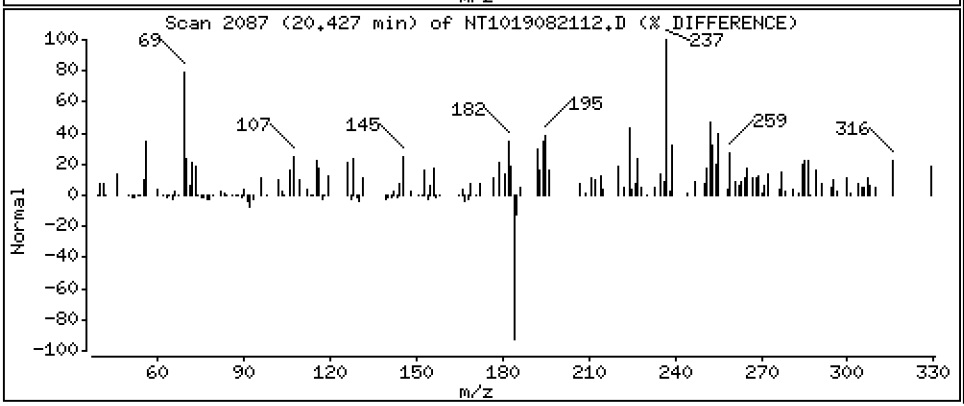












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082112.D

Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

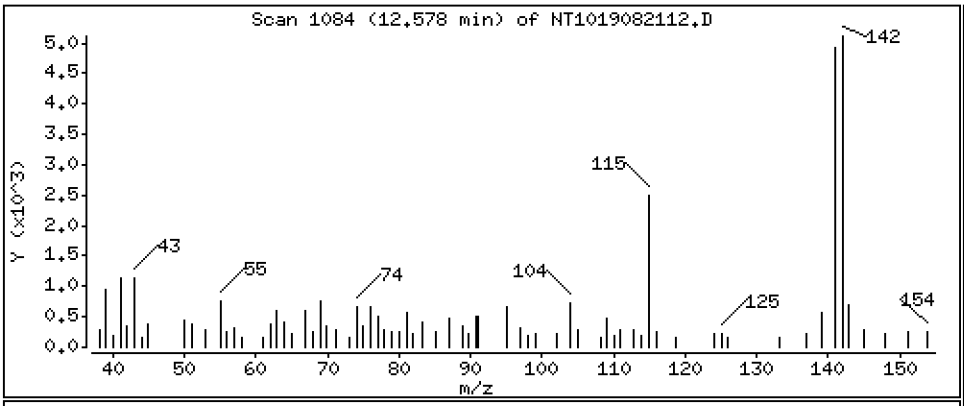
Operator: YZ

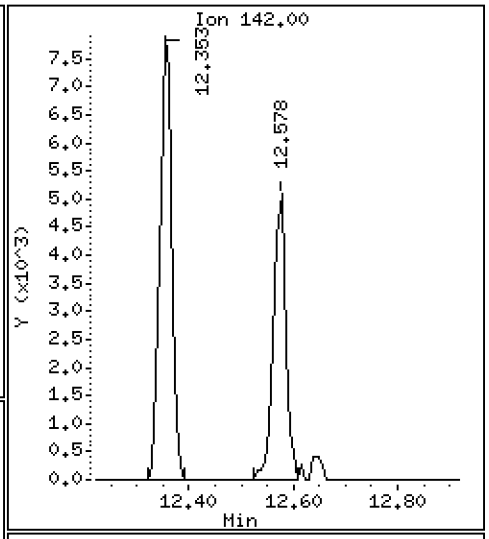
Column phase: ZB-5msi

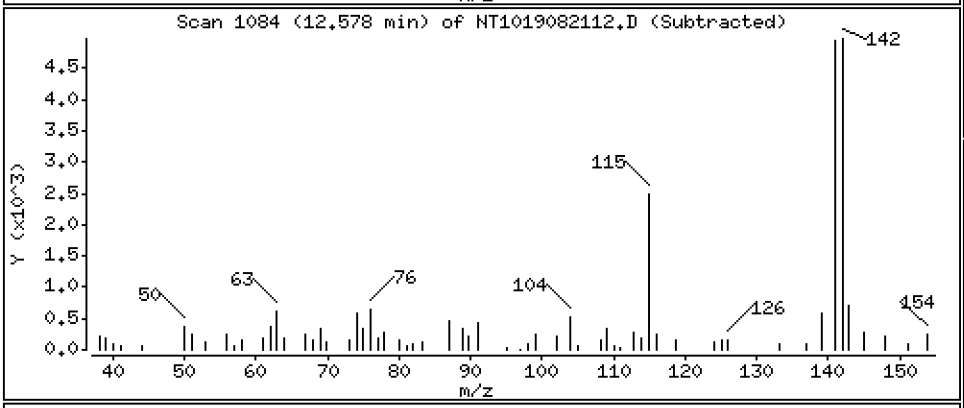
Column diameter: 0.25

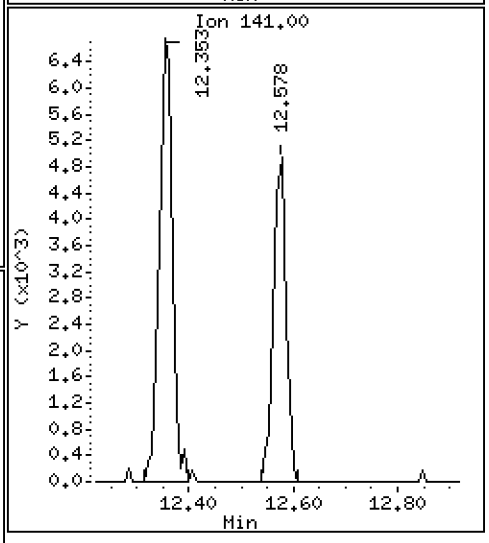
105 1-methylnaphthalene

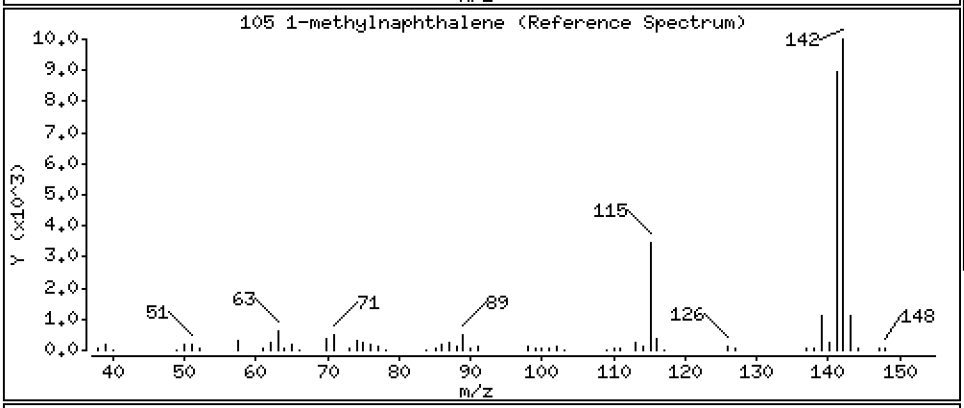
Concentration: 0.2975 ug/mL

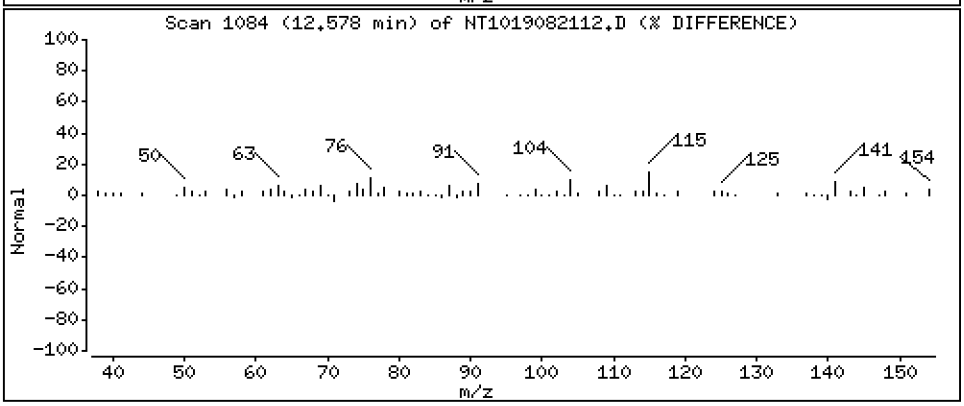












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Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

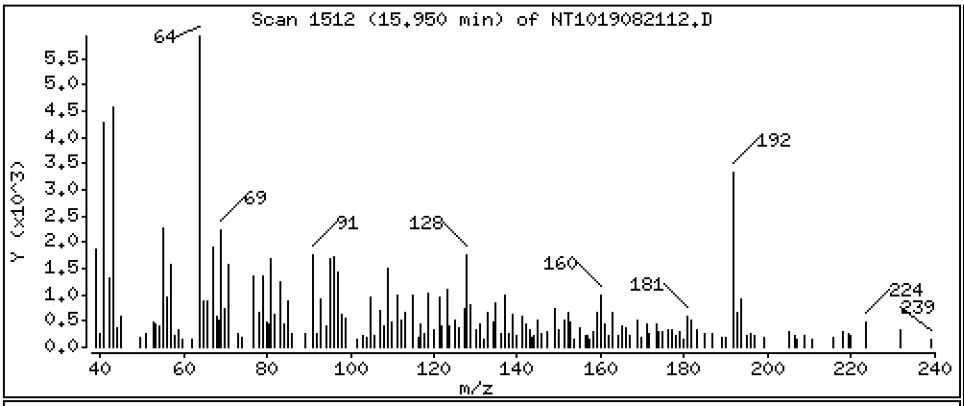
Operator: YZ

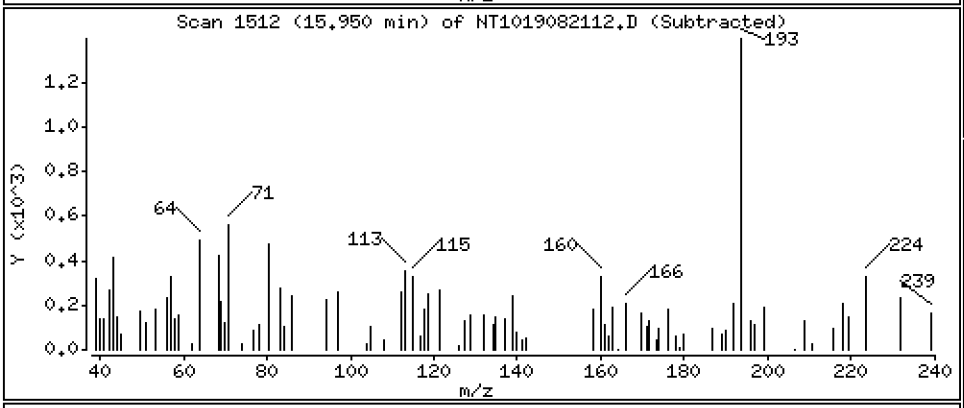
Column phase: ZB-5msi

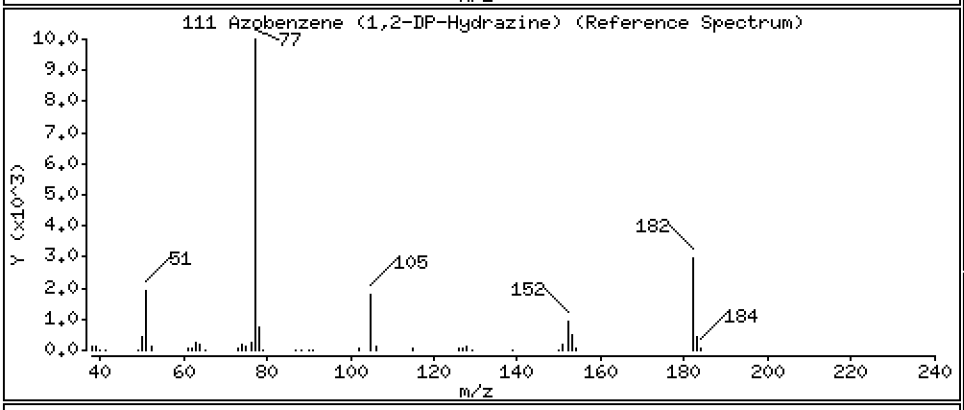
Column diameter: 0.25

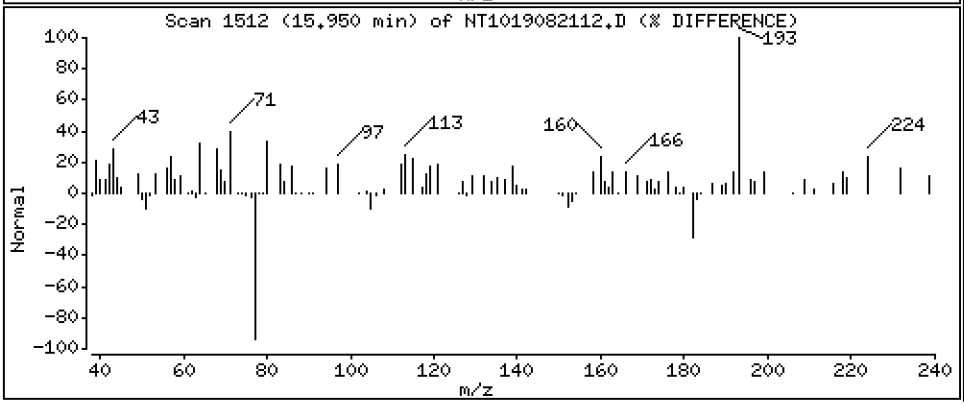
111 Azobenzene (1,2-DP-Hydrazine)

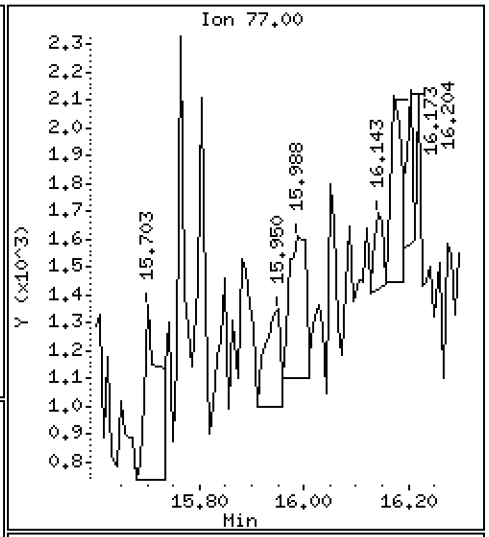
Concentration: 0.02481 ug/mL

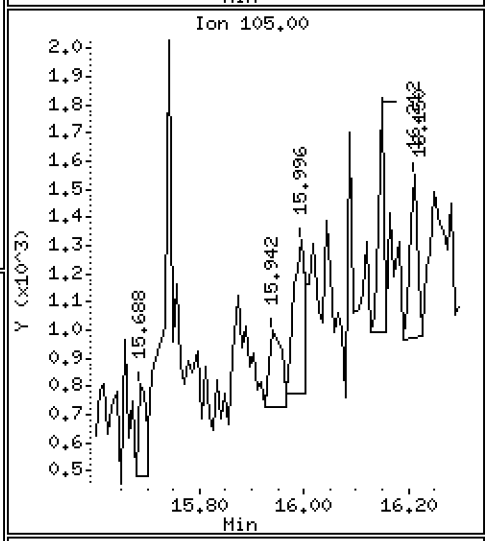


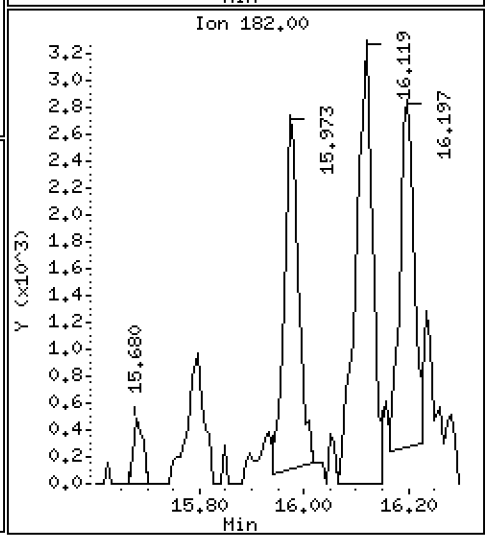












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Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

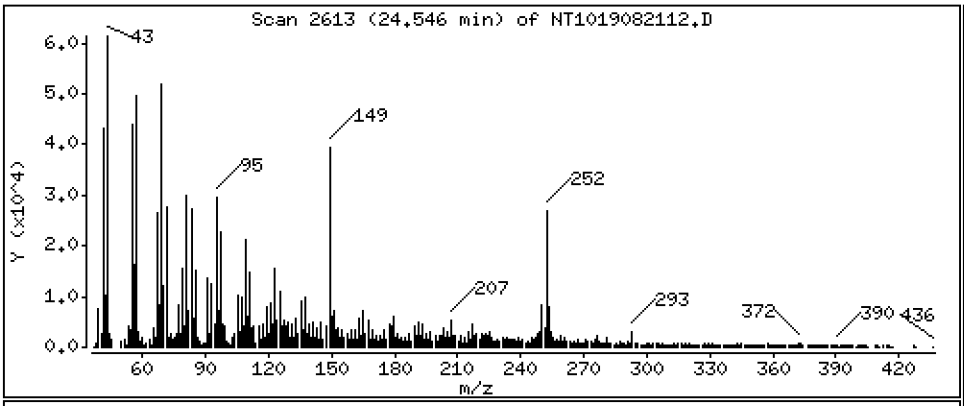
Operator: YZ

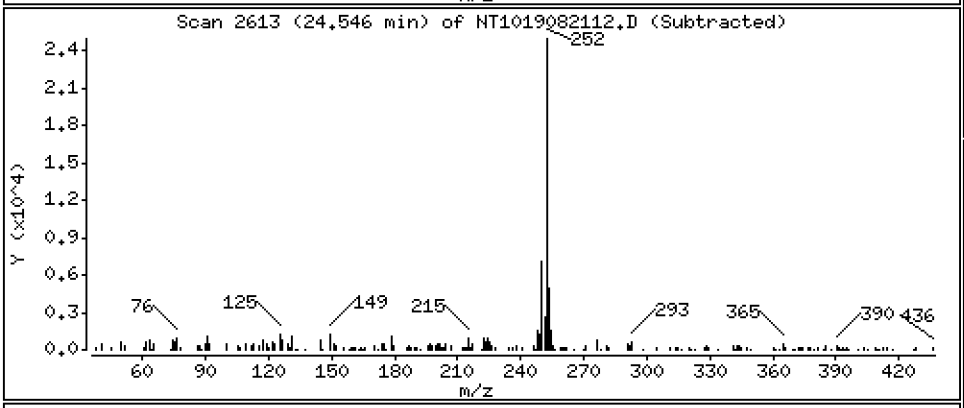
Column phase: ZB-5msi

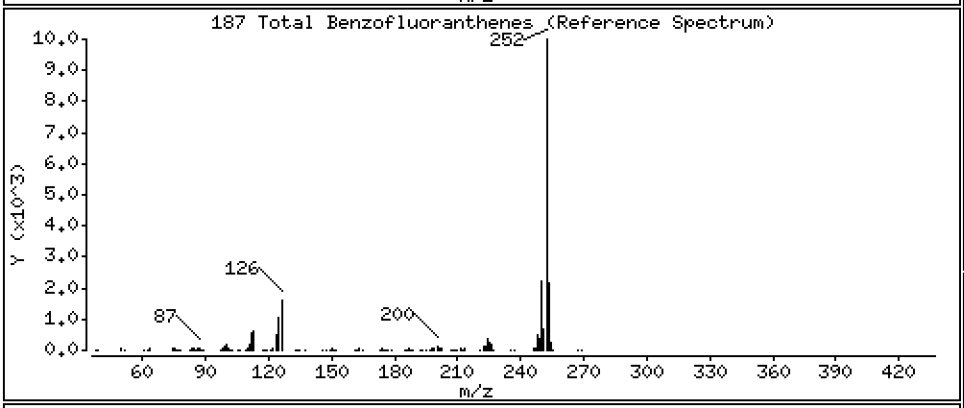
Column diameter: 0.25

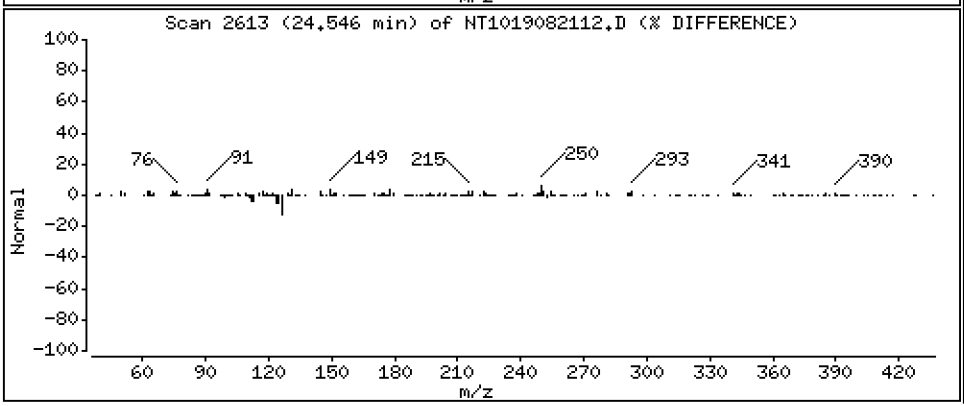
187 Total Benzofluoranthenes

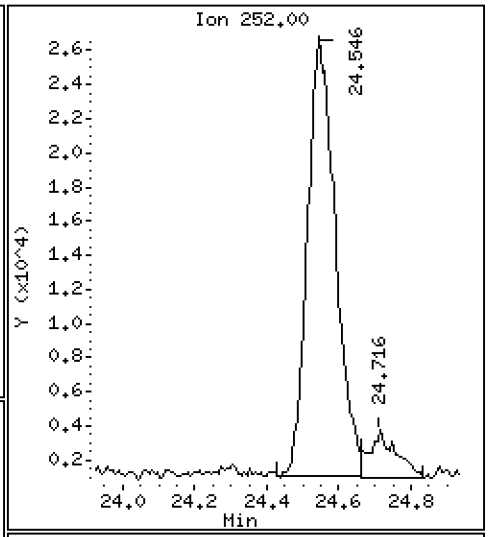
Concentration: 8.191 ug/mL

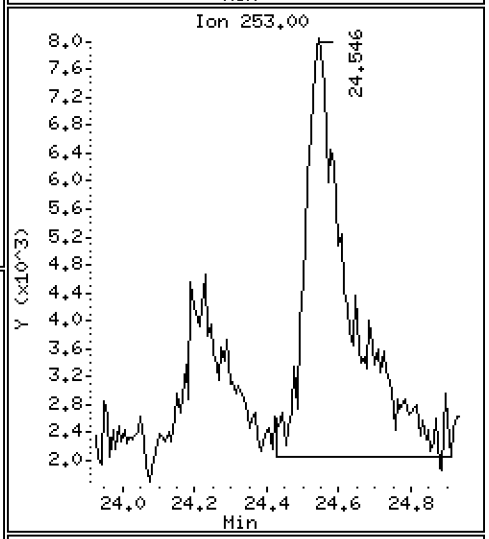


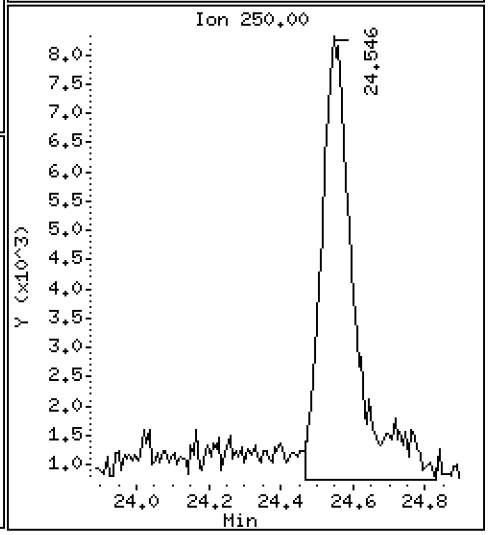












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Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03

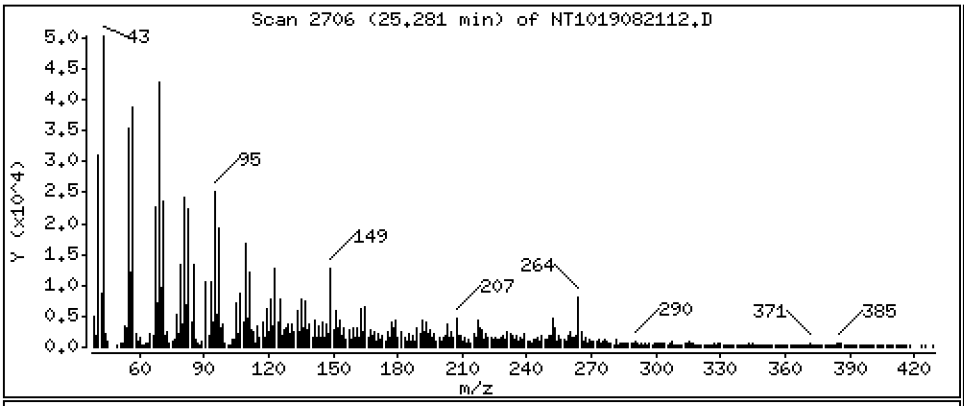
Operator: YZ

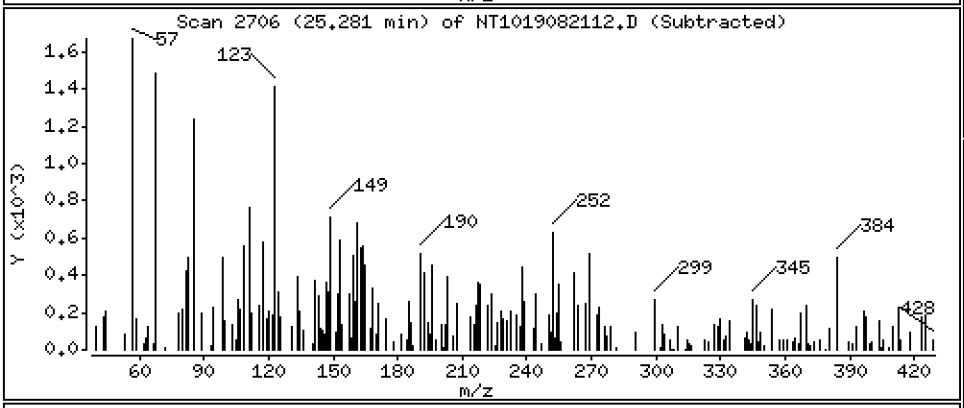
Column phase: ZB-5msi

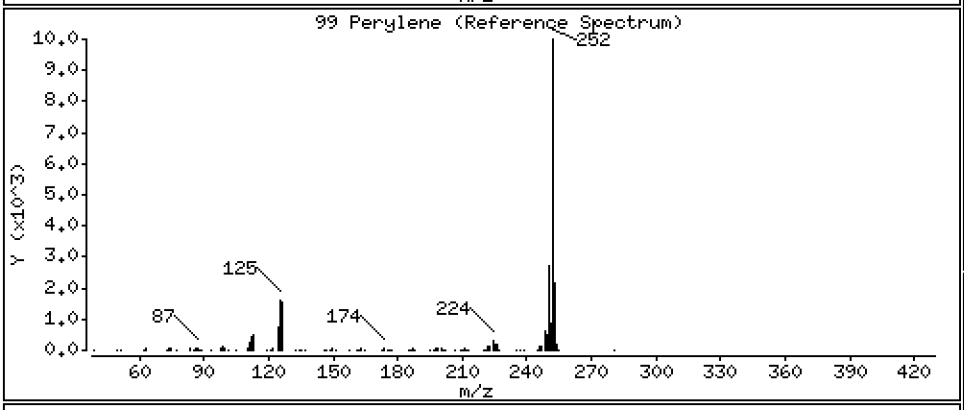
Column diameter: 0.25

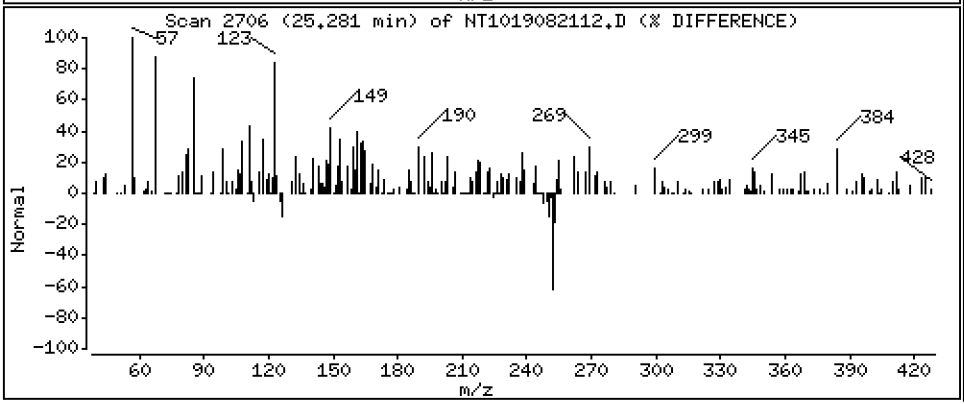
99 Perylene

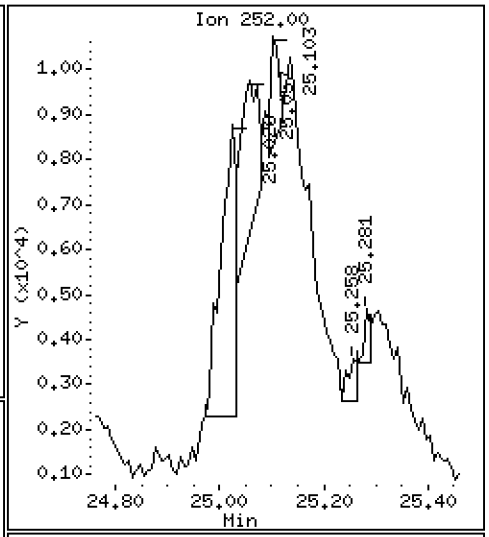
Concentration: 0.07099 ug/mL

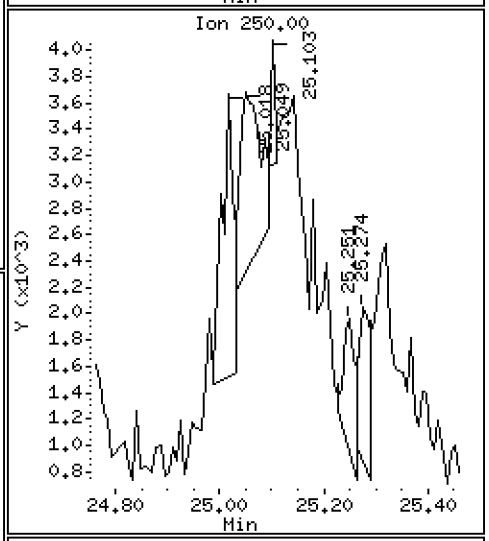


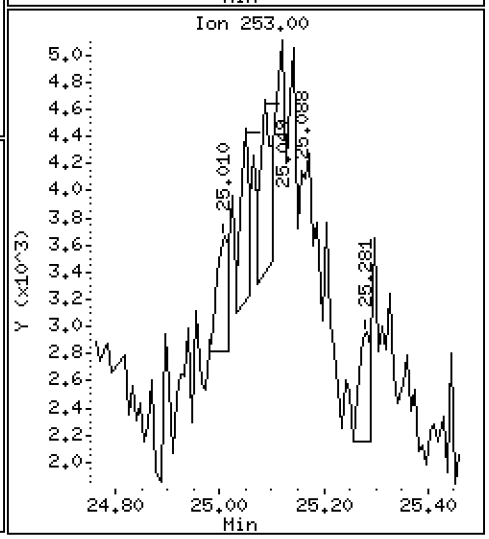












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Date : 21-AUG-2019 17:00

Client ID:

Instrument: nt10.i

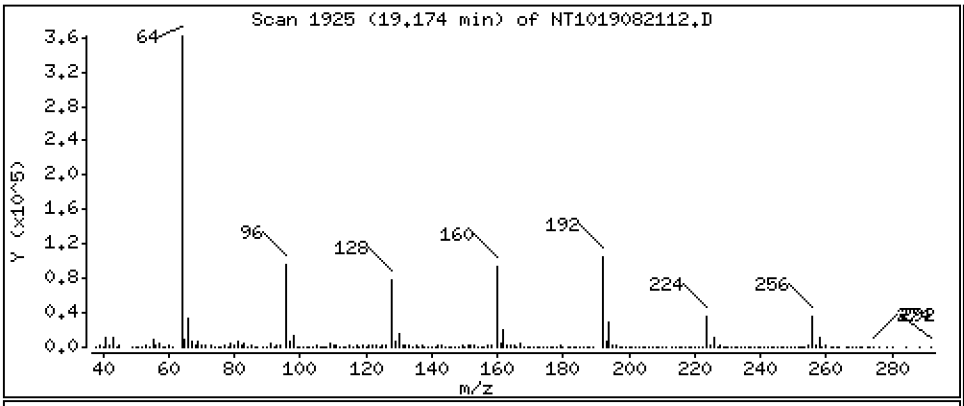
Sample Info: 19H0024-03

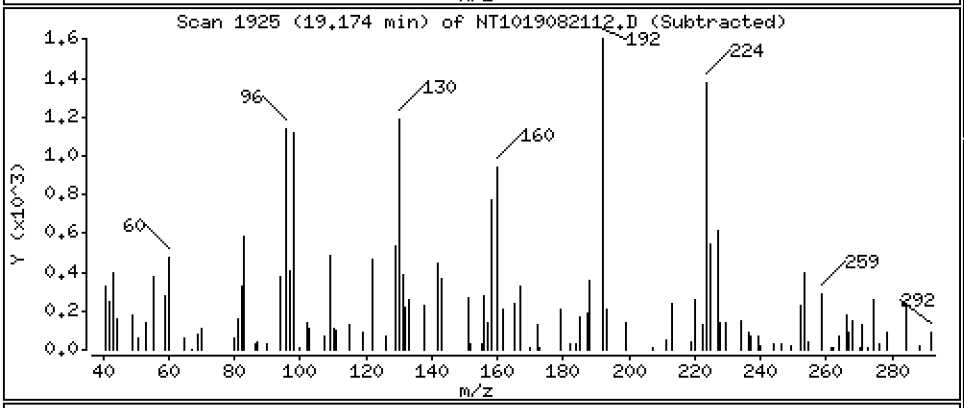
Operator: YZ

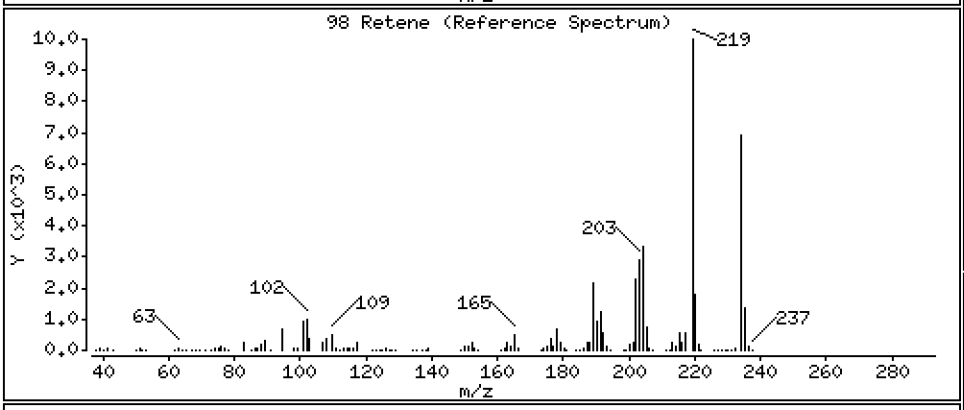
Column phase: ZB-5msi

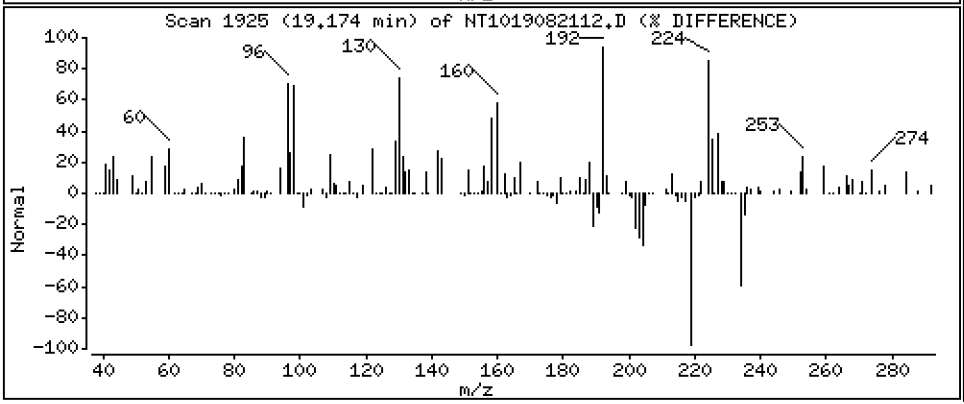
Column diameter: 0.25

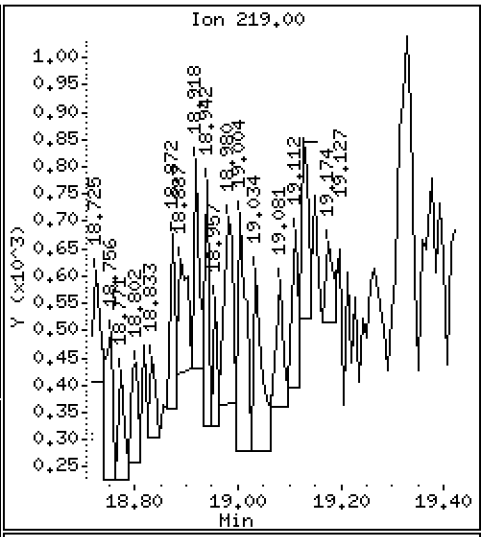
98 Retene

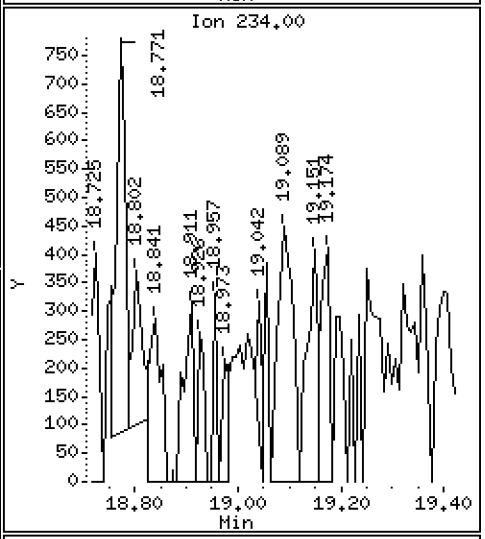


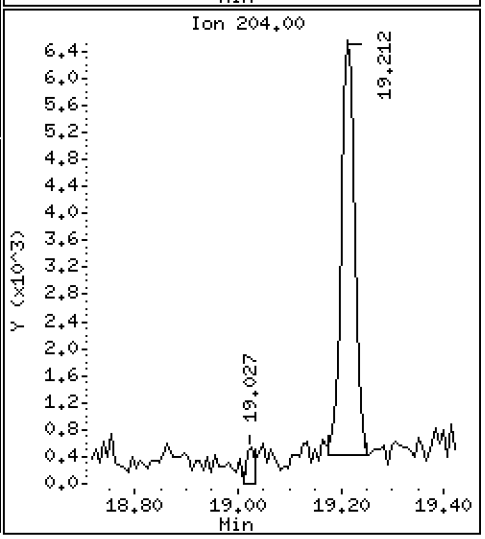












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

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Inj Date : 21-AUG-2019 17:00
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-03
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.327	6.311	(0.746)	39359	3.86523	3.865
$	2 Phenol-d5	99	7.895	7.888	(0.931)	46106	4.04011	4.040
	3 Phenol	94	7.919	7.911	(0.933)	5138	0.48428	0.4843
$	5 2-Chlorophenol-d4	132	8.135	8.127	(0.959)	65576	5.33787	5.338
	4 Bis(2-Chloroethyl)ether	93	Compound Not Detected.					
	6 2-Chlorophenol	128	Compound Not Detected.					
	7 1,3-Dichlorobenzene	146	Compound Not Detected.					
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	36263	4.00000	
	9 1,4-Dichlorobenzene	146	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	152	8.832	8.832	(1.041)	29853	3.55430	3.554
	12 1,2-Dichlorobenzene	146	Compound Not Detected.					
	11 Benzyl alcohol	108	8.770	8.762	(1.034)	1174	0.16719	0.1672(M)
	14 2,2'-oxybis(1-Chloropropane)	121	Compound Not Detected.					
	13 2-Methylphenol	108	Compound Not Detected.					
	17 Hexachloroethane	117	Compound Not Detected.					
	16 N-Nitroso-di-n-propylamine	70	Compound Not Detected.					
	15 4-Methylphenol	108	9.275	9.267	(1.093)	1097	0.12699	0.1270
$	18 Nitrobenzene-d5	82	9.562	9.554	(0.875)	34865	3.26359	3.264
	19 Nitrobenzene	77	Compound Not Detected.					
	20 Isophorone	82	Compound Not Detected.					
	21 2-Nitrophenol	139	Compound Not Detected.					
	22 2,4-Dimethylphenol	107	Compound Not Detected.					
	23 Bis(2-Chloroethoxy)methane	93	Compound Not Detected.					
	24 Benzoic acid	105	10.459	10.510	(0.957)	7692	0.99995	1.0000(H)
	25 2,4-Dichlorophenol	162	Compound Not Detected.					
	26 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.929	10.929	(1.000)	136593	4.00000	
	28 Naphthalene	128	10.968	10.968	(1.004)	9104	0.28996	0.2900
	29 4-Chloroaniline	127	Compound Not Detected.					
	30 Hexachlorobutadiene	225	Compound Not Detected.					
	31 4-Chloro-3-methylphenol	107	Compound Not Detected.					
	32 2-Methylnaphthalene	142	12.353	12.353	(1.130)	12355	0.46392	0.4639
	33 Hexachlorocyclopentadiene	237	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	Compound Not Detected.					
	35	2,4,5-Trichlorophenol	196	Compound Not Detected.					
$	36	2-Fluorobiphenyl	172	13.142	13.142	(0.906)	114032	4.47904	4.479
	37	2-Chloronaphthalene	162	Compound Not Detected.					
	38	2-Nitroaniline	65	Compound Not Detected.					
	39	Dimethylphthalate	163	14.055	14.055	(0.969)	4890	0.19770	0.1977
	40	Acenaphthylene	152	14.195	14.195	(0.978)	7235	0.22549	0.2255
	41	2,6-Dinitrotoluene	165	Compound Not Detected.					
*	42	Acenaphthene-d10	164	14.512	14.512	(1.000)	66561	4.00000	
	43	3-Nitroaniline	138	Compound Not Detected.					
	44	Acenaphthene	153	14.581	14.574	(1.005)	10126	0.50226	0.5023
	45	2,4-Dinitrophenol	184	Compound Not Detected.					
	46	Dibenzofuran	168	14.906	14.898	(1.027)	14678	0.44299	0.4430(M)
	47	4-Nitrophenol	109	14.844	14.836	(1.023)	381	0.09310	0.09310
	48	2,4-Dinitrotoluene	165	Compound Not Detected.					
	50	Diethylphthalate	149	15.509	15.517	(1.069)	3056	0.12832	0.1283
	49	Fluorene	166	15.610	15.610	(1.076)	15107	0.66669	0.6667
	51	4-Chlorophenyl-phenylether	204	Compound Not Detected.					
	52	4-Nitroaniline	138	Compound Not Detected.					
	53	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.					
	54	N-Nitrosodiphenylamine	169	15.888	15.872	(0.906)	2136	0.12826	0.1283
$	55	2,4,6-Tribromophenol	330	16.158	16.142	(1.113)	29322	5.82599	5.826
	56	4-Bromophenyl-phenylether	248	Compound Not Detected.					
	57	Hexachlorobenzene	284	Compound Not Detected.					
	58	Pentachlorophenol	266	Compound Not Detected.					
*	59	Phenanthrene-d10	188	17.541	17.525	(1.000)	121327	4.00000	
	60	Phenanthrene	178	17.579	17.572	(1.002)	116232	3.92193	3.922
	61	Anthracene	178	17.672	17.665	(1.007)	35109	1.16672	1.167
	62	Carbazole	167	18.036	18.012	(1.028)	19770	0.69816	0.6982
	63	Di-n-butylphthalate	149	18.895	18.872	(1.077)	14584	0.35570	0.3557
	64	Fluoranthene	202	20.024	19.993	(0.881)	290905	14.4209	14.42
	65	Pyrene	202	20.458	20.411	(0.900)	214593	10.1873	10.19
$	66	Terphenyl-d14	244	20.790	20.744	(0.914)	79731	5.58108	5.581
	67	Butylbenzylphthalate	149	21.766	21.712	(0.957)	4164	0.42436	0.4244(M)
	68	Benzo(a)anthracene	228	22.711	22.610	(0.999)	33437	1.74585	1.746
*	69	Chrysene-d12	240	22.742	22.633	(1.000)	66011	4.00000	
	70	3,3'-Dichlorobenzidine	252	Compound Not Detected.					
	71	Chrysene	228	22.796	22.680	(1.002)	121303	7.15761	7.158
	72	bis(2-Ethylhexyl)phthalate	149	22.850	22.765	(0.957)	284286	20.9276	20.93
*	134	Di-n-octylphthalate-d4	153	23.872	23.756	(1.000)	154446	4.00000	
	73	Di-n-octylphthalate	149	Compound Not Detected.					
	74	Benzo(b)fluoranthene	252	24.545	24.390	(0.972)	139134	7.90148	7.901
	75	Benzo(k)fluoranthene	252	24.545	24.429	(0.972)	139134	7.85417	7.854
	76	Benzo(a)pyrene	252	25.103	24.948	(0.994)	94651	5.98925	5.989(M)
*	77	Perylene-d12	264	25.250	25.056	(1.000)	61374	4.00000	(M)
	78	Indeno(1,2,3-cd)pyrene	276	27.730	27.303	(1.098)	27993	1.47420	1.474(M)
	79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	80	Benzo(g,h,i)perylene	276	28.476	27.971	(1.128)	19778	1.23667	1.237(M)
	90	N-Nitrosodimethylamine	74	Compound Not Detected.					
	91	Aniline	93	7.919	7.957	(0.933)	25288	2.69199	2.692
	93	Benzidine	184	20.427	20.279	(0.898)	627	0.47121	0.4712
	103	Pyridine	79	Compound Not Detected.					
	105	1-methylnaphthalene	142	12.577	12.569	(1.151)	7966	0.29753	0.2975
	111	Azobenzene (1,2-DP-Hydrazine)	77	15.949	15.949	(1.099)	657	0.02481	0.02481

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
187	Total Benzofluoranthenes	252	24.545	24.429	(0.972)	138356	8.19148	8.191
99	Perylene	252	25.281	25.110	(1.001)	1032	0.07099	0.07099
98	Retene	219	19.173	19.071	(0.843)	146		
120	2,3,4,6-Tetrachlorophenol	232	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082112.D
Lab Smp Id: 19H0024-03
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	36263	10.76
27 Naphthalene-d8	117487	58744	234974	136593	16.26
42 Acenaphthene-d10	61859	30930	123718	66561	7.60
59 Phenanthrene-d10	113574	56787	227148	121327	6.83
69 Chrysene-d12	105788	52894	211576	66011	-37.60
134 Di-n-octylphthala	252823	126412	505646	154446	-38.91
77 Perylene-d12	113992	56996	227984	61374	-46.16

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.51	0.00
59 Phenanthrene-d10	17.53	17.03	18.03	17.54	0.09
69 Chrysene-d12	22.63	22.13	23.13	22.74	0.48
134 Di-n-octylphthala	23.76	23.26	24.26	23.87	0.49
77 Perylene-d12	25.06	24.56	25.56	25.25	0.77

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082112.D

Lab ID: 19H0024-03
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 17:00

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.000	1.130	-0.1302	2-Methylnaphthalene
1.034	1.004	0.0296	Acenaphthene
1.093	1.003	0.0907	Phenanthrene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate
0.957	0.973	-0.0164	Benzo(b)fluoranthene
1.130	1.091	0.0393	Dibenzo(a,h)anthracene
0.978	1.000	-0.0219	Acenaphthene-d10
0.969	1.000	-0.0315	Phenanthrene-d10
1.027	0.930	0.0974	Phenol-d5
1.023	1.041	-0.0183	1,2-Dichlorobenzene-d4
1.076	0.906	0.1701	2-Fluorobiphenyl
1.069	0.917	0.1522	Terphenyl-d14

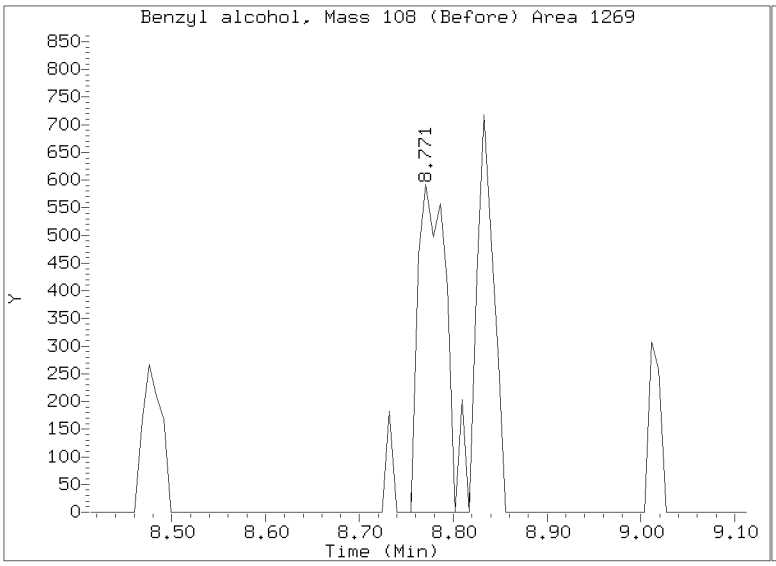
RRT check based on Ccal File: NT1019082105.D

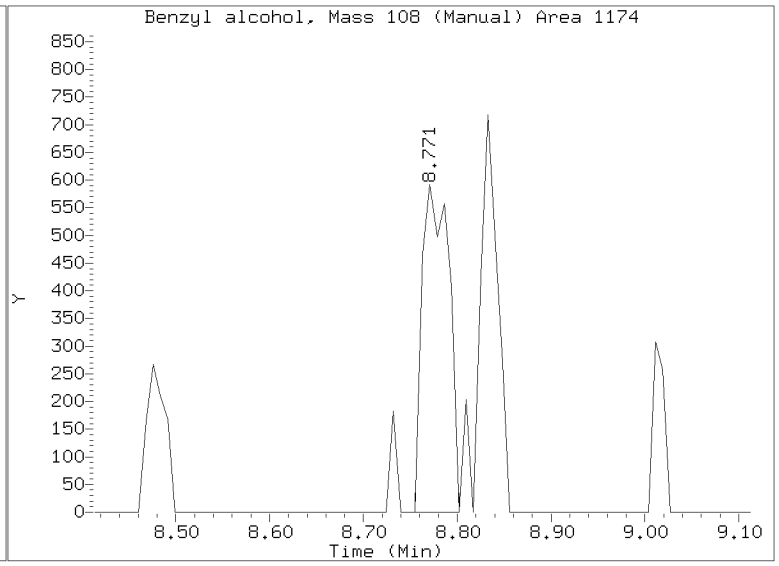
On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

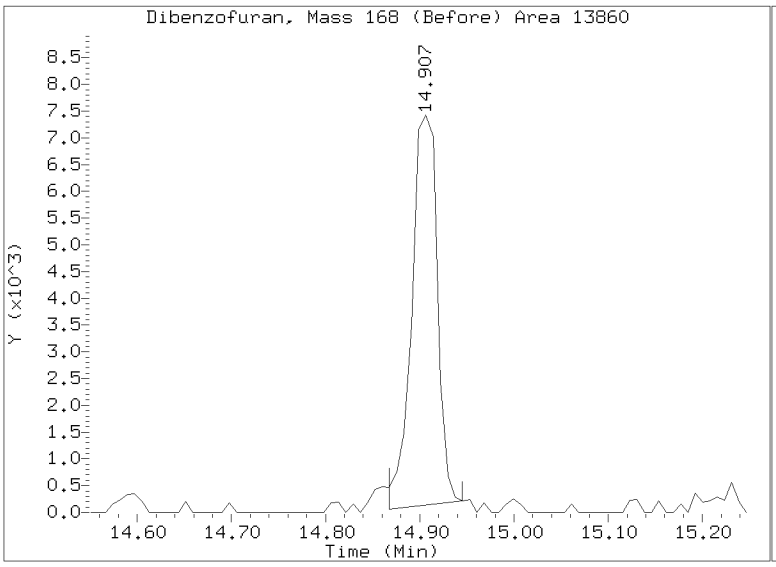
* Only compounds listed in the work order have been verified by the analyst *

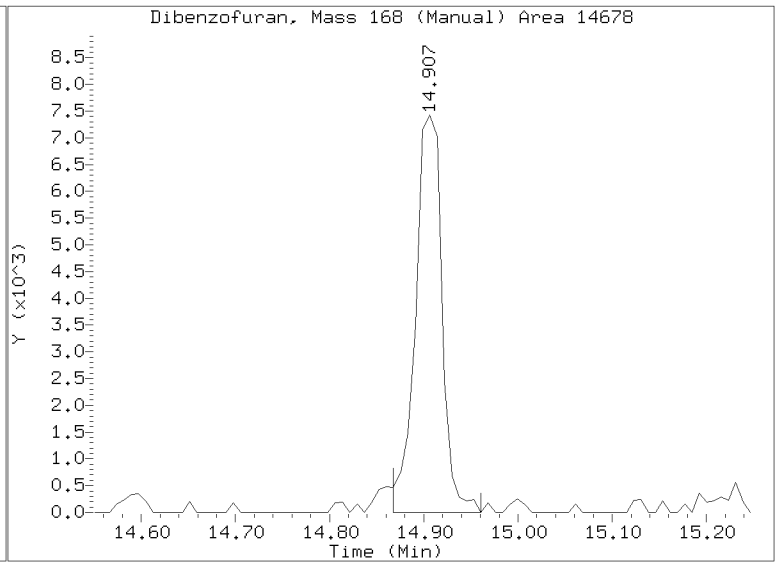
Quant Ion Manual Peak Adjustment Report

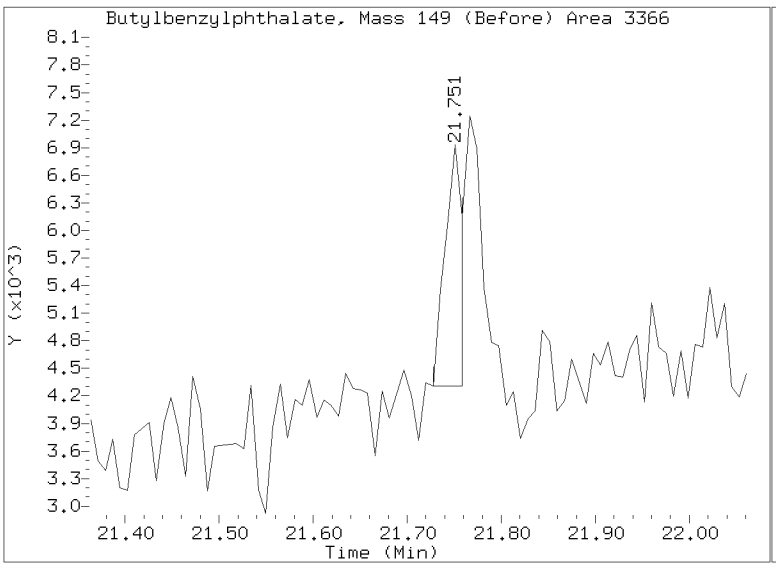
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082112.D
Injection Date: 21-AUG-2019 17:00
Lab ID:19H0024-03 Client ID:
Report Date: 08/22/2019 12:50

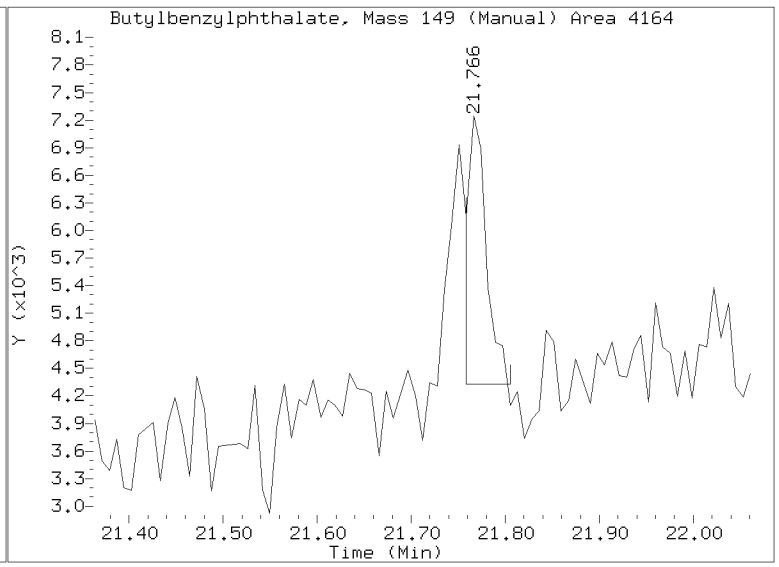












Quant Ion Manual Peak Adjustment Report

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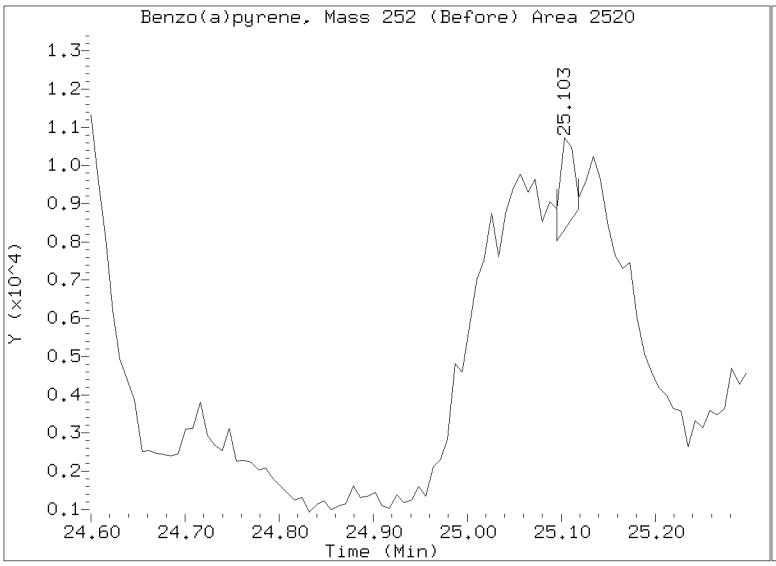
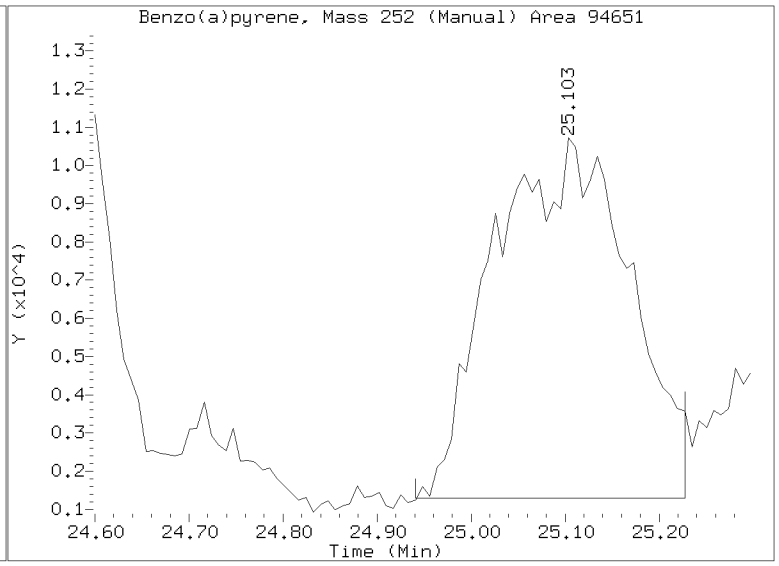
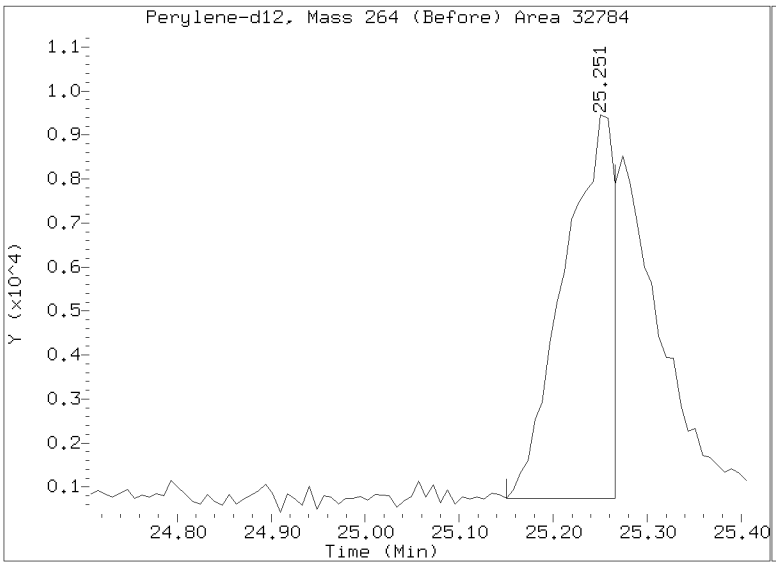
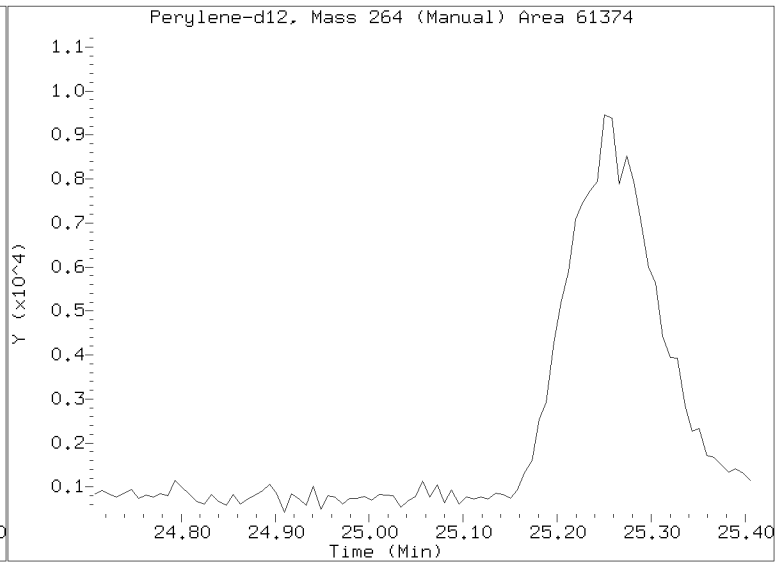
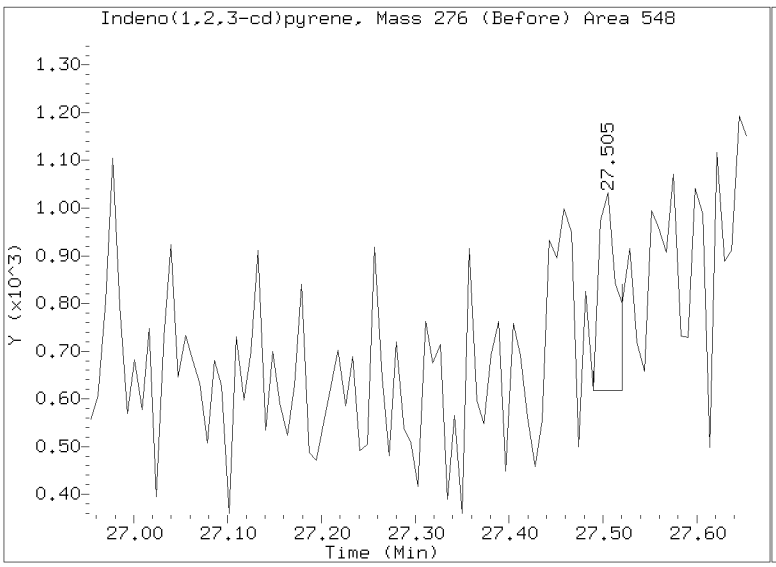
Injection Date: 21-AUG-2019 17:00
Lab ID:19H0024-03 Client ID:
Report Date: 08/22/2019 12:50

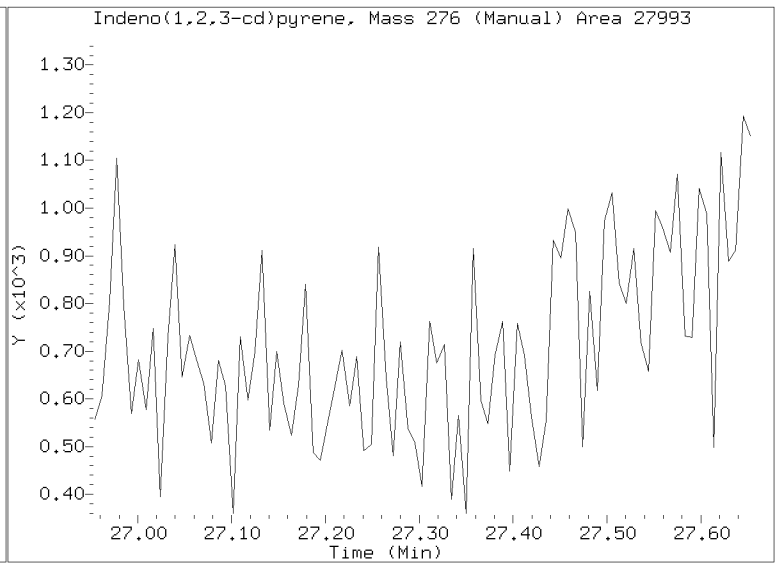












Quant Ion Manual Peak Adjustment Report

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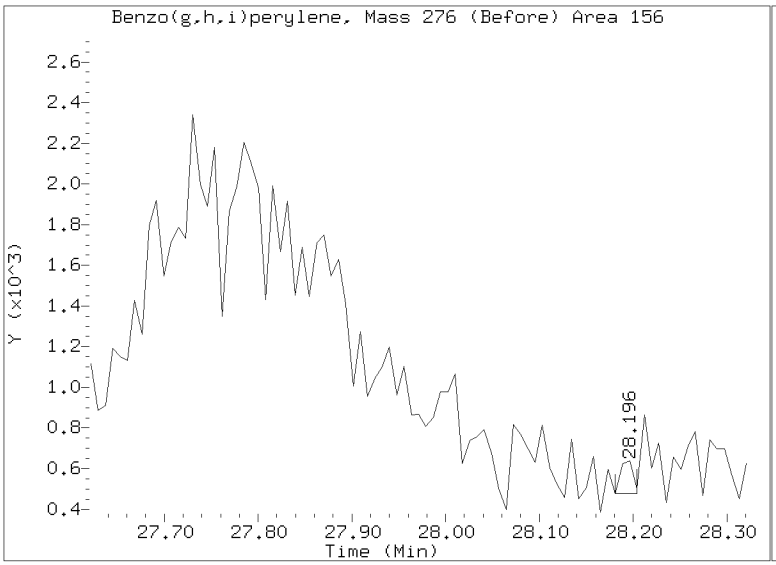
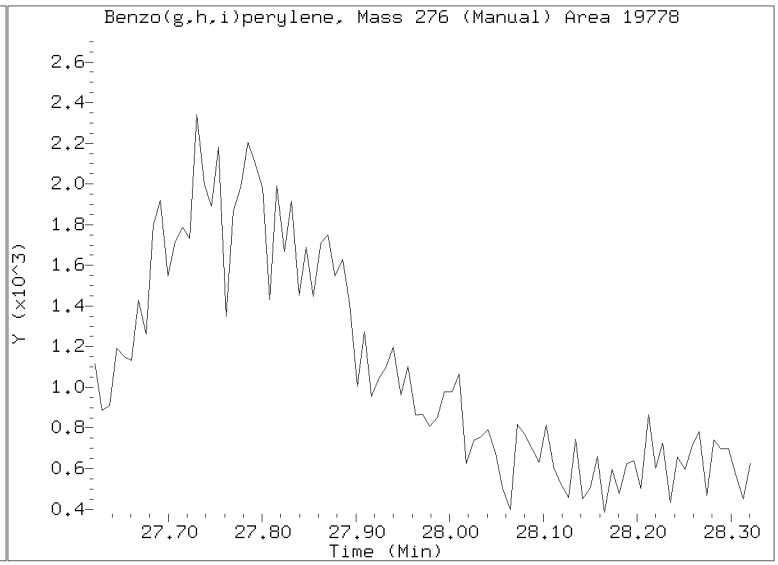
Lab ID:19H0024-03 Client ID:
Report Date: 08/22/2019 12:50





SL4-SG-WC3-2019

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D
Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-03RE1 C	SDG:	19H0024
Sampled:	08/01/19 08:16	Prepared:	08/13/19 12:40	File ID:	NT1019082209.D
% Solids:	39.71	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/22/19 18:44
Batch:	BHH0289	Sequence:	SHH0325	Initial/Final:	25.2 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040
Cleanups:	GPC				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	3	37.9	J, D	24.7	60.0
100-51-6	Benzyl Alcohol	3	60.0	U	44.7	60.0
65-85-0	Benzoic acid	3	600	U	177	600
86-30-6	N-Nitrosodiphenylamine	3	60.0	U	28.7	60.0
85-01-8	Phenanthrene	3	291	D	14.1	60.0
206-44-0	Fluoranthene	3	1050	D	13.6	60.0
129-00-0	Pyrene	3	817	D	16.6	60.0
85-68-7	Butylbenzylphthalate	3	75.1	D	24.1	60.0
56-55-3	Benzo(a)anthracene	3	251	D	15.5	60.0
218-01-9	Chrysene	3	401	D	15.6	60.0
117-81-7	bis(2-Ethylhexyl)phthalate	3	1640	D	86.3	150
117-84-0	Di-n-Octylphthalate	3	60.0	U	26.1	60.0
	Benzofluoranthenes, Total	3	674	D	30.6	120
50-32-8	Benzo(a)pyrene	3	240	D	19.4	60.0
193-39-5	Indeno(1,2,3-cd)pyrene	3	153	D	18.0	60.0
53-70-3	Dibenzo(a,h)anthracene	3	40.6	J, D	18.5	60.0
191-24-2	Benzo(g,h,i)perylene	3	230	D	17.4	60.0

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	749.48	306	40.9	27 - 120	
Phenol-d5	749.48	305	40.7	29 - 120	Q
2-Chlorophenol-d4	749.48	407	54.3	31 - 120	
1,2-Dichlorobenzene-d4	499.65	258	51.6	32 - 120	
Nitrobenzene-d5	499.65	268	53.6	30 - 120	
2-Fluorobiphenyl	499.65	321	64.3	35 - 120	
2,4,6-Tribromophenol	749.48	448	59.8	24 - 134	
p-Terphenyl-d14	499.65	445	89.1	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

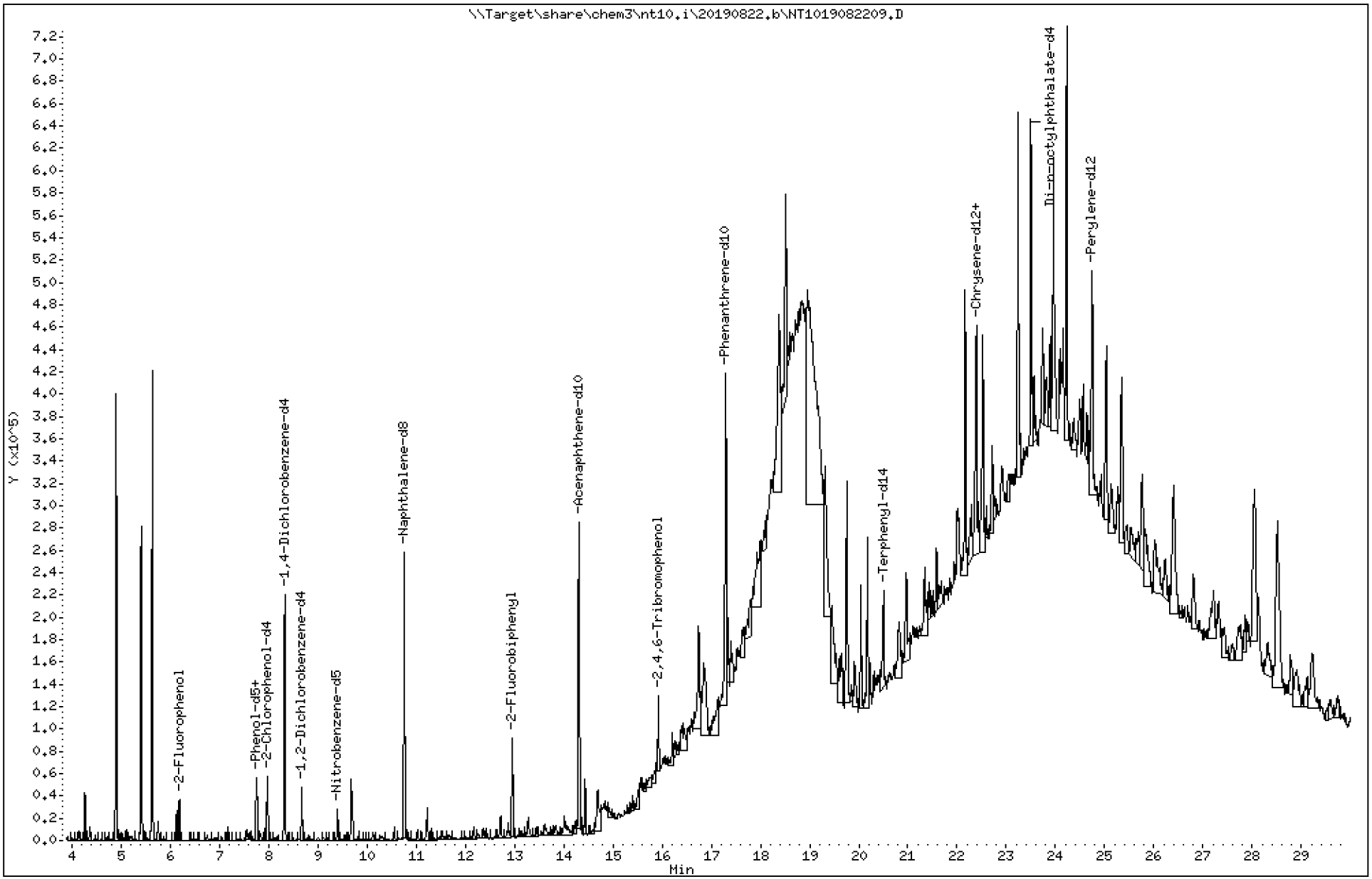
Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

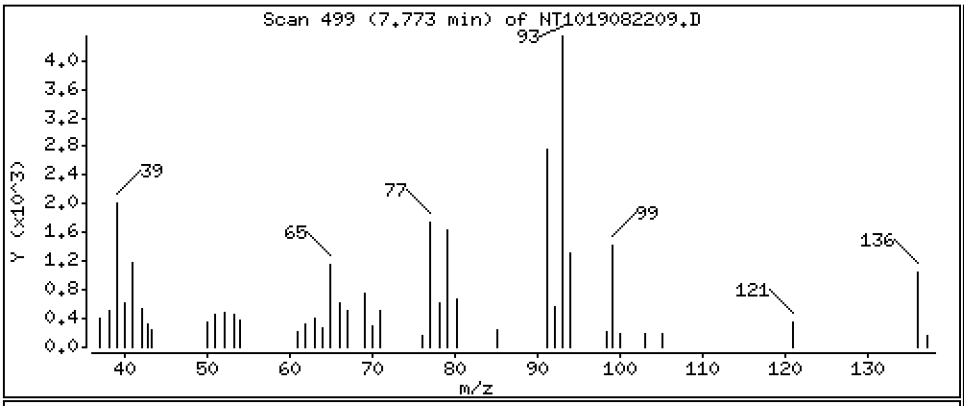
Operator: YZ

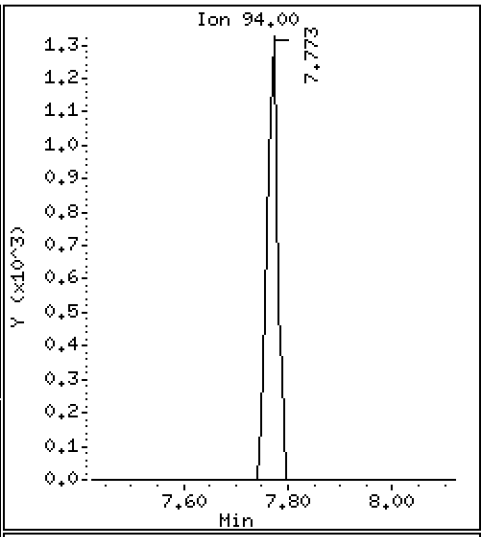
Column phase: ZB-5msi

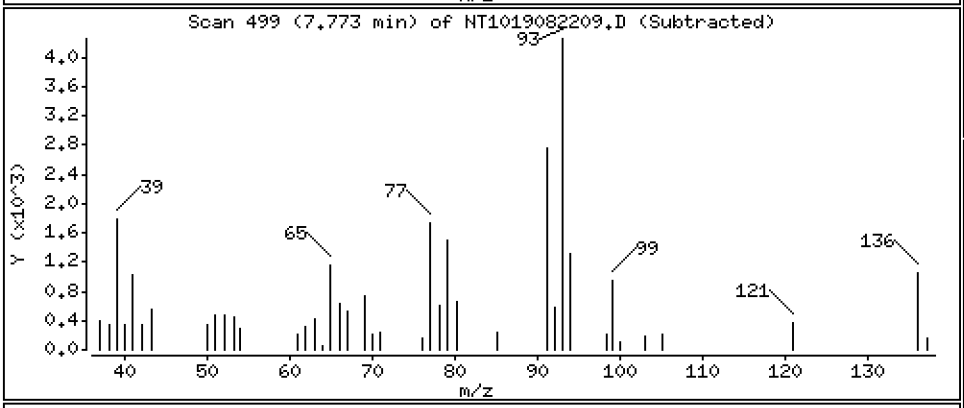
Column diameter: 0.25

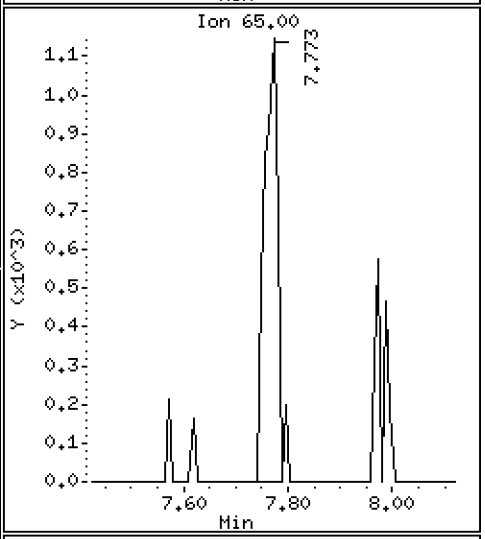
3 Phenol

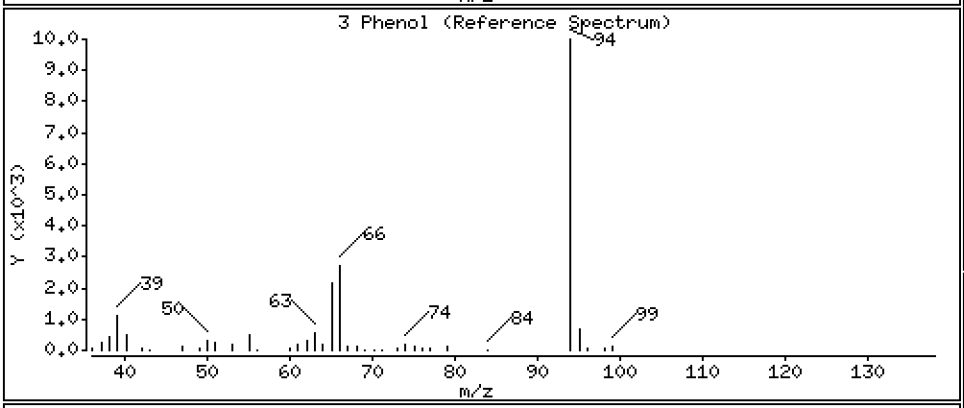
Concentration: 0.3793 ug/mL

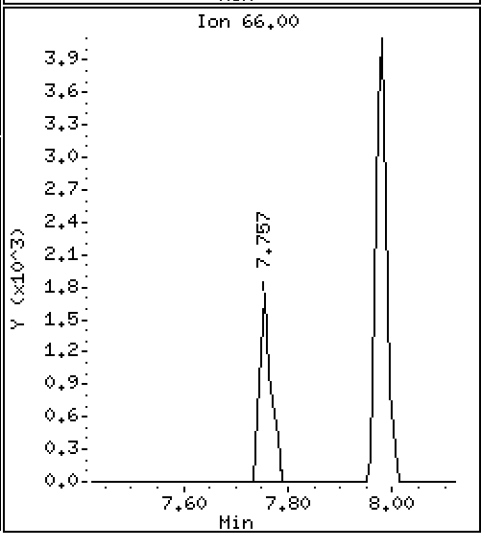


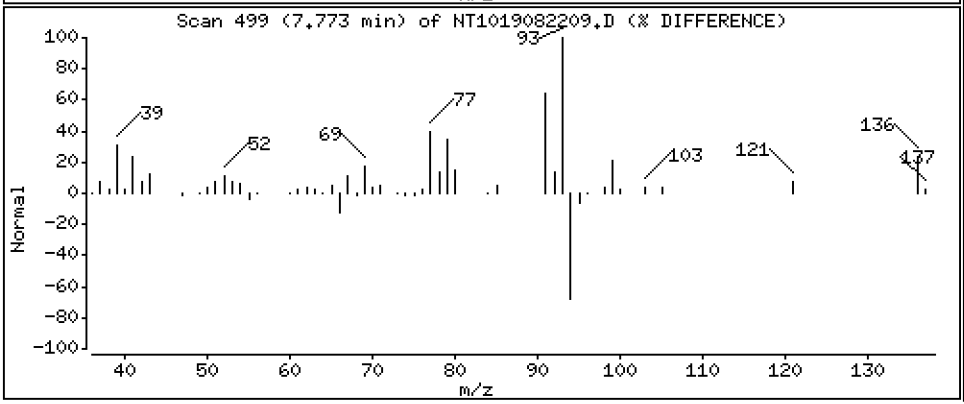












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

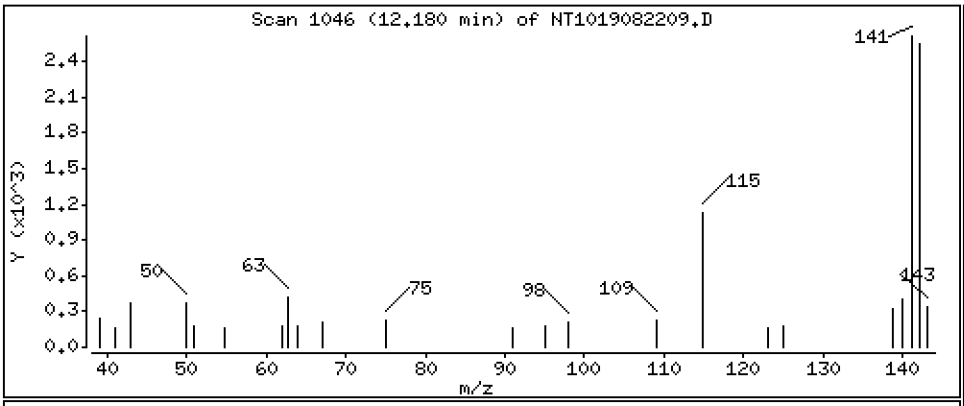
Operator: YZ

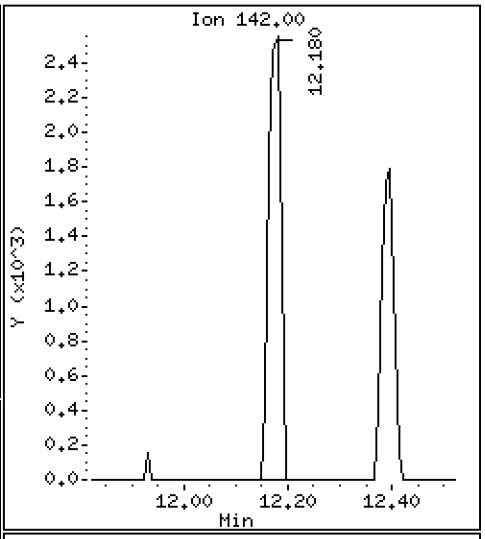
Column phase: ZB-5msi

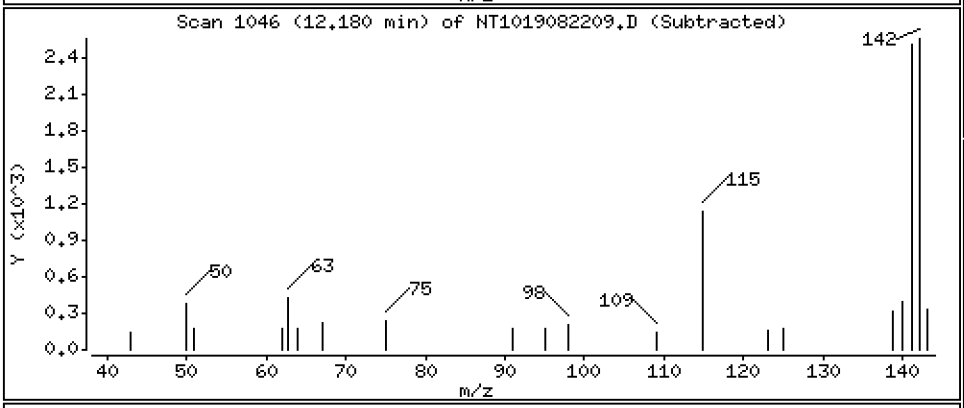
Column diameter: 0.25

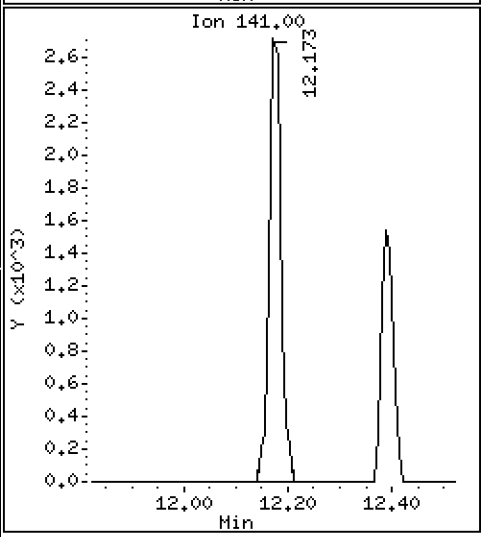
32 2-Methylnaphthalene

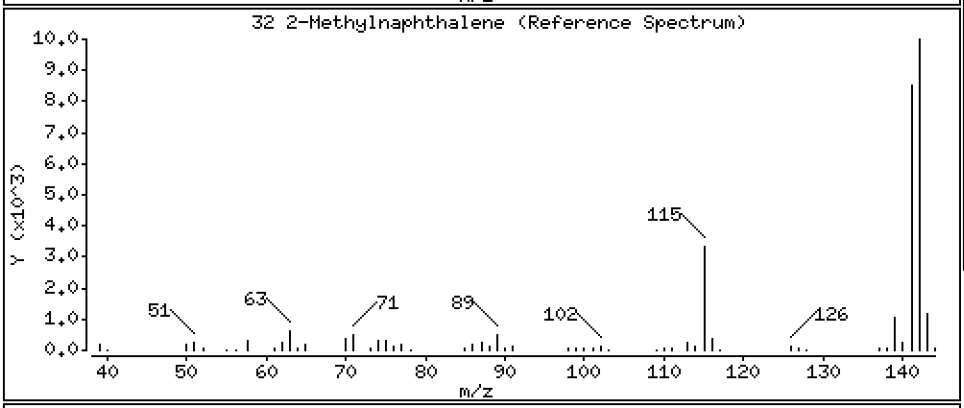
Concentration: 0.3448 ug/mL

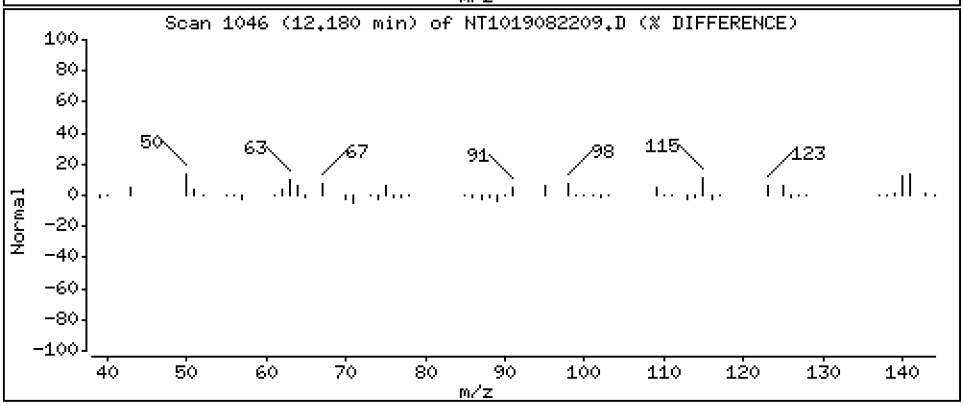












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

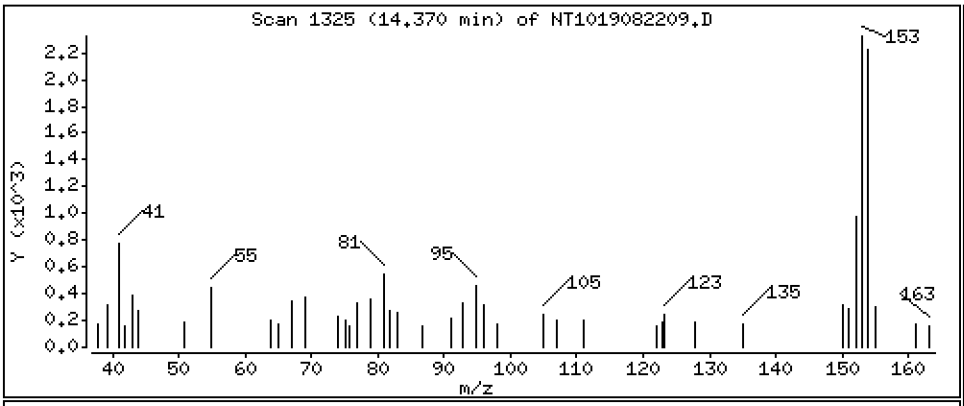
Operator: YZ

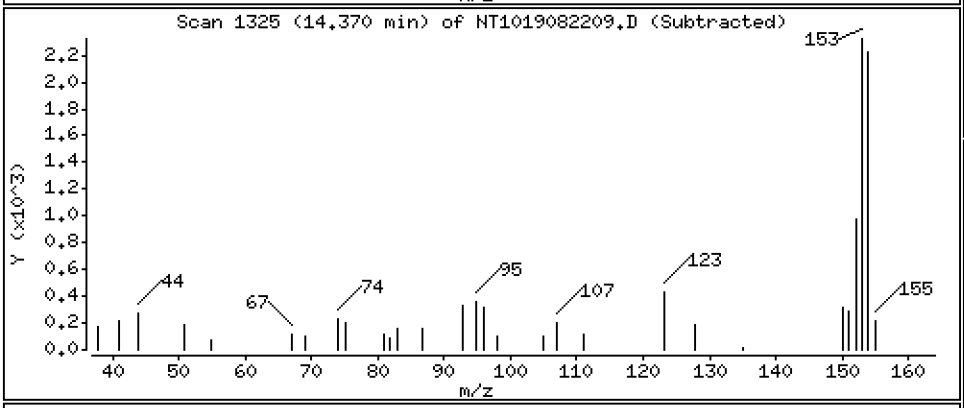
Column phase: ZB-5msi

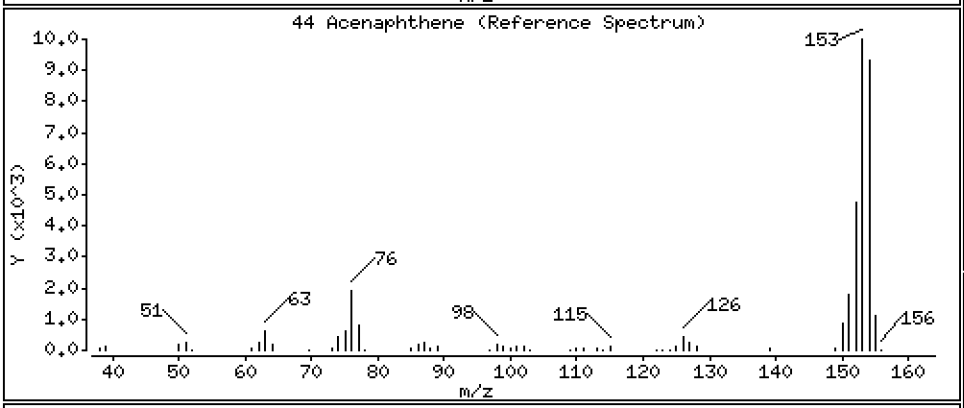
Column diameter: 0.25

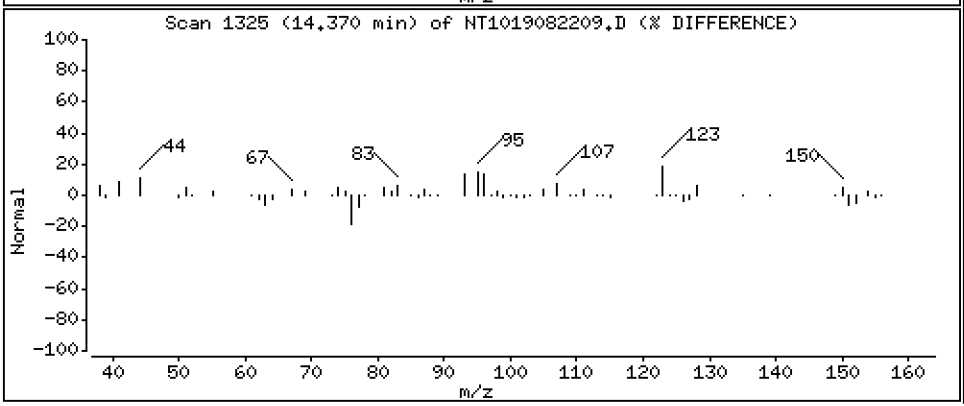
44 Acenaphthene

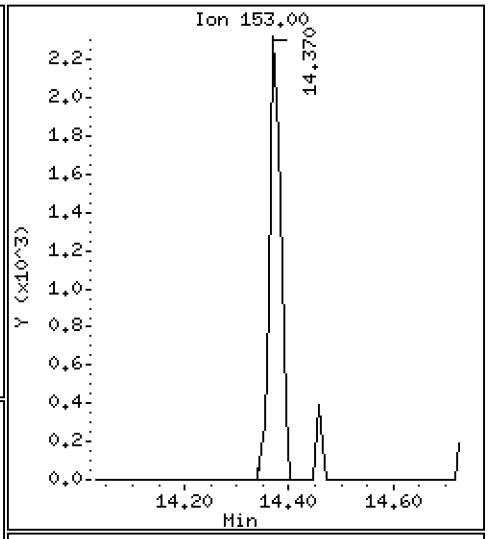
Concentration: 0.3592 ug/mL

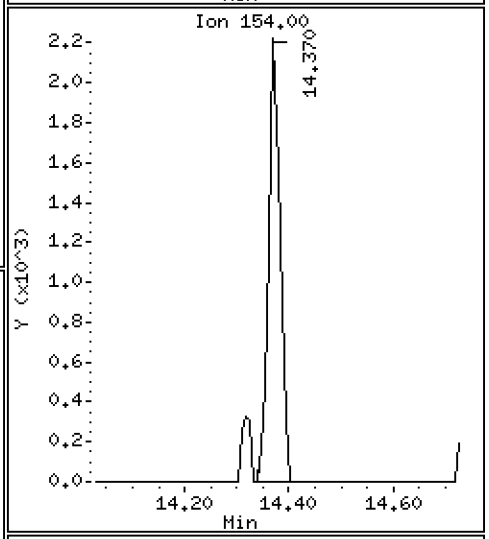


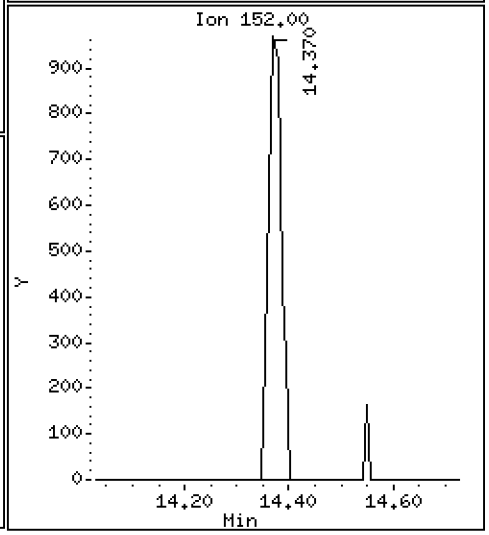












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

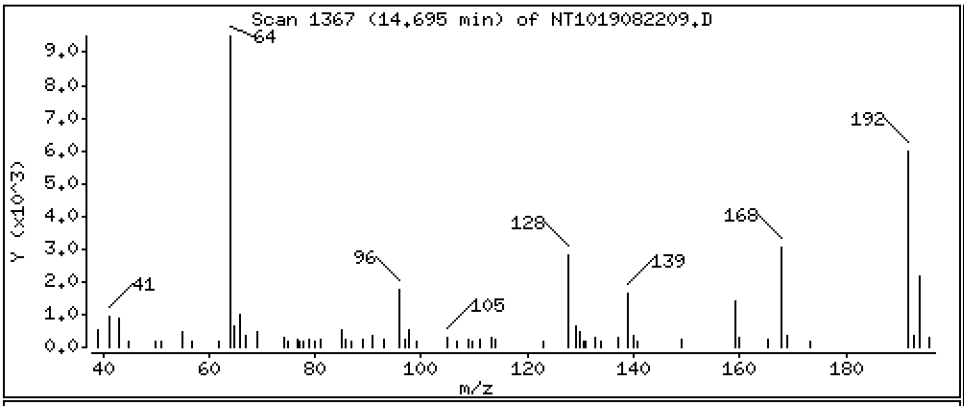
Operator: YZ

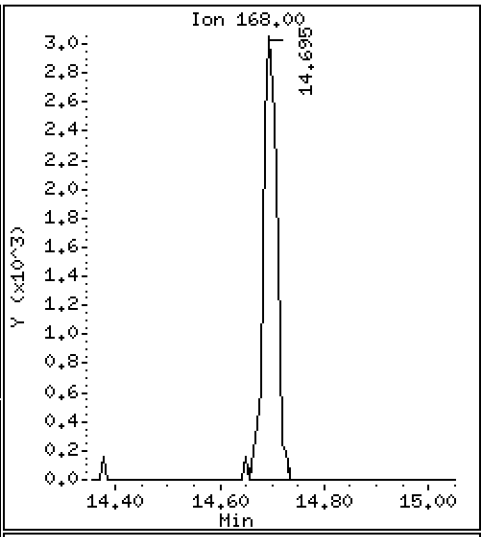
Column phase: ZB-5msi

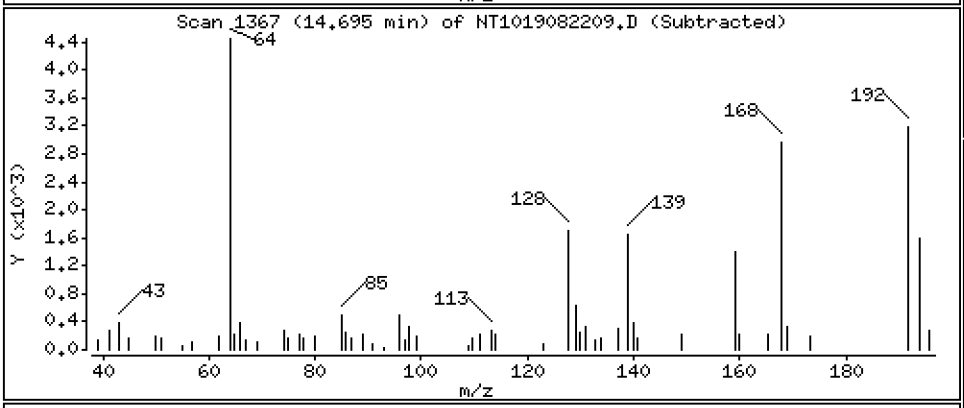
Column diameter: 0.25

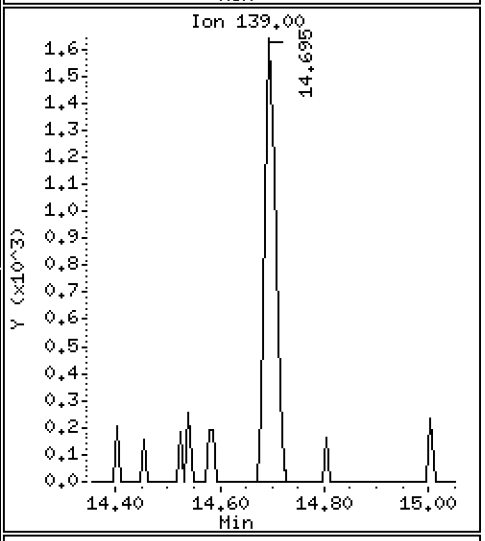
46 Dibenzofuran

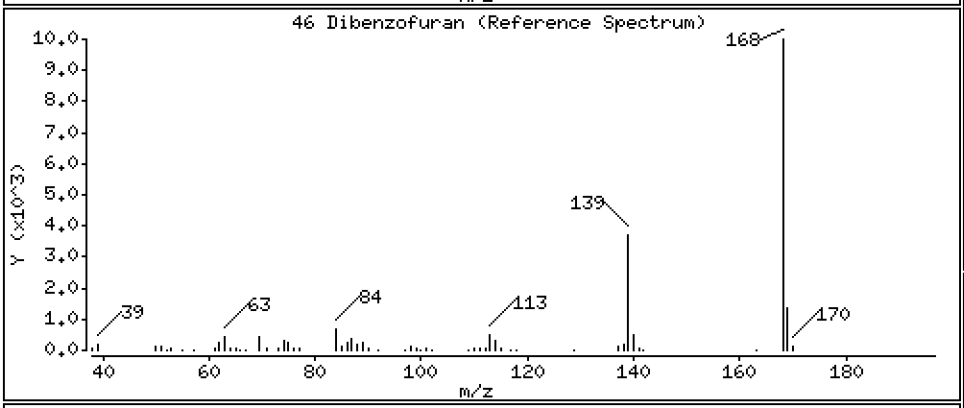
Concentration: 0.3519 ug/mL

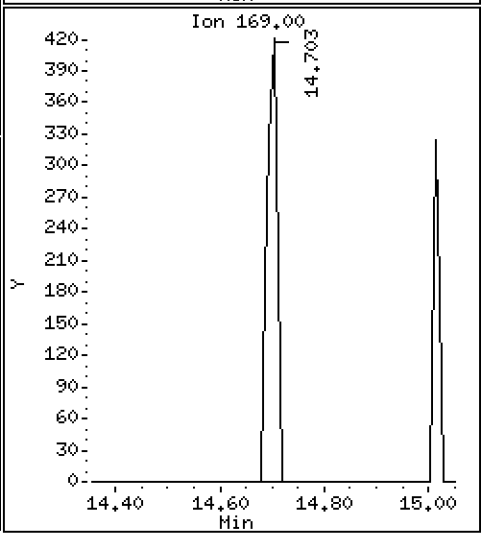


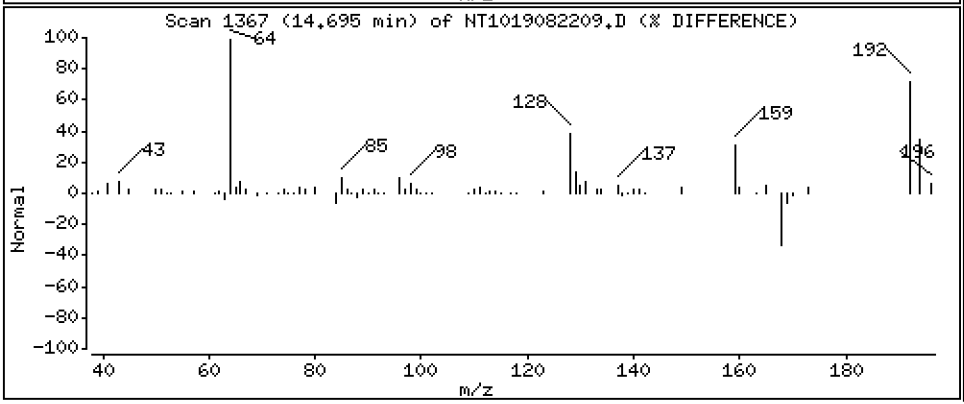












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

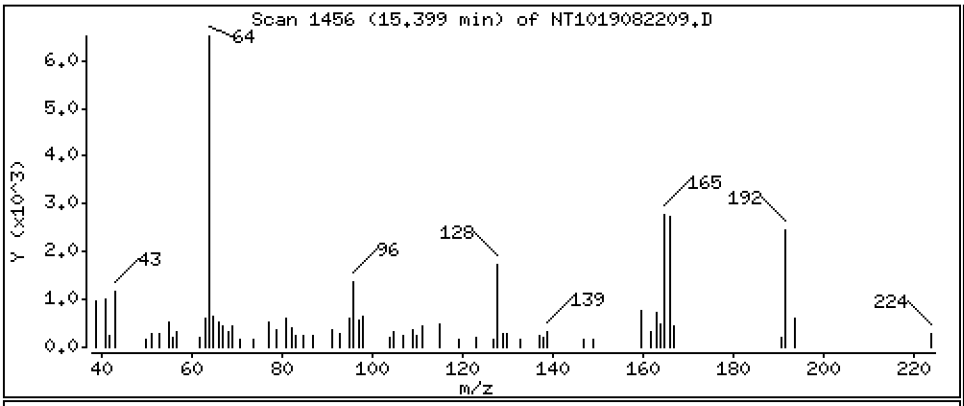
Operator: YZ

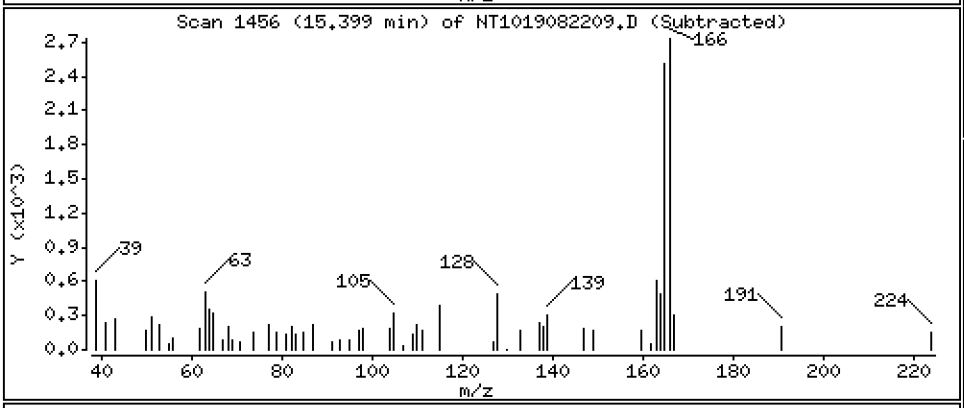
Column phase: ZB-5msi

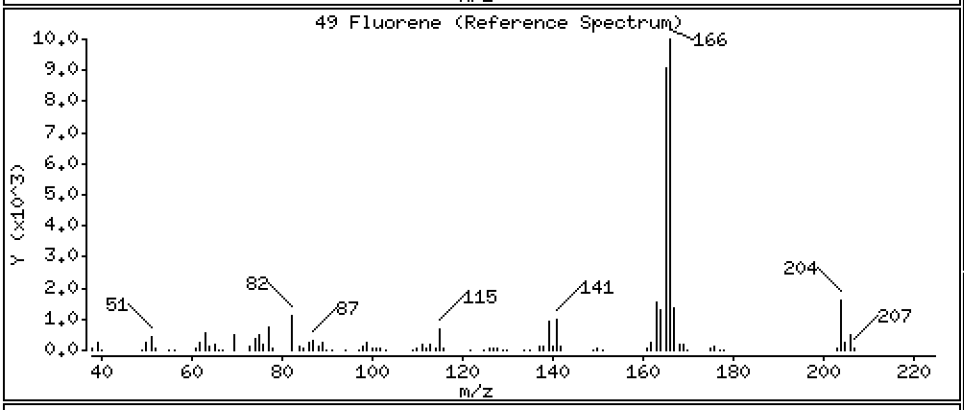
Column diameter: 0.25

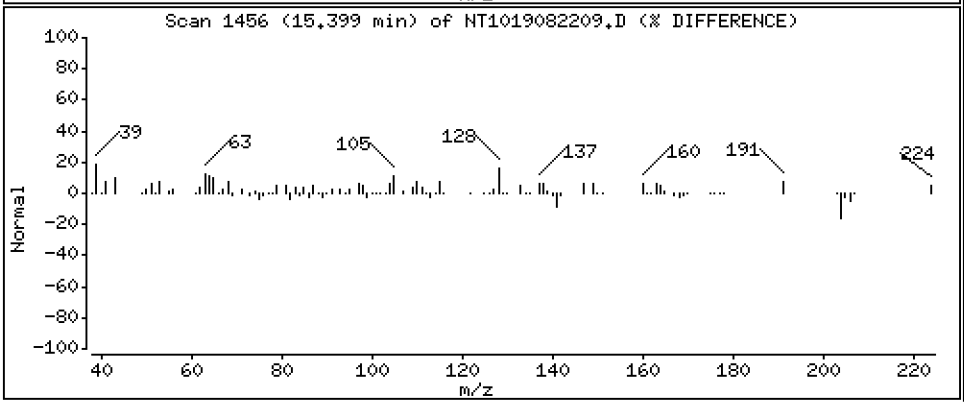
49 Fluorene

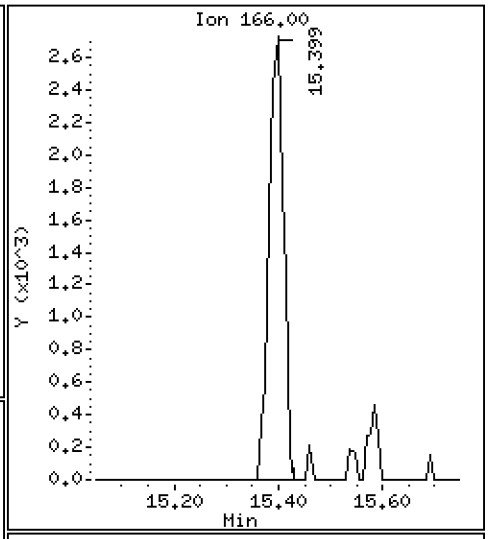
Concentration: 0.5007 ug/mL

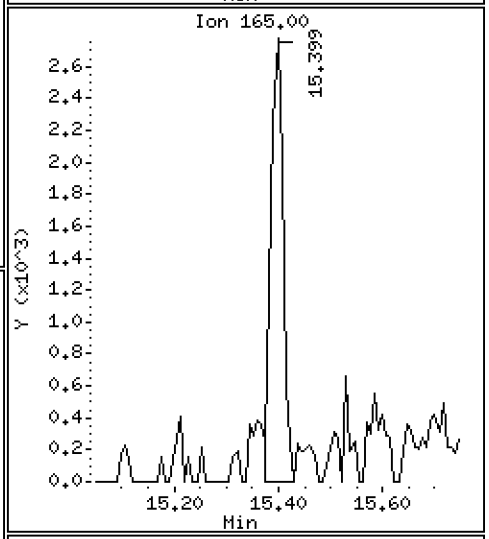


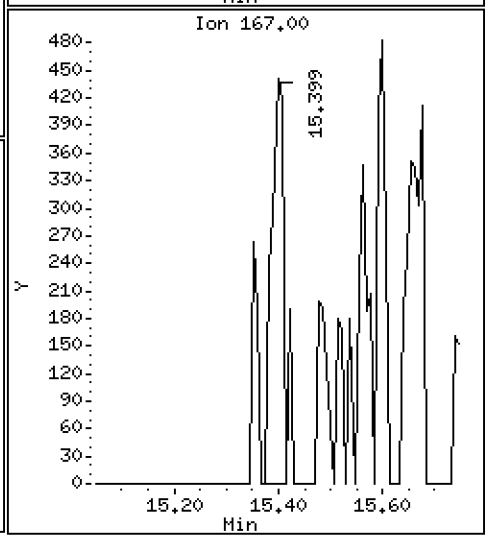












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

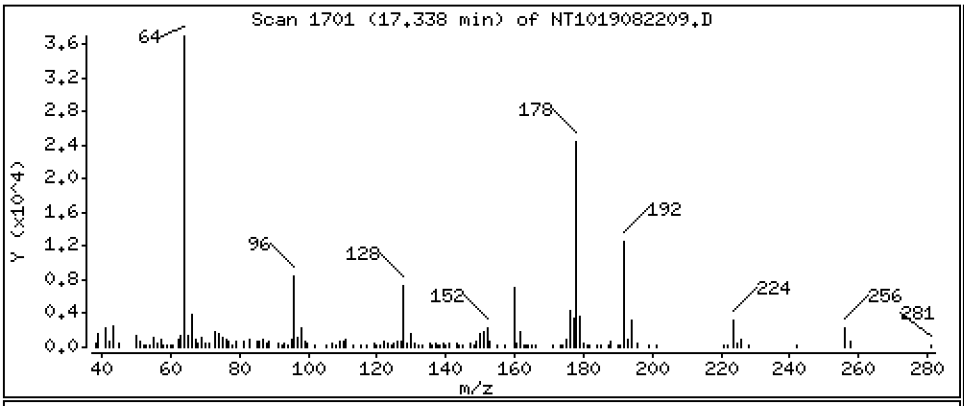
Operator: YZ

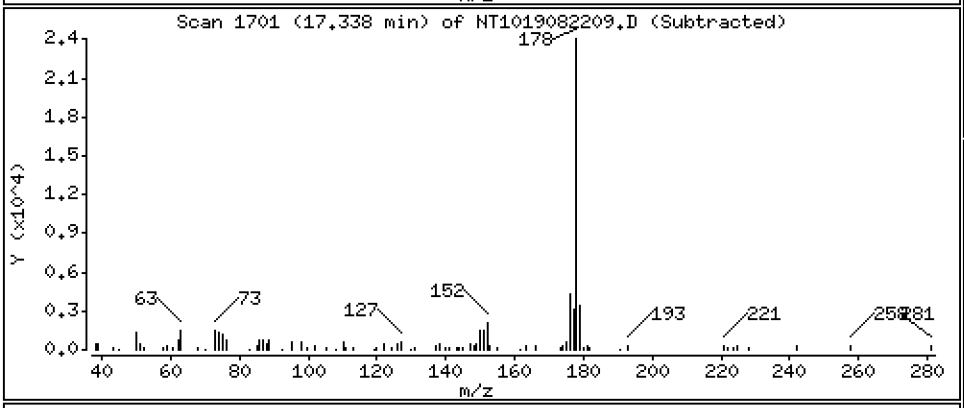
Column phase: ZB-5msi

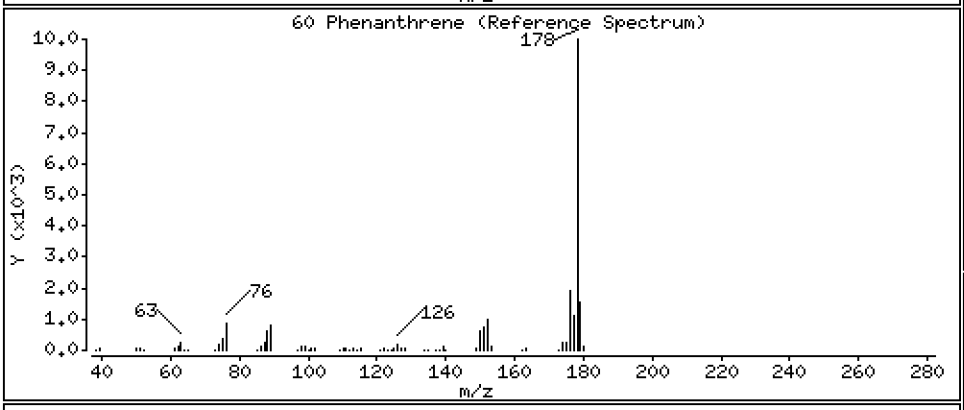
Column diameter: 0.25

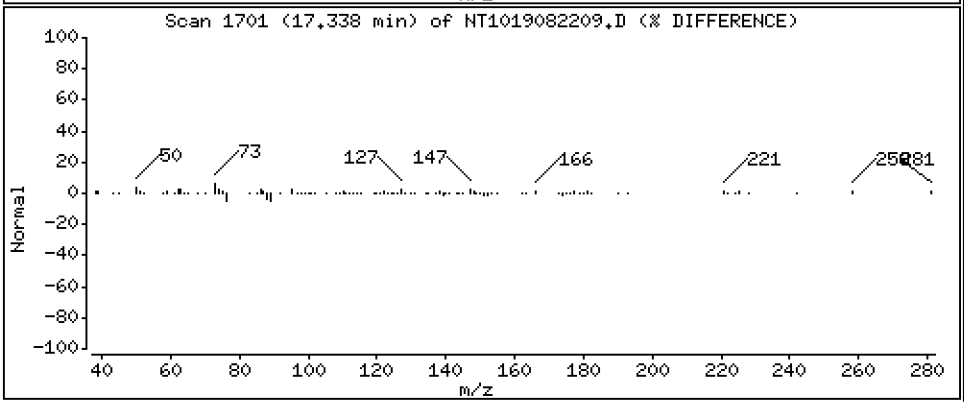
60 Phenanthrene

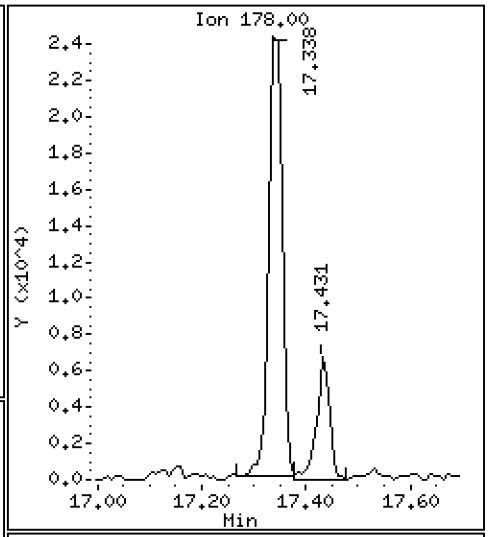
Concentration: 2.917 ug/mL

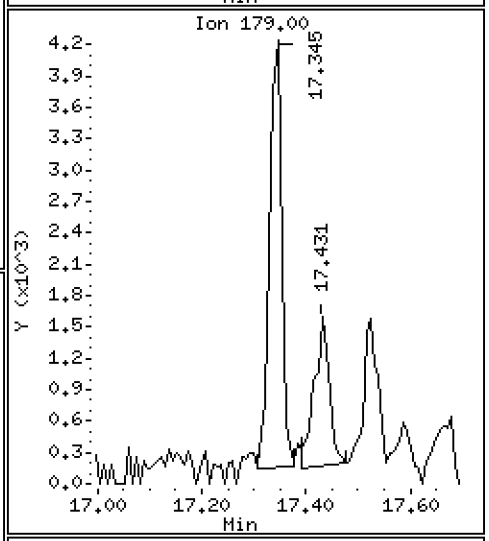


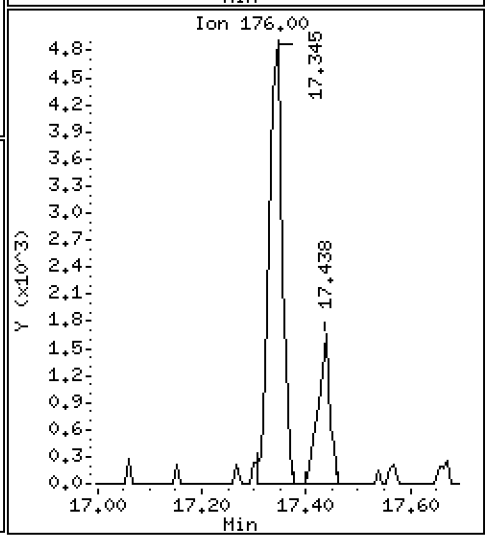












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Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

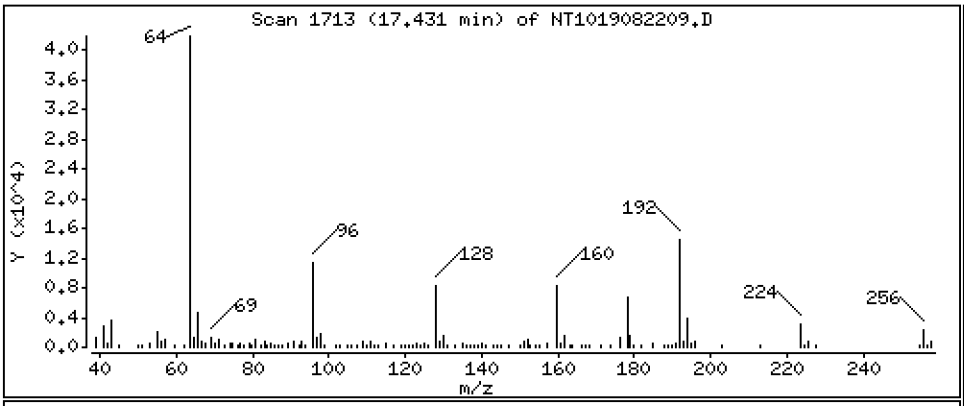
Operator: YZ

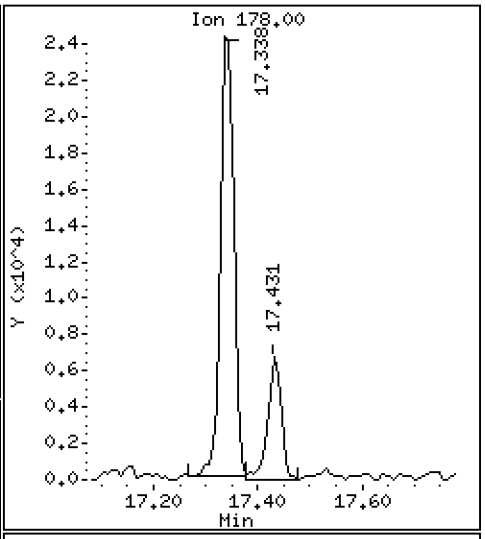
Column phase: ZB-5msi

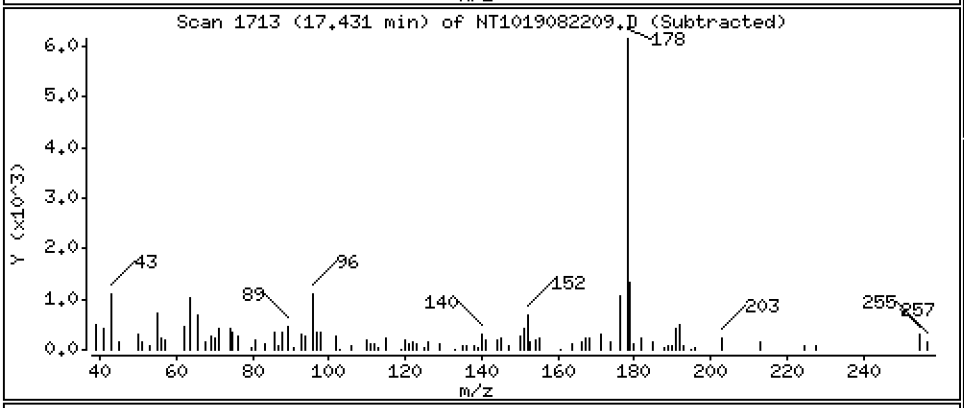
Column diameter: 0.25

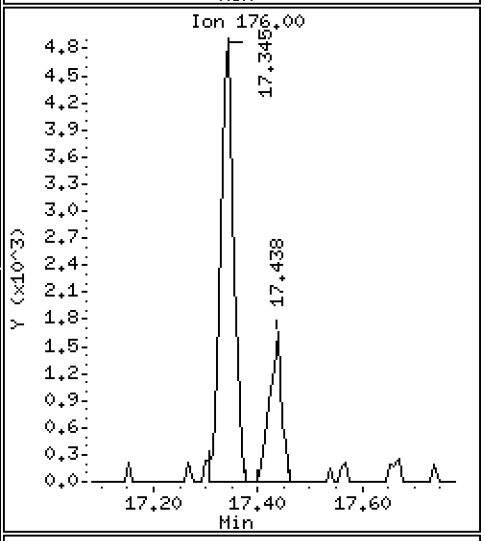
61 Anthracene

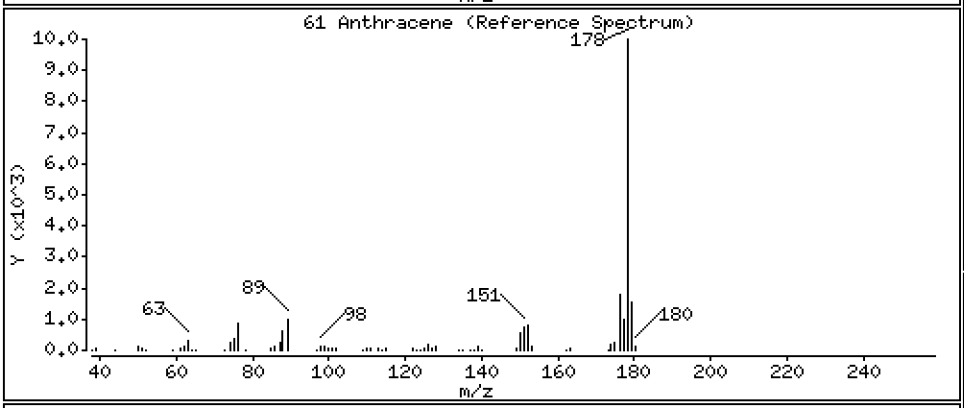
Concentration: 0.8211 ug/mL

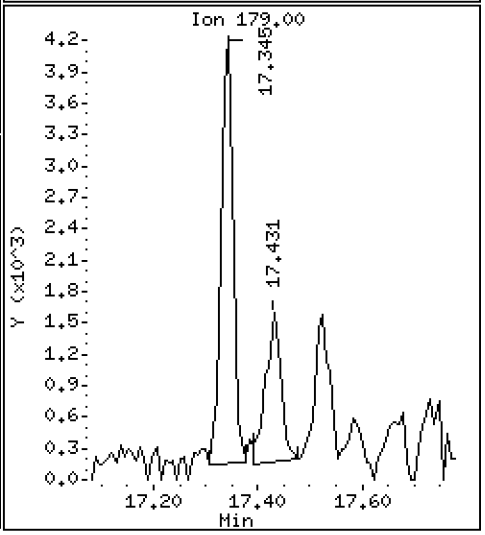


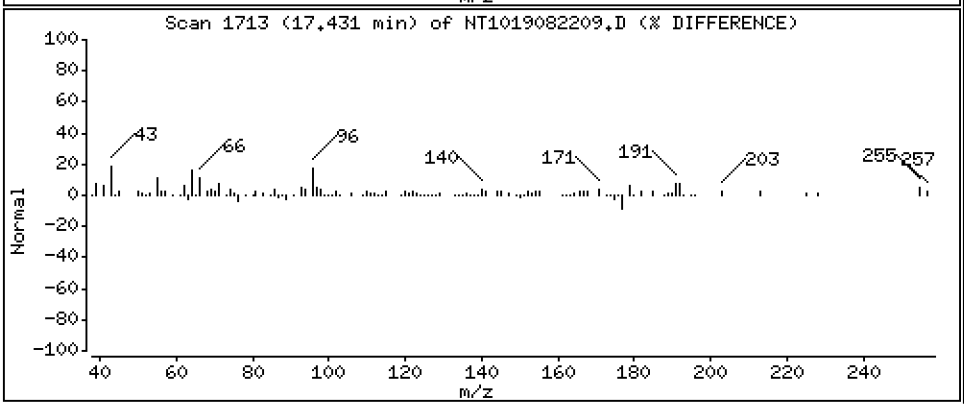












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

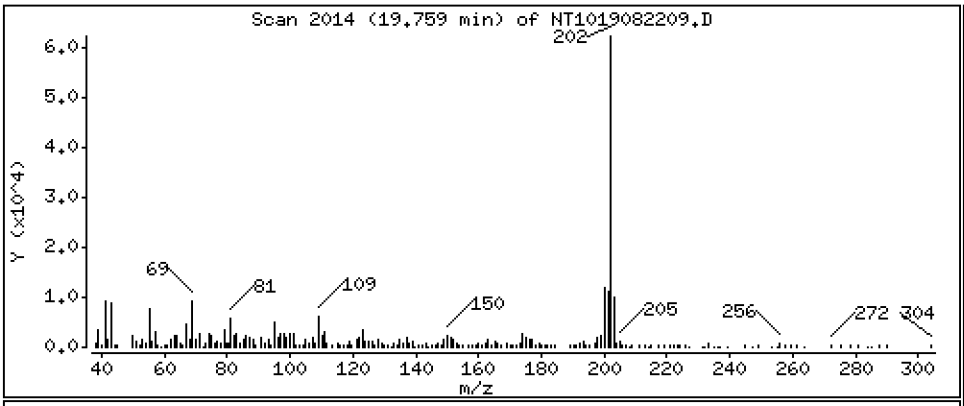
Operator: YZ

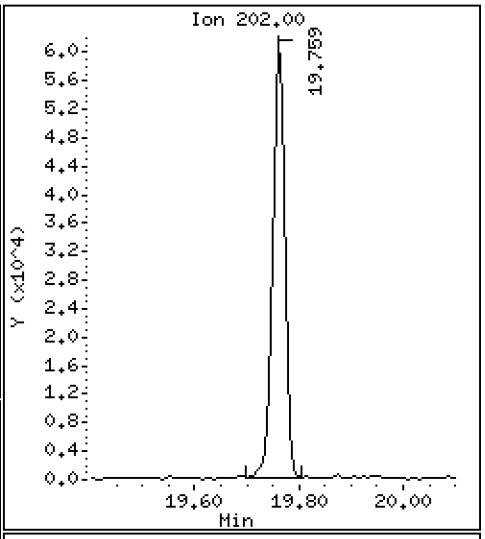
Column phase: ZB-5msi

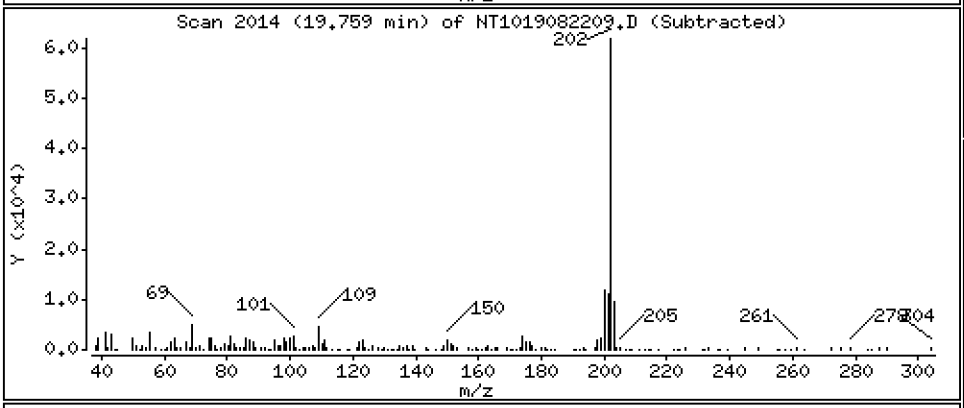
Column diameter: 0.25

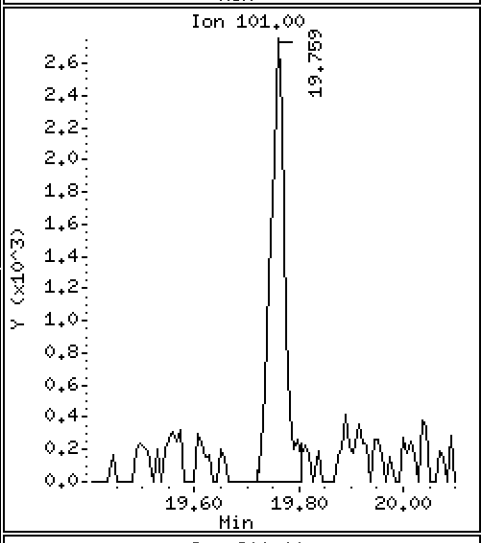
64 Fluoranthene

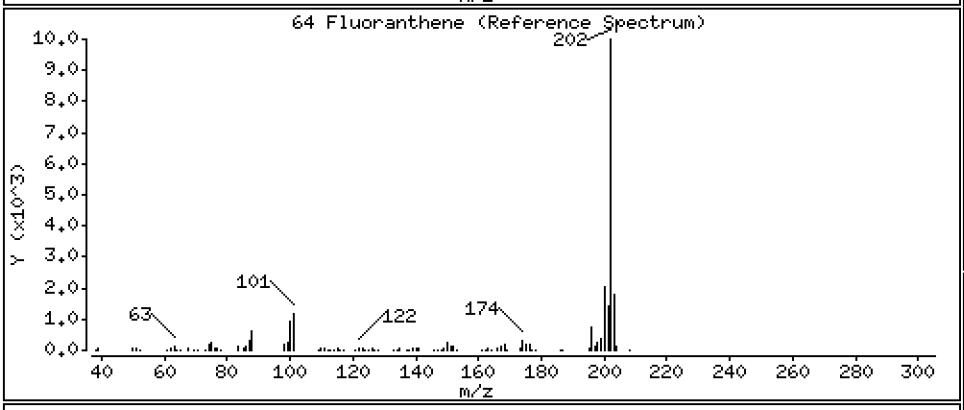
Concentration: 10.47 ug/mL

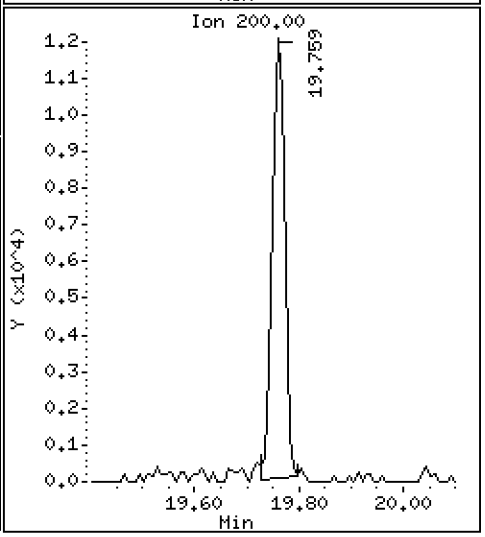


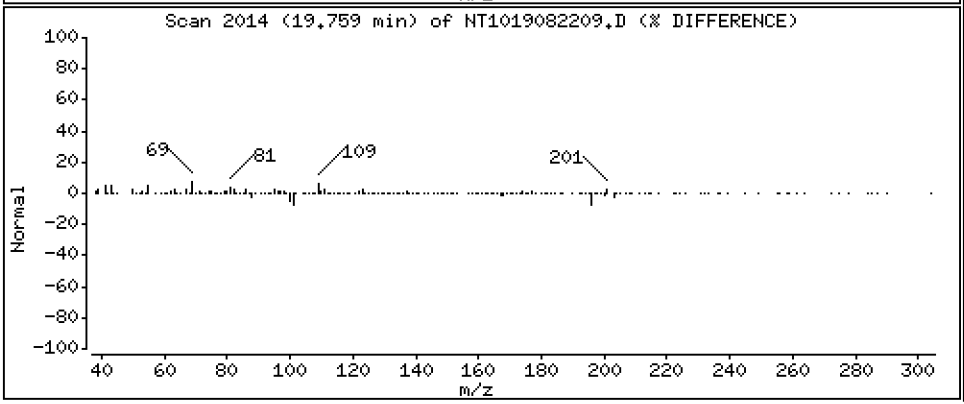












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

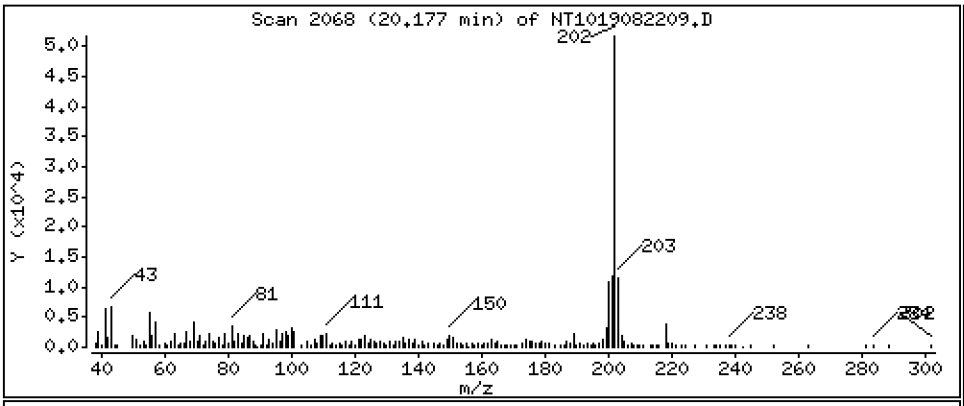
Operator: YZ

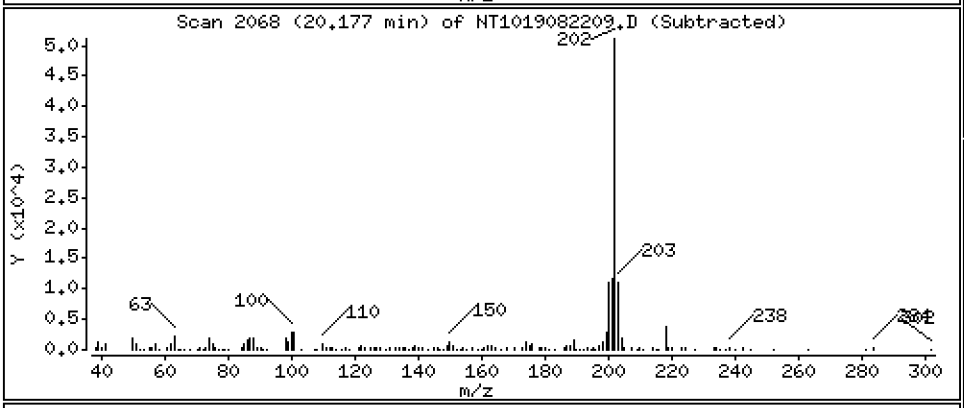
Column phase: ZB-5msi

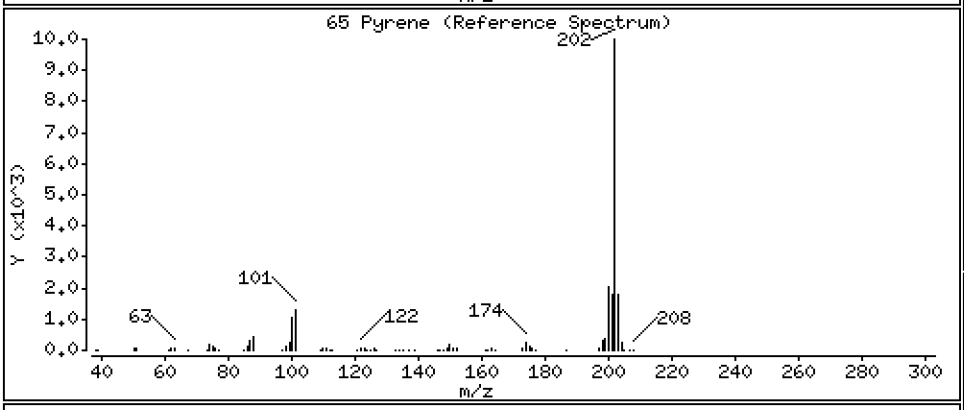
Column diameter: 0.25

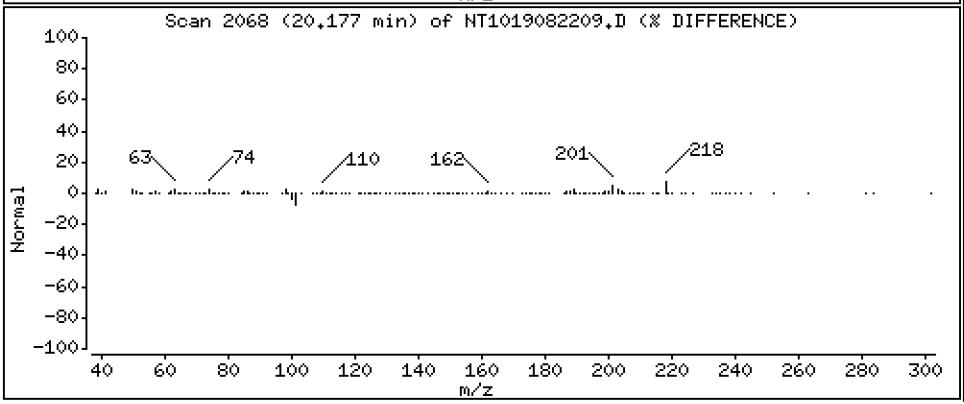
65 Pyrene

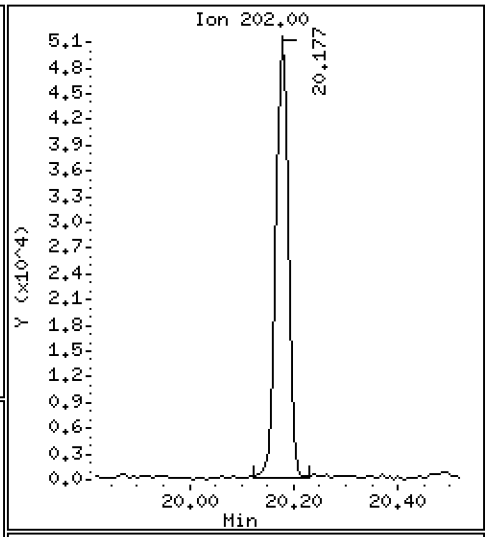
Concentration: 8.172 ug/mL

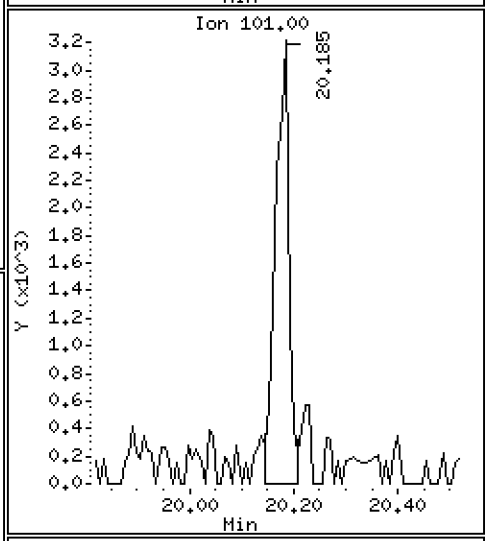


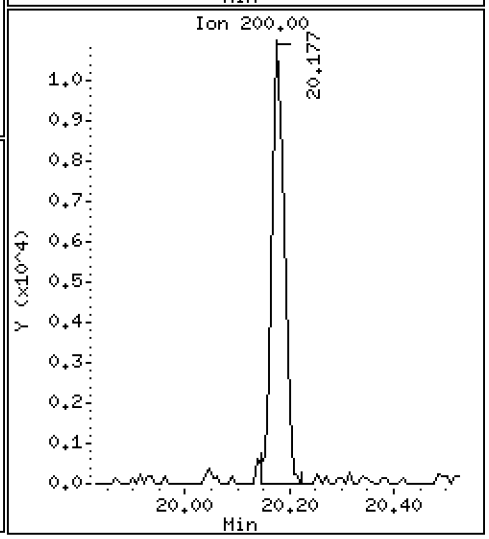












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

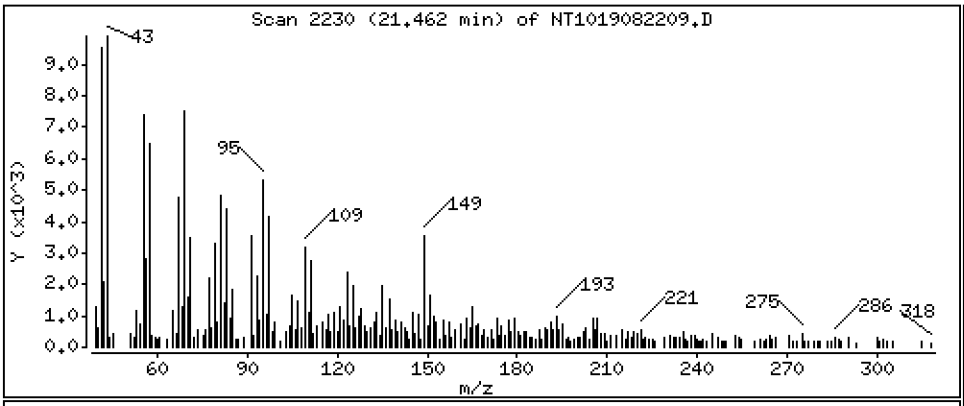
Operator: YZ

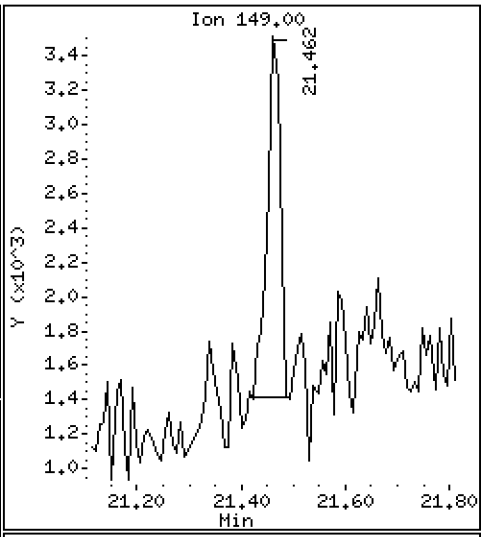
Column phase: ZB-5msi

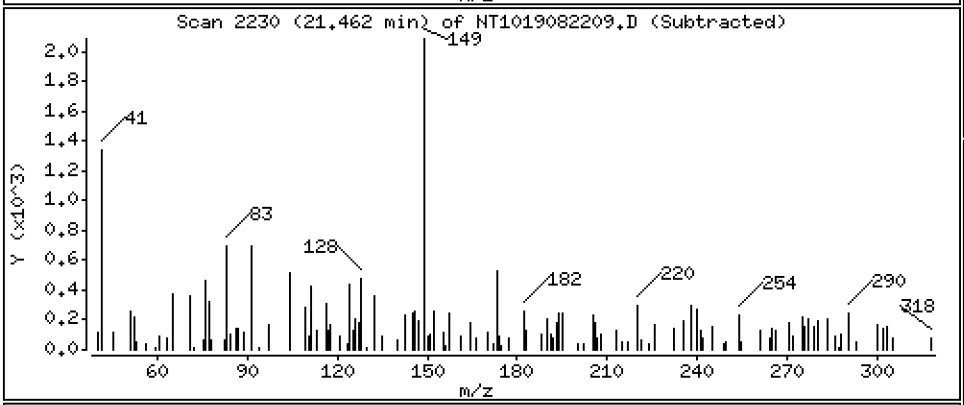
Column diameter: 0.25

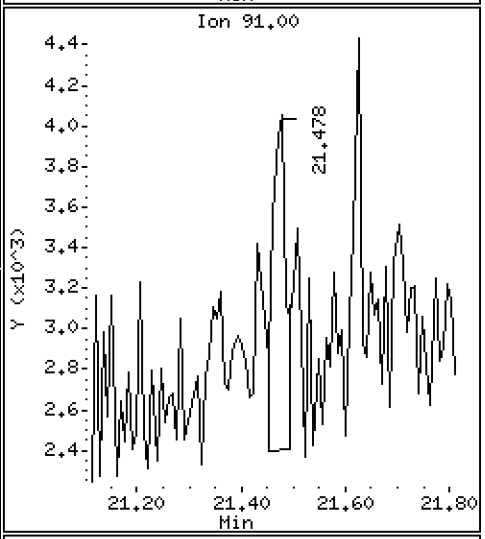
67 Butylbenzylphthalate

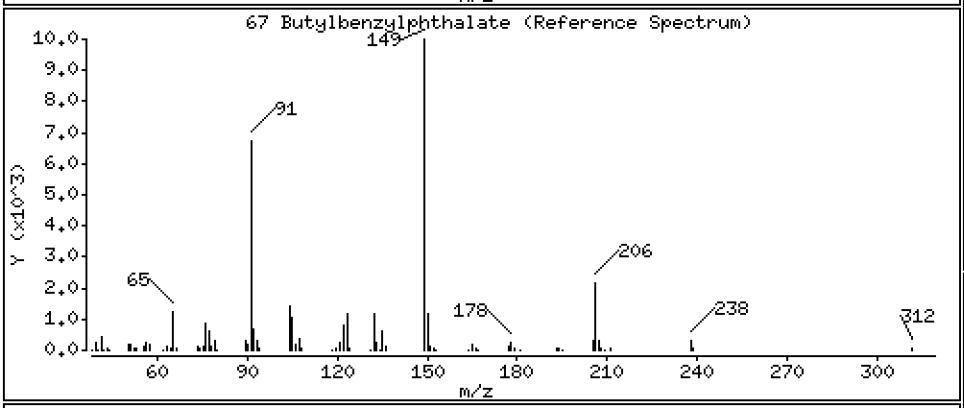
Concentration: 0.7511 ug/mL

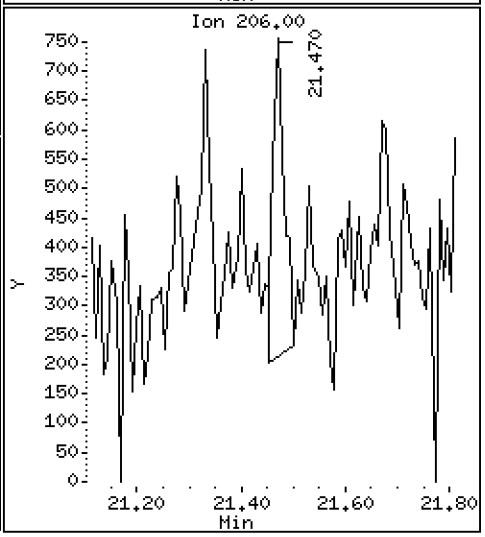


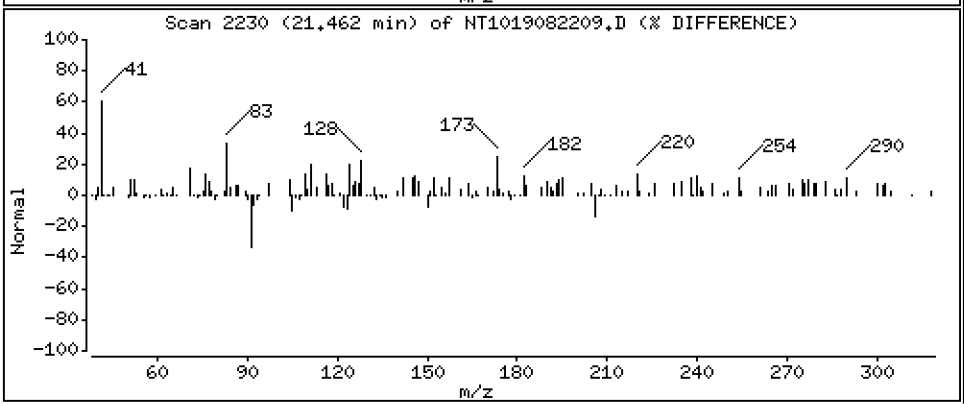












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Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

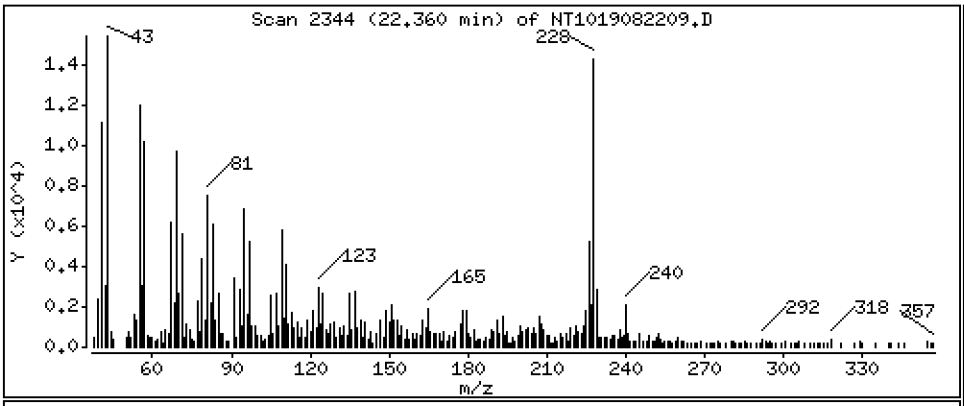
Operator: YZ

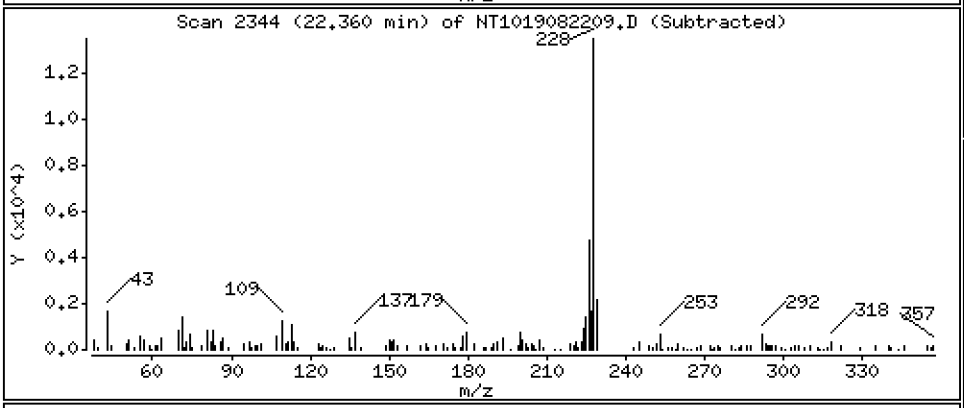
Column phase: ZB-5msi

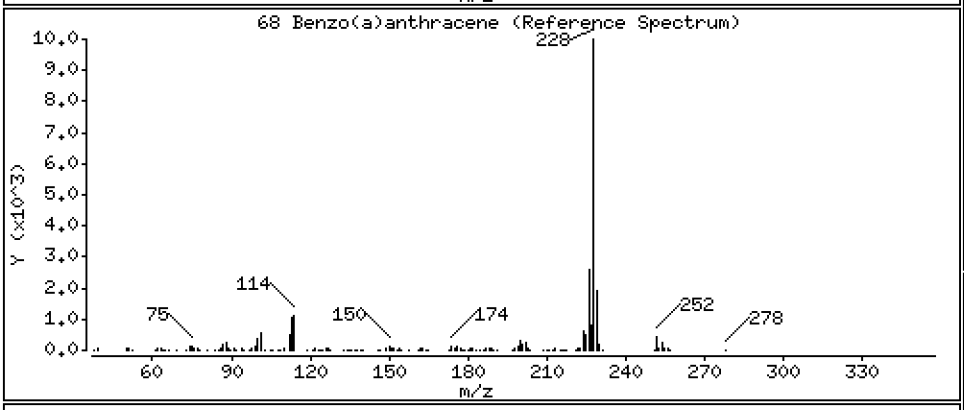
Column diameter: 0.25

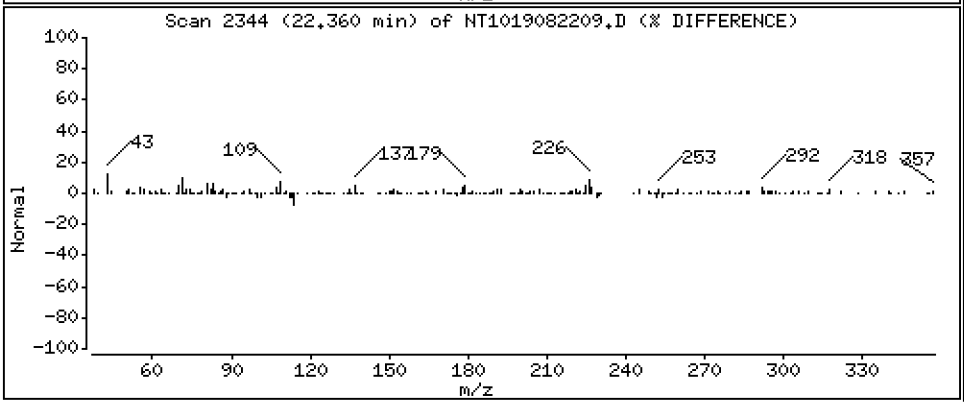
68 Benzo(a)anthracene

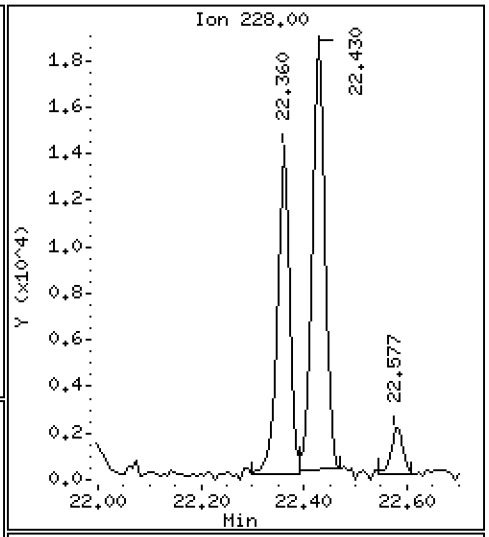
Concentration: 2.511 ug/mL

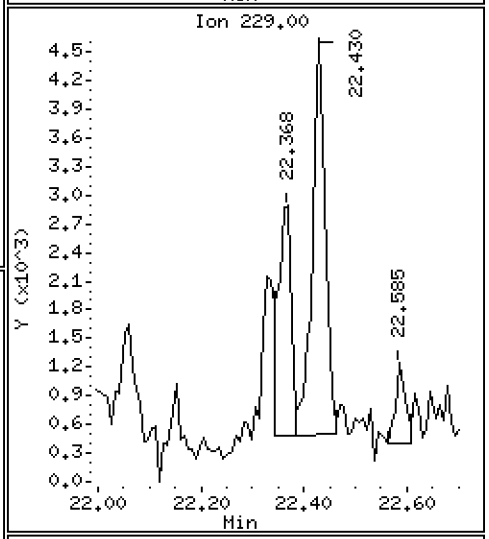


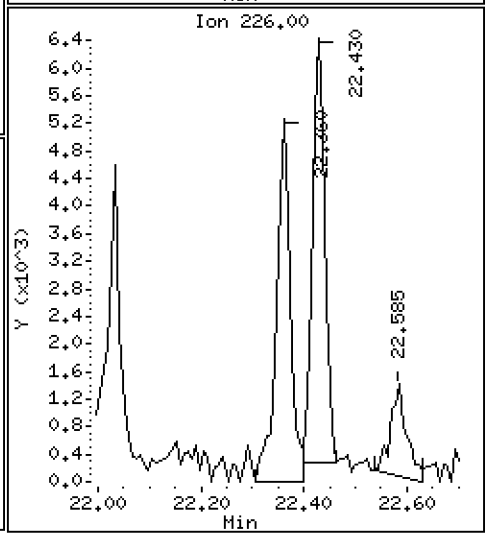












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

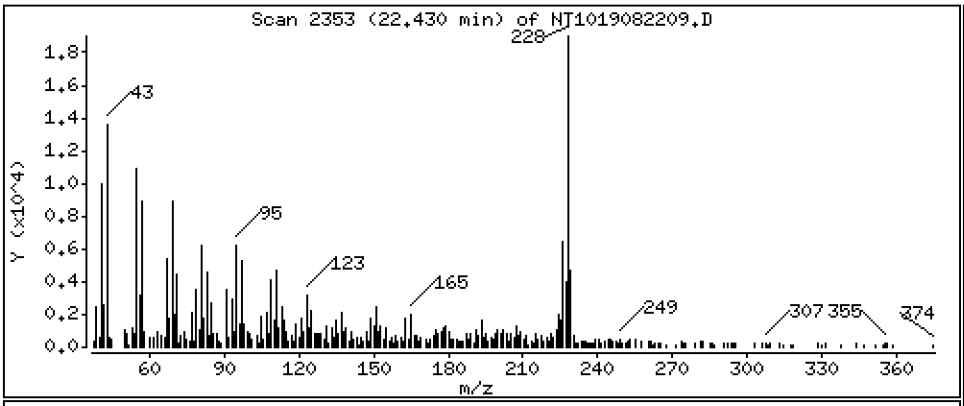
Operator: YZ

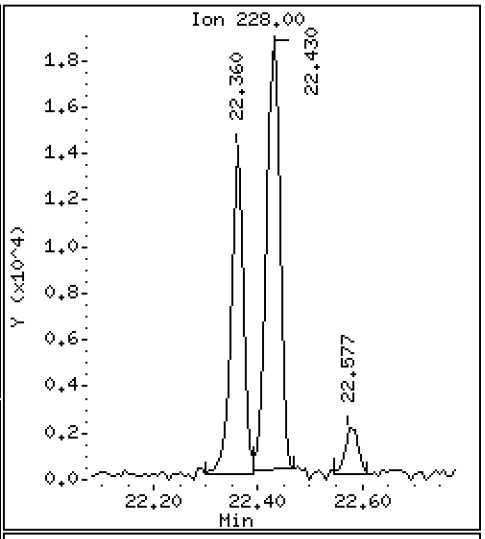
Column phase: ZB-5msi

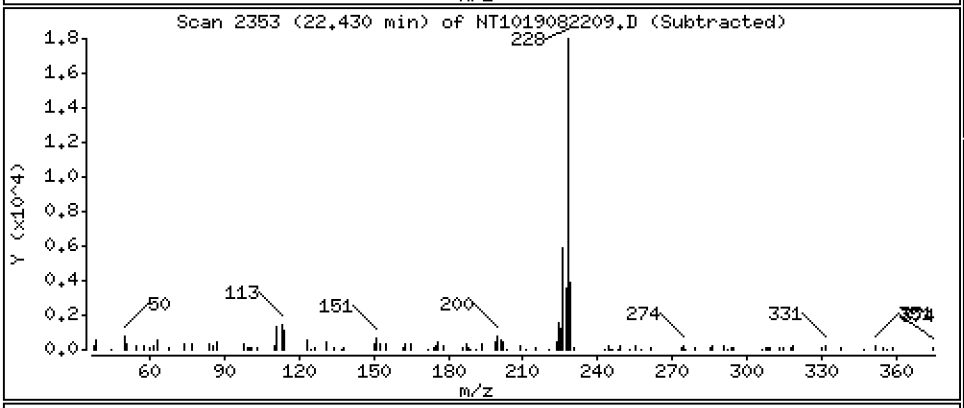
Column diameter: 0.25

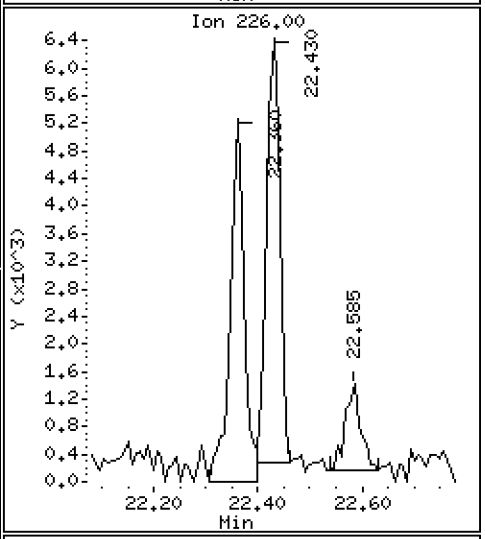
71 Chrysene

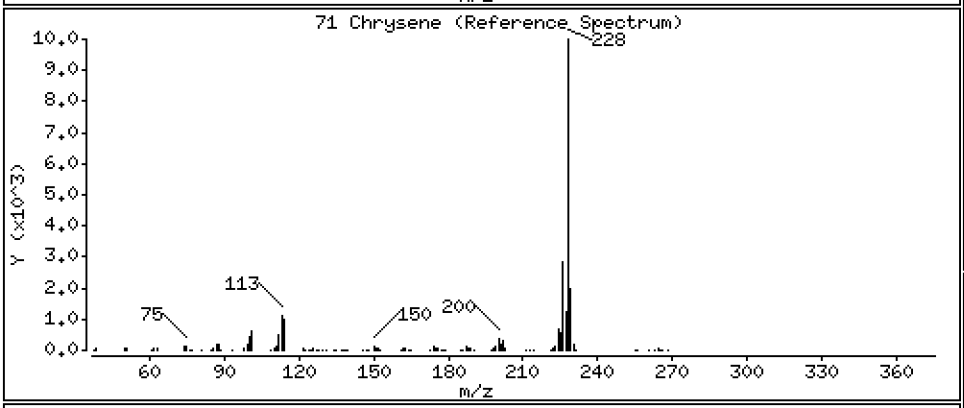
Concentration: 4.010 ug/mL

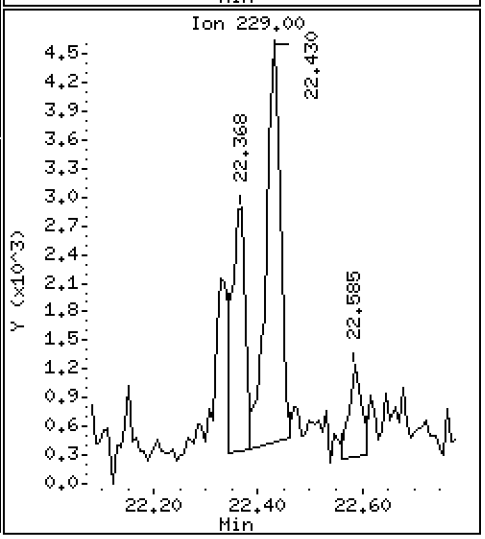


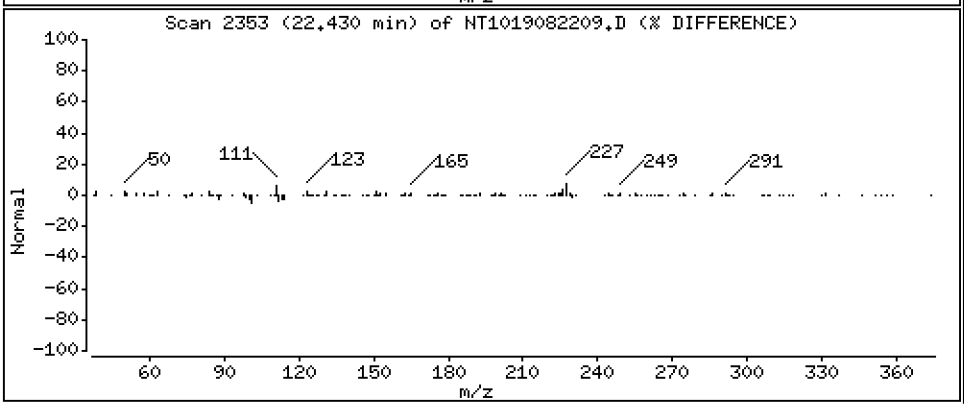












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

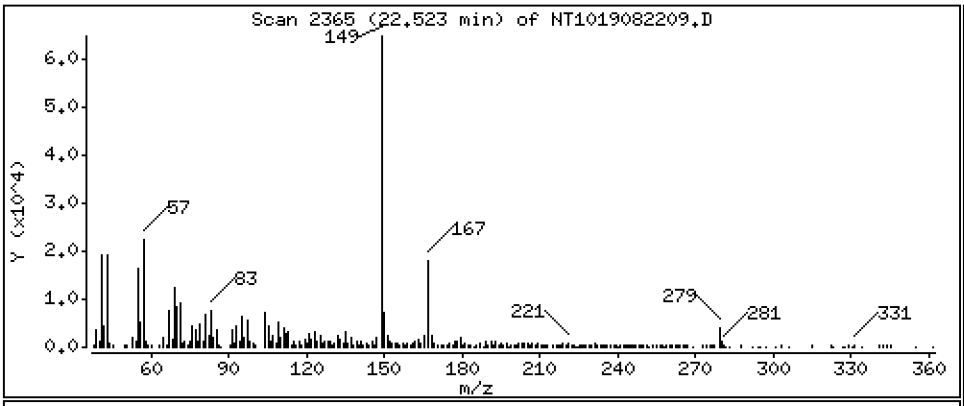
Operator: YZ

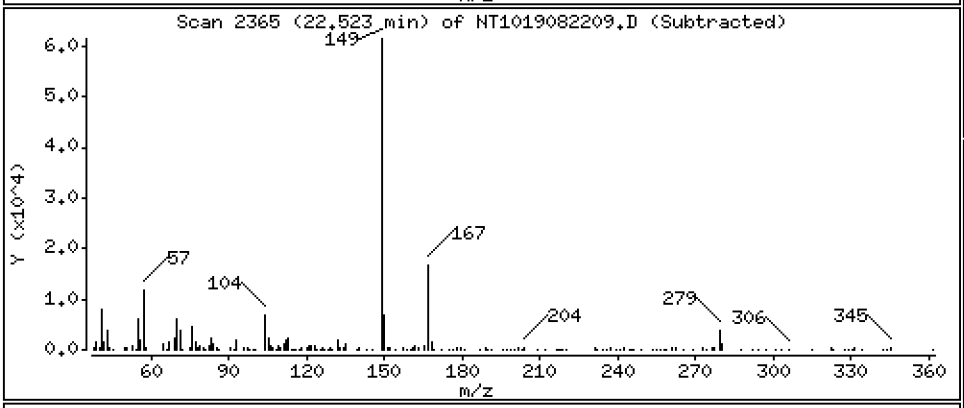
Column phase: ZB-5msi

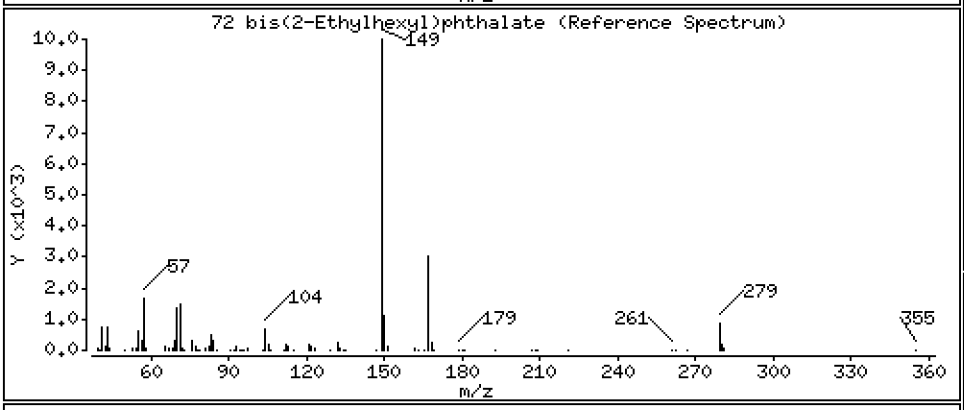
Column diameter: 0.25

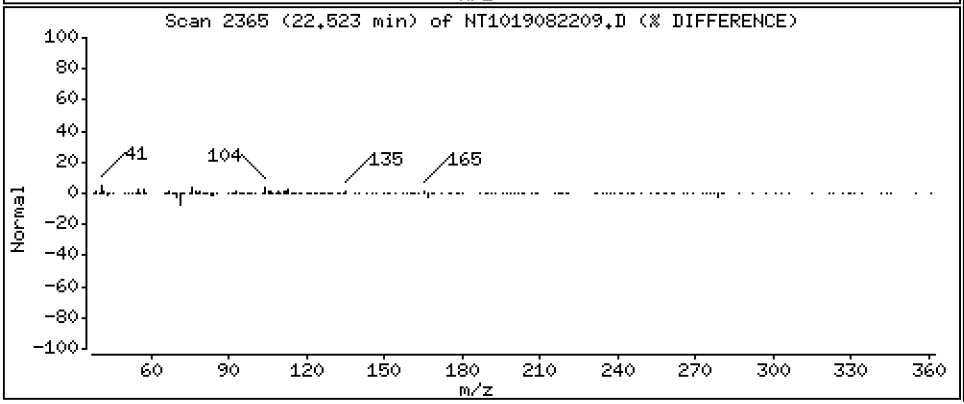
72 bis(2-Ethylhexyl)phthalate

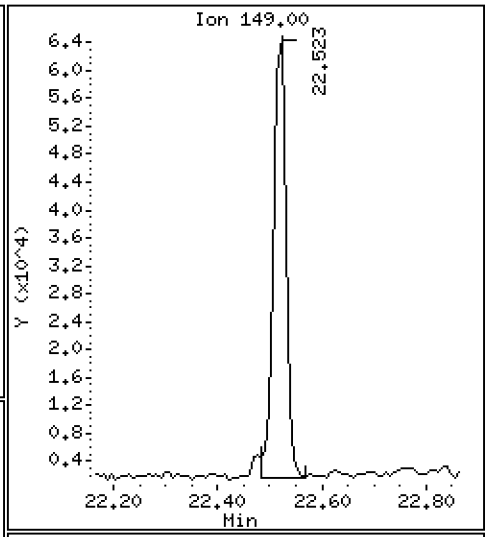
Concentration: 16.43 ug/mL

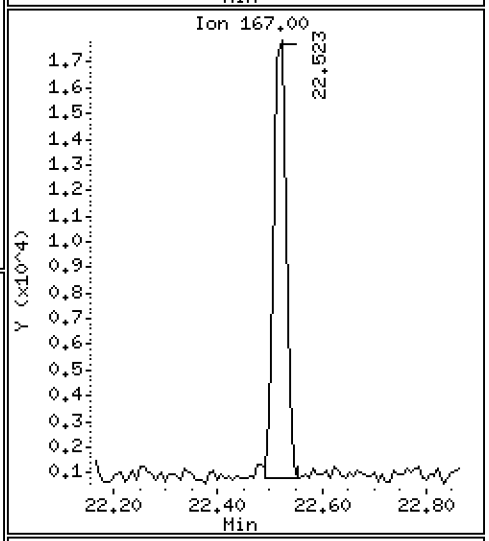


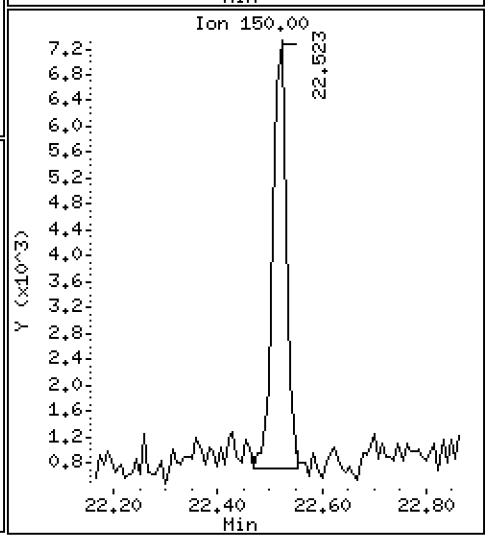












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

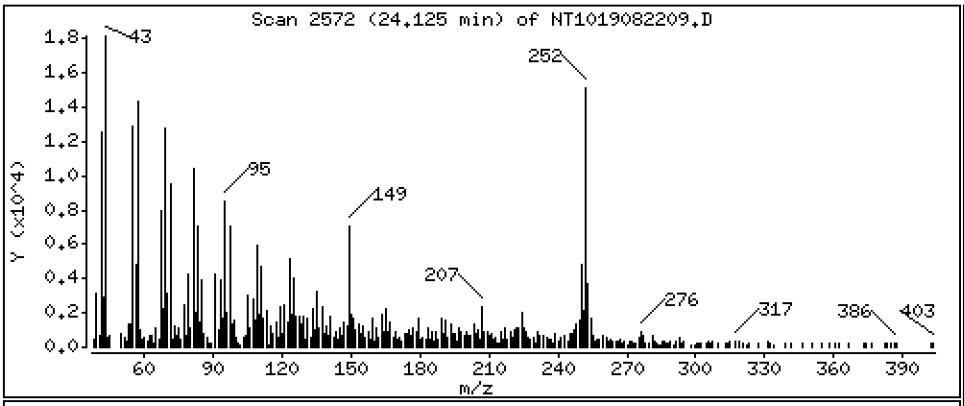
Operator: YZ

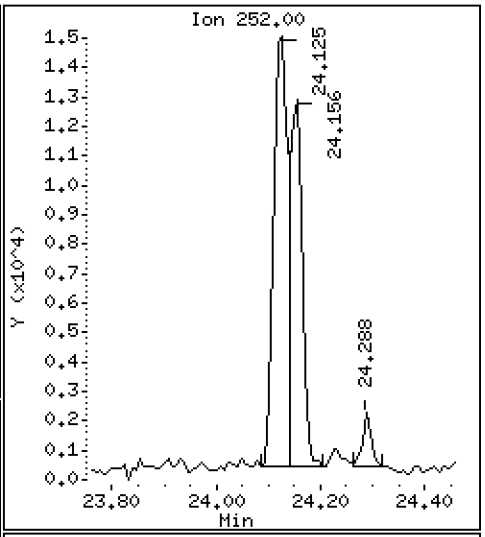
Column phase: ZB-5msi

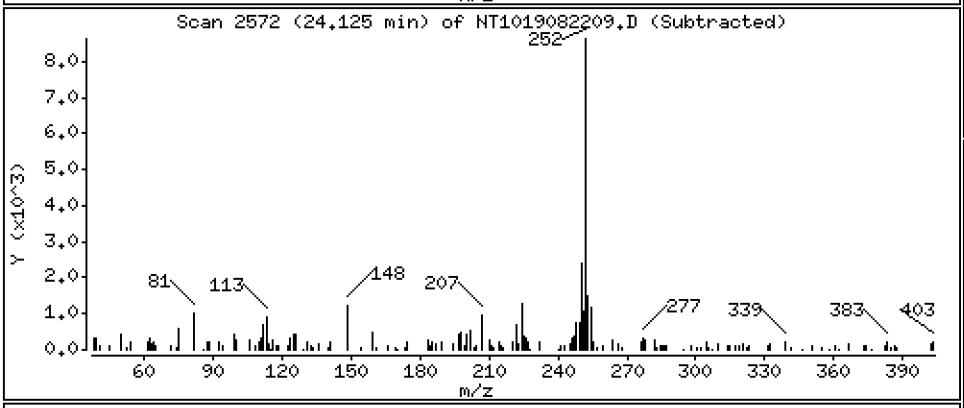
Column diameter: 0.25

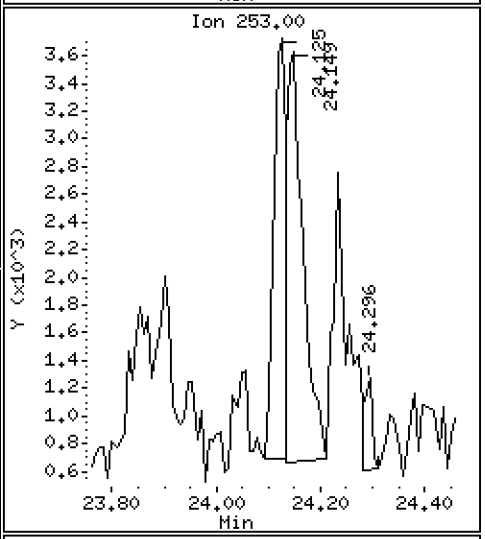
74 Benzo(b)fluoranthene

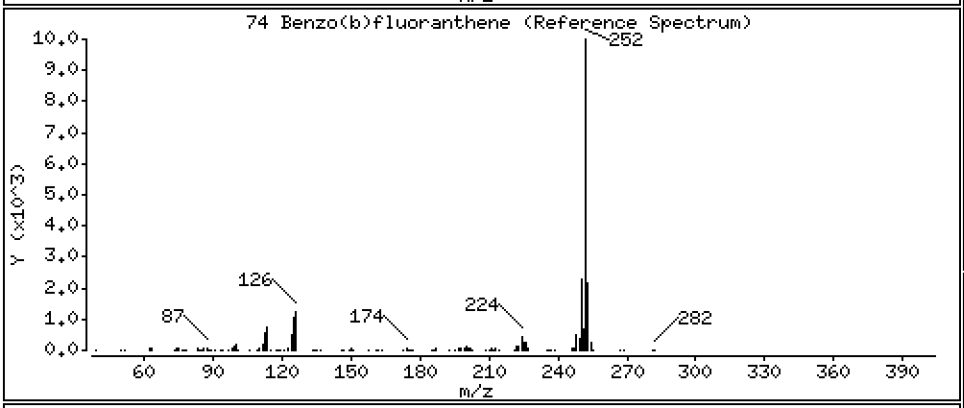
Concentration: 3.993 ug/mL

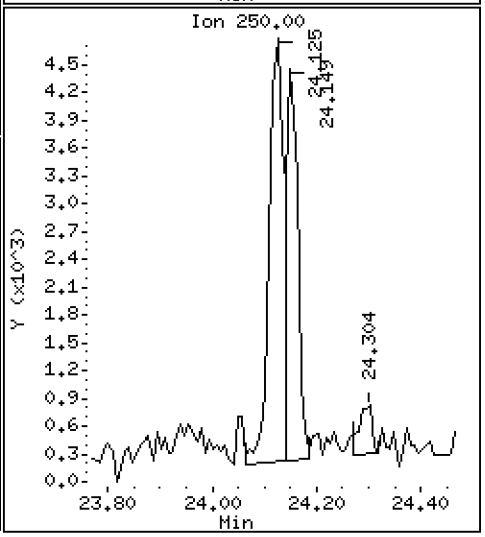


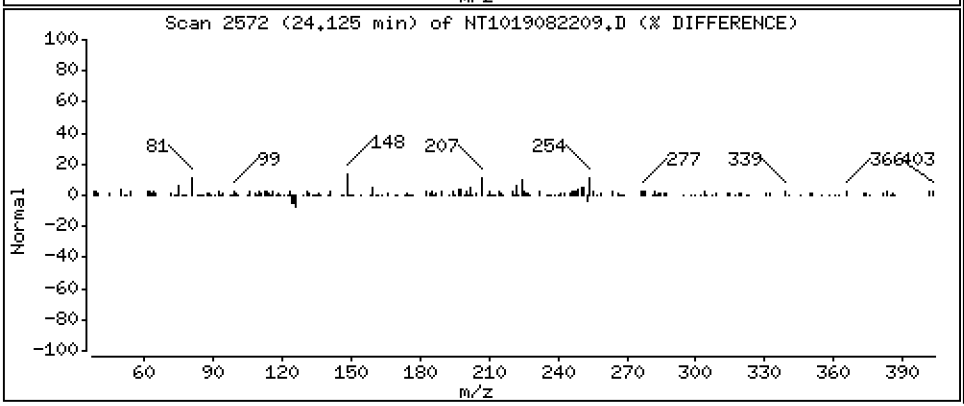












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

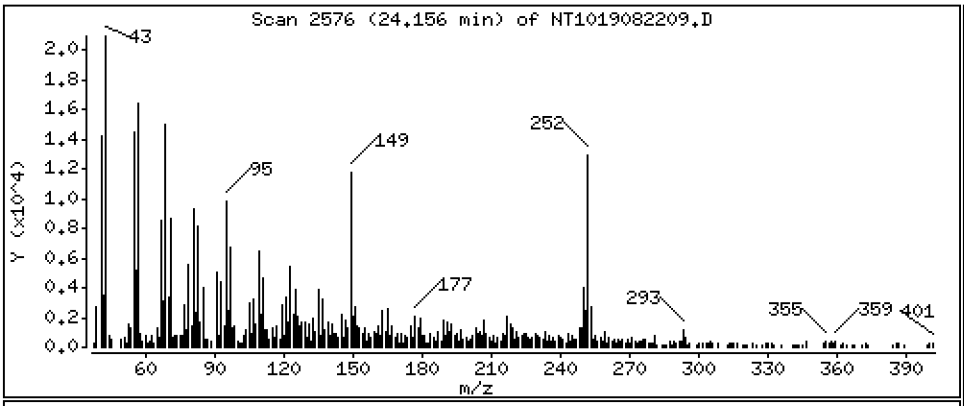
Operator: YZ

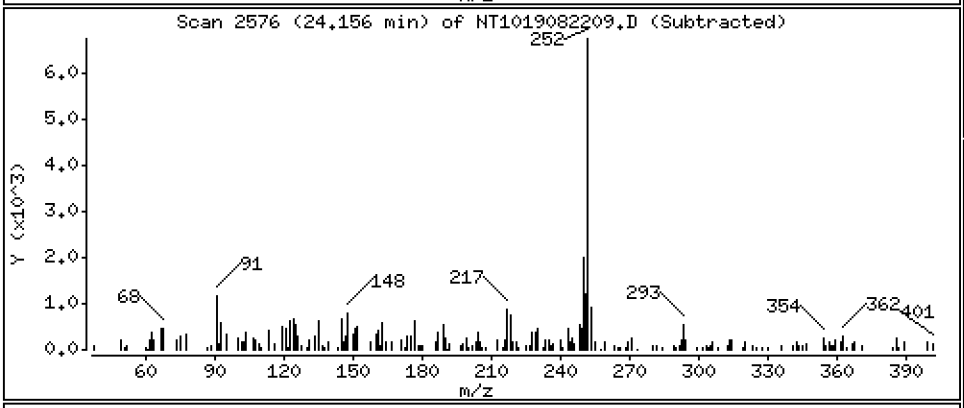
Column phase: ZB-5msi

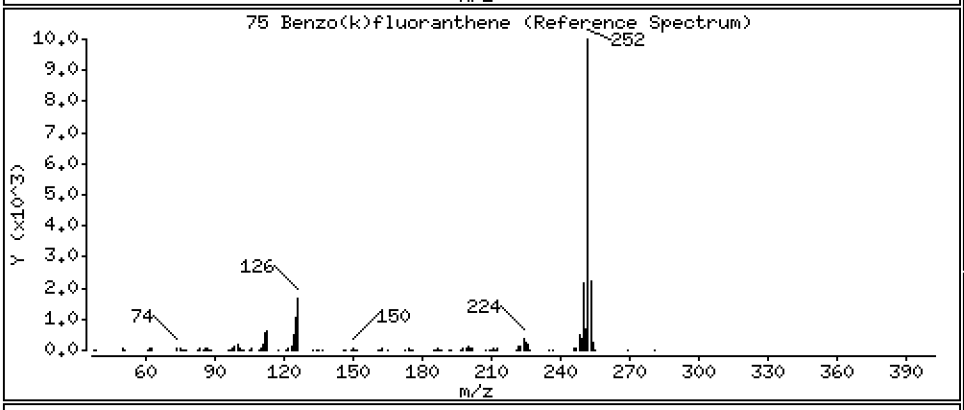
Column diameter: 0.25

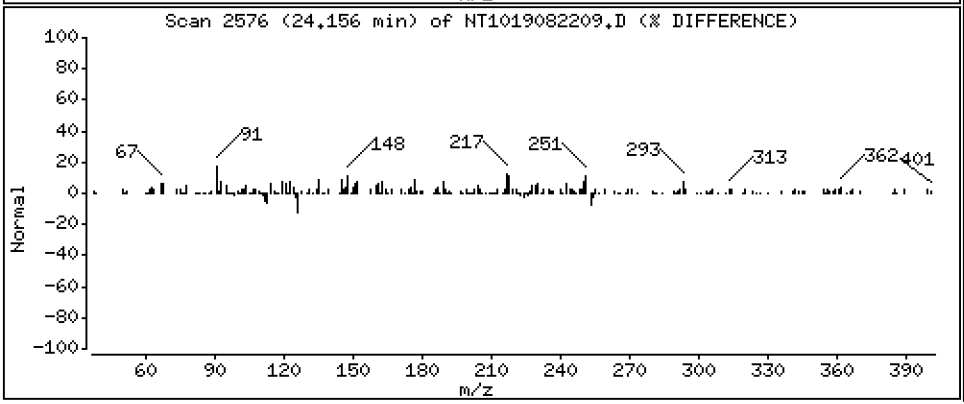
75 Benzo(k)fluoranthene

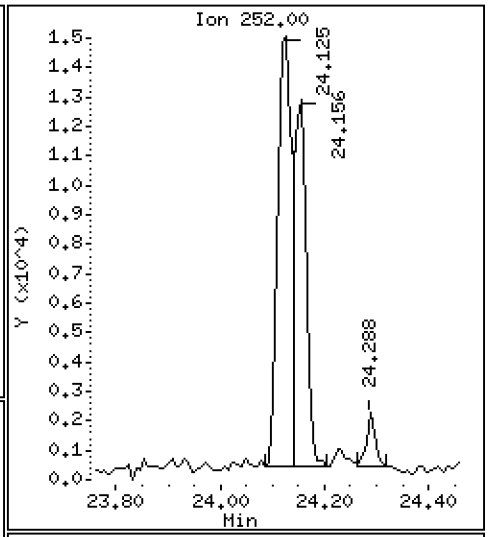
Concentration: 3.138 ug/mL

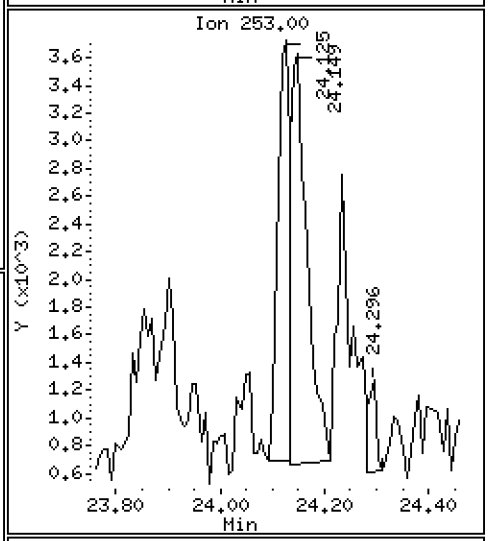


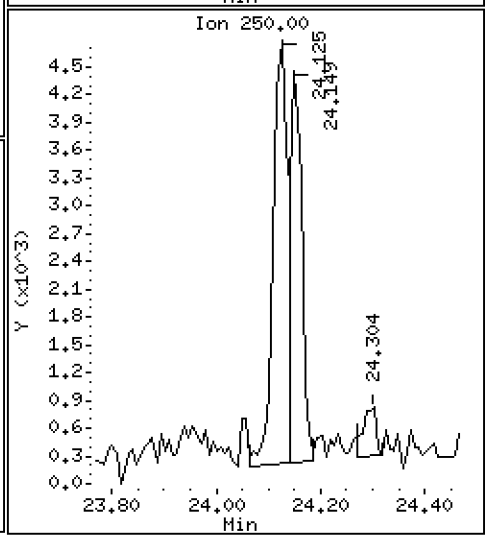












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

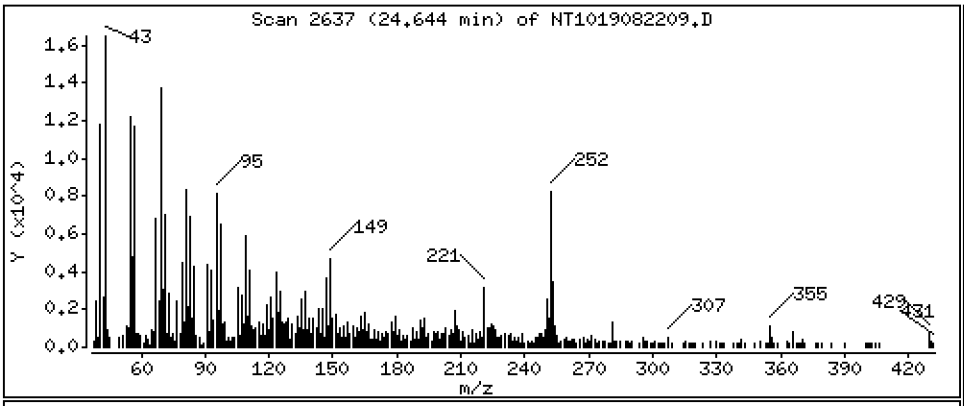
Operator: YZ

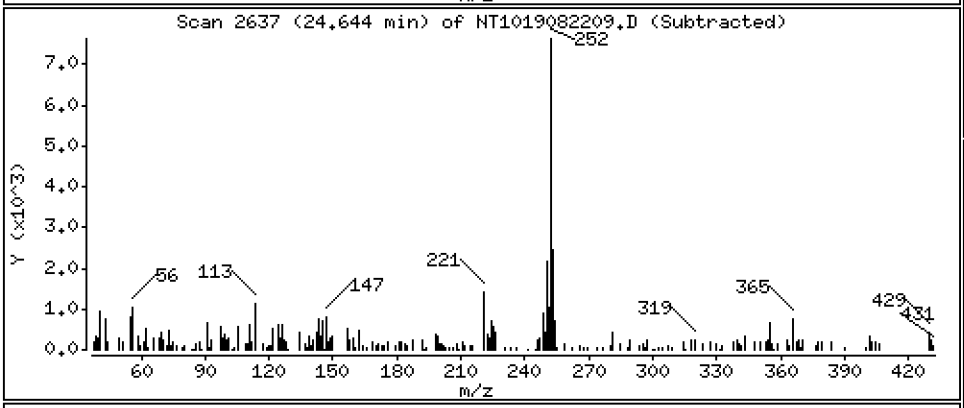
Column phase: ZB-5msi

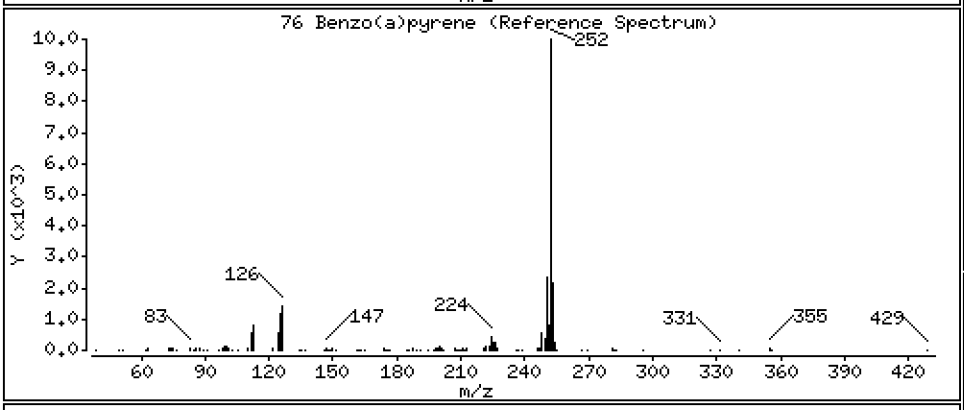
Column diameter: 0.25

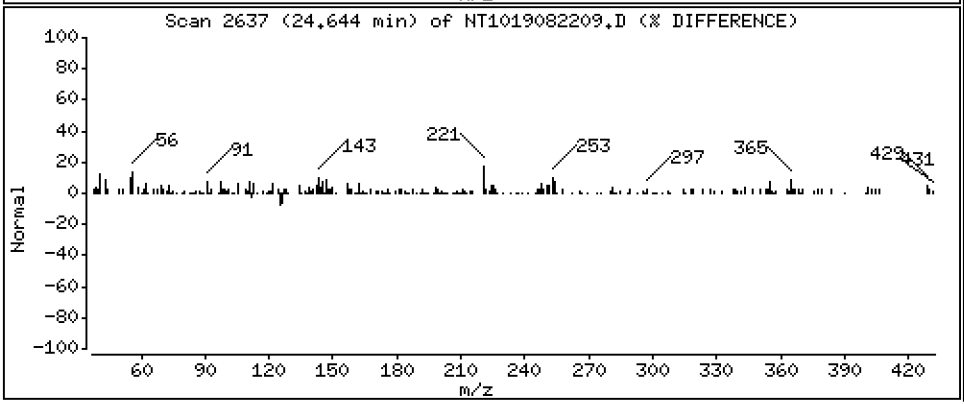
76 Benzo(a)pyrene

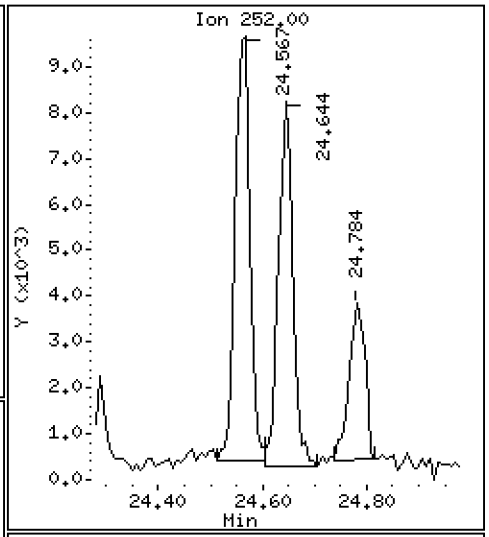
Concentration: 2.404 ug/mL

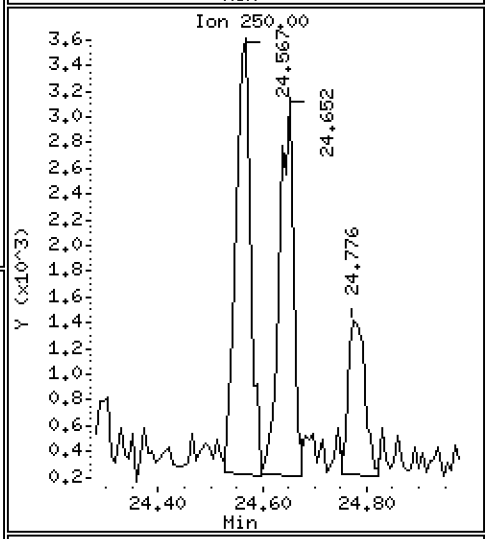


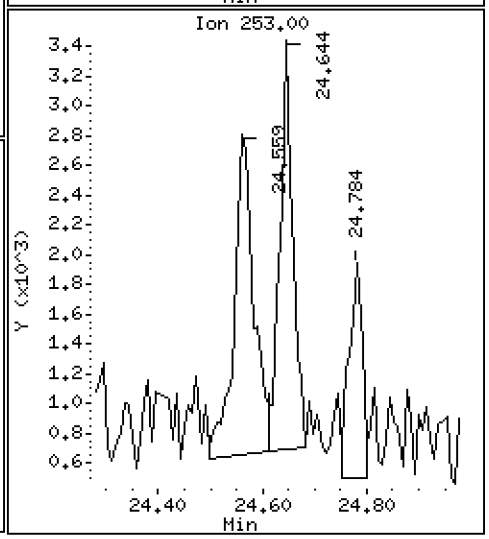












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

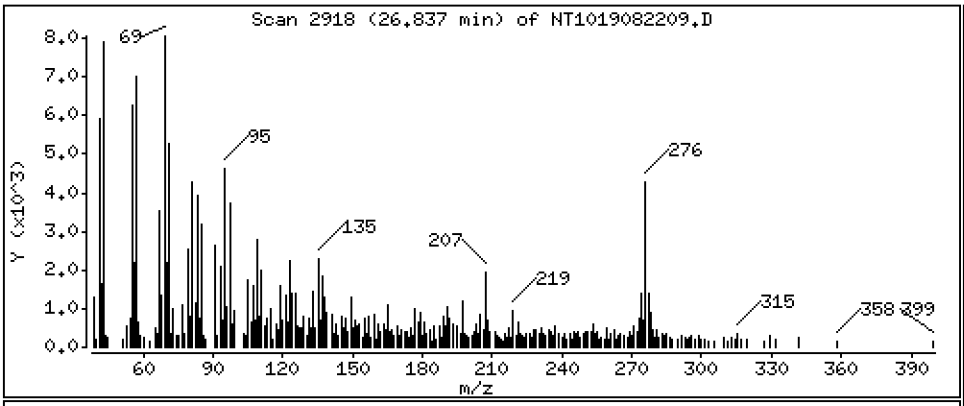
Operator: YZ

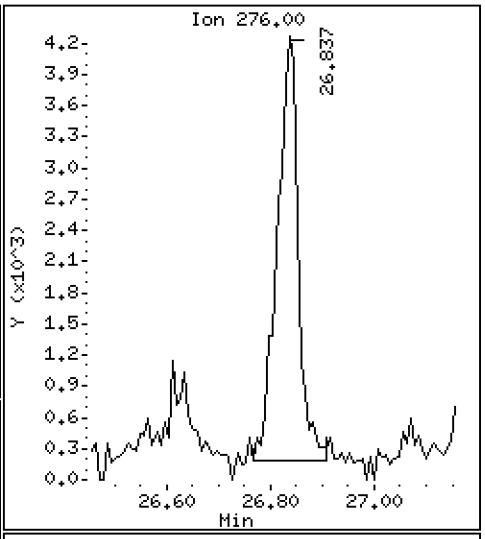
Column phase: ZB-5msi

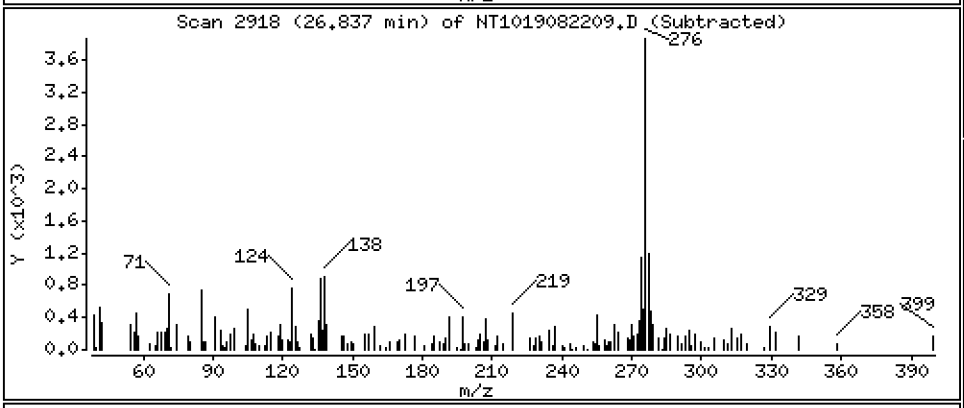
Column diameter: 0.25

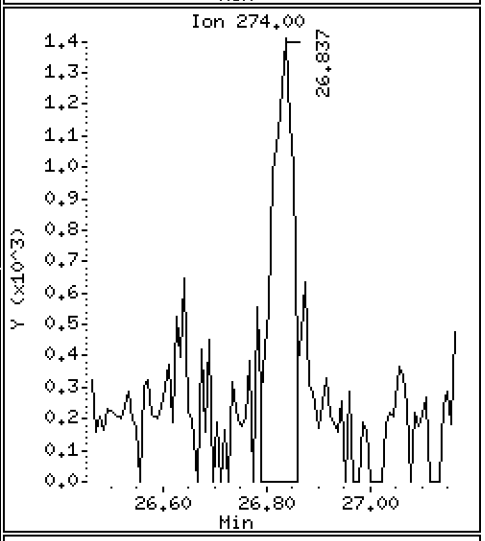
78 Indeno(1,2,3-cd)pyrene

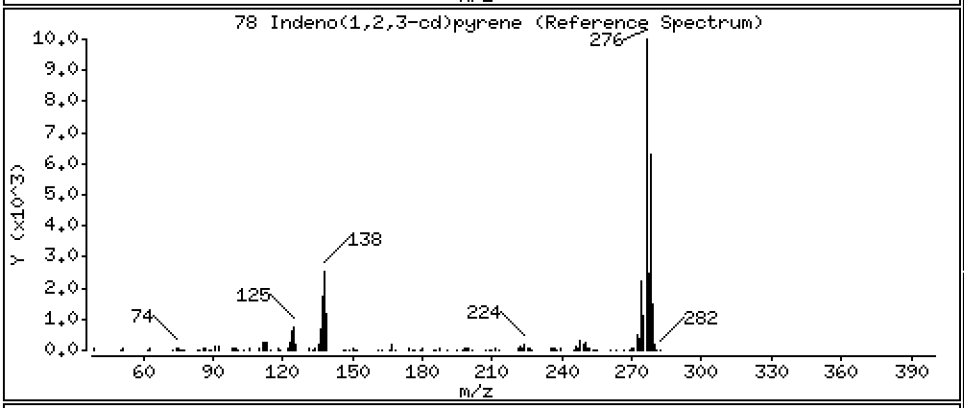
Concentration: 1.530 ug/mL

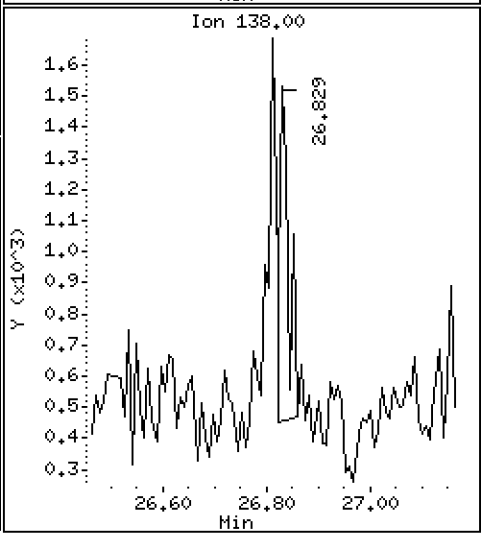


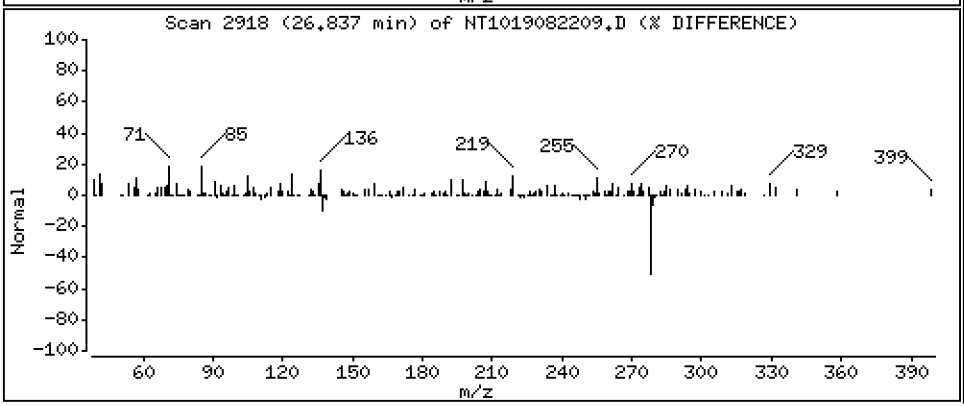












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

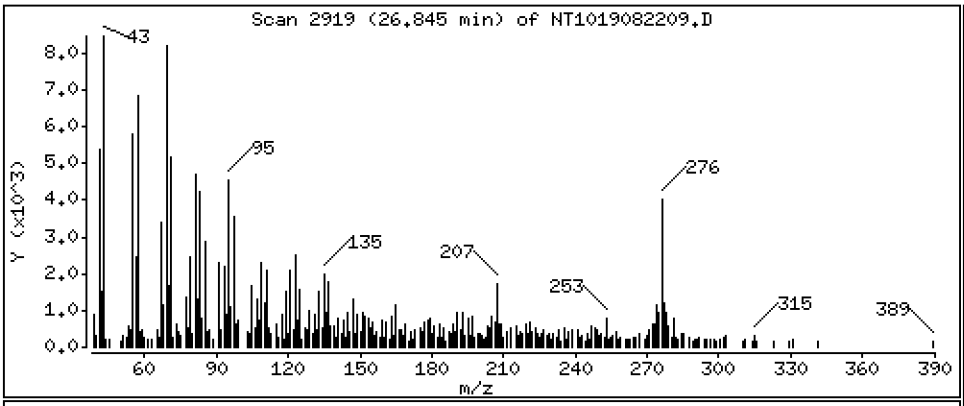
Operator: YZ

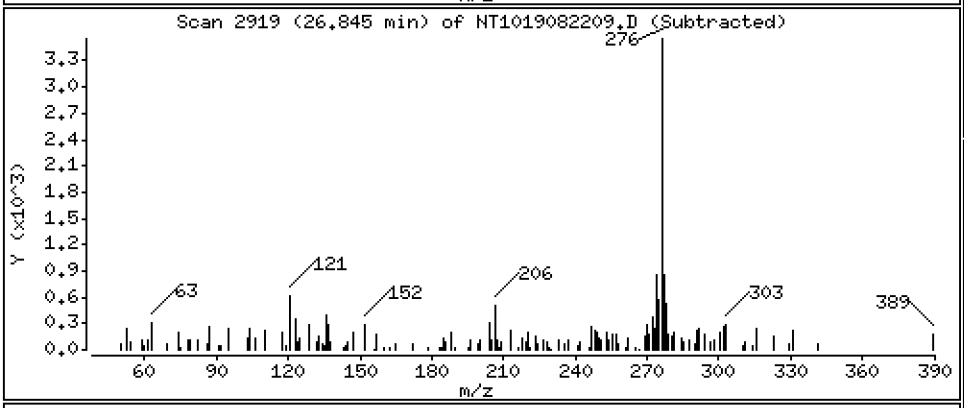
Column phase: ZB-5msi

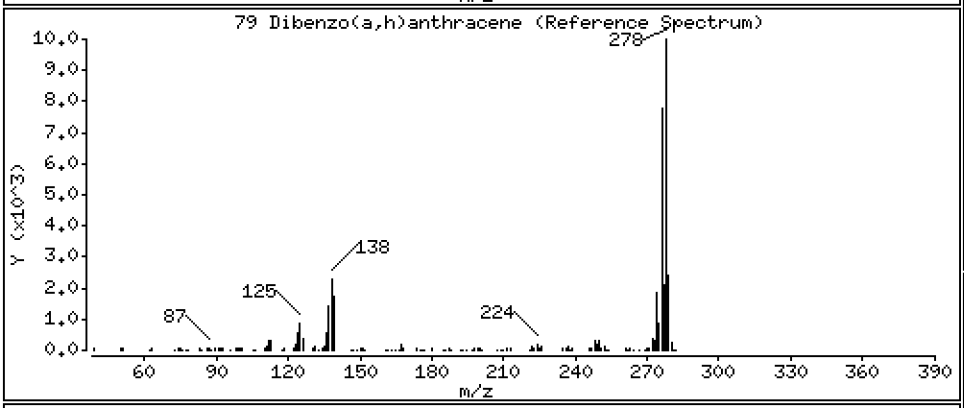
Column diameter: 0.25

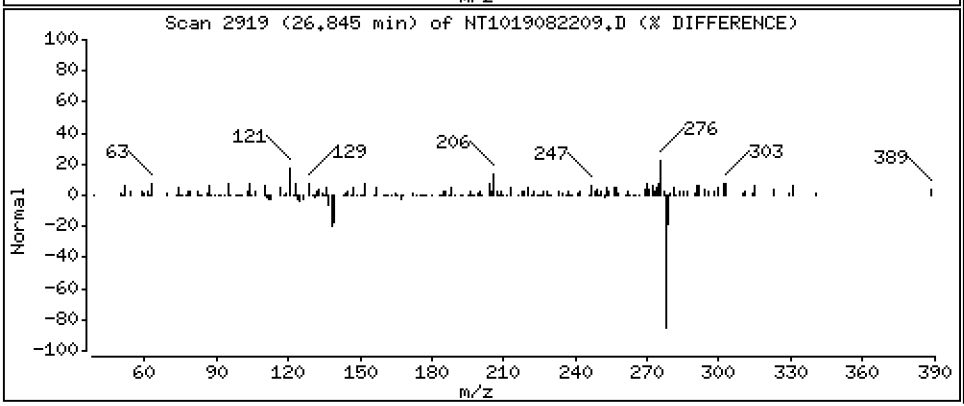
79 Dibenzo(a,h)anthracene

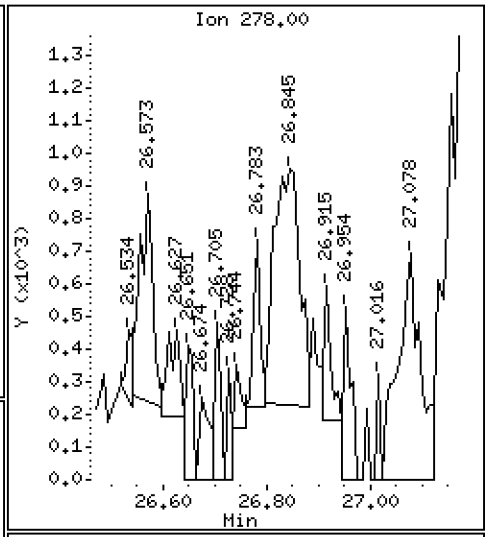
Concentration: 0.4066 ug/mL

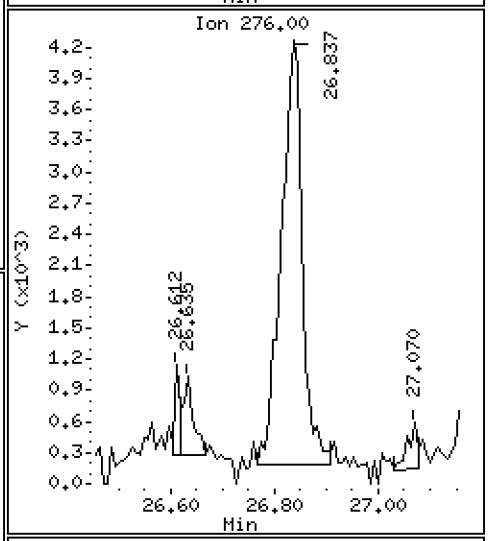


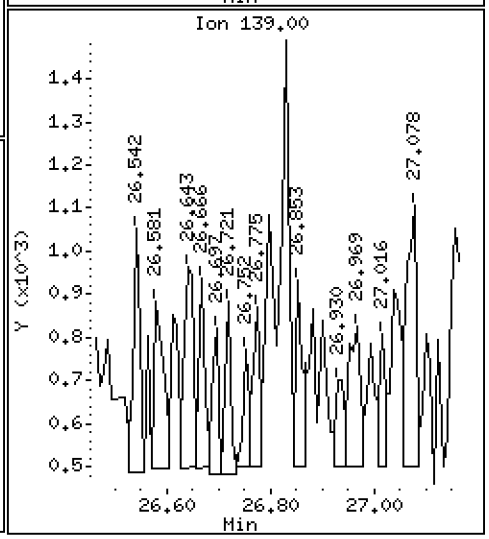












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

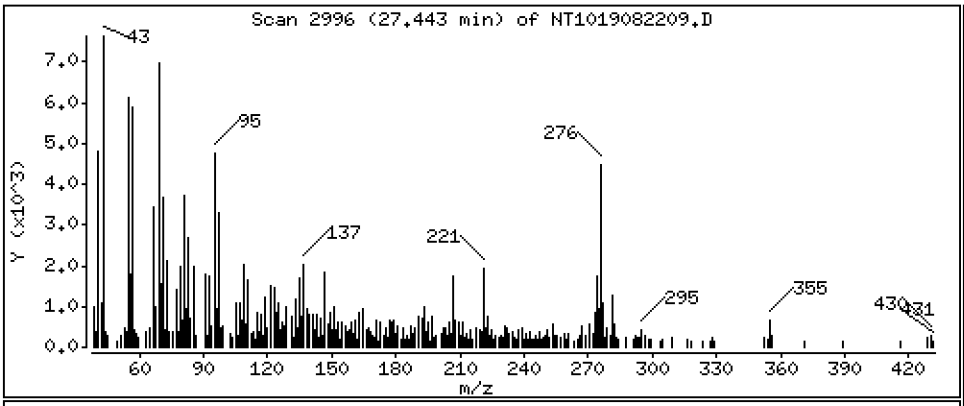
Operator: YZ

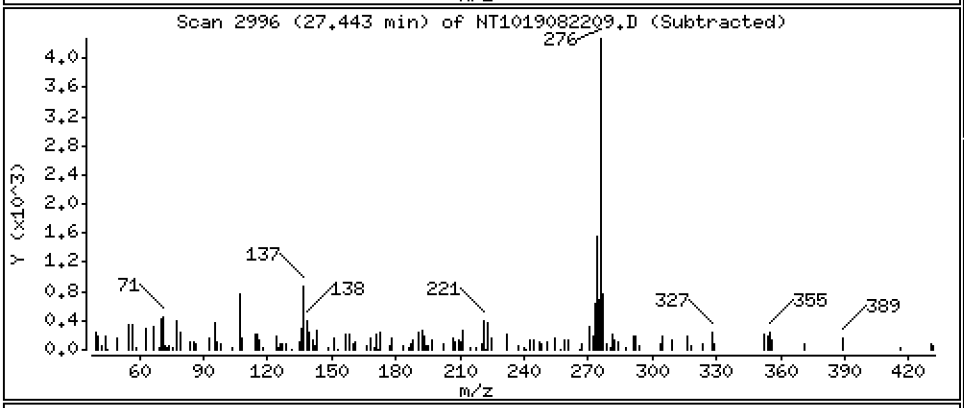
Column phase: ZB-5msi

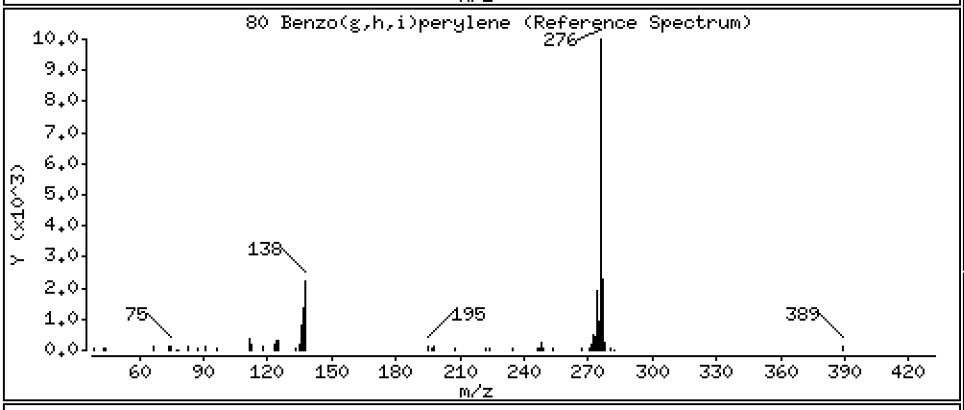
Column diameter: 0.25

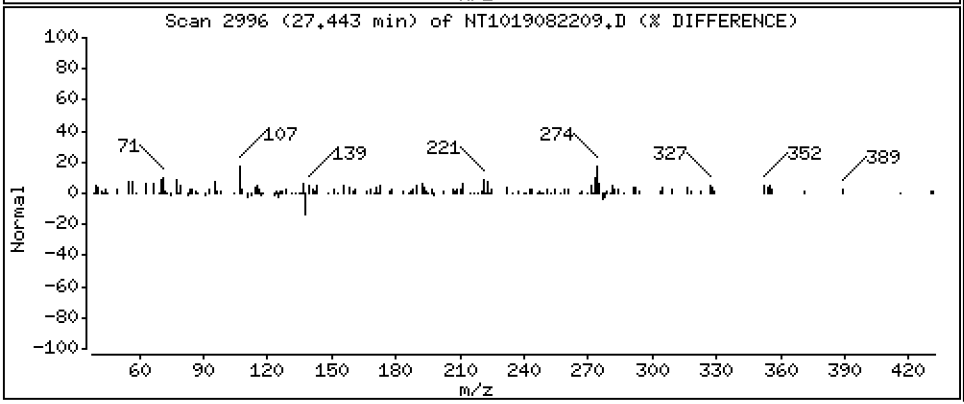
80 Benzo(g,h,i)perylene

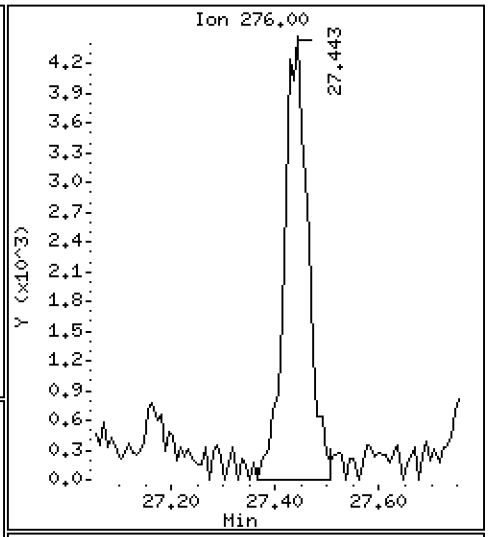
Concentration: 2.304 ug/mL

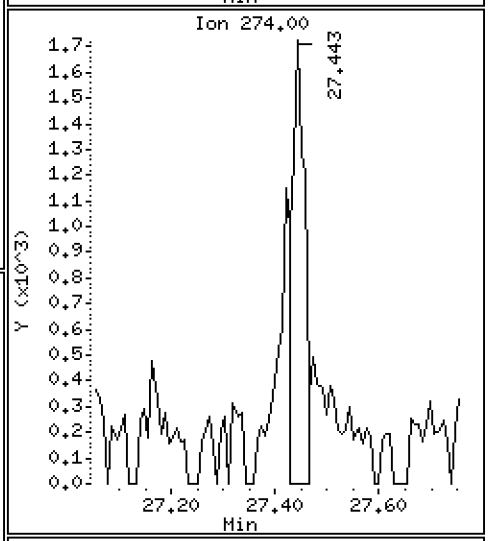


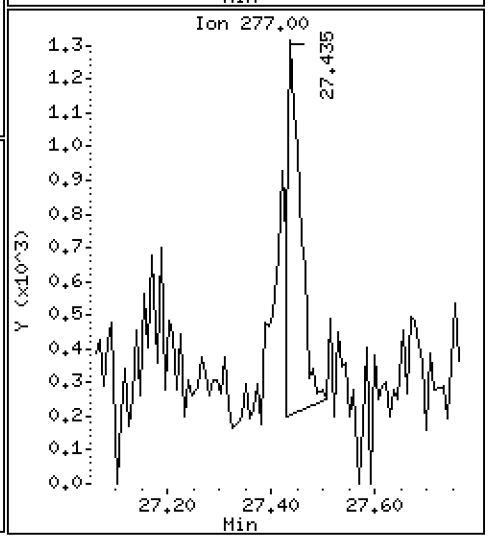












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D

Date : 22-AUG-2019 18:44

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-03RE1,3

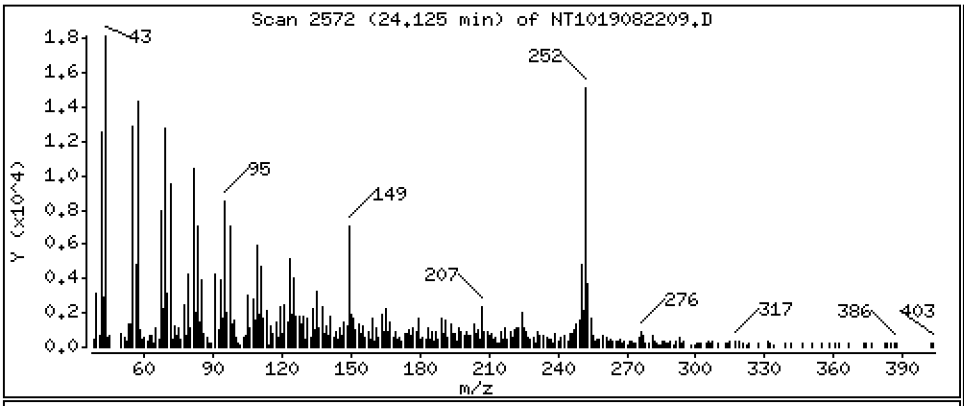
Operator: YZ

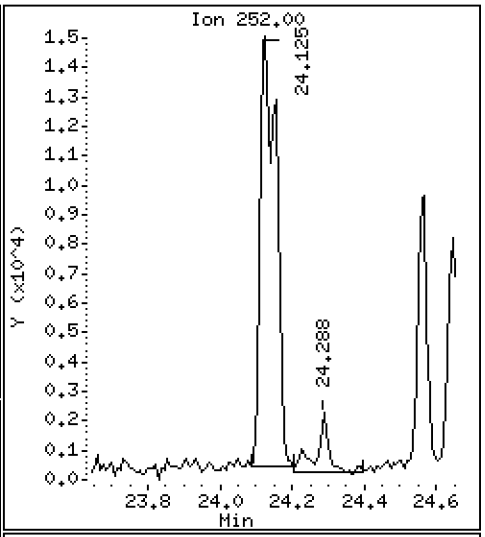
Column phase: ZB-5msi

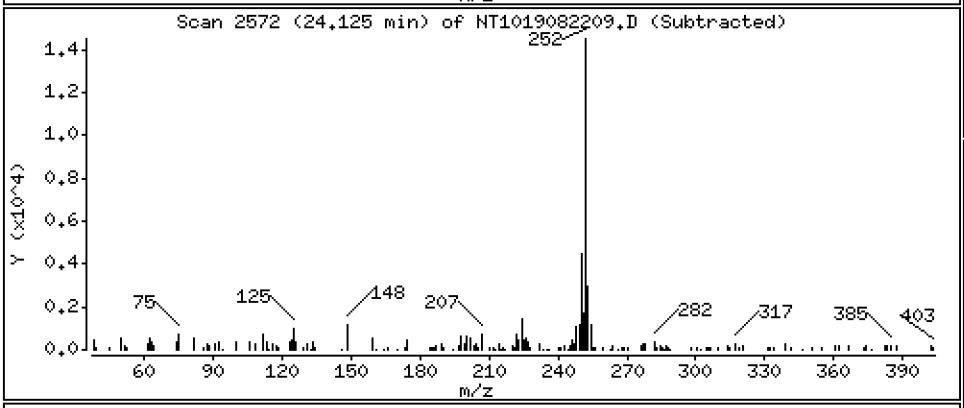
Column diameter: 0.25

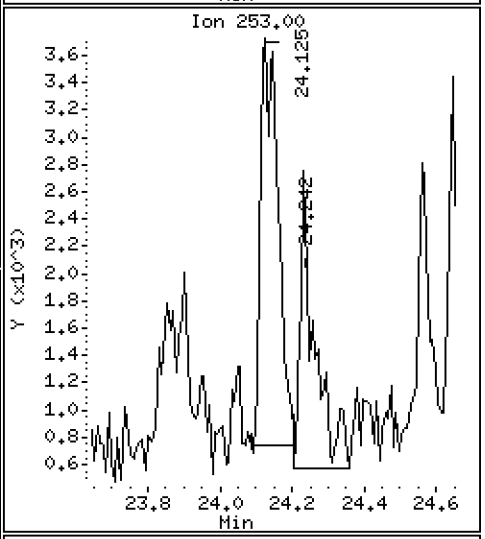
187 Total Benzofluoranthenes

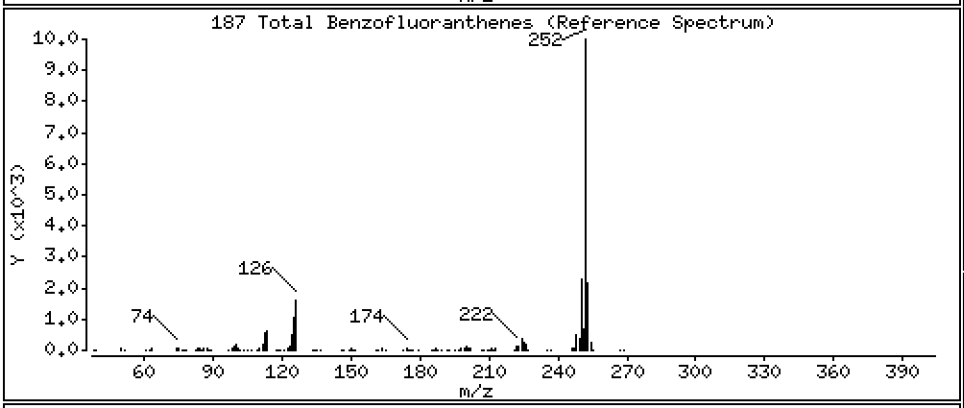
Concentration: 6.747 ug/mL

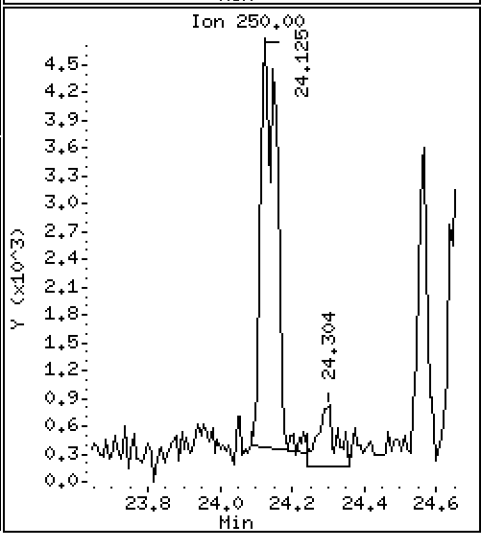


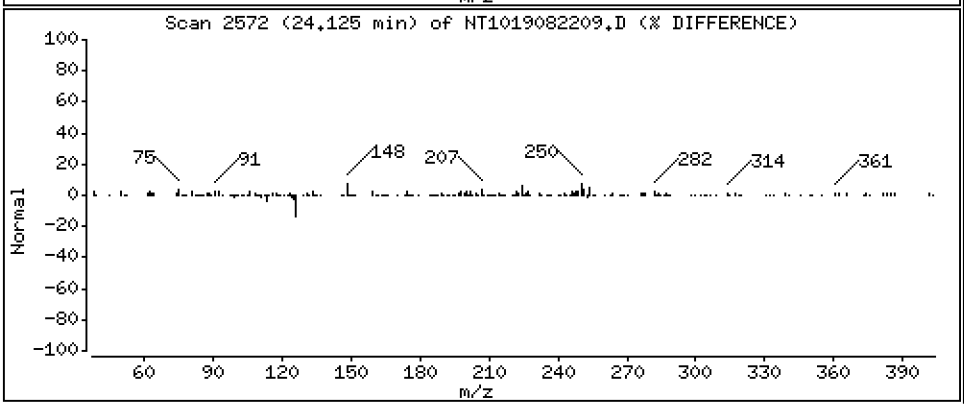












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190822.b\NT1019082209.D
Lab Smp Id: 19H0024-03RE1
Inj Date : 22-AUG-2019 18:44
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-03RE1,3
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 11:16 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 5
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.188	6.173	(0.743)	13691	1.02180	3.065
$	2 Phenol-d5	99	7.749	7.749	(0.930)	15264	1.01649	3.049
	3 Phenol	94	7.772	7.772	(0.933)	1765	0.12643	0.3793
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.958)	21959	1.35842	4.075
*	8 1,4-Dichlorobenzene-d4	152	8.329	8.329	(1.000)	47716	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.678	8.671	(1.042)	9507	0.86022	2.581
	11 Benzyl alcohol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.400	9.408	(0.873)	12418	0.89272	2.678
	24 Benzoic acid	105	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.764	10.765	(1.000)	177856	4.00000	
	28 Naphthalene	128	Compound Not Detected.					
	32 2-Methylnaphthalene	142	12.180	12.172	(1.131)	3985	0.11492	0.3448
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	36528	1.07149	3.214
	39 Dimethylphthalate	163	Compound Not Detected.					
	40 Acenaphthylene	152	Compound Not Detected.					
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	89128	4.00000	
	44 Acenaphthene	153	14.370	14.378	(1.004)	3232	0.11972	0.3592
	46 Dibenzofuran	168	14.695	14.703	(1.027)	5204	0.11729	0.3519
	50 Diethylphthalate	149	Compound Not Detected.					
	49 Fluorene	166	15.398	15.398	(1.076)	5064	0.16690	0.5007
	54 N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55 2,4,6-Tribromophenol	330	15.931	15.931	(1.113)	10067	1.49376	4.481
*	59 Phenanthrene-d10	188	17.298	17.291	(1.000)	175774	4.00000	
	60 Phenanthrene	178	17.337	17.345	(1.002)	41742	0.97219	2.917
	61 Anthracene	178	17.430	17.430	(1.008)	11932	0.27369	0.8211
	63 Di-n-butylphthalate	149	Compound Not Detected.					
	64 Fluoranthene	202	19.759	19.751	(0.882)	98625	3.48872	10.47
	65 Pyrene	202	20.177	20.169	(0.901)	80418	2.72416	8.172
$	66 Terphenyl-d14	244	20.502	20.502	(0.916)	29718	1.48439	4.453
	67 Butylbenzylphthalate	149	21.462	21.462	(0.959)	3443	0.25038	0.7511(M)
	68 Benzo(a)anthracene	228	22.360	22.352	(0.999)	22467	0.83707	2.511
*	69 Chrysene-d12	240	22.391	22.383	(1.000)	92508	4.00000	
	71 Chrysene	228	22.430	22.430	(1.002)	31743	1.33654	4.010

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.522	22.515	(0.958)	100263	5.47516	16.43
* 134	Di-n-octylphthalate-d4	153	23.498	23.490	(1.000)	208202	4.00000	
73	Di-n-octylphthalate	149	Compound Not Detected.					
74	Benzo(b)fluoranthene	252	24.125	24.110	(0.975)	28142	1.33096	3.993
75	Benzo(k)fluoranthene	252	24.156	24.110	(0.977)	22249	1.04595	3.138(H)
76	Benzo(a)pyrene	252	24.644	24.628	(0.996)	15207	0.80136	2.404
* 77	Perylene-d12	264	24.737	24.721	(1.000)	73697	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.837	26.806	(1.085)	11632	0.51015	1.530
79	Dibenzo(a,h)anthracene	278	26.844	26.821	(1.085)	2516	0.13554	0.4066
80	Benzo(g,h,i)perylene	276	27.442	27.404	(1.109)	14746	0.76786	2.304
105	1-methylnaphthalene	142	Compound Not Detected.					
187	Total Benzofluoranthenes	252	24.125	24.148	(0.975)	45612	2.24894	6.747

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082209.D
Lab Smp Id: 19H0024-03RE1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 16:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	47716	45.75
27 Naphthalene-d8	117487	58744	234974	177856	51.38
42 Acenaphthene-d10	61859	30930	123718	89128	44.08
59 Phenanthrene-d10	113574	56787	227148	175774	54.77
69 Chrysene-d12	105788	52894	211576	92508	-12.55
134 Di-n-octylphthala	252823	126412	505646	208202	-17.65
77 Perylene-d12	113992	56996	227984	73697	-35.35

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.33	-0.00
27 Naphthalene-d8	10.77	10.27	11.27	10.76	-0.00
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	-0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.30	0.04
69 Chrysene-d12	22.38	21.88	22.88	22.39	0.03
134 Di-n-octylphthala	23.49	22.99	23.99	23.50	0.03
77 Perylene-d12	24.72	24.22	25.22	24.74	0.06

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082209.D

Lab ID: 19H0024-03RE1
nt10.i, 20190822.b\ABN.m,   22-AUG-2019 18:44

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT1019082206.D

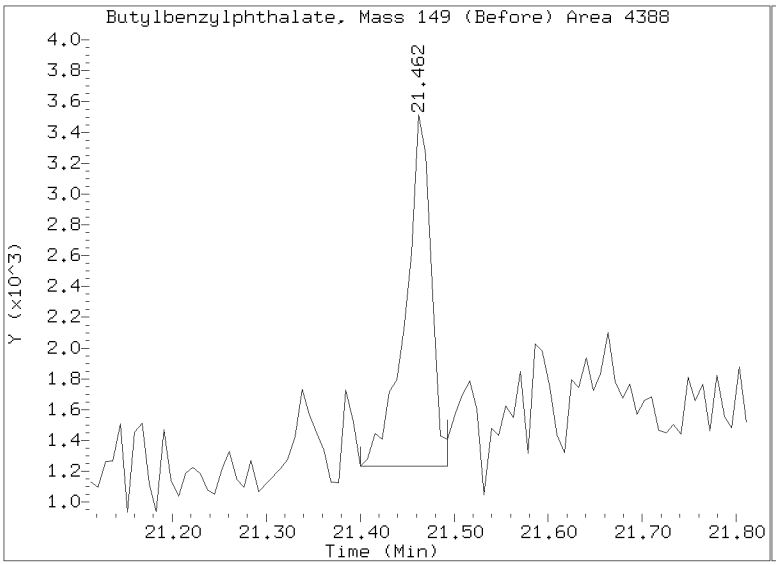
On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

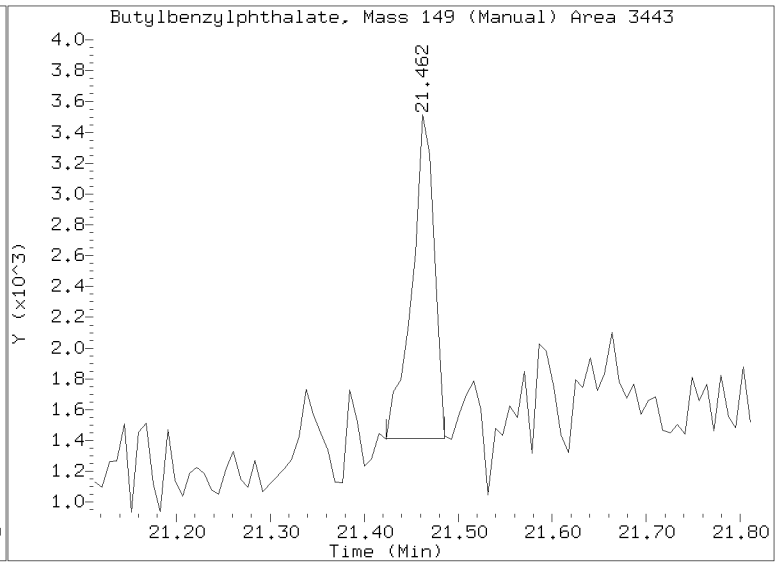
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190822.b/NT1019082209.D
Injection Date: 22-AUG-2019 18:44
Lab ID:19H0024-03RE1 Client ID:
Report Date: 08/23/2019 11:16





SL4-SG-WC7-2019

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D
Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory: Analytical Resources, Inc.

Client: Windward Environmental, LLC

Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix:	Solid	Laboratory ID:	19H0024-04 C	SDG:	19H0024
Sampled:	08/01/19 08:39	Prepared:	08/13/19 12:40	File ID:	NT1019082113.D
% Solids:	41.60	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/21/19 17:38
Batch:	BHH0289	Sequence:	SHH0303	Initial/Final:	24.14 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040

Cleanups: GPC

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	1	18.3	J	8.2	19.9
100-51-6	Benzyl Alcohol	1	26.1	Q	14.8	19.9
65-85-0	Benzoic acid	1	86.3	J	58.9	199
86-30-6	N-Nitrosodiphenylamine	1	19.9	U	9.5	19.9
85-01-8	Phenanthrene	1	150		4.7	19.9
206-44-0	Fluoranthene	1	944		4.5	19.9
129-00-0	Pyrene	1	703		5.5	19.9
85-68-7	Butylbenzylphthalate	1	47.6		8.0	19.9
56-55-3	Benzo(a)anthracene	1	218		5.2	19.9
218-01-9	Chrysene	1	386		5.2	19.9
117-81-7	bis(2-Ethylhexyl)phthalate	1	745		28.7	49.8
117-84-0	Di-n-Octylphthalate	1	19.9	U	8.7	19.9
	Benzofluoranthenes, Total	1	570		10.2	39.8
50-32-8	Benzo(a)pyrene	1	223		6.5	19.9
193-39-5	Indeno(1,2,3-cd)pyrene	1	100		6.0	19.9
53-70-3	Dibenzo(a,h)anthracene	1	19.9	U	6.1	19.9
191-24-2	Benzo(g,h,i)perylene	1	104		5.8	19.9

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	746.85	415	55.6	27 - 120	Q
Phenol-d5	746.85	420	56.3	29 - 120	Q
2-Chlorophenol-d4	746.85	572	76.6	31 - 120	
1,2-Dichlorobenzene-d4	497.90	374	75.1	32 - 120	
Nitrobenzene-d5	497.90	357	71.7	30 - 120	
2-Fluorobiphenyl	497.90	462	92.8	35 - 120	
2,4,6-Tribromophenol	746.85	623	83.4	24 - 134	
p-Terphenyl-d14	497.90	556	112	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

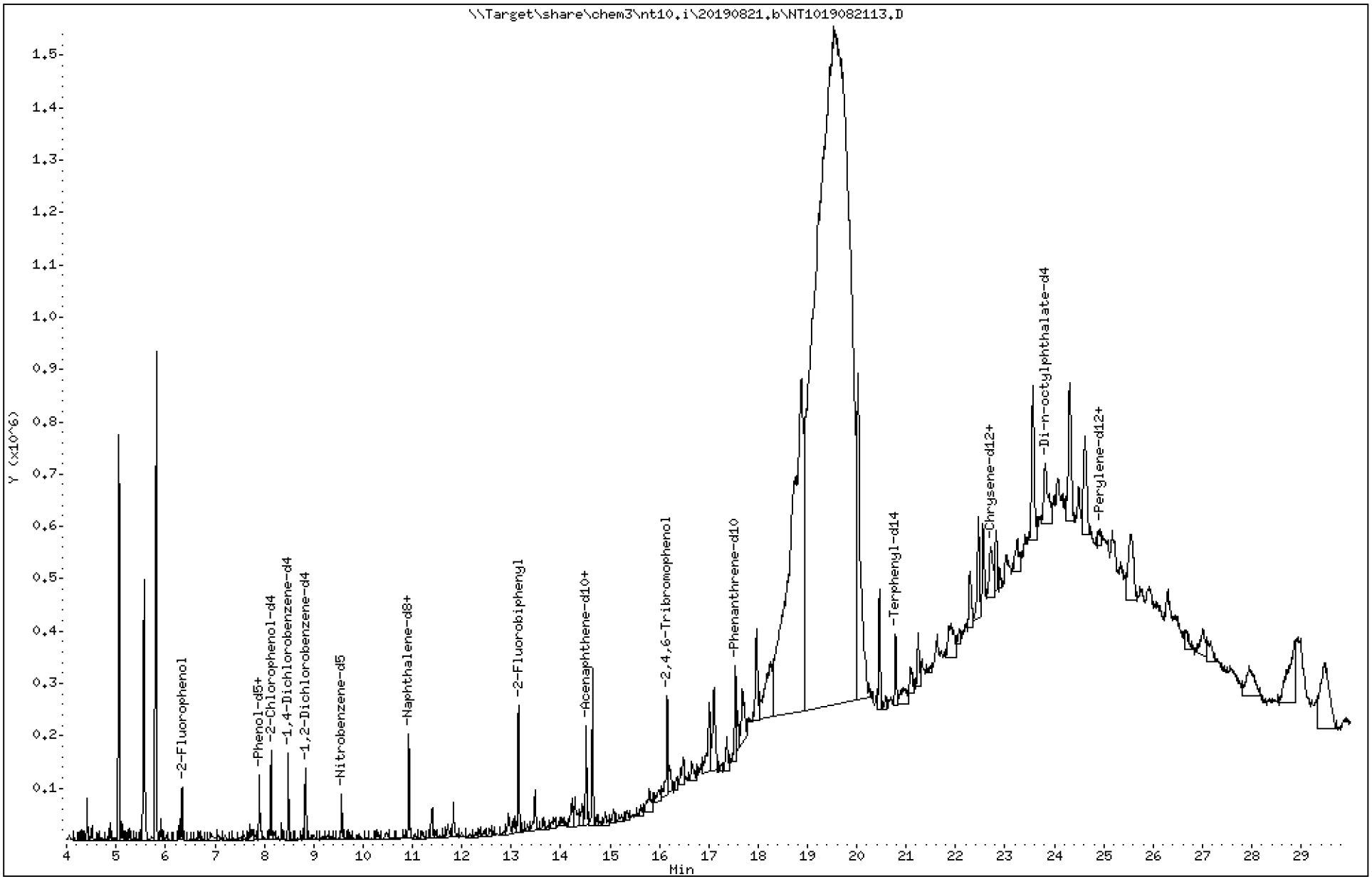
Instrument: nt10.i

Sample Info: 19H0024-04

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

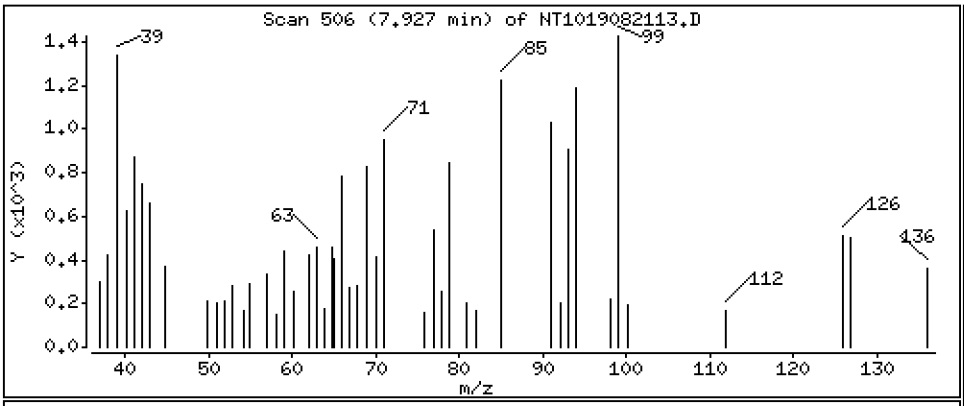
Operator: YZ

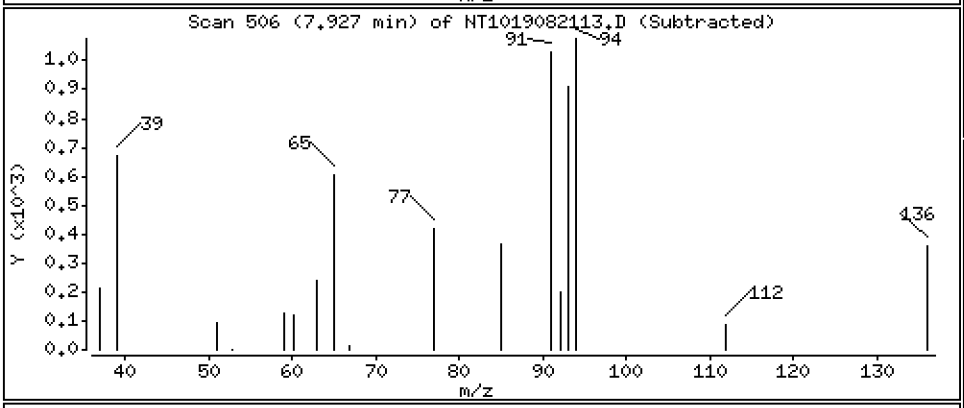
Column phase: ZB-5msi

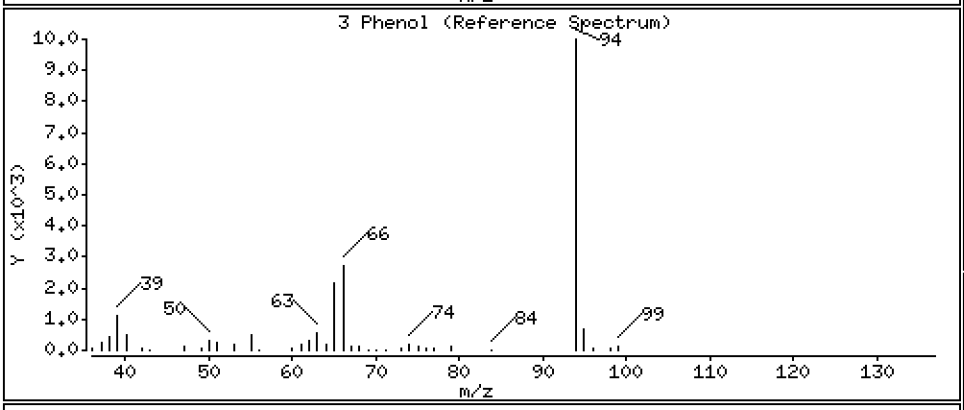
Column diameter: 0.25

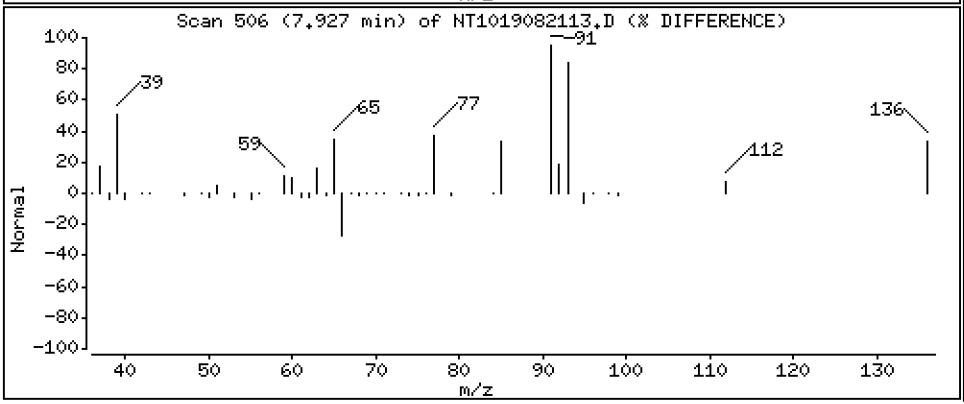
3 Phenol

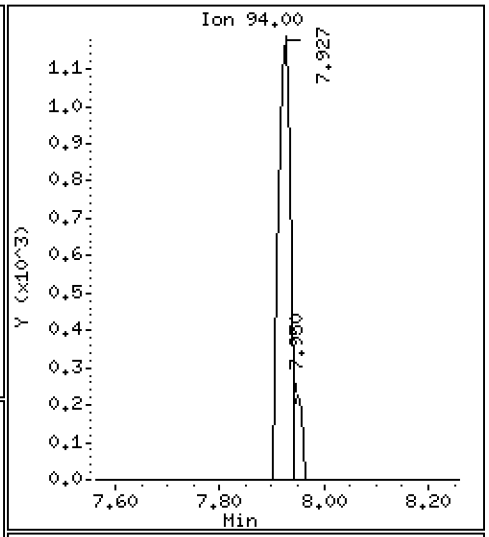
Concentration: 0.1835 ug/mL

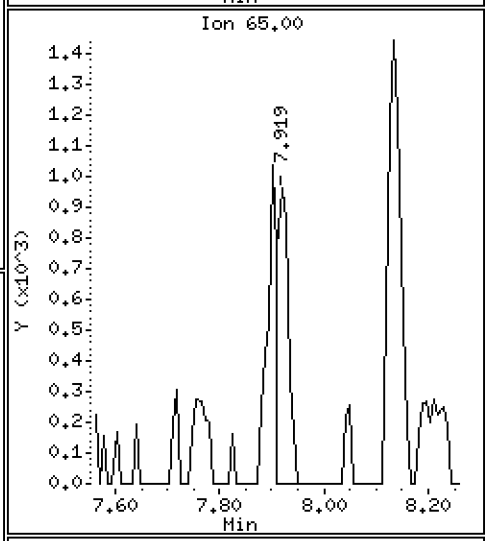


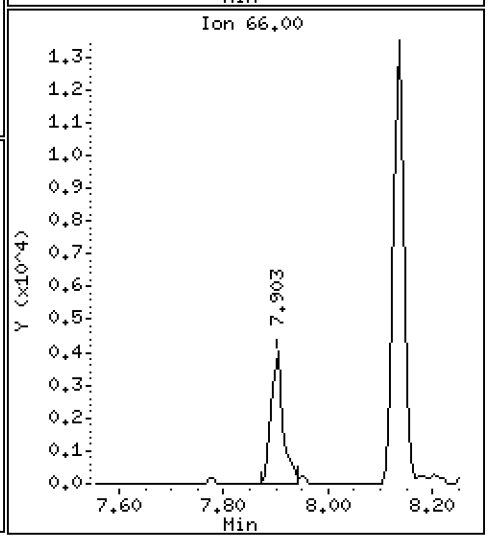












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Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

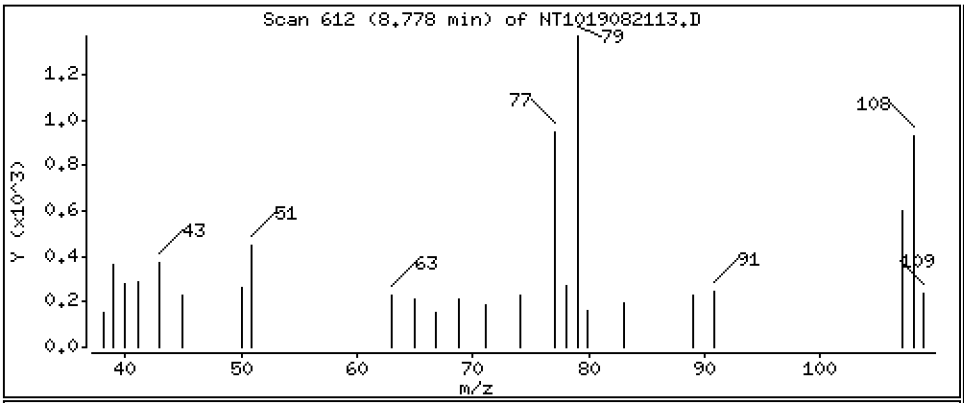
Operator: YZ

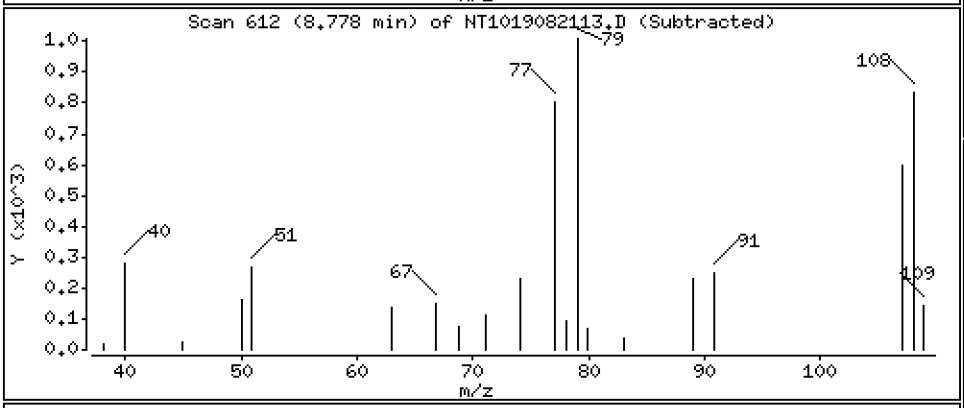
Column phase: ZB-5msi

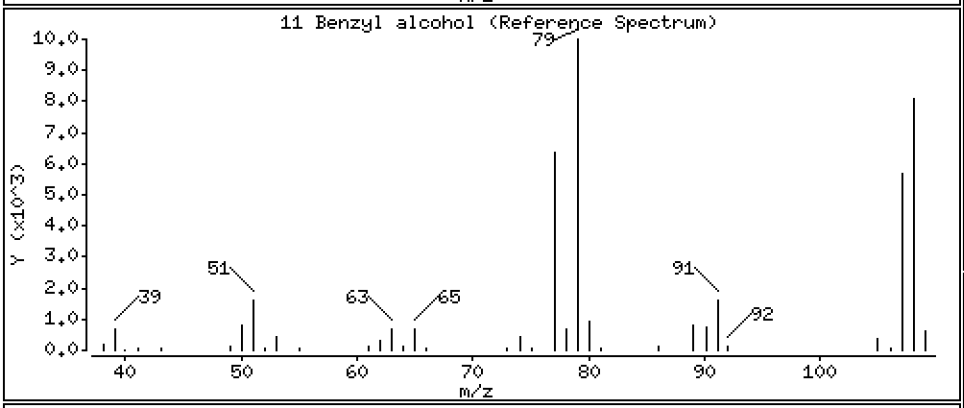
Column diameter: 0.25

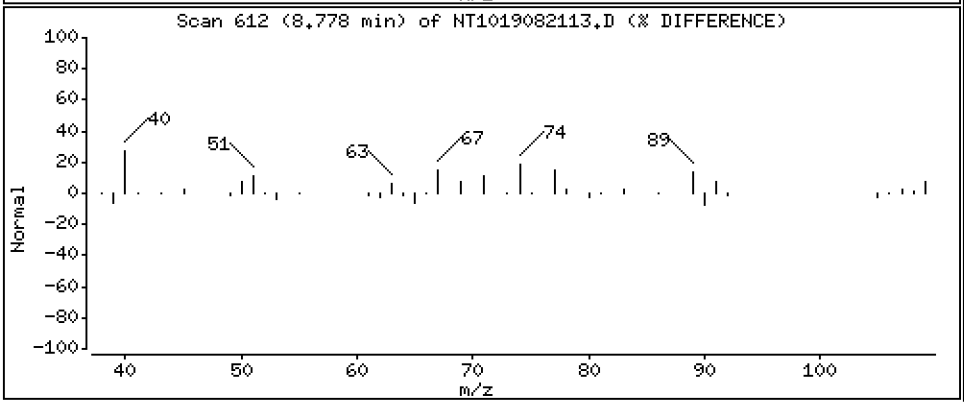
11 Benzyl alcohol

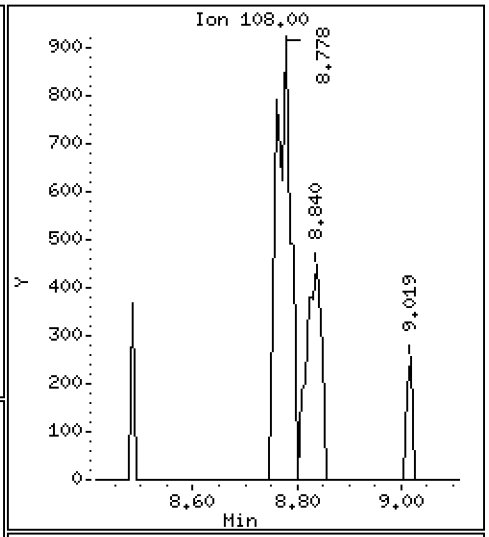
Concentration: 0.2619 ug/mL

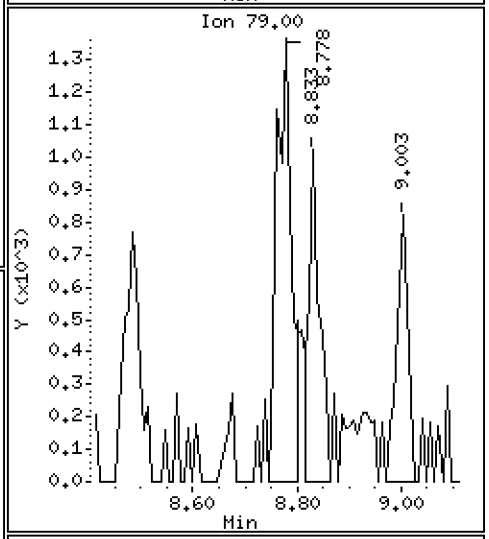


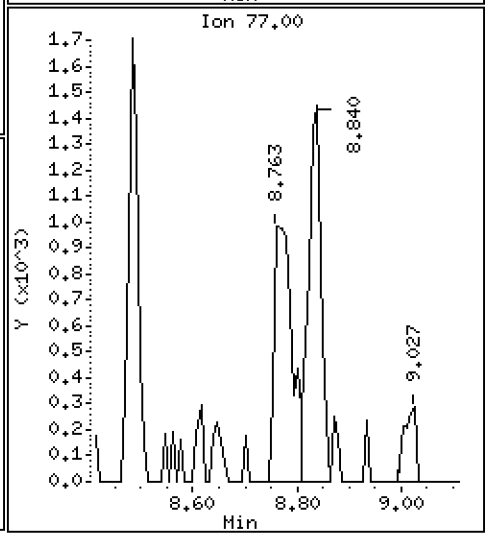












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

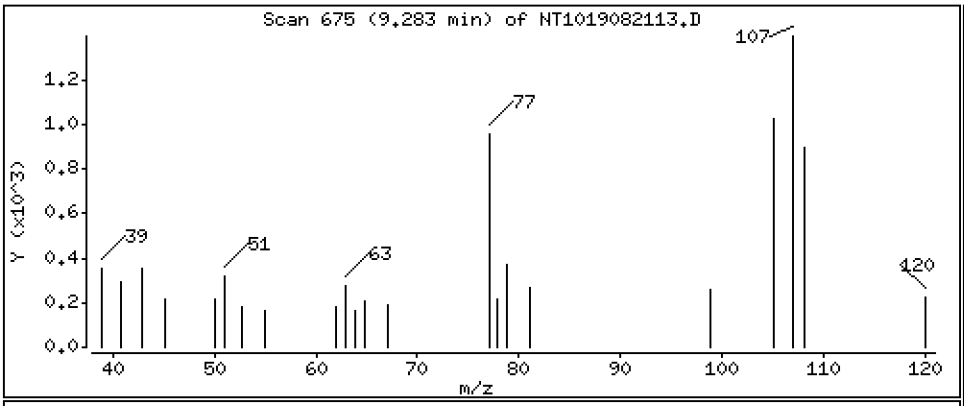
Operator: YZ

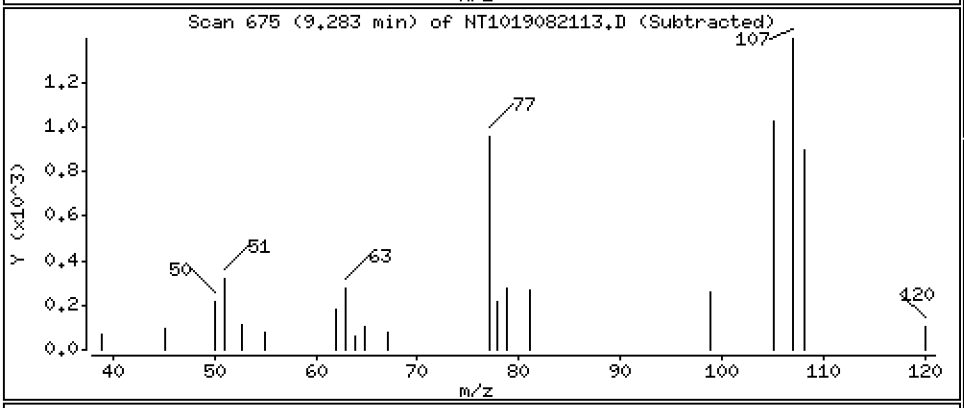
Column phase: ZB-5msi

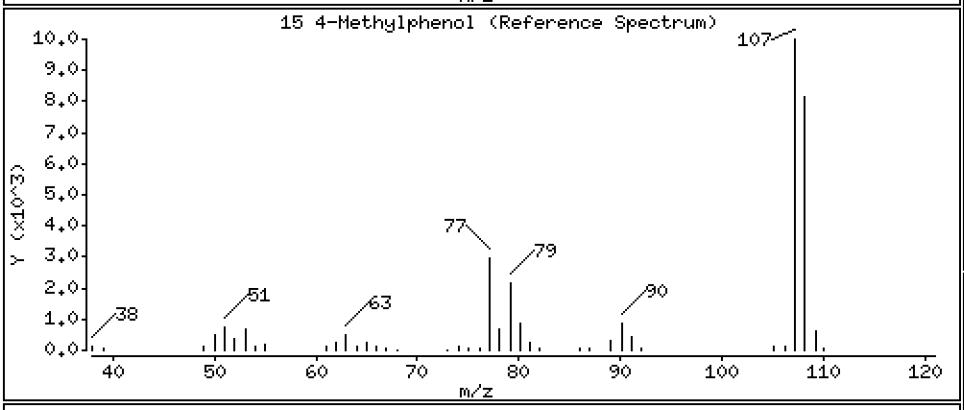
Column diameter: 0.25

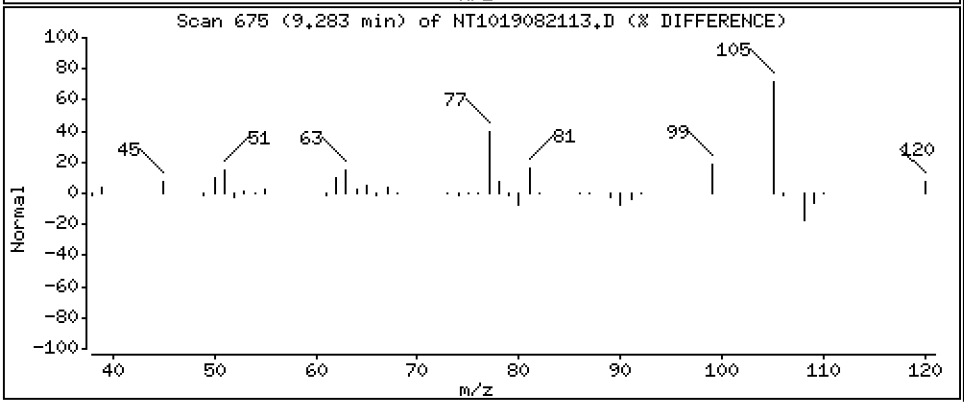
15 4-Methylphenol

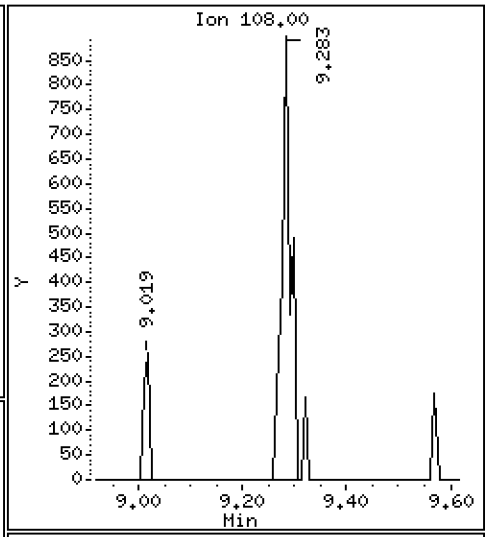
Concentration: 0.1381 ug/mL

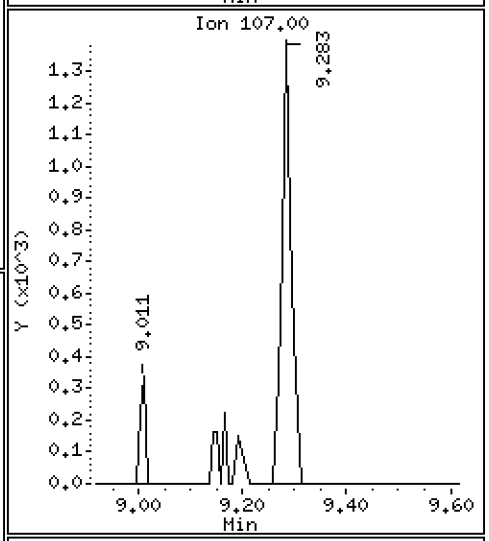


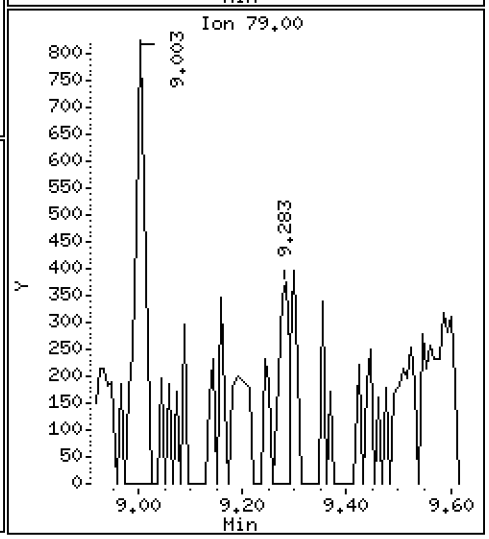












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

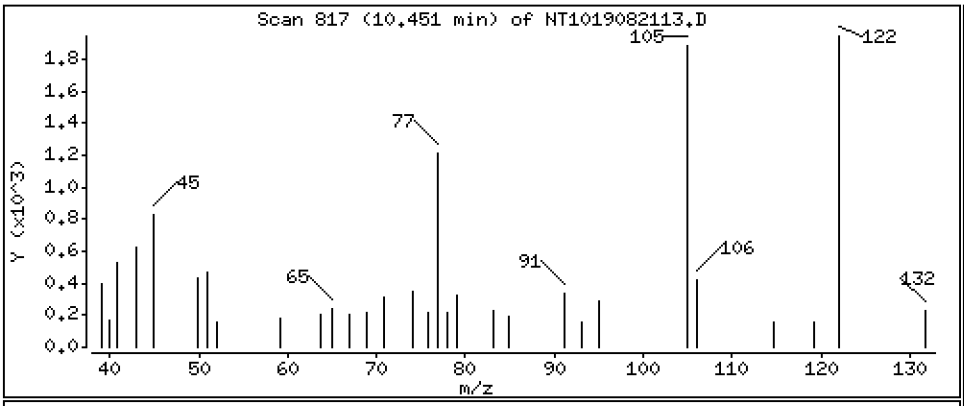
Operator: YZ

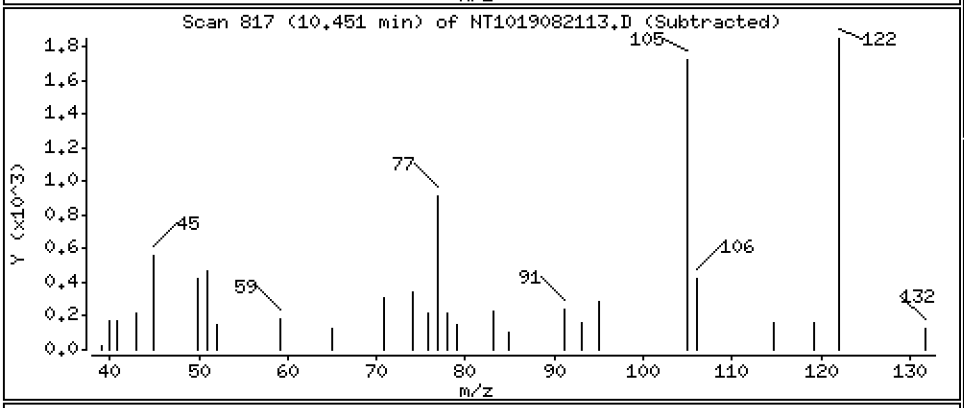
Column phase: ZB-5msi

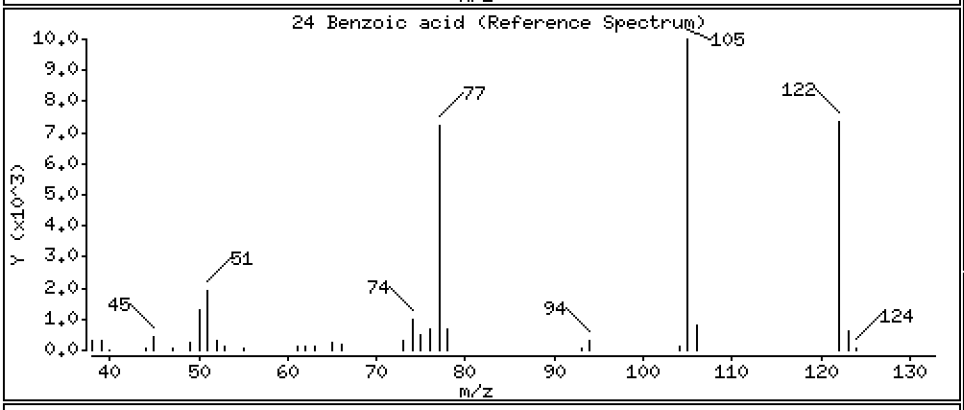
Column diameter: 0.25

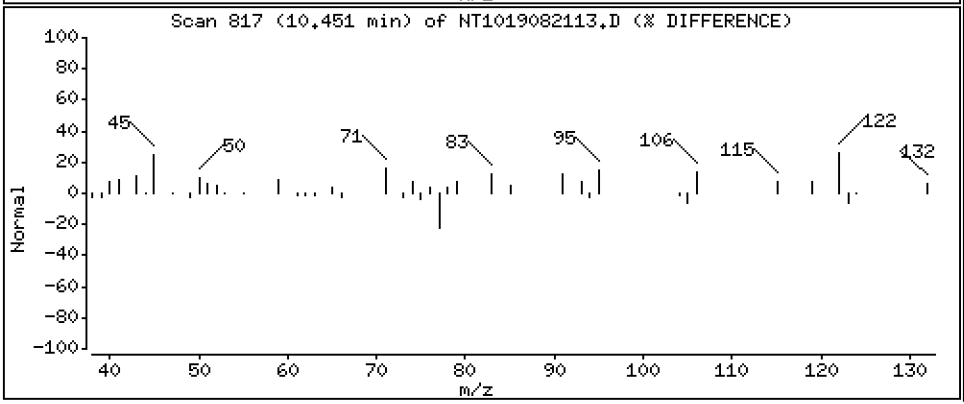
24 Benzoic acid

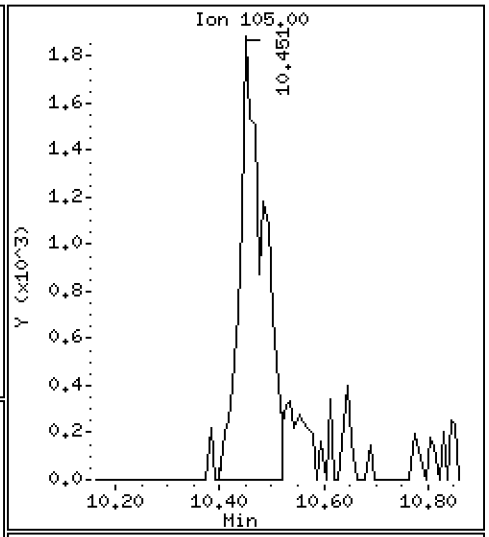
Concentration: 0.8667 ug/mL

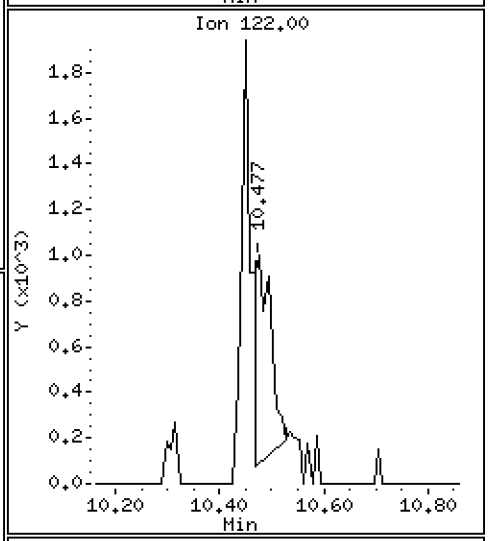


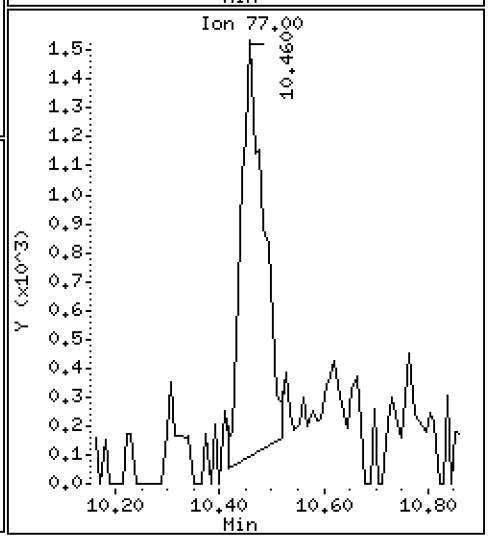












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

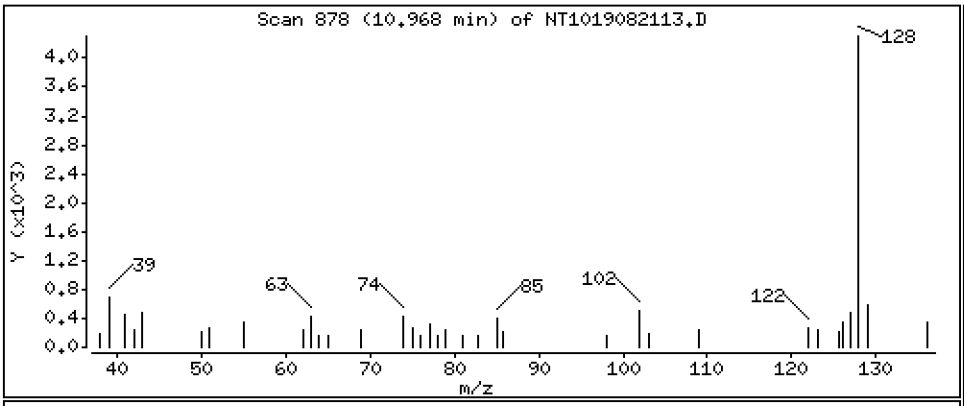
Operator: YZ

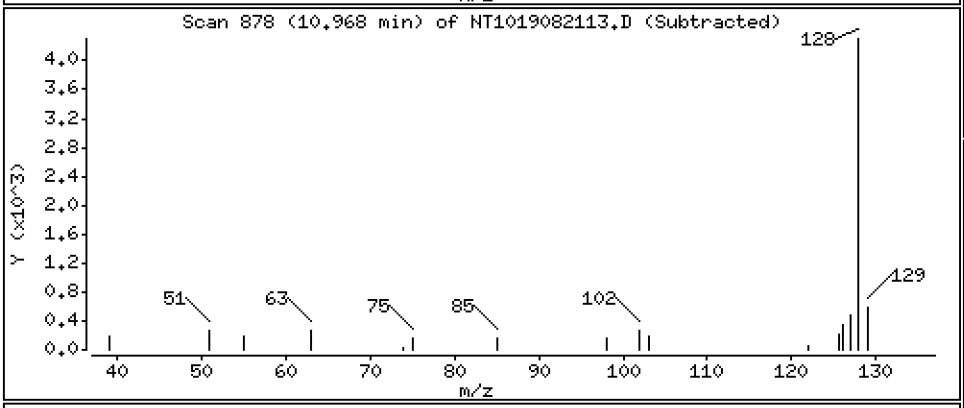
Column phase: ZB-5msi

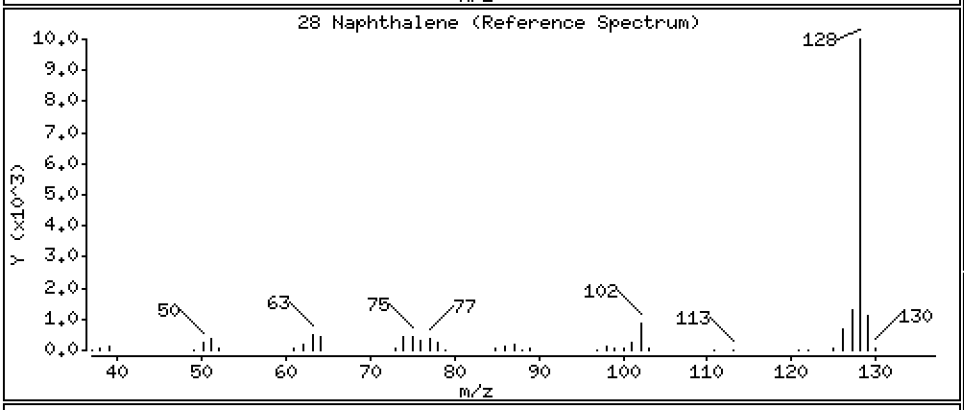
Column diameter: 0.25

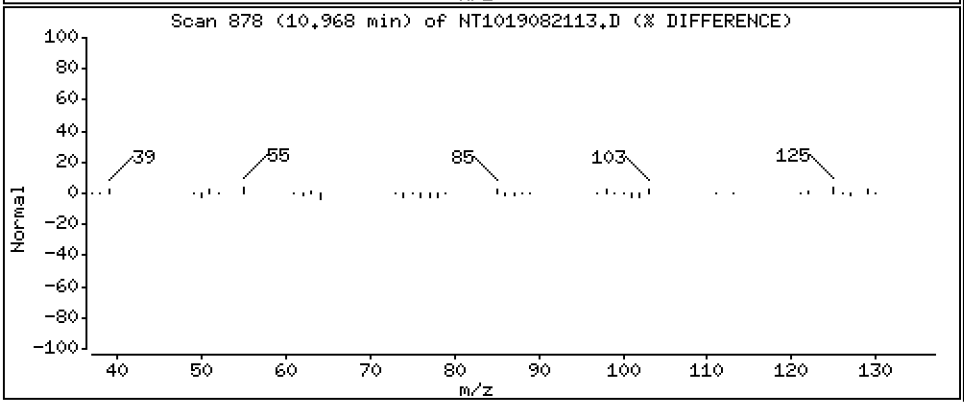
28 Naphthalene

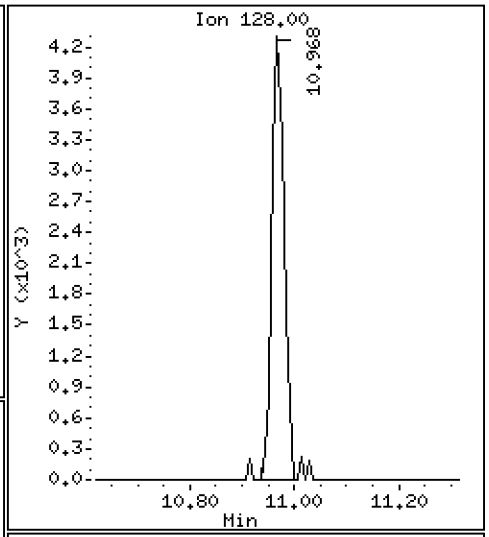
Concentration: 0.2252 ug/mL

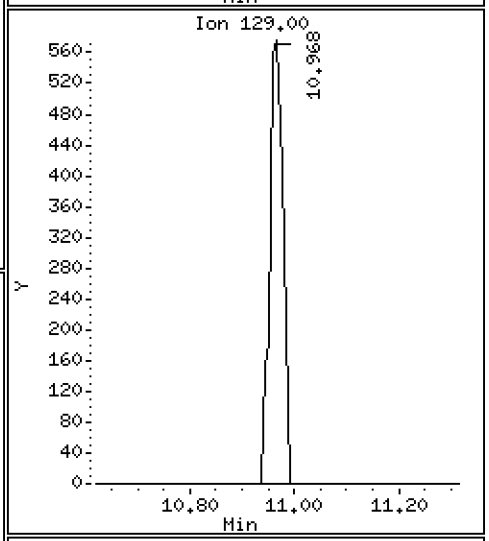


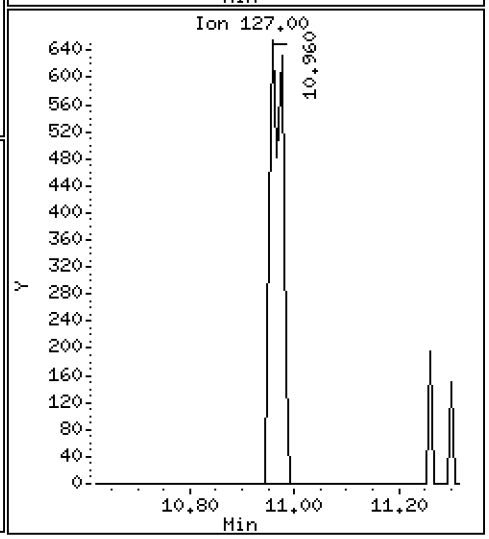












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Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

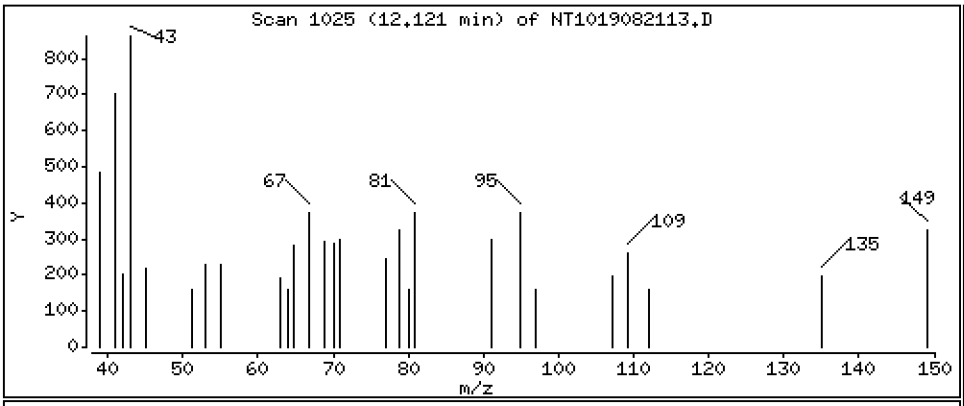
Operator: YZ

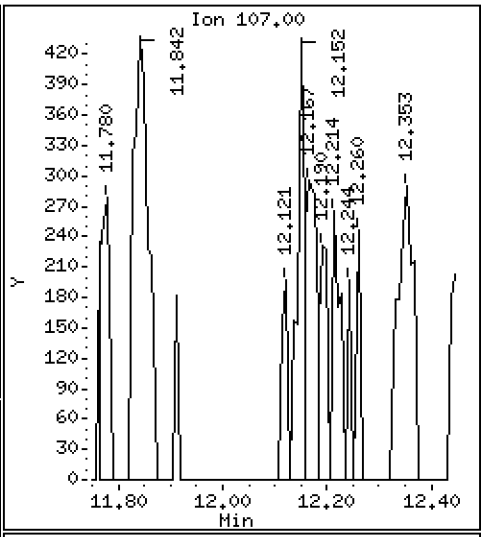
Column phase: ZB-5msi

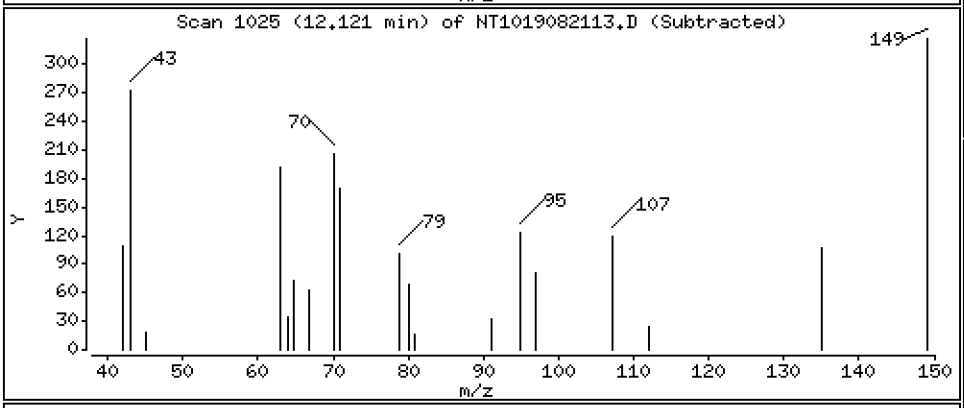
Column diameter: 0.25

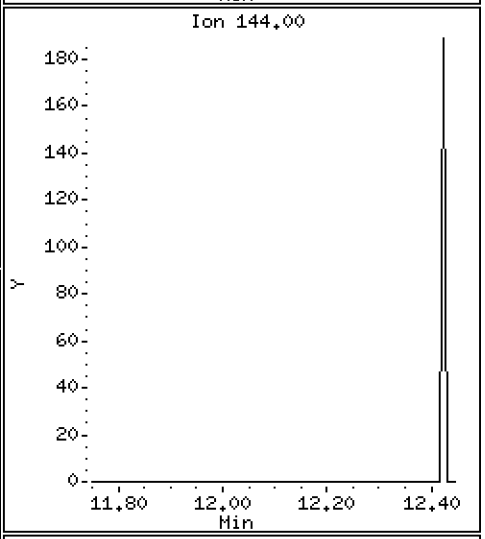
31 4-Chloro-3-methylphenol

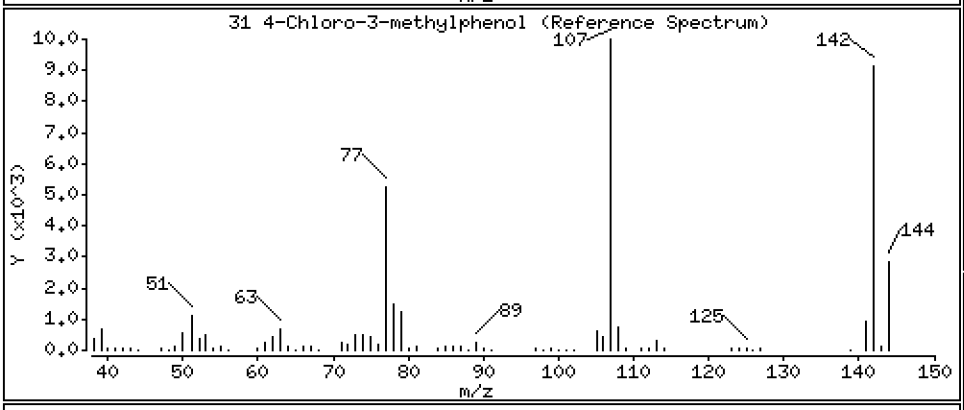
Concentration: 0.01785 ug/mL

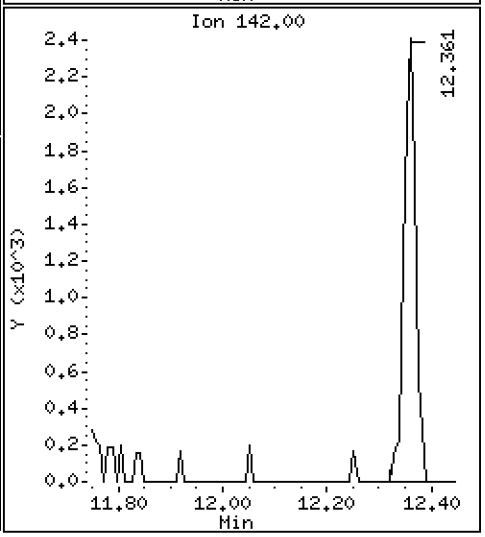


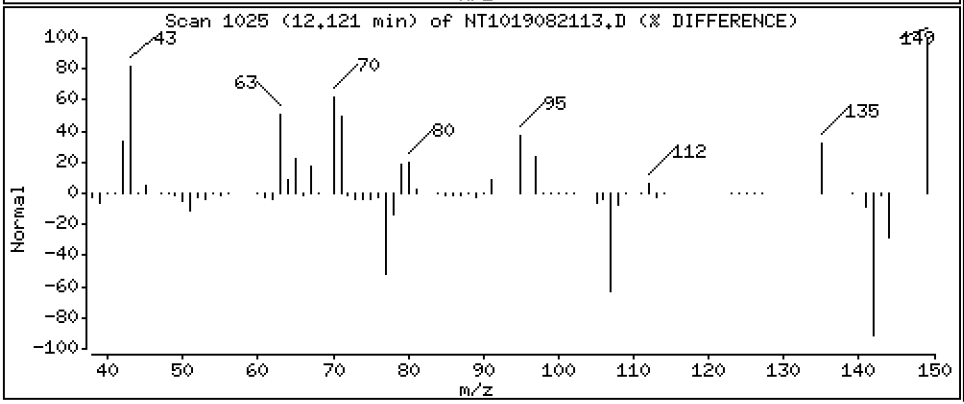












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

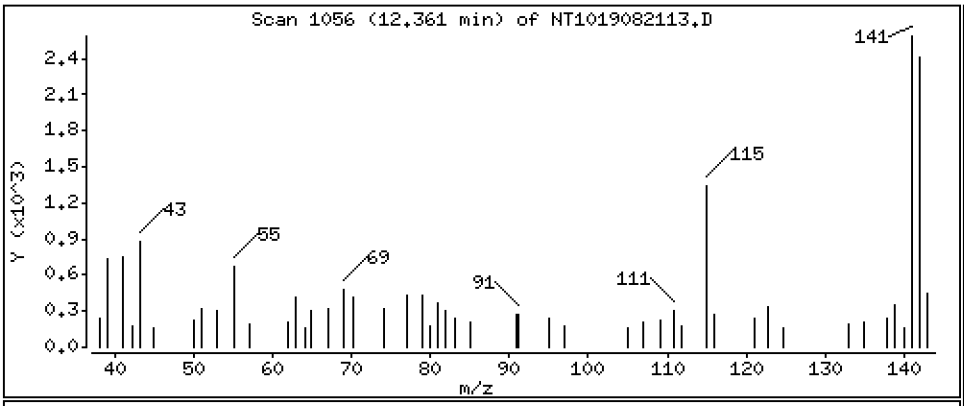
Operator: YZ

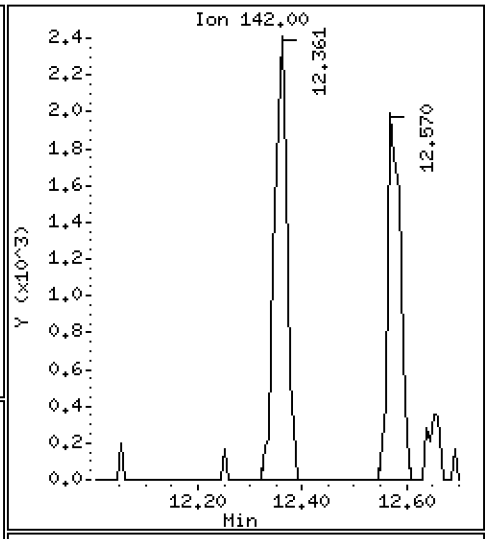
Column phase: ZB-5msi

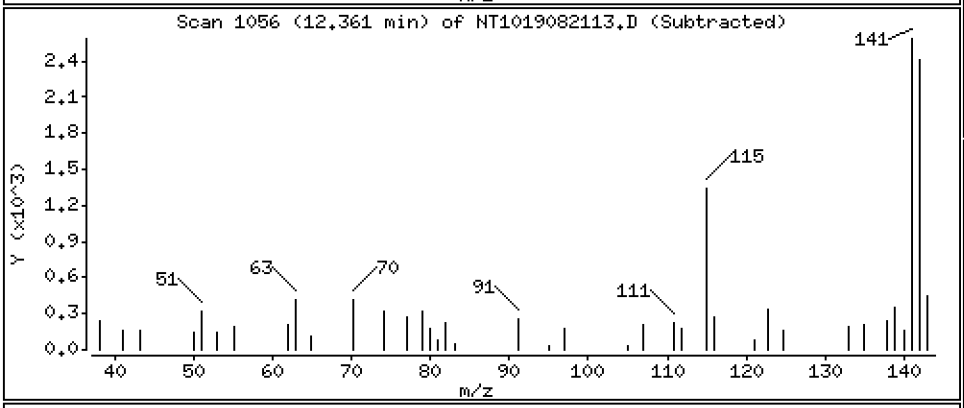
Column diameter: 0.25

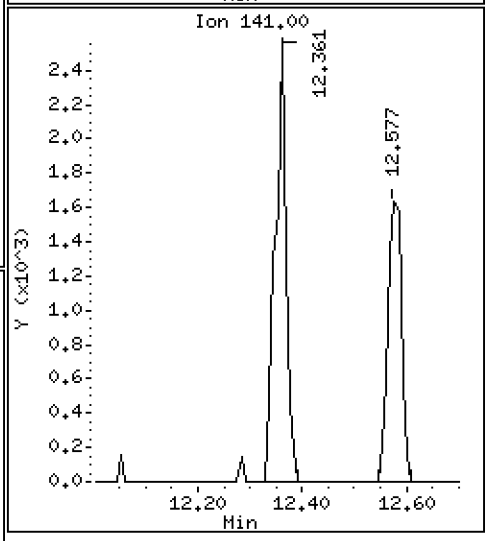
32 2-Methylnaphthalene

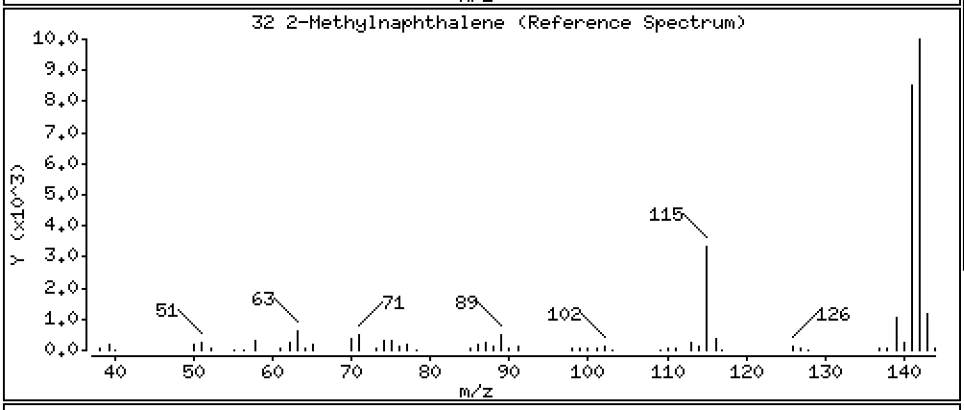
Concentration: 0.1591 ug/mL

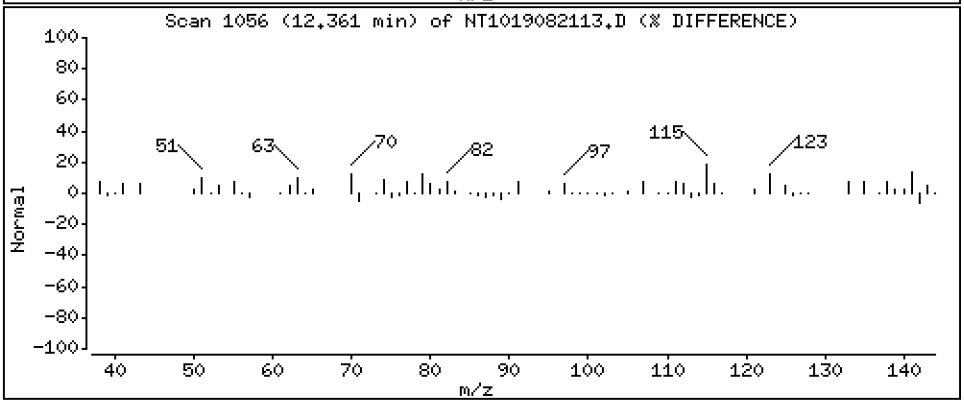












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

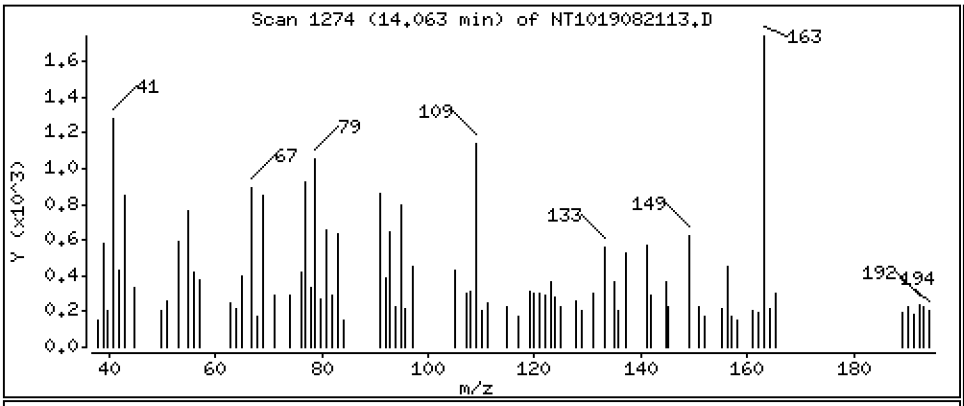
Operator: YZ

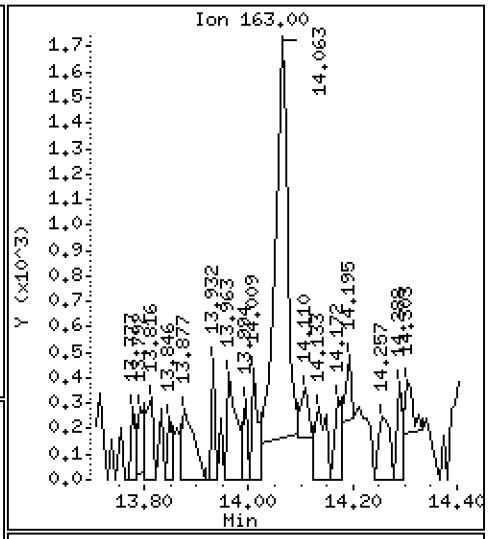
Column phase: ZB-5msi

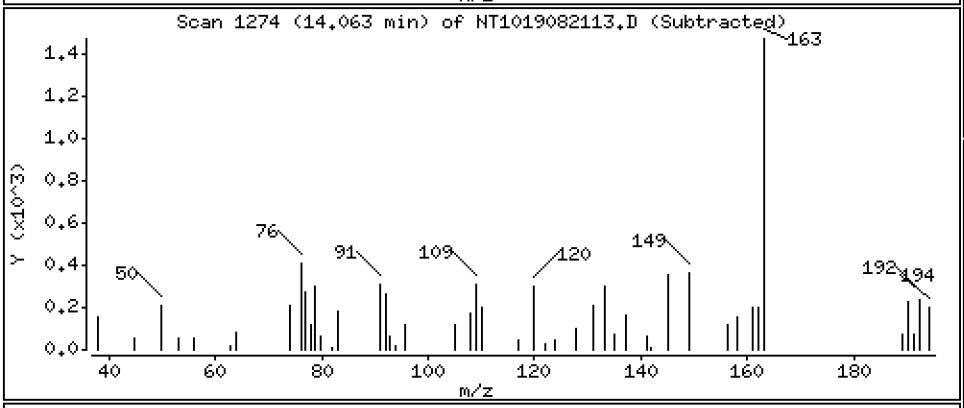
Column diameter: 0.25

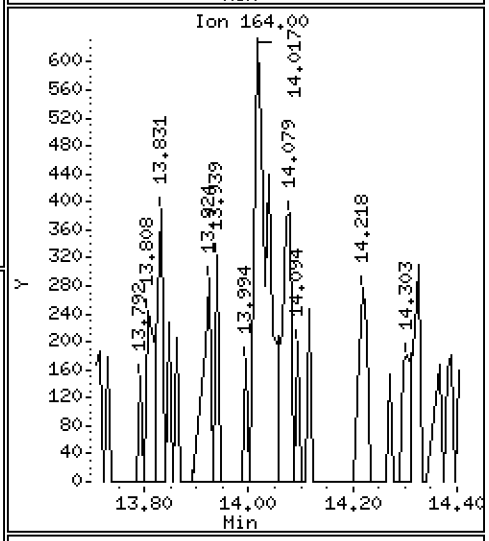
39 Dimethylphthalate

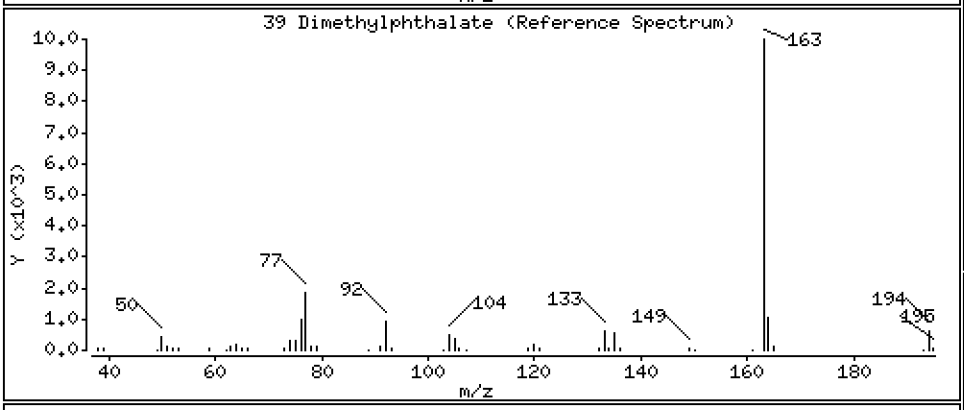
Concentration: 0.1053 ug/mL

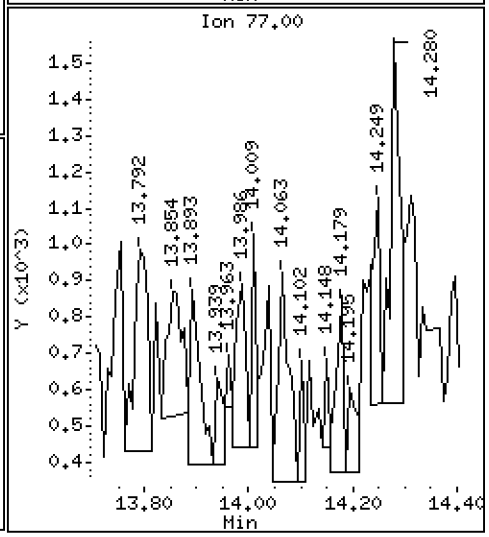


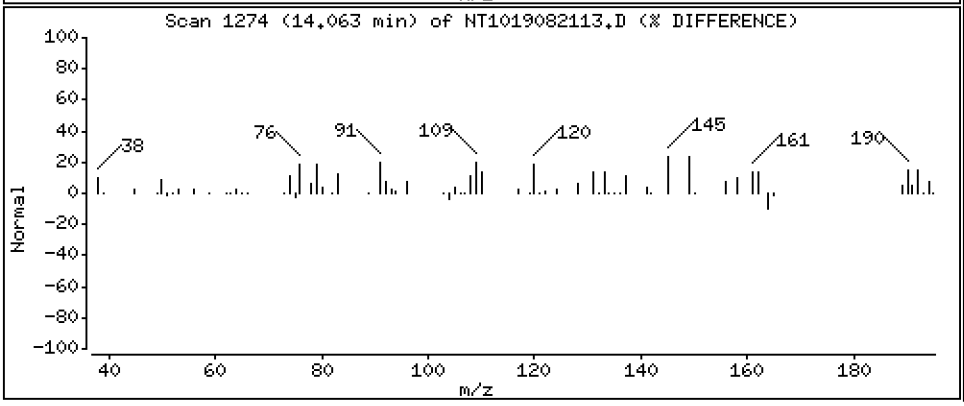












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

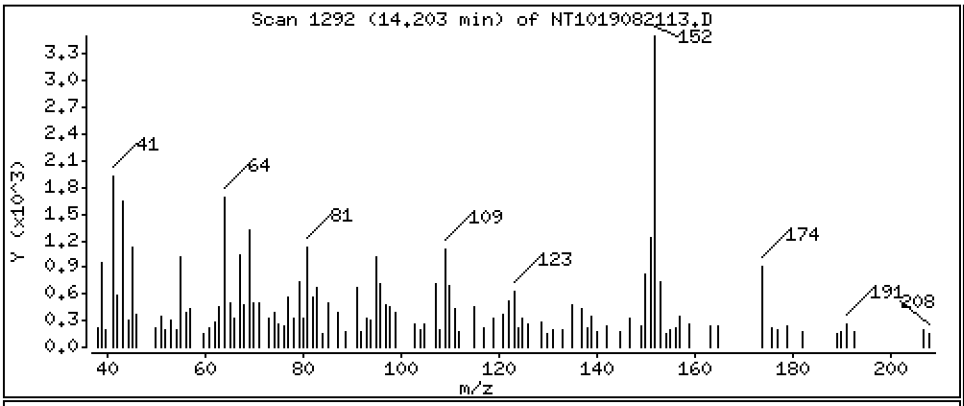
Operator: YZ

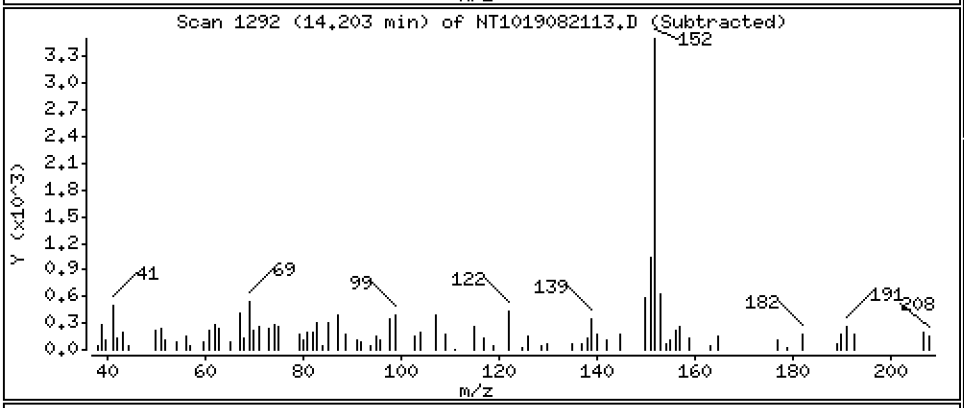
Column phase: ZB-5msi

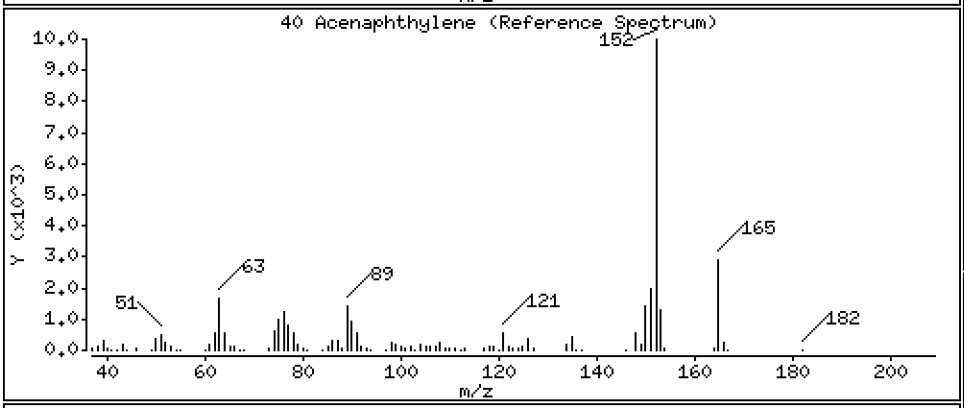
Column diameter: 0.25

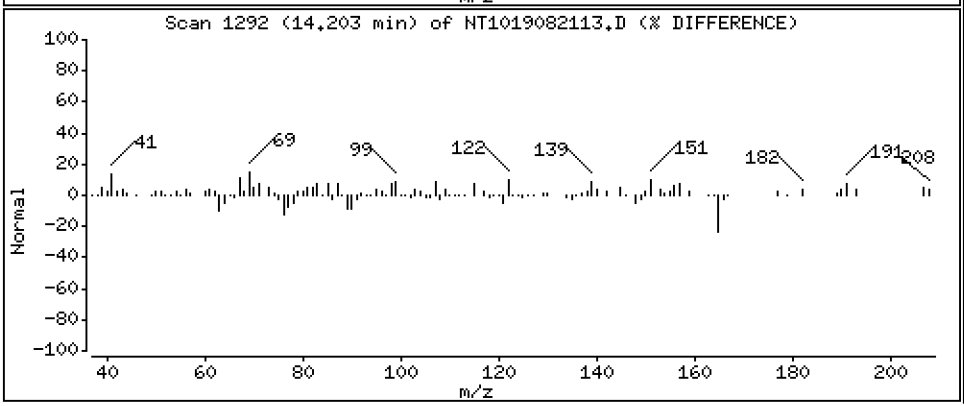
40 Acenaphthylene

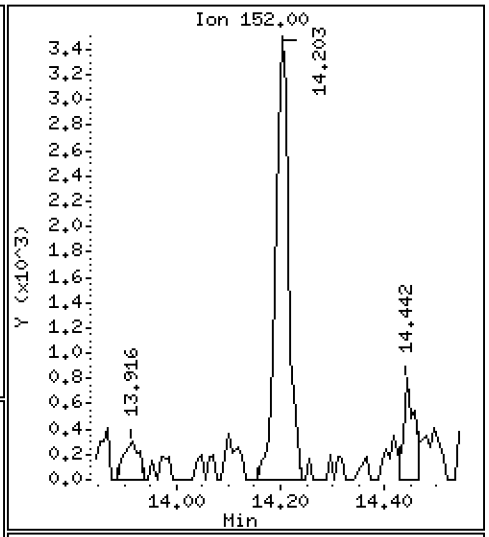
Concentration: 0.1946 ug/mL

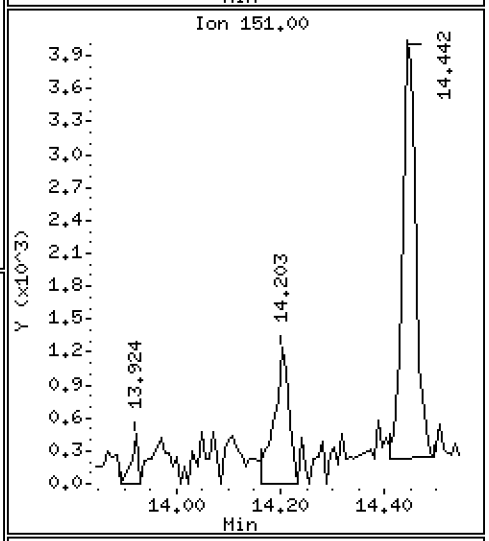


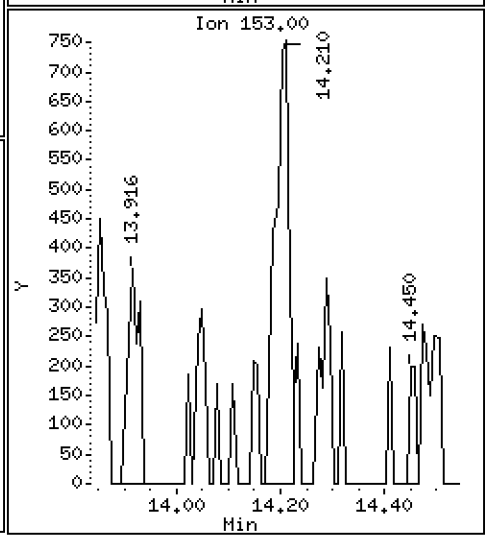












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

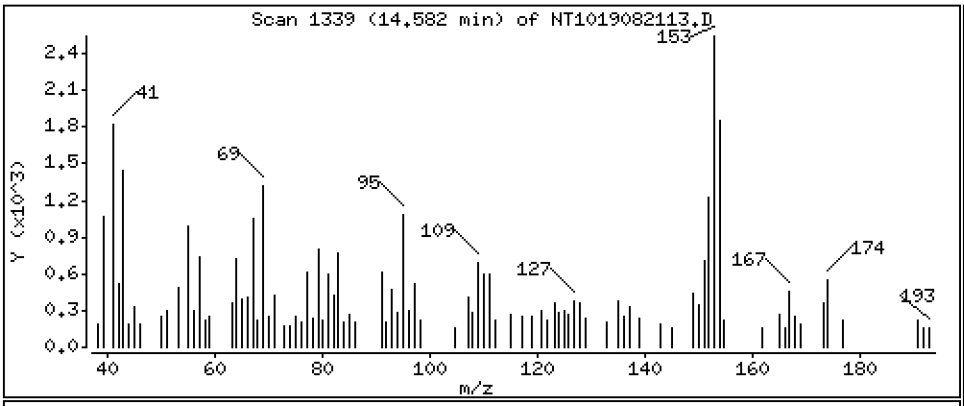
Operator: YZ

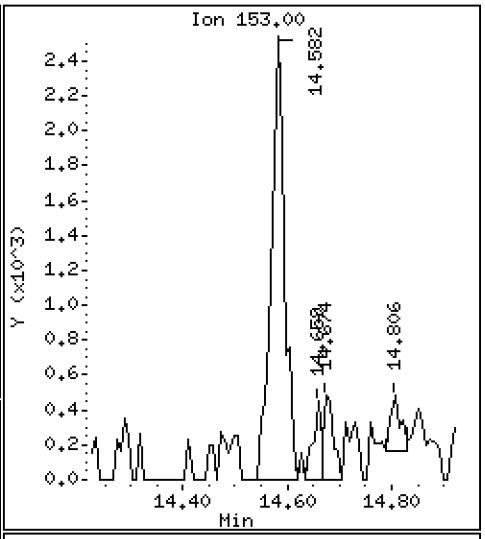
Column phase: ZB-5msi

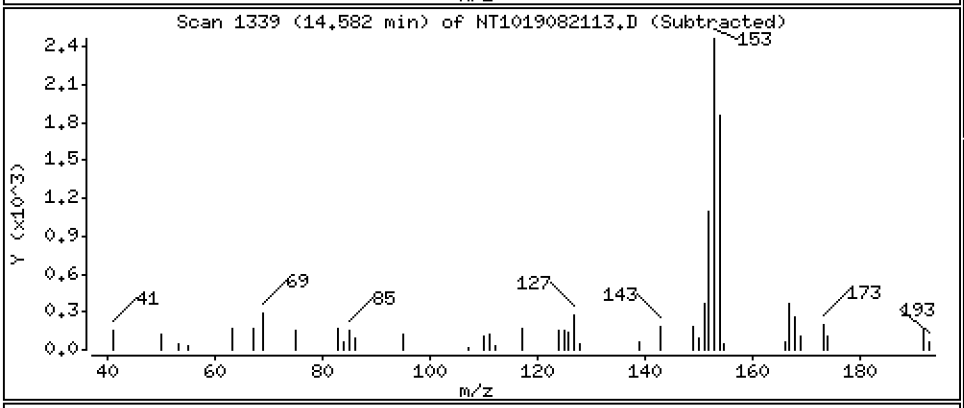
Column diameter: 0.25

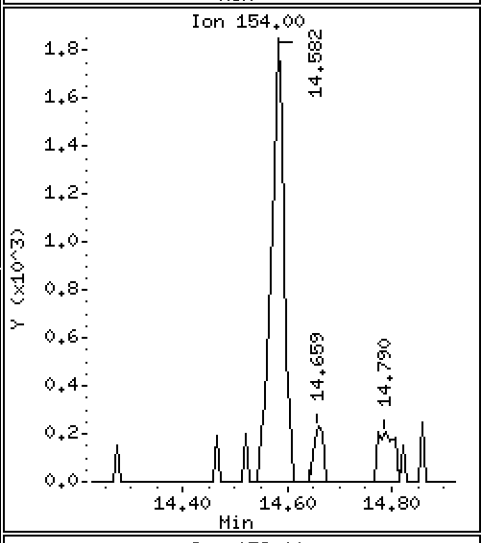
44 Acenaphthene

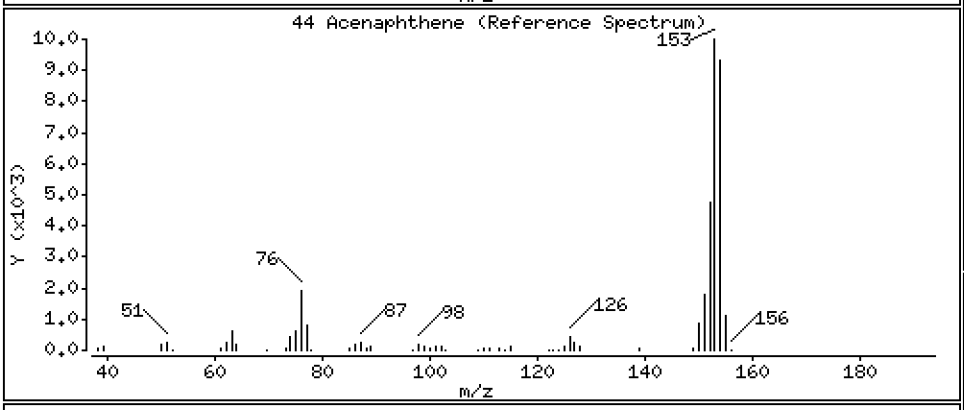
Concentration: 0.2304 ug/mL

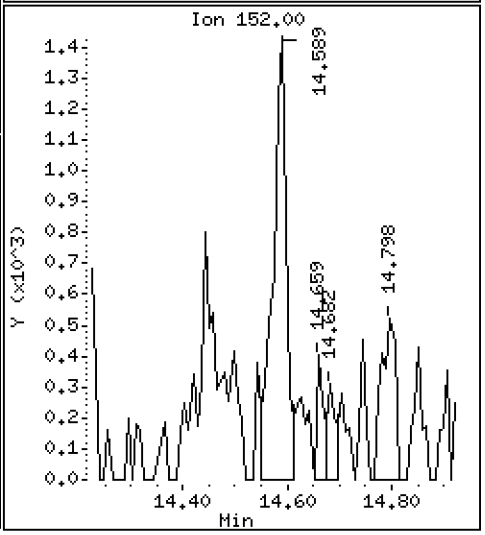


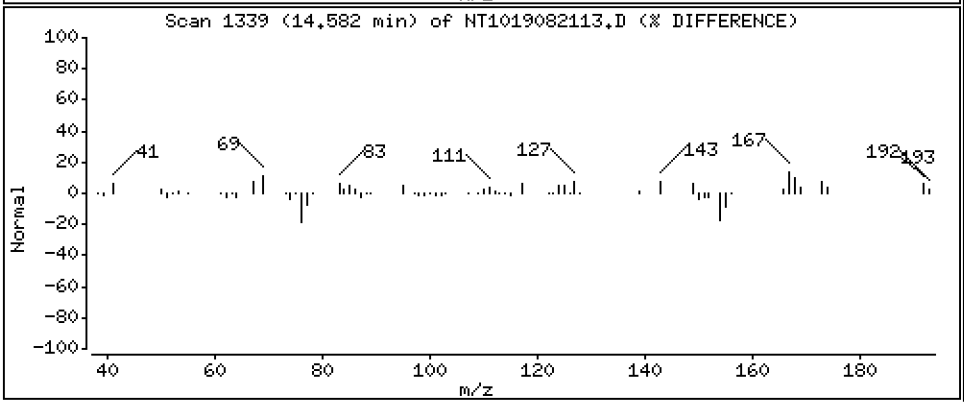












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

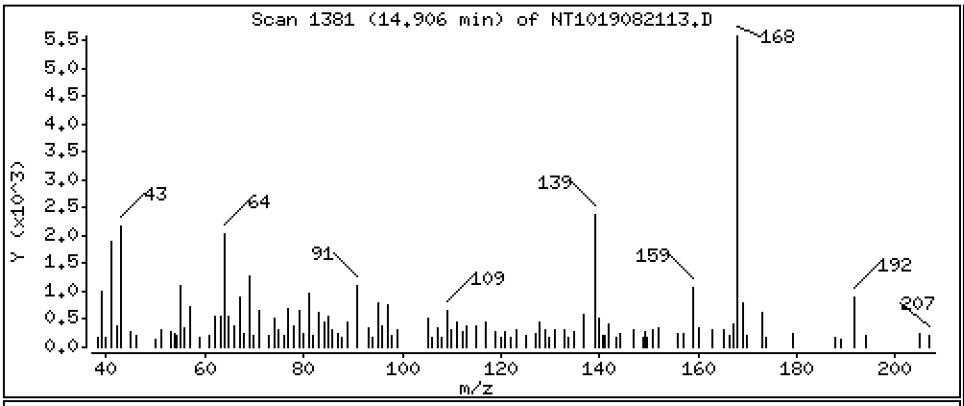
Operator: YZ

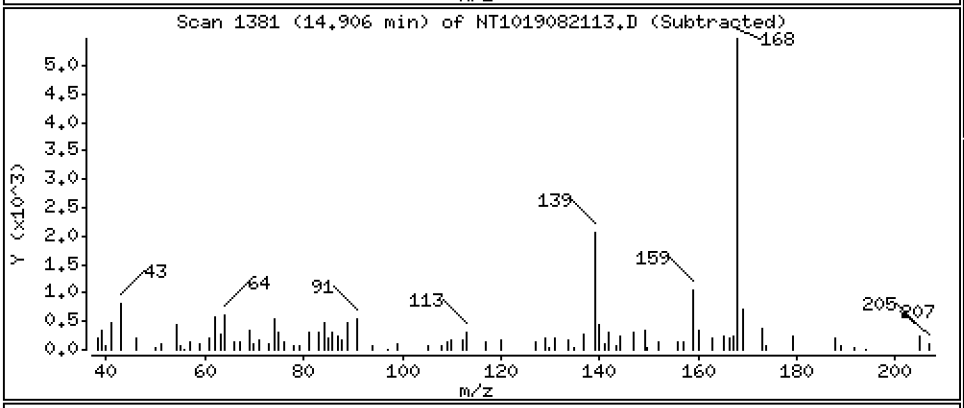
Column phase: ZB-5msi

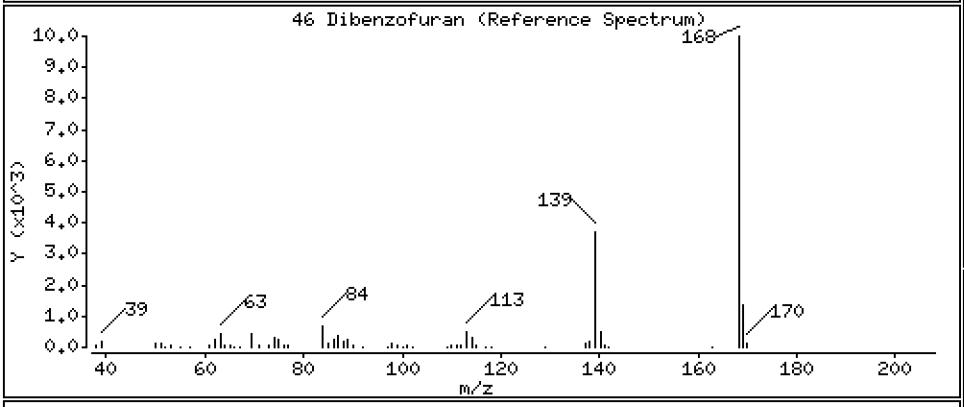
Column diameter: 0.25

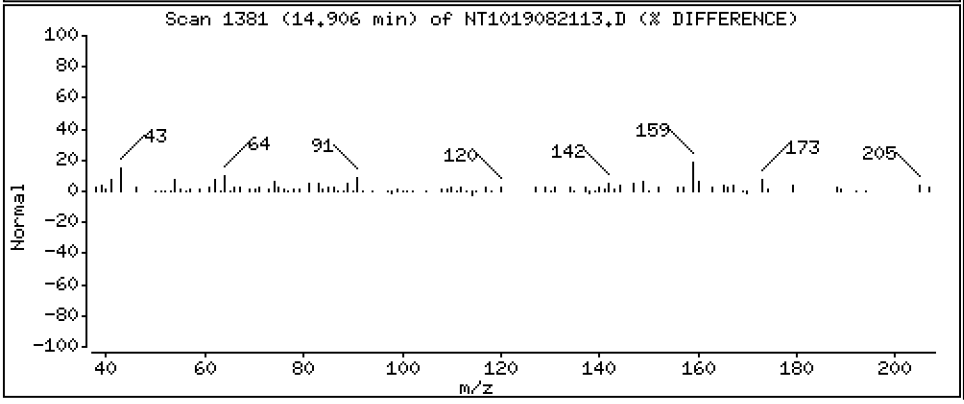
46 Dibenzofuran

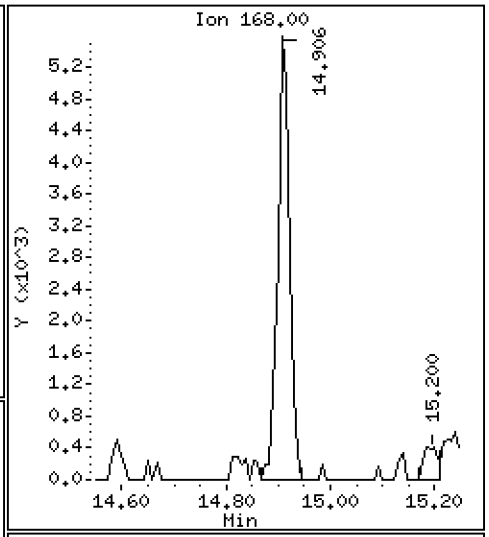
Concentration: 0.2766 ug/mL

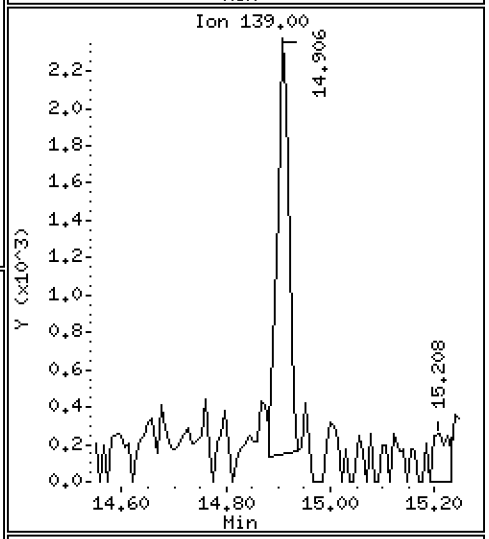


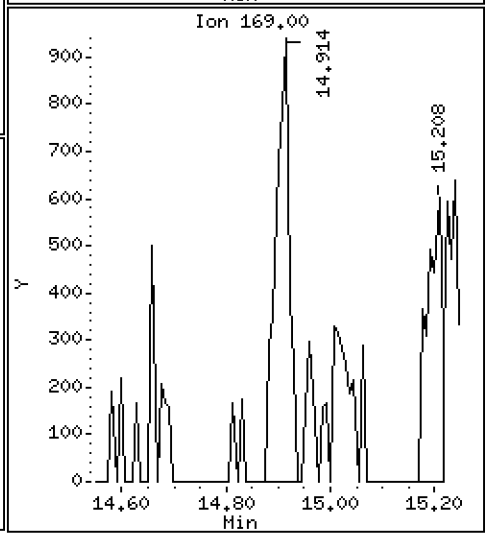












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

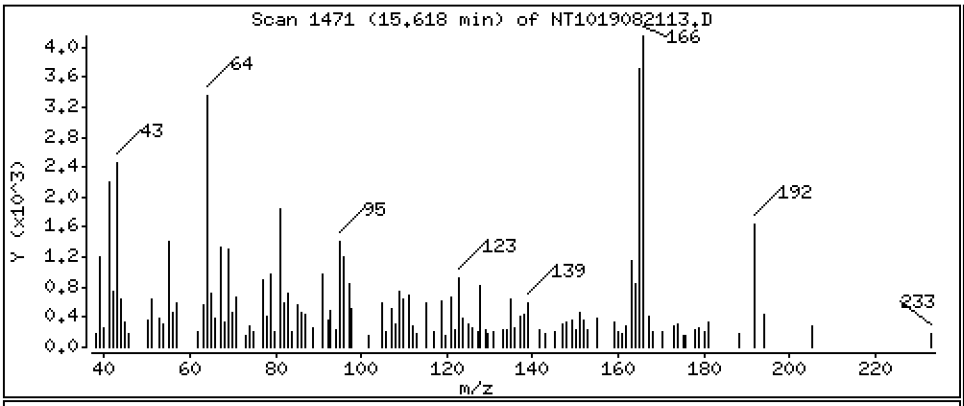
Operator: YZ

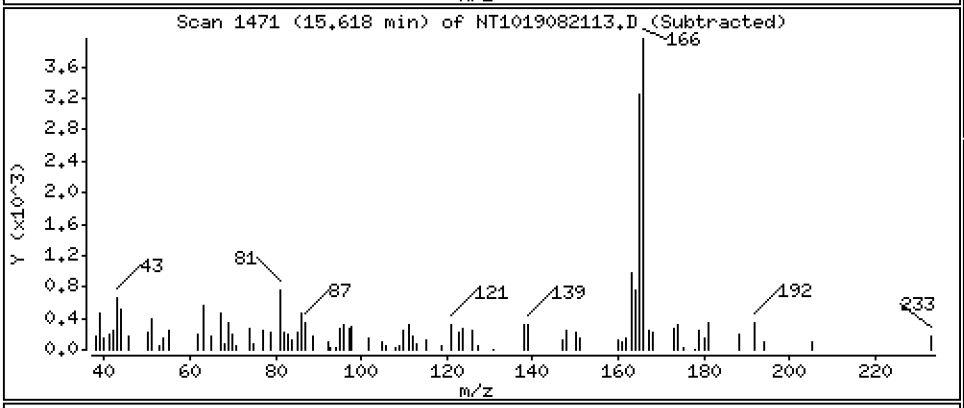
Column phase: ZB-5msi

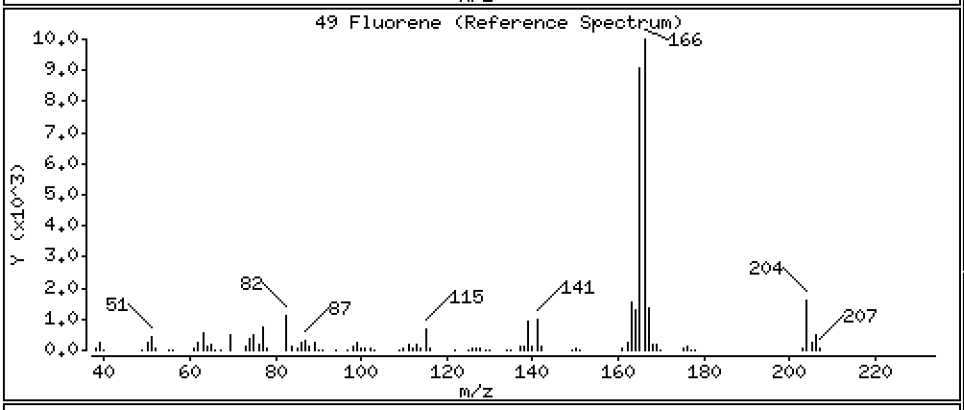
Column diameter: 0.25

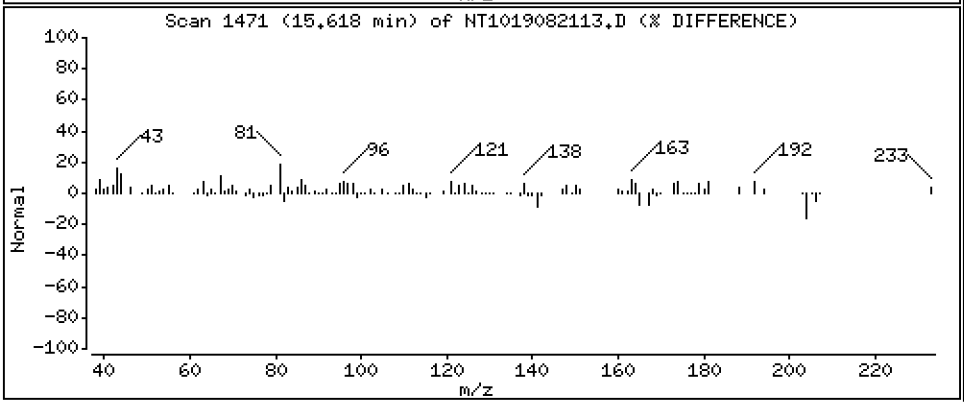
49 Fluorene

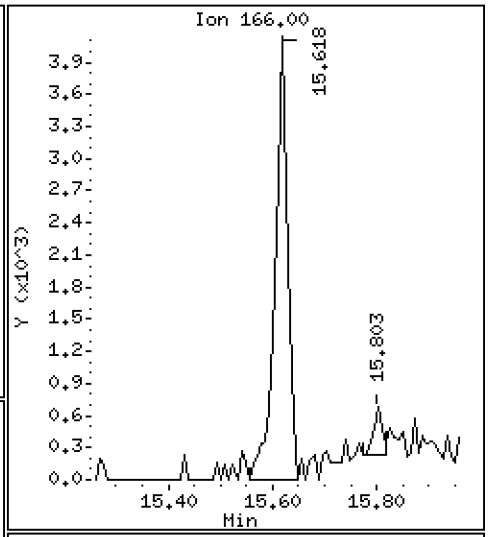
Concentration: 0.3152 ug/mL

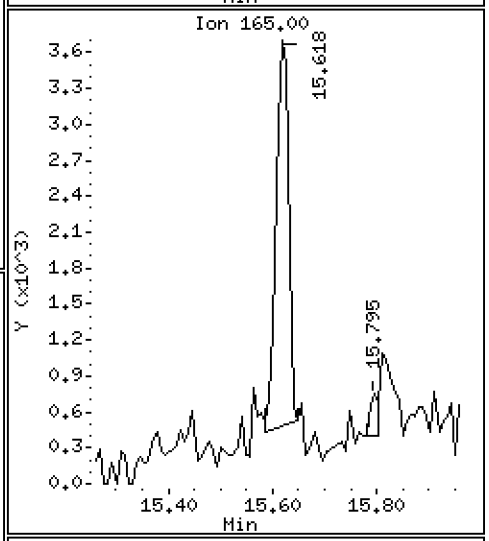


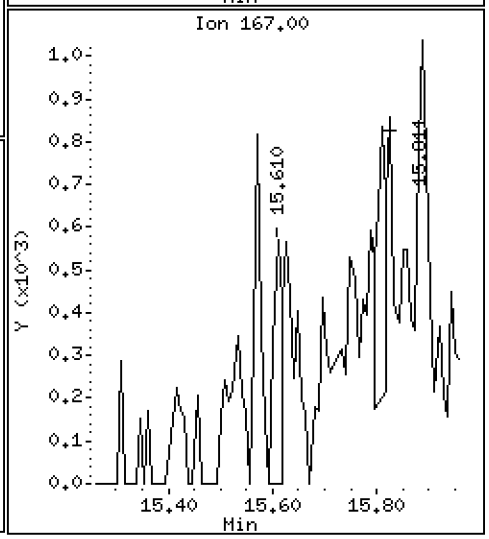












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

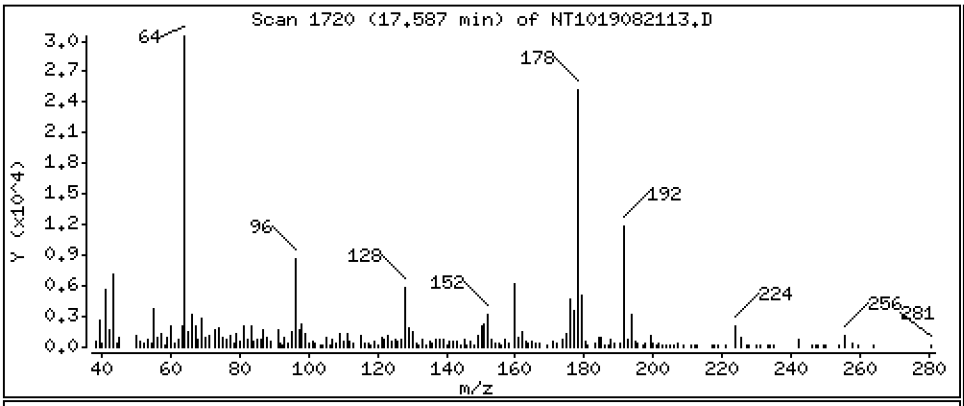
Operator: YZ

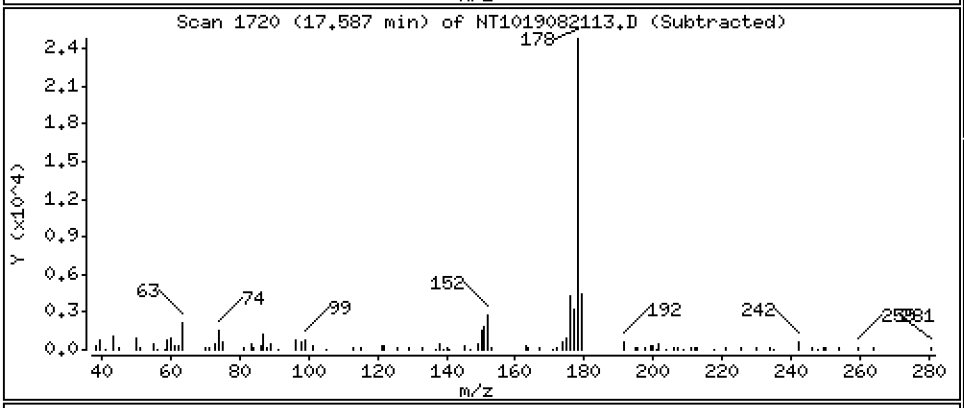
Column phase: ZB-5msi

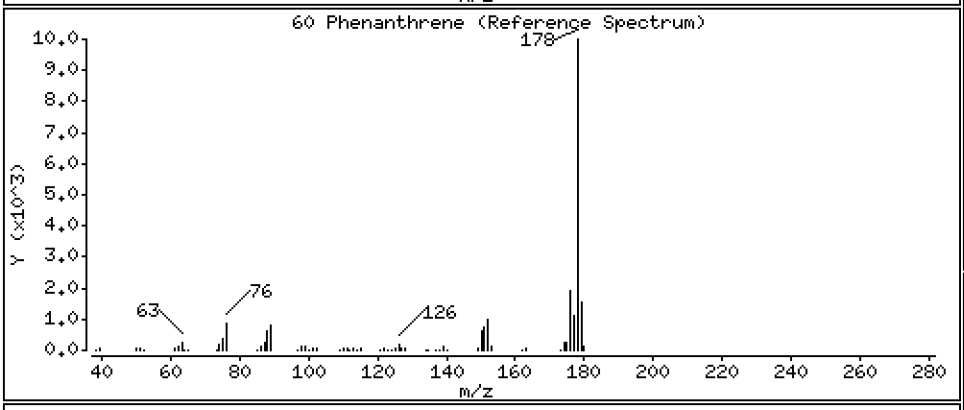
Column diameter: 0.25

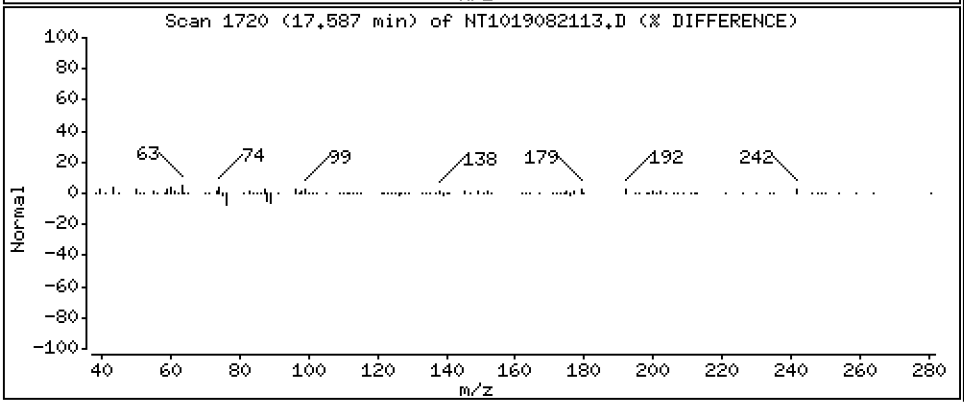
60 Phenanthrene

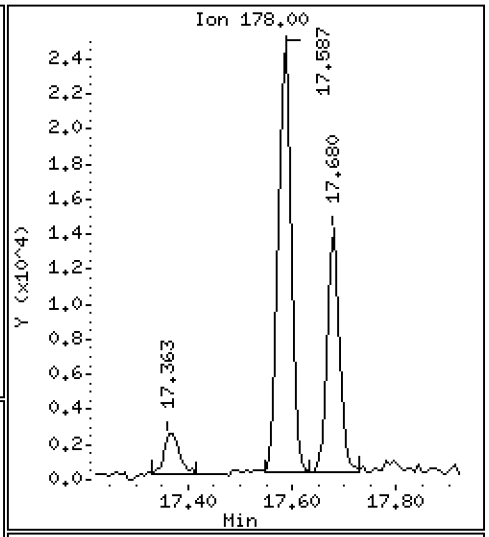
Concentration: 1.509 ug/mL

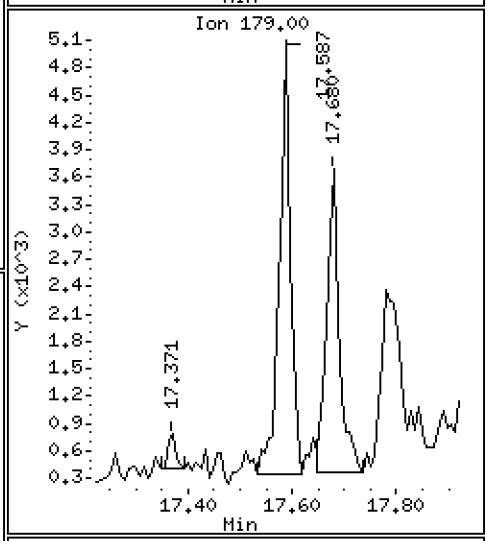


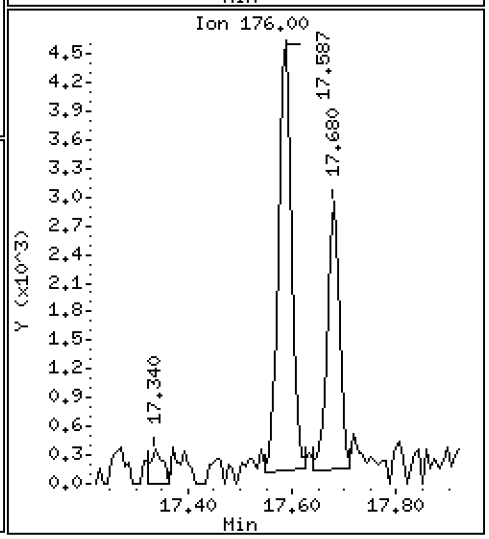












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

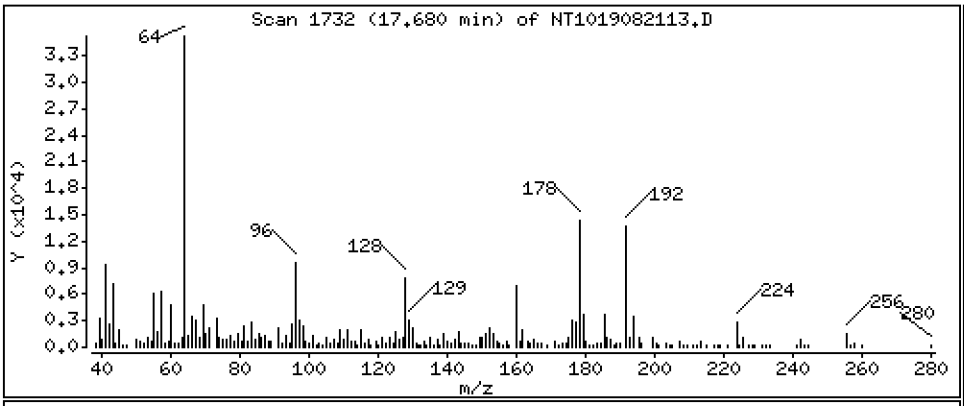
Operator: YZ

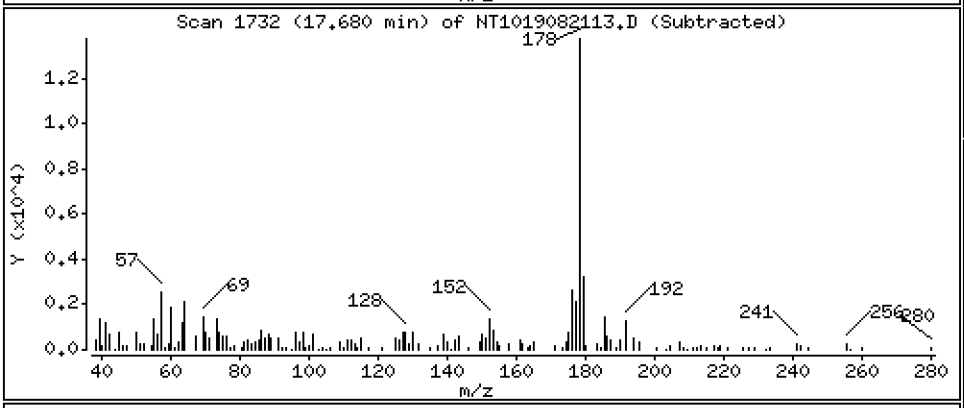
Column phase: ZB-5msi

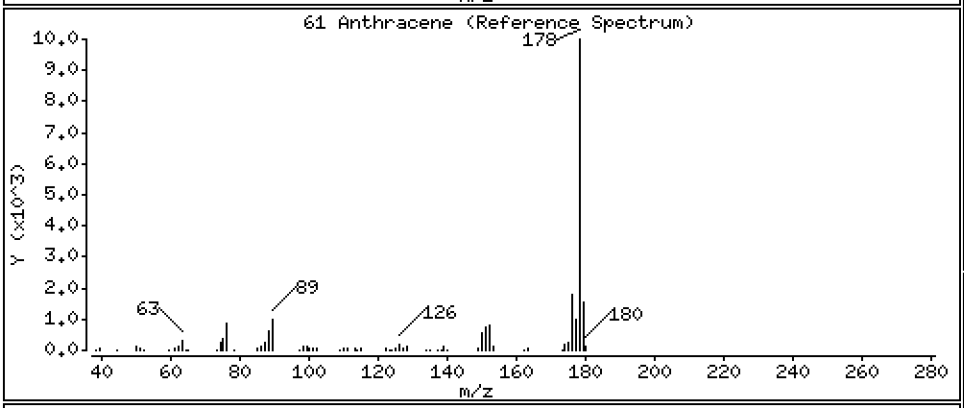
Column diameter: 0.25

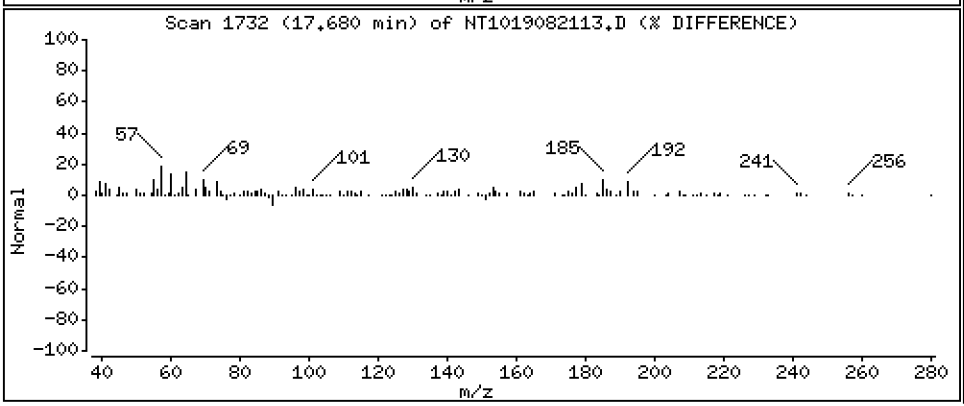
61 Anthracene

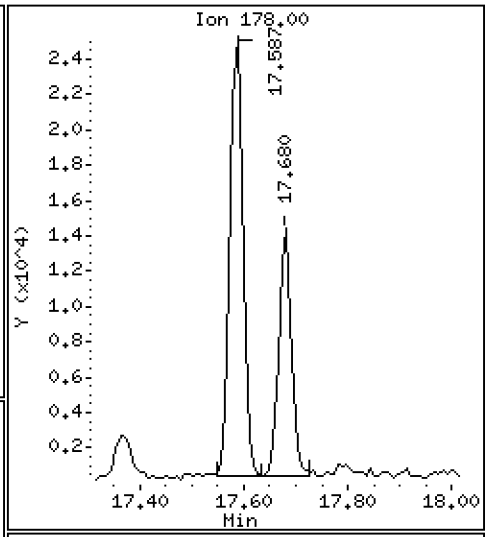
Concentration: 0.8531 ug/mL

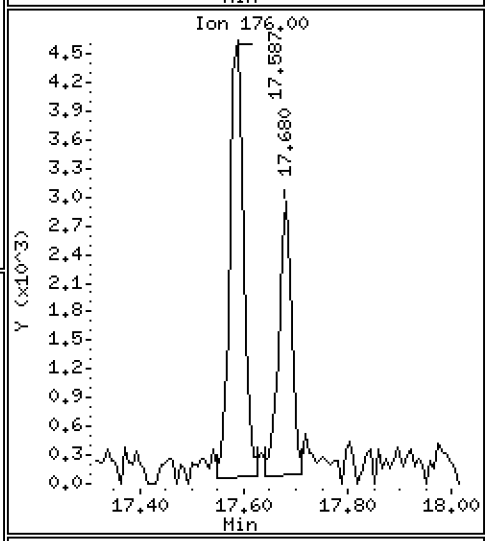


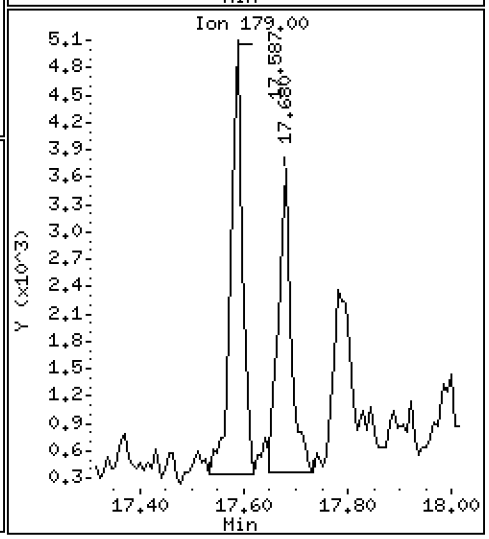












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

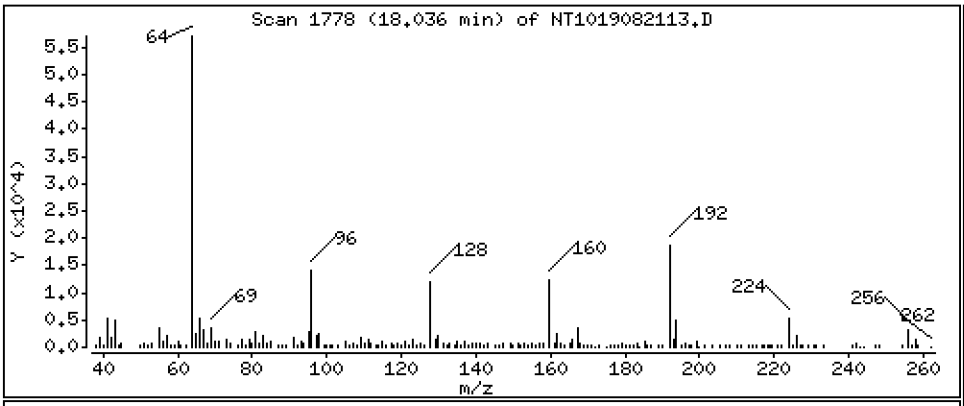
Operator: YZ

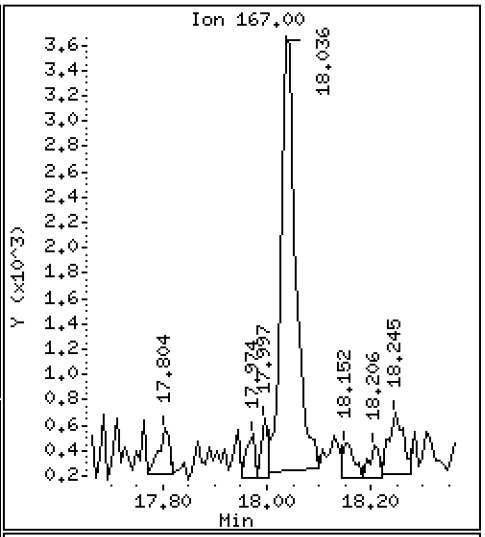
Column phase: ZB-5msi

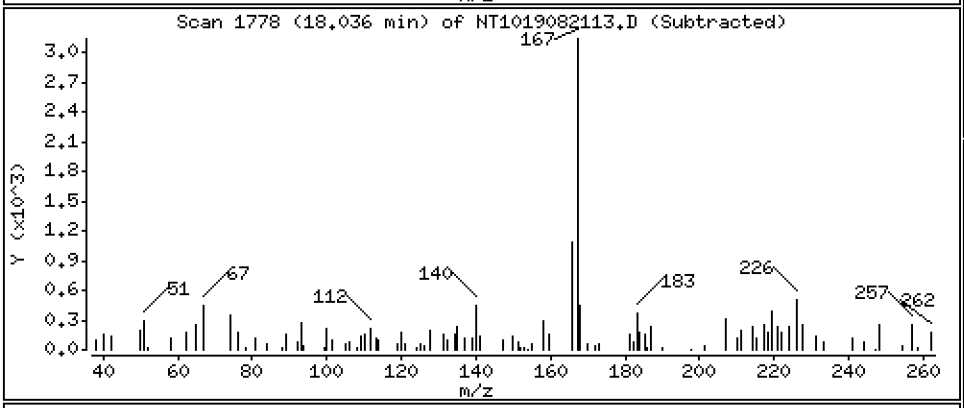
Column diameter: 0.25

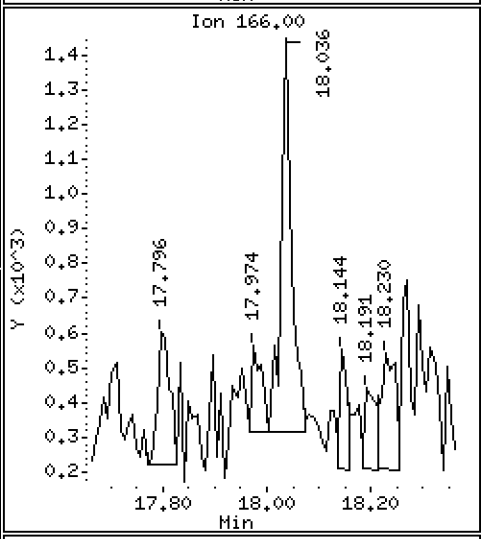
62 Carbazole

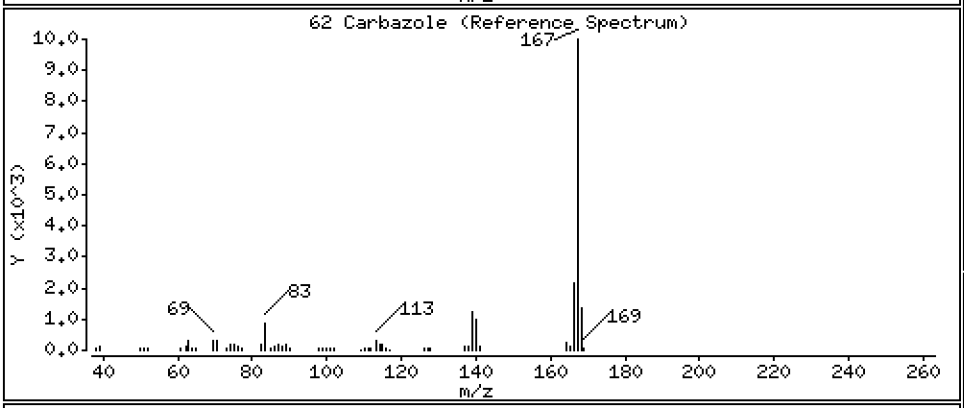
Concentration: 0.2727 ug/mL

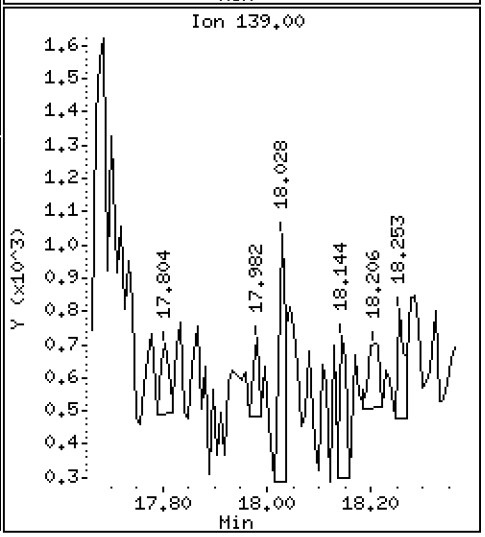


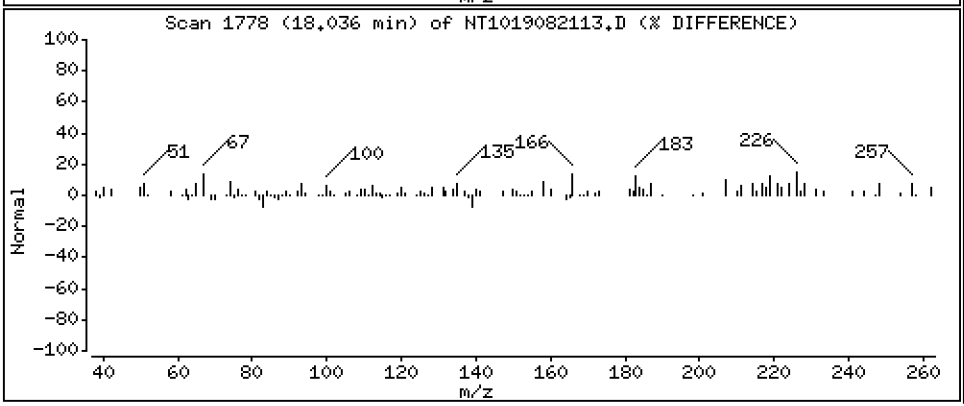












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

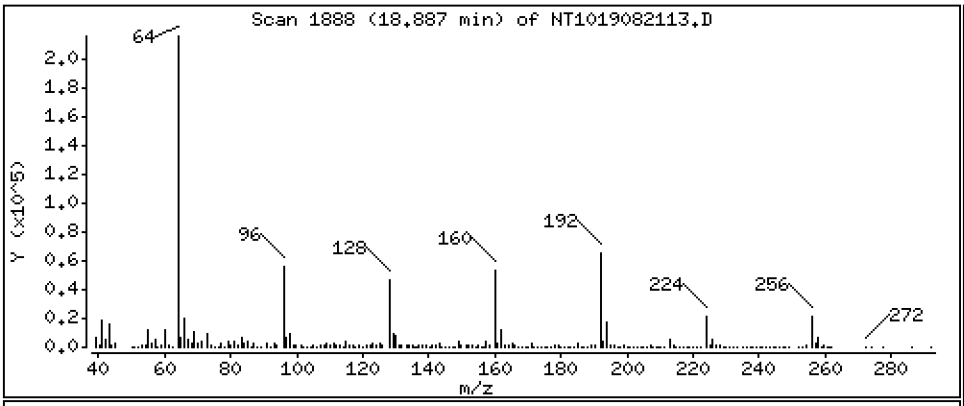
Operator: YZ

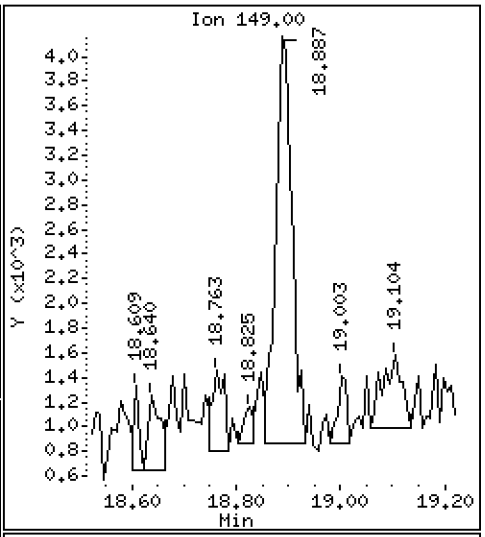
Column phase: ZB-5msi

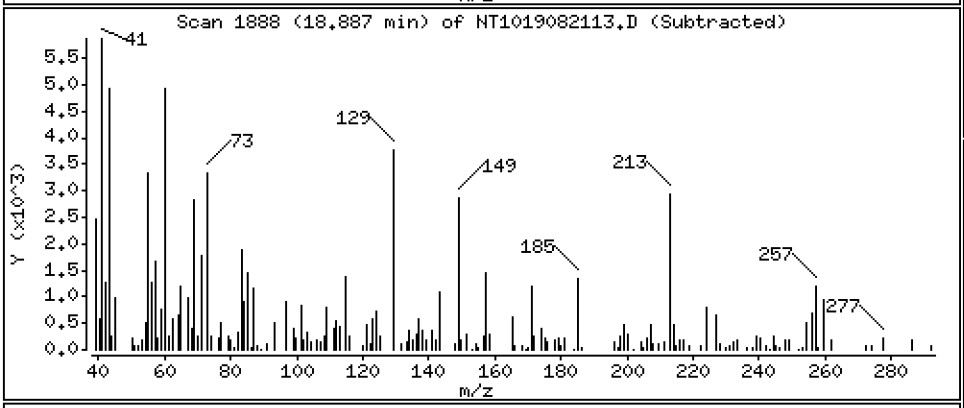
Column diameter: 0.25

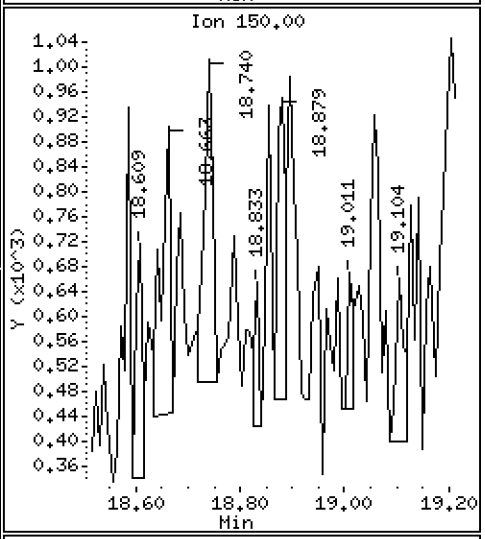
63 Di-n-butylphthalate

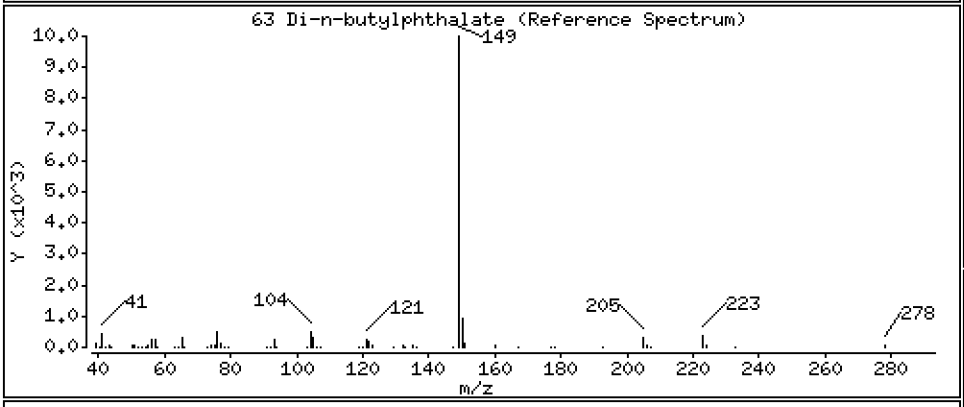
Concentration: 0.1931 ug/mL

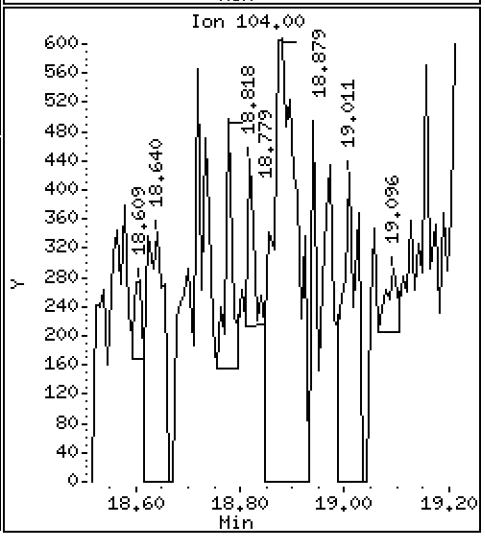


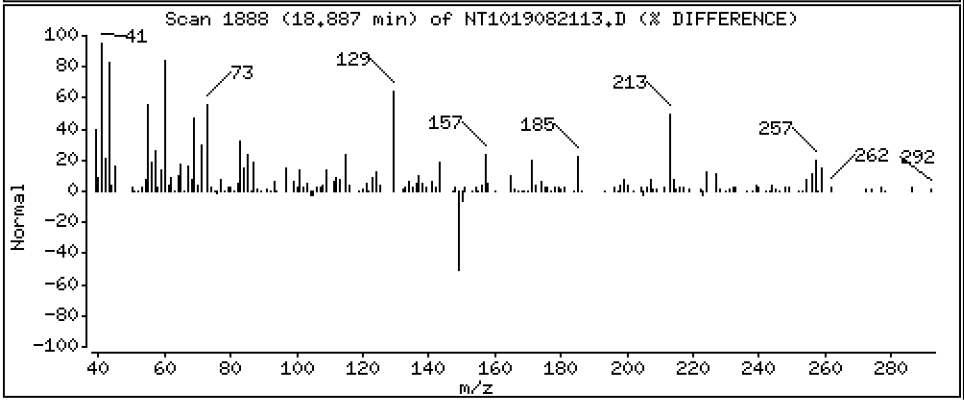












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

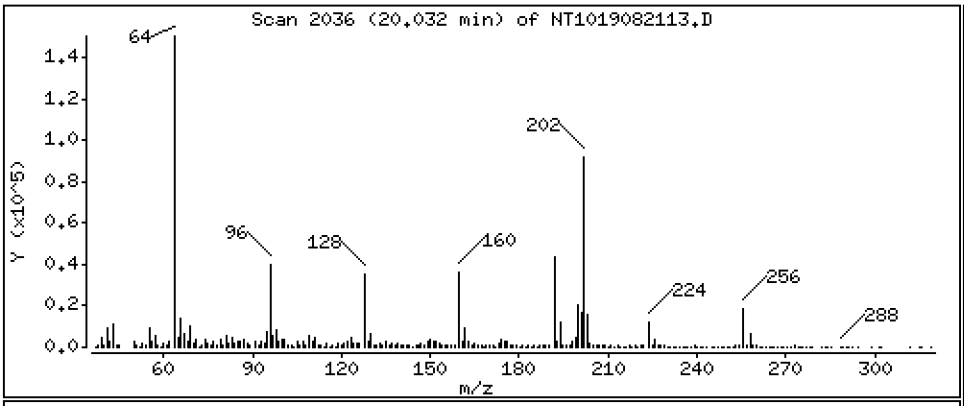
Operator: YZ

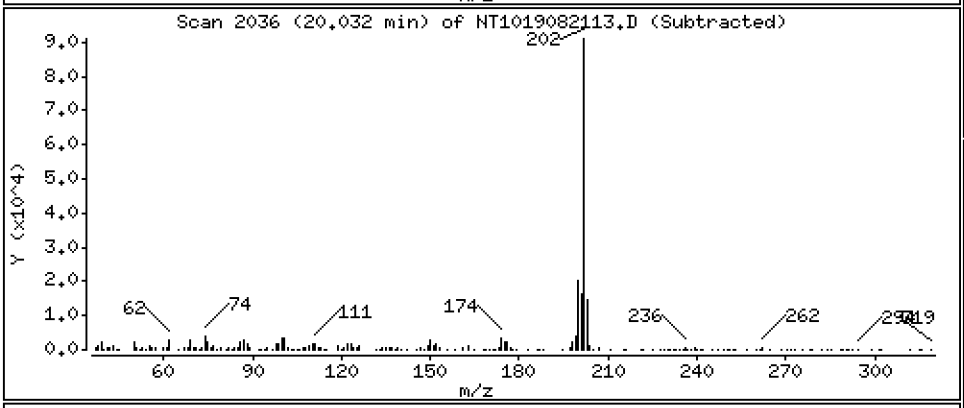
Column phase: ZB-5msi

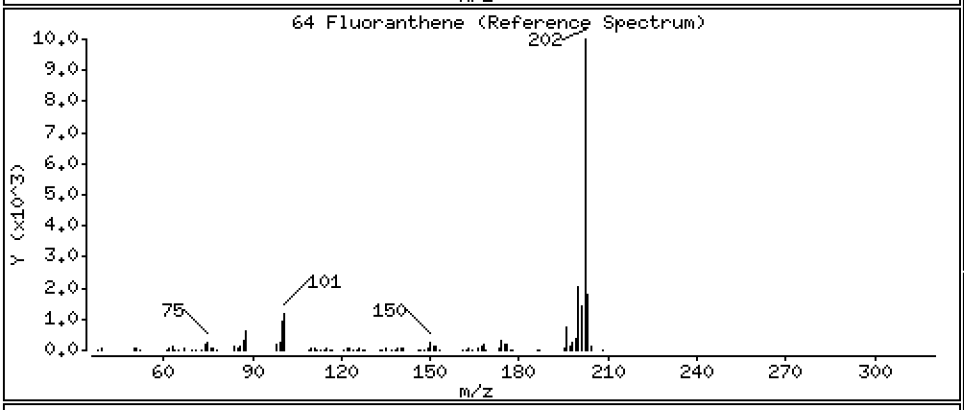
Column diameter: 0.25

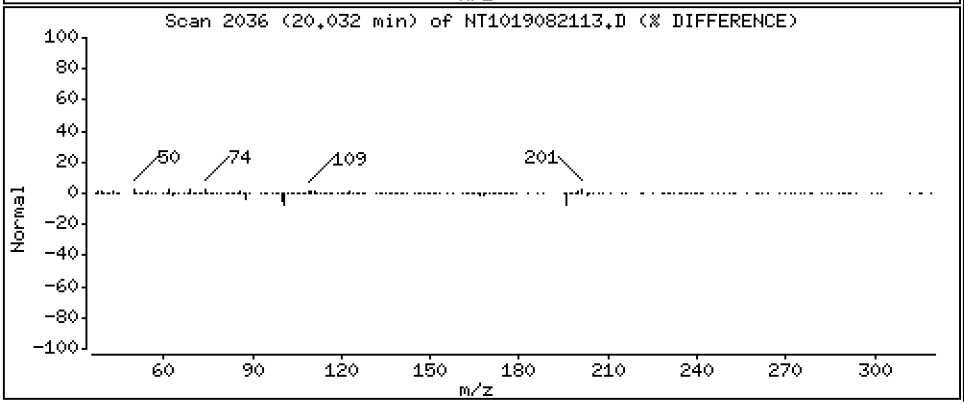
64 Fluoranthene

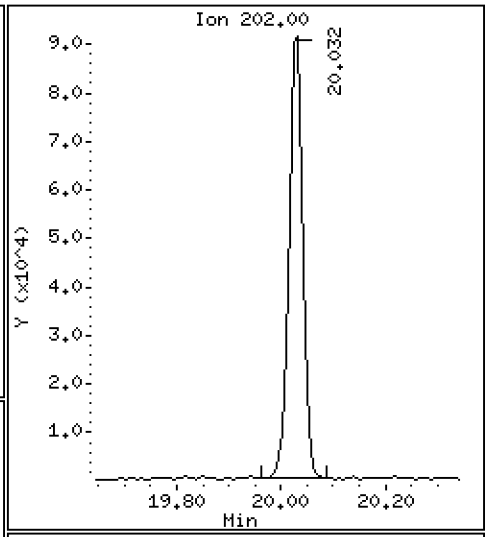
Concentration: 9.484 ug/mL

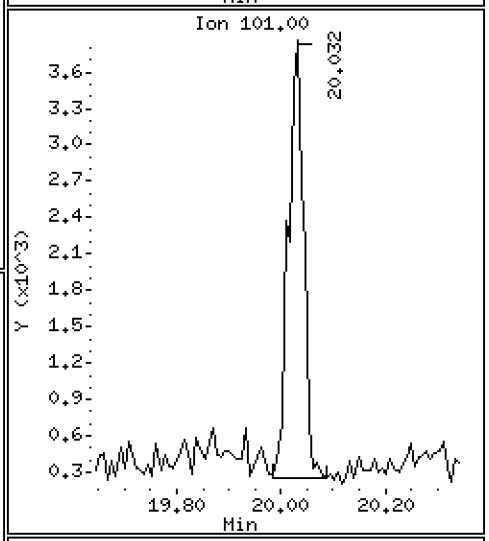


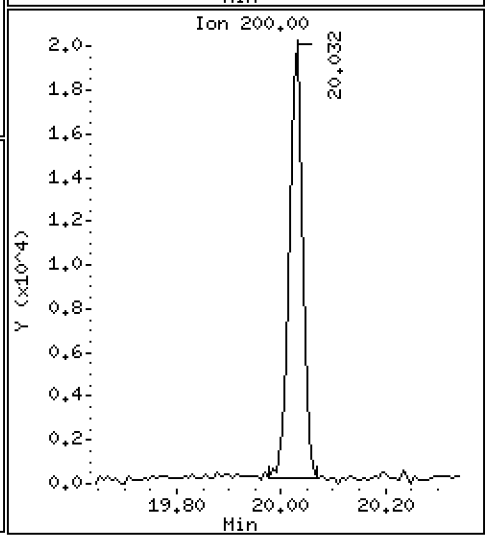












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

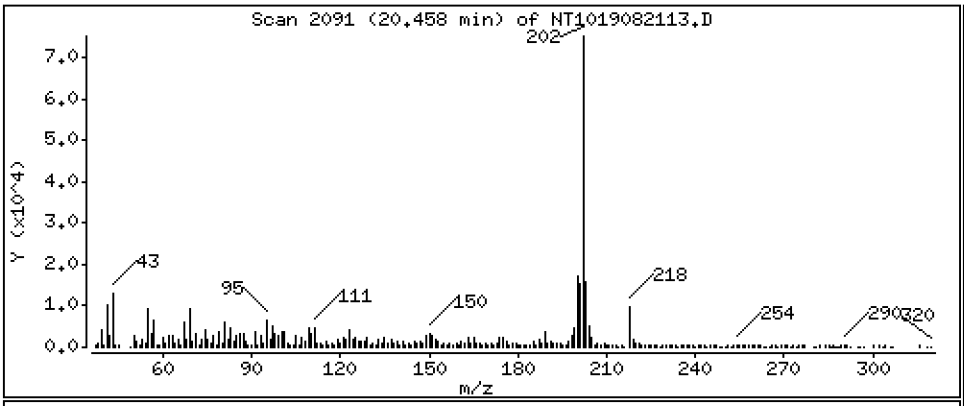
Operator: YZ

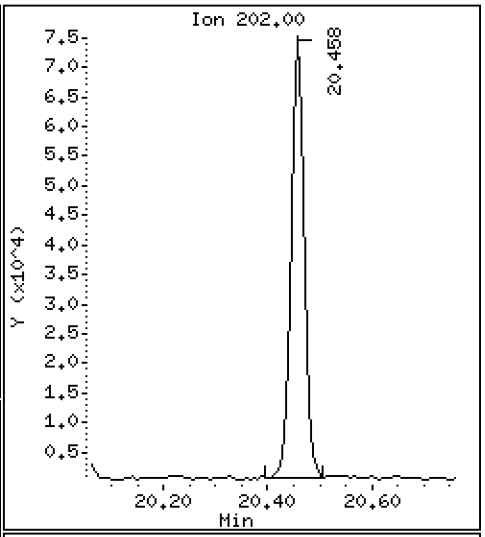
Column phase: ZB-5msi

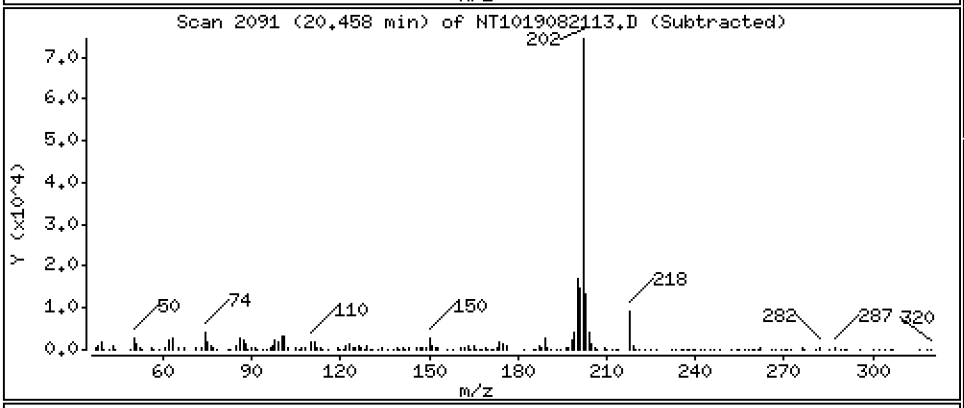
Column diameter: 0.25

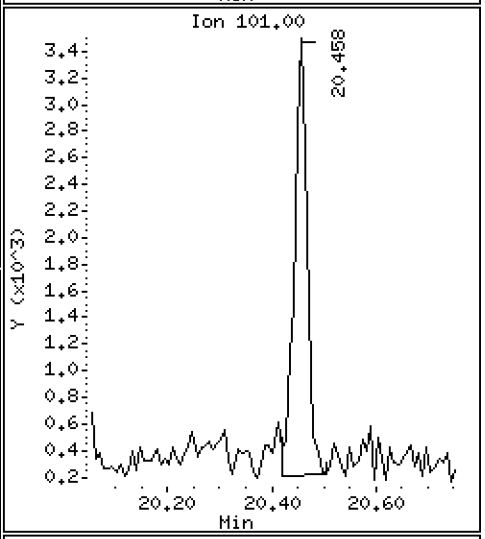
65 Pyrene

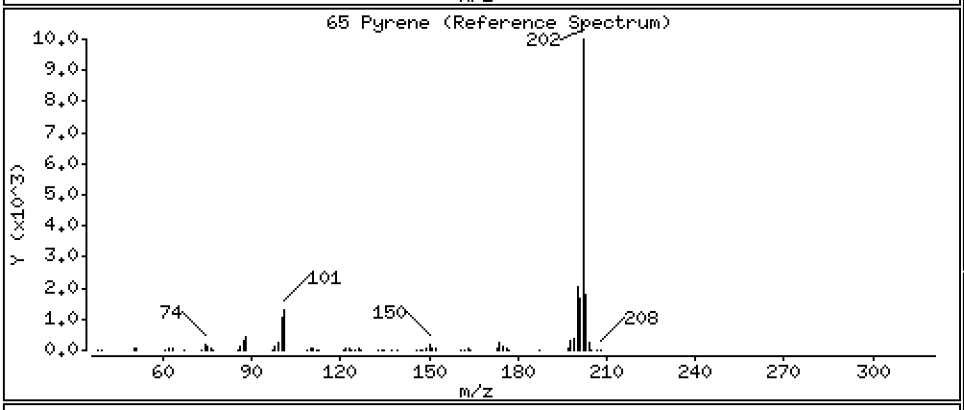
Concentration: 7.061 ug/mL

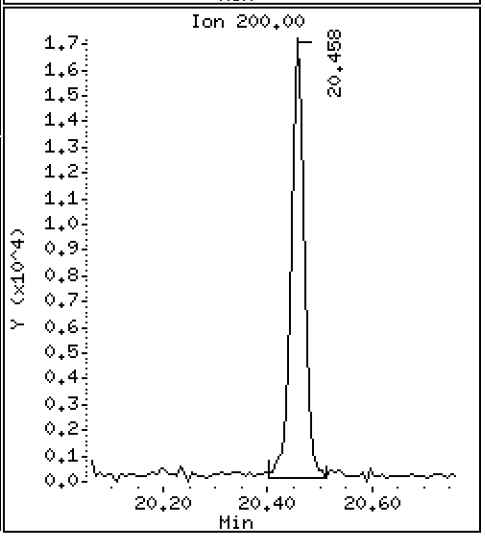


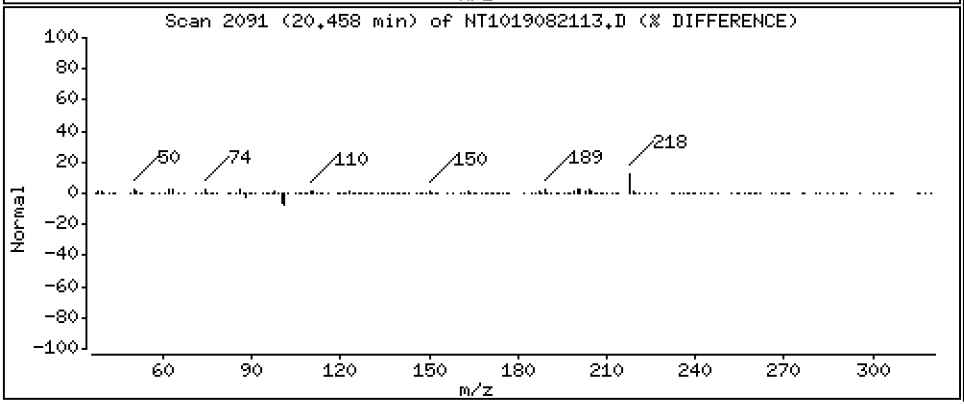












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

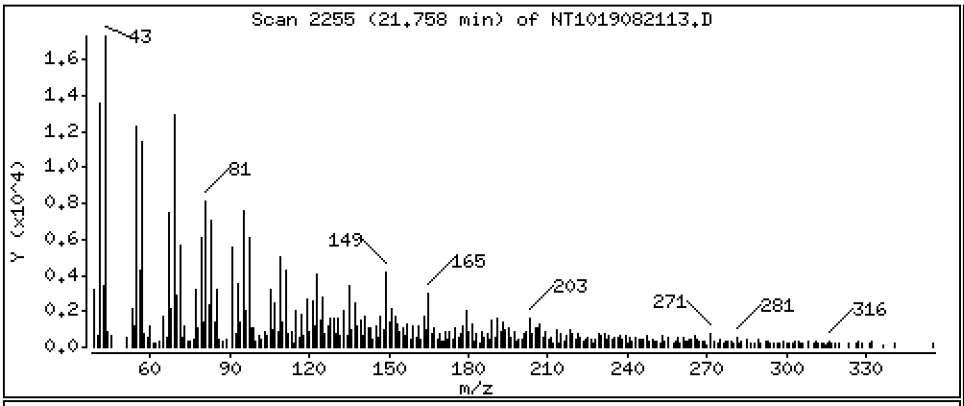
Operator: YZ

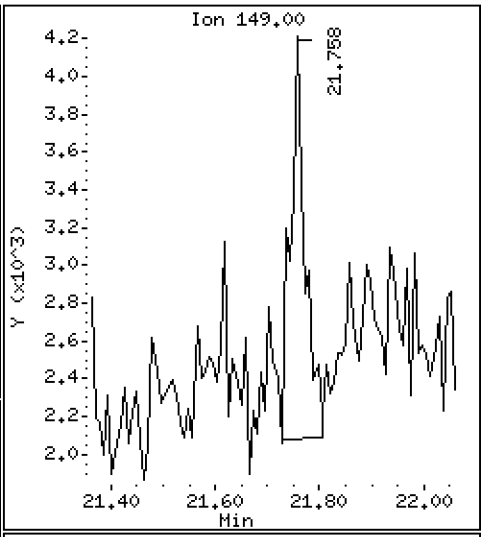
Column phase: ZB-5msi

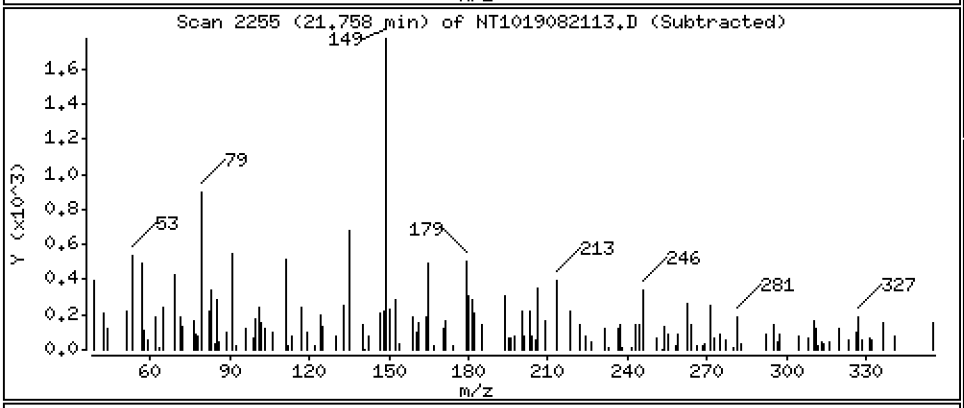
Column diameter: 0.25

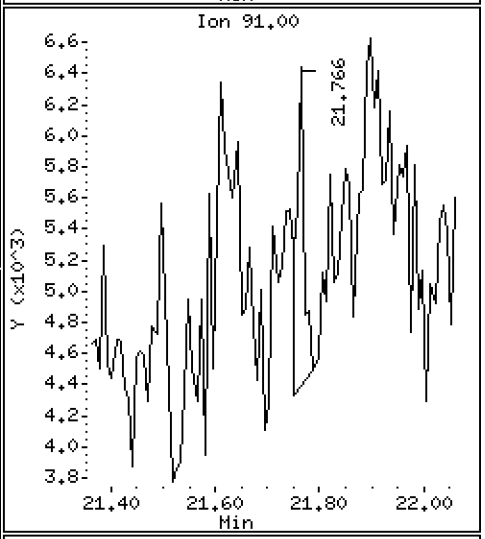
67 Butylbenzylphthalate

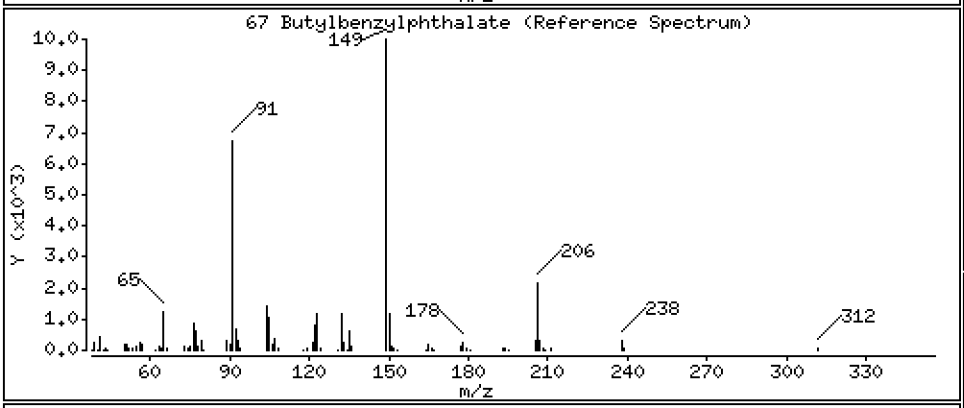
Concentration: 0.4781 ug/mL

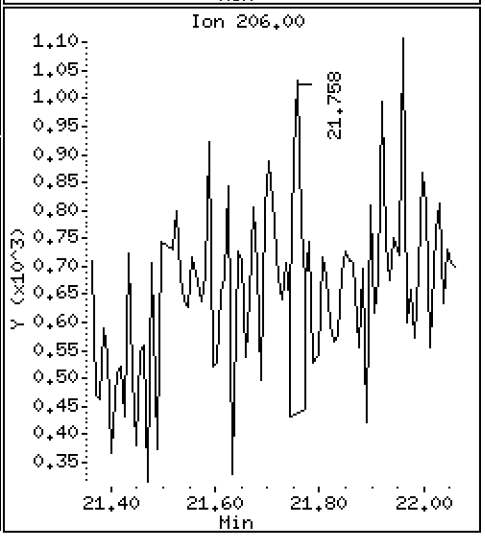


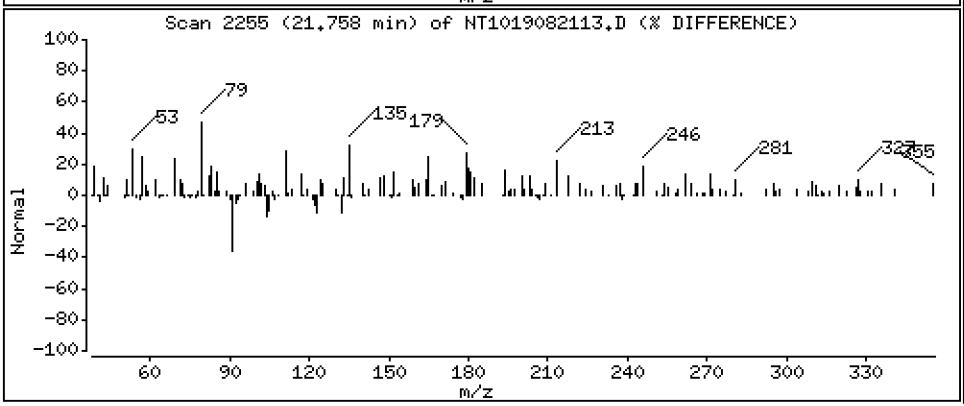












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

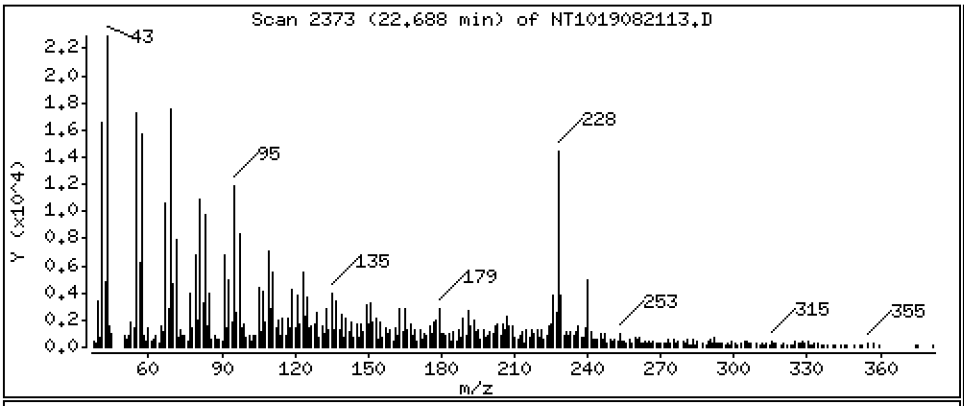
Operator: YZ

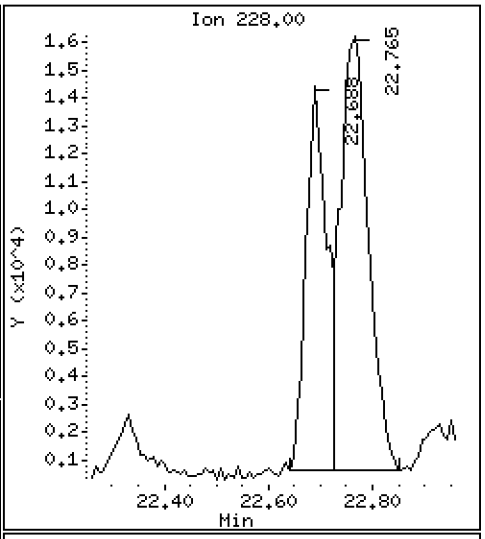
Column phase: ZB-5msi

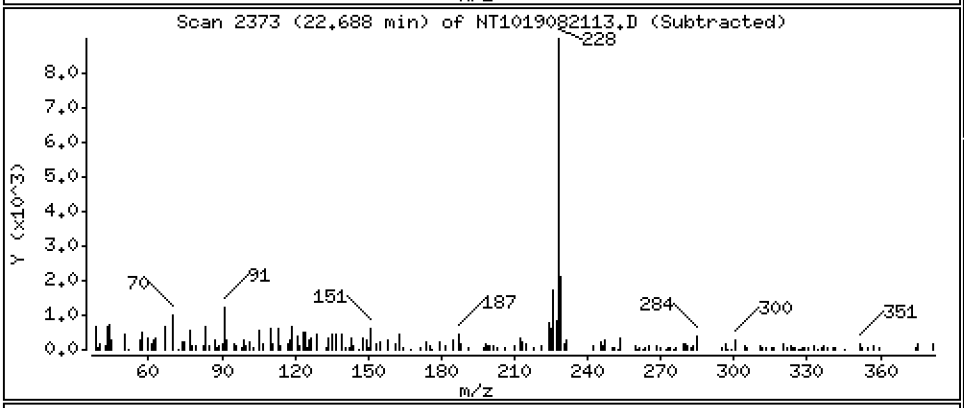
Column diameter: 0.25

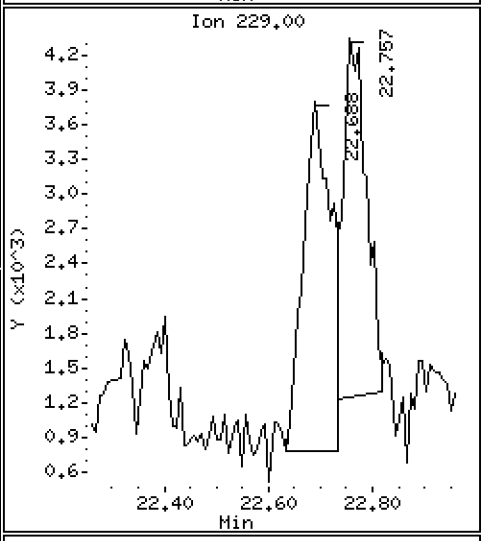
68 Benzo(a)anthracene

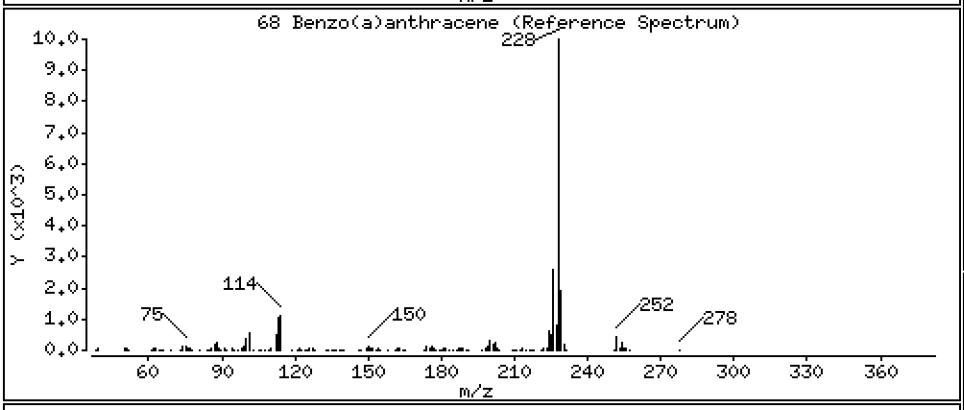
Concentration: 2.189 ug/mL

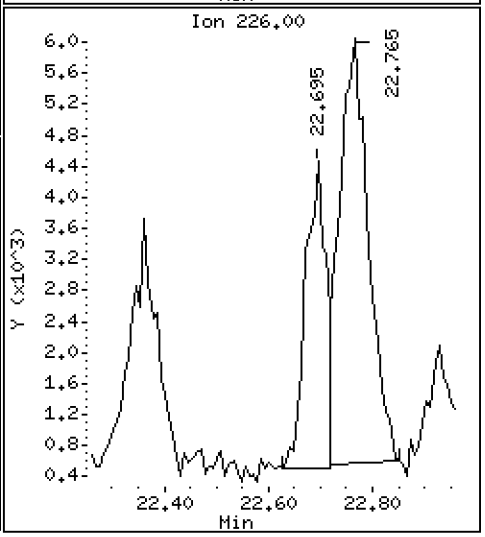


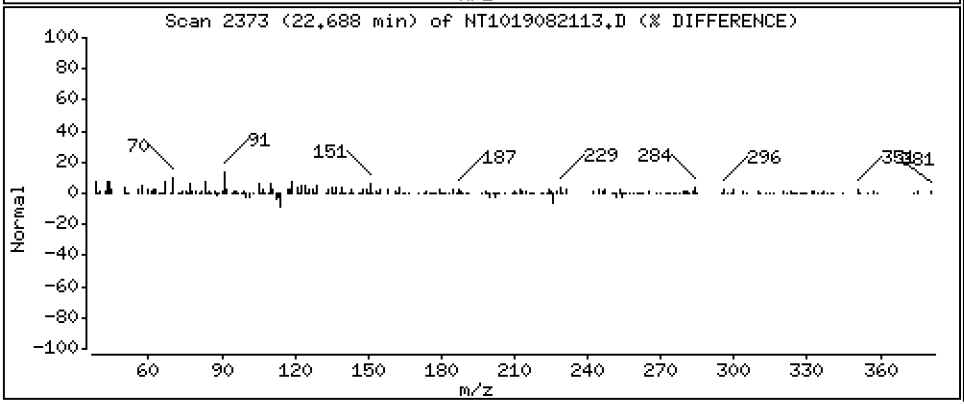












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

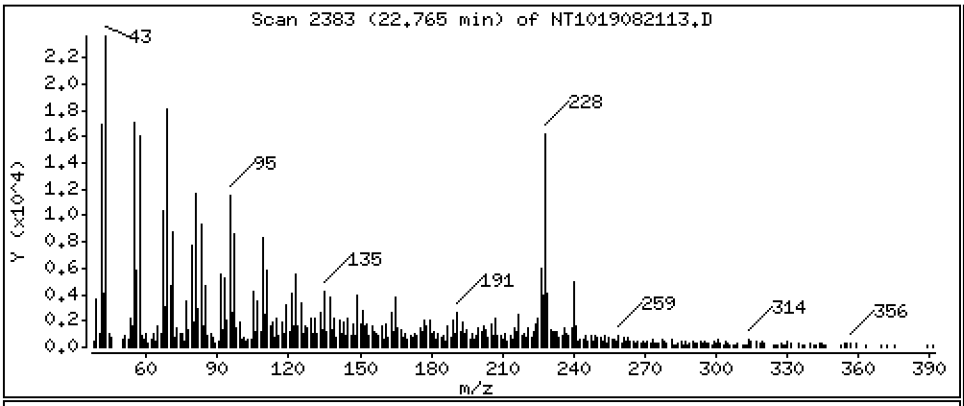
Operator: YZ

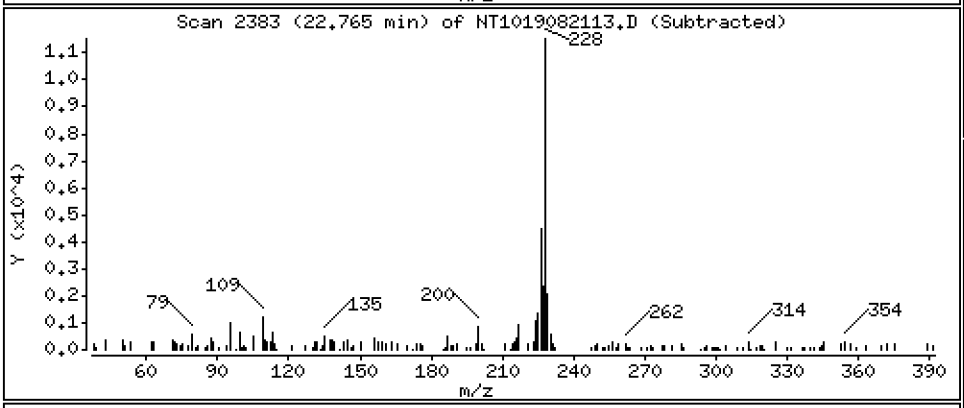
Column phase: ZB-5msi

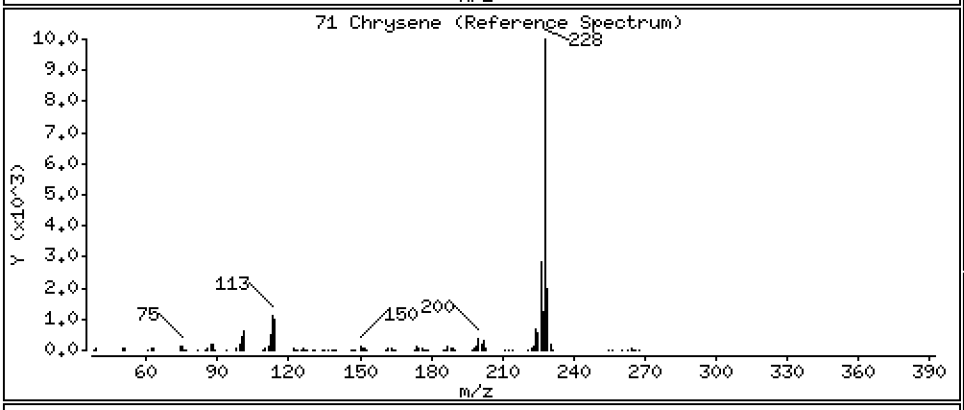
Column diameter: 0.25

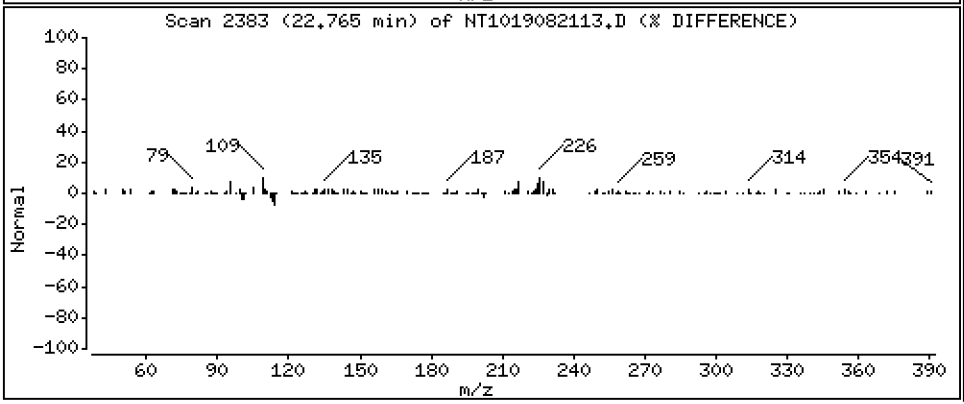
71 Chrysene

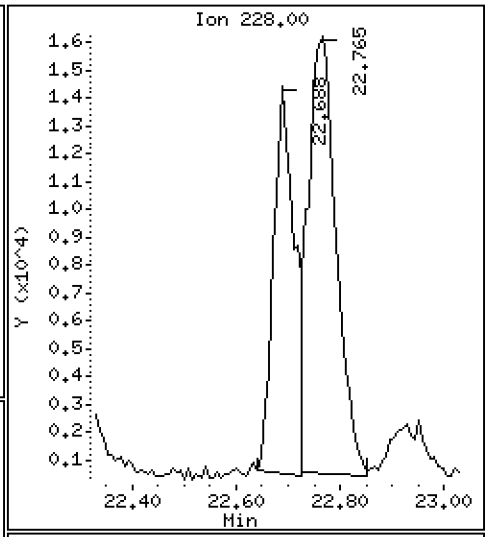
Concentration: 3.878 ug/mL

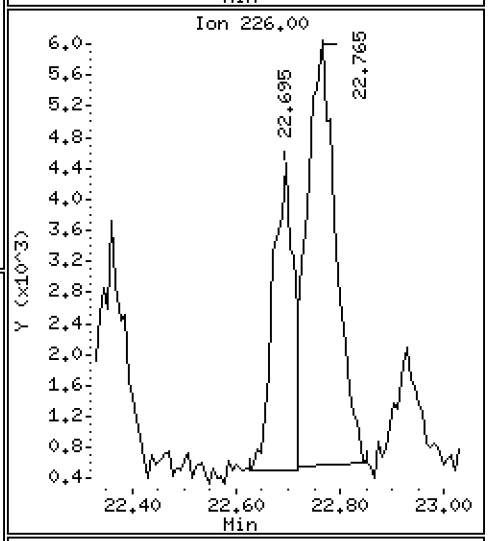


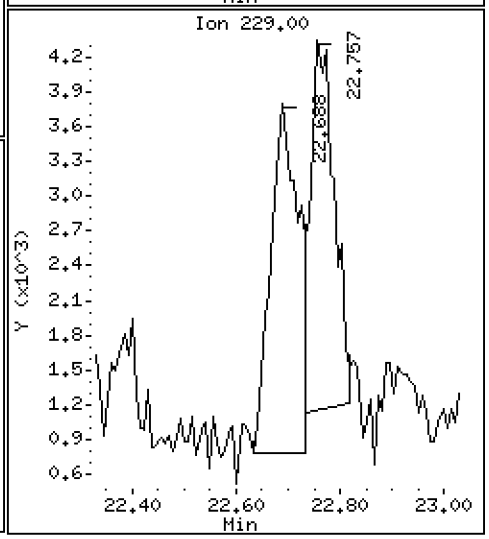












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Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

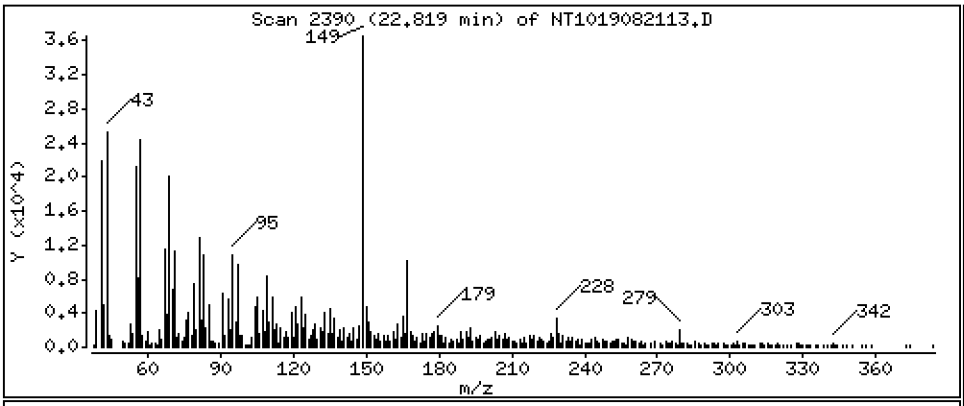
Operator: YZ

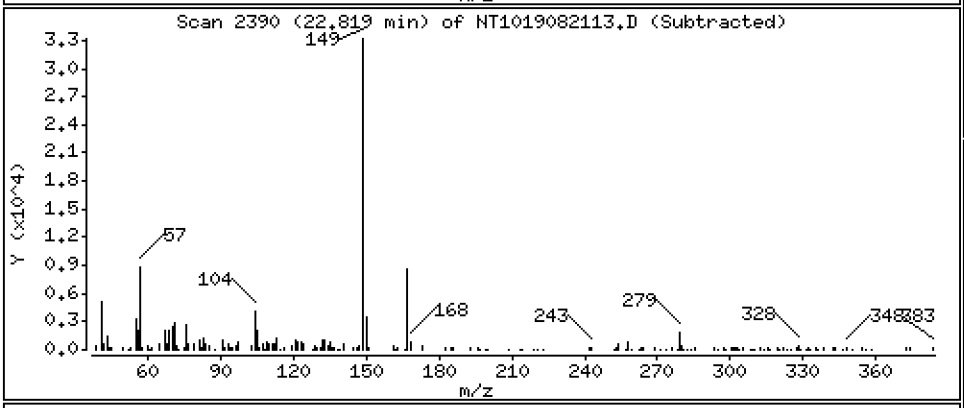
Column phase: ZB-5msi

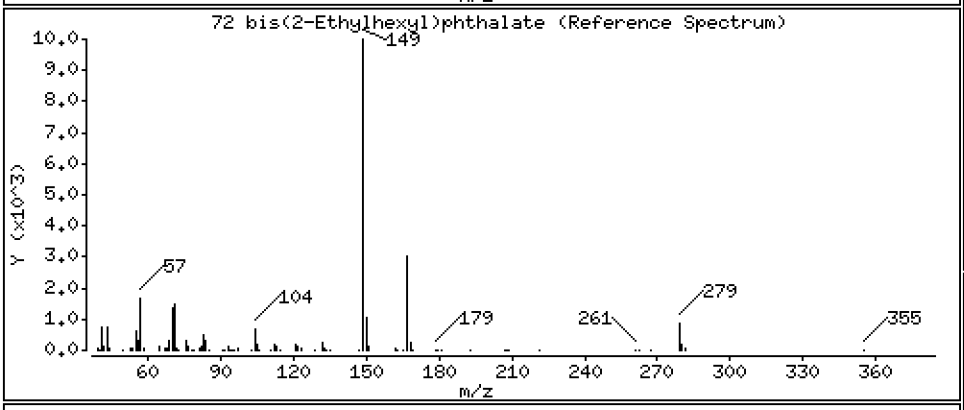
Column diameter: 0.25

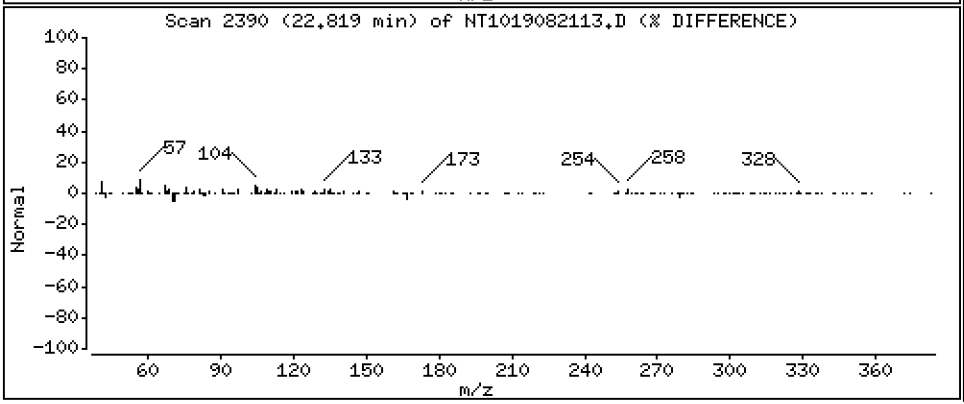
72 bis(2-Ethylhexyl)phthalate

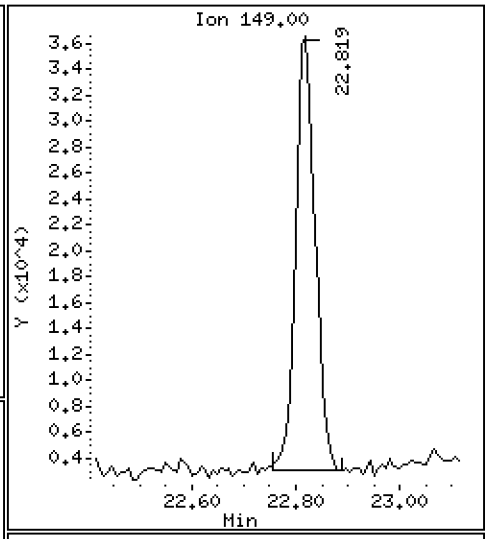
Concentration: 7.482 ug/mL

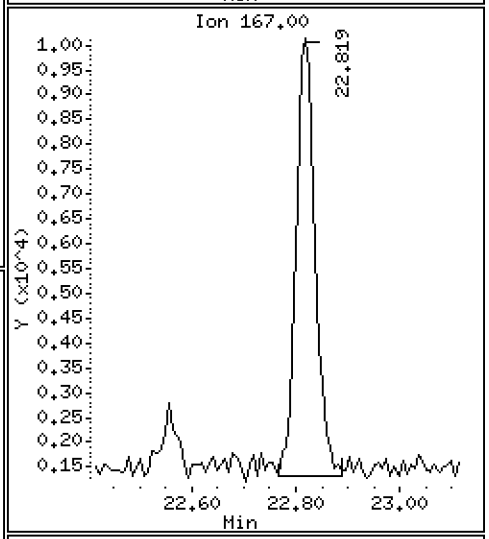


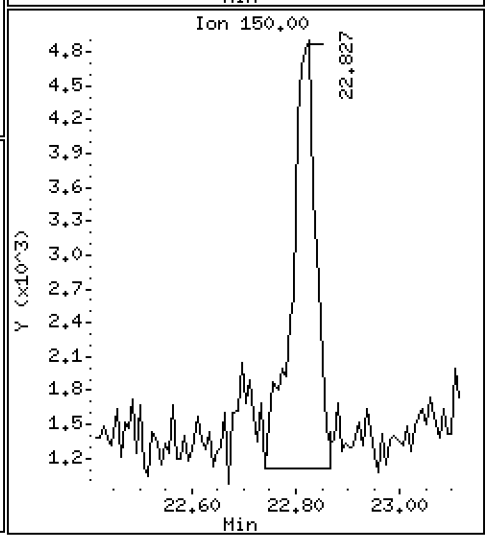












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

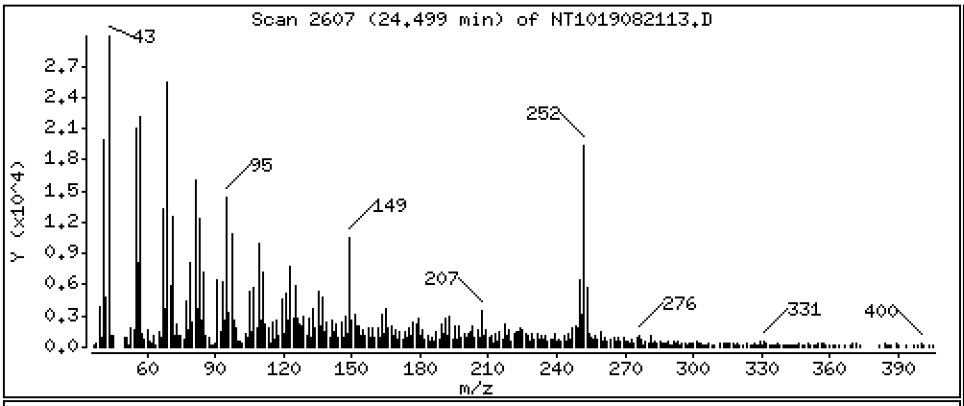
Operator: YZ

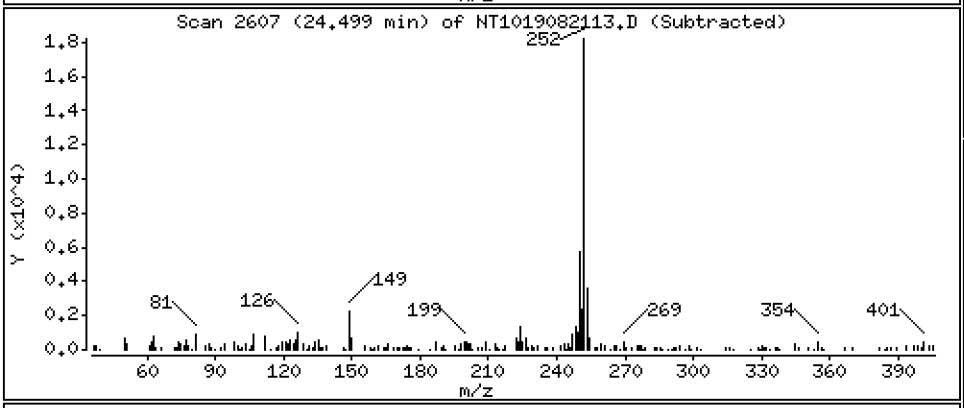
Column phase: ZB-5msi

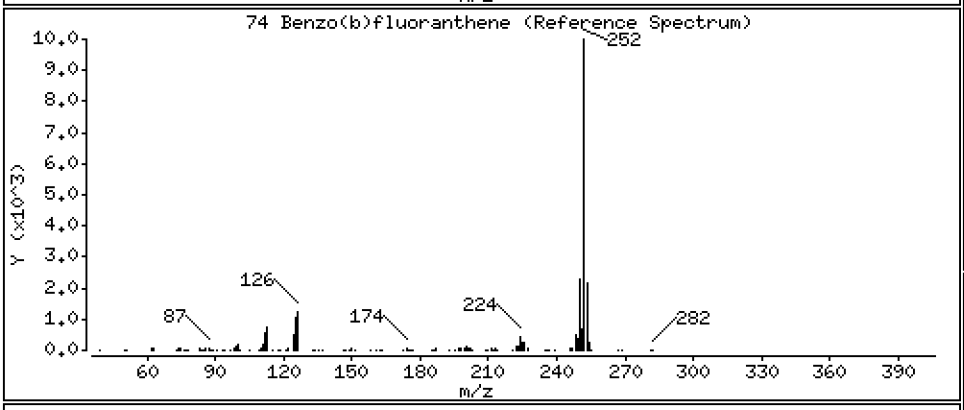
Column diameter: 0.25

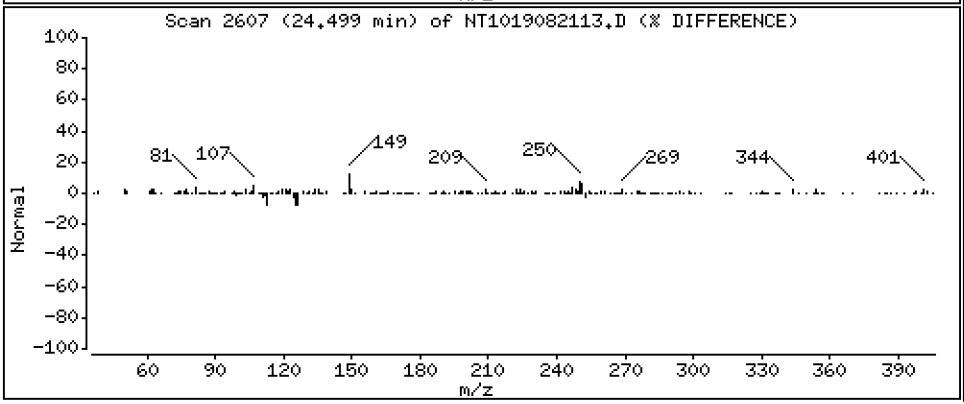
74 Benzo(b)fluoranthene

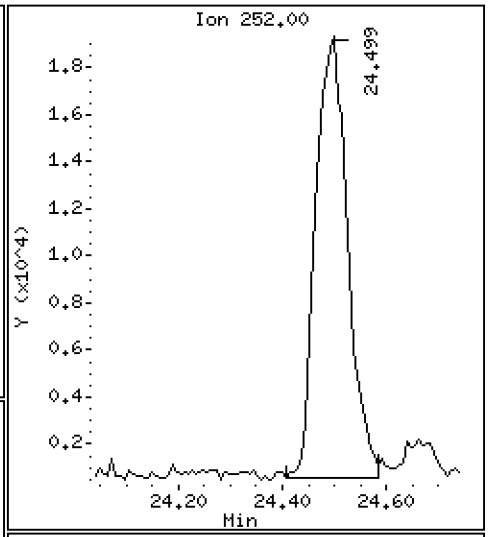
Concentration: 5.554 ug/mL

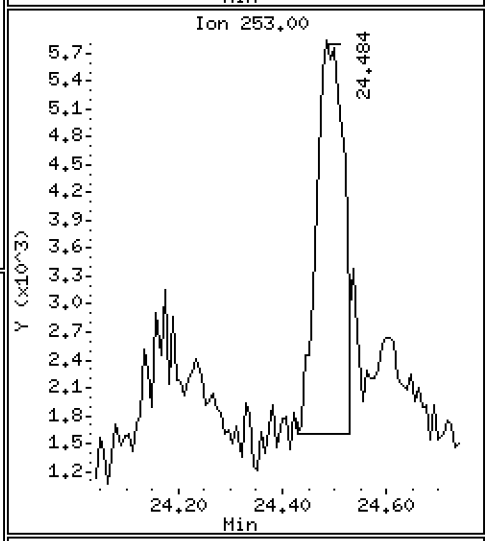


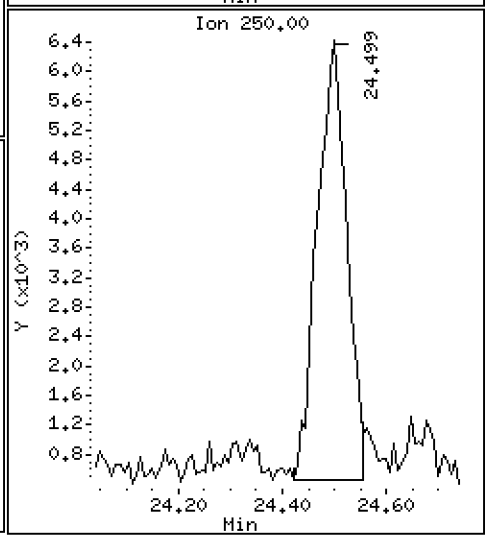












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

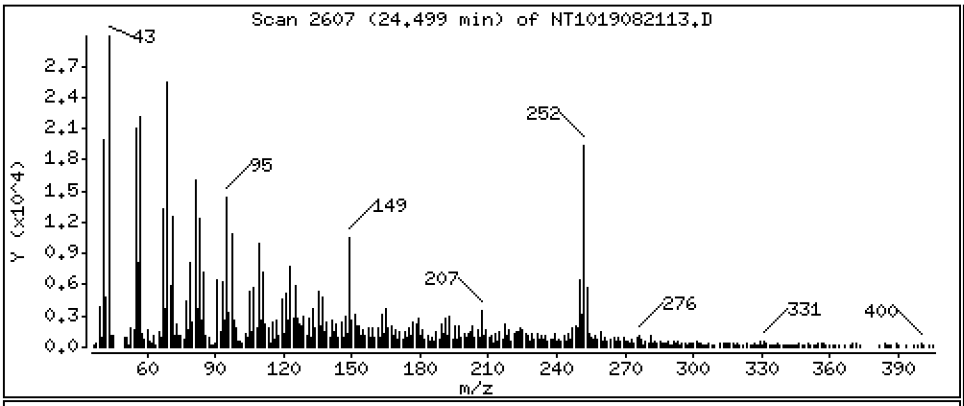
Operator: YZ

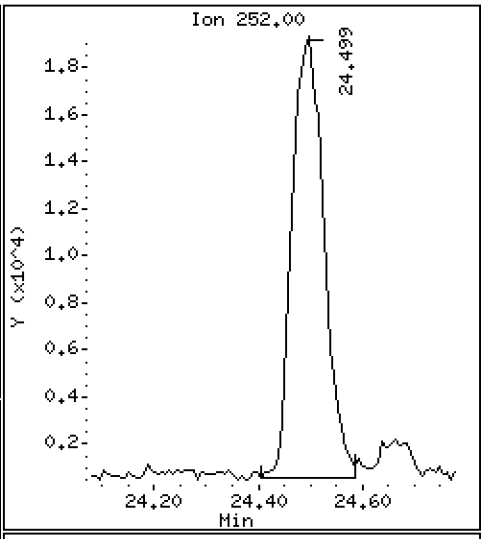
Column phase: ZB-5msi

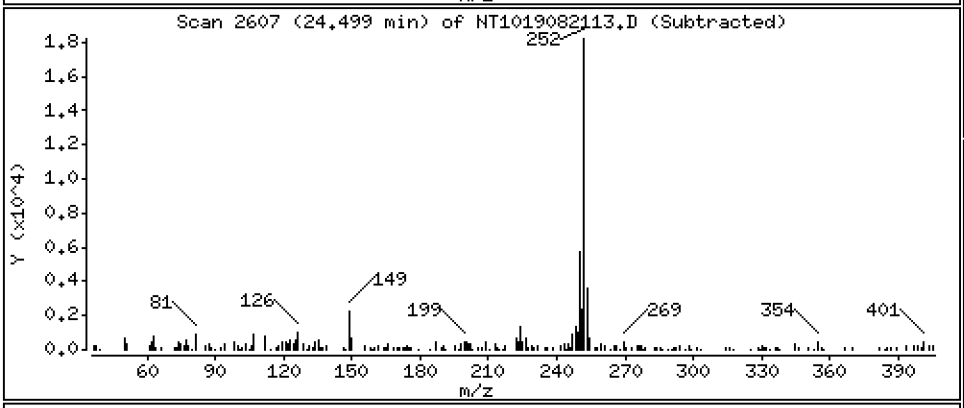
Column diameter: 0.25

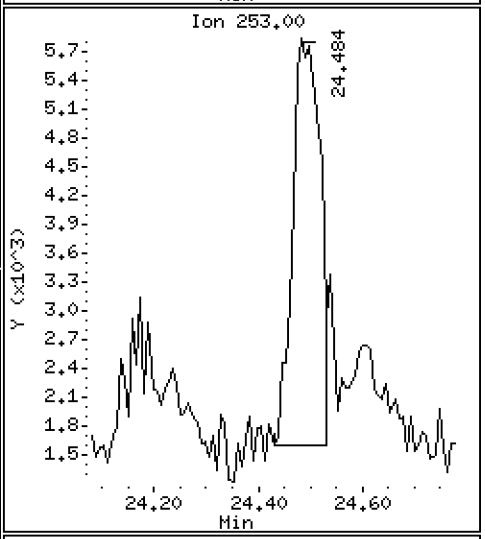
75 Benzo(k)fluoranthene

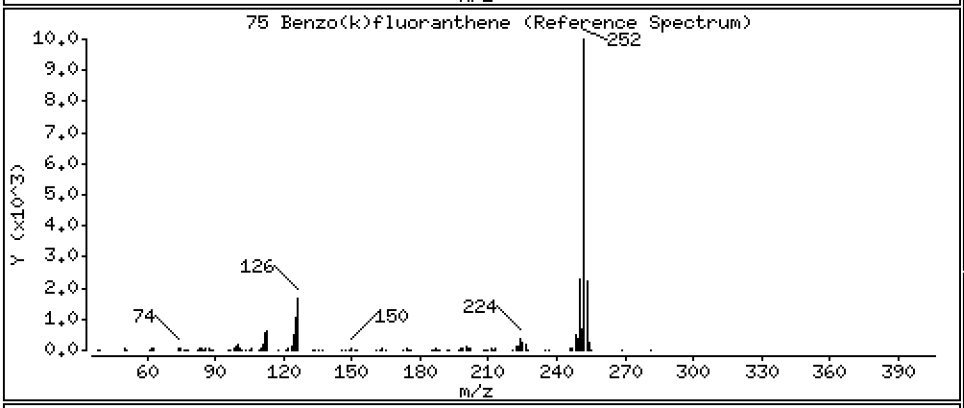
Concentration: 5.520 ug/mL

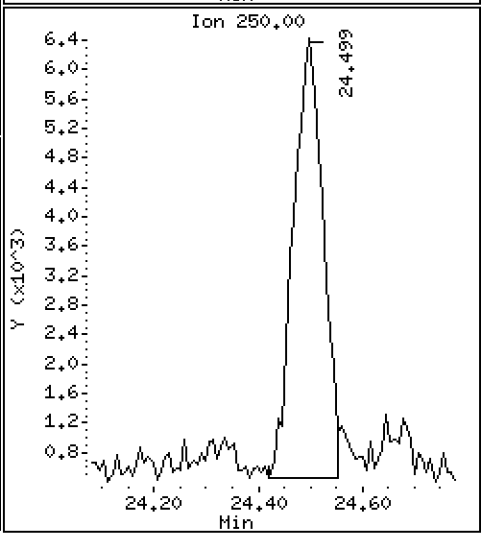


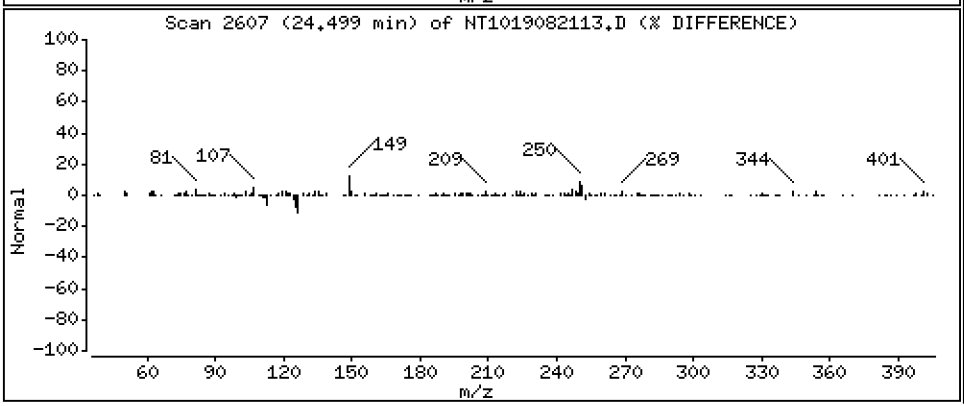












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

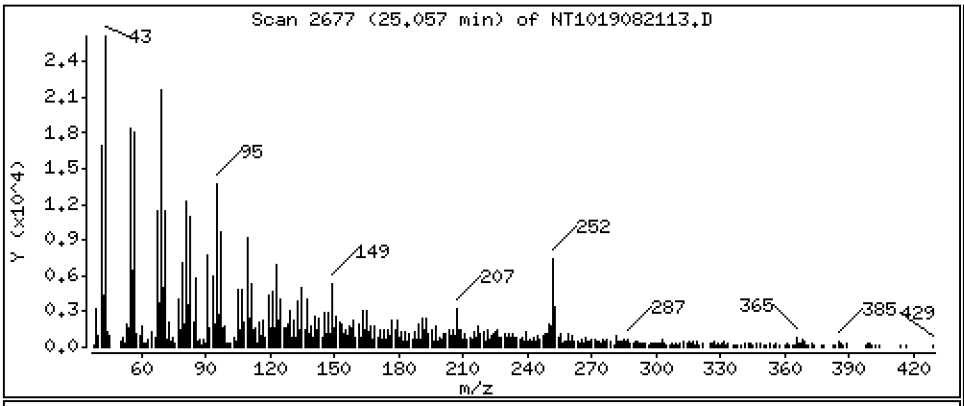
Operator: YZ

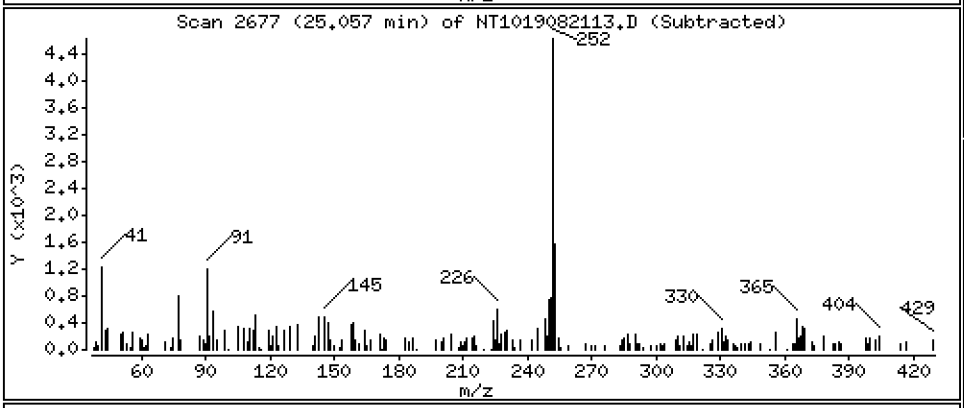
Column phase: ZB-5msi

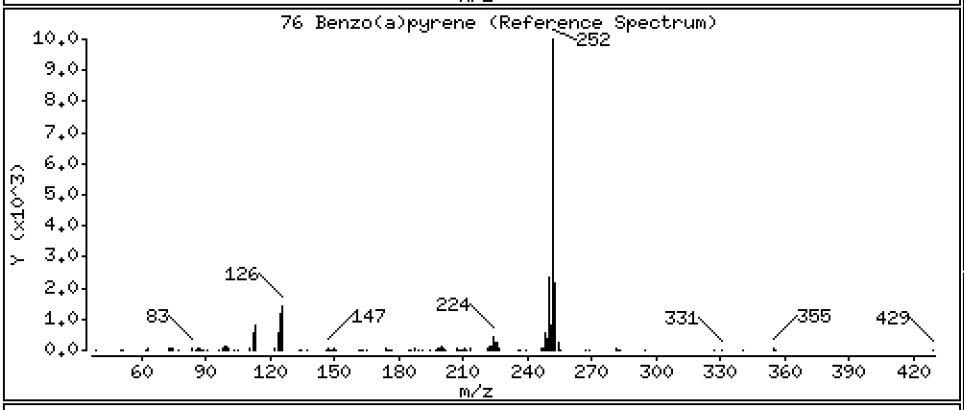
Column diameter: 0.25

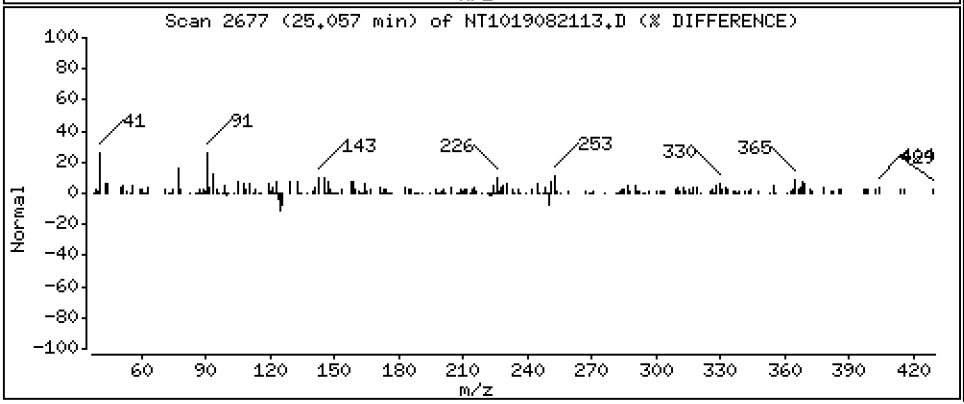
76 Benzo(a)pyrene

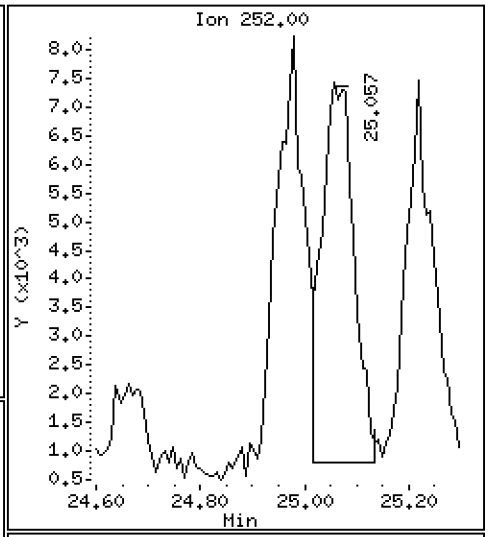
Concentration: 2.242 ug/mL

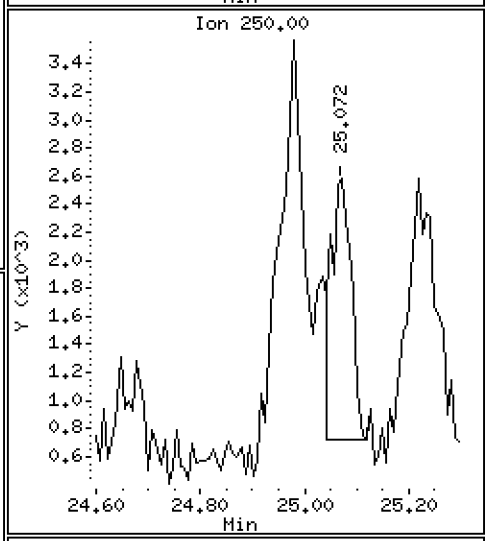


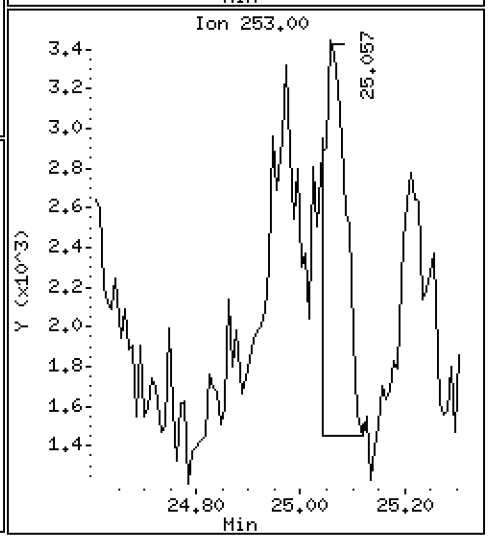












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

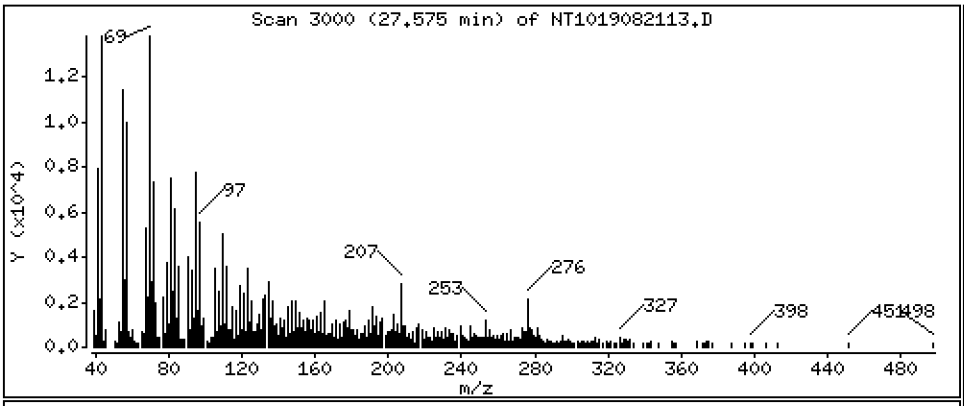
Operator: YZ

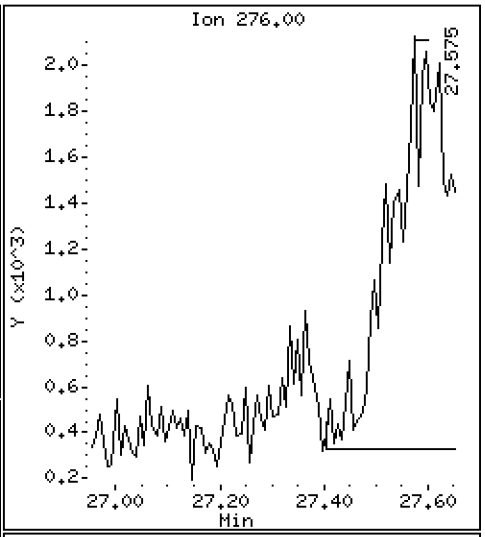
Column phase: ZB-5msi

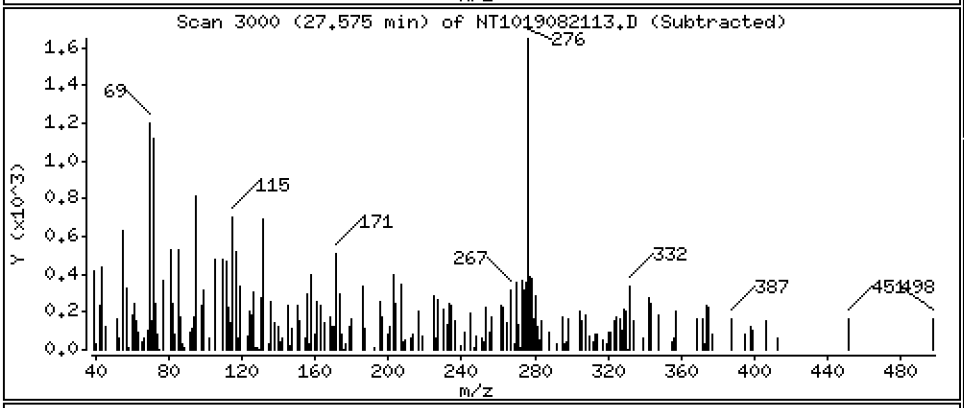
Column diameter: 0.25

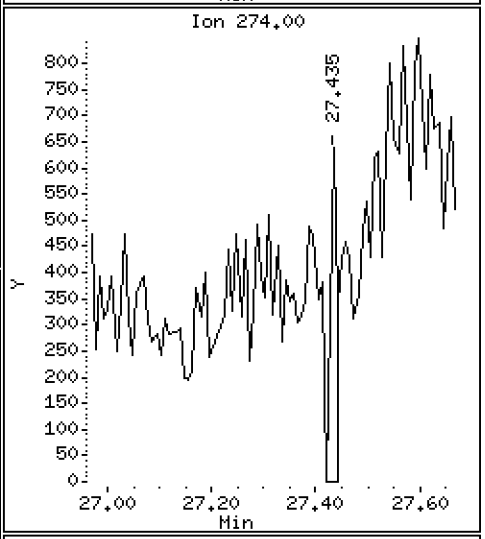
78 Indeno(1,2,3-cd)pyrene

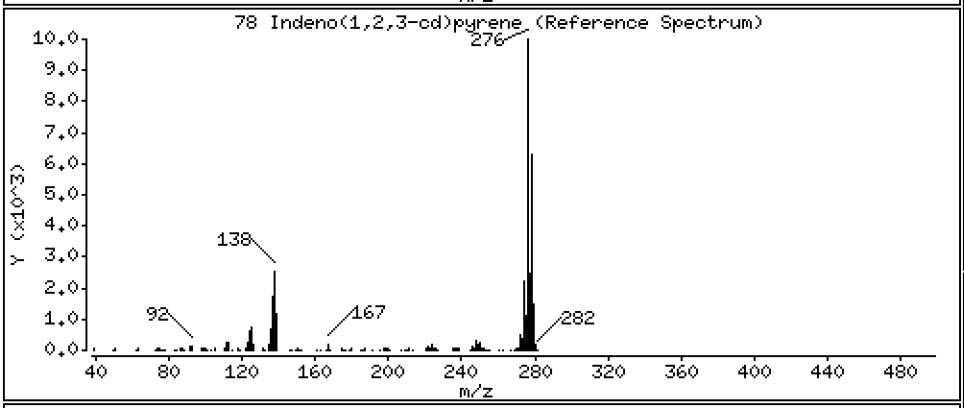
Concentration: 1.009 ug/mL

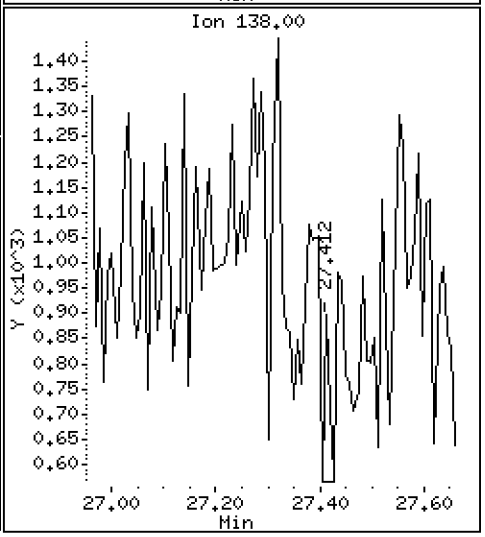


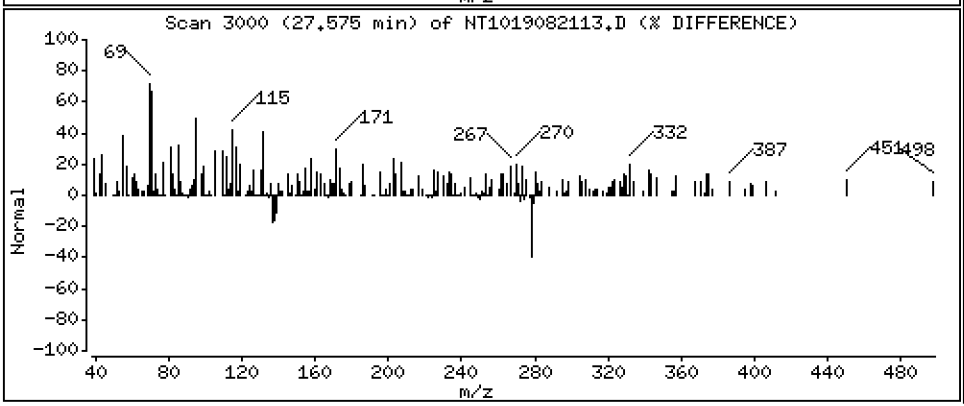












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D

Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

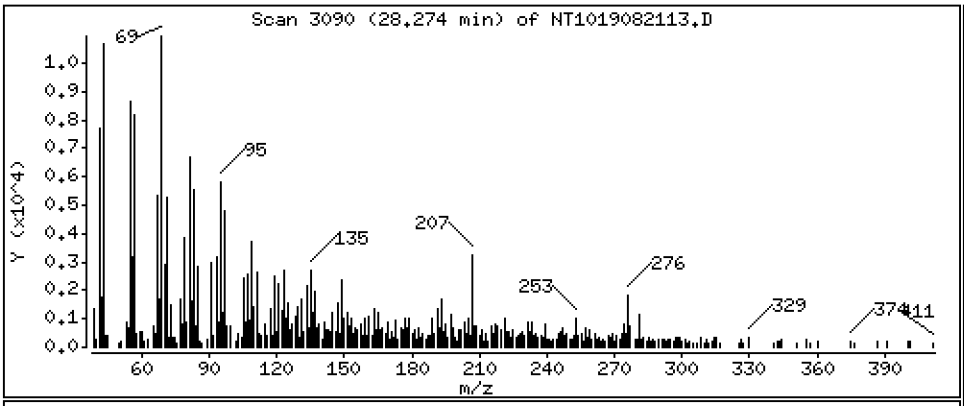
Operator: YZ

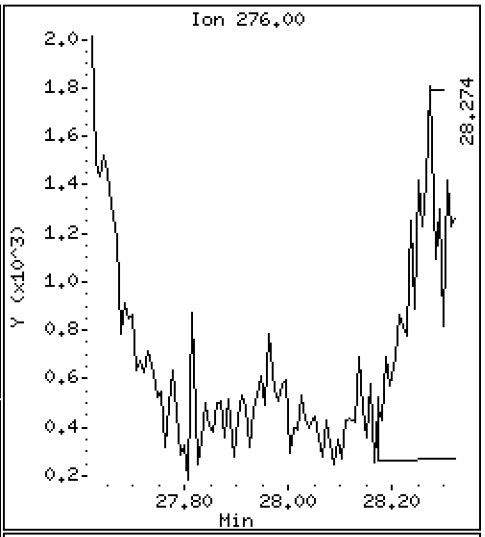
Column phase: ZB-5msi

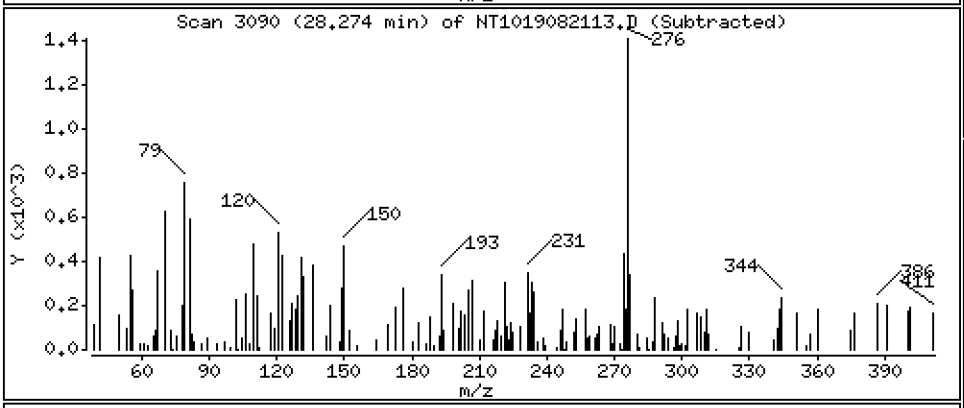
Column diameter: 0.25

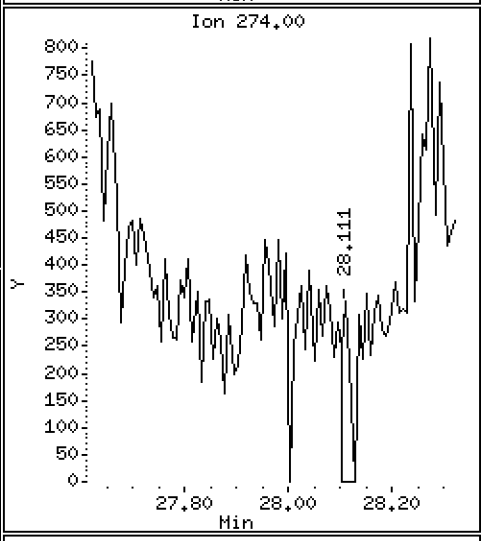
80 Benzo(g,h,i)perylene

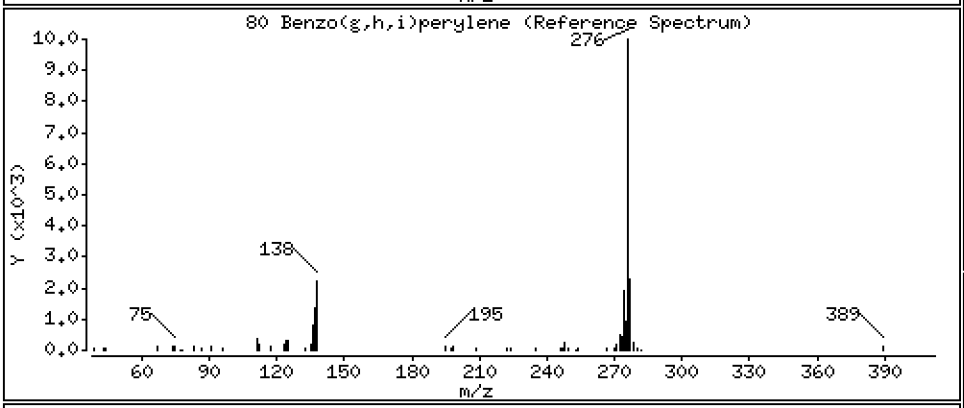
Concentration: 1.043 ug/mL

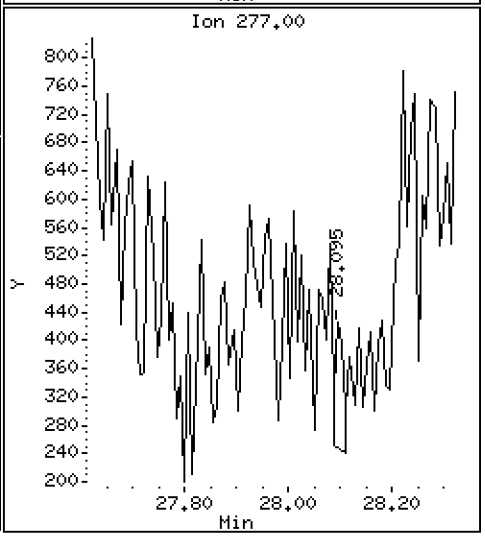


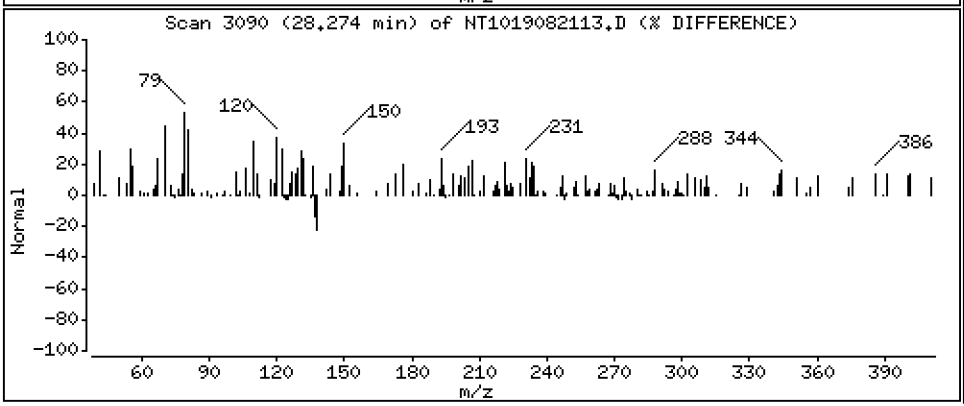












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Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

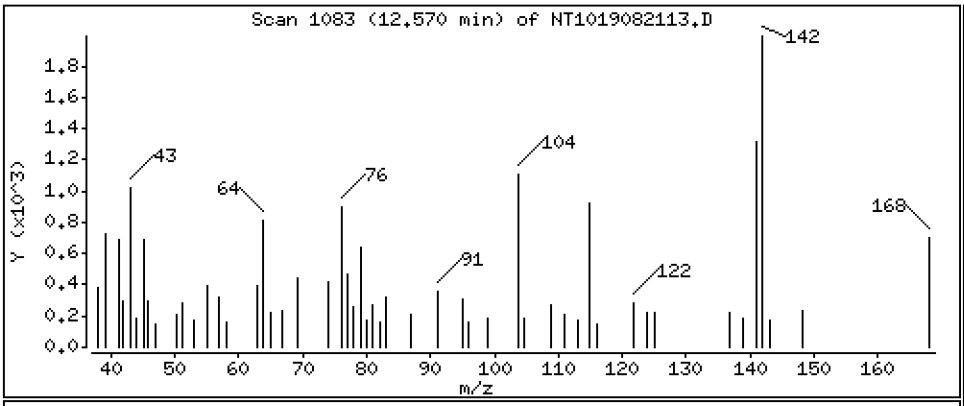
Operator: YZ

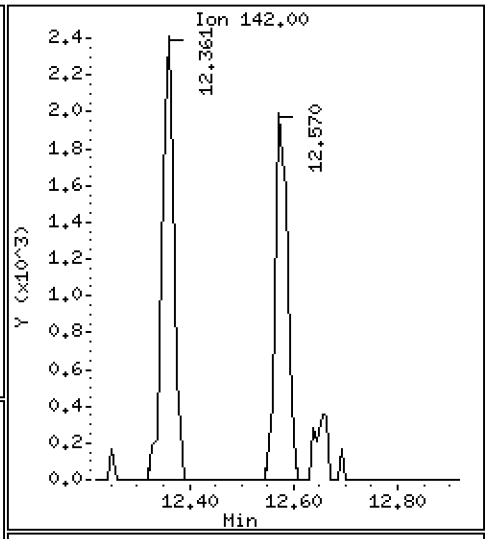
Column phase: ZB-5msi

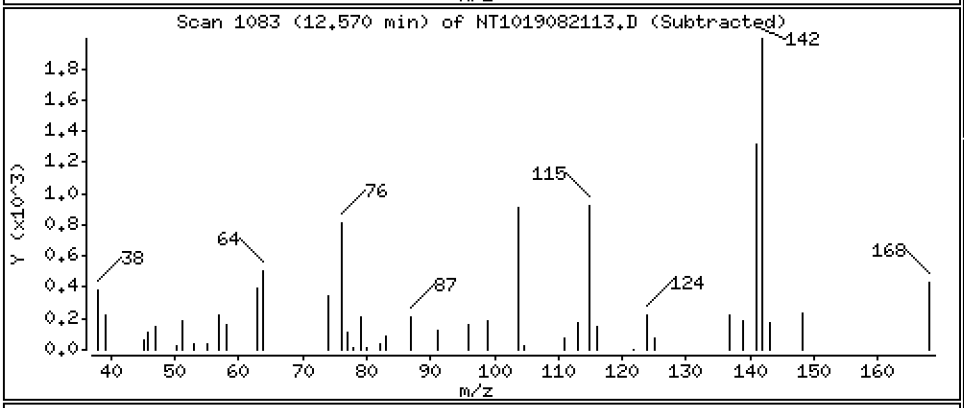
Column diameter: 0.25

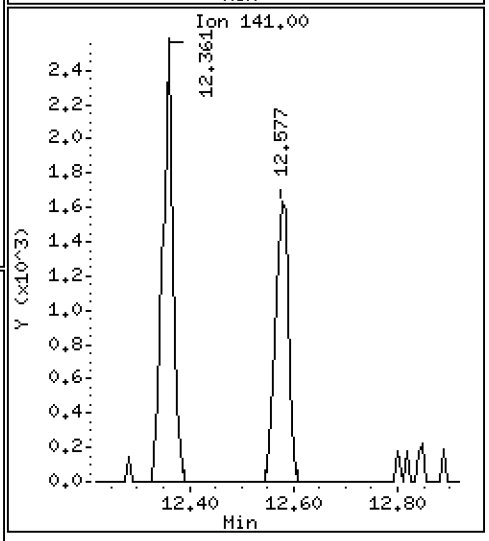
105 1-methylnaphthalene

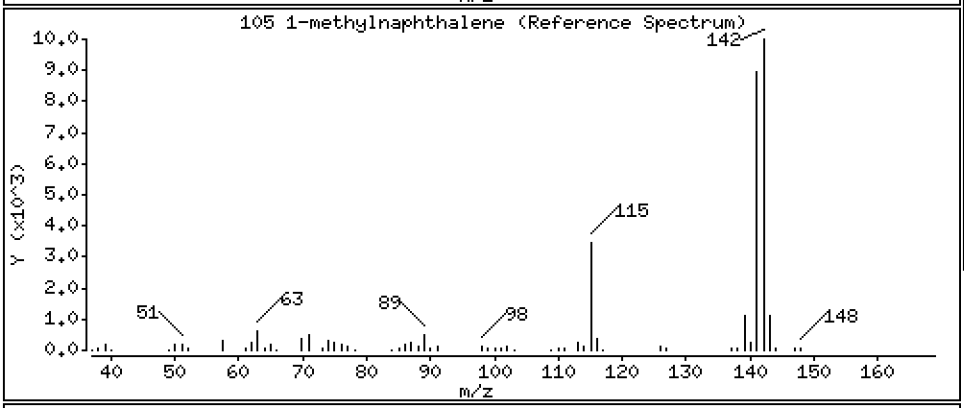
Concentration: 0.1275 ug/mL

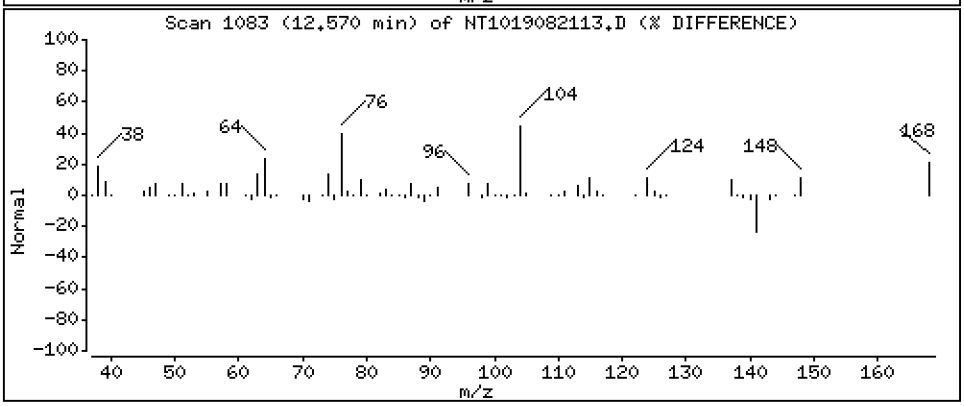












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Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

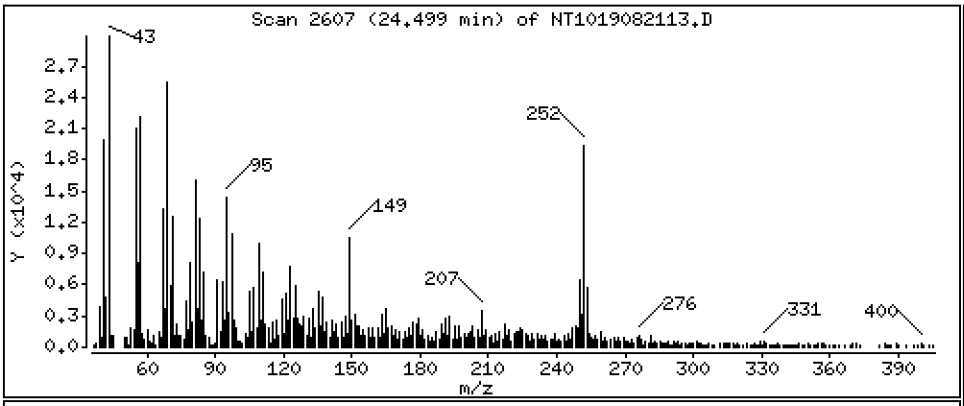
Operator: YZ

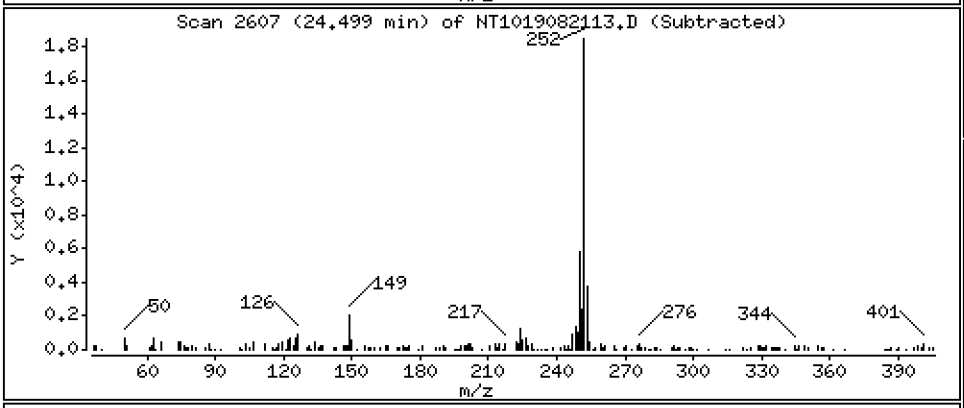
Column phase: ZB-5msi

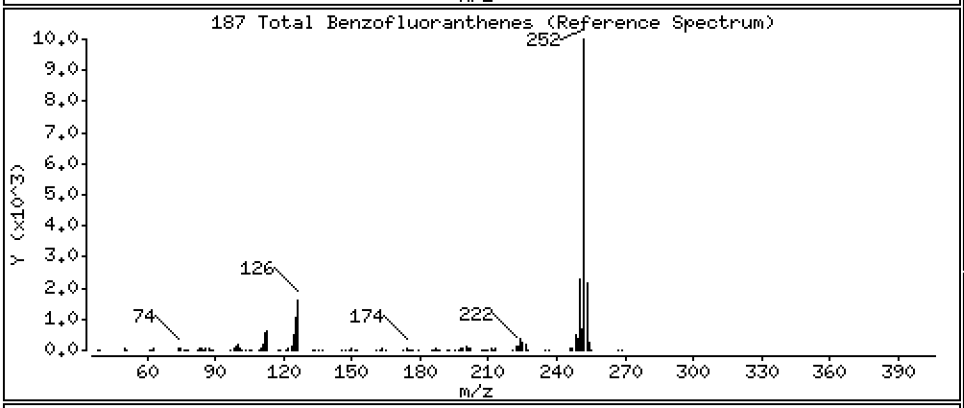
Column diameter: 0.25

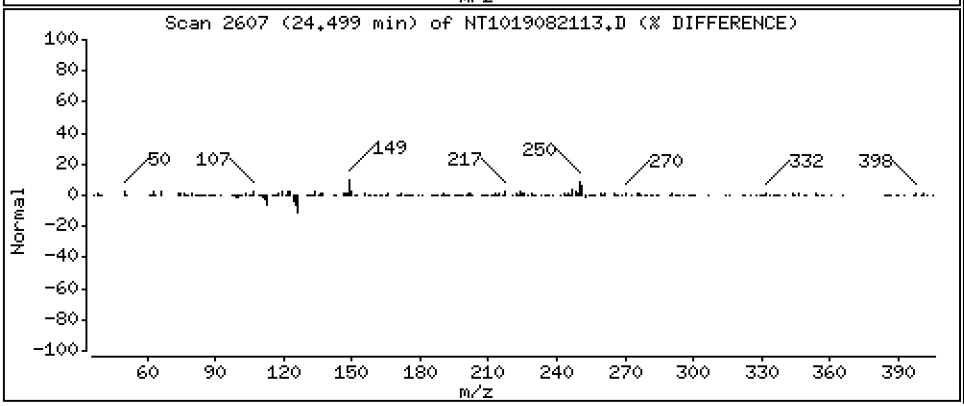
187 Total Benzofluoranthenes

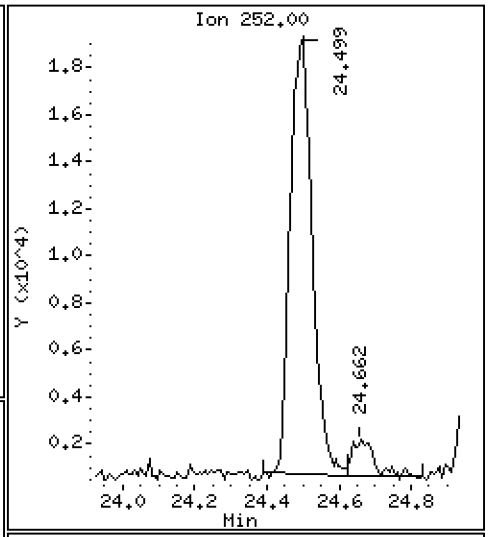
Concentration: 5.720 ug/mL

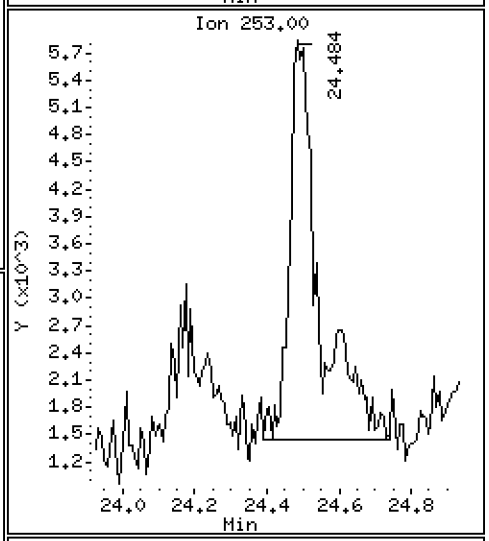


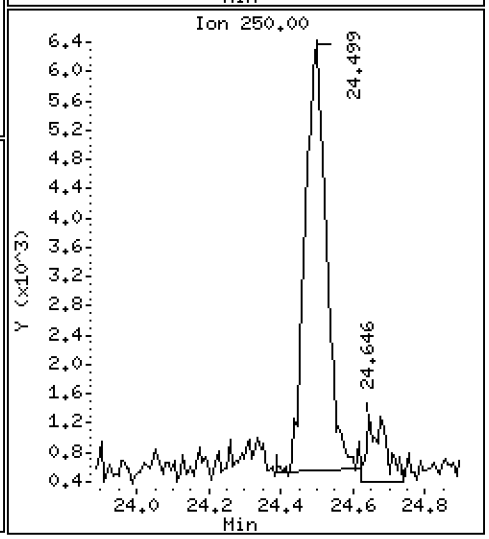












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Date : 21-AUG-2019 17:38

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04

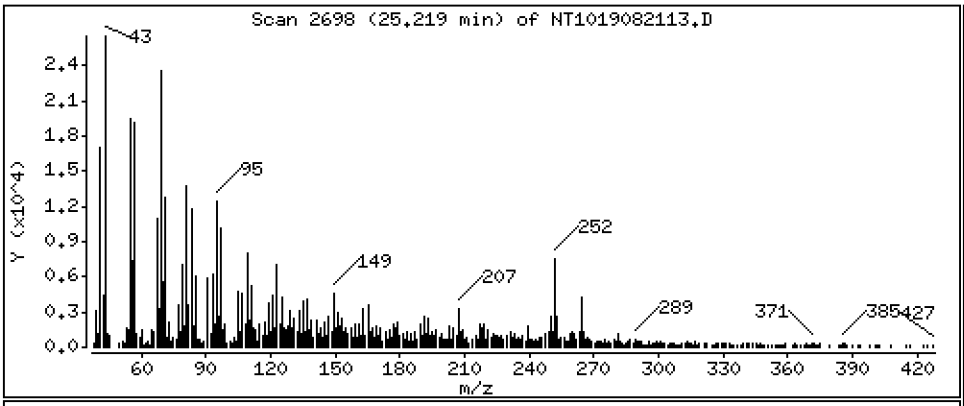
Operator: YZ

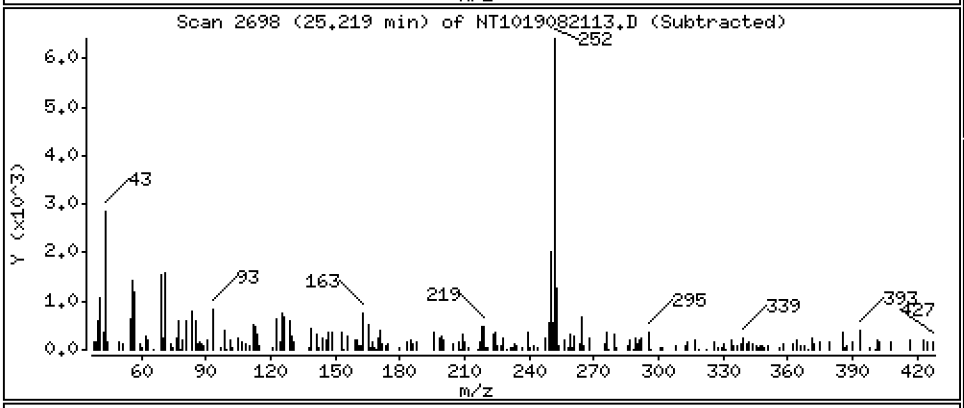
Column phase: ZB-5msi

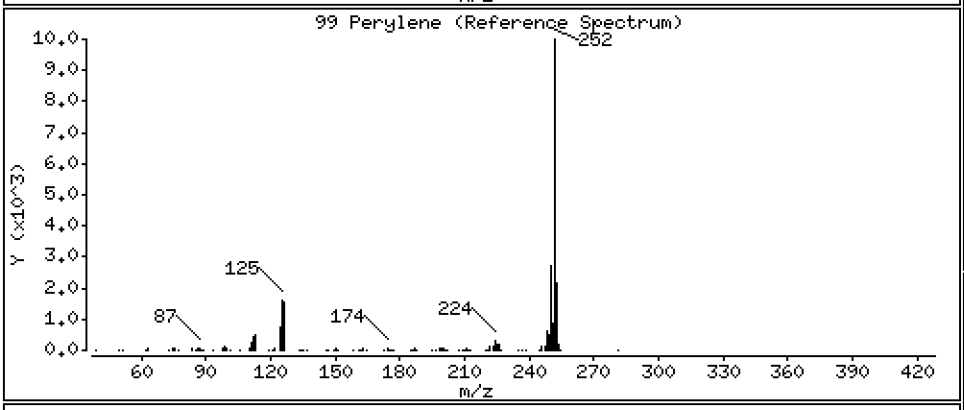
Column diameter: 0.25

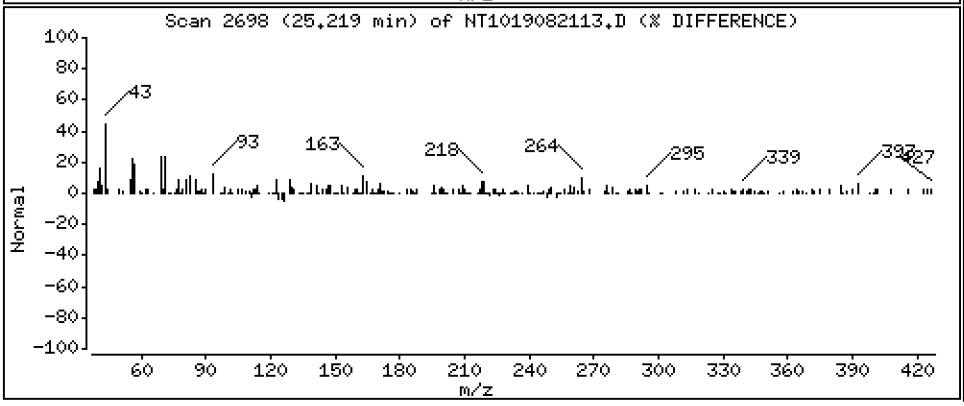
99 Perylene

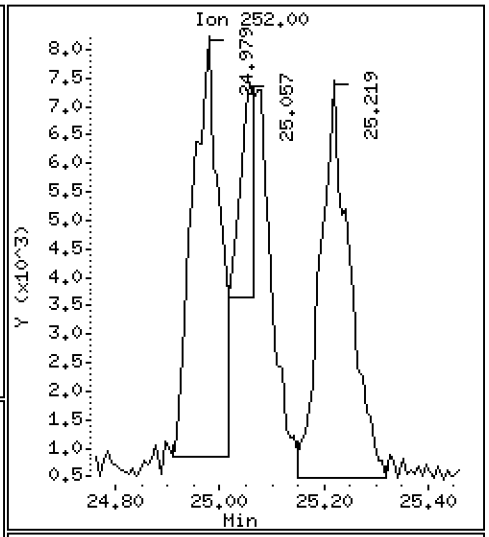
Concentration: 2.289 ug/mL

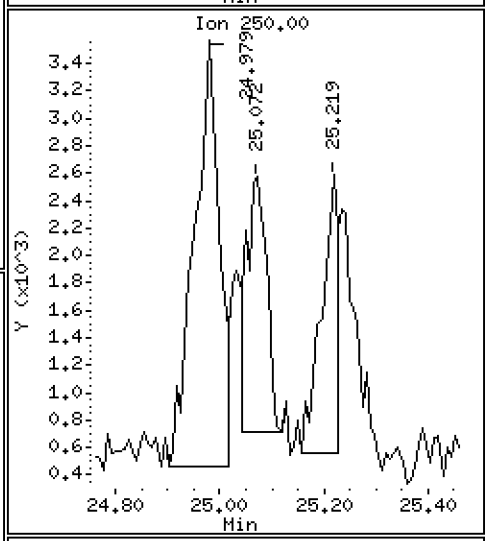


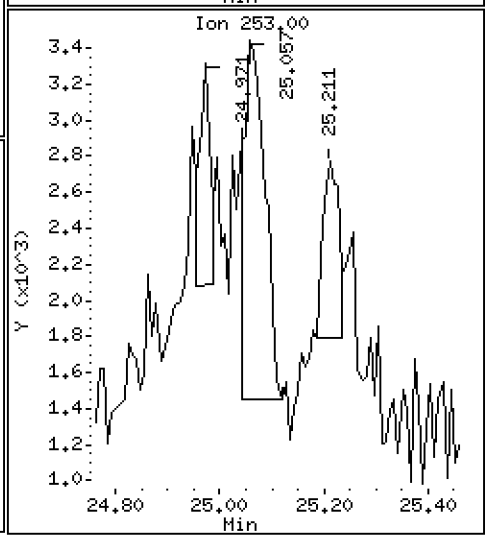












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082113.D
Lab Smp Id: 19H0024-04
Inj Date : 21-AUG-2019 17:38
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-04
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.334	6.311	(0.747)	39484	4.16795	4.168
$	2 Phenol-d5	99	7.903	7.888	(0.932)	44818	4.22142	4.221
	3 Phenol	94	7.926	7.911	(0.934)	1811	0.18348	0.1835
$	5 2-Chlorophenol-d4	132	8.135	8.127	(0.959)	65627	5.74217	5.742
	4 Bis(2-Chloroethyl)ether	93	Compound Not Detected.					
	6 2-Chlorophenol	128	Compound Not Detected.					
	7 1,3-Dichlorobenzene	146	Compound Not Detected.					
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	33736	4.00000	
	9 1,4-Dichlorobenzene	146	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	152	8.840	8.832	(1.042)	29334	3.75411	3.754
	12 1,2-Dichlorobenzene	146	Compound Not Detected.					
	11 Benzyl alcohol	108	8.778	8.762	(1.035)	1711	0.26192	0.2619
	14 2,2'-oxybis(1-Chloropropane)	121	Compound Not Detected.					
	13 2-Methylphenol	108	Compound Not Detected.					
	17 Hexachloroethane	117	Compound Not Detected.					
	16 N-Nitroso-di-n-propylamine	70	Compound Not Detected.					
	15 4-Methylphenol	108	9.282	9.267	(1.094)	1110	0.13812	0.1381
$	18 Nitrobenzene-d5	82	9.562	9.554	(0.875)	35638	3.58451	3.585
	19 Nitrobenzene	77	Compound Not Detected.					
	20 Isophorone	82	Compound Not Detected.					
	21 2-Nitrophenol	139	Compound Not Detected.					
	22 2,4-Dimethylphenol	107	Compound Not Detected.					
	23 Bis(2-Chloroethoxy)methane	93	Compound Not Detected.					
	24 Benzoic acid	105	10.451	10.510	(0.956)	6204	0.86672	0.8667(M)
	25 2,4-Dichlorophenol	162	Compound Not Detected.					
	26 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.929	10.929	(1.000)	127121	4.00000	
	28 Naphthalene	128	10.968	10.968	(1.004)	6580	0.22519	0.2252
	29 4-Chloroaniline	127	Compound Not Detected.					
	30 Hexachlorobutadiene	225	Compound Not Detected.					
	31 4-Chloro-3-methylphenol	107	12.120	12.097	(1.109)	162	0.01785	0.01785
	32 2-Methylnaphthalene	142	12.360	12.353	(1.131)	3944	0.15913	0.1591
	33 Hexachlorocyclopentadiene	237	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	Compound Not Detected.					
	35	2,4,5-Trichlorophenol	196	Compound Not Detected.					
$	36	2-Fluorobiphenyl	172	13.149	13.142	(0.906)	113581	4.64173	4.642
	37	2-Chloronaphthalene	162	Compound Not Detected.					
	38	2-Nitroaniline	65	Compound Not Detected.					
	39	Dimethylphthalate	163	14.063	14.055	(0.969)	2504	0.10533	0.1053
	40	Acenaphthylene	152	14.202	14.195	(0.978)	6000	0.19457	0.1946
	41	2,6-Dinitrotoluene	165	Compound Not Detected.					
*	42	Acenaphthene-d10	164	14.519	14.512	(1.000)	63974	4.00000	
	43	3-Nitroaniline	138	Compound Not Detected.					
	44	Acenaphthene	153	14.581	14.574	(1.004)	4464	0.23037	0.2304
	45	2,4-Dinitrophenol	184	Compound Not Detected.					
	46	Dibenzofuran	168	14.906	14.898	(1.027)	8809	0.27661	0.2766
	47	4-Nitrophenol	109	Compound Not Detected.					
	48	2,4-Dinitrotoluene	165	Compound Not Detected.					
	50	Diethylphthalate	149	Compound Not Detected.					
	49	Fluorene	166	15.617	15.610	(1.076)	6865	0.31521	0.3152
	51	4-Chlorophenyl-phenylether	204	Compound Not Detected.					
	52	4-Nitroaniline	138	Compound Not Detected.					
	53	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.					
	54	N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55	2,4,6-Tribromophenol	330	16.165	16.142	(1.113)	30246	6.25260	6.253
	56	4-Bromophenyl-phenylether	248	Compound Not Detected.					
	57	Hexachlorobenzene	284	Compound Not Detected.					
	58	Pentachlorophenol	266	Compound Not Detected.					
*	59	Phenanthrene-d10	188	17.540	17.525	(1.000)	111064	4.00000	
	60	Phenanthrene	178	17.587	17.572	(1.003)	40949	1.50939	1.509
	61	Anthracene	178	17.680	17.665	(1.008)	23501	0.85314	0.8531
	62	Carbazole	167	18.036	18.012	(1.028)	7068	0.27266	0.2727
	63	Di-n-butylphthalate	149	18.887	18.872	(1.077)	7246	0.19306	0.1931
	64	Fluoranthene	202	20.032	19.993	(0.882)	175345	9.48378	9.484
	65	Pyrene	202	20.457	20.411	(0.901)	136325	7.06097	7.061
$	66	Terphenyl-d14	244	20.782	20.744	(0.915)	73150	5.58666	5.587
	67	Butylbenzylphthalate	149	21.758	21.712	(0.958)	4300	0.47812	0.4781(M)
	68	Benzo(a)anthracene	228	22.687	22.610	(0.999)	38421	2.18874	2.189
*	69	Chrysene-d12	240	22.710	22.633	(1.000)	60502	4.00000	
	70	3,3'-Dichlorobenzidine	252	Compound Not Detected.					
	71	Chrysene	228	22.764	22.680	(1.002)	60241	3.87824	3.878
	72	bis(2-Ethylhexyl)phthalate	149	22.819	22.765	(0.958)	88038	7.48221	7.482
*	134	Di-n-octylphthalate-d4	153	23.825	23.756	(1.000)	133777	4.00000	
	73	Di-n-octylphthalate	149	Compound Not Detected.					
	74	Benzo(b)fluoranthene	252	24.499	24.390	(0.973)	80660	5.55354	5.554
	75	Benzo(k)fluoranthene	252	24.499	24.429	(0.973)	80660	5.52029	5.520
	76	Benzo(a)pyrene	252	25.056	24.948	(0.995)	29228	2.24225	2.242(M)
*	77	Perylene-d12	264	25.172	25.056	(1.000)	50623	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	27.574	27.303	(1.095)	15798	1.00866	1.009(M)
	79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	80	Benzo(g,h,i)perylene	276	28.273	27.971	(1.123)	13760	1.04310	1.043(M)
	90	N-Nitrosodimethylamine	74	Compound Not Detected.					
	91	Aniline	93	Compound Not Detected.					
	93	Benzidine	184	Compound Not Detected.					
	103	Pyridine	79	Compound Not Detected.					
	105	1-methylnaphthalene	142	12.569	12.569	(1.150)	3177	0.12750	0.1275
	111	Azobenzene (1,2-DP-Hydrazine)	77	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
187	Total Benzofluoranthenes	252	24.499	24.429	(0.973)	79693	5.72033	5.720
99	Perylene	252	25.219	25.110	(1.002)	27442	2.28855	2.289
98	Retene	219	Compound Not Detected.					
120	2,3,4,6-Tetrachlorophenol	232	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082113.D
Lab Smp Id: 19H0024-04
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	33736	3.05	
27 Naphthalene-d8	117487	58744	234974	127121	8.20	
42 Acenaphthene-d10	61859	30930	123718	63974	3.42	
59 Phenanthrene-d10	113574	56787	227148	111064	-2.21	
69 Chrysene-d12	105788	52894	211576	60502	-42.81	
134 Di-n-octylphthala	252823	126412	505646	133777	-47.09	
77 Perylene-d12	113992	56996	227984	50623	-55.59	<-

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	-0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	-0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.52	0.05
59 Phenanthrene-d10	17.53	17.03	18.03	17.54	0.09
69 Chrysene-d12	22.63	22.13	23.13	22.71	0.34
134 Di-n-octylphthala	23.76	23.26	24.26	23.83	0.29
77 Perylene-d12	25.06	24.56	25.56	25.17	0.46

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082113.D

Lab ID: 19H0024-04
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 17:38

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.000	1.130	-0.1302	2-Methylnaphthalene
1.035	1.004	0.0305	Acenaphthene
1.094	1.003	0.0916	Phenanthrene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate
0.956	0.973	-0.0172	Benzo(b)fluoranthene
1.109	1.090	0.0193	Indeno(1,2,3-cd)pyrene
1.131	1.091	0.0400	Dibenzo(a,h)anthracene
0.978	1.000	-0.0219	Acenaphthene-d10
0.969	1.000	-0.0314	Phenanthrene-d10
1.027	0.930	0.0968	Phenol-d5
1.076	0.906	0.1700	2-Fluorobiphenyl

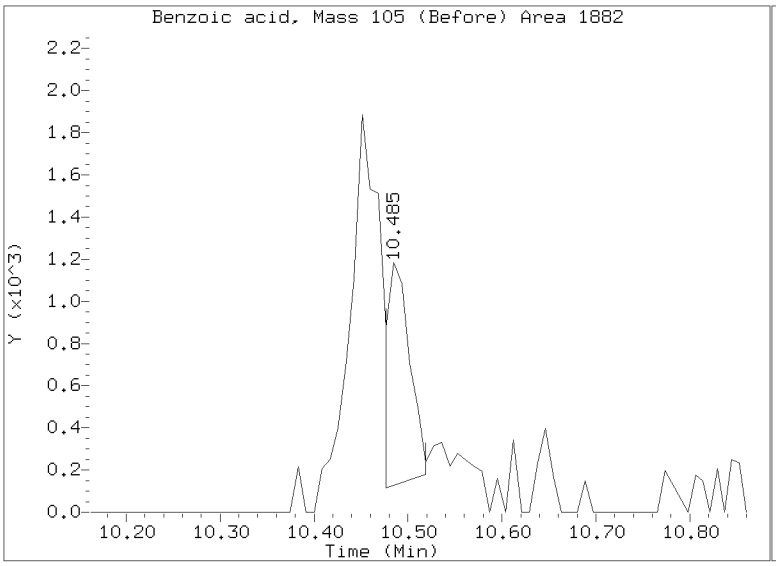
RRT check based on Ccal File: NT1019082105.D

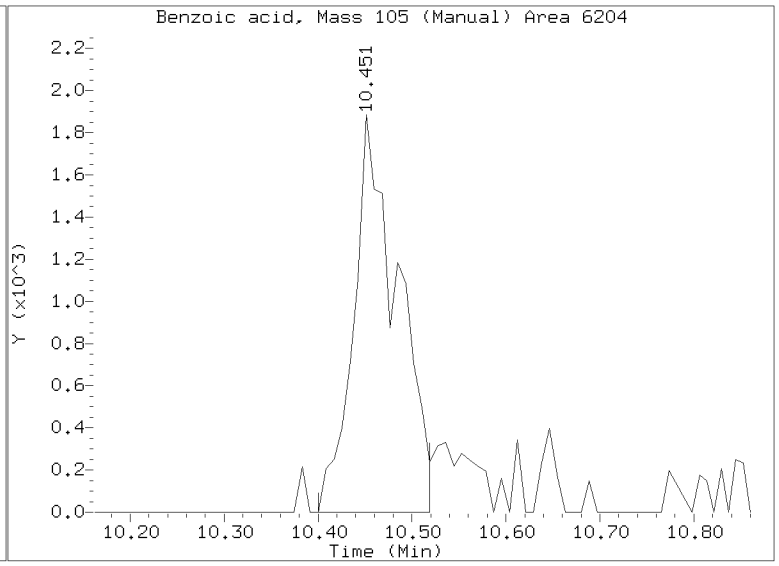
On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

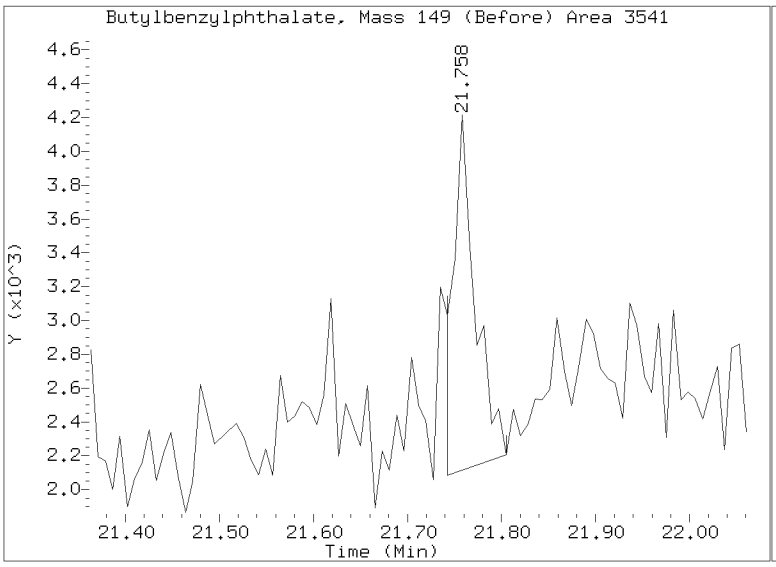
* Only compounds listed in the work order have been verified by the analyst *

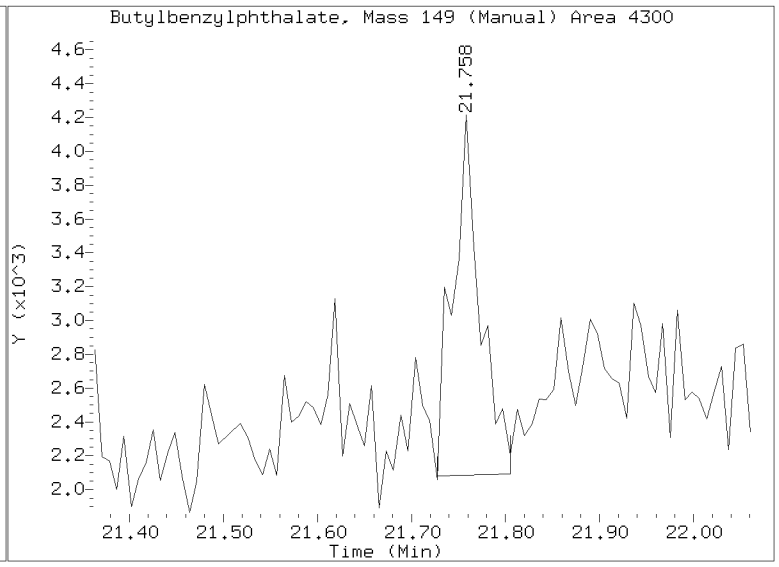
Quant Ion Manual Peak Adjustment Report

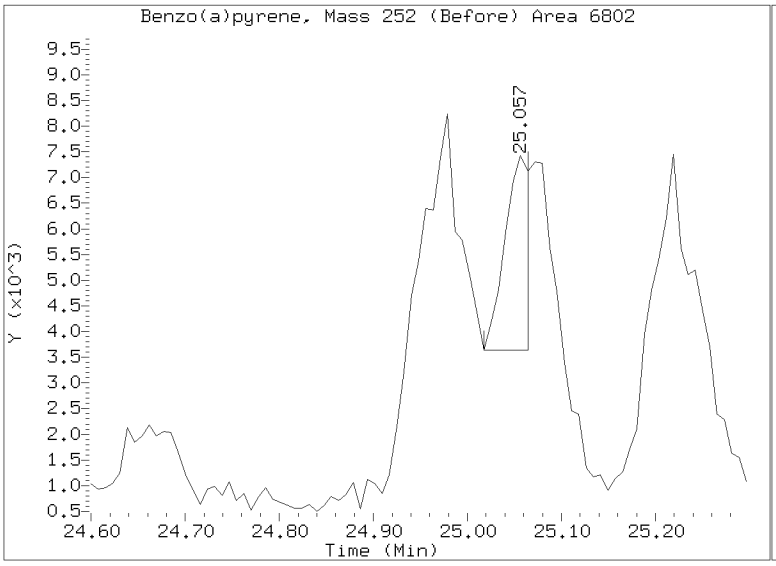
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082113.D
Injection Date: 21-AUG-2019 17:38
Lab ID:19H0024-04 Client ID:
Report Date: 08/22/2019 12:50

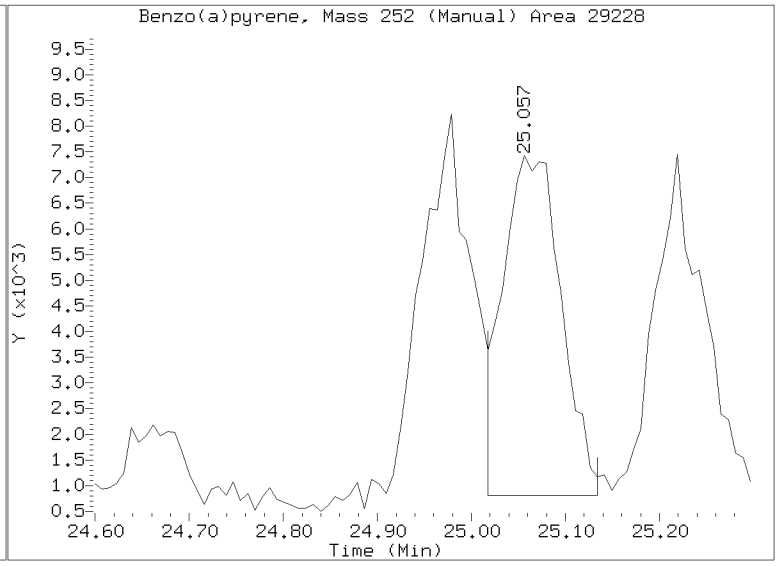






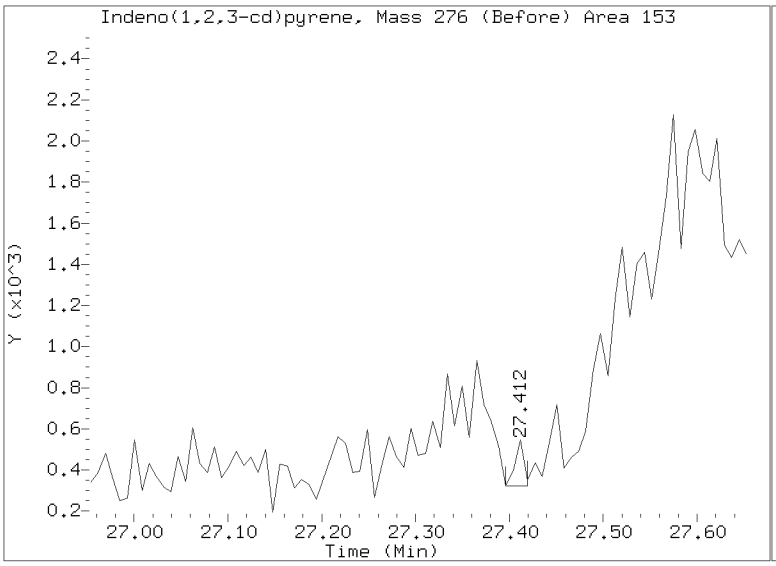


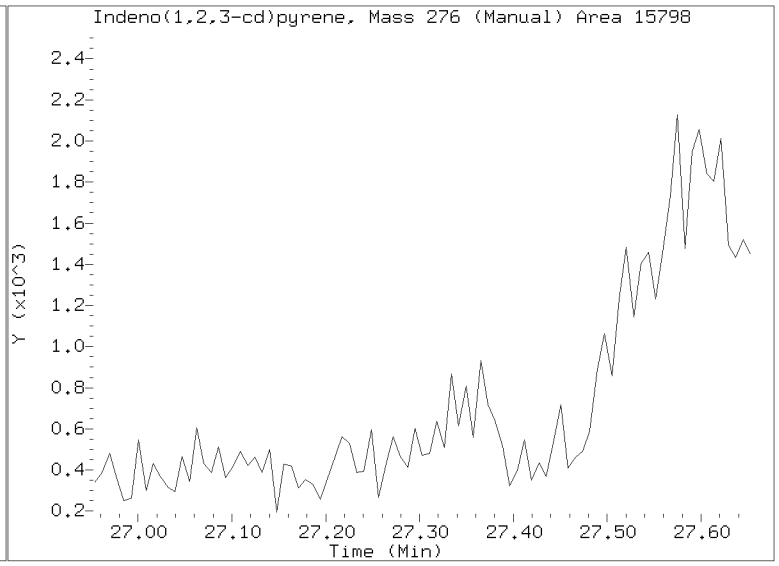


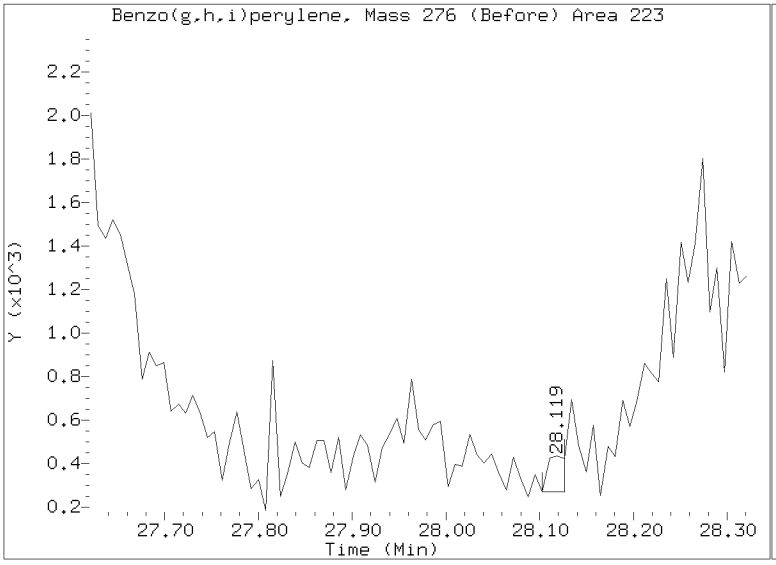


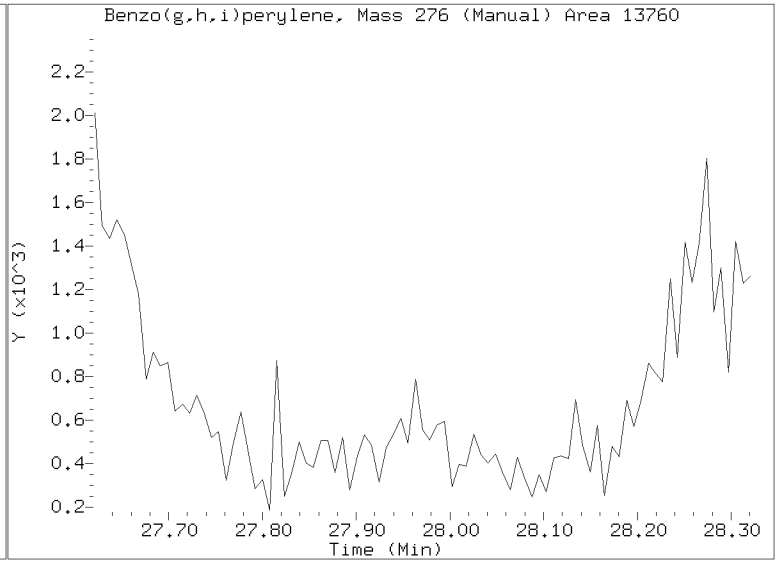
Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082113.D
Injection Date: 21-AUG-2019 17:38
Lab ID:19H0024-04 Client ID:
Report Date: 08/22/2019 12:50









SL4-SG-WC7-2019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D

Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-04RE1 C	SDG:	19H0024
Sampled:	08/01/19 08:39	Prepared:	08/13/19 12:40	File ID:	NT1019082210.D
% Solids:	41.60	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/22/19 19:21
Batch:	BHH0289	Sequence:	SHH0325	Initial/Final:	24.14 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040
Cleanups:	GPC				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	3	59.7	U	24.6	59.7
100-51-6	Benzyl Alcohol	3	59.7	U	44.5	59.7
65-85-0	Benzoic acid	3	597	U	177	597
86-30-6	N-Nitrosodiphenylamine	3	59.7	U	28.6	59.7
85-01-8	Phenanthrene	3	106	D	14.0	59.7
206-44-0	Fluoranthene	3	688	D	13.5	59.7
129-00-0	Pyrene	3	534	D	16.6	59.7
85-68-7	Butylbenzylphthalate	3	59.7	U	24.0	59.7
56-55-3	Benzo(a)anthracene	3	183	D	15.5	59.7
218-01-9	Chrysene	3	263	D	15.6	59.7
117-81-7	bis(2-Ethylhexyl)phthalate	3	536	D	86.0	149
117-84-0	Di-n-Octylphthalate	3	59.7	U	26.0	59.7
	Benzofluoranthenes, Total	3	426	D	30.5	119
50-32-8	Benzo(a)pyrene	3	144	D	19.4	59.7
193-39-5	Indeno(1,2,3-cd)pyrene	3	100	D	17.9	59.7
53-70-3	Dibenzo(a,h)anthracene	3	59.7	U	18.4	59.7
191-24-2	Benzo(g,h,i)perylene	3	128	D	17.4	59.7

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	746.85	299	40.1	27 - 120	
Phenol-d5	746.85	329	44.1	29 - 120	Q
2-Chlorophenol-d4	746.85	420	56.2	31 - 120	
1,2-Dichlorobenzene-d4	497.90	279	56.1	32 - 120	
Nitrobenzene-d5	497.90	259	52.1	30 - 120	
2-Fluorobiphenyl	497.90	322	64.7	35 - 120	
2,4,6-Tribromophenol	746.85	371	49.7	24 - 134	
p-Terphenyl-d14	497.90	447	89.7	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082210.D

Date : 22-AUG-2019 19:21

Client ID:

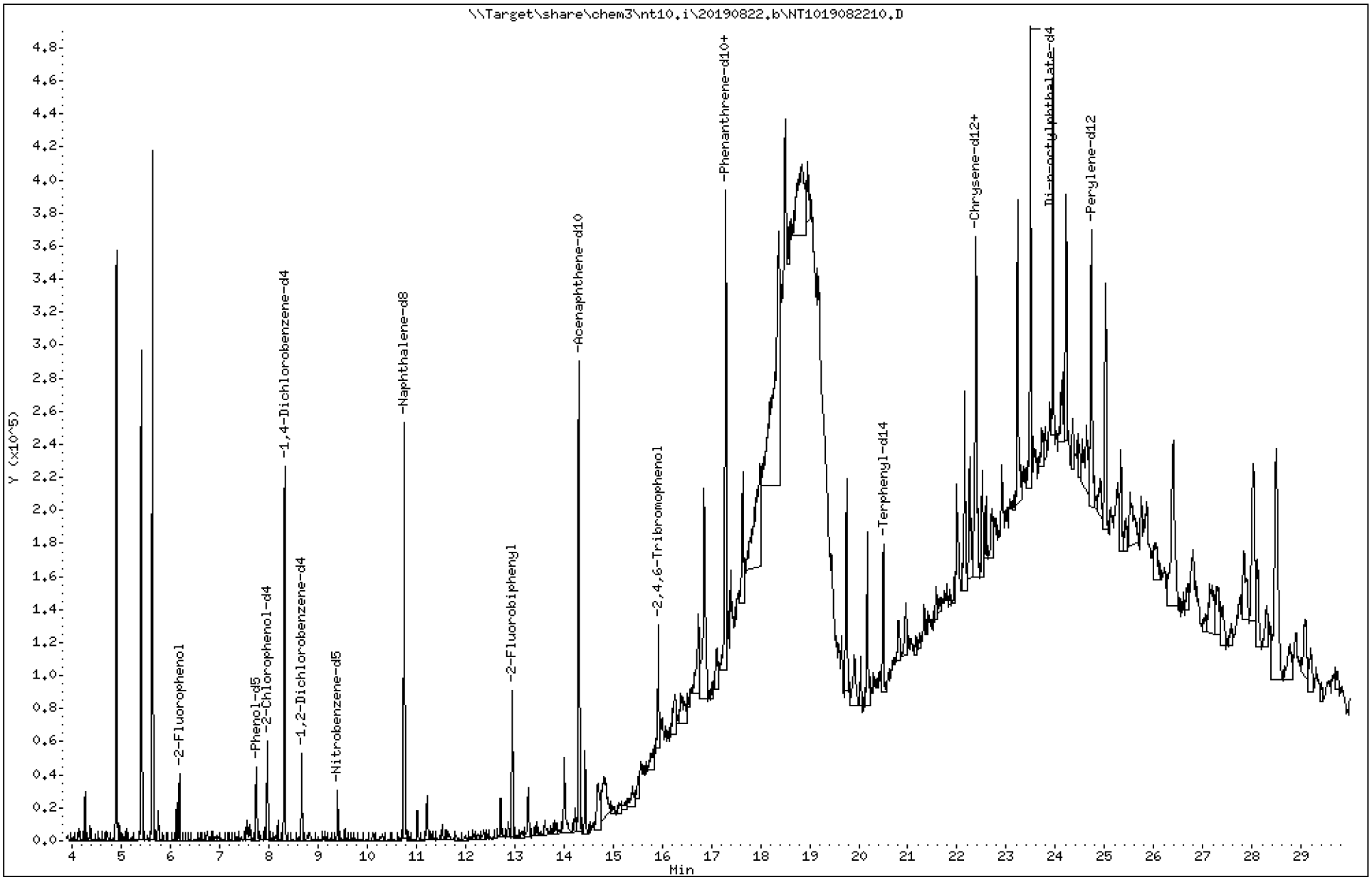
Instrument: nt10.i

Sample Info: 19H0024-04RE1,3

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 22-AUG-2019 19:21

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04RE1,3

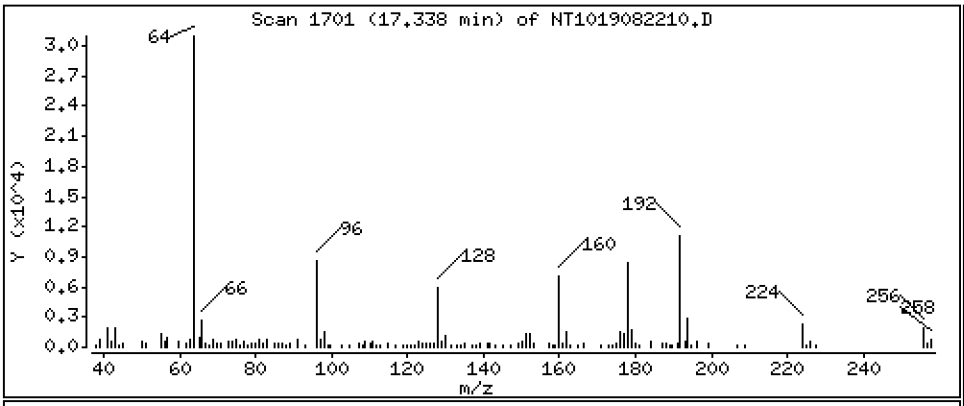
Operator: YZ

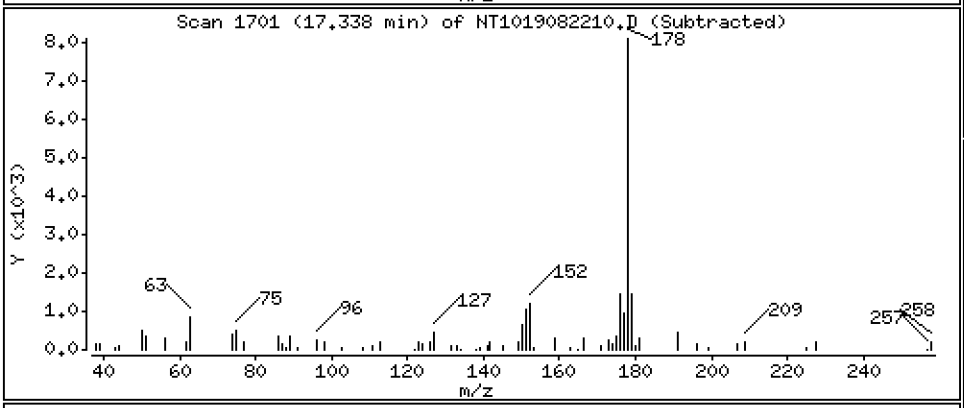
Column phase: ZB-5msi

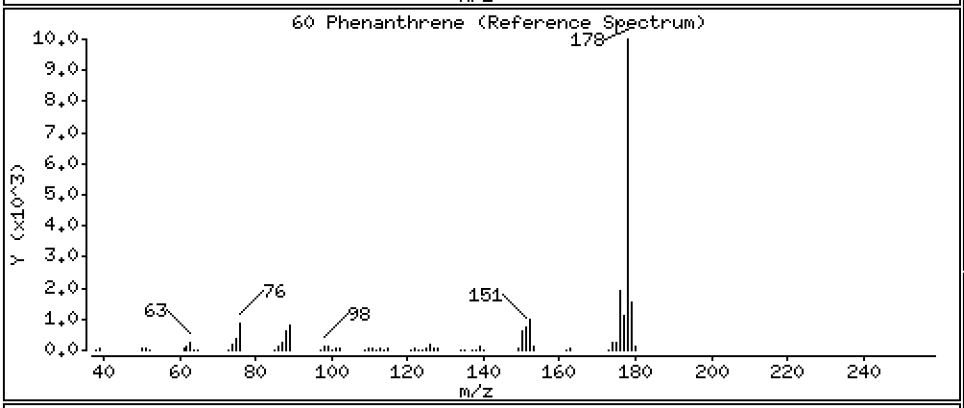
Column diameter: 0.25

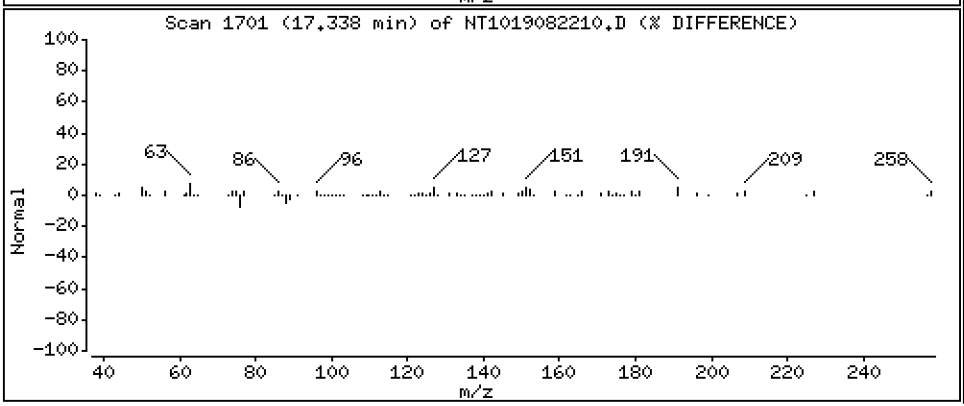
60 Phenanthrene

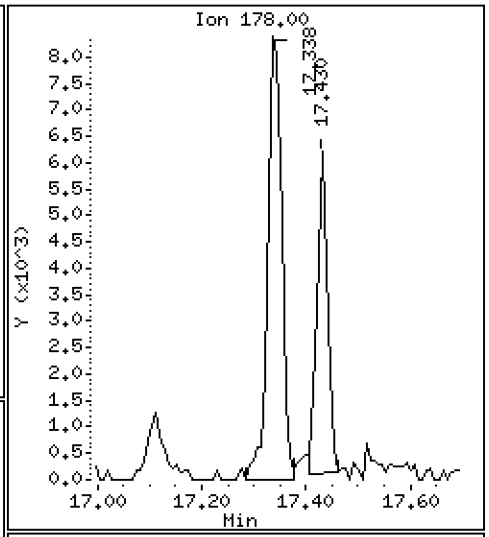
Concentration: 1.064 ug/mL

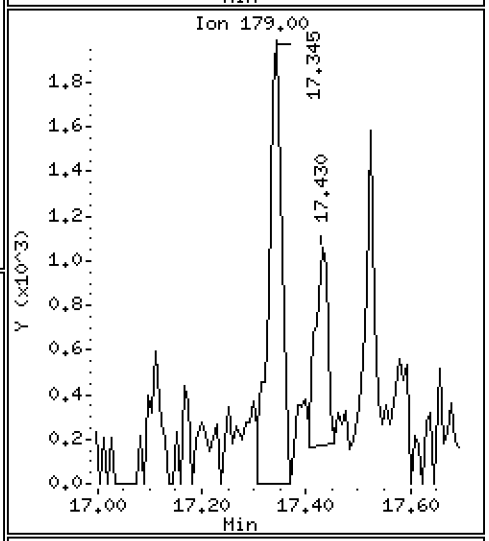


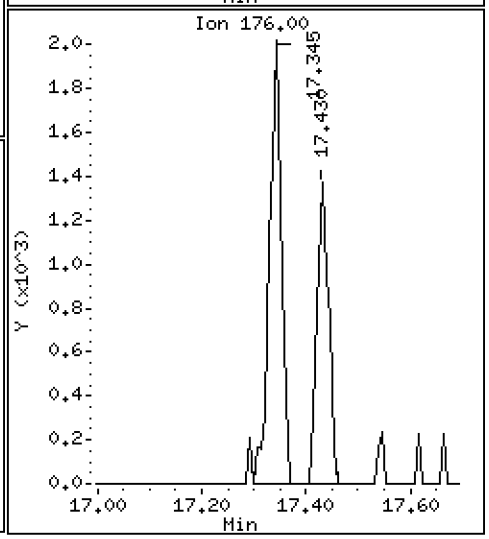












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Date : 22-AUG-2019 19:21

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04RE1,3

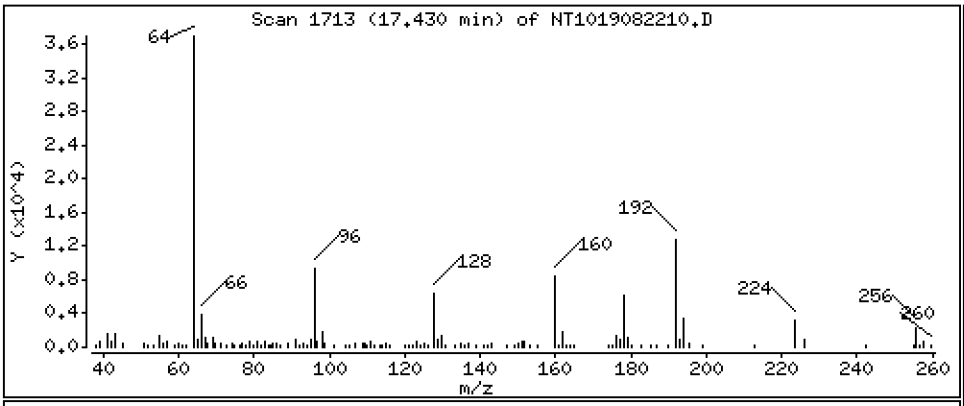
Operator: YZ

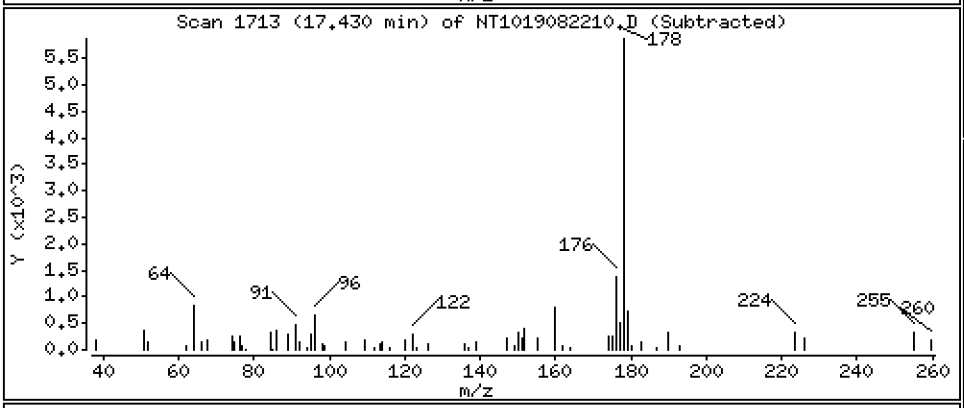
Column phase: ZB-5msi

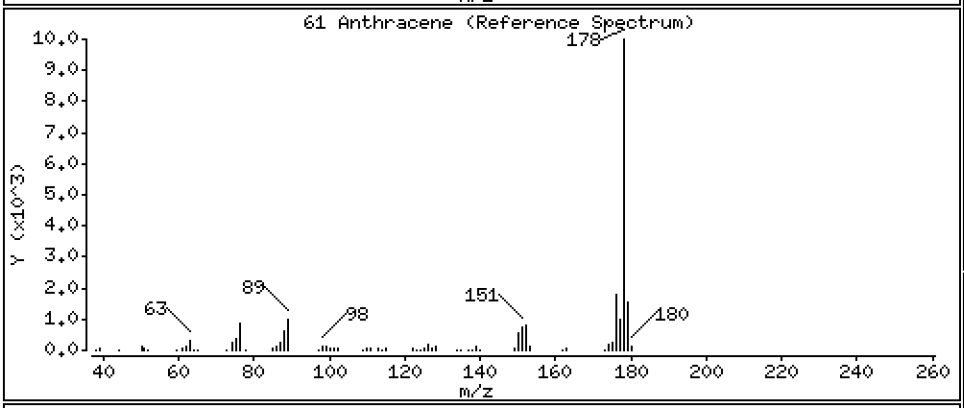
Column diameter: 0.25

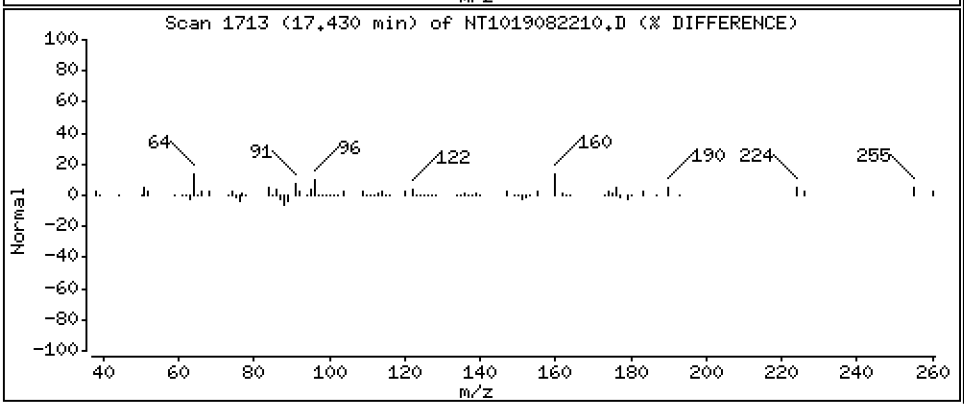
61 Anthracene

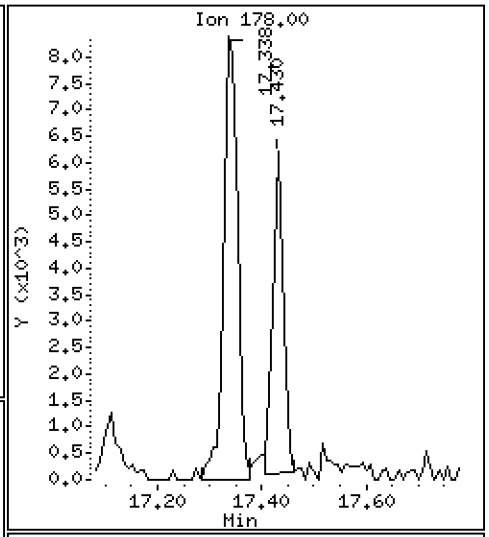
Concentration: 0.5582 ug/mL

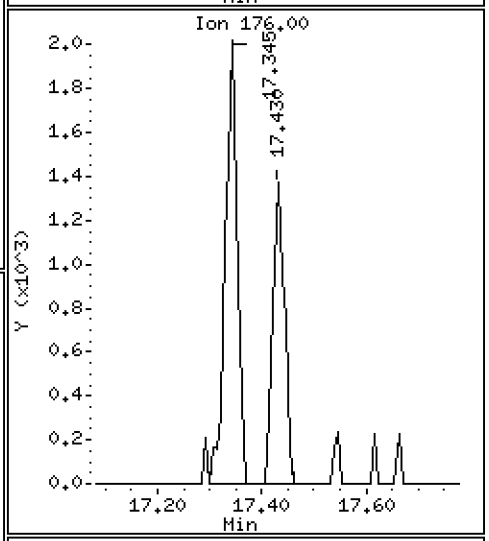


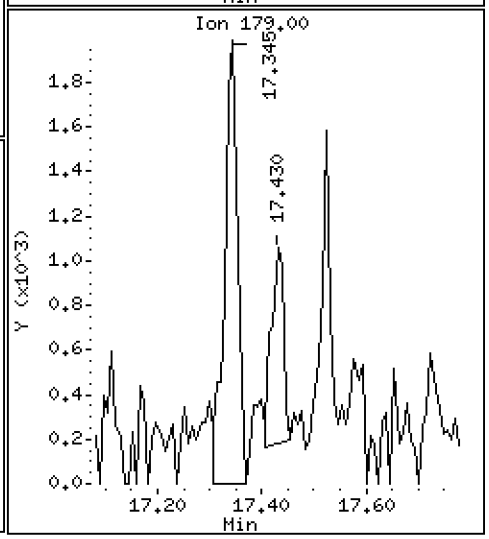












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Date : 22-AUG-2019 19:21

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04RE1,3

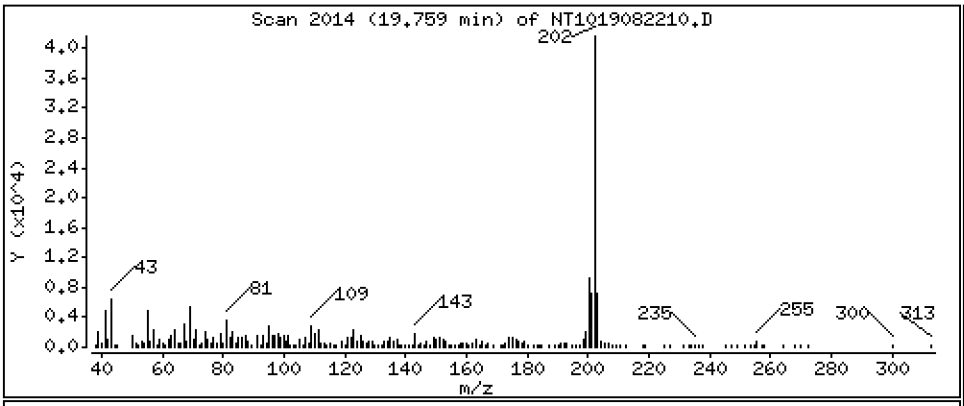
Operator: YZ

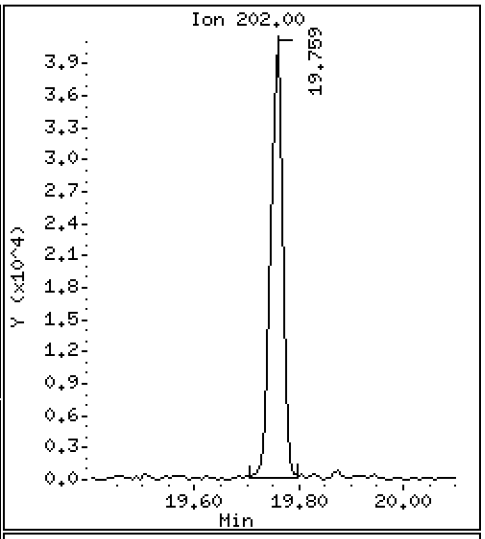
Column phase: ZB-5msi

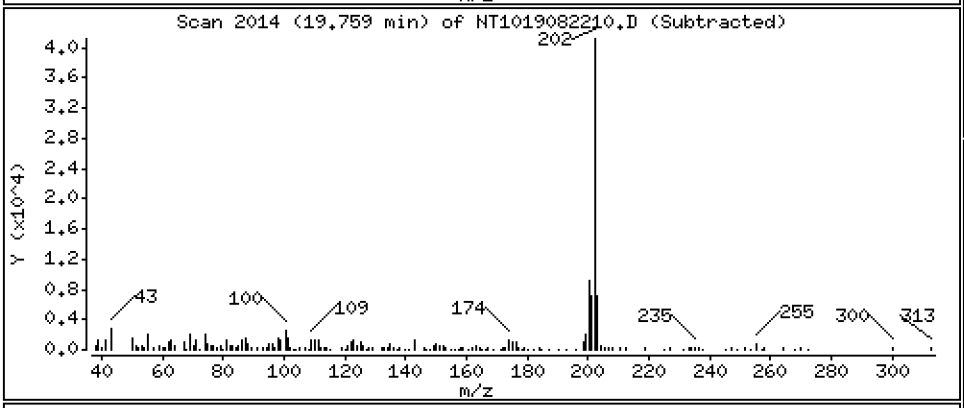
Column diameter: 0.25

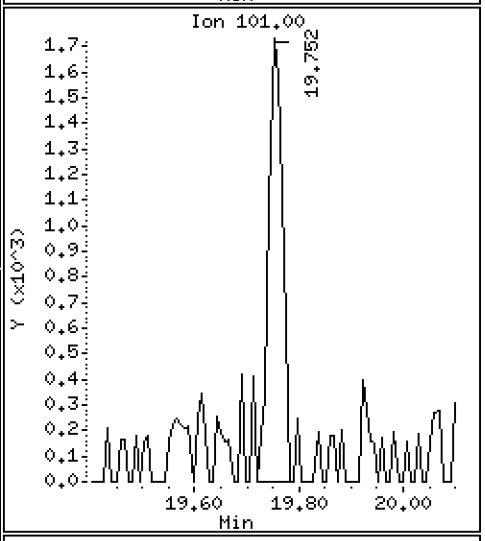
64 Fluoranthene

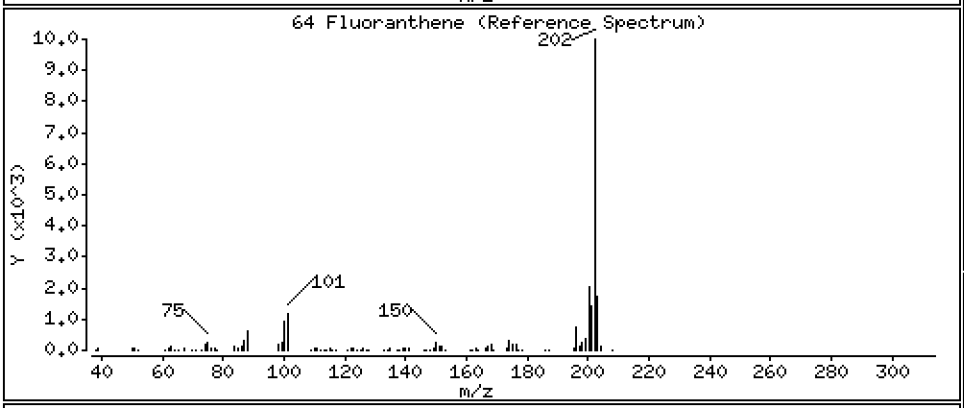
Concentration: 6.912 ug/mL

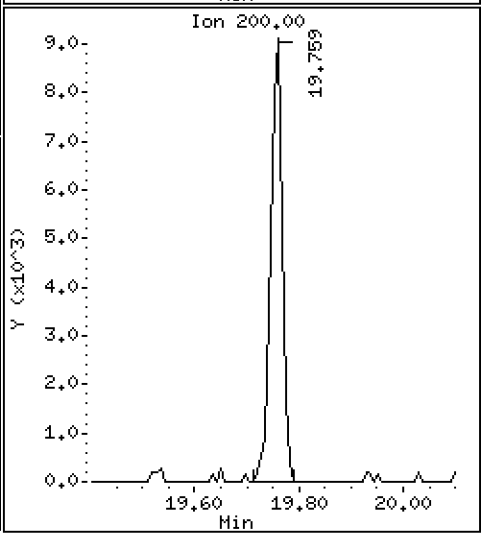


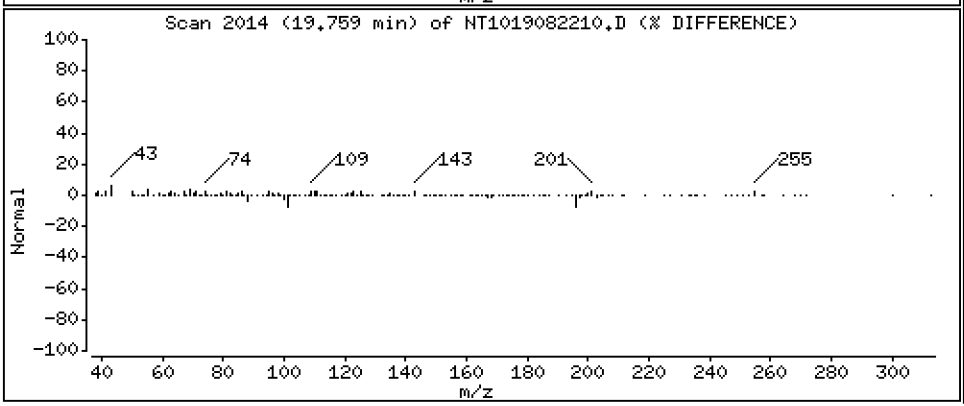












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082210.D

Date : 22-AUG-2019 19:21

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04RE1,3

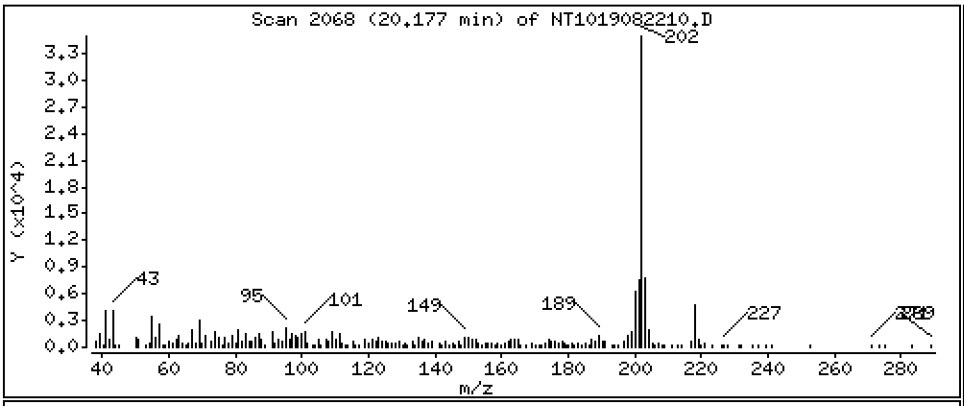
Operator: YZ

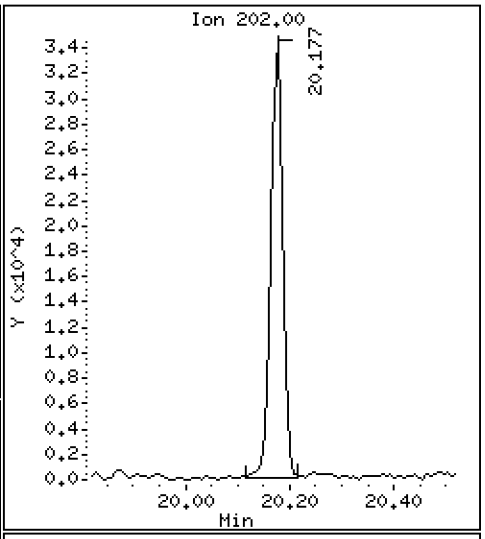
Column phase: ZB-5msi

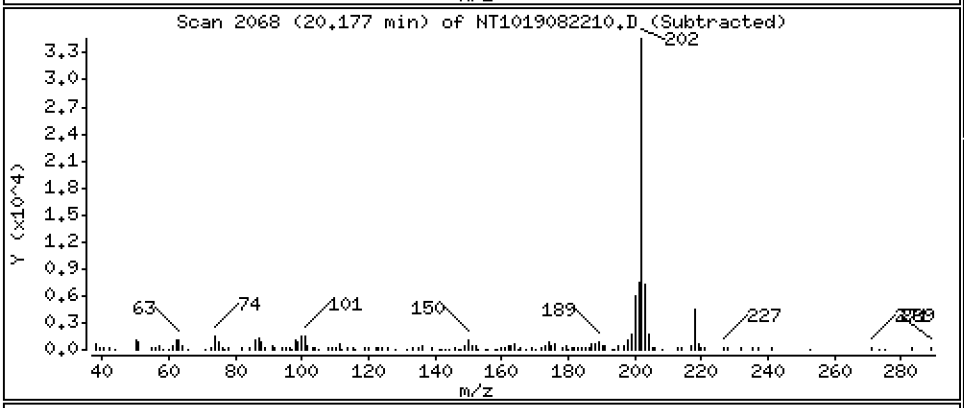
Column diameter: 0.25

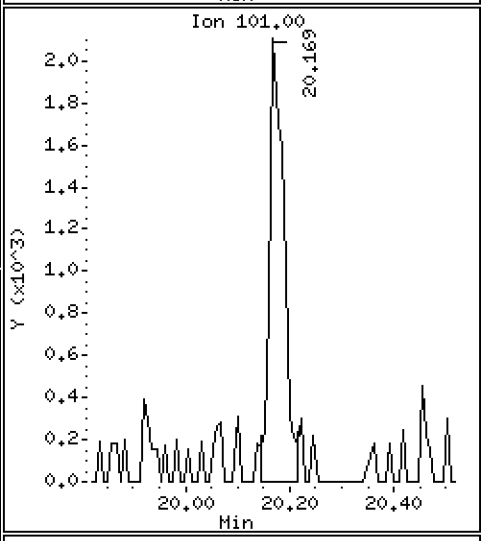
65 Pyrene

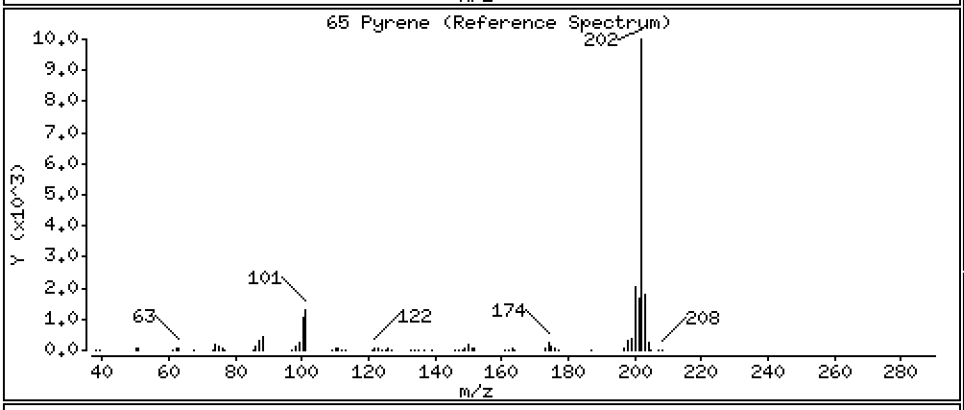
Concentration: 5.358 ug/mL

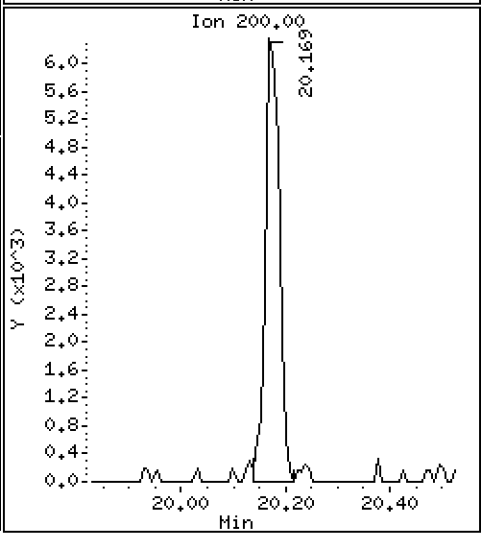


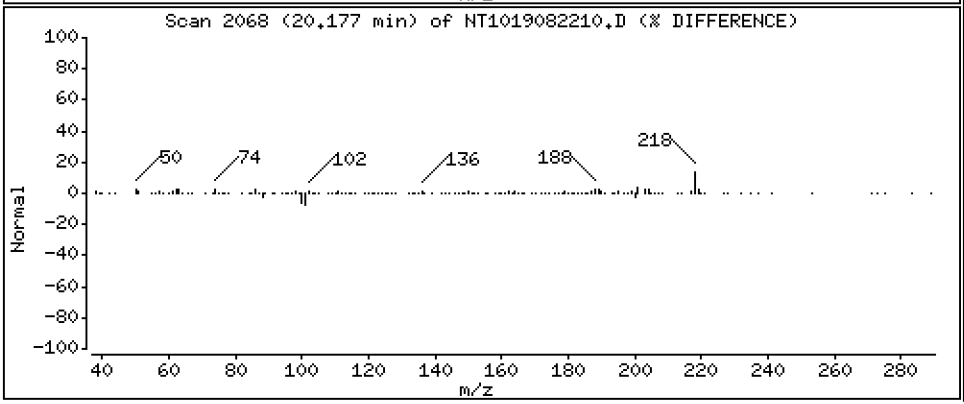












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082210.D

Date : 22-AUG-2019 19:21

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04RE1,3

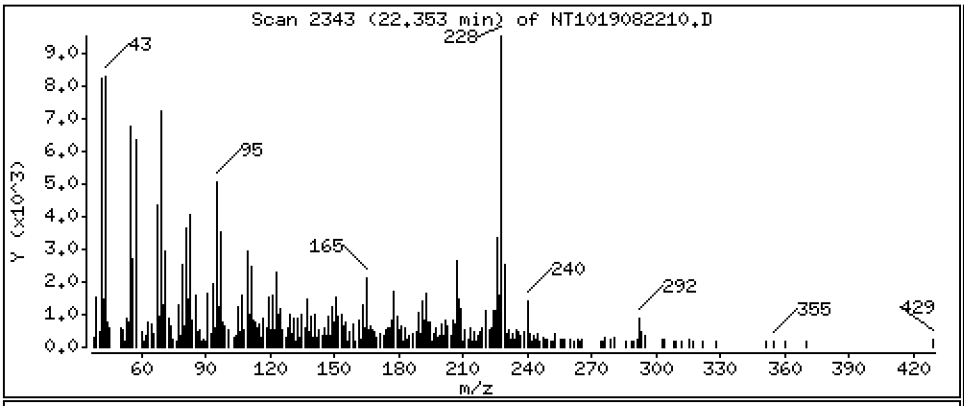
Operator: YZ

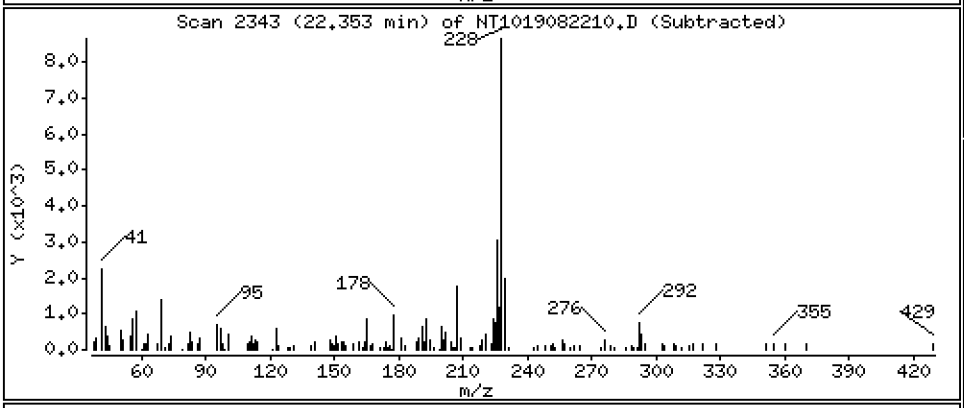
Column phase: ZB-5msi

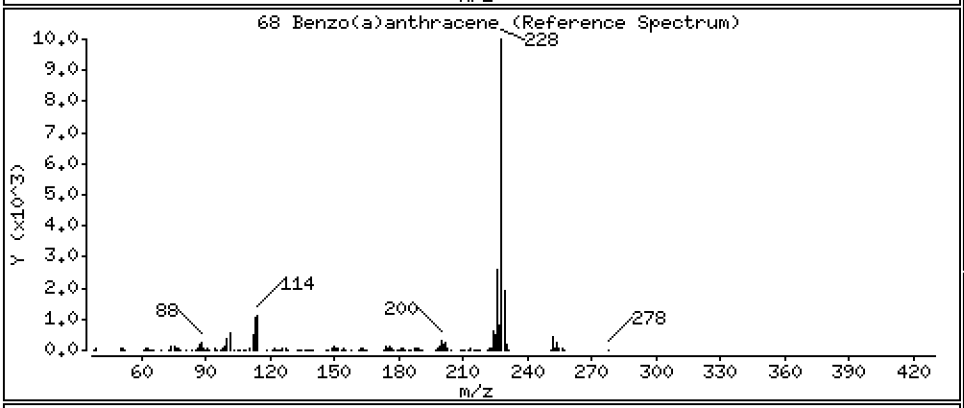
Column diameter: 0.25

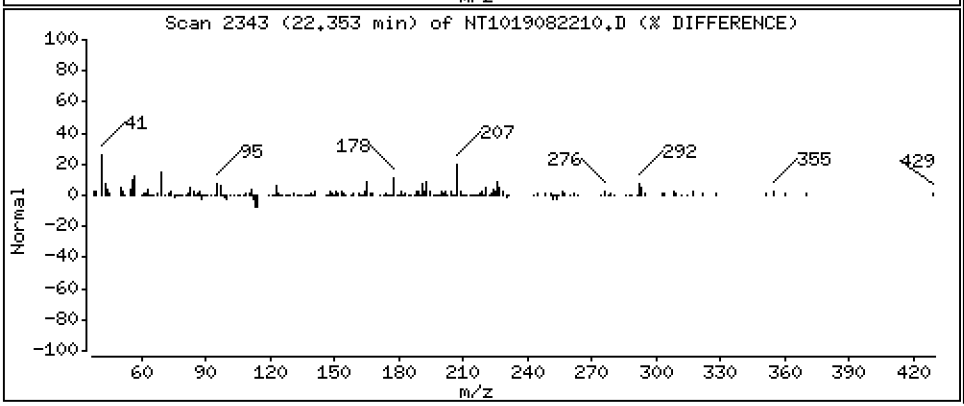
68 Benzo(a)anthracene

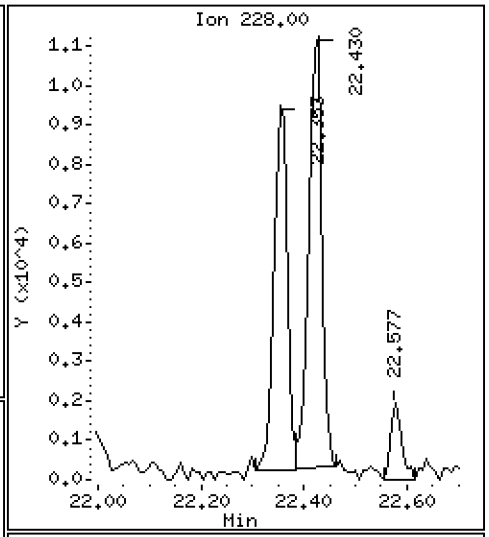
Concentration: 1.835 ug/mL

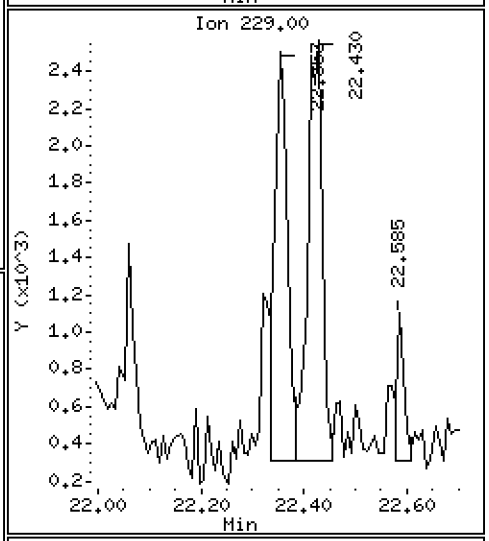


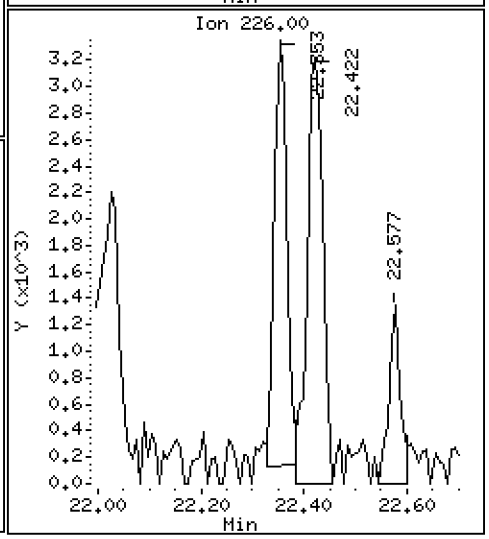












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082210.D

Date : 22-AUG-2019 19:21

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04RE1,3

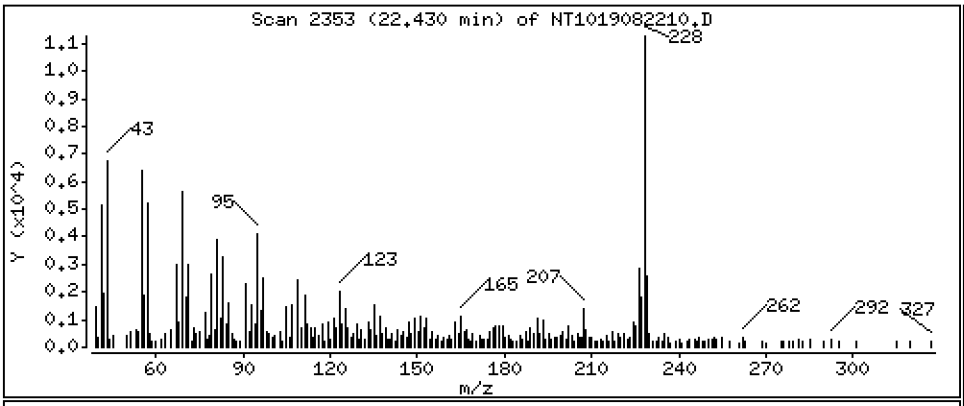
Operator: YZ

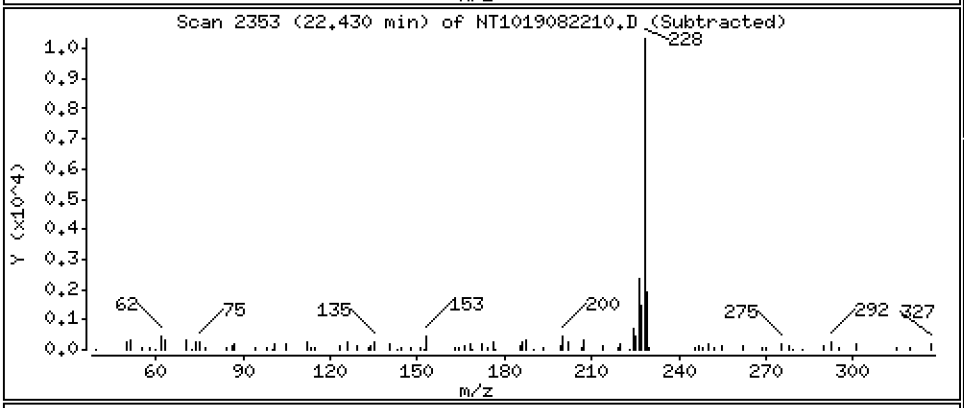
Column phase: ZB-5msi

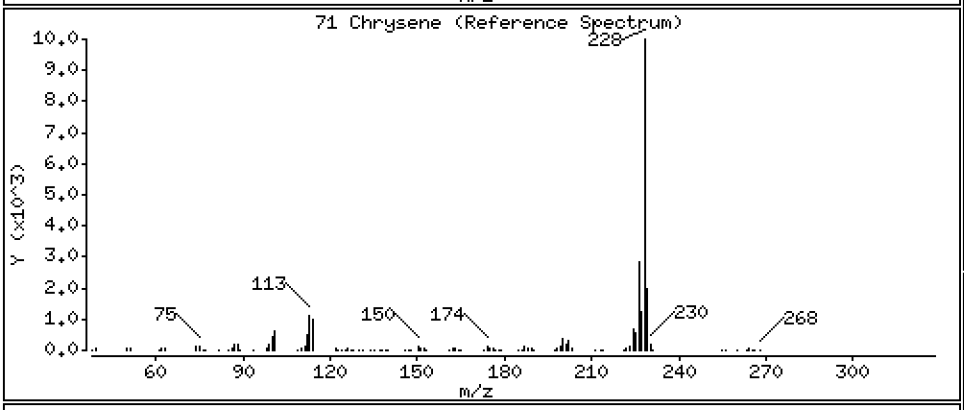
Column diameter: 0.25

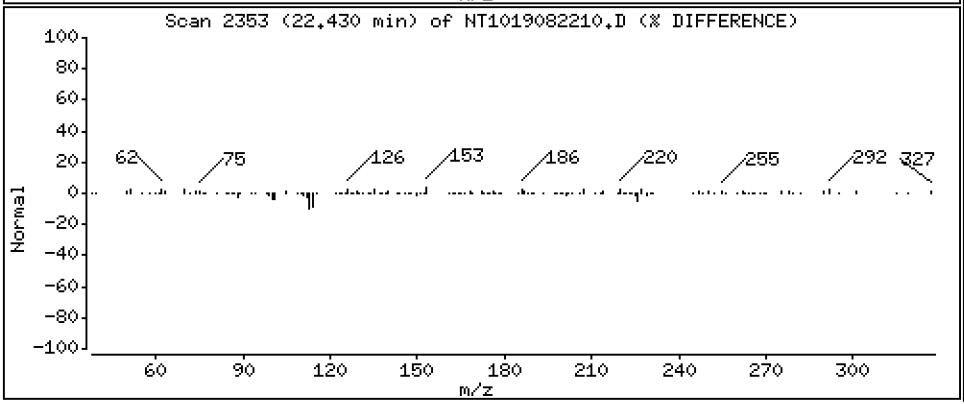
71 Chrysene

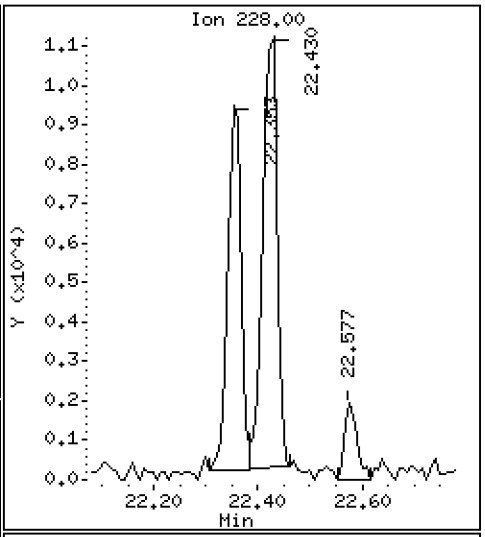
Concentration: 2.641 ug/mL

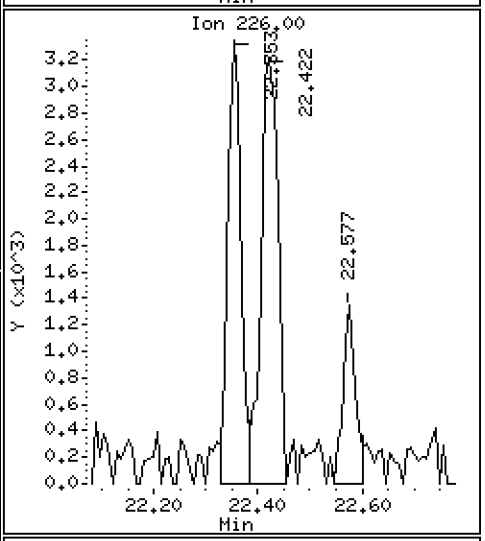


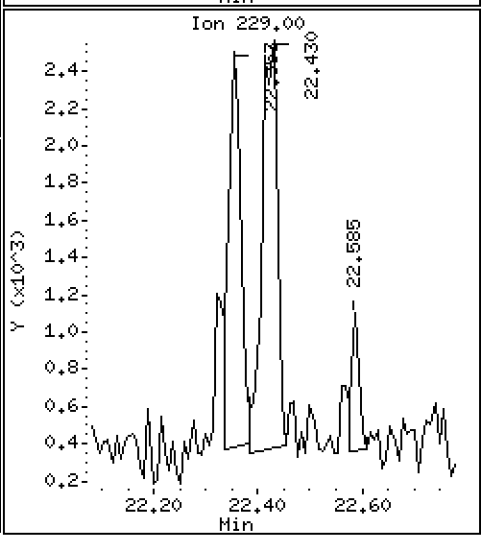












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082210.D

Date : 22-AUG-2019 19:21

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04RE1,3

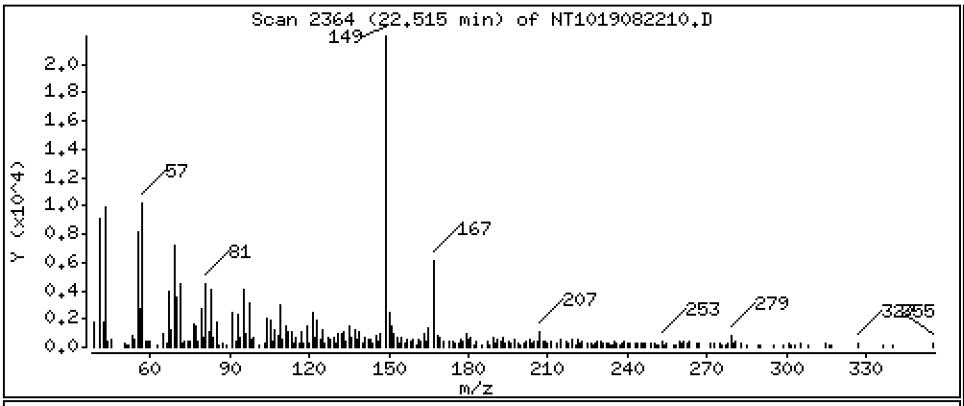
Operator: YZ

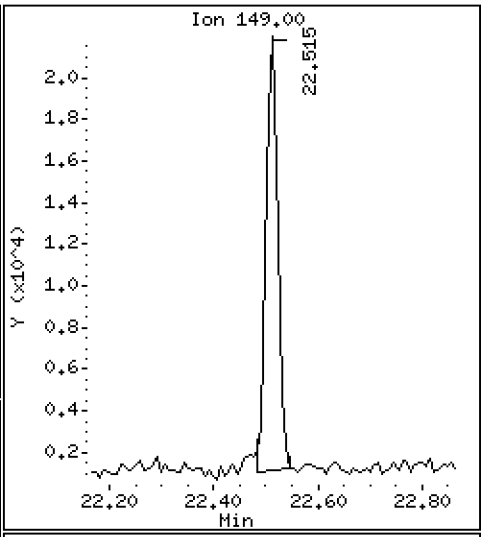
Column phase: ZB-5msi

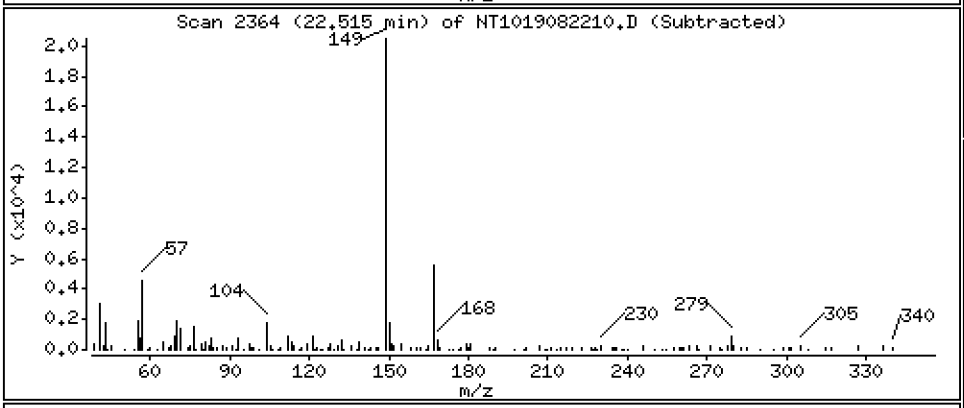
Column diameter: 0.25

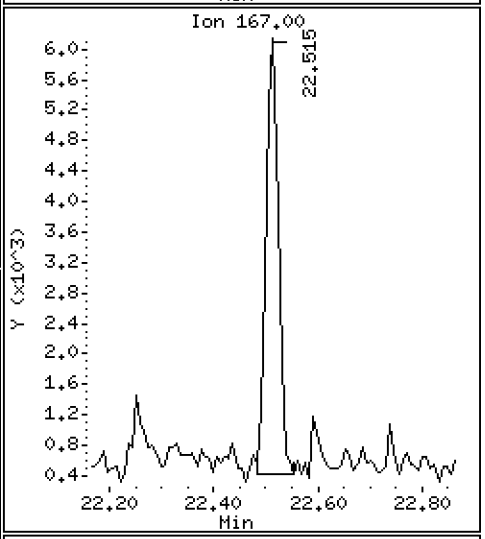
72 bis(2-Ethylhexyl)phthalate

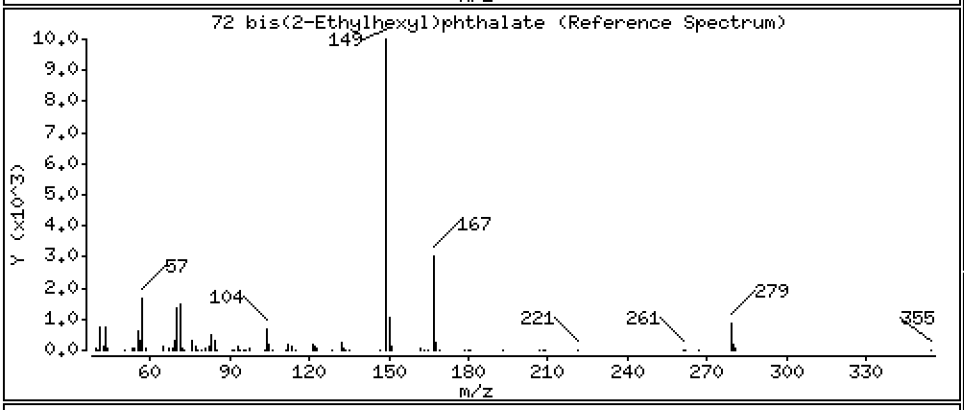
Concentration: 5.380 ug/mL

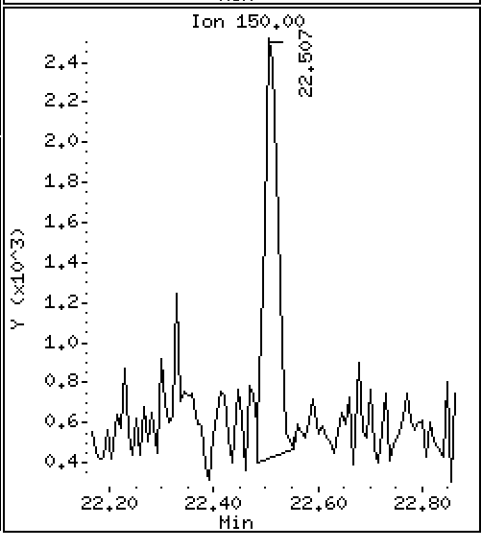


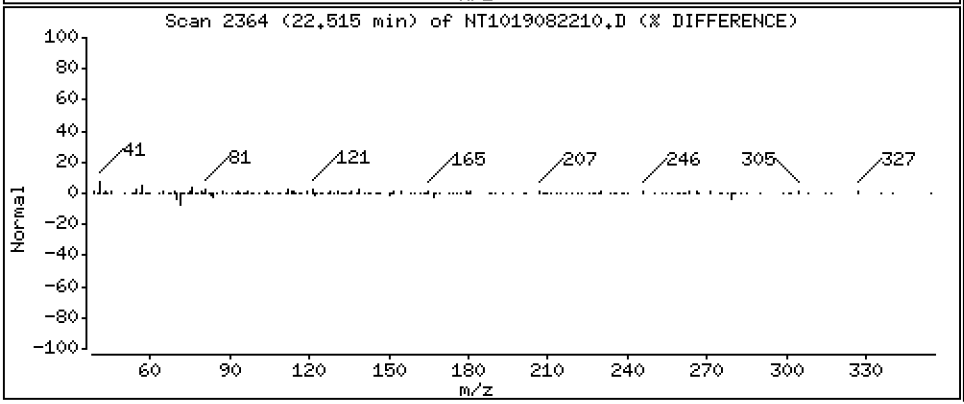












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082210.D

Date : 22-AUG-2019 19:21

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04RE1,3

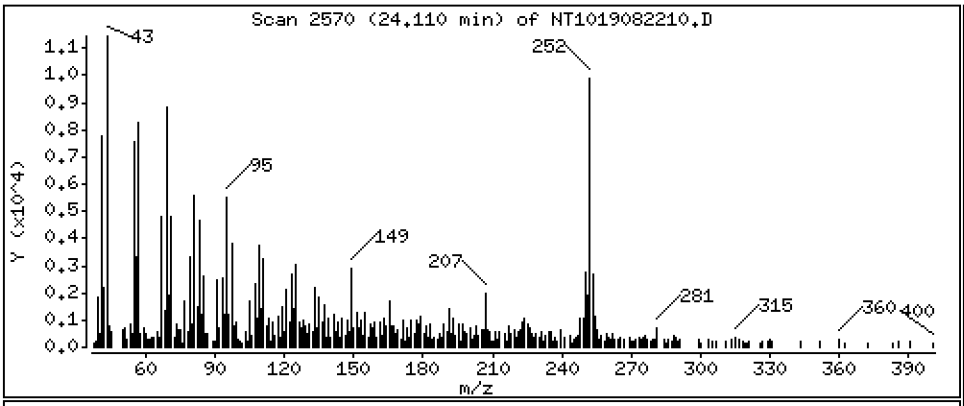
Operator: YZ

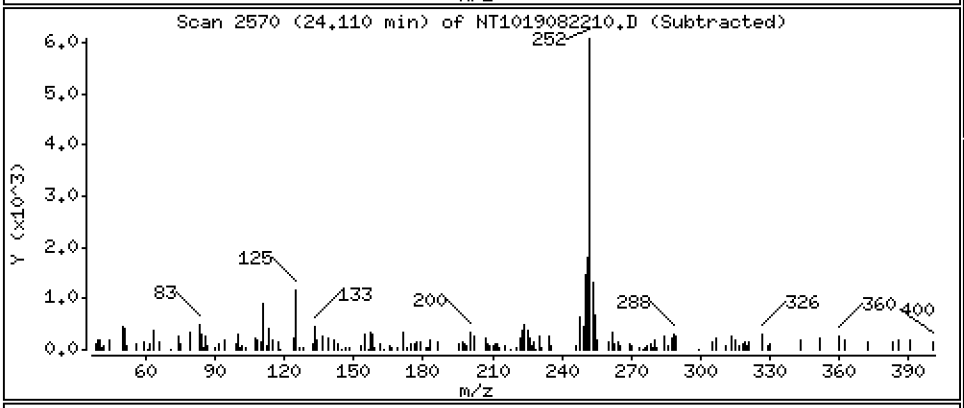
Column phase: ZB-5msi

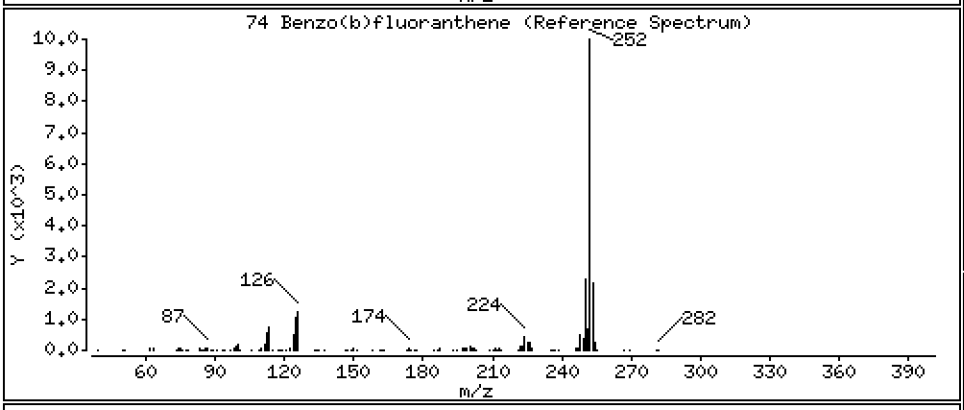
Column diameter: 0.25

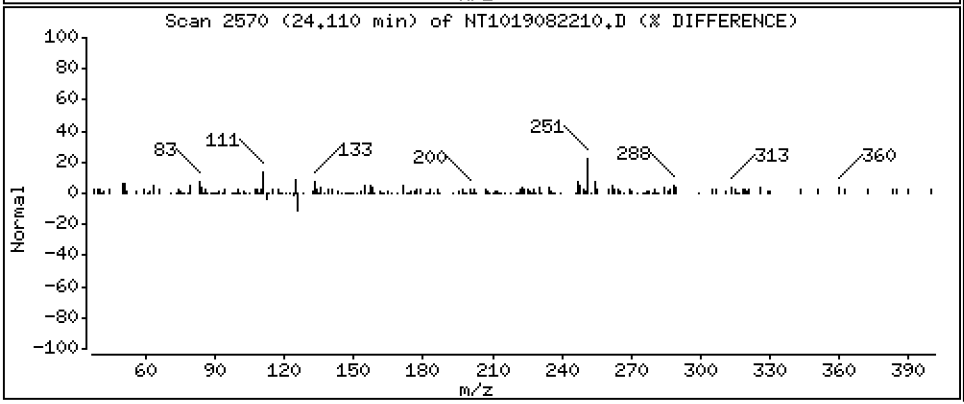
74 Benzo(b)fluoranthene

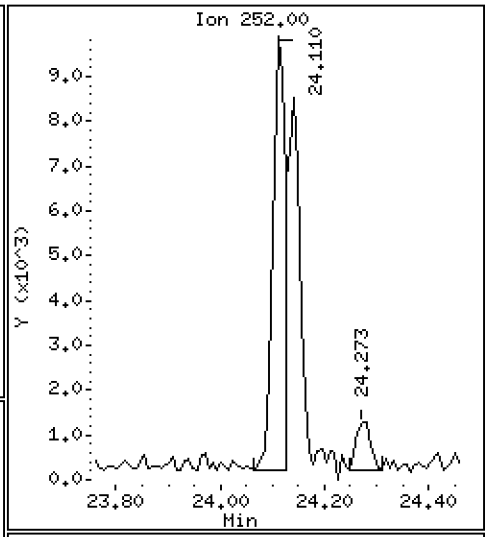
Concentration: 2.239 ug/mL

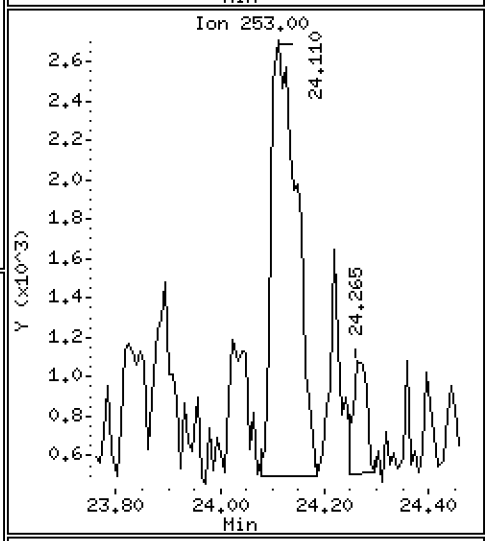


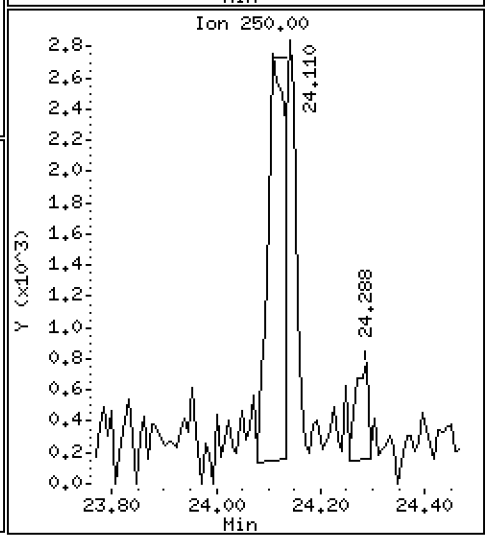












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082210.D

Date : 22-AUG-2019 19:21

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04RE1,3

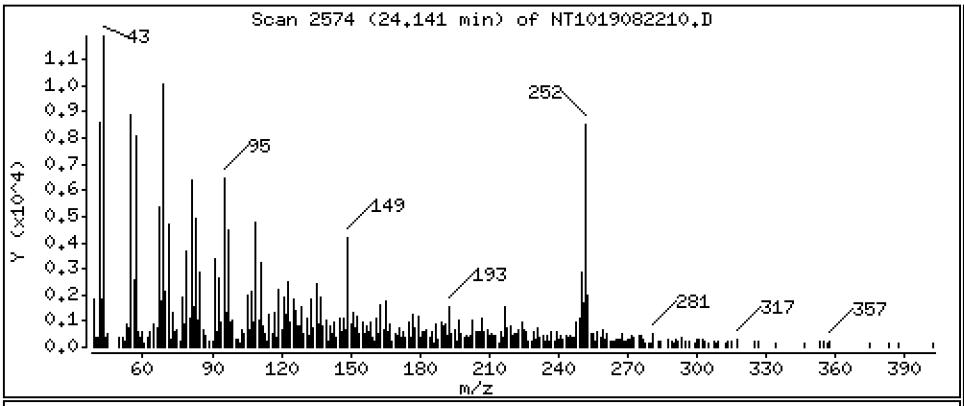
Operator: YZ

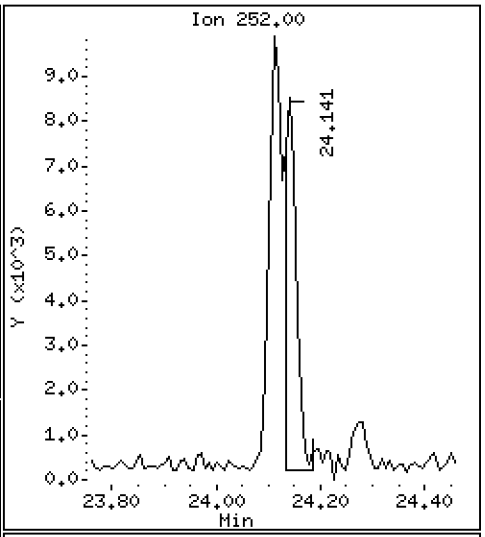
Column phase: ZB-5msi

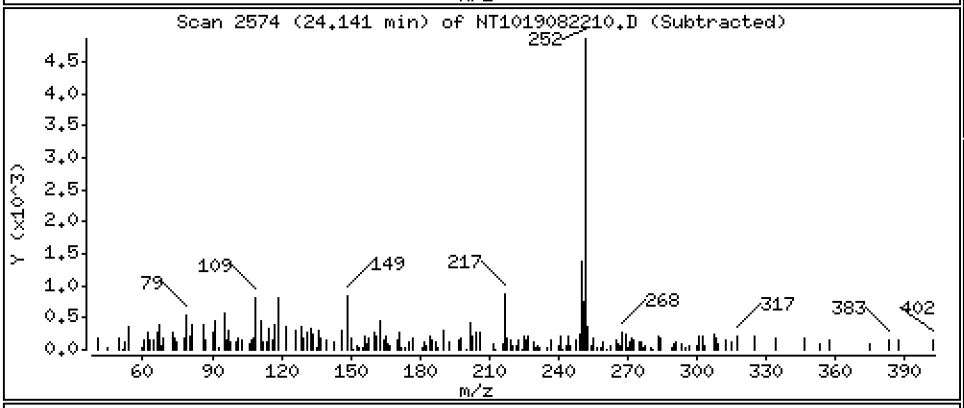
Column diameter: 0.25

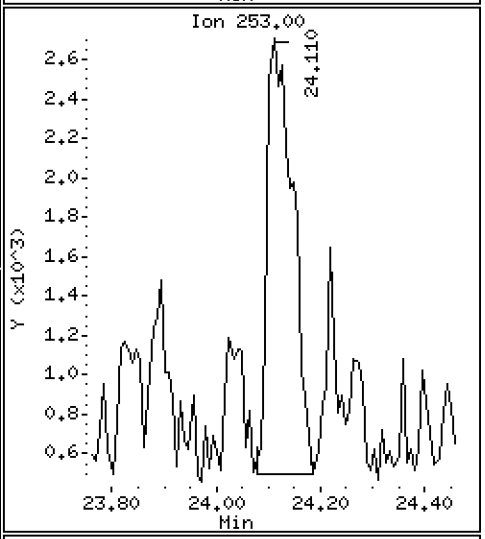
75 Benzo(k)fluoranthene

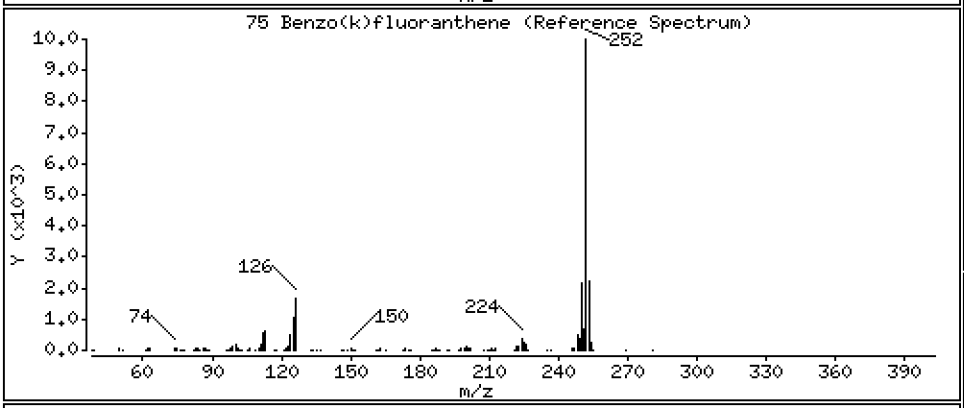
Concentration: 1.895 ug/mL

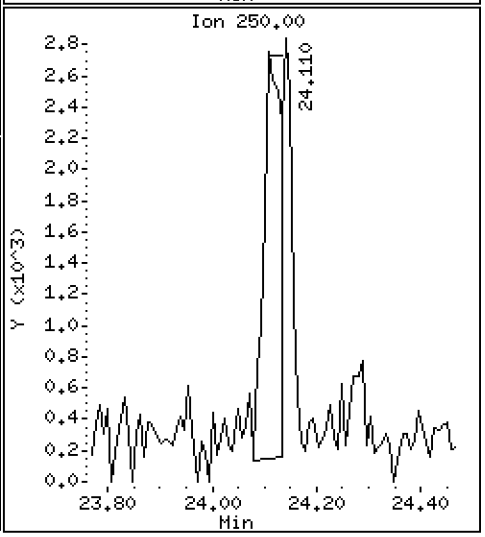


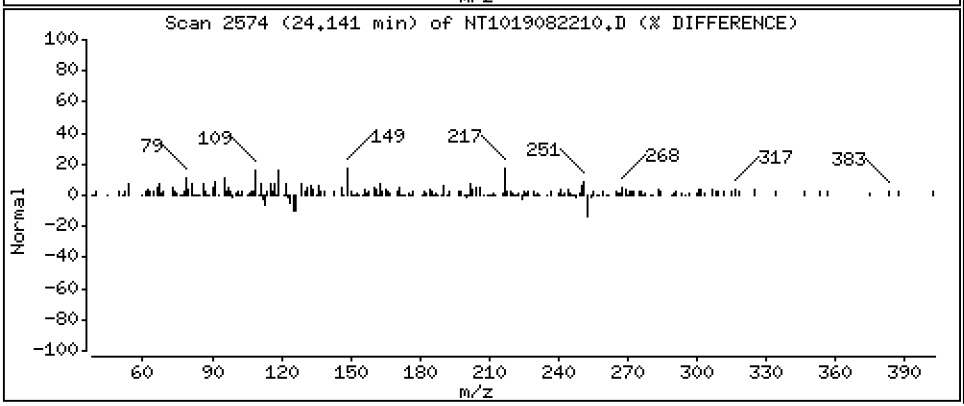












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082210.D

Date : 22-AUG-2019 19:21

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04RE1,3

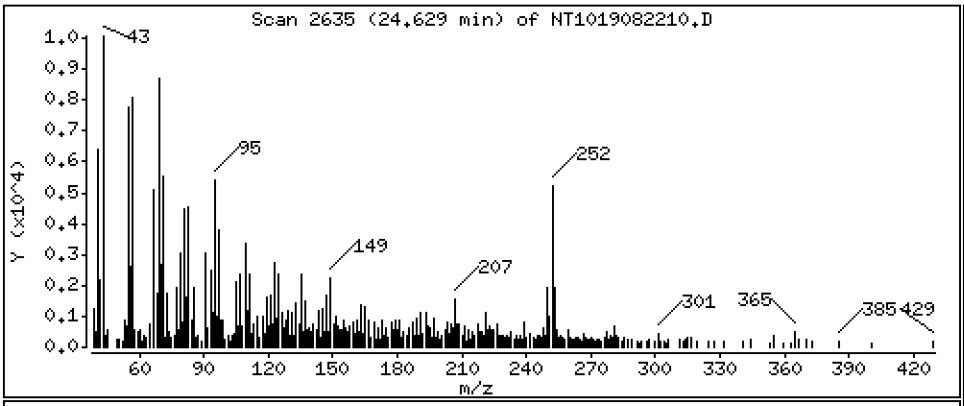
Operator: YZ

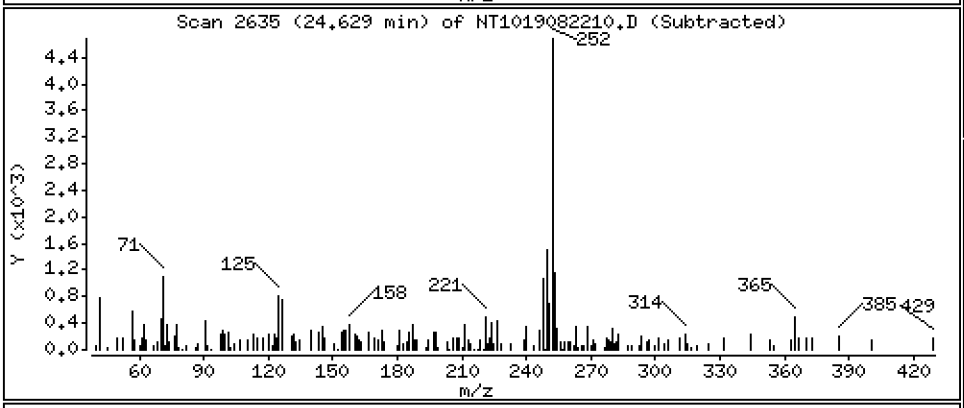
Column phase: ZB-5msi

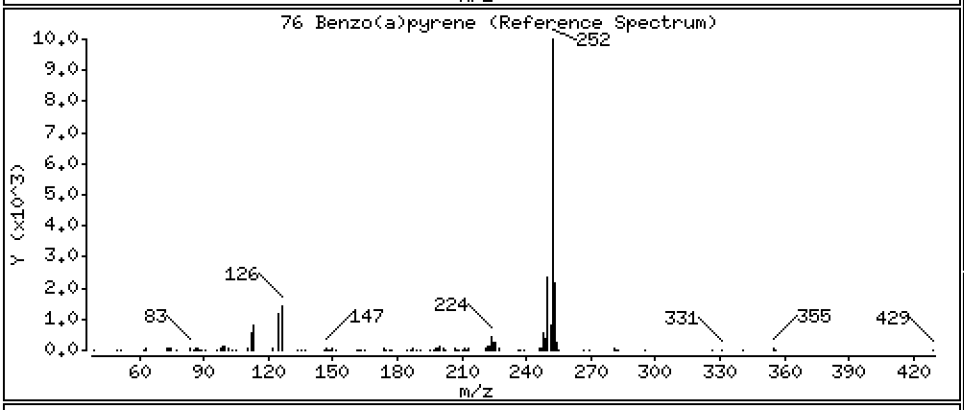
Column diameter: 0.25

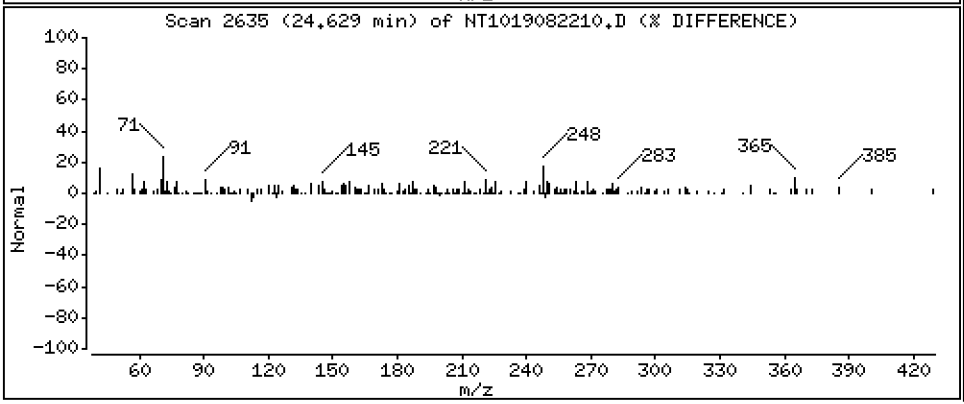
76 Benzo(a)pyrene

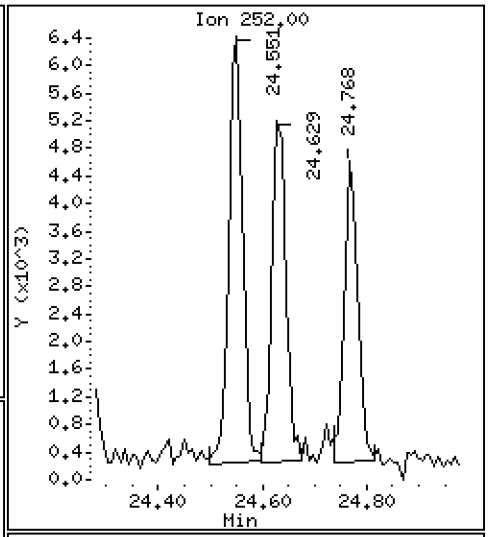
Concentration: 1.450 ug/mL

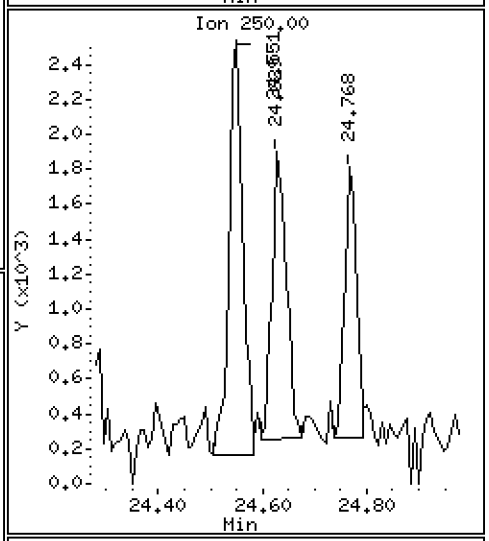


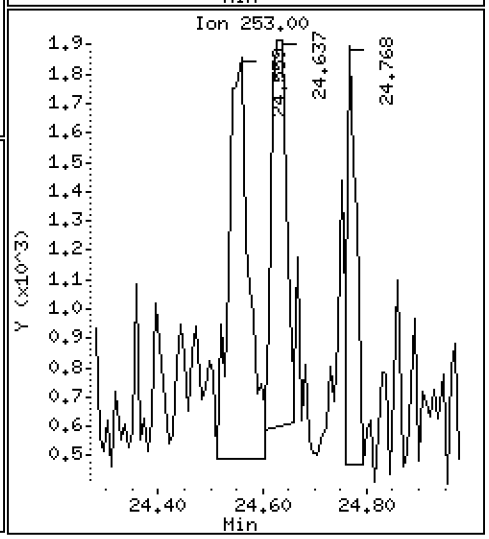












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082210.D

Date : 22-AUG-2019 19:21

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04RE1,3

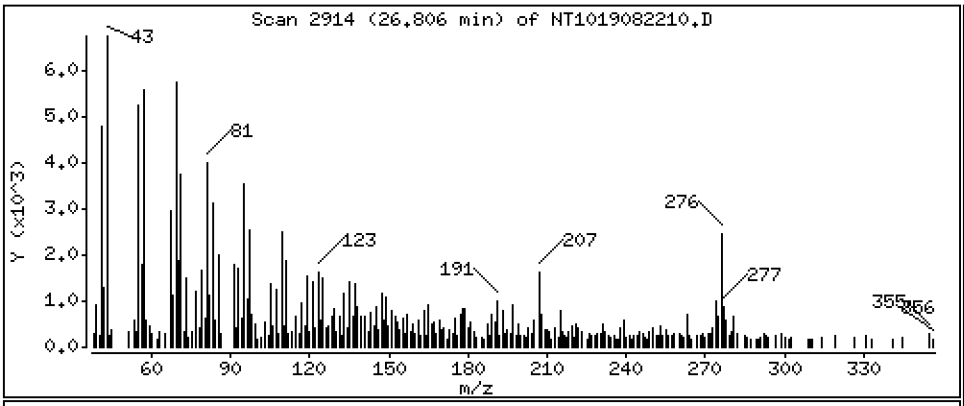
Operator: YZ

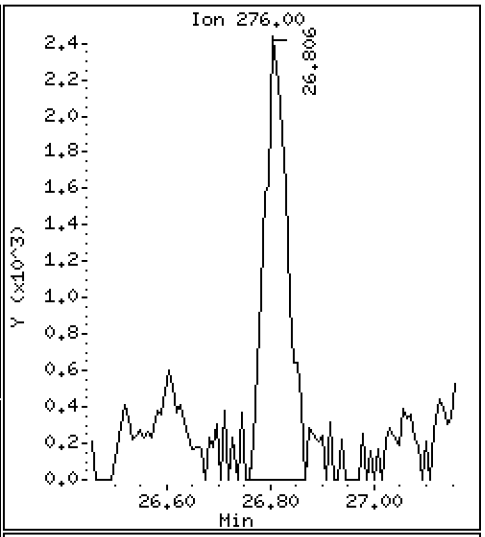
Column phase: ZB-5msi

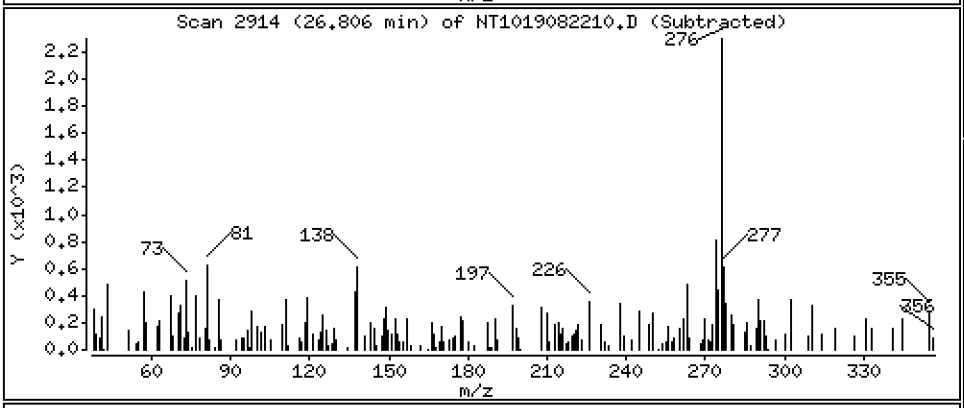
Column diameter: 0.25

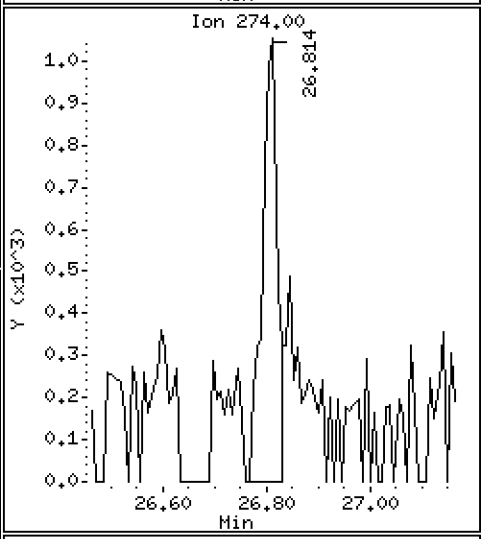
78 Indeno(1,2,3-cd)pyrene

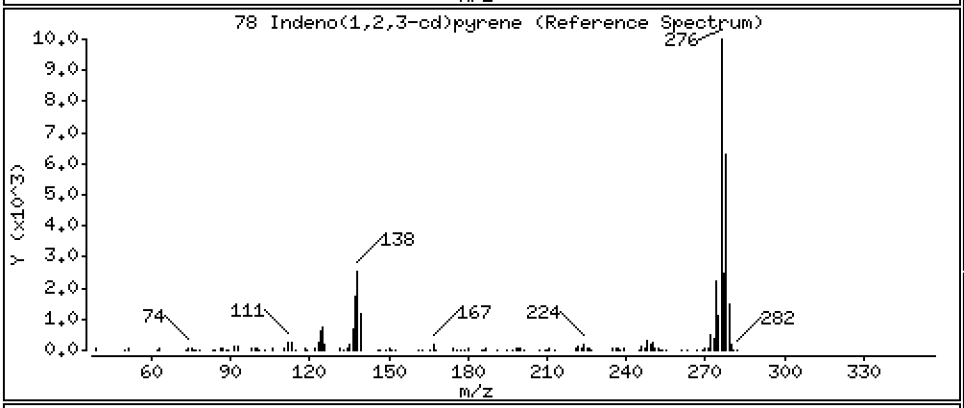
Concentration: 1.004 ug/mL

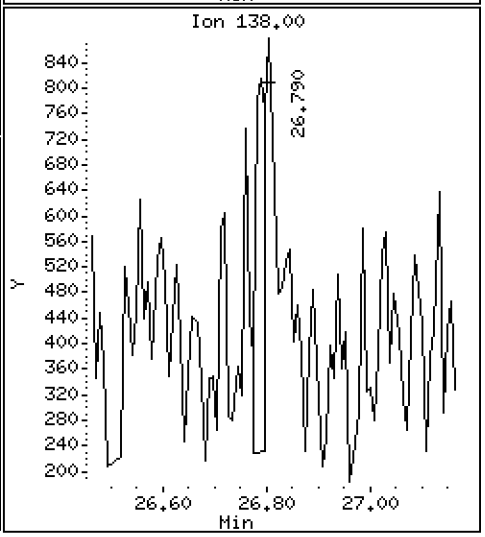


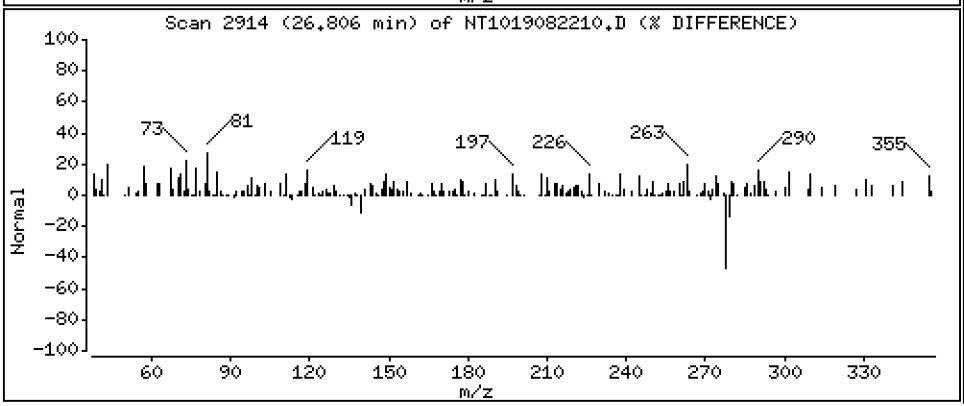












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082210.D

Date : 22-AUG-2019 19:21

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04RE1,3

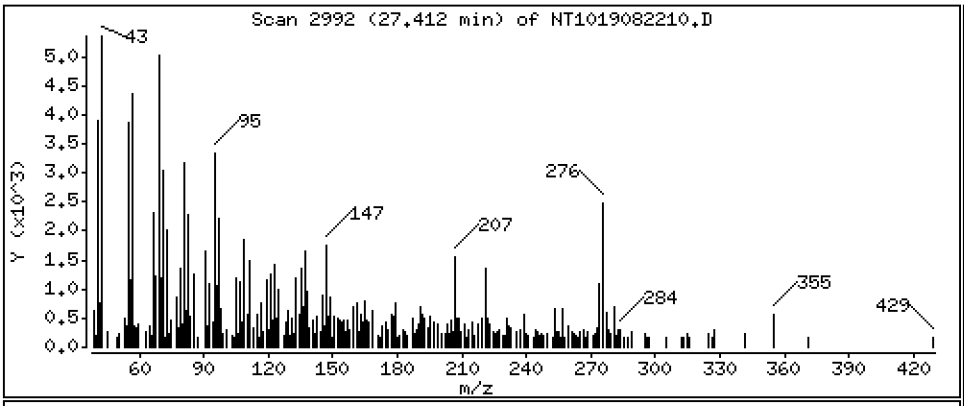
Operator: YZ

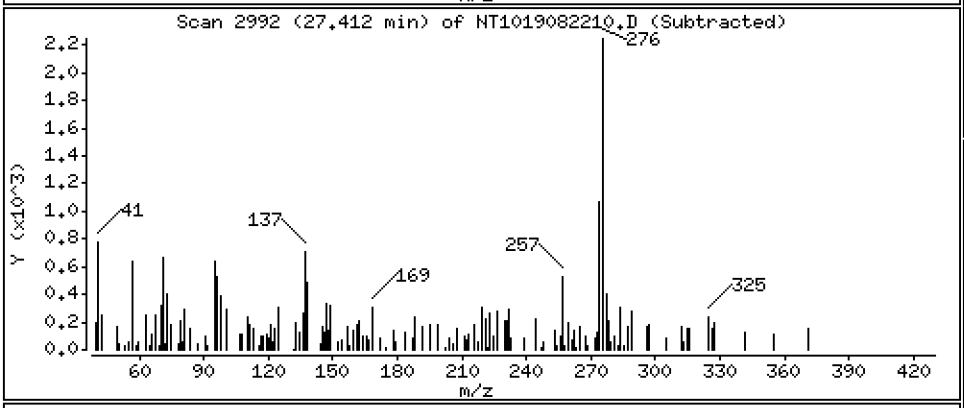
Column phase: ZB-5msi

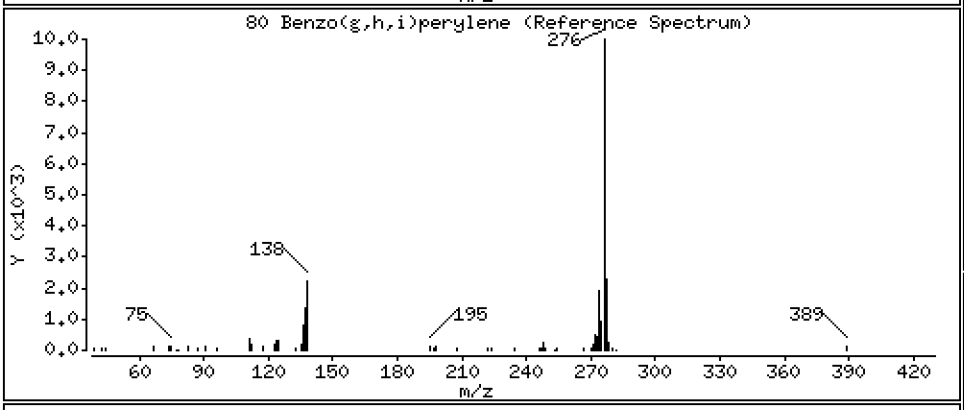
Column diameter: 0.25

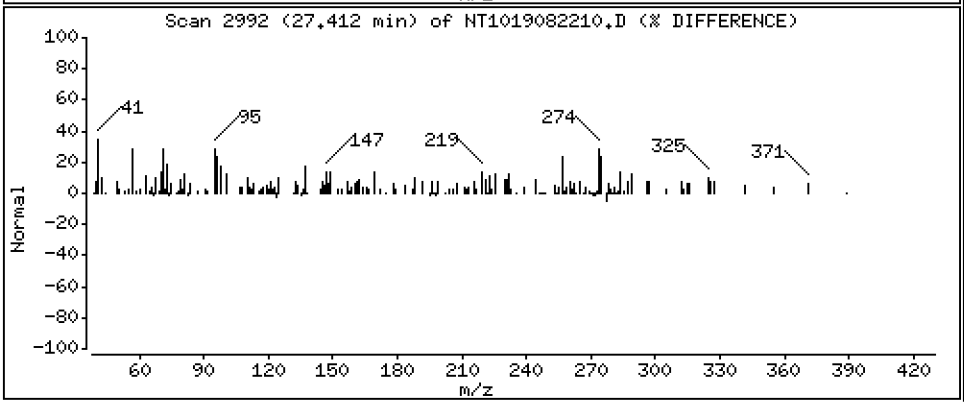
80 Benzo(g,h,i)perylene

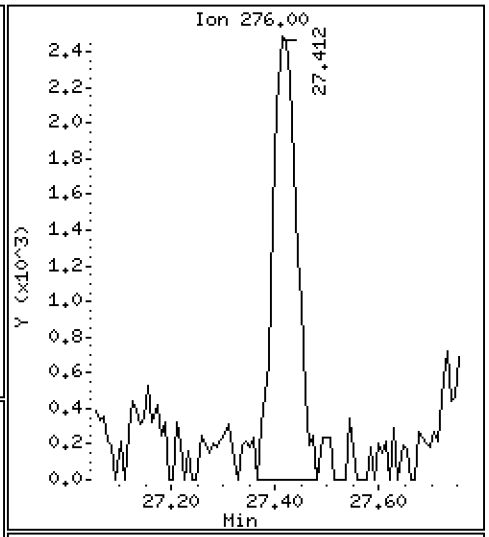
Concentration: 1.288 ug/mL

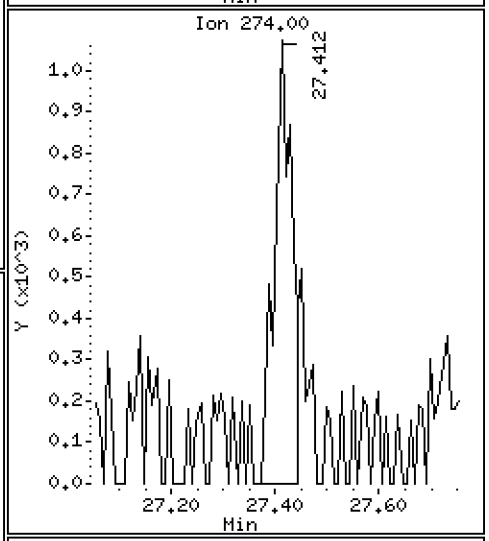


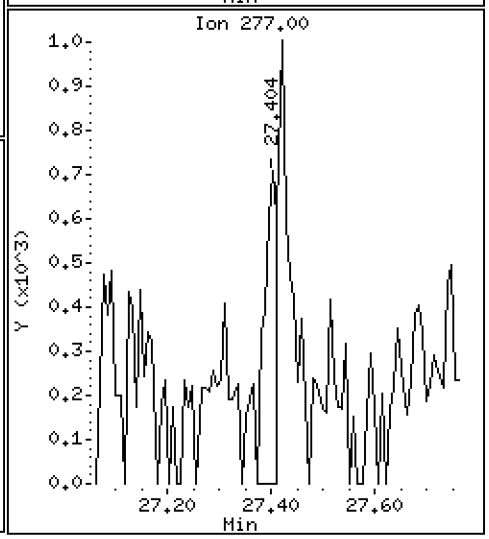












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082210.D

Date : 22-AUG-2019 19:21

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-04RE1,3

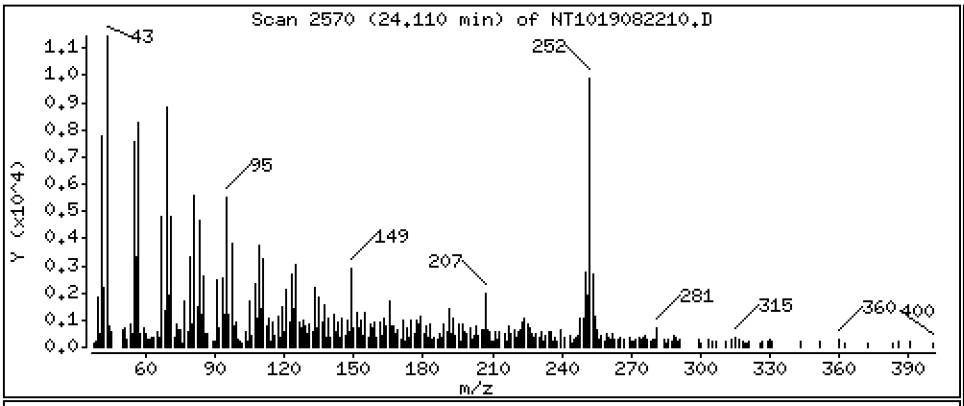
Operator: YZ

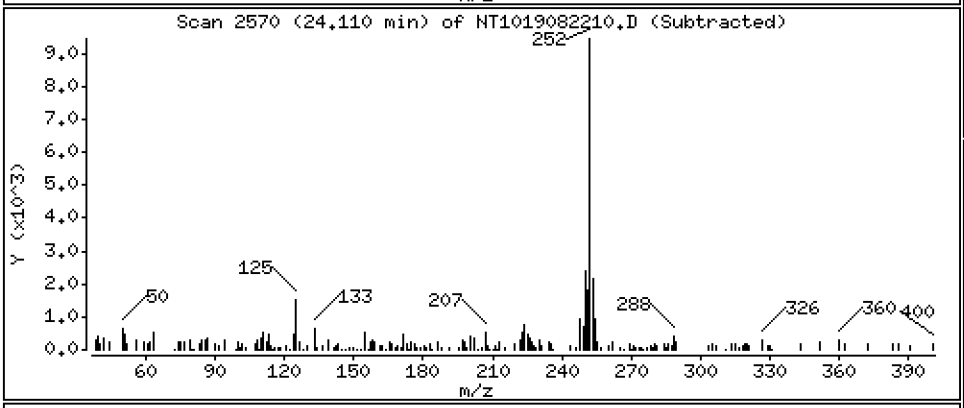
Column phase: ZB-5msi

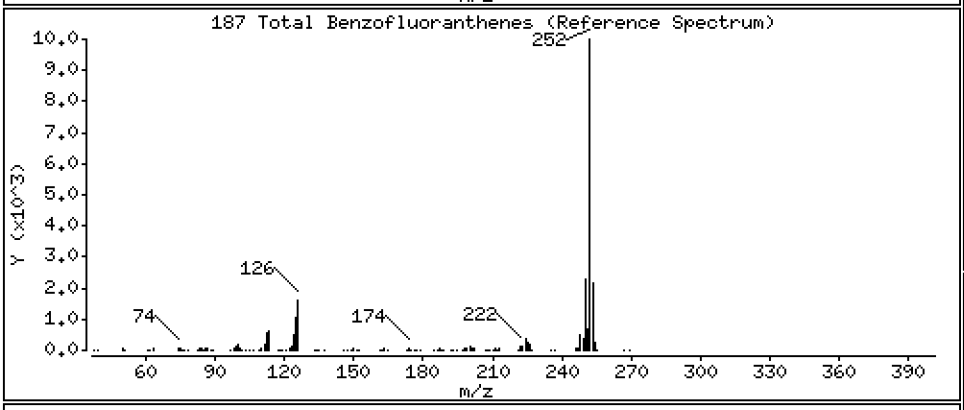
Column diameter: 0.25

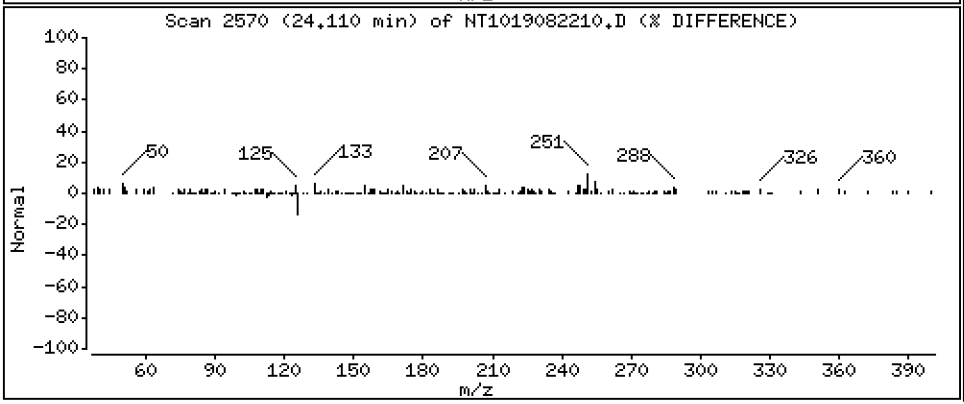
187 Total Benzofluoranthenes

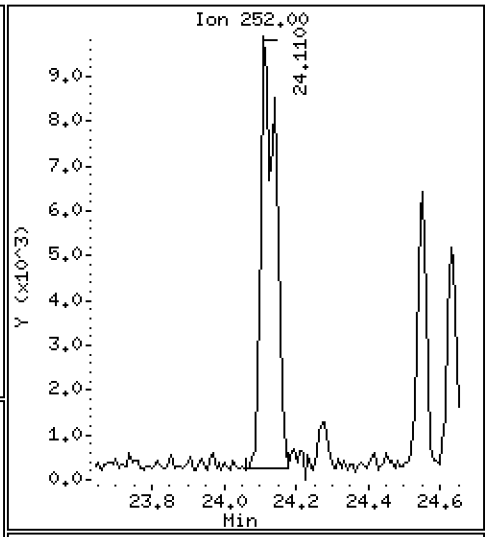
Concentration: 4.278 ug/mL

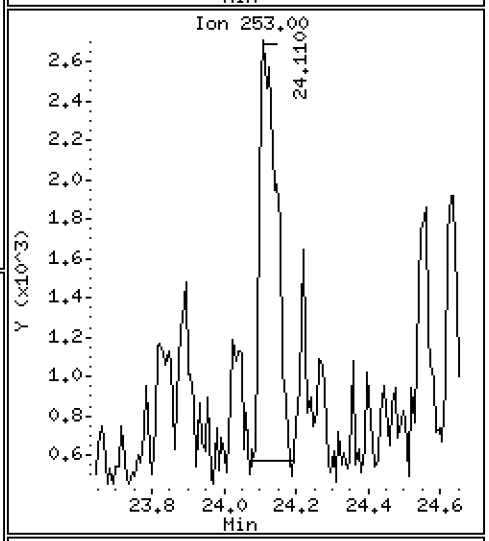


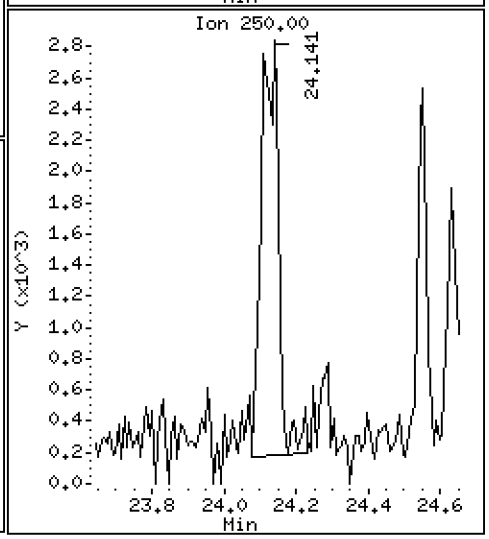












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190822.b\NT1019082210.D
Lab Smp Id: 19H0024-04RE1
Inj Date : 22-AUG-2019 19:21
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-04RE1,3
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 11:16 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 6
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.188	6.173	(0.743)	13513	1.00253	3.008
$	2 Phenol-d5	99	7.749	7.749	(0.930)	16650	1.10221	3.307
	3 Phenol	94	Compound Not Detected.					
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.958)	22867	1.40620	4.219
*	8 1,4-Dichlorobenzene-d4	152	8.329	8.329	(1.000)	48001	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.678	8.671	(1.042)	10387	0.93426	2.803
	11 Benzyl alcohol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.400	9.408	(0.873)	12147	0.86862	2.606
	24 Benzoic acid	105	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.764	10.765	(1.000)	178802	4.00000	
	28 Naphthalene	128	Compound Not Detected.					
	32 2-Methylnaphthalene	142	Compound Not Detected.					
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	37144	1.07842	3.235
	39 Dimethylphthalate	163	Compound Not Detected.					
	40 Acenaphthylene	152	Compound Not Detected.					
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	90049	4.00000	
	44 Acenaphthene	153	Compound Not Detected.					
	46 Dibenzofuran	168	Compound Not Detected.					
	50 Diethylphthalate	149	Compound Not Detected.					
	49 Fluorene	166	Compound Not Detected.					
	54 N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55 2,4,6-Tribromophenol	330	15.923	15.931	(1.113)	8456	1.24189	3.726
*	59 Phenanthrene-d10	188	17.298	17.291	(1.000)	175008	4.00000	
	60 Phenanthrene	178	17.337	17.345	(1.002)	15166	0.35477	1.064
	61 Anthracene	178	17.430	17.430	(1.008)	8077	0.18608	0.5582
	63 Di-n-butylphthalate	149	Compound Not Detected.					
	64 Fluoranthene	202	19.759	19.751	(0.883)	63146	2.30403	6.912
	65 Pyrene	202	20.177	20.169	(0.901)	51117	1.78611	5.358
$	66 Terphenyl-d14	244	20.502	20.502	(0.916)	29021	1.49522	4.486
	67 Butylbenzylphthalate	149	Compound Not Detected.					
	68 Benzo(a)anthracene	228	22.352	22.352	(0.999)	15914	0.61159	1.835
*	69 Chrysene-d12	240	22.383	22.383	(1.000)	89684	4.00000	
	71 Chrysene	228	22.430	22.430	(1.002)	20271	0.88039	2.641

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.515	22.515	(0.958)	31407	1.79350	5.380
* 134	Di-n-octylphthalate-d4	153	23.490	23.490	(1.000)	199098	4.00000	
73	Di-n-octylphthalate	149	Compound Not Detected.					
74	Benzo(b)fluoranthene	252	24.109	24.110	(0.975)	15300	0.74636	2.239
75	Benzo(k)fluoranthene	252	24.140	24.110	(0.976)	13027	0.63167	1.895(M)
76	Benzo(a)pyrene	252	24.628	24.628	(0.996)	8894	0.48342	1.450
* 77	Perylene-d12	264	24.729	24.721	(1.000)	71450	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.805	26.806	(1.084)	7401	0.33480	1.004
79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
80	Benzo(g,h,i)perylene	276	27.411	27.404	(1.108)	7996	0.42946	1.288
105	1-methylnaphthalene	142	Compound Not Detected.					
187	Total Benzofluoranthenes	252	24.109	24.148	(0.975)	28042	1.42612	4.278(M)

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082210.D
Lab Smp Id: 19H0024-04RE1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 16:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	48001	46.62
27 Naphthalene-d8	117487	58744	234974	178802	52.19
42 Acenaphthene-d10	61859	30930	123718	90049	45.57
59 Phenanthrene-d10	113574	56787	227148	175008	54.09
69 Chrysene-d12	105788	52894	211576	89684	-15.22
134 Di-n-octylphthala	252823	126412	505646	199098	-21.25
77 Perylene-d12	113992	56996	227984	71450	-37.32

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.33	-0.00
27 Naphthalene-d8	10.77	10.27	11.27	10.76	-0.00
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	-0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.30	0.04
69 Chrysene-d12	22.38	21.88	22.88	22.38	-0.00
134 Di-n-octylphthala	23.49	22.99	23.99	23.49	-0.00
77 Perylene-d12	24.72	24.22	25.22	24.73	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082210.D

Lab ID: 19H0024-04RE1
nt10.i, 20190822.b\ABN.m,   22-AUG-2019 19:21

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT1019082206.D

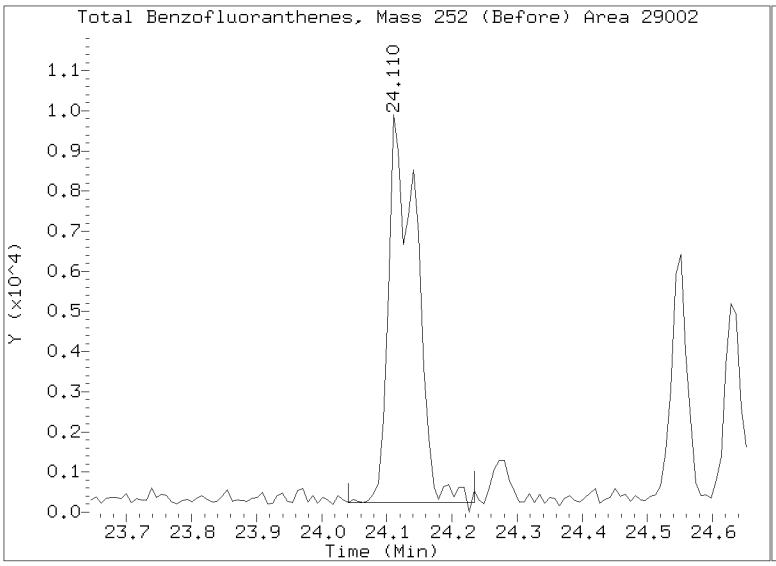
On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

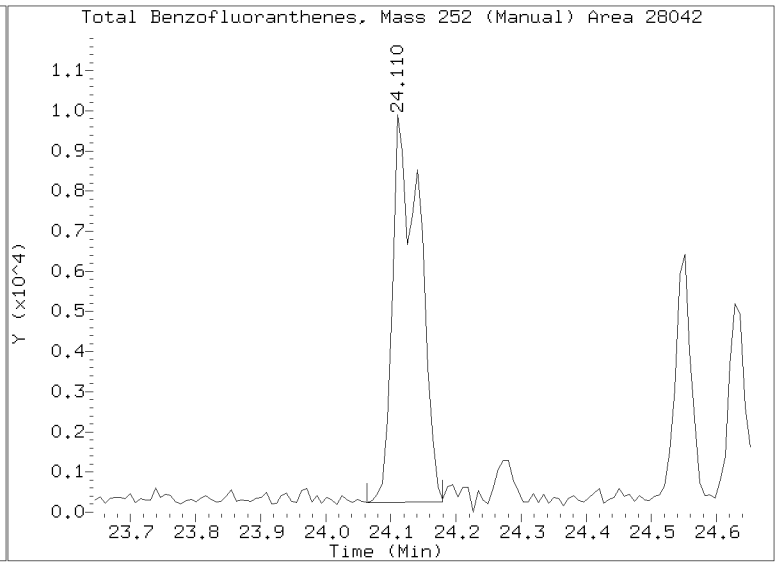
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

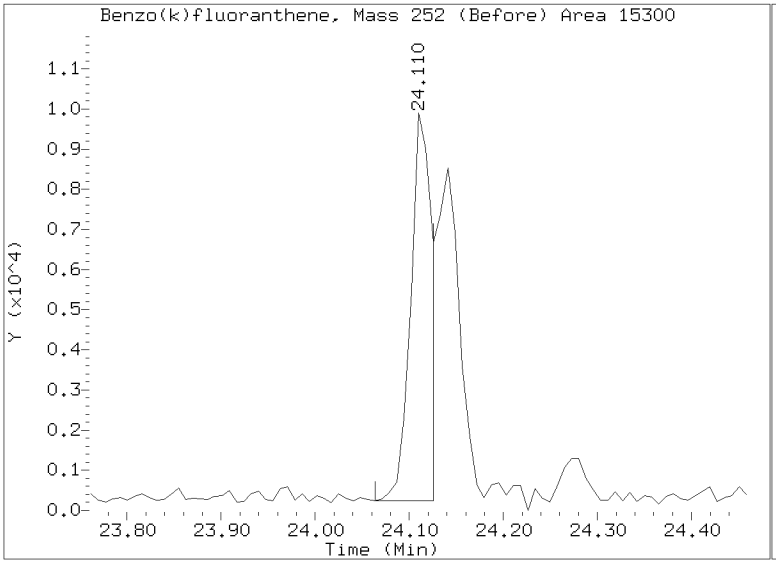
* Only compounds listed in the work order have been verified by the analyst *

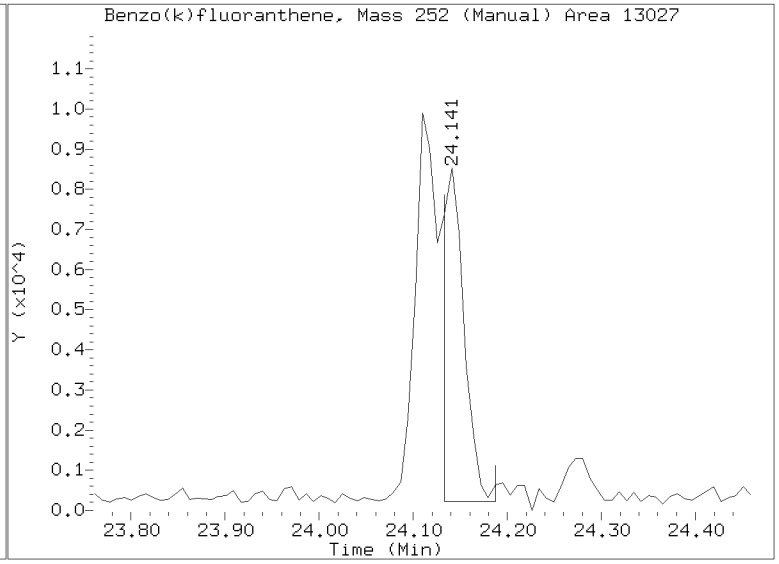
Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190822.b/NT1019082210.D
Injection Date: 22-AUG-2019 19:21
Lab ID:19H0024-04RE1 Client ID:
Report Date: 08/23/2019 11:16









SL4-SG-WC7-FD-2019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D

Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory: Analytical Resources, Inc.

Client: Windward Environmental, LLC

Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix:	Solid	Laboratory ID:	19H0024-05 C	SDG:	19H0024
Sampled:	08/01/19 08:39	Prepared:	08/13/19 12:40	File ID:	NT1019082114.D
% Solids:	40.84	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/21/19 18:15
Batch:	BHH0289	Sequence:	SHH0303	Initial/Final:	24.61 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040

Cleanups: GPC

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	1	16.7	J	8.2	19.9
100-51-6	Benzyl Alcohol	1	16.8	J	14.8	19.9
65-85-0	Benzoic acid	1	73.5	J	58.8	199
86-30-6	N-Nitrosodiphenylamine	1	19.9	U	9.5	19.9
85-01-8	Phenanthrene	1	147		4.7	19.9
206-44-0	Fluoranthene	1	926		4.5	19.9
129-00-0	Pyrene	1	681		5.5	19.9
85-68-7	Butylbenzylphthalate	1	8.7	J	8.0	19.9
56-55-3	Benzo(a)anthracene	1	211		5.2	19.9
218-01-9	Chrysene	1	370		5.2	19.9
117-81-7	bis(2-Ethylhexyl)phthalate	1	668		28.7	49.7
117-84-0	Di-n-Octylphthalate	1	51.9		8.7	19.9
	Benzofluoranthenes, Total	1	565		10.1	39.8
50-32-8	Benzo(a)pyrene	1	214		6.4	19.9
193-39-5	Indeno(1,2,3-cd)pyrene	1	74.3		6.0	19.9
53-70-3	Dibenzo(a,h)anthracene	1	19.9	U	6.1	19.9
191-24-2	Benzo(g,h,i)perylene	1	77.3		5.8	19.9

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	746.21	402	53.8	27 - 120	Q
Phenol-d5	746.21	412	55.2	29 - 120	Q
2-Chlorophenol-d4	746.21	561	75.2	31 - 120	
1,2-Dichlorobenzene-d4	497.48	360	72.4	32 - 120	
Nitrobenzene-d5	497.48	339	68.2	30 - 120	
2-Fluorobiphenyl	497.48	434	87.2	35 - 120	
2,4,6-Tribromophenol	746.21	647	86.7	24 - 134	
p-Terphenyl-d14	497.48	560	113	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

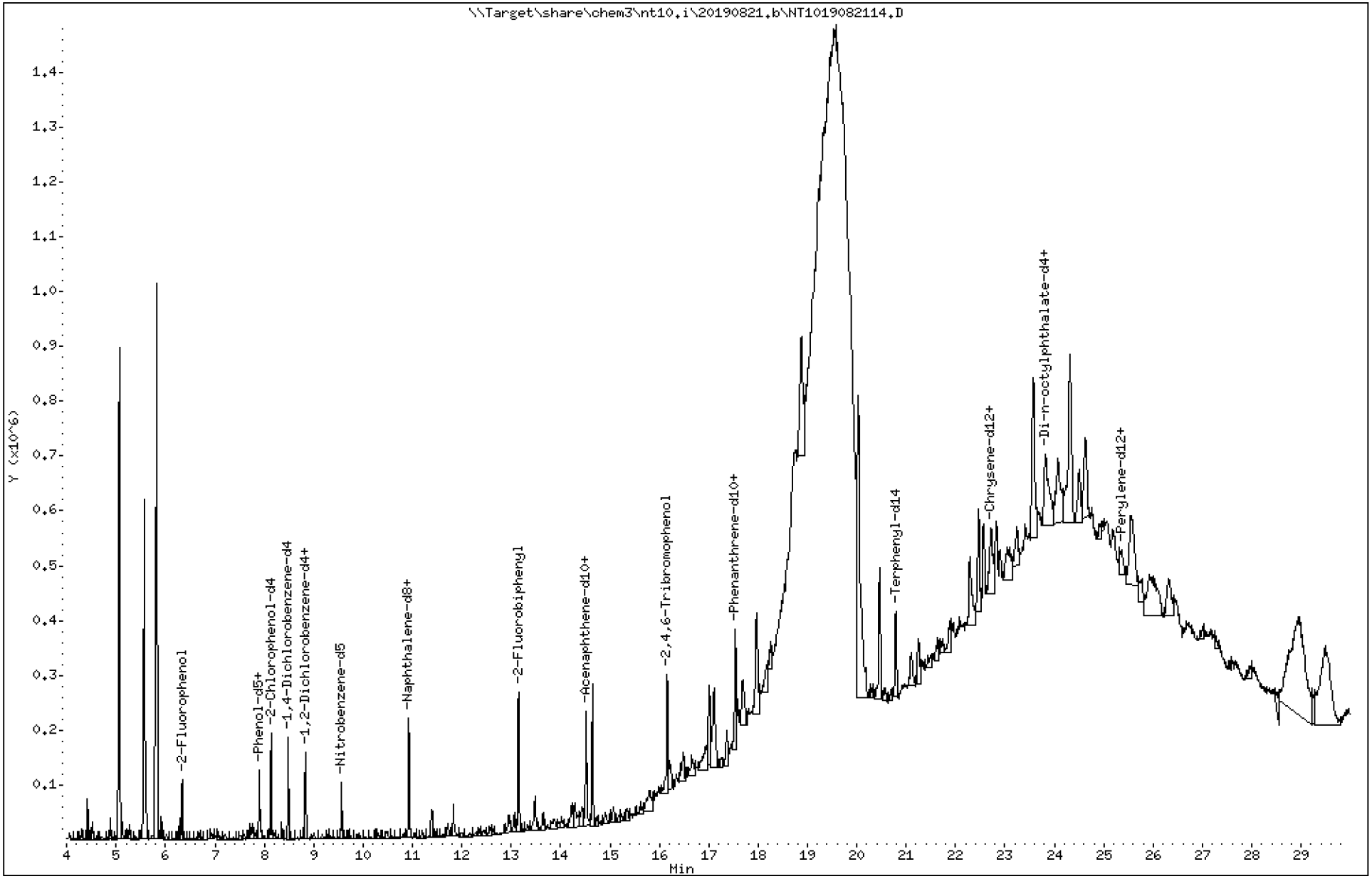
Instrument: nt10.i

Sample Info: 19H0024-05

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

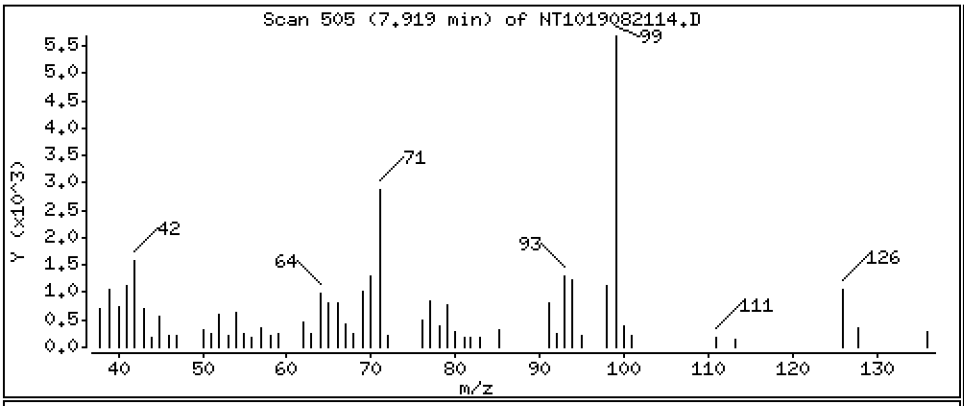
Operator: YZ

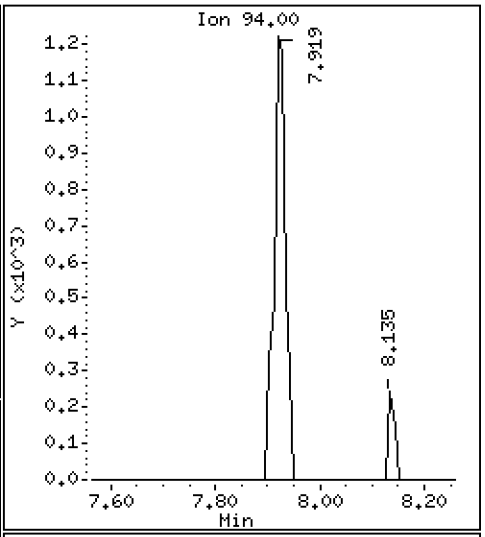
Column phase: ZB-5msi

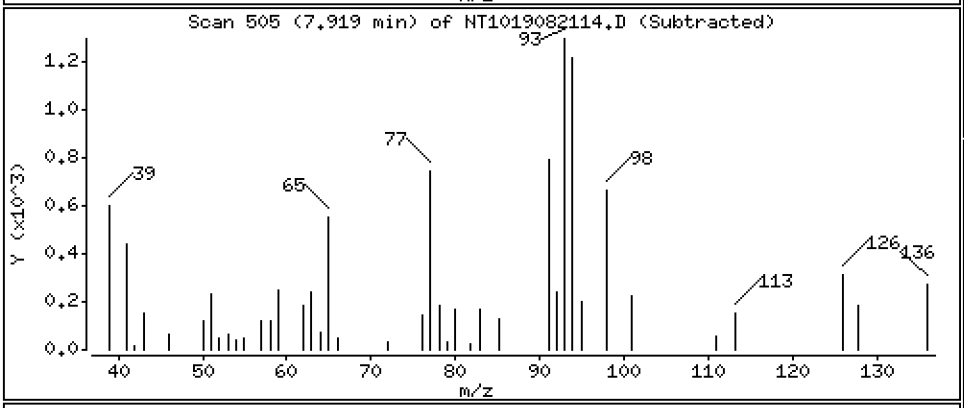
Column diameter: 0.25

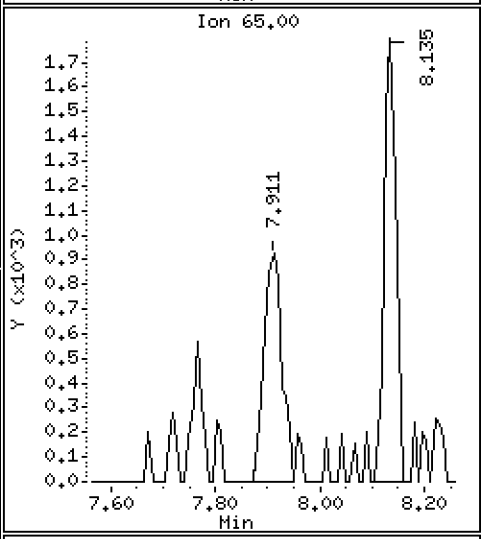
3 Phenol

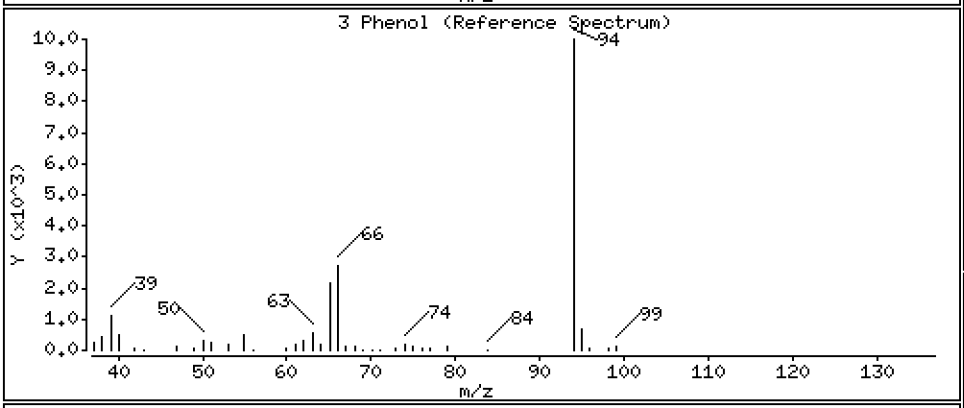
Concentration: 0.1682 ug/mL

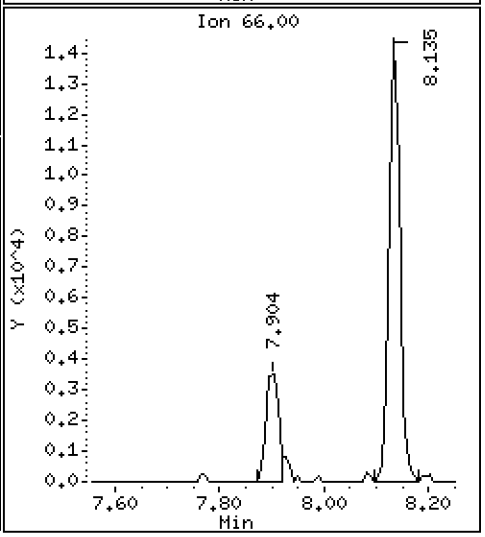


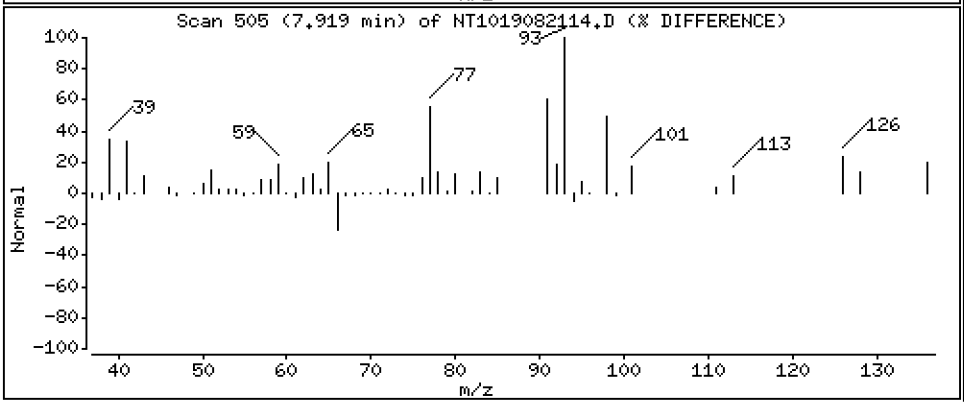












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Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

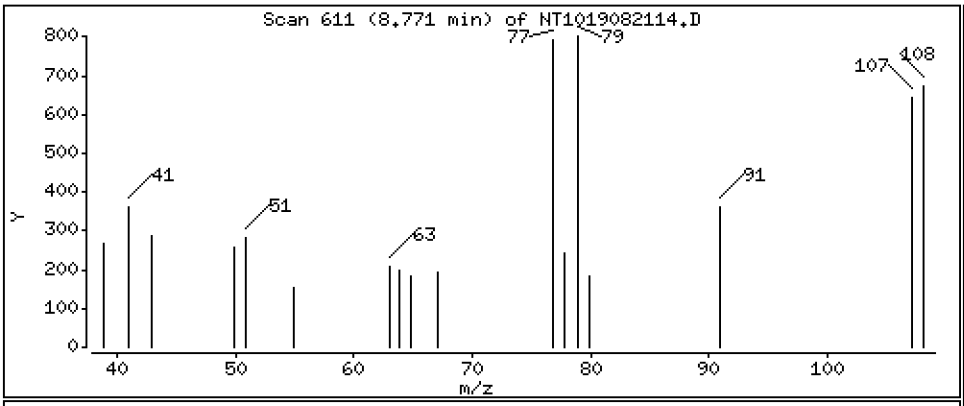
Operator: YZ

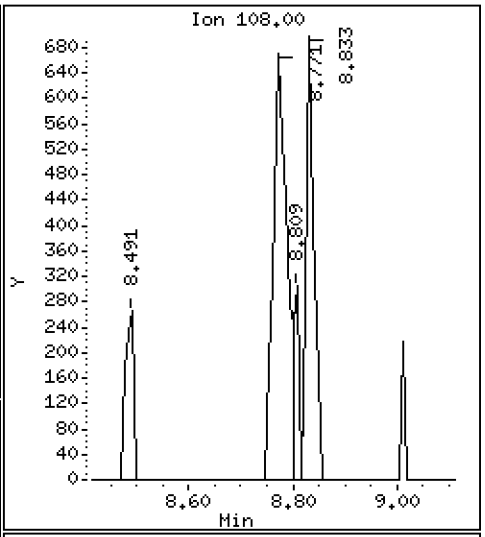
Column phase: ZB-5msi

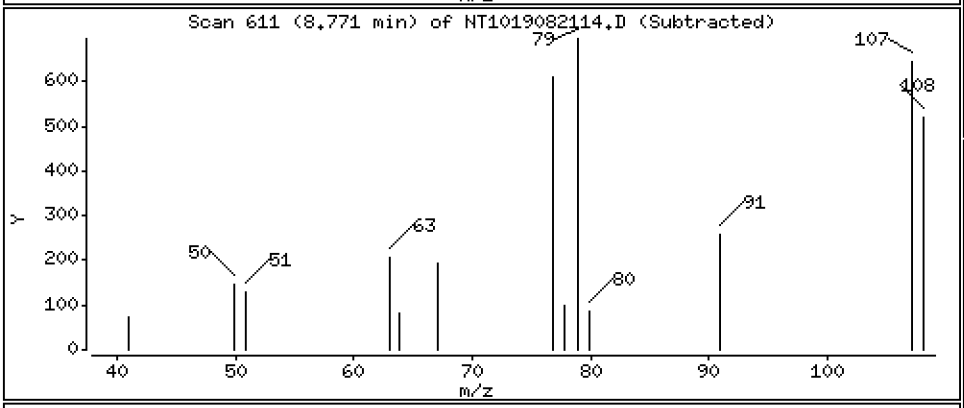
Column diameter: 0.25

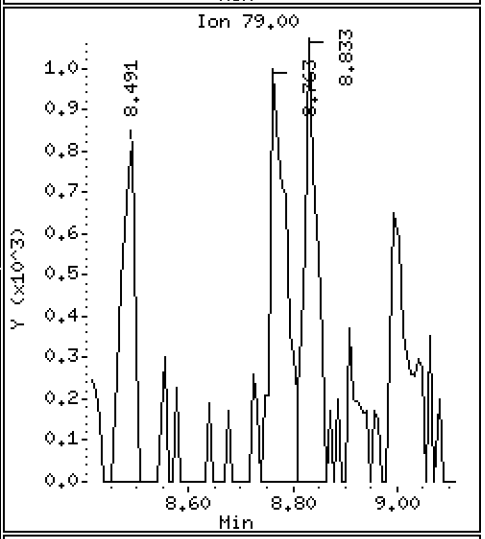
11 Benzyl alcohol

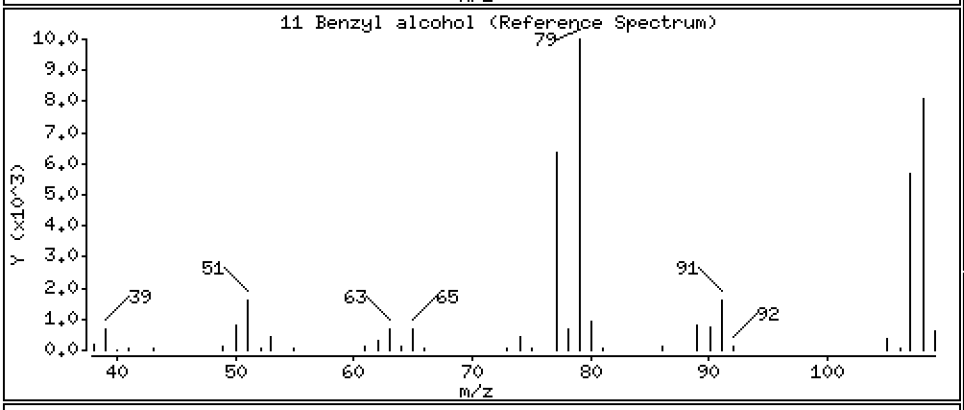
Concentration: 0.1692 ug/mL

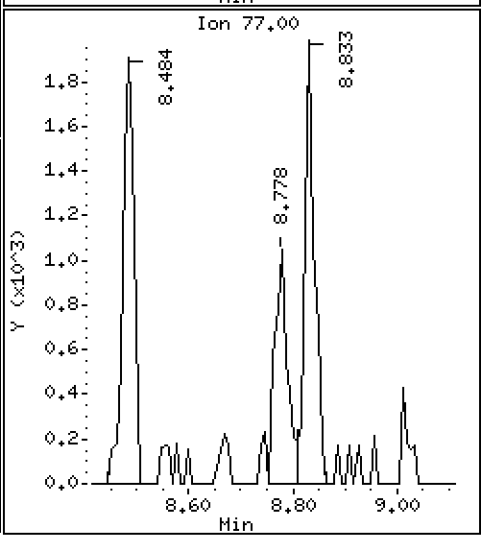


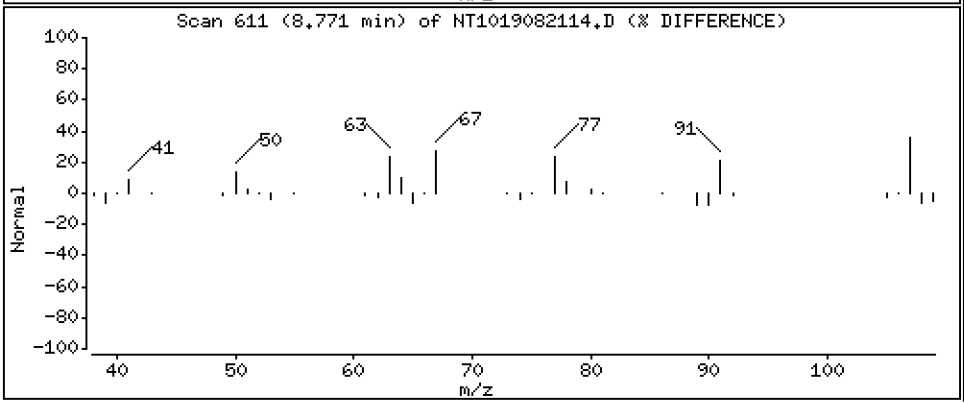












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Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

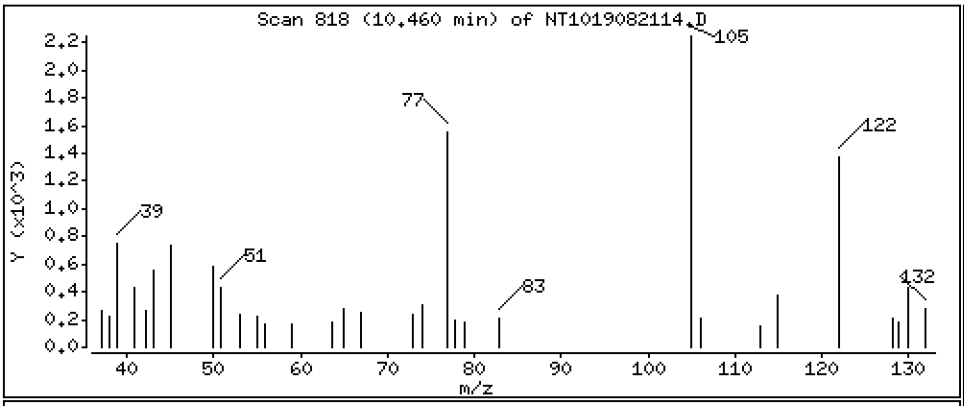
Operator: YZ

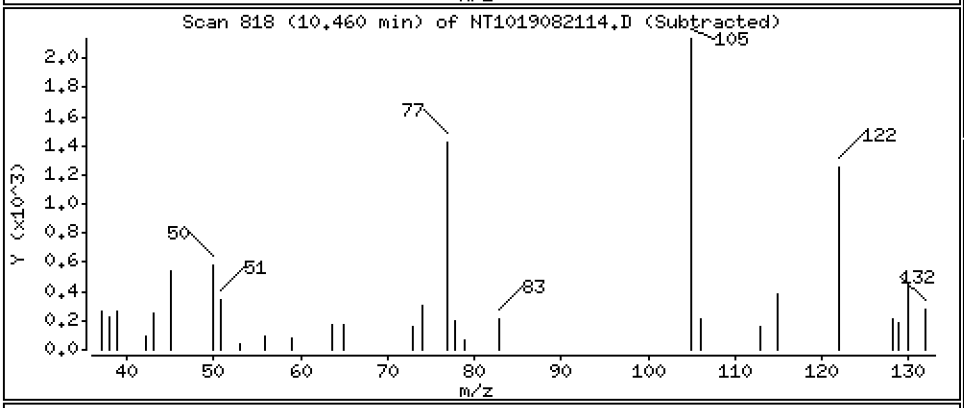
Column phase: ZB-5msi

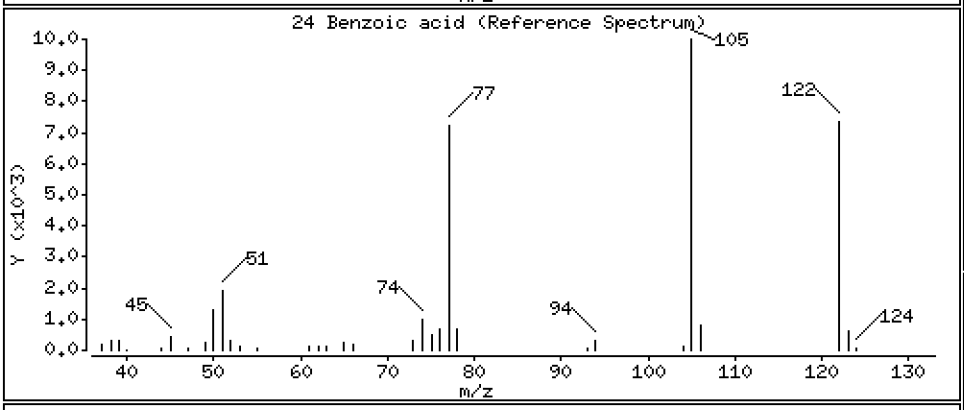
Column diameter: 0.25

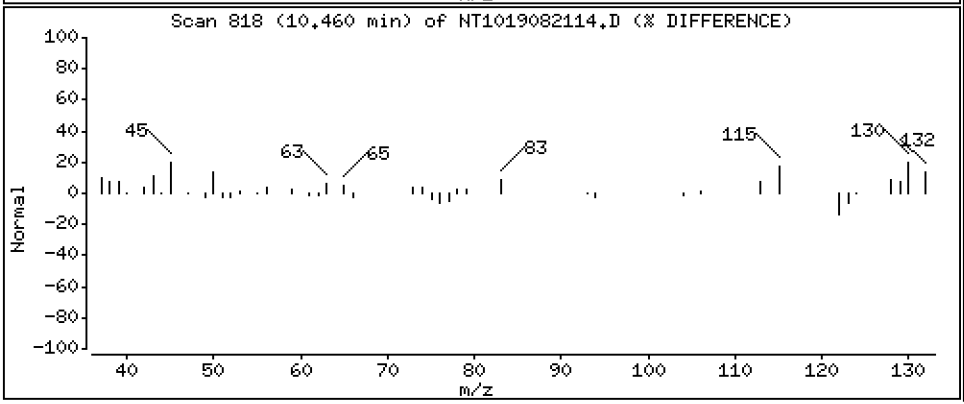
24 Benzoic acid

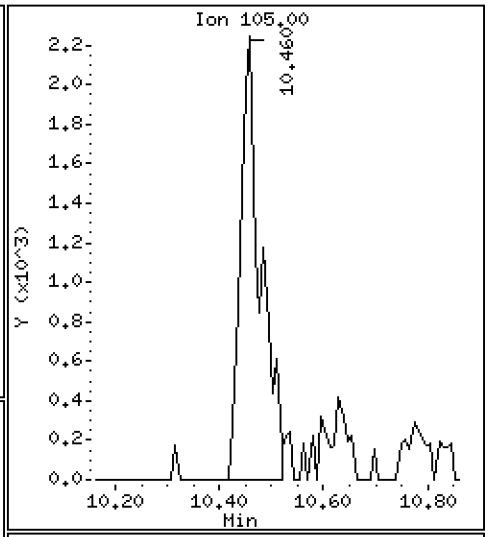
Concentration: 0.7392 ug/mL

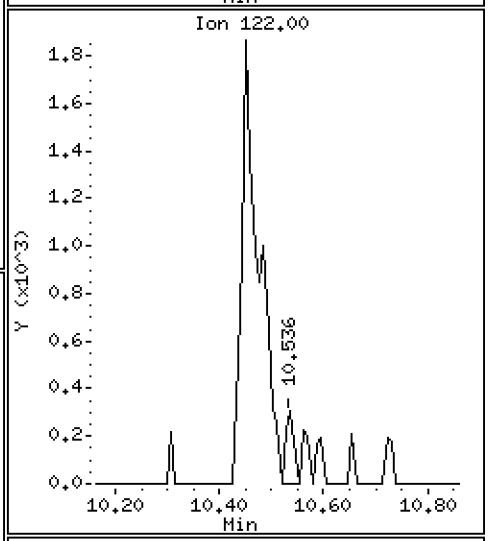


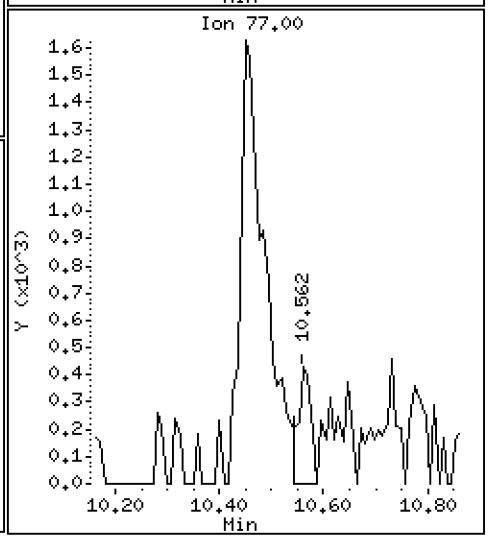












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Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

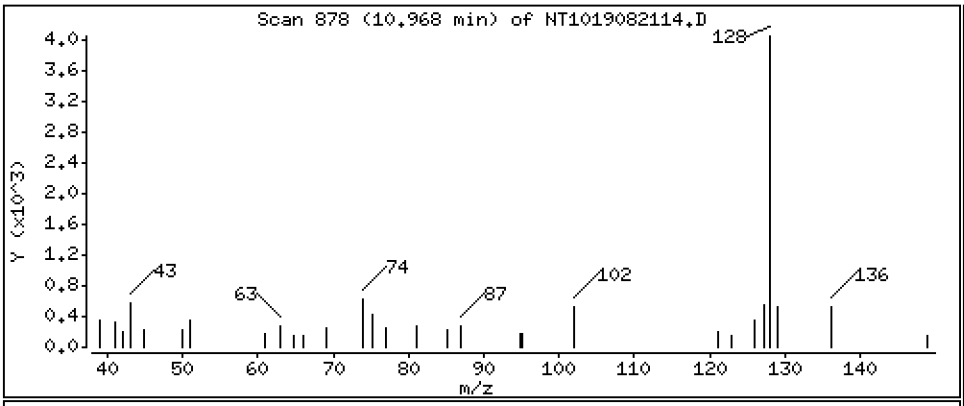
Operator: YZ

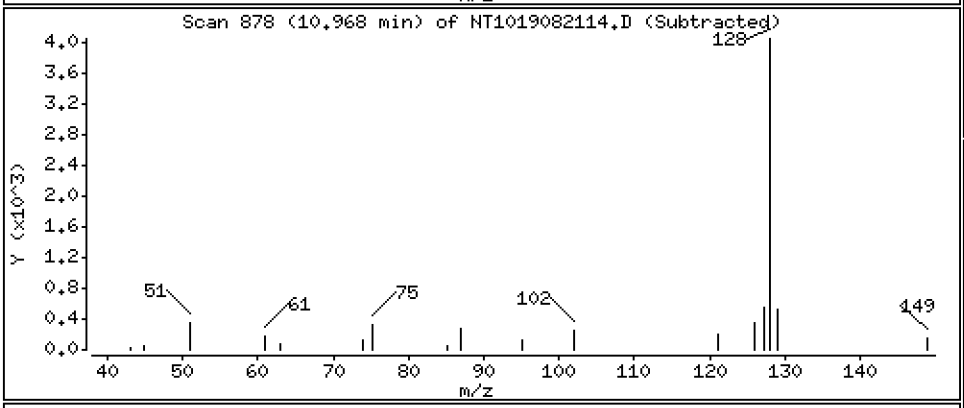
Column phase: ZB-5msi

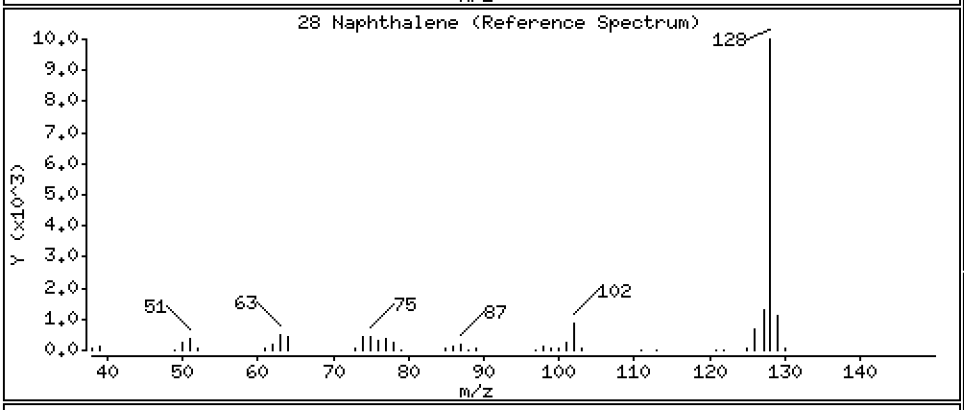
Column diameter: 0.25

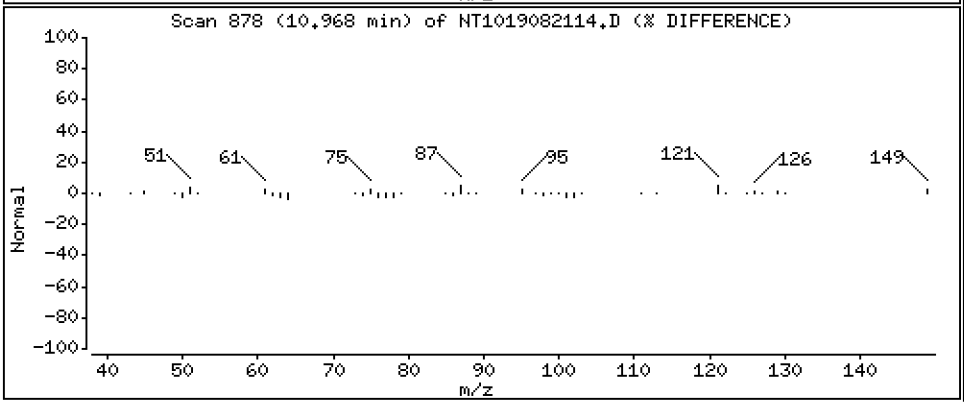
28 Naphthalene

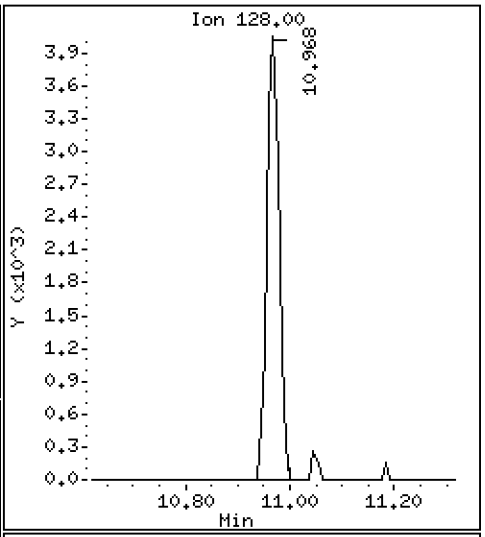
Concentration: 0.1846 ug/mL

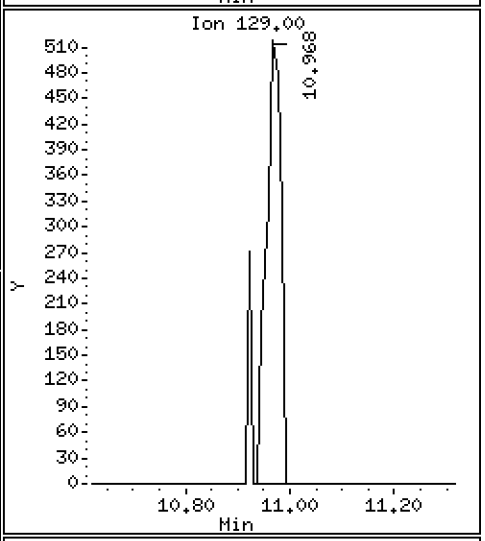


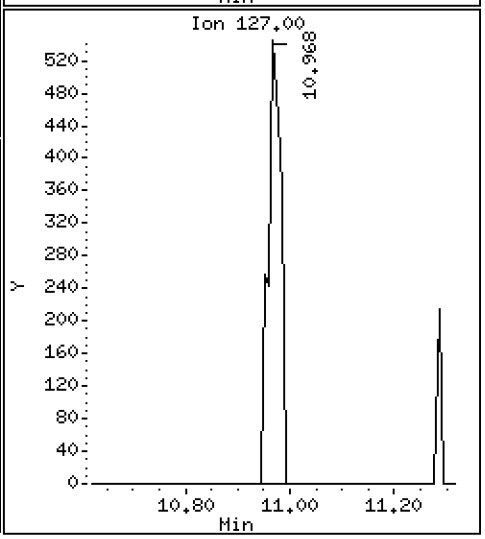












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Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

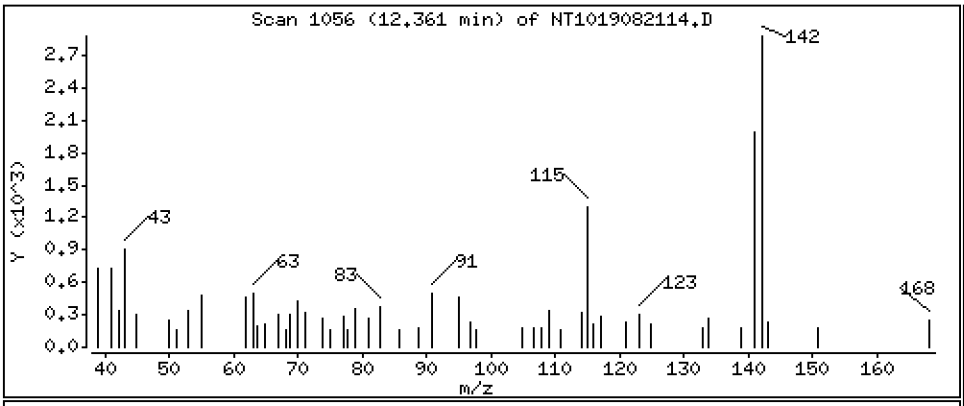
Operator: YZ

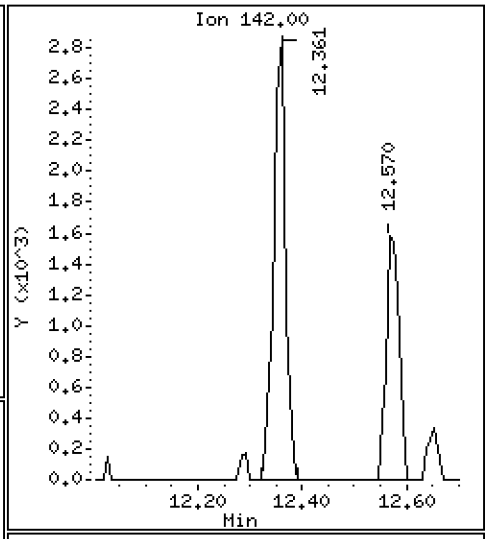
Column phase: ZB-5msi

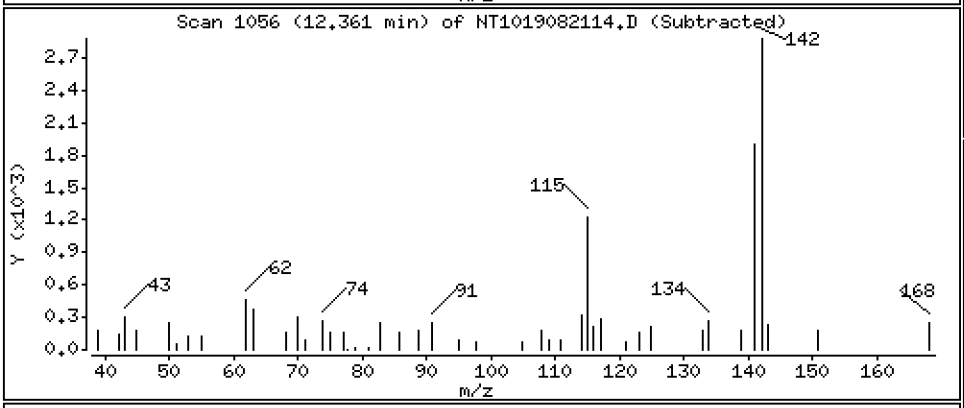
Column diameter: 0.25

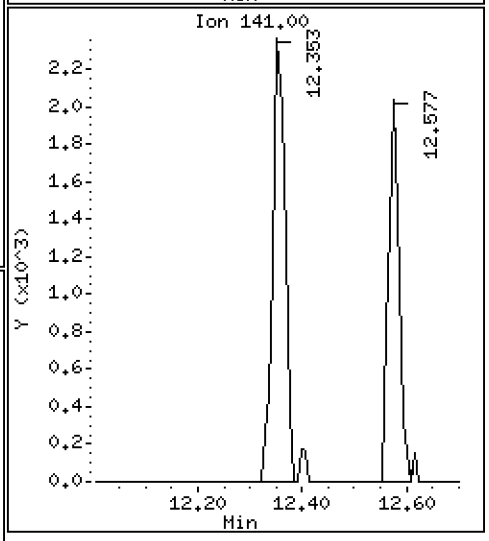
32 2-Methylnaphthalene

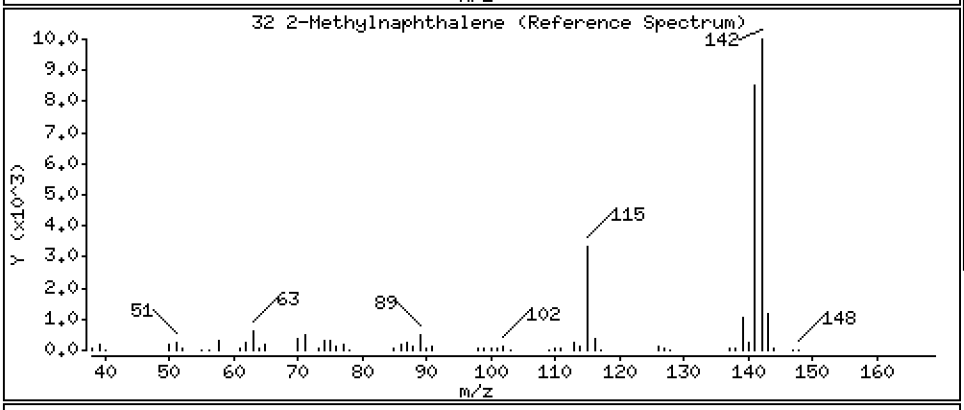
Concentration: 0.1470 ug/mL

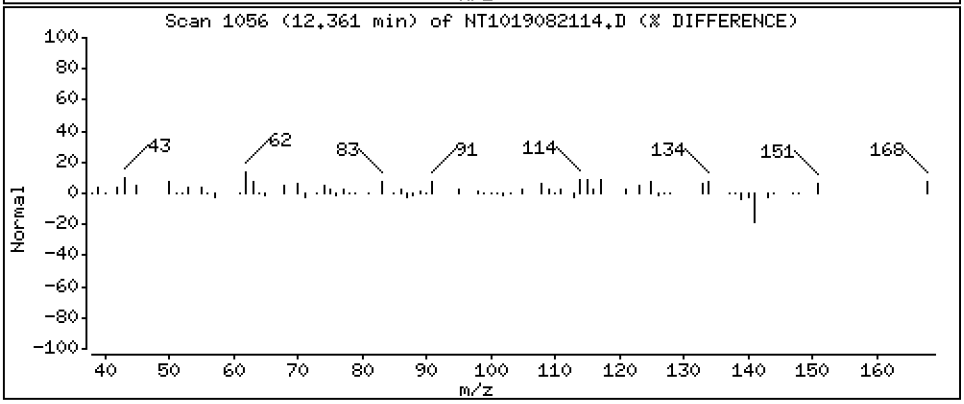












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Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

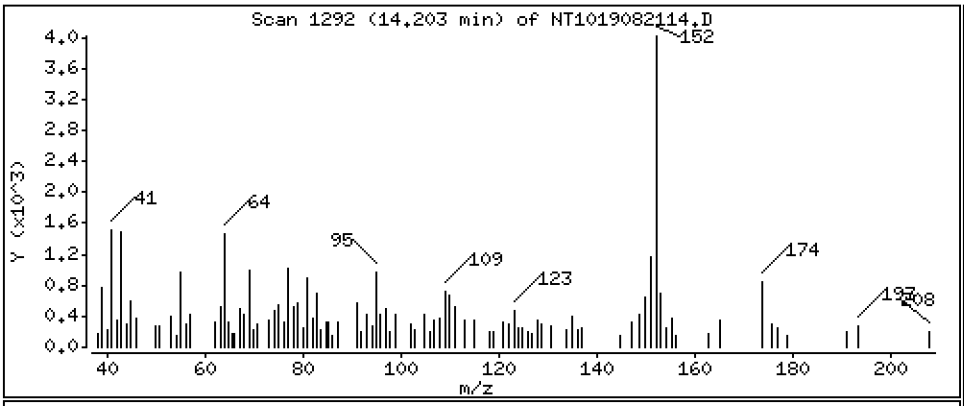
Operator: YZ

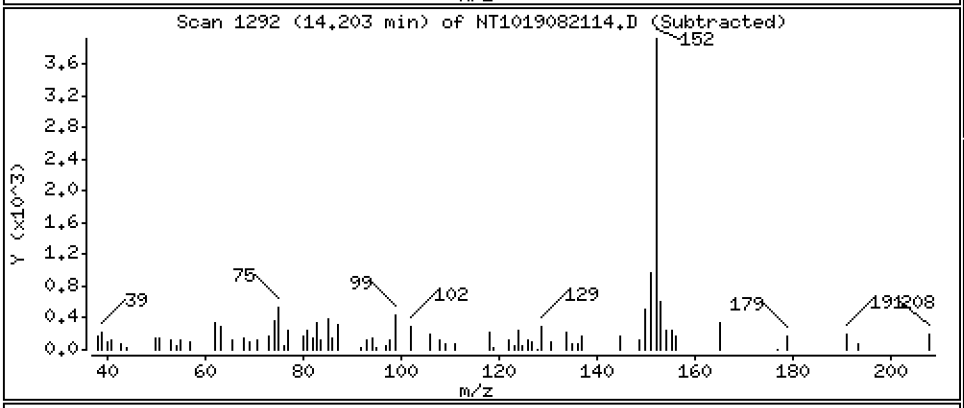
Column phase: ZB-5msi

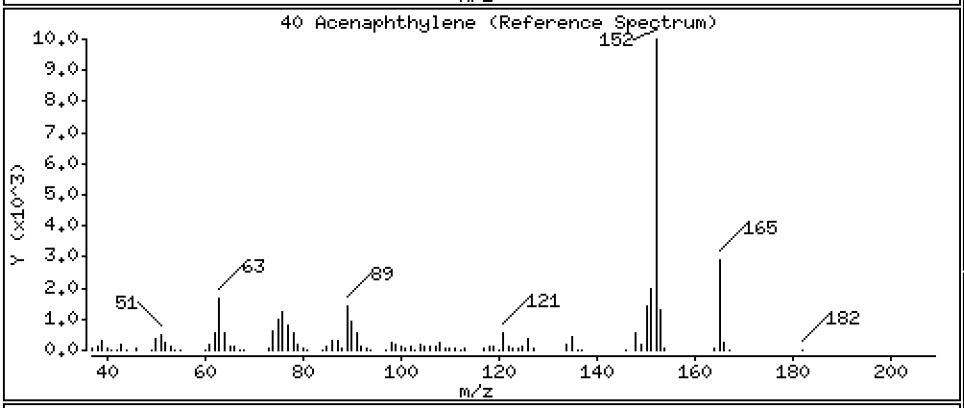
Column diameter: 0.25

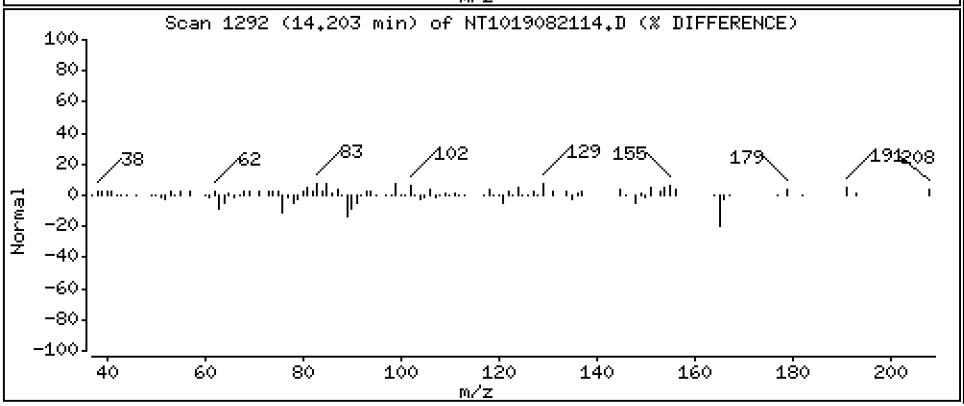
40 Acenaphthylene

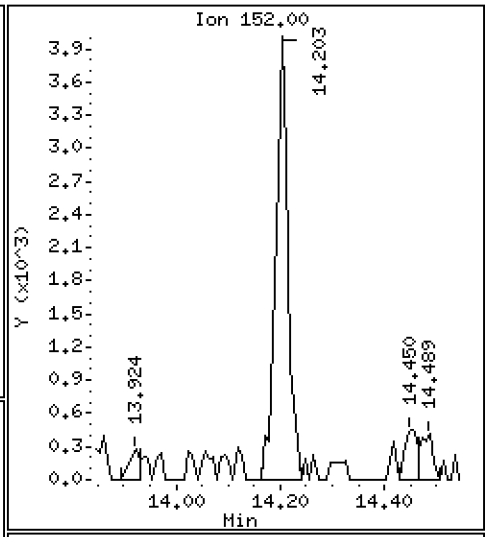
Concentration: 0.1813 ug/mL

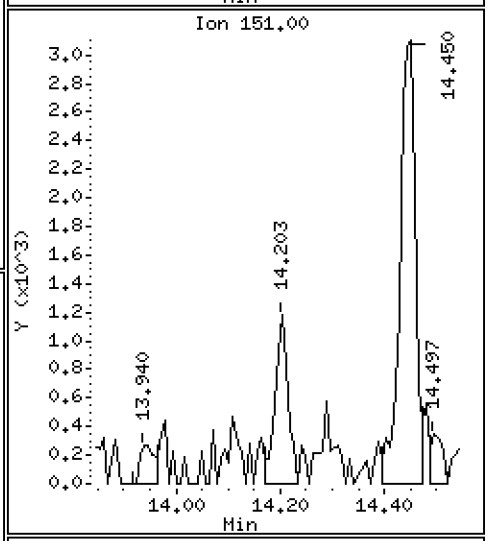


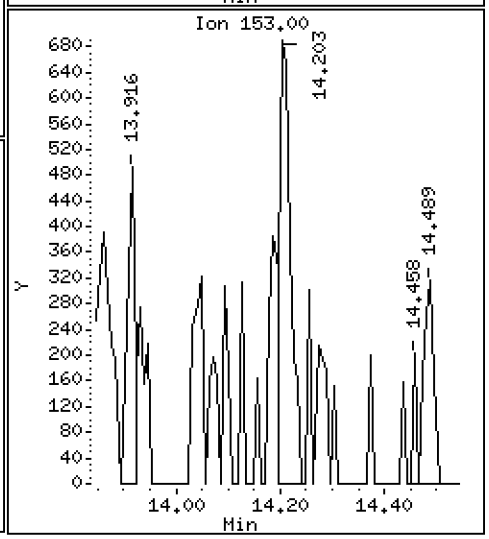












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Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

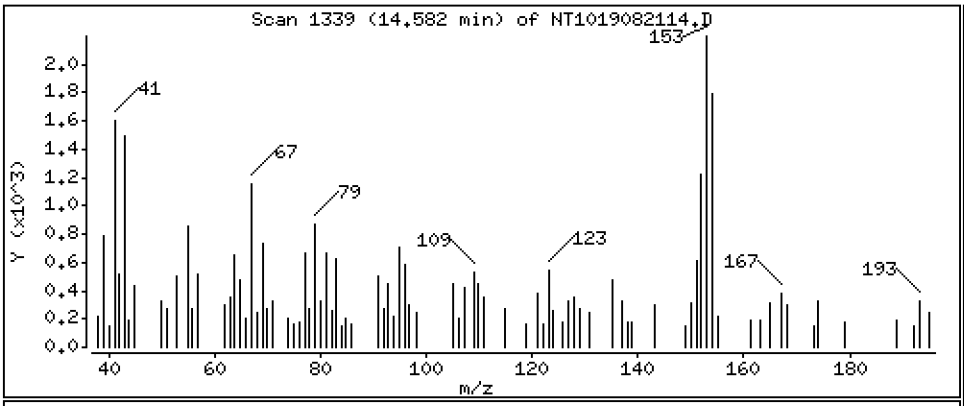
Operator: YZ

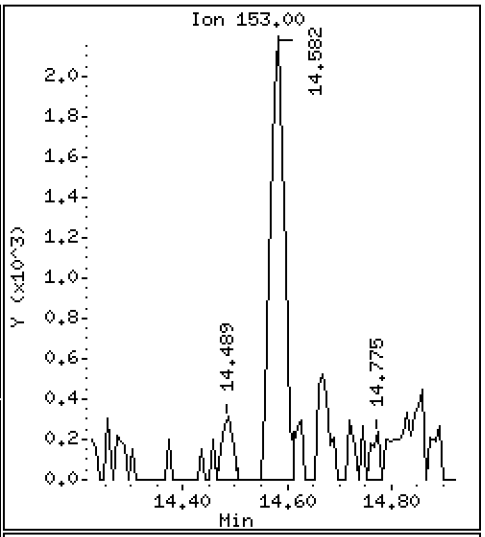
Column phase: ZB-5msi

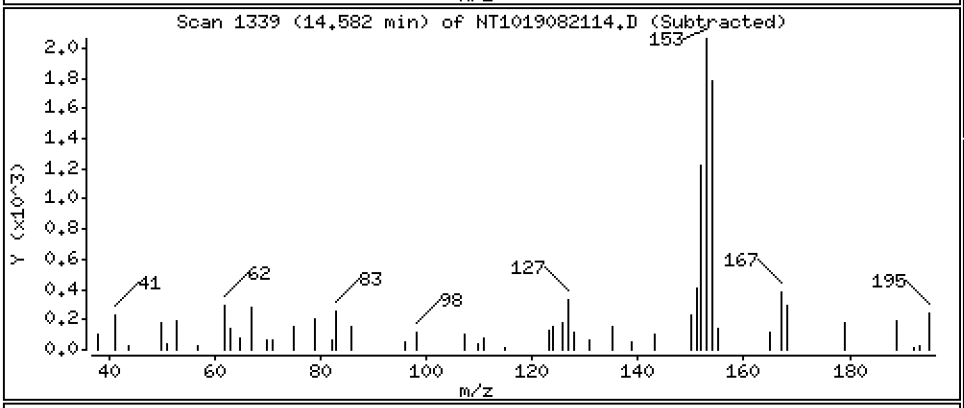
Column diameter: 0.25

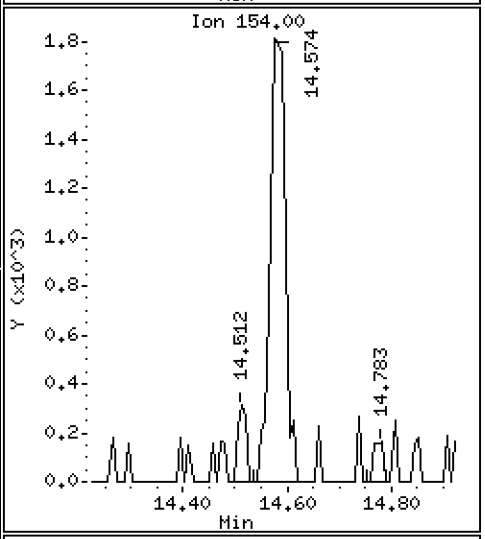
44 Acenaphthene

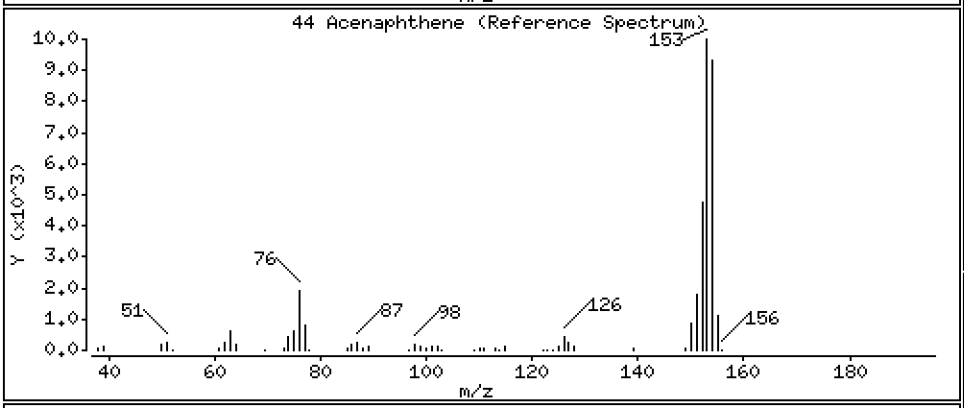
Concentration: 0.1810 ug/mL

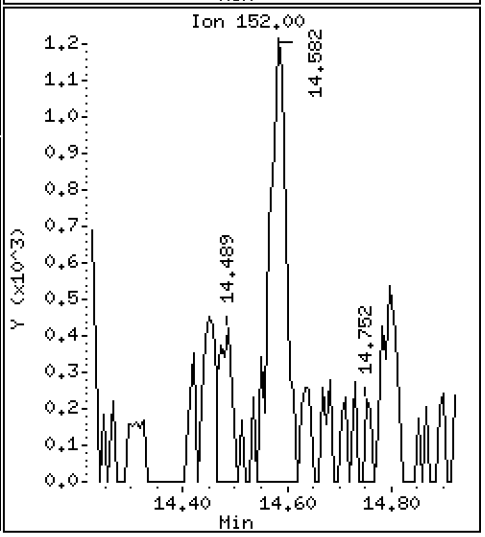


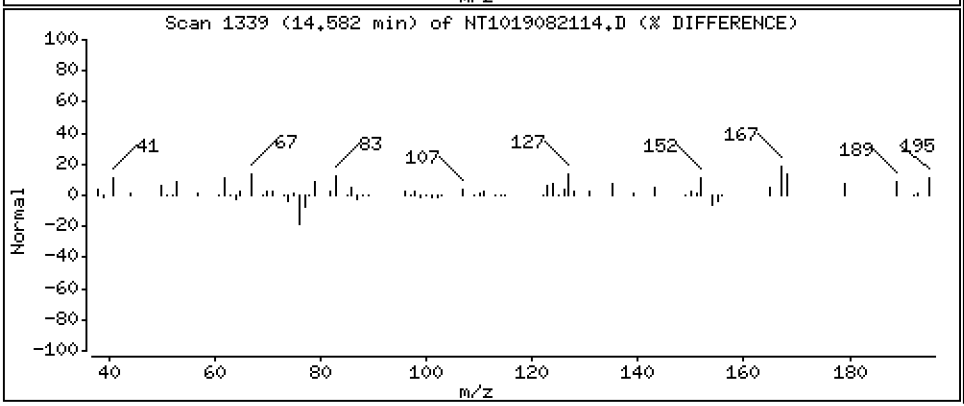












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Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

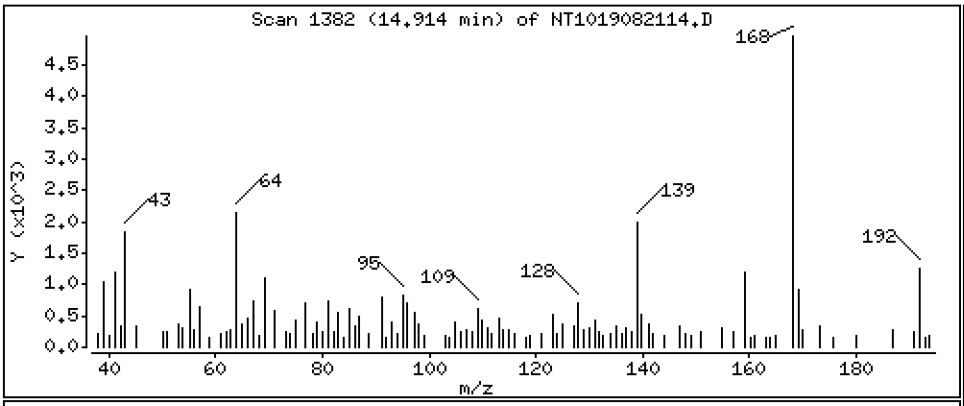
Operator: YZ

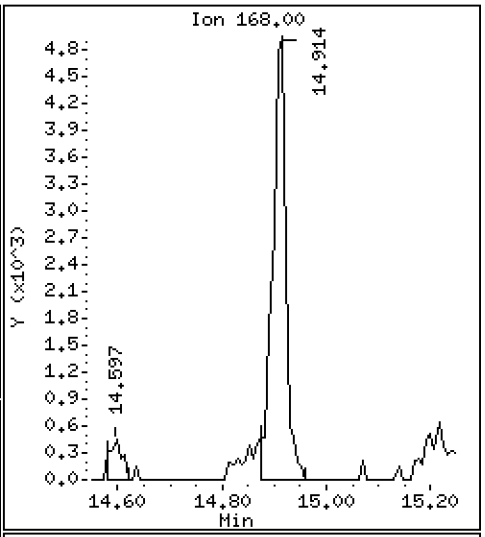
Column phase: ZB-5msi

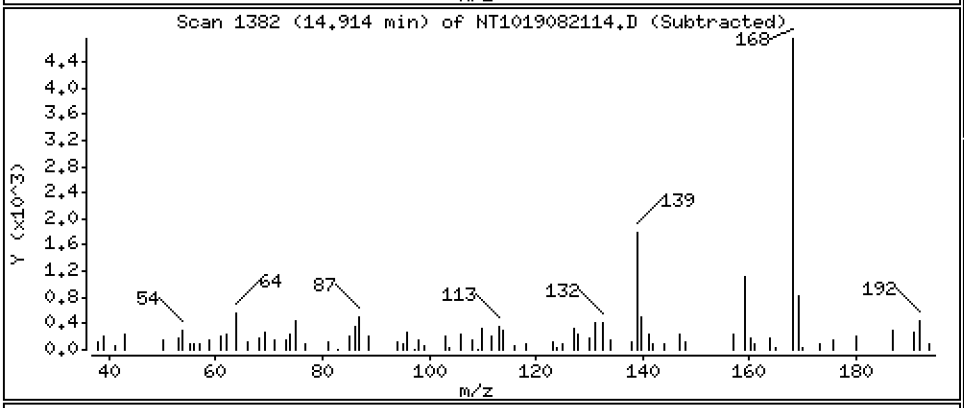
Column diameter: 0.25

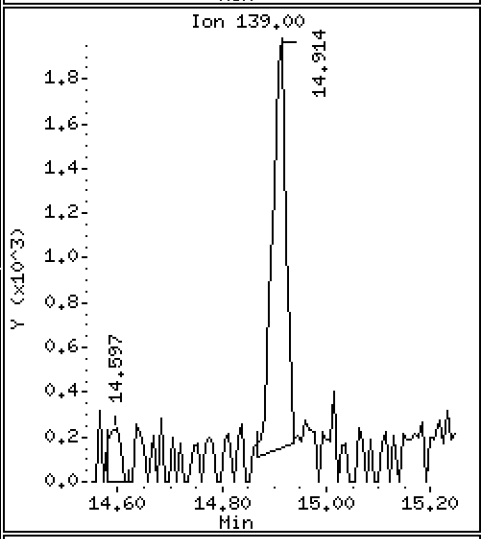
46 Dibenzofuran

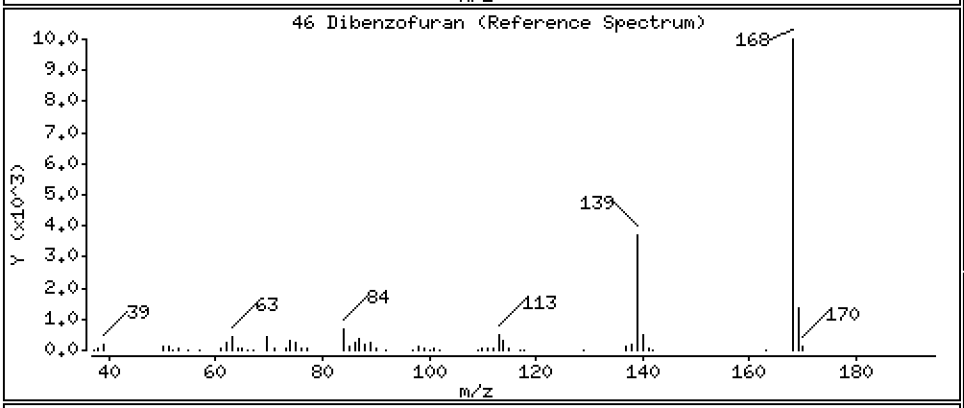
Concentration: 0.2410 ug/mL

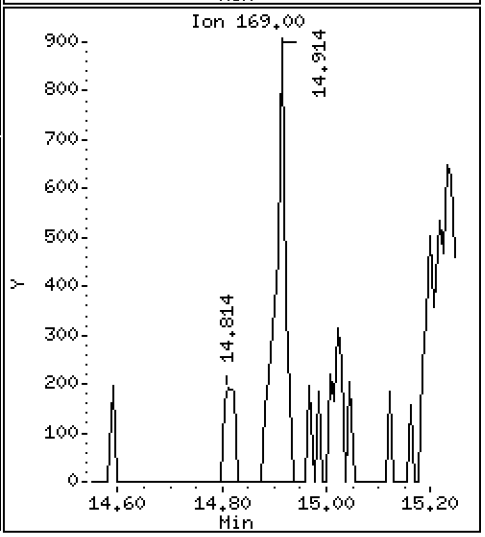


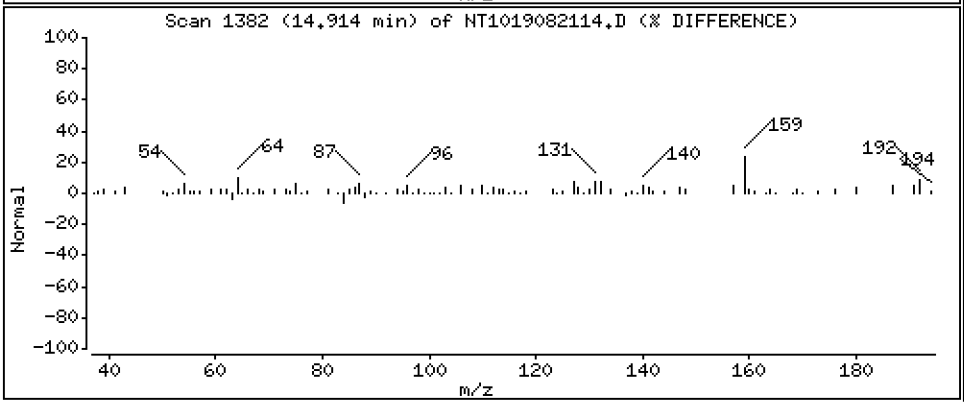












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

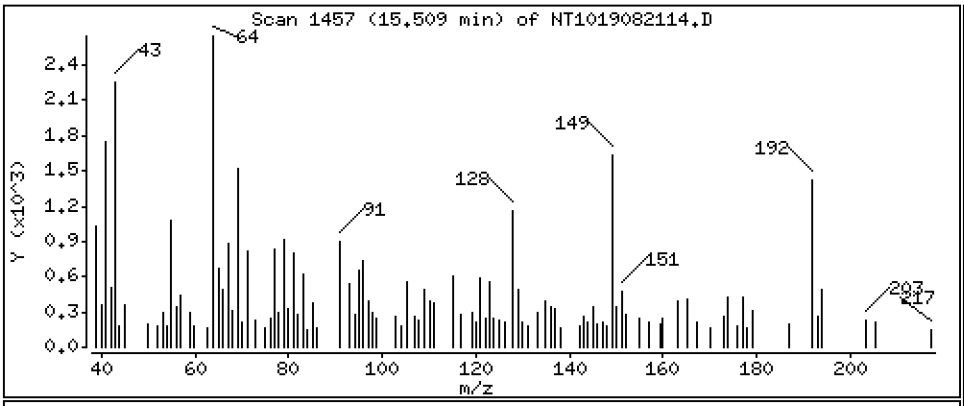
Operator: YZ

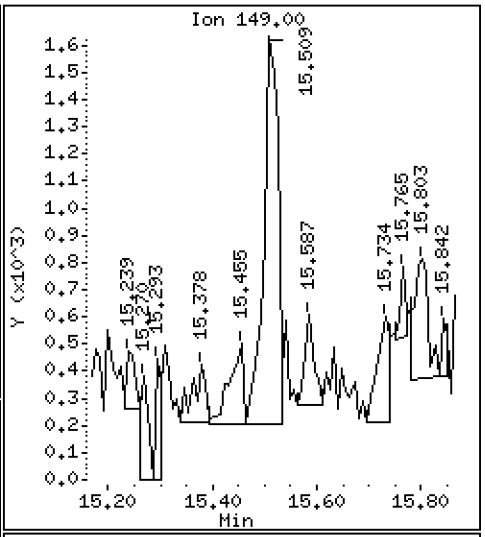
Column phase: ZB-5msi

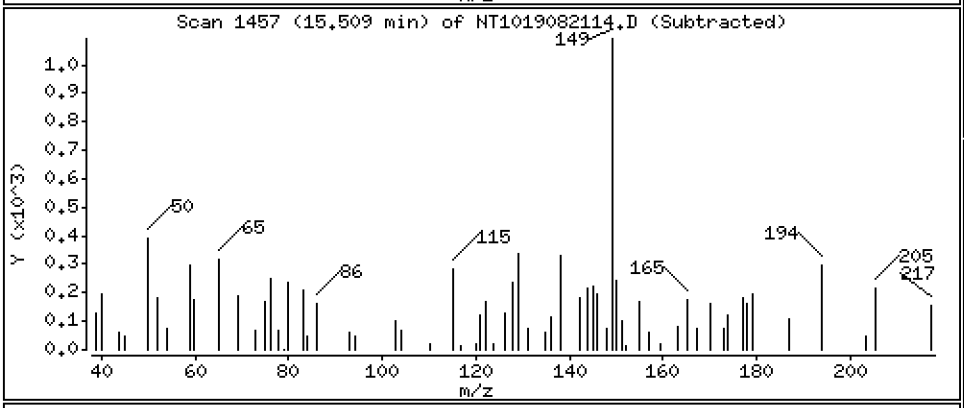
Column diameter: 0.25

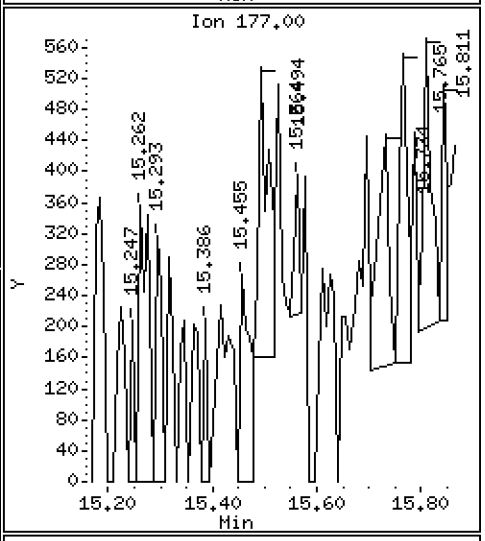
50 Diethylphthalate

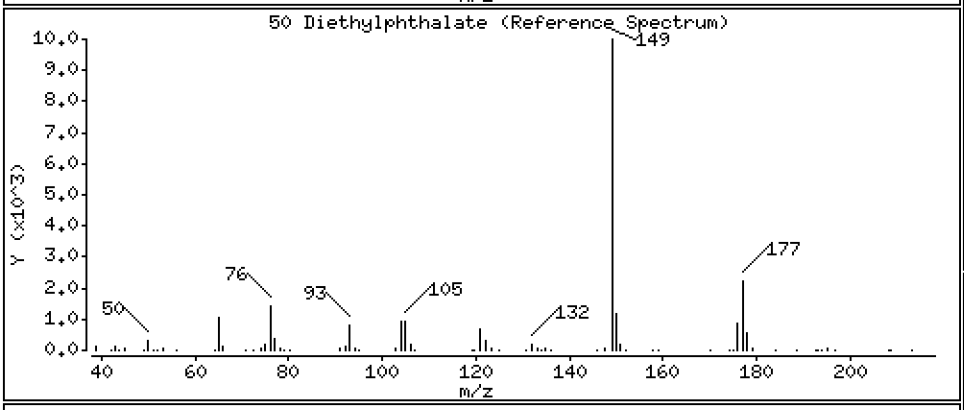
Concentration: 0.09867 ug/mL

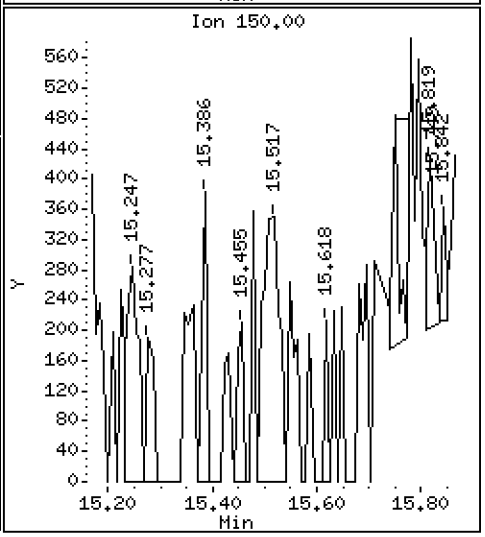


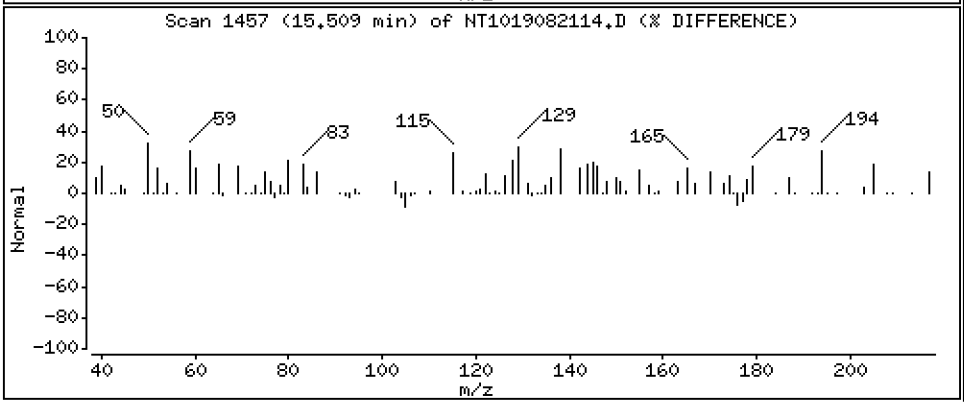












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

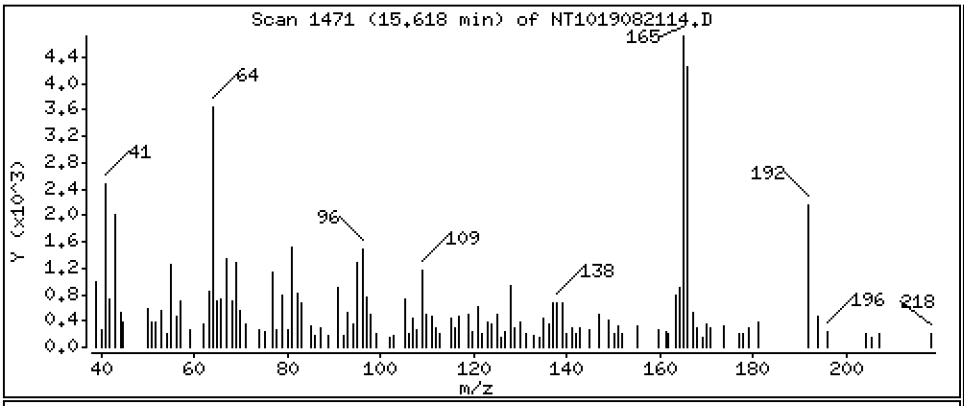
Operator: YZ

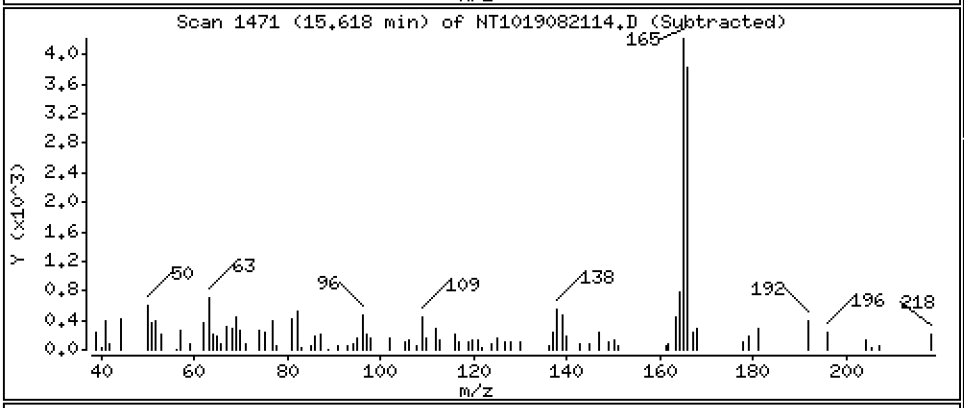
Column phase: ZB-5msi

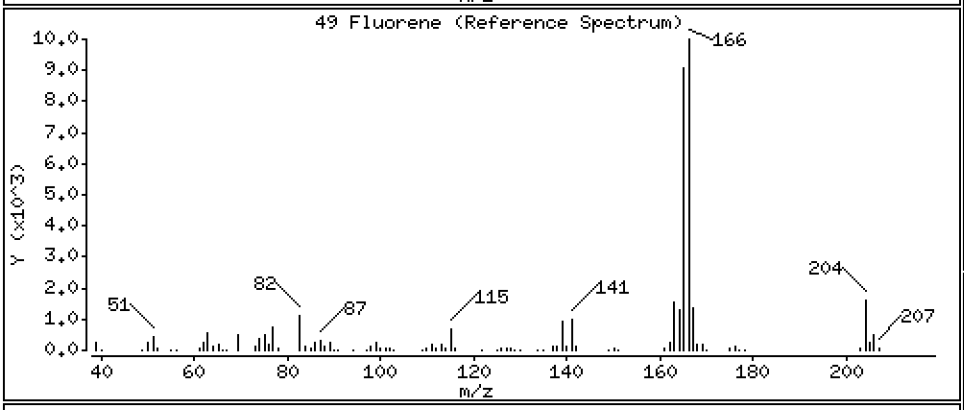
Column diameter: 0.25

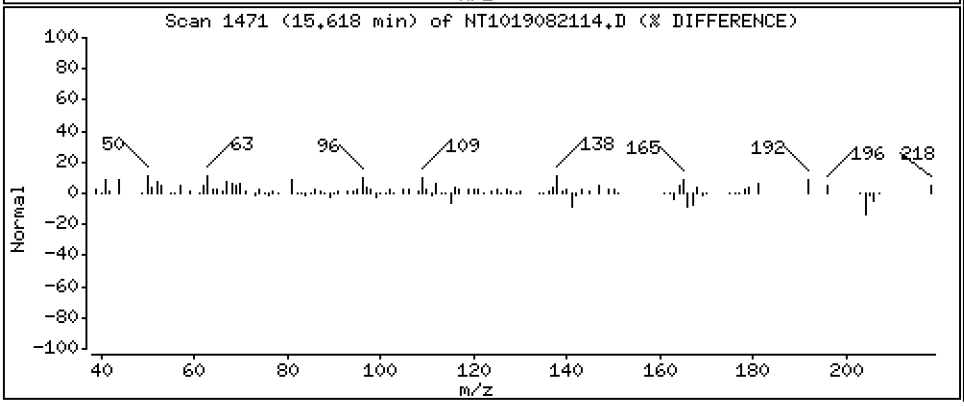
49 Fluorene

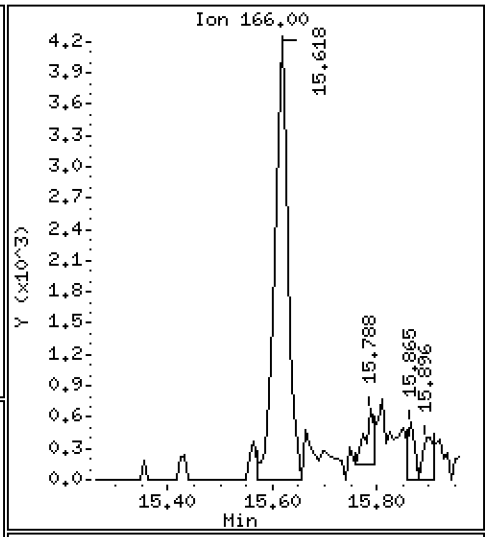
Concentration: 0.2951 ug/mL

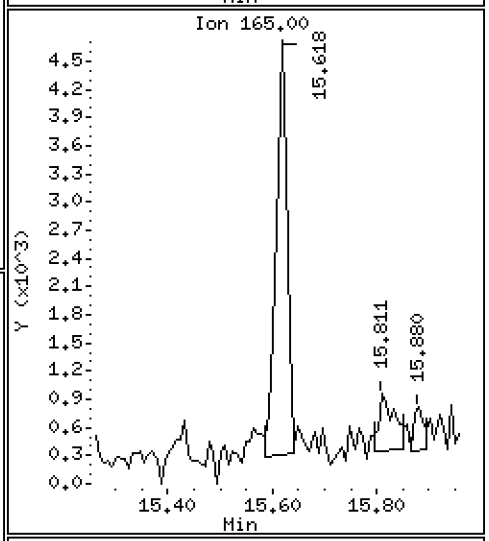


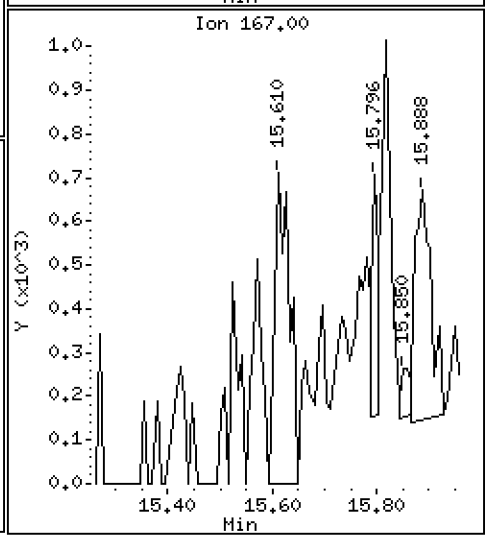












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

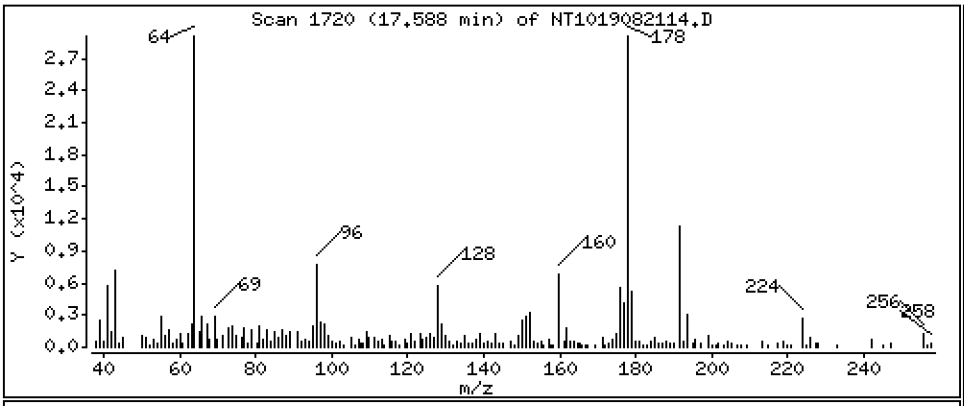
Operator: YZ

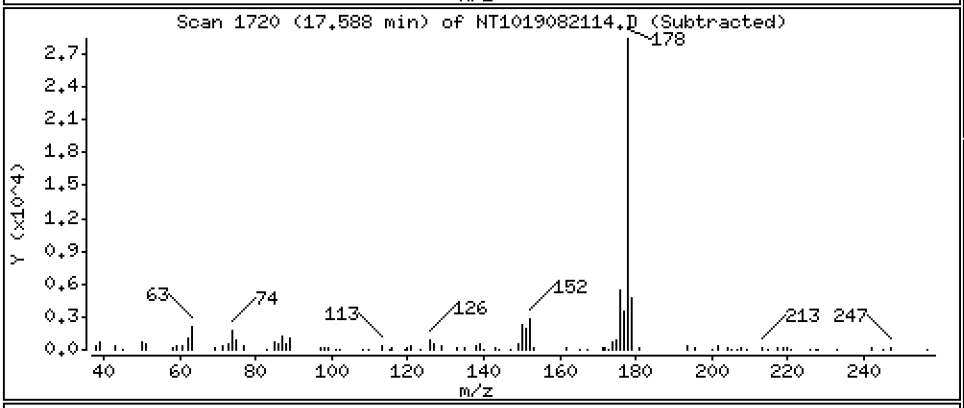
Column phase: ZB-5msi

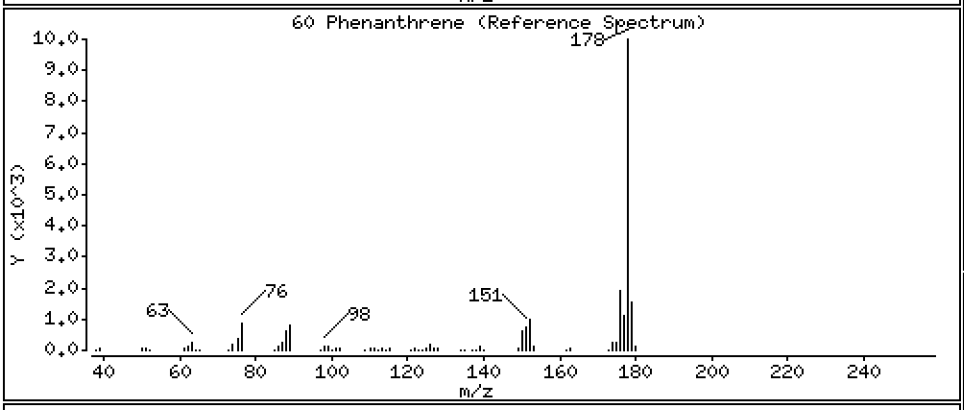
Column diameter: 0.25

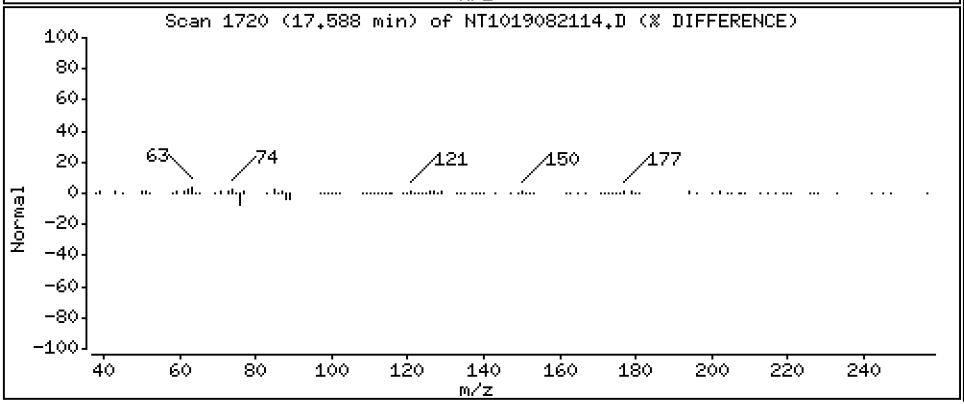
60 Phenanthrene

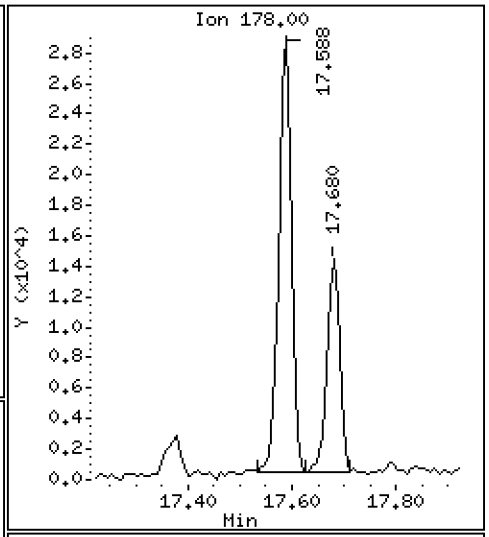
Concentration: 1.473 ug/mL

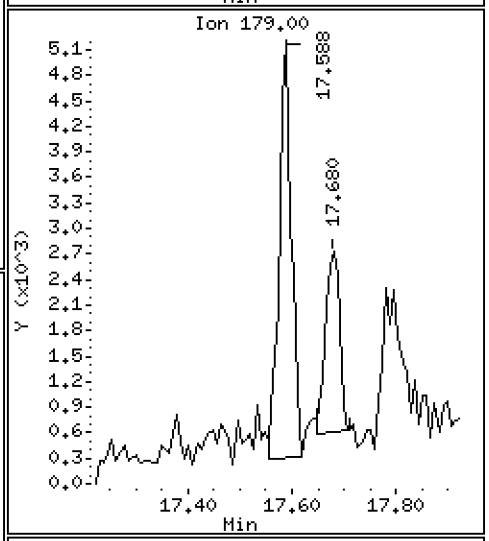


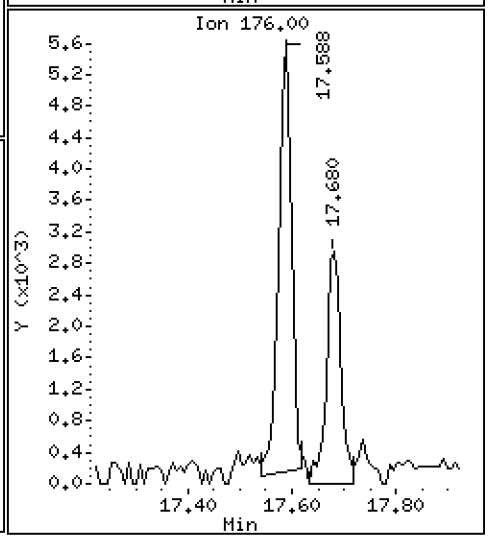












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

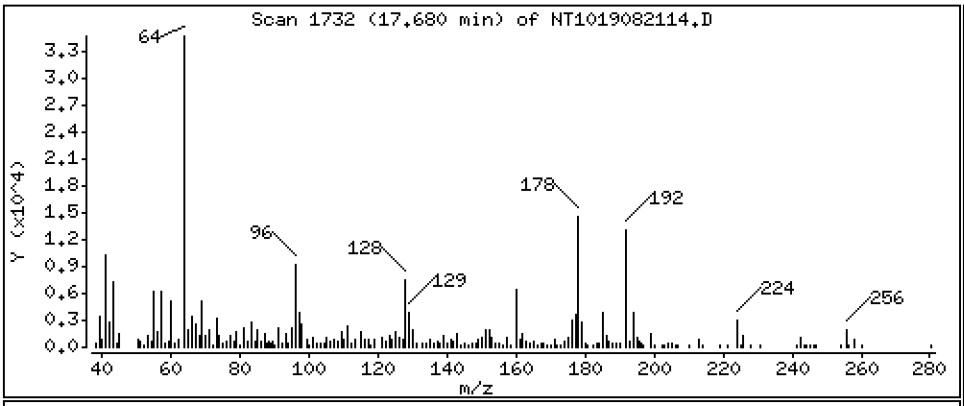
Operator: YZ

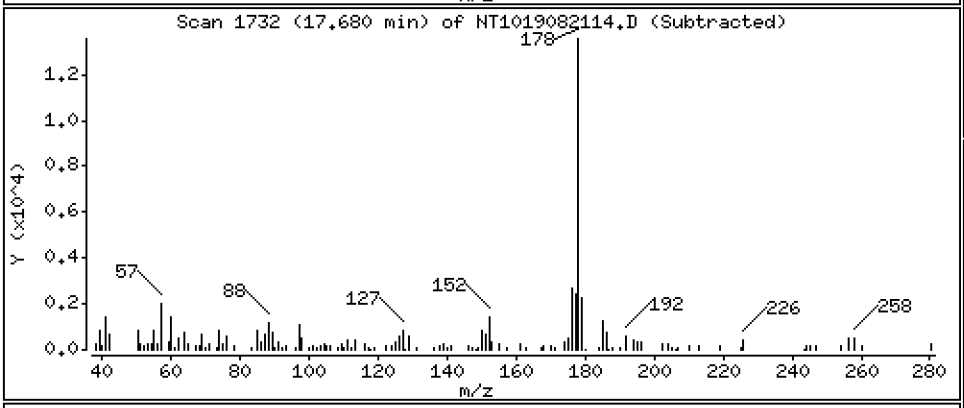
Column phase: ZB-5msi

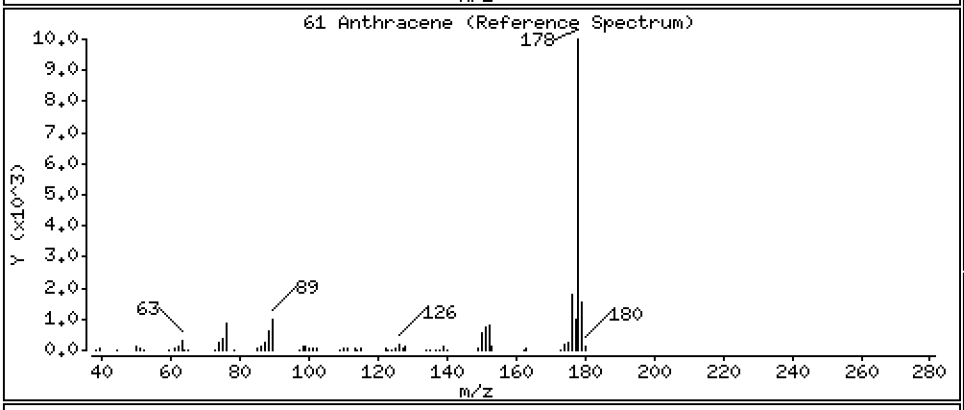
Column diameter: 0.25

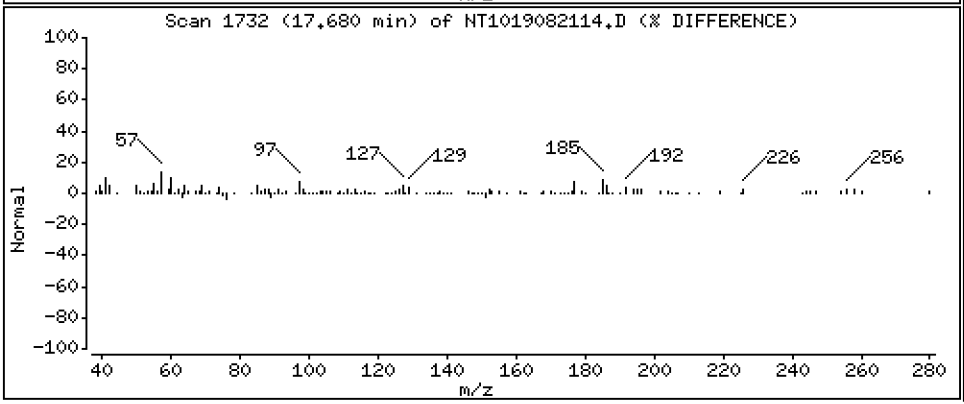
61 Anthracene

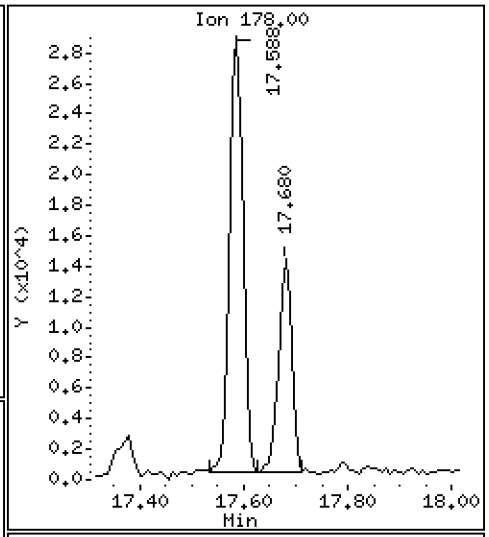
Concentration: 0.7468 ug/mL

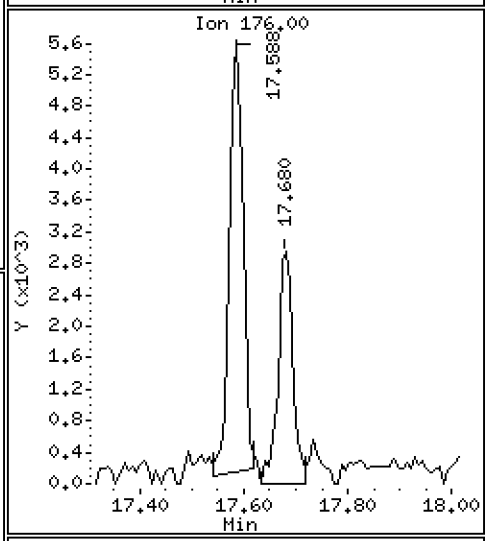


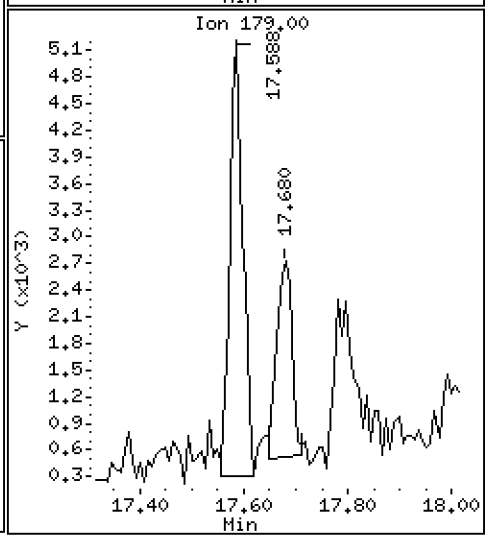












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

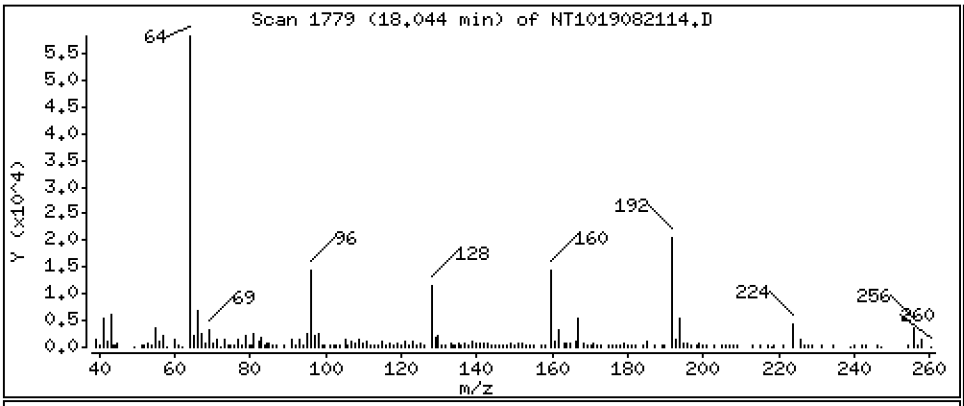
Operator: YZ

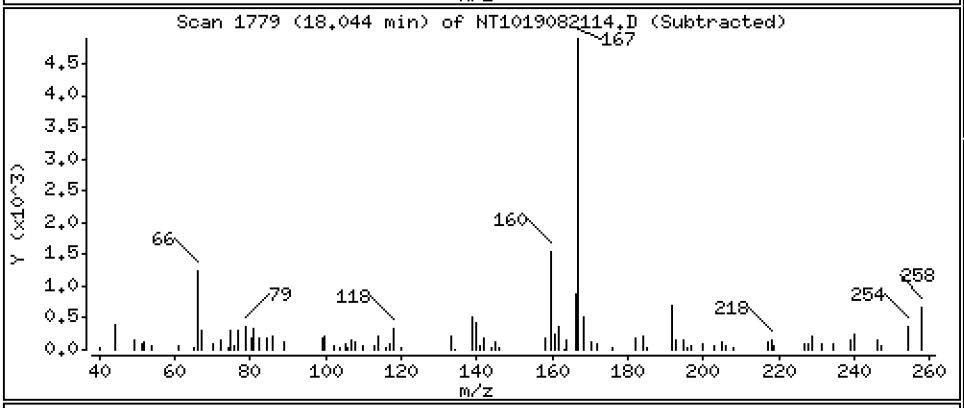
Column phase: ZB-5msi

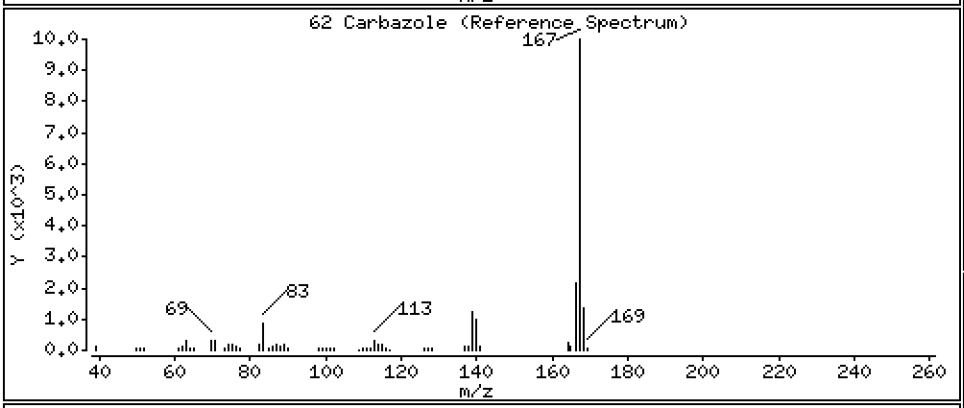
Column diameter: 0.25

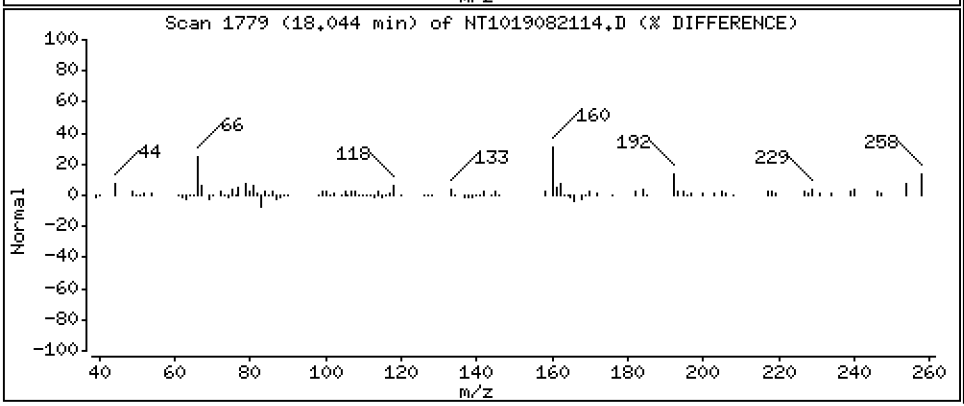
62 Carbazole

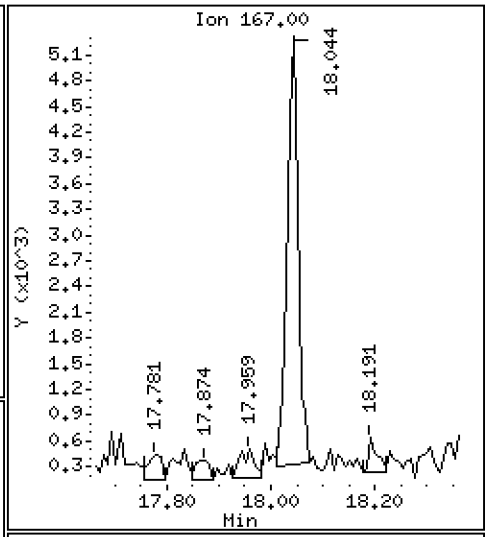
Concentration: 0.2409 ug/mL

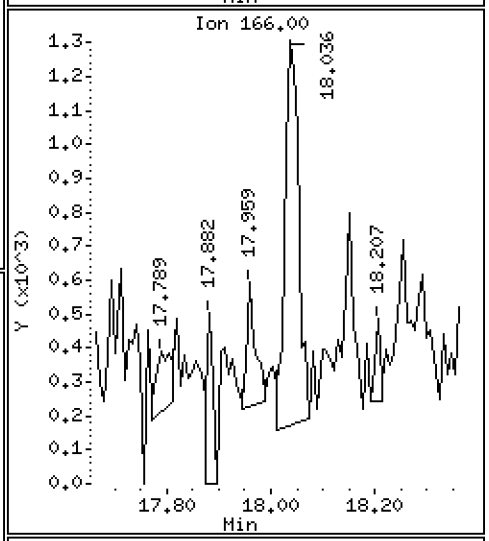


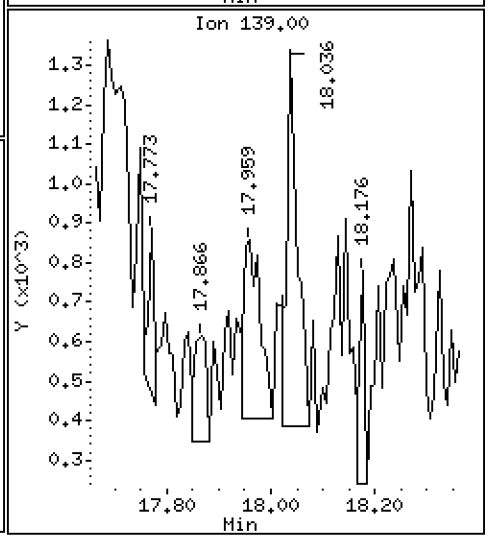












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

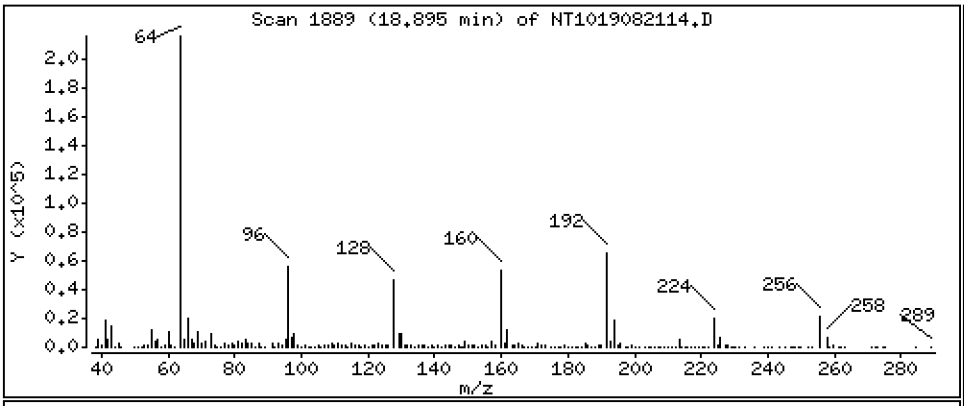
Operator: YZ

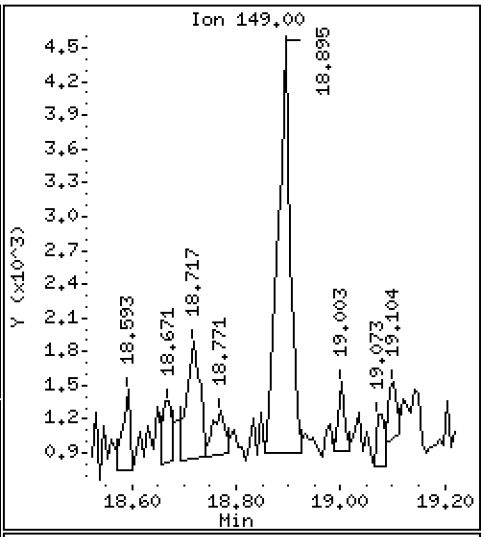
Column phase: ZB-5msi

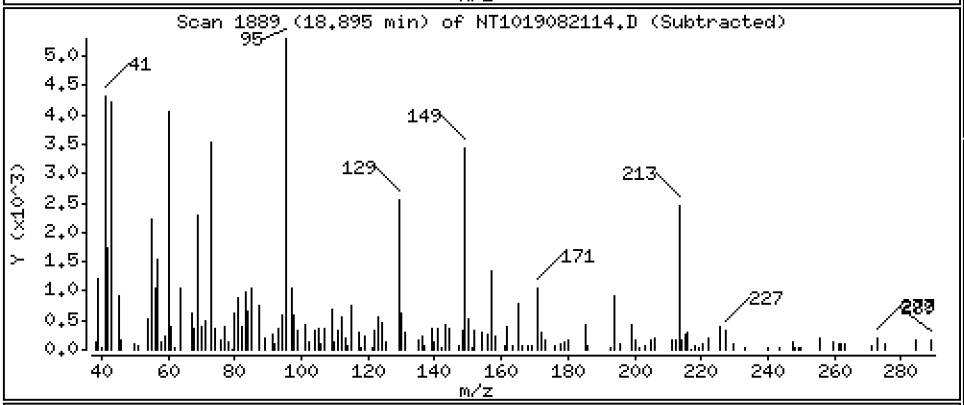
Column diameter: 0.25

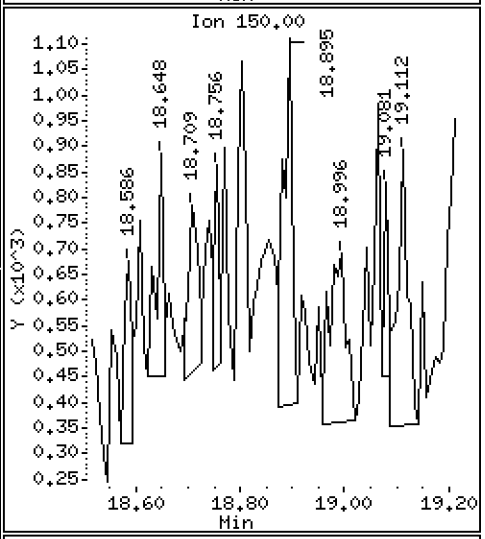
63 Di-n-butylphthalate

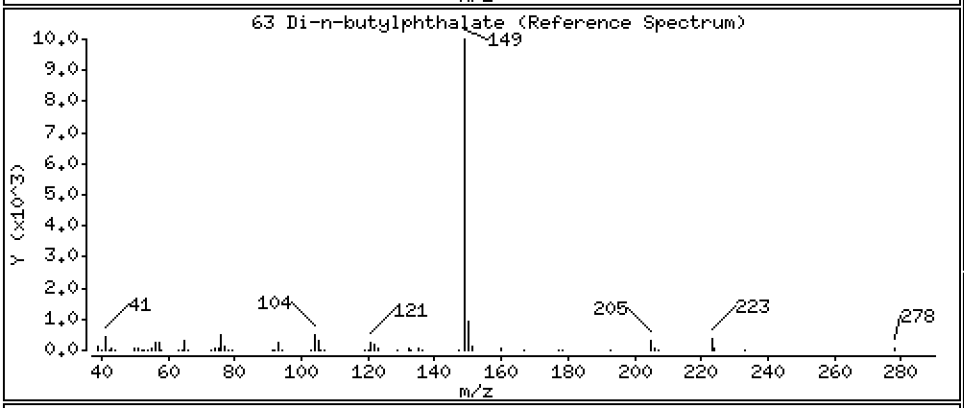
Concentration: 0.1356 ug/mL

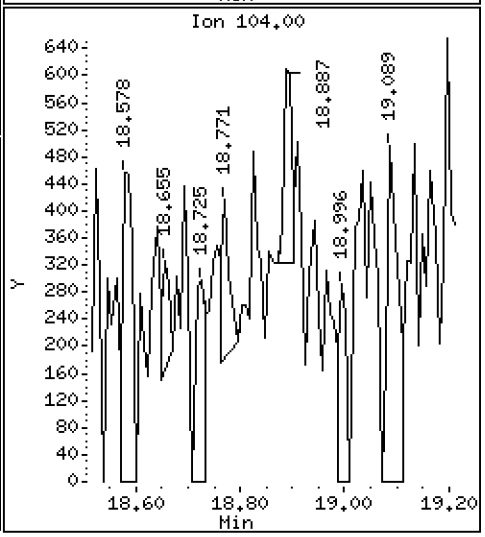


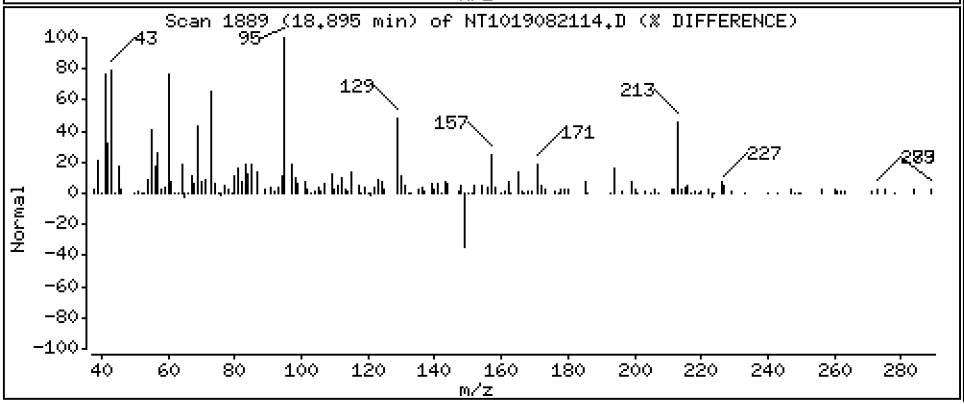












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

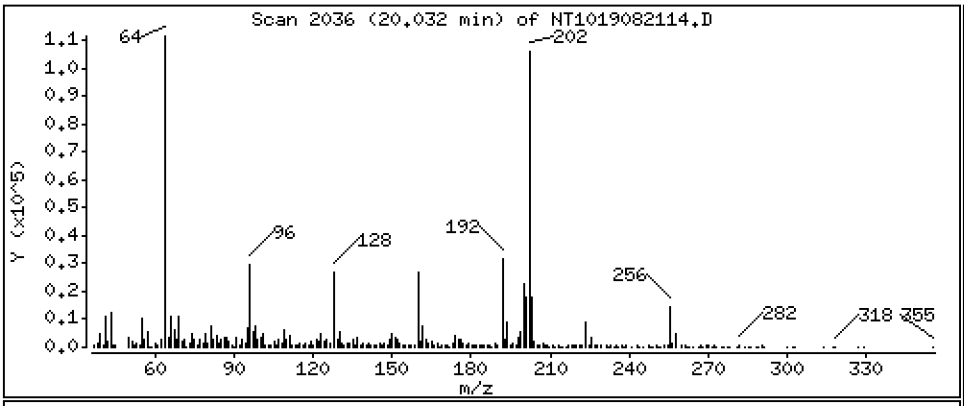
Operator: YZ

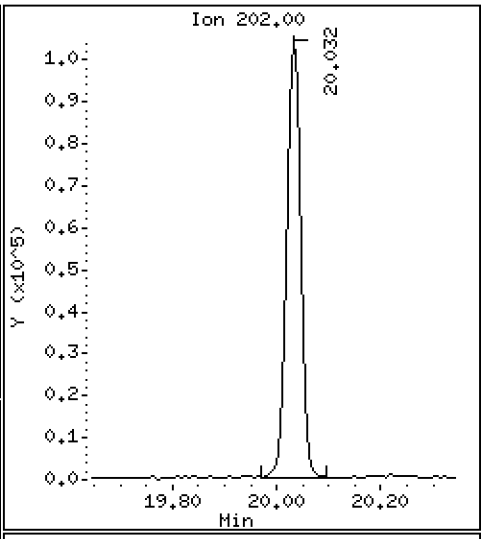
Column phase: ZB-5msi

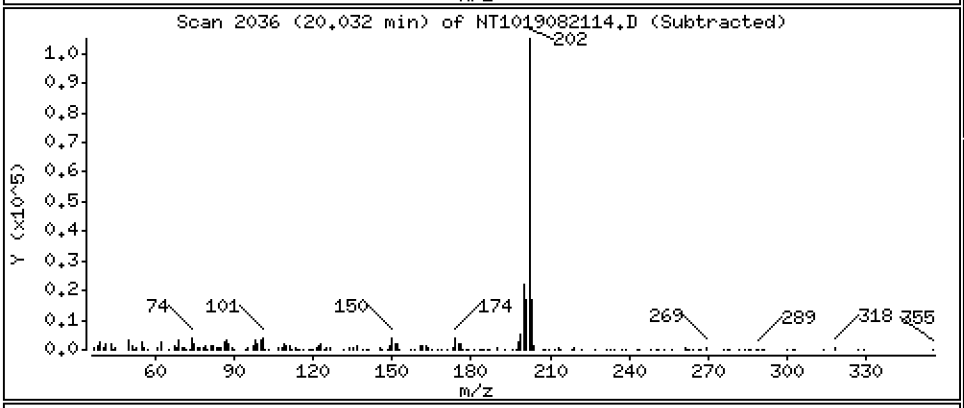
Column diameter: 0.25

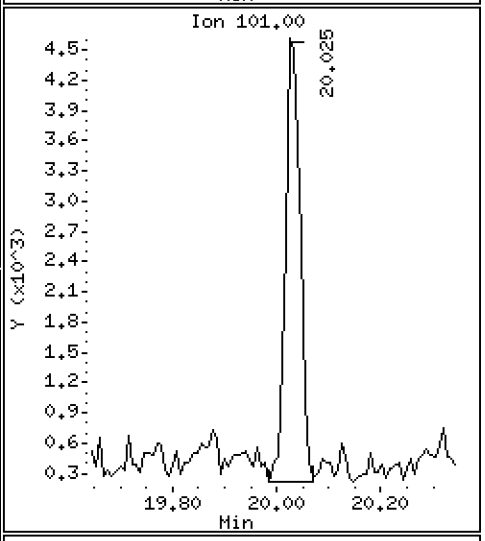
64 Fluoranthene

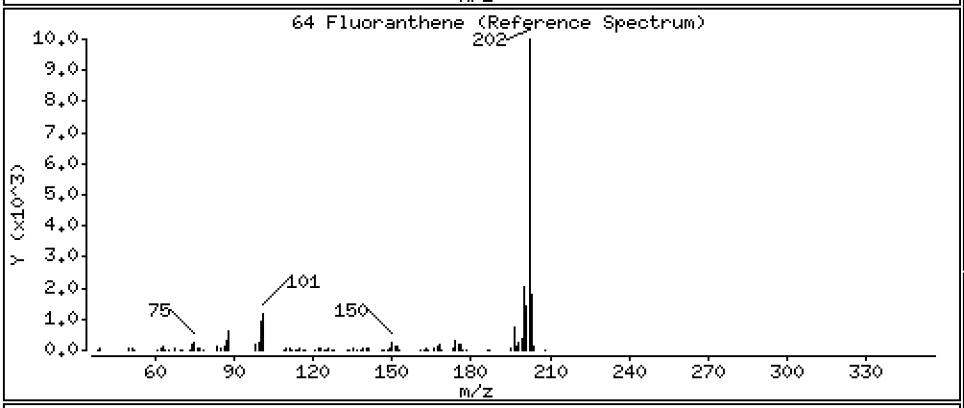
Concentration: 9.310 ug/mL

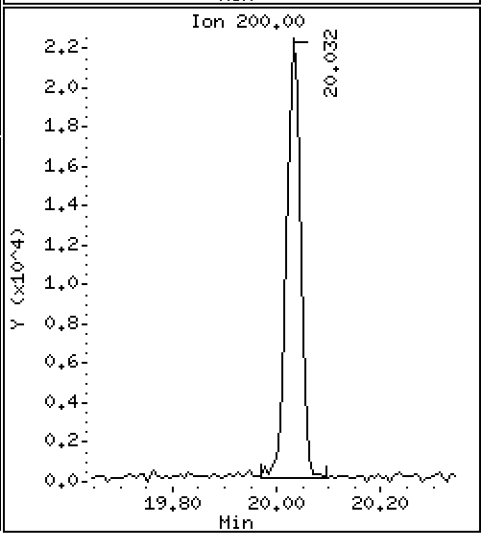


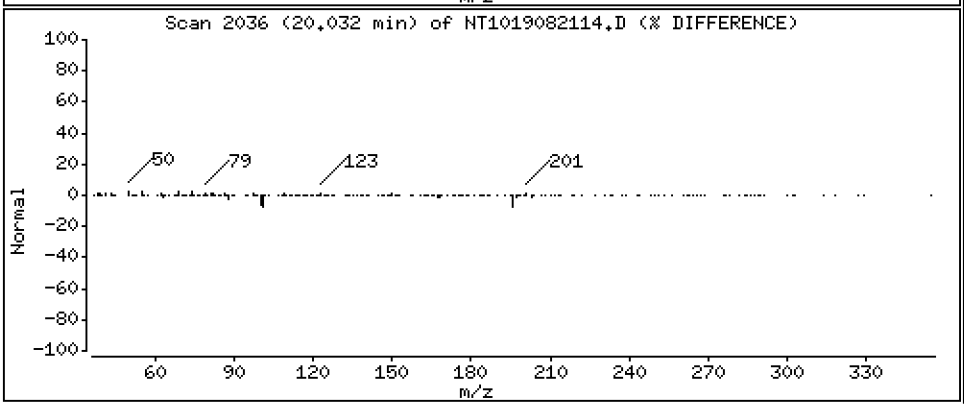












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

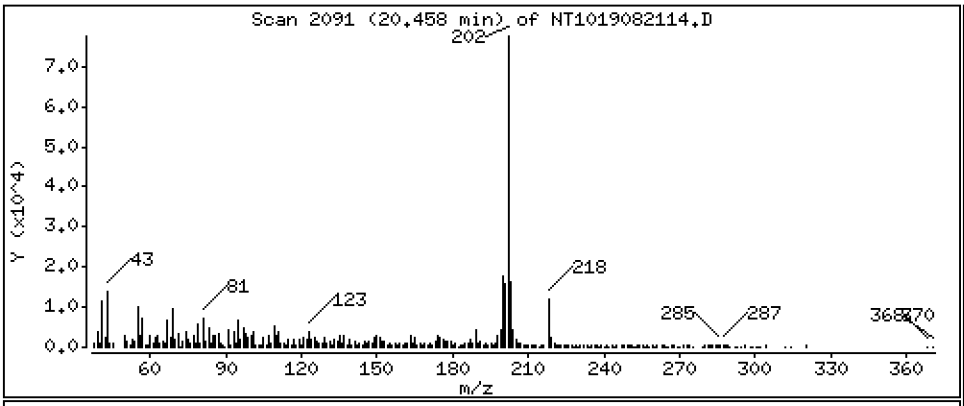
Operator: YZ

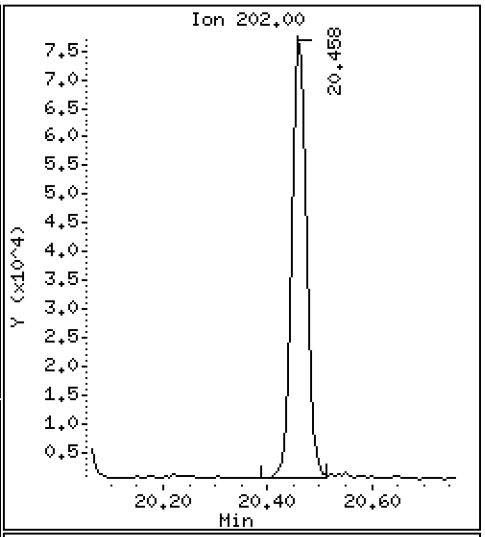
Column phase: ZB-5msi

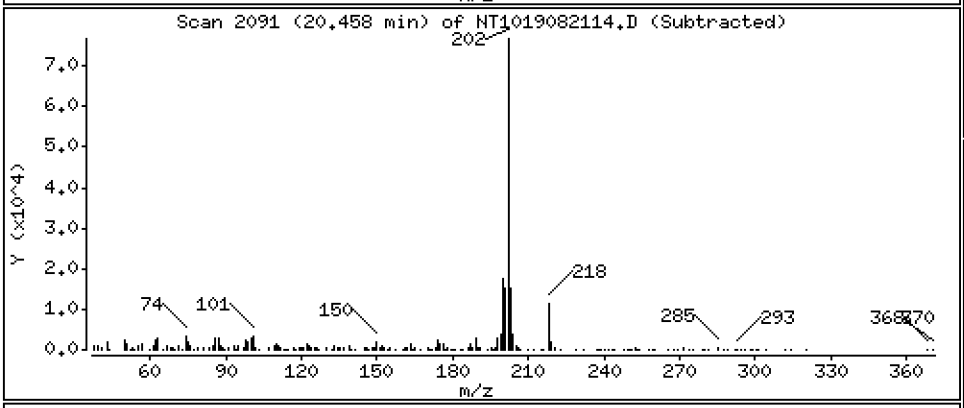
Column diameter: 0.25

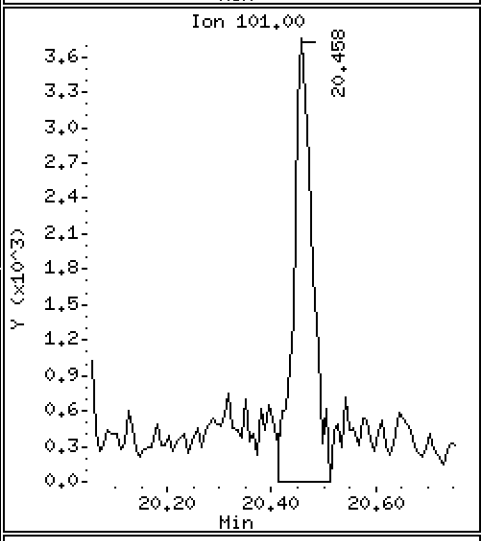
65 Pyrene

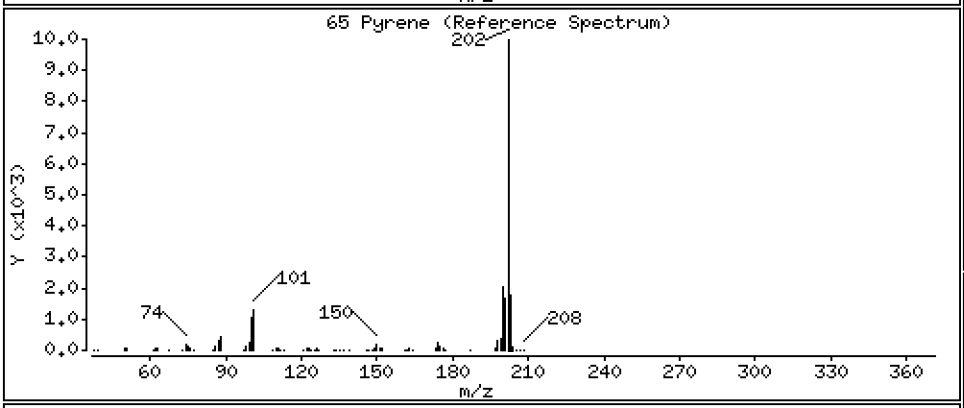
Concentration: 6.843 ug/mL

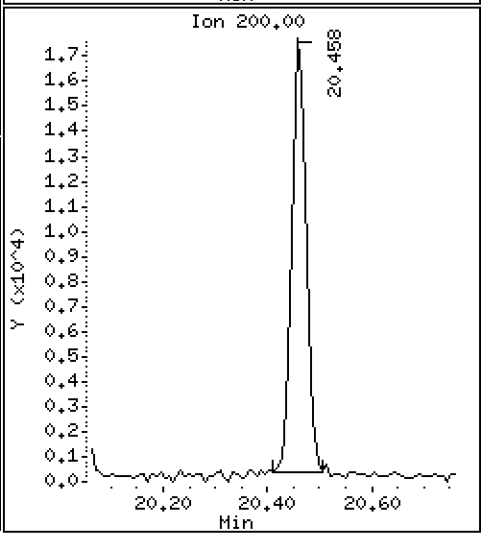


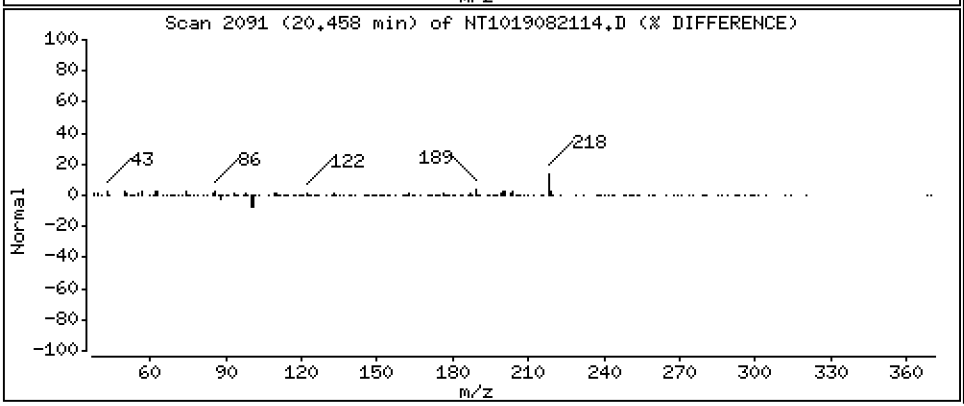












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

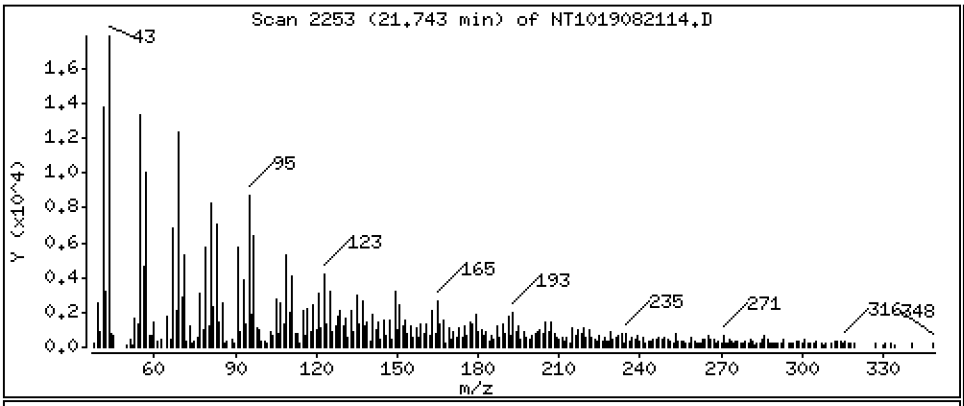
Operator: YZ

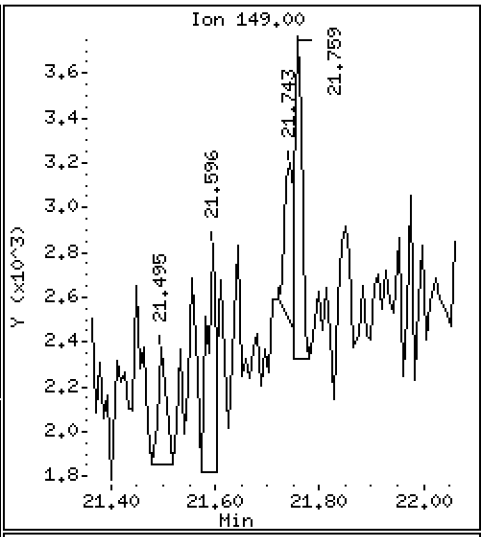
Column phase: ZB-5msi

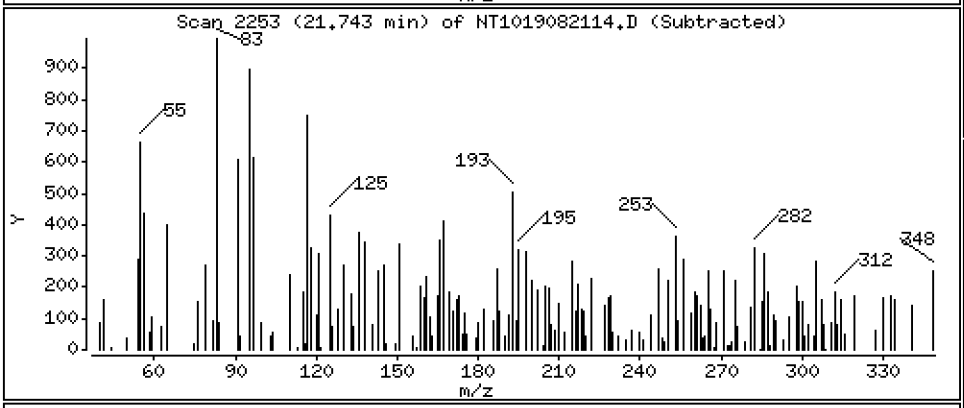
Column diameter: 0.25

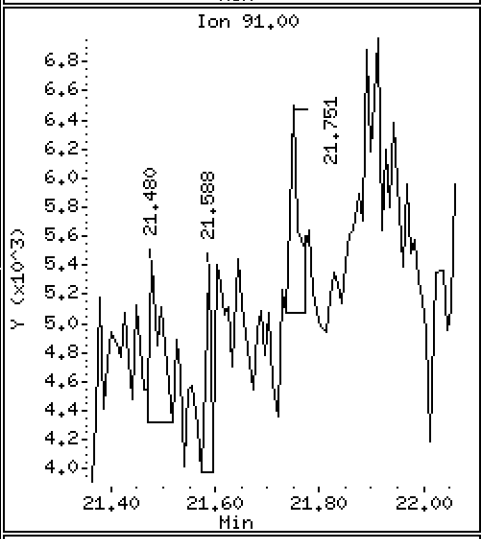
67 Butylbenzylphthalate

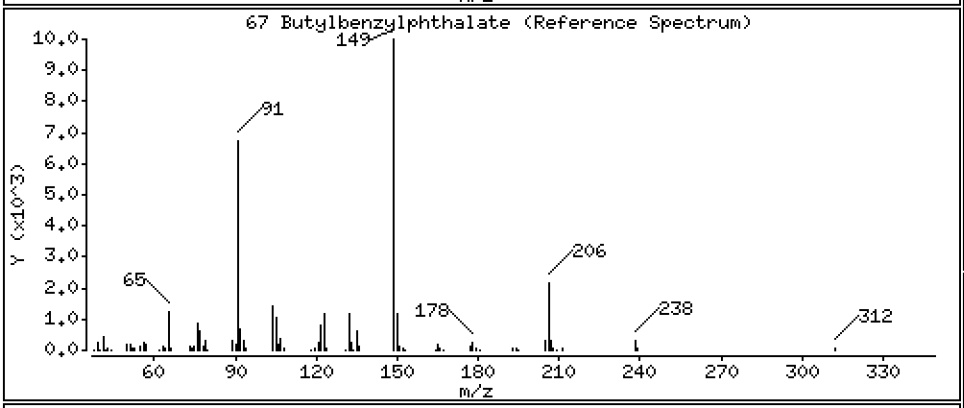
Concentration: 0.08788 ug/mL

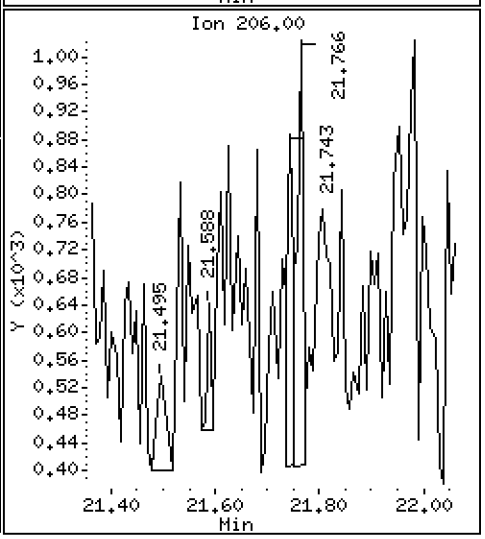


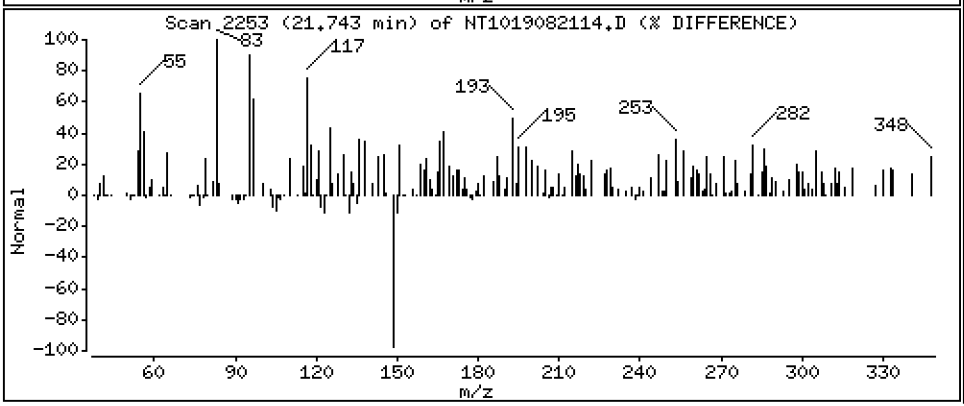












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Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

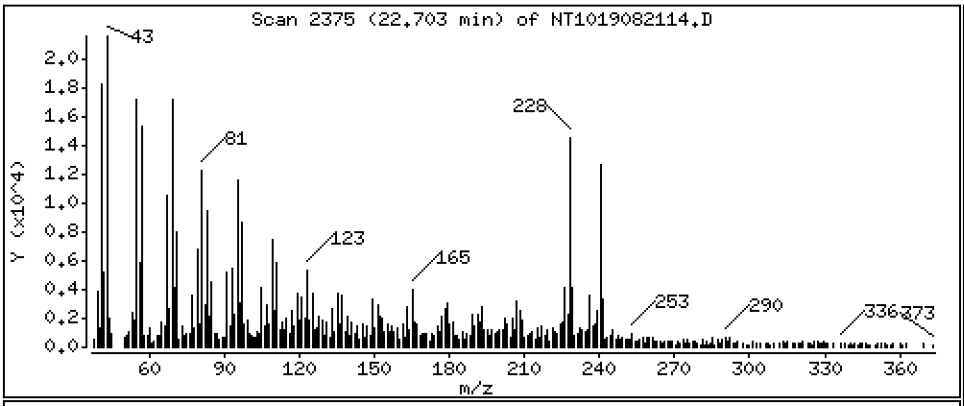
Operator: YZ

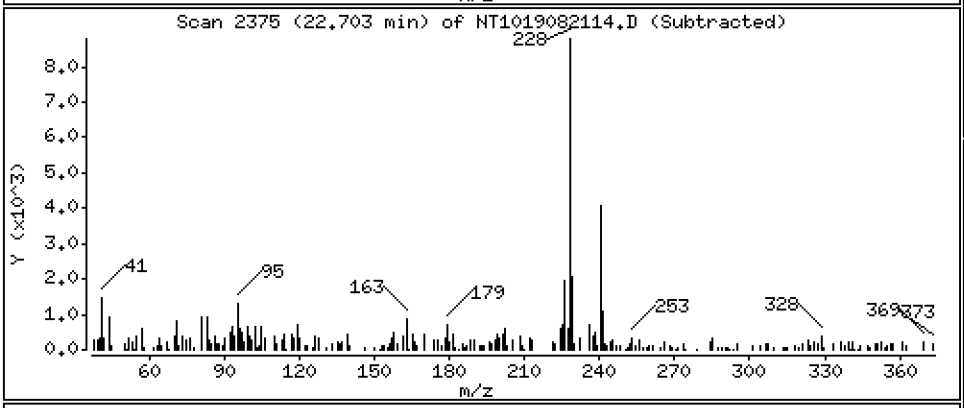
Column phase: ZB-5msi

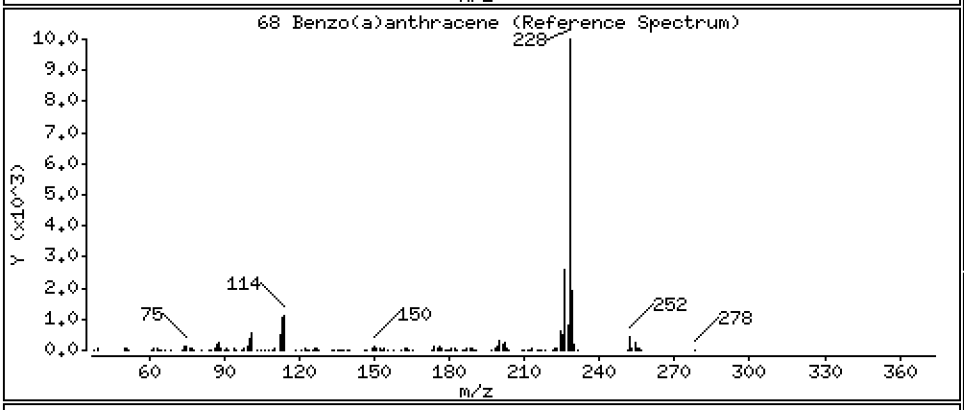
Column diameter: 0.25

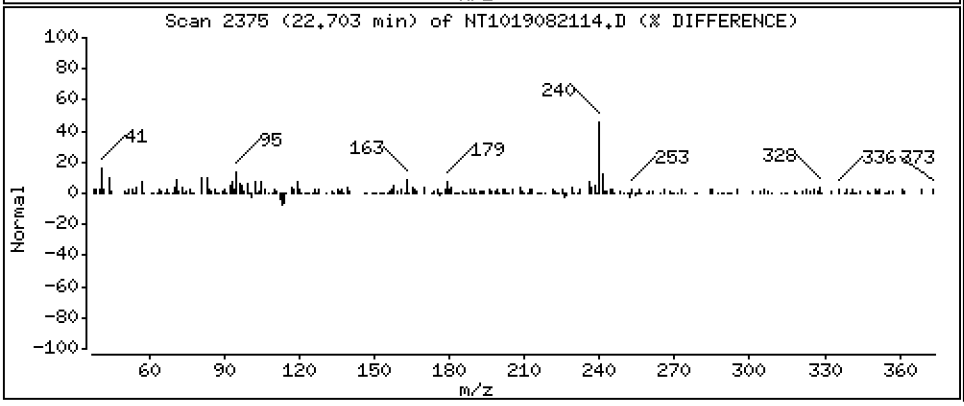
68 Benzo(a)anthracene

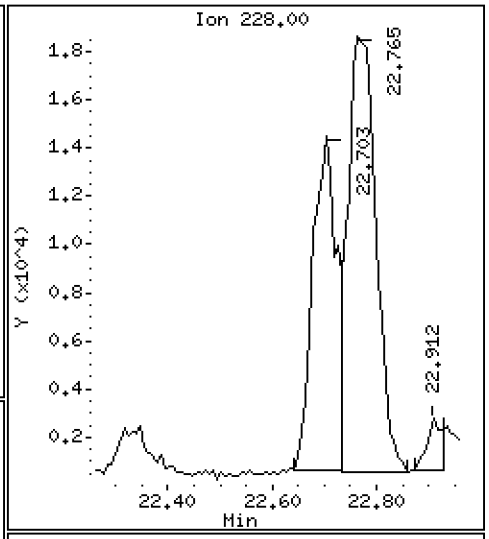
Concentration: 2.122 ug/mL

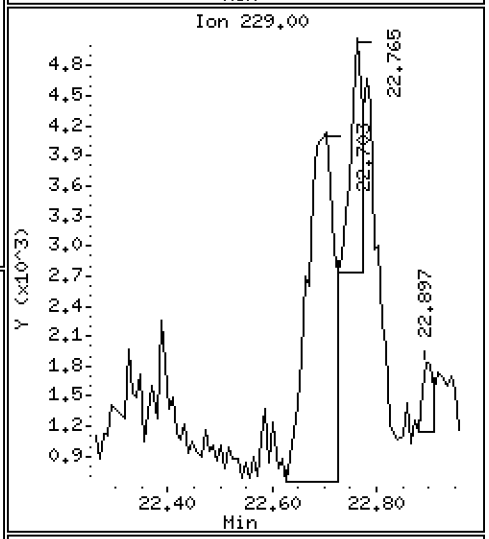


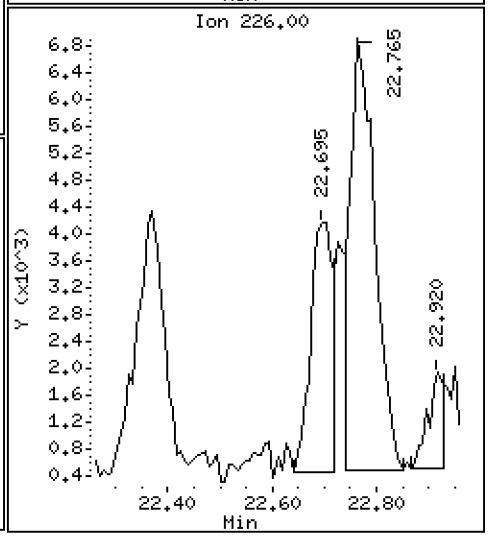












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

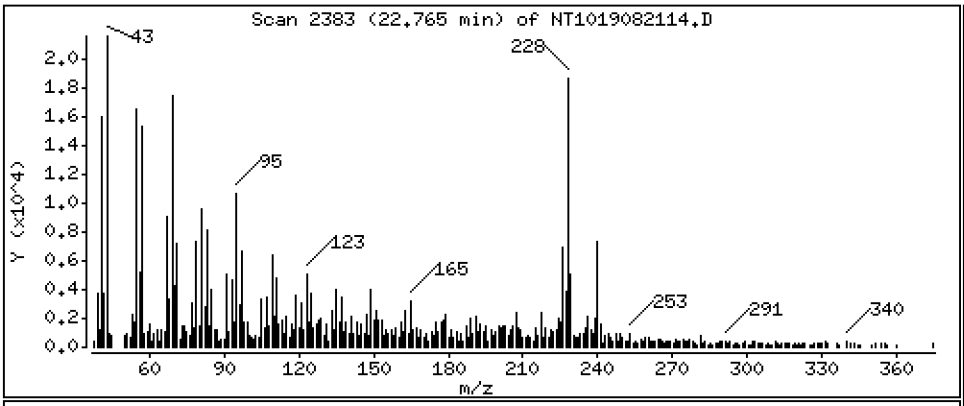
Operator: YZ

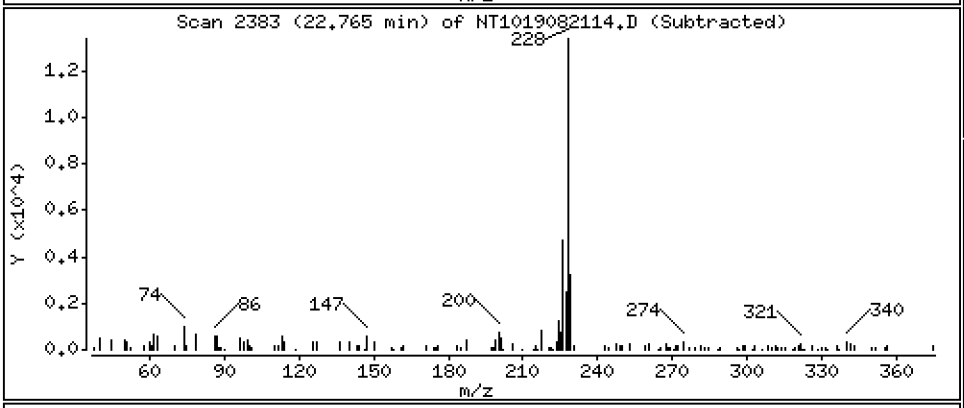
Column phase: ZB-5msi

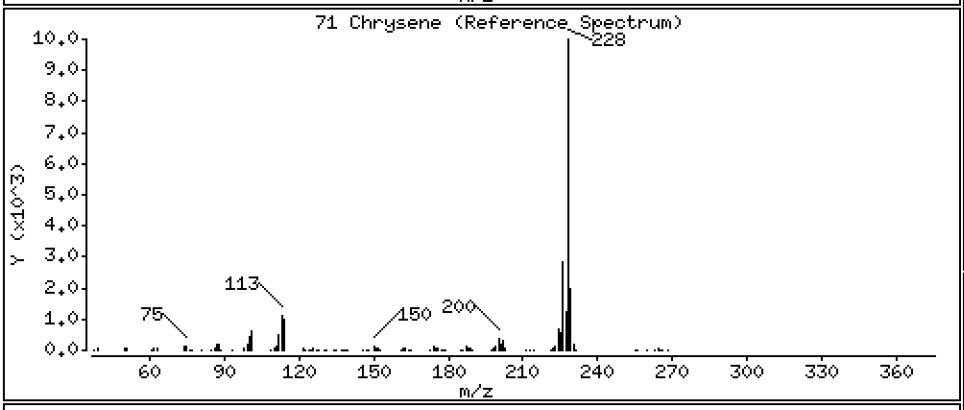
Column diameter: 0.25

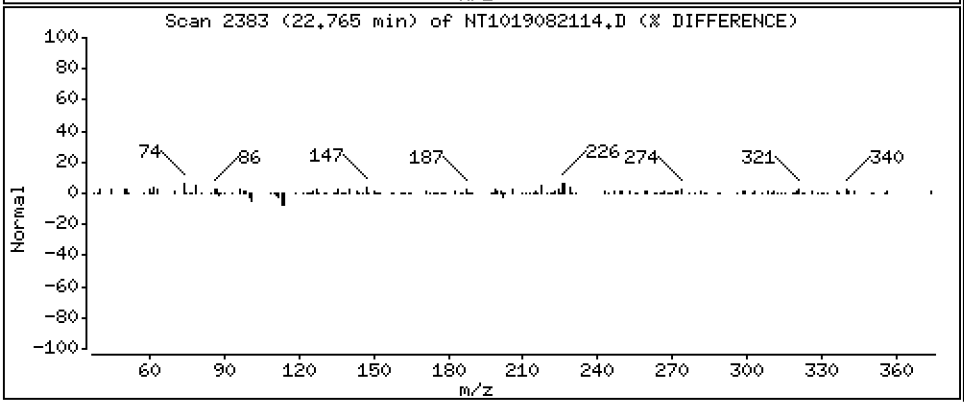
71 Chrysene

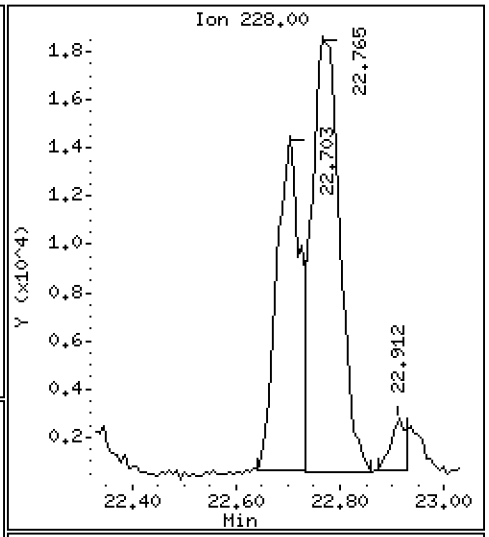
Concentration: 3.721 ug/mL

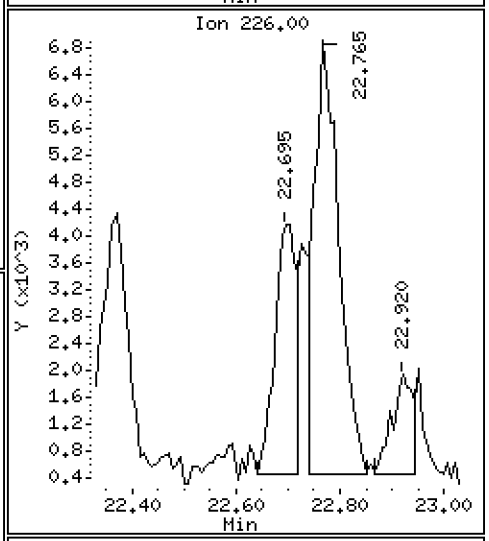


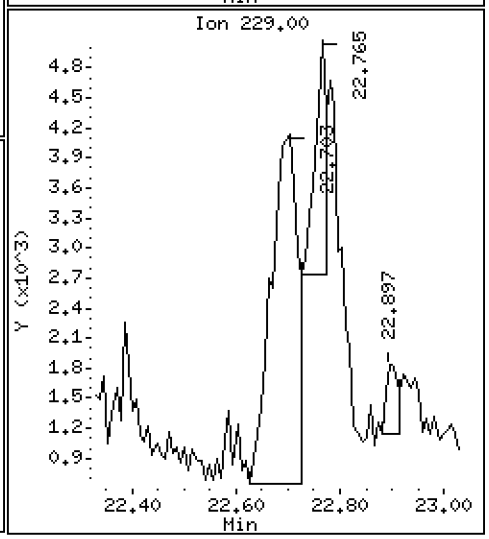












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

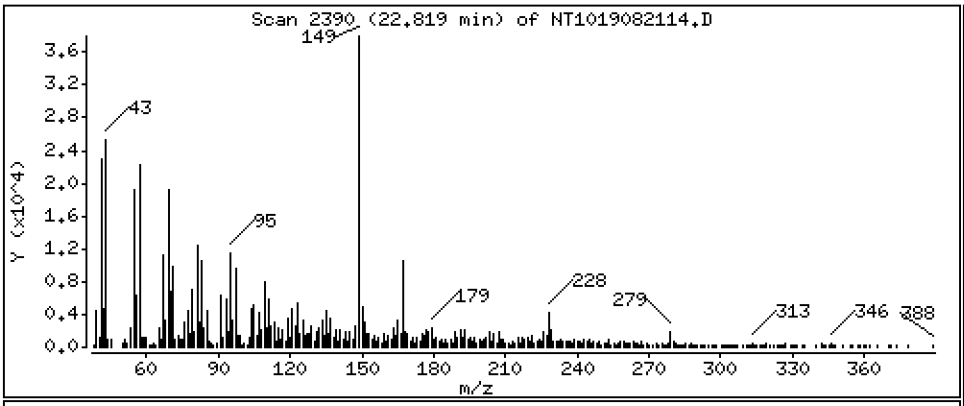
Operator: YZ

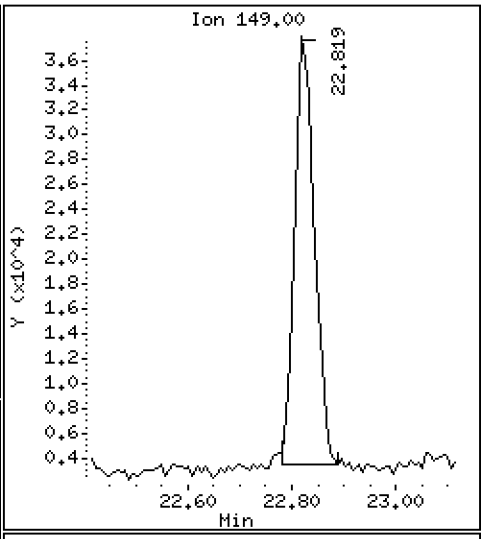
Column phase: ZB-5msi

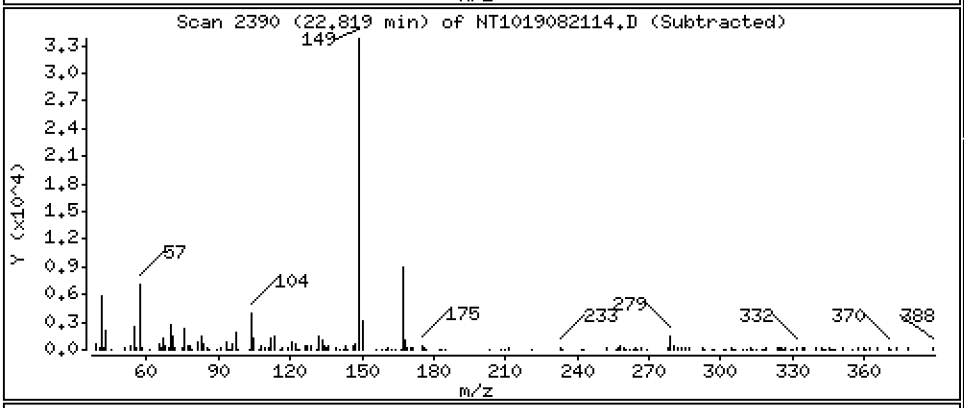
Column diameter: 0.25

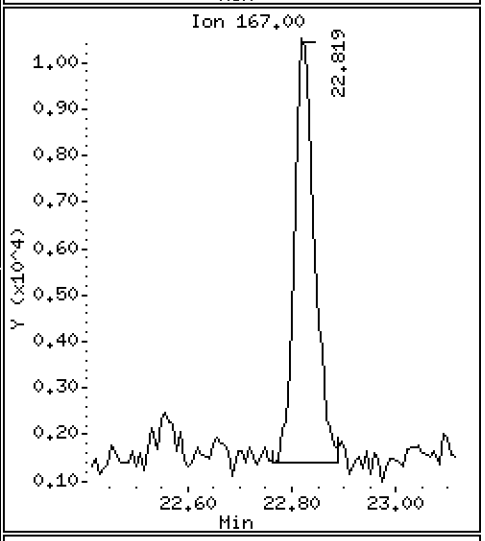
72 bis(2-Ethylhexyl)phthalate

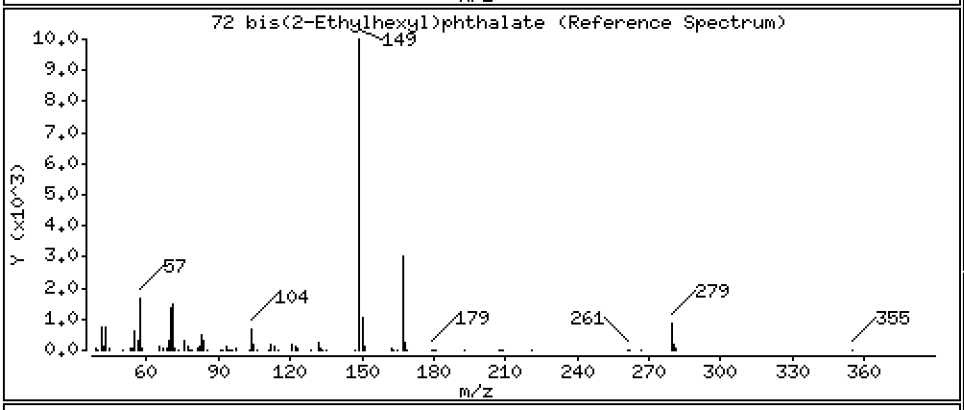
Concentration: 6.716 ug/mL

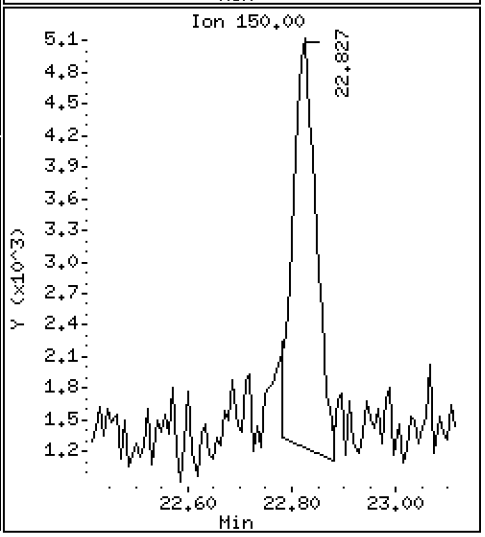


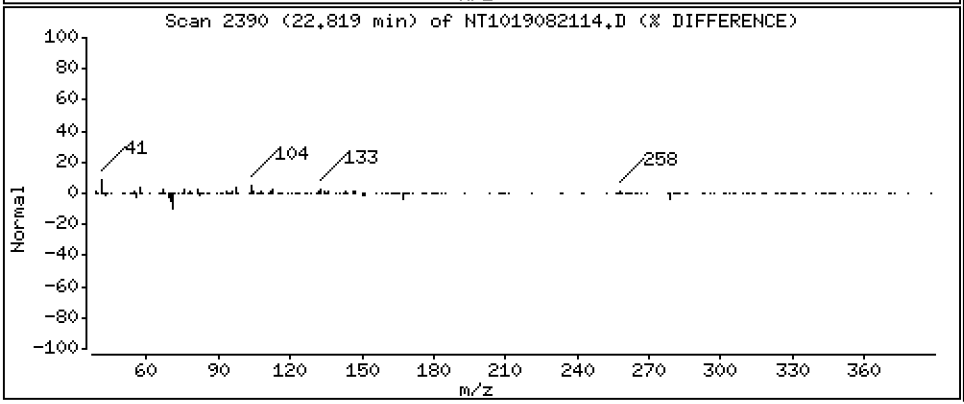












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

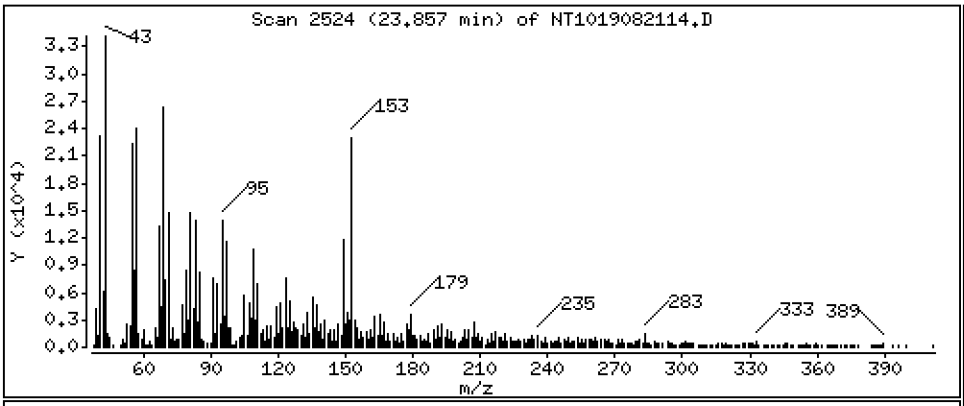
Operator: YZ

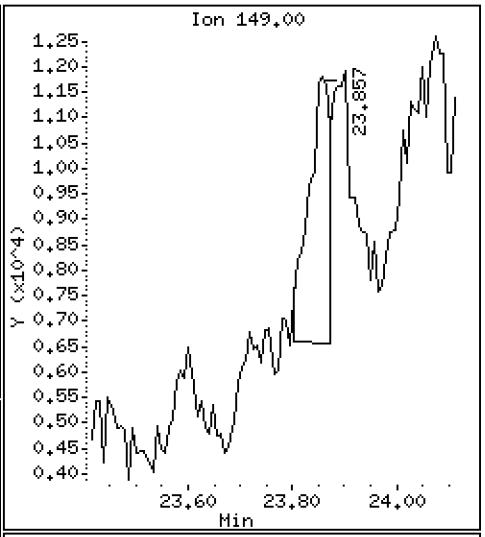
Column phase: ZB-5msi

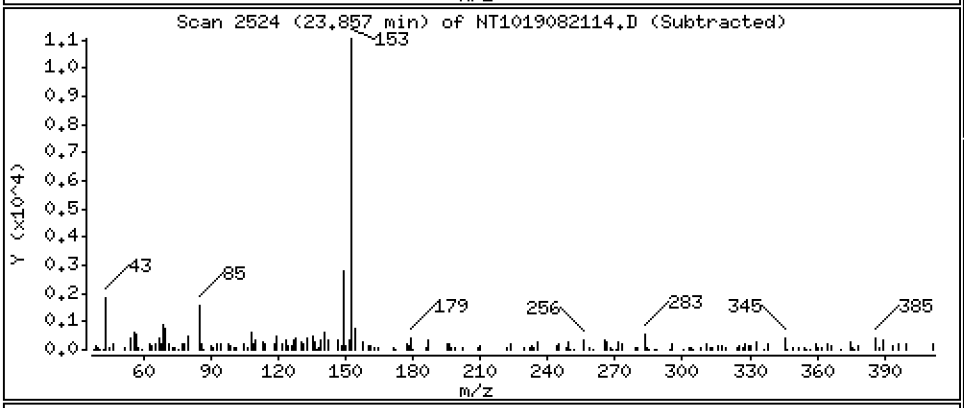
Column diameter: 0.25

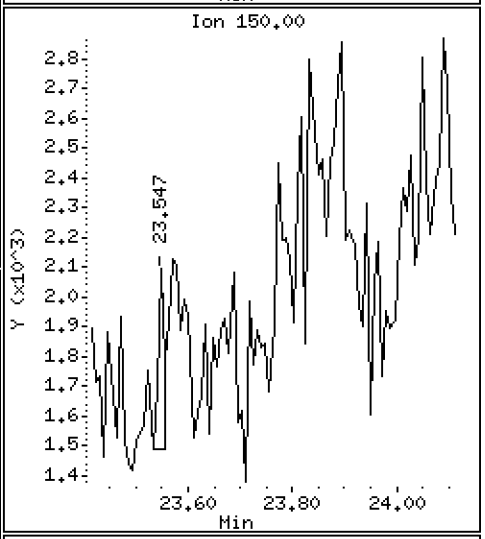
73 Di-n-octylphthalate

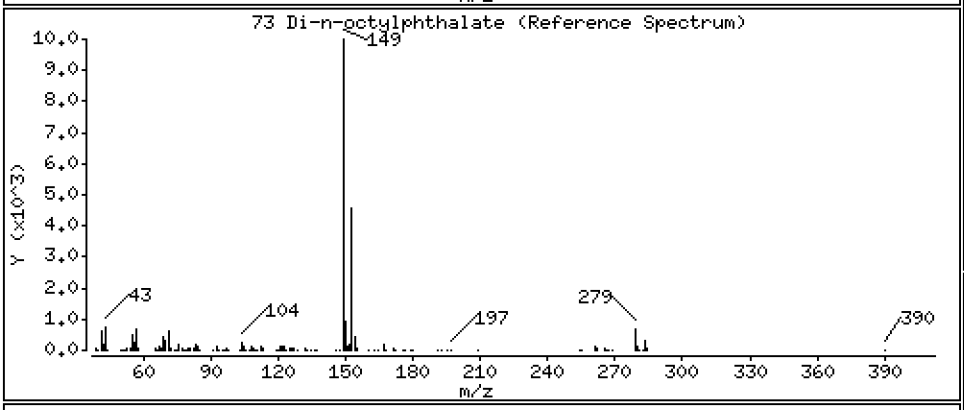
Concentration: 0.5219 ug/mL

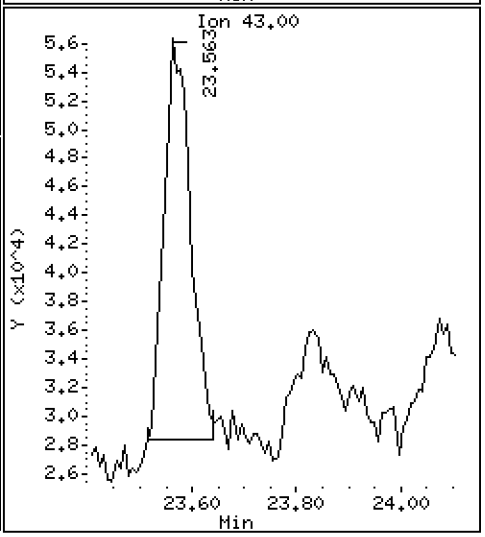


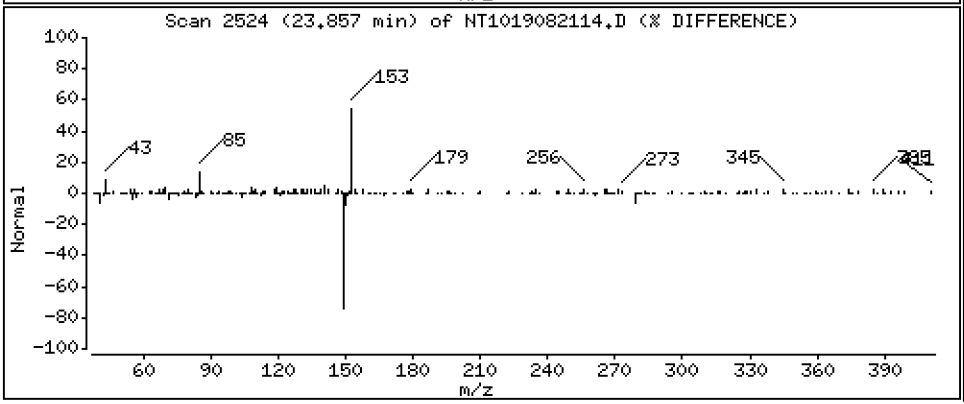












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

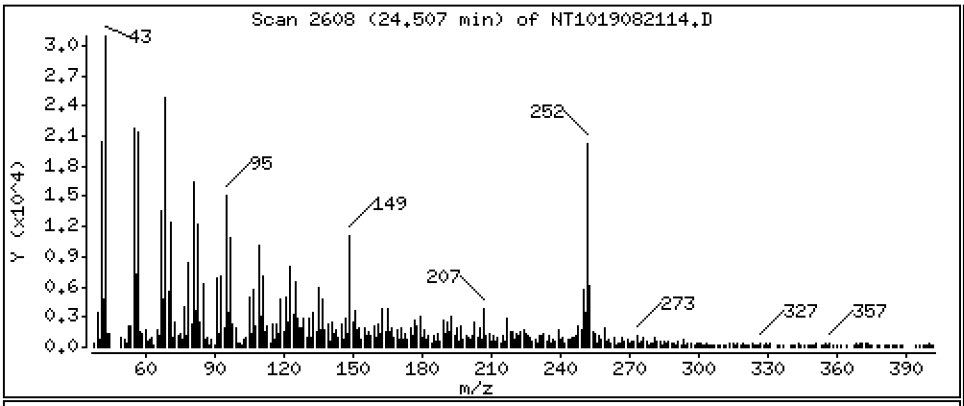
Operator: YZ

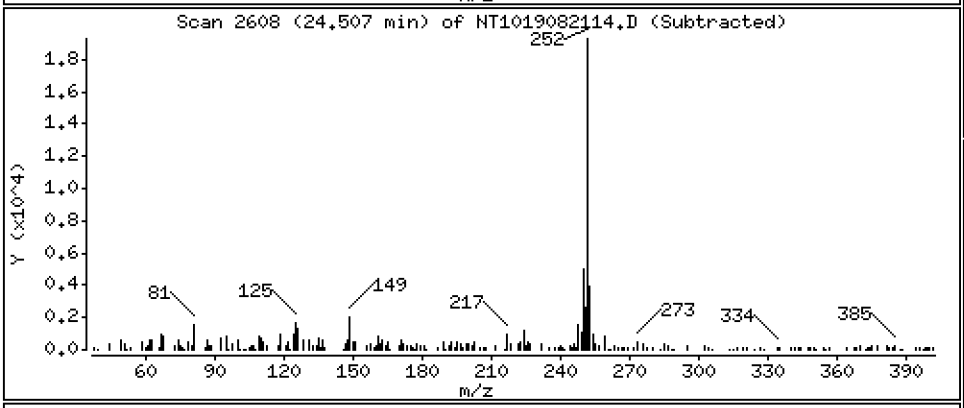
Column phase: ZB-5msi

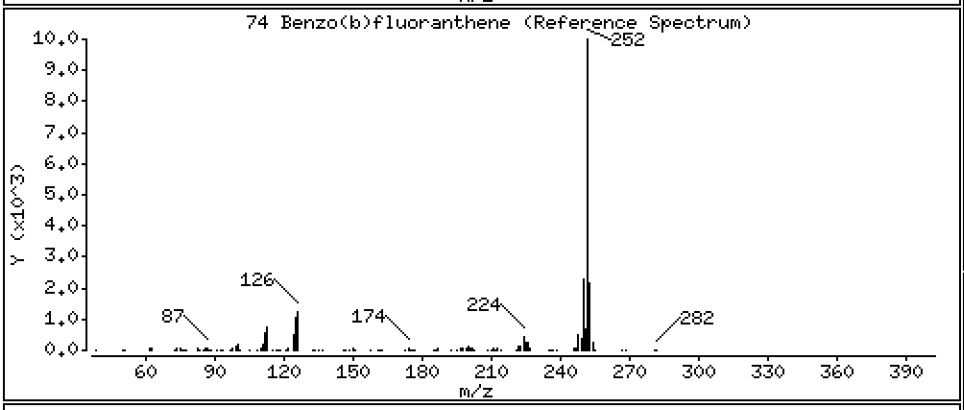
Column diameter: 0.25

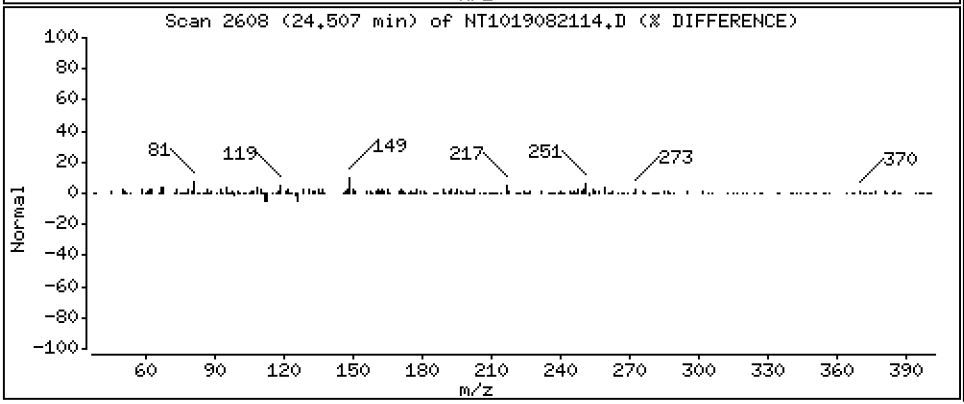
74 Benzo(b)fluoranthene

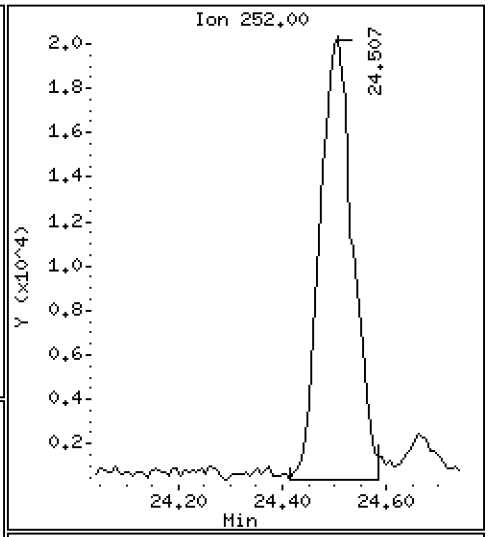
Concentration: 5.466 ug/mL

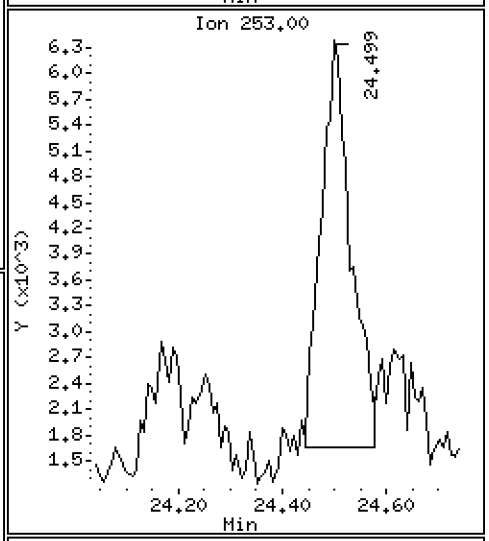


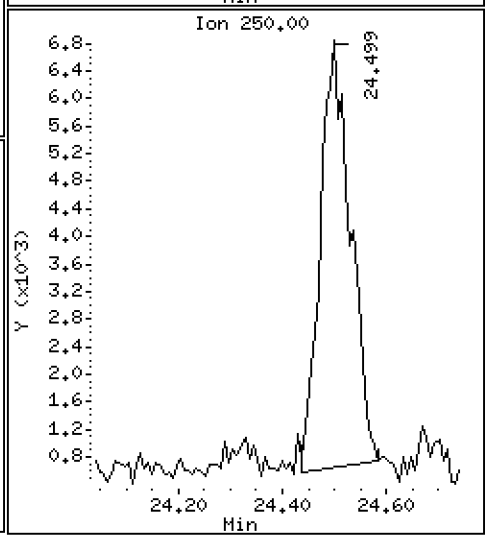












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Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

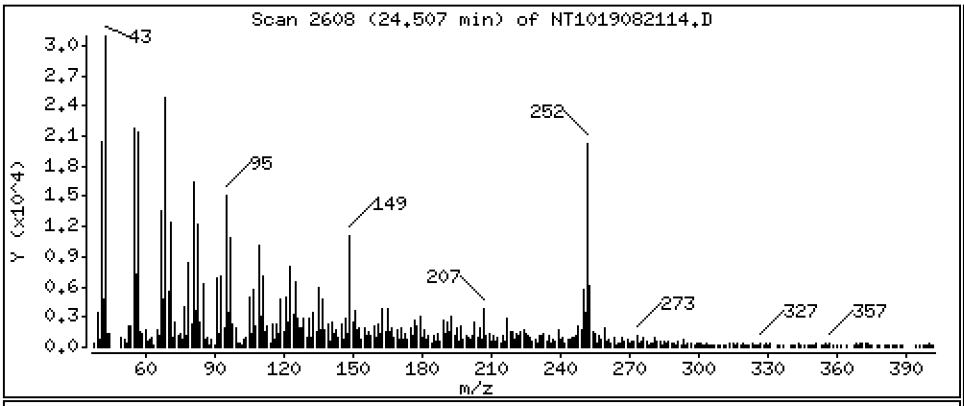
Operator: YZ

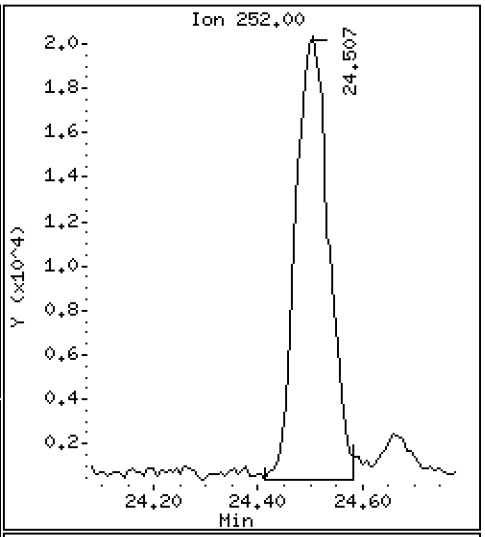
Column phase: ZB-5msi

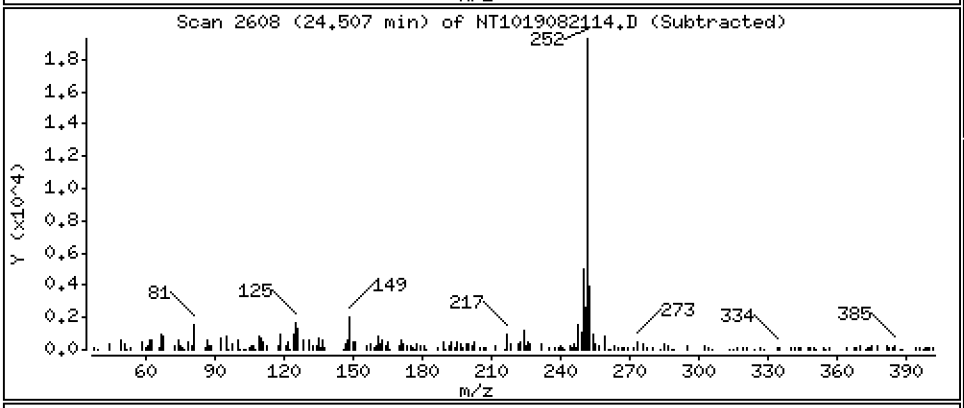
Column diameter: 0.25

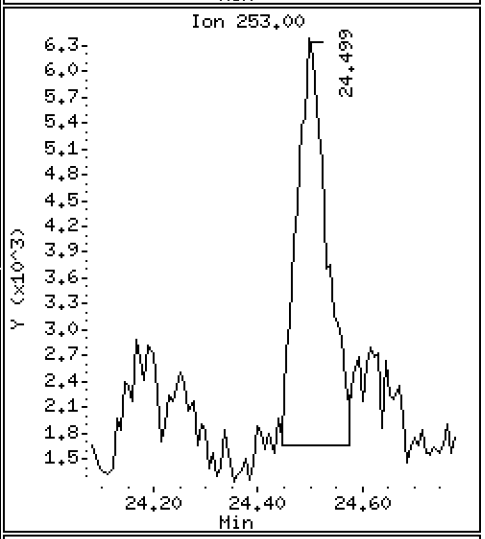
75 Benzo(k)fluoranthene

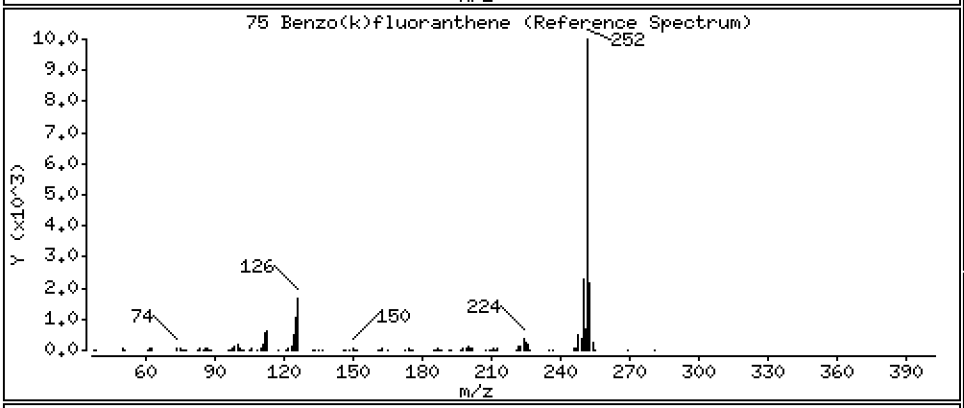
Concentration: 5.434 ug/mL

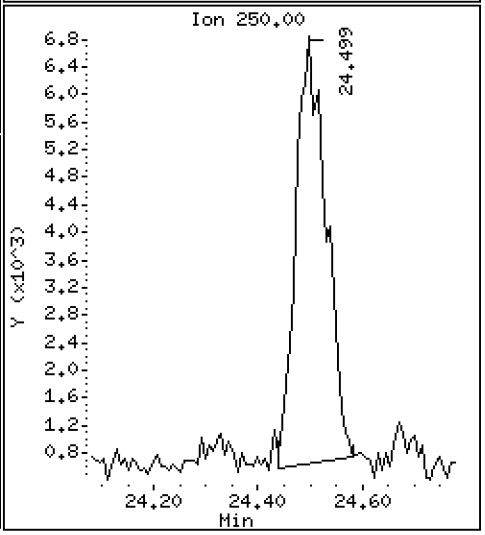


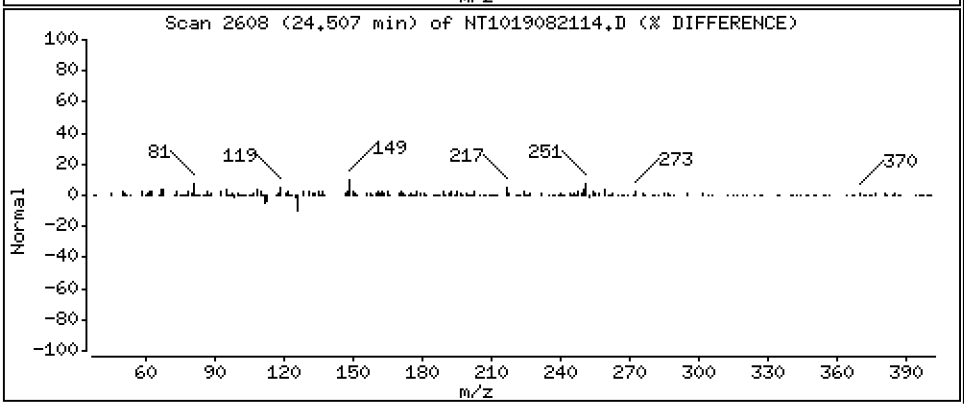












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

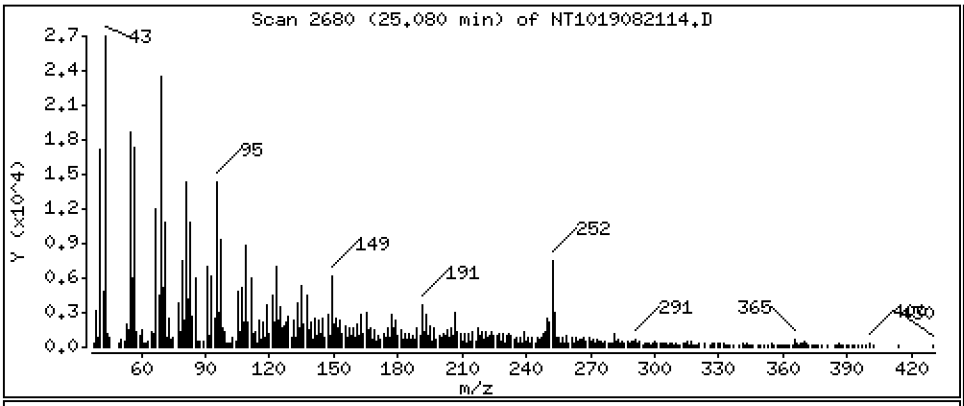
Operator: YZ

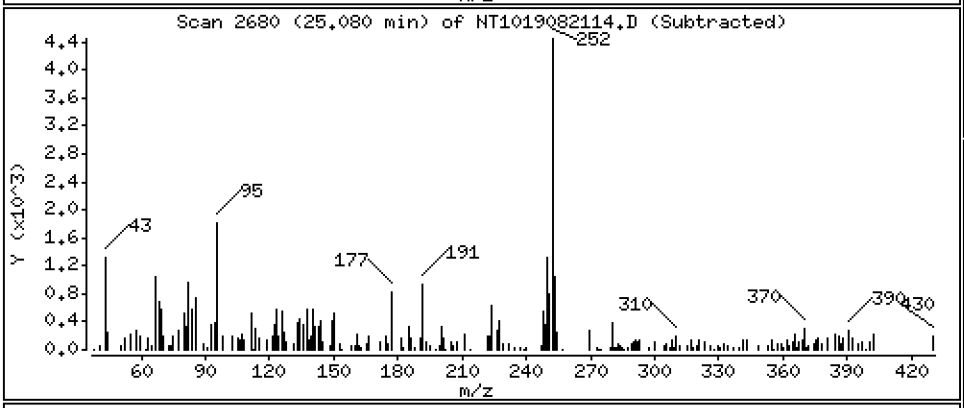
Column phase: ZB-5msi

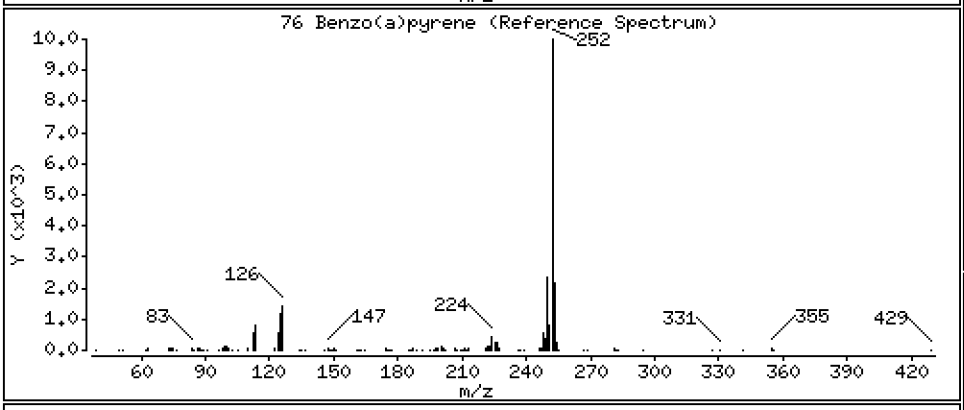
Column diameter: 0.25

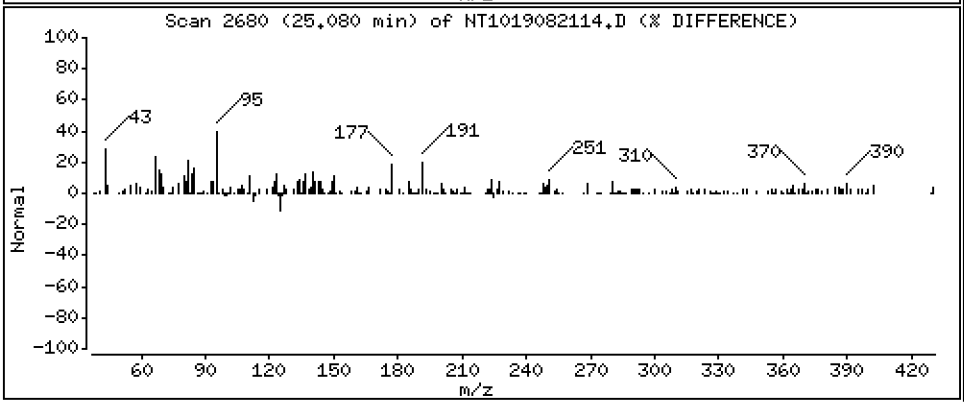
76 Benzo(a)pyrene

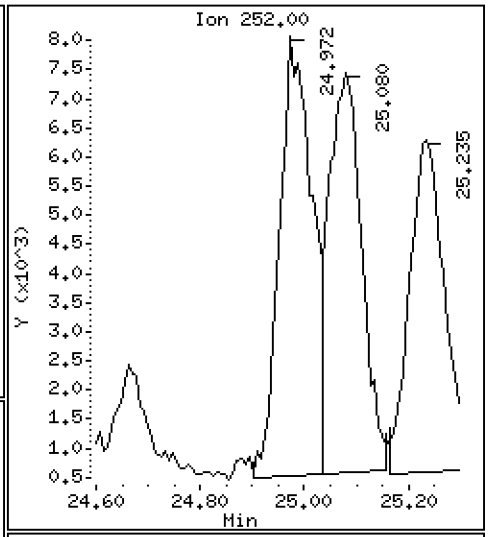
Concentration: 2.154 ug/mL

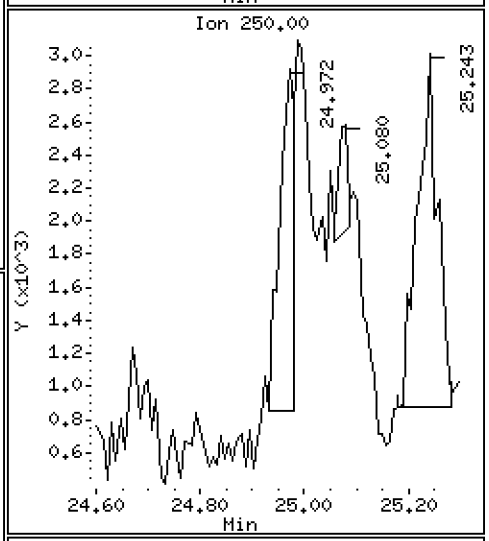


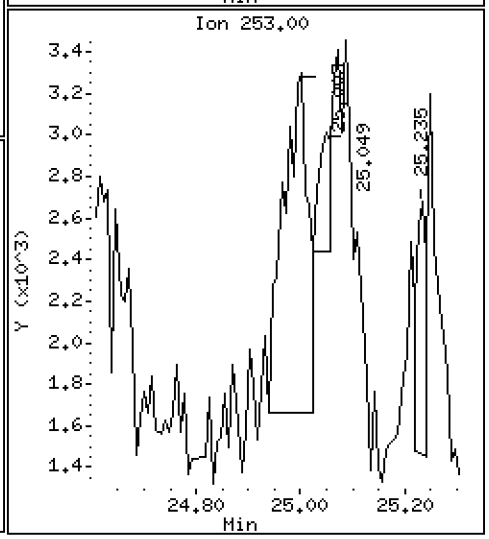












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

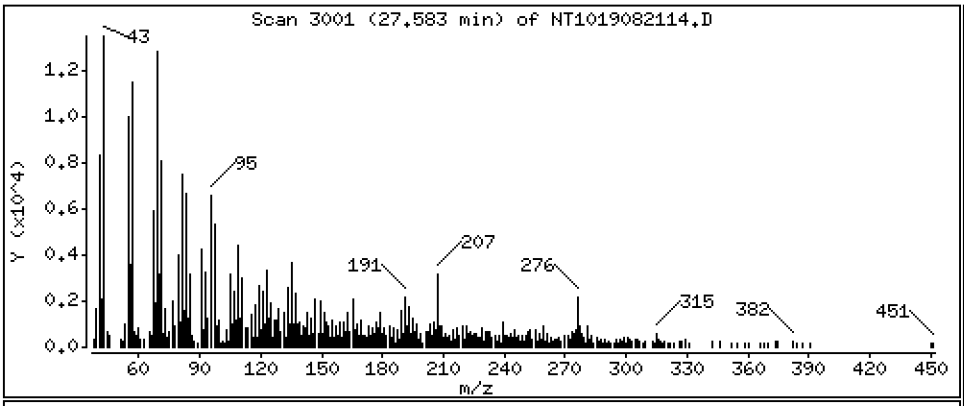
Operator: YZ

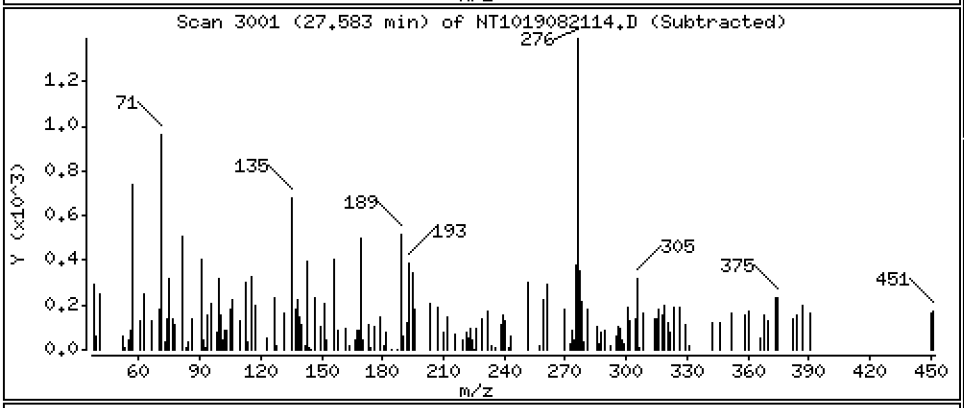
Column phase: ZB-5msi

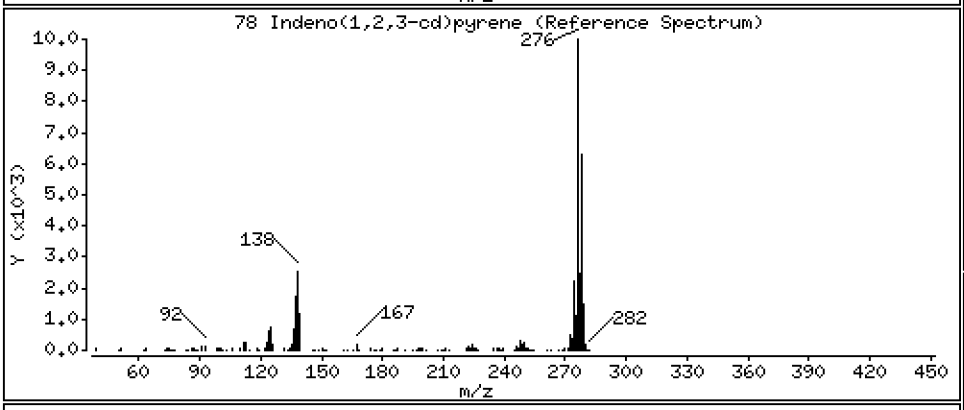
Column diameter: 0.25

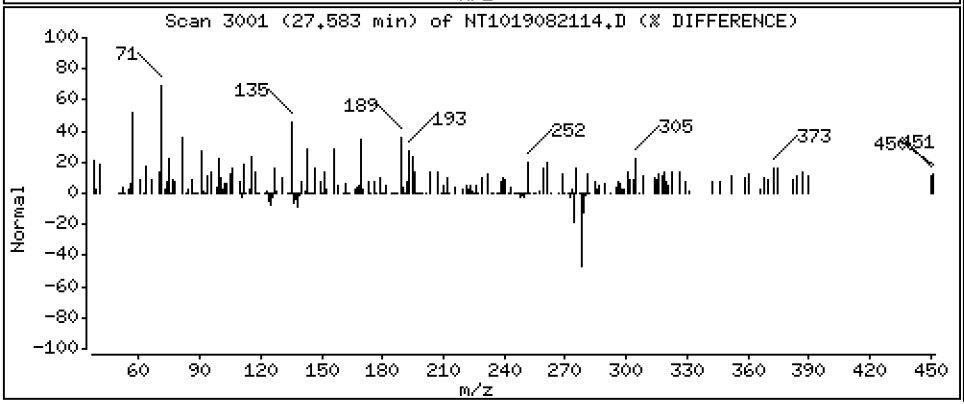
78 Indeno(1,2,3-cd)pyrene

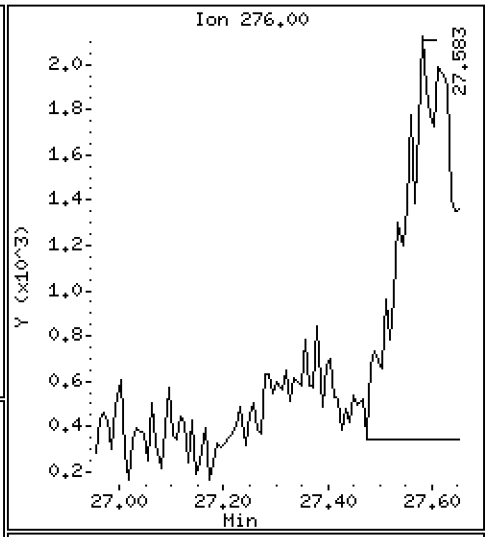
Concentration: 0.7472 ug/mL

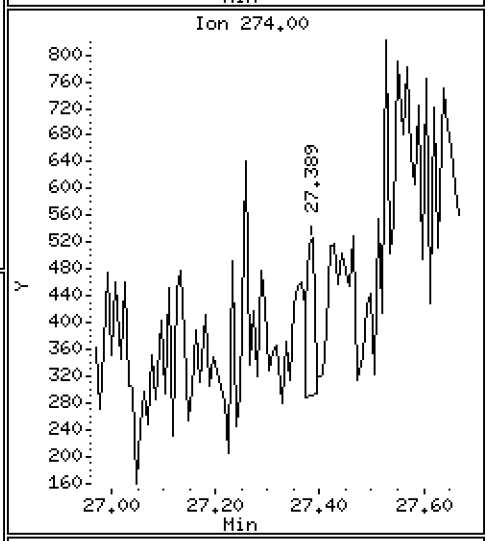


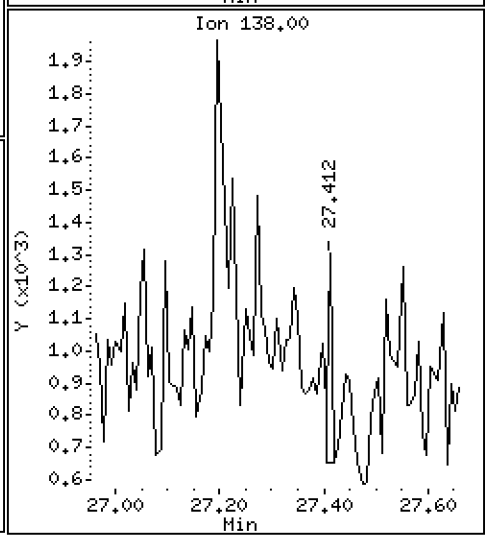












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D

Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

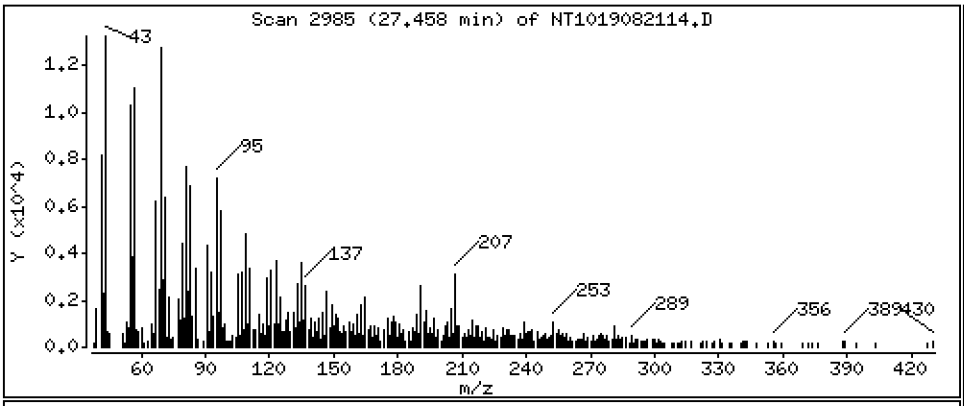
Operator: YZ

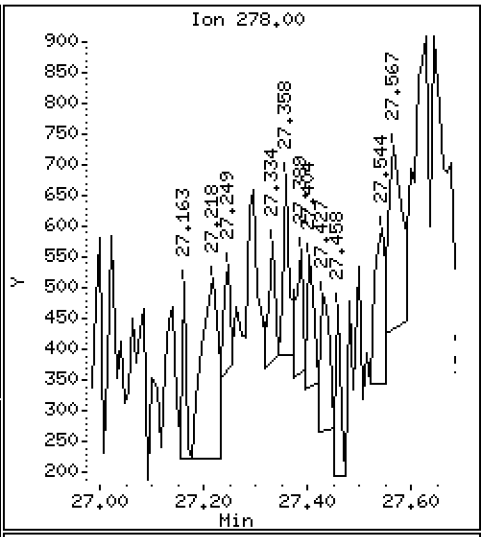
Column phase: ZB-5msi

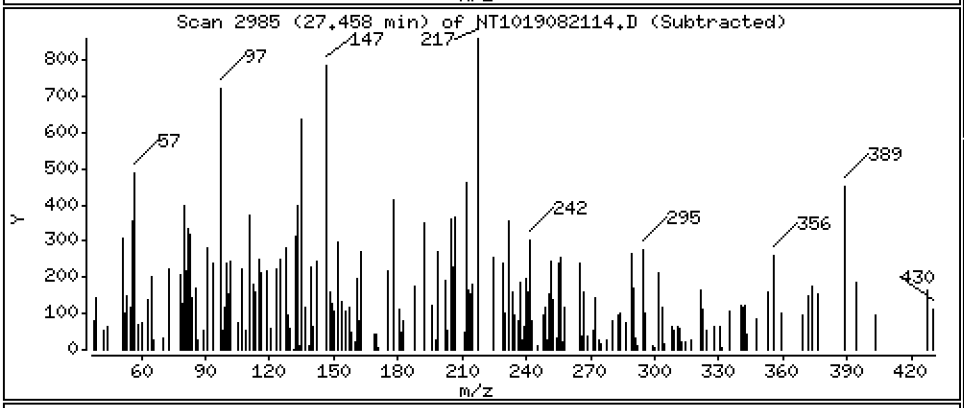
Column diameter: 0.25

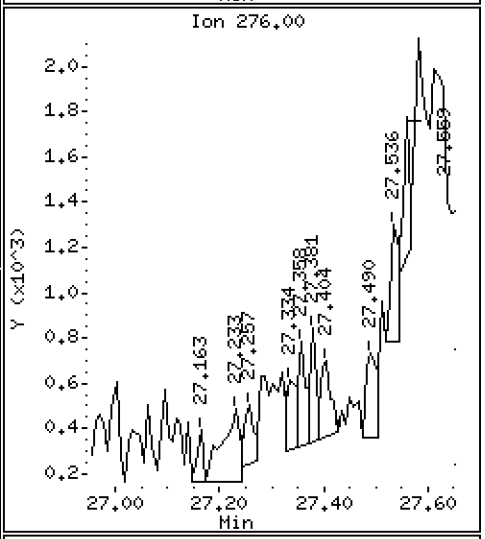
79 Dibenzo(a,h)anthracene

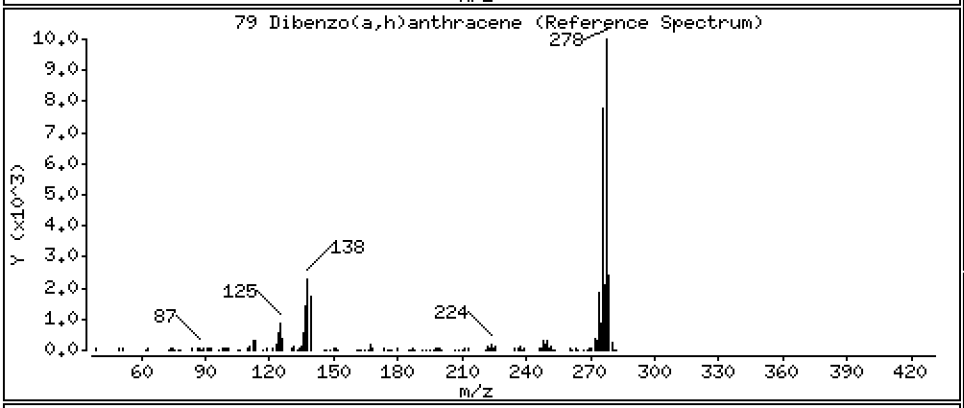
Concentration: 0.01489 ug/mL

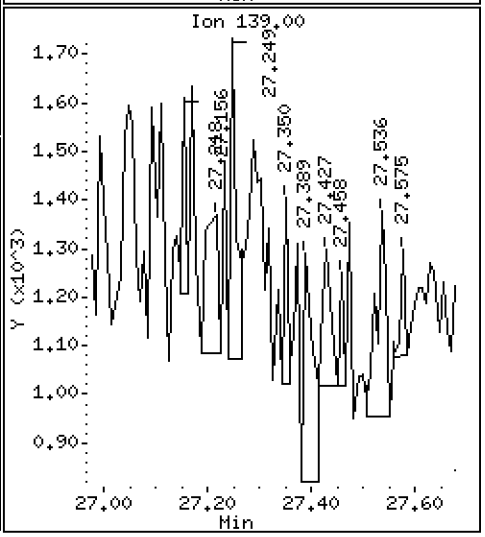


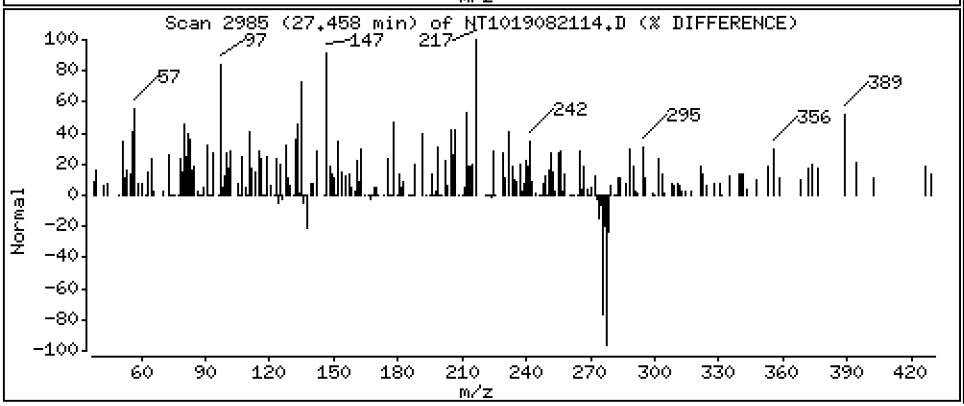












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Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

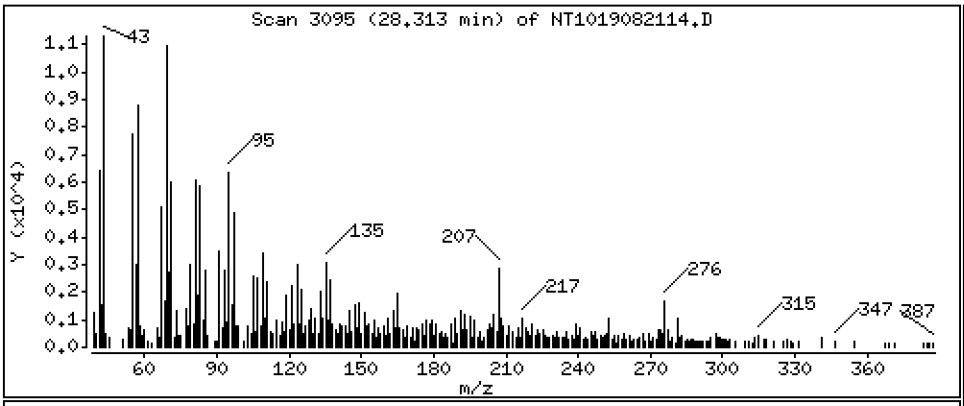
Operator: YZ

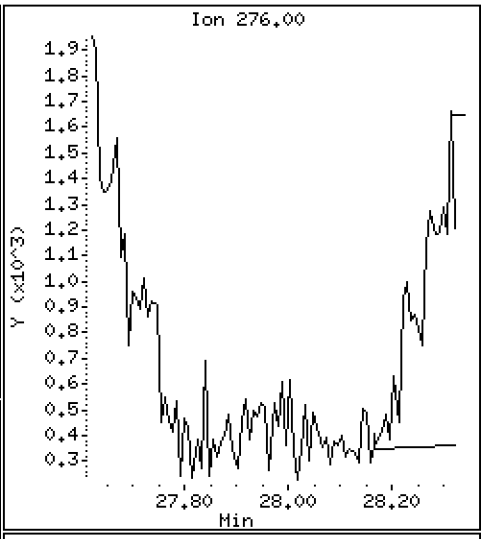
Column phase: ZB-5msi

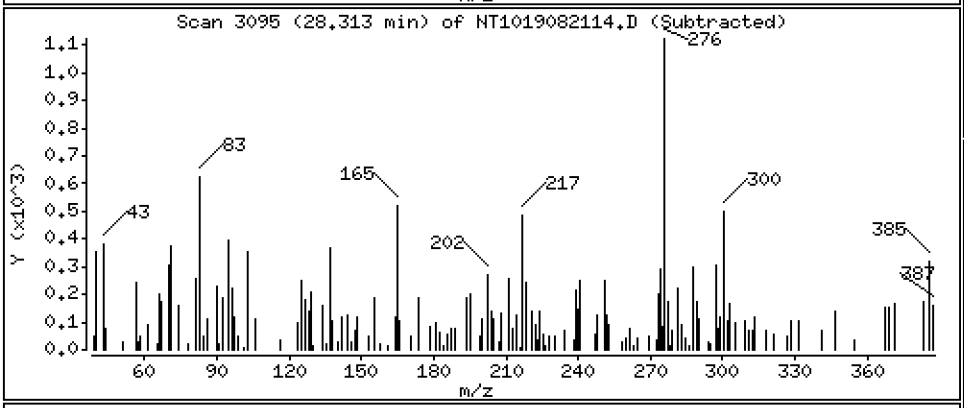
Column diameter: 0.25

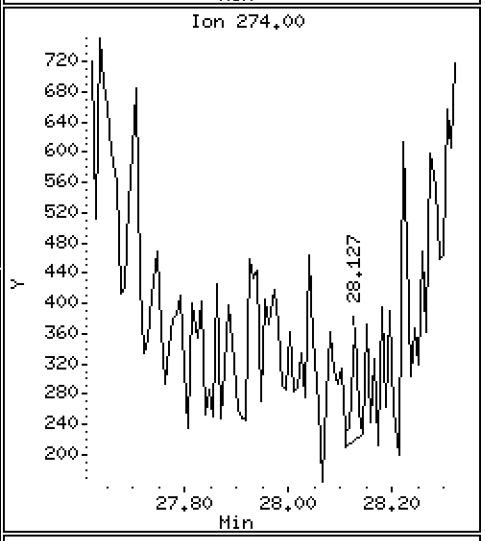
80 Benzo(g,h,i)perylene

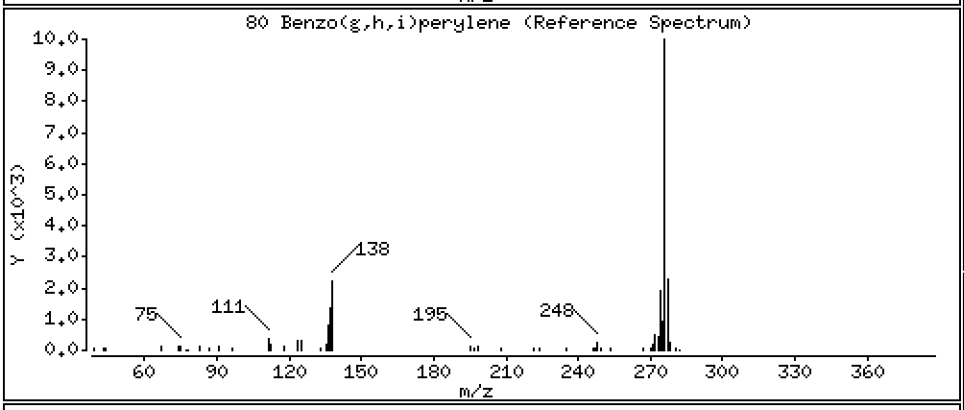
Concentration: 0.7765 ug/mL

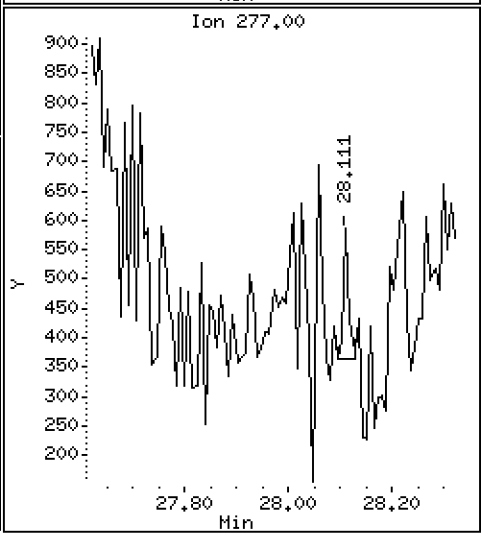


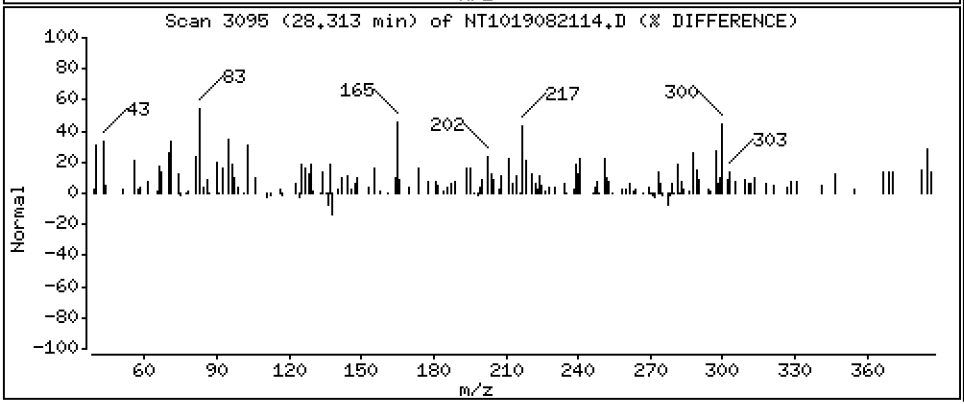












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Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

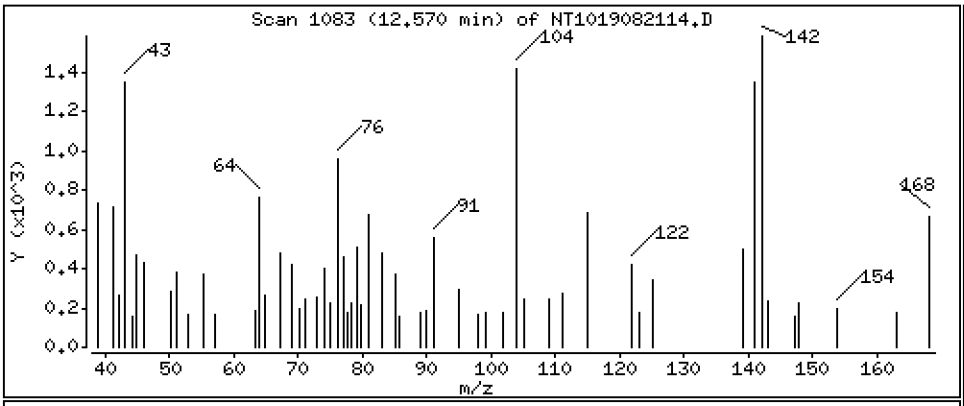
Operator: YZ

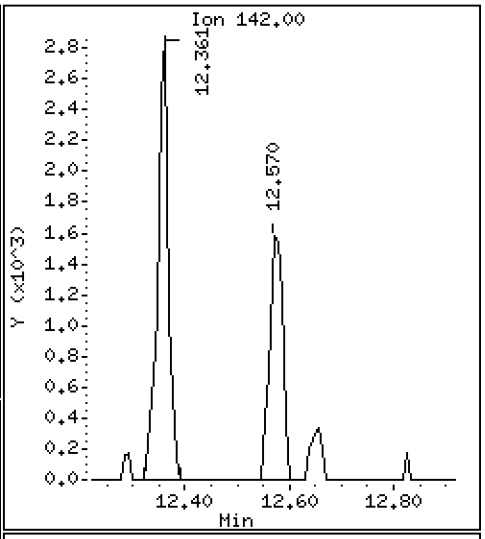
Column phase: ZB-5msi

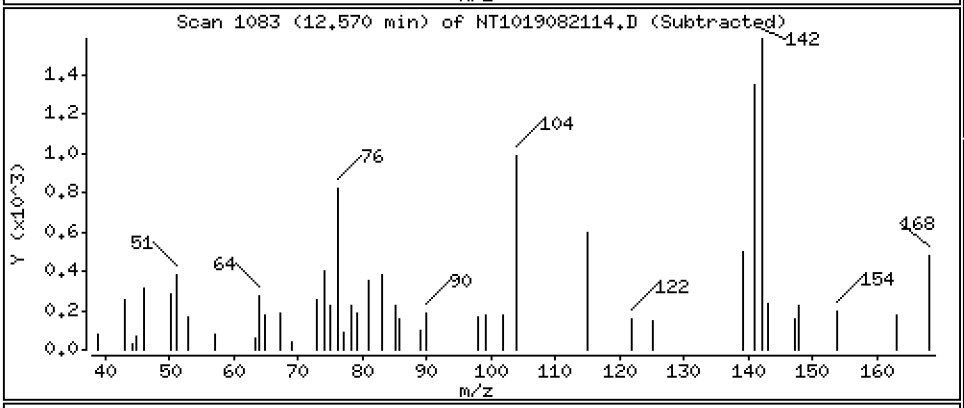
Column diameter: 0.25

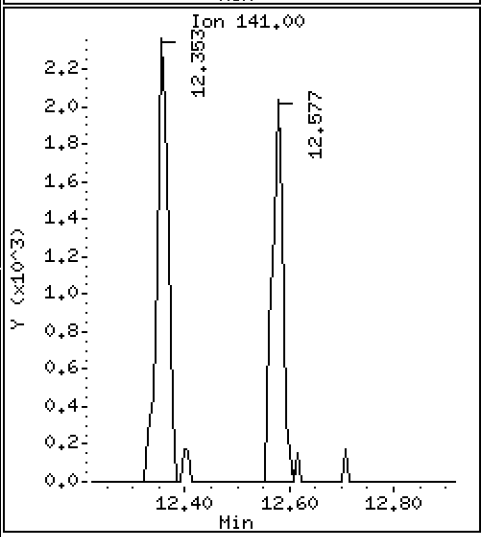
105 1-methylnaphthalene

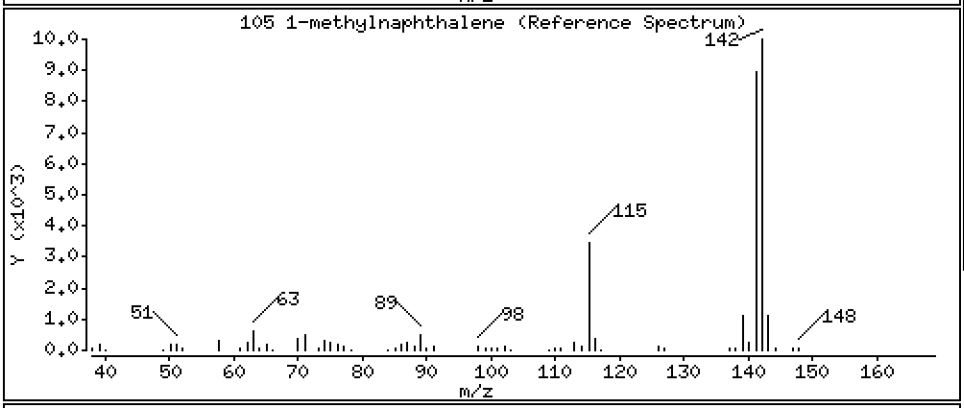
Concentration: 0.09335 ug/mL

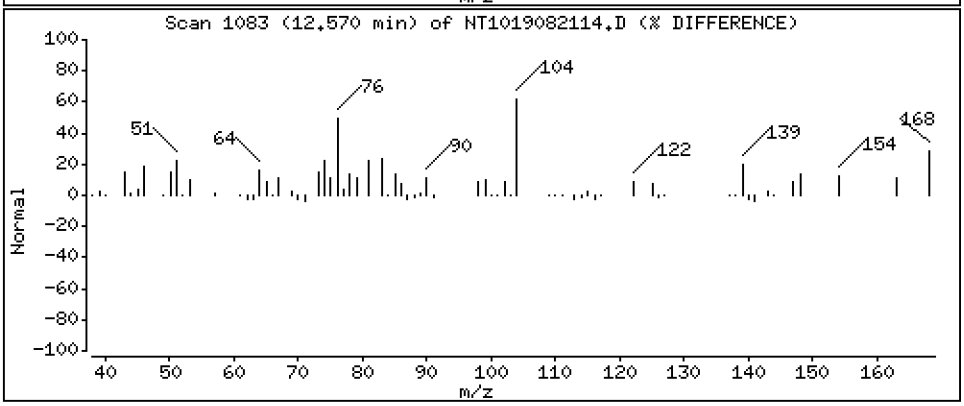












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Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

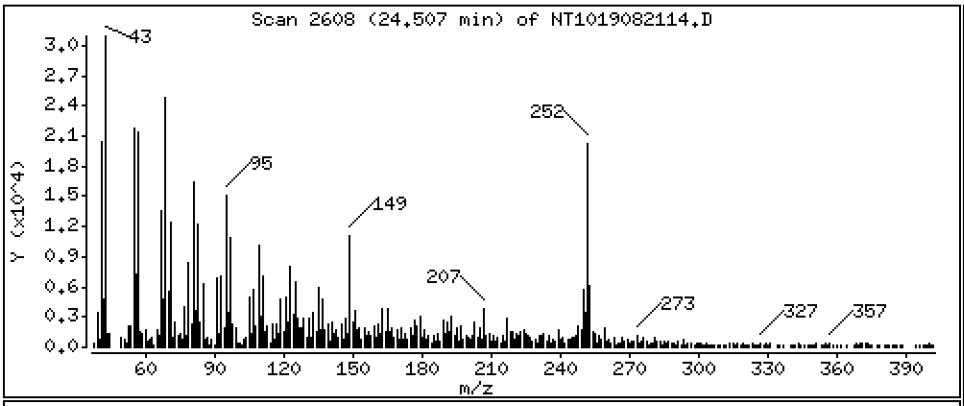
Operator: YZ

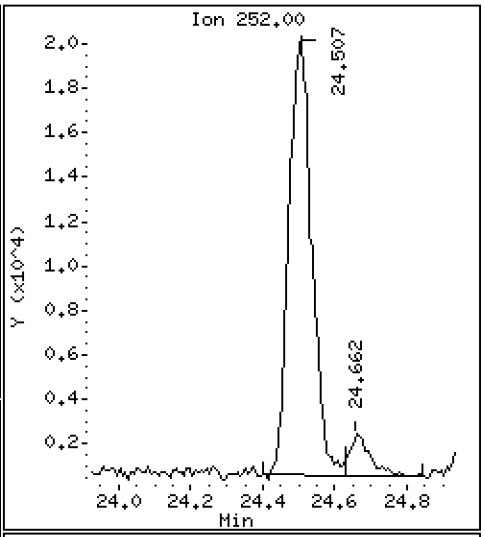
Column phase: ZB-5msi

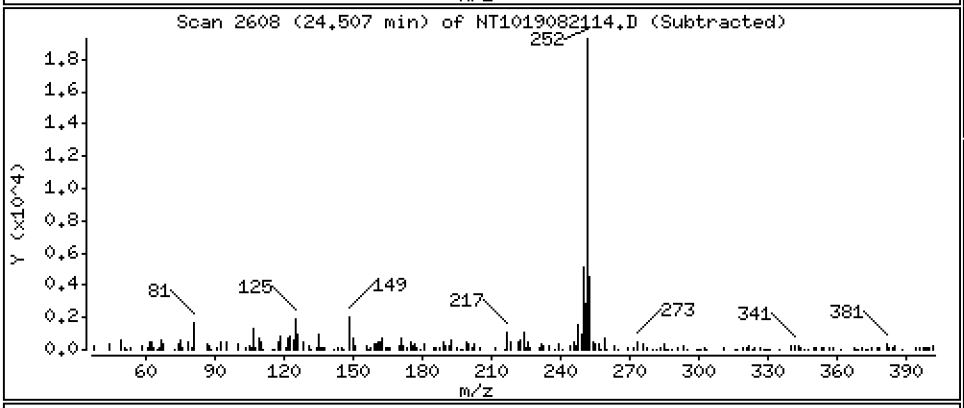
Column diameter: 0.25

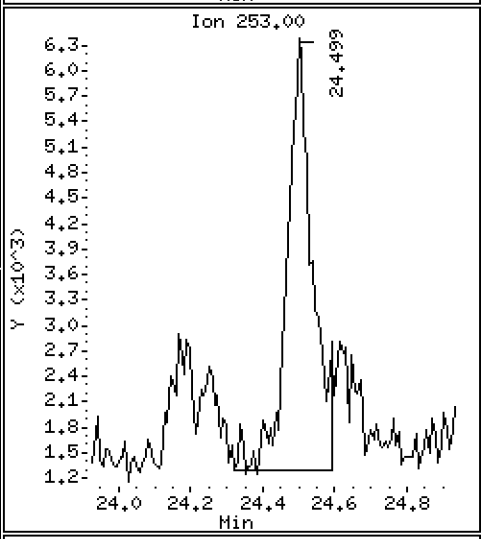
187 Total Benzofluoranthenes

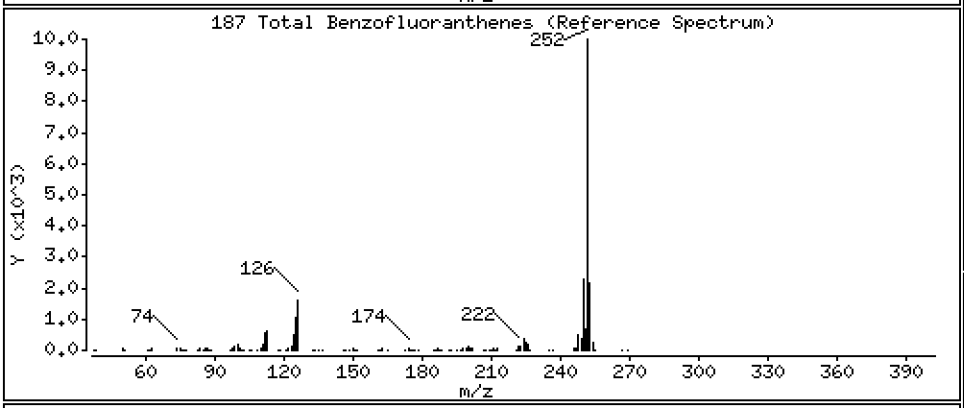
Concentration: 5.677 ug/mL

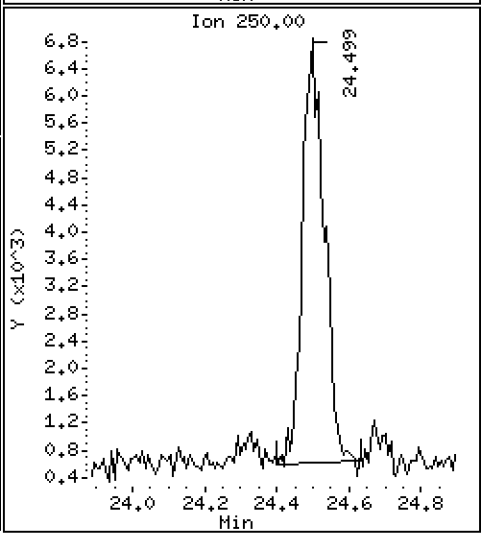


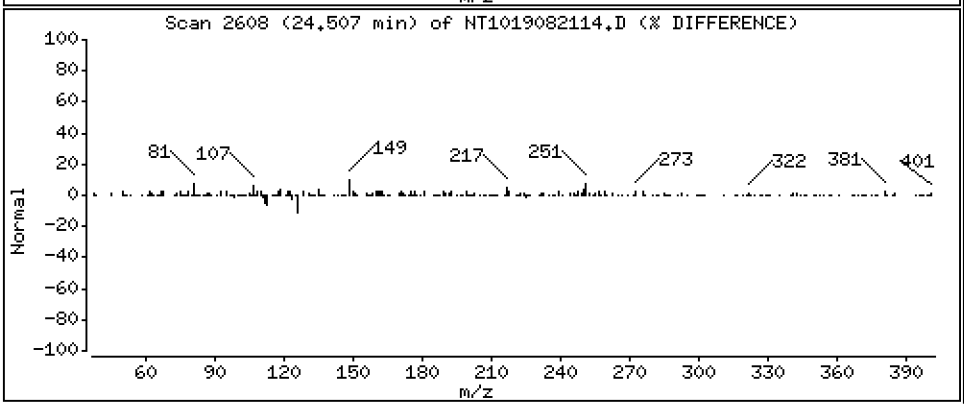












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Date : 21-AUG-2019 18:15

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05

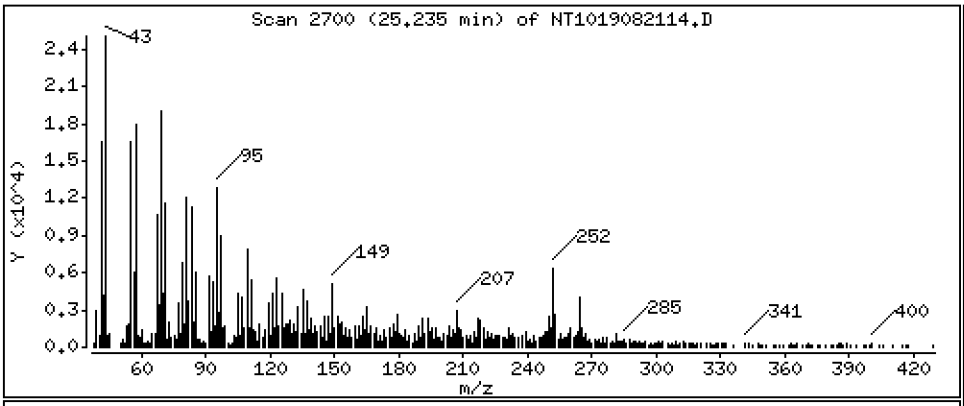
Operator: YZ

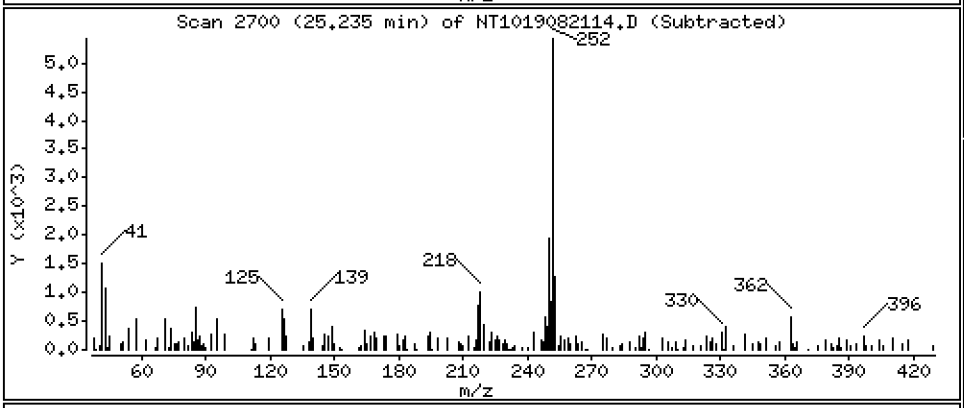
Column phase: ZB-5msi

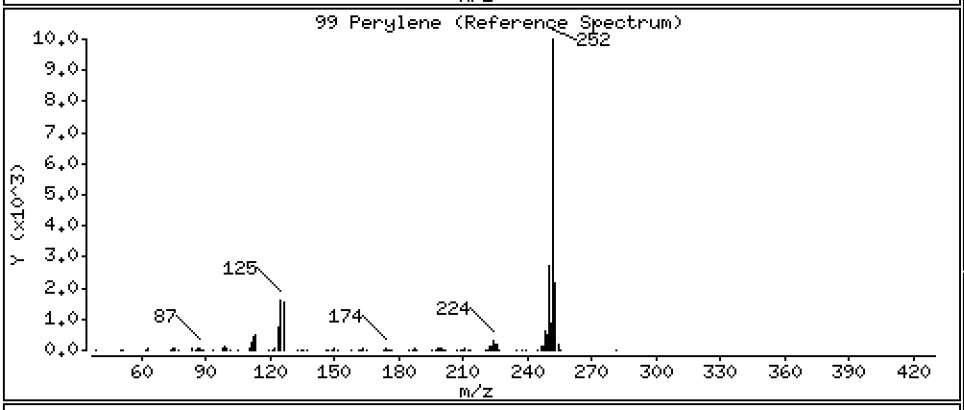
Column diameter: 0.25

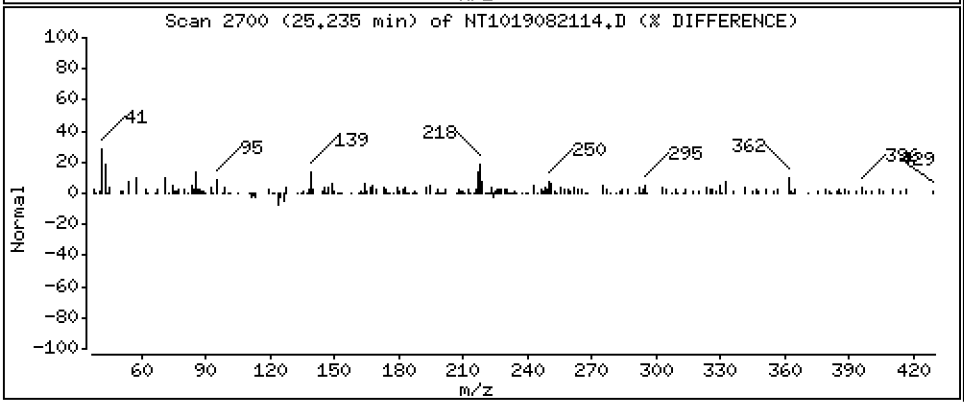
99 Perylene

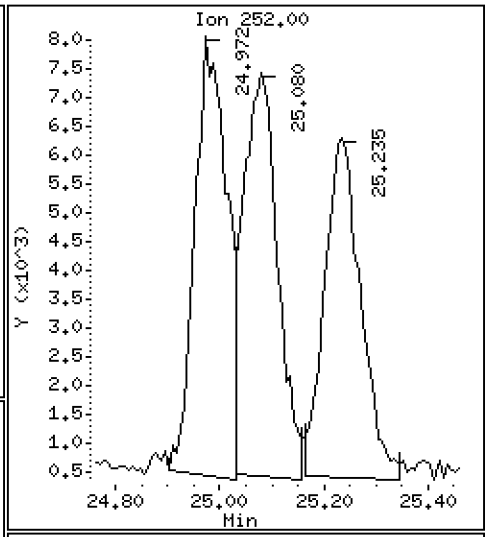
Concentration: 2.157 ug/mL

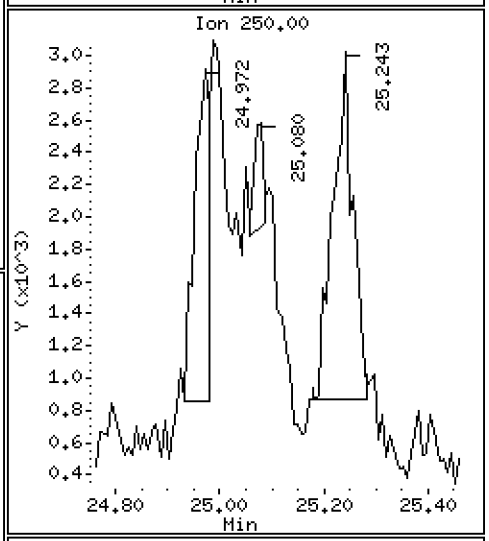


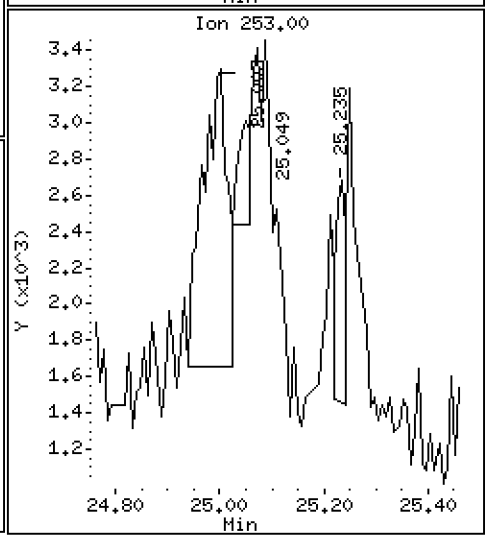












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082114.D
Lab Smp Id: 19H0024-05
Inj Date : 21-AUG-2019 18:15
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-05
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.334	6.311	(0.747)	42923	4.03636	4.036
$	2 Phenol-d5	99	7.895	7.888	(0.931)	49308	4.13734	4.137
	3 Phenol	94	7.919	7.911	(0.933)	1864	0.16823	0.1682
$	5 2-Chlorophenol-d4	132	8.135	8.127	(0.959)	72323	5.63726	5.637
	4 Bis(2-Chloroethyl)ether	93	Compound Not Detected.					
	6 2-Chlorophenol	128	Compound Not Detected.					
	7 1,3-Dichlorobenzene	146	Compound Not Detected.					
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	37870	4.00000	
	9 1,4-Dichlorobenzene	146	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	152	8.840	8.832	(1.042)	31748	3.61952	3.620
	12 1,2-Dichlorobenzene	146	Compound Not Detected.					
	11 Benzyl alcohol	108	8.770	8.762	(1.034)	1241	0.16923	0.1692
	14 2,2'-oxybis(1-Chloropropane)	121	Compound Not Detected.					
	13 2-Methylphenol	108	Compound Not Detected.					
	17 Hexachloroethane	117	Compound Not Detected.					
	16 N-Nitroso-di-n-propylamine	70	Compound Not Detected.					
	15 4-Methylphenol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.562	9.554	(0.875)	39197	3.41028	3.410
	19 Nitrobenzene	77	Compound Not Detected.					
	20 Isophorone	82	Compound Not Detected.					
	21 2-Nitrophenol	139	Compound Not Detected.					
	22 2,4-Dimethylphenol	107	Compound Not Detected.					
	23 Bis(2-Chloroethoxy)methane	93	Compound Not Detected.					
	24 Benzoic acid	105	10.459	10.510	(0.957)	6116	0.73918	0.7392(M)
	25 2,4-Dichlorophenol	162	Compound Not Detected.					
	26 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.929	10.929	(1.000)	146959	4.00000	
	28 Naphthalene	128	10.968	10.968	(1.004)	6237	0.18464	0.1846
	29 4-Chloroaniline	127	Compound Not Detected.					
	30 Hexachlorobutadiene	225	Compound Not Detected.					
	31 4-Chloro-3-methylphenol	107	Compound Not Detected.					
	32 2-Methylnaphthalene	142	12.360	12.353	(1.131)	4213	0.14704	0.1470
	33 Hexachlorocyclopentadiene	237	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	Compound Not Detected.					
	35	2,4,5-Trichlorophenol	196	Compound Not Detected.					
$	36	2-Fluorobiphenyl	172	13.150	13.142	(0.906)	122454	4.36223	4.362
	37	2-Chloronaphthalene	162	Compound Not Detected.					
	38	2-Nitroaniline	65	Compound Not Detected.					
	39	Dimethylphthalate	163	Compound Not Detected.					
	40	Acenaphthylene	152	14.202	14.195	(0.978)	6414	0.18130	0.1813
	41	2,6-Dinitrotoluene	165	Compound Not Detected.					
*	42	Acenaphthene-d10	164	14.519	14.512	(1.000)	73391	4.00000	
	43	3-Nitroaniline	138	Compound Not Detected.					
	44	Acenaphthene	153	14.581	14.574	(1.004)	4024	0.18102	0.1810
	45	2,4-Dinitrophenol	184	Compound Not Detected.					
	46	Dibenzofuran	168	14.914	14.898	(1.027)	8803	0.24095	0.2410
	47	4-Nitrophenol	109	Compound Not Detected.					
	48	2,4-Dinitrotoluene	165	Compound Not Detected.					
	50	Diethylphthalate	149	15.509	15.517	(1.068)	2591	0.09867	0.09867
	49	Fluorene	166	15.617	15.610	(1.076)	7374	0.29514	0.2951
	51	4-Chlorophenyl-phenylether	204	Compound Not Detected.					
	52	4-Nitroaniline	138	Compound Not Detected.					
	53	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.					
	54	N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55	2,4,6-Tribromophenol	330	16.157	16.142	(1.113)	36087	6.50286	6.503
	56	4-Bromophenyl-phenylether	248	Compound Not Detected.					
	57	Hexachlorobenzene	284	Compound Not Detected.					
	58	Pentachlorophenol	266	Compound Not Detected.					
*	59	Phenanthrene-d10	188	17.541	17.525	(1.000)	136057	4.00000	
	60	Phenanthrene	178	17.587	17.572	(1.003)	48964	1.47329	1.473
	61	Anthracene	178	17.680	17.665	(1.008)	25202	0.74683	0.7468
	62	Carbazole	167	18.044	18.012	(1.029)	7649	0.24087	0.2409
	63	Di-n-butylphthalate	149	18.895	18.872	(1.077)	6236	0.13563	0.1356
	64	Fluoranthene	202	20.032	19.993	(1.000)	205822	9.30995	9.310
	65	Pyrene	202	20.458	20.411	(1.000)	157967	6.84262	6.843
$	66	Terphenyl-d14	244	20.790	20.744	(1.000)	88110	5.62769	5.628
	67	Butylbenzylphthalate	149	21.743	21.712	(1.000)	945	0.08788	0.08788
	68	Benzo(a)anthracene	228	22.703	22.610	(1.000)	44531	2.12156	2.122
*	69	Chrysene-d12	240	22.726	22.633	(1.000)	72344	4.00000	(M)
	70	3,3'-Dichlorobenzidine	252	Compound Not Detected.					
	71	Chrysene	228	22.765	22.680	(1.000)	69119	3.72141	3.721(H)
	72	bis(2-Ethylhexyl)phthalate	149	22.819	22.765	(0.958)	92067	6.71600	6.716
*	134	Di-n-octylphthalate-d4	153	23.825	23.756	(1.000)	155860	4.00000	
	73	Di-n-octylphthalate	149	23.856	23.763	(1.001)	15047	0.52185	0.5219(M)
	74	Benzo(b)fluoranthene	252	24.507	24.390	(0.973)	88630	5.46638	5.466
	75	Benzo(k)fluoranthene	252	24.507	24.429	(0.973)	88630	5.43365	5.434
	76	Benzo(a)pyrene	252	25.080	24.948	(0.996)	31350	2.15441	2.154
*	77	Perylene-d12	264	25.180	25.056	(1.000)	56512	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	27.582	27.303	(1.095)	13064	0.74718	0.7472(M)
	79	Dibenzo(a,h)anthracene	278	27.458	27.334	(1.090)	212	0.01489	0.01489
	80	Benzo(g,h,i)perylene	276	28.312	27.971	(1.124)	11435	0.77652	0.7765(M)
	90	N-Nitrosodimethylamine	74	Compound Not Detected.					
	91	Aniline	93	Compound Not Detected.					
	93	Benzidine	184	Compound Not Detected.					
	103	Pyridine	79	Compound Not Detected.					
	105	1-methylnaphthalene	142	12.569	12.569	(1.150)	2689	0.09335	0.09335(H)
	111	Azobenzene (1,2-DP-Hydrazine)	77	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
187	Total Benzofluoranthenes	252	24.507	24.429	(0.973)	88296	5.67740	5.677
99	Perylene	252	25.234	25.110	(1.002)	28876	2.15719	2.157
98	Retene	219	Compound Not Detected.					
120	2,3,4,6-Tetrachlorophenol	232	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082114.D
Lab Smp Id: 19H0024-05
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	37870	15.67	
27 Naphthalene-d8	117487	58744	234974	146959	25.09	
42 Acenaphthene-d10	61859	30930	123718	73391	18.64	
59 Phenanthrene-d10	113574	56787	227148	136057	19.80	
69 Chrysene-d12	105788	52894	211576	72344	-31.61	
134 Di-n-octylphthala	252823	126412	505646	155860	-38.35	
77 Perylene-d12	113992	56996	227984	56512	-50.42	<-

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	-0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	-0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.52	0.05
59 Phenanthrene-d10	17.53	17.03	18.03	17.54	0.09
69 Chrysene-d12	22.63	22.13	23.13	22.73	0.41
134 Di-n-octylphthala	23.76	23.26	24.26	23.83	0.29
77 Perylene-d12	25.06	24.56	25.56	25.18	0.49

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082114.D

Lab ID: 19H0024-05
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 18:15

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.000	1.130	-0.1302	2-Methylnaphthalene
1.034	1.004	0.0296	Acenaphthene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate
0.957	0.973	-0.0164	Benzo(b)fluoranthene
1.131	1.091	0.0400	Dibenzo(a,h)anthracene
0.978	1.000	-0.0219	Acenaphthene-d10
1.027	0.930	0.0974	Phenol-d5
1.076	0.906	0.1700	2-Fluorobiphenyl
1.068	0.917	0.1516	Terphenyl-d14

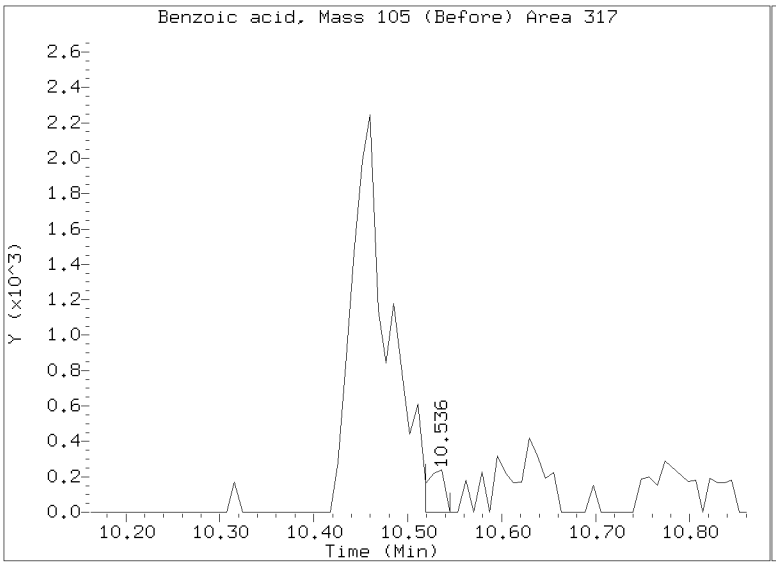
RRT check based on Ccal File: NT1019082105.D

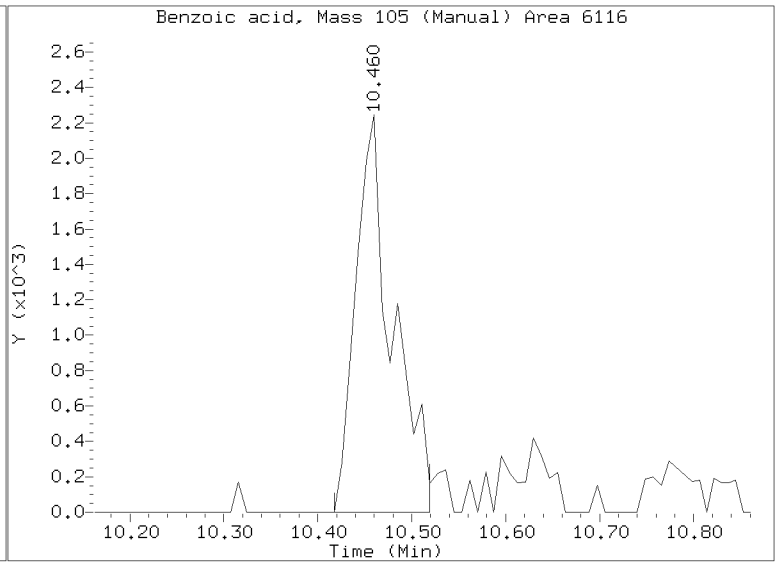
On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

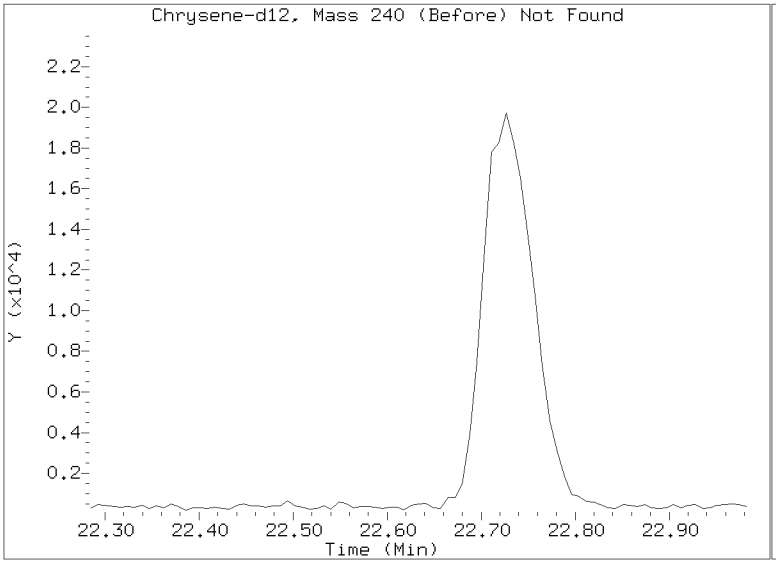
* Only compounds listed in the work order have been verified by the analyst *

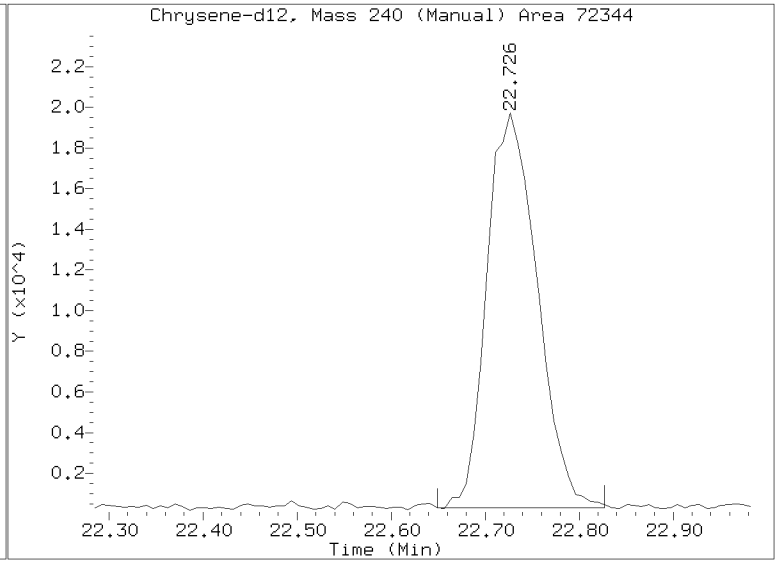
Quant Ion Manual Peak Adjustment Report

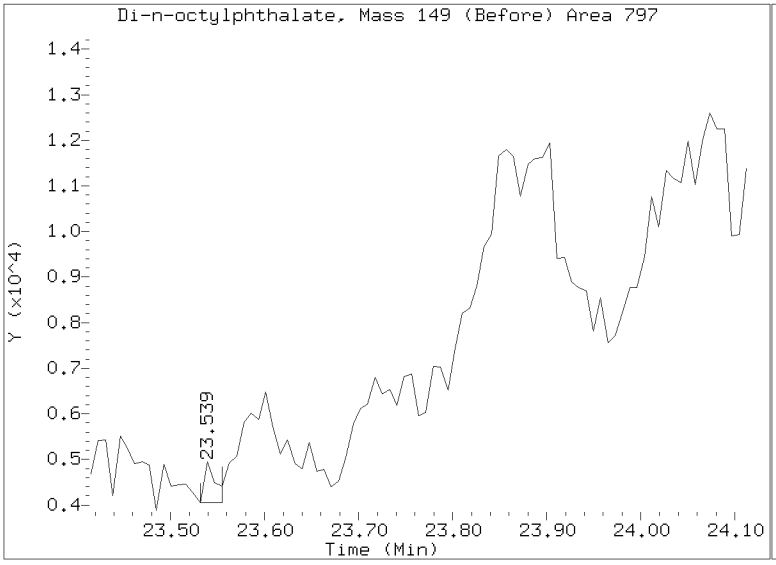
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082114.D
Injection Date: 21-AUG-2019 18:15
Lab ID:19H0024-05 Client ID:
Report Date: 08/22/2019 12:50

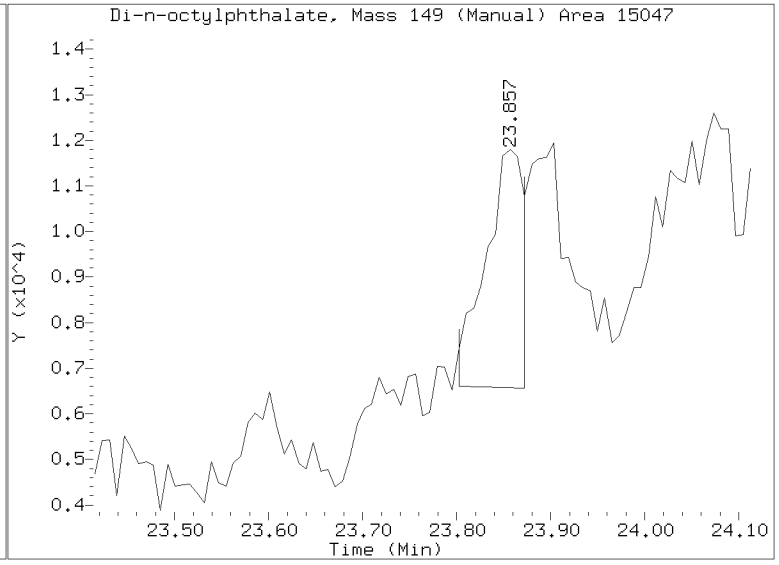






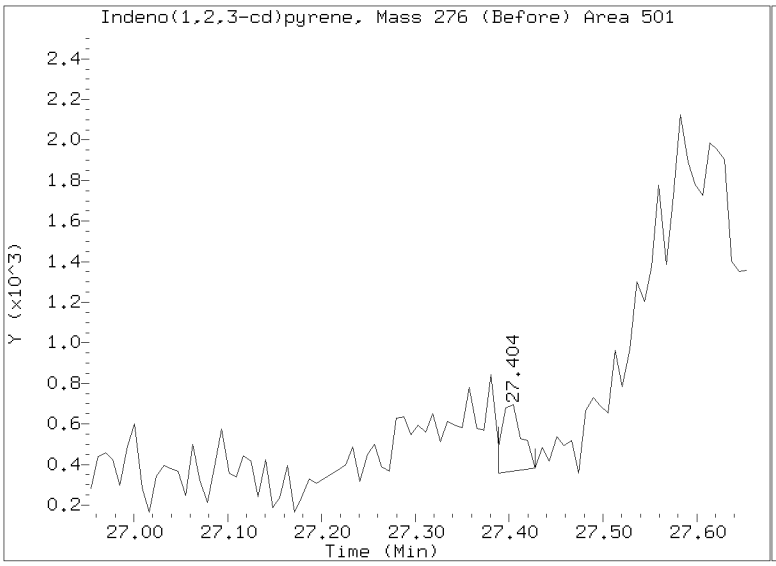


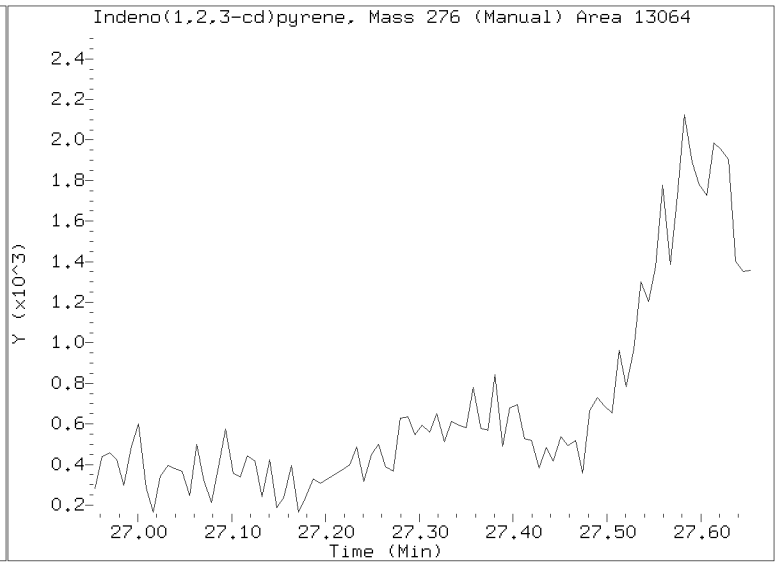


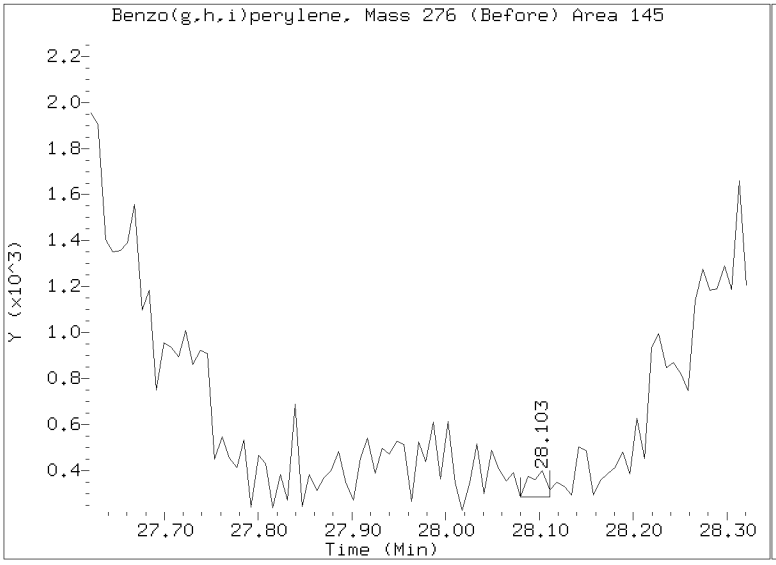


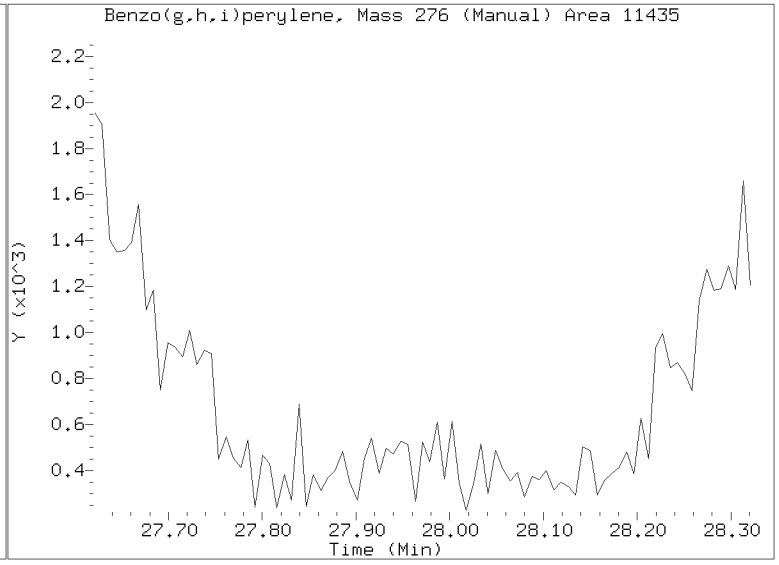
Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082114.D
Injection Date: 21-AUG-2019 18:15
Lab ID:19H0024-05 Client ID:
Report Date: 08/22/2019 12:50









SL4-SG-WC7-FD-2019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D

Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-05RE1 C	SDG:	19H0024
Sampled:	08/01/19 08:39	Prepared:	08/13/19 12:40	File ID:	NT1019082211.D
% Solids:	40.84	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/22/19 19:59
Batch:	BHH0289	Sequence:	SHH0325	Initial/Final:	24.61 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040
Cleanups:	GPC				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	3	59.7	U	24.6	59.7
100-51-6	Benzyl Alcohol	3	59.7	U	44.5	59.7
65-85-0	Benzoic acid	3	597	U	176	597
86-30-6	N-Nitrosodiphenylamine	3	59.7	U	28.6	59.7
85-01-8	Phenanthrene	3	110	D	14.0	59.7
206-44-0	Fluoranthene	3	687	D	13.5	59.7
129-00-0	Pyrene	3	567	D	16.6	59.7
85-68-7	Butylbenzylphthalate	3	59.7	U	24.0	59.7
56-55-3	Benzo(a)anthracene	3	182	D	15.5	59.7
218-01-9	Chrysene	3	293	D	15.6	59.7
117-81-7	bis(2-Ethylhexyl)phthalate	3	562	D	86.0	149
117-84-0	Di-n-Octylphthalate	3	33.2	J, D	26.0	59.7
	Benzofluoranthenes, Total	3	435	D	30.4	119
50-32-8	Benzo(a)pyrene	3	187	D	19.3	59.7
193-39-5	Indeno(1,2,3-cd)pyrene	3	108	D	17.9	59.7
53-70-3	Dibenzo(a,h)anthracene	3	59.7	U	18.4	59.7
191-24-2	Benzo(g,h,i)perylene	3	136	D	17.4	59.7

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	746.21	308	41.2	27 - 120	
Phenol-d5	746.21	328	44.0	29 - 120	Q
2-Chlorophenol-d4	746.21	417	55.9	31 - 120	
1,2-Dichlorobenzene-d4	497.48	263	52.9	32 - 120	
Nitrobenzene-d5	497.48	261	52.4	30 - 120	
2-Fluorobiphenyl	497.48	332	66.8	35 - 120	
2,4,6-Tribromophenol	746.21	341	45.7	24 - 134	
p-Terphenyl-d14	497.48	496	99.7	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082211.D

Date : 22-AUG-2019 19:59

Client ID:

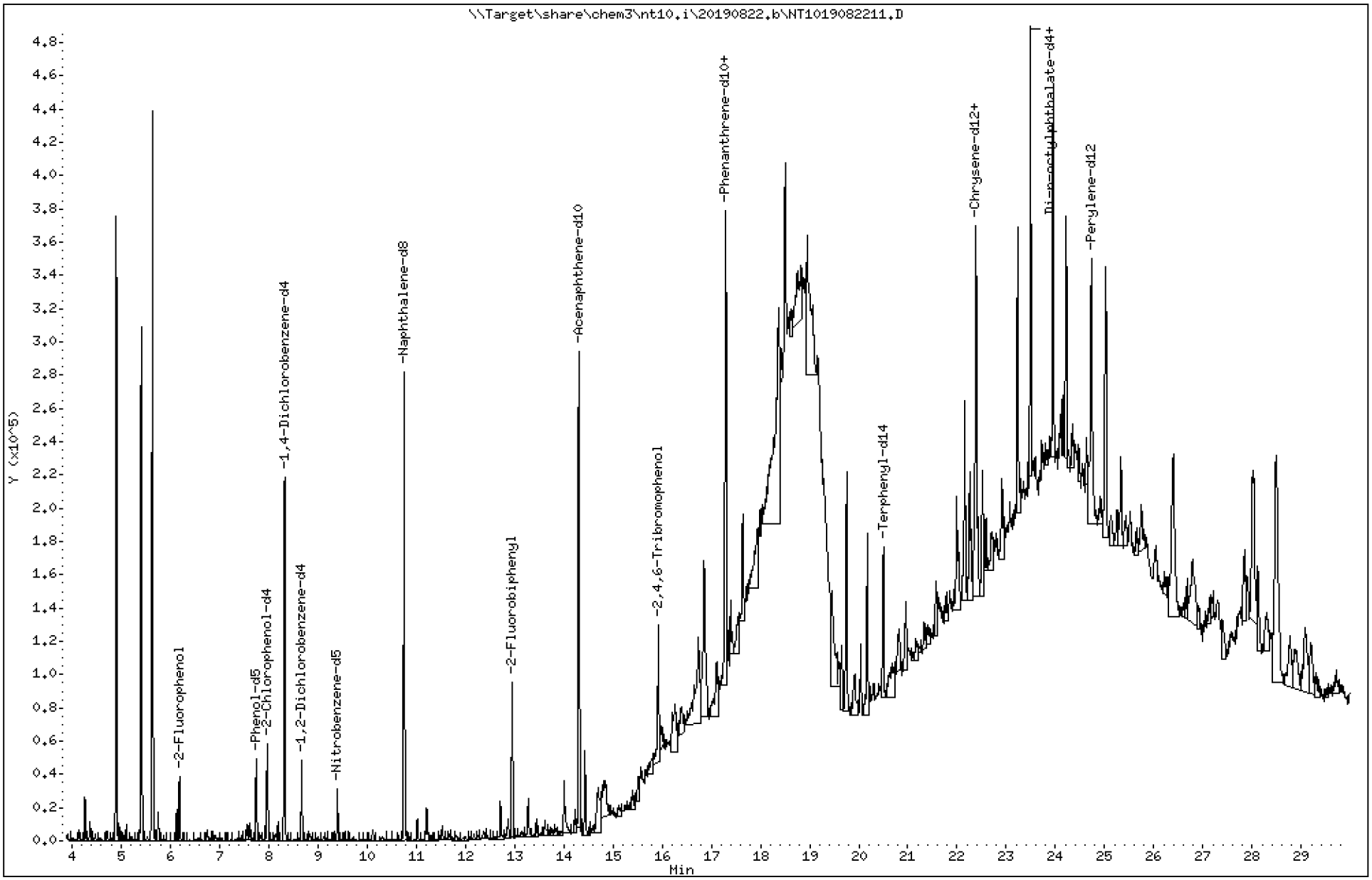
Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 22-AUG-2019 19:59

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

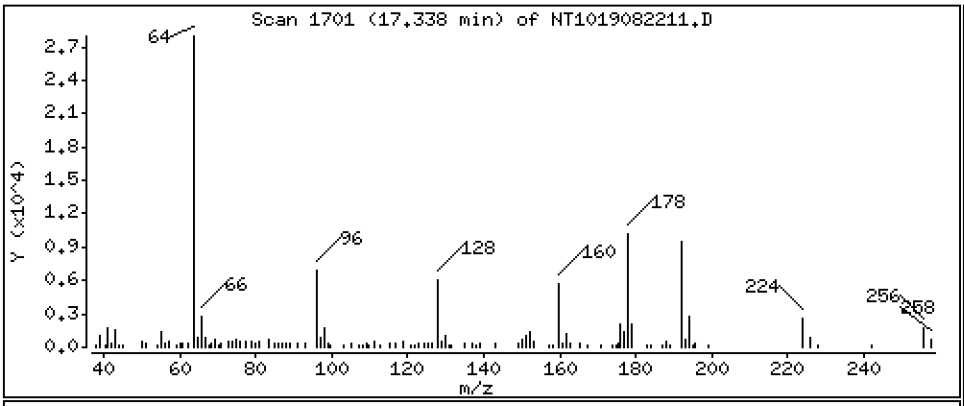
Operator: YZ

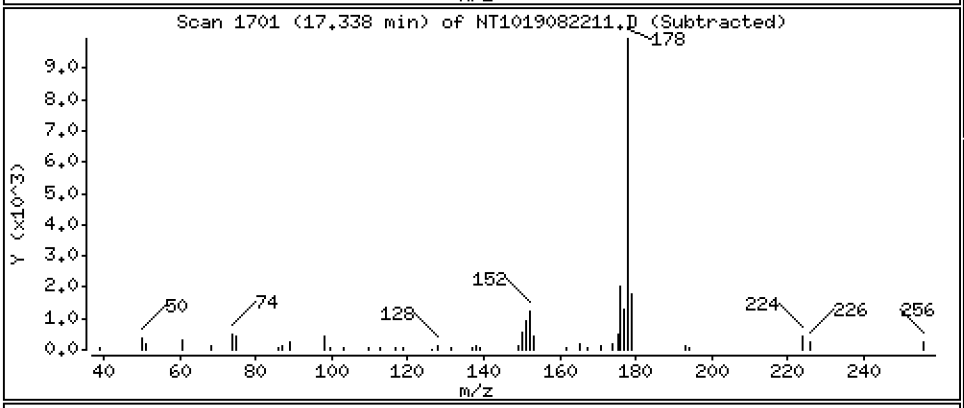
Column phase: ZB-5msi

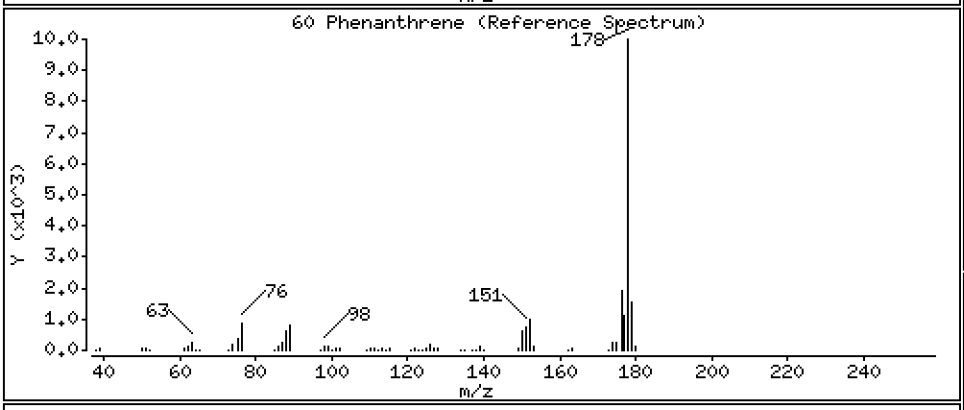
Column diameter: 0.25

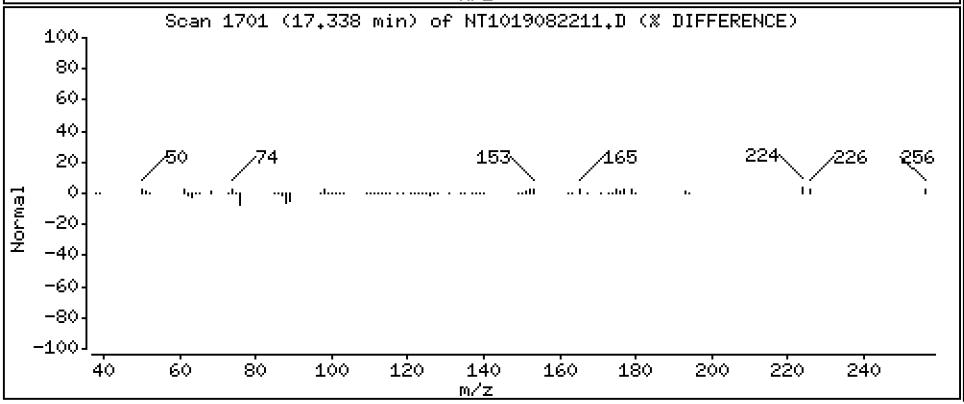
60 Phenanthrene

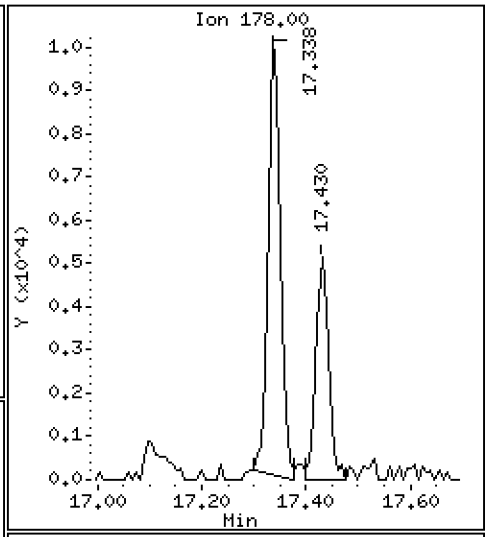
Concentration: 1.104 ug/mL

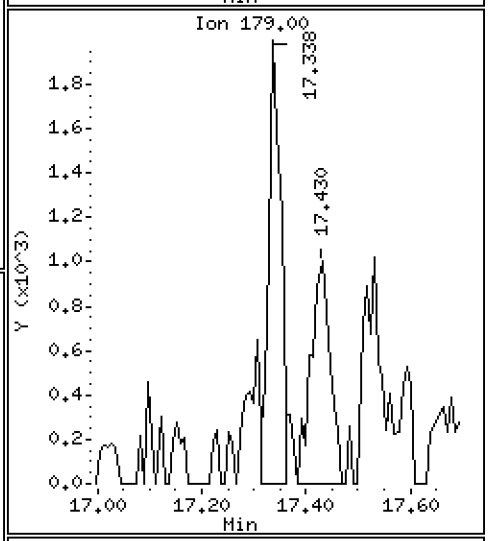


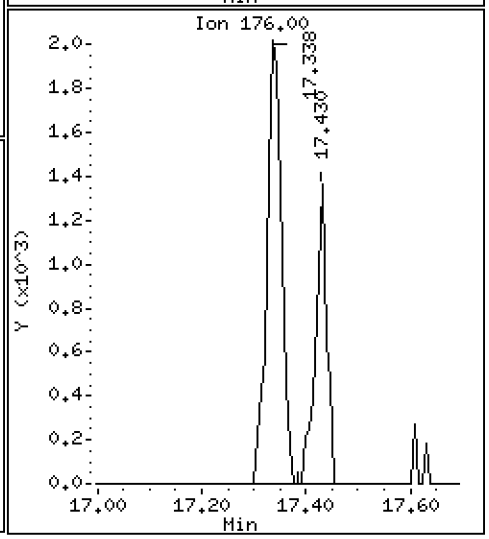












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Date : 22-AUG-2019 19:59

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

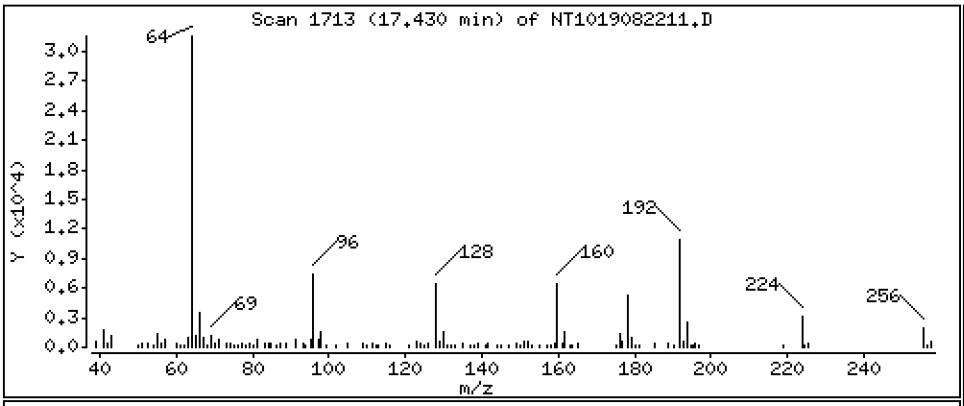
Operator: YZ

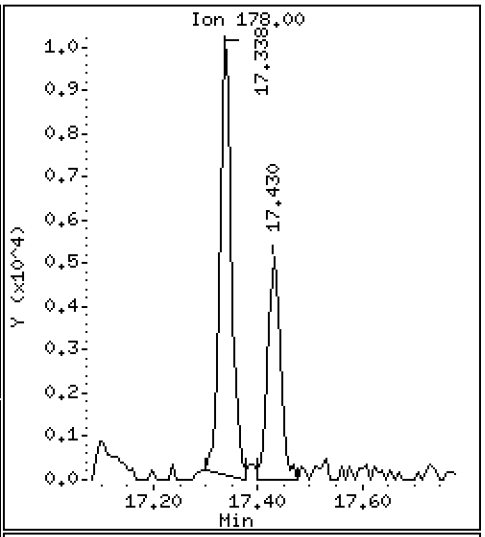
Column phase: ZB-5msi

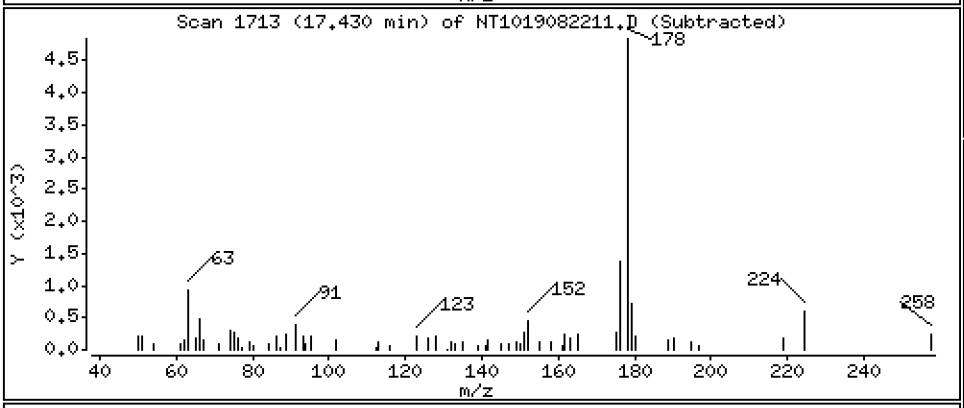
Column diameter: 0.25

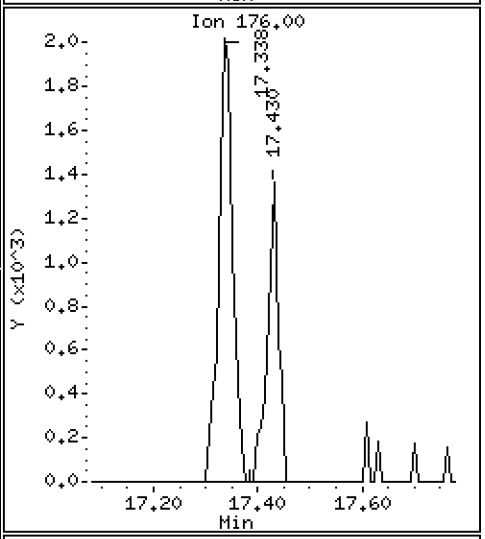
61 Anthracene

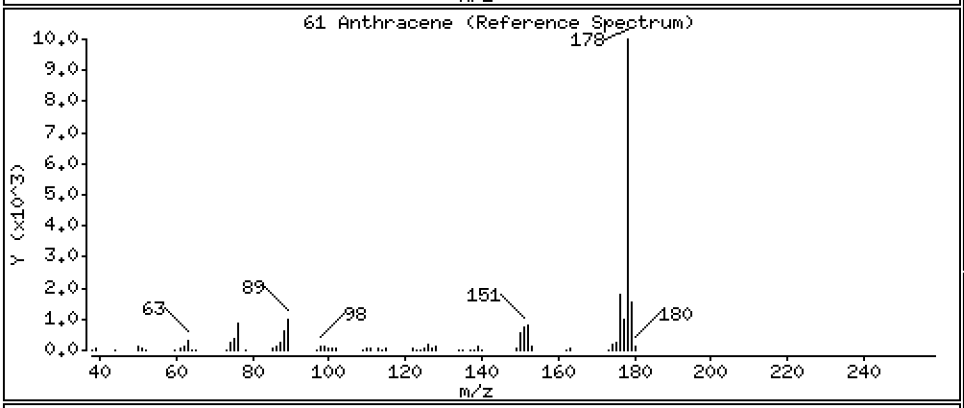
Concentration: 0.5729 ug/mL

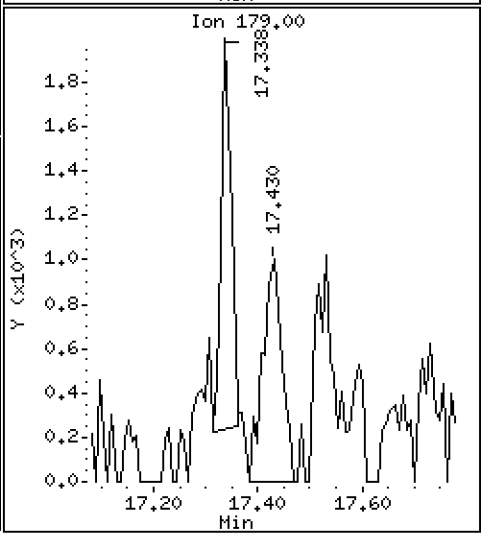


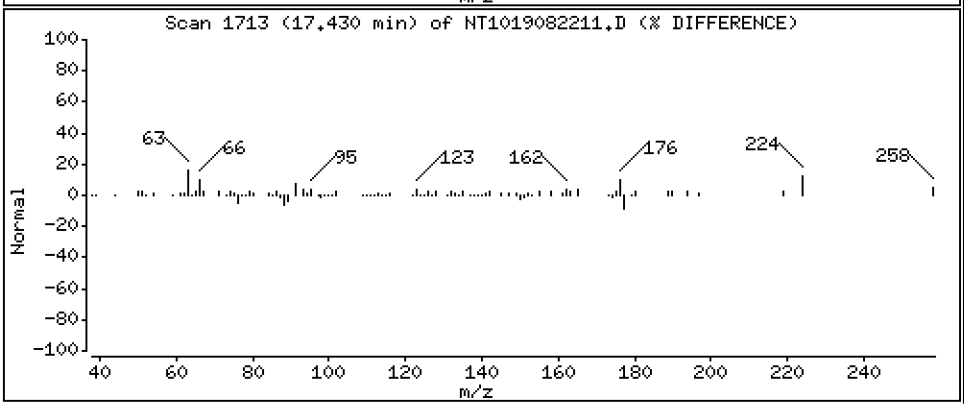












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Date : 22-AUG-2019 19:59

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

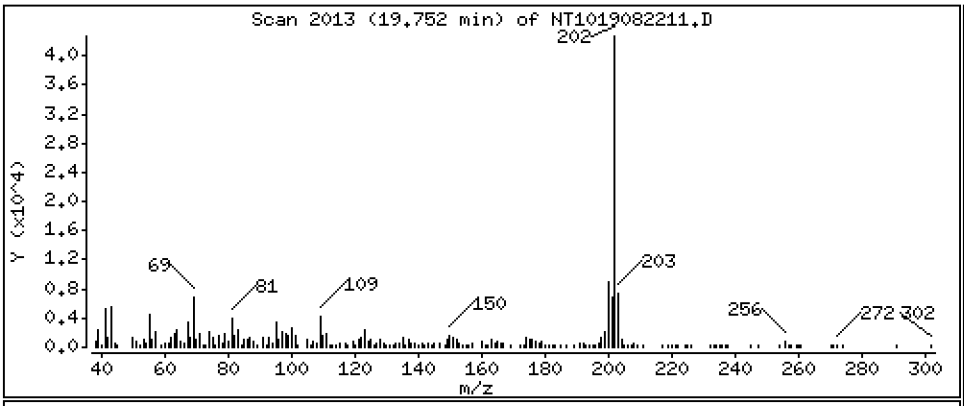
Operator: YZ

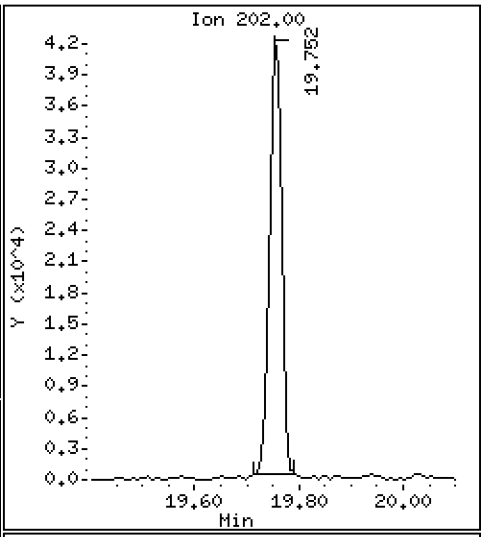
Column phase: ZB-5msi

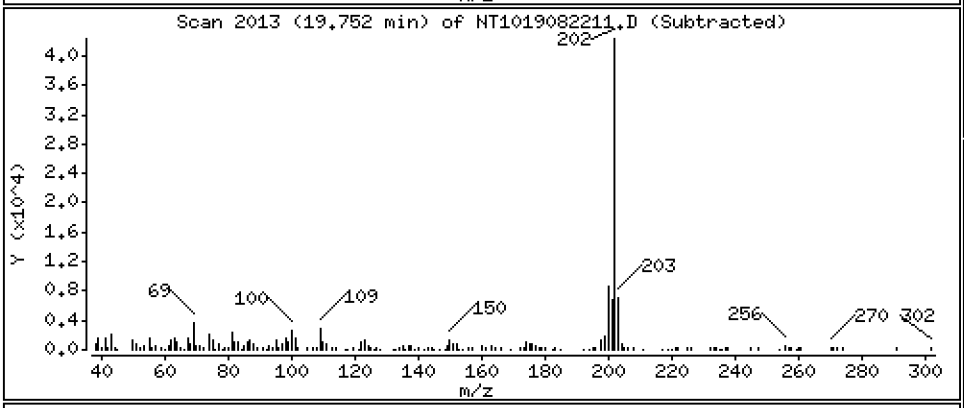
Column diameter: 0.25

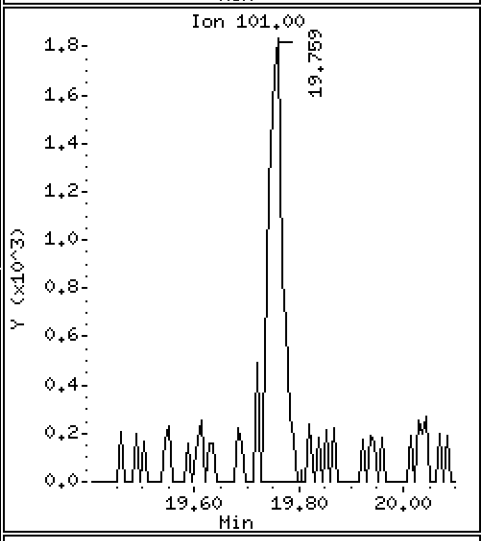
64 Fluoranthene

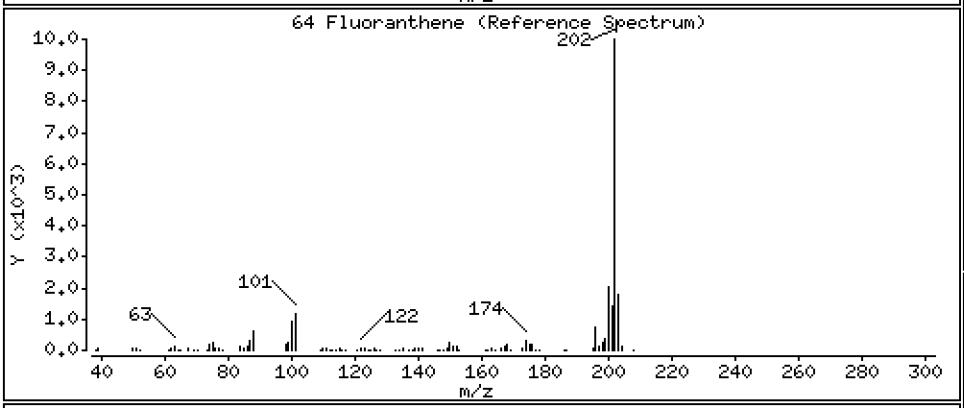
Concentration: 6.909 ug/mL

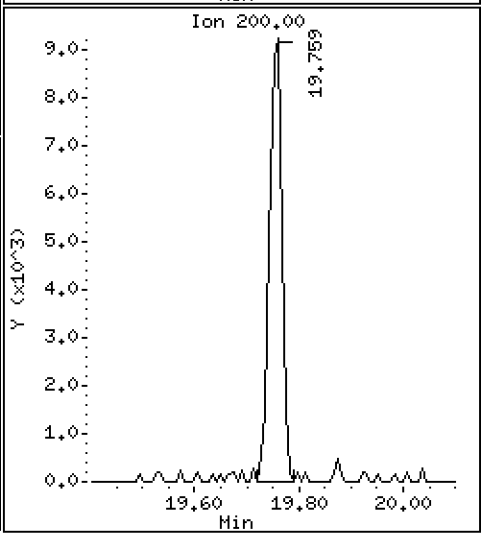


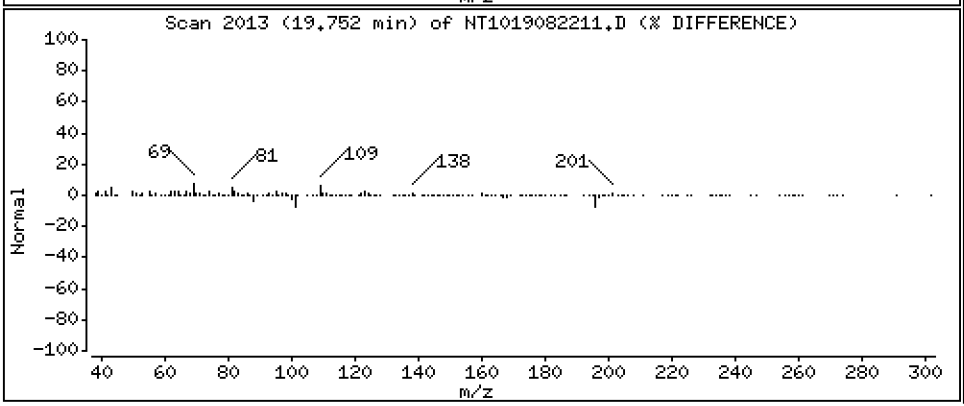












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Date : 22-AUG-2019 19:59

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

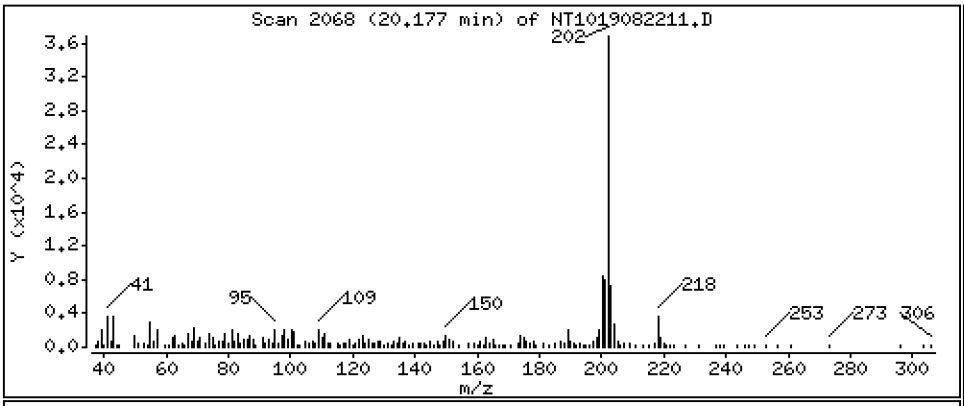
Operator: YZ

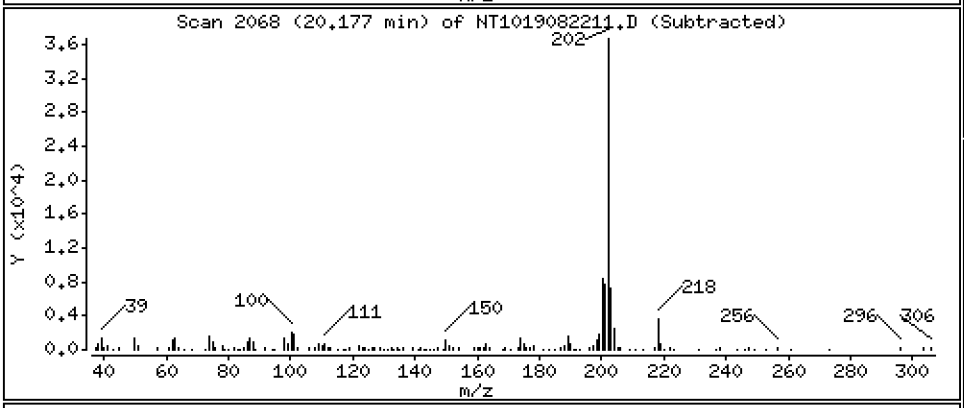
Column phase: ZB-5msi

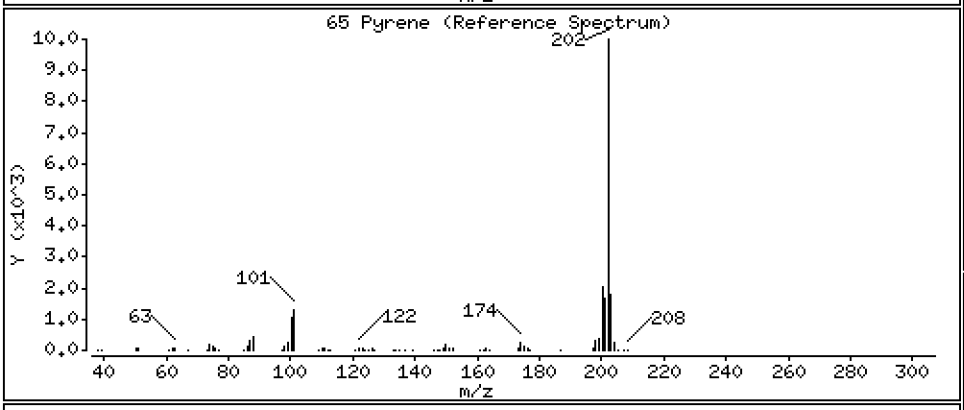
Column diameter: 0.25

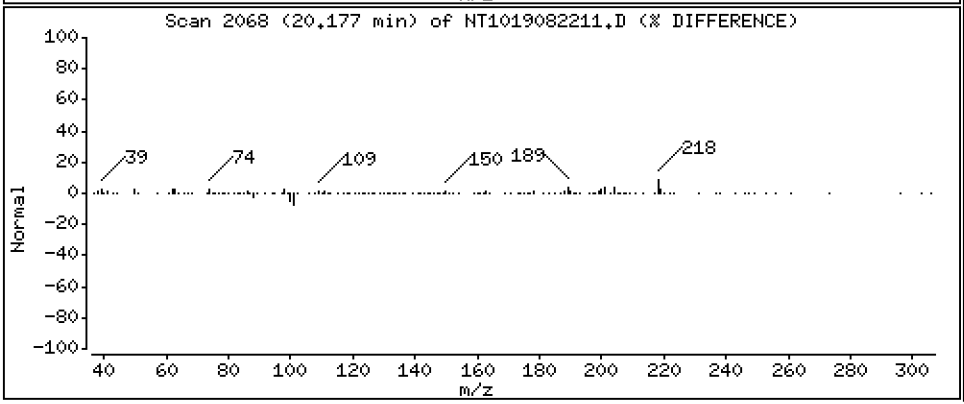
65 Pyrene

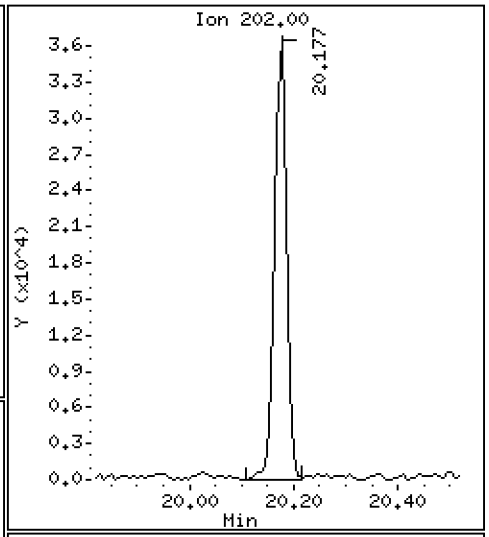
Concentration: 5.695 ug/mL

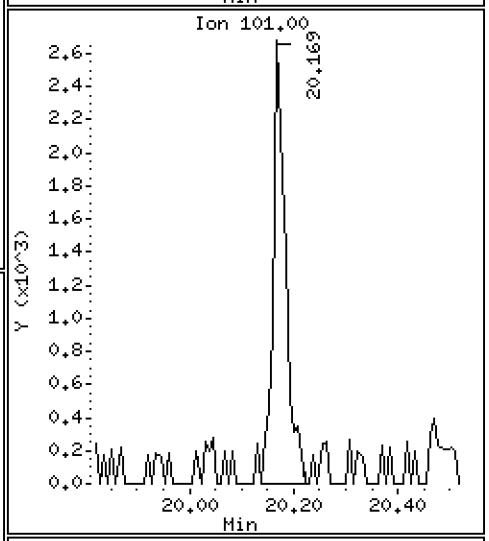


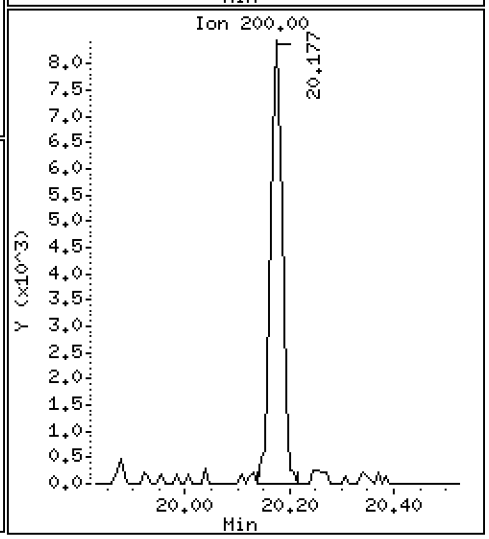












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082211.D

Date : 22-AUG-2019 19:59

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

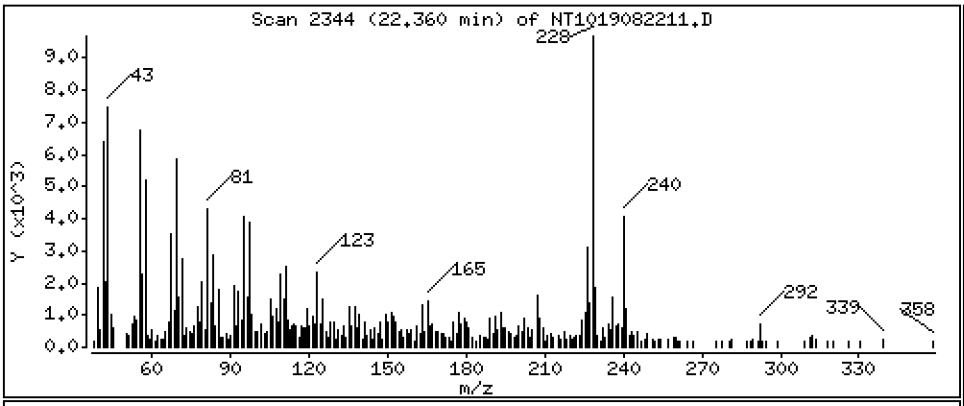
Operator: YZ

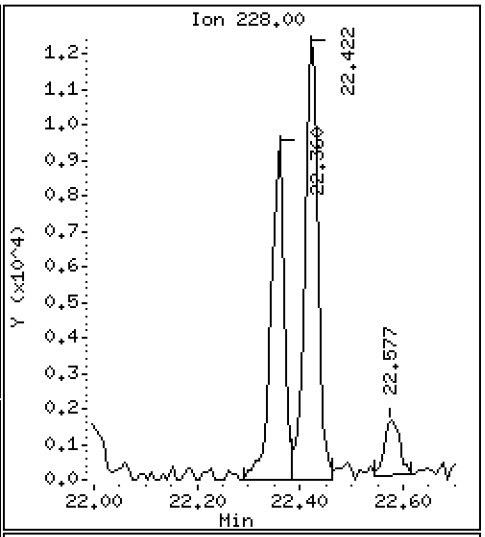
Column phase: ZB-5msi

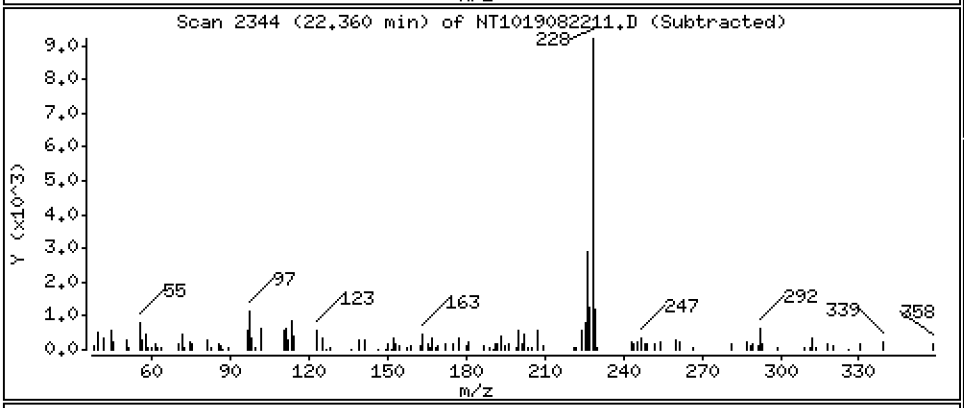
Column diameter: 0.25

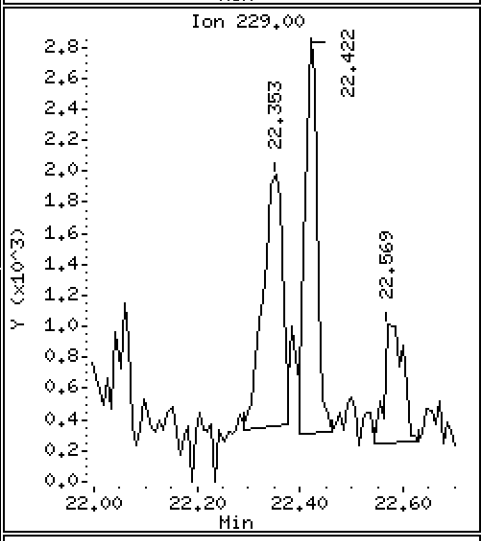
68 Benzo(a)anthracene

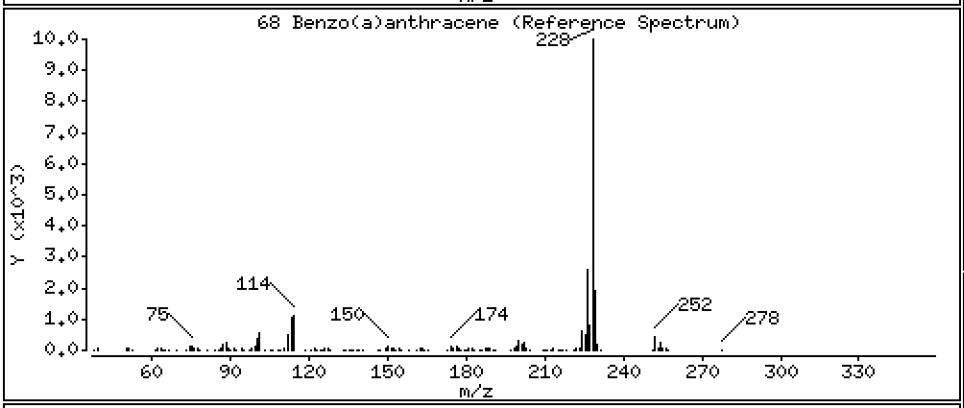
Concentration: 1.834 ug/mL

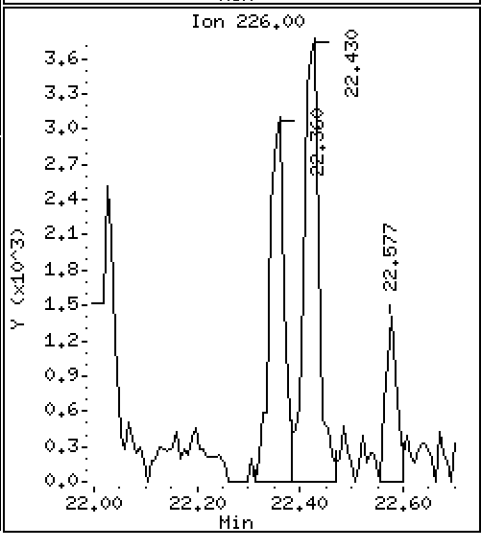


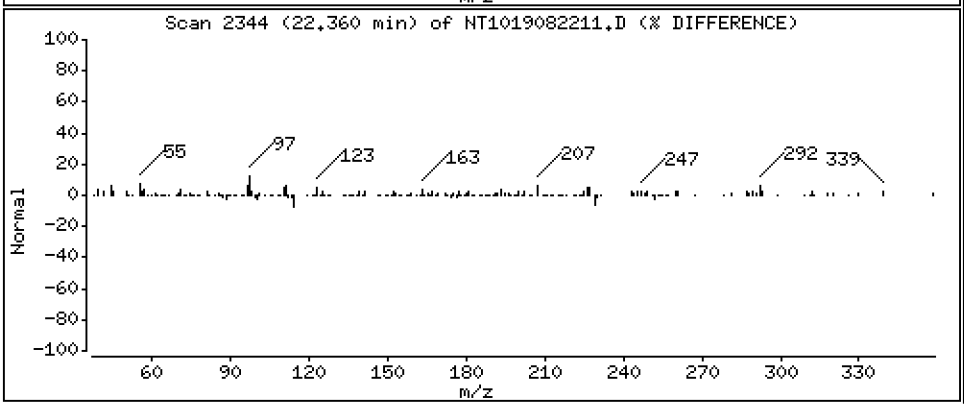












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082211.D

Date : 22-AUG-2019 19:59

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

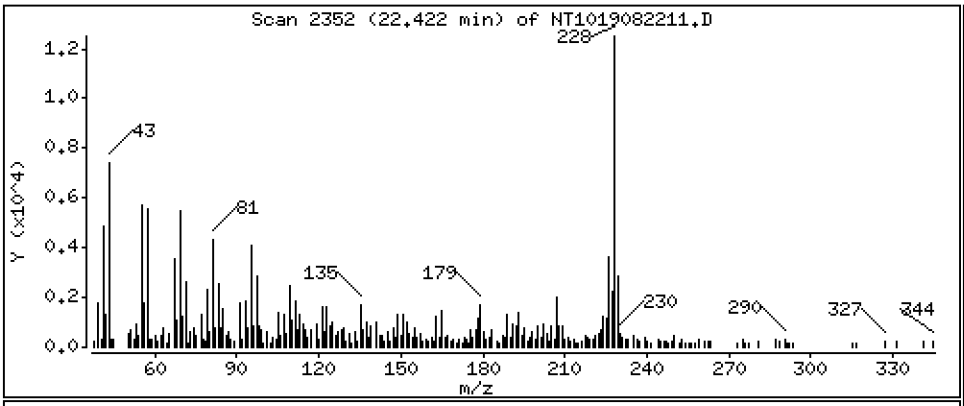
Operator: YZ

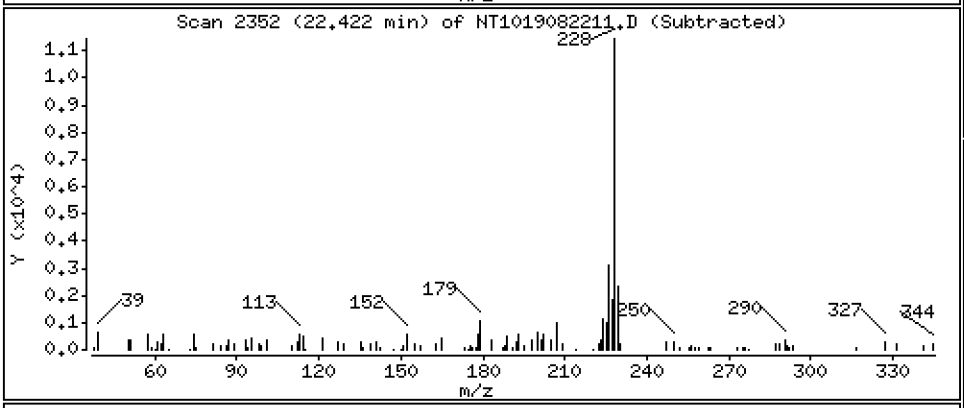
Column phase: ZB-5msi

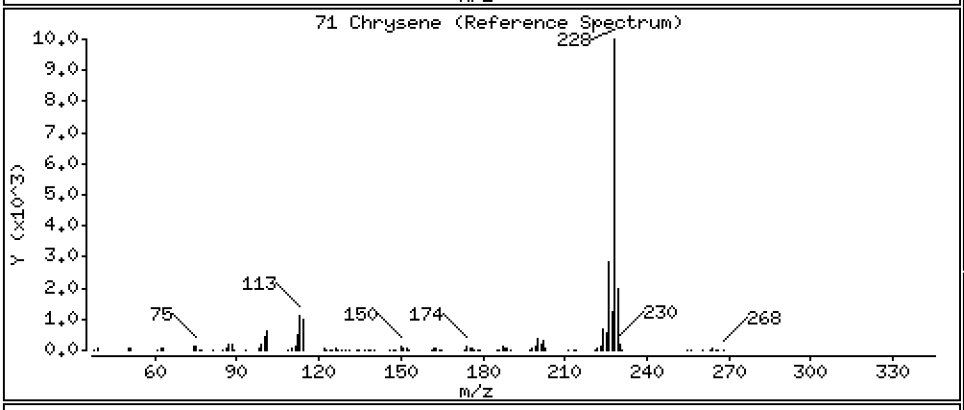
Column diameter: 0.25

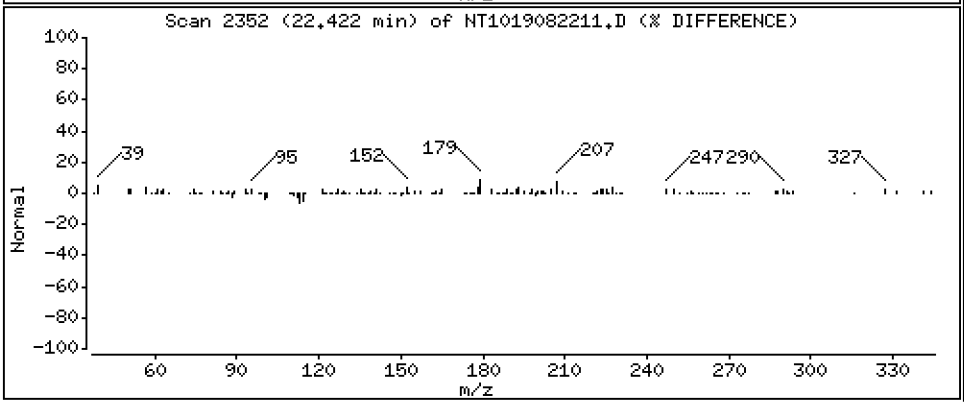
71 Chrysene

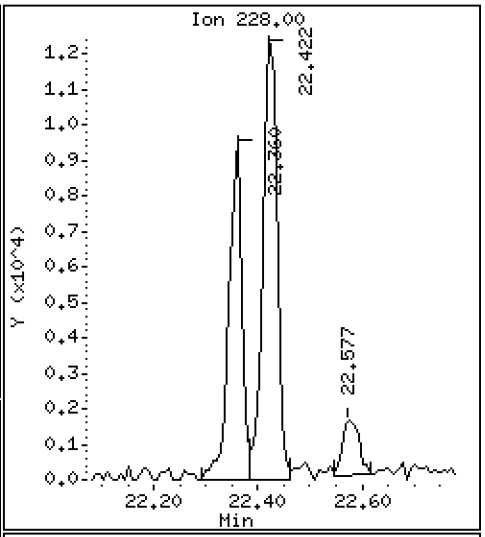
Concentration: 2.948 ug/mL

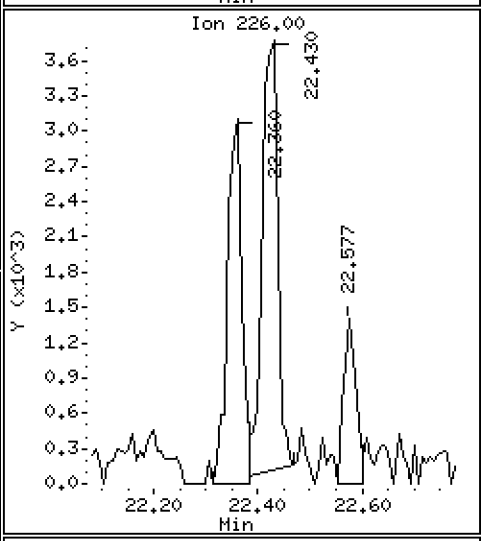


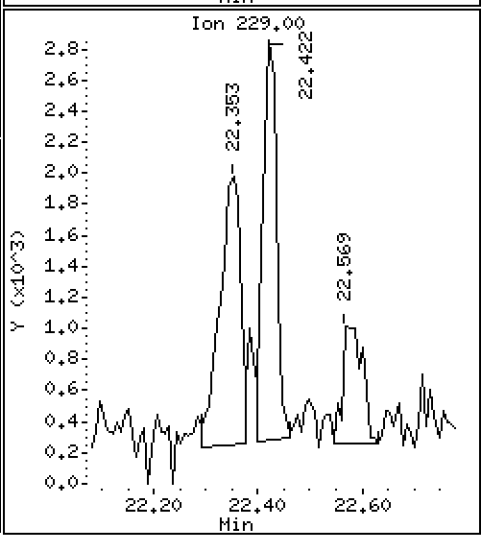












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082211.D

Date : 22-AUG-2019 19:59

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

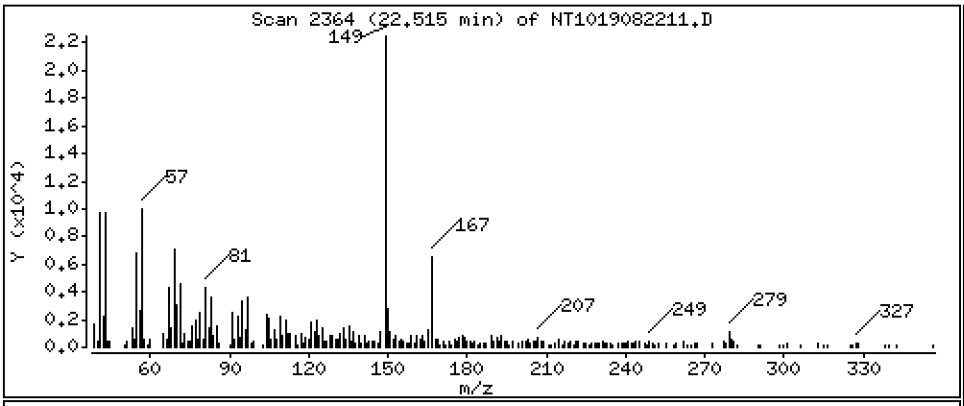
Operator: YZ

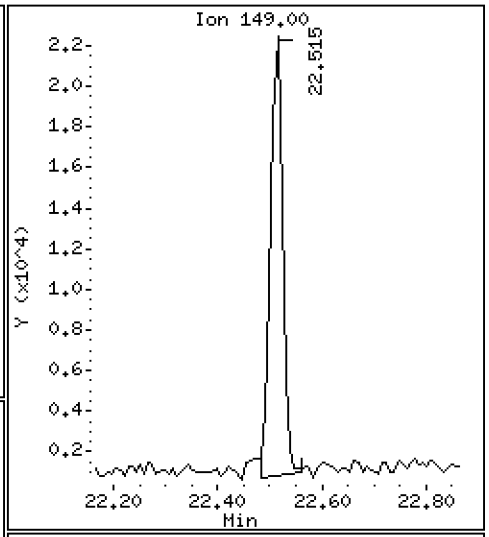
Column phase: ZB-5msi

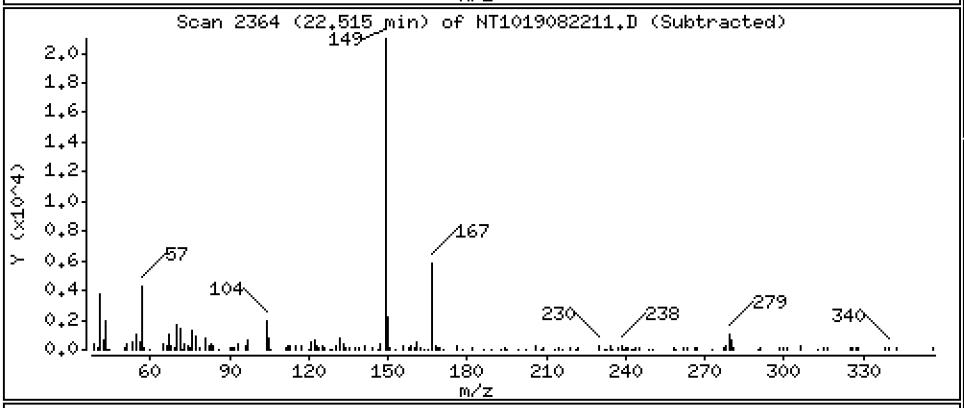
Column diameter: 0.25

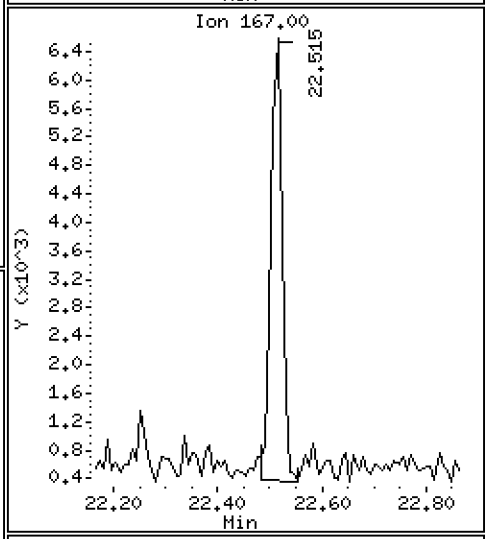
72 bis(2-Ethylhexyl)phthalate

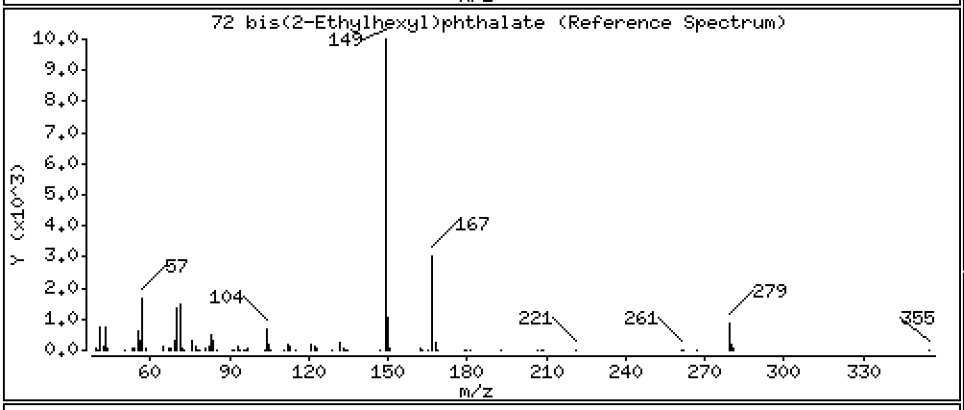
Concentration: 5.645 ug/mL

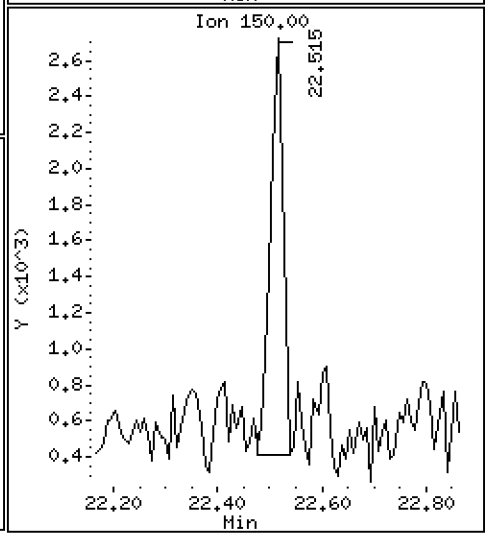


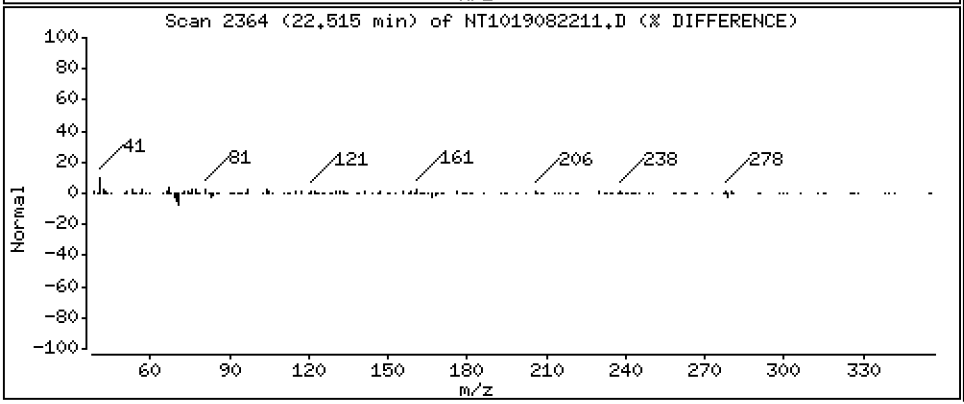












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082211.D

Date : 22-AUG-2019 19:59

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

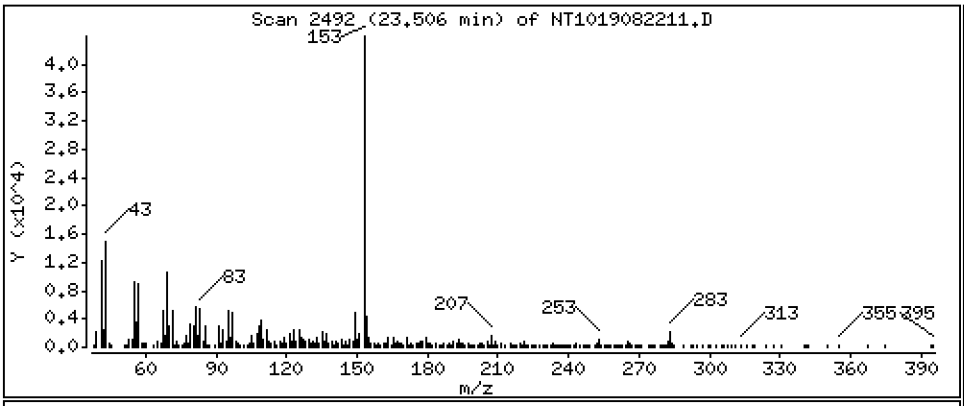
Operator: YZ

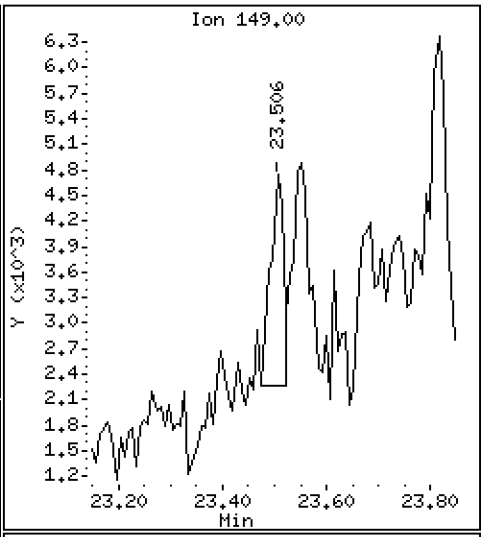
Column phase: ZB-5msi

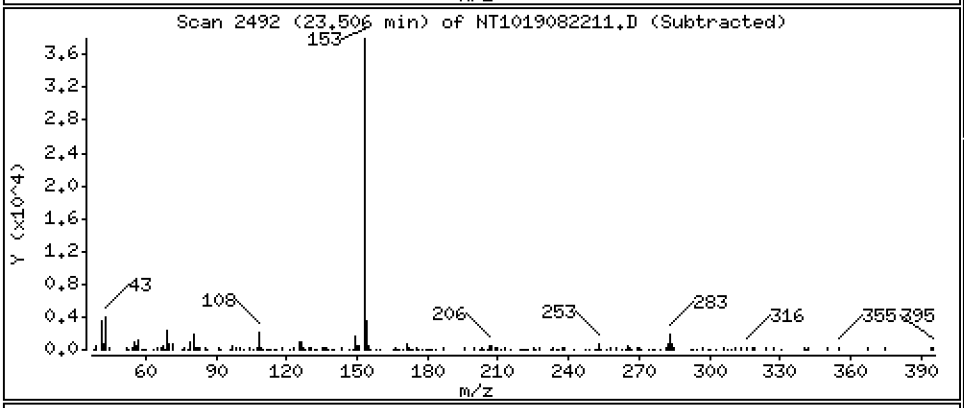
Column diameter: 0.25

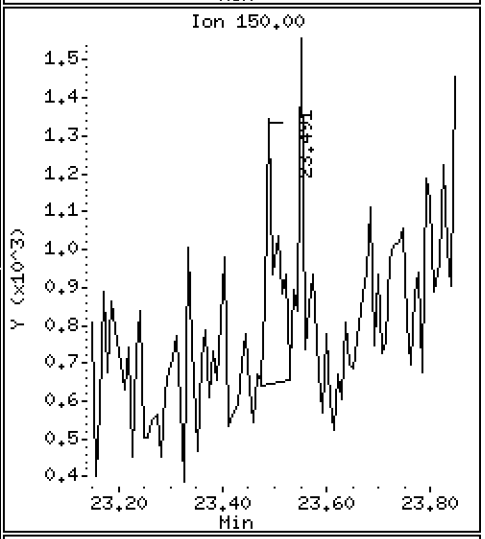
73 Di-n-octylphthalate

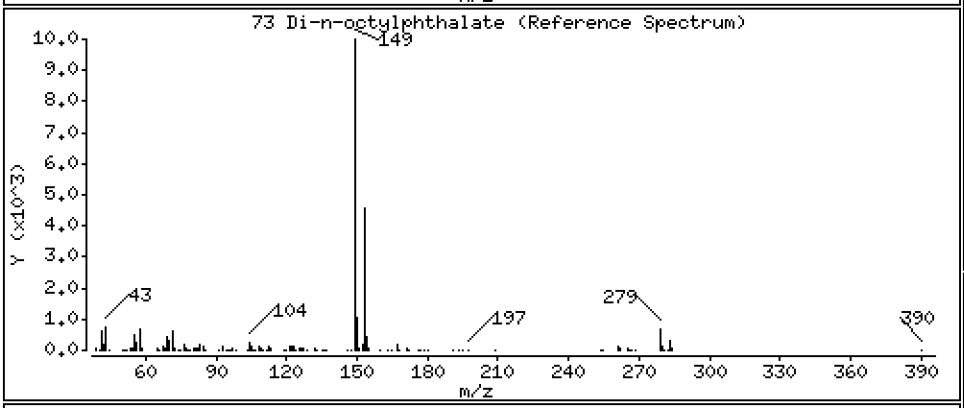
Concentration: 0.3338 ug/mL

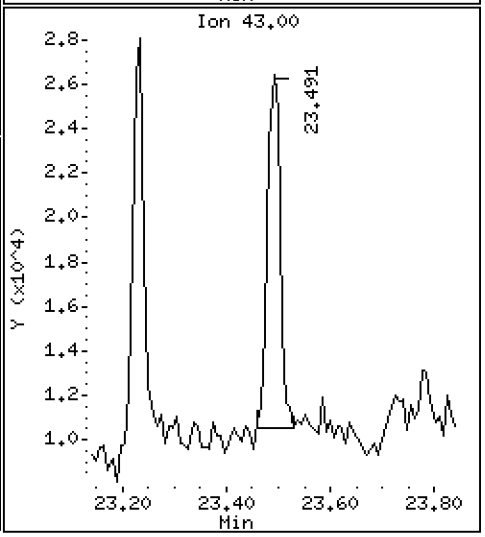


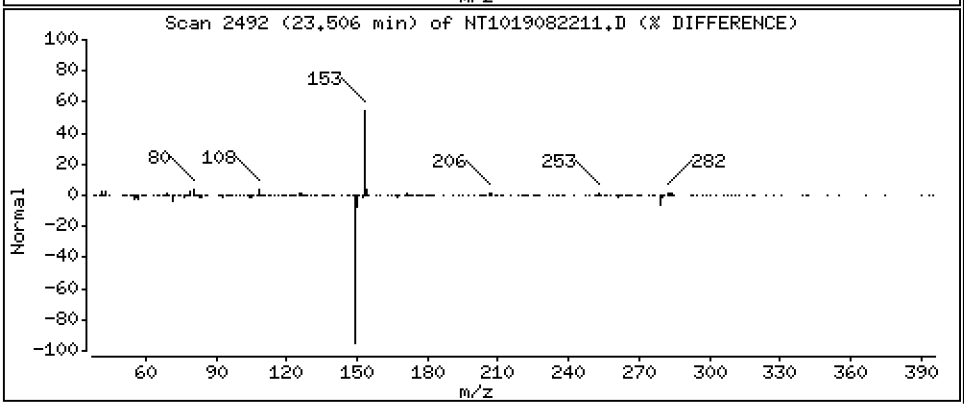












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082211.D

Date : 22-AUG-2019 19:59

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

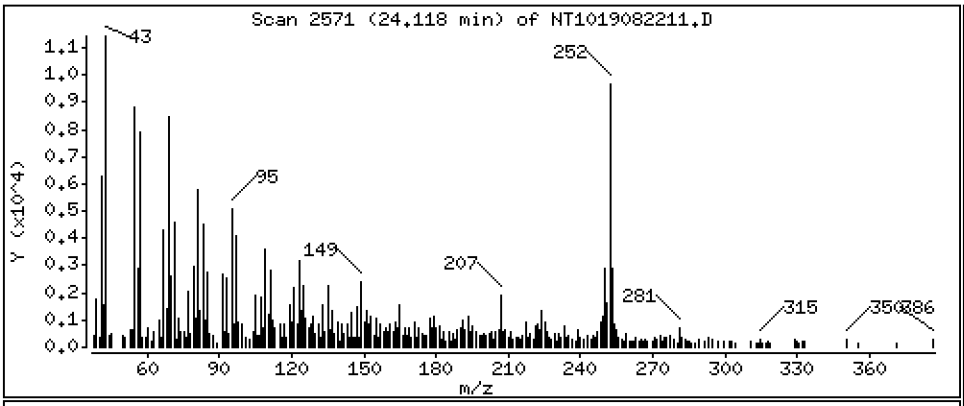
Operator: YZ

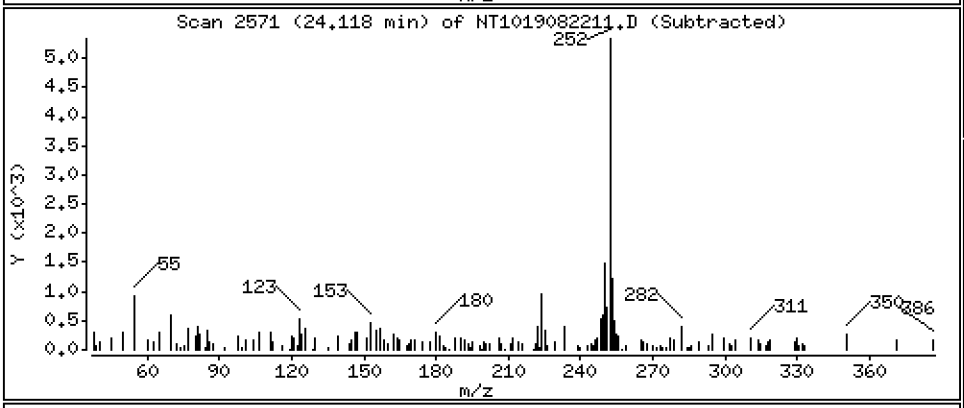
Column phase: ZB-5msi

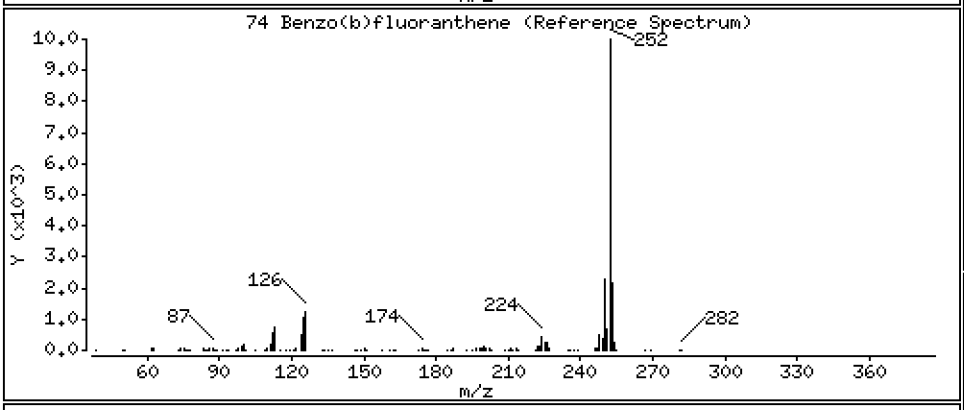
Column diameter: 0.25

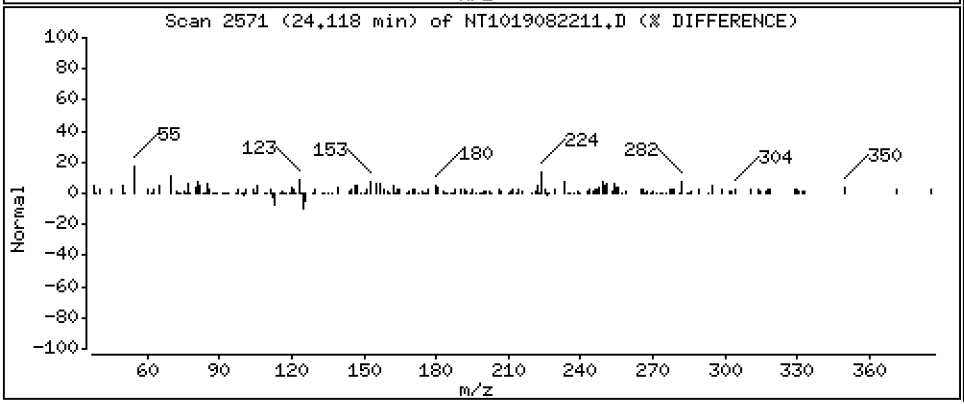
74 Benzo(b)fluoranthene

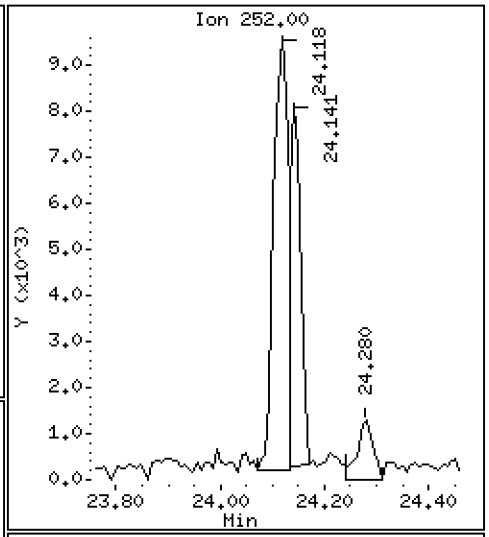
Concentration: 2.756 ug/mL

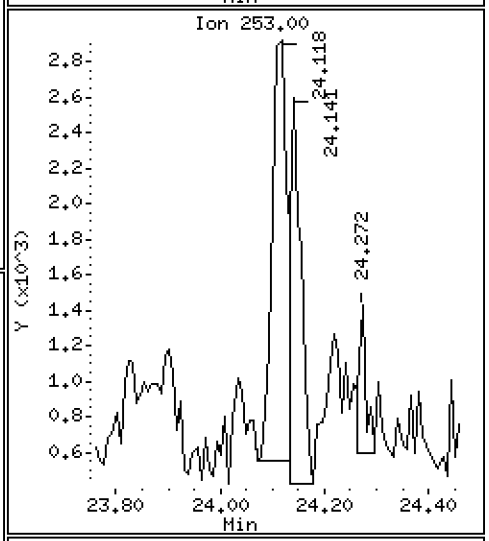


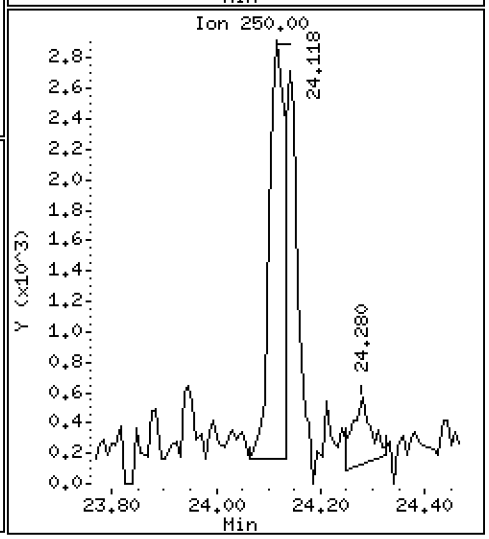












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082211.D

Date : 22-AUG-2019 19:59

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

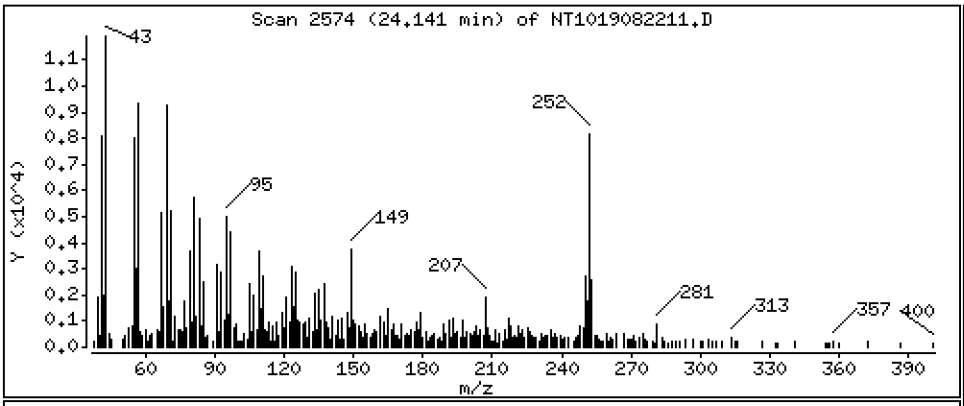
Operator: YZ

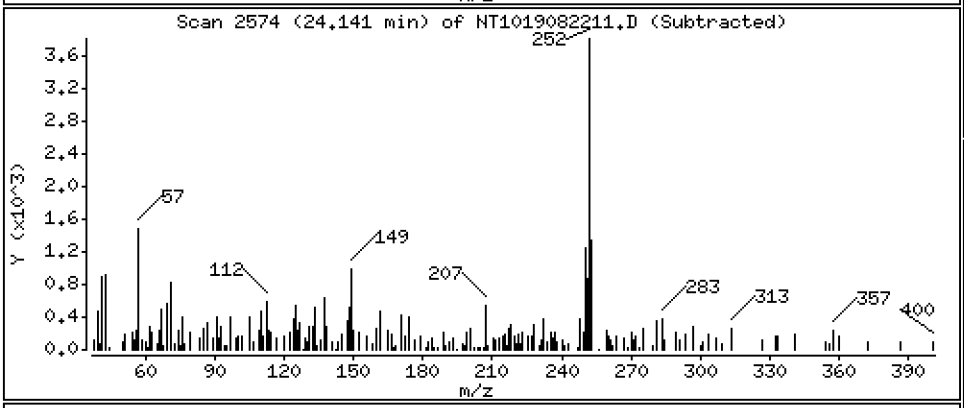
Column phase: ZB-5msi

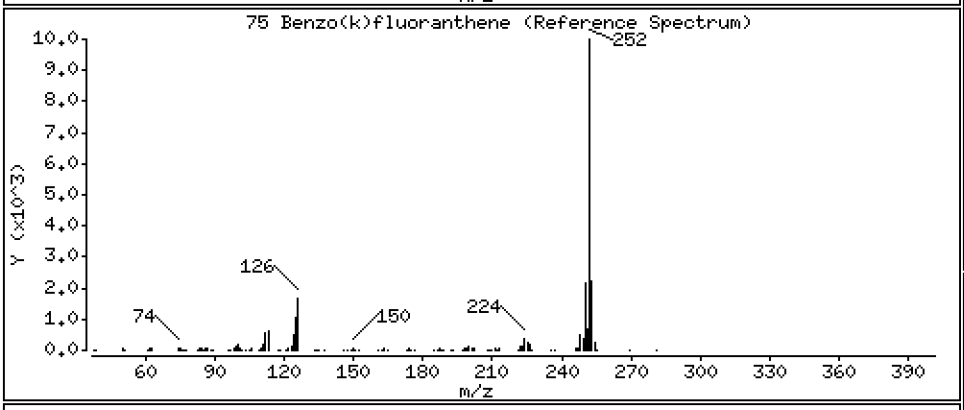
Column diameter: 0.25

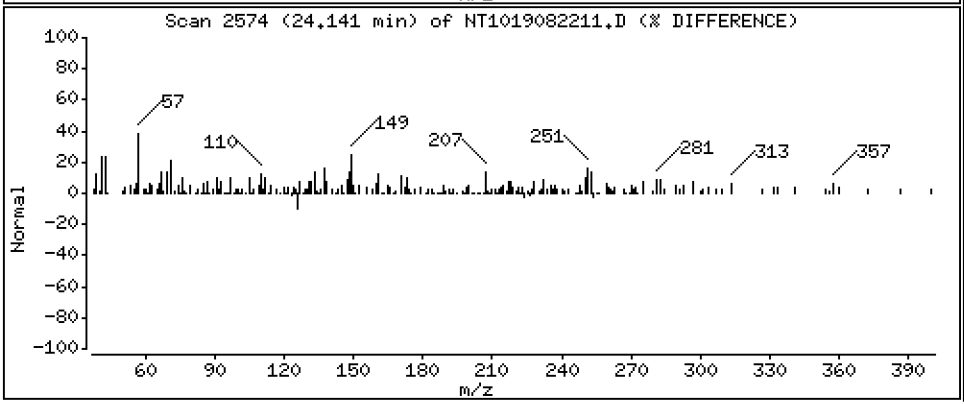
75 Benzo(k)fluoranthene

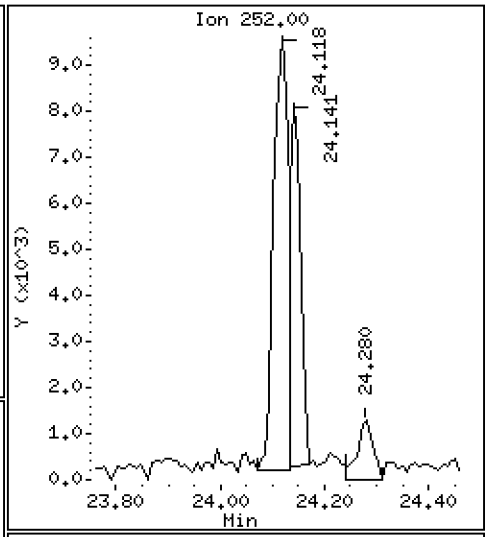
Concentration: 1.817 ug/mL

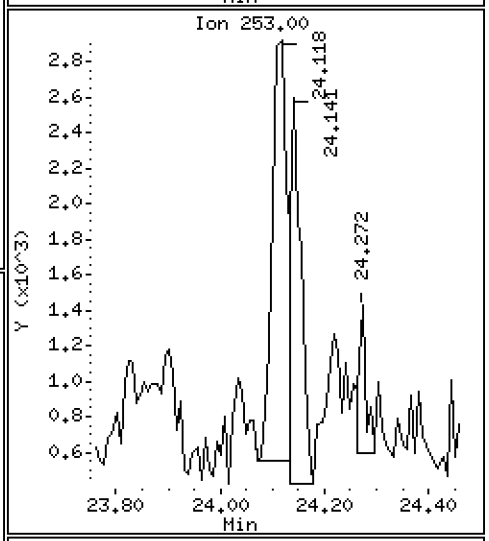


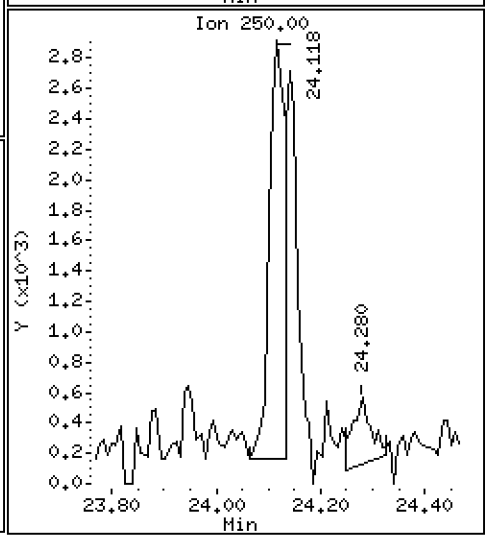












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082211.D

Date : 22-AUG-2019 19:59

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

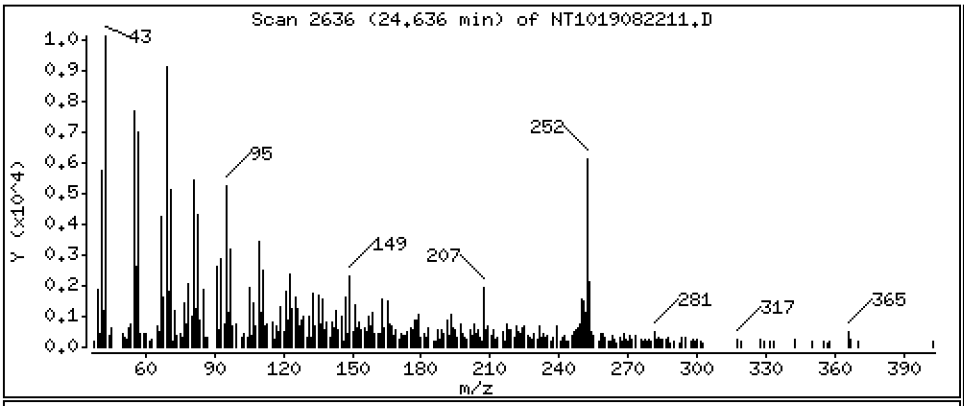
Operator: YZ

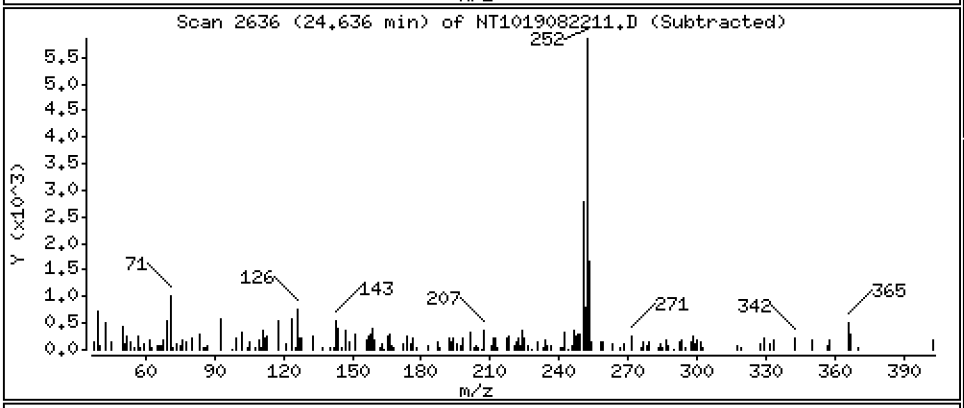
Column phase: ZB-5msi

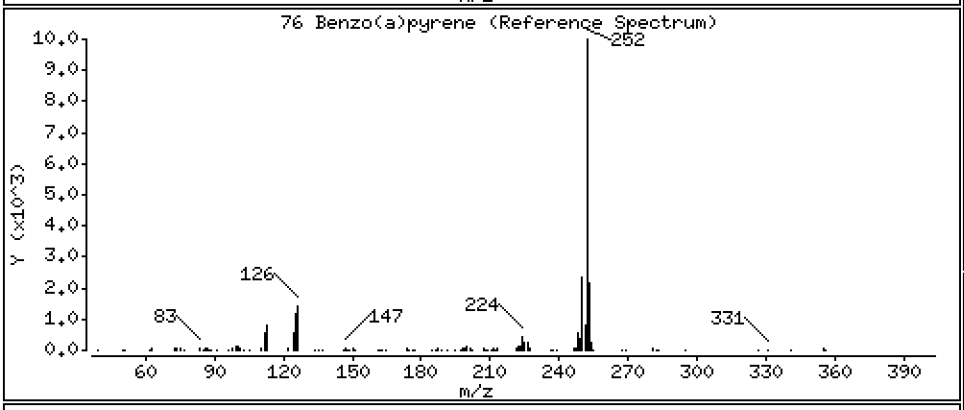
Column diameter: 0.25

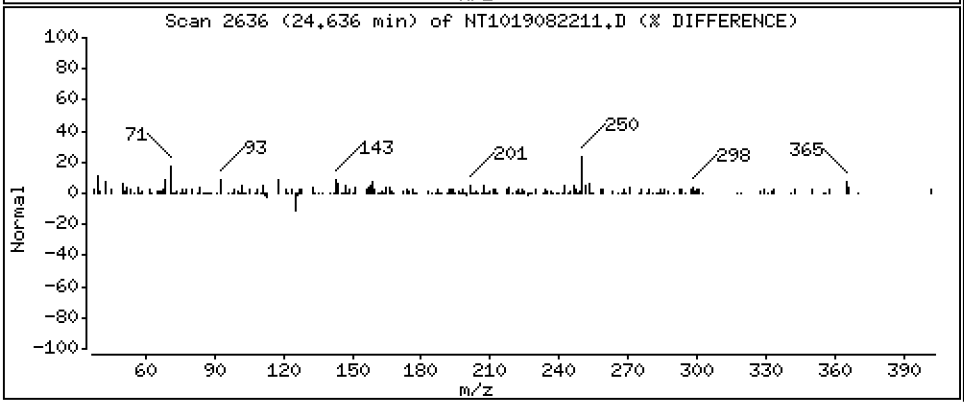
76 Benzo(a)pyrene

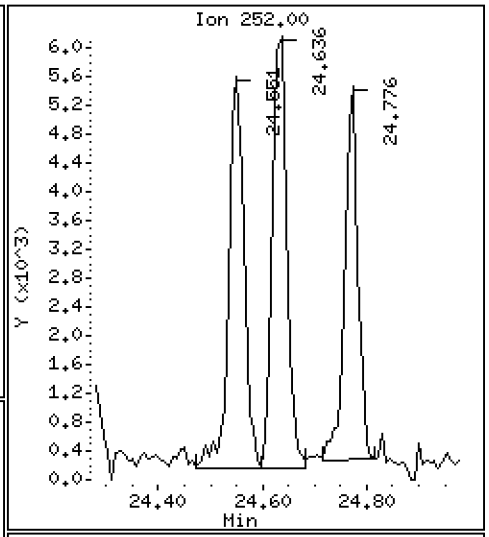
Concentration: 1.879 ug/mL

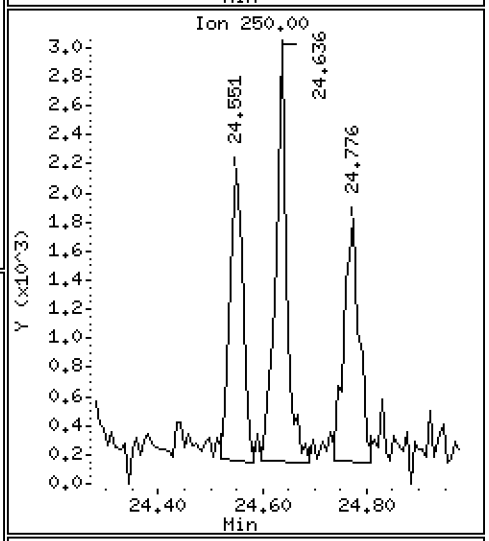


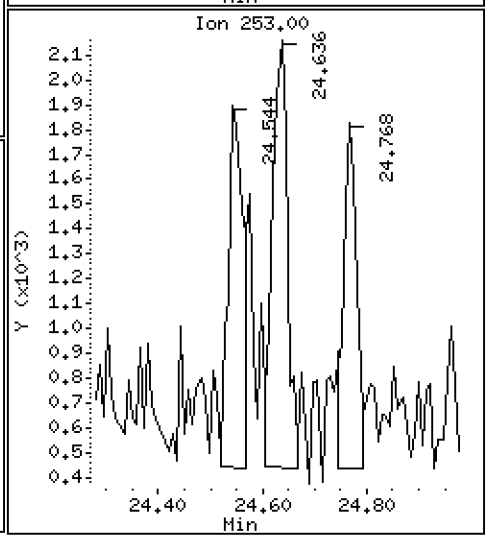












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082211.D

Date : 22-AUG-2019 19:59

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

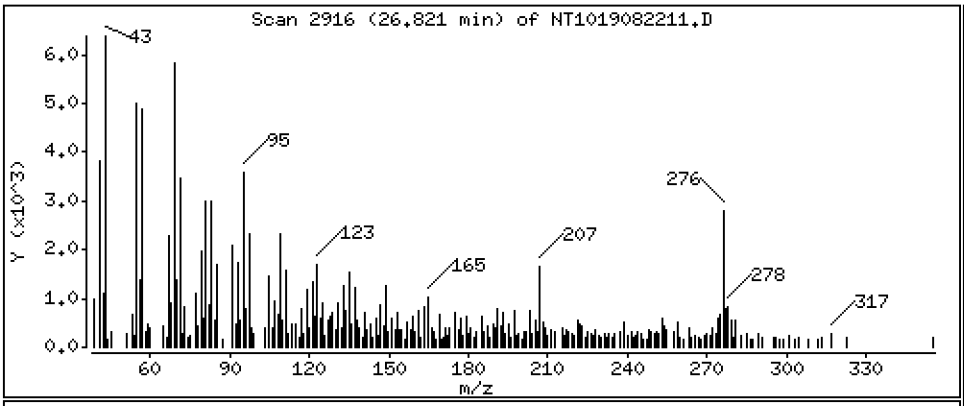
Operator: YZ

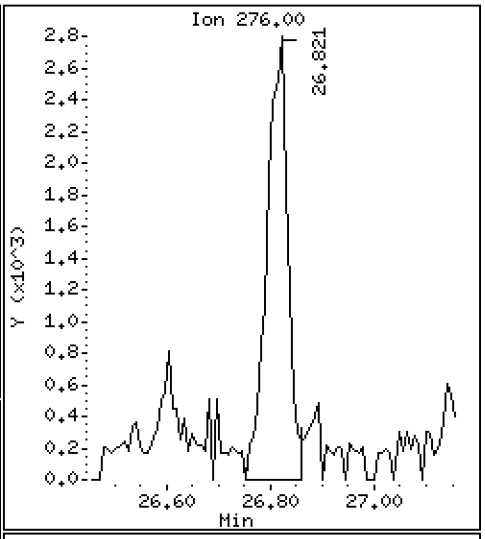
Column phase: ZB-5msi

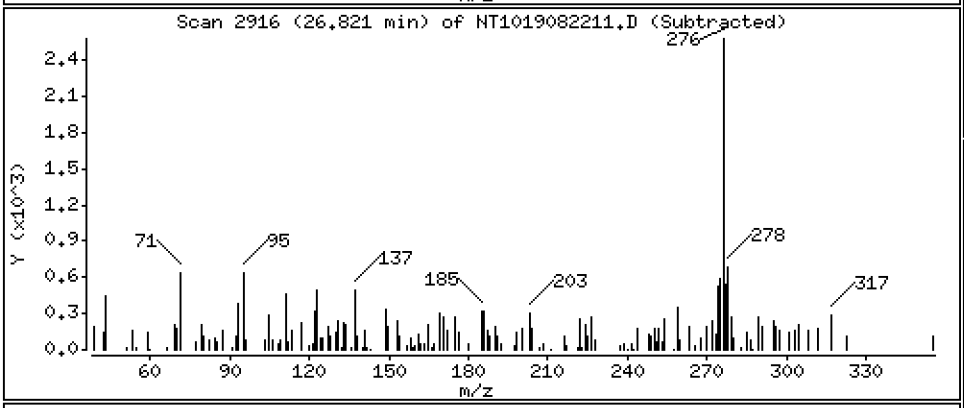
Column diameter: 0.25

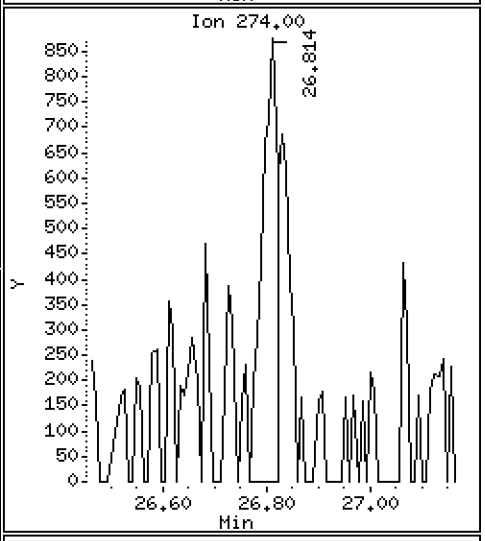
78 Indeno(1,2,3-cd)pyrene

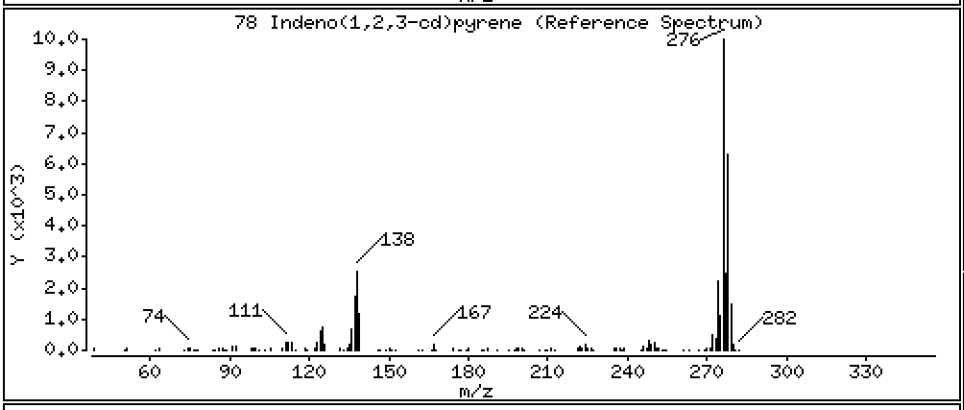
Concentration: 1.083 ug/mL

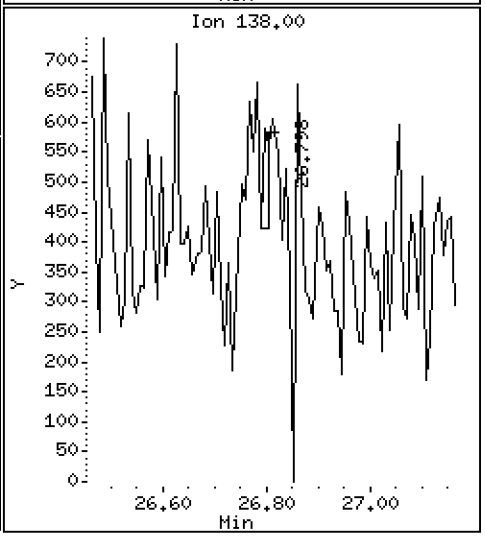


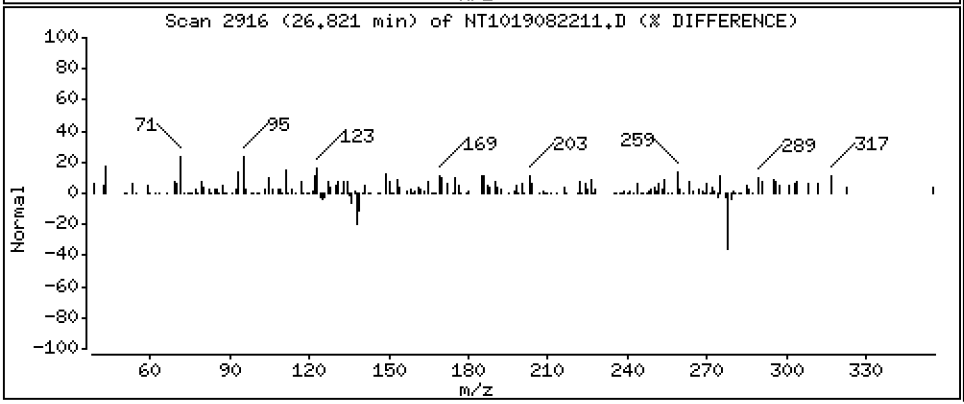












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082211.D

Date : 22-AUG-2019 19:59

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

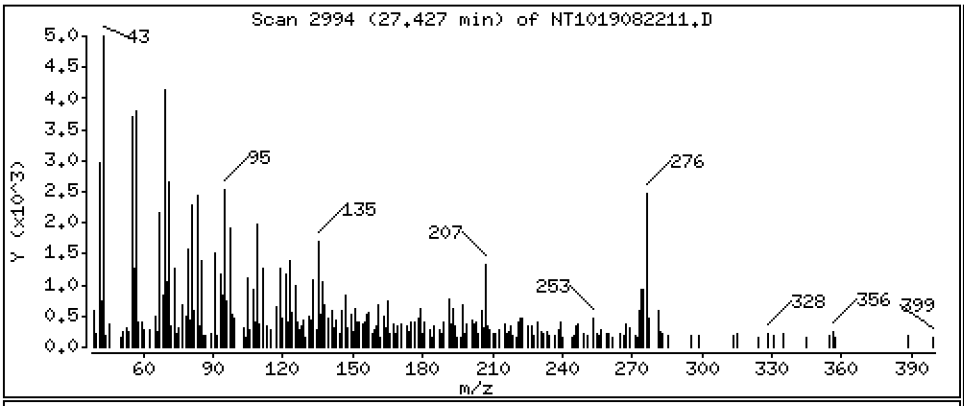
Operator: YZ

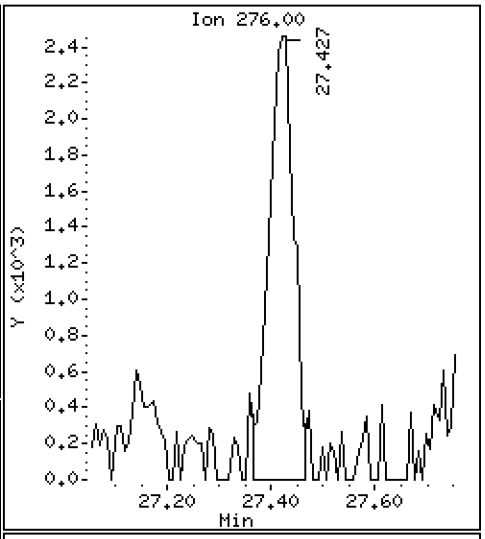
Column phase: ZB-5msi

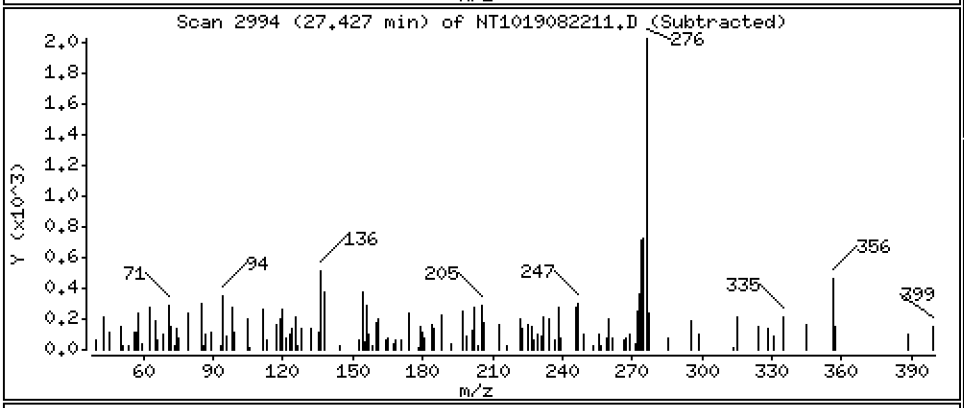
Column diameter: 0.25

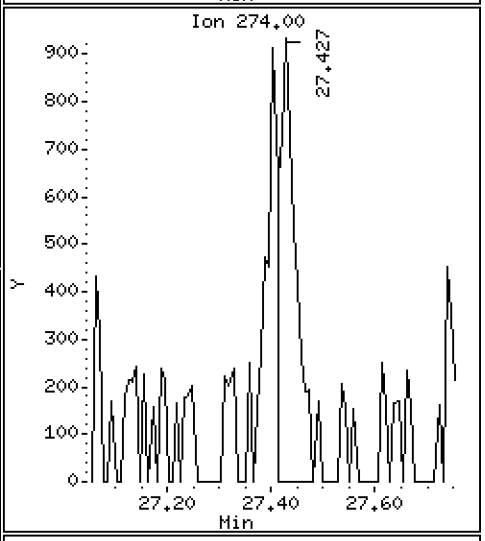
80 Benzo(g,h,i)perylene

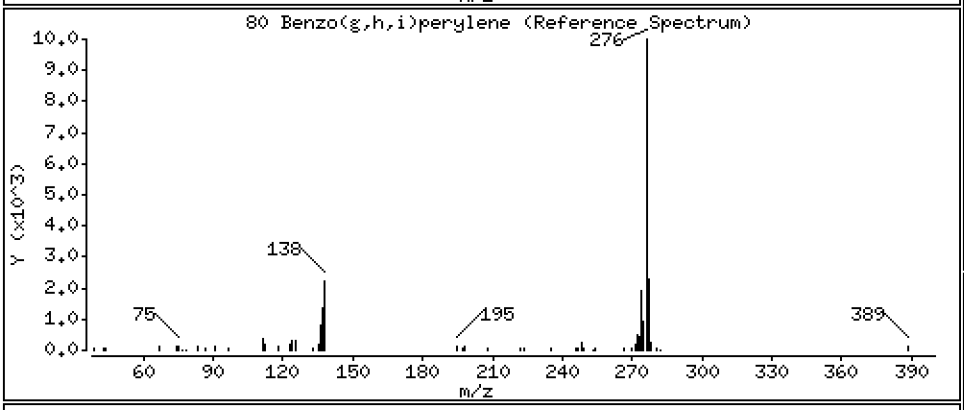
Concentration: 1.367 ug/mL

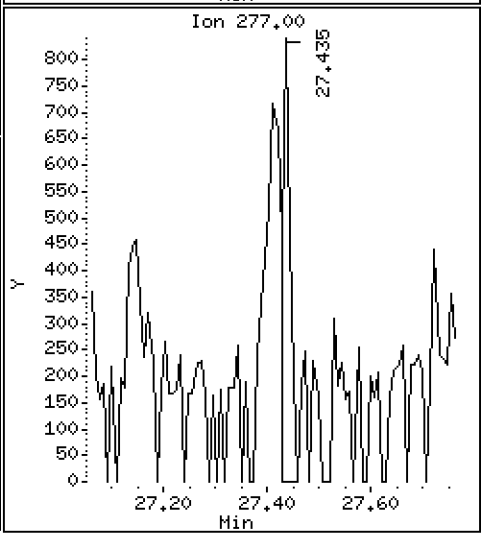


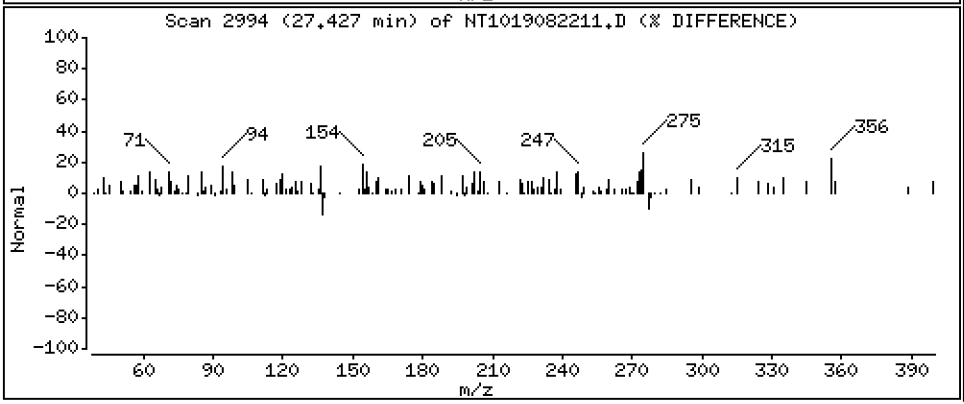












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082211.D

Date : 22-AUG-2019 19:59

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-05RE1,3

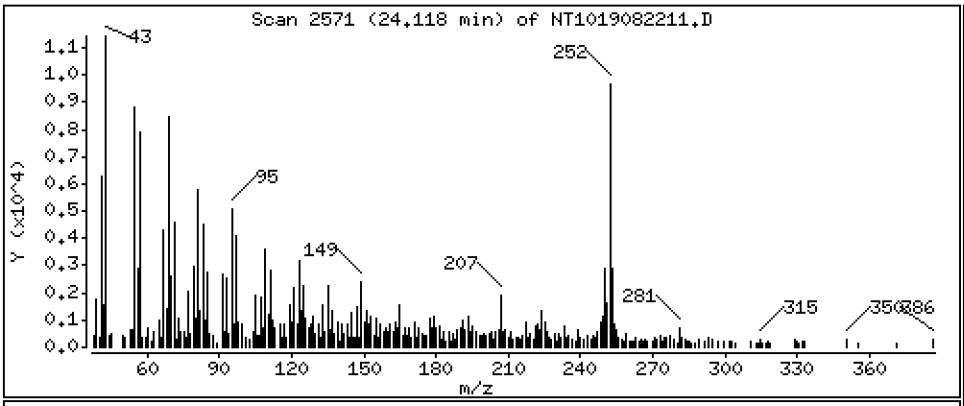
Operator: YZ

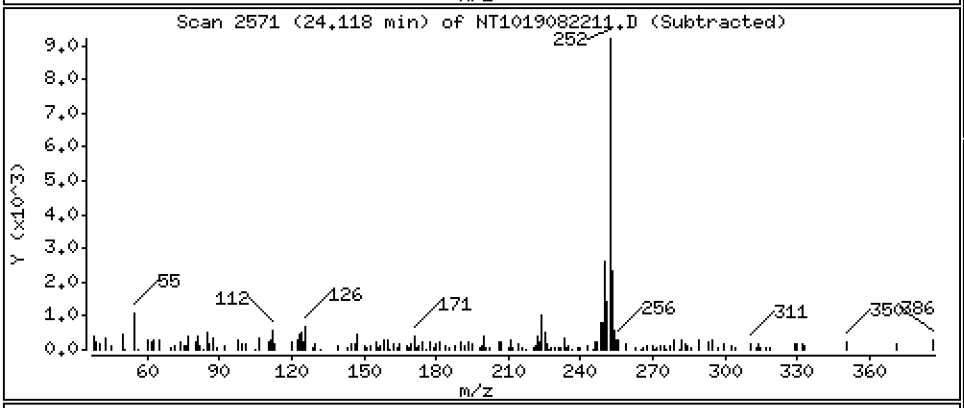
Column phase: ZB-5msi

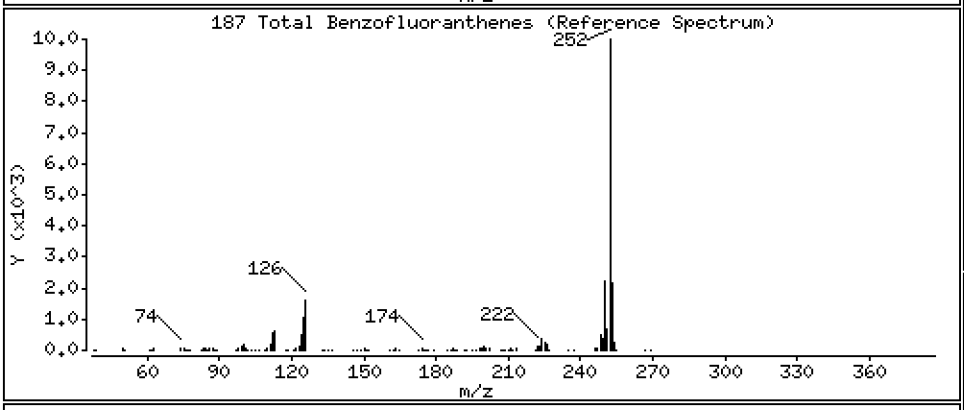
Column diameter: 0.25

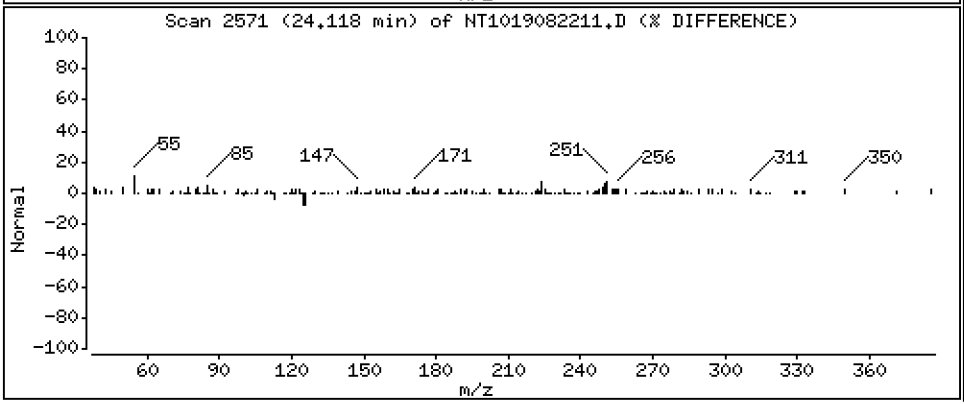
187 Total Benzofluoranthenes

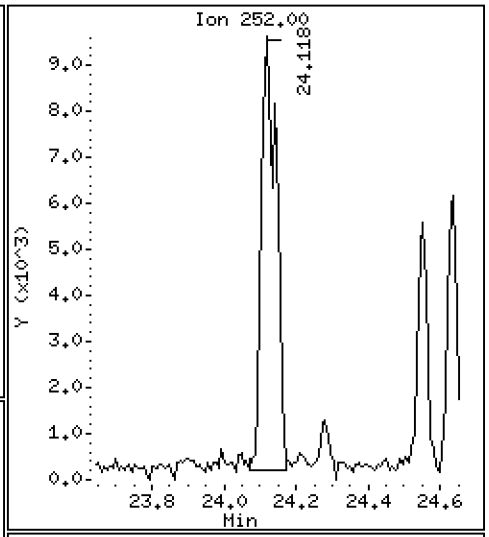
Concentration: 4.374 ug/mL

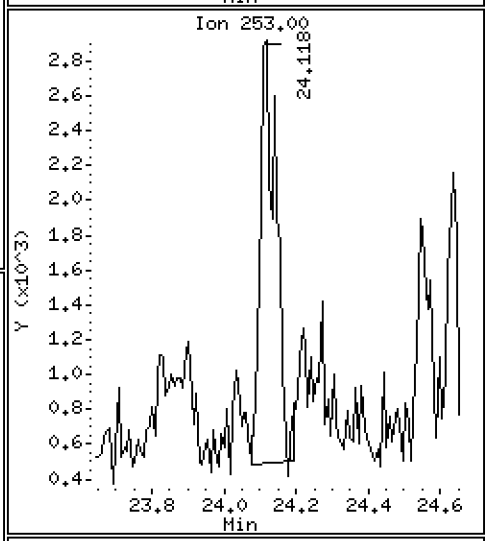


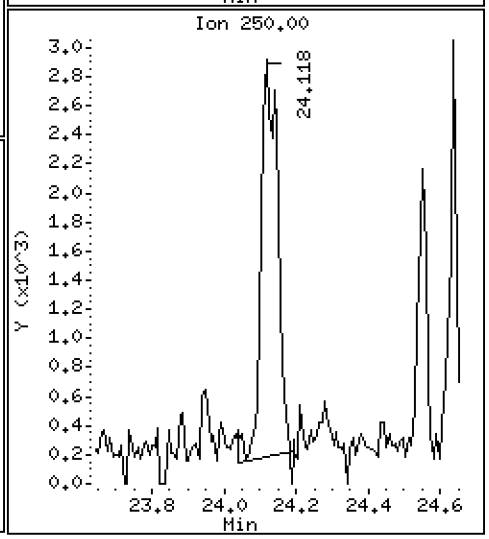












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190822.b\NT1019082211.D
Lab Smp Id: 19H0024-05RE1
Inj Date : 22-AUG-2019 19:59
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-05RE1,3
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 11:16 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 7
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.188	6.173	(0.744)	14343	1.03072	3.092
$	2 Phenol-d5	99	7.749	7.749	(0.931)	17158	1.10019	3.301
	3 Phenol	94	Compound Not Detected.					
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.959)	23446	1.39656	4.190
*	8 1,4-Dichlorobenzene-d4	152	8.321	8.329	(1.000)	49556	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.670	8.671	(1.042)	10124	0.88203	2.646
	11 Benzyl alcohol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.400	9.408	(0.874)	12614	0.87413	2.622
	24 Benzoic acid	105	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.757	10.765	(1.000)	184507	4.00000	
	28 Naphthalene	128	Compound Not Detected.					
	32 2-Methylnaphthalene	142	Compound Not Detected.					
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	39428	1.11358	3.341
	39 Dimethylphthalate	163	Compound Not Detected.					
	40 Acenaphthylene	152	Compound Not Detected.					
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	92568	4.00000	
	44 Acenaphthene	153	Compound Not Detected.					
	46 Dibenzofuran	168	Compound Not Detected.					
	50 Diethylphthalate	149	Compound Not Detected.					
	49 Fluorene	166	Compound Not Detected.					
	54 N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55 2,4,6-Tribromophenol	330	15.923	15.931	(1.113)	8005	1.14366	3.431
*	59 Phenanthrene-d10	188	17.291	17.291	(1.000)	176757	4.00000	
	60 Phenanthrene	178	17.337	17.345	(1.003)	15894	0.36812	1.104
	61 Anthracene	178	17.430	17.430	(1.008)	8372	0.19097	0.5729
	63 Di-n-butylphthalate	149	Compound Not Detected.					
	64 Fluoranthene	202	19.751	19.751	(0.882)	64151	2.30313	6.909
	65 Pyrene	202	20.177	20.169	(0.901)	55216	1.89837	5.695
$	66 Terphenyl-d14	244	20.502	20.502	(0.916)	32763	1.66092	4.983
	67 Butylbenzylphthalate	149	Compound Not Detected.					
	68 Benzo(a)anthracene	228	22.360	22.352	(0.999)	16164	0.61123	1.834
*	69 Chrysene-d12	240	22.383	22.383	(1.000)	91147	4.00000	
	71 Chrysene	228	22.422	22.430	(1.002)	22996	0.98270	2.948

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.515	22.515	(0.958)	33405	1.88158	5.645
* 134	Di-n-octylphthalate-d4	153	23.490	23.490	(1.000)	201851	4.00000	
73	Di-n-octylphthalate	149	23.506	23.498	(1.001)	4155	0.11127	0.3338(H)
74	Benzo(b)fluoranthene	252	24.117	24.110	(0.975)	18303	0.91872	2.756
75	Benzo(k)fluoranthene	252	24.140	24.110	(0.976)	12138	0.60562	1.817(H)
76	Benzo(a)pyrene	252	24.636	24.628	(0.996)	11201	0.62646	1.879
* 77	Perylene-d12	264	24.729	24.721	(1.000)	69438	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.821	26.806	(1.085)	7752	0.36084	1.083
79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
80	Benzo(g,h,i)perylene	276	27.427	27.404	(1.109)	8244	0.45561	1.367
105	1-methylnaphthalene	142	Compound Not Detected.					
187	Total Benzofluoranthenes	252	24.117	24.148	(0.975)	27863	1.45807	4.374(M)

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082211.D
Lab Smp Id: 19H0024-05RE1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 16:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	49556	51.37
27 Naphthalene-d8	117487	58744	234974	184507	57.04
42 Acenaphthene-d10	61859	30930	123718	92568	49.64
59 Phenanthrene-d10	113574	56787	227148	176757	55.63
69 Chrysene-d12	105788	52894	211576	91147	-13.84
134 Di-n-octylphthala	252823	126412	505646	201851	-20.16
77 Perylene-d12	113992	56996	227984	69438	-39.09

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.32	-0.10
27 Naphthalene-d8	10.77	10.27	11.27	10.76	-0.07
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	-0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.29	-0.00
69 Chrysene-d12	22.38	21.88	22.88	22.38	-0.00
134 Di-n-octylphthala	23.49	22.99	23.99	23.49	-0.00
77 Perylene-d12	24.72	24.22	25.22	24.73	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082211.D

Lab ID: 19H0024-05RE1
nt10.i, 20190822.b\ABN.m,   22-AUG-2019 19:59

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT1019082206.D

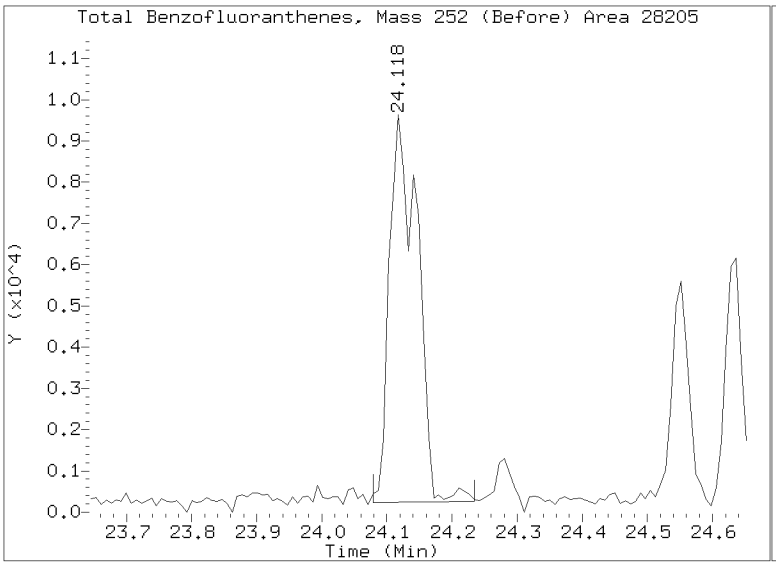
On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

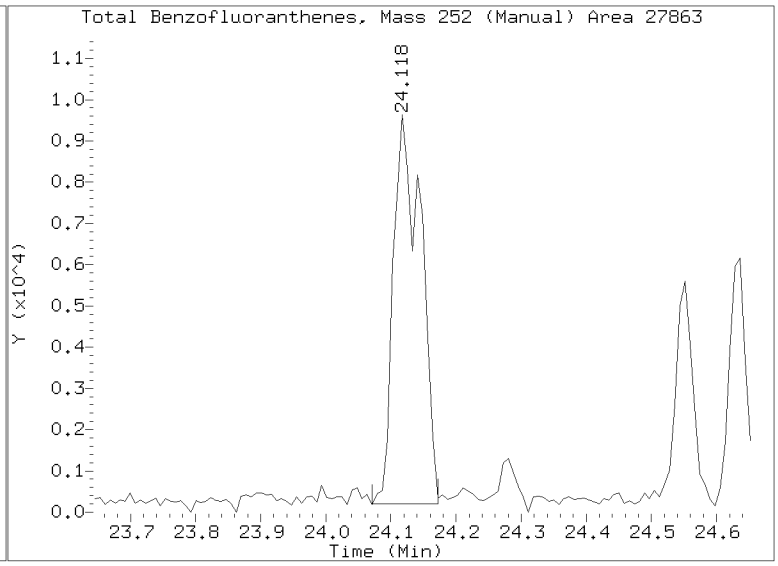
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190822.b/NT1019082211.D
Injection Date: 22-AUG-2019 19:59
Lab ID:19H0024-05RE1 Client ID:
Report Date: 08/23/2019 11:17





SL4-SG-WC8-2019

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D
Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory: Analytical Resources, Inc.

Client: Windward Environmental, LLC

Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix:	Solid	Laboratory ID:	19H0024-06 C	SDG:	19H0024
Sampled:	08/01/19 09:08	Prepared:	08/13/19 12:40	File ID:	NT1019082115.D
% Solids:	56.63	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/21/19 18:53
Batch:	BHH0289	Sequence:	SHH0303	Initial/Final:	17.82 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040

Cleanups: GPC

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	1	16.5	J	8.2	19.8
100-51-6	Benzyl Alcohol	1	19.8	U	14.8	19.8
65-85-0	Benzoic acid	1	198	U	58.6	198
86-30-6	N-Nitrosodiphenylamine	1	19.8	U	9.5	19.8
85-01-8	Phenanthrene	1	46.6		4.6	19.8
206-44-0	Fluoranthene	1	175		4.5	19.8
129-00-0	Pyrene	1	153		5.5	19.8
85-68-7	Butylbenzylphthalate	1	19.8	U	8.0	19.8
56-55-3	Benzo(a)anthracene	1	68.9		5.1	19.8
218-01-9	Chrysene	1	120		5.2	19.8
117-81-7	bis(2-Ethylhexyl)phthalate	1	162		28.5	49.5
117-84-0	Di-n-Octylphthalate	1	19.8	U	8.6	19.8
	Benzofluoranthenes, Total	1	215		10.1	39.6
50-32-8	Benzo(a)pyrene	1	71.9		6.4	19.8
193-39-5	Indeno(1,2,3-cd)pyrene	1	51.2		5.9	19.8
53-70-3	Dibenzo(a,h)anthracene	1	19.8	U	6.1	19.8
191-24-2	Benzo(g,h,i)perylene	1	55.9		5.8	19.8

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	743.20	393	52.9	27 - 120	Q
Phenol-d5	743.20	386	51.9	29 - 120	Q
2-Chlorophenol-d4	743.20	519	69.8	31 - 120	
1,2-Dichlorobenzene-d4	495.47	341	68.8	32 - 120	
Nitrobenzene-d5	495.47	321	64.7	30 - 120	
2-Fluorobiphenyl	495.47	407	82.2	35 - 120	
2,4,6-Tribromophenol	743.20	619	83.3	24 - 134	
p-Terphenyl-d14	495.47	540	109	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

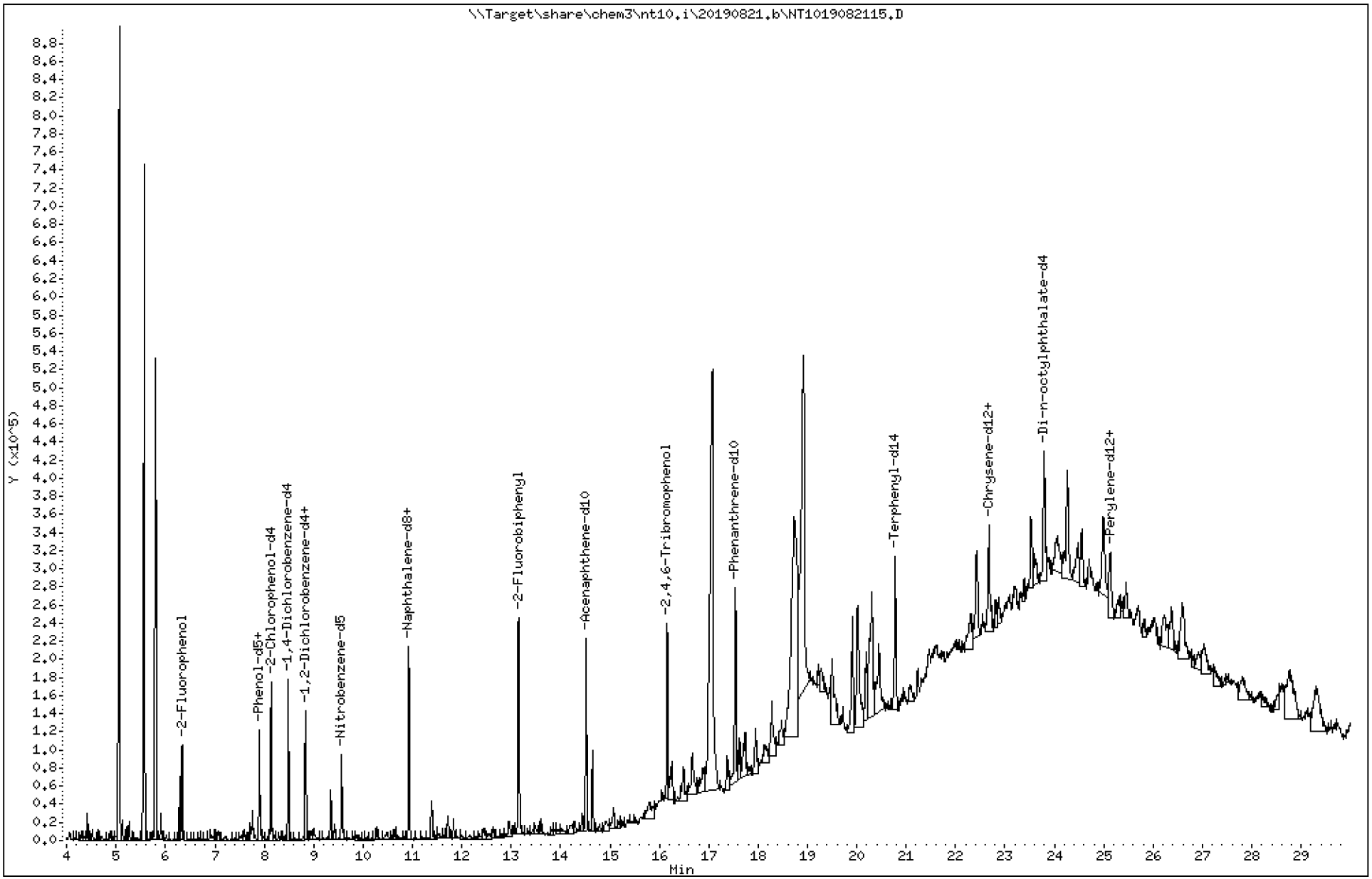
Instrument: nt10.i

Sample Info: 19H0024-06

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

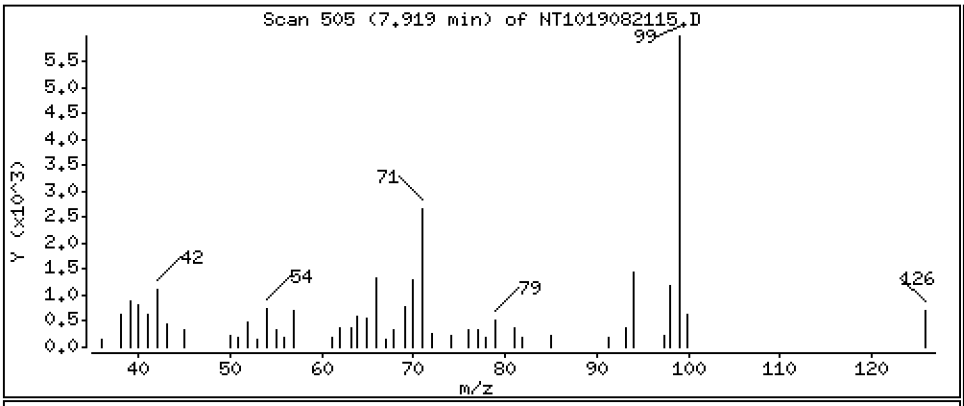
Operator: YZ

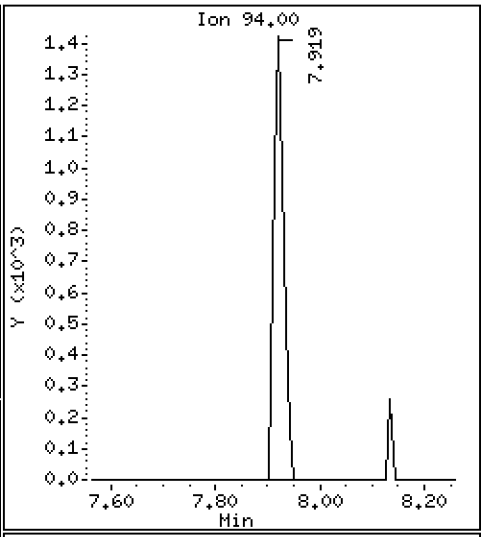
Column phase: ZB-5msi

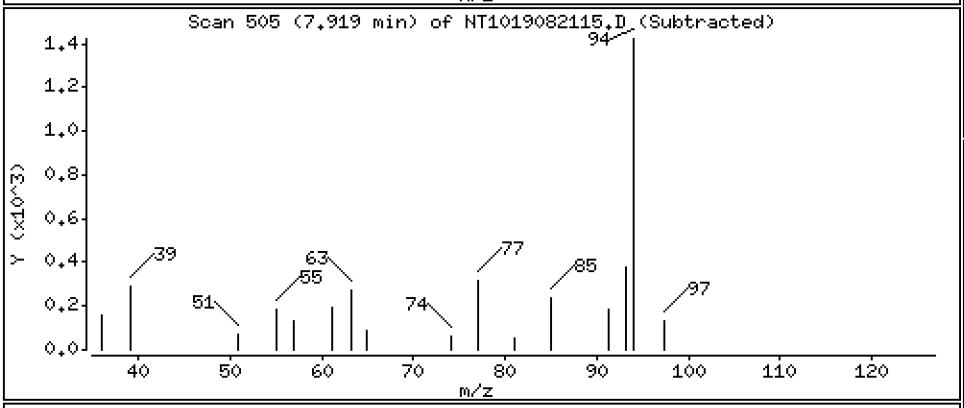
Column diameter: 0.25

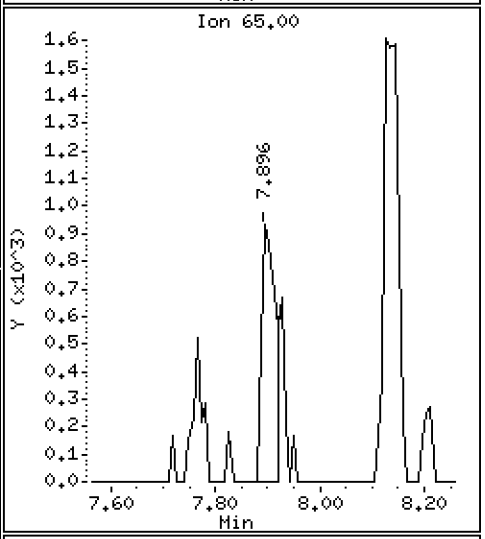
3 Phenol

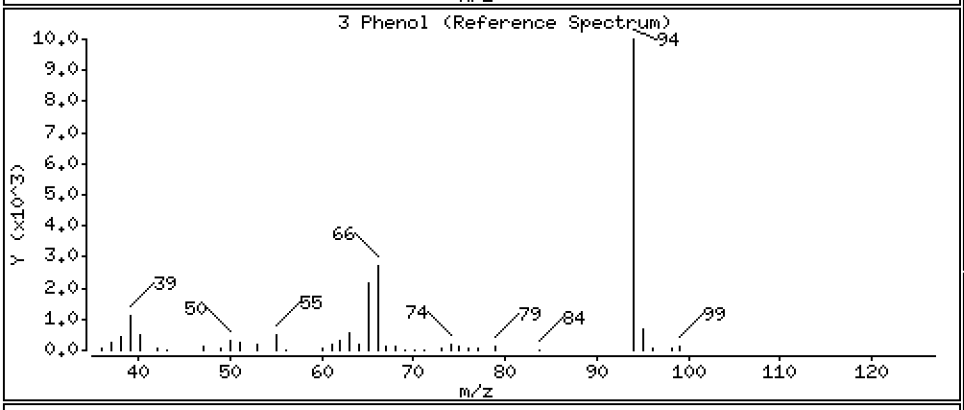
Concentration: 0.1669 ug/mL

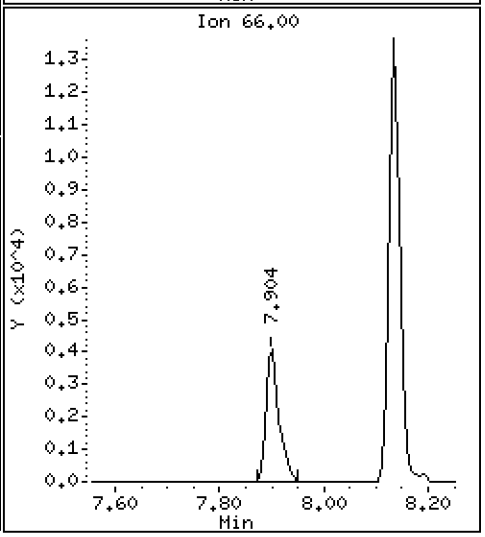


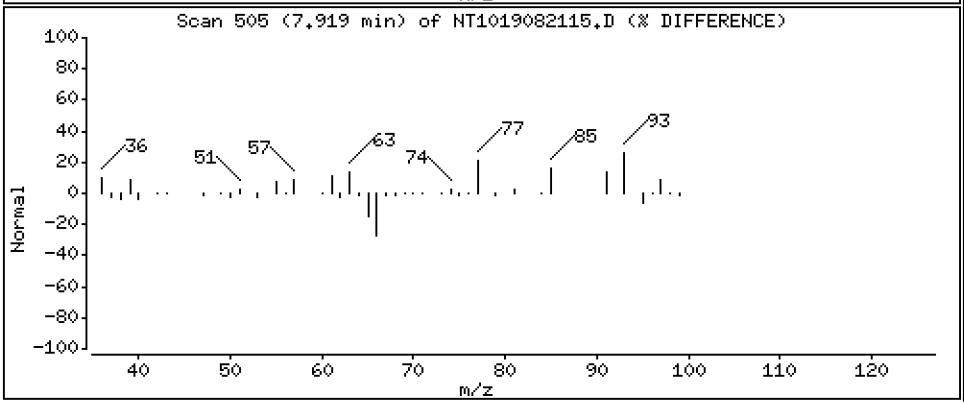












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Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

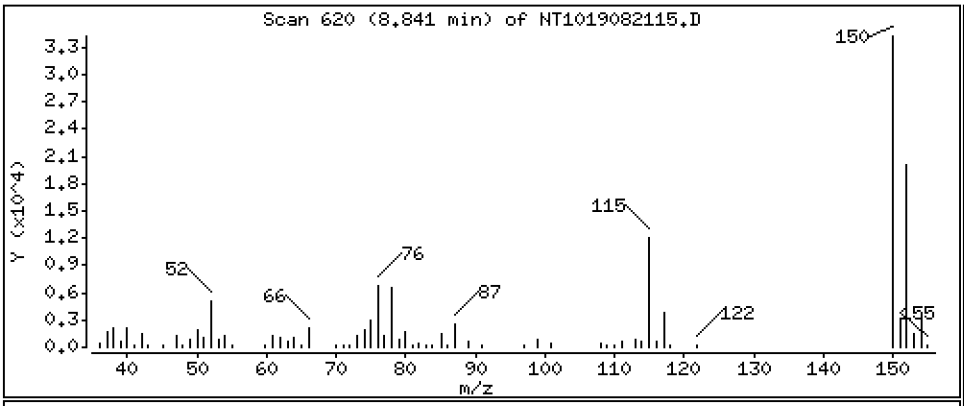
Operator: YZ

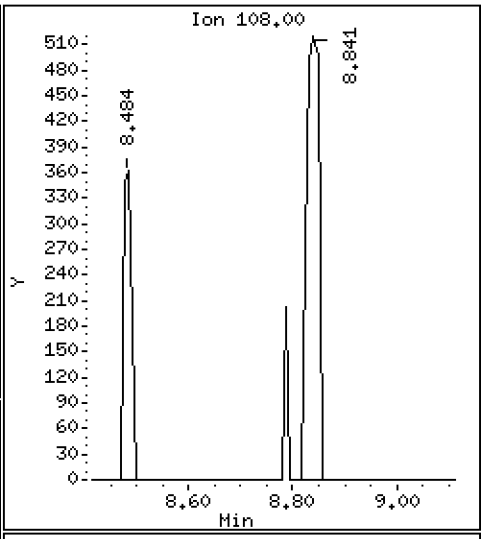
Column phase: ZB-5msi

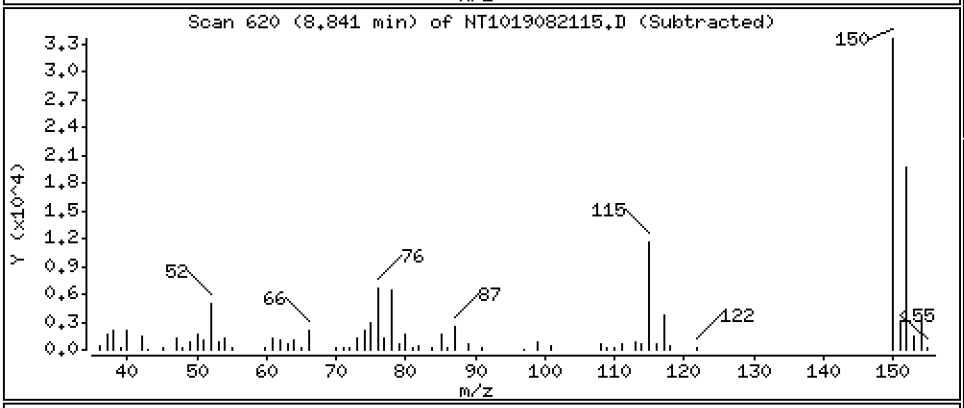
Column diameter: 0.25

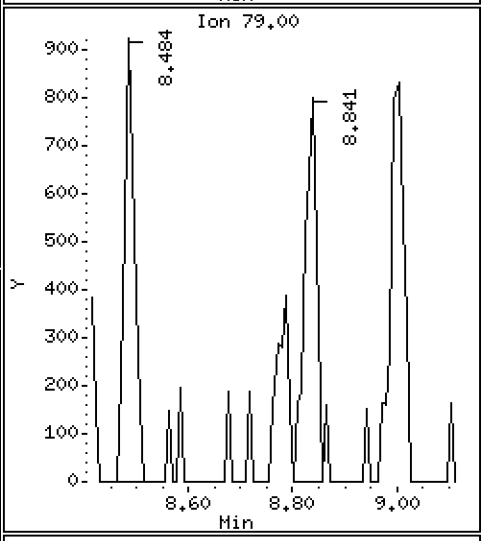
11 Benzyl alcohol

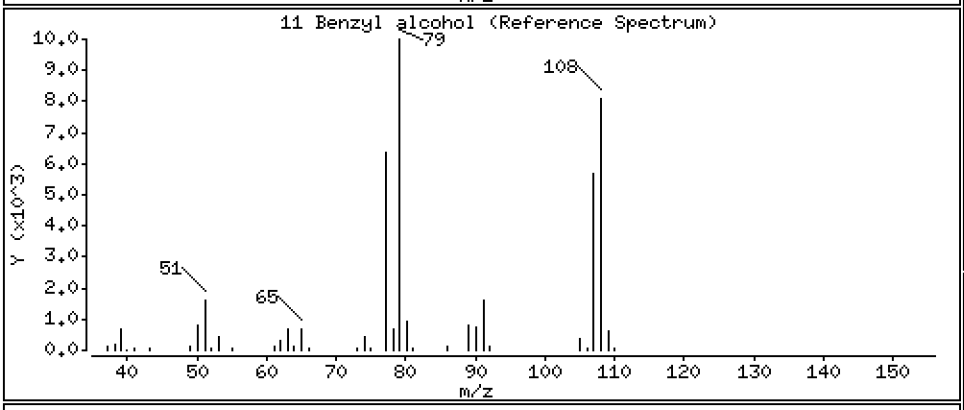
Concentration: 0.1106 ug/mL

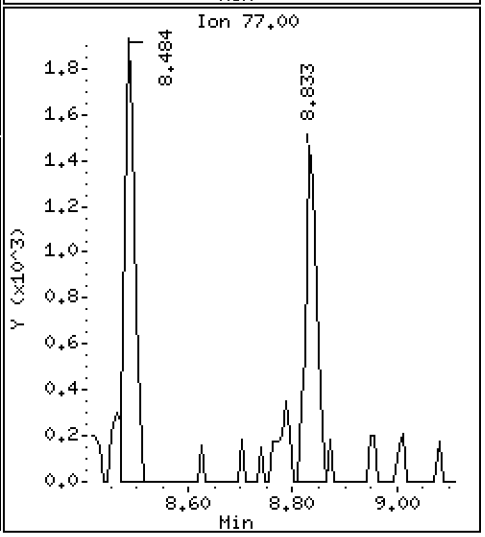


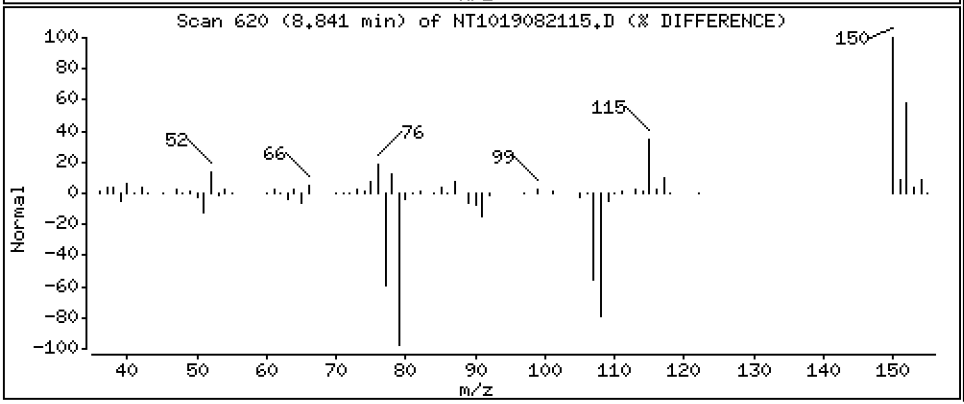












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

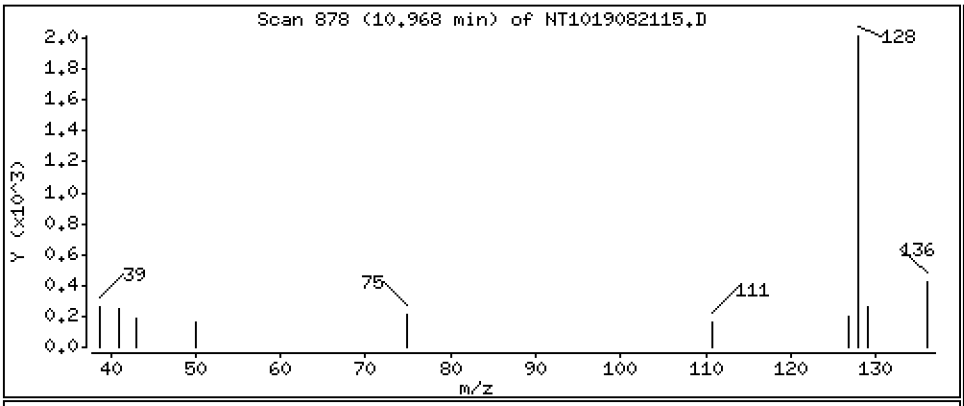
Operator: YZ

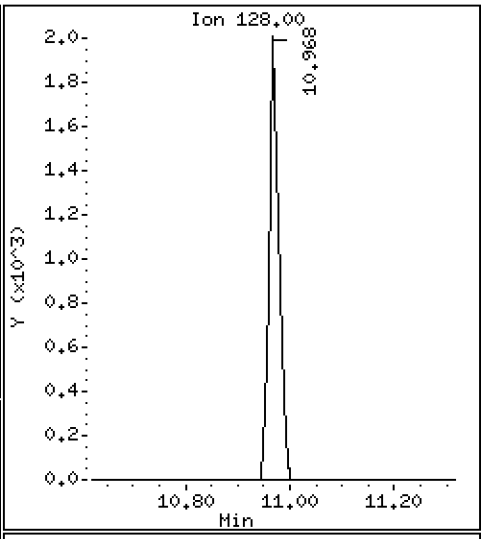
Column phase: ZB-5msi

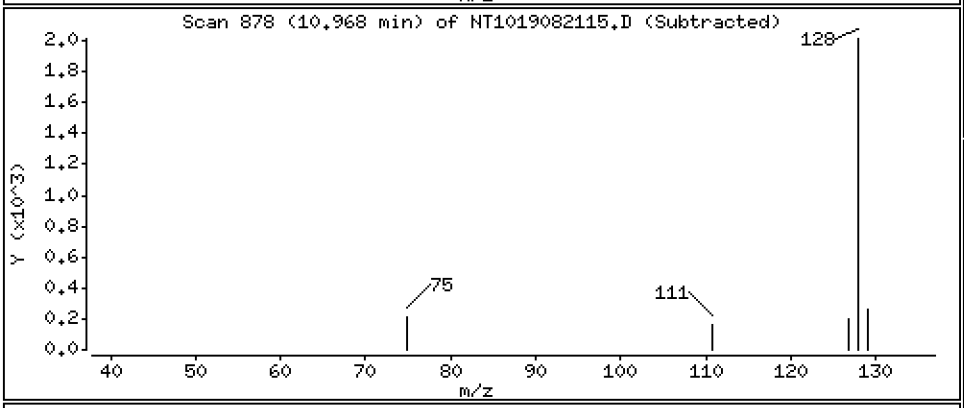
Column diameter: 0.25

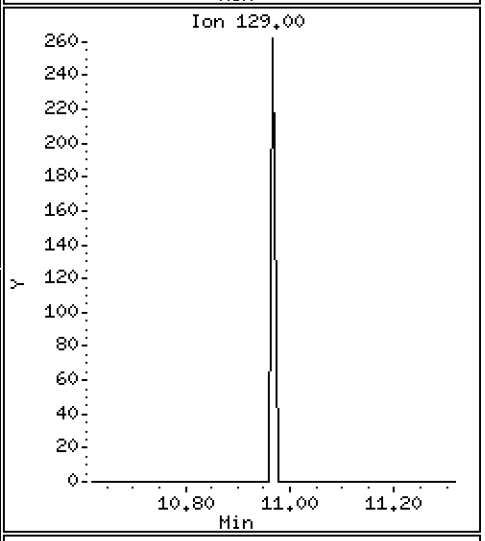
28 Naphthalene

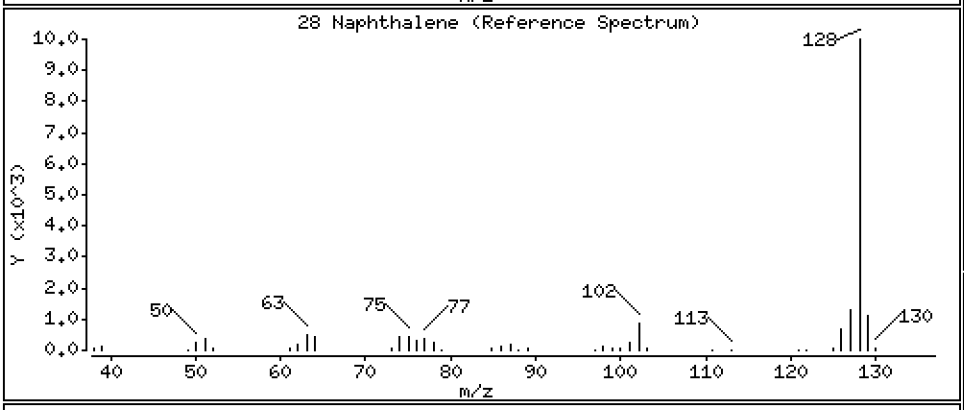
Concentration: 0.07203 ug/mL

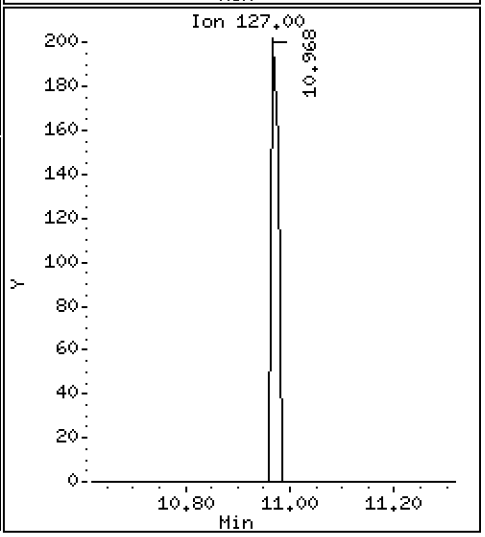


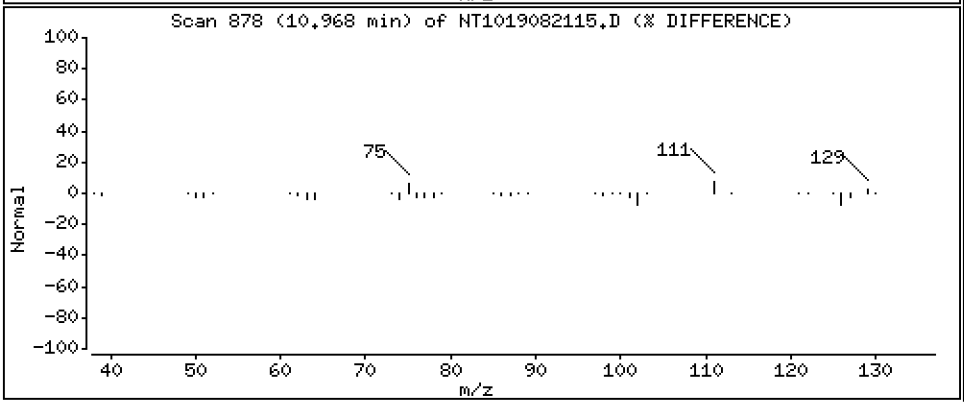












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Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

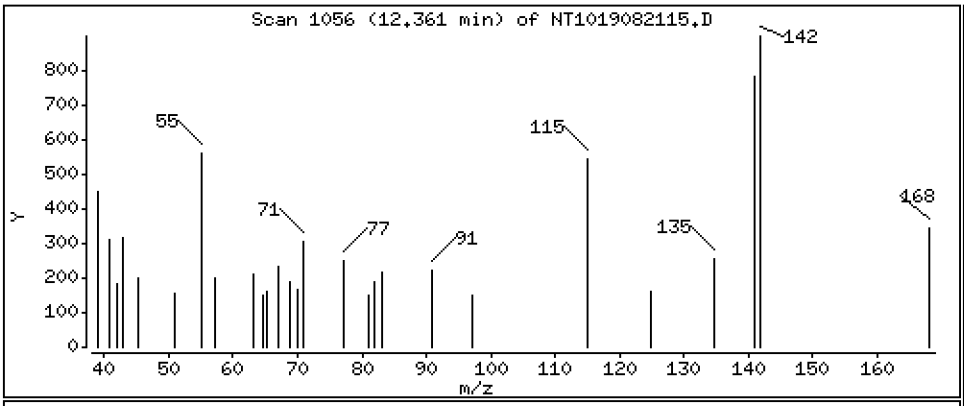
Operator: YZ

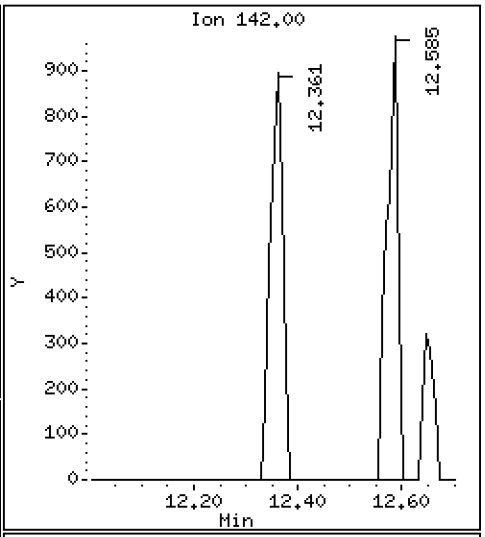
Column phase: ZB-5msi

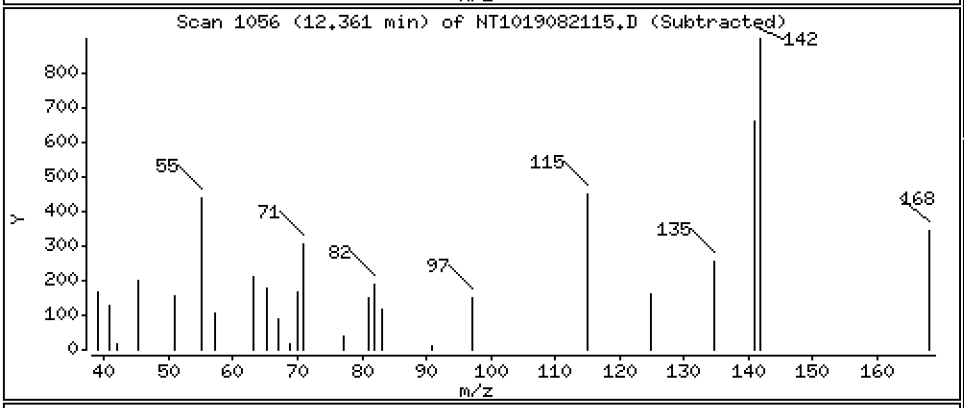
Column diameter: 0.25

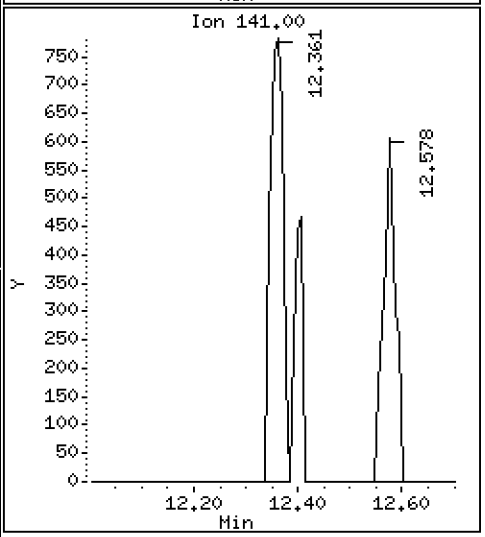
32 2-Methylnaphthalene

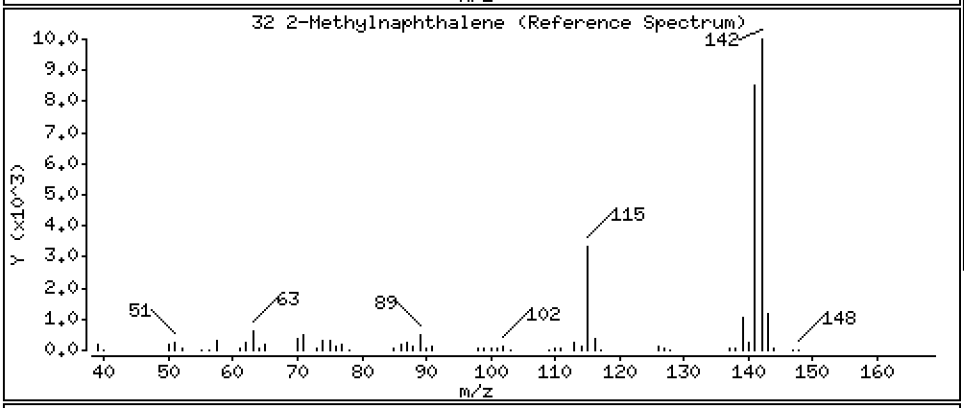
Concentration: 0.05258 ug/mL

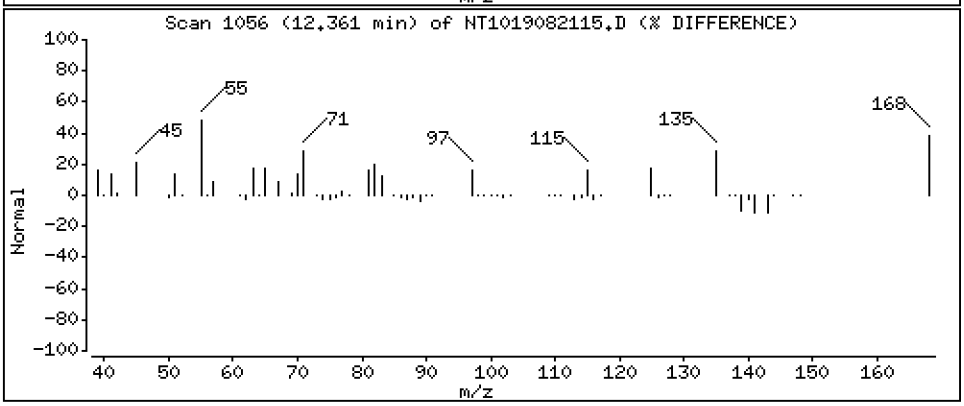












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Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

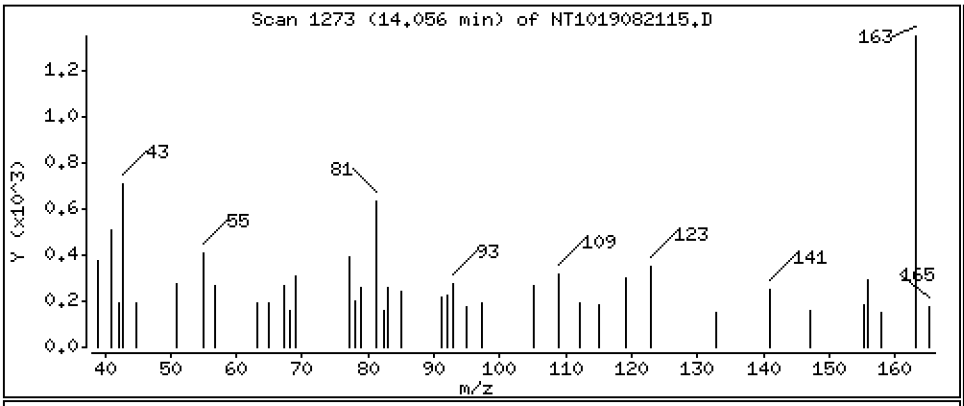
Operator: YZ

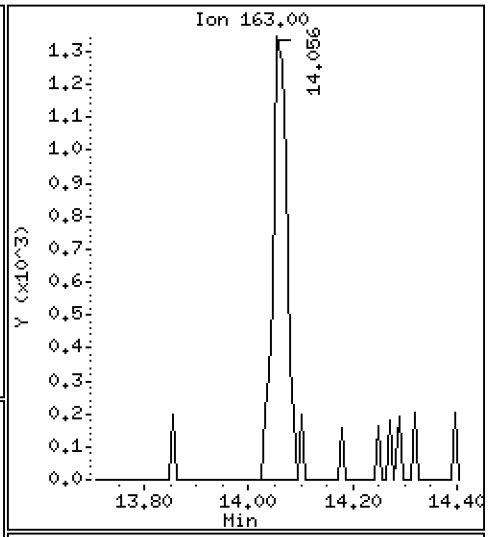
Column phase: ZB-5msi

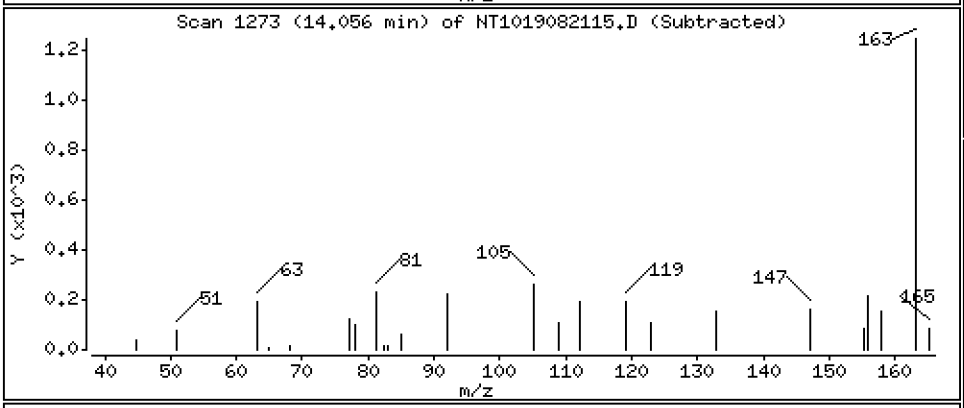
Column diameter: 0.25

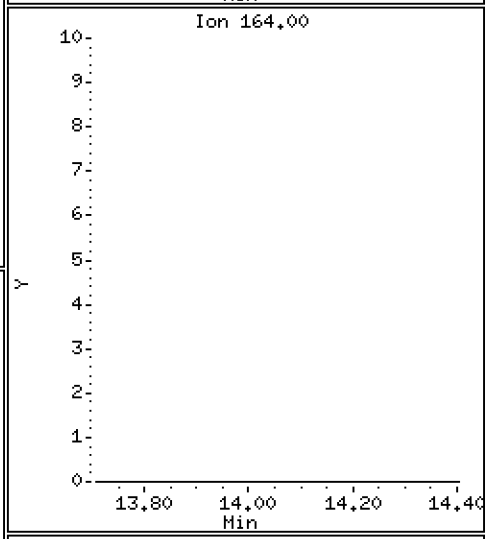
39 Dimethylphthalate

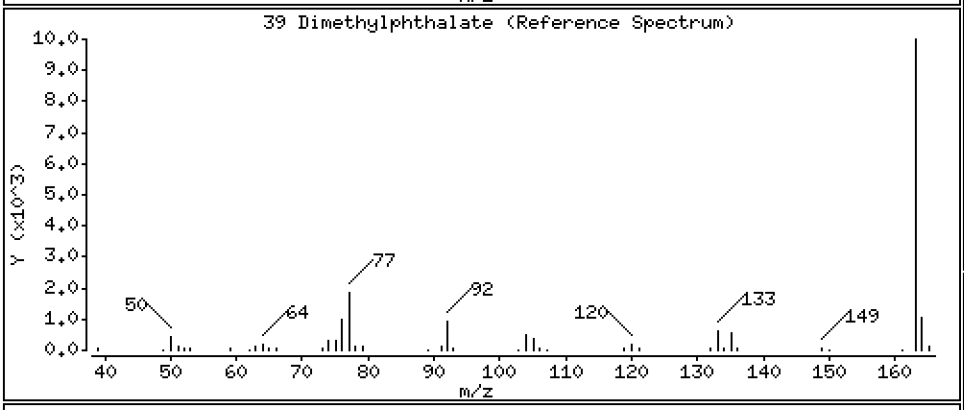
Concentration: 0.08936 ug/mL

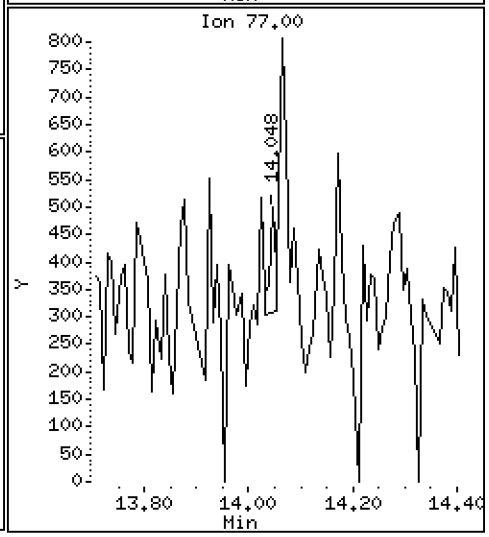


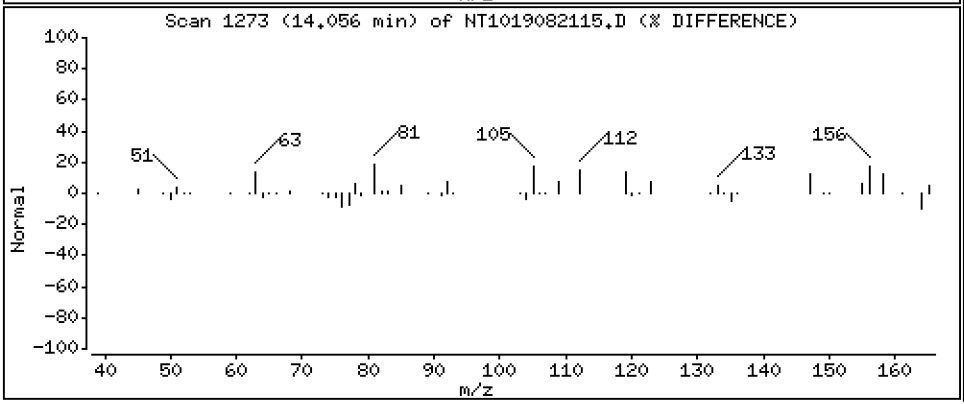












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Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

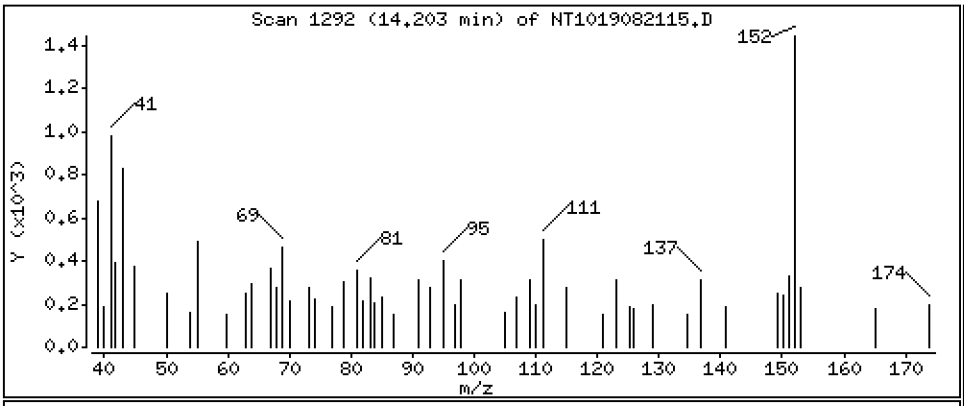
Operator: YZ

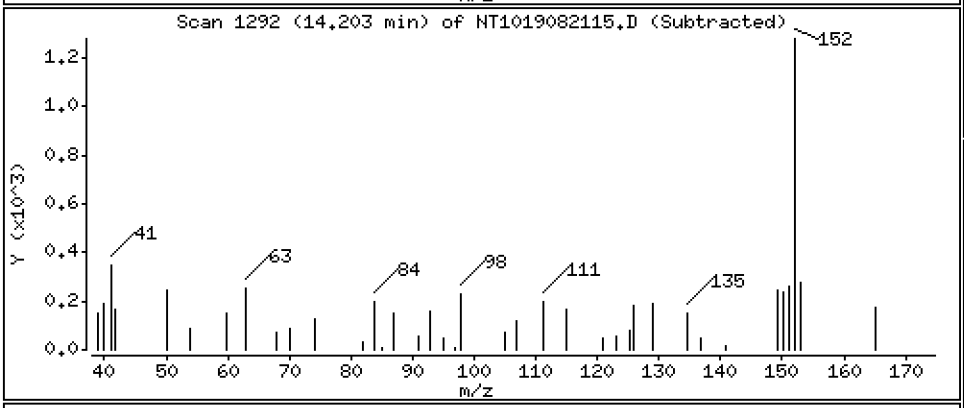
Column phase: ZB-5msi

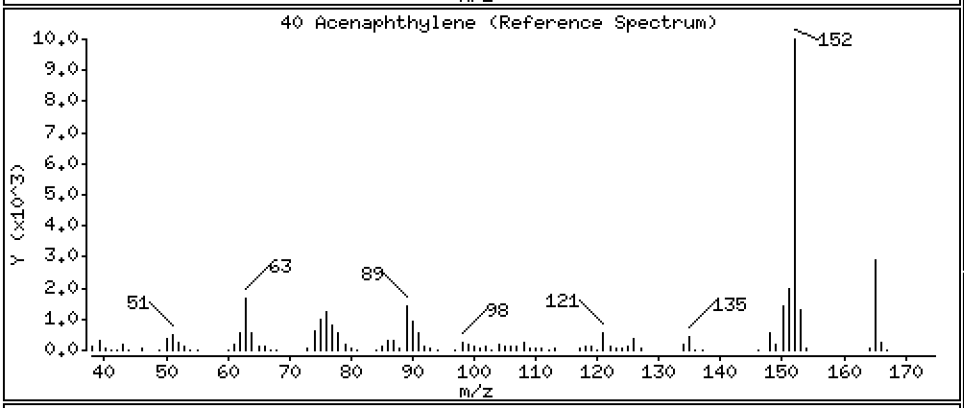
Column diameter: 0.25

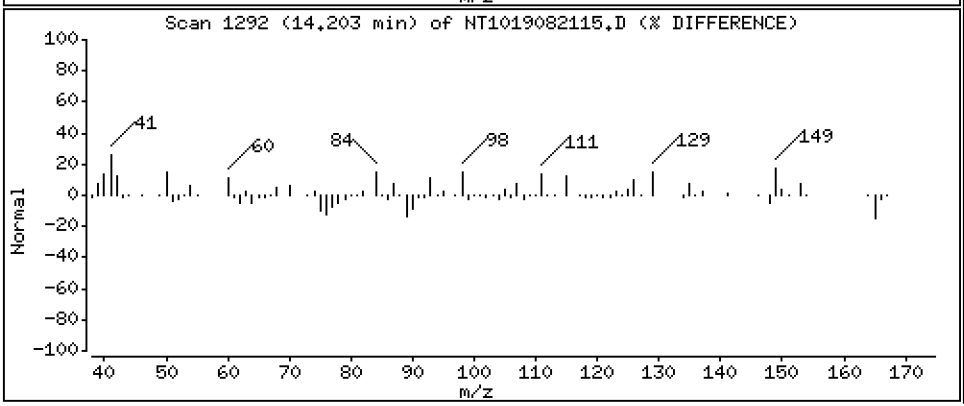
40 Acenaphthylene

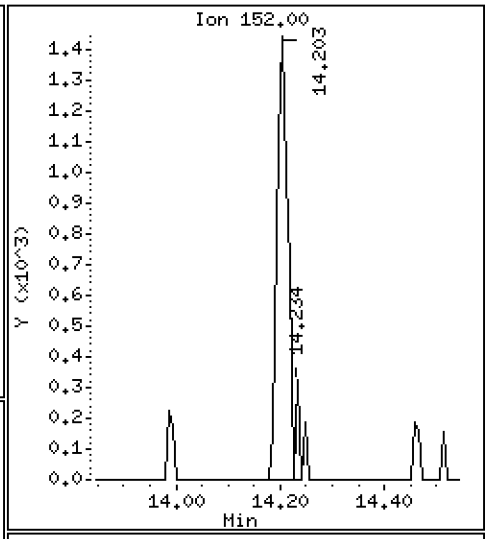
Concentration: 0.05830 ug/mL

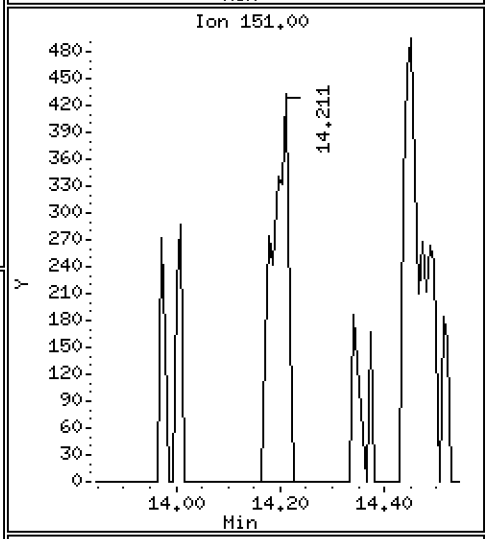


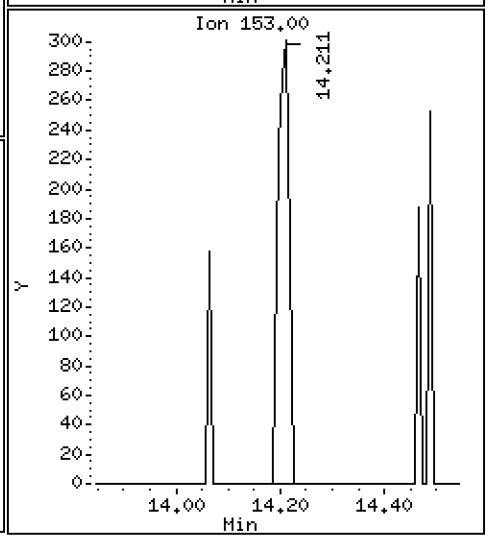












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Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

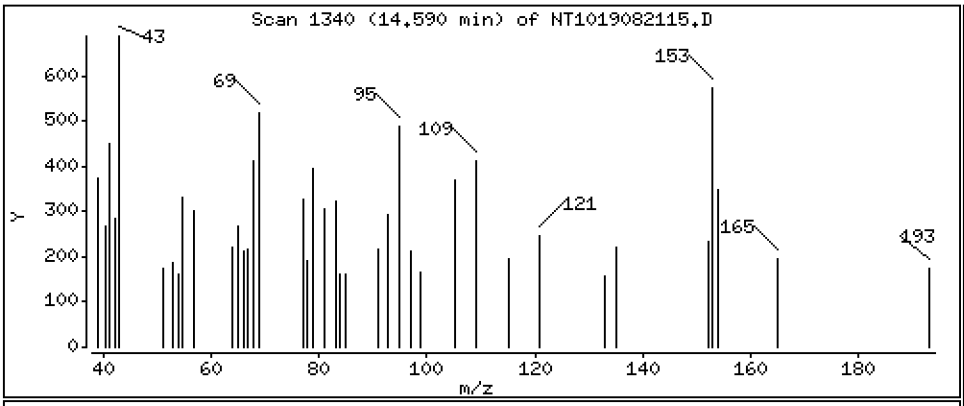
Operator: YZ

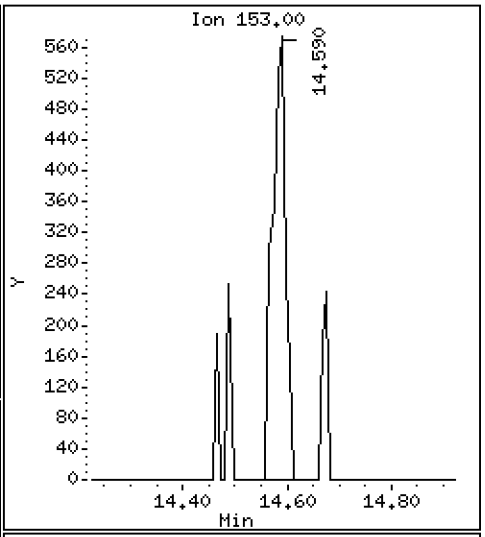
Column phase: ZB-5msi

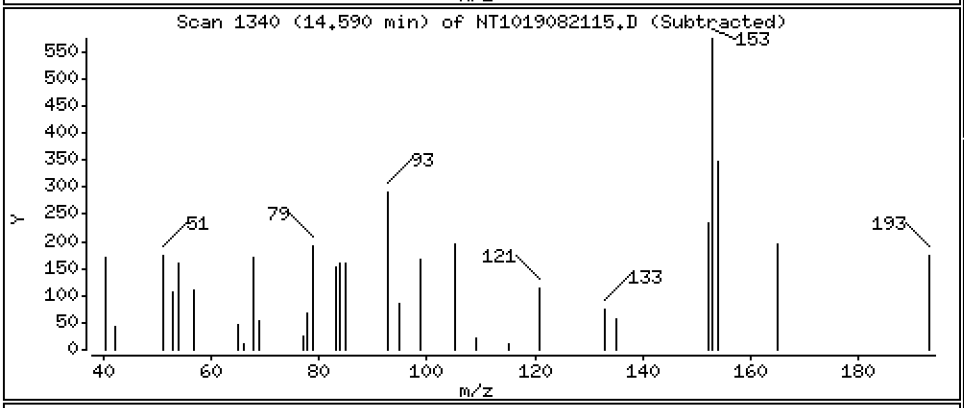
Column diameter: 0.25

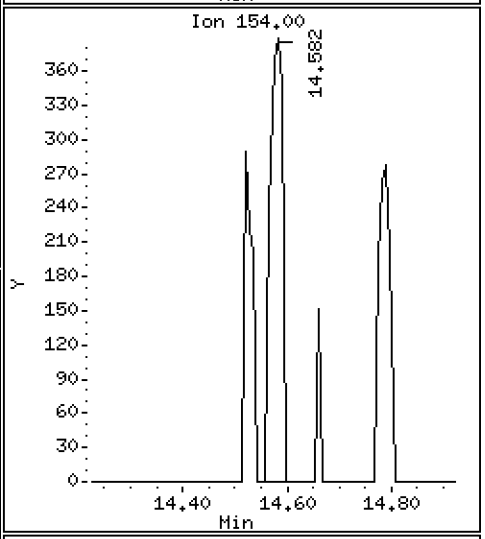
44 Acenaphthene

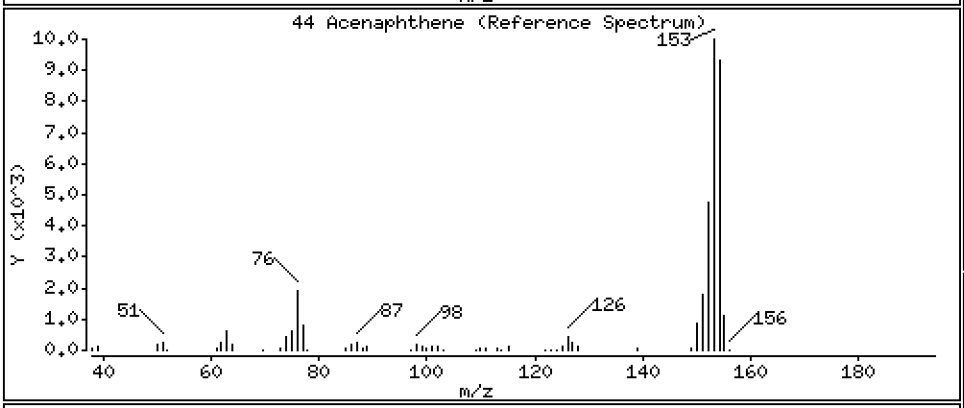
Concentration: 0.04566 ug/mL

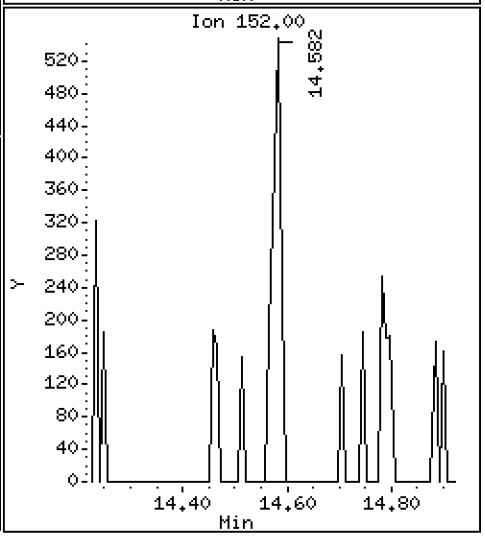


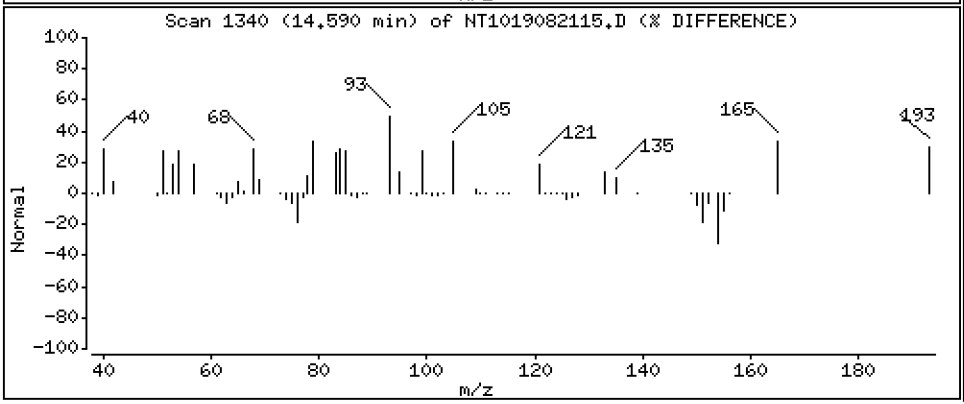












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

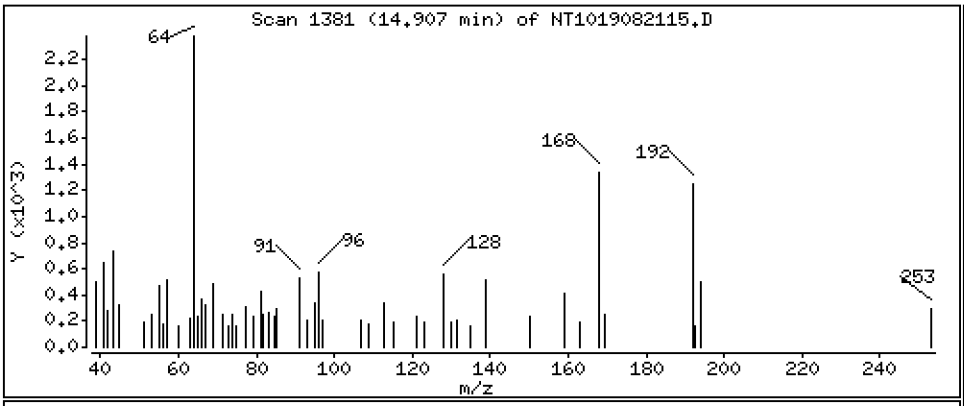
Operator: YZ

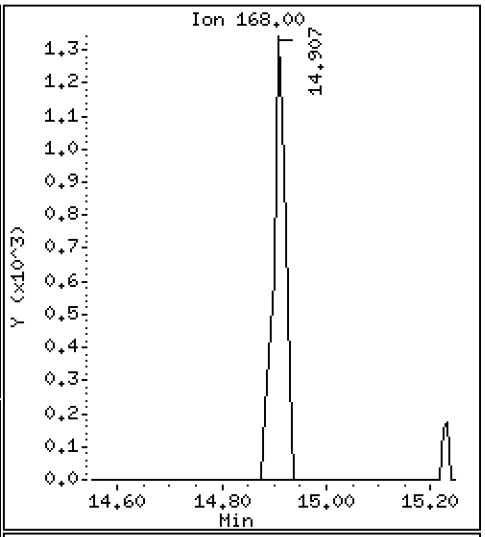
Column phase: ZB-5msi

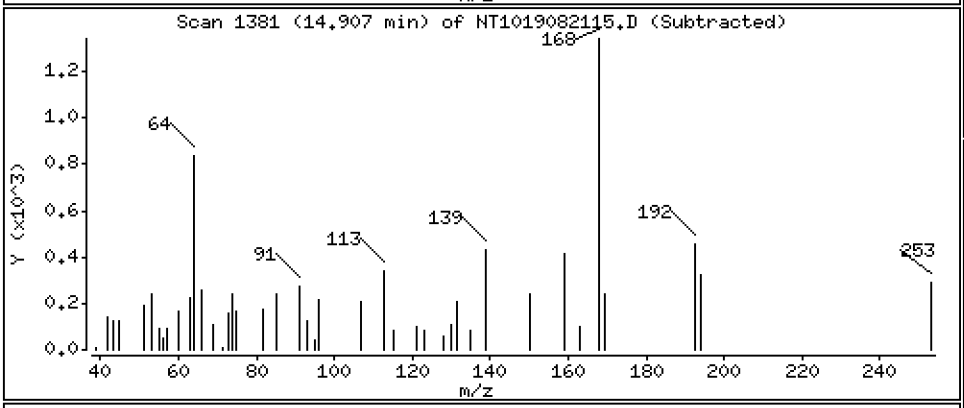
Column diameter: 0.25

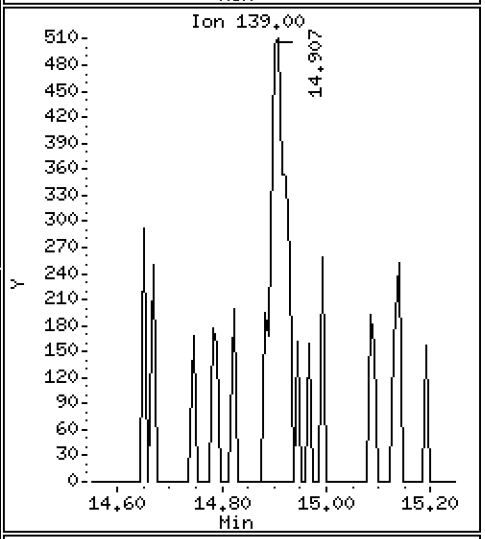
46 Dibenzofuran

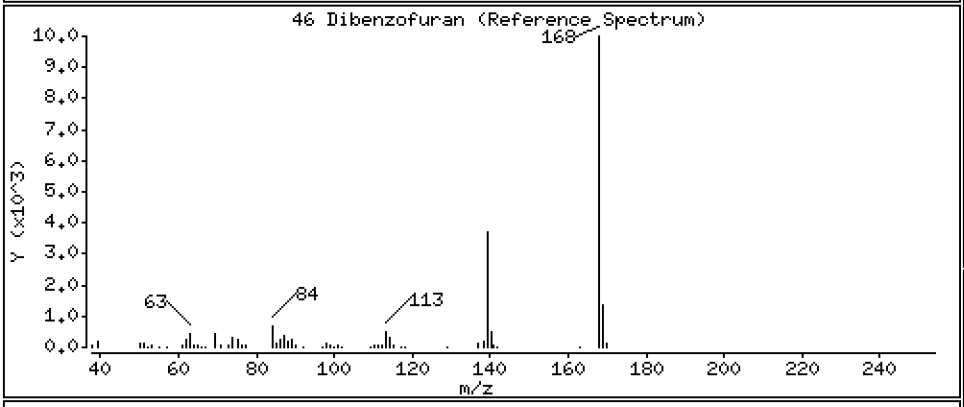
Concentration: 0.06033 ug/mL

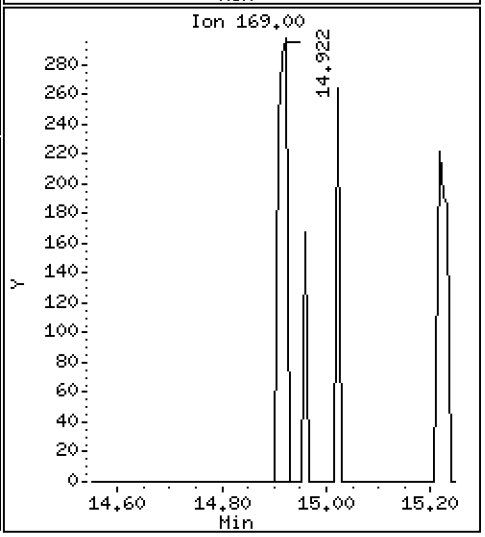


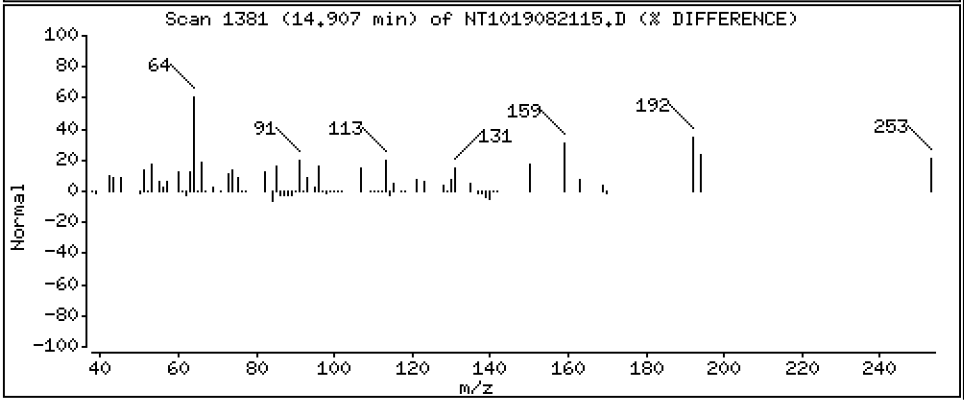












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

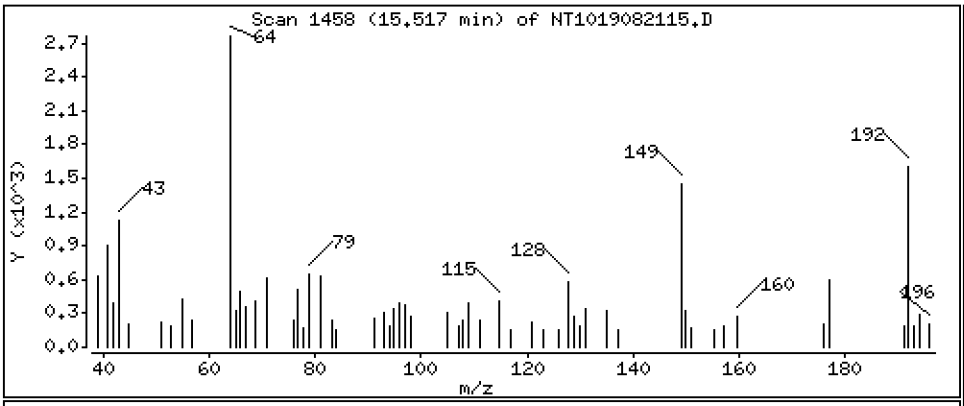
Operator: YZ

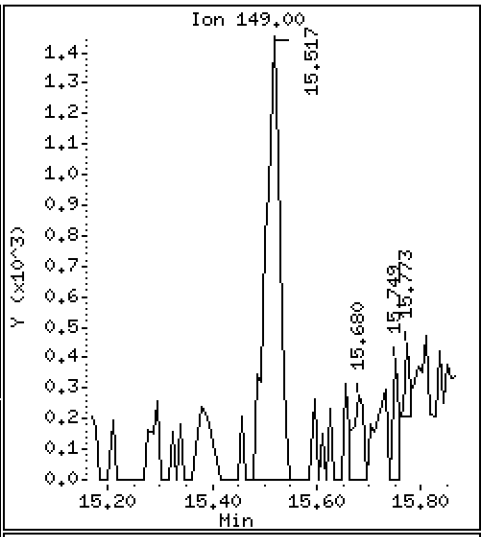
Column phase: ZB-5msi

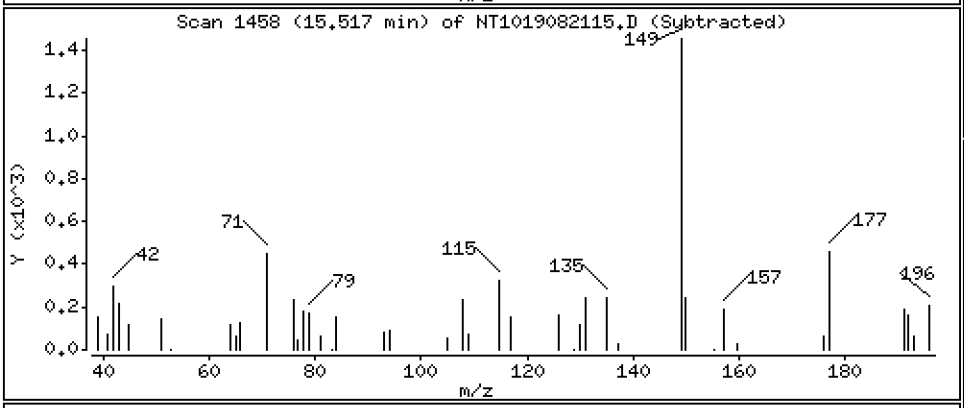
Column diameter: 0.25

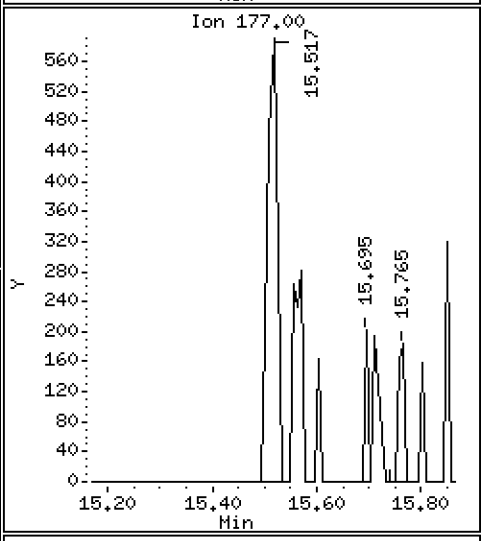
50 Diethylphthalate

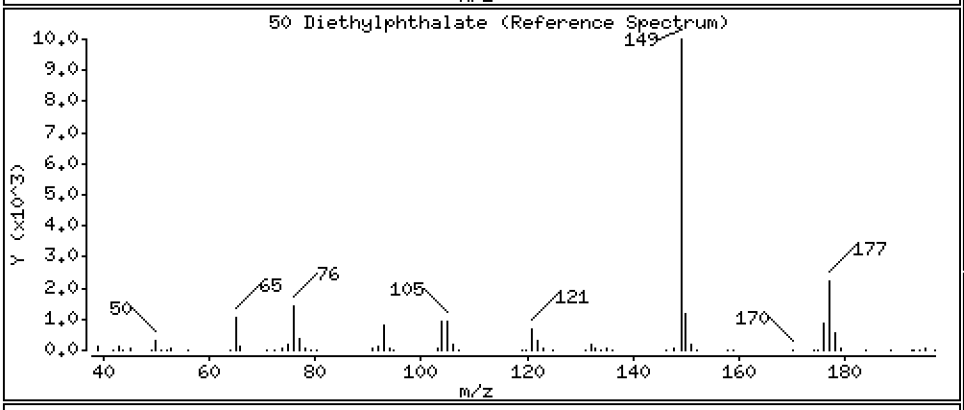
Concentration: 0.1004 ug/mL

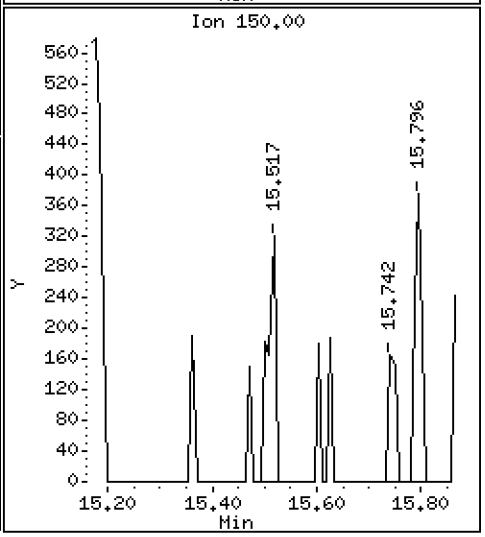


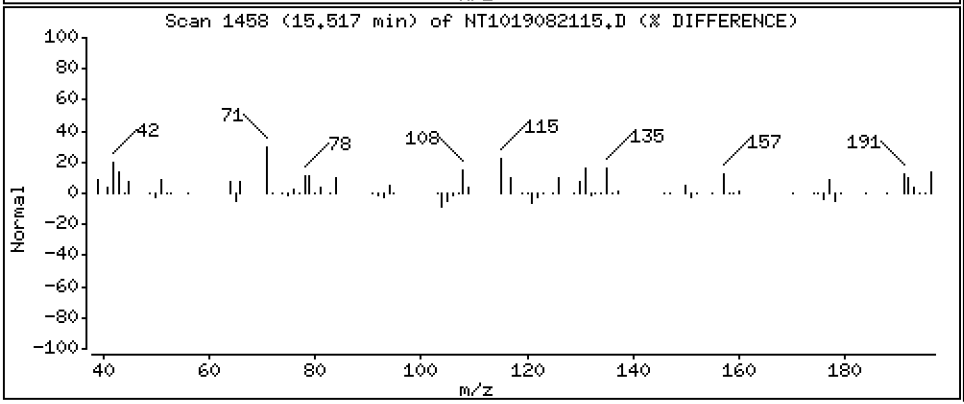












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

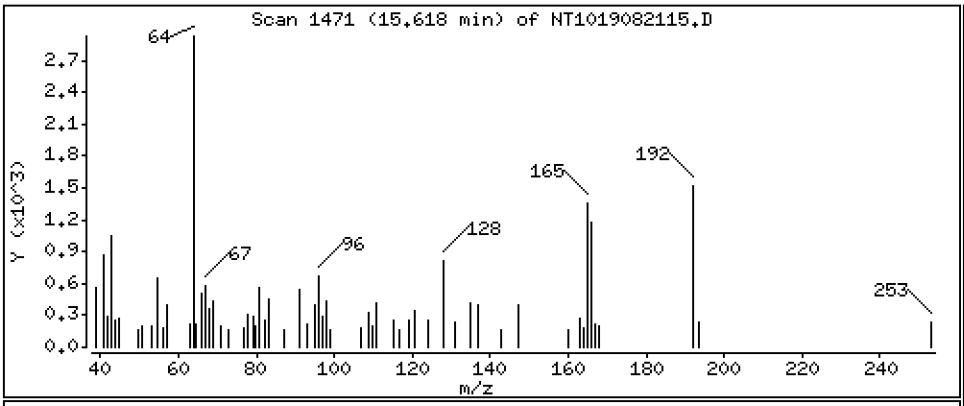
Operator: YZ

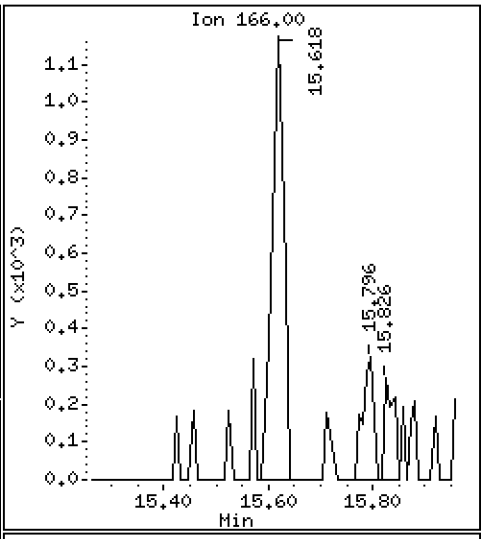
Column phase: ZB-5msi

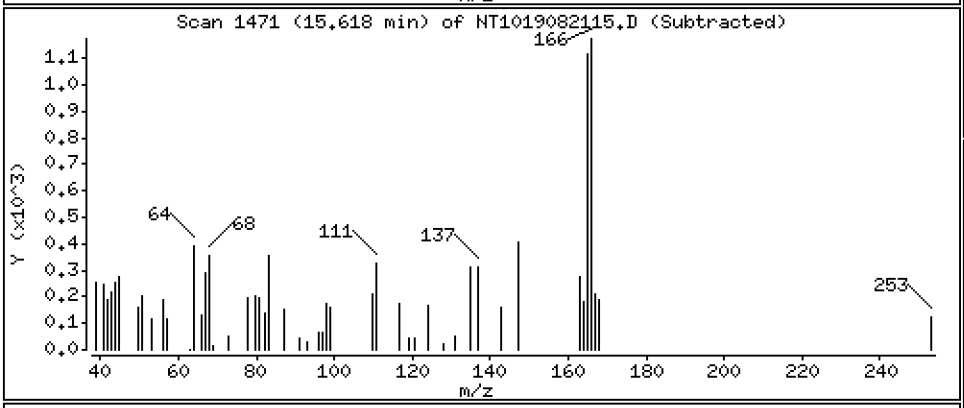
Column diameter: 0.25

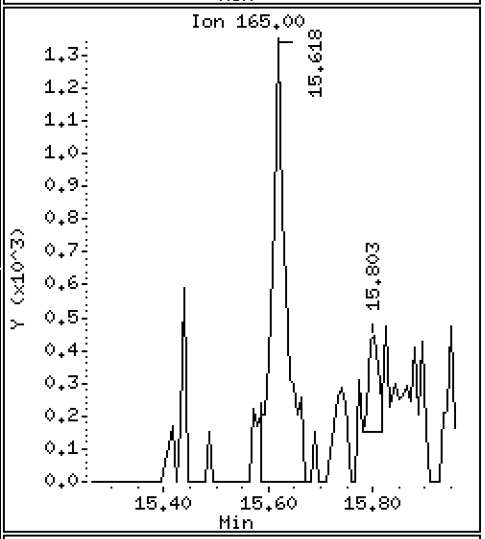
49 Fluorene

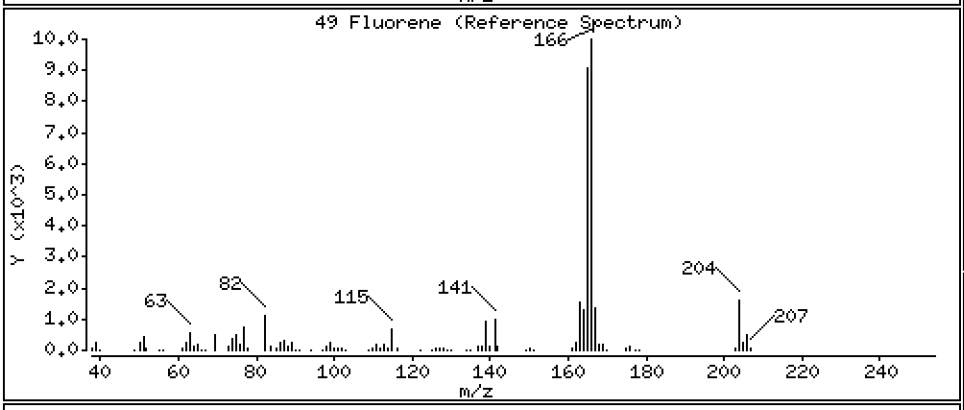
Concentration: 0.07456 ug/mL

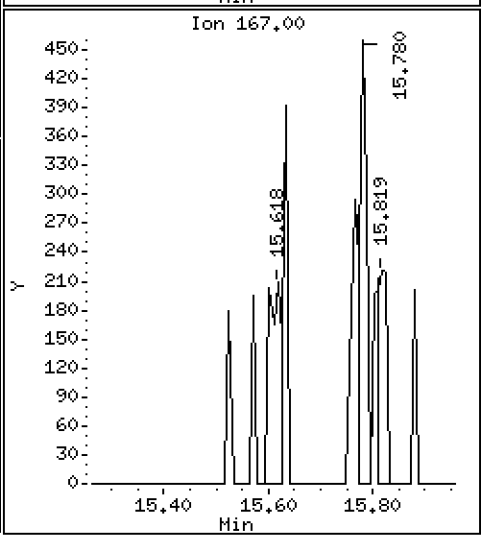


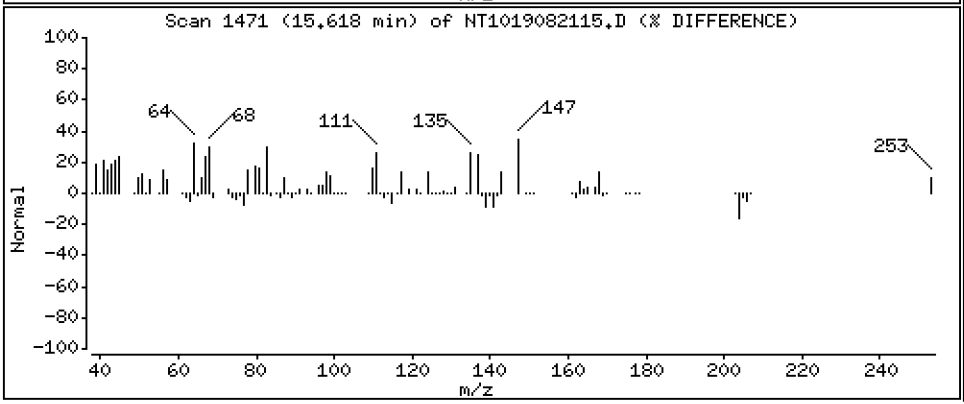












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

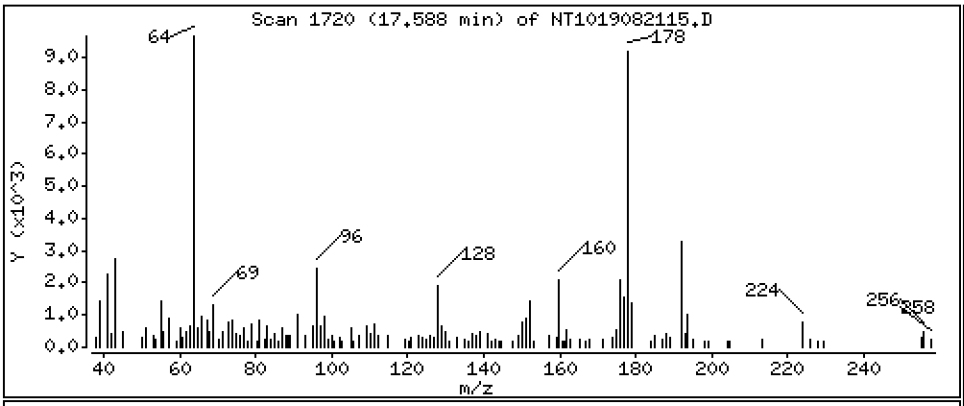
Operator: YZ

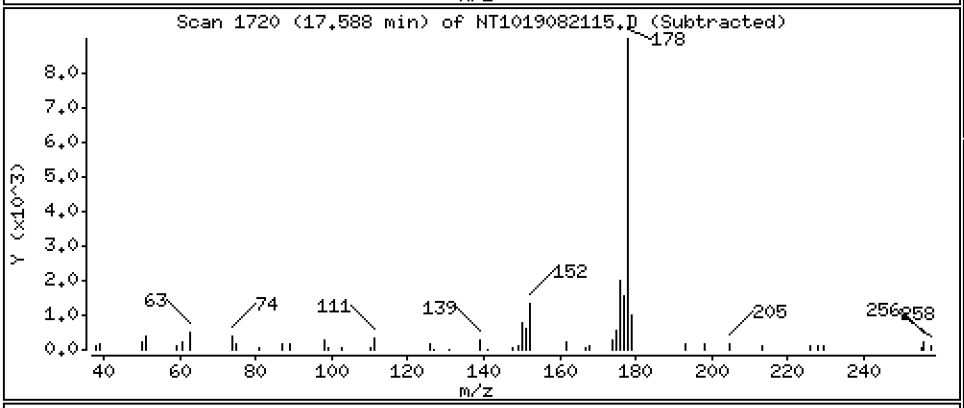
Column phase: ZB-5msi

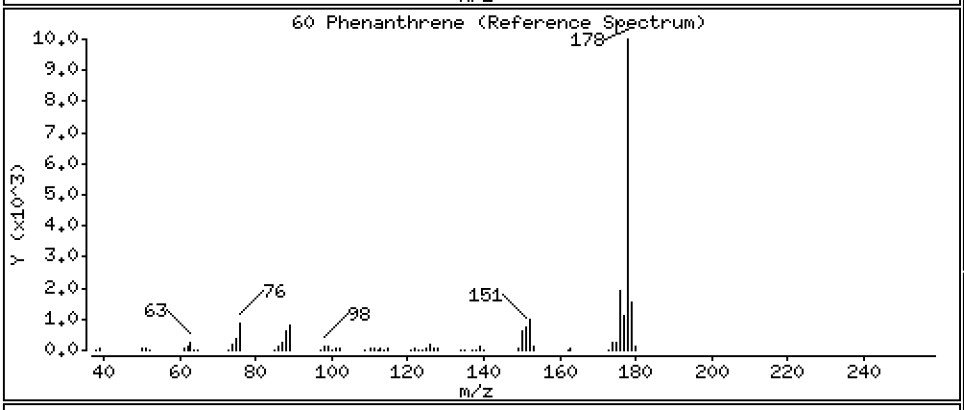
Column diameter: 0.25

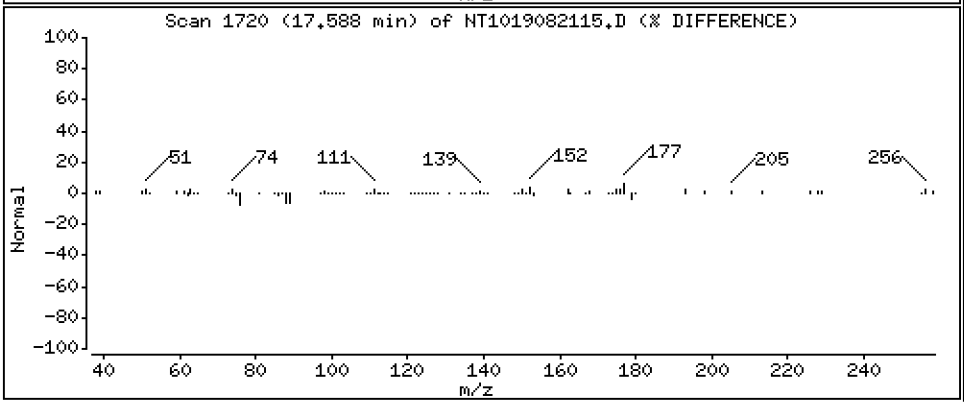
60 Phenanthrene

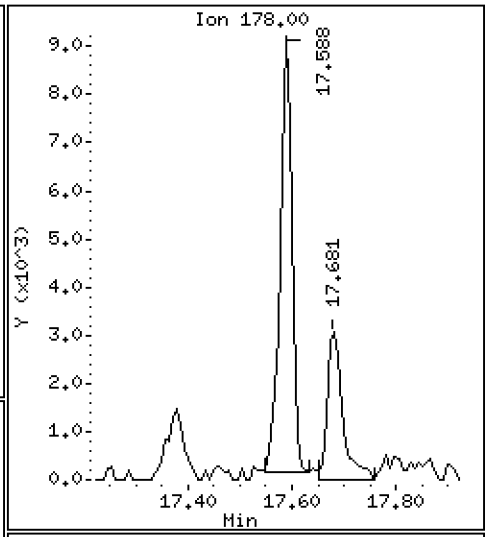
Concentration: 0.4703 ug/mL

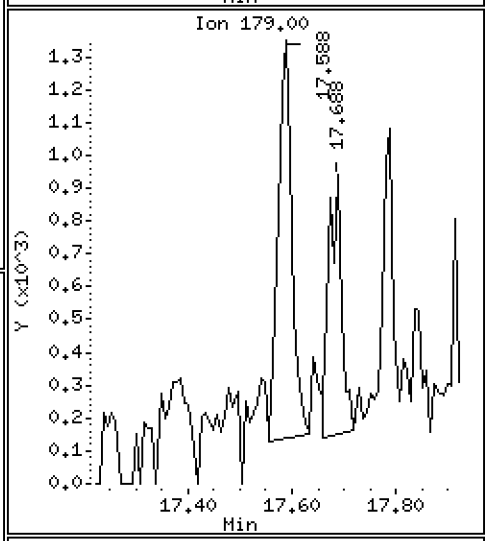


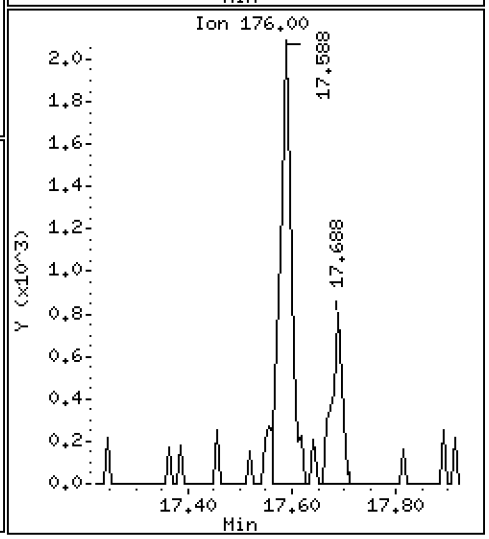












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

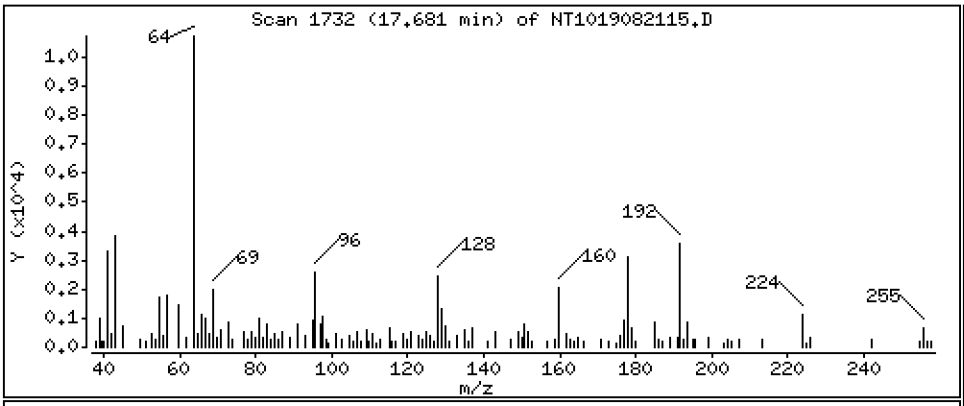
Operator: YZ

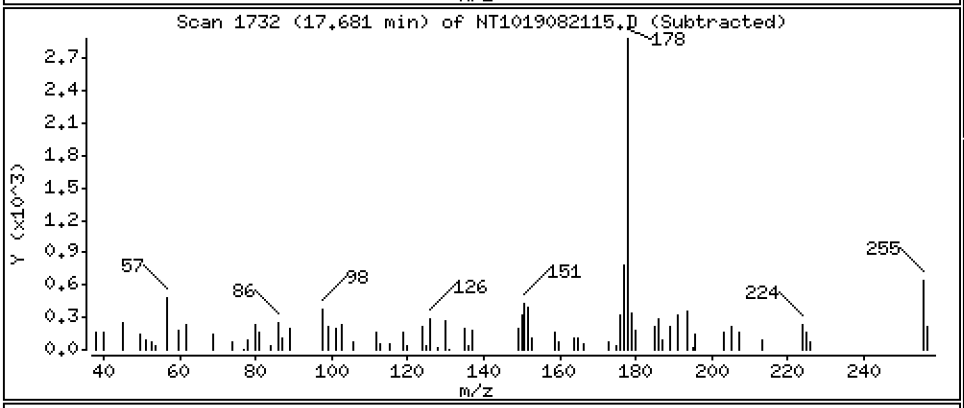
Column phase: ZB-5msi

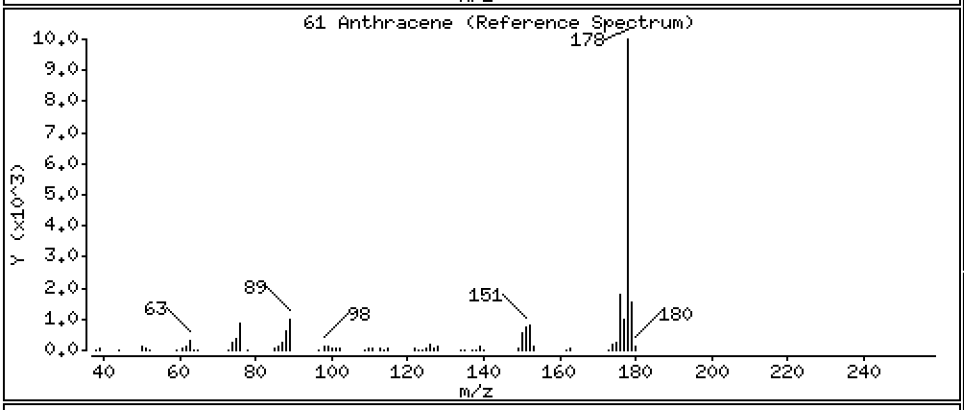
Column diameter: 0.25

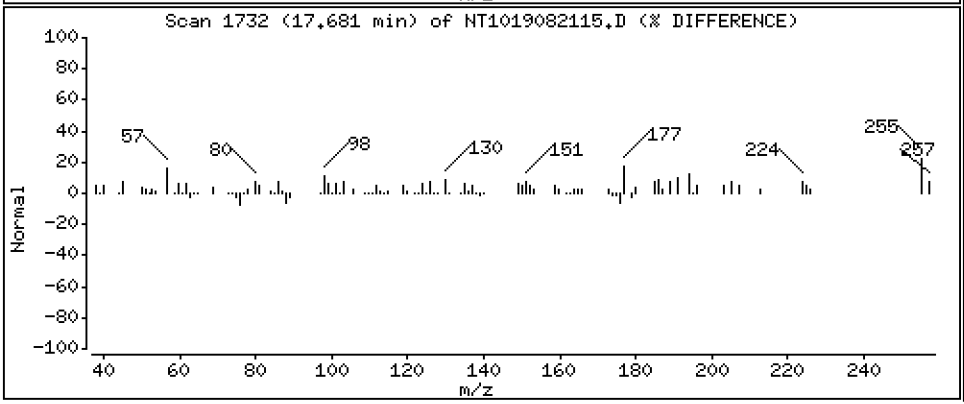
61 Anthracene

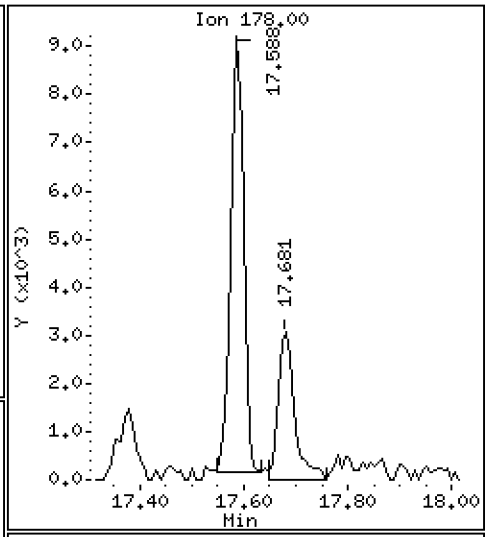
Concentration: 0.2118 ug/mL

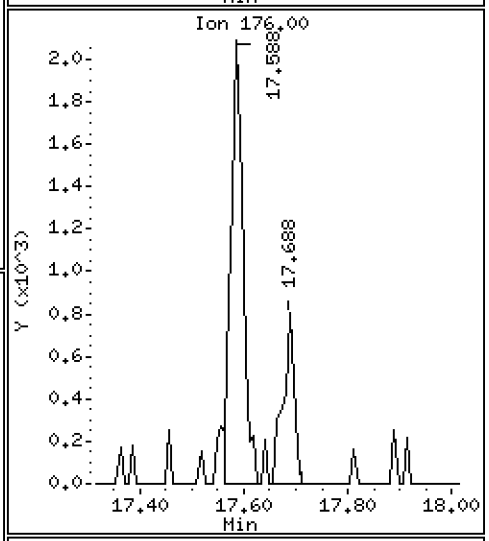


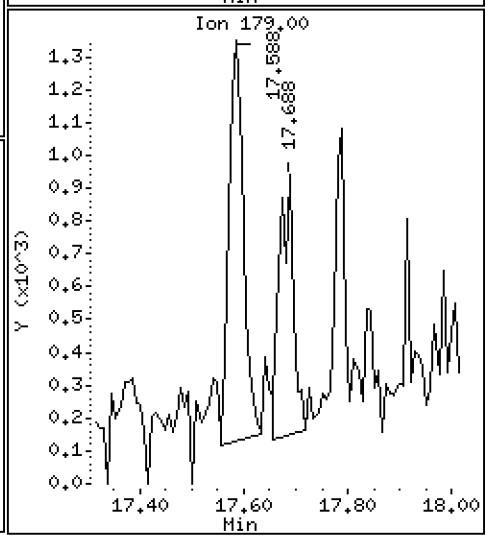












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

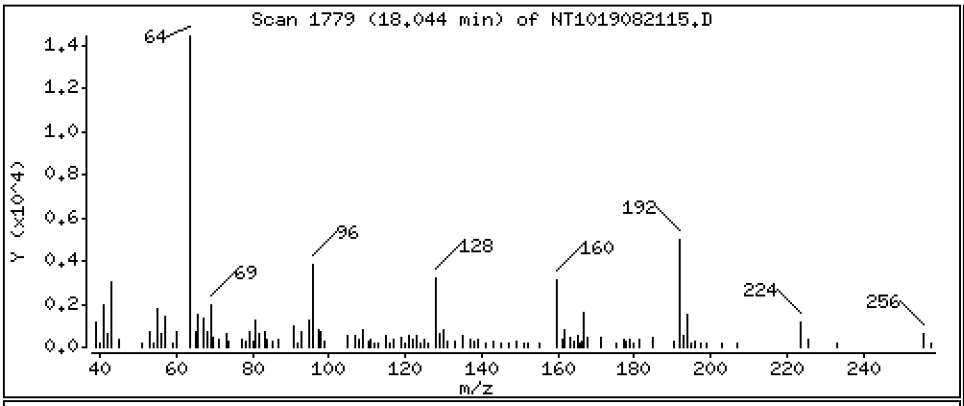
Operator: YZ

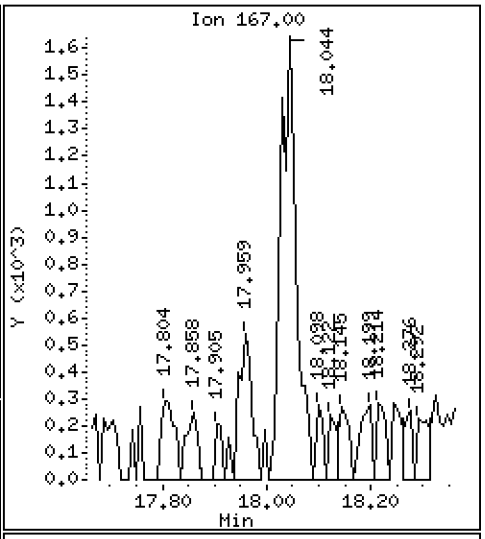
Column phase: ZB-5msi

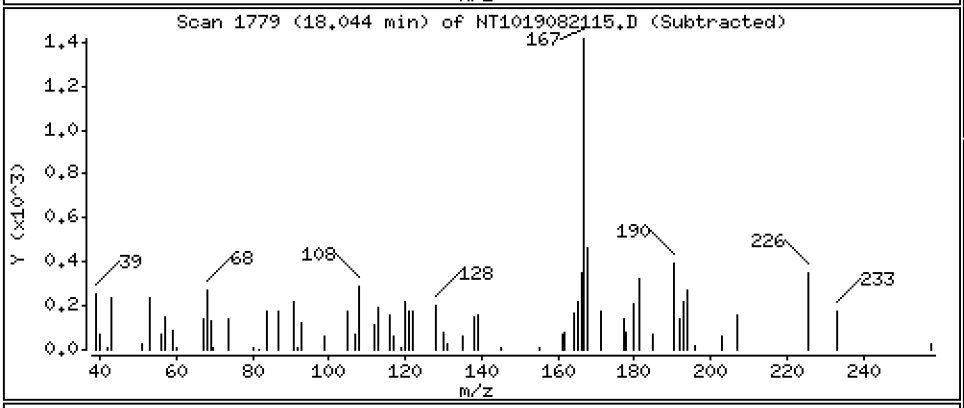
Column diameter: 0.25

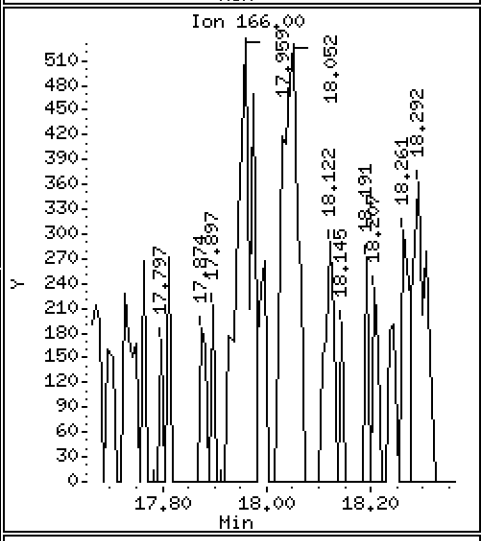
62 Carbazole

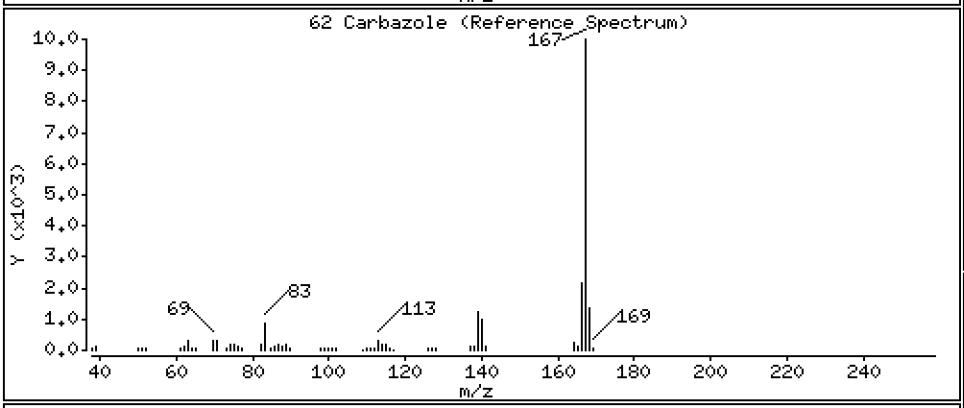
Concentration: 0.1226 ug/mL

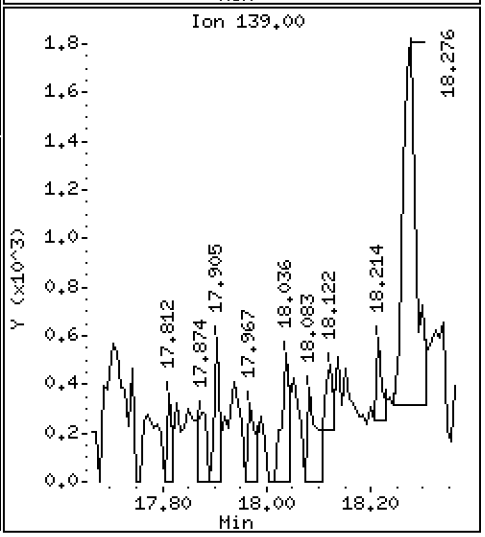


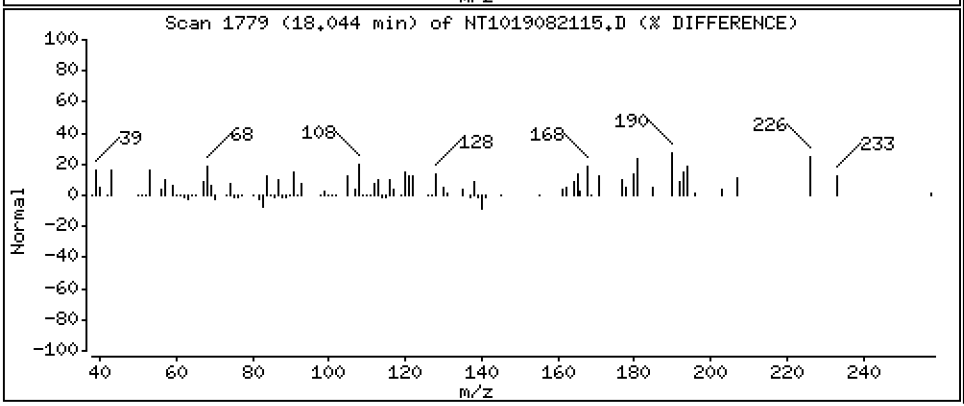












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

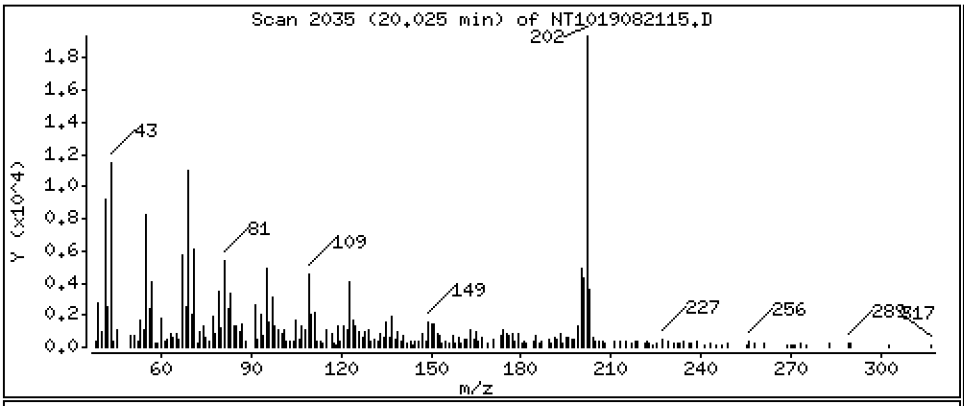
Operator: YZ

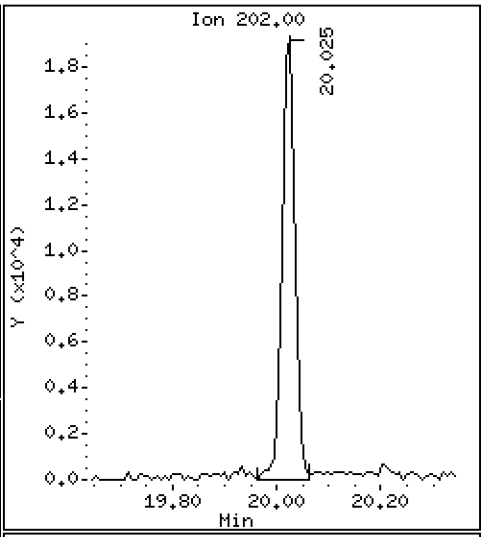
Column phase: ZB-5msi

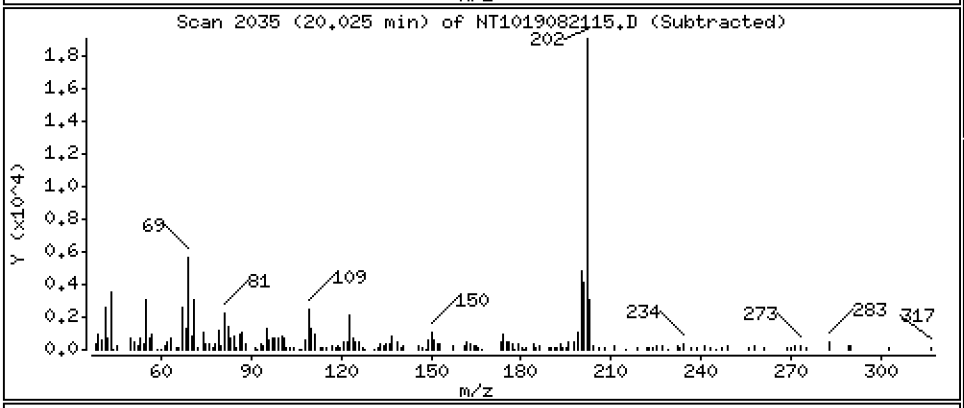
Column diameter: 0.25

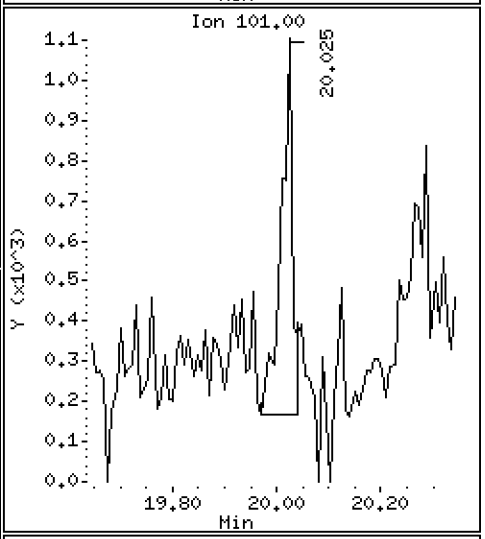
64 Fluoranthene

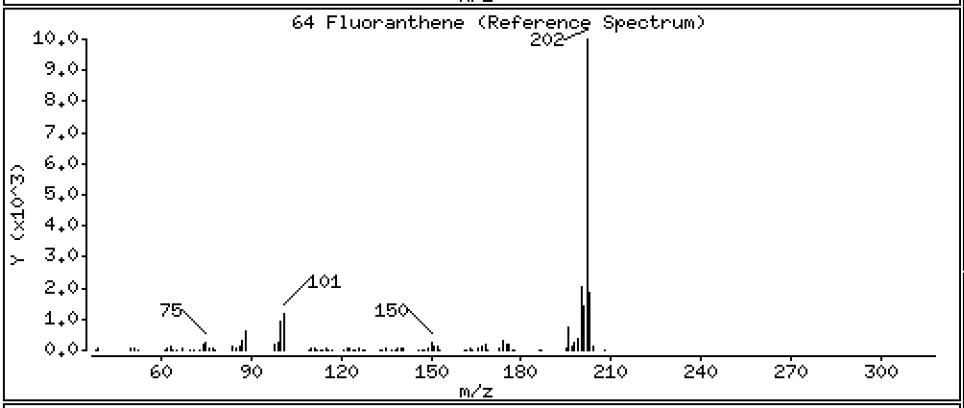
Concentration: 1.766 ug/mL

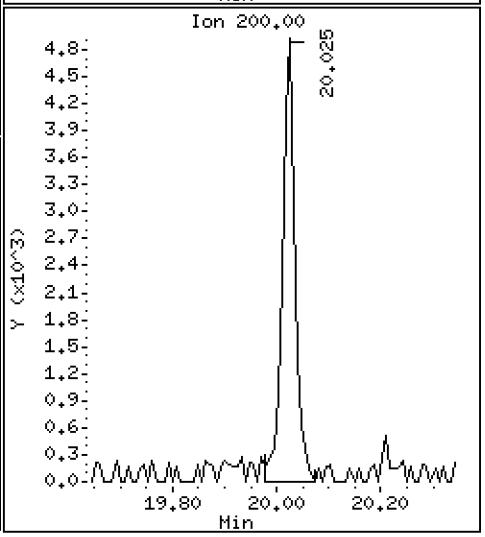


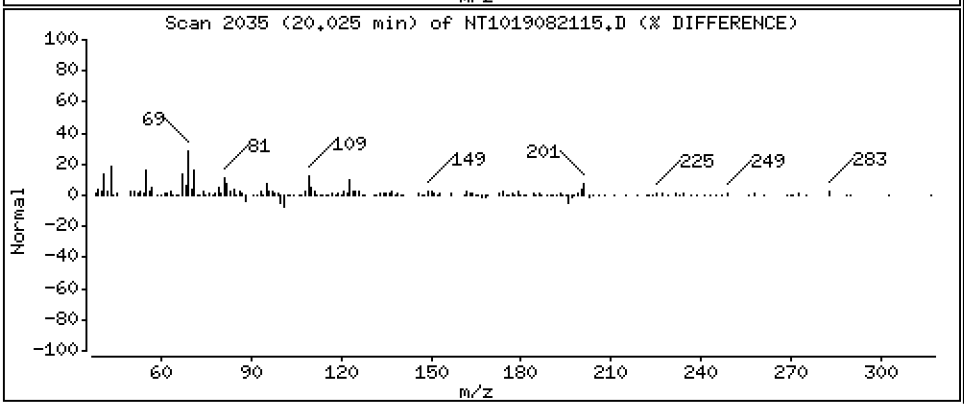












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

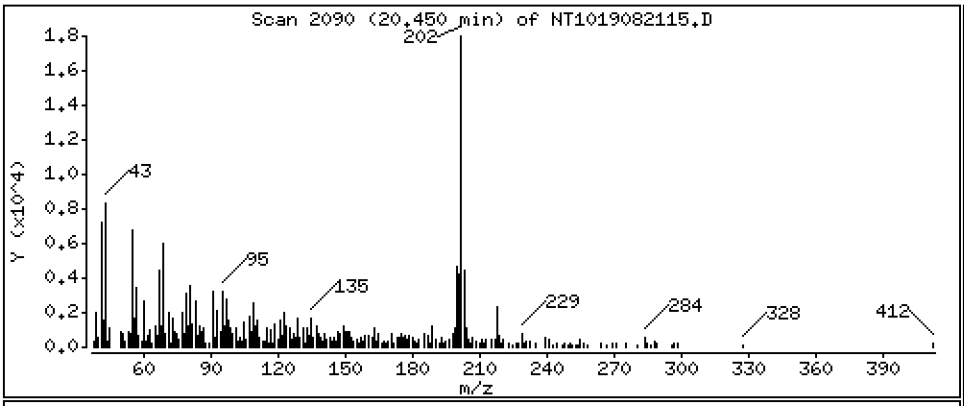
Operator: YZ

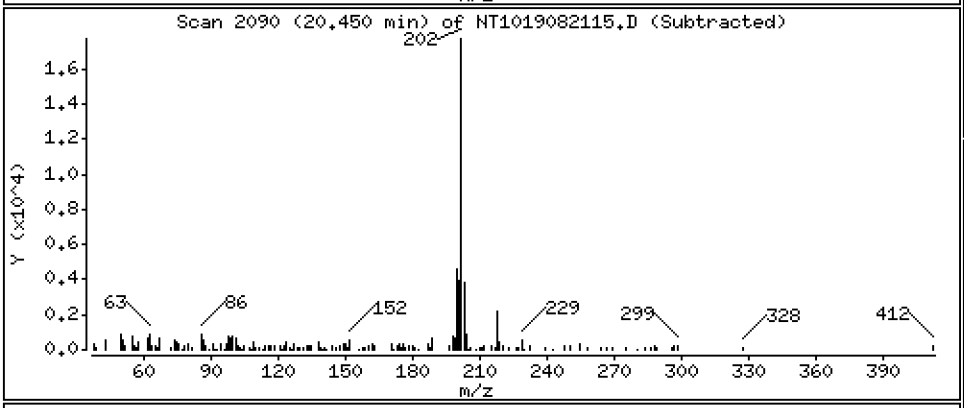
Column phase: ZB-5msi

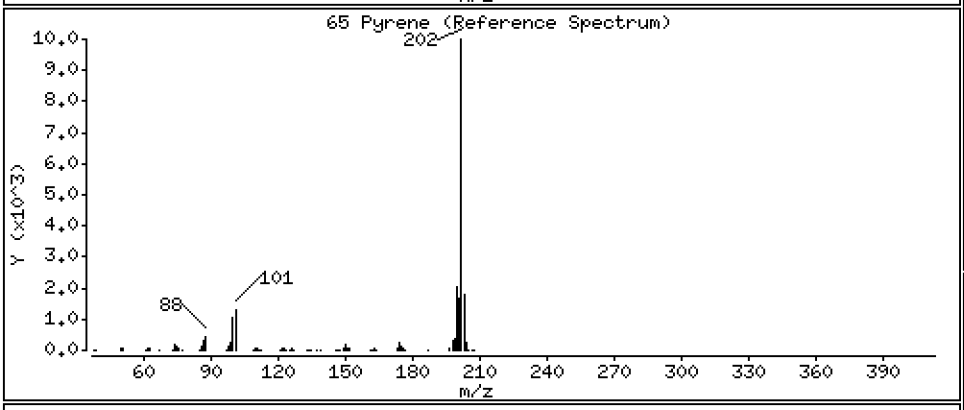
Column diameter: 0.25

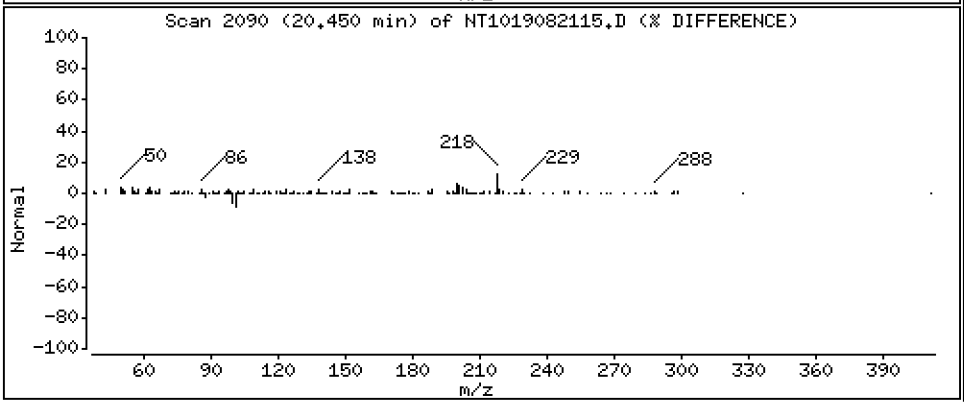
65 Pyrene

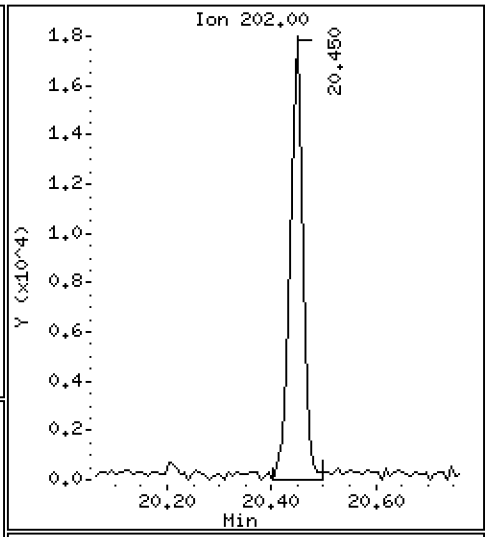
Concentration: 1.545 ug/mL

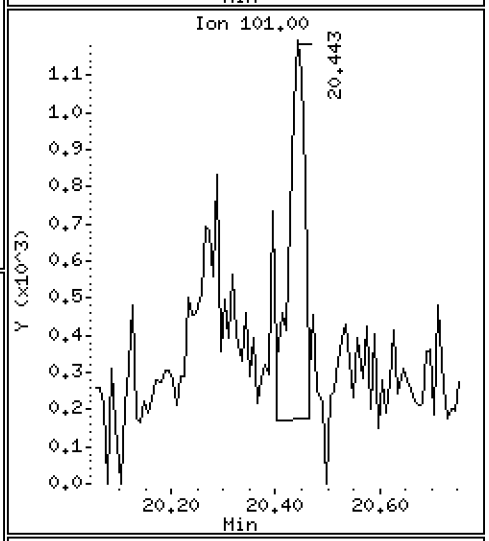


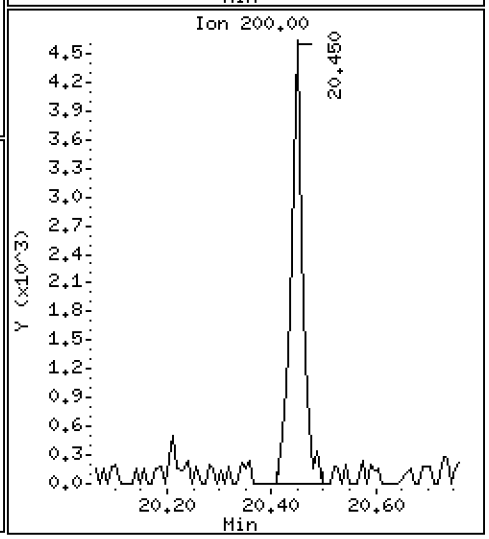












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

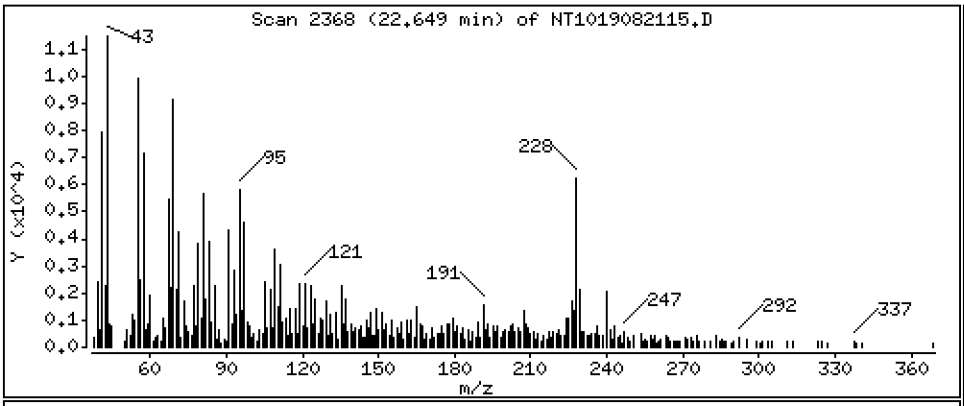
Operator: YZ

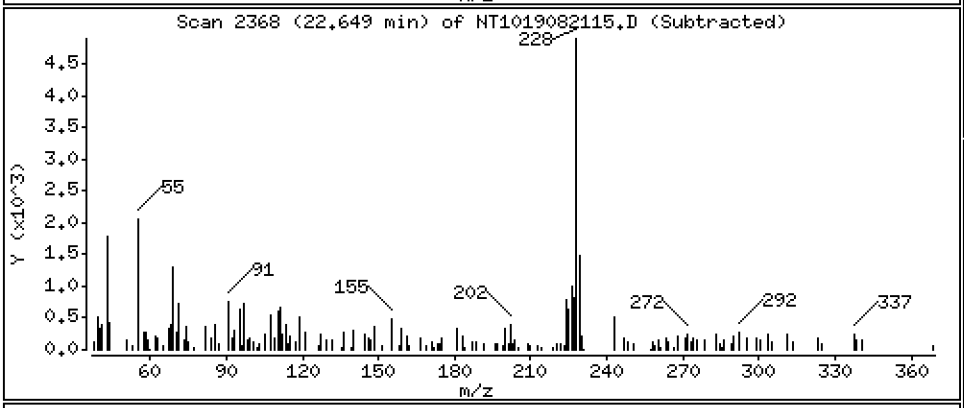
Column phase: ZB-5msi

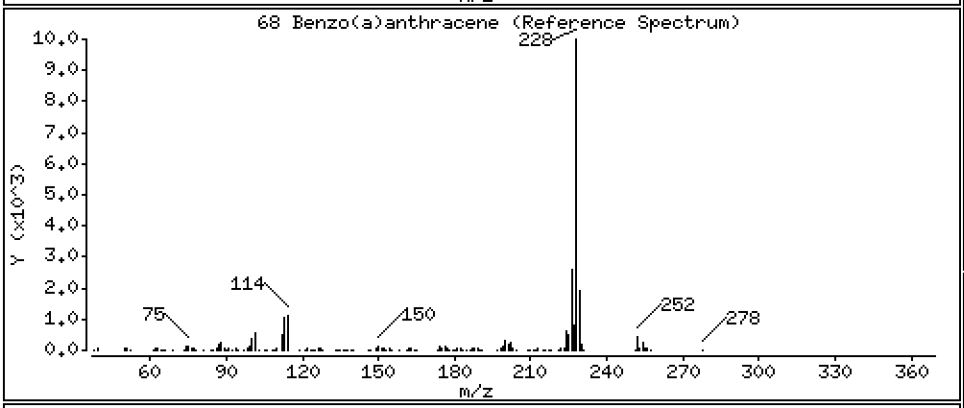
Column diameter: 0.25

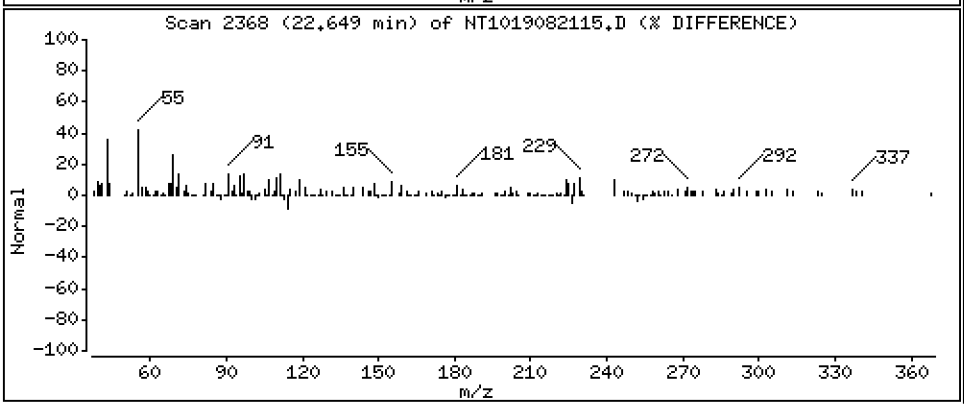
68 Benzo(a)anthracene

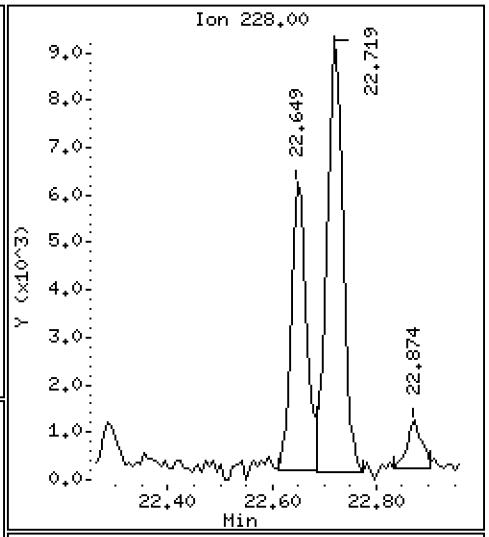
Concentration: 0.6948 ug/mL

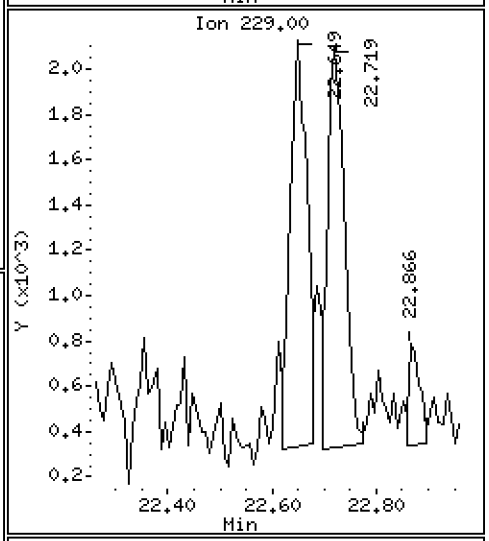


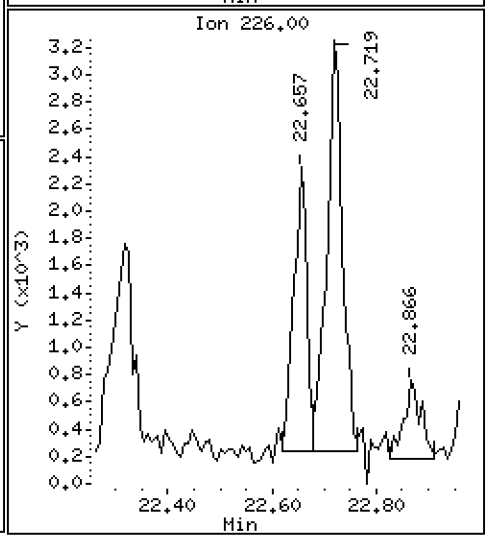












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

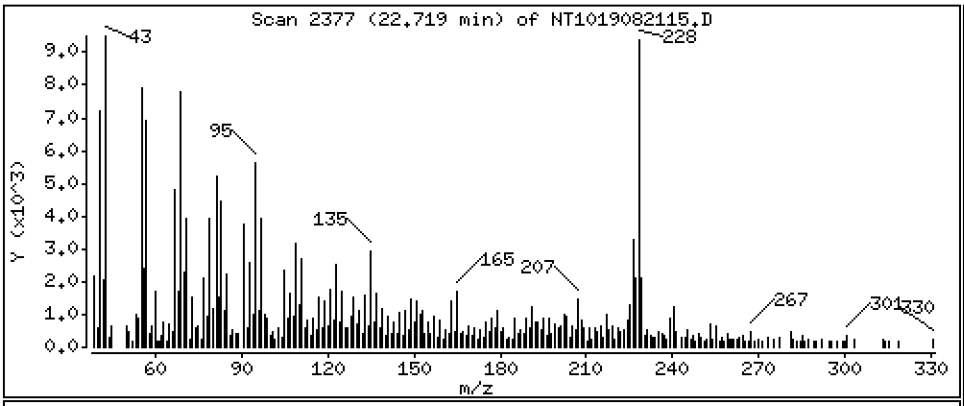
Operator: YZ

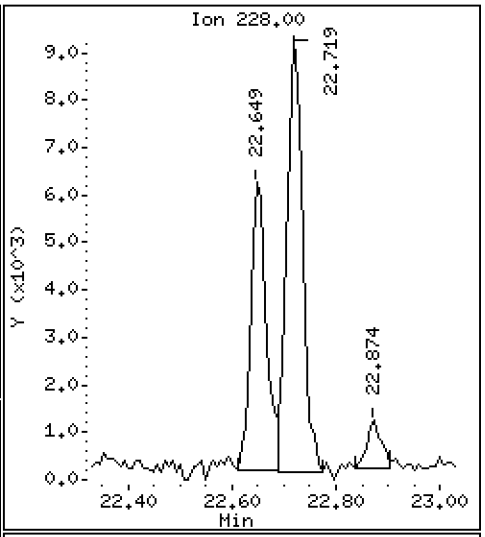
Column phase: ZB-5msi

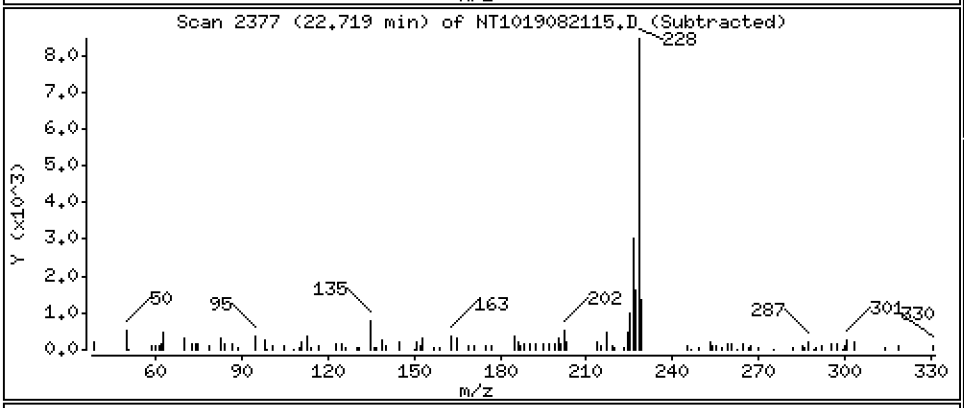
Column diameter: 0.25

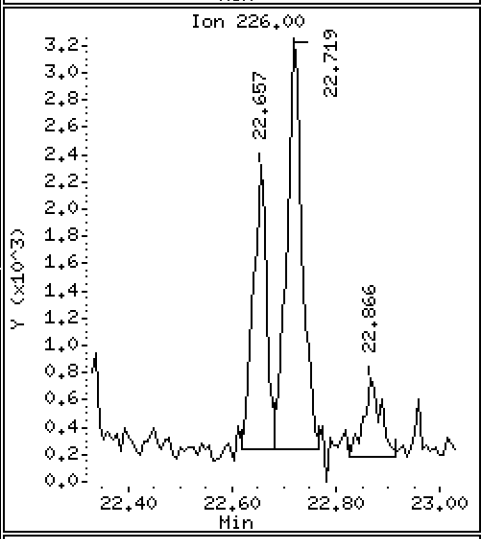
71 Chrysene

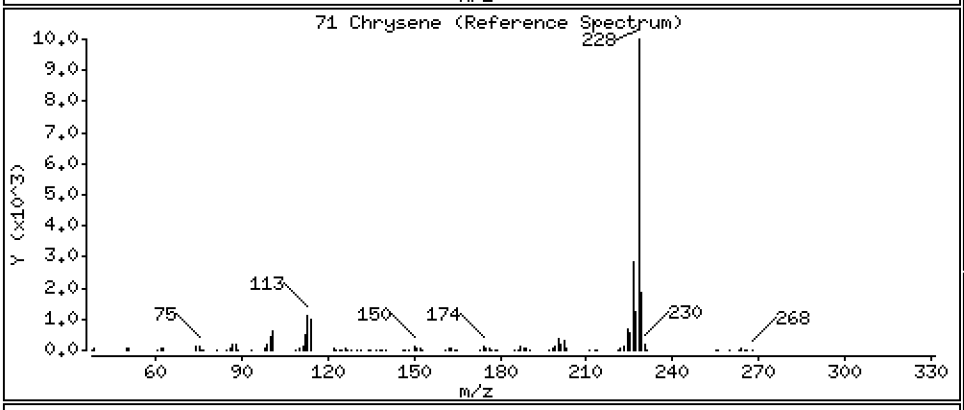
Concentration: 1.214 ug/mL

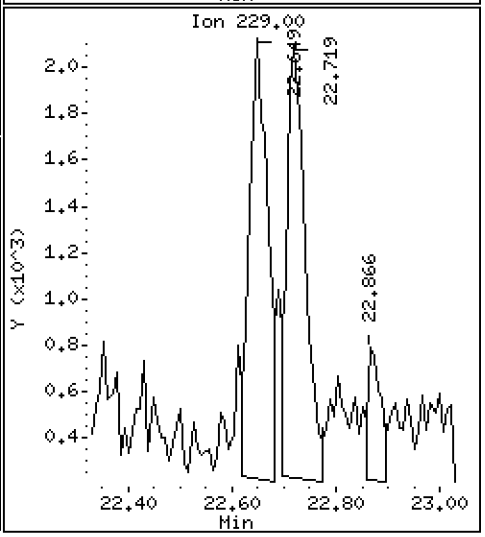


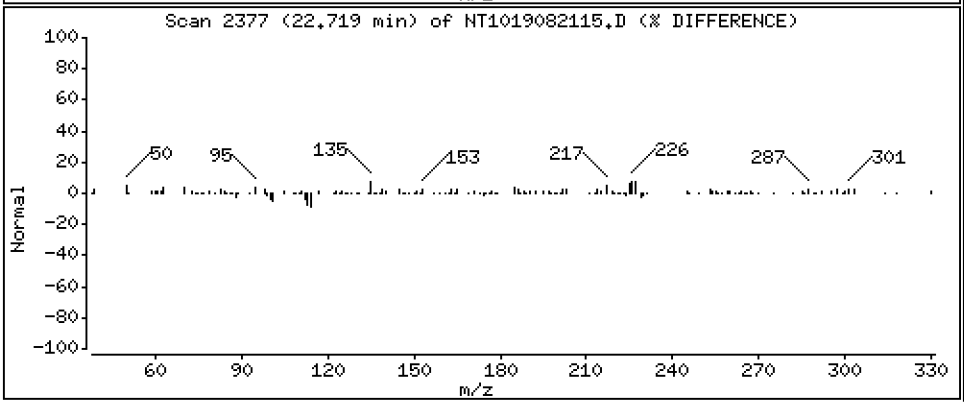












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

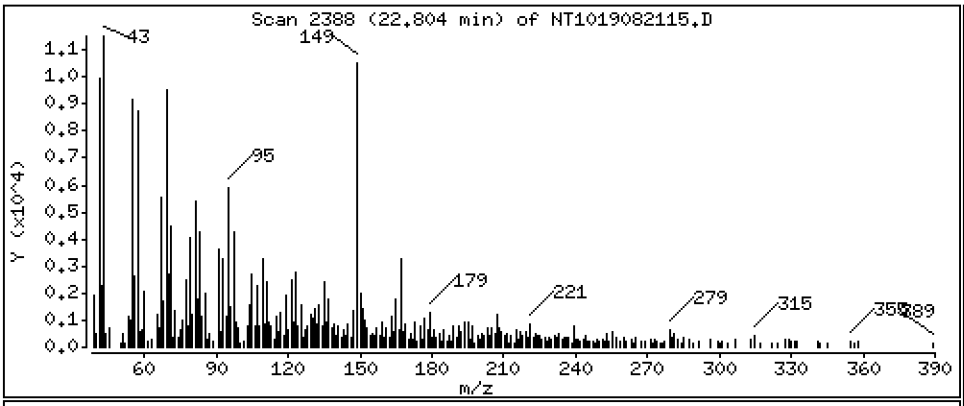
Operator: YZ

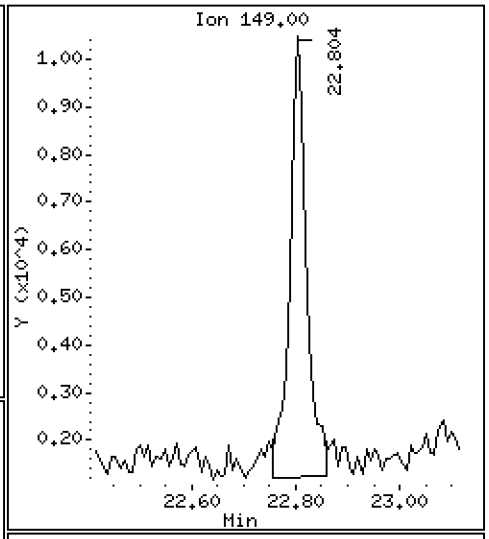
Column phase: ZB-5msi

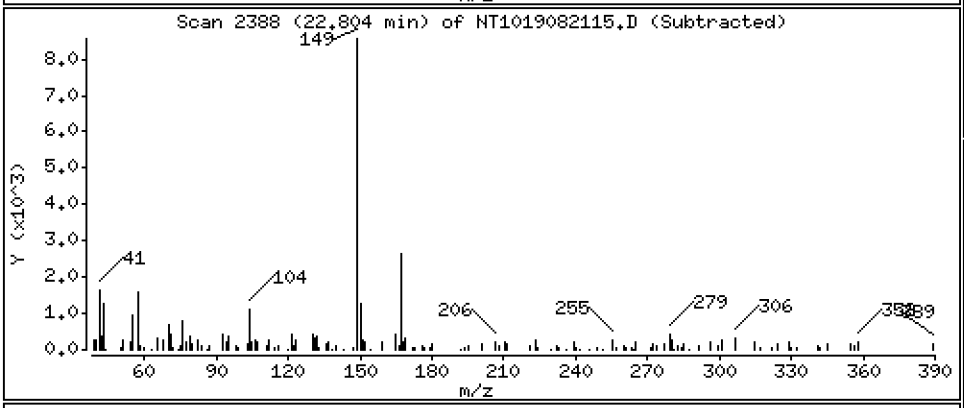
Column diameter: 0.25

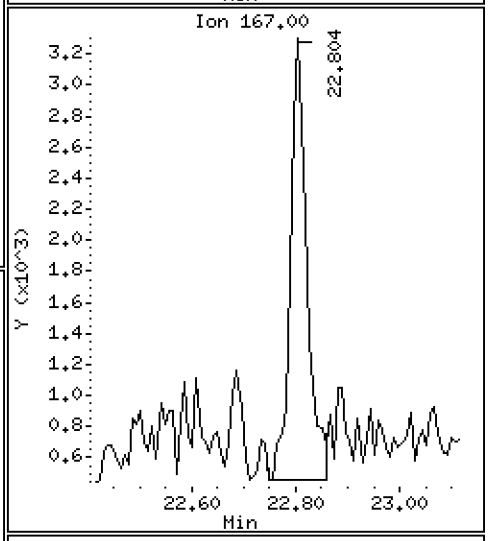
72 bis(2-Ethylhexyl)phthalate

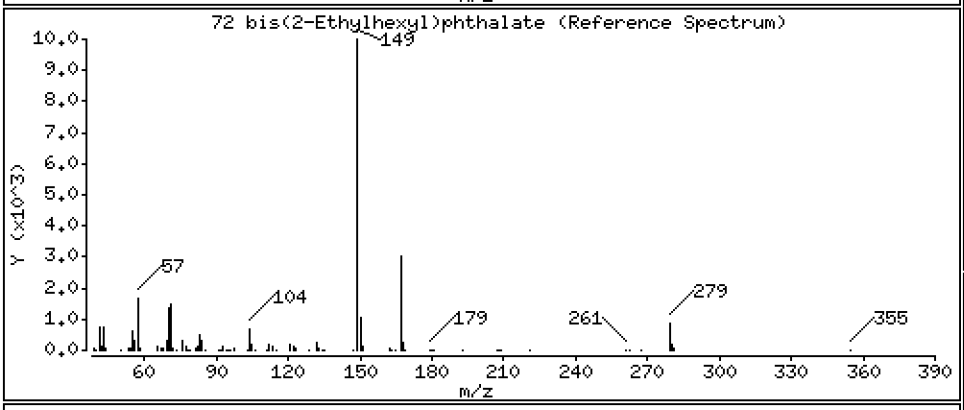
Concentration: 1.634 ug/mL

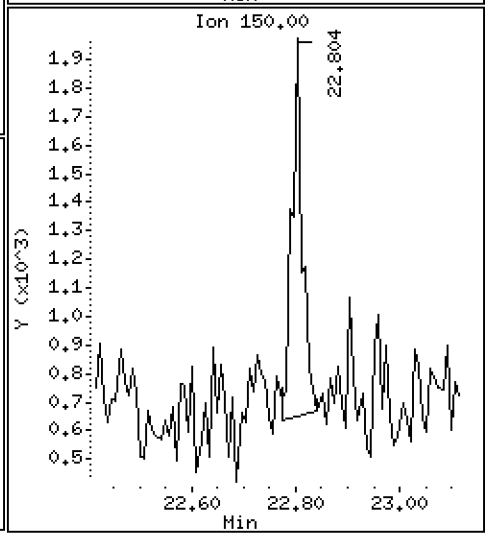


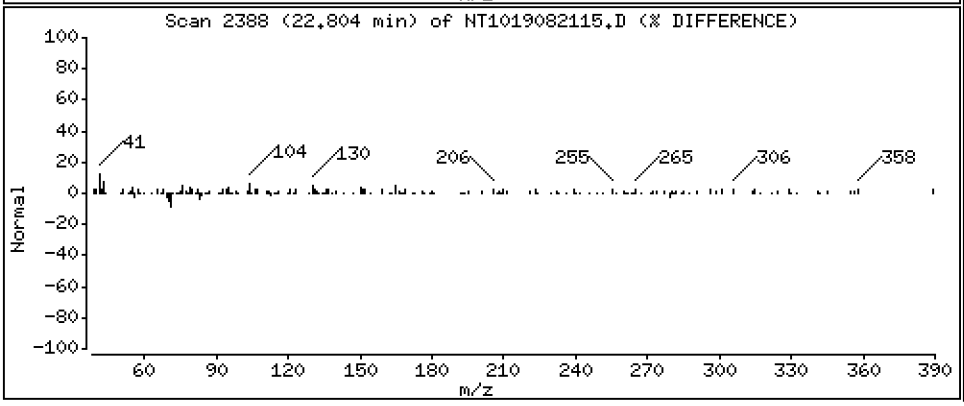












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

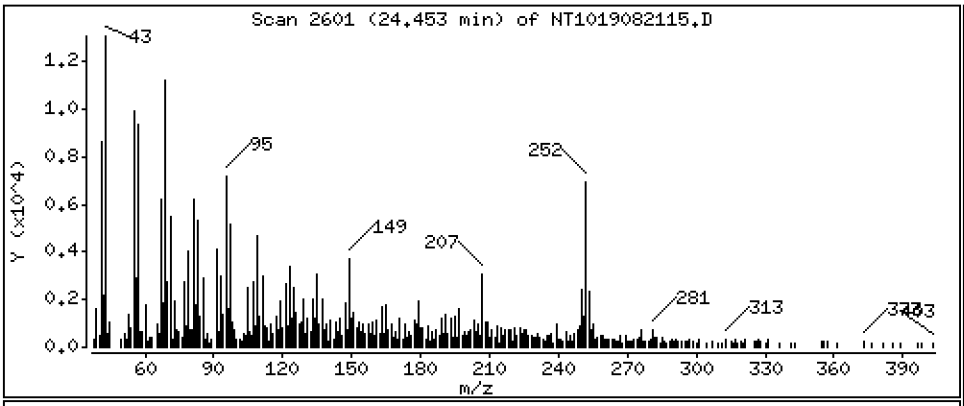
Operator: YZ

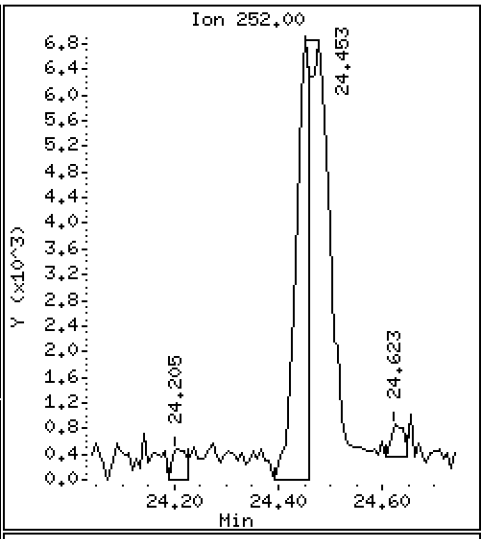
Column phase: ZB-5msi

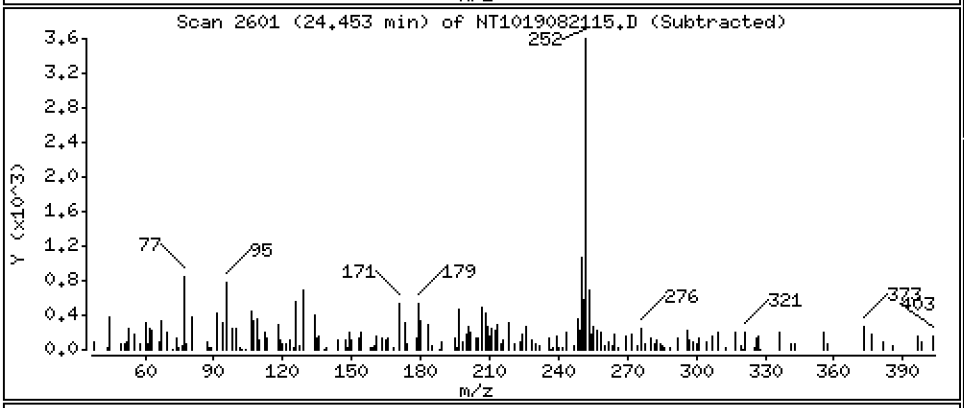
Column diameter: 0.25

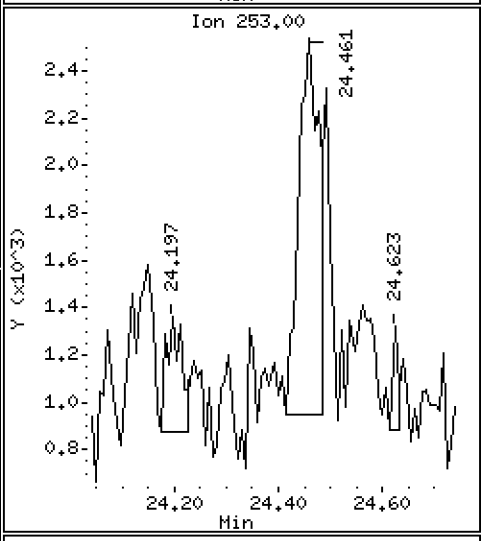
74 Benzo(b)fluoranthene

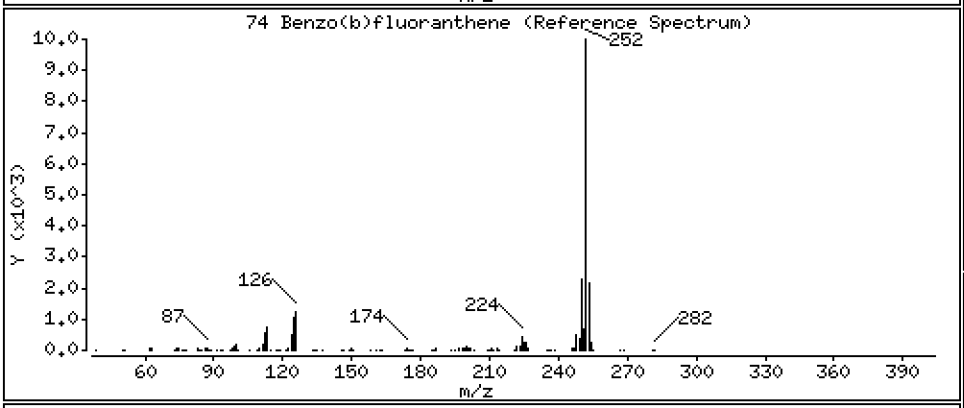
Concentration: 0.9026 ug/mL

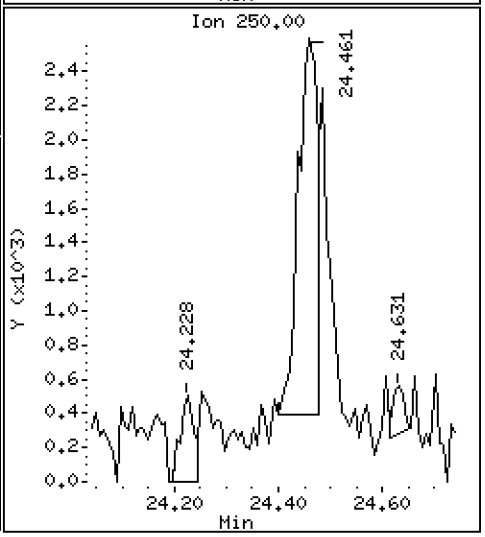


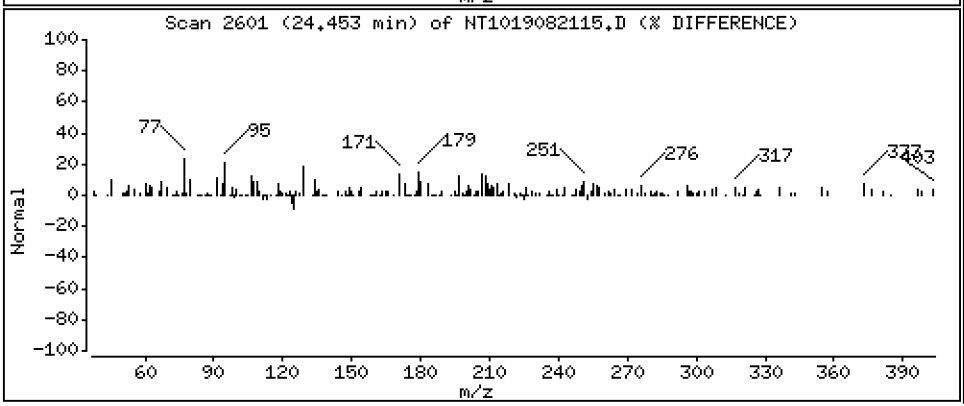












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

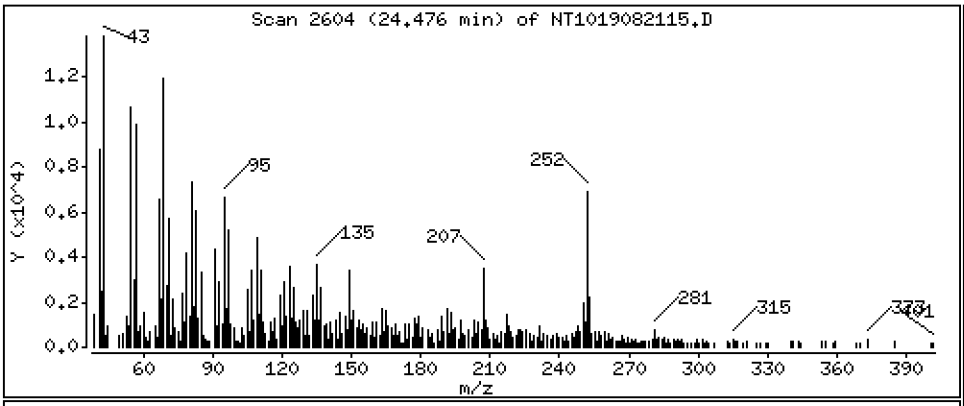
Operator: YZ

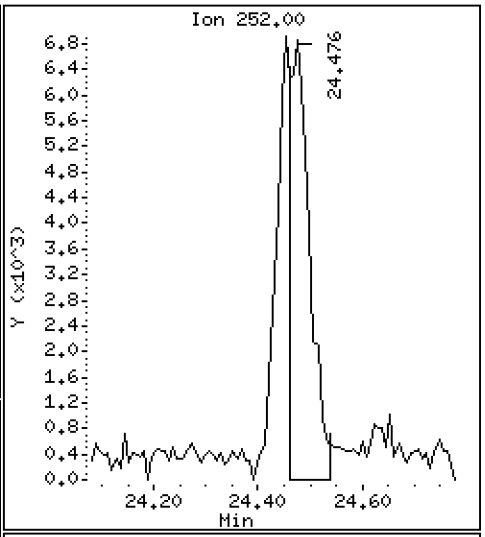
Column phase: ZB-5msi

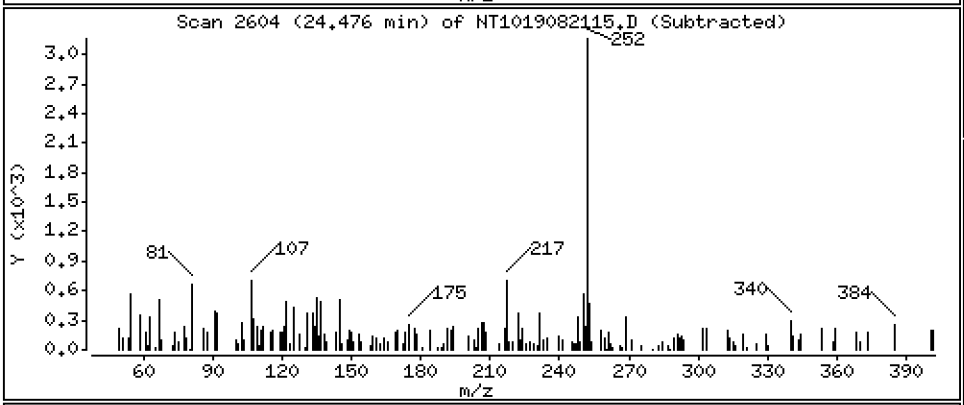
Column diameter: 0.25

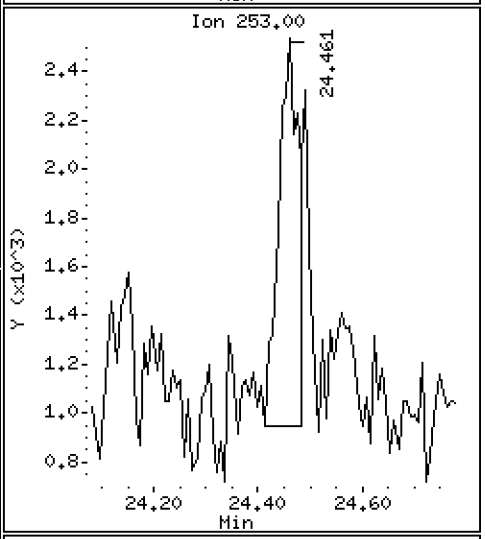
75 Benzo(k)fluoranthene

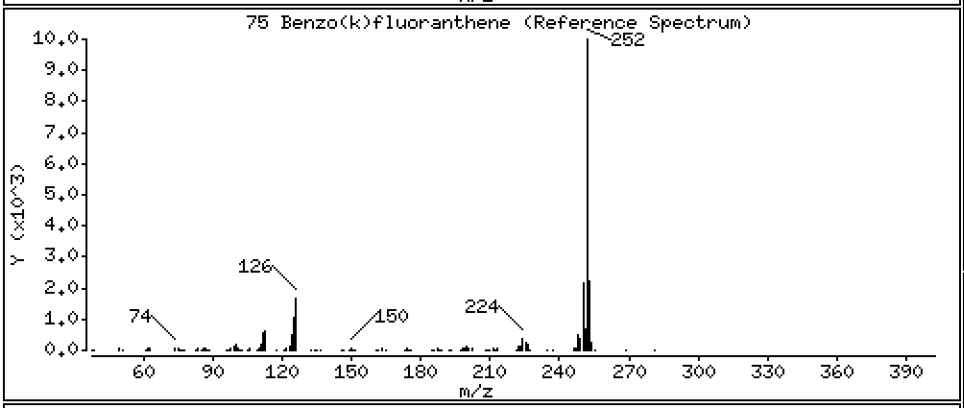
Concentration: 1.278 ug/mL

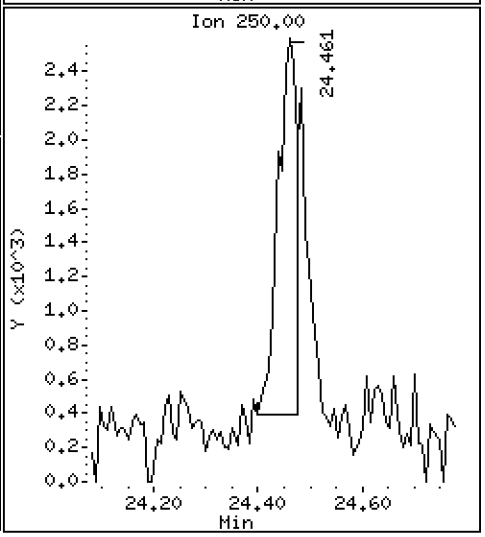


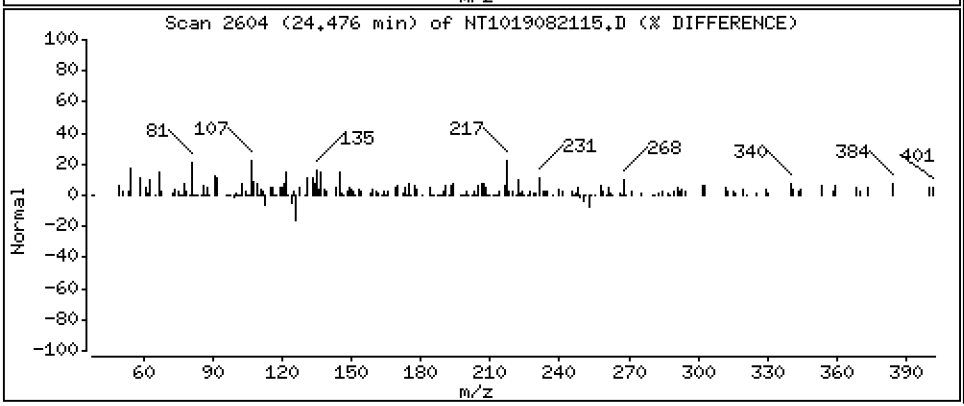












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

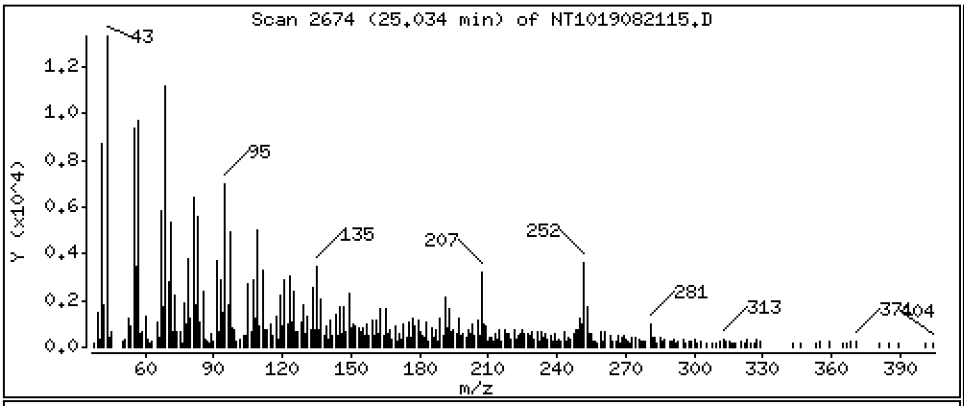
Operator: YZ

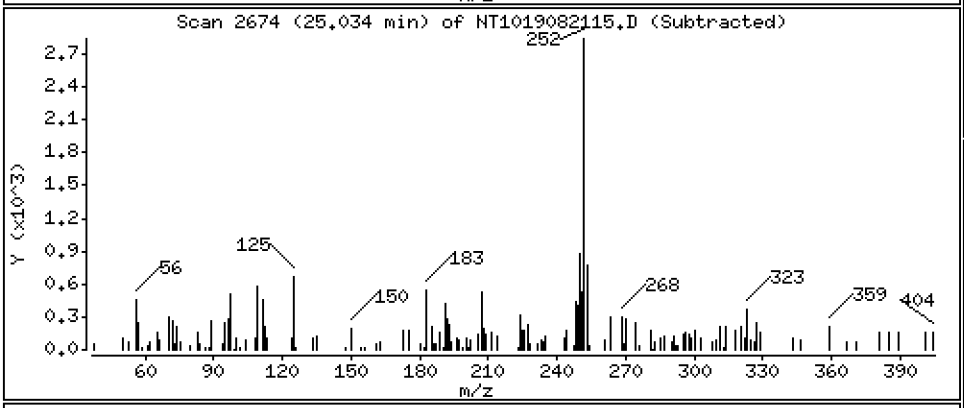
Column phase: ZB-5msi

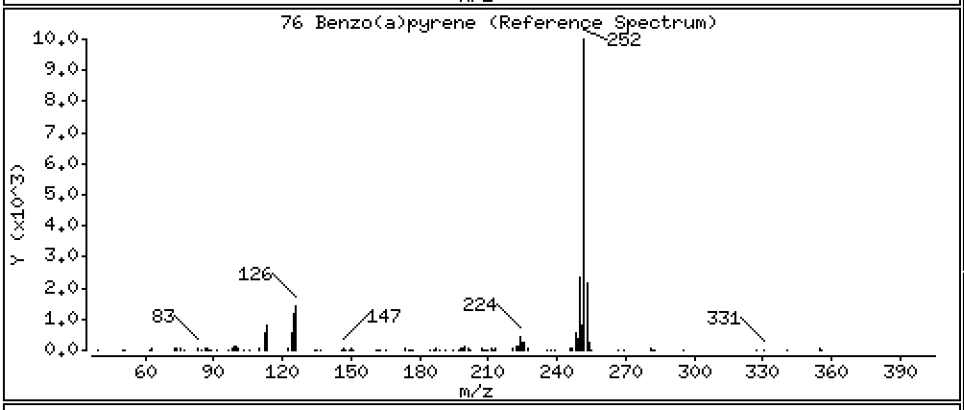
Column diameter: 0.25

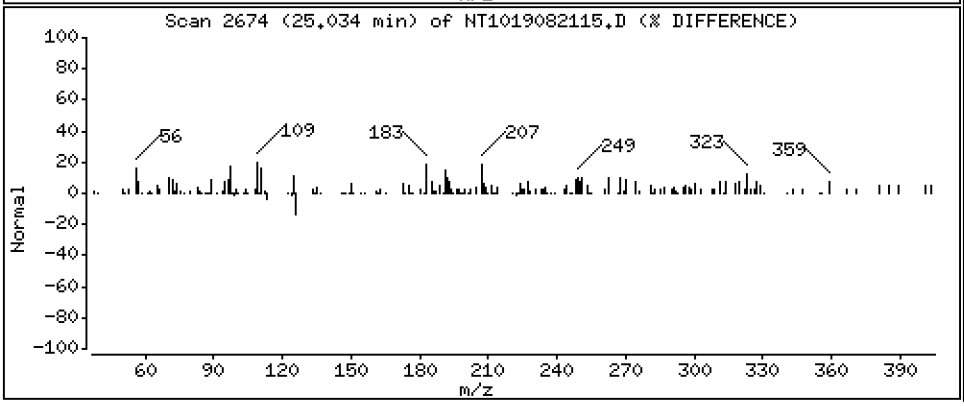
76 Benzo(a)pyrene

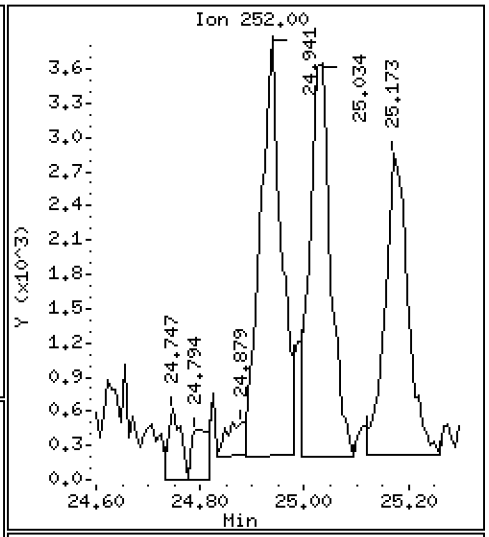
Concentration: 0.7256 ug/mL

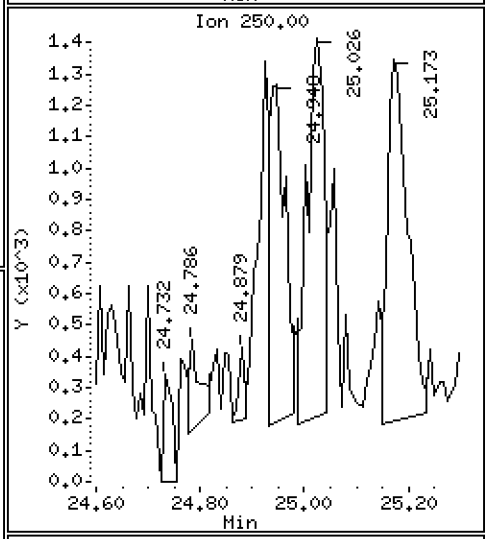


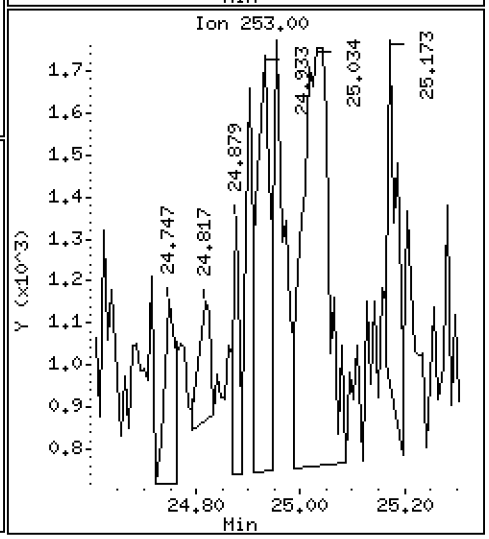












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

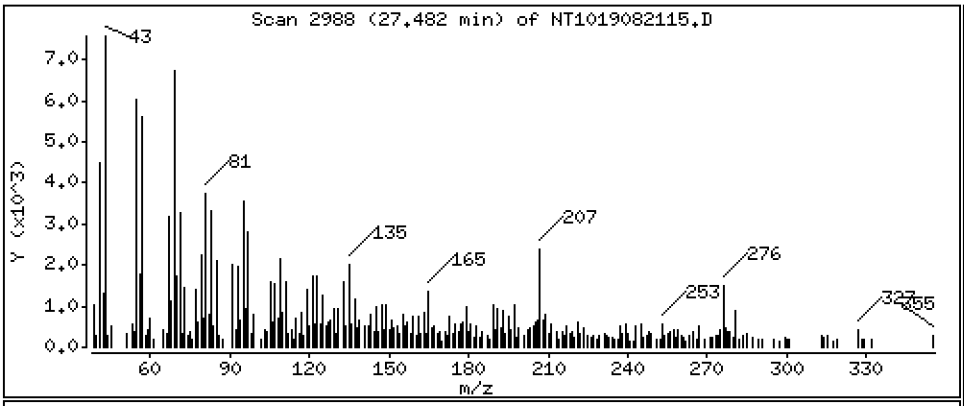
Operator: YZ

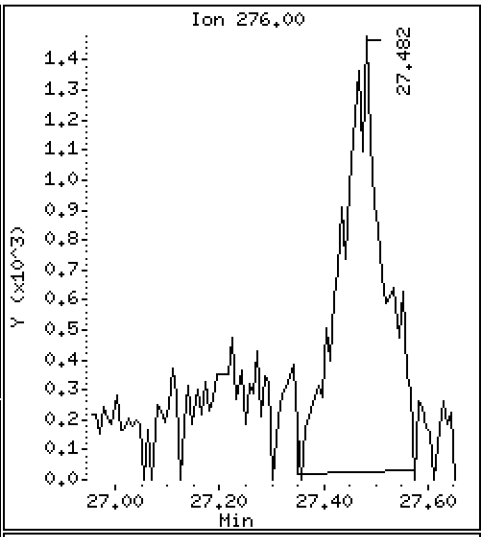
Column phase: ZB-5msi

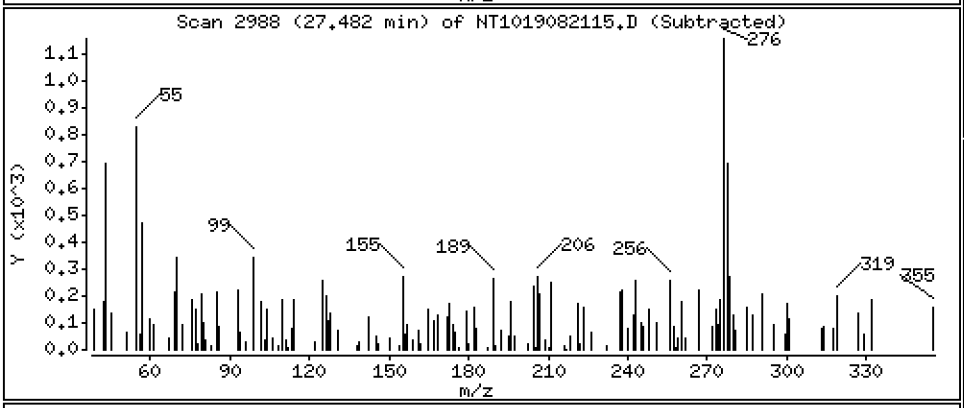
Column diameter: 0.25

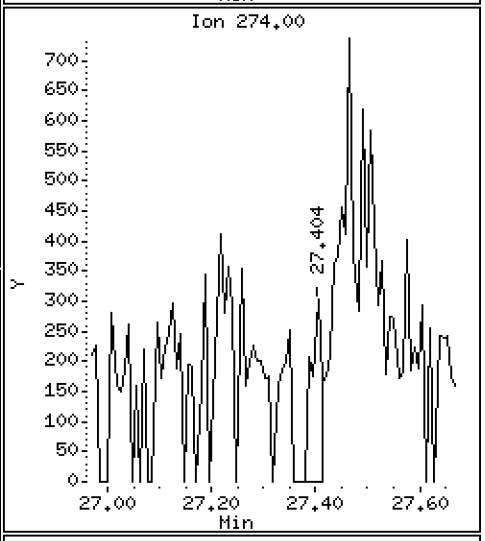
78 Indeno(1,2,3-cd)pyrene

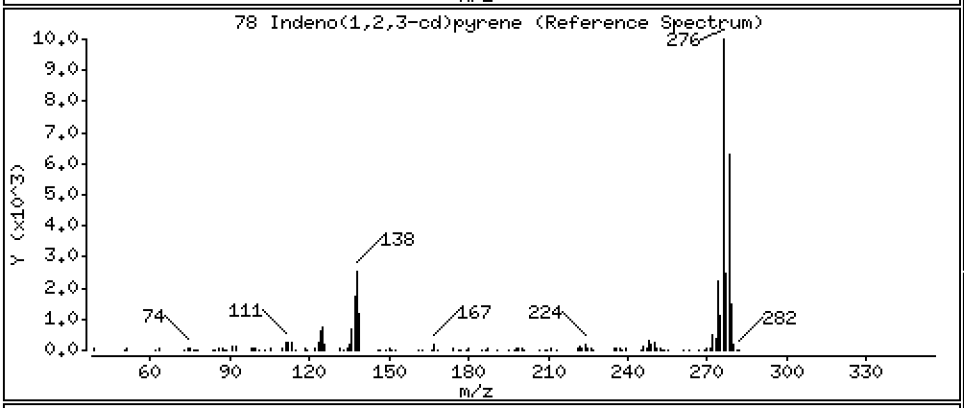
Concentration: 0.5168 ug/mL

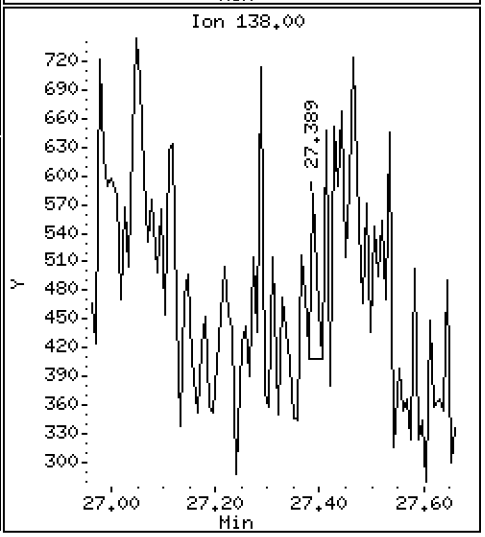


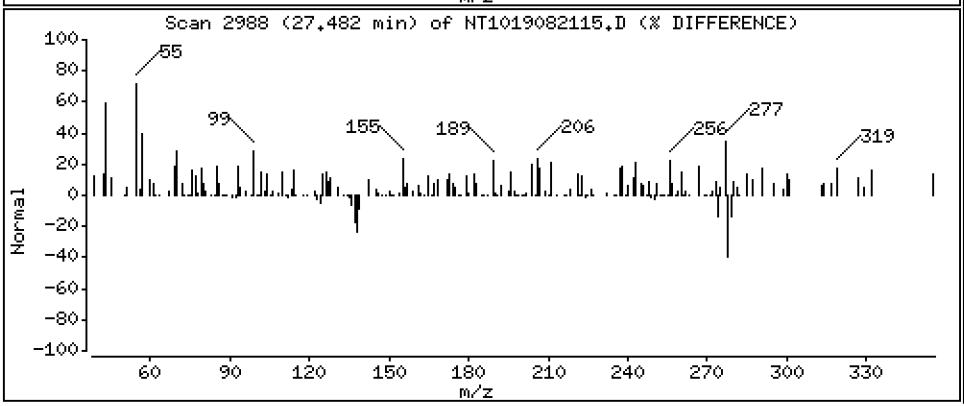












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

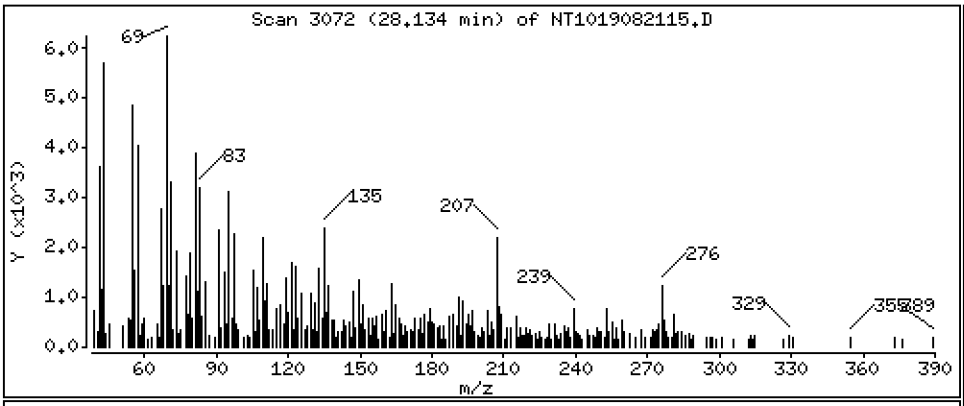
Operator: YZ

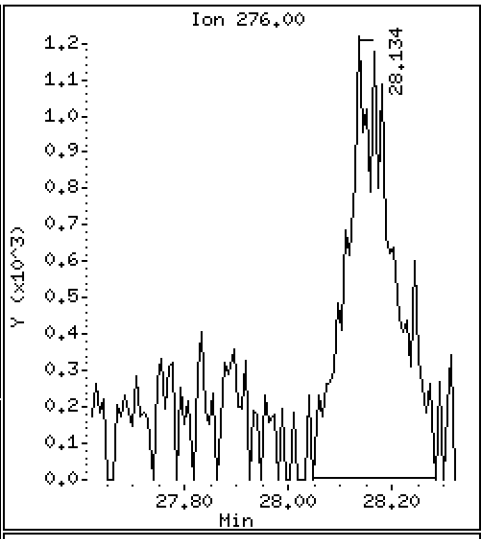
Column phase: ZB-5msi

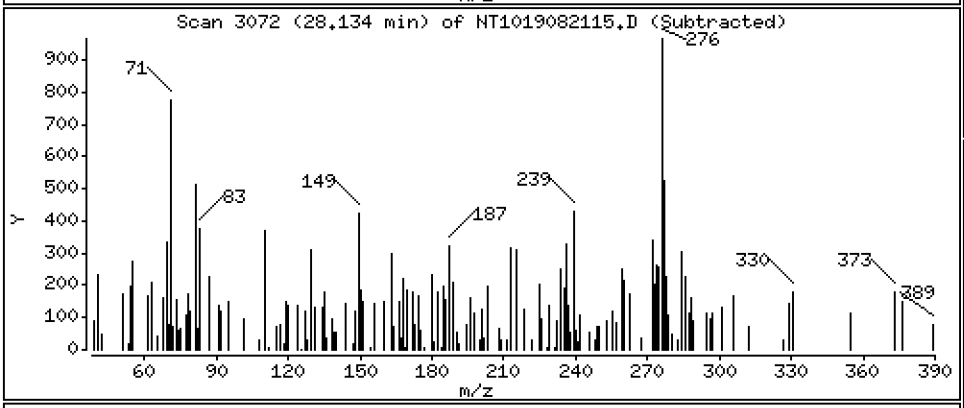
Column diameter: 0.25

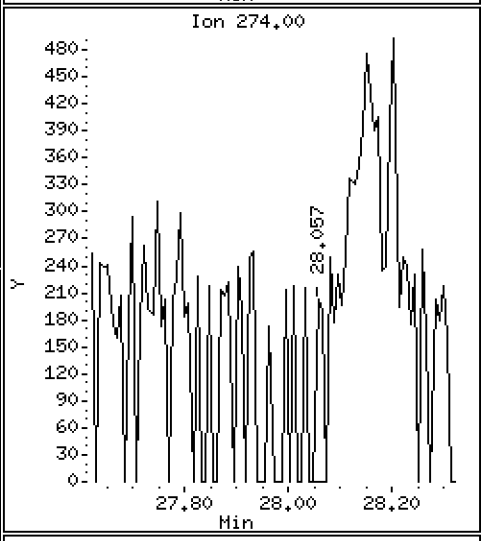
80 Benzo(g,h,i)perylene

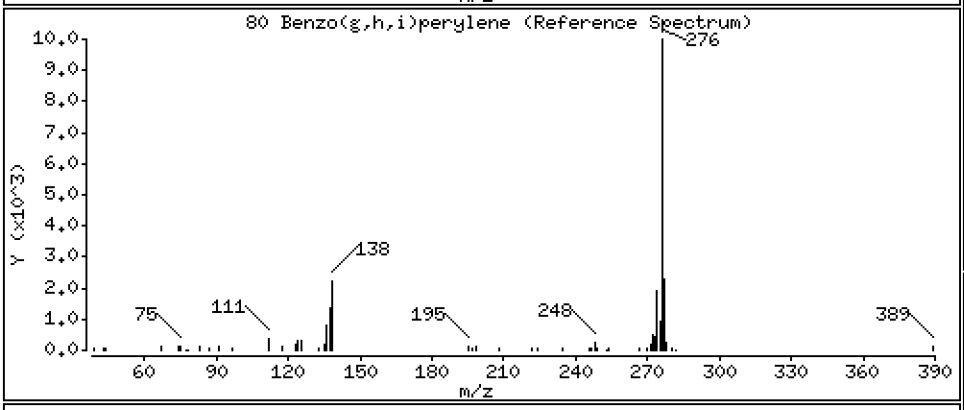
Concentration: 0.5646 ug/mL

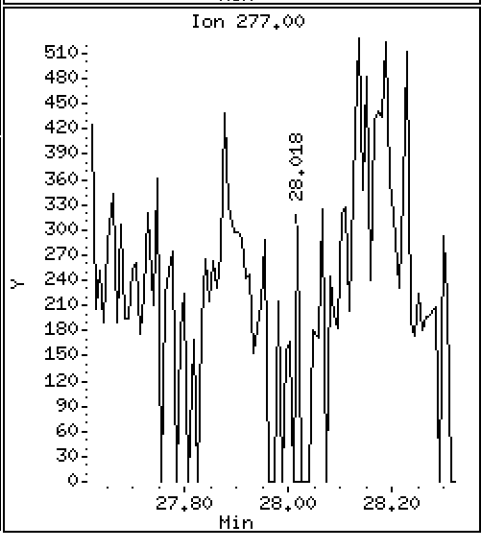


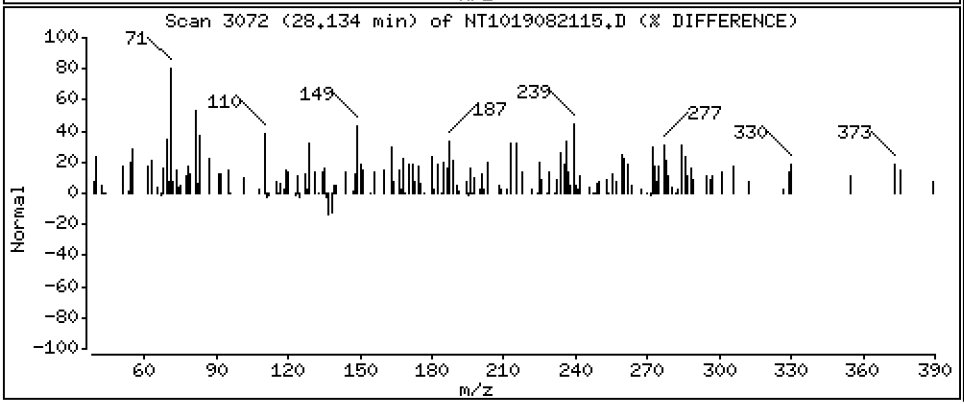












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

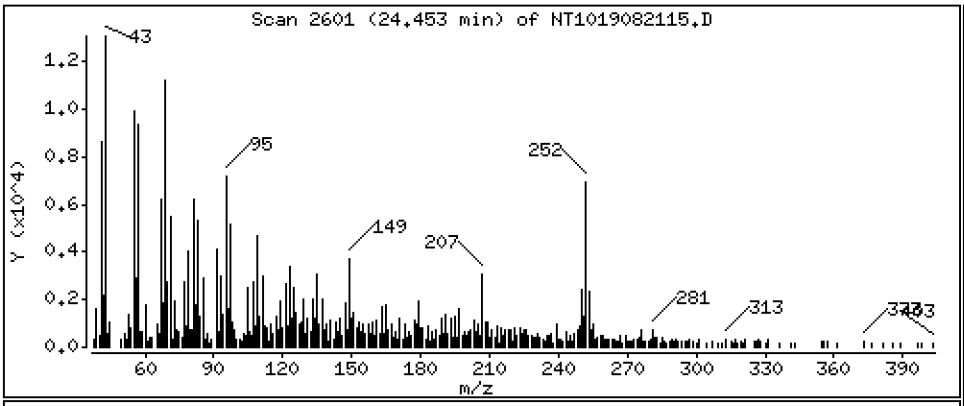
Operator: YZ

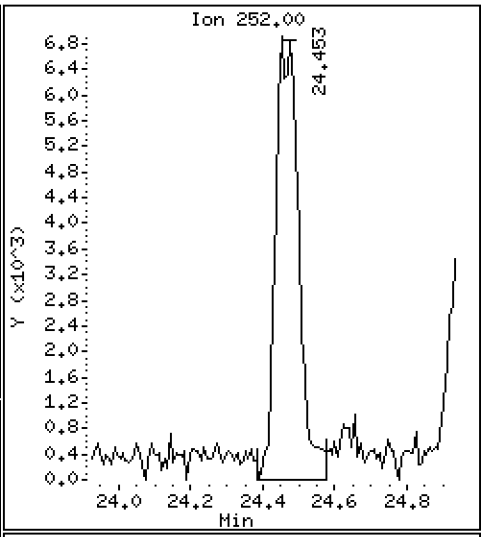
Column phase: ZB-5msi

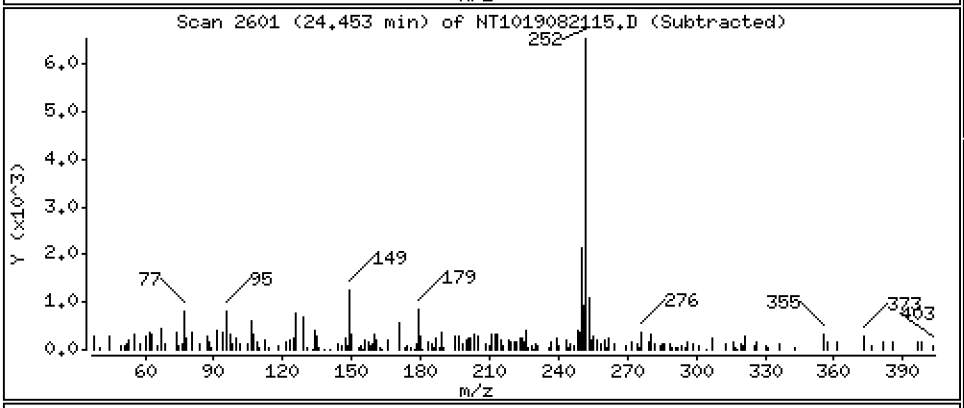
Column diameter: 0.25

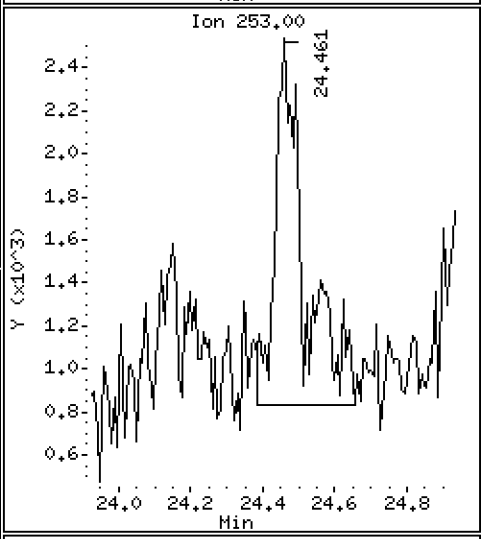
187 Total Benzofluoranthenes

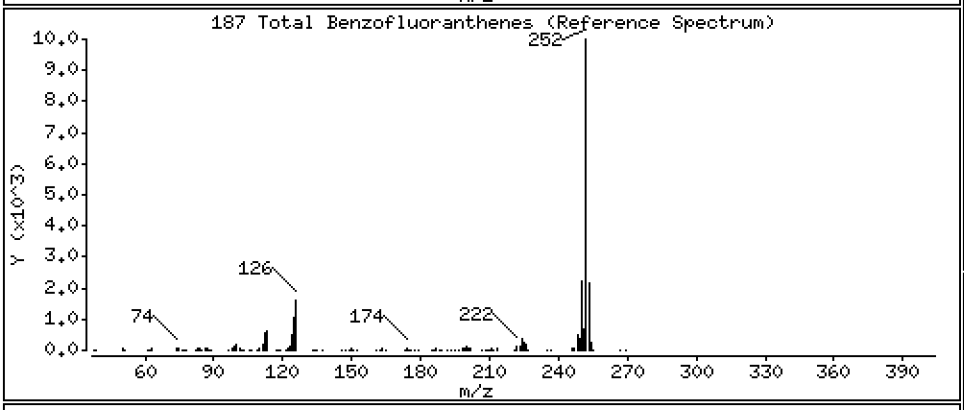
Concentration: 2.169 ug/mL

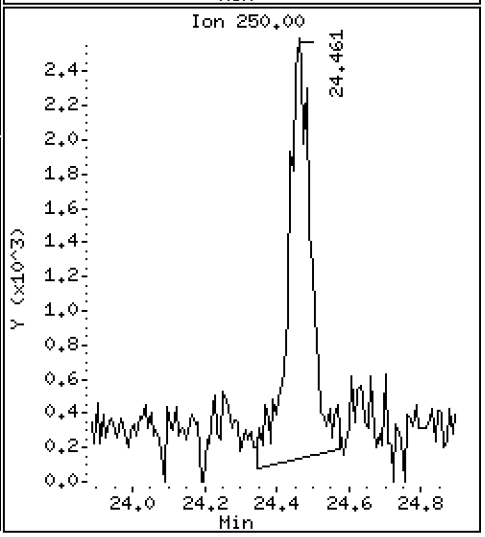


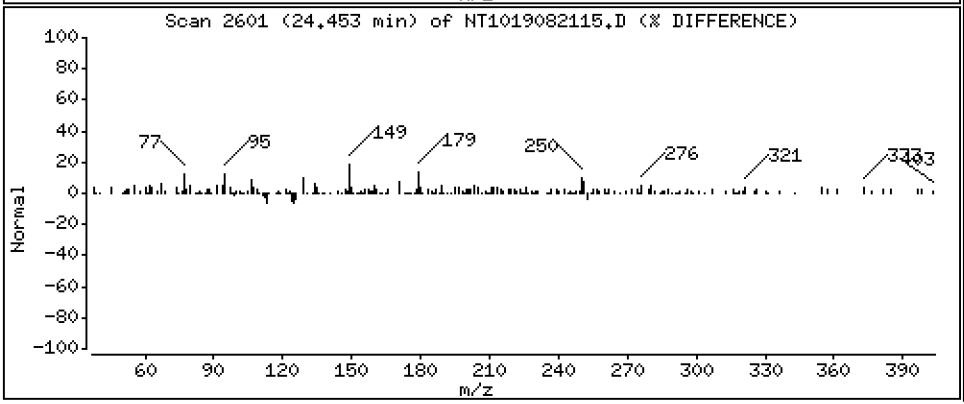












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06

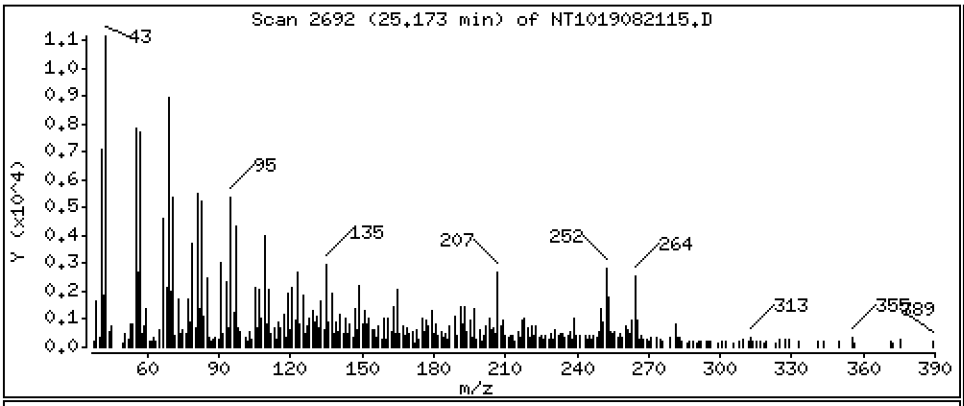
Operator: YZ

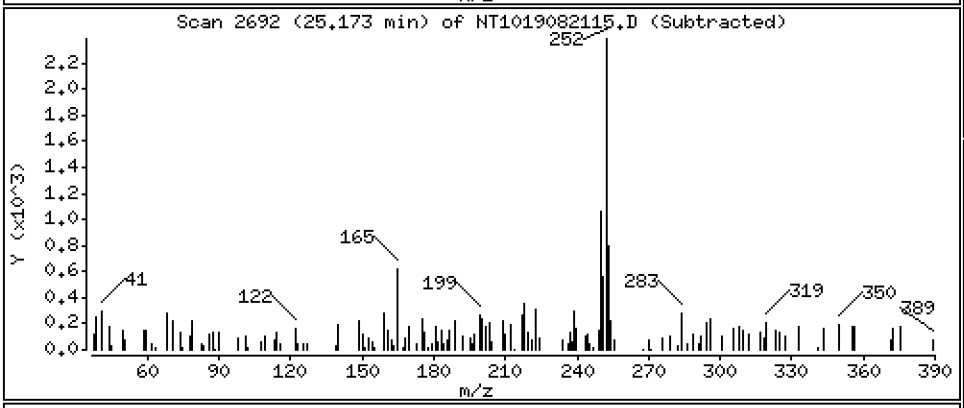
Column phase: ZB-5msi

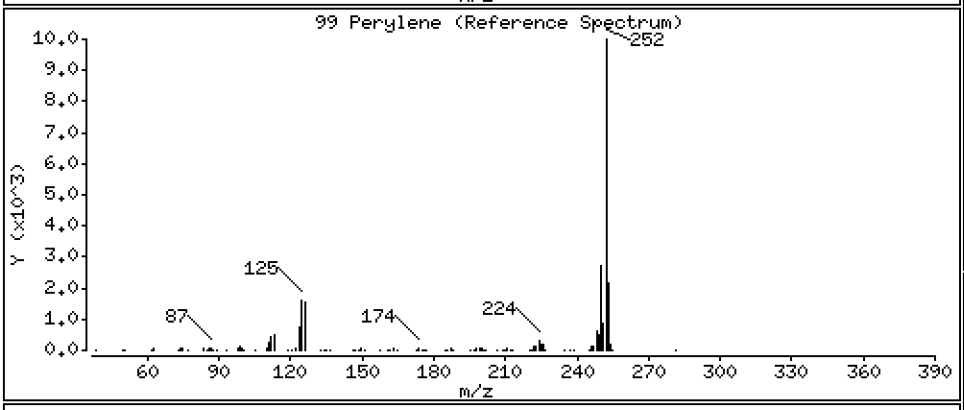
Column diameter: 0.25

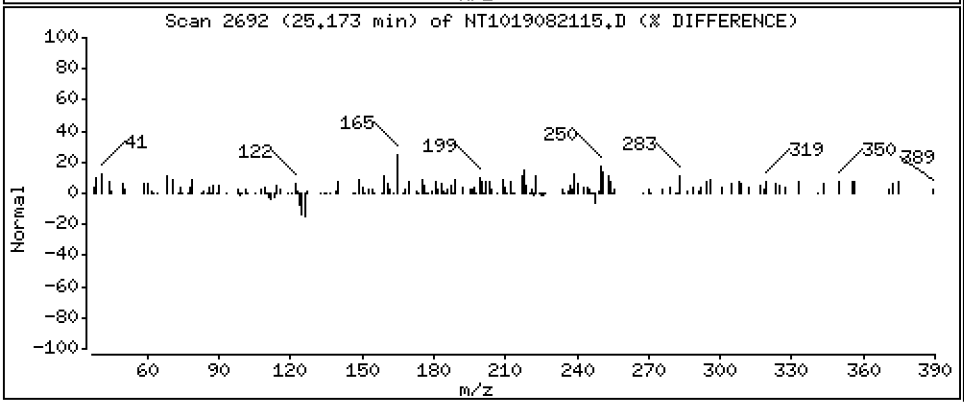
99 Perylene

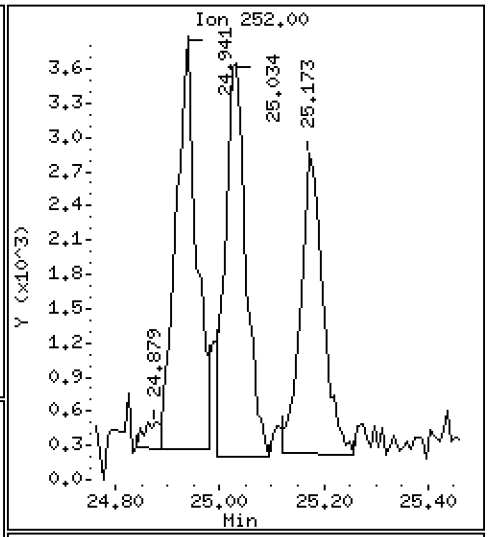
Concentration: 0.6469 ug/mL

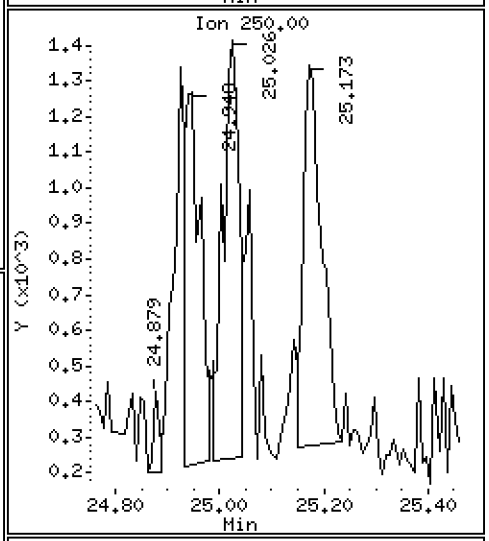


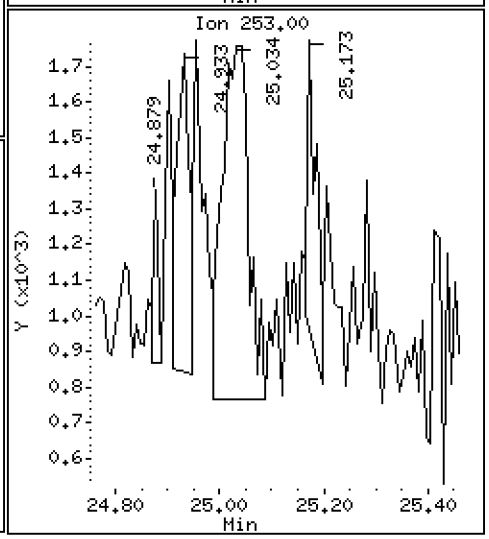












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082115.D

Date : 21-AUG-2019 18:53

Client ID:

Instrument: nt10.i

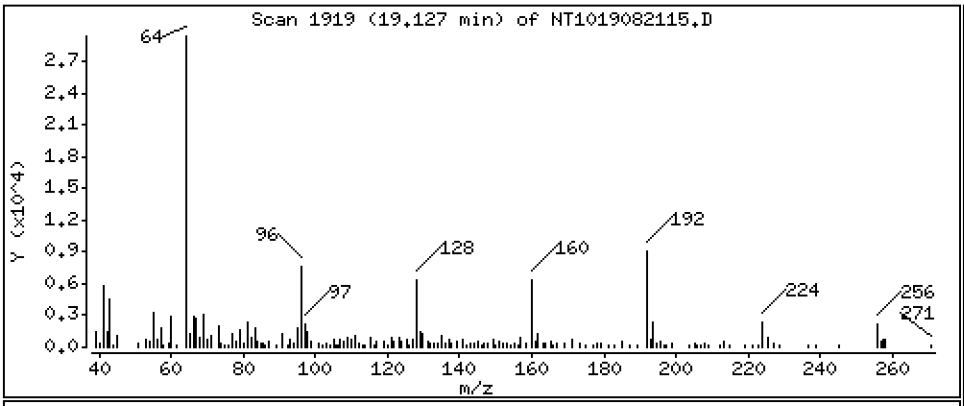
Sample Info: 19H0024-06

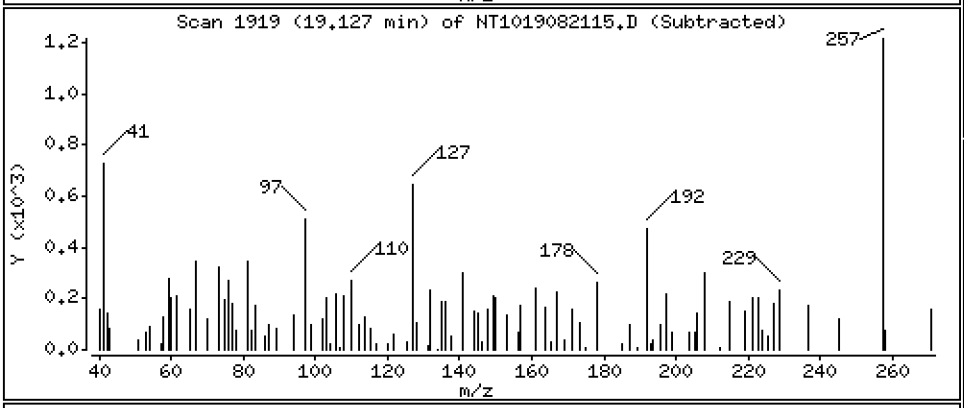
Operator: YZ

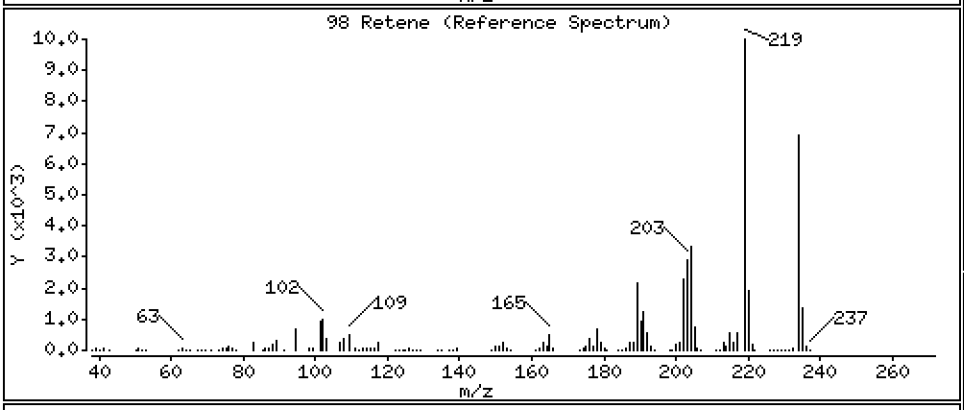
Column phase: ZB-5msi

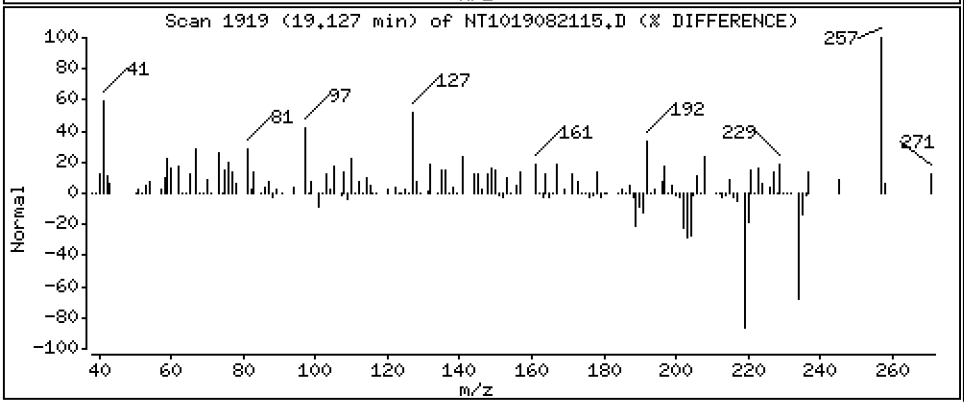
Column diameter: 0.25

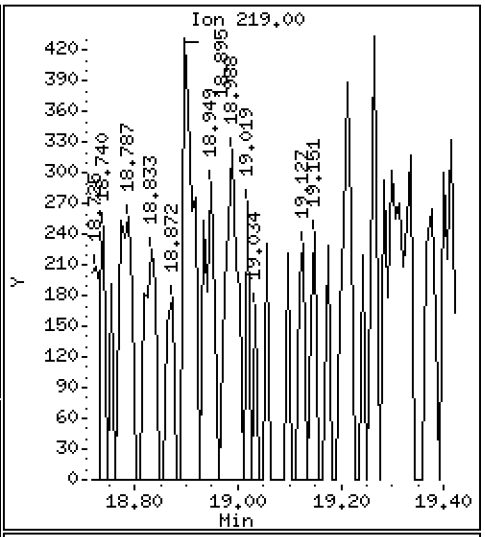
98 Retene

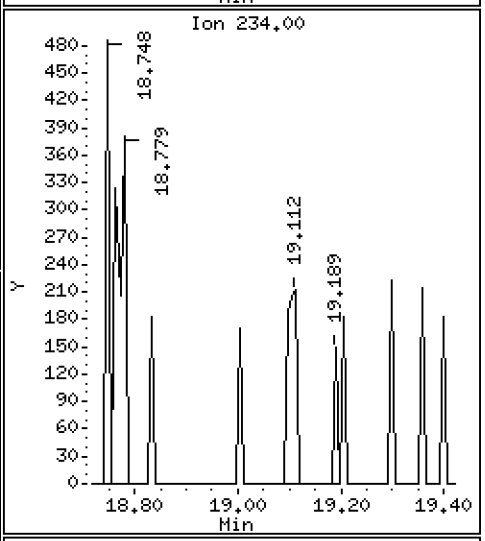


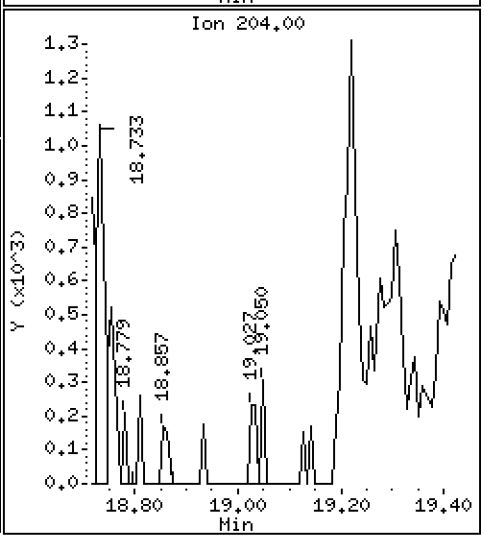












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

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Lab Smp Id: 19H0024-06
Inj Date : 21-AUG-2019 18:53
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-06
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 11
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.334	6.311	(0.747)	42992	3.97092	3.971
$	2 Phenol-d5	99	7.903	7.888	(0.932)	47271	3.89585	3.896
	3 Phenol	94	7.919	7.911	(0.933)	1883	0.16693	0.1669
$	5 2-Chlorophenol-d4	132	8.135	8.127	(0.959)	68411	5.23746	5.237
	4 Bis(2-Chloroethyl)ether	93	Compound Not Detected.					
	6 2-Chlorophenol	128	Compound Not Detected.					
	7 1,3-Dichlorobenzene	146	Compound Not Detected.					
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	38556	4.00000	
	9 1,4-Dichlorobenzene	146	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	152	8.840	8.832	(1.042)	30720	3.44000	3.440
	12 1,2-Dichlorobenzene	146	Compound Not Detected.					
	11 Benzyl alcohol	108	8.840	8.762	(1.042)	826	0.11064	0.1106
	14 2,2'-oxybis(1-Chloropropane)	121	Compound Not Detected.					
	13 2-Methylphenol	108	Compound Not Detected.					
	17 Hexachloroethane	117	Compound Not Detected.					
	16 N-Nitroso-di-n-propylamine	70	Compound Not Detected.					
	15 4-Methylphenol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.562	9.554	(0.875)	36184	3.23498	3.235
	19 Nitrobenzene	77	Compound Not Detected.					
	20 Isophorone	82	Compound Not Detected.					
	21 2-Nitrophenol	139	Compound Not Detected.					
	22 2,4-Dimethylphenol	107	Compound Not Detected.					
	23 Bis(2-Chloroethoxy)methane	93	Compound Not Detected.					
	24 Benzoic acid	105	Compound Not Detected.					
	25 2,4-Dichlorophenol	162	Compound Not Detected.					
	26 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.929	10.929	(1.000)	143014	4.00000	
	28 Naphthalene	128	10.968	10.968	(1.004)	2368	0.07203	0.07203
	29 4-Chloroaniline	127	Compound Not Detected.					
	30 Hexachlorobutadiene	225	Compound Not Detected.					
	31 4-Chloro-3-methylphenol	107	Compound Not Detected.					
	32 2-Methylnaphthalene	142	12.360	12.353	(1.131)	1466	0.05258	0.05258
	33 Hexachlorocyclopentadiene	237	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	Compound Not Detected.					
	35	2,4,5-Trichlorophenol	196	Compound Not Detected.					
$	36	2-Fluorobiphenyl	172	13.150	13.142	(0.906)	113923	4.11092	4.111
	37	2-Chloronaphthalene	162	Compound Not Detected.					
	38	2-Nitroaniline	65	Compound Not Detected.					
	39	Dimethylphthalate	163	14.055	14.055	(0.968)	2406	0.08936	0.08936
	40	Acenaphthylene	152	14.202	14.195	(0.978)	2036	0.05830	0.05830
	41	2,6-Dinitrotoluene	165	Compound Not Detected.					
*	42	Acenaphthene-d10	164	14.520	14.512	(1.000)	72452	4.00000	
	43	3-Nitroaniline	138	Compound Not Detected.					
	44	Acenaphthene	153	14.589	14.574	(1.005)	1002	0.04566	0.04566
	45	2,4-Dinitrophenol	184	Compound Not Detected.					
	46	Dibenzofuran	168	14.906	14.898	(1.027)	2176	0.06033	0.06033
	47	4-Nitrophenol	109	Compound Not Detected.					
	48	2,4-Dinitrotoluene	165	Compound Not Detected.					
	50	Diethylphthalate	149	15.517	15.517	(1.069)	2603	0.10041	0.1004
	49	Fluorene	166	15.617	15.610	(1.076)	1839	0.07456	0.07456
	51	4-Chlorophenyl-phenylether	204	Compound Not Detected.					
	52	4-Nitroaniline	138	Compound Not Detected.					
	53	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.					
	54	N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55	2,4,6-Tribromophenol	330	16.158	16.142	(1.113)	34232	6.24853	6.249
	56	4-Bromophenyl-phenylether	248	Compound Not Detected.					
	57	Hexachlorobenzene	284	Compound Not Detected.					
	58	Pentachlorophenol	266	Compound Not Detected.					
*	59	Phenanthrene-d10	188	17.541	17.525	(1.000)	126070	4.00000	
	60	Phenanthrene	178	17.587	17.572	(1.003)	14484	0.47034	0.4703
	61	Anthracene	178	17.680	17.665	(1.008)	6623	0.21181	0.2118
	62	Carbazole	167	18.044	18.012	(1.029)	3608	0.12262	0.1226
	63	Di-n-butylphthalate	149	Compound Not Detected.					
	64	Fluoranthene	202	20.024	19.993	(0.883)	35200	1.76612	1.766
	65	Pyrene	202	20.450	20.411	(0.902)	32158	1.54514	1.545
$	66	Terphenyl-d14	244	20.783	20.744	(0.916)	76930	5.45032	5.450
	67	Butylbenzylphthalate	149	Compound Not Detected.					
	68	Benzo(a)anthracene	228	22.649	22.610	(0.999)	13148	0.69482	0.6948
*	69	Chrysene-d12	240	22.680	22.633	(1.000)	65220	4.00000	
	70	3,3'-Dichlorobenzidine	252	Compound Not Detected.					
	71	Chrysene	228	22.718	22.680	(1.002)	20332	1.21426	1.214
	72	bis(2-Ethylhexyl)phthalate	149	22.803	22.765	(0.958)	21254	1.63450	1.634
*	134	Di-n-octylphthalate-d4	153	23.794	23.756	(1.000)	147842	4.00000	
	73	Di-n-octylphthalate	149	Compound Not Detected.					
	74	Benzo(b)fluoranthene	252	24.452	24.390	(0.973)	13356	0.90264	0.9026
	75	Benzo(k)fluoranthene	252	24.476	24.429	(0.974)	19026	1.27813	1.278(M)
	76	Benzo(a)pyrene	252	25.033	24.948	(0.996)	9636	0.72562	0.7256
*	77	Perylene-d12	264	25.126	25.056	(1.000)	51573	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	27.481	27.303	(1.094)	8246	0.51679	0.5168(M)
	79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	80	Benzo(g,h,i)perylene	276	28.134	27.971	(1.120)	7587	0.56455	0.5646(M)
	90	N-Nitrosodimethylamine	74	Compound Not Detected.					
	91	Aniline	93	Compound Not Detected.					
	93	Benzidine	184	Compound Not Detected.					
	103	Pyridine	79	Compound Not Detected.					
	105	1-methylnaphthalene	142	Compound Not Detected.					
	111	Azobenzene (1,2-DP-Hydrazine)	77	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
187	Total Benzofluoranthenes	252	24.452	24.429	(0.973)	30778	2.16854	2.169(M)
99	Perylene	252	25.173	25.110	(1.002)	7903	0.64694	0.6469
98	Retene	219	19.127	19.071	(0.843)	197		
120	2,3,4,6-Tetrachlorophenol	232	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082115.D
Lab Smp Id: 19H0024-06
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	38556	17.77
27 Naphthalene-d8	117487	58744	234974	143014	21.73
42 Acenaphthene-d10	61859	30930	123718	72452	17.12
59 Phenanthrene-d10	113574	56787	227148	126070	11.00
69 Chrysene-d12	105788	52894	211576	65220	-38.35
134 Di-n-octylphthala	252823	126412	505646	147842	-41.52
77 Perylene-d12	113992	56996	227984	51573	-54.76 <-

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.52	0.05
59 Phenanthrene-d10	17.53	17.03	18.03	17.54	0.09
69 Chrysene-d12	22.63	22.13	23.13	22.68	0.21
134 Di-n-octylphthala	23.76	23.26	24.26	23.79	0.16
77 Perylene-d12	25.06	24.56	25.56	25.13	0.28

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082115.D

Lab ID: 19H0024-06
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 18:53

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.000	1.130	-0.1302	2-Methylnaphthalene
1.042	1.004	0.0378	Acenaphthene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate
1.131	1.091	0.0400	Dibenzo(a,h)anthracene
0.978	1.000	-0.0219	Acenaphthene-d10
0.968	1.000	-0.0320	Phenanthrene-d10
1.027	0.930	0.0968	Phenol-d5
1.076	0.906	0.1700	2-Fluorobiphenyl
1.069	0.917	0.1522	Terphenyl-d14

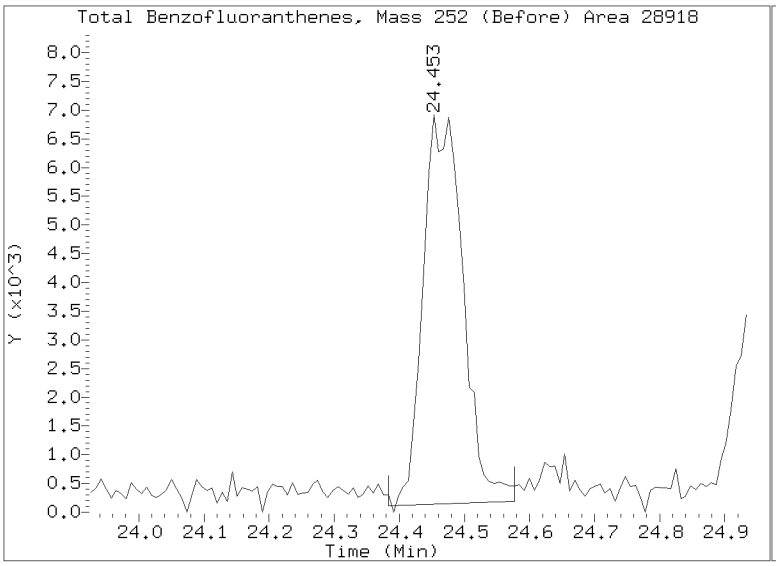
RRT check based on Ccal File: NT1019082105.D

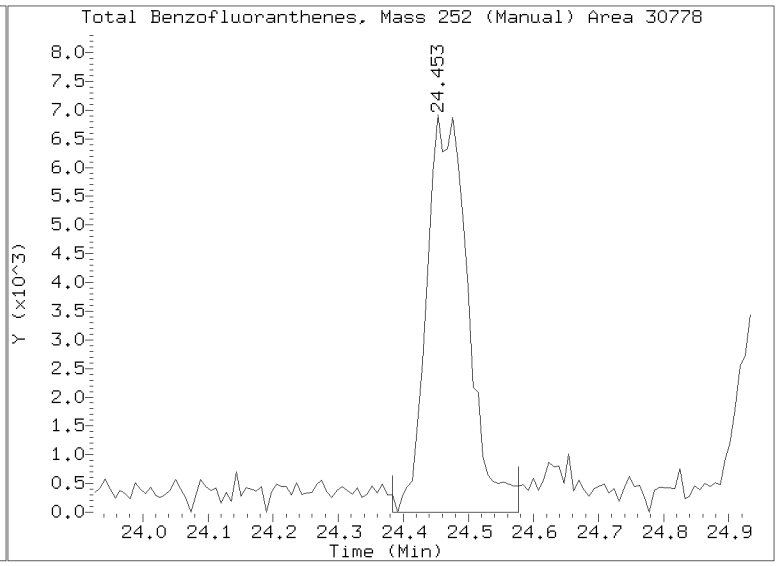
On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

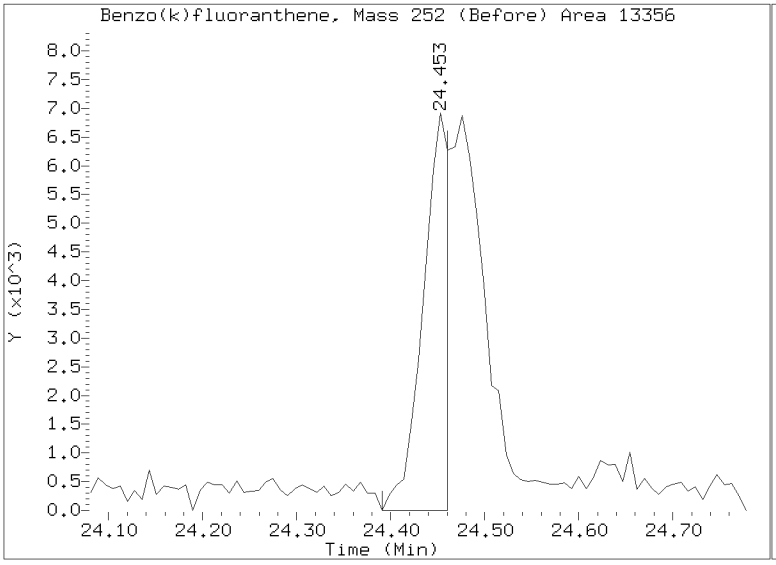
* Only compounds listed in the work order have been verified by the analyst *

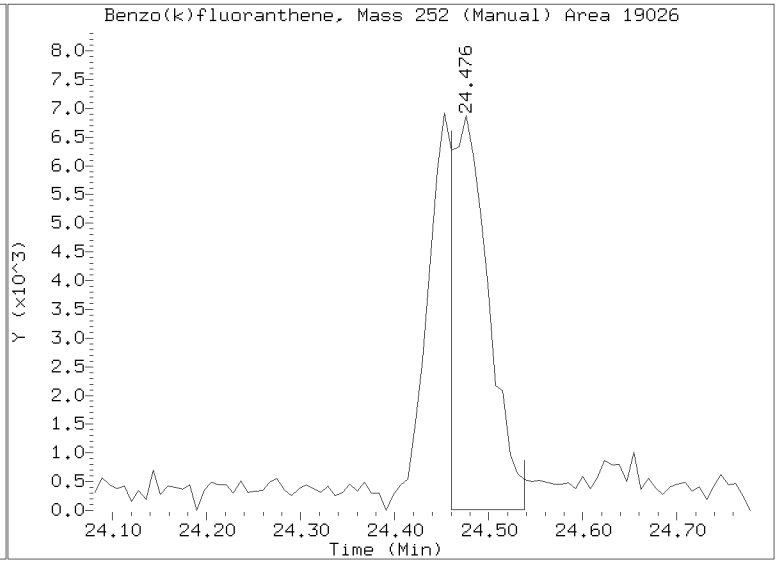
Quant Ion Manual Peak Adjustment Report

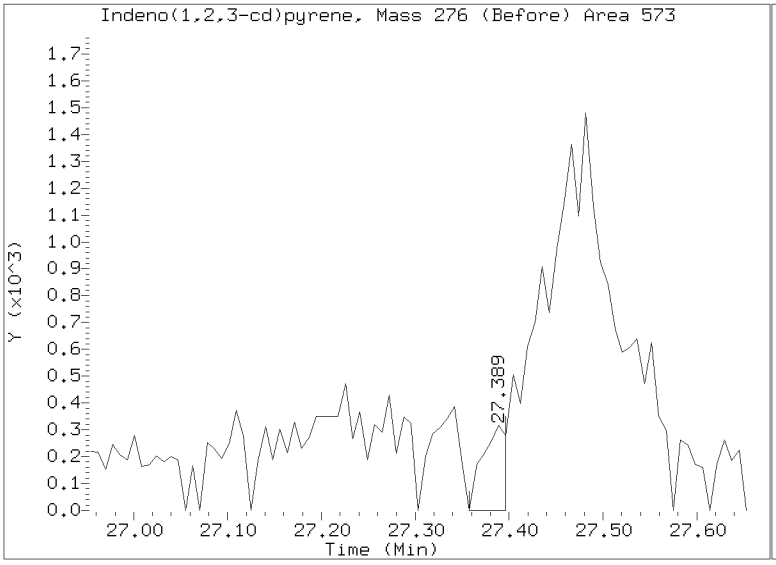
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082115.D
Injection Date: 21-AUG-2019 18:53
Lab ID:19H0024-06 Client ID:
Report Date: 08/22/2019 12:51

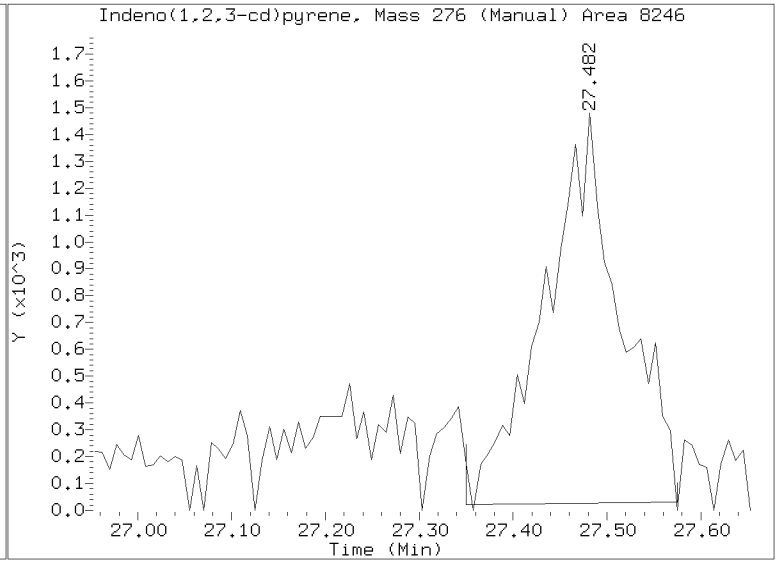






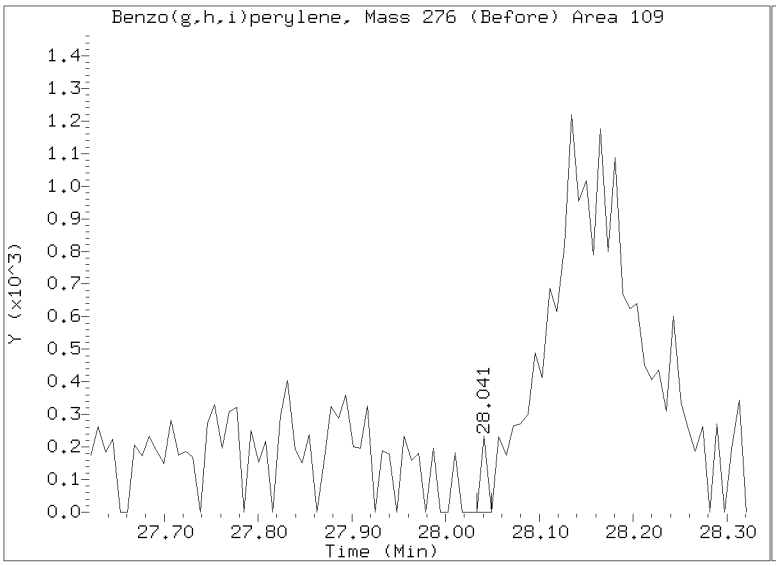


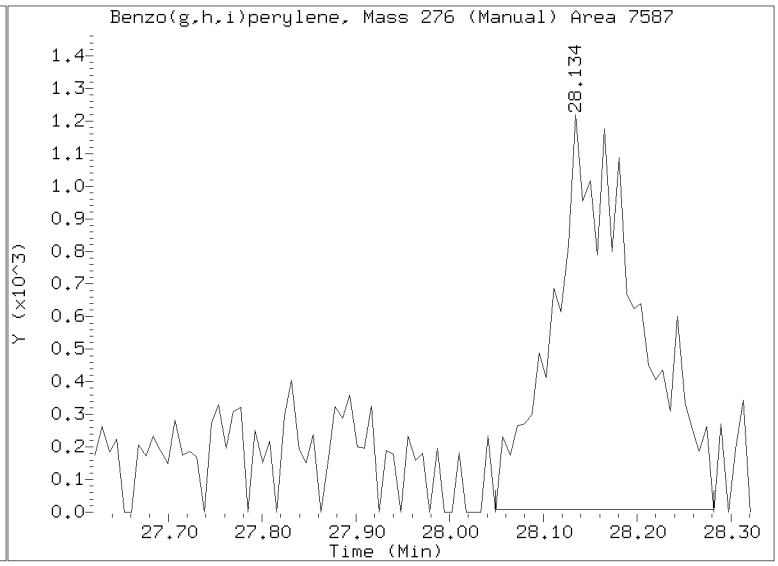




Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082115.D
Injection Date: 21-AUG-2019 18:53
Lab ID:19H0024-06 Client ID:
Report Date: 08/22/2019 12:51





SL4-SG-WC8-2019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D

Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-06RE1 C	SDG:	19H0024
Sampled:	08/01/19 09:08	Prepared:	08/13/19 12:40	File ID:	NT1019082212.D
% Solids:	56.63	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/22/19 20:36
Batch:	BHH0289	Sequence:	SHH0325	Initial/Final:	17.82 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040
Cleanups:	GPC				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	3	59.5	U	24.5	59.5
100-51-6	Benzyl Alcohol	3	59.5	U	44.3	59.5
65-85-0	Benzoic acid	3	595	U	176	595
86-30-6	N-Nitrosodiphenylamine	3	59.5	U	28.4	59.5
85-01-8	Phenanthrene	3	36.7	J, D	13.9	59.5
206-44-0	Fluoranthene	3	130	D	13.4	59.5
129-00-0	Pyrene	3	122	D	16.5	59.5
85-68-7	Butylbenzylphthalate	3	59.5	U	23.9	59.5
56-55-3	Benzo(a)anthracene	3	59.2	J, D	15.4	59.5
218-01-9	Chrysene	3	80.9	D	15.5	59.5
117-81-7	bis(2-Ethylhexyl)phthalate	3	108	J, D	85.6	149
117-84-0	Di-n-Octylphthalate	3	59.5	U	25.9	59.5
	Benzofluoranthenes, Total	3	148	D	30.3	119
50-32-8	Benzo(a)pyrene	3	68.4	D	19.3	59.5
193-39-5	Indeno(1,2,3-cd)pyrene	3	42.7	J, D	17.8	59.5
53-70-3	Dibenzo(a,h)anthracene	3	59.5	U	18.3	59.5
191-24-2	Benzo(g,h,i)perylene	3	45.9	J, D	17.3	59.5

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	743.20	289	38.9	27 - 120	
Phenol-d5	743.20	304	40.9	29 - 120	Q
2-Chlorophenol-d4	743.20	435	58.5	31 - 120	
1,2-Dichlorobenzene-d4	495.47	264	53.4	32 - 120	
Nitrobenzene-d5	495.47	242	48.9	30 - 120	
2-Fluorobiphenyl	495.47	304	61.5	35 - 120	
2,4,6-Tribromophenol	743.20	470	63.3	24 - 134	
p-Terphenyl-d14	495.47	435	87.8	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082212.D

Date : 22-AUG-2019 20:36

Client ID:

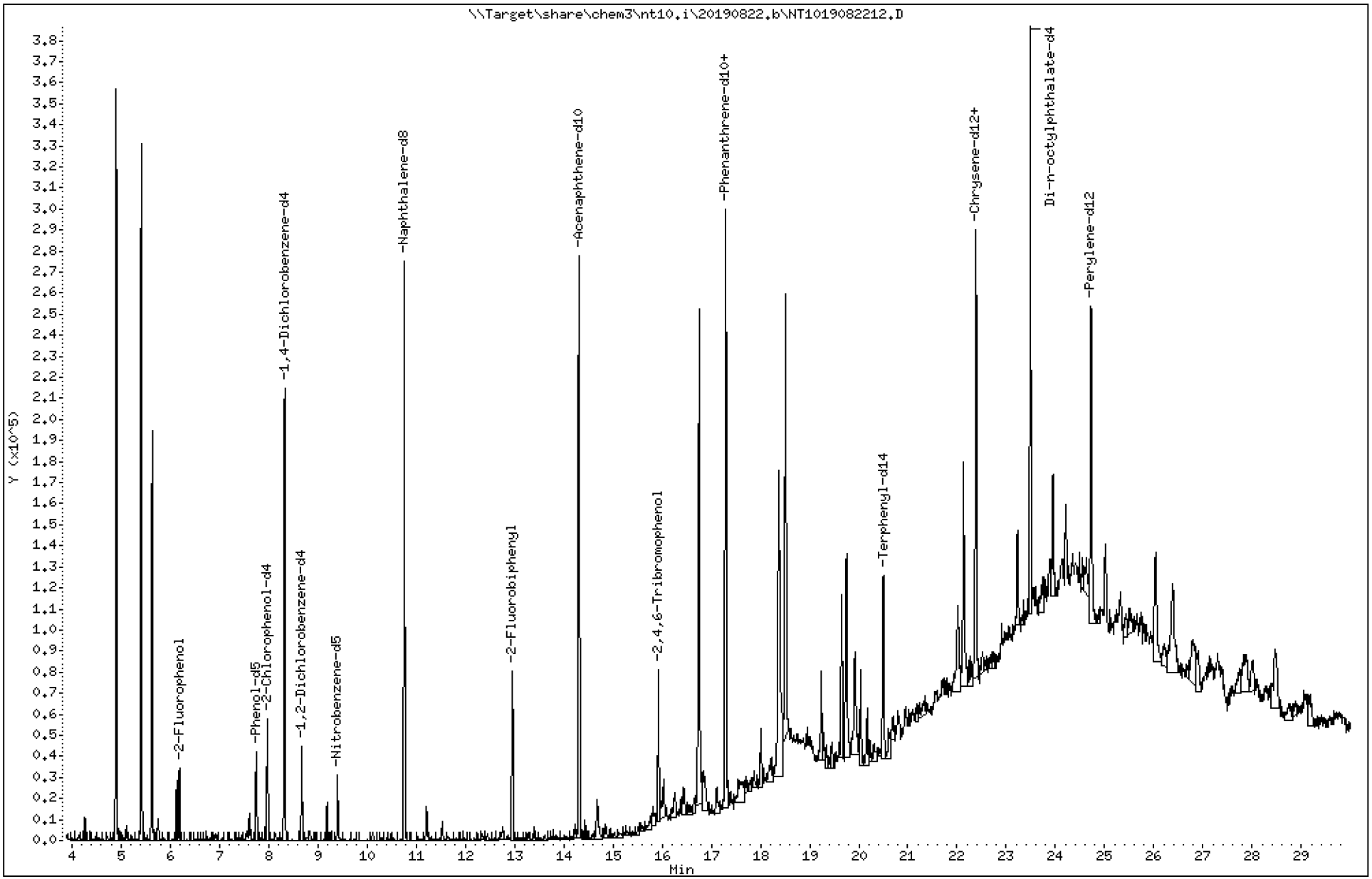
Instrument: nt10.i

Sample Info: 19H0024-06RE1,3

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 22-AUG-2019 20:36

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06RE1,3

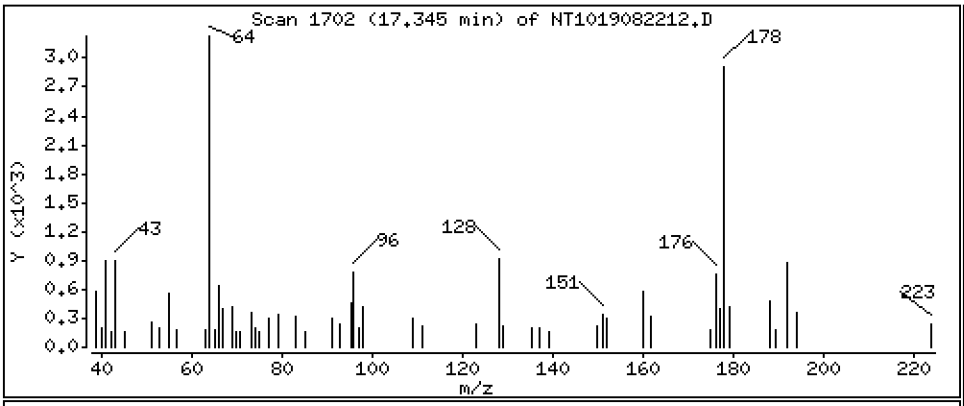
Operator: YZ

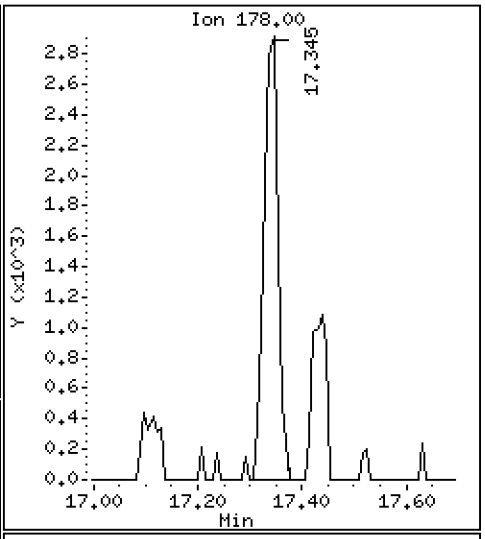
Column phase: ZB-5msi

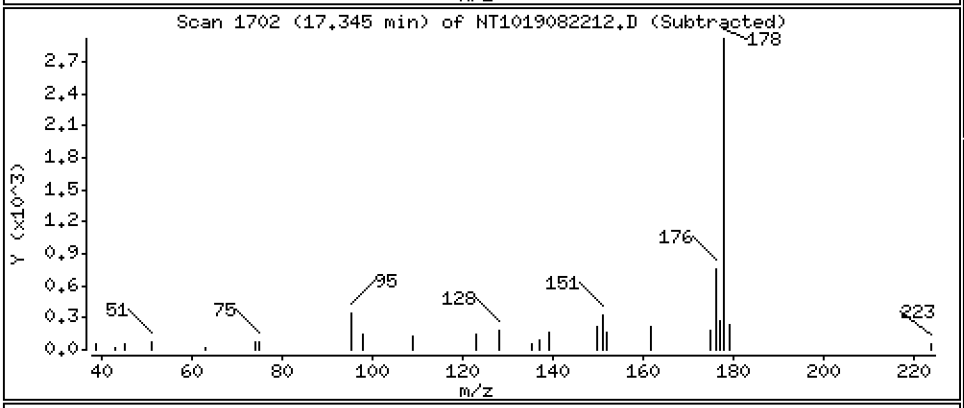
Column diameter: 0.25

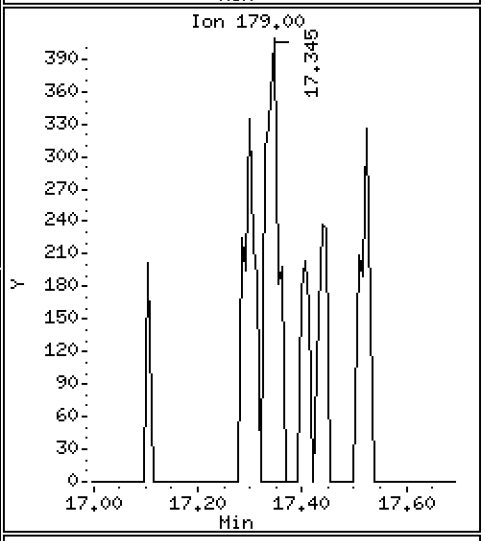
60 Phenanthrene

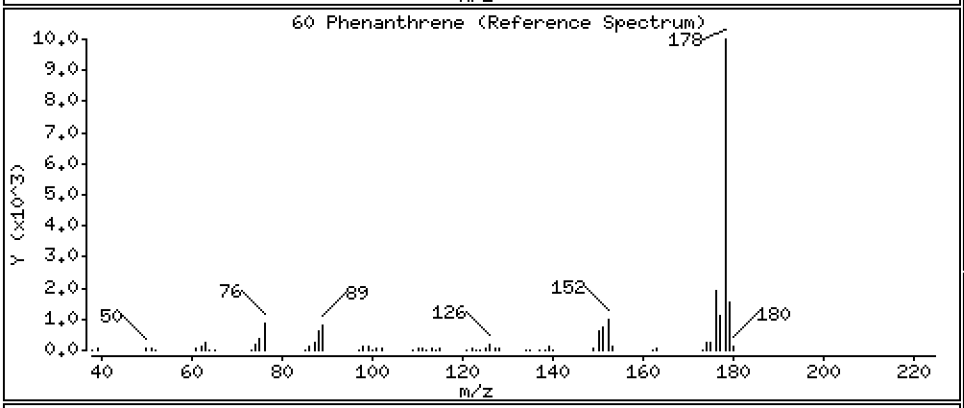
Concentration: 0.3705 ug/mL

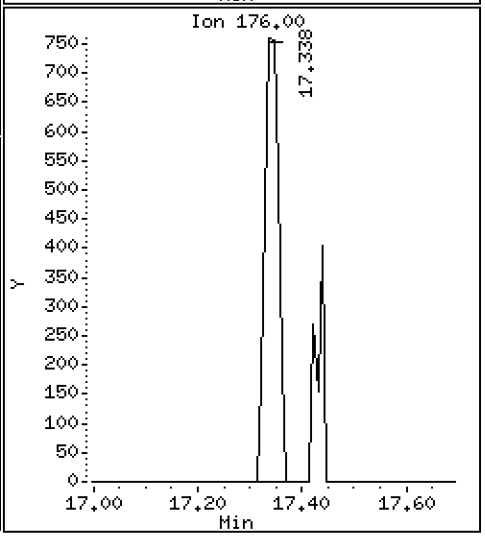


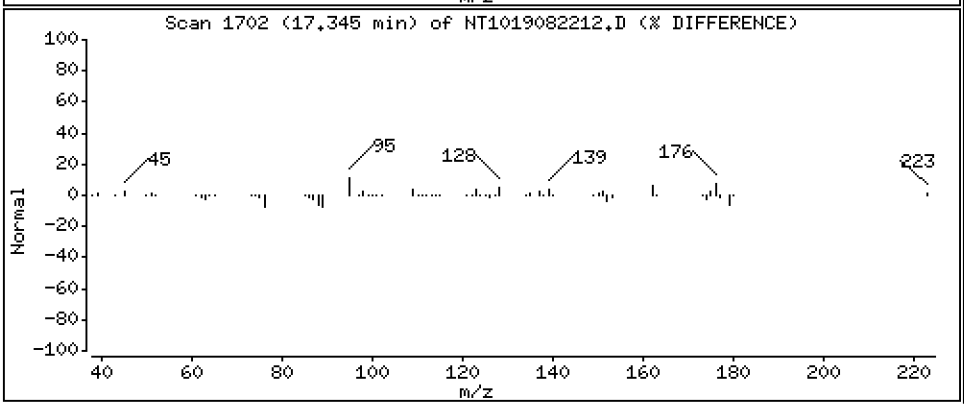












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Date : 22-AUG-2019 20:36

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06RE1,3

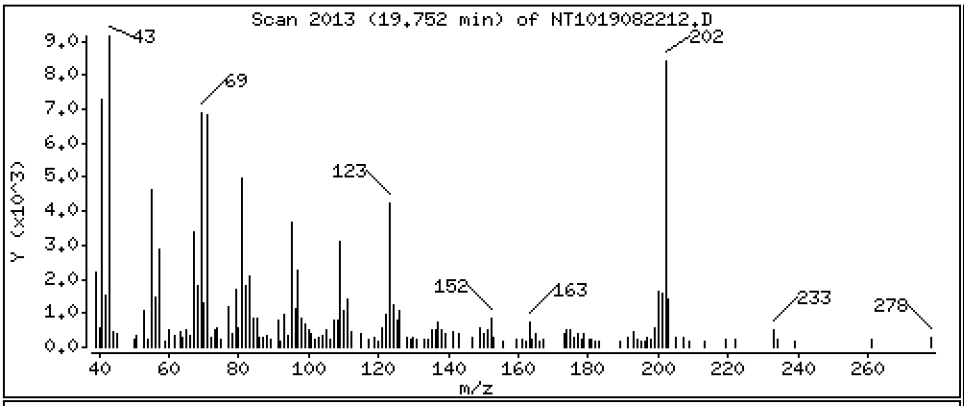
Operator: YZ

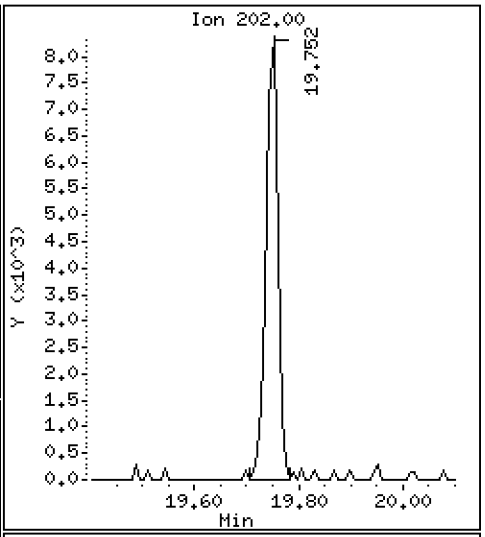
Column phase: ZB-5msi

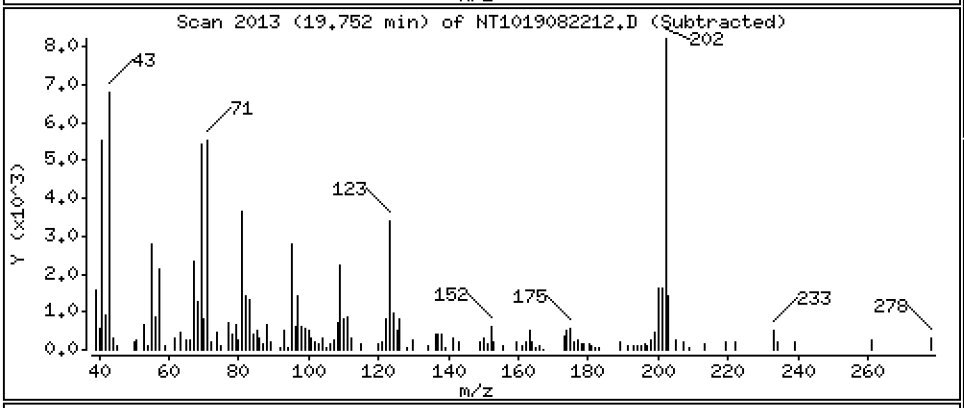
Column diameter: 0.25

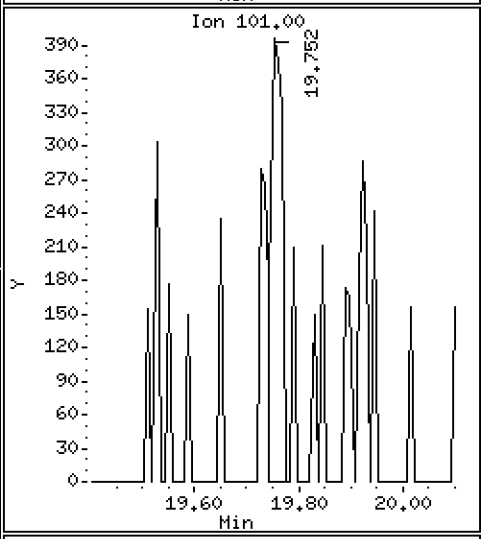
64 Fluoranthene

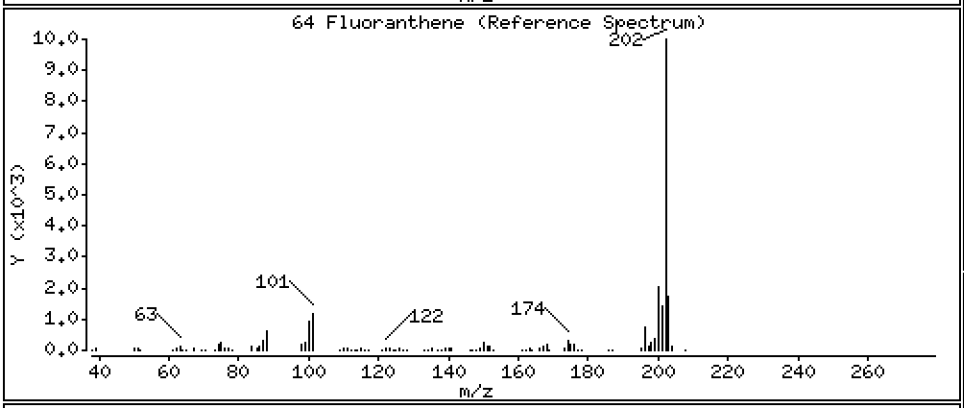
Concentration: 1.310 ug/mL

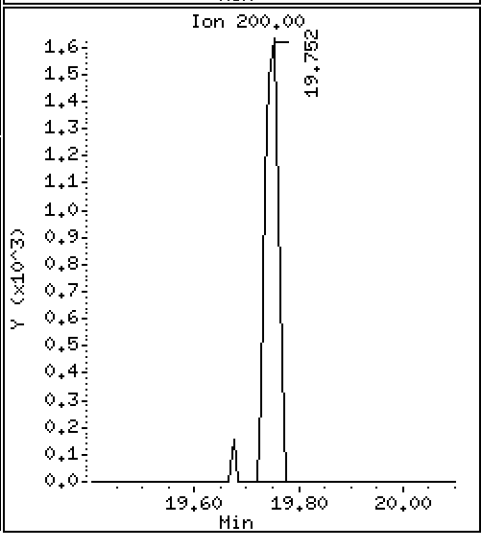


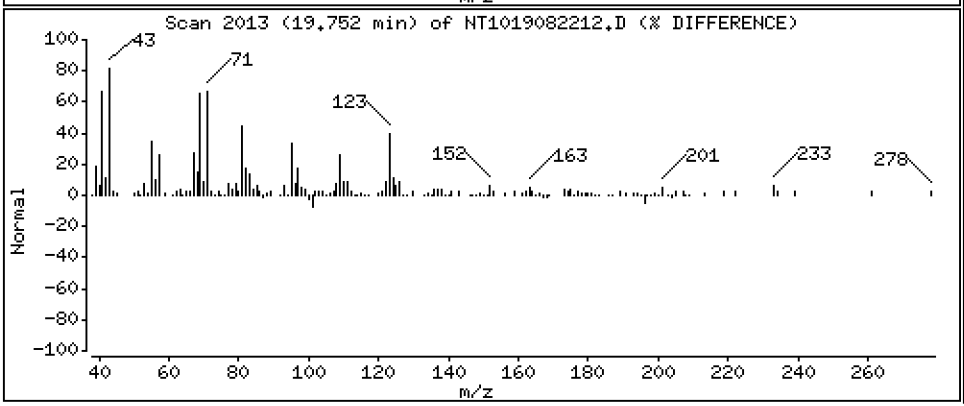












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082212.D

Date : 22-AUG-2019 20:36

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06RE1,3

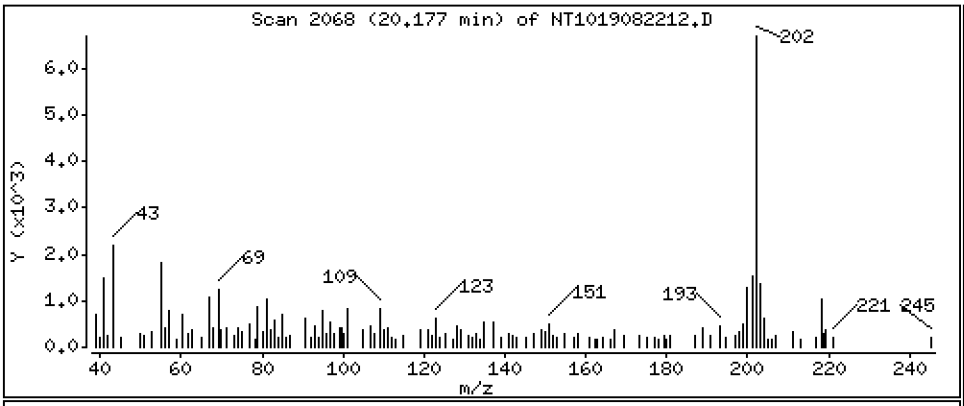
Operator: YZ

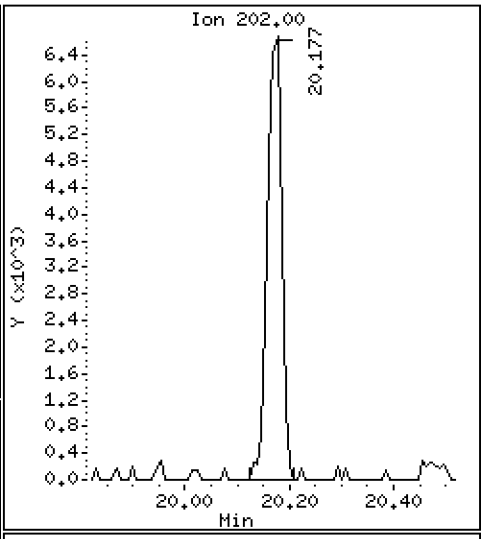
Column phase: ZB-5msi

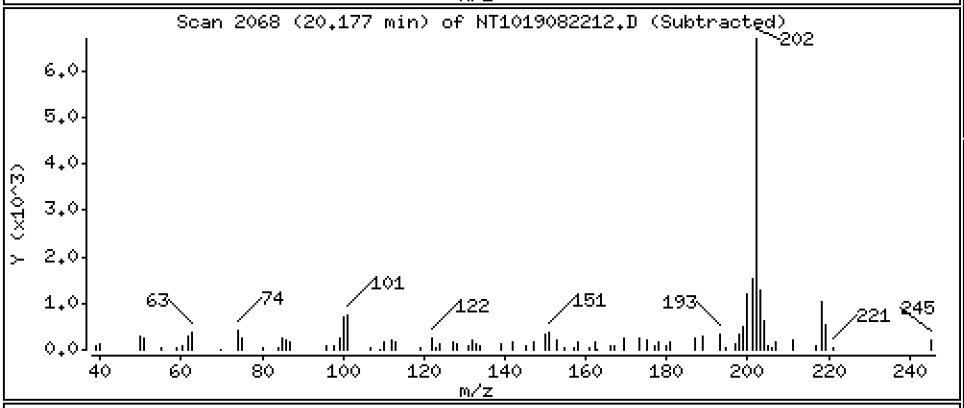
Column diameter: 0.25

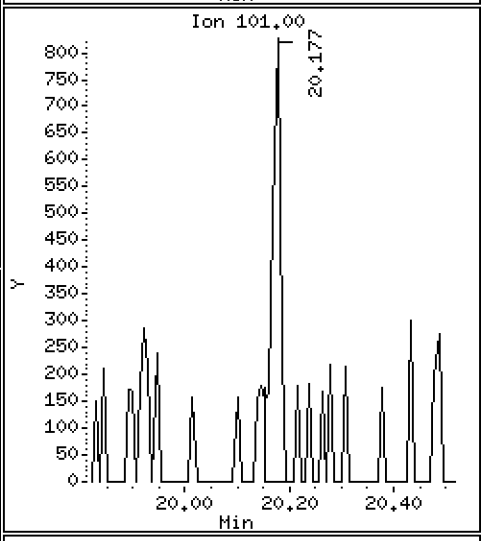
65 Pyrene

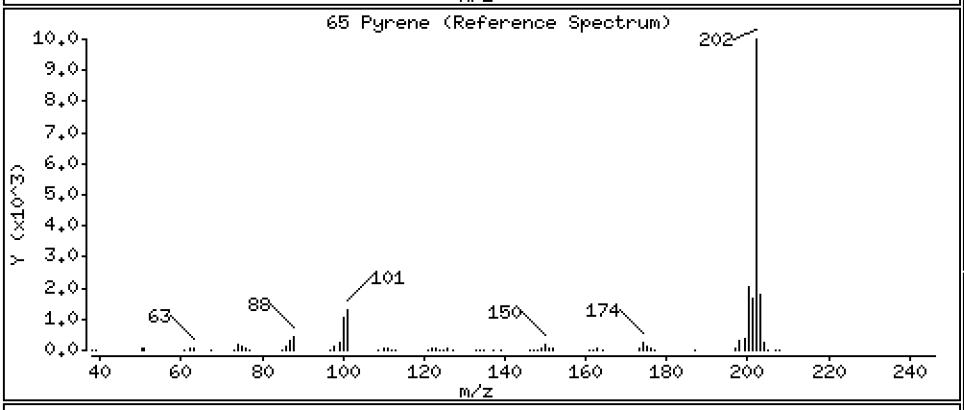
Concentration: 1.229 ug/mL

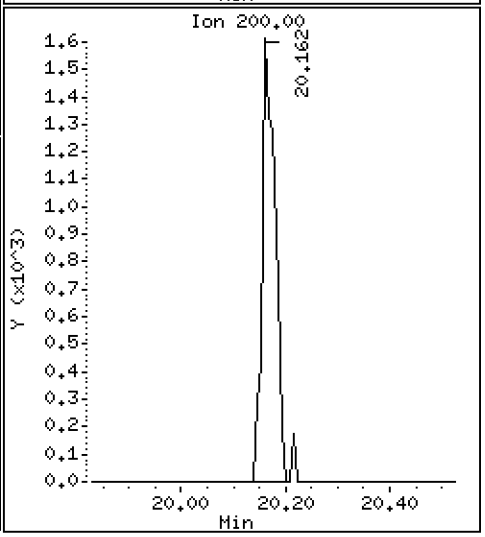


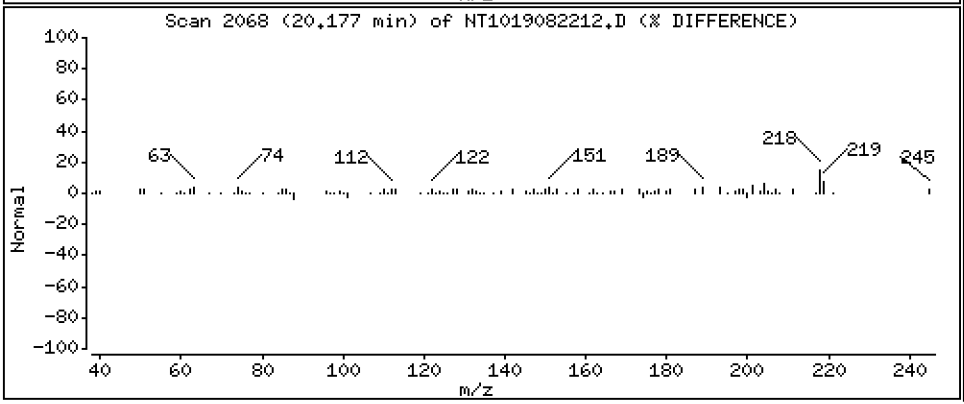












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082212.D

Date : 22-AUG-2019 20:36

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06RE1,3

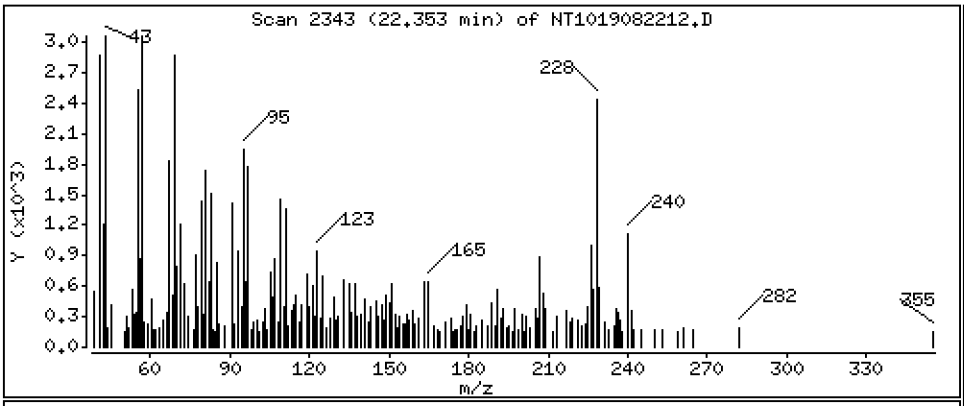
Operator: YZ

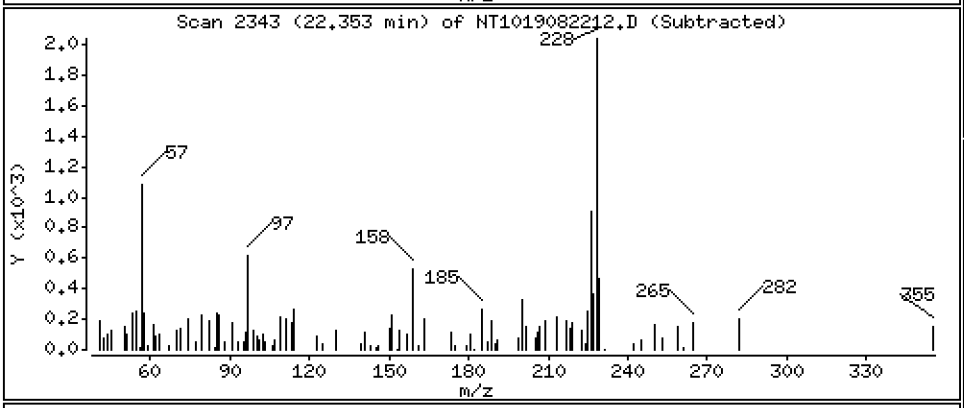
Column phase: ZB-5msi

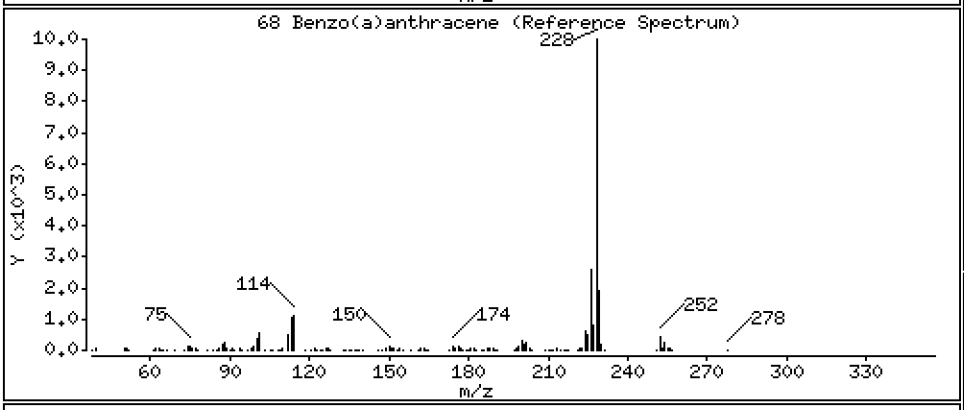
Column diameter: 0.25

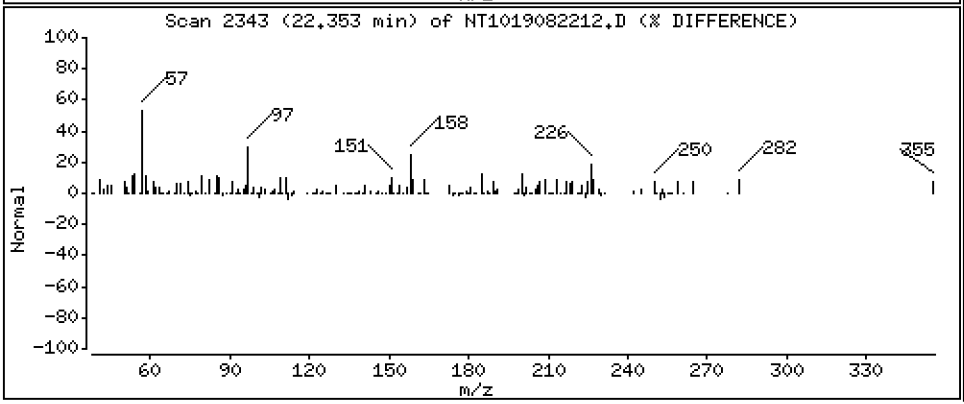
68 Benzo(a)anthracene

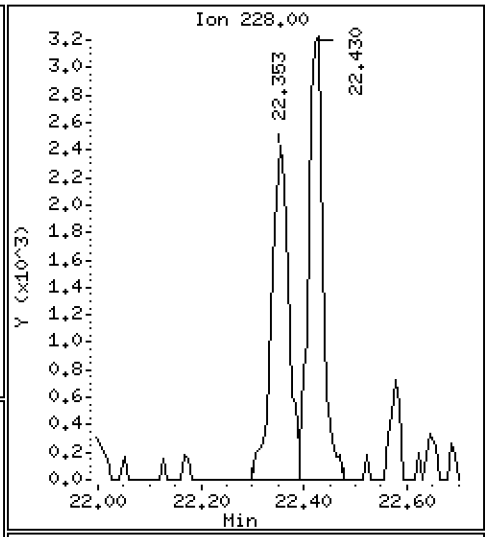
Concentration: 0.5979 ug/mL

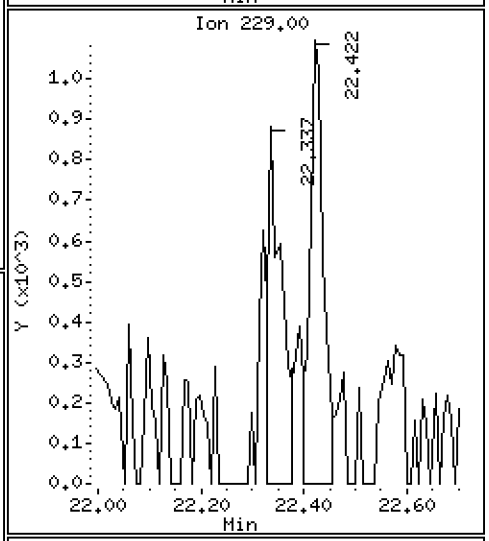


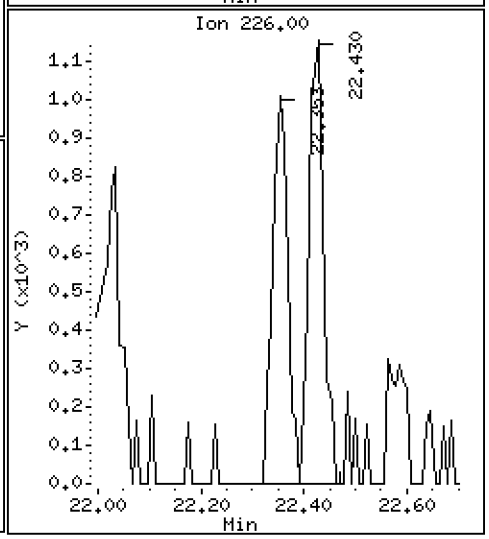












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082212.D

Date : 22-AUG-2019 20:36

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06RE1,3

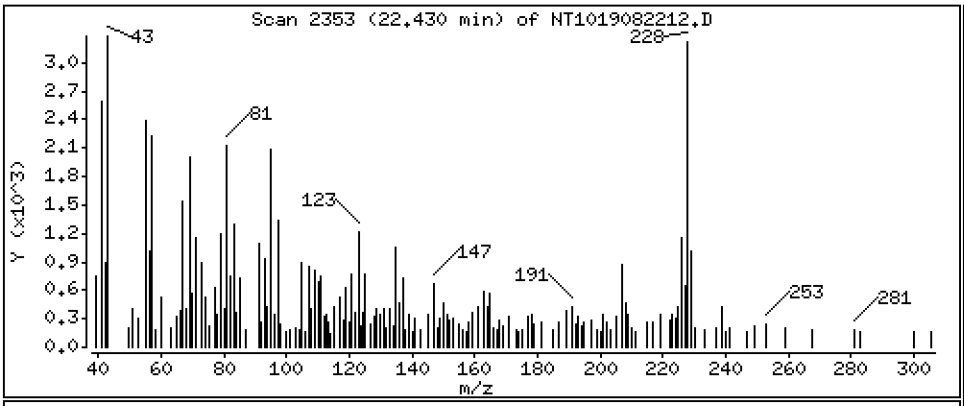
Operator: YZ

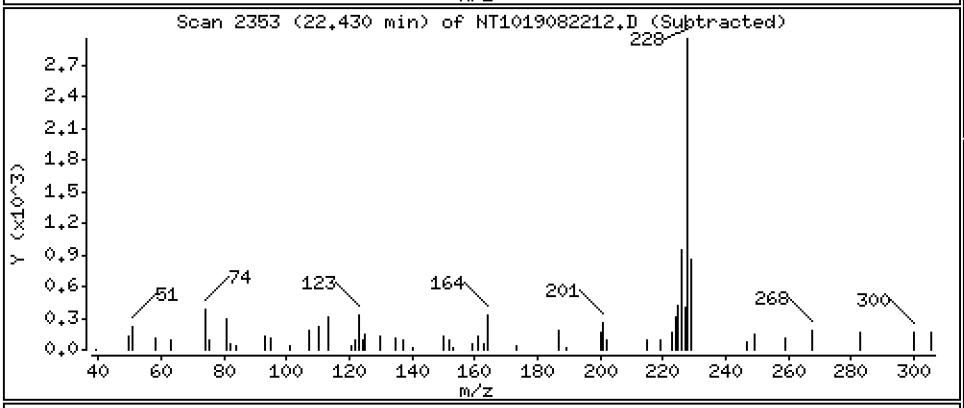
Column phase: ZB-5msi

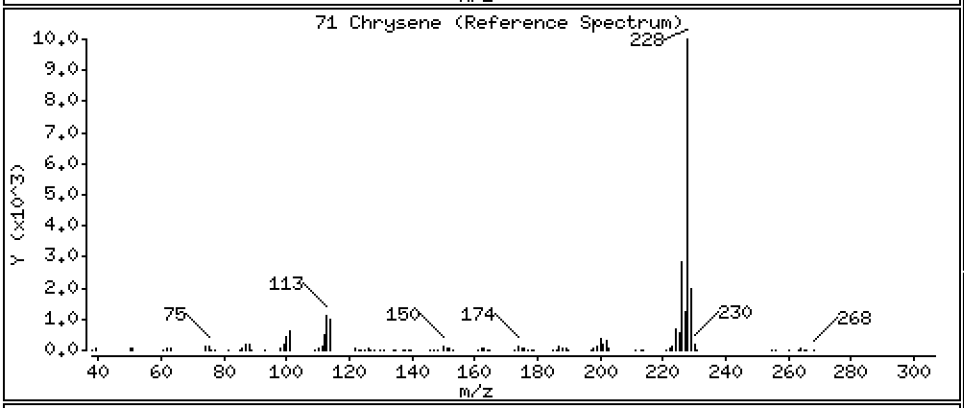
Column diameter: 0.25

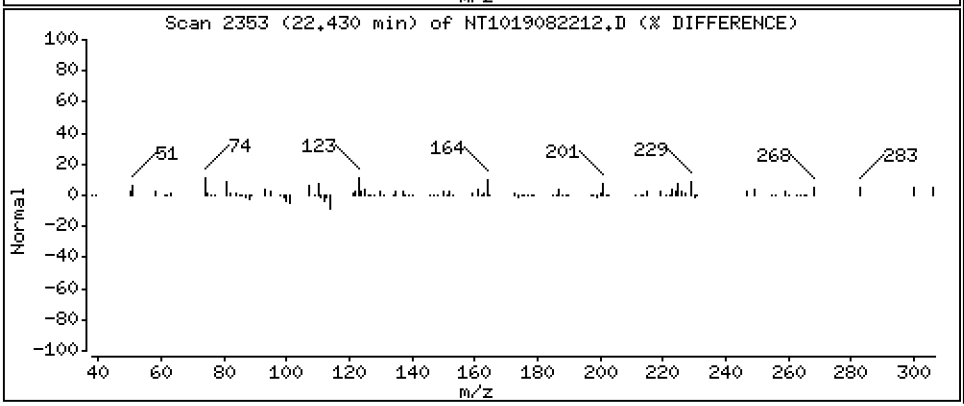
71 Chrysene

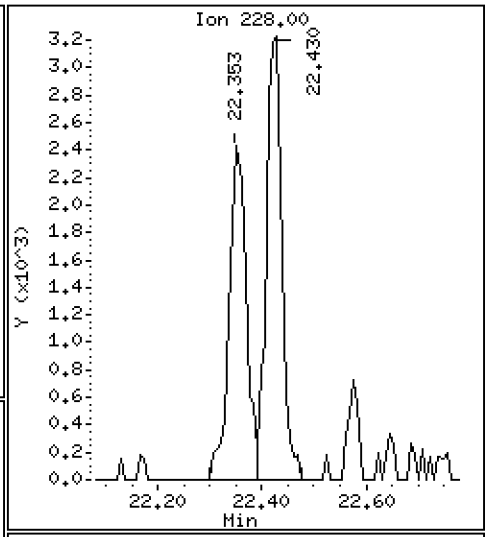
Concentration: 0.8164 ug/mL

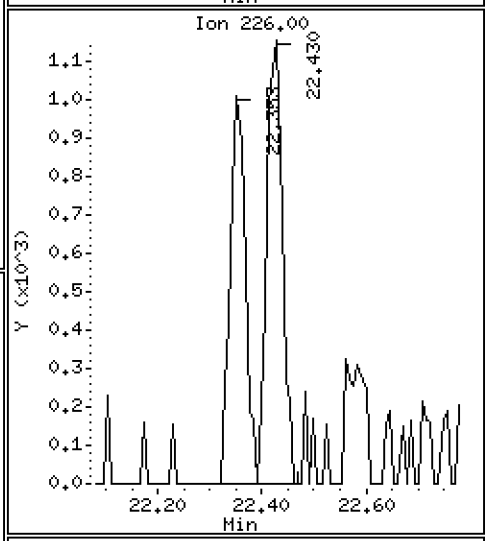


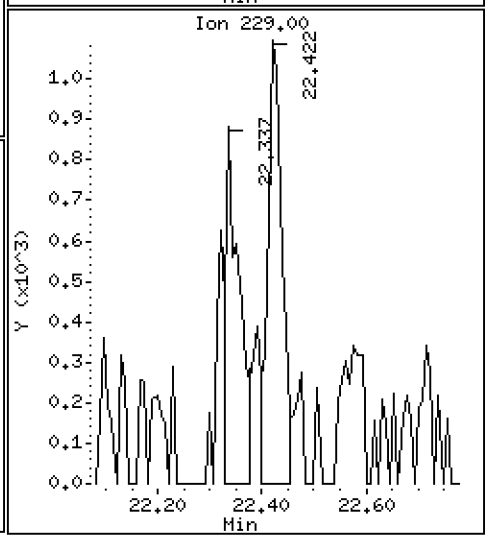












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082212.D

Date : 22-AUG-2019 20:36

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06RE1,3

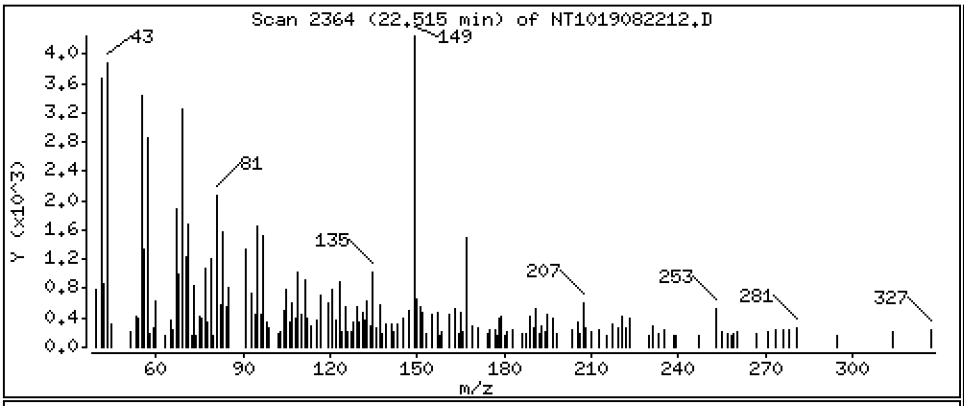
Operator: YZ

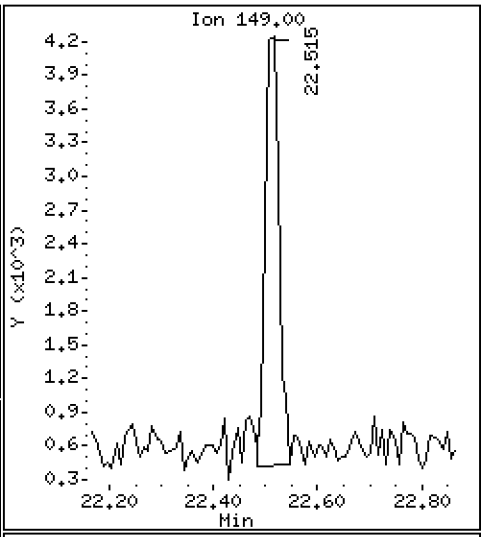
Column phase: ZB-5msi

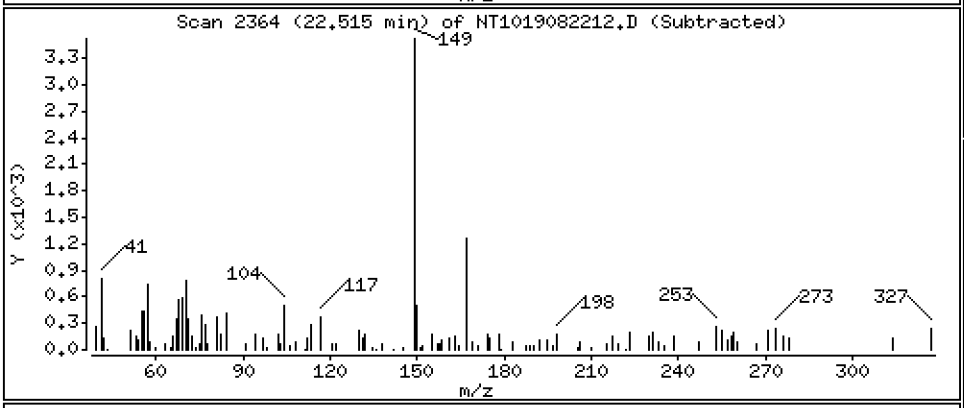
Column diameter: 0.25

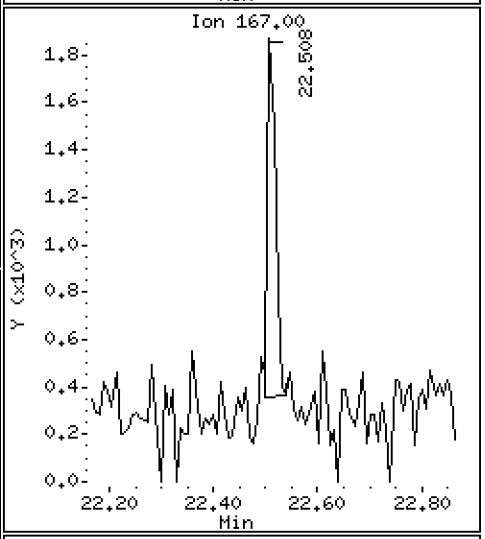
72 bis(2-Ethylhexyl)phthalate

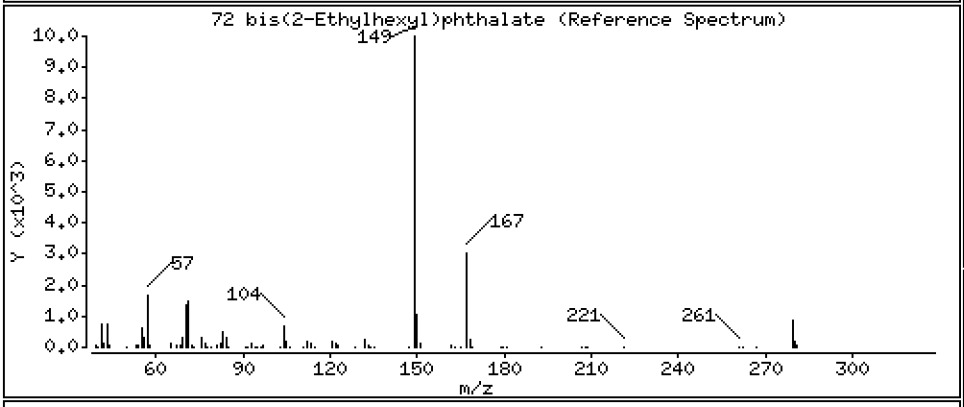
Concentration: 1.088 ug/mL

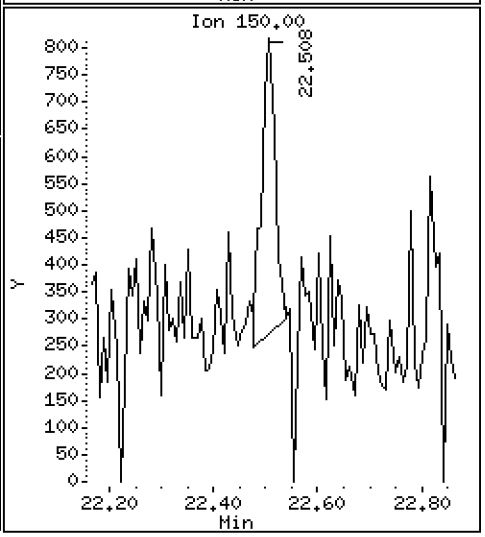


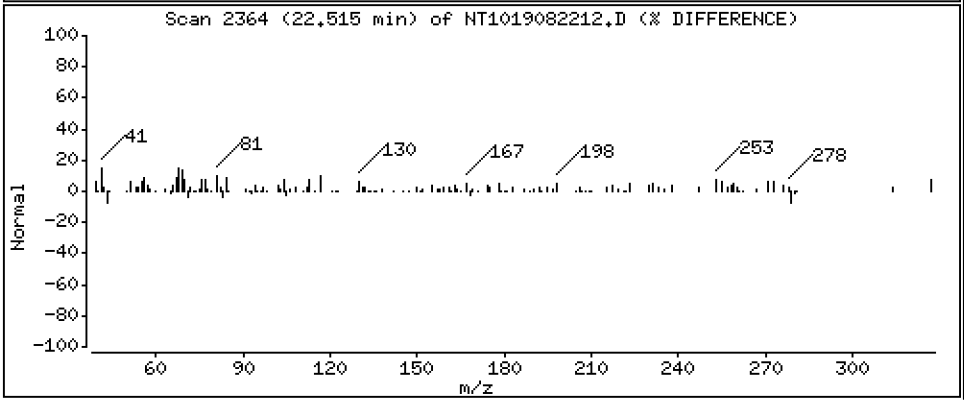












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082212.D

Date : 22-AUG-2019 20:36

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06RE1,3

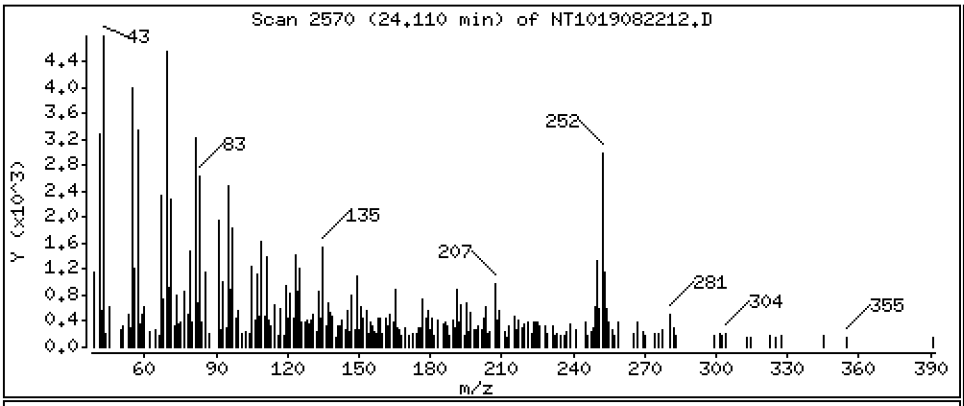
Operator: YZ

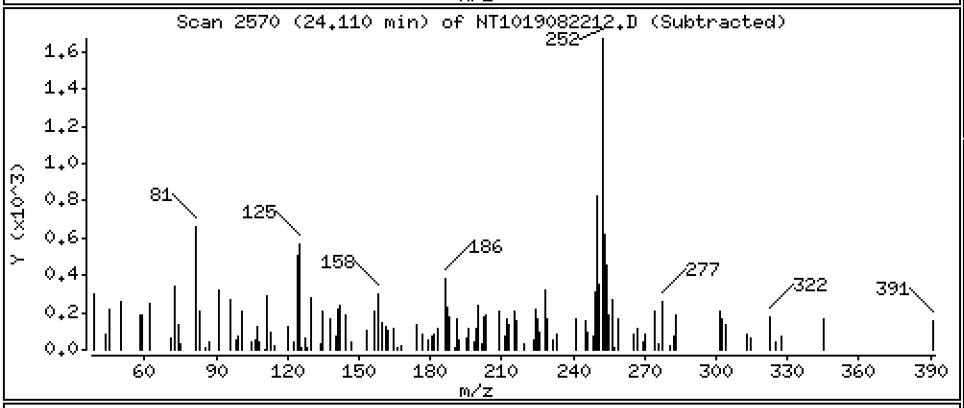
Column phase: ZB-5msi

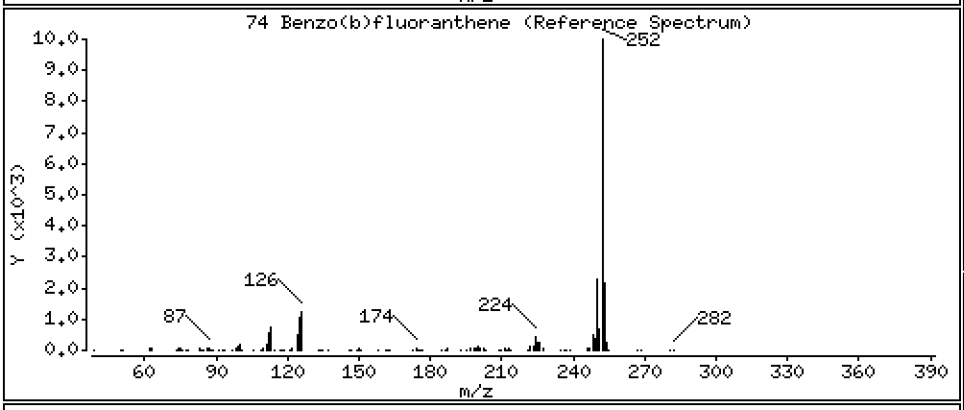
Column diameter: 0.25

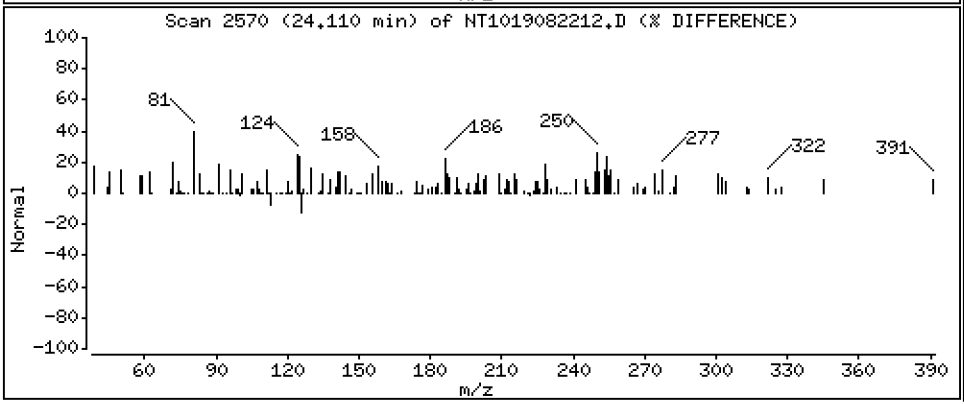
74 Benzo(b)fluoranthene

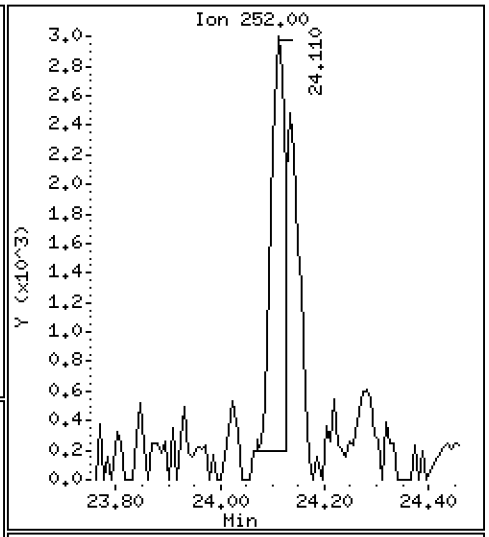
Concentration: 0.7384 ug/mL

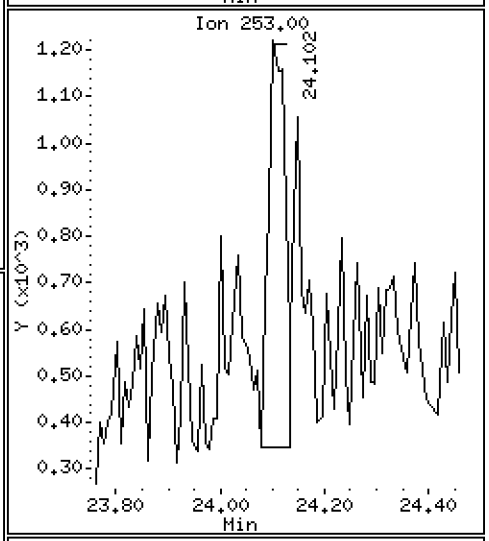


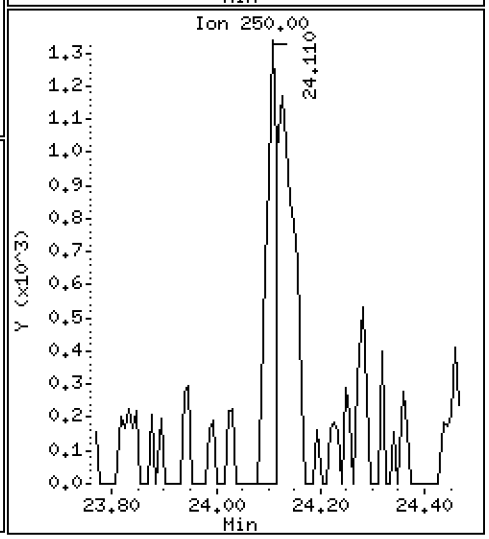












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082212.D

Date : 22-AUG-2019 20:36

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06RE1,3

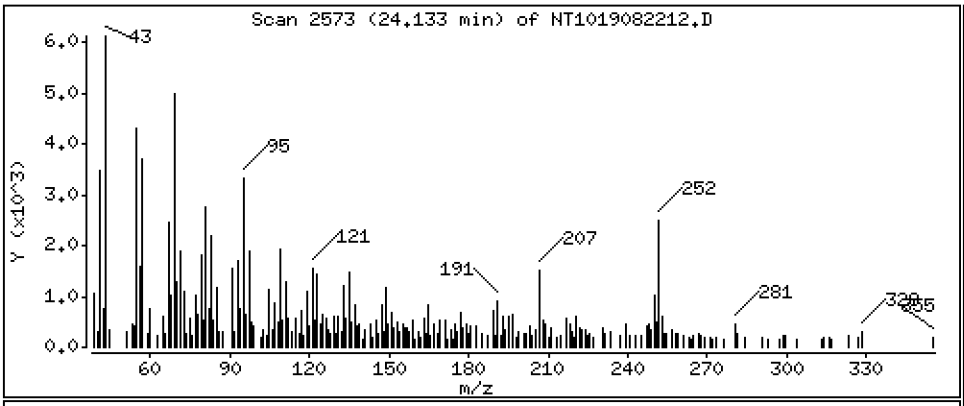
Operator: YZ

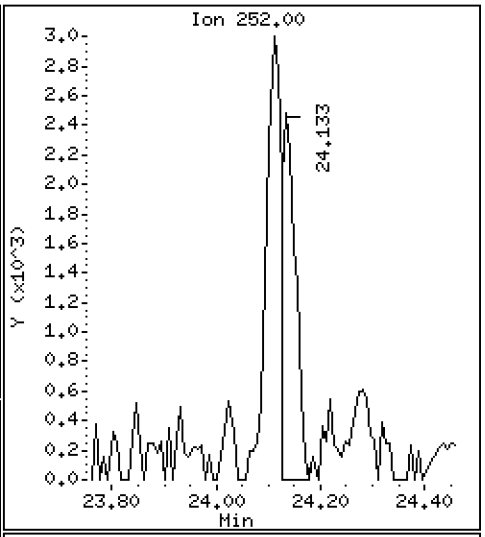
Column phase: ZB-5msi

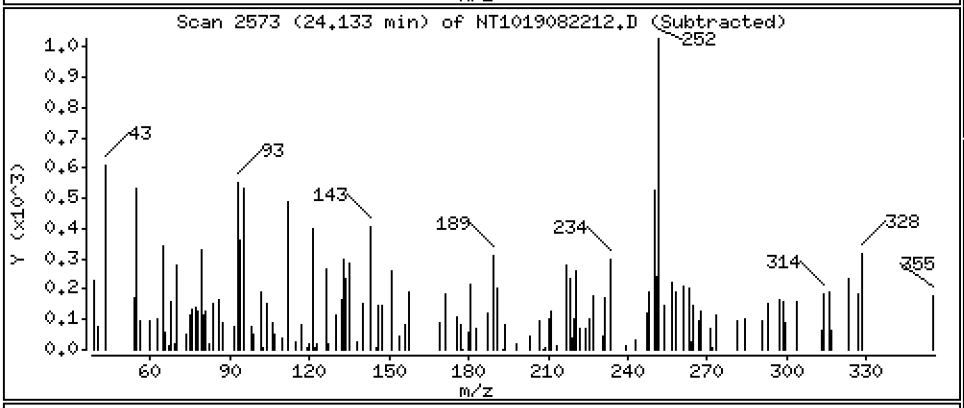
Column diameter: 0.25

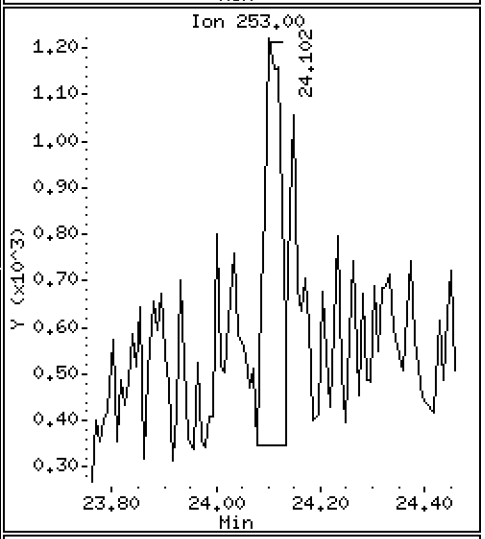
75 Benzo(k)fluoranthene

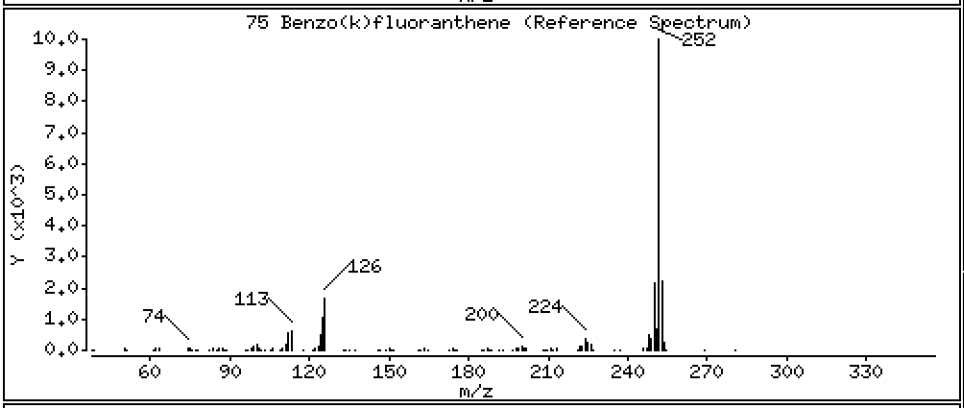
Concentration: 0.6988 ug/mL

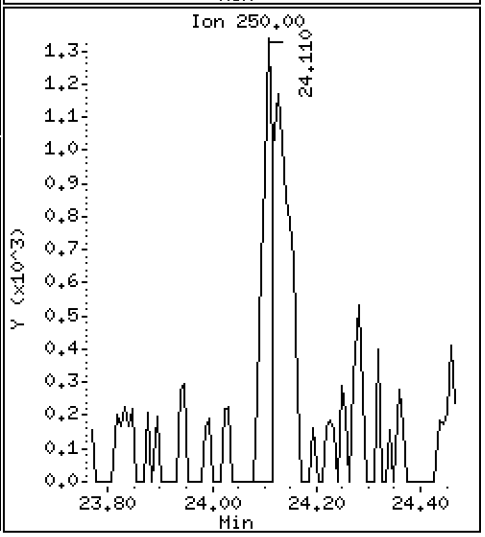


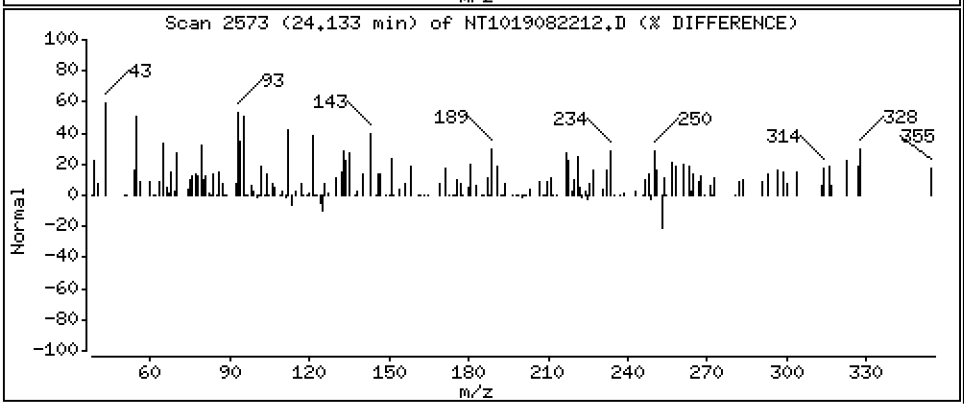












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082212.D

Page 10

Date : 22-AUG-2019 20:36

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06RE1,3

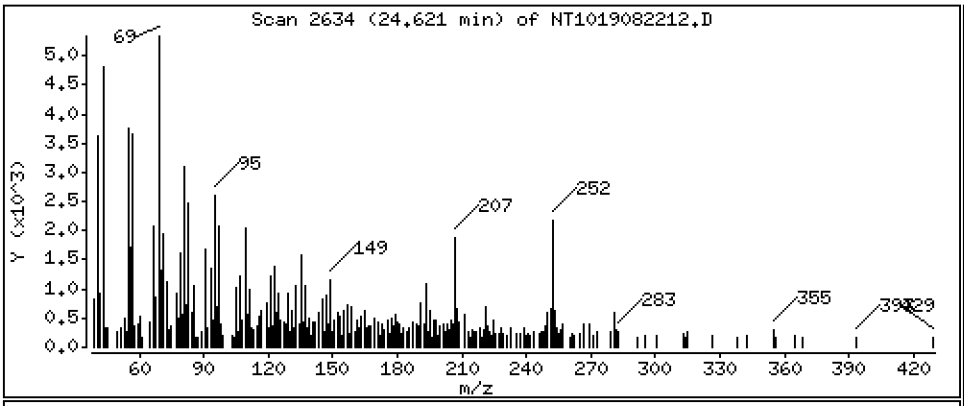
Operator: YZ

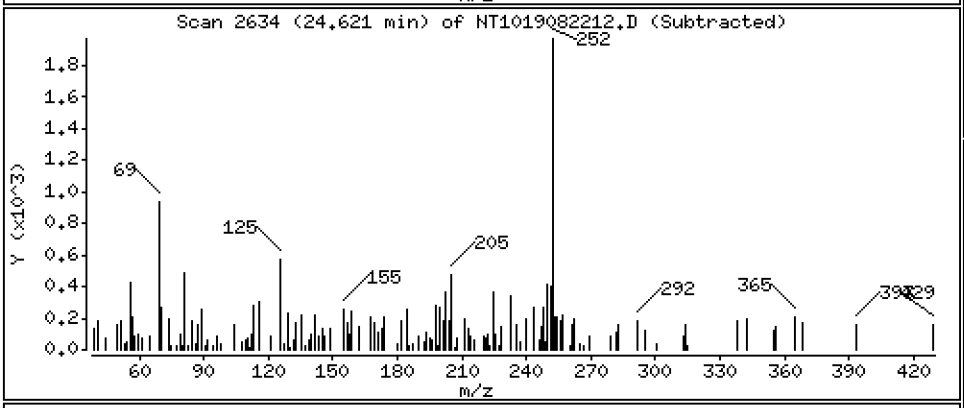
Column phase: ZB-5msi

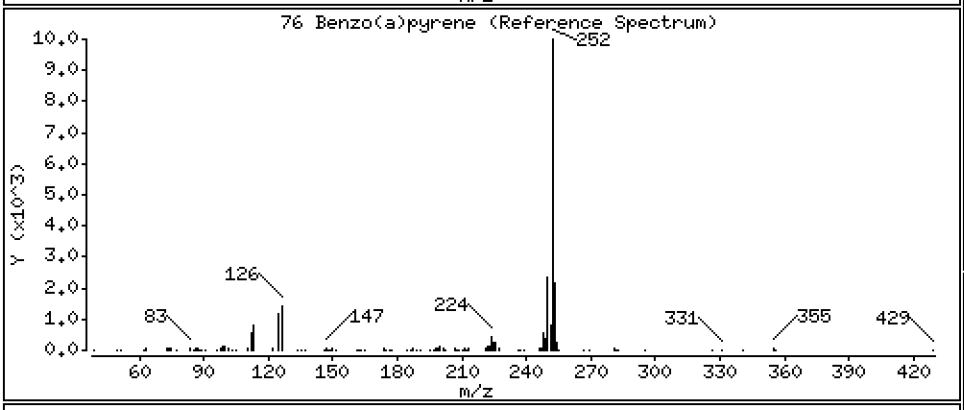
Column diameter: 0.25

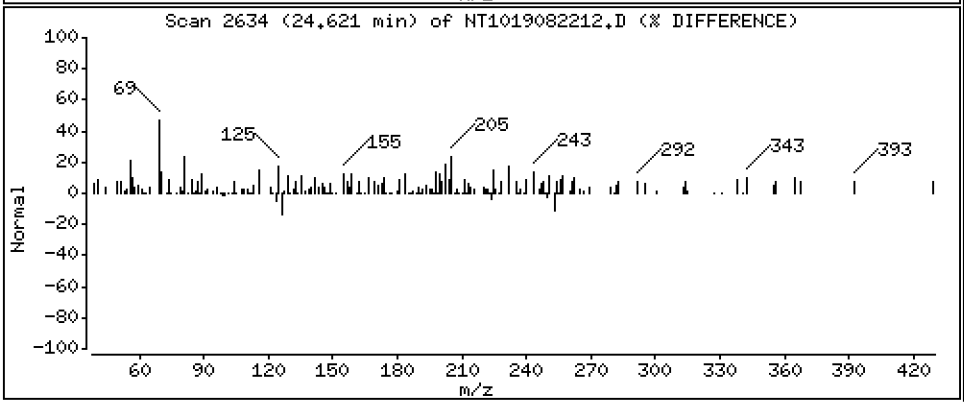
76 Benzo(a)pyrene

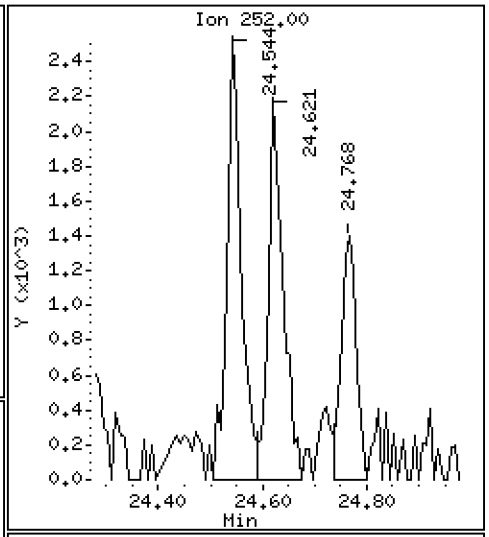
Concentration: 0.6904 ug/mL

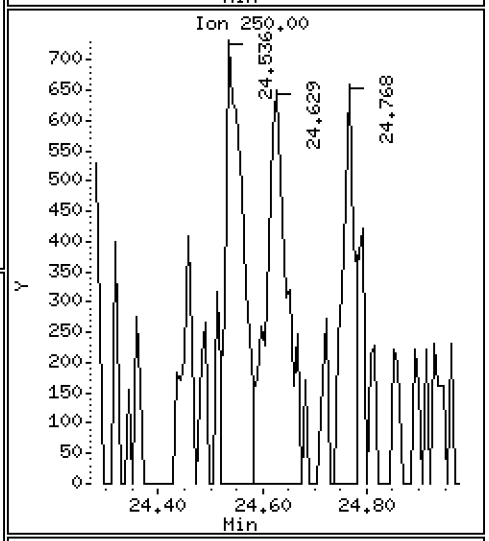


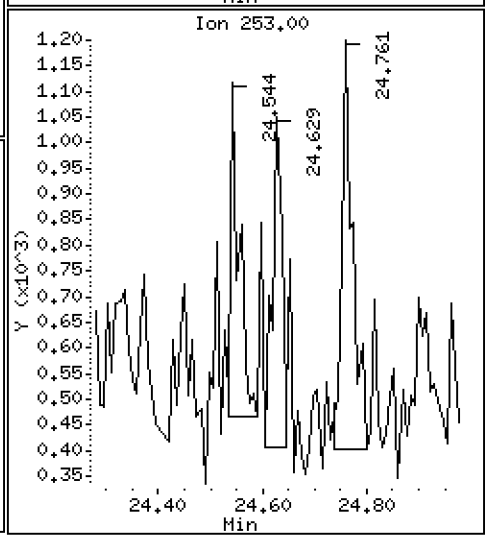












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Date : 22-AUG-2019 20:36

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06RE1,3

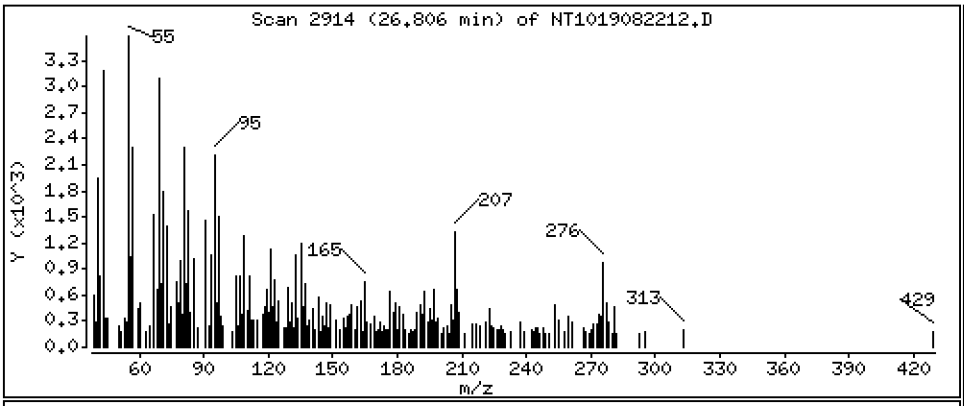
Operator: YZ

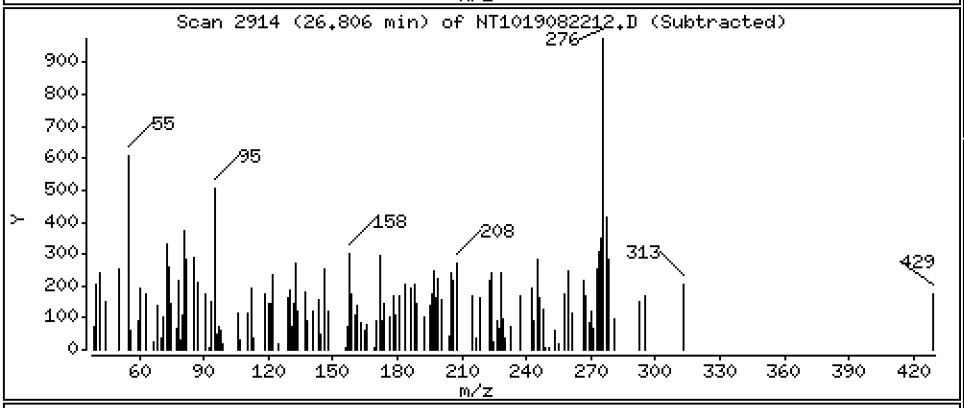
Column phase: ZB-5msi

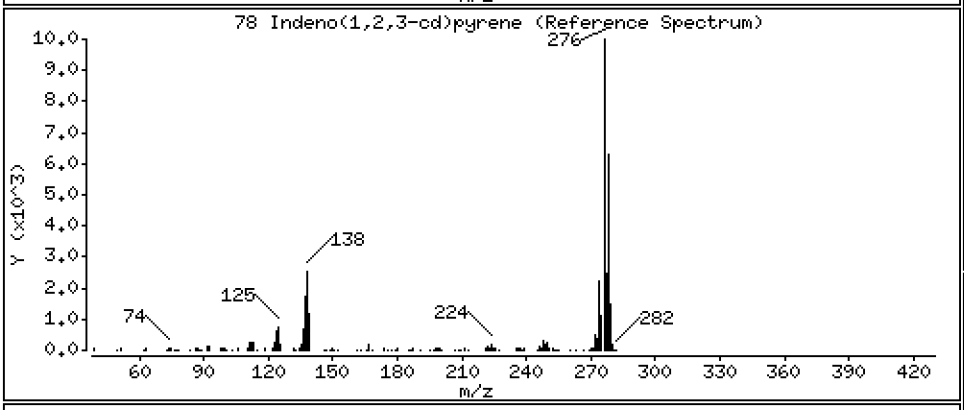
Column diameter: 0.25

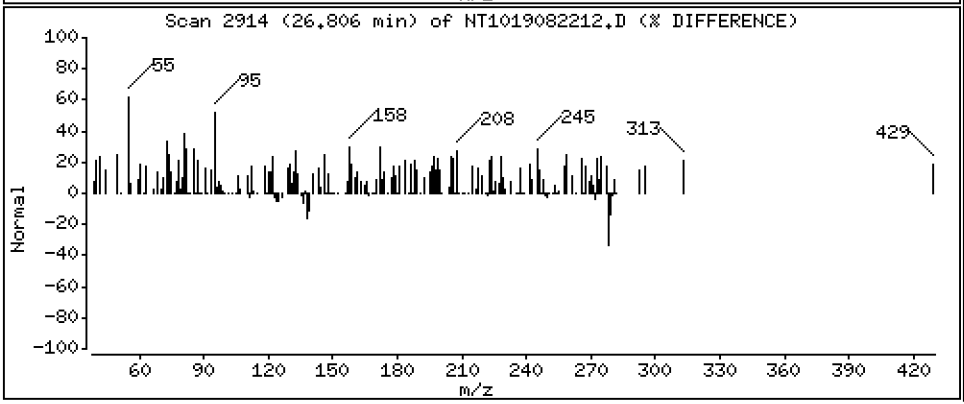
78 Indeno(1,2,3-cd)pyrene

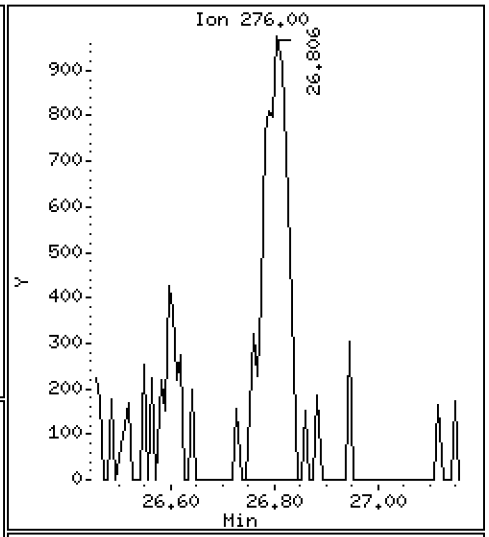
Concentration: 0.4311 ug/mL

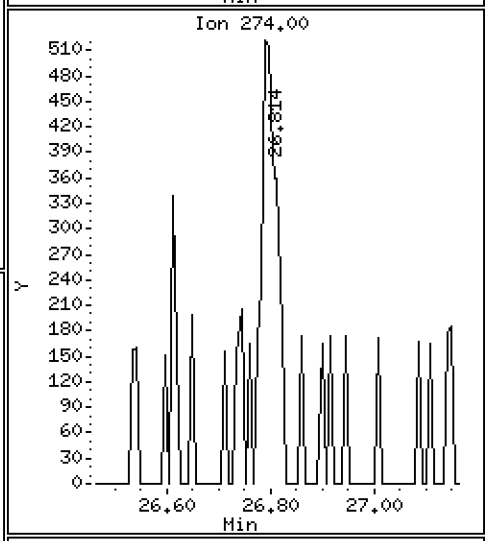


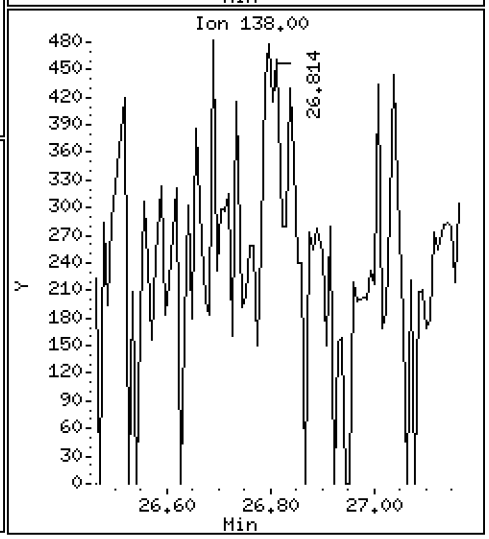












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Date : 22-AUG-2019 20:36

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06RE1,3

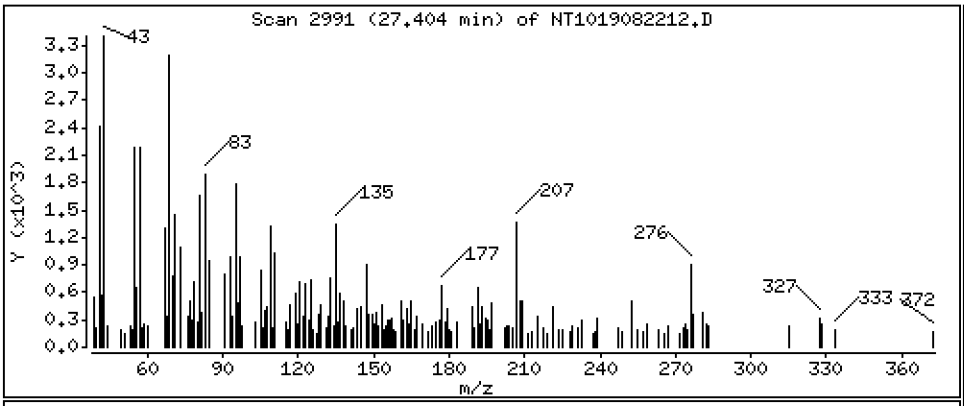
Operator: YZ

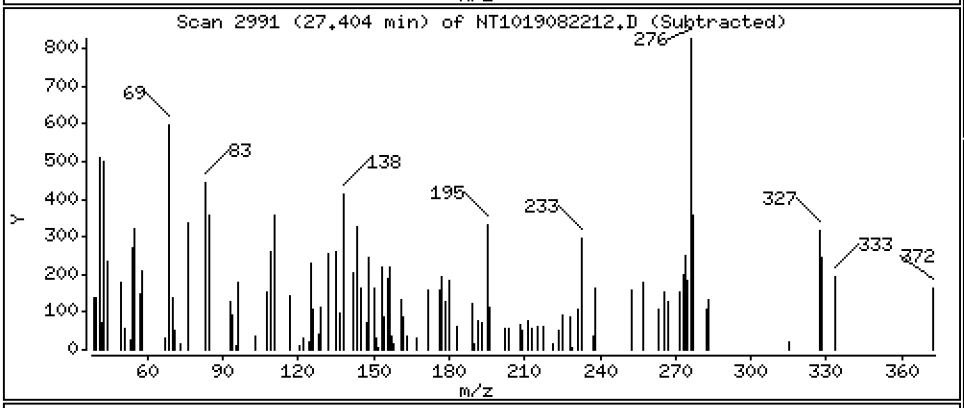
Column phase: ZB-5msi

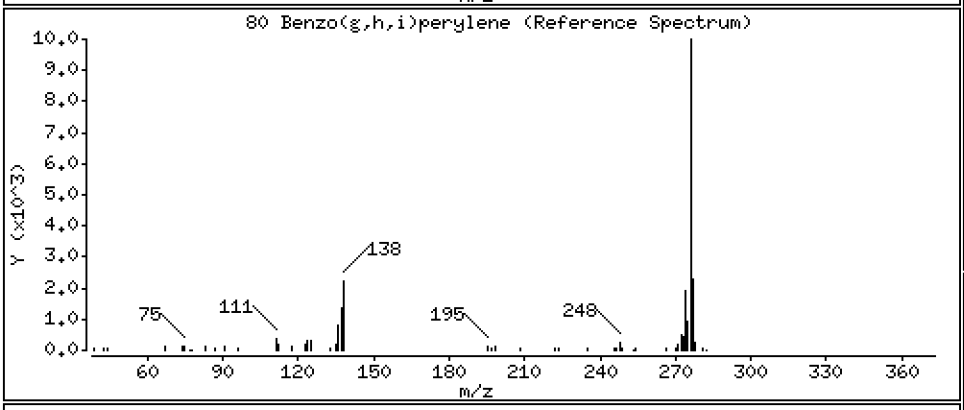
Column diameter: 0.25

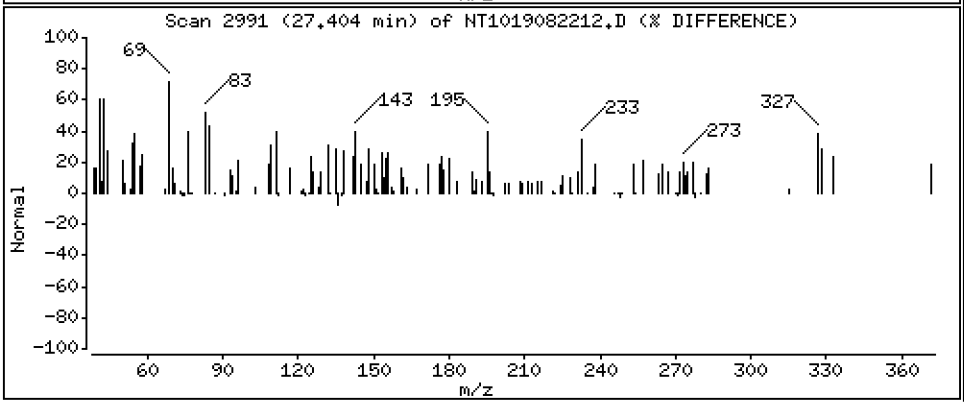
80 Benzo(g,h,i)perylene

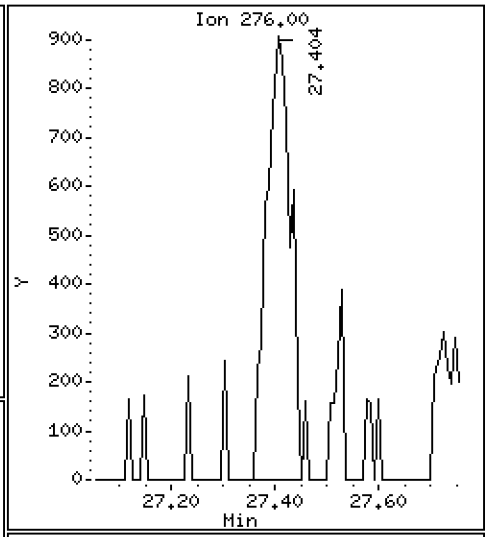
Concentration: 0.4629 ug/mL

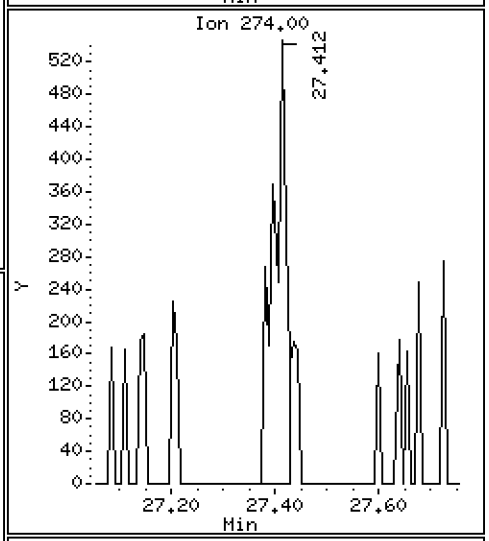


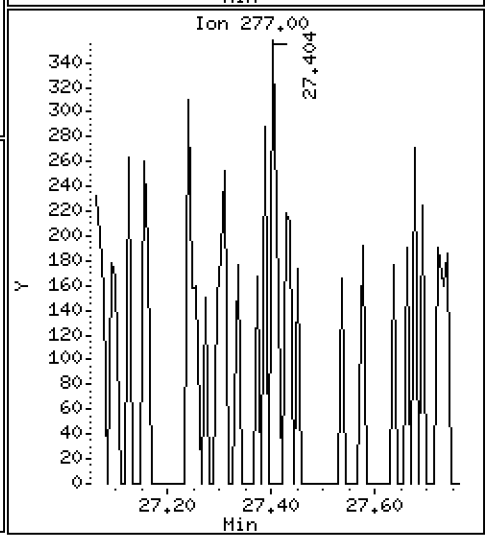












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Date : 22-AUG-2019 20:36

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-06RE1,3

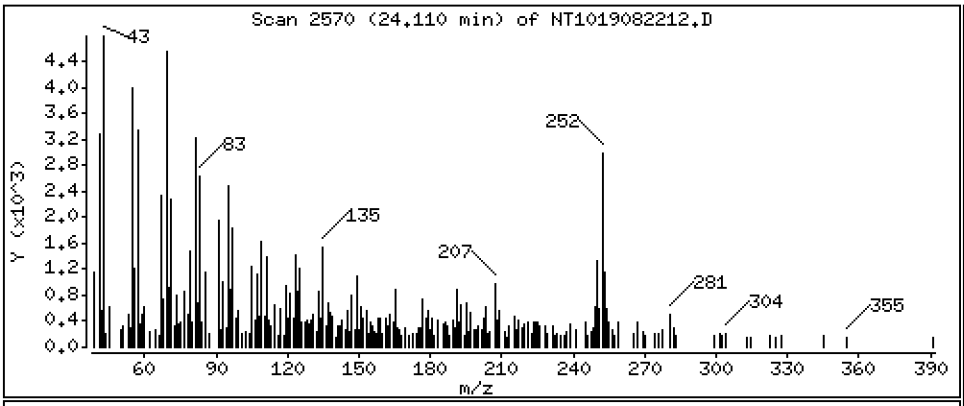
Operator: YZ

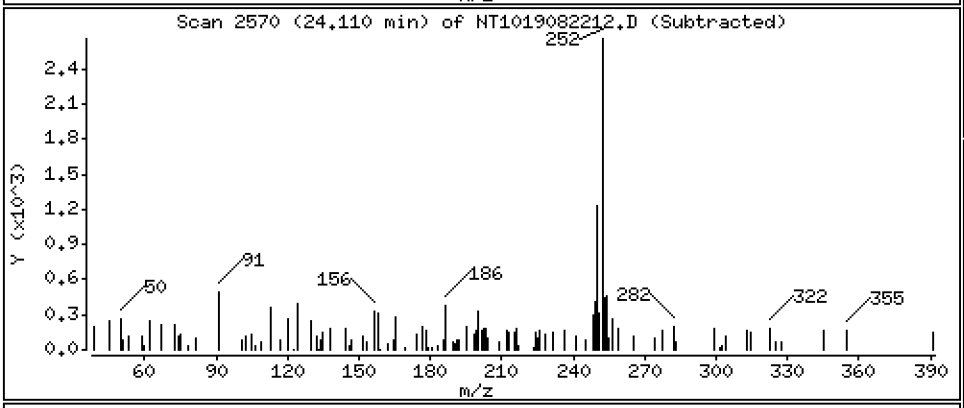
Column phase: ZB-5msi

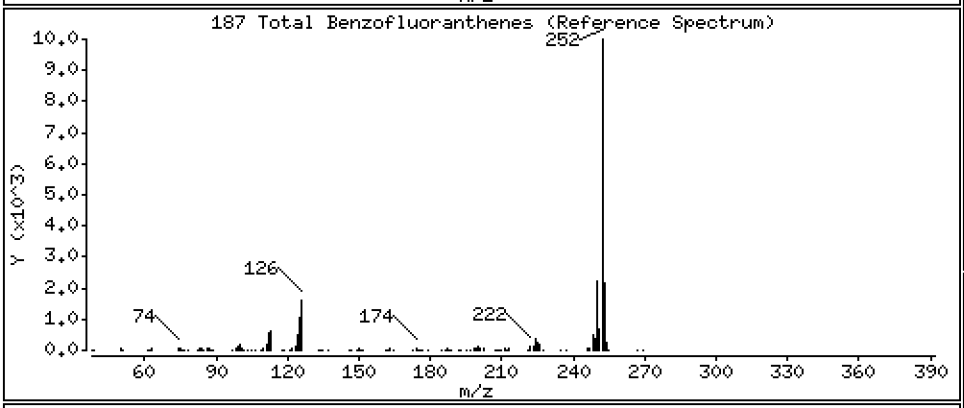
Column diameter: 0.25

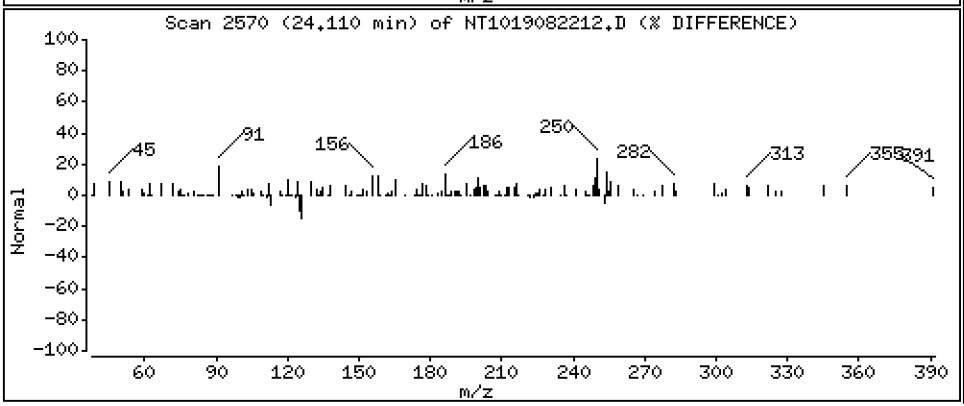
187 Total Benzofluoranthenes

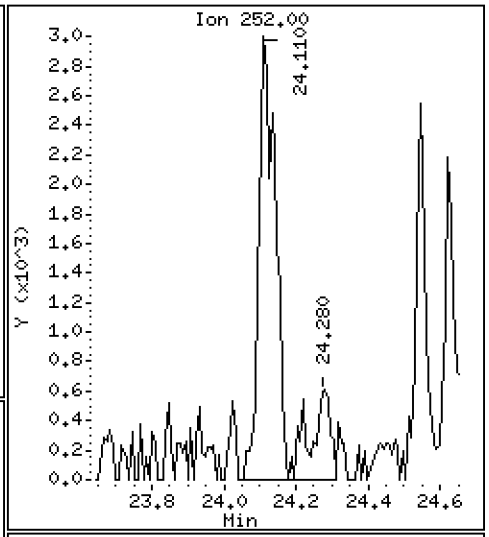
Concentration: 1.489 ug/mL

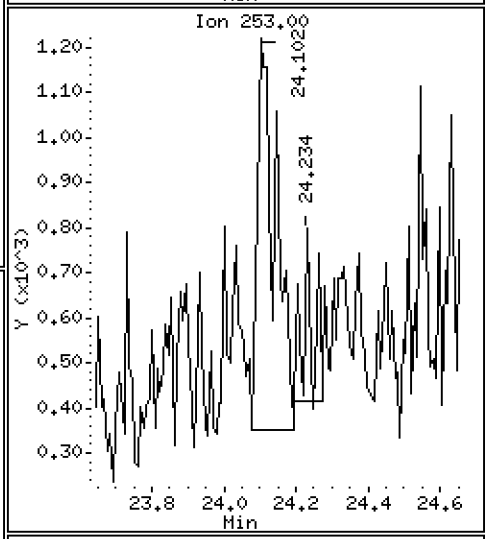


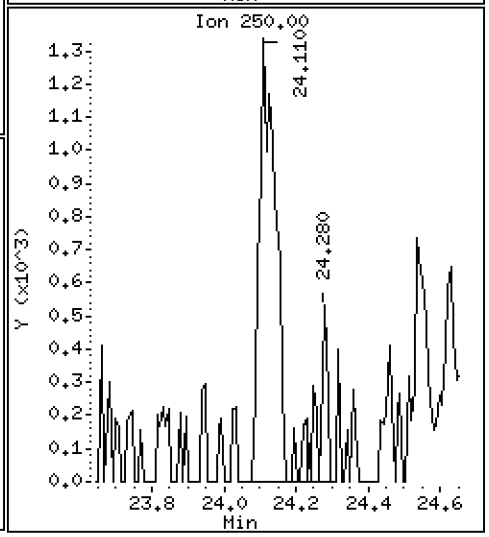












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190822.b\NT1019082212.D
Lab Smp Id: 19H0024-06RE1
Inj Date : 22-AUG-2019 20:36
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-06RE1,3
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 11:16 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 8
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.180	6.173	(0.742)	13093	0.97283	2.918
$	2 Phenol-d5	99	7.749	7.749	(0.930)	15410	1.02165	3.065
	3 Phenol	94	Compound Not Detected.					
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.958)	23734	1.46170	4.385
*	8 1,4-Dichlorobenzene-d4	152	8.329	8.329	(1.000)	47929	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.678	8.671	(1.042)	9872	0.88928	2.668
	11 Benzyl alcohol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.400	9.408	(0.873)	11454	0.81426	2.443
	24 Benzoic acid	105	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.764	10.765	(1.000)	179858	4.00000	
	28 Naphthalene	128	Compound Not Detected.					
	32 2-Methylnaphthalene	142	Compound Not Detected.					
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	35841	1.02419	3.073
	39 Dimethylphthalate	163	Compound Not Detected.					
	40 Acenaphthylene	152	Compound Not Detected.					
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	91491	4.00000	
	44 Acenaphthene	153	Compound Not Detected.					
	46 Dibenzofuran	168	Compound Not Detected.					
	50 Diethylphthalate	149	Compound Not Detected.					
	49 Fluorene	166	Compound Not Detected.					
	54 N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55 2,4,6-Tribromophenol	330	15.931	15.931	(1.113)	10940	1.58138	4.744
*	59 Phenanthrene-d10	188	17.299	17.291	(1.000)	173163	4.00000	
	60 Phenanthrene	178	17.345	17.345	(1.003)	5224	0.12350	0.3705
	61 Anthracene	178	Compound Not Detected.					
	63 Di-n-butylphthalate	149	Compound Not Detected.					
	64 Fluoranthene	202	19.751	19.751	(0.882)	12502	0.43676	1.310
	65 Pyrene	202	20.177	20.169	(0.901)	12250	0.40983	1.229
$	66 Terphenyl-d14	244	20.502	20.502	(0.916)	29656	1.46295	4.389
	67 Butylbenzylphthalate	149	Compound Not Detected.					
	68 Benzo(a)anthracene	228	22.352	22.352	(0.999)	5416	0.19929	0.5979
*	69 Chrysene-d12	240	22.383	22.383	(1.000)	93668	4.00000	
	71 Chrysene	228	22.430	22.430	(1.002)	6544	0.27212	0.8164

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.515	22.515	(0.958)	6699	0.36252	1.088
* 134	Di-n-octylphthalate-d4	153	23.490	23.490	(1.000)	210098	4.00000	
73	Di-n-octylphthalate	149	Compound Not Detected.					
74	Benzo(b)fluoranthene	252	24.110	24.110	(0.975)	5054	0.24613	0.7384
75	Benzo(k)fluoranthene	252	24.133	24.110	(0.976)	4812	0.23294	0.6988(M)
76	Benzo(a)pyrene	252	24.621	24.628	(0.996)	4241	0.23012	0.6904
* 77	Perylene-d12	264	24.729	24.721	(1.000)	71571	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.806	26.806	(1.084)	3182	0.14370	0.4311(M)
79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
80	Benzo(g,h,i)perylene	276	27.404	27.404	(1.108)	2878	0.15432	0.4629
105	1-methylnaphthalene	142	Compound Not Detected.					
187	Total Benzofluoranthenes	252	24.110	24.148	(0.975)	9777	0.49638	1.489

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082212.D
Lab Smp Id: 19H0024-06RE1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 16:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	47929	46.40
27 Naphthalene-d8	117487	58744	234974	179858	53.09
42 Acenaphthene-d10	61859	30930	123718	91491	47.90
59 Phenanthrene-d10	113574	56787	227148	173163	52.47
69 Chrysene-d12	105788	52894	211576	93668	-11.46
134 Di-n-octylphthala	252823	126412	505646	210098	-16.90
77 Perylene-d12	113992	56996	227984	71571	-37.21

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.33	-0.00
27 Naphthalene-d8	10.77	10.27	11.27	10.76	-0.00
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	-0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.30	0.04
69 Chrysene-d12	22.38	21.88	22.88	22.38	-0.00
134 Di-n-octylphthala	23.49	22.99	23.99	23.49	-0.00
77 Perylene-d12	24.72	24.22	25.22	24.73	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082212.D

Lab ID: 19H0024-06RE1
nt10.i, 20190822.b\ABN.m,   22-AUG-2019 20:36

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT1019082206.D

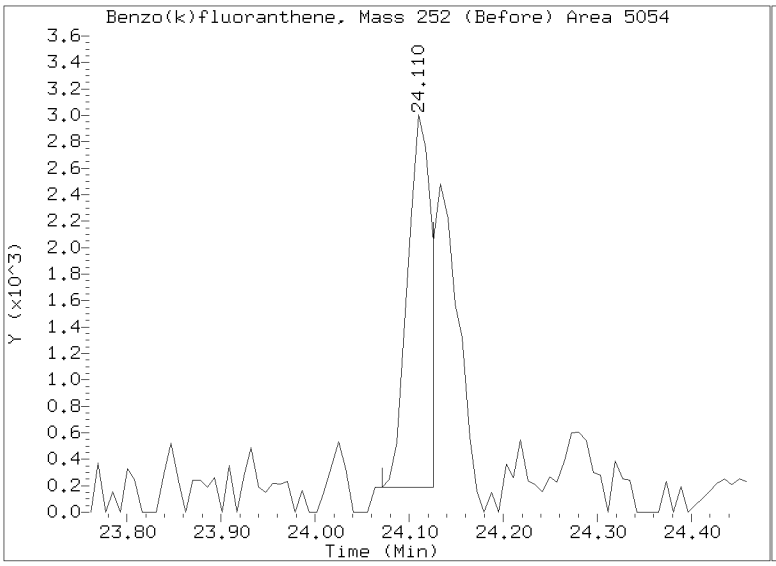
On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

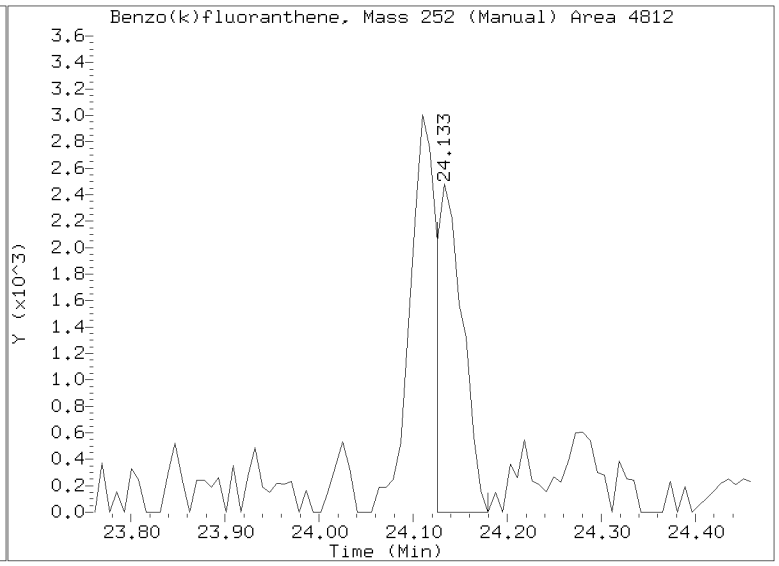
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

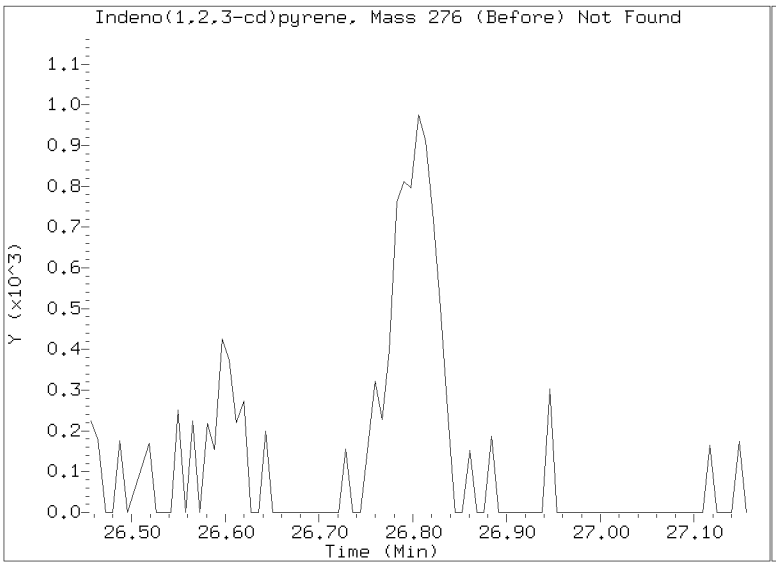
* Only compounds listed in the work order have been verified by the analyst *

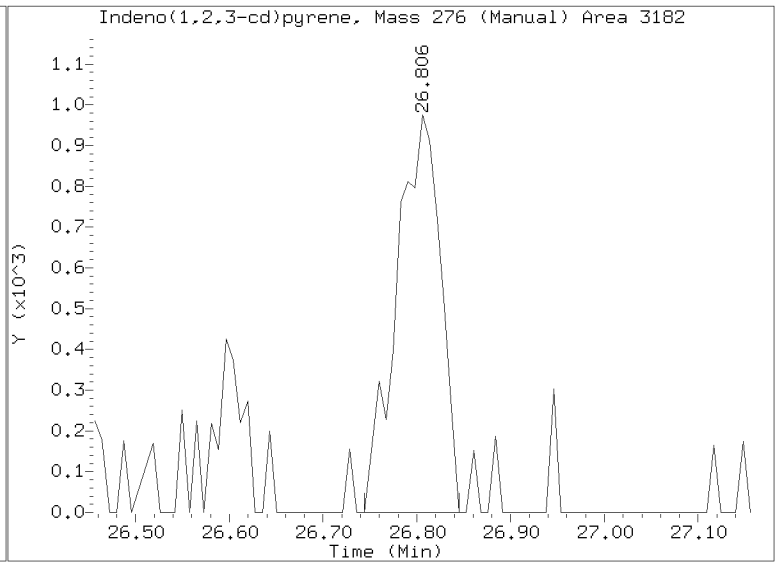
Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190822.b/NT1019082212.D
Injection Date: 22-AUG-2019 20:36
Lab ID:19H0024-06RE1 Client ID:
Report Date: 08/23/2019 11:17









SL4-SG-WC4-2019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D

Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-07 C	SDG:	19H0024
Sampled:	08/01/19 10:08	Prepared:	08/13/19 12:40	File ID:	NT1019082116.D
% Solids:	71.82	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/21/19 19:31
Batch:	BHH0289	Sequence:	SHH0303	Initial/Final:	14.08 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040
Cleanups:	GPC				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	1	12.5	J	8.1	19.8
100-51-6	Benzyl Alcohol	1	19.8	U	14.7	19.8
65-85-0	Benzoic acid	1	198	U	58.4	198
86-30-6	N-Nitrosodiphenylamine	1	19.8	U	9.5	19.8
85-01-8	Phenanthrene	1	112		4.6	19.8
206-44-0	Fluoranthene	1	495		4.5	19.8
129-00-0	Pyrene	1	365		5.5	19.8
85-68-7	Butylbenzylphthalate	1	19.8	U	8.0	19.8
56-55-3	Benzo(a)anthracene	1	122		5.1	19.8
218-01-9	Chrysene	1	222		5.2	19.8
117-81-7	bis(2-Ethylhexyl)phthalate	1	730		28.5	49.4
117-84-0	Di-n-Octylphthalate	1	19.8	U	8.6	19.8
	Benzofluoranthenes, Total	1	457		10.1	39.6
50-32-8	Benzo(a)pyrene	1	170		6.4	19.8
193-39-5	Indeno(1,2,3-cd)pyrene	1	102		5.9	19.8
53-70-3	Dibenzo(a,h)anthracene	1	19.8	U	6.1	19.8
191-24-2	Benzo(g,h,i)perylene	1	106		5.8	19.8

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	741.67	431	58.1	27 - 120	Q
Phenol-d5	741.67	413	55.7	29 - 120	Q
2-Chlorophenol-d4	741.67	550	74.2	31 - 120	
1,2-Dichlorobenzene-d4	494.45	372	75.2	32 - 120	
Nitrobenzene-d5	494.45	363	73.4	30 - 120	
2-Fluorobiphenyl	494.45	404	81.8	35 - 120	
2,4,6-Tribromophenol	741.67	616	83.1	24 - 134	
p-Terphenyl-d14	494.45	582	118	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082116.D

Date : 21-AUG-2019 19:31

Client ID:

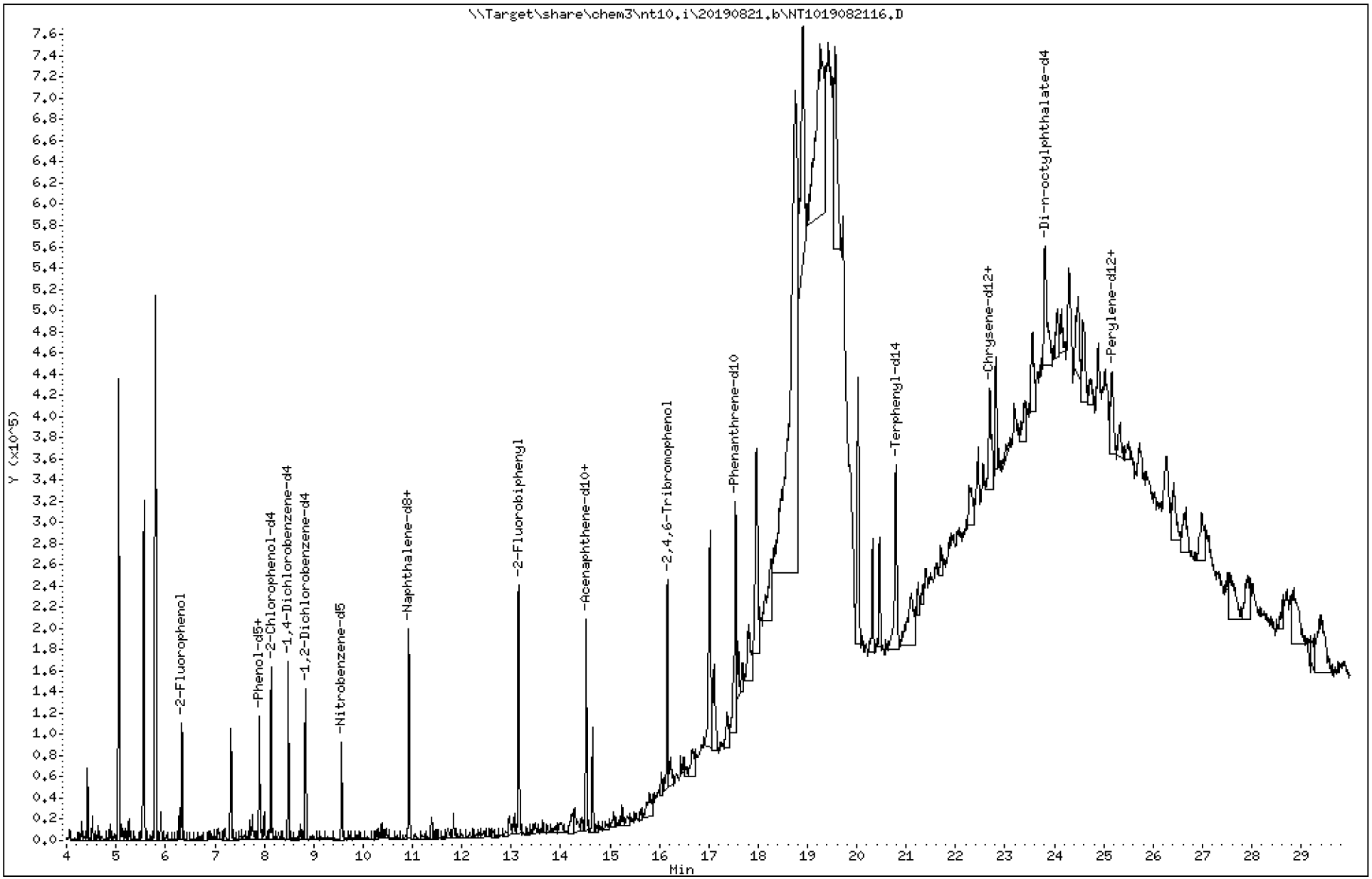
Instrument: nt10.i

Sample Info: 19H0024-07

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

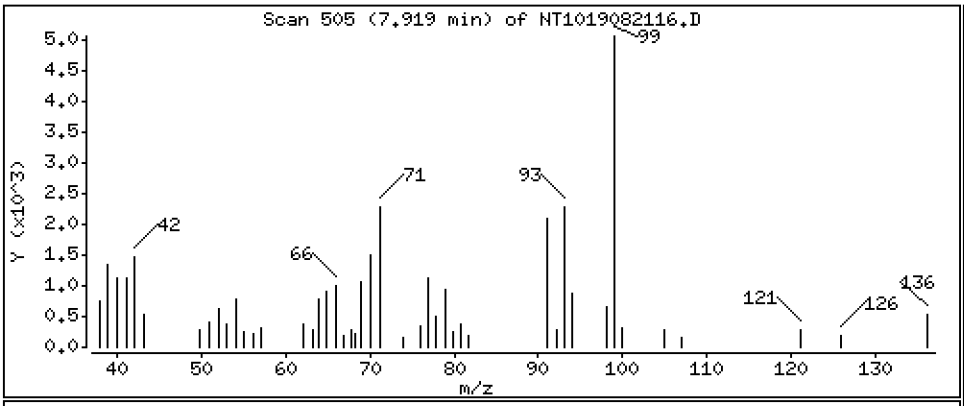
Operator: YZ

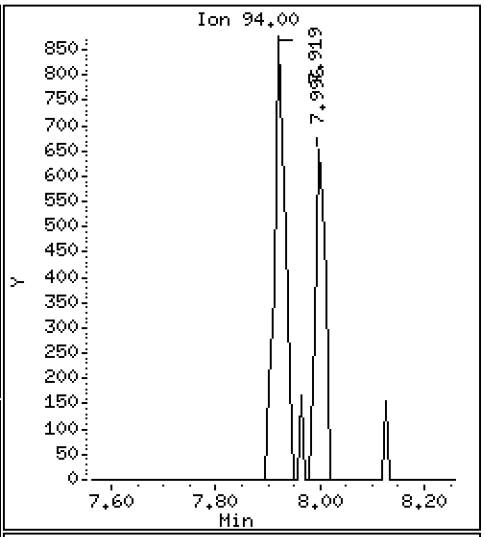
Column phase: ZB-5msi

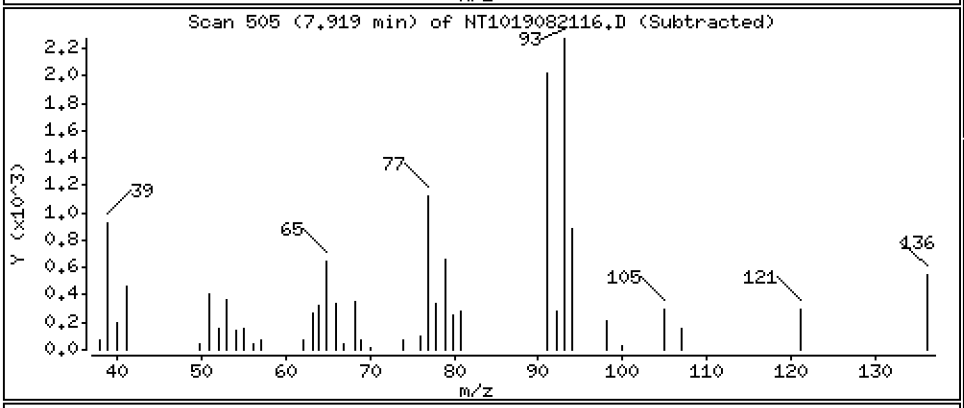
Column diameter: 0.25

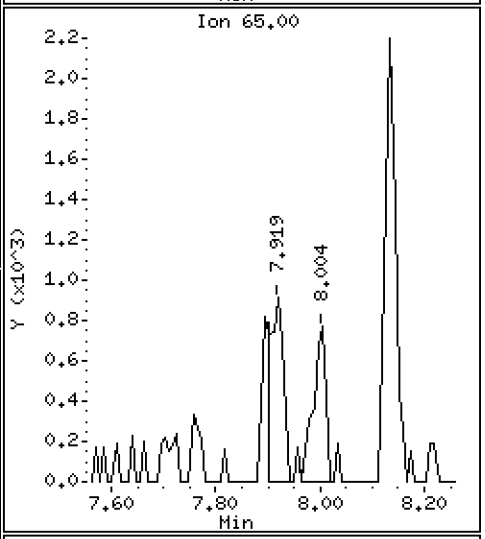
3 Phenol

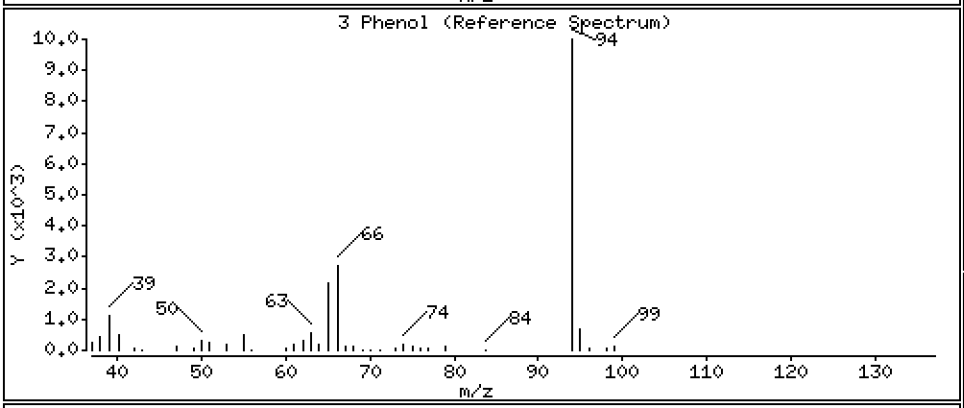
Concentration: 0.1264 ug/mL

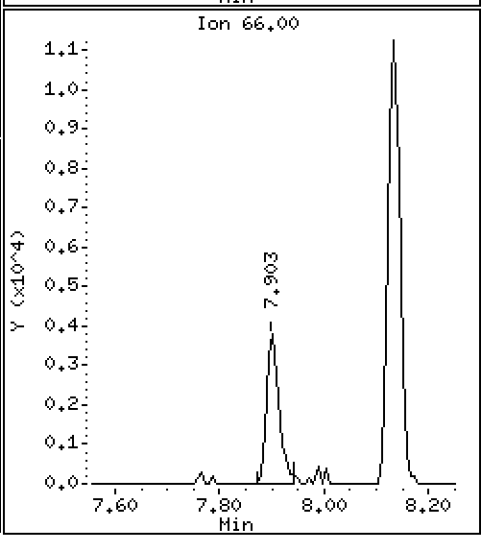


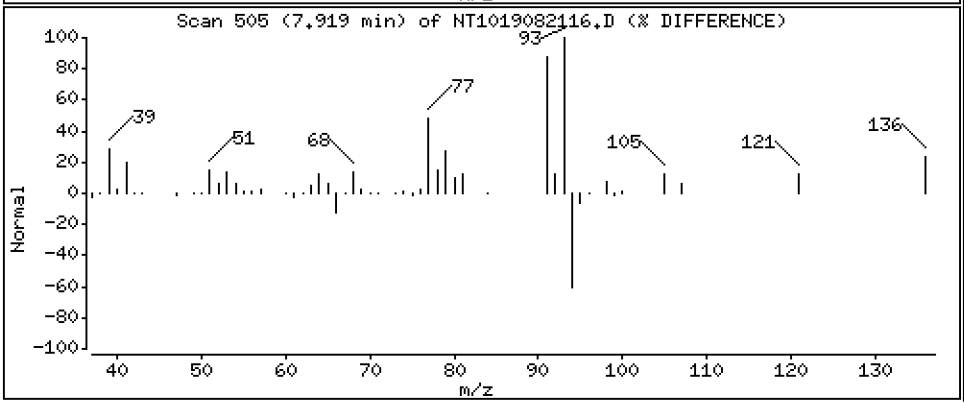












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Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

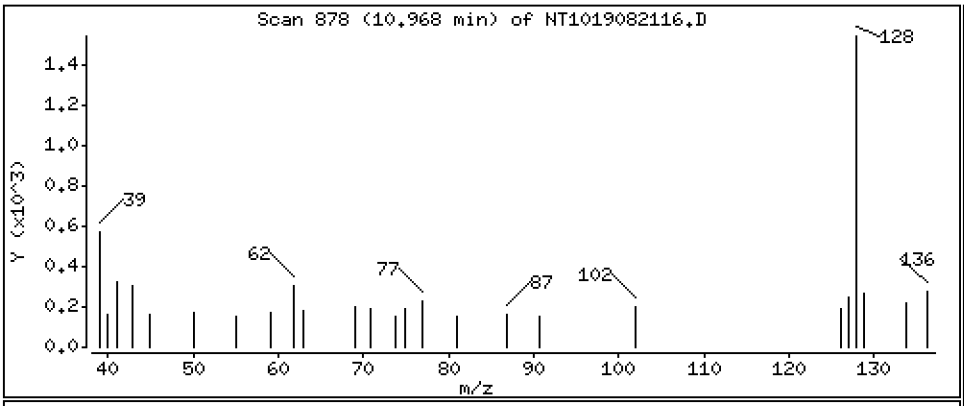
Operator: YZ

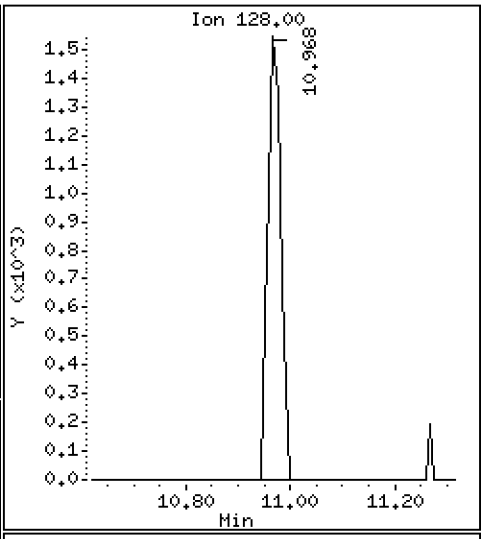
Column phase: ZB-5msi

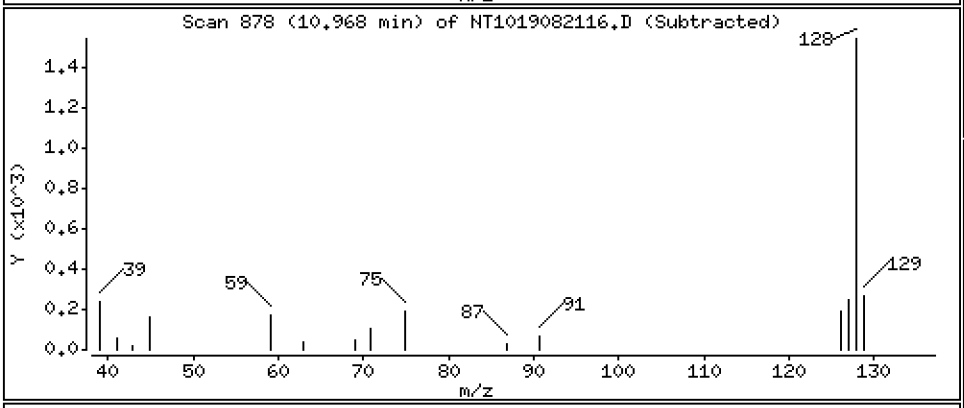
Column diameter: 0.25

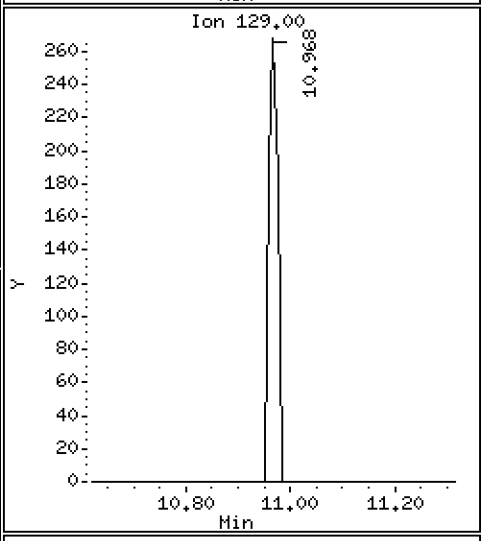
28 Naphthalene

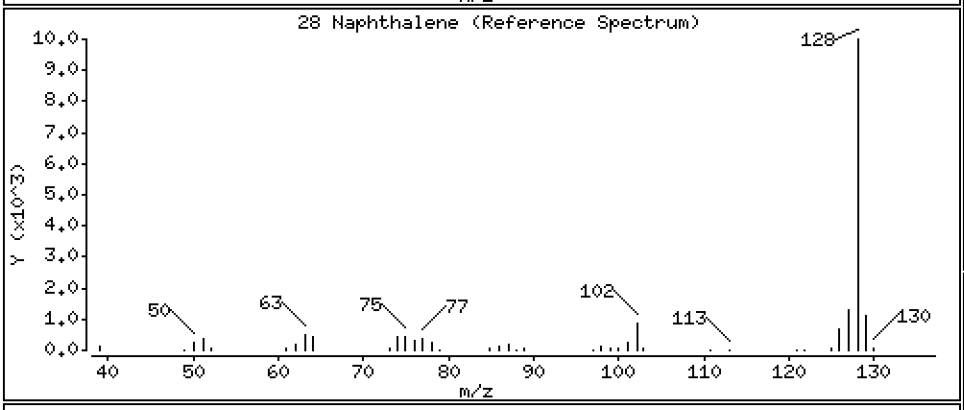
Concentration: 0.08370 ug/mL

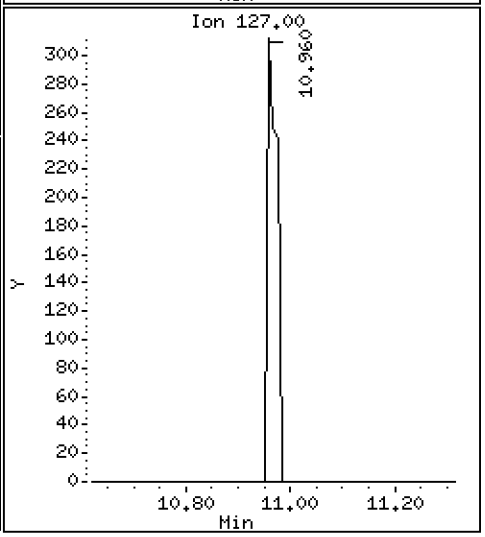


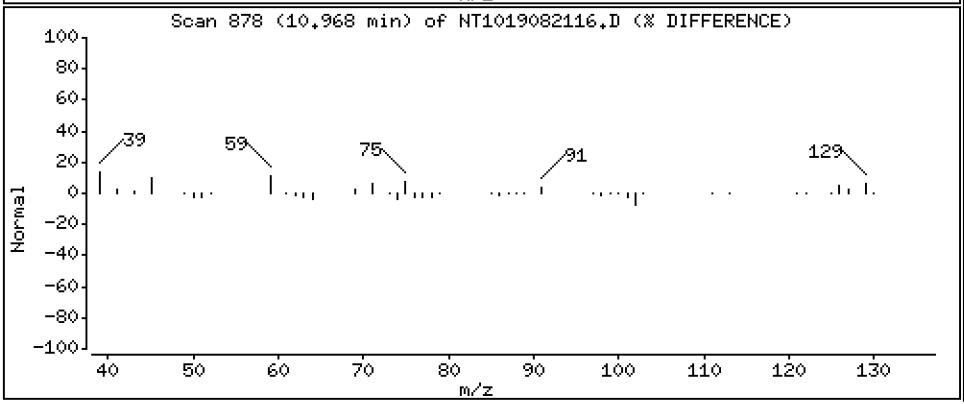












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Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

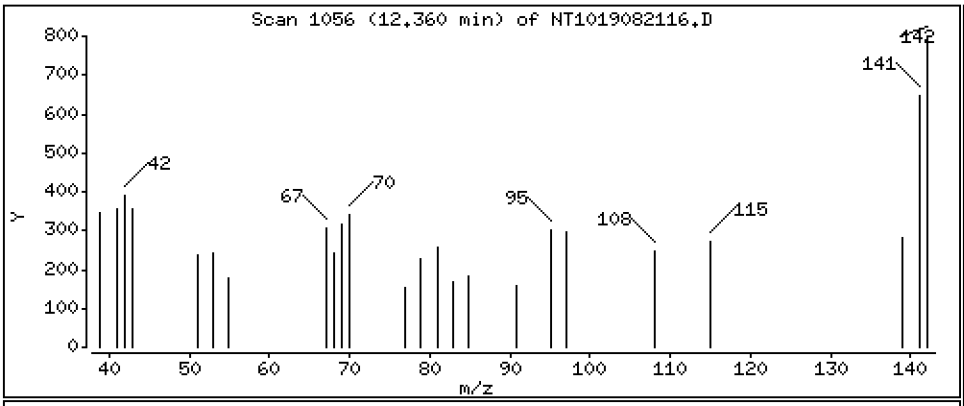
Operator: YZ

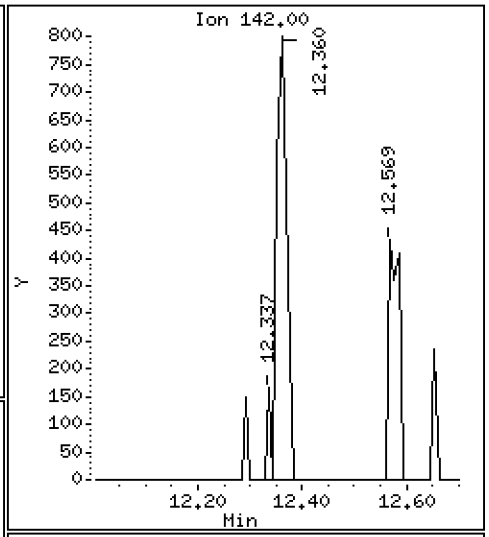
Column phase: ZB-5msi

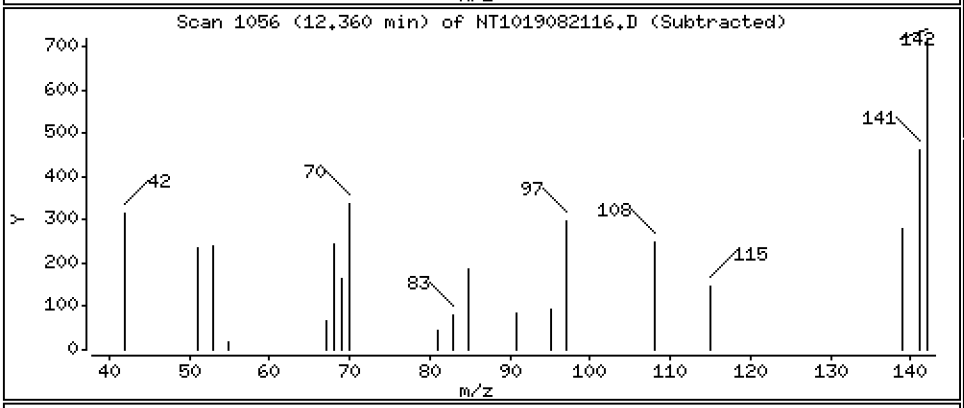
Column diameter: 0.25

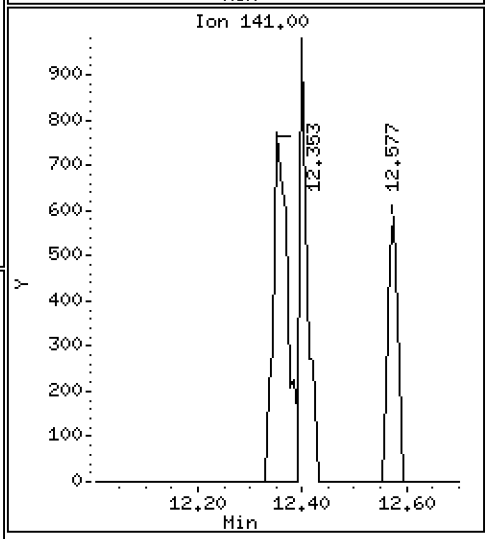
32 2-Methylnaphthalene

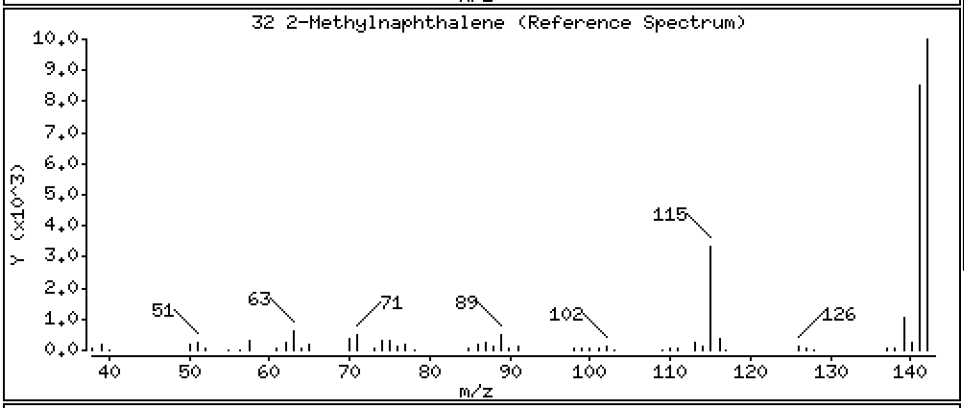
Concentration: 0.03847 ug/mL

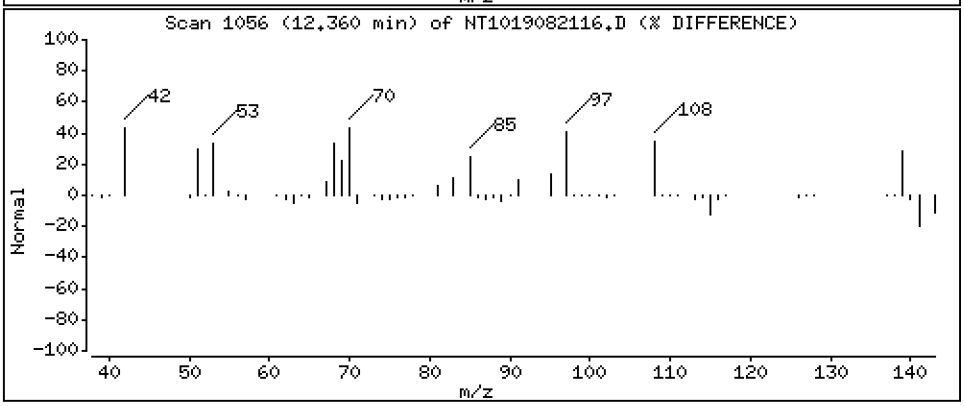












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Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

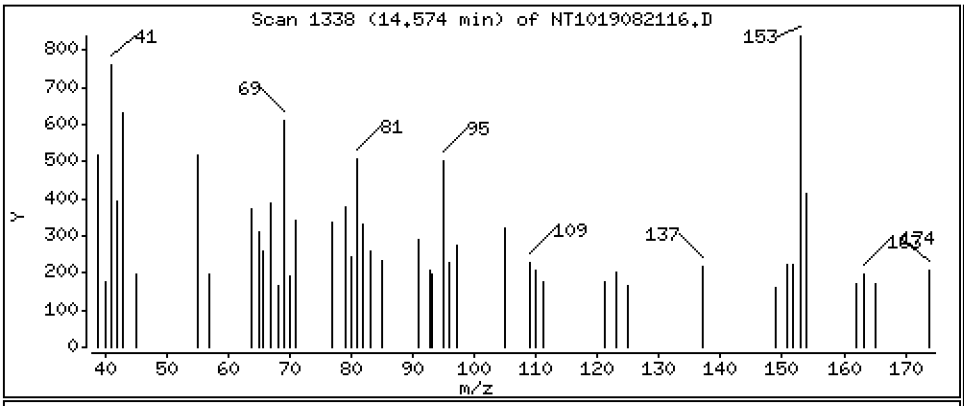
Operator: YZ

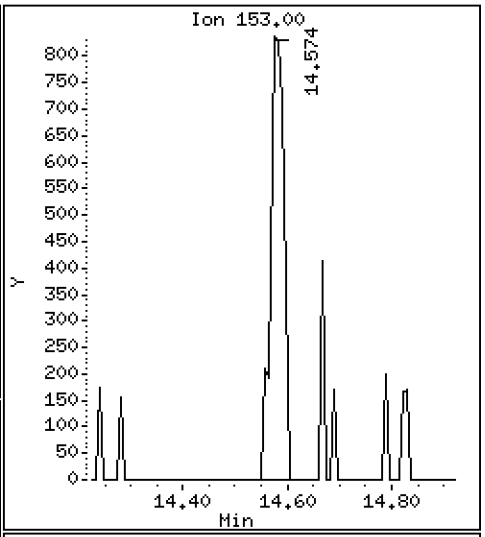
Column phase: ZB-5msi

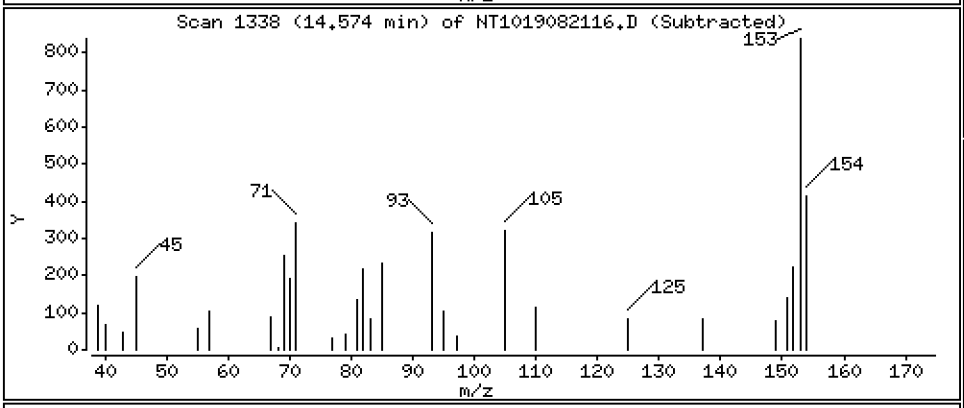
Column diameter: 0.25

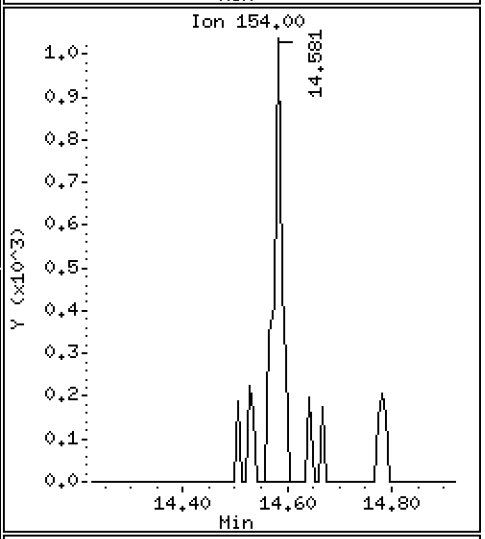
44 Acenaphthene

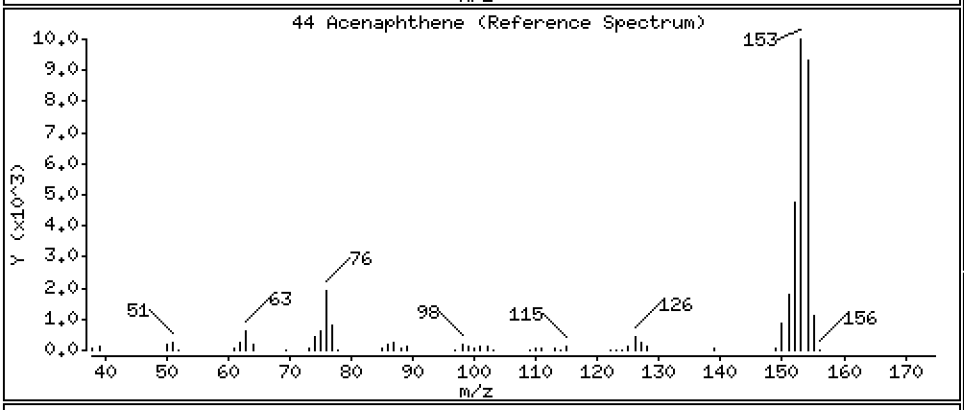
Concentration: 0.06730 ug/mL

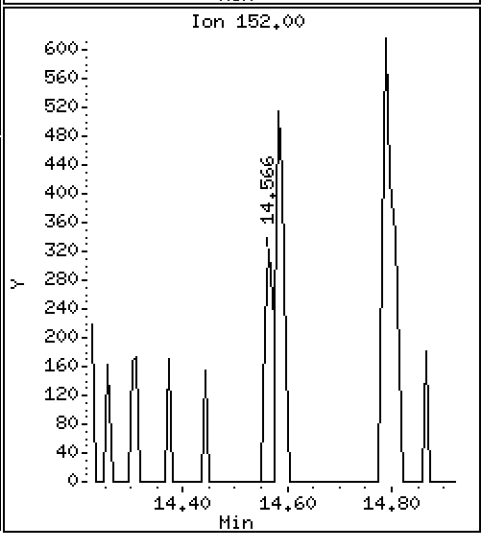


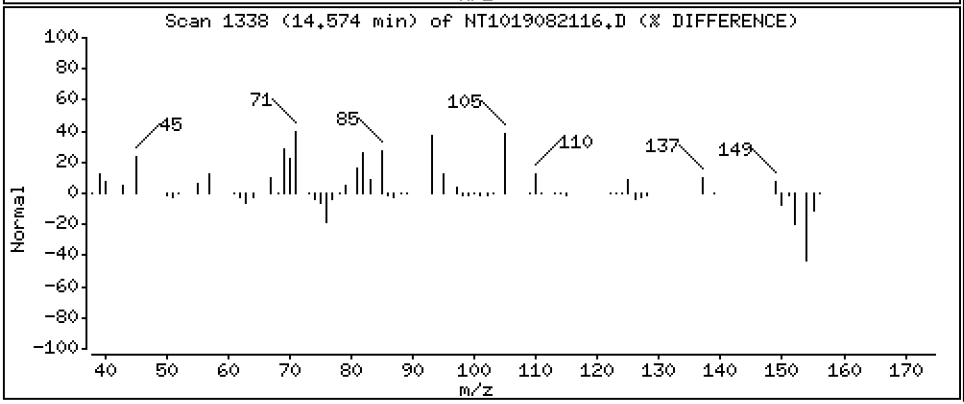












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Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

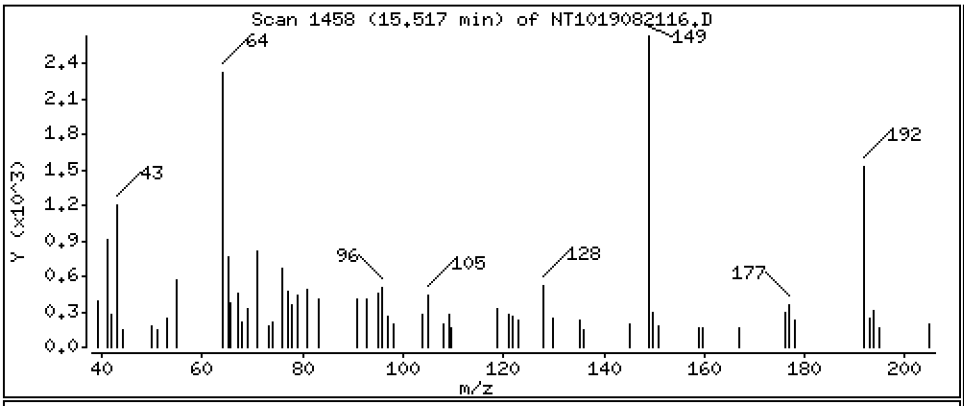
Operator: YZ

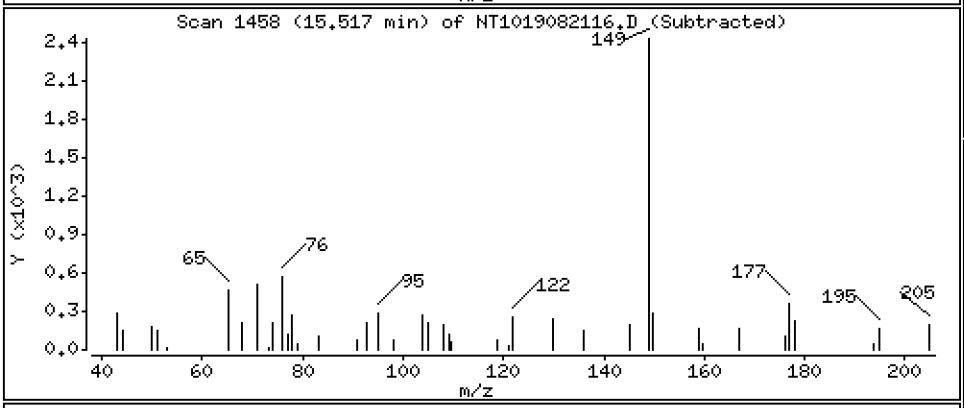
Column phase: ZB-5msi

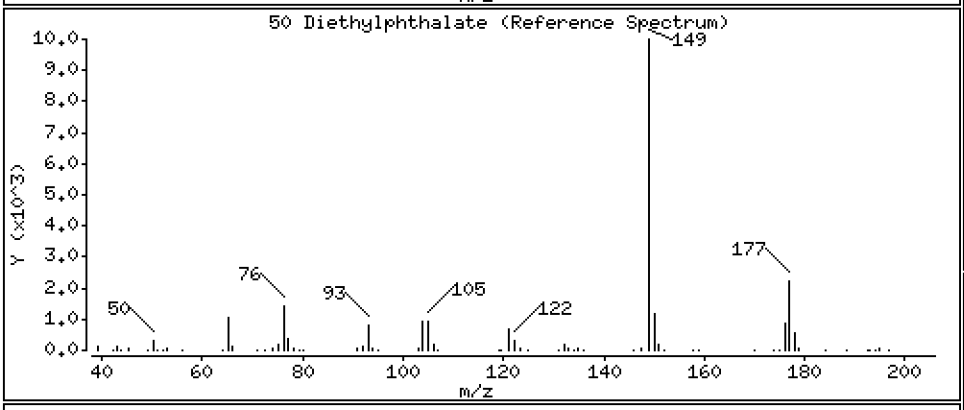
Column diameter: 0.25

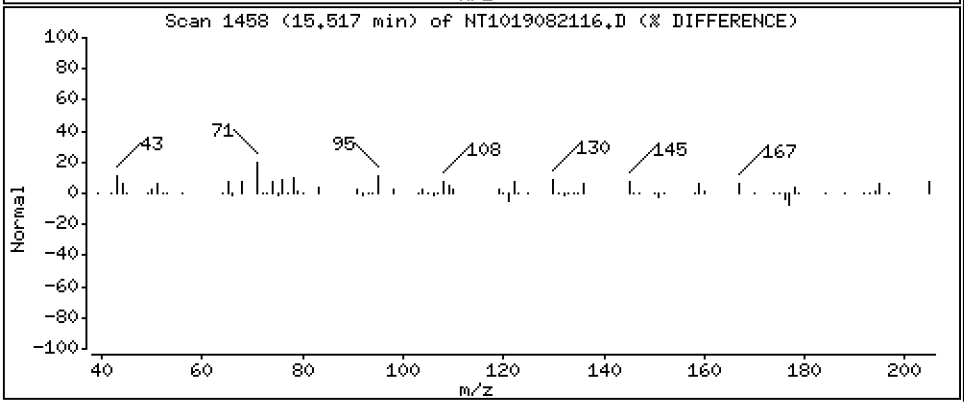
50 Diethylphthalate

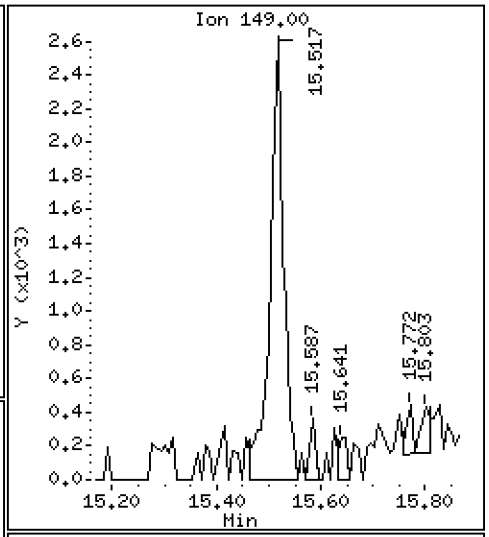
Concentration: 0.1764 ug/mL

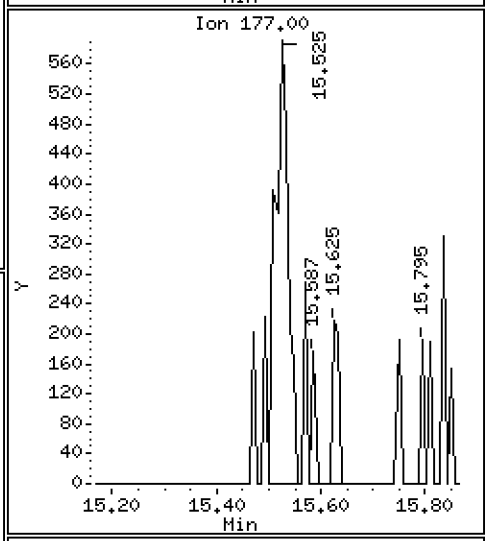


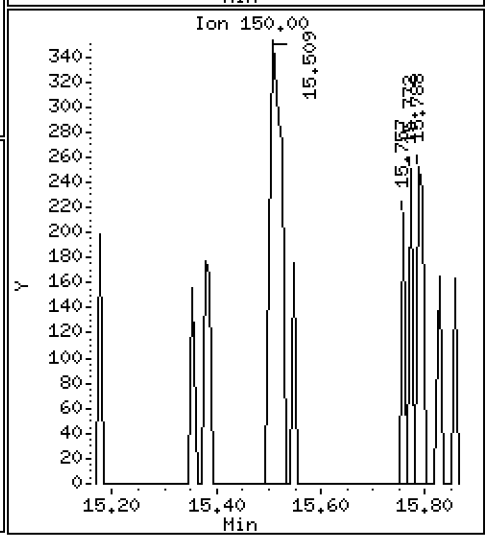












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Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

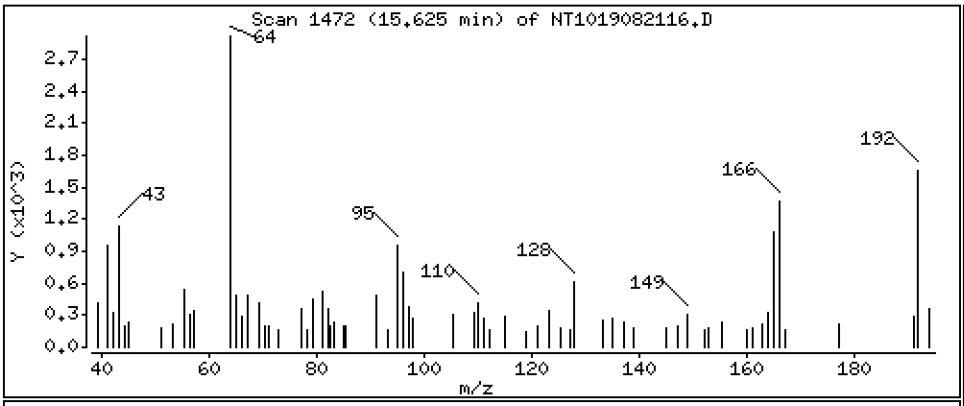
Operator: YZ

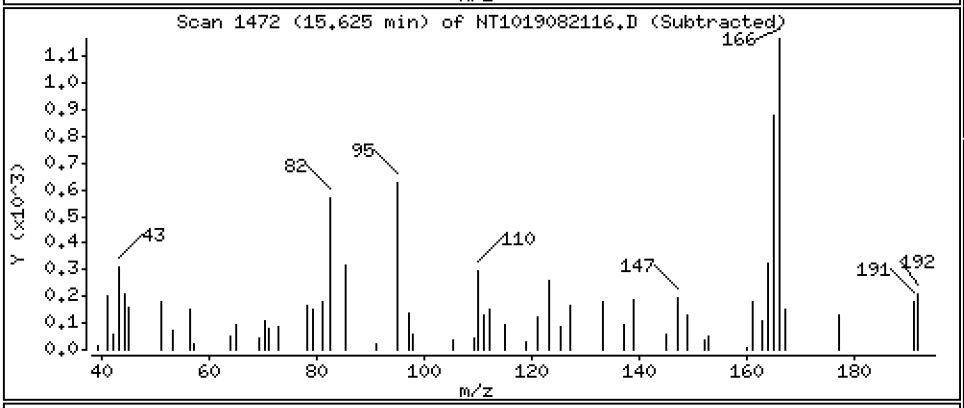
Column phase: ZB-5msi

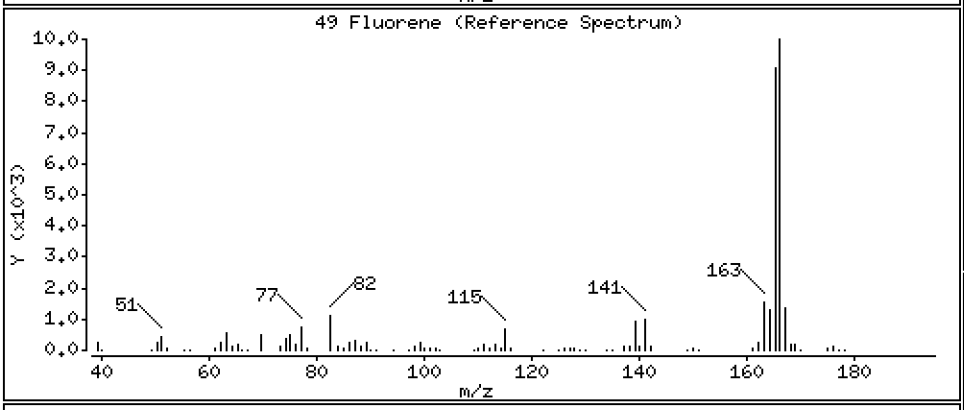
Column diameter: 0.25

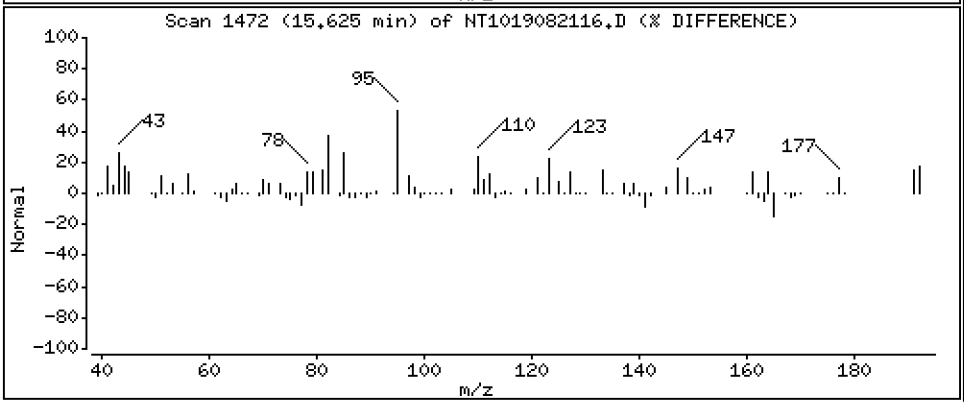
49 Fluorene

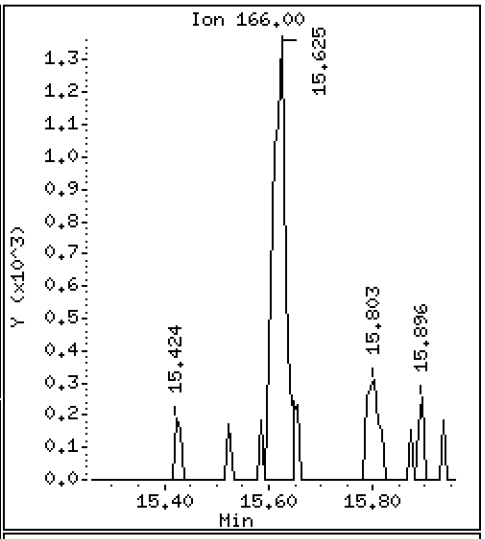
Concentration: 0.09517 ug/mL

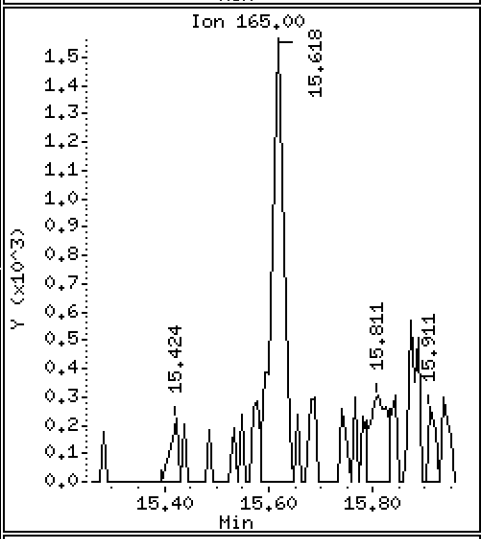


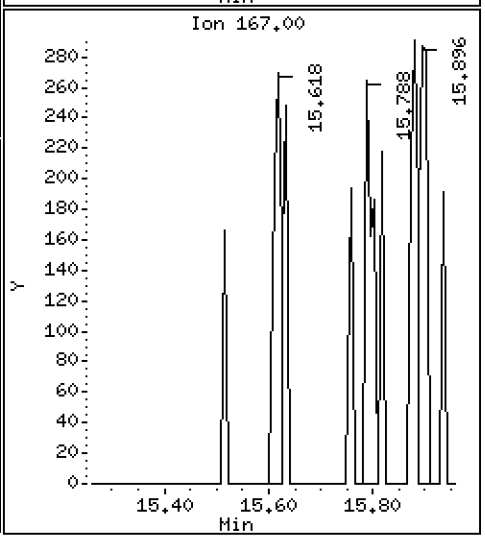












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082116.D

Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

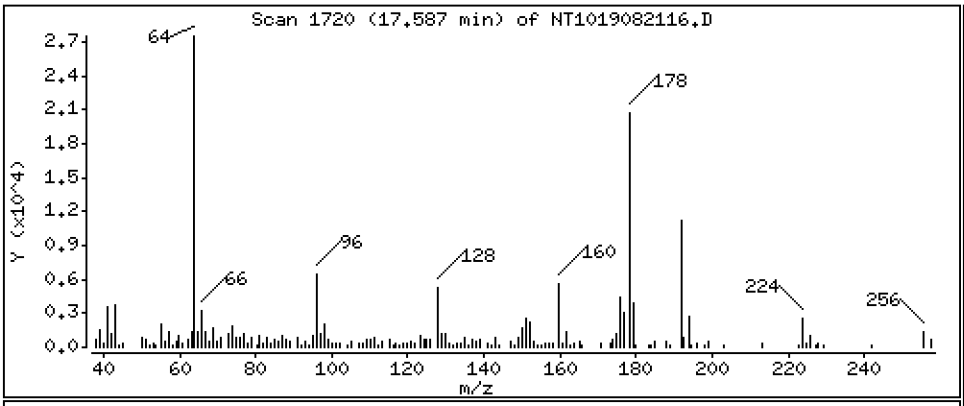
Operator: YZ

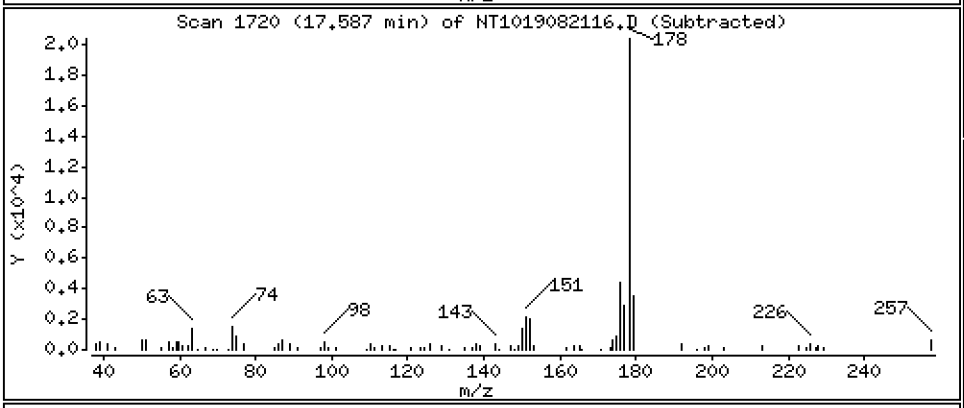
Column phase: ZB-5msi

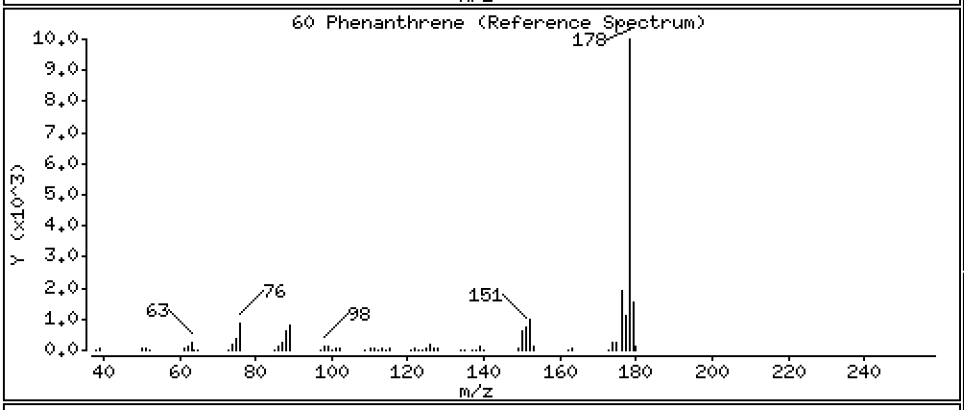
Column diameter: 0.25

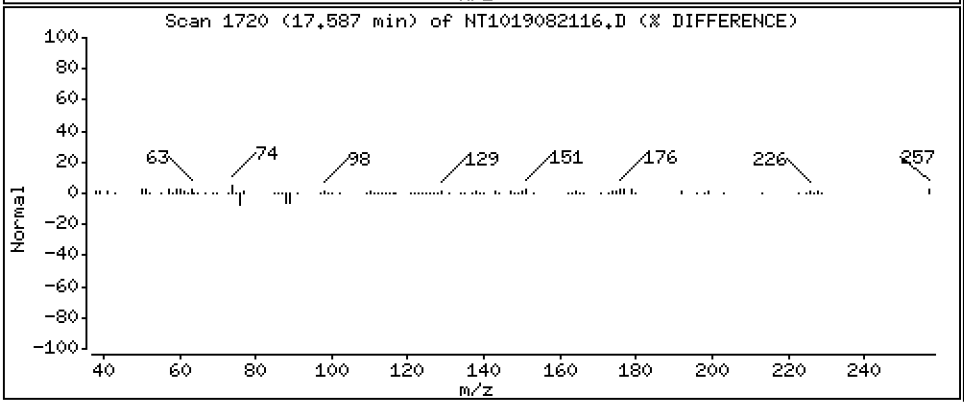
60 Phenanthrene

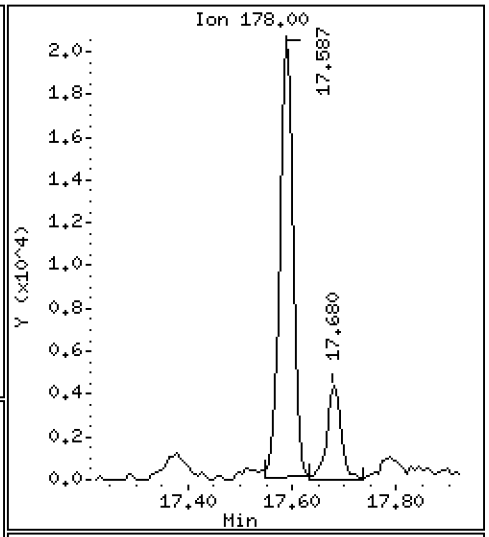
Concentration: 1.134 ug/mL

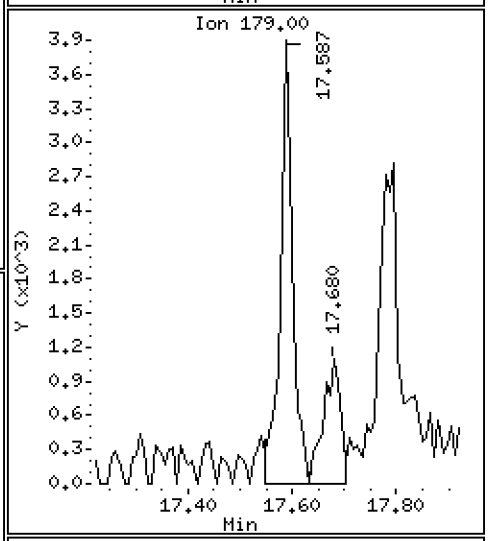


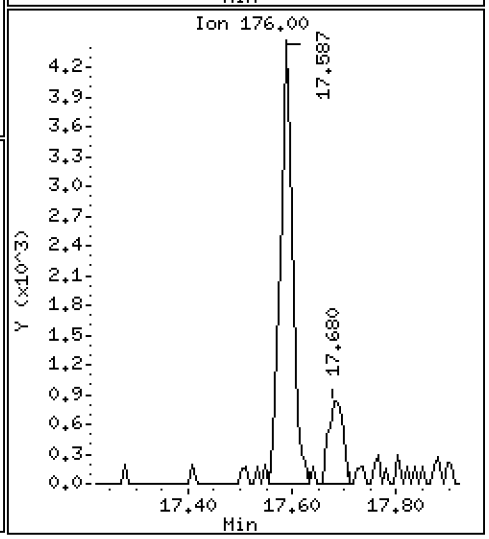












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082116.D

Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

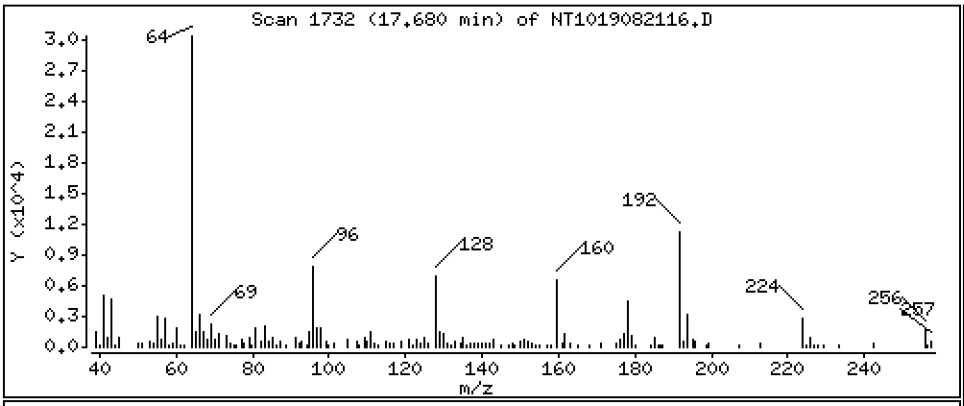
Operator: YZ

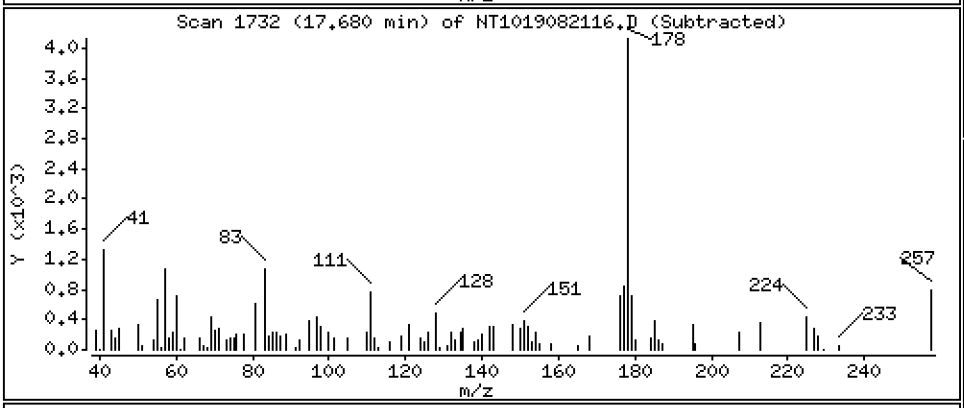
Column phase: ZB-5msi

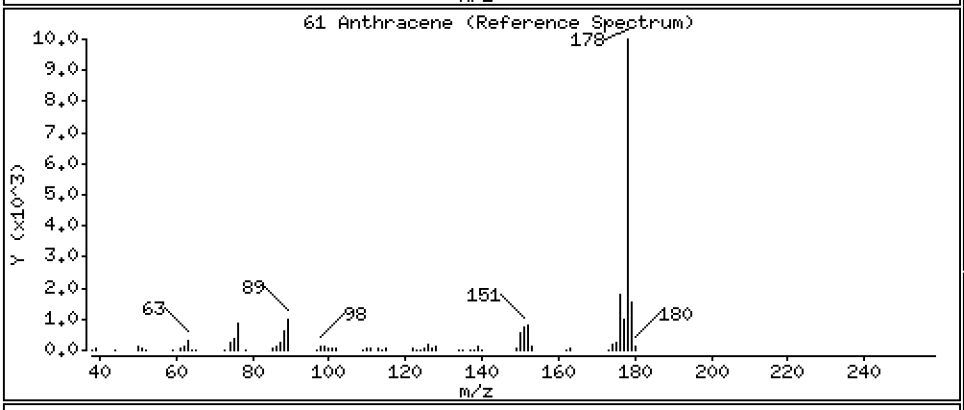
Column diameter: 0.25

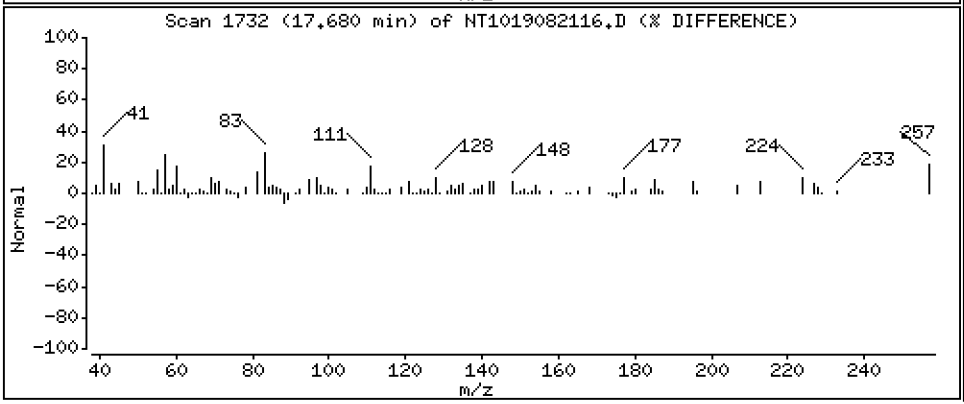
61 Anthracene

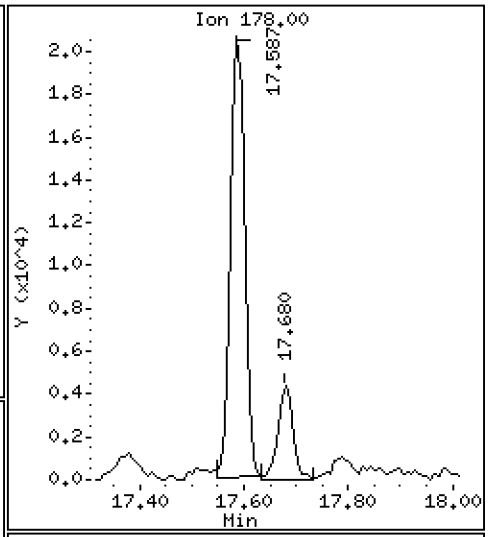
Concentration: 0.2641 ug/mL

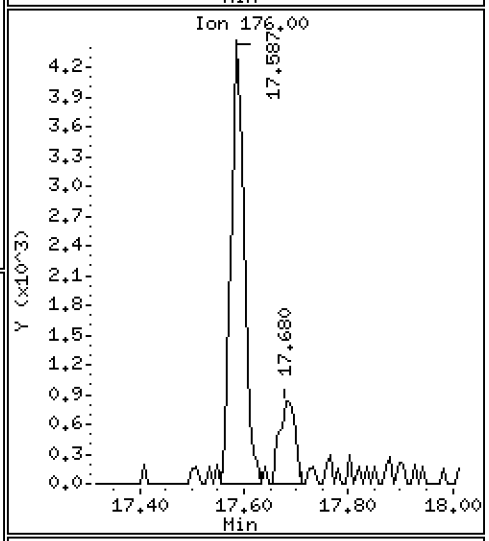


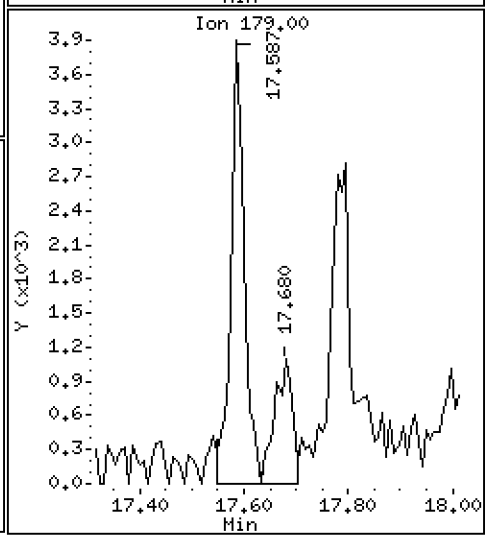












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082116.D

Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

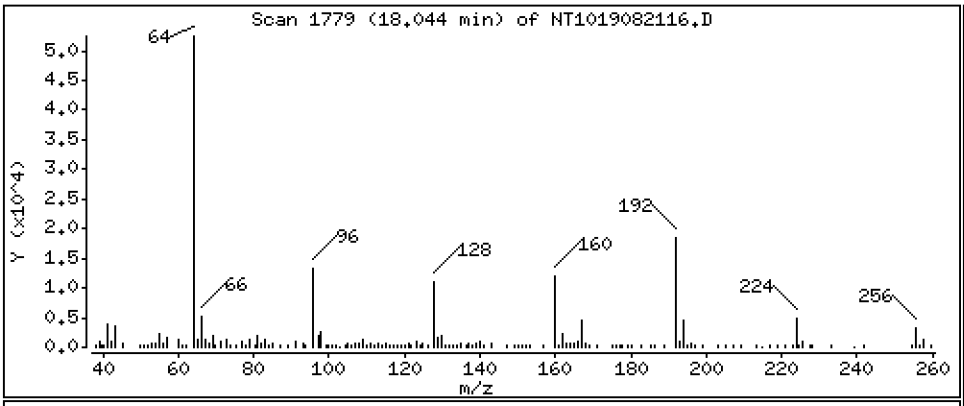
Operator: YZ

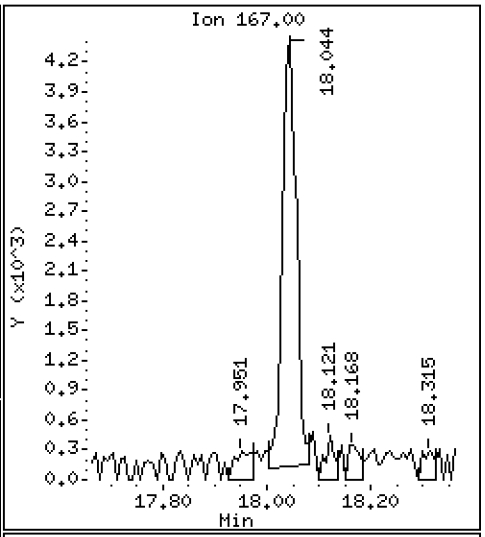
Column phase: ZB-5msi

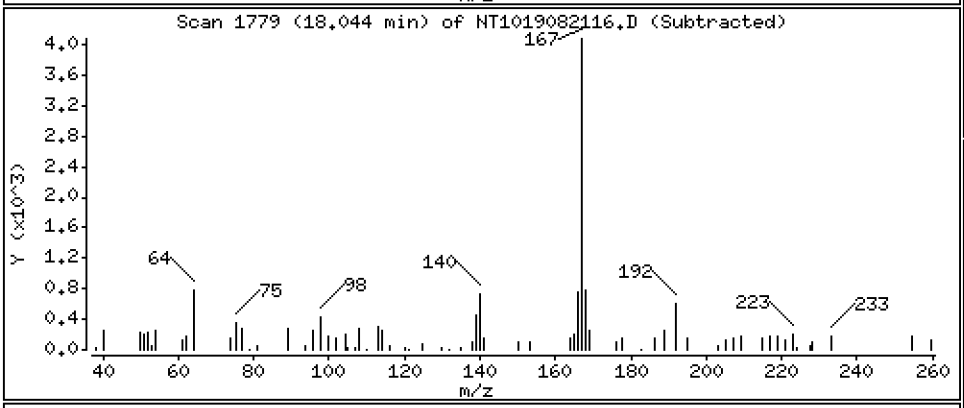
Column diameter: 0.25

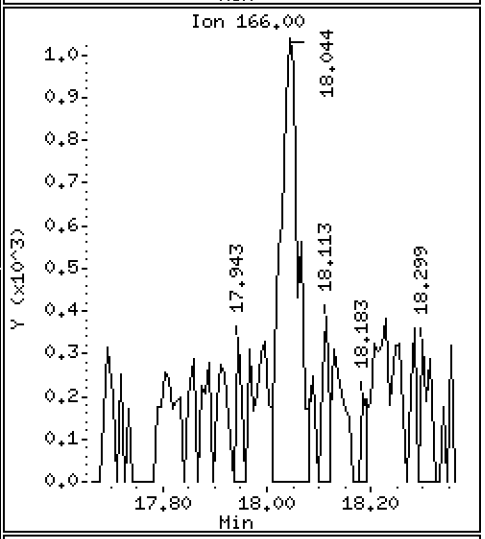
62 Carbazole

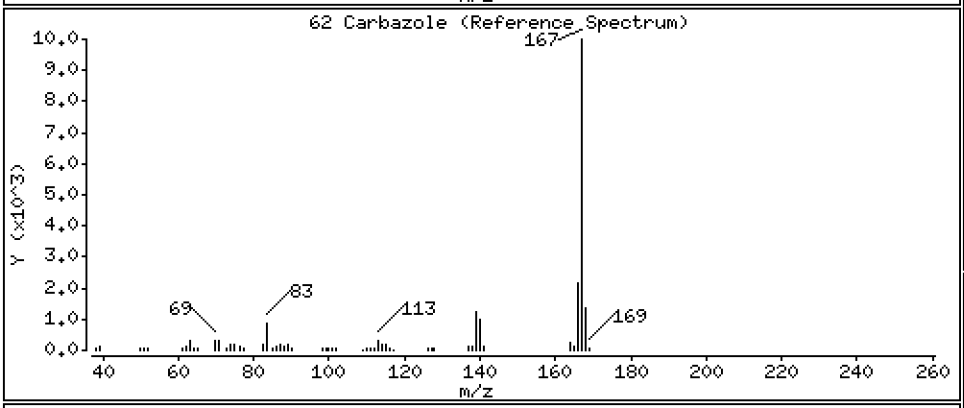
Concentration: 0.2710 ug/mL

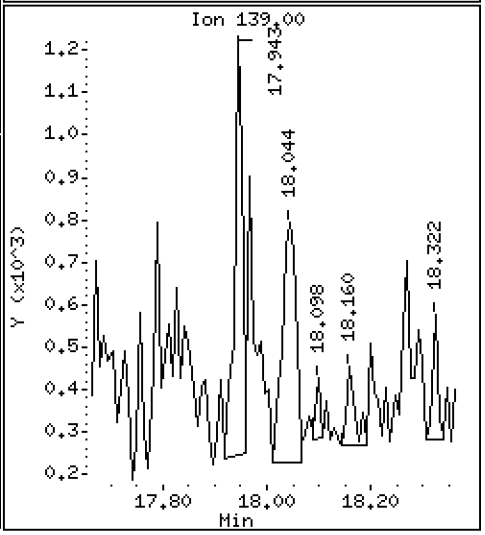


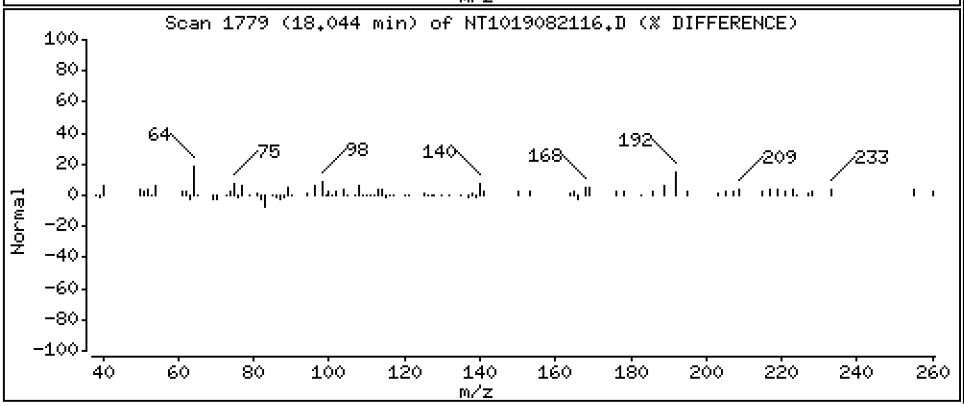












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082116.D

Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

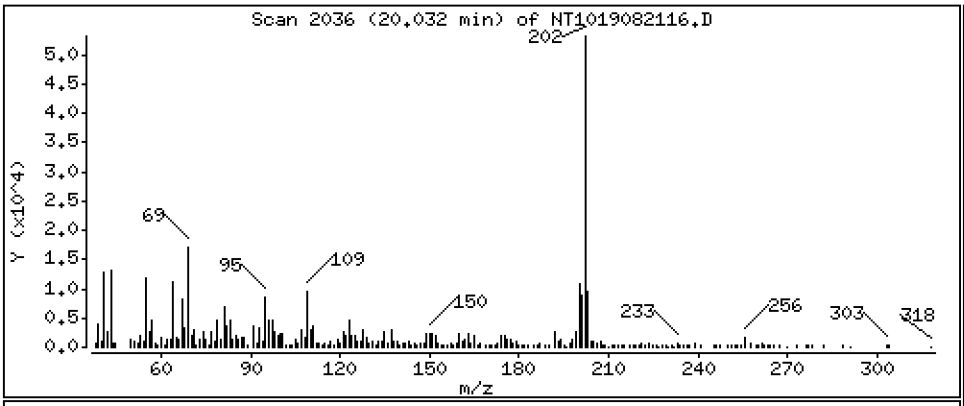
Operator: YZ

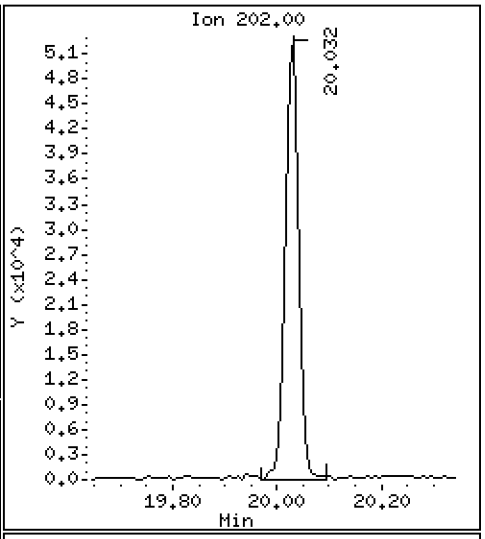
Column phase: ZB-5msi

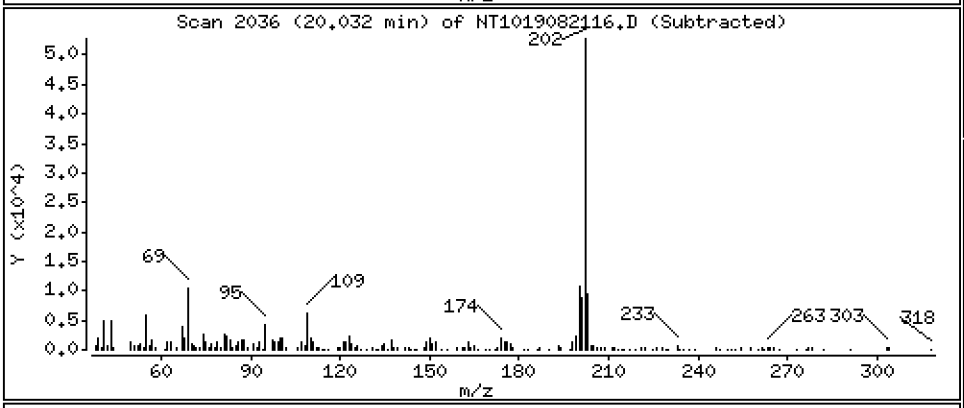
Column diameter: 0.25

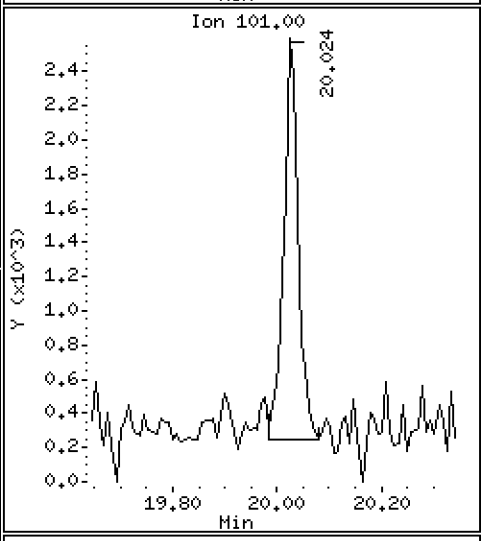
64 Fluoranthene

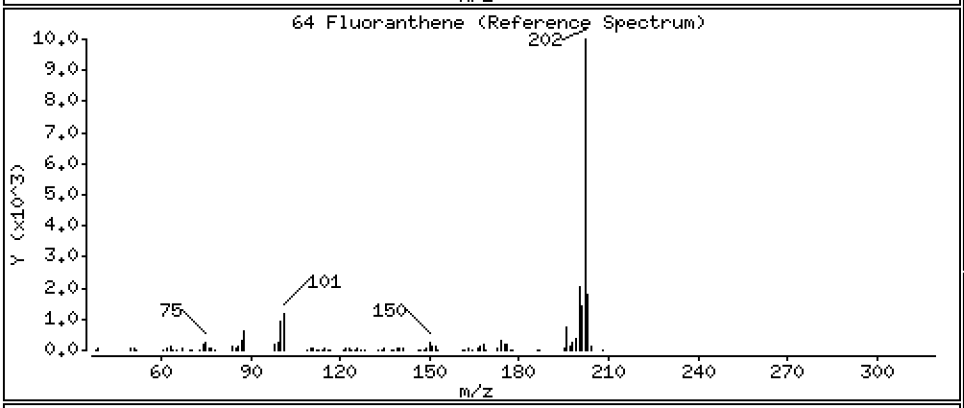
Concentration: 5.006 ug/mL

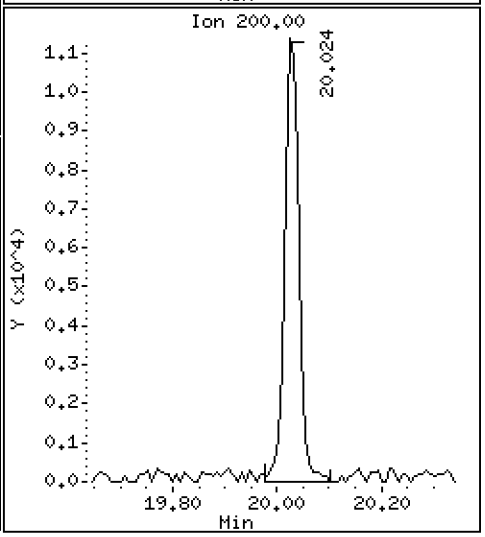


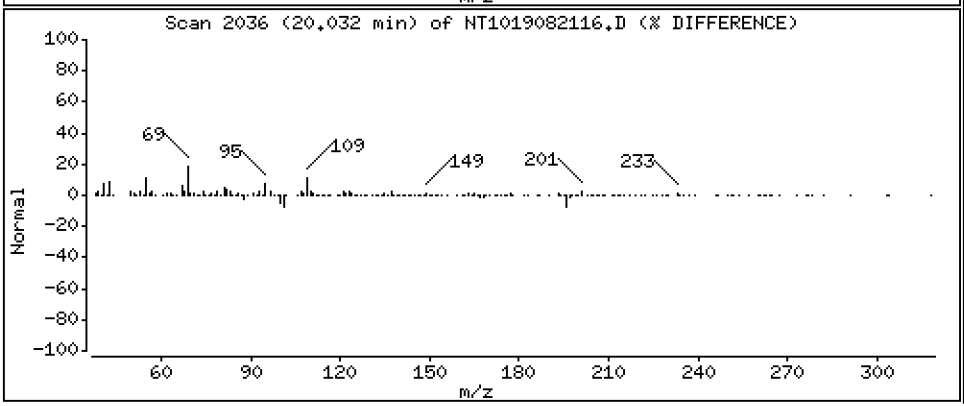












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082116.D

Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

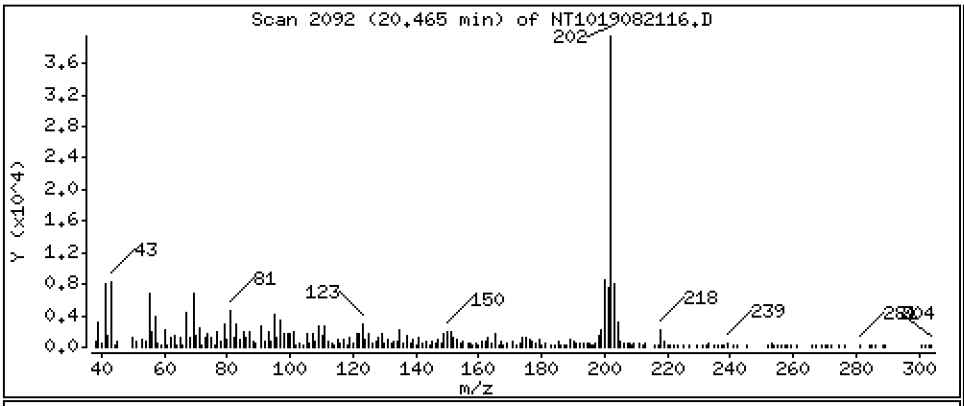
Operator: YZ

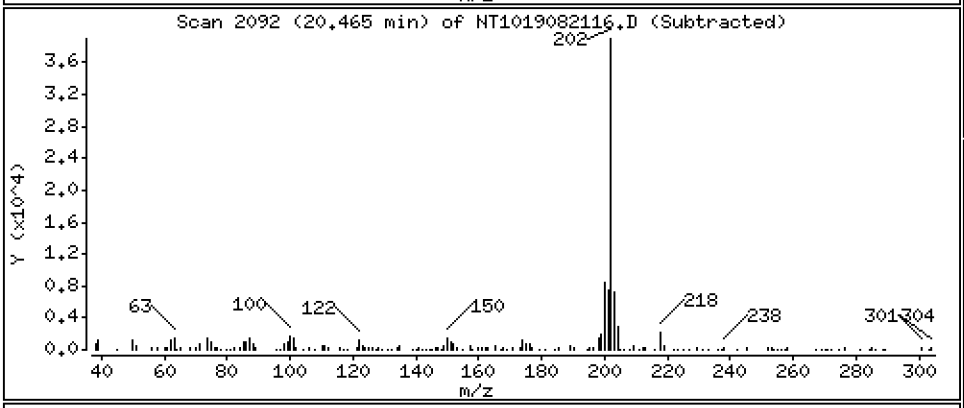
Column phase: ZB-5msi

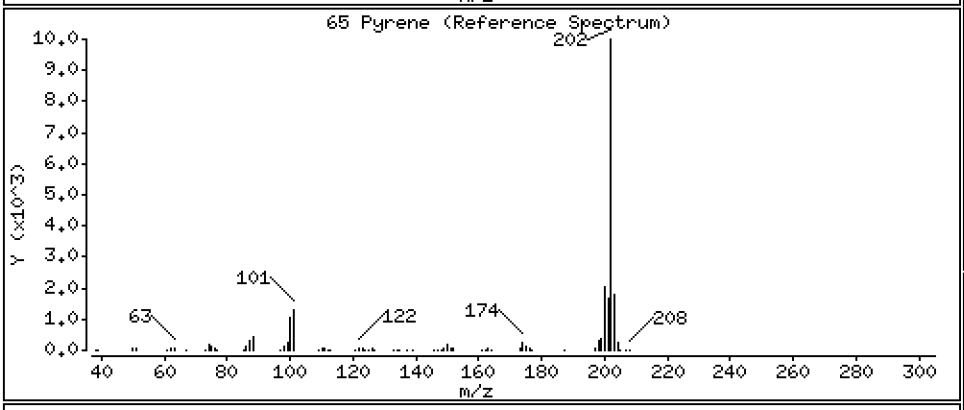
Column diameter: 0.25

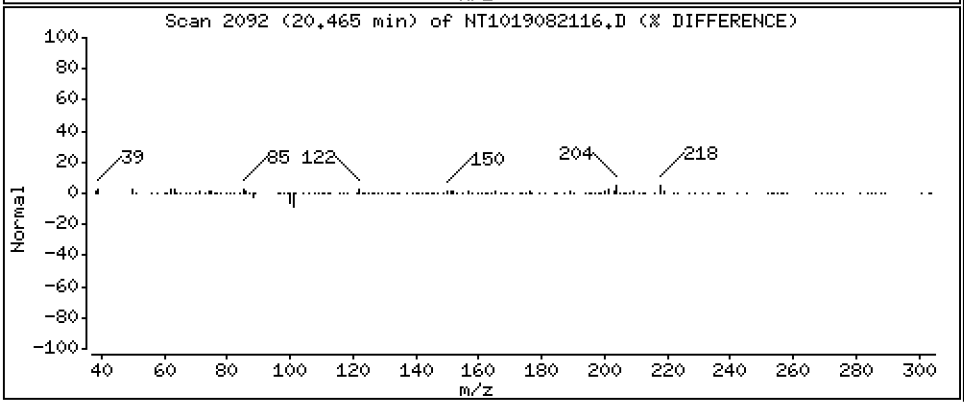
65 Pyrene

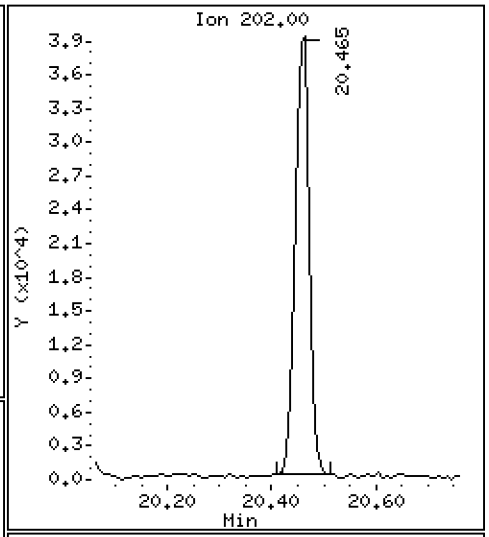
Concentration: 3.689 ug/mL

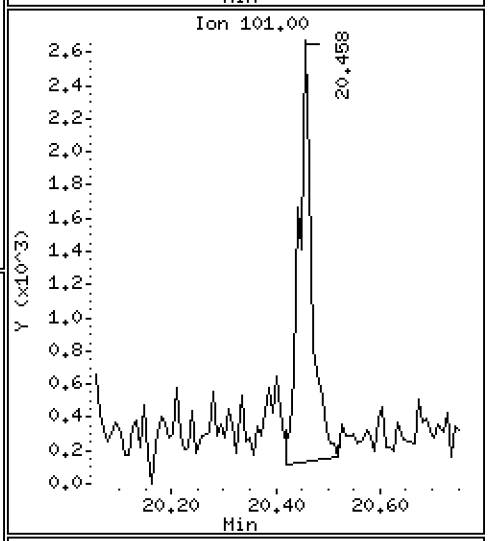


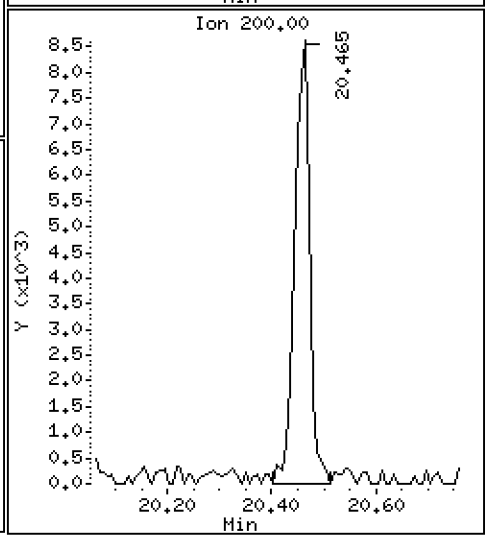












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082116.D

Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

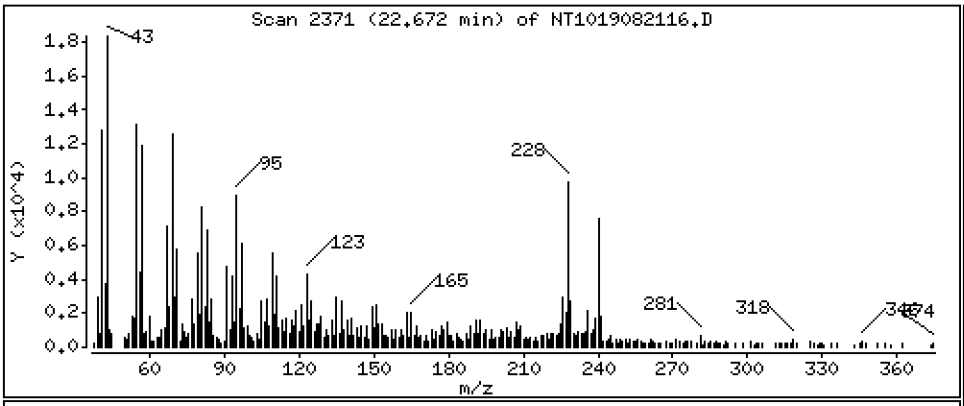
Operator: YZ

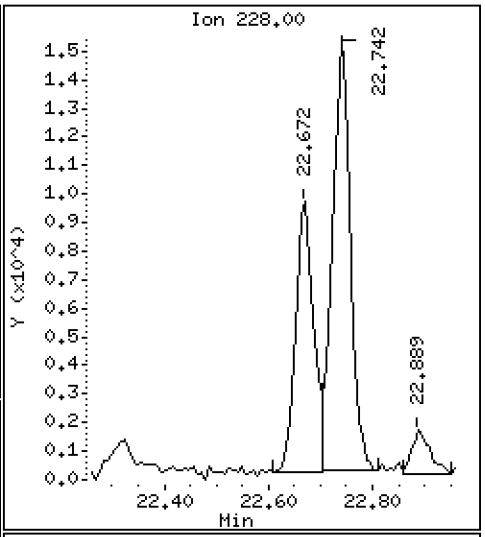
Column phase: ZB-5msi

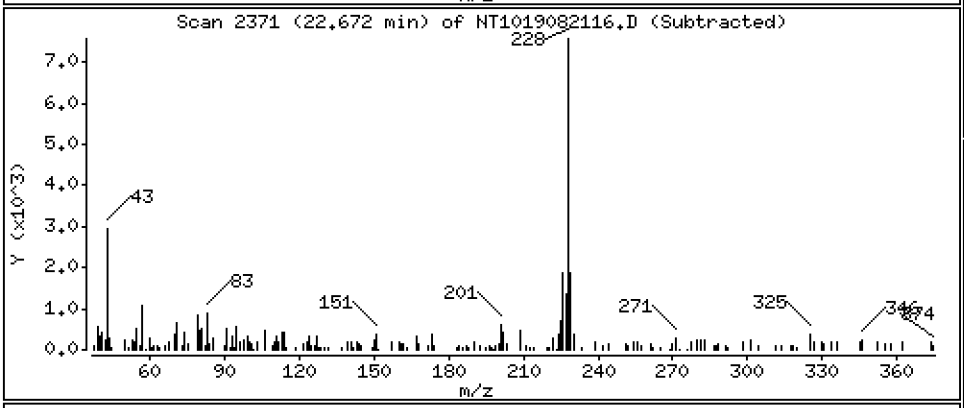
Column diameter: 0.25

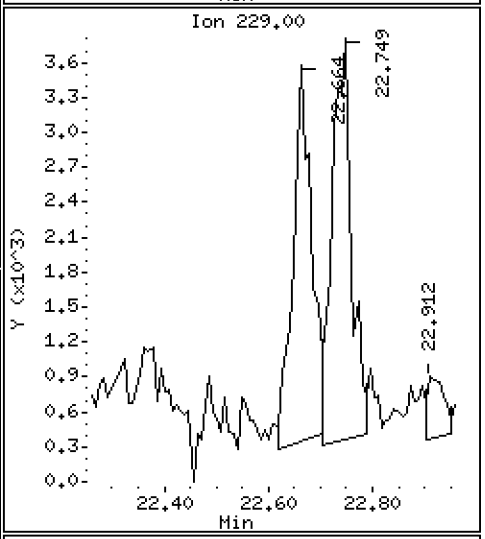
68 Benzo(a)anthracene

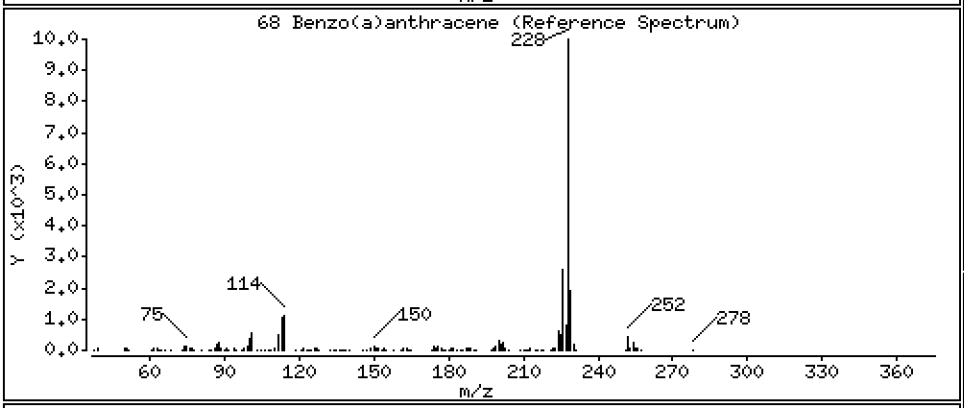
Concentration: 1.229 ug/mL

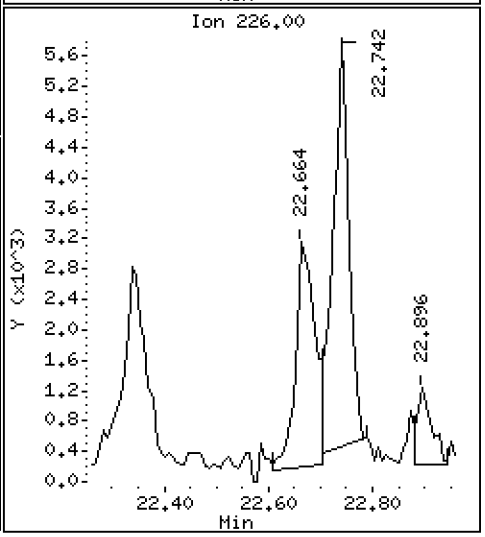


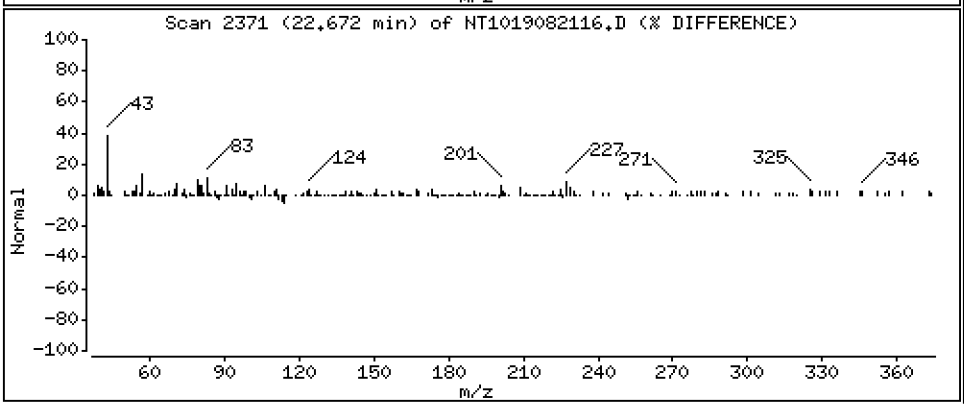












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082116.D

Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

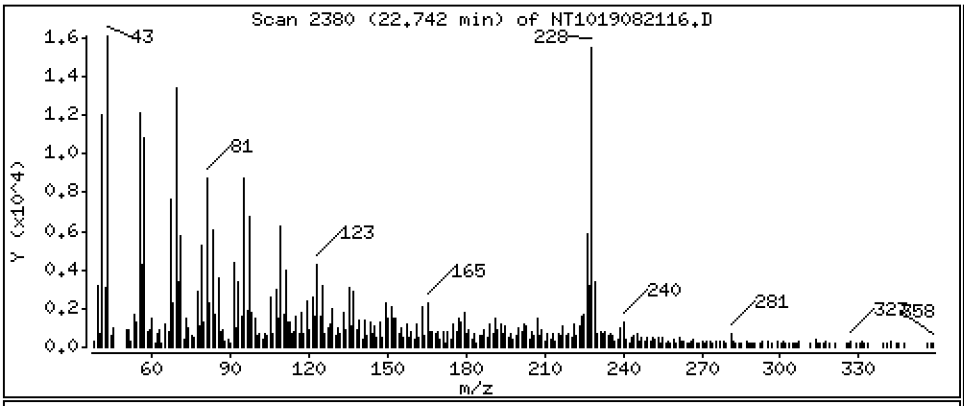
Operator: YZ

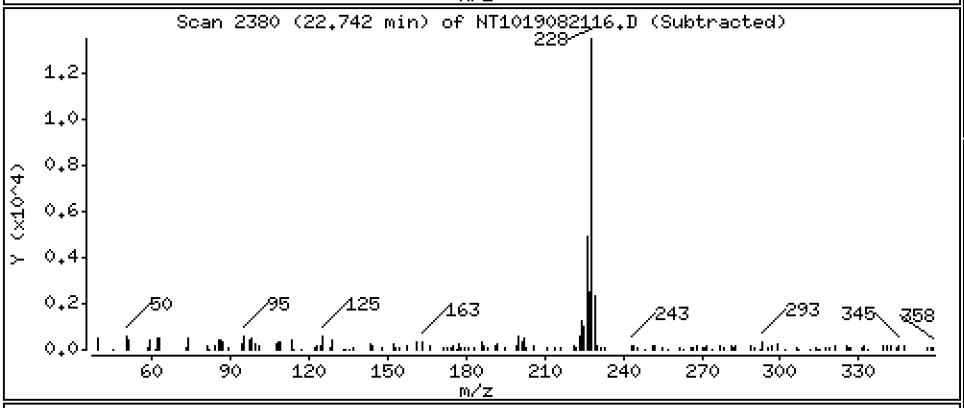
Column phase: ZB-5msi

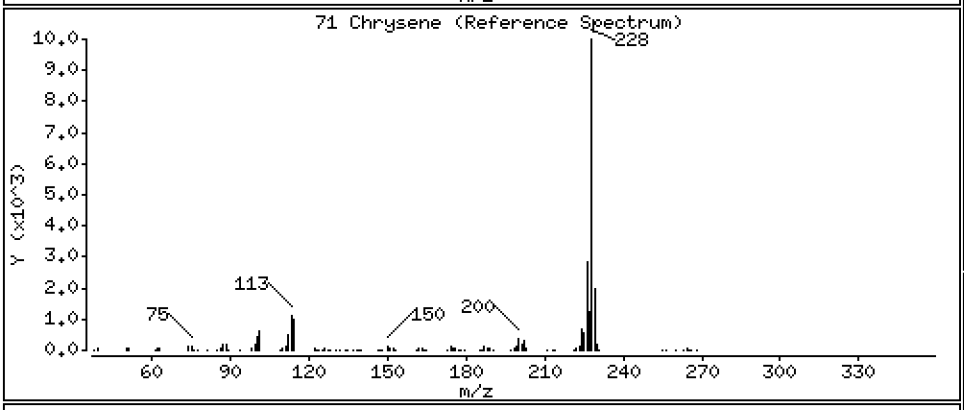
Column diameter: 0.25

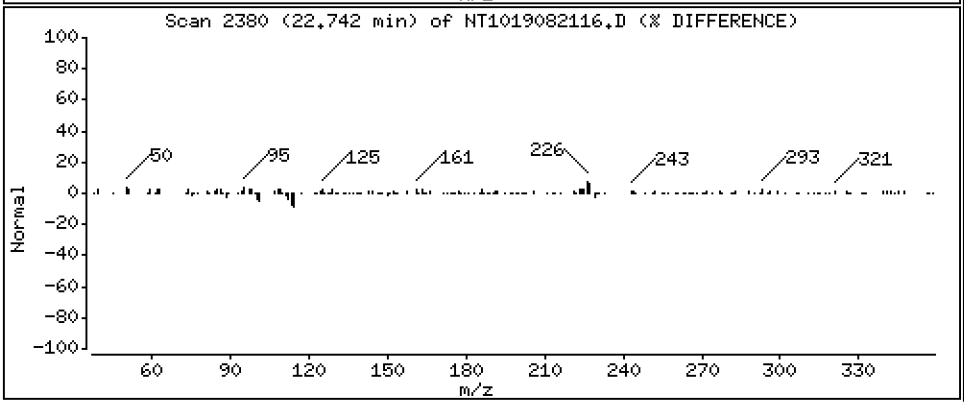
71 Chrysene

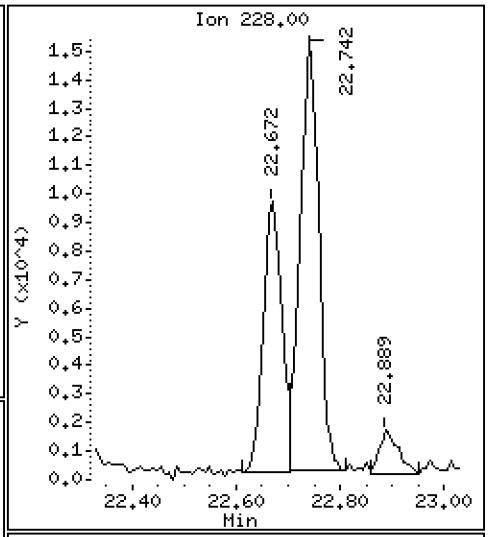
Concentration: 2.247 ug/mL

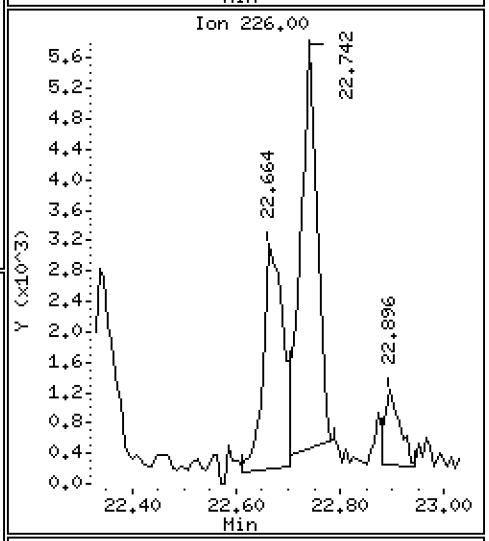


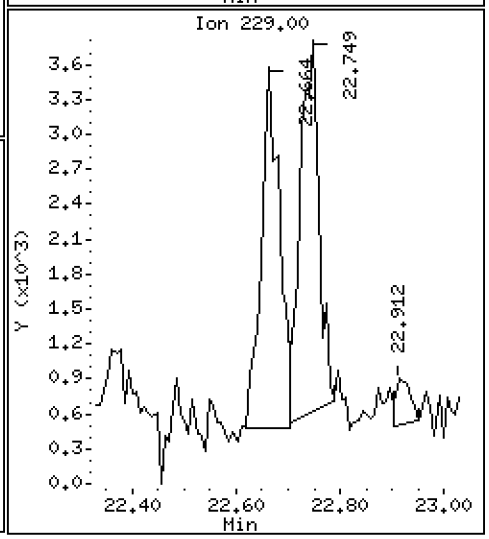












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082116.D

Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

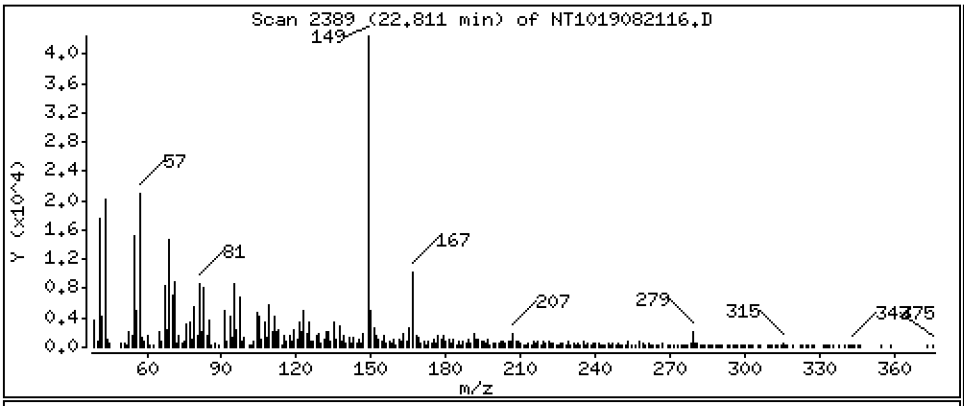
Operator: YZ

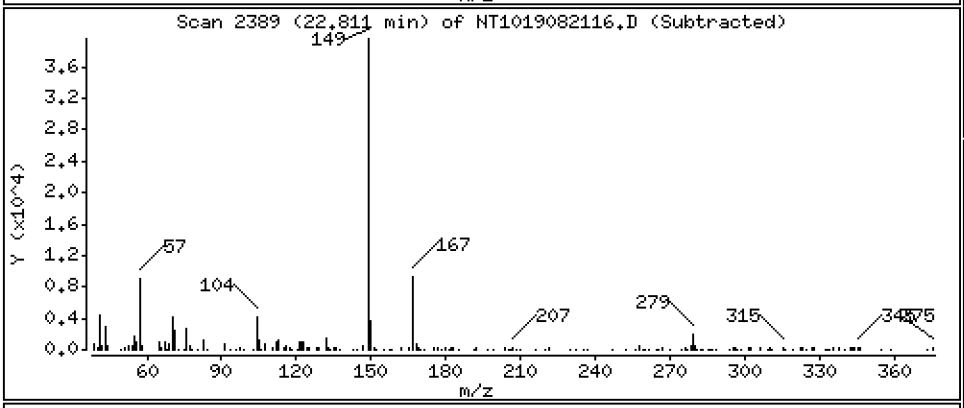
Column phase: ZB-5msi

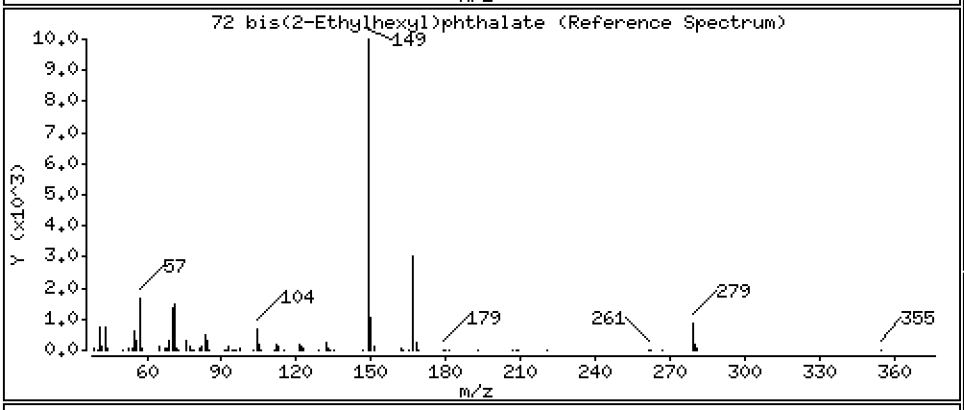
Column diameter: 0.25

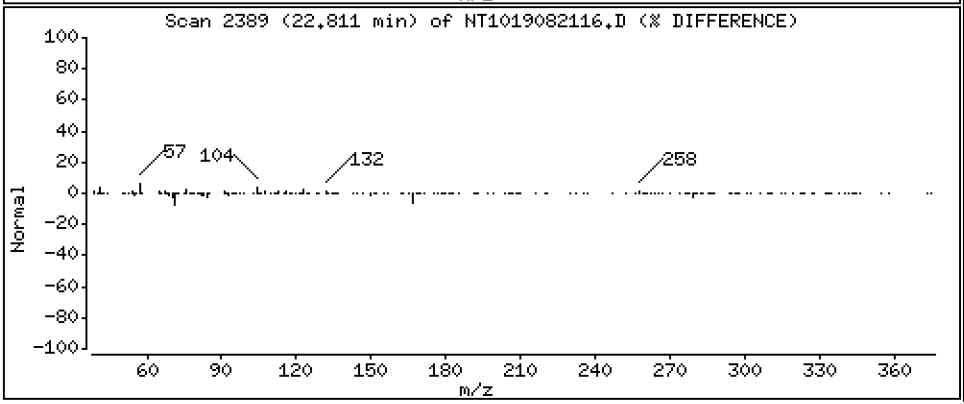
72 bis(2-Ethylhexyl)phthalate

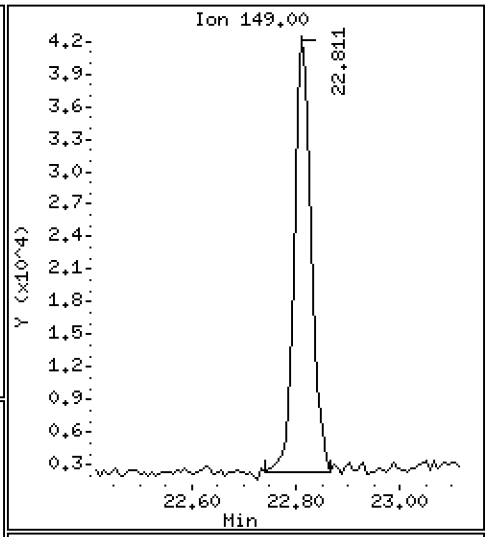
Concentration: 7.379 ug/mL

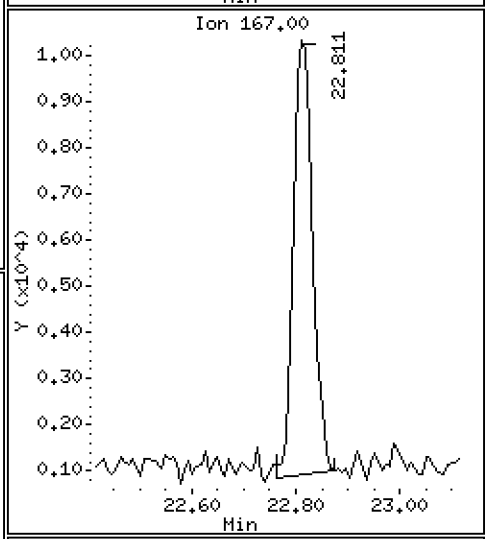


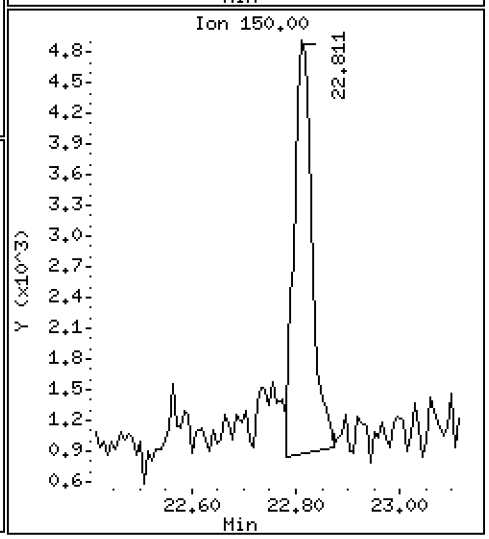












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082116.D

Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

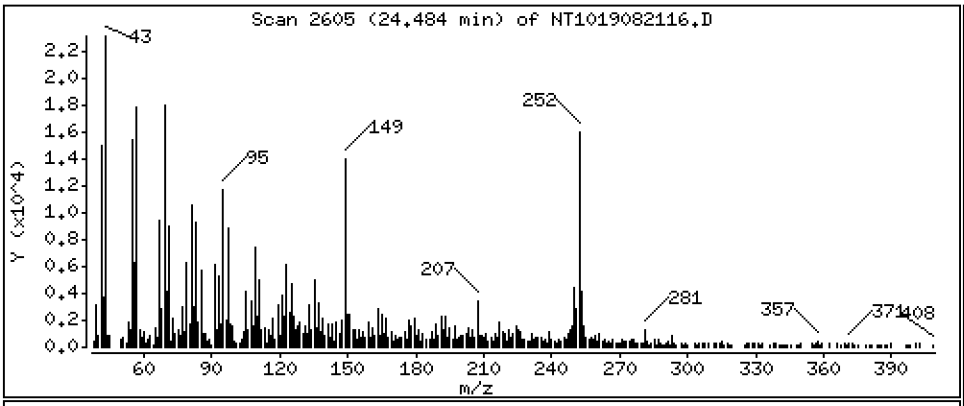
Operator: YZ

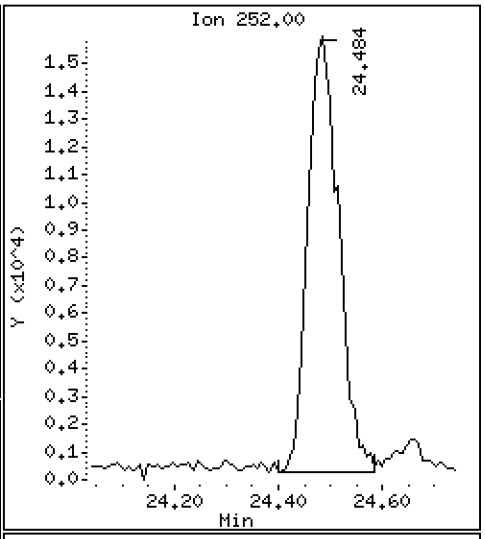
Column phase: ZB-5msi

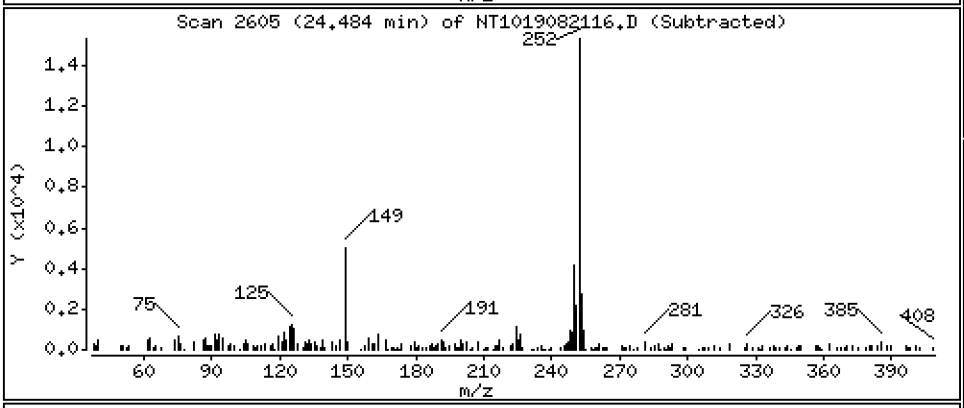
Column diameter: 0.25

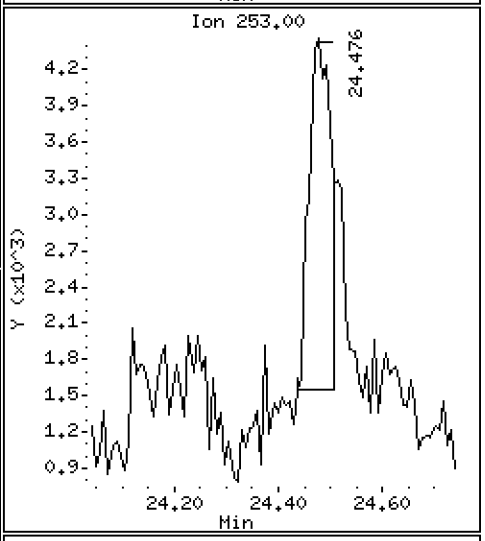
74 Benzo(b)fluoranthene

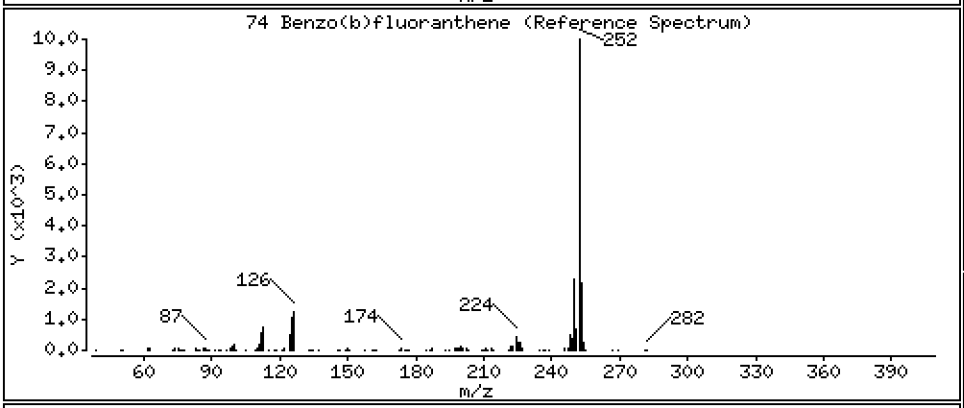
Concentration: 4.533 ug/mL

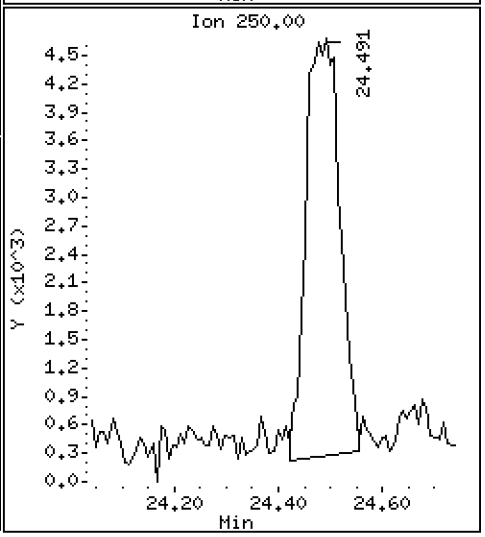


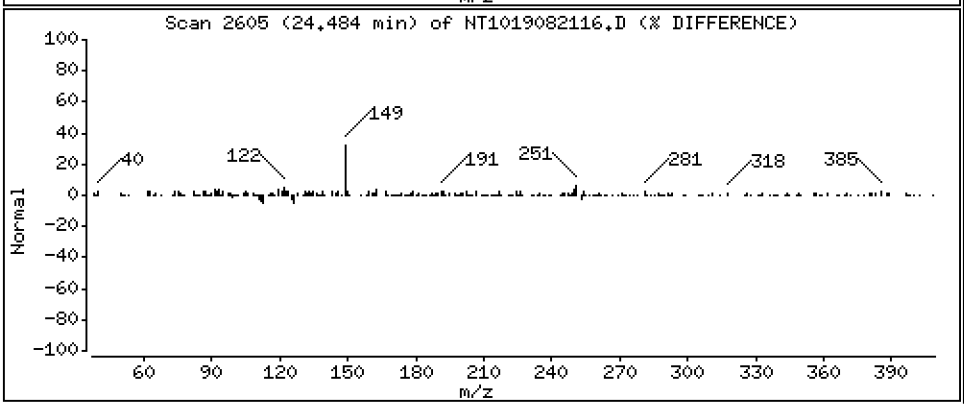












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082116.D

Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

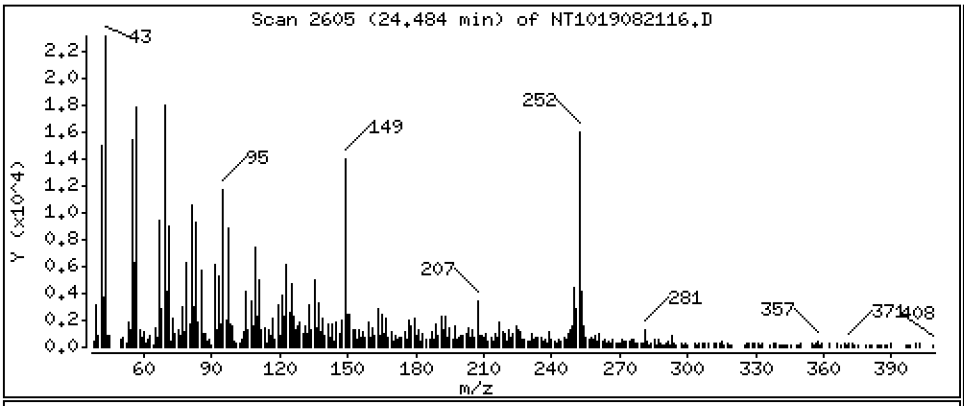
Operator: YZ

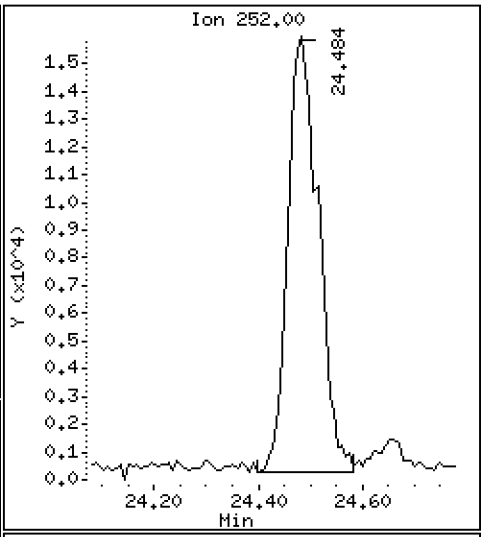
Column phase: ZB-5msi

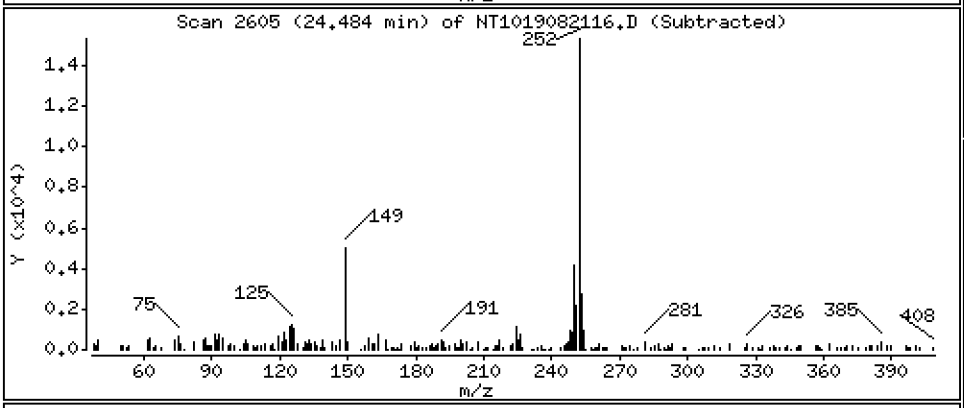
Column diameter: 0.25

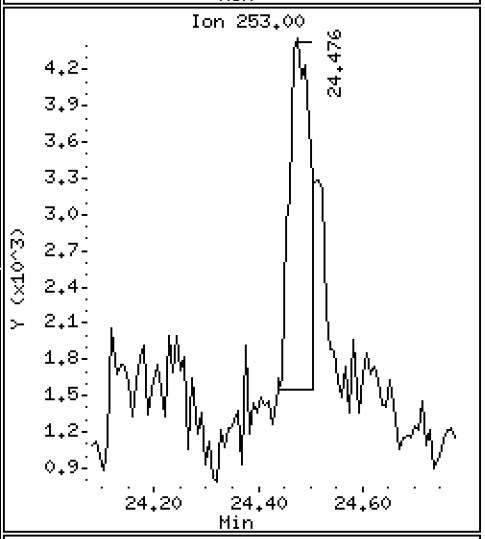
75 Benzo(k)fluoranthene

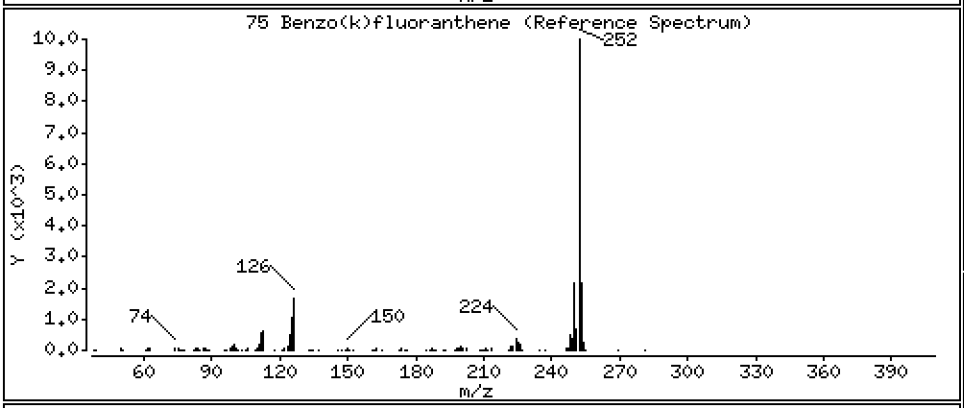
Concentration: 4.506 ug/mL

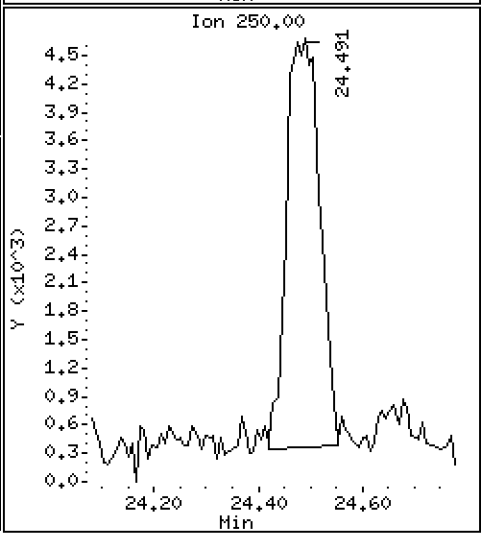


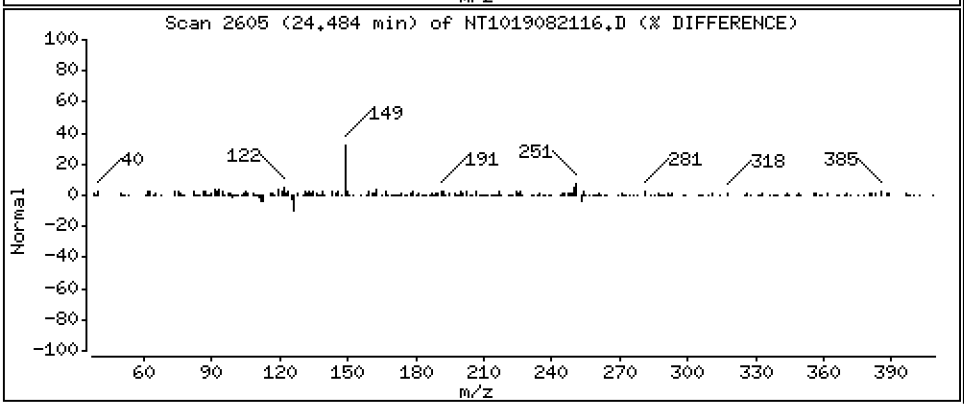












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082116.D

Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

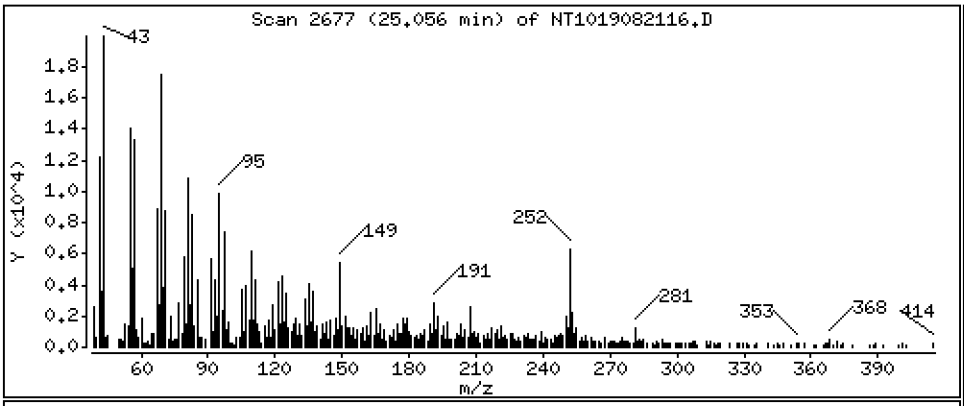
Operator: YZ

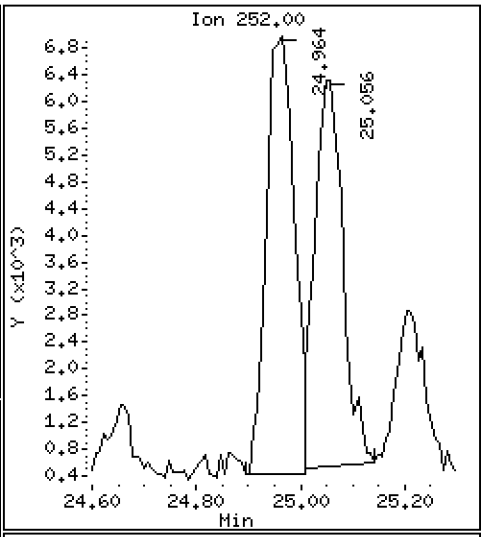
Column phase: ZB-5msi

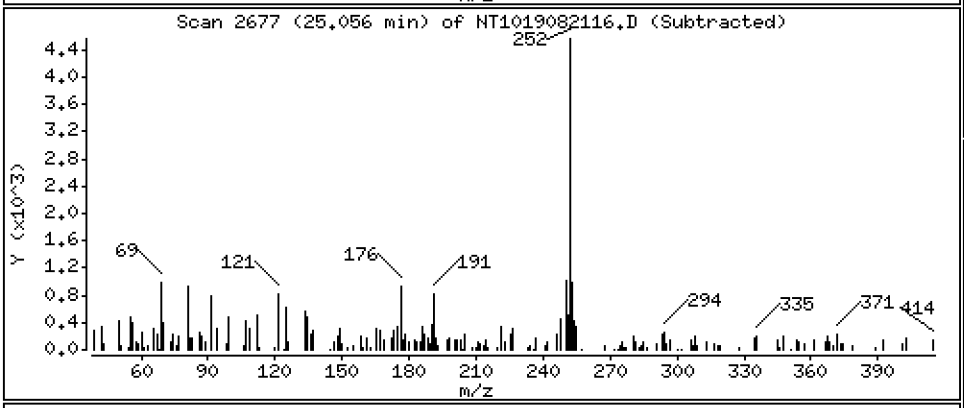
Column diameter: 0.25

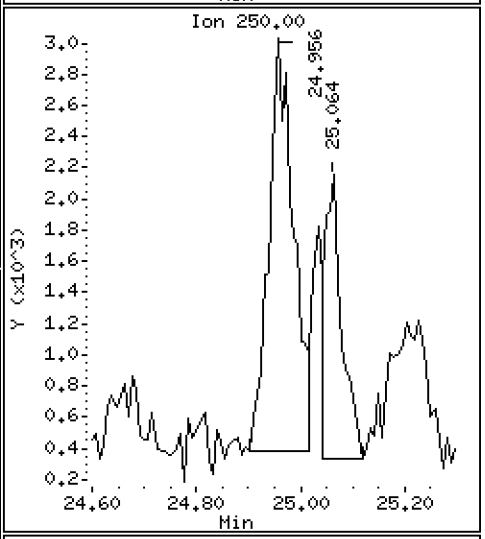
76 Benzo(a)pyrene

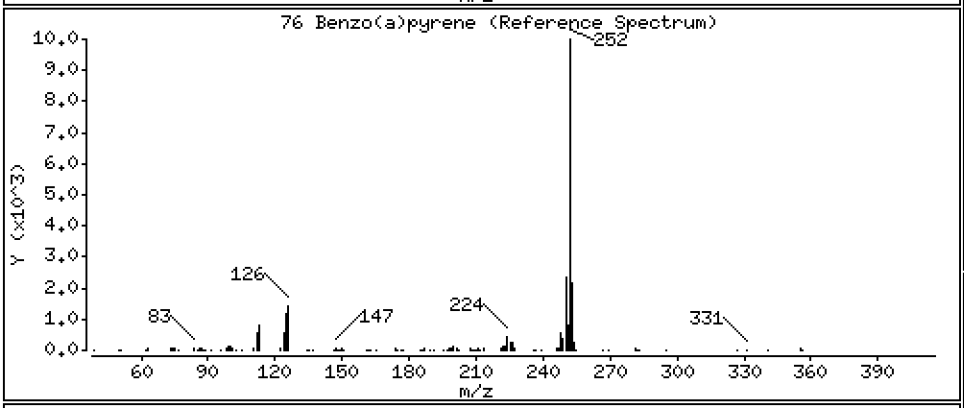
Concentration: 1.721 ug/mL

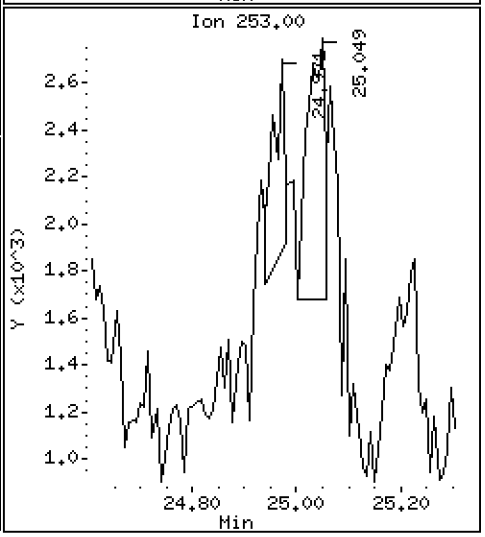


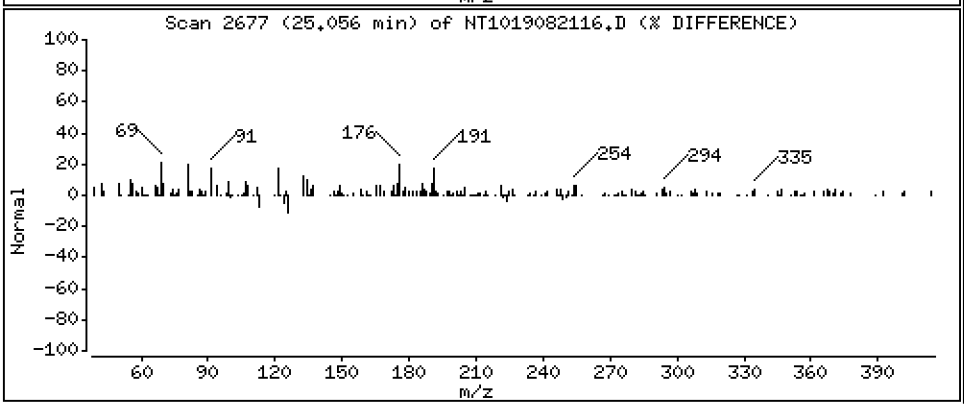












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082116.D

Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

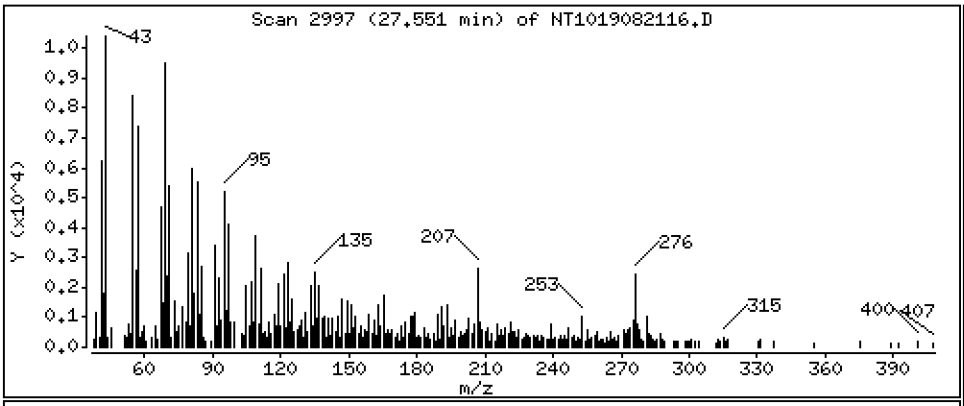
Operator: YZ

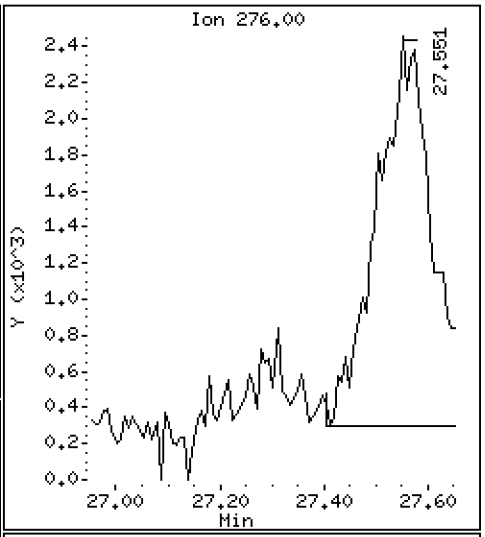
Column phase: ZB-5msi

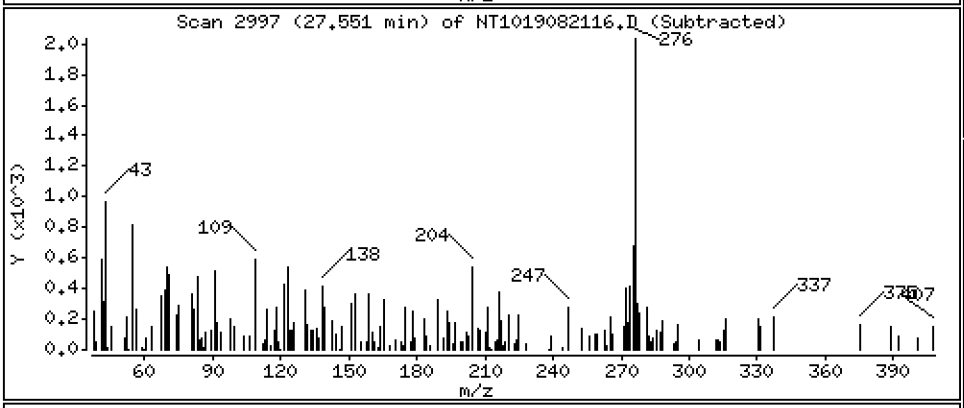
Column diameter: 0.25

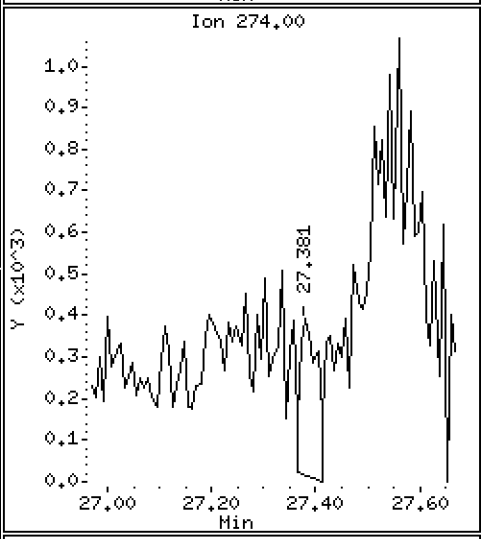
78 Indeno(1,2,3-cd)pyrene

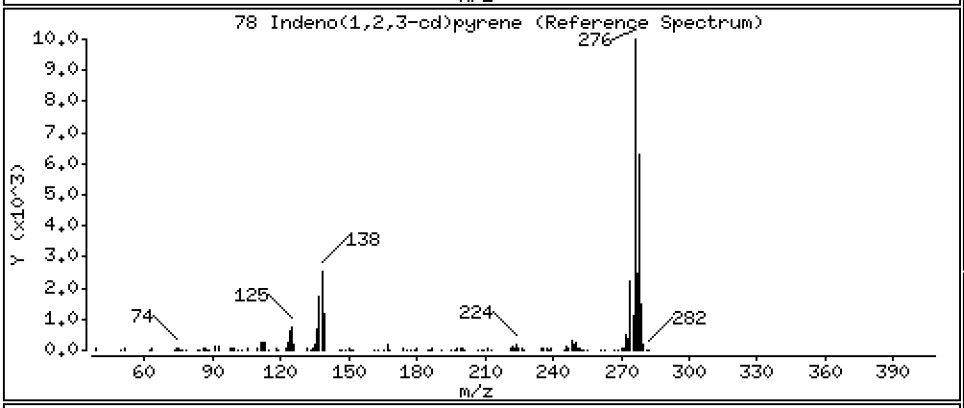
Concentration: 1.033 ug/mL

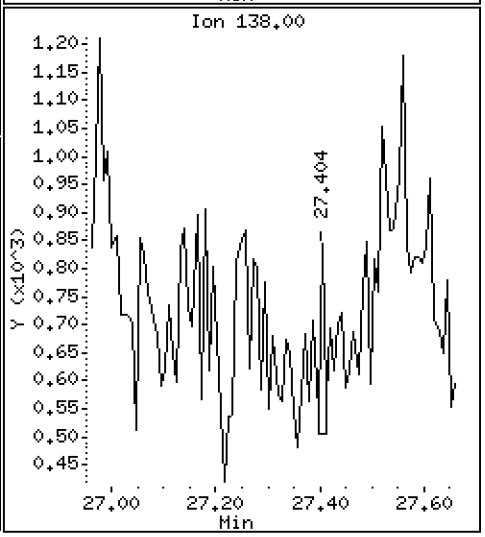


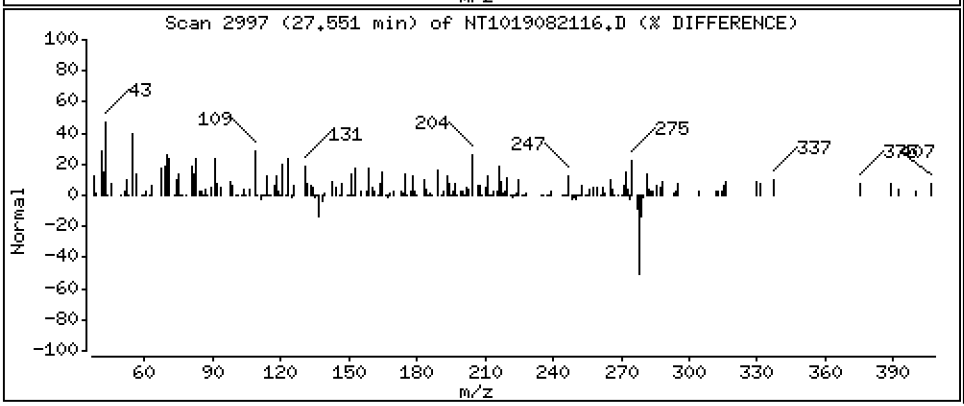












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Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

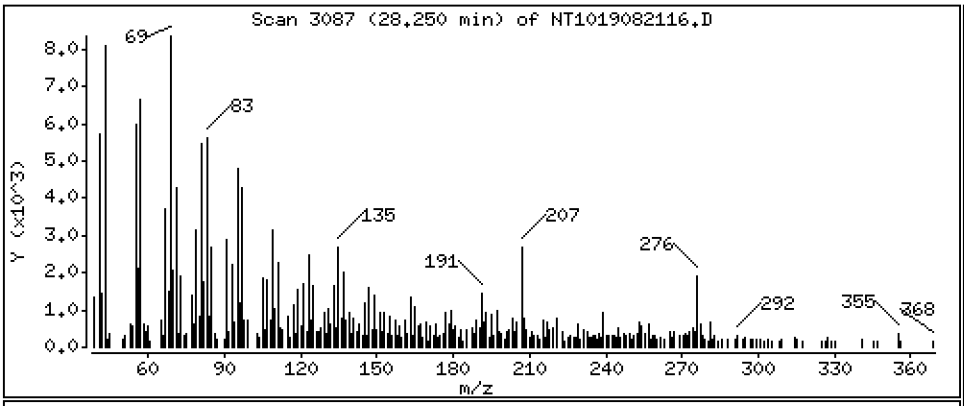
Operator: YZ

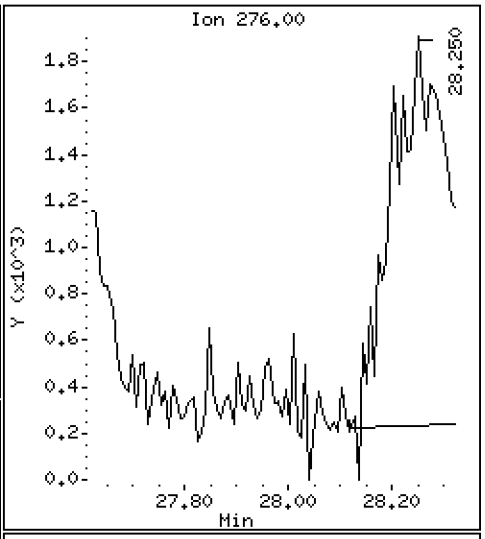
Column phase: ZB-5msi

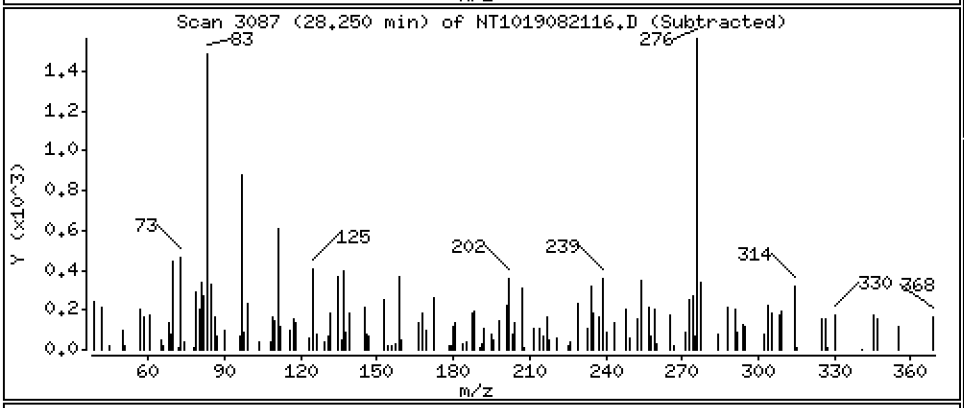
Column diameter: 0.25

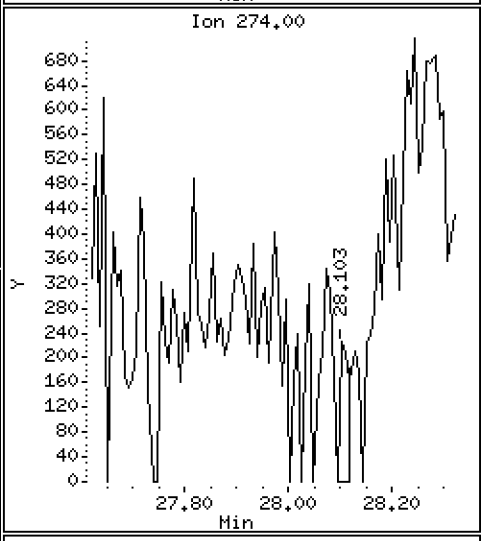
80 Benzo(g,h,i)perylene

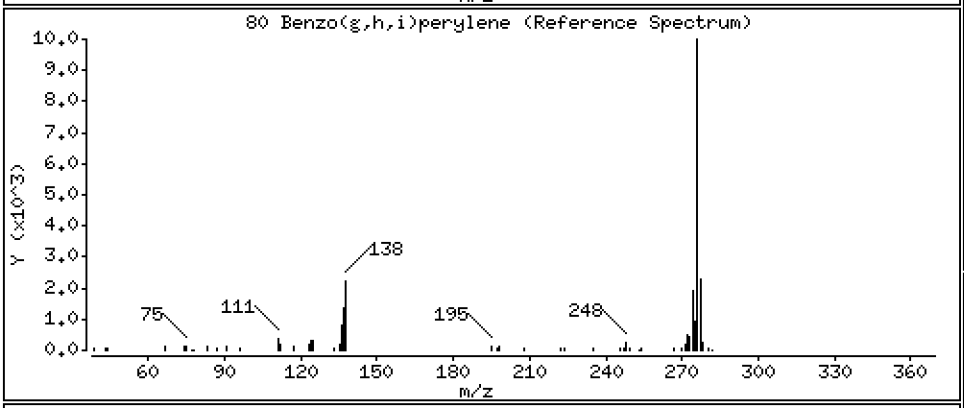
Concentration: 1.075 ug/mL

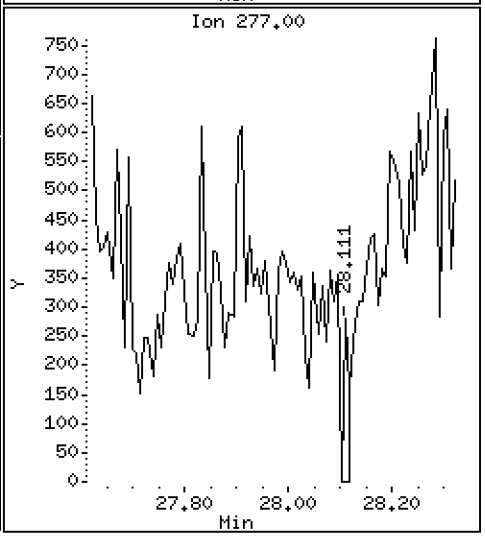


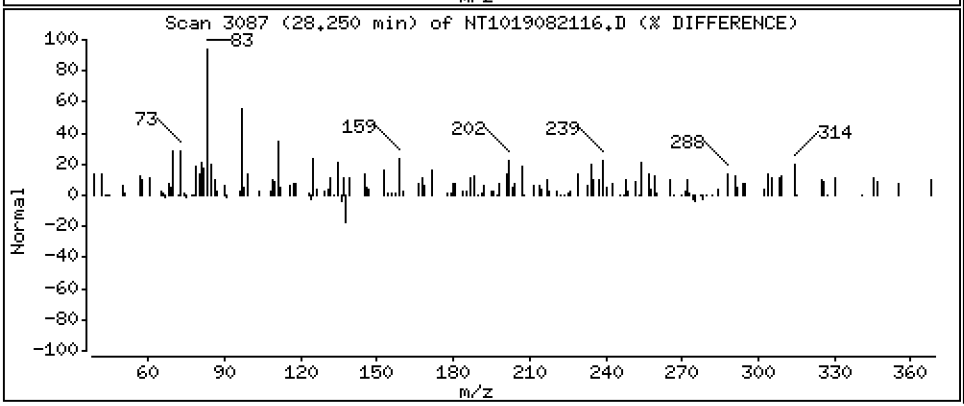












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Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

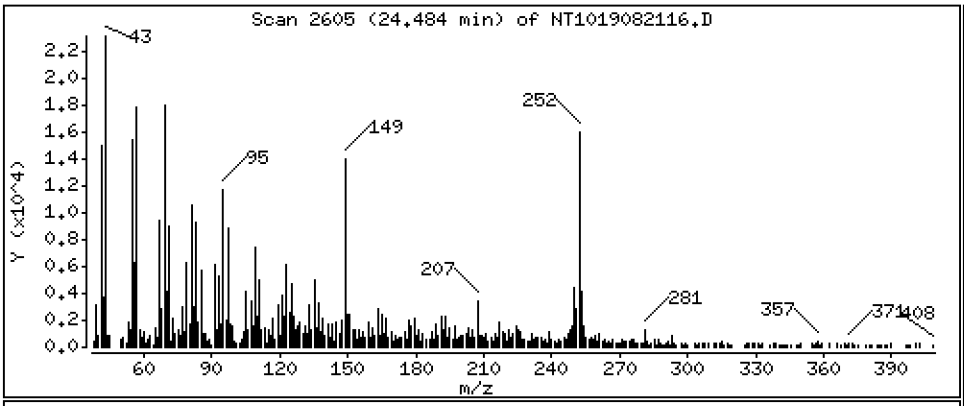
Operator: YZ

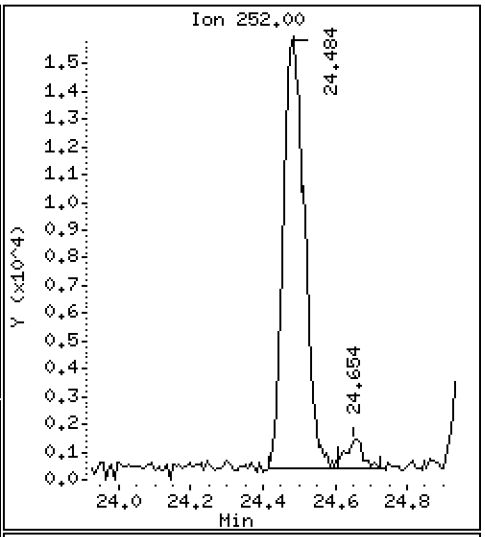
Column phase: ZB-5msi

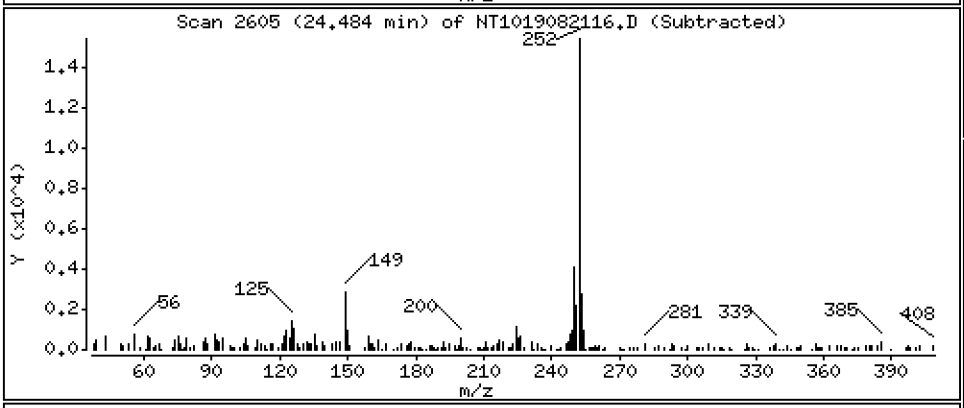
Column diameter: 0.25

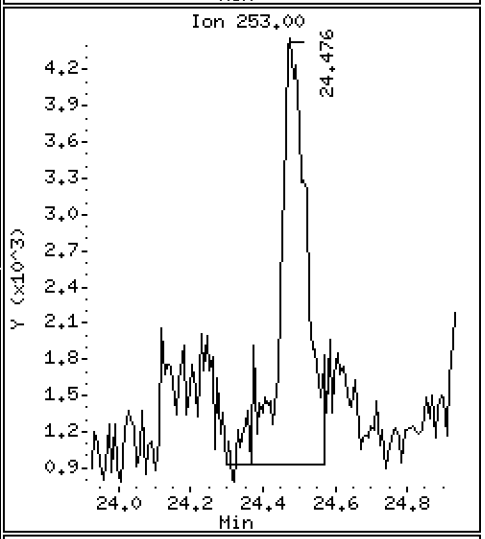
187 Total Benzofluoranthenes

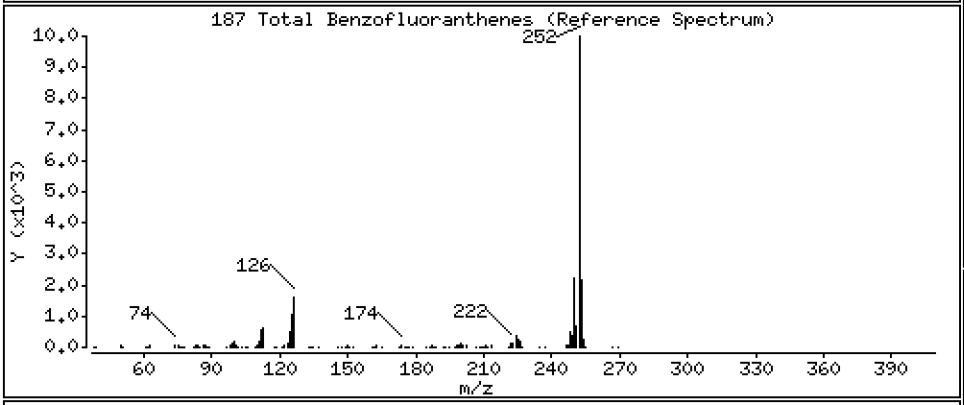
Concentration: 4.625 ug/mL

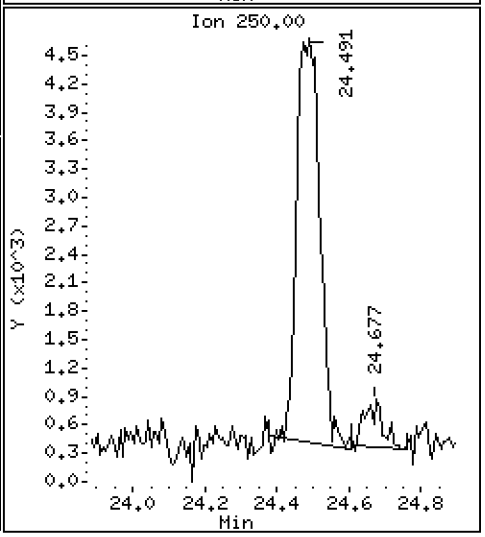


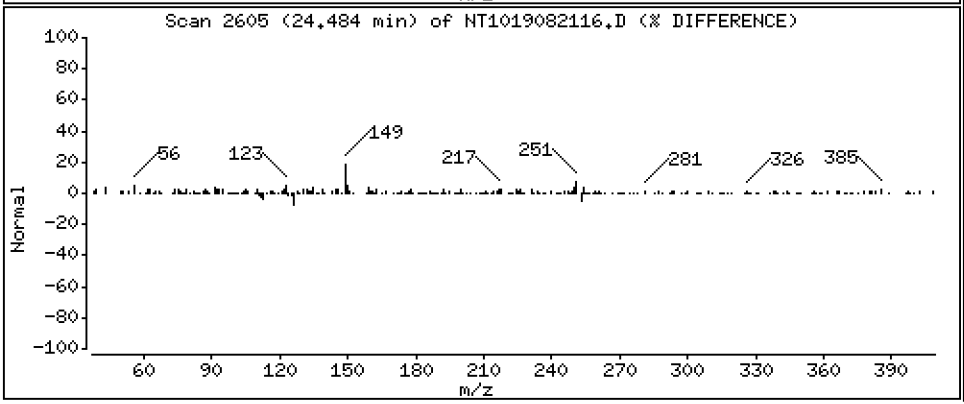












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Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07

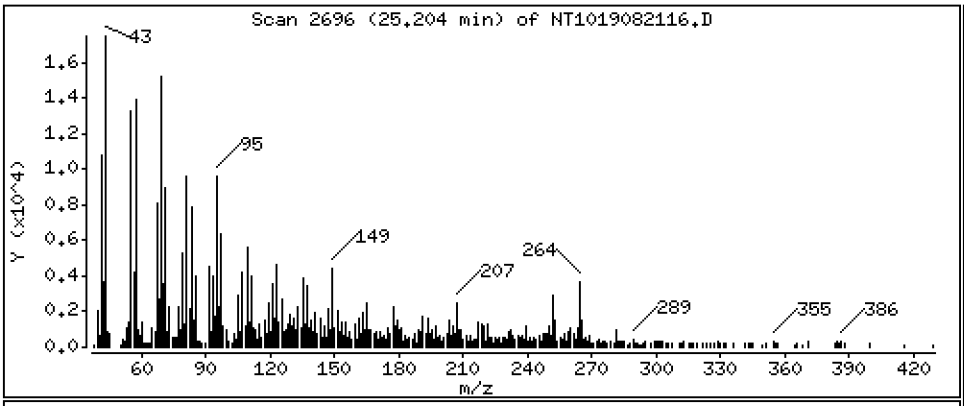
Operator: YZ

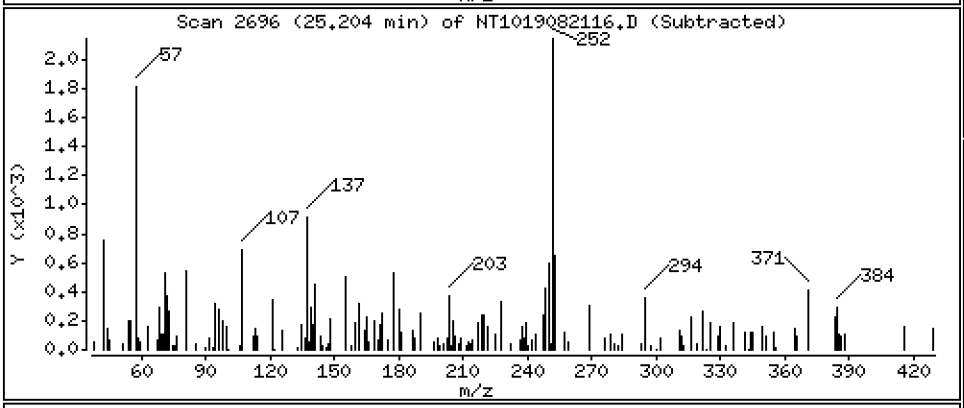
Column phase: ZB-5msi

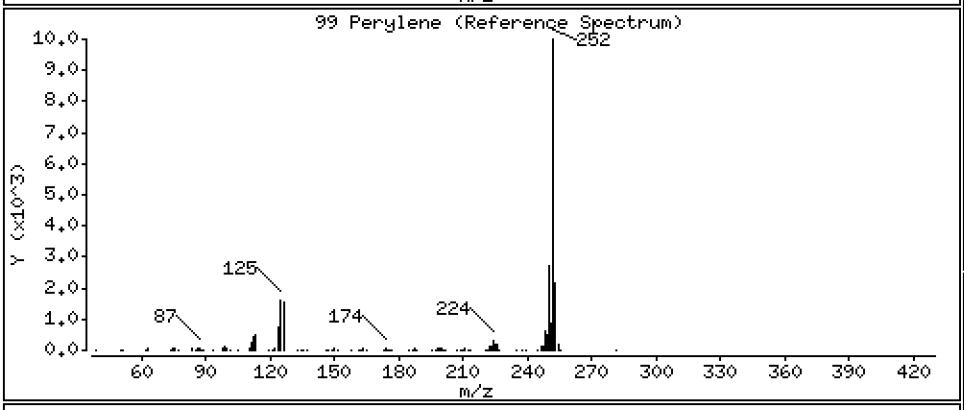
Column diameter: 0.25

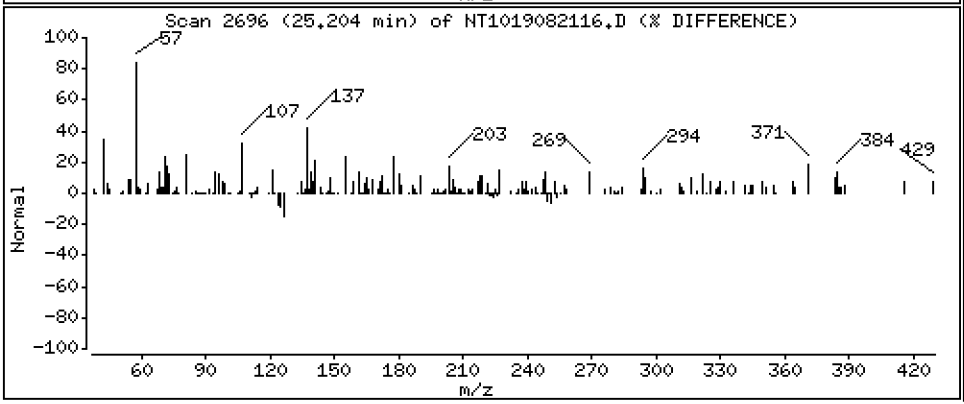
99 Perylene

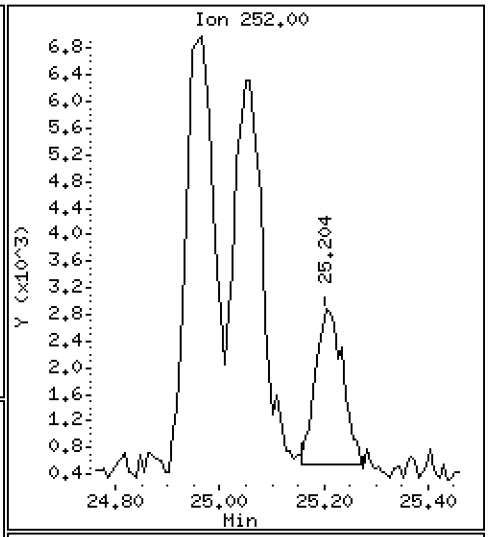
Concentration: 0.7214 ug/mL

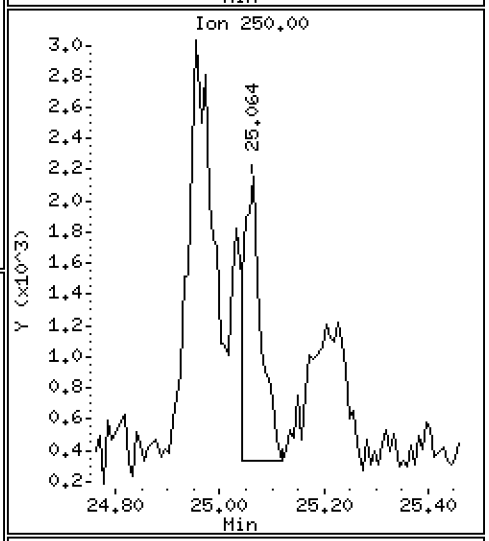


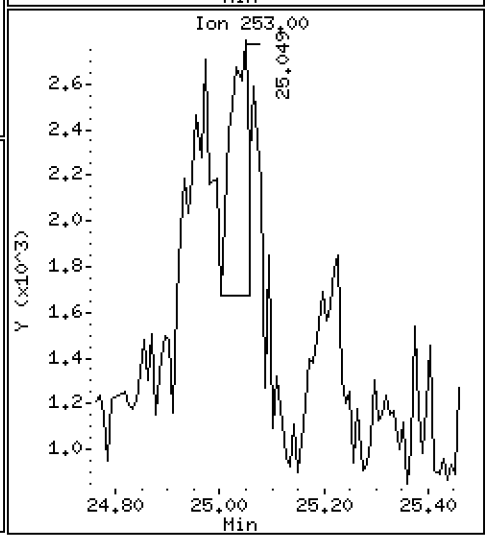












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082116.D

Date : 21-AUG-2019 19:31

Client ID:

Instrument: nt10.i

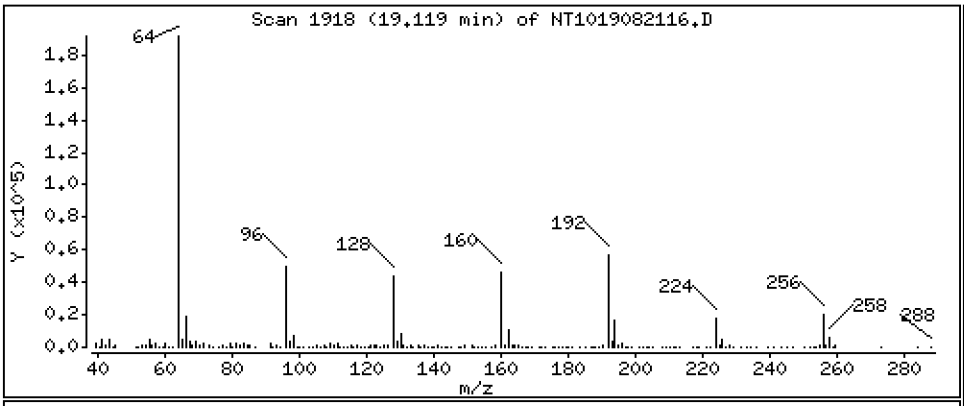
Sample Info: 19H0024-07

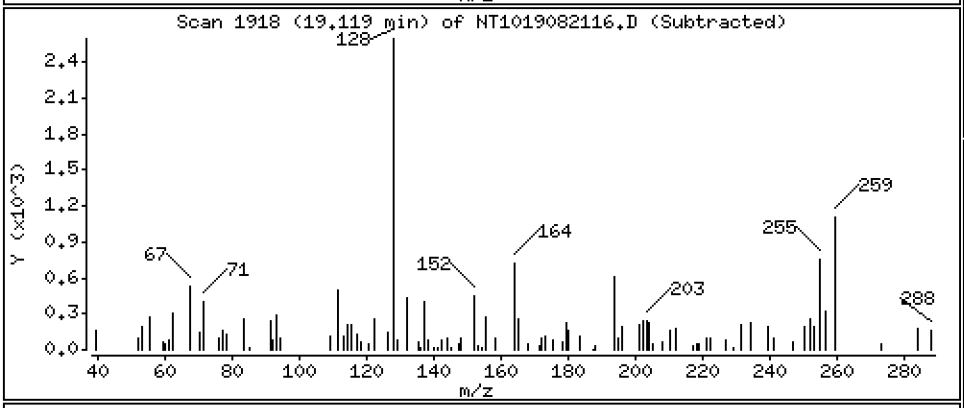
Operator: YZ

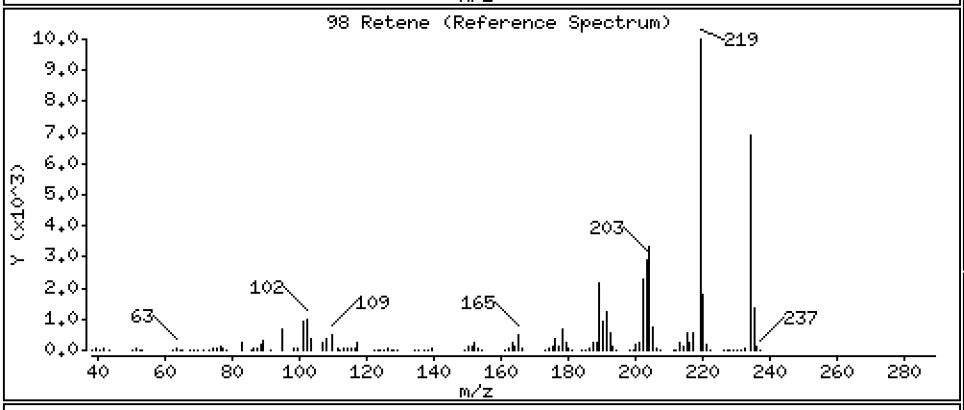
Column phase: ZB-5msi

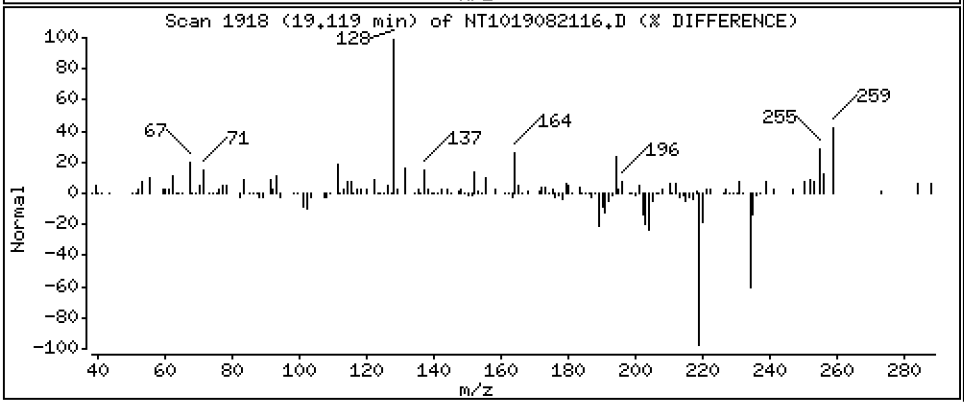
Column diameter: 0.25

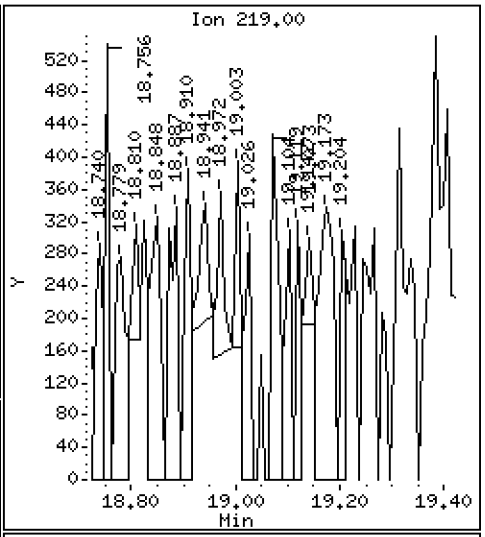
98 Retene

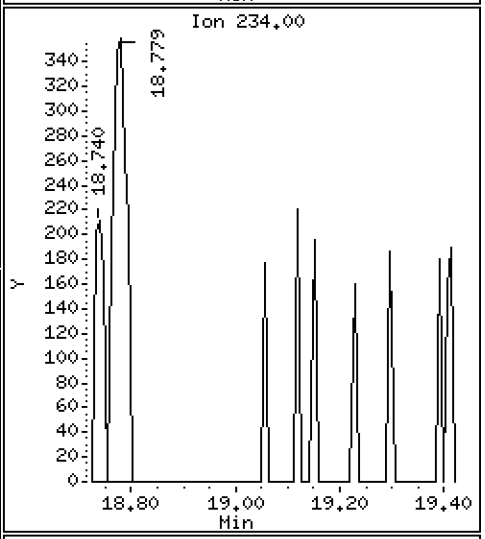


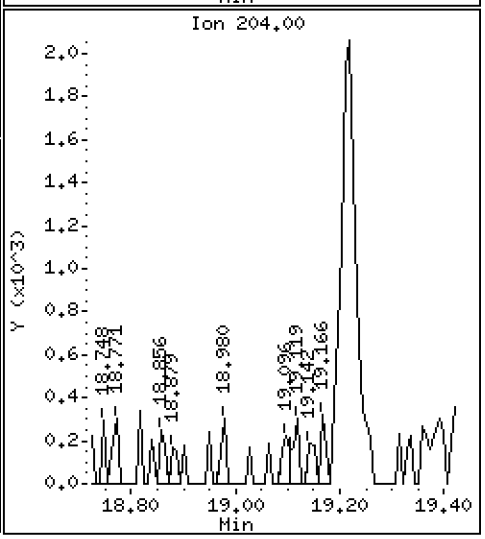












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

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Inj Date : 21-AUG-2019 19:31
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-07
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.326	6.311	(0.746)	42781	4.35962	4.360
$	2 Phenol-d5	99	7.903	7.888	(0.932)	45962	4.17927	4.179
	3 Phenol	94	7.918	7.911	(0.933)	1292	0.12637	0.1264
$	5 2-Chlorophenol-d4	132	8.134	8.127	(0.959)	65864	5.56336	5.563
	4 Bis(2-Chloroethyl)ether	93	Compound Not Detected.					
	6 2-Chlorophenol	128	Compound Not Detected.					
	7 1,3-Dichlorobenzene	146	Compound Not Detected.					
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	34946	4.00000	
	9 1,4-Dichlorobenzene	146	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	152	8.832	8.832	(1.041)	30453	3.76238	3.762
	12 1,2-Dichlorobenzene	146	Compound Not Detected.					
	11 Benzyl alcohol	108	Compound Not Detected.					
	14 2,2'-oxybis(1-Chloropropane)	121	Compound Not Detected.					
	13 2-Methylphenol	108	Compound Not Detected.					
	17 Hexachloroethane	117	Compound Not Detected.					
	16 N-Nitroso-di-n-propylamine	70	Compound Not Detected.					
	15 4-Methylphenol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.562	9.554	(0.875)	37734	3.67012	3.670
	19 Nitrobenzene	77	Compound Not Detected.					
	20 Isophorone	82	Compound Not Detected.					
	21 2-Nitrophenol	139	Compound Not Detected.					
	22 2,4-Dimethylphenol	107	Compound Not Detected.					
	23 Bis(2-Chloroethoxy)methane	93	Compound Not Detected.					
	24 Benzoic acid	105	Compound Not Detected.					
	25 2,4-Dichlorophenol	162	Compound Not Detected.					
	26 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.929	10.929	(1.000)	131458	4.00000	
	28 Naphthalene	128	10.968	10.968	(1.004)	2529	0.08370	0.08370
	29 4-Chloroaniline	127	Compound Not Detected.					
	30 Hexachlorobutadiene	225	Compound Not Detected.					
	31 4-Chloro-3-methylphenol	107	Compound Not Detected.					
	32 2-Methylnaphthalene	142	12.360	12.353	(1.131)	986	0.03847	0.03847
	33 Hexachlorocyclopentadiene	237	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	Compound Not Detected.					
	35	2,4,5-Trichlorophenol	196	Compound Not Detected.					
$	36	2-Fluorobiphenyl	172	13.149	13.142	(0.906)	111912	4.08761	4.088
	37	2-Chloronaphthalene	162	Compound Not Detected.					
	38	2-Nitroaniline	65	Compound Not Detected.					
	39	Dimethylphthalate	163	Compound Not Detected.					
	40	Acenaphthylene	152	Compound Not Detected.					
	41	2,6-Dinitrotoluene	165	Compound Not Detected.					
*	42	Acenaphthene-d10	164	14.519	14.512	(1.000)	71579	4.00000	
	43	3-Nitroaniline	138	Compound Not Detected.					
	44	Acenaphthene	153	14.573	14.574	(1.004)	1459	0.06730	0.06730
	45	2,4-Dinitrophenol	184	Compound Not Detected.					
	46	Dibenzofuran	168	Compound Not Detected.					
	47	4-Nitrophenol	109	Compound Not Detected.					
	48	2,4-Dinitrotoluene	165	Compound Not Detected.					
	50	Diethylphthalate	149	15.516	15.517	(1.069)	4518	0.17641	0.1764
	49	Fluorene	166	15.625	15.610	(1.076)	2319	0.09517	0.09517
	51	4-Chlorophenyl-phenylether	204	Compound Not Detected.					
	52	4-Nitroaniline	138	Compound Not Detected.					
	53	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.					
	54	N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55	2,4,6-Tribromophenol	330	16.165	16.142	(1.113)	33714	6.22904	6.229
	56	4-Bromophenyl-phenylether	248	Compound Not Detected.					
	57	Hexachlorobenzene	284	Compound Not Detected.					
	58	Pentachlorophenol	266	Compound Not Detected.					
*	59	Phenanthrene-d10	188	17.540	17.525	(1.000)	134076	4.00000	
	60	Phenanthrene	178	17.587	17.572	(1.003)	37133	1.13381	1.134
	61	Anthracene	178	17.680	17.665	(1.008)	8783	0.26412	0.2641
	62	Carbazole	167	18.043	18.012	(1.029)	8481	0.27102	0.2710
	63	Di-n-butylphthalate	149	Compound Not Detected.					
	64	Fluoranthene	202	20.032	19.993	(0.883)	99958	5.00560	5.006
	65	Pyrene	202	20.465	20.411	(0.902)	76934	3.68942	3.689
$	66	Terphenyl-d14	244	20.790	20.744	(0.916)	83296	5.88996	5.890
	67	Butylbenzylphthalate	149	Compound Not Detected.					
	68	Benzo(a)anthracene	228	22.671	22.610	(0.999)	23296	1.22873	1.229
*	69	Chrysene-d12	240	22.695	22.633	(1.000)	65346	4.00000	
	70	3,3'-Dichlorobenzidine	252	Compound Not Detected.					
	71	Chrysene	228	22.741	22.680	(1.002)	37694	2.24681	2.247
	72	bis(2-Ethylhexyl)phthalate	149	22.811	22.765	(0.958)	93975	7.37930	7.379
*	134	Di-n-octylphthalate-d4	153	23.809	23.756	(1.000)	144790	4.00000	
	73	Di-n-octylphthalate	149	Compound Not Detected.					
	74	Benzo(b)fluoranthene	252	24.483	24.390	(0.973)	65058	4.53278	4.533
	75	Benzo(k)fluoranthene	252	24.483	24.429	(0.973)	65058	4.50564	4.506
	76	Benzo(a)pyrene	252	25.056	24.948	(0.996)	22166	1.72077	1.721
*	77	Perylene-d12	264	25.157	25.056	(1.000)	50026	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	27.551	27.303	(1.095)	15984	1.03272	1.033(M)
	79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	80	Benzo(g,h,i)perylene	276	28.250	27.971	(1.123)	14017	1.07526	1.075(M)
	90	N-Nitrosodimethylamine	74	Compound Not Detected.					
	91	Aniline	93	Compound Not Detected.					
	93	Benzidine	184	Compound Not Detected.					
	103	Pyridine	79	Compound Not Detected.					
	105	1-methylnaphthalene	142	Compound Not Detected.					
	111	Azobenzene (1,2-DP-Hydrazine)	77	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
187	Total Benzofluoranthenes	252	24.483	24.429	(0.973)	63671	4.62482	4.625
99	Perylene	252	25.203	25.110	(1.002)	8548	0.72138	0.7214(M)
98	Retene	219	19.119	19.071	(0.842)	238		
120	2,3,4,6-Tetrachlorophenol	232	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082116.D
Lab Smp Id: 19H0024-07
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	34946	6.74
27 Naphthalene-d8	117487	58744	234974	131458	11.89
42 Acenaphthene-d10	61859	30930	123718	71579	15.71
59 Phenanthrene-d10	113574	56787	227148	134076	18.05
69 Chrysene-d12	105788	52894	211576	65346	-38.23
134 Di-n-octylphthala	252823	126412	505646	144790	-42.73
77 Perylene-d12	113992	56996	227984	50026	-56.11 <-

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	-0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	-0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.52	0.05
59 Phenanthrene-d10	17.53	17.03	18.03	17.54	0.09
69 Chrysene-d12	22.63	22.13	23.13	22.70	0.27
134 Di-n-octylphthala	23.76	23.26	24.26	23.81	0.23
77 Perylene-d12	25.06	24.56	25.56	25.16	0.40

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082116.D

Lab ID: 19H0024-07
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 19:31

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.000	1.130	-0.1302	2-Methylnaphthalene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate
1.131	1.091	0.0400	Dibenzo(a,h)anthracene
1.076	0.906	0.1705	2-Fluorobiphenyl
1.069	0.917	0.1522	Terphenyl-d14

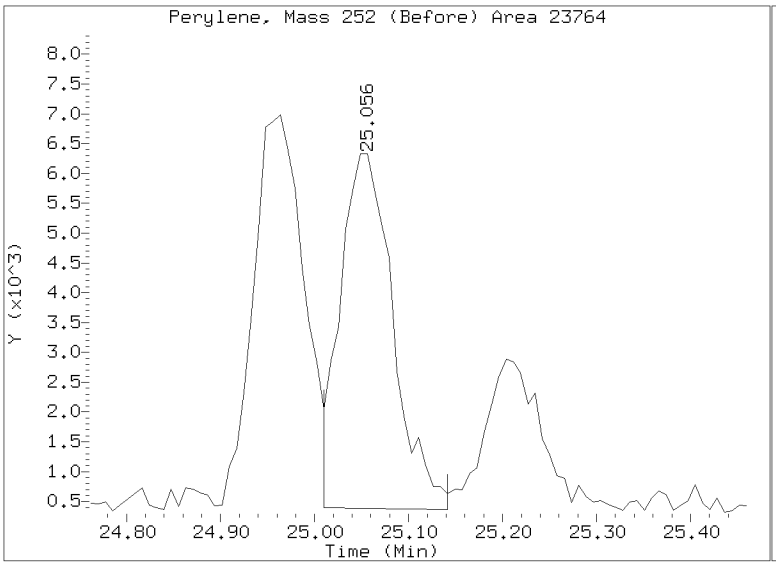
RRT check based on Ccal File: NT1019082105.D

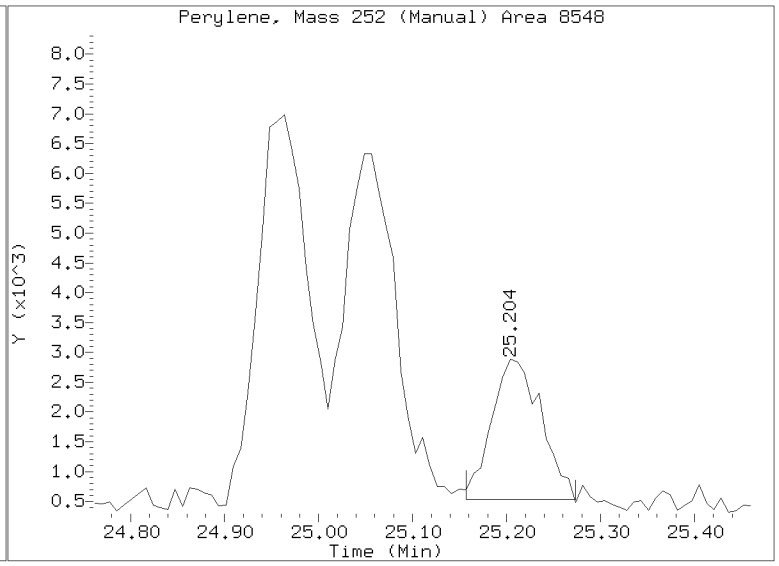
On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

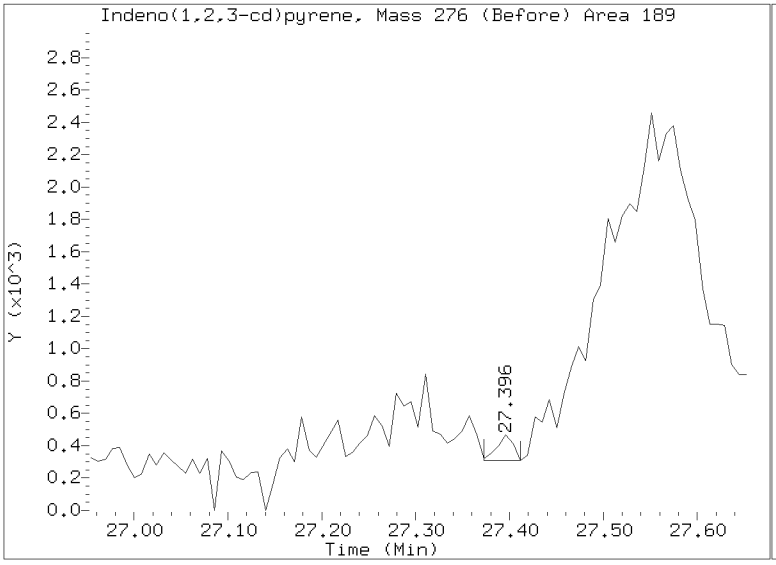
* Only compounds listed in the work order have been verified by the analyst *

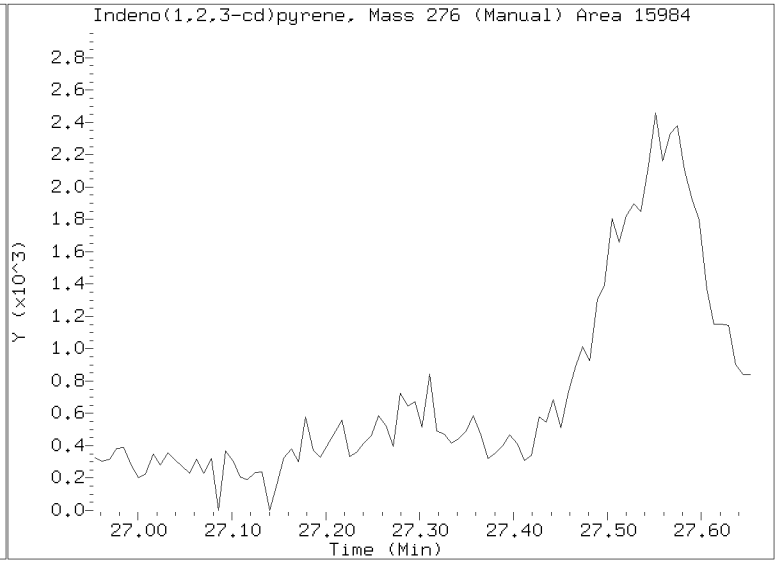
Quant Ion Manual Peak Adjustment Report

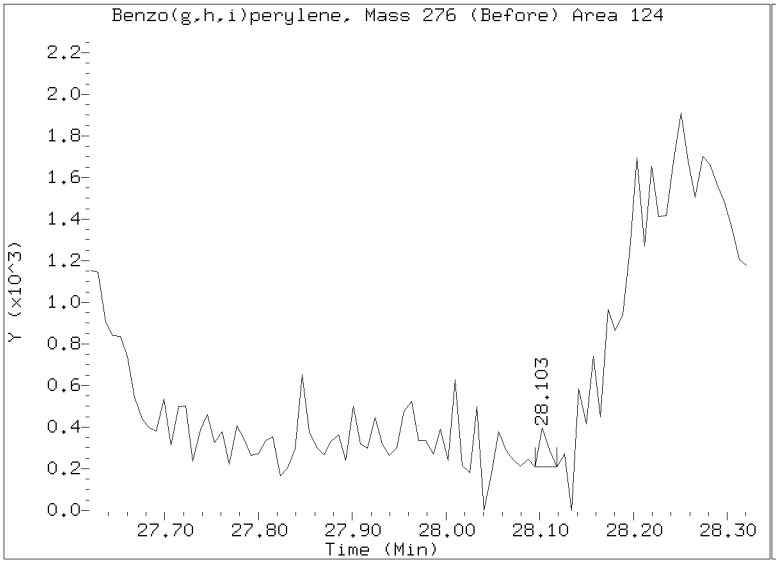
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082116.D
Injection Date: 21-AUG-2019 19:31
Lab ID:19H0024-07 Client ID:
Report Date: 08/22/2019 12:51

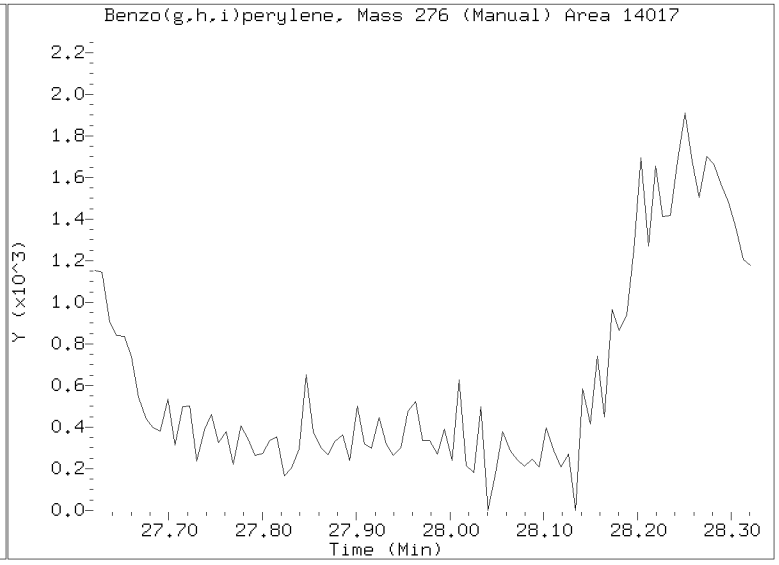












SL4-SG-WC4-2019

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D
Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-07RE1 C	SDG:	19H0024
Sampled:	08/01/19 10:08	Prepared:	08/13/19 12:40	File ID:	NT1019082213.D
% Solids:	71.82	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/22/19 21:13
Batch:	BHH0289	Sequence:	SHH0325	Initial/Final:	14.08 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040
Cleanups:	GPC				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	3	59.3	U	24.4	59.3
100-51-6	Benzyl Alcohol	3	59.3	U	44.2	59.3
65-85-0	Benzoic acid	3	593	U	175	593
86-30-6	N-Nitrosodiphenylamine	3	59.3	U	28.4	59.3
85-01-8	Phenanthrene	3	79.3	D	13.9	59.3
206-44-0	Fluoranthene	3	364	D	13.4	59.3
129-00-0	Pyrene	3	285	D	16.5	59.3
85-68-7	Butylbenzylphthalate	3	59.3	U	23.9	59.3
56-55-3	Benzo(a)anthracene	3	93.3	D	15.4	59.3
218-01-9	Chrysene	3	155	D	15.5	59.3
117-81-7	bis(2-Ethylhexyl)phthalate	3	513	D	85.4	148
117-84-0	Di-n-Octylphthalate	3	59.3	U	25.9	59.3
	Benzofluoranthenes, Total	3	325	D	30.3	119
50-32-8	Benzo(a)pyrene	3	126	D	19.2	59.3
193-39-5	Indeno(1,2,3-cd)pyrene	3	111	D	17.8	59.3
53-70-3	Dibenzo(a,h)anthracene	3	59.3	U	18.3	59.3
191-24-2	Benzo(g,h,i)perylene	3	142	D	17.3	59.3

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	741.67	333	44.9	27 - 120	
Phenol-d5	741.67	315	42.5	29 - 120	Q
2-Chlorophenol-d4	741.67	430	57.9	31 - 120	
1,2-Dichlorobenzene-d4	494.45	259	52.3	32 - 120	
Nitrobenzene-d5	494.45	241	48.7	30 - 120	
2-Fluorobiphenyl	494.45	299	60.4	35 - 120	
2,4,6-Tribromophenol	741.67	441	59.4	24 - 134	
p-Terphenyl-d14	494.45	451	91.1	37 - 120	

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Date : 22-AUG-2019 21:13

Client ID:

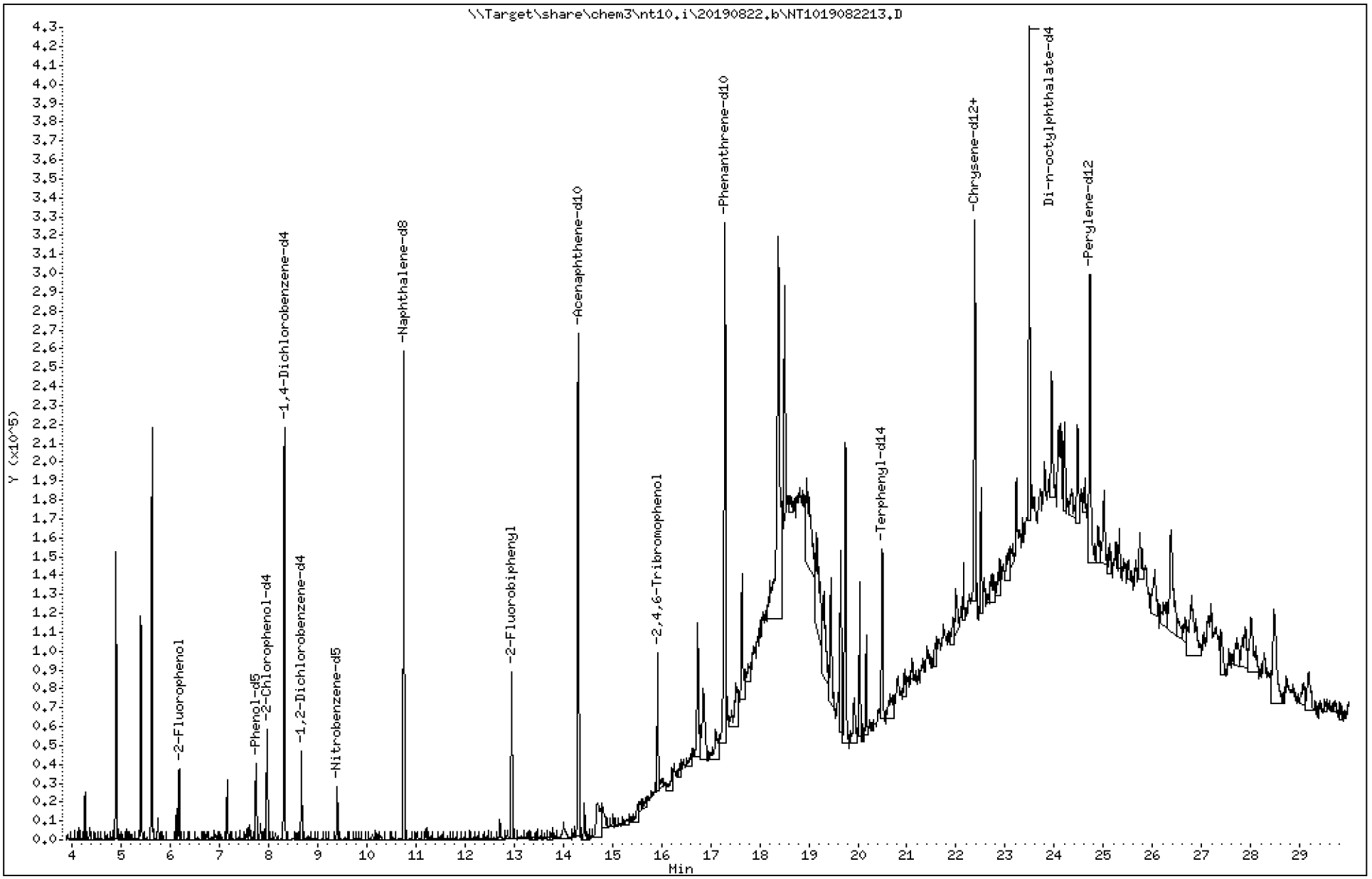
Instrument: nt10.i

Sample Info: 19H0024-07RE1,3

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 22-AUG-2019 21:13

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07RE1,3

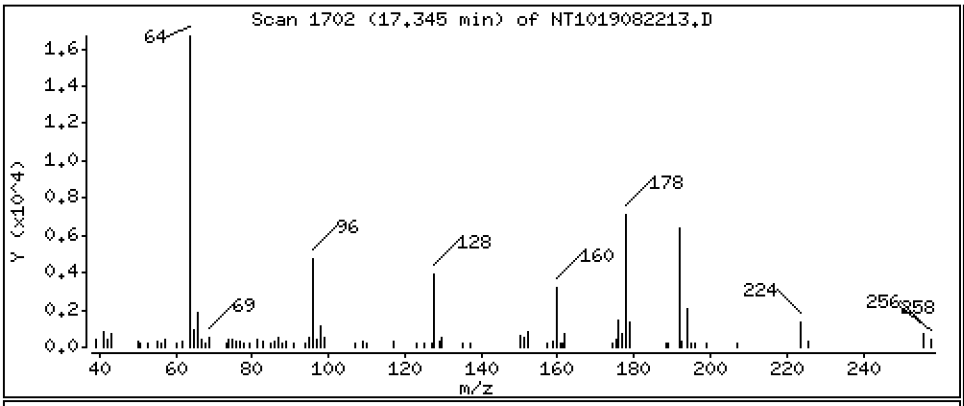
Operator: YZ

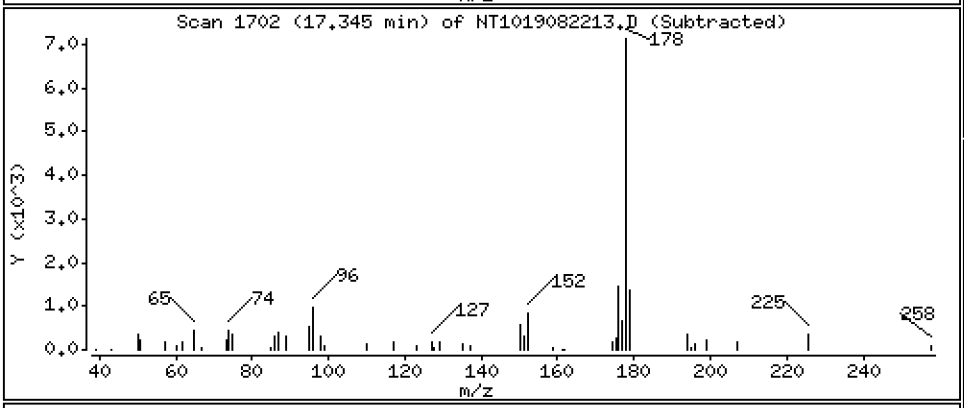
Column phase: ZB-5msi

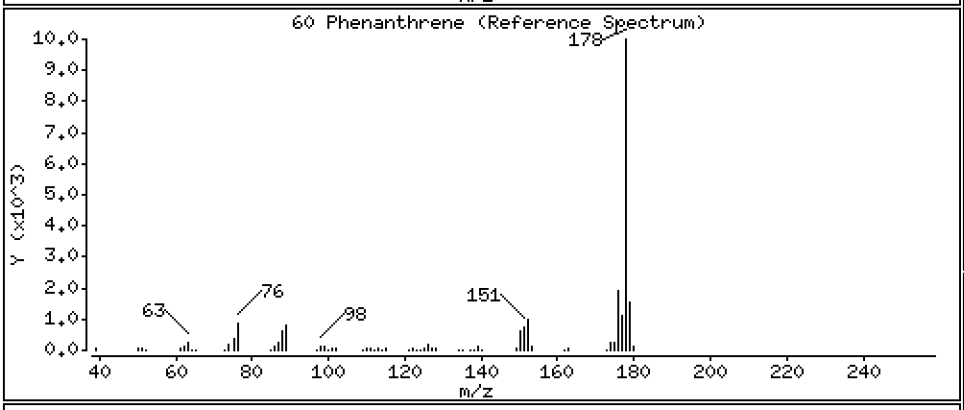
Column diameter: 0.25

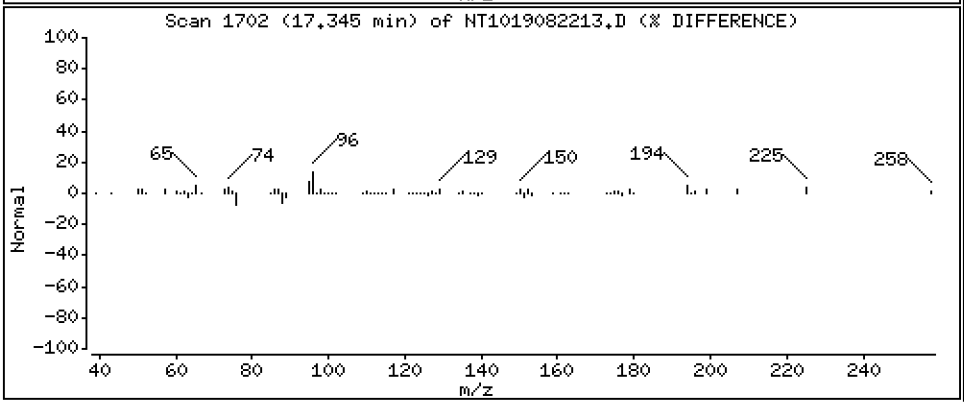
60 Phenanthrene

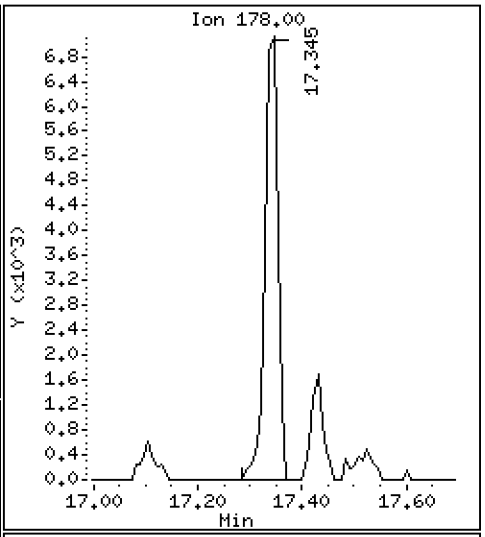
Concentration: 0.8015 ug/mL

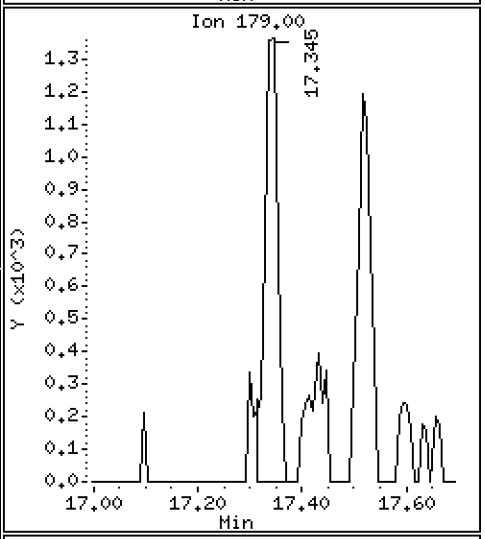


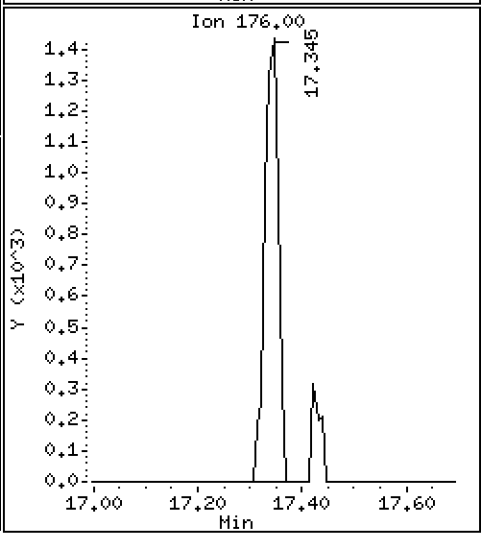












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Date : 22-AUG-2019 21:13

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07RE1,3

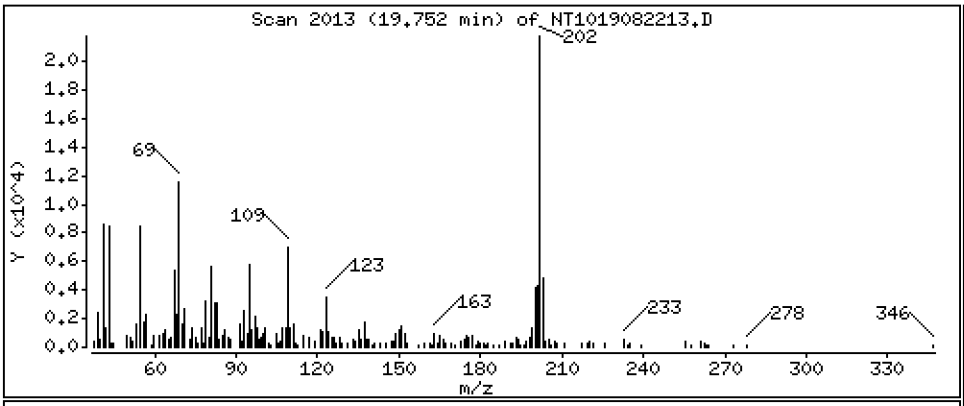
Operator: YZ

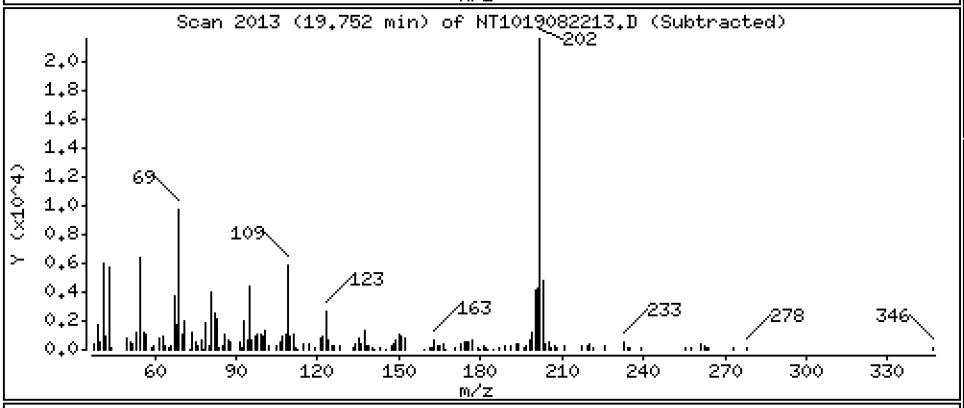
Column phase: ZB-5msi

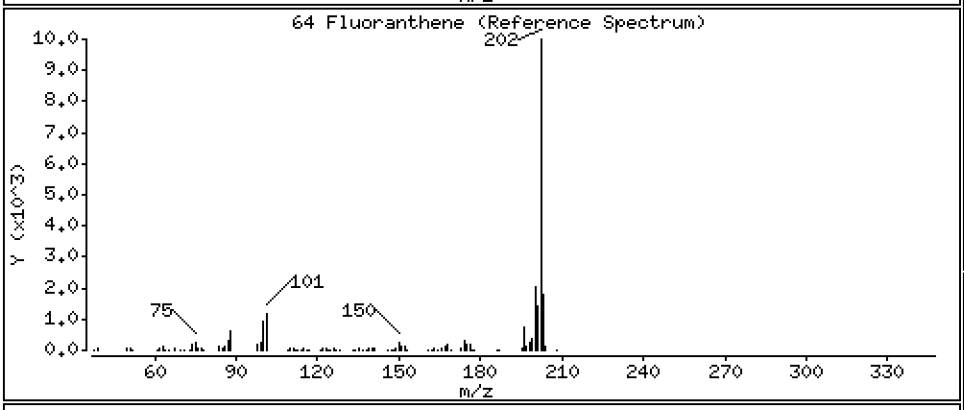
Column diameter: 0.25

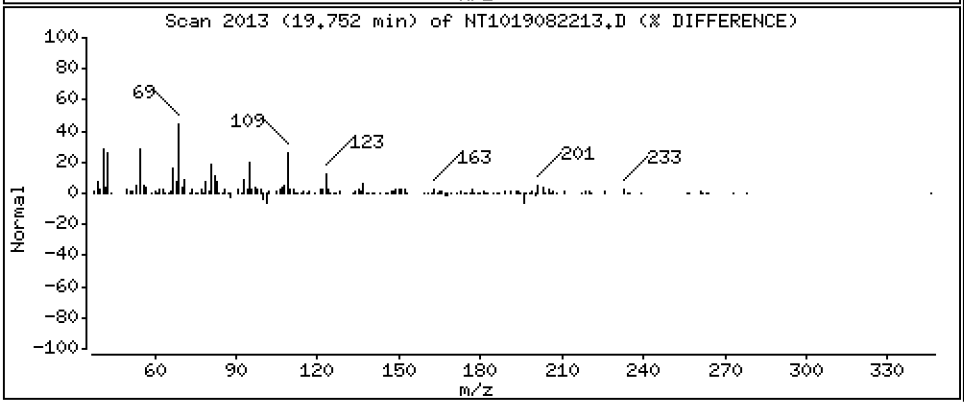
64 Fluoranthene

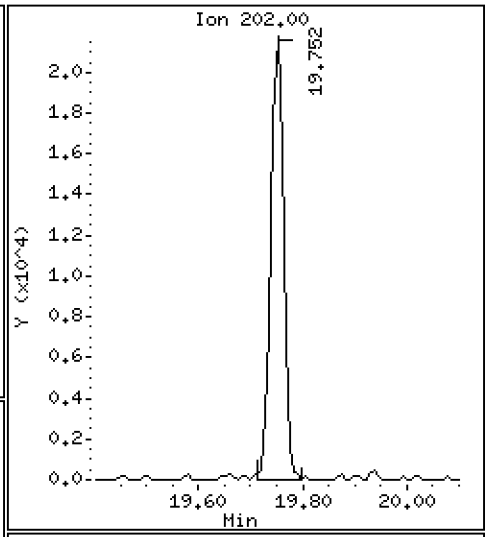
Concentration: 3.678 ug/mL

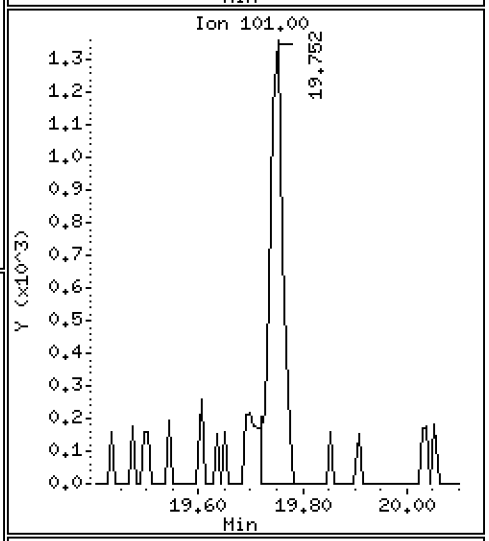


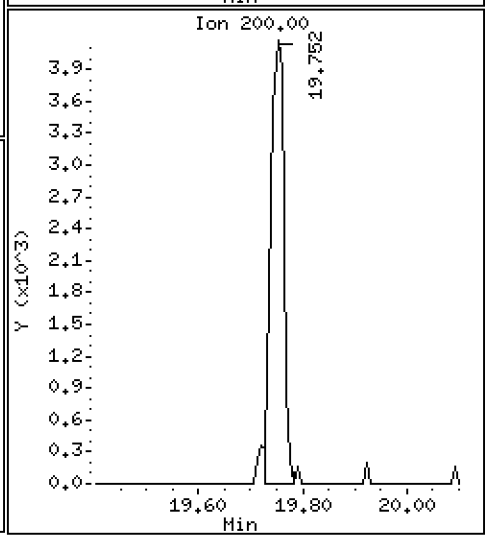












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Date : 22-AUG-2019 21:13

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07RE1,3

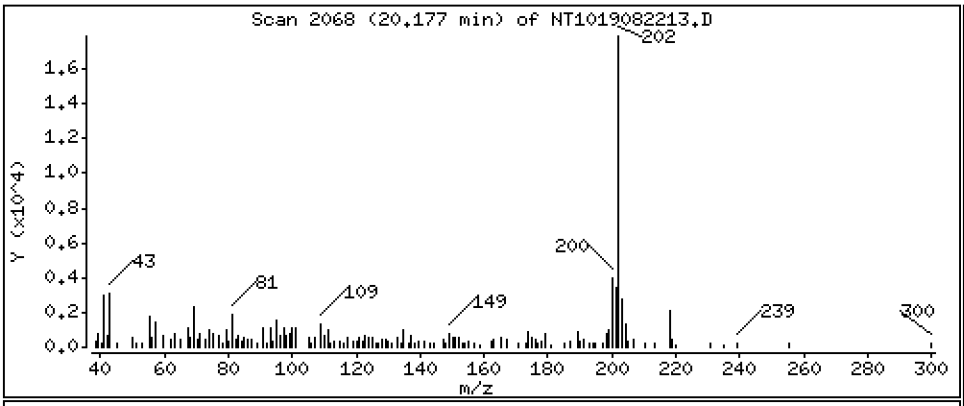
Operator: YZ

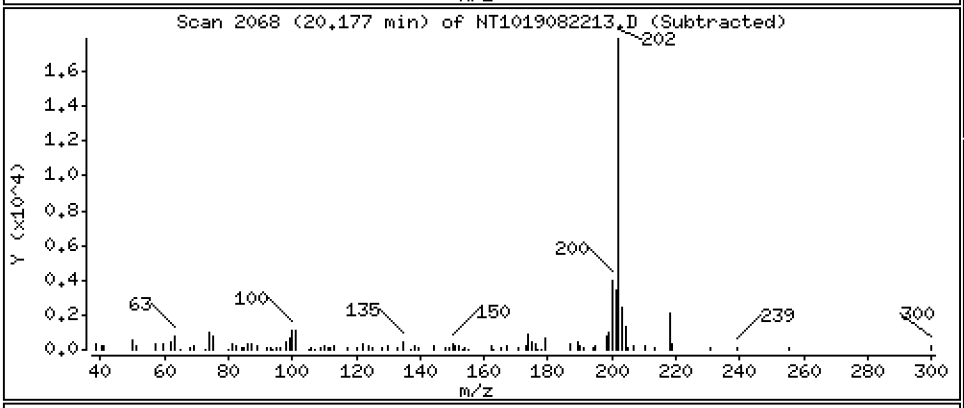
Column phase: ZB-5msi

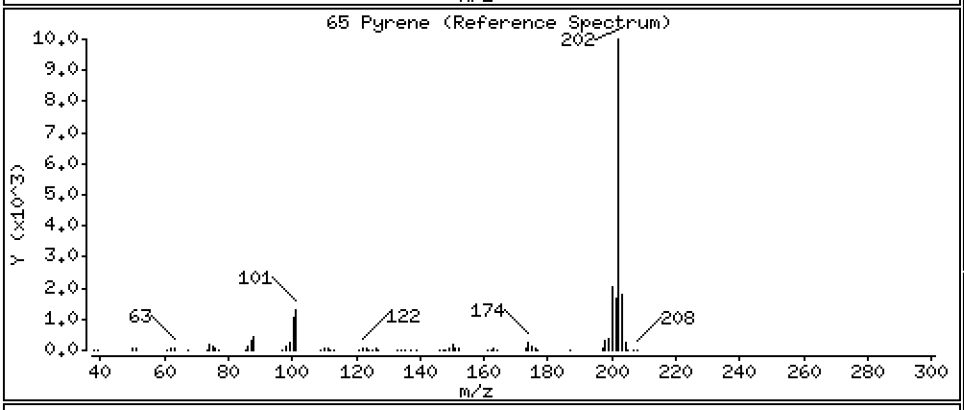
Column diameter: 0.25

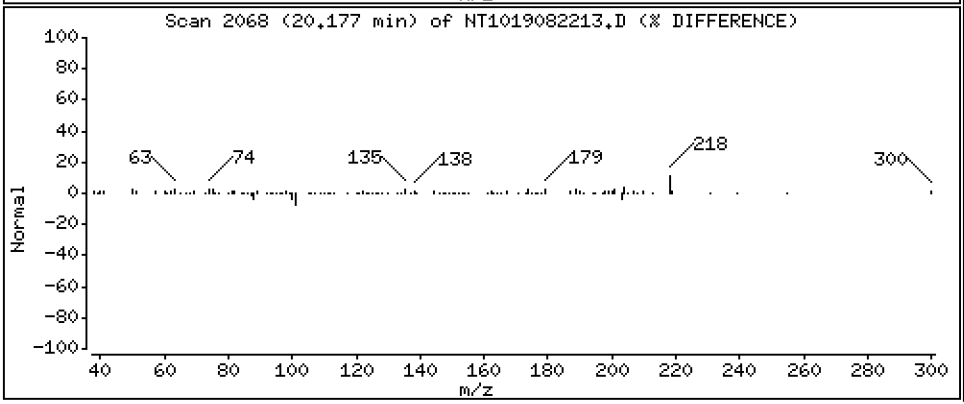
65 Pyrene

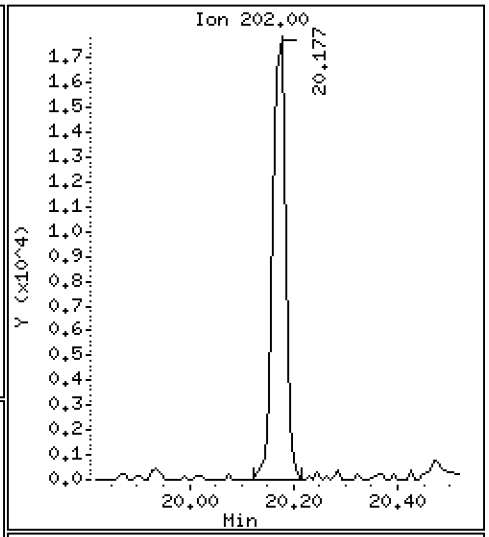
Concentration: 2.884 ug/mL

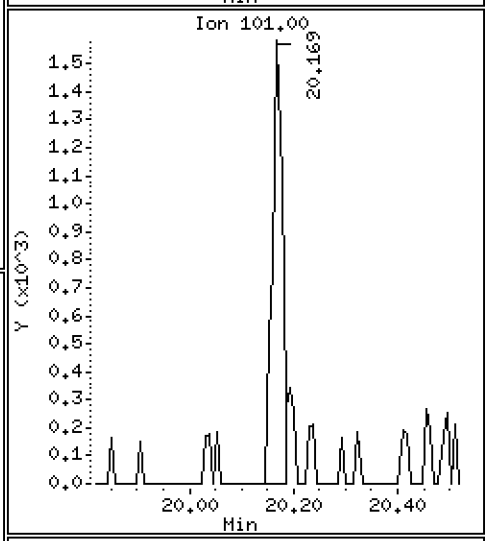


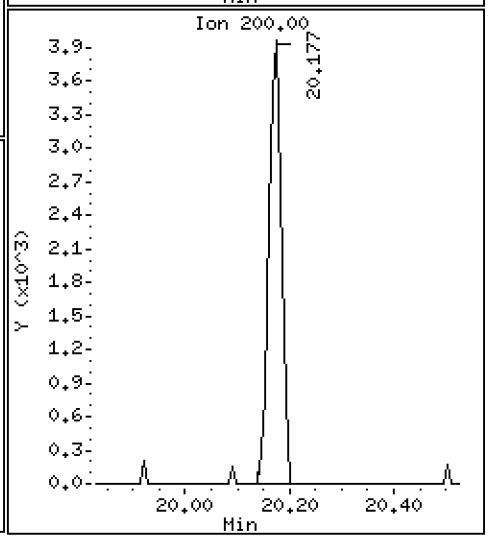












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082213.D

Date : 22-AUG-2019 21:13

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07RE1,3

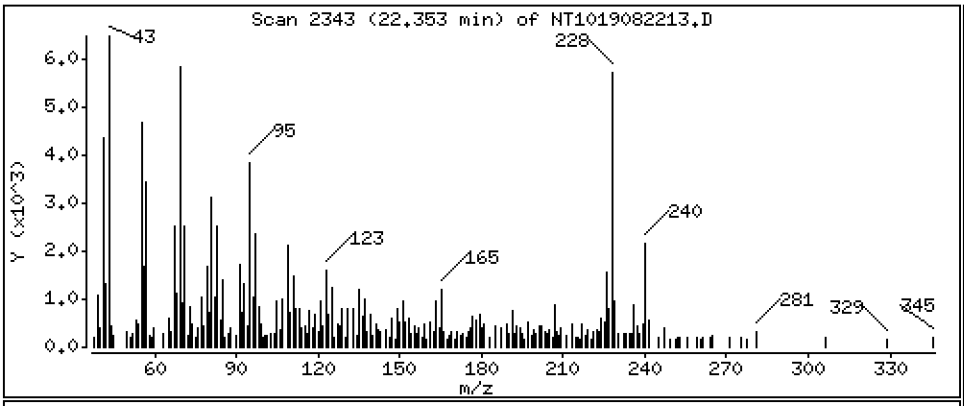
Operator: YZ

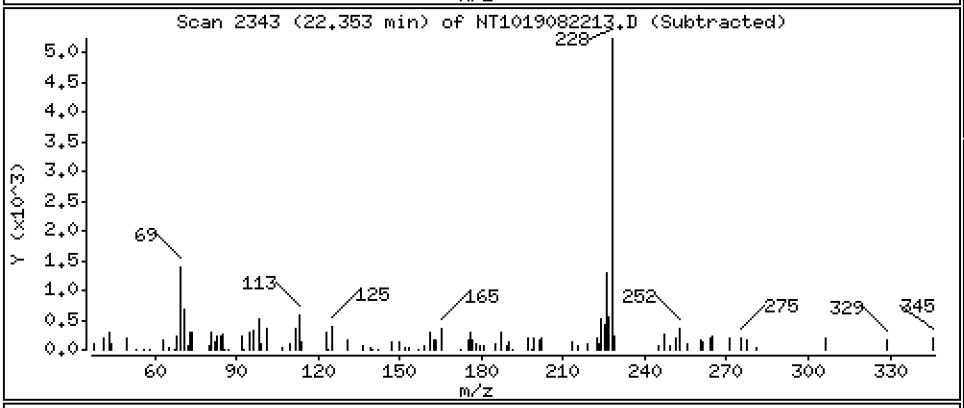
Column phase: ZB-5msi

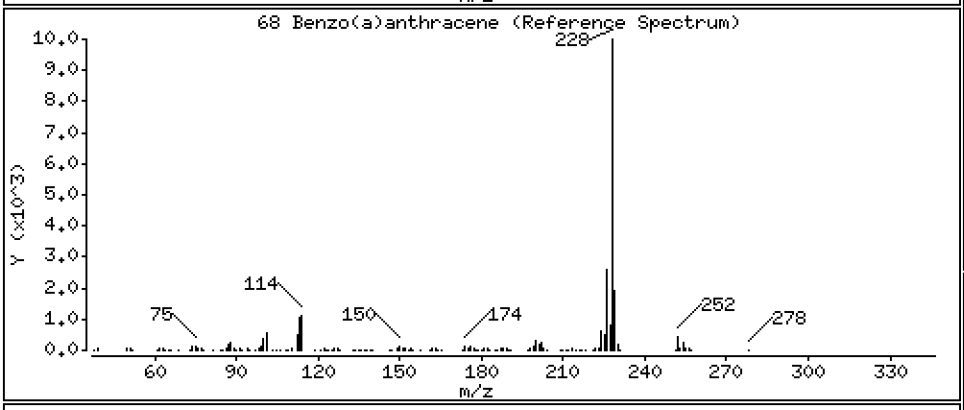
Column diameter: 0.25

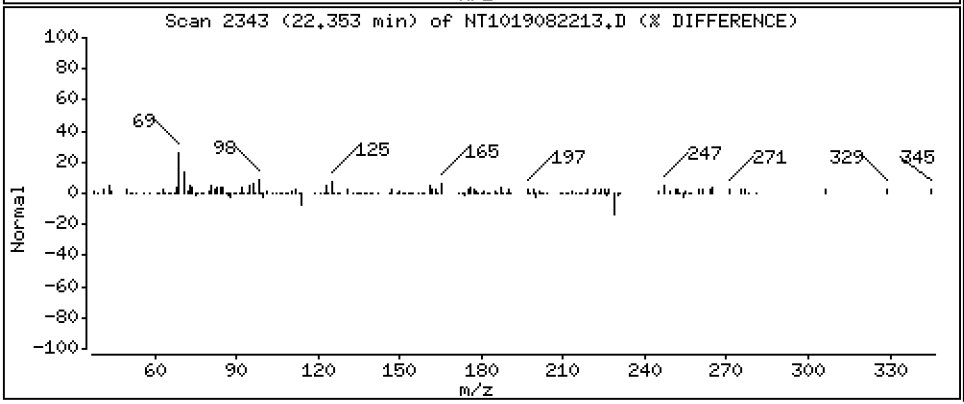
68 Benzo(a)anthracene

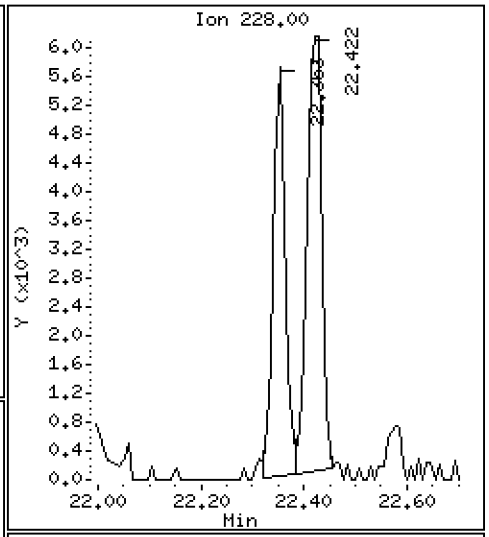
Concentration: 0.9432 ug/mL

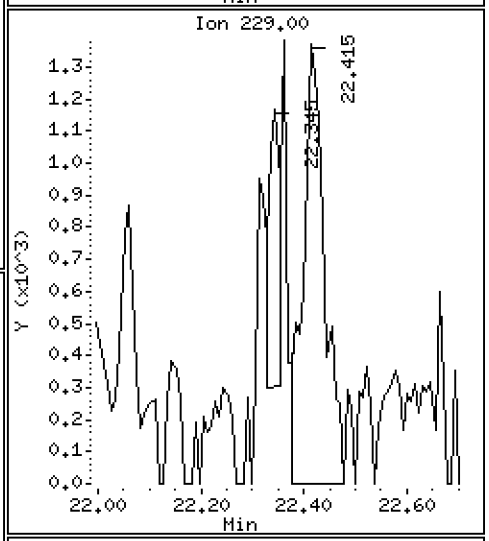


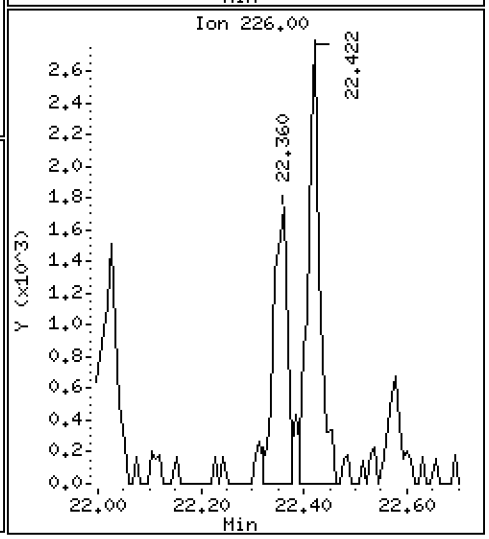












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082213.D

Date : 22-AUG-2019 21:13

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07RE1,3

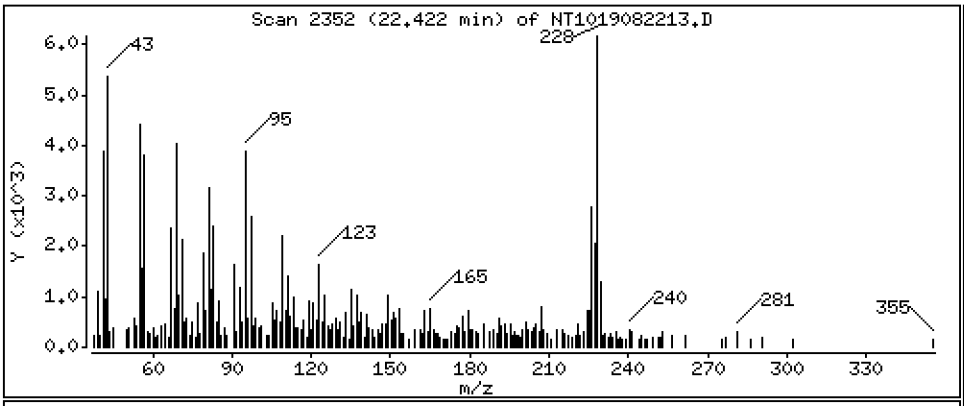
Operator: YZ

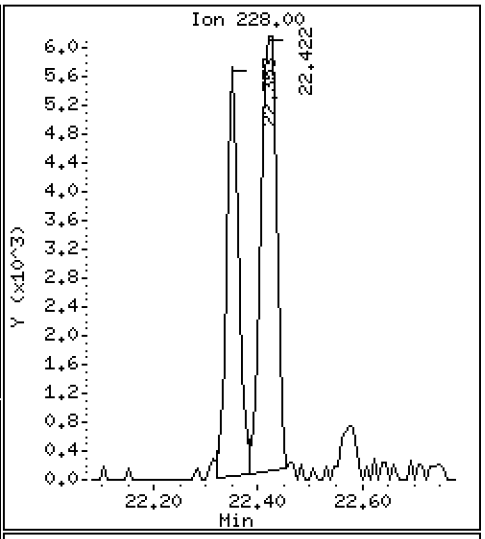
Column phase: ZB-5msi

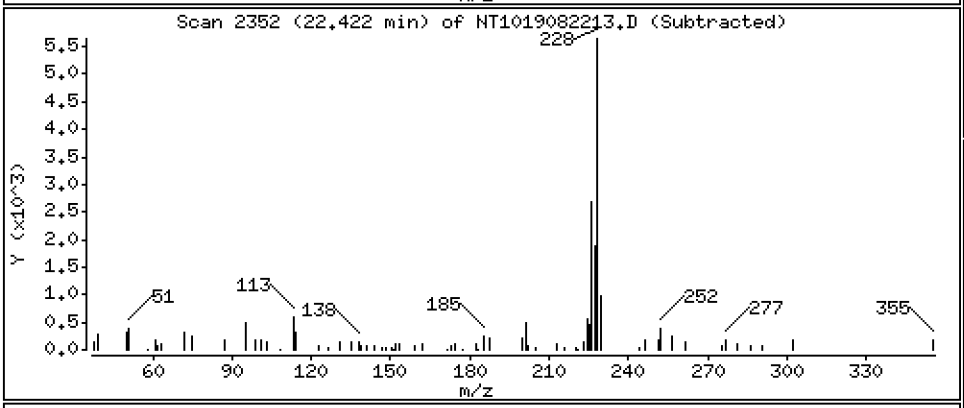
Column diameter: 0.25

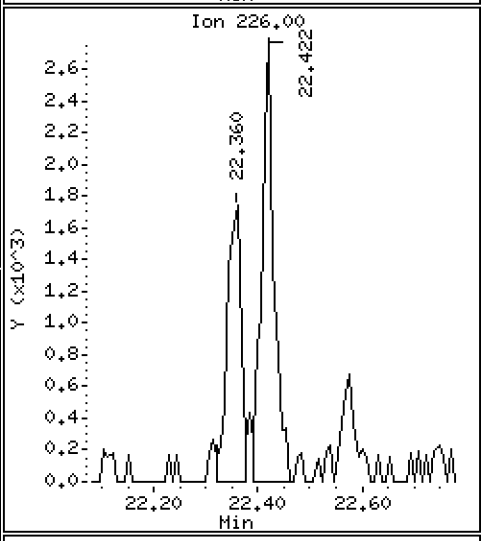
71 Chrysene

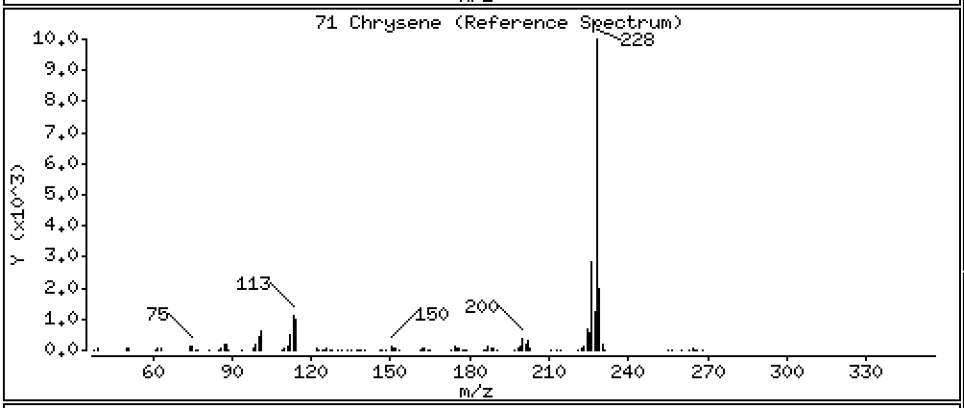
Concentration: 1.565 ug/mL

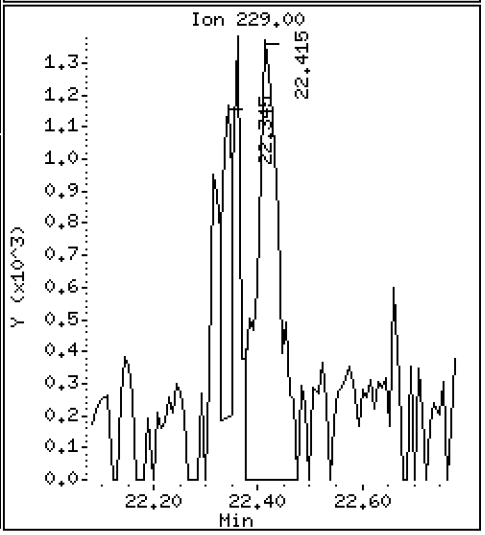


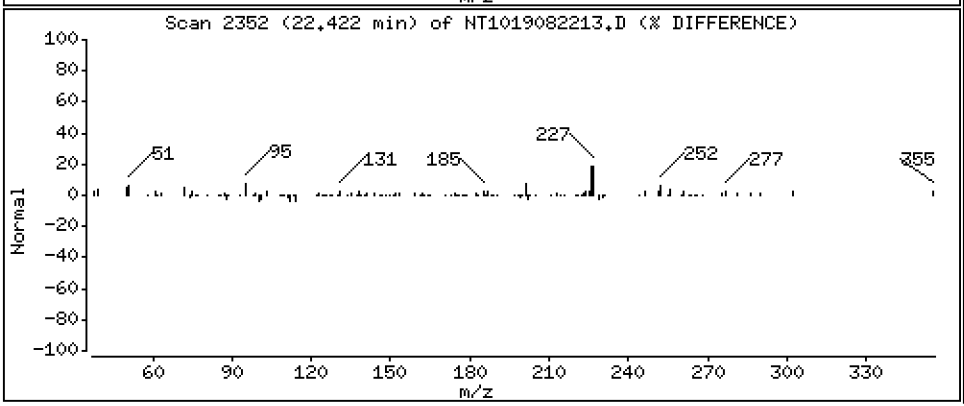












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082213.D

Date : 22-AUG-2019 21:13

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07RE1,3

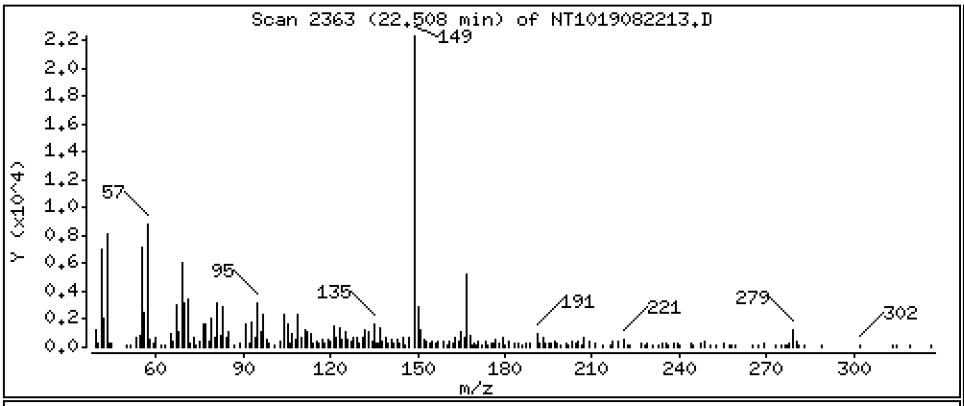
Operator: YZ

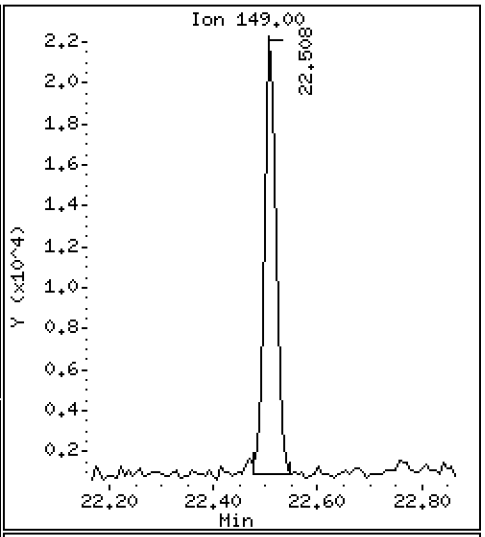
Column phase: ZB-5msi

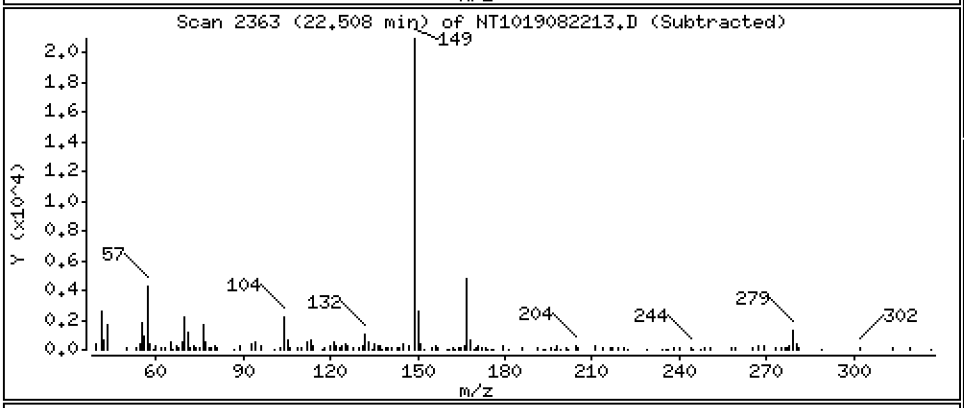
Column diameter: 0.25

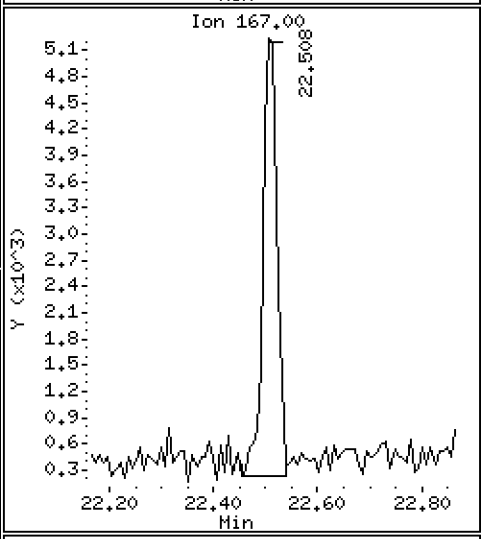
72 bis(2-Ethylhexyl)phthalate

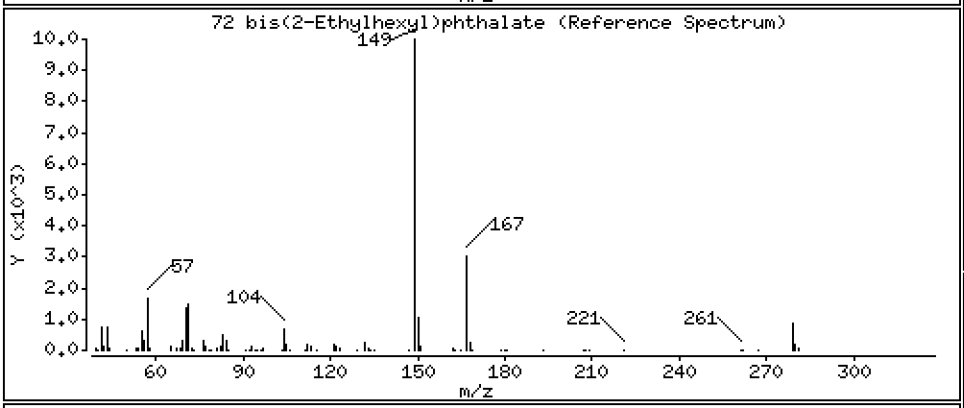
Concentration: 5.192 ug/mL

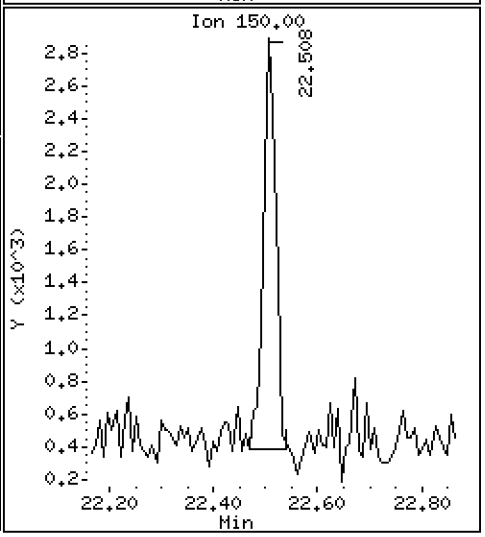


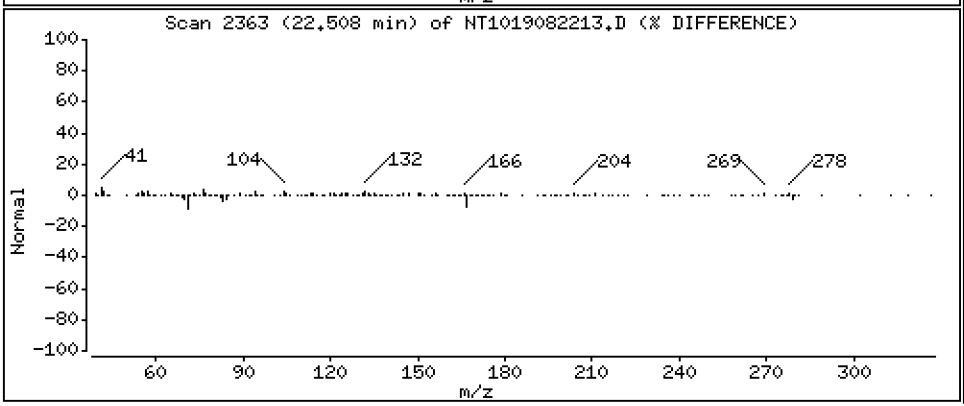












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Date : 22-AUG-2019 21:13

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07RE1,3

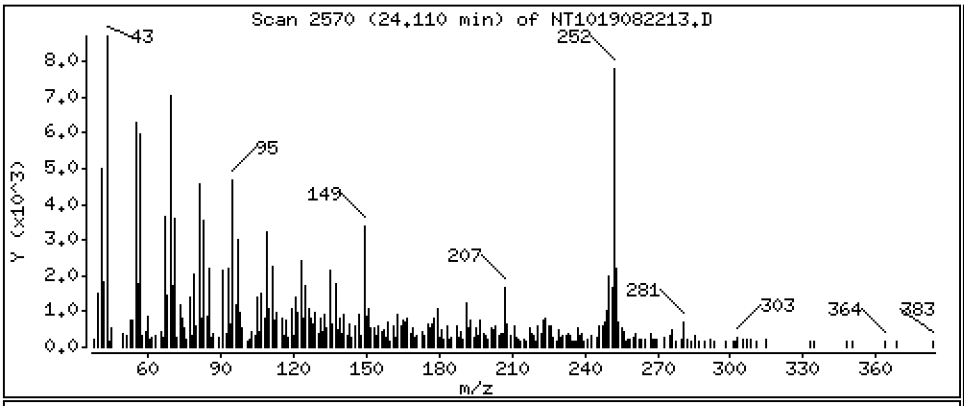
Operator: YZ

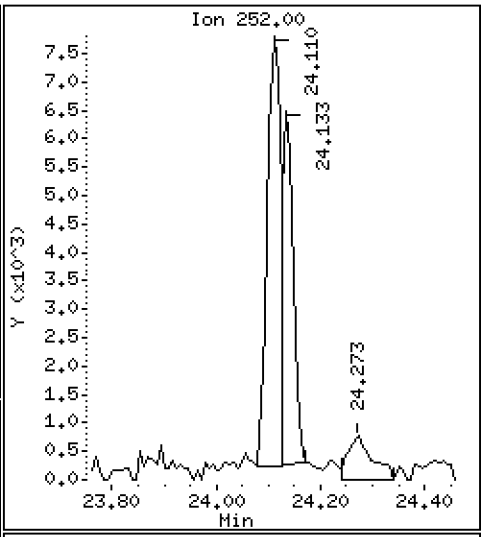
Column phase: ZB-5msi

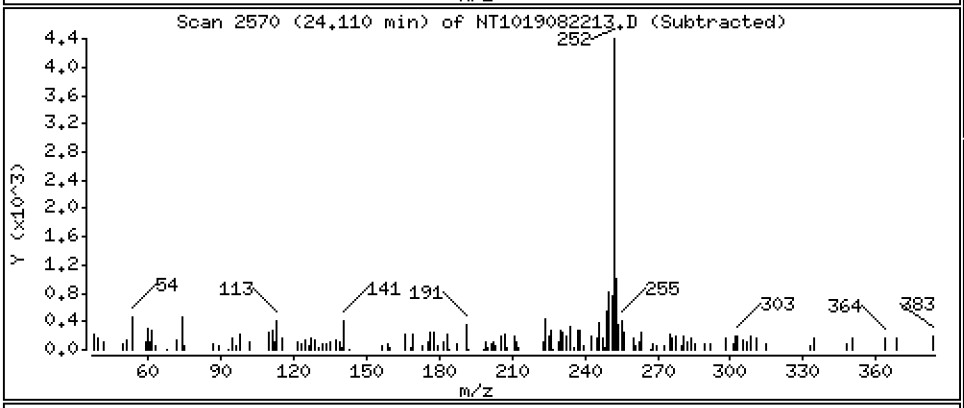
Column diameter: 0.25

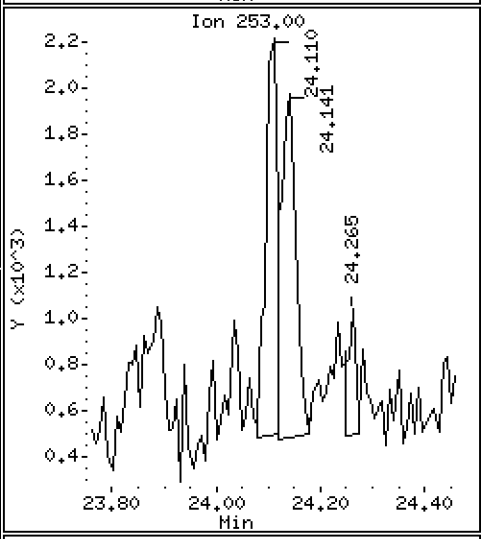
74 Benzo(b)fluoranthene

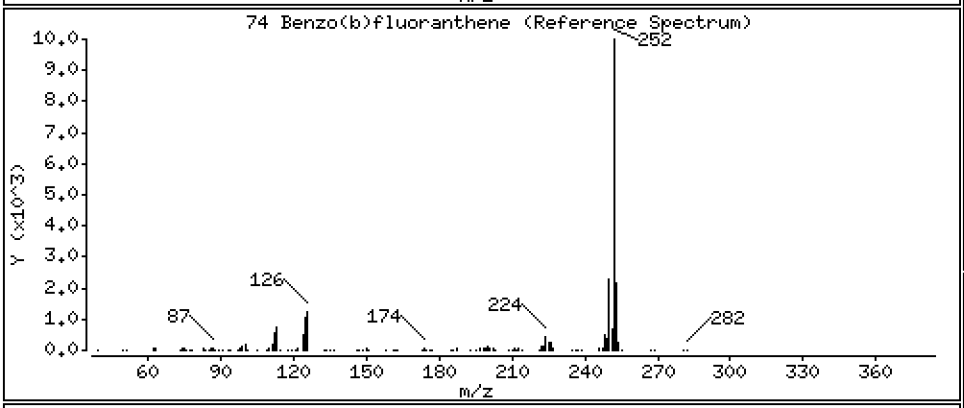
Concentration: 1.924 ug/mL

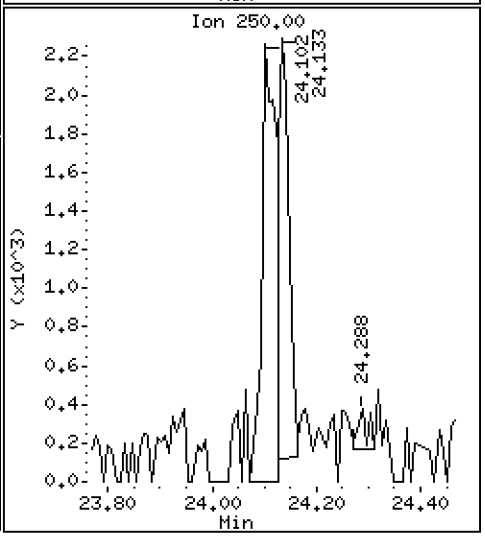


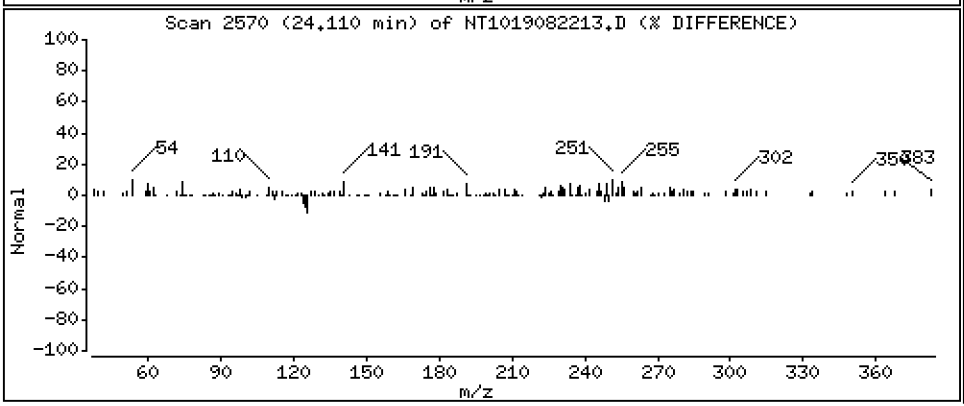












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Date : 22-AUG-2019 21:13

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07RE1,3

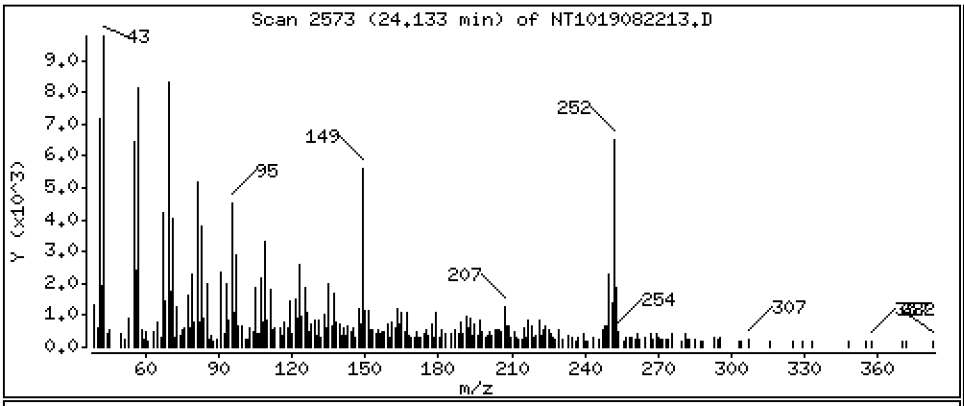
Operator: YZ

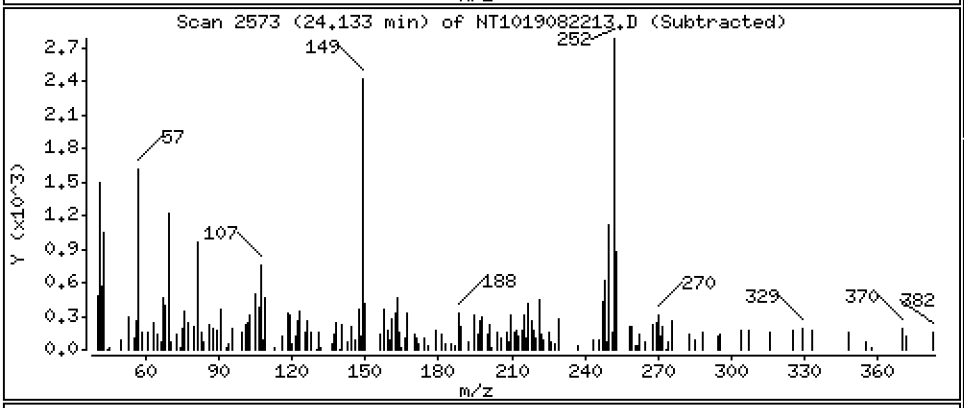
Column phase: ZB-5msi

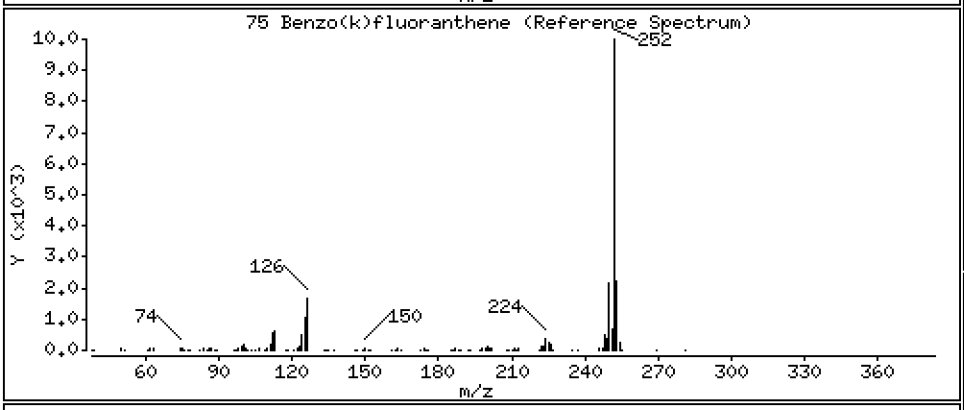
Column diameter: 0.25

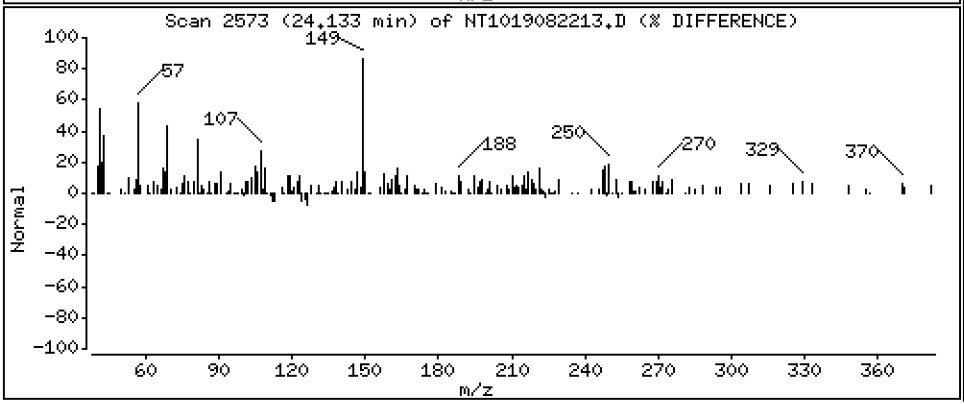
75 Benzo(k)fluoranthene

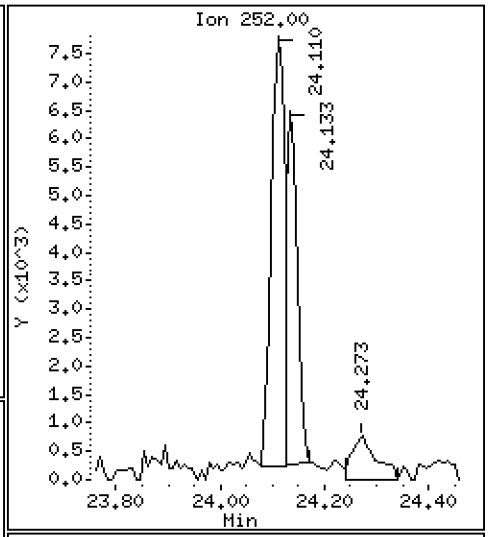
Concentration: 1.432 ug/mL

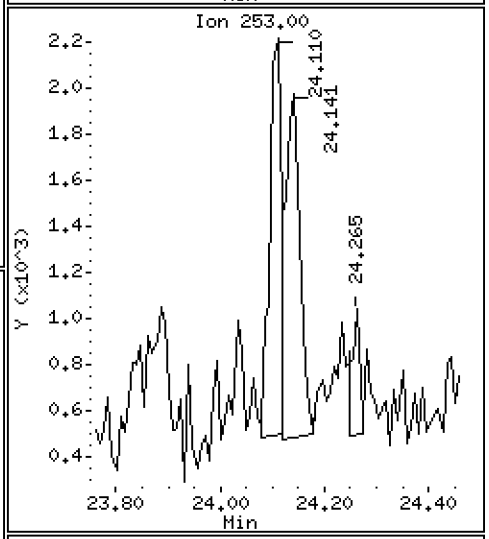


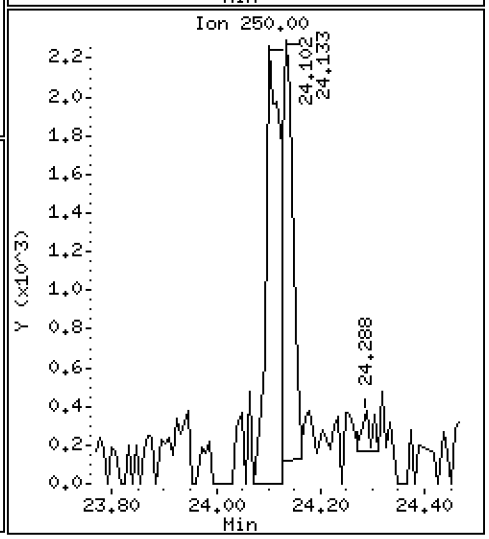












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082213.D

Date : 22-AUG-2019 21:13

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07RE1,3

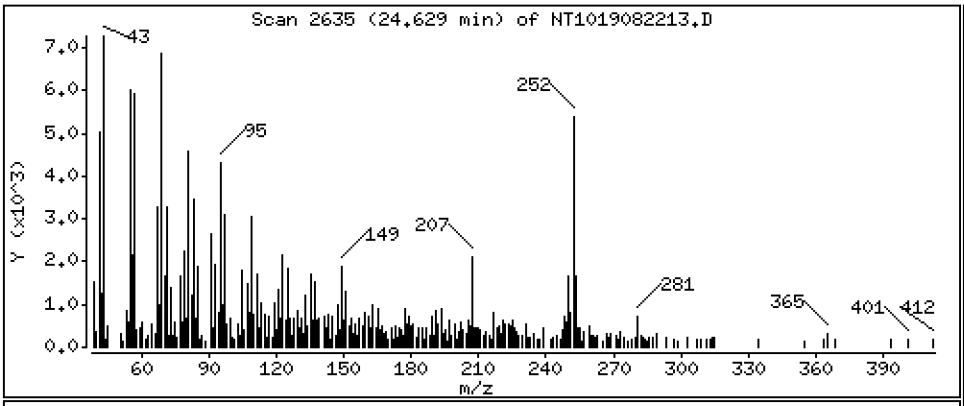
Operator: YZ

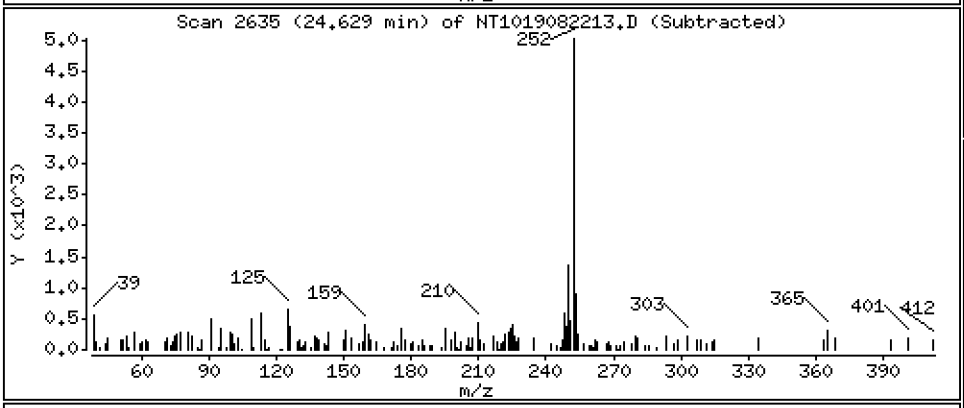
Column phase: ZB-5msi

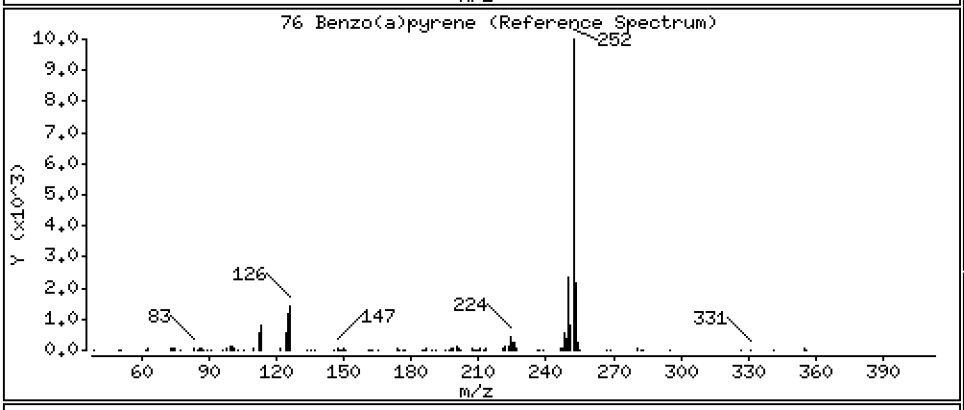
Column diameter: 0.25

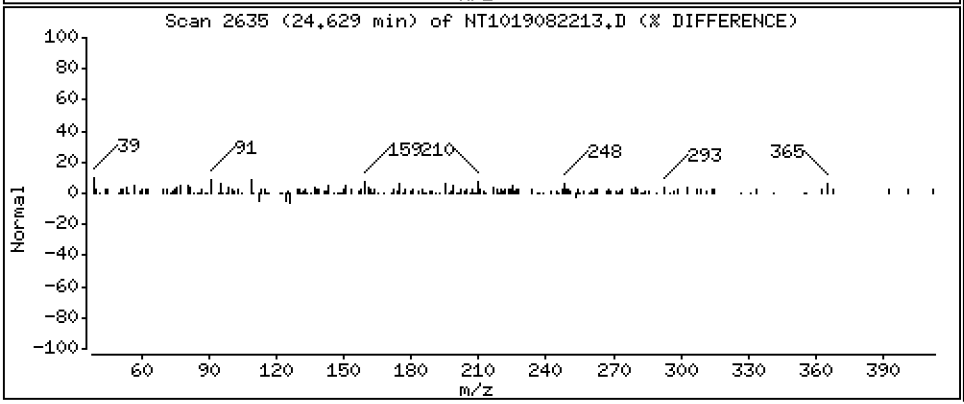
76 Benzo(a)pyrene

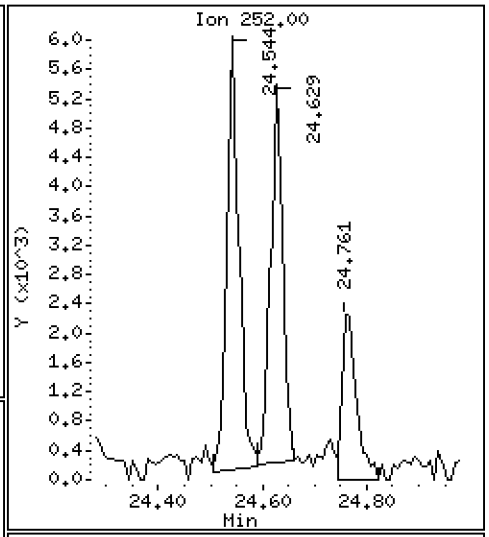
Concentration: 1.270 ug/mL

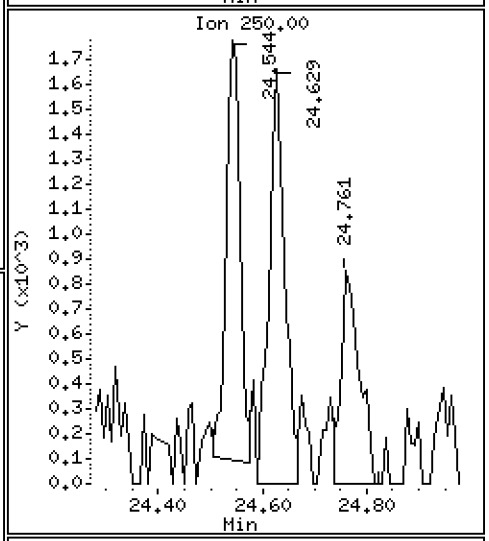


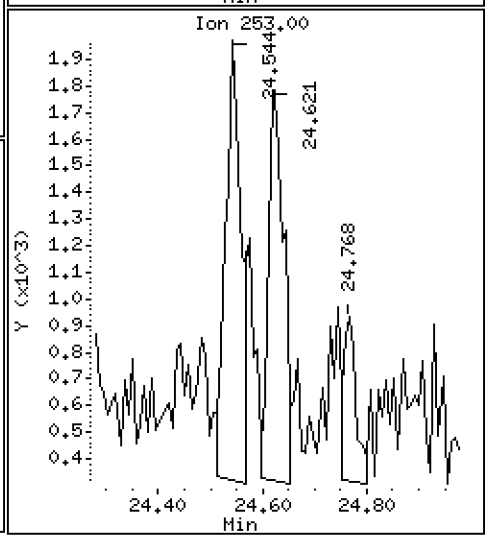












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Date : 22-AUG-2019 21:13

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07RE1,3

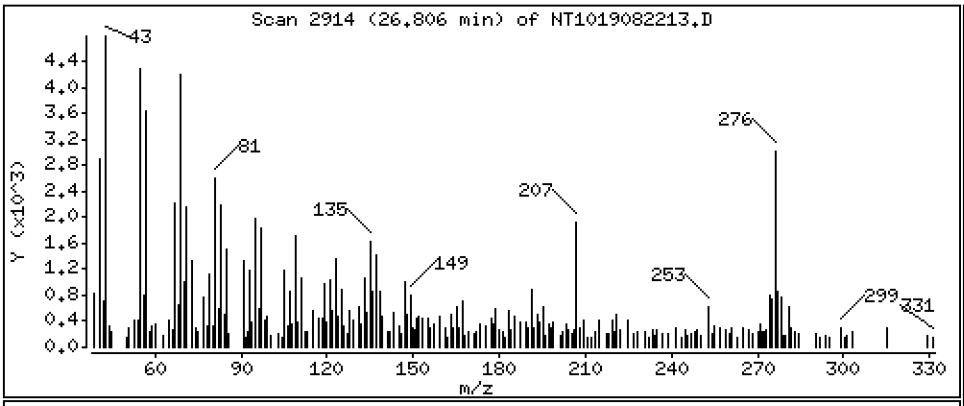
Operator: YZ

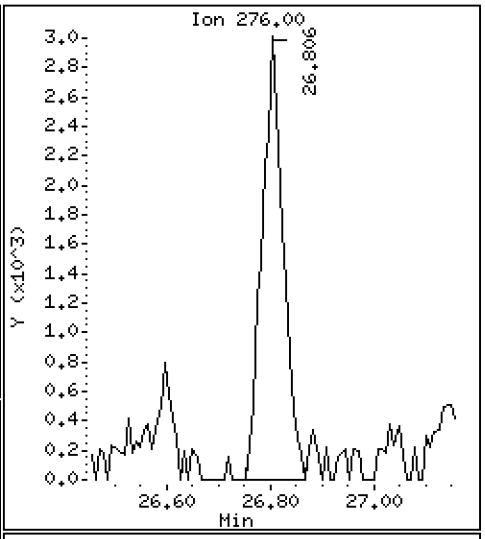
Column phase: ZB-5msi

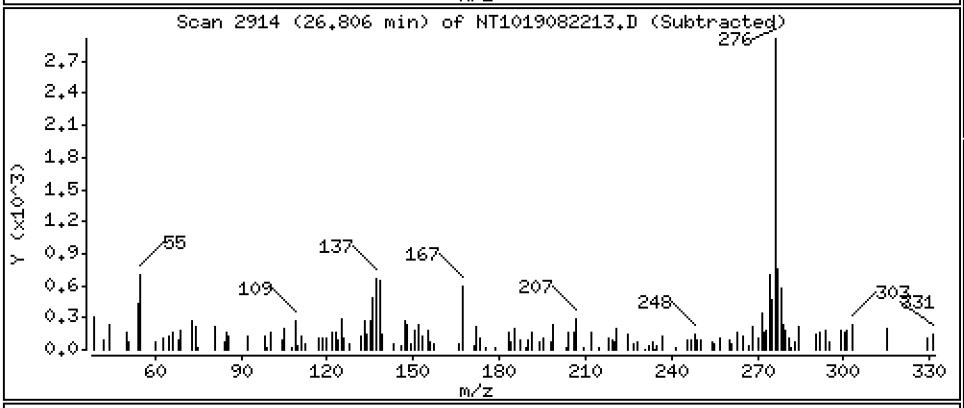
Column diameter: 0.25

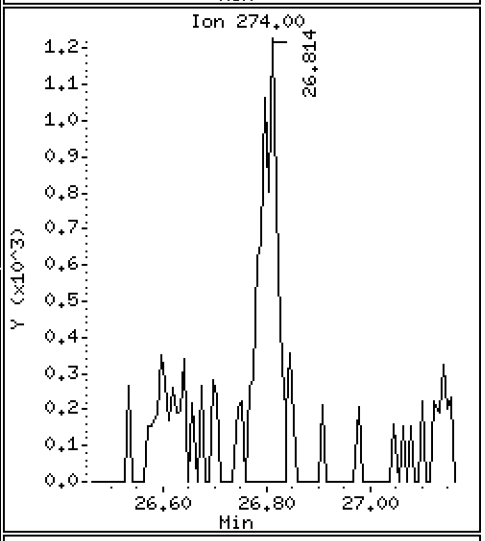
78 Indeno(1,2,3-cd)pyrene

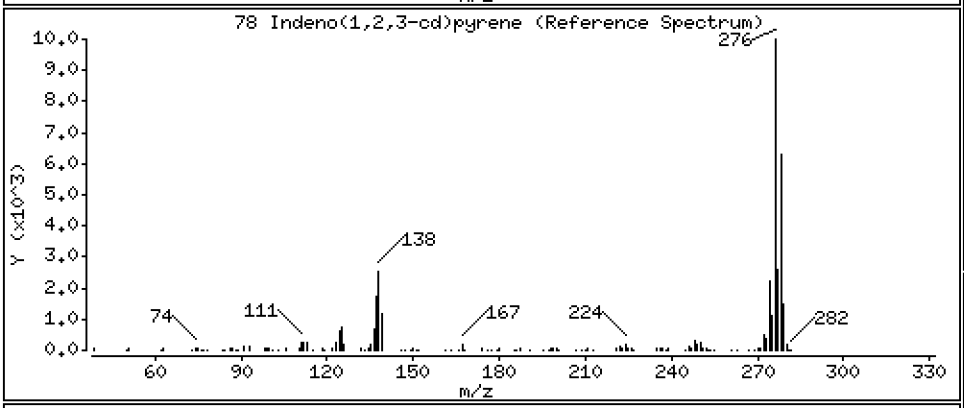
Concentration: 1.124 ug/mL

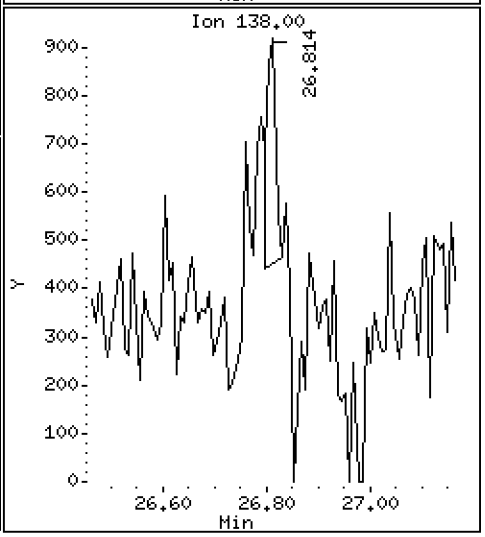


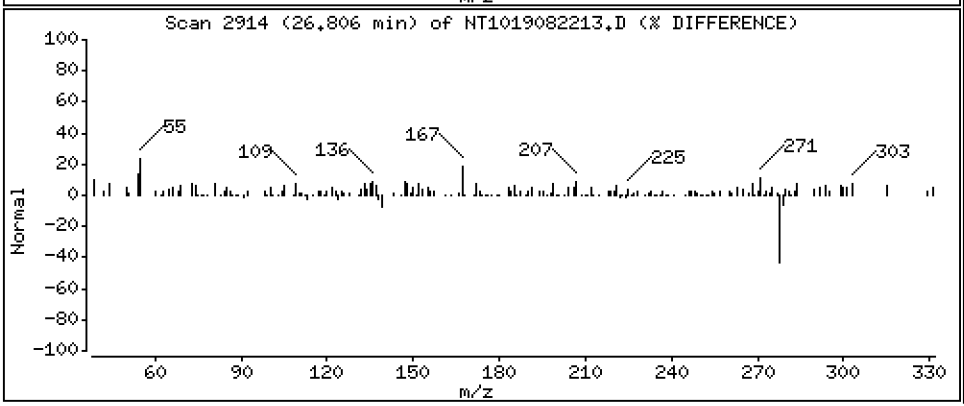












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082213.D

Date : 22-AUG-2019 21:13

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07RE1,3

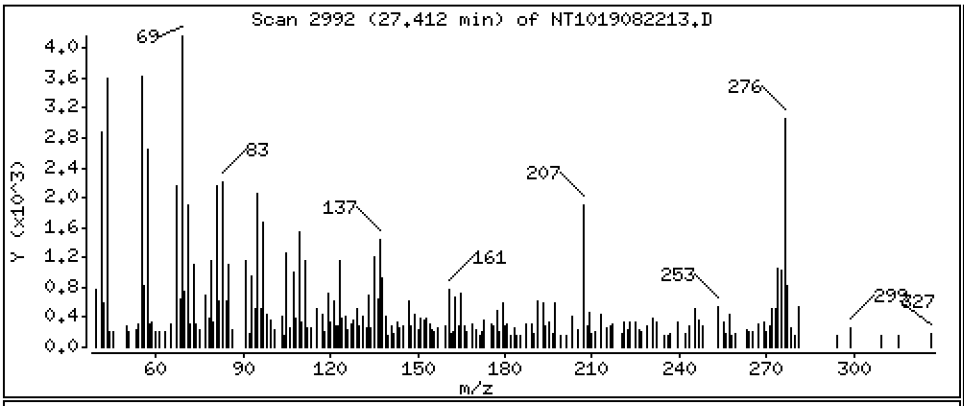
Operator: YZ

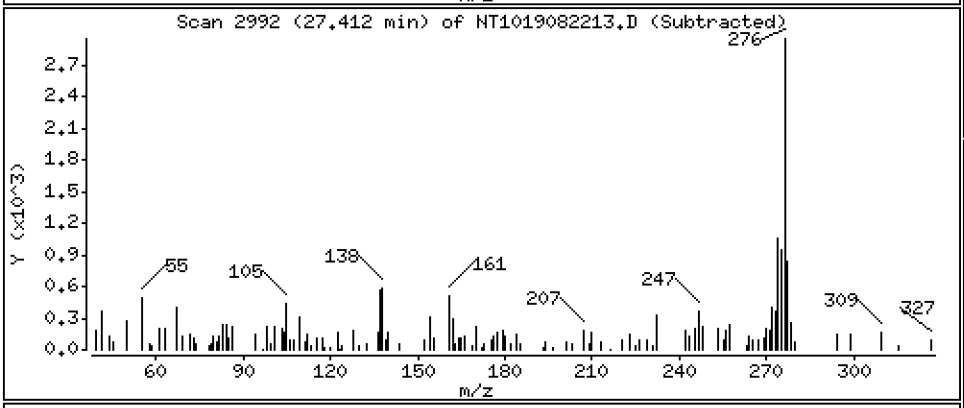
Column phase: ZB-5msi

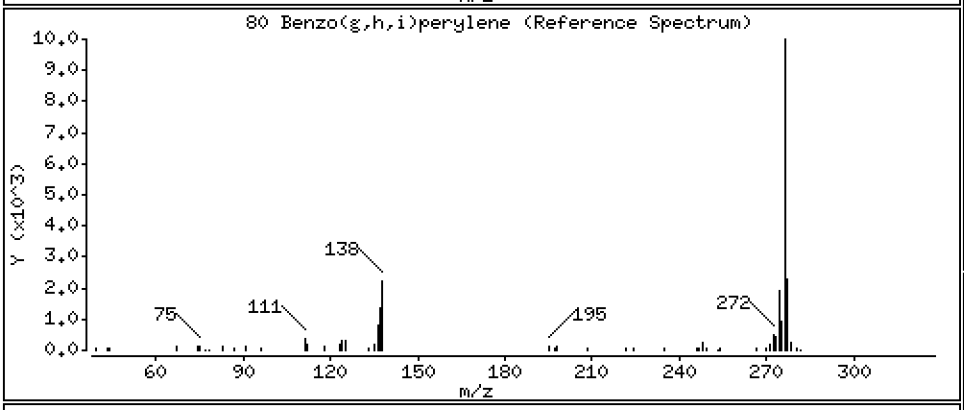
Column diameter: 0.25

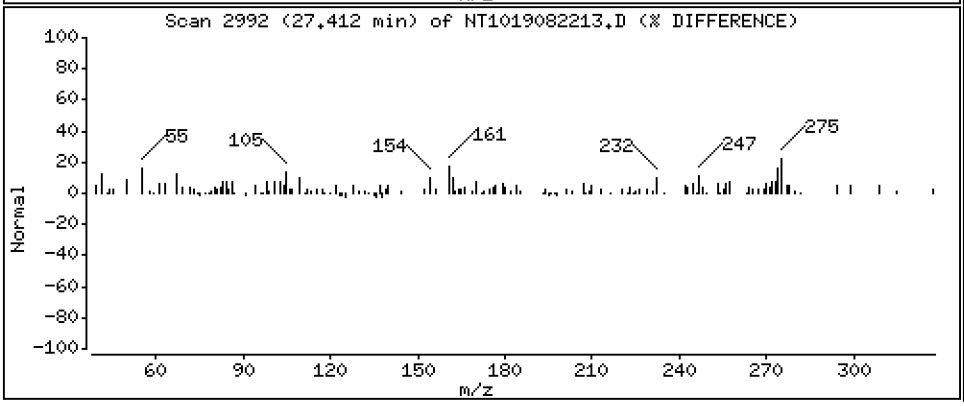
80 Benzo(g,h,i)perylene

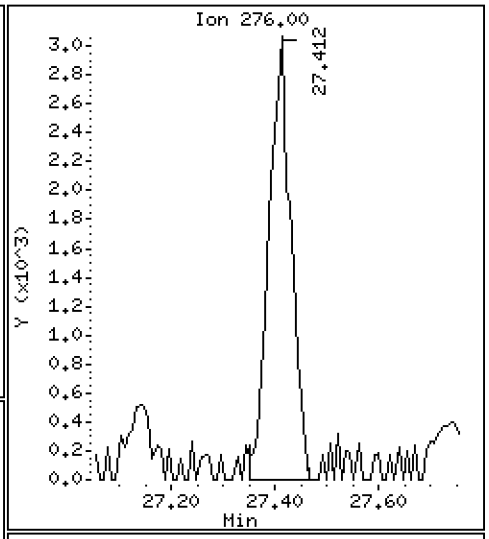
Concentration: 1.437 ug/mL

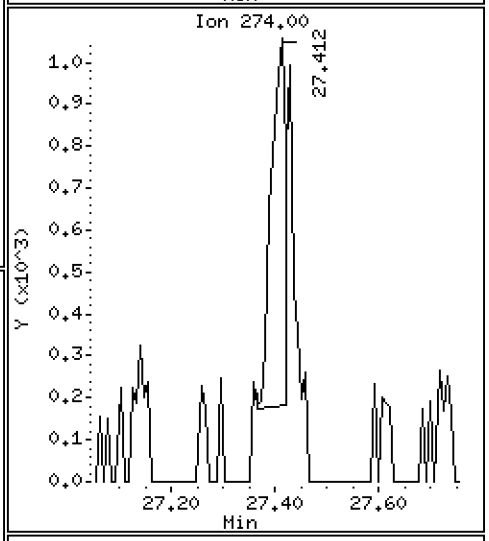


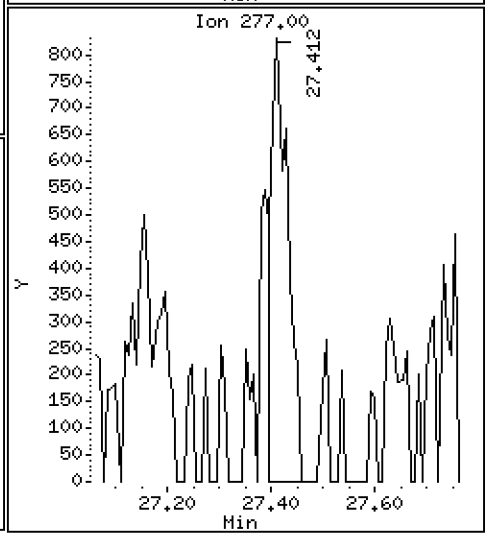












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082213.D

Date : 22-AUG-2019 21:13

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-07RE1,3

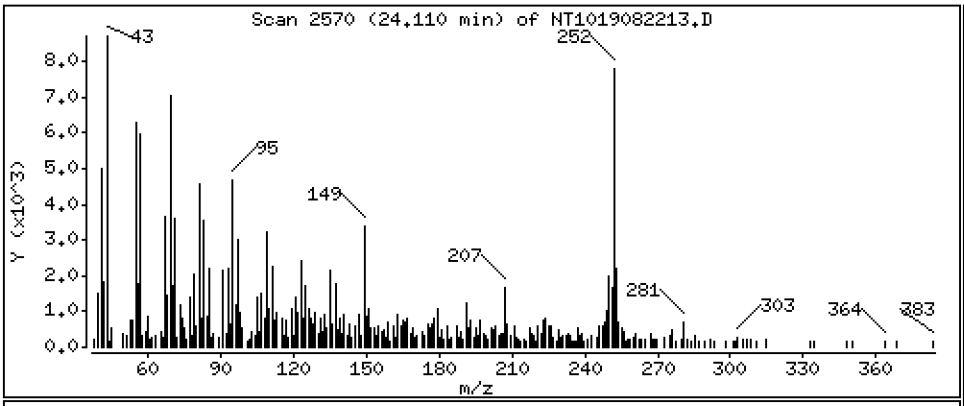
Operator: YZ

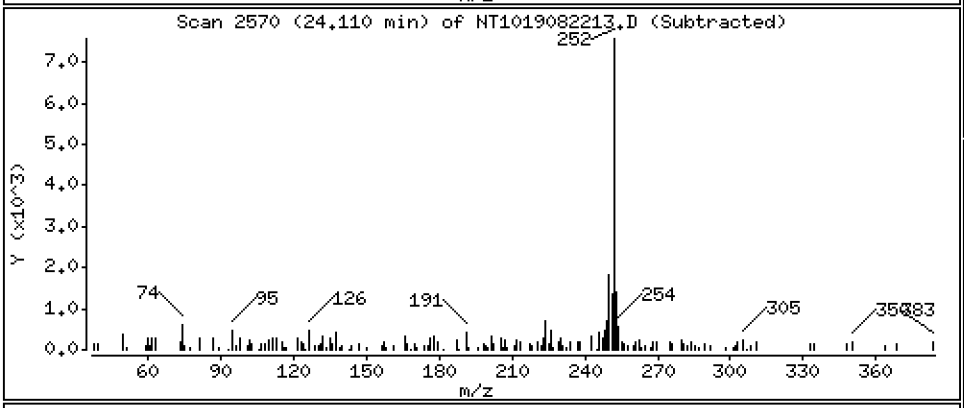
Column phase: ZB-5msi

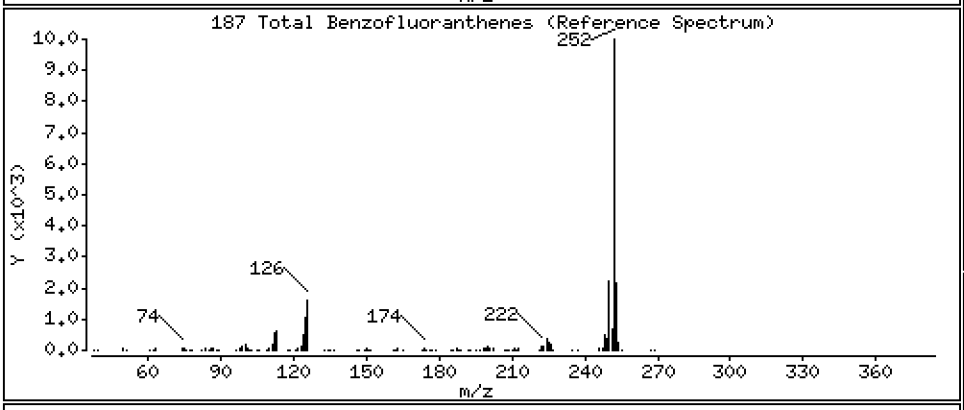
Column diameter: 0.25

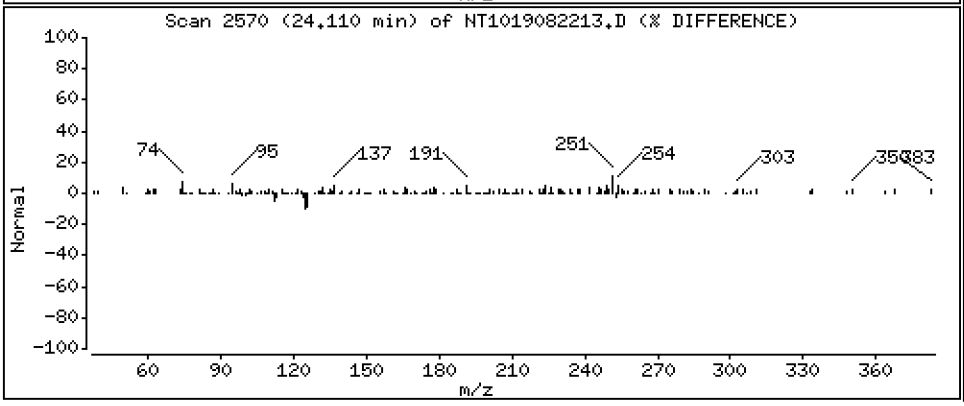
187 Total Benzofluoranthenes

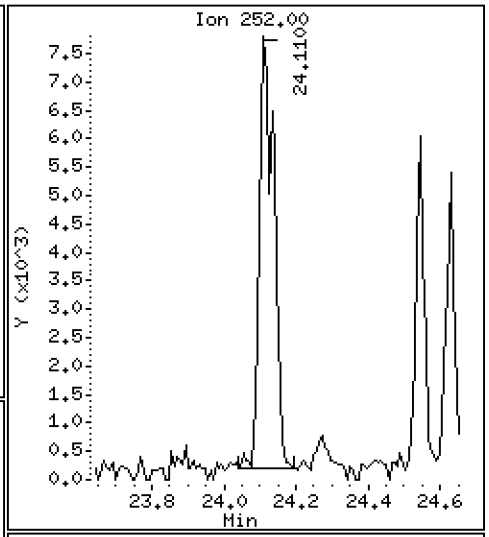
Concentration: 3.284 ug/mL

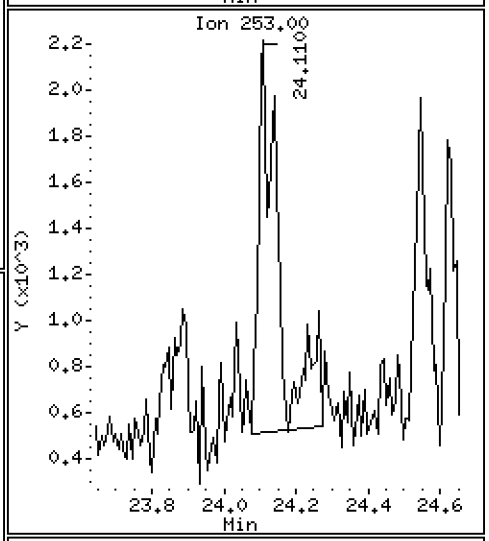


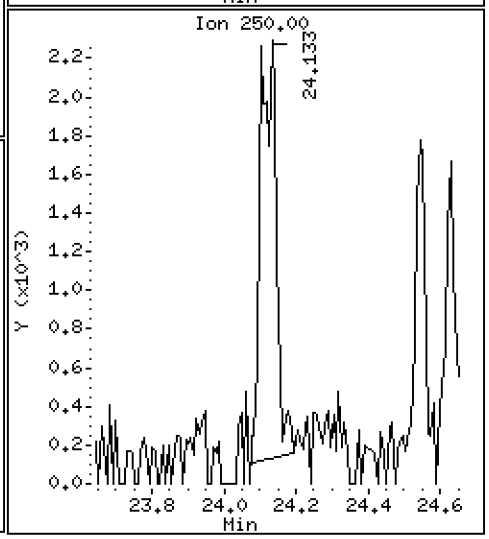












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190822.b\NT1019082213.D
Lab Smp Id: 19H0024-07RE1
Inj Date : 22-AUG-2019 21:13
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-07RE1,3
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 11:16 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 9
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.188	6.173	(0.743)	14727	1.12248	3.367
$	2 Phenol-d5	99	7.749	7.749	(0.930)	15634	1.06326	3.190
	3 Phenol	94	Compound Not Detected.					
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.958)	22928	1.44851	4.346
*	8 1,4-Dichlorobenzene-d4	152	8.329	8.329	(1.000)	46723	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.678	8.671	(1.042)	9430	0.87139	2.614
	11 Benzyl alcohol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.400	9.408	(0.873)	11487	0.81151	2.435
	24 Benzoic acid	105	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.764	10.765	(1.000)	180986	4.00000	
	28 Naphthalene	128	Compound Not Detected.					
	32 2-Methylnaphthalene	142	Compound Not Detected.					
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	35462	1.00631	3.019
	39 Dimethylphthalate	163	Compound Not Detected.					
	40 Acenaphthylene	152	Compound Not Detected.					
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	92132	4.00000	
	44 Acenaphthene	153	Compound Not Detected.					
	46 Dibenzofuran	168	Compound Not Detected.					
	50 Diethylphthalate	149	Compound Not Detected.					
	49 Fluorene	166	Compound Not Detected.					
	54 N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55 2,4,6-Tribromophenol	330	15.923	15.931	(1.113)	10345	1.48496	4.455
*	59 Phenanthrene-d10	188	17.291	17.291	(1.000)	178757	4.00000	
	60 Phenanthrene	178	17.345	17.345	(1.003)	11666	0.26717	0.8015
	61 Anthracene	178	Compound Not Detected.					
	63 Di-n-butylphthalate	149	Compound Not Detected.					
	64 Fluoranthene	202	19.751	19.751	(0.882)	35379	1.22615	3.678
	65 Pyrene	202	20.177	20.169	(0.901)	28970	0.96150	2.884
$	66 Terphenyl-d14	244	20.494	20.502	(0.916)	31035	1.51880	4.556
	67 Butylbenzylphthalate	149	Compound Not Detected.					
	68 Benzo(a)anthracene	228	22.352	22.352	(0.999)	8613	0.31441	0.9432
*	69 Chrysene-d12	240	22.383	22.383	(1.000)	94419	4.00000	
	71 Chrysene	228	22.422	22.430	(1.002)	12643	0.52156	1.565

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.507	22.515	(0.958)	31827	1.73060	5.192
* 134	Di-n-octylphthalate-d4	153	23.490	23.490	(1.000)	209094	4.00000	
73	Di-n-octylphthalate	149	Compound Not Detected.					
74	Benzo(b)fluoranthene	252	24.110	24.110	(0.975)	13306	0.64118	1.924
75	Benzo(k)fluoranthene	252	24.133	24.110	(0.976)	9965	0.47731	1.432(H)
76	Benzo(a)pyrene	252	24.628	24.628	(0.996)	7887	0.42346	1.270
* 77	Perylene-d12	264	24.729	24.721	(1.000)	72332	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.806	26.806	(1.084)	8387	0.37477	1.124
79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
80	Benzo(g,h,i)perylene	276	27.411	27.404	(1.108)	9026	0.47887	1.437
105	1-methylnaphthalene	142	Compound Not Detected.					
187	Total Benzofluoranthenes	252	24.110	24.148	(0.975)	21790	1.09465	3.284

QC Flag Legend

H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082213.D
Lab Smp Id: 19H0024-07RE1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 16:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	46723	42.71
27 Naphthalene-d8	117487	58744	234974	180986	54.05
42 Acenaphthene-d10	61859	30930	123718	92132	48.94
59 Phenanthrene-d10	113574	56787	227148	178757	57.39
69 Chrysene-d12	105788	52894	211576	94419	-10.75
134 Di-n-octylphthala	252823	126412	505646	209094	-17.30
77 Perylene-d12	113992	56996	227984	72332	-36.55

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.33	-0.00
27 Naphthalene-d8	10.77	10.27	11.27	10.76	-0.00
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	-0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.29	-0.00
69 Chrysene-d12	22.38	21.88	22.88	22.38	-0.00
134 Di-n-octylphthala	23.49	22.99	23.99	23.49	-0.00
77 Perylene-d12	24.72	24.22	25.22	24.73	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082213.D

Lab ID: 19H0024-07RE1
nt10.i, 20190822.b\ABN.m,   22-AUG-2019 21:13

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT1019082206.D

On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

SL4-SG-WC2-2019

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D
Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory: Analytical Resources, Inc.

Client: Windward Environmental, LLC

Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix:	Solid	Laboratory ID:	19H0024-08 B	SDG:	19H0024
Sampled:	08/01/19 10:30	Prepared:	08/13/19 12:40	File ID:	NT1019082117.D
% Solids:	44.53	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/21/19 20:08
Batch:	BHH0289	Sequence:	SHH0303	Initial/Final:	22.56 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040

Cleanups: GPC

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	3	117	Q, D	24.6	59.7
100-51-6	Benzyl Alcohol	3	59.7	U	44.5	59.7
65-85-0	Benzoic acid	3	597	U	176	597
86-30-6	N-Nitrosodiphenylamine	3	59.7	U	28.6	59.7
85-01-8	Phenanthrene	3	331	D	14.0	59.7
206-44-0	Fluoranthene	3	1530	D	13.5	59.7
129-00-0	Pyrene	3	1270	D	16.6	59.7
85-68-7	Butylbenzylphthalate	3	243	D	24.0	59.7
56-55-3	Benzo(a)anthracene	3	428	D	15.5	59.7
218-01-9	Chrysene	3	786	D	15.6	59.7
117-81-7	bis(2-Ethylhexyl)phthalate	3	3590	D	86.0	149
117-84-0	Di-n-Octylphthalate	3	230	D	26.0	59.7
	Benzofluoranthenes, Total	3	1210	D	30.5	119
50-32-8	Benzo(a)pyrene	3	463	D	19.4	59.7
193-39-5	Indeno(1,2,3-cd)pyrene	3	59.7	U	17.9	59.7
53-70-3	Dibenzo(a,h)anthracene	3	59.7	U	18.4	59.7
191-24-2	Benzo(g,h,i)perylene	3	59.7	U	17.4	59.7

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	746.57	407	54.5	27 - 120	Q
Phenol-d5	746.57	401	53.7	29 - 120	Q
2-Chlorophenol-d4	746.57	523	70.1	31 - 120	
1,2-Dichlorobenzene-d4	497.71	342	68.8	32 - 120	
Nitrobenzene-d5	497.71	332	66.8	30 - 120	
2-Fluorobiphenyl	497.71	448	90.1	35 - 120	
2,4,6-Tribromophenol	746.57	681	91.2	24 - 134	
p-Terphenyl-d14	497.71	622	125	37 - 120	*

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082117.D

Date : 21-AUG-2019 20:08

Client ID:

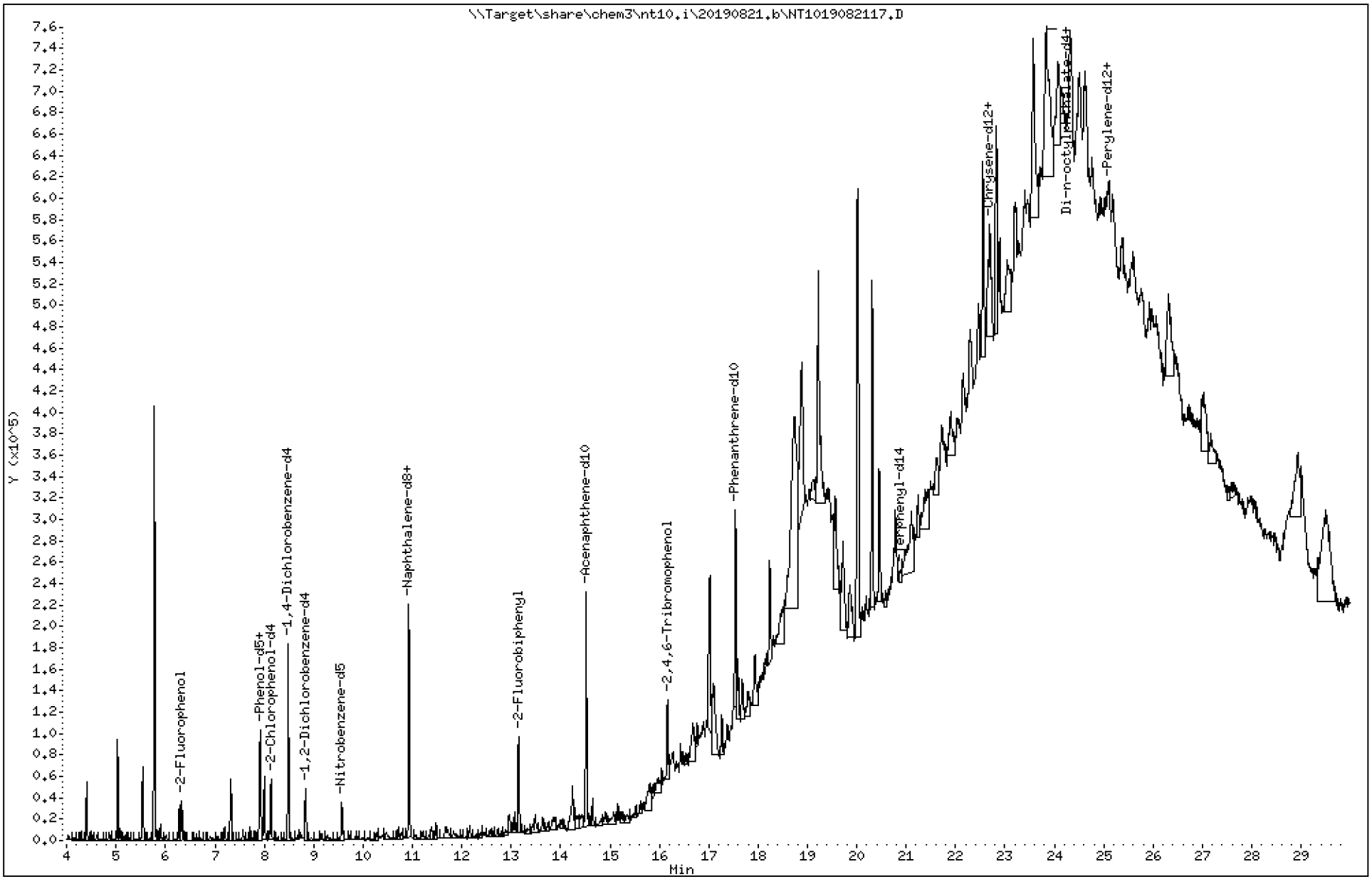
Instrument: nt10.i

Sample Info: 19H0024-08

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

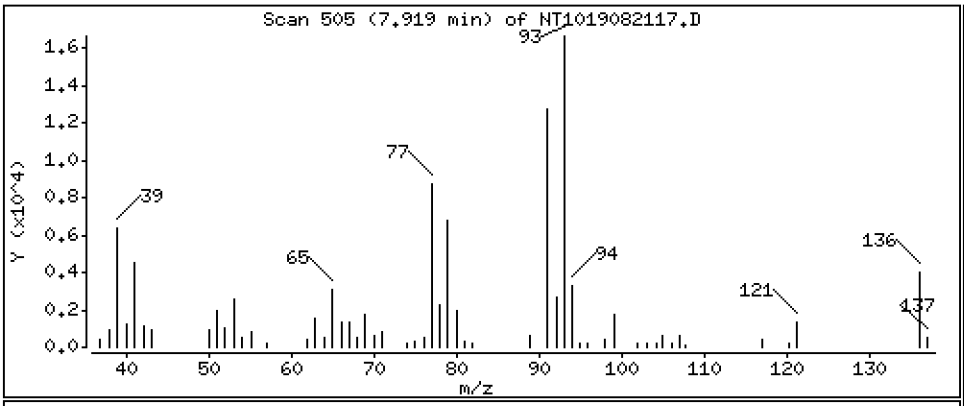
Operator: YZ

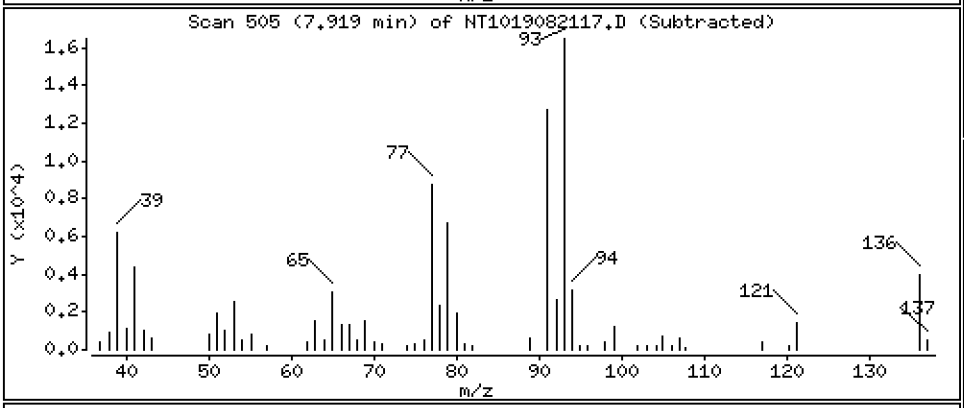
Column phase: ZB-5msi

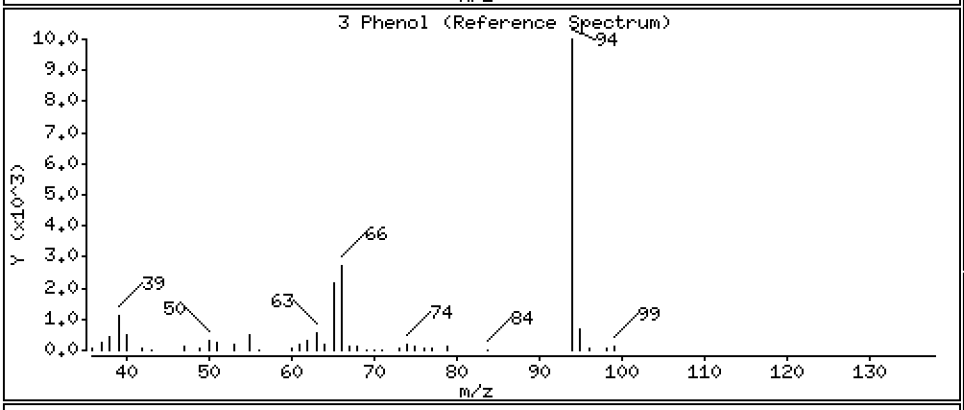
Column diameter: 0.25

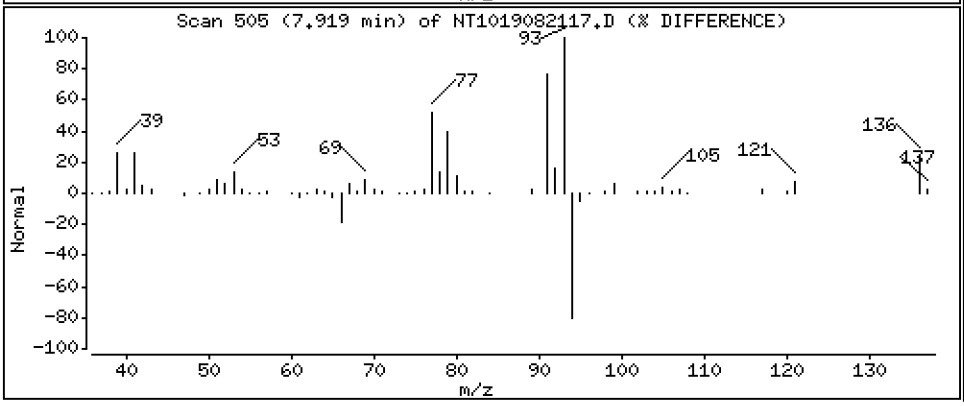
3 Phenol

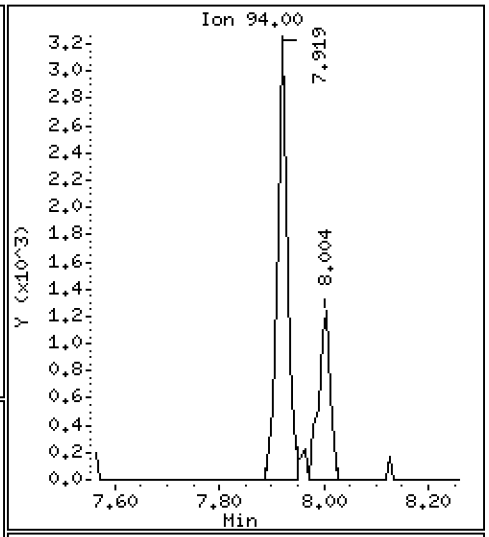
Concentration: 1.180 ug/mL

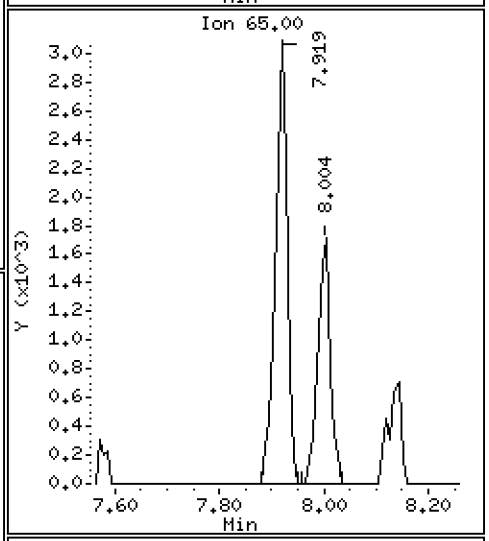


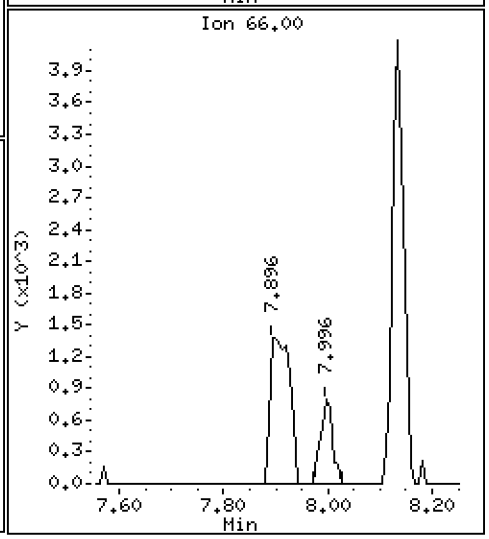












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Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

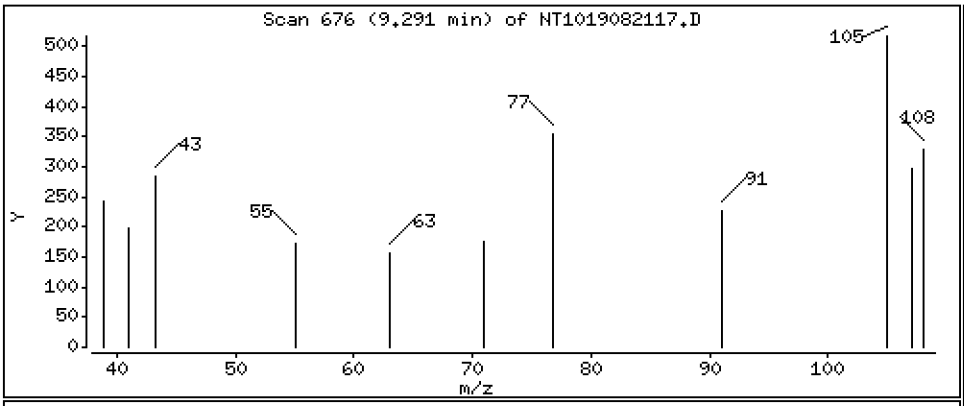
Operator: YZ

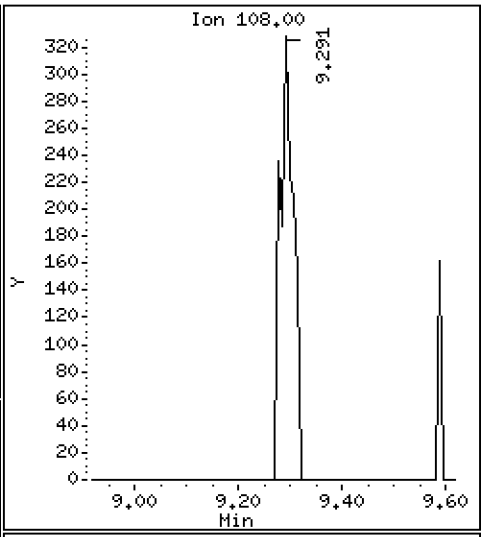
Column phase: ZB-5msi

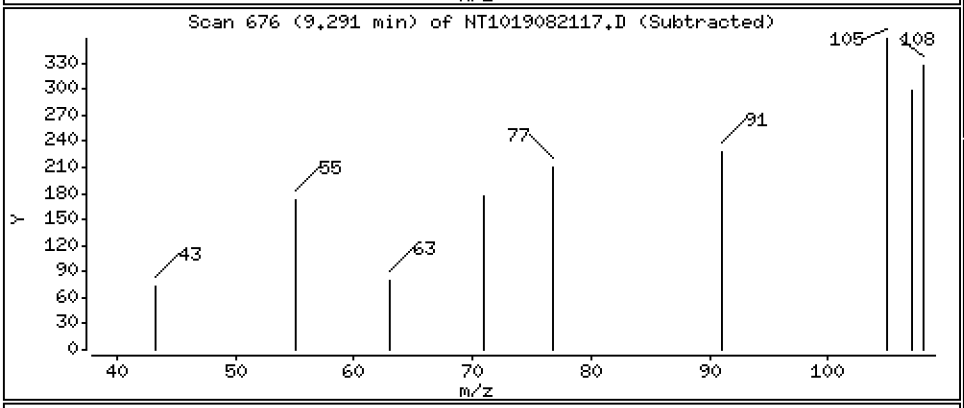
Column diameter: 0.25

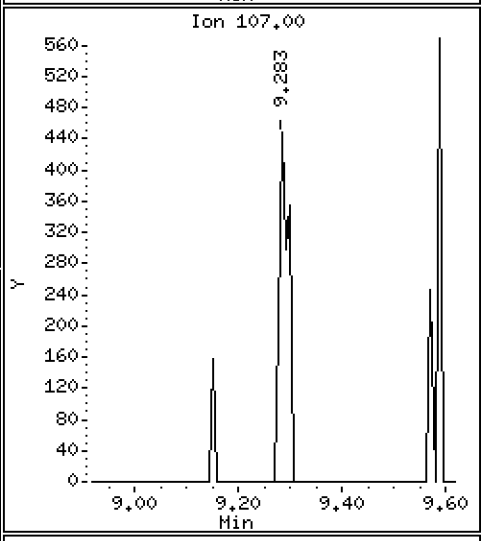
15 4-Methylphenol

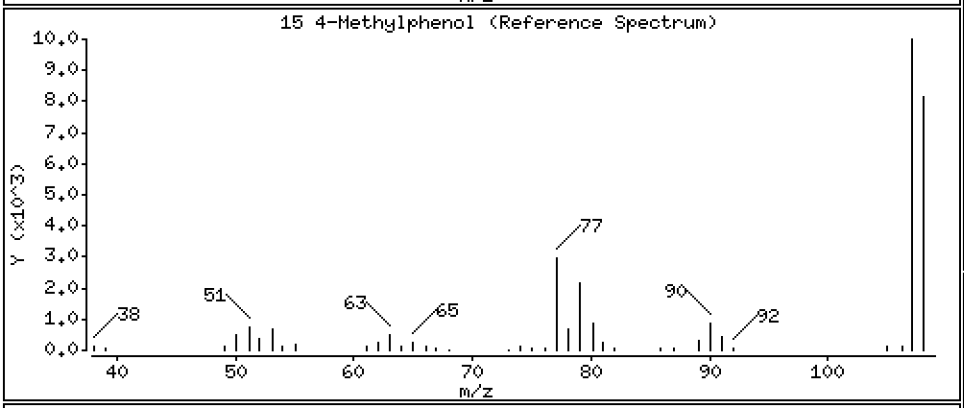
Concentration: 0.2074 ug/mL

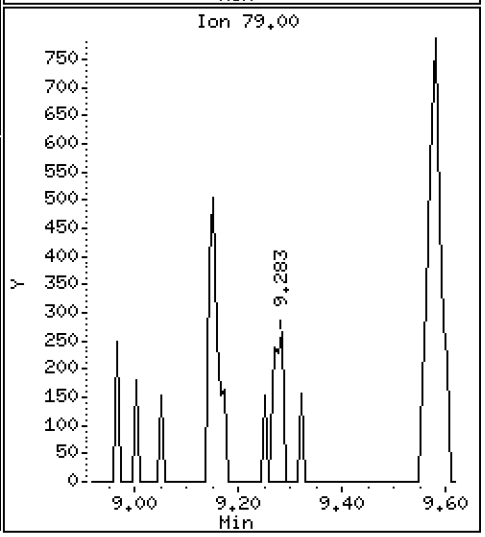


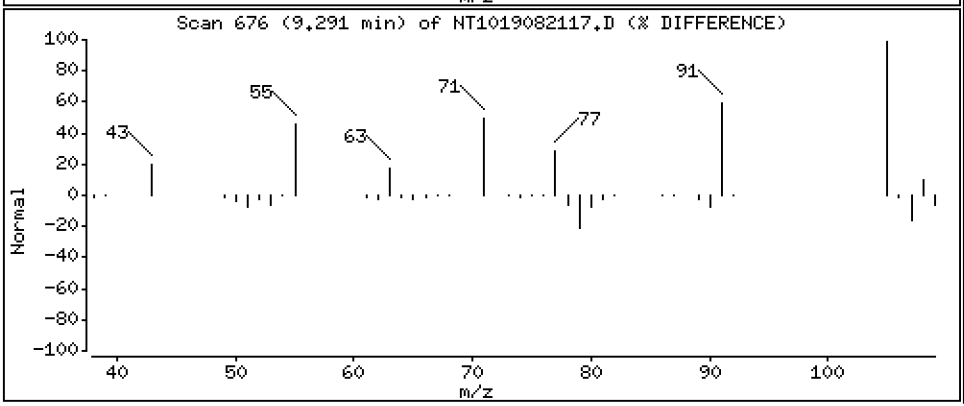












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Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

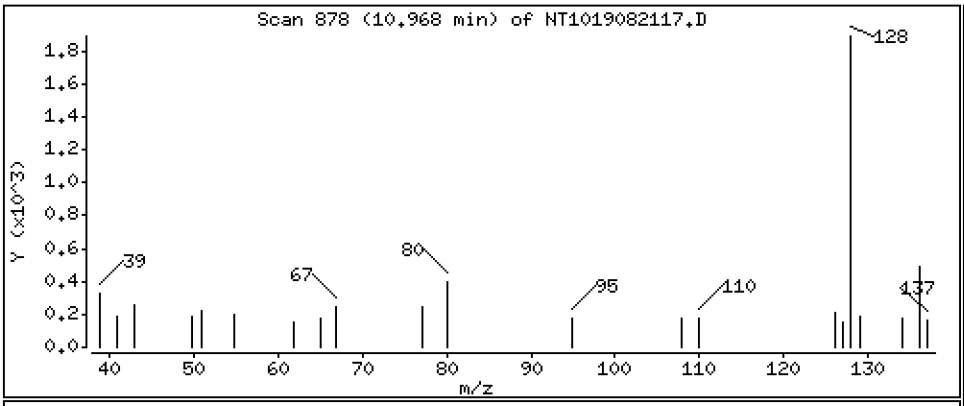
Operator: YZ

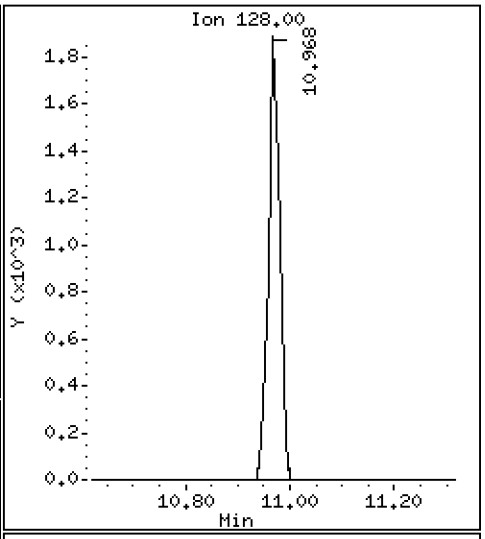
Column phase: ZB-5msi

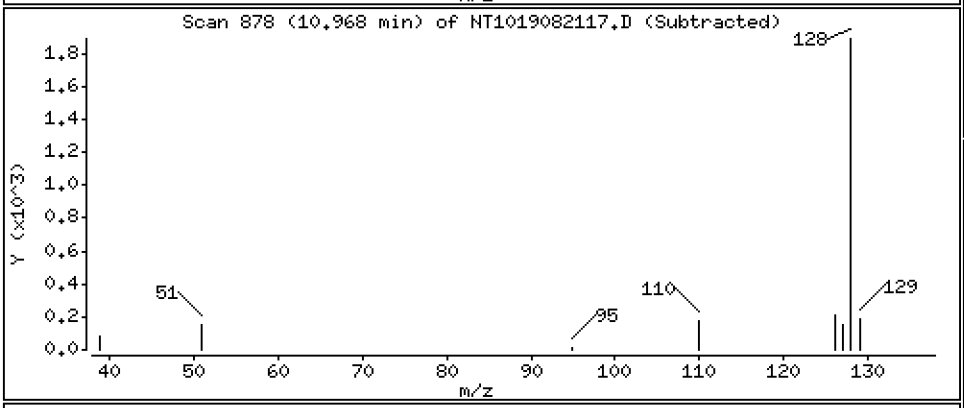
Column diameter: 0.25

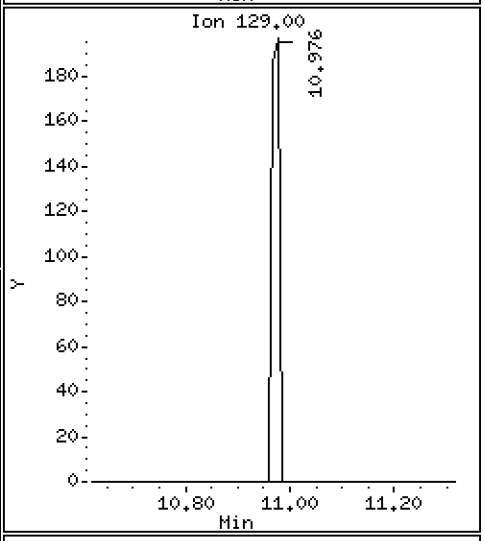
28 Naphthalene

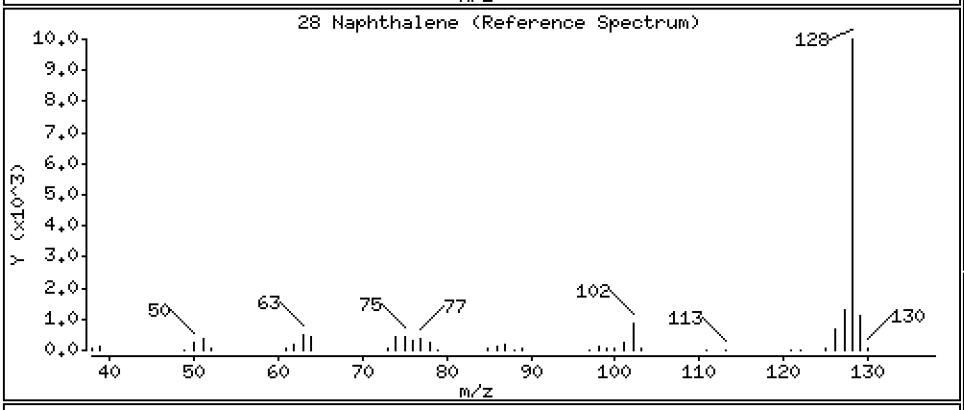
Concentration: 0.2388 ug/mL

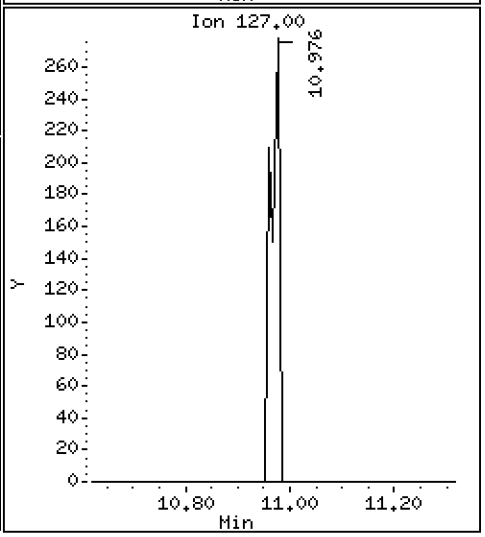


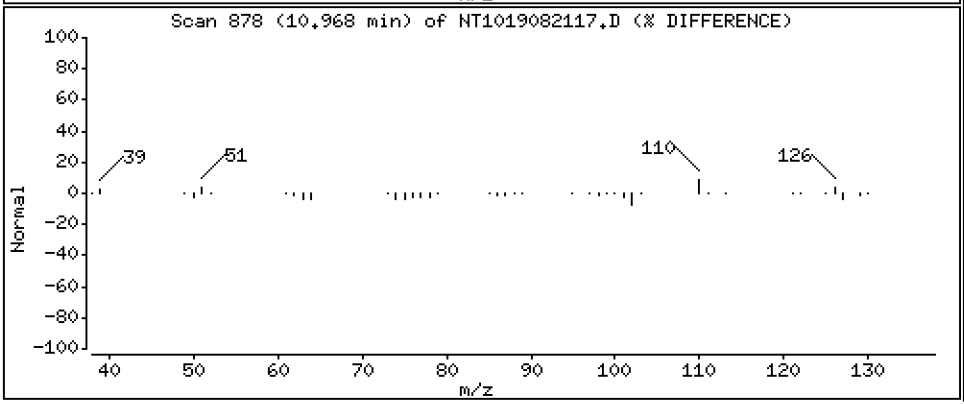












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082117.D

Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

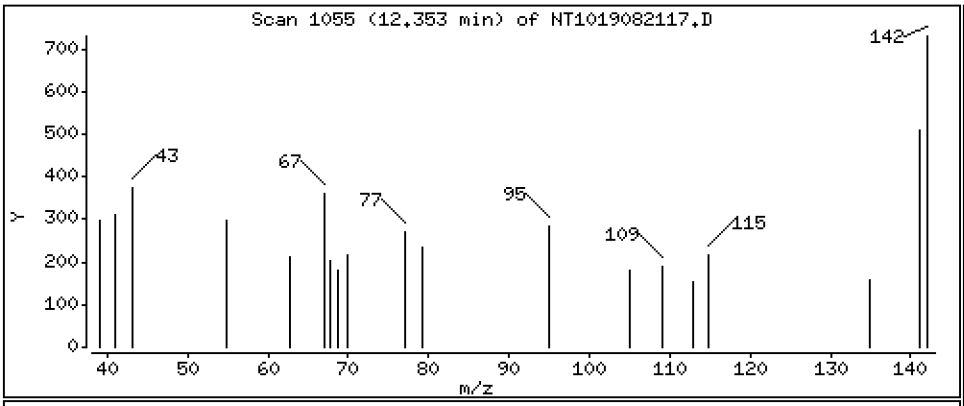
Operator: YZ

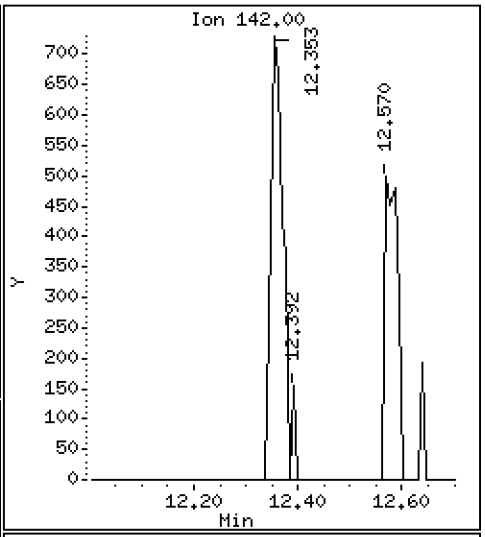
Column phase: ZB-5msi

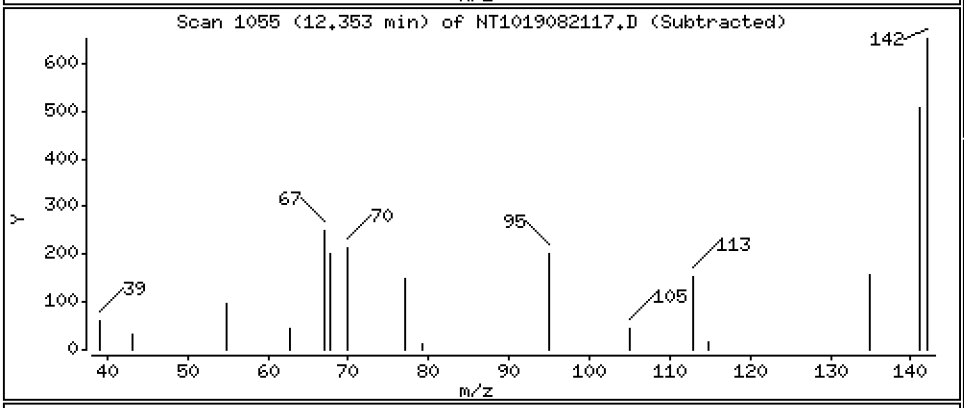
Column diameter: 0.25

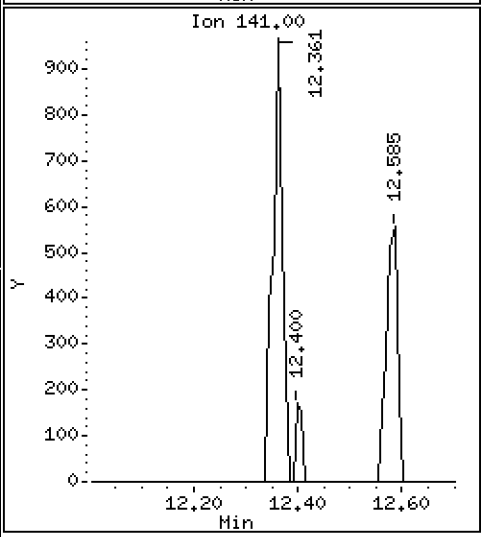
32 2-Methylnaphthalene

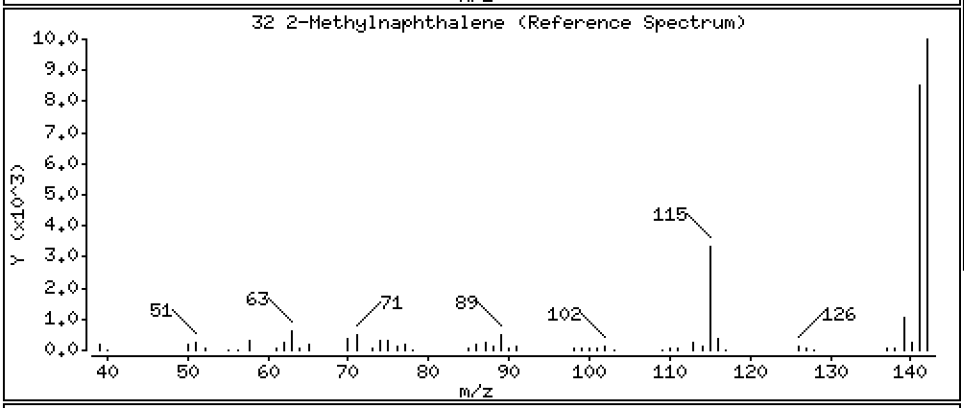
Concentration: 0.1226 ug/mL

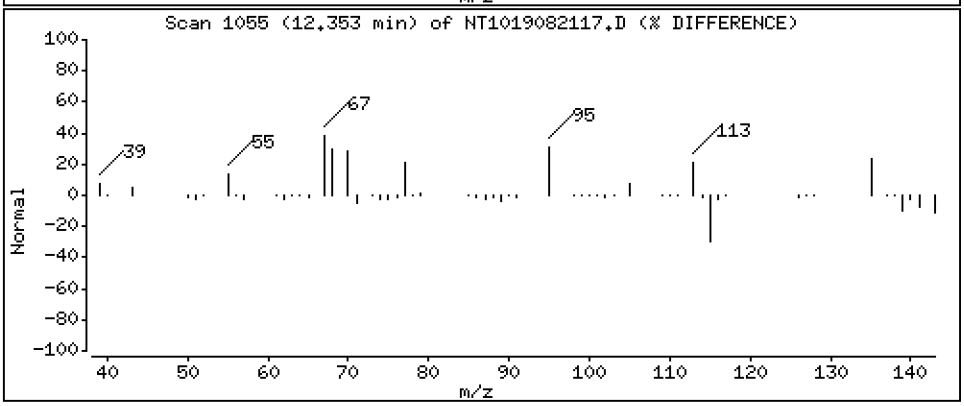












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Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

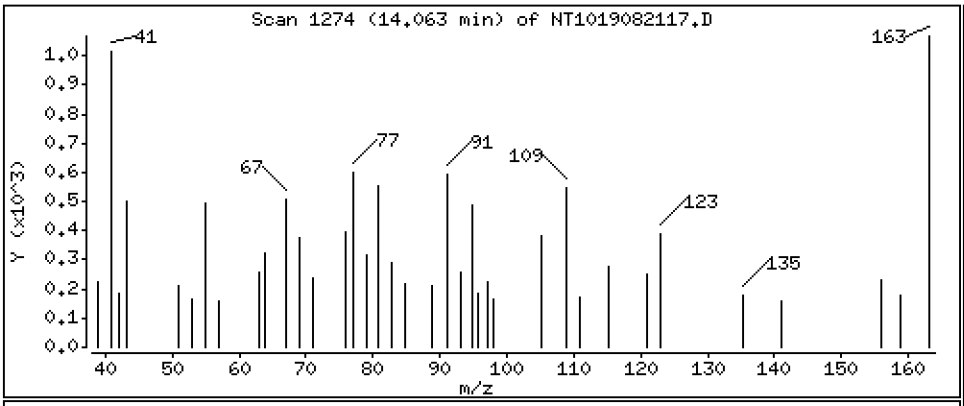
Operator: YZ

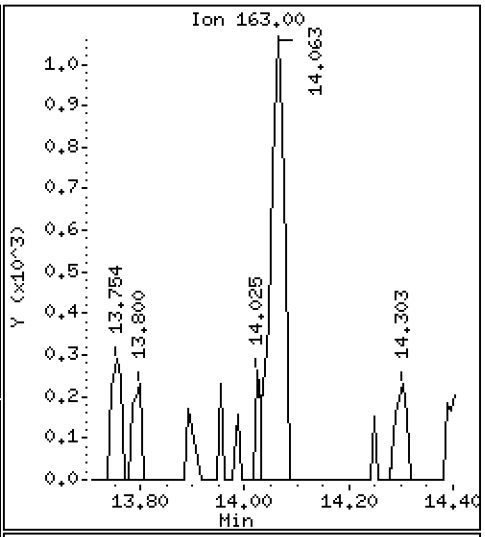
Column phase: ZB-5msi

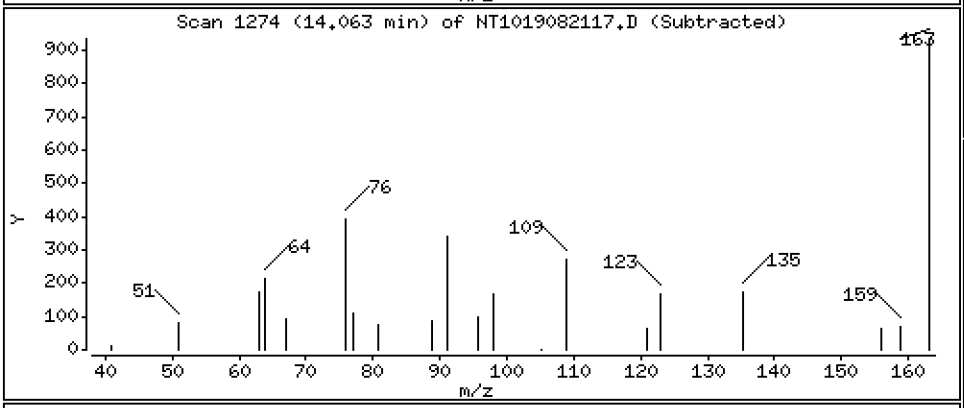
Column diameter: 0.25

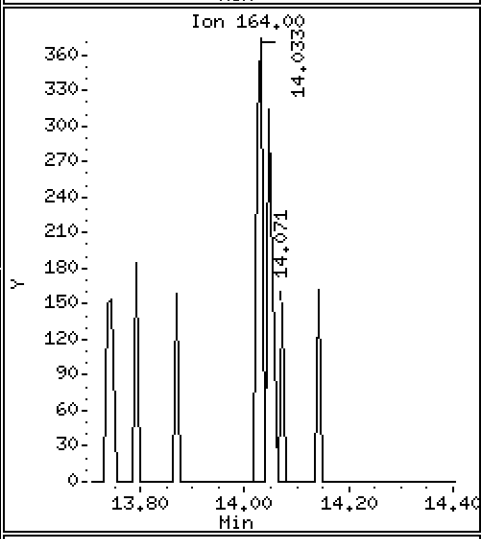
39 Dimethylphthalate

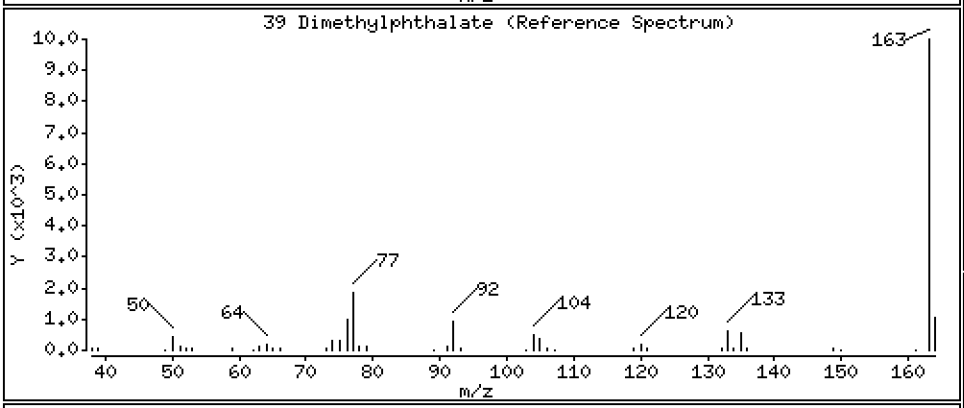
Concentration: 0.2128 ug/mL

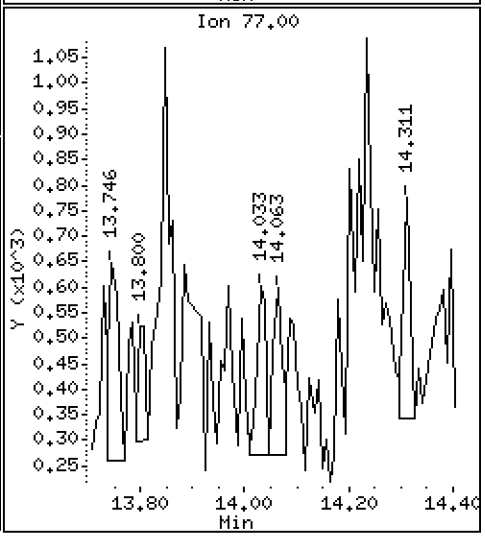


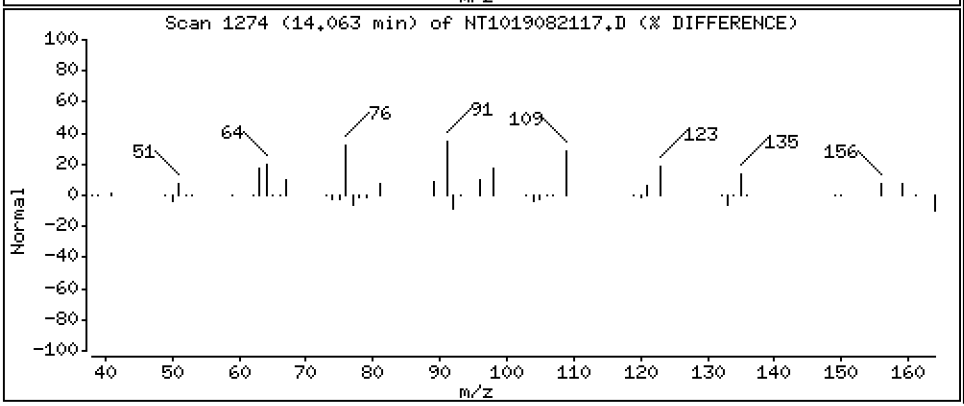












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Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

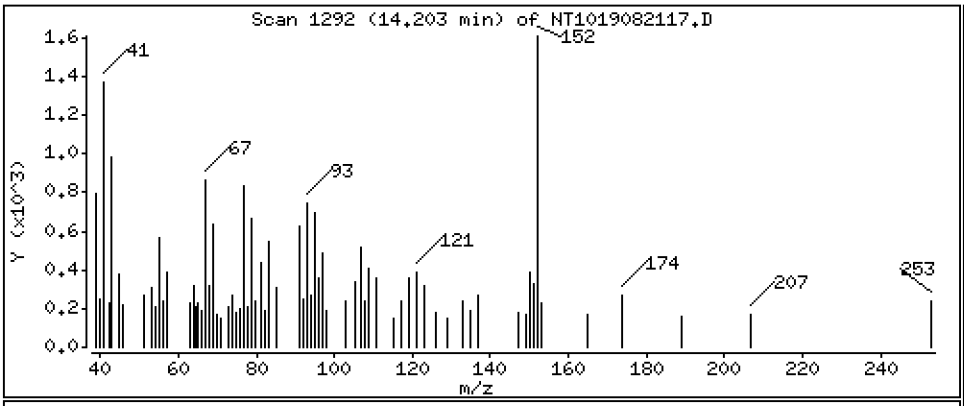
Operator: YZ

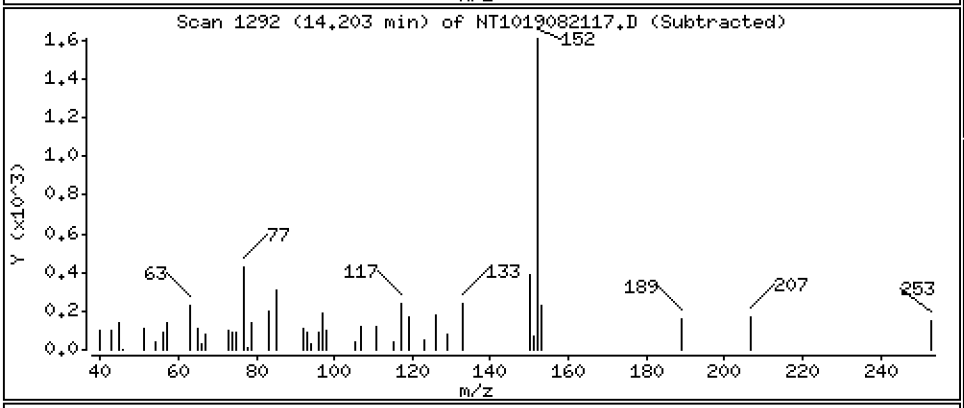
Column phase: ZB-5msi

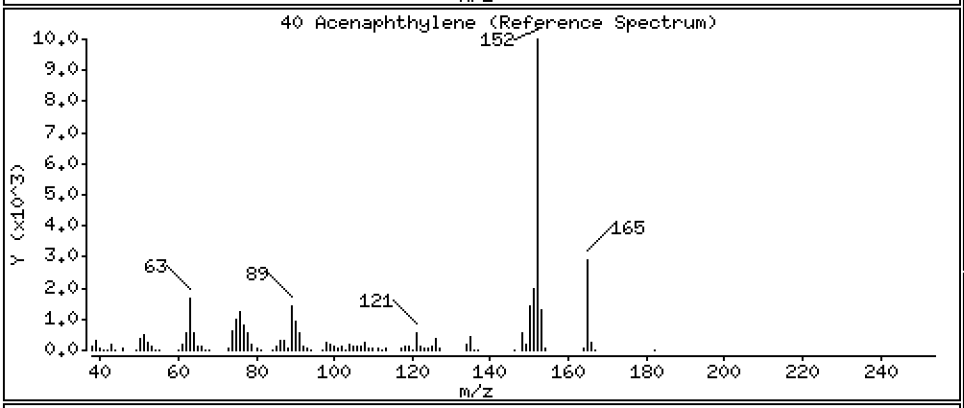
Column diameter: 0.25

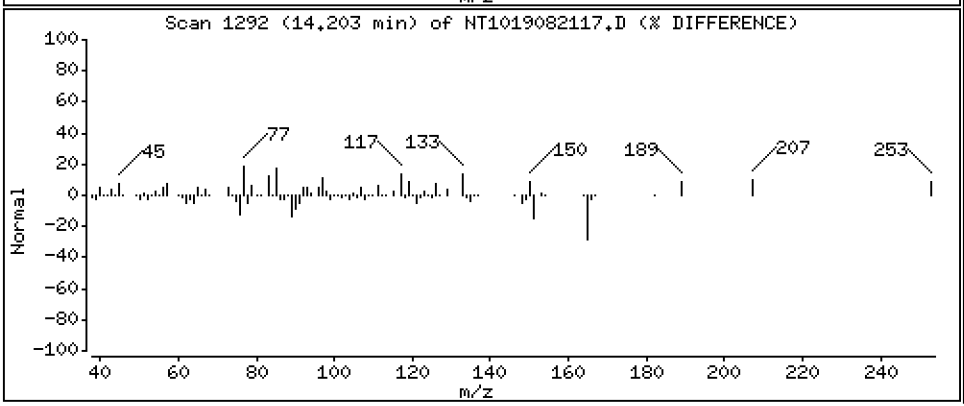
40 Acenaphthylene

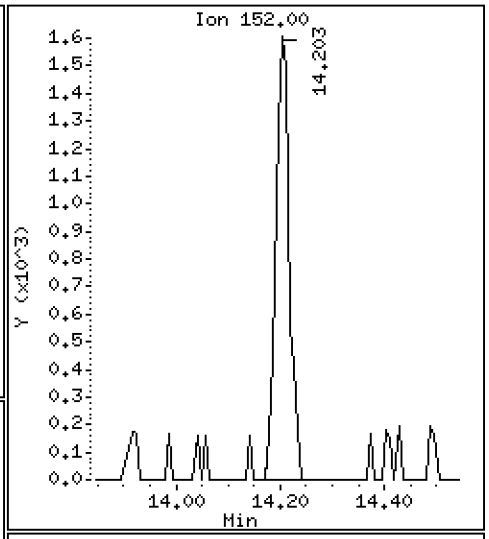
Concentration: 0.2503 ug/mL

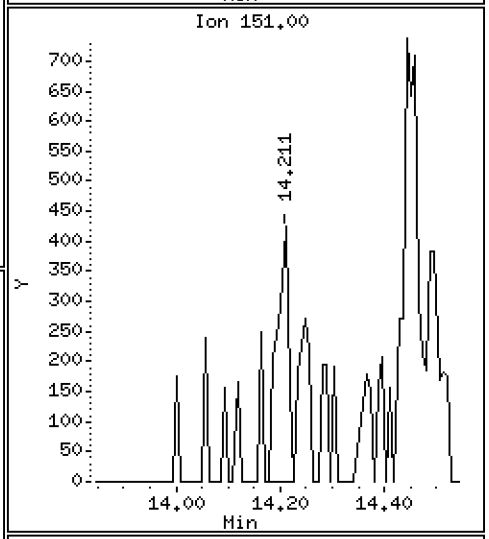


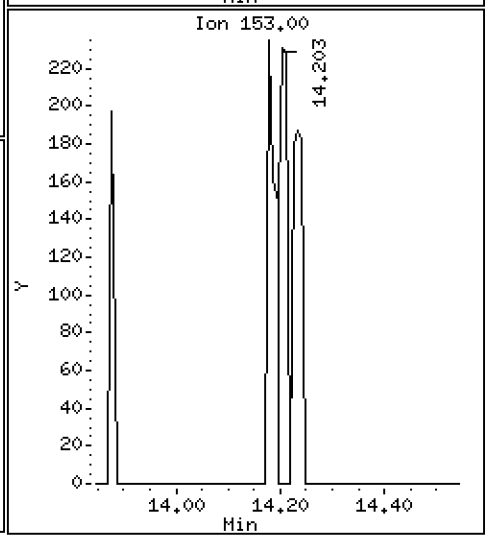












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082117.D

Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

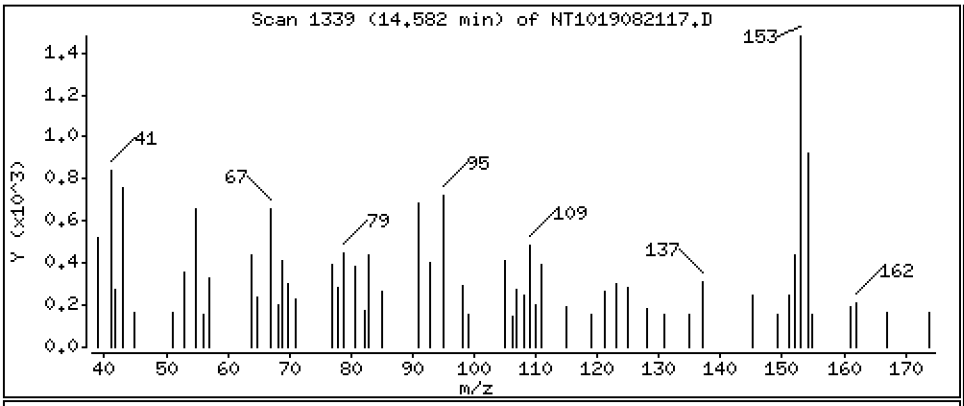
Operator: YZ

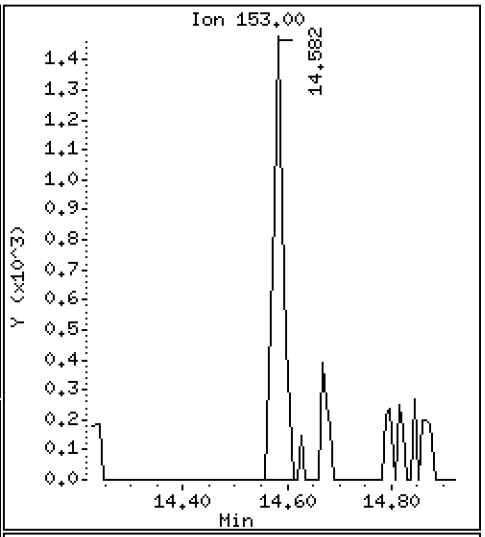
Column phase: ZB-5msi

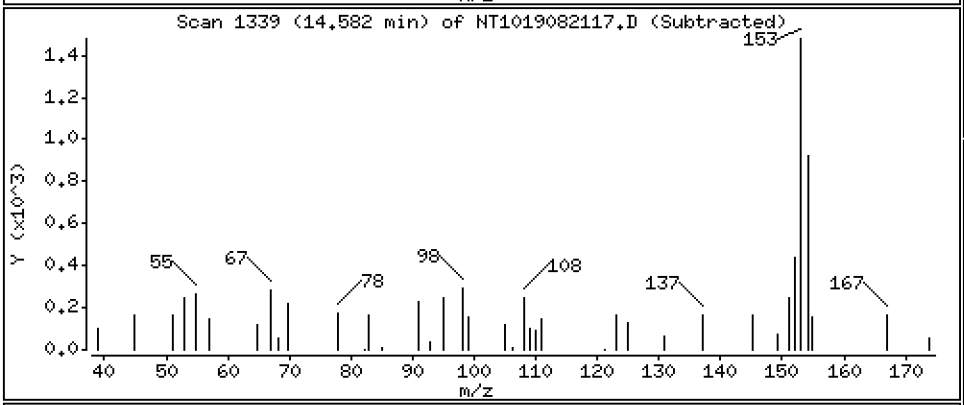
Column diameter: 0.25

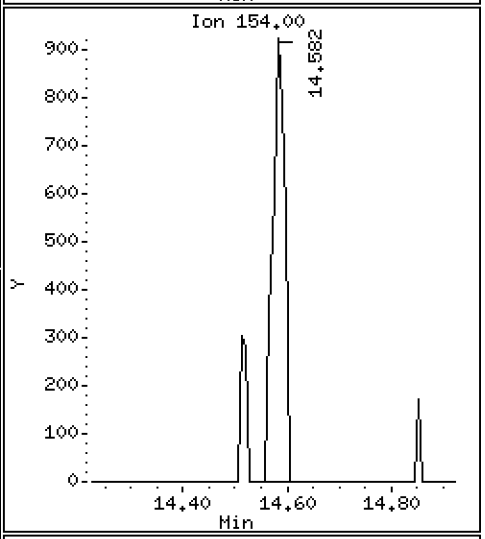
44 Acenaphthene

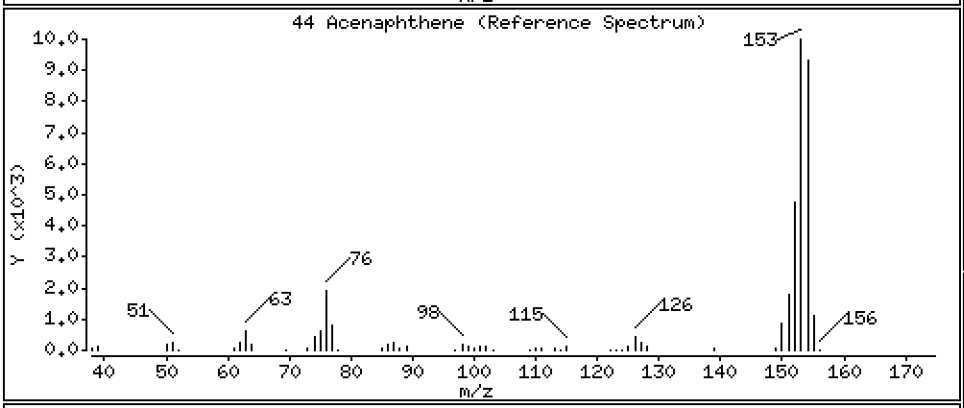
Concentration: 0.2795 ug/mL

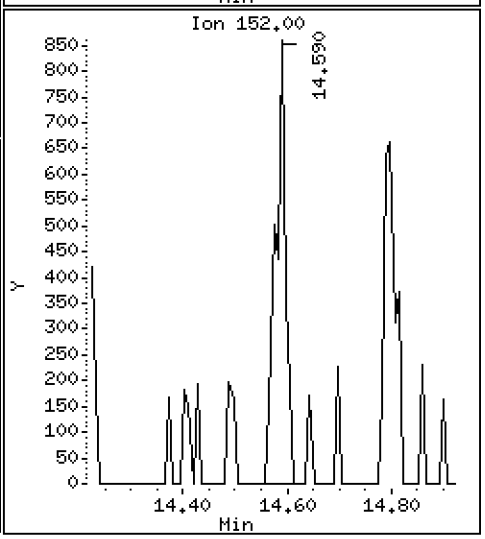


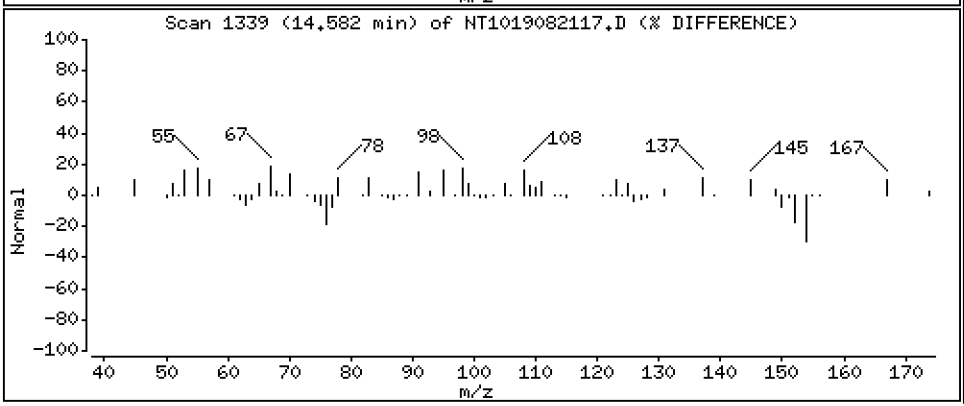












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082117.D

Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

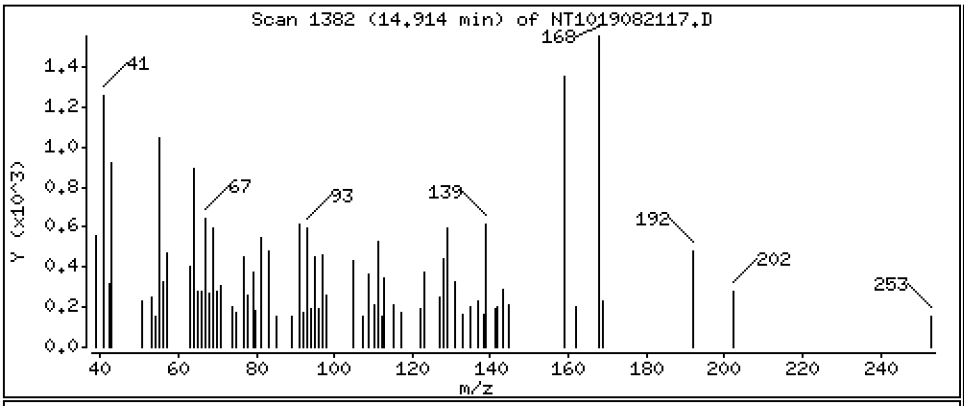
Operator: YZ

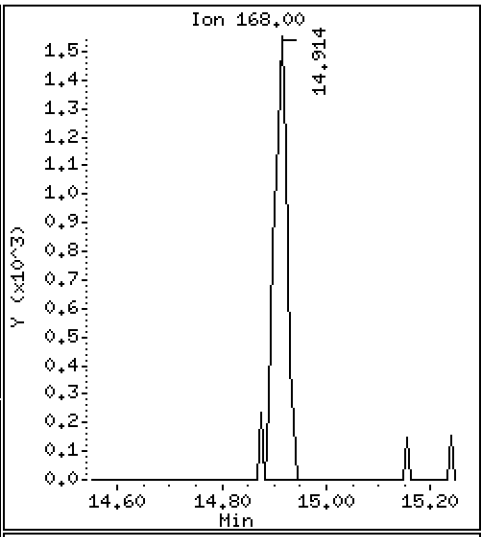
Column phase: ZB-5msi

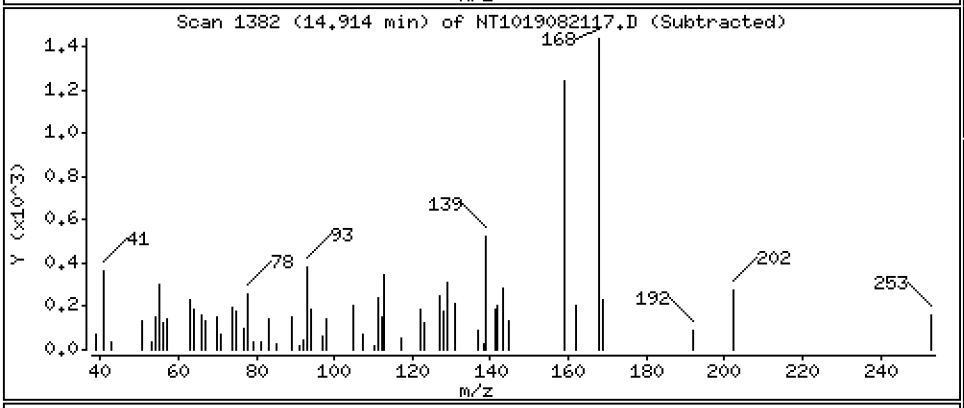
Column diameter: 0.25

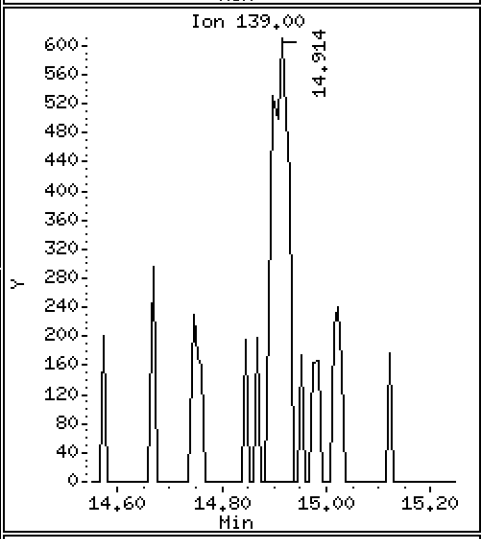
46 Dibenzofuran

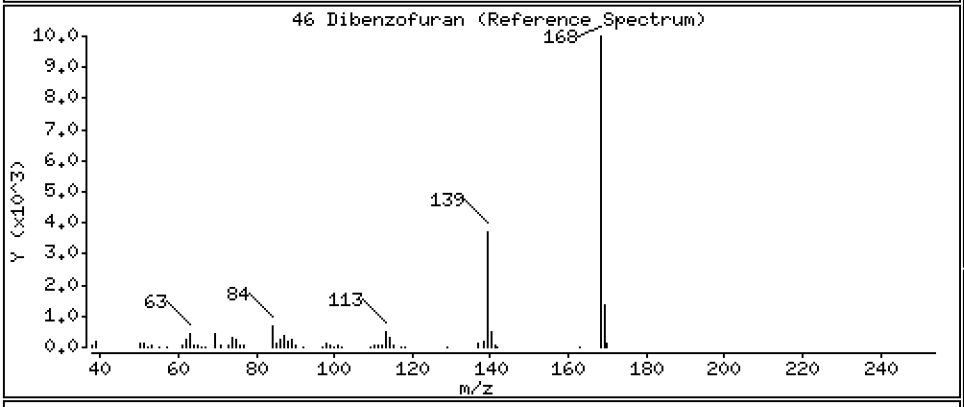
Concentration: 0.2205 ug/mL

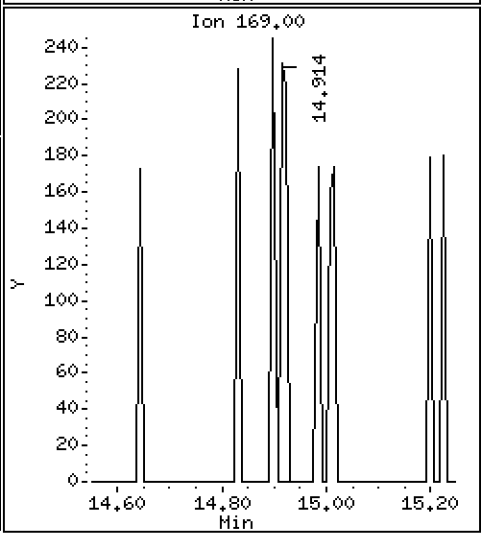


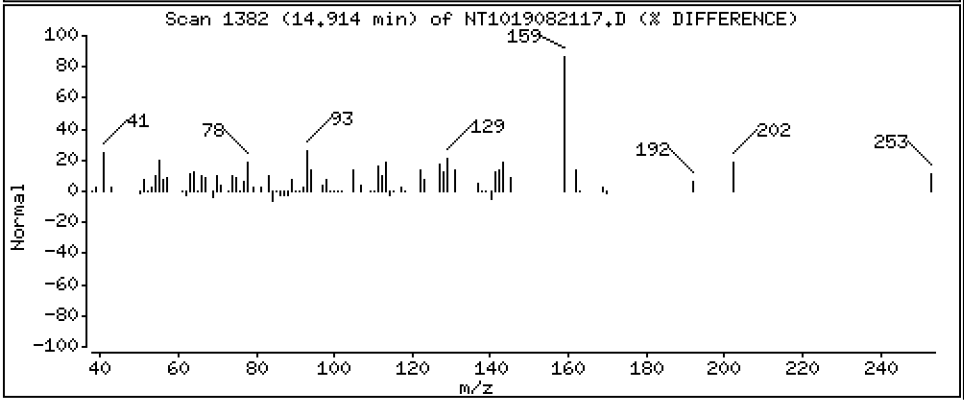












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Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

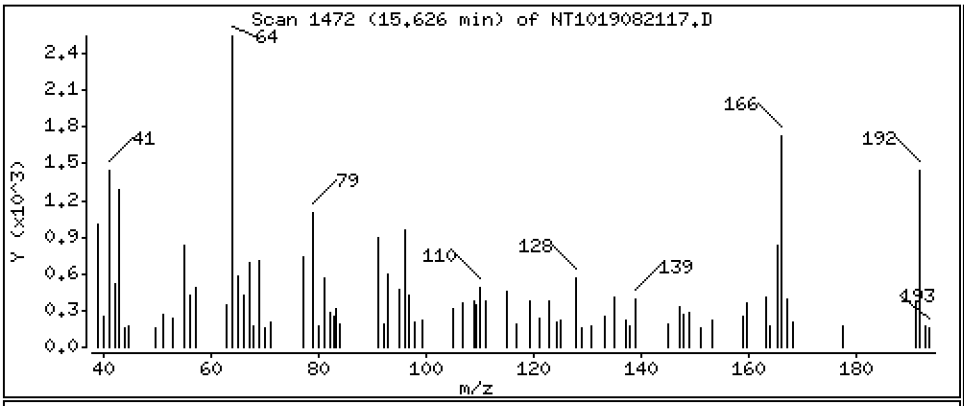
Operator: YZ

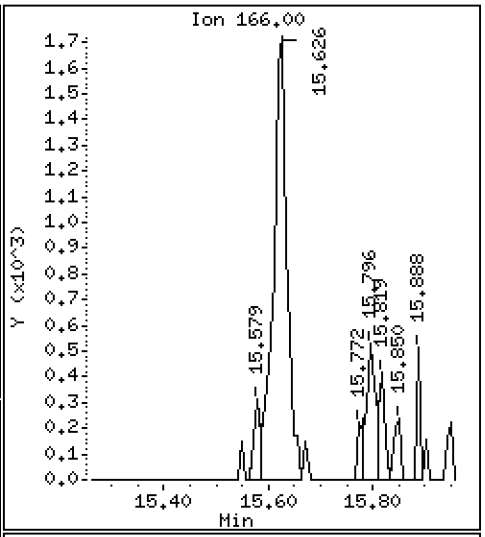
Column phase: ZB-5msi

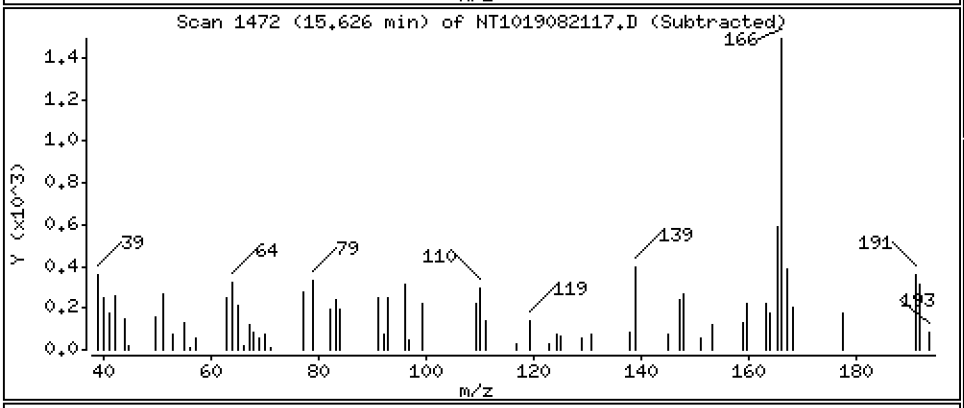
Column diameter: 0.25

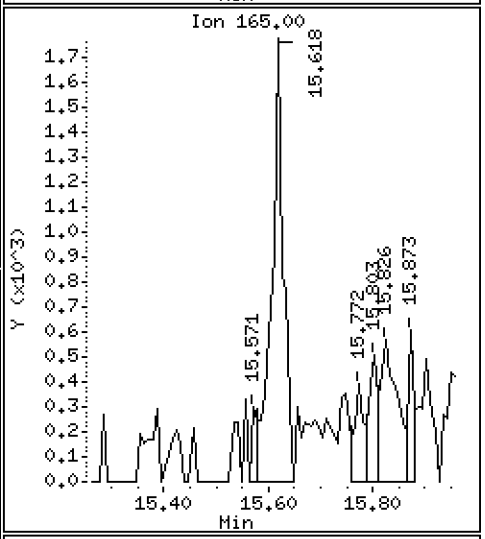
49 Fluorene

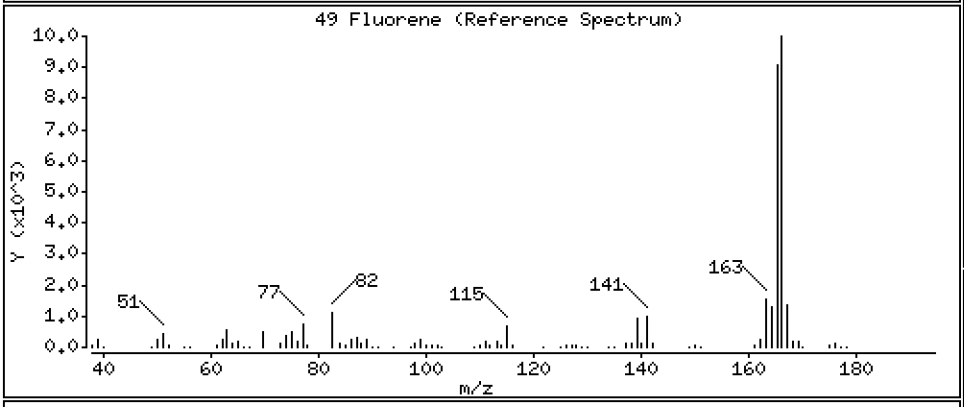
Concentration: 0.3942 ug/mL

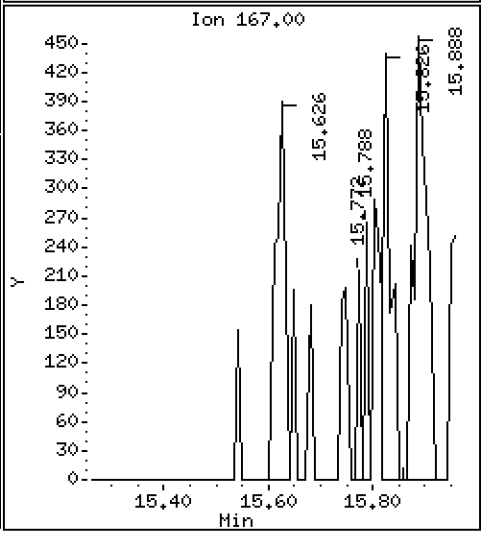


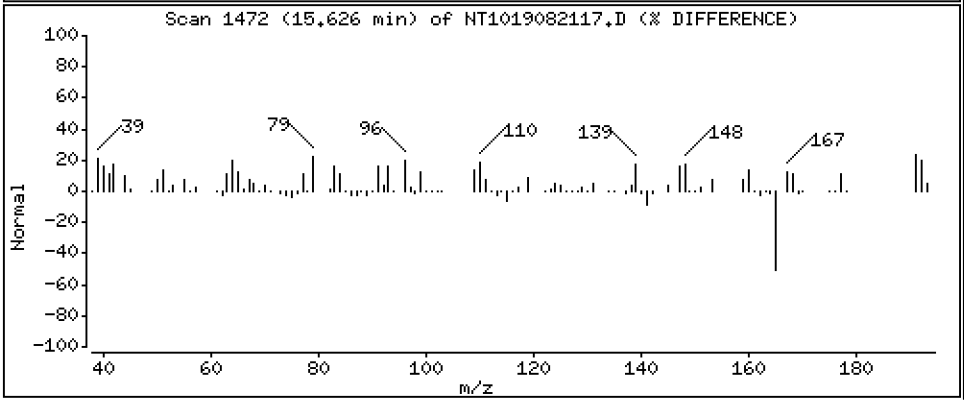












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Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

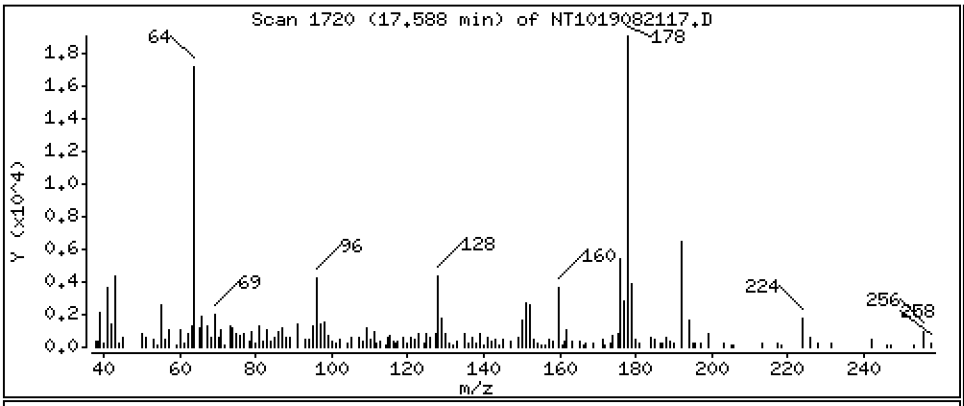
Operator: YZ

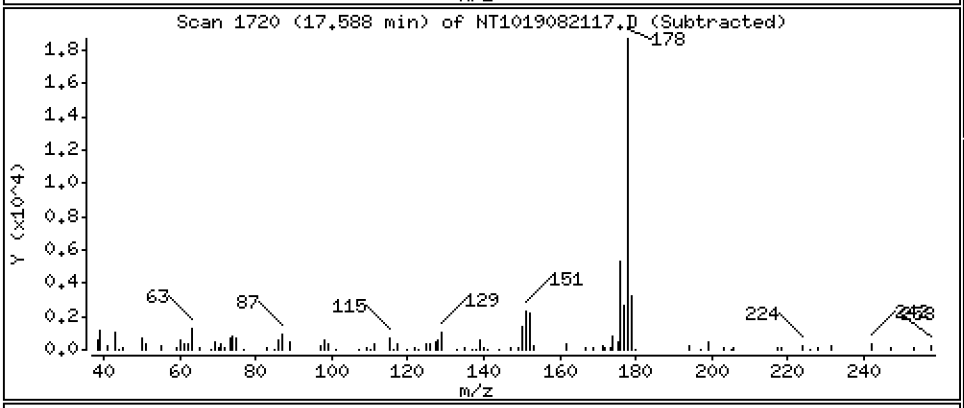
Column phase: ZB-5msi

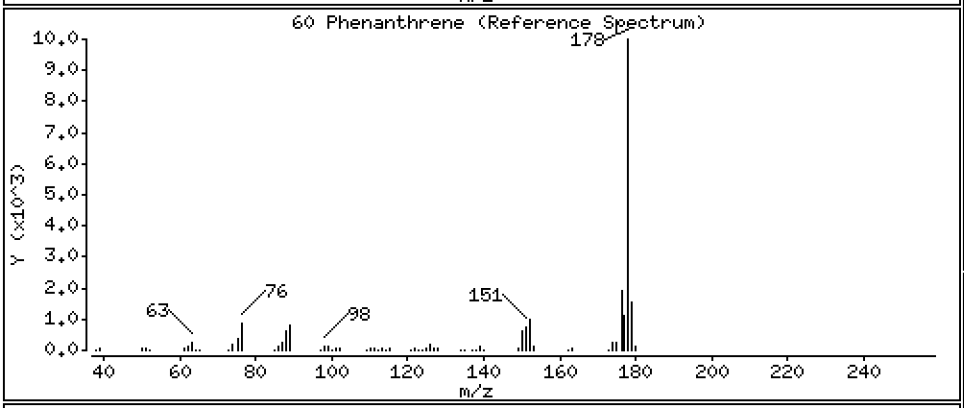
Column diameter: 0.25

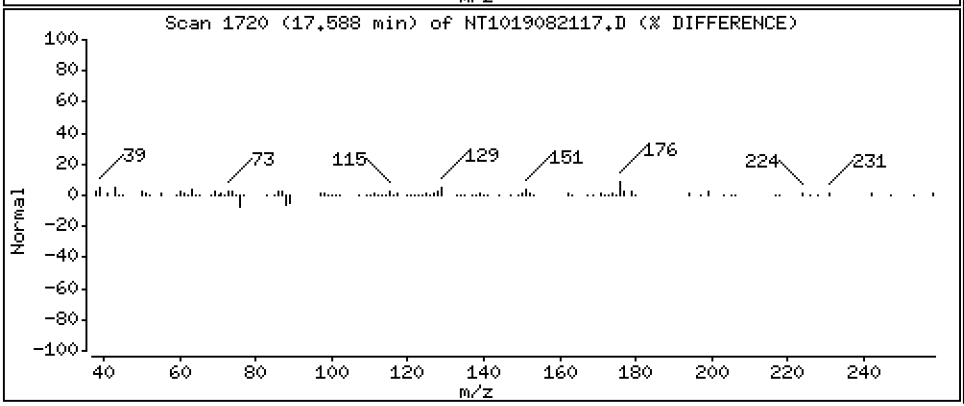
60 Phenanthrene

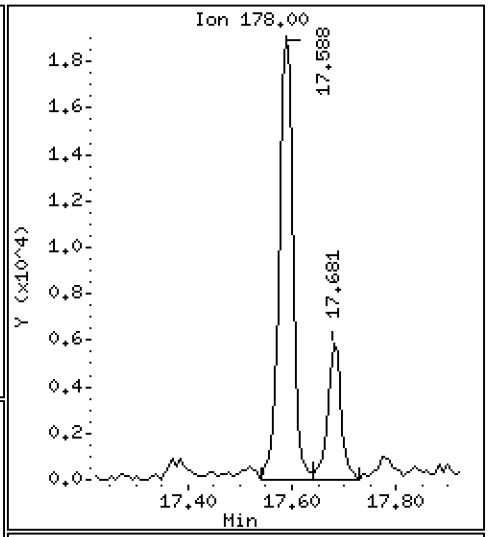
Concentration: 3.328 ug/mL

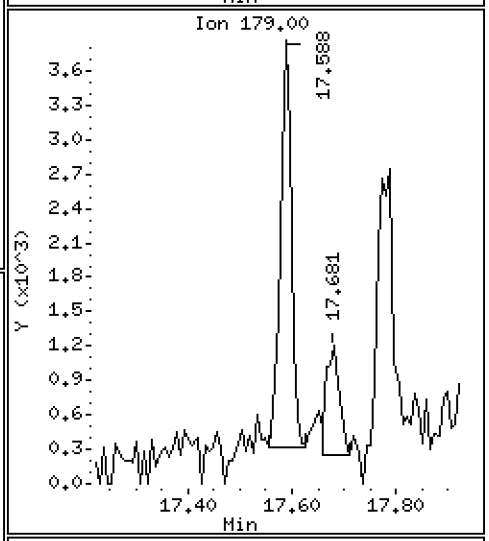


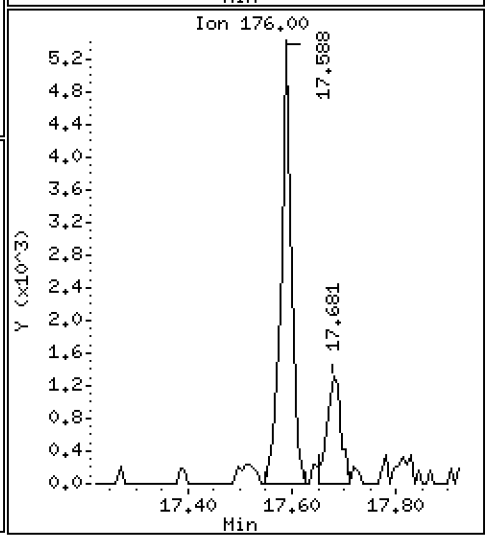












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082117.D

Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

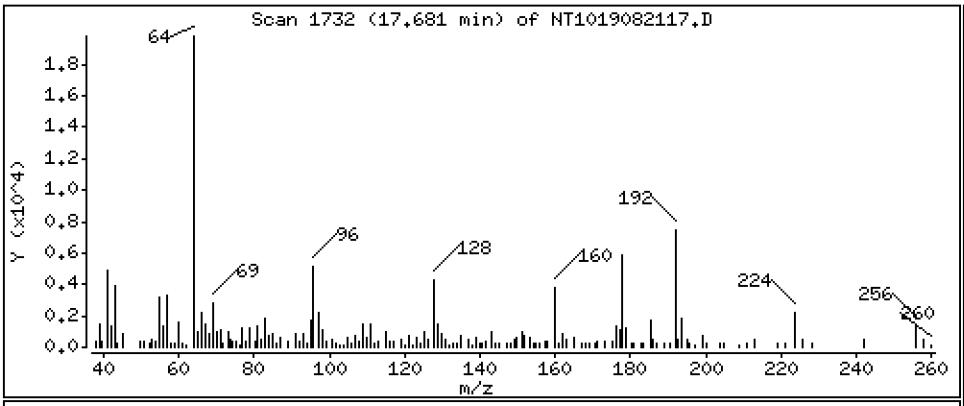
Operator: YZ

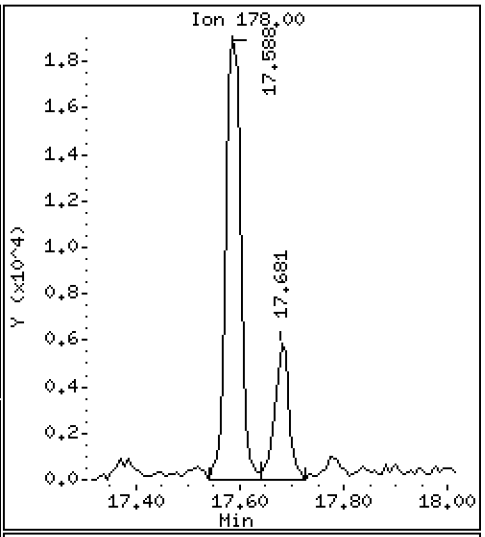
Column phase: ZB-5msi

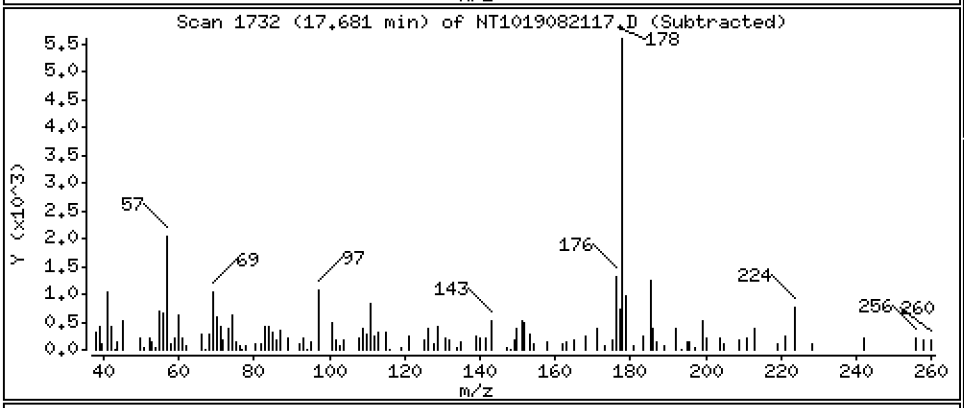
Column diameter: 0.25

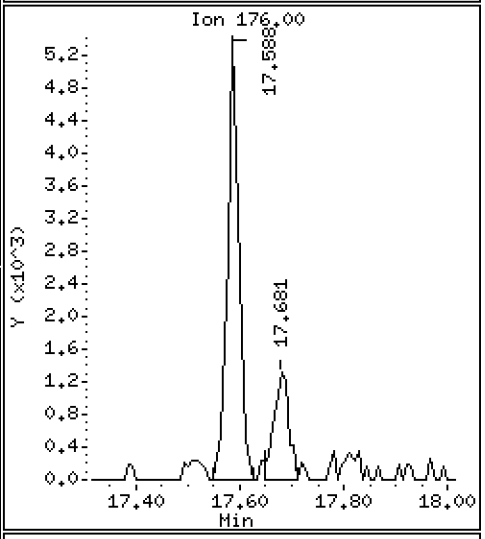
61 Anthracene

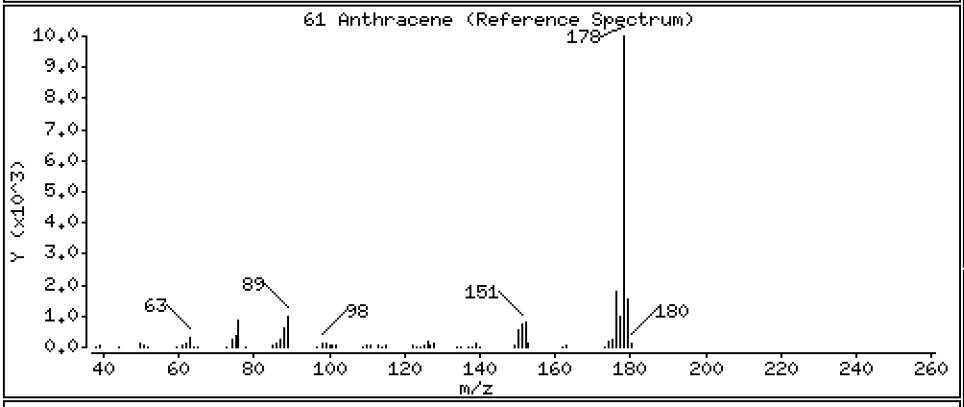
Concentration: 0.9990 ug/mL

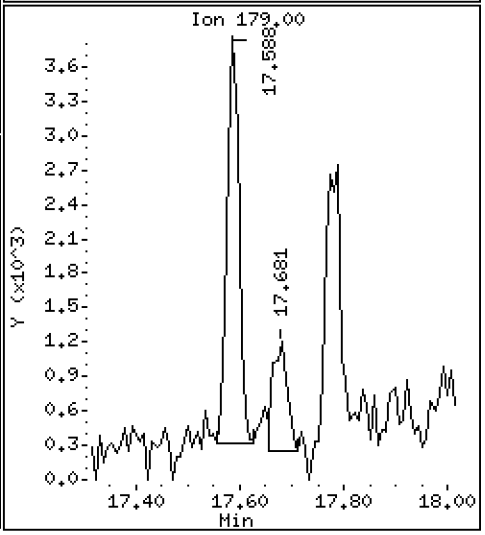


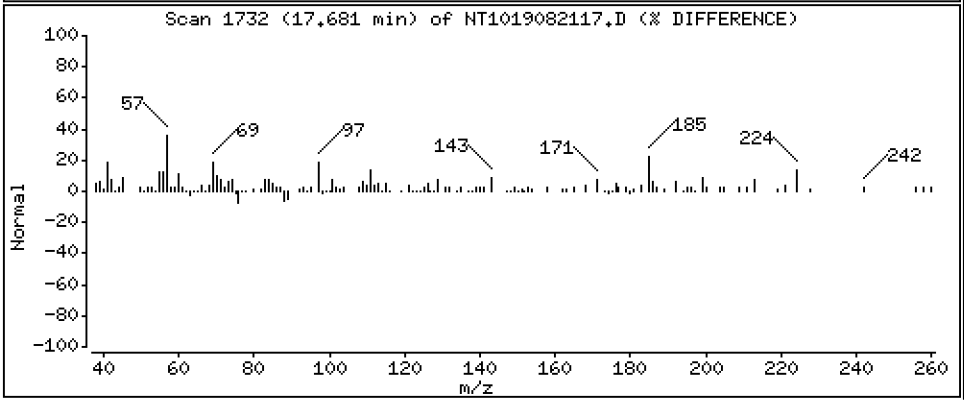












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082117.D

Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

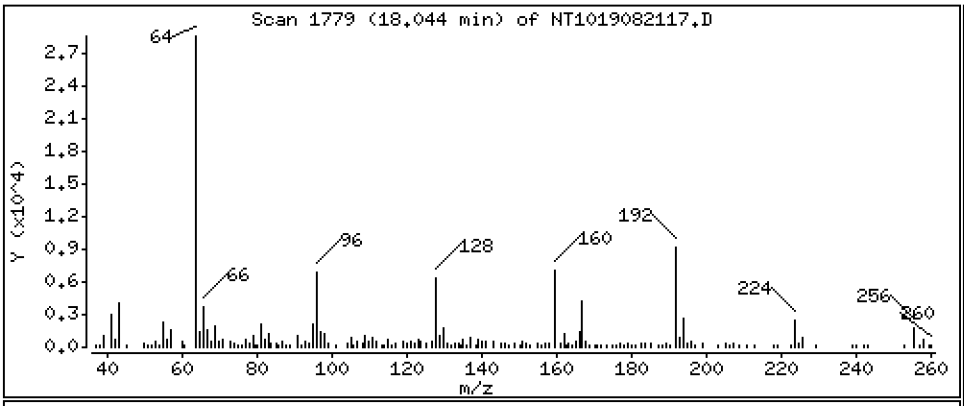
Operator: YZ

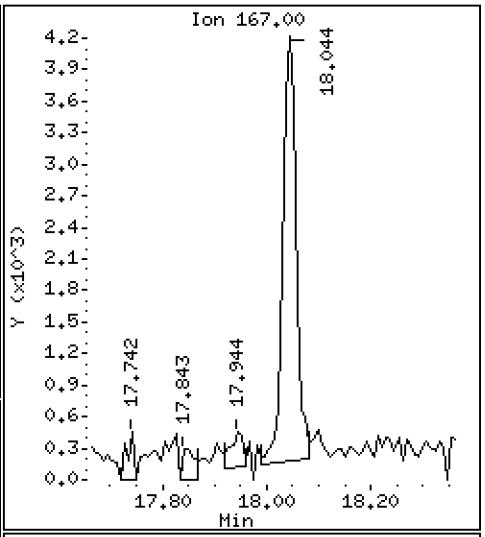
Column phase: ZB-5msi

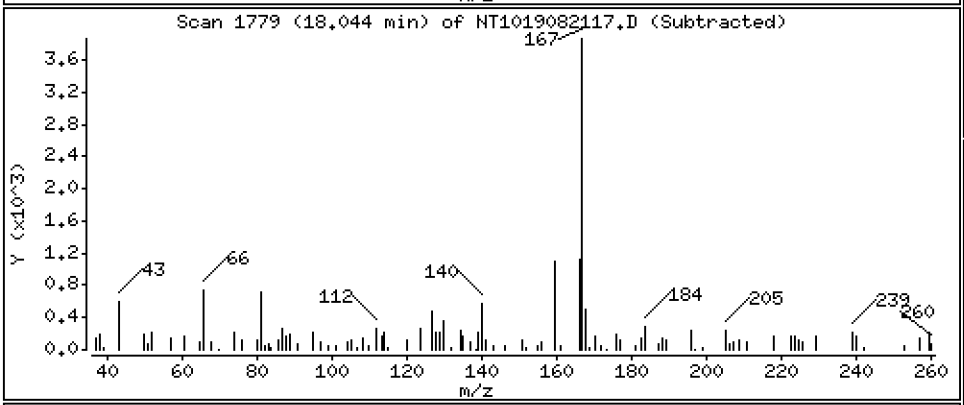
Column diameter: 0.25

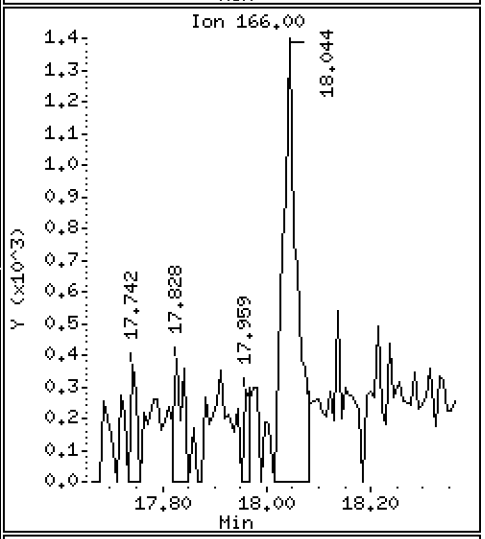
62 Carbazole

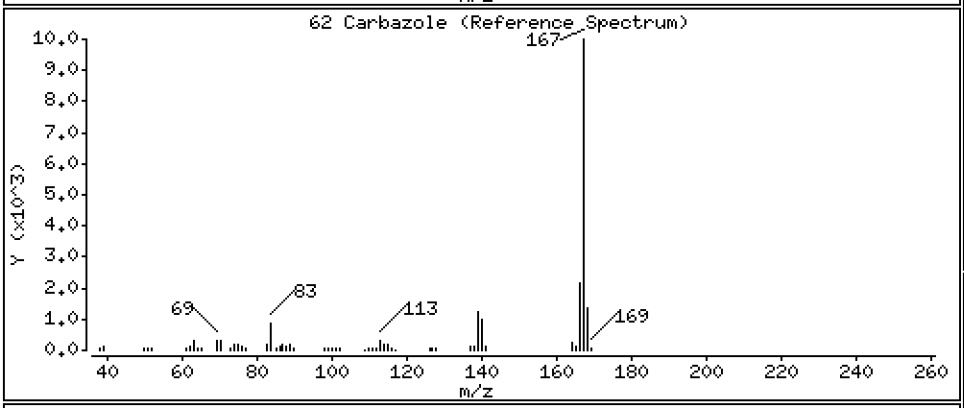
Concentration: 0.7348 ug/mL

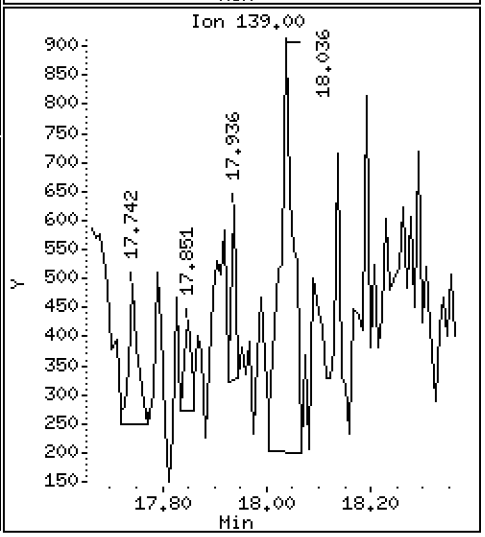


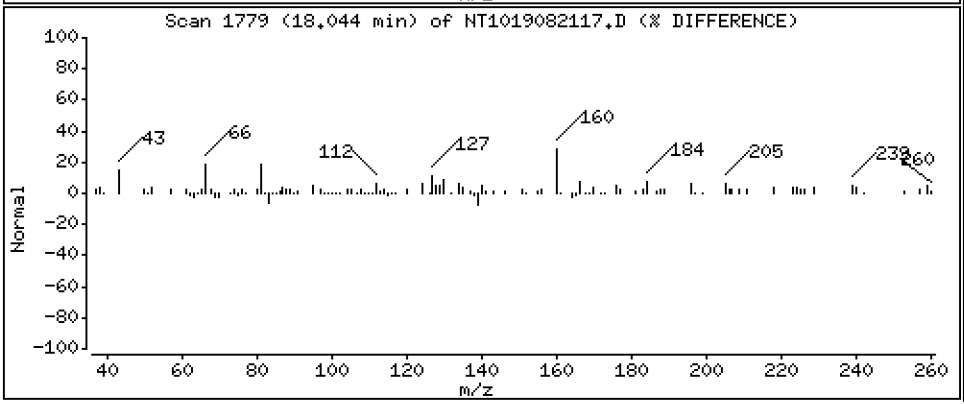












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082117.D

Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

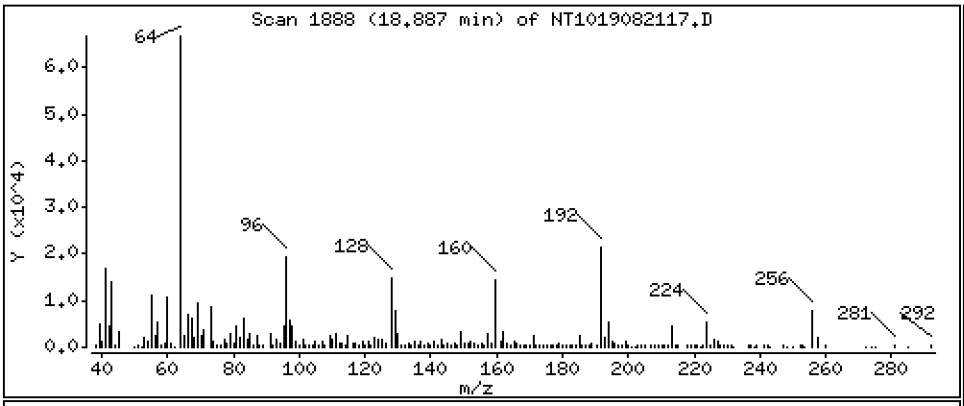
Operator: YZ

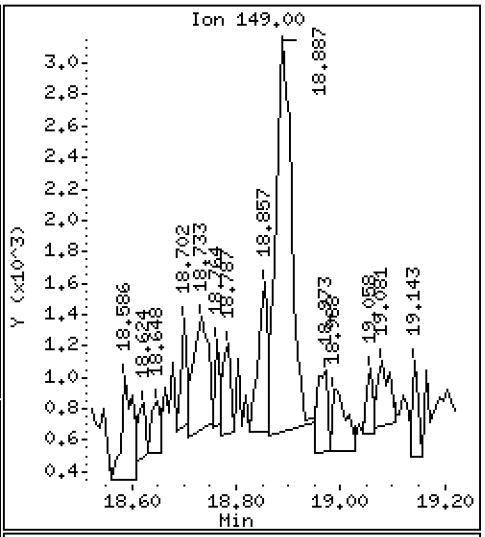
Column phase: ZB-5msi

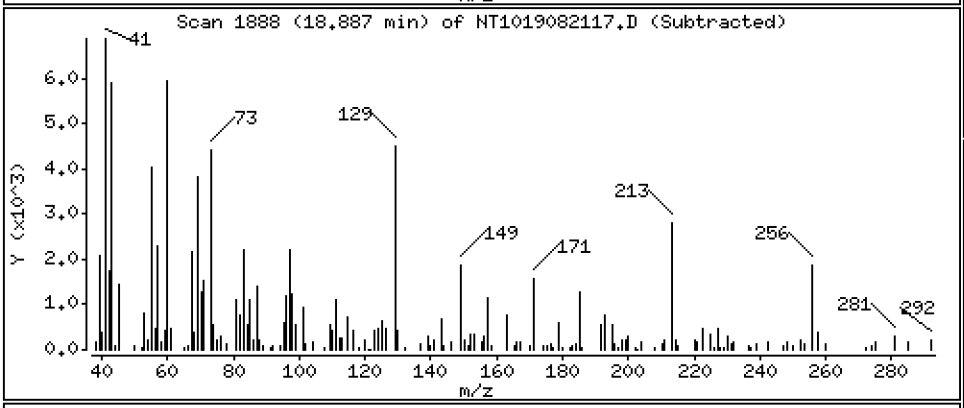
Column diameter: 0.25

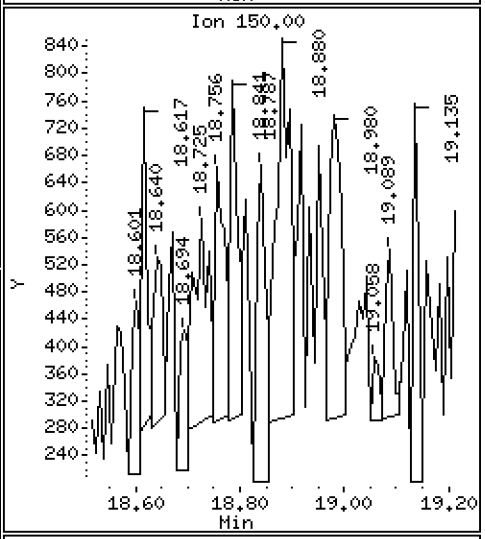
63 Di-n-butylphthalate

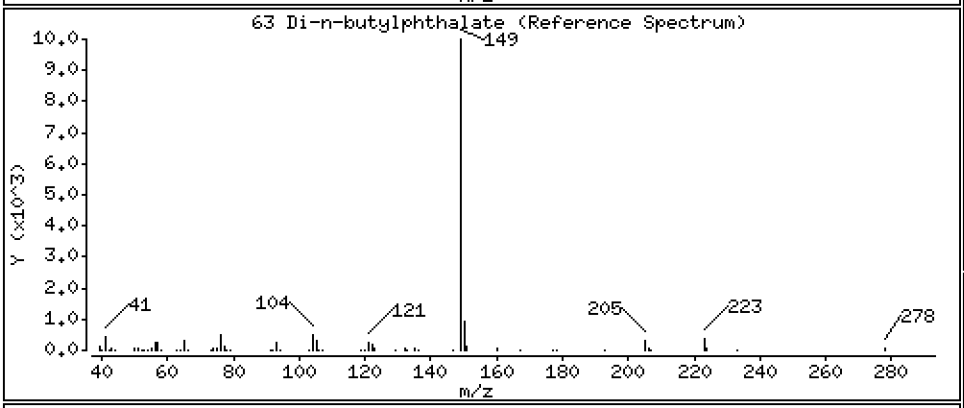
Concentration: 0.3639 ug/mL

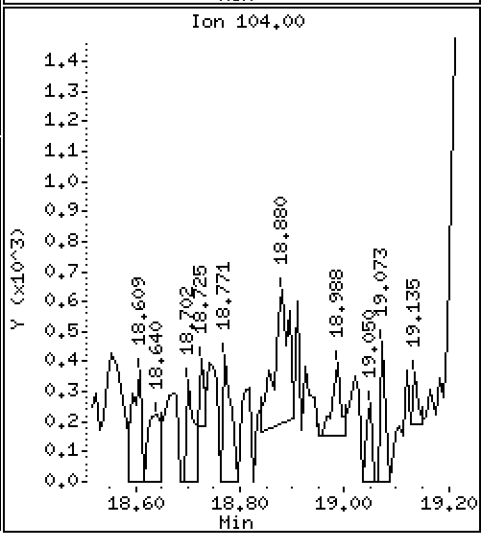


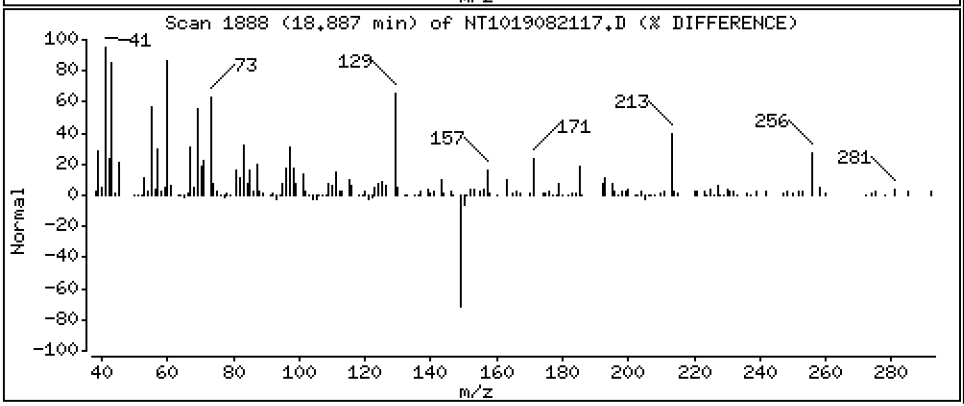












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082117.D

Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

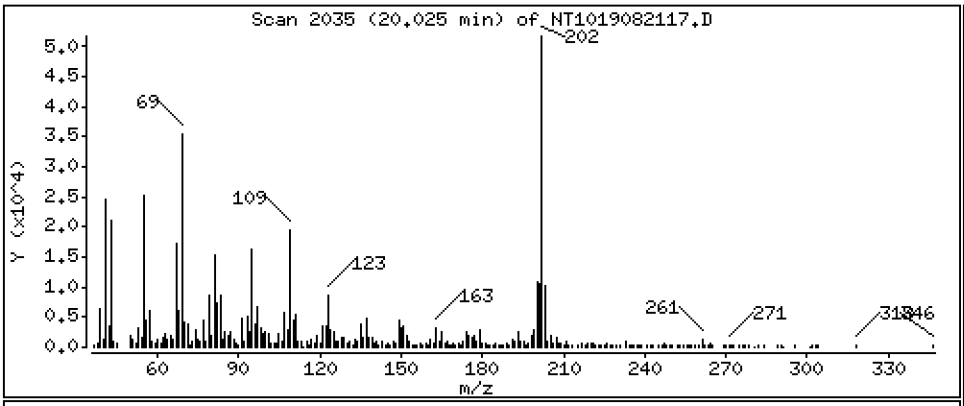
Operator: YZ

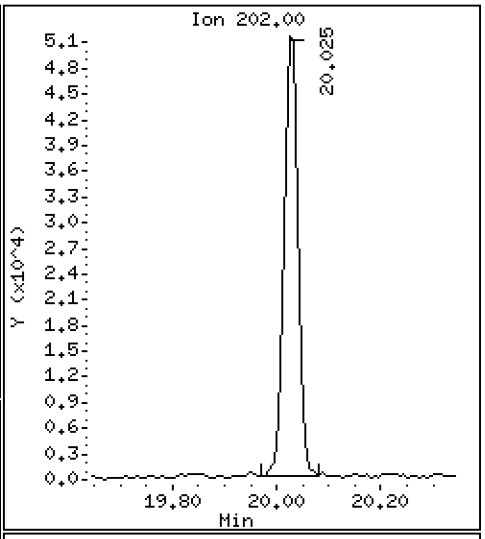
Column phase: ZB-5msi

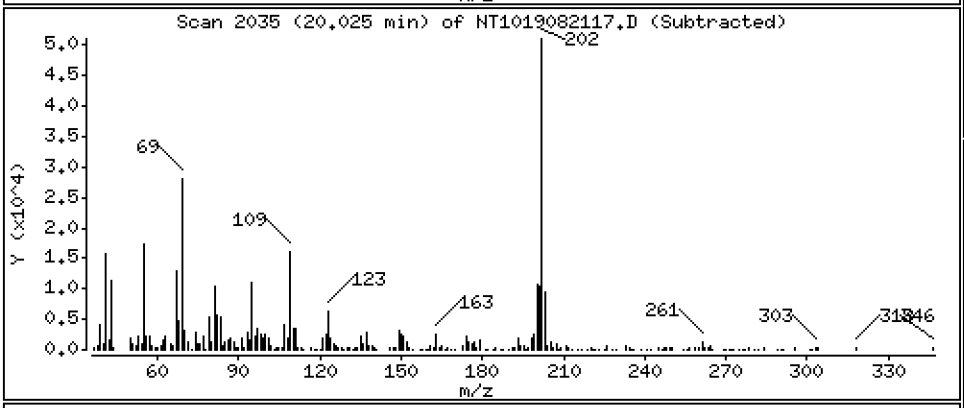
Column diameter: 0.25

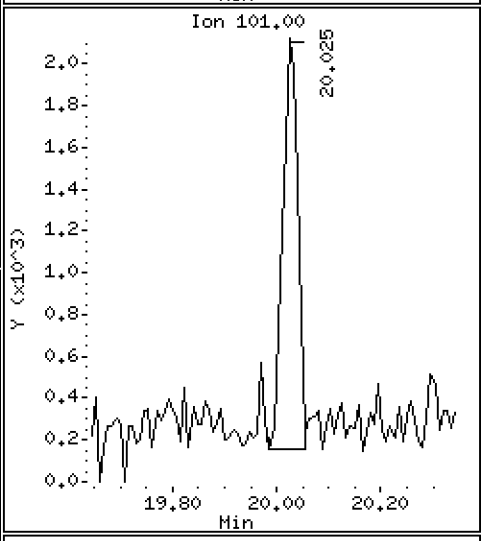
64 Fluoranthene

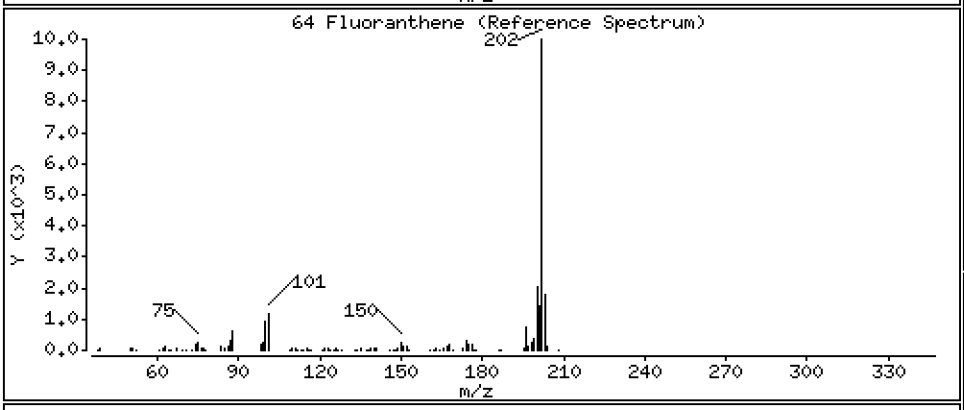
Concentration: 15.35 ug/mL

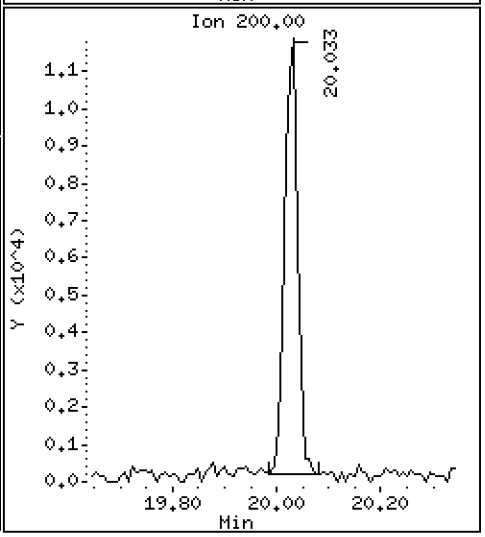


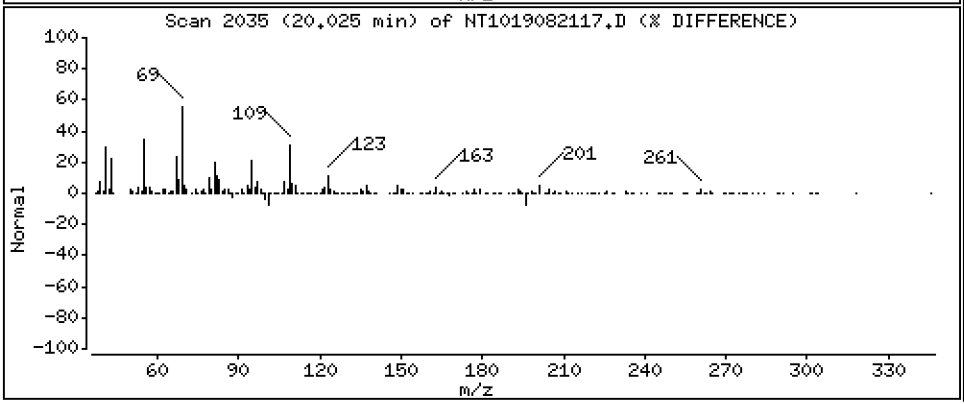












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082117.D

Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

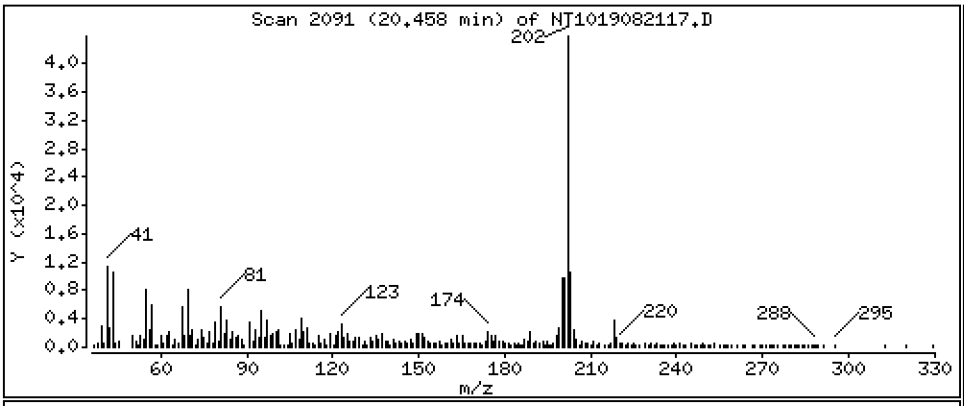
Operator: YZ

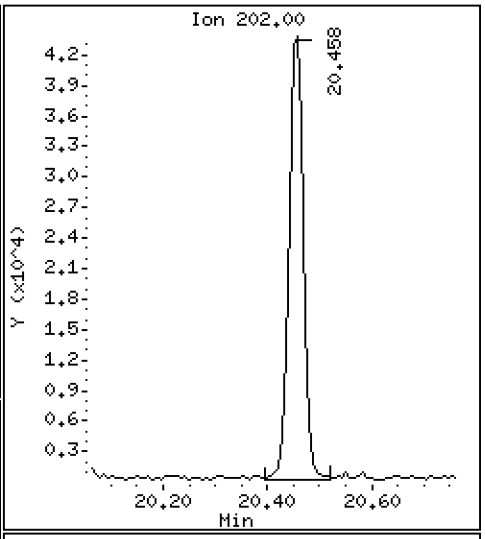
Column phase: ZB-5msi

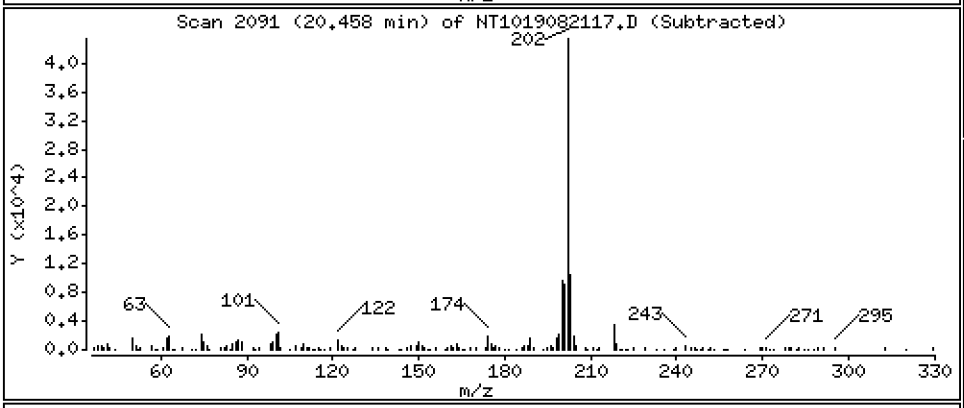
Column diameter: 0.25

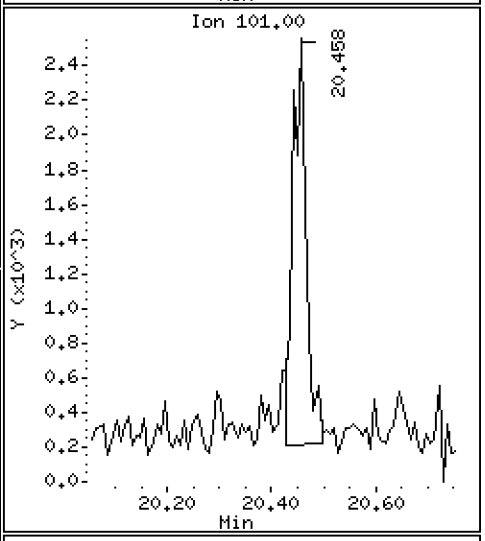
65 Pyrene

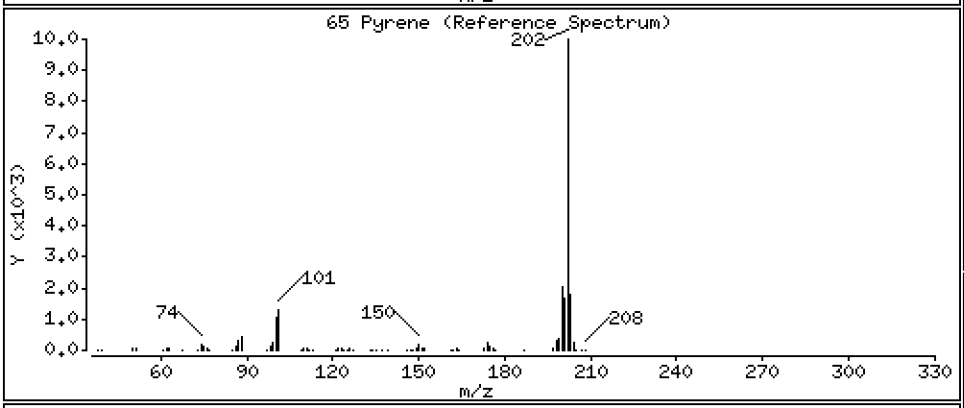
Concentration: 12.75 ug/mL

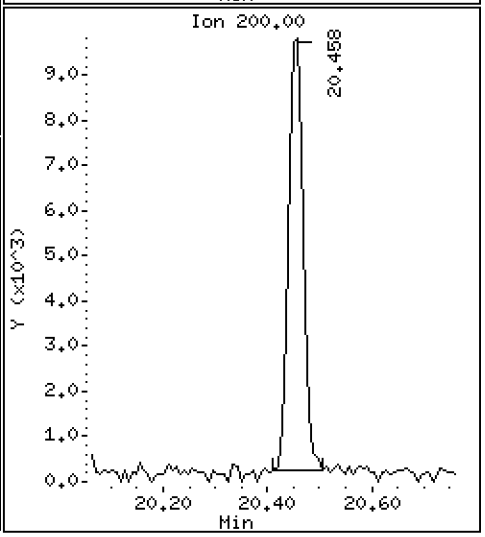


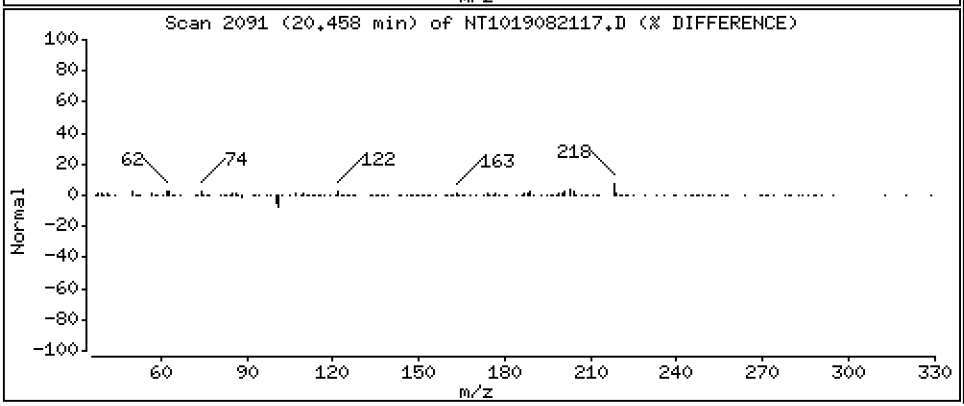












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082117.D

Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

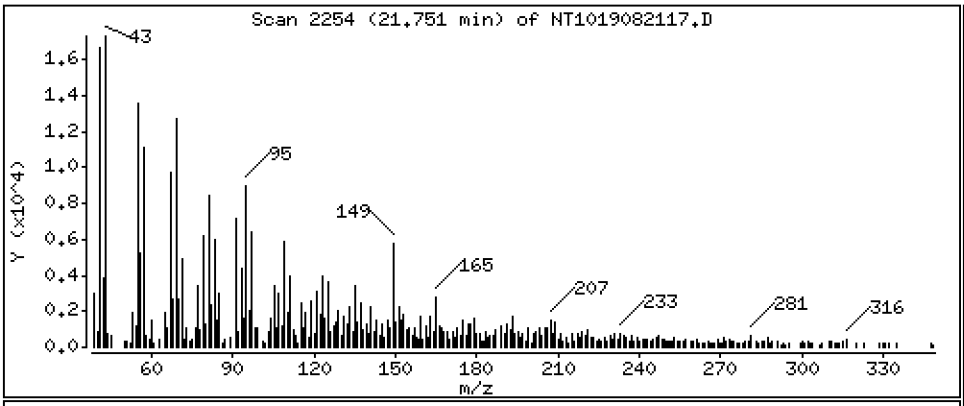
Operator: YZ

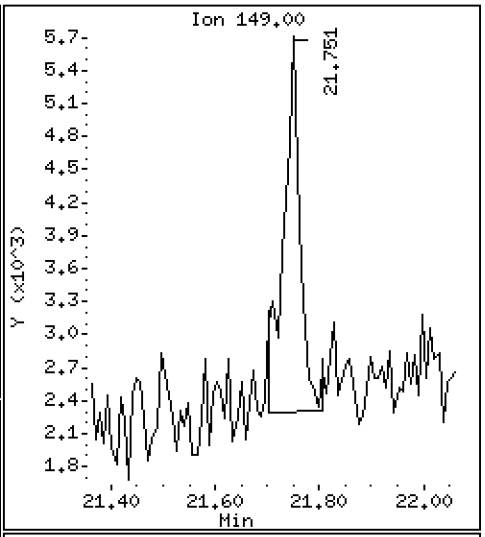
Column phase: ZB-5msi

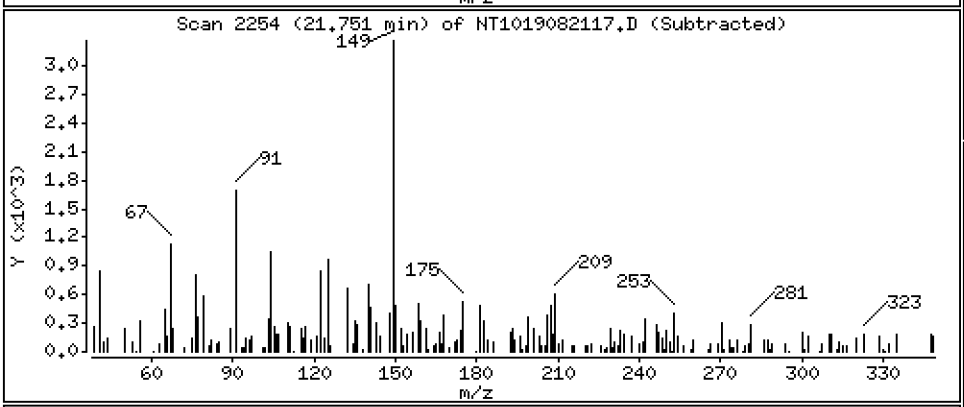
Column diameter: 0.25

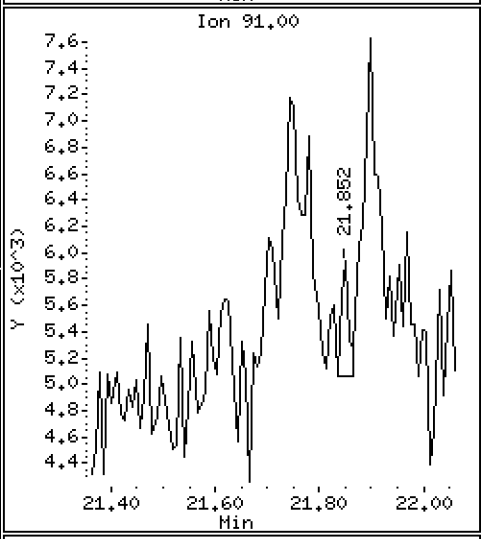
67 Butylbenzylphthalate

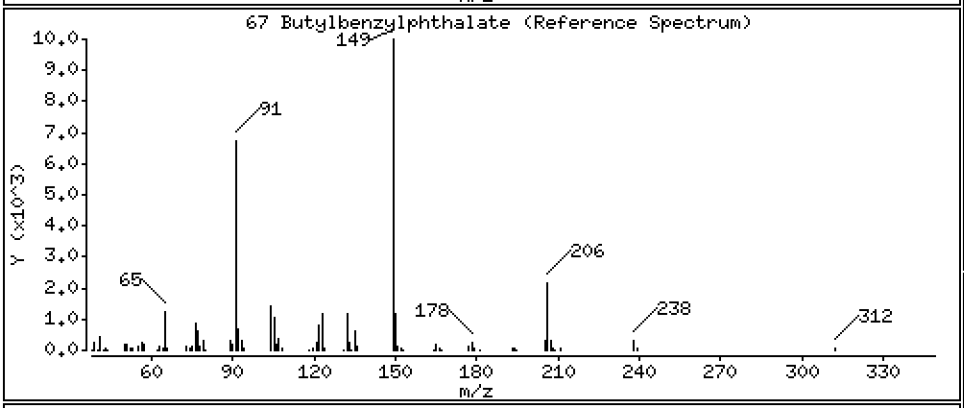
Concentration: 2.445 ug/mL

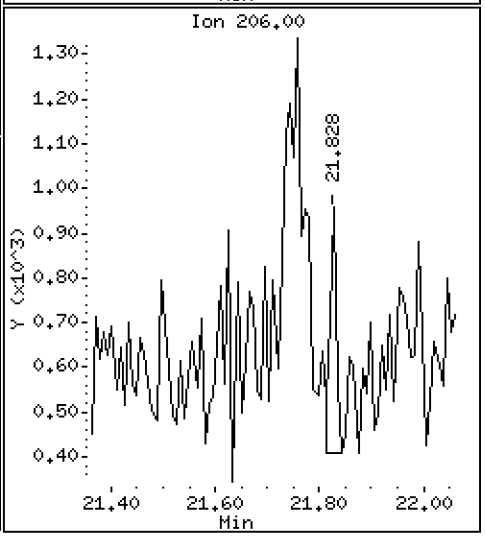


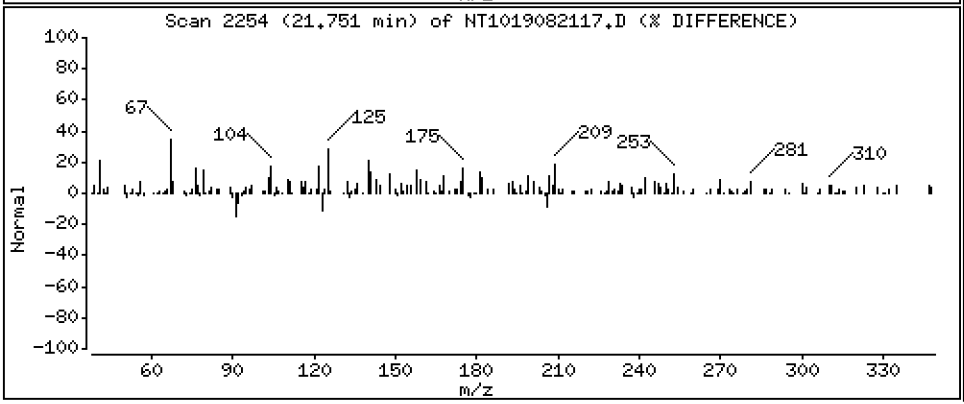












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082117.D

Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

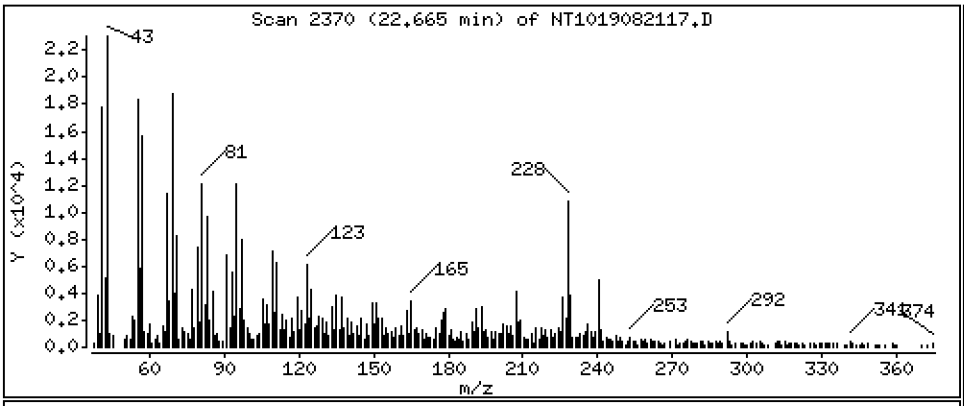
Operator: YZ

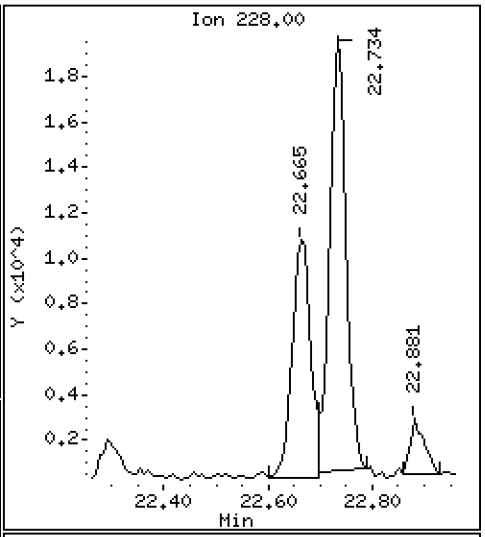
Column phase: ZB-5msi

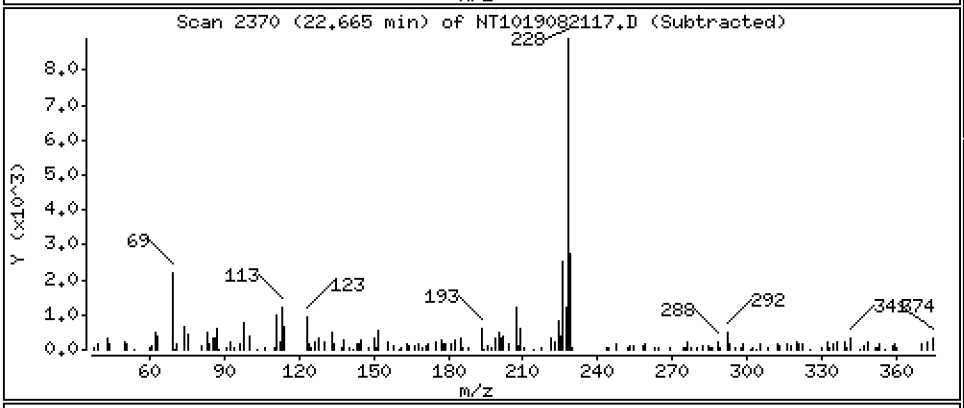
Column diameter: 0.25

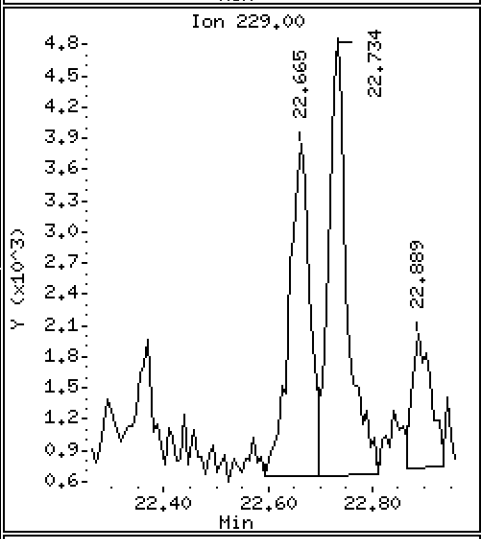
68 Benzo(a)anthracene

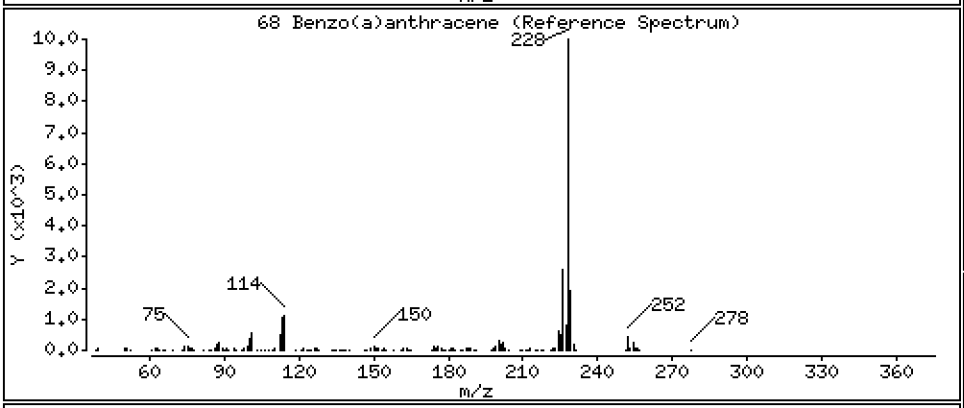
Concentration: 4.303 ug/mL

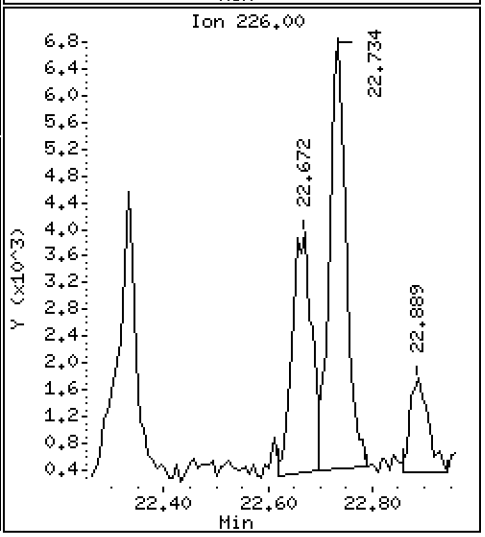


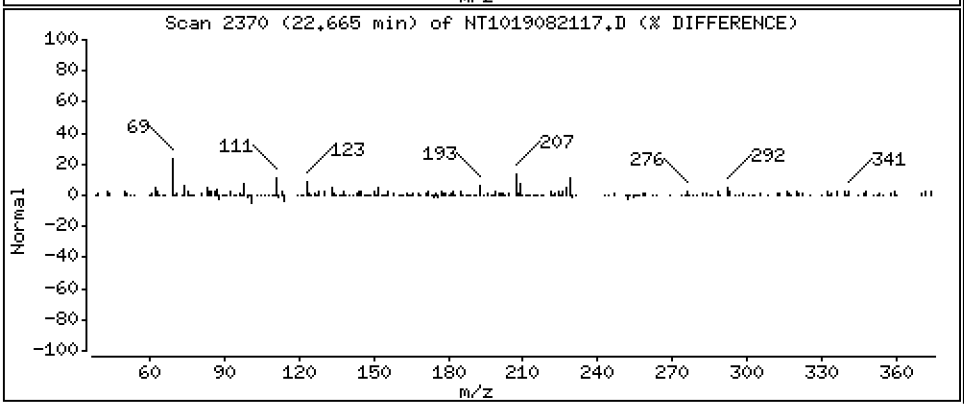












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082117.D

Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

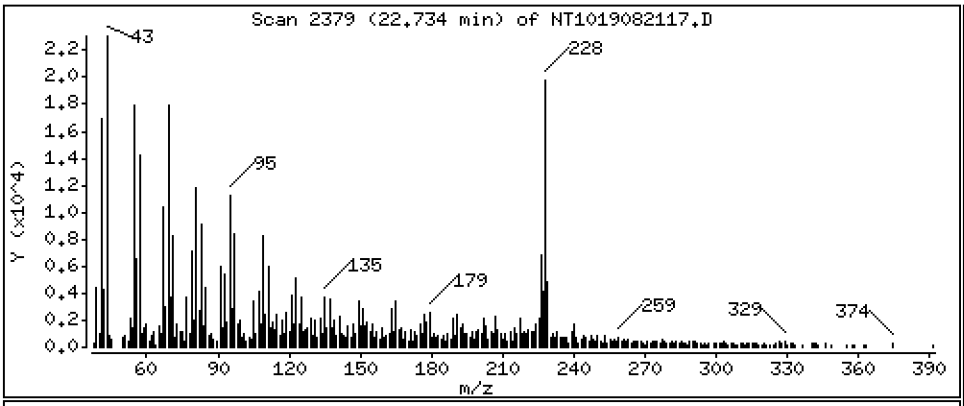
Operator: YZ

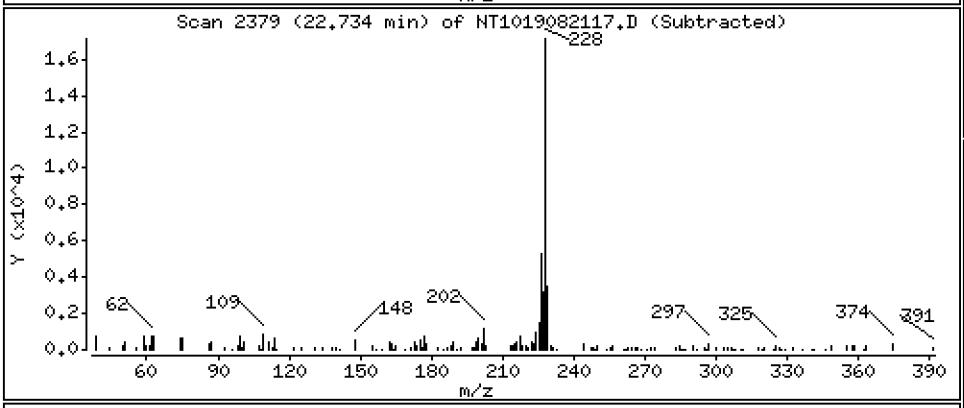
Column phase: ZB-5msi

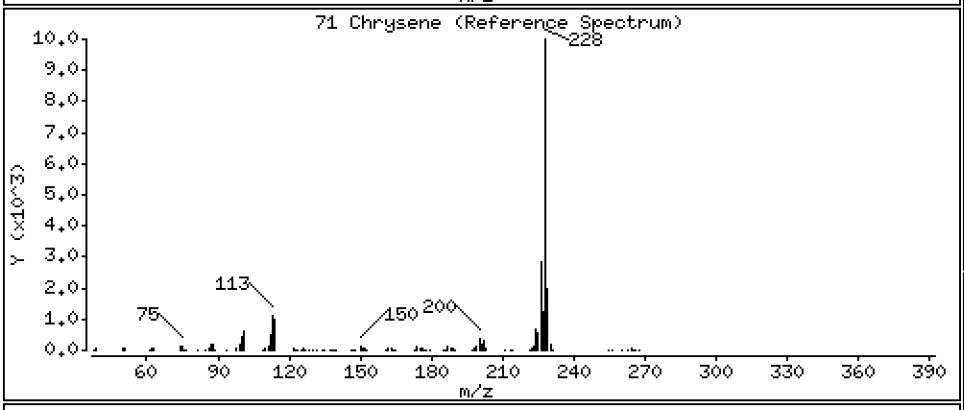
Column diameter: 0.25

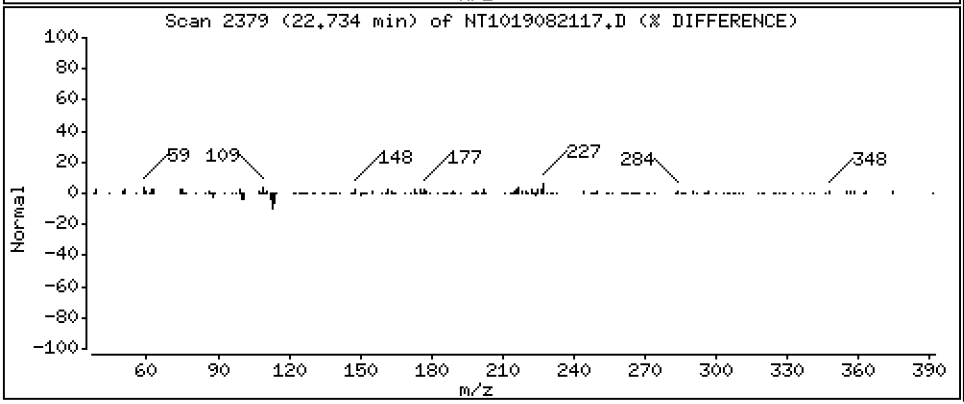
71 Chrysene

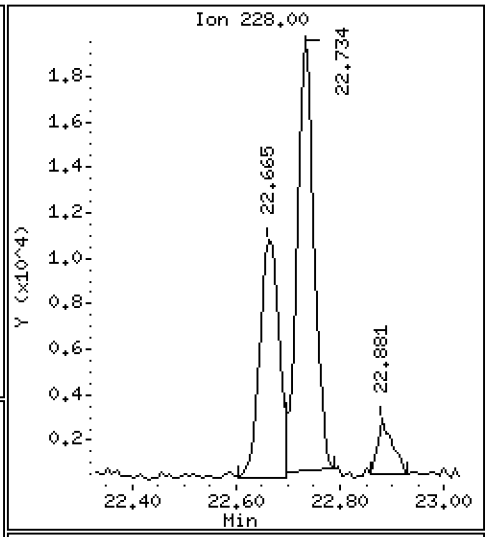
Concentration: 7.891 ug/mL

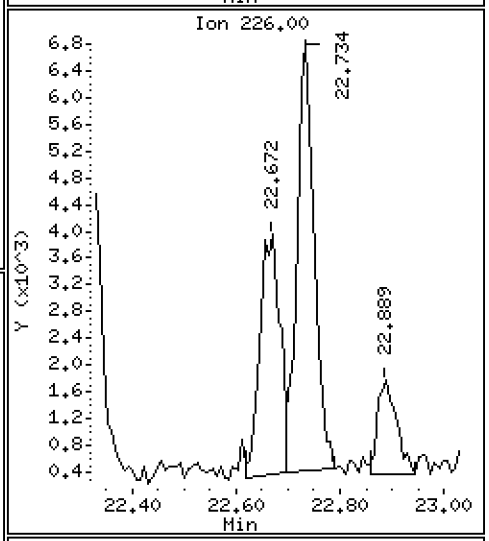


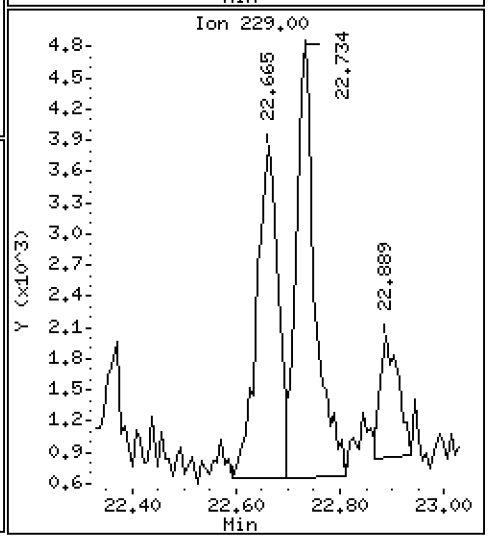












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082117.D

Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

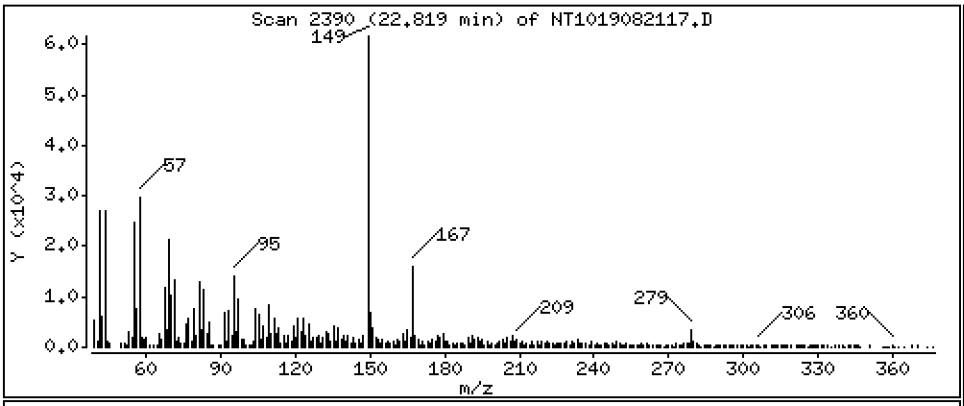
Operator: YZ

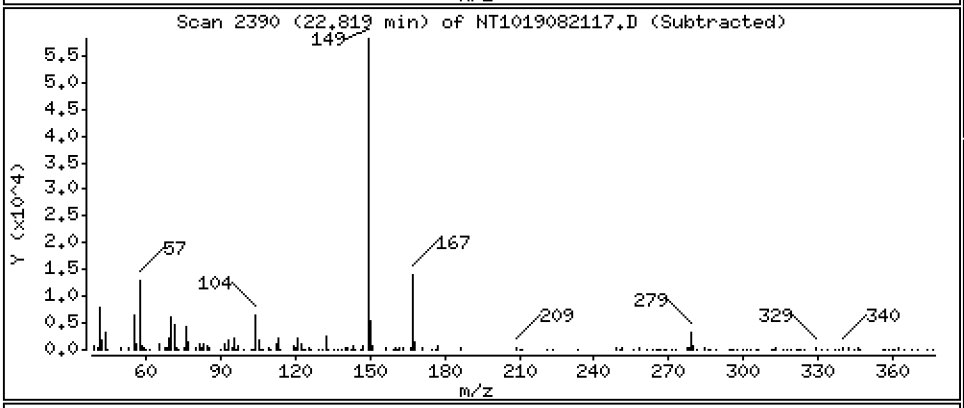
Column phase: ZB-5msi

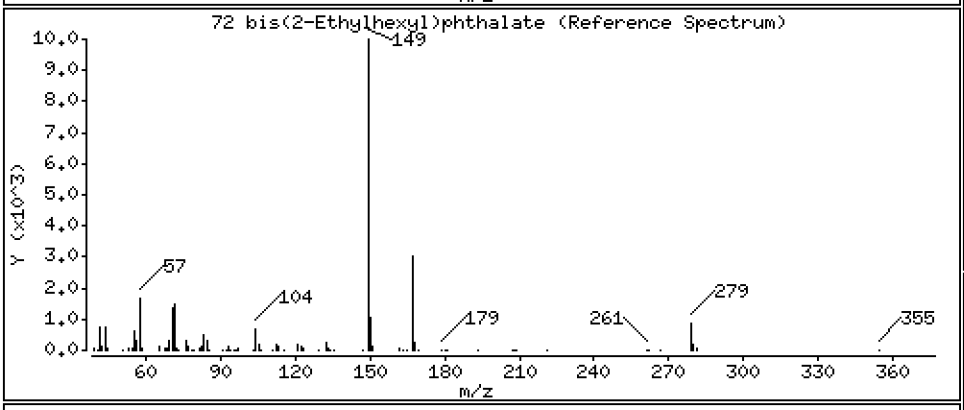
Column diameter: 0.25

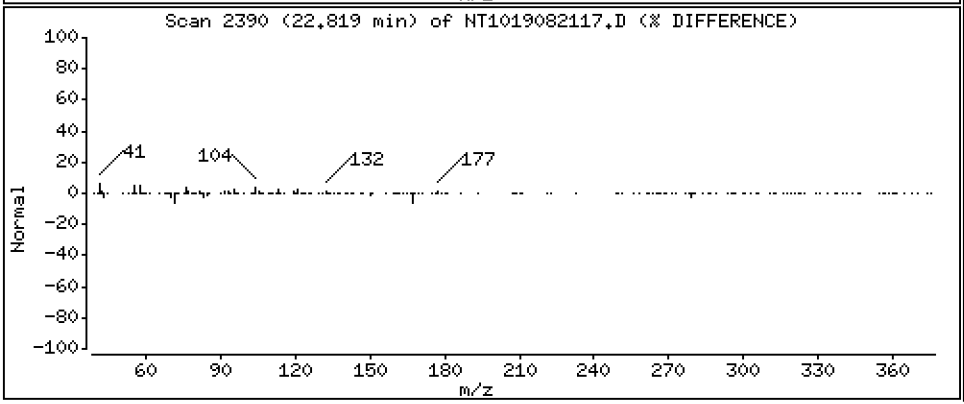
72 bis(2-Ethylhexyl)phthalate

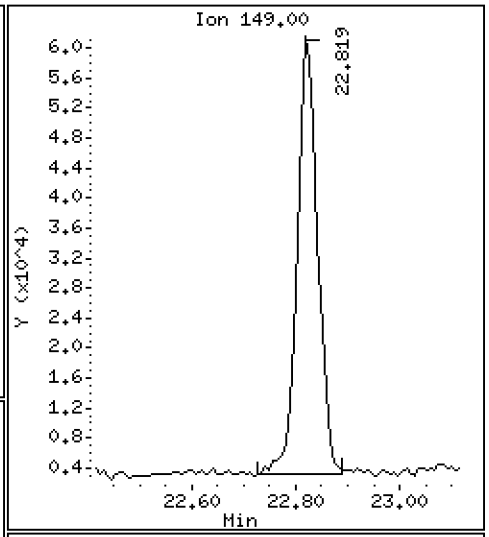
Concentration: 36.04 ug/mL

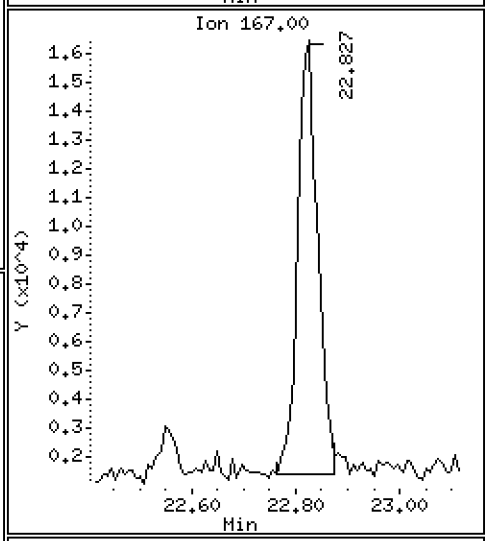


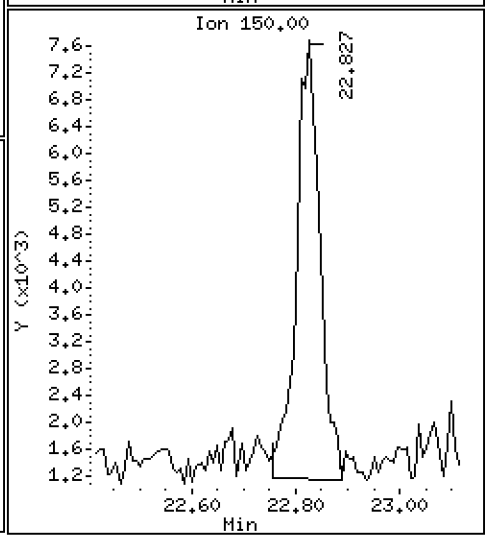












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Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

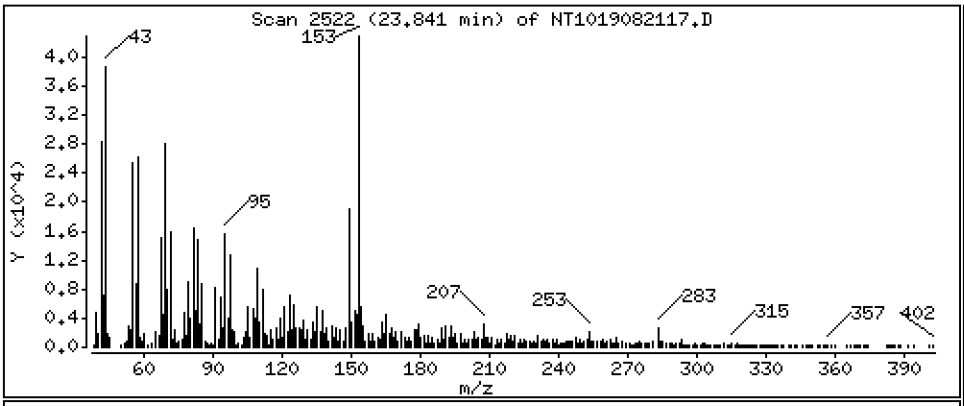
Operator: YZ

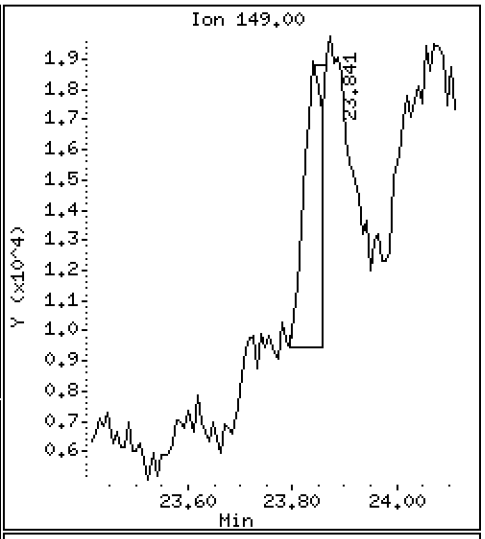
Column phase: ZB-5msi

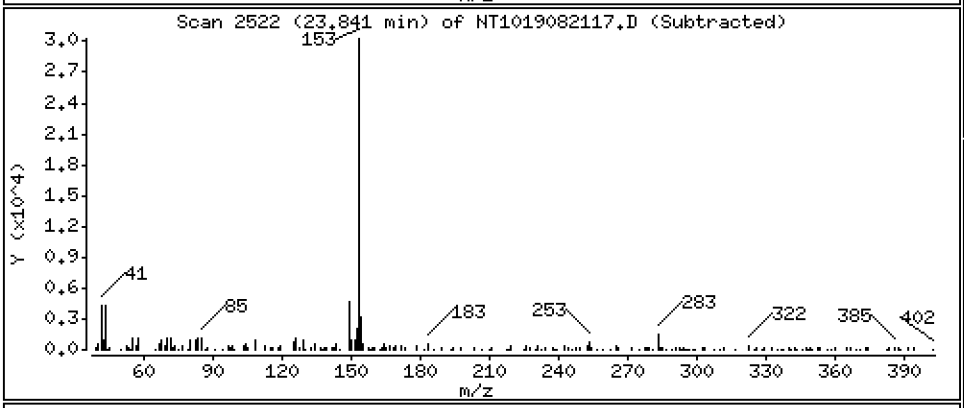
Column diameter: 0.25

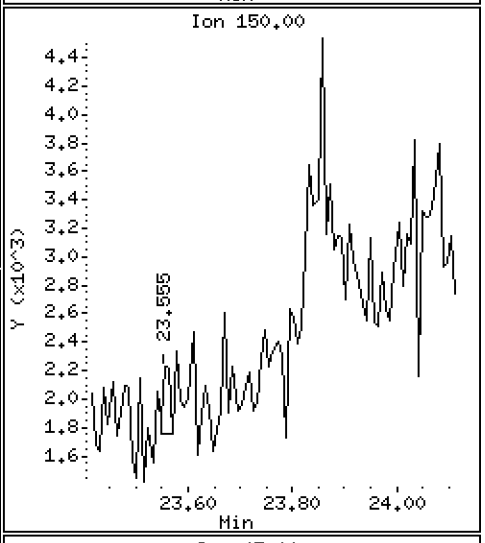
73 Di-n-octylphthalate

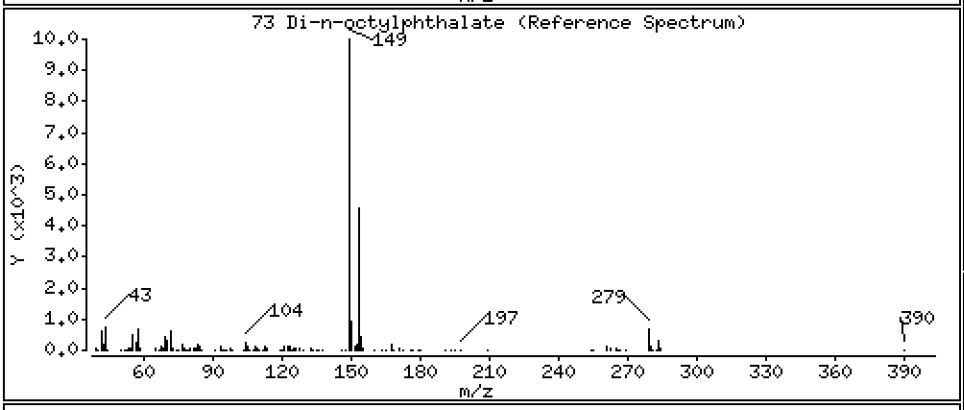
Concentration: 2.309 ug/mL

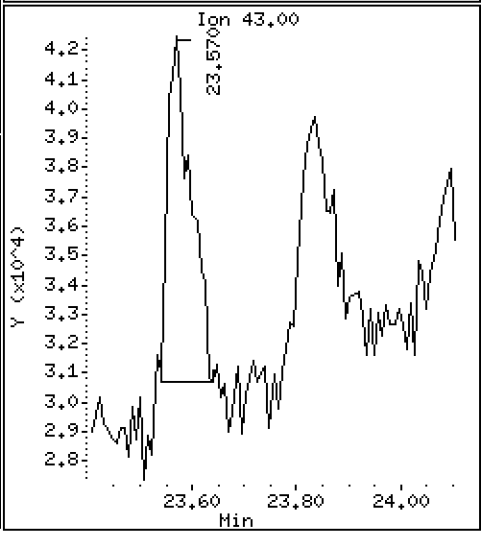


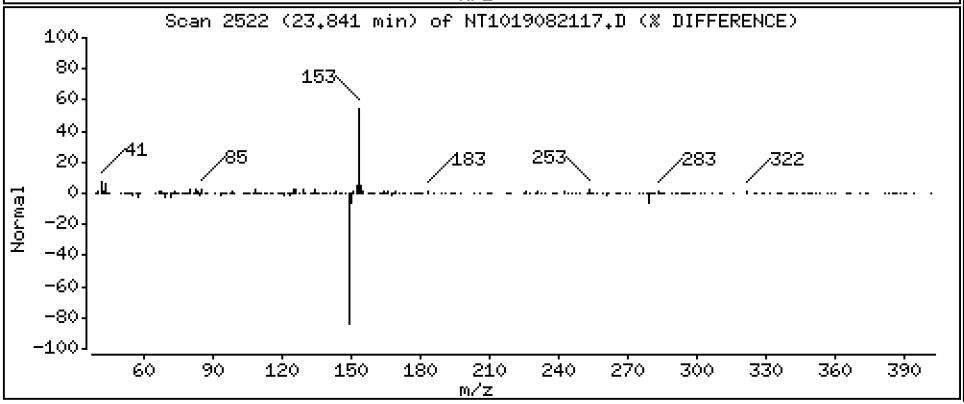












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Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

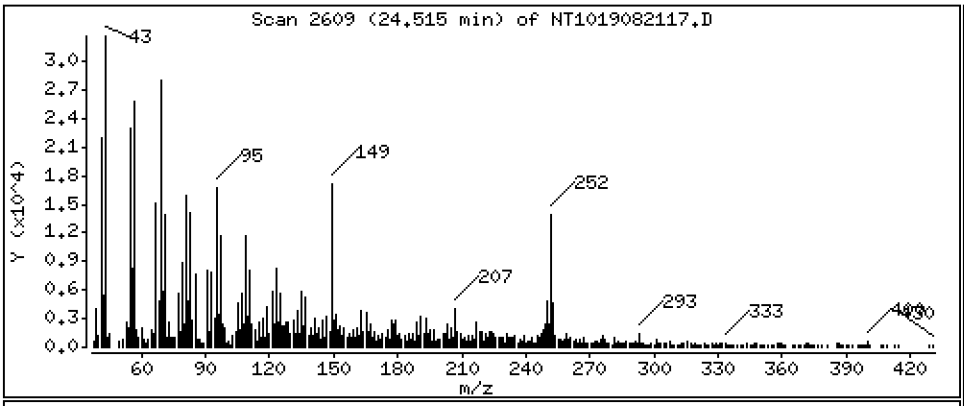
Operator: YZ

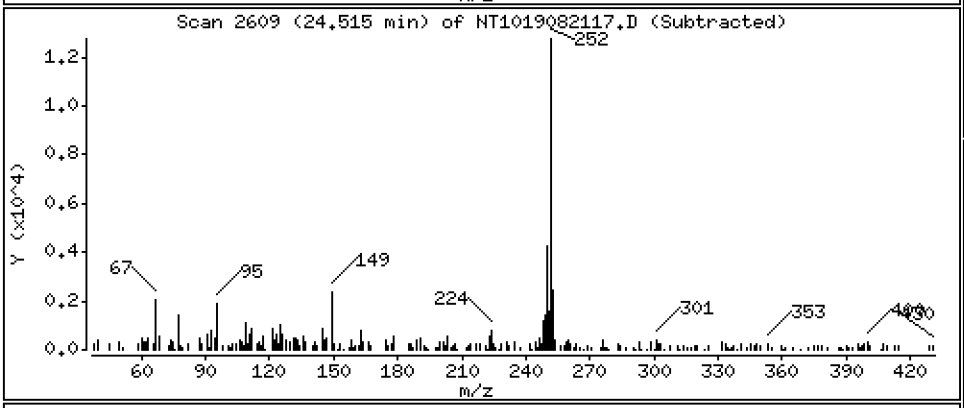
Column phase: ZB-5msi

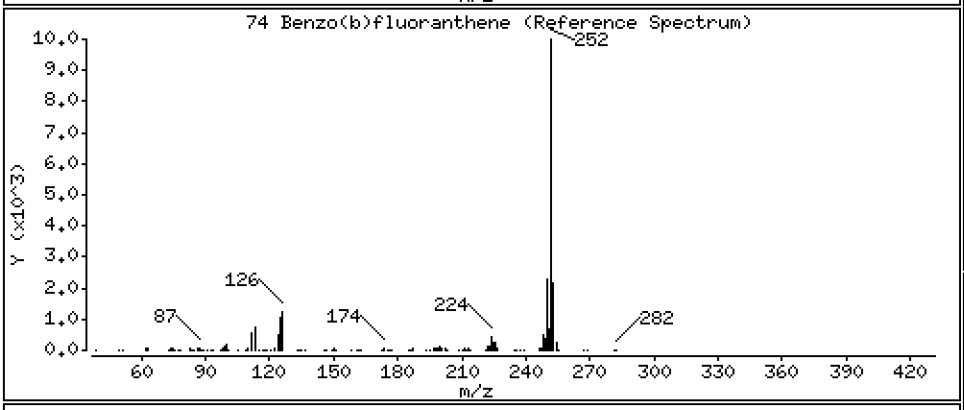
Column diameter: 0.25

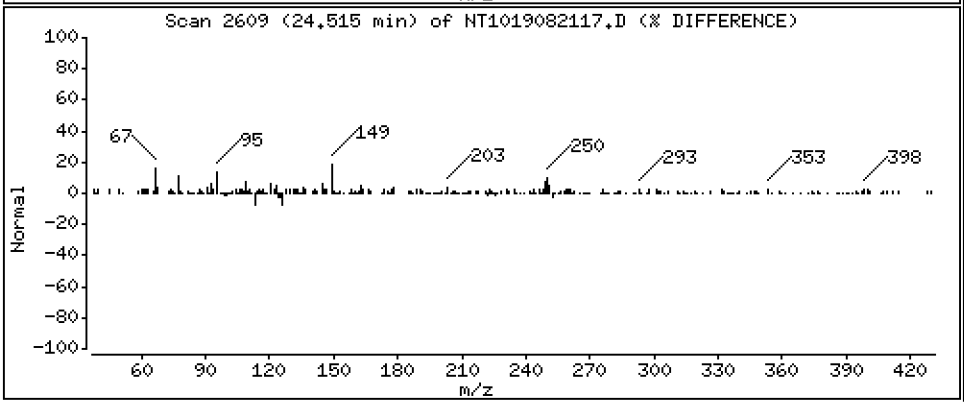
74 Benzo(b)fluoranthene

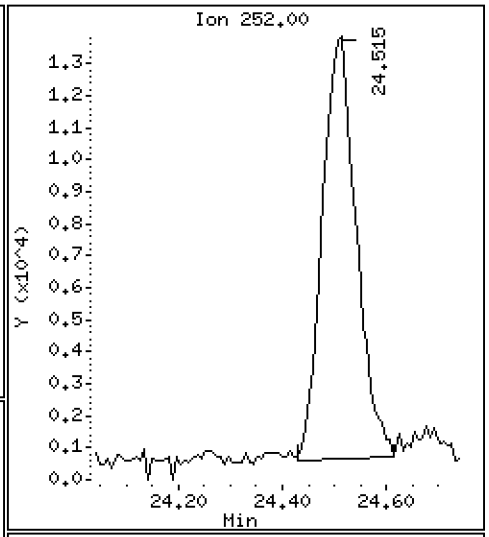
Concentration: 11.73 ug/mL

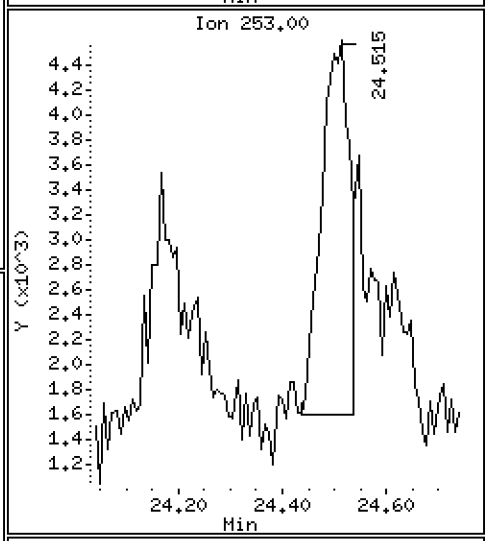


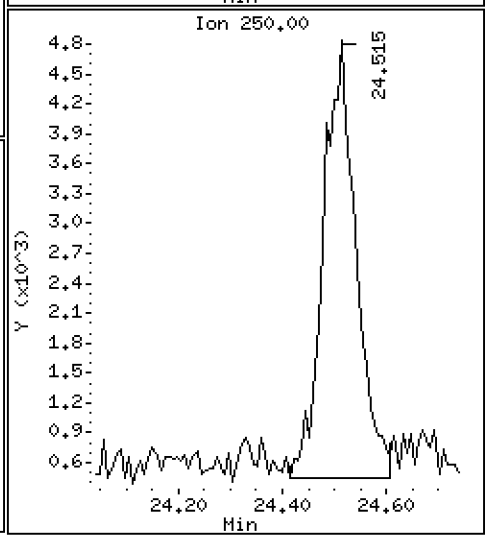












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Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

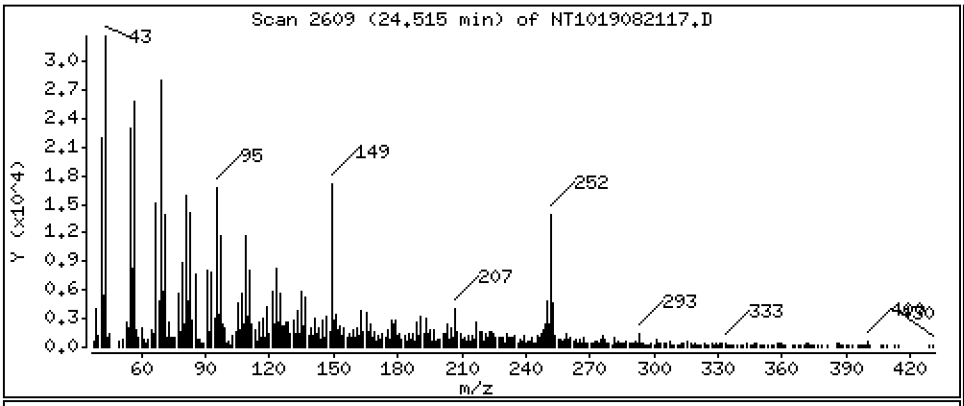
Operator: YZ

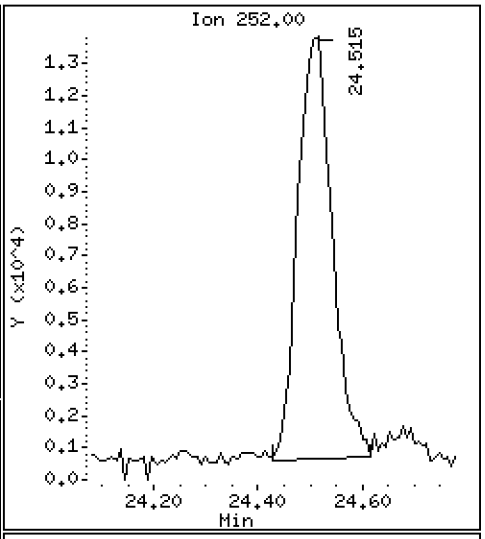
Column phase: ZB-5msi

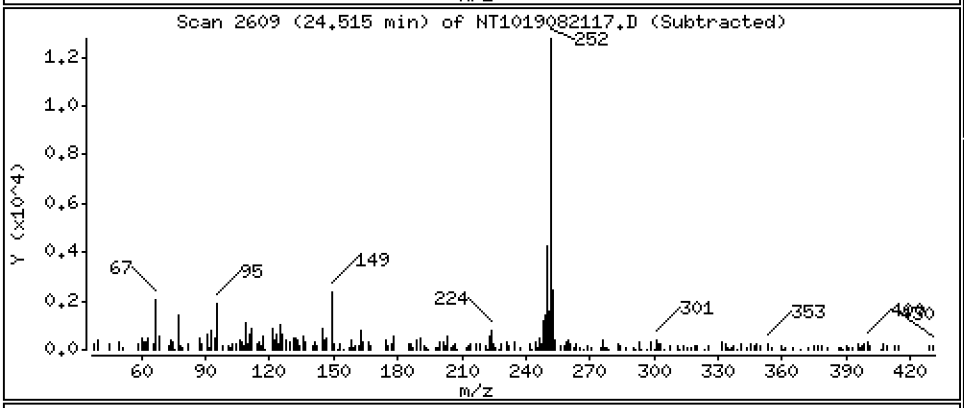
Column diameter: 0.25

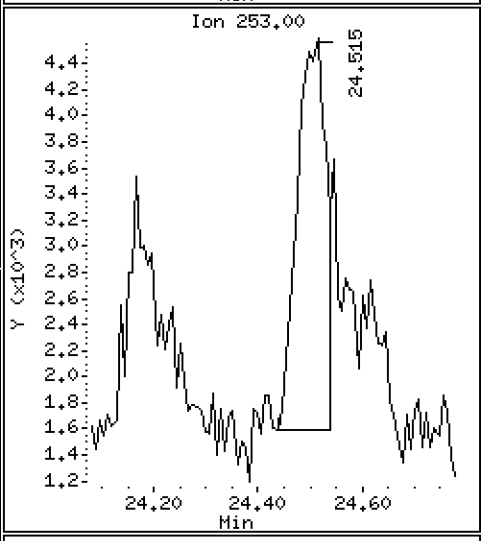
75 Benzo(k)fluoranthene

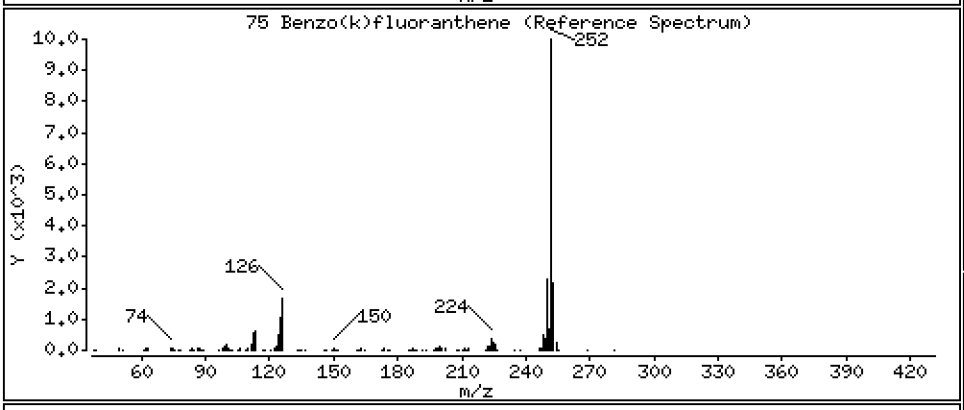
Concentration: 11.66 ug/mL

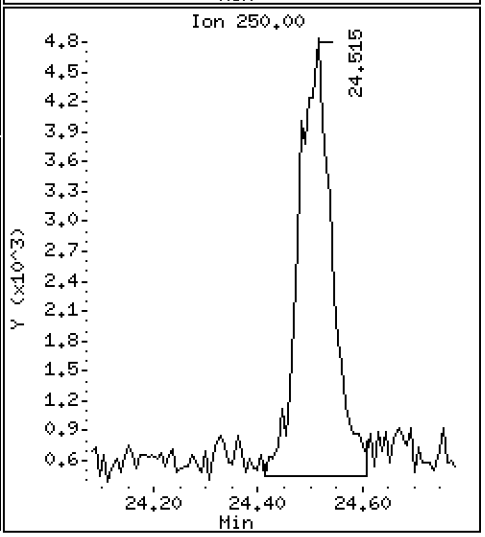


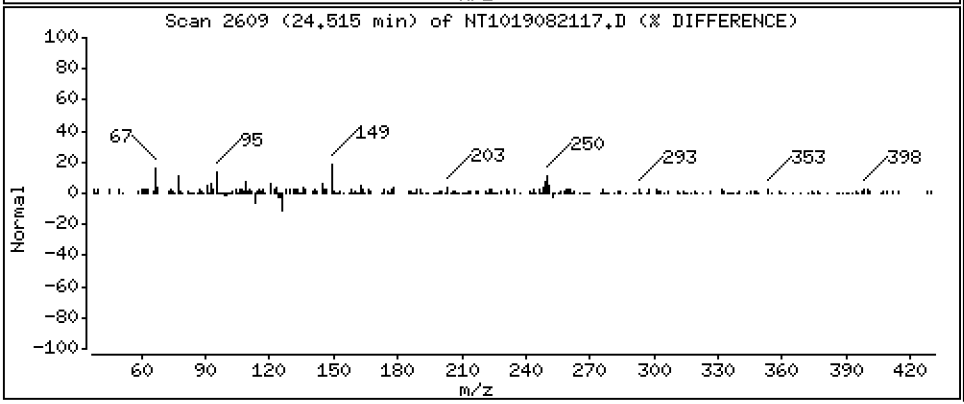












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Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

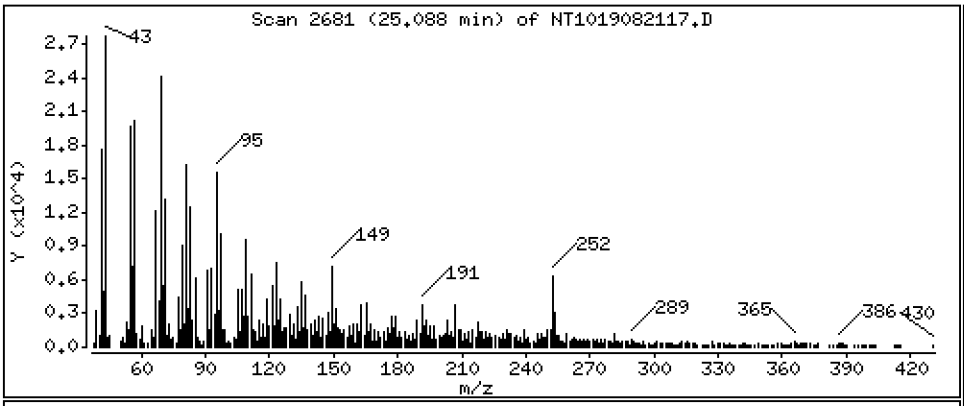
Operator: YZ

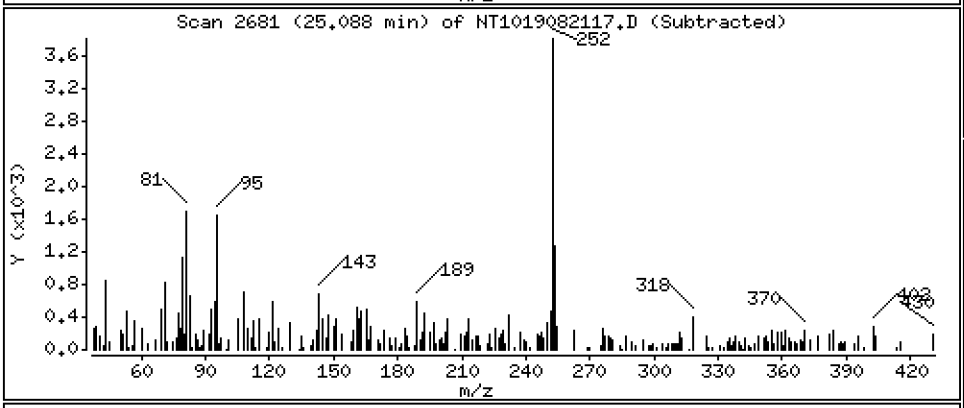
Column phase: ZB-5msi

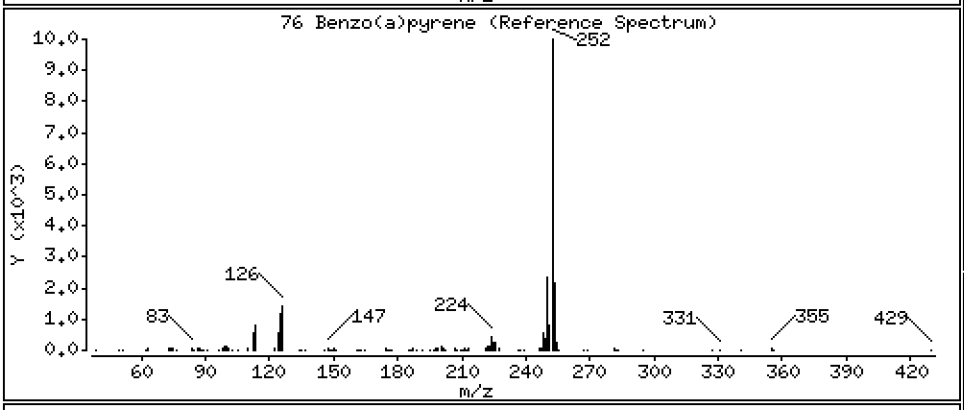
Column diameter: 0.25

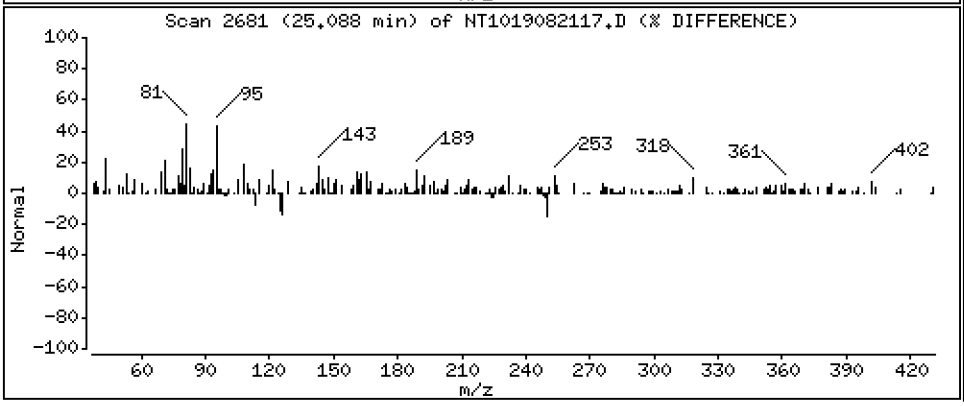
76 Benzo(a)pyrene

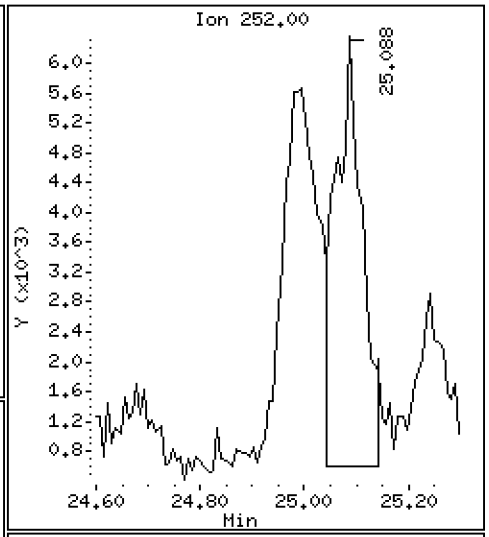
Concentration: 4.656 ug/mL

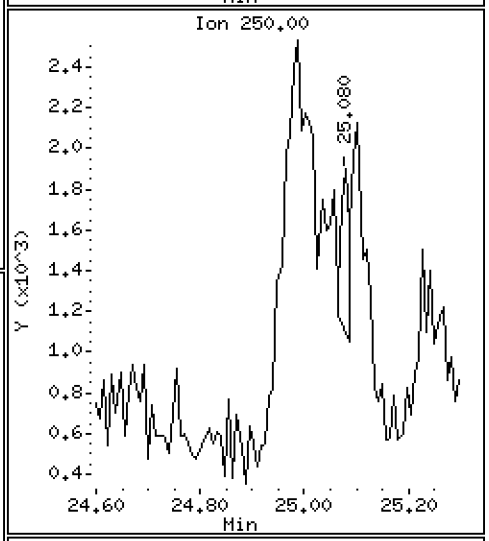


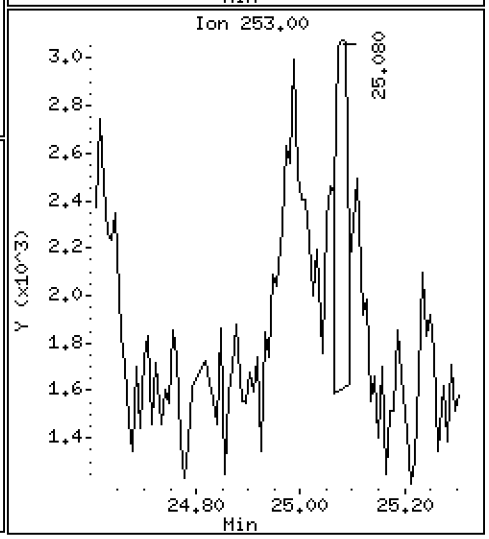












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Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

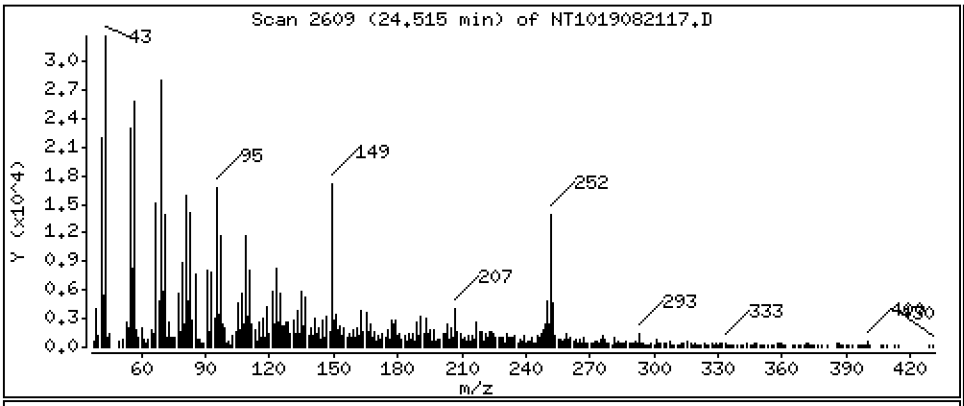
Operator: YZ

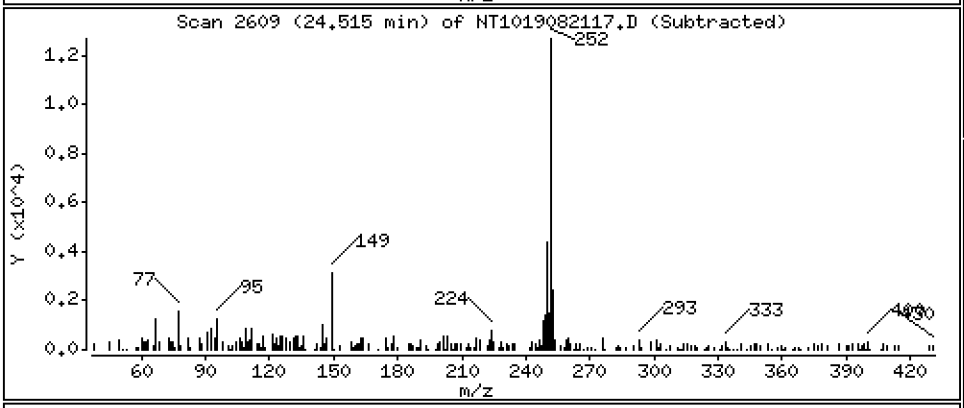
Column phase: ZB-5msi

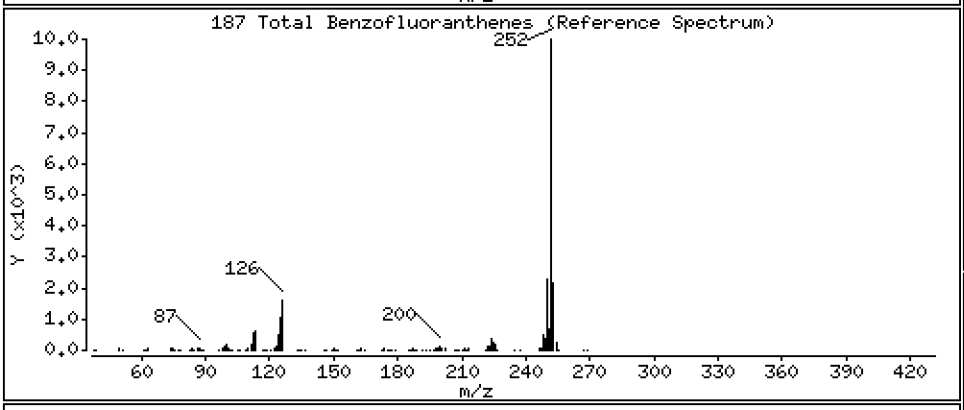
Column diameter: 0.25

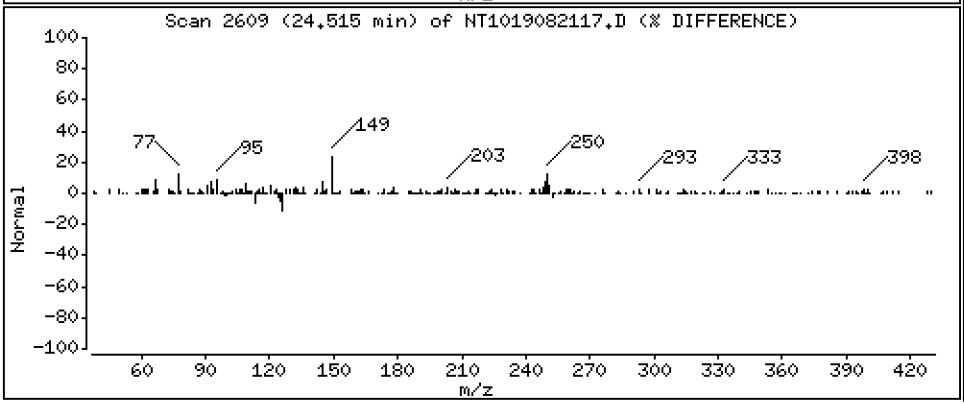
187 Total Benzofluoranthenes

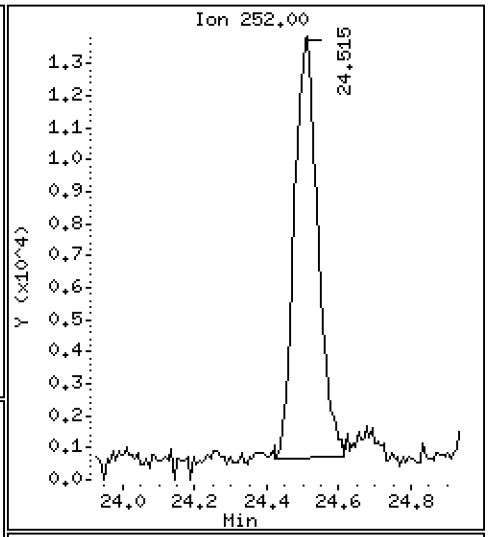
Concentration: 12.16 ug/mL

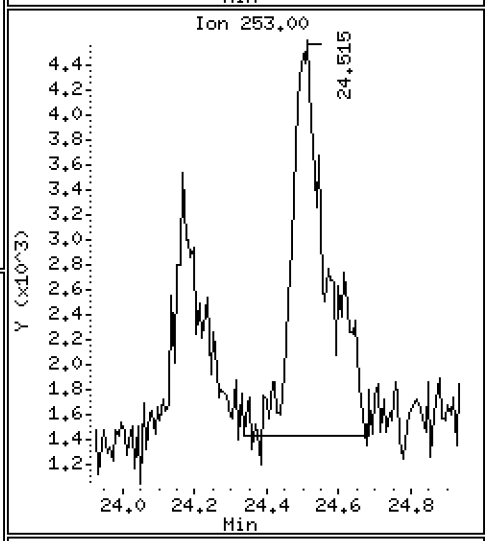


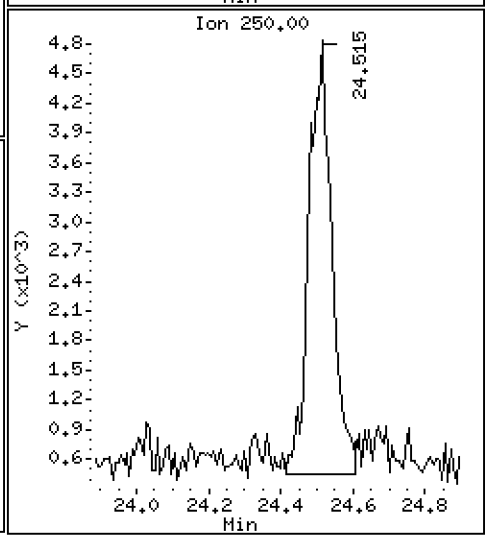












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Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08

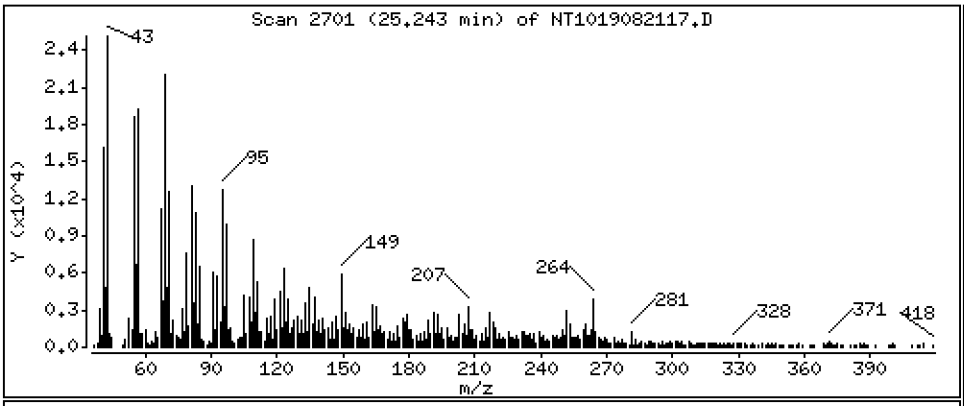
Operator: YZ

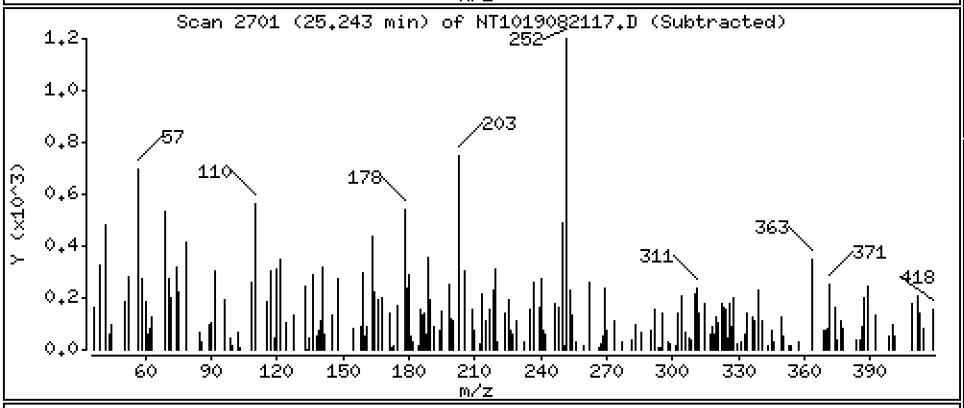
Column phase: ZB-5msi

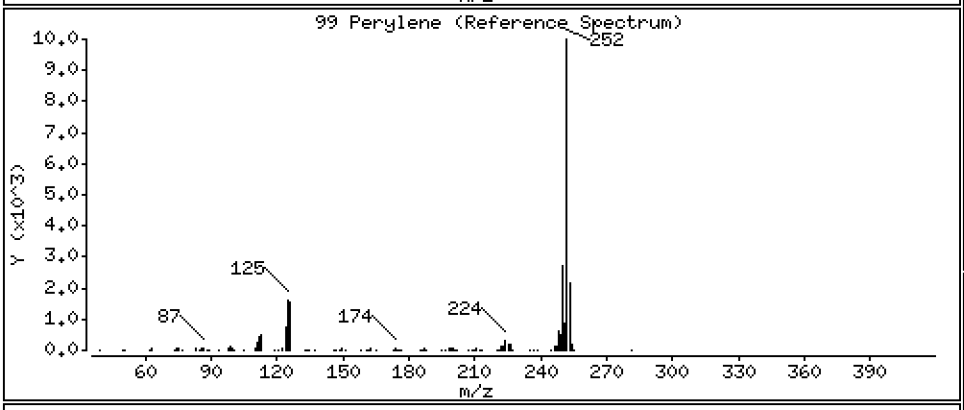
Column diameter: 0.25

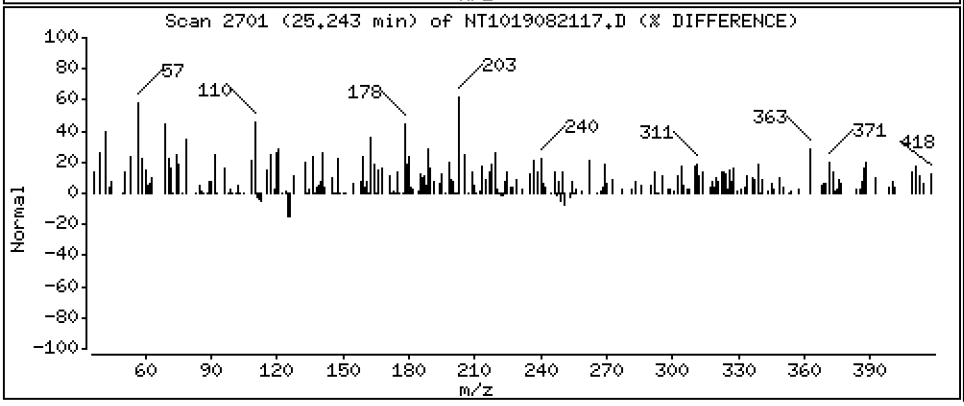
99 Perylene

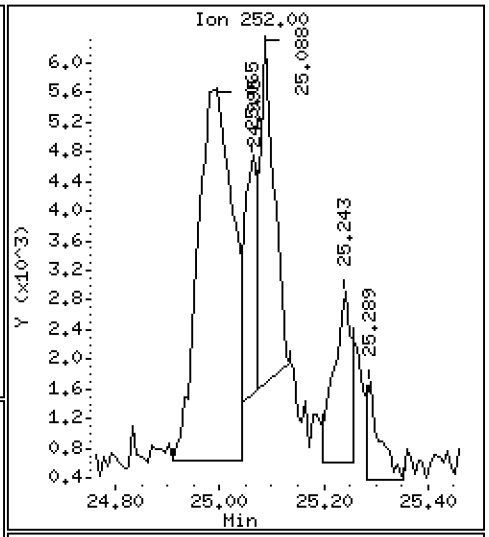
Concentration: 1.379 ug/mL

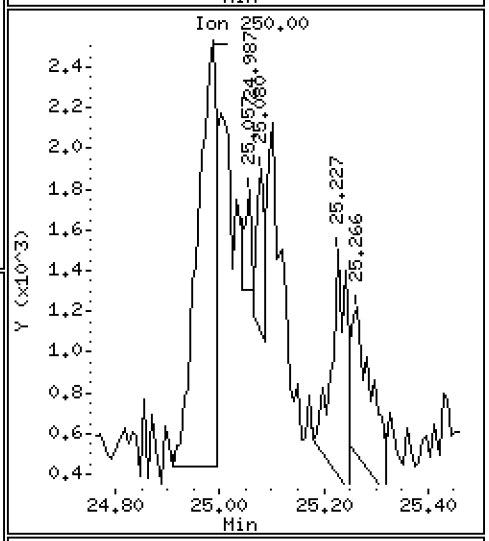


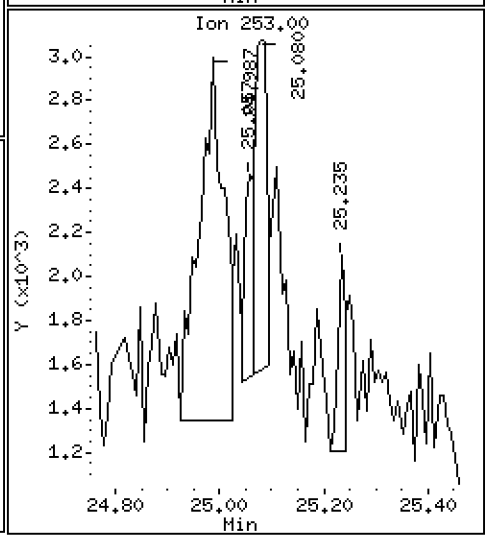












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Date : 21-AUG-2019 20:08

Client ID:

Instrument: nt10.i

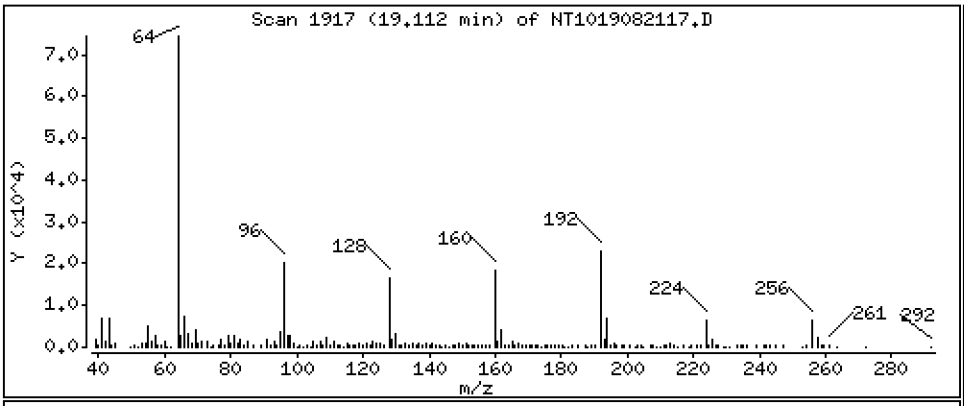
Sample Info: 19H0024-08

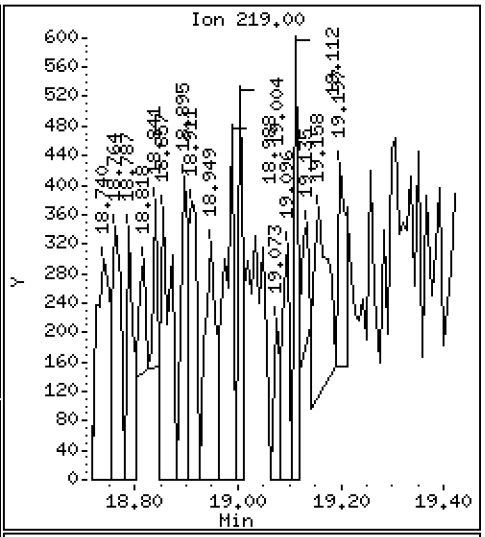
Operator: YZ

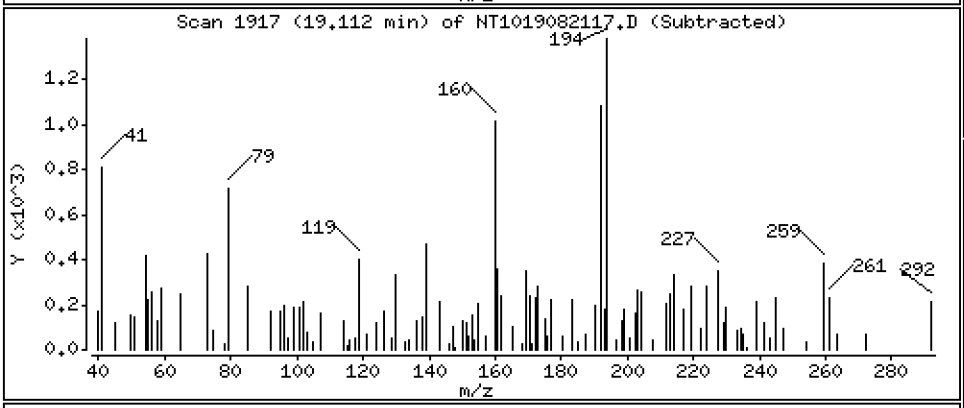
Column phase: ZB-5msi

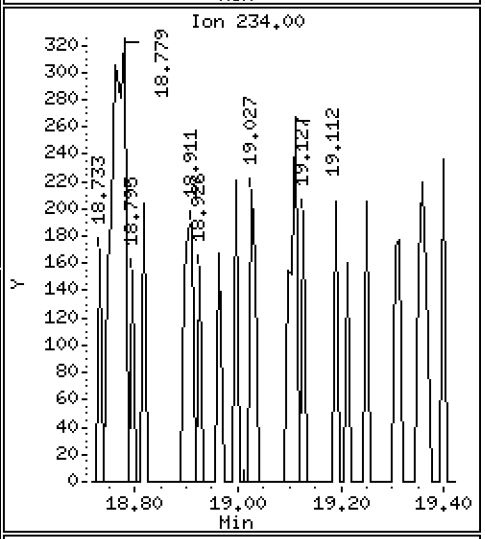
Column diameter: 0.25

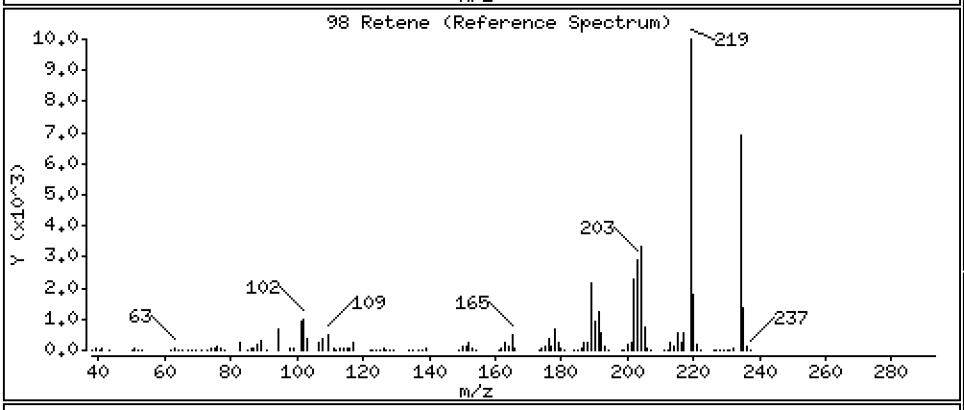
98 Retene

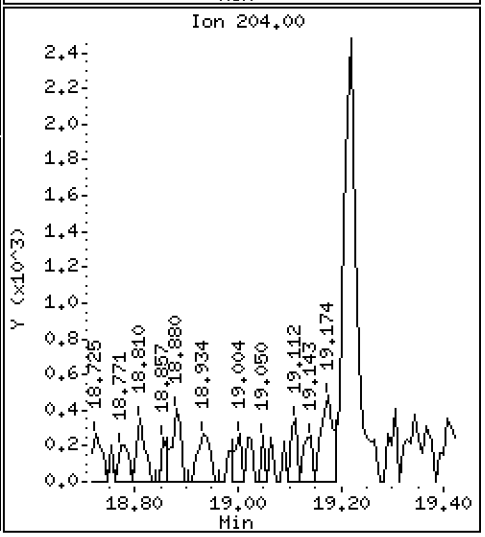


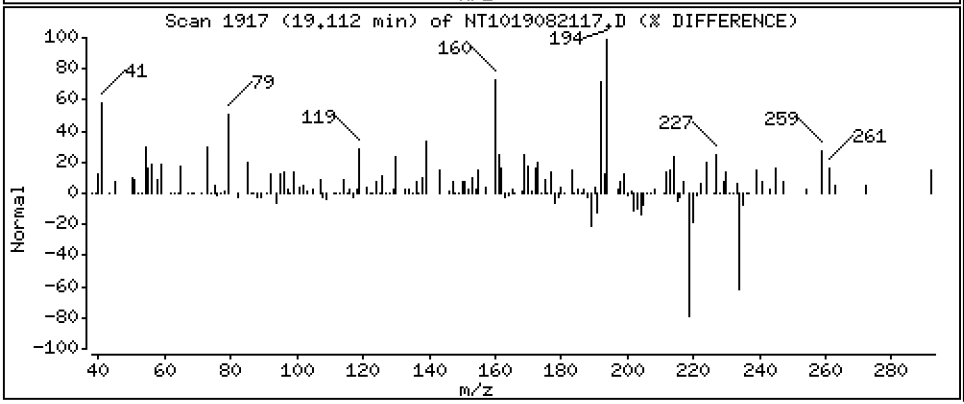












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

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Inj Date : 21-AUG-2019 20:08
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-08
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 13
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.327	6.311	(0.746)	14447	1.36230	4.087
$	2 Phenol-d5	99	7.895	7.888	(0.931)	15964	1.34320	4.030
	3 Phenol	94	7.919	7.911	(0.933)	4347	0.39342	1.180
$	5 2-Chlorophenol-d4	132	8.135	8.127	(0.959)	22420	1.75235	5.257
	4 Bis(2-Chloroethyl)ether	93	Compound Not Detected.					
	6 2-Chlorophenol	128	Compound Not Detected.					
	7 1,3-Dichlorobenzene	146	Compound Not Detected.					
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	37766	4.00000	
	9 1,4-Dichlorobenzene	146	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	152	8.832	8.832	(1.041)	10027	1.14630	3.439
	12 1,2-Dichlorobenzene	146	Compound Not Detected.					
	11 Benzyl alcohol	108	Compound Not Detected.					
	14 2,2'-oxybis(1-Chloropropane)	121	Compound Not Detected.					
	13 2-Methylphenol	108	Compound Not Detected.					
	17 Hexachloroethane	117	Compound Not Detected.					
	16 N-Nitroso-di-n-propylamine	70	Compound Not Detected.					
	15 4-Methylphenol	108	9.290	9.267	(1.095)	622	0.06914	0.2074
$	18 Nitrobenzene-d5	82	9.562	9.554	(0.875)	12427	1.11323	3.340
	19 Nitrobenzene	77	Compound Not Detected.					
	20 Isophorone	82	Compound Not Detected.					
	21 2-Nitrophenol	139	Compound Not Detected.					
	22 2,4-Dimethylphenol	107	Compound Not Detected.					
	23 Bis(2-Chloroethoxy)methane	93	Compound Not Detected.					
	24 Benzoic acid	105	Compound Not Detected.					
	25 2,4-Dichlorophenol	162	Compound Not Detected.					
	26 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.929	10.929	(1.000)	142730	4.00000	
	28 Naphthalene	128	10.968	10.968	(1.004)	2611	0.07958	0.2388
	29 4-Chloroaniline	127	Compound Not Detected.					
	30 Hexachlorobutadiene	225	Compound Not Detected.					
	31 4-Chloro-3-methylphenol	107	Compound Not Detected.					
	32 2-Methylnaphthalene	142	12.353	12.353	(1.130)	1137	0.04086	0.1226
	33 Hexachlorocyclopentadiene	237	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	Compound Not Detected.					
	35	2,4,5-Trichlorophenol	196	Compound Not Detected.					
$	36	2-Fluorobiphenyl	172	13.150	13.142	(0.906)	40720	1.50151	4.505
	37	2-Chloronaphthalene	162	Compound Not Detected.					
	38	2-Nitroaniline	65	Compound Not Detected.					
	39	Dimethylphthalate	163	14.063	14.055	(0.969)	1869	0.07094	0.2128
	40	Acenaphthylene	152	14.202	14.195	(0.978)	2852	0.08345	0.2503
	41	2,6-Dinitrotoluene	165	Compound Not Detected.					
*	42	Acenaphthene-d10	164	14.520	14.512	(1.000)	70902	4.00000	
	43	3-Nitroaniline	138	Compound Not Detected.					
	44	Acenaphthene	153	14.581	14.574	(1.004)	2001	0.09318	0.2795
	45	2,4-Dinitrophenol	184	Compound Not Detected.					
	46	Dibenzofuran	168	14.914	14.898	(1.027)	2594	0.07350	0.2205
	47	4-Nitrophenol	109	Compound Not Detected.					
	48	2,4-Dinitrotoluene	165	Compound Not Detected.					
	50	Diethylphthalate	149	Compound Not Detected.					
	49	Fluorene	166	15.625	15.610	(1.076)	3172	0.13141	0.3942
	51	4-Chlorophenyl-phenylether	204	Compound Not Detected.					
	52	4-Nitroaniline	138	Compound Not Detected.					
	53	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.					
	54	N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55	2,4,6-Tribromophenol	330	16.165	16.142	(1.113)	12229	2.28102	6.843
	56	4-Bromophenyl-phenylether	248	Compound Not Detected.					
	57	Hexachlorobenzene	284	Compound Not Detected.					
	58	Pentachlorophenol	266	Compound Not Detected.					
*	59	Phenanthrene-d10	188	17.541	17.525	(1.000)	133409	4.00000	
	60	Phenanthrene	178	17.587	17.572	(1.003)	36148	1.10925	3.328
	61	Anthracene	178	17.680	17.665	(1.008)	11018	0.33298	0.9990
	62	Carbazole	167	18.044	18.012	(1.029)	7627	0.24495	0.7348
	63	Di-n-butylphthalate	149	18.887	18.872	(1.077)	5468	0.12129	0.3639
	64	Fluoranthene	202	20.024	19.993	(0.882)	101378	5.11775	15.35
	65	Pyrene	202	20.458	20.411	(0.901)	87943	4.25145	12.75
$	66	Terphenyl-d14	244	20.783	20.744	(0.916)	29205	2.08181	6.245
	67	Butylbenzylphthalate	149	21.750	21.712	(0.958)	7852	0.81489	2.445(M)
	68	Benzo(a)anthracene	228	22.664	22.610	(0.999)	26976	1.43433	4.303
*	69	Chrysene-d12	240	22.695	22.633	(1.000)	64822	4.00000	
	70	3,3'-Dichlorobenzidine	252	Compound Not Detected.					
	71	Chrysene	228	22.734	22.680	(1.002)	43776	2.63043	7.891
	72	bis(2-Ethylhexyl)phthalate	149	22.819	22.765	(0.957)	160823	12.0129	36.04
*	134	Di-n-octylphthalate-d4	153	23.833	23.756	(1.000)	152210	4.00000	
	73	Di-n-octylphthalate	149	23.841	23.763	(1.000)	21673	0.76968	2.309(M)
	74	Benzo(b)fluoranthene	252	24.514	24.390	(0.973)	60549	3.90983	11.73
	75	Benzo(k)fluoranthene	252	24.514	24.429	(0.973)	60549	3.88642	11.66
	76	Benzo(a)pyrene	252	25.087	24.948	(0.996)	21570	1.55193	4.656(M)
*	77	Perylene-d12	264	25.196	25.056	(1.000)	53977	4.00000	(M)
	78	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
	79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	80	Benzo(g,h,i)perylene	276	Compound Not Detected.					
	90	N-Nitrosodimethylamine	74	Compound Not Detected.					
	91	Aniline	93	Compound Not Detected.					
	93	Benzidine	184	Compound Not Detected.					
	103	Pyridine	79	Compound Not Detected.					
	105	1-methylnaphthalene	142	Compound Not Detected.					
	111	Azobenzene (1,2-DP-Hydrazine)	77	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
187	Total Benzofluoranthenes	252	24.514	24.429	(0.973)	60204	4.05290	12.16(M)
99	Perylene	252	25.242	25.110	(1.002)	5875	0.45951	1.379
98	Retene	219	19.111	19.071	(0.842)	384		
120	2,3,4,6-Tetrachlorophenol	232	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082117.D
Lab Smp Id: 19H0024-08
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	37766	15.35	
27 Naphthalene-d8	117487	58744	234974	142730	21.49	
42 Acenaphthene-d10	61859	30930	123718	70902	14.62	
59 Phenanthrene-d10	113574	56787	227148	133409	17.46	
69 Chrysene-d12	105788	52894	211576	64822	-38.72	
134 Di-n-octylphthala	252823	126412	505646	152210	-39.80	
77 Perylene-d12	113992	56996	227984	53977	-52.65	<-

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	-0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	-0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.52	0.05
59 Phenanthrene-d10	17.53	17.03	18.03	17.54	0.09
69 Chrysene-d12	22.63	22.13	23.13	22.70	0.27
134 Di-n-octylphthala	23.76	23.26	24.26	23.83	0.33
77 Perylene-d12	25.06	24.56	25.56	25.20	0.56

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082117.D

Lab ID: 19H0024-08
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 20:08

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.000	1.130	-0.1302	2-Methylnaphthalene
1.095	1.003	0.0925	Phenanthrene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate
1.130	1.091	0.0393	Dibenzo(a,h)anthracene
0.978	1.000	-0.0219	Acenaphthene-d10
0.969	1.000	-0.0314	Phenanthrene-d10
1.027	0.930	0.0973	Phenol-d5
1.076	0.906	0.1705	2-Fluorobiphenyl

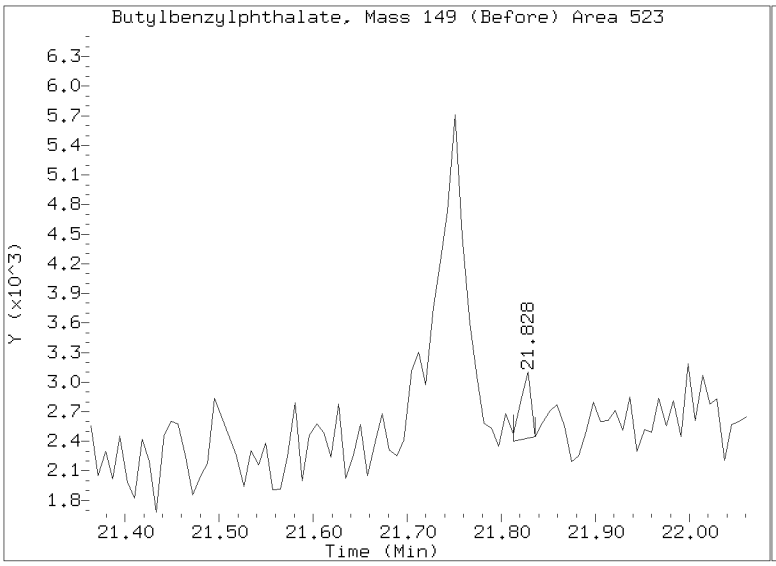
RRT check based on Ccal File: NT1019082105.D

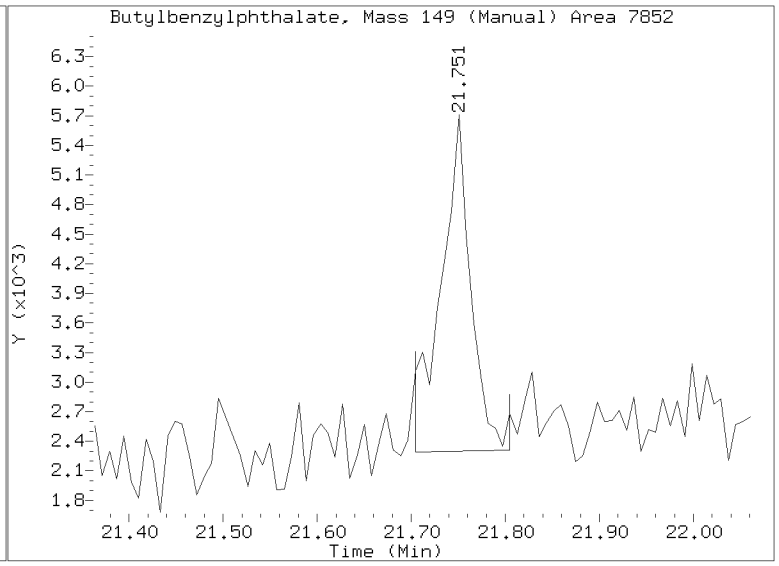
On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

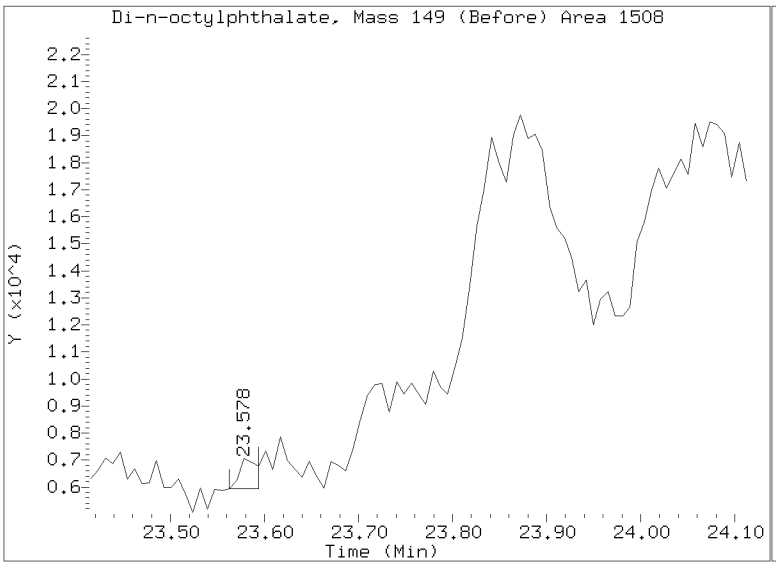
* Only compounds listed in the work order have been verified by the analyst *

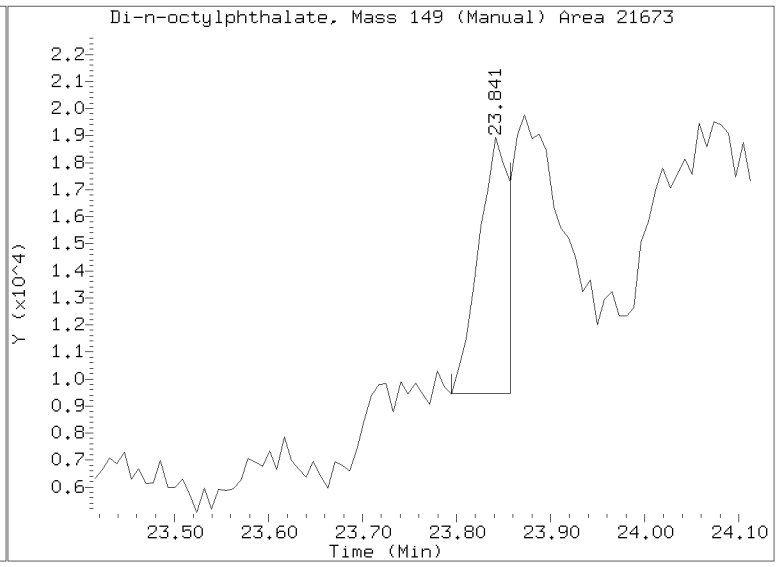
Quant Ion Manual Peak Adjustment Report

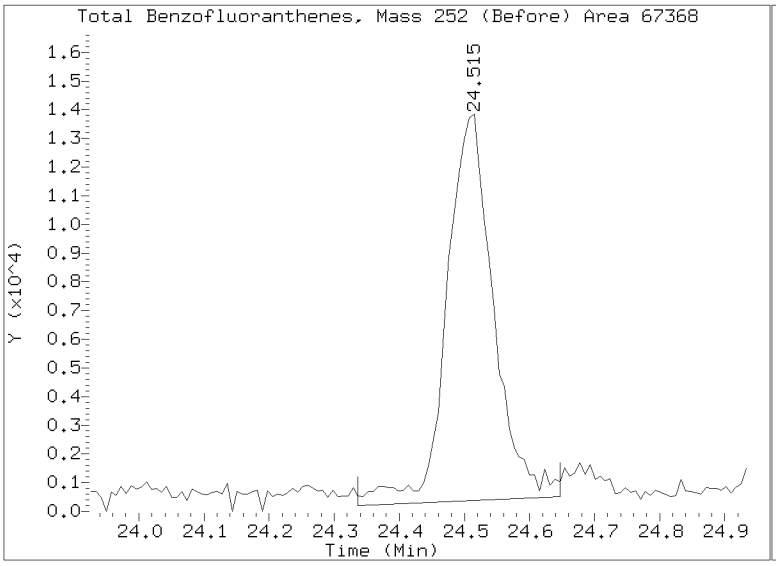
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082117.D
Injection Date: 21-AUG-2019 20:08
Lab ID:19H0024-08 Client ID:
Report Date: 08/22/2019 12:51

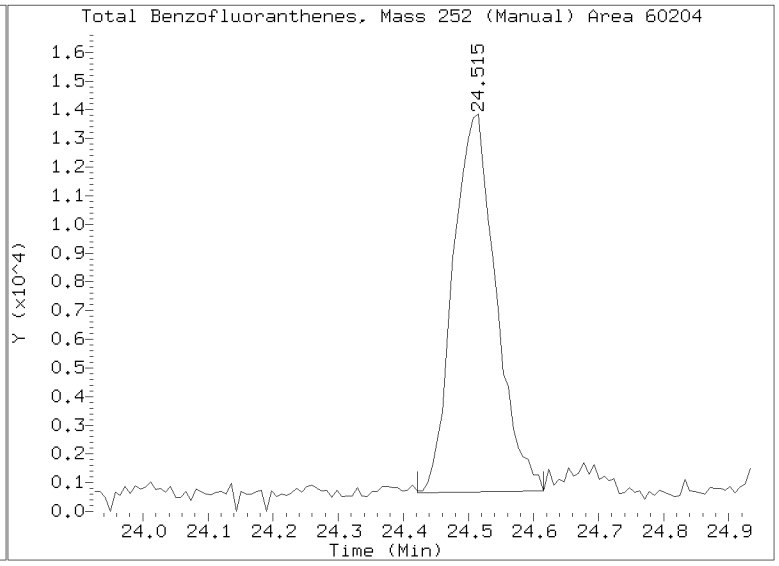






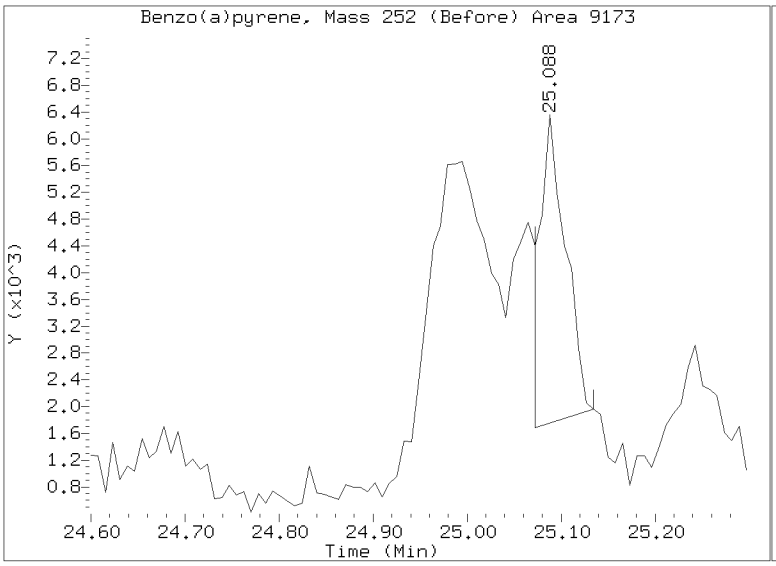


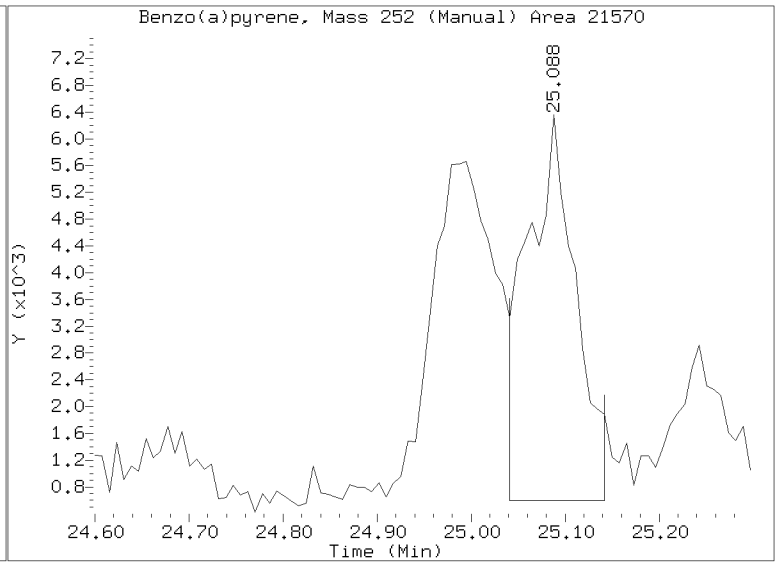


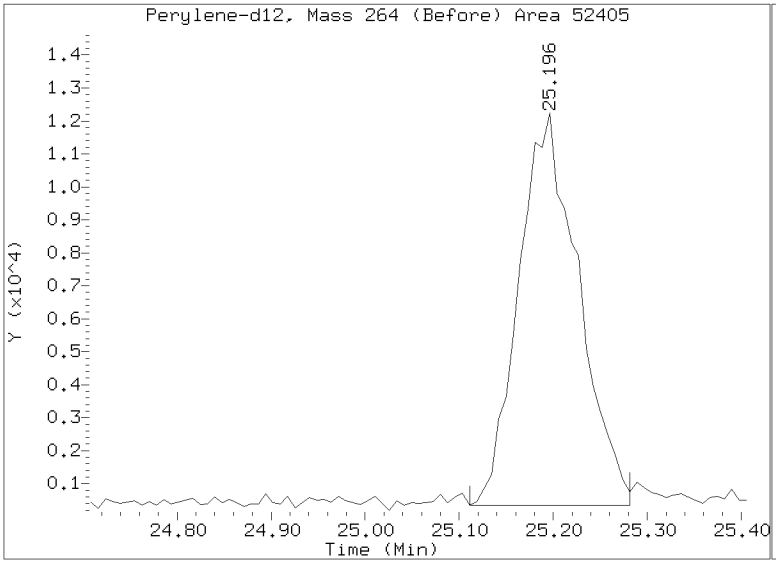


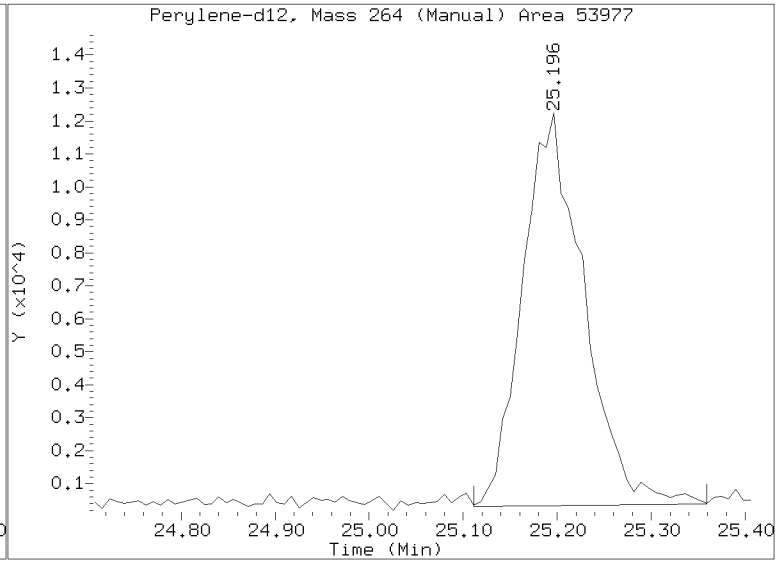
Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082117.D
Injection Date: 21-AUG-2019 20:08
Lab ID:19H0024-08 Client ID:
Report Date: 08/22/2019 12:51









SL4-SG-WC2-2019

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D
Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory: Analytical Resources, Inc.

Client: Windward Environmental, LLC

Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix:	Solid	Laboratory ID:	19H0024-08RE1 B	SDG:	19H0024
Sampled:	08/01/19 10:30	Prepared:	08/13/19 12:40	File ID:	NT1019082214.D
% Solids:	44.53	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/22/19 21:50
Batch:	BHH0289	Sequence:	SHH0325	Initial/Final:	22.56 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040

Cleanups: GPC

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	9	179	U	73.7	179
100-51-6	Benzyl Alcohol	9	179	U	133	179
65-85-0	Benzoic acid	9	1790	U	529	1790
86-30-6	N-Nitrosodiphenylamine	9	179	U	85.7	179
85-01-8	Phenanthrene	9	248	D	42.0	179
206-44-0	Fluoranthene	9	1150	D	40.5	179
129-00-0	Pyrene	9	970	D	49.7	179
85-68-7	Butylbenzylphthalate	9	233	D	72.1	179
56-55-3	Benzo(a)anthracene	9	338	D	46.4	179
218-01-9	Chrysene	9	556	D	46.8	179
117-81-7	bis(2-Ethylhexyl)phthalate	9	2570	D	258	448
117-84-0	Di-n-Octylphthalate	9	214	D	78.1	179
	Benzofluoranthenes, Total	9	1020	D	91.4	358
50-32-8	Benzo(a)pyrene	9	366	D	58.1	179
193-39-5	Indeno(1,2,3-cd)pyrene	9	244	D	53.7	179
53-70-3	Dibenzo(a,h)anthracene	9	179	U	55.2	179
191-24-2	Benzo(g,h,i)perylene	9	367	D	52.1	179

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	746.57	295	39.5	27 - 120	
Phenol-d5	746.57	307	41.1	29 - 120	Q
2-Chlorophenol-d4	746.57	394	52.8	31 - 120	
1,2-Dichlorobenzene-d4	497.71	247	49.6	32 - 120	
Nitrobenzene-d5	497.71	268	53.9	30 - 120	
2-Fluorobiphenyl	497.71	325	65.4	35 - 120	
2,4,6-Tribromophenol	746.57	411	55.1	24 - 134	
p-Terphenyl-d14	497.71	484	97.2	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082214.D

Date : 22-AUG-2019 21:50

Client ID:

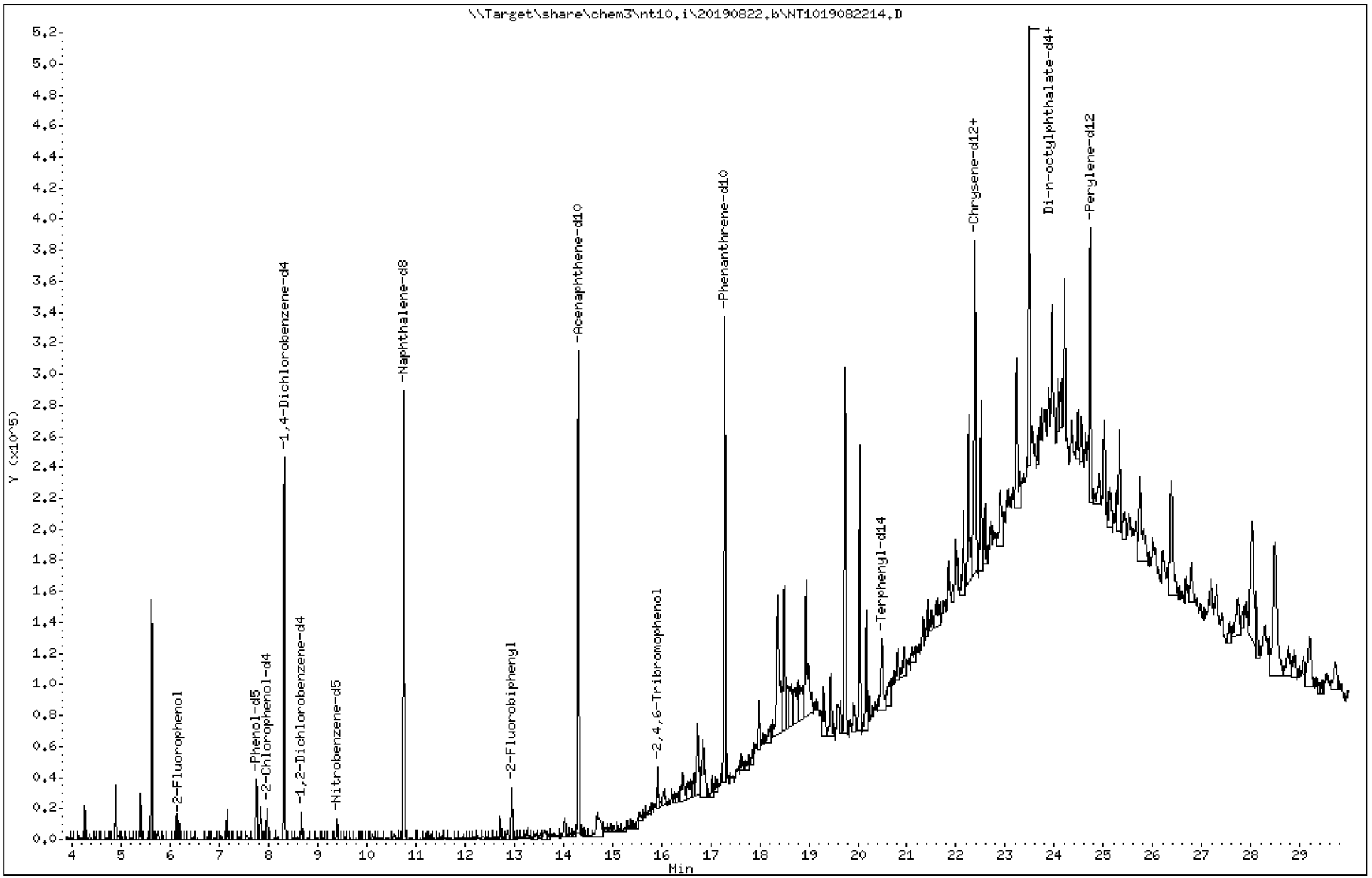
Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 22-AUG-2019 21:50

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

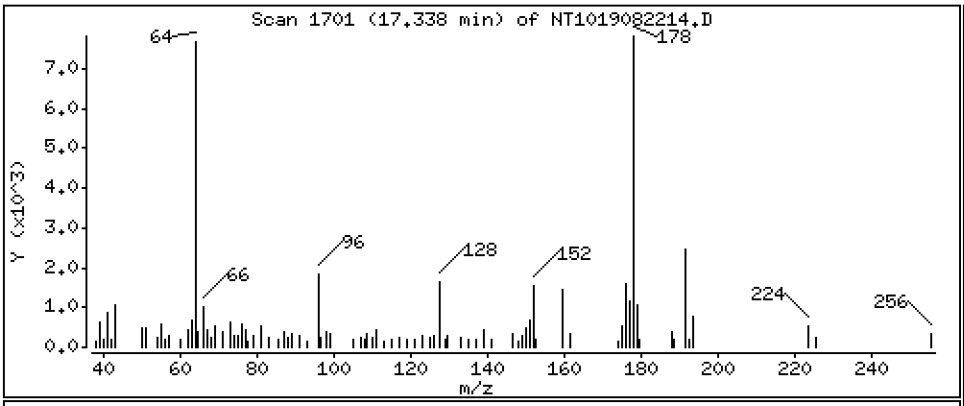
Operator: YZ

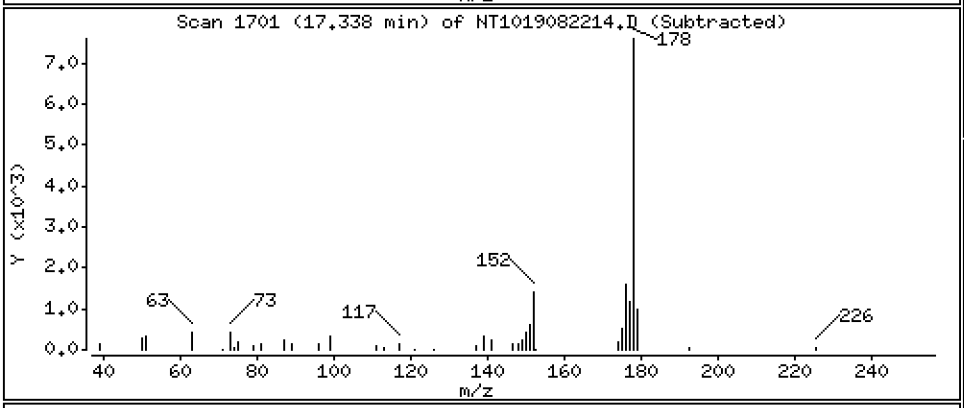
Column phase: ZB-5msi

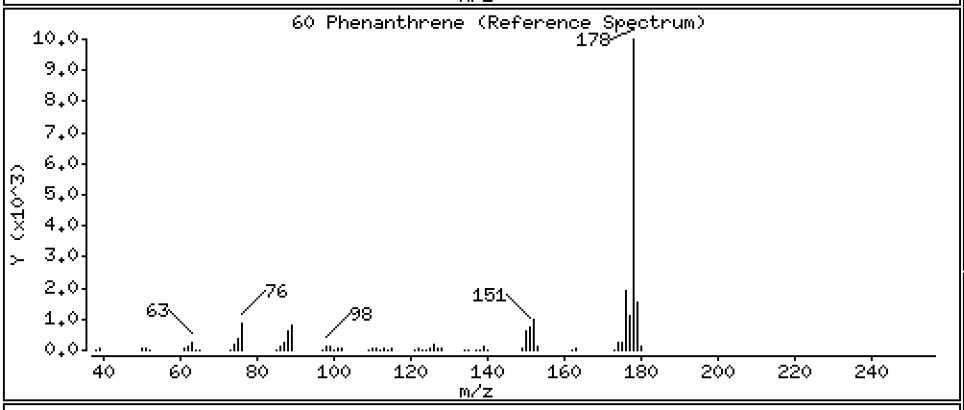
Column diameter: 0.25

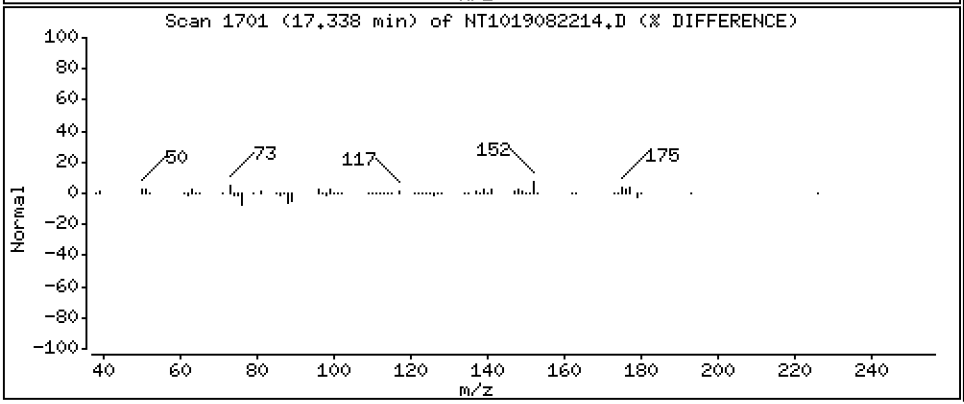
60 Phenanthrene

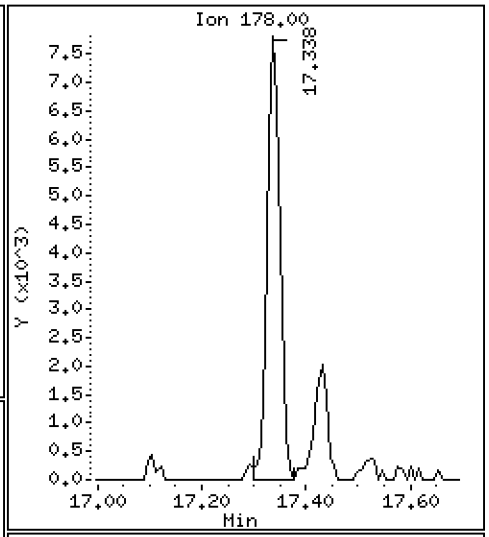
Concentration: 2.489 ug/mL

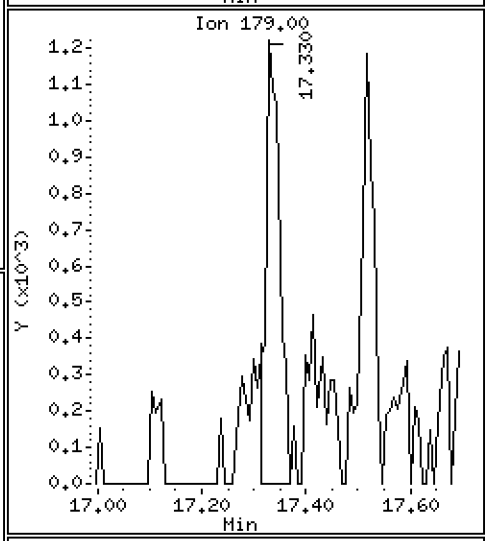


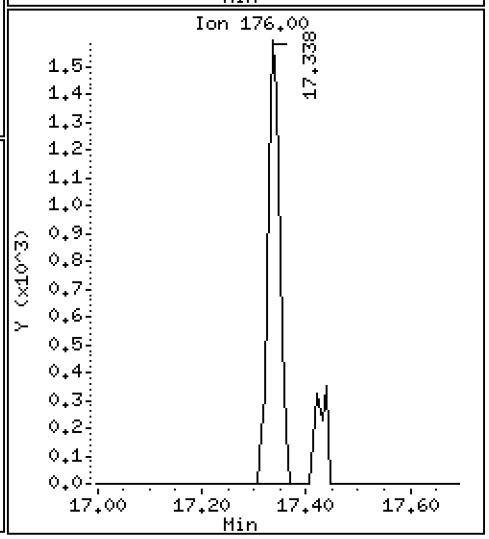












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Date : 22-AUG-2019 21:50

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

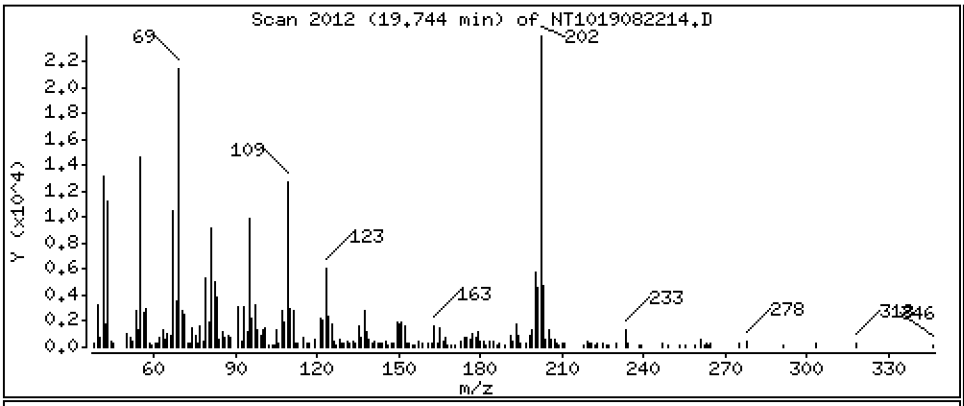
Operator: YZ

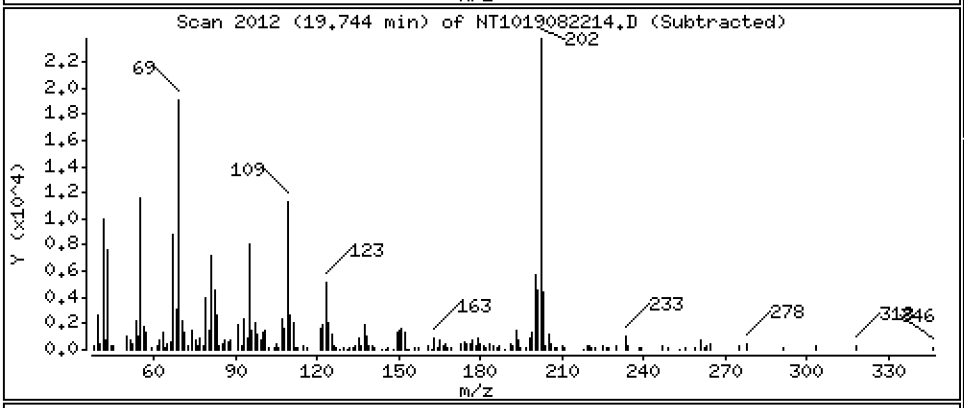
Column phase: ZB-5msi

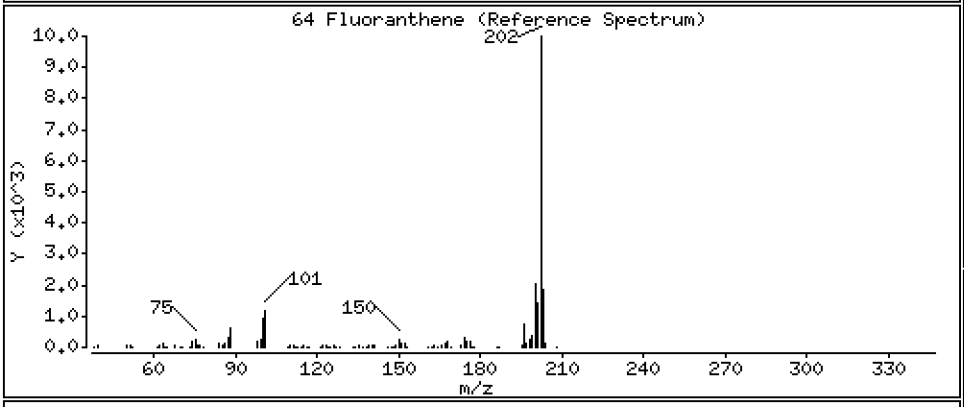
Column diameter: 0.25

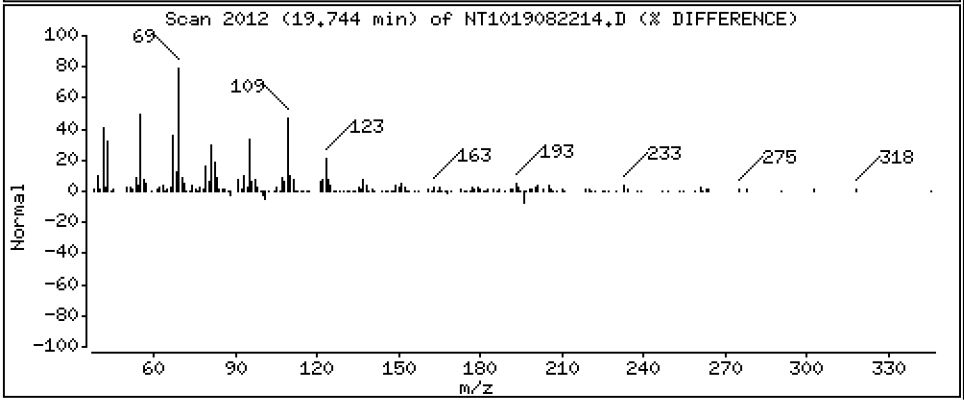
64 Fluoranthene

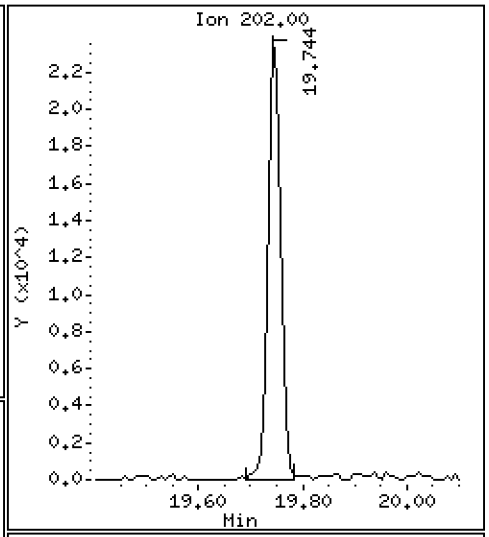
Concentration: 11.52 ug/mL

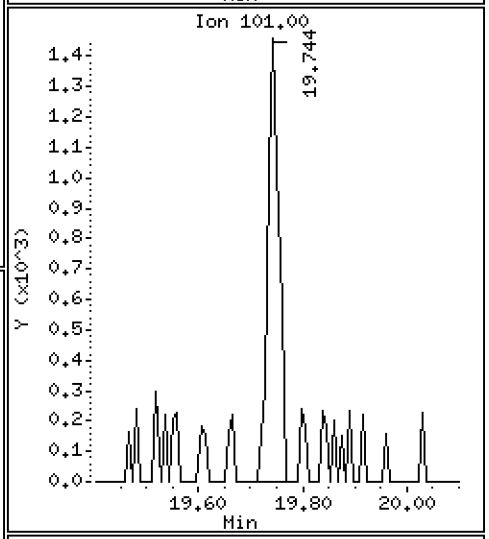


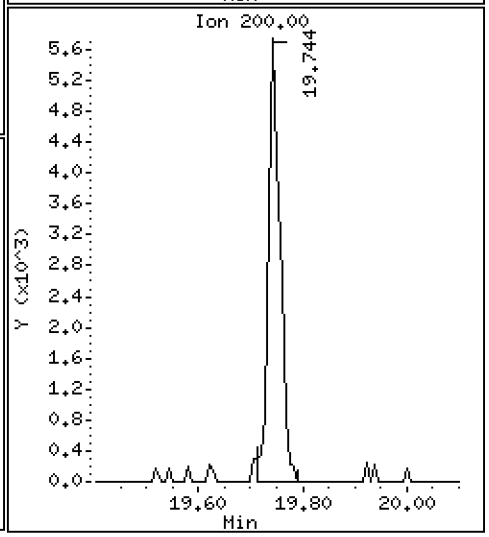












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082214.D

Date : 22-AUG-2019 21:50

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

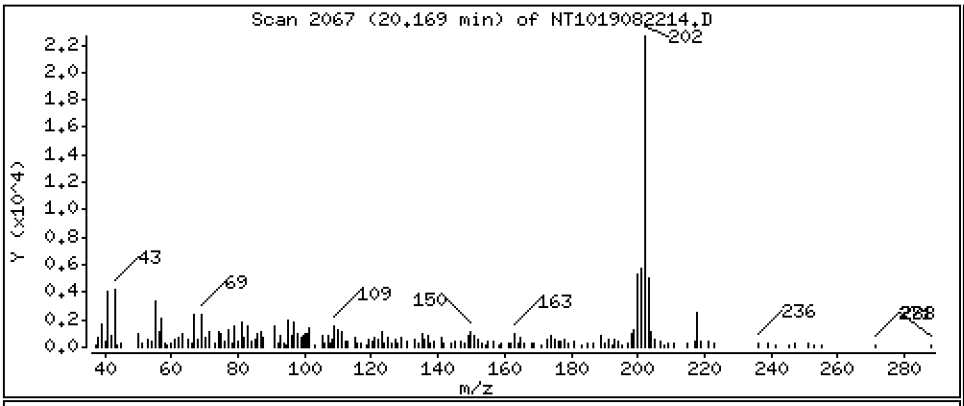
Operator: YZ

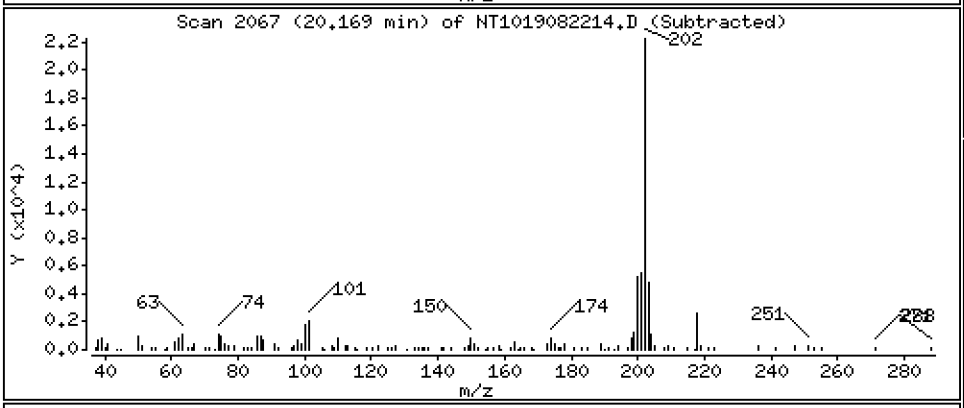
Column phase: ZB-5msi

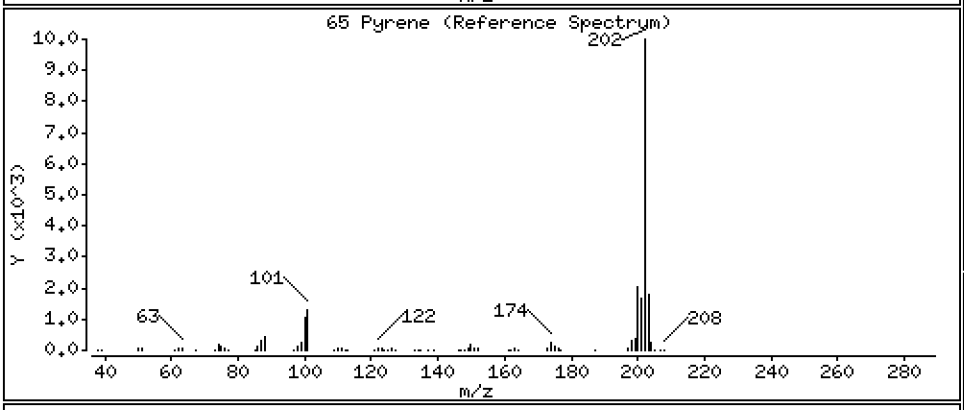
Column diameter: 0.25

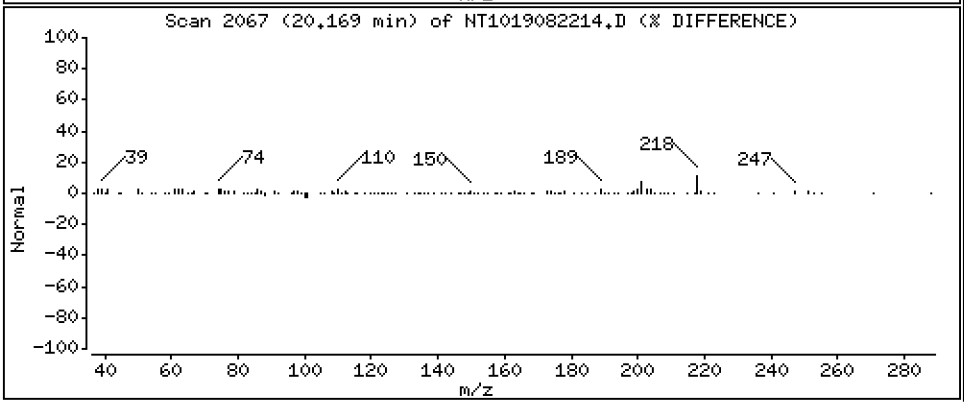
65 Pyrene

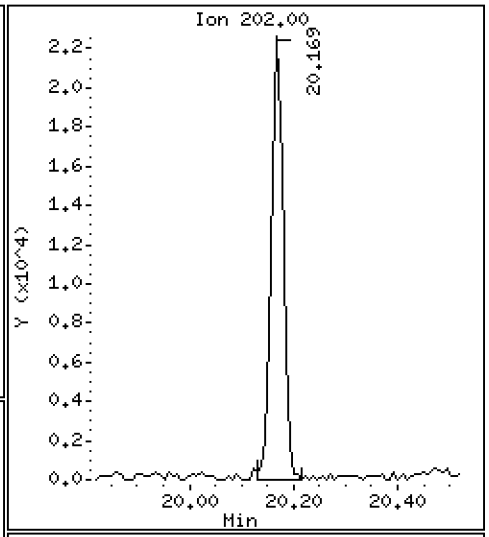
Concentration: 9.741 ug/mL

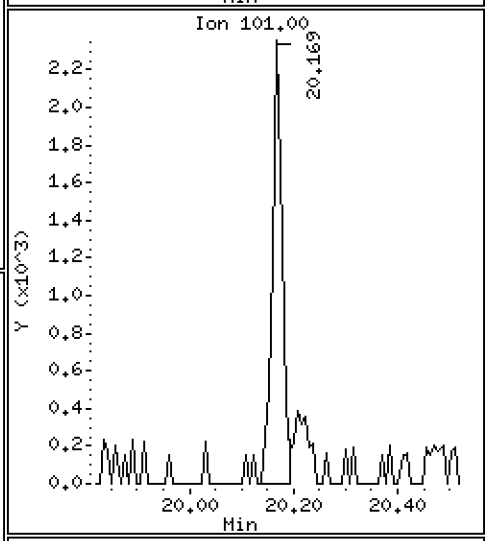


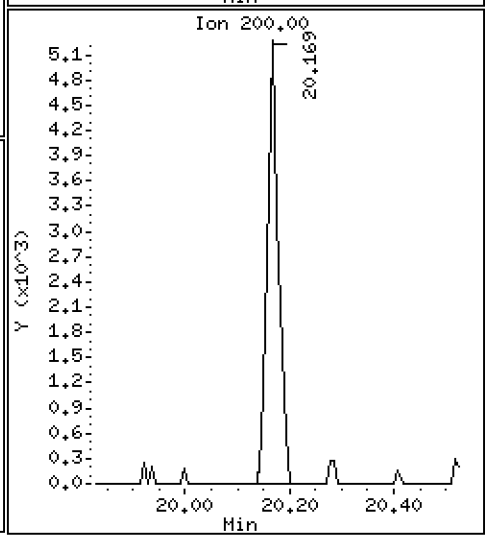












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082214.D

Date : 22-AUG-2019 21:50

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

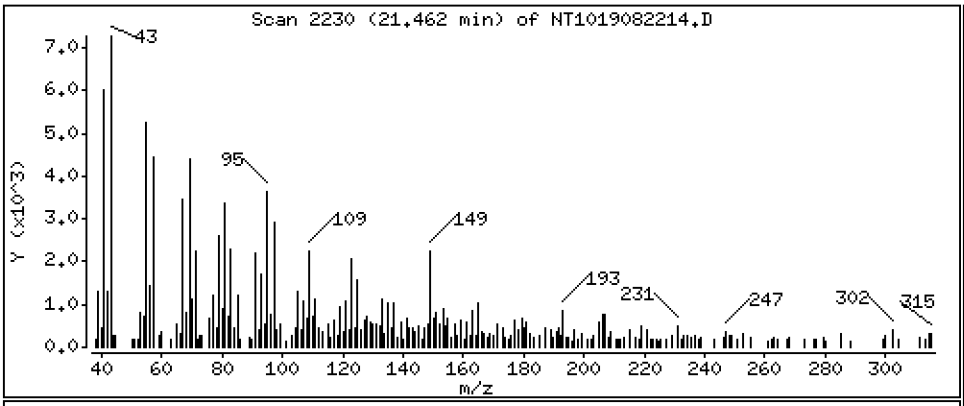
Operator: YZ

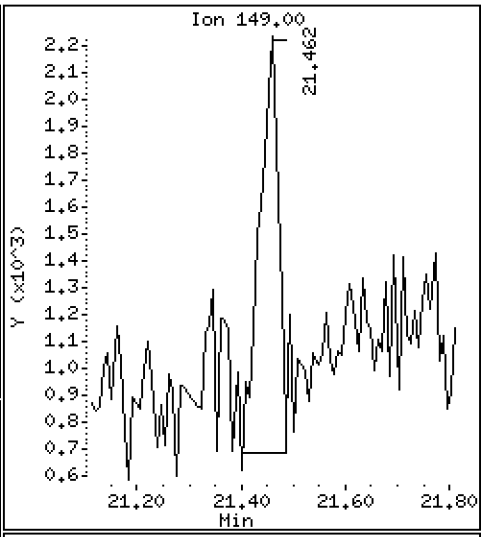
Column phase: ZB-5msi

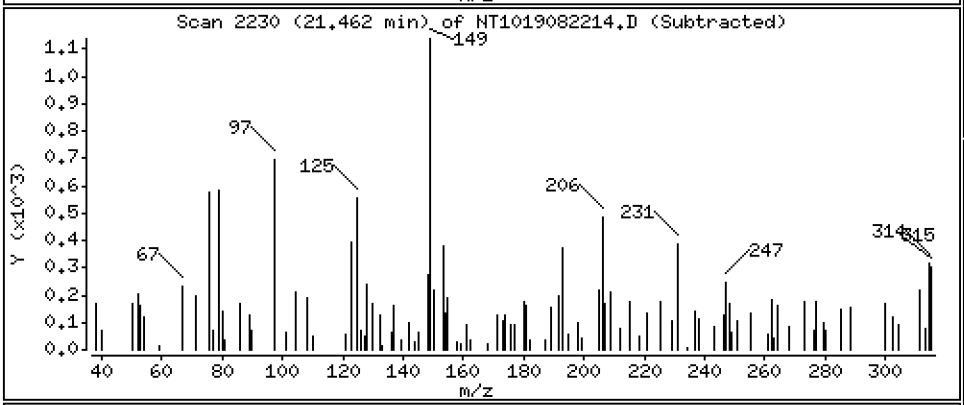
Column diameter: 0.25

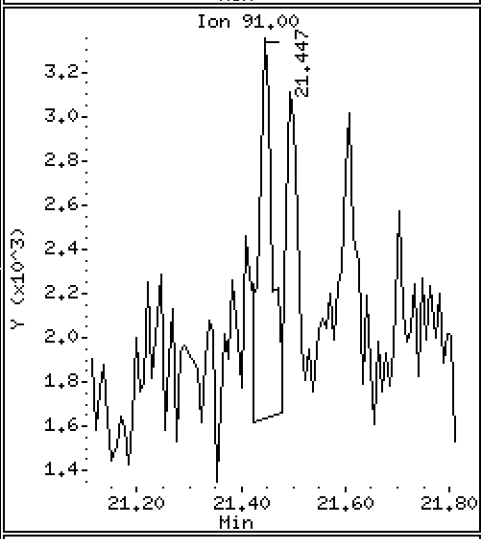
67 Butylbenzylphthalate

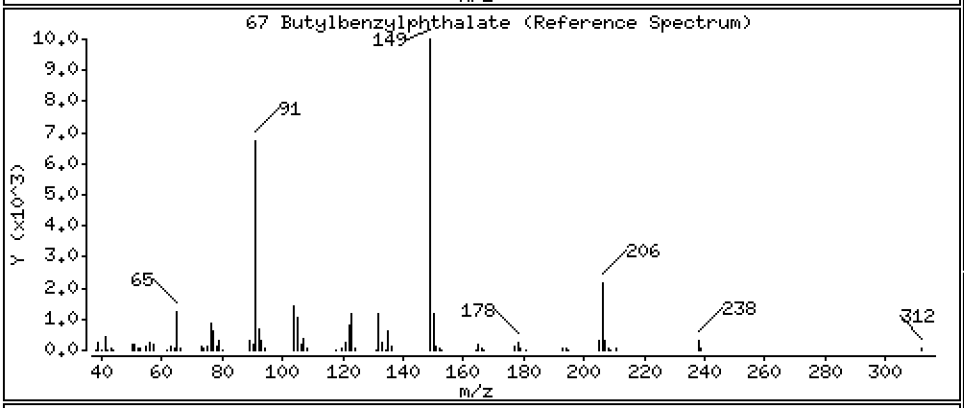
Concentration: 2.343 ug/mL

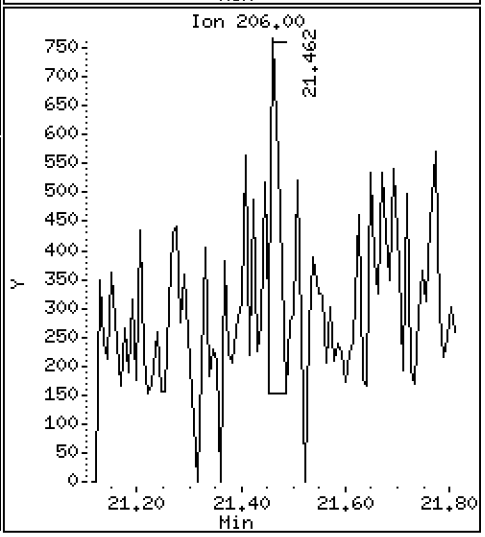


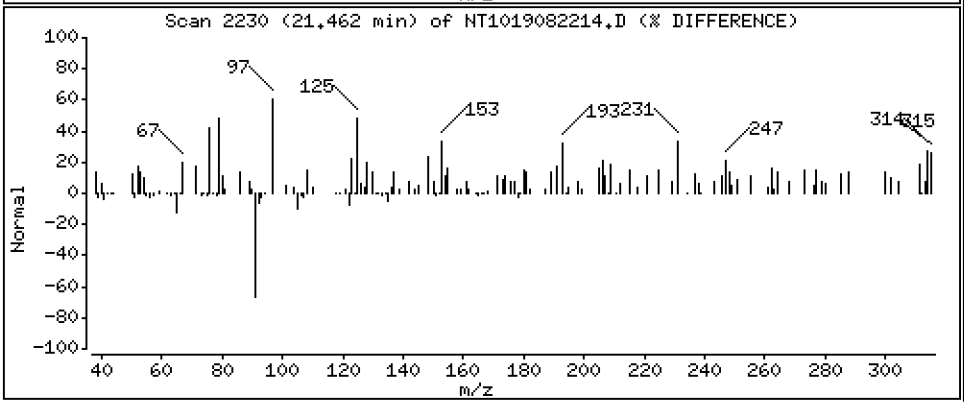












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082214.D

Date : 22-AUG-2019 21:50

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

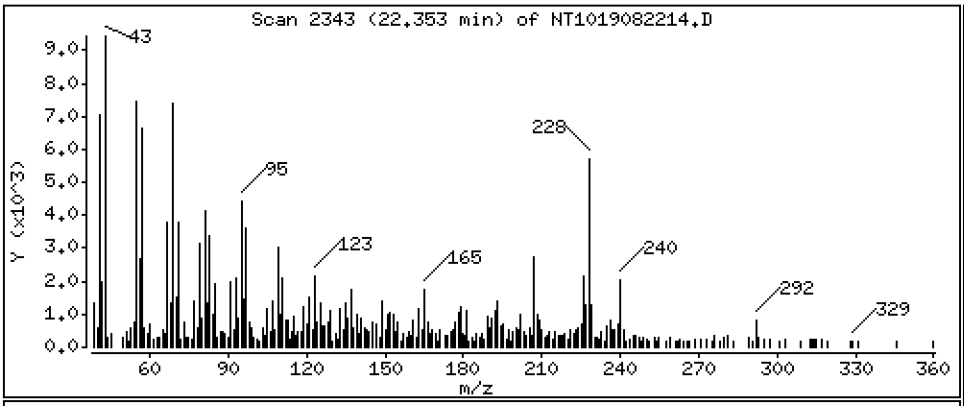
Operator: YZ

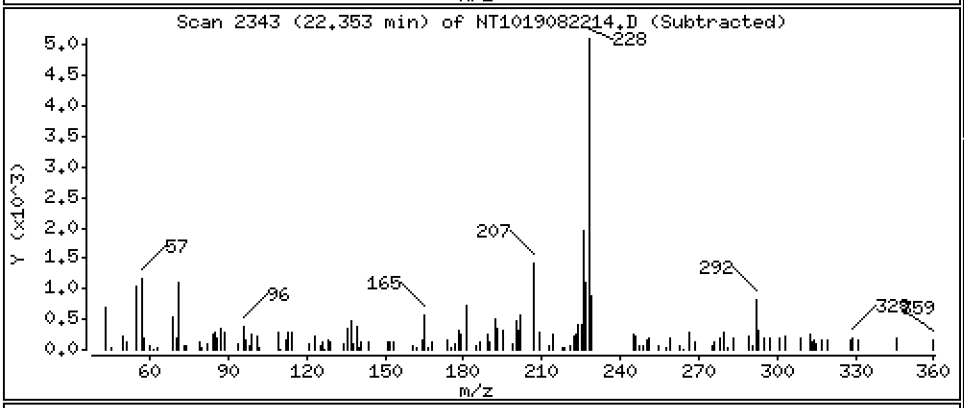
Column phase: ZB-5msi

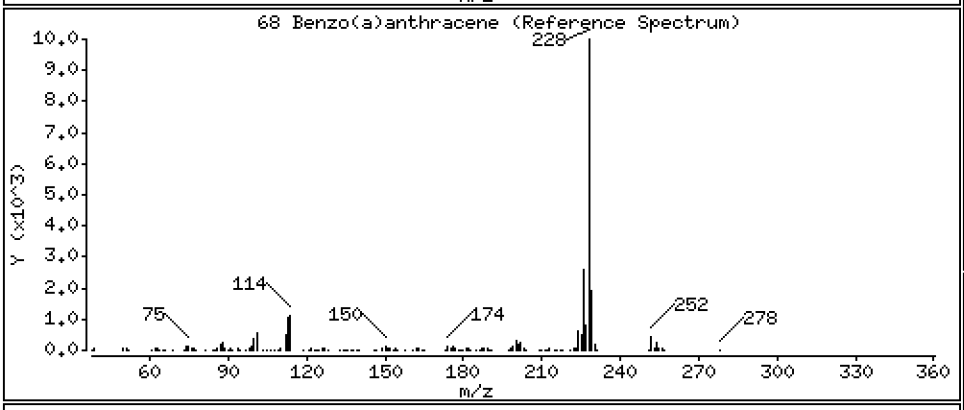
Column diameter: 0.25

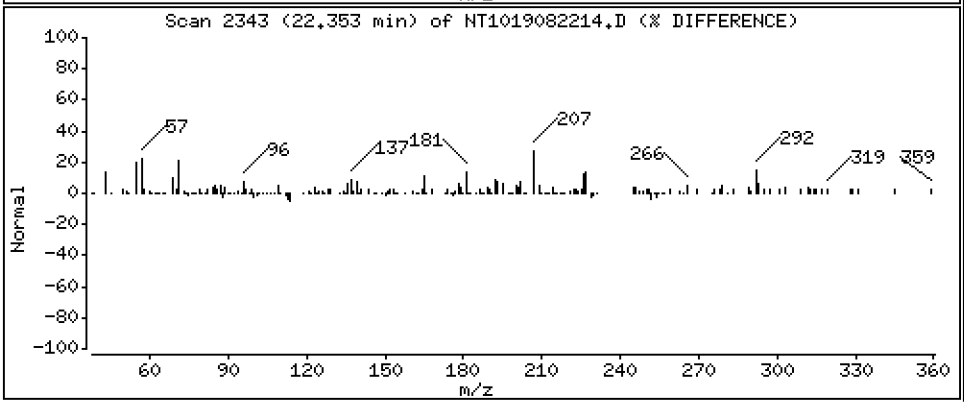
68 Benzo(a)anthracene

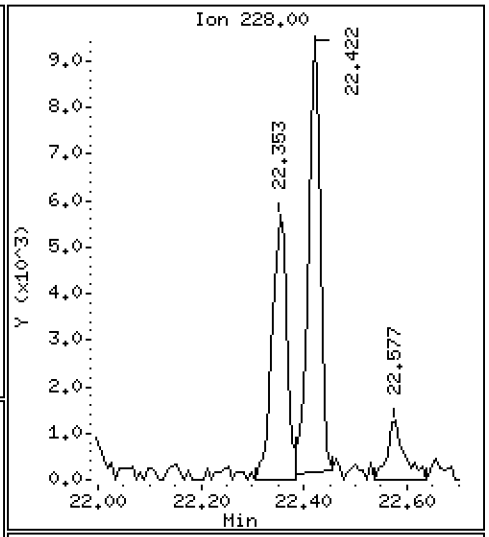
Concentration: 3.394 ug/mL

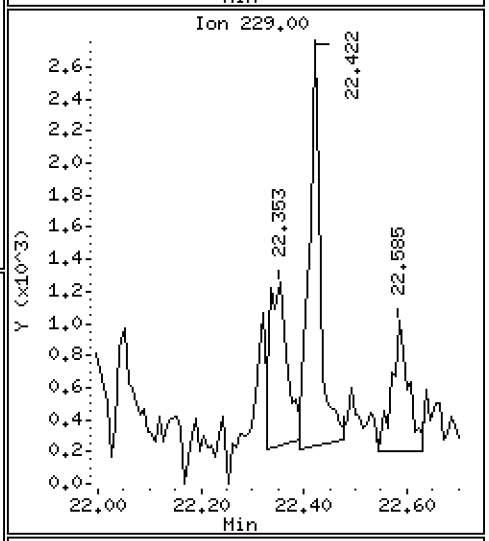


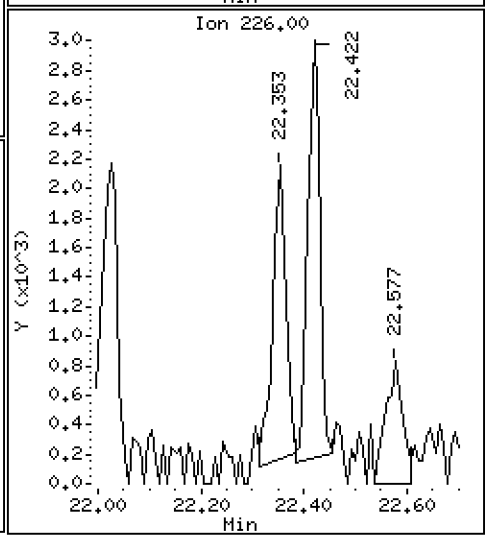












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Date : 22-AUG-2019 21:50

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

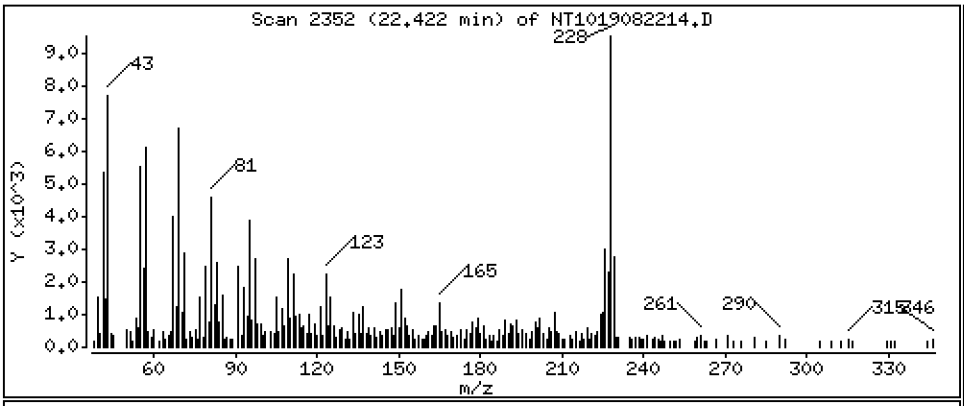
Operator: YZ

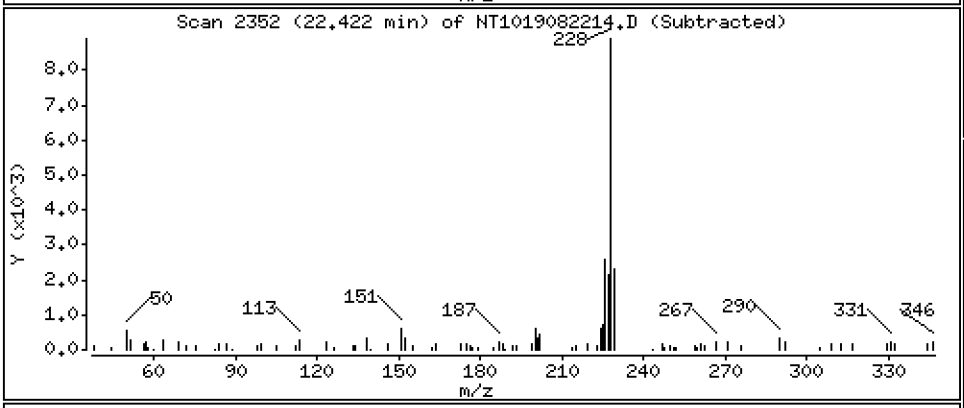
Column phase: ZB-5msi

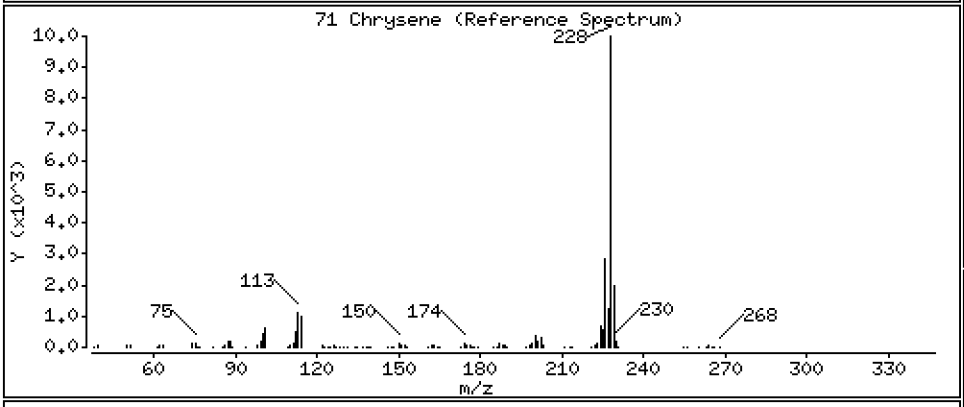
Column diameter: 0.25

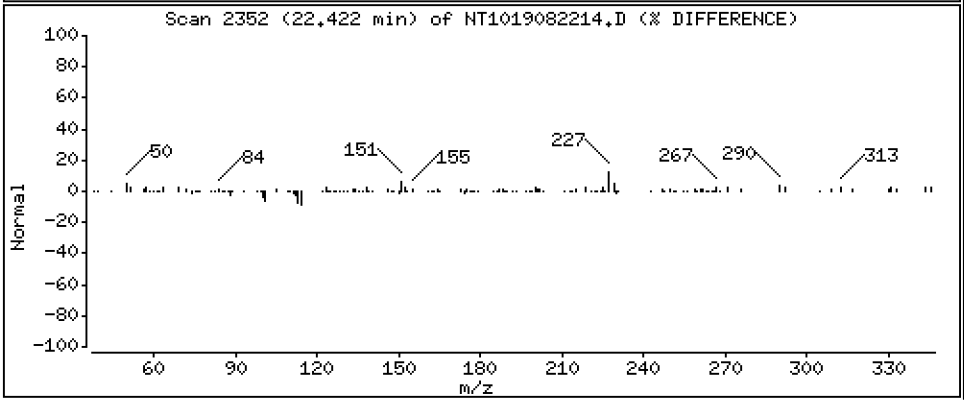
71 Chrysene

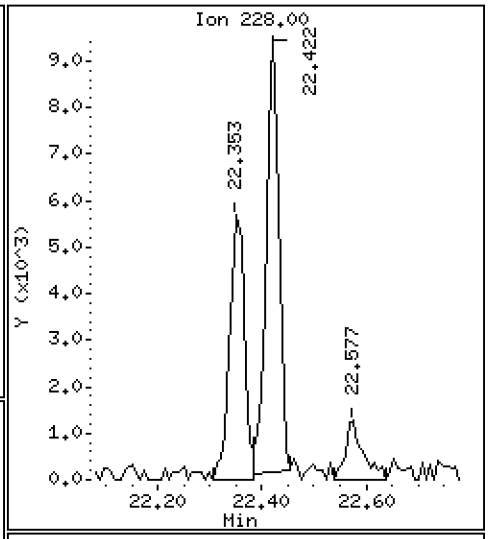
Concentration: 5.582 ug/mL

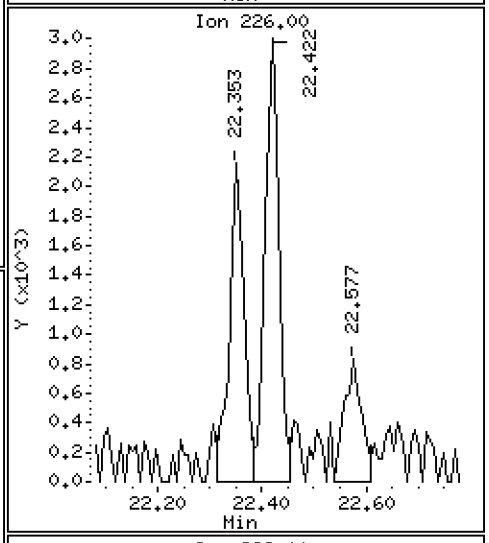


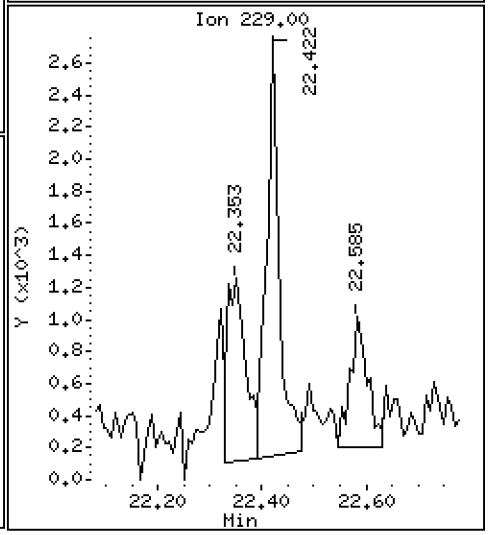












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082214.D

Date : 22-AUG-2019 21:50

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

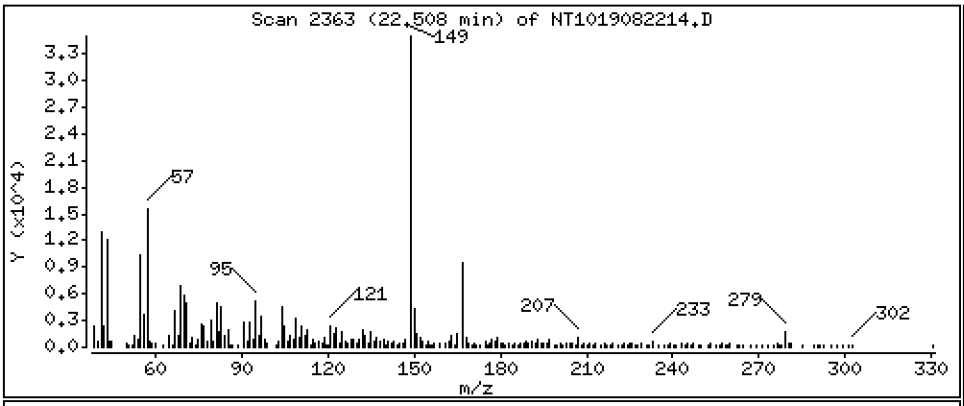
Operator: YZ

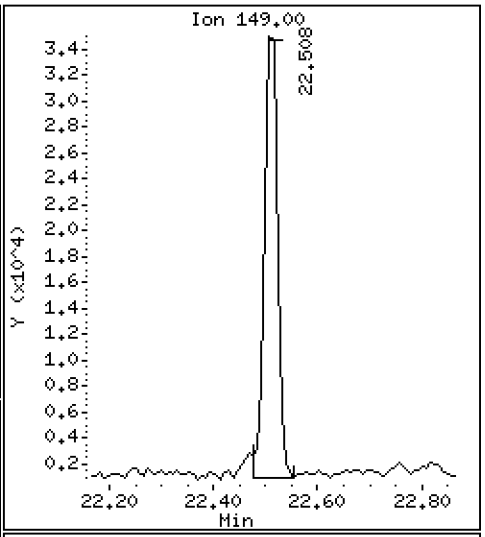
Column phase: ZB-5msi

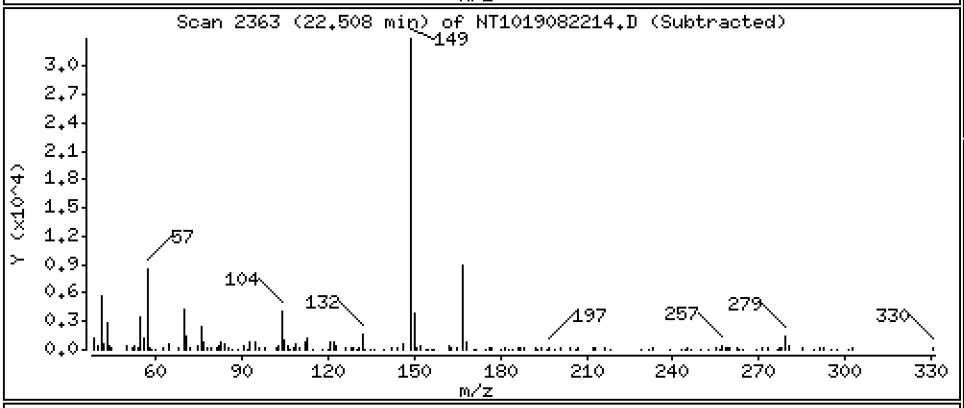
Column diameter: 0.25

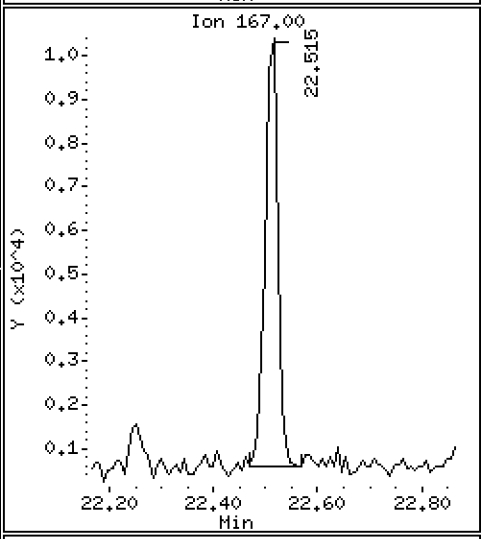
72 bis(2-Ethylhexyl)phthalate

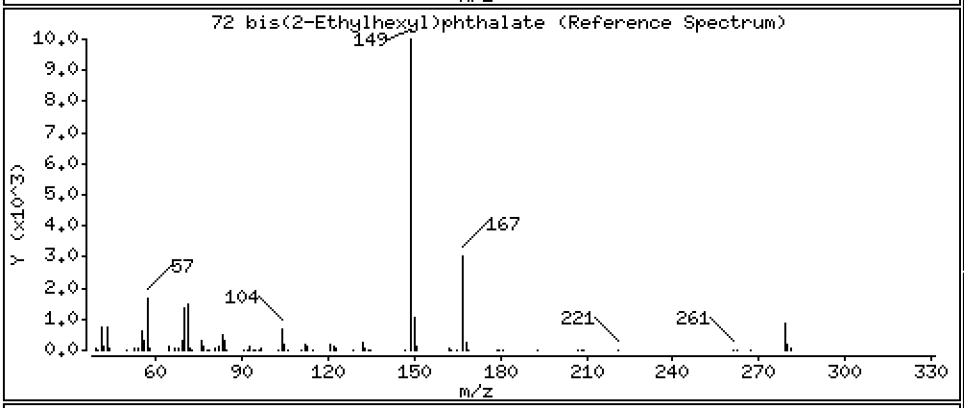
Concentration: 25.86 ug/mL

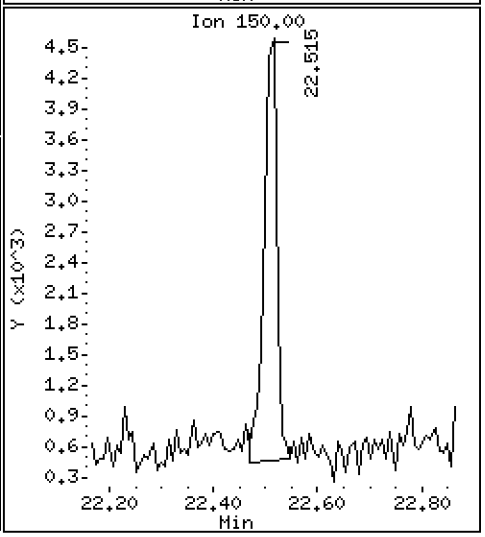


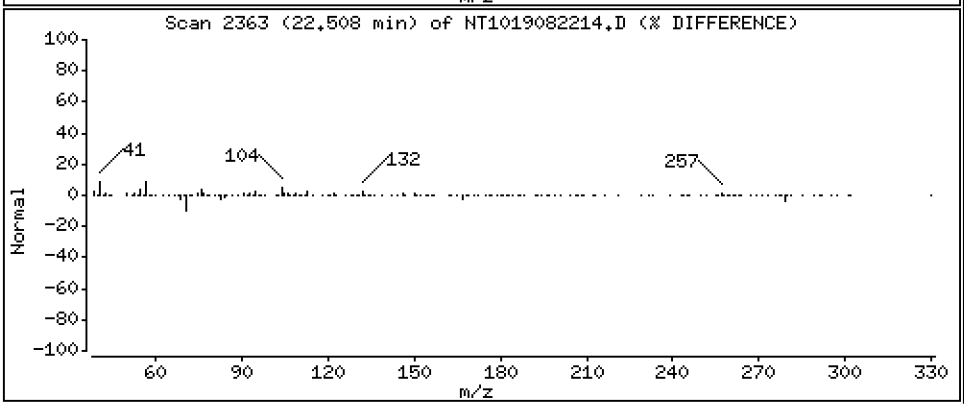












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Date : 22-AUG-2019 21:50

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

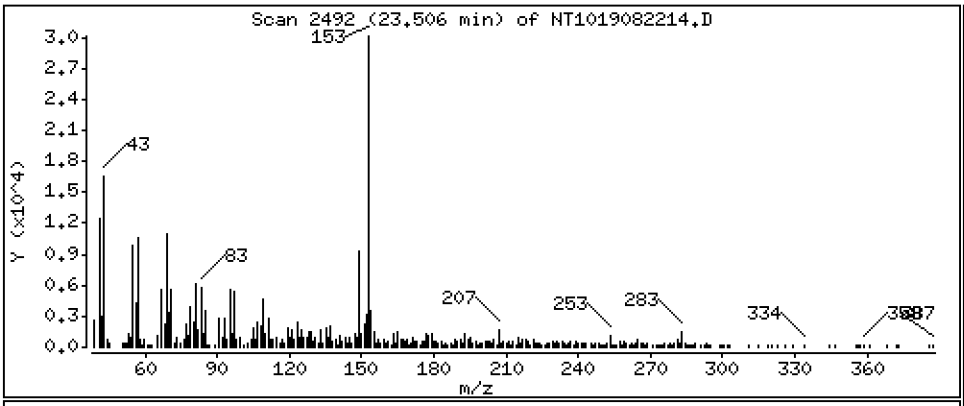
Operator: YZ

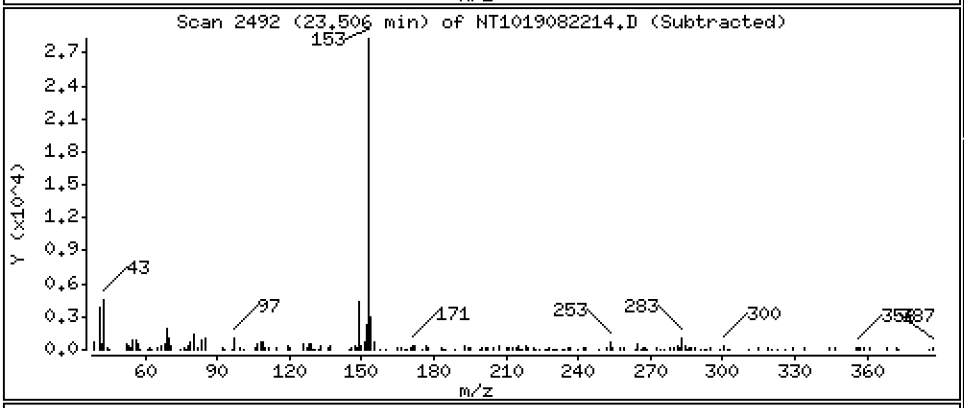
Column phase: ZB-5msi

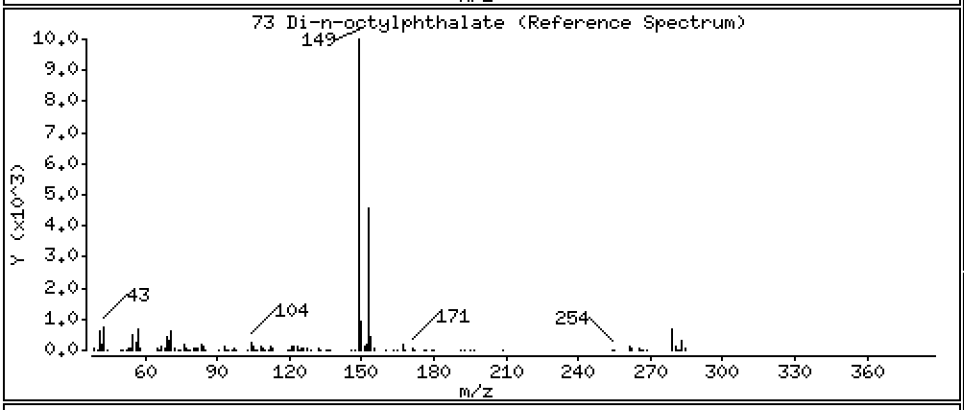
Column diameter: 0.25

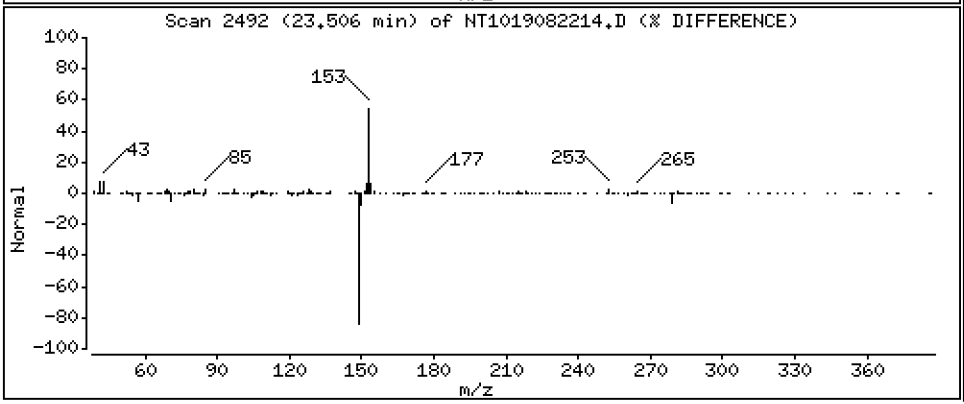
73 Di-n-octylphthalate

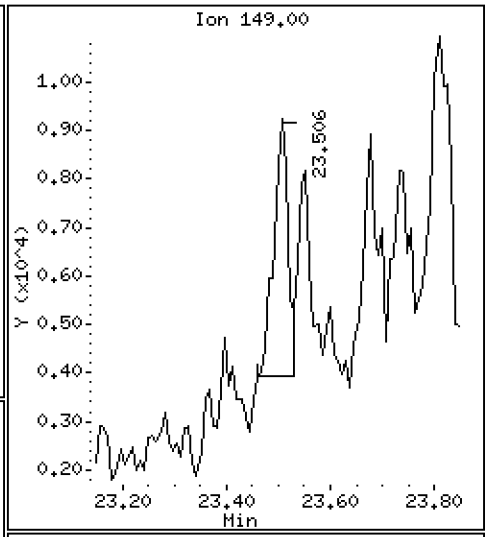
Concentration: 2.152 ug/mL

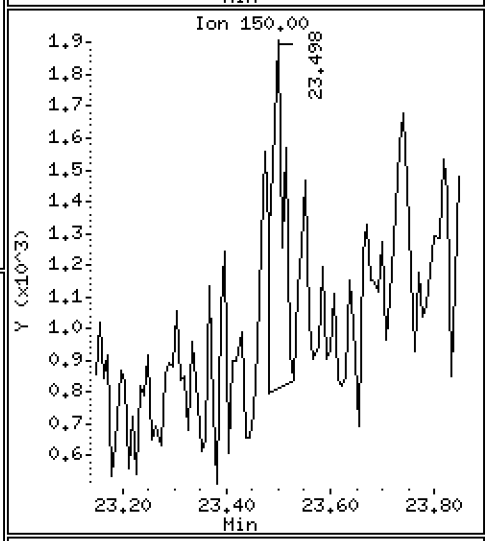


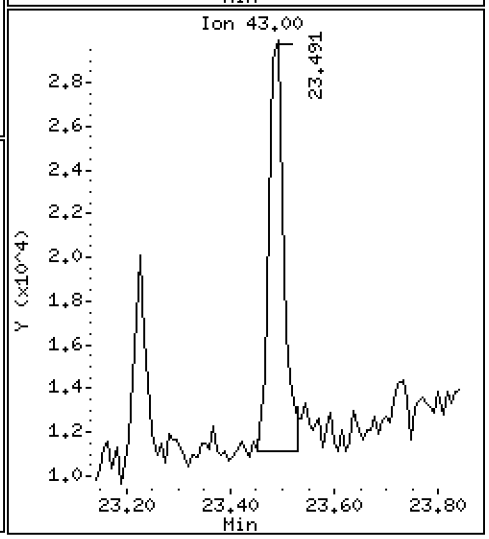












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Date : 22-AUG-2019 21:50

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

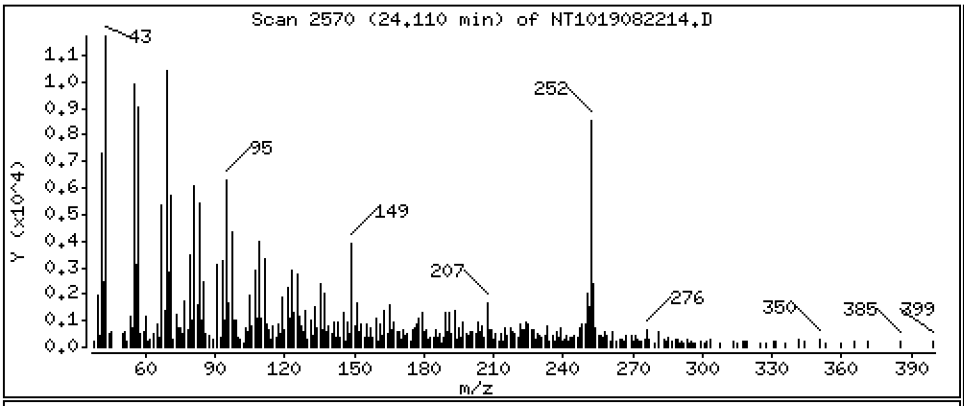
Operator: YZ

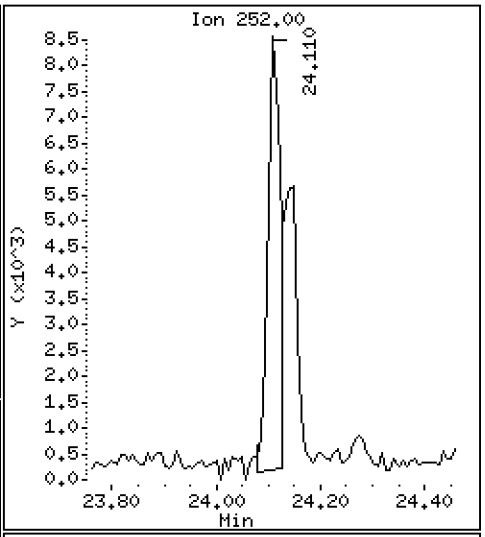
Column phase: ZB-5msi

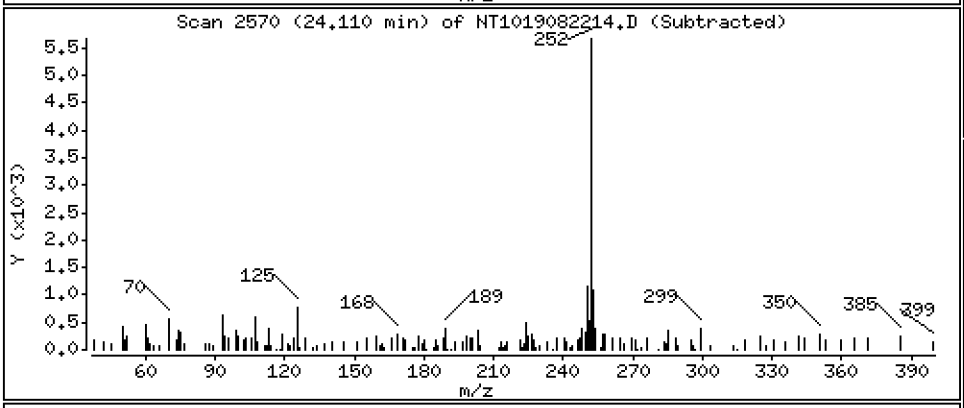
Column diameter: 0.25

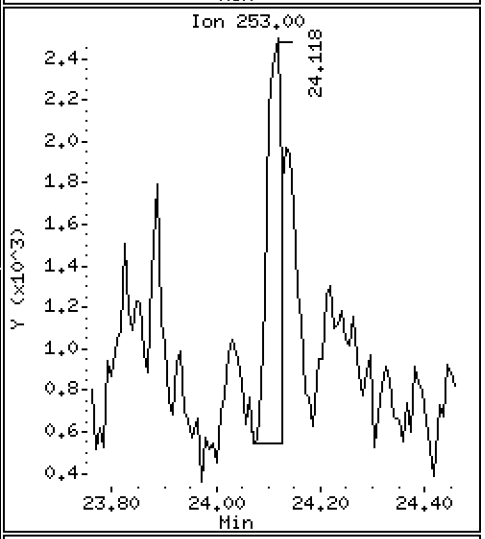
74 Benzo(b)fluoranthene

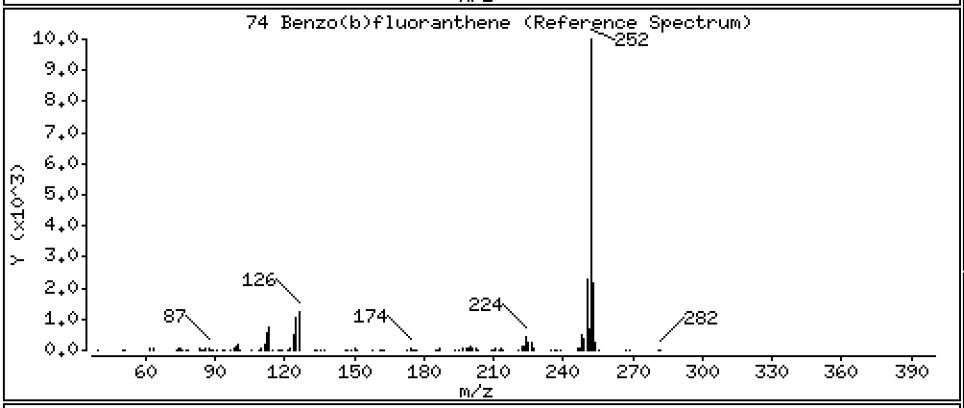
Concentration: 5.333 ug/mL

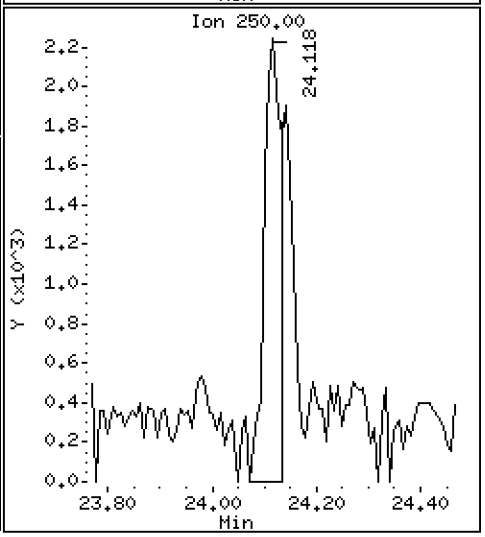


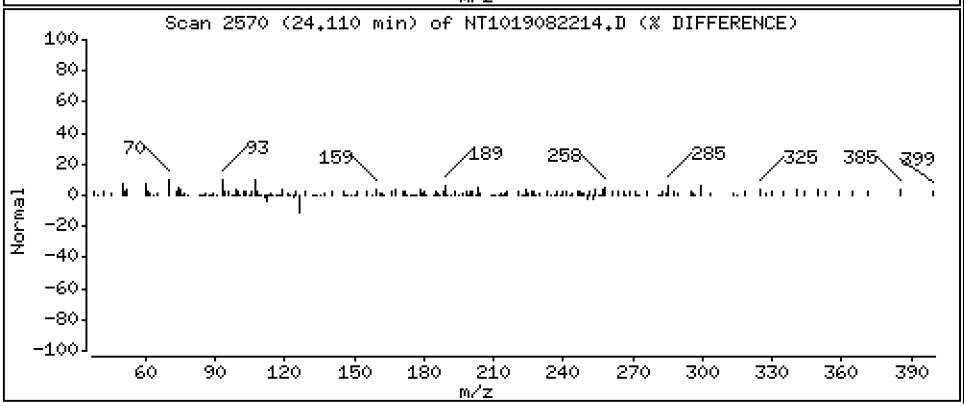












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082214.D

Date : 22-AUG-2019 21:50

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

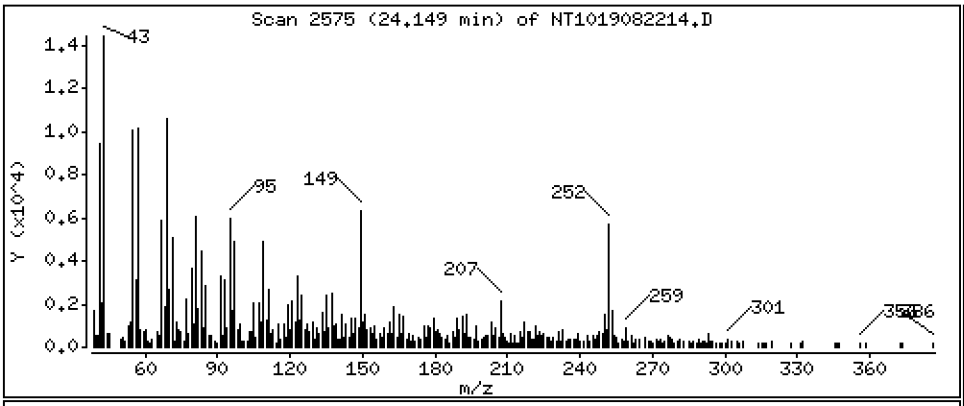
Operator: YZ

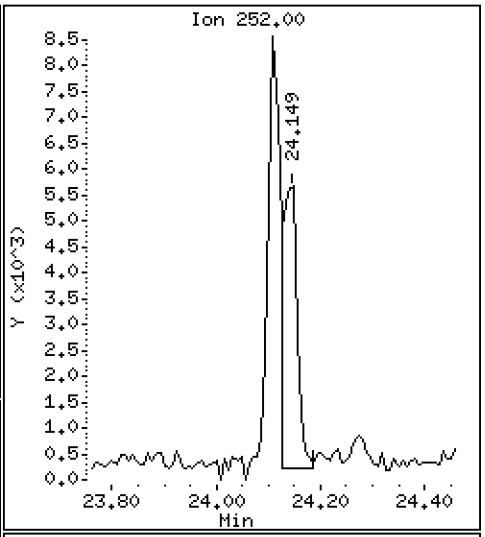
Column phase: ZB-5msi

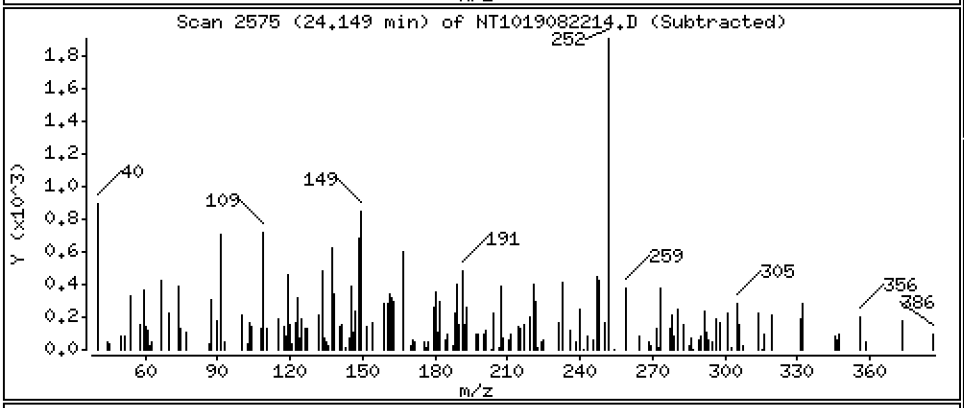
Column diameter: 0.25

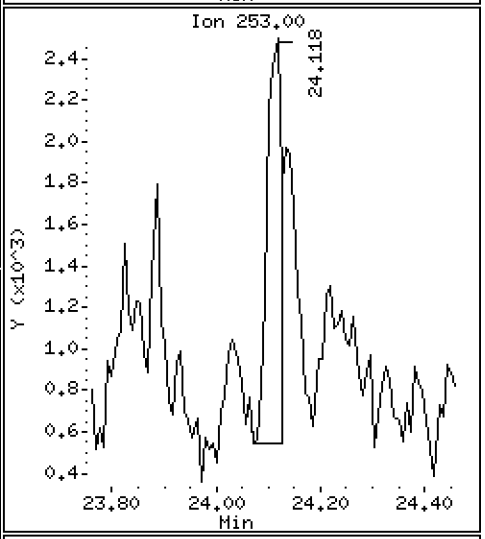
75 Benzo(k)fluoranthene

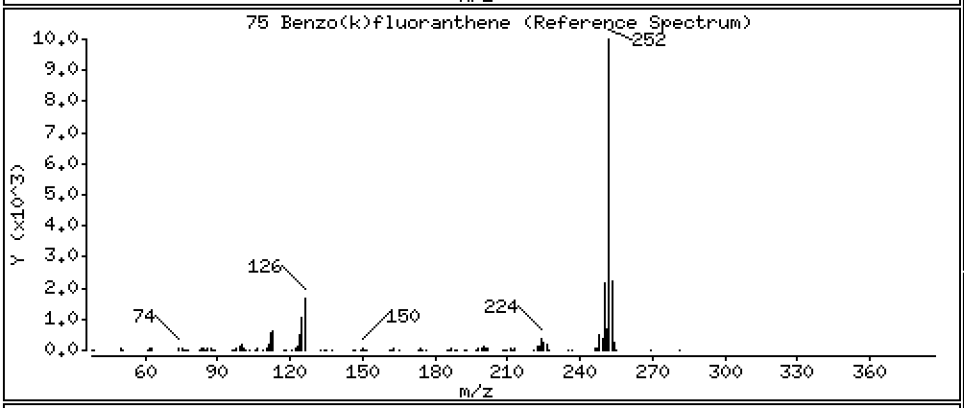
Concentration: 4.724 ug/mL

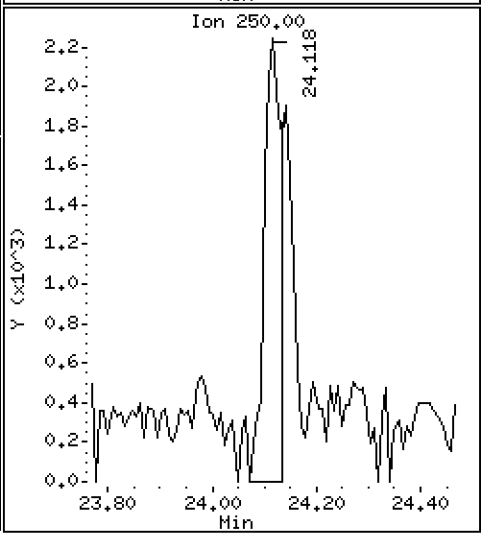


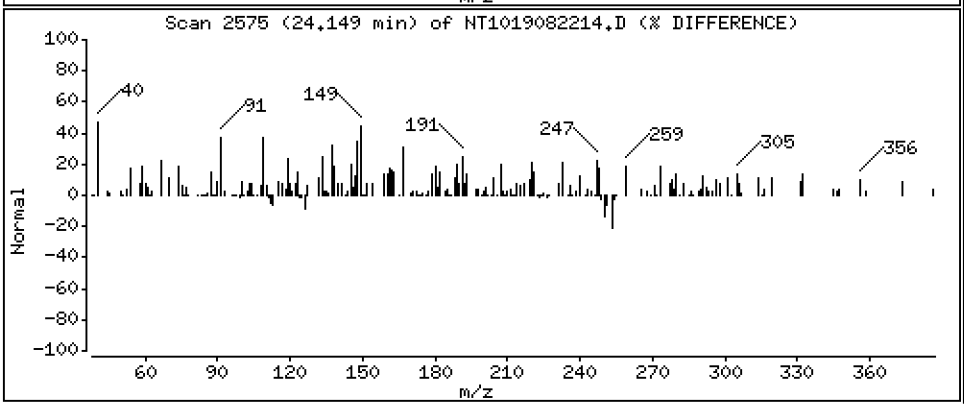












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082214.D

Date : 22-AUG-2019 21:50

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

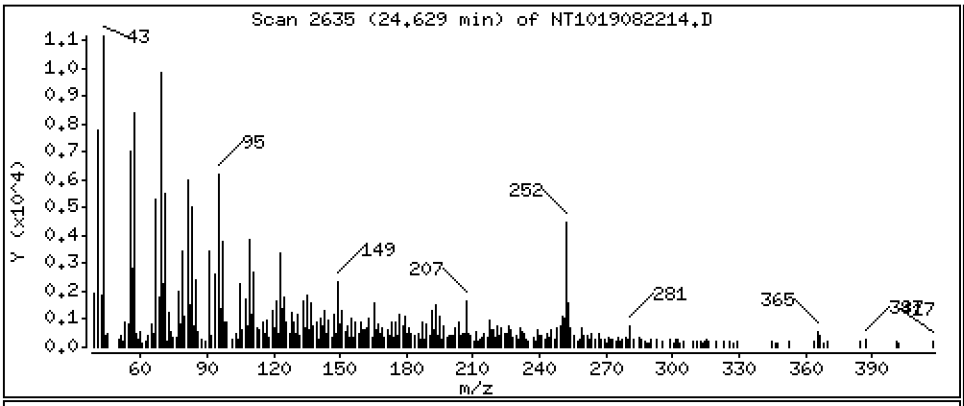
Operator: YZ

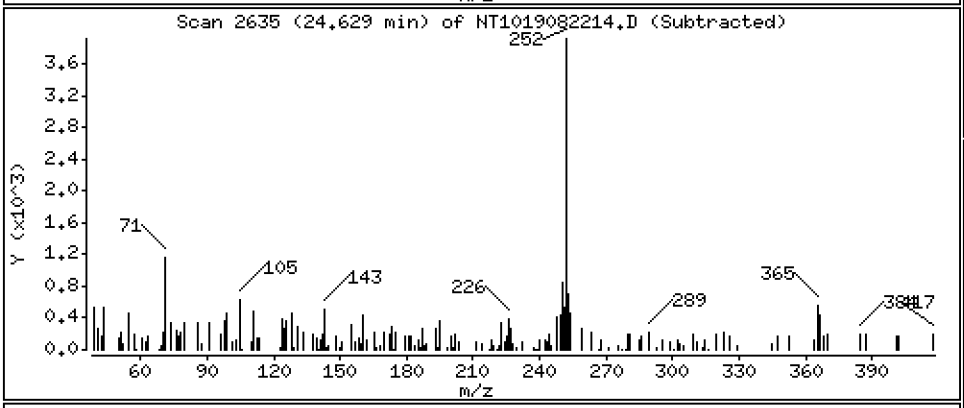
Column phase: ZB-5msi

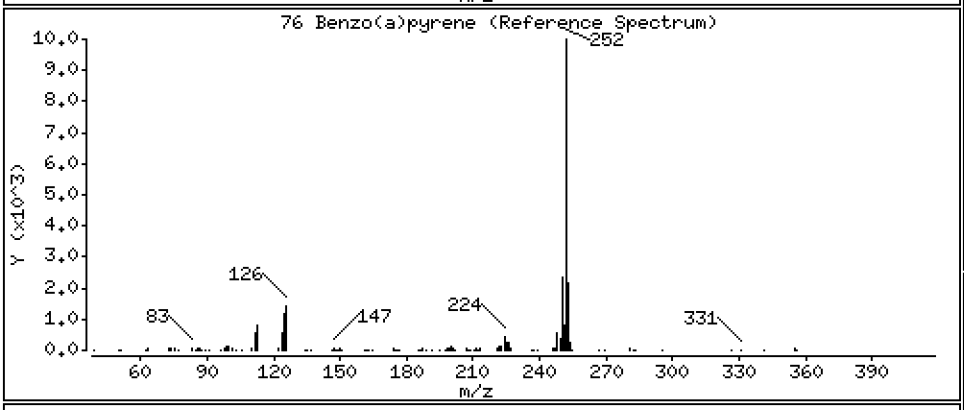
Column diameter: 0.25

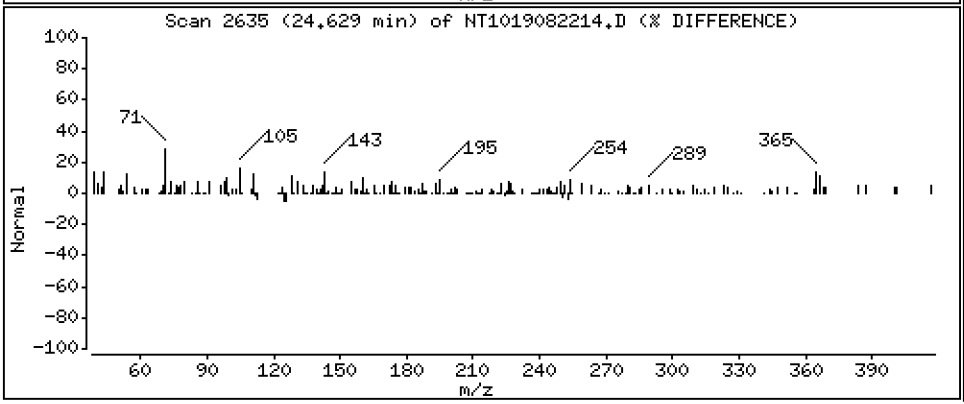
76 Benzo(a)pyrene

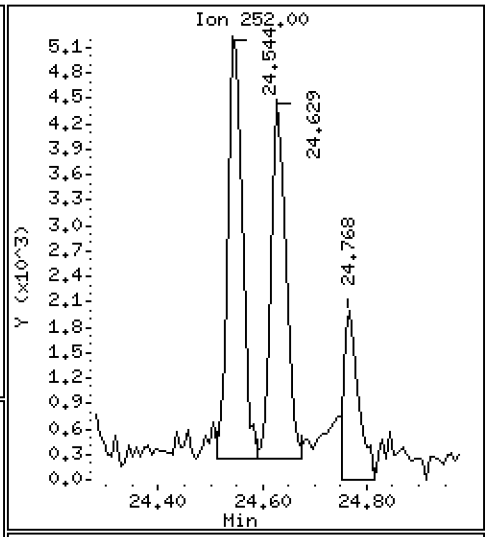
Concentration: 3.675 ug/mL

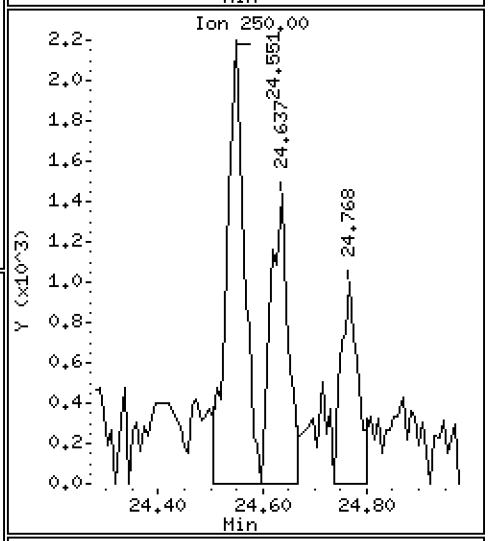


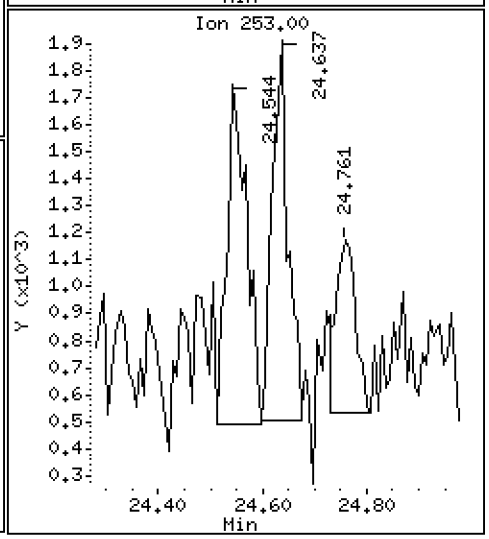












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082214.D

Date : 22-AUG-2019 21:50

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

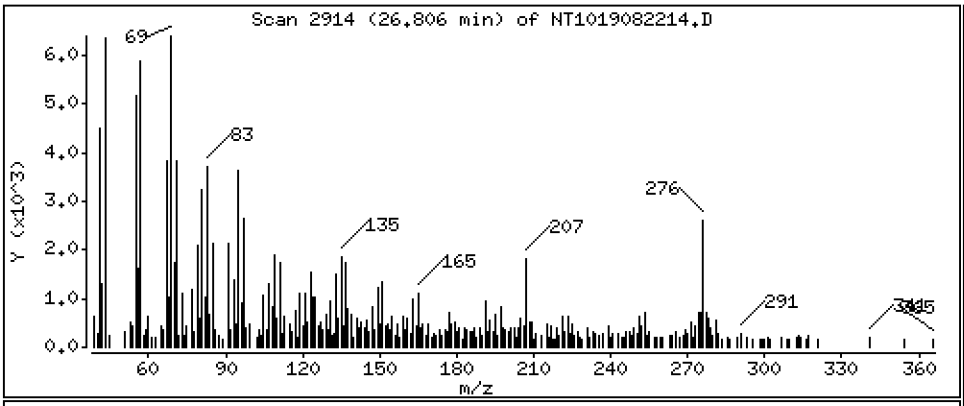
Operator: YZ

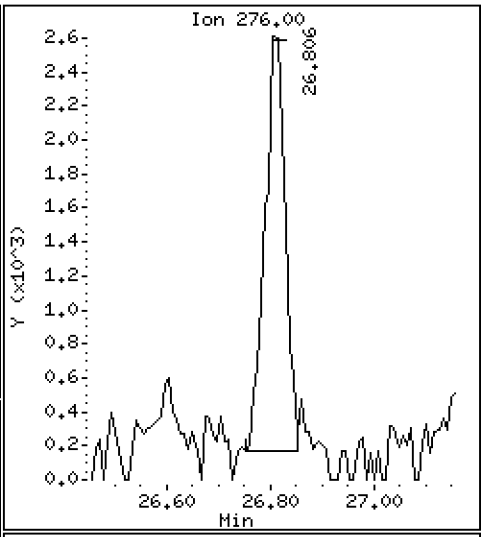
Column phase: ZB-5msi

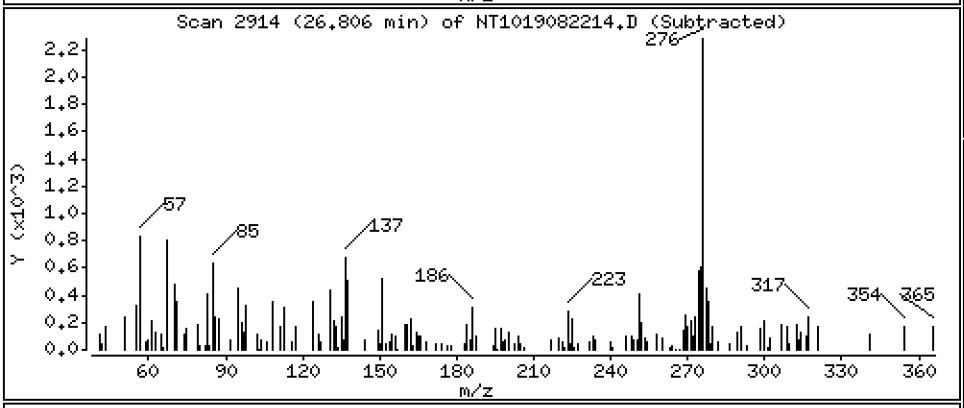
Column diameter: 0.25

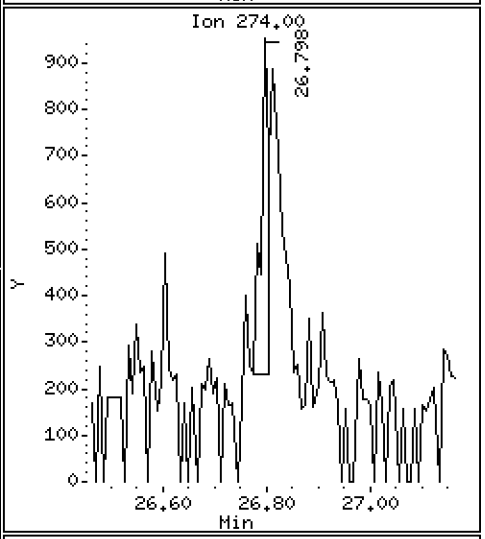
78 Indeno(1,2,3-cd)pyrene

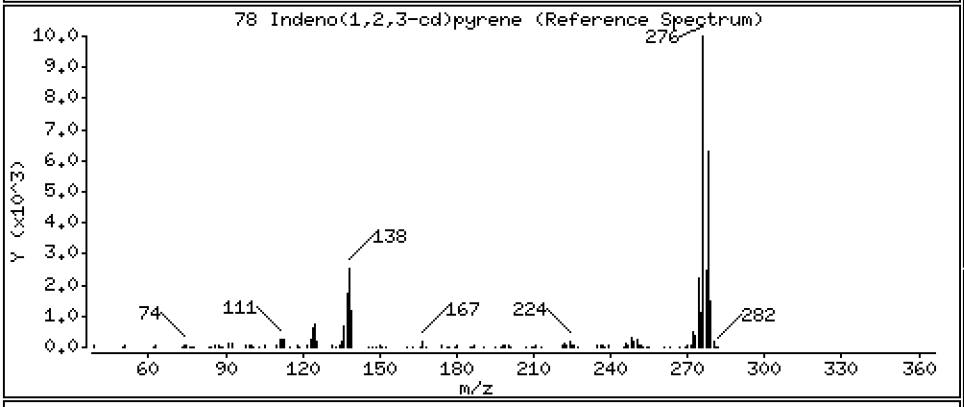
Concentration: 2.454 ug/mL

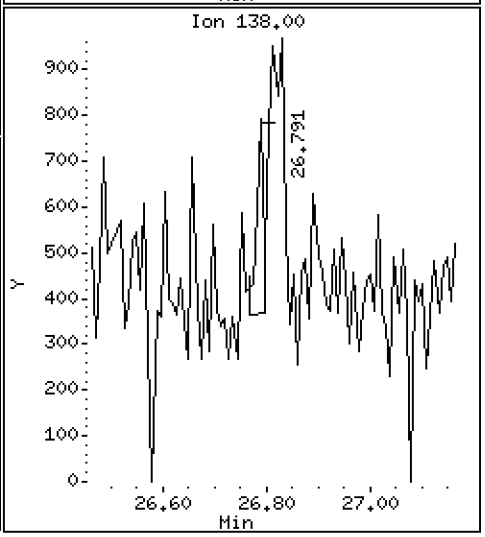


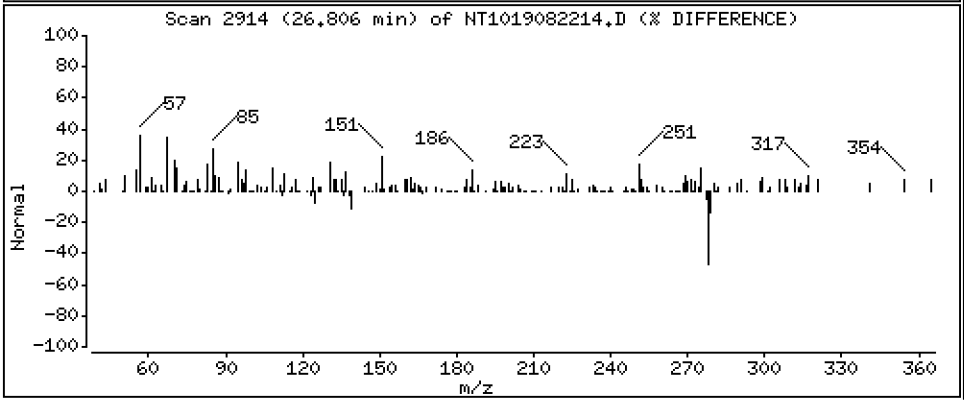












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Date : 22-AUG-2019 21:50

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

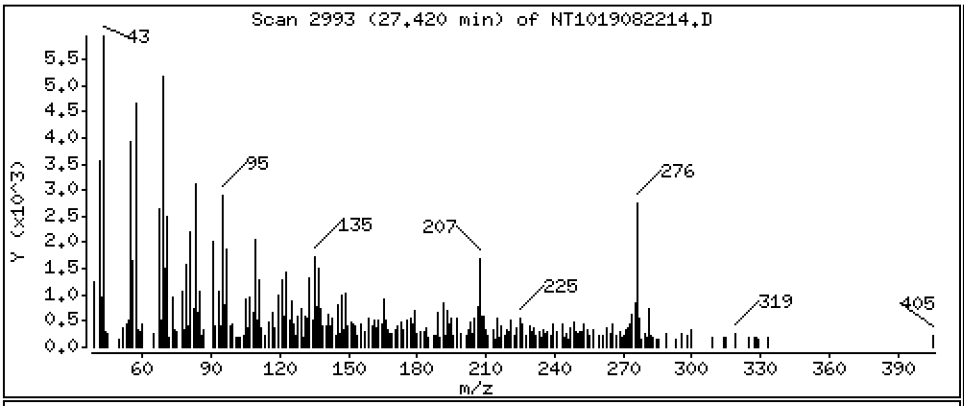
Operator: YZ

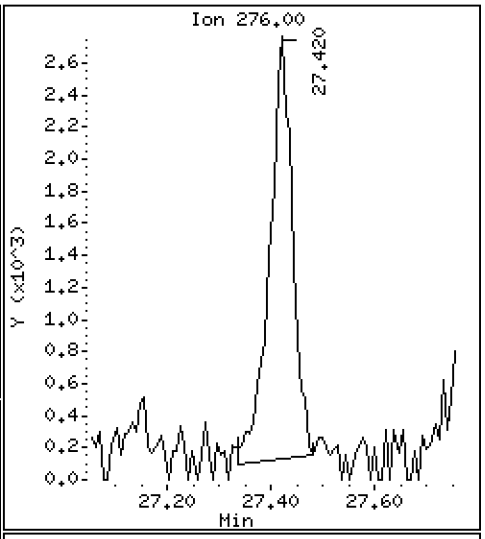
Column phase: ZB-5msi

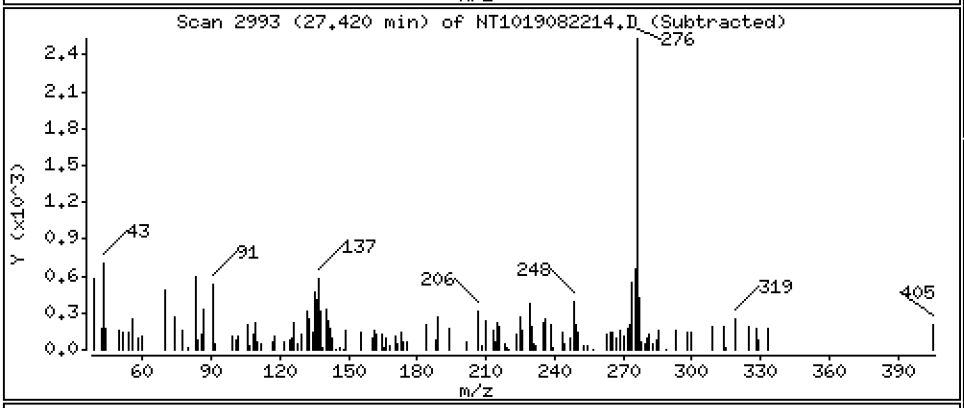
Column diameter: 0.25

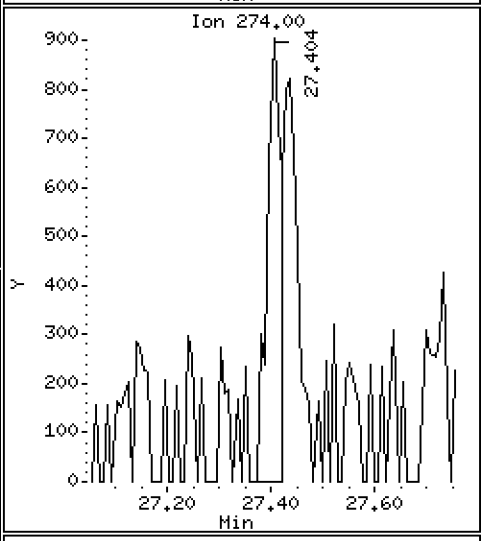
80 Benzo(g,h,i)perylene

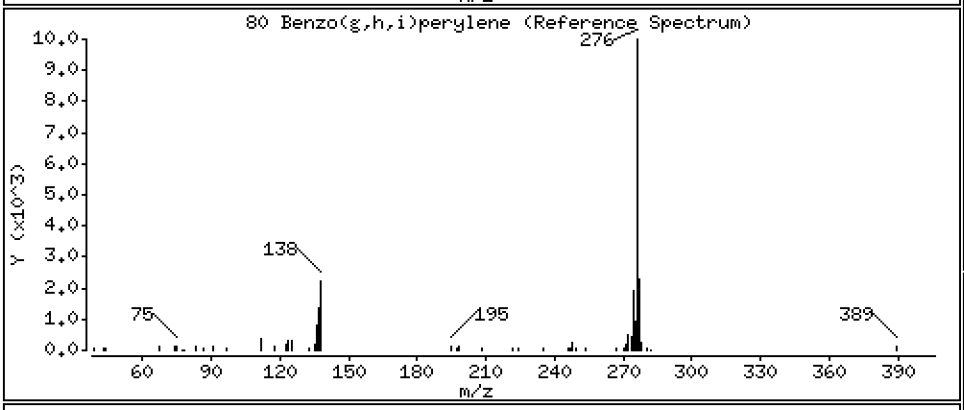
Concentration: 3.684 ug/mL

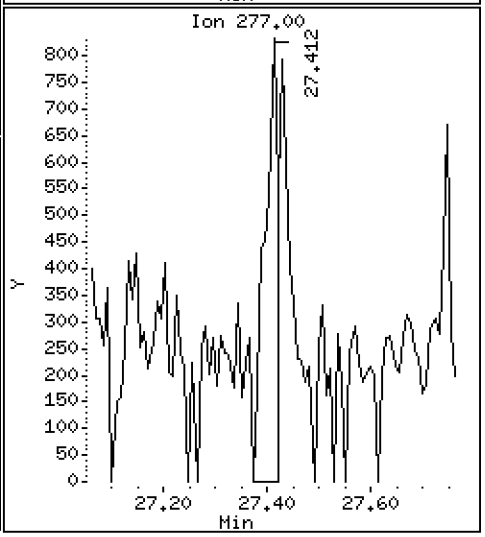


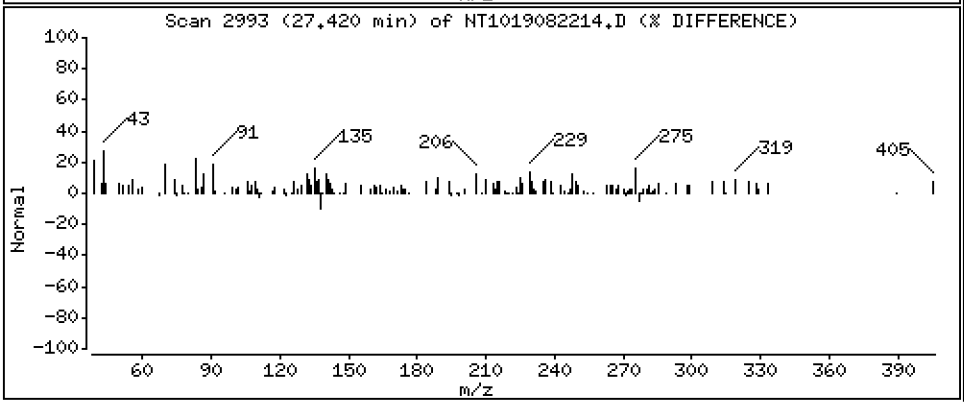












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082214.D

Date : 22-AUG-2019 21:50

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-08RE1,9

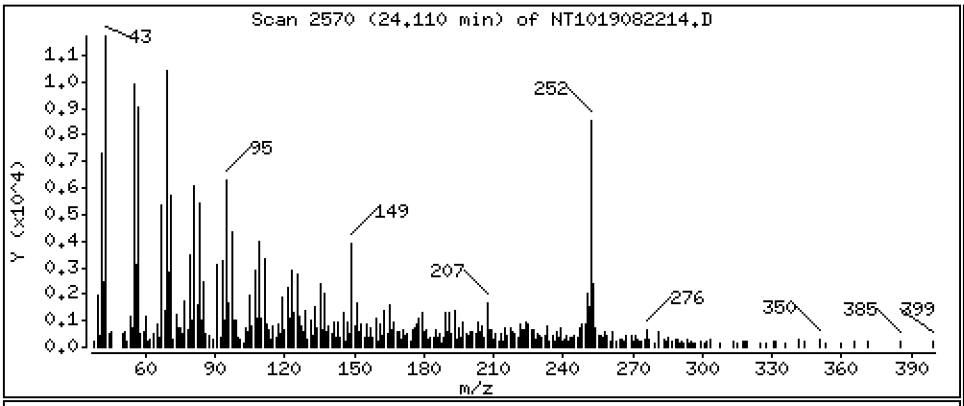
Operator: YZ

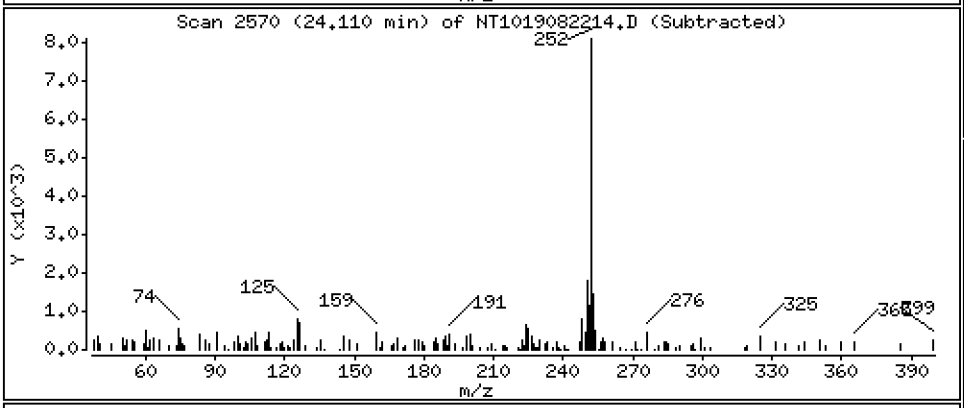
Column phase: ZB-5msi

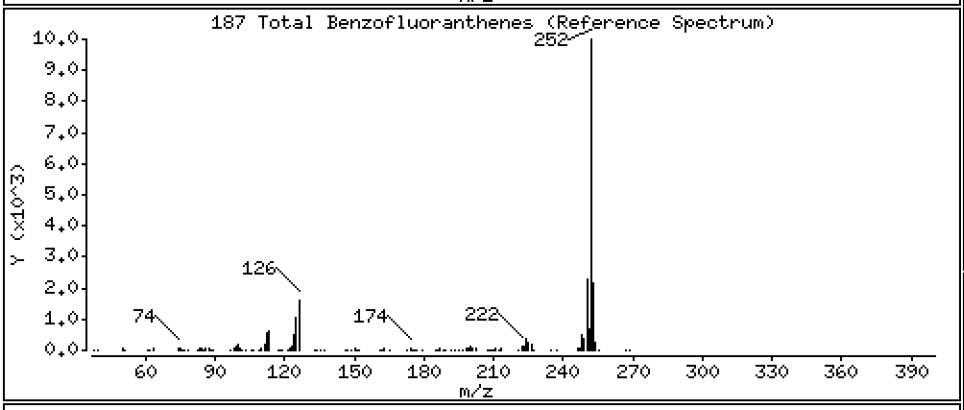
Column diameter: 0.25

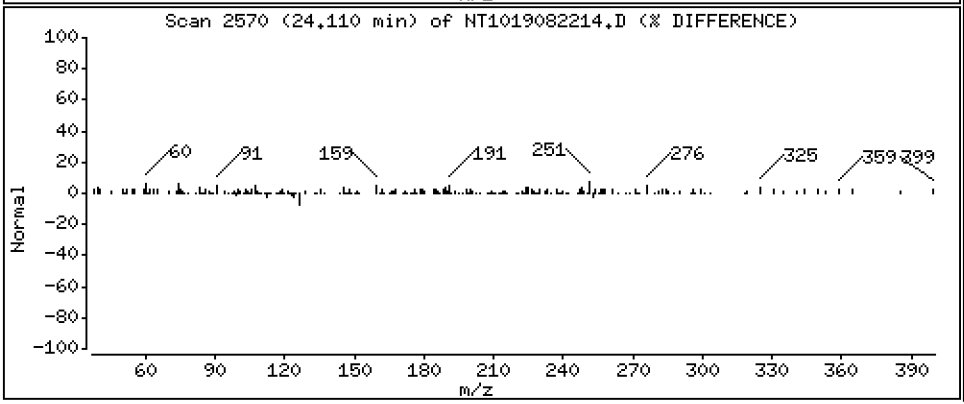
187 Total Benzofluoranthenes

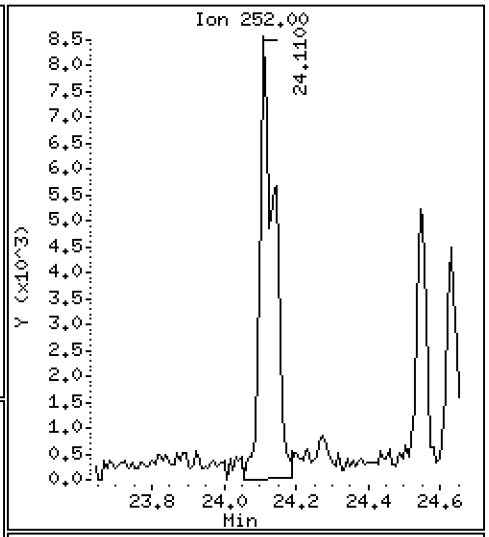
Concentration: 10.26 ug/mL

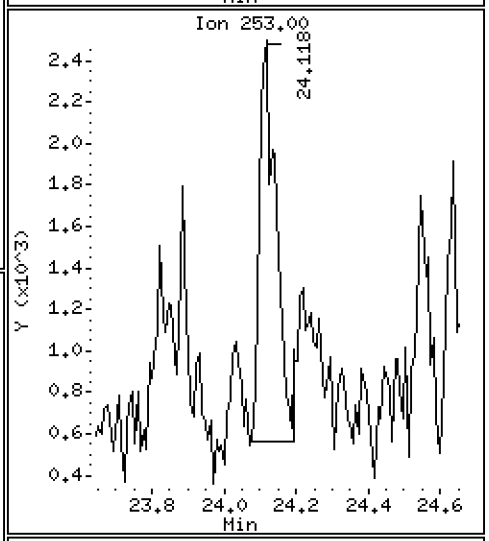


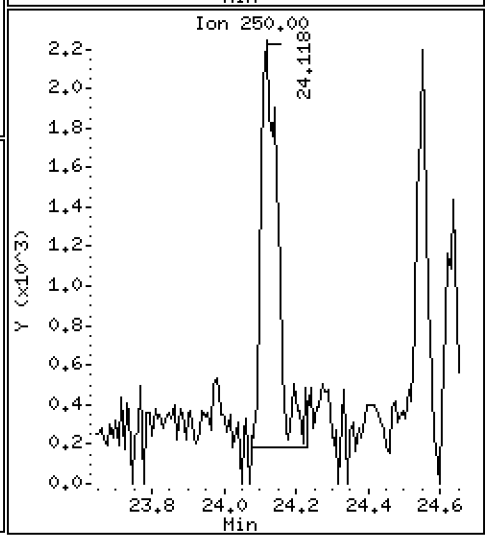












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190822.b\NT1019082214.D
Lab Smp Id: 19H0024-08RE1
Inj Date : 22-AUG-2019 21:50
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-08RE1,9
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 11:16 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 10
Dil Factor: 9.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.188	6.173	(0.743)	5009	0.32943	2.965
$	2 Phenol-d5	99	7.749	7.749	(0.930)	5839	0.34265	3.084
	3 Phenol	94	Compound Not Detected.					
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.958)	8076	0.44025	3.962
*	8 1,4-Dichlorobenzene-d4	152	8.329	8.329	(1.000)	54148	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.678	8.671	(1.042)	3457	0.27564	2.481
	11 Benzyl alcohol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.400	9.408	(0.874)	4672	0.29928	2.694
	24 Benzoic acid	105	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.757	10.765	(1.000)	199599	4.00000	
	28 Naphthalene	128	Compound Not Detected.					
	32 2-Methylnaphthalene	142	Compound Not Detected.					
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	13988	0.36313	3.268
	39 Dimethylphthalate	163	Compound Not Detected.					
	40 Acenaphthylene	152	Compound Not Detected.					
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	100710	4.00000	
	44 Acenaphthene	153	Compound Not Detected.					
	46 Dibenzofuran	168	Compound Not Detected.					
	50 Diethylphthalate	149	Compound Not Detected.					
	49 Fluorene	166	Compound Not Detected.					
	54 N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55 2,4,6-Tribromophenol	330	15.923	15.931	(1.113)	3495	0.45896	4.131
*	59 Phenanthrene-d10	188	17.291	17.291	(1.000)	192091	4.00000	
	60 Phenanthrene	178	17.337	17.345	(1.003)	12978	0.27659	2.489
	61 Anthracene	178	Compound Not Detected.					
	63 Di-n-butylphthalate	149	Compound Not Detected.					
	64 Fluoranthene	202	19.743	19.751	(0.882)	38659	1.27963	11.52
	65 Pyrene	202	20.169	20.169	(0.901)	34145	1.08233	9.741
$	66 Terphenyl-d14	244	20.494	20.502	(0.916)	11558	0.54021	4.862
	67 Butylbenzylphthalate	149	21.462	21.462	(0.959)	3825	0.26028	2.343(M)
	68 Benzo(a)anthracene	228	22.352	22.352	(0.999)	10818	0.37715	3.394
*	69 Chrysene-d12	240	22.383	22.383	(1.000)	98861	4.00000	
	71 Chrysene	228	22.422	22.430	(1.002)	15743	0.62026	5.582

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.507	22.515	(0.958)	56788	2.87323	25.86
* 134	Di-n-octylphthalate-d4	153	23.490	23.490	(1.000)	224713	4.00000	
73	Di-n-octylphthalate	149	23.506	23.498	(1.001)	9941	0.23913	2.152(M)
74	Benzo(b)fluoranthene	252	24.110	24.110	(0.975)	13048	0.59253	5.333
75	Benzo(k)fluoranthene	252	24.148	24.110	(0.977)	11629	0.52493	4.724(M)
76	Benzo(a)pyrene	252	24.628	24.628	(0.996)	8071	0.40838	3.675
* 77	Perylene-d12	264	24.729	24.721	(1.000)	76753	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.806	26.806	(1.084)	6475	0.27267	2.454
79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
80	Benzo(g,h,i)perylene	276	27.419	27.404	(1.109)	8186	0.40929	3.684
105	1-methylnaphthalene	142	Compound Not Detected.					
187	Total Benzofluoranthenes	252	24.110	24.148	(0.975)	24088	1.14039	10.26(M)

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082214.D
Lab Smp Id: 19H0024-08RE1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 16:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	54148	65.39
27 Naphthalene-d8	117487	58744	234974	199599	69.89
42 Acenaphthene-d10	61859	30930	123718	100710	62.81
59 Phenanthrene-d10	113574	56787	227148	192091	69.13
69 Chrysene-d12	105788	52894	211576	98861	-6.55
134 Di-n-octylphthala	252823	126412	505646	224713	-11.12
77 Perylene-d12	113992	56996	227984	76753	-32.67

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.33	-0.00
27 Naphthalene-d8	10.77	10.27	11.27	10.76	-0.07
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	-0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.29	-0.00
69 Chrysene-d12	22.38	21.88	22.88	22.38	-0.00
134 Di-n-octylphthala	23.49	22.99	23.99	23.49	-0.00
77 Perylene-d12	24.72	24.22	25.22	24.73	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082214.D

Lab ID: 19H0024-08RE1
nt10.i, 20190822.b\ABN.m,   22-AUG-2019 21:50

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT1019082206.D

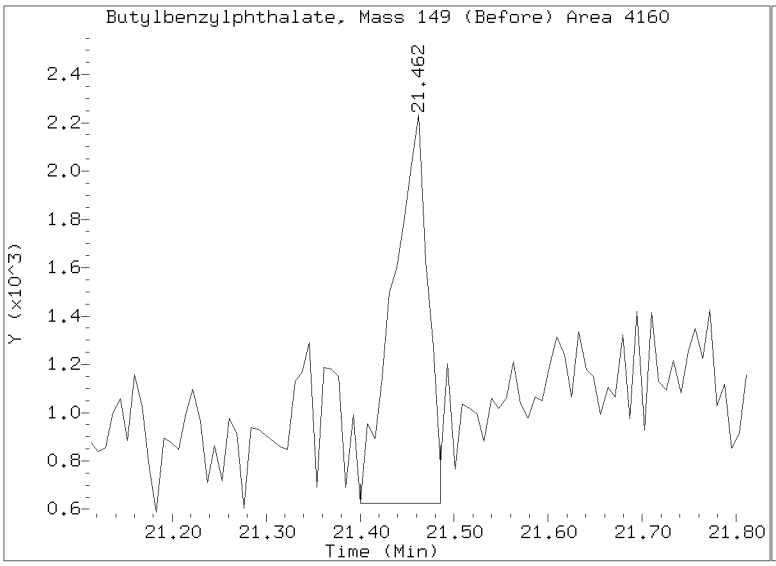
On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

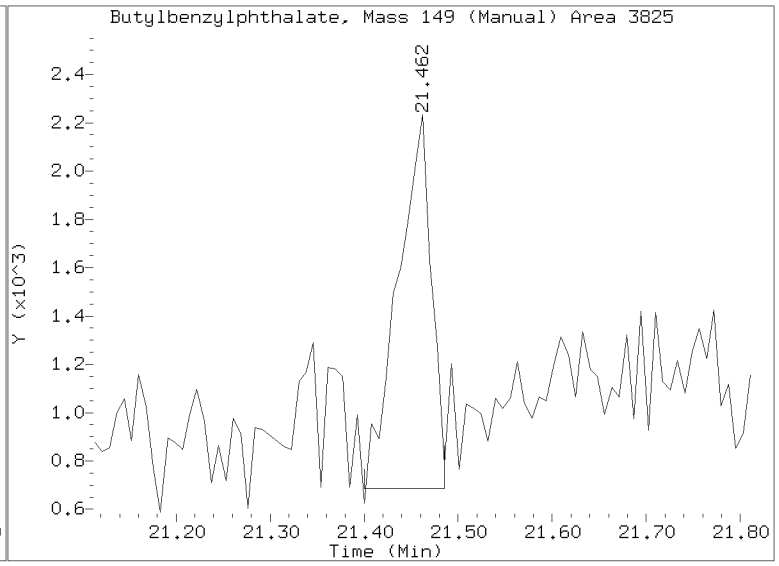
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

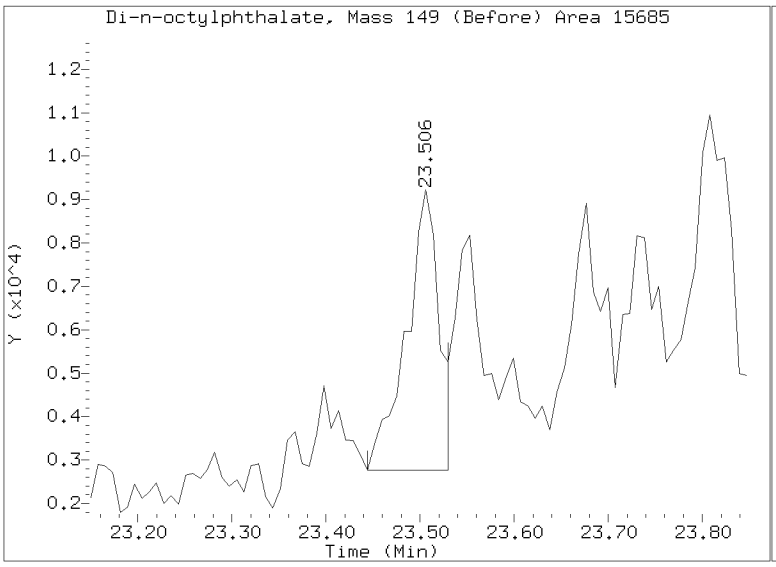
* Only compounds listed in the work order have been verified by the analyst *

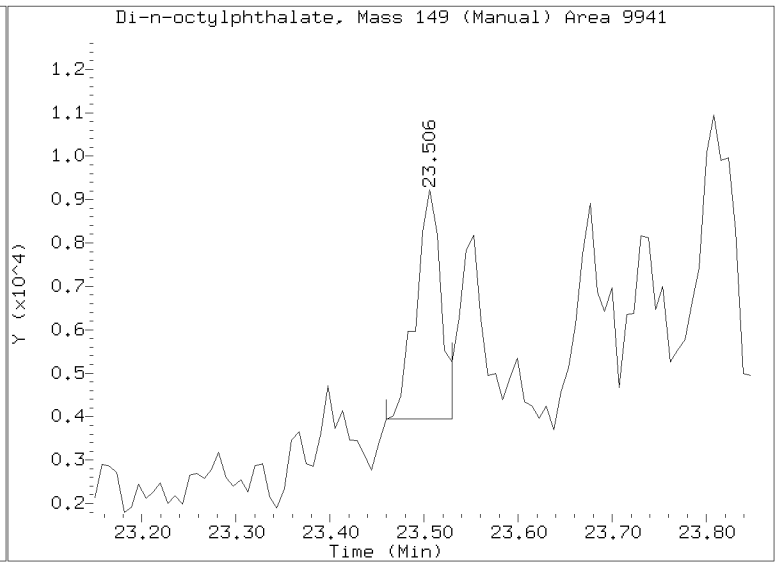
Quant Ion Manual Peak Adjustment Report

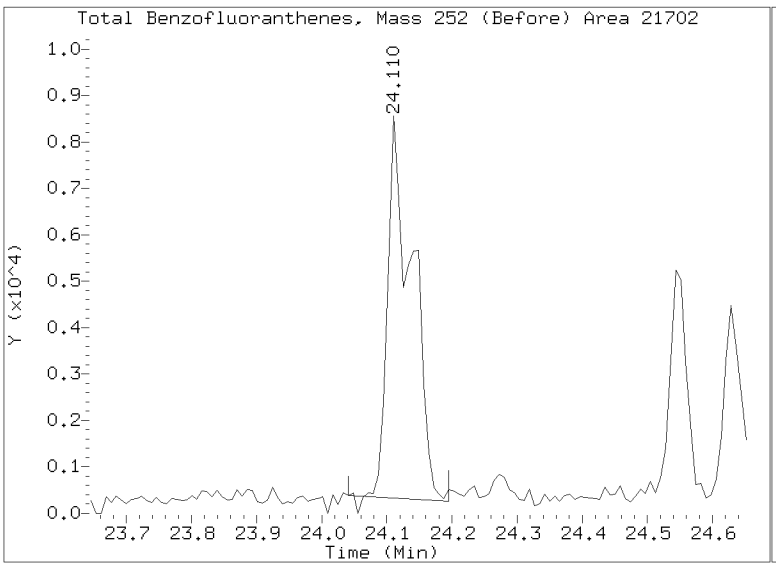
Datafile: //Target/share/chem3/nt10.i/20190822.b/NT1019082214.D
Injection Date: 22-AUG-2019 21:50
Lab ID:19H0024-08RE1 Client ID:
Report Date: 08/23/2019 12:01

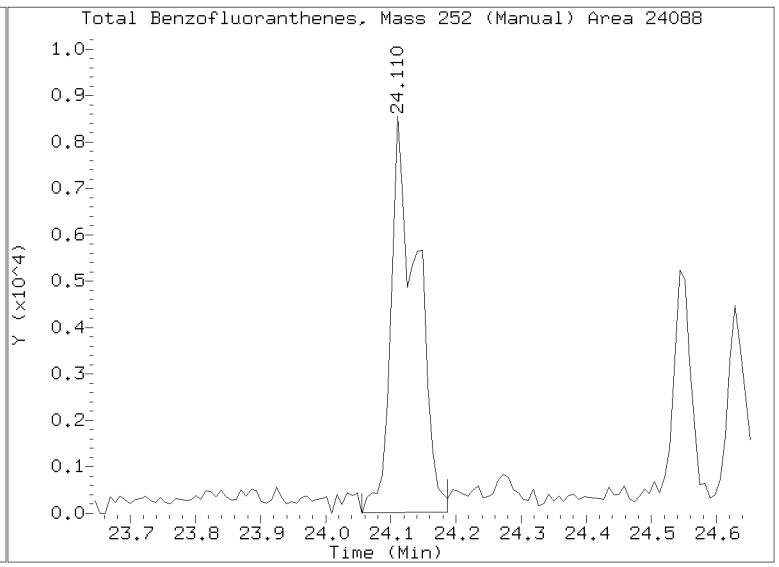












Quant Ion Manual Peak Adjustment Report

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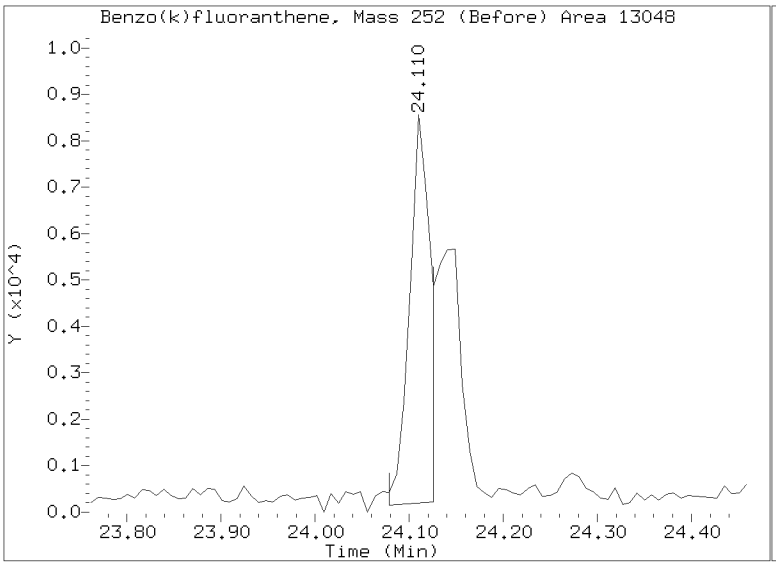
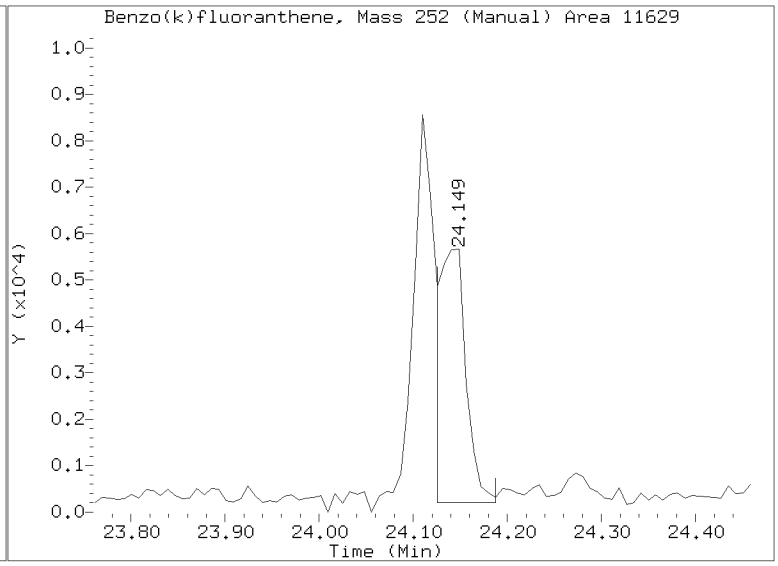
Injection Date: 22-AUG-2019 21:50
Lab ID:19H0024-08RE1 Client ID:
Report Date: 08/23/2019 12:01





SL4-SG-WC1-2019

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D
Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory: Analytical Resources, Inc.

Client: Windward Environmental, LLC

Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix:	Solid	Laboratory ID:	19H0024-09 C	SDG:	19H0024
Sampled:	08/01/19 10:43	Prepared:	08/13/19 12:40	File ID:	NT1019082118.D
% Solids:	40.99	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/21/19 20:45
Batch:	BHH0289	Sequence:	SHH0303	Initial/Final:	24.56 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040

Cleanups: GPC

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	3	59.6	U	24.5	59.6
100-51-6	Benzyl Alcohol	3	59.6	U	44.4	59.6
65-85-0	Benzoic acid	3	596	U	176	596
86-30-6	N-Nitrosodiphenylamine	3	59.6	U	28.5	59.6
85-01-8	Phenanthrene	3	452	D	14.0	59.6
206-44-0	Fluoranthene	3	1930	D	13.5	59.6
129-00-0	Pyrene	3	1670	D	16.5	59.6
85-68-7	Butylbenzylphthalate	3	986	D	24.0	59.6
56-55-3	Benzo(a)anthracene	3	504	D	15.4	59.6
218-01-9	Chrysene	3	1340	D	15.6	59.6
117-81-7	bis(2-Ethylhexyl)phthalate	3	7530	D, E	85.8	149
117-84-0	Di-n-Octylphthalate	3	269	D	26.0	59.6
	Benzofluoranthenes, Total	3	1540	D	30.4	119
50-32-8	Benzo(a)pyrene	3	572	D	19.3	59.6
193-39-5	Indeno(1,2,3-cd)pyrene	3	59.6	U	17.9	59.6
53-70-3	Dibenzo(a,h)anthracene	3	59.6	U	18.4	59.6
191-24-2	Benzo(g,h,i)perylene	3	59.6	U	17.3	59.6

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	745.00	364	48.9	27 - 120	Q
Phenol-d5	745.00	364	48.9	29 - 120	Q
2-Chlorophenol-d4	745.00	487	65.3	31 - 120	
1,2-Dichlorobenzene-d4	496.67	328	66.0	32 - 120	
Nitrobenzene-d5	496.67	309	62.2	30 - 120	
2-Fluorobiphenyl	496.67	408	82.2	35 - 120	
2,4,6-Tribromophenol	745.00	523	70.2	24 - 134	
p-Terphenyl-d14	496.67	498	100	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

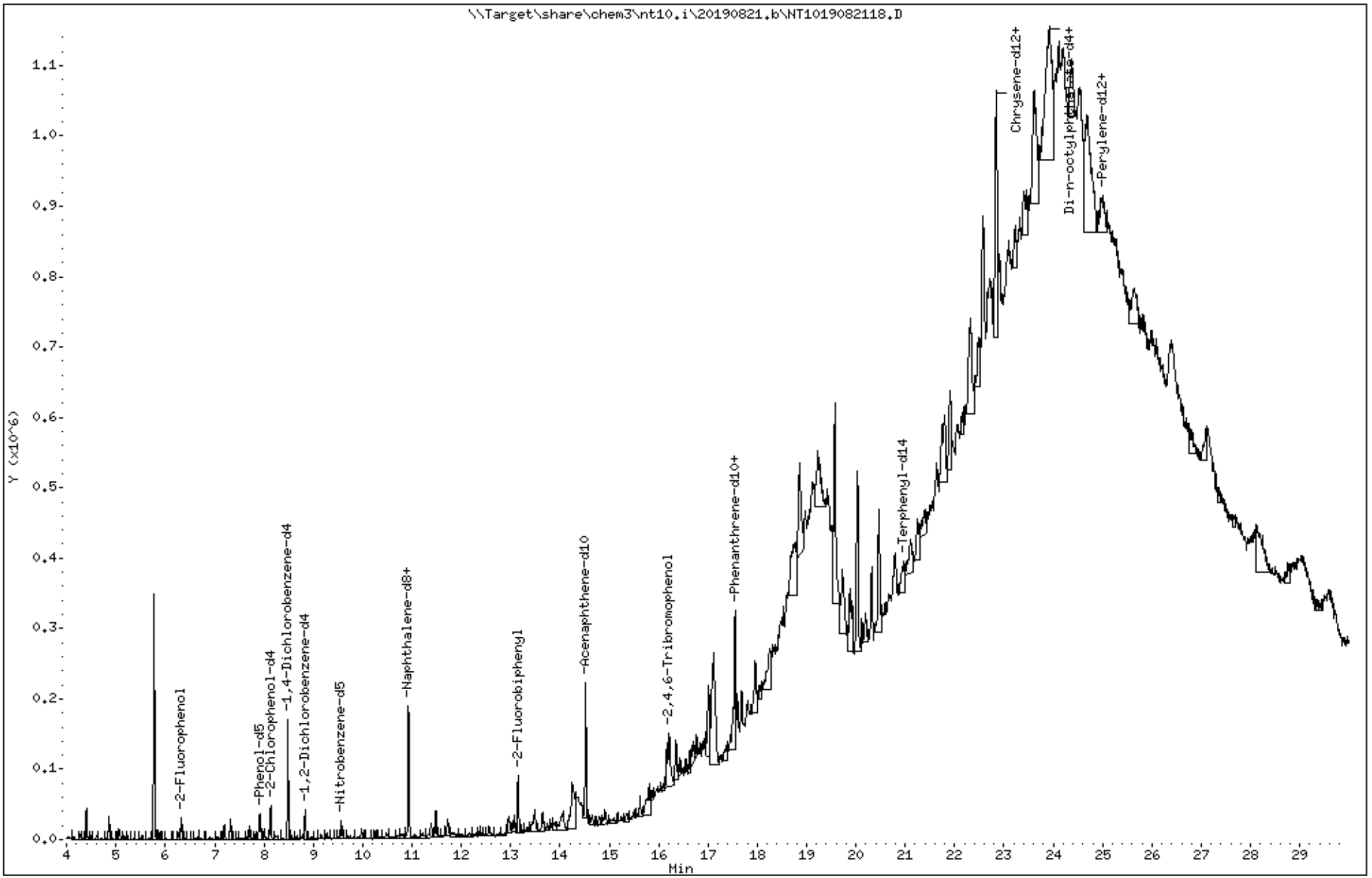
Instrument: nt10.i

Sample Info: 19H0024-09

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

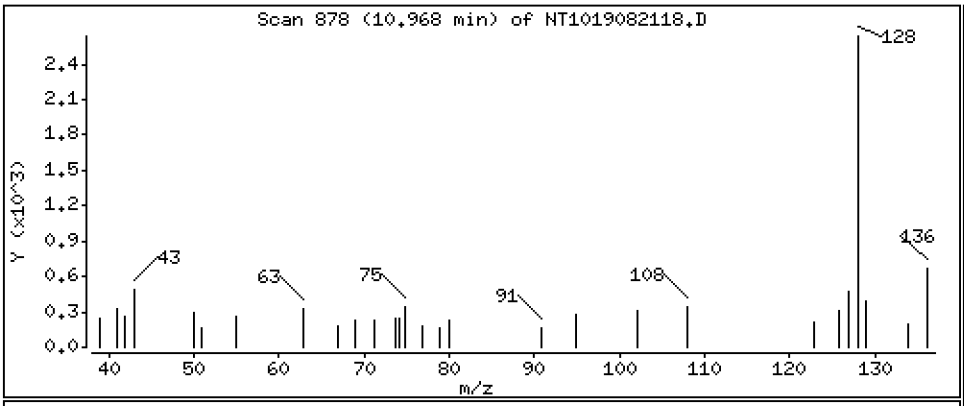
Operator: YZ

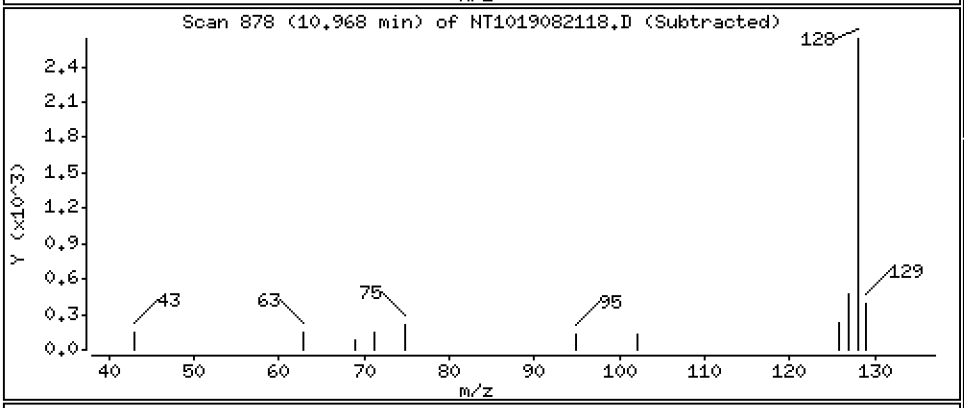
Column phase: ZB-5msi

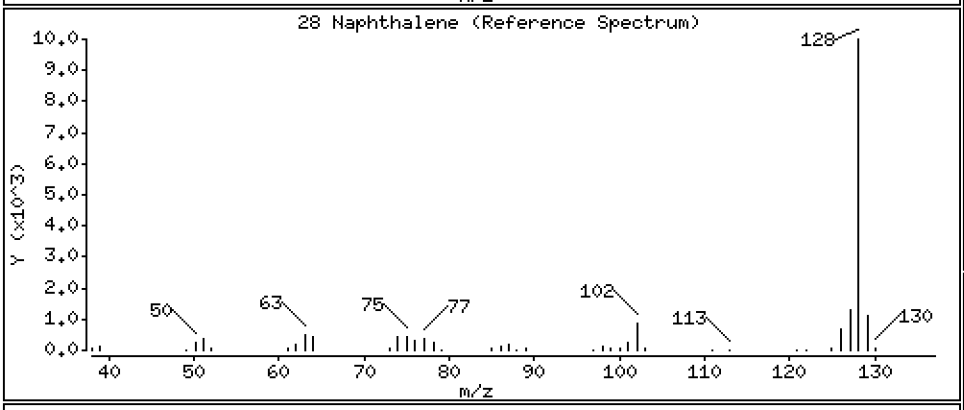
Column diameter: 0.25

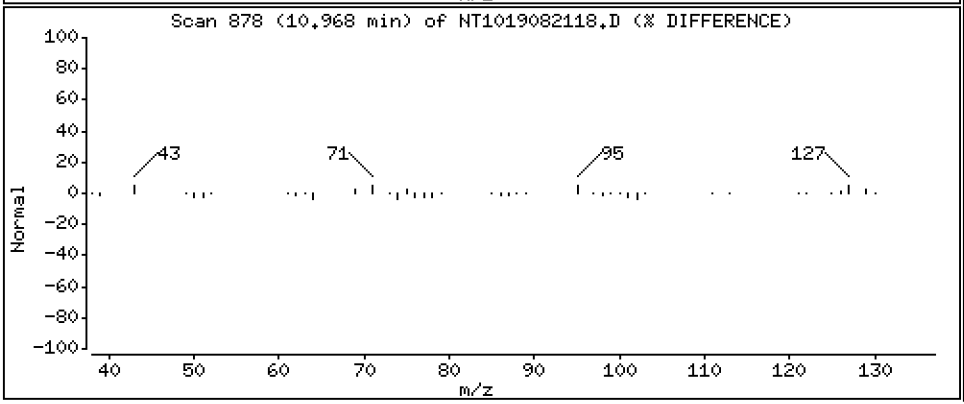
28 Naphthalene

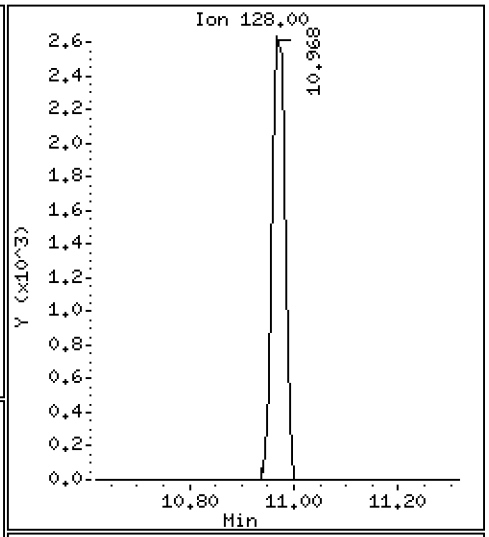
Concentration: 0.4252 ug/mL

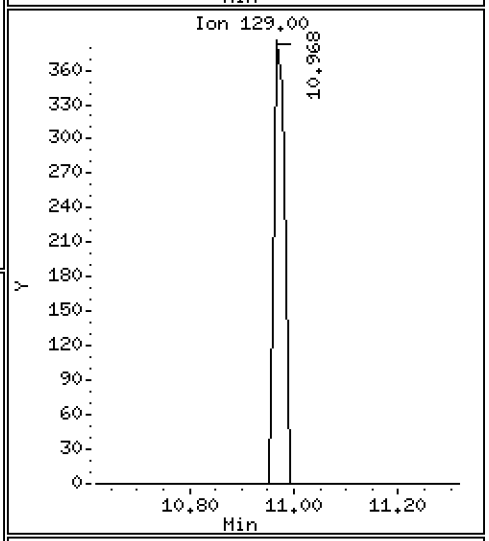


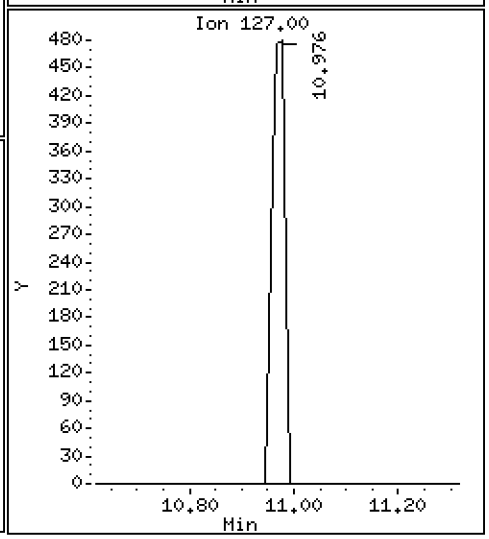












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Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

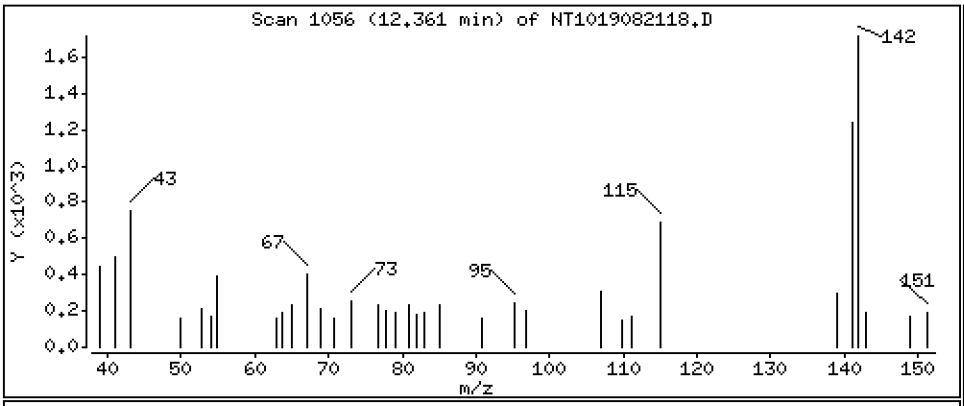
Operator: YZ

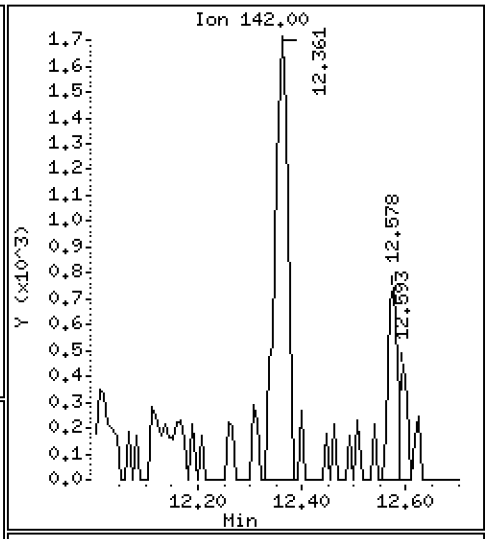
Column phase: ZB-5msi

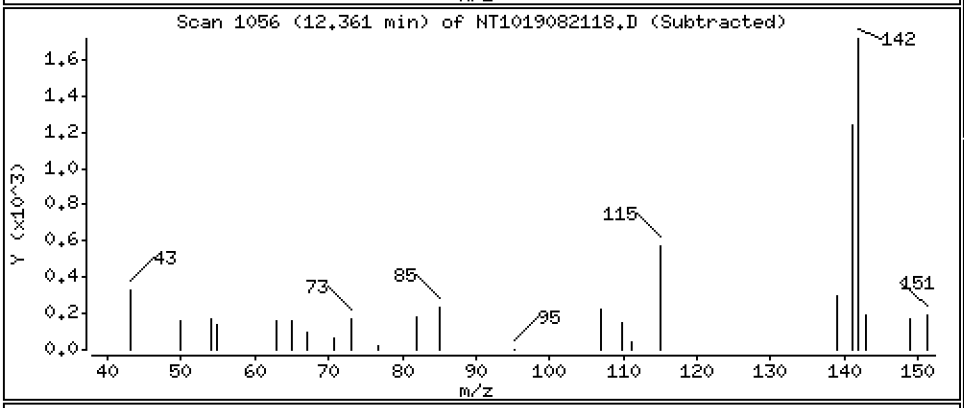
Column diameter: 0.25

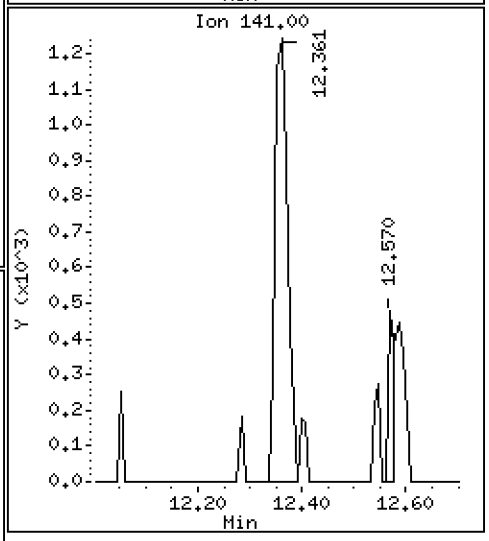
32 2-Methylnaphthalene

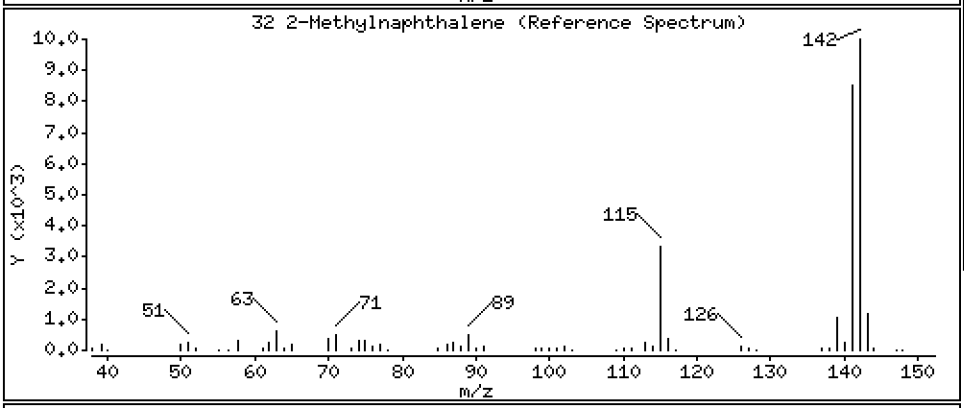
Concentration: 0.3242 ug/mL

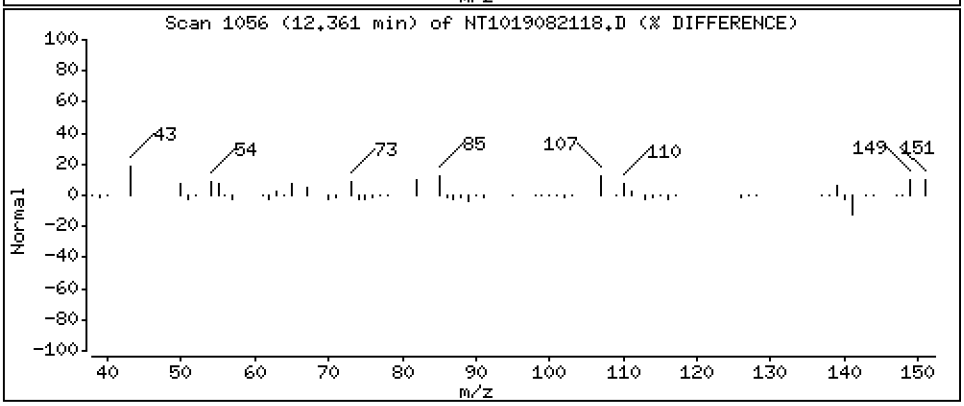












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Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

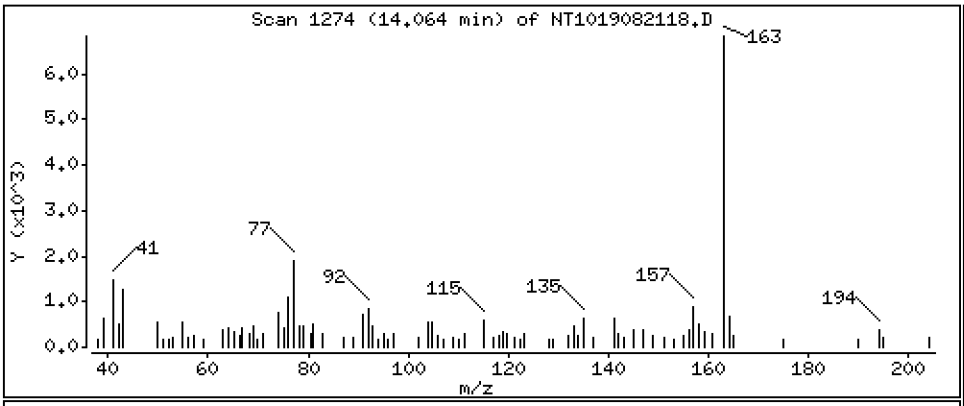
Operator: YZ

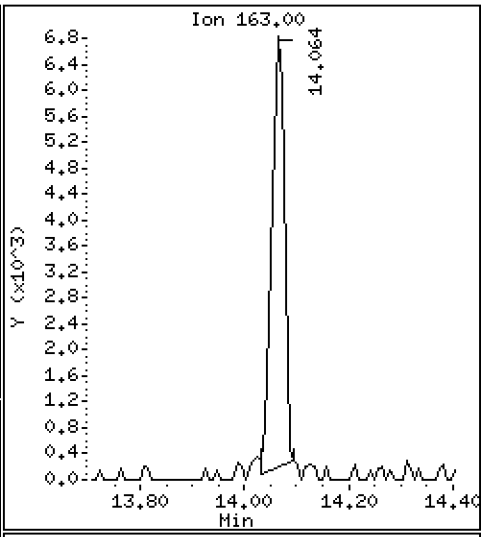
Column phase: ZB-5msi

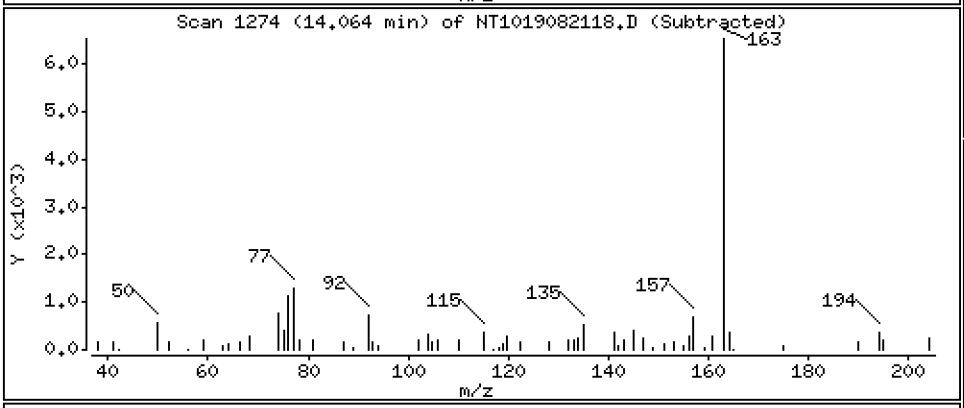
Column diameter: 0.25

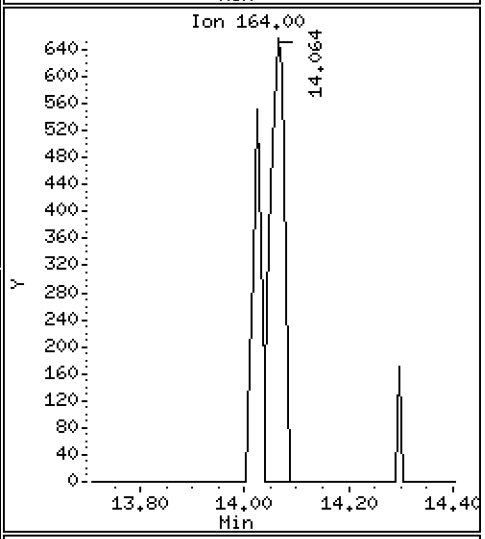
39 Dimethylphthalate

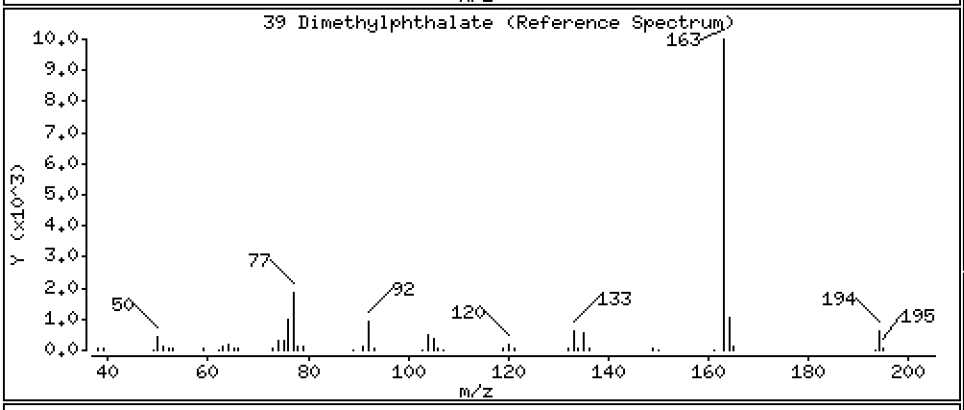
Concentration: 1.294 ug/mL

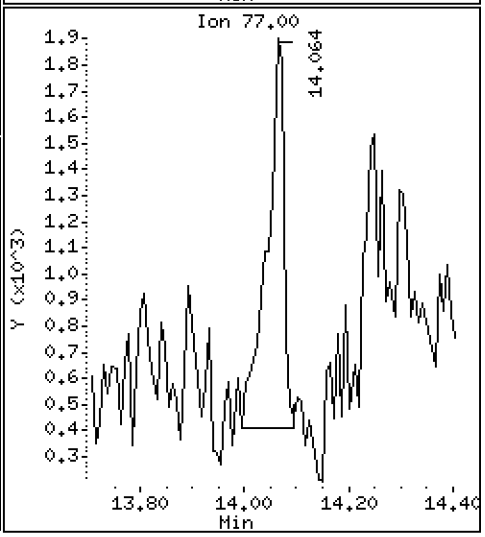


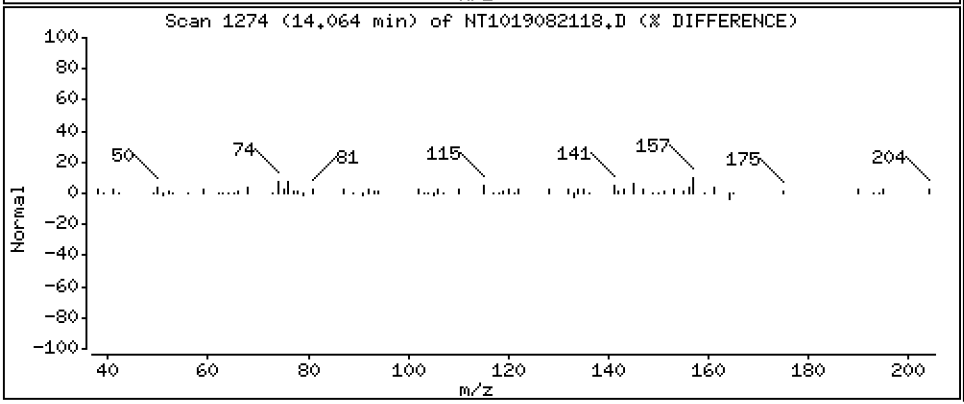












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Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

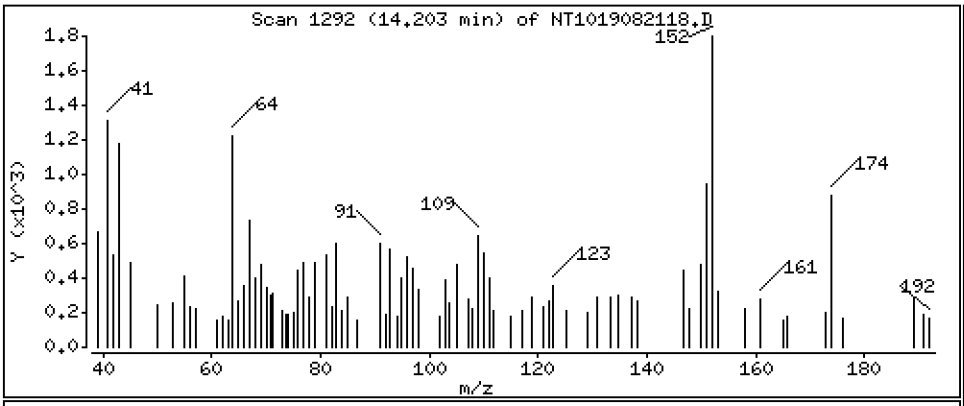
Operator: YZ

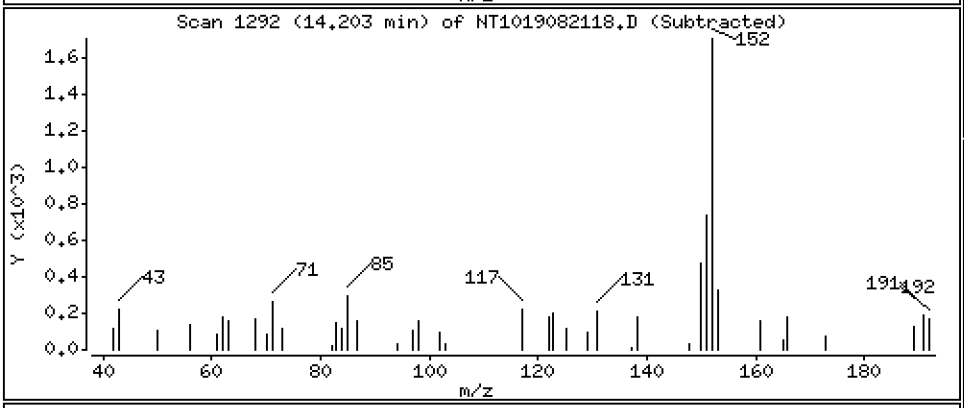
Column phase: ZB-5msi

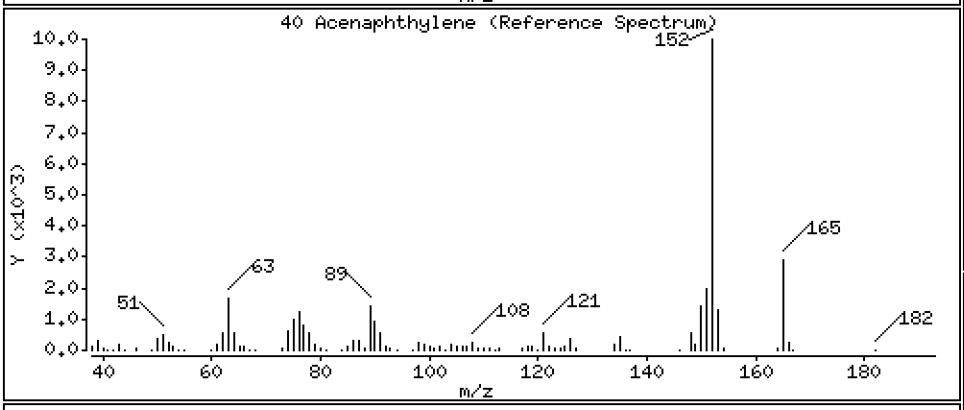
Column diameter: 0.25

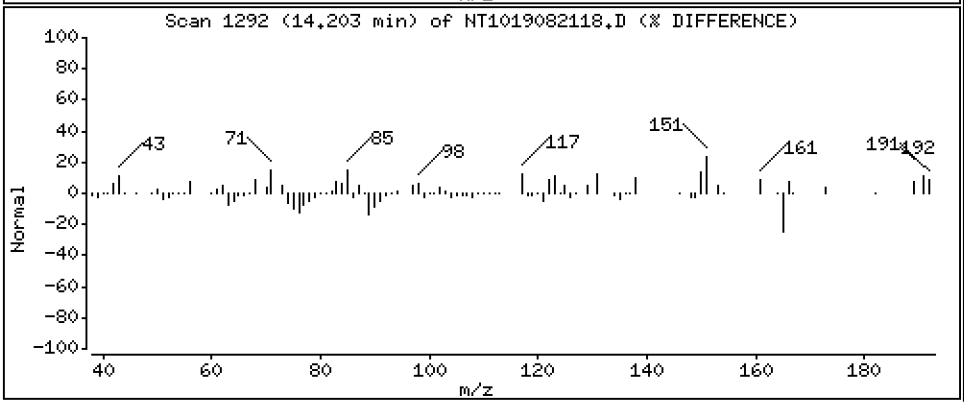
40 Acenaphthylene

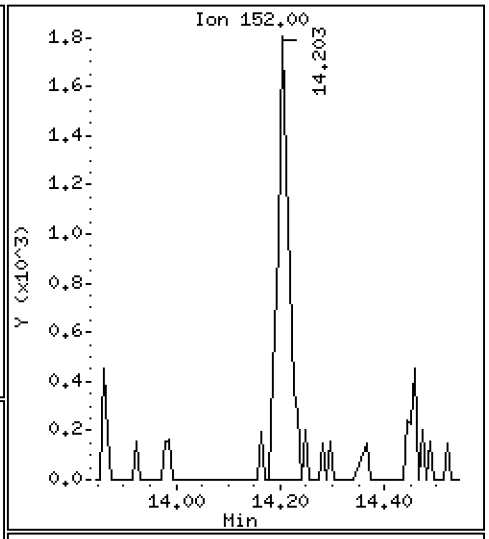
Concentration: 0.2552 ug/mL

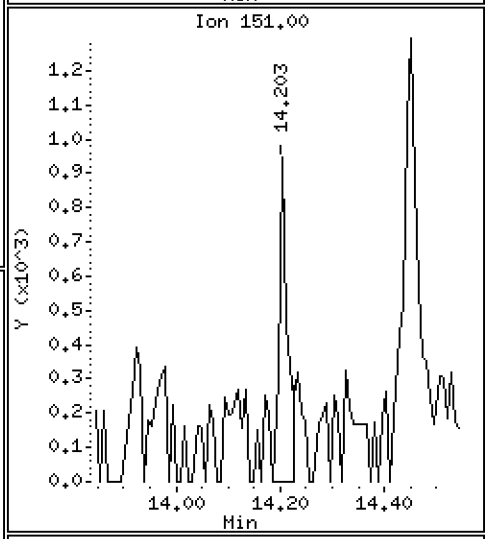


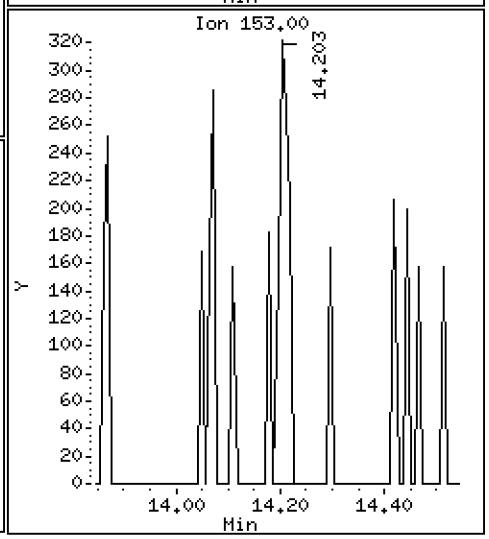












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Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

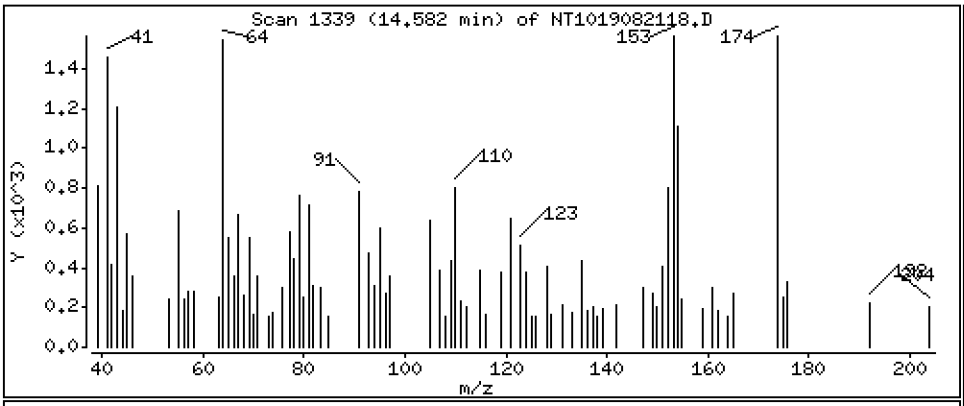
Operator: YZ

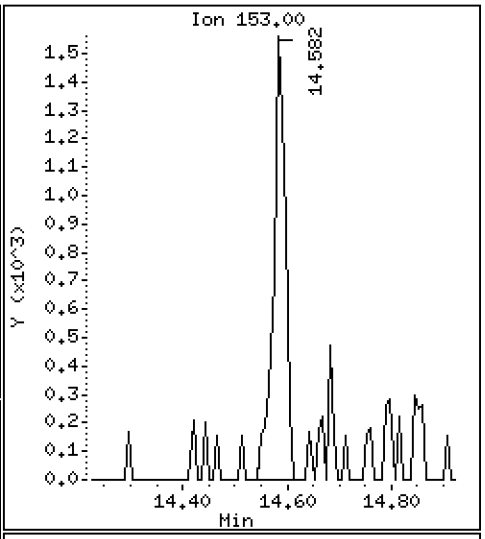
Column phase: ZB-5msi

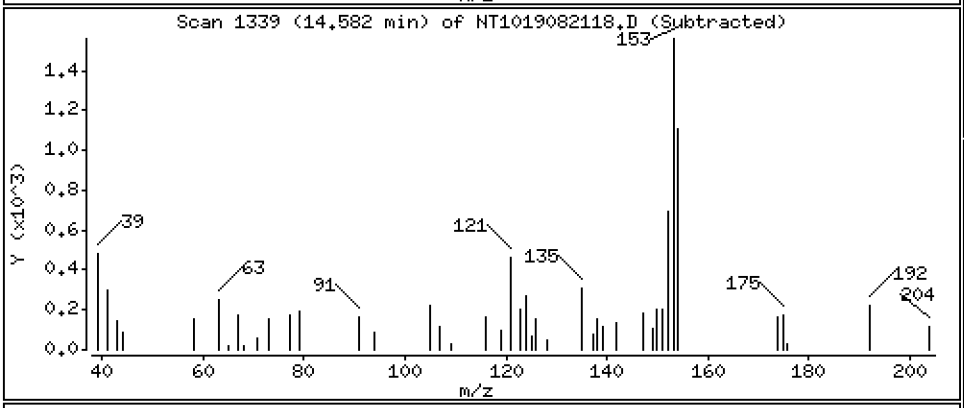
Column diameter: 0.25

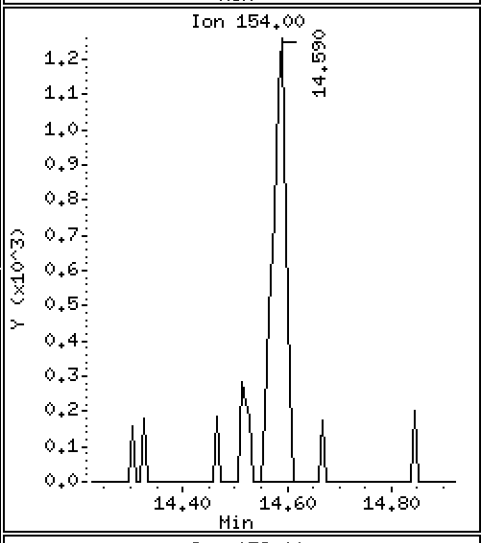
44 Acenaphthene

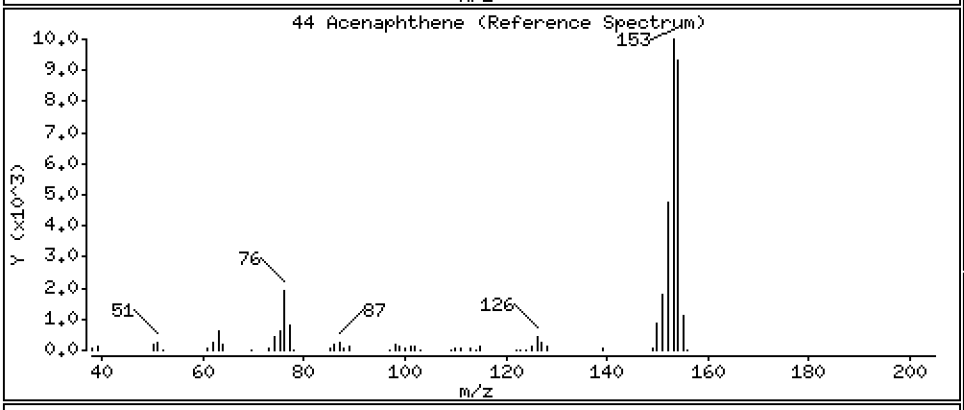
Concentration: 0.3672 ug/mL

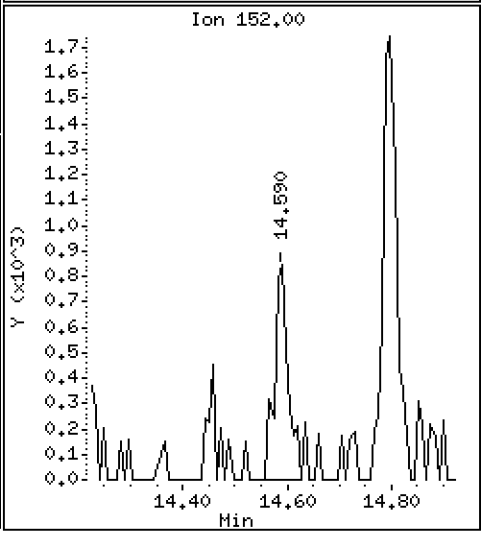


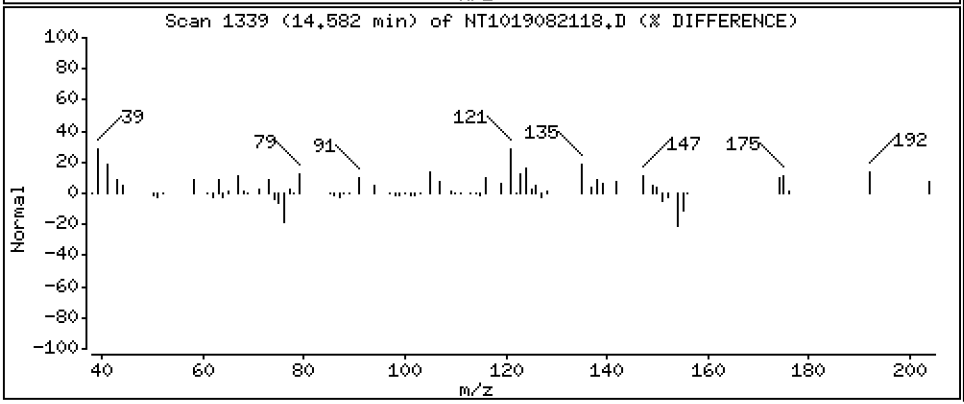












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Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

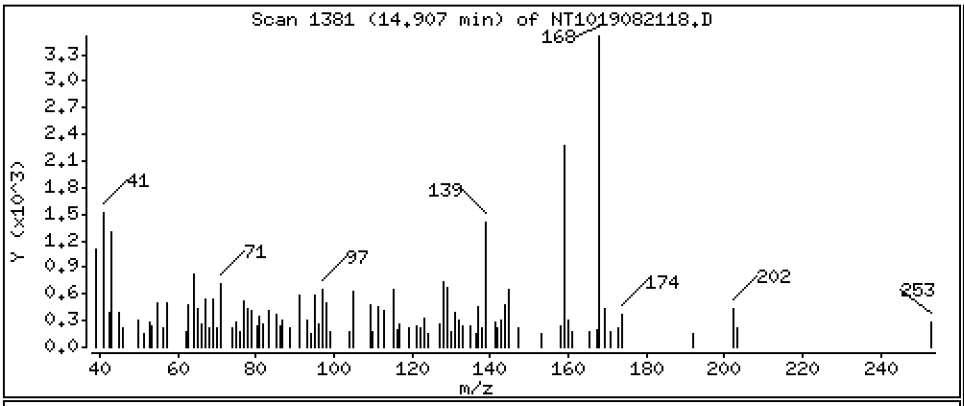
Operator: YZ

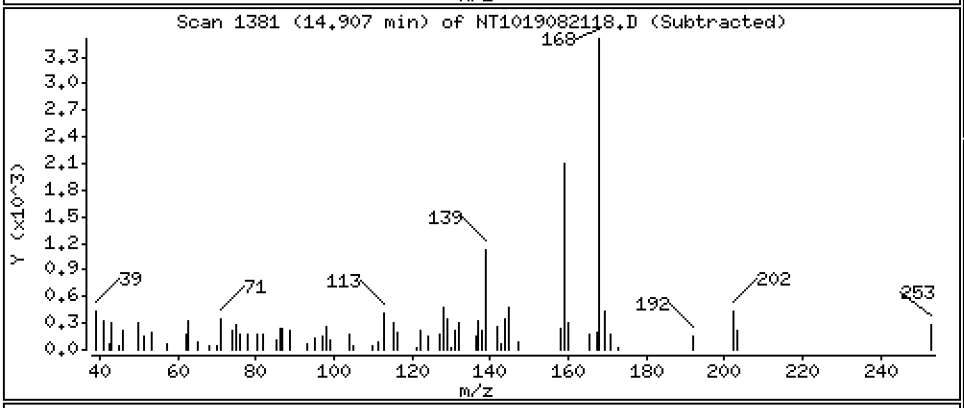
Column phase: ZB-5msi

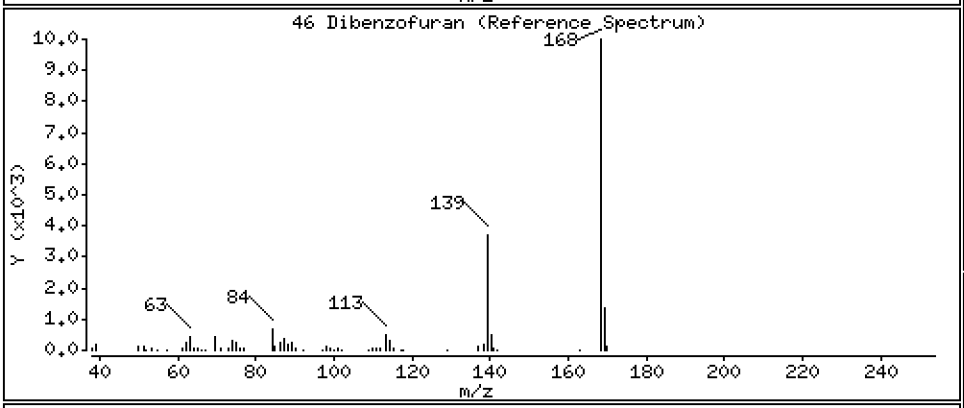
Column diameter: 0.25

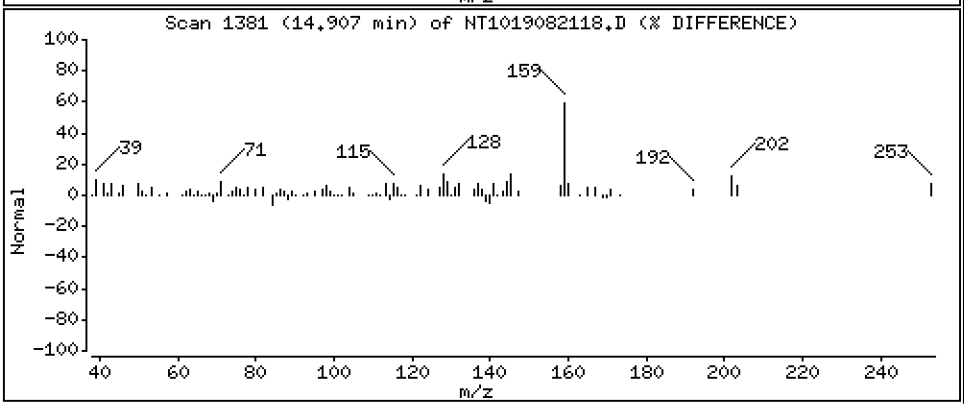
46 Dibenzofuran

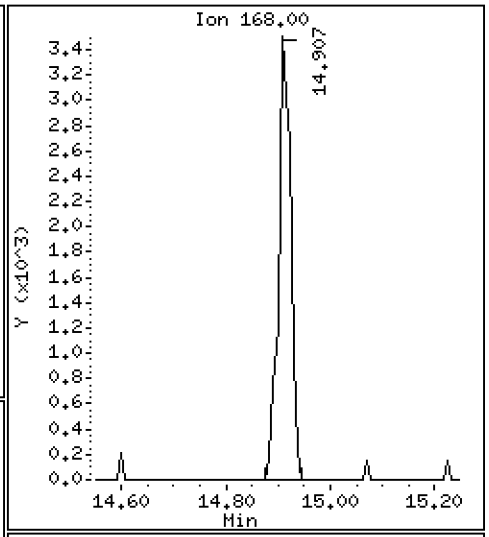
Concentration: 0.5223 ug/mL

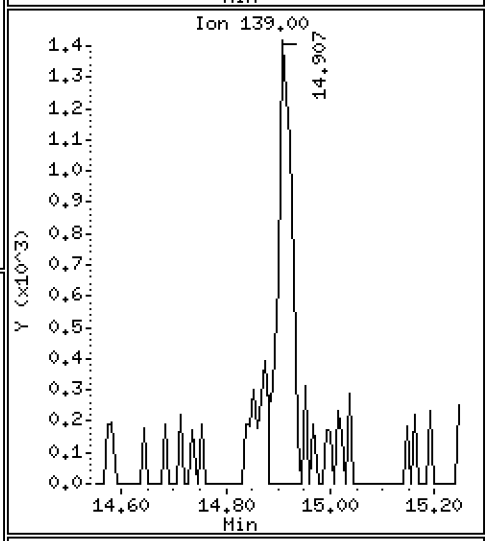


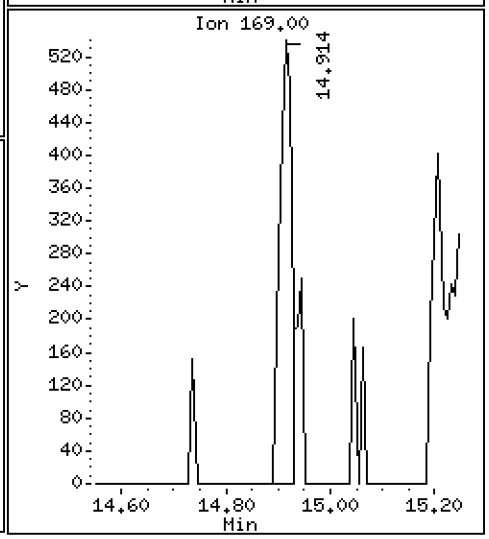












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

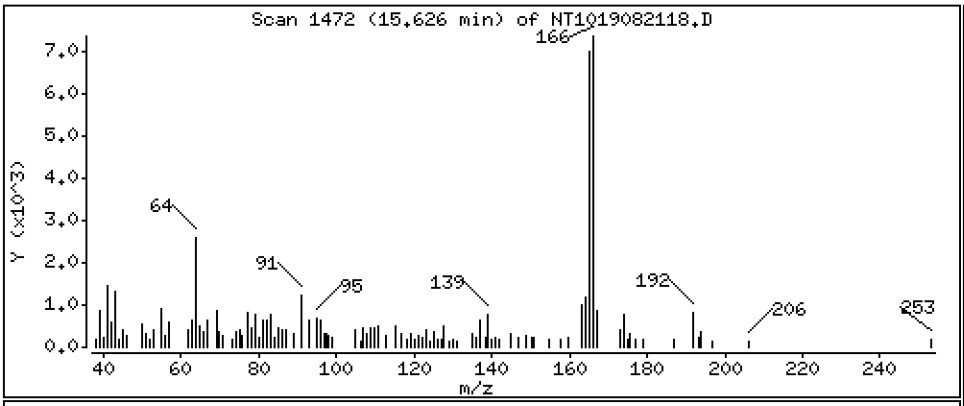
Operator: YZ

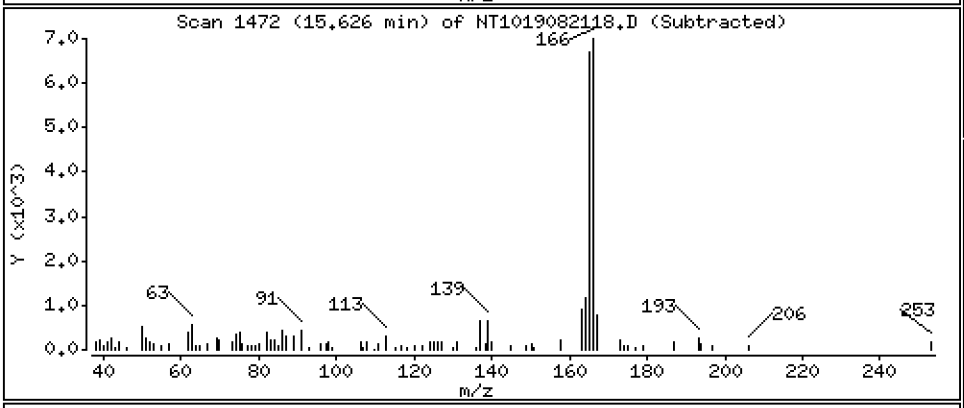
Column phase: ZB-5msi

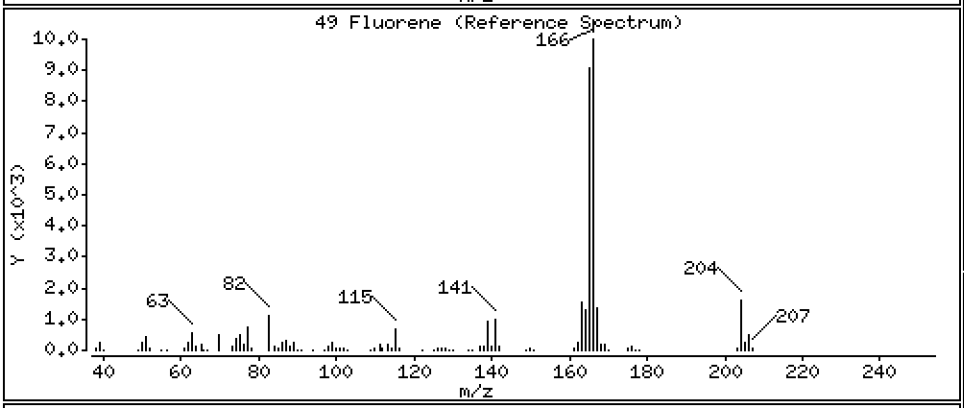
Column diameter: 0.25

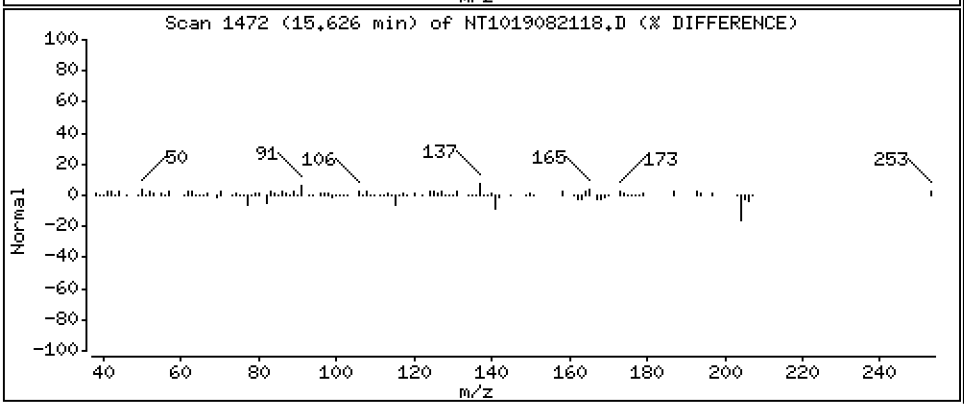
49 Fluorene

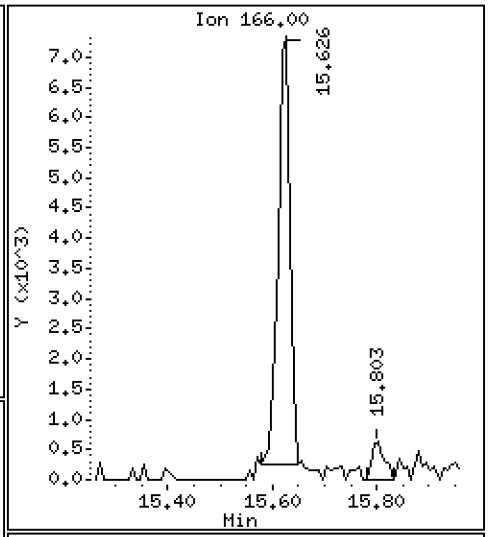
Concentration: 1.469 ug/mL

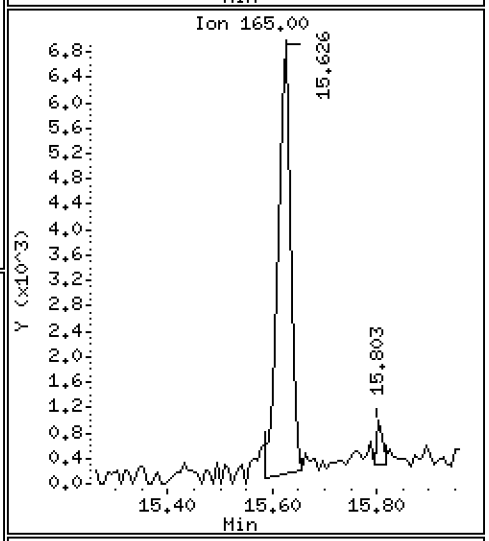


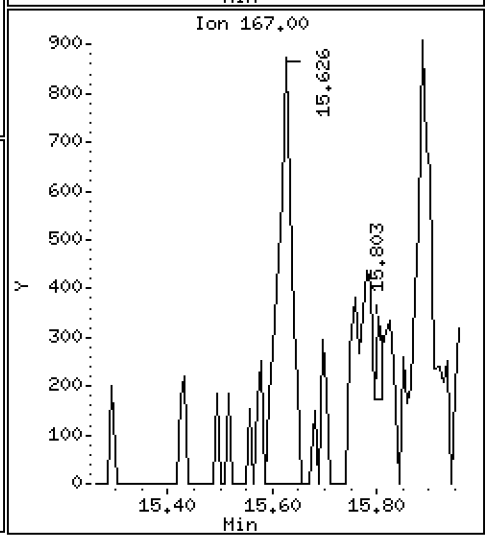












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

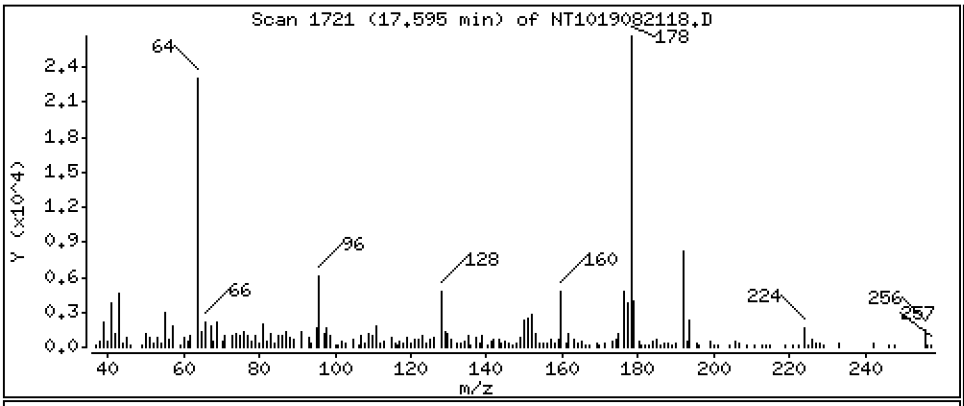
Operator: YZ

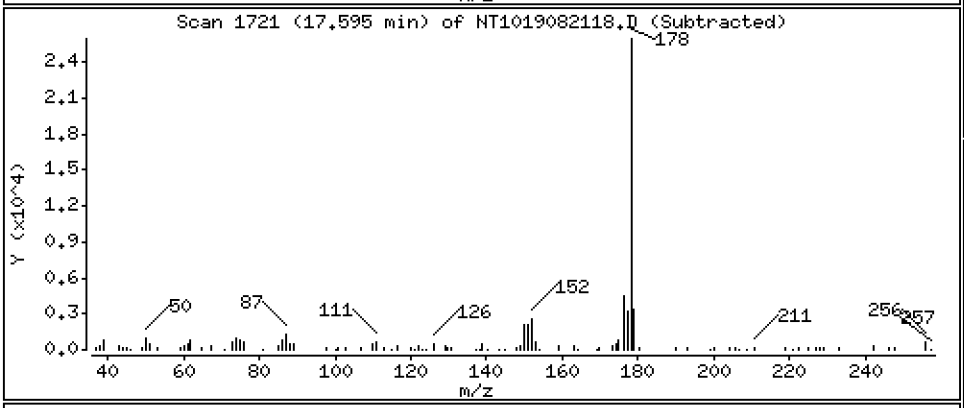
Column phase: ZB-5msi

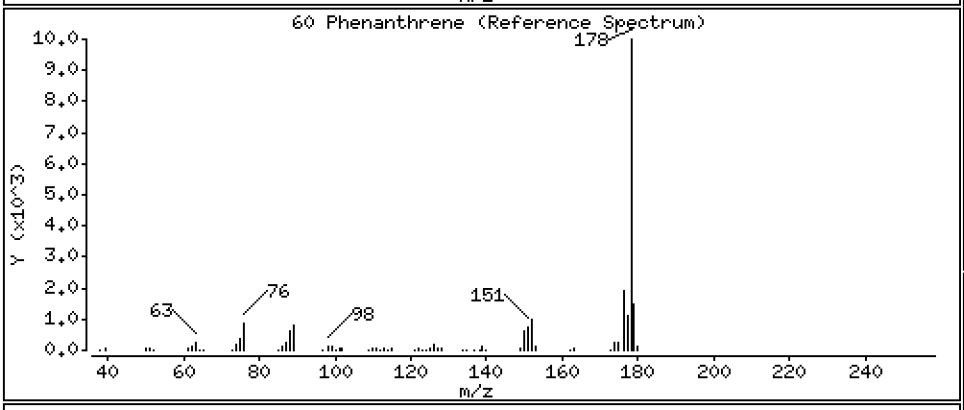
Column diameter: 0.25

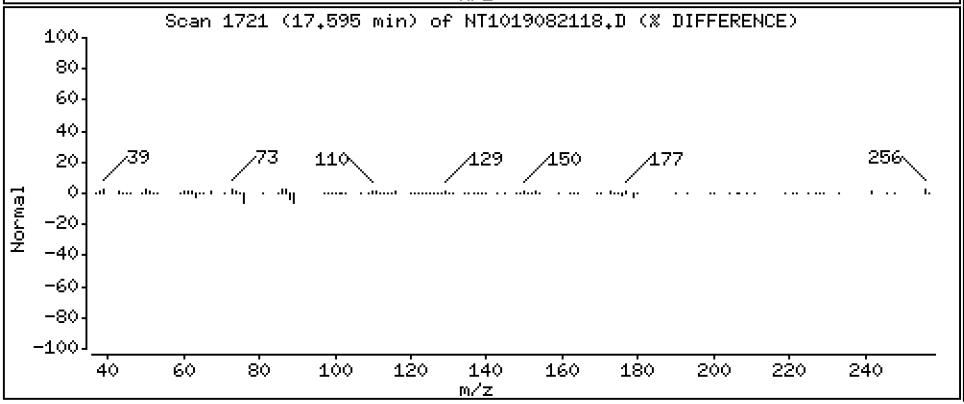
60 Phenanthrene

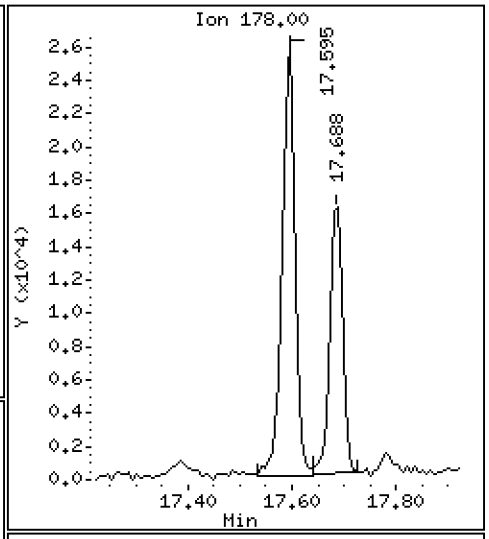
Concentration: 4.550 ug/mL

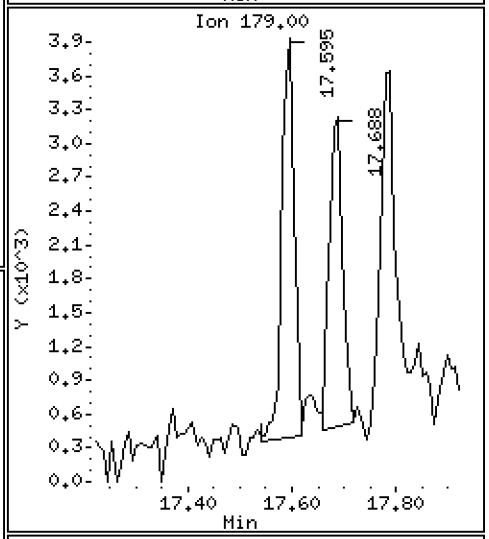


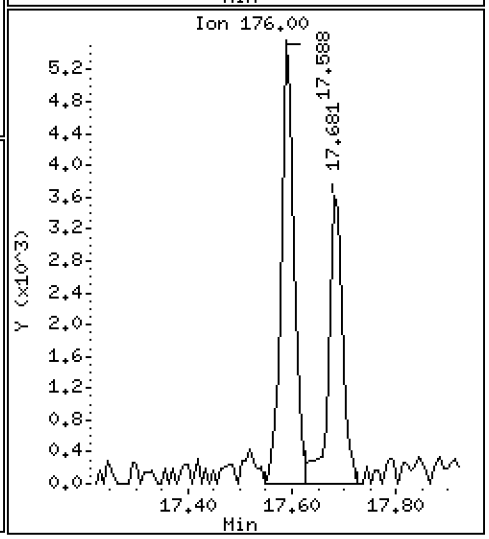












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

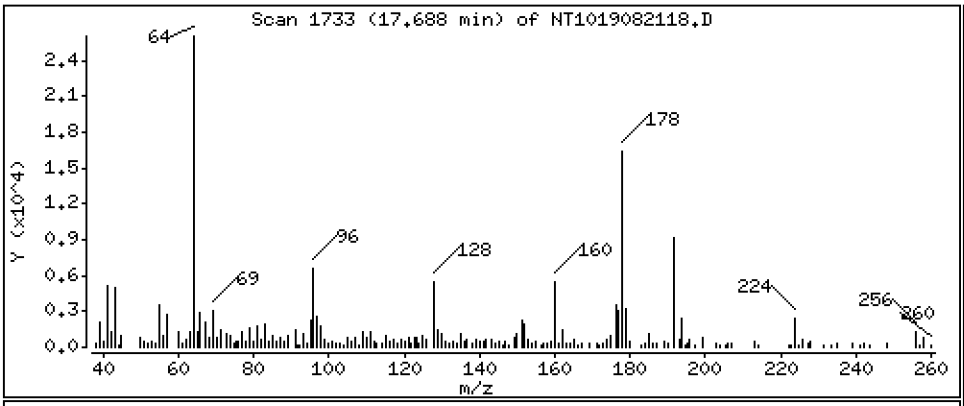
Operator: YZ

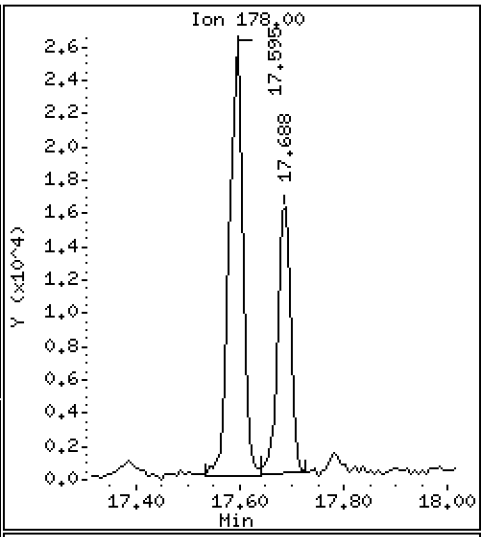
Column phase: ZB-5msi

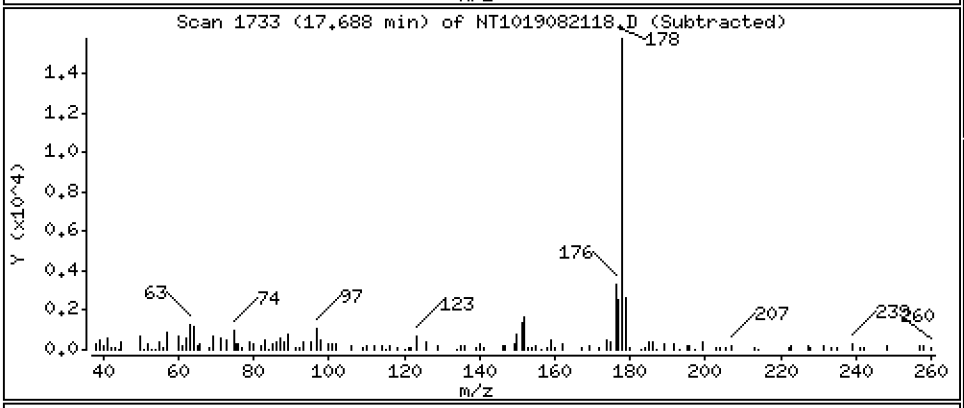
Column diameter: 0.25

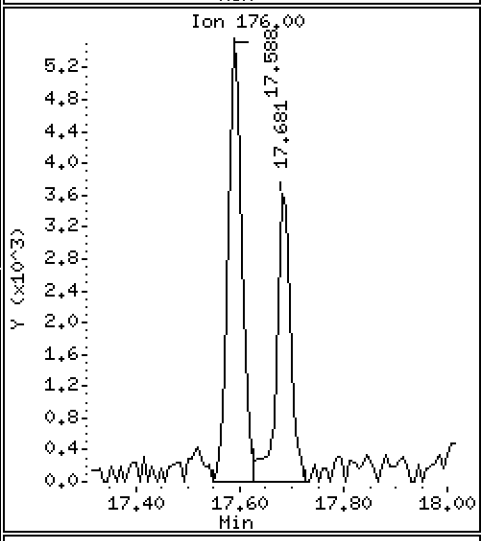
61 Anthracene

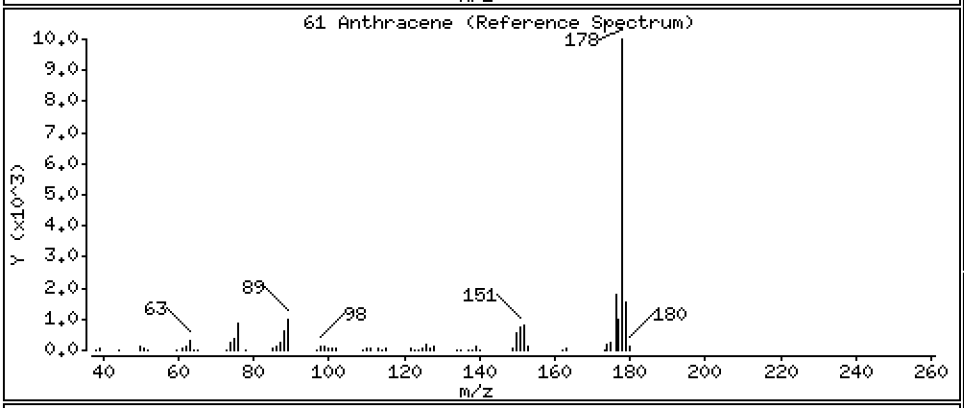
Concentration: 2.844 ug/mL

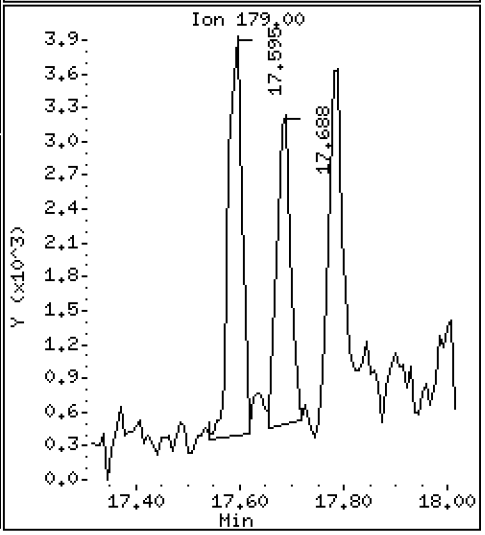


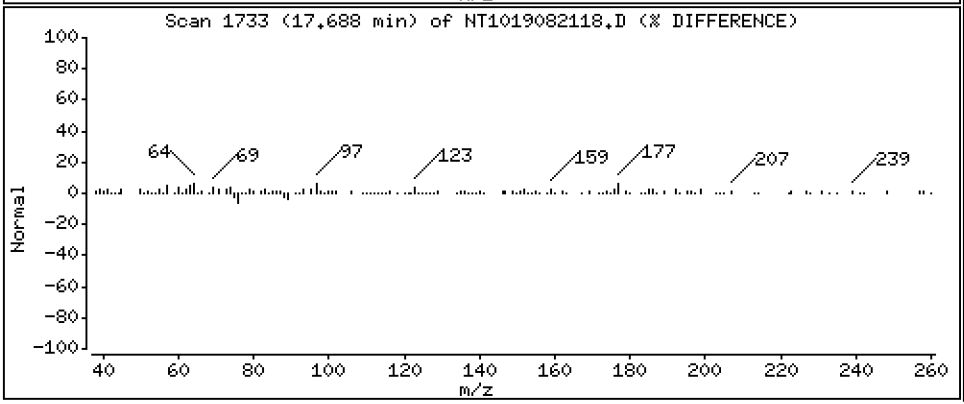












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

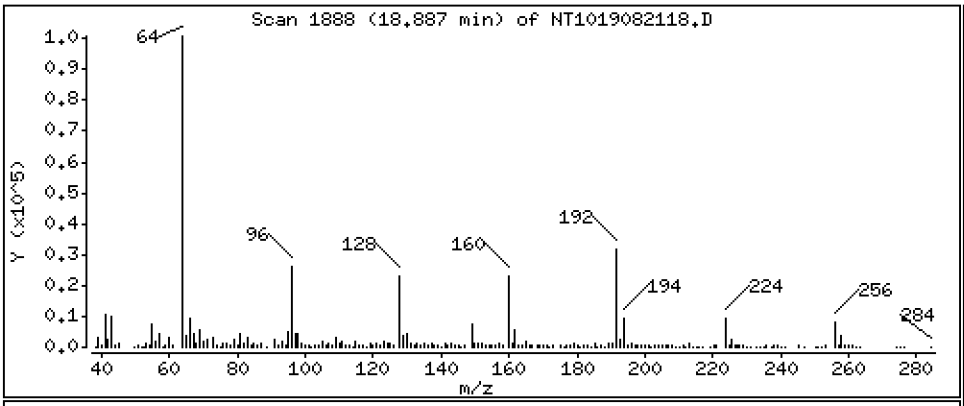
Operator: YZ

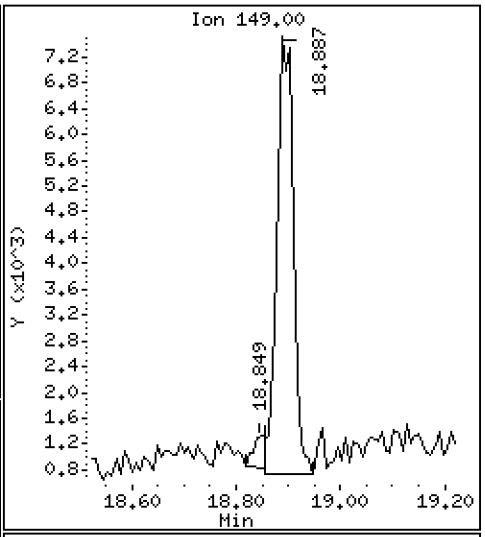
Column phase: ZB-5msi

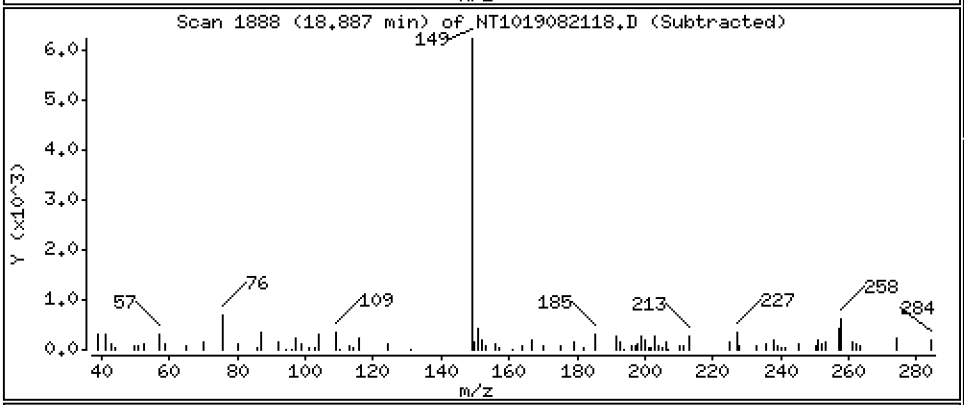
Column diameter: 0.25

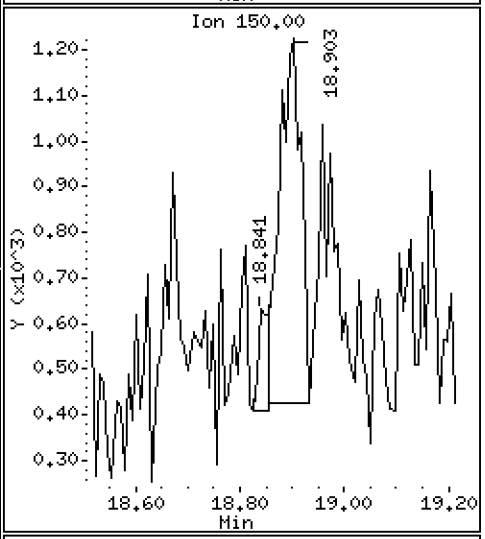
63 Di-n-butylphthalate

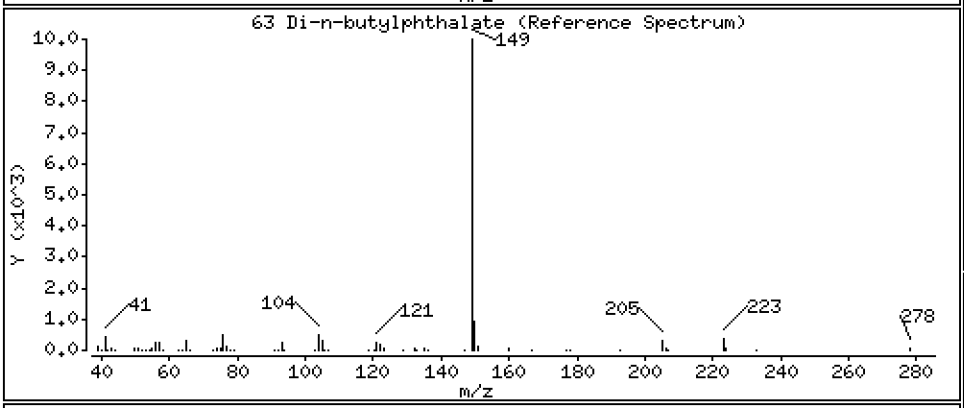
Concentration: 1.114 ug/mL

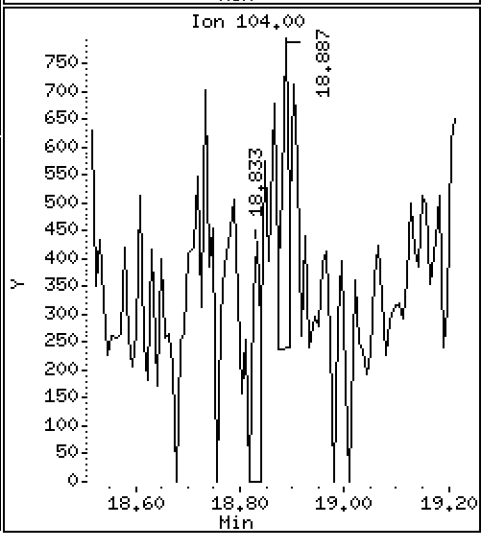


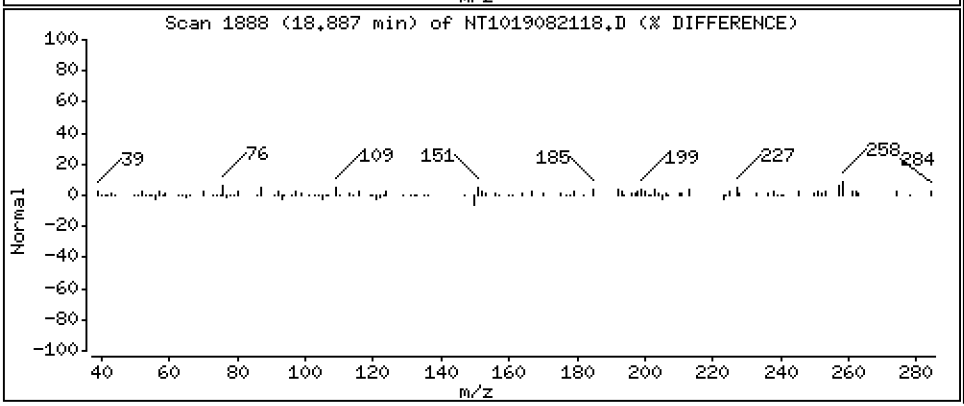












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

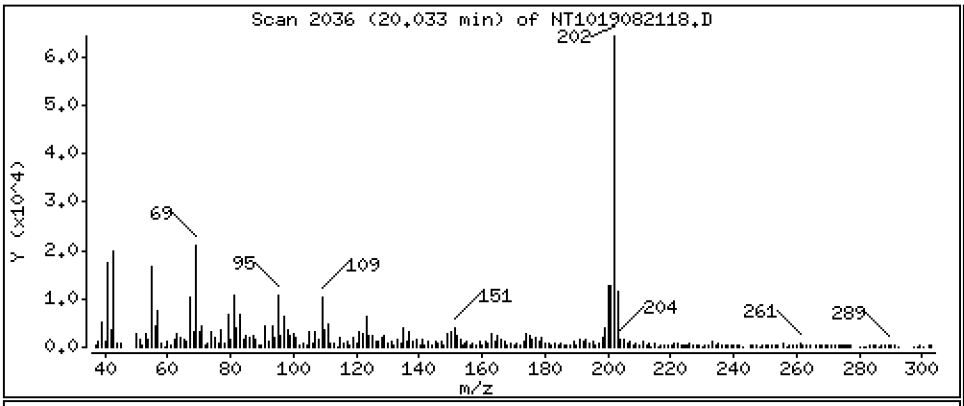
Operator: YZ

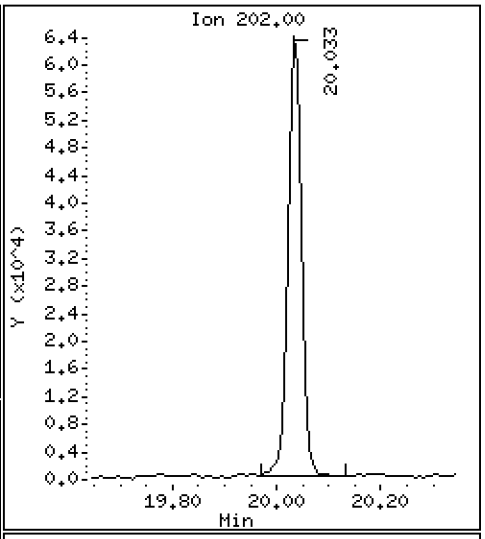
Column phase: ZB-5msi

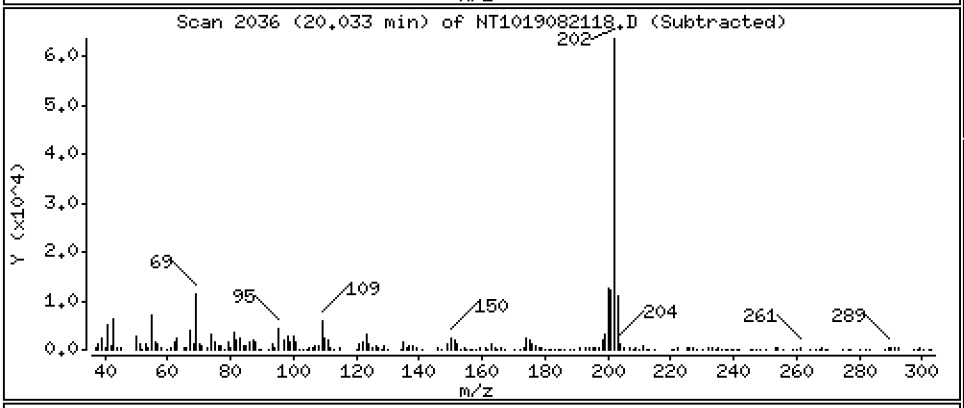
Column diameter: 0.25

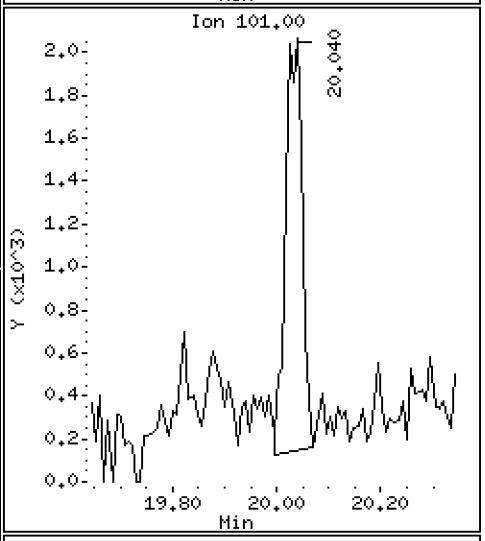
64 Fluoranthene

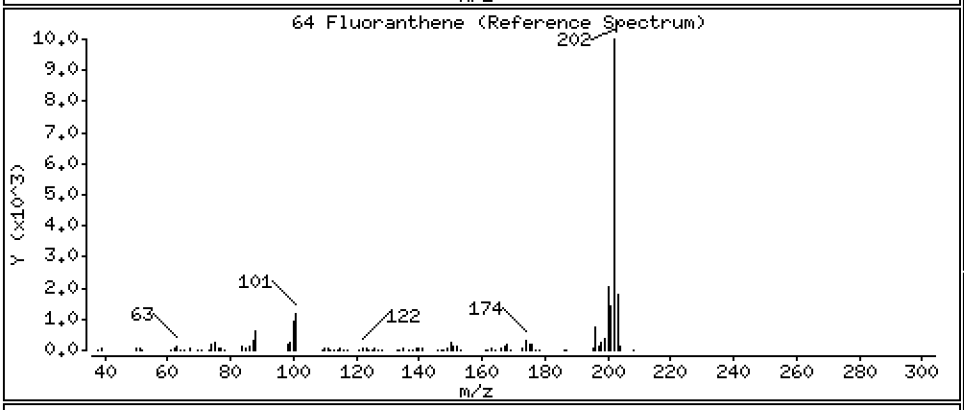
Concentration: 19.41 ug/mL

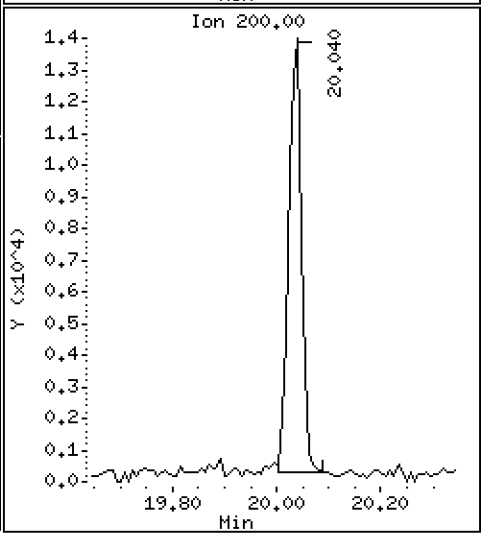


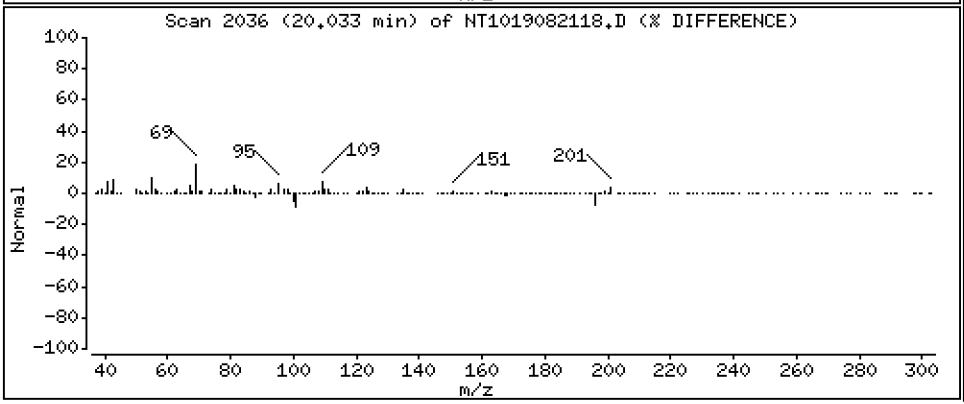












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

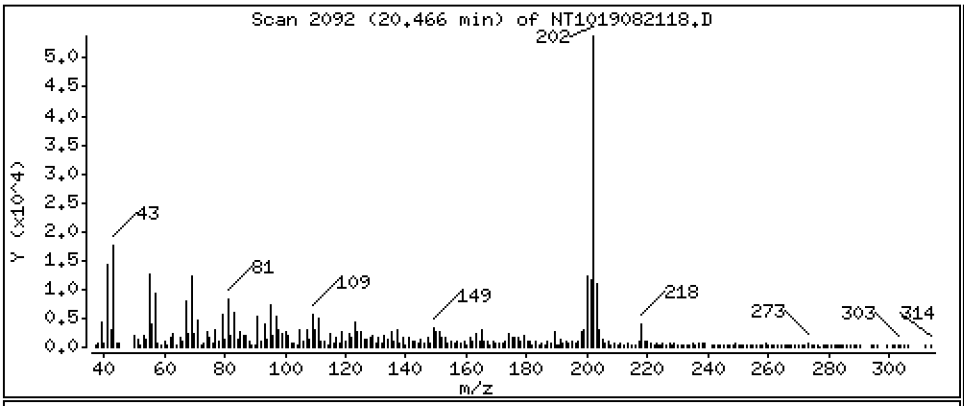
Operator: YZ

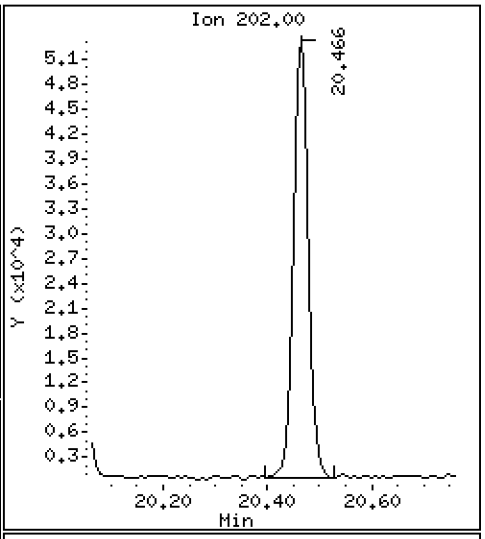
Column phase: ZB-5msi

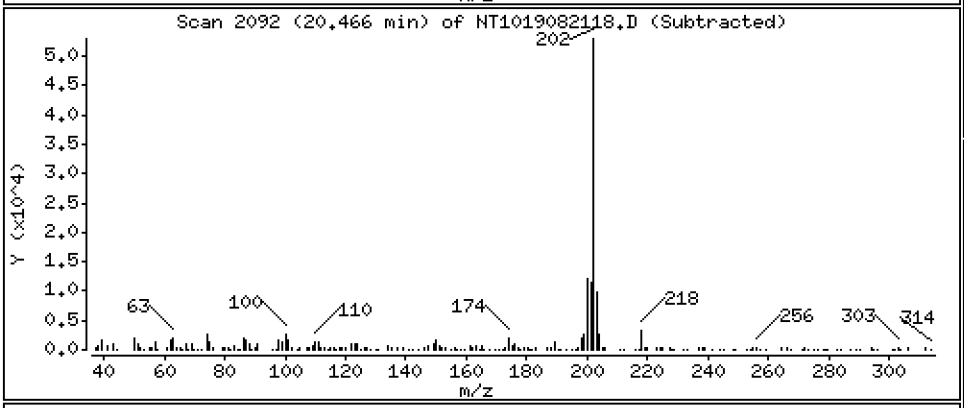
Column diameter: 0.25

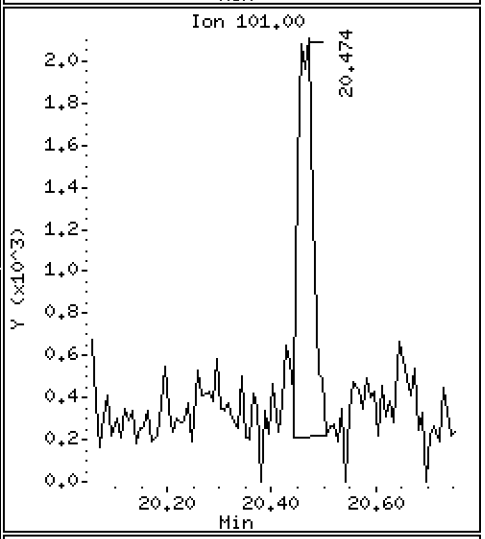
65 Pyrene

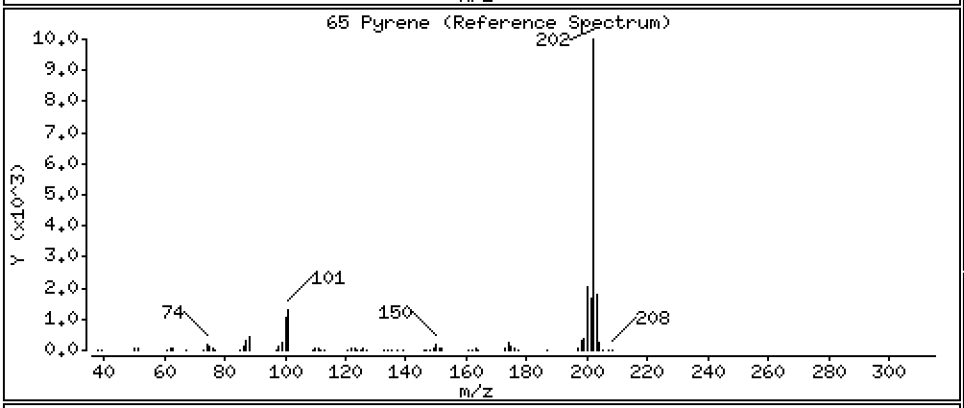
Concentration: 16.77 ug/mL

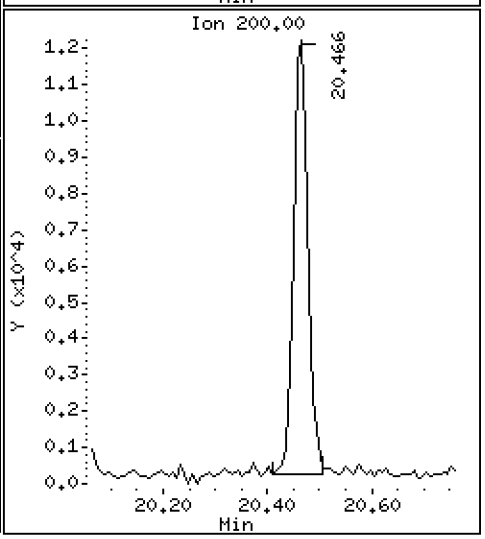


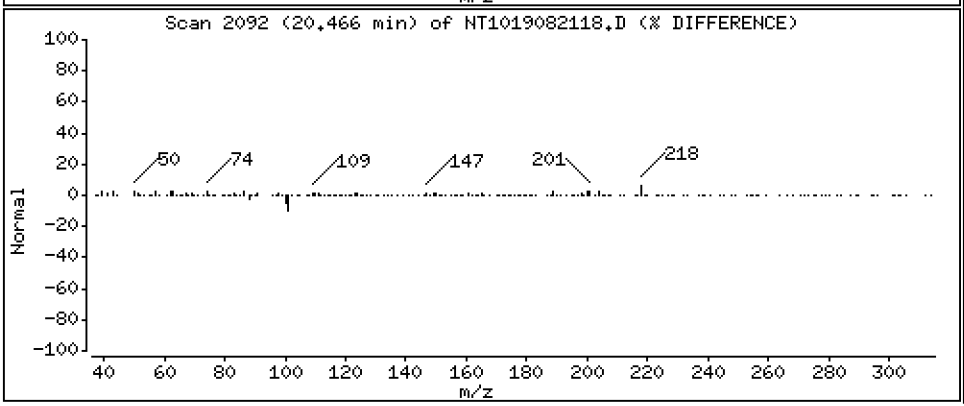












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

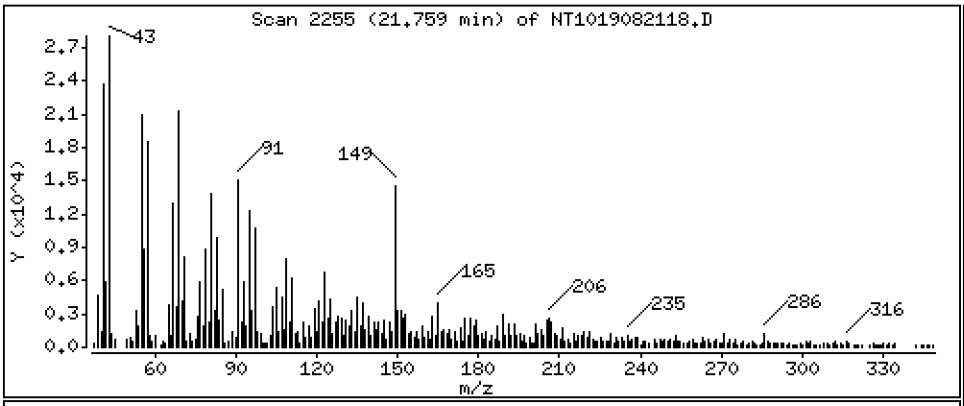
Operator: YZ

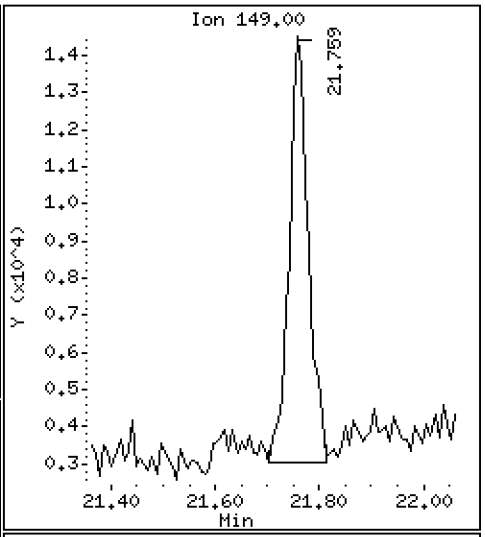
Column phase: ZB-5msi

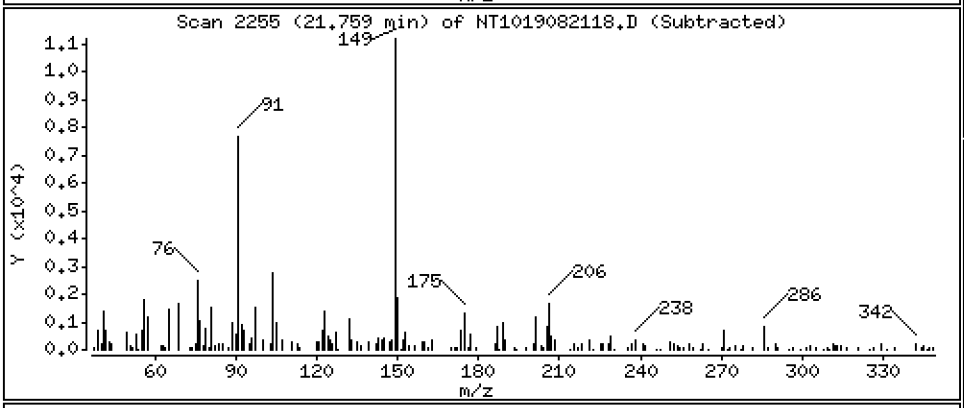
Column diameter: 0.25

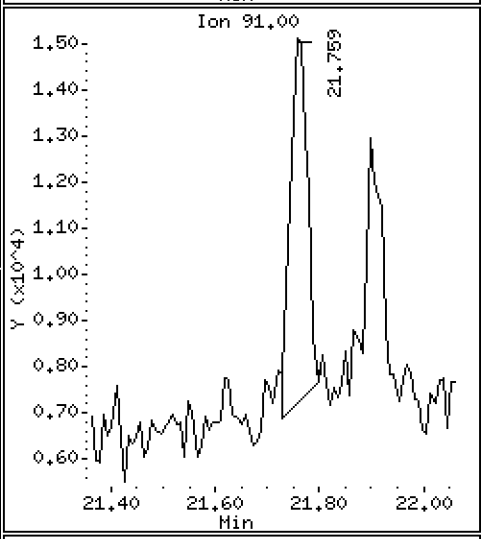
67 Butylbenzylphthalate

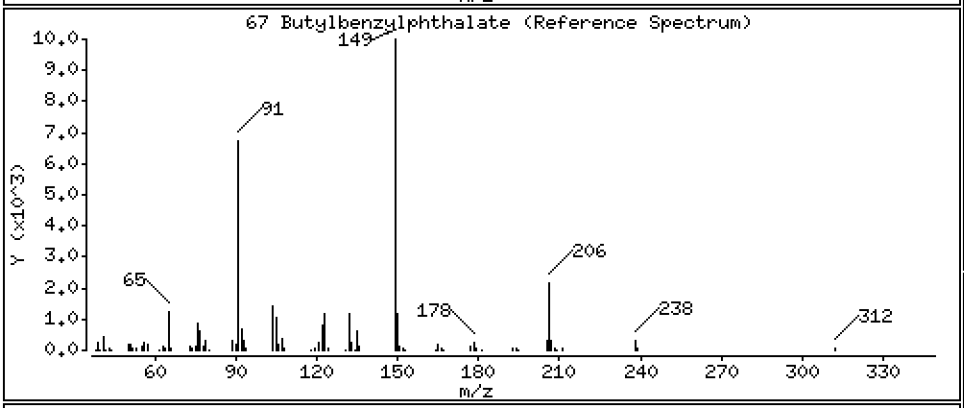
Concentration: 9.923 ug/mL

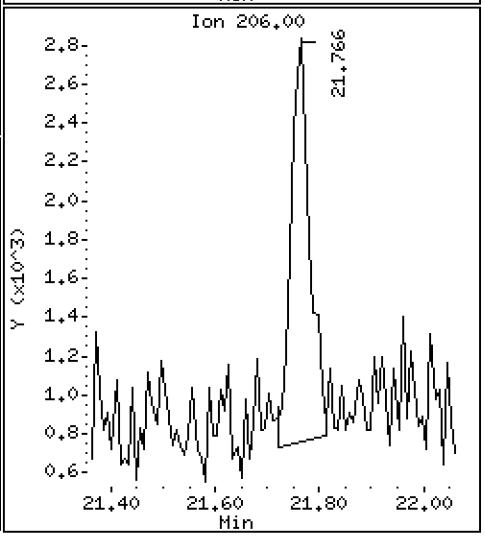


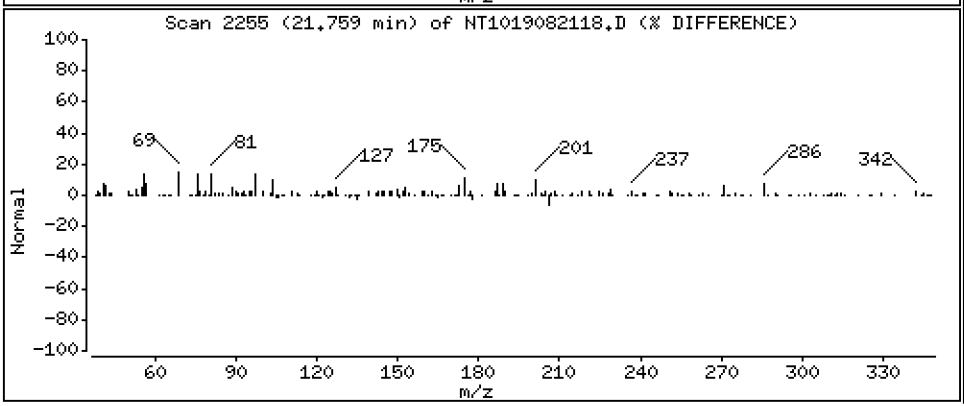












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

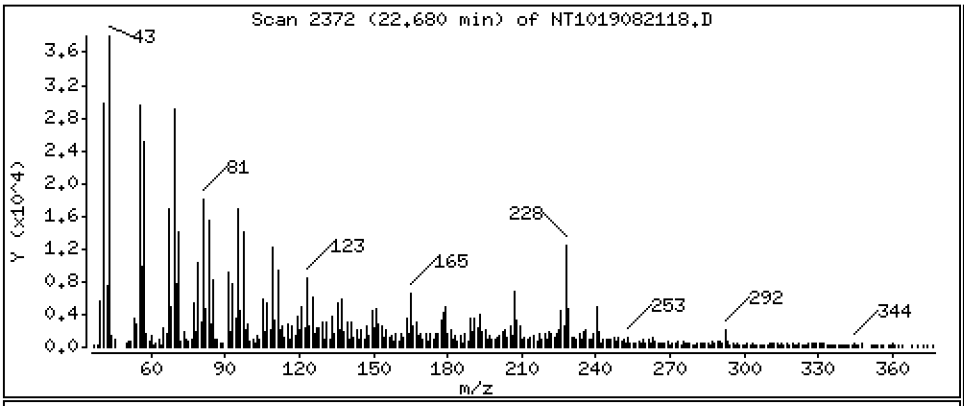
Operator: YZ

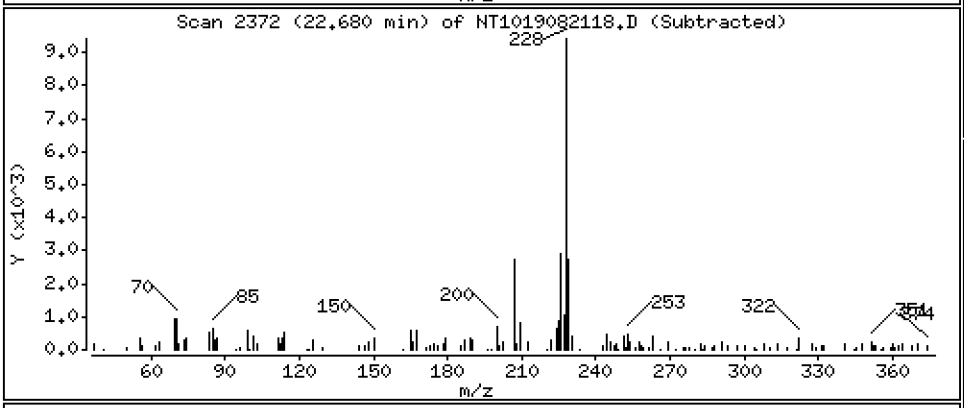
Column phase: ZB-5msi

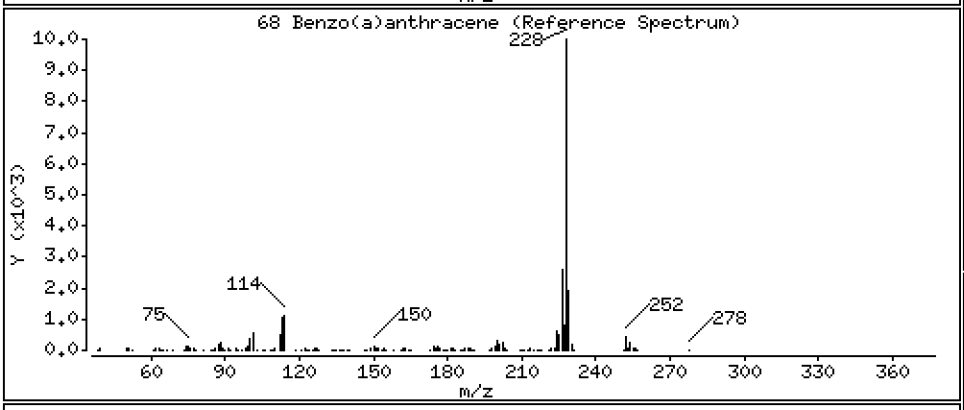
Column diameter: 0.25

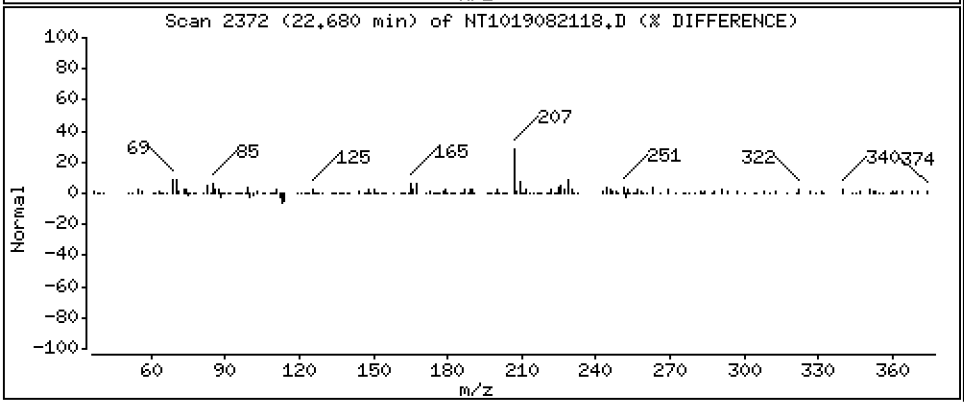
68 Benzo(a)anthracene

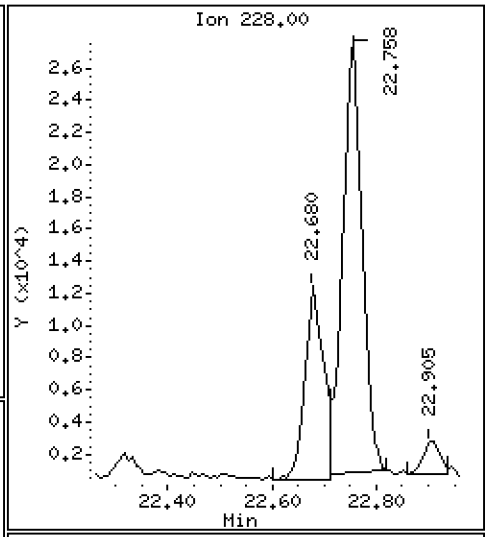
Concentration: 5.075 ug/mL

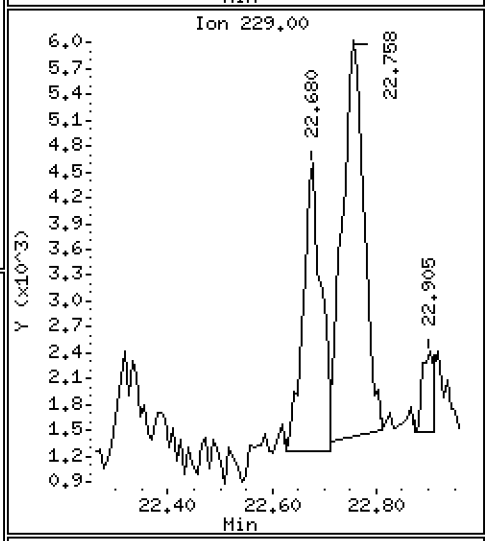


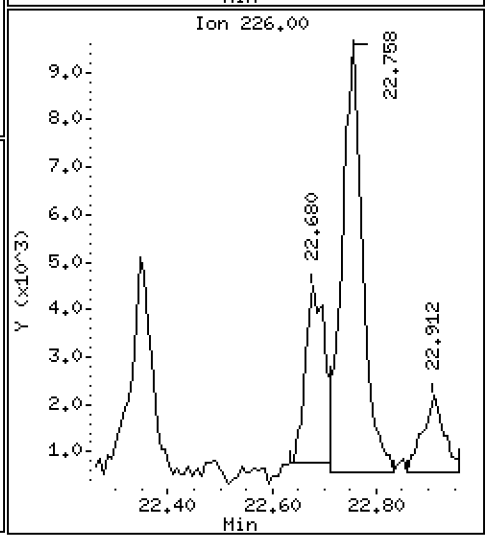












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

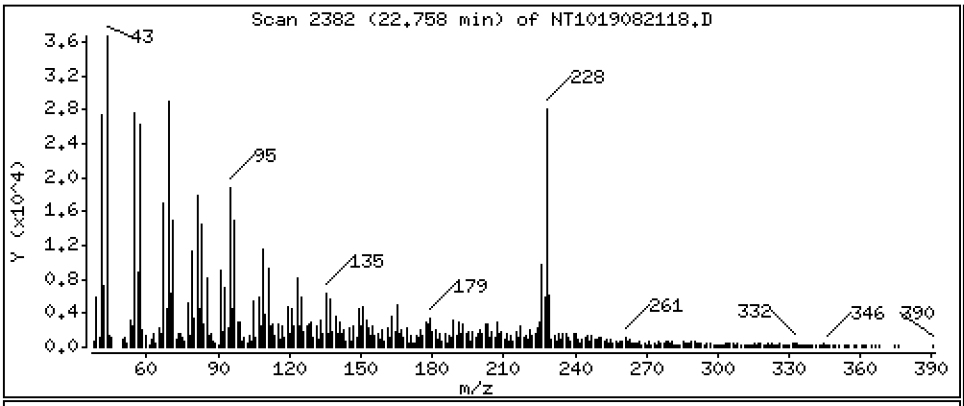
Operator: YZ

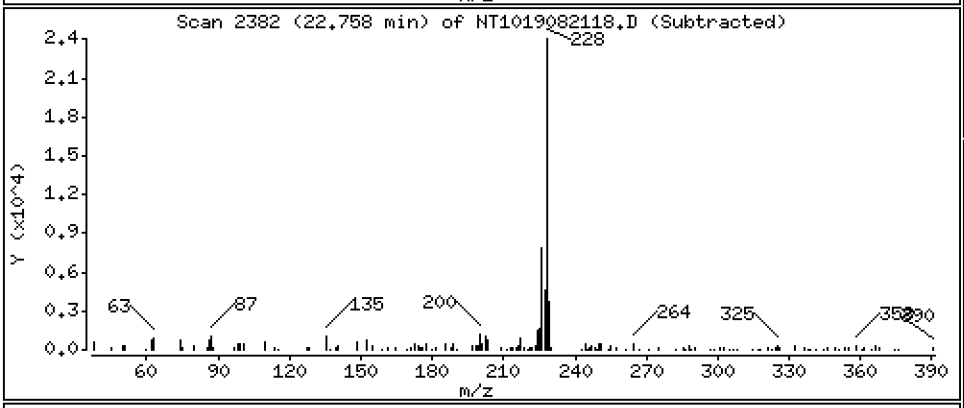
Column phase: ZB-5msi

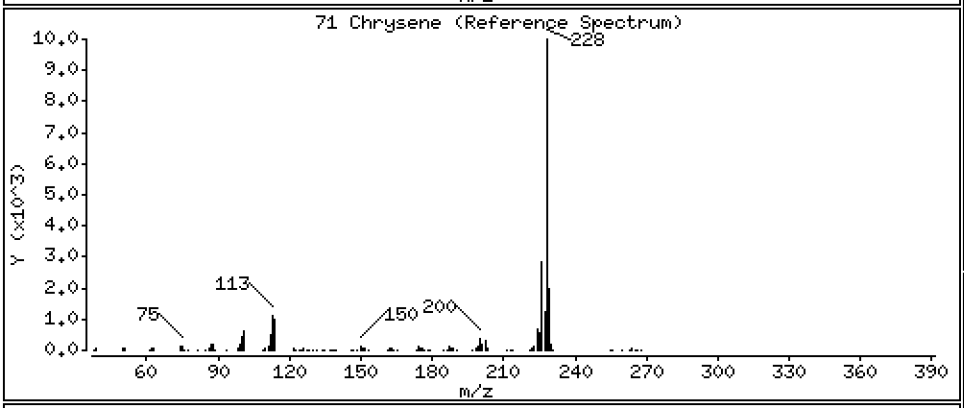
Column diameter: 0.25

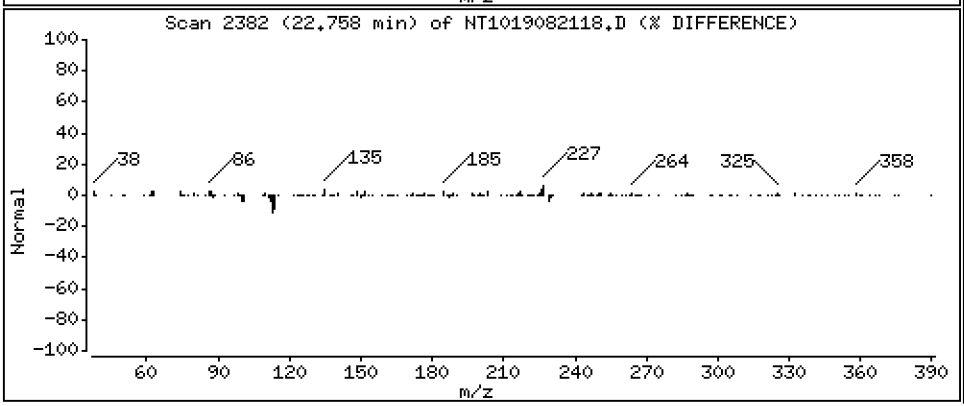
71 Chrysene

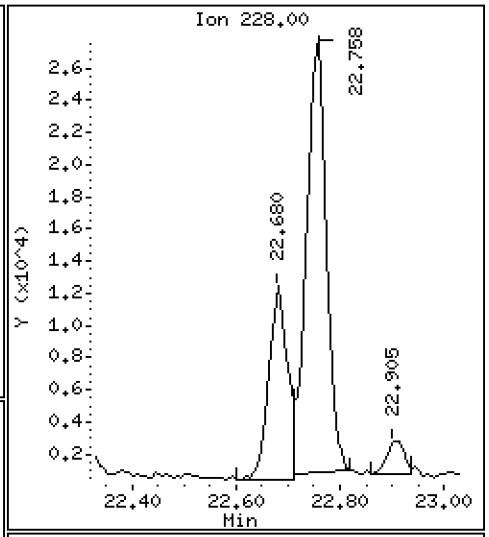
Concentration: 13.47 ug/mL

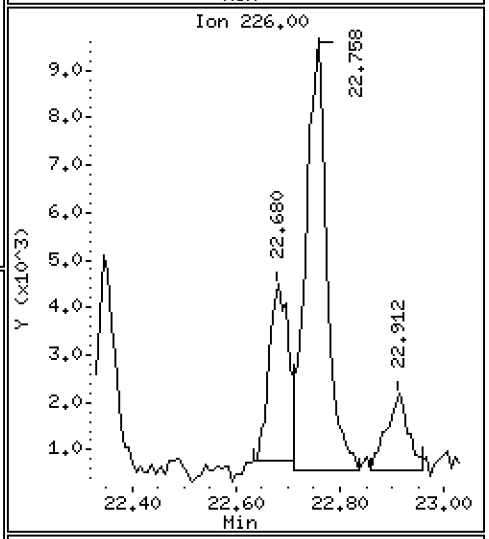


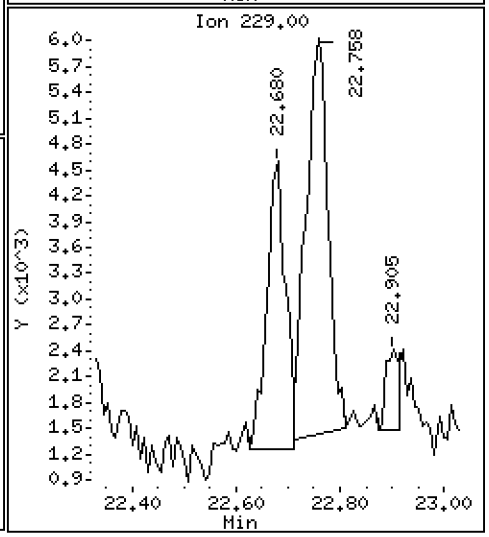












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

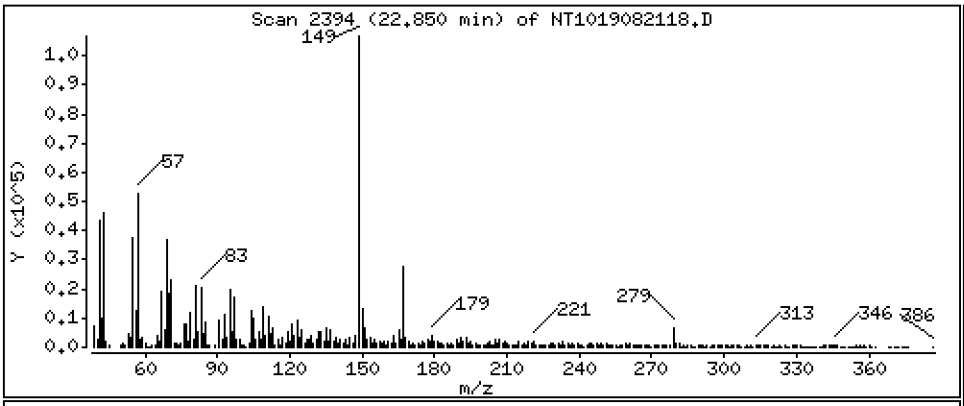
Operator: YZ

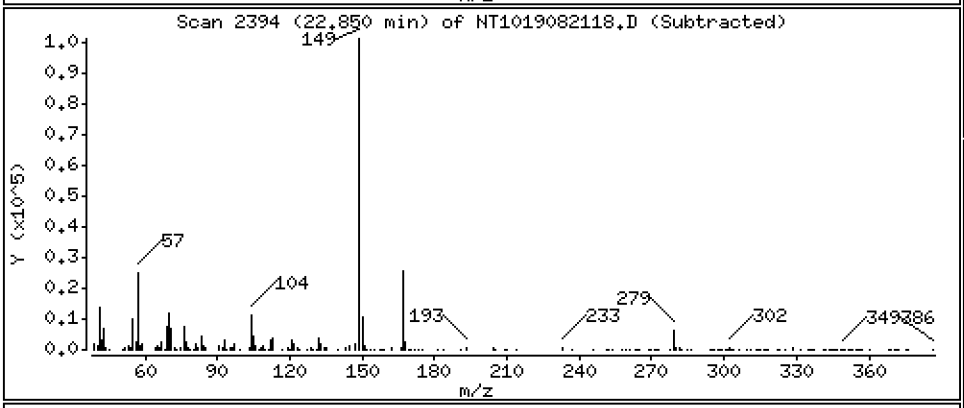
Column phase: ZB-5msi

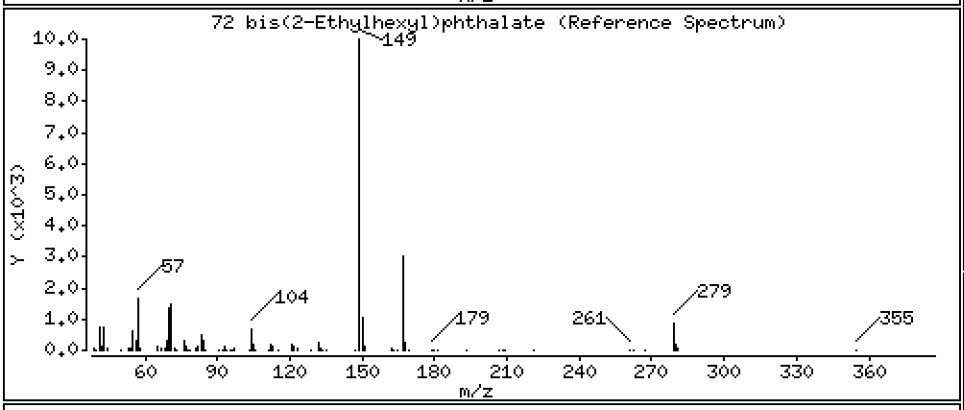
Column diameter: 0.25

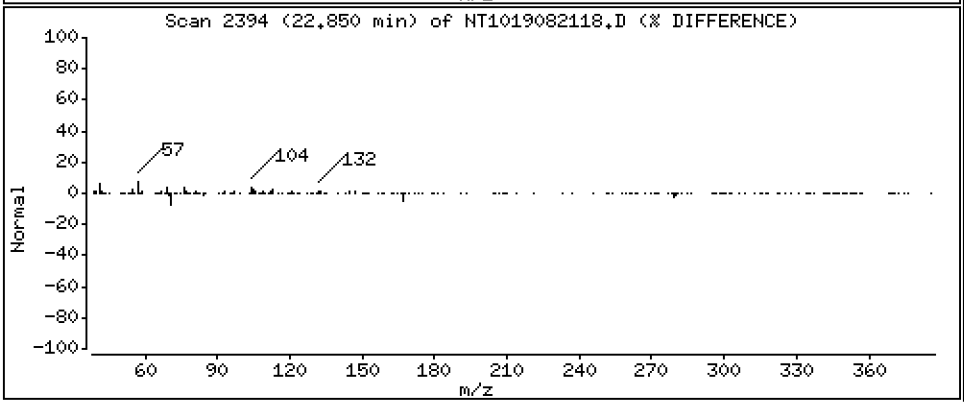
72 bis(2-Ethylhexyl)phthalate

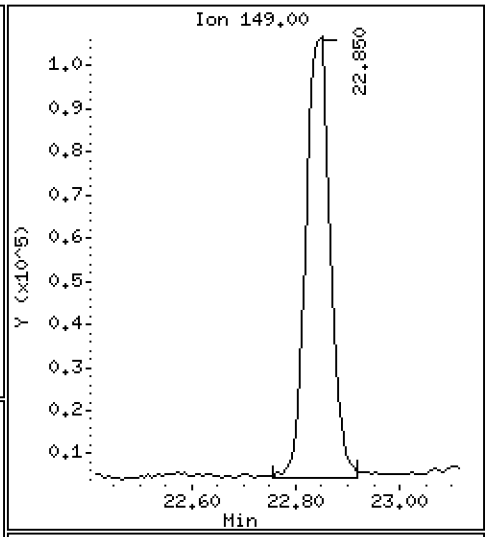
Concentration: 75.77 ug/mL

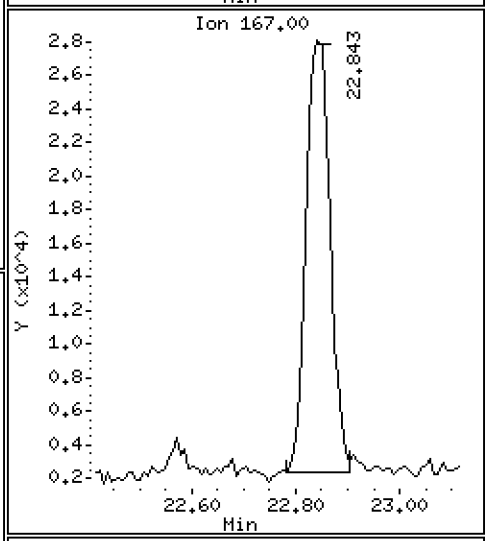


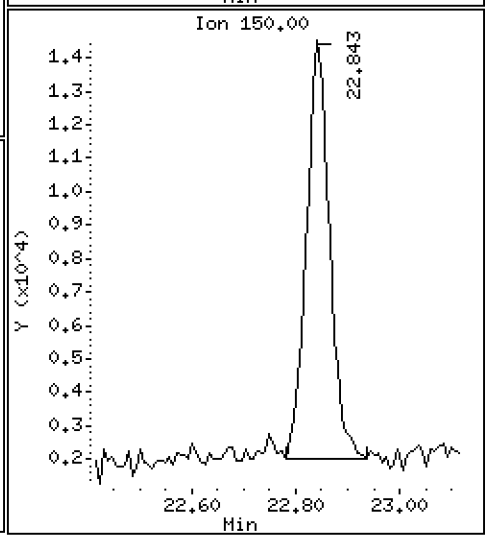












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

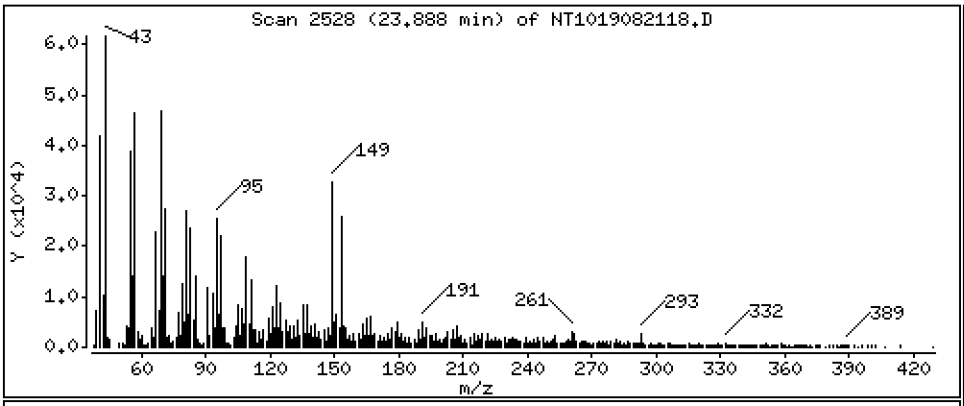
Operator: YZ

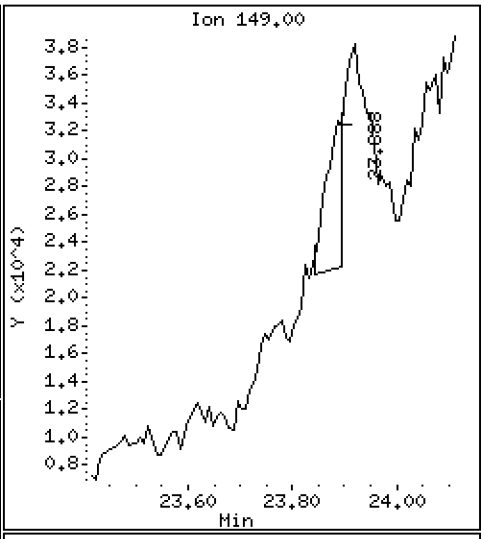
Column phase: ZB-5msi

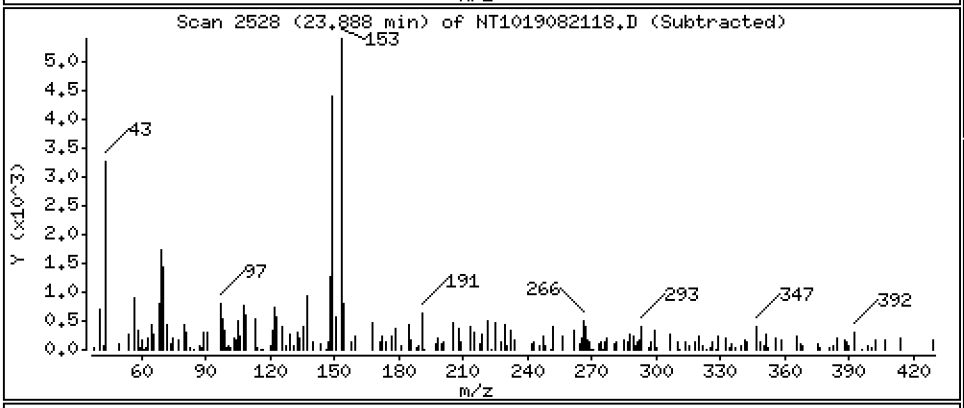
Column diameter: 0.25

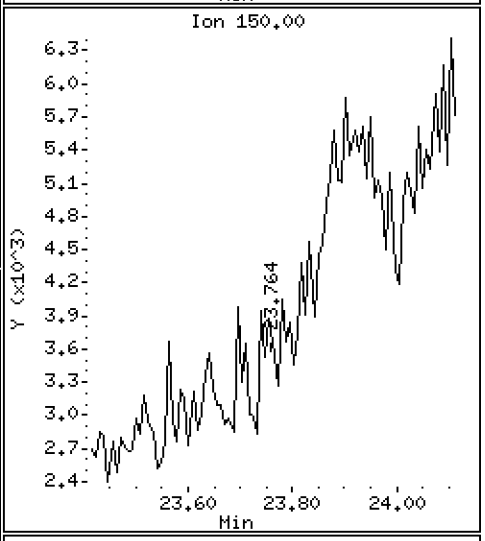
73 Di-n-octylphthalate

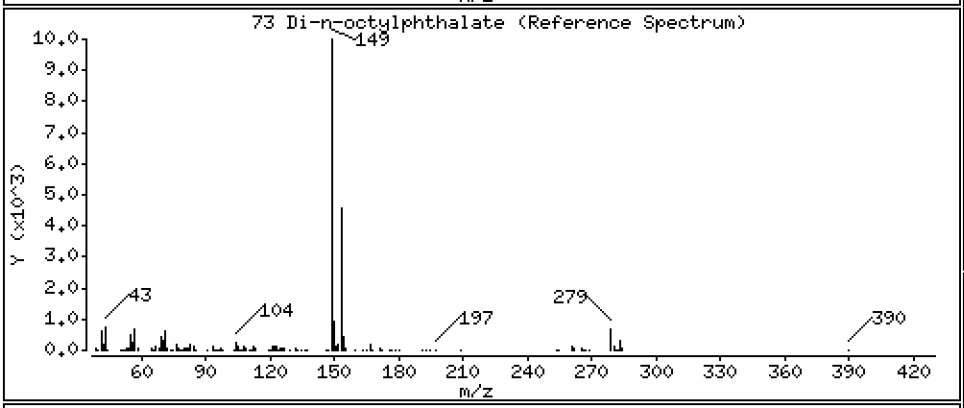
Concentration: 2.707 ug/mL

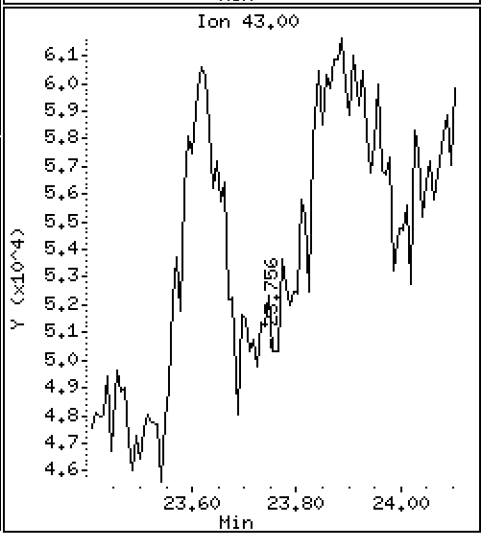


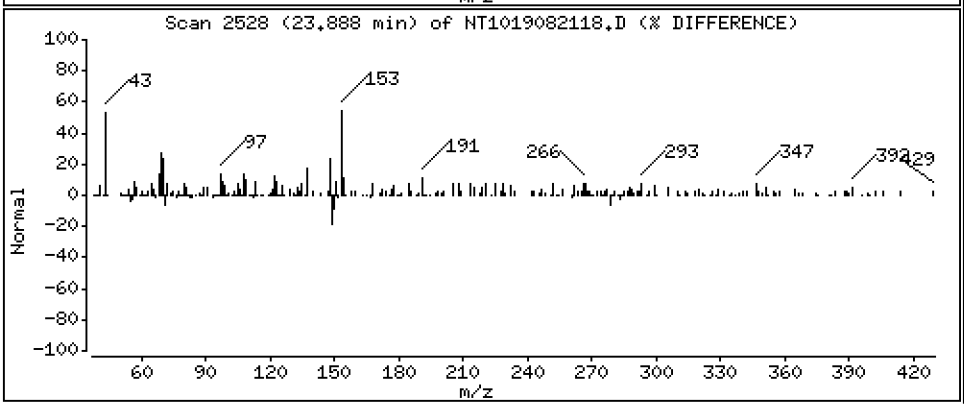












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

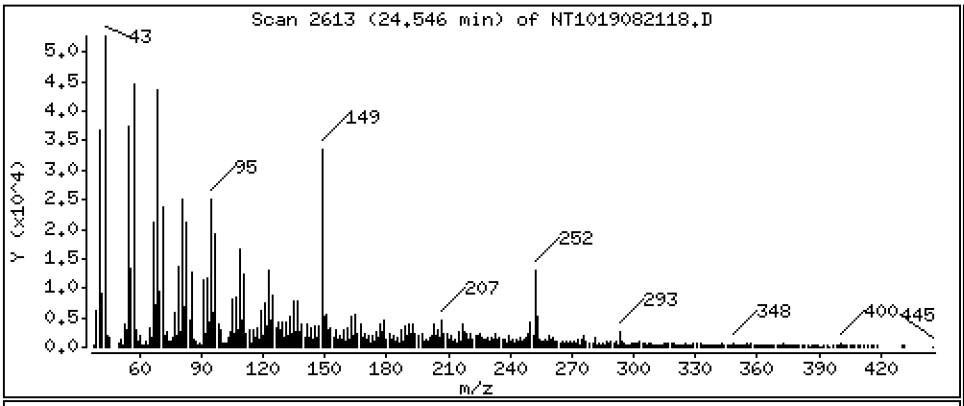
Operator: YZ

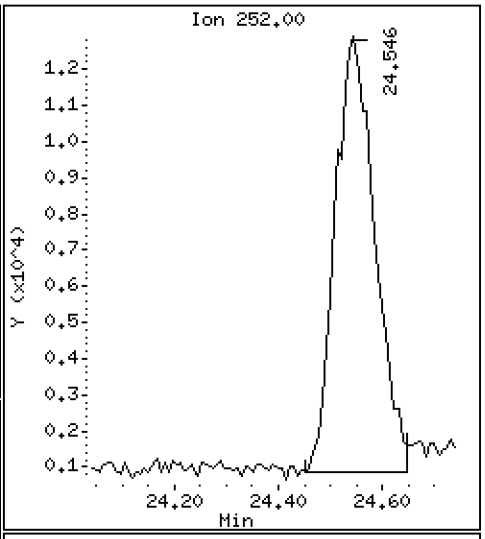
Column phase: ZB-5msi

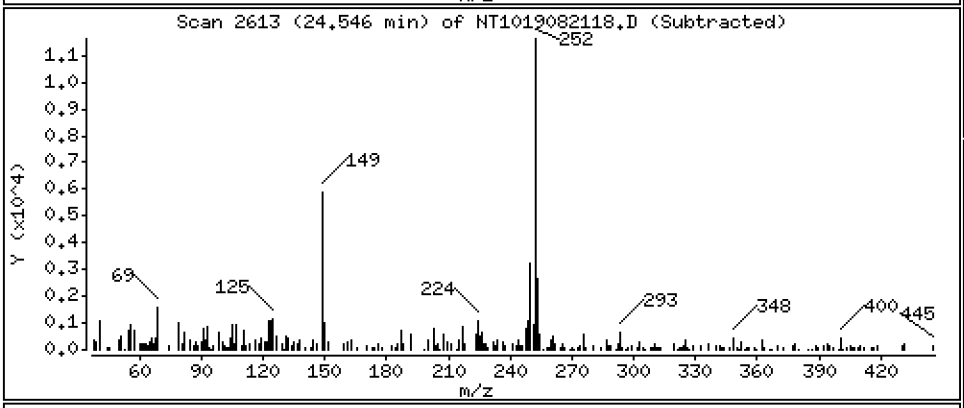
Column diameter: 0.25

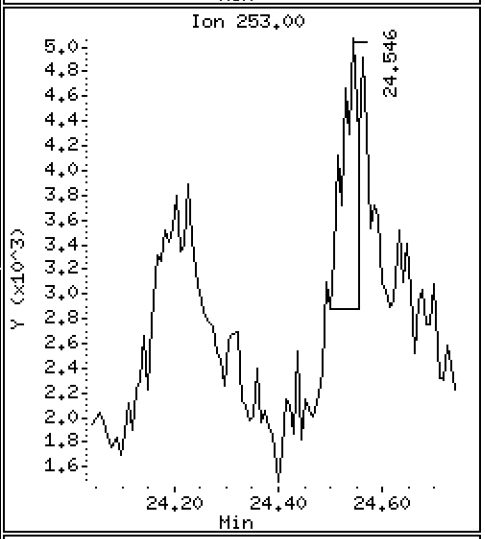
74 Benzo(b)fluoranthene

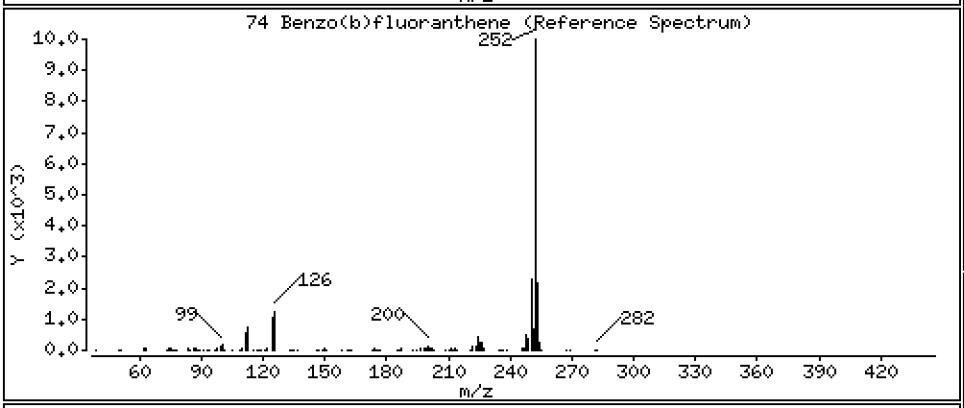
Concentration: 13.80 ug/mL

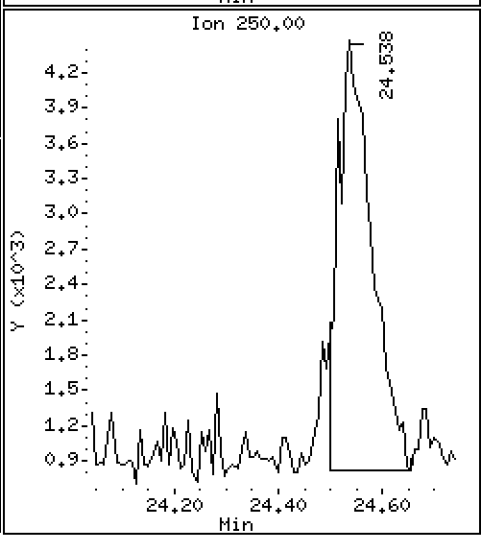


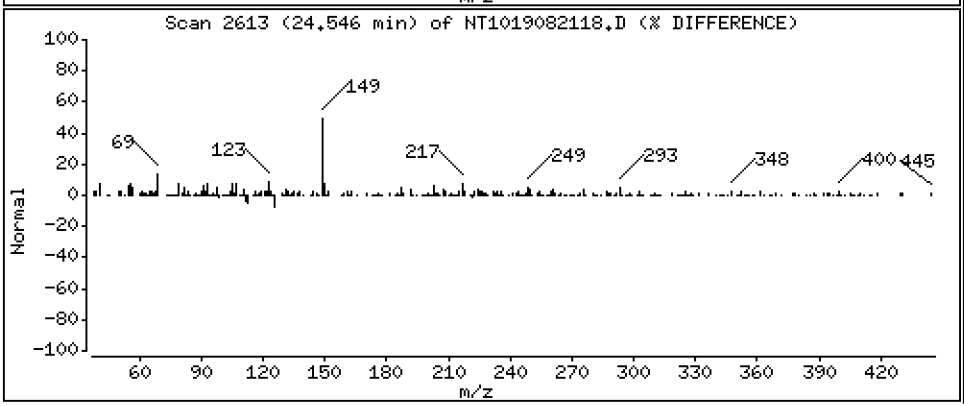












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

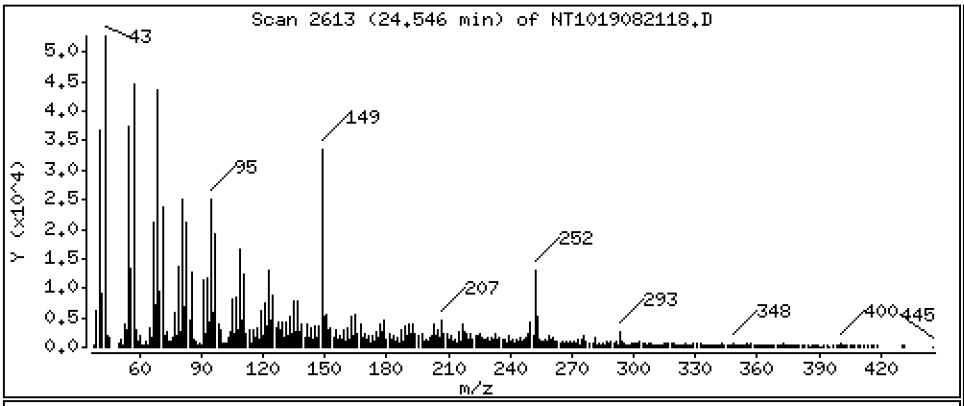
Operator: YZ

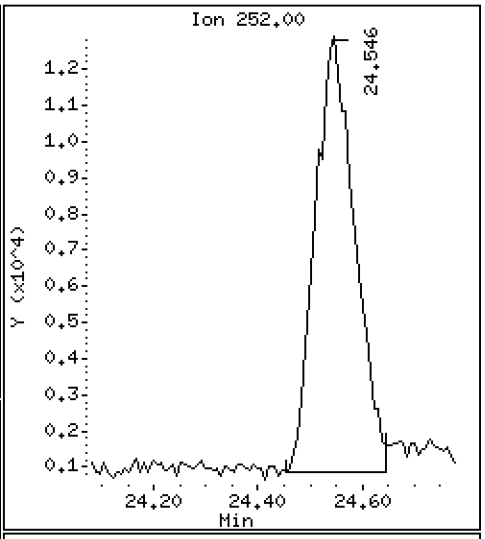
Column phase: ZB-5msi

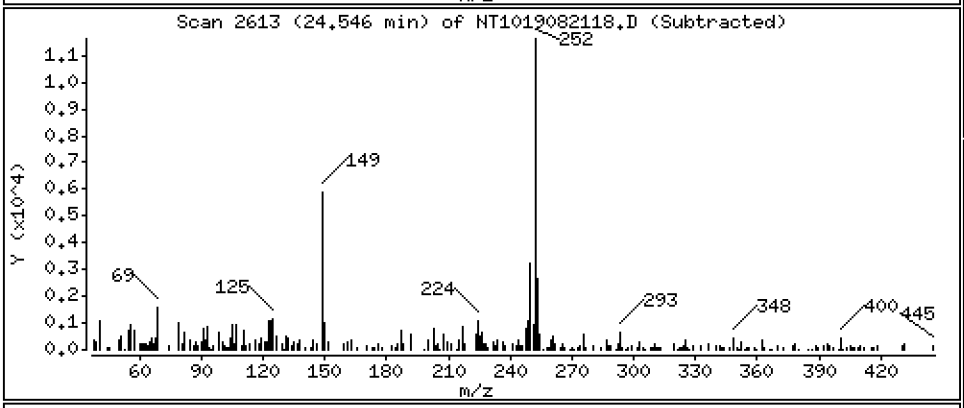
Column diameter: 0.25

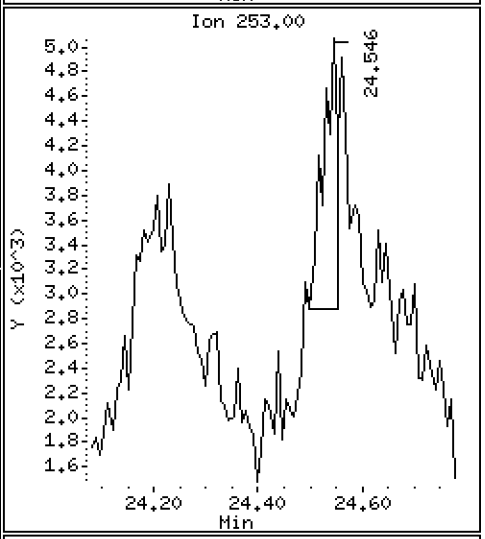
75 Benzo(k)fluoranthene

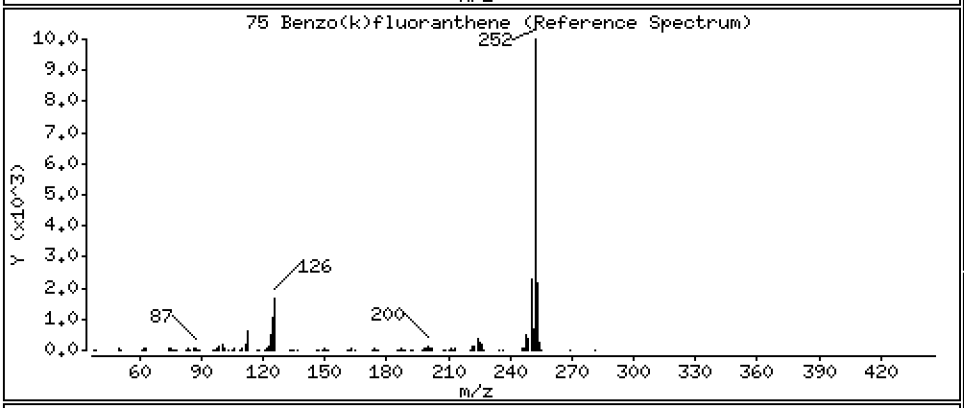
Concentration: 13.72 ug/mL

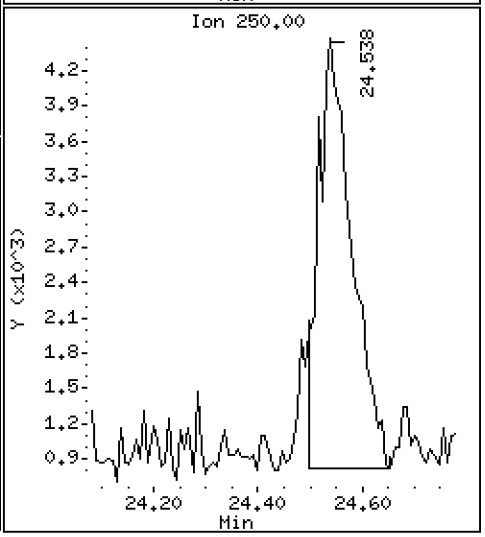


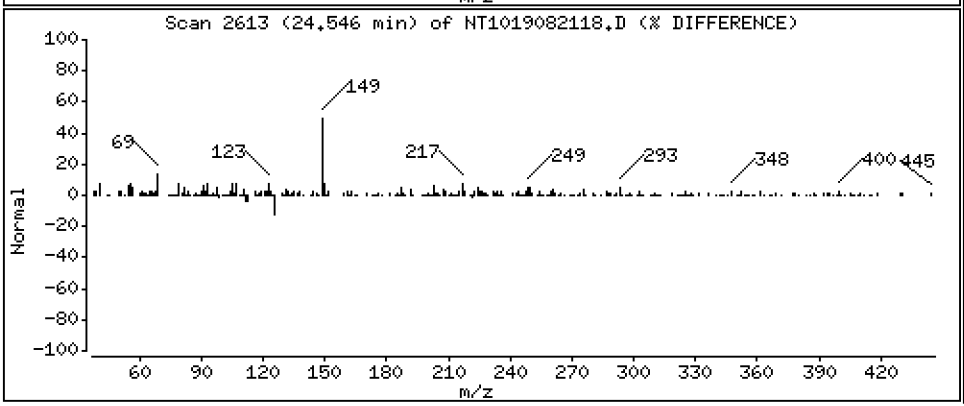












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

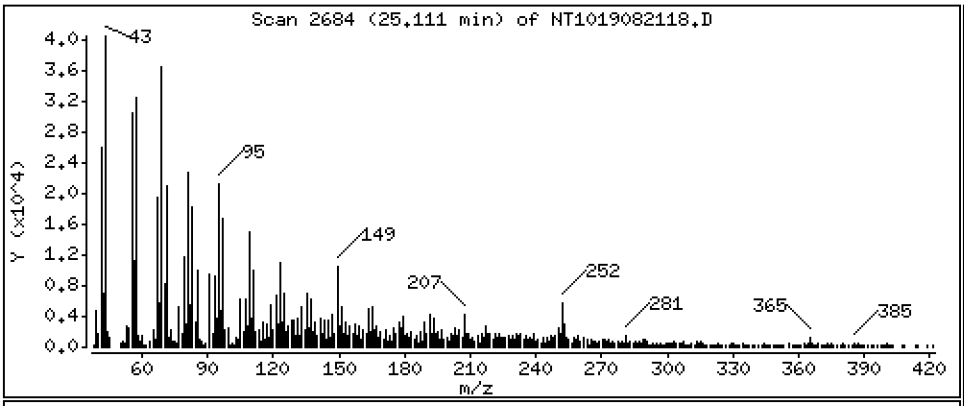
Operator: YZ

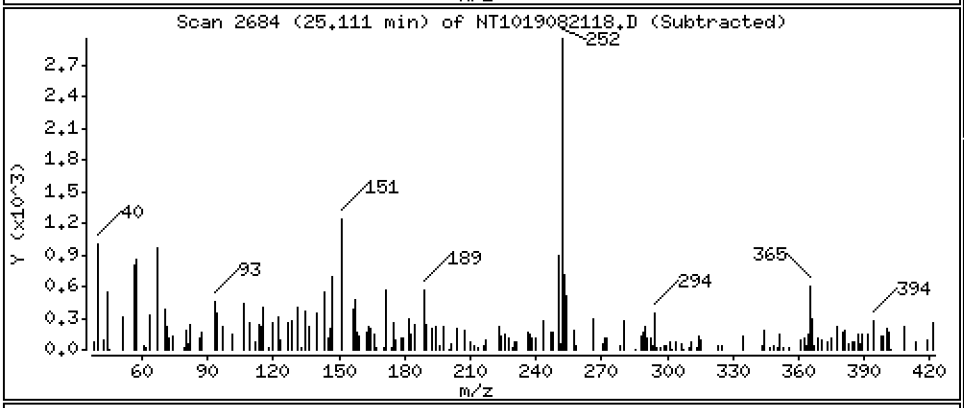
Column phase: ZB-5msi

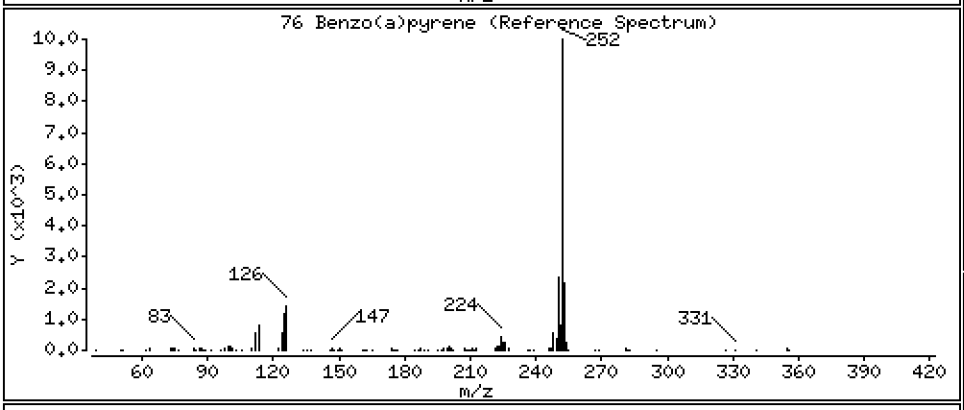
Column diameter: 0.25

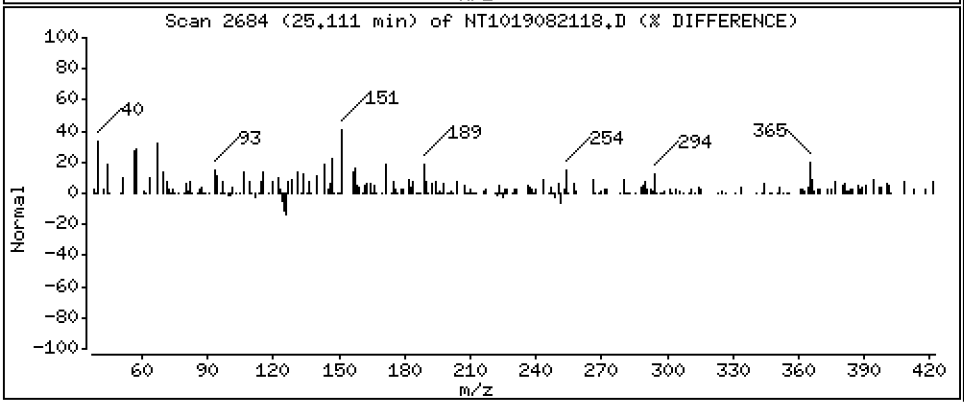
76 Benzo(a)pyrene

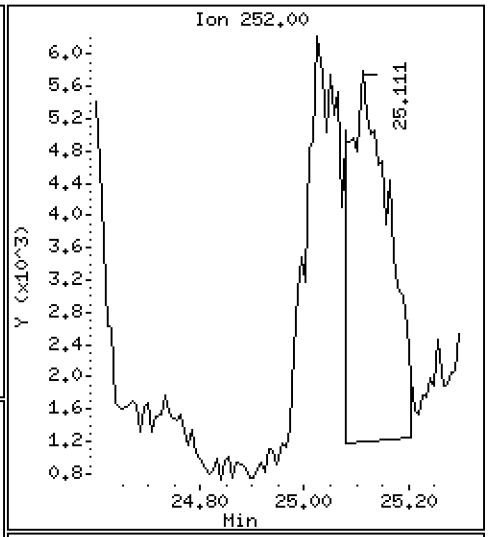
Concentration: 5.762 ug/mL

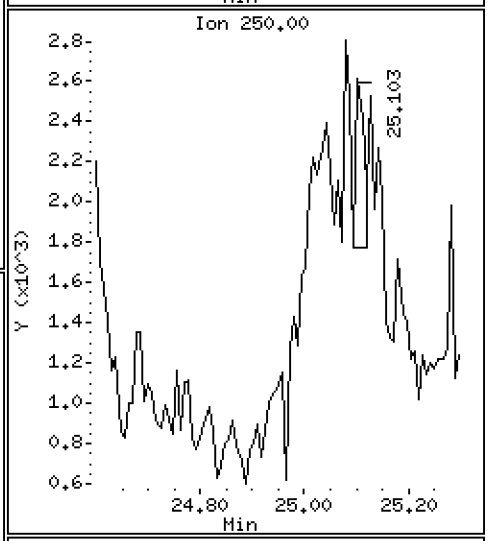


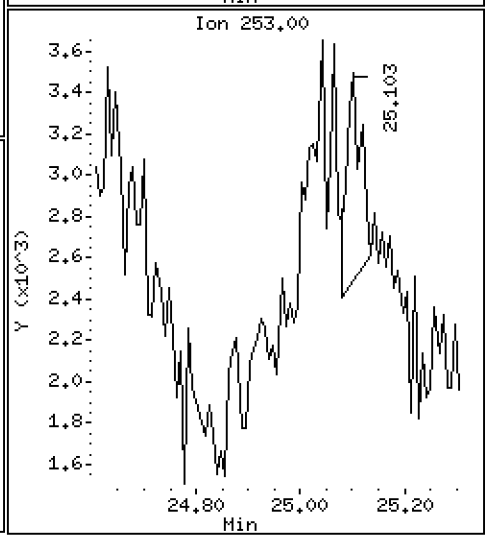












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09

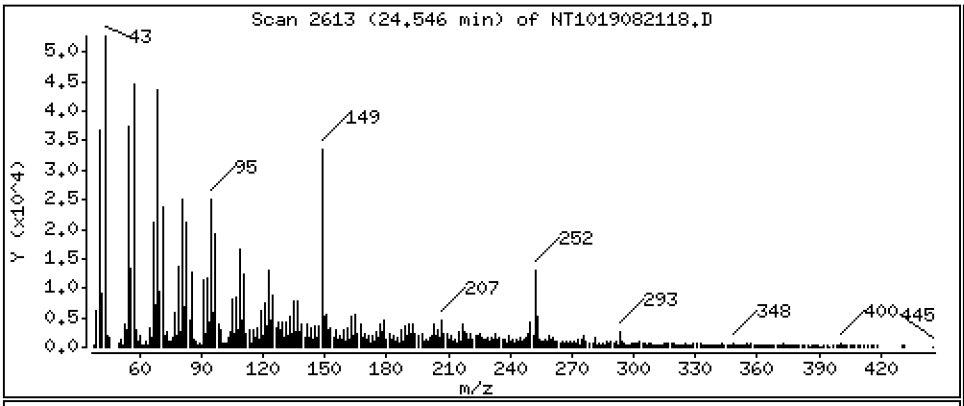
Operator: YZ

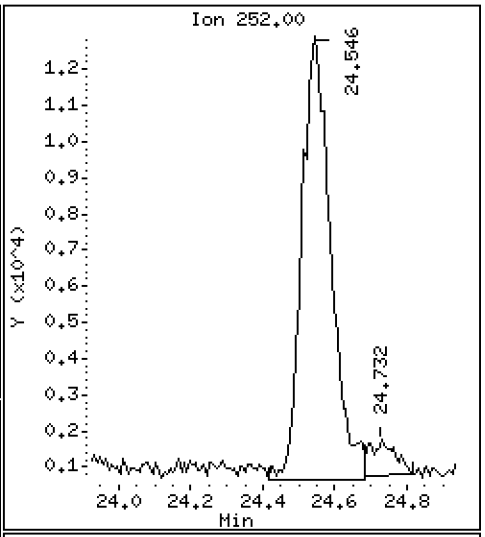
Column phase: ZB-5msi

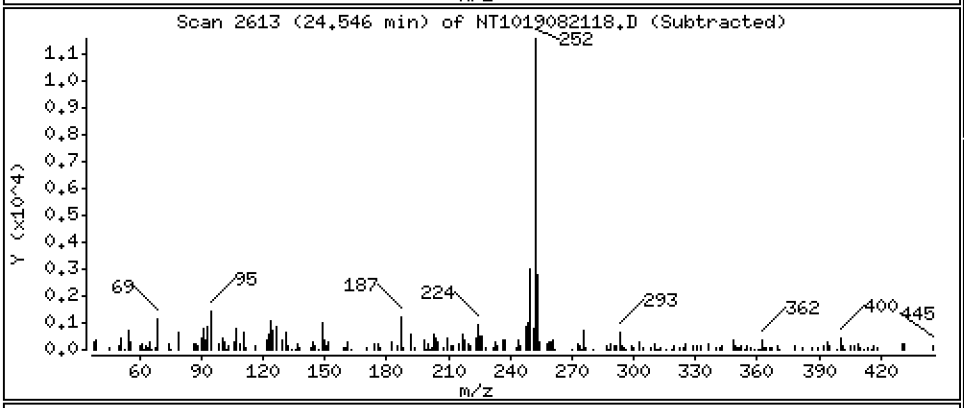
Column diameter: 0.25

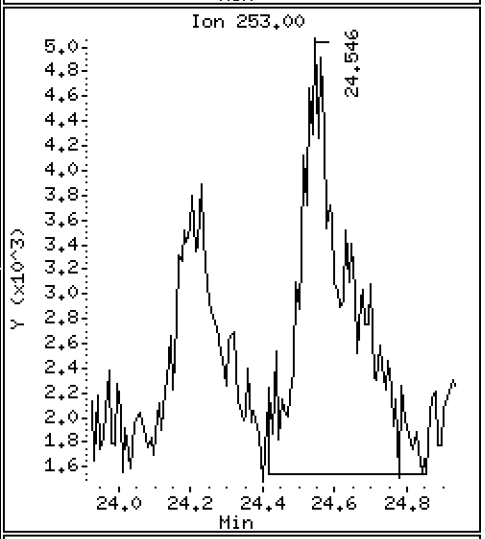
187 Total Benzofluoranthenes

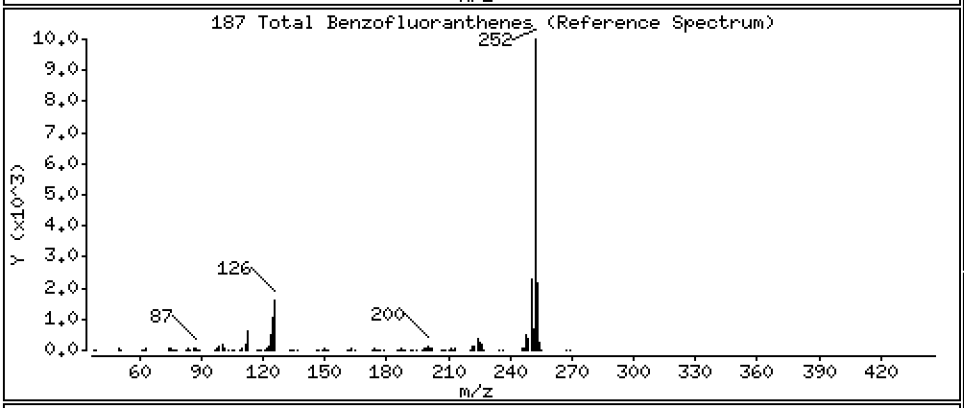
Concentration: 15.54 ug/mL

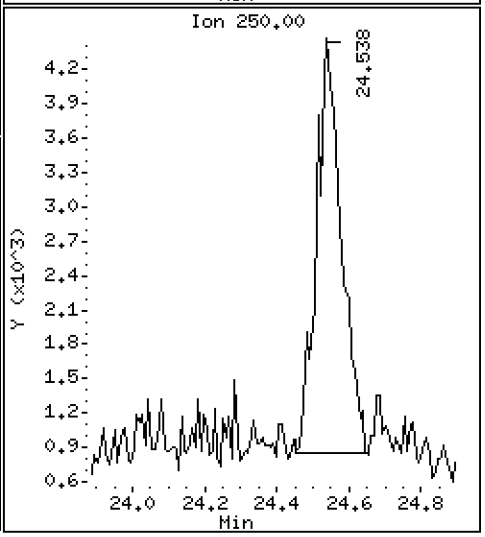


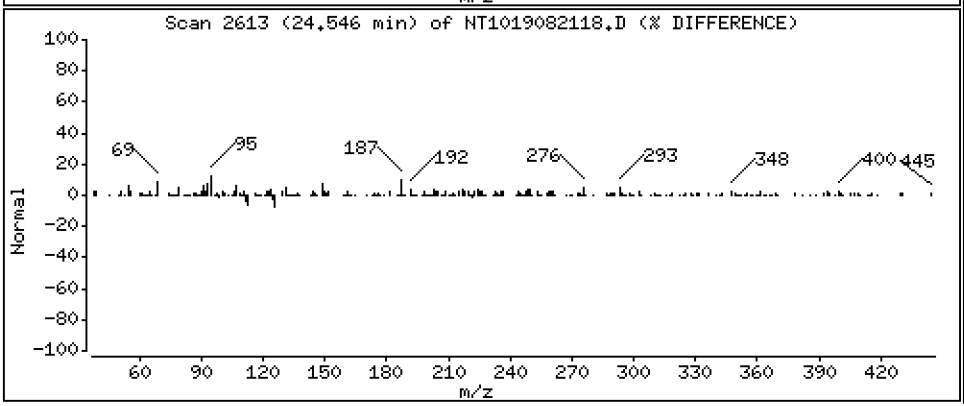












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D

Date : 21-AUG-2019 20:45

Client ID:

Instrument: nt10.i

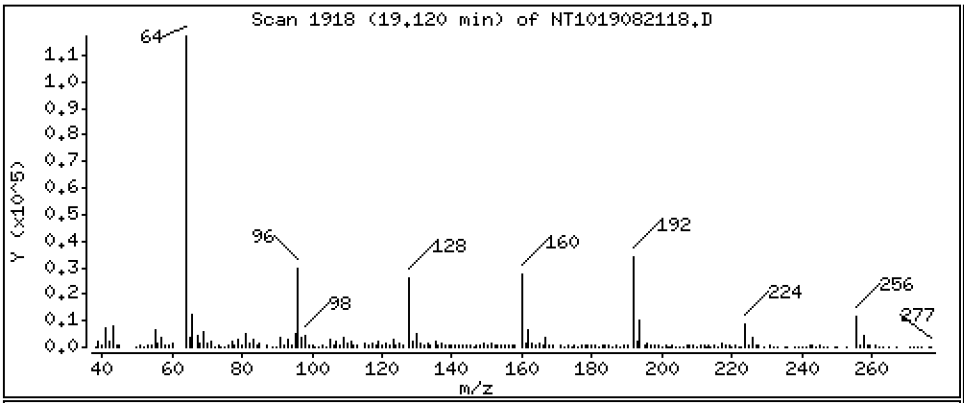
Sample Info: 19H0024-09

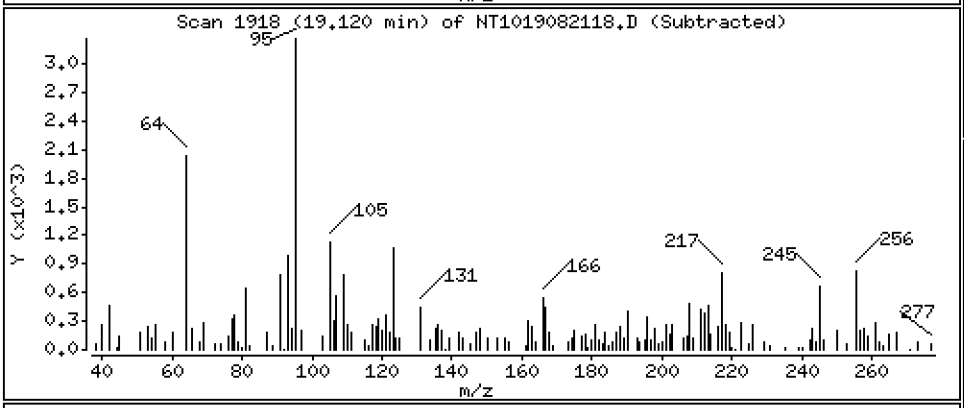
Operator: YZ

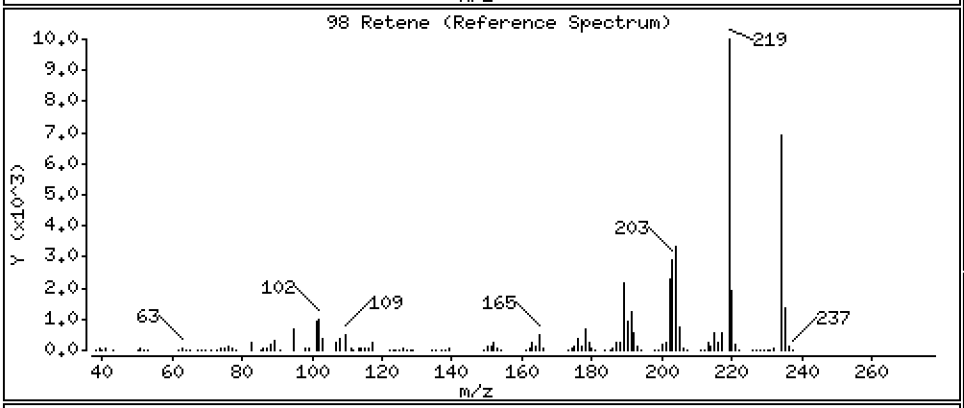
Column phase: ZB-5msi

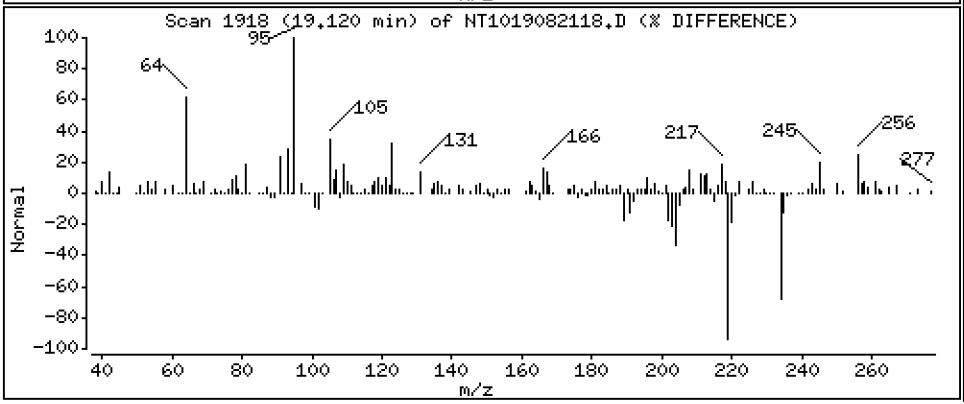
Column diameter: 0.25

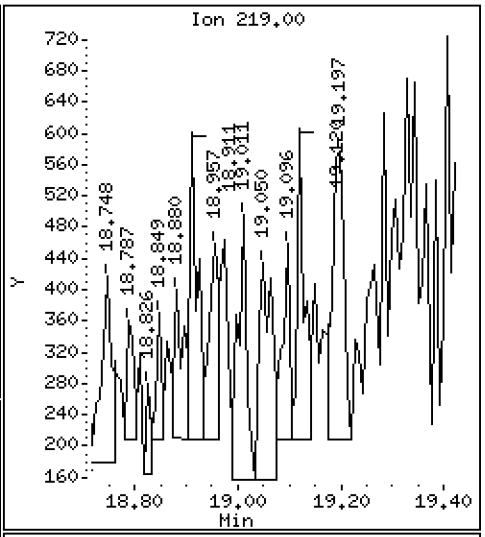
98 Retene

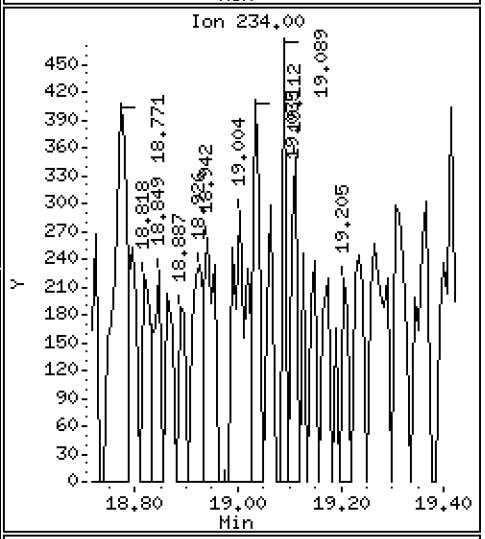


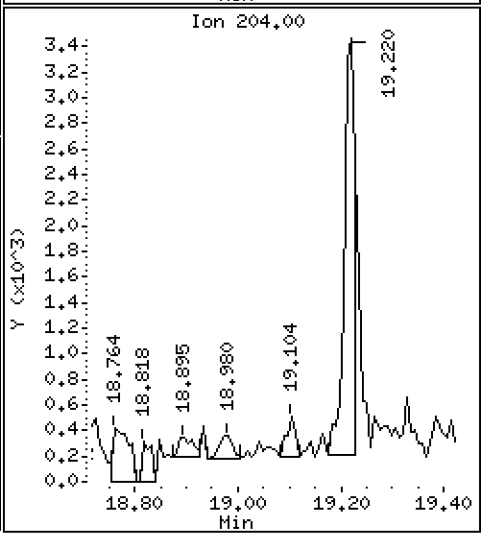












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082118.D
Lab Smp Id: 19H0024-09
Inj Date : 21-AUG-2019 20:45
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-09
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 14
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$ 1	2-Fluorophenol	112	6.327	6.311	(0.746)	12236	1.22171	3.665
$ 2	Phenol-d5	99	7.903	7.888	(0.932)	13715	1.22188	3.666
3	Phenol	94	Compound Not Detected.					
$ 5	2-Chlorophenol-d4	132	8.135	8.127	(0.959)	19730	1.63285	4.899
4	Bis(2-Chloroethyl)ether	93	Compound Not Detected.					
6	2-Chlorophenol	128	Compound Not Detected.					
7	1,3-Dichlorobenzene	146	Compound Not Detected.					
* 8	1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	35667	4.00000	
9	1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 10	1,2-Dichlorobenzene-d4	152	8.832	8.832	(1.041)	9086	1.09986	3.300
12	1,2-Dichlorobenzene	146	Compound Not Detected.					
11	Benzyl alcohol	108	Compound Not Detected.					
14	2,2'-oxybis(1-Chloropropane)	121	Compound Not Detected.					
13	2-Methylphenol	108	Compound Not Detected.					
17	Hexachloroethane	117	Compound Not Detected.					
16	N-Nitroso-di-n-propylamine	70	Compound Not Detected.					
15	4-Methylphenol	108	Compound Not Detected.					
$ 18	Nitrobenzene-d5	82	9.562	9.554	(0.875)	10693	1.03618	3.109
19	Nitrobenzene	77	Compound Not Detected.					
20	Isophorone	82	Compound Not Detected.					
21	2-Nitrophenol	139	Compound Not Detected.					
22	2,4-Dimethylphenol	107	Compound Not Detected.					
23	Bis(2-Chloroethoxy)methane	93	Compound Not Detected.					
24	Benzoic acid	105	Compound Not Detected.					
25	2,4-Dichlorophenol	162	Compound Not Detected.					
26	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
* 27	Naphthalene-d8	136	10.929	10.929	(1.000)	131947	4.00000	
28	Naphthalene	128	10.968	10.968	(1.004)	4299	0.14174	0.4252
29	4-Chloroaniline	127	Compound Not Detected.					
30	Hexachlorobutadiene	225	Compound Not Detected.					
31	4-Chloro-3-methylphenol	107	Compound Not Detected.					
32	2-Methylnaphthalene	142	12.360	12.353	(1.131)	2780	0.10806	0.3242(H)
33	Hexachlorocyclopentadiene	237	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	Compound Not Detected.					
	35	2,4,5-Trichlorophenol	196	Compound Not Detected.					
$	36	2-Fluorobiphenyl	172	13.150	13.142	(0.906)	35173	1.37066	4.112
	37	2-Chloronaphthalene	162	Compound Not Detected.					
	38	2-Nitroaniline	65	Compound Not Detected.					
	39	Dimethylphthalate	163	14.063	14.055	(0.969)	10755	0.43139	1.294(H)
	40	Acenaphthylene	152	14.202	14.195	(0.978)	2751	0.08506	0.2552
	41	2,6-Dinitrotoluene	165	Compound Not Detected.					
*	42	Acenaphthene-d10	164	14.520	14.512	(1.000)	67090	4.00000	
	43	3-Nitroaniline	138	Compound Not Detected.					
	44	Acenaphthene	153	14.581	14.574	(1.004)	2487	0.12239	0.3672
	45	2,4-Dinitrophenol	184	Compound Not Detected.					
	46	Dibenzofuran	168	14.906	14.898	(1.027)	5814	0.17409	0.5223
	47	4-Nitrophenol	109	Compound Not Detected.					
	48	2,4-Dinitrotoluene	165	Compound Not Detected.					
	50	Diethylphthalate	149	Compound Not Detected.					
	49	Fluorene	166	15.625	15.610	(1.076)	11187	0.48981	1.469
	51	4-Chlorophenyl-phenylether	204	Compound Not Detected.					
	52	4-Nitroaniline	138	Compound Not Detected.					
	53	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.					
	54	N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55	2,4,6-Tribromophenol	330	16.165	16.142	(1.113)	8905	1.75538	5.266
	56	4-Bromophenyl-phenylether	248	Compound Not Detected.					
	57	Hexachlorobenzene	284	Compound Not Detected.					
	58	Pentachlorophenol	266	Compound Not Detected.					
*	59	Phenanthrene-d10	188	17.549	17.525	(1.000)	124445	4.00000	
	60	Phenanthrene	178	17.595	17.572	(1.003)	46103	1.51664	4.550
	61	Anthracene	178	17.688	17.665	(1.008)	29256	0.94786	2.844
	62	Carbazole	167	Compound Not Detected.					
	63	Di-n-butylphthalate	149	18.887	18.872	(1.076)	15622	0.37147	1.114
	64	Fluoranthene	202	20.032	19.993	(0.882)	120582	6.46871	19.41
	65	Pyrene	202	20.465	20.411	(0.901)	108834	5.59114	16.77
$	66	Terphenyl-d14	244	20.790	20.744	(0.915)	22071	1.67189	5.016
	67	Butylbenzylphthalate	149	21.758	21.712	(0.958)	29991	3.30756	9.923
	68	Benzo(a)anthracene	228	22.680	22.610	(0.999)	29937	1.69153	5.075
*	69	Chrysene-d12	240	22.711	22.633	(1.000)	60999	4.00000	
	70	3,3'-Dichlorobenzidine	252	Compound Not Detected.					
	71	Chrysene	228	22.757	22.680	(1.002)	70340	4.49151	13.47
	72	bis(2-Ethylhexyl)phthalate	149	22.850	22.765	(0.958)	325786	25.2557	75.77
*	134	Di-n-octylphthalate-d4	153	23.864	23.756	(1.000)	146661	4.00000	
	73	Di-n-octylphthalate	149	23.887	23.763	(1.001)	24486	0.90248	2.707(M)
	74	Benzo(b)fluoranthene	252	24.545	24.390	(0.973)	64250	4.60111	13.80
	75	Benzo(k)fluoranthene	252	24.545	24.429	(0.973)	64250	4.57356	13.72
	76	Benzo(a)pyrene	252	25.111	24.948	(0.995)	24070	1.92060	5.762(M)
*	77	Perylene-d12	264	25.235	25.056	(1.000)	48671	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
	79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	80	Benzo(g,h,i)perylene	276	Compound Not Detected.					
	90	N-Nitrosodimethylamine	74	Compound Not Detected.					
	91	Aniline	93	Compound Not Detected.					
	93	Benzidine	184	Compound Not Detected.					
	103	Pyridine	79	Compound Not Detected.					
	105	1-methylnaphthalene	142	Compound Not Detected.					
	111	Azobenzene (1,2-DP-Hydrazine)	77	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
187	Total Benzofluoranthenes	252	24.545	24.429	(0.973)	69398	5.18114	15.54
99	Perylene	252	Compound Not Detected.					
98	Retene	219	19.119	19.071	(0.842)	431		
120	2,3,4,6-Tetrachlorophenol	232	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082118.D
Lab Smp Id: 19H0024-09
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	35667	8.94
27 Naphthalene-d8	117487	58744	234974	131947	12.31
42 Acenaphthene-d10	61859	30930	123718	67090	8.46
59 Phenanthrene-d10	113574	56787	227148	124445	9.57
69 Chrysene-d12	105788	52894	211576	60999	-42.34
134 Di-n-octylphthala	252823	126412	505646	146661	-41.99
77 Perylene-d12	113992	56996	227984	48671	-57.30 <-

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.52	0.05
59 Phenanthrene-d10	17.53	17.03	18.03	17.55	0.13
69 Chrysene-d12	22.63	22.13	23.13	22.71	0.34
134 Di-n-octylphthala	23.76	23.26	24.26	23.86	0.46
77 Perylene-d12	25.06	24.56	25.56	25.24	0.71

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082118.D

Lab ID: 19H0024-09
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 20:45

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.000	1.130	-0.1302	2-Methylnaphthalene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate
1.131	1.091	0.0400	Dibenzo(a,h)anthracene
0.978	1.000	-0.0219	Acenaphthene-d10
0.969	1.000	-0.0314	Phenanthrene-d10
1.027	0.930	0.0968	Phenol-d5
1.076	0.906	0.1705	2-Fluorobiphenyl

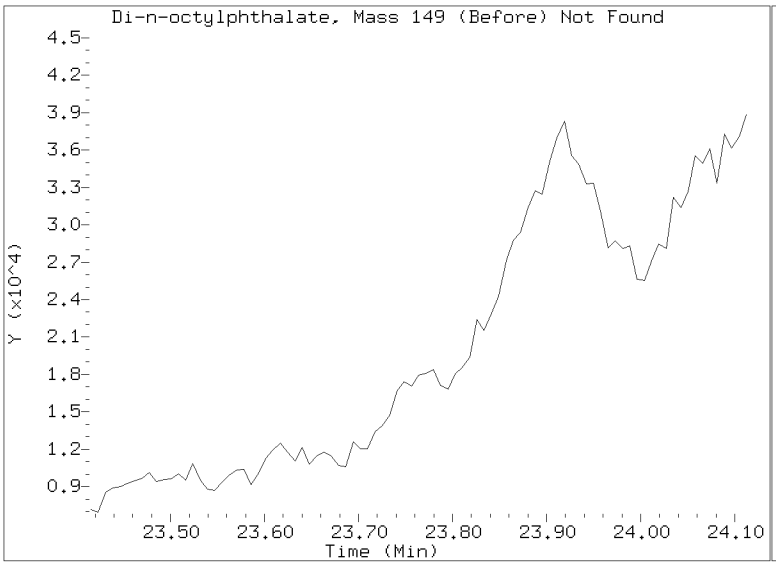
RRT check based on Ccal File: NT1019082105.D

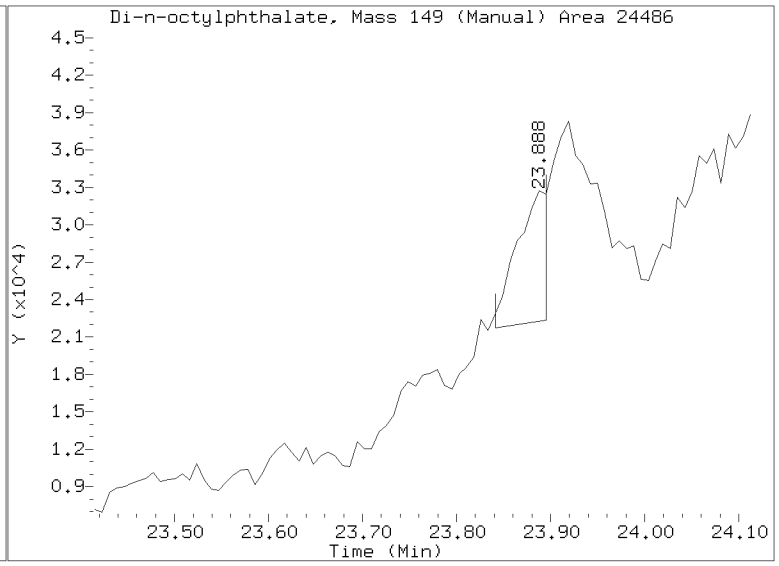
On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

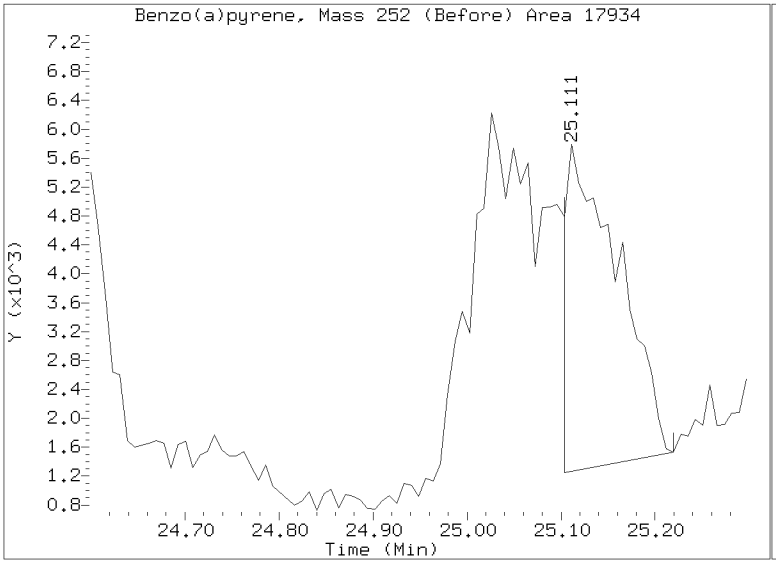
* Only compounds listed in the work order have been verified by the analyst *

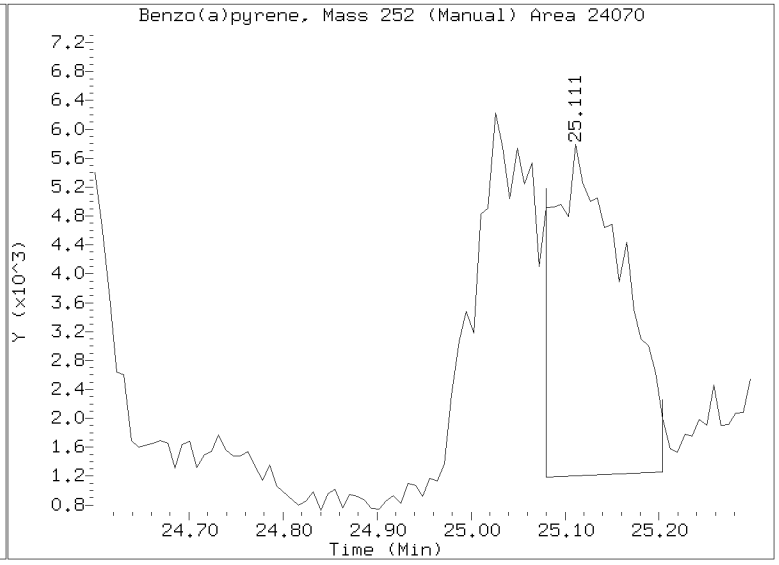
Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082118.D
Injection Date: 21-AUG-2019 20:45
Lab ID:19H0024-09 Client ID:
Report Date: 08/22/2019 12:51









SL4-SG-WC1-2019

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D
Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-09RE1 C	SDG:	19H0024
Sampled:	08/01/19 10:43	Prepared:	08/13/19 12:40	File ID:	NT1019082215.D
% Solids:	40.99	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/22/19 22:26
Batch:	BHH0289	Sequence:	SHH0325	Initial/Final:	24.56 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040
Cleanups:	GPC				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	9	179	U	73.6	179
100-51-6	Benzyl Alcohol	9	179	U	133	179
65-85-0	Benzoic acid	9	1790	U	528	1790
86-30-6	N-Nitrosodiphenylamine	9	179	U	85.6	179
85-01-8	Phenanthrene	9	336	D	41.9	179
206-44-0	Fluoranthene	9	1530	D	40.4	179
129-00-0	Pyrene	9	1300	D	49.6	179
85-68-7	Butylbenzylphthalate	9	905	D	72.0	179
56-55-3	Benzo(a)anthracene	9	339	D	46.3	179
218-01-9	Chrysene	9	925	D	46.7	179
117-81-7	bis(2-Ethylhexyl)phthalate	9	5850	D	257	447
117-84-0	Di-n-Octylphthalate	9	293	D	78.0	179
	Benzofluoranthenes, Total	9	1010	D	91.2	358
50-32-8	Benzo(a)pyrene	9	394	D	57.9	179
193-39-5	Indeno(1,2,3-cd)pyrene	9	351	D	53.6	179
53-70-3	Dibenzo(a,h)anthracene	9	179	U	55.1	179
191-24-2	Benzo(g,h,i)perylene	9	397	D	52.0	179

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	745.00	264	35.4	27 - 120	
Phenol-d5	745.00	301	40.3	29 - 120	Q
2-Chlorophenol-d4	745.00	345	46.3	31 - 120	
1,2-Dichlorobenzene-d4	496.67	208	41.8	32 - 120	
Nitrobenzene-d5	496.67	216	43.4	30 - 120	
2-Fluorobiphenyl	496.67	279	56.1	35 - 120	
2,4,6-Tribromophenol	745.00	274	36.8	24 - 134	
p-Terphenyl-d14	496.67	457	92.1	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082215.D

Date : 22-AUG-2019 22:26

Client ID:

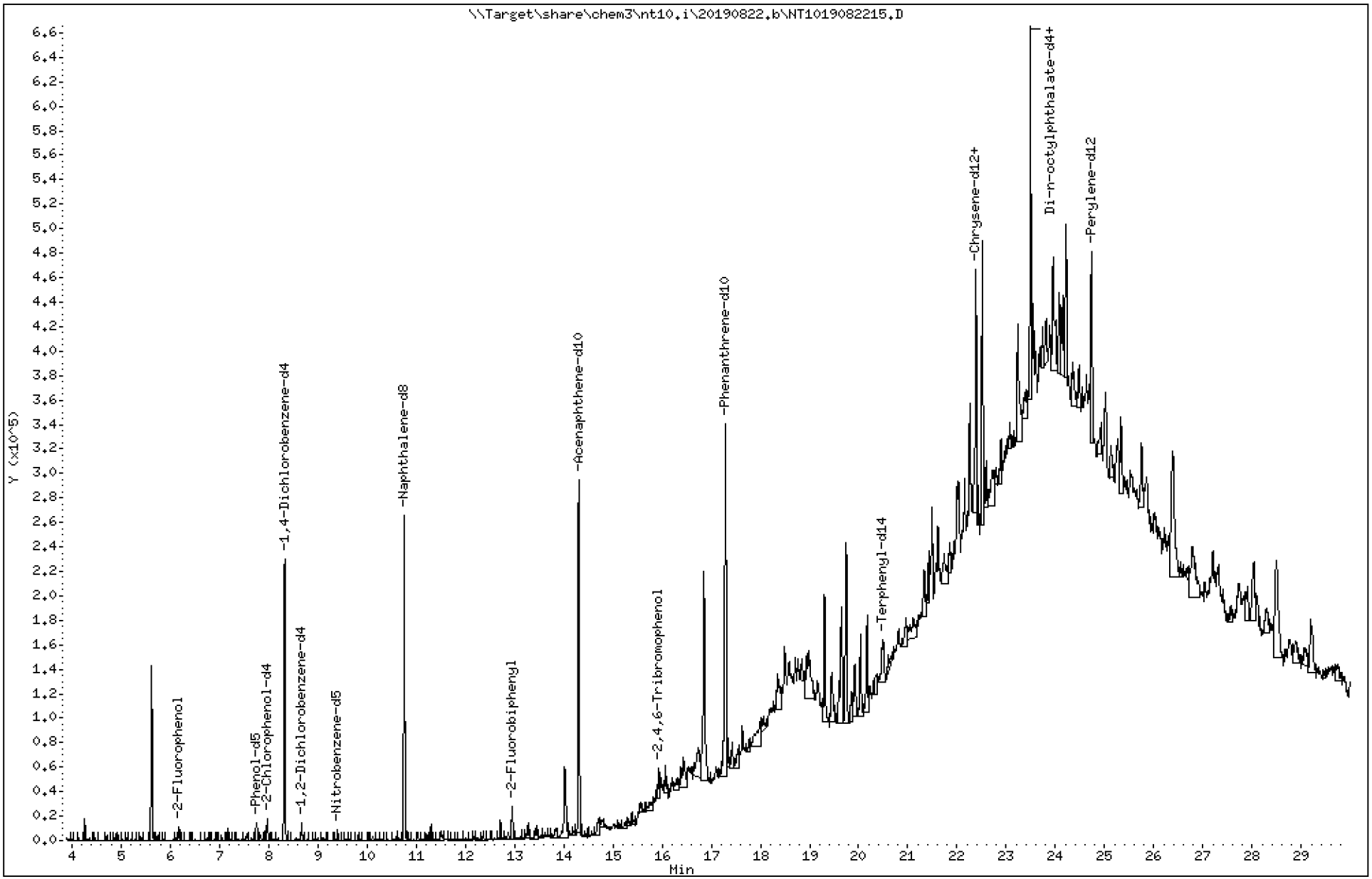
Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

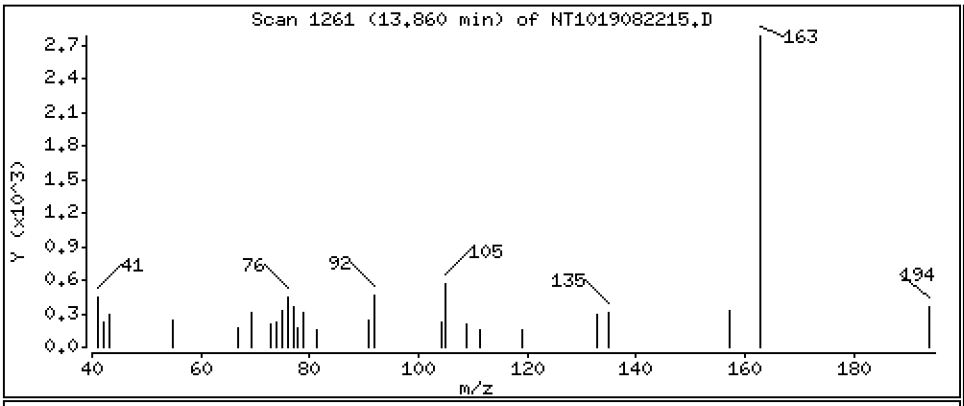
Operator: YZ

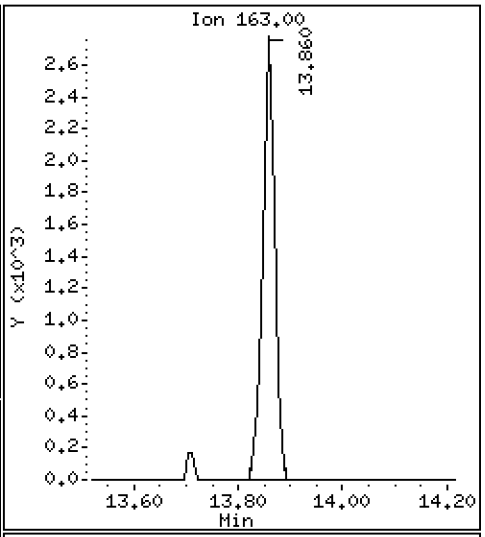
Column phase: ZB-5msi

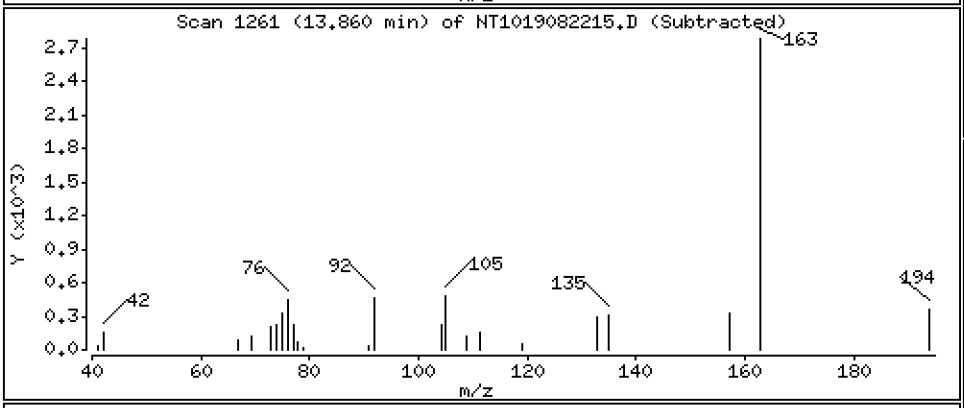
Column diameter: 0.25

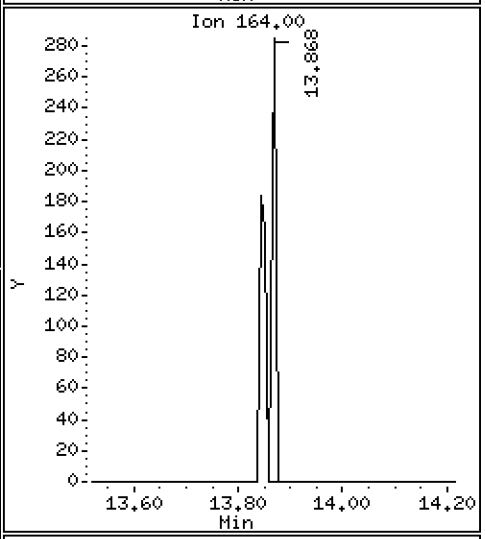
39 Dimethylphthalate

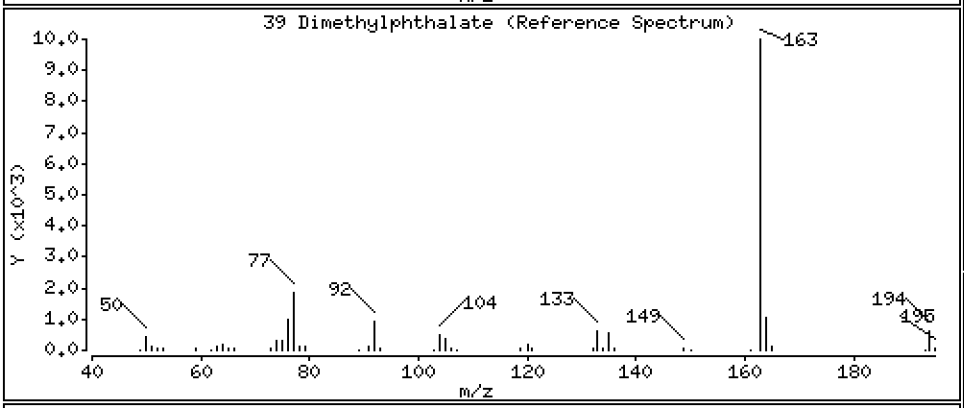
Concentration: 1.076 ug/mL

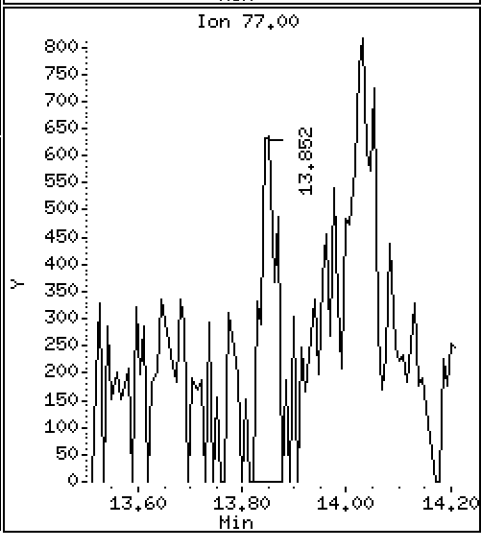


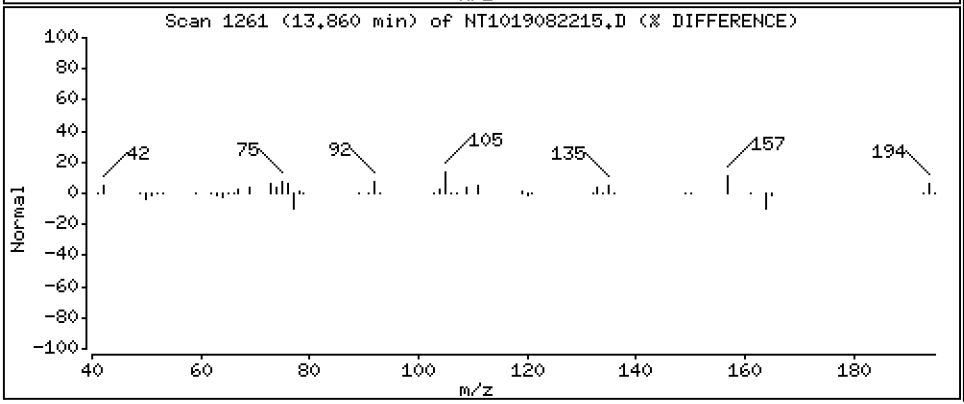












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Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

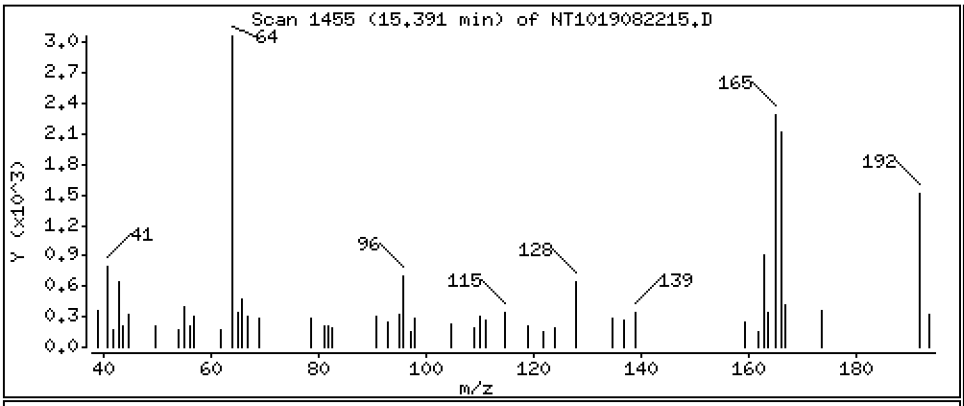
Operator: YZ

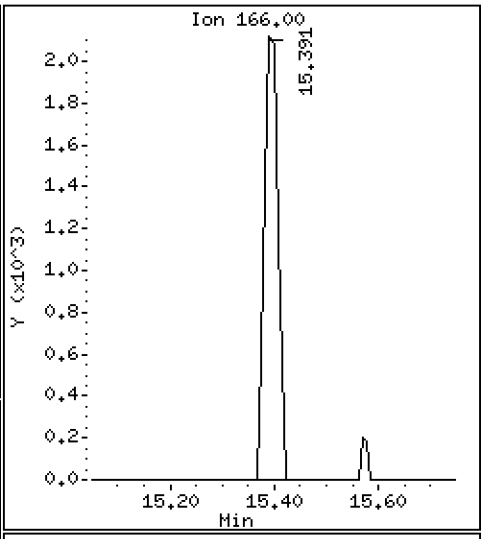
Column phase: ZB-5msi

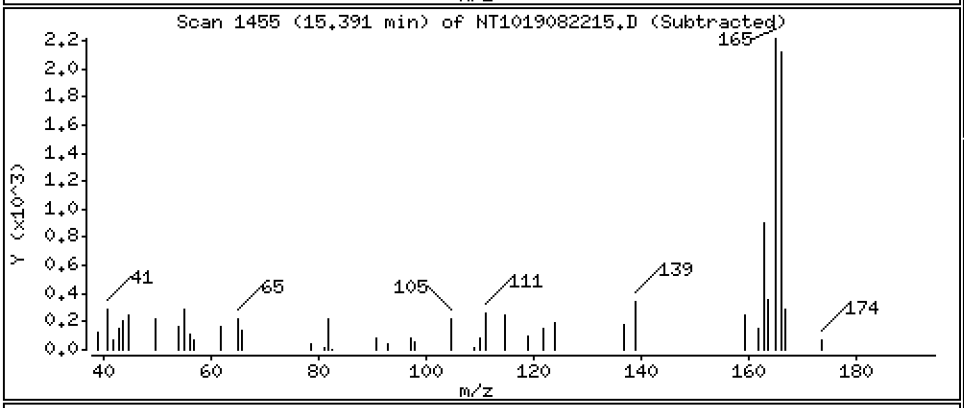
Column diameter: 0.25

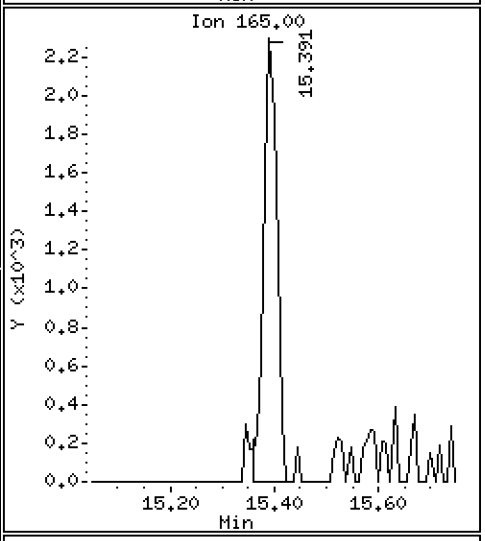
49 Fluorene

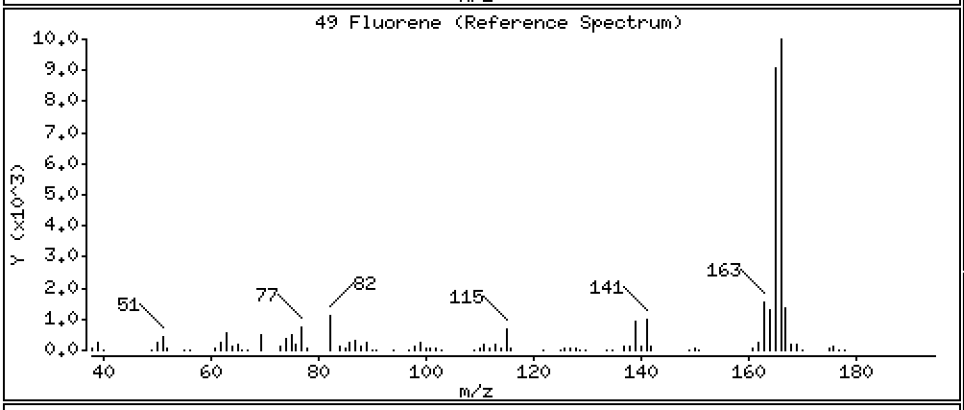
Concentration: 1.040 ug/mL

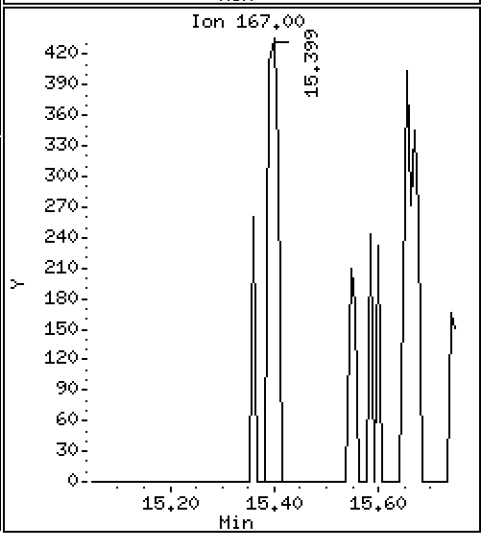


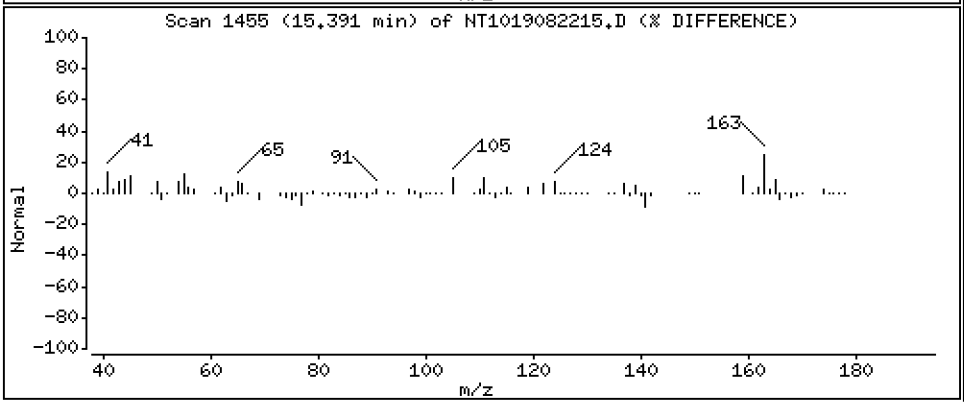












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082215.D

Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

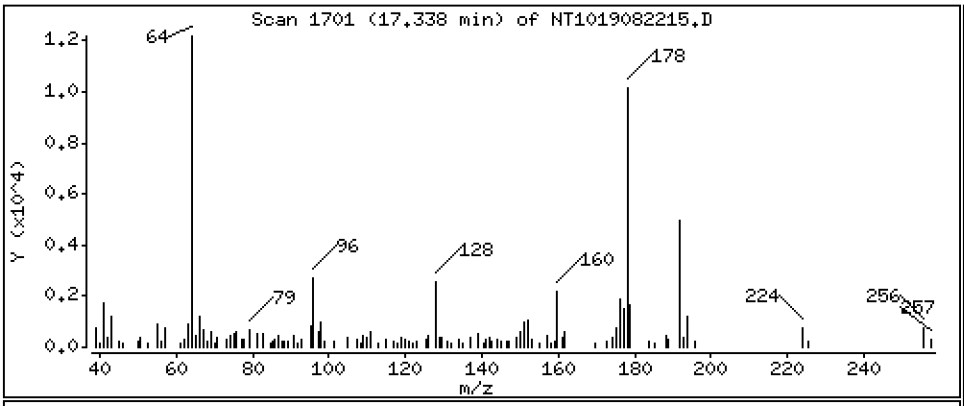
Operator: YZ

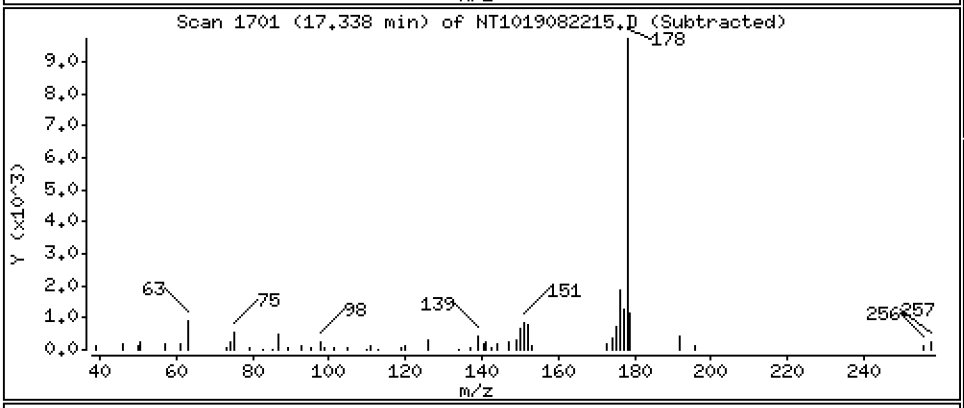
Column phase: ZB-5msi

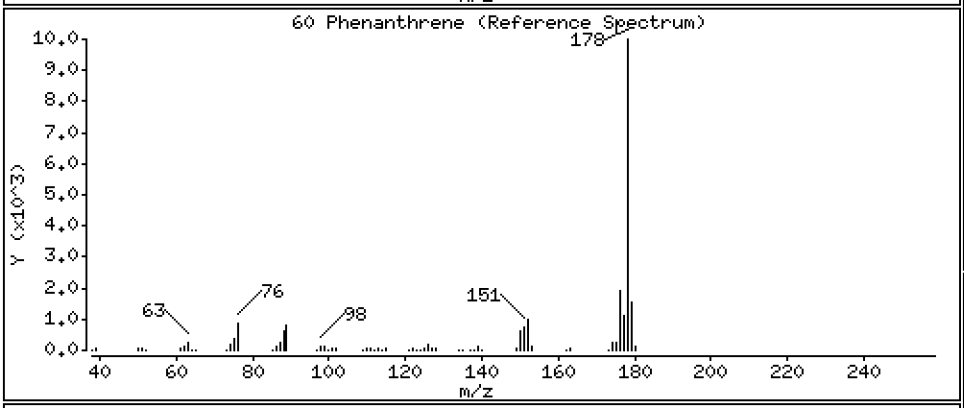
Column diameter: 0.25

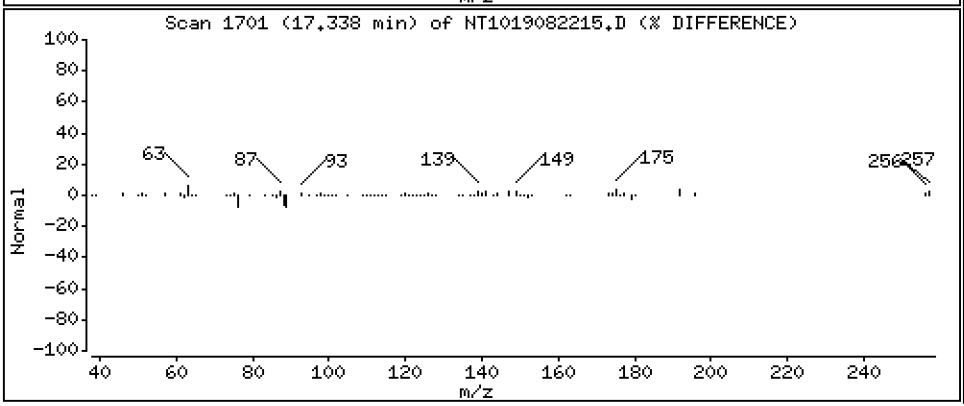
60 Phenanthrene

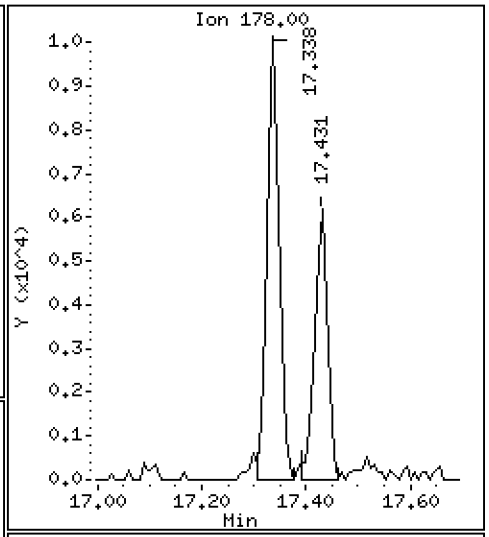
Concentration: 3.379 ug/mL

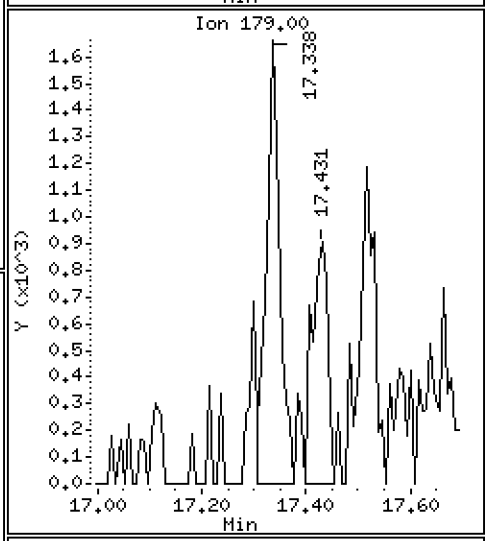


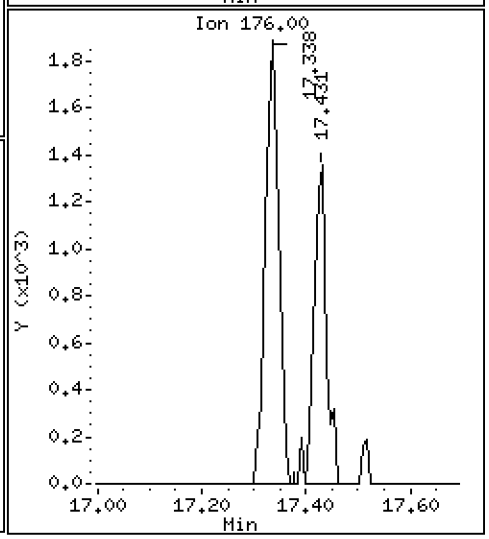












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082215.D

Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

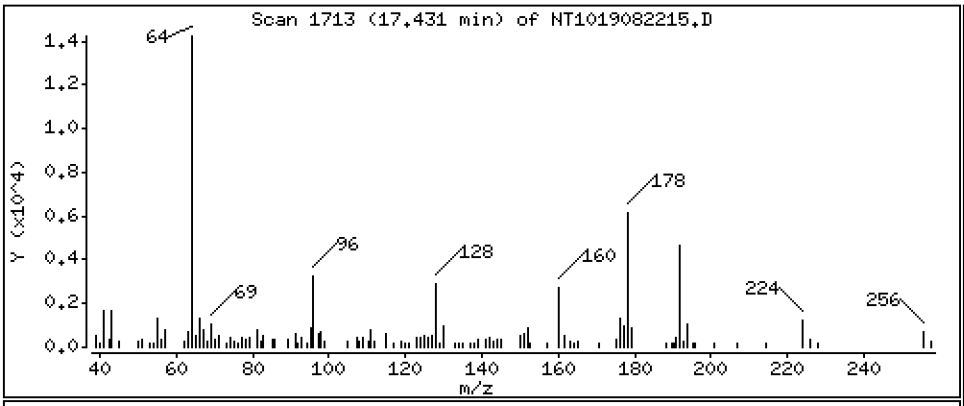
Operator: YZ

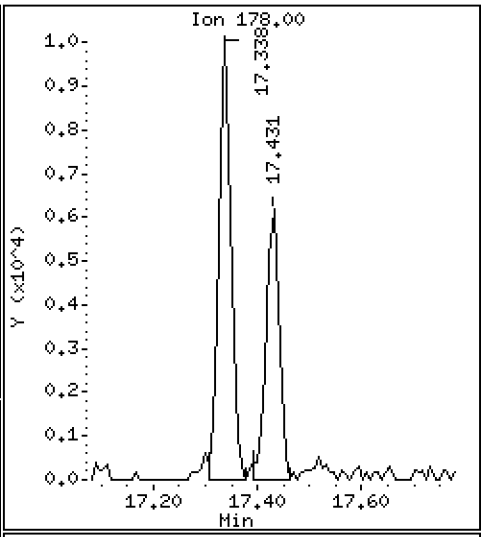
Column phase: ZB-5msi

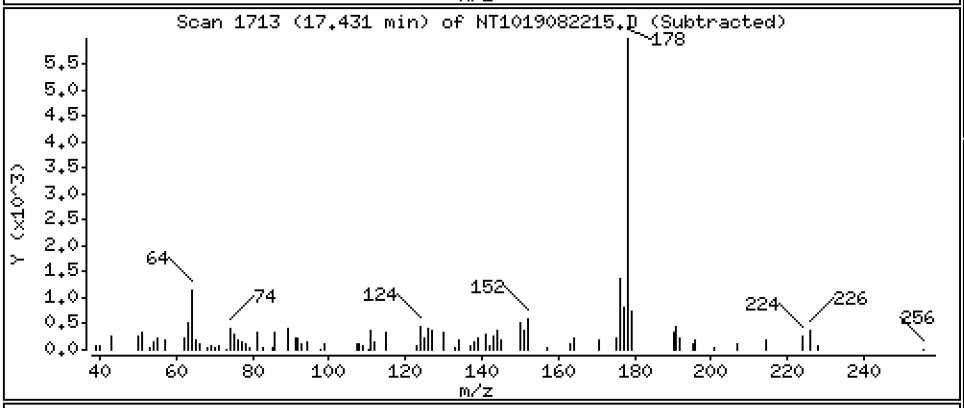
Column diameter: 0.25

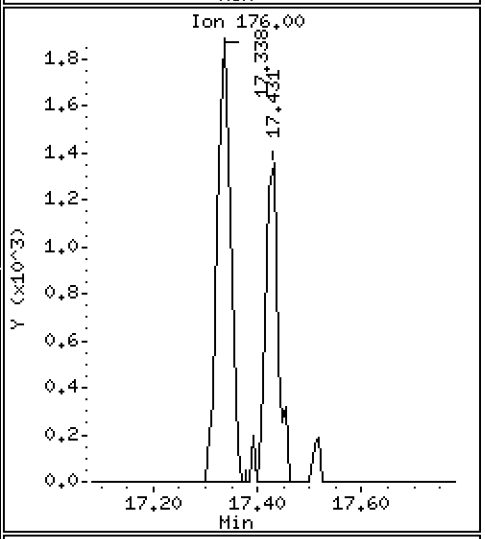
61 Anthracene

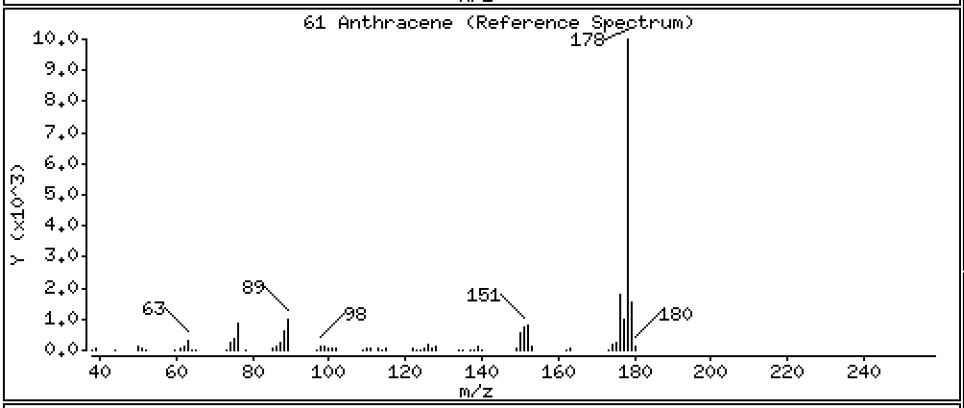
Concentration: 2.139 ug/mL

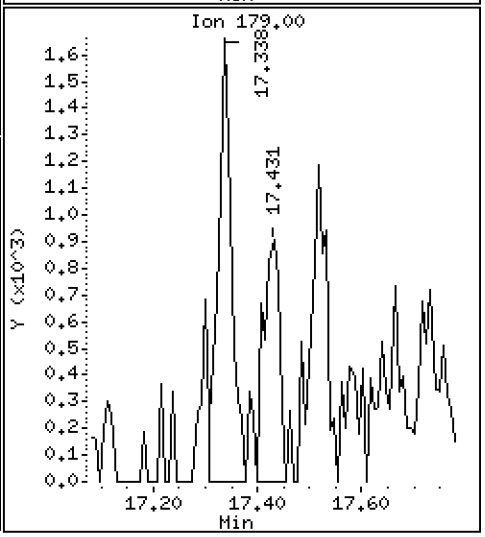


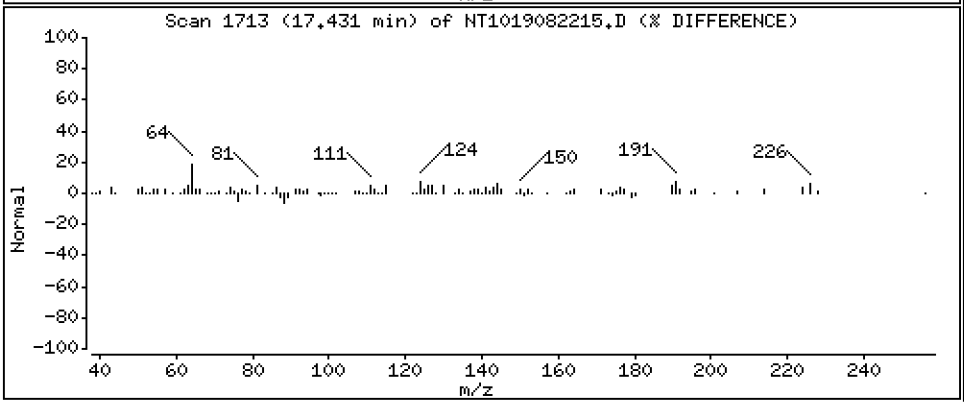












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082215.D

Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

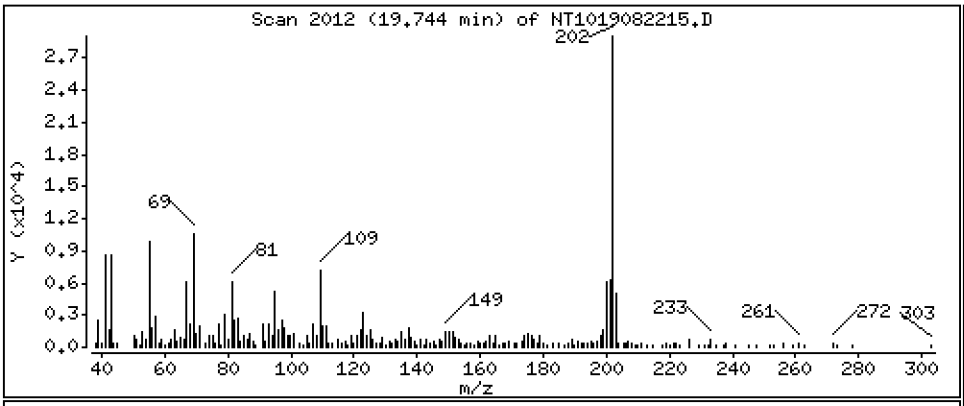
Operator: YZ

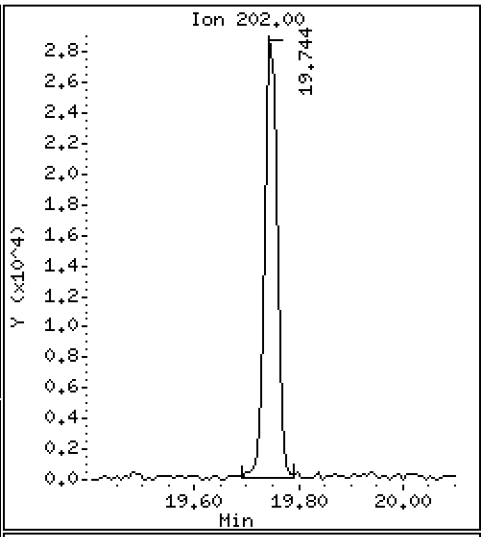
Column phase: ZB-5msi

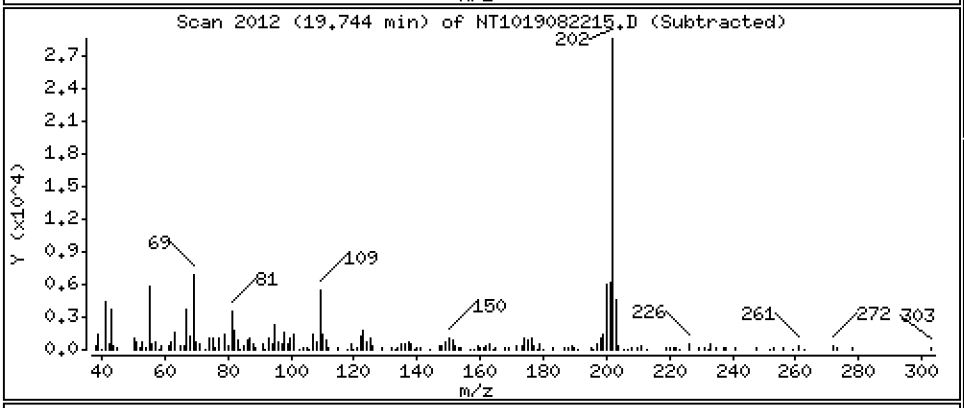
Column diameter: 0.25

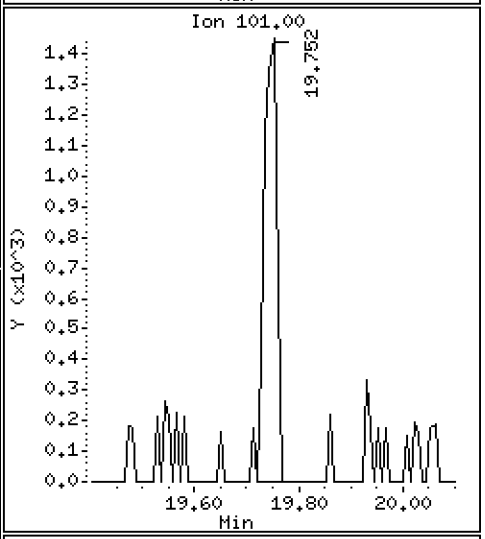
64 Fluoranthene

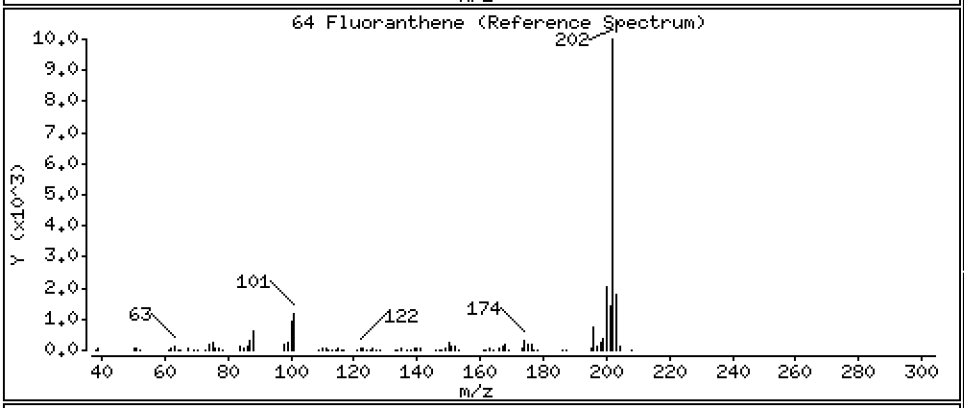
Concentration: 15.44 ug/mL

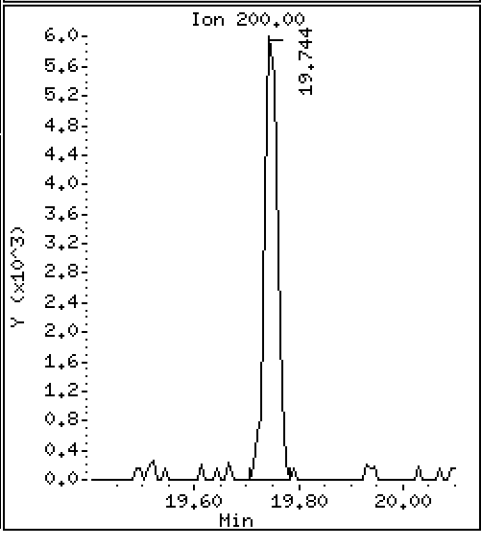


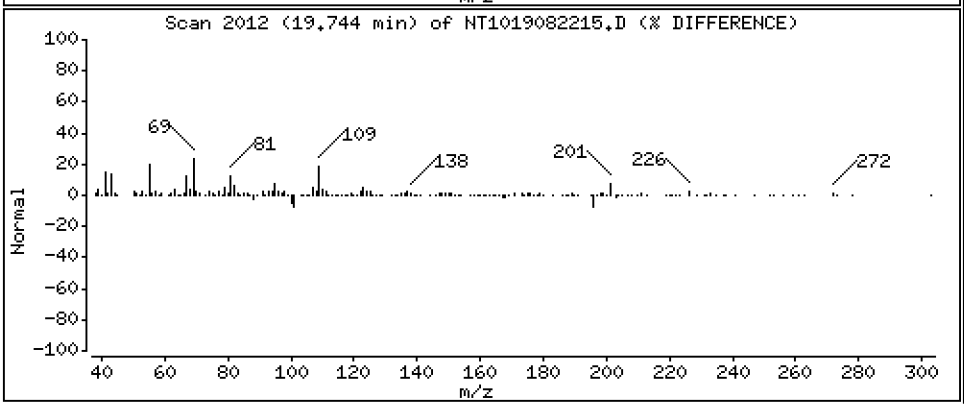












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082215.D

Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

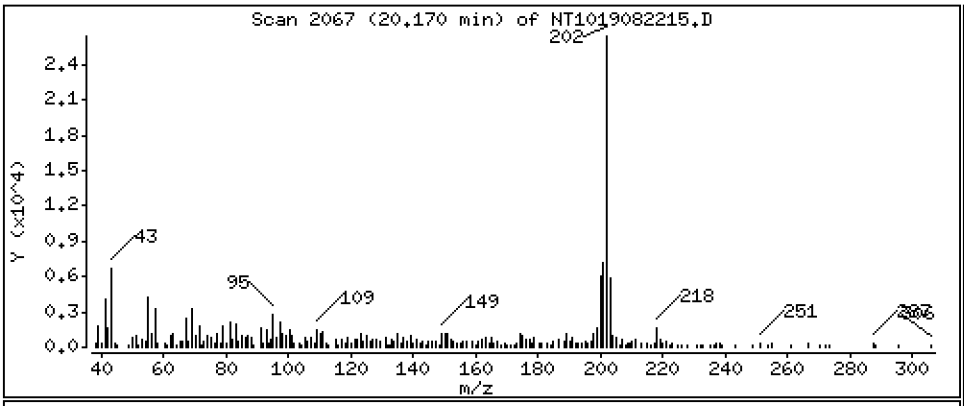
Operator: YZ

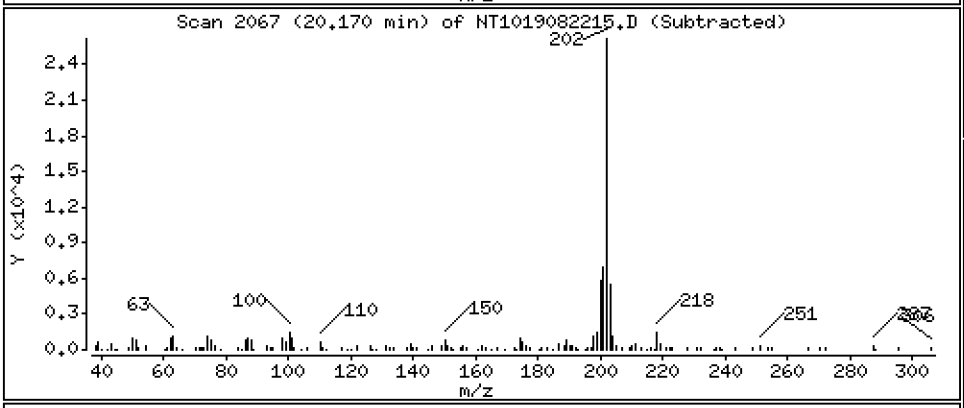
Column phase: ZB-5msi

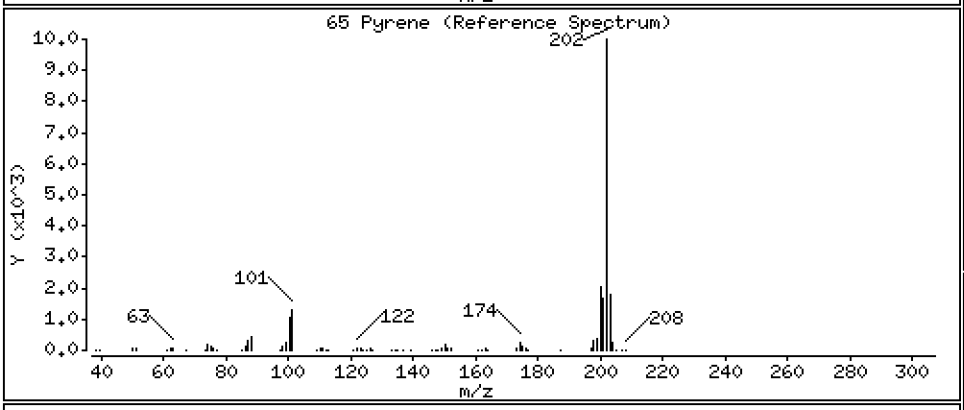
Column diameter: 0.25

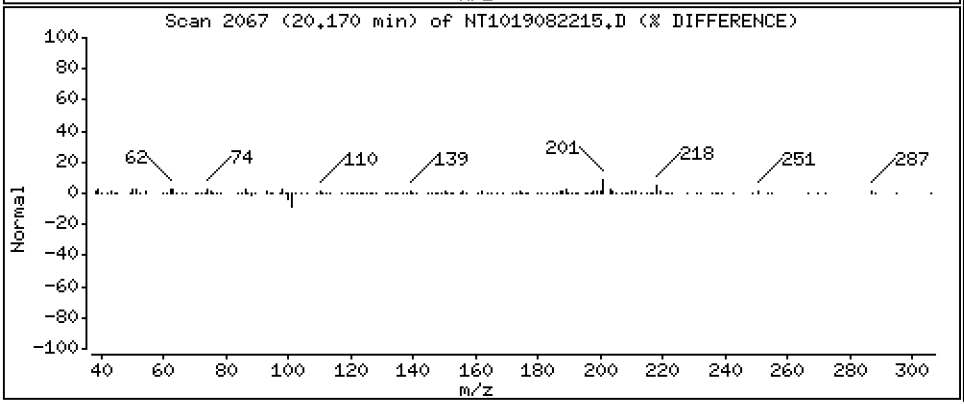
65 Pyrene

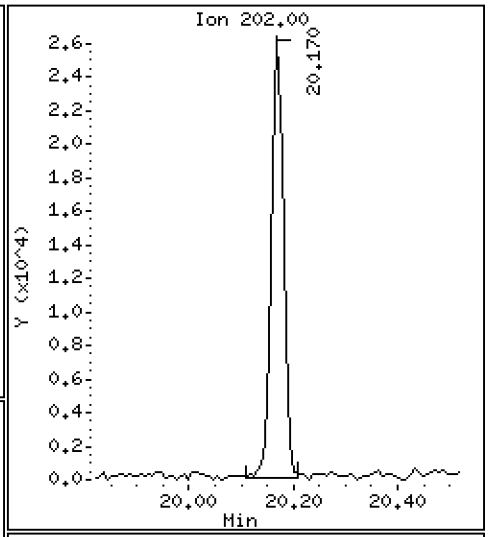
Concentration: 13.08 ug/mL

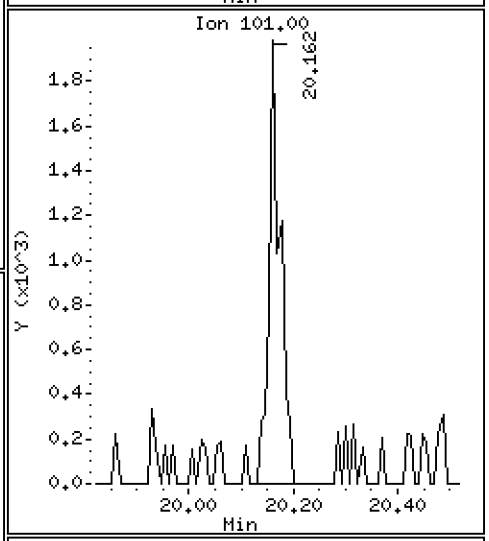


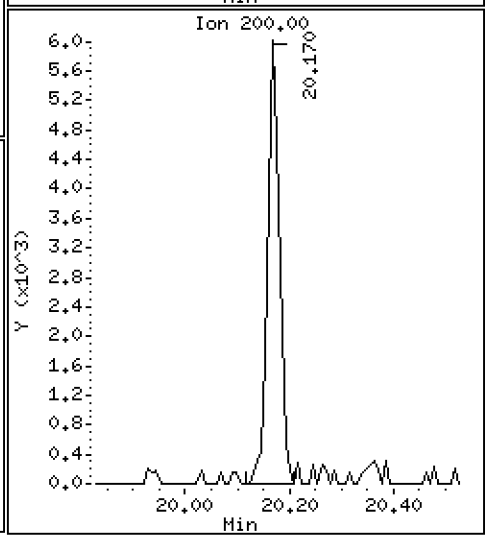












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082215.D

Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

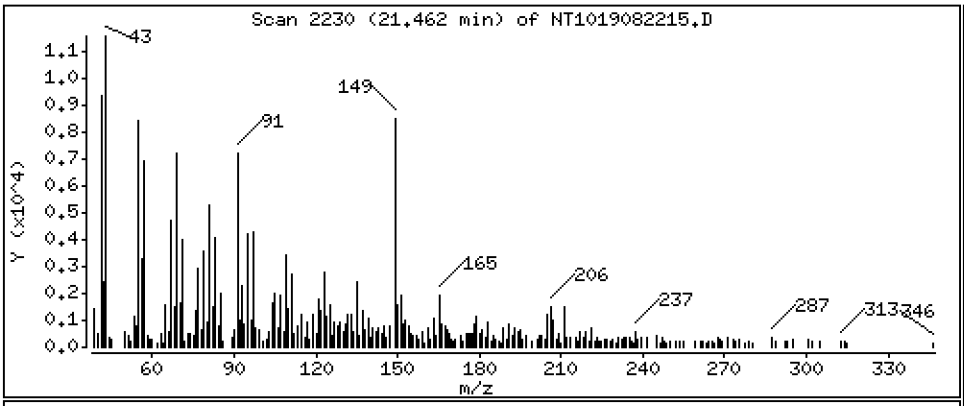
Operator: YZ

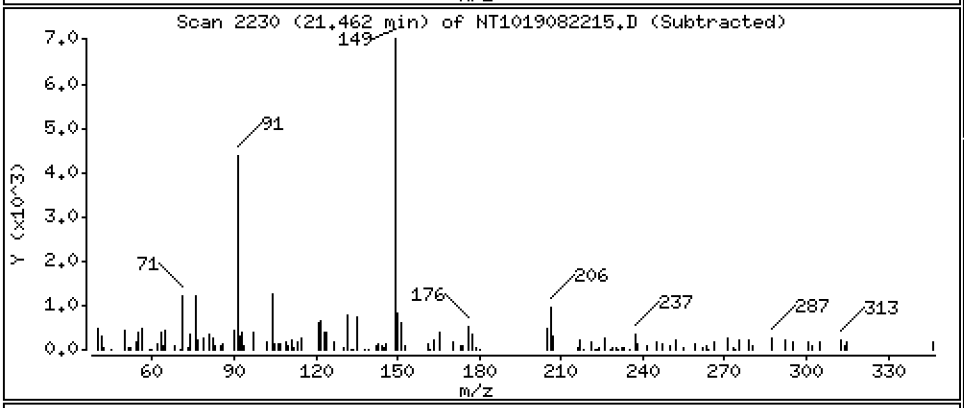
Column phase: ZB-5msi

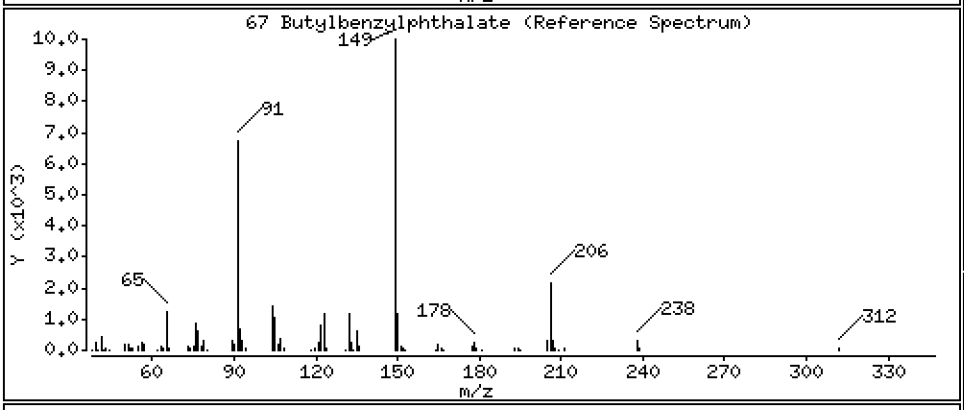
Column diameter: 0.25

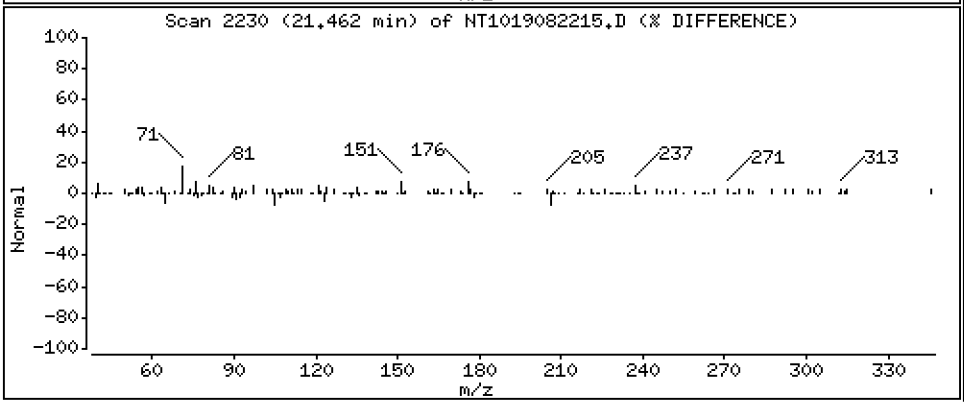
67 Butylbenzylphthalate

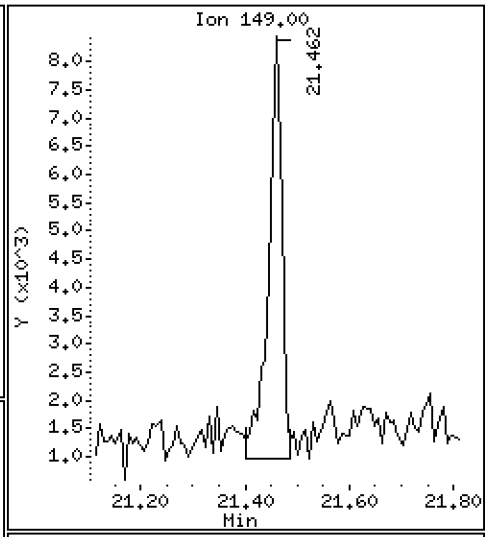
Concentration: 9.114 ug/mL

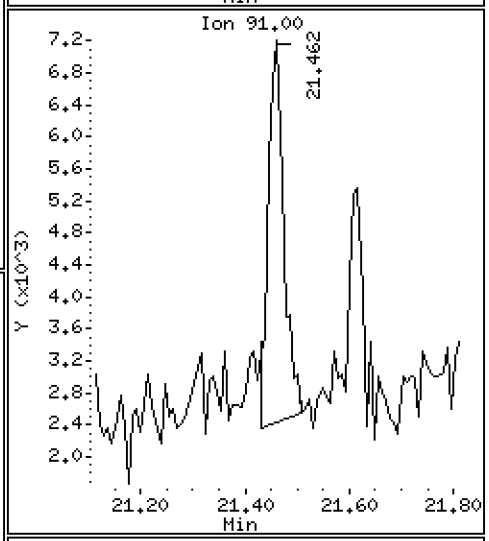


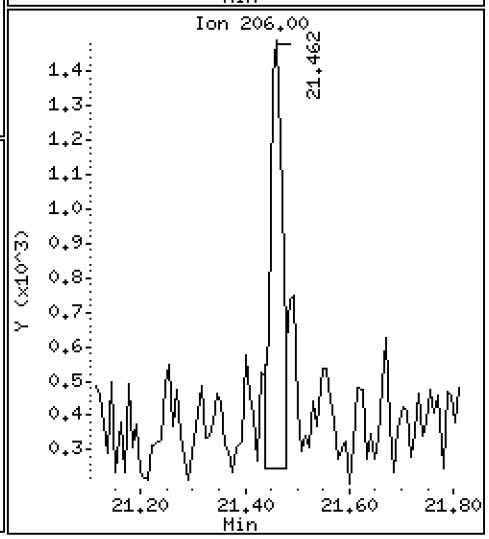












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Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

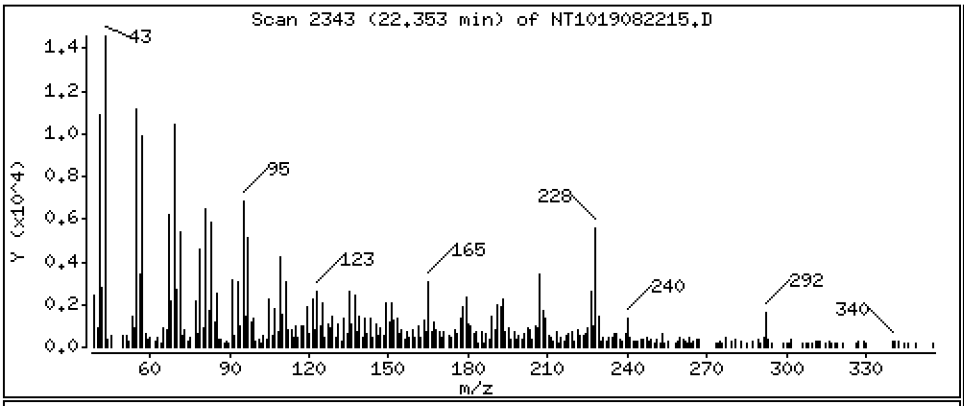
Operator: YZ

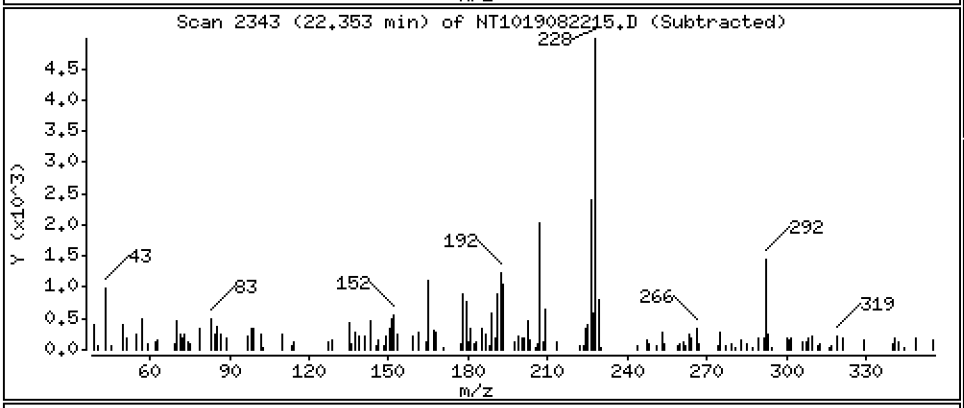
Column phase: ZB-5msi

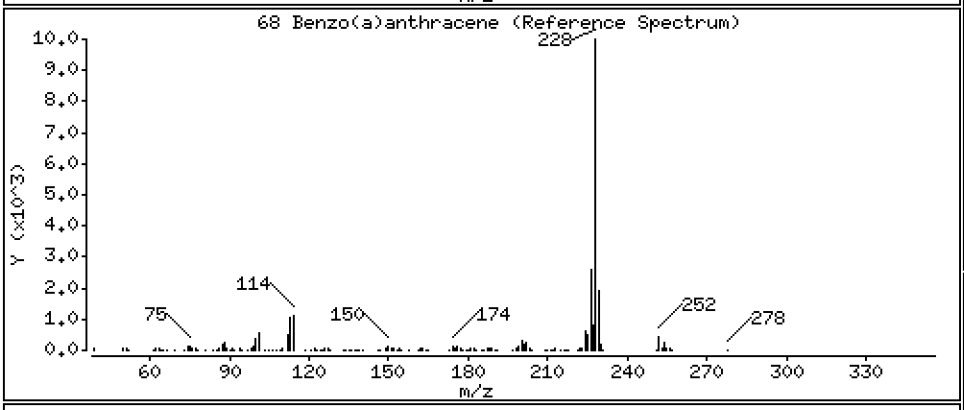
Column diameter: 0.25

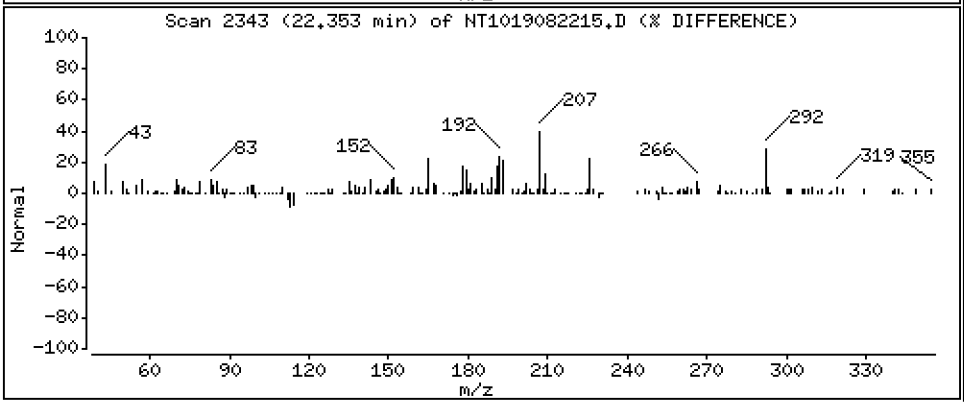
68 Benzo(a)anthracene

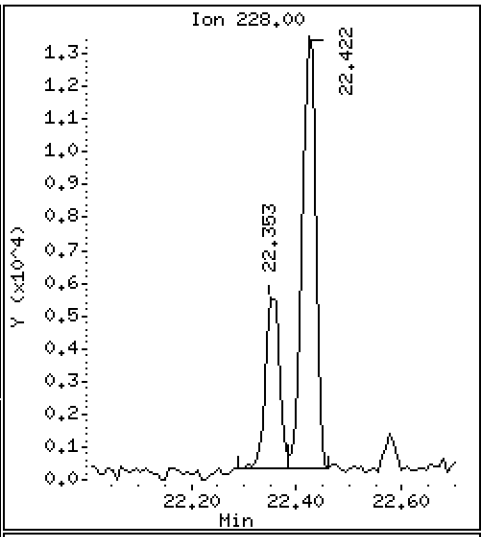
Concentration: 3.415 ug/mL

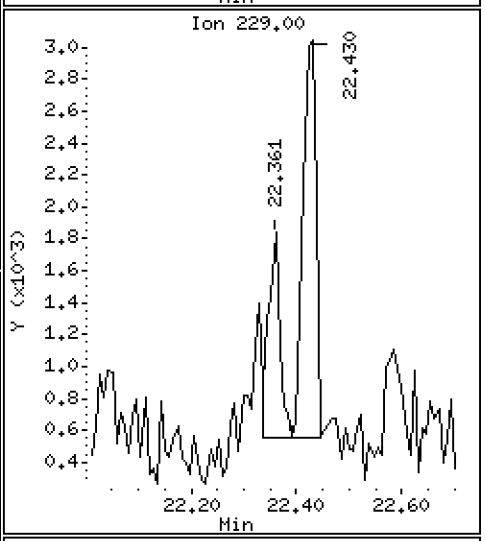


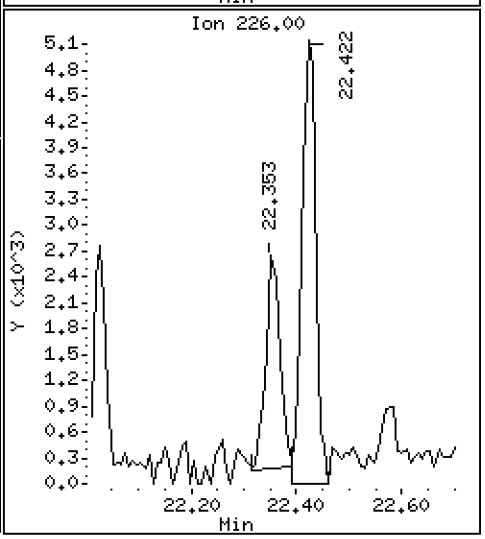












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082215.D

Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

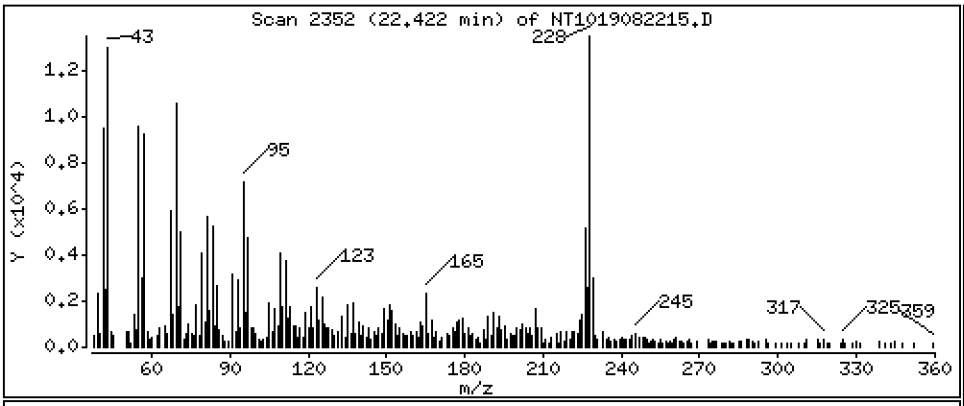
Operator: YZ

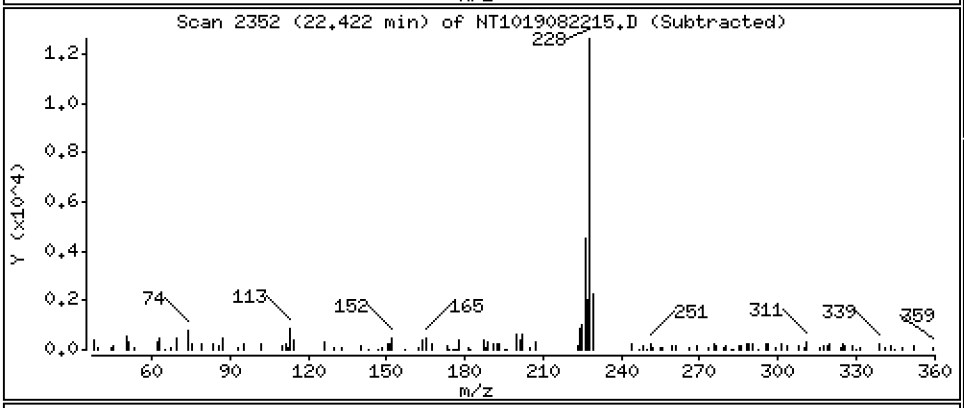
Column phase: ZB-5msi

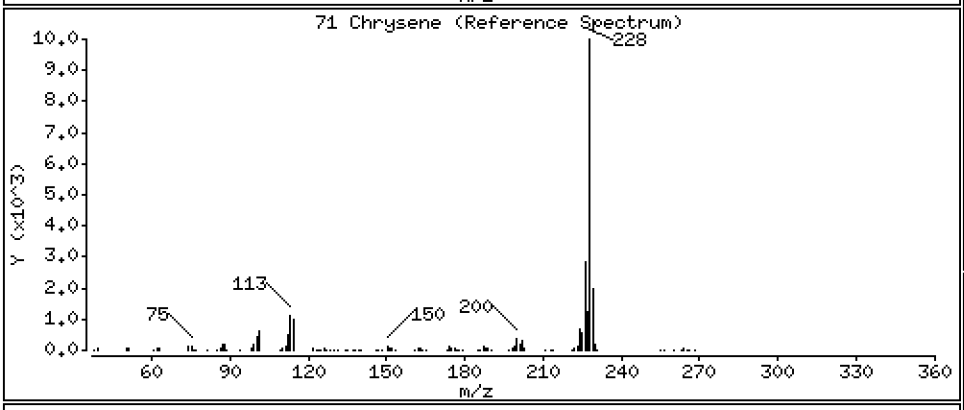
Column diameter: 0.25

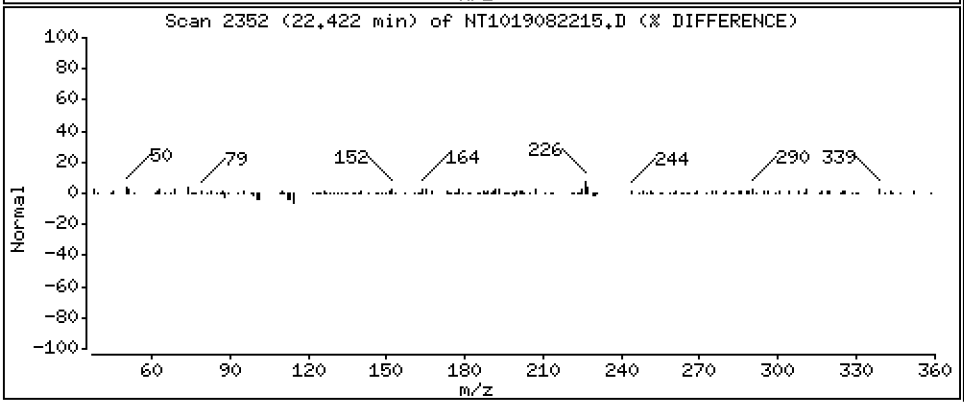
71 Chrysene

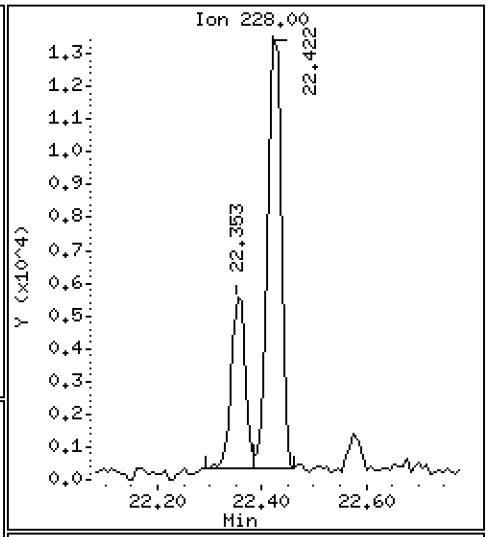
Concentration: 9.307 ug/mL

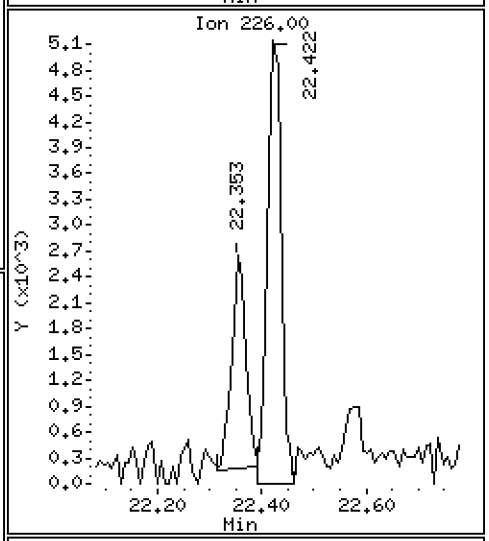


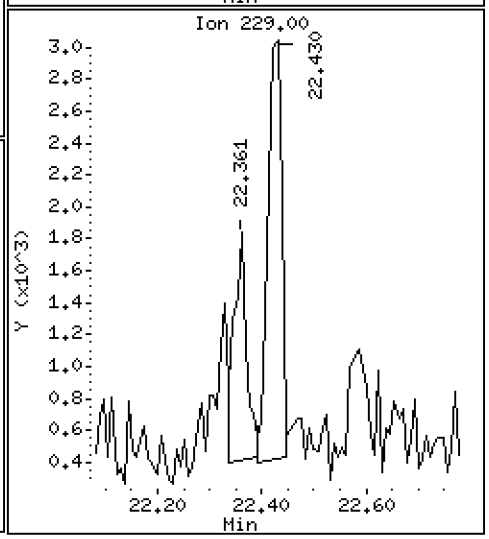












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082215.D

Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

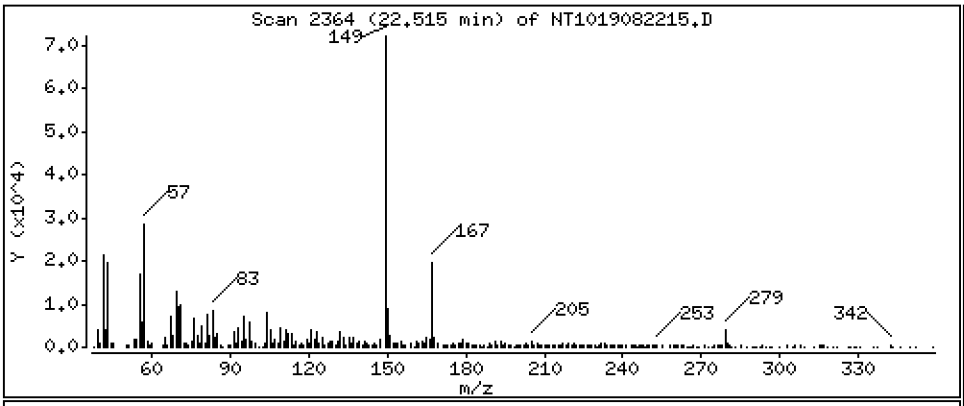
Operator: YZ

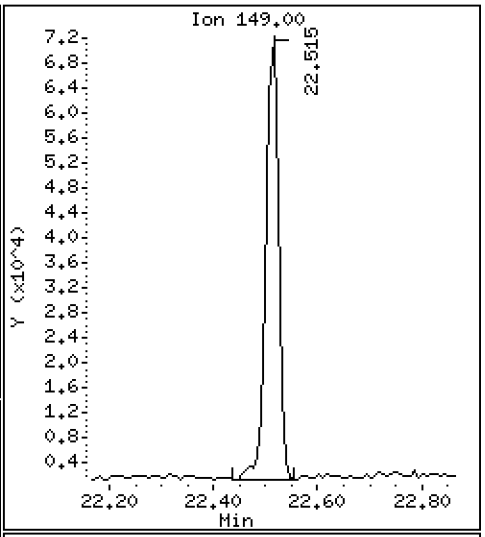
Column phase: ZB-5msi

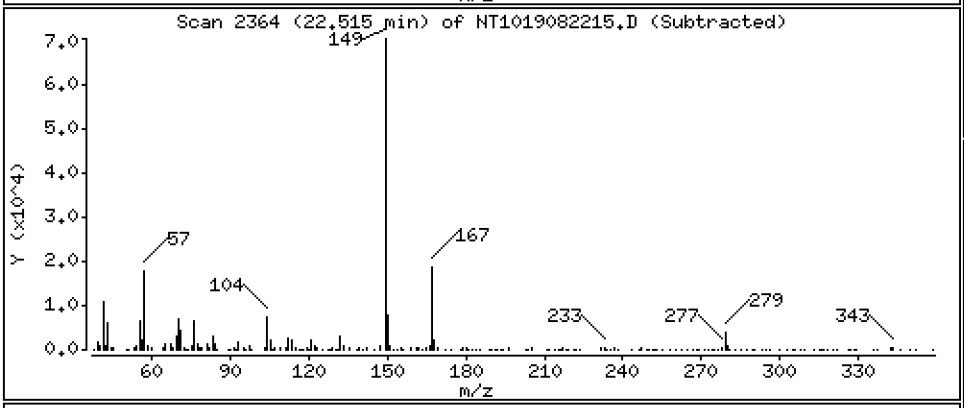
Column diameter: 0.25

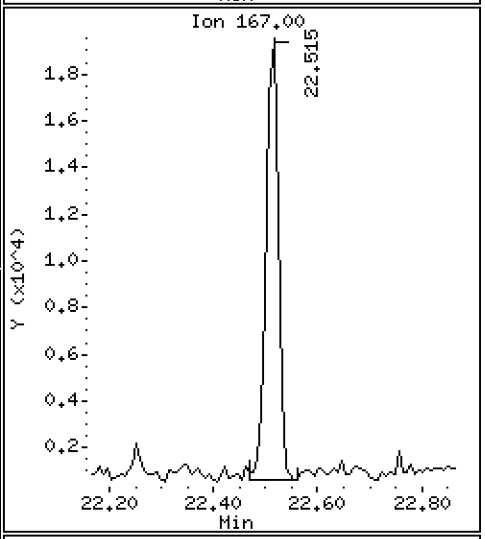
72 bis(2-Ethylhexyl)phthalate

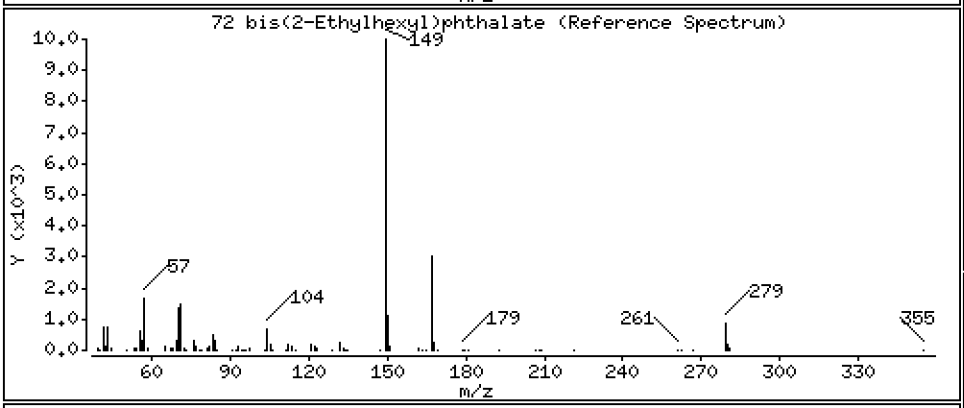
Concentration: 58.92 ug/mL

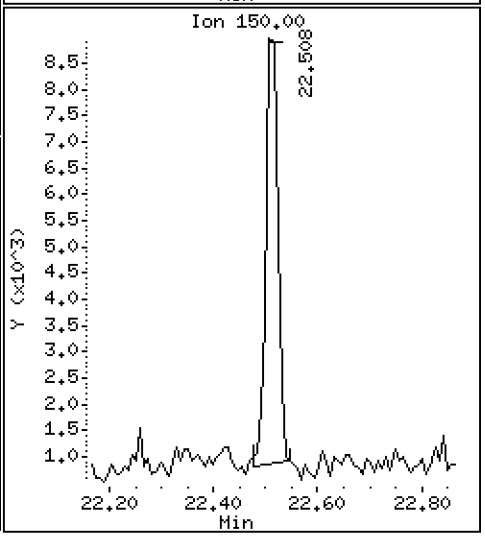


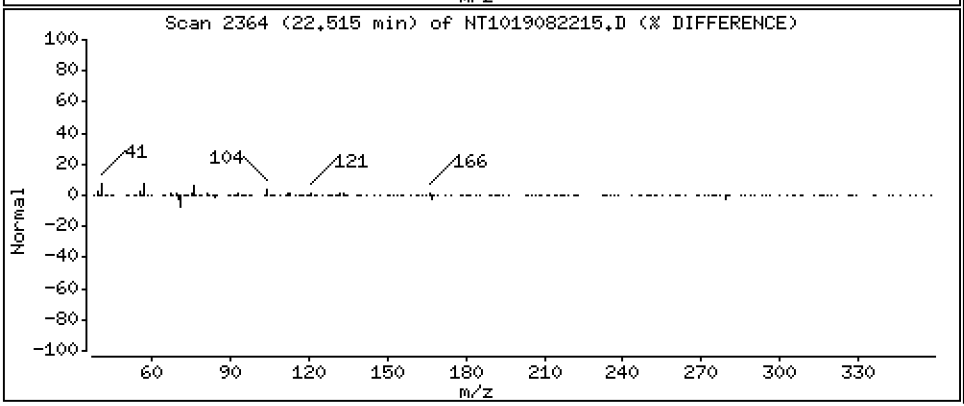












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082215.D

Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

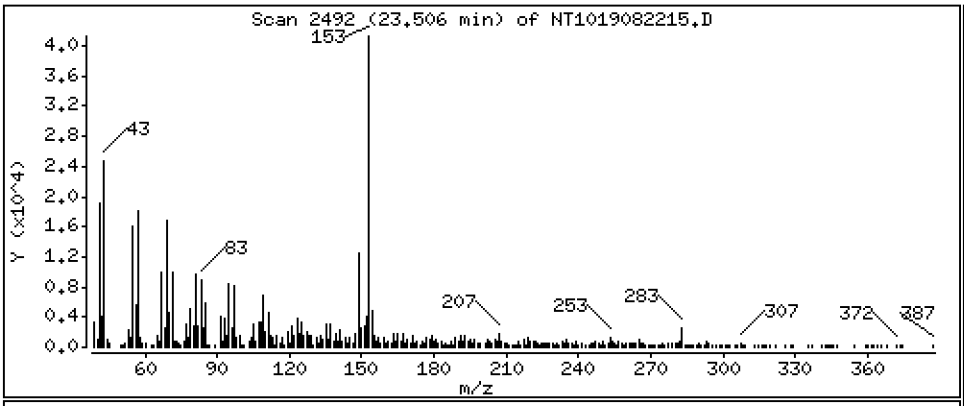
Operator: YZ

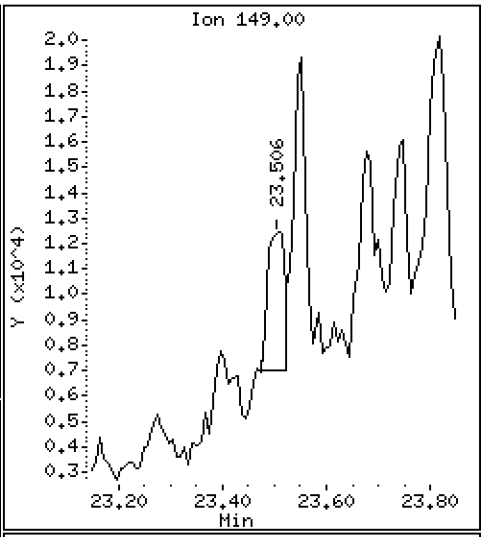
Column phase: ZB-5msi

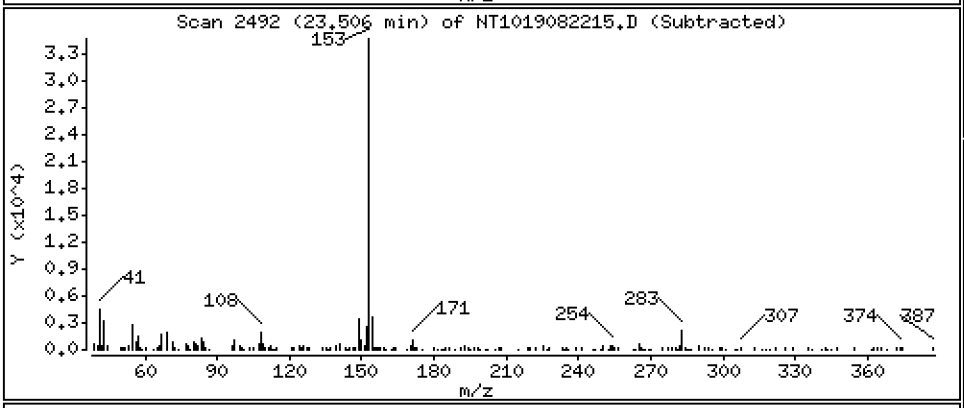
Column diameter: 0.25

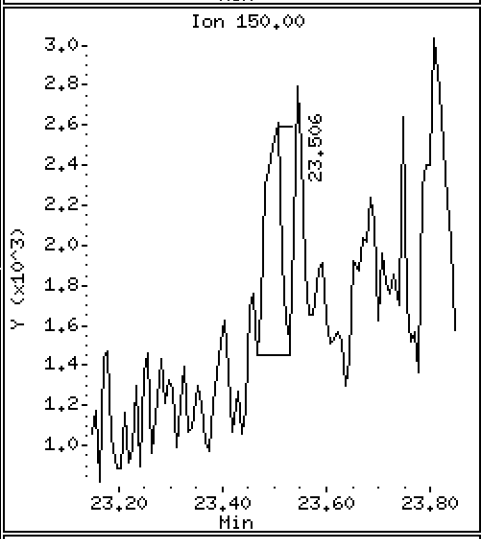
73 Di-n-octylphthalate

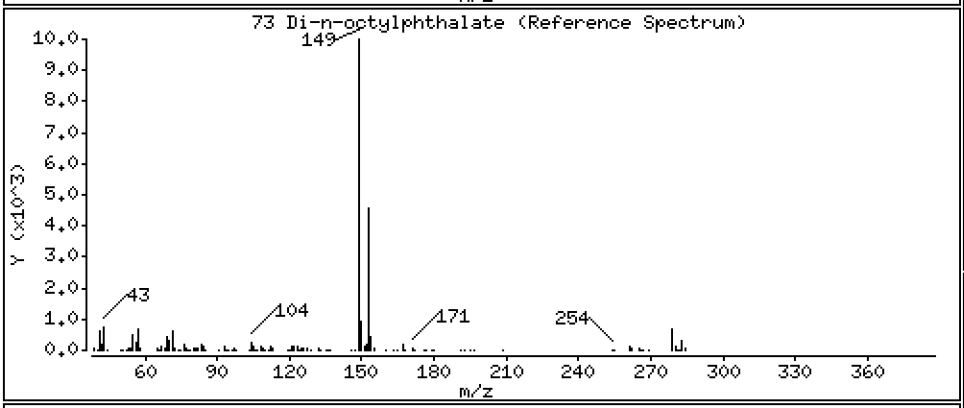
Concentration: 2.953 ug/mL

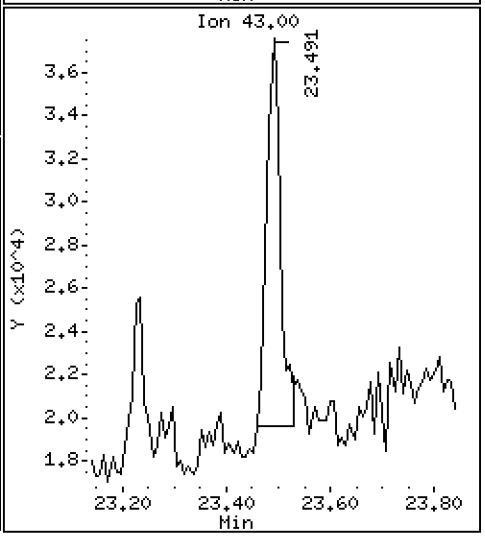


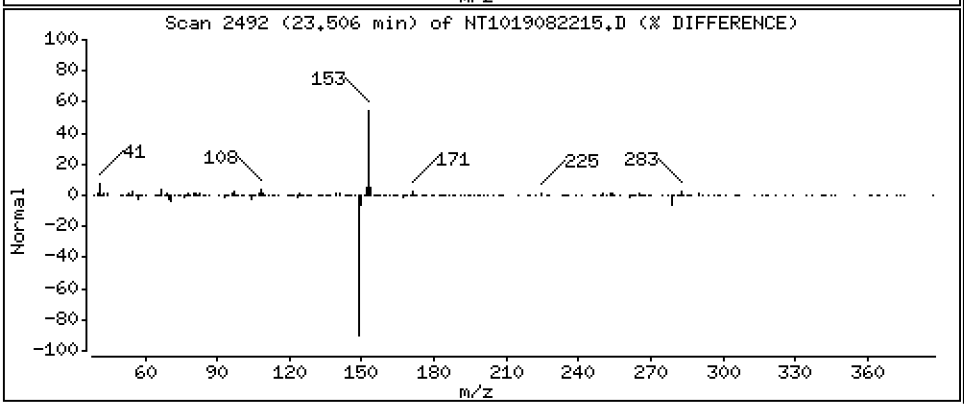












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Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

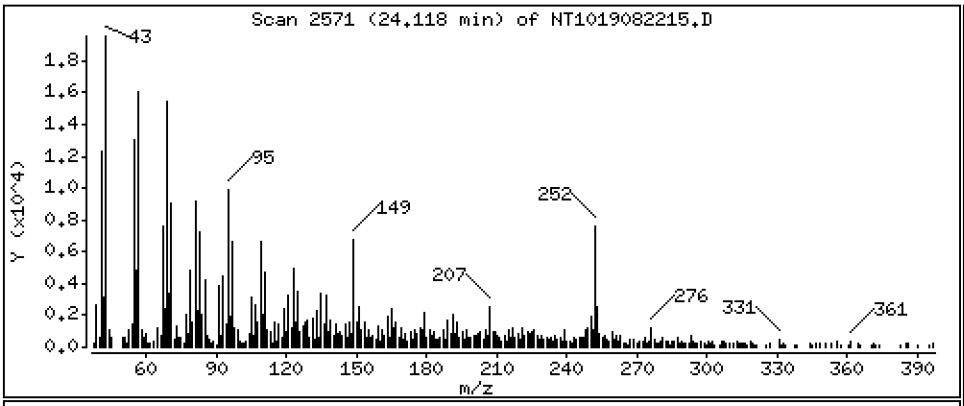
Operator: YZ

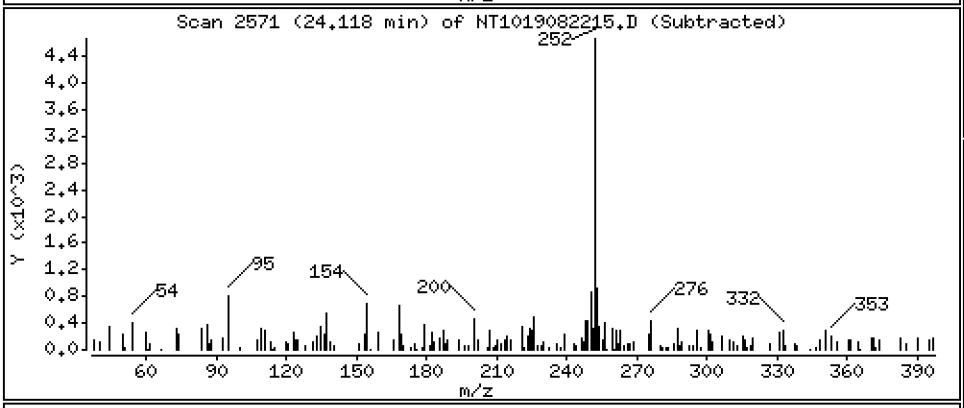
Column phase: ZB-5msi

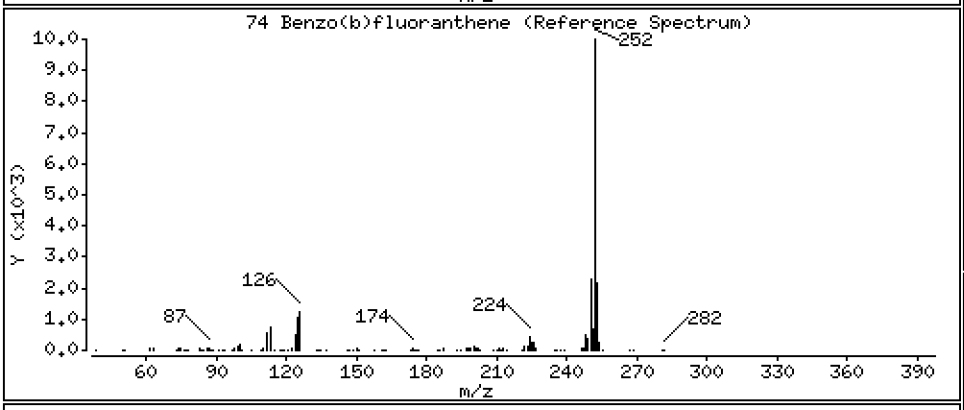
Column diameter: 0.25

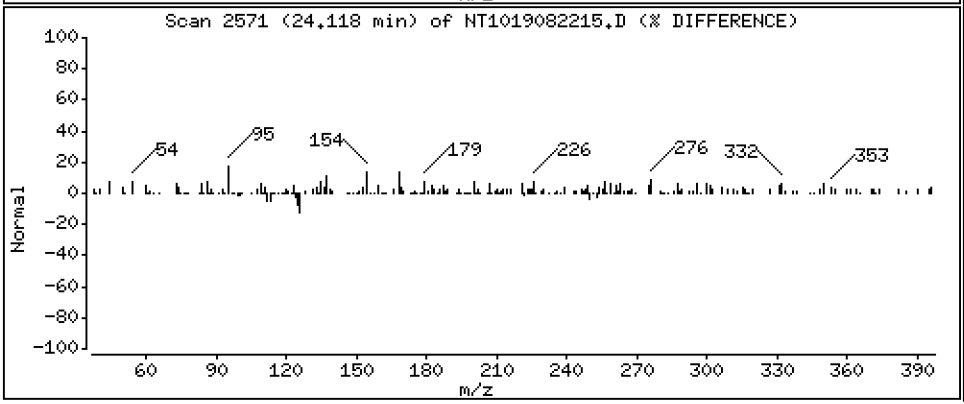
74 Benzo(b)fluoranthene

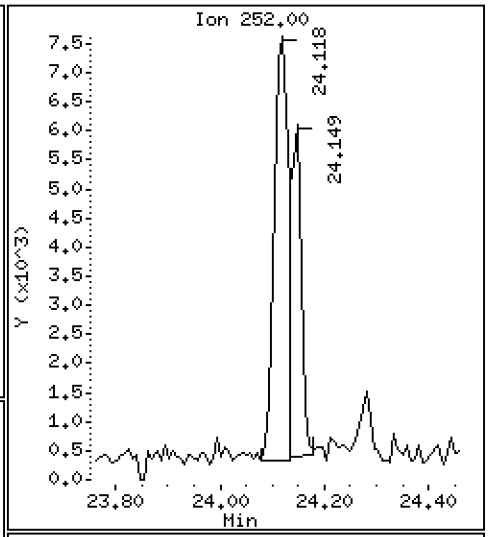
Concentration: 6.286 ug/mL

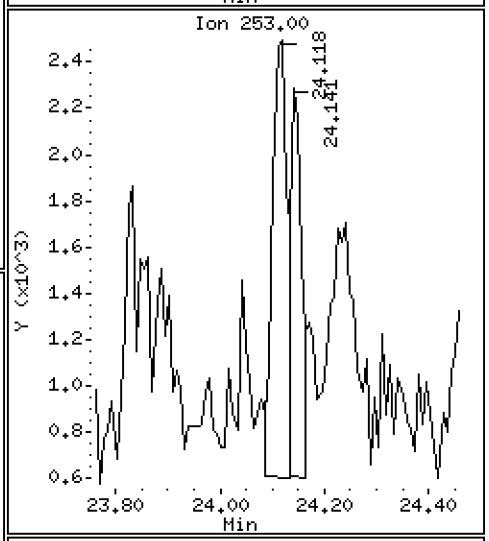


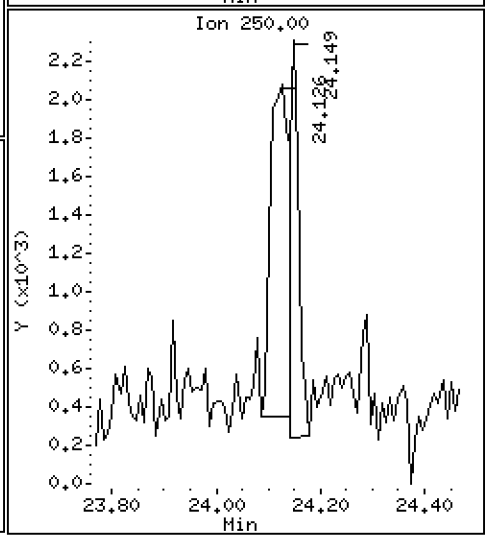












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Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

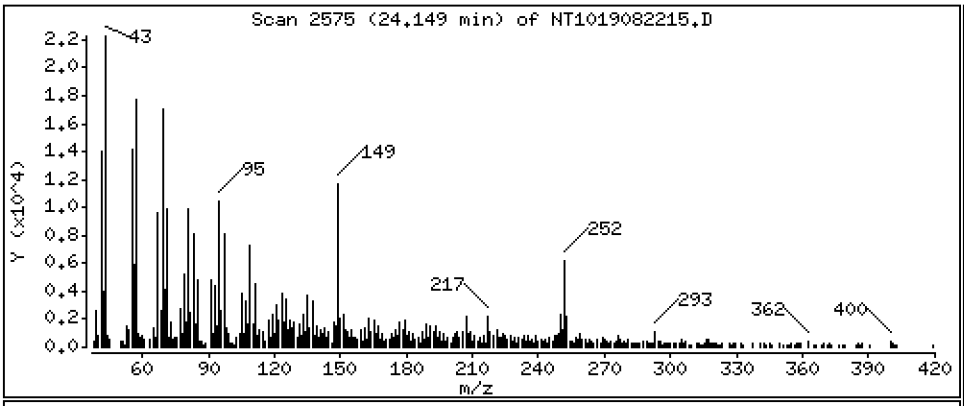
Operator: YZ

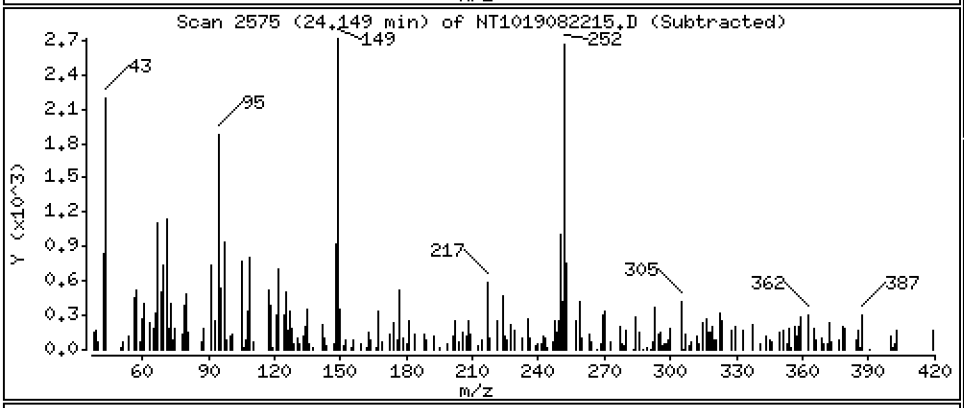
Column phase: ZB-5msi

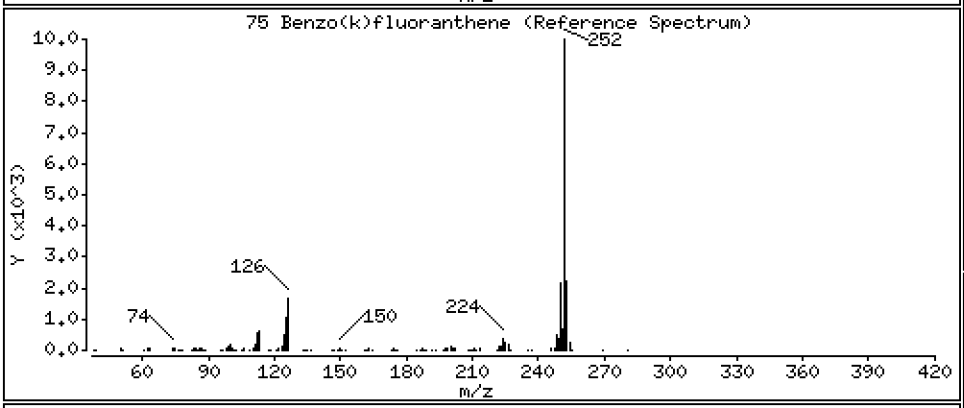
Column diameter: 0.25

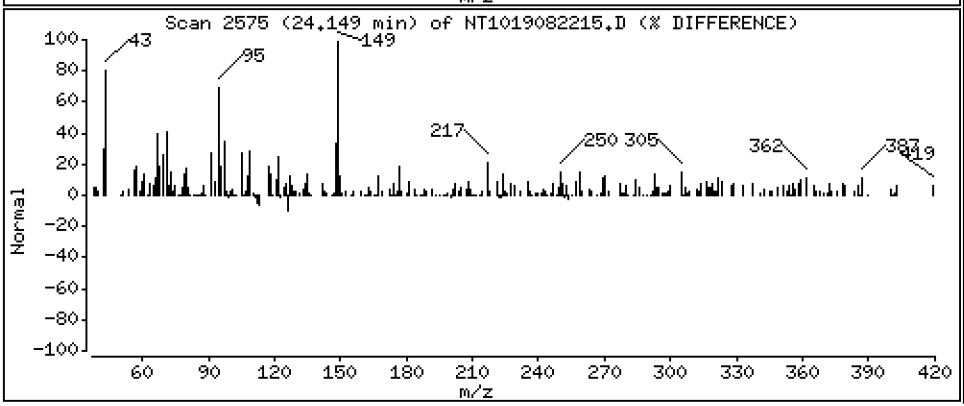
75 Benzo(k)fluoranthene

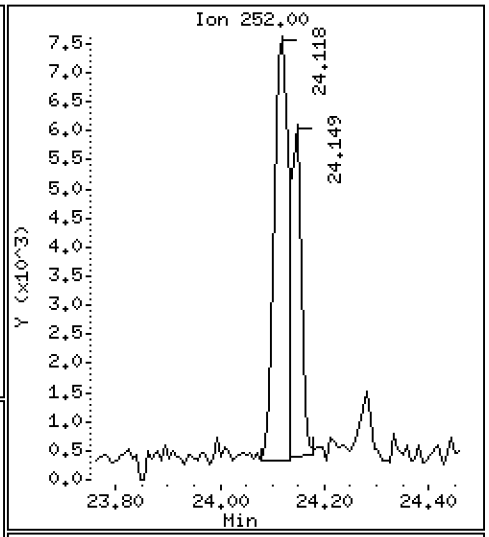
Concentration: 4.162 ug/mL

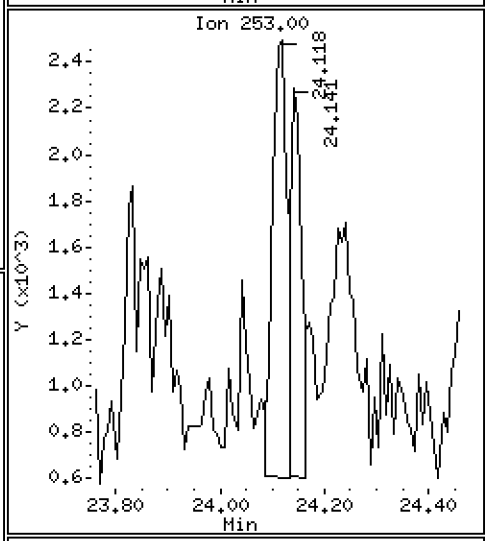


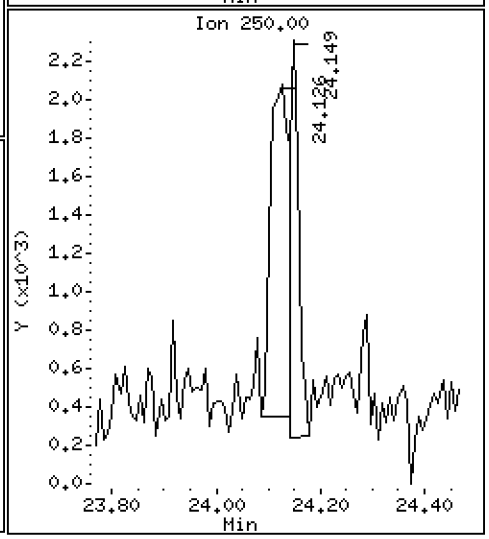












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Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

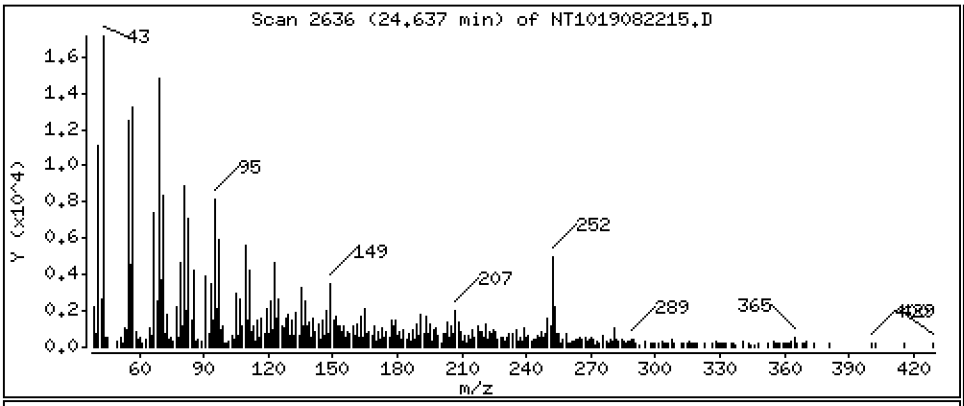
Operator: YZ

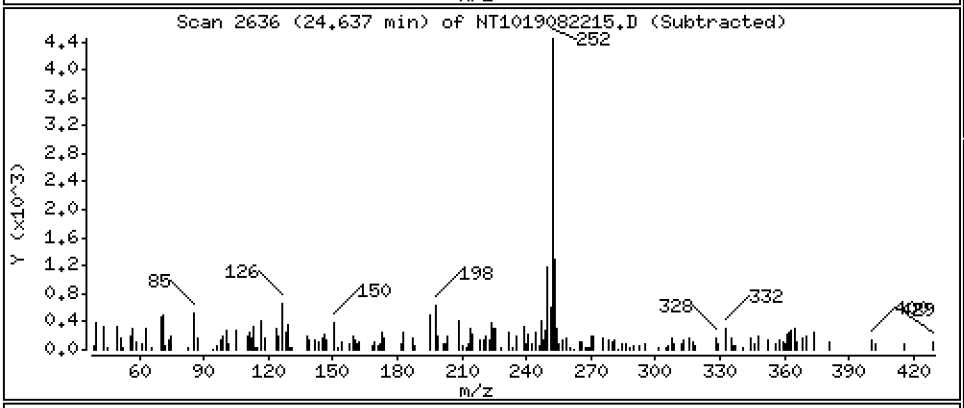
Column phase: ZB-5msi

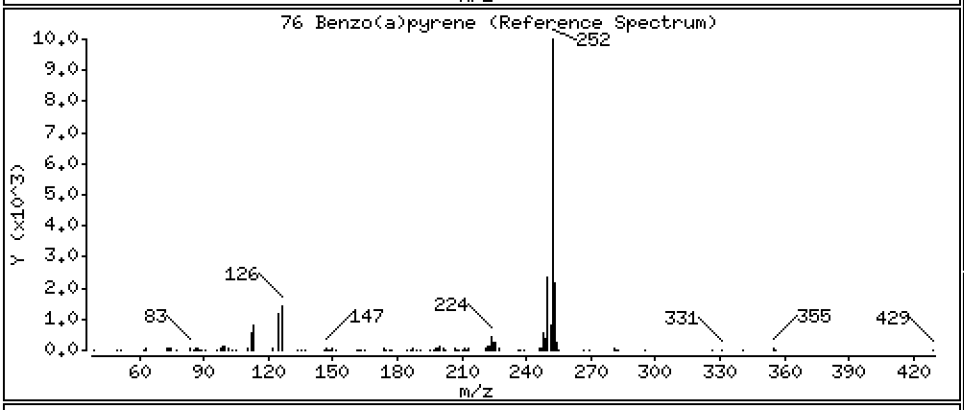
Column diameter: 0.25

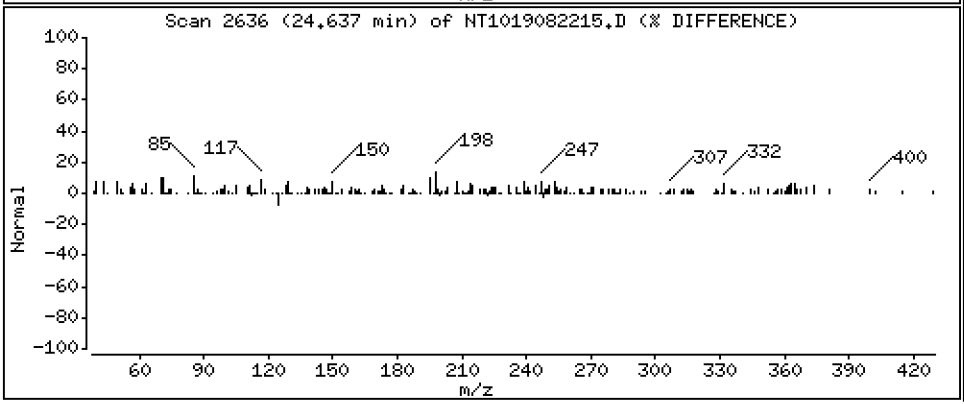
76 Benzo(a)pyrene

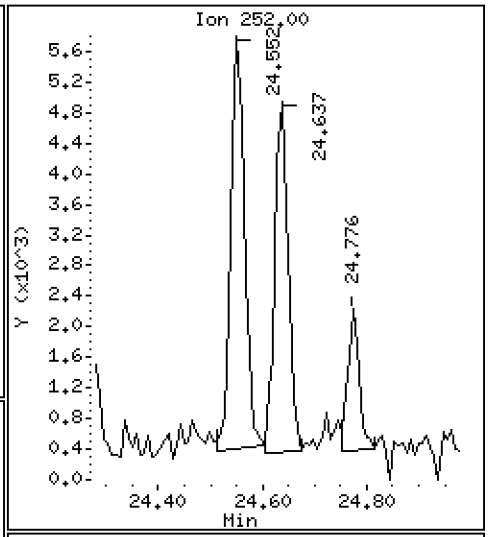
Concentration: 3.969 ug/mL

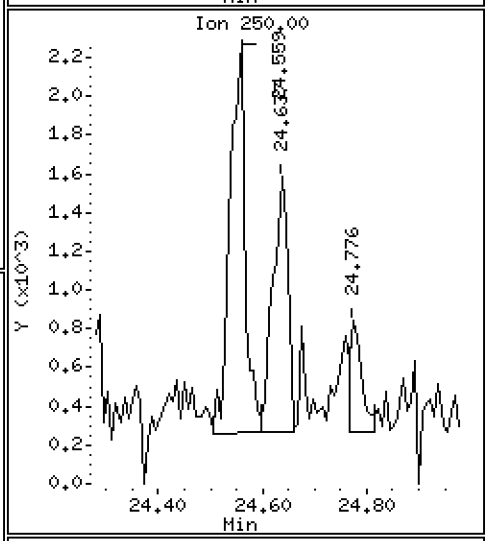


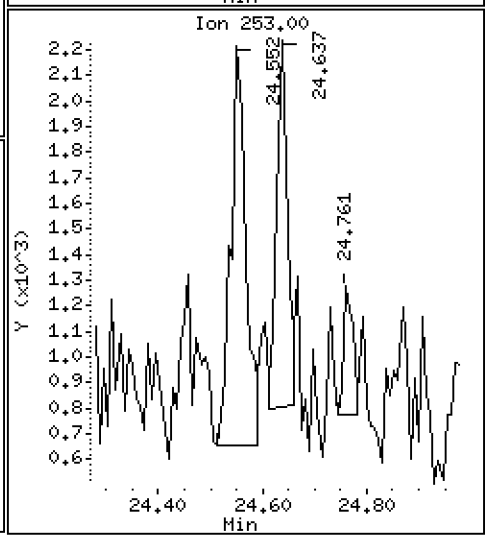












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Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

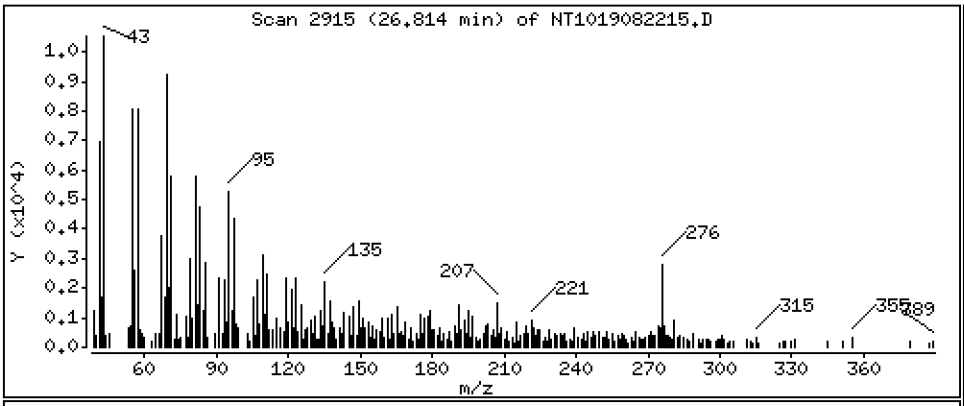
Operator: YZ

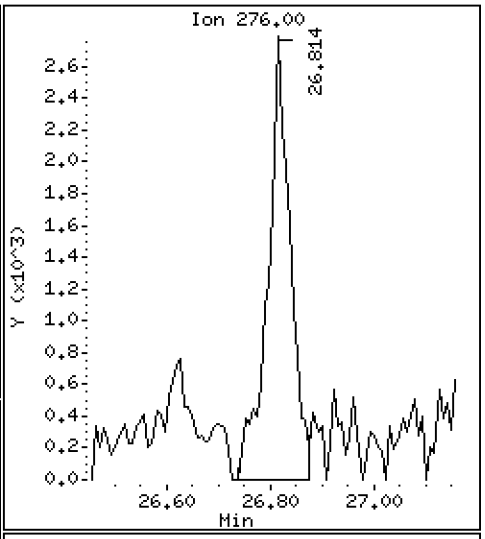
Column phase: ZB-5msi

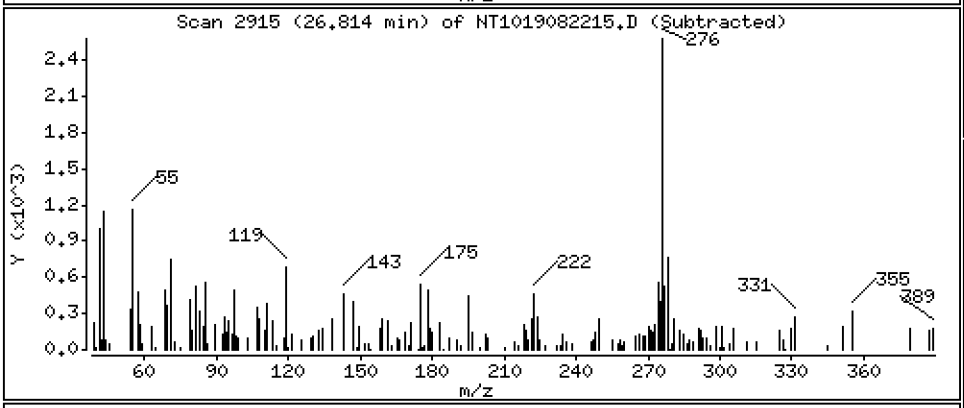
Column diameter: 0.25

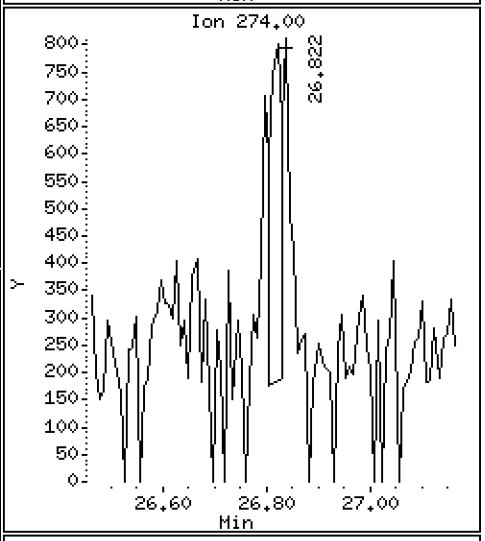
78 Indeno(1,2,3-cd)pyrene

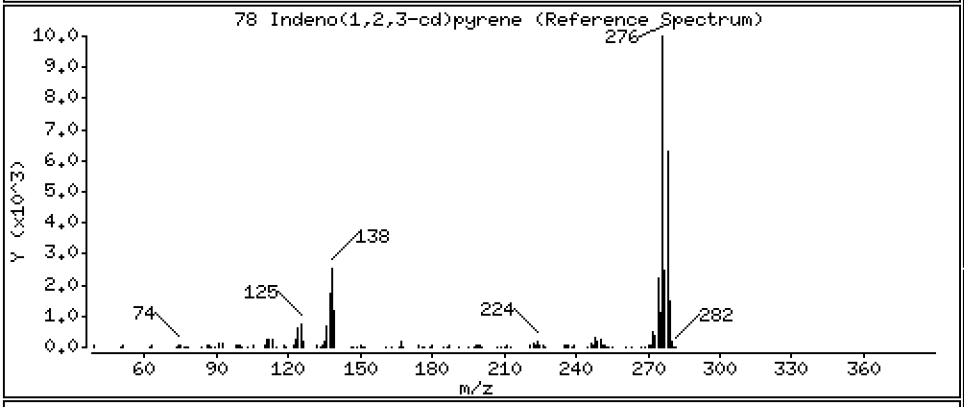
Concentration: 3.533 ug/mL

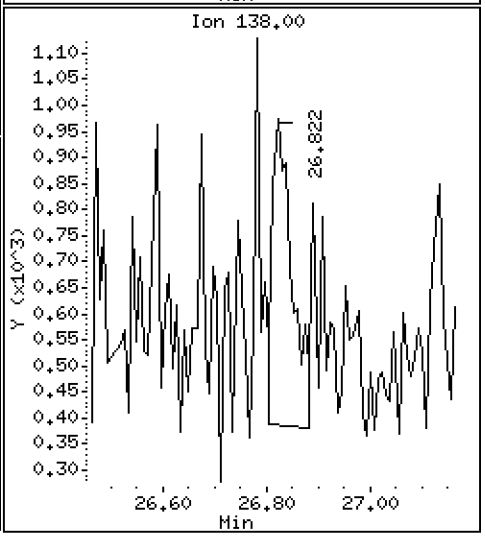


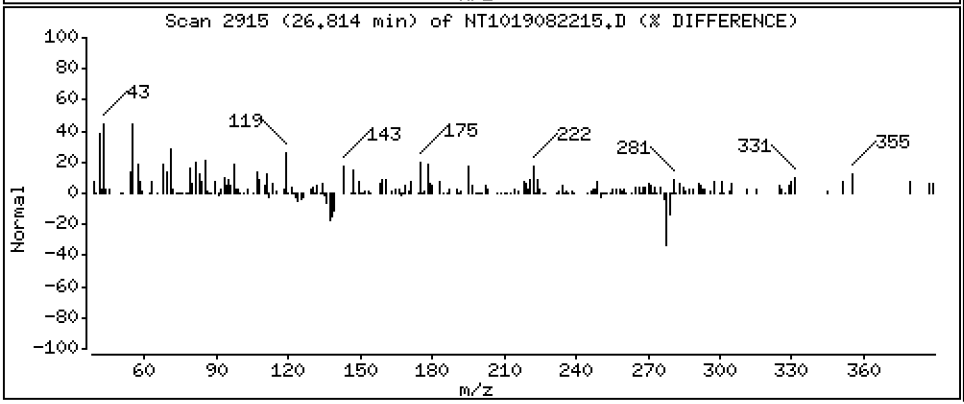












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Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

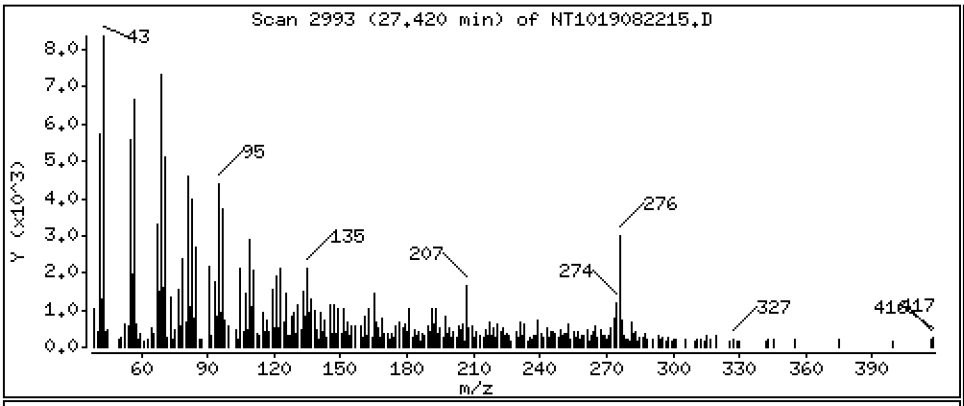
Operator: YZ

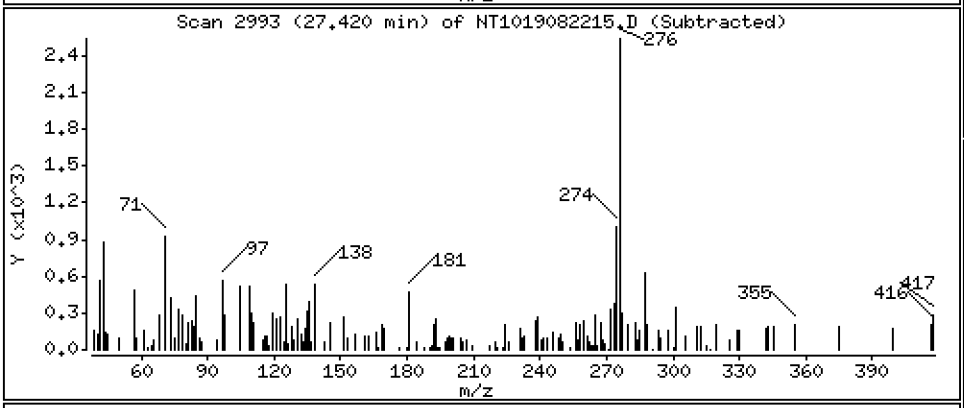
Column phase: ZB-5msi

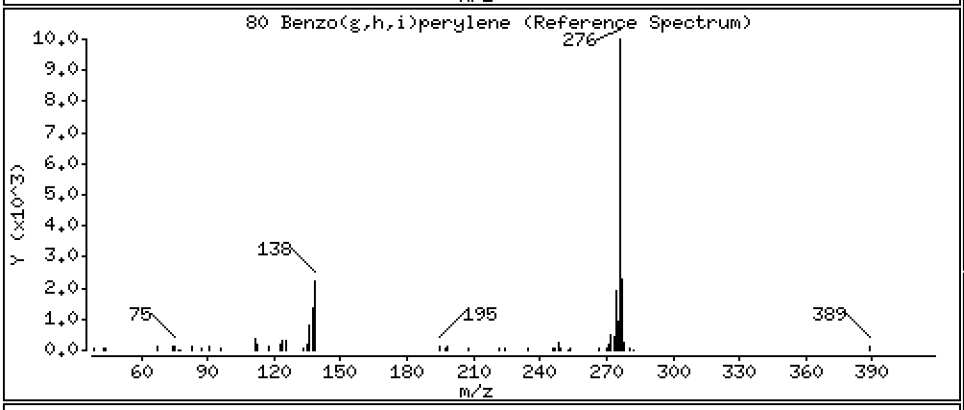
Column diameter: 0.25

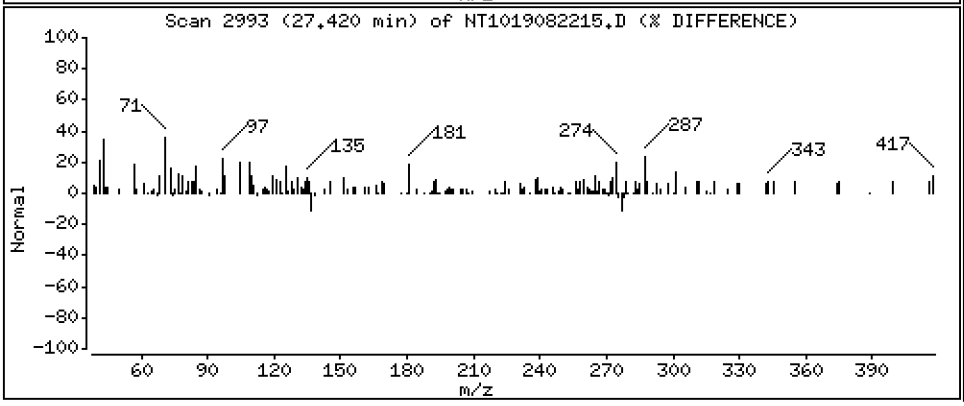
80 Benzo(g,h,i)perylene

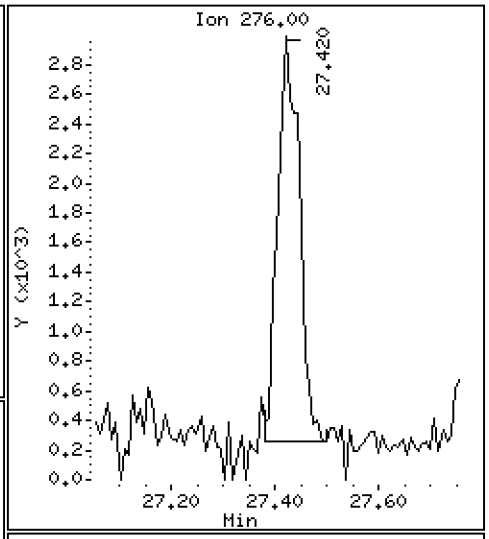
Concentration: 4.000 ug/mL

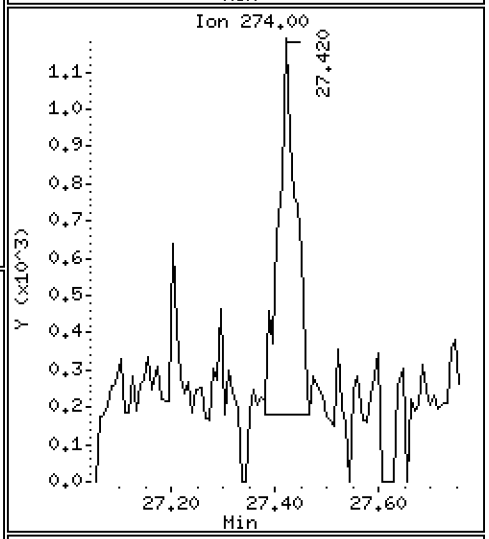


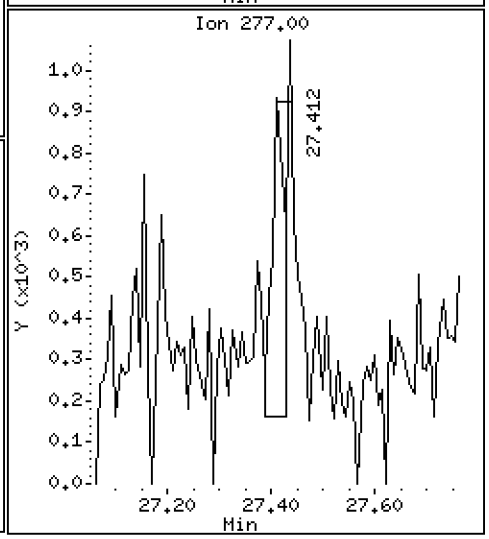












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Date : 22-AUG-2019 22:26

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-09RE1,9

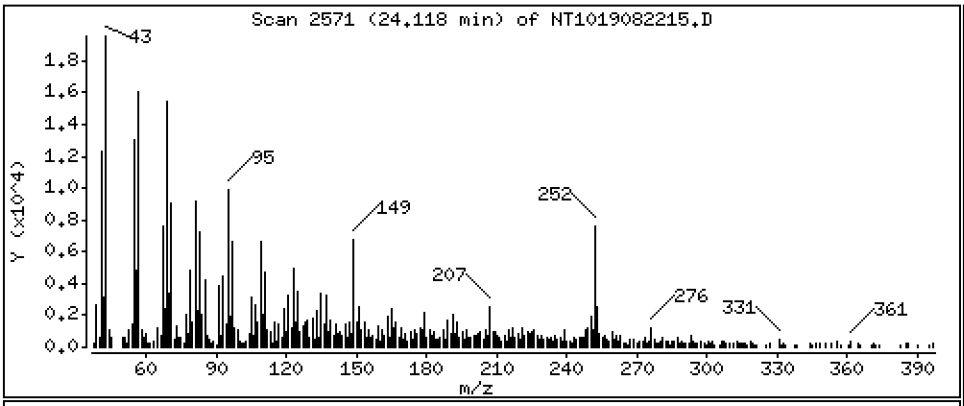
Operator: YZ

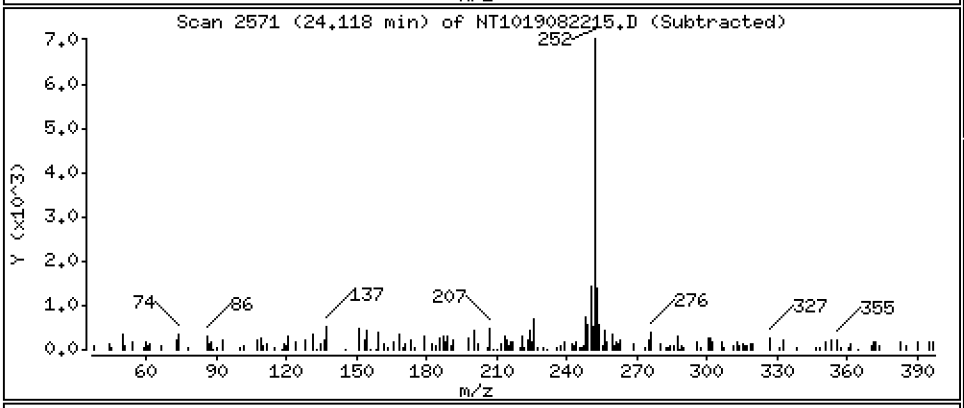
Column phase: ZB-5msi

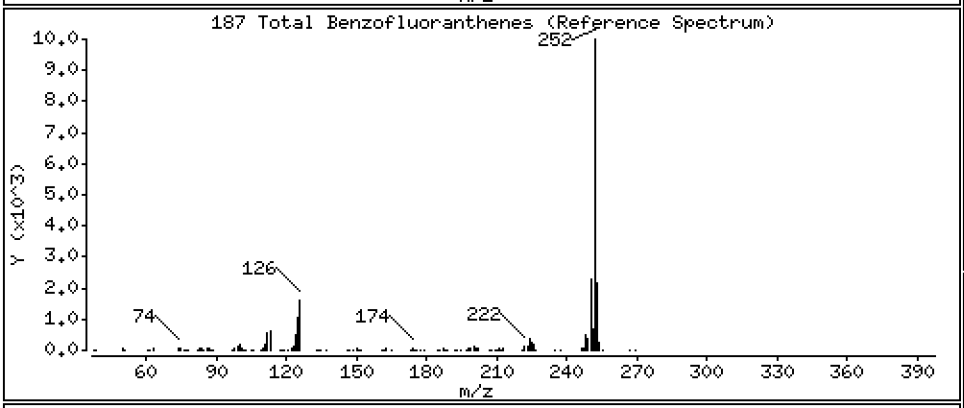
Column diameter: 0.25

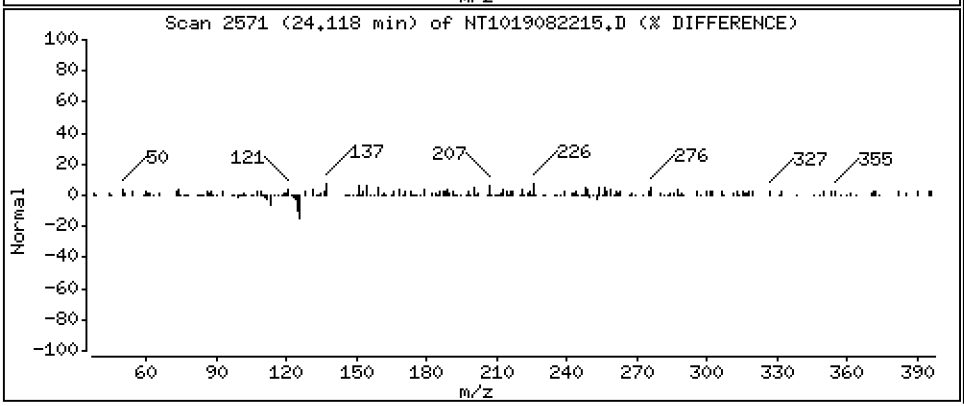
187 Total Benzofluoranthenes

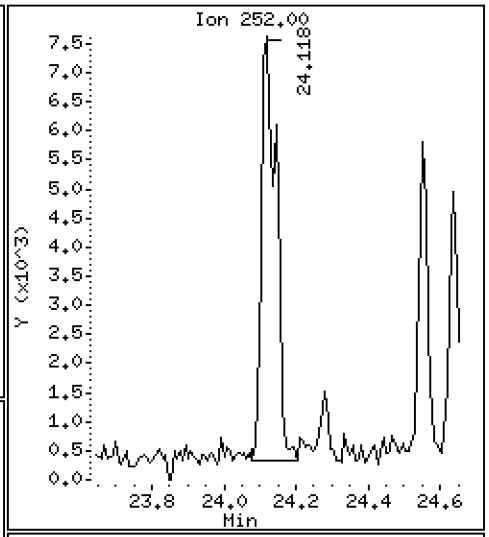
Concentration: 10.12 ug/mL

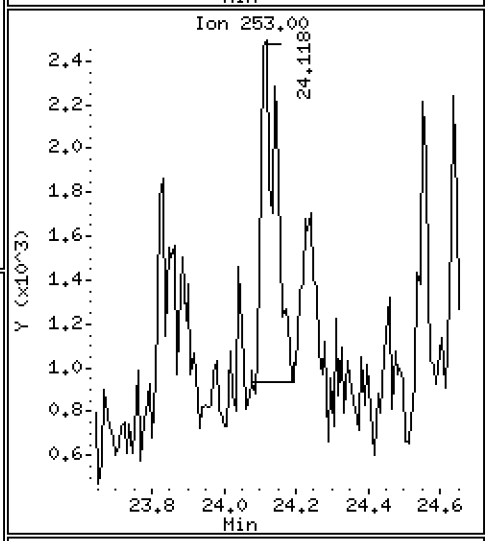


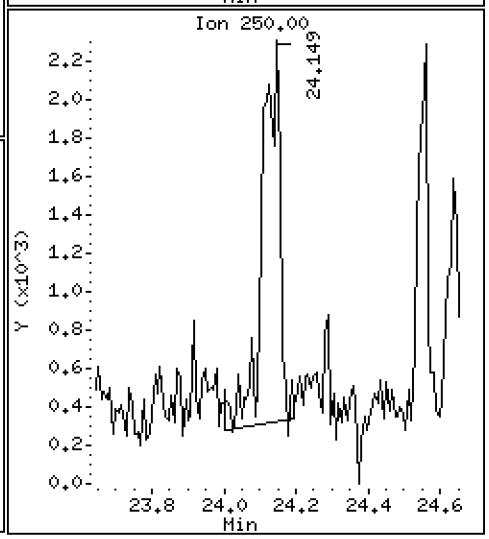












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

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Inj Date : 22-AUG-2019 22:26
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-09RE1,9
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 11:16 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 11
Dil Factor: 9.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.180	6.173	(0.742)	4166	0.29505	2.655
$	2 Phenol-d5	99	7.757	7.749	(0.931)	5320	0.33620	3.026
	3 Phenol	94	Compound Not Detected.					
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.958)	6570	0.38569	3.471
*	8 1,4-Dichlorobenzene-d4	152	8.329	8.329	(1.000)	50282	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.678	8.671	(1.042)	2704	0.23218	2.090
	11 Benzyl alcohol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.400	9.408	(0.873)	3526	0.24113	2.170
	24 Benzoic acid	105	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.765	10.765	(1.000)	186968	4.00000	
	28 Naphthalene	128	Compound Not Detected.					
	32 2-Methylnaphthalene	142	Compound Not Detected.					
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	11133	0.31162	2.805
	39 Dimethylphthalate	163	13.859	13.867	(0.969)	4150	0.11956	1.076
	40 Acenaphthylene	152	Compound Not Detected.					
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	93404	4.00000	
	44 Acenaphthene	153	Compound Not Detected.					
	46 Dibenzofuran	168	Compound Not Detected.					
	50 Diethylphthalate	149	Compound Not Detected.					
	49 Fluorene	166	15.391	15.398	(1.076)	3675	0.11557	1.040
	54 N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55 2,4,6-Tribromophenol	330	15.923	15.931	(1.113)	2164	0.30640	2.758
*	59 Phenanthrene-d10	188	17.291	17.291	(1.000)	176604	4.00000	
	60 Phenanthrene	178	17.337	17.345	(1.003)	16195	0.37542	3.379
	61 Anthracene	178	17.430	17.430	(1.008)	10412	0.23771	2.139
	63 Di-n-butylphthalate	149	Compound Not Detected.					
	64 Fluoranthene	202	19.744	19.751	(0.882)	45045	1.71568	15.44
	65 Pyrene	202	20.169	20.169	(0.901)	39847	1.45340	13.08
$	66 Terphenyl-d14	244	20.502	20.502	(0.916)	9511	0.51152	4.604
	67 Butylbenzylphthalate	149	21.462	21.462	(0.959)	12933	1.01267	9.114(M)
	68 Benzo(a)anthracene	228	22.352	22.352	(0.999)	9458	0.37942	3.415
*	69 Chrysene-d12	240	22.383	22.383	(1.000)	85915	4.00000	
	71 Chrysene	228	22.422	22.430	(1.002)	22811	1.03416	9.307

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.515	22.515	(0.958)	113400	6.54650	58.92
* 134	Di-n-octylphthalate-d4	153	23.490	23.490	(1.000)	196945	4.00000	
73	Di-n-octylphthalate	149	23.506	23.498	(1.001)	11954	0.32810	2.953(M)
74	Benzo(b)fluoranthene	252	24.117	24.110	(0.975)	13700	0.69848	6.286
75	Benzo(k)fluoranthene	252	24.148	24.110	(0.977)	9126	0.46249	4.162(H)
76	Benzo(a)pyrene	252	24.636	24.628	(0.996)	7764	0.44105	3.969
* 77	Perylene-d12	264	24.729	24.721	(1.000)	68364	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.813	26.806	(1.084)	8304	0.39260	3.533
79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
80	Benzo(g,h,i)perylene	276	27.419	27.404	(1.109)	7917	0.44442	4.000(M)
105	1-methylnaphthalene	142	Compound Not Detected.					
187	Total Benzofluoranthenes	252	24.117	24.148	(0.975)	21155	1.12444	10.12(M)

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082215.D
Lab Smp Id: 19H0024-09RE1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 16:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	50282	53.58
27 Naphthalene-d8	117487	58744	234974	186968	59.14
42 Acenaphthene-d10	61859	30930	123718	93404	51.00
59 Phenanthrene-d10	113574	56787	227148	176604	55.50
69 Chrysene-d12	105788	52894	211576	85915	-18.79
134 Di-n-octylphthala	252823	126412	505646	196945	-22.10
77 Perylene-d12	113992	56996	227984	68364	-40.03

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.33	0.00
27 Naphthalene-d8	10.77	10.27	11.27	10.77	0.00
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.29	0.00
69 Chrysene-d12	22.38	21.88	22.88	22.38	0.00
134 Di-n-octylphthala	23.49	22.99	23.99	23.49	0.00
77 Perylene-d12	24.72	24.22	25.22	24.73	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082215.D

Lab ID: 19H0024-09RE1
nt10.i, 20190822.b\ABN.m,   22-AUG-2019 22:26

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT1019082206.D

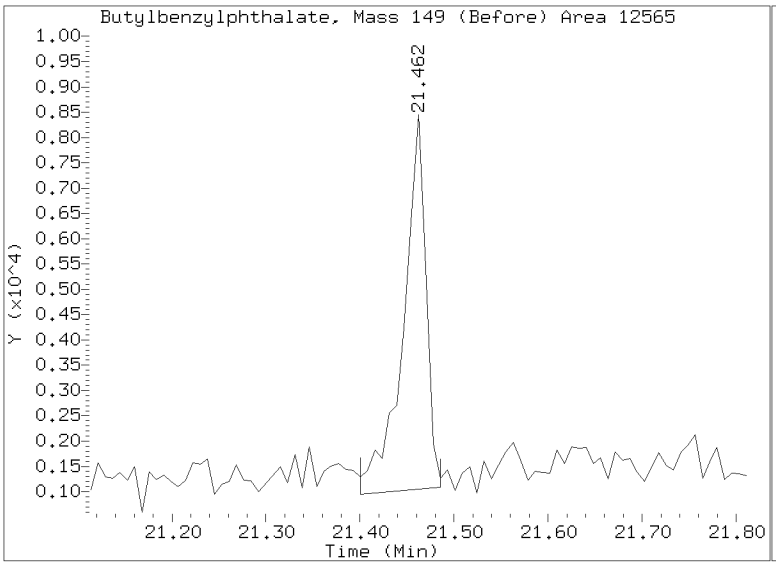
On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

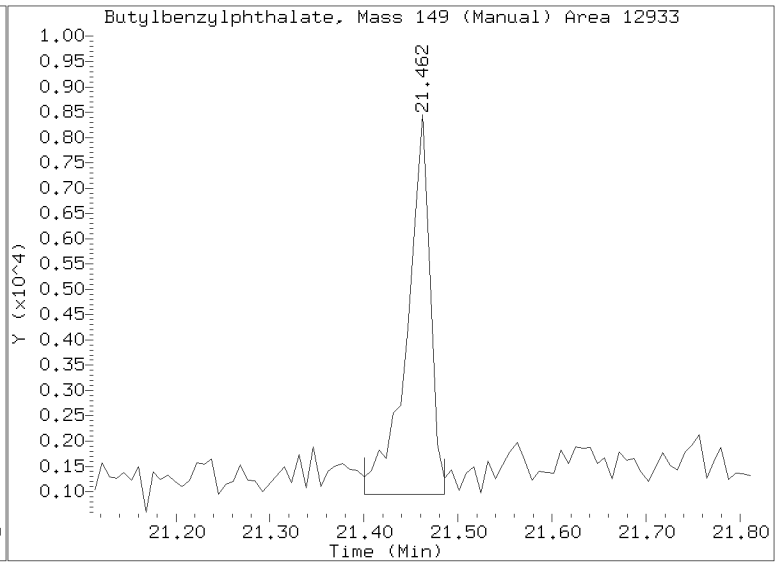
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

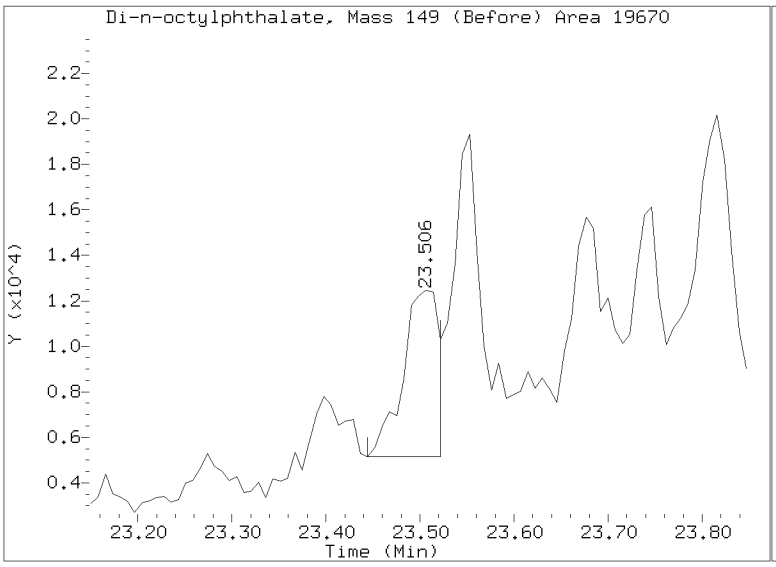
* Only compounds listed in the work order have been verified by the analyst *

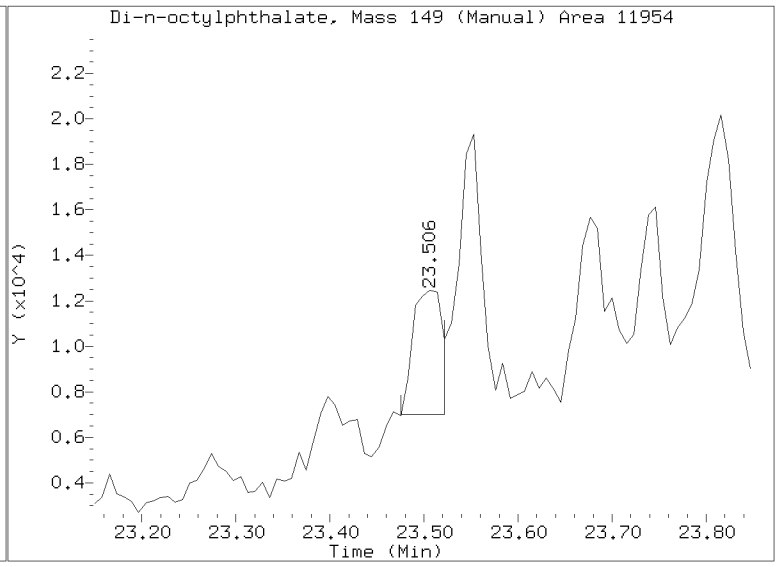
Quant Ion Manual Peak Adjustment Report

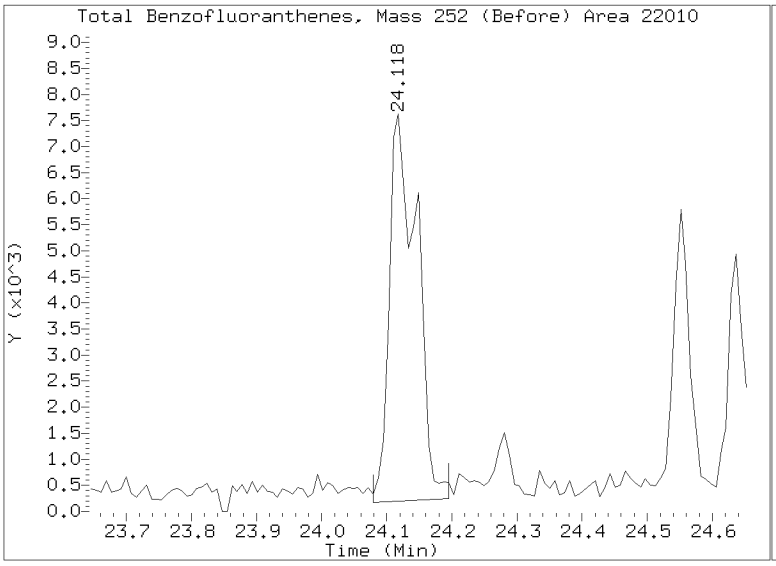
Datafile: //Target/share/chem3/nt10.i/20190822.b/NT1019082215.D
Injection Date: 22-AUG-2019 22:26
Lab ID:19H0024-09RE1 Client ID:
Report Date: 08/23/2019 12:01

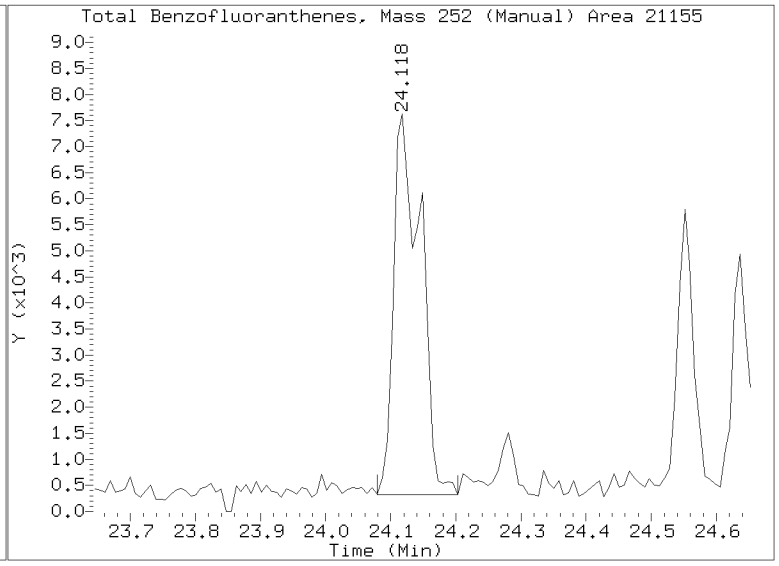






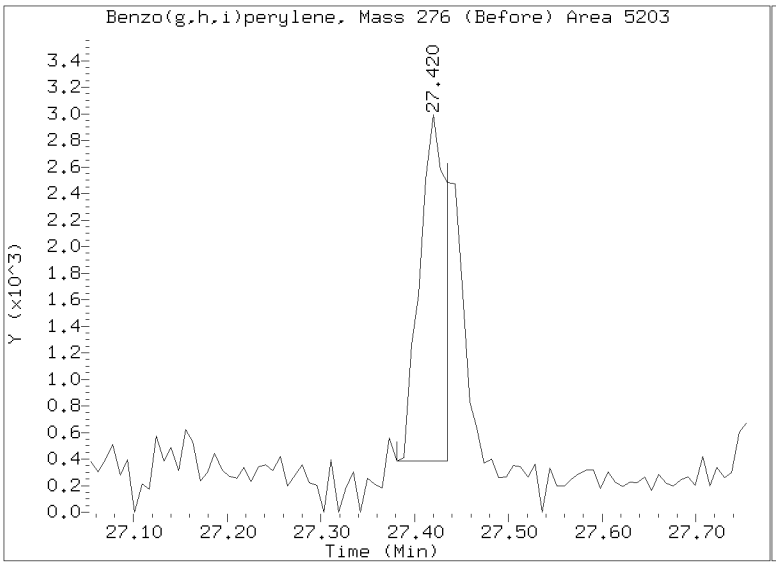


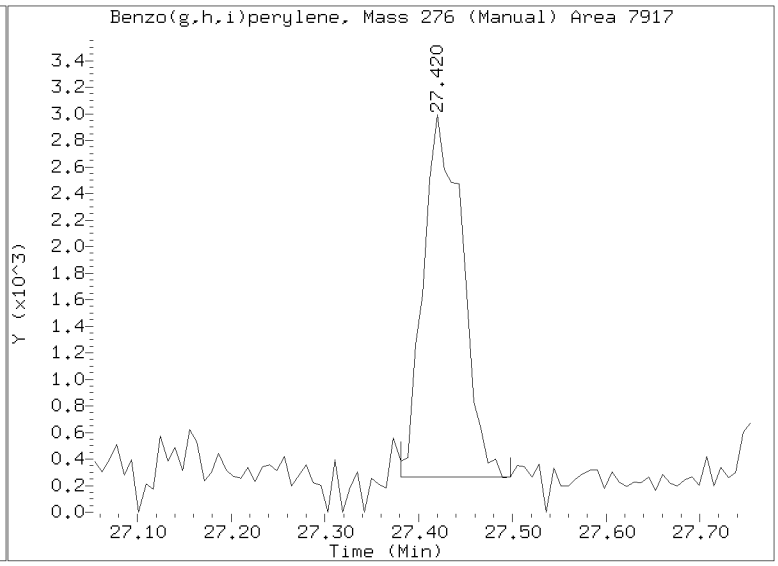




Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190822.b/NT1019082215.D
Injection Date: 22-AUG-2019 22:26
Lab ID:19H0024-09RE1 Client ID:
Report Date: 08/23/2019 12:01





SL4-IC-SC2-2019

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D
Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory: Analytical Resources, Inc.

Client: Windward Environmental, LLC

Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix:	Solid	Laboratory ID:	19H0024-10 C	SDG:	19H0024
Sampled:	08/01/19 11:45	Prepared:	08/13/19 12:40	File ID:	NT1019082119.D
% Solids:	82.03	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/21/19 21:23
Batch:	BHH0289	Sequence:	SHH0303	Initial/Final:	12.35 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040

Cleanups: GPC

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	1	19.7	U	8.1	19.7
100-51-6	Benzyl Alcohol	1	19.7	U	14.7	19.7
65-85-0	Benzoic acid	1	197	U	58.3	197
86-30-6	N-Nitrosodiphenylamine	1	19.7	U	9.4	19.7
85-01-8	Phenanthrene	1	92.8		4.6	19.7
206-44-0	Fluoranthene	1	385		4.5	19.7
129-00-0	Pyrene	1	321		5.5	19.7
85-68-7	Butylbenzylphthalate	1	19.7	U	7.9	19.7
56-55-3	Benzo(a)anthracene	1	89.3		5.1	19.7
218-01-9	Chrysene	1	170		5.2	19.7
117-81-7	bis(2-Ethylhexyl)phthalate	1	1070		28.4	49.4
117-84-0	Di-n-Octylphthalate	1	19.7	U	8.6	19.7
	Benzofluoranthenes, Total	1	297		10.1	39.5
50-32-8	Benzo(a)pyrene	1	94.8		6.4	19.7
193-39-5	Indeno(1,2,3-cd)pyrene	1	19.7	U	5.9	19.7
53-70-3	Dibenzo(a,h)anthracene	1	19.7	U	6.1	19.7
191-24-2	Benzo(g,h,i)perylene	1	19.7	U	5.7	19.7

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	740.32	364	49.2	27 - 120	Q
Phenol-d5	740.32	342	46.2	29 - 120	Q
2-Chlorophenol-d4	740.32	492	66.5	31 - 120	
1,2-Dichlorobenzene-d4	493.55	318	64.4	32 - 120	
Nitrobenzene-d5	493.55	302	61.2	30 - 120	
2-Fluorobiphenyl	493.55	389	78.8	35 - 120	
2,4,6-Tribromophenol	740.32	565	76.3	24 - 134	
p-Terphenyl-d14	493.55	519	105	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

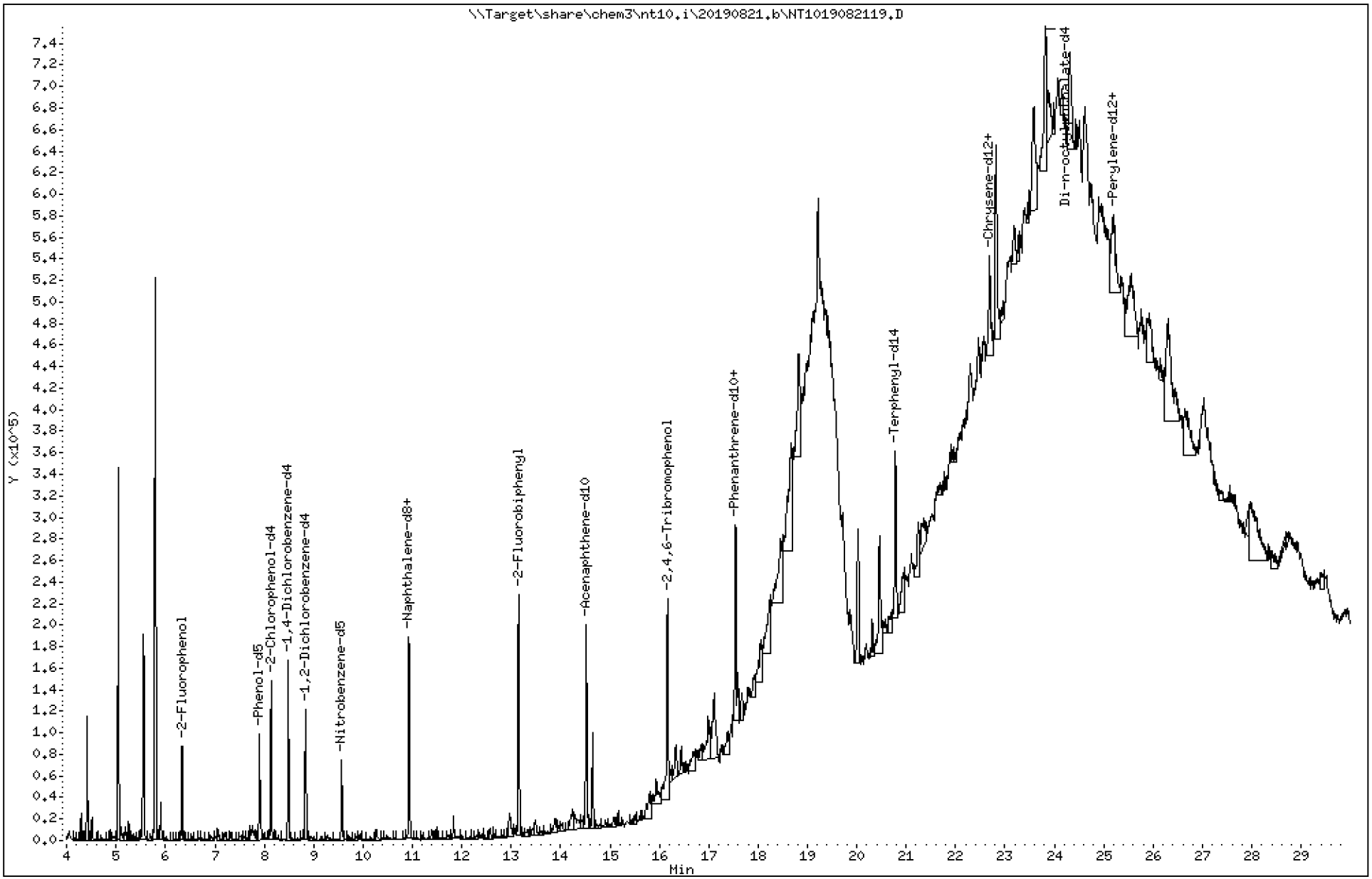
Instrument: nt10.i

Sample Info: 19H0024-10

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

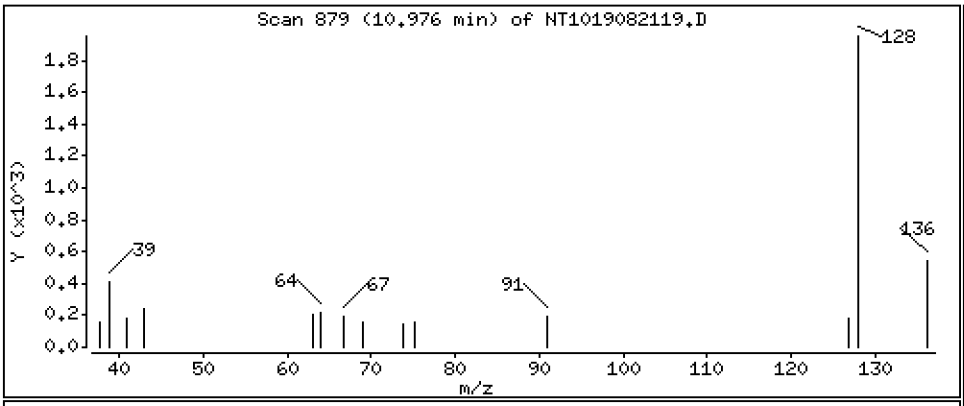
Operator: YZ

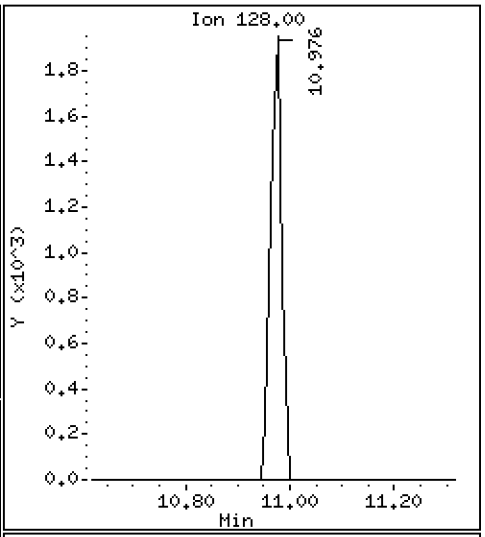
Column phase: ZB-5msi

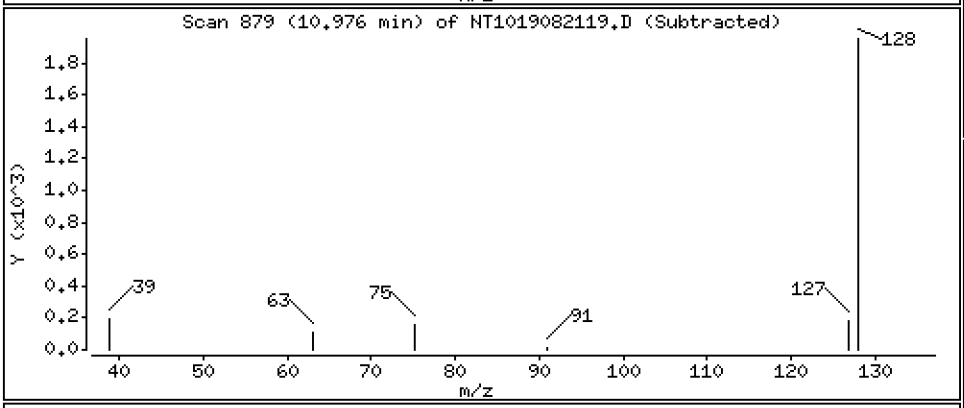
Column diameter: 0.25

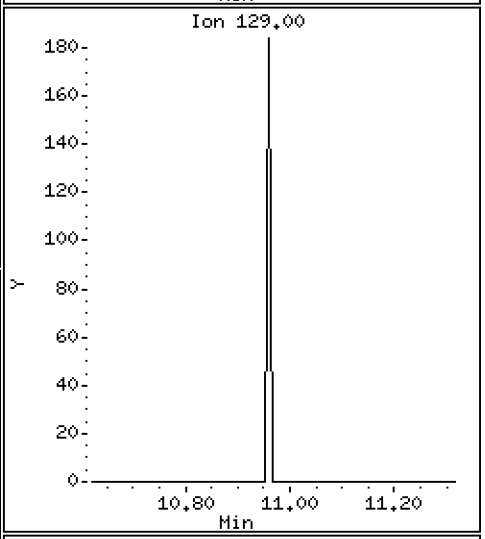
28 Naphthalene

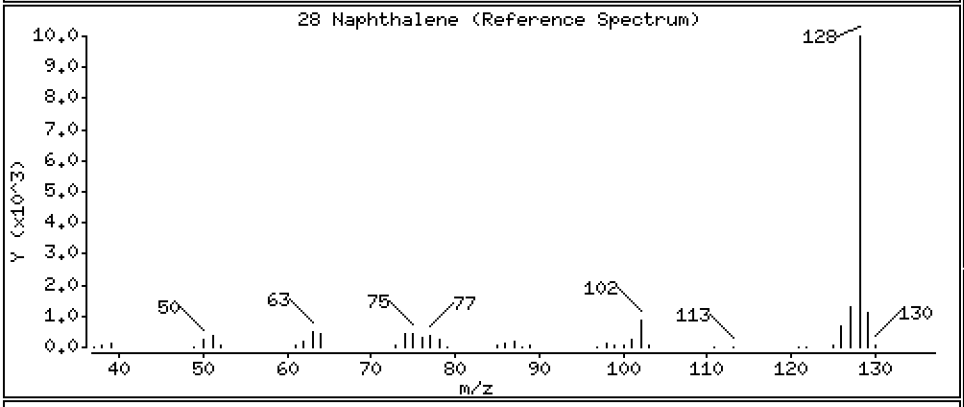
Concentration: 0.08984 ug/mL

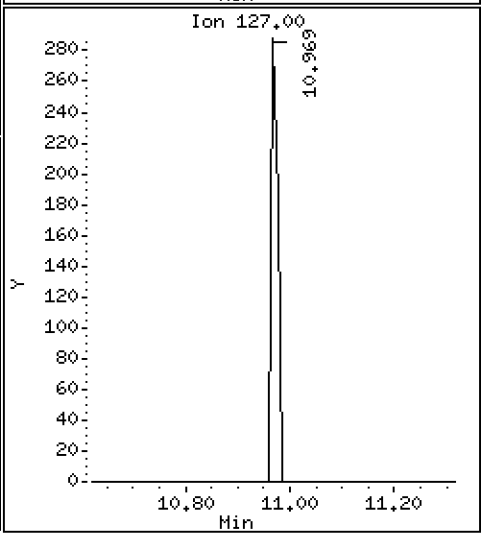


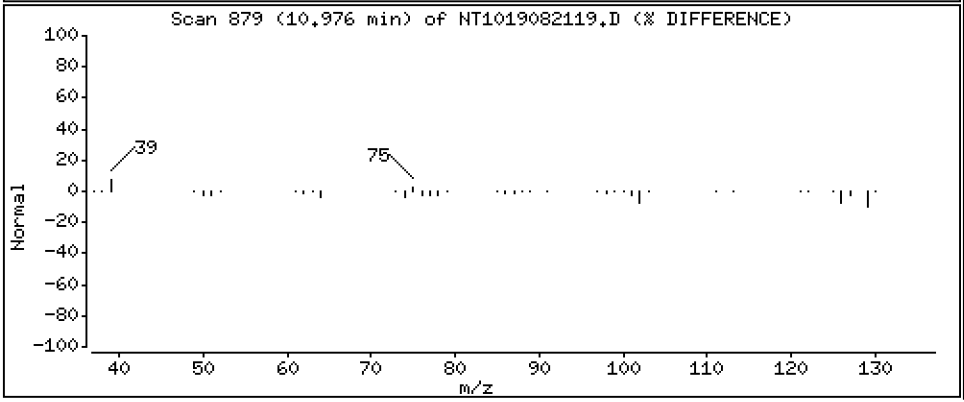












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Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

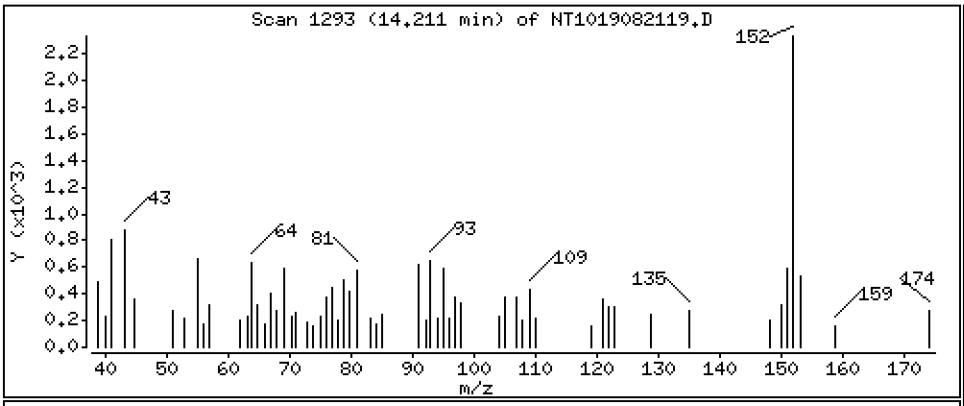
Operator: YZ

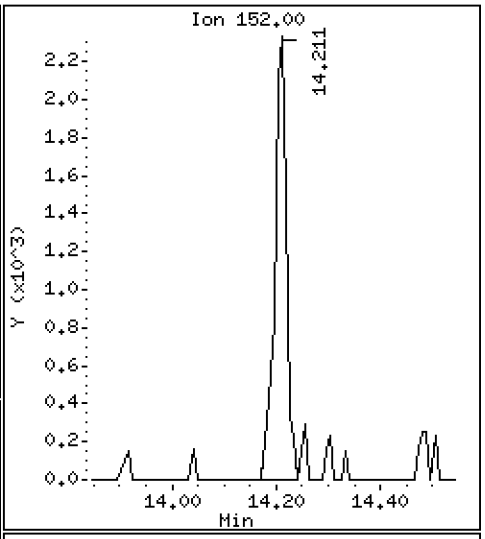
Column phase: ZB-5msi

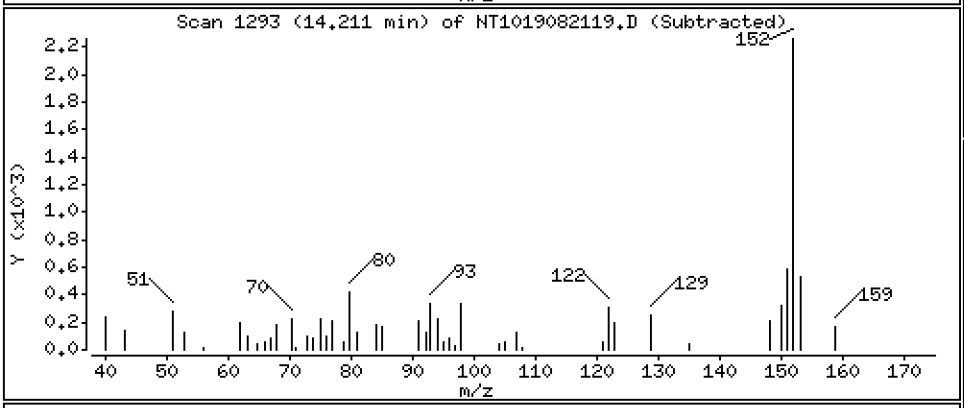
Column diameter: 0.25

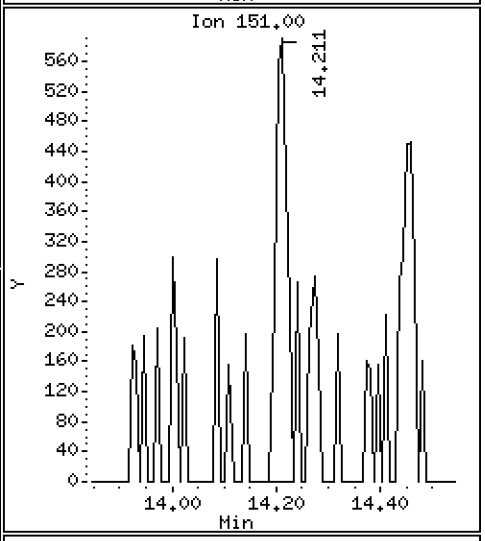
40 Acenaphthylene

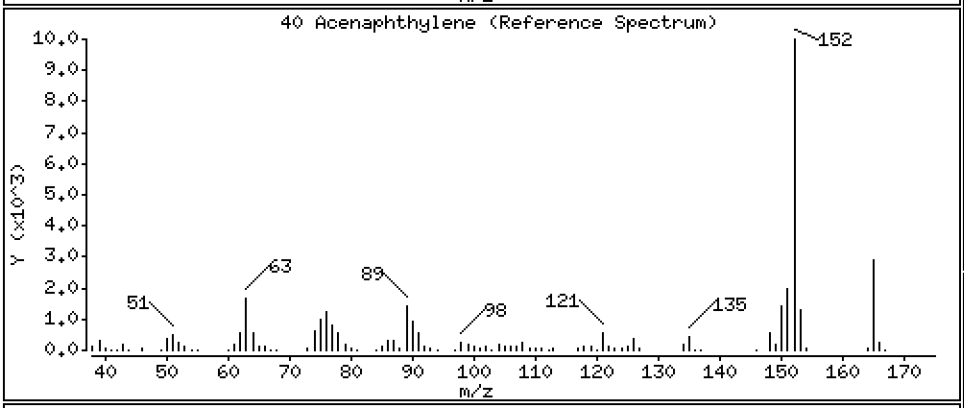
Concentration: 0.1126 ug/mL

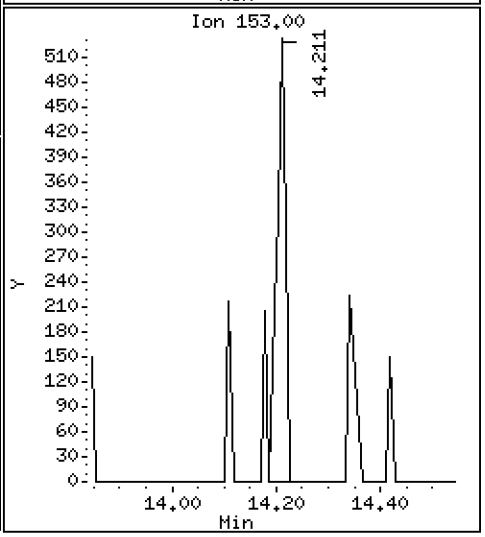


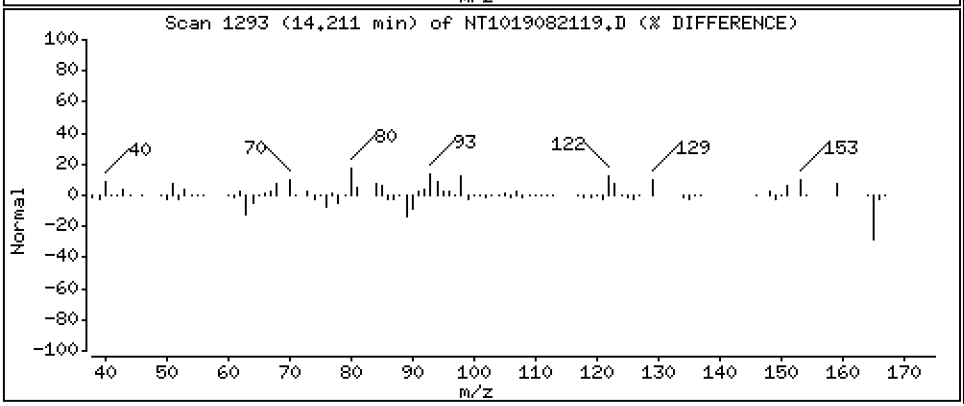












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

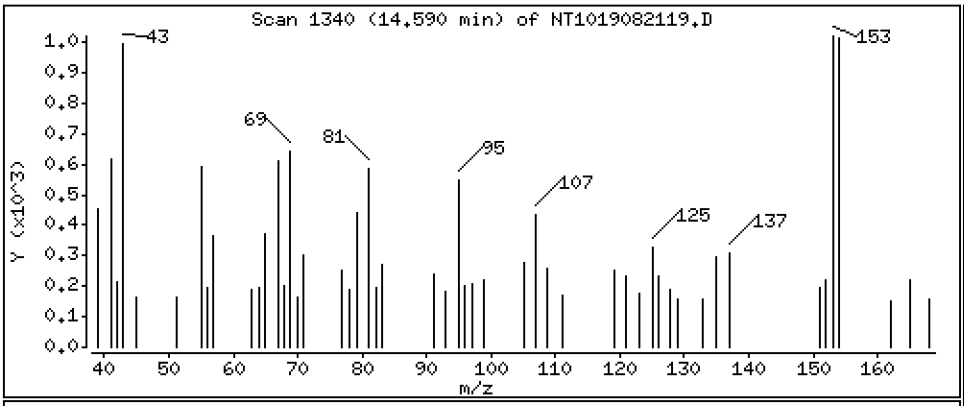
Operator: YZ

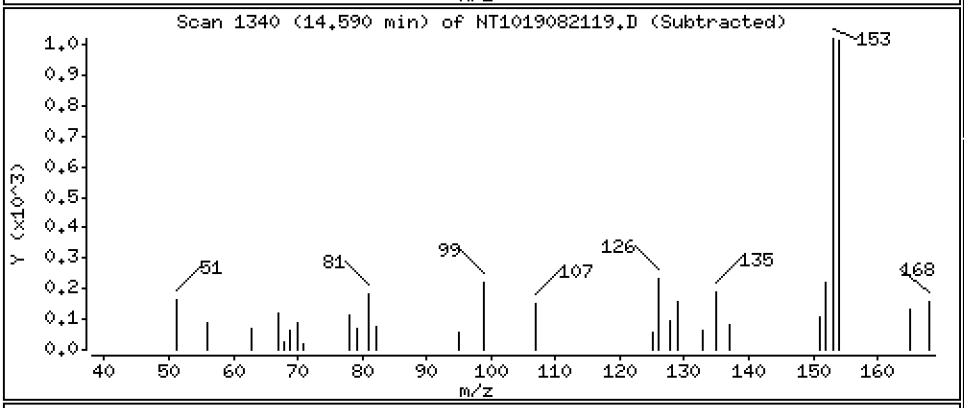
Column phase: ZB-5msi

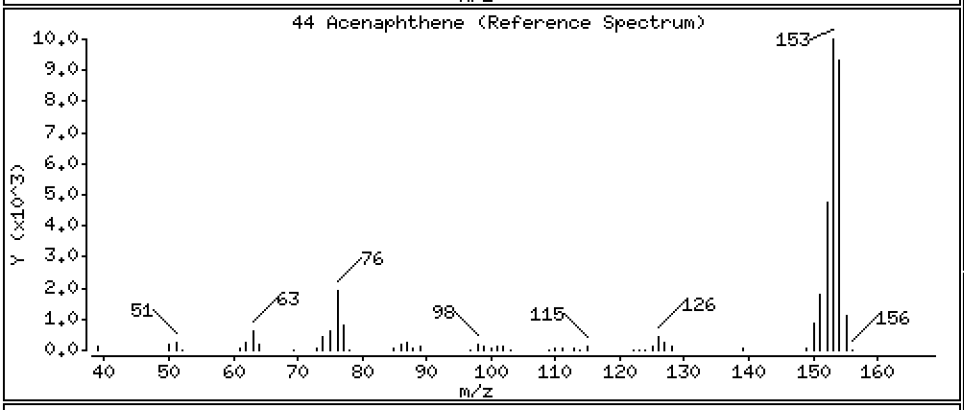
Column diameter: 0.25

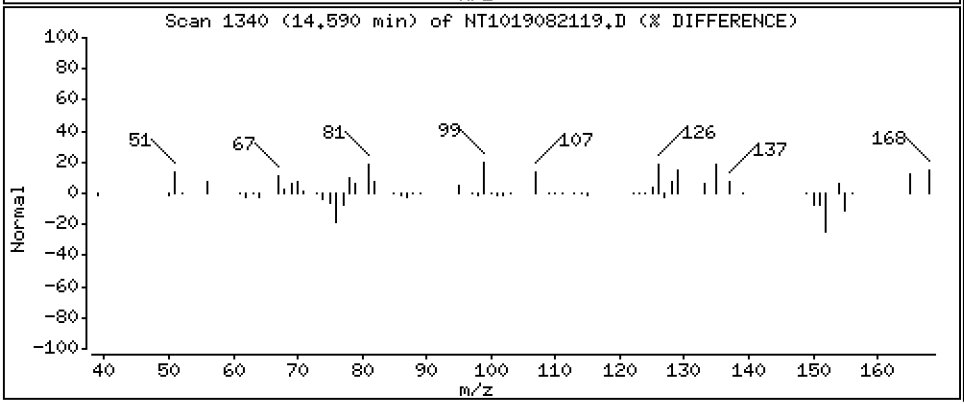
44 Acenaphthene

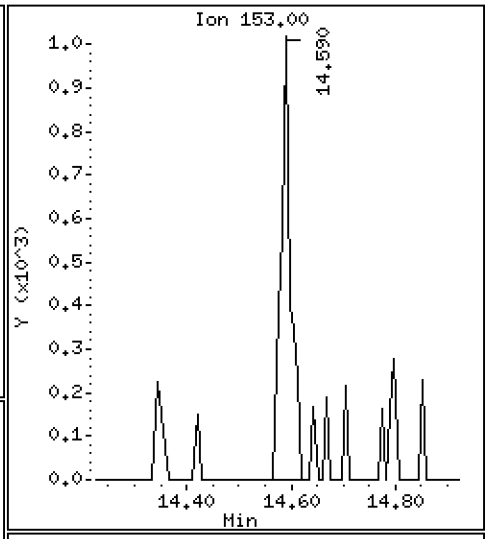
Concentration: 0.06666 ug/mL

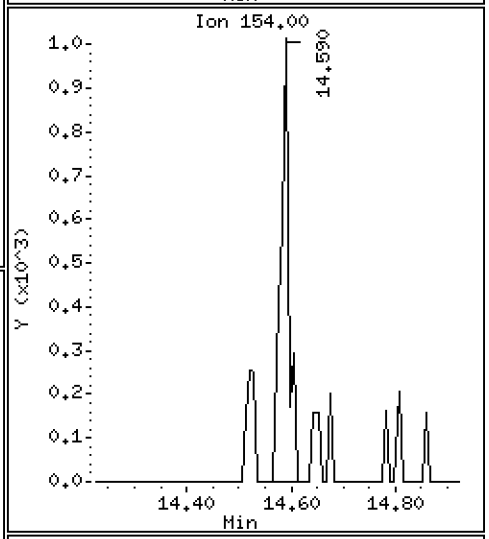


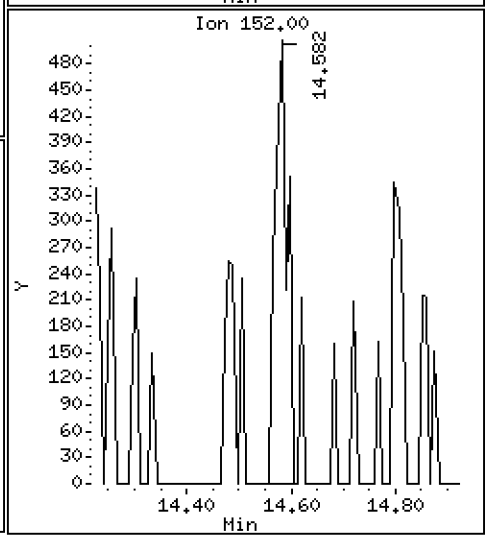












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

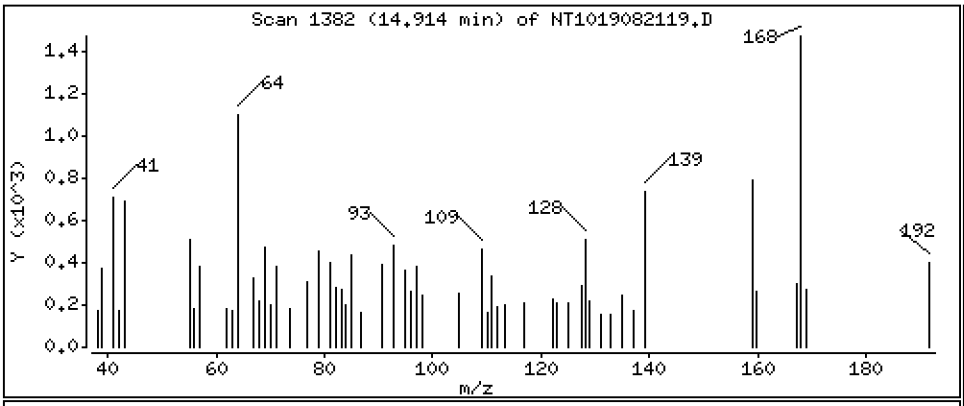
Operator: YZ

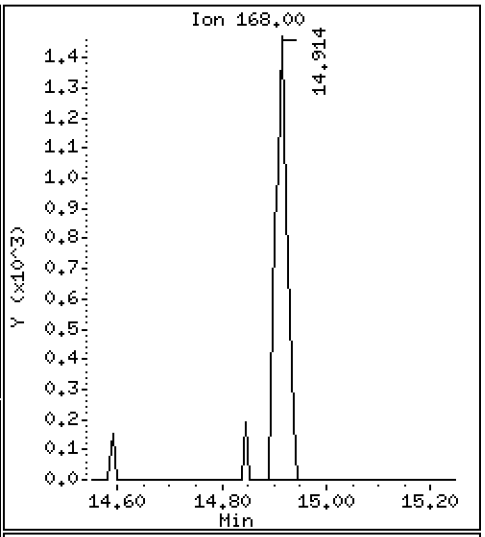
Column phase: ZB-5msi

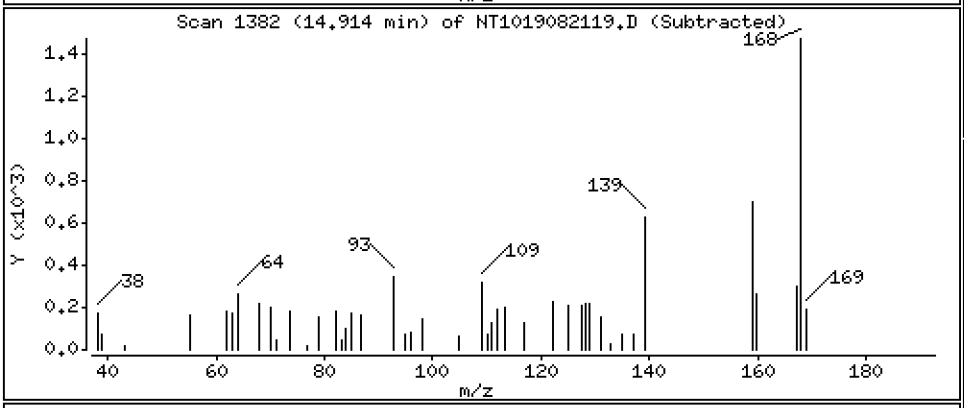
Column diameter: 0.25

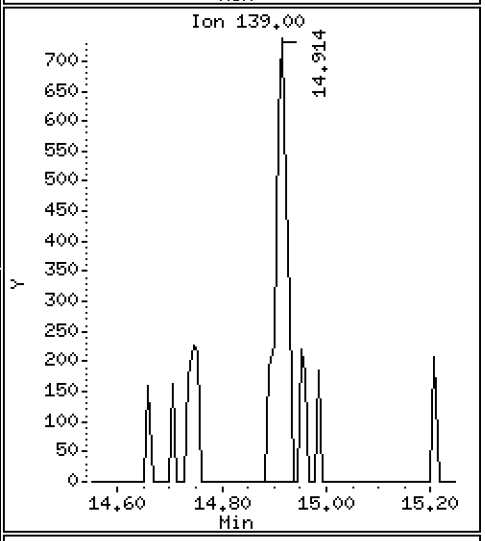
46 Dibenzofuran

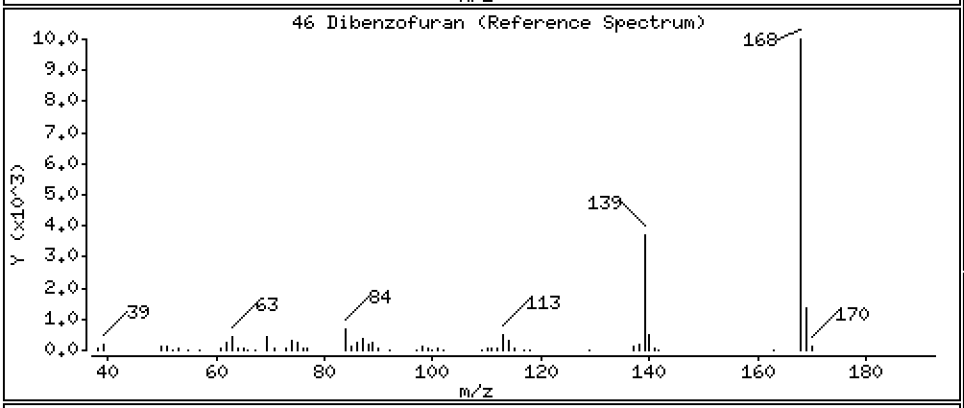
Concentration: 0.06862 ug/mL

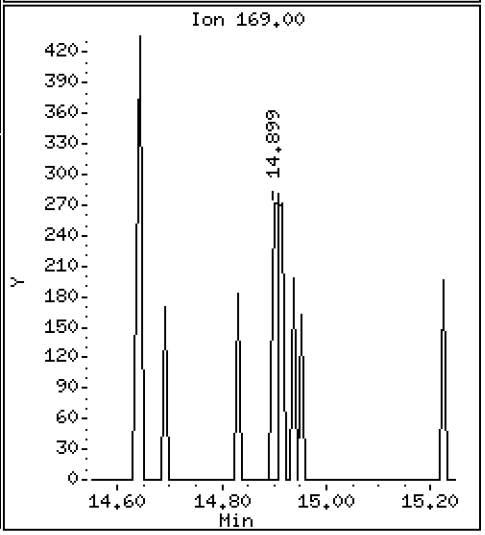


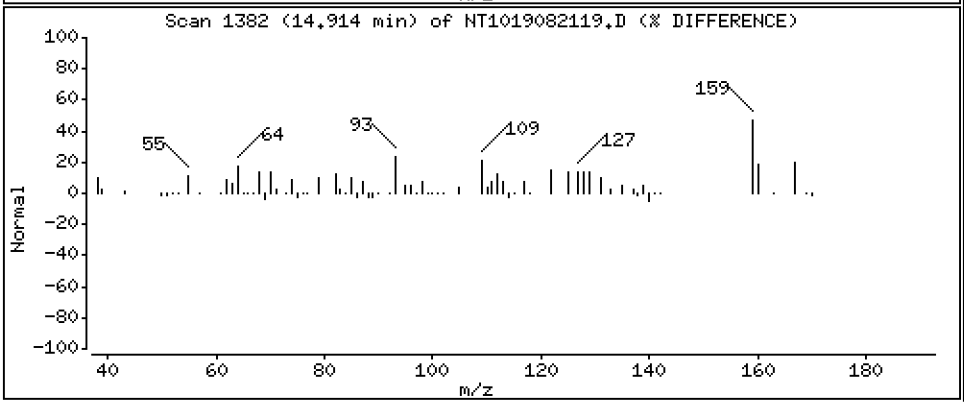












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

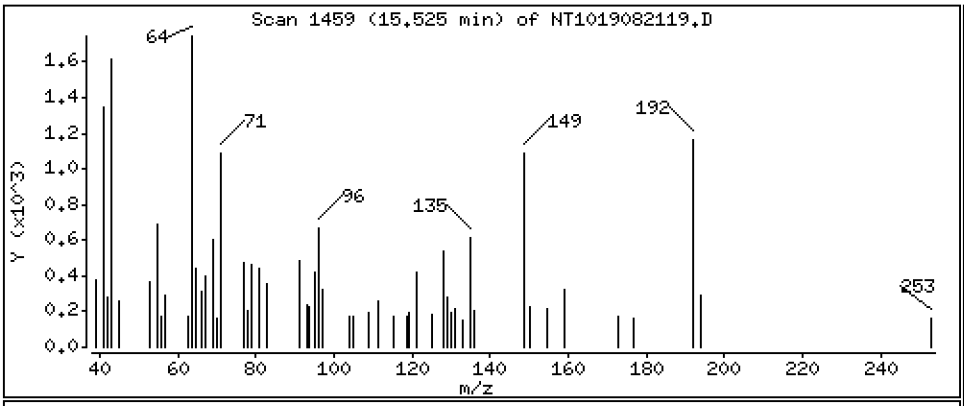
Operator: YZ

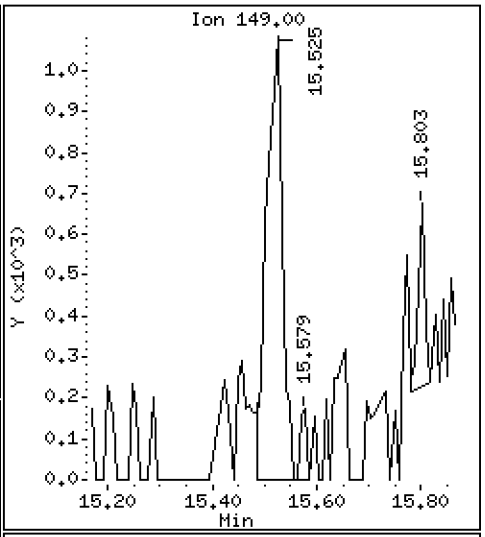
Column phase: ZB-5msi

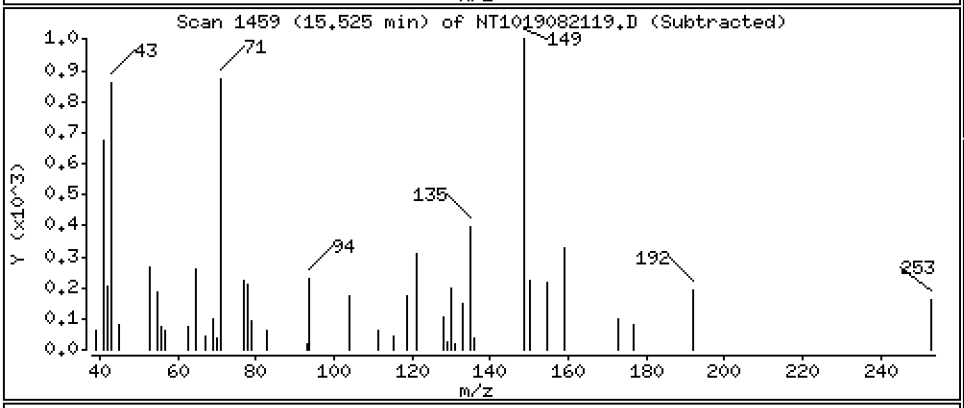
Column diameter: 0.25

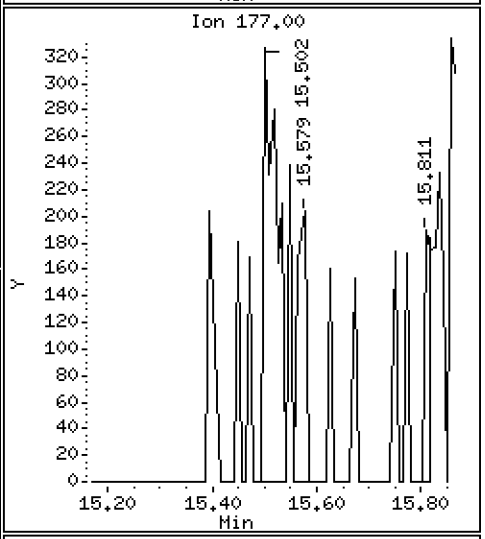
50 Diethylphthalate

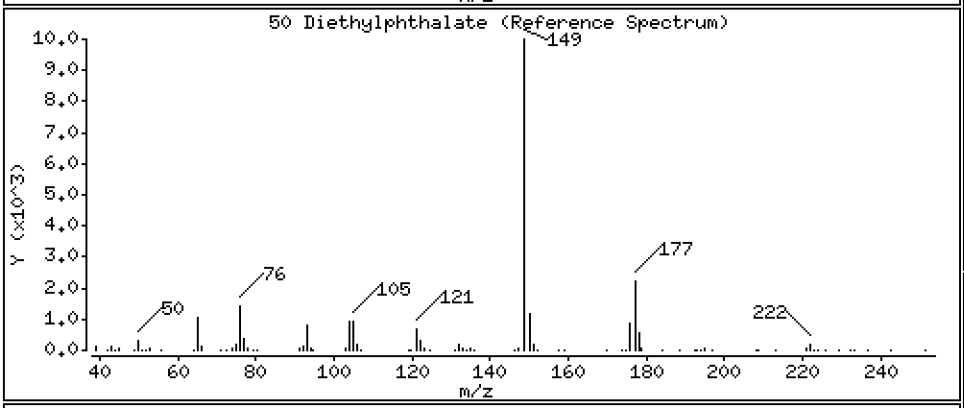
Concentration: 0.09263 ug/mL

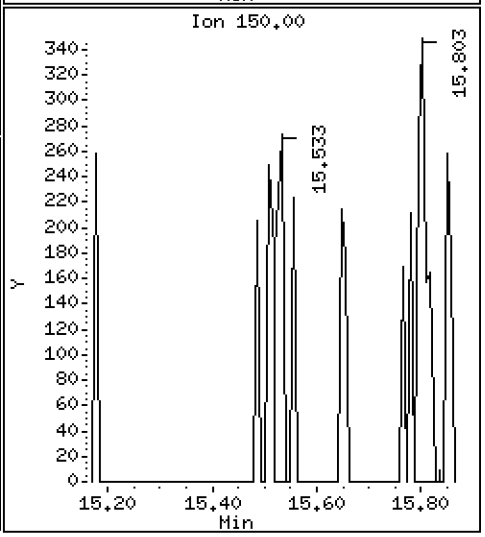


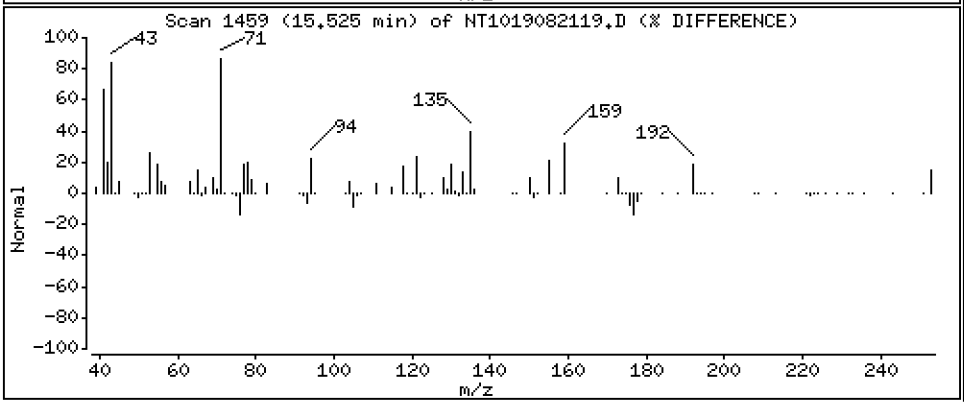












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

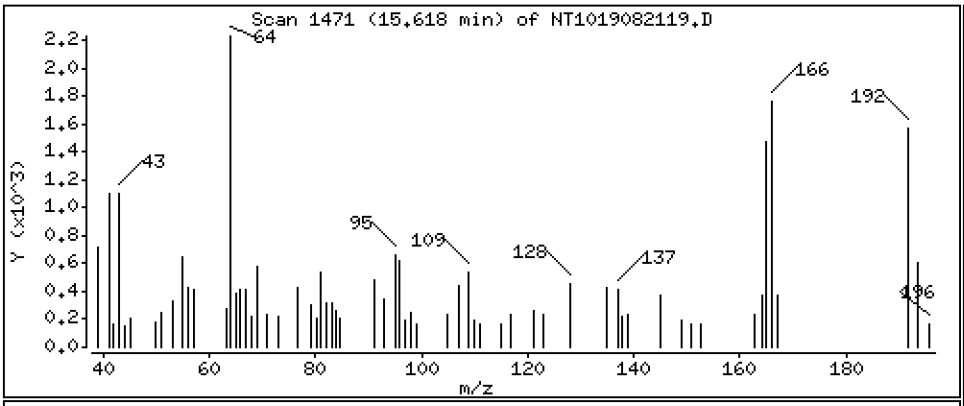
Operator: YZ

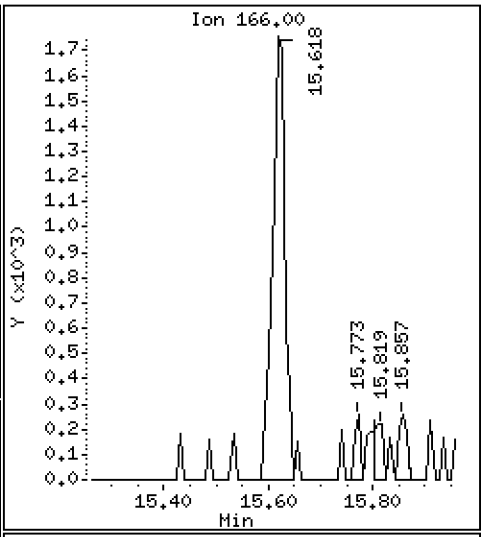
Column phase: ZB-5msi

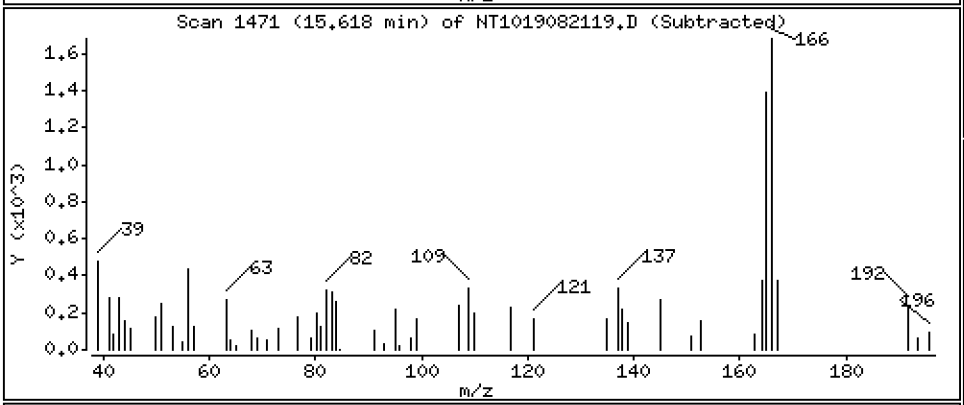
Column diameter: 0.25

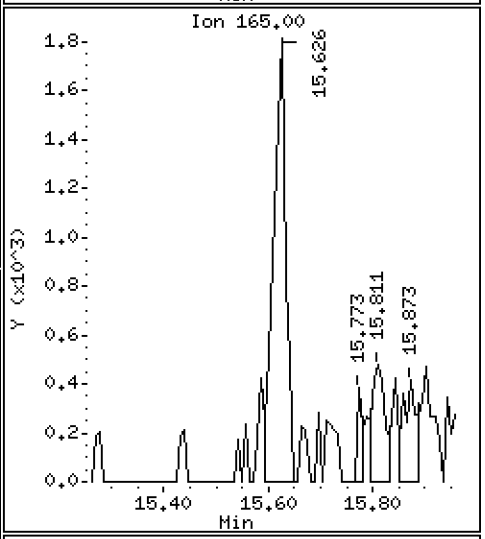
49 Fluorene

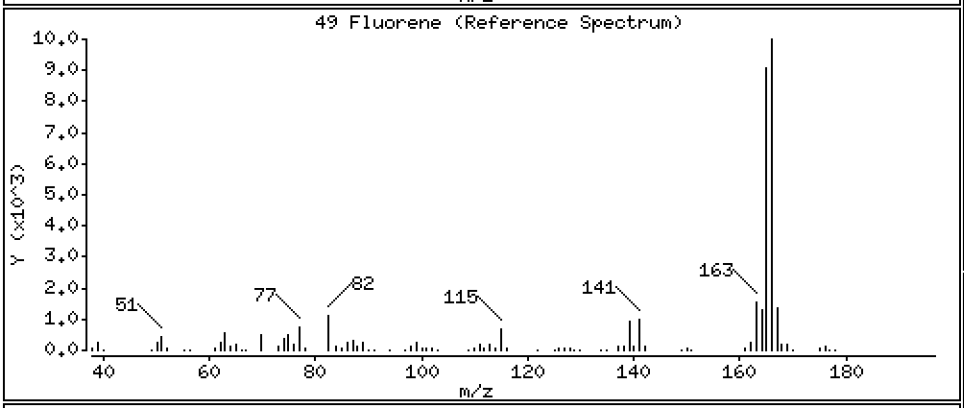
Concentration: 0.1258 ug/mL

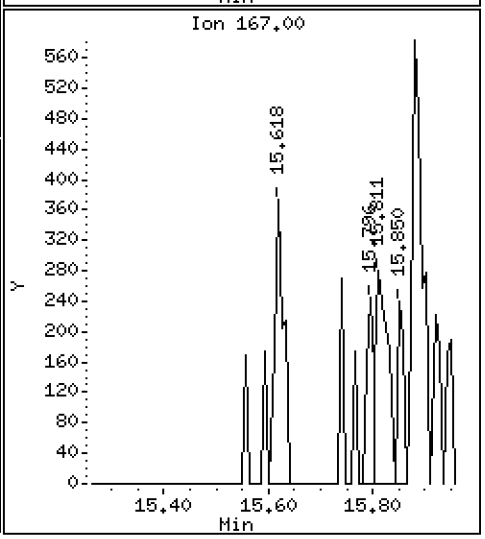


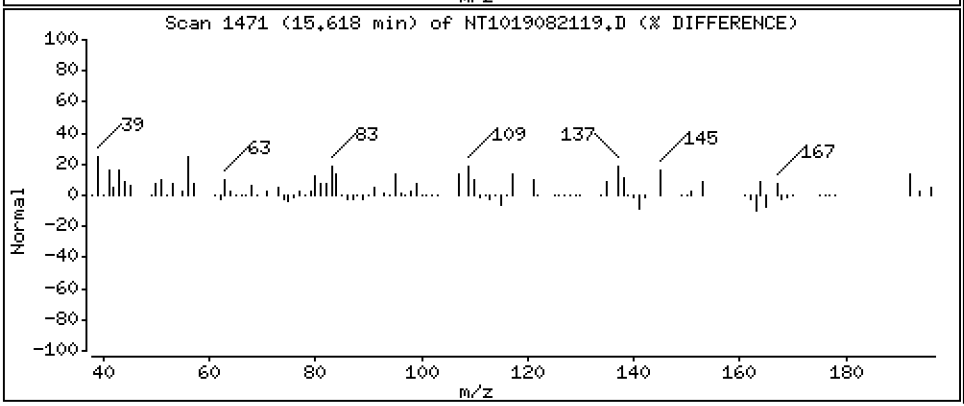












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

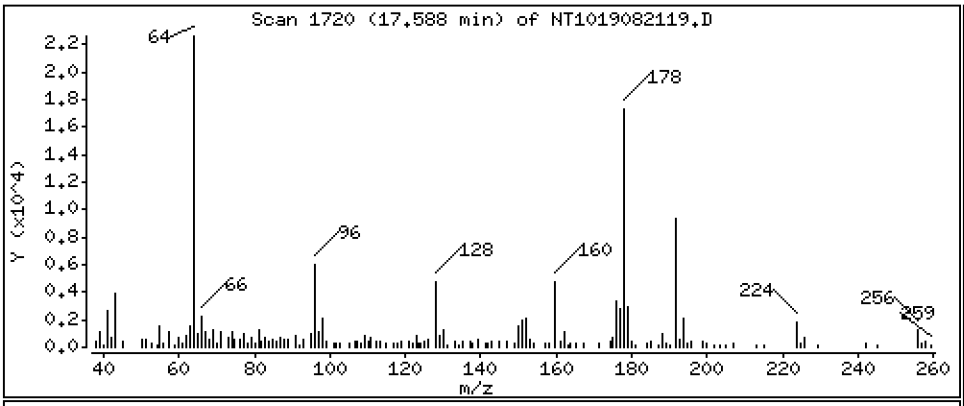
Operator: YZ

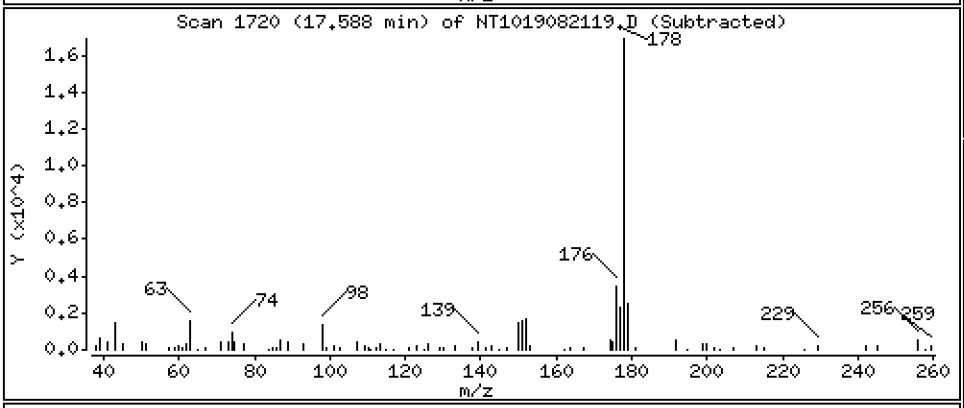
Column phase: ZB-5msi

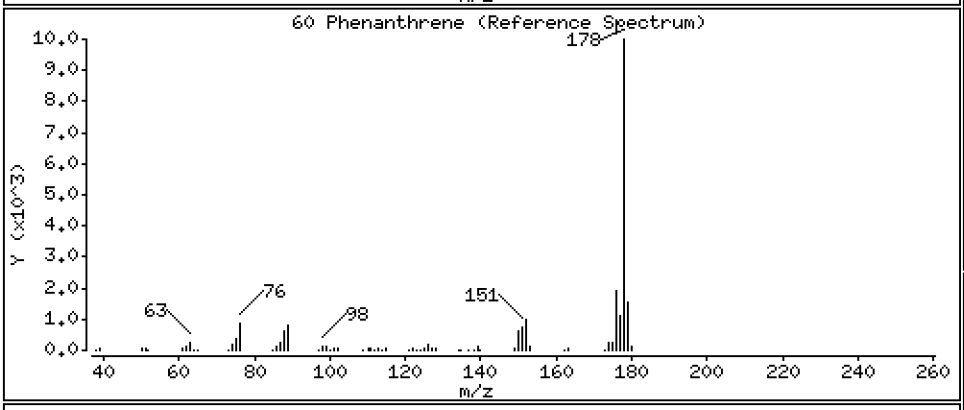
Column diameter: 0.25

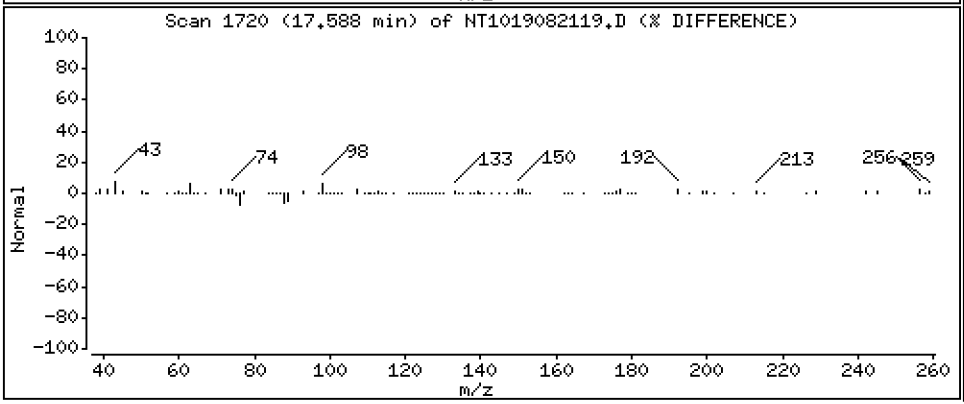
60 Phenanthrene

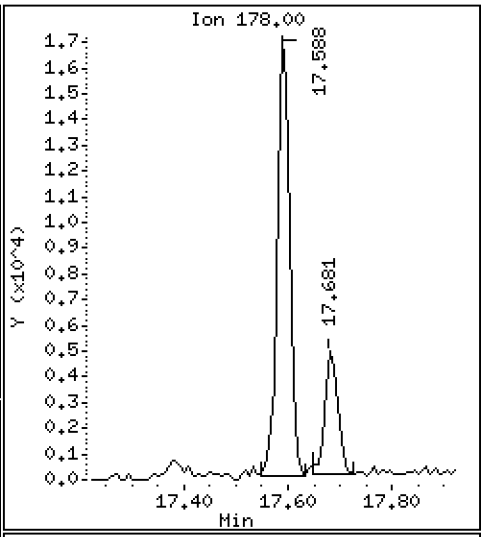
Concentration: 0.9398 ug/mL

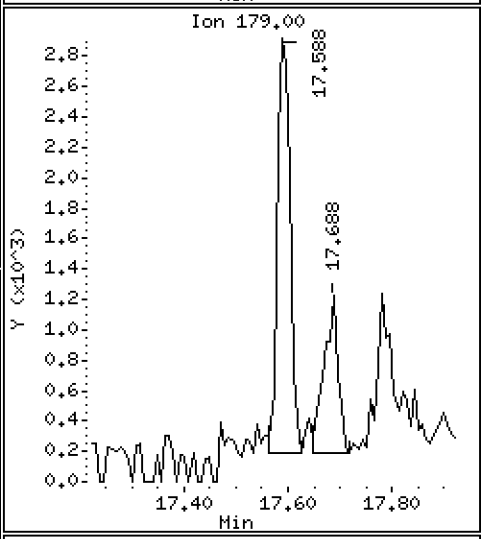


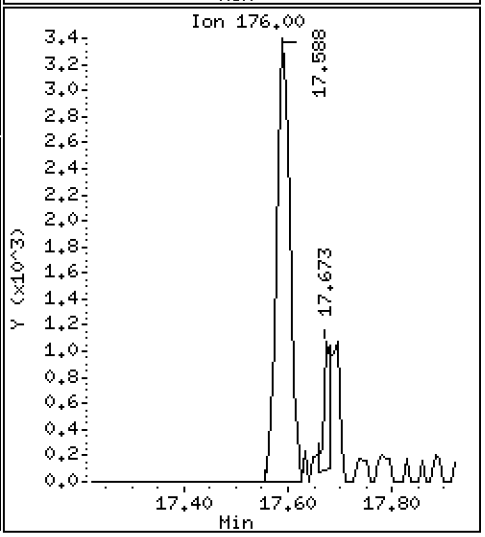












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

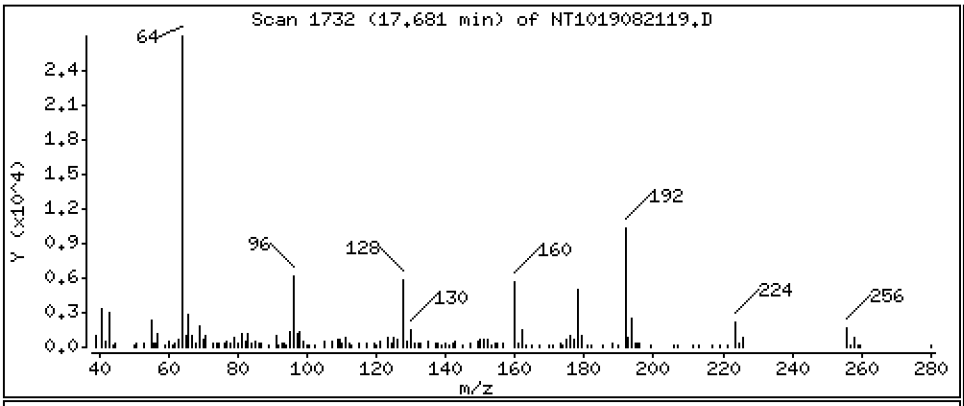
Operator: YZ

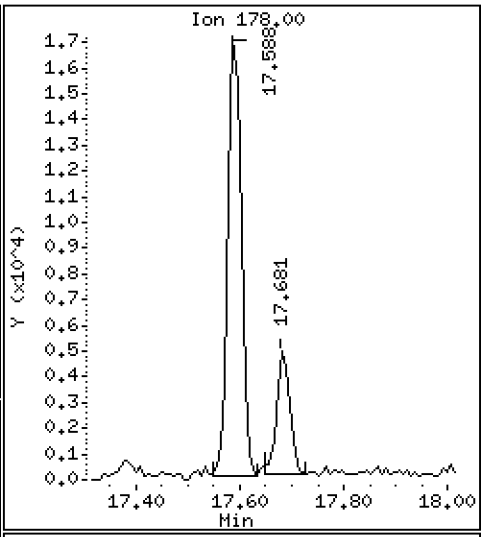
Column phase: ZB-5msi

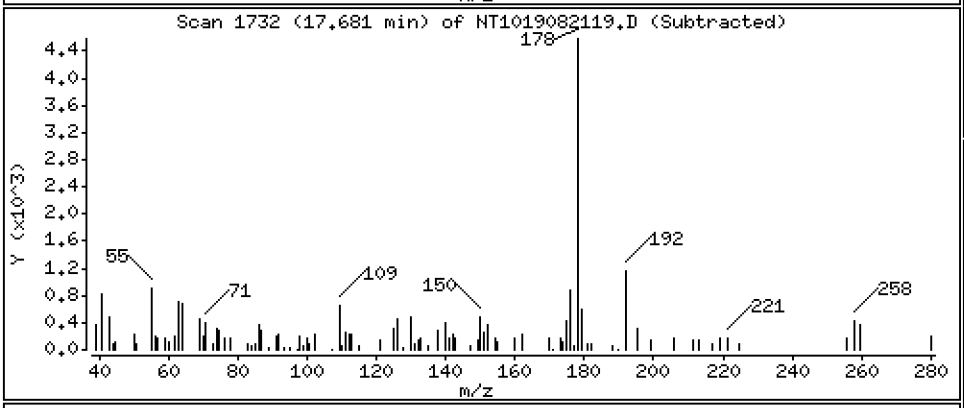
Column diameter: 0.25

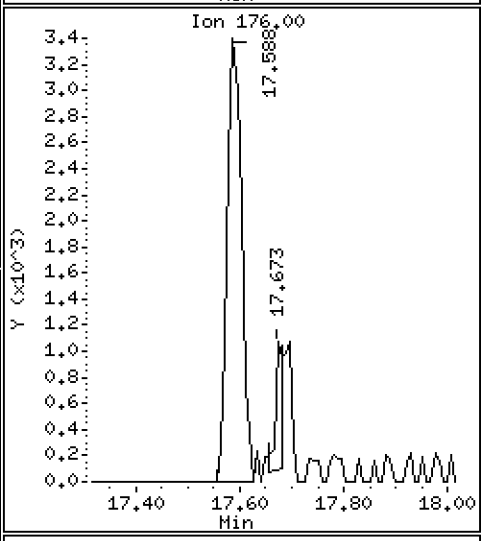
61 Anthracene

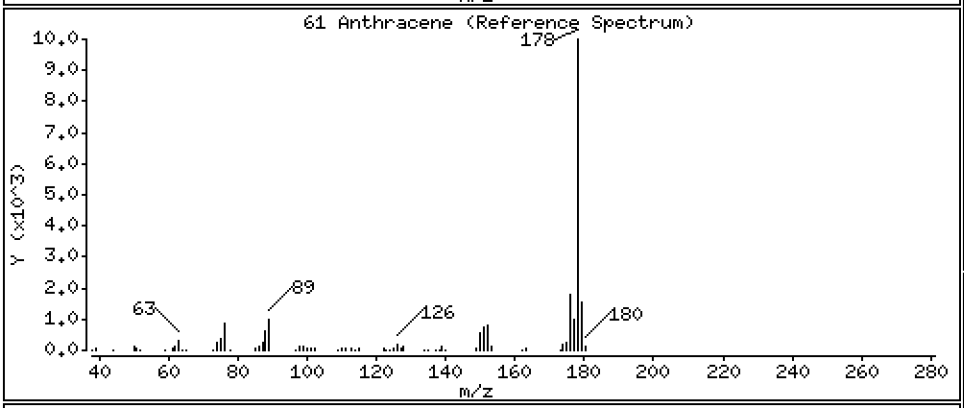
Concentration: 0.2763 ug/mL

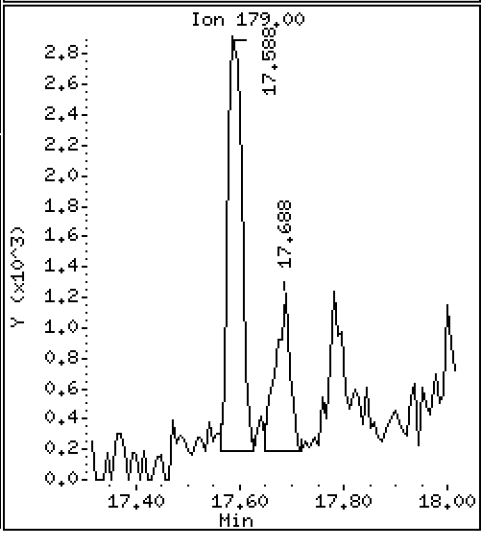


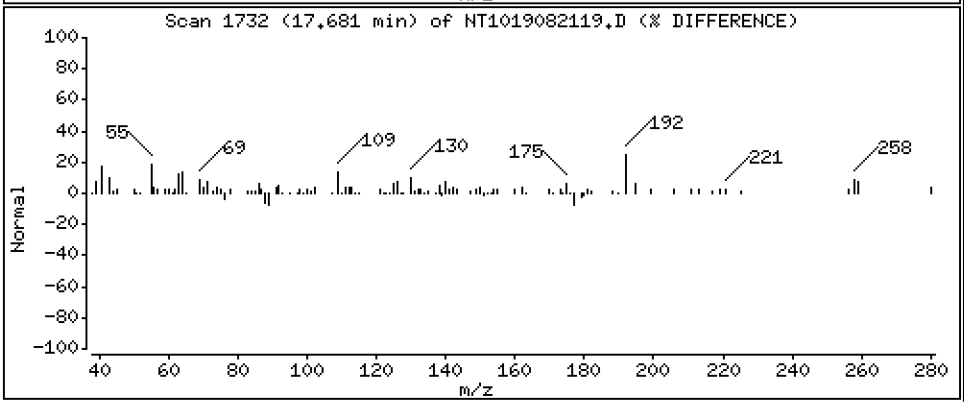












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

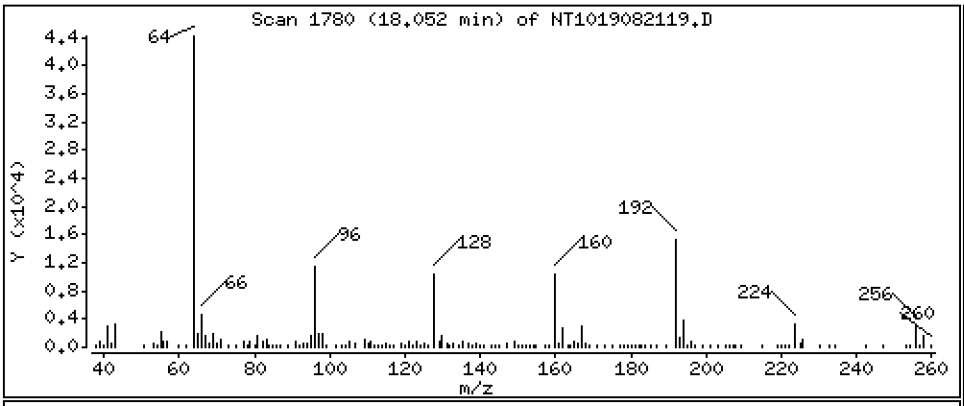
Operator: YZ

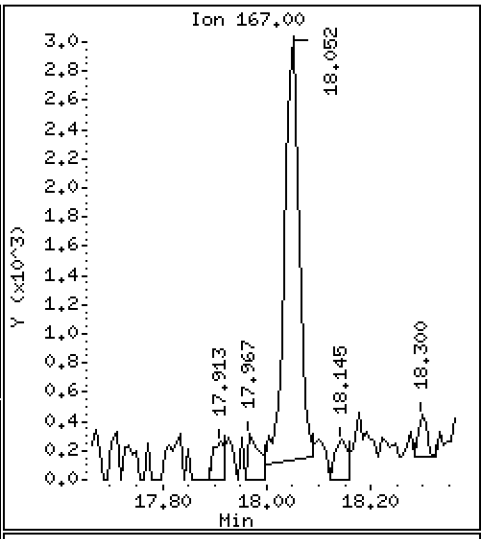
Column phase: ZB-5msi

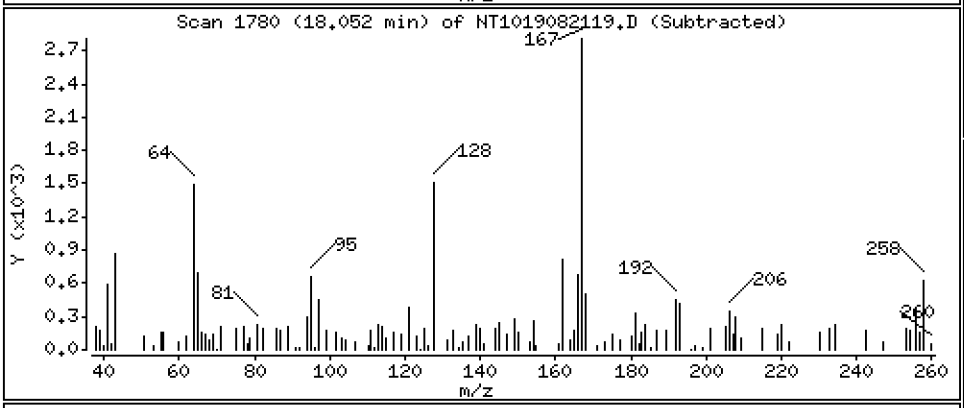
Column diameter: 0.25

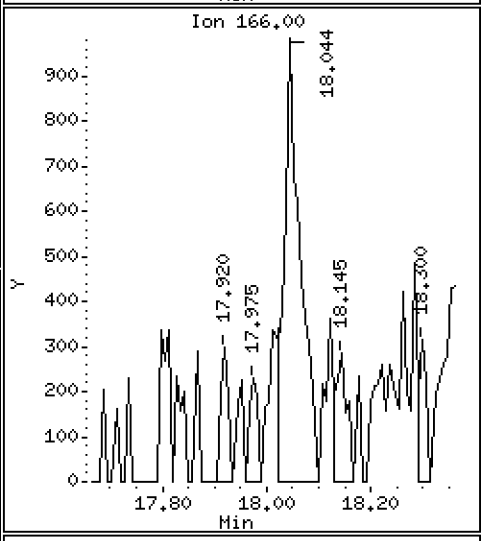
62 Carbazole

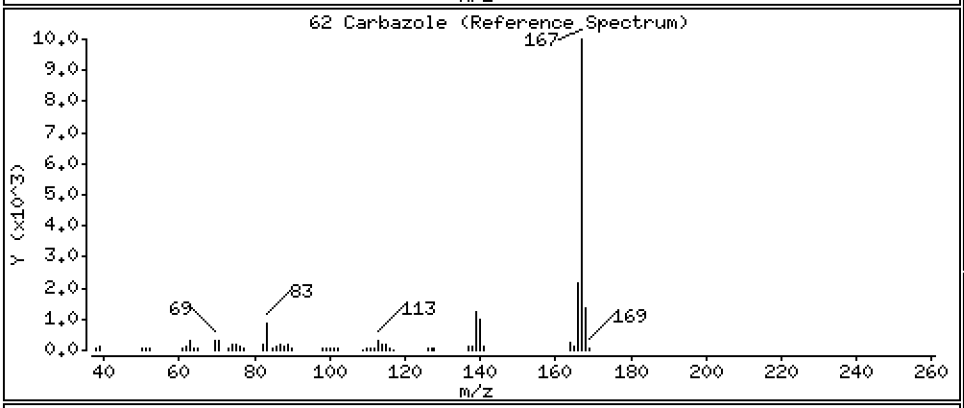
Concentration: 0.2007 ug/mL

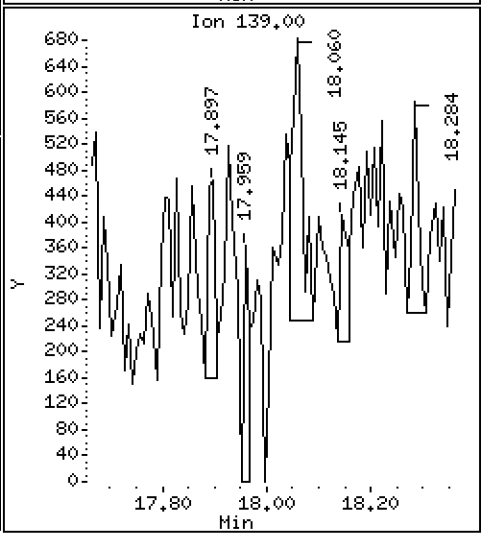


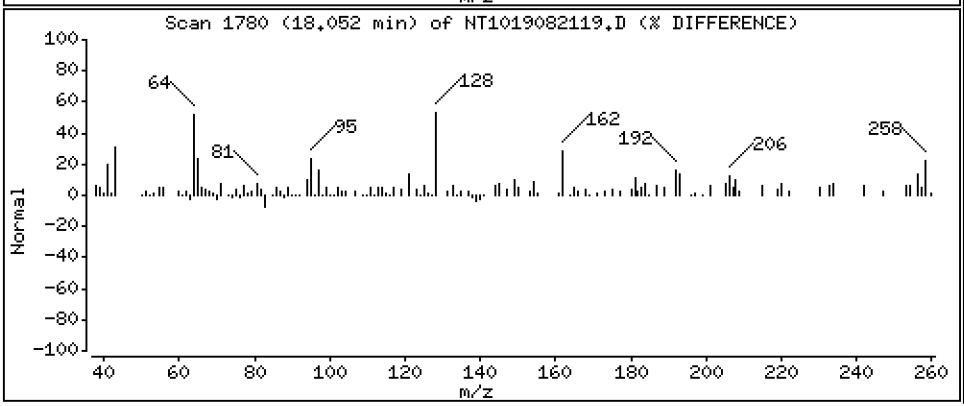












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

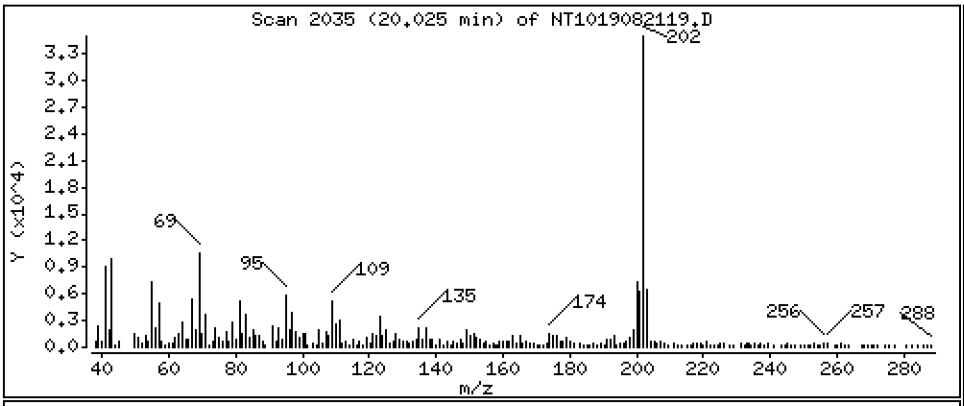
Operator: YZ

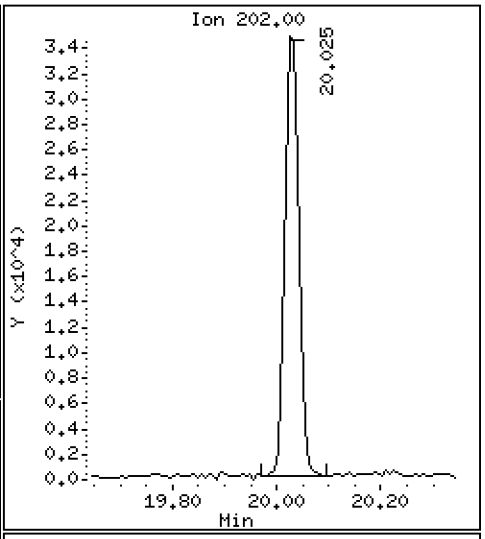
Column phase: ZB-5msi

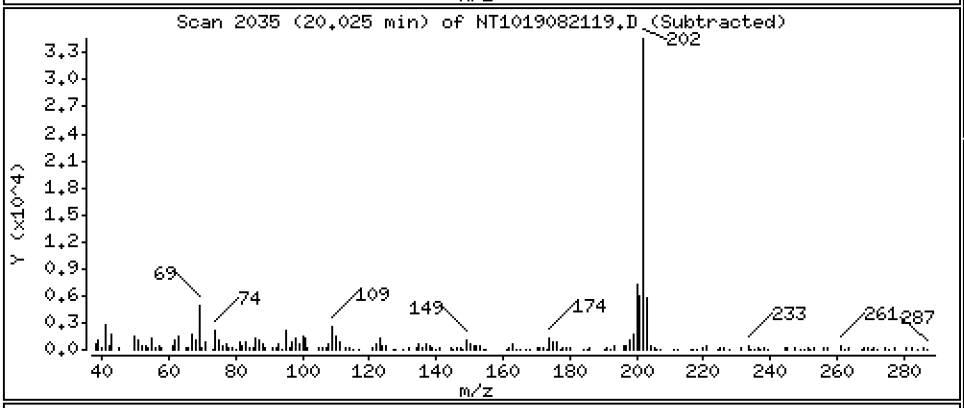
Column diameter: 0.25

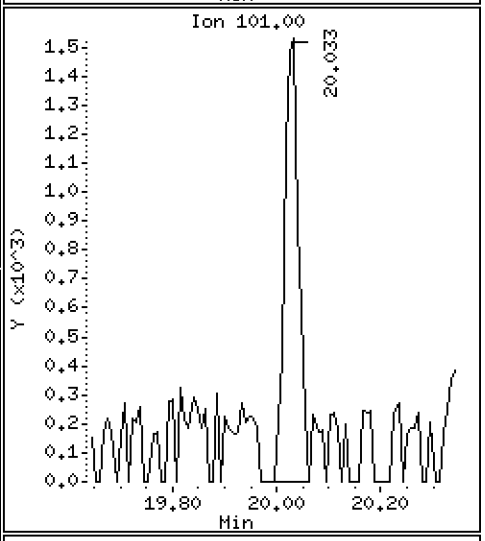
64 Fluoranthene

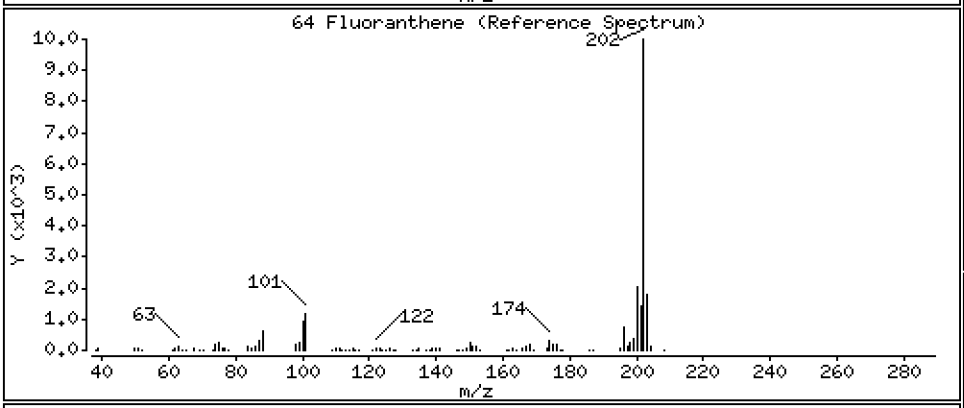
Concentration: 3.904 ug/mL

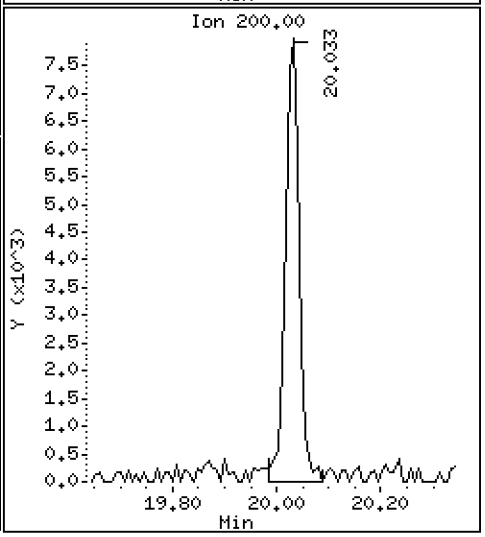


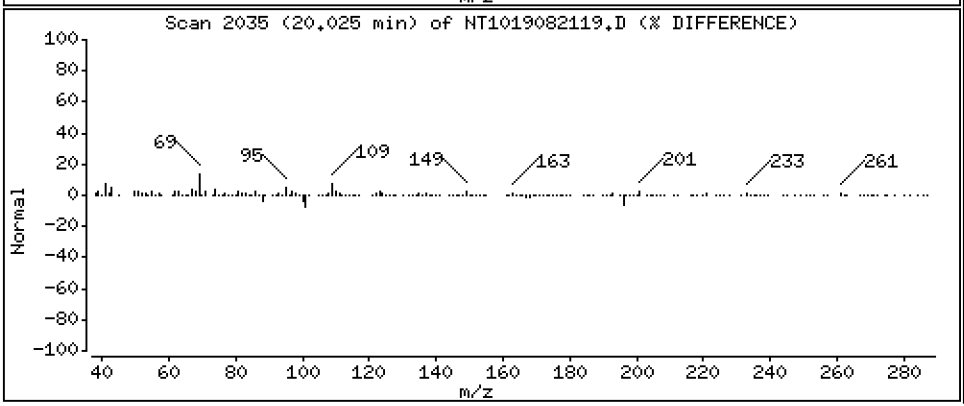












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

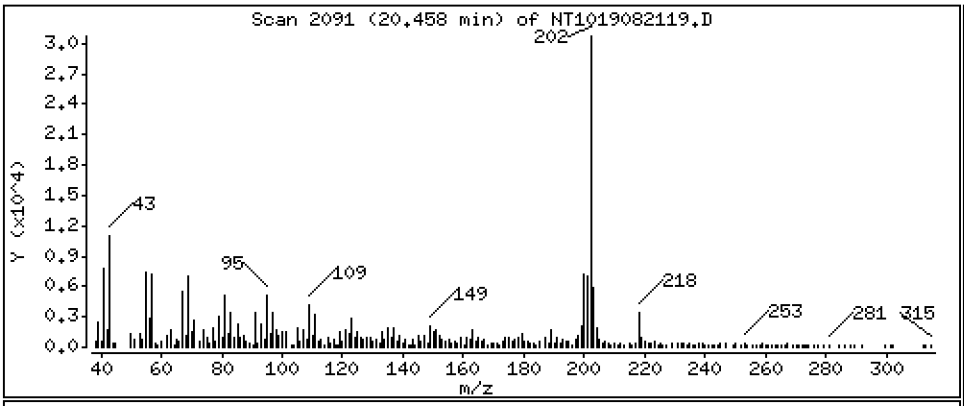
Operator: YZ

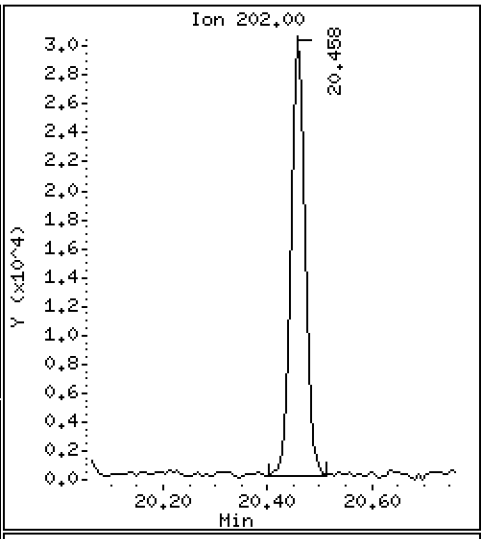
Column phase: ZB-5msi

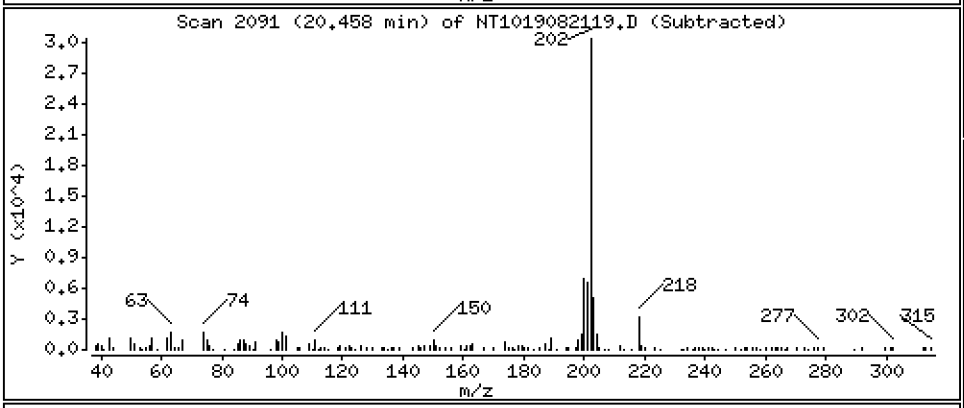
Column diameter: 0.25

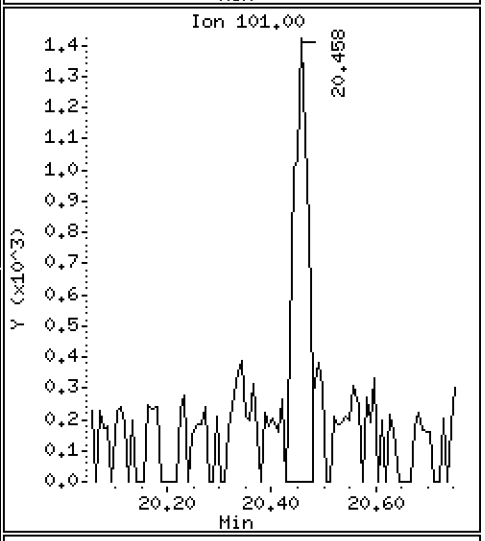
65 Pyrene

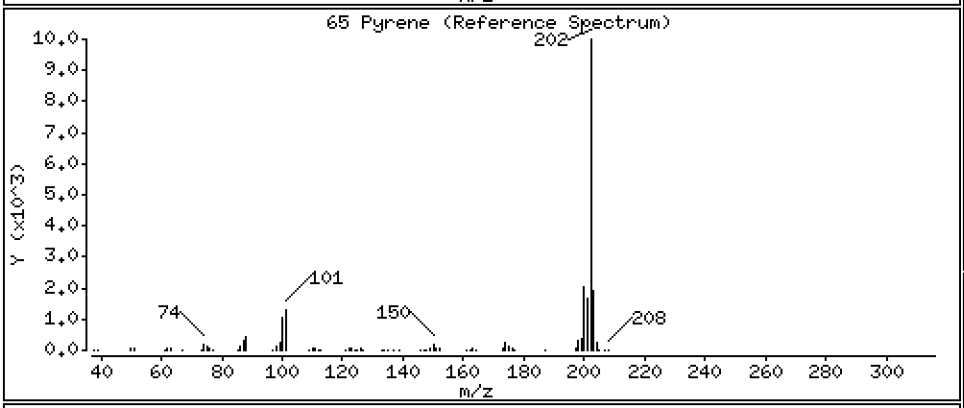
Concentration: 3.252 ug/mL

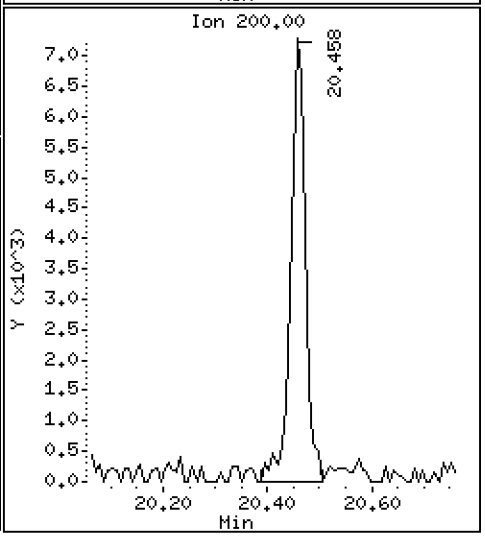


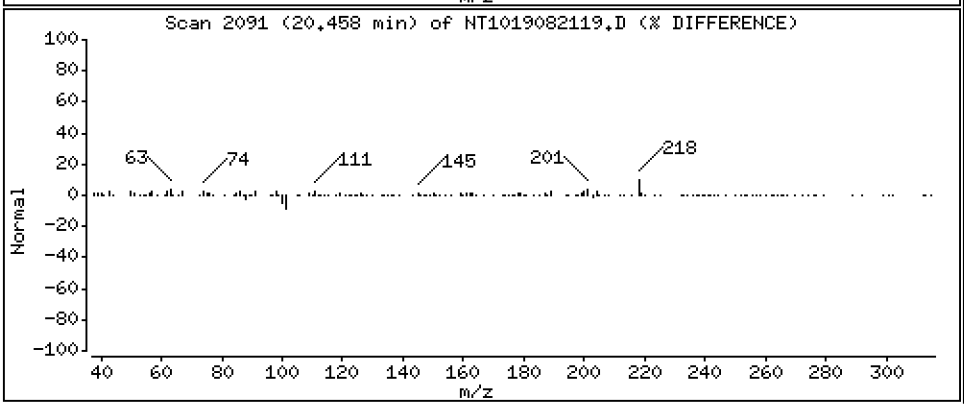












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

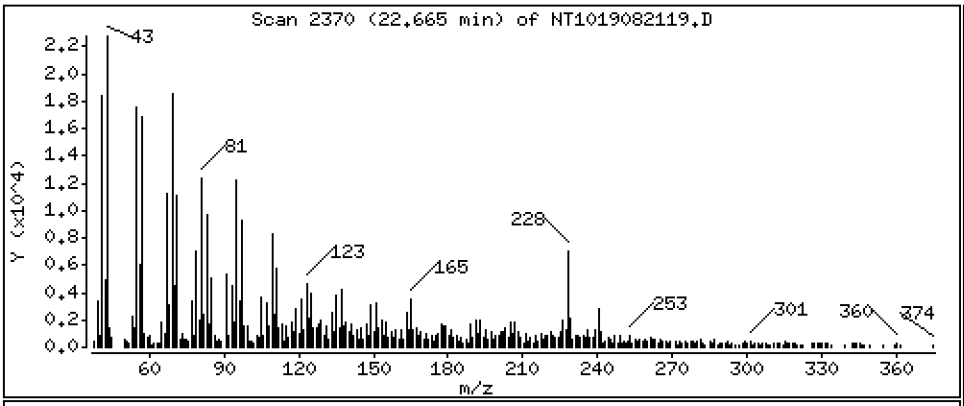
Operator: YZ

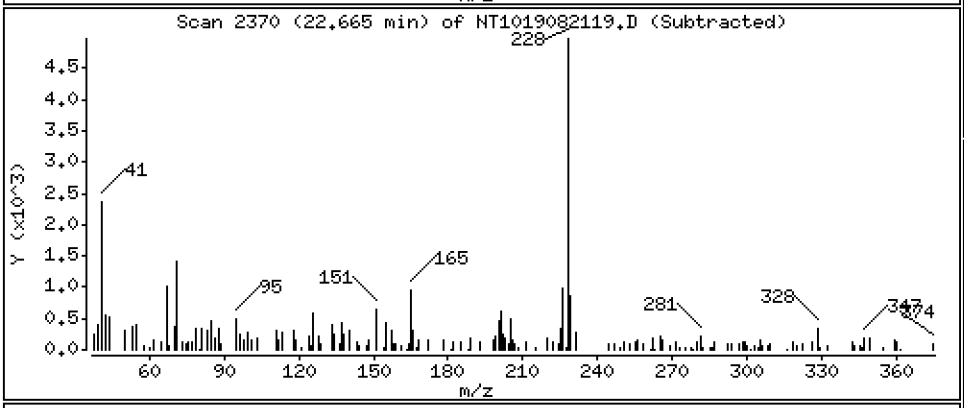
Column phase: ZB-5msi

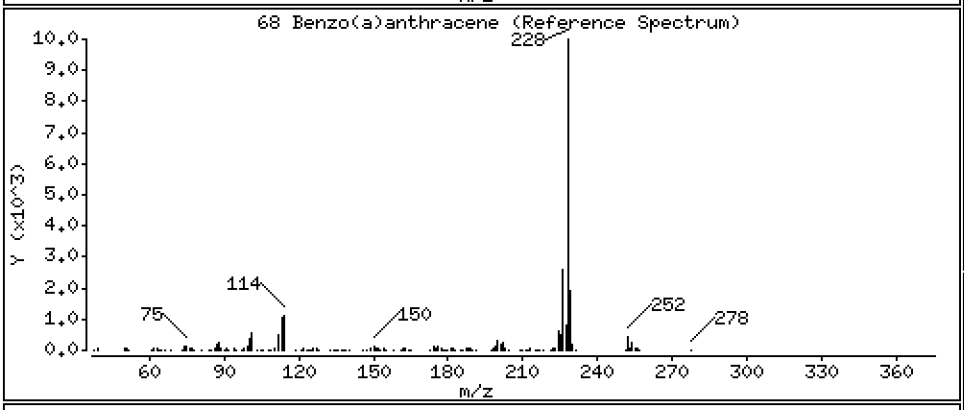
Column diameter: 0.25

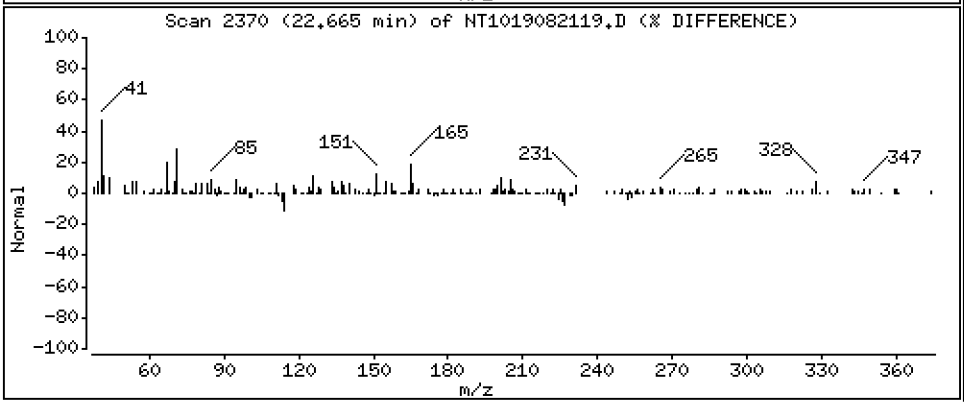
68 Benzo(a)anthracene

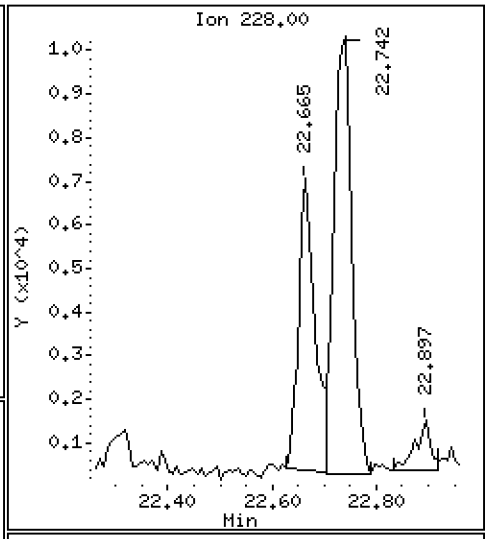
Concentration: 0.9048 ug/mL

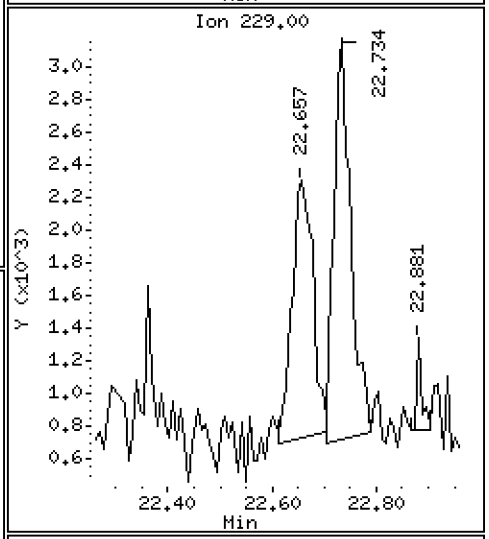


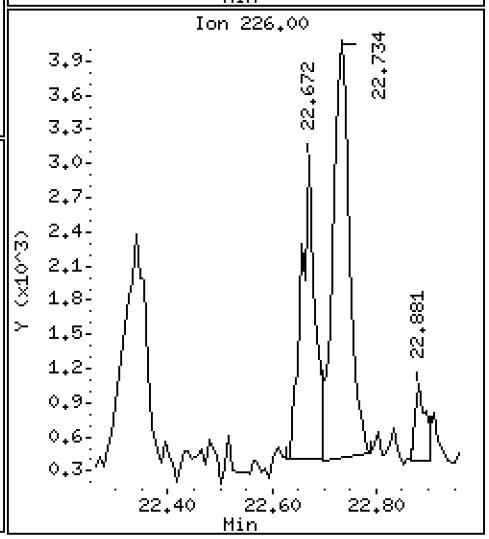












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

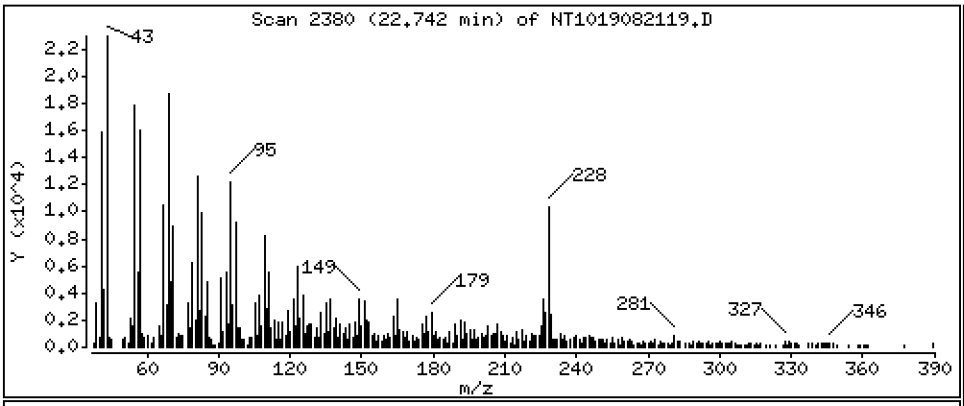
Operator: YZ

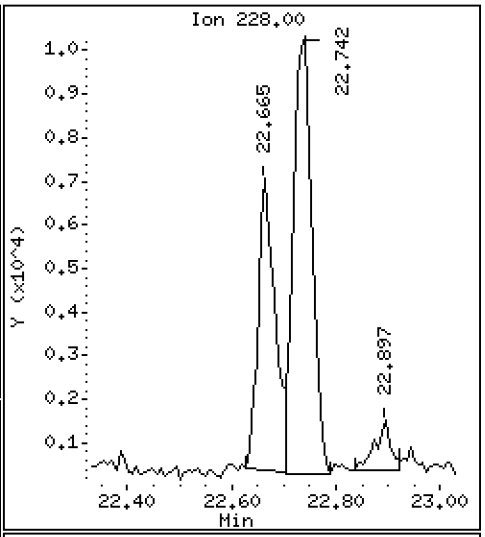
Column phase: ZB-5msi

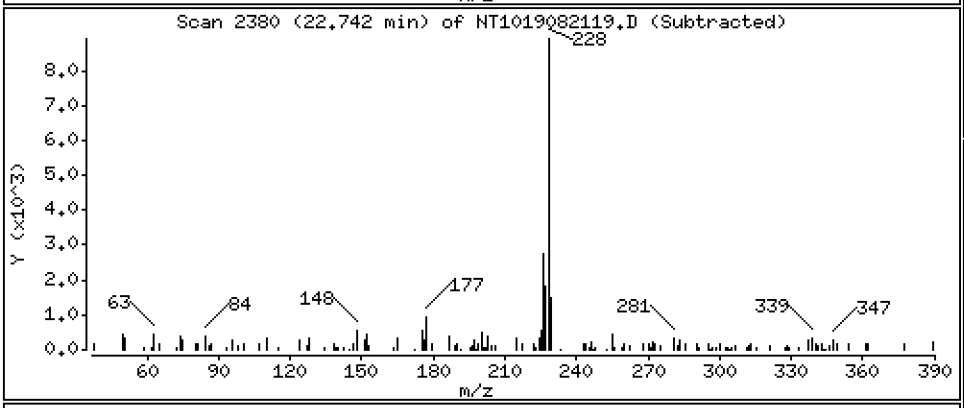
Column diameter: 0.25

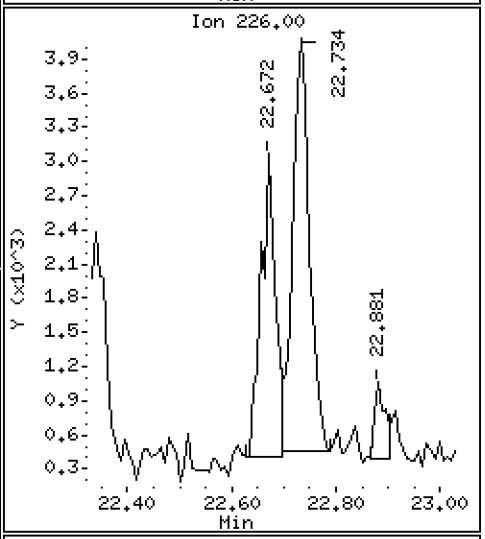
71 Chrysene

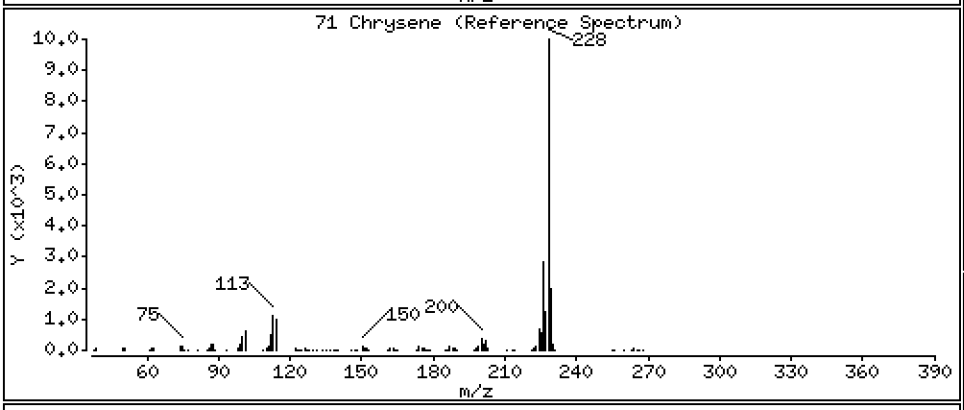
Concentration: 1.725 ug/mL

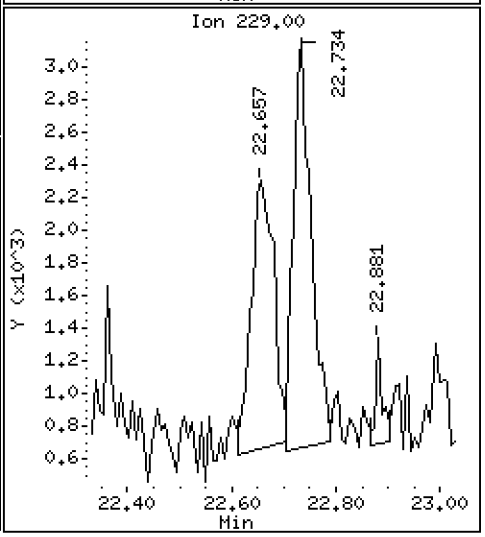


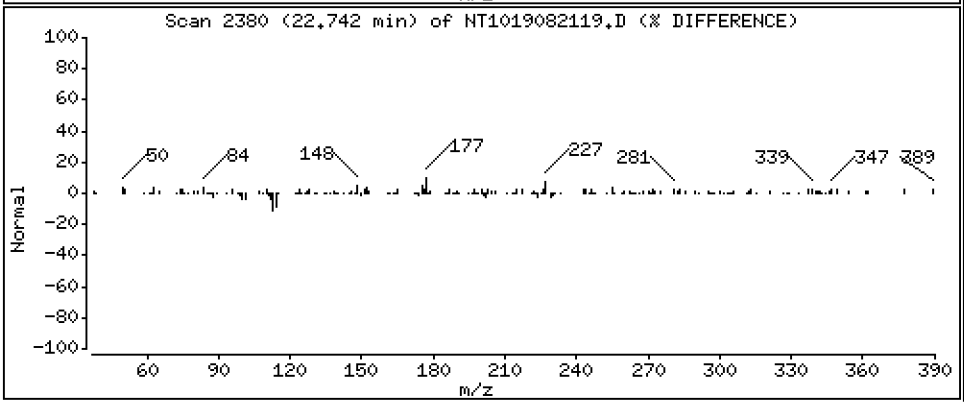












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

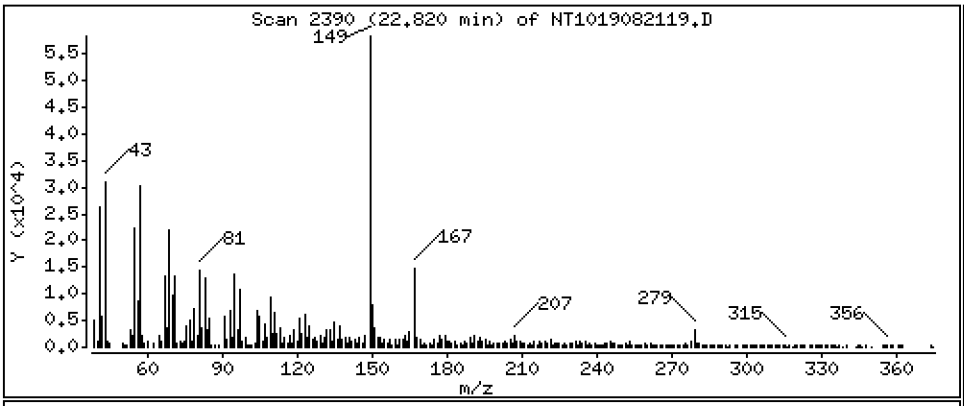
Operator: YZ

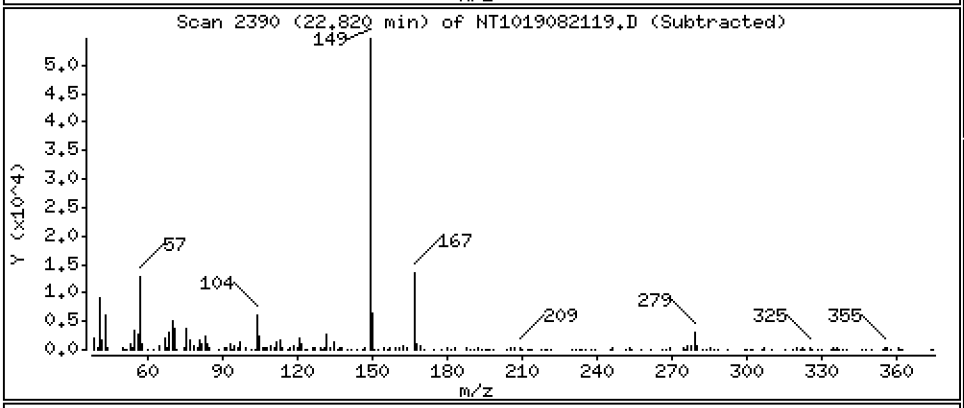
Column phase: ZB-5msi

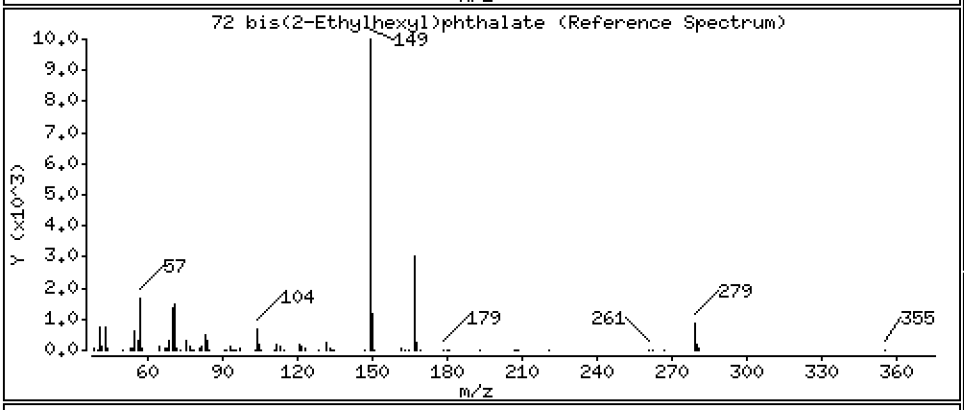
Column diameter: 0.25

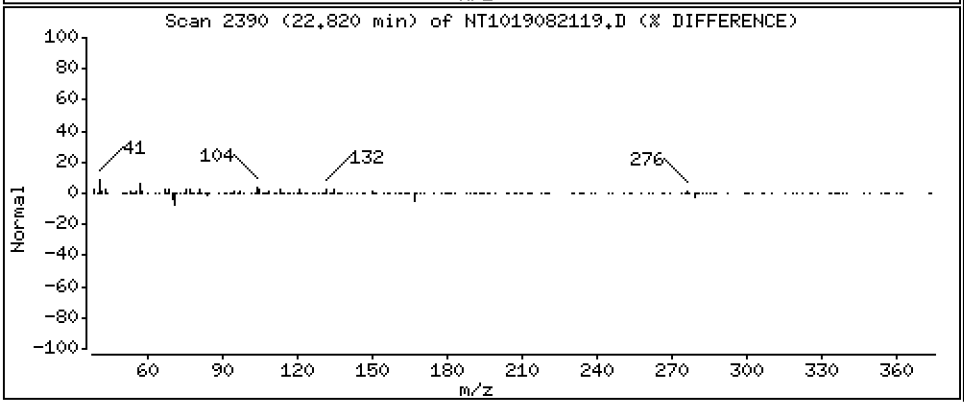
72 bis(2-Ethylhexyl)phthalate

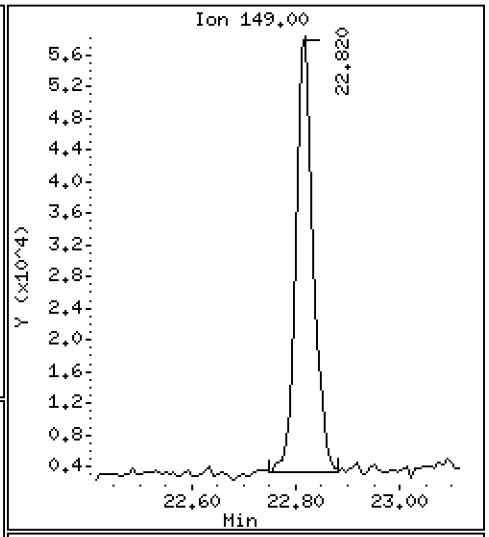
Concentration: 10.88 ug/mL

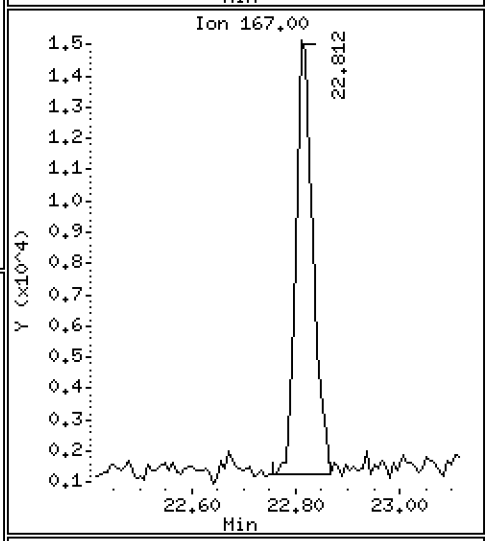


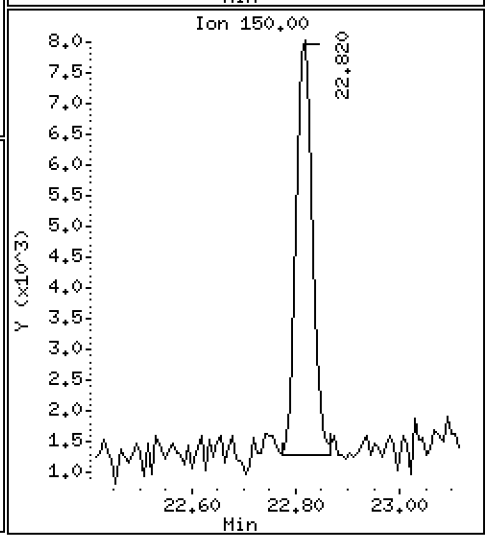












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

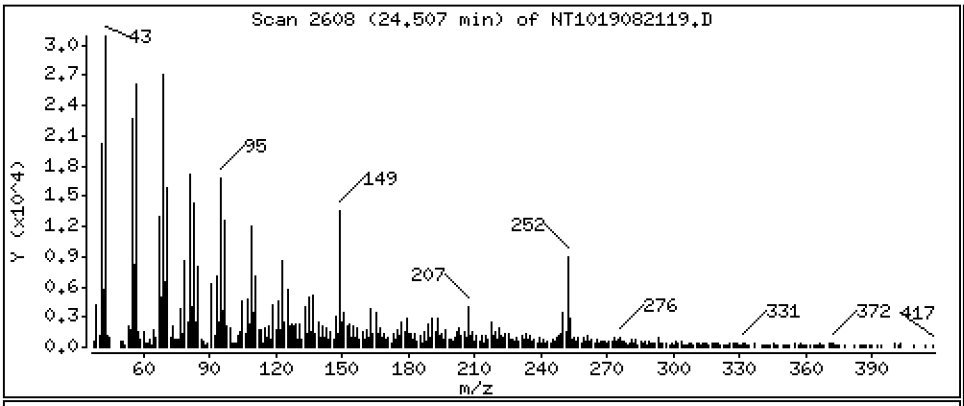
Operator: YZ

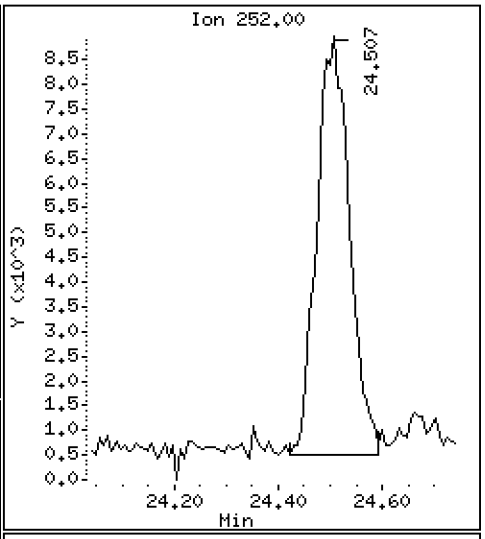
Column phase: ZB-5msi

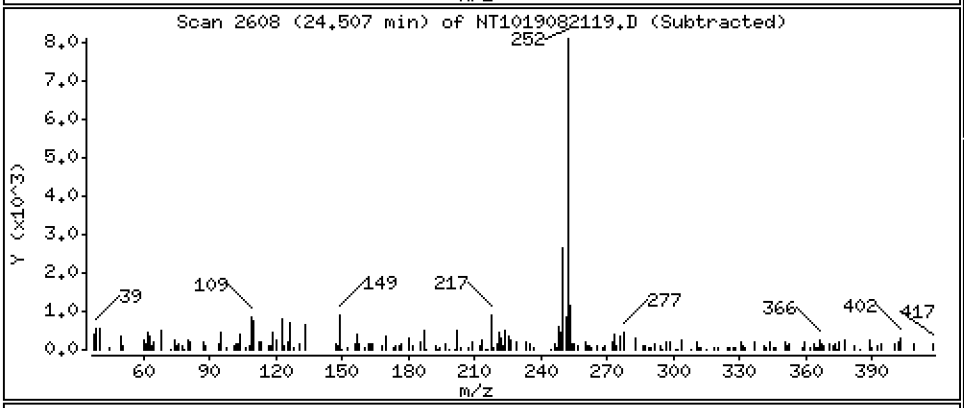
Column diameter: 0.25

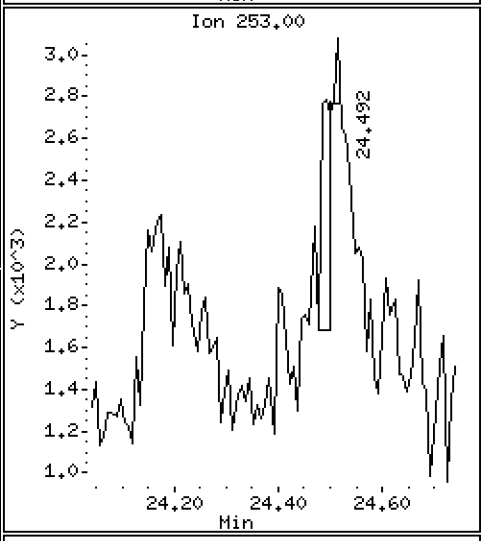
74 Benzo(b)fluoranthene

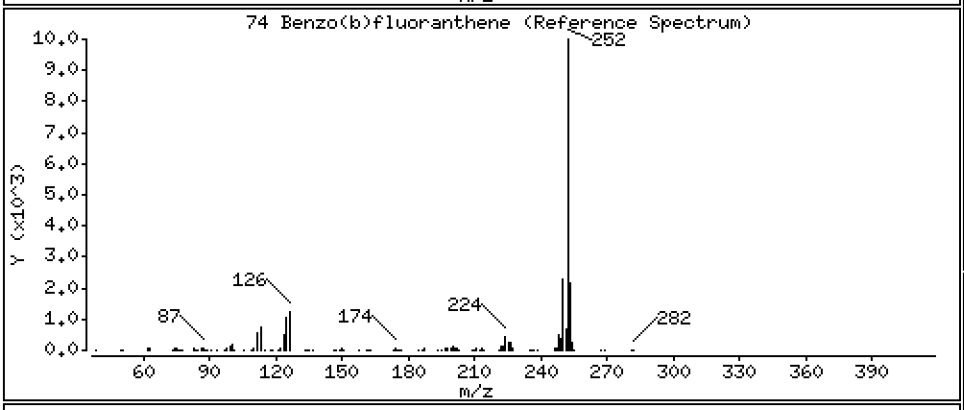
Concentration: 2.854 ug/mL

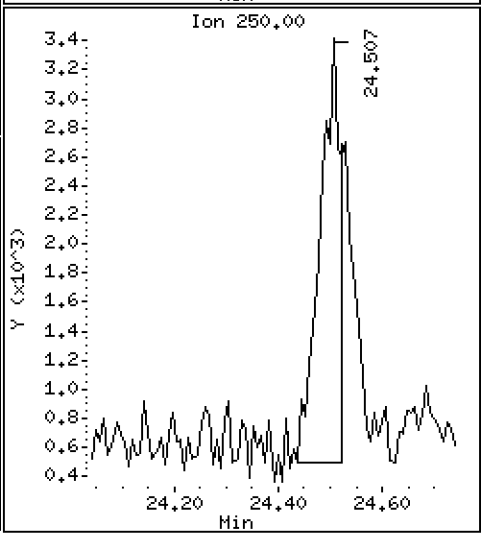


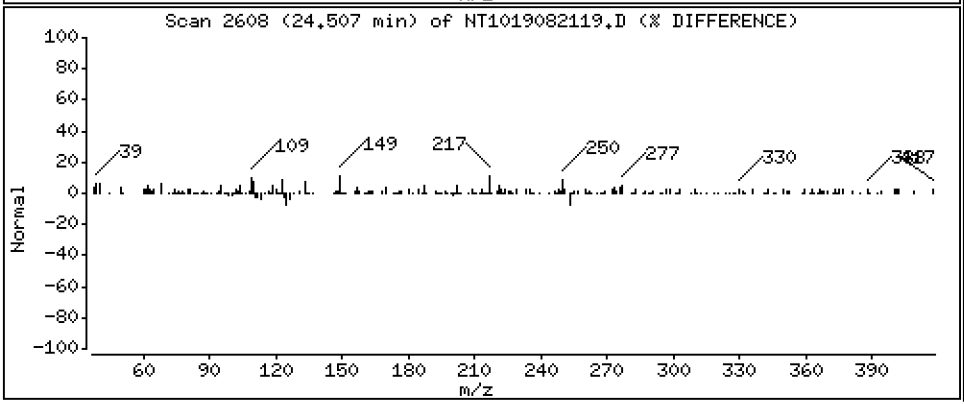












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

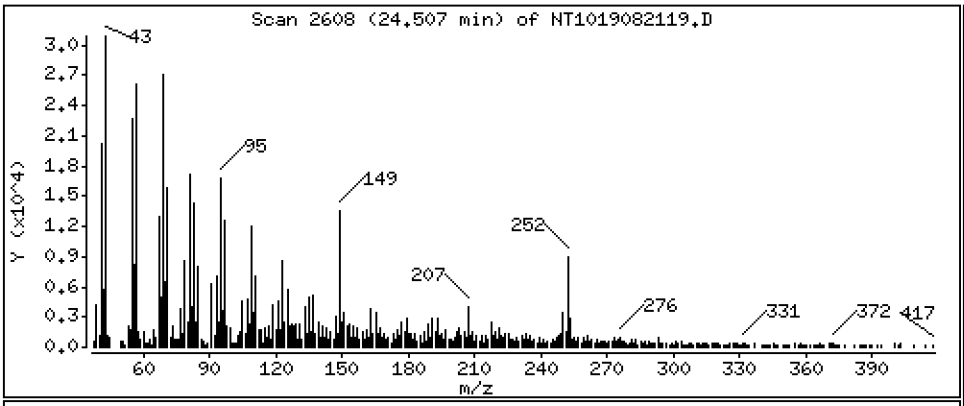
Operator: YZ

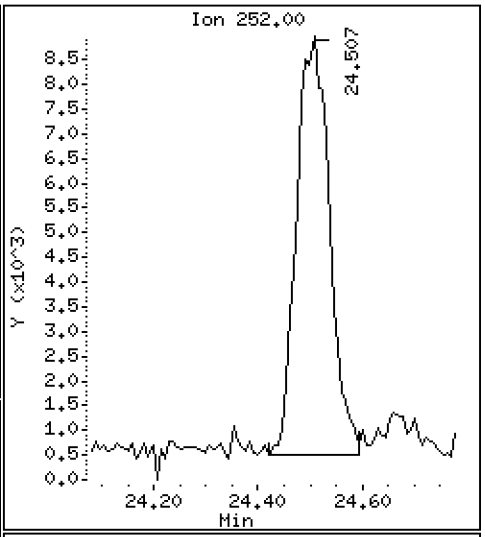
Column phase: ZB-5msi

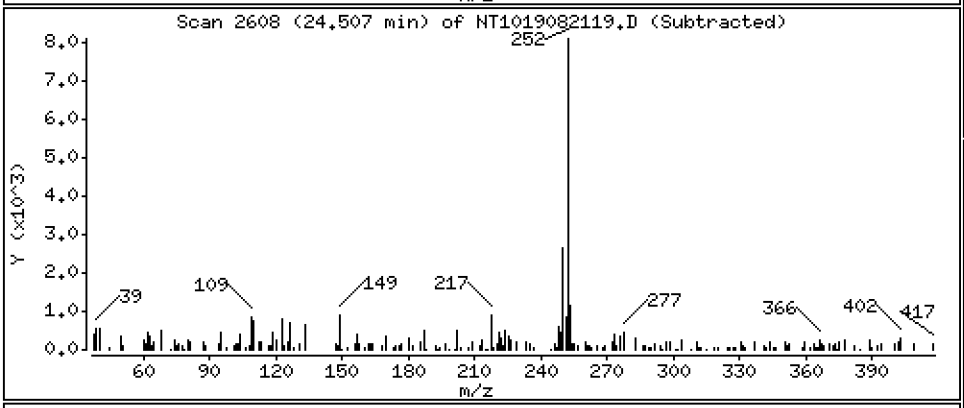
Column diameter: 0.25

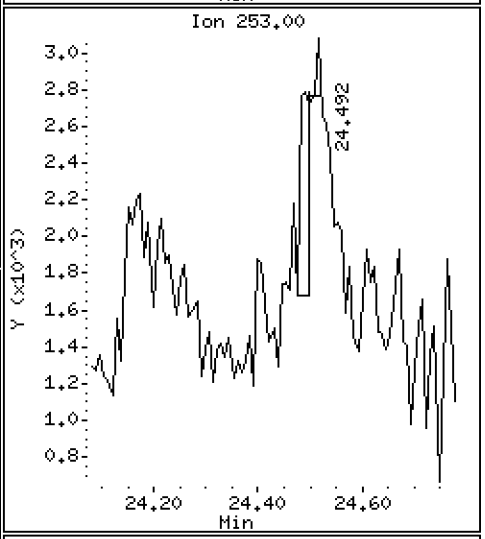
75 Benzo(k)fluoranthene

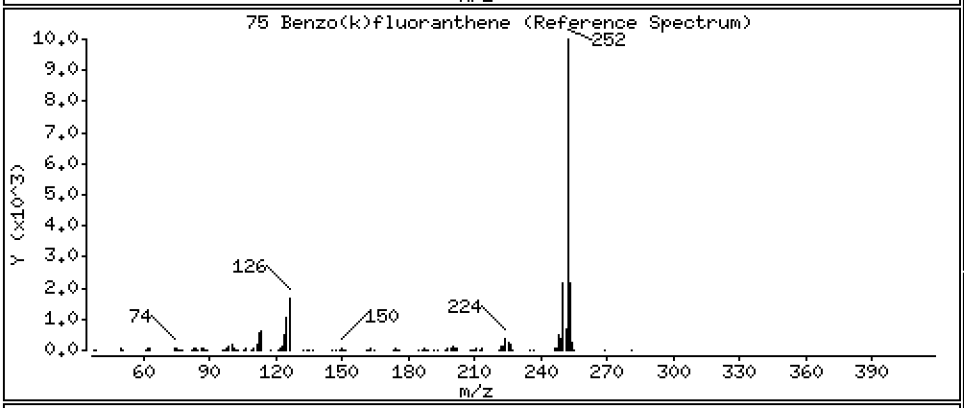
Concentration: 2.837 ug/mL

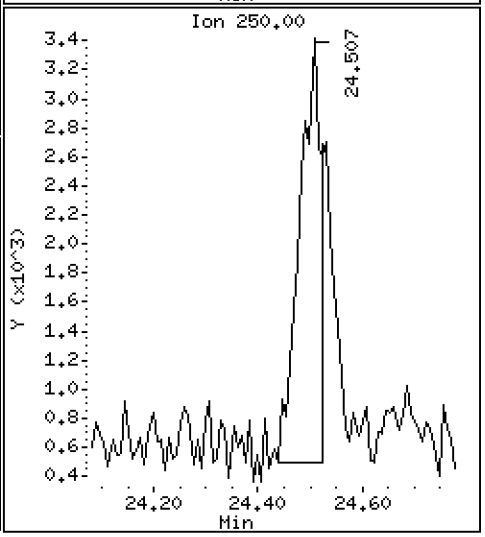


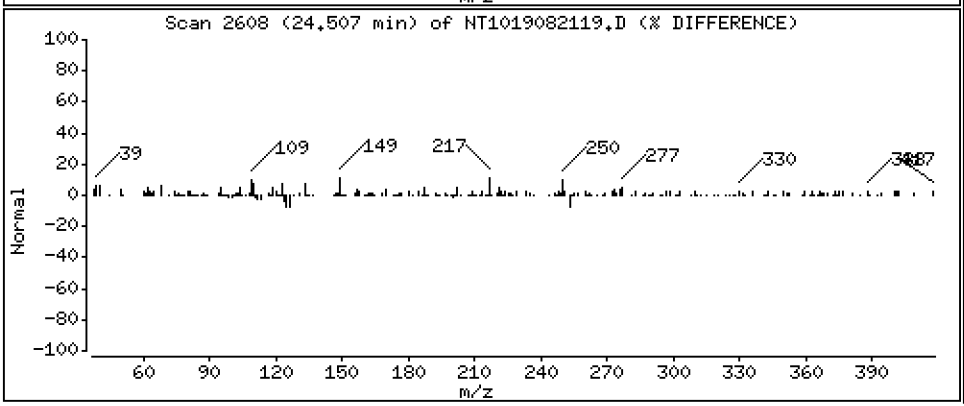












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Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

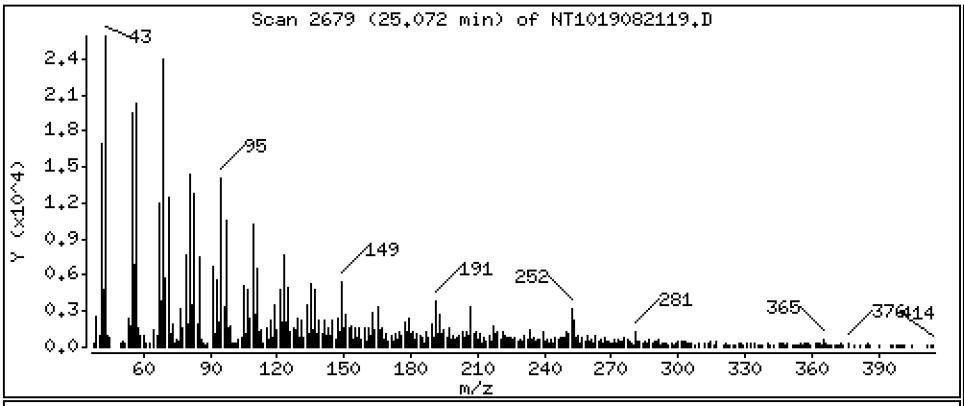
Operator: YZ

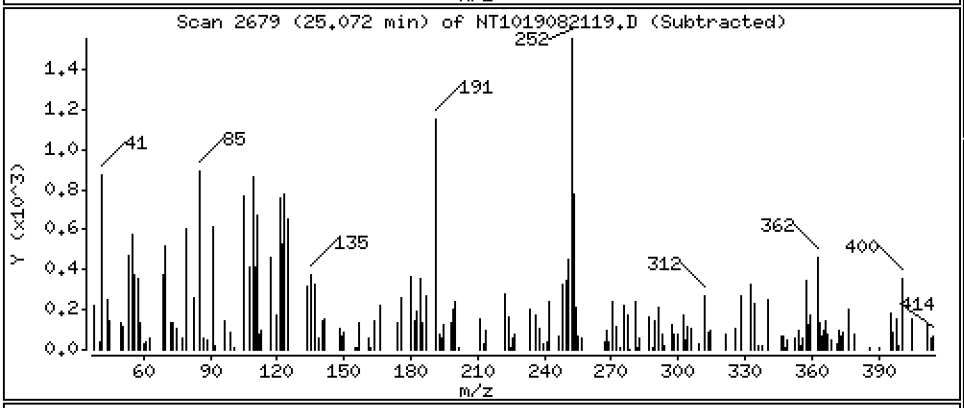
Column phase: ZB-5msi

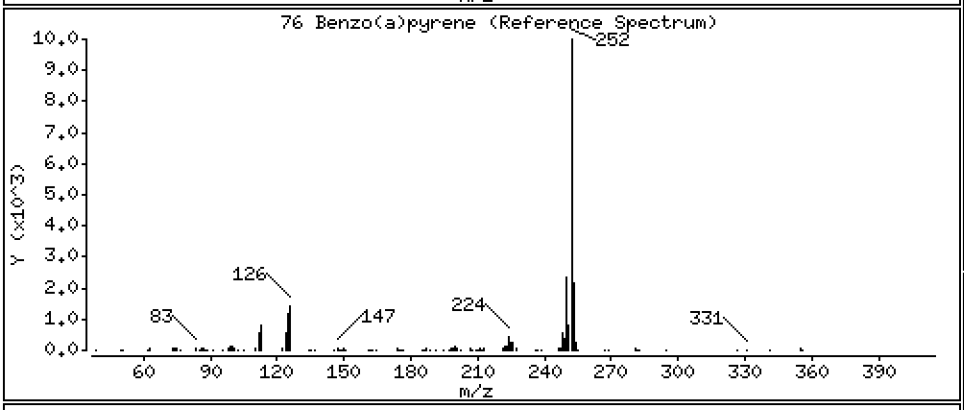
Column diameter: 0.25

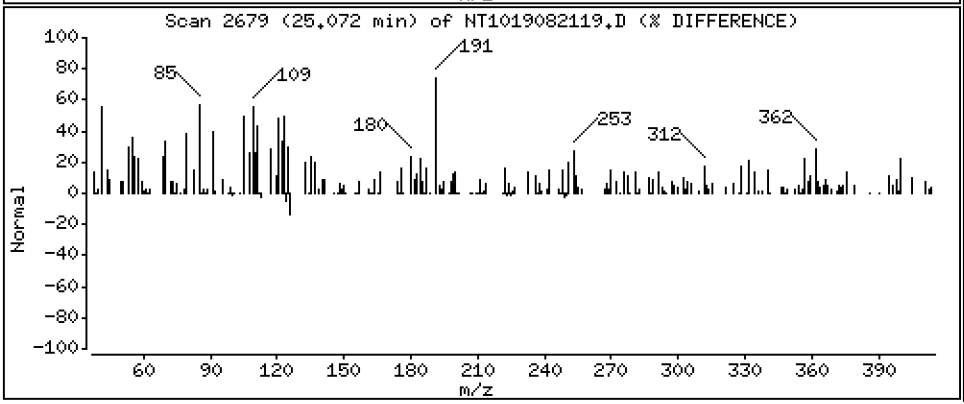
76 Benzo(a)pyrene

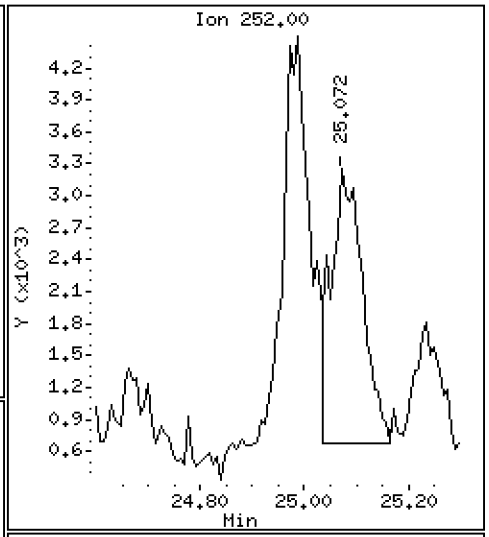
Concentration: 0.9608 ug/mL

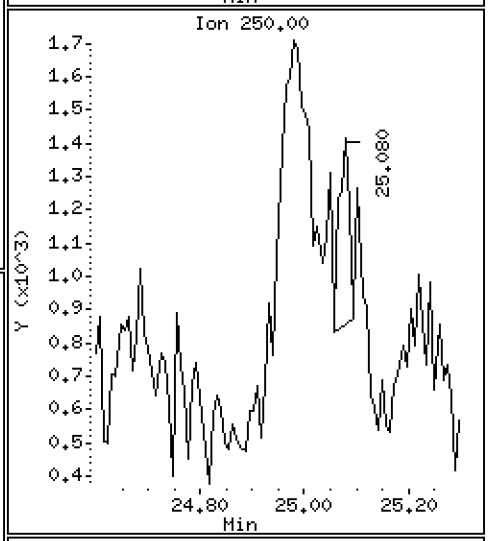


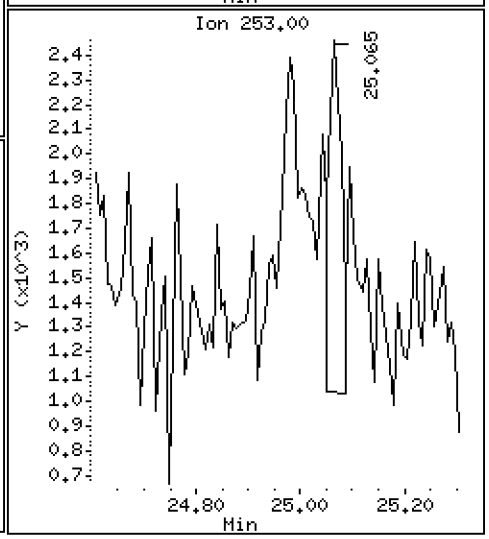












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

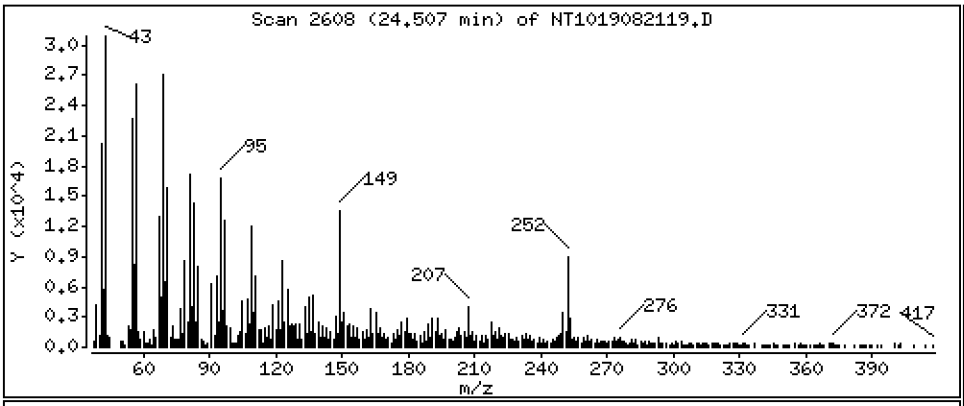
Operator: YZ

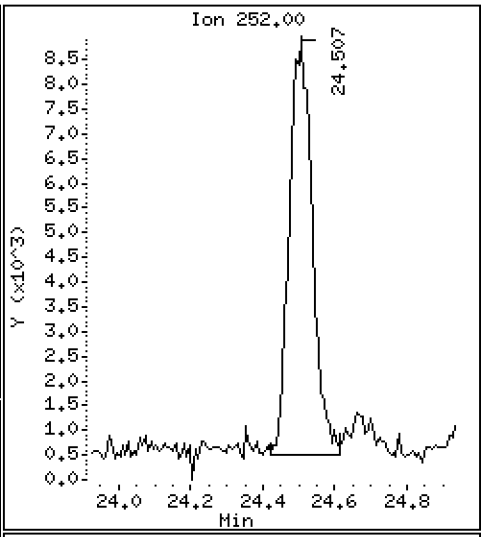
Column phase: ZB-5msi

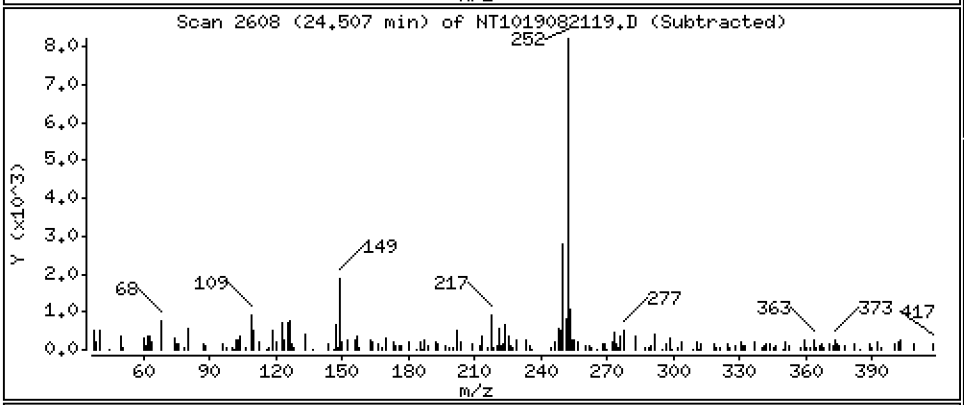
Column diameter: 0.25

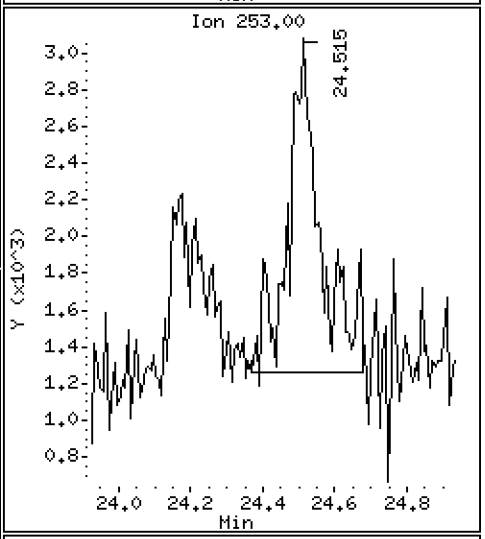
187 Total Benzofluoranthenes

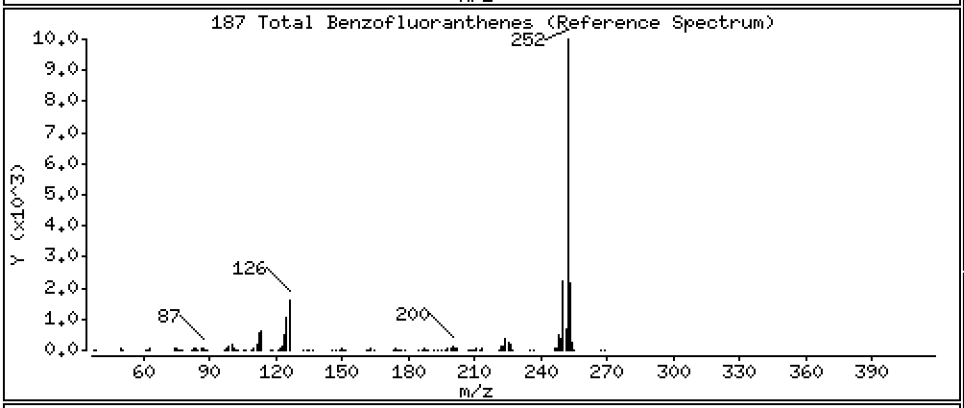
Concentration: 3.007 ug/mL

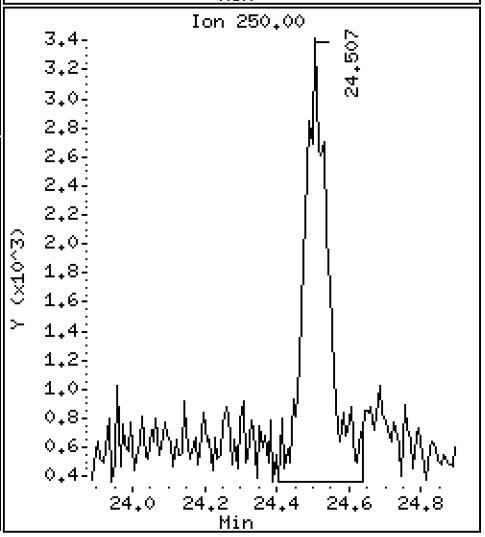


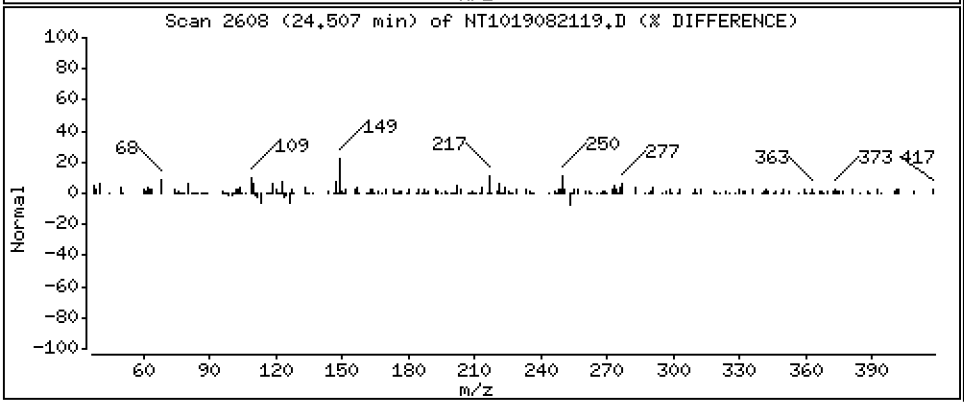












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D

Date : 21-AUG-2019 21:23

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10

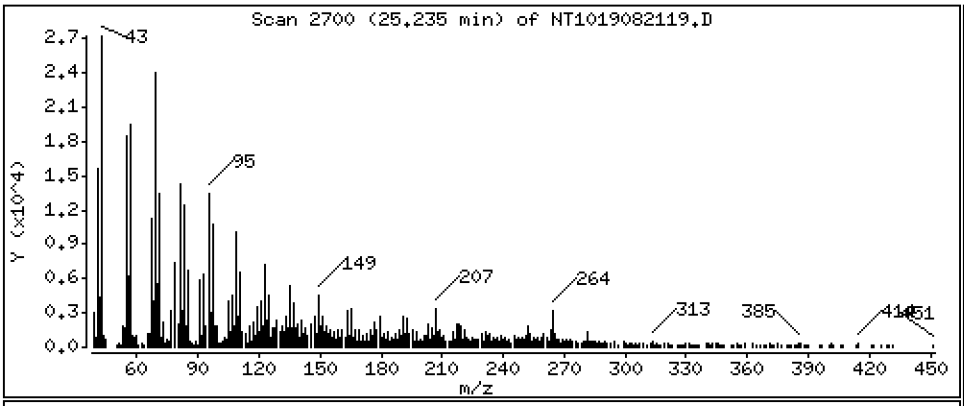
Operator: YZ

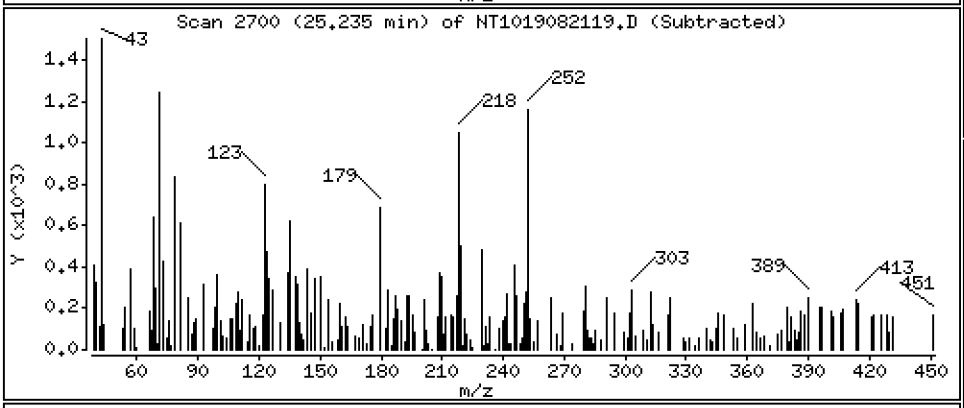
Column phase: ZB-5msi

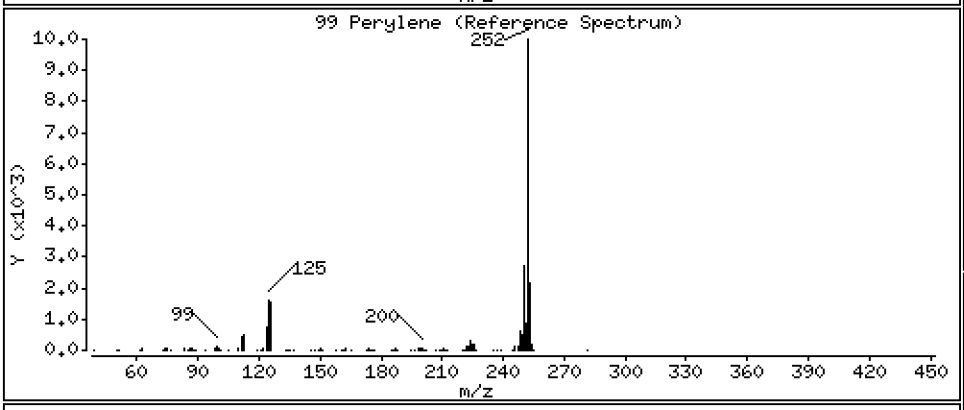
Column diameter: 0.25

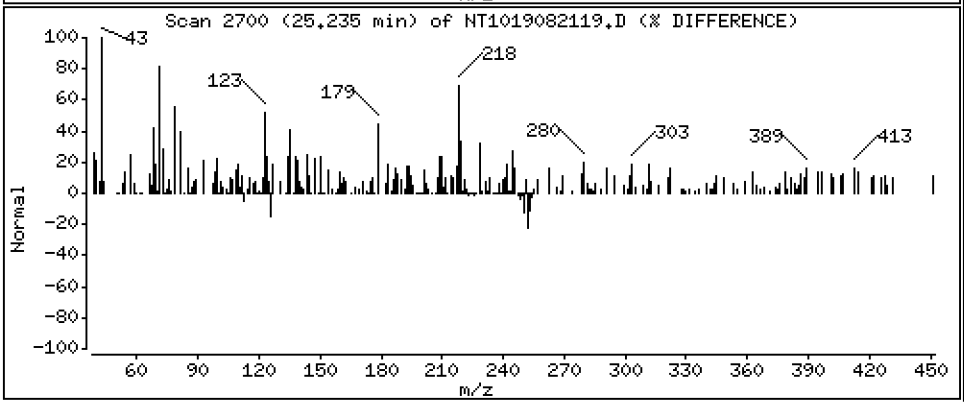
99 Perylene

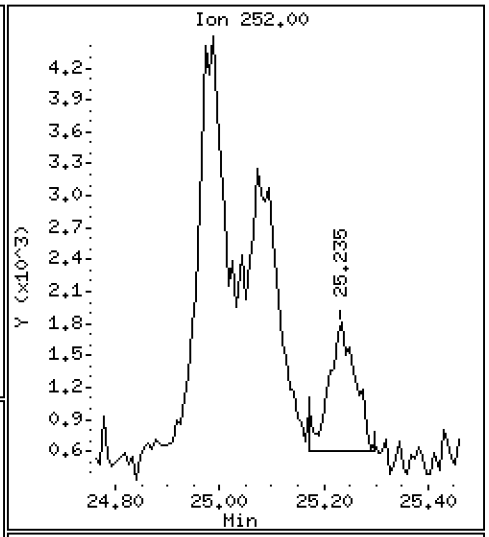
Concentration: 0.4016 ug/mL

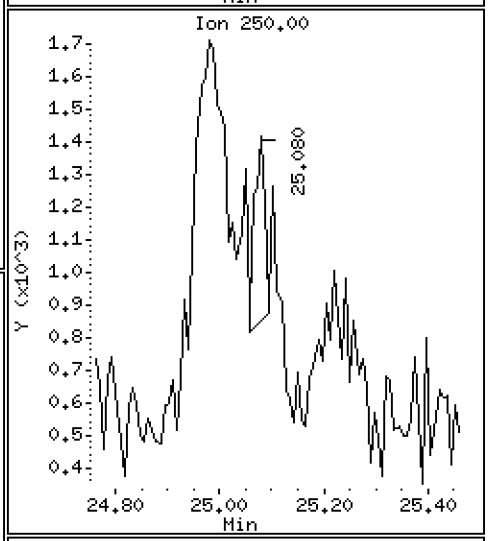


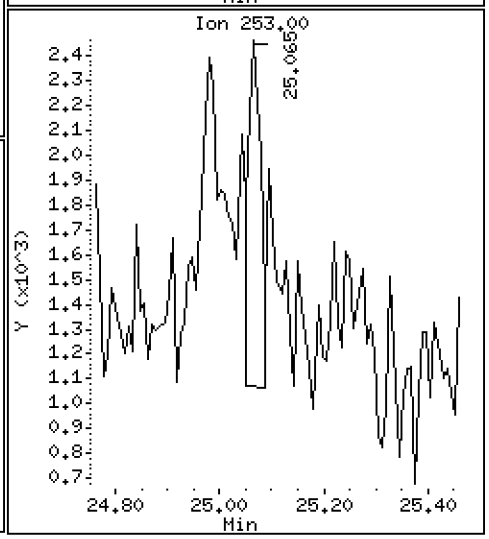












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082119.D
Lab Smp Id: 19H0024-10
Inj Date : 21-AUG-2019 21:23
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-10
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$ 1	2-Fluorophenol	112	6.335	6.311	(0.747)	36306	3.69070	3.691
$ 2	Phenol-d5	99	7.903	7.888	(0.932)	38201	3.46505	3.465
3	Phenol	94	Compound Not Detected.					
$ 5	2-Chlorophenol-d4	132	8.135	8.127	(0.959)	59198	4.98803	4.988
4	Bis(2-Chloroethyl)ether	93	Compound Not Detected.					
6	2-Chlorophenol	128	Compound Not Detected.					
7	1,3-Dichlorobenzene	146	Compound Not Detected.					
* 8	1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	35032	4.00000	
9	1,4-Dichlorobenzene	146	Compound Not Detected.					
$ 10	1,2-Dichlorobenzene-d4	152	8.840	8.832	(1.042)	26113	3.21826	3.218
12	1,2-Dichlorobenzene	146	Compound Not Detected.					
11	Benzyl alcohol	108	Compound Not Detected.					
14	2,2'-oxybis(1-Chloropropane)	121	Compound Not Detected.					
13	2-Methylphenol	108	Compound Not Detected.					
17	Hexachloroethane	117	Compound Not Detected.					
16	N-Nitroso-di-n-propylamine	70	Compound Not Detected.					
15	4-Methylphenol	108	Compound Not Detected.					
$ 18	Nitrobenzene-d5	82	9.562	9.554	(0.874)	31267	3.06103	3.061
19	Nitrobenzene	77	Compound Not Detected.					
20	Isophorone	82	Compound Not Detected.					
21	2-Nitrophenol	139	Compound Not Detected.					
22	2,4-Dimethylphenol	107	Compound Not Detected.					
23	Bis(2-Chloroethoxy)methane	93	Compound Not Detected.					
24	Benzoic acid	105	Compound Not Detected.					
25	2,4-Dichlorophenol	162	Compound Not Detected.					
26	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
* 27	Naphthalene-d8	136	10.937	10.929	(1.000)	130603	4.00000	
28	Naphthalene	128	10.976	10.968	(1.004)	2697	0.08984	0.08984
29	4-Chloroaniline	127	Compound Not Detected.					
30	Hexachlorobutadiene	225	Compound Not Detected.					
31	4-Chloro-3-methylphenol	107	Compound Not Detected.					
32	2-Methylnaphthalene	142	Compound Not Detected.					
33	Hexachlorocyclopentadiene	237	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	Compound Not Detected.					
	35	2,4,5-Trichlorophenol	196	Compound Not Detected.					
$	36	2-Fluorobiphenyl	172	13.150	13.142	(0.906)	102269	3.94028	3.940
	37	2-Chloronaphthalene	162	Compound Not Detected.					
	38	2-Nitroaniline	65	Compound Not Detected.					
	39	Dimethylphthalate	163	Compound Not Detected.					
	40	Acenaphthylene	152	14.210	14.195	(0.979)	3683	0.11260	0.1126
	41	2,6-Dinitrotoluene	165	Compound Not Detected.					
*	42	Acenaphthene-d10	164	14.520	14.512	(1.000)	67857	4.00000	
	43	3-Nitroaniline	138	Compound Not Detected.					
	44	Acenaphthene	153	14.589	14.574	(1.005)	1370	0.06666	0.06666
	45	2,4-Dinitrophenol	184	Compound Not Detected.					
	46	Dibenzofuran	168	14.914	14.898	(1.027)	2318	0.06862	0.06862
	47	4-Nitrophenol	109	Compound Not Detected.					
	48	2,4-Dinitrotoluene	165	Compound Not Detected.					
	50	Diethylphthalate	149	15.525	15.517	(1.069)	2249	0.09263	0.09263
	49	Fluorene	166	15.618	15.610	(1.076)	2906	0.12580	0.1258
	51	4-Chlorophenyl-phenylether	204	Compound Not Detected.					
	52	4-Nitroaniline	138	Compound Not Detected.					
	53	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.					
	54	N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55	2,4,6-Tribromophenol	330	16.173	16.142	(1.114)	29366	5.72330	5.723
	56	4-Bromophenyl-phenylether	248	Compound Not Detected.					
	57	Hexachlorobenzene	284	Compound Not Detected.					
	58	Pentachlorophenol	266	Compound Not Detected.					
*	59	Phenanthrene-d10	188	17.549	17.525	(1.000)	126936	4.00000	
	60	Phenanthrene	178	17.587	17.572	(1.002)	29141	0.93983	0.9398
	61	Anthracene	178	17.680	17.665	(1.007)	8699	0.27631	0.2763
	62	Carbazole	167	18.052	18.012	(1.029)	5947	0.20073	0.2007
	63	Di-n-butylphthalate	149	Compound Not Detected.					
	64	Fluoranthene	202	20.024	19.993	(0.882)	68937	3.90441	3.904
	65	Pyrene	202	20.458	20.411	(0.901)	59954	3.25178	3.252
$	66	Terphenyl-d14	244	20.783	20.744	(0.916)	65730	5.25673	5.257
	67	Butylbenzylphthalate	149	Compound Not Detected.					
	68	Benzo(a)anthracene	228	22.664	22.610	(0.999)	15168	0.90483	0.9048
*	69	Chrysene-d12	240	22.695	22.633	(1.000)	57777	4.00000	
	70	3,3'-Dichlorobenzidine	252	Compound Not Detected.					
	71	Chrysene	228	22.742	22.680	(1.002)	25589	1.72509	1.725
	72	bis(2-Ethylhexyl)phthalate	149	22.819	22.765	(0.958)	129518	10.8750	10.88
*	134	Di-n-octylphthalate-d4	153	23.825	23.756	(1.000)	135407	4.00000	
	73	Di-n-octylphthalate	149	Compound Not Detected.					
	74	Benzo(b)fluoranthene	252	24.507	24.390	(0.973)	37314	2.85368	2.854
	75	Benzo(k)fluoranthene	252	24.507	24.429	(0.973)	37314	2.83659	2.837
	76	Benzo(a)pyrene	252	25.072	24.948	(0.995)	11275	0.96078	0.9608(M)
*	77	Perylene-d12	264	25.188	25.056	(1.000)	45575	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
	79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	80	Benzo(g,h,i)perylene	276	Compound Not Detected.					
	90	N-Nitrosodimethylamine	74	Compound Not Detected.					
	91	Aniline	93	Compound Not Detected.					
	93	Benzidine	184	Compound Not Detected.					
	103	Pyridine	79	Compound Not Detected.					
	105	1-methylnaphthalene	142	Compound Not Detected.					
	111	Azobenzene (1,2-DP-Hydrazine)	77	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
187	Total Benzofluoranthenes	252	24.507	24.429	(0.973)	37721	3.00750	3.007(M)
99	Perylene	252	25.235	25.110	(1.002)	4335	0.40156	0.4016(M)
98	Retene	219	Compound Not Detected.					
120	2,3,4,6-Tetrachlorophenol	232	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082119.D
Lab Smp Id: 19H0024-10
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	35032	7.00
27 Naphthalene-d8	117487	58744	234974	130603	11.16
42 Acenaphthene-d10	61859	30930	123718	67857	9.70
59 Phenanthrene-d10	113574	56787	227148	126936	11.77
69 Chrysene-d12	105788	52894	211576	57777	-45.38
134 Di-n-octylphthala	252823	126412	505646	135407	-46.44
77 Perylene-d12	113992	56996	227984	45575	-60.02 <-

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.94	0.07
42 Acenaphthene-d10	14.51	14.01	15.01	14.52	0.05
59 Phenanthrene-d10	17.53	17.03	18.03	17.55	0.13
69 Chrysene-d12	22.63	22.13	23.13	22.70	0.27
134 Di-n-octylphthala	23.76	23.26	24.26	23.83	0.29
77 Perylene-d12	25.06	24.56	25.56	25.19	0.53

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082119.D

Lab ID: 19H0024-10
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 21:23

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.000	1.130	-0.1302	2-Methylnaphthalene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate
0.979	1.000	-0.0213	Acenaphthene-d10
1.027	0.930	0.0973	Phenol-d5
1.076	0.906	0.1700	2-Fluorobiphenyl
1.069	0.917	0.1527	Terphenyl-d14

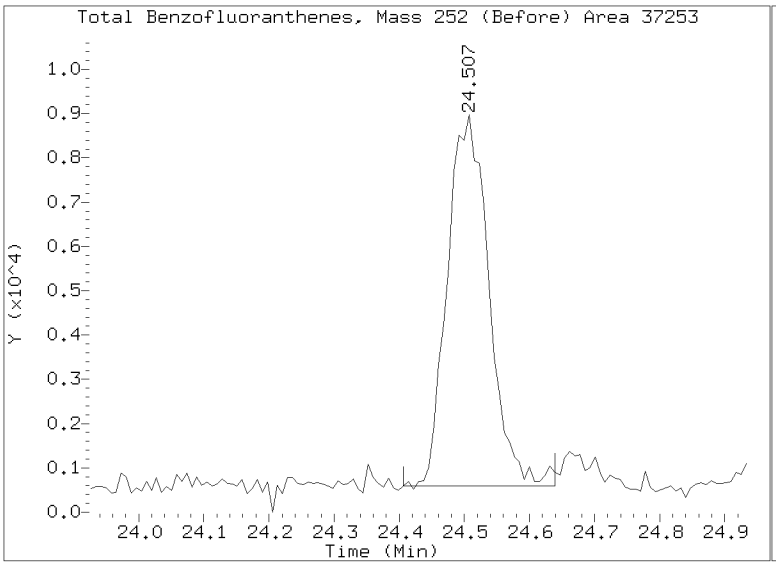
RRT check based on Ccal File: NT1019082105.D

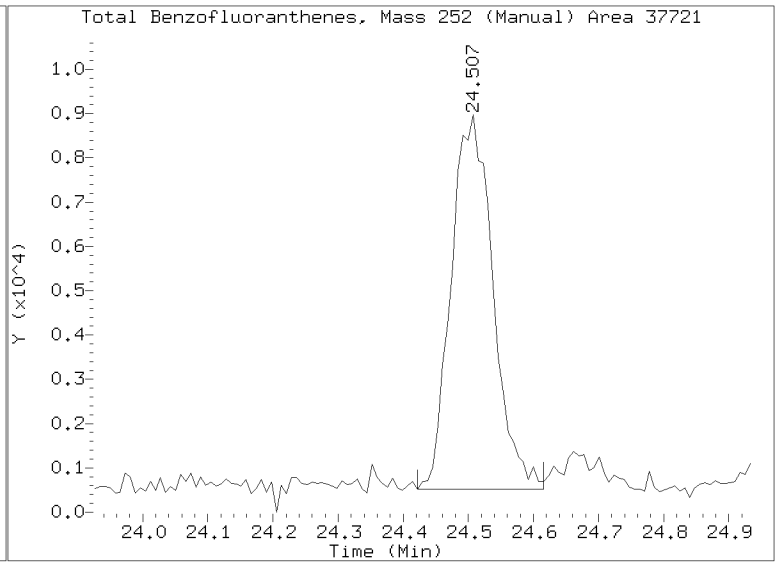
On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

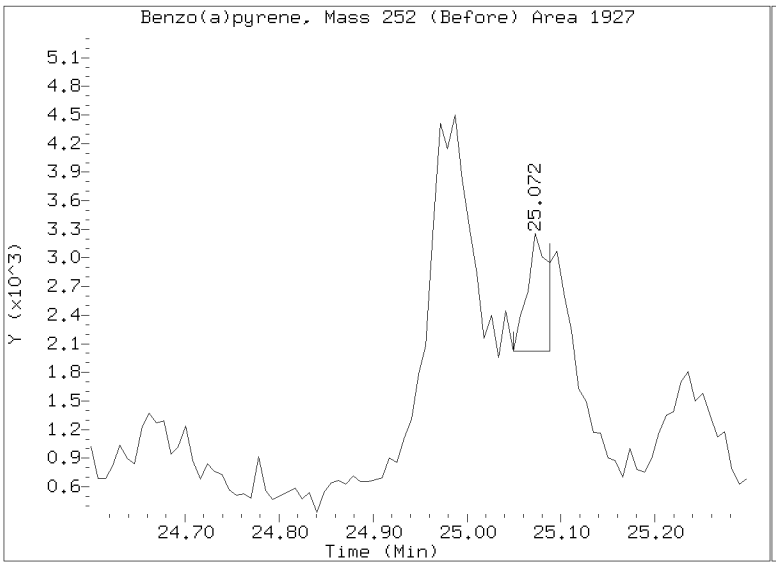
* Only compounds listed in the work order have been verified by the analyst *

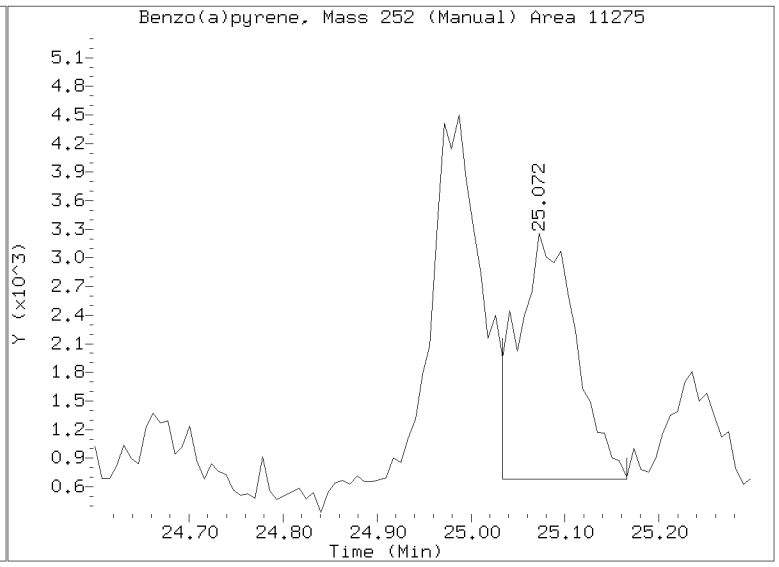
Quant Ion Manual Peak Adjustment Report

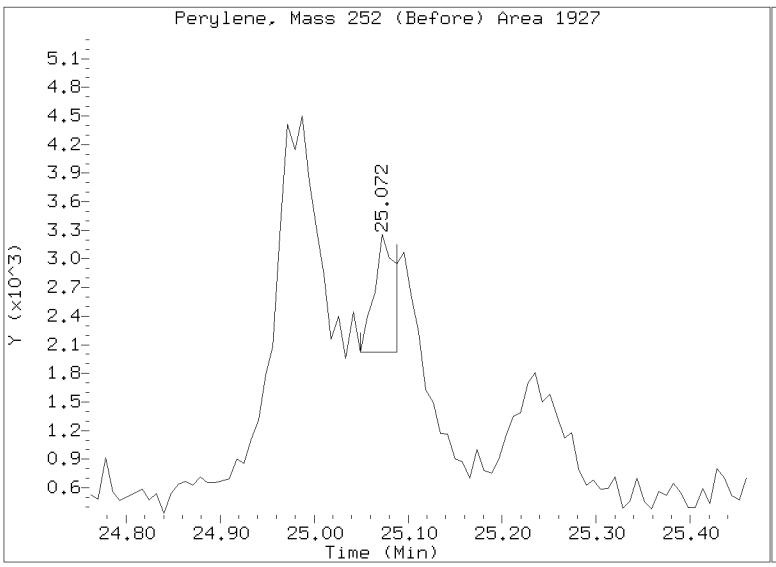
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082119.D
Injection Date: 21-AUG-2019 21:23
Lab ID:19H0024-10 Client ID:
Report Date: 08/22/2019 12:51

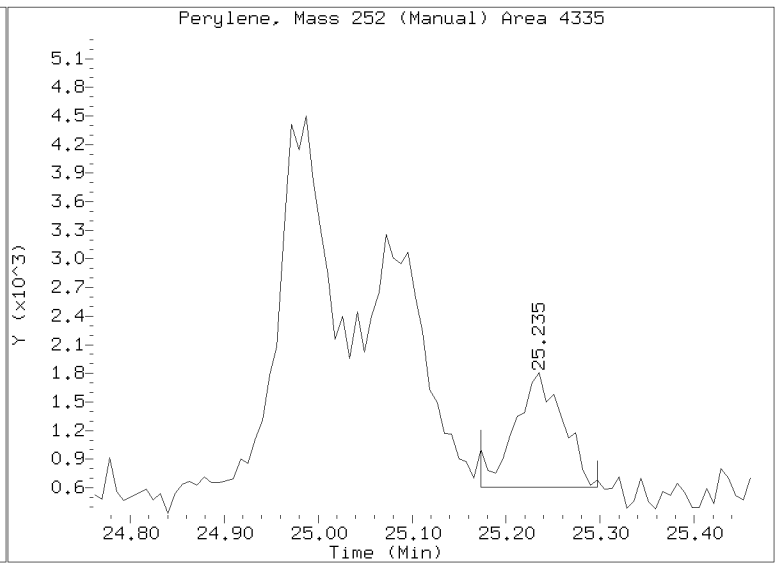












SL4-IC-SC2-2019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D

Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-10RE1 C	SDG:	19H0024
Sampled:	08/01/19 11:45	Prepared:	08/13/19 12:40	File ID:	NT1019082216.D
% Solids:	82.03	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/22/19 23:03
Batch:	BHH0289	Sequence:	SHH0325	Initial/Final:	12.35 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040
Cleanups:	GPC				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	3	59.2	U	24.4	59.2
100-51-6	Benzyl Alcohol	3	59.2	U	44.1	59.2
65-85-0	Benzoic acid	3	592	U	175	592
86-30-6	N-Nitrosodiphenylamine	3	59.2	U	28.3	59.2
85-01-8	Phenanthrene	3	70.7	D	13.9	59.2
206-44-0	Fluoranthene	3	305	D	13.4	59.2
129-00-0	Pyrene	3	286	D	16.4	59.2
85-68-7	Butylbenzylphthalate	3	59.2	U	23.8	59.2
56-55-3	Benzo(a)anthracene	3	77.9	D	15.3	59.2
218-01-9	Chrysene	3	137	D	15.5	59.2
117-81-7	bis(2-Ethylhexyl)phthalate	3	866	D	85.3	148
117-84-0	Di-n-Octylphthalate	3	59.2	U	25.8	59.2
	Benzofluoranthenes, Total	3	222	D	30.2	118
50-32-8	Benzo(a)pyrene	3	81.9	D	19.2	59.2
193-39-5	Indeno(1,2,3-cd)pyrene	3	57.9	J, D	17.7	59.2
53-70-3	Dibenzo(a,h)anthracene	3	59.2	U	18.2	59.2
191-24-2	Benzo(g,h,i)perylene	3	90.1	D	17.2	59.2

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	740.32	264	35.7	27 - 120	
Phenol-d5	740.32	288	38.9	29 - 120	Q
2-Chlorophenol-d4	740.32	378	51.0	31 - 120	
1,2-Dichlorobenzene-d4	493.55	236	47.7	32 - 120	
Nitrobenzene-d5	493.55	247	50.0	30 - 120	
2-Fluorobiphenyl	493.55	289	58.6	35 - 120	
2,4,6-Tribromophenol	740.32	409	55.2	24 - 134	
p-Terphenyl-d14	493.55	466	94.4	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082216.D

Date : 22-AUG-2019 23:03

Client ID:

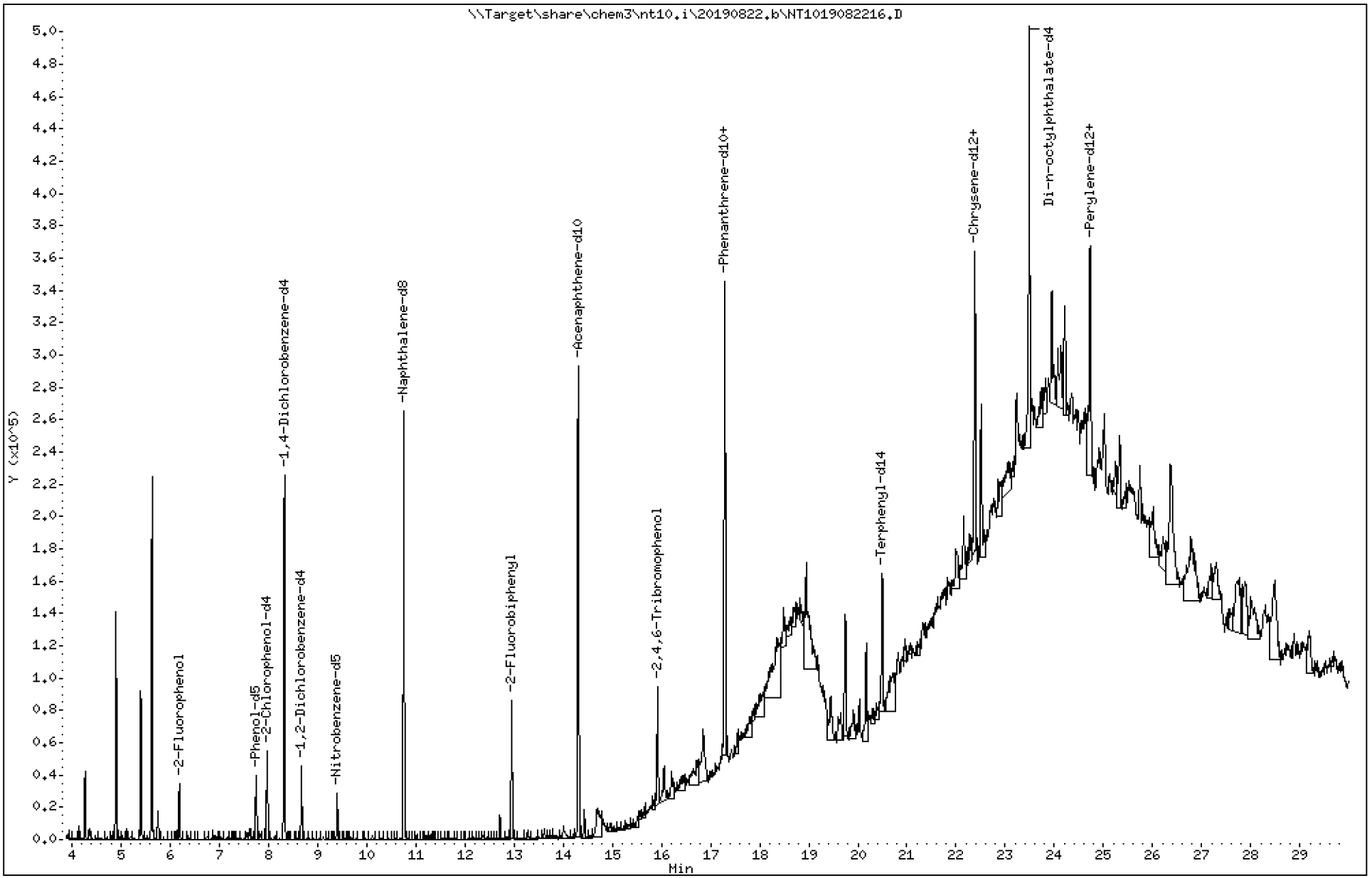
Instrument: nt10.i

Sample Info: 19H0024-10RE1,3

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 22-AUG-2019 23:03

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10RE1,3

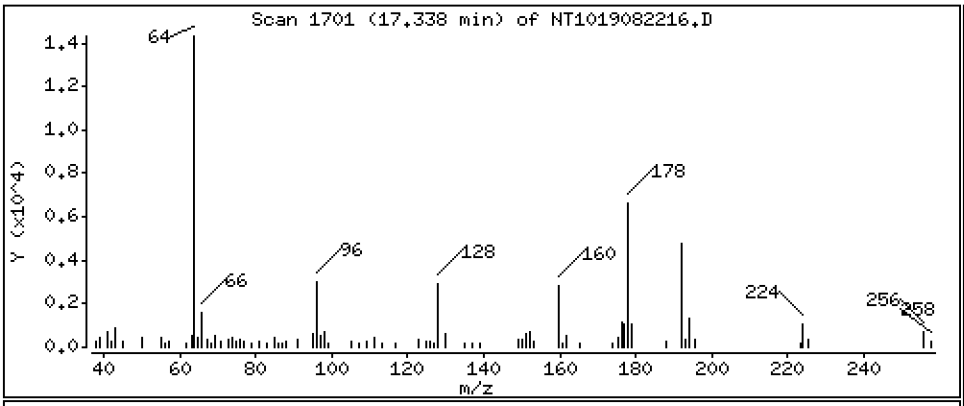
Operator: YZ

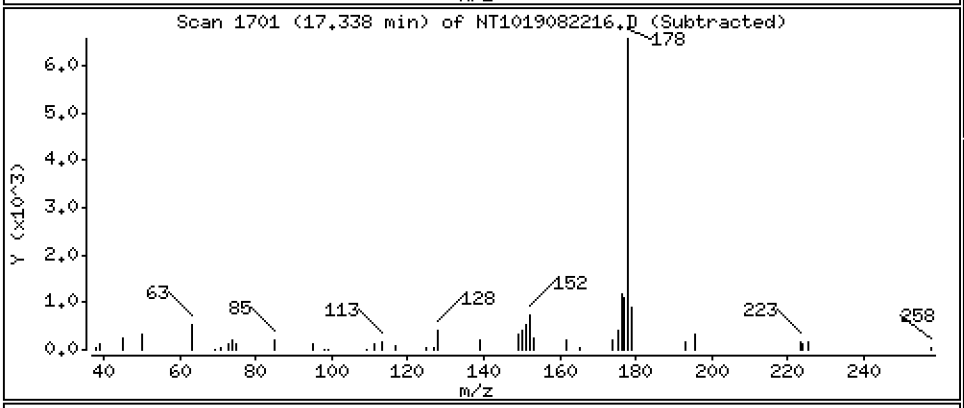
Column phase: ZB-5msi

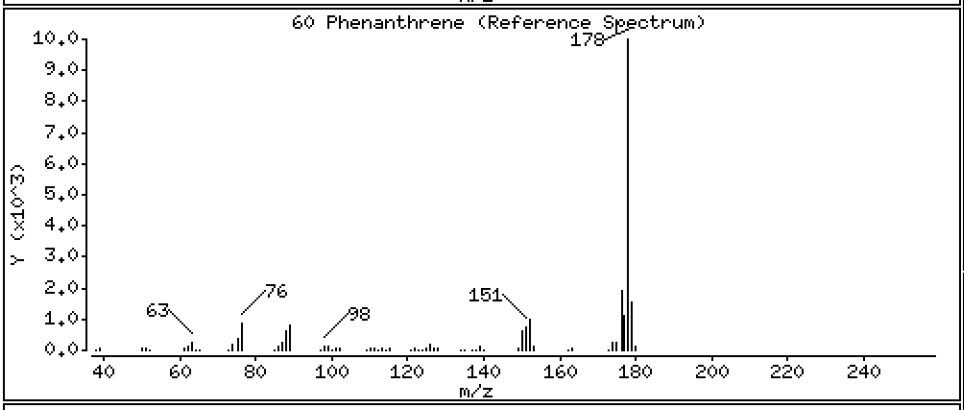
Column diameter: 0.25

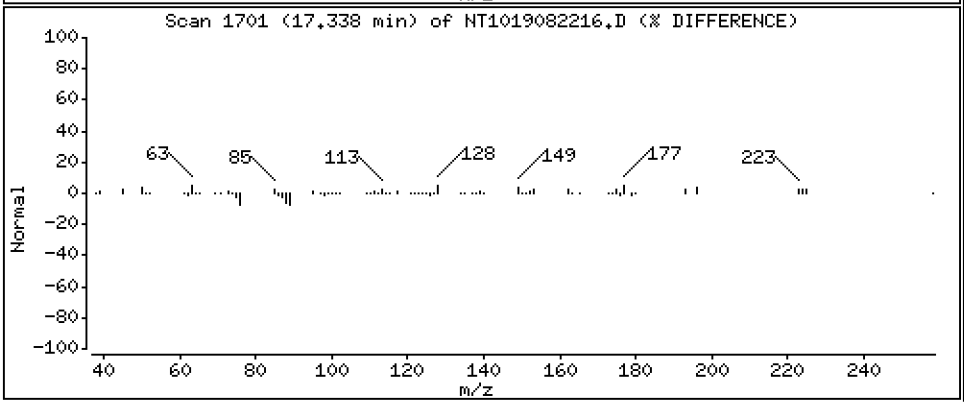
60 Phenanthrene

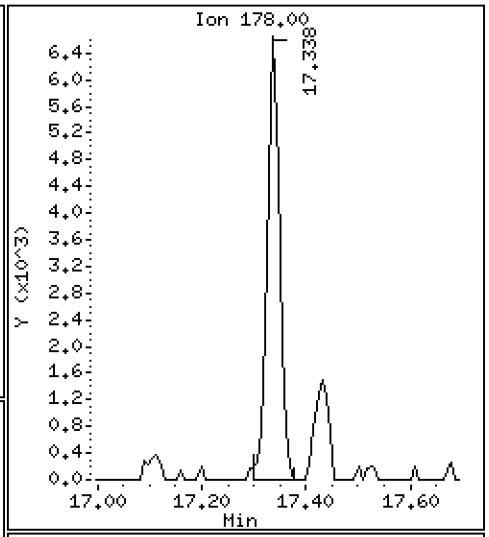
Concentration: 0.7160 ug/mL

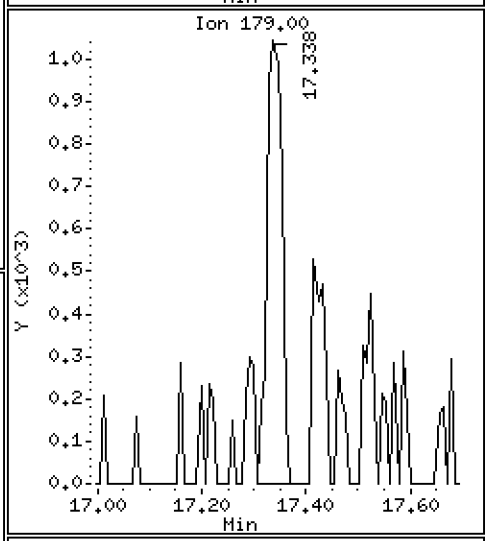


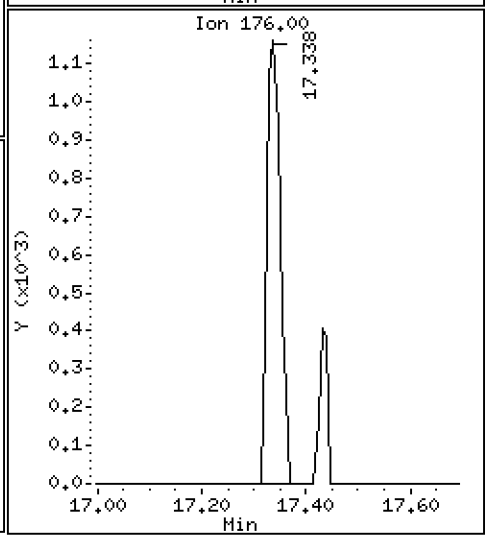












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Date : 22-AUG-2019 23:03

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10RE1,3

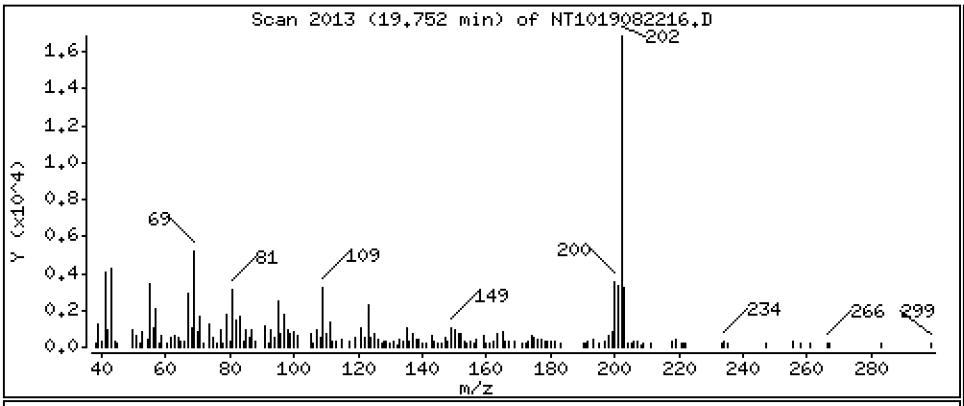
Operator: YZ

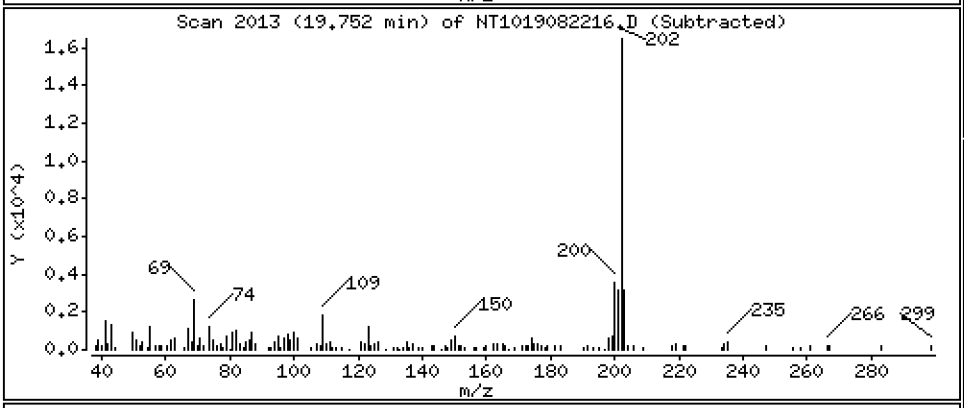
Column phase: ZB-5msi

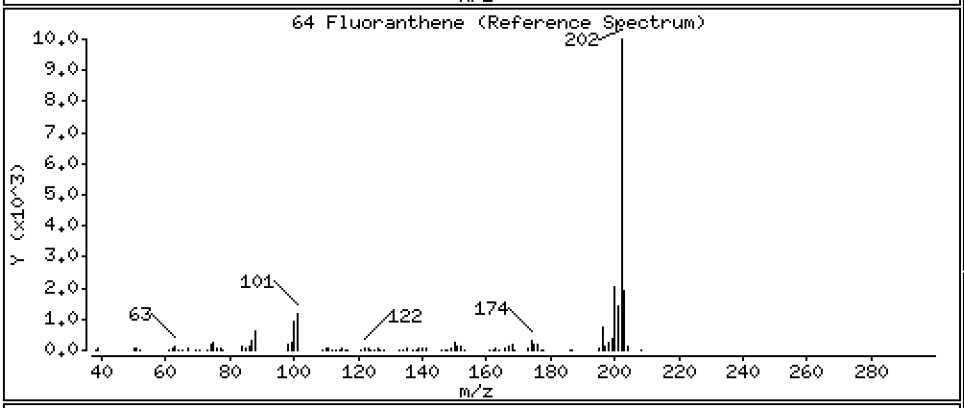
Column diameter: 0.25

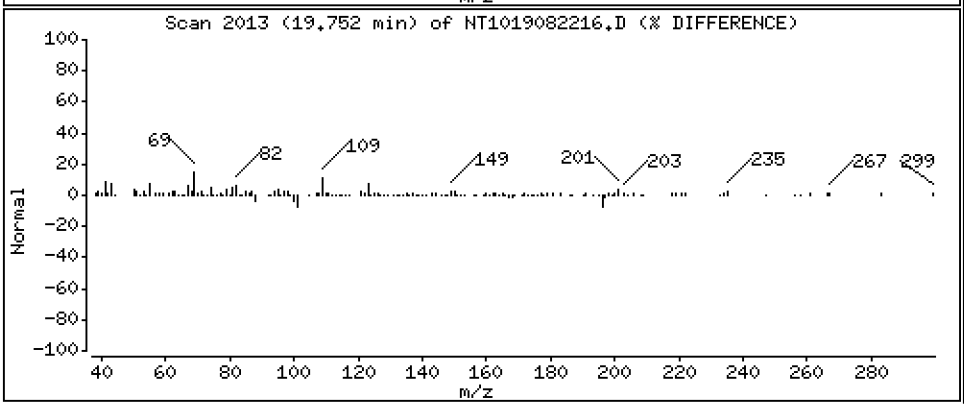
64 Fluoranthene

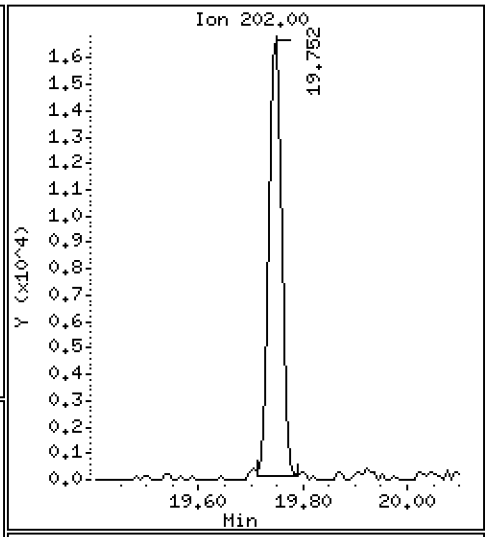
Concentration: 3.093 ug/mL

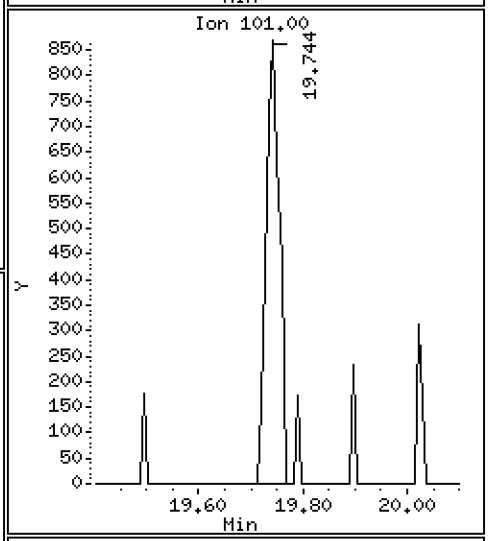


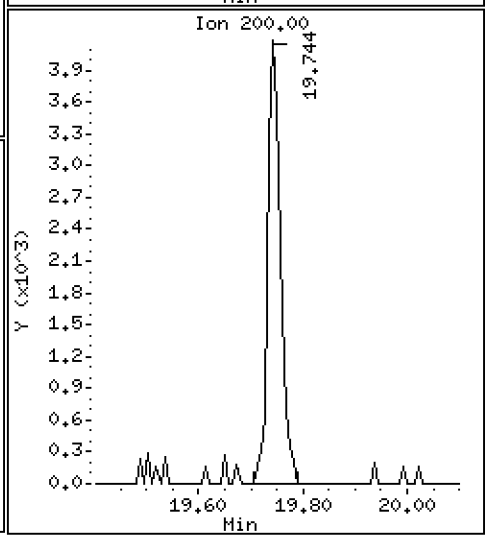












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082216.D

Date : 22-AUG-2019 23:03

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10RE1,3

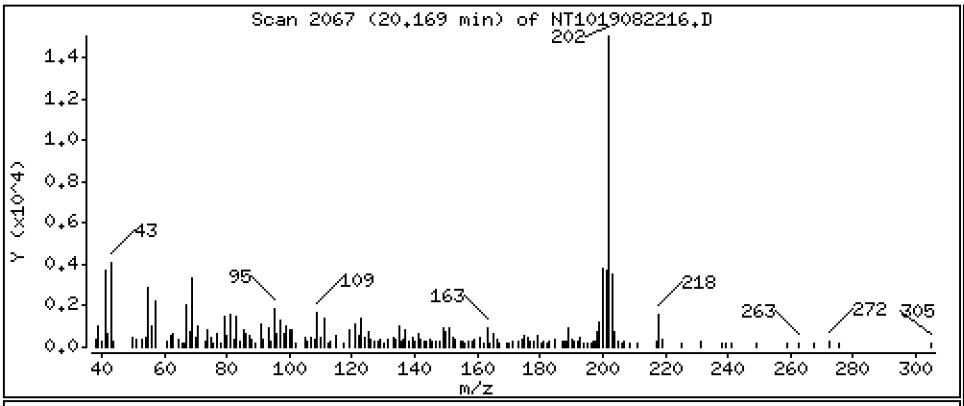
Operator: YZ

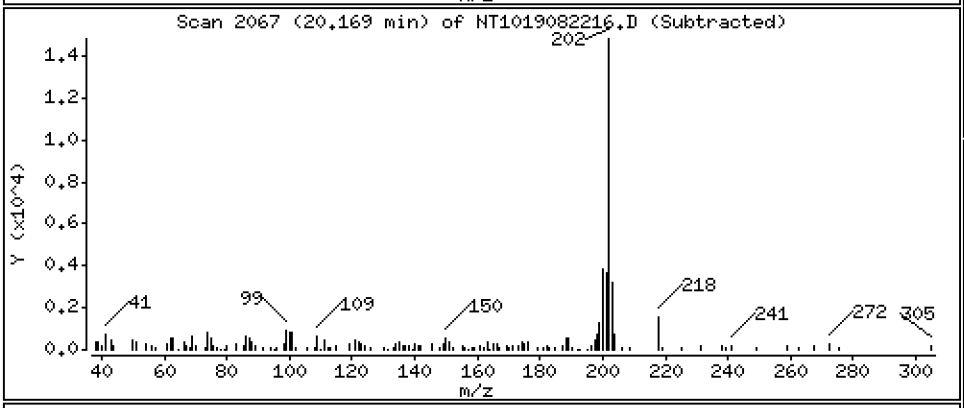
Column phase: ZB-5msi

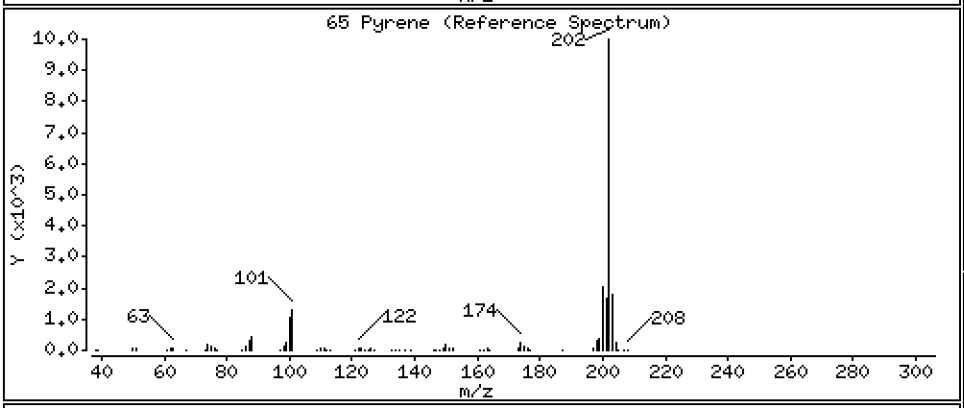
Column diameter: 0.25

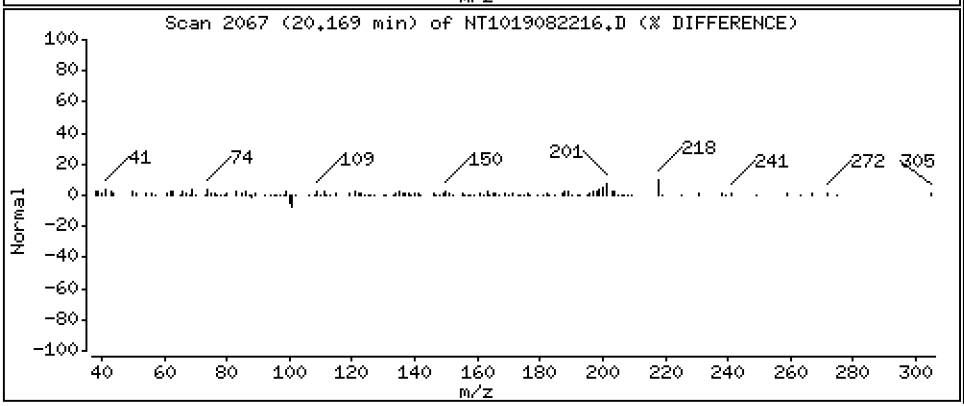
65 Pyrene

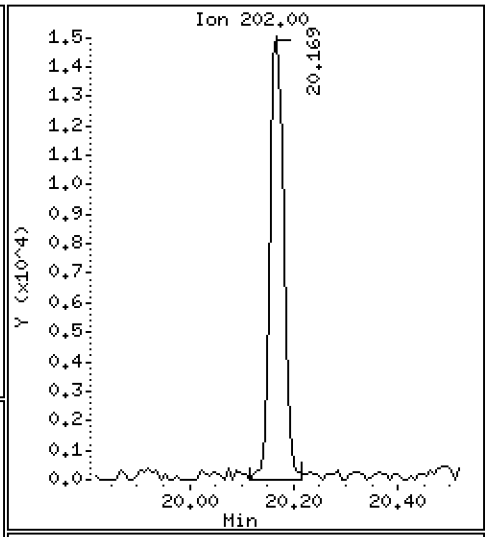
Concentration: 2.902 ug/mL

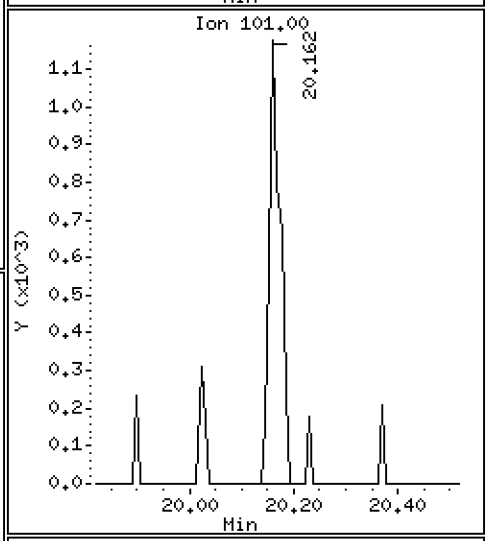


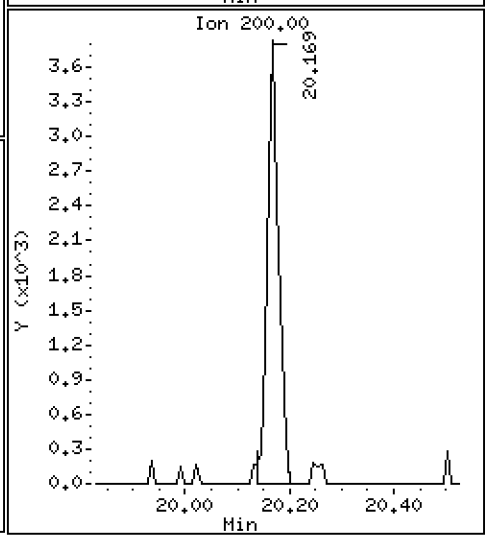












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082216.D

Date : 22-AUG-2019 23:03

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10RE1,3

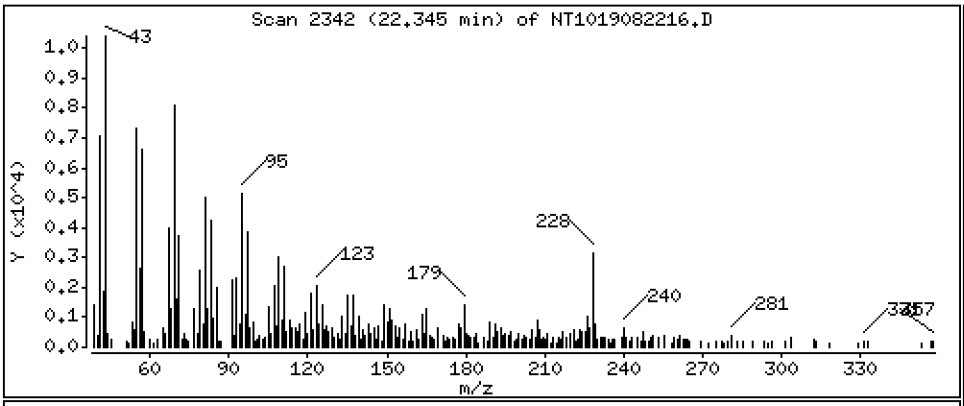
Operator: YZ

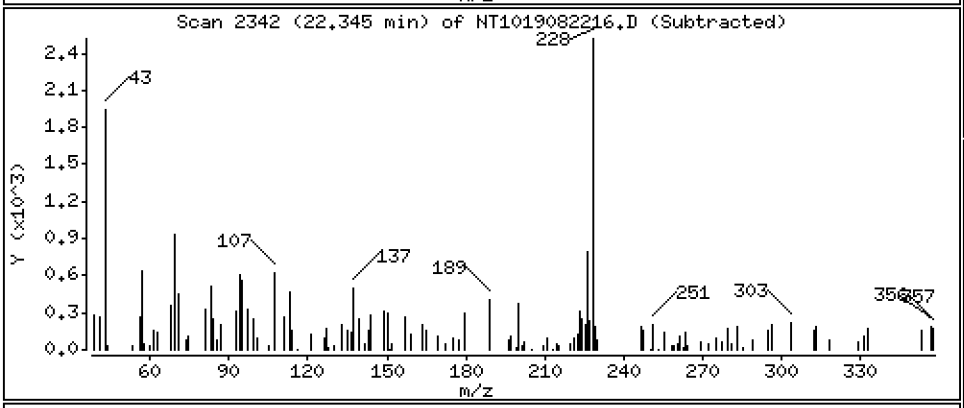
Column phase: ZB-5msi

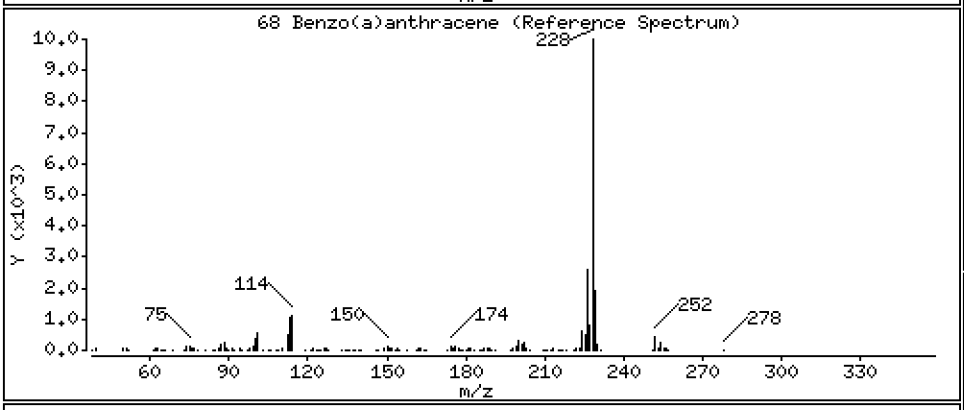
Column diameter: 0.25

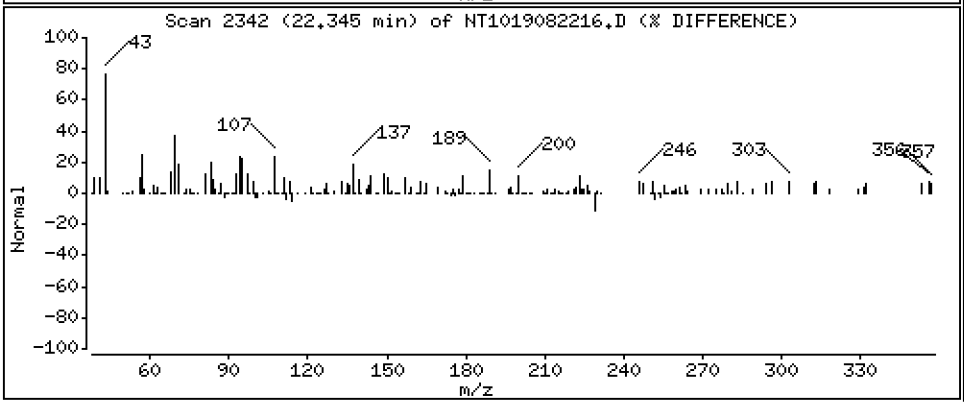
68 Benzo(a)anthracene

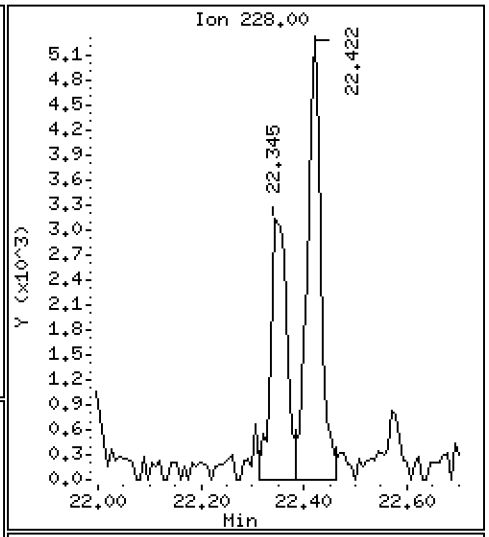
Concentration: 0.7888 ug/mL

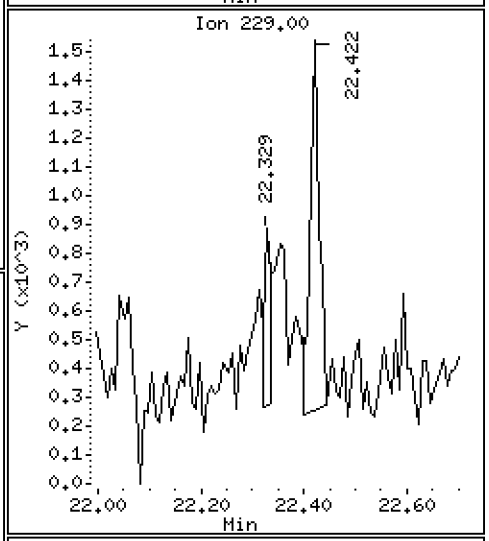


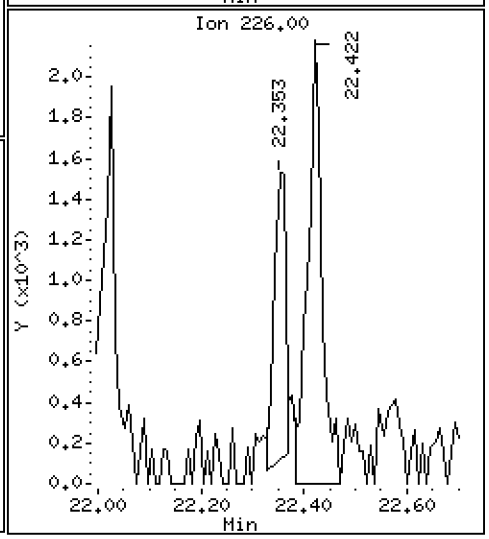












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Date : 22-AUG-2019 23:03

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10RE1,3

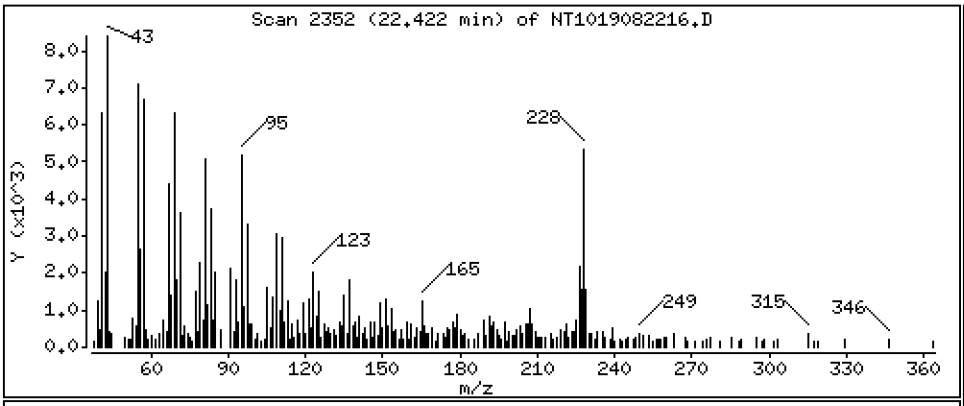
Operator: YZ

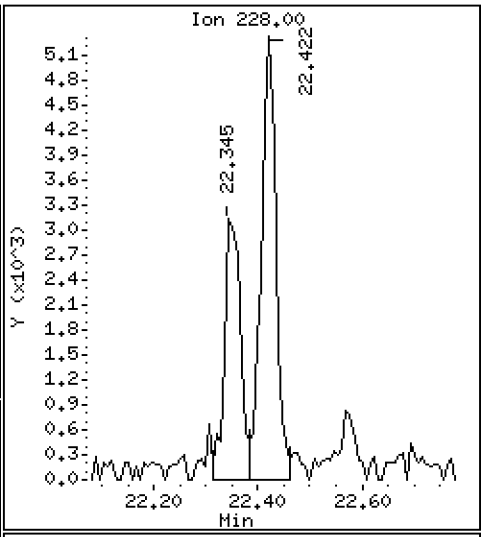
Column phase: ZB-5msi

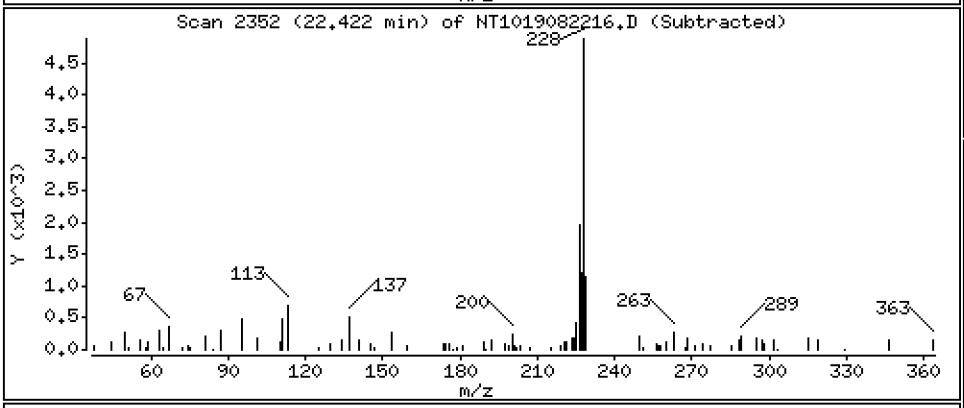
Column diameter: 0.25

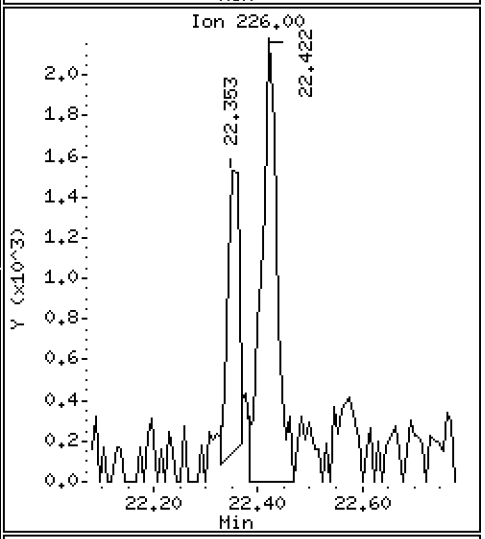
71 Chrysene

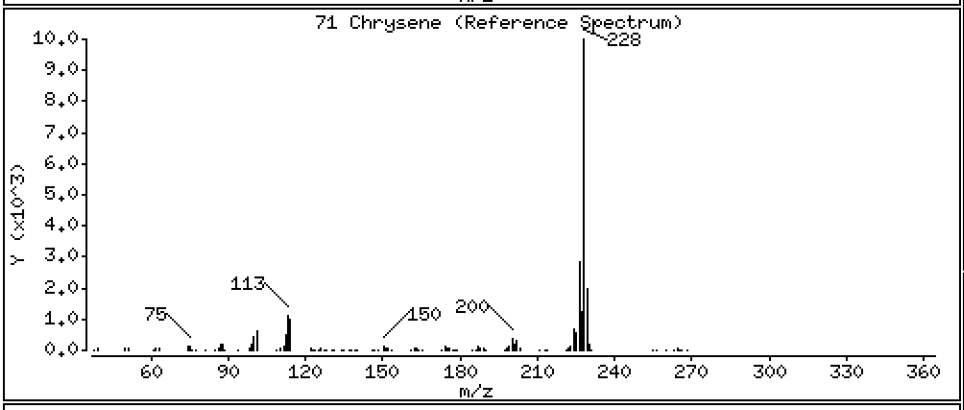
Concentration: 1.384 ug/mL

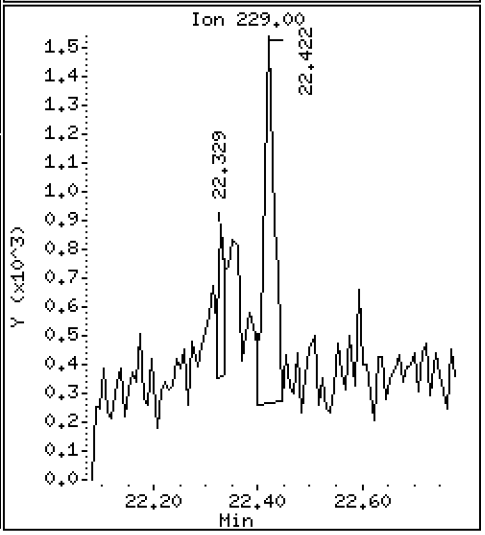


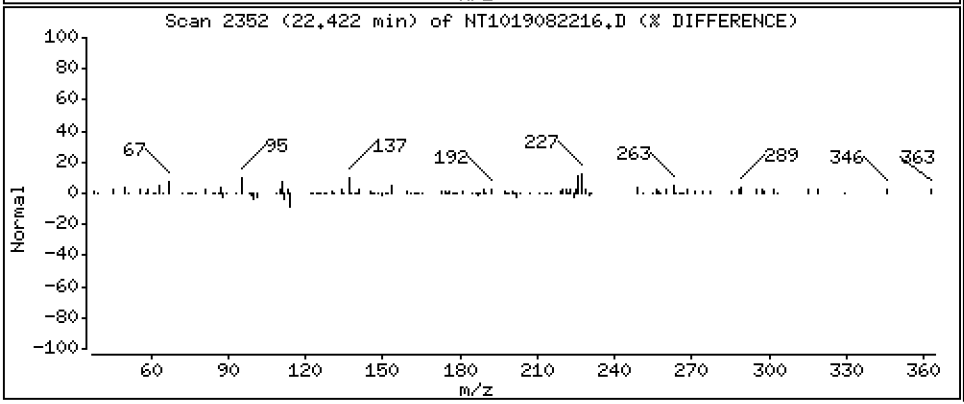












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082216.D

Date : 22-AUG-2019 23:03

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10RE1,3

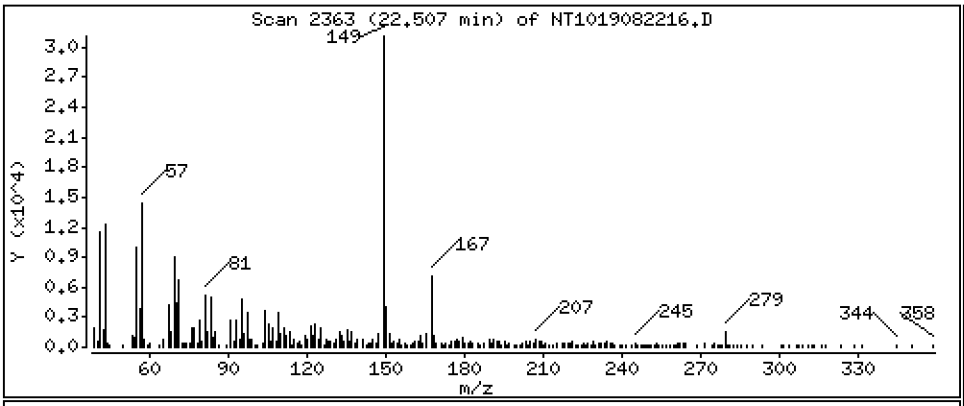
Operator: YZ

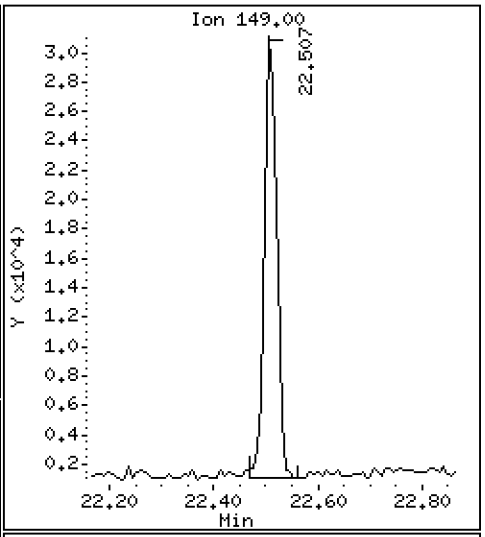
Column phase: ZB-5msi

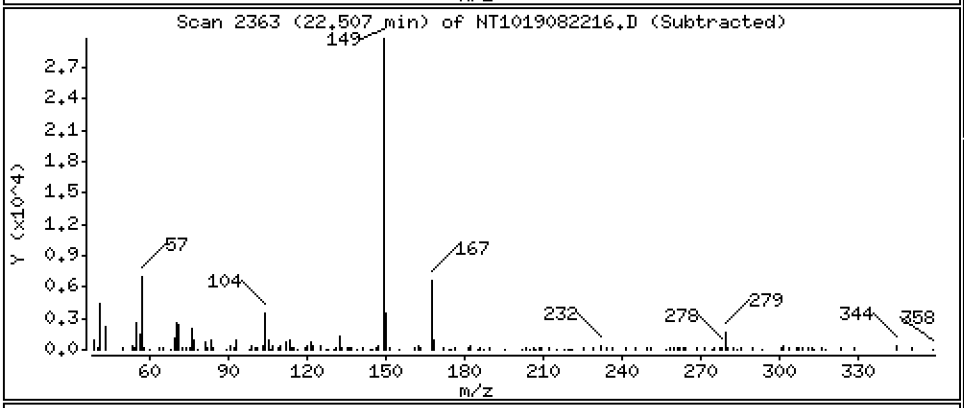
Column diameter: 0.25

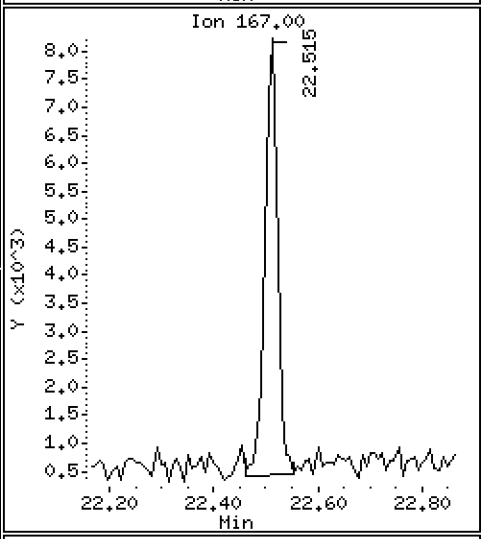
72 bis(2-Ethylhexyl)phthalate

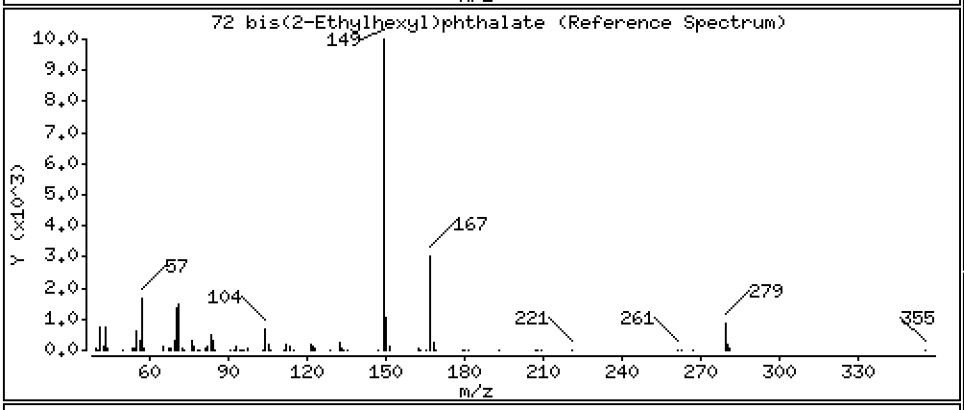
Concentration: 8.775 ug/mL

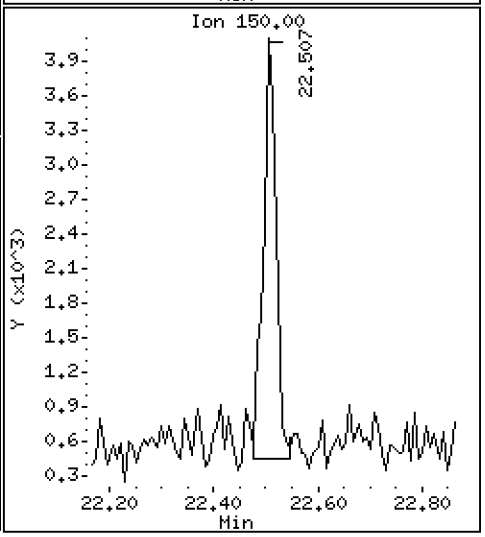


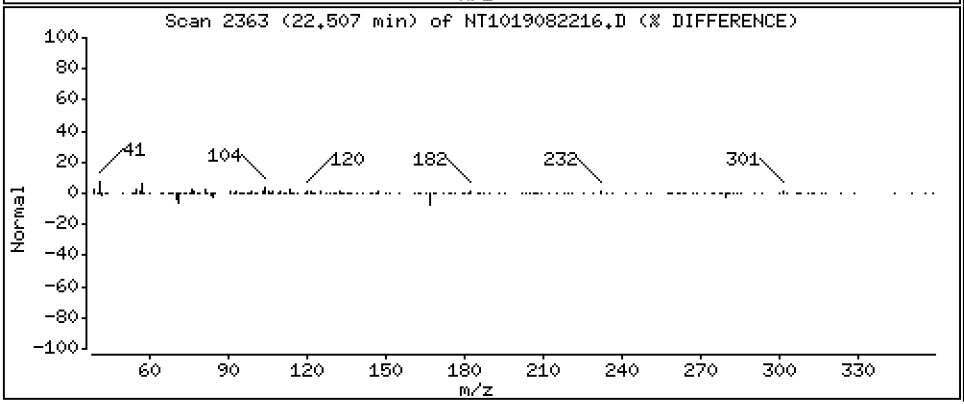












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082216.D

Date : 22-AUG-2019 23:03

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10RE1,3

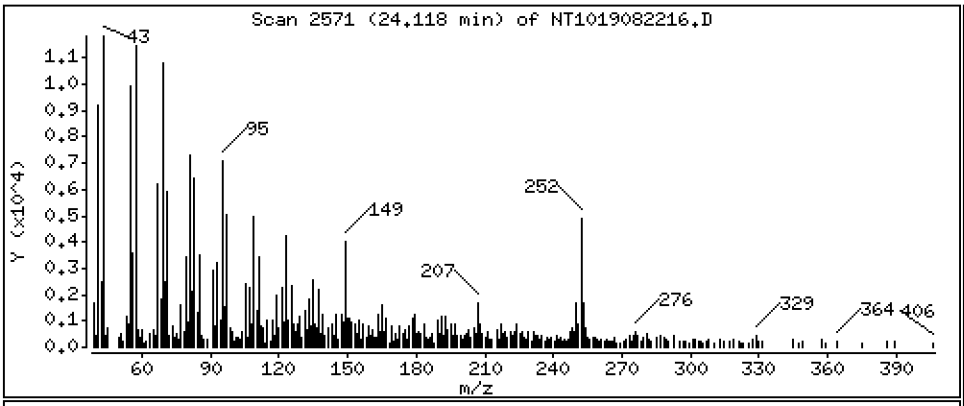
Operator: YZ

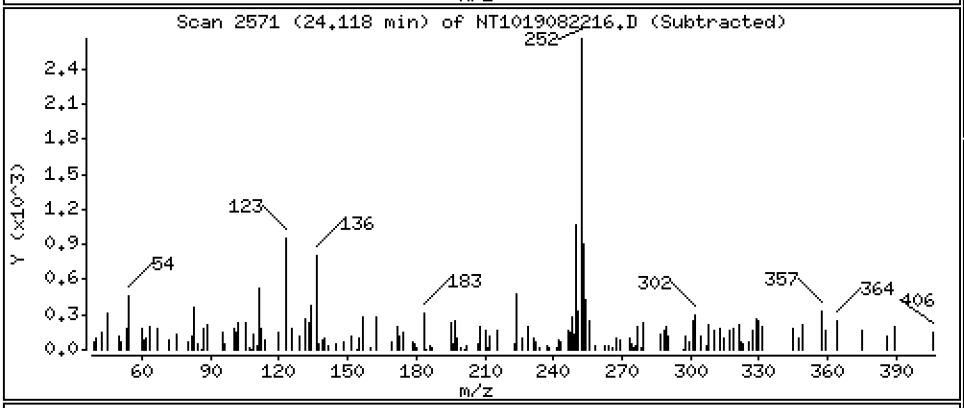
Column phase: ZB-5msi

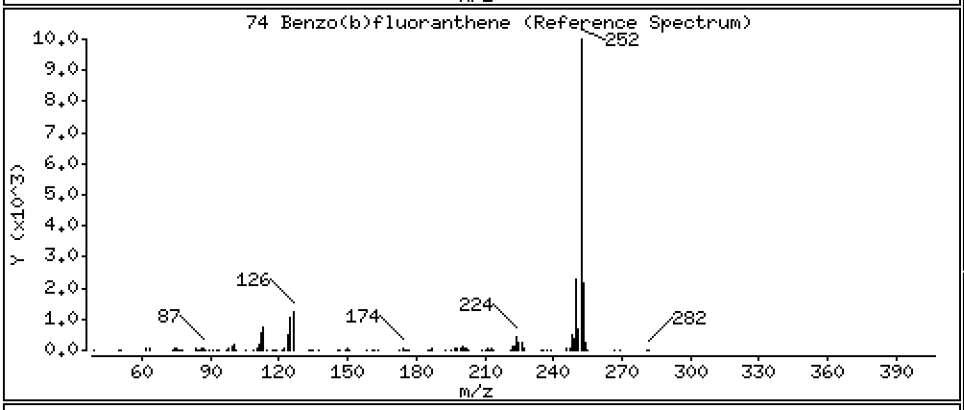
Column diameter: 0.25

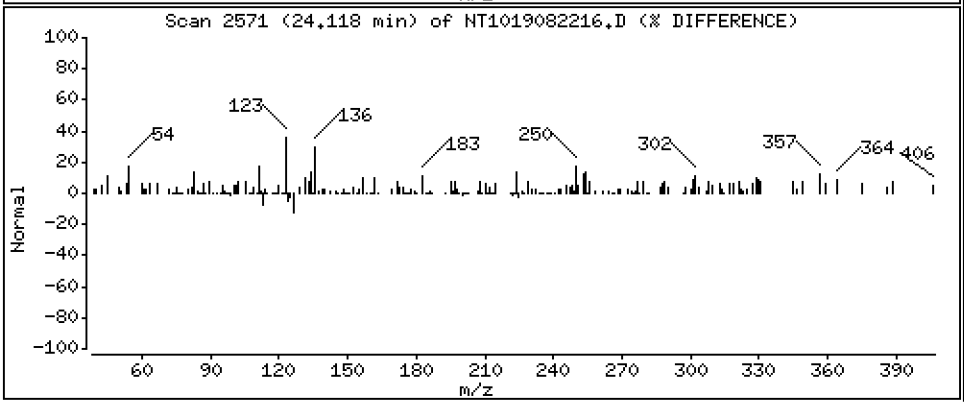
74 Benzo(b)fluoranthene

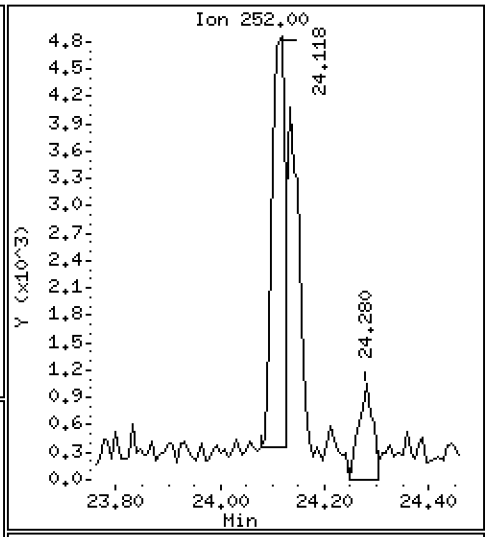
Concentration: 1.189 ug/mL

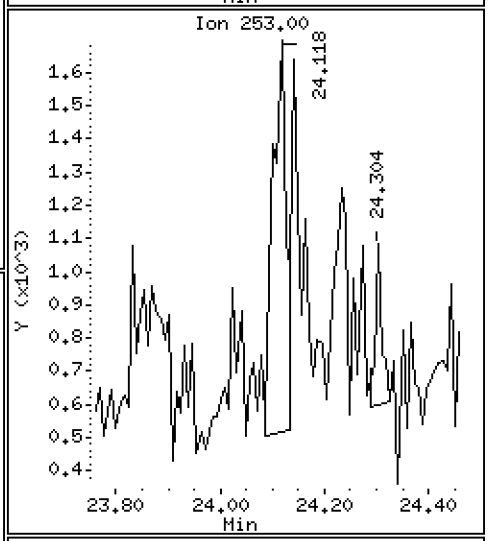


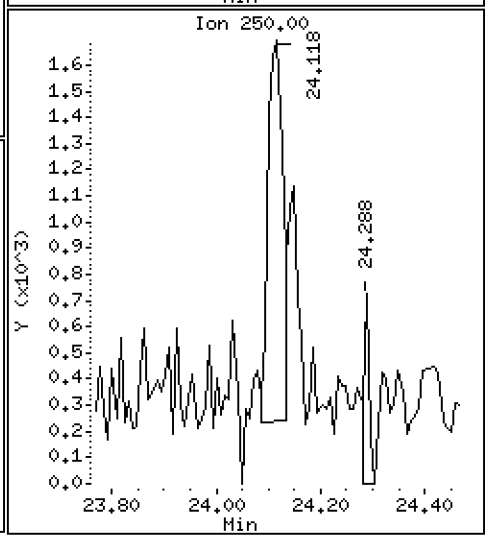












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082216.D

Date : 22-AUG-2019 23:03

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10RE1,3

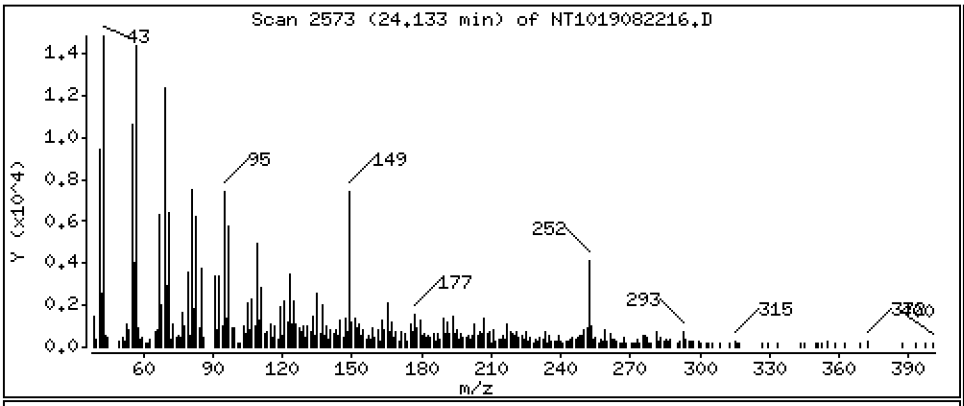
Operator: YZ

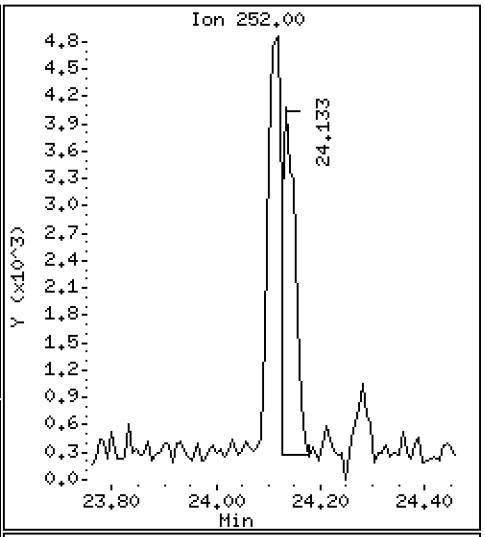
Column phase: ZB-5msi

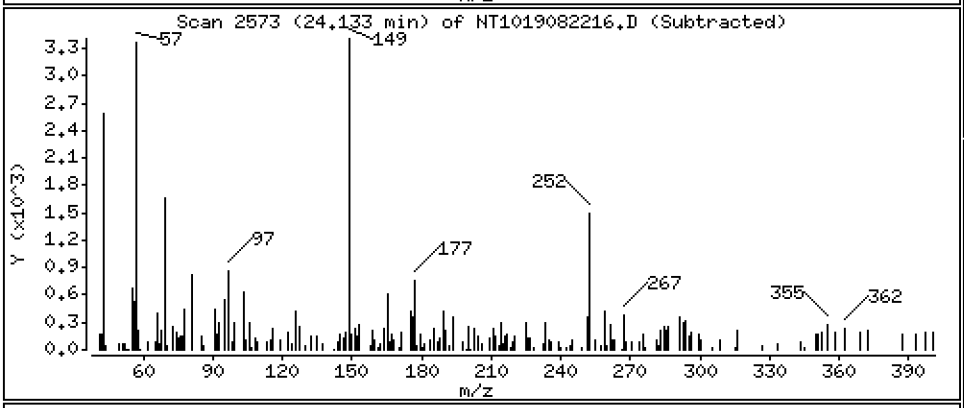
Column diameter: 0.25

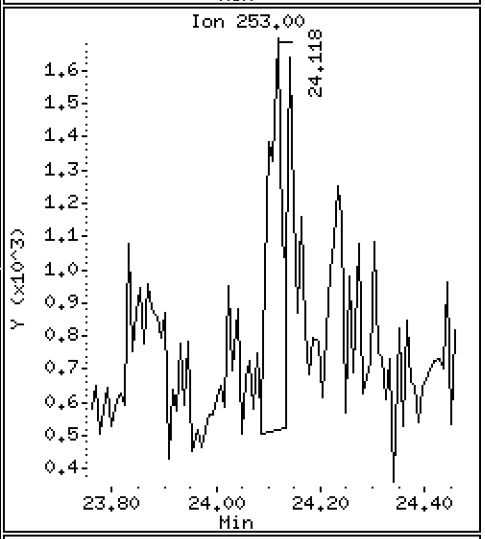
75 Benzo(k)fluoranthene

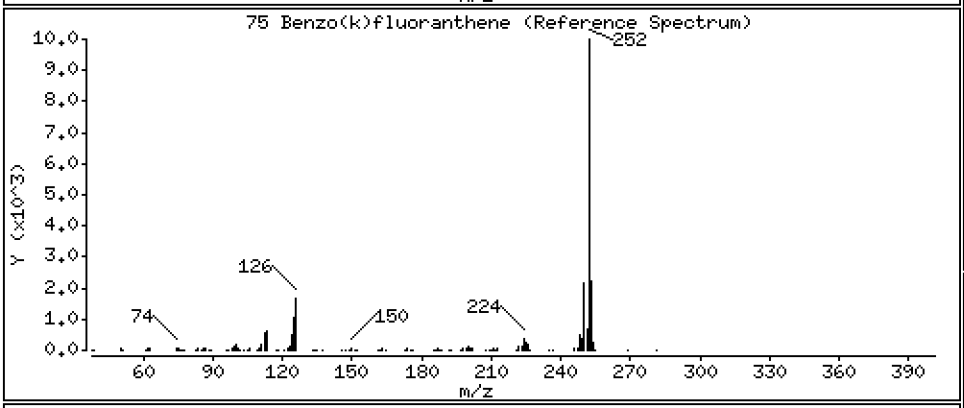
Concentration: 1.100 ug/mL

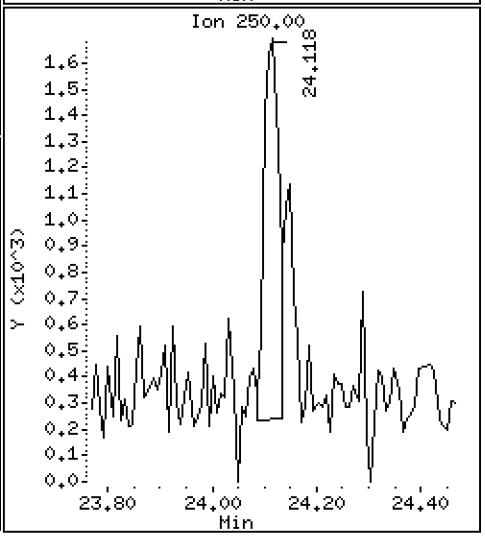


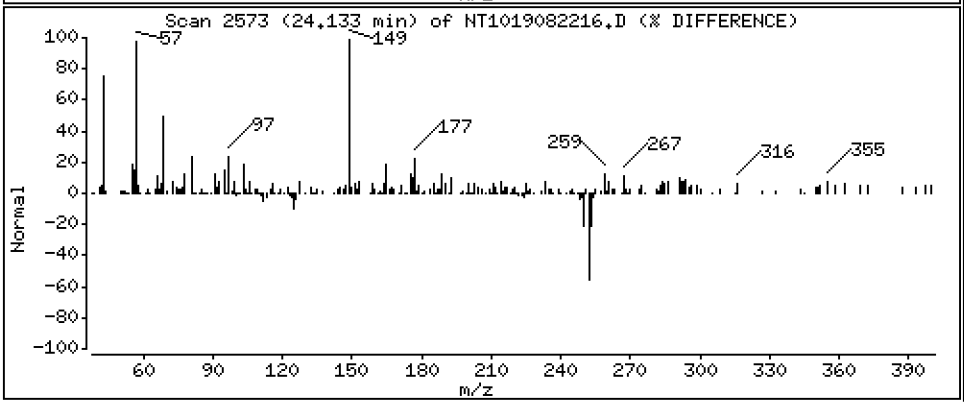












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082216.D

Date : 22-AUG-2019 23:03

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10RE1,3

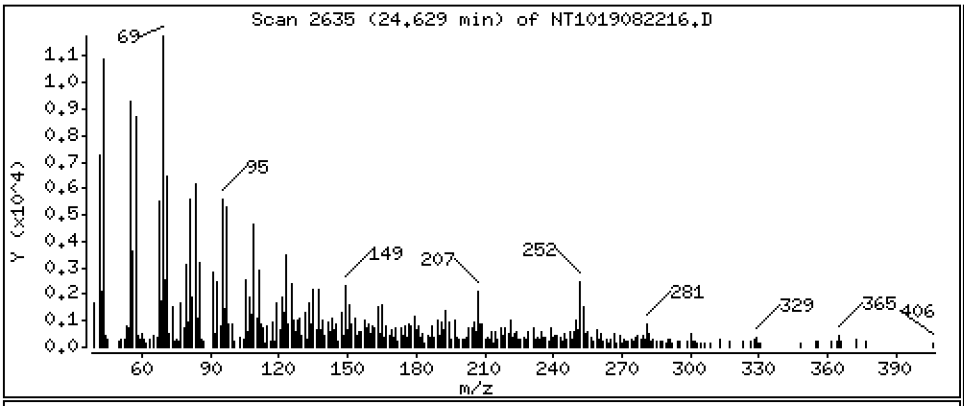
Operator: YZ

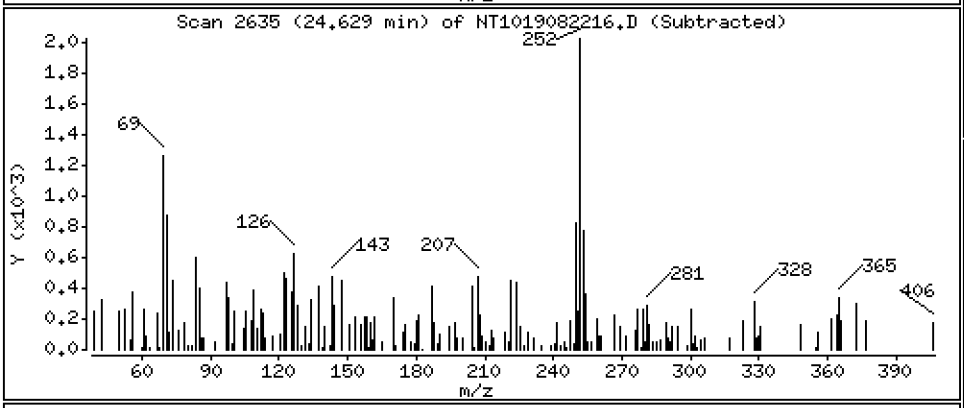
Column phase: ZB-5msi

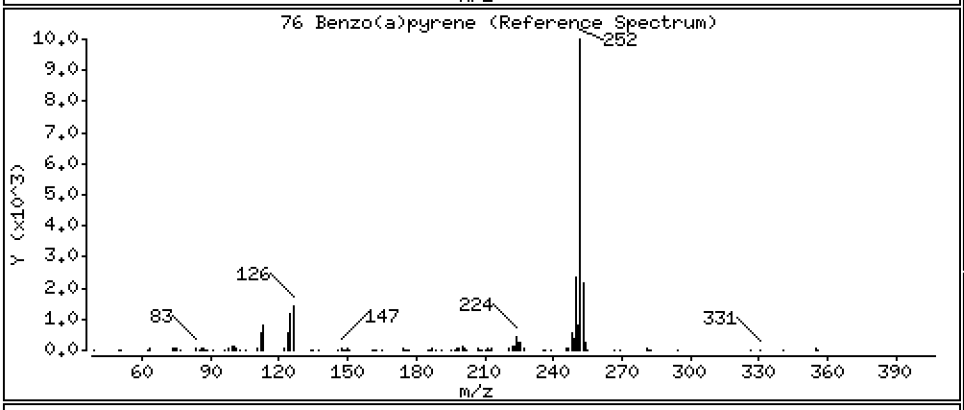
Column diameter: 0.25

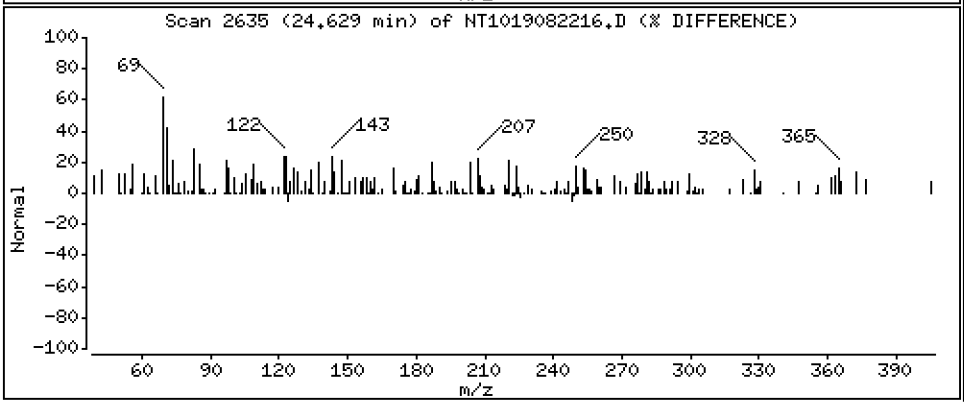
76 Benzo(a)pyrene

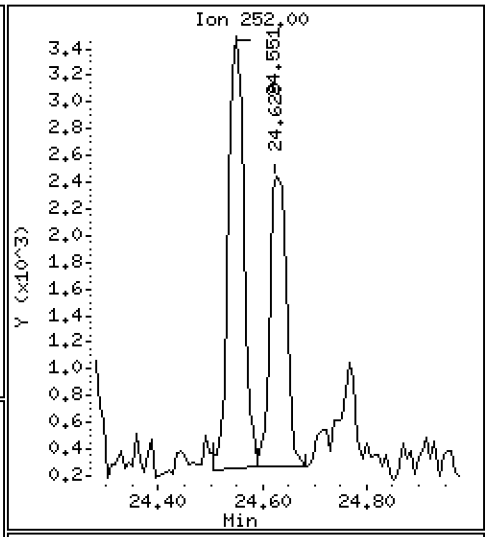
Concentration: 0.8294 ug/mL

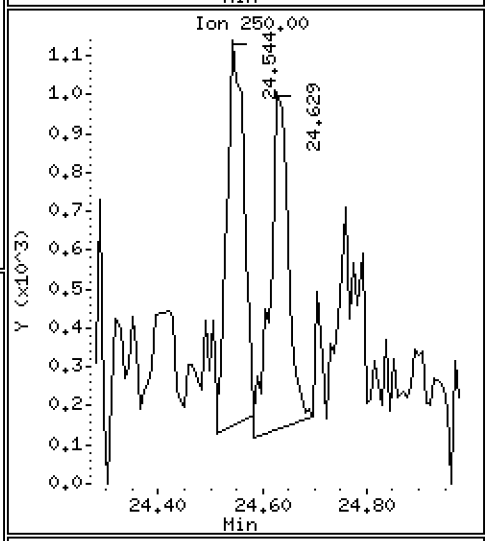


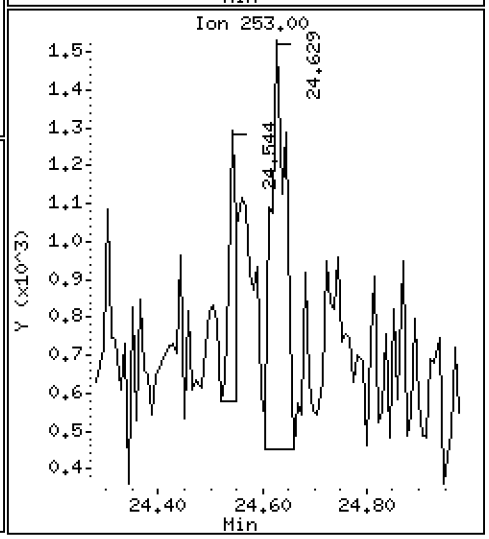












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082216.D

Date : 22-AUG-2019 23:03

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10RE1,3

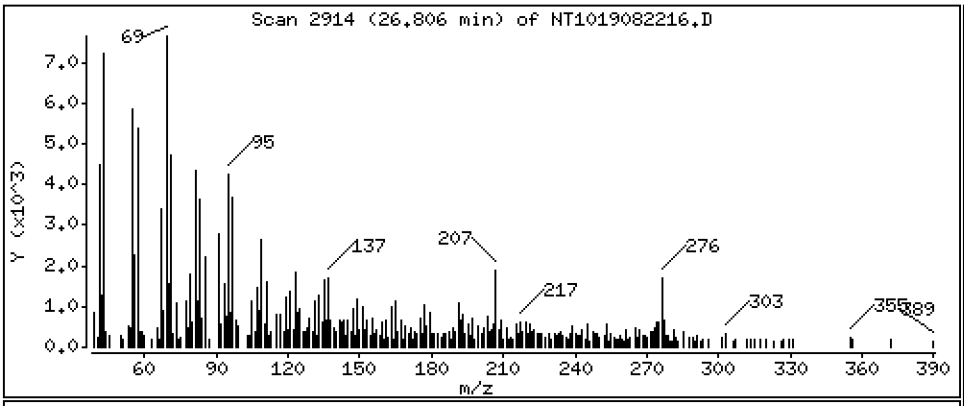
Operator: YZ

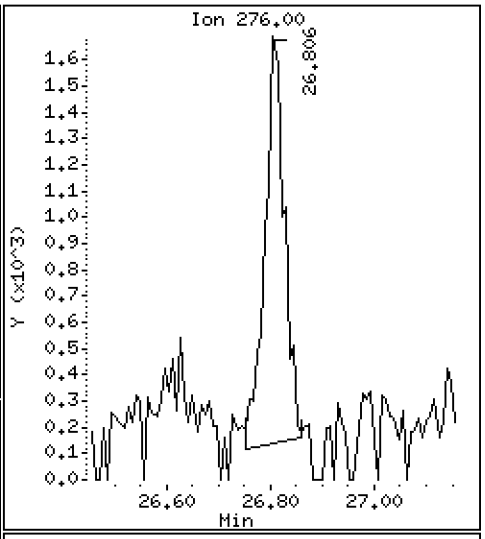
Column phase: ZB-5msi

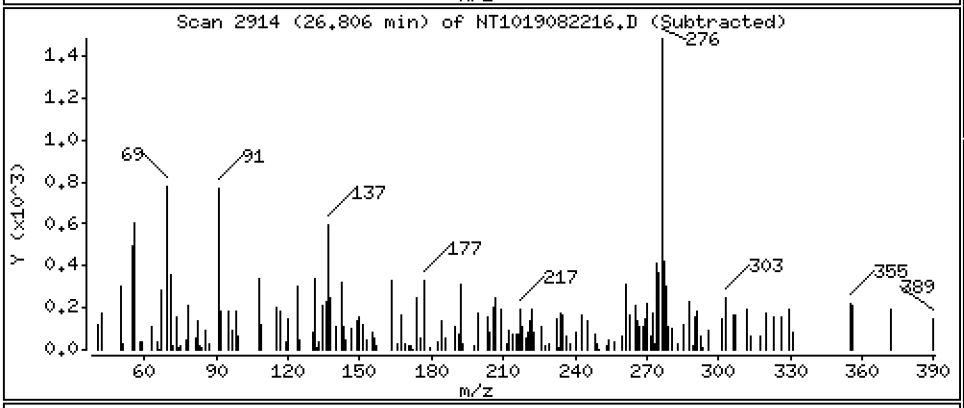
Column diameter: 0.25

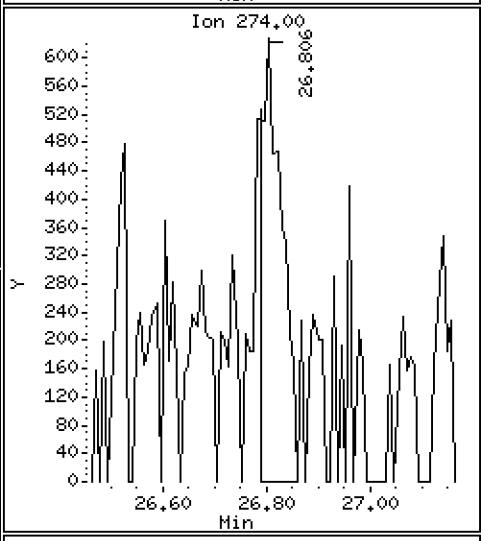
78 Indeno(1,2,3-cd)pyrene

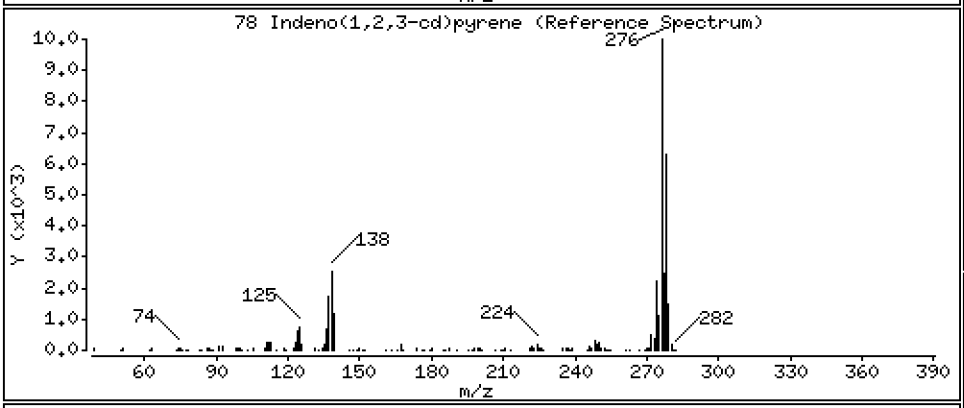
Concentration: 0.5865 ug/mL

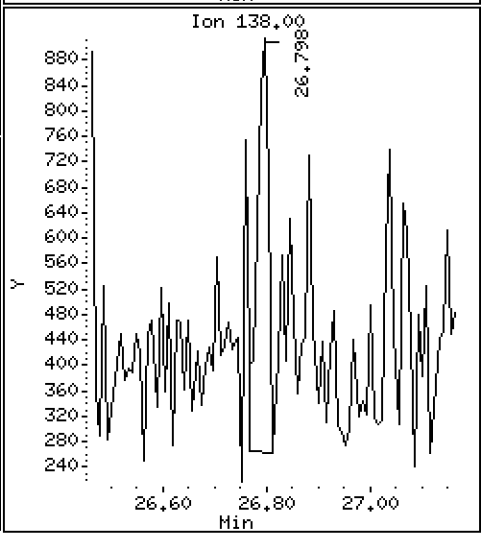


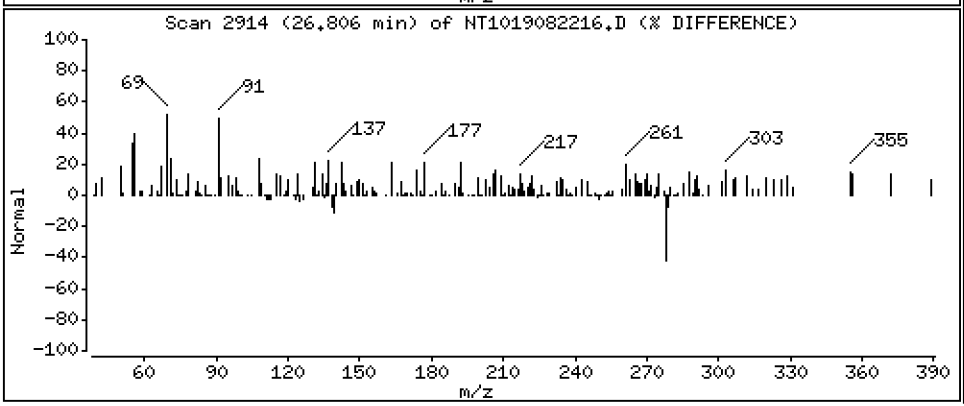












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082216.D

Date : 22-AUG-2019 23:03

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10RE1,3

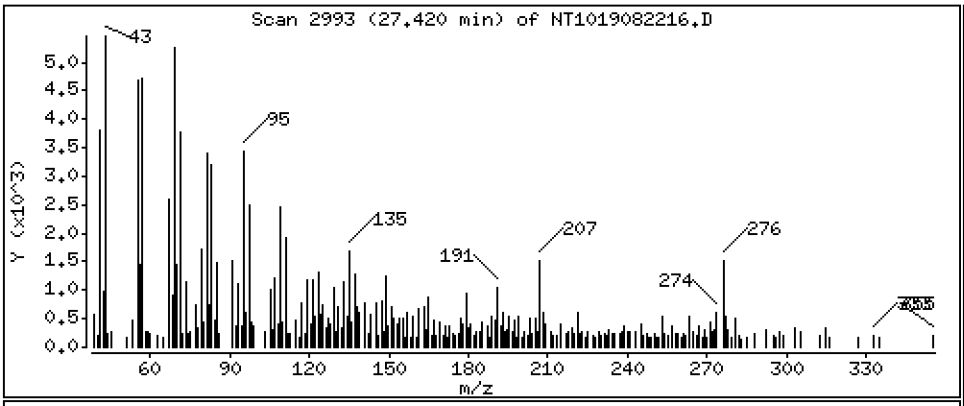
Operator: YZ

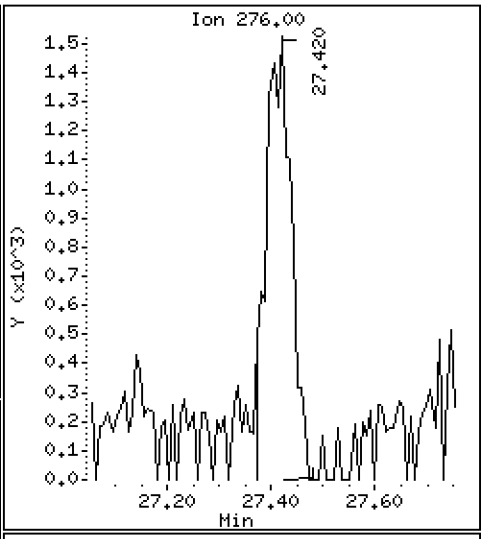
Column phase: ZB-5msi

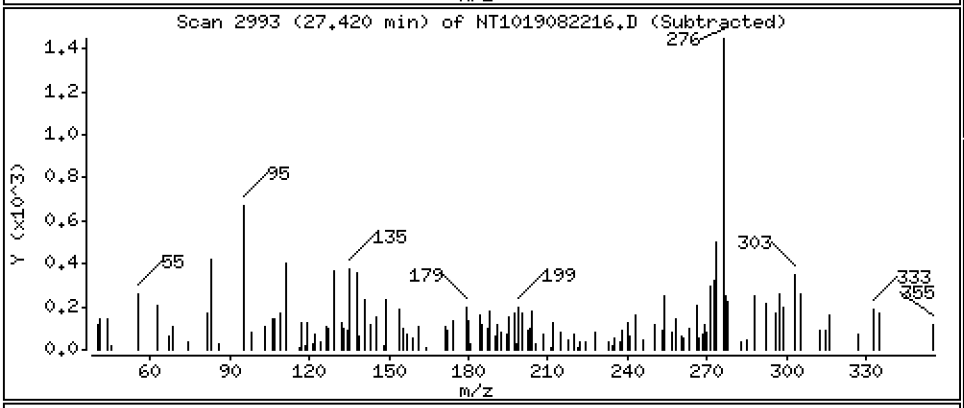
Column diameter: 0.25

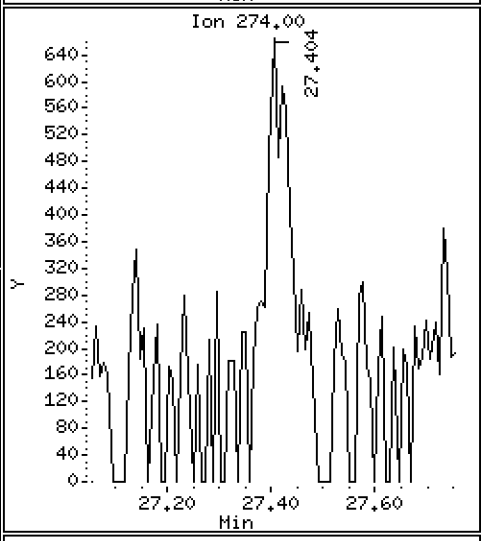
80 Benzo(g,h,i)perylene

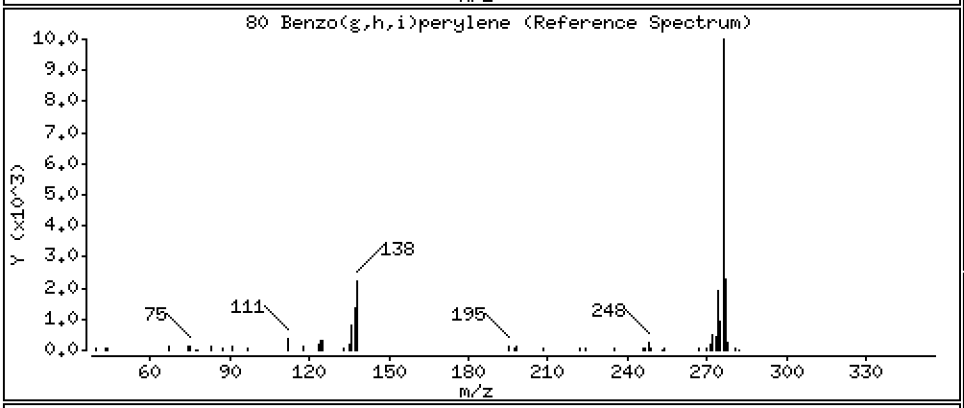
Concentration: 0.9131 ug/mL

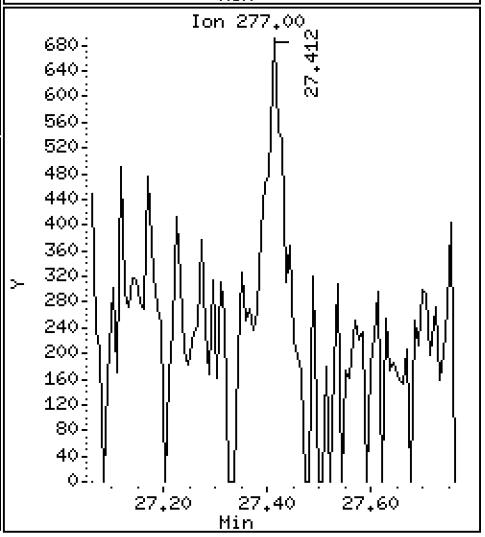


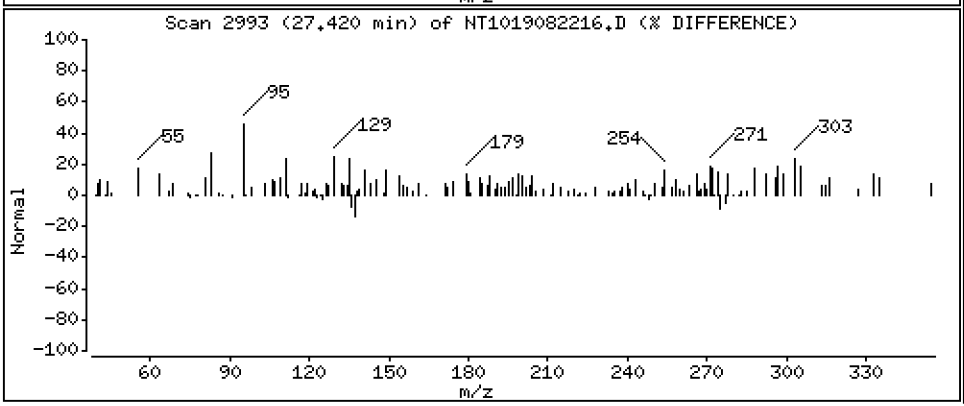












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082216.D

Date : 22-AUG-2019 23:03

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-10RE1,3

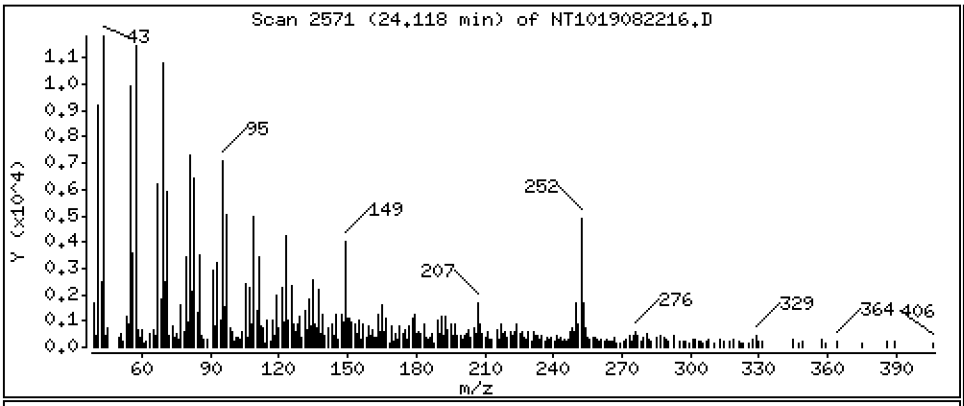
Operator: YZ

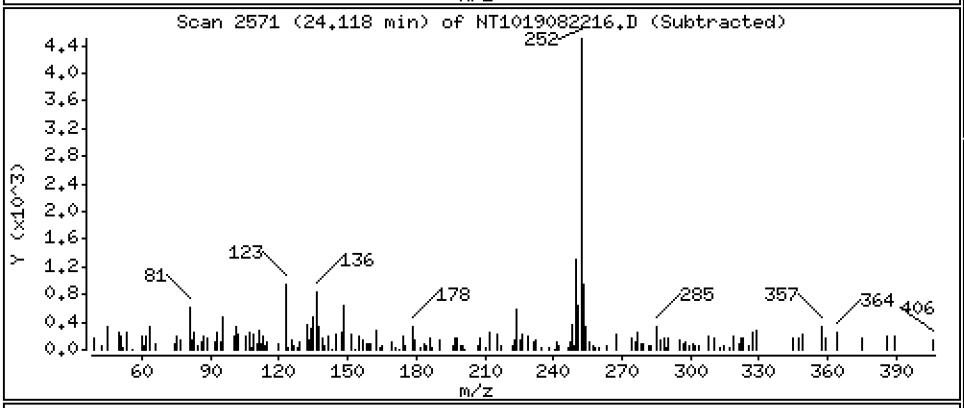
Column phase: ZB-5msi

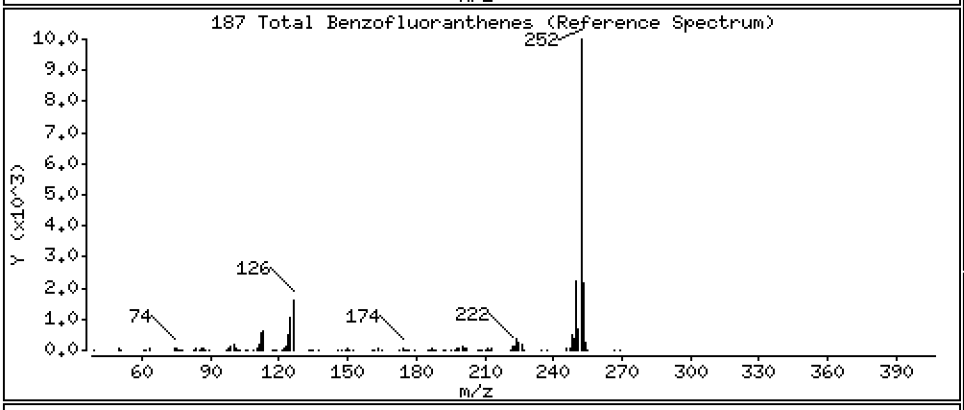
Column diameter: 0.25

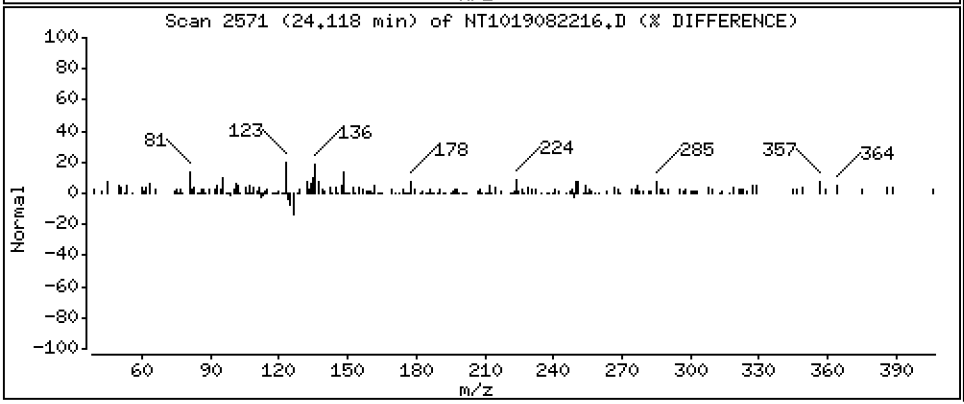
187 Total Benzofluoranthenes

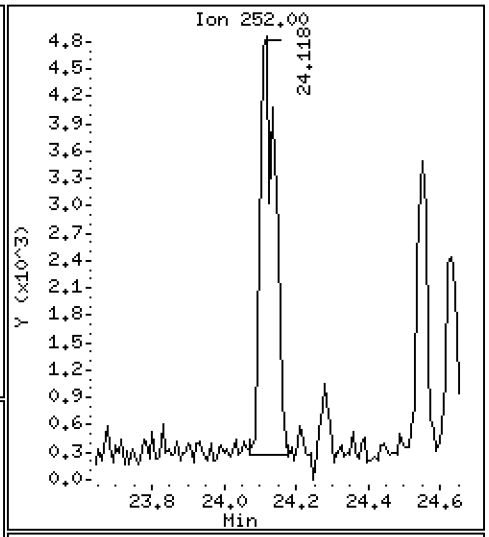
Concentration: 2.245 ug/mL

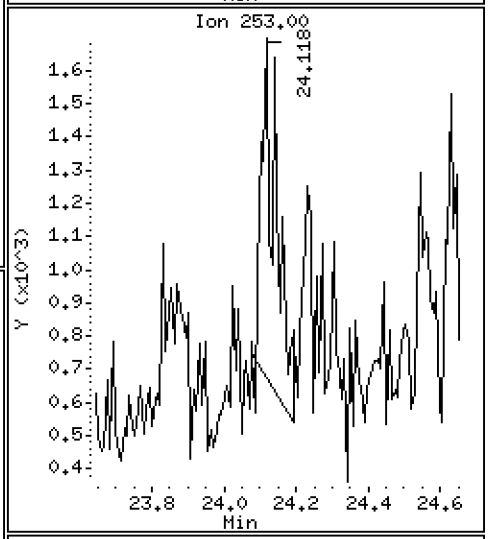


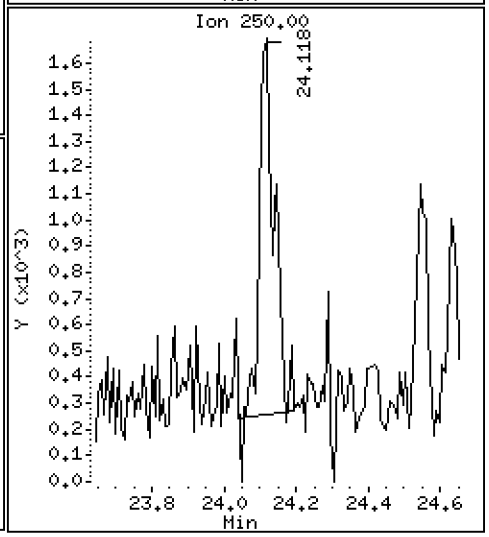












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190822.b\NT1019082216.D
Lab Smp Id: 19H0024-10RE1
Inj Date : 22-AUG-2019 23:03
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-10RE1,3
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 11:16 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 12
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.188	6.173	(0.743)	12352	0.89286	2.679
$	2 Phenol-d5	99	7.757	7.749	(0.931)	15083	0.97284	2.919
	3 Phenol	94	Compound Not Detected.					
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.958)	21279	1.27494	3.825
*	8 1,4-Dichlorobenzene-d4	152	8.329	8.329	(1.000)	49266	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.678	8.671	(1.042)	9080	0.79573	2.387
	11 Benzyl alcohol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.400	9.408	(0.874)	11704	0.83404	2.502
	24 Benzoic acid	105	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.757	10.765	(1.000)	179424	4.00000	
	28 Naphthalene	128	Compound Not Detected.					
	32 2-Methylnaphthalene	142	Compound Not Detected.					
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	34601	0.97691	2.931
	39 Dimethylphthalate	163	Compound Not Detected.					
	40 Acenaphthylene	152	Compound Not Detected.					
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	92600	4.00000	
	44 Acenaphthene	153	Compound Not Detected.					
	46 Dibenzofuran	168	Compound Not Detected.					
	50 Diethylphthalate	149	Compound Not Detected.					
	49 Fluorene	166	Compound Not Detected.					
	54 N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55 2,4,6-Tribromophenol	330	15.923	15.931	(1.113)	9665	1.38034	4.141
*	59 Phenanthrene-d10	188	17.291	17.291	(1.000)	176143	4.00000	
	60 Phenanthrene	178	17.337	17.345	(1.003)	10269	0.23867	0.7160
	61 Anthracene	178	Compound Not Detected.					
	63 Di-n-butylphthalate	149	Compound Not Detected.					
	64 Fluoranthene	202	19.751	19.751	(0.882)	26945	1.03108	3.093
	65 Pyrene	202	20.169	20.169	(0.901)	26397	0.96732	2.902
$	66 Terphenyl-d14	244	20.502	20.502	(0.916)	29121	1.57352	4.721
	67 Butylbenzylphthalate	149	Compound Not Detected.					
	68 Benzo(a)anthracene	228	22.344	22.352	(0.998)	6524	0.26295	0.7888
*	69 Chrysene-d12	240	22.383	22.383	(1.000)	85515	4.00000	
	71 Chrysene	228	22.422	22.430	(1.002)	10126	0.46122	1.384

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.507	22.515	(0.958)	47861	2.92494	8.775
* 134	Di-n-octylphthalate-d4	153	23.490	23.490	(1.000)	186040	4.00000	
73	Di-n-octylphthalate	149	Compound Not Detected.					
74	Benzo(b)fluoranthene	252	24.117	24.110	(0.975)	7443	0.39623	1.189
75	Benzo(k)fluoranthene	252	24.133	24.110	(0.976)	6927	0.36656	1.100(M)
76	Benzo(a)pyrene	252	24.628	24.628	(0.996)	4661	0.27647	0.8294
* 77	Perylene-d12	264	24.729	24.721	(1.000)	65472	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.806	26.806	(1.084)	3960	0.19549	0.5865
79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
80	Benzo(g,h,i)perylene	276	27.419	27.404	(1.109)	5193	0.30438	0.9131(M)
105	1-methylnaphthalene	142	Compound Not Detected.					
187	Total Benzofluoranthenes	252	24.117	24.148	(0.975)	13481	0.74820	2.245(M)

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082216.D
Lab Smp Id: 19H0024-10RE1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 16:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	49266	50.48
27 Naphthalene-d8	117487	58744	234974	179424	52.72
42 Acenaphthene-d10	61859	30930	123718	92600	49.70
59 Phenanthrene-d10	113574	56787	227148	176143	55.09
69 Chrysene-d12	105788	52894	211576	85515	-19.16
134 Di-n-octylphthala	252823	126412	505646	186040	-26.41
77 Perylene-d12	113992	56996	227984	65472	-42.56

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.33	-0.00
27 Naphthalene-d8	10.77	10.27	11.27	10.76	-0.07
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	-0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.29	-0.00
69 Chrysene-d12	22.38	21.88	22.88	22.38	-0.00
134 Di-n-octylphthala	23.49	22.99	23.99	23.49	-0.00
77 Perylene-d12	24.72	24.22	25.22	24.73	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082216.D

Lab ID: 19H0024-10RE1
nt10.i, 20190822.b\ABN.m,   22-AUG-2019 23:03

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT1019082206.D

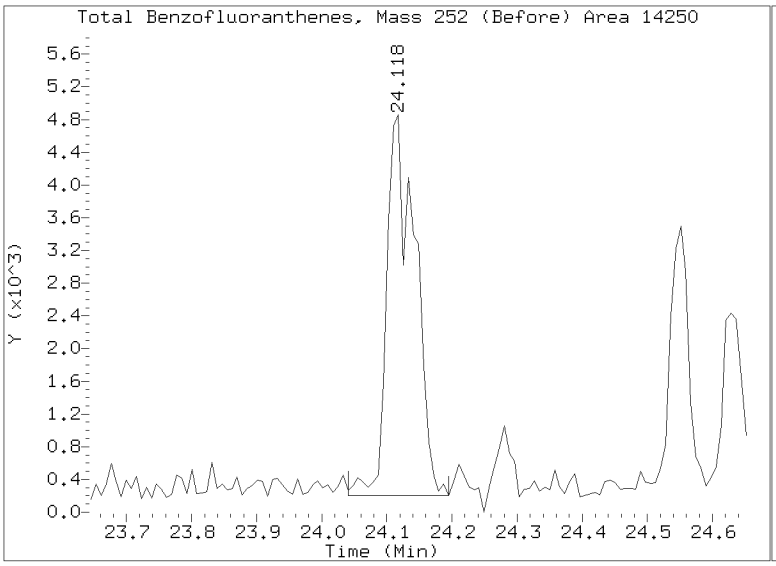
On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

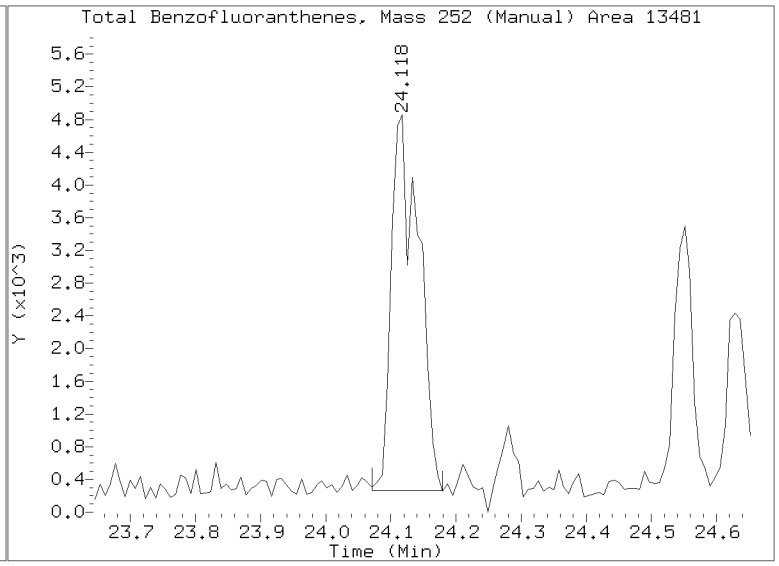
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

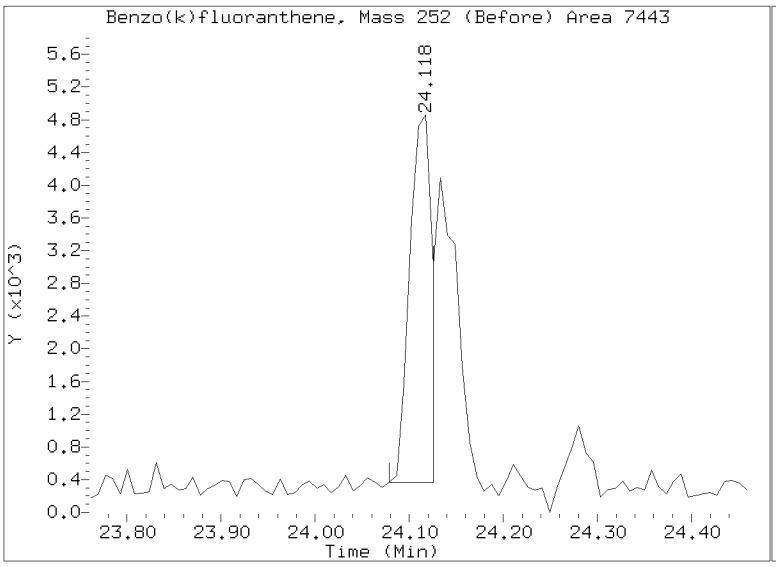
* Only compounds listed in the work order have been verified by the analyst *

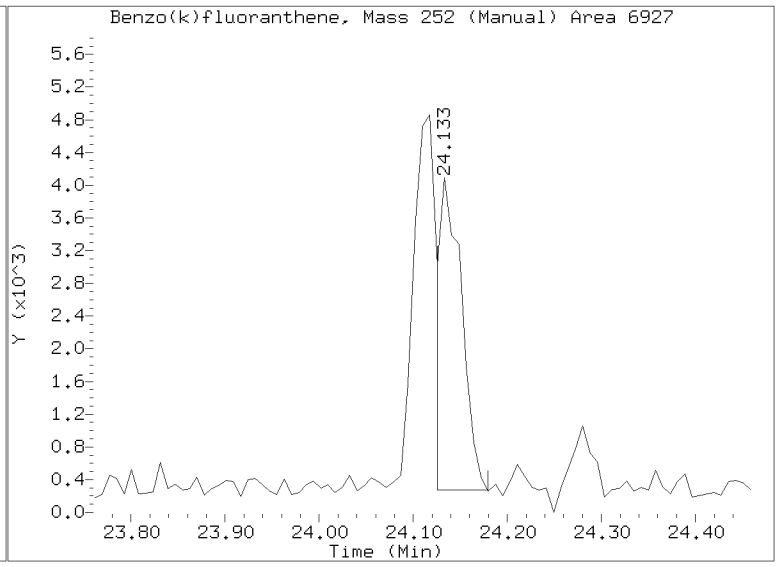
Quant Ion Manual Peak Adjustment Report

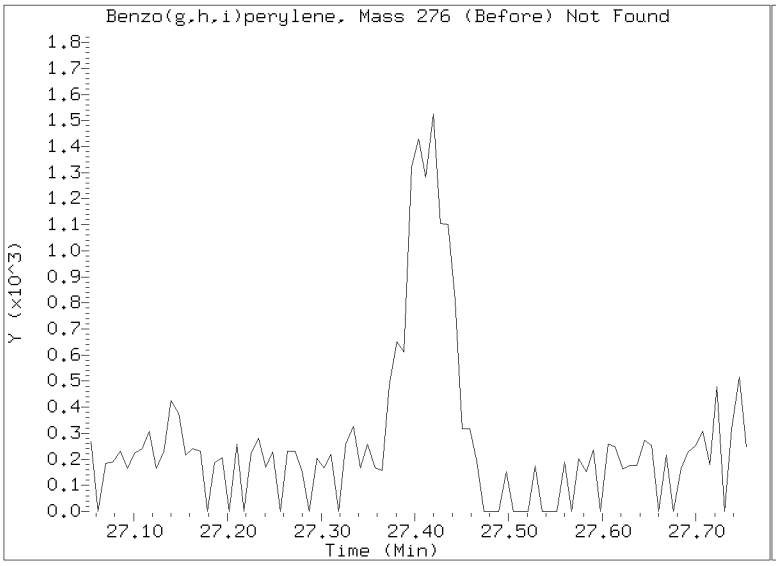
Datafile: //Target/share/chem3/nt10.i/20190822.b/NT1019082216.D
Injection Date: 22-AUG-2019 23:03
Lab ID:19H0024-10RE1 Client ID:
Report Date: 08/23/2019 11:17

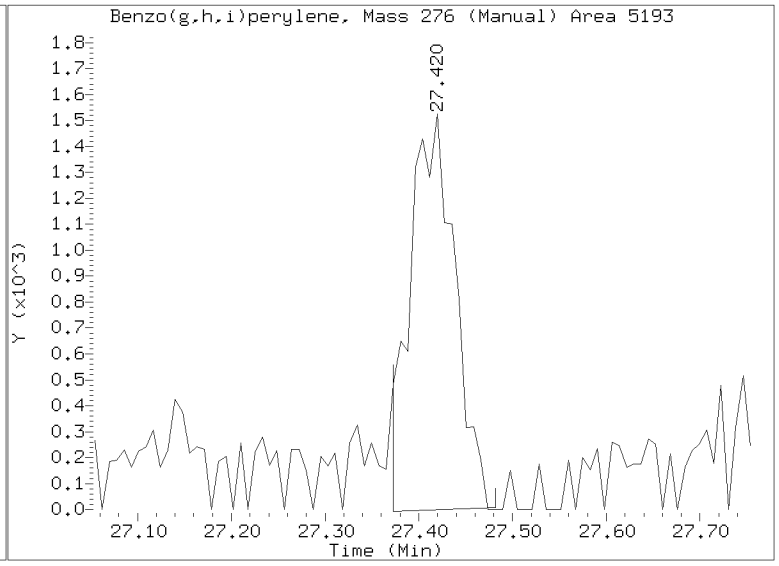












SL4-IC-SC3-2019

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D
Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory: Analytical Resources, Inc.

Client: Windward Environmental, LLC

Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix:	Solid	Laboratory ID:	19H0024-11 C	SDG:	19H0024
Sampled:	08/01/19 12:10	Prepared:	08/13/19 12:40	File ID:	NT1019082120.D
% Solids:	65.51	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/21/19 22:00
Batch:	BHH0289	Sequence:	SHH0303	Initial/Final:	15.39 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040

Cleanups: GPC

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	1	20.9	Q	8.2	19.8
100-51-6	Benzyl Alcohol	1	17.4	J	14.8	19.8
65-85-0	Benzoic acid	1	93.6	J	58.6	198
86-30-6	N-Nitrosodiphenylamine	1	19.8	U	9.5	19.8
85-01-8	Phenanthrene	1	285		4.7	19.8
206-44-0	Fluoranthene	1	1030		4.5	19.8
129-00-0	Pyrene	1	660		5.5	19.8
85-68-7	Butylbenzylphthalate	1	19.8	U	8.0	19.8
56-55-3	Benzo(a)anthracene	1	138		5.1	19.8
218-01-9	Chrysene	1	379		5.2	19.8
117-81-7	bis(2-Ethylhexyl)phthalate	1	1250		28.6	49.6
117-84-0	Di-n-Octylphthalate	1	70.9		8.6	19.8
	Benzofluoranthenes, Total	1	687		10.1	39.7
50-32-8	Benzo(a)pyrene	1	275		6.4	19.8
193-39-5	Indeno(1,2,3-cd)pyrene	1	19.8	U	5.9	19.8
53-70-3	Dibenzo(a,h)anthracene	1	19.8	U	6.1	19.8
191-24-2	Benzo(g,h,i)perylene	1	19.8	U	5.8	19.8

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	743.90	414	55.7	27 - 120	Q
Phenol-d5	743.90	424	57.0	29 - 120	Q
2-Chlorophenol-d4	743.90	576	77.4	31 - 120	
1,2-Dichlorobenzene-d4	495.93	375	75.6	32 - 120	
Nitrobenzene-d5	495.93	341	68.7	30 - 120	
2-Fluorobiphenyl	495.93	445	89.8	35 - 120	
2,4,6-Tribromophenol	743.90	544	73.2	24 - 134	
p-Terphenyl-d14	495.93	590	119	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

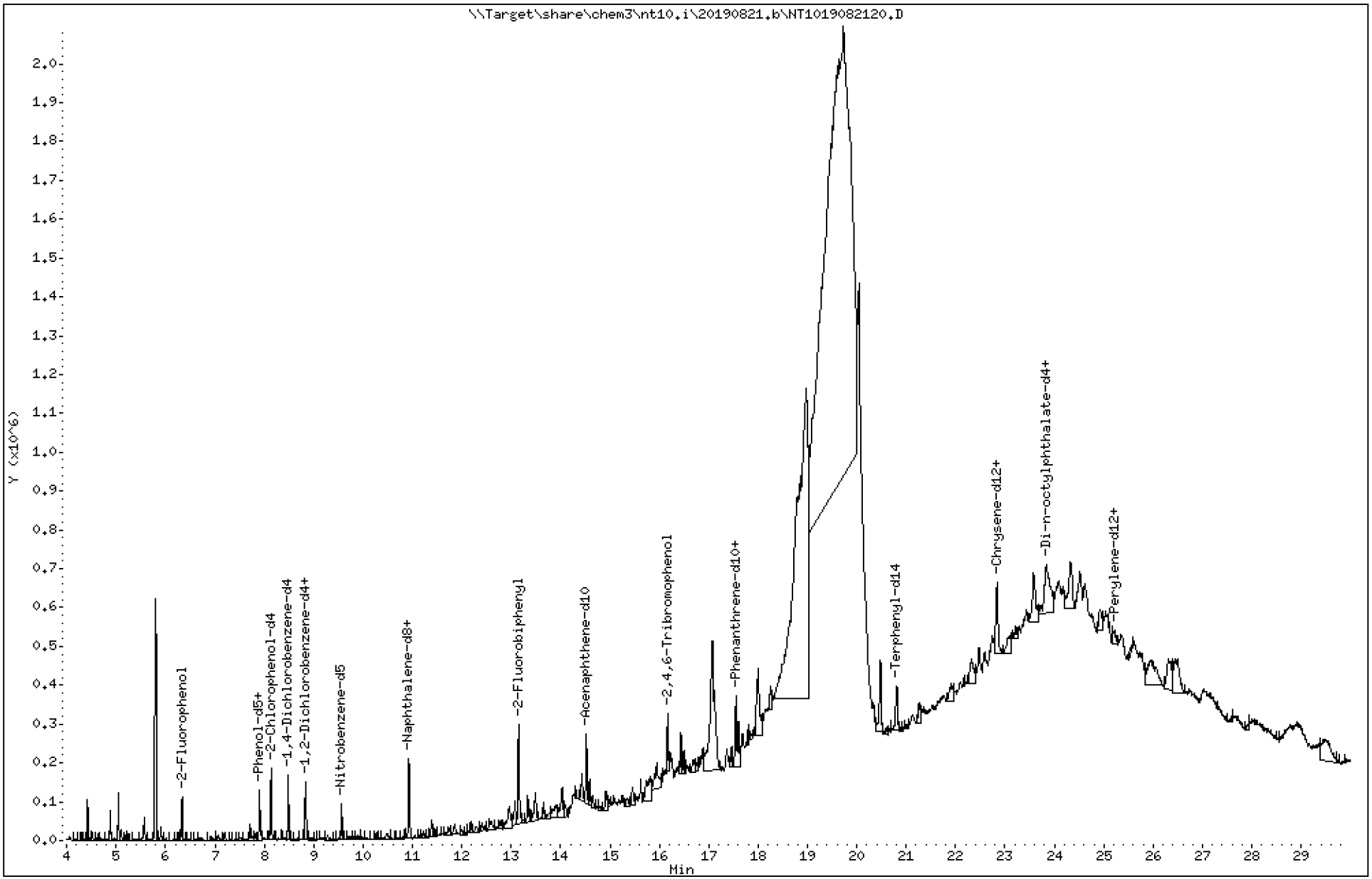
Instrument: nt10.i

Sample Info: 19H0024-11

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

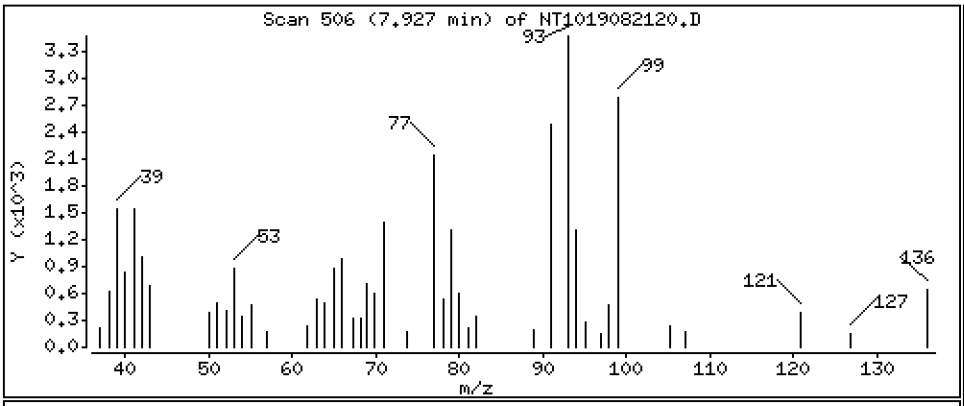
Operator: YZ

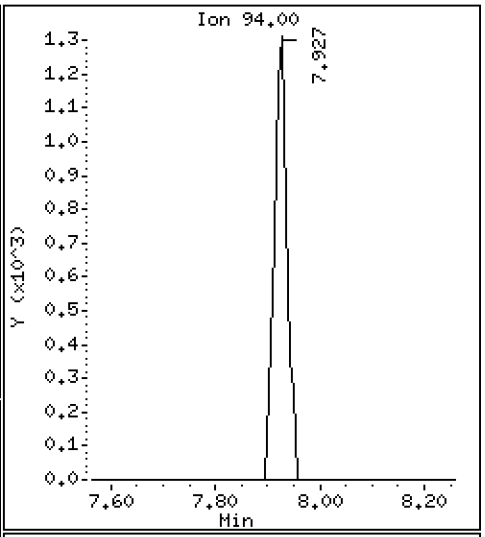
Column phase: ZB-5msi

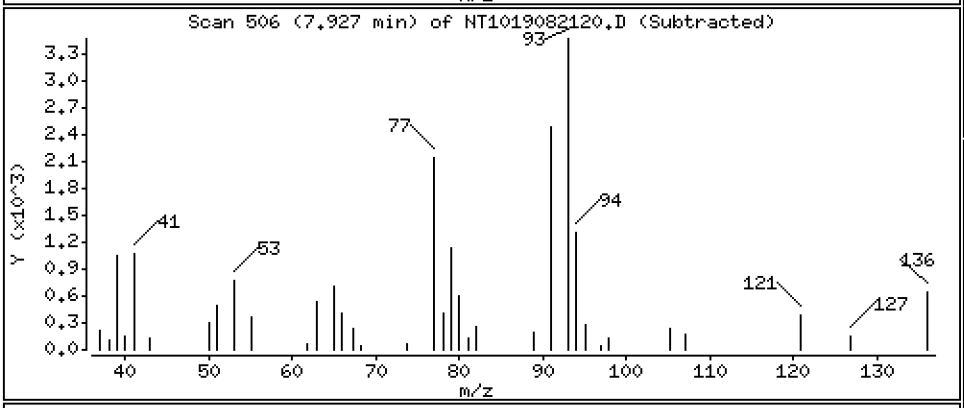
Column diameter: 0.25

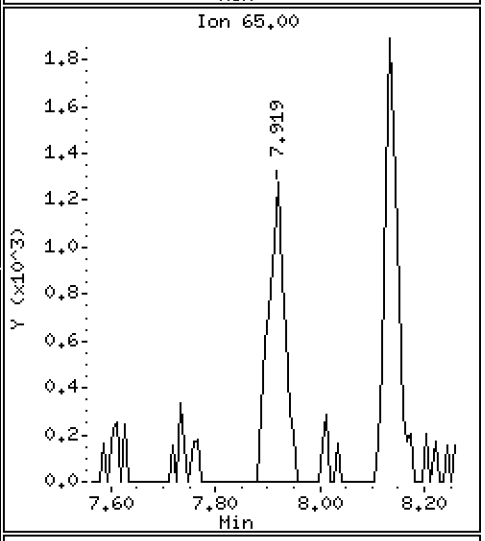
3 Phenol

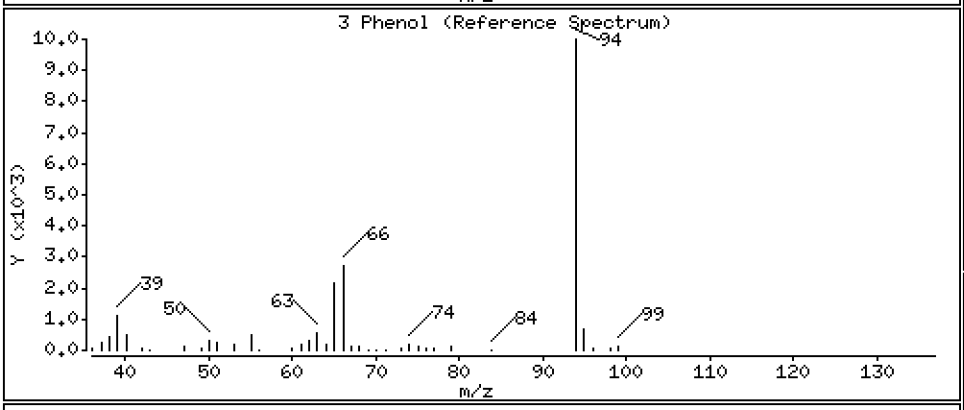
Concentration: 0.2103 ug/mL

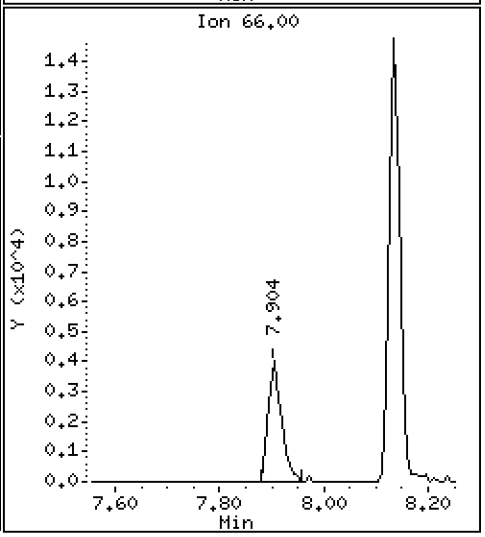


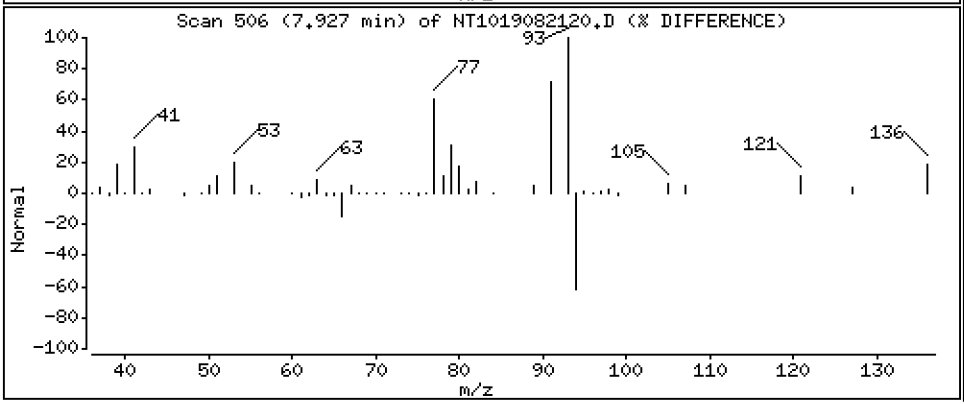












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

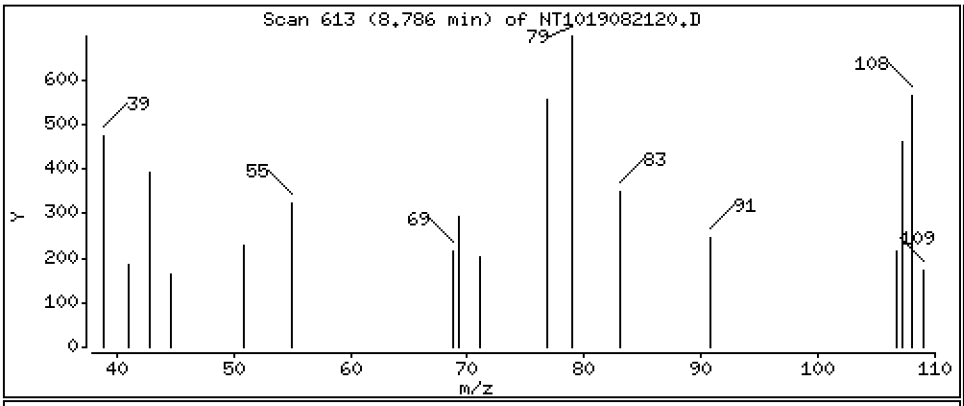
Operator: YZ

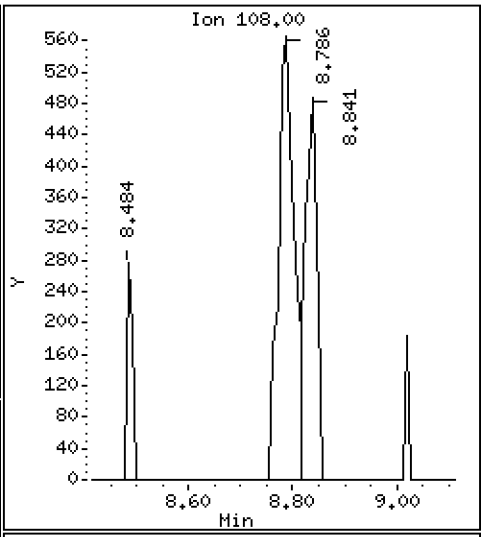
Column phase: ZB-5msi

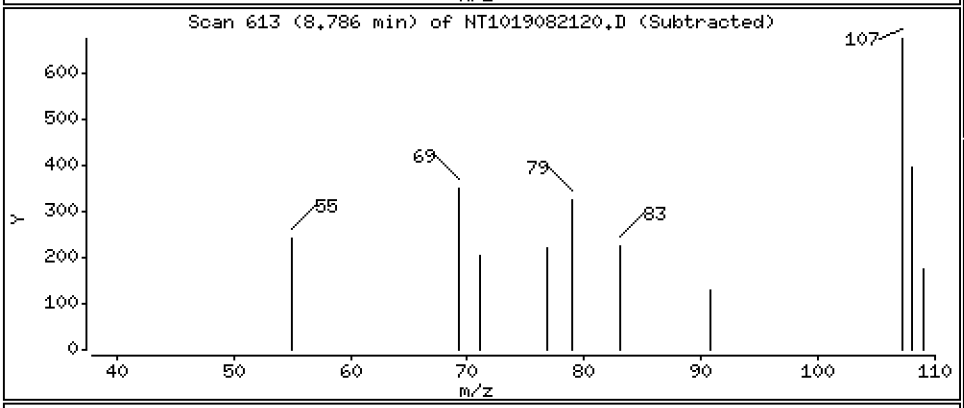
Column diameter: 0.25

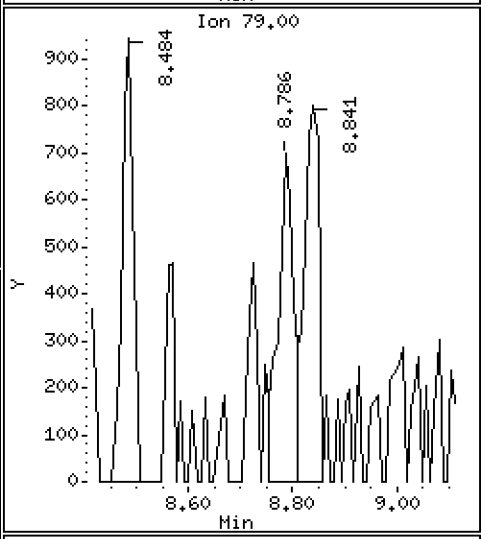
11 Benzyl alcohol

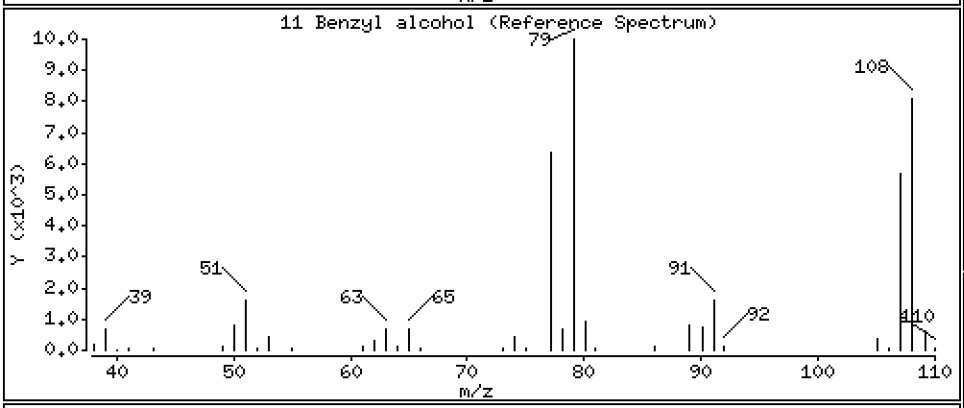
Concentration: 0.1752 ug/mL

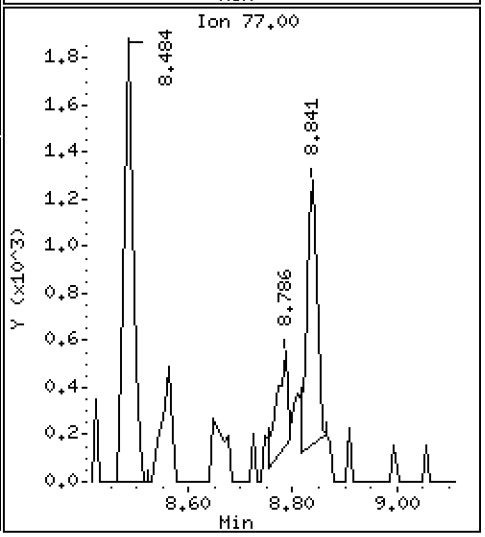


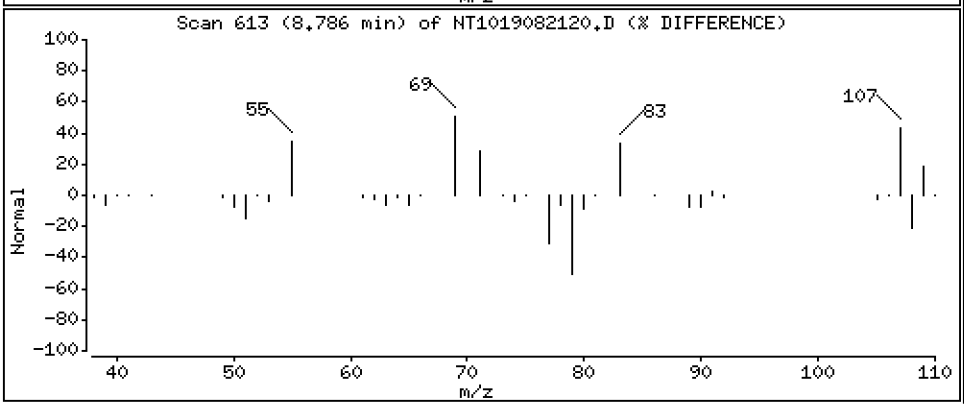












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

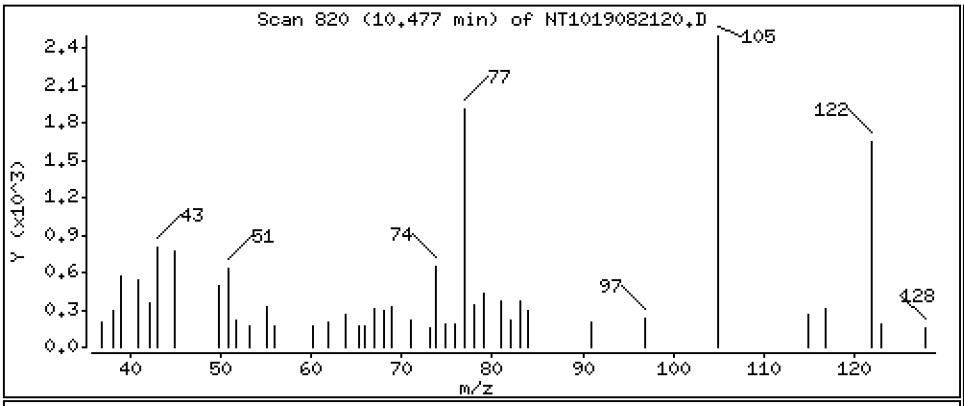
Operator: YZ

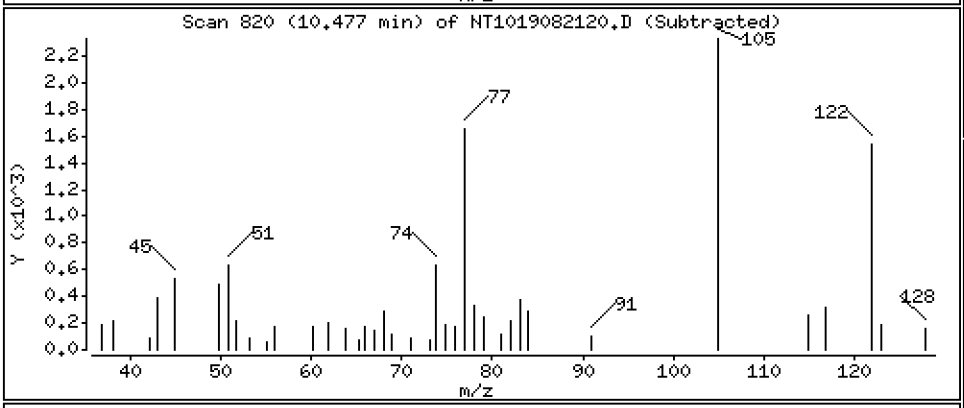
Column phase: ZB-5msi

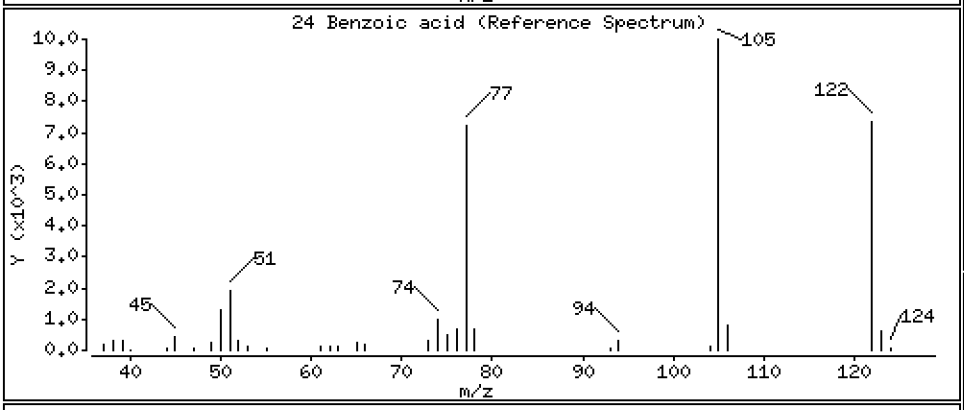
Column diameter: 0.25

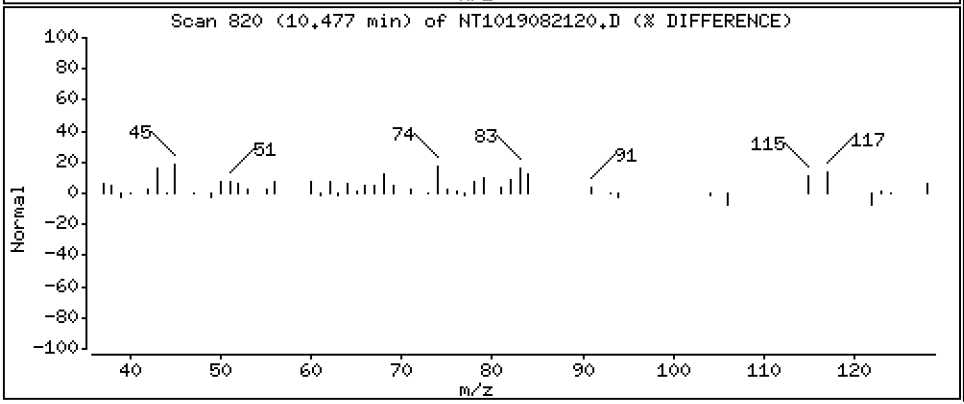
24 Benzoic acid

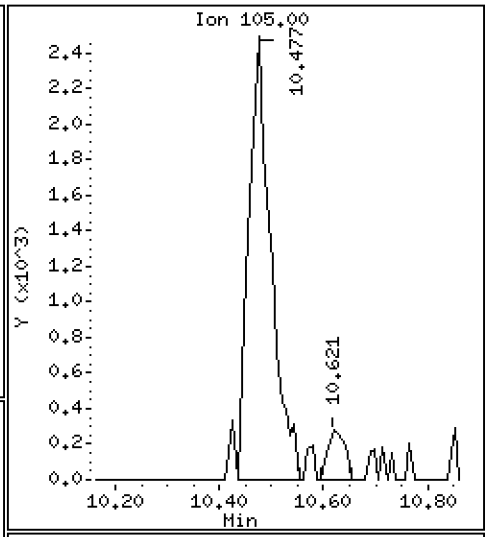
Concentration: 0.9435 ug/mL

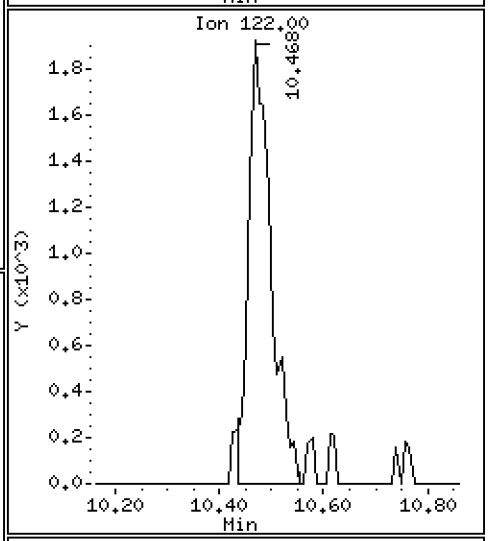


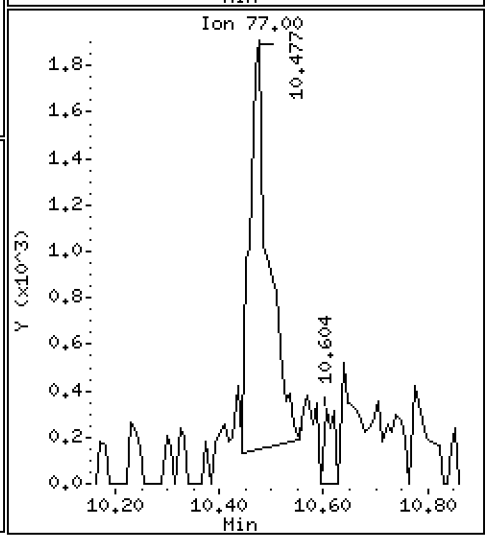












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

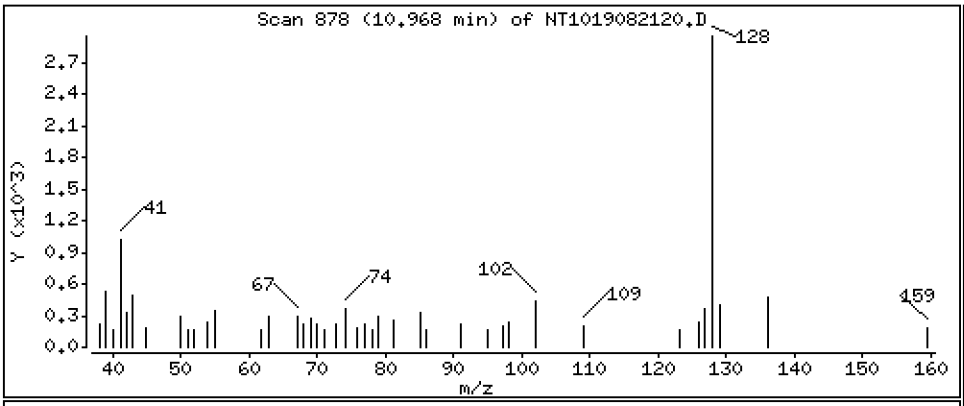
Operator: YZ

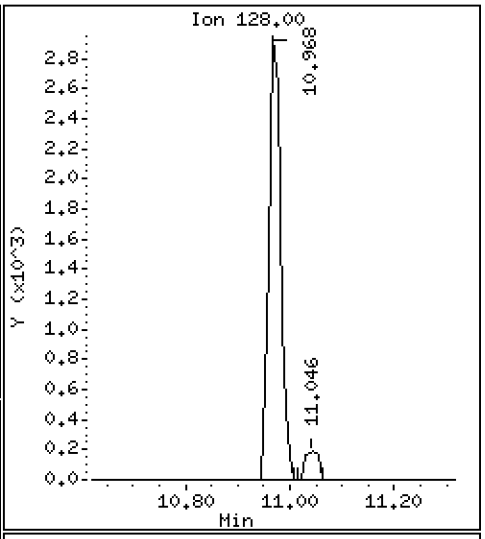
Column phase: ZB-5msi

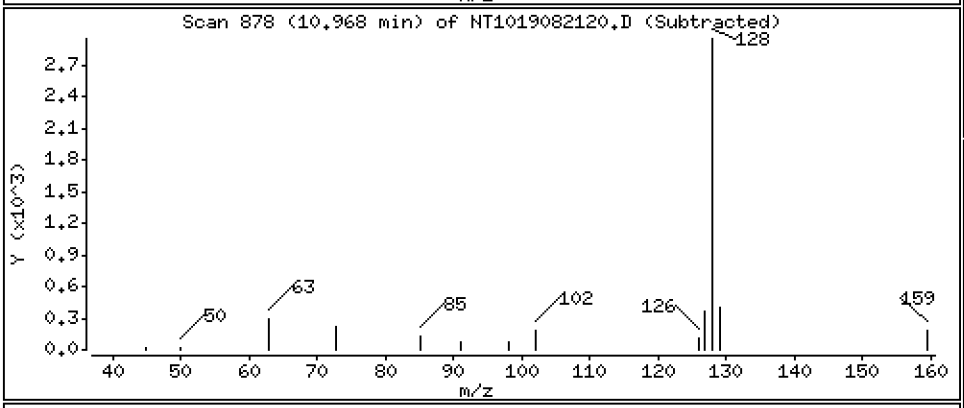
Column diameter: 0.25

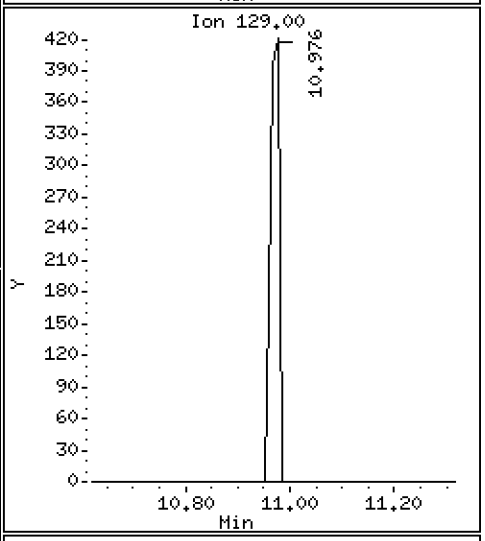
28 Naphthalene

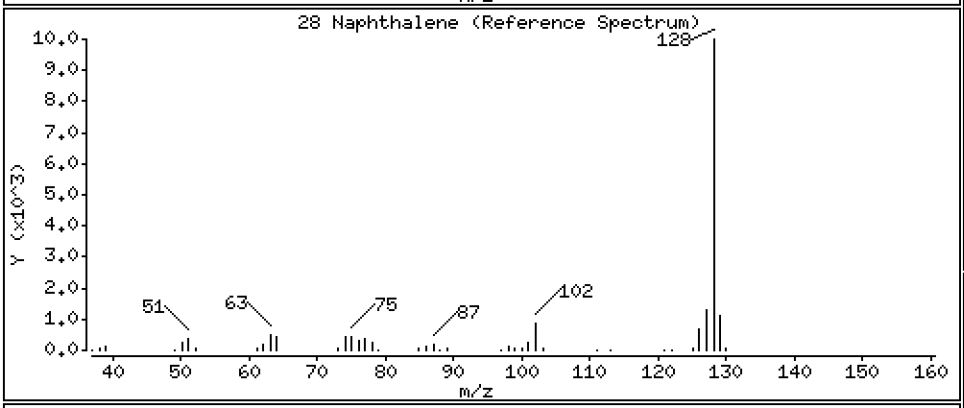
Concentration: 0.1342 ug/mL

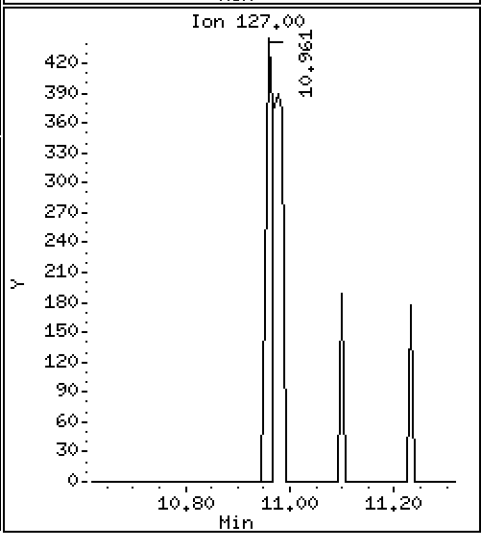


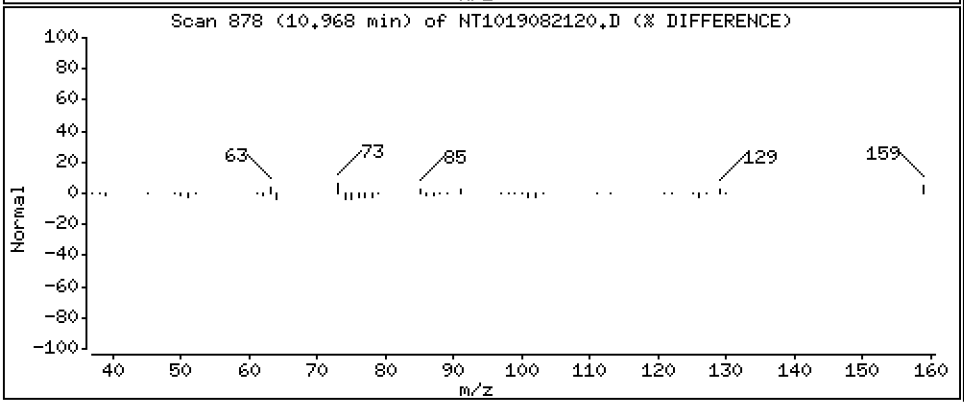












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

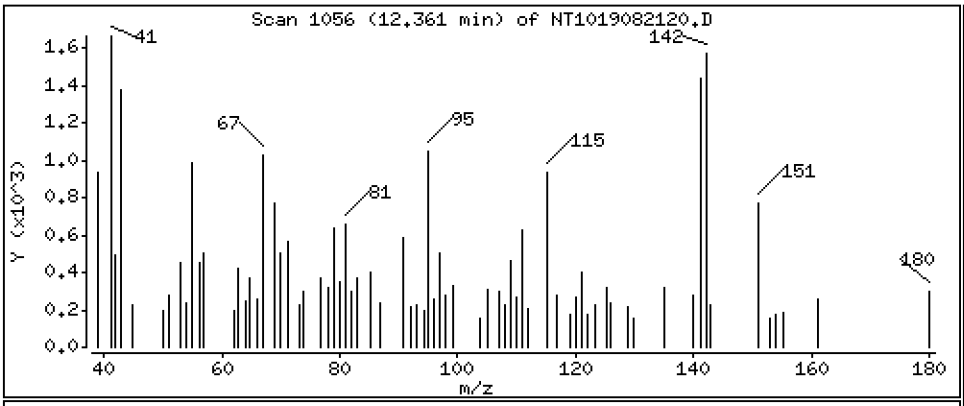
Operator: YZ

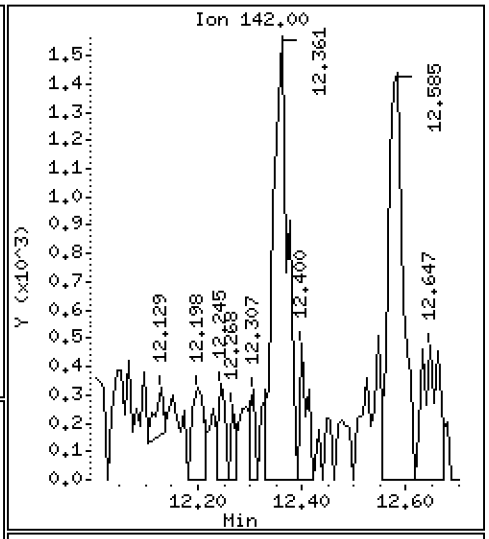
Column phase: ZB-5msi

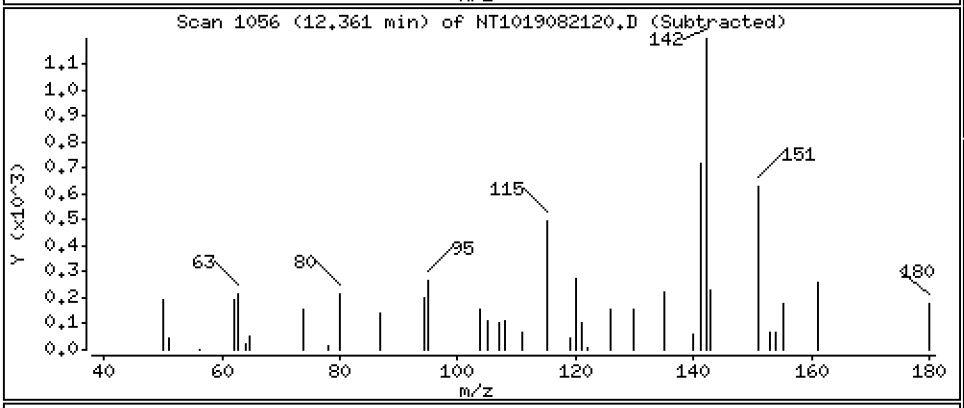
Column diameter: 0.25

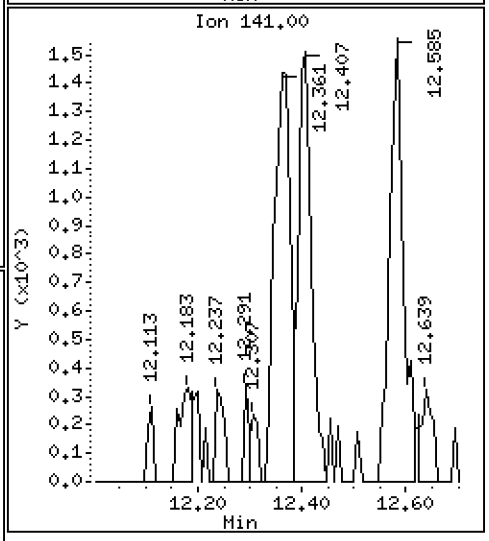
32 2-Methylnaphthalene

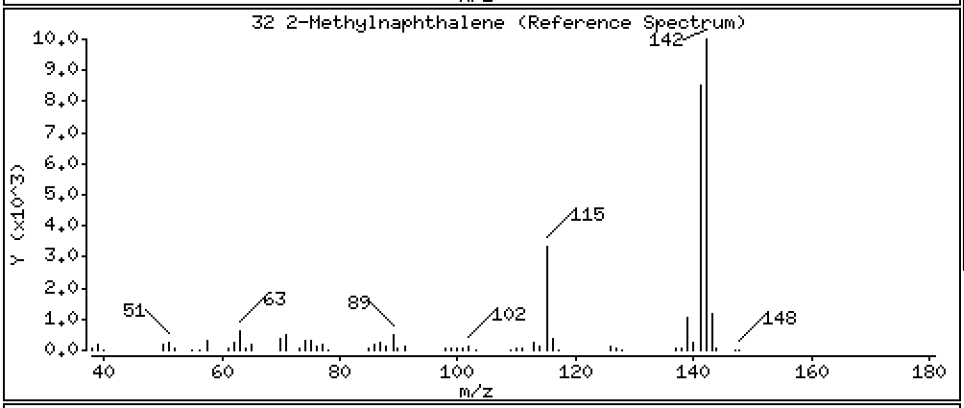
Concentration: 0.1079 ug/mL

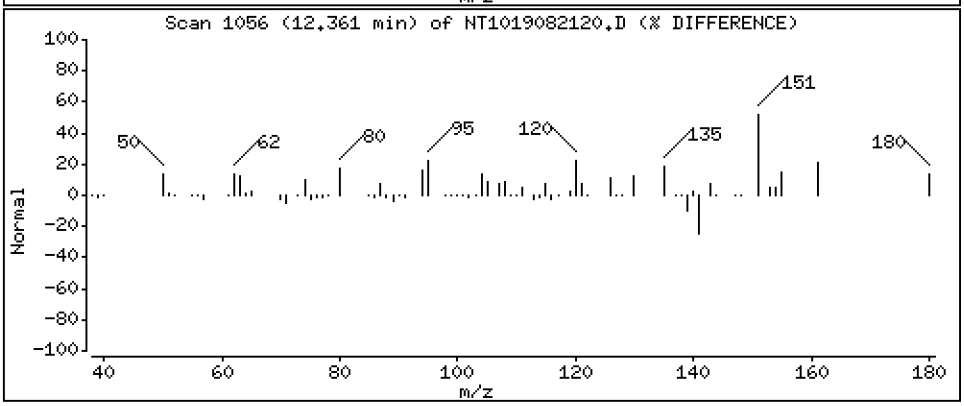












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

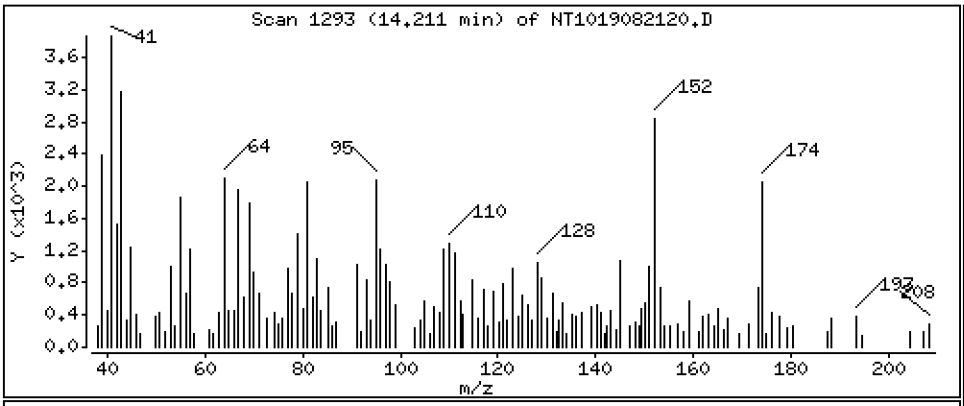
Operator: YZ

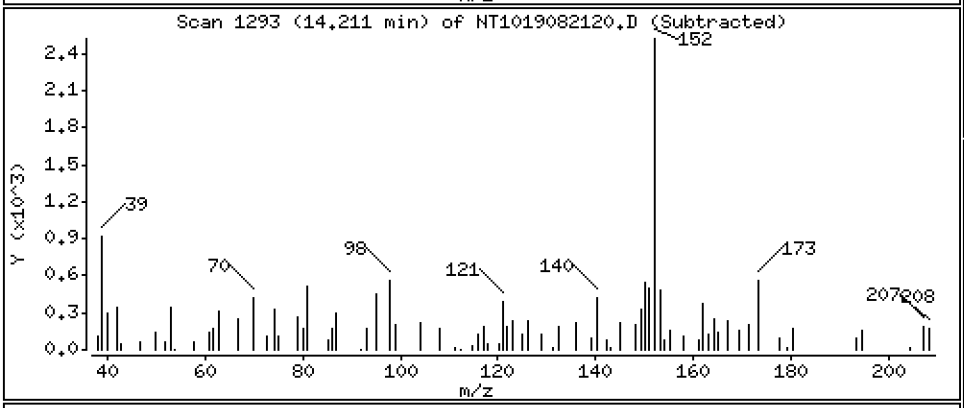
Column phase: ZB-5msi

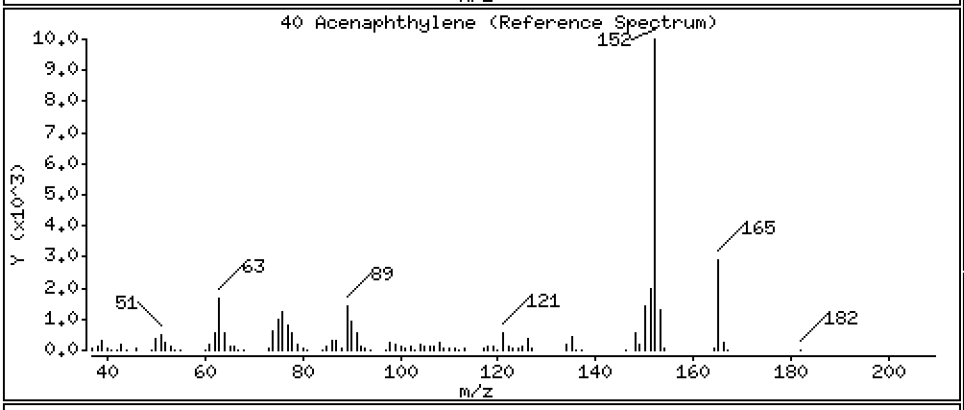
Column diameter: 0.25

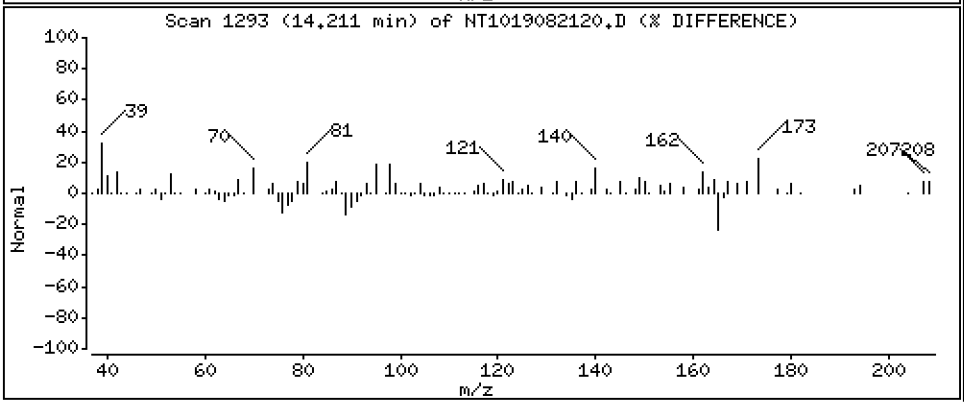
40 Acenaphthylene

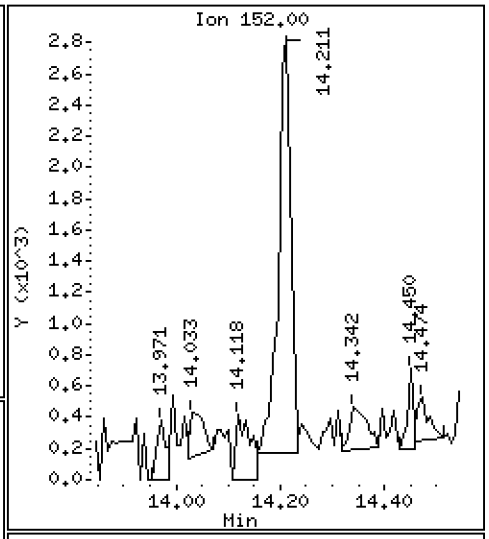
Concentration: 0.1384 ug/mL

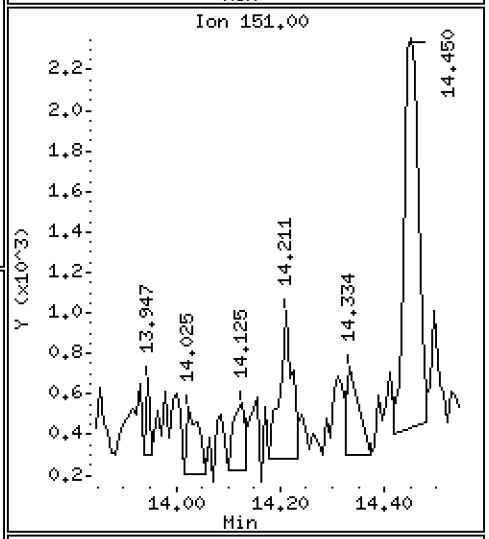


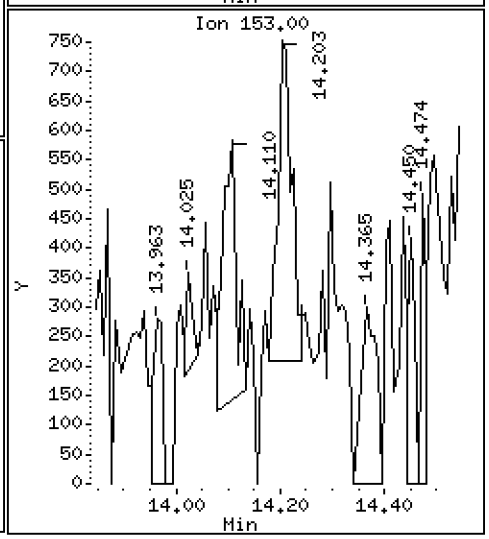












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

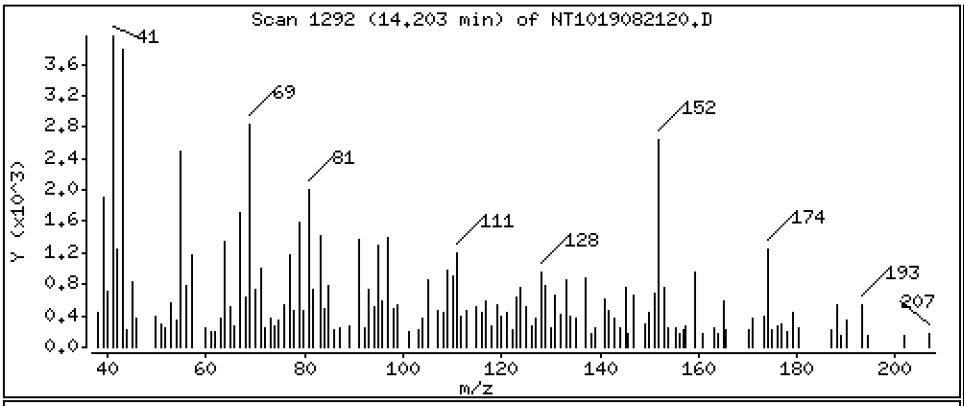
Operator: YZ

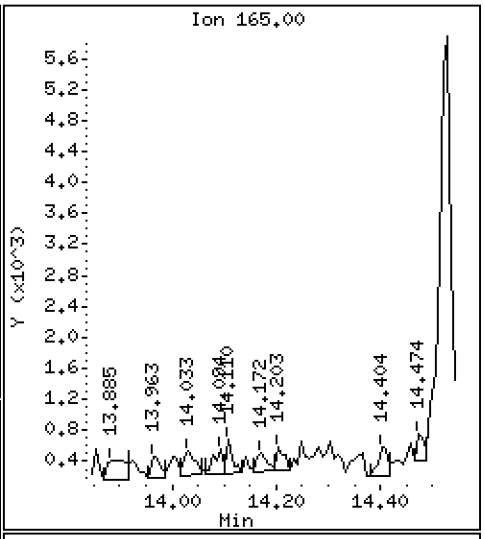
Column phase: ZB-5msi

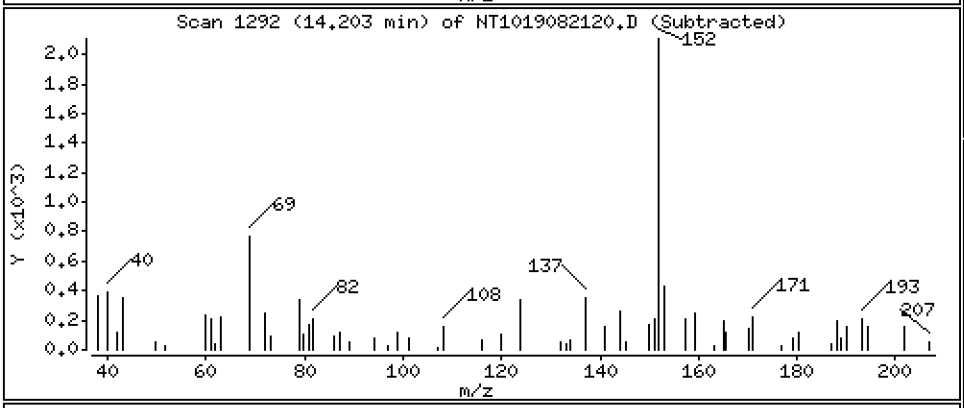
Column diameter: 0.25

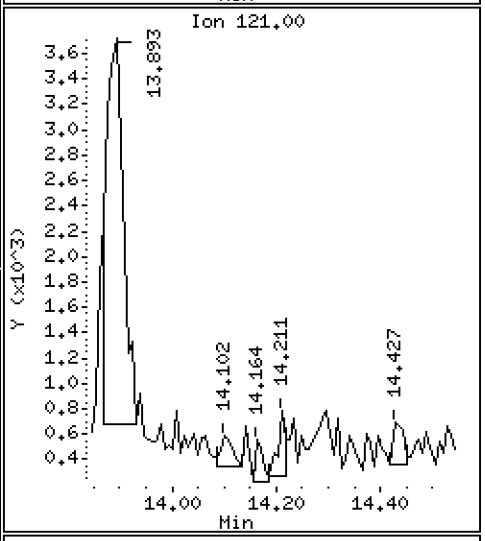
41 2,6-Dinitrotoluene

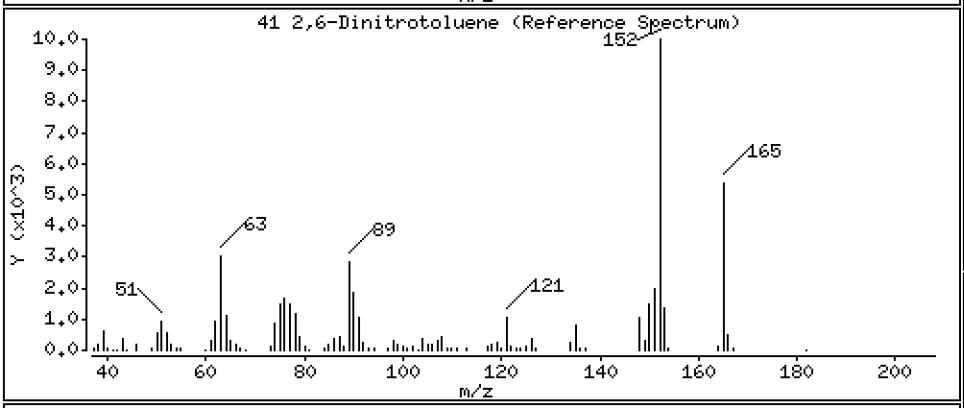
Concentration: 0.06451 ug/mL

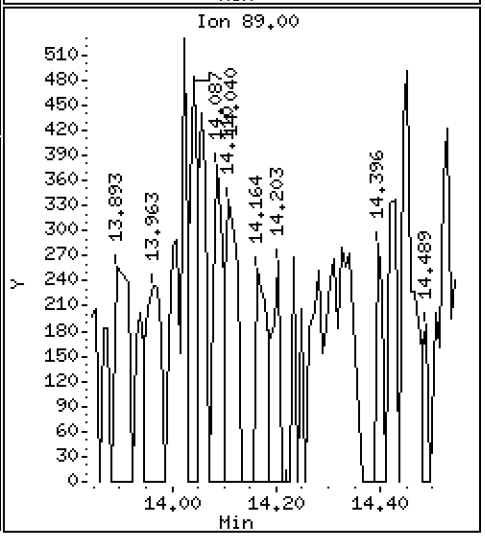


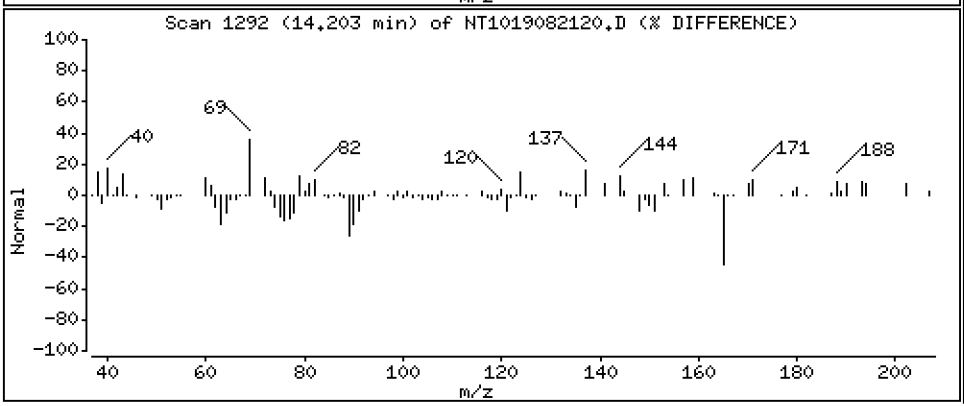












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

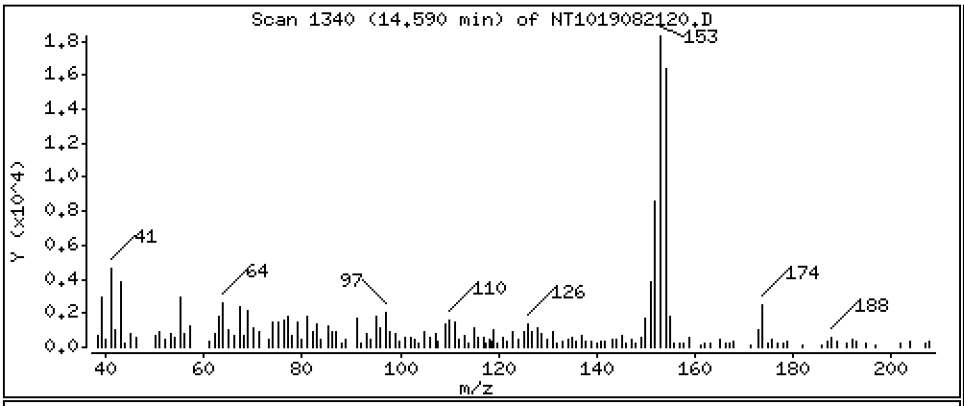
Operator: YZ

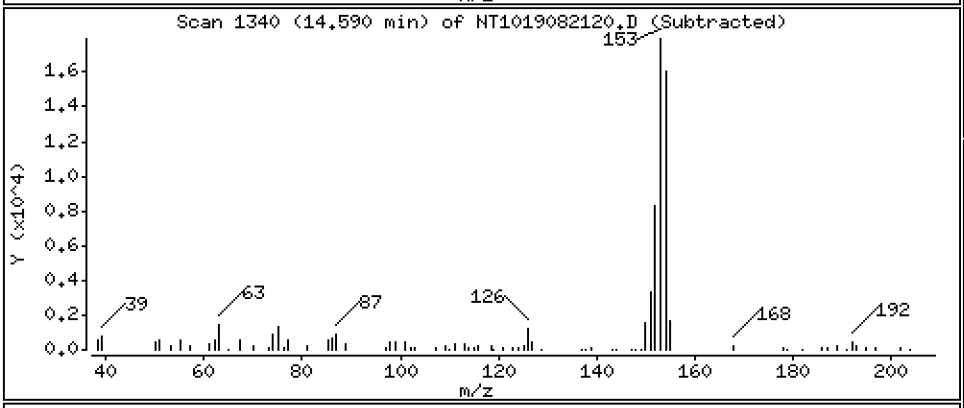
Column phase: ZB-5msi

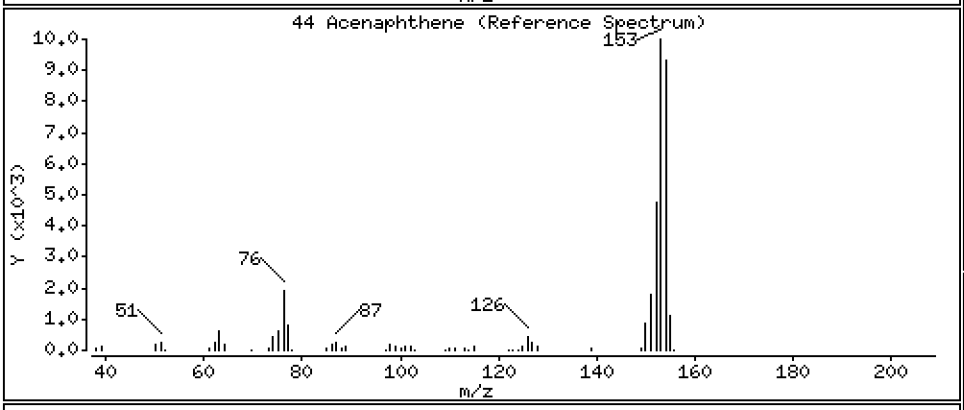
Column diameter: 0.25

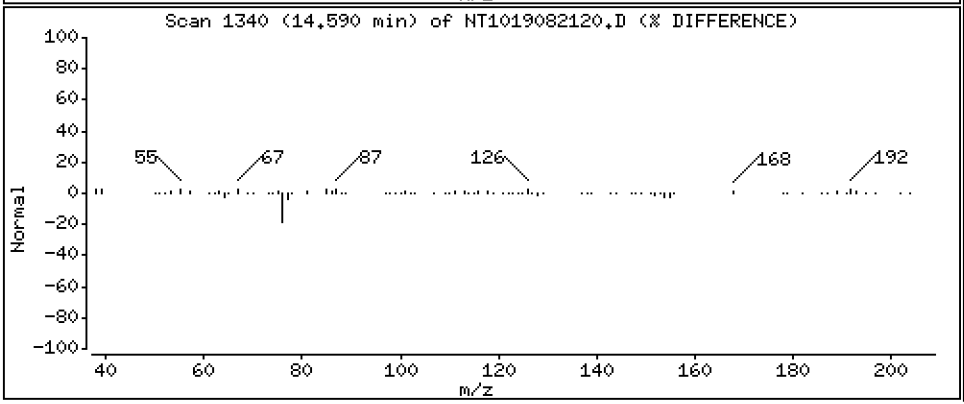
44 Acenaphthene

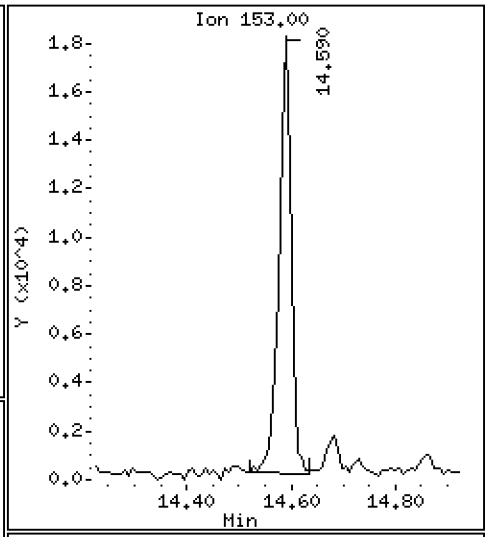
Concentration: 1.429 ug/mL

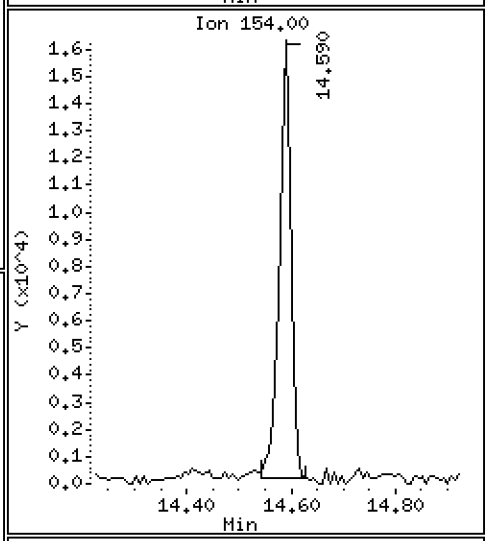


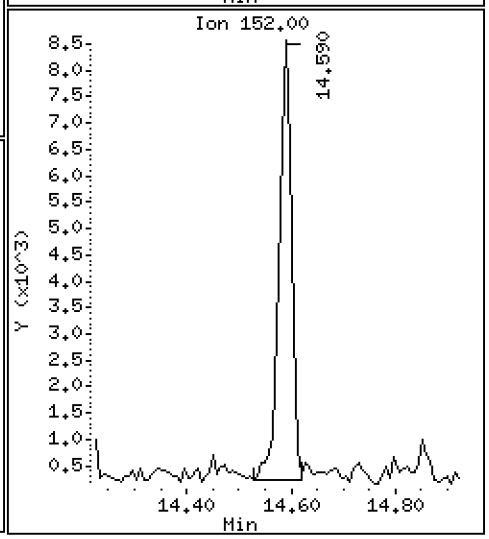












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

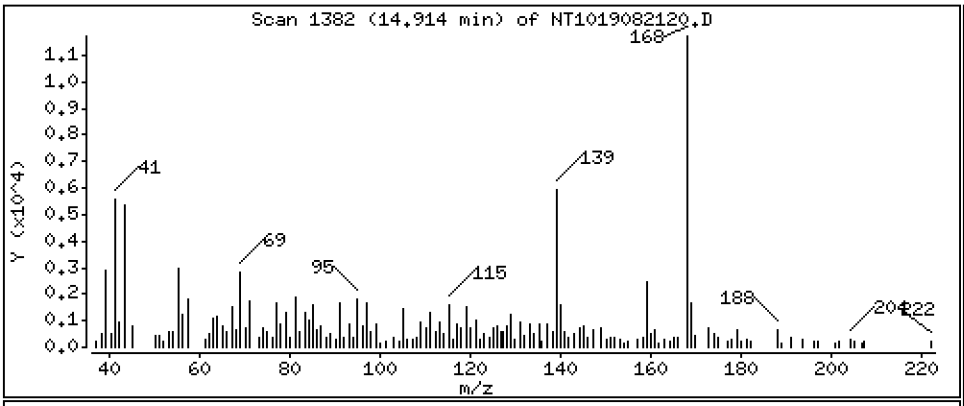
Operator: YZ

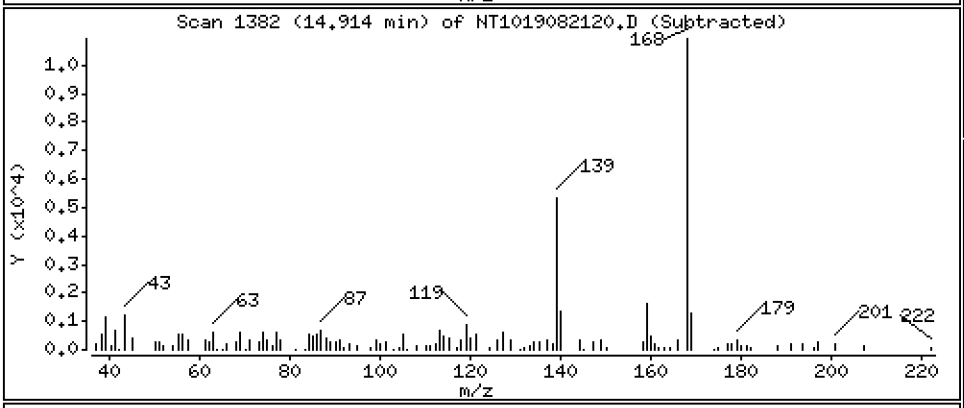
Column phase: ZB-5msi

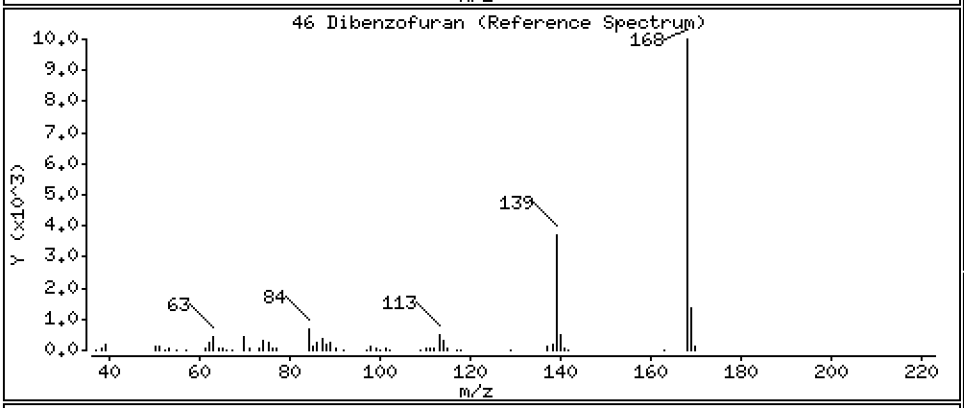
Column diameter: 0.25

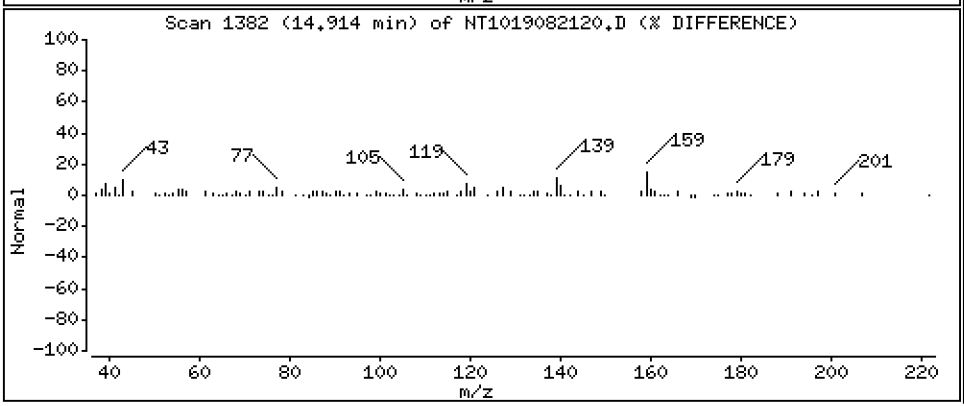
46 Dibenzofuran

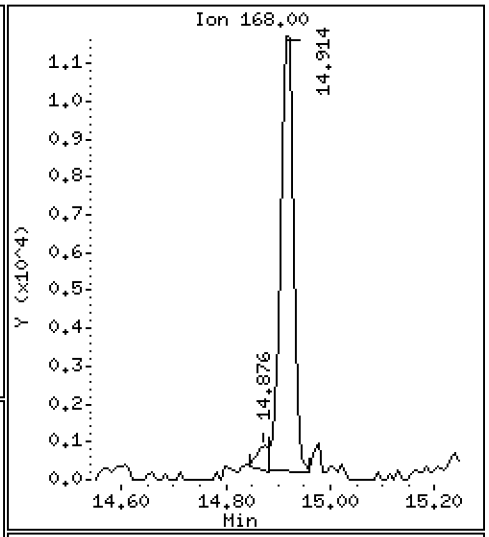
Concentration: 0.6111 ug/mL

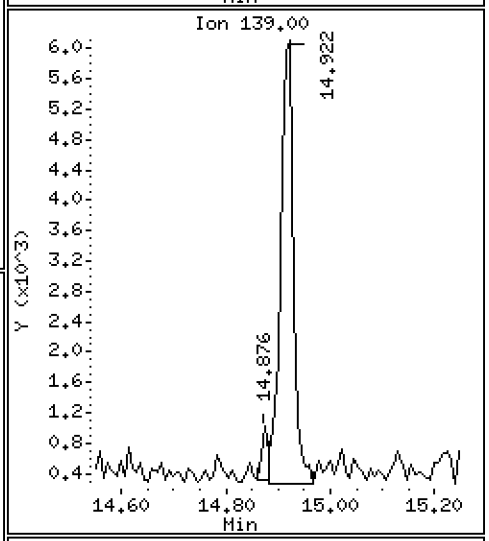


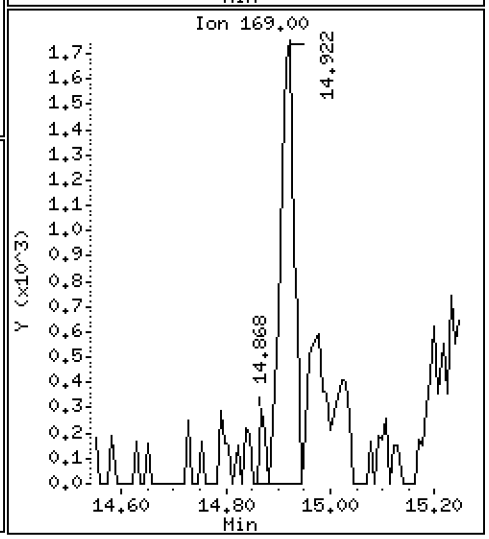












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

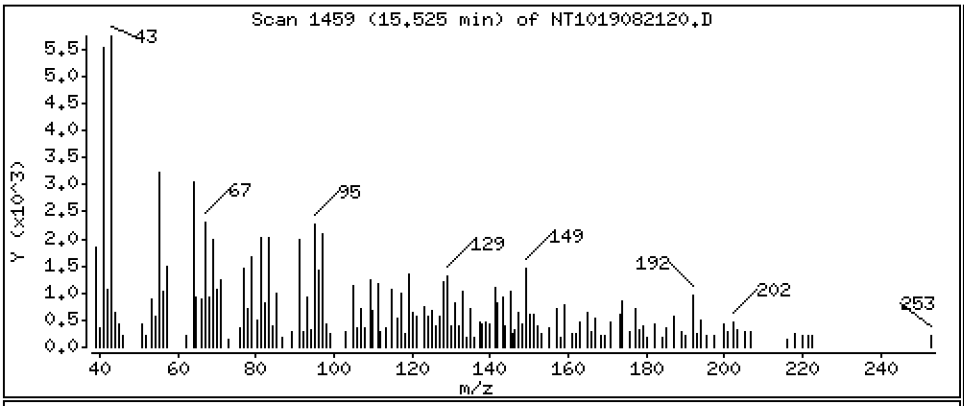
Operator: YZ

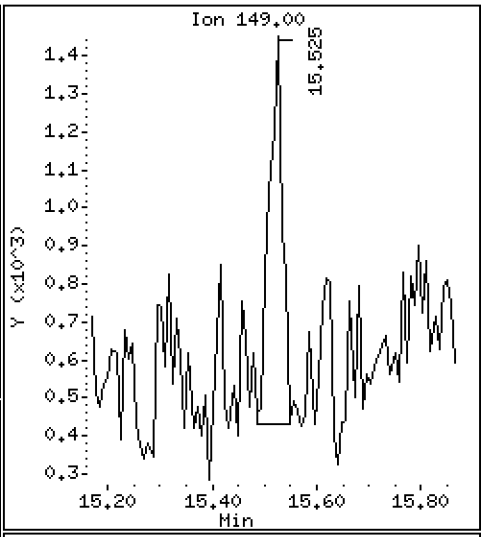
Column phase: ZB-5msi

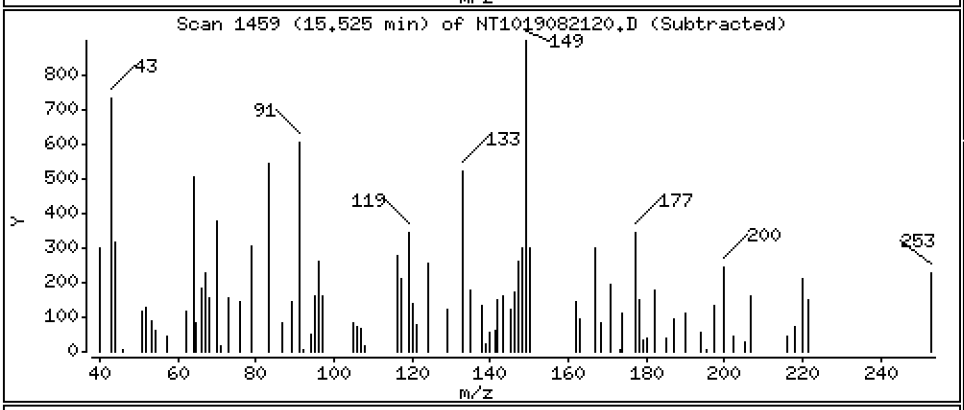
Column diameter: 0.25

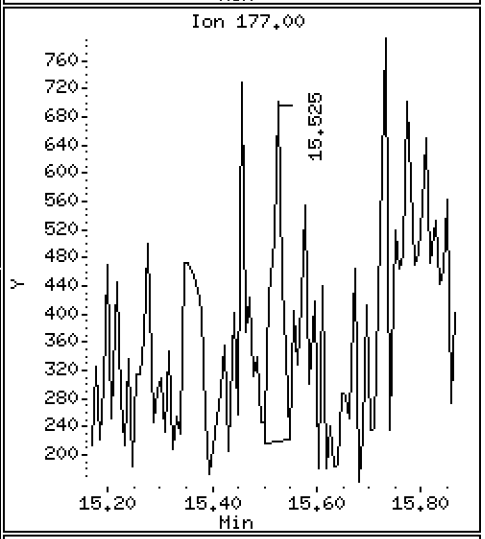
50 Diethylphthalate

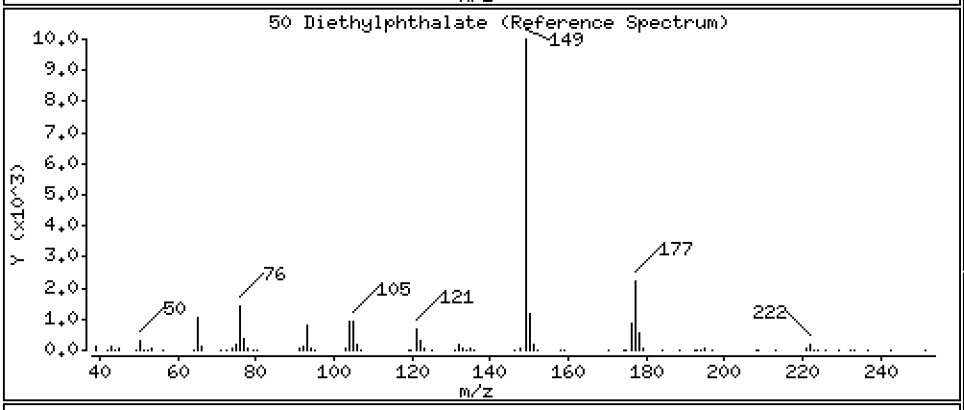
Concentration: 0.07226 ug/mL

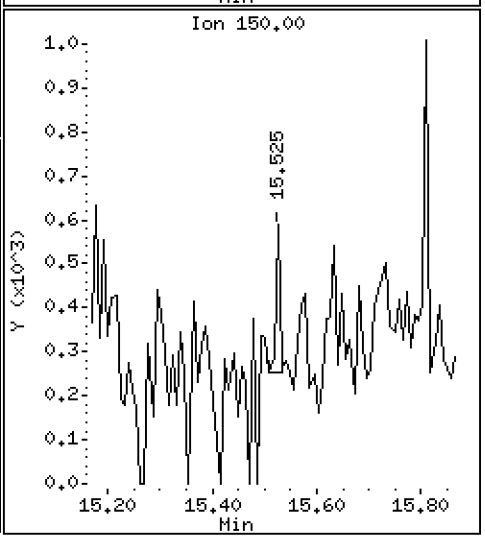


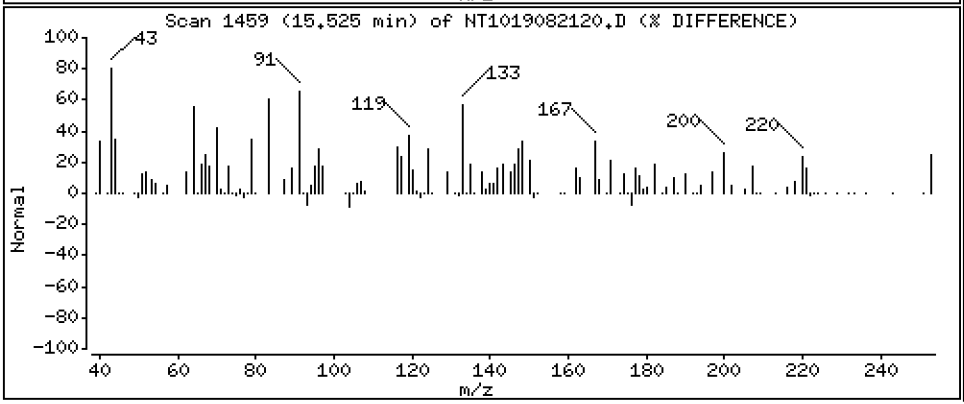












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

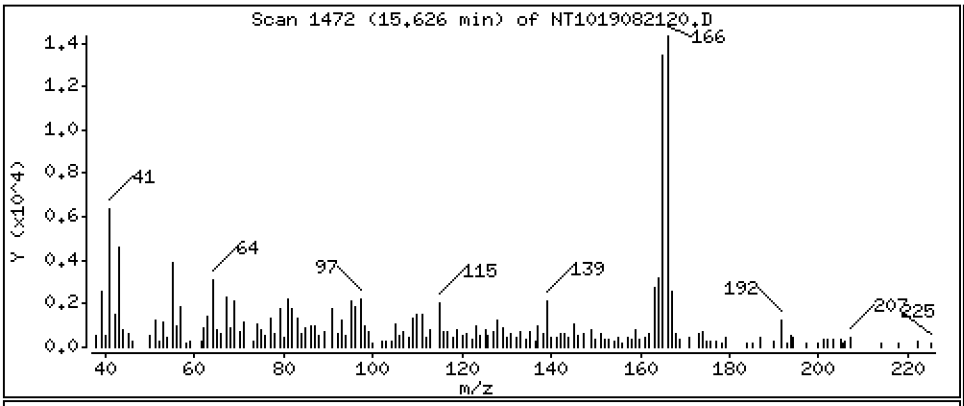
Operator: YZ

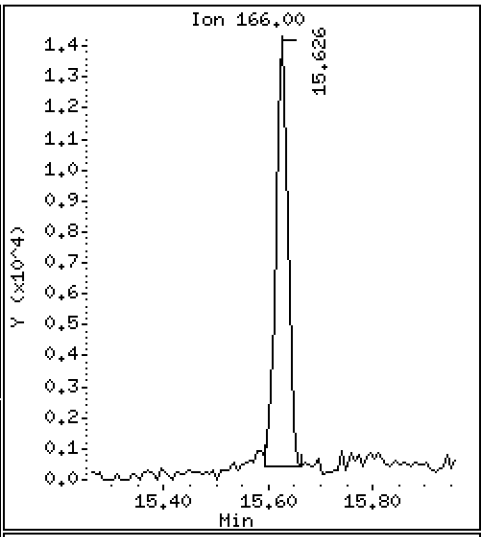
Column phase: ZB-5msi

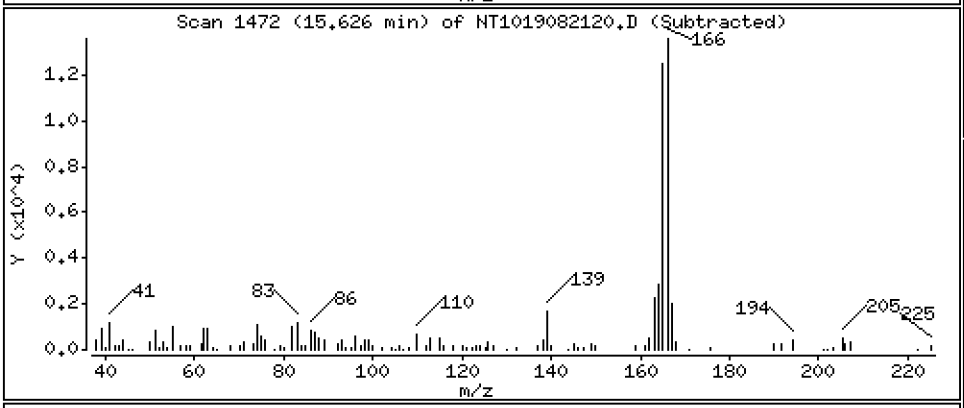
Column diameter: 0.25

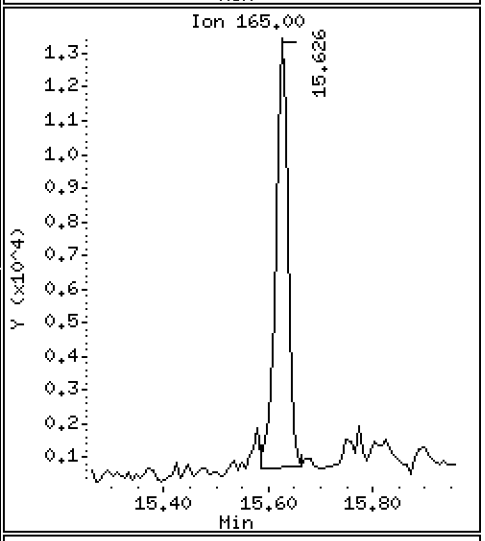
49 Fluorene

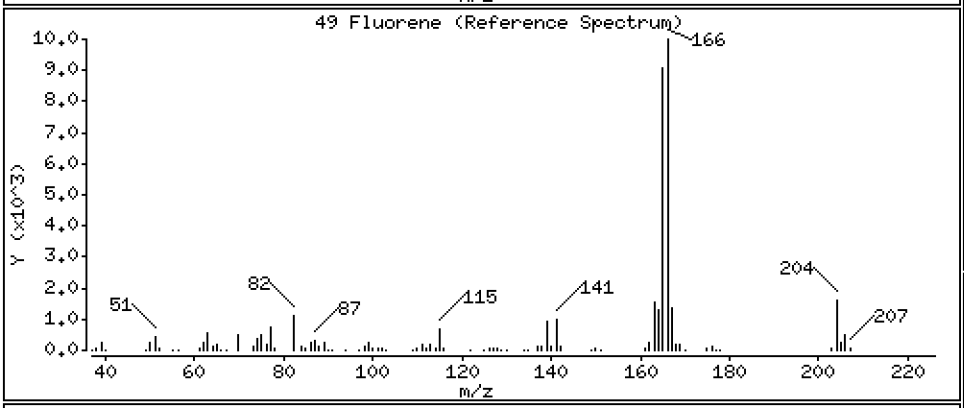
Concentration: 0.9756 ug/mL

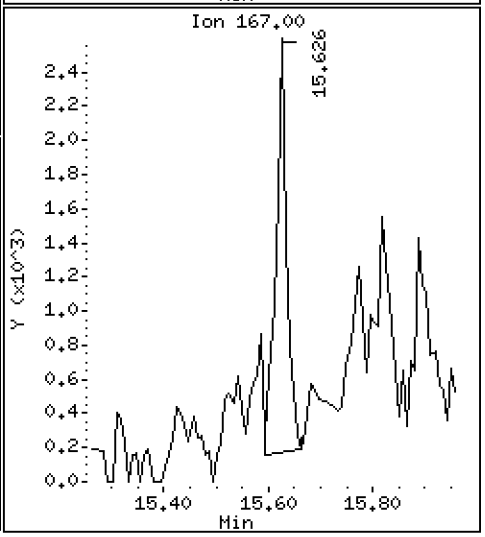


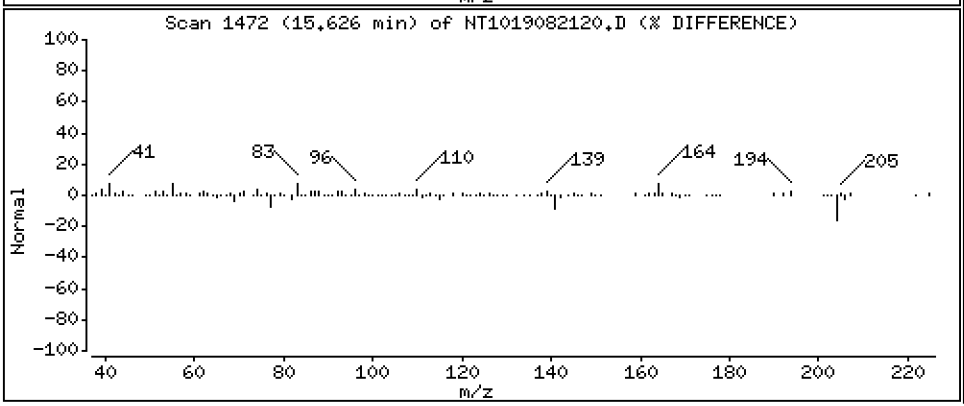












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

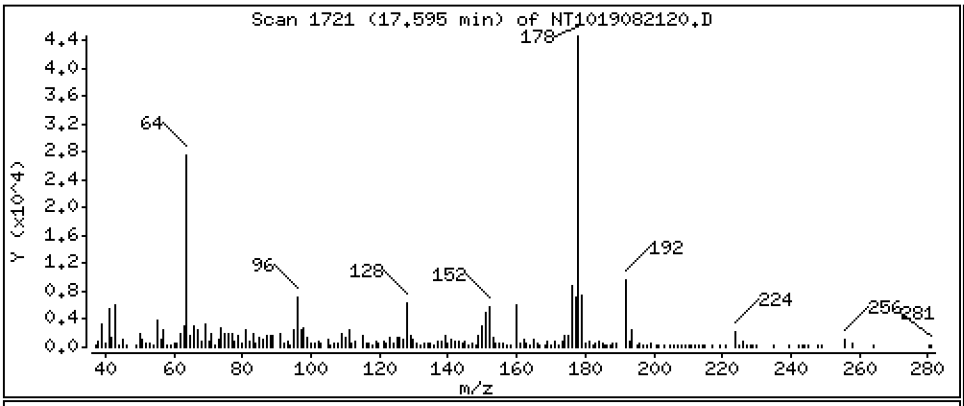
Operator: YZ

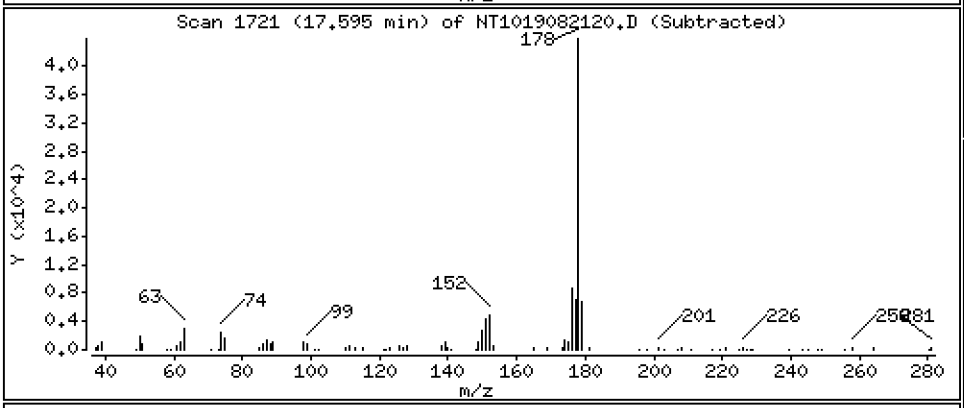
Column phase: ZB-5msi

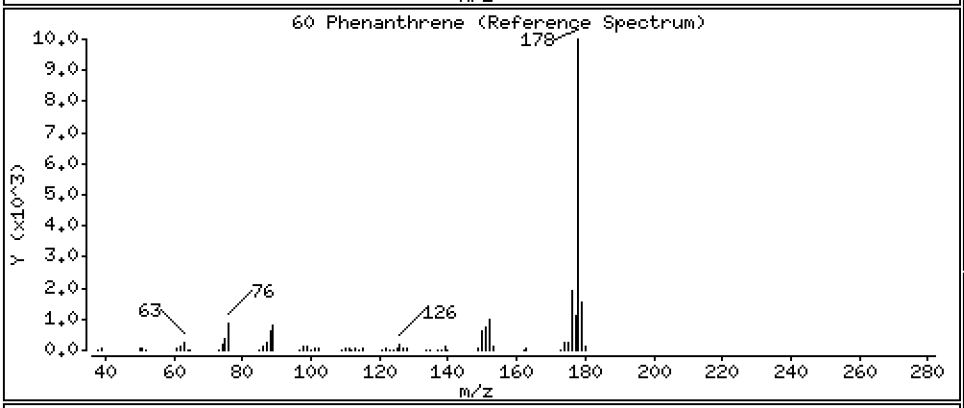
Column diameter: 0.25

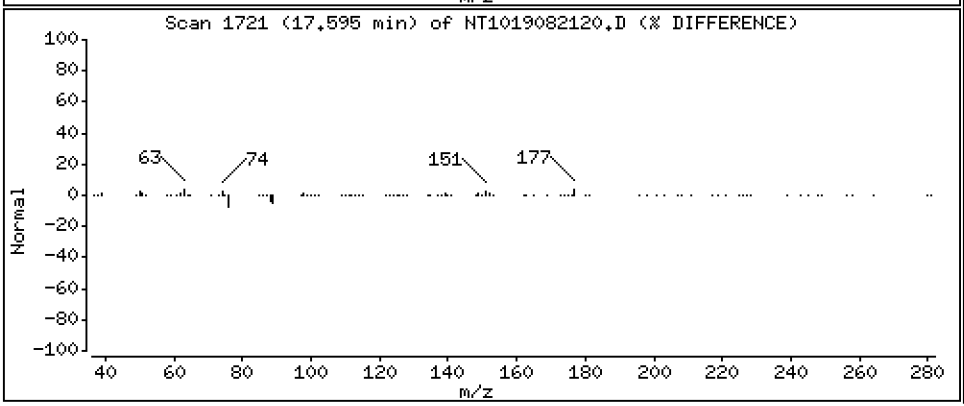
60 Phenanthrene

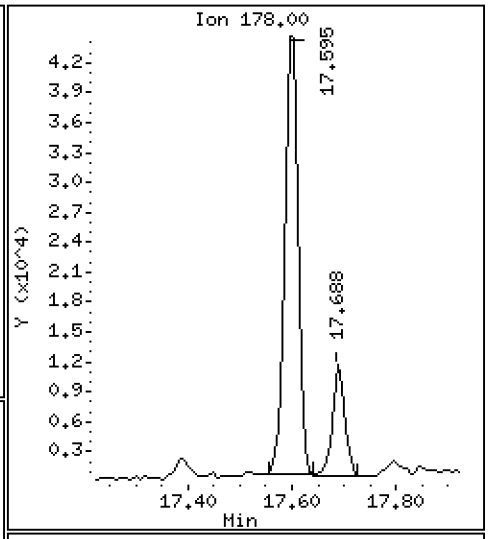
Concentration: 2.877 ug/mL

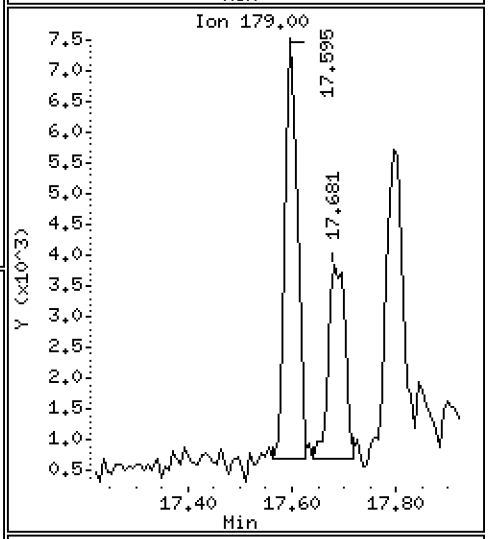


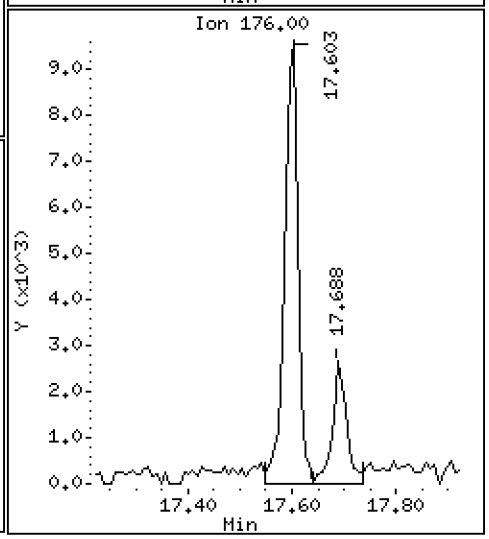












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

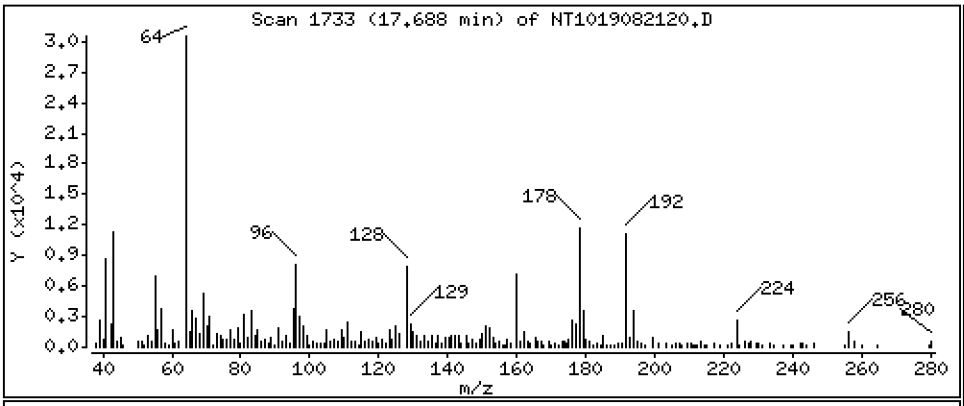
Operator: YZ

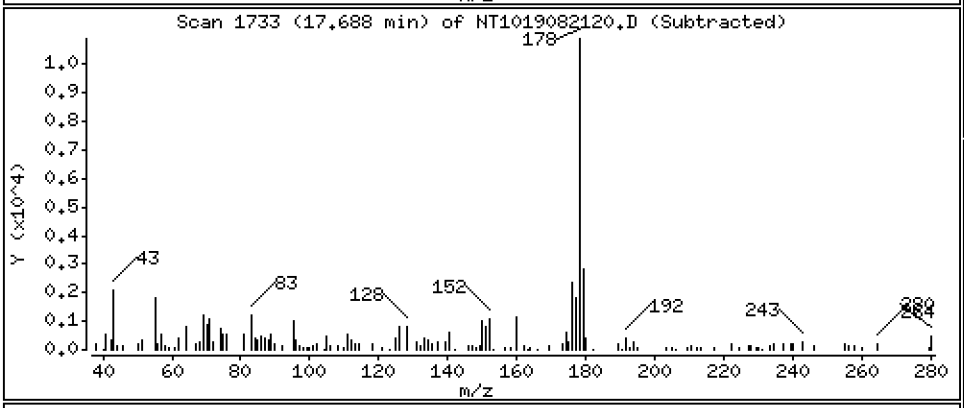
Column phase: ZB-5msi

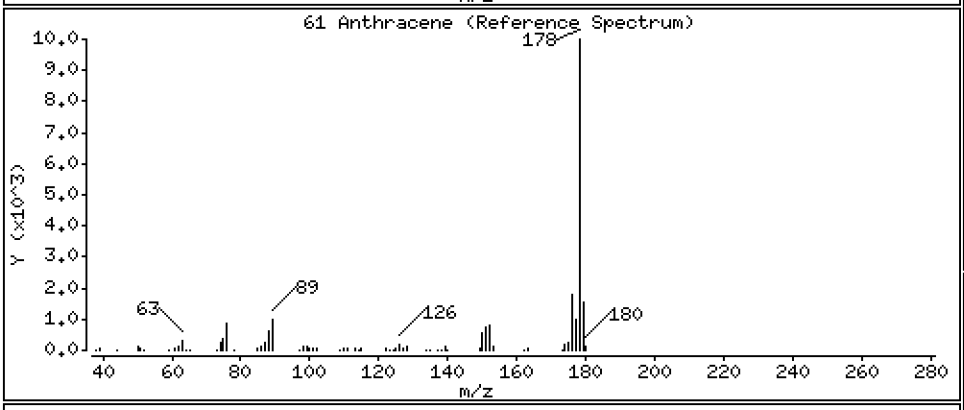
Column diameter: 0.25

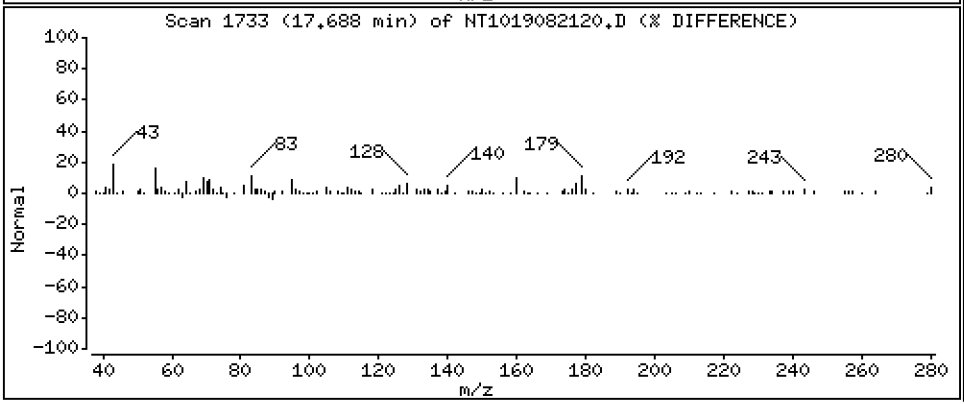
61 Anthracene

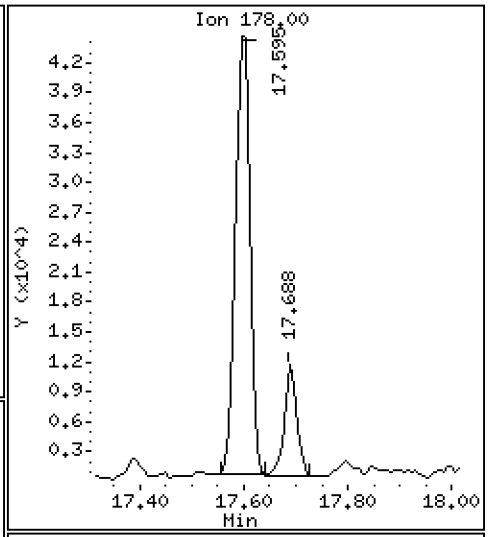
Concentration: 0.6639 ug/mL

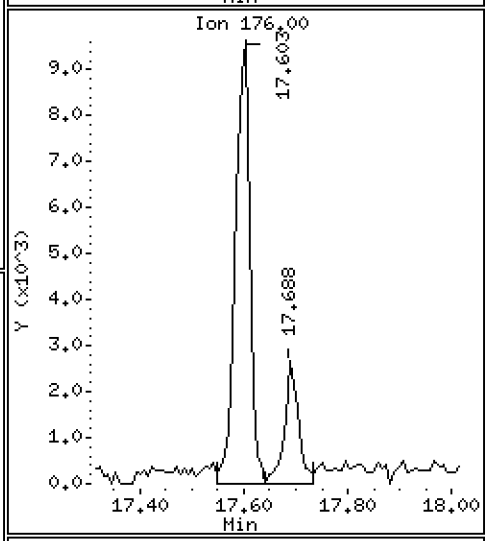


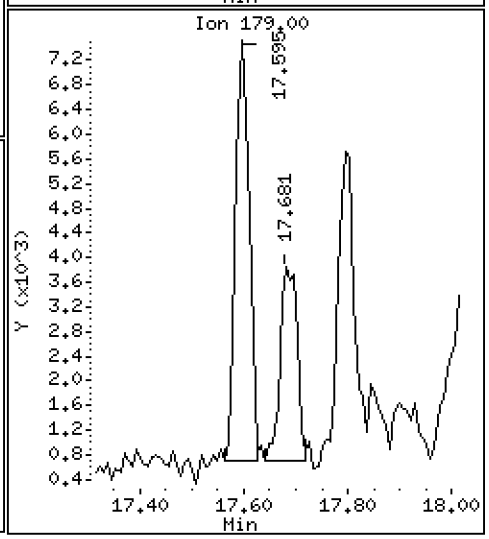












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

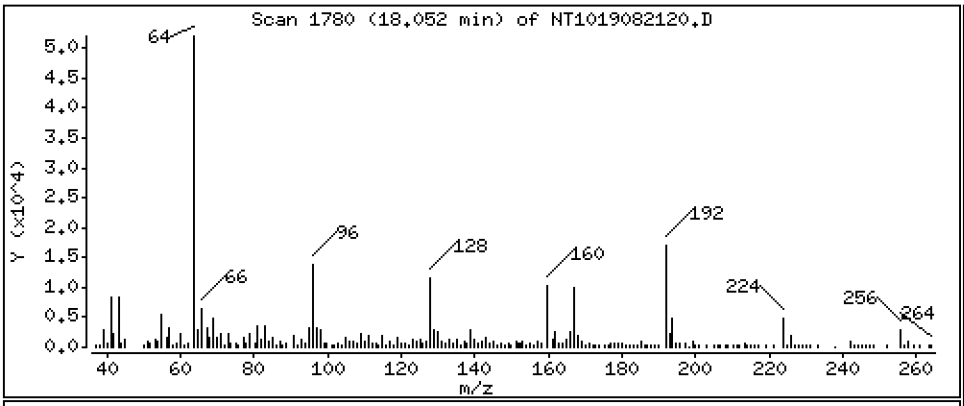
Operator: YZ

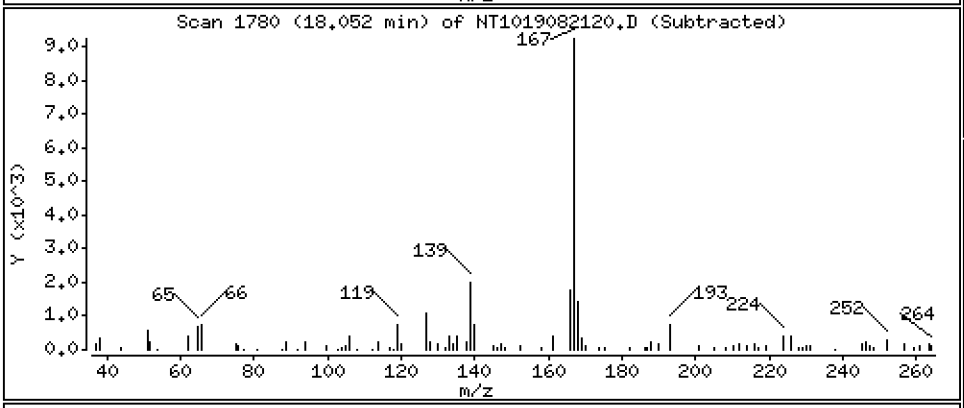
Column phase: ZB-5msi

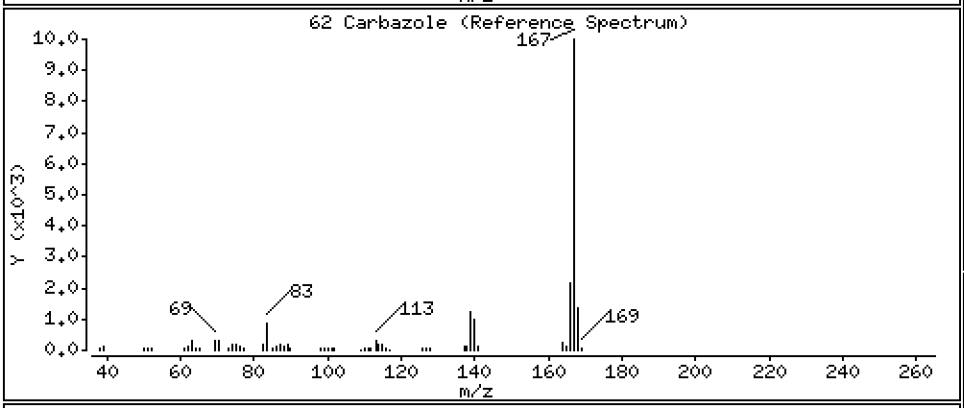
Column diameter: 0.25

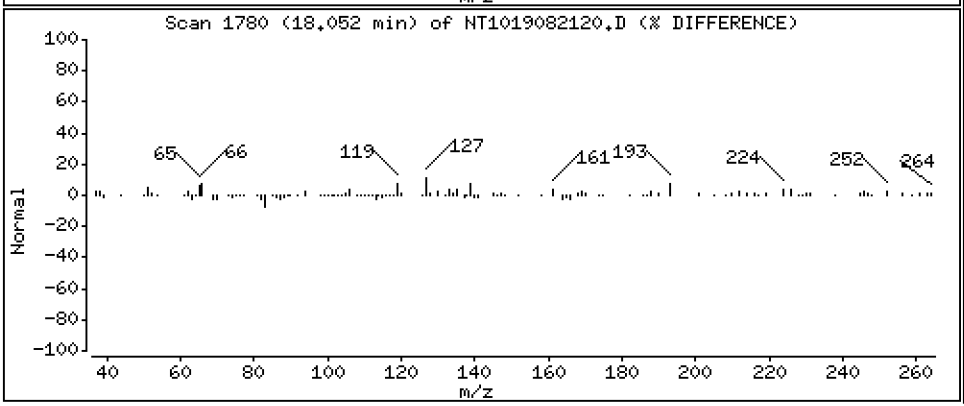
62 Carbazole

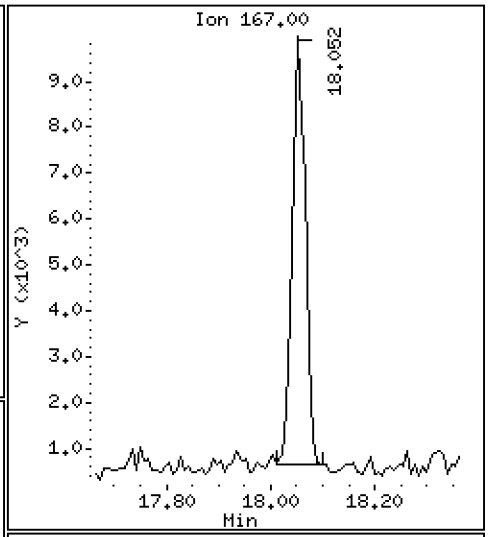
Concentration: 0.6345 ug/mL

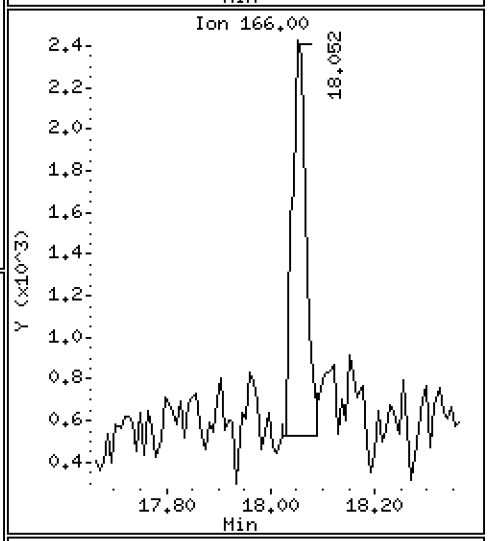


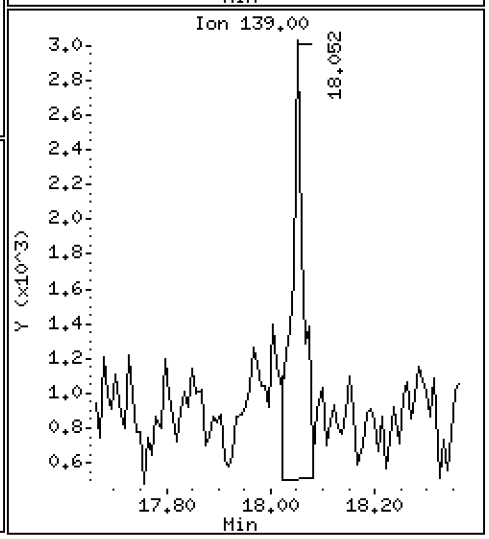












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

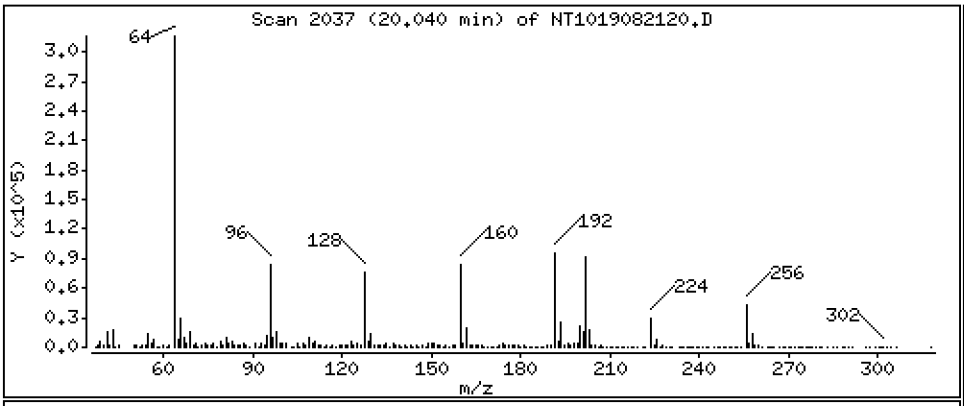
Operator: YZ

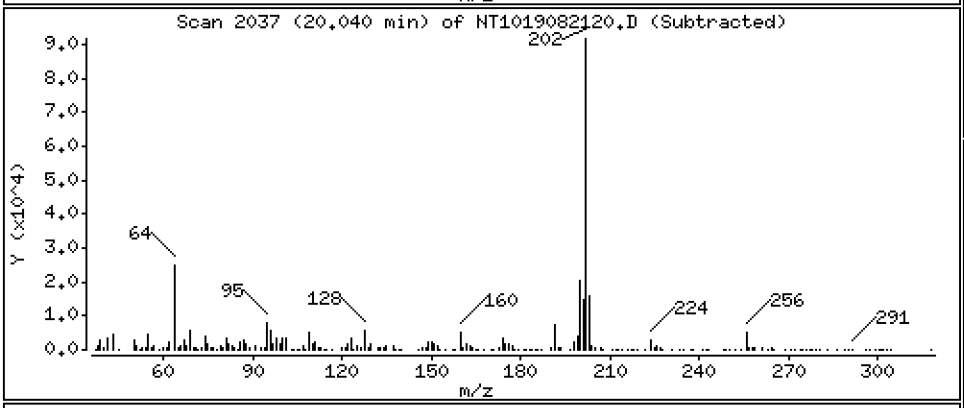
Column phase: ZB-5msi

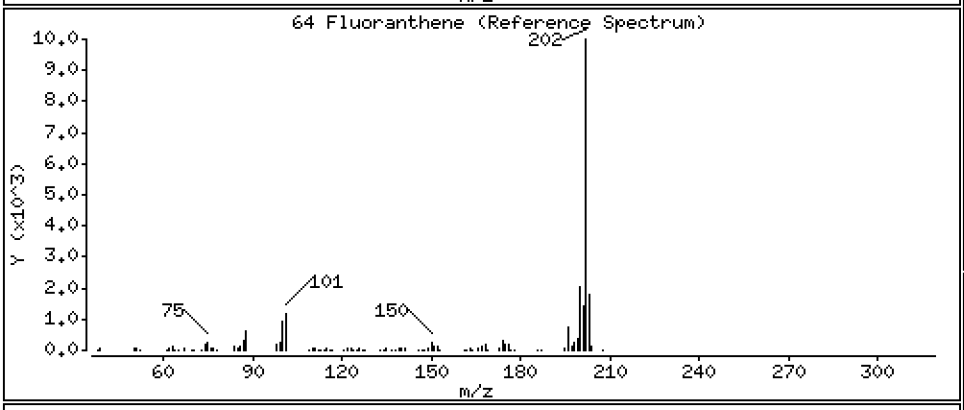
Column diameter: 0.25

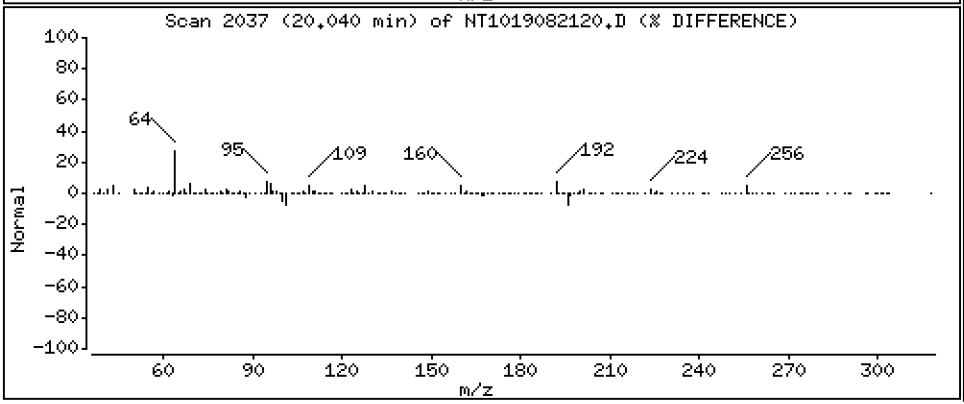
64 Fluoranthene

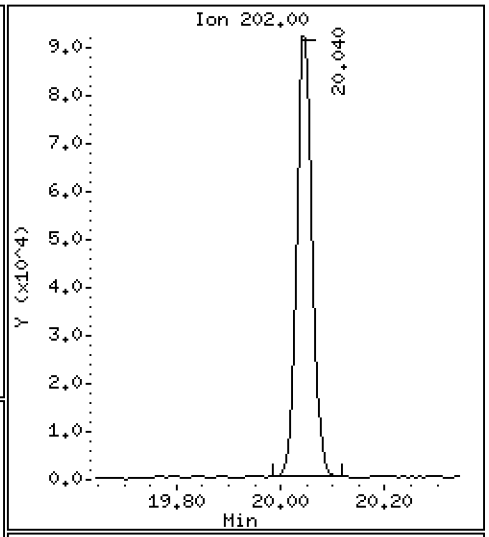
Concentration: 10.38 ug/mL

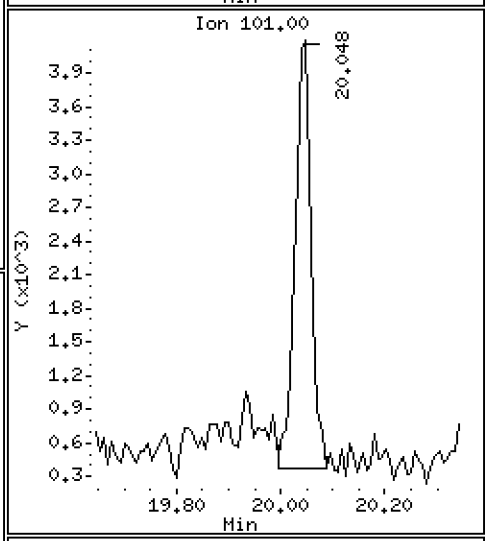


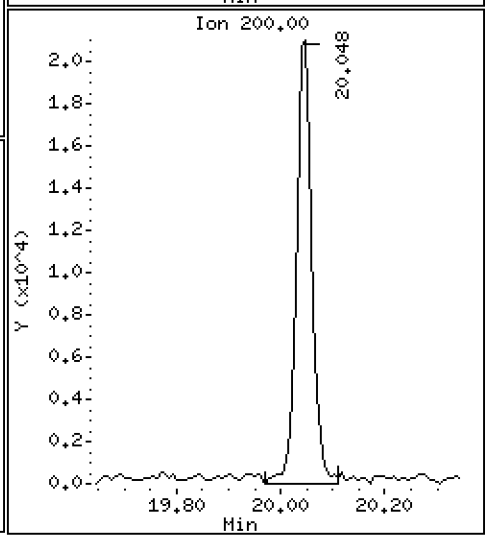












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

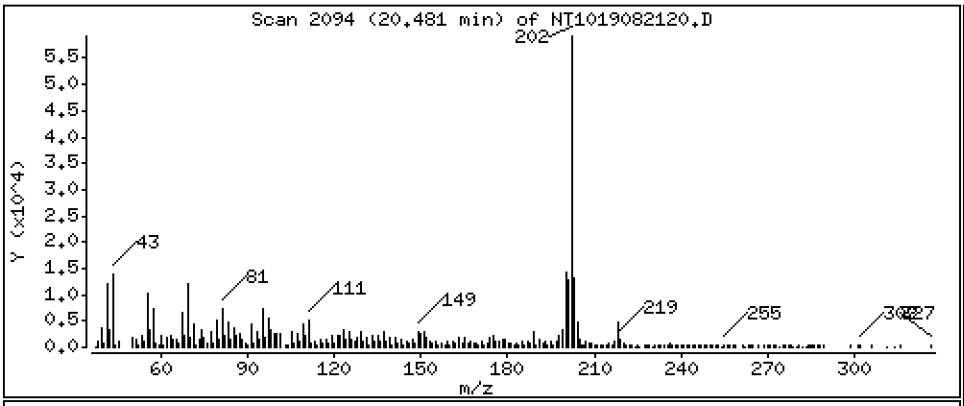
Operator: YZ

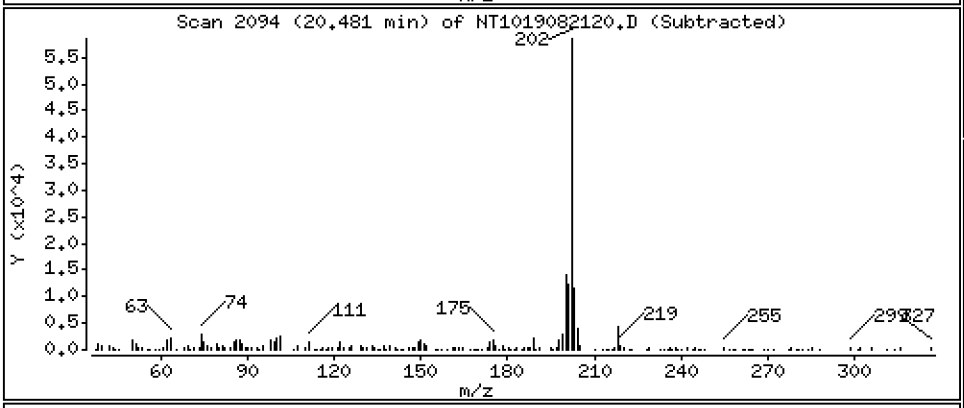
Column phase: ZB-5msi

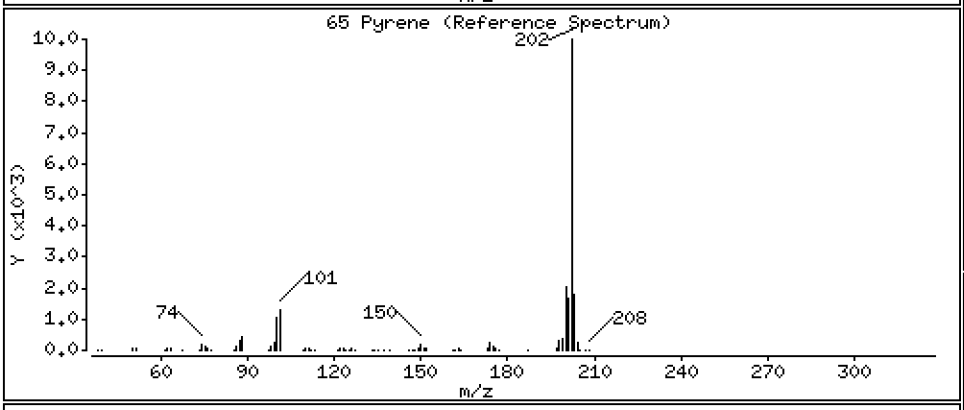
Column diameter: 0.25

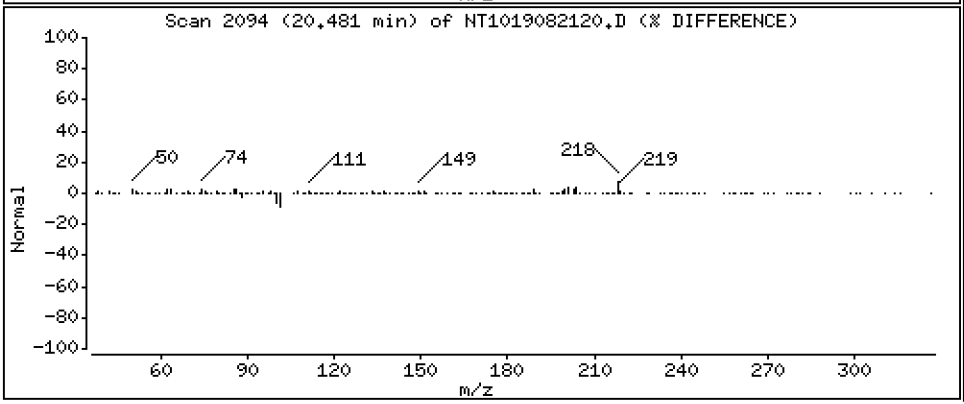
65 Pyrene

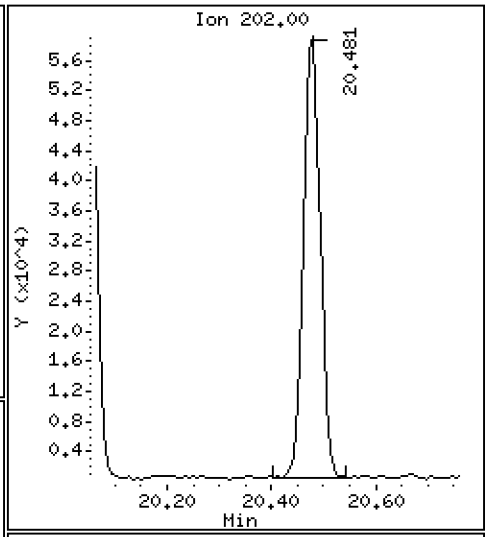
Concentration: 6.654 ug/mL

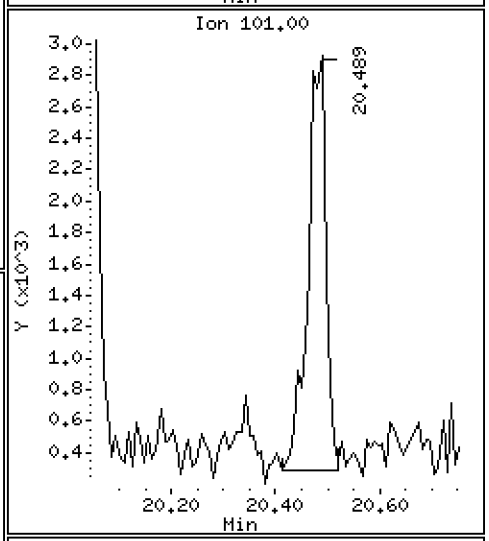


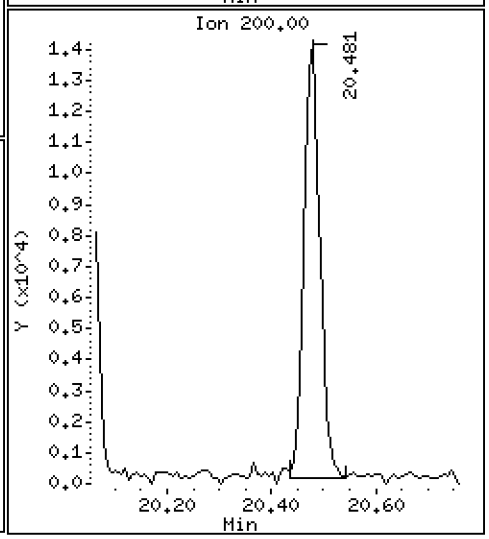












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

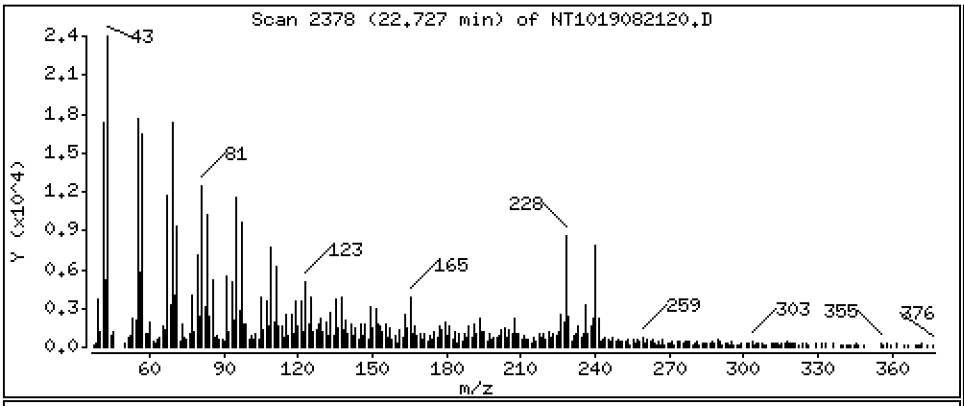
Operator: YZ

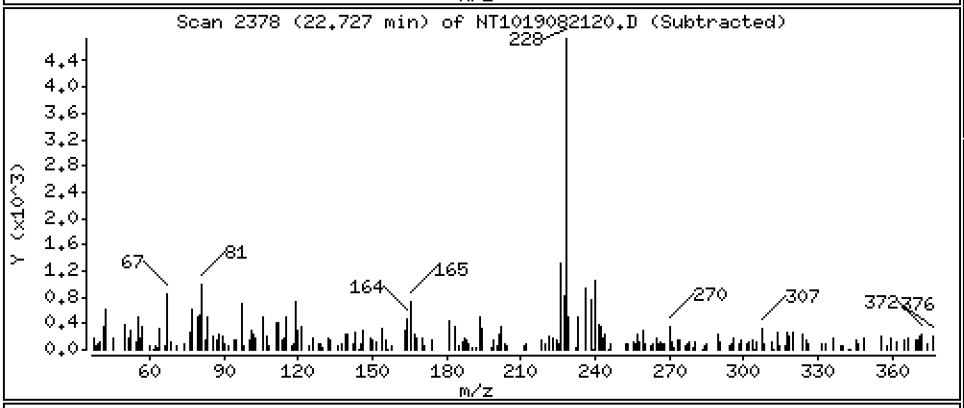
Column phase: ZB-5msi

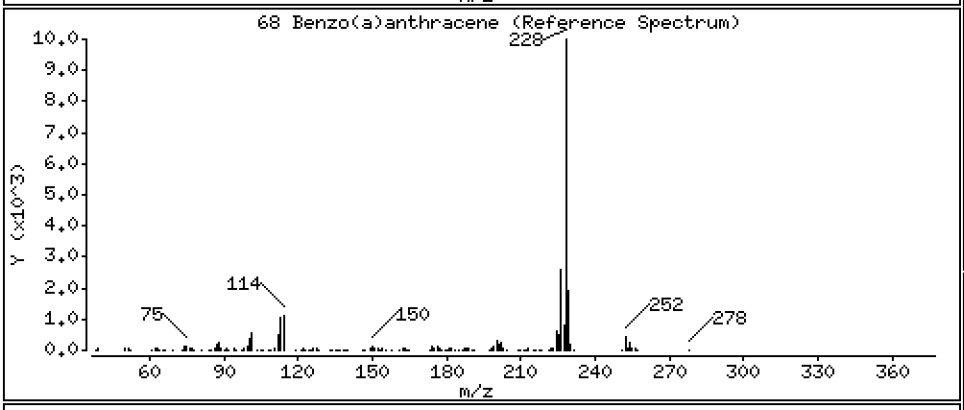
Column diameter: 0.25

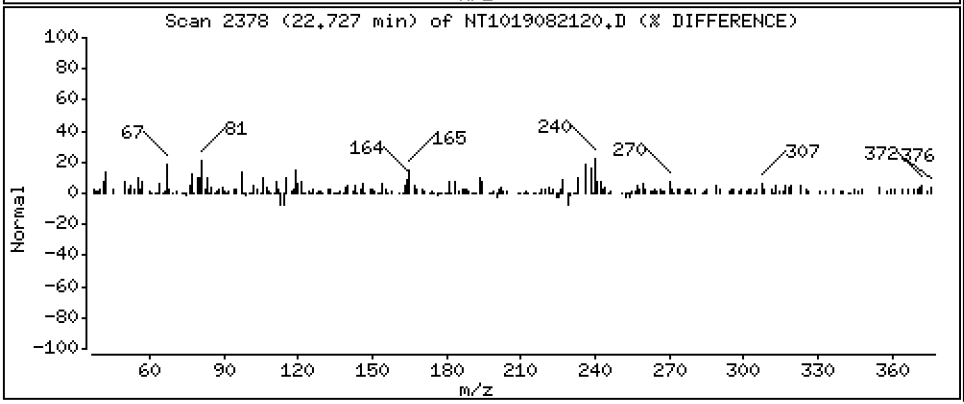
68 Benzo(a)anthracene

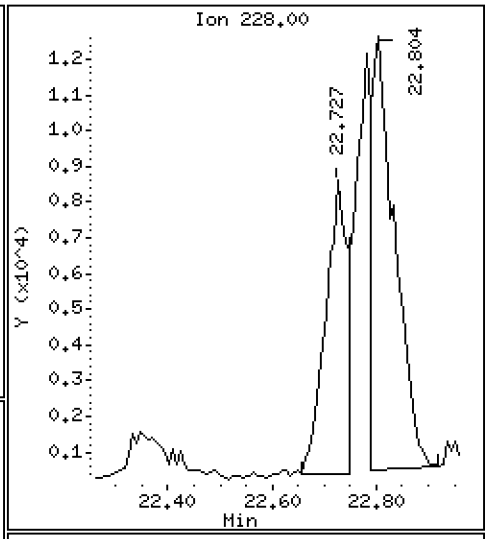
Concentration: 1.390 ug/mL

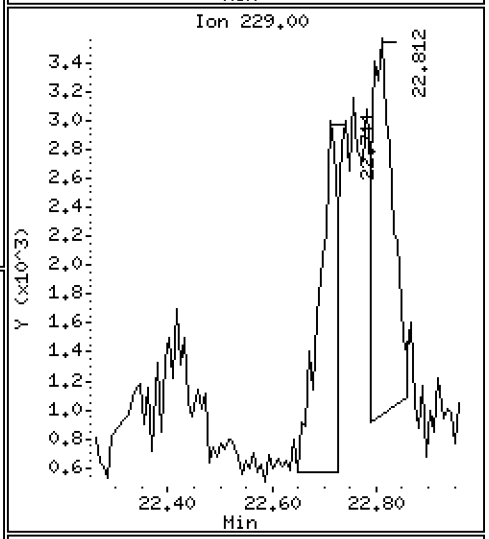


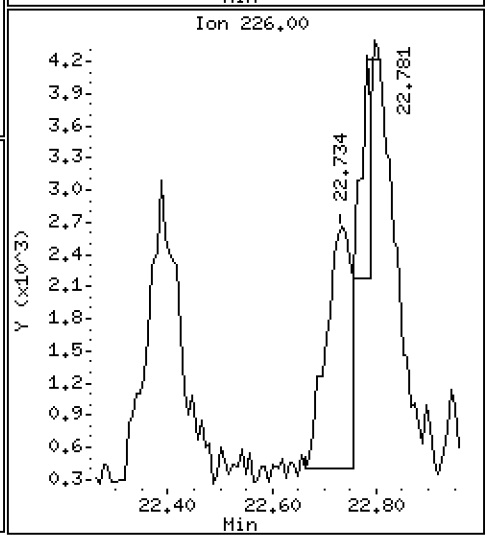












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

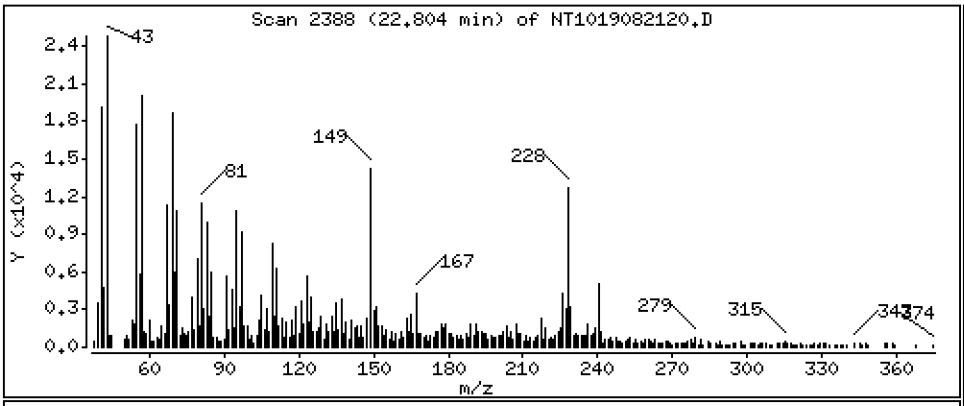
Operator: YZ

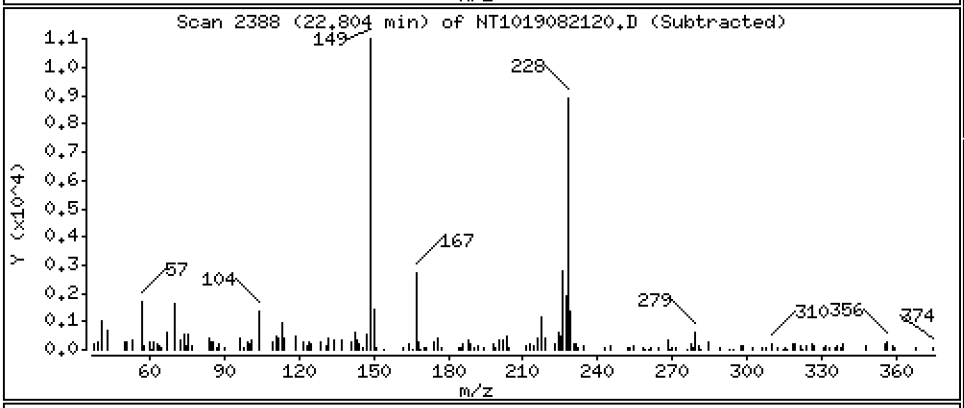
Column phase: ZB-5msi

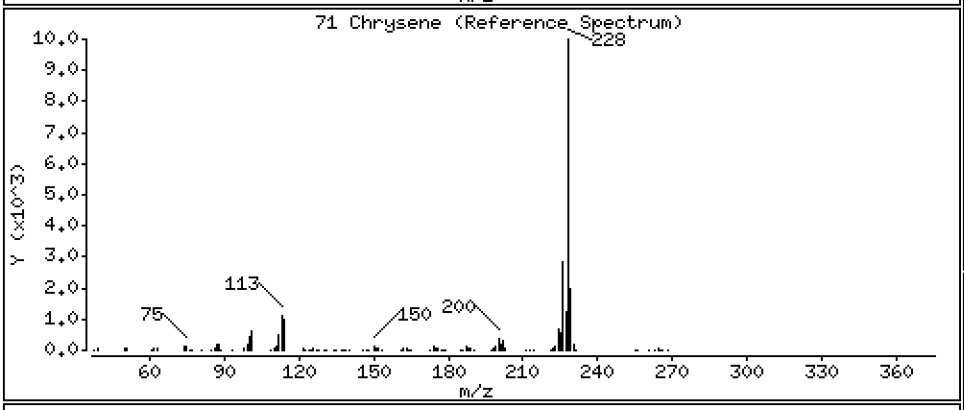
Column diameter: 0.25

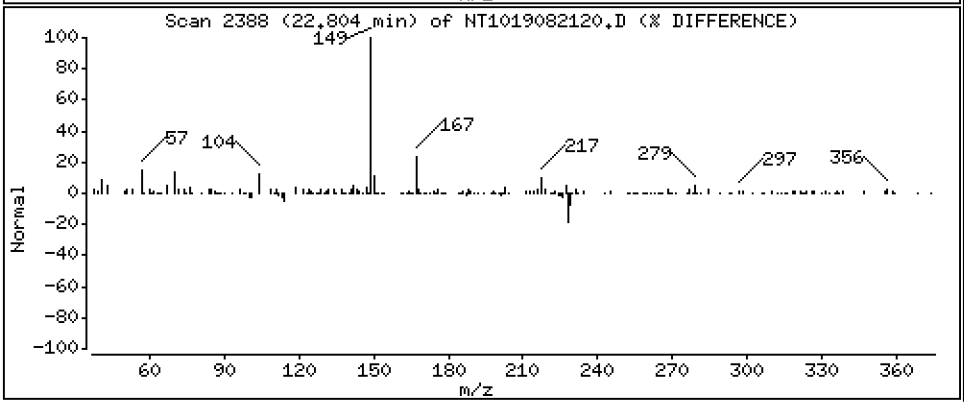
71 Chrysene

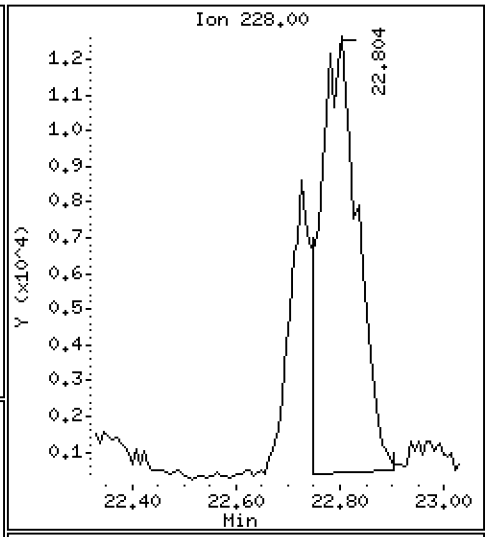
Concentration: 3.816 ug/mL

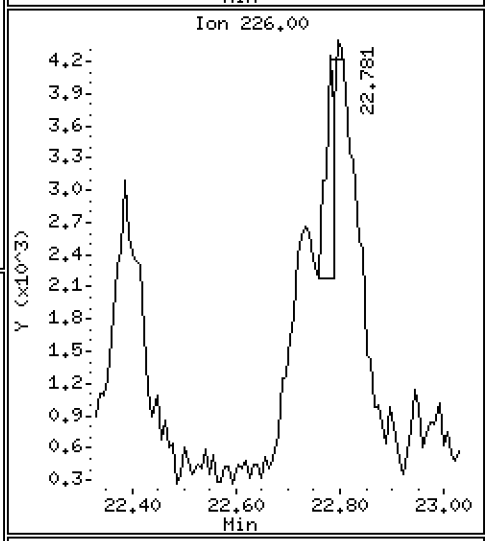


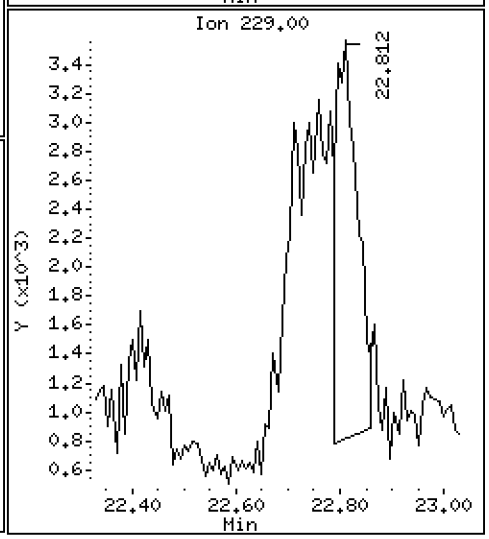












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

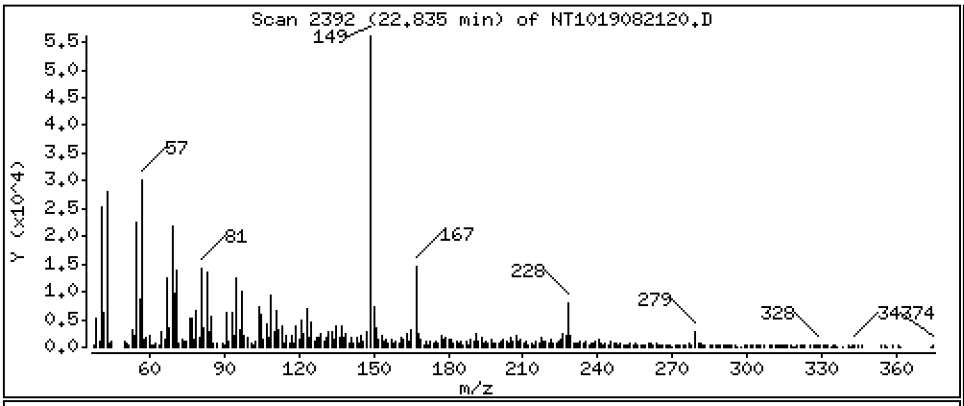
Operator: YZ

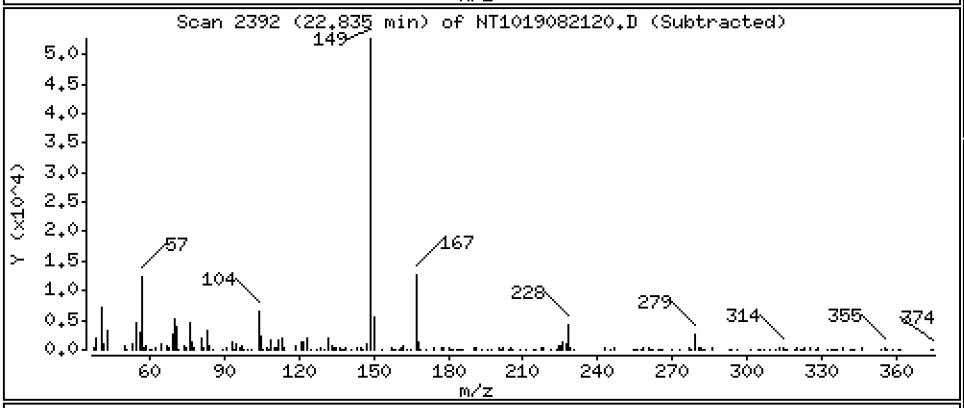
Column phase: ZB-5msi

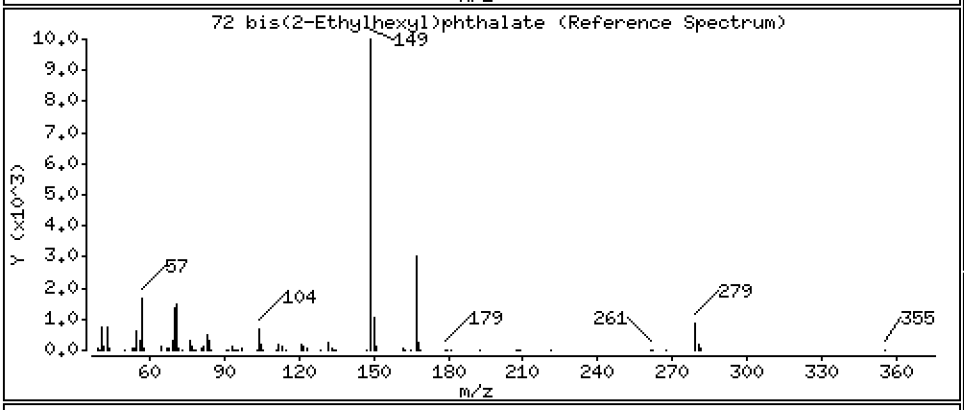
Column diameter: 0.25

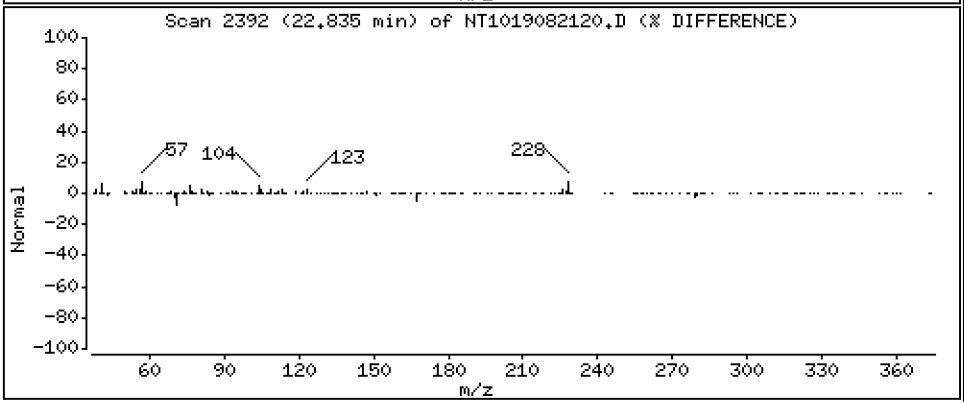
72 bis(2-Ethylhexyl)phthalate

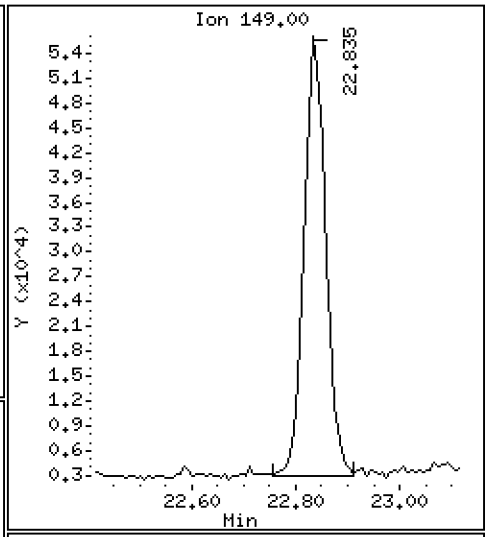
Concentration: 12.58 ug/mL

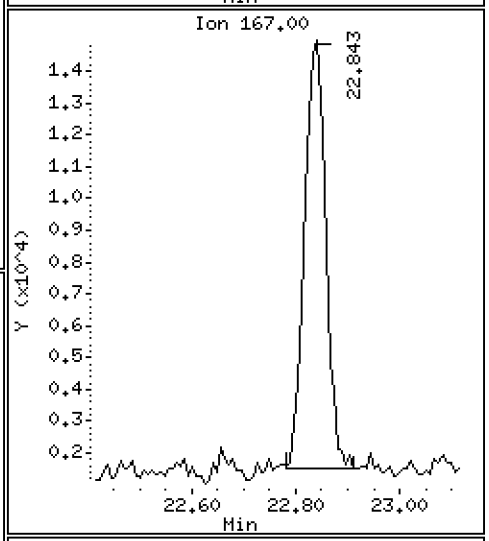


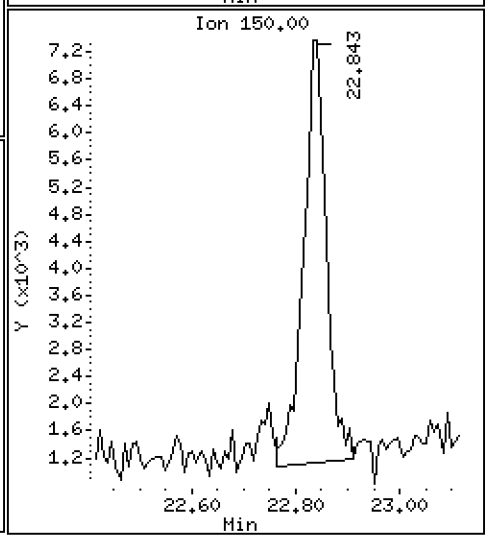












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

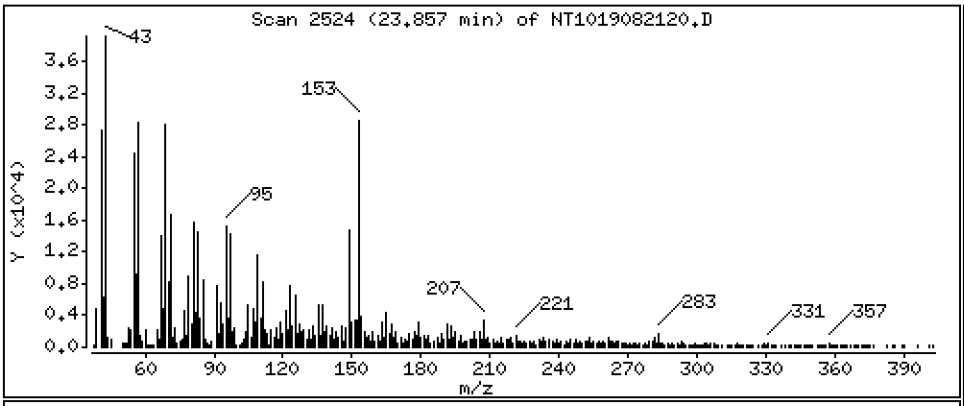
Operator: YZ

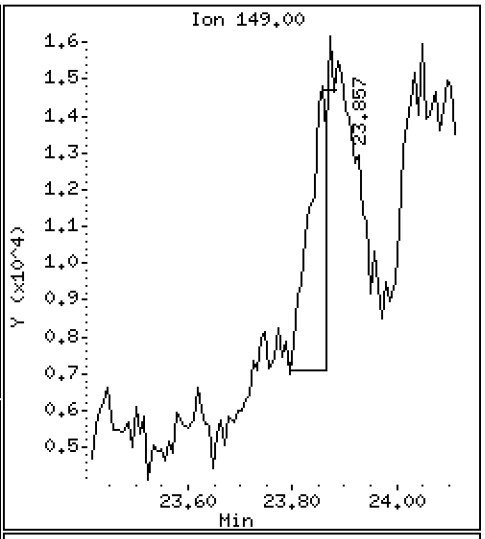
Column phase: ZB-5msi

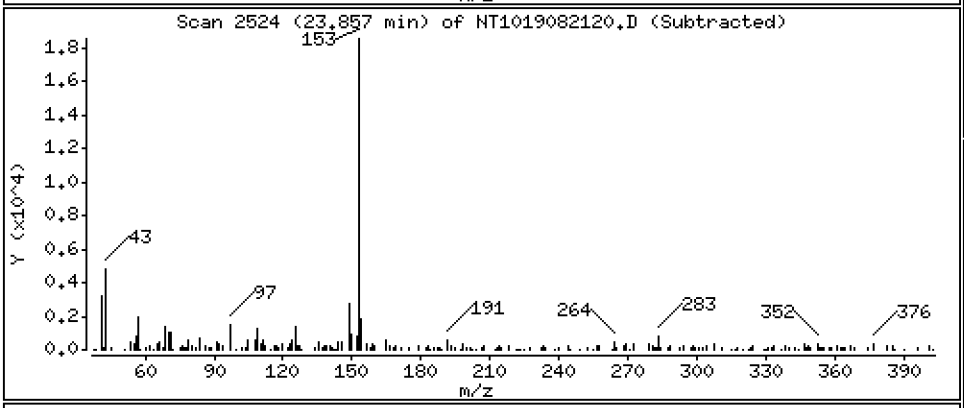
Column diameter: 0.25

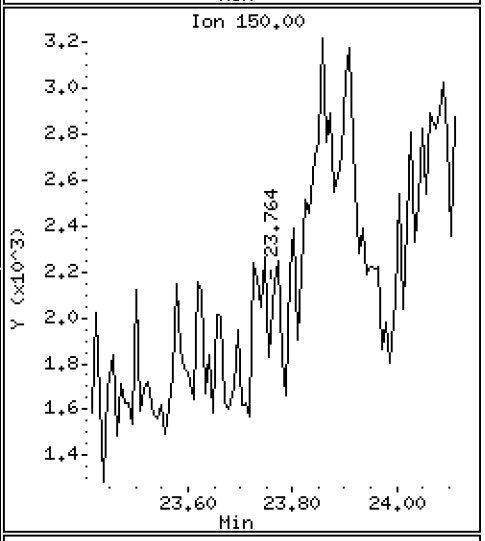
73 Di-n-octylphthalate

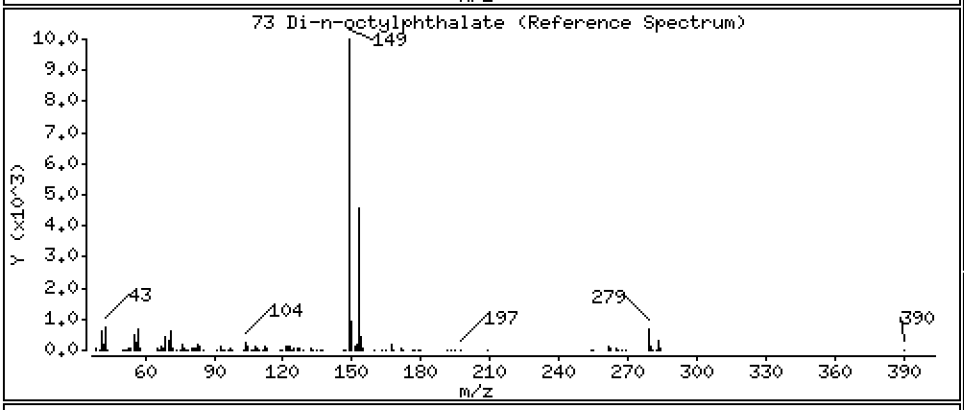
Concentration: 0.7144 ug/mL

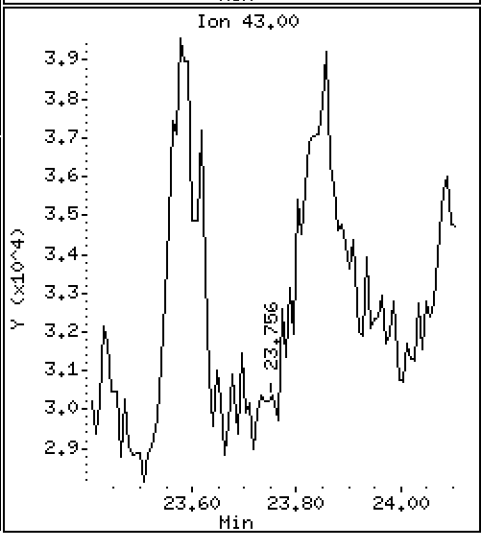


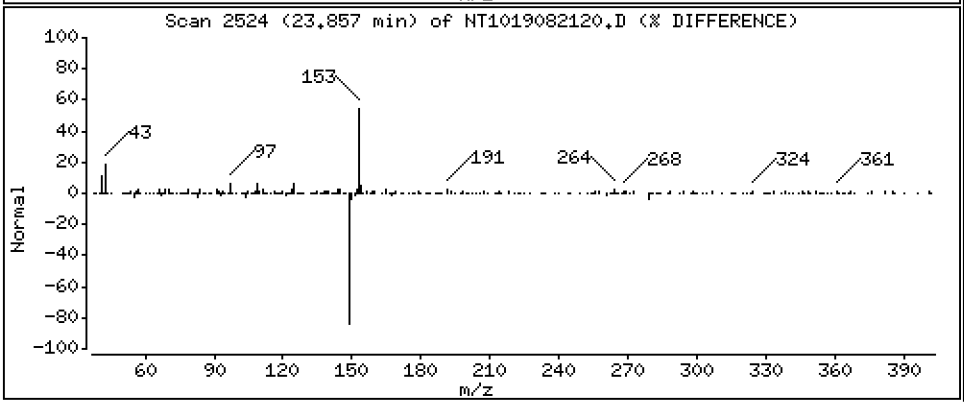












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

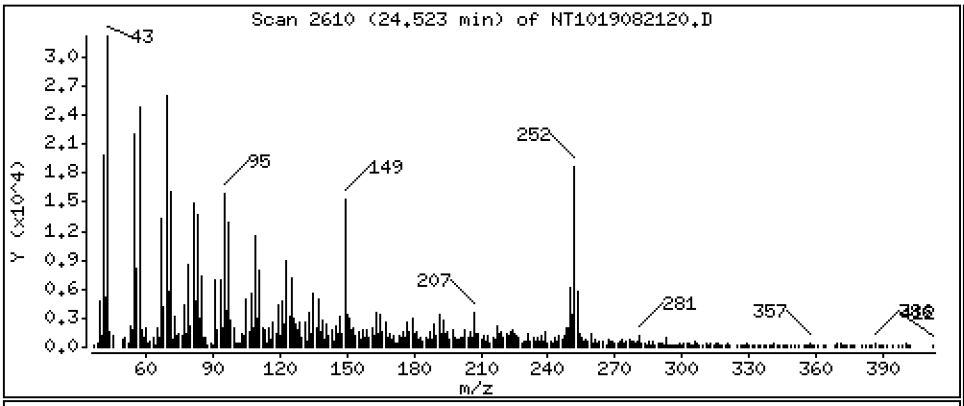
Operator: YZ

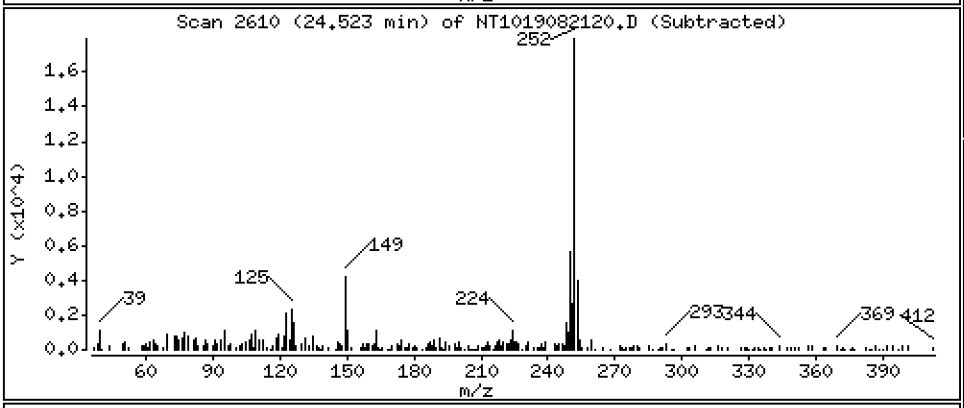
Column phase: ZB-5msi

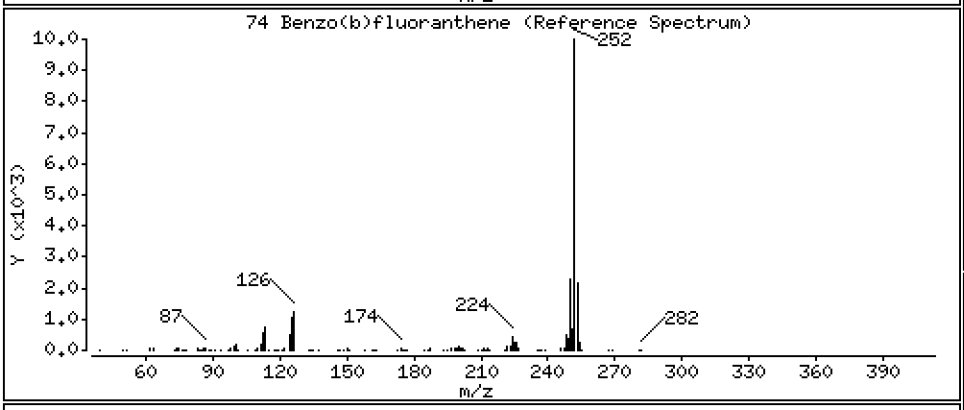
Column diameter: 0.25

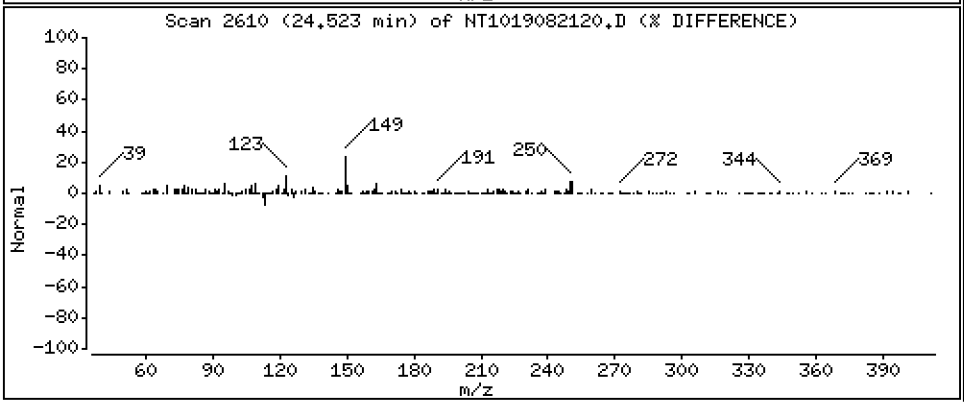
74 Benzo(b)fluoranthene

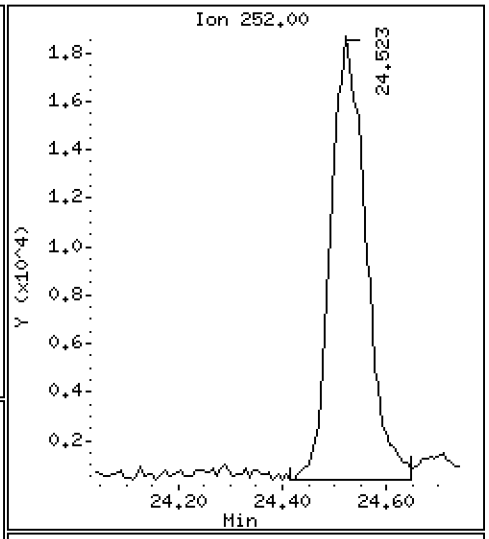
Concentration: 6.643 ug/mL

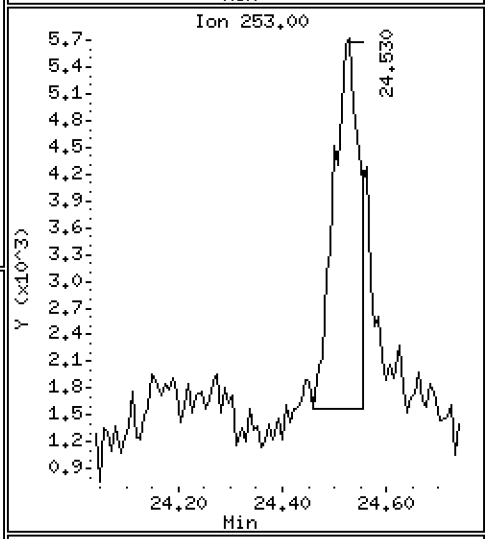


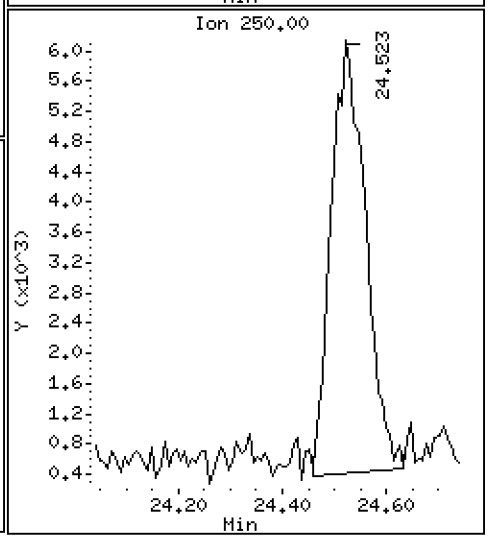












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

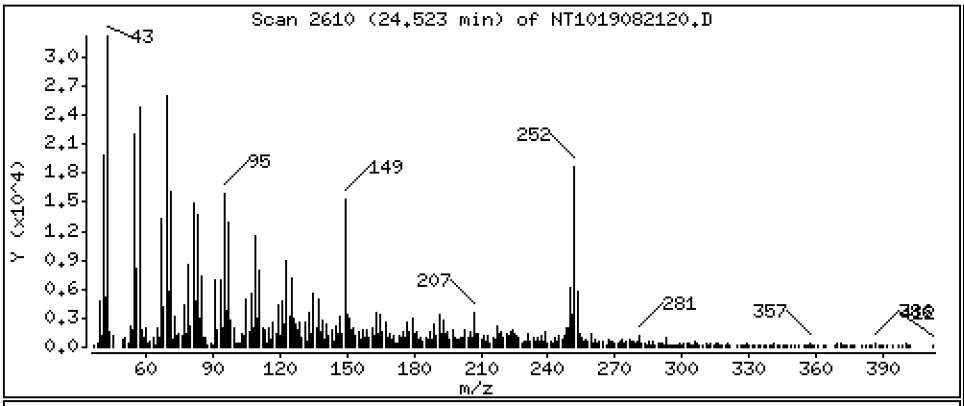
Operator: YZ

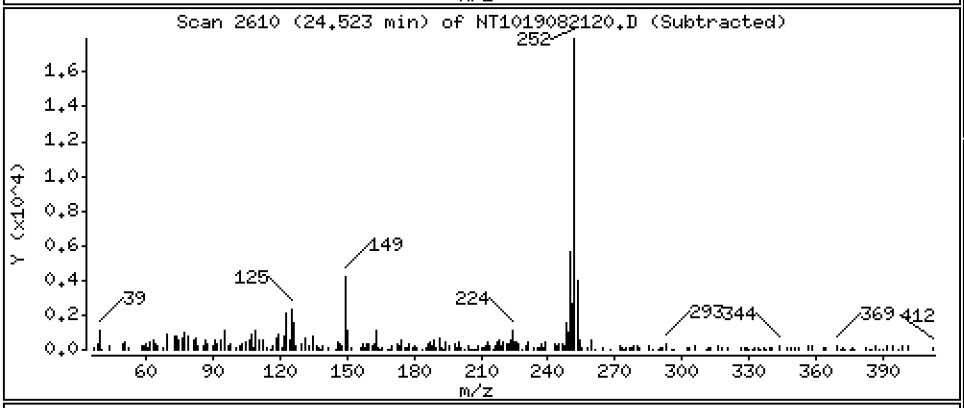
Column phase: ZB-5msi

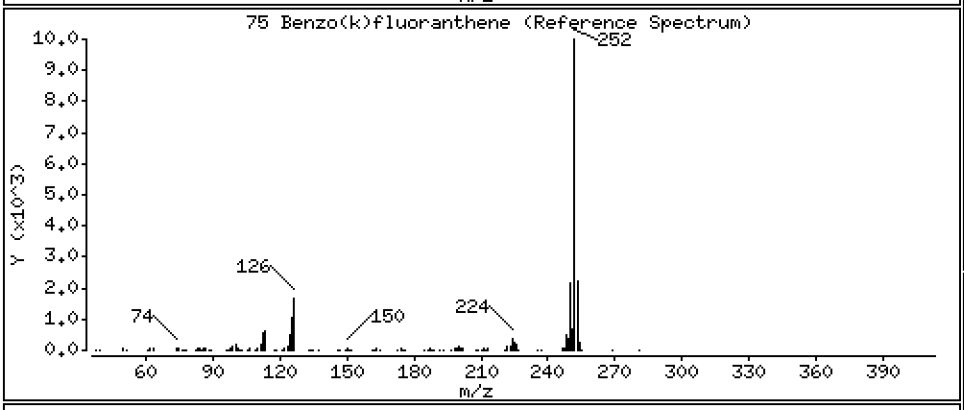
Column diameter: 0.25

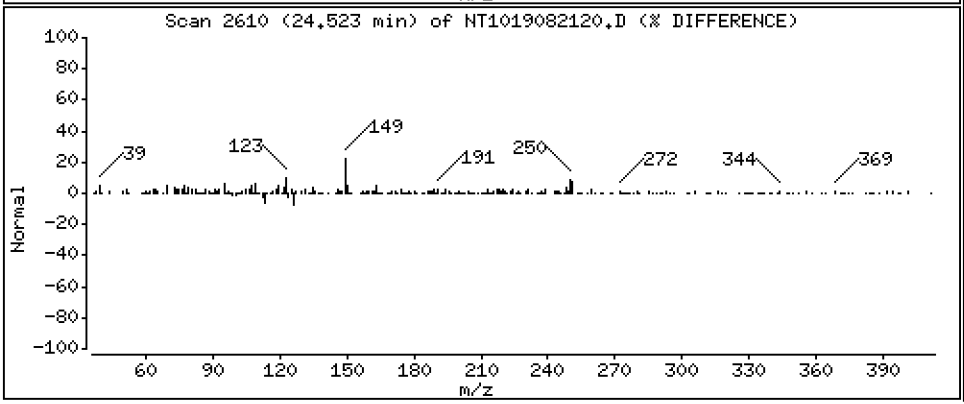
75 Benzo(k)fluoranthene

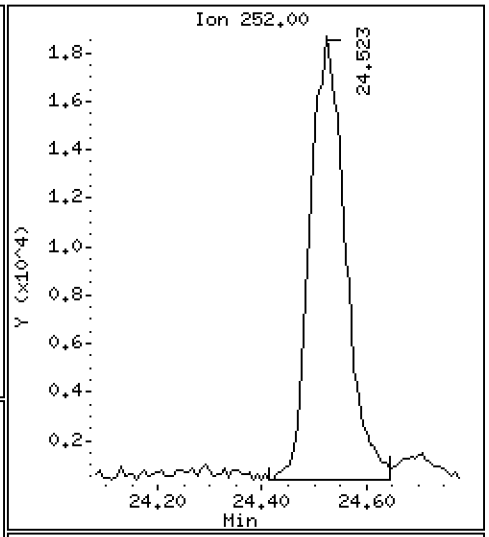
Concentration: 6.603 ug/mL

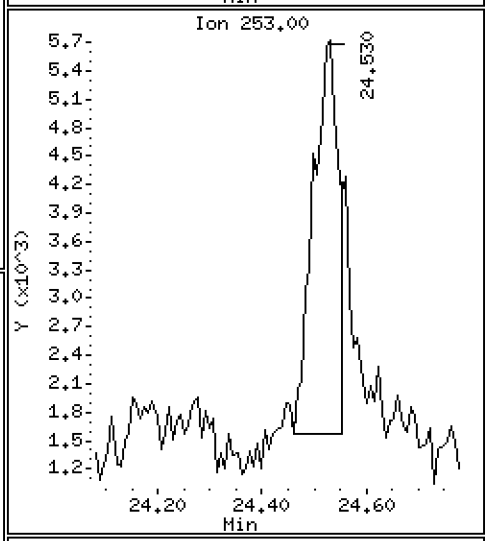


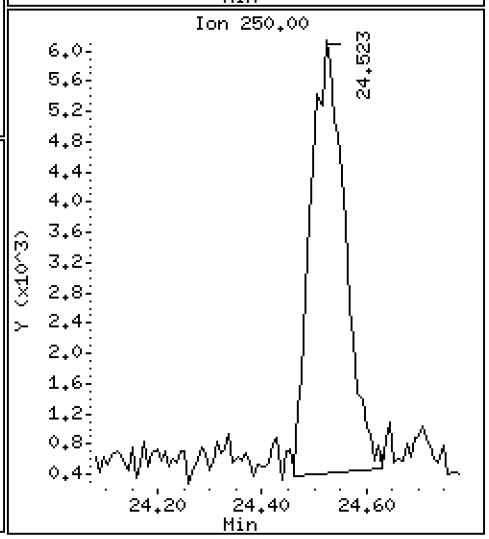












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

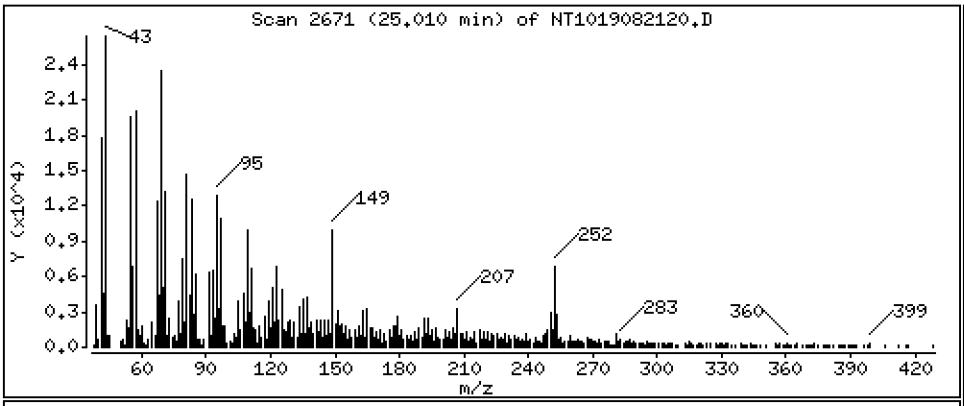
Operator: YZ

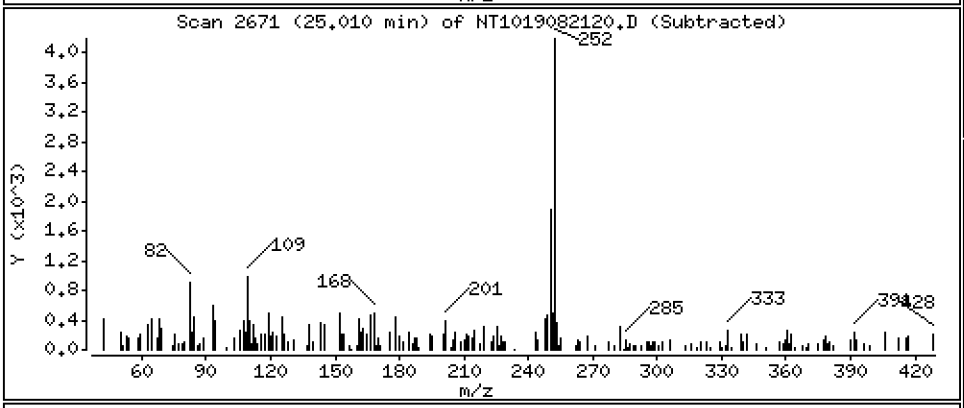
Column phase: ZB-5msi

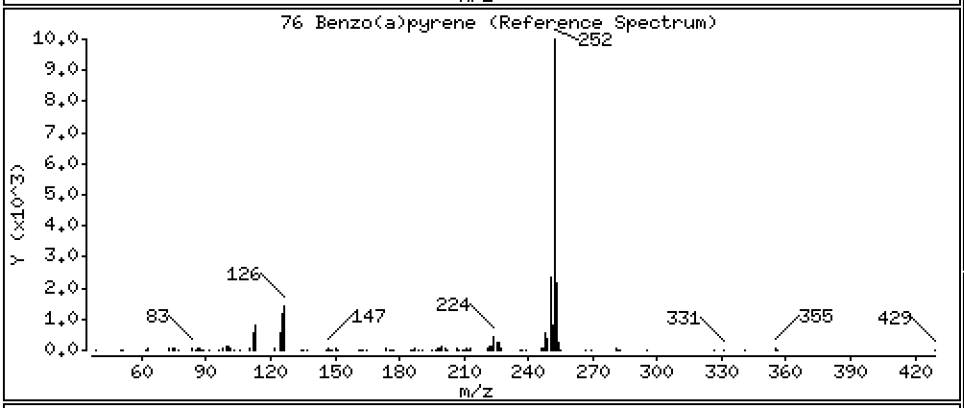
Column diameter: 0.25

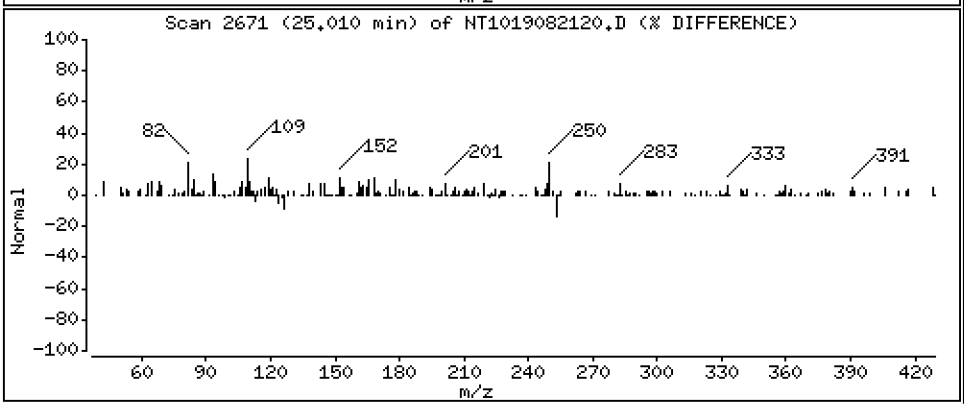
76 Benzo(a)pyrene

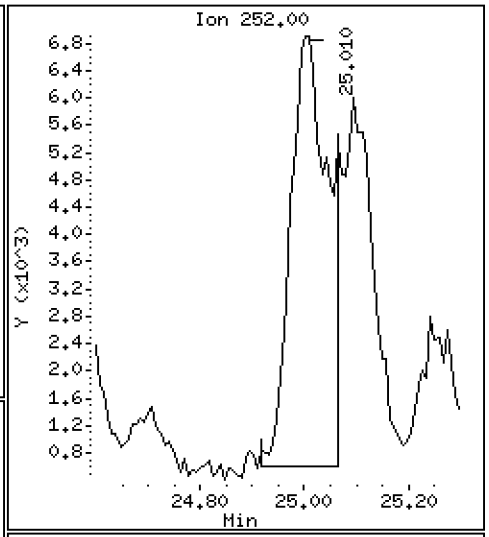
Concentration: 2.768 ug/mL

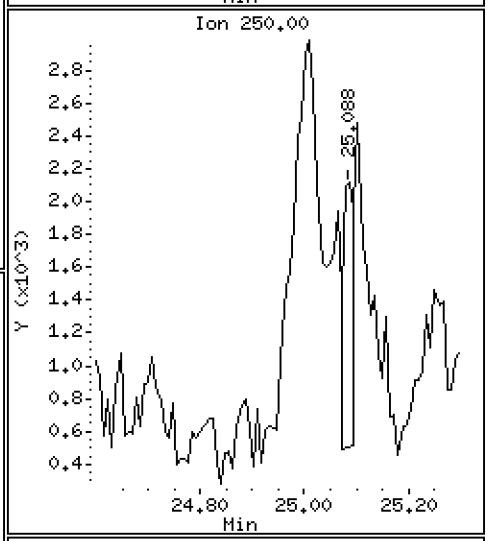


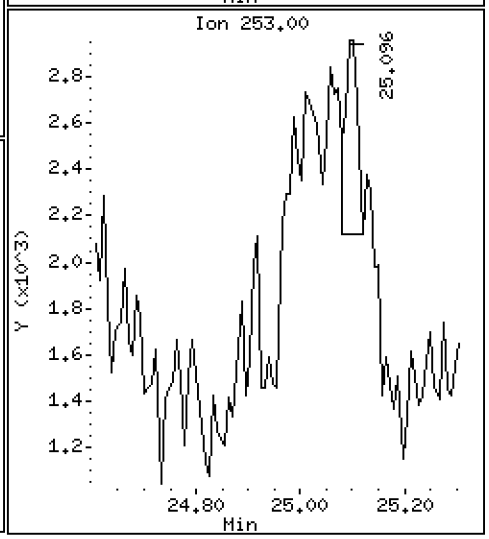












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

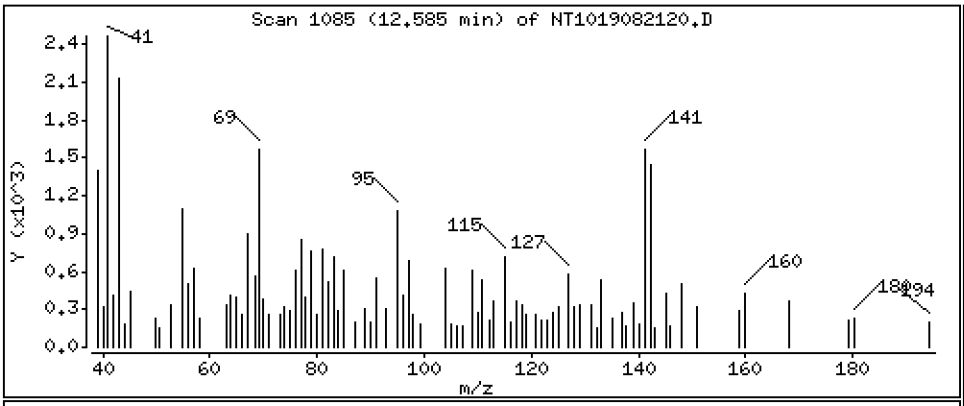
Operator: YZ

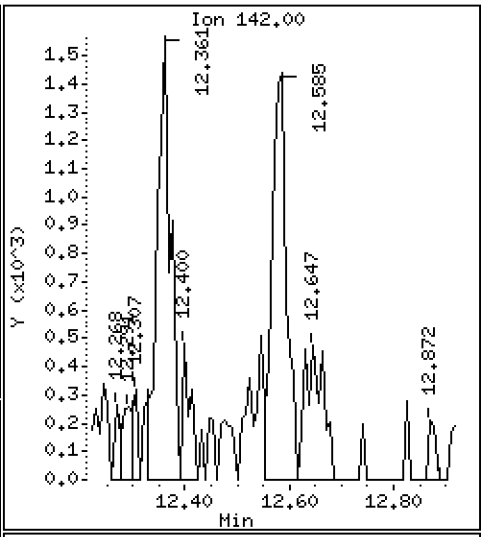
Column phase: ZB-5msi

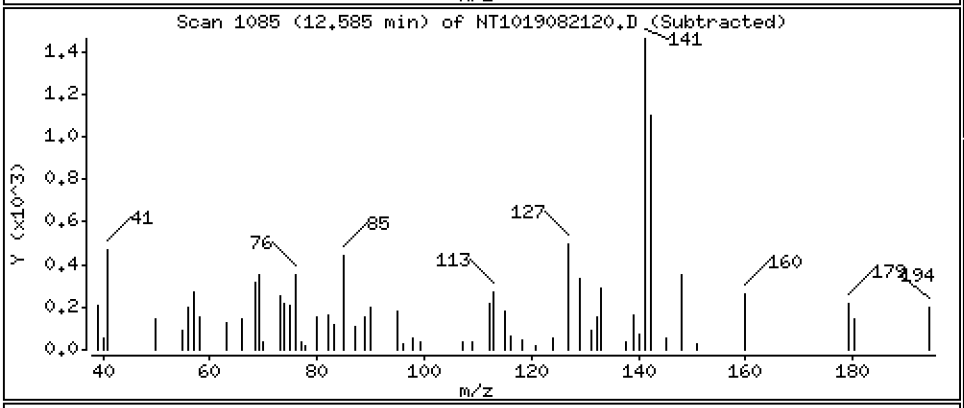
Column diameter: 0.25

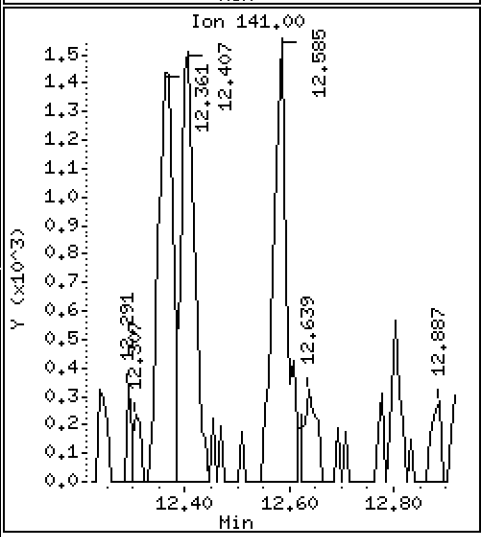
105 1-methylnaphthalene

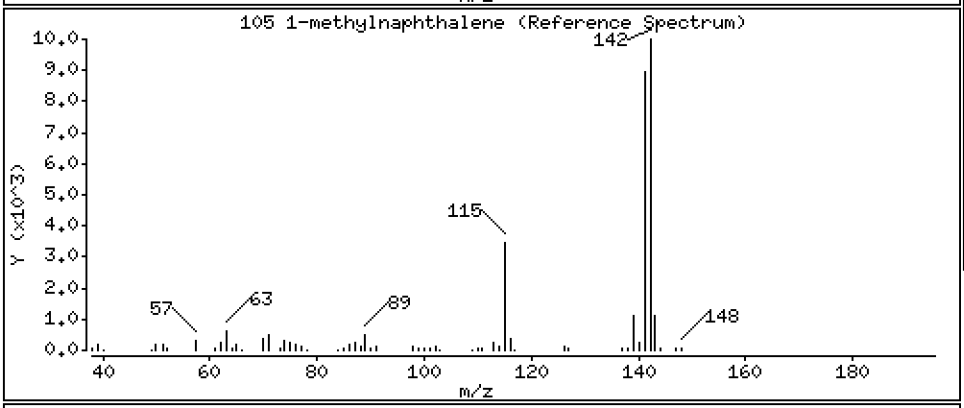
Concentration: 0.1032 ug/mL

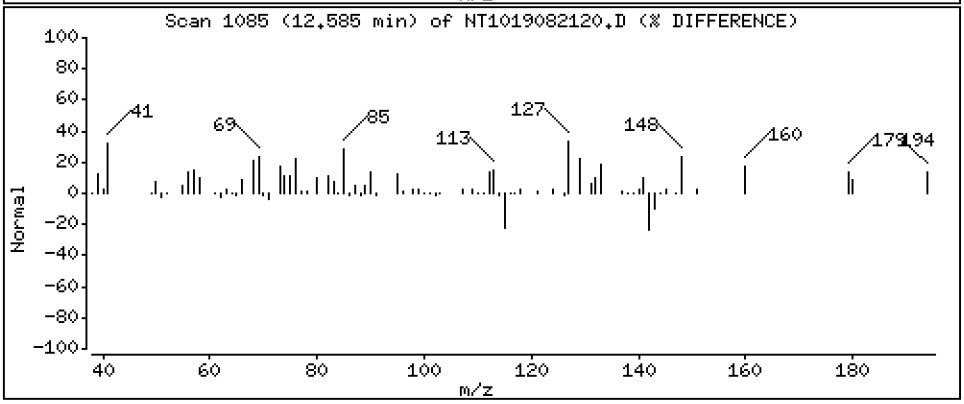












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

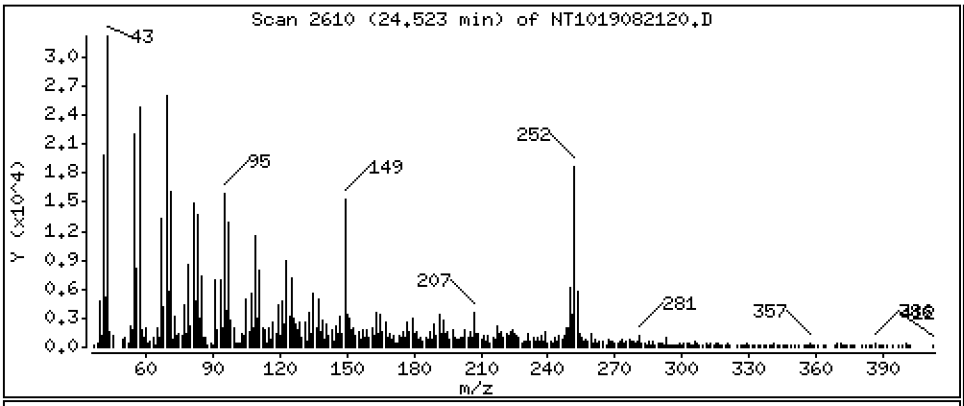
Operator: YZ

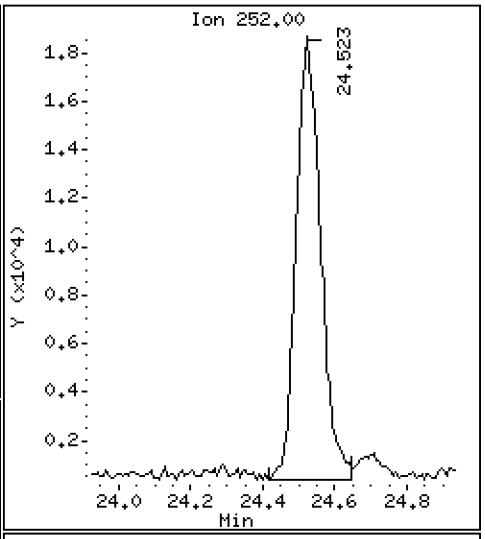
Column phase: ZB-5msi

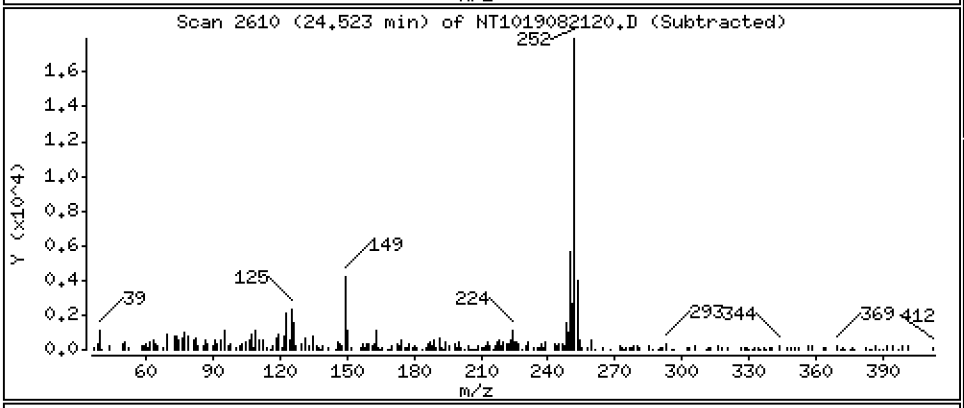
Column diameter: 0.25

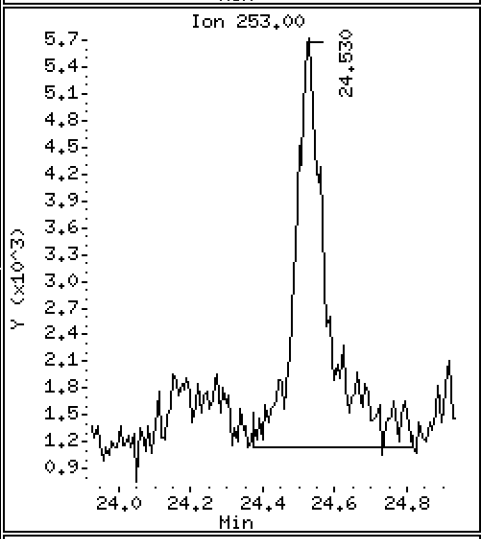
187 Total Benzofluoranthenes

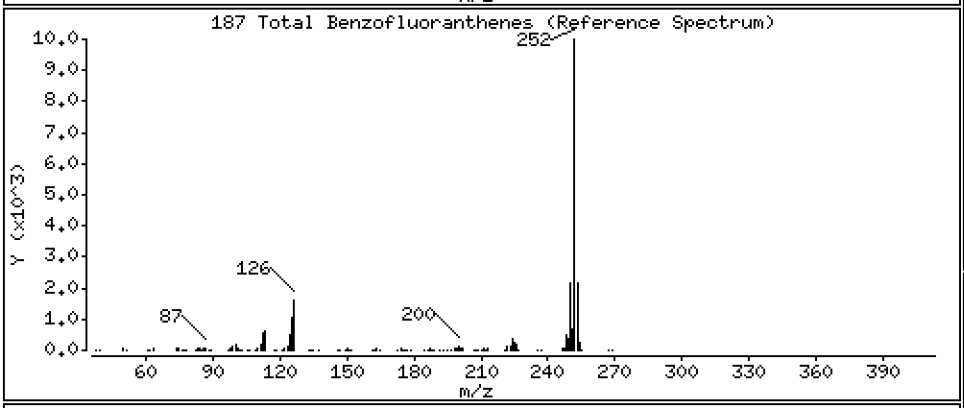
Concentration: 6.926 ug/mL

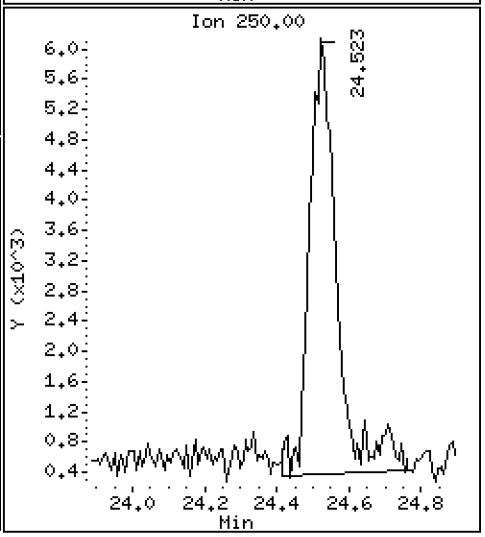


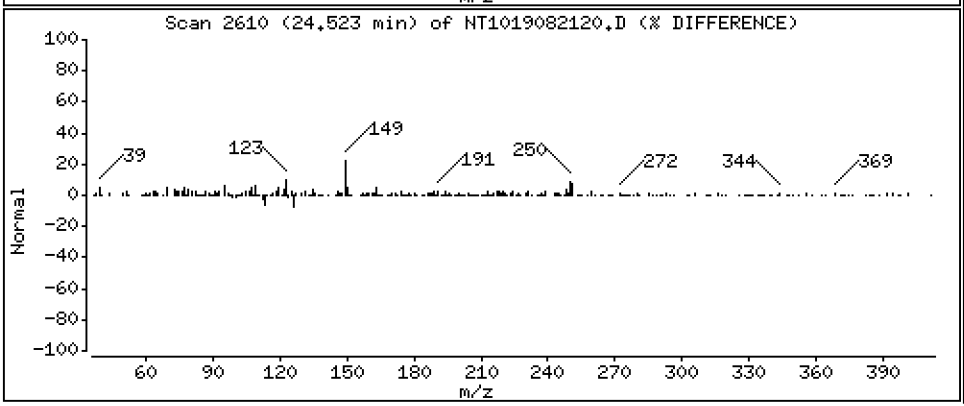












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D

Date : 21-AUG-2019 22:00

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11

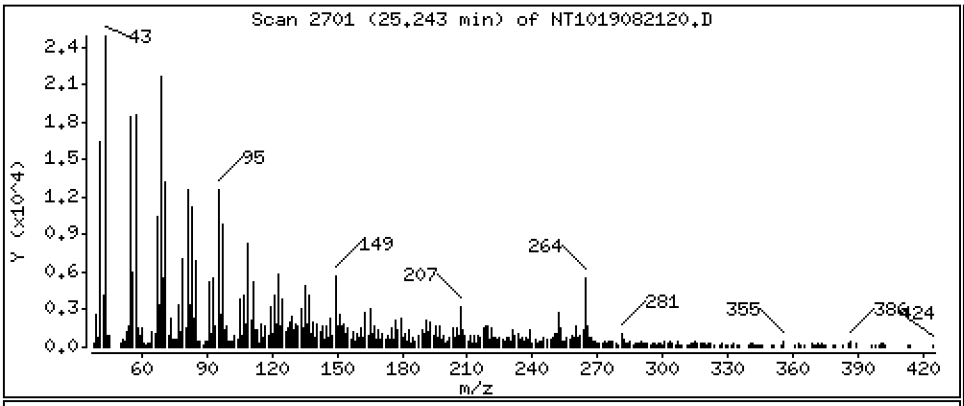
Operator: YZ

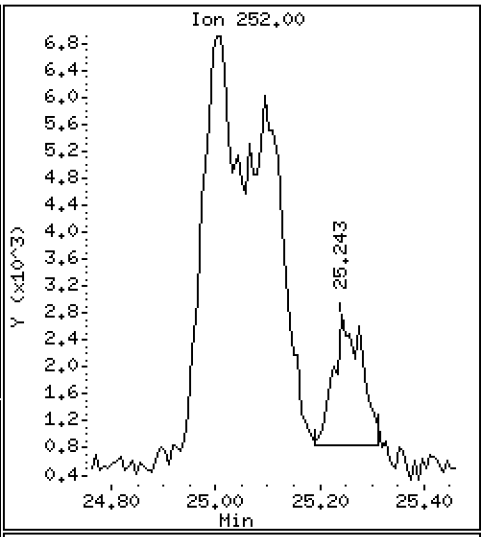
Column phase: ZB-5msi

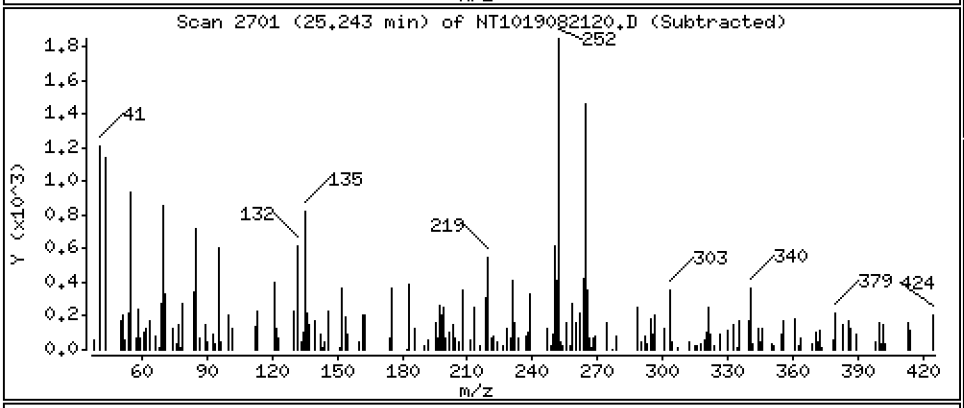
Column diameter: 0.25

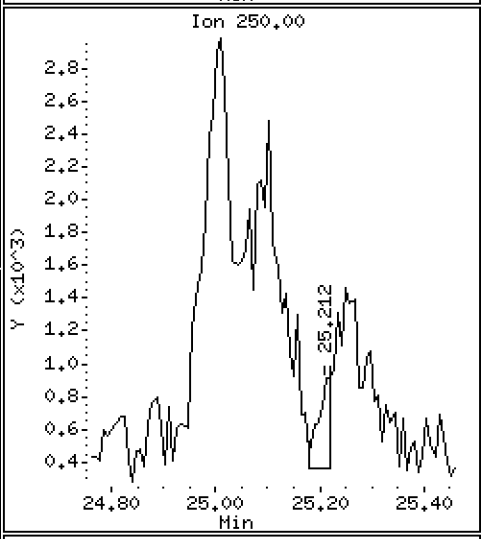
99 Perylene

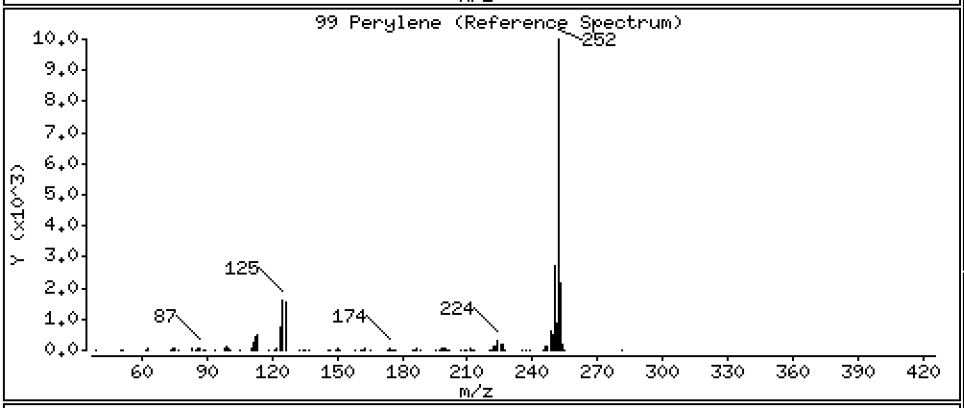
Concentration: 0.6890 ug/mL

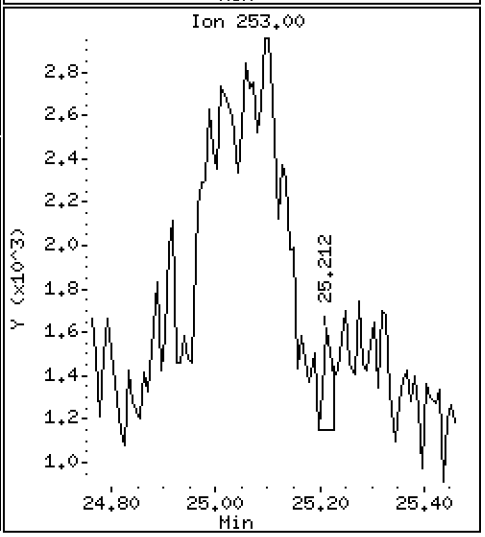


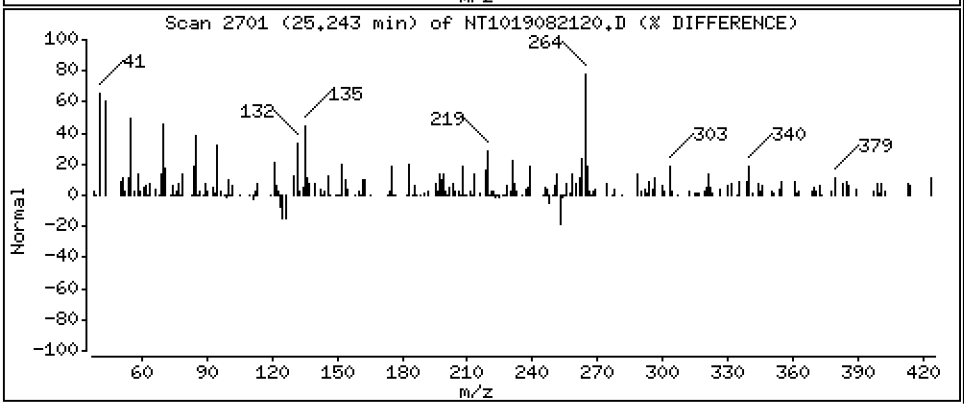












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082120.D
Lab Smp Id: 19H0024-11
Inj Date : 21-AUG-2019 22:00
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-11
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 16
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.334	6.311	(0.747)	43018	4.17426	4.174
$	2 Phenol-d5	99	7.903	7.888	(0.932)	49384	4.27582	4.276
	3 Phenol	94	7.926	7.911	(0.934)	2258	0.21029	0.2103
$	5 2-Chlorophenol-d4	132	8.135	8.127	(0.959)	72167	5.80443	5.804
	4 Bis(2-Chloroethyl)ether	93	Compound Not Detected.					
	6 2-Chlorophenol	128	Compound Not Detected.					
	7 1,3-Dichlorobenzene	146	Compound Not Detected.					
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	36700	4.00000	
	9 1,4-Dichlorobenzene	146	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	152	8.840	8.832	(1.042)	32117	3.77832	3.778
	12 1,2-Dichlorobenzene	146	Compound Not Detected.					
	11 Benzyl alcohol	108	8.786	8.762	(1.036)	1245	0.17519	0.1752
	14 2,2'-oxybis(1-Chloropropane)	121	Compound Not Detected.					
	13 2-Methylphenol	108	Compound Not Detected.					
	17 Hexachloroethane	117	Compound Not Detected.					
	16 N-Nitroso-di-n-propylamine	70	Compound Not Detected.					
	15 4-Methylphenol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.562	9.554	(0.875)	37601	3.43620	3.436
	19 Nitrobenzene	77	Compound Not Detected.					
	20 Isophorone	82	Compound Not Detected.					
	21 2-Nitrophenol	139	Compound Not Detected.					
	22 2,4-Dimethylphenol	107	Compound Not Detected.					
	23 Bis(2-Chloroethoxy)methane	93	Compound Not Detected.					
	24 Benzoic acid	105	10.476	10.510	(0.959)	7434	0.94354	0.9435
	25 2,4-Dichlorophenol	162	Compound Not Detected.					
	26 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.929	10.929	(1.000)	139912	4.00000	
	28 Naphthalene	128	10.968	10.968	(1.004)	4316	0.13420	0.1342
	29 4-Chloroaniline	127	Compound Not Detected.					
	30 Hexachlorobutadiene	225	Compound Not Detected.					
	31 4-Chloro-3-methylphenol	107	Compound Not Detected.					
	32 2-Methylnaphthalene	142	12.360	12.353	(1.131)	2944	0.10792	0.1079
	33 Hexachlorocyclopentadiene	237	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	Compound Not Detected.					
	35	2,4,5-Trichlorophenol	196	Compound Not Detected.					
$	36	2-Fluorobiphenyl	172	13.150	13.142	(0.906)	117178	4.49035	4.490
	37	2-Chloronaphthalene	162	Compound Not Detected.					
	38	2-Nitroaniline	65	Compound Not Detected.					
	39	Dimethylphthalate	163	Compound Not Detected.					
	40	Acenaphthylene	152	14.210	14.195	(0.979)	4552	0.13841	0.1384(H)
	41	2,6-Dinitrotoluene	165	14.202	14.194	(0.978)	361	0.06451	0.06451
*	42	Acenaphthene-d10	164	14.520	14.512	(1.000)	68225	4.00000	
	43	3-Nitroaniline	138	Compound Not Detected.					
	44	Acenaphthene	153	14.589	14.574	(1.005)	29536	1.42930	1.429
	45	2,4-Dinitrophenol	184	Compound Not Detected.					
	46	Dibenzofuran	168	14.914	14.898	(1.027)	20756	0.61115	0.6111
	47	4-Nitrophenol	109	Compound Not Detected.					
	48	2,4-Dinitrotoluene	165	Compound Not Detected.					
	50	Diethylphthalate	149	15.525	15.517	(1.069)	1764	0.07226	0.07226(M)
	49	Fluorene	166	15.625	15.610	(1.076)	22659	0.97558	0.9756
	51	4-Chlorophenyl-phenylether	204	Compound Not Detected.					
	52	4-Nitroaniline	138	Compound Not Detected.					
	53	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.					
	54	N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55	2,4,6-Tribromophenol	330	16.173	16.142	(1.114)	28318	5.48928	5.489
	56	4-Bromophenyl-phenylether	248	Compound Not Detected.					
	57	Hexachlorobenzene	284	Compound Not Detected.					
	58	Pentachlorophenol	266	Compound Not Detected.					
*	59	Phenanthrene-d10	188	17.549	17.525	(1.000)	116825	4.00000	
	60	Phenanthrene	178	17.595	17.572	(1.003)	82091	2.87668	2.877
	61	Anthracene	178	17.688	17.665	(1.008)	19236	0.66387	0.6639
	62	Carbazole	167	18.051	18.012	(1.029)	17300	0.63447	0.6345
	63	Di-n-butylphthalate	149	Compound Not Detected.					
	64	Fluoranthene	202	20.040	19.993	(0.881)	196259	10.3752	10.38
	65	Pyrene	202	20.481	20.411	(0.900)	131445	6.65444	6.654
$	66	Terphenyl-d14	244	20.814	20.744	(0.915)	79654	5.94599	5.946
	67	Butylbenzylphthalate	149	Compound Not Detected.					
	68	Benzo(a)anthracene	228	22.726	22.610	(0.999)	24957	1.38962	1.390
*	69	Chrysene-d12	240	22.749	22.633	(1.000)	61900	4.00000	
	70	3,3'-Dichlorobenzidine	252	Compound Not Detected.					
	71	Chrysene	228	22.803	22.680	(1.002)	60649	3.81633	3.816(M)
	72	bis(2-Ethylhexyl)phthalate	149	22.834	22.765	(0.958)	152212	12.5833	12.58
*	134	Di-n-octylphthalate-d4	153	23.841	23.756	(1.000)	137529	4.00000	
	73	Di-n-octylphthalate	149	23.856	23.763	(1.001)	18176	0.71439	0.7144(M)
	74	Benzo(b)fluoranthene	252	24.522	24.390	(0.973)	86688	6.64323	6.643
	75	Benzo(k)fluoranthene	252	24.522	24.429	(0.973)	86688	6.60345	6.603
	76	Benzo(a)pyrene	252	25.010	24.948	(0.993)	32414	2.76774	2.768(M)
*	77	Perylene-d12	264	25.196	25.056	(1.000)	45482	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
	79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	80	Benzo(g,h,i)perylene	276	Compound Not Detected.					
	90	N-Nitrosodimethylamine	74	Compound Not Detected.					
	91	Aniline	93	Compound Not Detected.					
	93	Benzidine	184	Compound Not Detected.					
	103	Pyridine	79	Compound Not Detected.					
	105	1-methylnaphthalene	142	12.585	12.569	(1.151)	2830	0.10319	0.1032
	111	Azobenzene (1,2-DP-Hydrazine)	77	Compound Not Detected.					

						CONCENTRATIONS	
	QUANT SIG					ON-COLUMN	FINAL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/mL)	(ug/mL)
187 Total Benzofluoranthenes	252	24.522	24.429	(0.973)	86688	6.92577	6.926
99 Perylene	252	25.242	25.110	(1.002)	7423	0.68902	0.6890(M)
98 Retene	219	Compound Not Detected.					
120 2,3,4,6-Tetrachlorophenol	232	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082120.D
Lab Smp Id: 19H0024-11
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT				
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF	
8 1,4-Dichlorobenze	32739	16370	65478	36700	12.10	
27 Naphthalene-d8	117487	58744	234974	139912	19.09	
42 Acenaphthene-d10	61859	30930	123718	68225	10.29	
59 Phenanthrene-d10	113574	56787	227148	116825	2.86	
69 Chrysene-d12	105788	52894	211576	61900	-41.49	
134 Di-n-octylphthala	252823	126412	505646	137529	-45.60	
77 Perylene-d12	113992	56996	227984	45482	-60.10	<-

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.52	0.05
59 Phenanthrene-d10	17.53	17.03	18.03	17.55	0.13
69 Chrysene-d12	22.63	22.13	23.13	22.75	0.51
134 Di-n-octylphthala	23.76	23.26	24.26	23.84	0.36
77 Perylene-d12	25.06	24.56	25.56	25.20	0.56

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082120.D

Lab ID: 19H0024-11
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 22:00

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.000	1.130	-0.1302	2-Methylnaphthalene
1.036	1.004	0.0314	Acenaphthene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate
0.959	0.973	-0.0149	Benzo(b)fluoranthene
1.131	1.091	0.0400	Dibenzo(a,h)anthracene
0.979	1.000	-0.0213	Acenaphthene-d10
0.978	1.000	-0.0219	Chrysene-d12
1.027	0.930	0.0973	Phenol-d5
1.076	0.906	0.1705	2-Fluorobiphenyl
1.069	0.917	0.1527	Terphenyl-d14

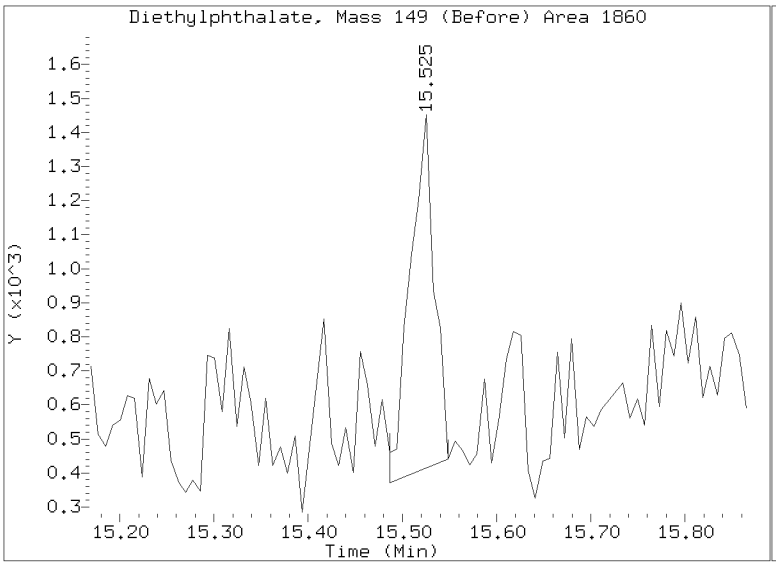
RRT check based on Ccal File: NT1019082105.D

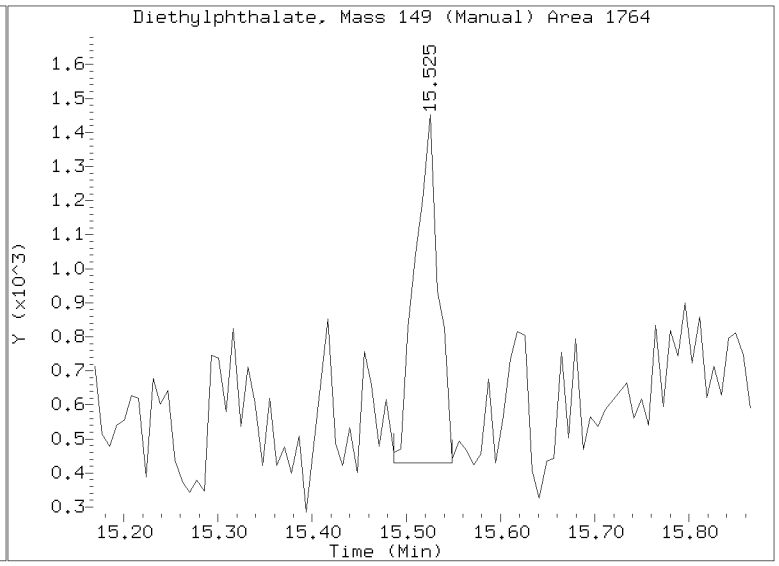
On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

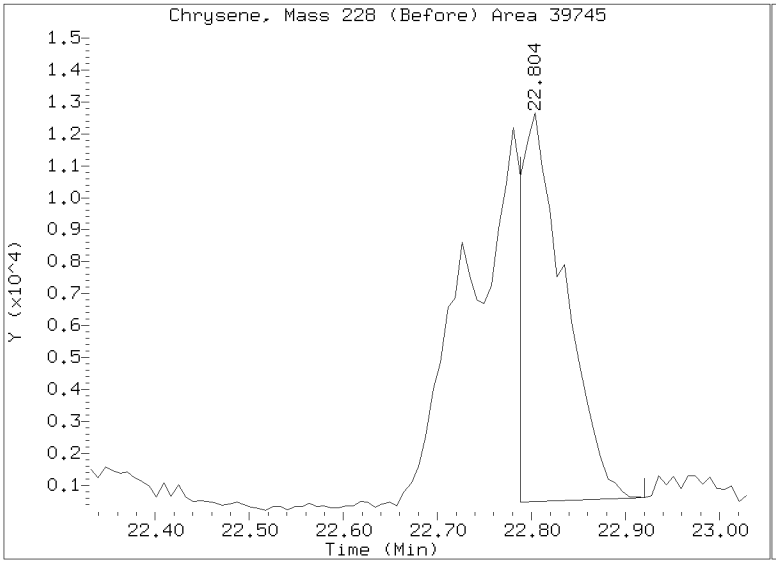
* Only compounds listed in the work order have been verified by the analyst *

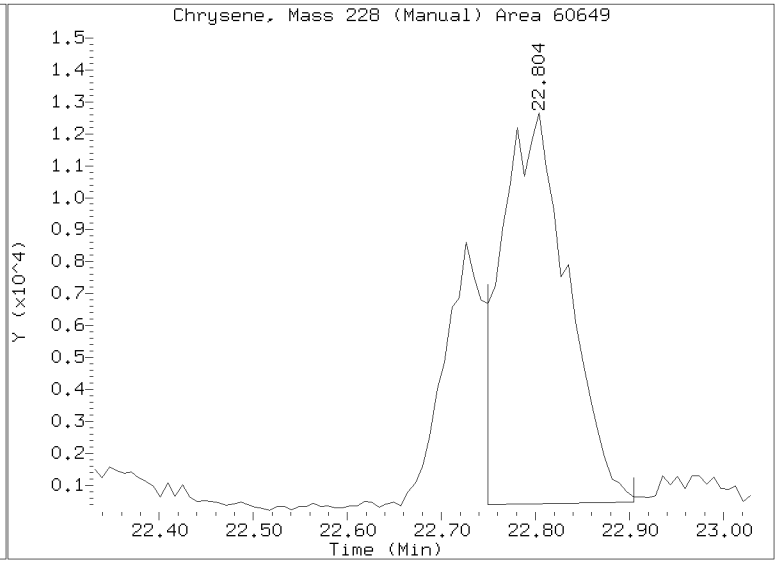
Quant Ion Manual Peak Adjustment Report

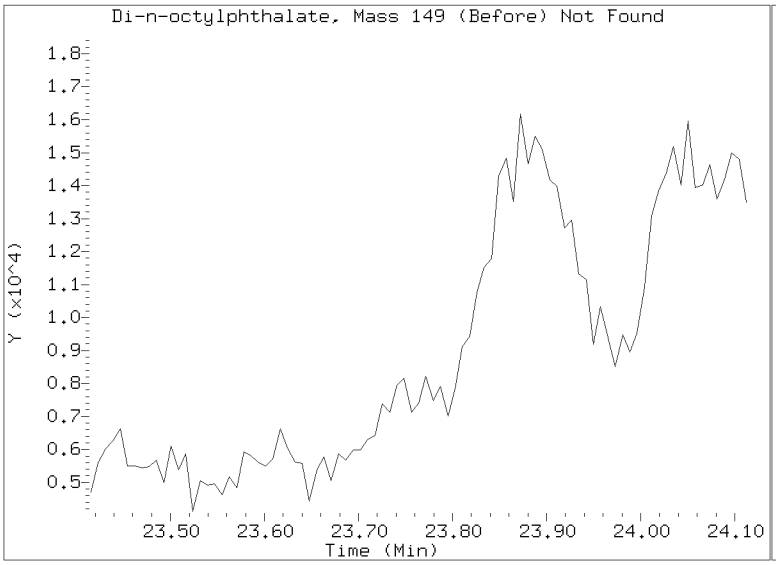
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082120.D
Injection Date: 21-AUG-2019 22:00
Lab ID:19H0024-11 Client ID:
Report Date: 08/22/2019 12:51

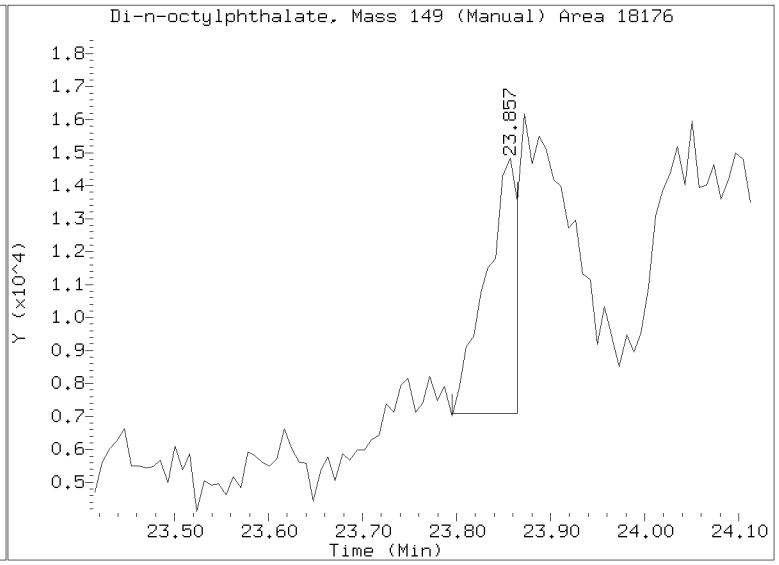






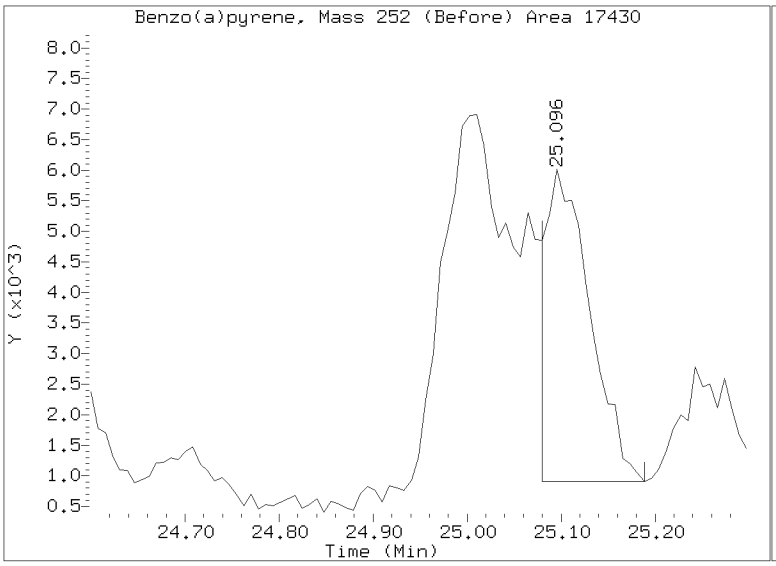


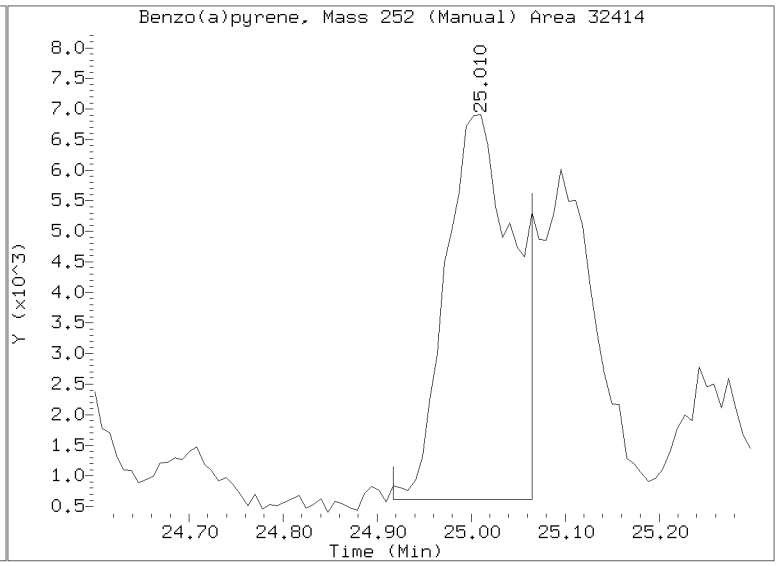


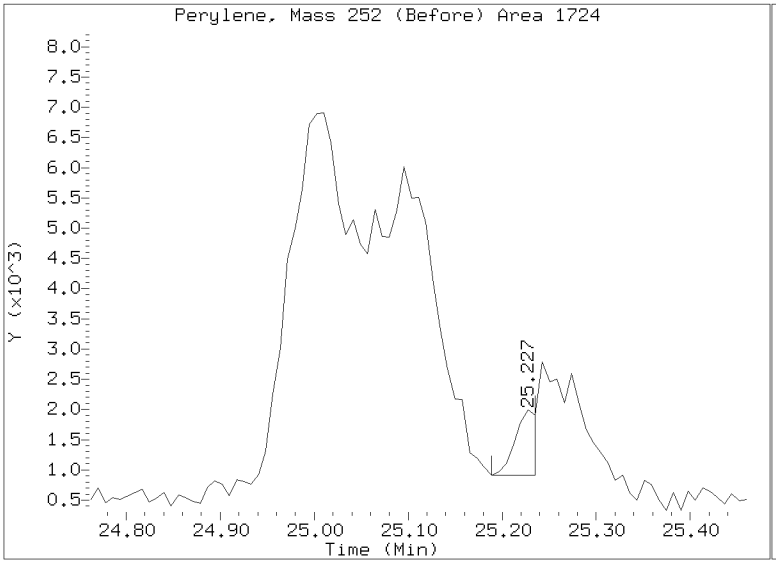


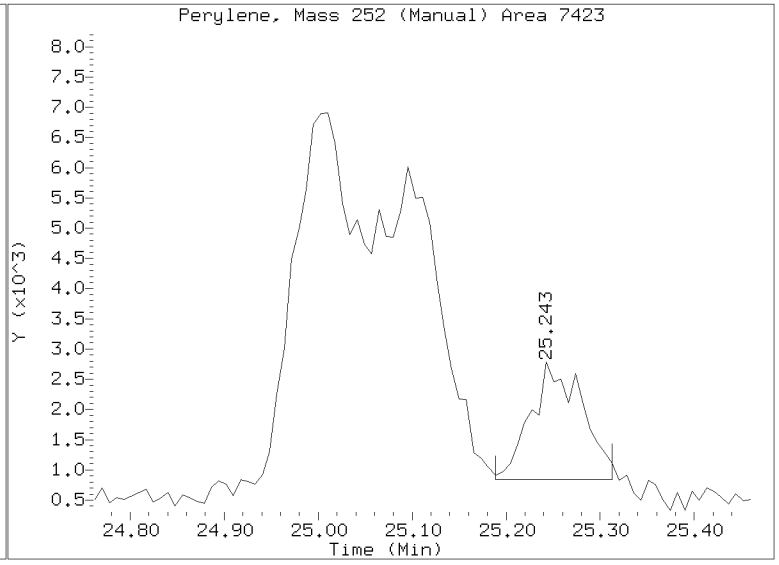
Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082120.D
Injection Date: 21-AUG-2019 22:00
Lab ID:19H0024-11 Client ID:
Report Date: 08/22/2019 12:51









SL4-IC-SC3-2019

Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D
Semivolatiles (20 ug/kg - 0.2 ug/L SepF)

Laboratory: Analytical Resources, Inc.

Client: Windward Environmental, LLC

Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix:	Solid	Laboratory ID:	19H0024-11RE1 C	SDG:	19H0024
Sampled:	08/01/19 12:10	Prepared:	08/13/19 12:40	File ID:	NT1019082217.D
% Solids:	65.51	Preparation:	EPA 3546 (Microwave)	Analyzed:	08/22/19 23:40
Batch:	BHH0289	Sequence:	SHH0325	Initial/Final:	15.39 g Wet / 1 mL
Instrument:	NT10	Column:	ZB-5MSi	Calibration:	CG00040

Cleanups: GPC

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
108-95-2	Phenol	3	59.5	U	24.5	59.5
100-51-6	Benzyl Alcohol	3	59.5	U	44.3	59.5
65-85-0	Benzoic acid	3	595	U	176	595
86-30-6	N-Nitrosodiphenylamine	3	59.5	U	28.5	59.5
85-01-8	Phenanthrene	3	216	D	14.0	59.5
206-44-0	Fluoranthene	3	665	D	13.4	59.5
129-00-0	Pyrene	3	483	D	16.5	59.5
85-68-7	Butylbenzylphthalate	3	59.5	U	24.0	59.5
56-55-3	Benzo(a)anthracene	3	115	D	15.4	59.5
218-01-9	Chrysene	3	219	D	15.5	59.5
117-81-7	bis(2-Ethylhexyl)phthalate	3	886	D	85.7	149
117-84-0	Di-n-Octylphthalate	3	53.3	J, D	25.9	59.5
	Benzofluoranthenes, Total	3	464	D	30.4	119
50-32-8	Benzo(a)pyrene	3	154	D	19.3	59.5
193-39-5	Indeno(1,2,3-cd)pyrene	3	144	D	17.8	59.5
53-70-3	Dibenzo(a,h)anthracene	3	59.5	U	18.3	59.5
191-24-2	Benzo(g,h,i)perylene	3	156	D	17.3	59.5

SURROGATES	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
2-Fluorophenol	743.90	315	42.3	27 - 120	
Phenol-d5	743.90	296	39.7	29 - 120	
2-Chlorophenol-d4	743.90	401	53.9	31 - 120	
1,2-Dichlorobenzene-d4	495.93	252	50.8	32 - 120	
Nitrobenzene-d5	495.93	255	51.4	30 - 120	
2-Fluorobiphenyl	495.93	313	63.0	35 - 120	
2,4,6-Tribromophenol	743.90	435	58.5	24 - 134	
p-Terphenyl-d14	495.93	444	89.6	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

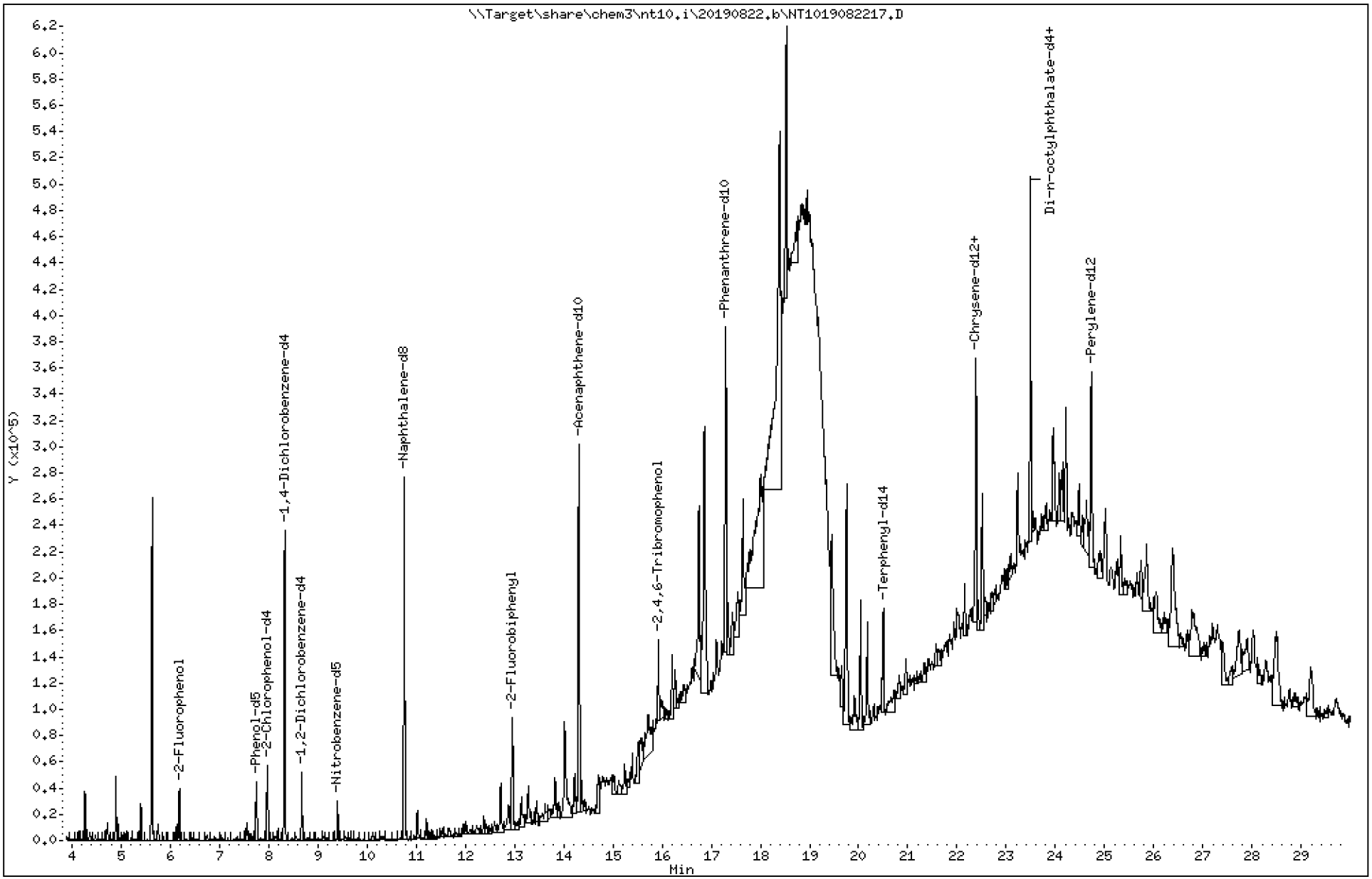
Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

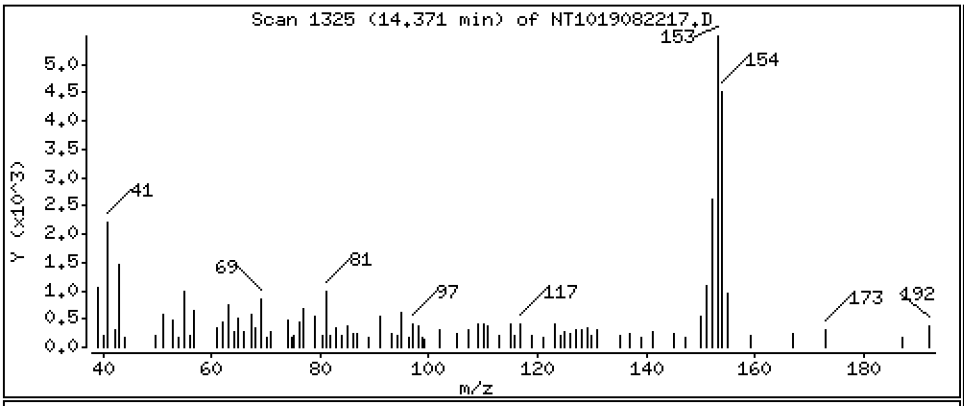
Operator: YZ

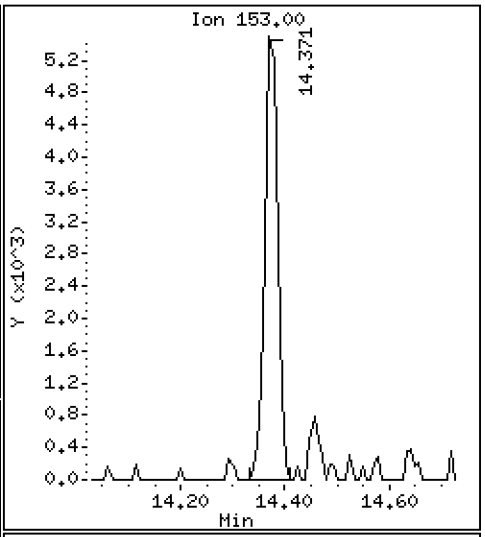
Column phase: ZB-5msi

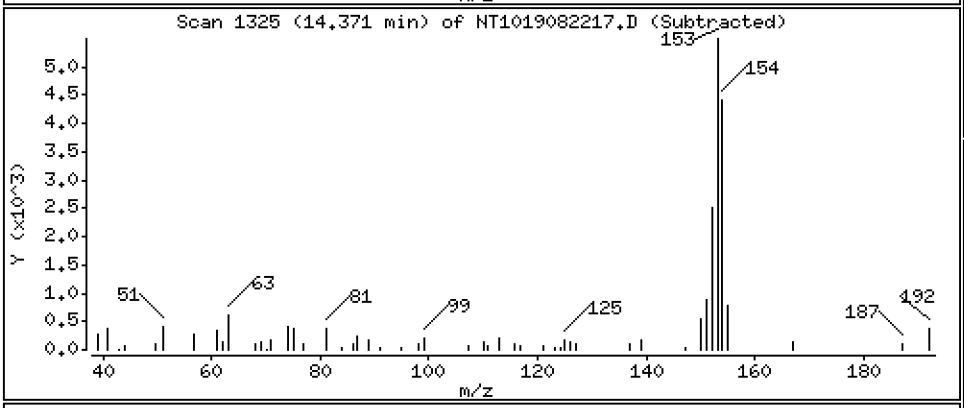
Column diameter: 0.25

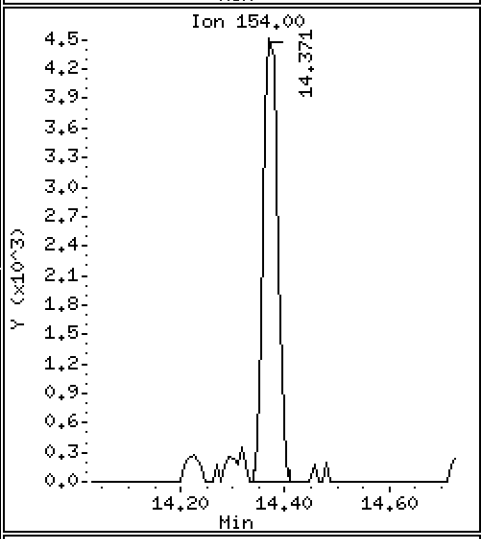
44 Acenaphthene

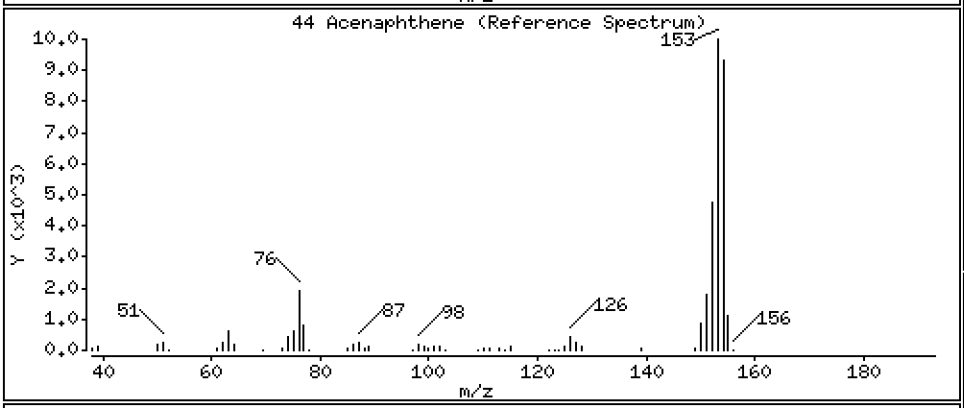
Concentration: 1.006 ug/mL

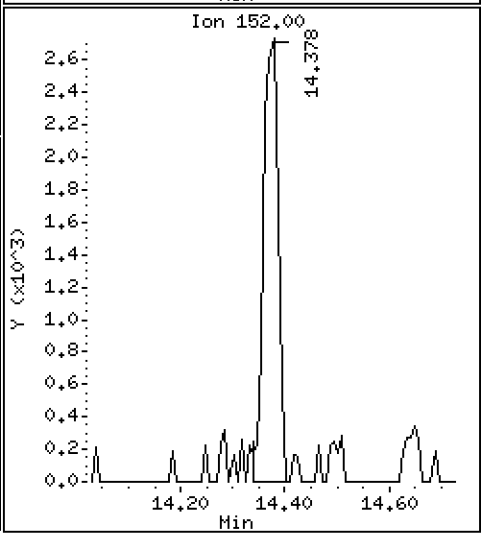


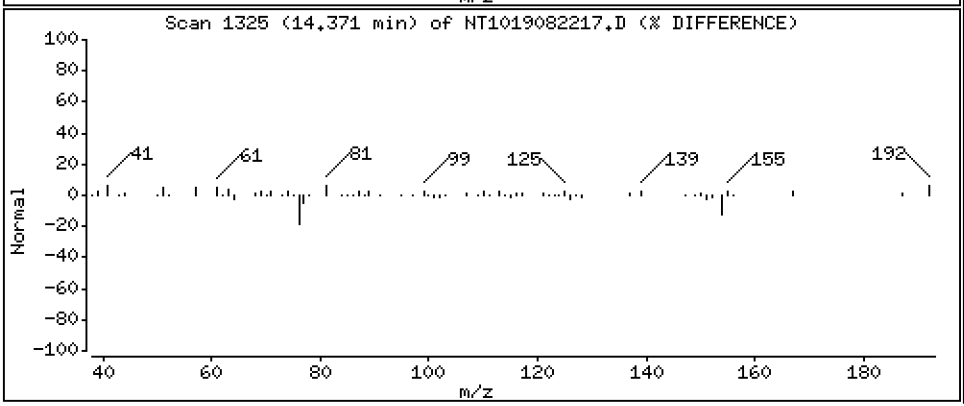












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

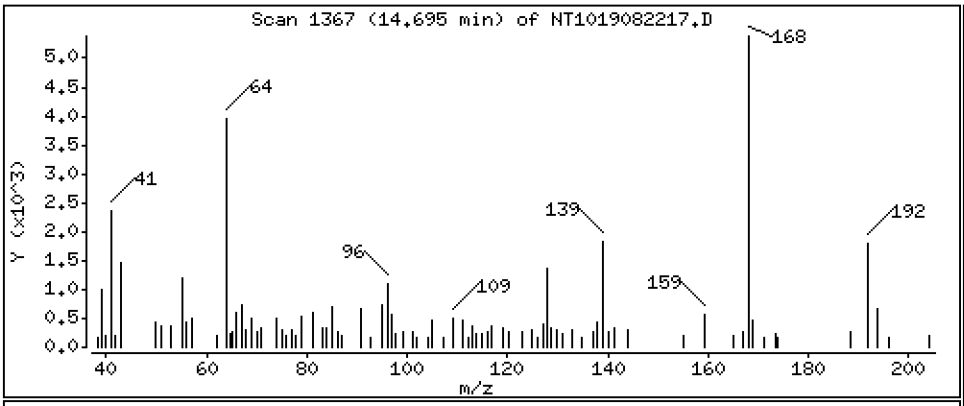
Operator: YZ

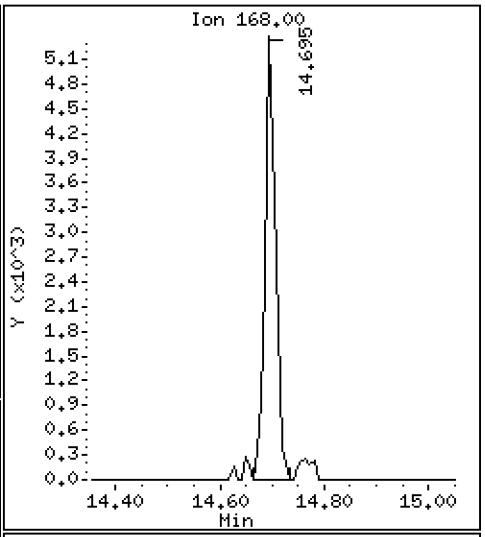
Column phase: ZB-5msi

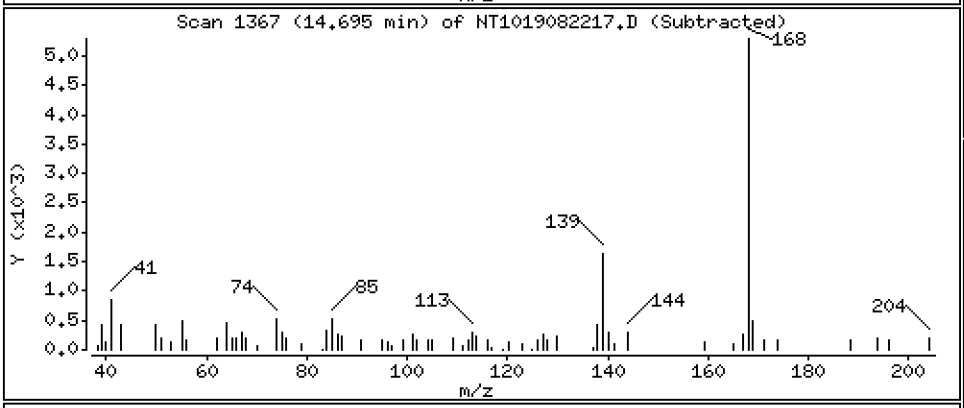
Column diameter: 0.25

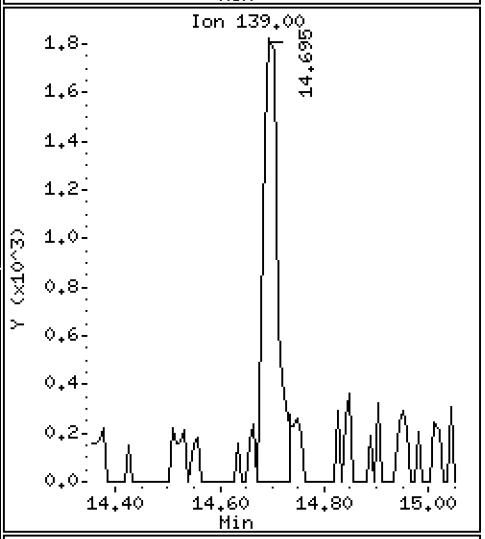
46 Dibenzofuran

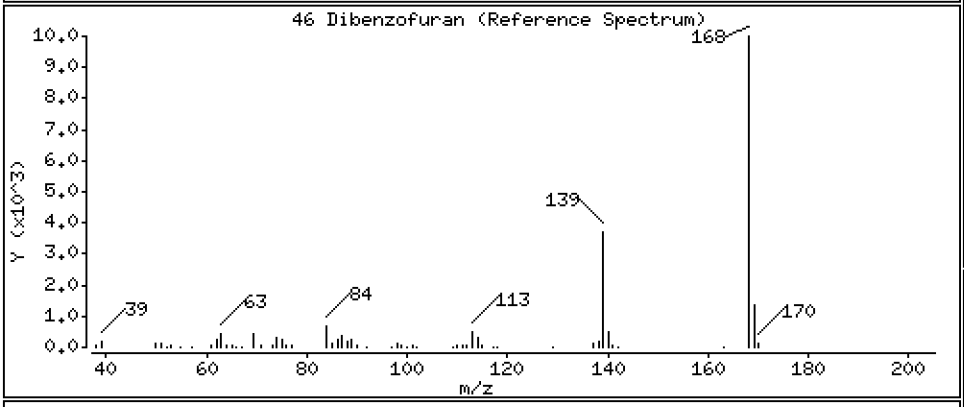
Concentration: 0.4723 ug/mL

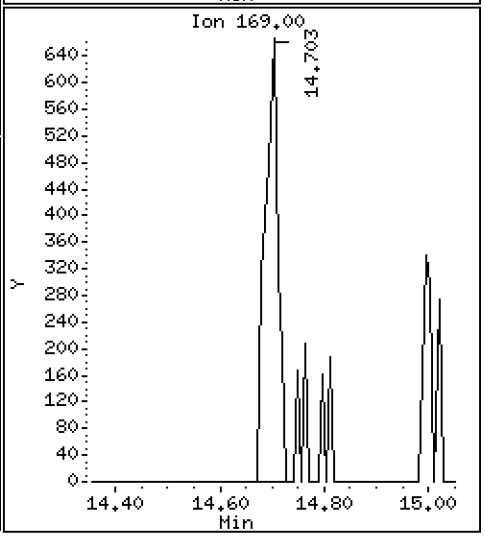


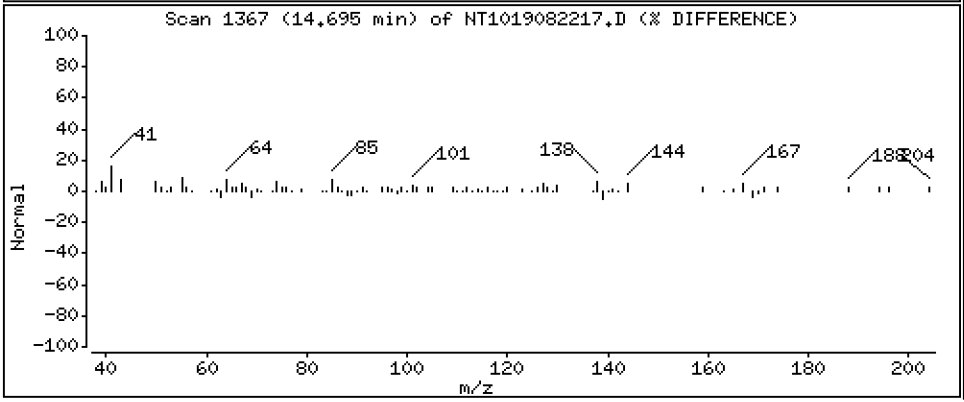












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

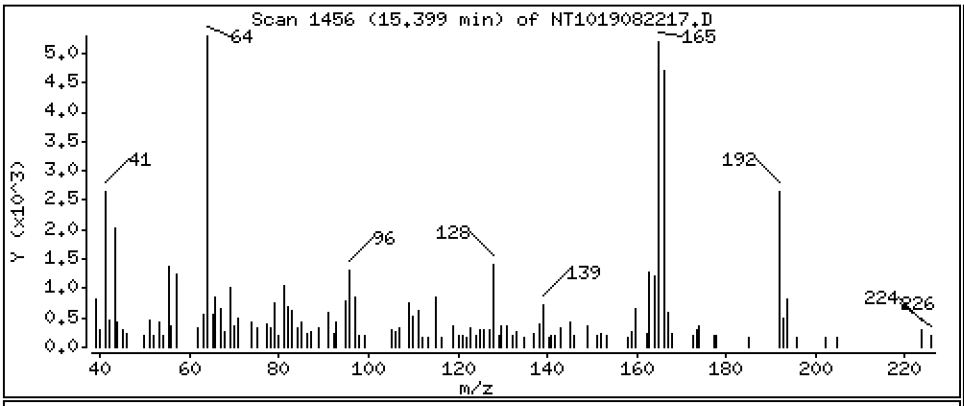
Operator: YZ

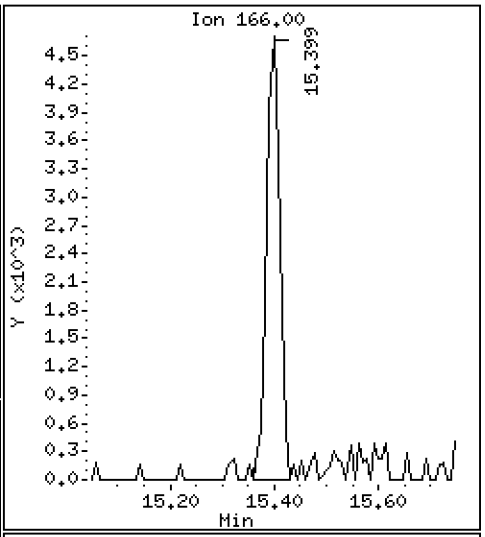
Column phase: ZB-5msi

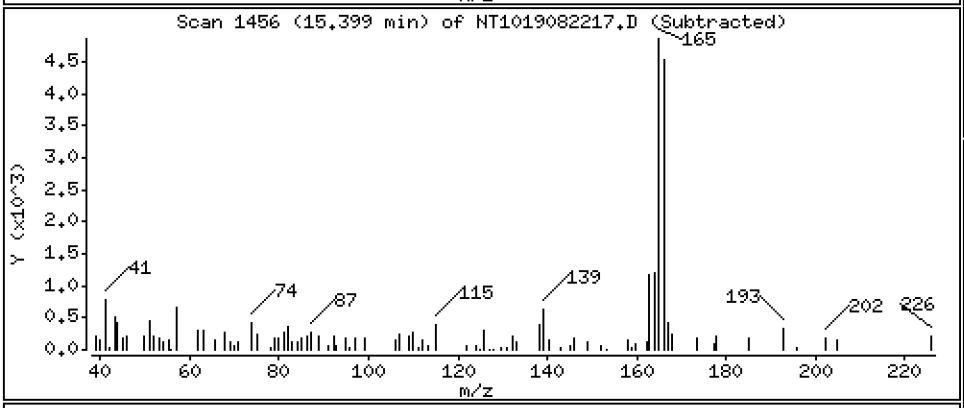
Column diameter: 0.25

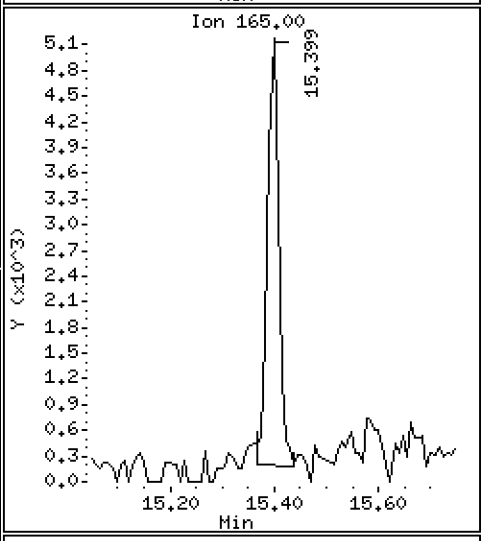
49 Fluorene

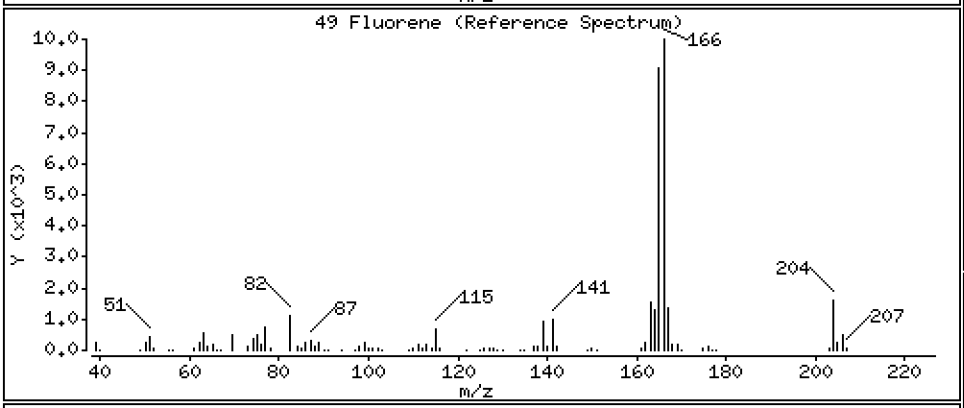
Concentration: 0.7894 ug/mL

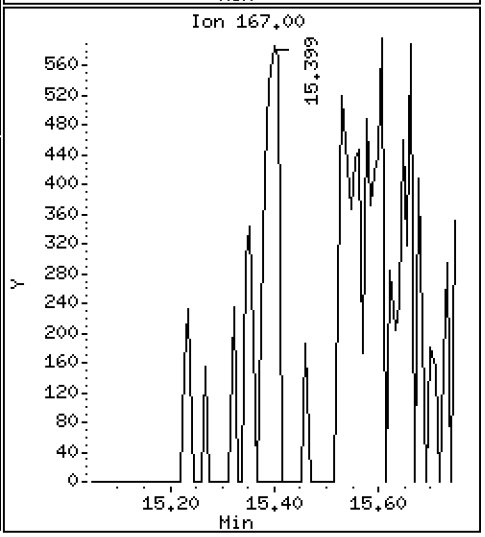


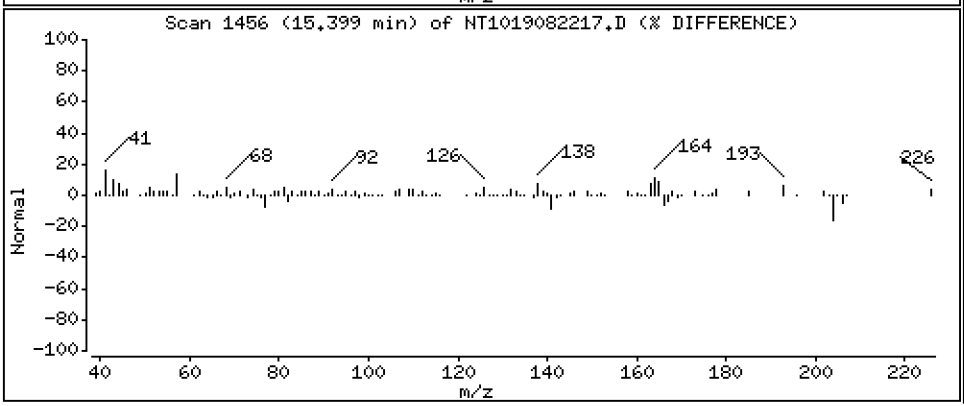












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

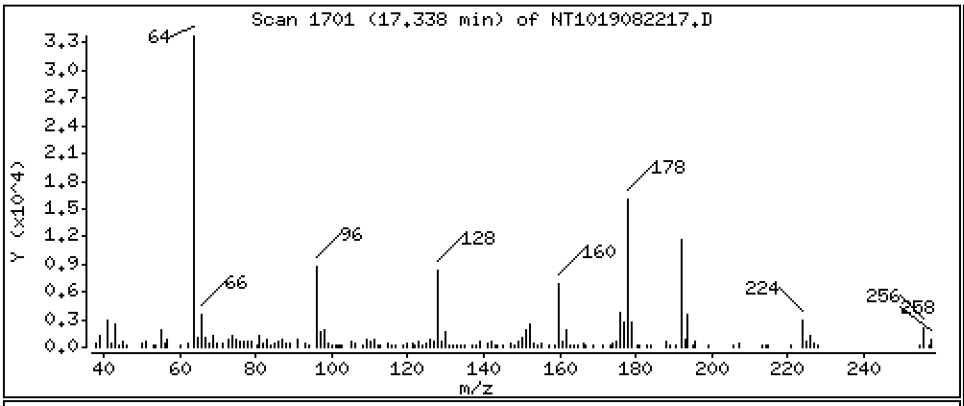
Operator: YZ

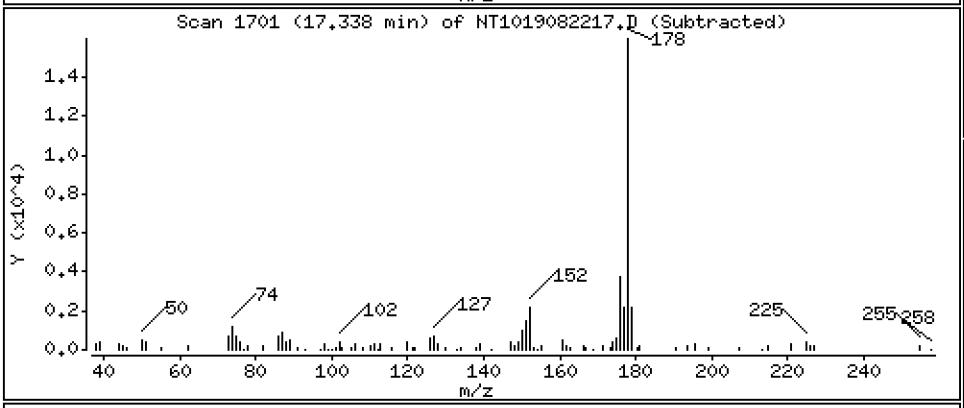
Column phase: ZB-5msi

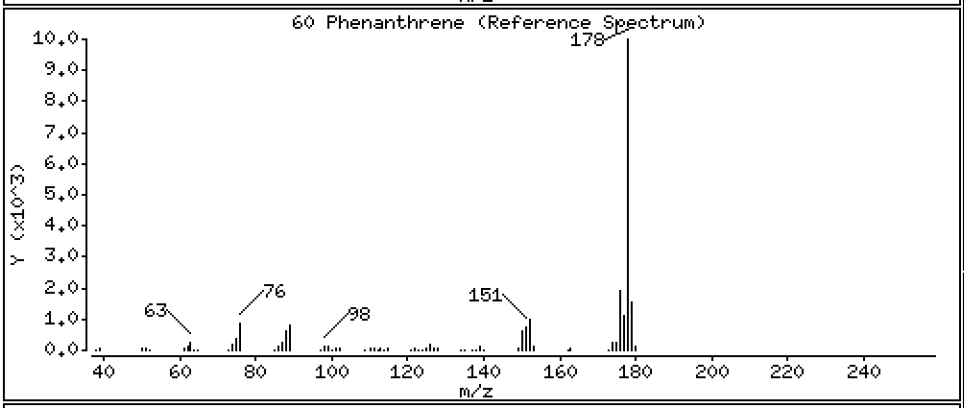
Column diameter: 0.25

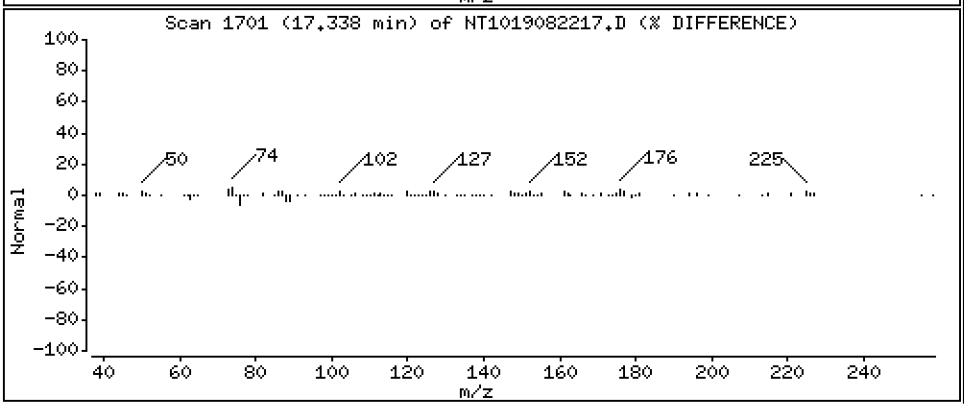
60 Phenanthrene

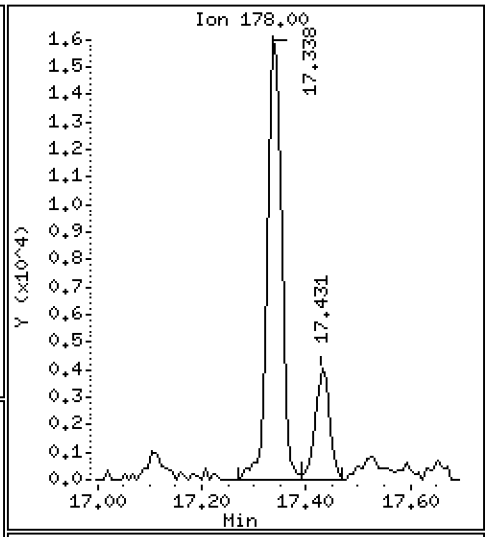
Concentration: 2.177 ug/mL

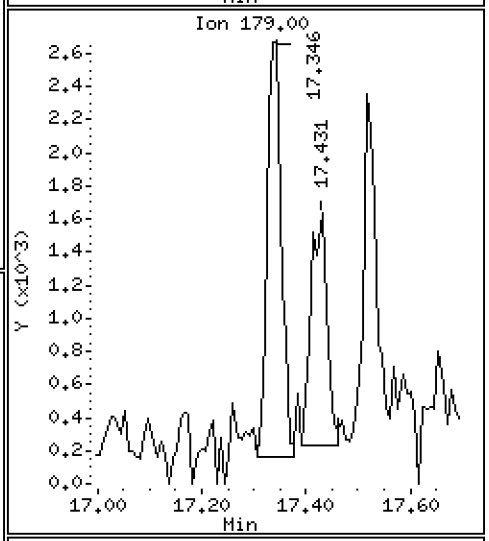


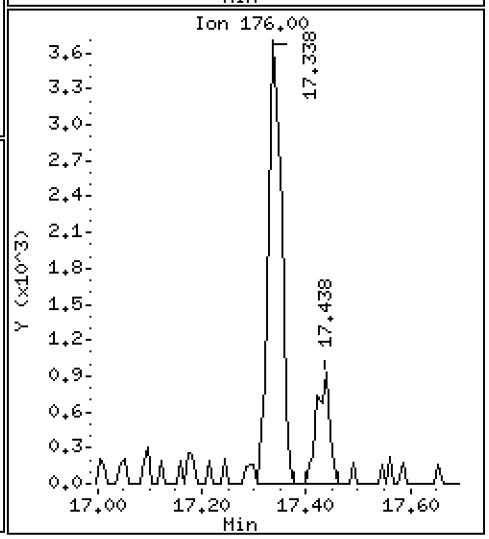












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Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

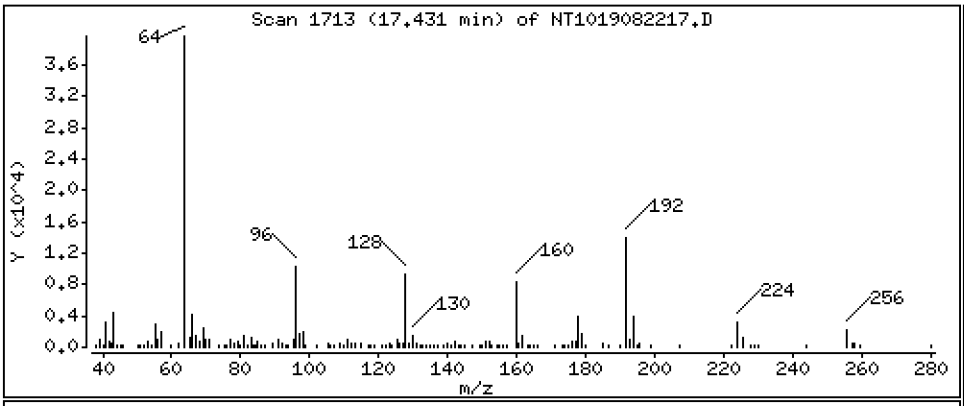
Operator: YZ

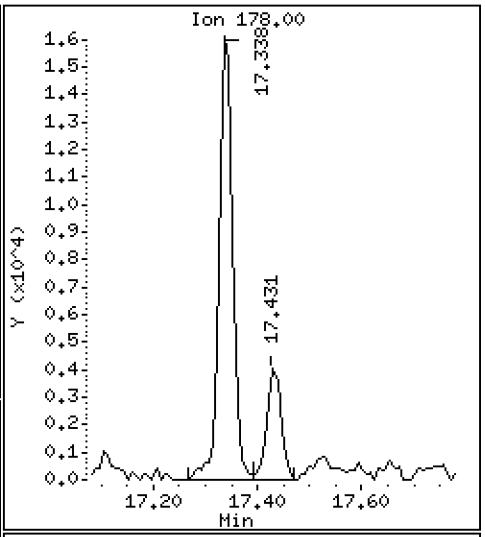
Column phase: ZB-5msi

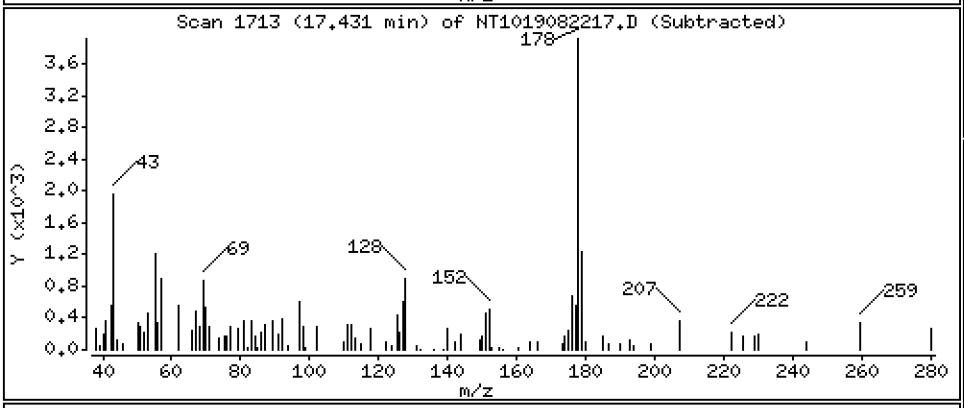
Column diameter: 0.25

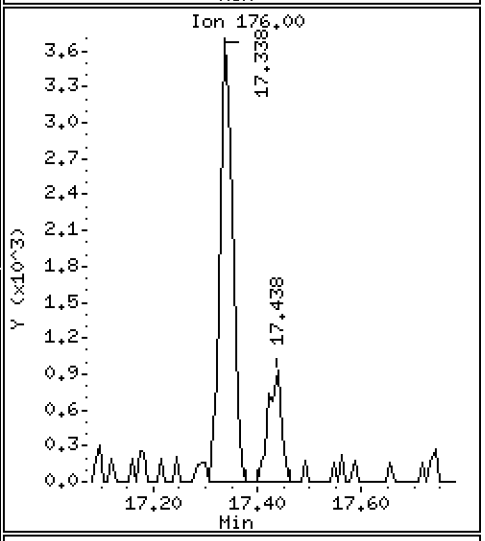
61 Anthracene

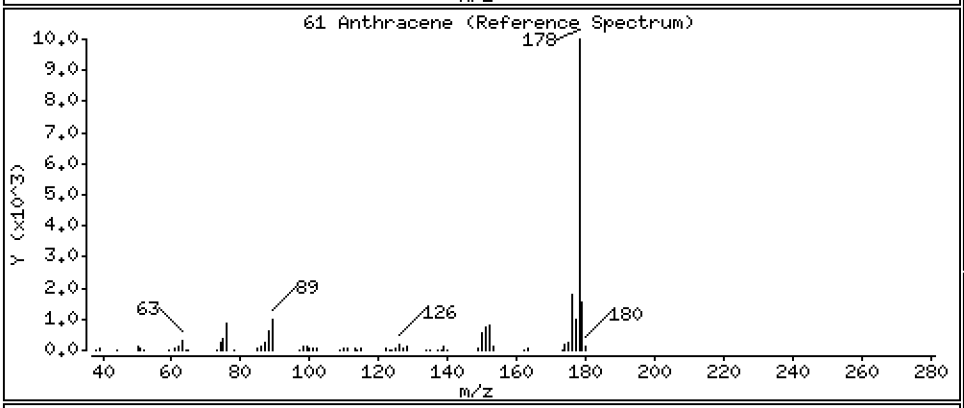
Concentration: 0.5375 ug/mL

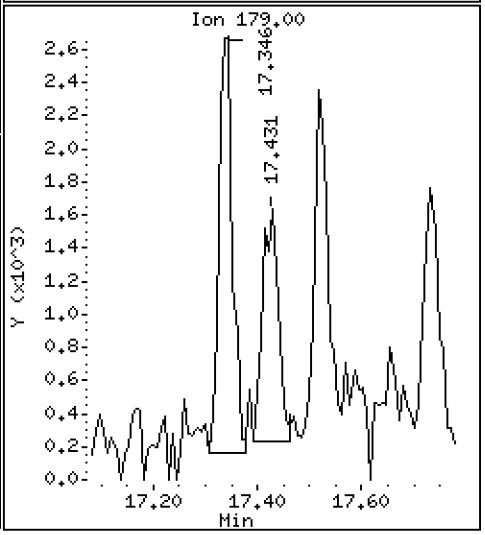


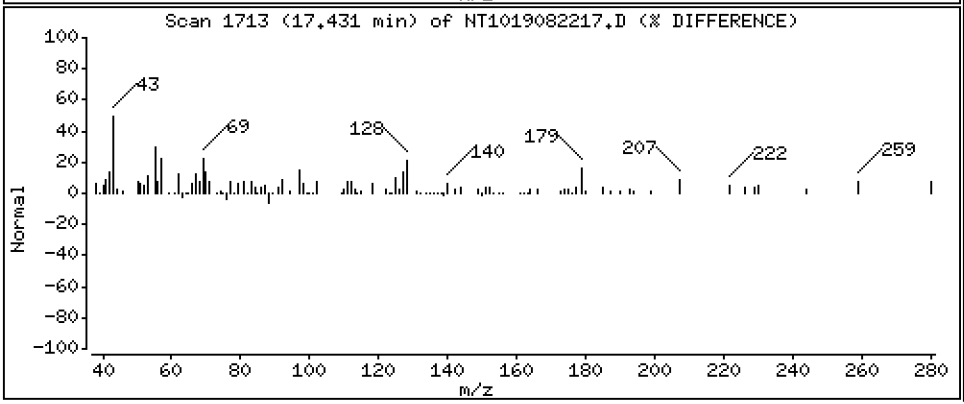












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

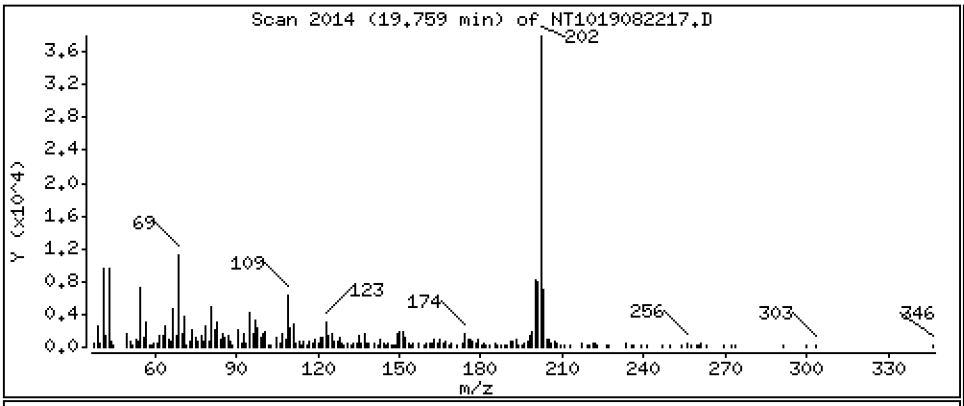
Operator: YZ

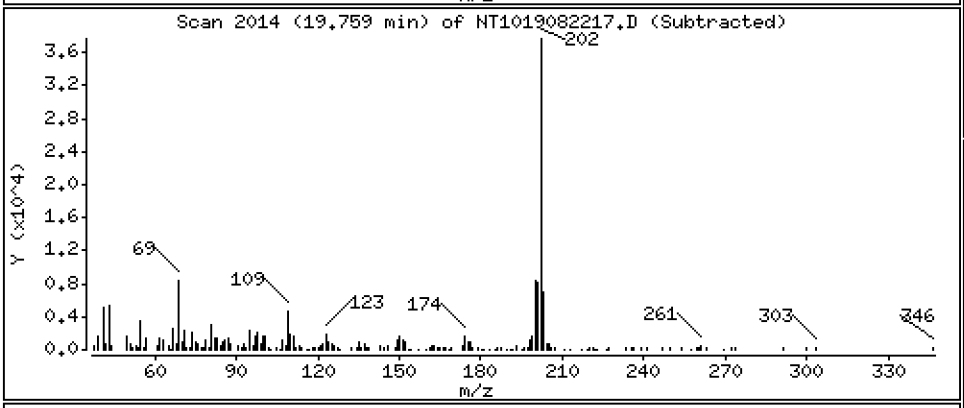
Column phase: ZB-5msi

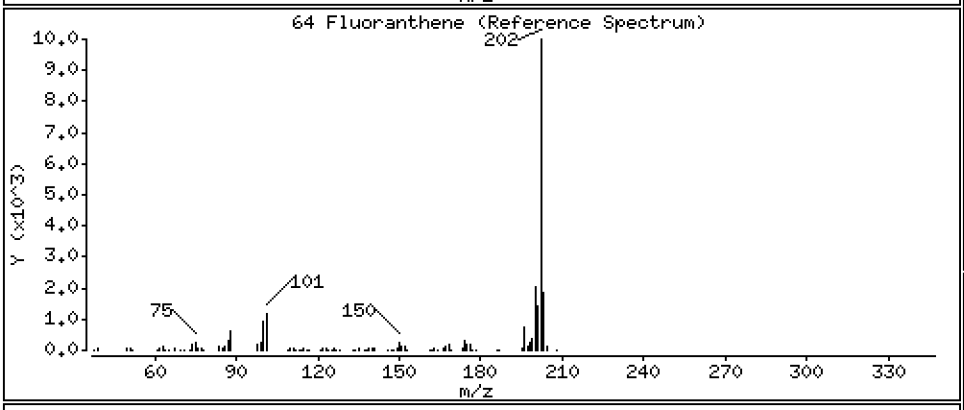
Column diameter: 0.25

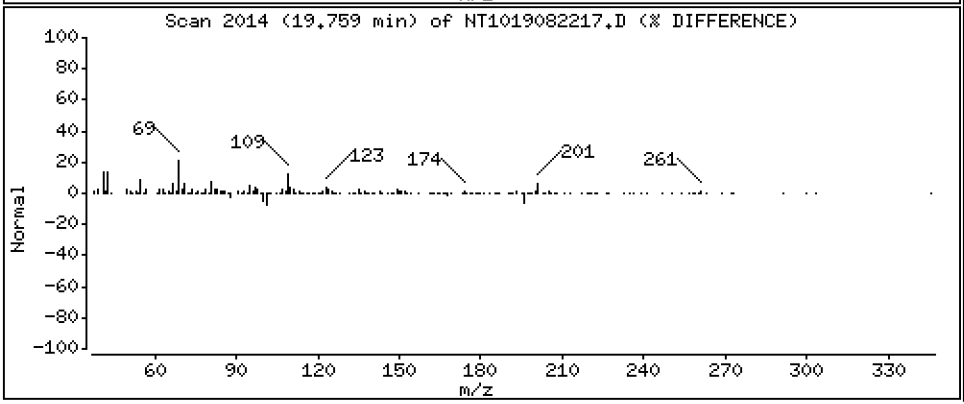
64 Fluoranthene

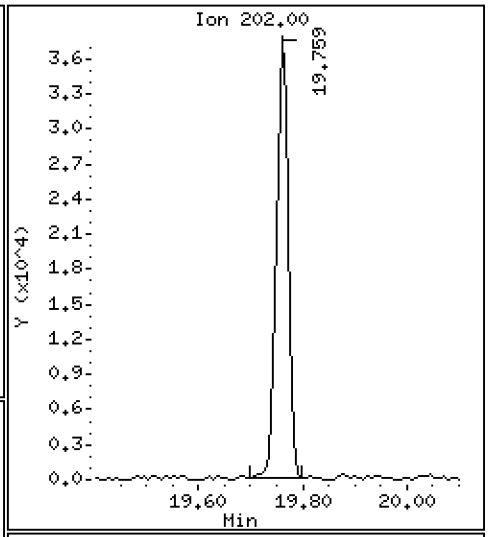
Concentration: 6.707 ug/mL

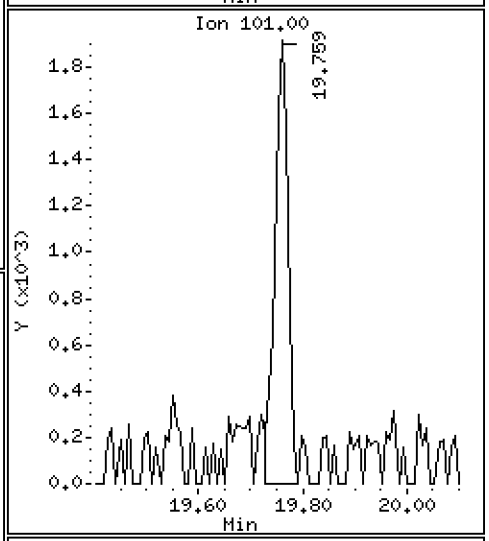


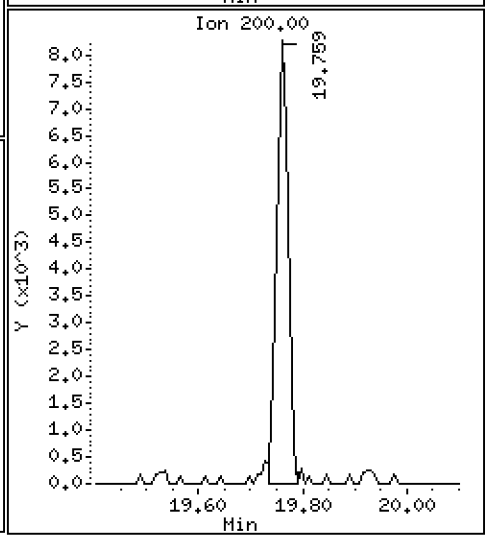












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

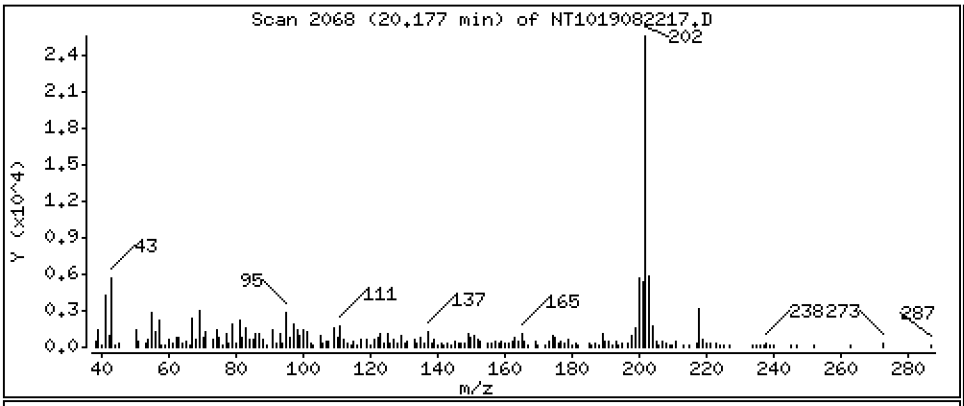
Operator: YZ

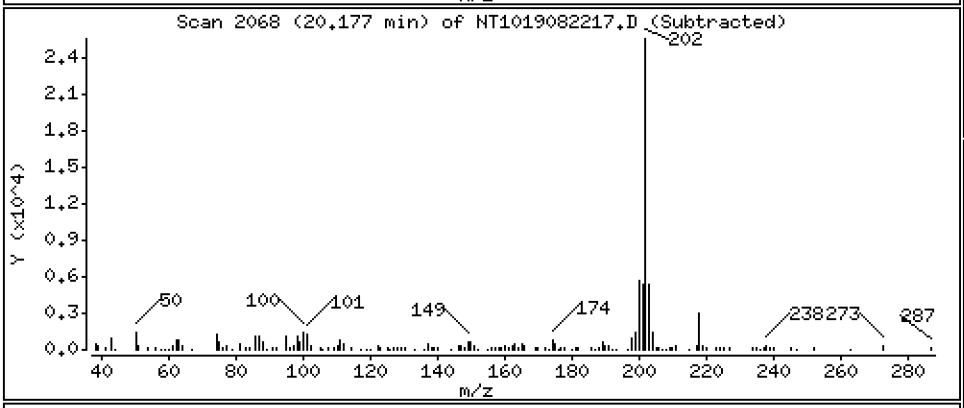
Column phase: ZB-5msi

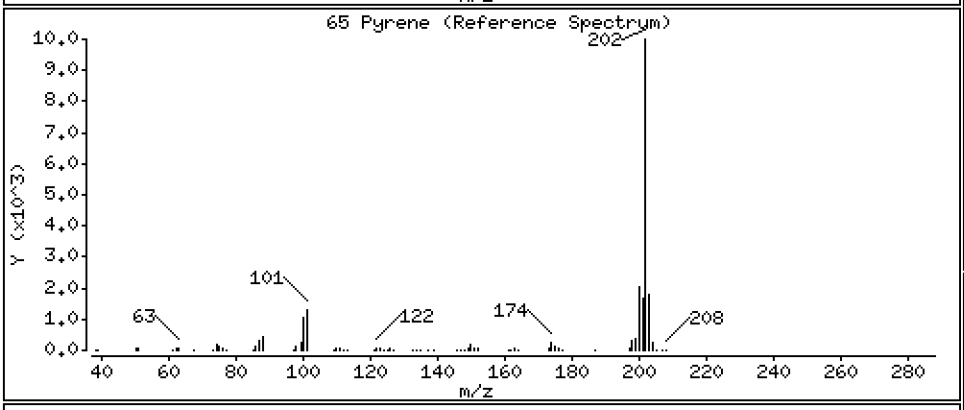
Column diameter: 0.25

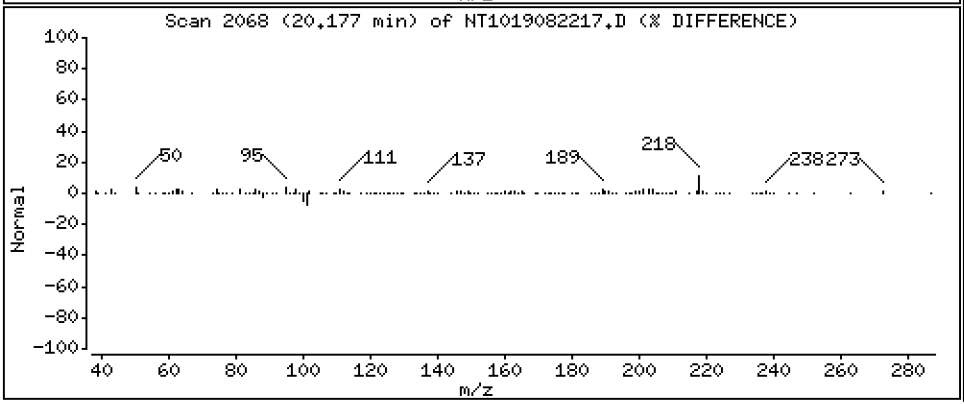
65 Pyrene

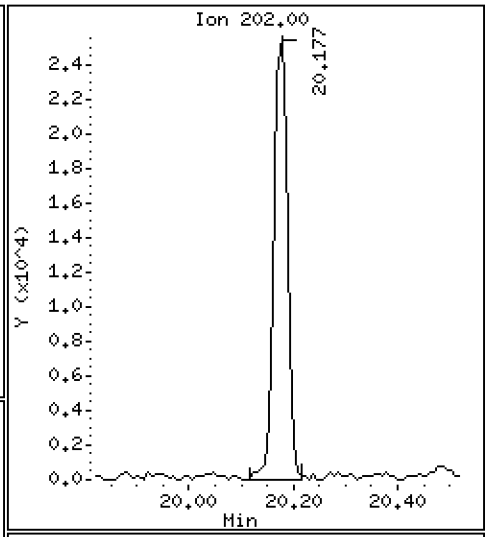
Concentration: 4.868 ug/mL

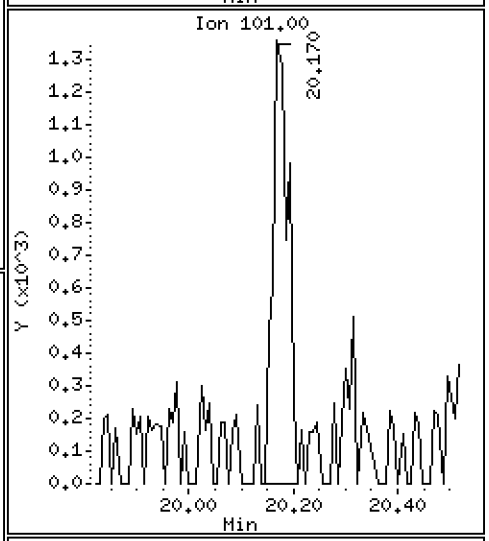


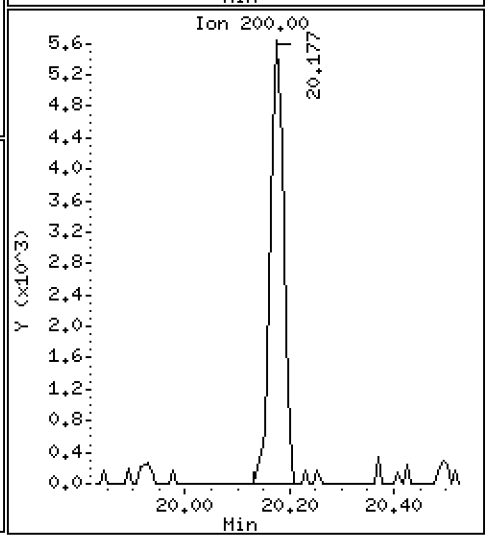












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

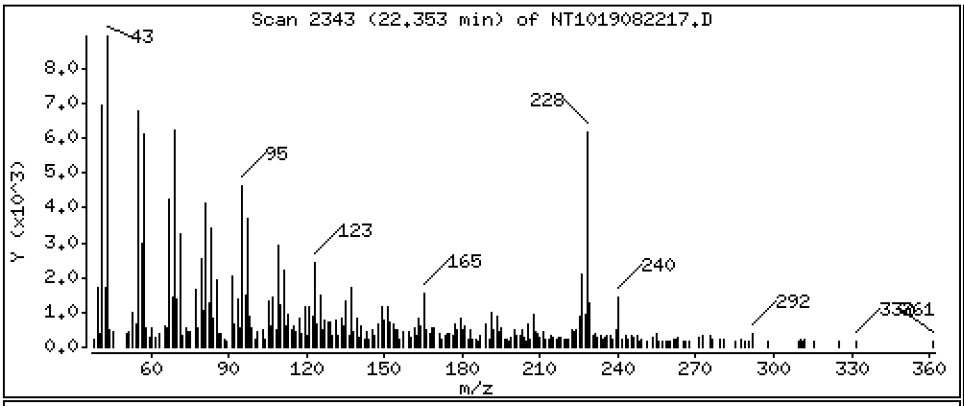
Operator: YZ

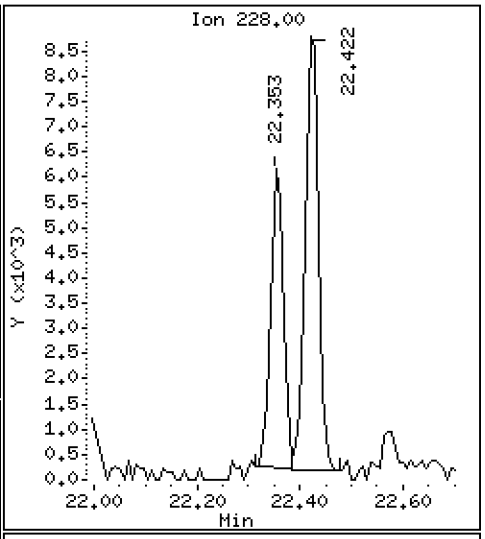
Column phase: ZB-5msi

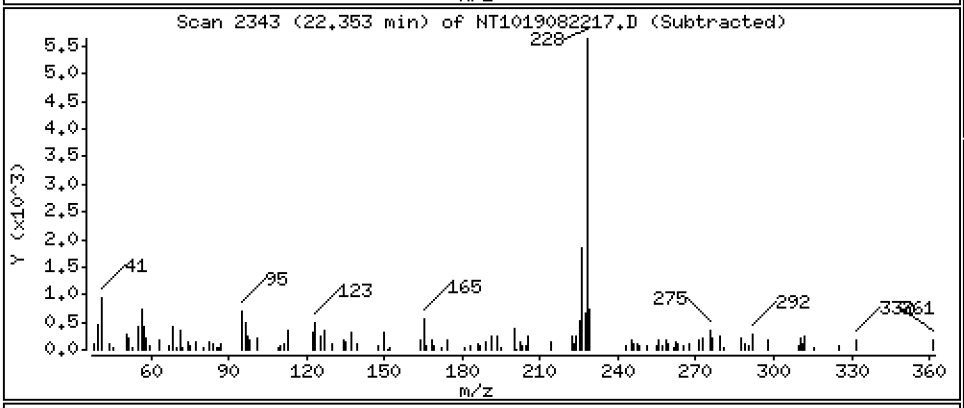
Column diameter: 0.25

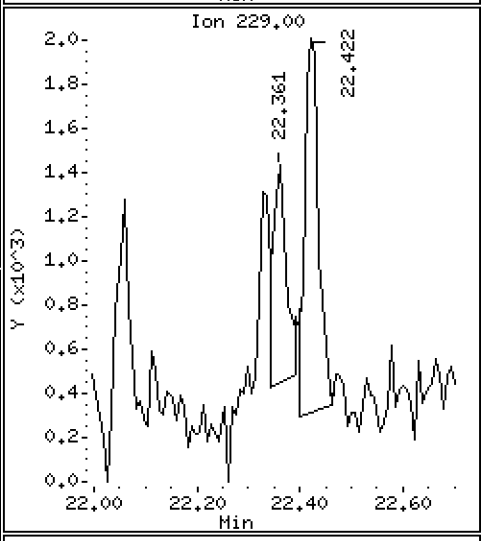
68 Benzo(a)anthracene

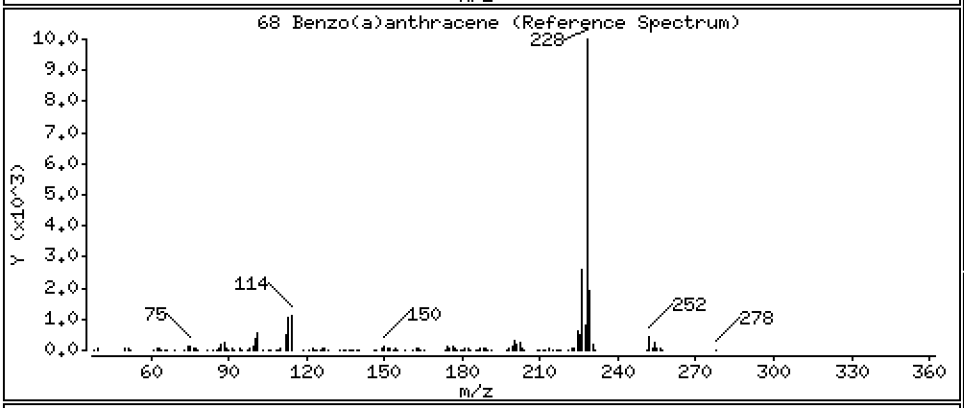
Concentration: 1.160 ug/mL

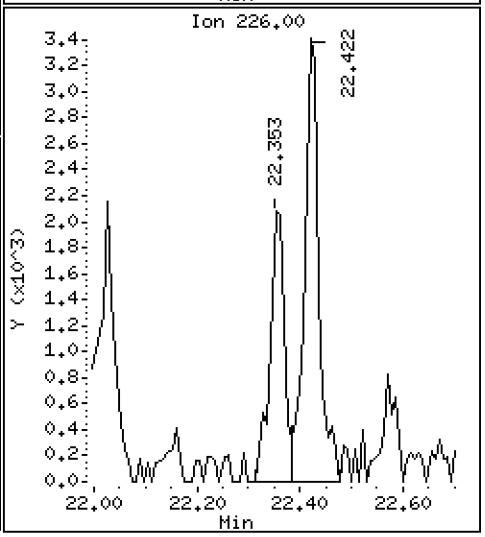


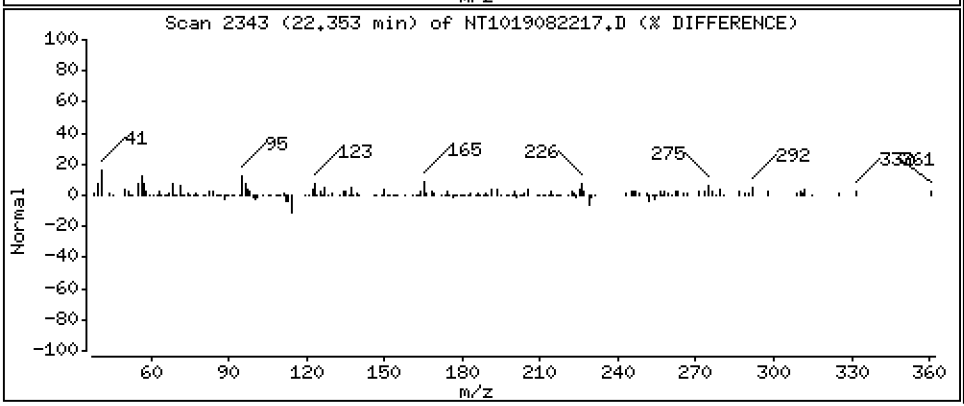












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

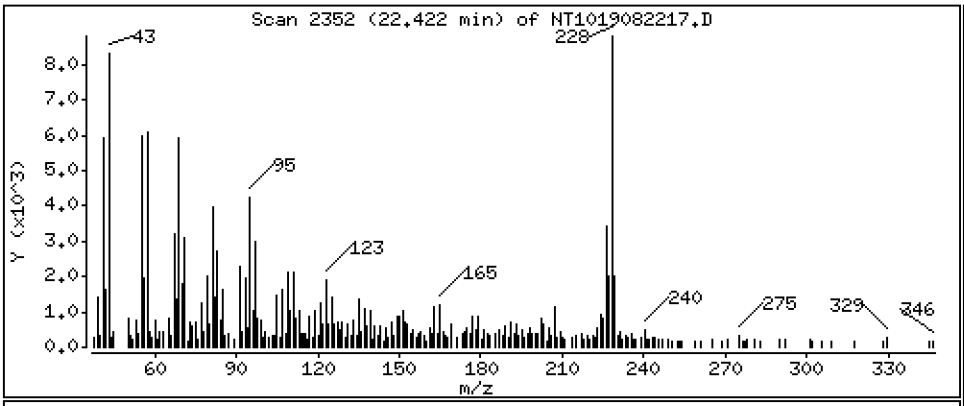
Operator: YZ

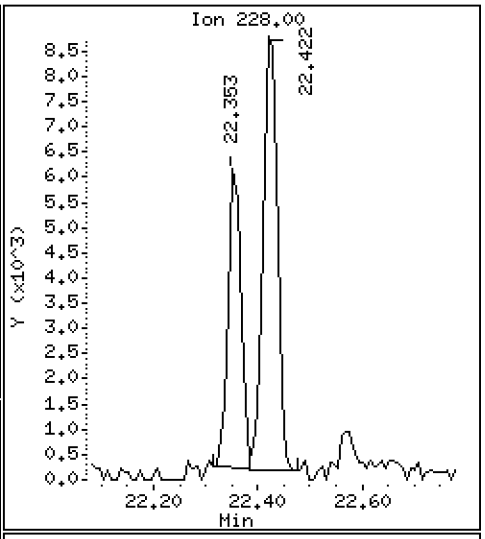
Column phase: ZB-5msi

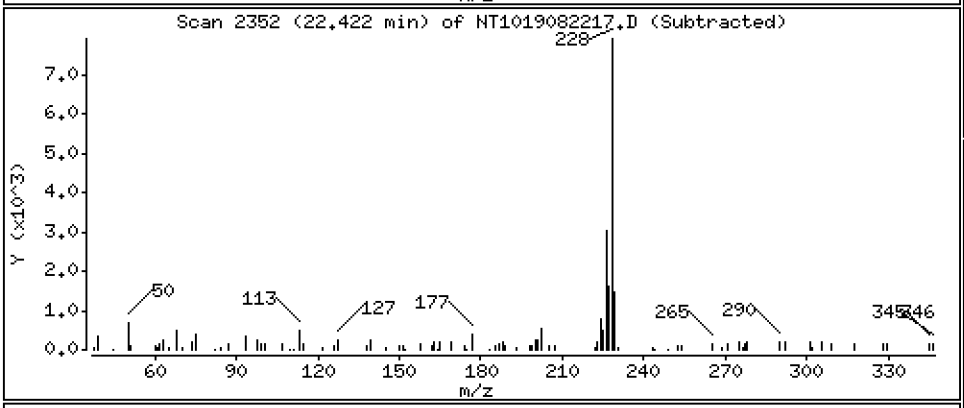
Column diameter: 0.25

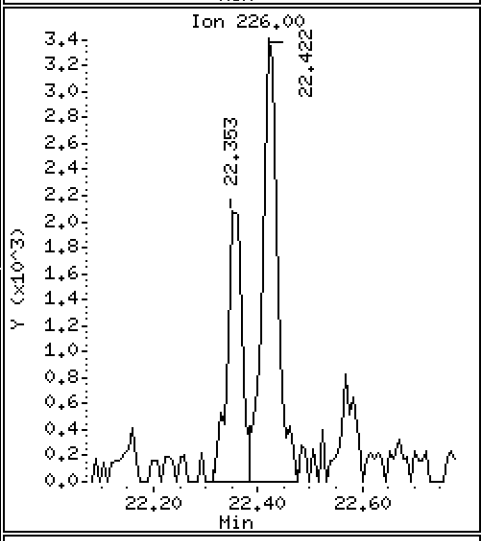
71 Chrysene

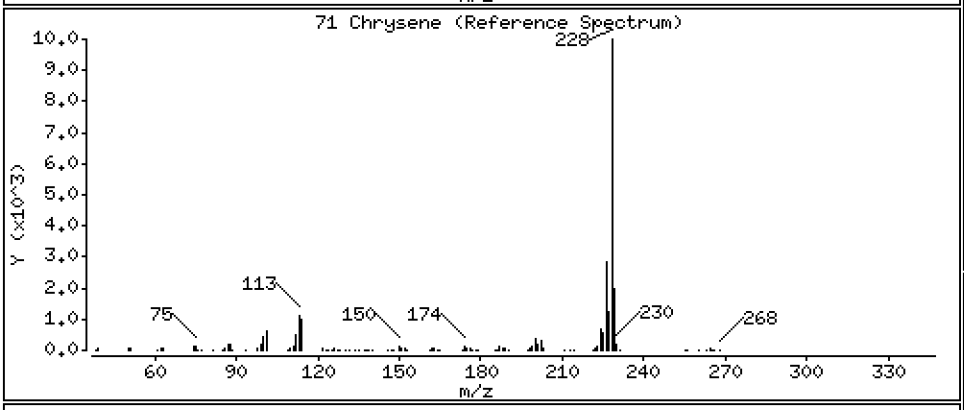
Concentration: 2.209 ug/mL

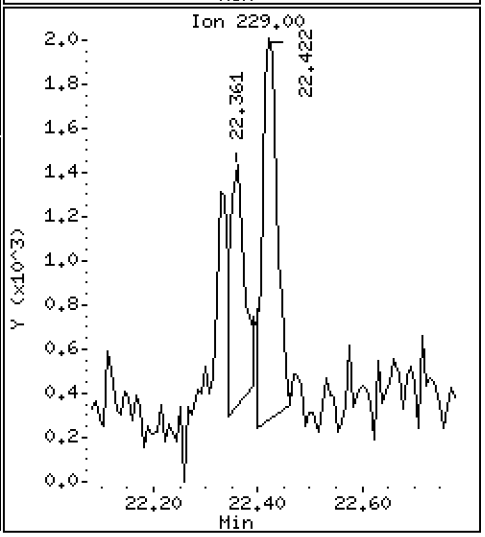


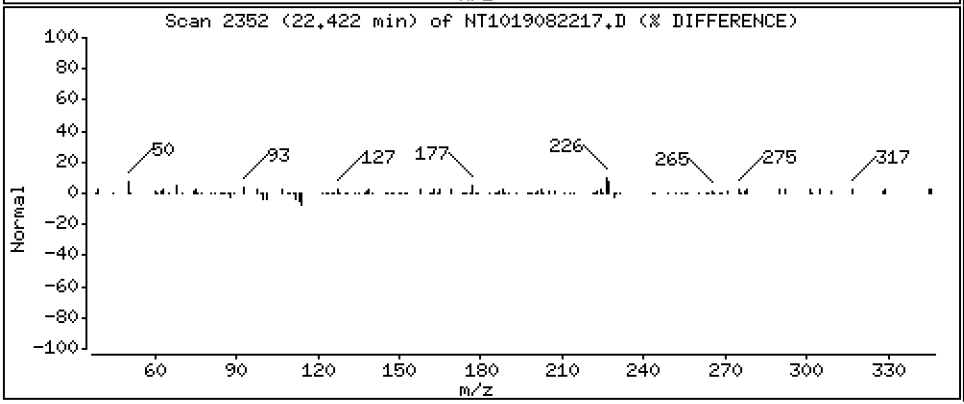












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

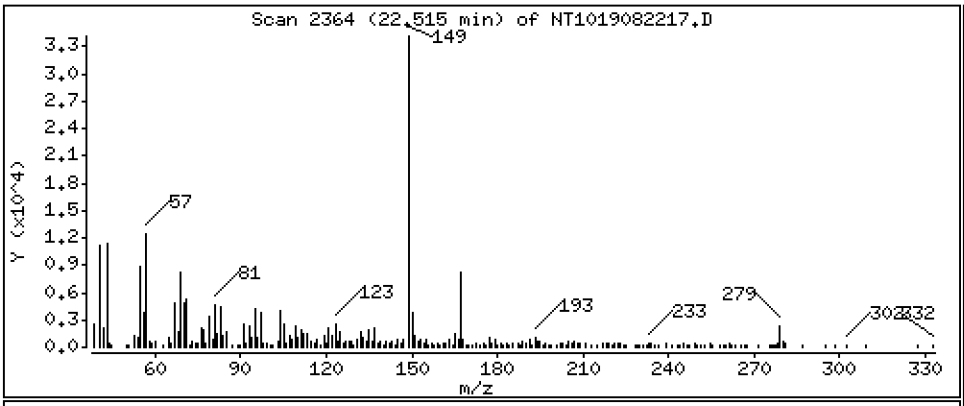
Operator: YZ

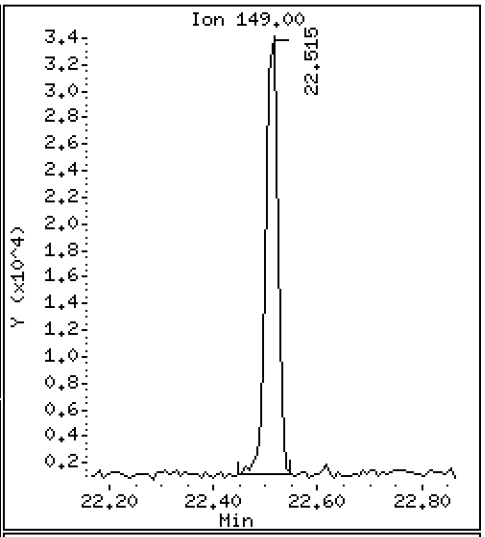
Column phase: ZB-5msi

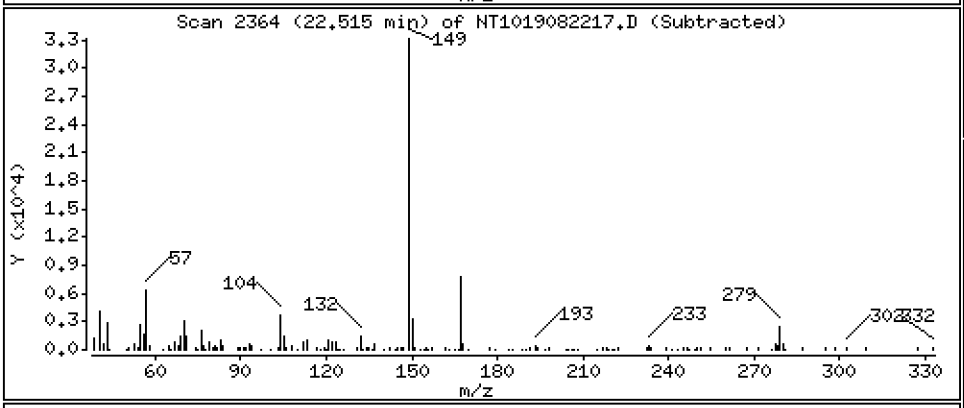
Column diameter: 0.25

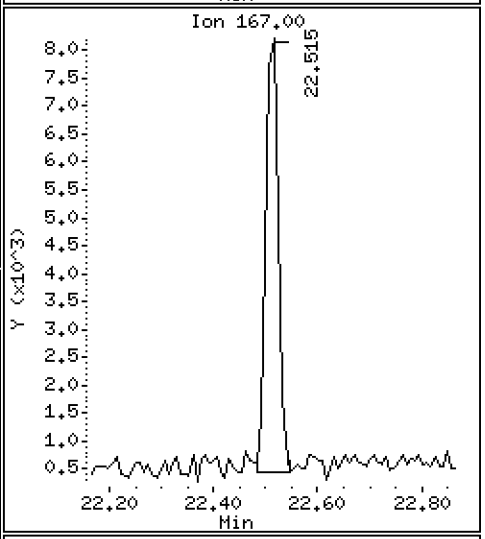
72 bis(2-Ethylhexyl)phthalate

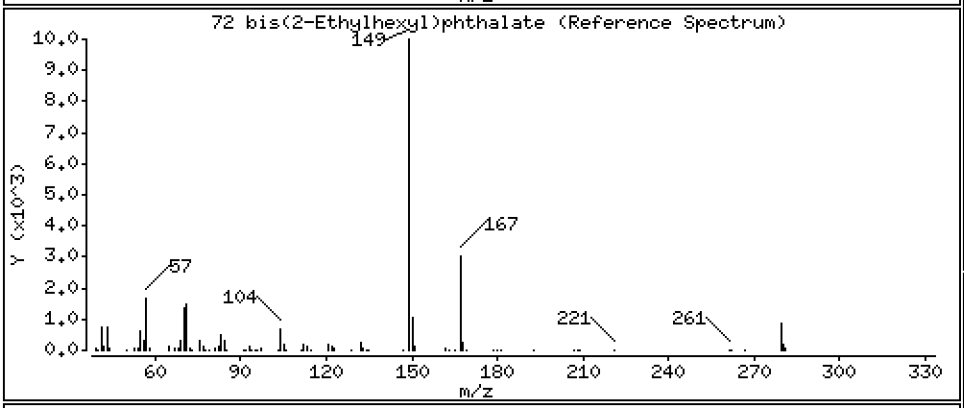
Concentration: 8.935 ug/mL

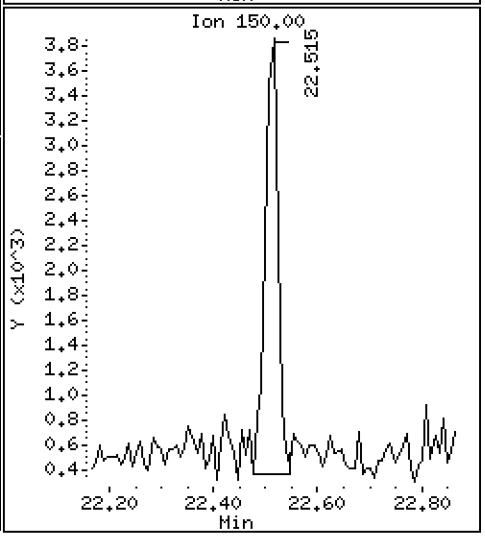


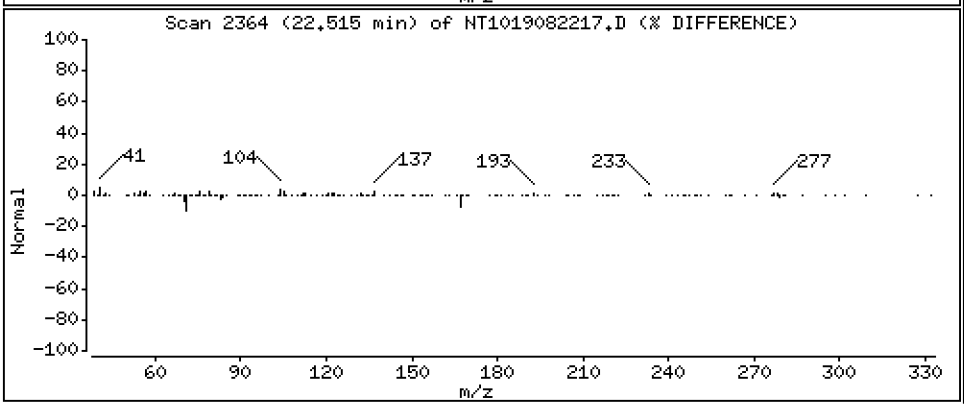












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

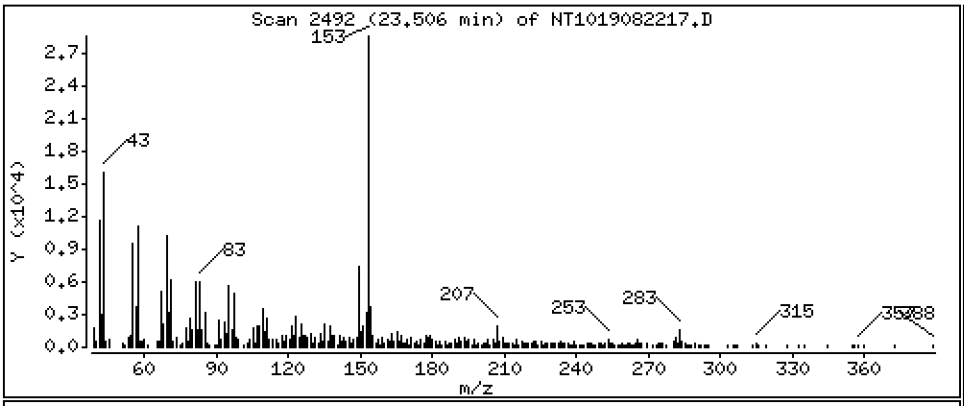
Operator: YZ

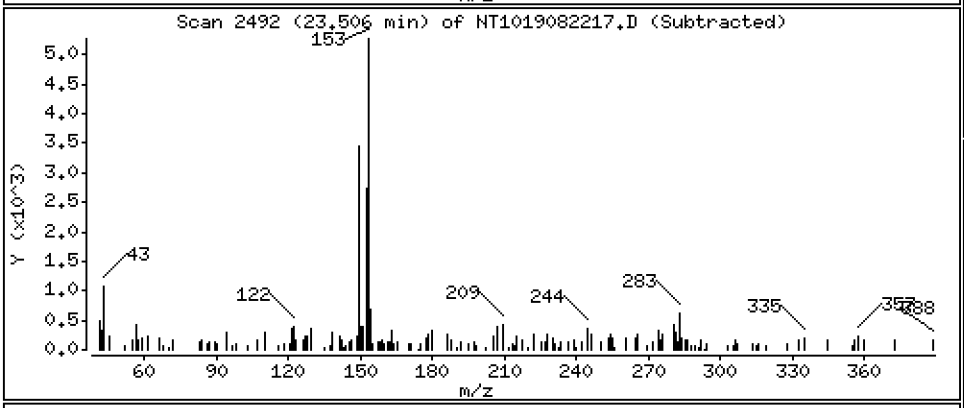
Column phase: ZB-5msi

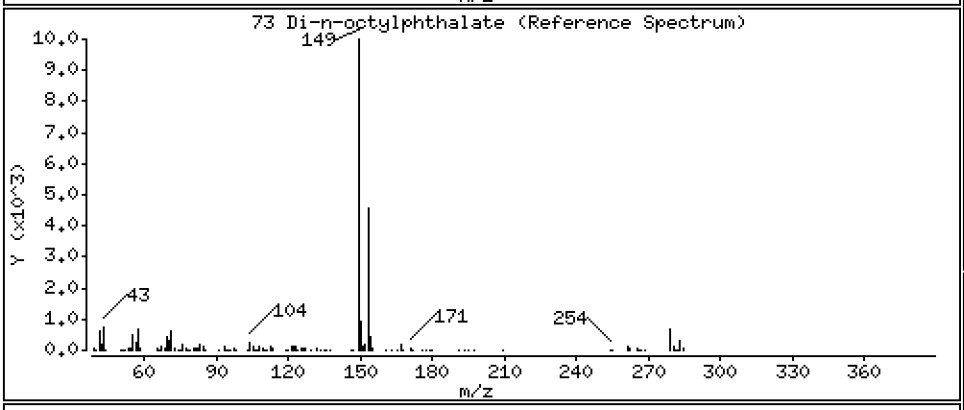
Column diameter: 0.25

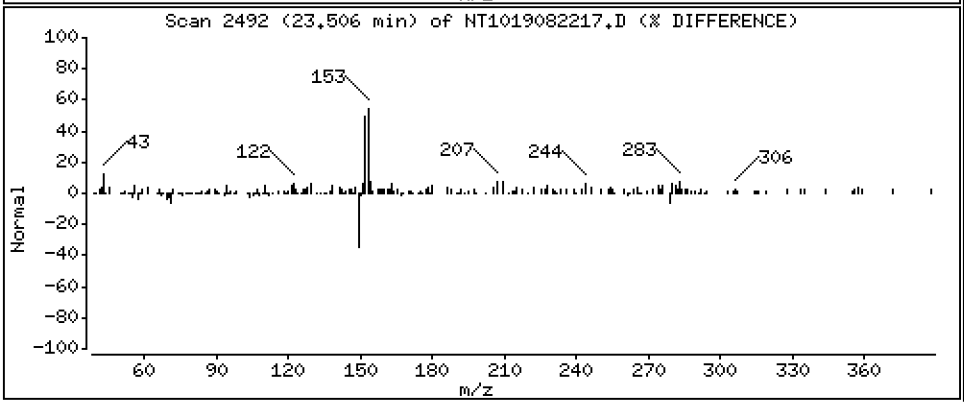
73 Di-n-octylphthalate

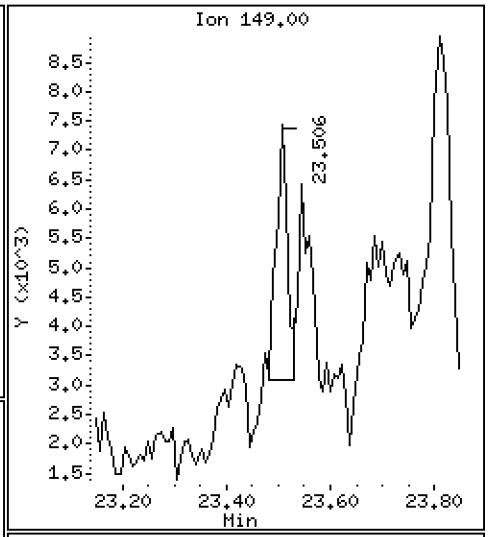
Concentration: 0.5375 ug/mL

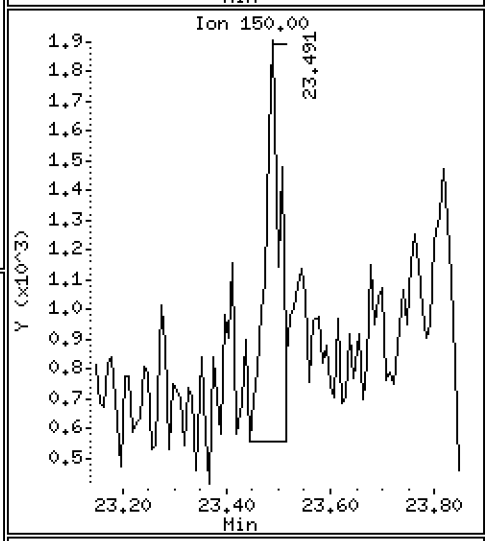


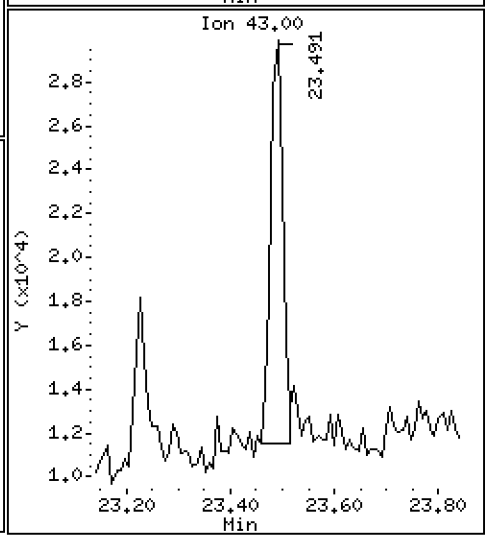












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

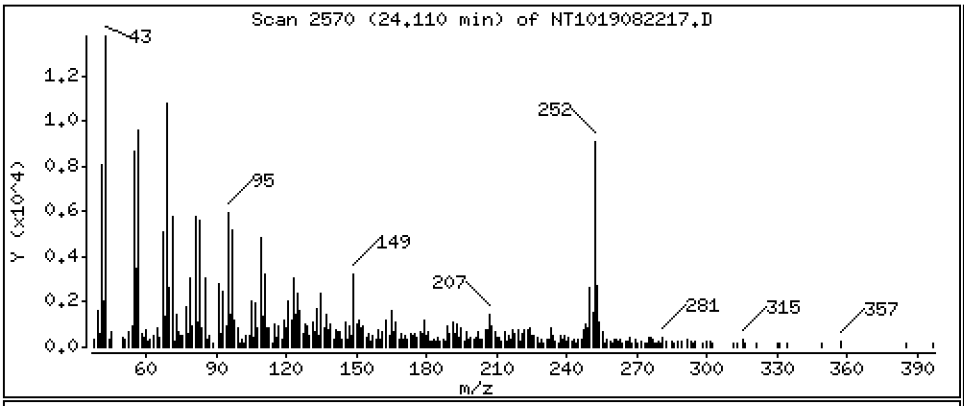
Operator: YZ

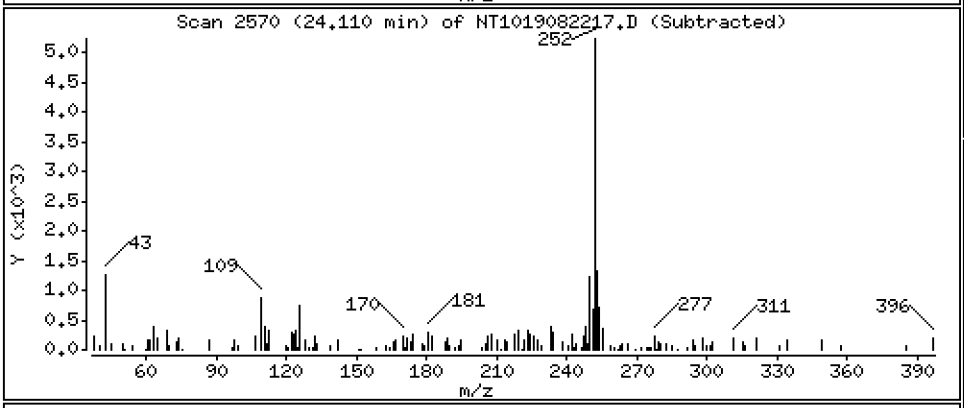
Column phase: ZB-5msi

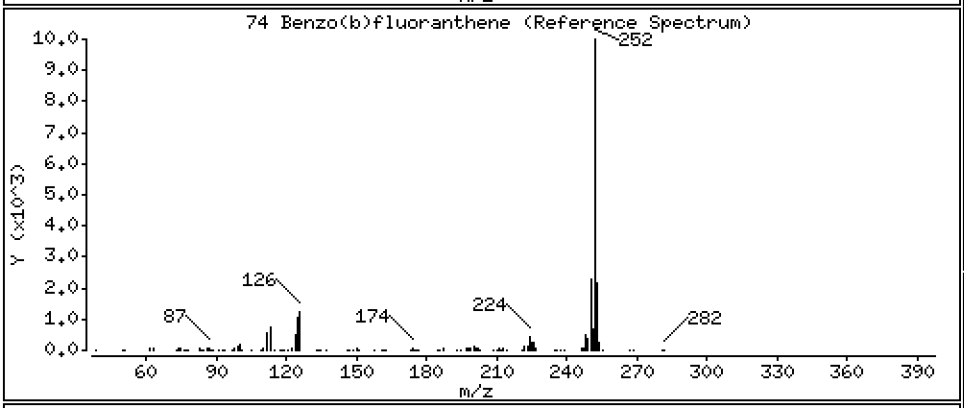
Column diameter: 0.25

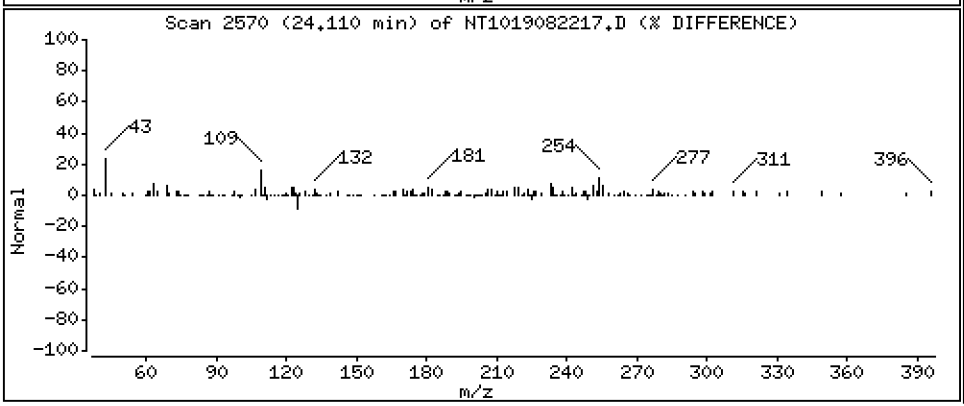
74 Benzo(b)fluoranthene

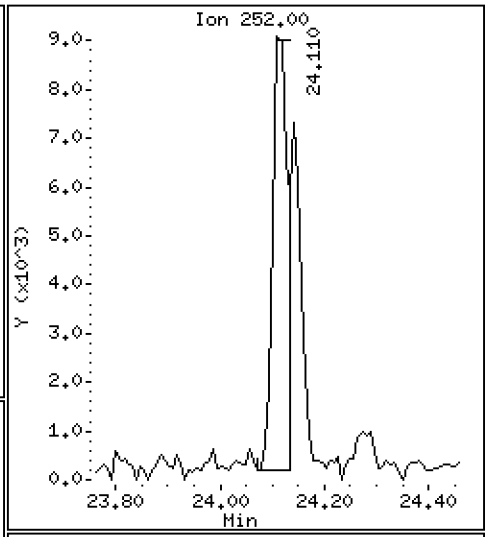
Concentration: 2.695 ug/mL

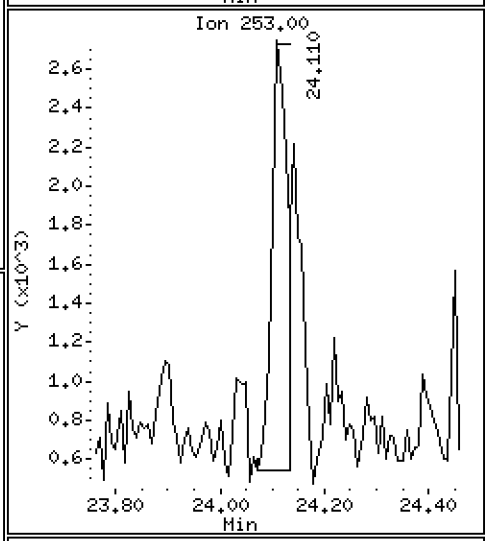


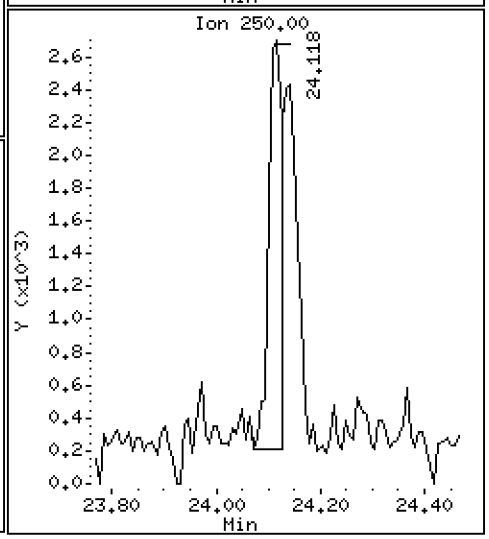












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

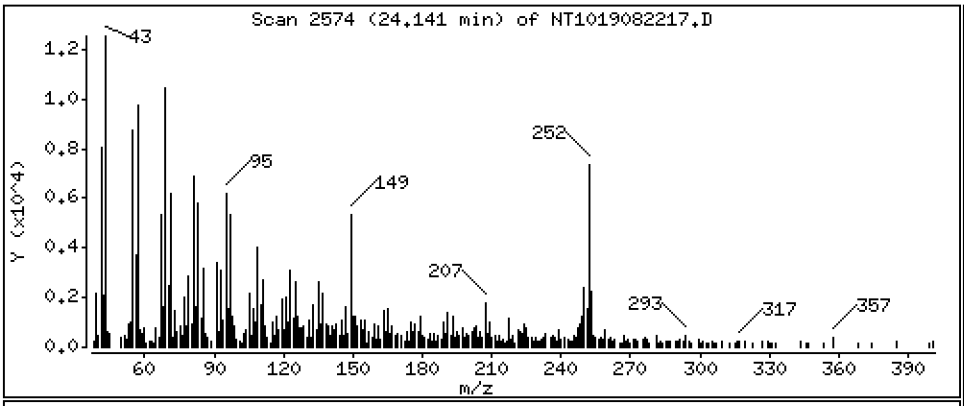
Operator: YZ

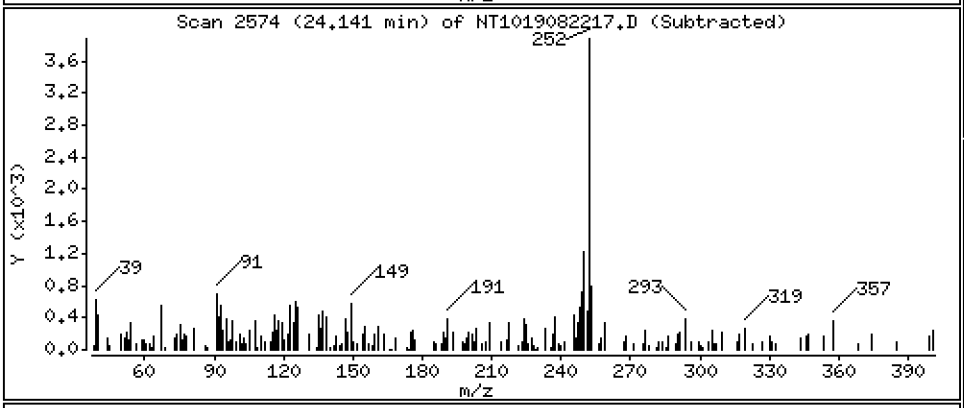
Column phase: ZB-5msi

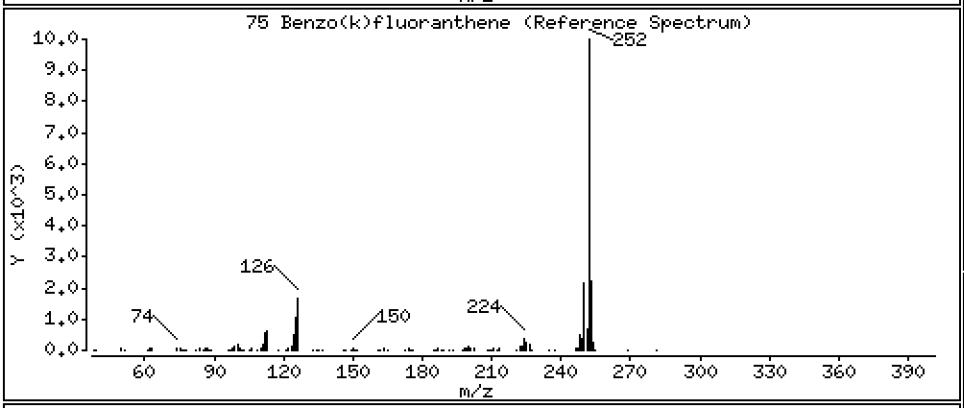
Column diameter: 0.25

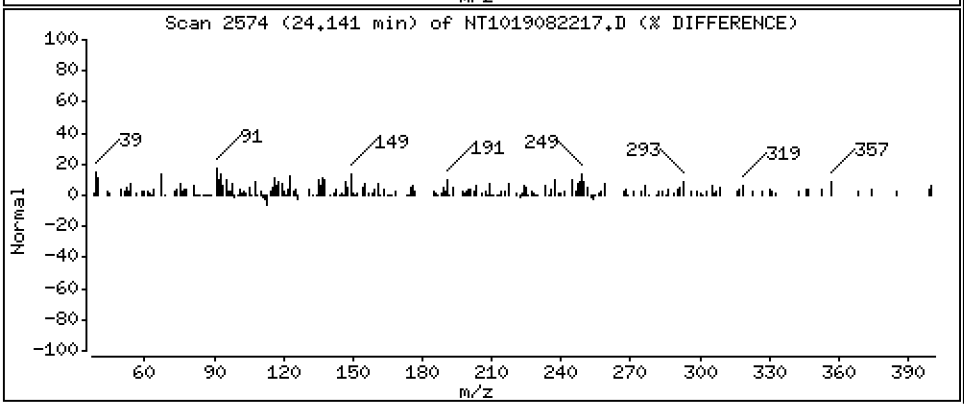
75 Benzo(k)fluoranthene

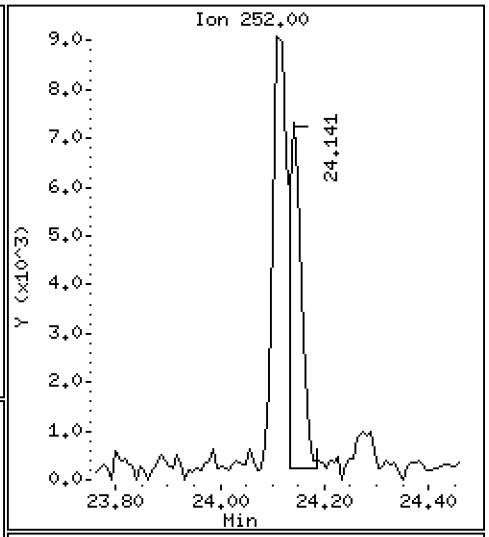
Concentration: 1.833 ug/mL

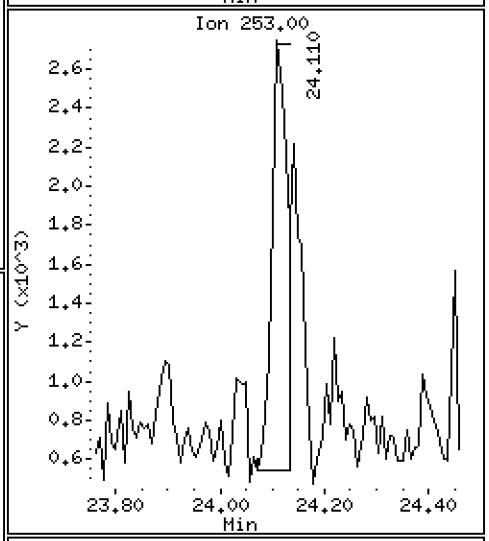


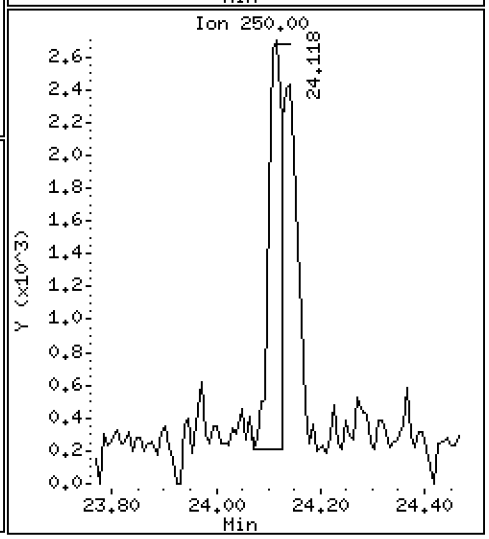












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Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

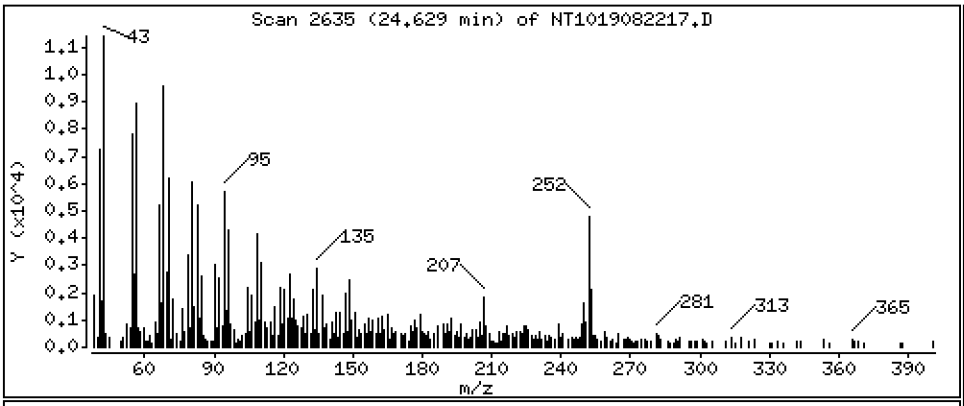
Operator: YZ

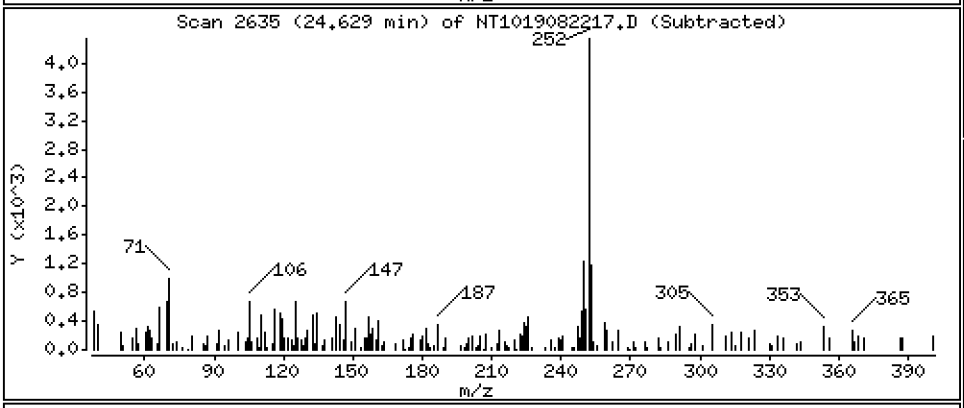
Column phase: ZB-5msi

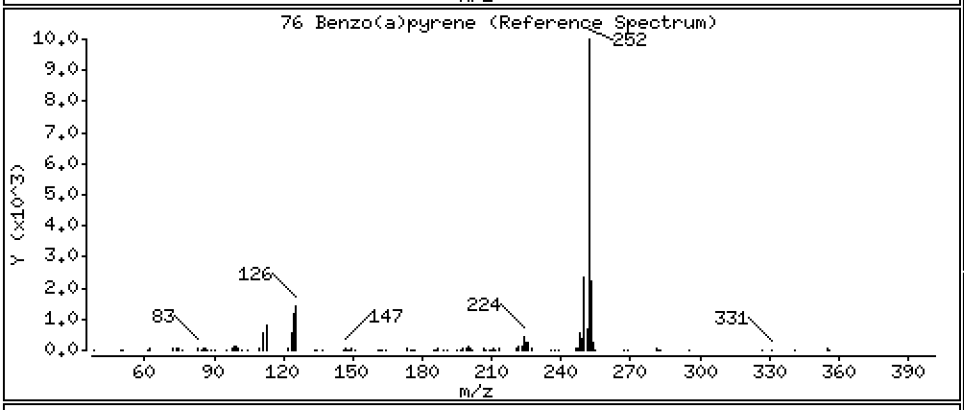
Column diameter: 0.25

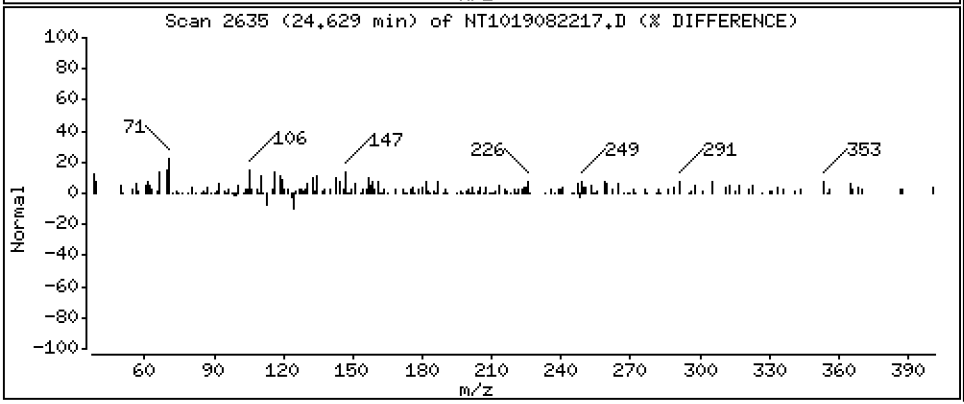
76 Benzo(a)pyrene

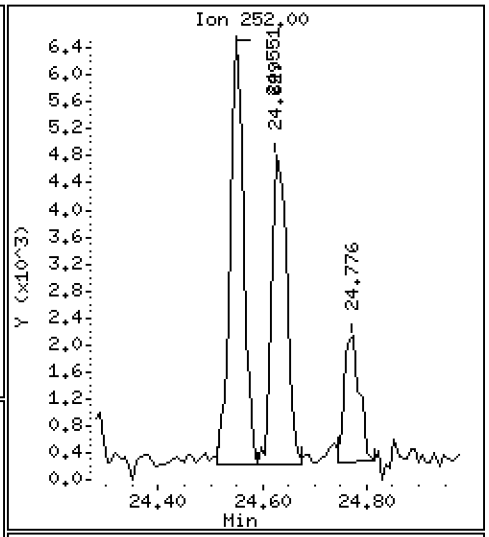
Concentration: 1.549 ug/mL

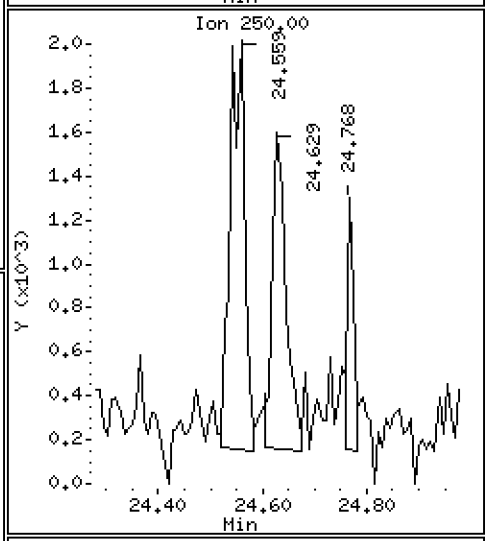


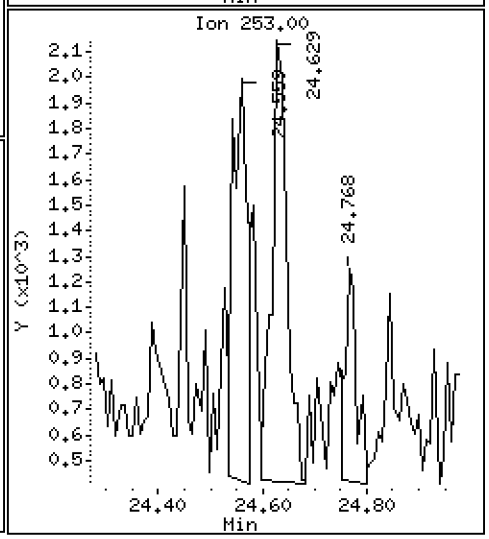












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

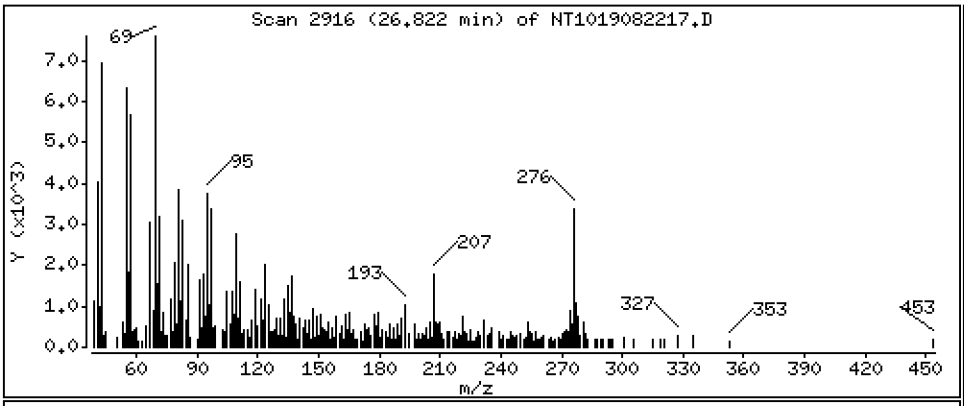
Operator: YZ

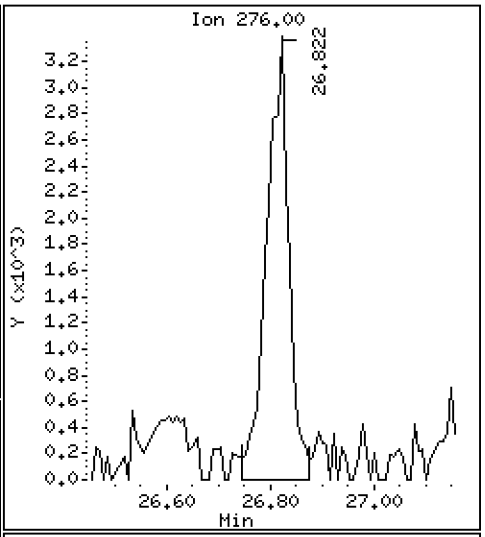
Column phase: ZB-5msi

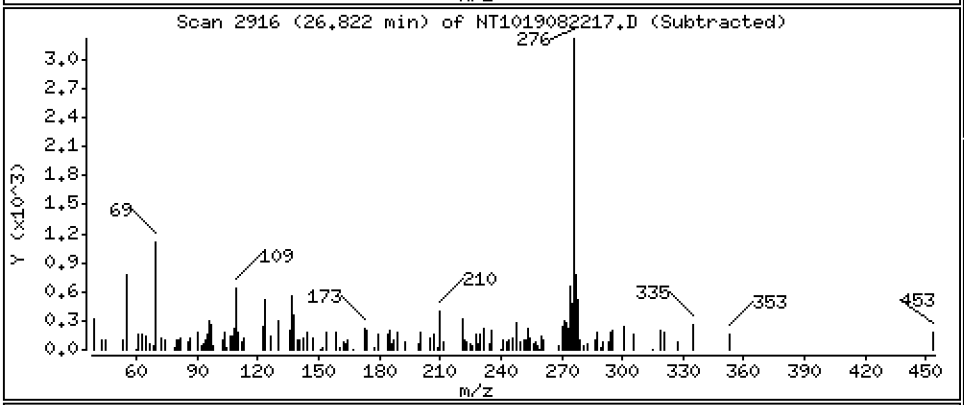
Column diameter: 0.25

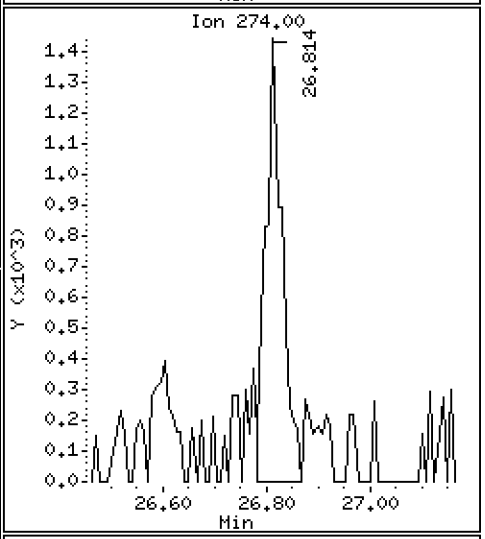
78 Indeno(1,2,3-cd)pyrene

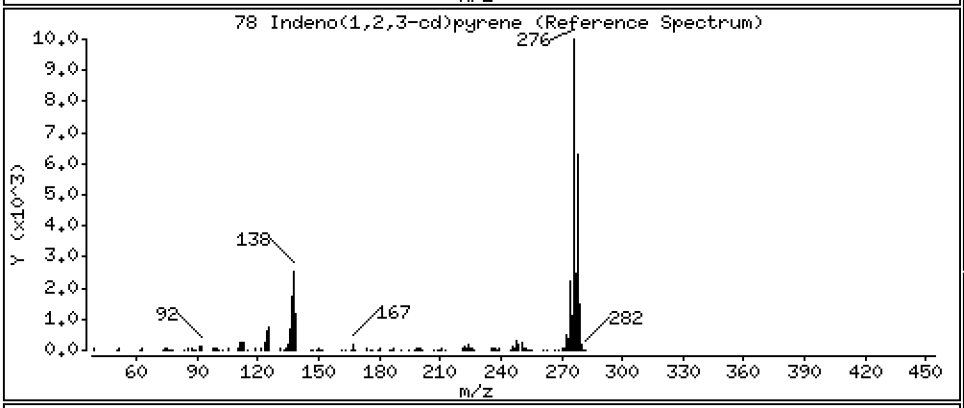
Concentration: 1.455 ug/mL

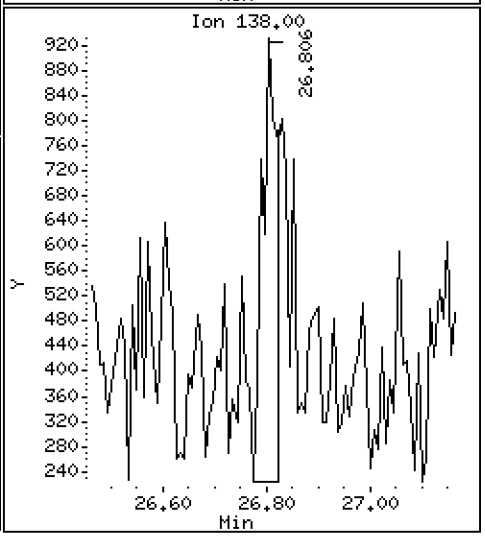


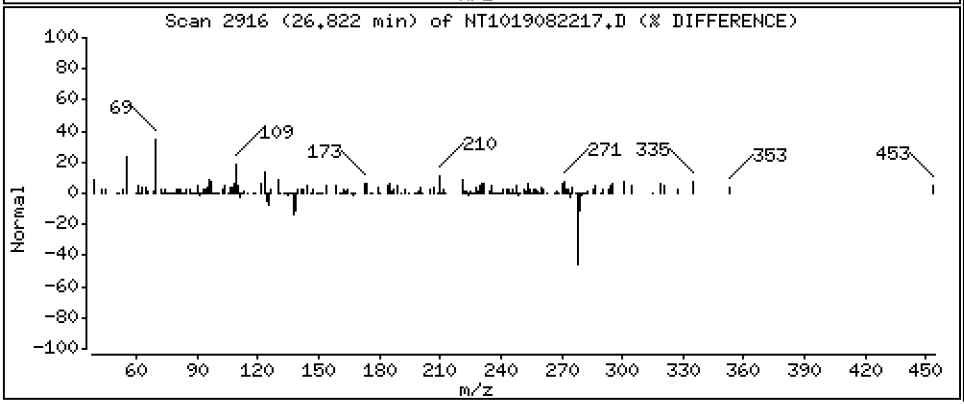












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

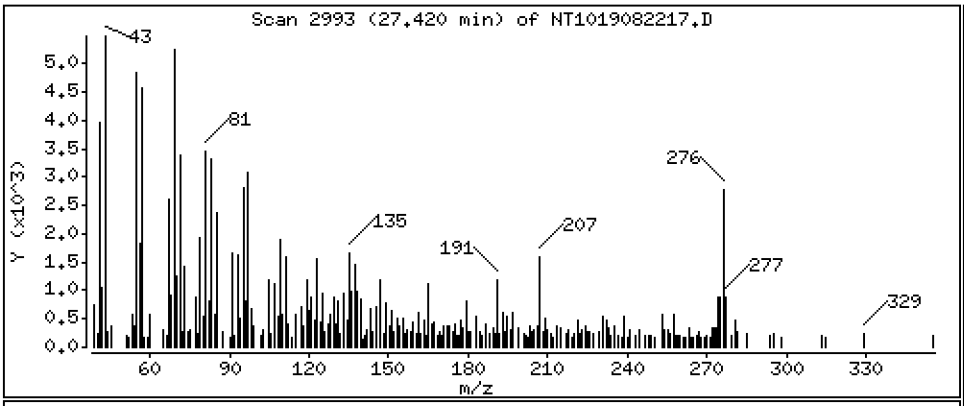
Operator: YZ

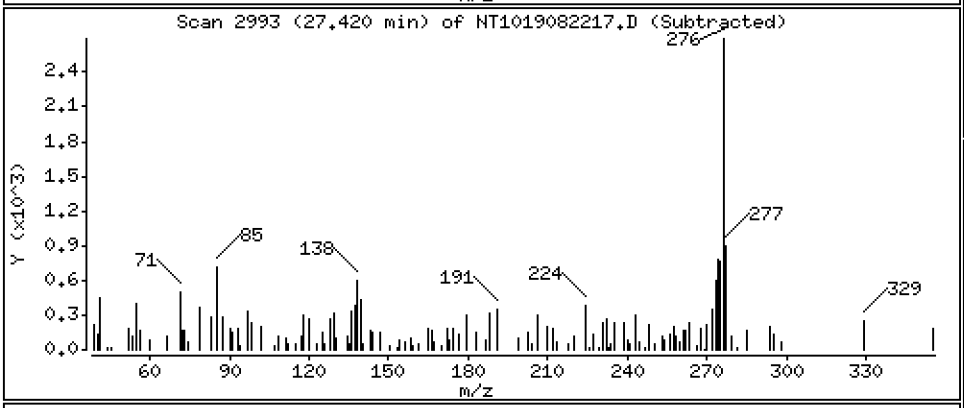
Column phase: ZB-5msi

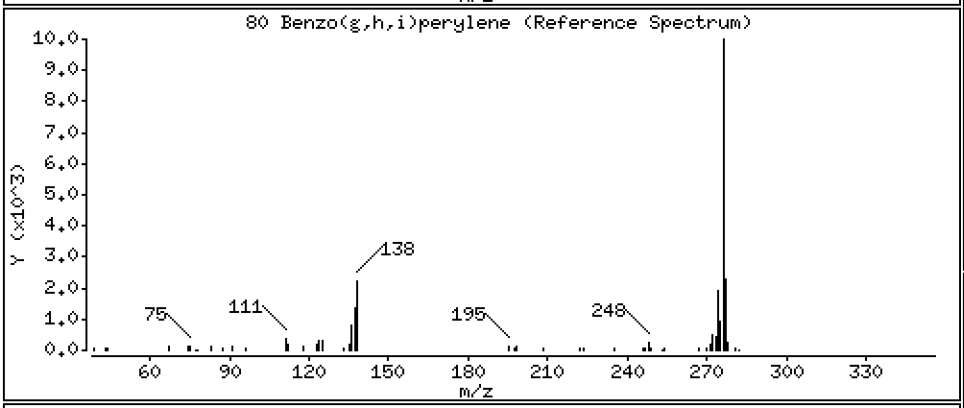
Column diameter: 0.25

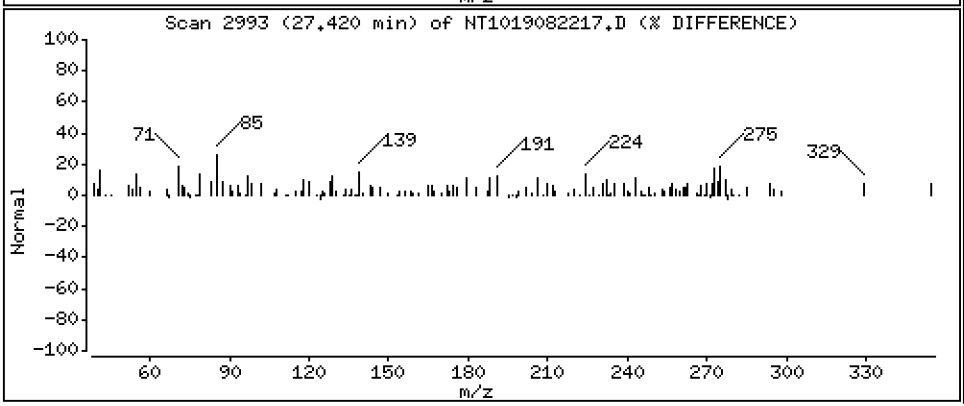
80 Benzo(g,h,i)perylene

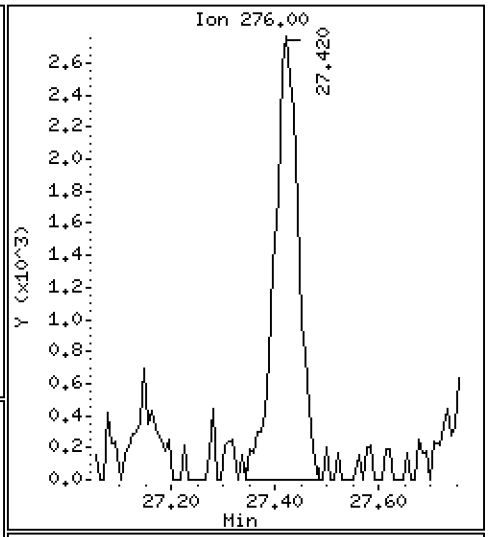
Concentration: 1.569 ug/mL

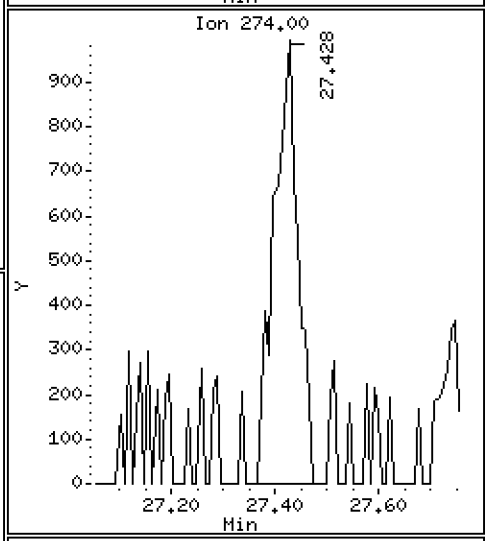


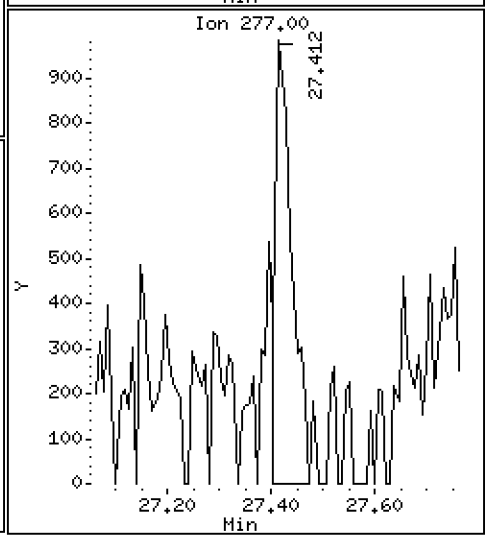












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D

Date : 22-AUG-2019 23:40

Client ID:

Instrument: nt10.i

Sample Info: 19H0024-11RE1,3

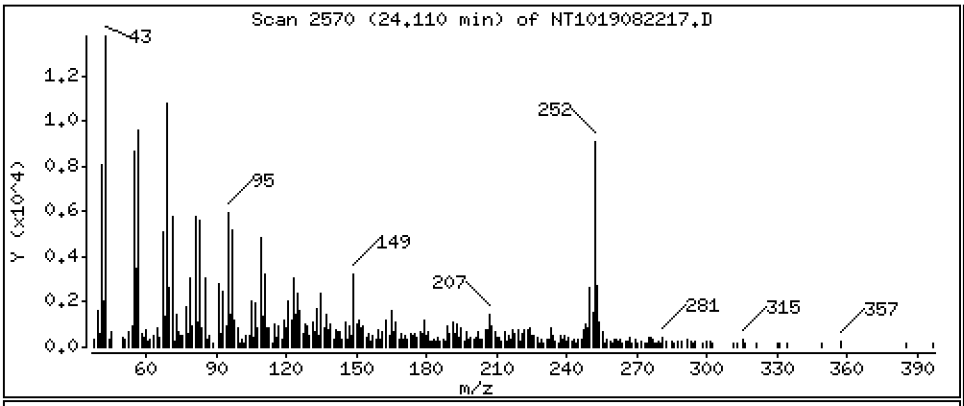
Operator: YZ

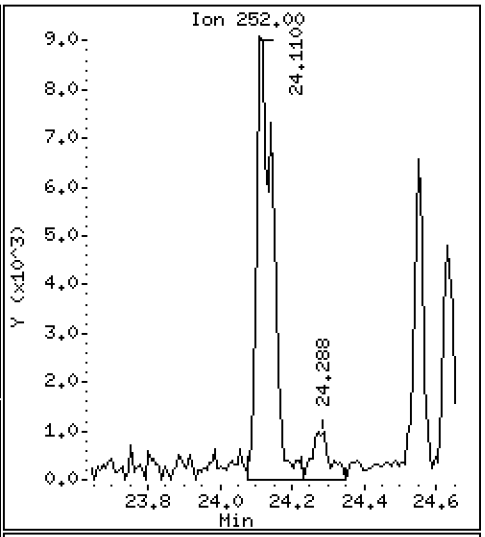
Column phase: ZB-5msi

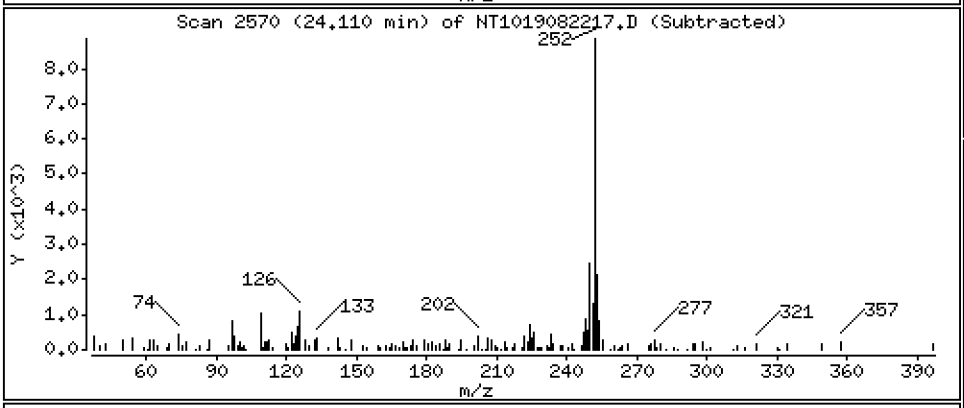
Column diameter: 0.25

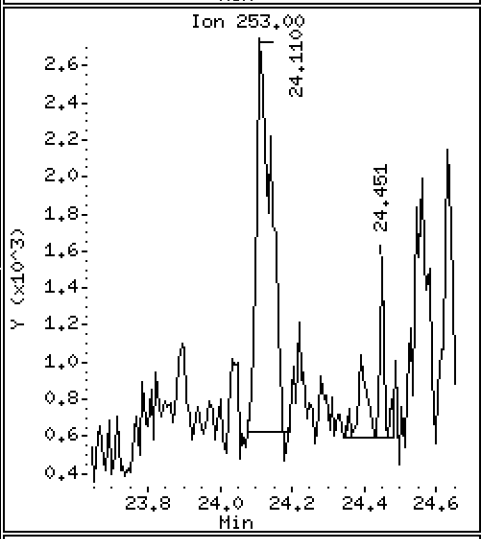
187 Total Benzofluoranthenes

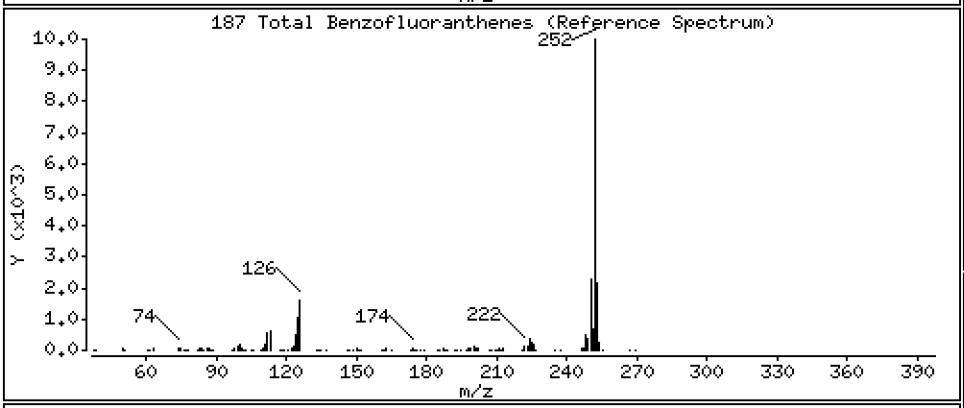
Concentration: 4.678 ug/mL

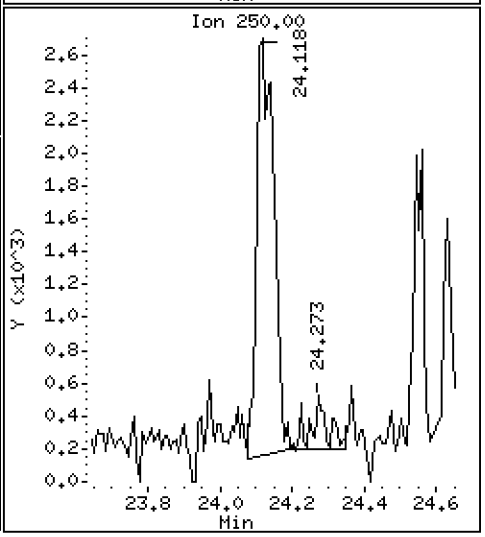


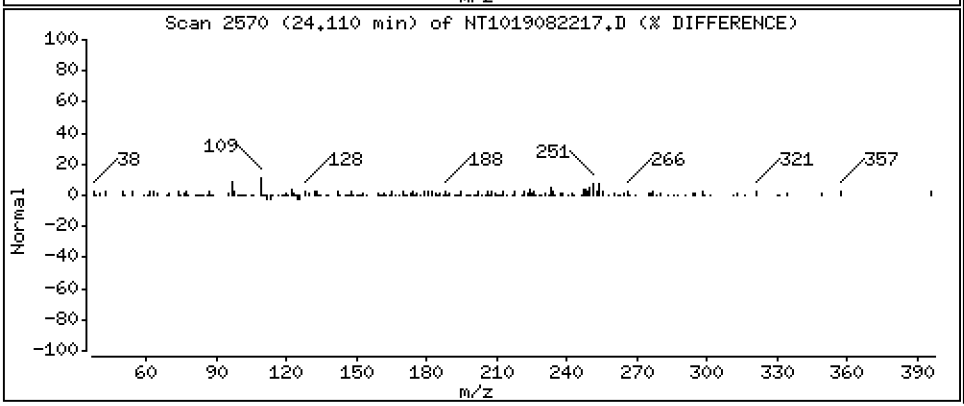












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190822.b\NT1019082217.D
Lab Smp Id: 19H0024-11RE1
Inj Date : 22-AUG-2019 23:40
Operator : YZ Inst ID: nt10.i
Smp Info : 19H0024-11RE1,3
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 11:16 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 13
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.188	6.173	(0.743)	14657	1.05701	3.171
$	2 Phenol-d5	99	7.757	7.749	(0.931)	15443	0.99374	2.981
	3 Phenol	94	Compound Not Detected.					
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.958)	22553	1.34813	4.044
*	8 1,4-Dichlorobenzene-d4	152	8.329	8.329	(1.000)	49381	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.678	8.671	(1.042)	9680	0.84634	2.539
	11 Benzyl alcohol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.408	9.408	(0.874)	12359	0.85718	2.572
	24 Benzoic acid	105	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.765	10.765	(1.000)	184350	4.00000	
	28 Naphthalene	128	Compound Not Detected.					
	32 2-Methylnaphthalene	142	Compound Not Detected.					
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	35569	1.05032	3.151
	39 Dimethylphthalate	163	Compound Not Detected.					
	40 Acenaphthylene	152	Compound Not Detected.					
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	88538	4.00000	
	44 Acenaphthene	153	14.370	14.378	(1.004)	8989	0.33519	1.006
	46 Dibenzofuran	168	14.695	14.703	(1.027)	6939	0.15744	0.4723
	50 Diethylphthalate	149	Compound Not Detected.					
	49 Fluorene	166	15.398	15.398	(1.076)	7931	0.26313	0.7894
	54 N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55 2,4,6-Tribromophenol	330	15.923	15.931	(1.113)	9789	1.46219	4.387
*	59 Phenanthrene-d10	188	17.291	17.291	(1.000)	166753	4.00000	
	60 Phenanthrene	178	17.337	17.345	(1.003)	29556	0.72561	2.177
	61 Anthracene	178	17.430	17.430	(1.008)	7410	0.17916	0.5375
	63 Di-n-butylphthalate	149	Compound Not Detected.					
	64 Fluoranthene	202	19.759	19.751	(0.883)	58364	2.23567	6.707
	65 Pyrene	202	20.177	20.169	(0.901)	44235	1.62267	4.868
$	66 Terphenyl-d14	244	20.502	20.502	(0.916)	27598	1.49276	4.478
	67 Butylbenzylphthalate	149	Compound Not Detected.					
	68 Benzo(a)anthracene	228	22.352	22.352	(0.999)	9581	0.38655	1.160
*	69 Chrysene-d12	240	22.383	22.383	(1.000)	85427	4.00000	
	71 Chrysene	228	22.422	22.430	(1.002)	16147	0.73622	2.209

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.515	22.515	(0.958)	50314	2.97818	8.935
* 134	Di-n-octylphthalate-d4	153	23.490	23.490	(1.000)	192079	4.00000	
73	Di-n-octylphthalate	149	23.506	23.498	(1.001)	6366	0.17915	0.5375(M)
74	Benzo(b)fluoranthene	252	24.110	24.110	(0.975)	17179	0.89832	2.695
75	Benzo(k)fluoranthene	252	24.141	24.110	(0.976)	11752	0.61085	1.833(M)
76	Benzo(a)pyrene	252	24.628	24.628	(0.996)	8859	0.51617	1.549
* 77	Perylene-d12	264	24.729	24.721	(1.000)	66654	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.821	26.806	(1.085)	10000	0.48492	1.455
79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
80	Benzo(g,h,i)perylene	276	27.419	27.404	(1.109)	9085	0.52306	1.569
105	1-methylnaphthalene	142	Compound Not Detected.					
187	Total Benzofluoranthenes	252	24.110	24.148	(0.975)	28605	1.55943	4.678

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082217.D
Lab Smp Id: 19H0024-11RE1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 16:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	49381	50.83
27 Naphthalene-d8	117487	58744	234974	184350	56.91
42 Acenaphthene-d10	61859	30930	123718	88538	43.13
59 Phenanthrene-d10	113574	56787	227148	166753	46.82
69 Chrysene-d12	105788	52894	211576	85427	-19.25
134 Di-n-octylphthala	252823	126412	505646	192079	-24.03
77 Perylene-d12	113992	56996	227984	66654	-41.53

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.33	0.00
27 Naphthalene-d8	10.77	10.27	11.27	10.77	0.00
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.29	0.00
69 Chrysene-d12	22.38	21.88	22.88	22.38	0.00
134 Di-n-octylphthala	23.49	22.99	23.99	23.49	0.00
77 Perylene-d12	24.72	24.22	25.22	24.73	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082217.D

Lab ID: 19H0024-11RE1
nt10.i, 20190822.b\ABN.m,   22-AUG-2019 23:40

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT1019082206.D

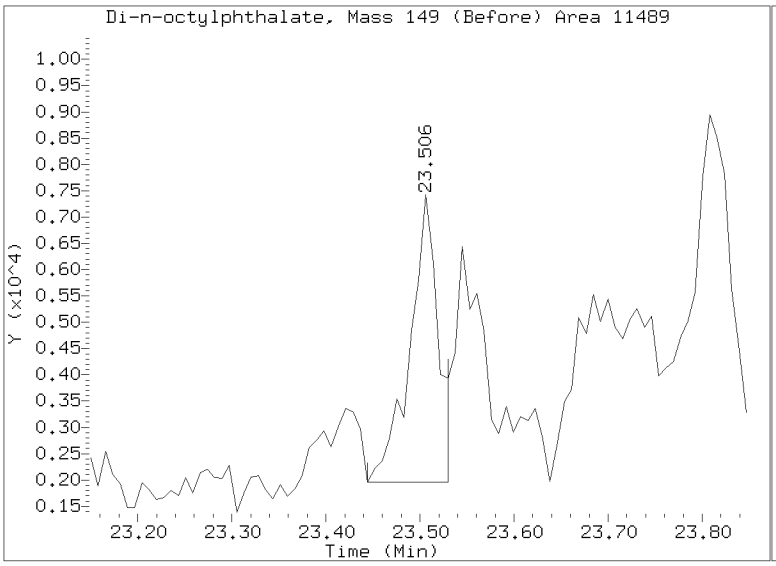
On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

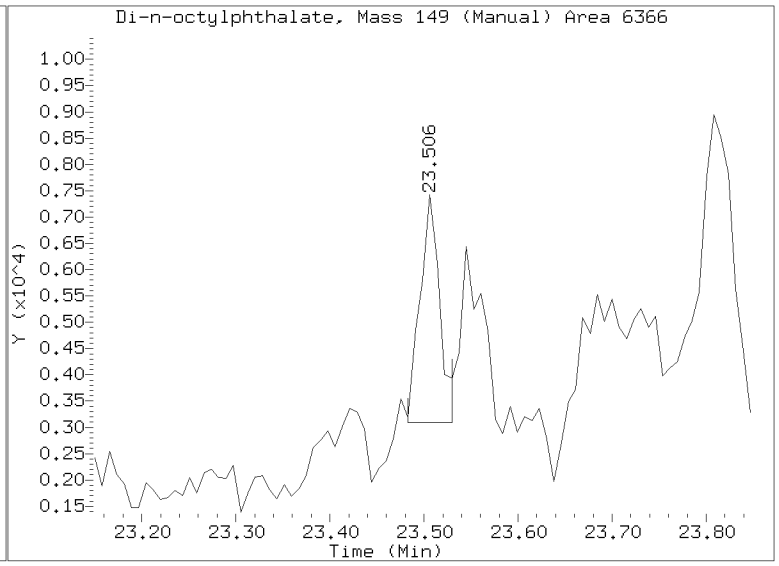
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

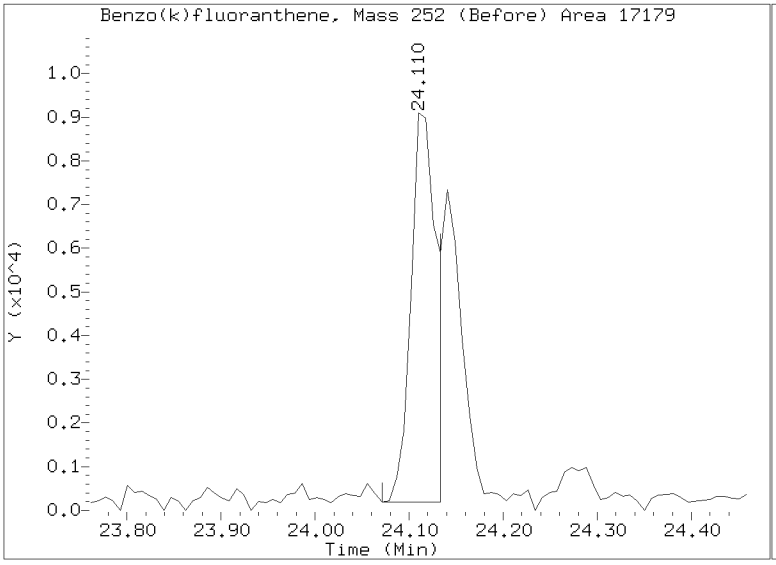
* Only compounds listed in the work order have been verified by the analyst *

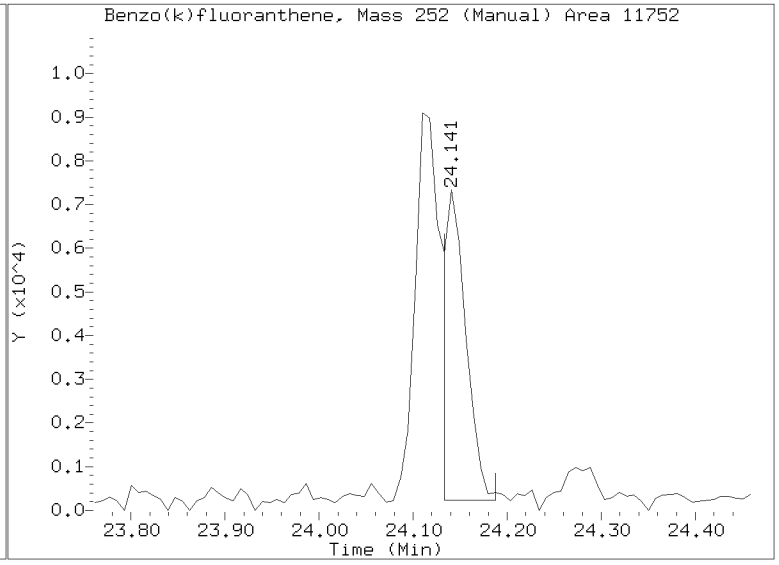
Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190822.b/NT1019082217.D
Injection Date: 22-AUG-2019 23:40
Lab ID:19H0024-11RE1 Client ID:
Report Date: 08/23/2019 11:17









Analytical Resources, Incorporated
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Batch: BHH0289 Batch Matrix: Solid Preparation: EPA 3546 (Microwave)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC3-2019	19H0024-03	NT1019082112.D	08/13/19 12:40	
SL4-SG-WC3-2019	19H0024-03RE1	NT1019082209.D	08/13/19 12:40	Added 8/22/2019 by YZ
SL4-SG-WC7-2019	19H0024-04	NT1019082113.D	08/13/19 12:40	
SL4-SG-WC7-2019	19H0024-04RE1	NT1019082210.D	08/13/19 12:40	Added 8/22/2019 by YZ
SL4-SG-WC7-FD-2019	19H0024-05	NT1019082114.D	08/13/19 12:40	
SL4-SG-WC7-FD-2019	19H0024-05RE1	NT1019082211.D	08/13/19 12:40	Added 8/22/2019 by YZ
SL4-SG-WC8-2019	19H0024-06	NT1019082115.D	08/13/19 12:40	
SL4-SG-WC8-2019	19H0024-06RE1	NT1019082212.D	08/13/19 12:40	Added 8/22/2019 by YZ
SL4-SG-WC4-2019	19H0024-07	NT1019082116.D	08/13/19 12:40	
SL4-SG-WC4-2019	19H0024-07RE1	NT1019082213.D	08/13/19 12:40	Added 8/22/2019 by YZ
SL4-SG-WC2-2019	19H0024-08	NT1019082117.D	08/13/19 12:40	
SL4-SG-WC2-2019	19H0024-08RE1	NT1019082214.D	08/13/19 12:40	Added 8/22/2019 by YZ
SL4-SG-WC1-2019	19H0024-09	NT1019082118.D	08/13/19 12:40	
SL4-SG-WC1-2019	19H0024-09RE1	NT1019082215.D	08/13/19 12:40	Added 8/22/2019 by YZ
SL4-IC-SC2-2019	19H0024-10	NT1019082119.D	08/13/19 12:40	
SL4-IC-SC2-2019	19H0024-10RE1	NT1019082216.D	08/13/19 12:40	Added 8/22/2019 by YZ
SL4-IC-SC3-2019	19H0024-11	NT1019082120.D	08/13/19 12:40	
SL4-IC-SC3-2019	19H0024-11RE1	NT1019082217.D	08/13/19 12:40	Added 8/22/2019 by YZ
Blank	BHH0289-BLK1	NT1019082108.D	08/13/19 12:40	
LCS	BHH0289-BS1	NT1019082109.D	08/13/19 12:40	
SL4-SG-WC3-2019	BHH0289-MS1	NT1019082110.D	08/13/19 12:40	
SL4-SG-WC3-2019	BHH0289-MSD1	NT1019082111.D	08/13/19 12:40	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHH0289

Prepared using: EPA 3546 (Microwave)

pb) or (0.2-2 ppb Low LVL SepF) in Solid (Version:Slip 4 PAH Pht NNDPA BzAc BzAlc Phenol)

Matrix: Solid **Date Prepared:** 8-13-19 **Balance ID:** B139298002 **Set Up By:** RcsM 08/13/19

The following standards may be missing from this batch!

Designator	Description
39	Benzidine Spike
QLS 14	QLS Spike (Freezer)

Analysis: 8270D SV (20-200 ppb) or (0.2-2 ppb Low LVL SepF)

Lab Number & Container	% Solids	Initial (g) Target Dry: 10 (Wet) Actual	(REQ) GPC C/U (1:1) (1) 2 3	Water Wash 1mL	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
19H0024-03 C	39.7	(25.18) 25.20	(1:1)	1mL	1	0.5	
19H0024-04 C	41.6	(24.04) 24.14	(1:1)	1mL	1	0.5	
19H0024-05 C	40.8	(24.49) 24.61	(1:1)	1mL	1	0.5	
19H0024-06 C	56.6	(17.66) 17.82	(1:1)	1mL	1	0.5	
19H0024-07 C	71.8	(13.92) 14.08	(1:1)	1mL	1	0.5	
19H0024-08 B	44.5	(22.46) 22.56	(1:1)	1mL	1	0.5	
19H0024-09 C	41.0	(24.40) 24.56	(1:1)	1mL	1	0.5	
19H0024-10 C	82.0	(12.19) 12.35	(1:1)	1mL	1	0.5	
19H0024-11 C	65.5	(15.27) 15.39	(1:1)	1mL	1	0.5	

Batch QC

Lab Number	% Solids	Initial (g) Target Dry: 10 (Wet) Actual	(REQ) GPC C/U (1:1) (1) 2 3	Water Wash 1mL	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BHH0289-BLK1	100.0	(10.00) 10.00	(1:1)	1mL	1	0.5	Use 5g Neutral Sodium Sulfate for Blanks
BHH0289-BS1	100.0	(10.00) 10.00	(1:1)	1mL	1	0.5	Use 5g Neutral Sodium Sulfate for Blanks
BHH0289-MS1	39.7	()(25.18) 25.26	(1:1)	1mL	1	0.5	Use 19H0024-03
BHH0289-MSD1	39.7	()(25.18) 25.28	(1:1)	1mL	1	0.5	Use 19H0024-03

DM 8-13-19
Client ID verified By Date

RD 8-15-19
Preparation Reviewed By Date

8/13/19 12:40
Extraction Date and Time

Printed: 8/13/2019 9:21:01AM

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHH0289

Prepared using: EPA 3546 (Microwave)

pb) or (0.2-2 ppb Low LVL SepF) in Solid (Version:Slip 4 PAH Pht NNDPA BzAc BzAlc Phenol)

Prep Steps

Microwave
1 (2) 3
8-13-19
DM Analyst/Date

KD 100°C
1 2 3 (4) (5) 6
SH 8/13/19
Analyst/Date

TurboVap Pre GPC
(1) 2 3 4 5
SP 8-14-19
Analyst/Date

GPC Prep Filter (1:1)
SP 8-14-19
Analyst/Date

Post GPC KD 80-85°C
(1) (2) 3 4 5 6
CO 8/15/19
Analyst/Date

TurboVap
(1) 2 3 4 5
RD 8-15-19
Analyst/Date

Water Wash
RD 8-15-19
Analyst/Date

Vialing
RD 8-15-19
Analyst/Date

Reagents Used

Station/Reagent	Standard ID
Microwave Analyst: DM Date: 8-13-19	
Anhydrous Sodium Sulfate	H006761
1:1 Methylene Chloride/Acetone	H007239
Methylene Chloride	H007231
Pre-Deactivated Glass Wool	H006004
Pre GPC KD Analyst: SH Date: 8/13/19	
~~Pre-Deactivated Glass Wool~~ SH 8/13/19	N/A
~~Anhydrous Sodium Sulfate~~ 8/13/19	N/A
Methylene Chloride	H007231
Hexane	H005655
GPC Filter Prep Analyst: SP Date: 8-14-19	
Methylene Chloride	H007231
GPC Analyst: RP Date: 8-14-19	
Methylene Chloride	H007231
GPC Calibration File	CHG0168GPC1
Post GPC KD Analyst: CO Date: 8/15/19	
Methylene Chloride	H007231
Vialing Analyst: RD Date: 8-15-19	
Methylene Chloride	H007231

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate 100/150µg/mL	A H006221 Exp: 06/27/2020	50µL	DM	MW
Full List Spike (Freezer) 100µg/mL	7 H005653 (V) Exp: 10/10/2019	50µL	DM	MW
Base Spike 200µg/mL	56 H005653 (V) Exp: 10/10/2019	50µL	DM	MW
Acid Spike 100/200µg/mL	38 H005653 (V) Exp: 10/10/2019	50µL	DM	MW

(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards.

If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator inthe Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: BAN Extraction Batch BHH0289

Total Solids Batch: _____ Work Order(s): 19H0024

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)=03,04,05,06,10,	[illegible] 08/12/19
☒ Standing Water Decanted (Not shared)=03,04,05.06,08,	[illegible] 08/12/19
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☒ Rocks (%+size)? 40.0% =06,07. 30.0% =08,	[illegible] 08/12/19
☐ Organics (Leaves/sticks/grass)=	
☒ Oily, obvious fuel/sulfur odors= sulfur odor 11	[illegible] 08/12/19
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☒ Other (Details)= unkown odor =09.	[illegible] 08/12/19 8/12/19
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☒ Share Samples Y / N	[illegible] 08/12/19
☒ Multiple Jars Y / N 03 x 2.	[illegible] 08/12/19
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

3056F

BHH0299/289 19H0024 BAN

Date:2019-08-14,7:23:43 PM
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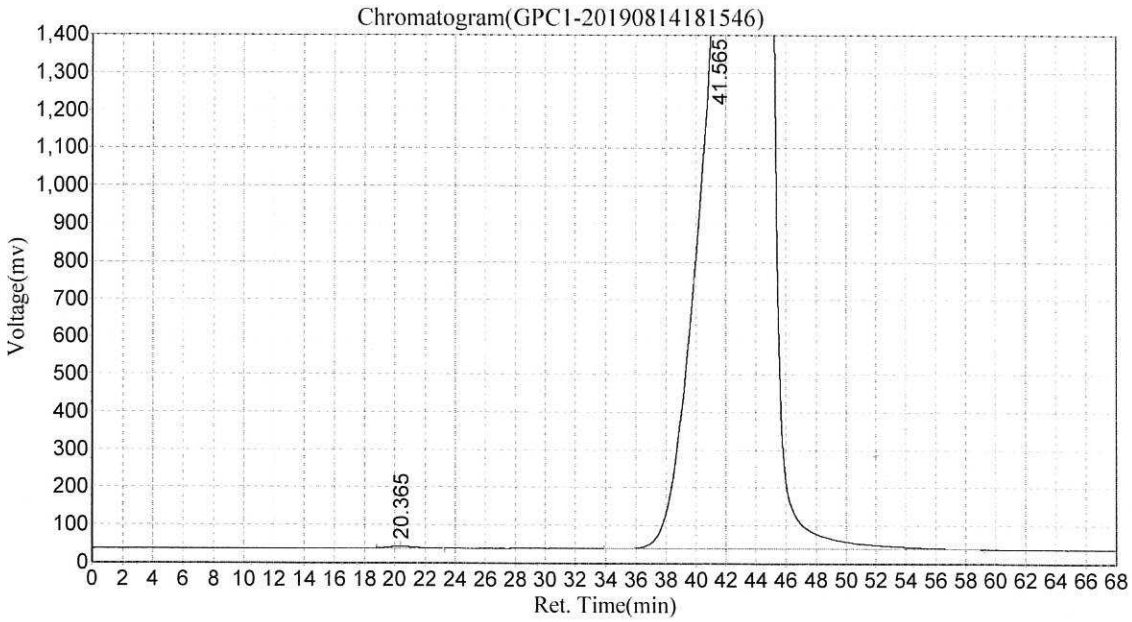
Analyst£ºRD
Date/Time2019-08-14,7:23:43 PM



Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		20.365	4959.529	668560.813	0.1284
2		41.565	1450425.875	520163392.000	99.8716
Total			1455385.404	520831952.813	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

BHH0299/289 19H0024 BAN

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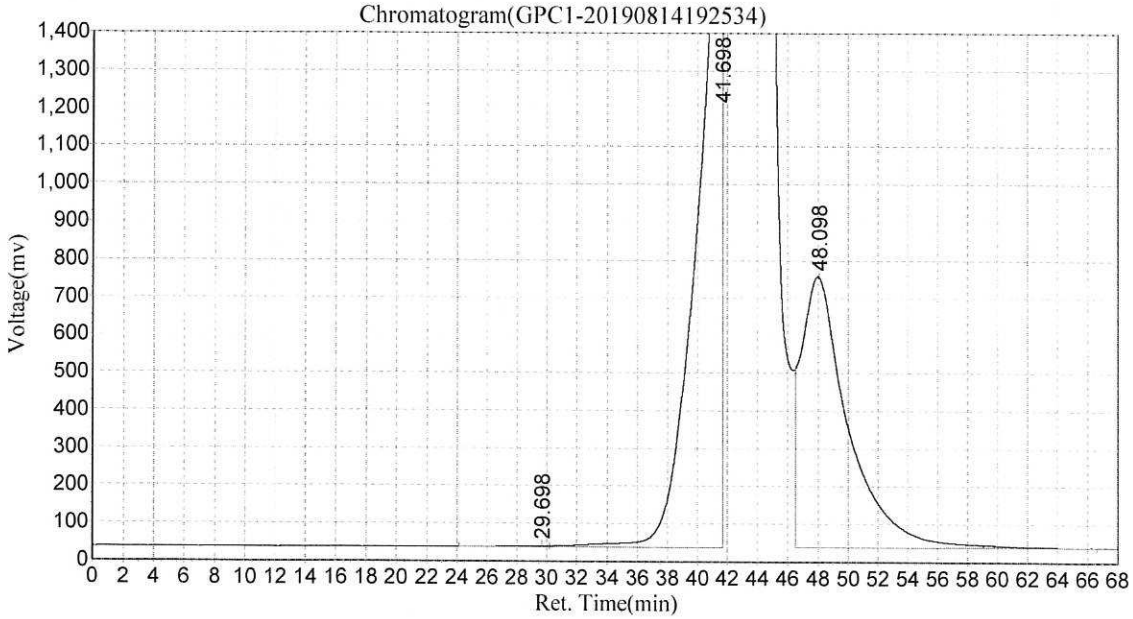

Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		29.698	2100.239	409435.219	0.1174
2		41.698	1450773.250	191292016.000	54.8672
3		48.098	718513.875	156944160.000	45.0154
Total			2171387.364	348645611.219	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

BHH0299/289 19H0024 BAN

Date:2019-08-14,9:43:20 PM
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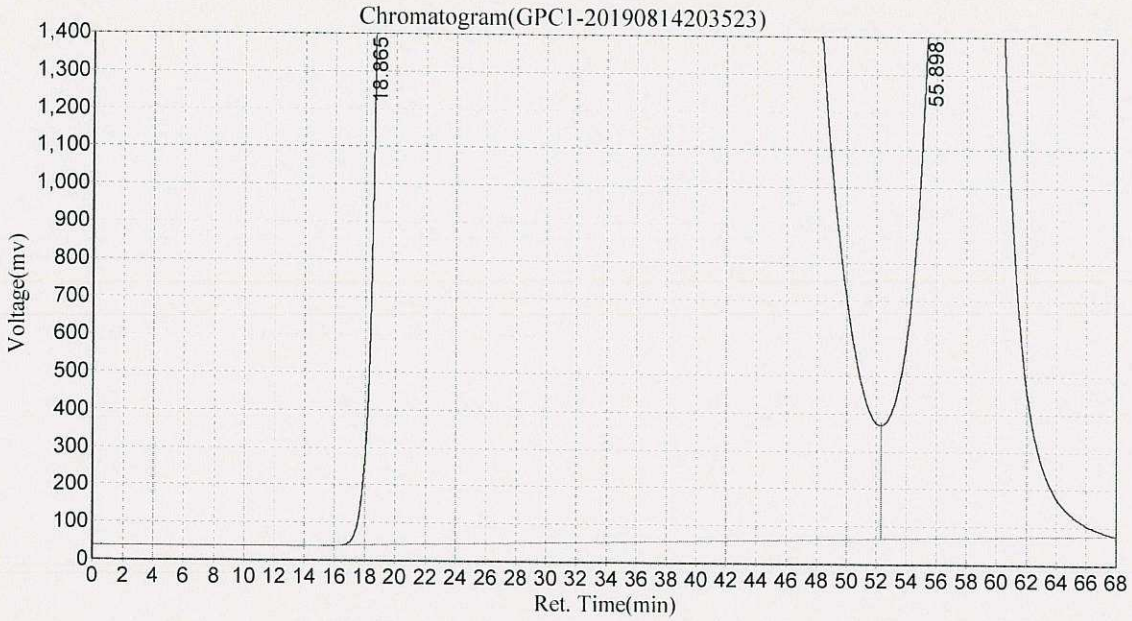

Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		18.865	1447617.625	2742472704.000	80.9609
2		55.898	1419946.375	644931328.000	19.0391
Total			2867564.000	3387404032.000	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

2019-08-14

Analytical Resources, Inc.

BHH0299/289 19H0024 BAN

Date:2019-08-14,10:53:07 PM
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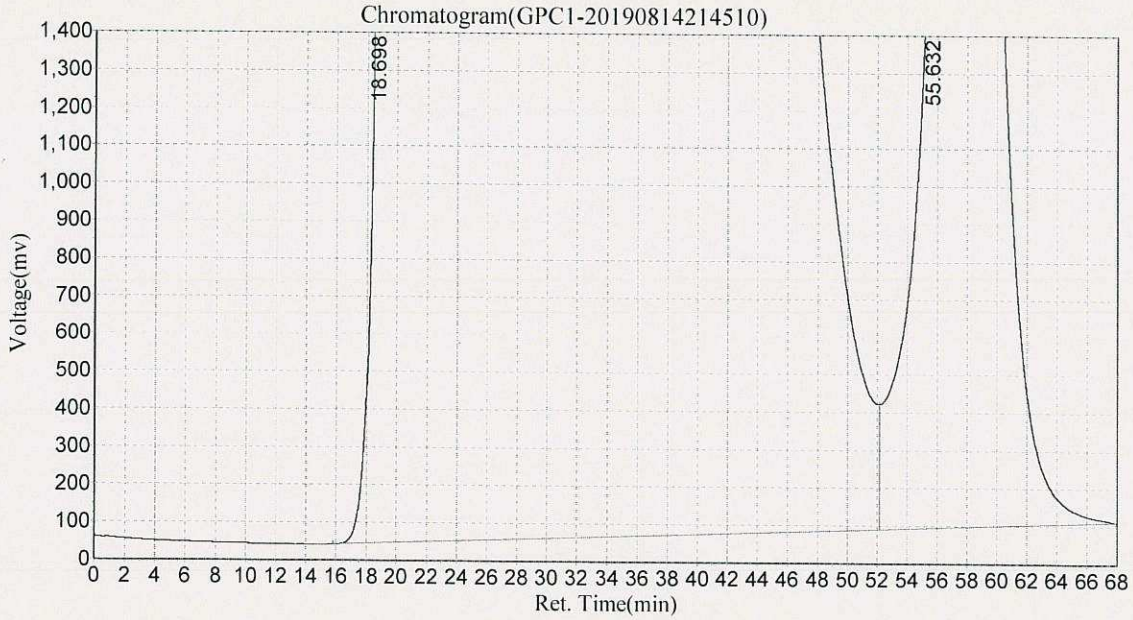

Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		18.698	1442873.750	2723634432.000	80.8647
2		55.632	1394105.375	644503232.000	19.1353
Total			2836979.125	3368137664.000	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

2019-08-14

Analytical Resources, Inc.

Q3
Q5

BHH0299/289 19H0024 BAN

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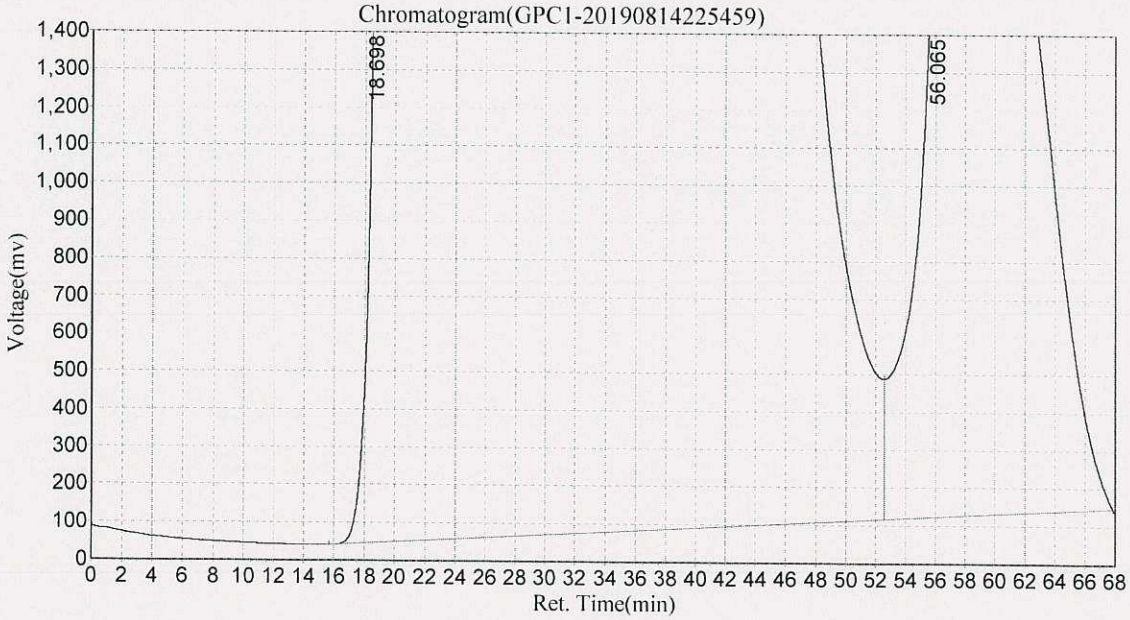

Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		18.698	1441704.250	2725352960.000	76.2516
2		56.065	1364133.875	848806336.000	23.7484
Total			2805838.125	3574159296.000	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

BHH0299/289 19H0024 BAN

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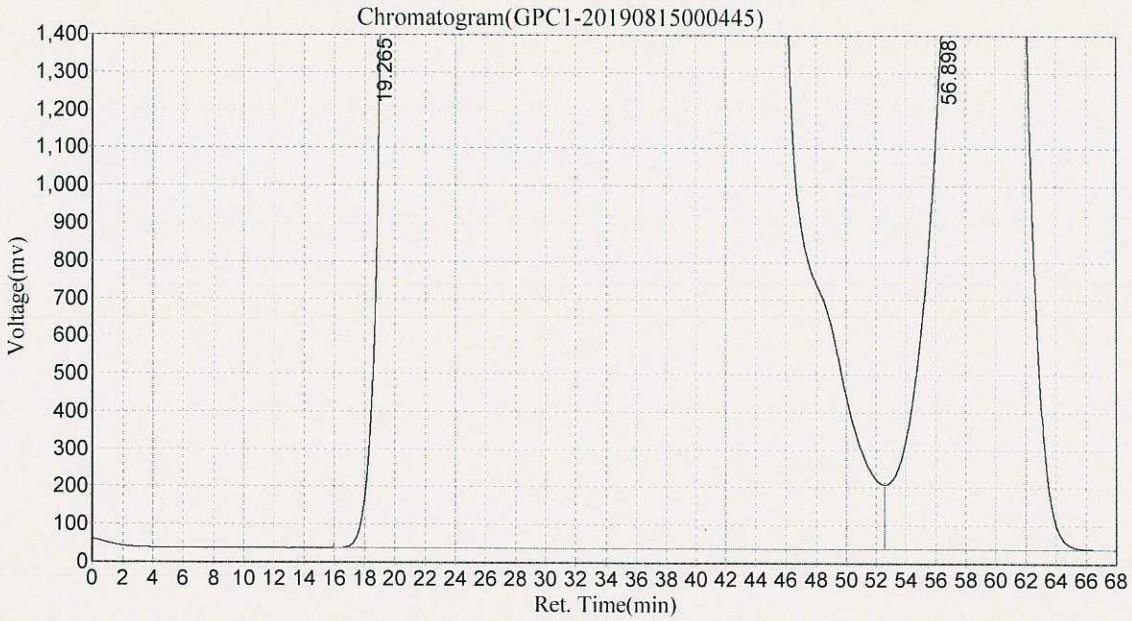

Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		19.265	1451962.875	2610114048.000	79.5394
2		56.898	1451521.125	671420480.000	20.4606
Total			2903484.000	3281534528.000	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

2019-08-15

Analytical Resources, Inc.

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-07

BHH0299/289 19H0024 BAN

Date:2019-08-15,2:22:31 AM
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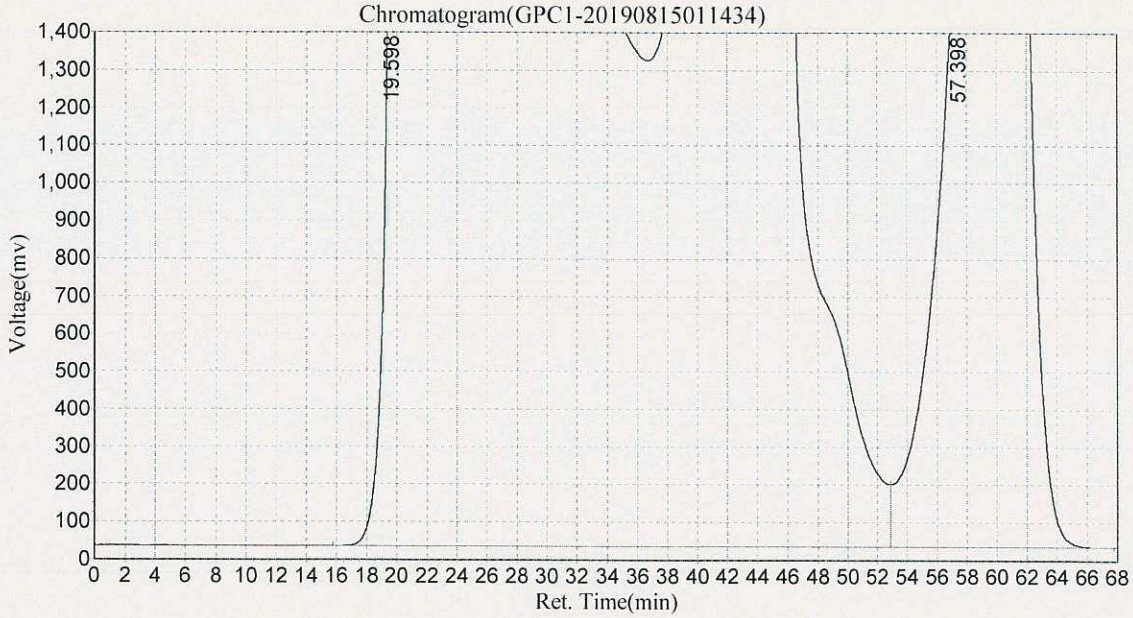

Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		19.598	1452918.500	2578325248.000	79.9260
2		57.398	1453485.125	647563648.000	20.0740
Total			2906403.625	3225888896.000	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

2019-08-15

Analytical Resources, Inc.

BHH0299/289 19H0024 BAN

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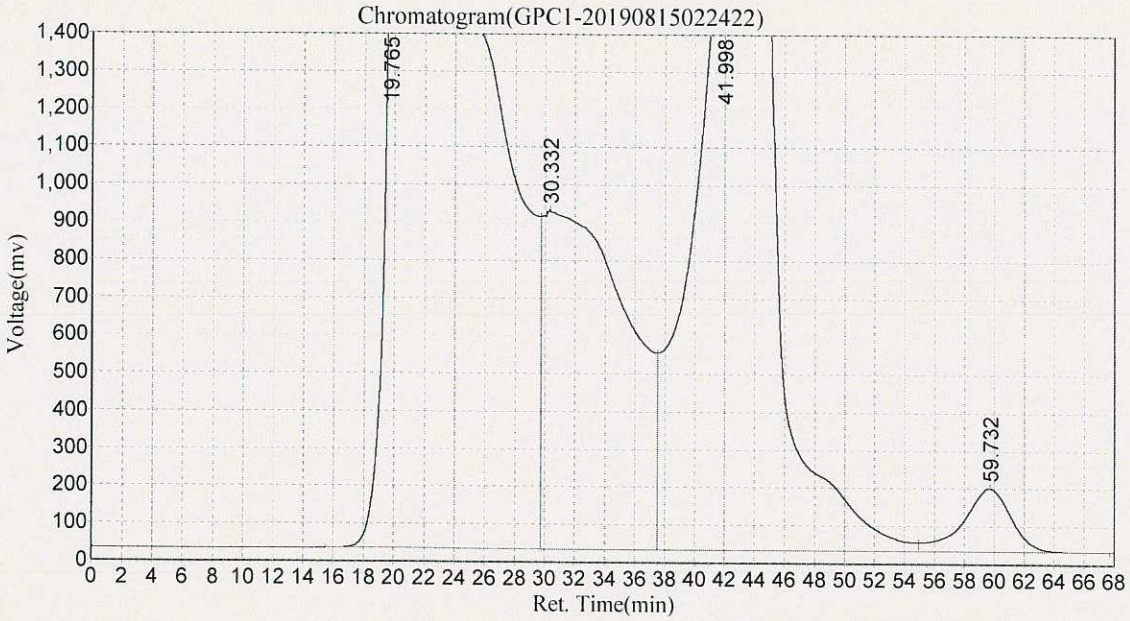

Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		19.765	1454064.250	828458944.000	44.8620
2		30.332	898258.813	350015744.000	18.9537
3		41.998	1454534.625	630764288.000	34.1566
4		59.732	166711.766	37445440.000	2.0277
Total			3973569.453	1846684416.000	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

BHH0299/289 19H0024 BAN

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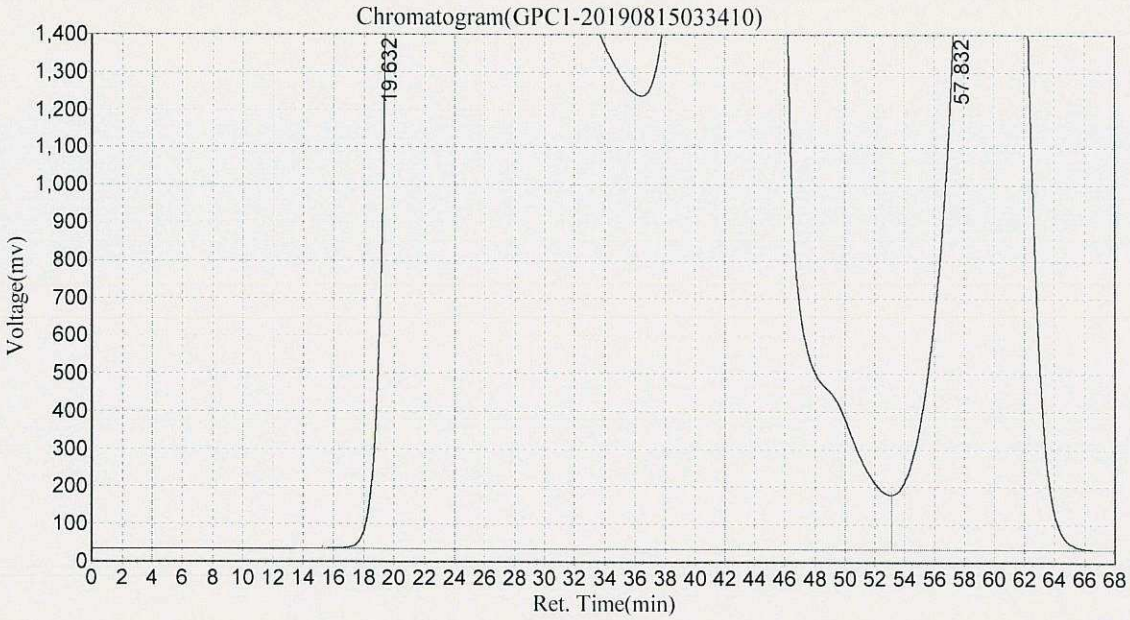

Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		19.632	1454671.750	2491834112.000	80.2109
2		57.832	1455238.625	614767872.000	19.7891
Total			2909910.375	3106601984.000	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

2019-08-15

Analytical Resources, Inc.

BHH0299/289 19H0024 BAN

Date:2019-08-15,5:51:54 AM
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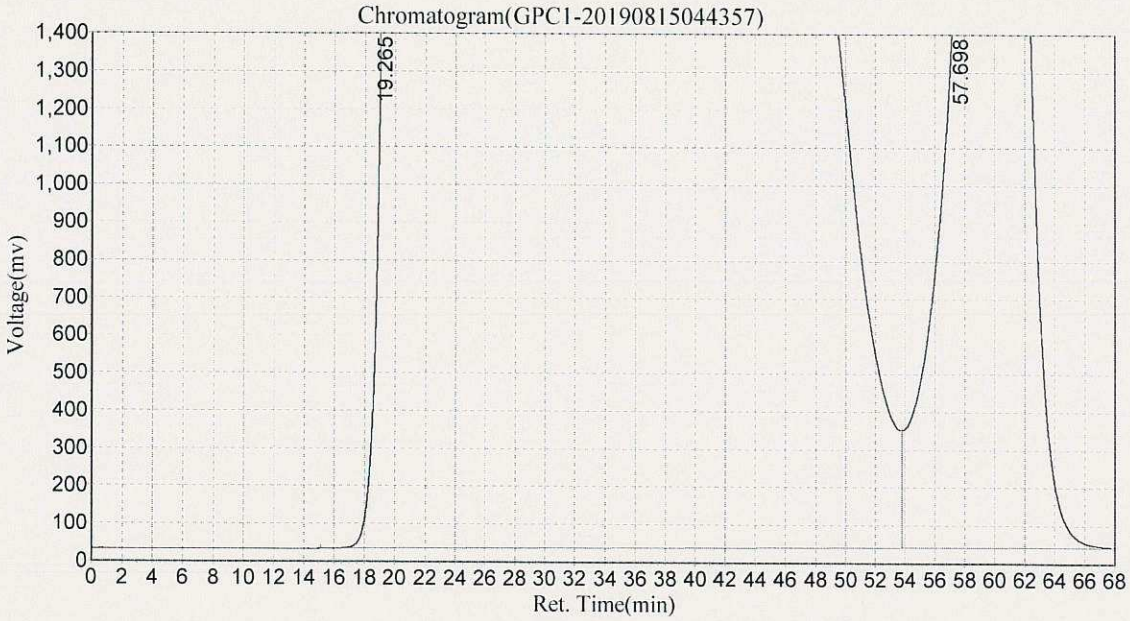

Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		19.265	1454907.500	2861538560.000	81.5094
2		57.698	1447311.875	649148864.000	18.4906
Total			2902219.375	3510687424.000	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

2019-08-15

Analytical Resources, Inc.

BHH0299/289 19H0024 BAN

Date:2019-08-15,7:01:43 AM
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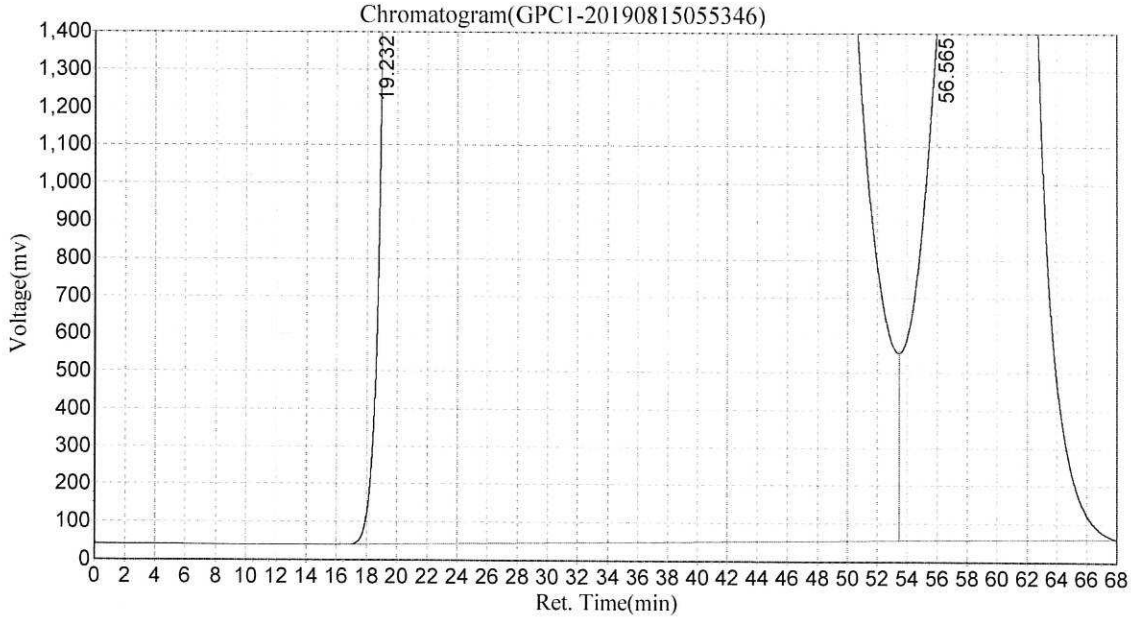

Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		19.232	1448865.500	2903112192.000	78.7633
2		56.565	1431931.625	782756416.000	21.2367
Total			2880797.125	3685868608.000	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

BHH0299/289 19H0024 BAN

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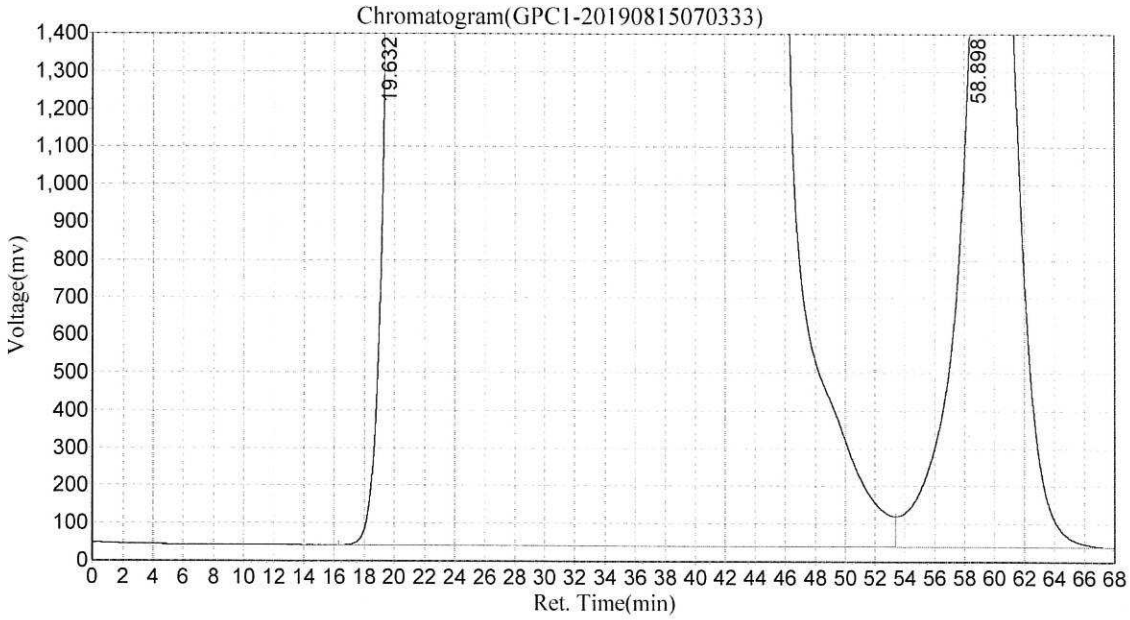

Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		19.632	1447428.625	2529472512.000	84.9629
2		58.898	1449686.500	447675296.000	15.0371
Total			2897115.125	2977147808.000	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

BHH0299/289 19H0024 BAN

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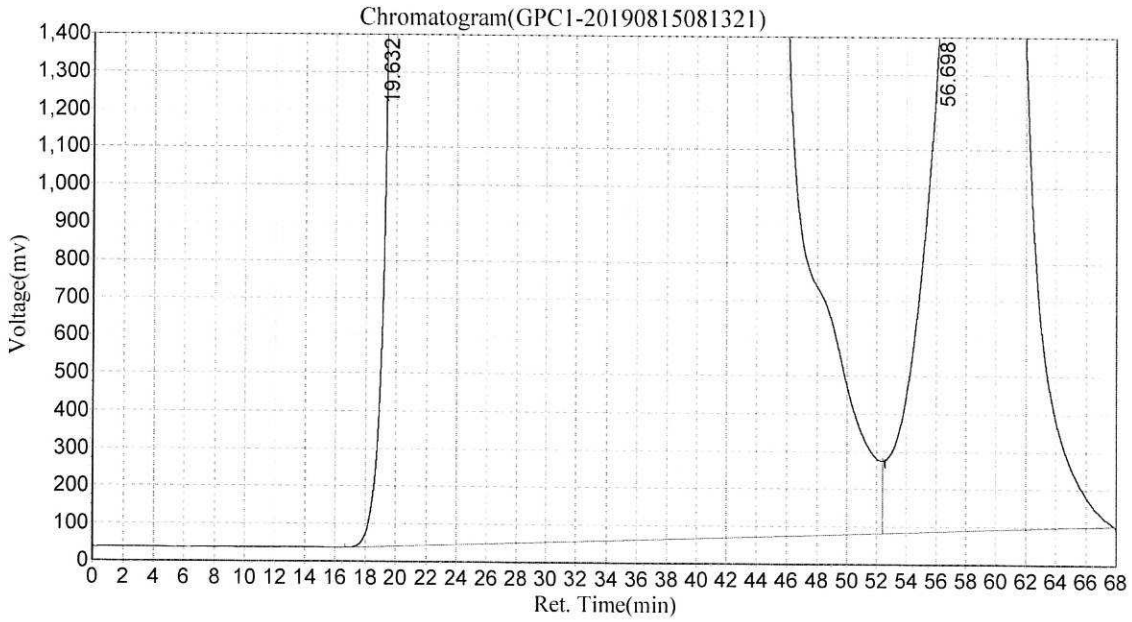


Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		19.632	1448426.625	2525184000.000	78.1040
2		56.698	1399556.500	707922432.000	21.8960
Total			2847983.125	3233106432.000	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

Prep Instructions	
SPECIAL INSTRUCTIONS: 1. Weigh into beakers-lightly dry with Sodium Sulfate. 2. Transfer to microwave vessel. 3. Add DCM ONLY to the vessels (until solvent is 3 inches above soil layer after homogenization). 4. Add surr/spike. 5. Microwave on appropriate power setting determined by # of samples. 6. After microwave-re-homogenize while hot then let cool 10-15 min in Refridgerator 05. Re-homogenize while cool. 7. Decant DCM into Erlenmeyer flask with a funnel containing pre-deactivated glasswool. 8. Rinse with DCM 9. Microwave a 2nd time using 1:1 DCM/ACE. 10. Let cool and decant the solvent then empty the soil into the funnel and rinse with DCM. 11. KD: Add 10 mL Hexane directly to extract in the KD. 12. GPC REQUIRED 100°C water bath (CLP) KD to 5mL. 13. (After GPC) KD at 80°C. 14.TurboVap 15. Vial in DCM. 16. Water Wash Required 17. 0.5mL (1:2) Split to Lab. A. Need Total Solids Y (N) B. Archive/Freeze (Y) N	

PREPARATION BATCH SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Batch: BHH0299 Batch Matrix: Wipes
Preparation: EPA 3580A (Shake Out)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC3-FW-2019	19H0024-02	NT1019082123.D	08/13/19 11:20	
Blank	BHH0299-BLK1	NT1019082121.D	08/13/19 11:20	
LCS	BHH0299-BS1	NT1019082122.D	08/13/19 11:20	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHH0299

Prepared using: EPA 3546 (Microwave)

ppb) or (0.2-2 ppb Low LVL SepF) in Wipes (Version:Slip 4 PAH BHt NNDPA BzAC BzAlc Phe)

Matrix: Wipes **Date Prepared:** ϕ 8/13/19 **Balance ID:** B1464626l4 **Set Up By:** RcsM 08/13/19

Analysis: 8270D SV (20-200 ppb) or (0.2-2 ppb Low LVL SepF)

Lab Number & Container	Initial (Wipe) Actual	(REQ) GPC C/U (1:1) 1 (2) 3	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
19H0024-02 C	(1.00) 1.ϕϕ	(1:1)	1	~~1.0~~ 0.5	

Batch QC

Lab Number	Initial (Wipe) Actual	(REQ) GPC C/U (1:1) 1 (2) 3	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BHH0299-BLK1	(1.00) 1.ϕϕ	(1:1)	1	~~1.0~~ 0.5	Use 1g Neutral Sodium Sulfate for Blanks
BHH0299-BS1	(1.00) 1.ϕϕ	(1:1)	1	~~1.0~~ 0.5	Use 1g Neutral Sodium Sulfate for Blanks

ϕ8/13/19 — Client ID verified By — Date

RD 8-15-19 — Preparation Reviewed By — Date

ϕ8/13/19 11:2ϕ — Extraction Date and Time

Printed: 8/13/2019 9:36:56AM

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHH0299

Prepared using: EPA 3546 (Microwave)

ppb) or (0.2-2 ppb Low LVL SepF) in Wipes (Version:Slip 4 PAH BHt NNDPA BzAC BzAlc Phe)

Prep Steps

Step	Analyst/Date
Microwave	CT (1) 2 3 — CT 08/13/19
KD 100°C	1 2 3 4 (5) 6 — SH 8/13/19
TurboVap Pre GPC	(1) 2 3 4 5 — SP 8/14/19
GPC Prep Filter (1:1)	SP 8/14/19
Post GPC KD 80-85°C	1 (2) 3 4 5 6 — CO 8/15/19
TurboVap	(1) 2 3 4 5 — RD 8-15-19
Vialing	RD 8-15-19

Reagents Used

Station/Reagent	Standard ID
Microwave Analyst: CT Date: 08/13/19	
Anhydrous Sodium Sulfate	H006761 8/14/19
1:1 Methylene Chloride/Acetone	H007239
Methylene Chloride	H007231
Pre-Deactivated Glass Wool	H006004
Pre GPC KD Analyst: SH Date: 8/13/19	
~~Pre-Deactivated Glass Wool~~ 8/13/19 SH	N/A
~~Anhydrous Sodium Sulfate~~ 8/13/19 CH	N/A
Methylene Chloride	H007231
Hexane	H005655
GPC Filter Prep Analyst: SP Date: 8-14-19	
Methylene Chloride	H007231
GPC Analyst: RD Date: 8-14-19	
Methylene Chloride	H007231
GPC Calibration File	CHG 0168 GPC1
Post GPC KD Analyst: CO Date: ~~8/14/19~~ 8/15/19 CO 8/15/19	
Methylene Chloride	H007231
Vialing Analyst: RD Date: 8-15-19	
Methylene Chloride	H007231

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID		Vol uL	Analyst	Witness
Surrogate 100/150µg/mL	A	H006221 Exp: 06/27/2020	50µL	CT	[signature]
Full List Spike (Freezer 100µg/mL	7	H005654 (V) Exp: 10/10/2019	50µL	CT	[signature]
Base Spike 200µg/mL	56	H005654 (V) Exp: 10/10/2019	50µL	CT	[signature]
Acid Spike 100/200µg/mL	38	H005654 (V) Exp: 10/10/2019	50µL	CT	[signature]
Benzidine Spike 500µg/mL	39	H005654 (V) Exp: 10/10/2019	50µL	CT	[signature]

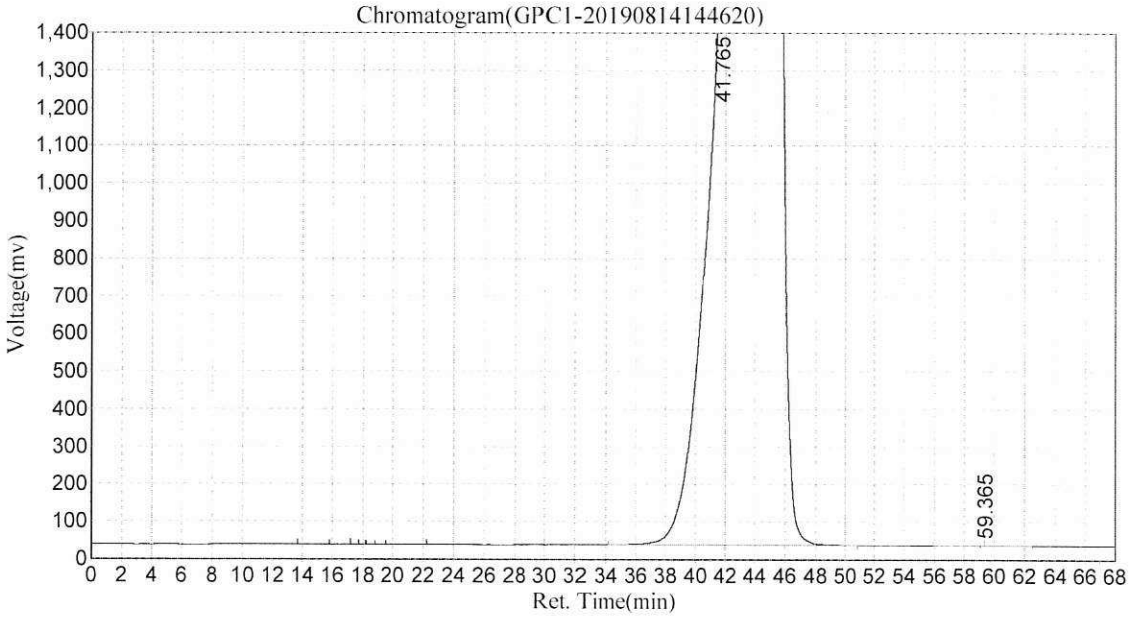
(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards.

If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator inthe Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).

BHH0299/289 19H0024 BAN

Date:2019-08-14,3:54:17 PM
Data File:d:\n2000\data\gpc1\081419\GPC1-20190814144620
Method File:D:\N2000\GPC1_3ml.mtd

Analyst£ºRD
Date/Time2019-08-14,3:54:17 PM



Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		41.765	1450463.250	501839616.000	99.9695
2		59.365	784.120	153204.797	0.0305
Total			1451247.370	501992820.797	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

BHH0299/289 19H0024 BAN

Date:2019-08-14,5:04:06 PM
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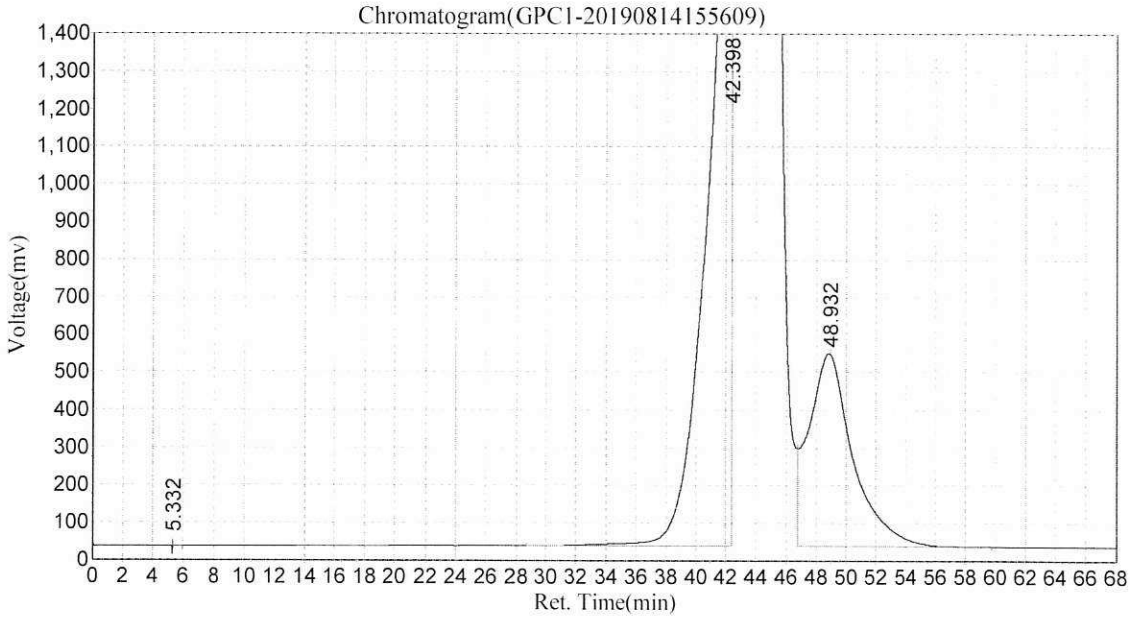
Method File:D:\N2000\GPC1_3ml.mtd

Analyst£ºRD
Date/Time2019-08-14,5:04:06 PM



Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		5.332	13566.685	225360.500	0.0768
2		42.398	1450623.250	188203408.000	64.0984
3		48.932	512080.938	105187816.000	35.8249
Total			1976270.872	293616584.500	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

BHH0299/289 19H0024 BAN

Date:2019-08-14,6:13:54 PM
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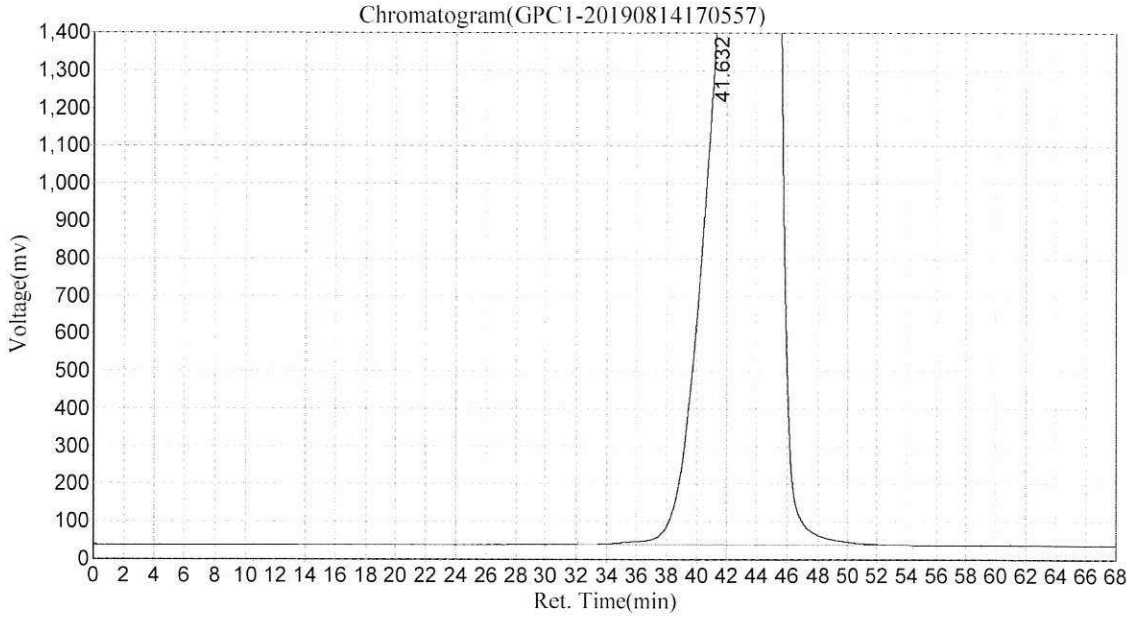
Analyst£ºRD
Date/Time2019-08-14,6:13:54 PM



Results

Peak No.	Peak ID	Ret Time	Height	Area	Conc
1		41.632	1450117.000	515812672.000	100.0000
Total			1450117.000	515812672.000	100.000

Ingredient Table

No	Peak ID	Ret Time	Peak Width	Factor1	Factor2	ISTD Wt.
1	Collect BAN	30.000	0.010	0.00E+000	0.00E+000	0.0000
2	Collect Pest	36.000	0.010	0.00E+000	0.00E+000	0.0000
3	Dump Pest	57.000	0.010	0.00E+000	0.00E+000	0.0000
4	Dump BAN	59.000	0.010	0.00E+000	0.00E+000	0.0000

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: BAN / wipes Extraction Batch: BHH0299

Total Solids Batch: _____ Work Order(s): 19H0024

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)=03, 04, 05, 06, 14,	MP 08/12/19
☒ Standing Water Decanted (Not shared)=03, 04, 05, 06, 08,	MP 08/12/19
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☒ Rocks (%+size)? 40.0% =06, 07. 30.0% =02,	MP 08/12/19
☐ Organics (Leaves/sticks/grass)=	
☒ Oily, obvious fuel/sulfur odors= sulfur odor 11	MP 08/12/19
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	8/13/19
☒ Other (Details)= unknown odor =09.	MP 08/12/19
- #2. = wipe	MP 08/13/19
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☒ Other Notes/Comments= (Note problems, concerns, corrective actions).	
BS1: While KD-ing I shook the sample to start evaporation snider column shot out of the flask loosing whatever analyte in it- replace the snider colum (new) and continued KD as normal, water wash done and .5mL F.V.	SH 8/13/19 RD 8-15-19
☒ Share Samples Y / N	MP 08/12/19
☒ Multiple Jars Y / N 03 x 2.	MP 08/12/19
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

Prepared using: EPA 3546 (Microwave)

ppb) or (0.2-2 ppb Low LVL SepF) in Wipes (Version:Slip 4 PAH BHt NNDPA BzAC BzAlc Phe)

Prep Instructions	
SPECIAL INSTRUCTIONS: 1. Transfer to microwave vessel-lightly dry with Sodium Sulfate.. 2. Add DCM ONLY to the vessels (until solvent is 3 inches above soil layer after homogenization). 3. Add surr/spike. 4. Microwave on appropriate power setting determined by # of samples. 5. After microwave-re-homogenize while hot then let cool 10-15 min in Refridgerator 05. Re-homogenize while cool. 6. Decant DCM into Erlenmeyer flask with a funnel containing pre-deactivated glasswool. 7. Rinse with DCM 8. Microwave a 2nd time using 1:1 DCM/ACE. 9. Let cool and decant the solvent then empty the soil into the funnel and rinse with DCM. 10. KD: Add 10 mL Hexane directly to extract in the KD. 11. GPC REQUIRED 100°C water bath (CLP) KD to 5mL. 12. (After GPC) KD at 80°C. 13.TurboVap 14. Vial in DCM. A. Need Total Solids Y (N) B. Archive/Freeze (Y) N	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Cleanup Batch:	CHH0120	Cleanup Type:	GPC
Cleanup Method:	EPA 3640A GPC Cleanup	Analysis:	EPA 8270D

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC1-2019	19H0024-09	NT1019082118.D	08/15/2019	
SL4-SG-WC8-2019	19H0024-06	NT1019082115.D	08/15/2019	
SL4-IC-SC3-2019	19H0024-11	NT1019082120.D	08/15/2019	
Matrix Spike Dup	BHH0289-MSD1	NT1019082111.D	08/15/2019	
Matrix Spike	BHH0289-MS1	NT1019082110.D	08/15/2019	
LCS	BHH0289-BS1	NT1019082109.D	08/15/2019	
Blank	BHH0289-BLK1	NT1019082108.D	08/15/2019	
SL4-SG-WC7-FD-2019	19H0024-05	NT1019082114.D	08/15/2019	
SL4-IC-SC2-2019	19H0024-10	NT1019082119.D	08/15/2019	
SL4-SG-WC2-2019	19H0024-08	NT1019082117.D	08/15/2019	
SL4-SG-WC3-2019	19H0024-03	NT1019082112.D	08/15/2019	
SL4-SG-WC4-2019	19H0024-07	NT1019082116.D	08/15/2019	
SL4-SG-WC7-2019	19H0024-04	NT1019082113.D	08/15/2019	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CHH0120

Matrix: Solid **Cleanup using: Organics - EPA 3640A GPC Cleanup** **Printed: 8/15/2019 12:42:13PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
19H0024-11	C	SL4-1C-SC3-2019	C 02	1	1	SV (20-200 ppb) or (0.2-2 ppb Low LV	8/15/2019	RD	
19H0024-10	C	SL4-1C-SC2-2019	C 02	1	1	SV (20-200 ppb) or (0.2-2 ppb Low LV	8/15/2019	RD	
19H0024-06	C	SL4-SG-WC8-2019	C 02	1	1	SV (20-200 ppb) or (0.2-2 ppb Low LV	8/15/2019	RD	
19H0024-07	C	SL4-SG-WC4-2019	C 02	1	1	SV (20-200 ppb) or (0.2-2 ppb Low LV	8/15/2019	RD	
19H0024-08	B	SL4-SG-WC2-2019	B 02	1	1	SV (20-200 ppb) or (0.2-2 ppb Low LV	8/15/2019	RD	
19H0024-09	C	SL4-SG-WC1-2019	C 02	1	1	SV (20-200 ppb) or (0.2-2 ppb Low LV	8/15/2019	RD	
19H0024-03	C	SL4-SG-WC3-2019	C 02	1	1	SV (20-200 ppb) or (0.2-2 ppb Low LV	8/15/2019	RD	
19H0024-04	C	SL4-SG-WC7-2019	C 02	1	1	SV (20-200 ppb) or (0.2-2 ppb Low LV	8/15/2019	RD	
19H0024-05	C	SL4-SG-WC7-FD-2019	C 02	1	1	SV (20-200 ppb) or (0.2-2 ppb Low LV	8/15/2019	RD	
BHH0289-MSD1	-	Matrix Spike Dup	-	1	1	-	8/15/2019	RD	
BHH0289-MS1	-	Matrix Spike	-	1	1	-	8/15/2019	RD	
BHH0289-BS1	-	LCS	-	1	1	-	8/15/2019	RD	
BHH0289-BLK1	-	Blank	-	1	1	-	8/15/2019	RD	

Form I

METHOD BLANK DATA SHEET

EPA 8270D

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC			Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Laboratory ID:	BHH0289-BLK1	File ID:	NT1019082108.D
Sampled:	N/A	Prepared:	08/13/19 12:40	Analyzed:	08/21/19 14:28
Solids:		Preparation:	EPA 3546 (Microwave)	Initial/Final:	10 g / 1 mL
Batch:	BHH0289	Sequence:	SHH0303	Calibration:	CG00040
Instrument:	NT10	Column:	ZB-5MSi	Cleanups:	GPC

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg wet)	Q	DL	RL
108-95-2	Phenol	1	20.0	U	8.2	20.0
100-51-6	Benzyl Alcohol	1	20.0	U	14.9	20.0
65-85-0	Benzoic acid	1	200	U	59.1	200
86-30-6	N-Nitrosodiphenylamine	1	20.0	U	9.6	20.0
85-01-8	Phenanthrene	1	20.0	U	4.7	20.0
206-44-0	Fluoranthene	1	20.0	U	4.5	20.0
129-00-0	Pyrene	1	20.0	U	5.6	20.0
85-68-7	Butylbenzylphthalate	1	20.0	U	8.1	20.0
56-55-3	Benzo(a)anthracene	1	20.0	U	5.2	20.0
218-01-9	Chrysene	1	20.0	U	5.2	20.0
117-81-7	bis(2-Ethylhexyl)phthalate	1	50.0	U	28.8	50.0
117-84-0	Di-n-Octylphthalate	1	20.0	U	8.7	20.0
	Benzofluoranthenes, Total	1	40.0	U	10.2	40.0
50-32-8	Benzo(a)pyrene	1	20.0	U	6.5	20.0
193-39-5	Indeno(1,2,3-cd)pyrene	1	20.0	U	6.0	20.0
53-70-3	Dibenzo(a,h)anthracene	1	20.0	U	6.2	20.0
191-24-2	Benzo(g,h,i)perylene	1	20.0	U	5.8	20.0

SURROGATES	ADDED (ug/kg wet)	CONC (ug/kg wet)	% REC	QC LIMITS	Q
2-Fluorophenol	750.00	496	66.1	27 - 120	
Phenol-d5	750.00	429	57.3	29 - 120	
2-Chlorophenol-d4	750.00	625	83.4	31 - 120	
1,2-Dichlorobenzene-d4	500.00	443	88.7	32 - 120	
Nitrobenzene-d5	500.00	389	77.9	30 - 120	
2-Fluorobiphenyl	500.00	445	89.0	35 - 120	
2,4,6-Tribromophenol	750.00	457	61.0	24 - 134	
p-Terphenyl-d14	500.00	561	112	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082108.D

Date : 21-AUG-2019 14:28

Client ID:

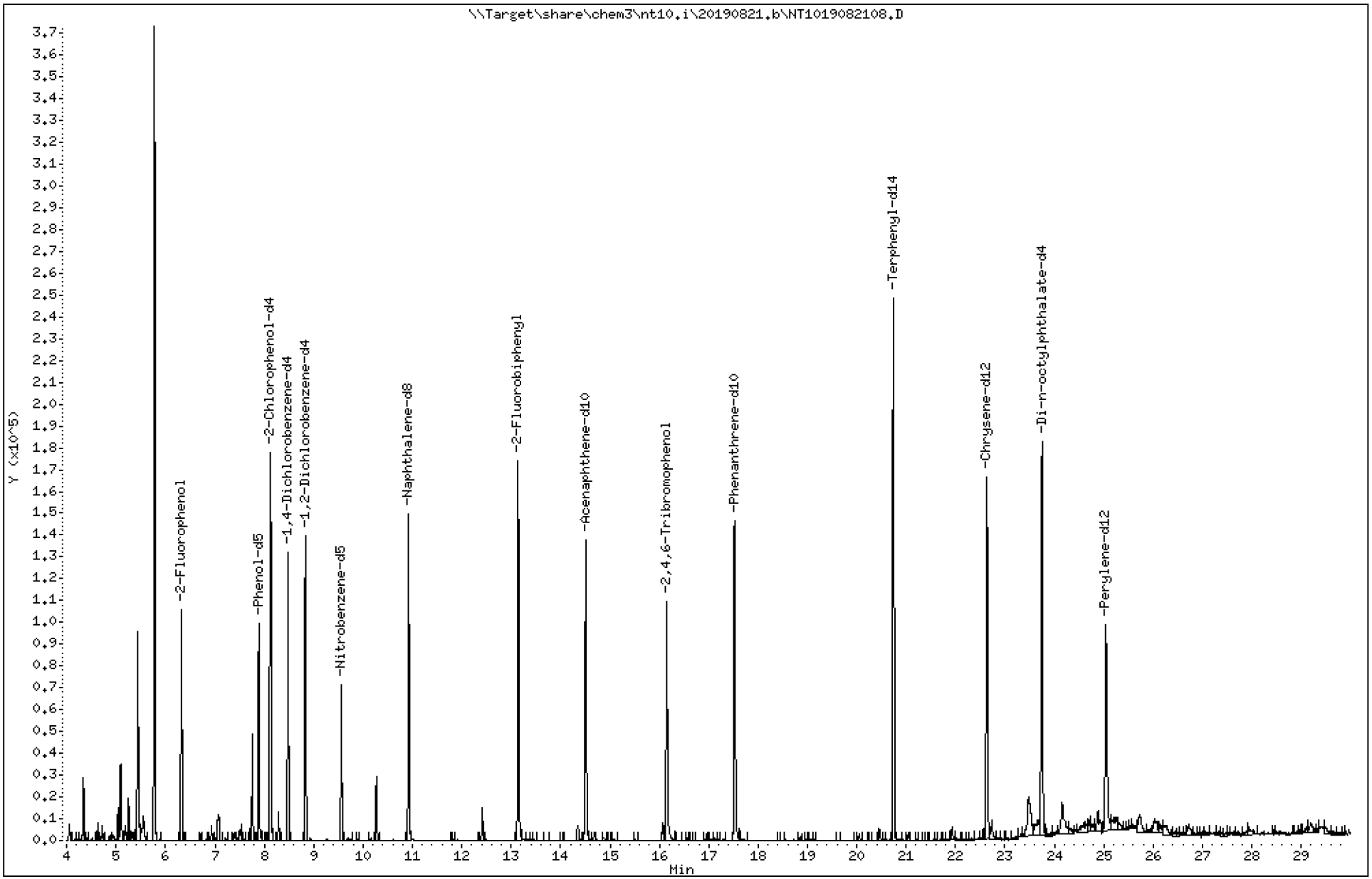
Instrument: nt10.i

Sample Info: BHH0289-BLK1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082108.D
Lab Smp Id: BHH0289-BLK1
Inj Date : 21-AUG-2019 14:28
Operator : YZ Inst ID: nt10.i
Smp Info : BHH0289-BLK1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:10 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.319	6.311	(0.745)	38796	4.95676	4.957
$	2 Phenol-d5	99	7.888	7.888	(0.930)	37669	4.29437	4.294
	3 Phenol	94	Compound Not Detected.					
$	5 2-Chlorophenol-d4	132	8.127	8.127	(0.958)	59063	6.25488	6.255
	4 Bis(2-Chloroethyl)ether	93	Compound Not Detected.					
	6 2-Chlorophenol	128	Compound Not Detected.					
	7 1,3-Dichlorobenzene	146	Compound Not Detected.					
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	27873	4.00000	
	9 1,4-Dichlorobenzene	146	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	152	8.833	8.832	(1.041)	28625	4.43395	4.434
	12 1,2-Dichlorobenzene	146	Compound Not Detected.					
	11 Benzyl alcohol	108	Compound Not Detected.					
	14 2,2'-oxybis(1-Chloropropane)	121	Compound Not Detected.					
	13 2-Methylphenol	108	Compound Not Detected.					
	17 Hexachloroethane	117	Compound Not Detected.					
	16 N-Nitroso-di-n-propylamine	70	Compound Not Detected.					
	15 4-Methylphenol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.562	9.554	(0.876)	31234	3.89283	3.893
	19 Nitrobenzene	77	Compound Not Detected.					
	20 Isophorone	82	Compound Not Detected.					
	21 2-Nitrophenol	139	Compound Not Detected.					
	22 2,4-Dimethylphenol	107	Compound Not Detected.					
	23 Bis(2-Chloroethoxy)methane	93	Compound Not Detected.					
	24 Benzoic acid	105	Compound Not Detected.					
	25 2,4-Dichlorophenol	162	Compound Not Detected.					
	26 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.922	10.929	(1.000)	102588	4.00000	
	28 Naphthalene	128	Compound Not Detected.					
	29 4-Chloroaniline	127	Compound Not Detected.					
	30 Hexachlorobutadiene	225	Compound Not Detected.					
	31 4-Chloro-3-methylphenol	107	Compound Not Detected.					
	32 2-Methylnaphthalene	142	Compound Not Detected.					
	33 Hexachlorocyclopentadiene	237	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	Compound Not Detected.					
	35	2,4,5-Trichlorophenol	196	Compound Not Detected.					
$	36	2-Fluorobiphenyl	172	13.142	13.142	(0.906)	86894	4.44951	4.450
	37	2-Chloronaphthalene	162	Compound Not Detected.					
	38	2-Nitroaniline	65	Compound Not Detected.					
	39	Dimethylphthalate	163	Compound Not Detected.					
	40	Acenaphthylene	152	Compound Not Detected.					
	41	2,6-Dinitrotoluene	165	Compound Not Detected.					
*	42	Acenaphthene-d10	164	14.512	14.512	(1.000)	51057	4.00000	
	43	3-Nitroaniline	138	Compound Not Detected.					
	44	Acenaphthene	153	Compound Not Detected.					
	45	2,4-Dinitrophenol	184	Compound Not Detected.					
	46	Dibenzofuran	168	Compound Not Detected.					
	47	4-Nitrophenol	109	Compound Not Detected.					
	48	2,4-Dinitrotoluene	165	Compound Not Detected.					
	50	Diethylphthalate	149	Compound Not Detected.					
	49	Fluorene	166	Compound Not Detected.					
	51	4-Chlorophenyl-phenylether	204	Compound Not Detected.					
	52	4-Nitroaniline	138	Compound Not Detected.					
	53	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.					
	54	N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55	2,4,6-Tribromophenol	330	16.150	16.142	(1.113)	17659	4.57411	4.574
	56	4-Bromophenyl-phenylether	248	Compound Not Detected.					
	57	Hexachlorobenzene	284	Compound Not Detected.					
	58	Pentachlorophenol	266	Compound Not Detected.					
*	59	Phenanthrene-d10	188	17.518	17.525	(1.000)	105199	4.00000	
	60	Phenanthrene	178	Compound Not Detected.					
	61	Anthracene	178	Compound Not Detected.					
	62	Carbazole	167	Compound Not Detected.					
	63	Di-n-butylphthalate	149	Compound Not Detected.					
	64	Fluoranthene	202	Compound Not Detected.					
	65	Pyrene	202	Compound Not Detected.					
$	66	Terphenyl-d14	244	20.736	20.744	(0.916)	116266	5.61404	5.614
	67	Butylbenzylphthalate	149	Compound Not Detected.					
	68	Benzo(a)anthracene	228	Compound Not Detected.					
*	69	Chrysene-d12	240	22.633	22.633	(1.000)	95694	4.00000	
	70	3,3'-Dichlorobenzidine	252	Compound Not Detected.					
	71	Chrysene	228	Compound Not Detected.					
	72	bis(2-Ethylhexyl)phthalate	149	Compound Not Detected.					
*	134	Di-n-octylphthalate-d4	153	23.748	23.756	(1.000)	192204	4.00000	
	73	Di-n-octylphthalate	149	Compound Not Detected.					
	74	Benzo(b)fluoranthene	252	Compound Not Detected.					
	75	Benzo(k)fluoranthene	252	Compound Not Detected.					
	76	Benzo(a)pyrene	252	Compound Not Detected.					
*	77	Perylene-d12	264	25.049	25.056	(1.000)	68765	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
	79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	80	Benzo(g,h,i)perylene	276	Compound Not Detected.					
	90	N-Nitrosodimethylamine	74	Compound Not Detected.					
	91	Aniline	93	Compound Not Detected.					
	93	Benzidine	184	Compound Not Detected.					
	103	Pyridine	79	Compound Not Detected.					
	105	1-methylnaphthalene	142	Compound Not Detected.					
	111	Azobenzene (1,2-DP-Hydrazine)	77	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
187	Total Benzofluoranthenes	252	Compound Not Detected.					
99	Perylene	252	Compound Not Detected.					
98	Retene	219	Compound Not Detected.					
120	2,3,4,6-Tetrachlorophenol	232	Compound Not Detected.					

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082108.D
Lab Smp Id: BHH0289-BLK1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	27873	-14.86
27 Naphthalene-d8	117487	58744	234974	102588	-12.68
42 Acenaphthene-d10	61859	30930	123718	51057	-17.46
59 Phenanthrene-d10	113574	56787	227148	105199	-7.37
69 Chrysene-d12	105788	52894	211576	95694	-9.54
134 Di-n-octylphthala	252823	126412	505646	192204	-23.98
77 Perylene-d12	113992	56996	227984	68765	-39.68

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.92	-0.07
42 Acenaphthene-d10	14.51	14.01	15.01	14.51	0.00
59 Phenanthrene-d10	17.53	17.03	18.03	17.52	-0.04
69 Chrysene-d12	22.63	22.13	23.13	22.63	0.00
134 Di-n-octylphthala	23.76	23.26	24.26	23.75	-0.03
77 Perylene-d12	25.06	24.56	25.56	25.05	-0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082108.D

Lab ID: BHH0289-BLK1
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 14:28

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.000	1.130	-0.1302	2-Methylnaphthalene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate

RRT check based on Ccal File: NT1019082105.D

On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Form I

METHOD BLANK DATA SHEET

EPA 8270D

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC			Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Wipes	Laboratory ID:	BHH0299-BLK1	File ID:	NT1019082121.D
Sampled:	N/A	Prepared:	08/13/19 11:20	Analyzed:	08/21/19 22:37
Solids:		Preparation:	EPA 3580A (Shake Out)	Initial/Final:	1 Wipe / 1 mL
Batch:	BHH0299	Sequence:	SHH0303	Calibration:	CG00040
Instrument:	NT10	Column:	ZB-5MSi		

CAS NO.	COMPOUND	DILUTION	CONC. (ug/Wipe)	Q	DL	RL
108-95-2	Phenol	1	0.2	U		0.2
100-51-6	Benzyl Alcohol	1	0.2	U		0.2
65-85-0	Benzoic acid	1	2.0	U		2.0
86-30-6	N-Nitrosodiphenylamine	1	0.2	U		0.2
85-01-8	Phenanthrene	1	0.2	U		0.2
206-44-0	Fluoranthene	1	0.2	U		0.2
129-00-0	Pyrene	1	0.2	U		0.2
85-68-7	Butylbenzylphthalate	1	0.2	U		0.2
56-55-3	Benzo(a)anthracene	1	0.2	U		0.2
218-01-9	Chrysene	1	0.2	U		0.2
117-81-7	bis(2-Ethylhexyl)phthalate	1	0.5	U		0.5
117-84-0	Di-n-Octylphthalate	1	0.2	U		0.2
	Benzofluoranthenes, Total	1	0.4	U		0.4
50-32-8	Benzo(a)pyrene	1	0.2	U		0.2
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.2	U		0.2
53-70-3	Dibenzo(a,h)anthracene	1	0.2	U		0.2
191-24-2	Benzo(g,h,i)perylene	1	0.2	U		0.2

SURROGATES	ADDED (ug/Wipe)	CONC (ug/Wipe)	% REC	QC LIMITS	Q
2-Fluorophenol	7.5000	4.16	55.5	27 - 120	
Phenol-d5	7.5000	3.80	50.7	29 - 120	
2-Chlorophenol-d4	7.5000	5.33	71.1	31 - 120	
1,2-Dichlorobenzene-d4	5.0000	3.78	75.5	32 - 120	
Nitrobenzene-d5	5.0000	3.64	72.8	30 - 120	
2-Fluorobiphenyl	5.0000	3.90	78.0	35 - 120	
2,4,6-Tribromophenol	7.5000	5.83	77.7	24 - 134	
p-Terphenyl-d14	5.0000	5.56	111	37 - 120	

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082121.D

Date : 21-AUG-2019 22:37

Client ID:

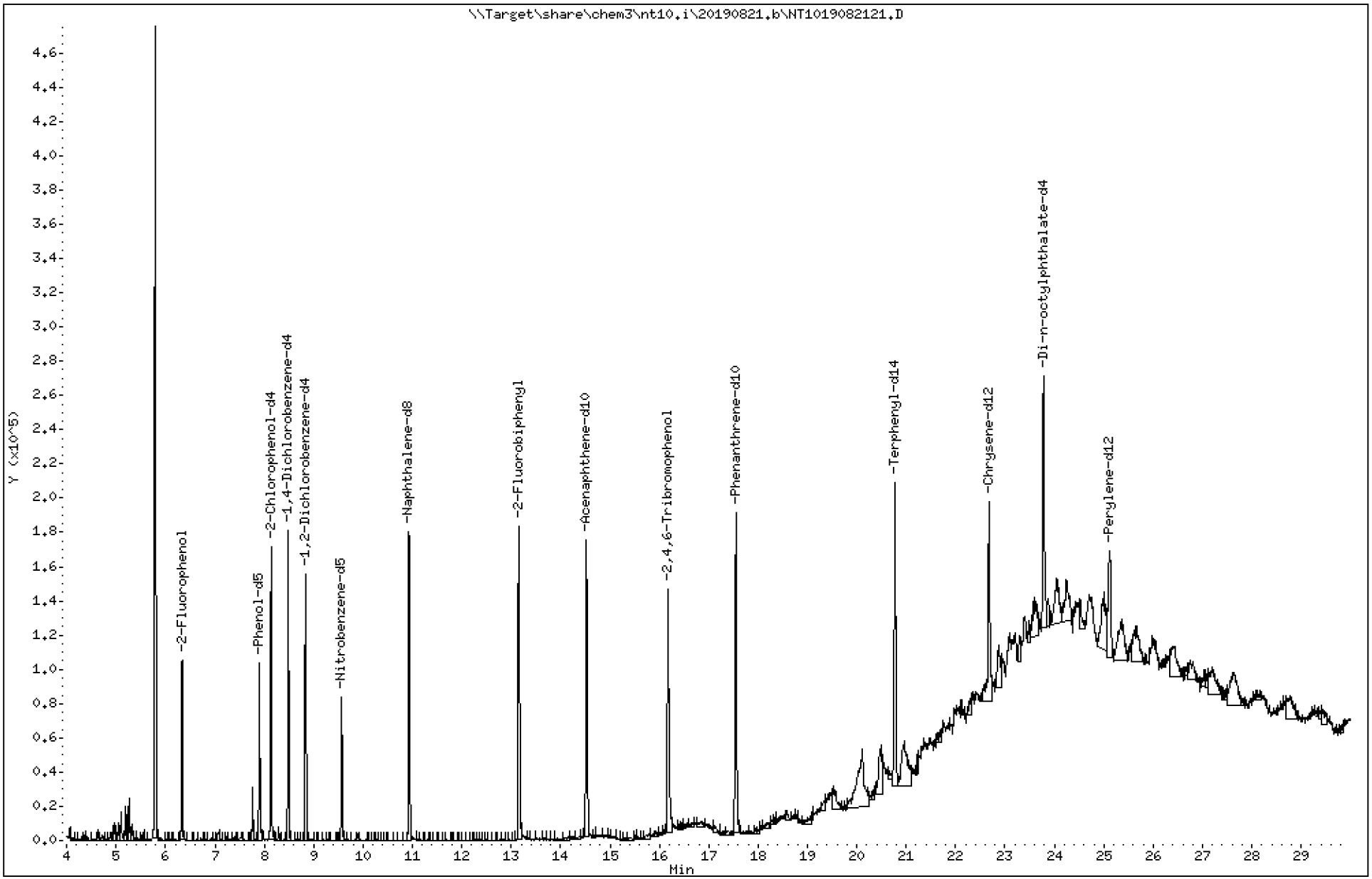
Instrument: nt10.i

Sample Info: BHH0299-BLK

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082121.D
Lab Smp Id: BHH0299-BLK
Inj Date : 21-AUG-2019 22:37
Operator : YZ Inst ID: nt10.i
Smp Info : BHH0299-BLK
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 17
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.334	6.311	(0.747)	45073	4.16410	4.164
$	2 Phenol-d5	99	7.903	7.888	(0.932)	46150	3.80435	3.804
	3 Phenol	94	Compound Not Detected.					
$	5 2-Chlorophenol-d4	132	8.135	8.127	(0.959)	69598	5.32958	5.330
	4 Bis(2-Chloroethyl)ether	93	Compound Not Detected.					
	6 2-Chlorophenol	128	Compound Not Detected.					
	7 1,3-Dichlorobenzene	146	Compound Not Detected.					
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	38547	4.00000	
	9 1,4-Dichlorobenzene	146	Compound Not Detected.					
$	10 1,2-Dichlorobenzene-d4	152	8.840	8.832	(1.042)	33724	3.77727	3.777
	12 1,2-Dichlorobenzene	146	Compound Not Detected.					
	11 Benzyl alcohol	108	Compound Not Detected.					
	14 2,2'-oxybis(1-Chloropropane)	121	Compound Not Detected.					
	13 2-Methylphenol	108	Compound Not Detected.					
	17 Hexachloroethane	117	Compound Not Detected.					
	16 N-Nitroso-di-n-propylamine	70	Compound Not Detected.					
	15 4-Methylphenol	108	Compound Not Detected.					
$	18 Nitrobenzene-d5	82	9.570	9.554	(0.876)	38523	3.63753	3.638
	19 Nitrobenzene	77	Compound Not Detected.					
	20 Isophorone	82	Compound Not Detected.					
	21 2-Nitrophenol	139	Compound Not Detected.					
	22 2,4-Dimethylphenol	107	Compound Not Detected.					
	23 Bis(2-Chloroethoxy)methane	93	Compound Not Detected.					
	24 Benzoic acid	105	Compound Not Detected.					
	25 2,4-Dichlorophenol	162	Compound Not Detected.					
	26 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.929	10.929	(1.000)	135409	4.00000	
	28 Naphthalene	128	Compound Not Detected.					
	29 4-Chloroaniline	127	Compound Not Detected.					
	30 Hexachlorobutadiene	225	Compound Not Detected.					
	31 4-Chloro-3-methylphenol	107	Compound Not Detected.					
	32 2-Methylnaphthalene	142	Compound Not Detected.					
	33 Hexachlorocyclopentadiene	237	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	Compound Not Detected.					
	35	2,4,5-Trichlorophenol	196	Compound Not Detected.					
$	36	2-Fluorobiphenyl	172	13.157	13.142	(0.906)	107555	3.89830	3.898
	37	2-Chloronaphthalene	162	Compound Not Detected.					
	38	2-Nitroaniline	65	Compound Not Detected.					
	39	Dimethylphthalate	163	Compound Not Detected.					
	40	Acenaphthylene	152	Compound Not Detected.					
	41	2,6-Dinitrotoluene	165	Compound Not Detected.					
*	42	Acenaphthene-d10	164	14.519	14.512	(1.000)	72133	4.00000	
	43	3-Nitroaniline	138	Compound Not Detected.					
	44	Acenaphthene	153	Compound Not Detected.					
	45	2,4-Dinitrophenol	184	Compound Not Detected.					
	46	Dibenzofuran	168	Compound Not Detected.					
	47	4-Nitrophenol	109	Compound Not Detected.					
	48	2,4-Dinitrotoluene	165	Compound Not Detected.					
	50	Diethylphthalate	149	Compound Not Detected.					
	49	Fluorene	166	Compound Not Detected.					
	51	4-Chlorophenyl-phenylether	204	Compound Not Detected.					
	52	4-Nitroaniline	138	Compound Not Detected.					
	53	4,6-Dinitro-2-methylphenol	198	Compound Not Detected.					
	54	N-Nitrosodiphenylamine	169	Compound Not Detected.					
$	55	2,4,6-Tribromophenol	330	16.180	16.142	(1.114)	31786	5.82771	5.828
	56	4-Bromophenyl-phenylether	248	Compound Not Detected.					
	57	Hexachlorobenzene	284	Compound Not Detected.					
	58	Pentachlorophenol	266	Compound Not Detected.					
*	59	Phenanthrene-d10	188	17.548	17.525	(1.000)	140501	4.00000	
	60	Phenanthrene	178	Compound Not Detected.					
	61	Anthracene	178	Compound Not Detected.					
	62	Carbazole	167	Compound Not Detected.					
	63	Di-n-butylphthalate	149	Compound Not Detected.					
	64	Fluoranthene	202	Compound Not Detected.					
	65	Pyrene	202	Compound Not Detected.					
$	66	Terphenyl-d14	244	20.775	20.744	(0.916)	81730	5.55914	5.559
	67	Butylbenzylphthalate	149	Compound Not Detected.					
	68	Benzo(a)anthracene	228	Compound Not Detected.					
*	69	Chrysene-d12	240	22.679	22.633	(1.000)	67933	4.00000	
	70	3,3'-Dichlorobenzidine	252	Compound Not Detected.					
	71	Chrysene	228	Compound Not Detected.					
	72	bis(2-Ethylhexyl)phthalate	149	Compound Not Detected.					
*	134	Di-n-octylphthalate-d4	153	23.779	23.756	(1.000)	148432	4.00000	
	73	Di-n-octylphthalate	149	Compound Not Detected.					
	74	Benzo(b)fluoranthene	252	Compound Not Detected.					
	75	Benzo(k)fluoranthene	252	Compound Not Detected.					
	76	Benzo(a)pyrene	252	Compound Not Detected.					
*	77	Perylene-d12	264	25.126	25.056	(1.000)	49083	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
	79	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	80	Benzo(g,h,i)perylene	276	Compound Not Detected.					
	90	N-Nitrosodimethylamine	74	Compound Not Detected.					
	91	Aniline	93	Compound Not Detected.					
	93	Benzidine	184	Compound Not Detected.					
	103	Pyridine	79	Compound Not Detected.					
	105	1-methylnaphthalene	142	Compound Not Detected.					
	111	Azobenzene (1,2-DP-Hydrazine)	77	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
187	Total Benzofluoranthenes	252	Compound Not Detected.					
99	Perylene	252	Compound Not Detected.					
98	Retene	219	Compound Not Detected.					
120	2,3,4,6-Tetrachlorophenol	232	Compound Not Detected.					

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082121.D
Lab Smp Id: BHH0299-BLK
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	38547	17.74
27 Naphthalene-d8	117487	58744	234974	135409	15.25
42 Acenaphthene-d10	61859	30930	123718	72133	16.61
59 Phenanthrene-d10	113574	56787	227148	140501	23.71
69 Chrysene-d12	105788	52894	211576	67933	-35.78
134 Di-n-octylphthala	252823	126412	505646	148432	-41.29
77 Perylene-d12	113992	56996	227984	49083	-56.94 <-

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	-0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	-0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.52	0.05
59 Phenanthrene-d10	17.53	17.03	18.03	17.55	0.13
69 Chrysene-d12	22.63	22.13	23.13	22.68	0.20
134 Di-n-octylphthala	23.76	23.26	24.26	23.78	0.10
77 Perylene-d12	25.06	24.56	25.56	25.13	0.28

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082121.D

Lab ID: BHH0299-BLK
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 22:37

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.000	1.130	-0.1302	2-Methylnaphthalene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate

RRT check based on Ccal File: NT1019082105.D

On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

LCS / LCS DUPLICATE RECOVERY

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/21/19 15:06
Batch:	BHH0289	Laboratory ID:	BHH0289-BS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	LCS
Initial/Final:	10 g / 1 mL		

COMPOUND	SPIKE ADDED (ug/kg wet)	LCS CONCENTRATION (ug/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Phenol	500	337	Q	67.4	34 - 120
Benzyl Alcohol	500	293	Q	58.6	19 - 120
Benzoic acid	2750	1380	Q	50.4	10 - 120
N-Nitrosodiphenylamine	500	586		117	36 - 120
Phenanthrene	500	515		103	49 - 120
Fluoranthene	500	559		112	53 - 120
Pyrene	500	542		108	48 - 121
Butylbenzylphthalate	500	556		111	45 - 132
Benzo(a)anthracene	500	562		112	49 - 120
Chrysene	500	509		102	47 - 120
bis(2-Ethylhexyl)phthalate	500	566		113	34 - 130
Di-n-Octylphthalate	500	510		102	28 - 124
Benzofluoranthenes, Total	1000	1230		123	30 - 160
Benzo(a)pyrene	500	593		119	42 - 120
Indeno(1,2,3-cd)pyrene	500	478		95.5	42 - 123
Dibenzo(a,h)anthracene	500	419		83.8	30 - 133
Benzo(g,h,i)perylene	500	487		97.4	38 - 126

* Indicates values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

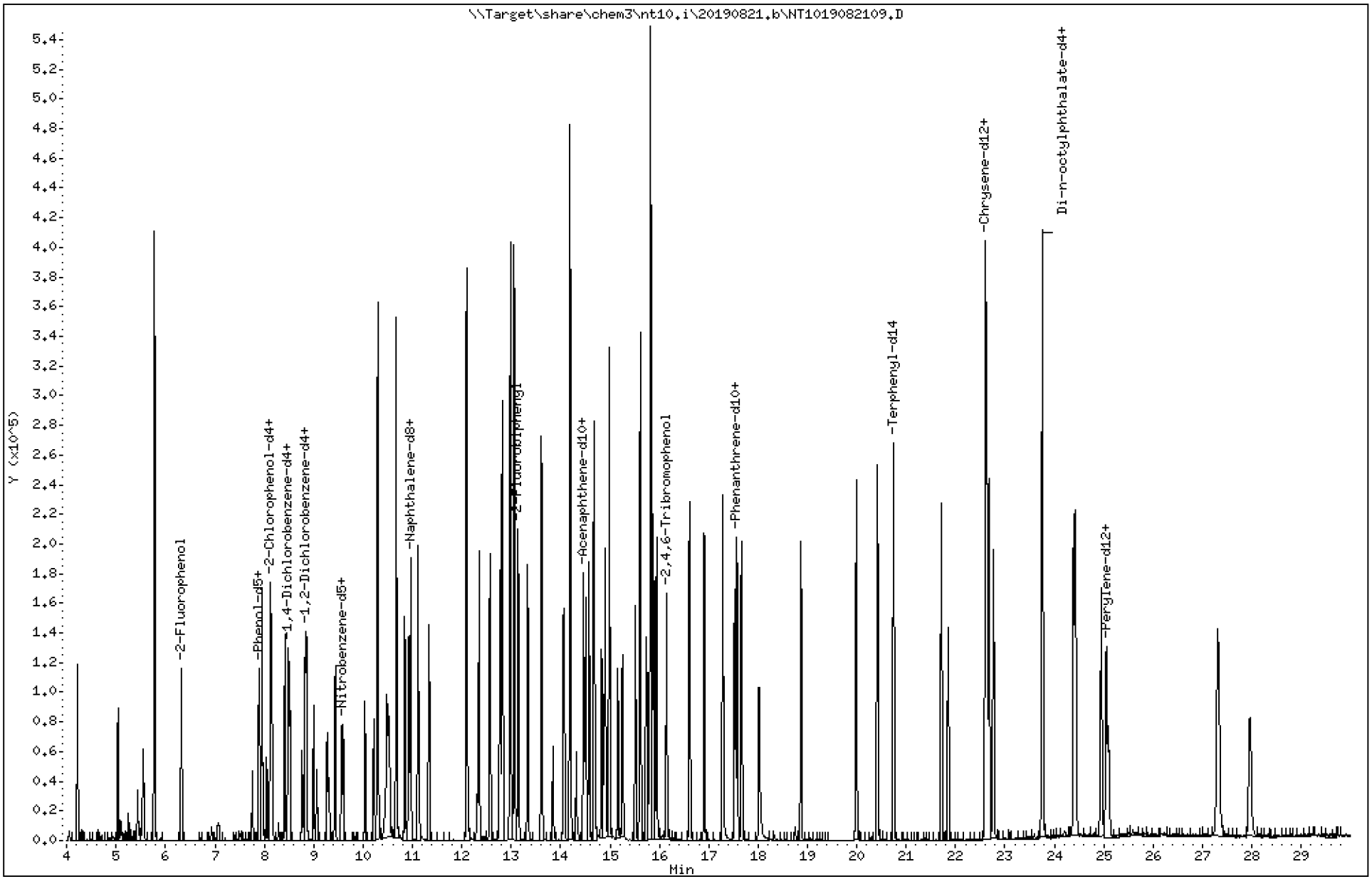
Instrument: nt10.i

Sample Info: BHH0289-BS1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

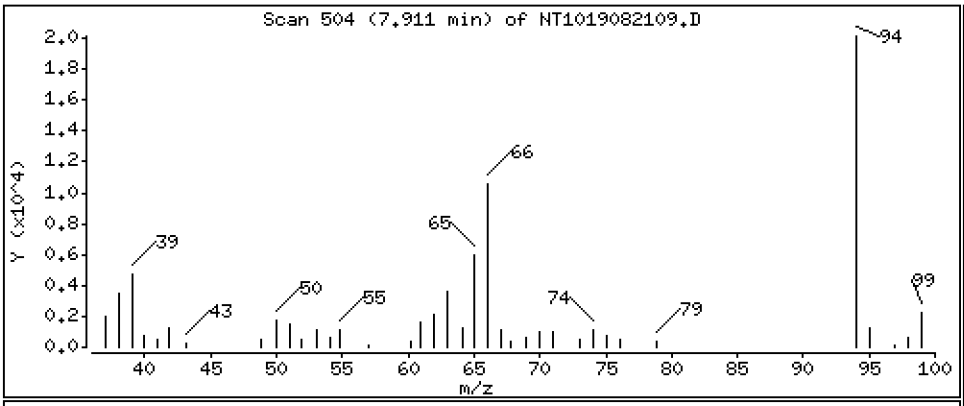
Operator: YZ

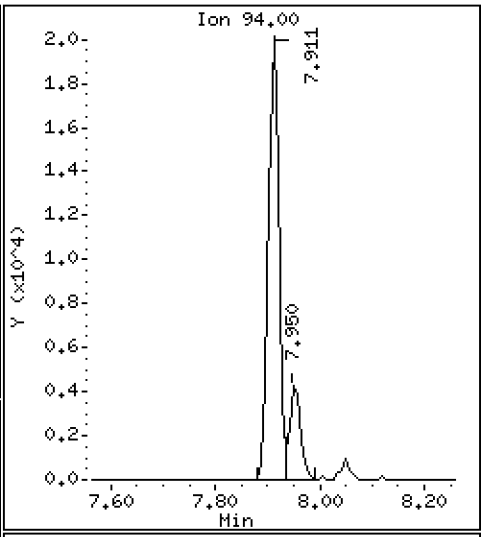
Column phase: ZB-5msi

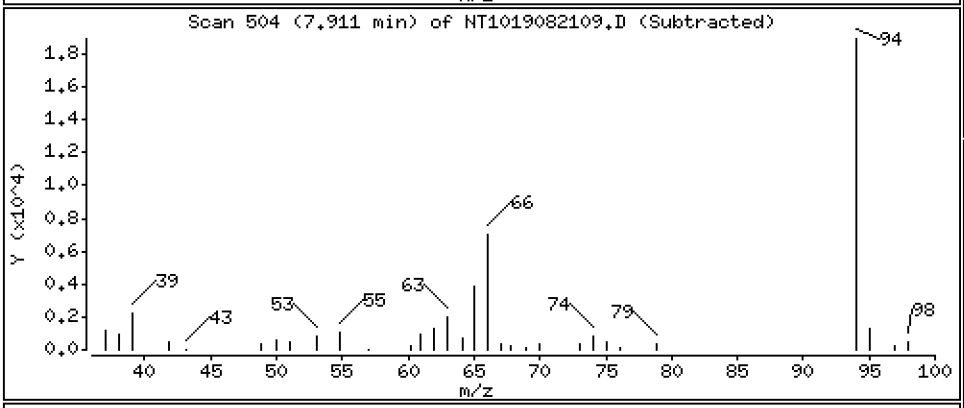
Column diameter: 0.25

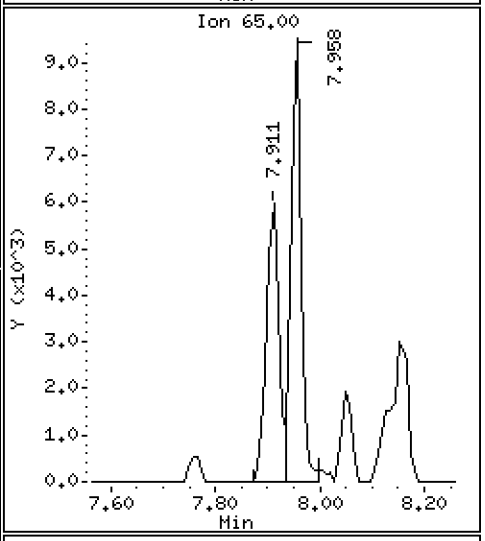
3 Phenol

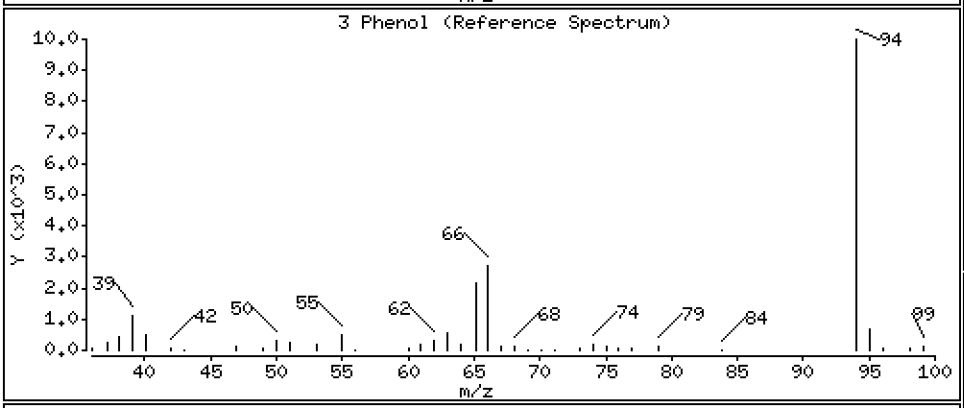
Concentration: 3.371 ug/mL

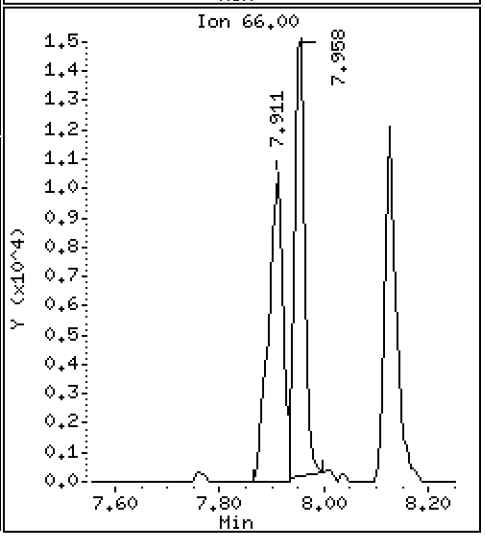


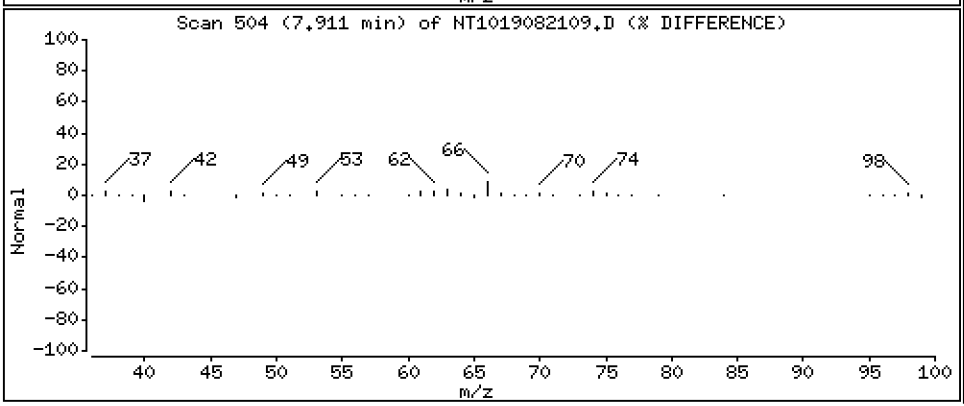












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

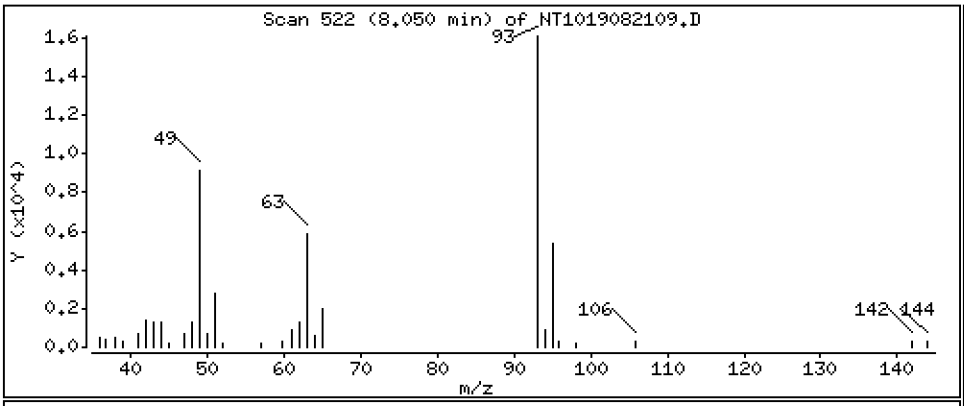
Operator: YZ

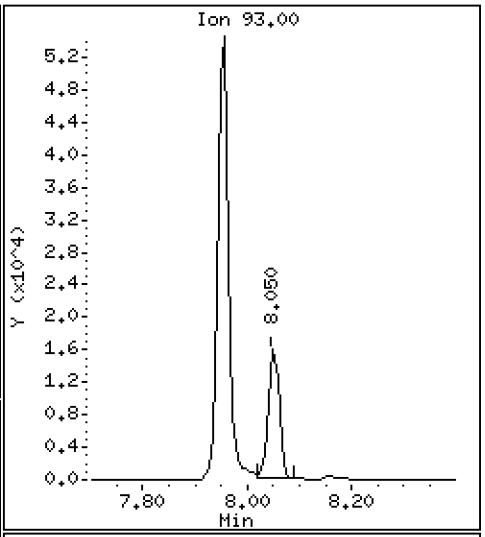
Column phase: ZB-5msi

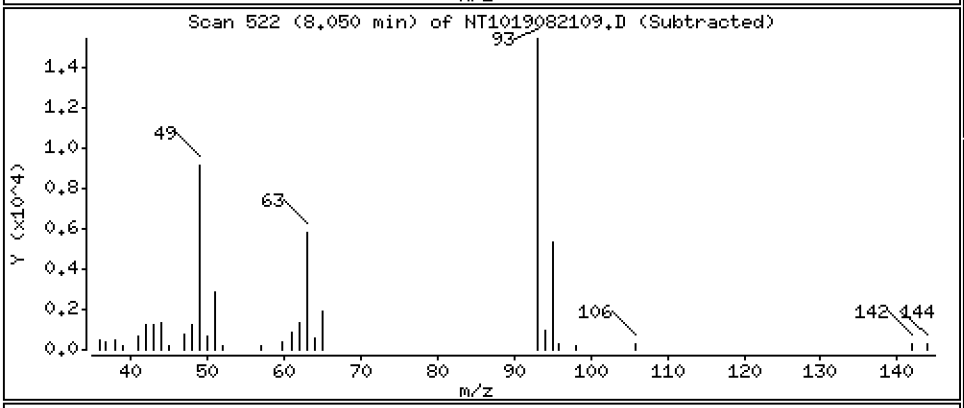
Column diameter: 0.25

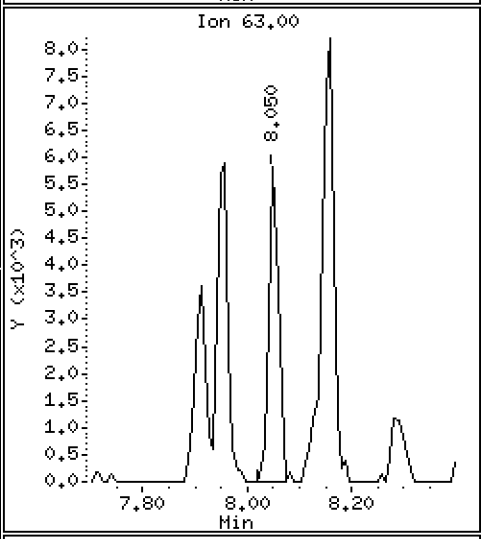
4 Bis(2-Chloroethyl)ether

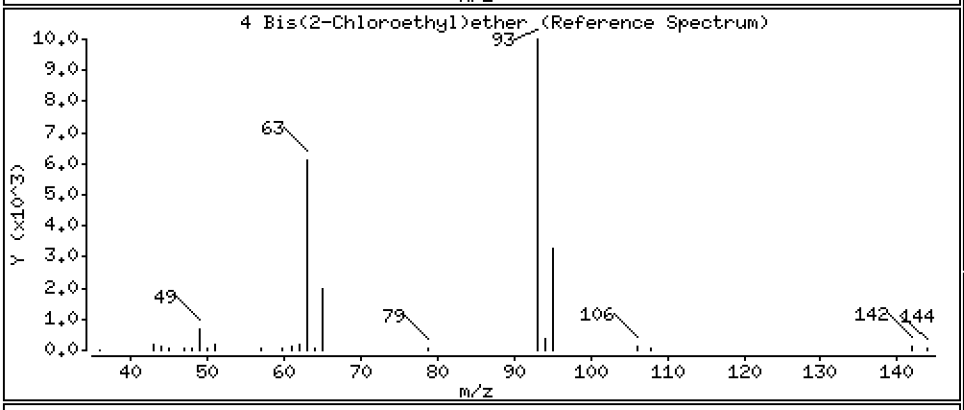
Concentration: 3.406 ug/mL

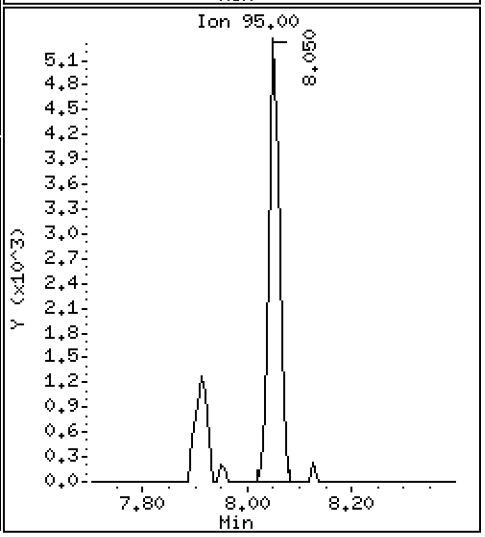


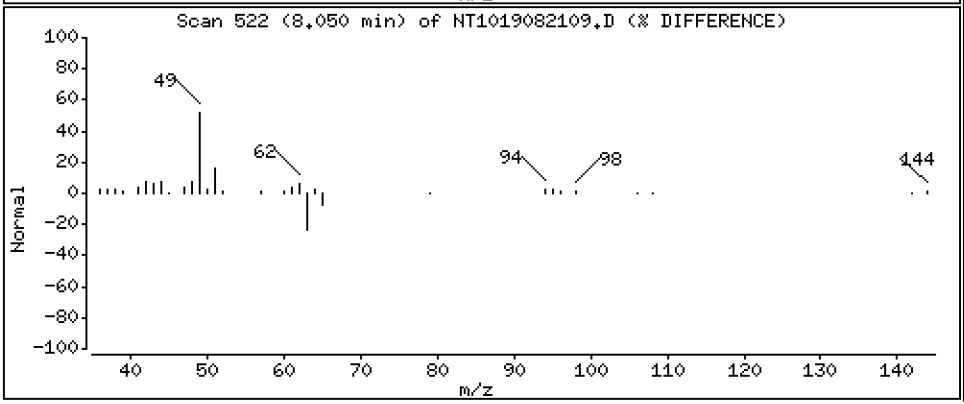












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

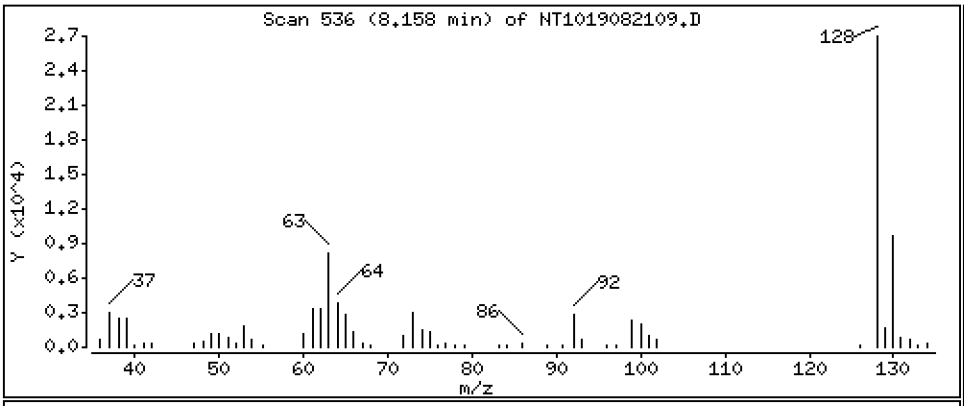
Operator: YZ

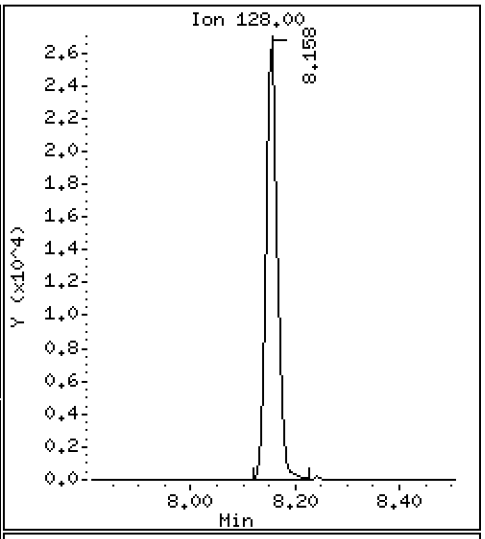
Column phase: ZB-5msi

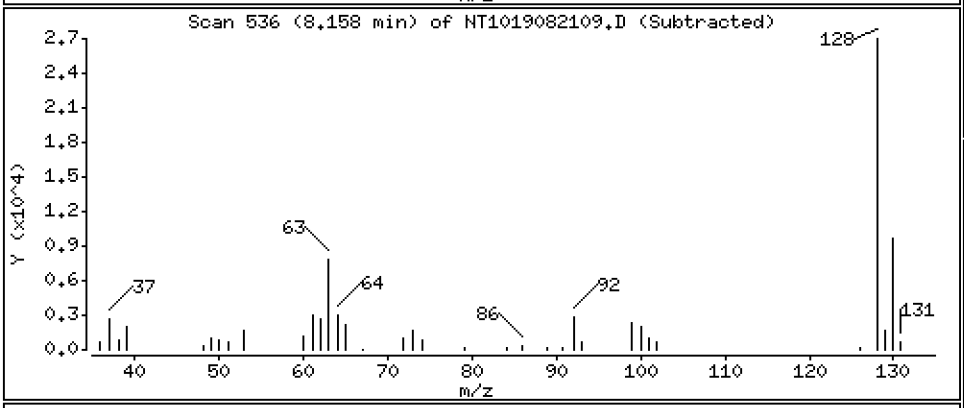
Column diameter: 0.25

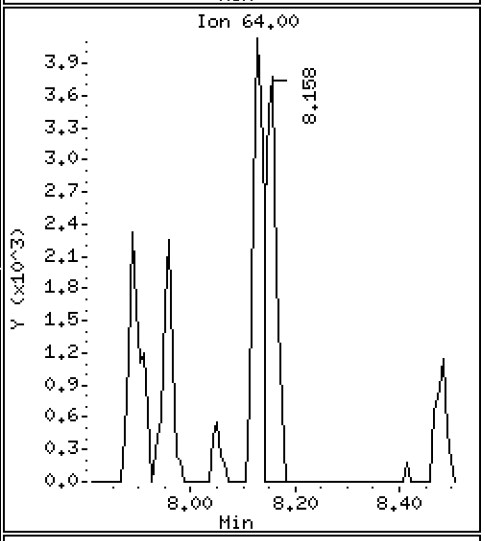
6 2-Chlorophenol

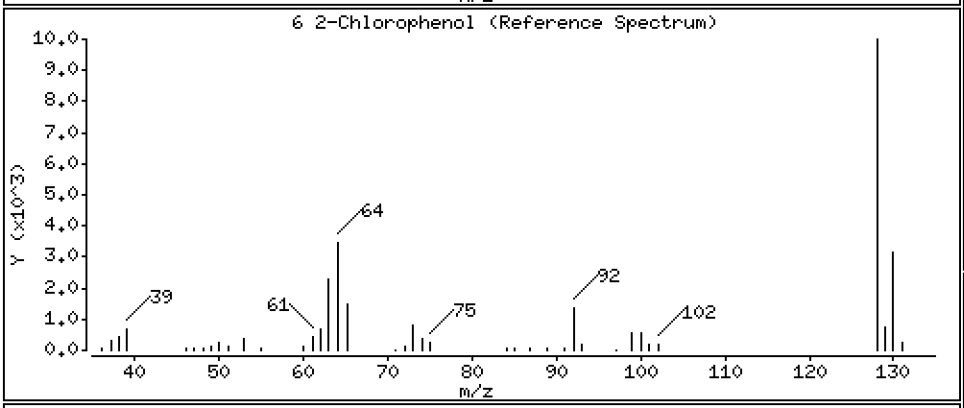
Concentration: 4.583 ug/mL

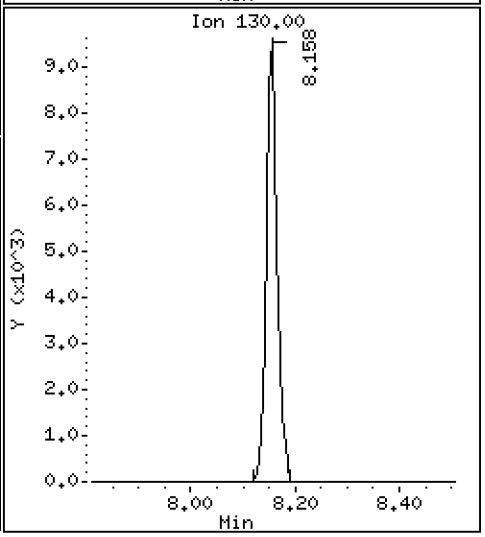


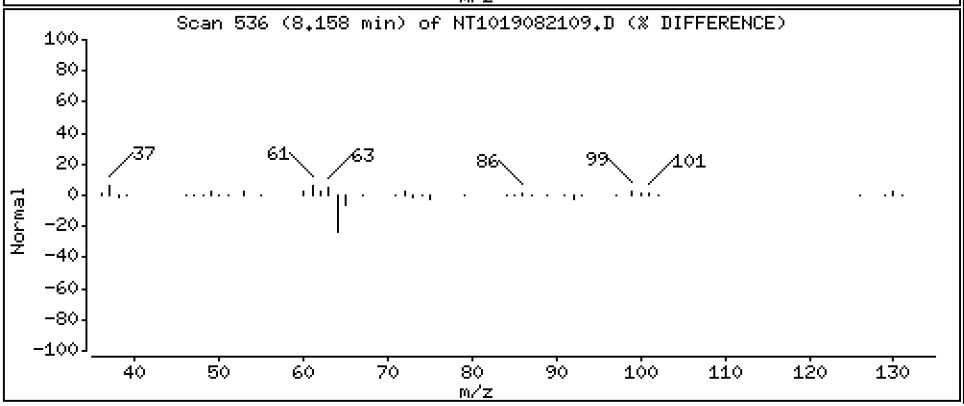












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

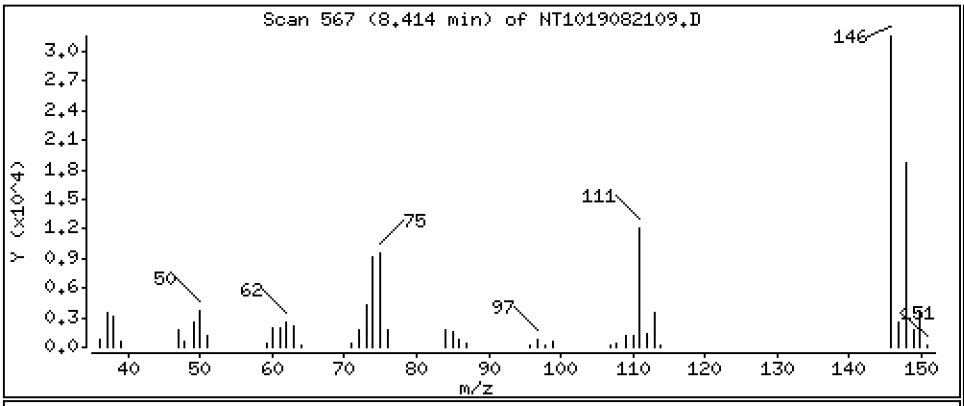
Operator: YZ

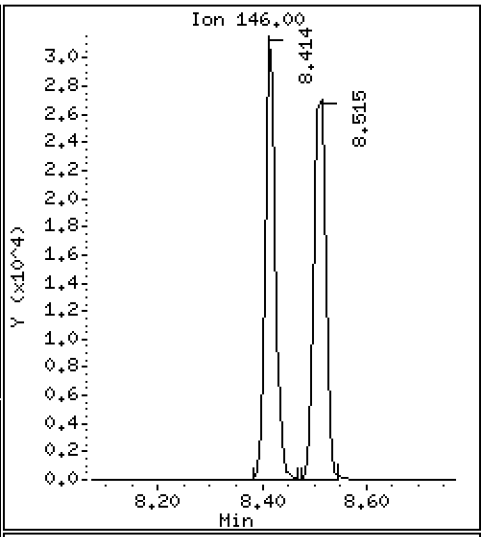
Column phase: ZB-5msi

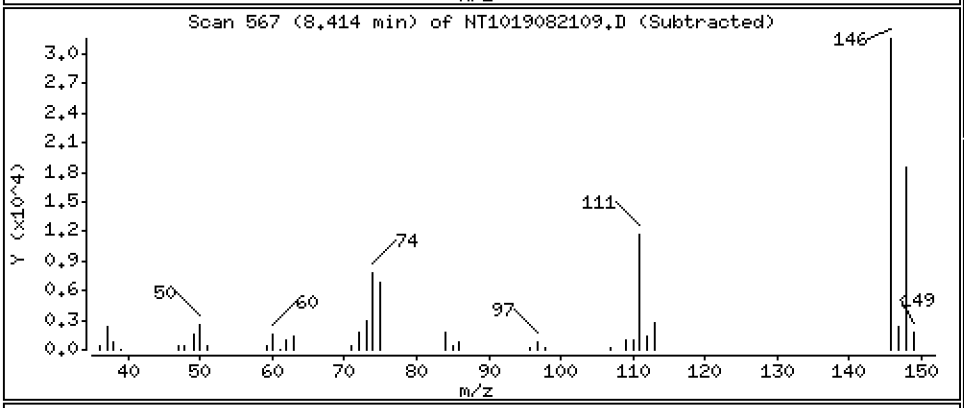
Column diameter: 0.25

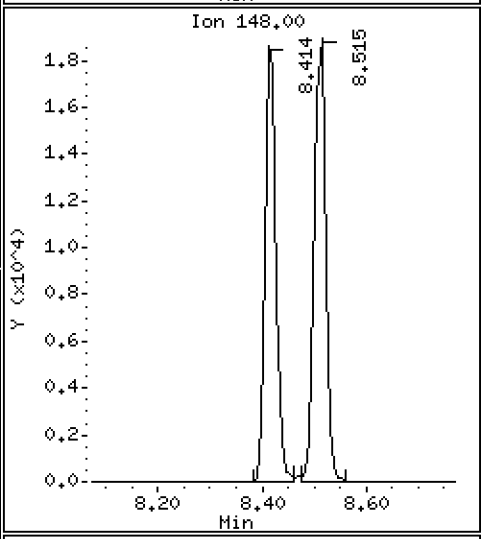
7 1,3-Dichlorobenzene

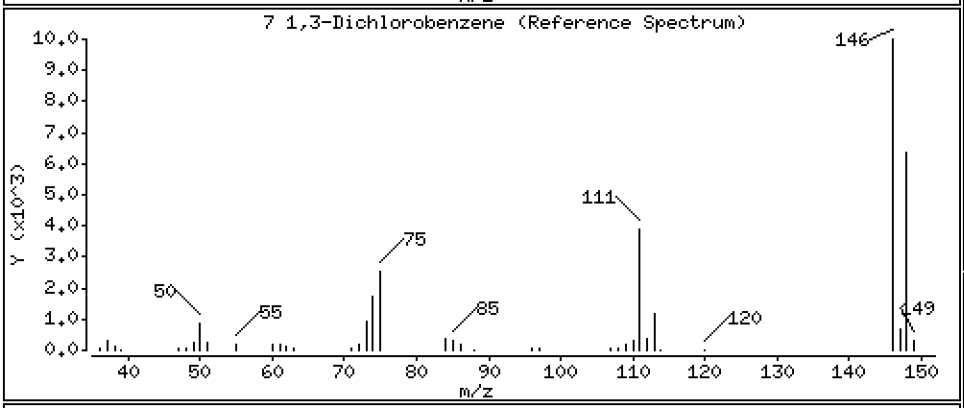
Concentration: 4.303 ug/mL

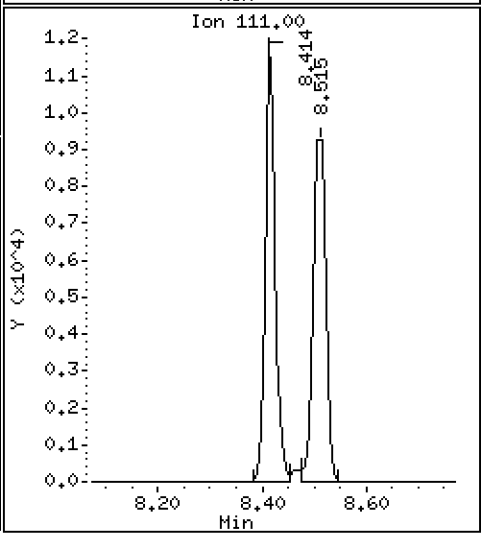


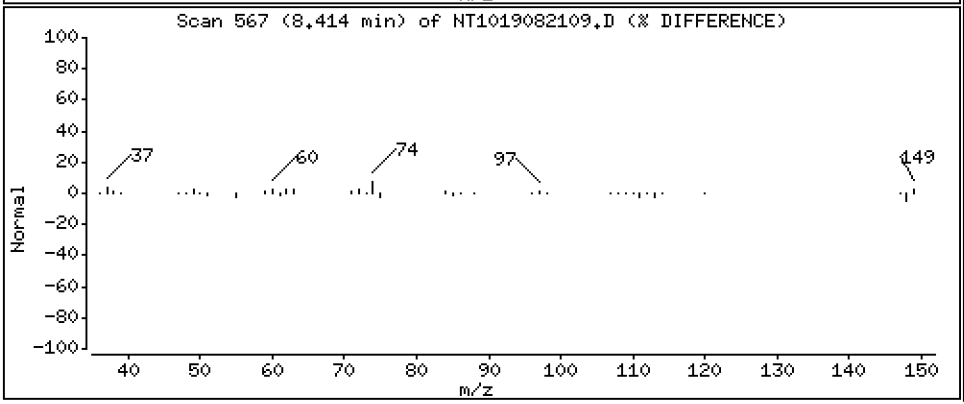












Date : 21-AUG-2019 15:06

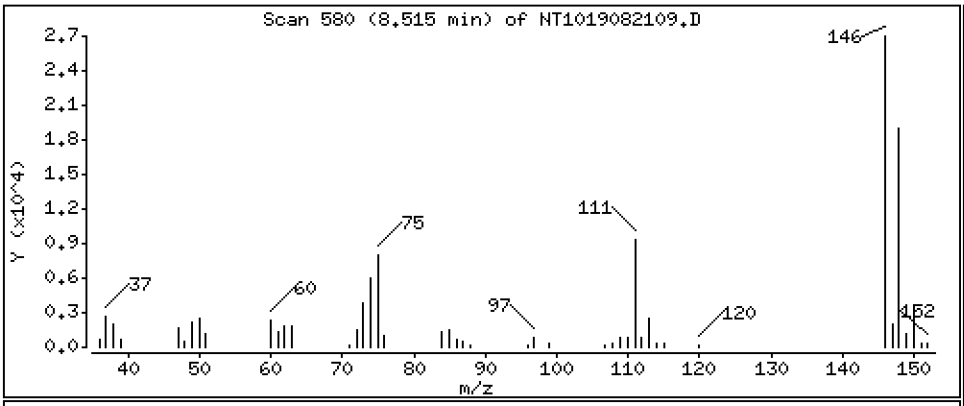
Client ID: Instrument: nt10.i

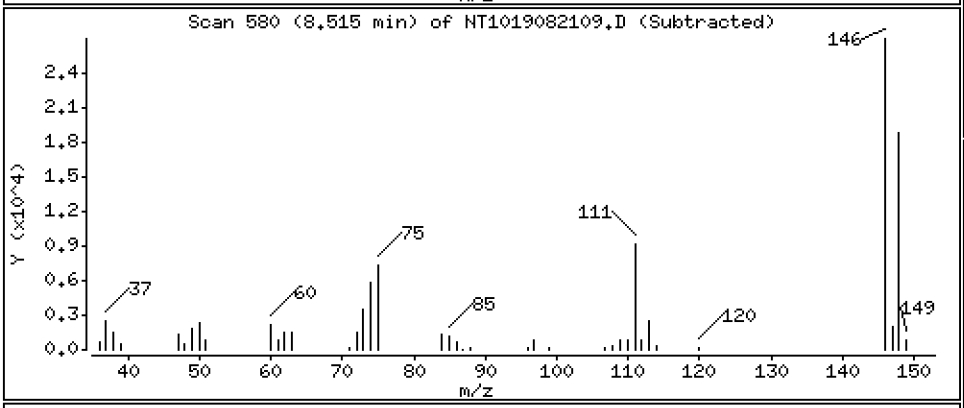
Sample Info: BHH0289-BS1

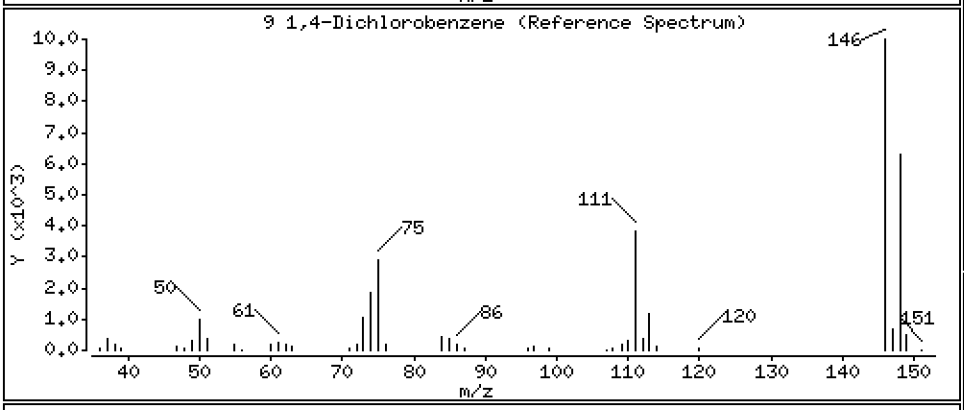
Operator: YZ

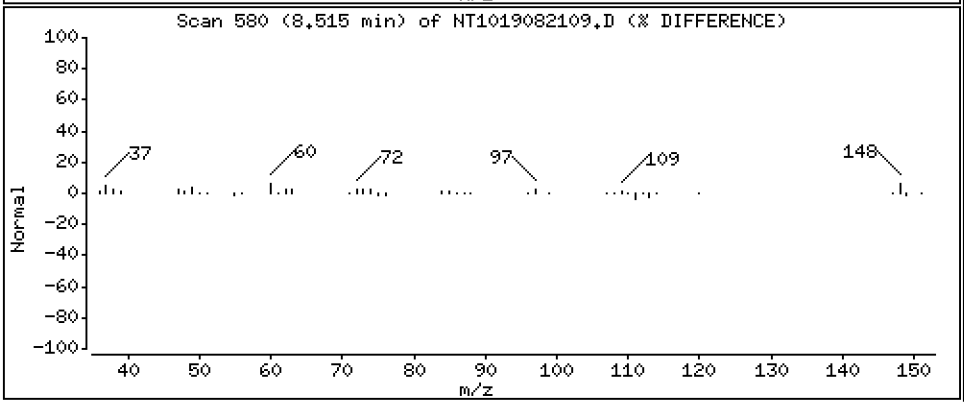
Column phase: ZB-5msi Column diameter: 0.25

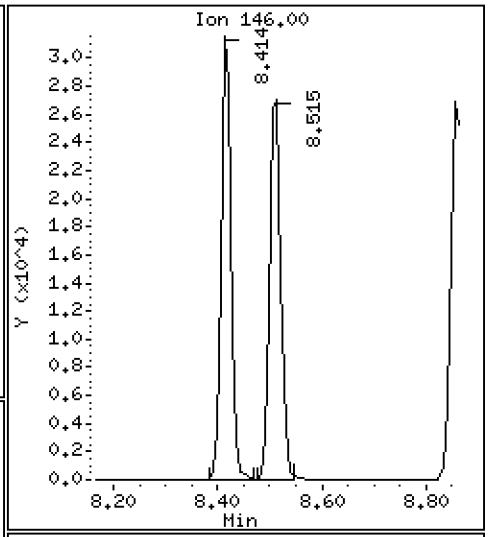
9 1,4-Dichlorobenzene Concentration: 4.210 ug/mL

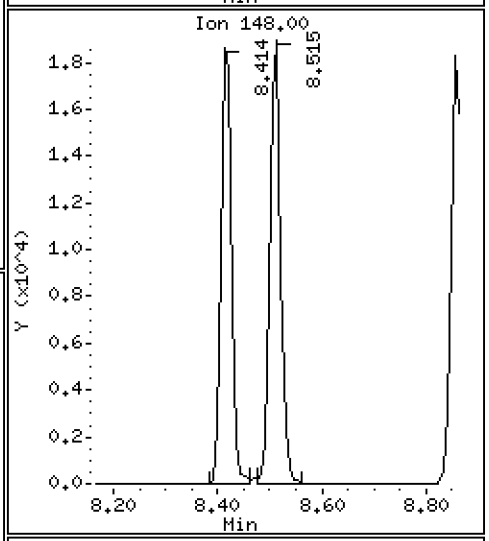


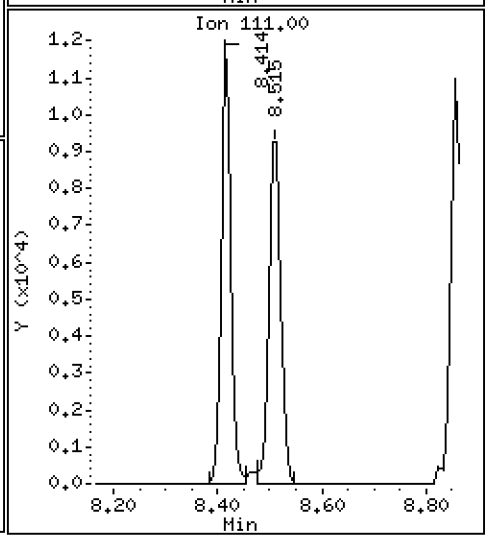












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

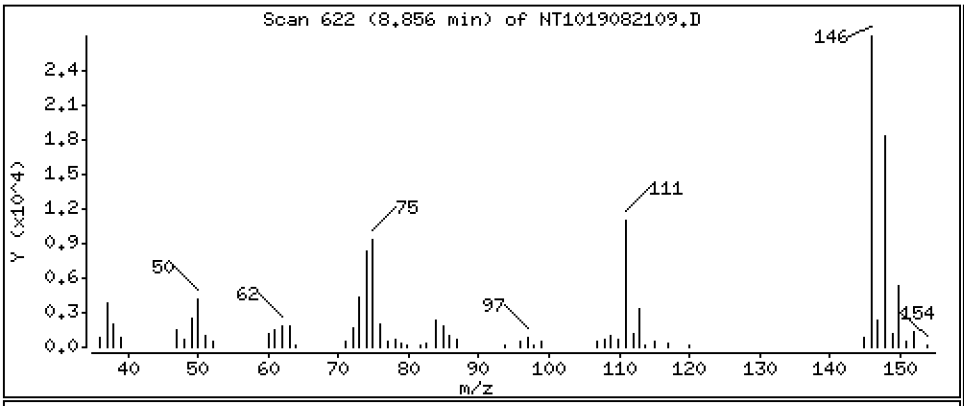
Operator: YZ

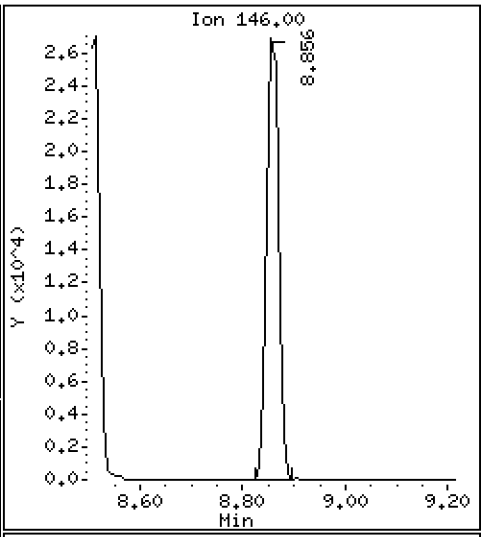
Column phase: ZB-5msi

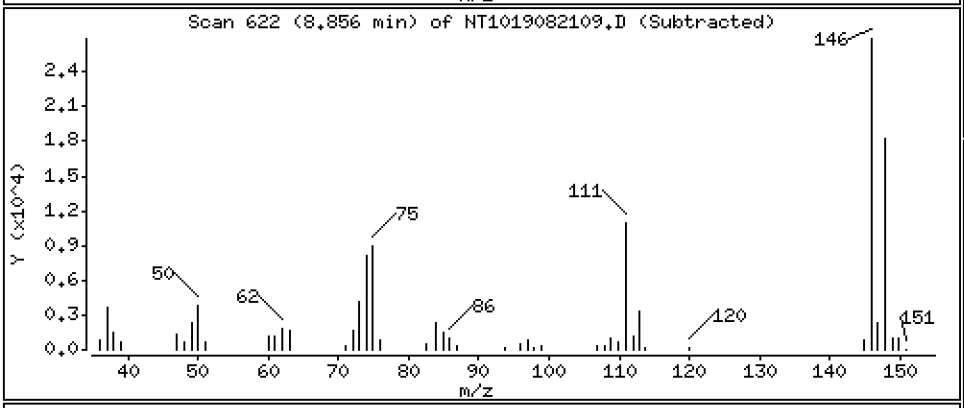
Column diameter: 0.25

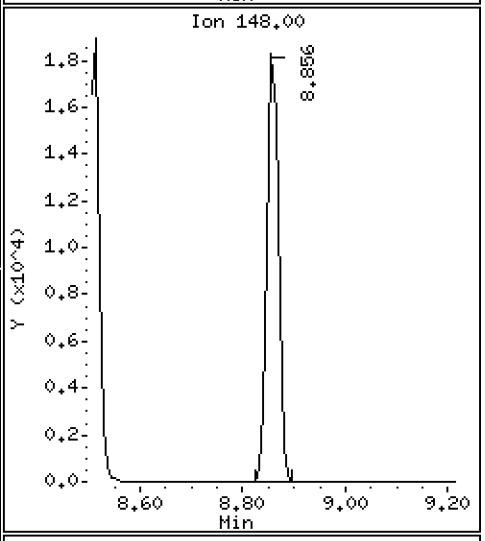
12 1,2-Dichlorobenzene

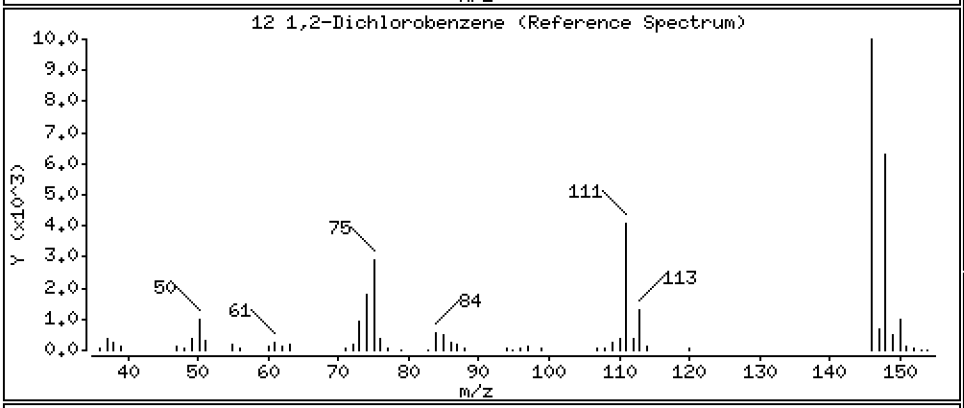
Concentration: 4.469 ug/mL

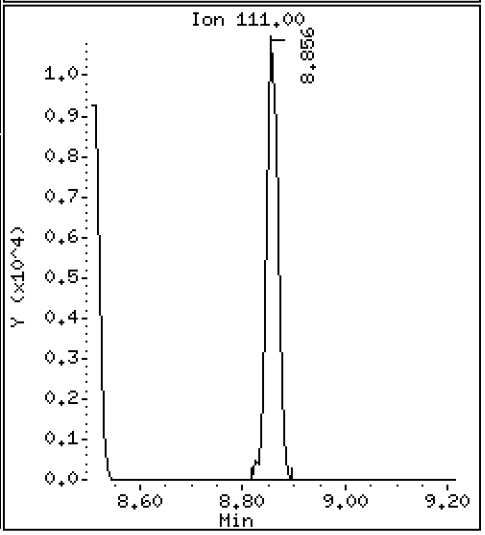


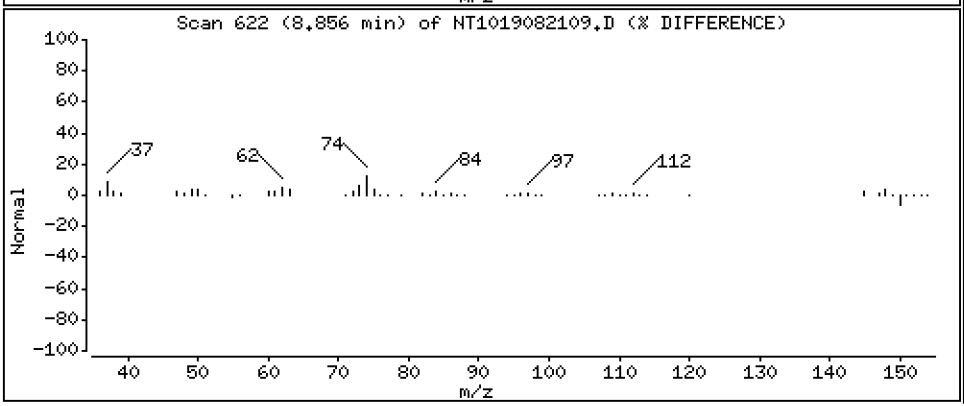












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

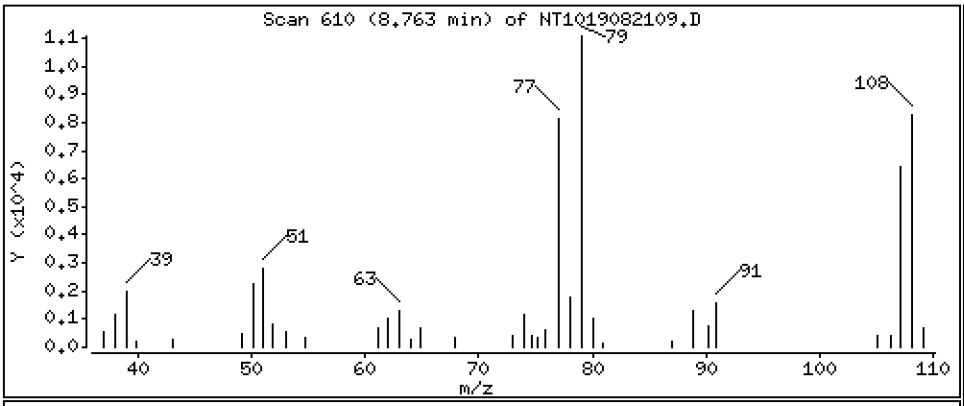
Operator: YZ

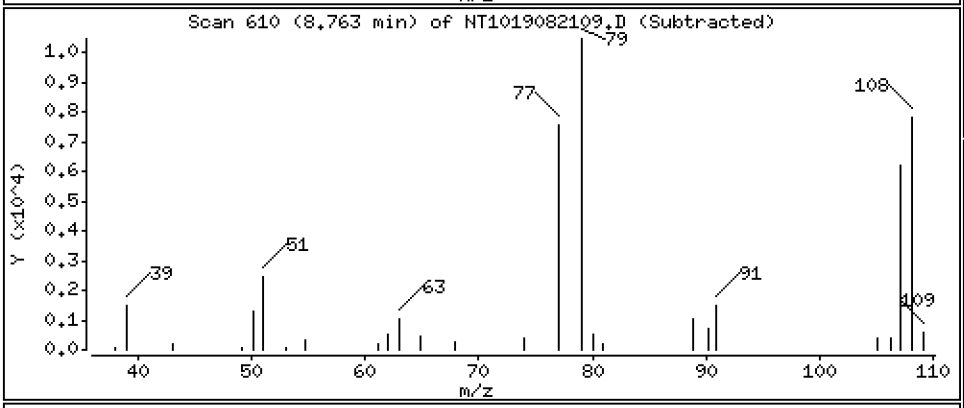
Column phase: ZB-5msi

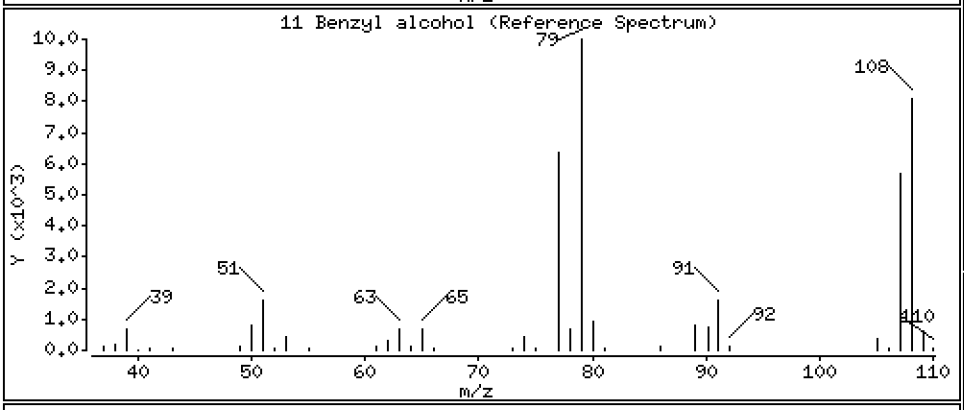
Column diameter: 0.25

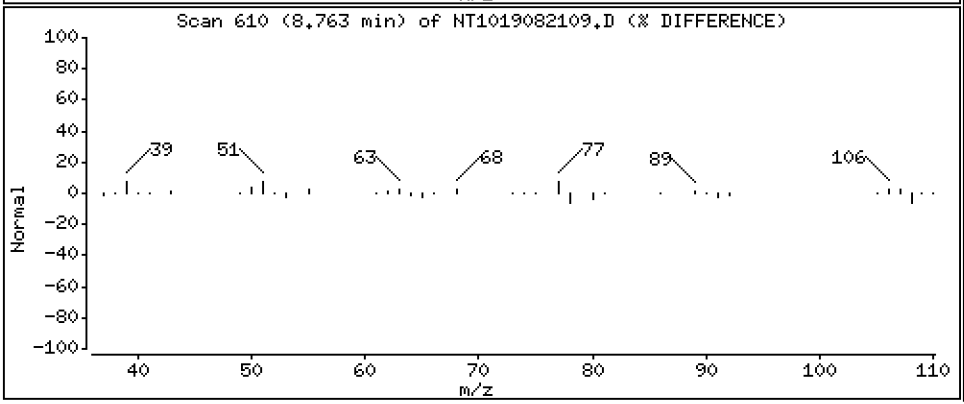
11 Benzyl alcohol

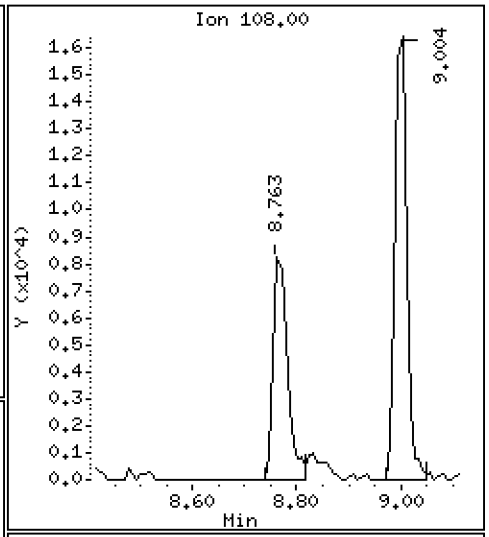
Concentration: 2.931 ug/mL

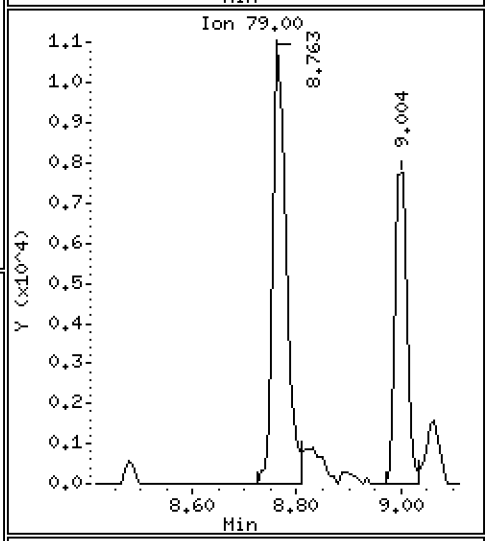


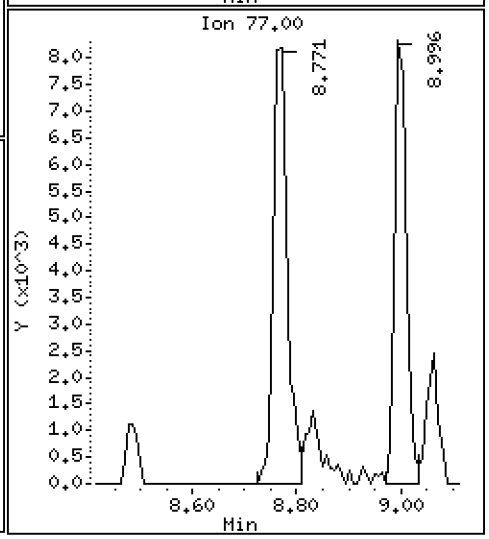












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

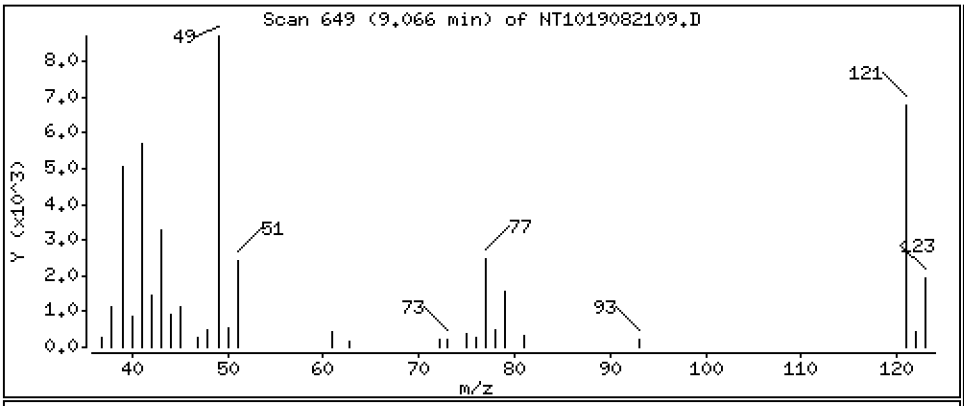
Operator: YZ

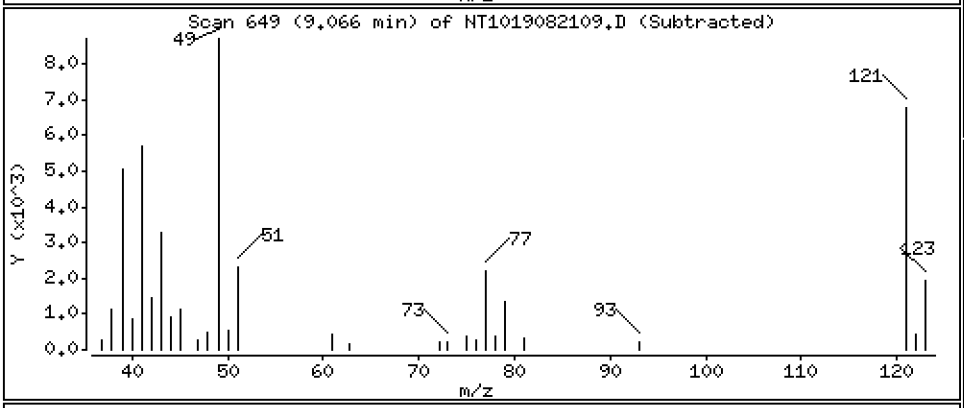
Column phase: ZB-5msi

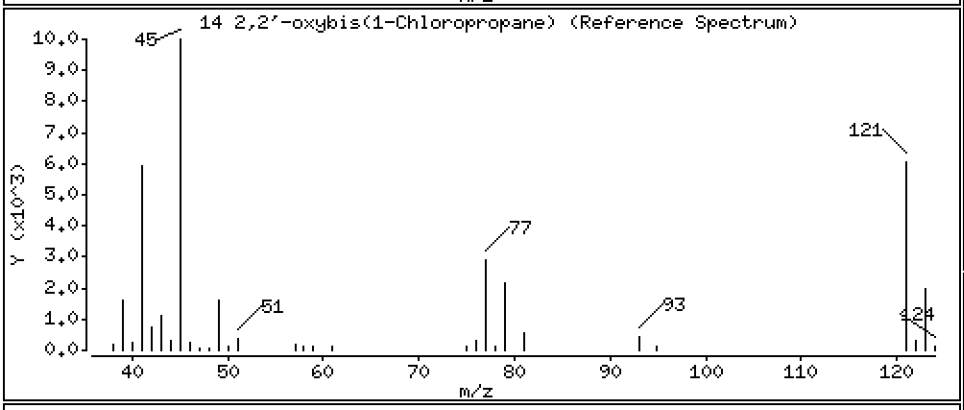
Column diameter: 0.25

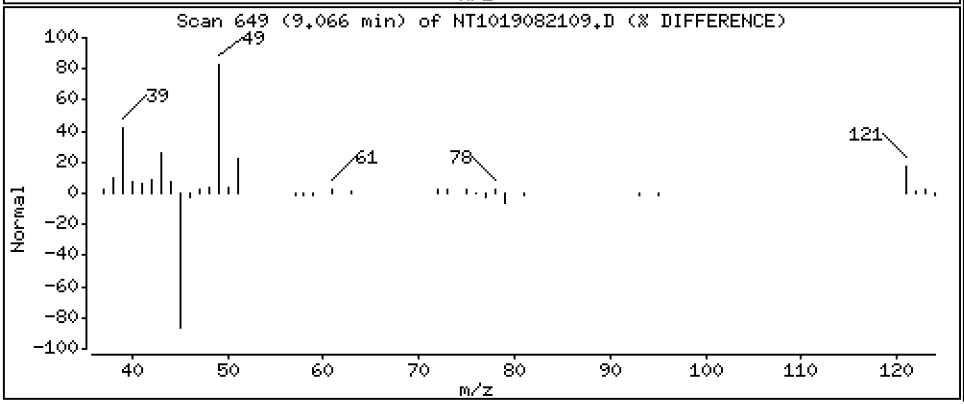
14 2,2'-oxybis(1-Chloropropane)

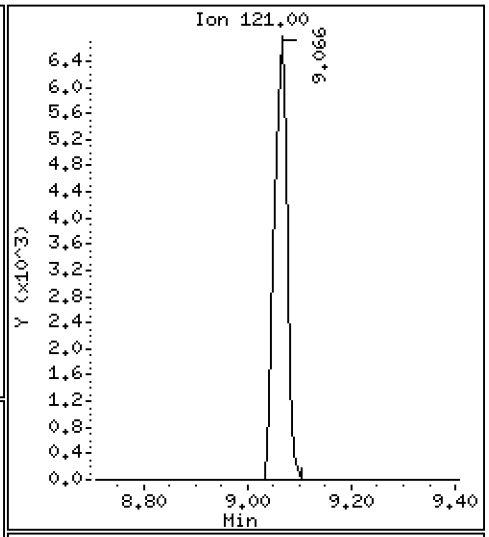
Concentration: 4.068 ug/mL

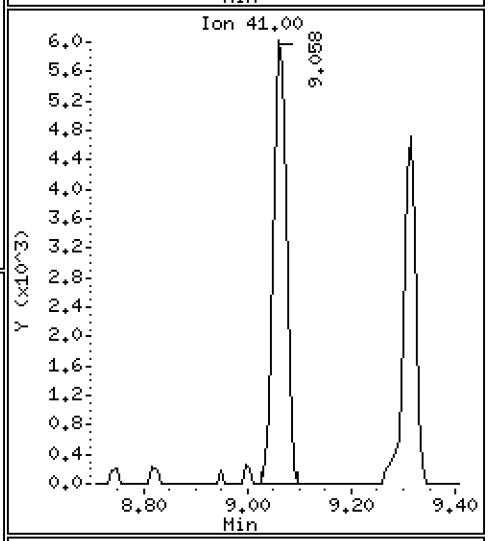


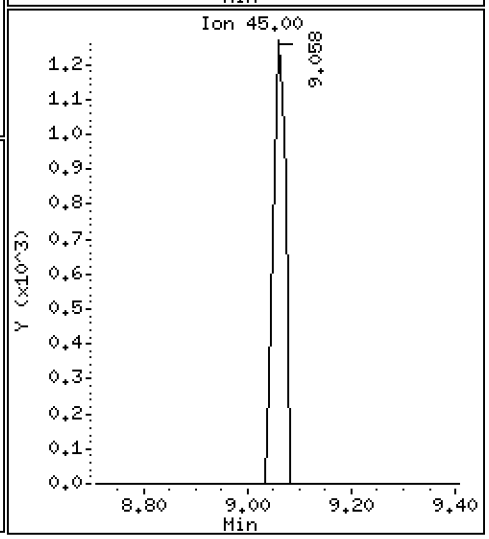












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

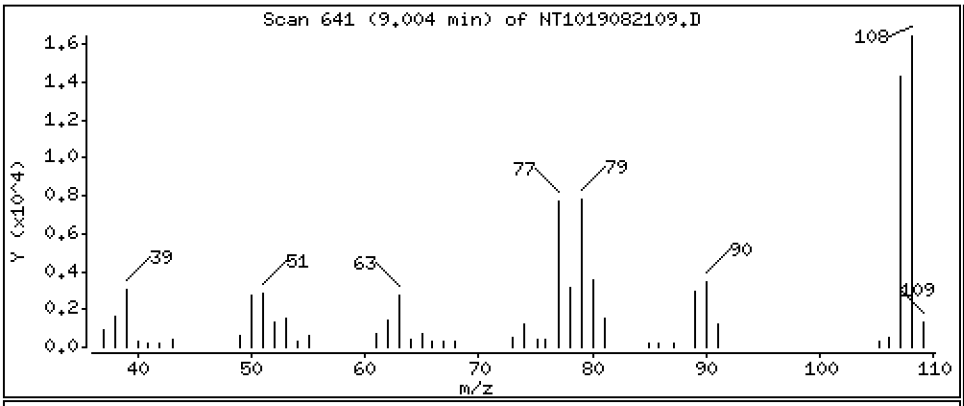
Operator: YZ

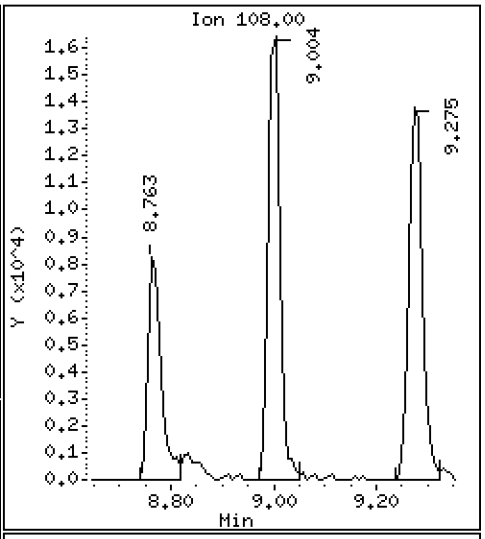
Column phase: ZB-5msi

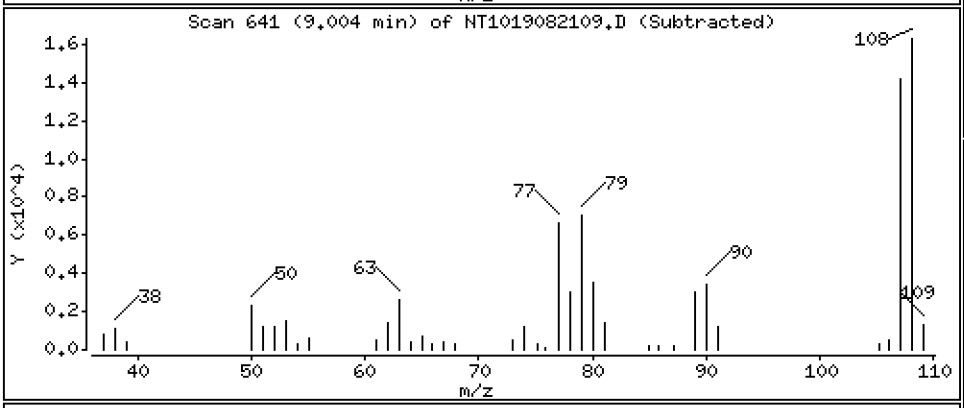
Column diameter: 0.25

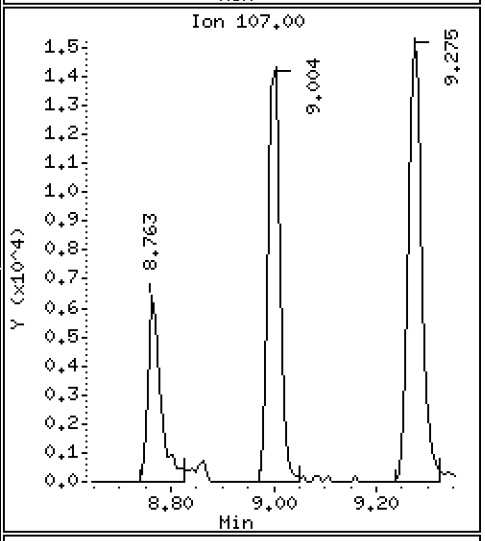
13 2-Methylphenol

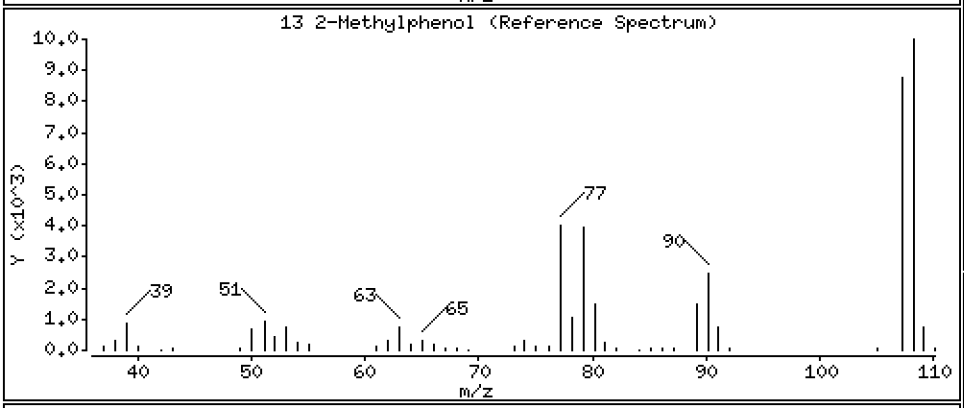
Concentration: 4.066 ug/mL

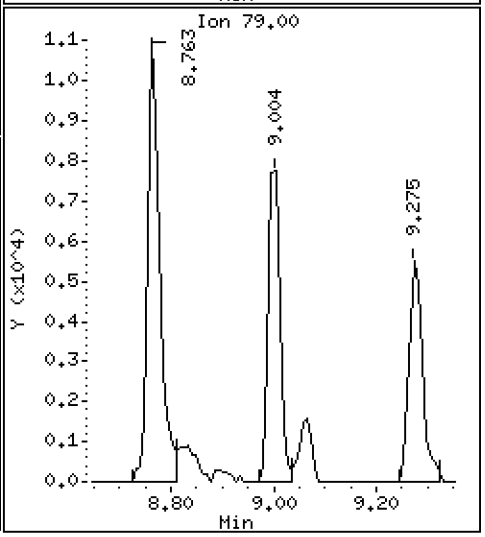


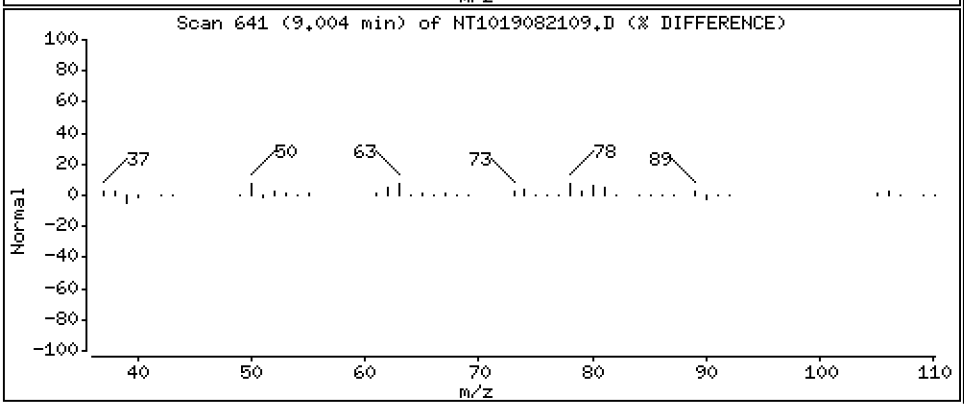












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

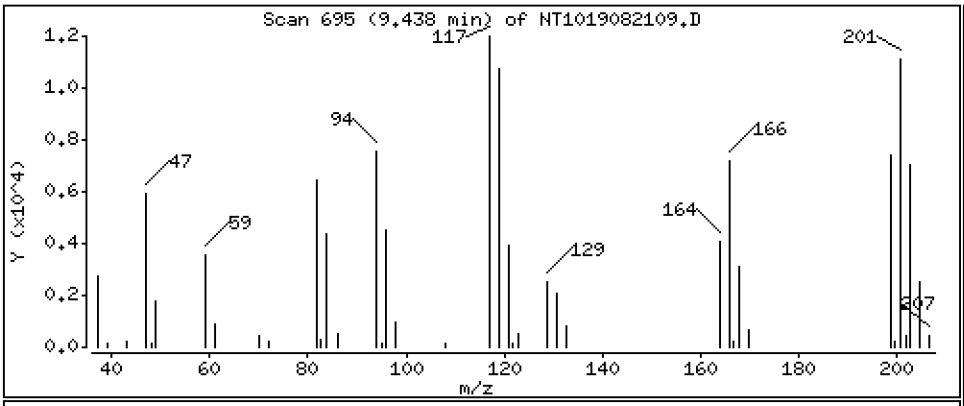
Operator: YZ

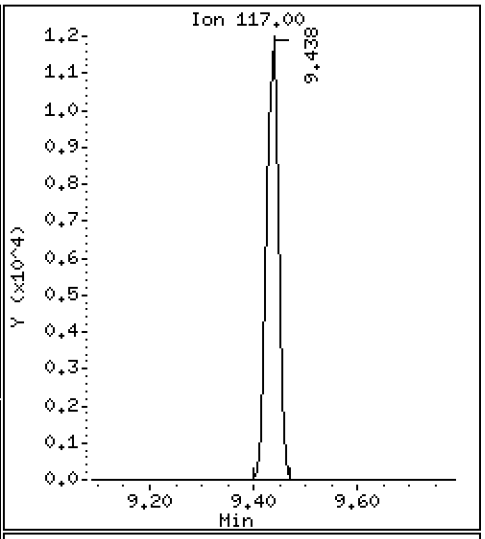
Column phase: ZB-5msi

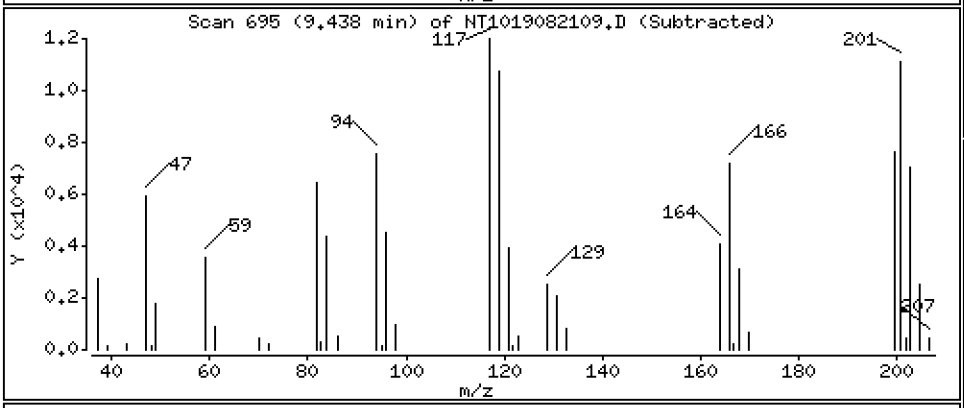
Column diameter: 0.25

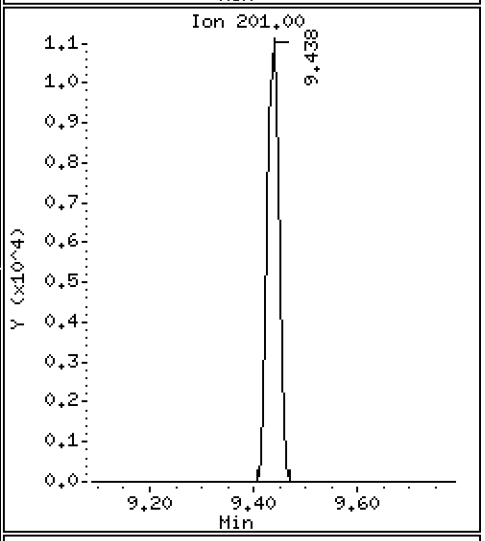
17 Hexachloroethane

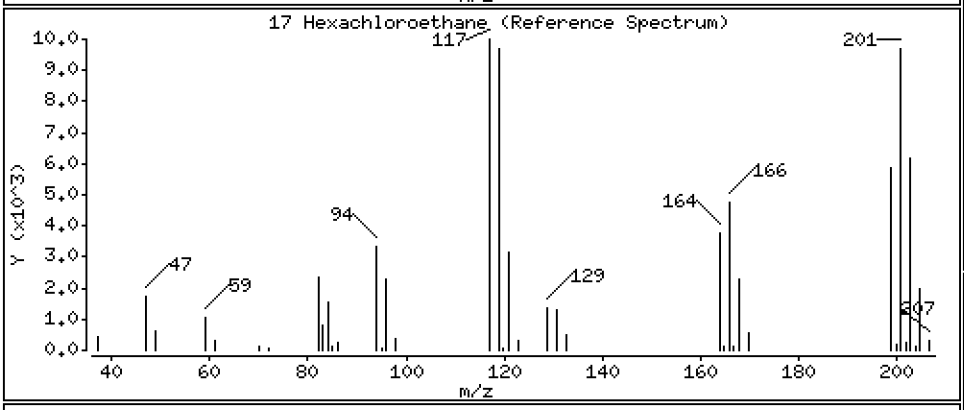
Concentration: 4.469 ug/mL

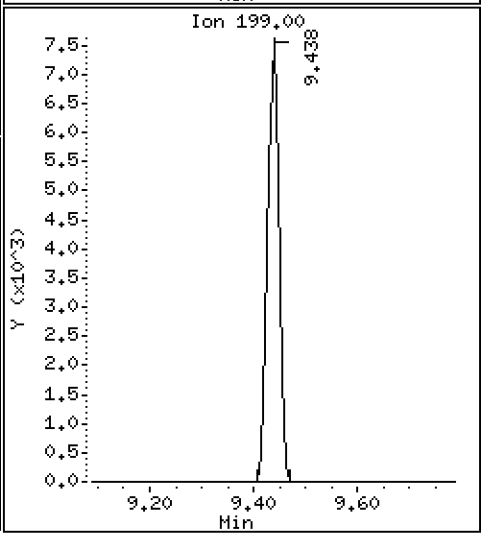


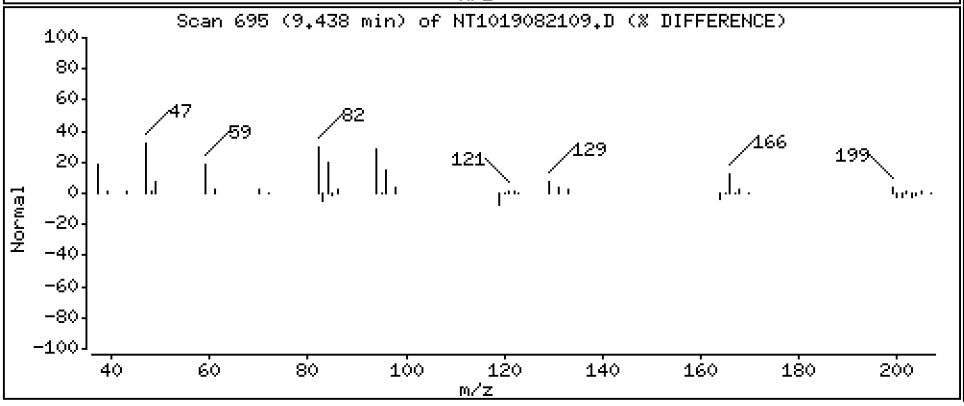












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

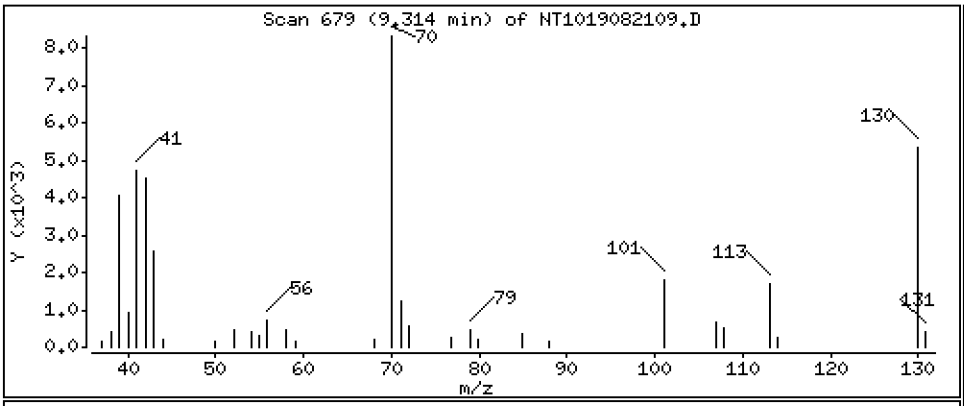
Operator: YZ

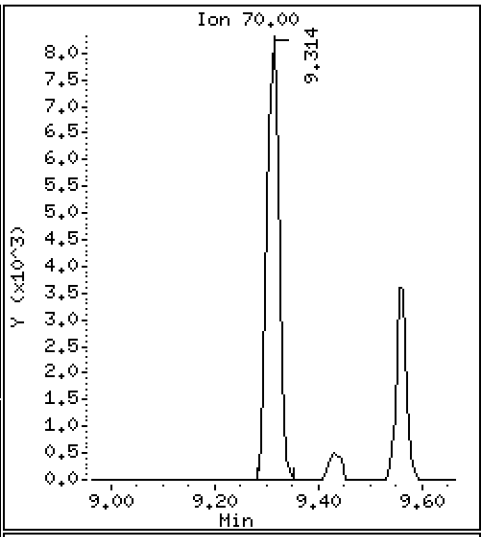
Column phase: ZB-5msi

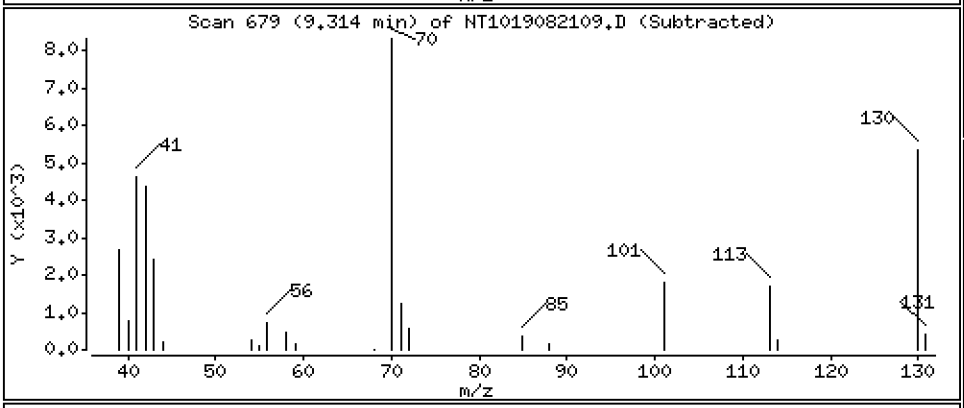
Column diameter: 0.25

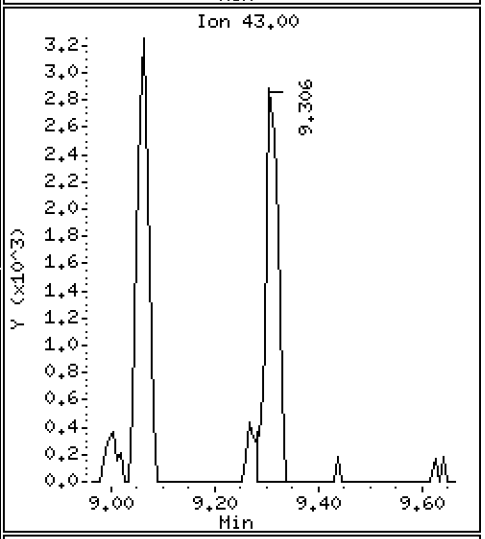
16 N-Nitroso-di-n-propylamine

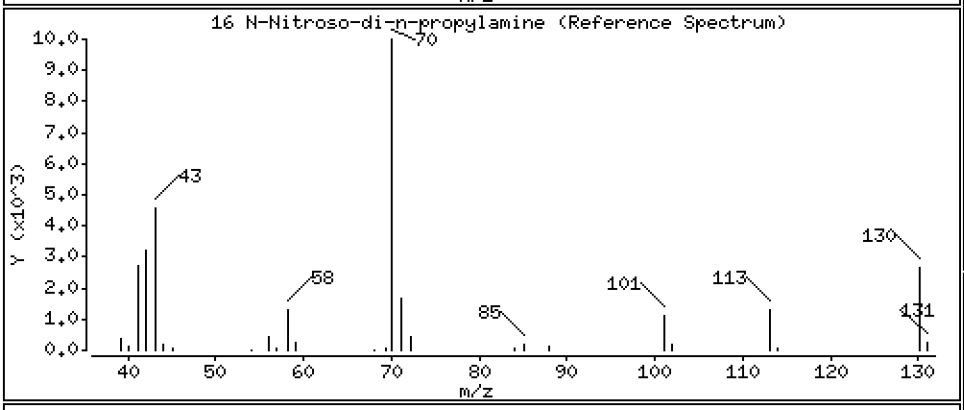
Concentration: 3.313 ug/mL

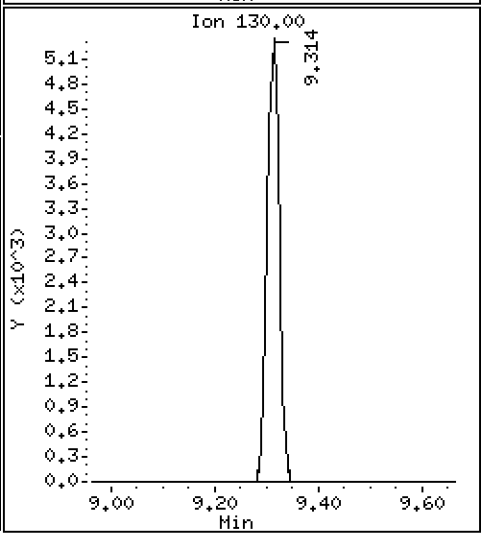


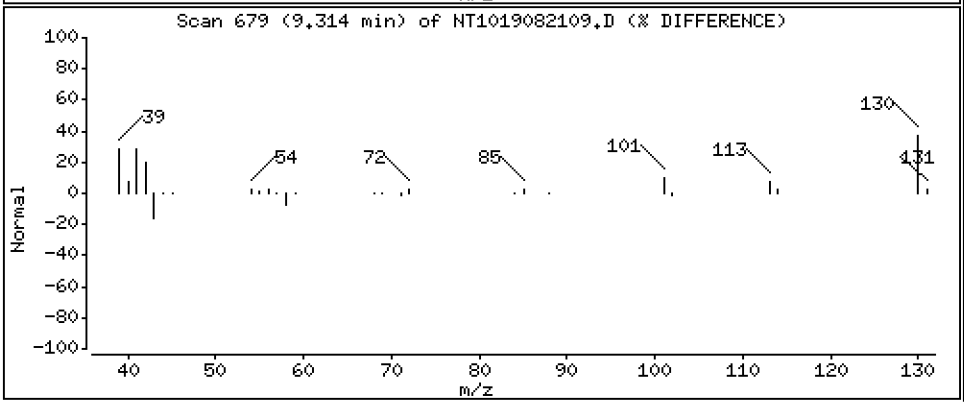












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

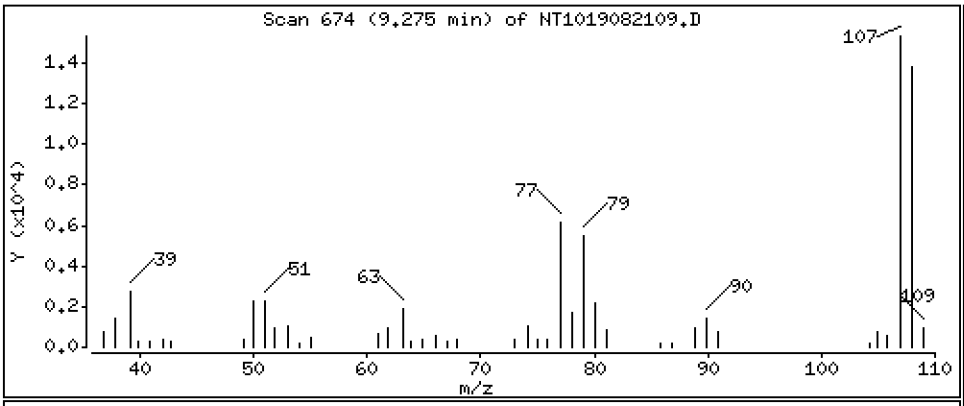
Operator: YZ

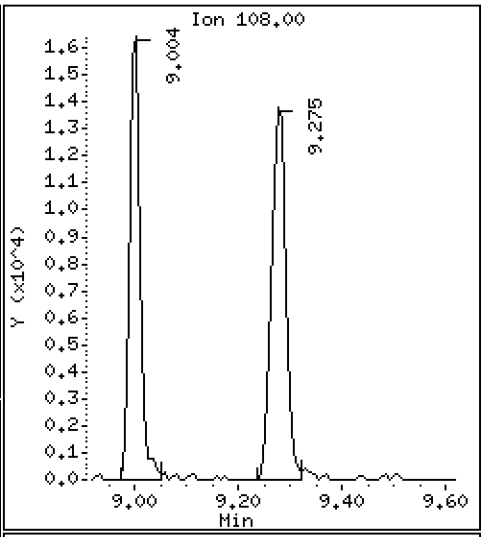
Column phase: ZB-5msi

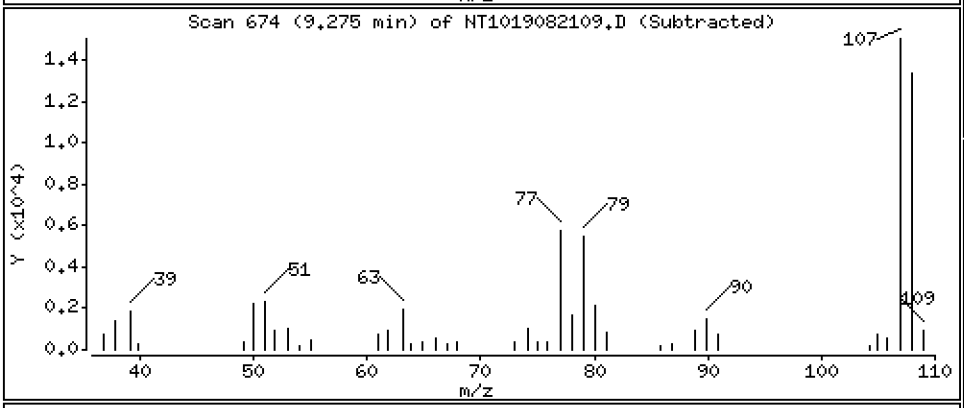
Column diameter: 0.25

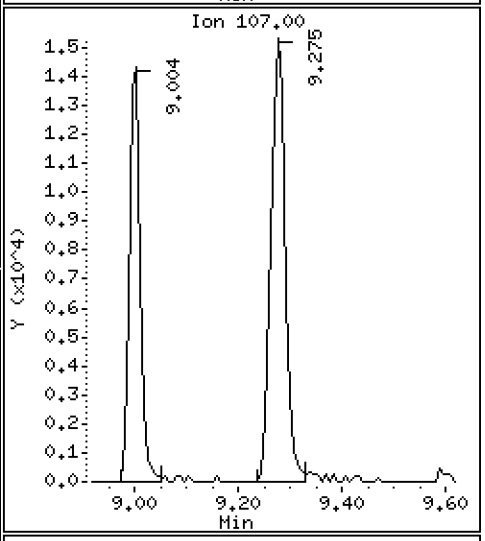
15 4-Methylphenol

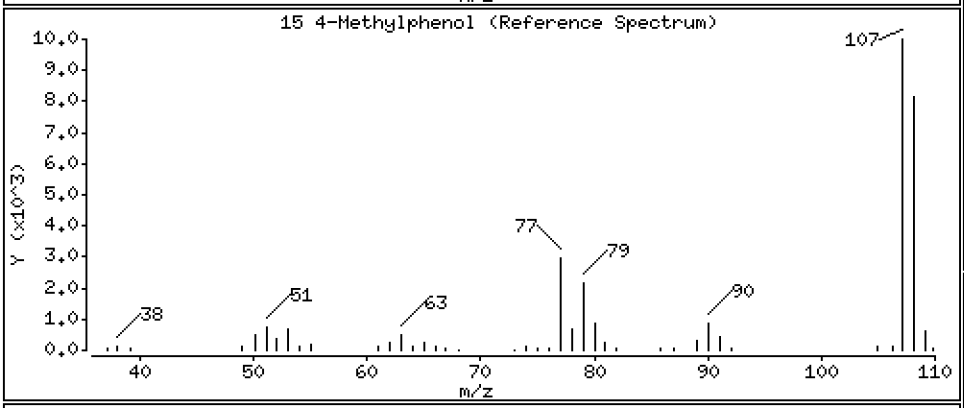
Concentration: 4.120 ug/mL

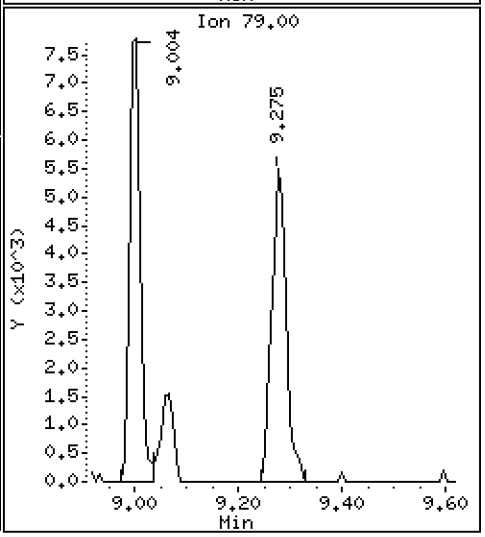


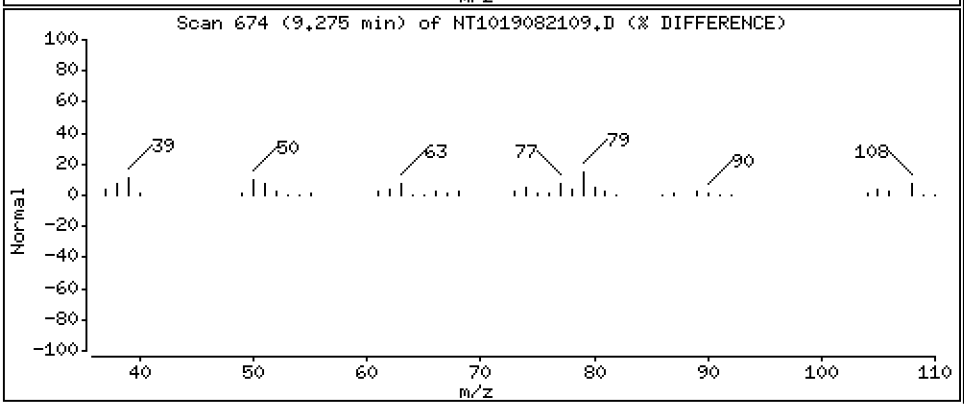












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

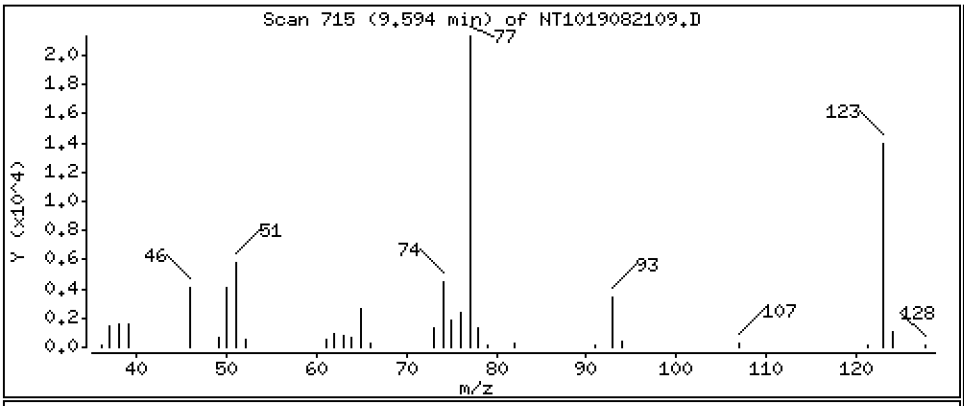
Operator: YZ

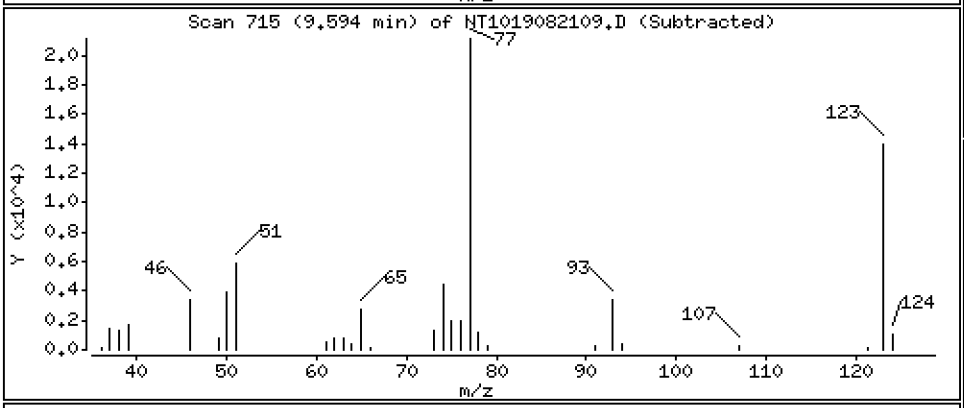
Column phase: ZB-5msi

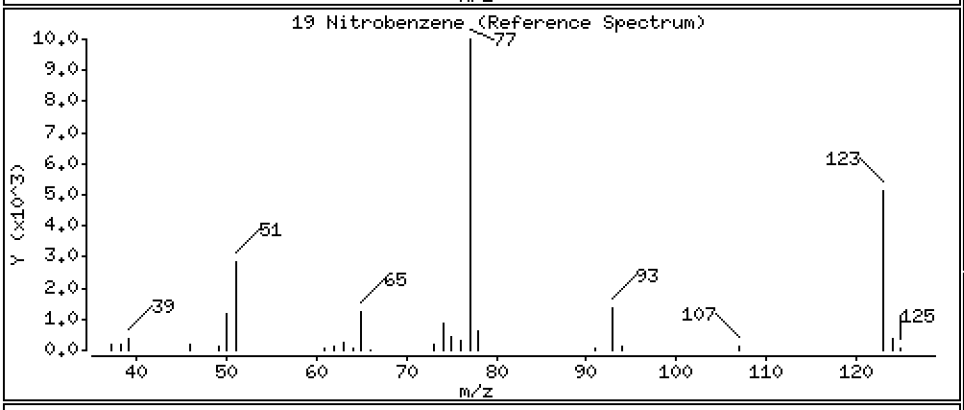
Column diameter: 0.25

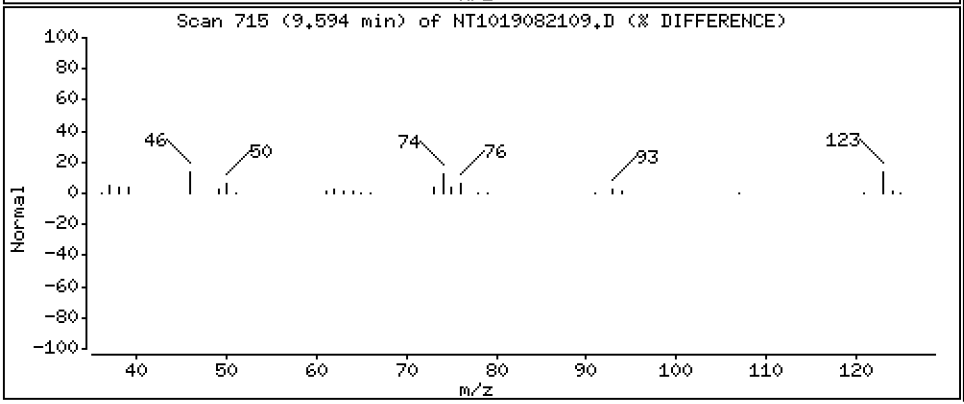
19 Nitrobenzene

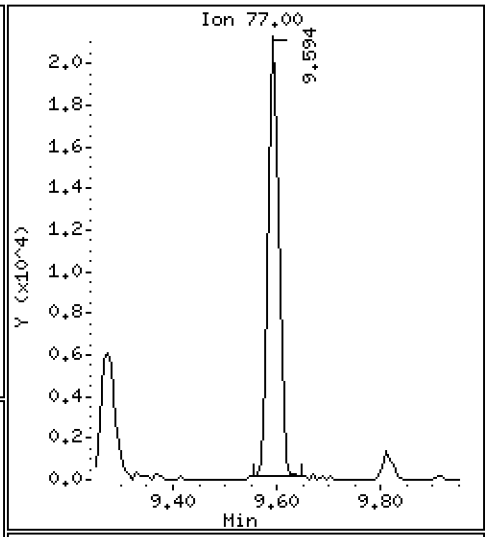
Concentration: 3.941 ug/mL

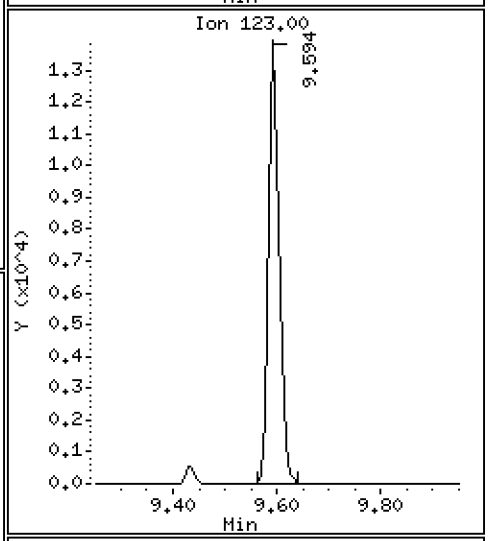


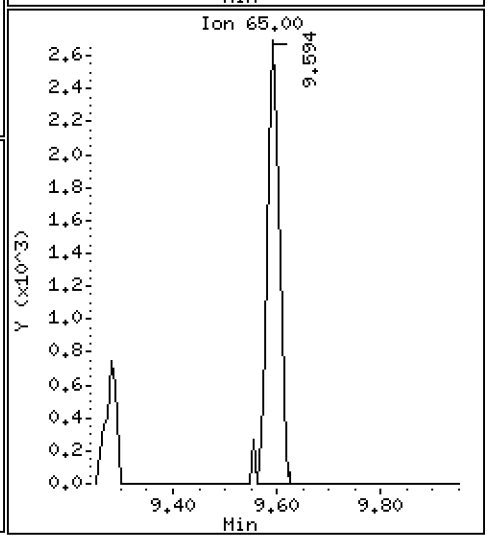












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

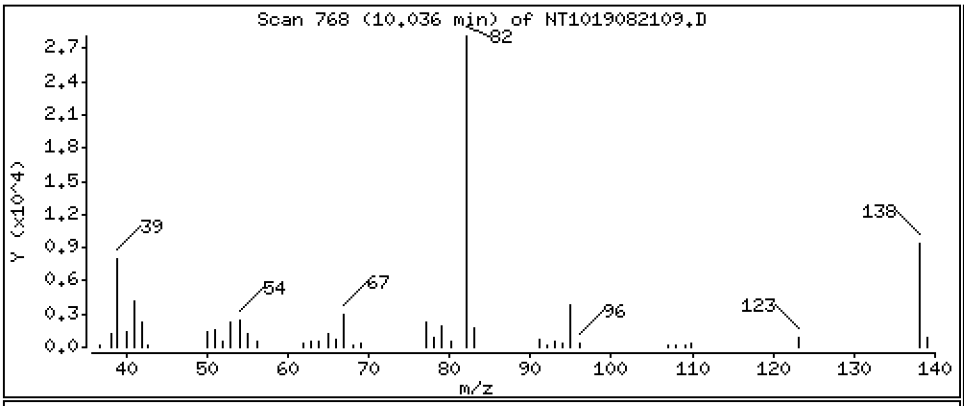
Operator: YZ

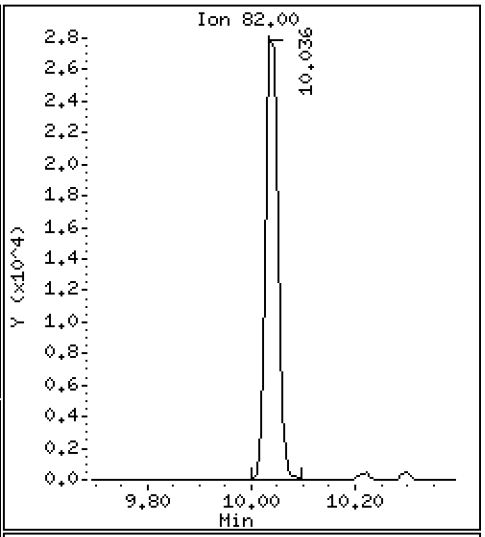
Column phase: ZB-5msi

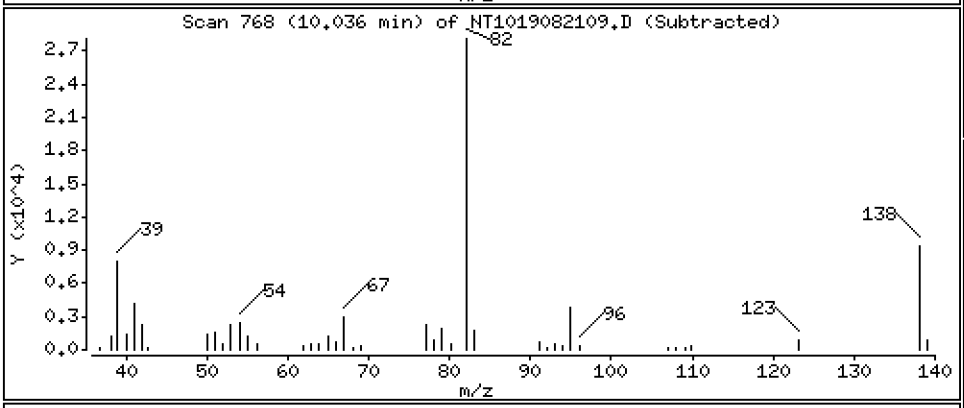
Column diameter: 0.25

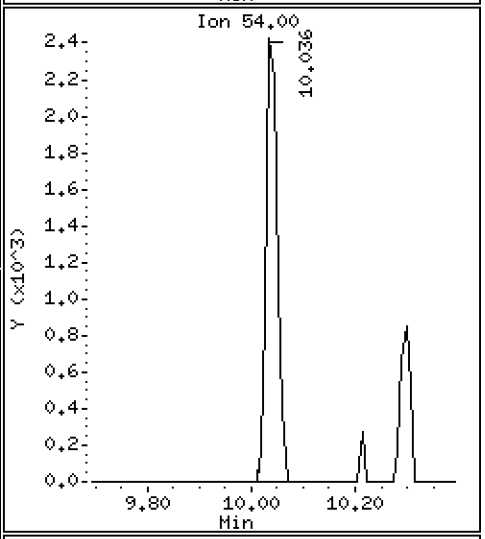
20 Isophorone

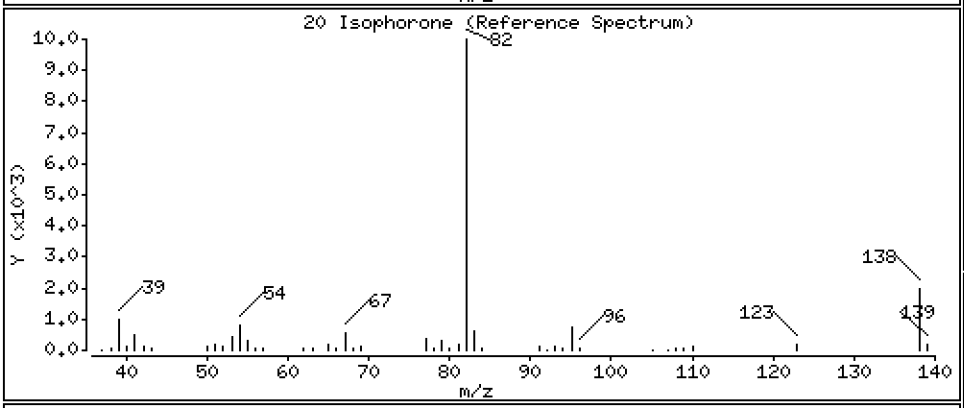
Concentration: 3.718 ug/mL

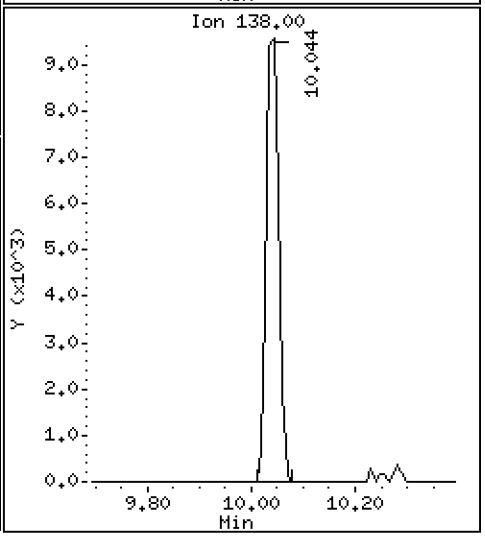


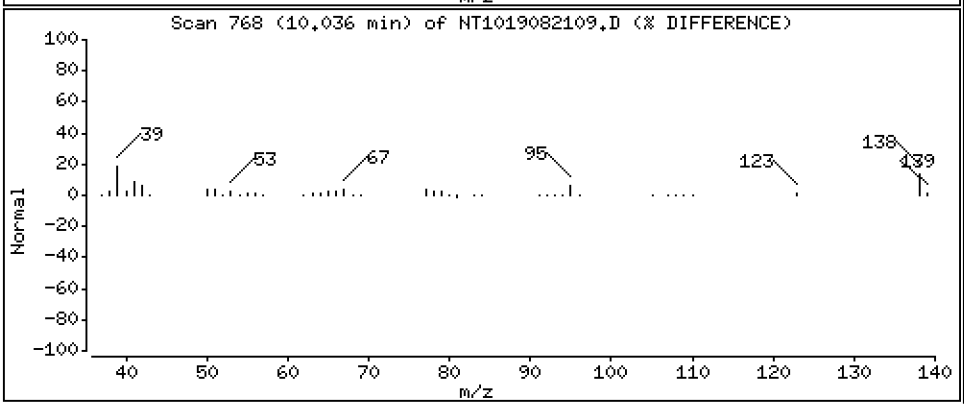












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

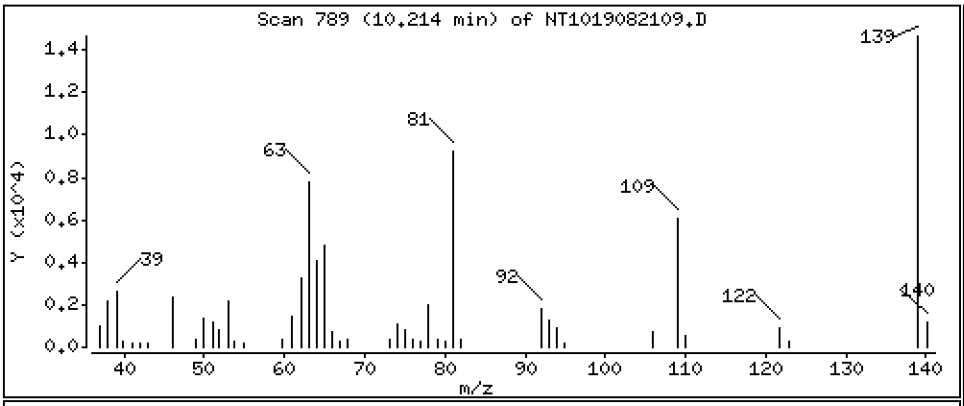
Operator: YZ

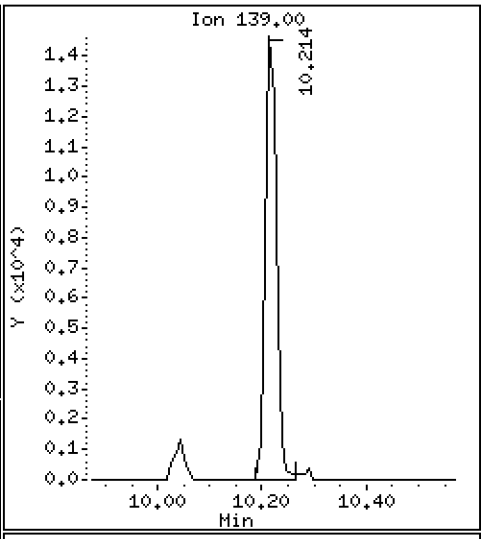
Column phase: ZB-5msi

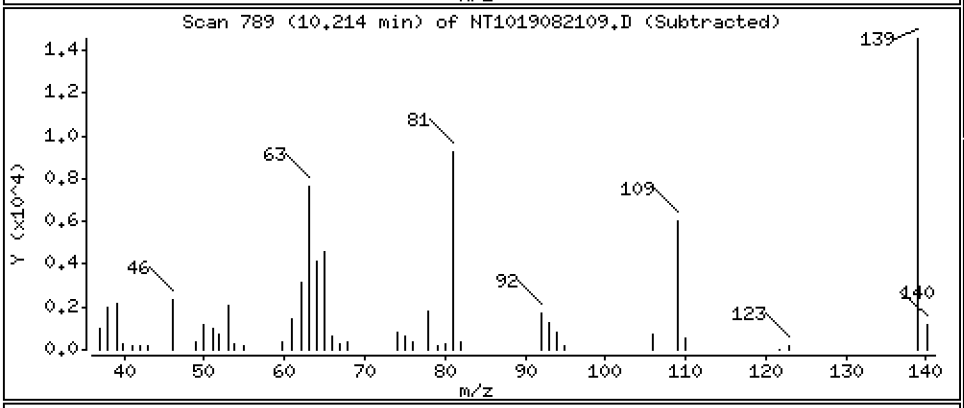
Column diameter: 0.25

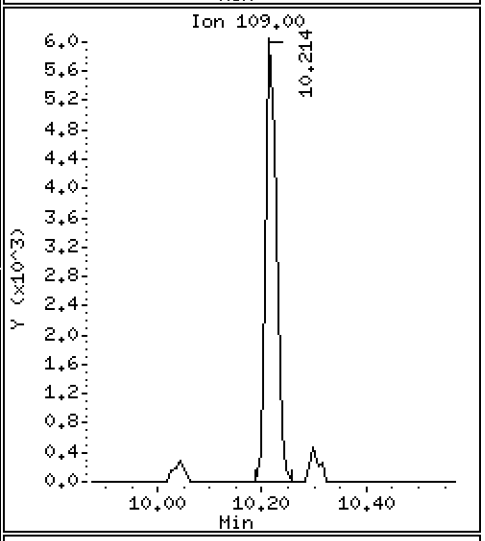
21 2-Nitrophenol

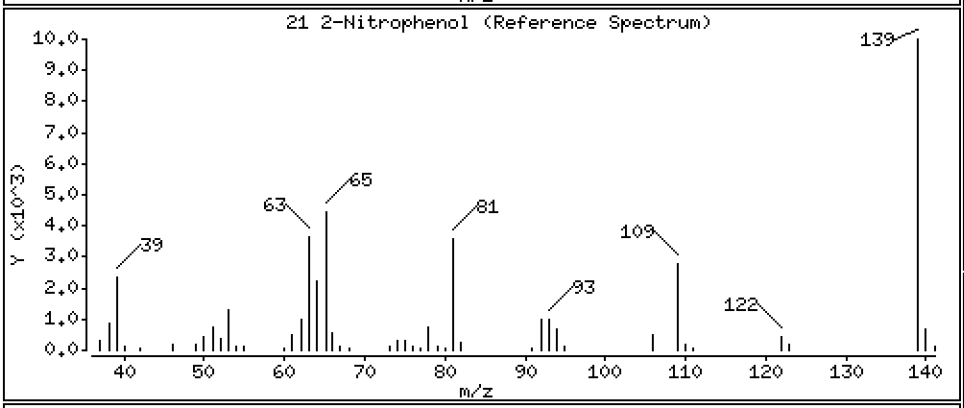
Concentration: 4.421 ug/mL

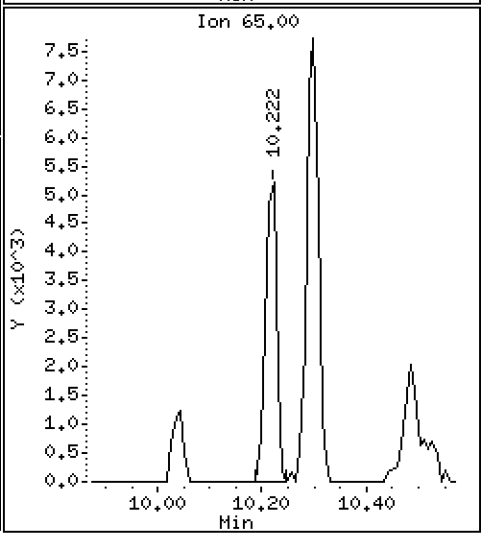


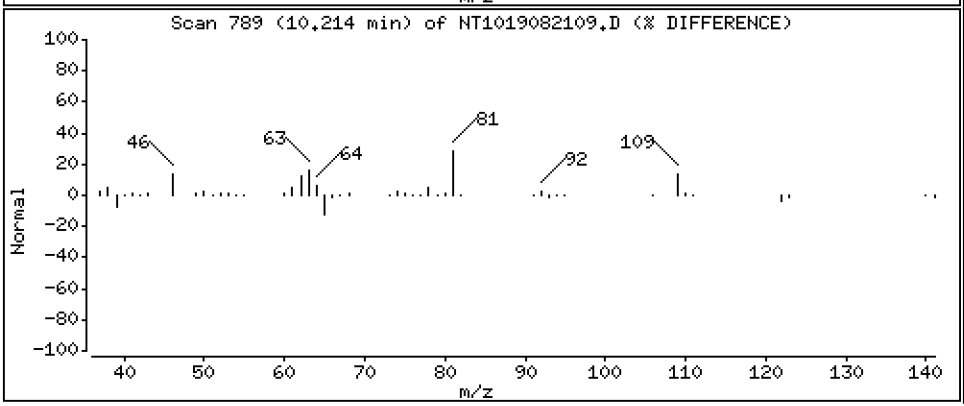












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

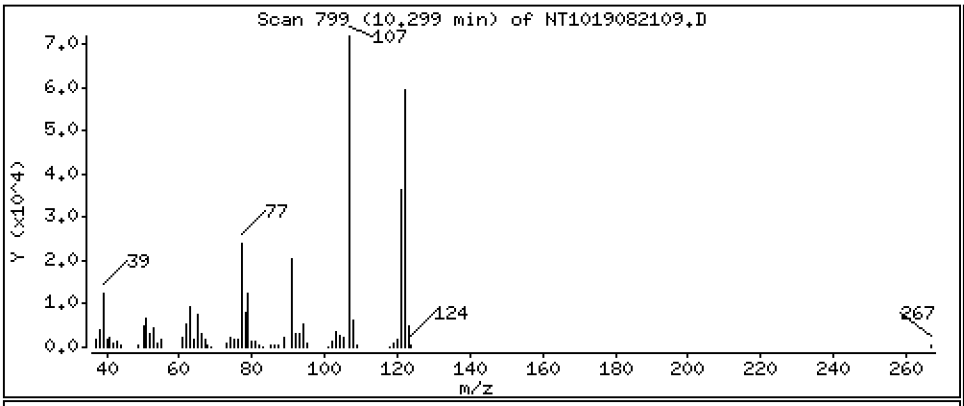
Operator: YZ

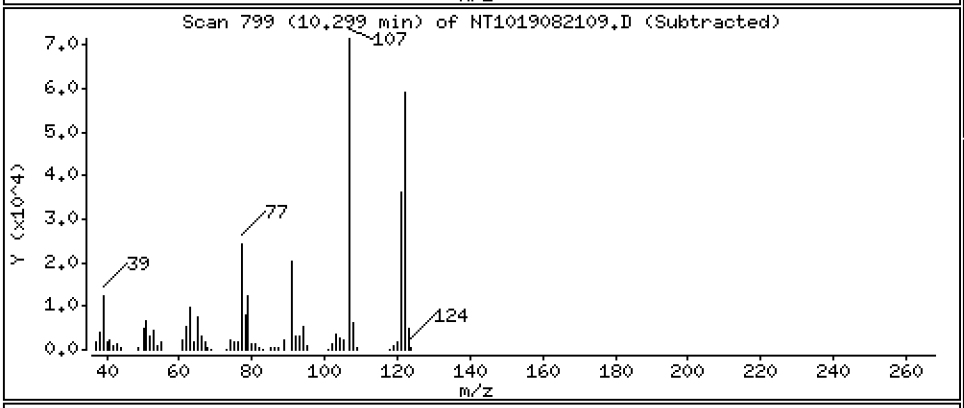
Column phase: ZB-5msi

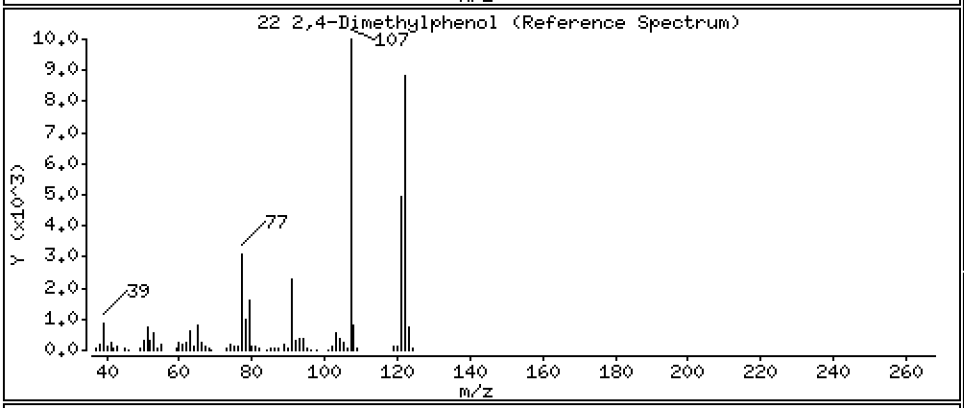
Column diameter: 0.25

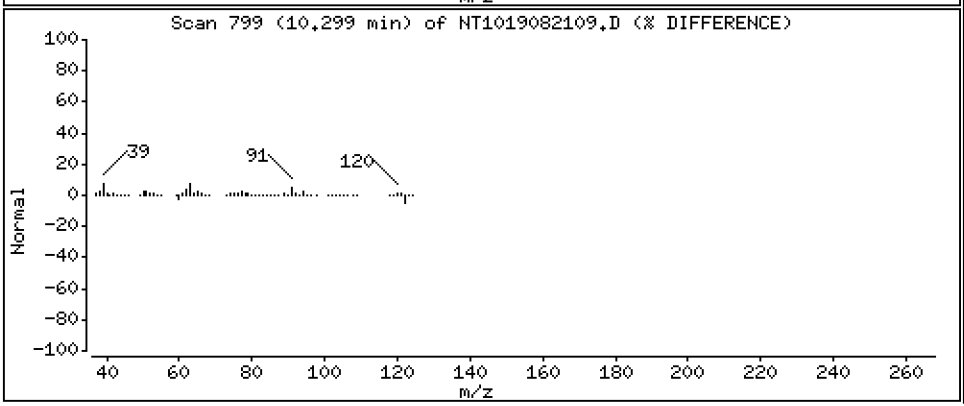
22 2,4-Dimethylphenol

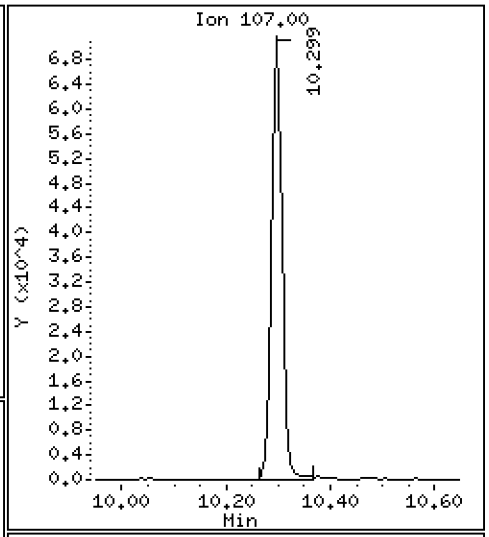
Concentration: 12.02 ug/mL

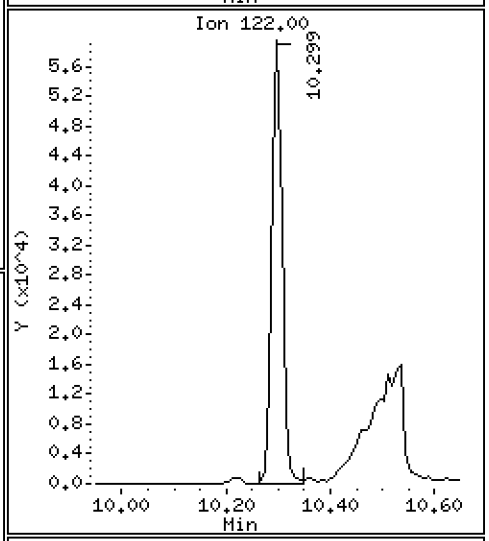


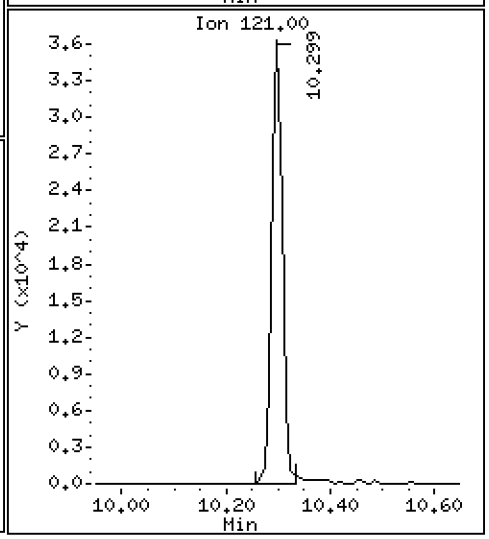












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

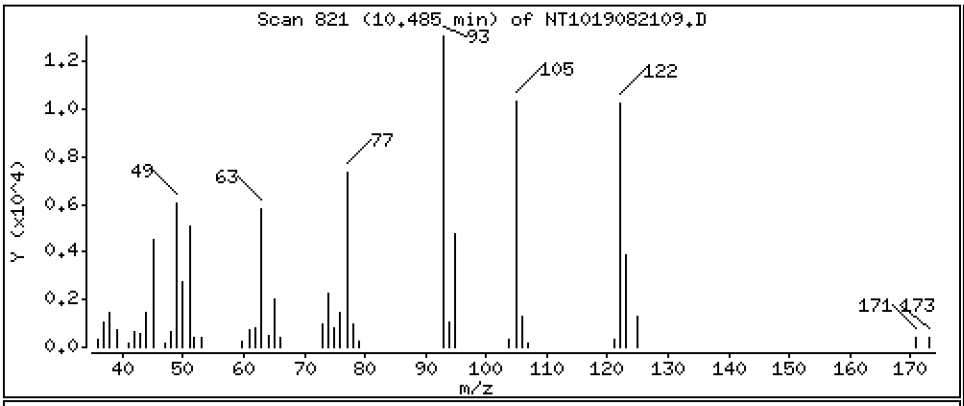
Operator: YZ

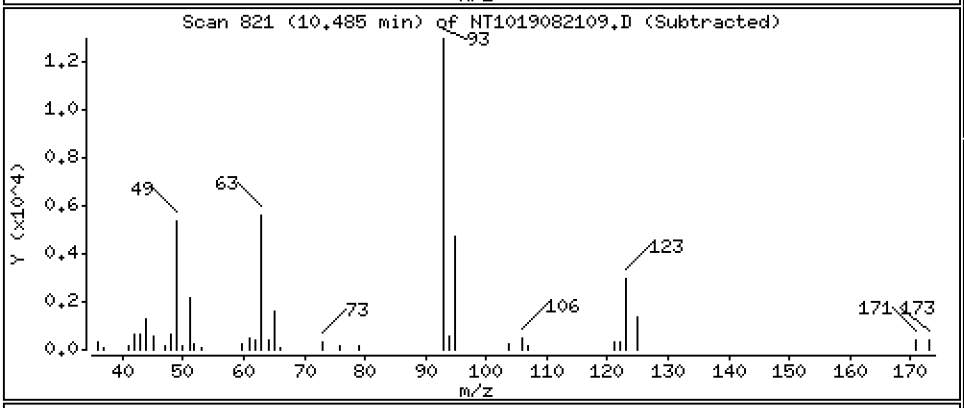
Column phase: ZB-5msi

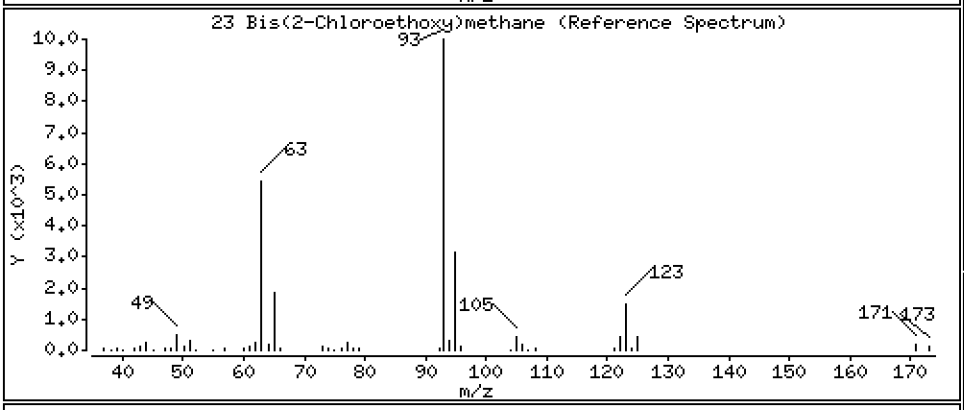
Column diameter: 0.25

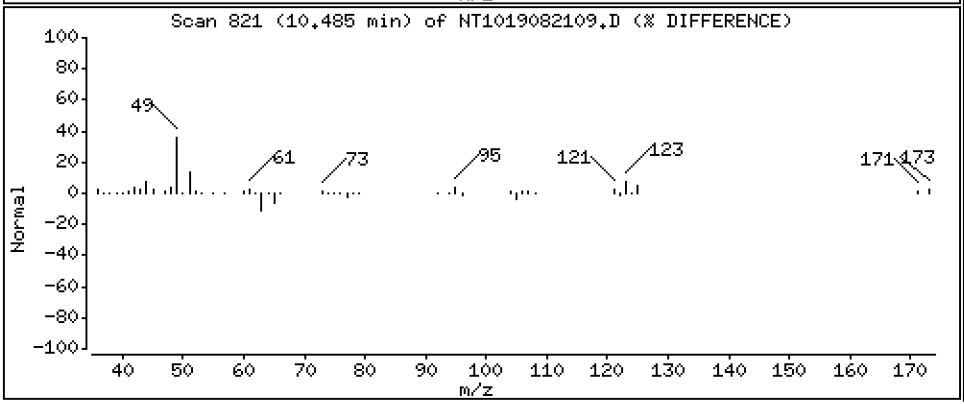
23 Bis(2-Chloroethoxy)methane

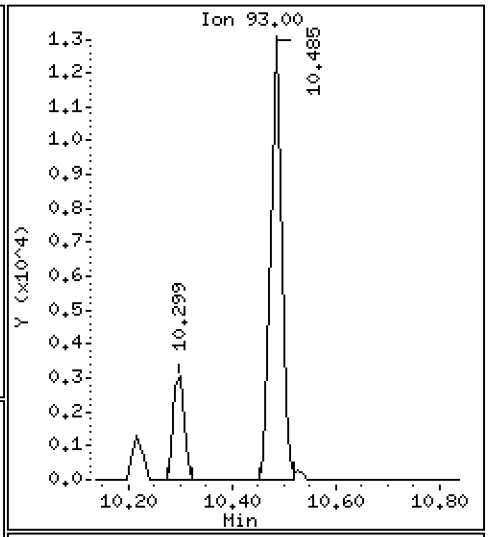
Concentration: 2.677 ug/mL

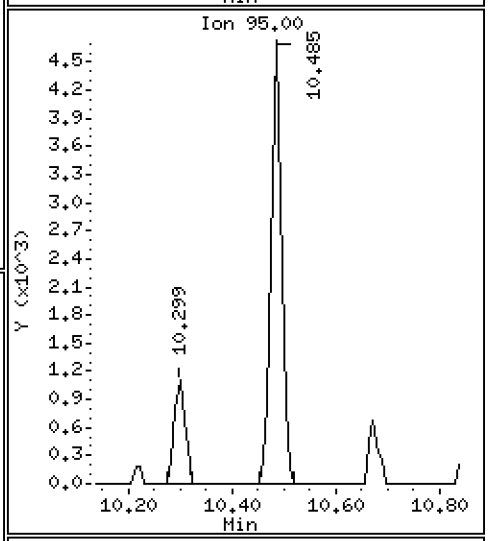


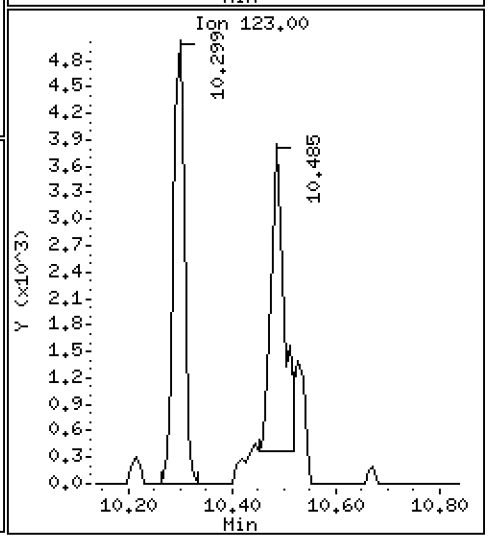












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

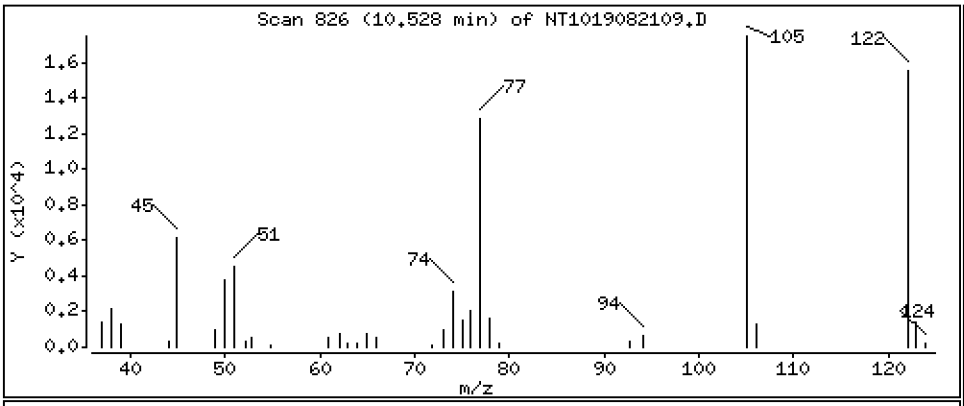
Operator: YZ

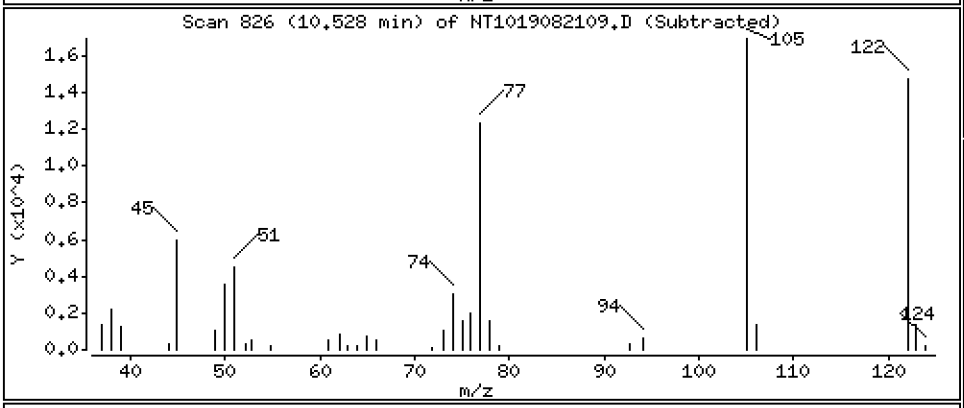
Column phase: ZB-5msi

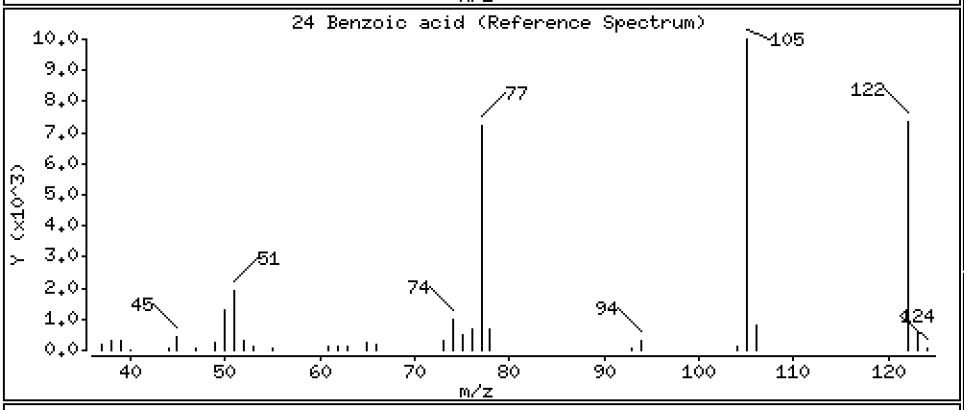
Column diameter: 0.25

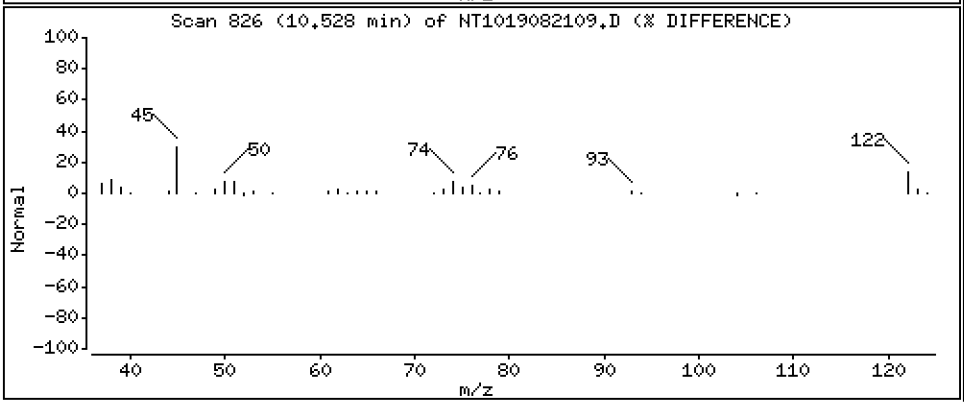
24 Benzoic acid

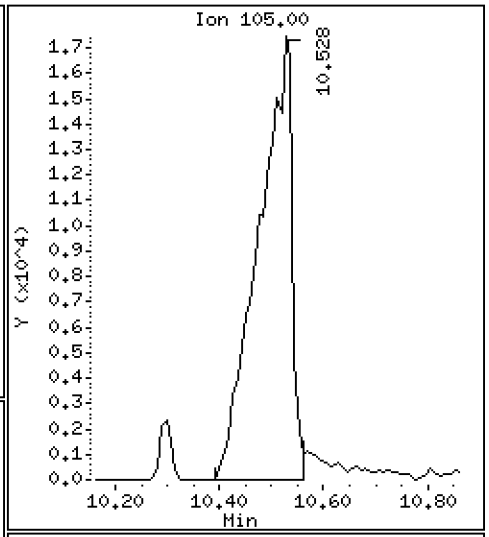
Concentration: 13.85 ug/mL

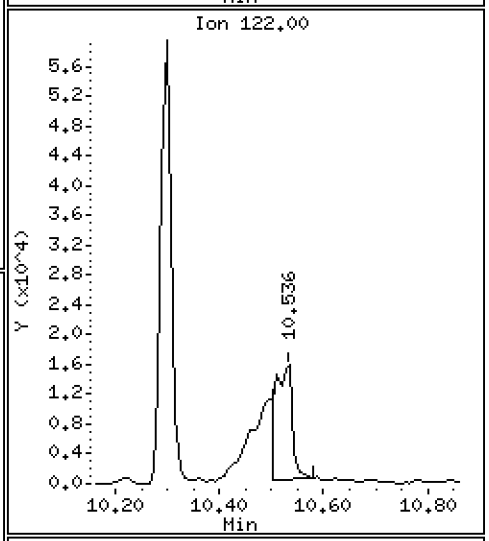


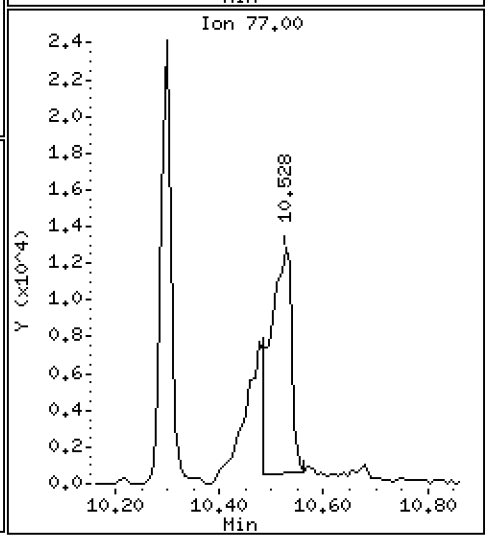












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

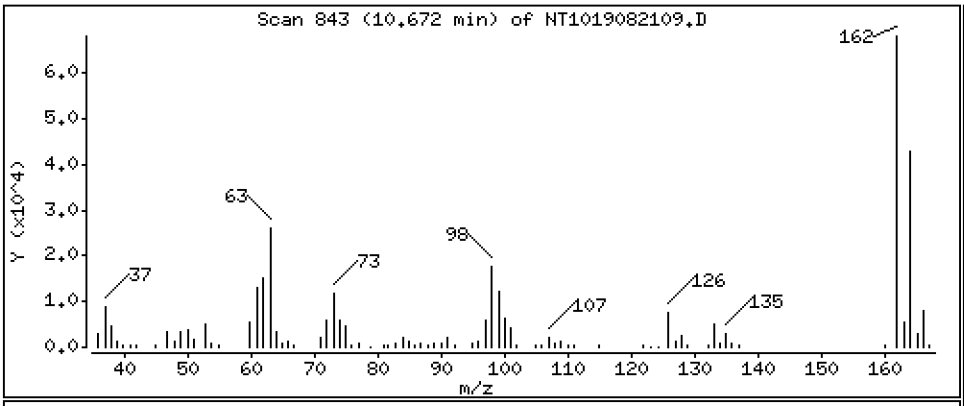
Operator: YZ

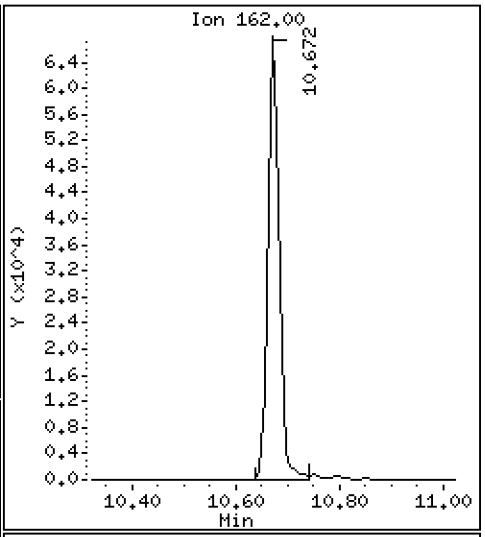
Column phase: ZB-5msi

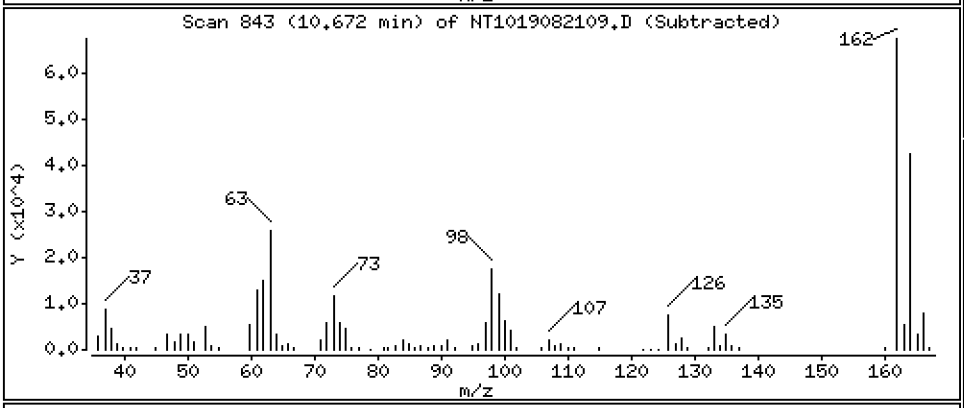
Column diameter: 0.25

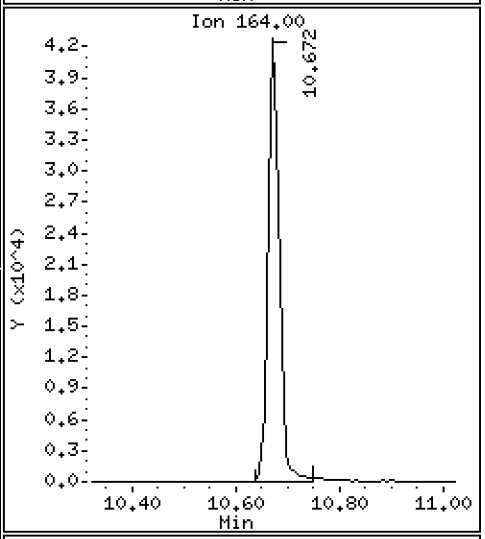
25 2,4-Dichlorophenol

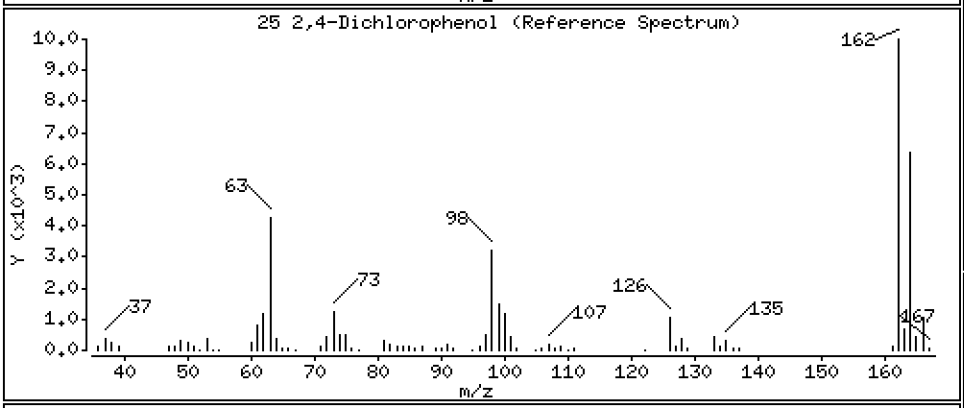
Concentration: 15.22 ug/mL

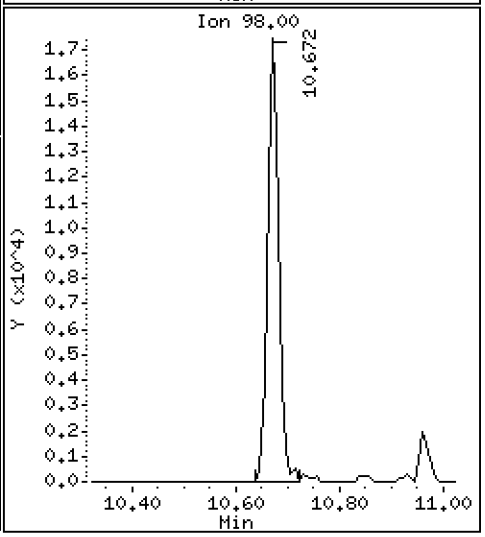


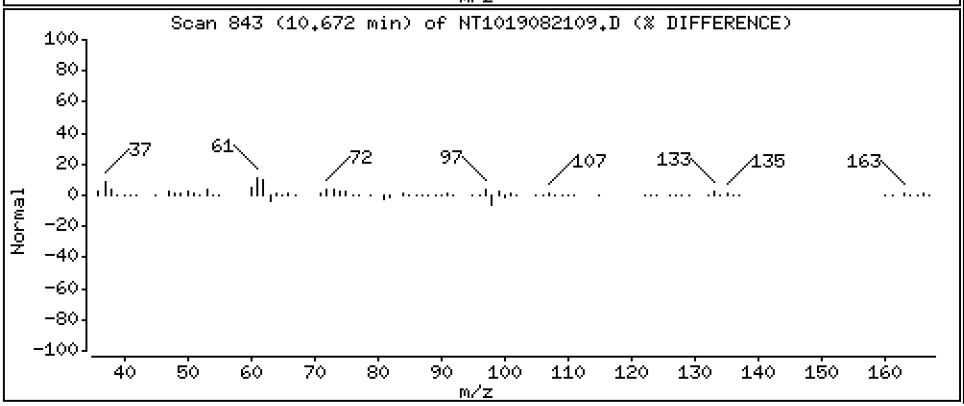












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

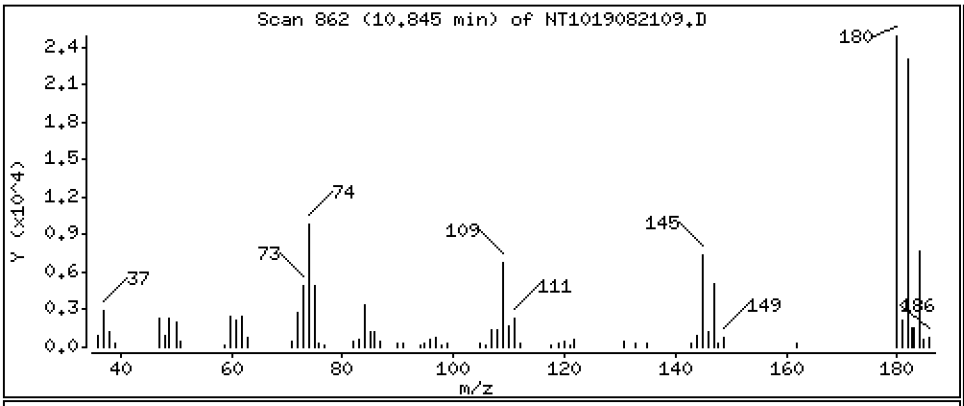
Operator: YZ

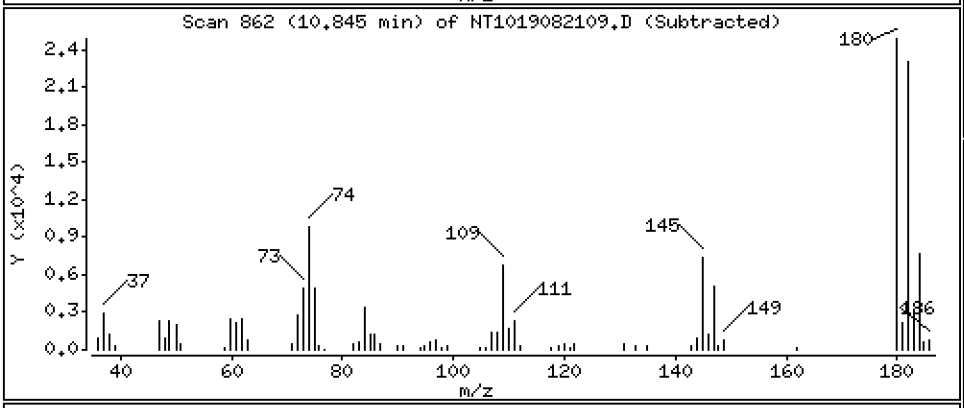
Column phase: ZB-5msi

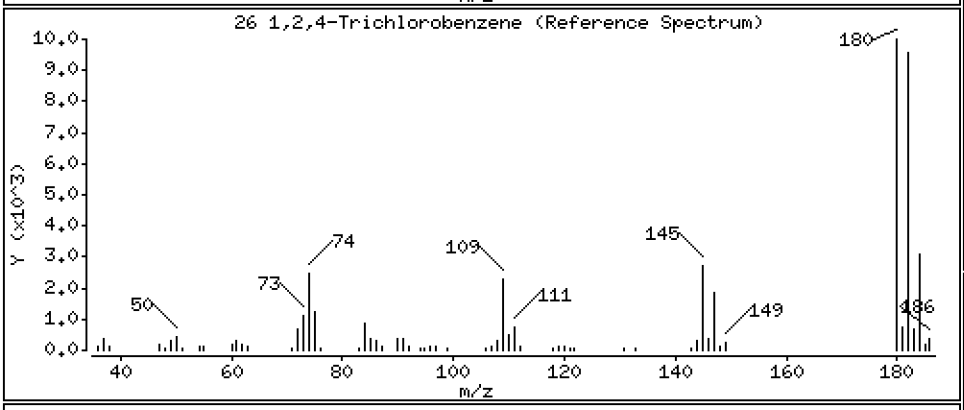
Column diameter: 0.25

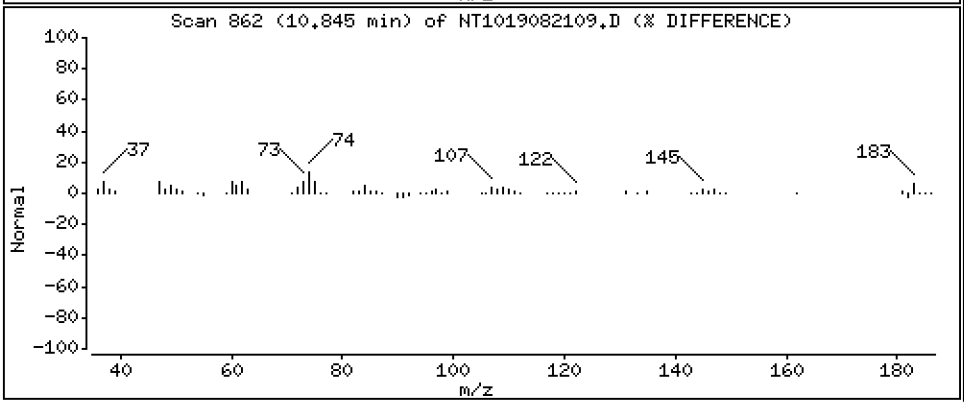
26 1,2,4-Trichlorobenzene

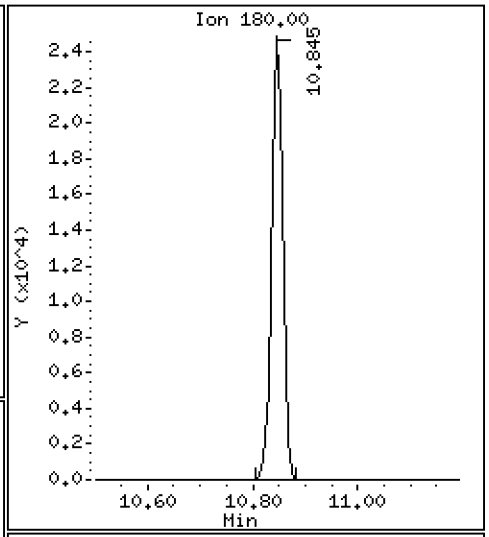
Concentration: 4.846 ug/mL

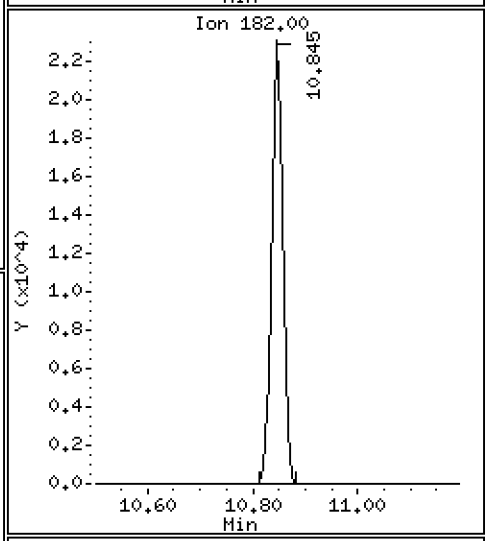


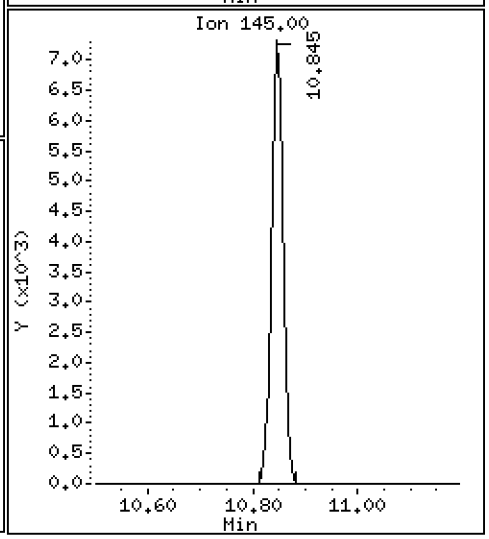












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

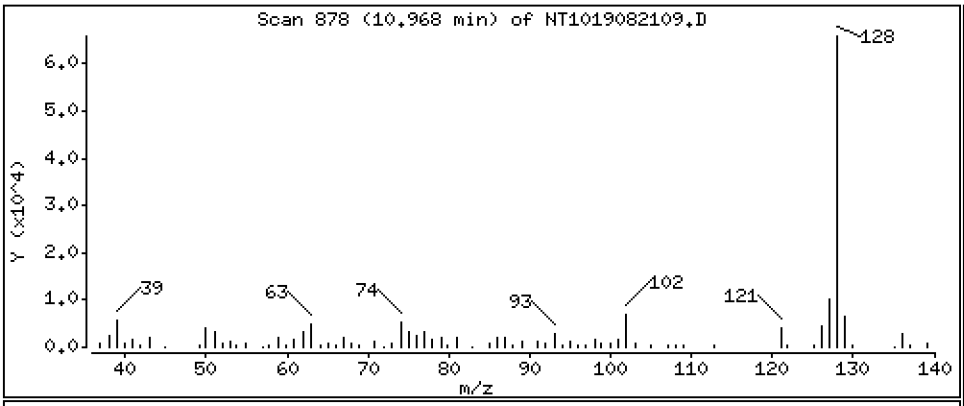
Operator: YZ

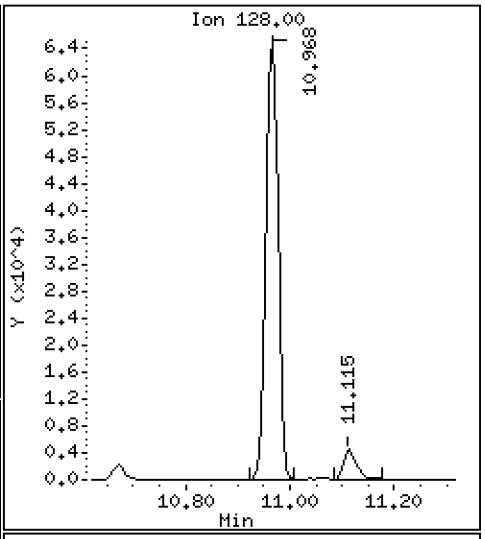
Column phase: ZB-5msi

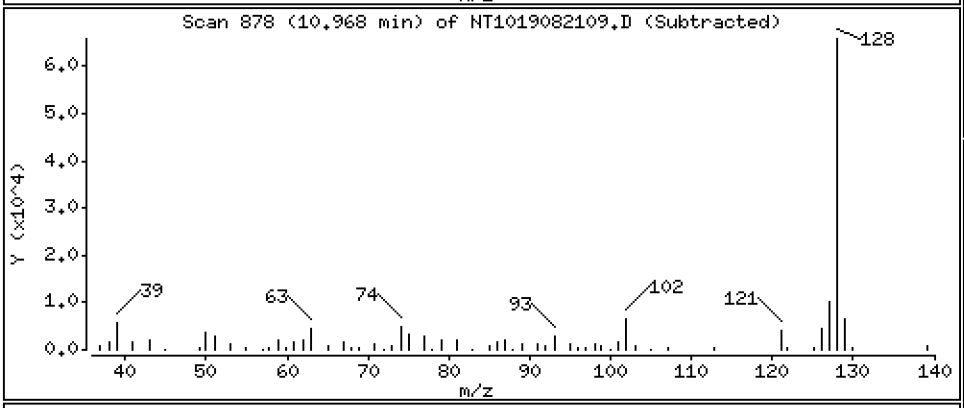
Column diameter: 0.25

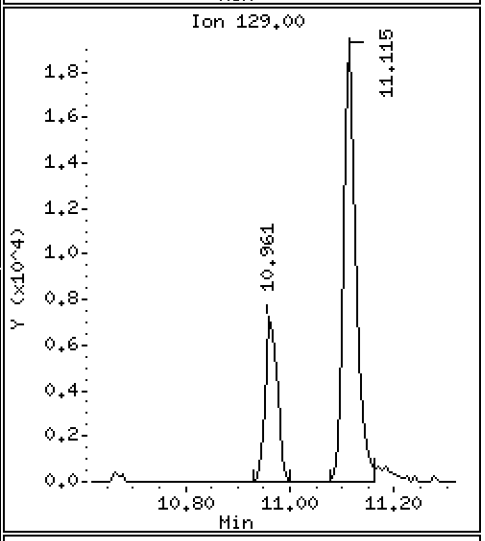
28 Naphthalene

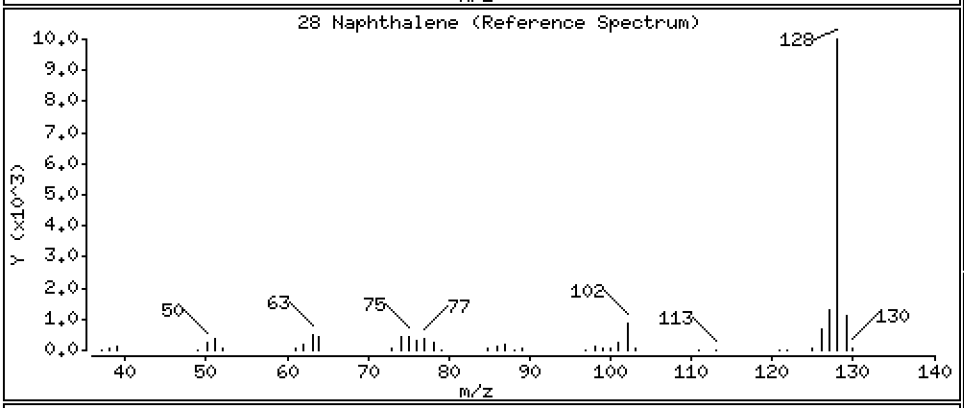
Concentration: 4.376 ug/mL

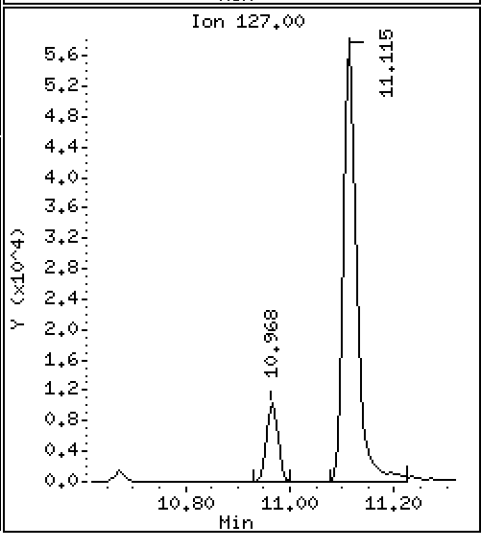


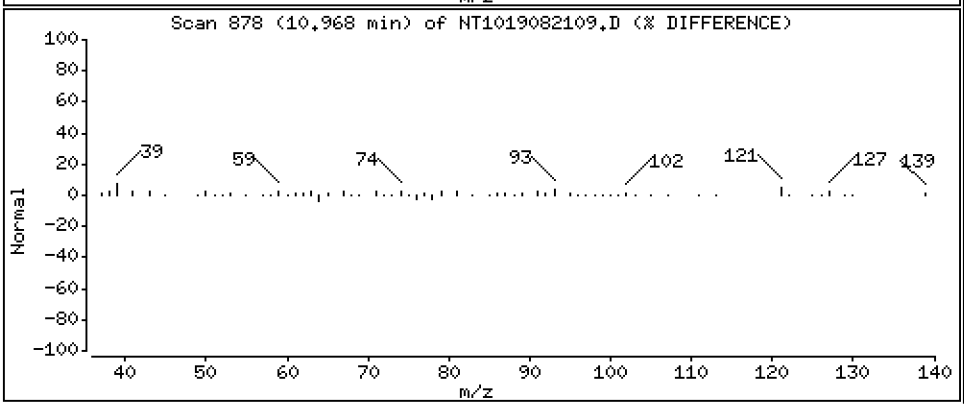












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

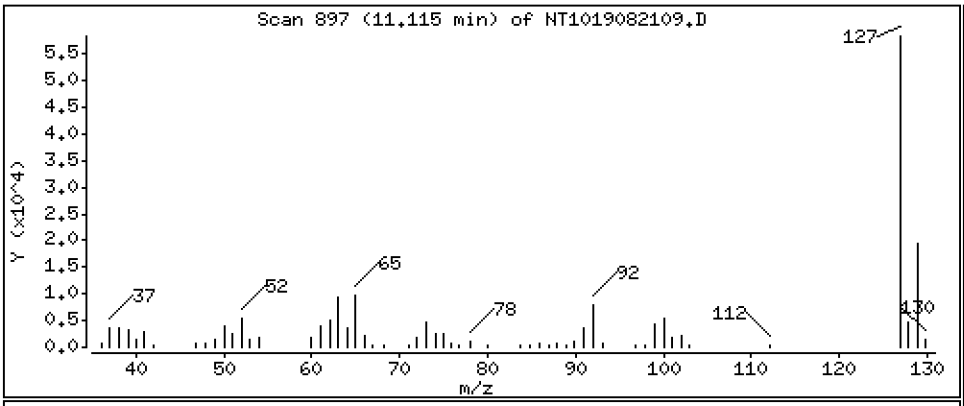
Operator: YZ

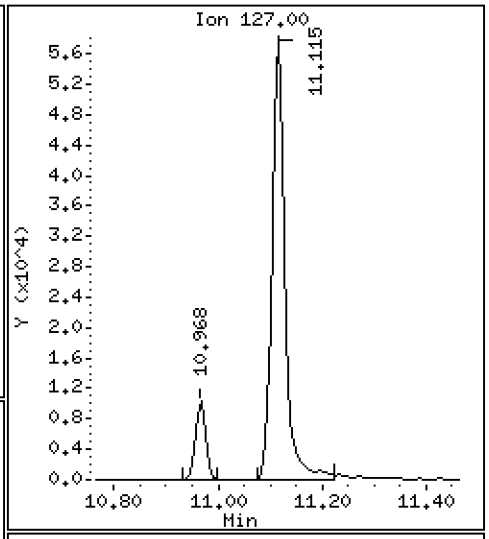
Column phase: ZB-5msi

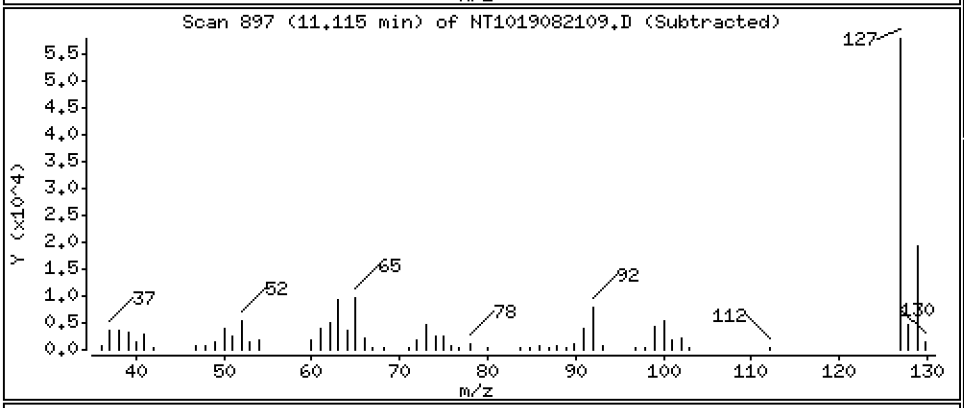
Column diameter: 0.25

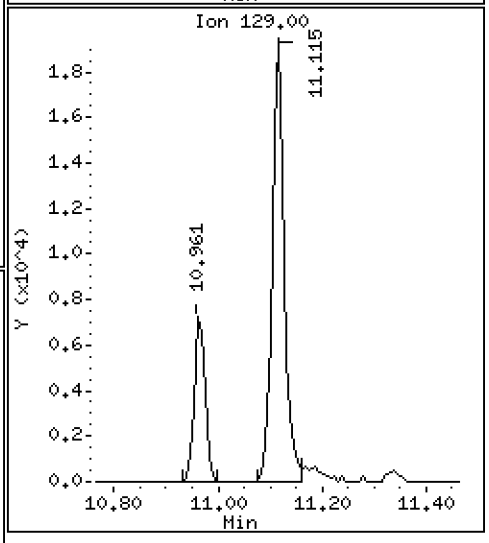
29 4-Chloroaniline

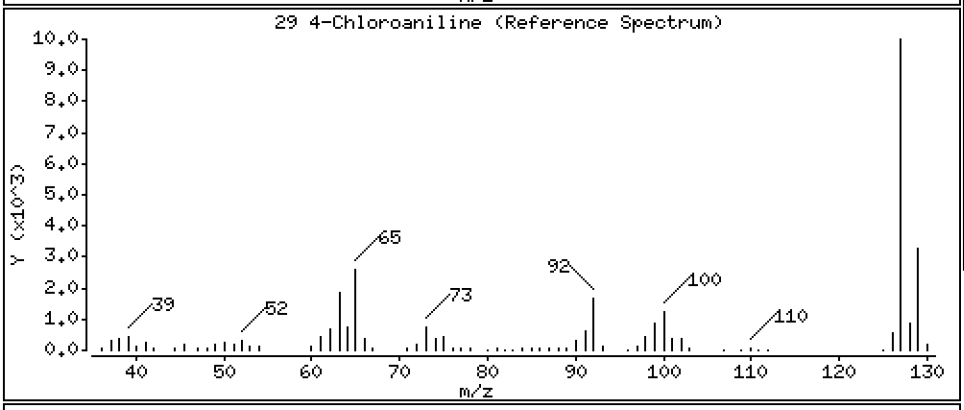
Concentration: 11.16 ug/mL

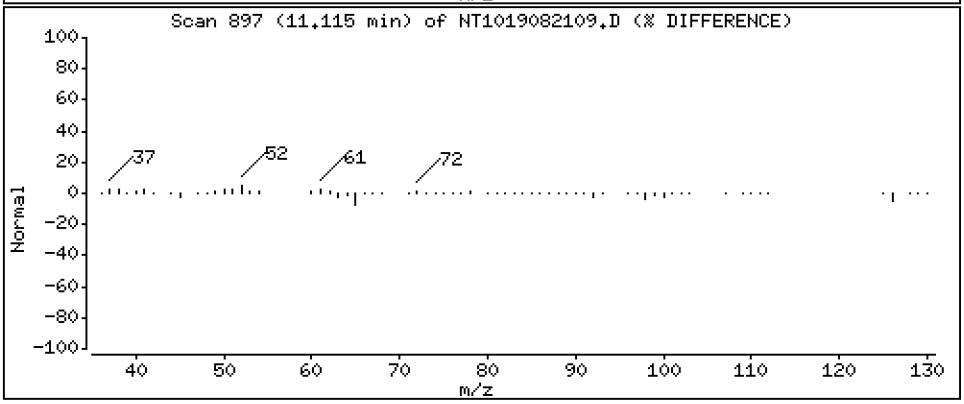












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

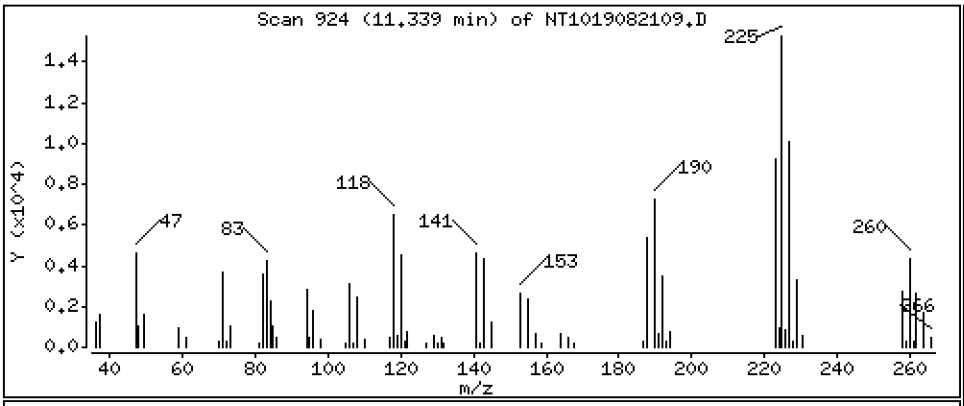
Operator: YZ

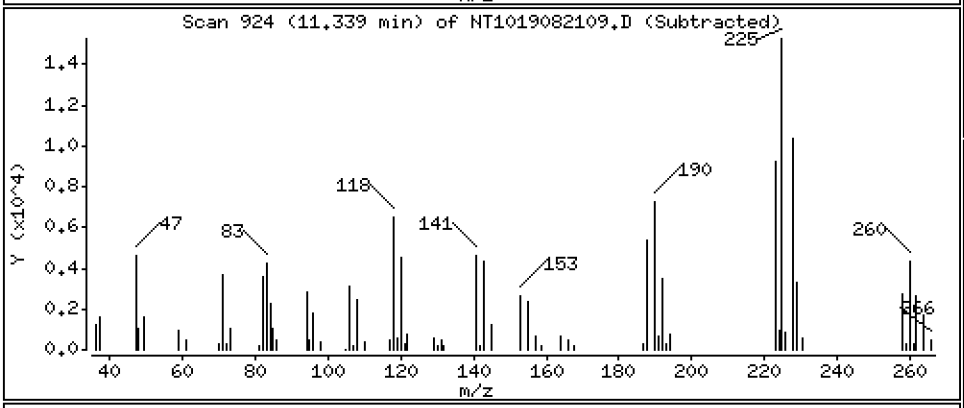
Column phase: ZB-5msi

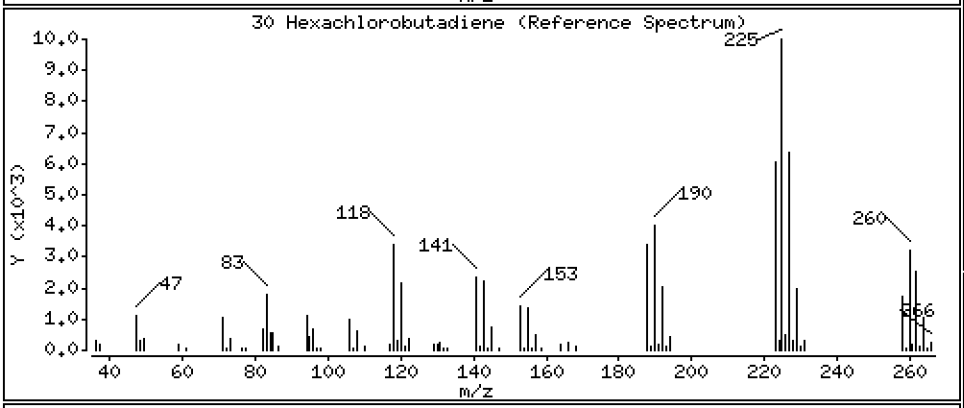
Column diameter: 0.25

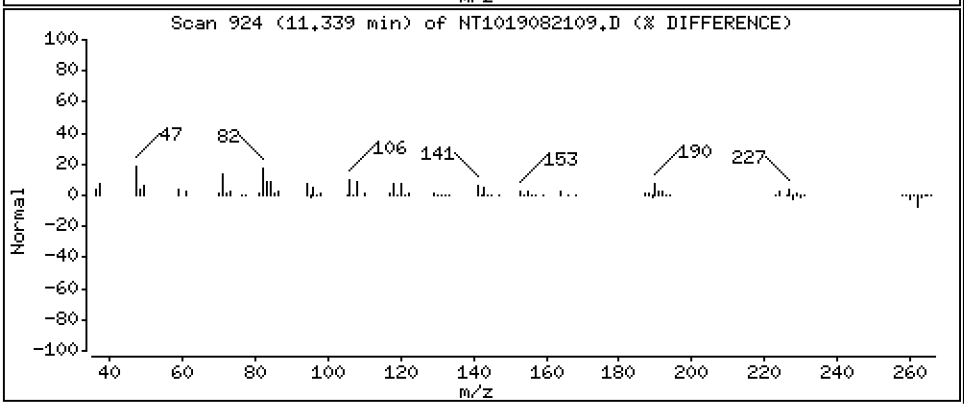
30 Hexachlorobutadiene

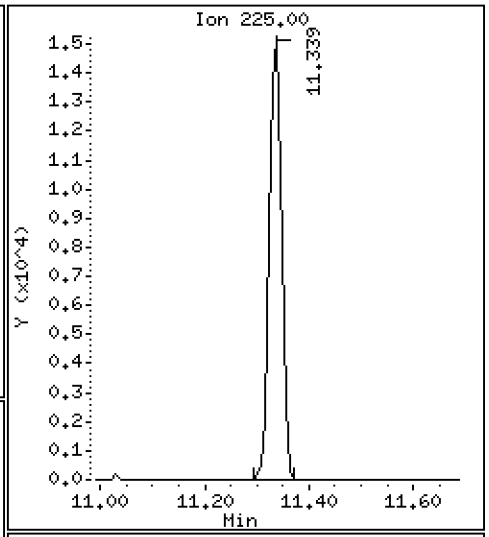
Concentration: 4.896 ug/mL

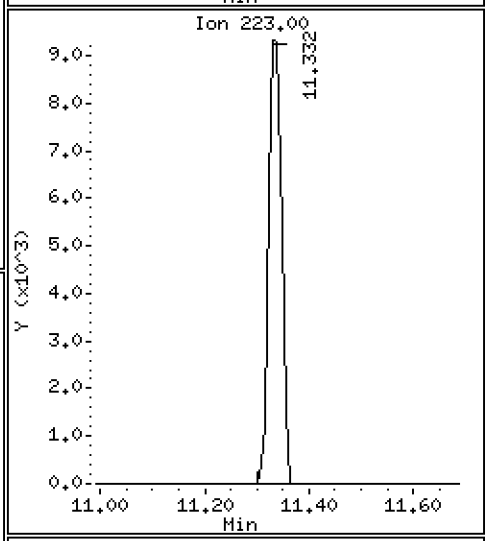


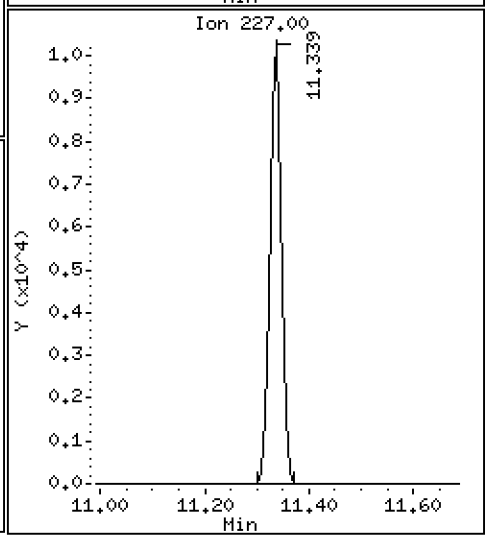












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

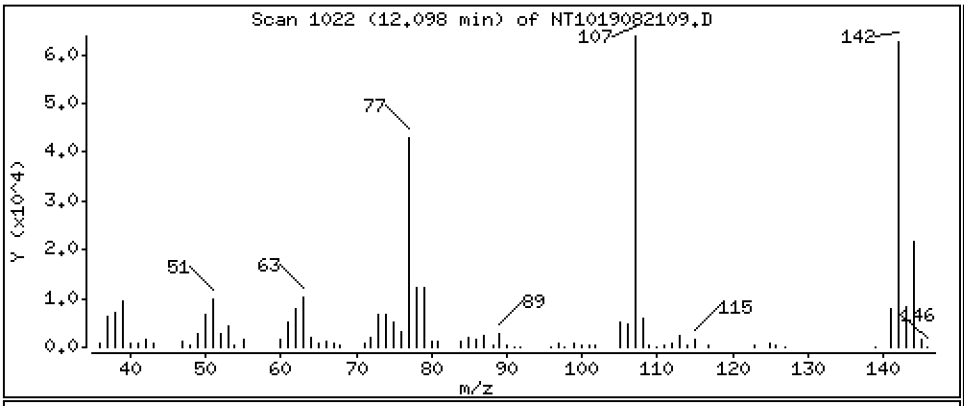
Operator: YZ

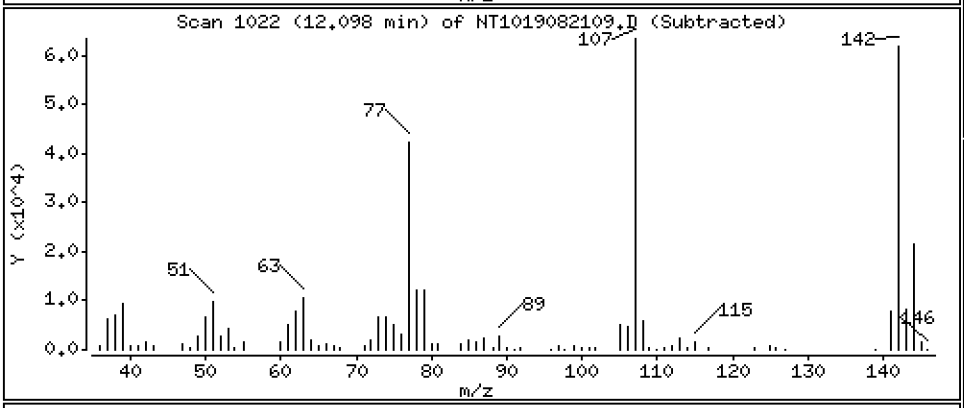
Column phase: ZB-5msi

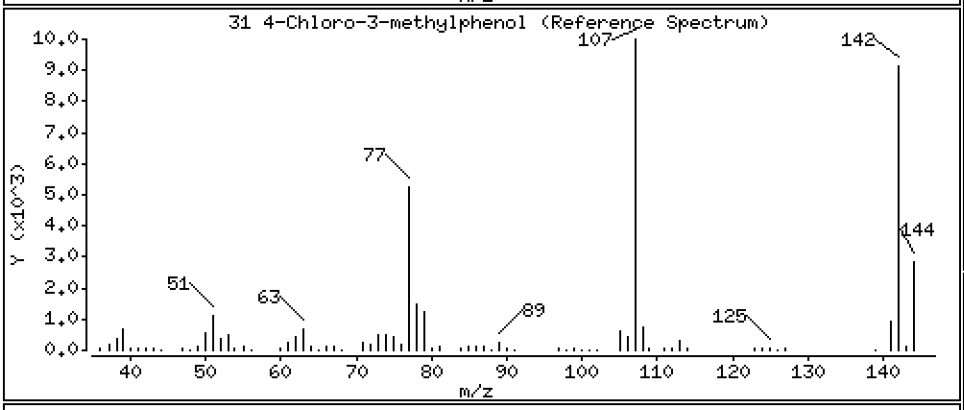
Column diameter: 0.25

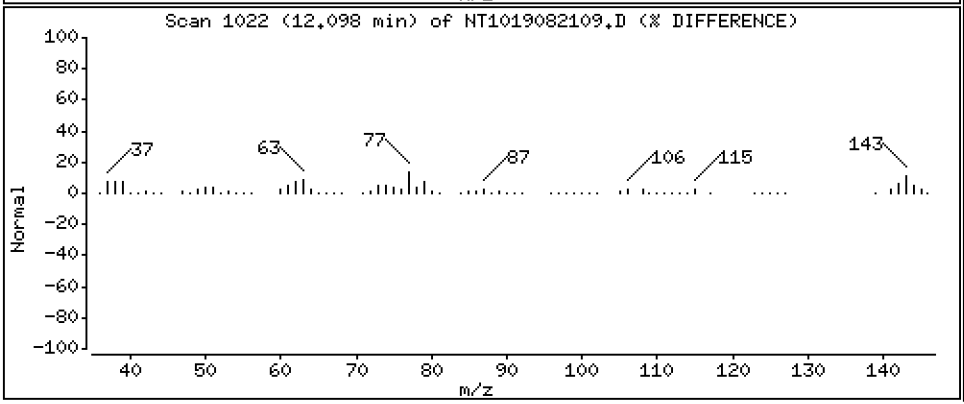
31 4-Chloro-3-methylphenol

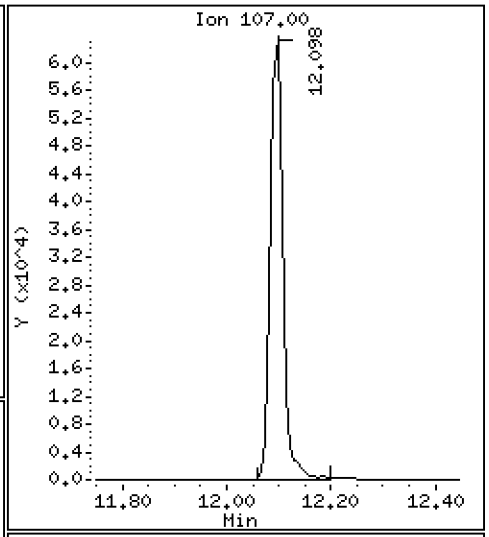
Concentration: 14.19 ug/mL

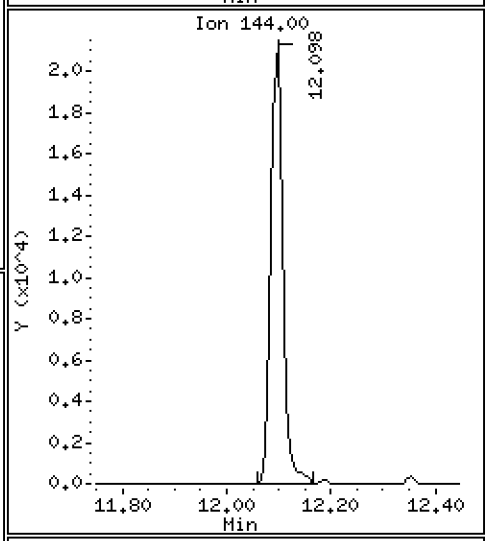


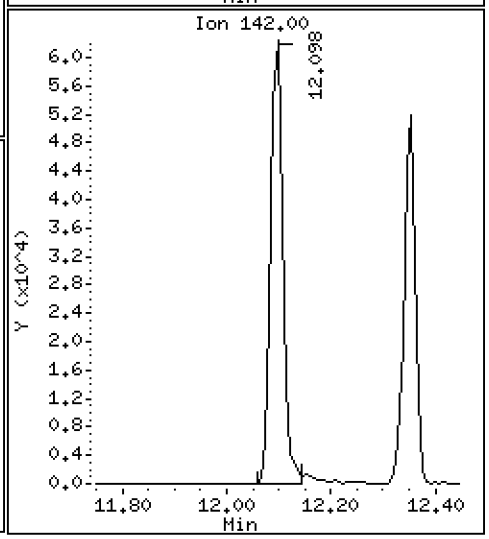












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

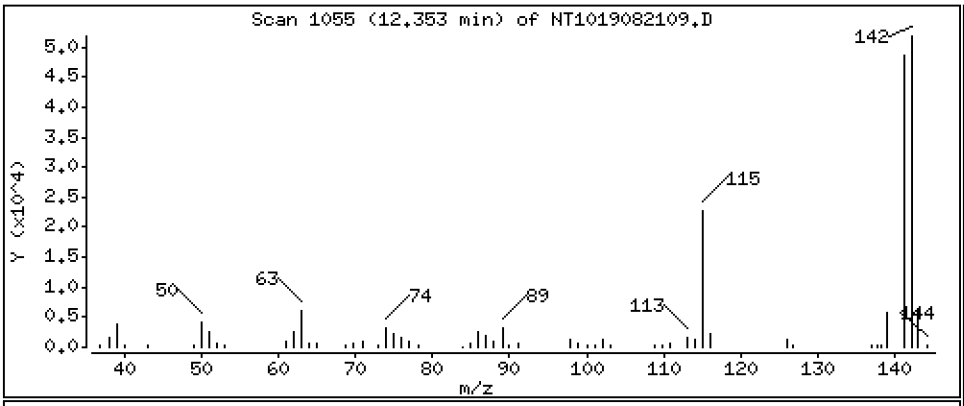
Operator: YZ

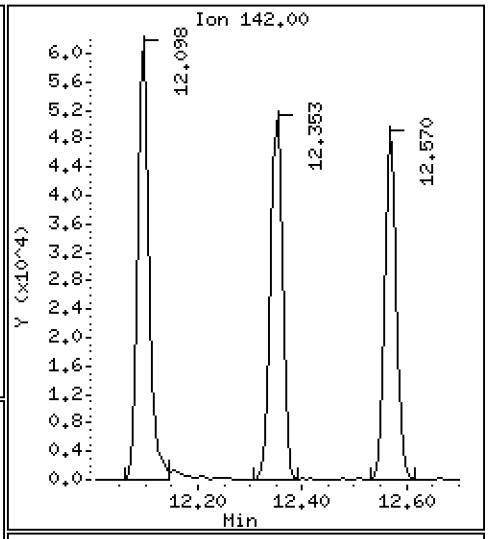
Column phase: ZB-5msi

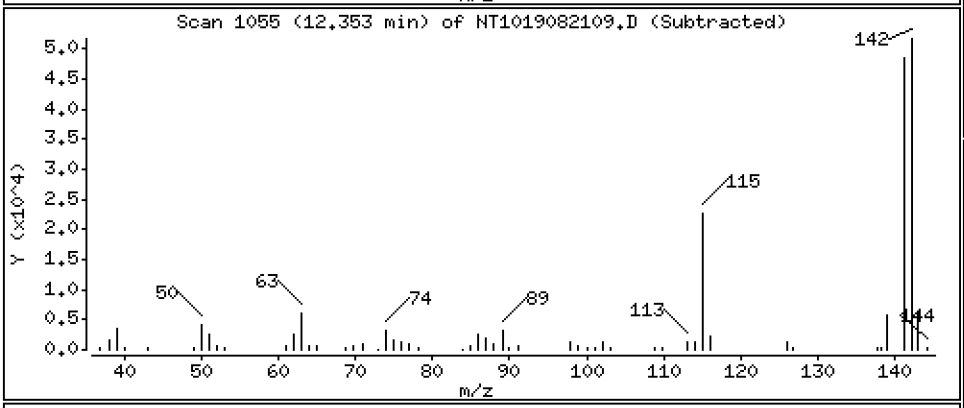
Column diameter: 0.25

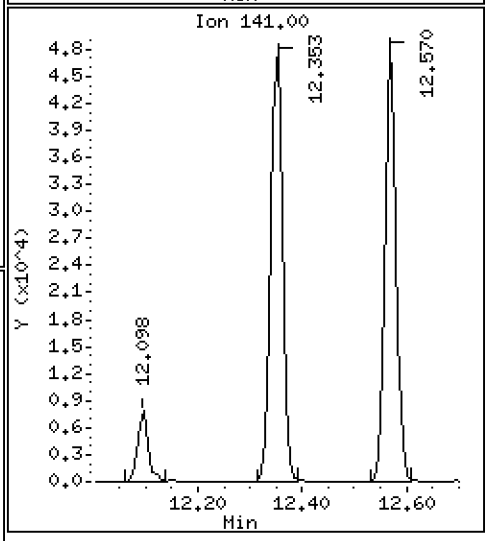
32 2-Methylnaphthalene

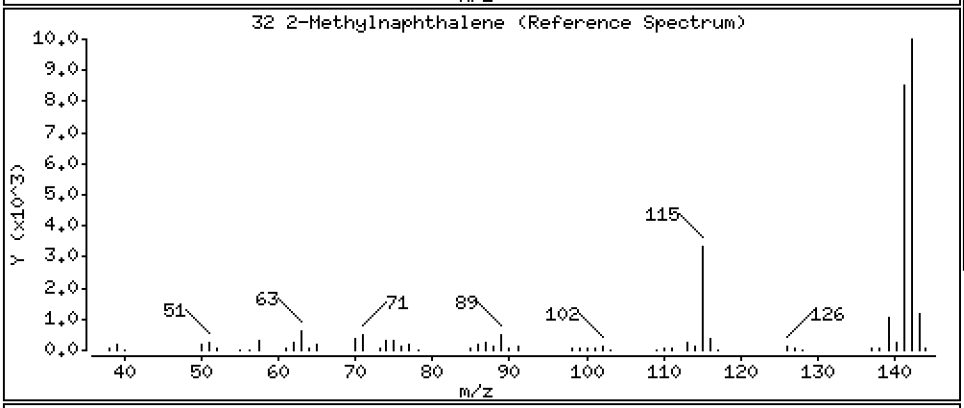
Concentration: 4.007 ug/mL

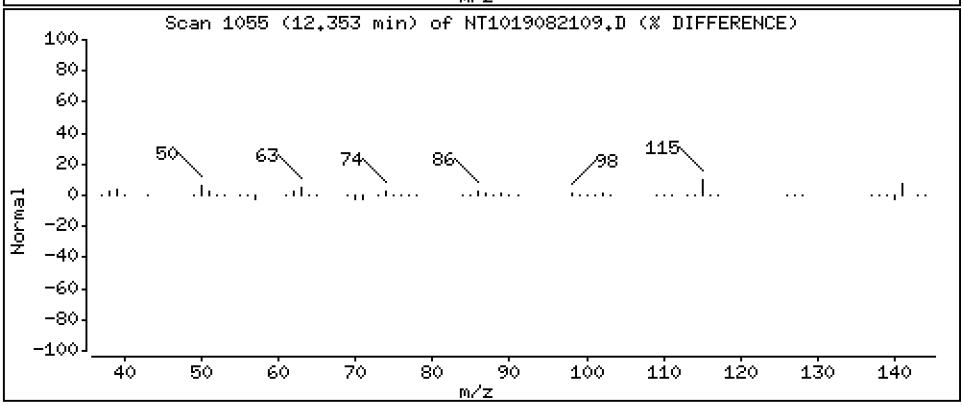












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

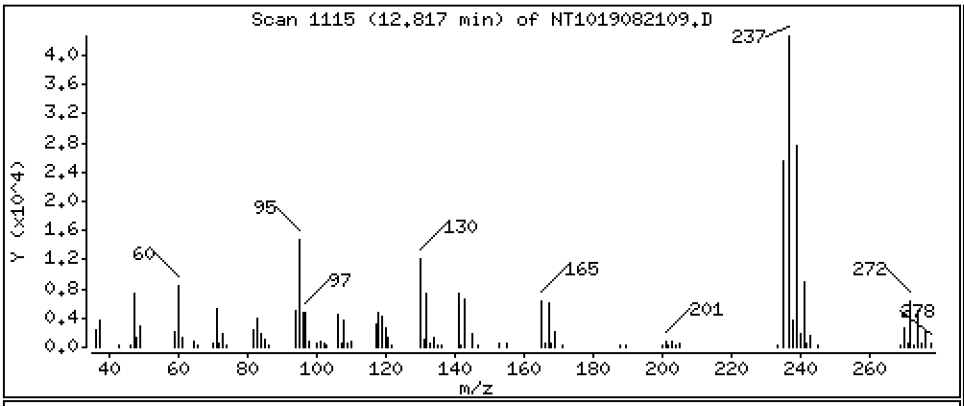
Operator: YZ

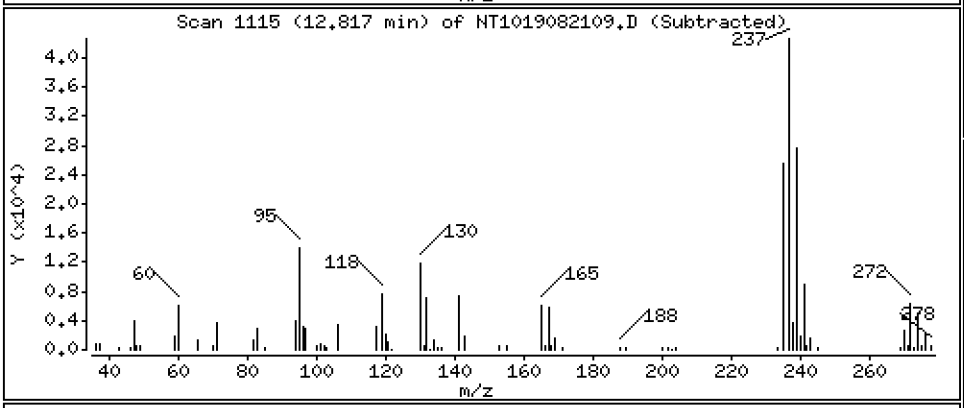
Column phase: ZB-5msi

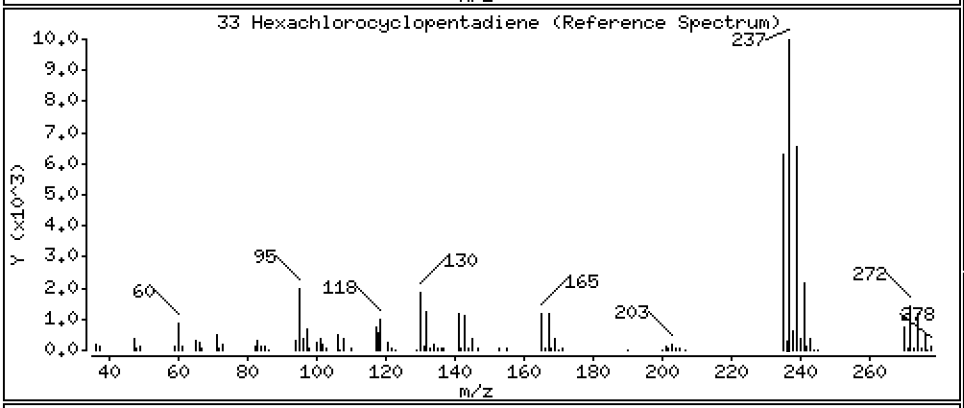
Column diameter: 0.25

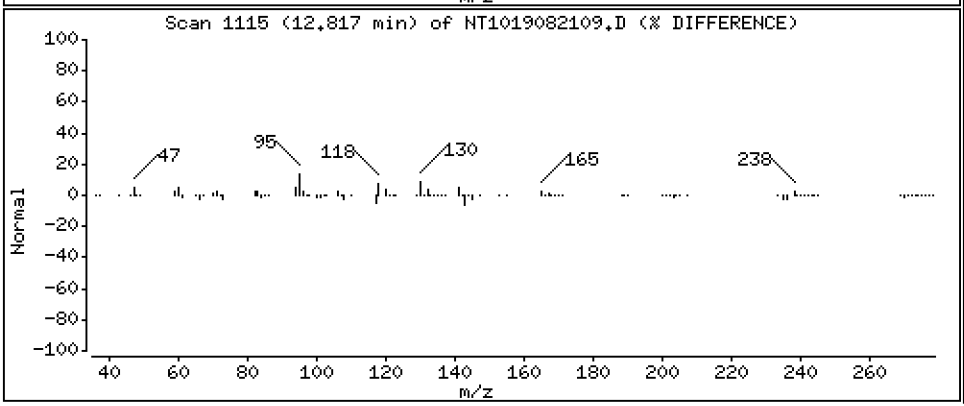
33 Hexachlorocyclopentadiene

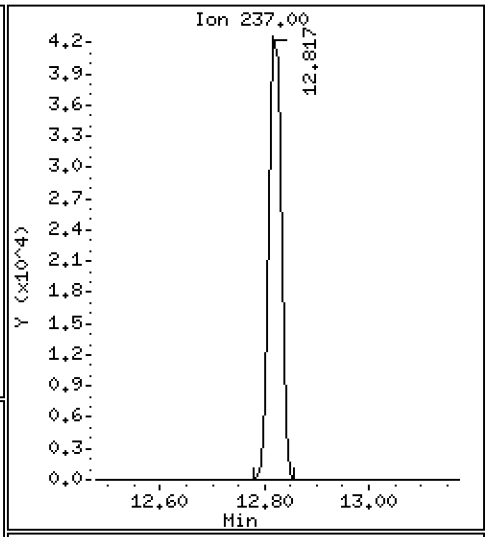
Concentration: 11.79 ug/mL

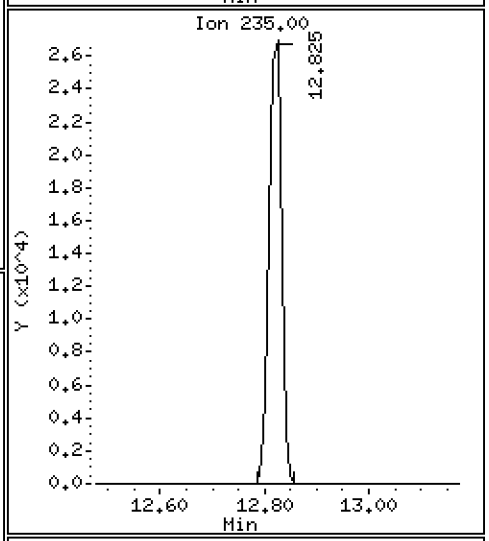


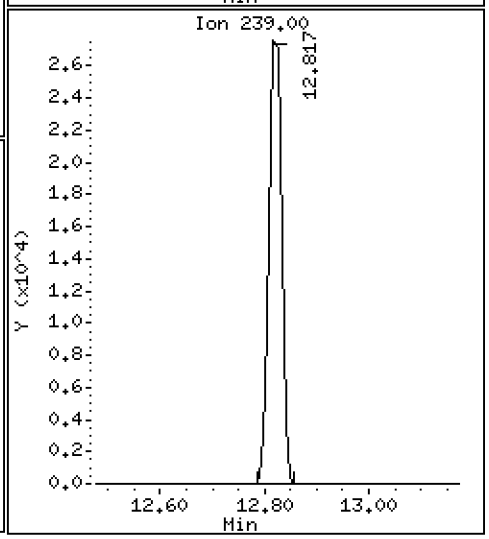












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

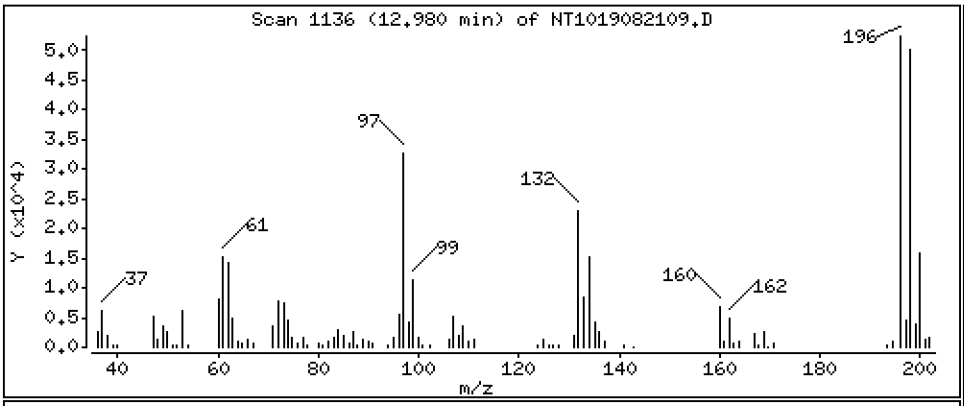
Operator: YZ

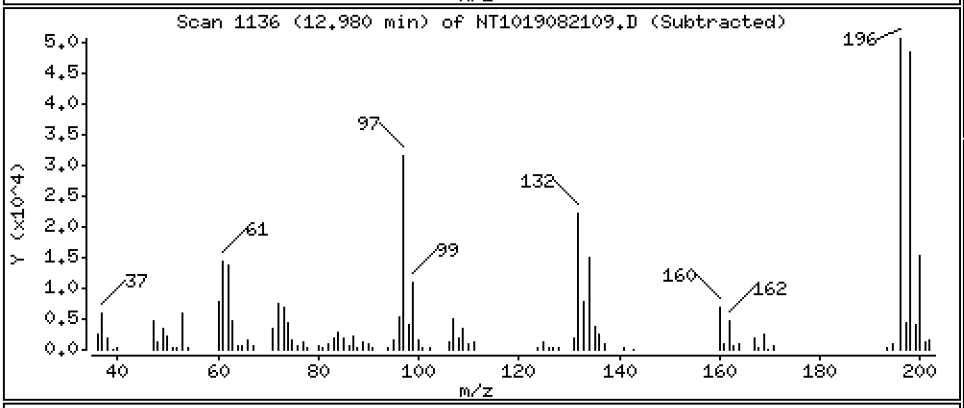
Column phase: ZB-5msi

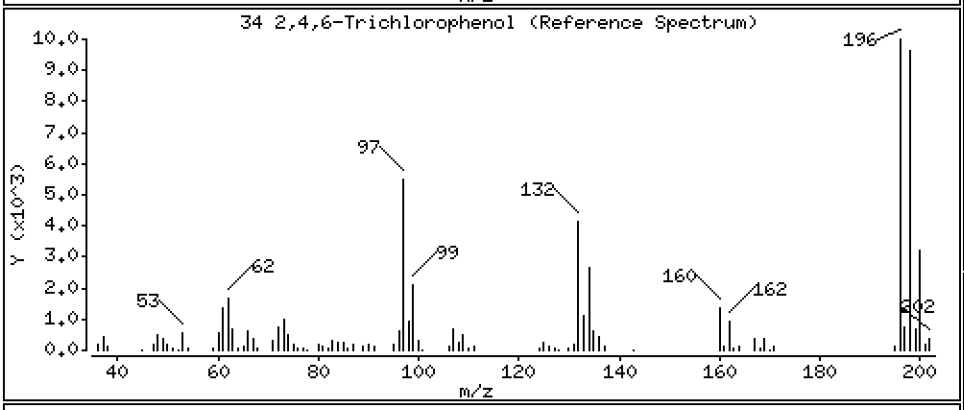
Column diameter: 0.25

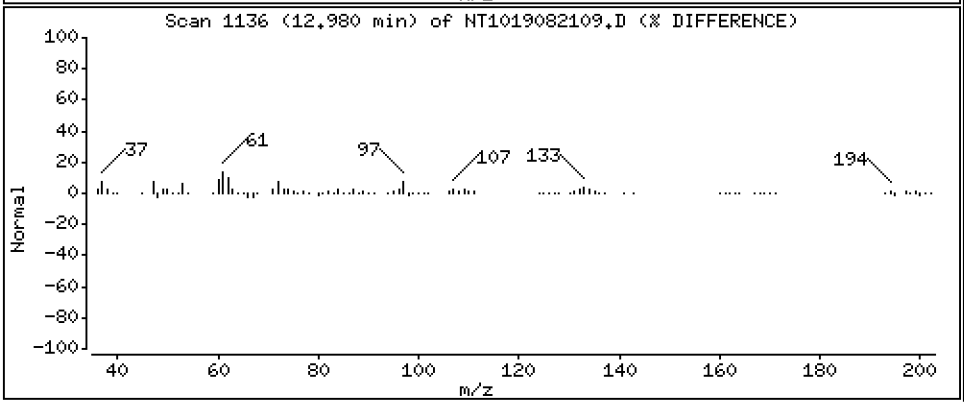
34 2,4,6-Trichlorophenol

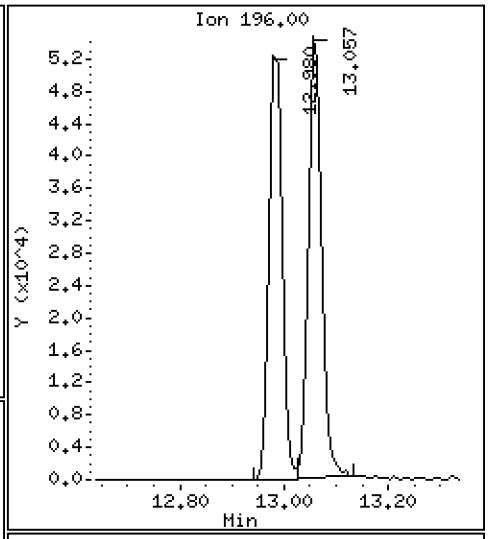
Concentration: 15.68 ug/mL

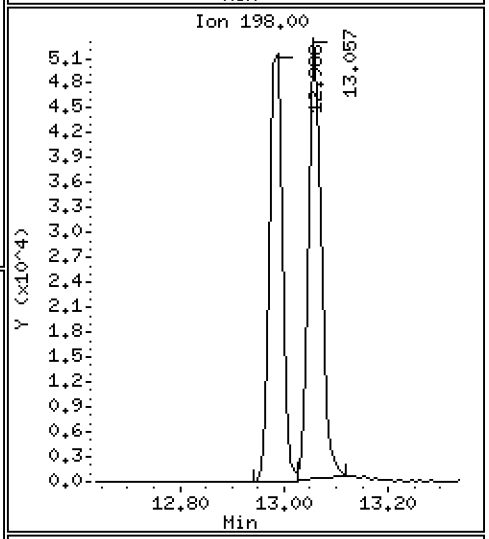


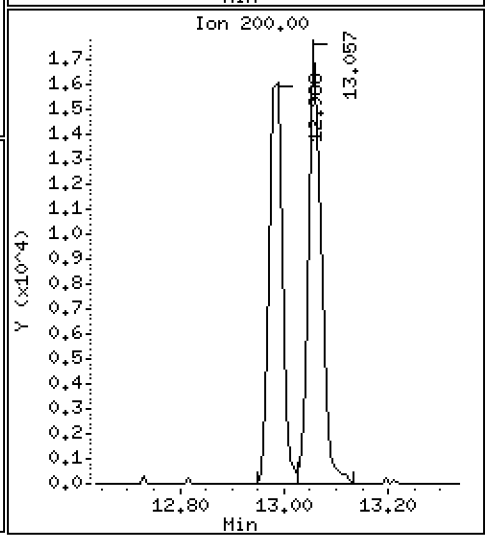












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

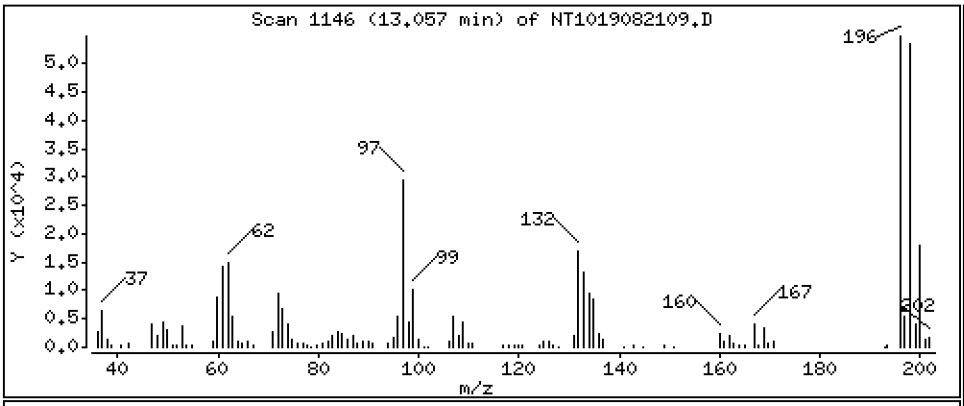
Operator: YZ

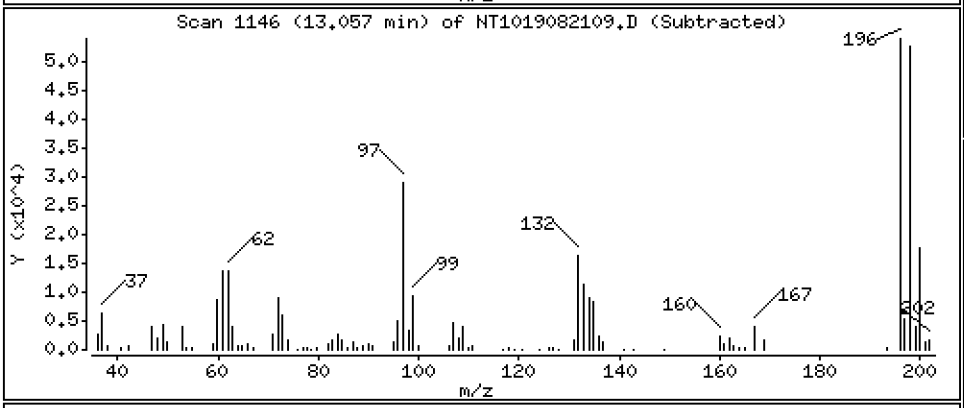
Column phase: ZB-5msi

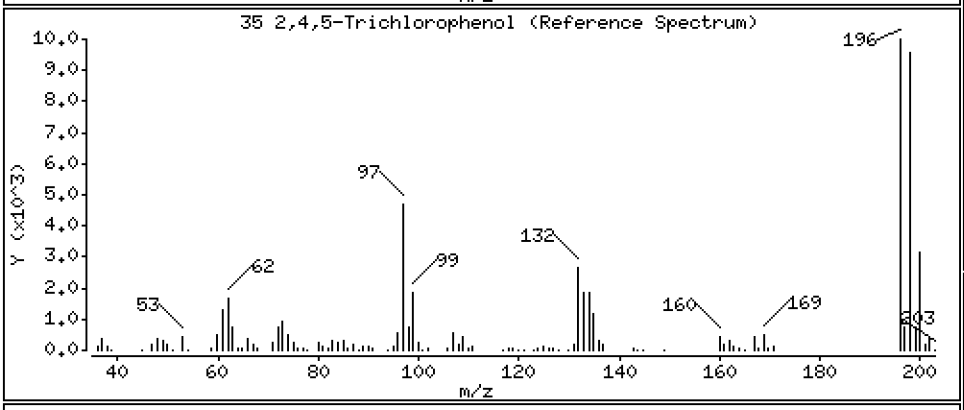
Column diameter: 0.25

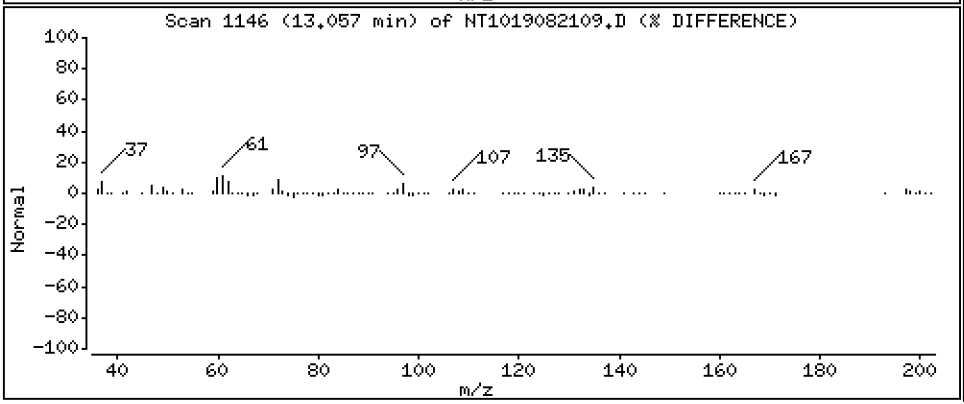
35 2,4,5-Trichlorophenol

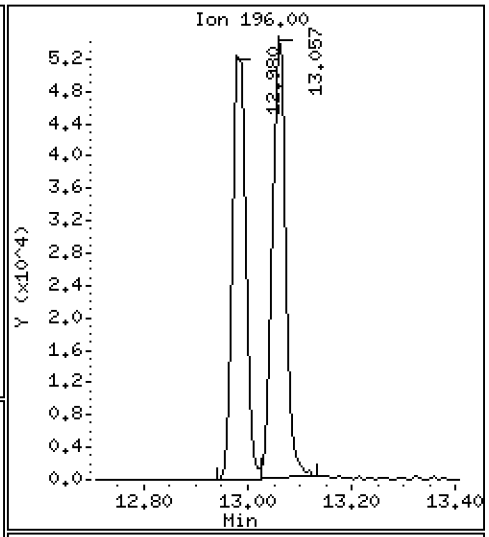
Concentration: 16.07 ug/mL

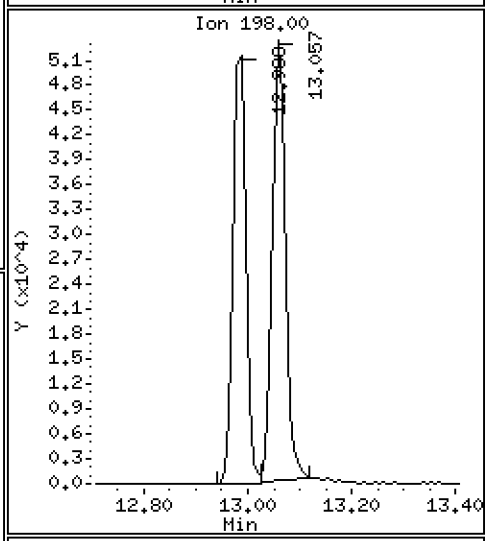


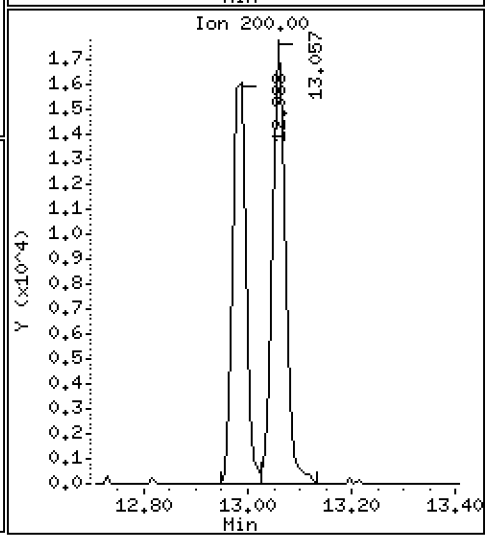












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

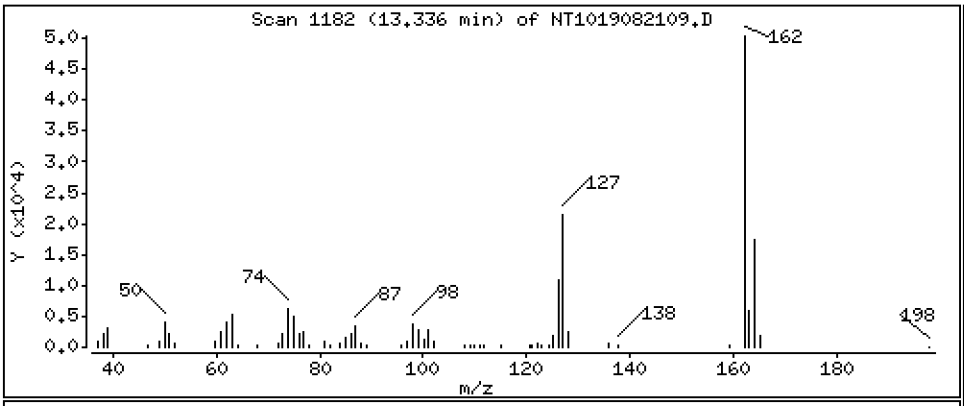
Operator: YZ

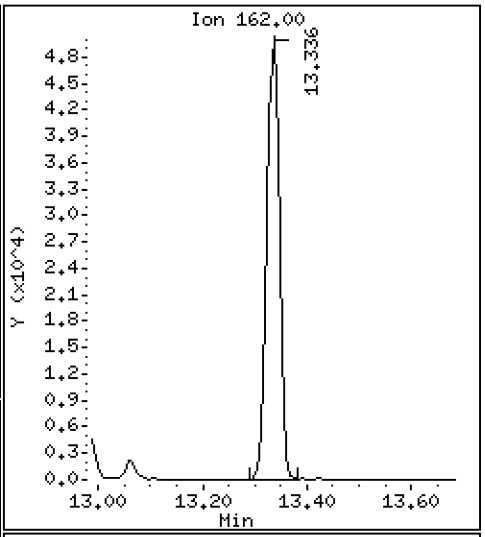
Column phase: ZB-5msi

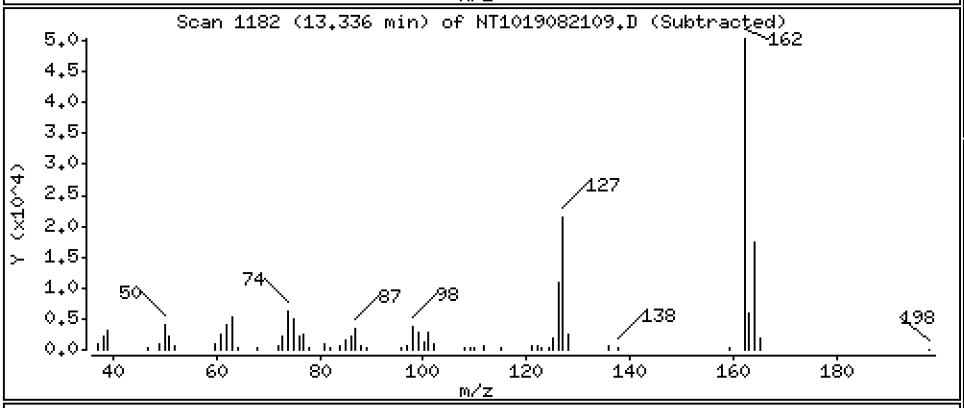
Column diameter: 0.25

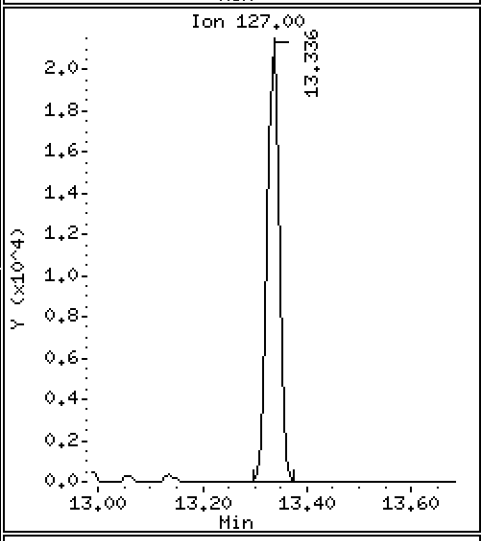
37 2-Chloronaphthalene

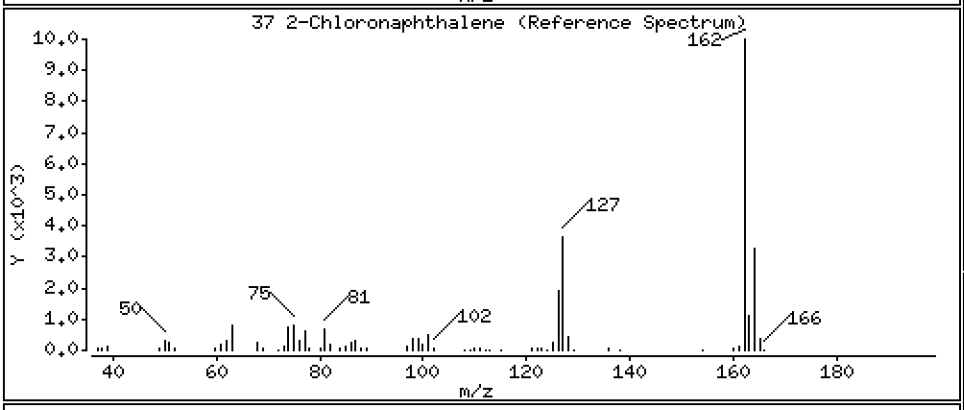
Concentration: 4.492 ug/mL

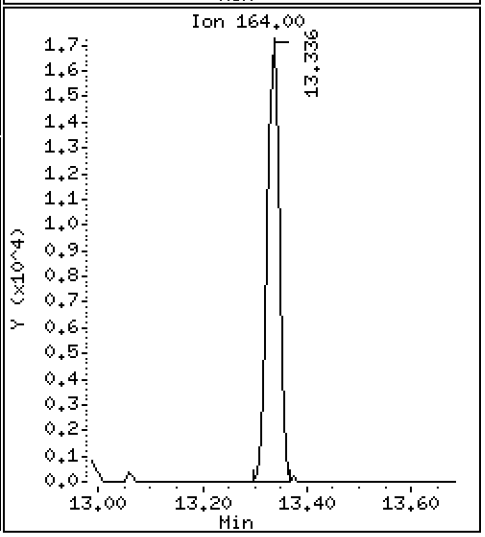


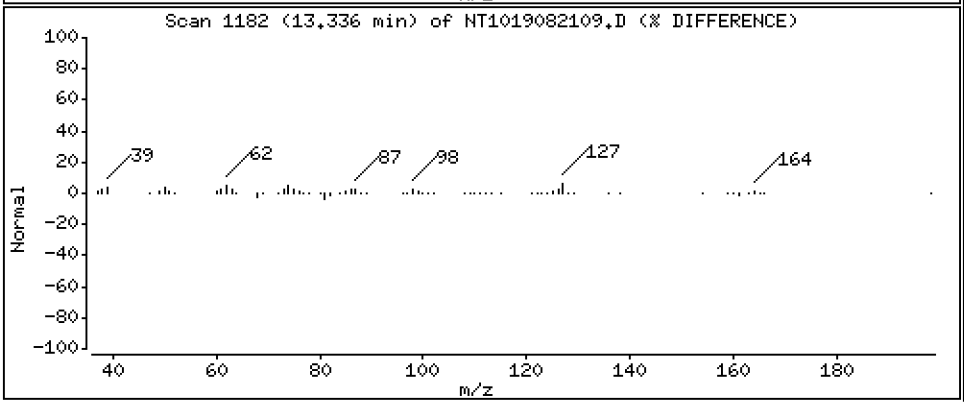












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

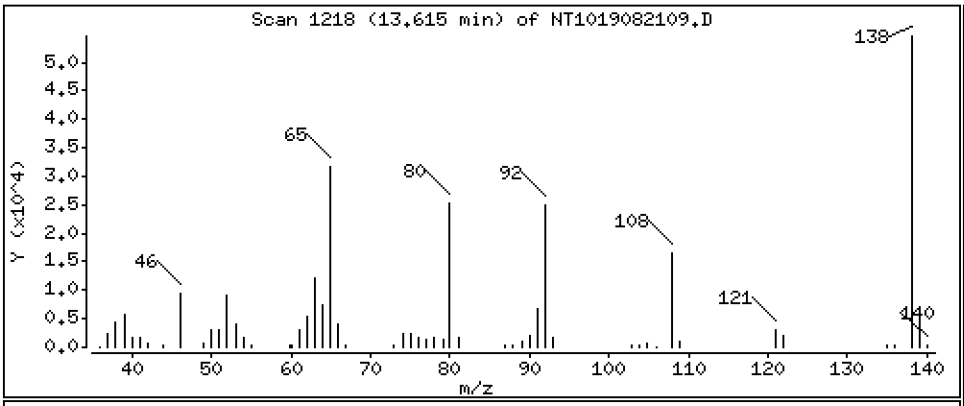
Operator: YZ

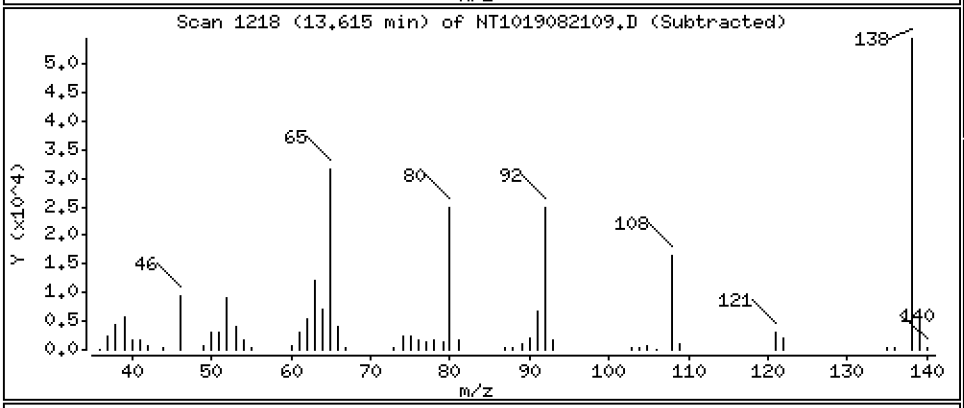
Column phase: ZB-5msi

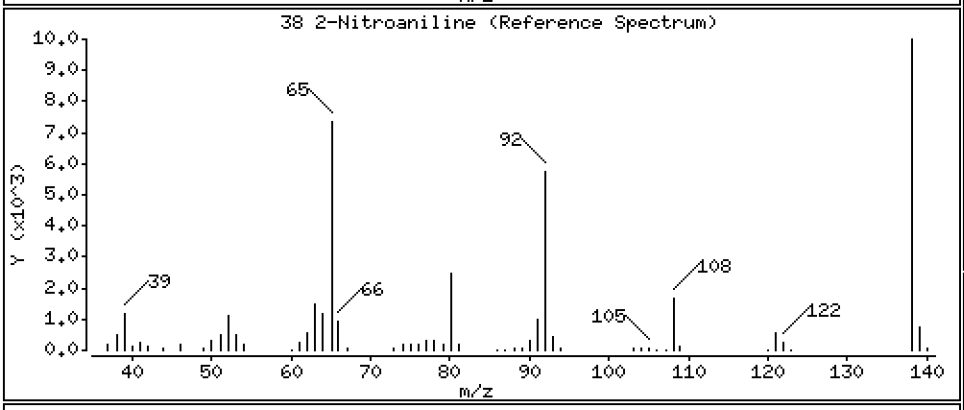
Column diameter: 0.25

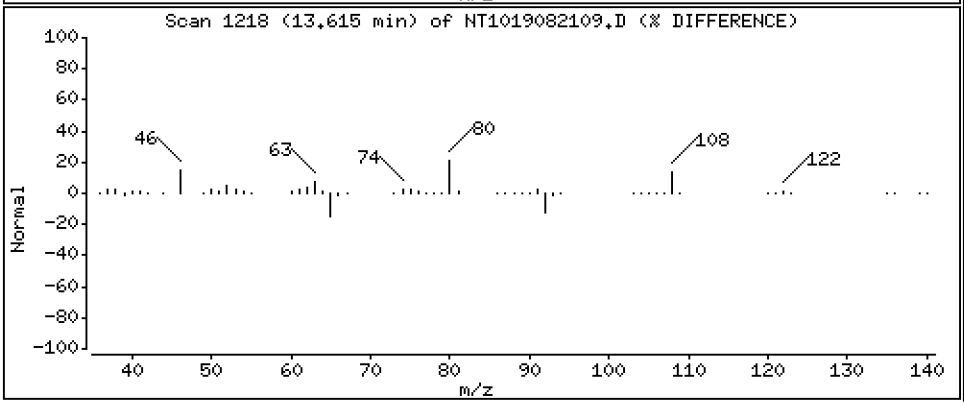
38 2-Nitroaniline

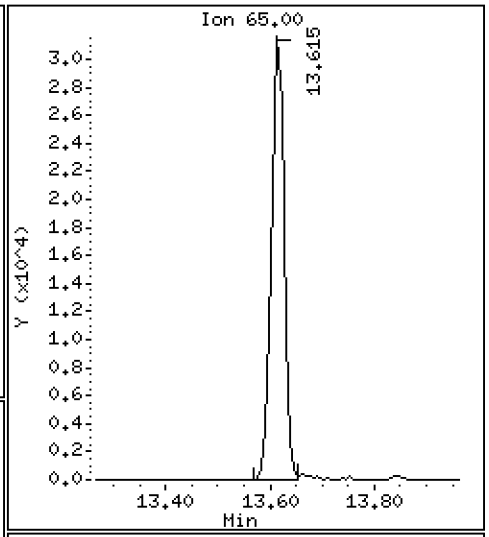
Concentration: 13.12 ug/mL

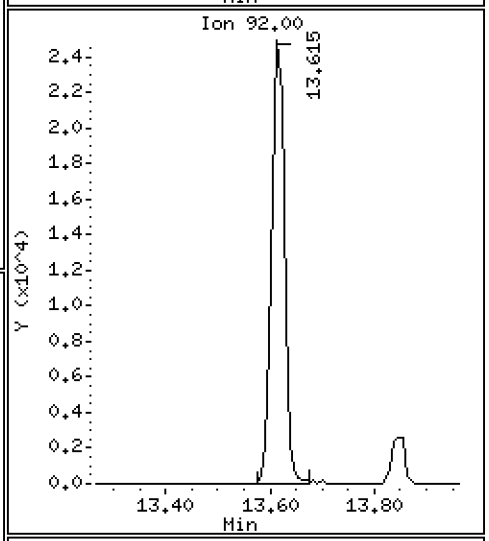


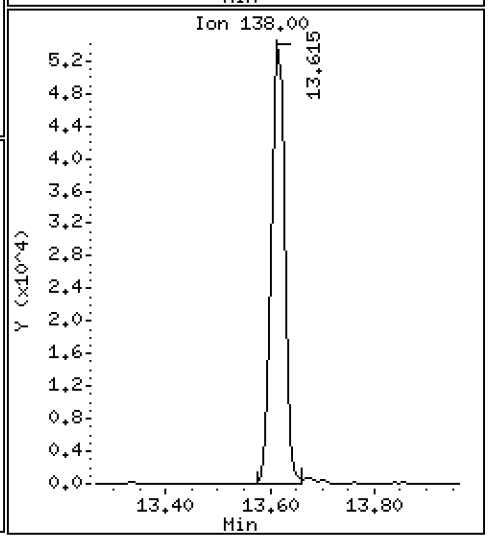












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

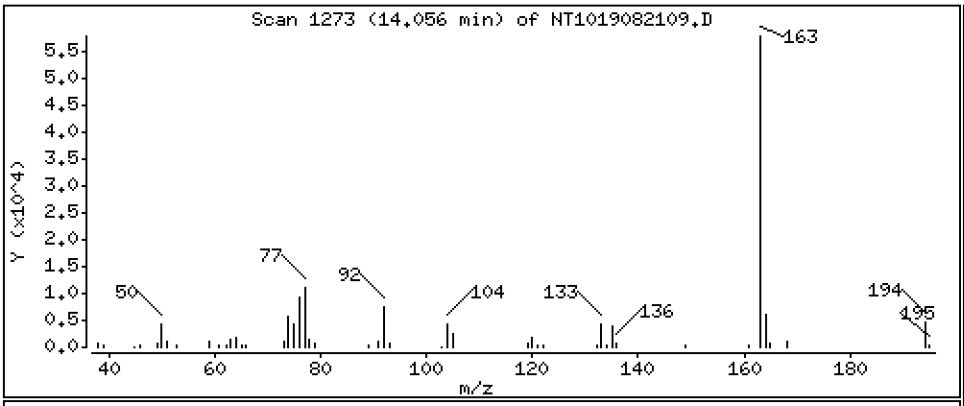
Operator: YZ

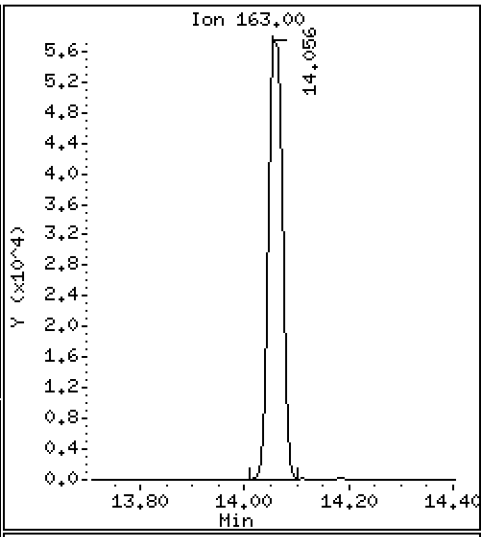
Column phase: ZB-5msi

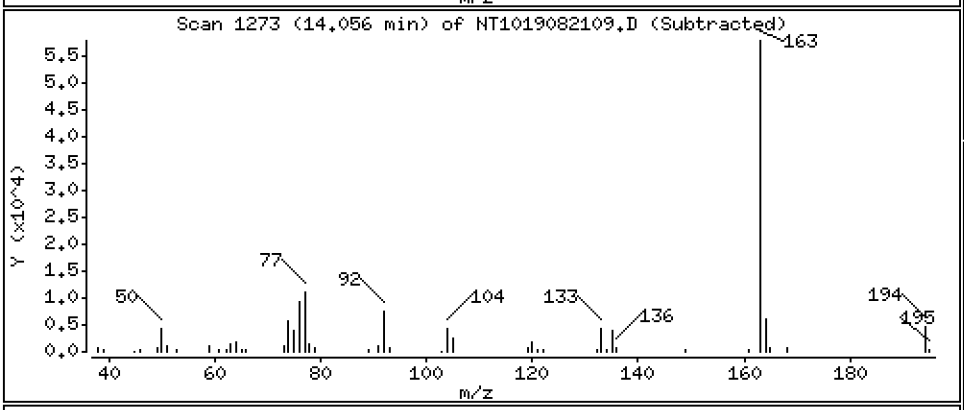
Column diameter: 0.25

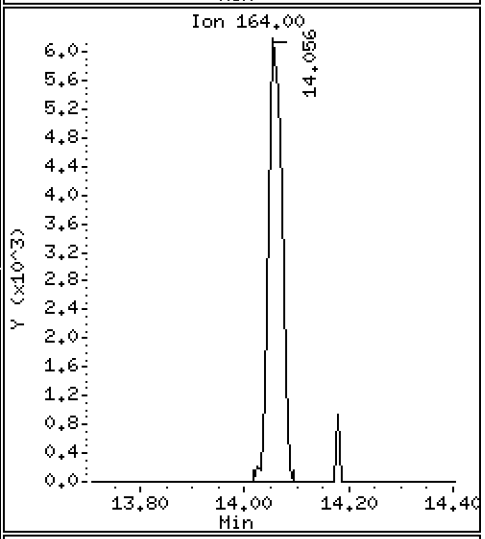
39 Dimethylphthalate

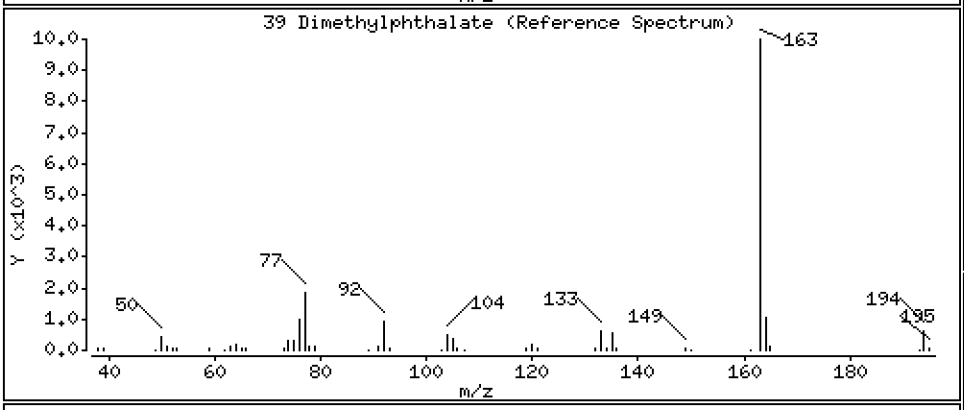
Concentration: 5.023 ug/mL

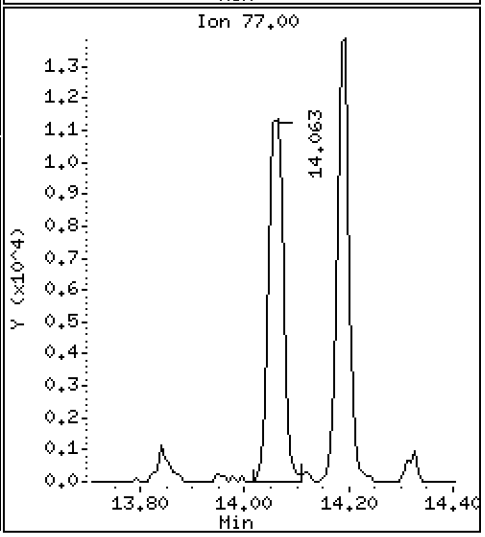


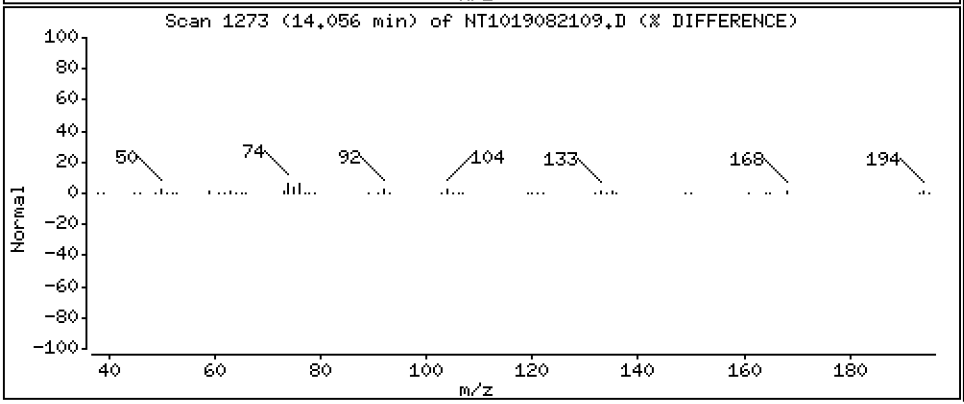












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

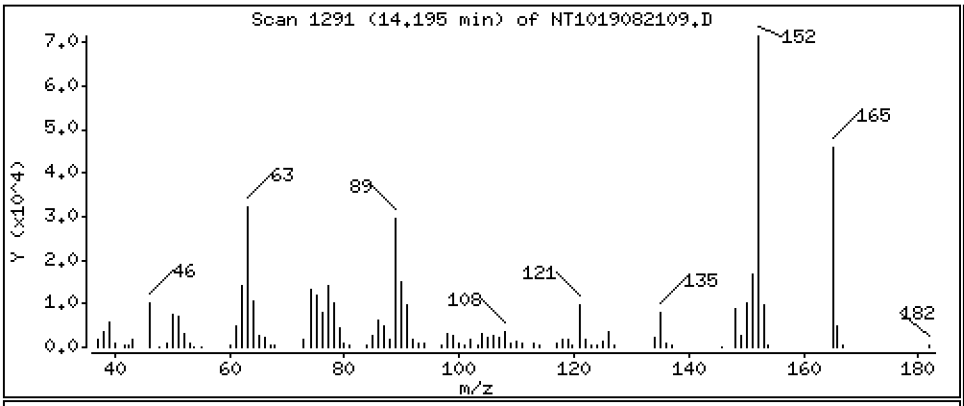
Operator: YZ

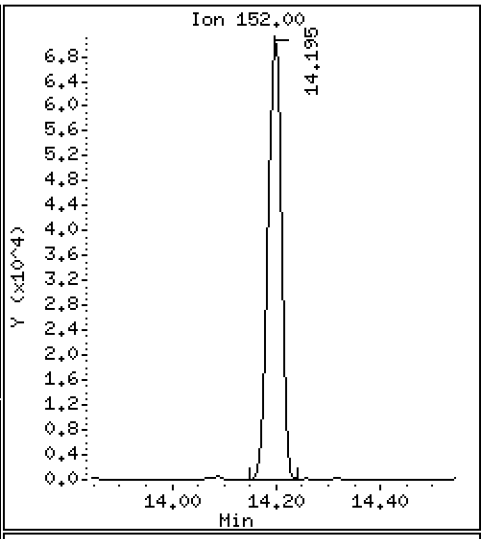
Column phase: ZB-5msi

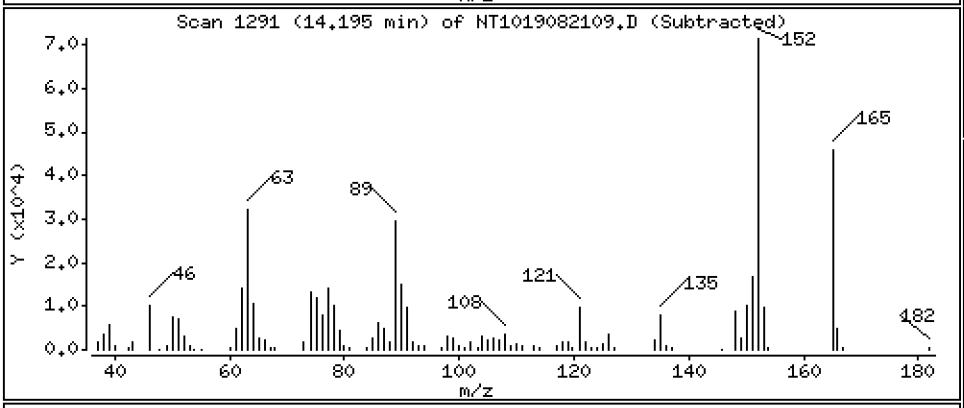
Column diameter: 0.25

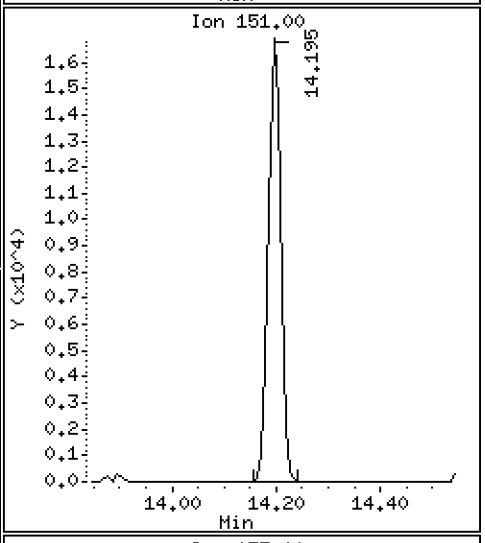
40 Acenaphthylene

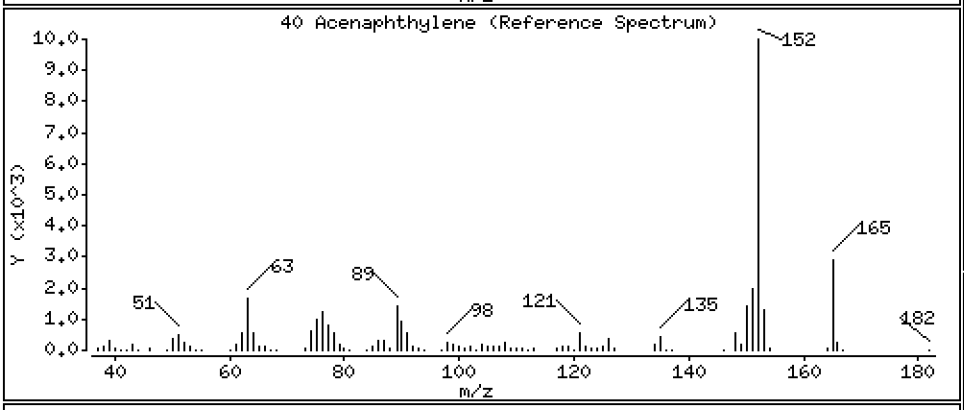
Concentration: 4.606 ug/mL

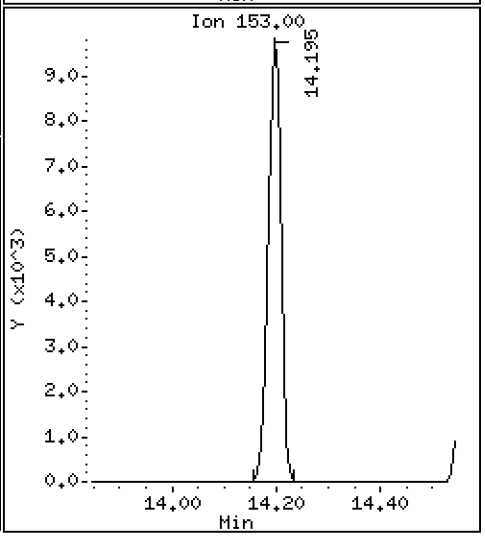


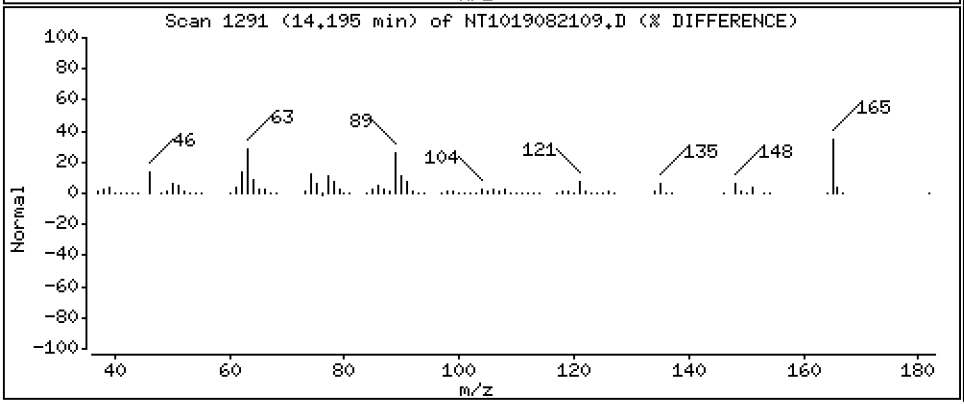












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

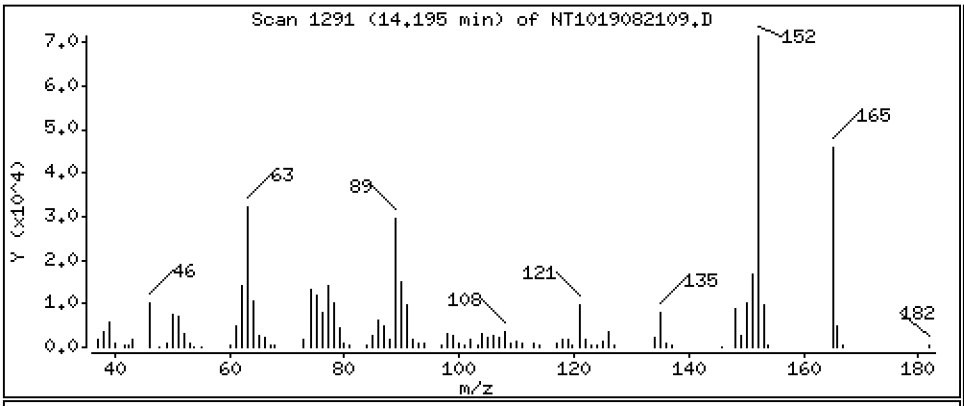
Operator: YZ

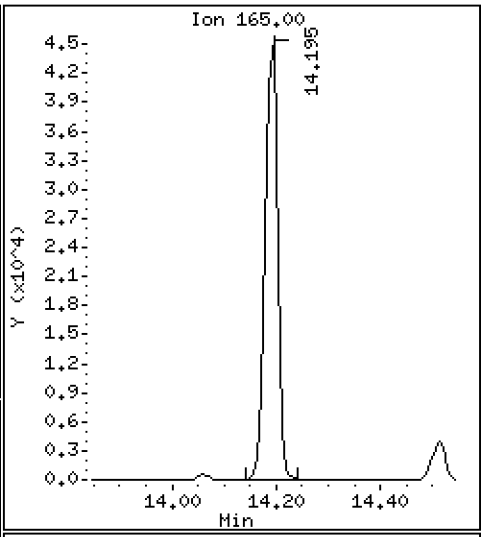
Column phase: ZB-5msi

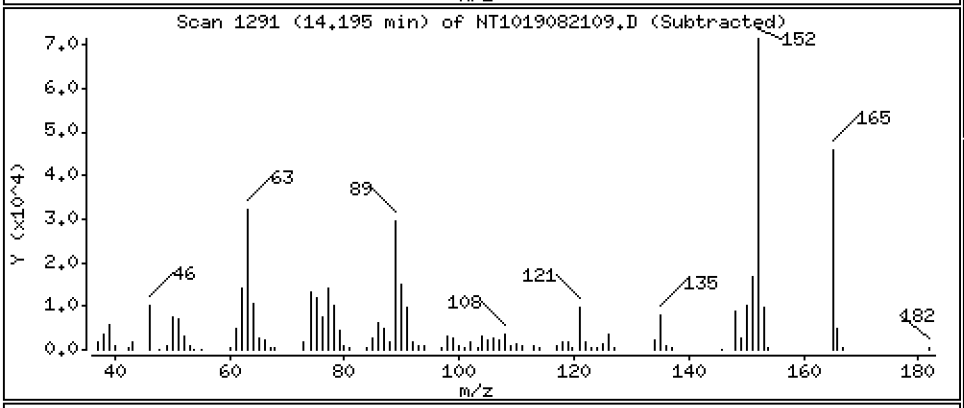
Column diameter: 0.25

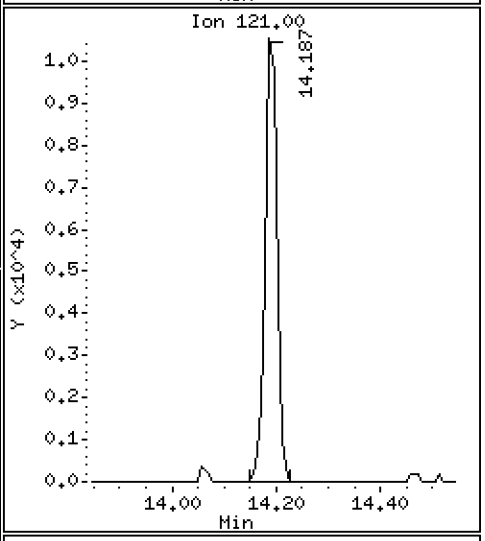
41 2,6-Dinitrotoluene

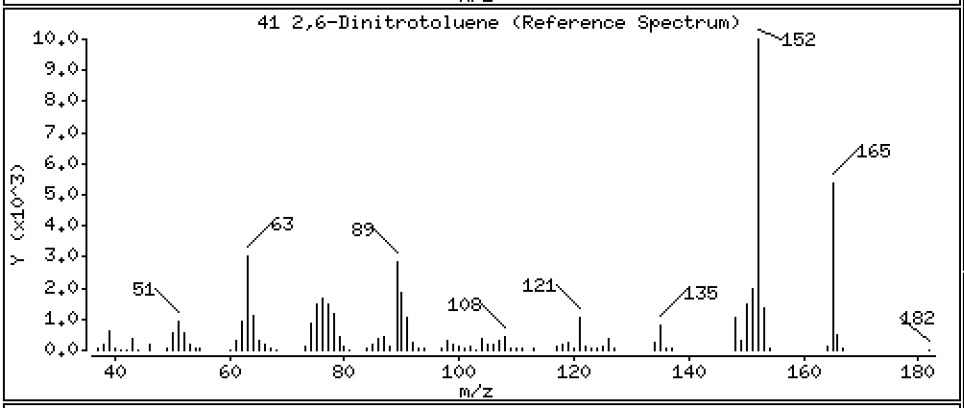
Concentration: 15.83 ug/mL

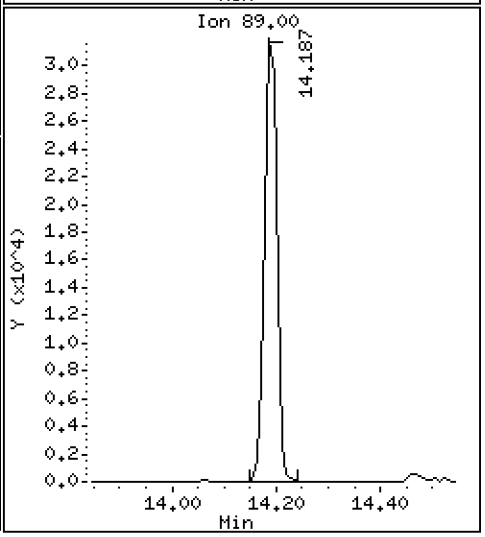


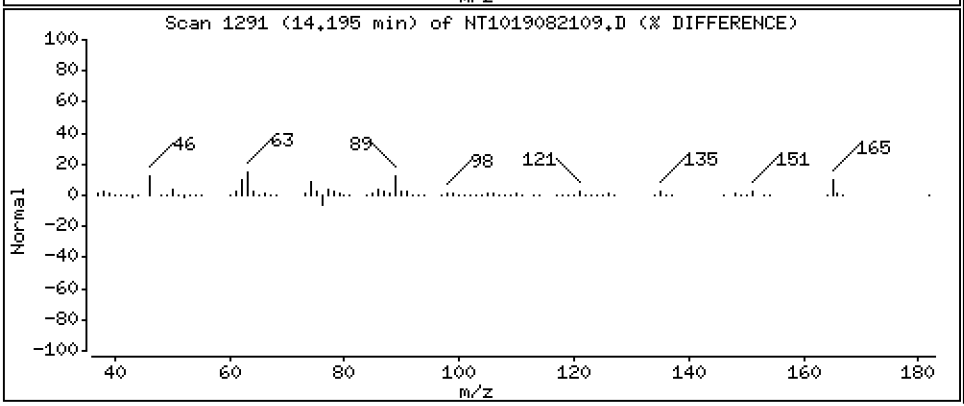












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

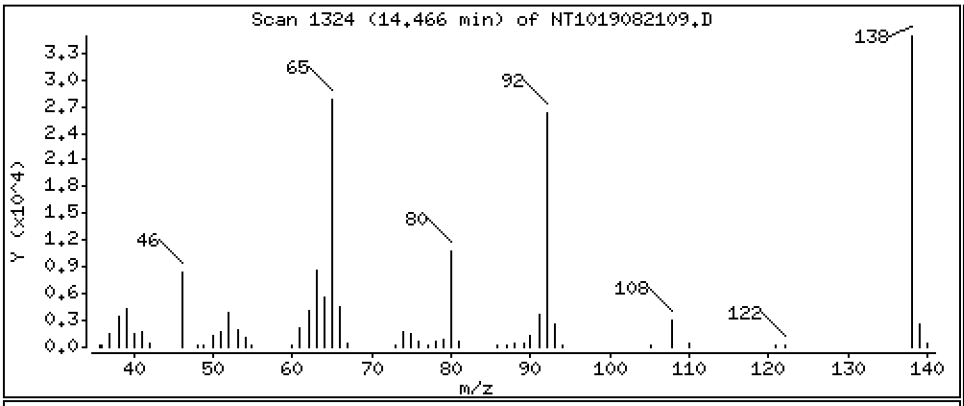
Operator: YZ

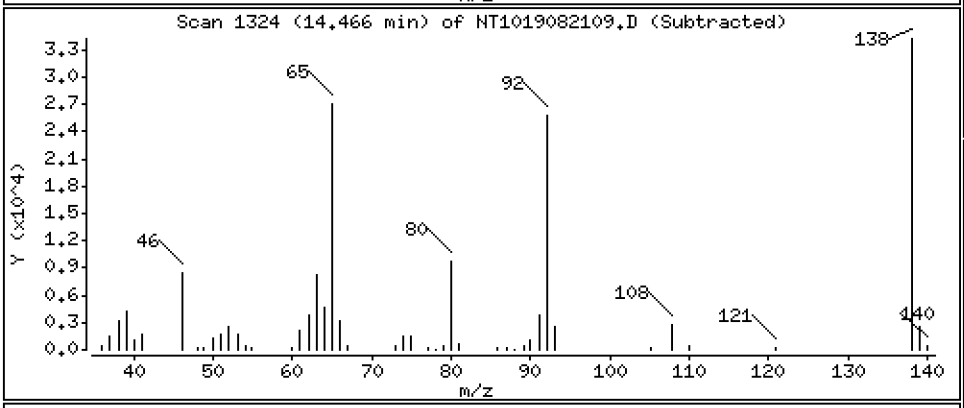
Column phase: ZB-5msi

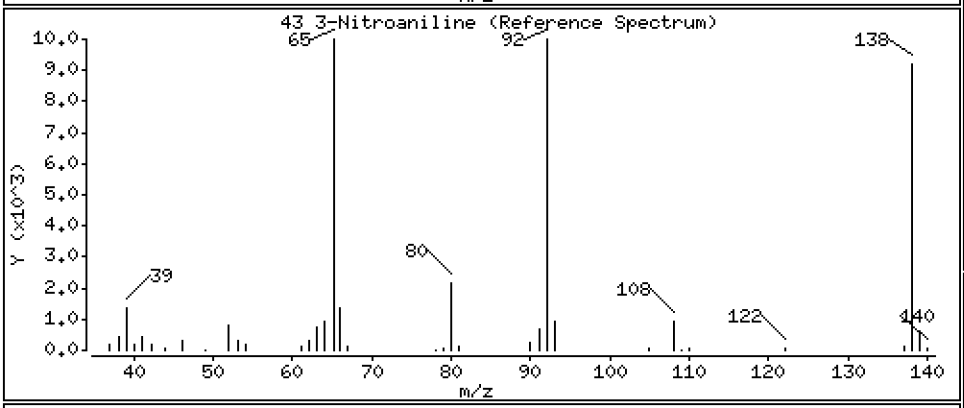
Column diameter: 0.25

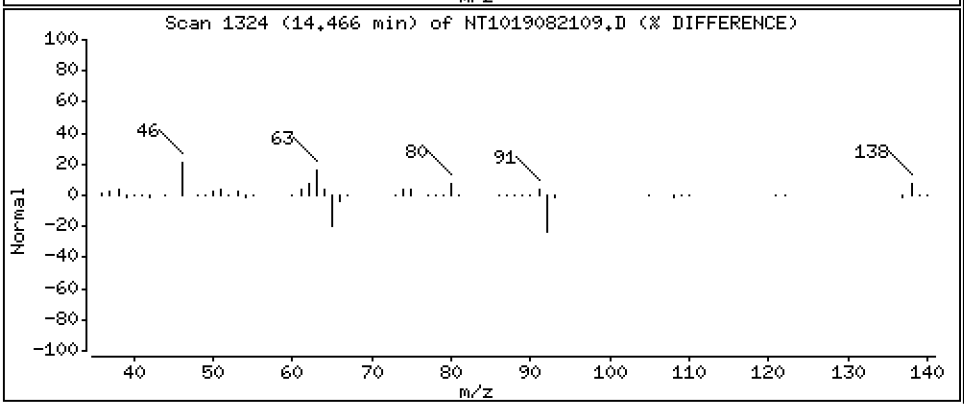
43 3-Nitroaniline

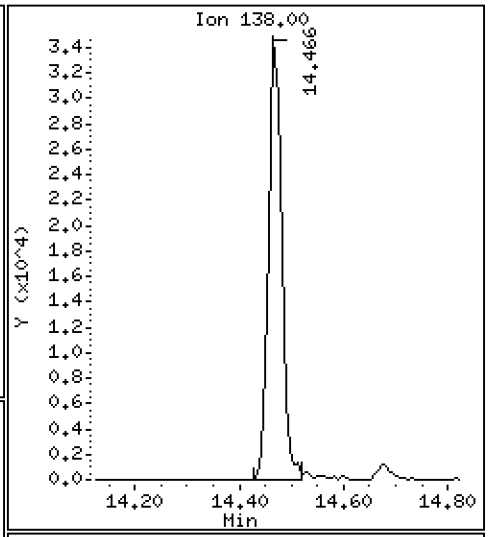
Concentration: 11.00 ug/mL

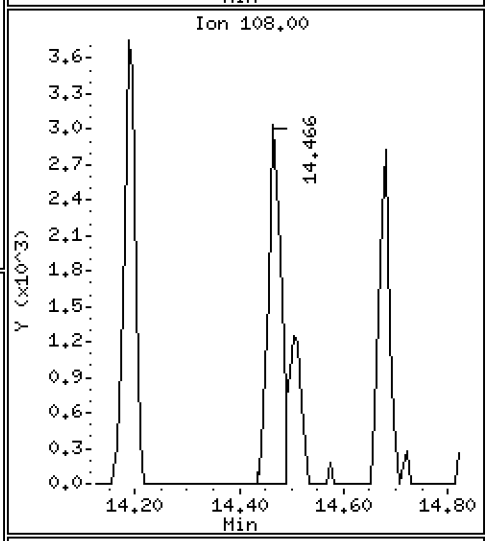


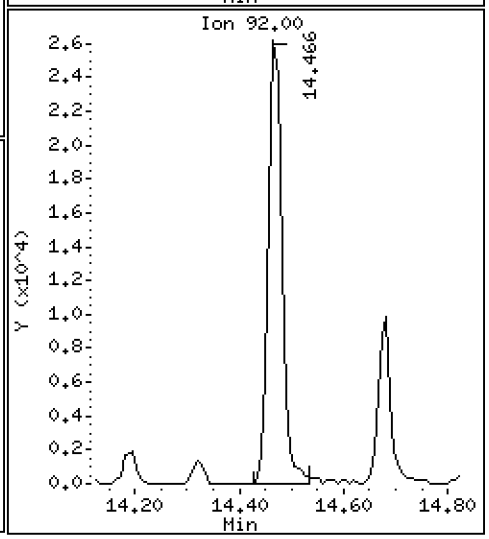












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

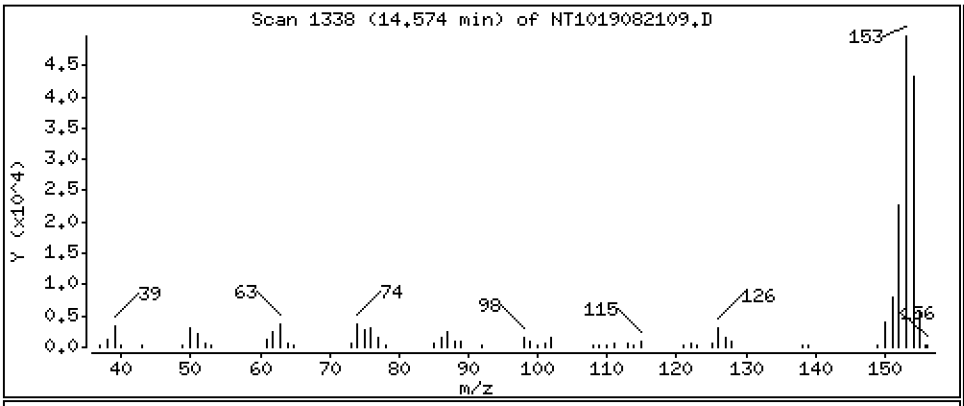
Operator: YZ

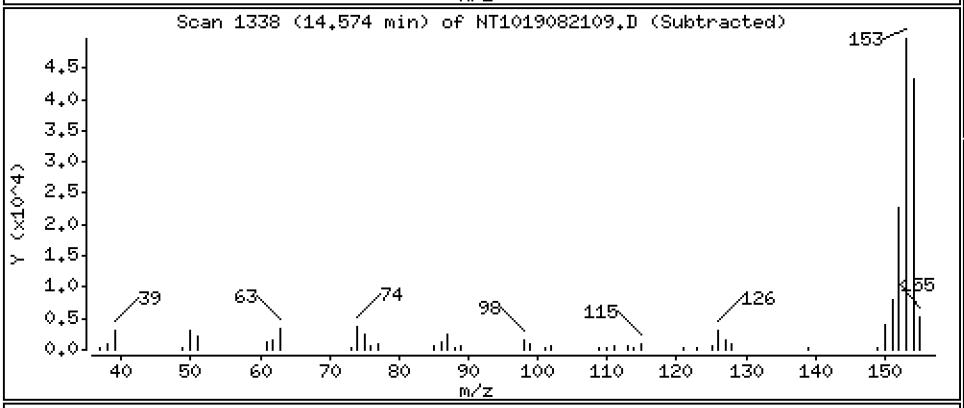
Column phase: ZB-5msi

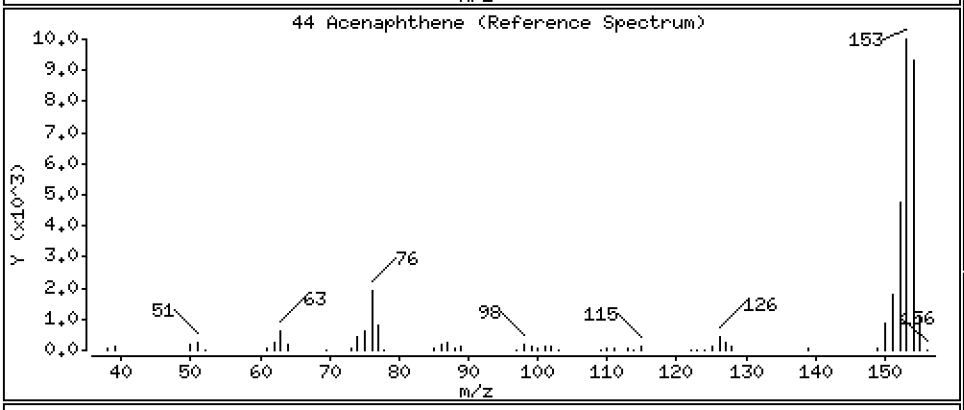
Column diameter: 0.25

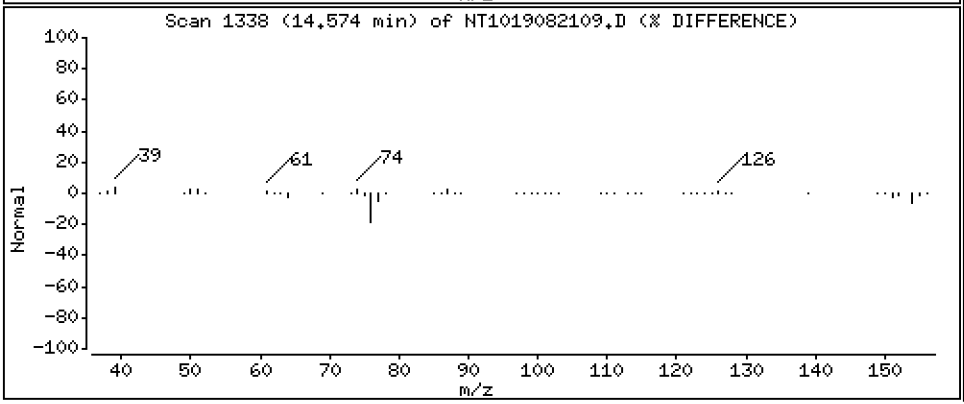
44 Acenaphthene

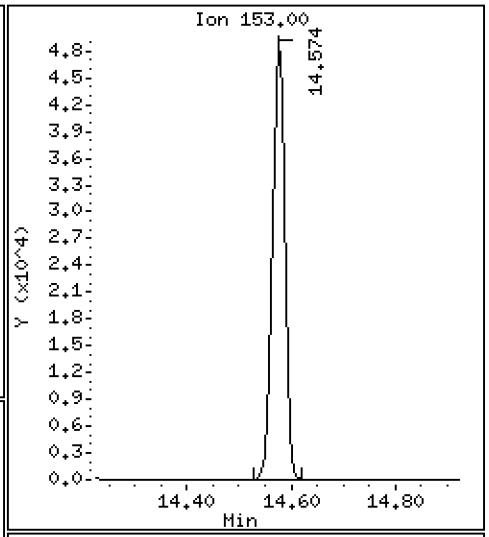
Concentration: 4.642 ug/mL

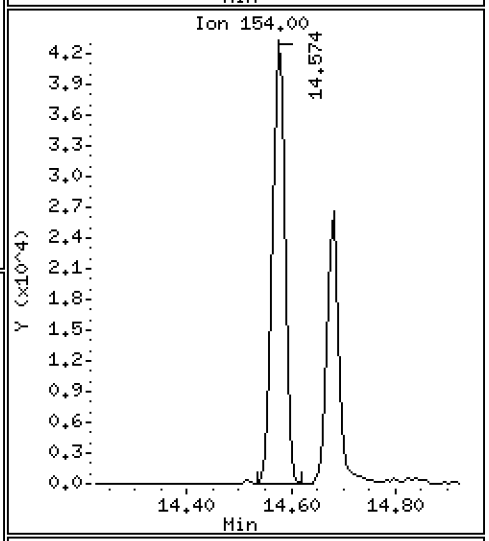


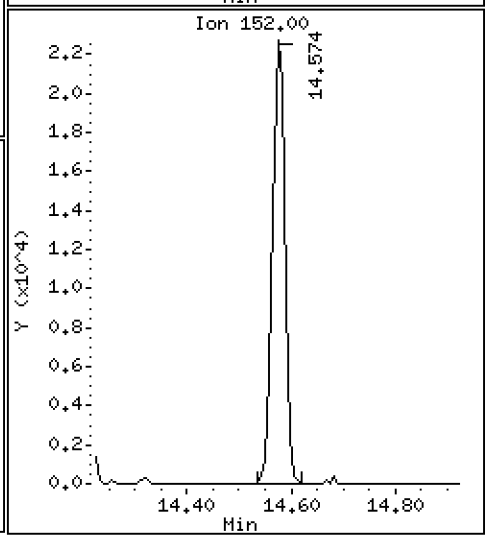












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

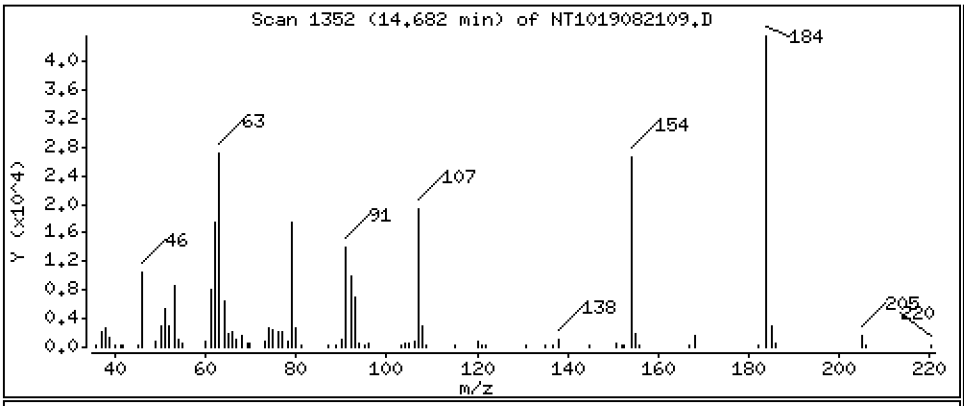
Operator: YZ

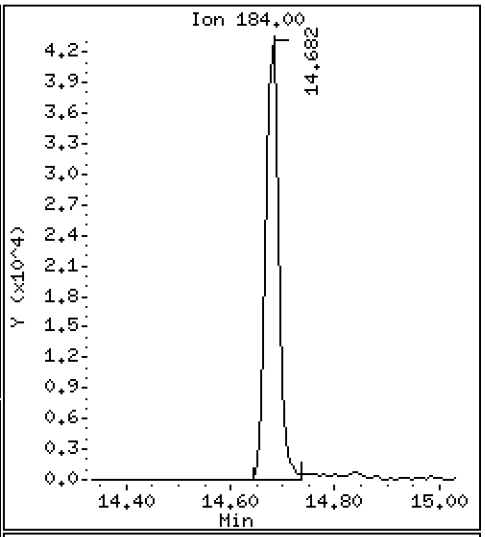
Column phase: ZB-5msi

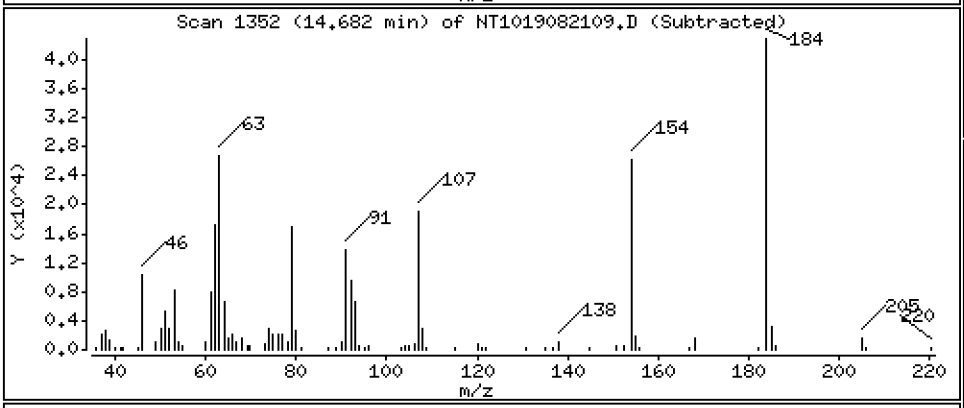
Column diameter: 0.25

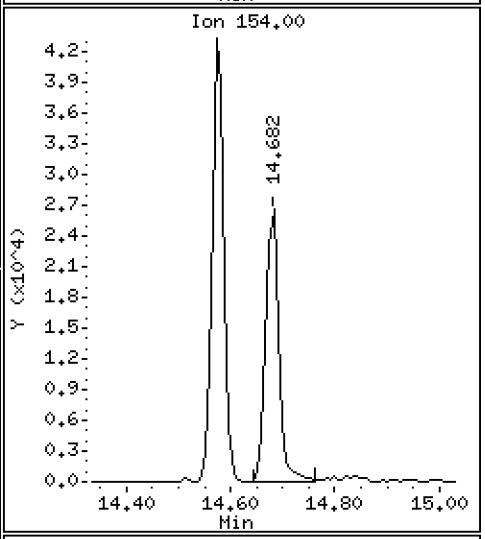
45 2,4-Dinitrophenol

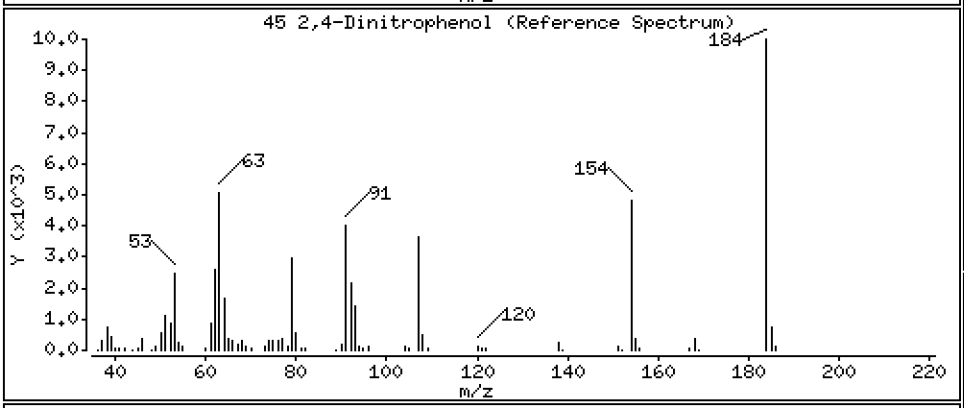
Concentration: 22.57 ug/mL

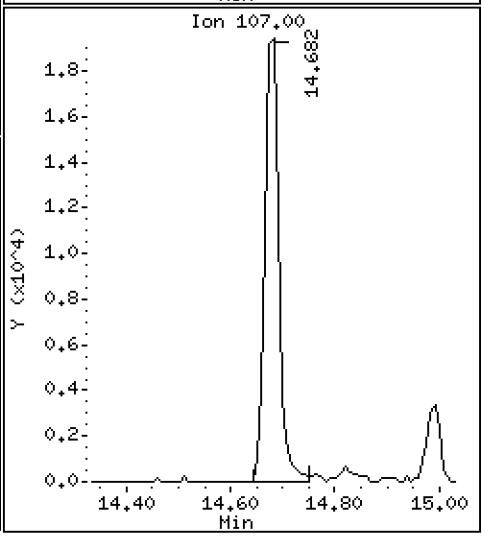


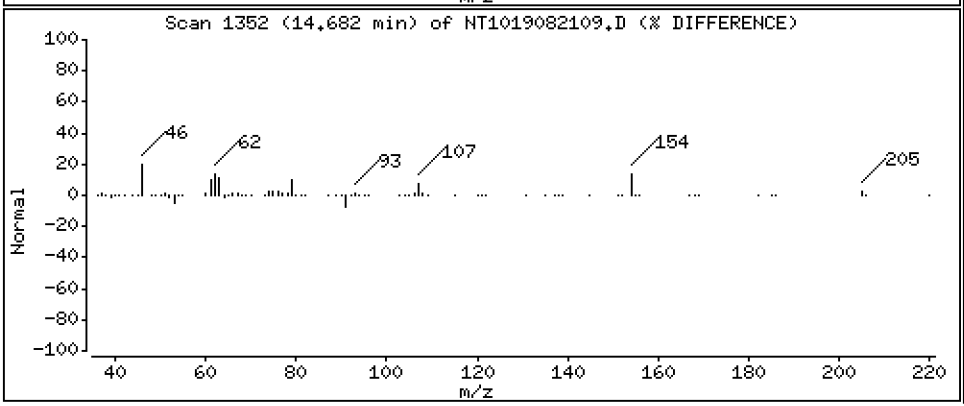












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

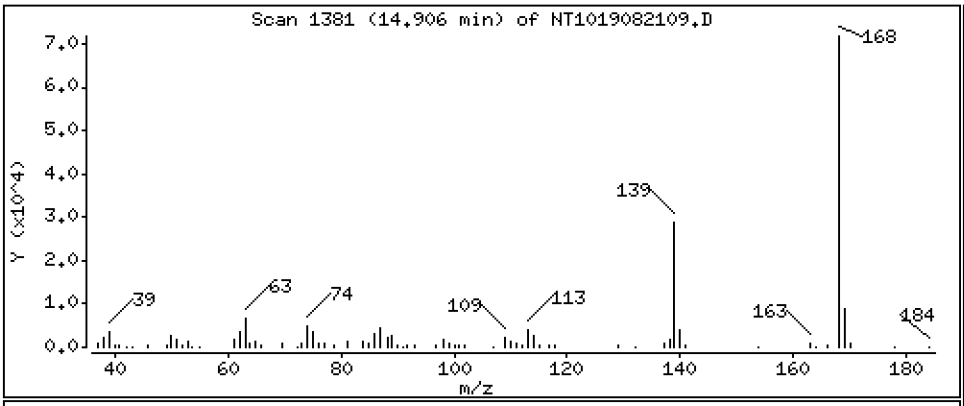
Operator: YZ

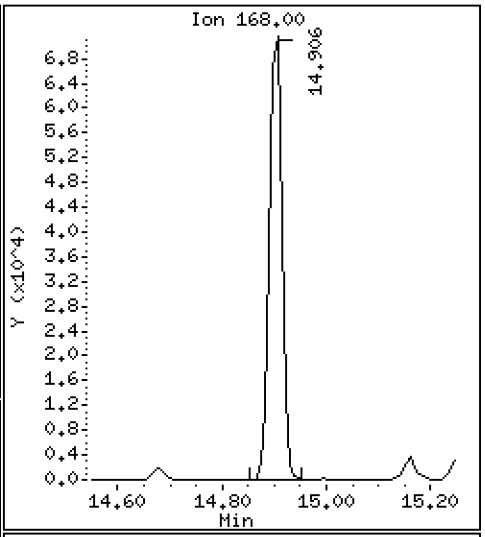
Column phase: ZB-5msi

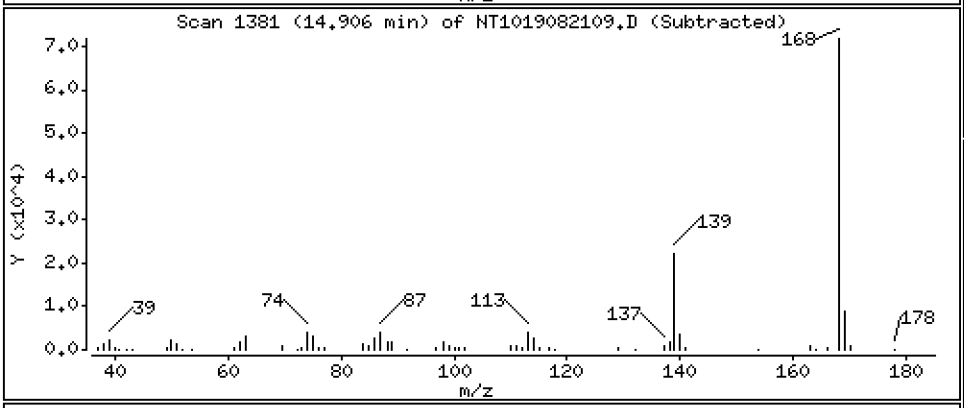
Column diameter: 0.25

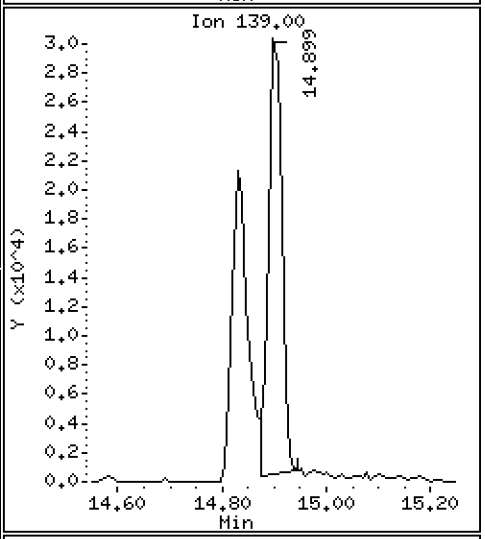
46 Dibenzofuran

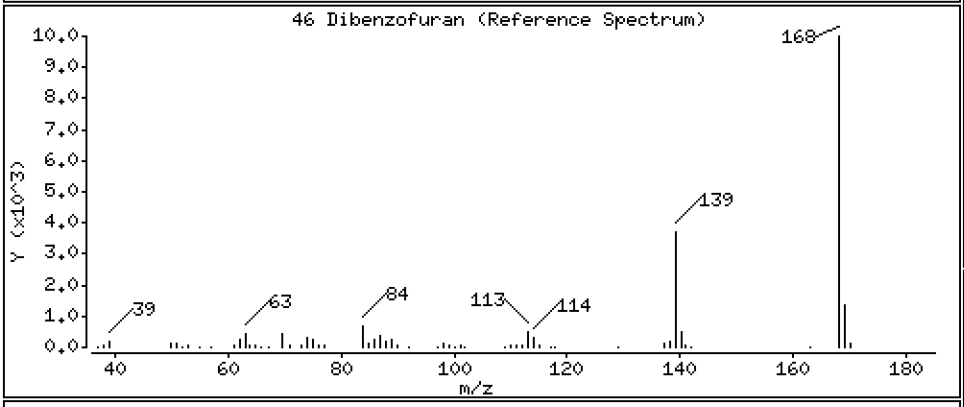
Concentration: 4.202 ug/mL

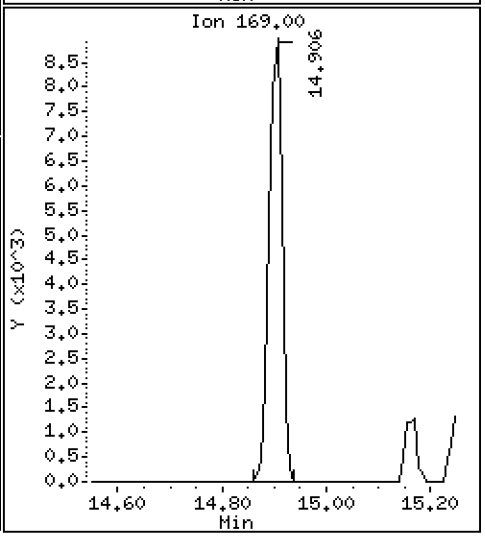


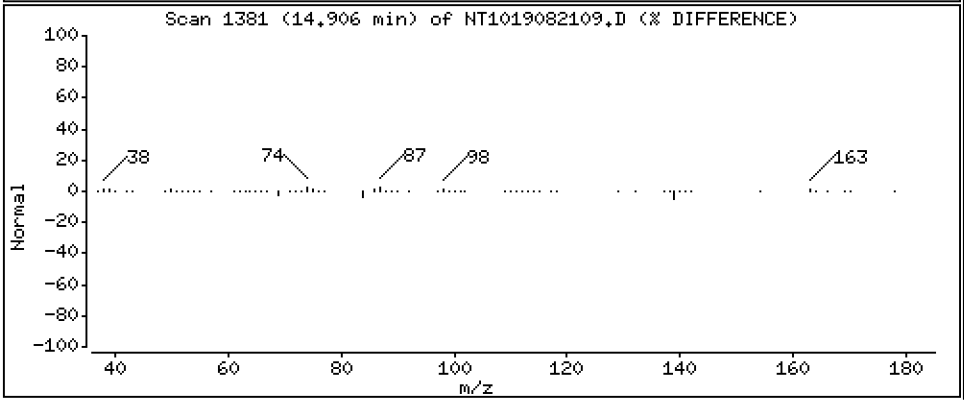












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

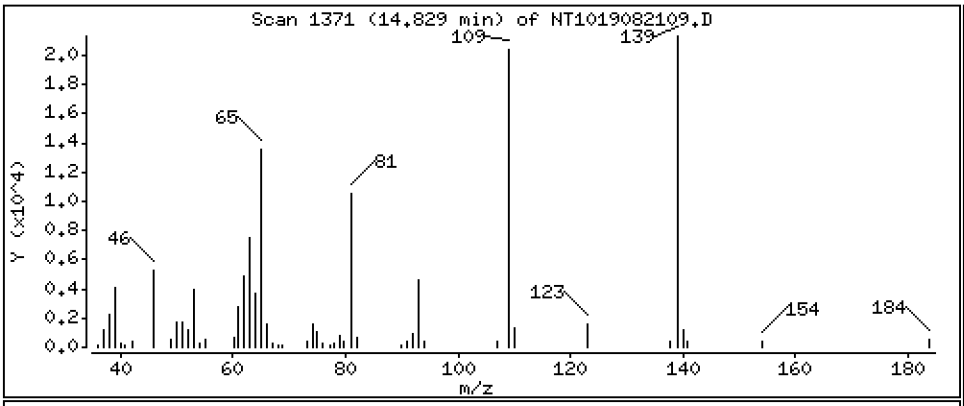
Operator: YZ

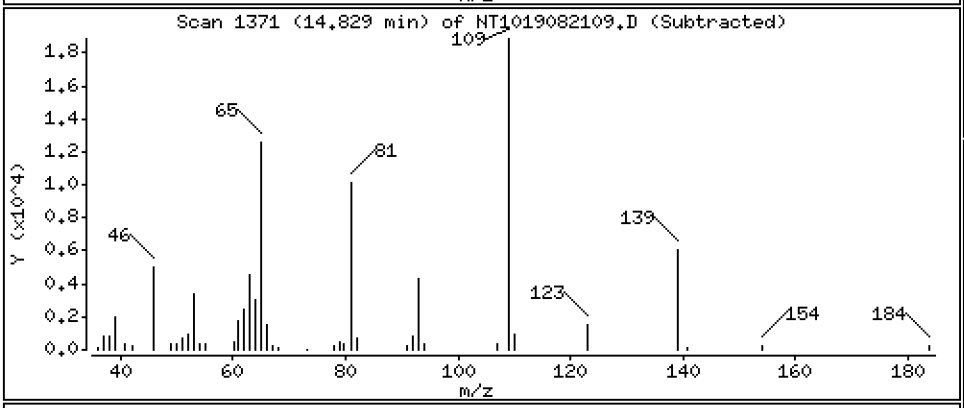
Column phase: ZB-5msi

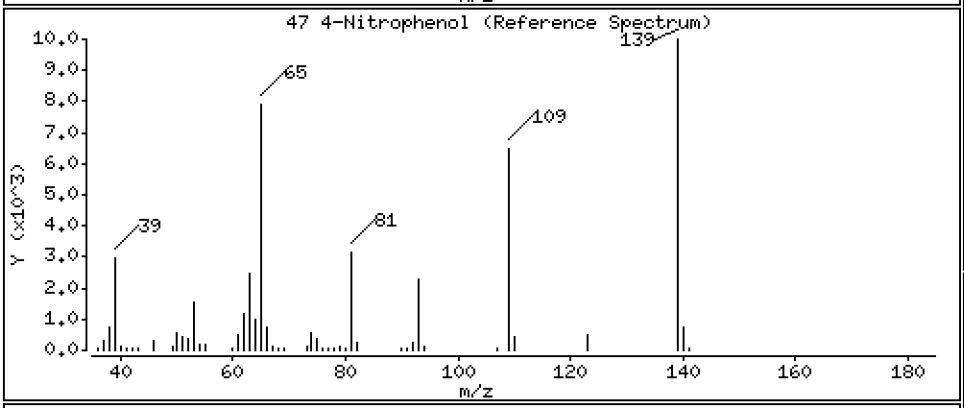
Column diameter: 0.25

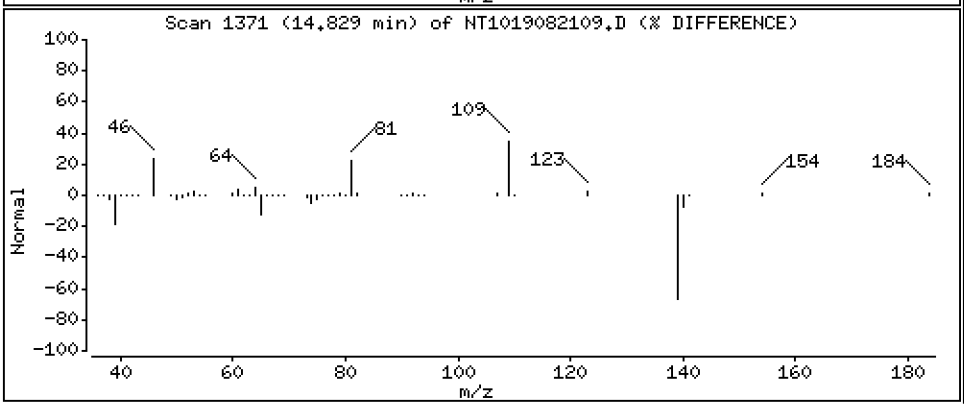
47 4-Nitrophenol

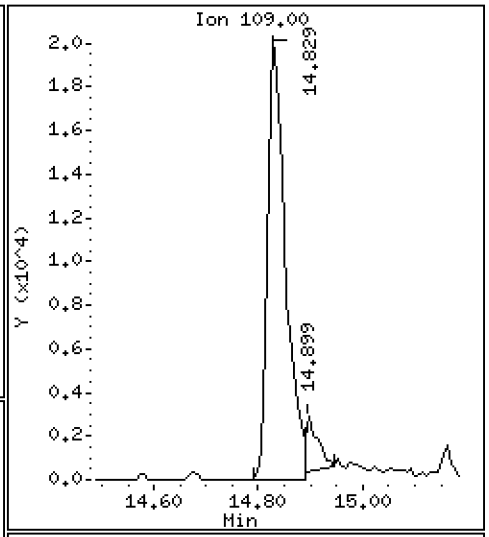
Concentration: 14.22 ug/mL

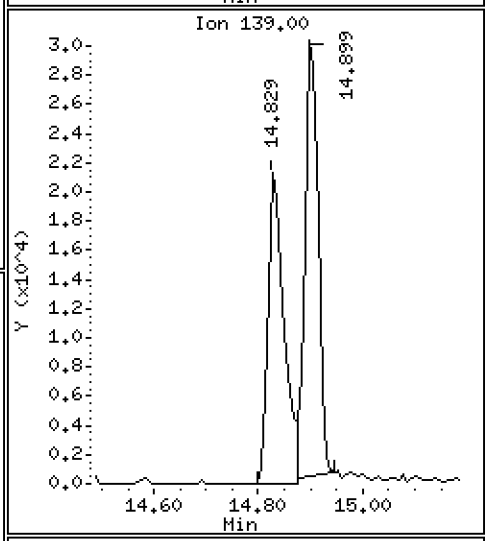


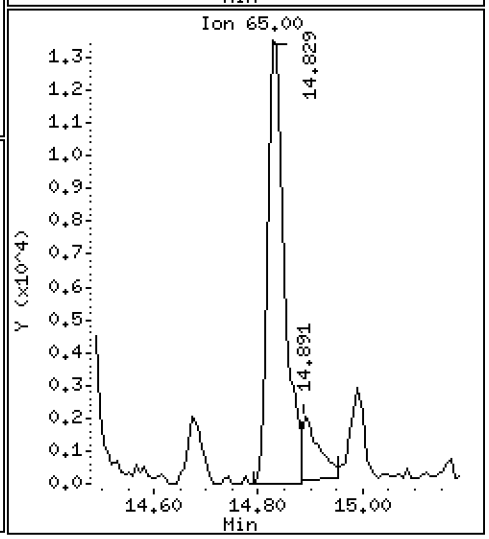












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

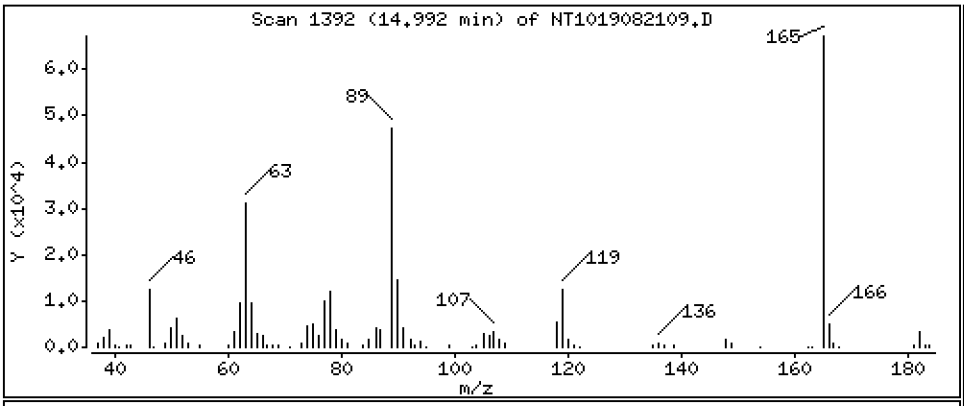
Operator: YZ

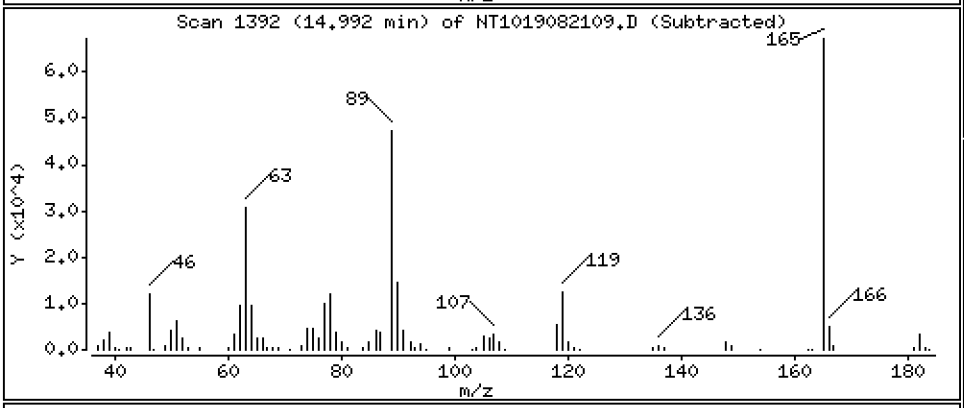
Column phase: ZB-5msi

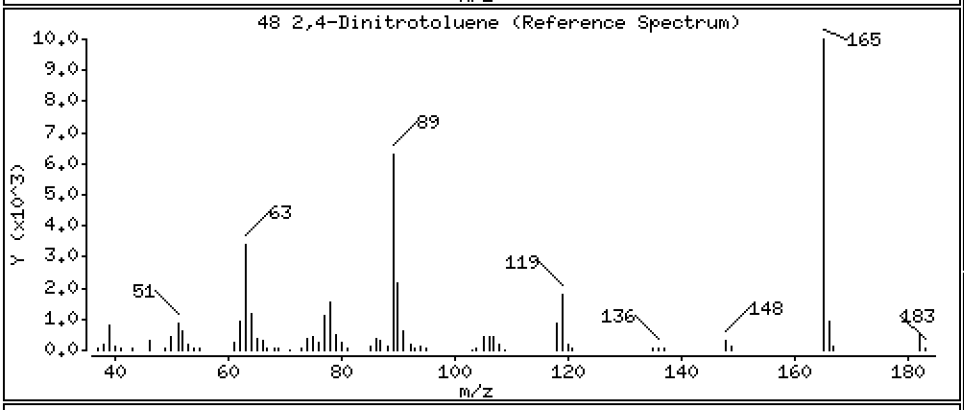
Column diameter: 0.25

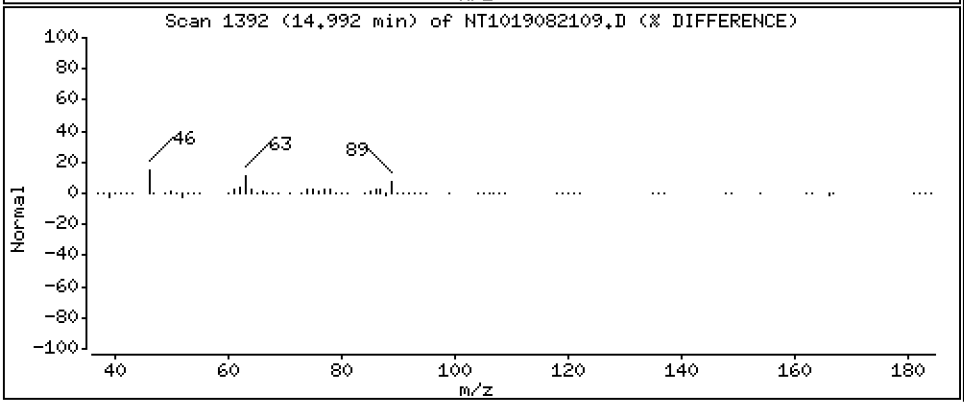
48 2,4-Dinitrotoluene

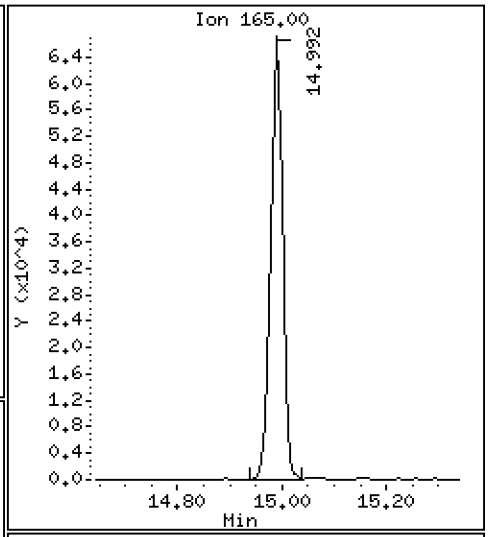
Concentration: 16.37 ug/mL

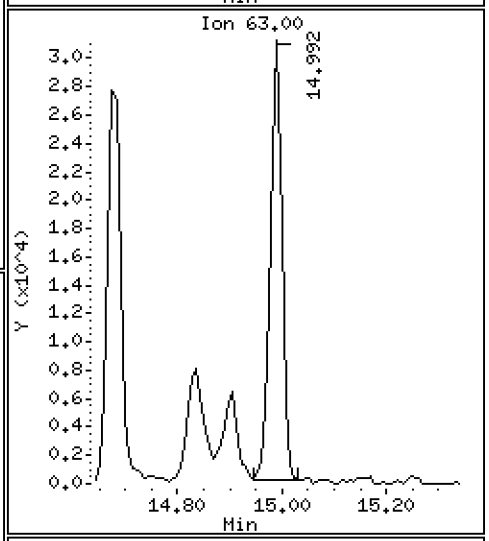


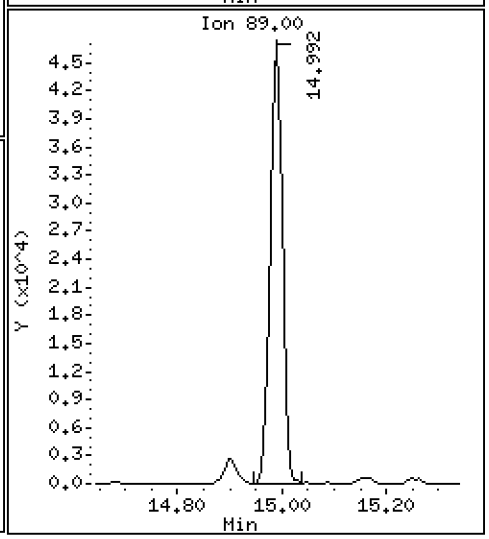












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

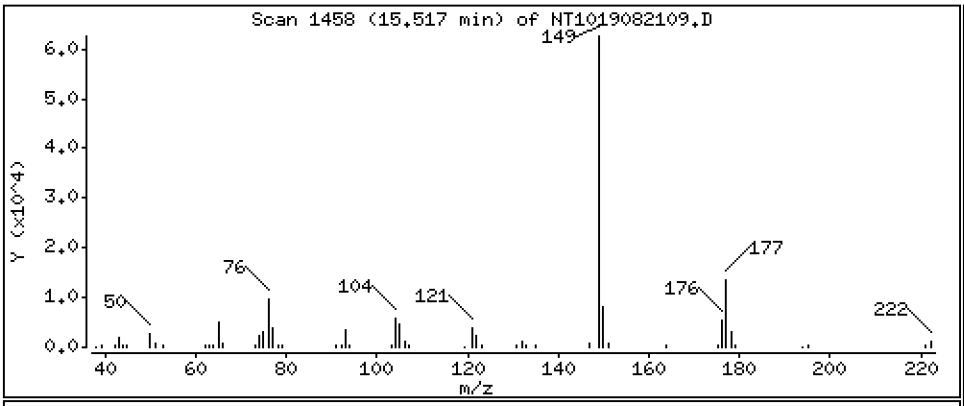
Operator: YZ

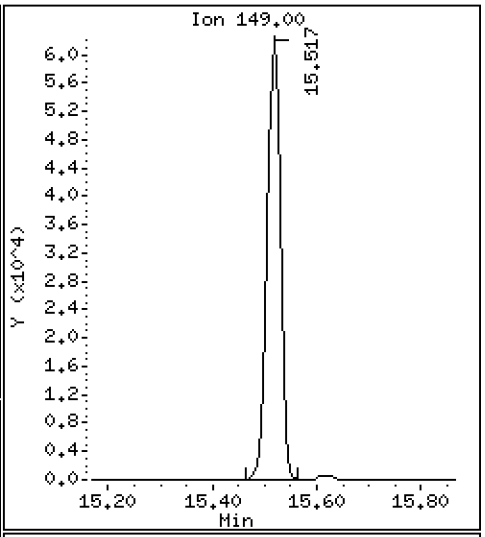
Column phase: ZB-5msi

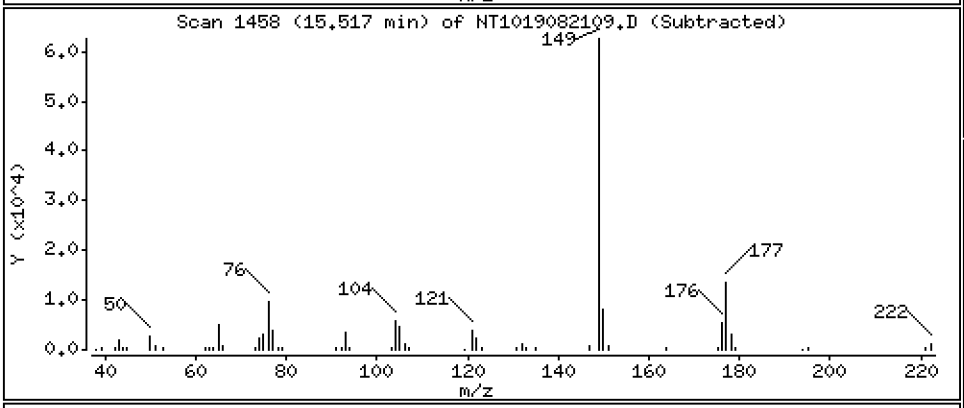
Column diameter: 0.25

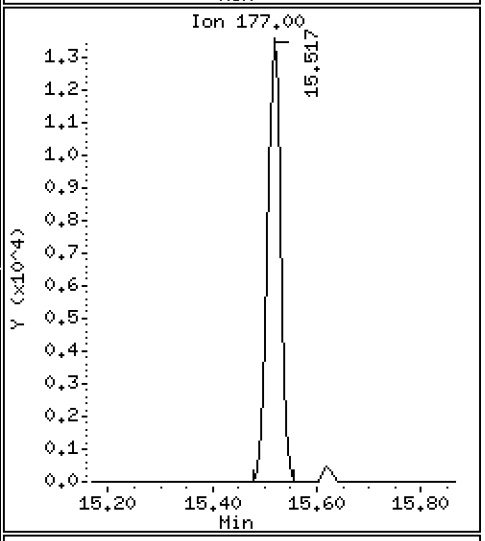
50 Diethylphthalate

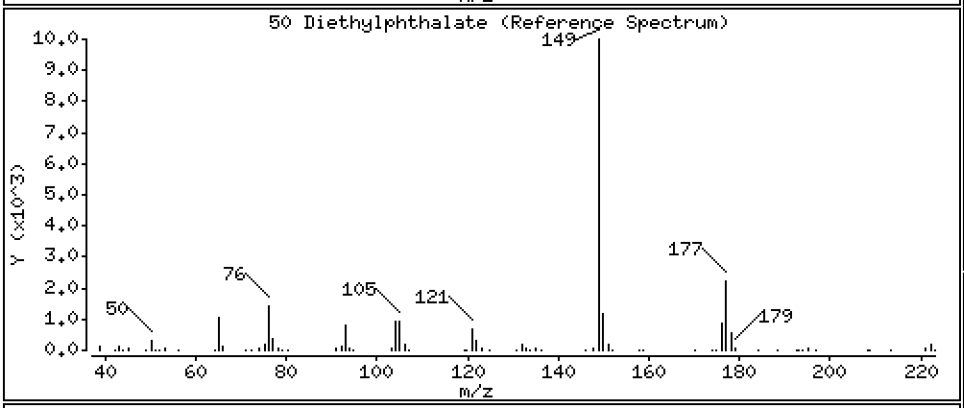
Concentration: 5.415 ug/mL

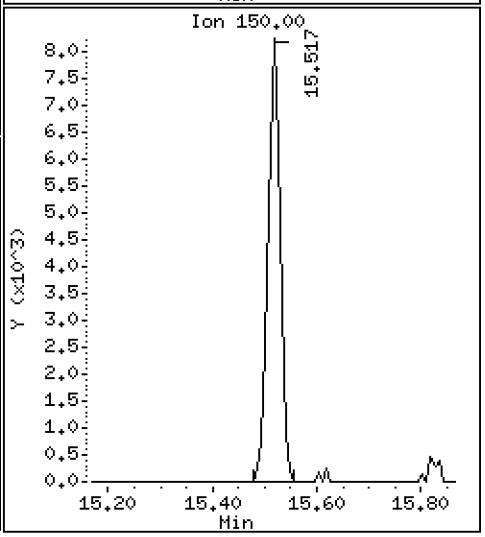


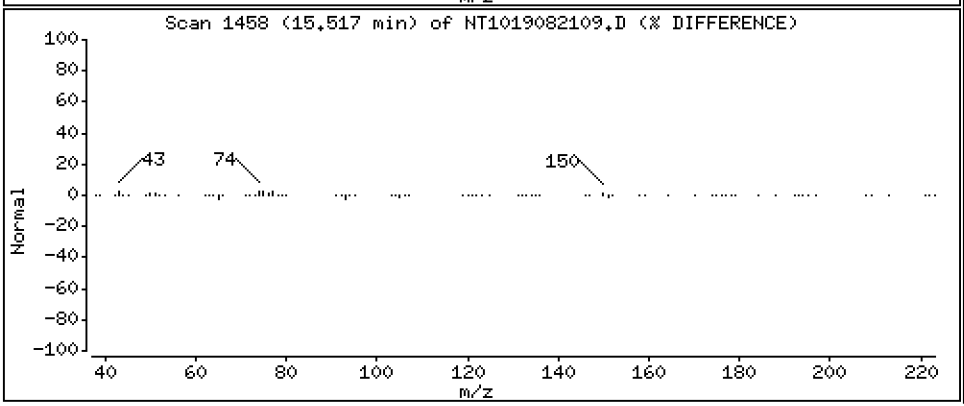












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

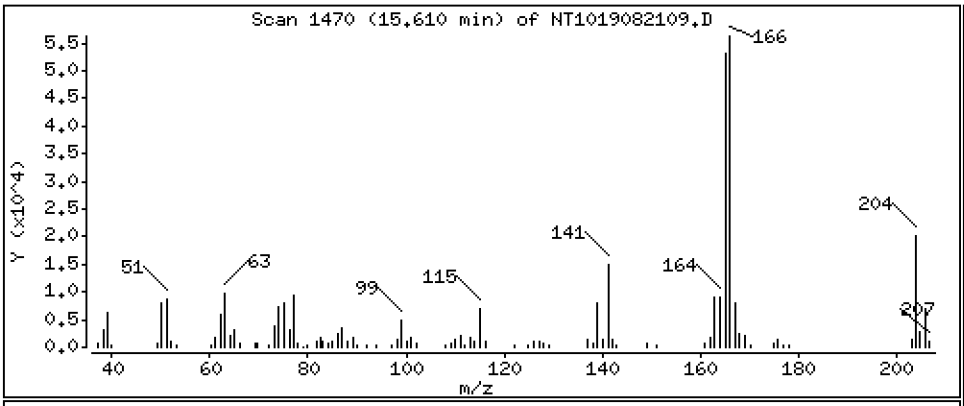
Operator: YZ

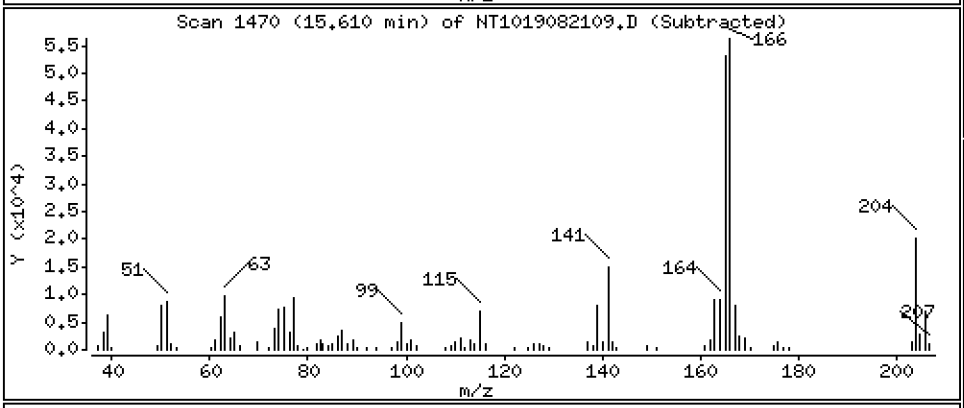
Column phase: ZB-5msi

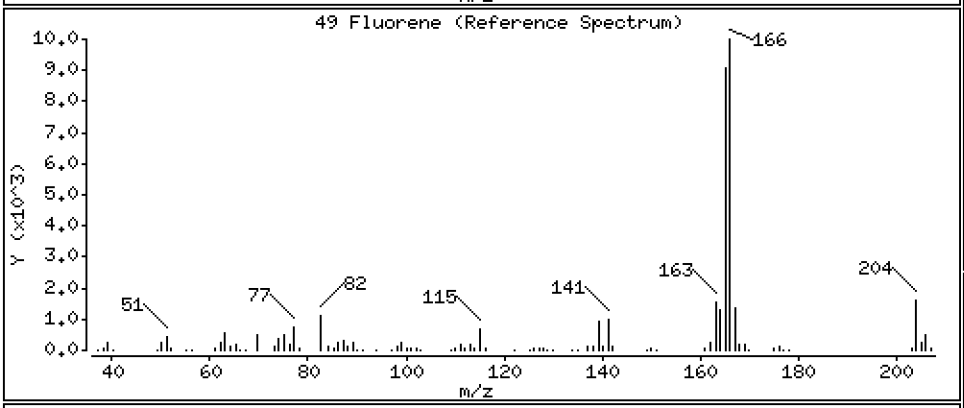
Column diameter: 0.25

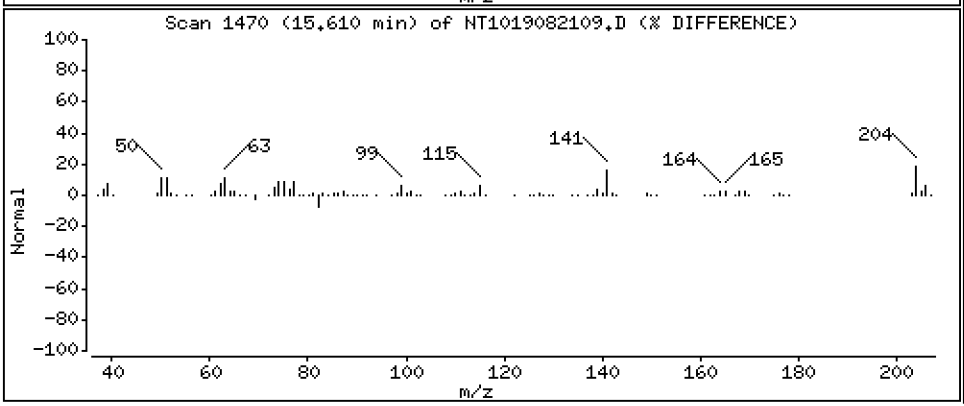
49 Fluorene

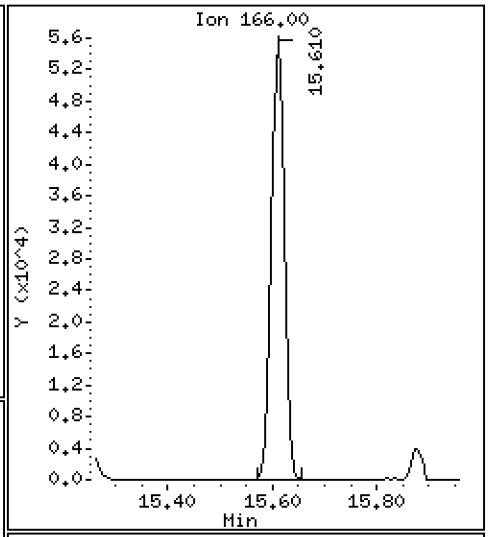
Concentration: 4.938 ug/mL

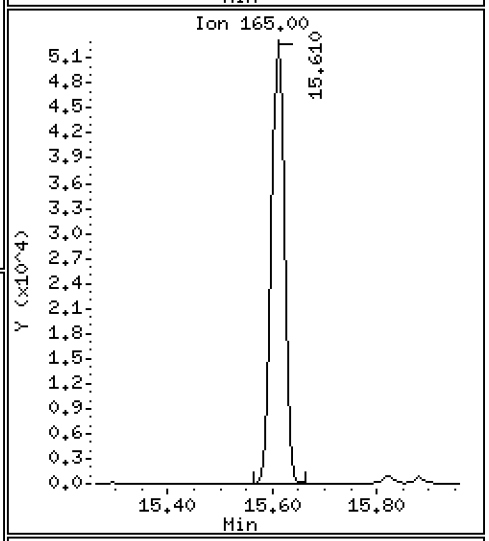


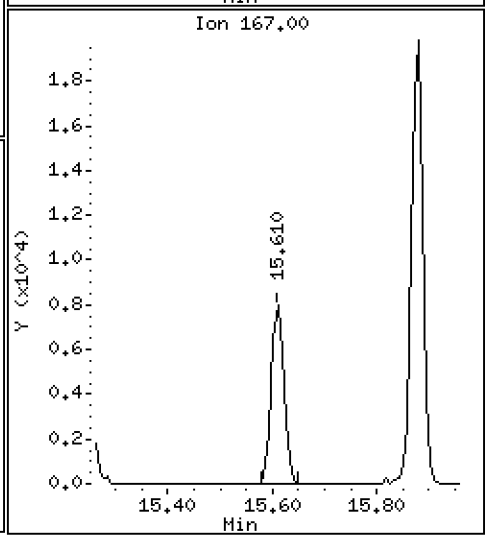












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

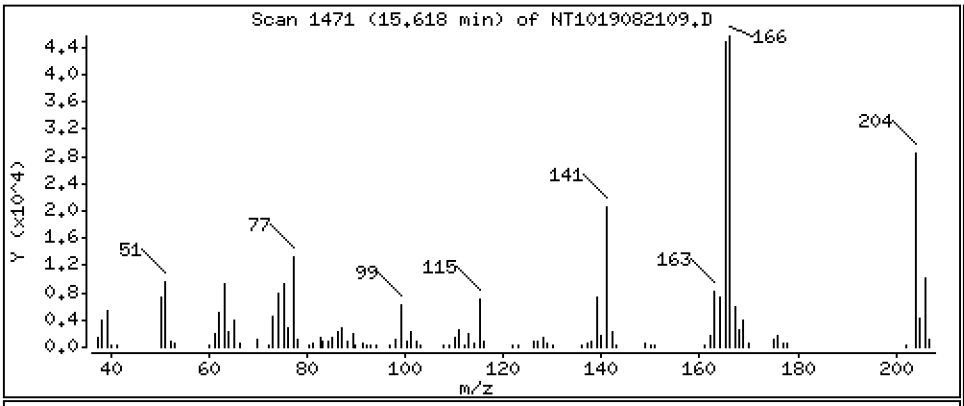
Operator: YZ

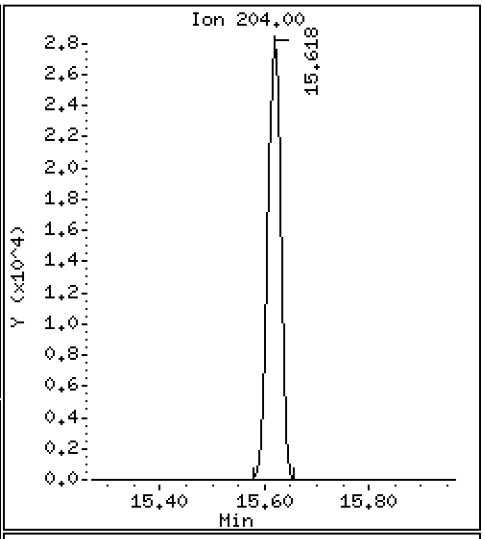
Column phase: ZB-5msi

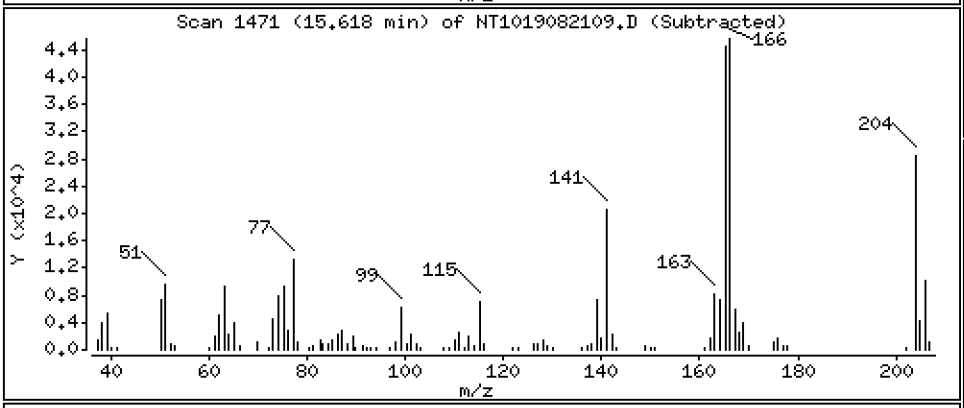
Column diameter: 0.25

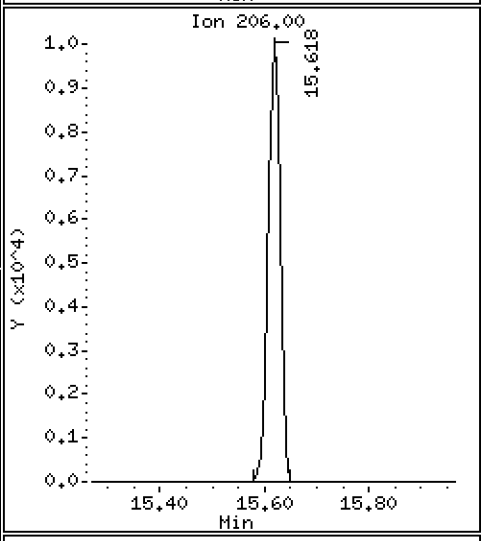
51 4-Chlorophenyl-phenylether

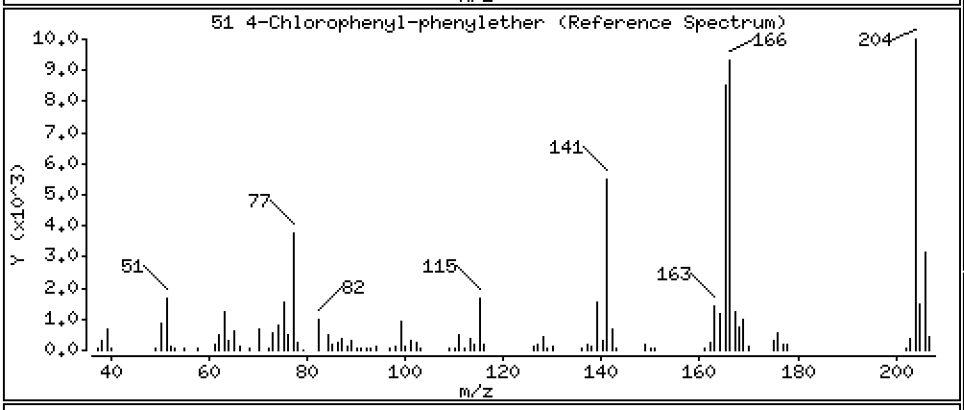
Concentration: 4.885 ug/mL

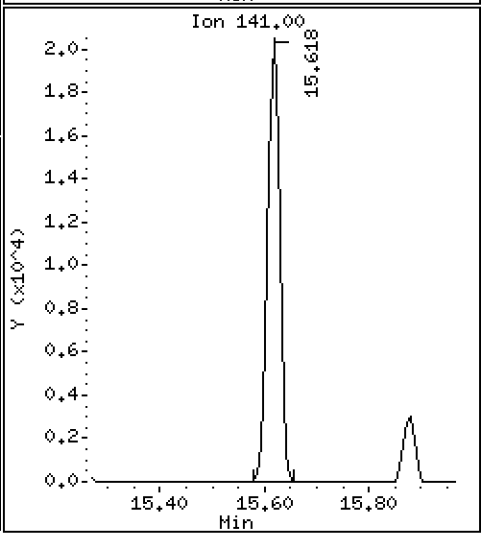


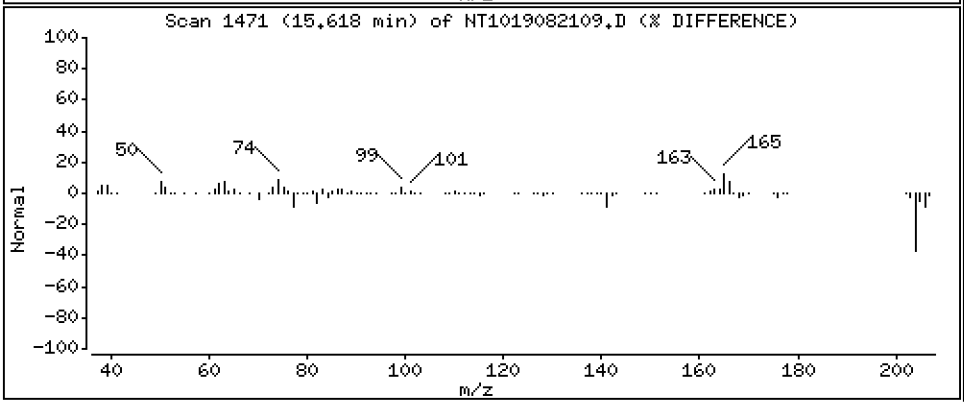












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

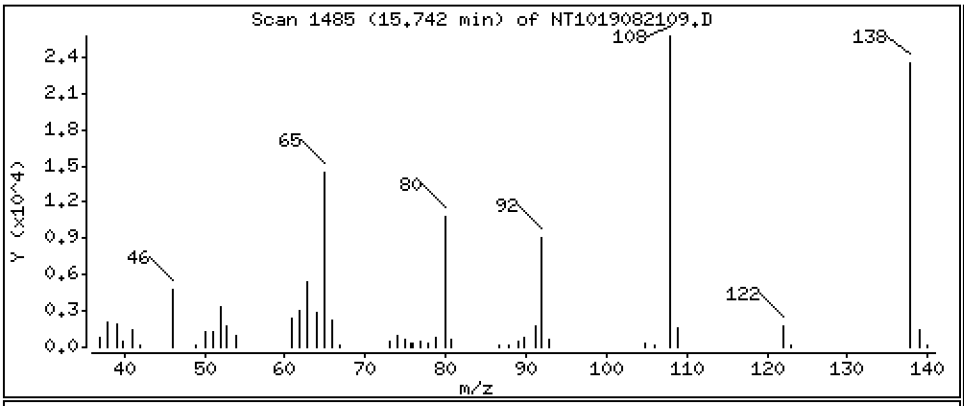
Operator: YZ

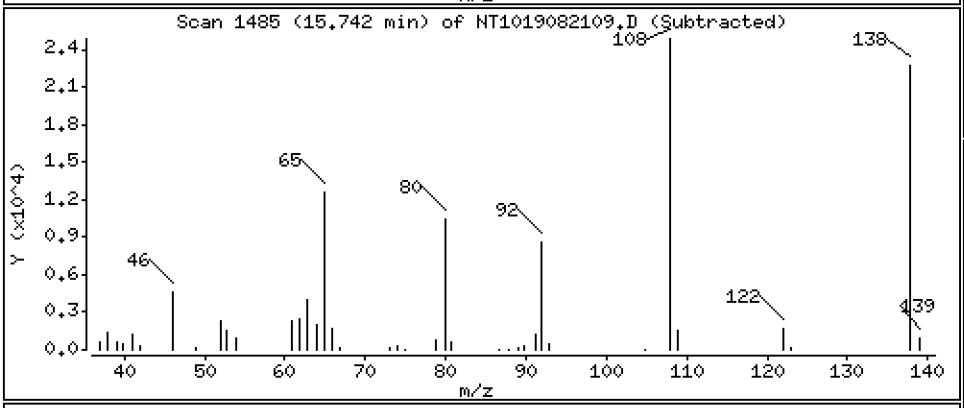
Column phase: ZB-5msi

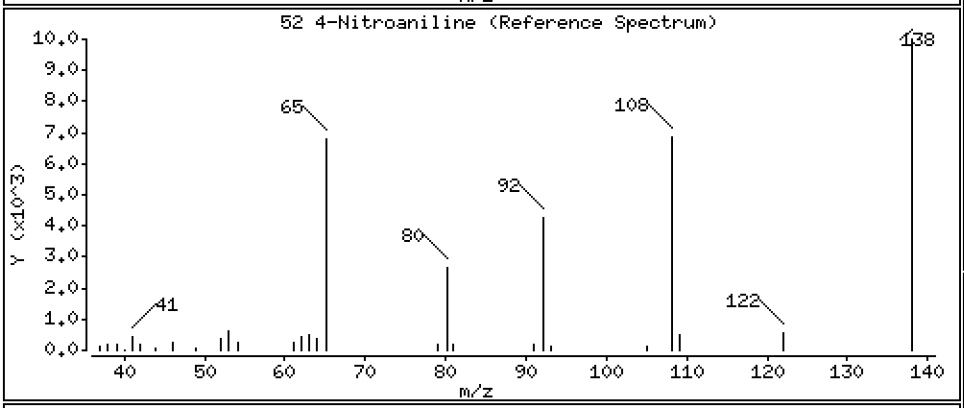
Column diameter: 0.25

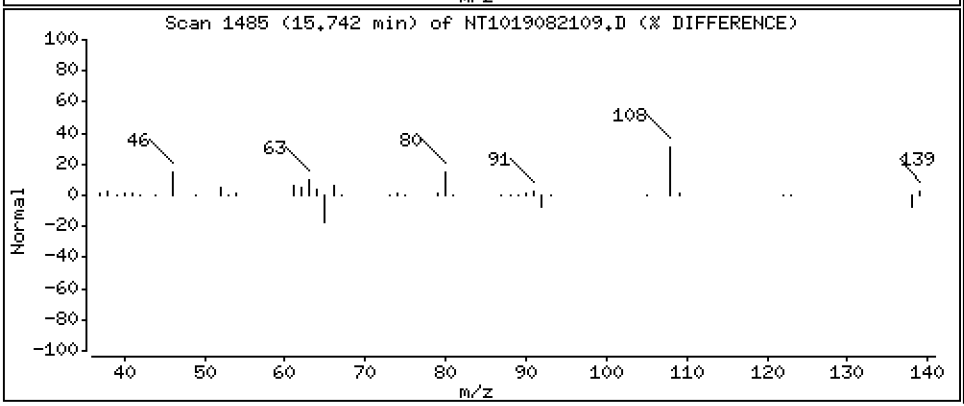
52 4-Nitroaniline

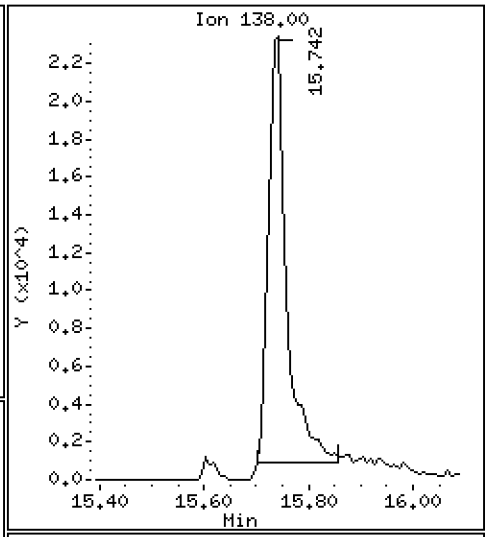
Concentration: 8.136 ug/mL

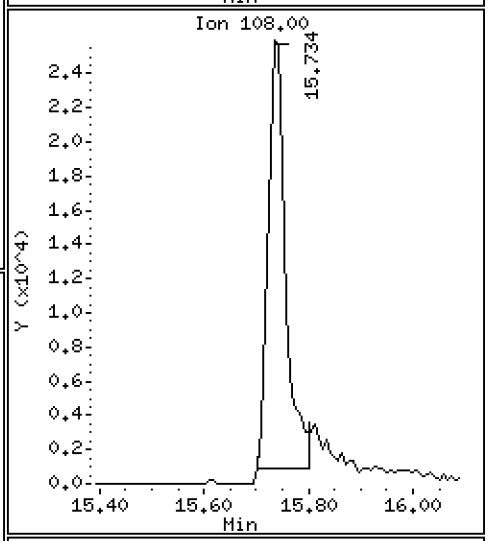


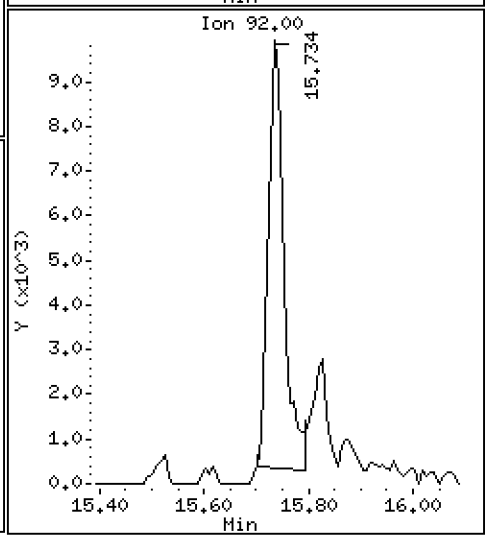












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

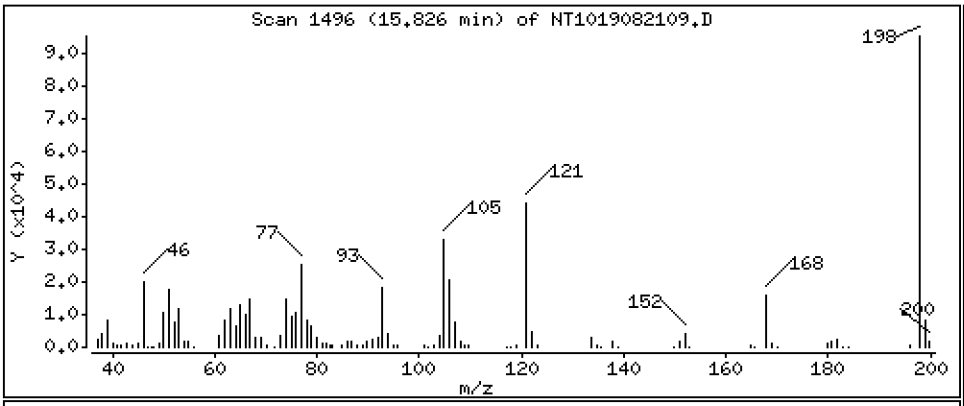
Operator: YZ

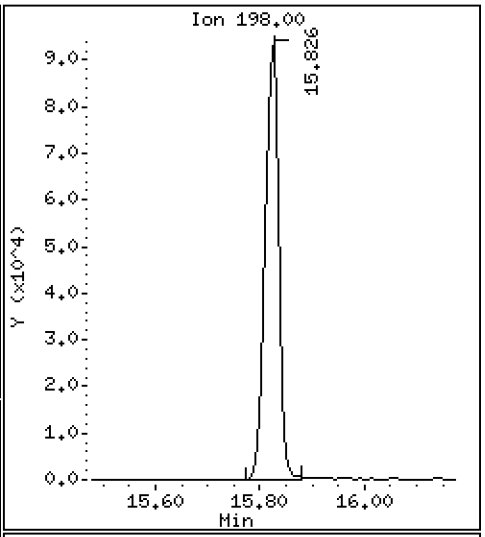
Column phase: ZB-5msi

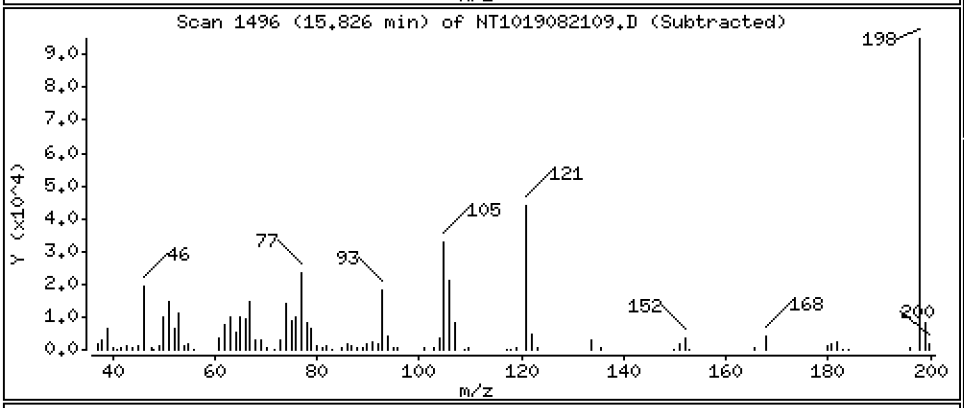
Column diameter: 0.25

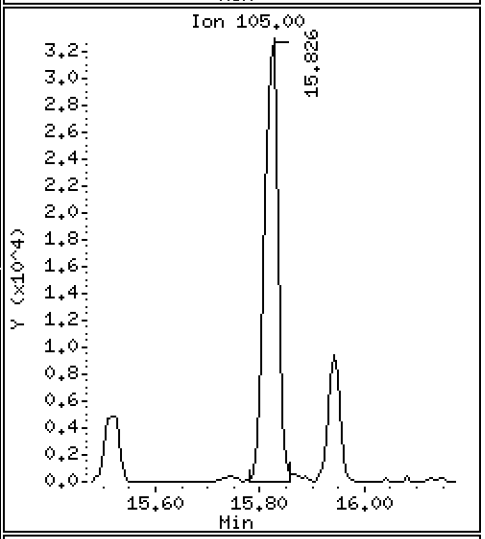
53 4,6-Dinitro-2-methylphenol

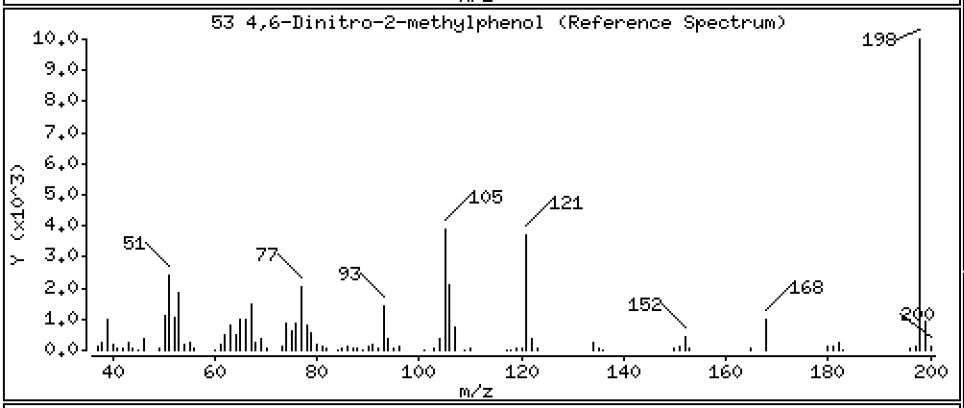
Concentration: 30.57 ug/mL

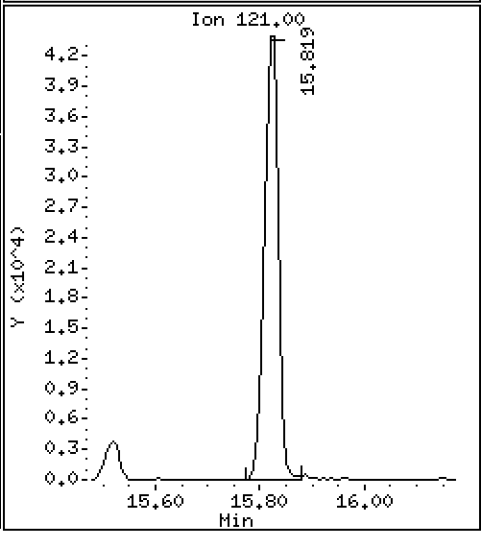


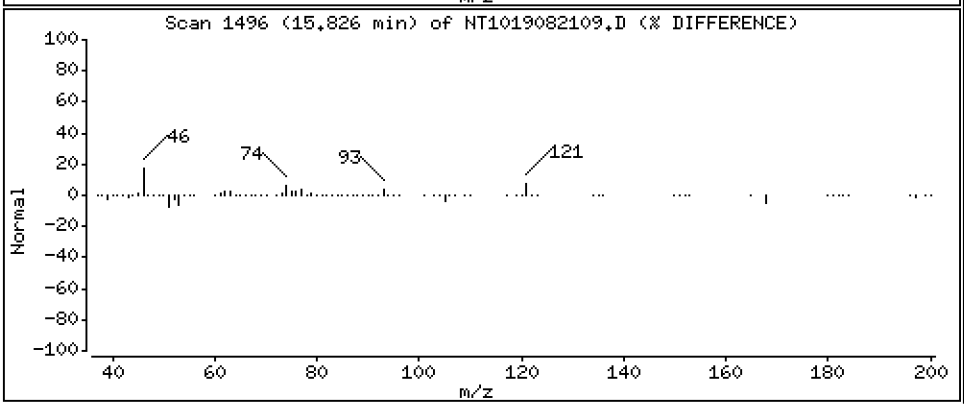












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

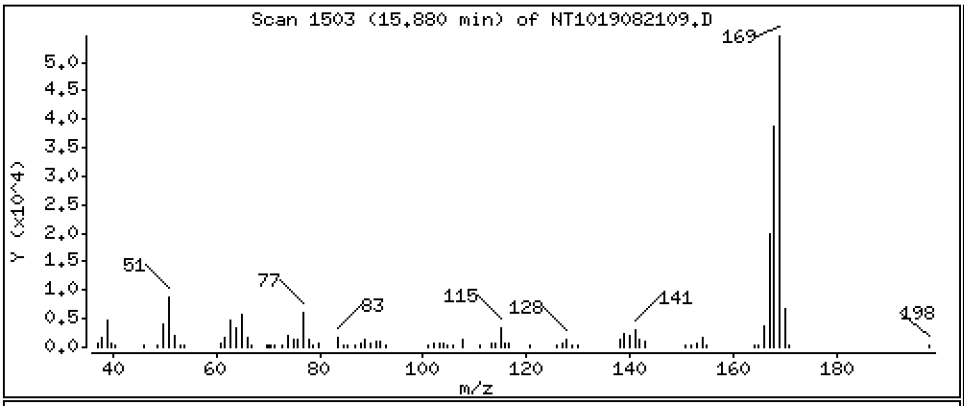
Operator: YZ

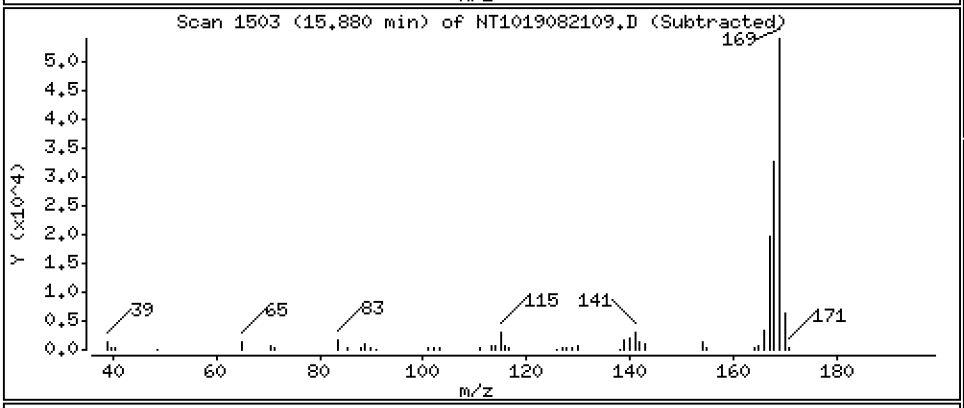
Column phase: ZB-5msi

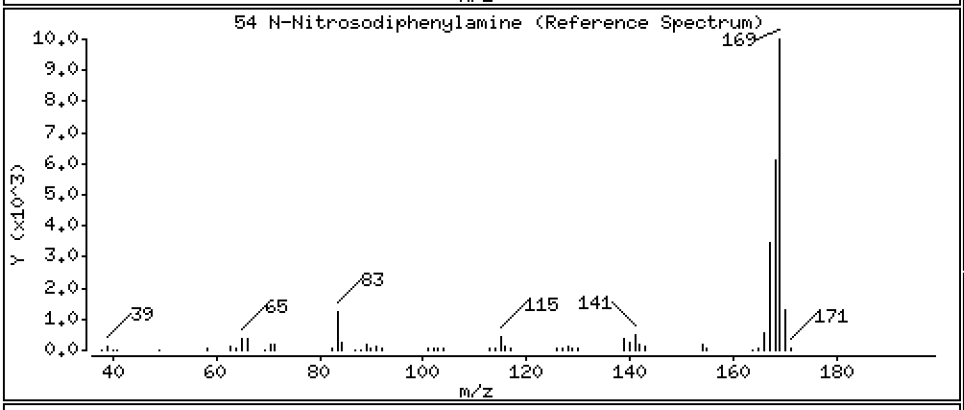
Column diameter: 0.25

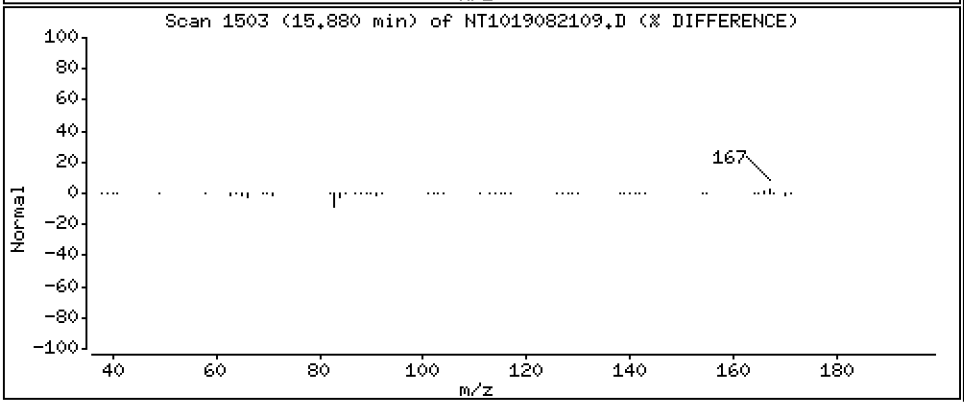
54 N-Nitrosodiphenylamine

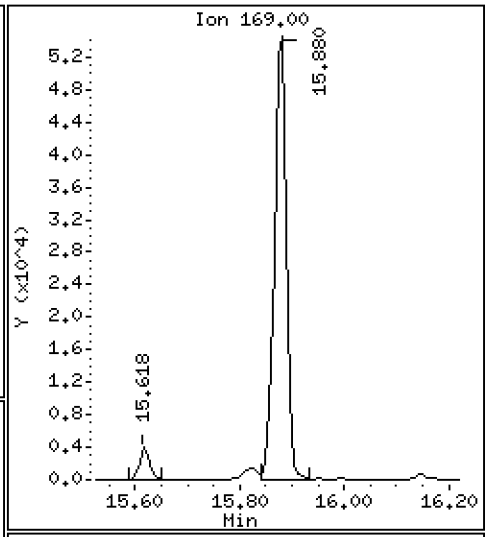
Concentration: 5.860 ug/mL

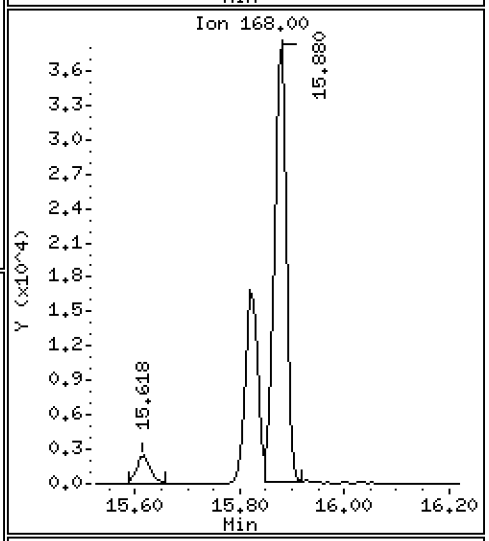


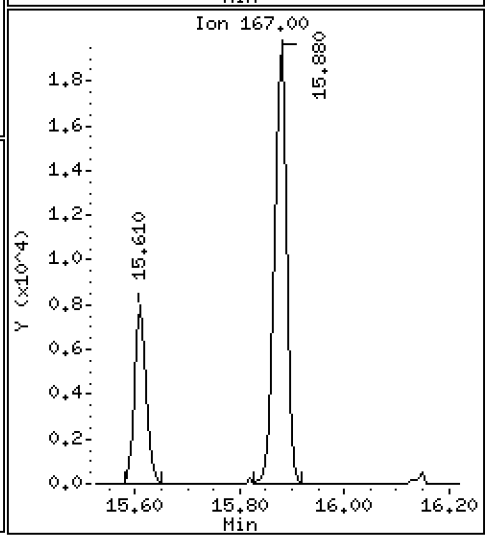












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

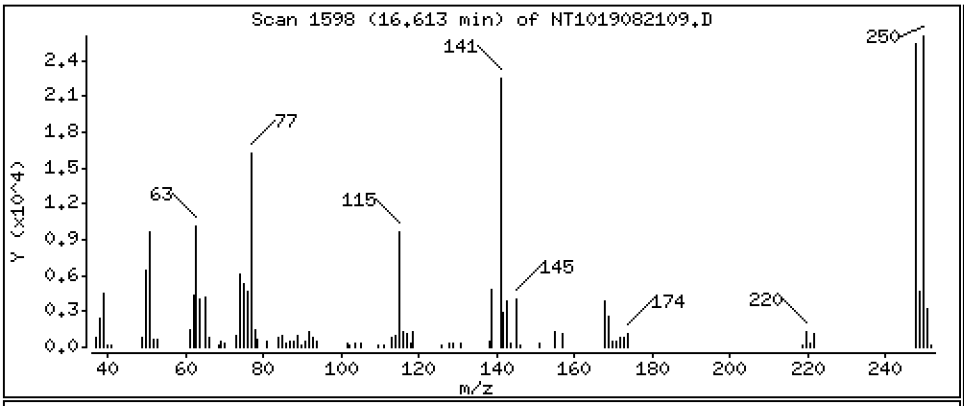
Operator: YZ

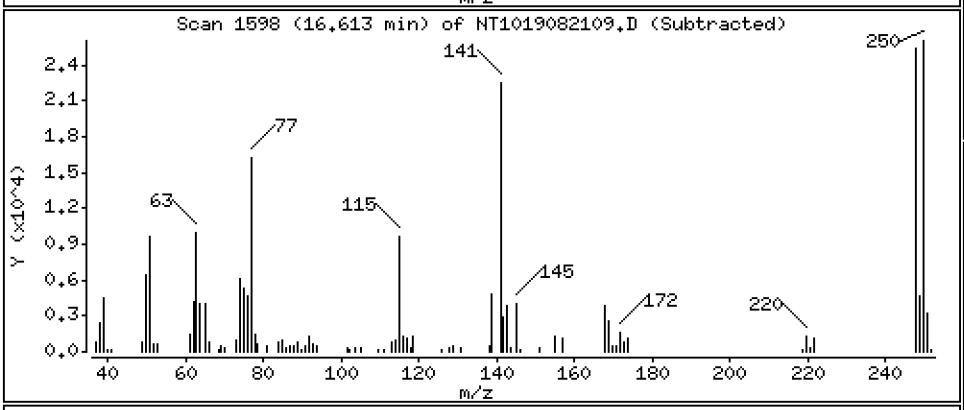
Column phase: ZB-5msi

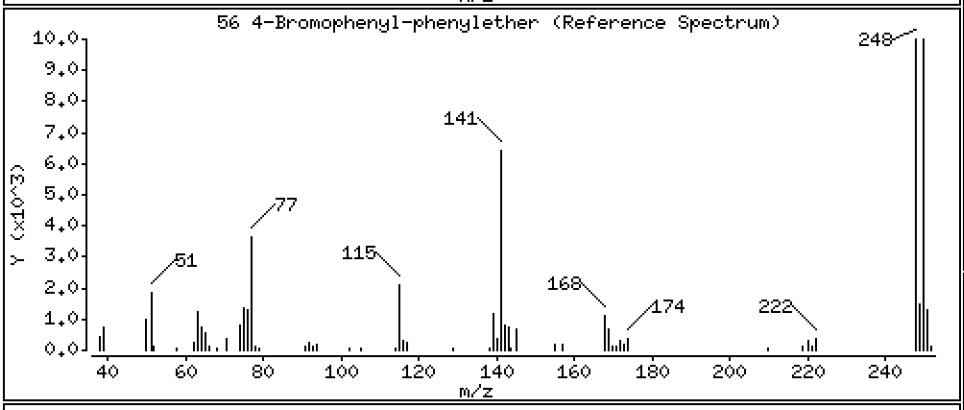
Column diameter: 0.25

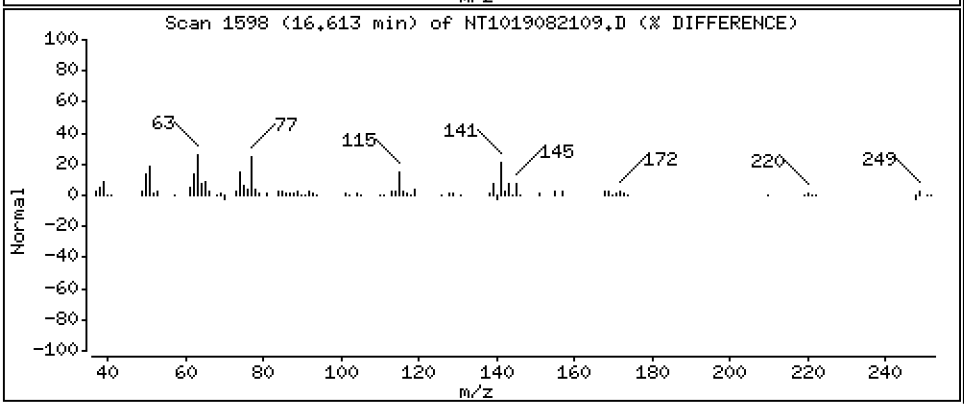
56 4-Bromophenyl-phenylether

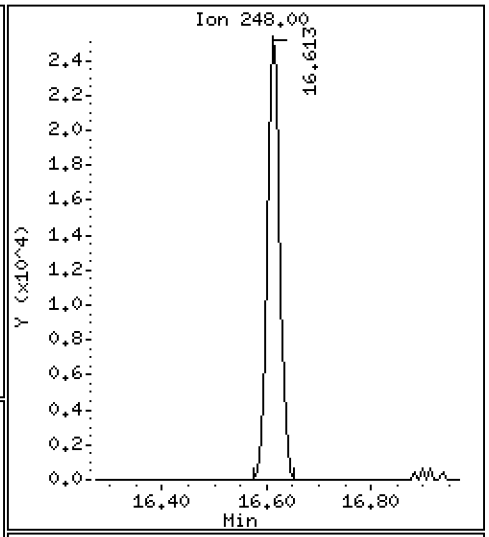
Concentration: 4.857 ug/mL

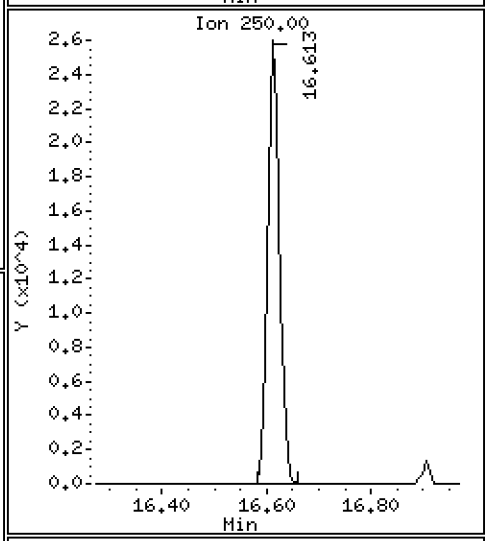


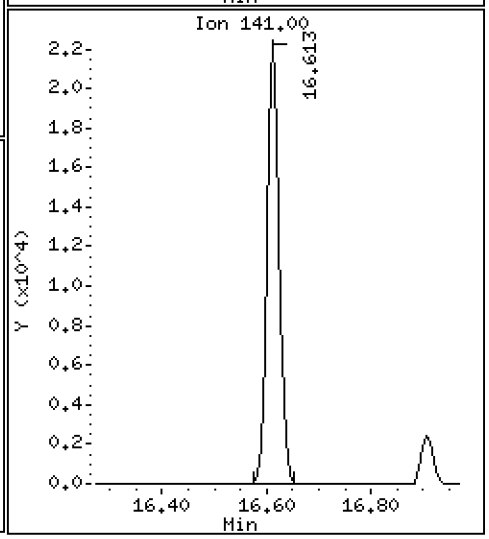












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

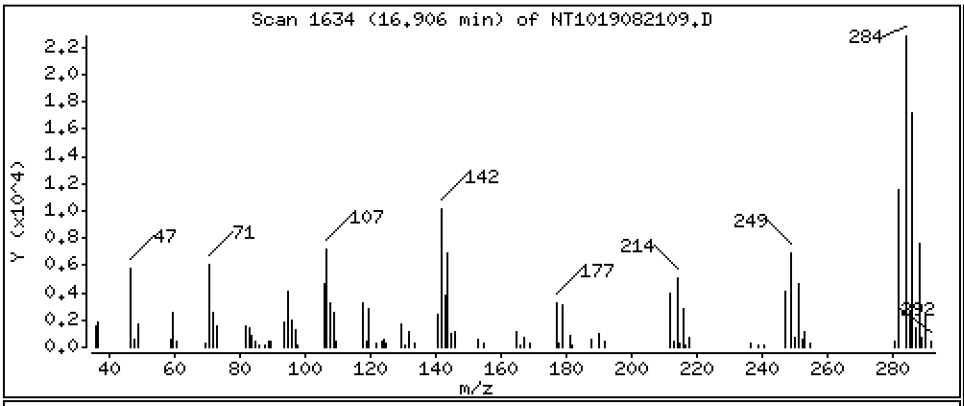
Operator: YZ

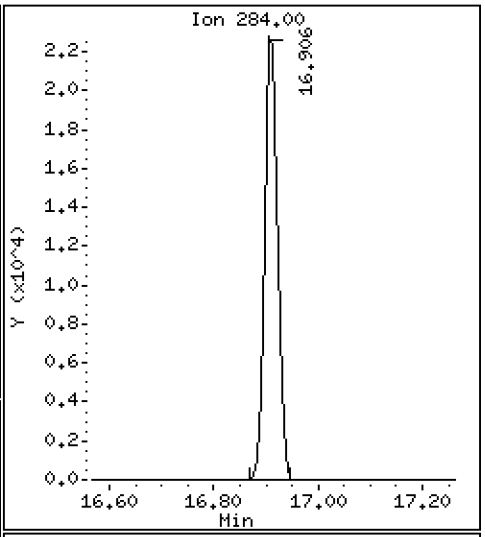
Column phase: ZB-5msi

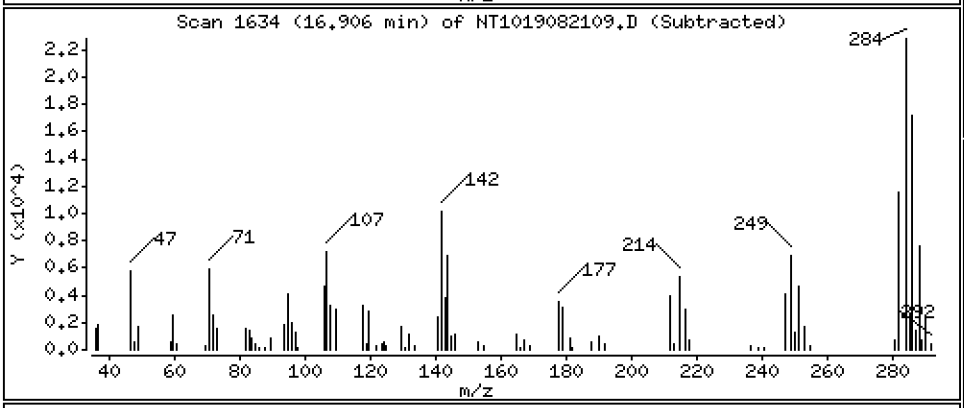
Column diameter: 0.25

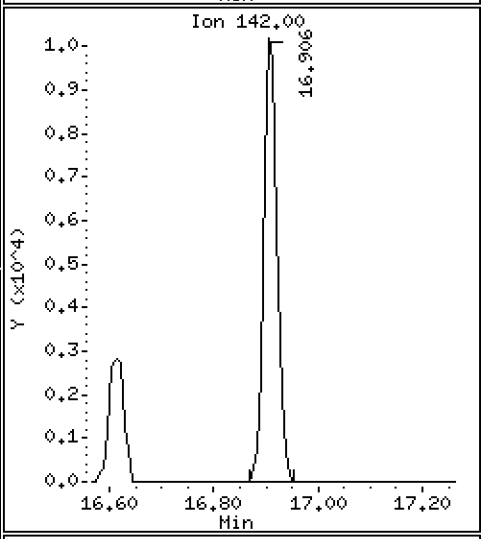
57 Hexachlorobenzene

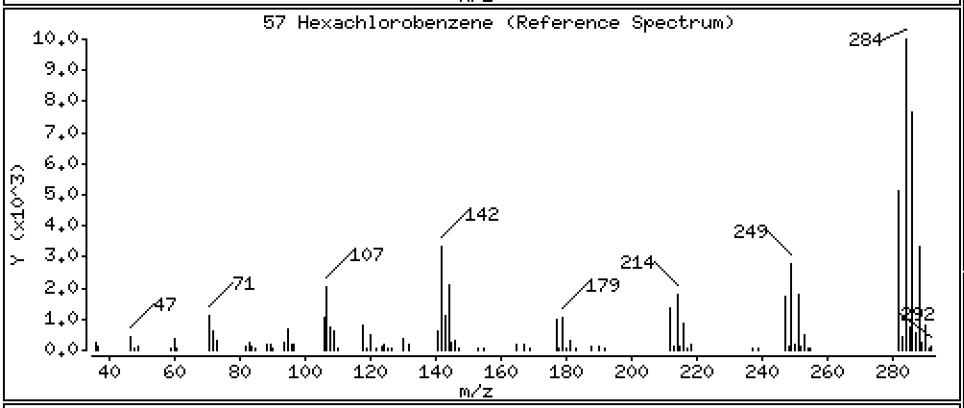
Concentration: 4.183 ug/mL

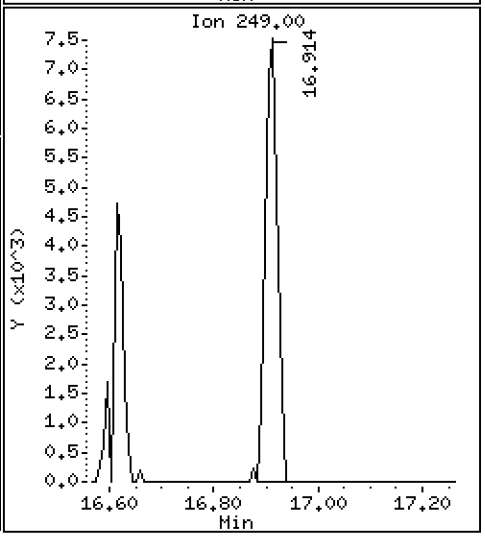


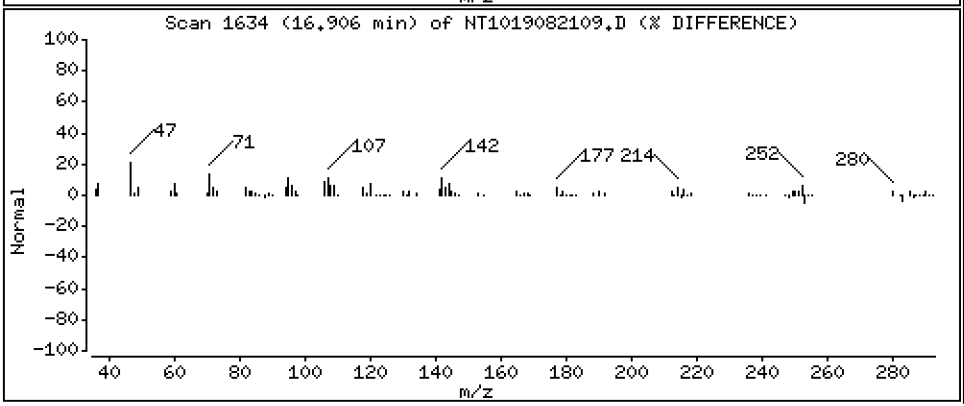












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

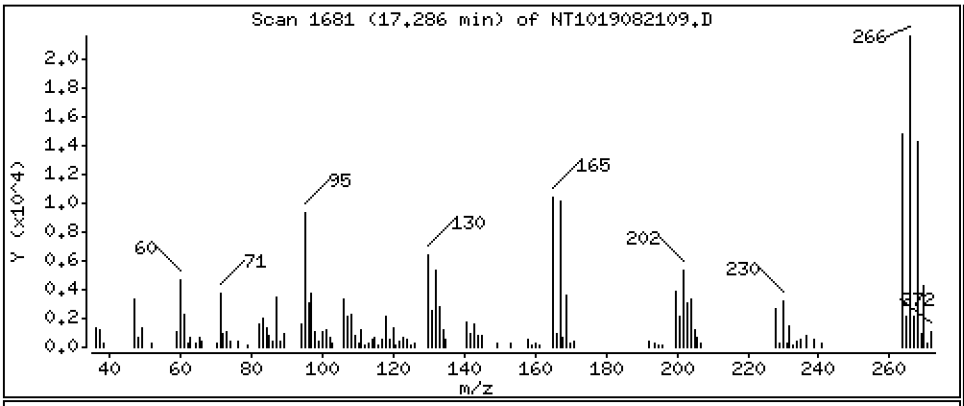
Operator: YZ

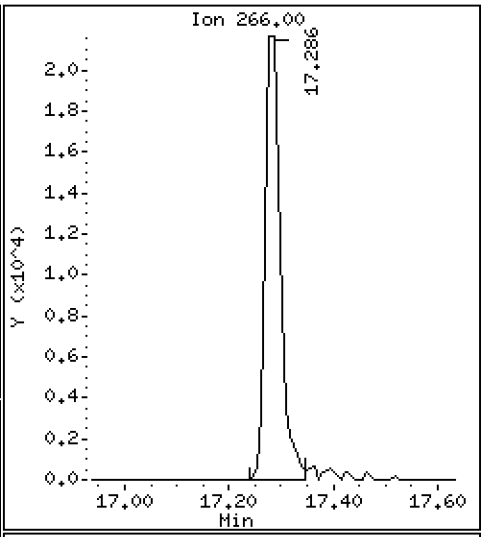
Column phase: ZB-5msi

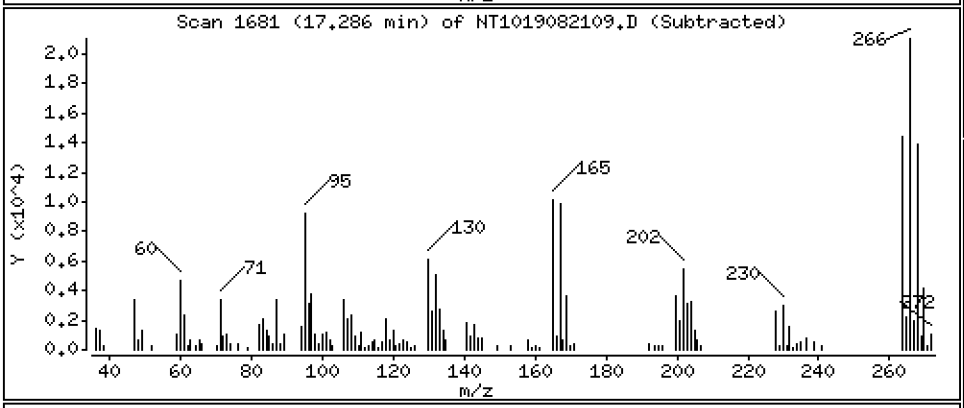
Column diameter: 0.25

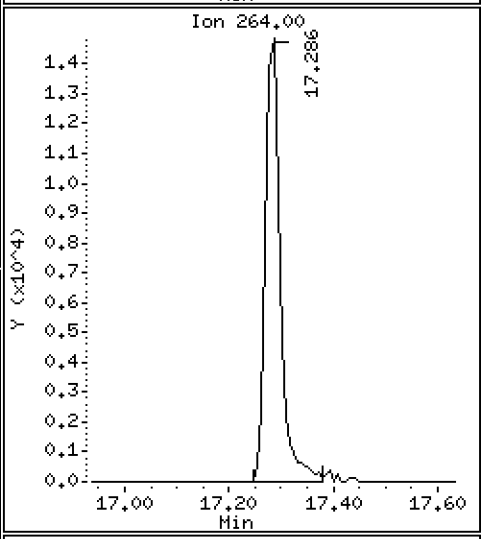
58 Pentachlorophenol

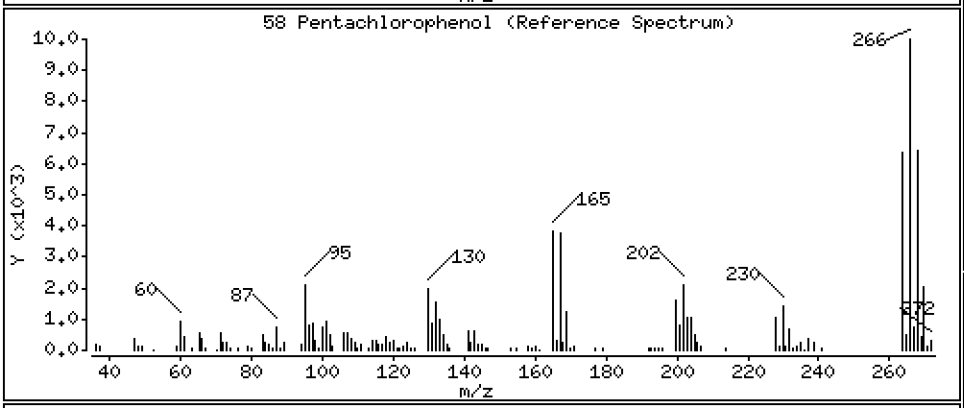
Concentration: 10.83 ug/mL

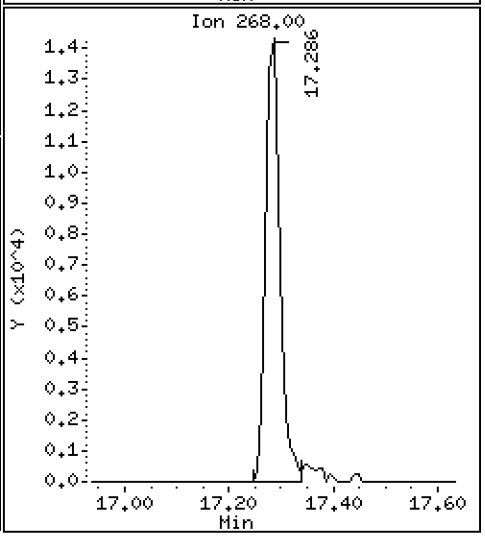


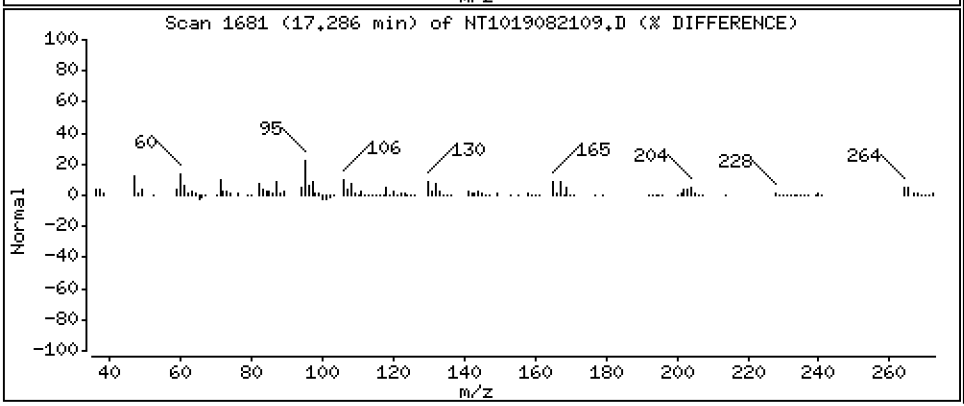












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

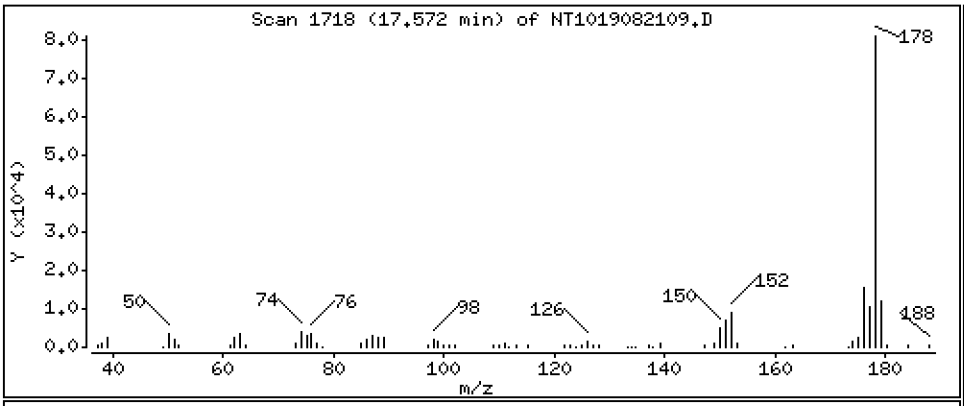
Operator: YZ

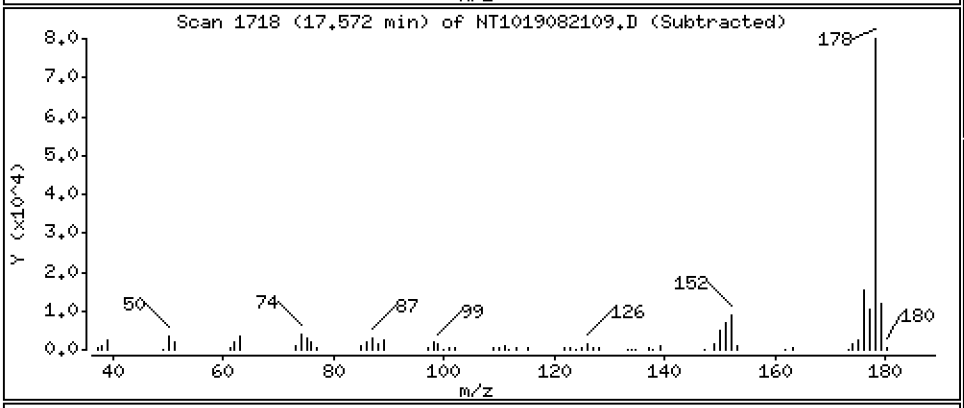
Column phase: ZB-5msi

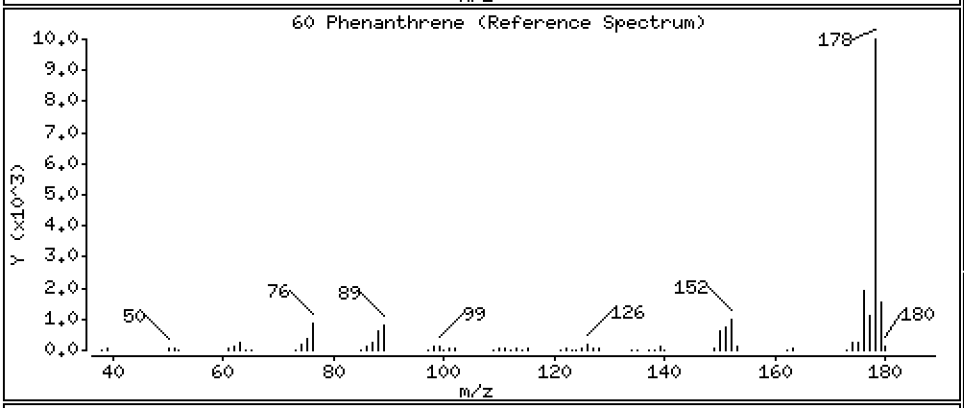
Column diameter: 0.25

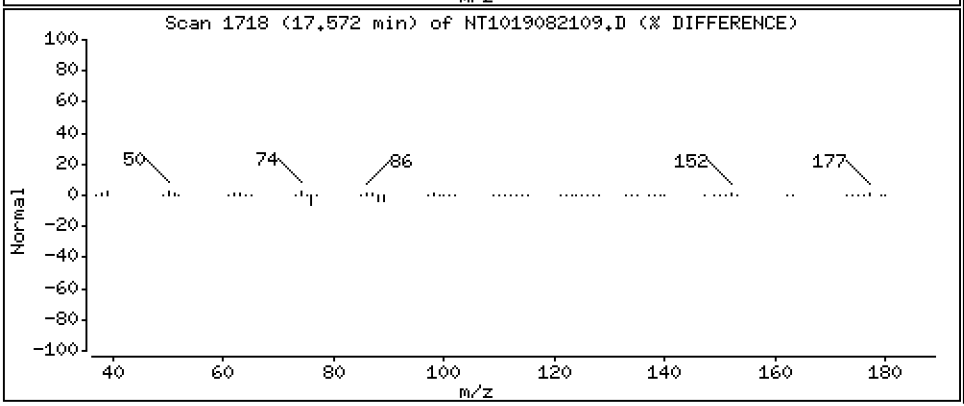
60 Phenanthrene

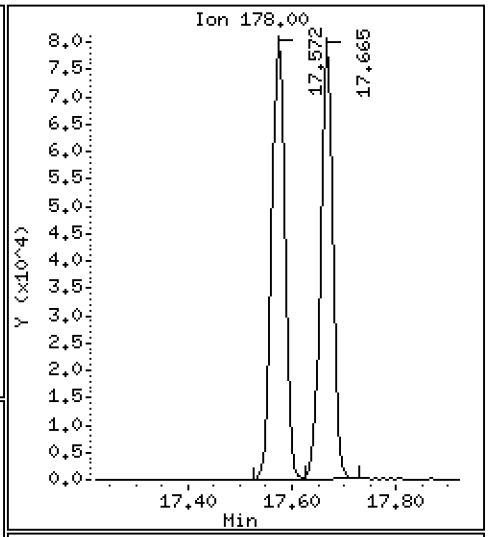
Concentration: 5.148 ug/mL

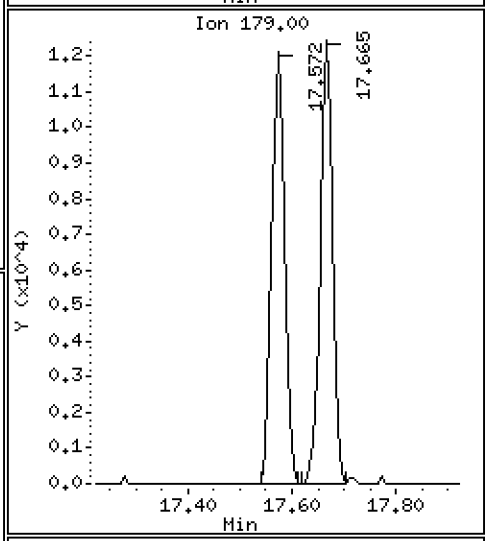


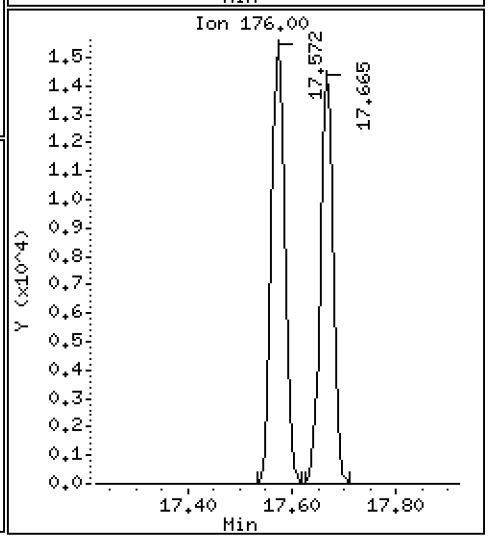












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

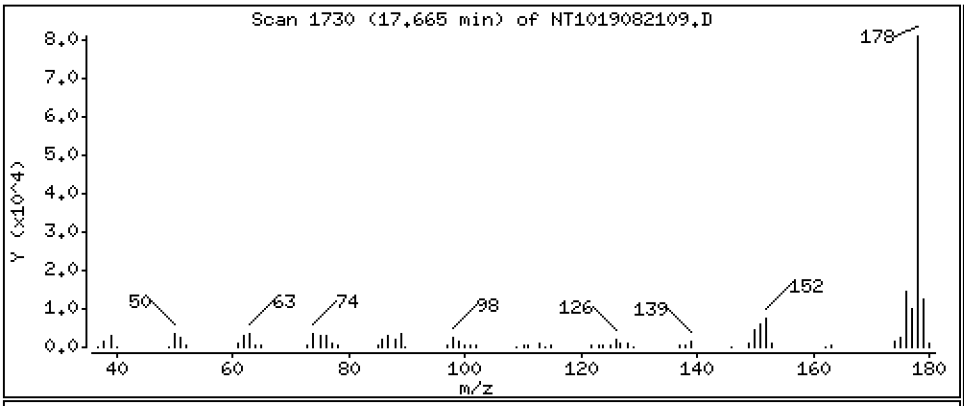
Operator: YZ

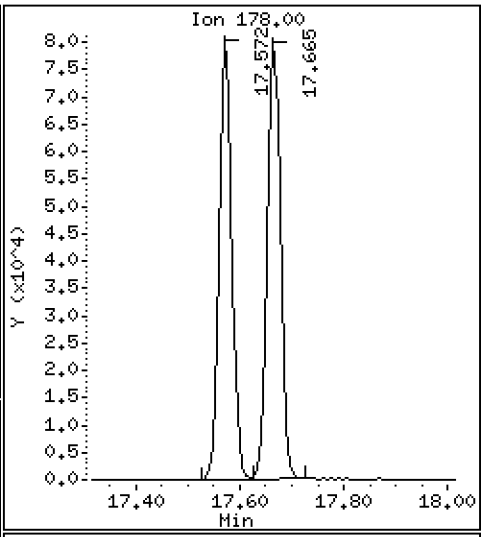
Column phase: ZB-5msi

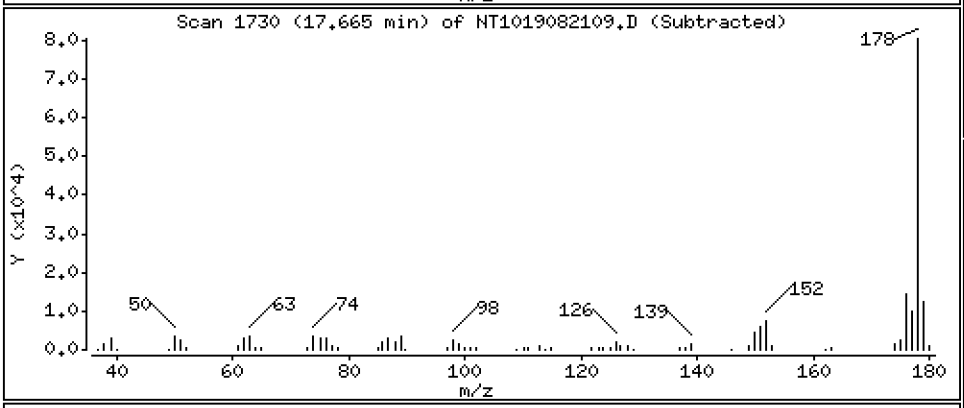
Column diameter: 0.25

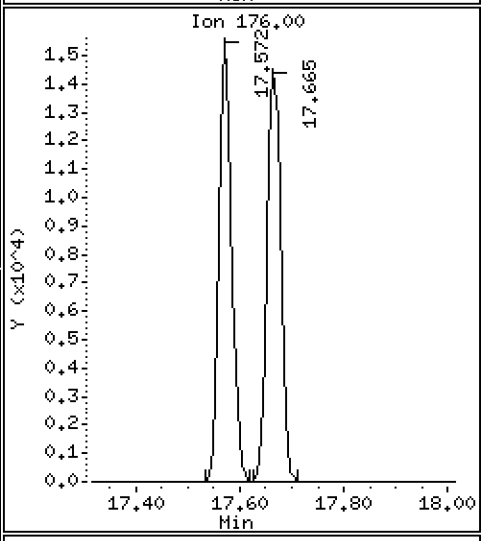
61 Anthracene

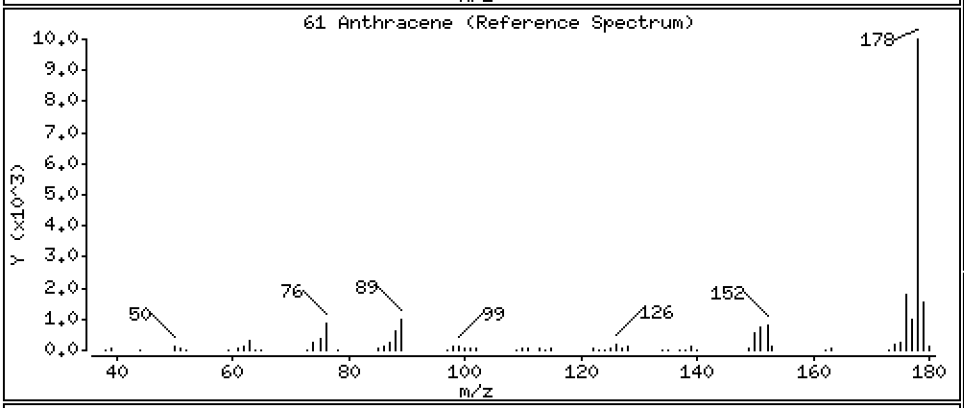
Concentration: 4.966 ug/mL

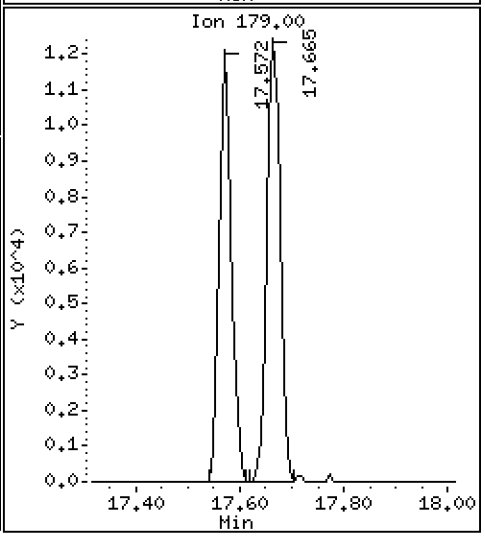


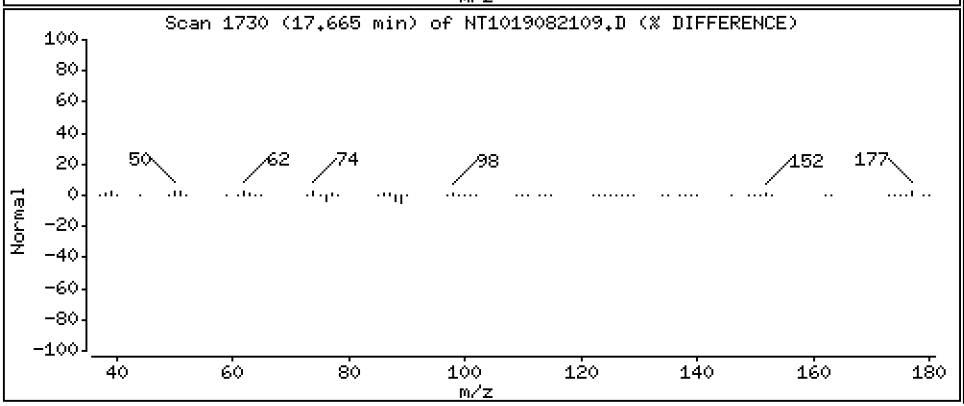












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

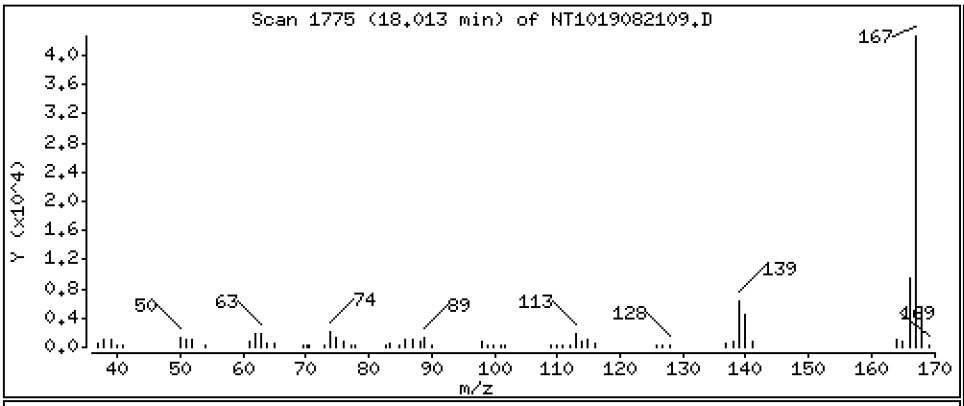
Operator: YZ

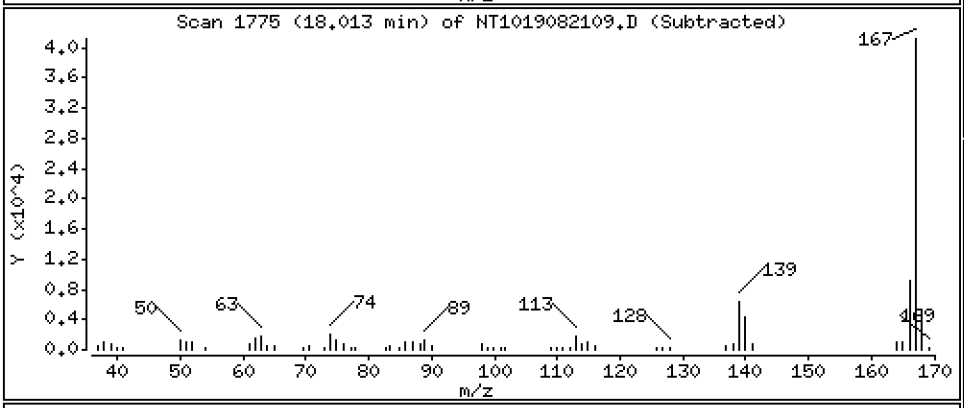
Column phase: ZB-5msi

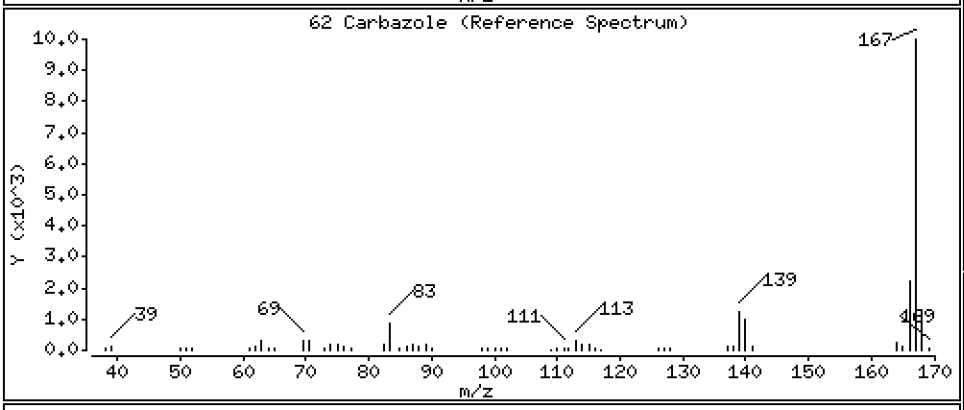
Column diameter: 0.25

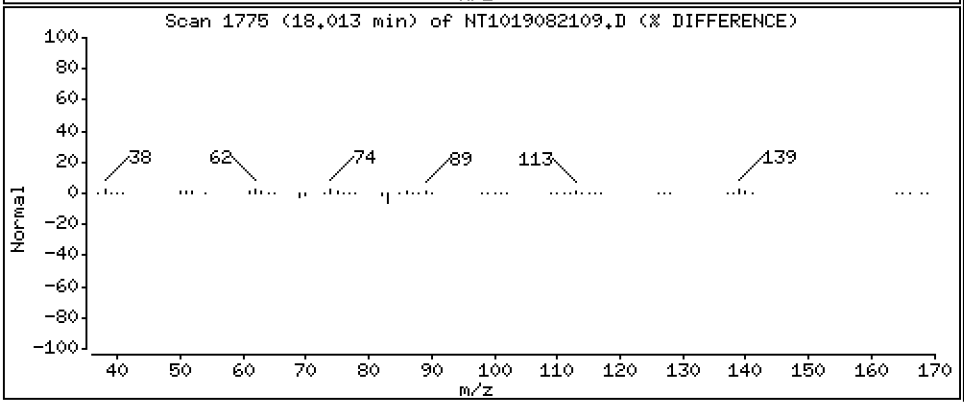
62 Carbazole

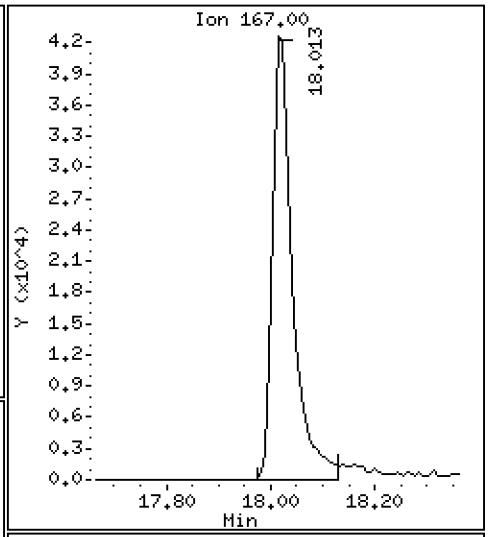
Concentration: 4.417 ug/mL

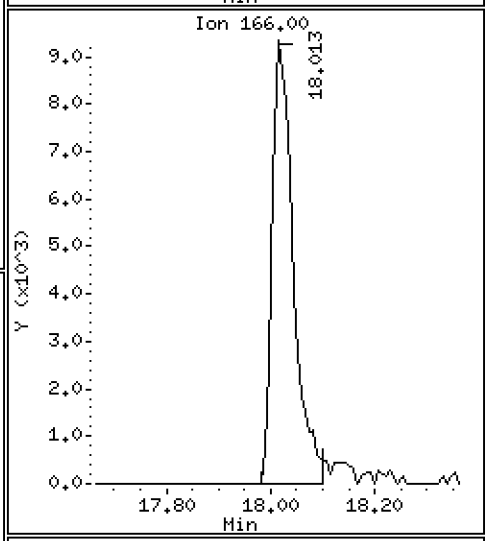


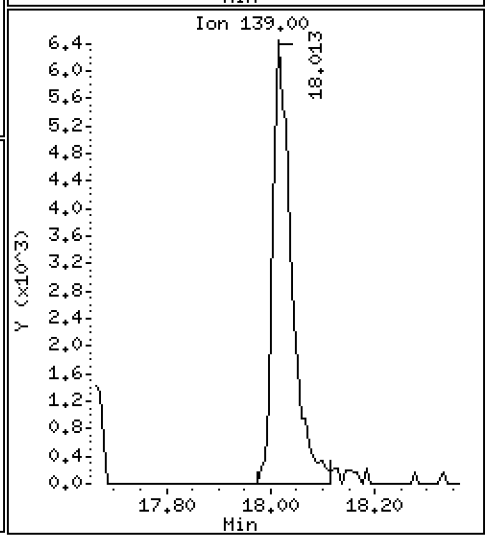












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

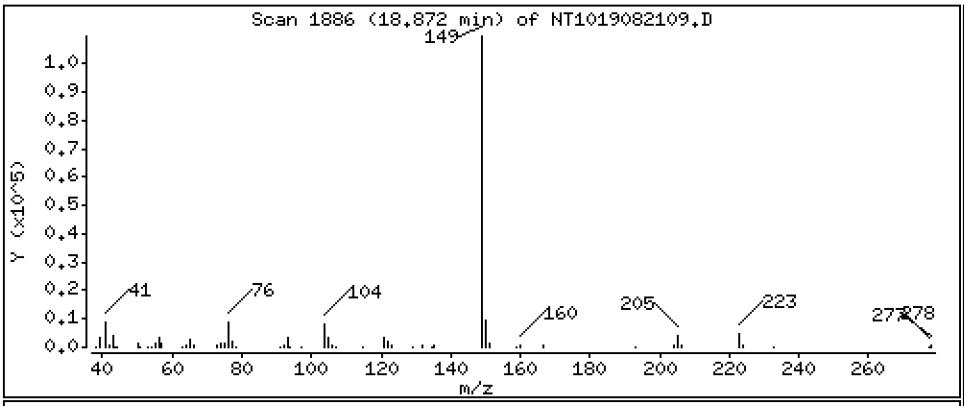
Operator: YZ

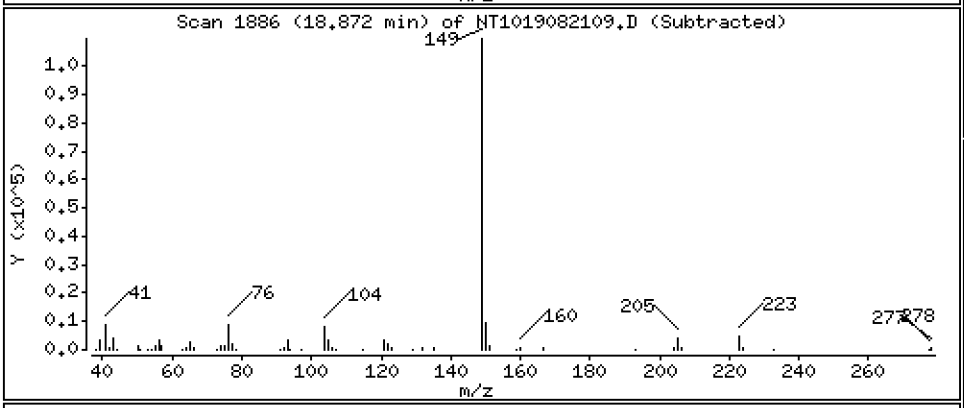
Column phase: ZB-5msi

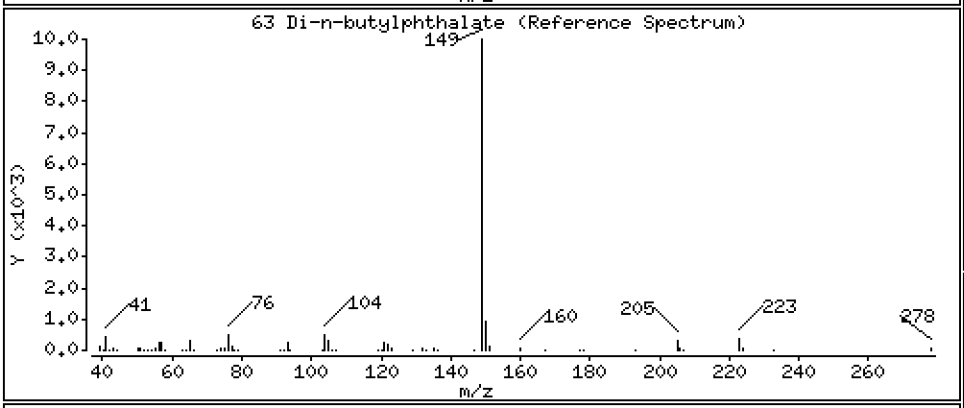
Column diameter: 0.25

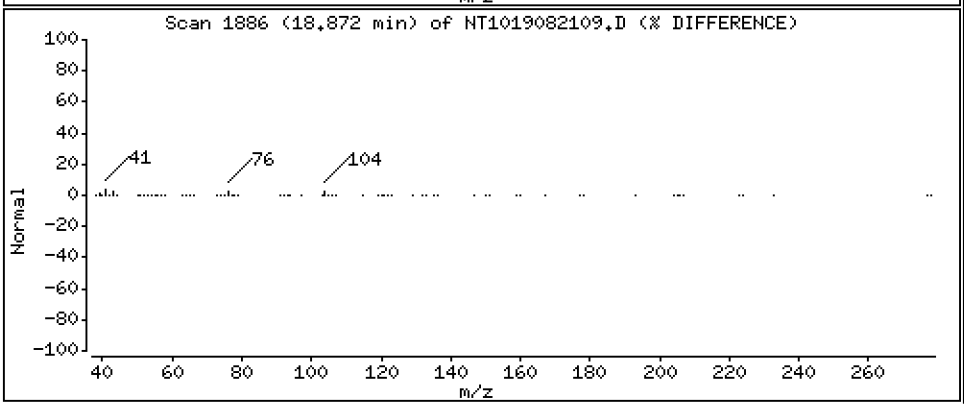
63 Di-n-butylphthalate

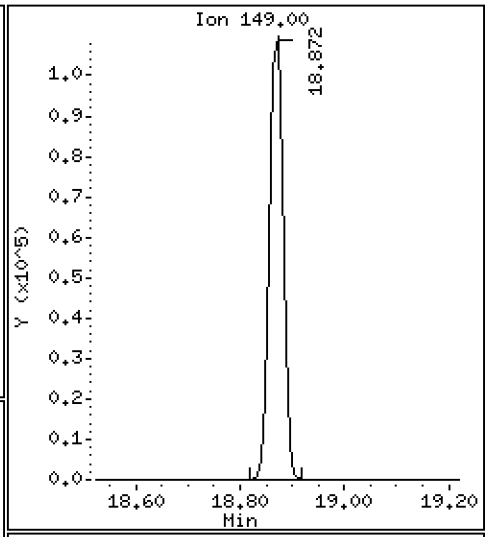
Concentration: 5.251 ug/mL

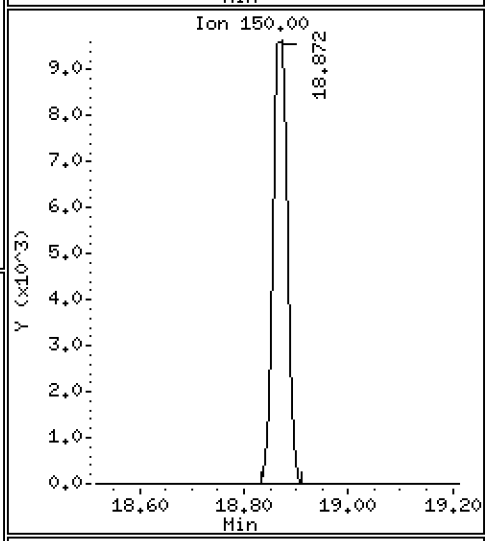


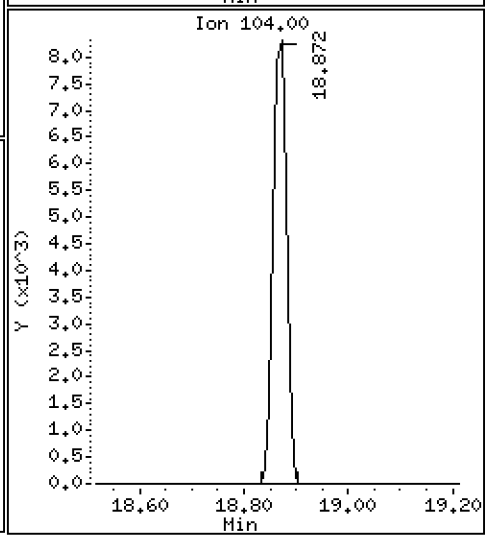












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

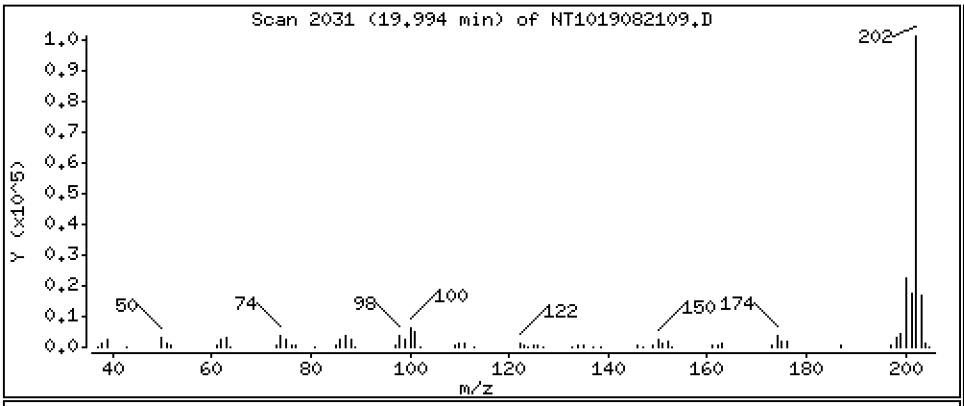
Operator: YZ

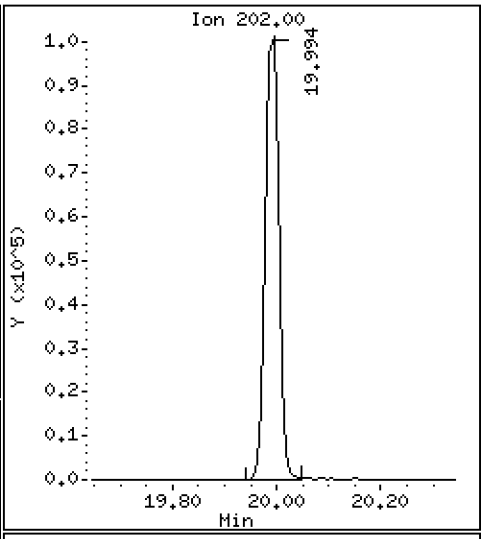
Column phase: ZB-5msi

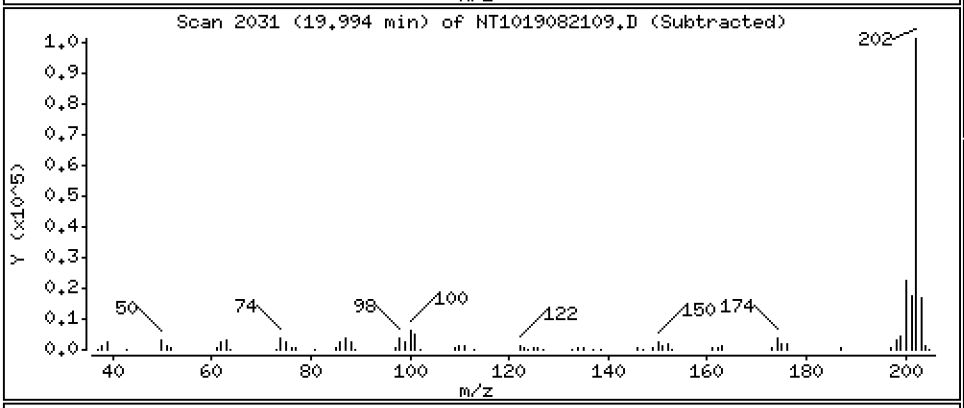
Column diameter: 0.25

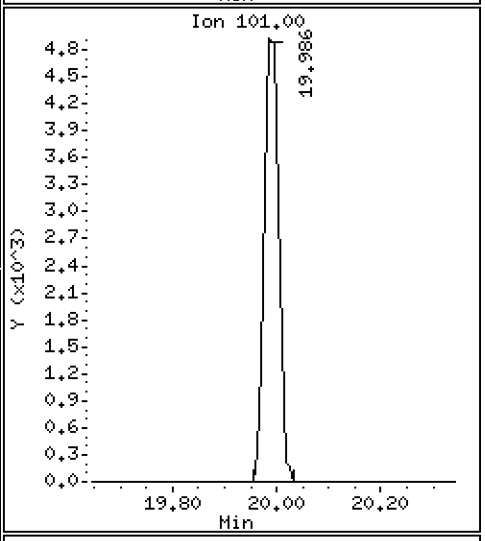
64 Fluoranthene

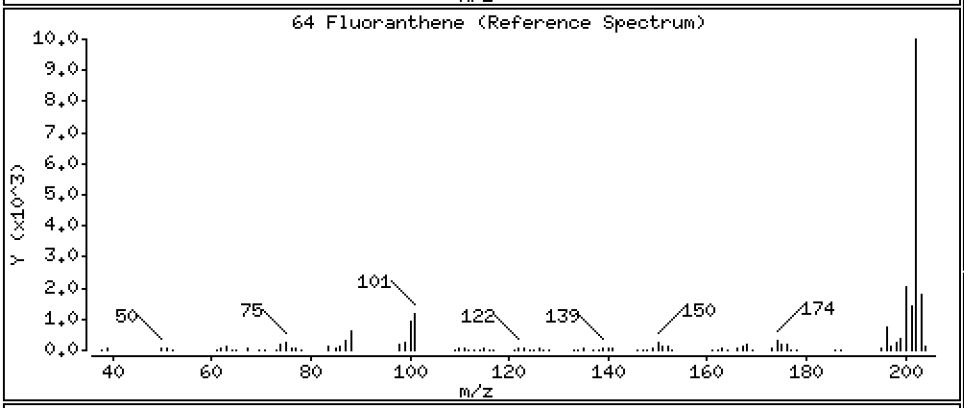
Concentration: 5.594 ug/mL

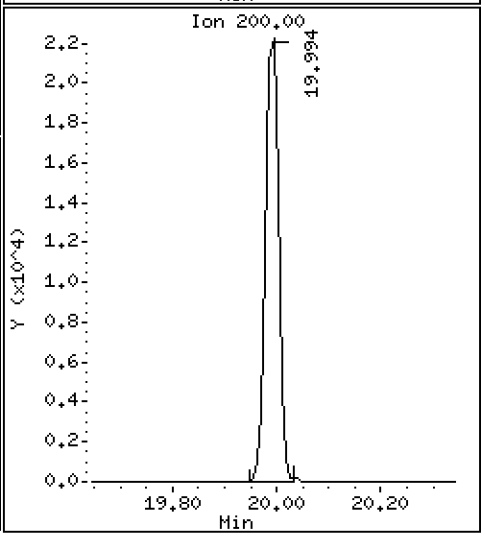


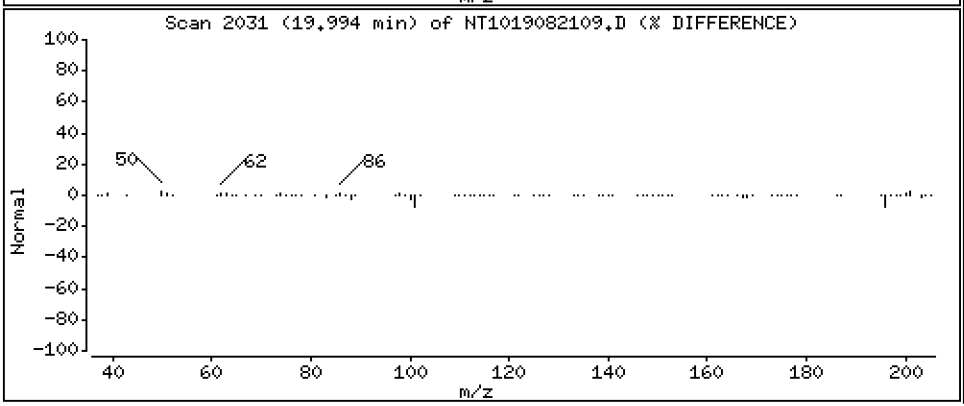












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

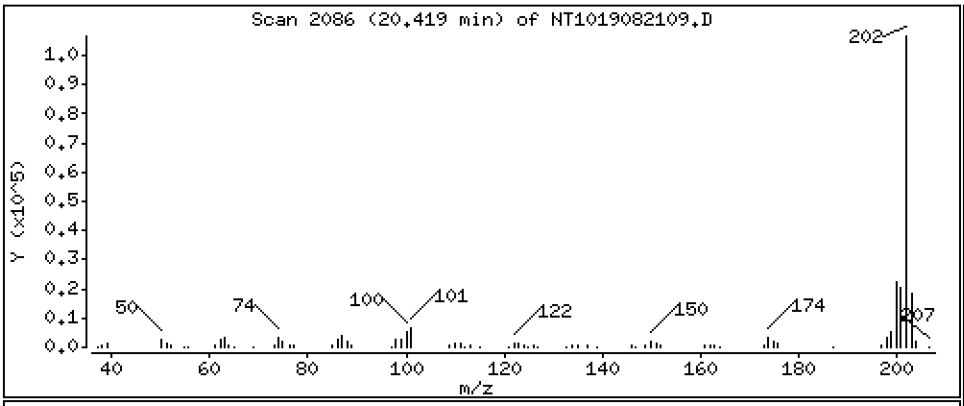
Operator: YZ

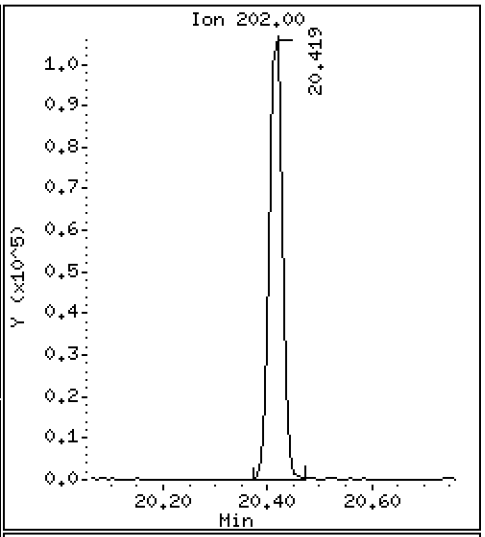
Column phase: ZB-5msi

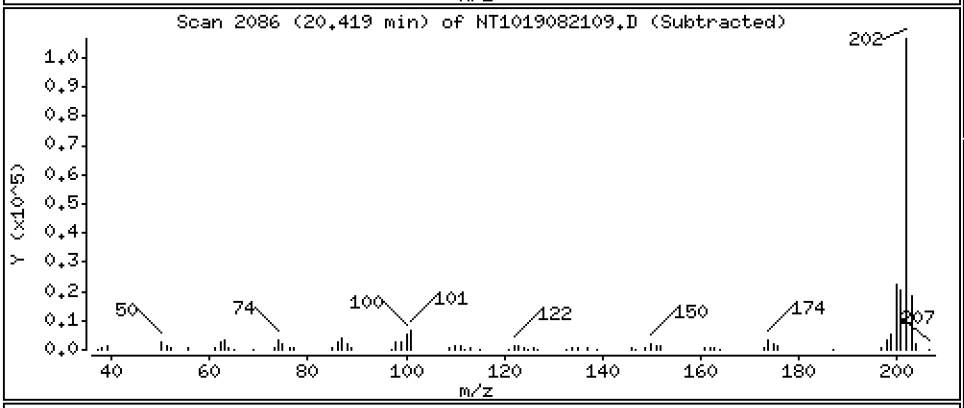
Column diameter: 0.25

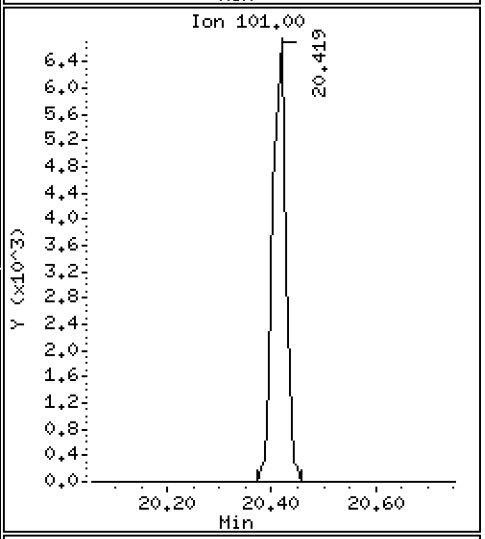
65 Pyrene

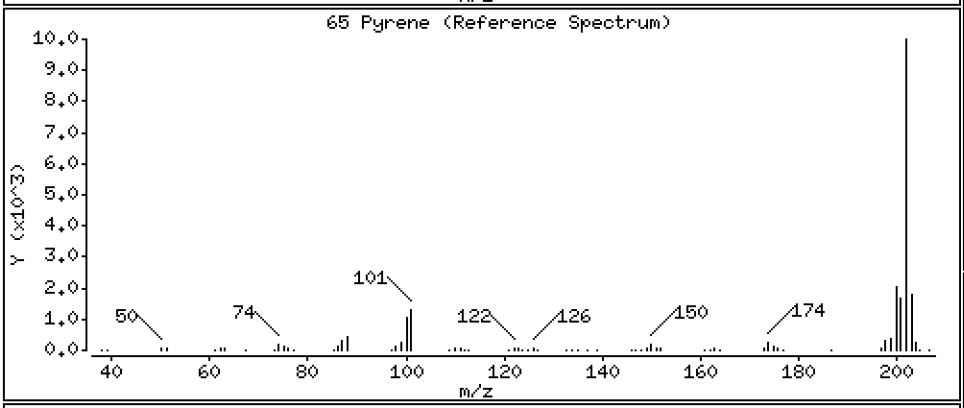
Concentration: 5.424 ug/mL

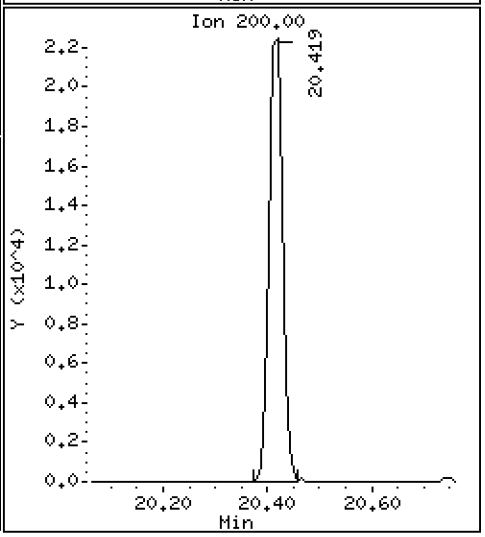


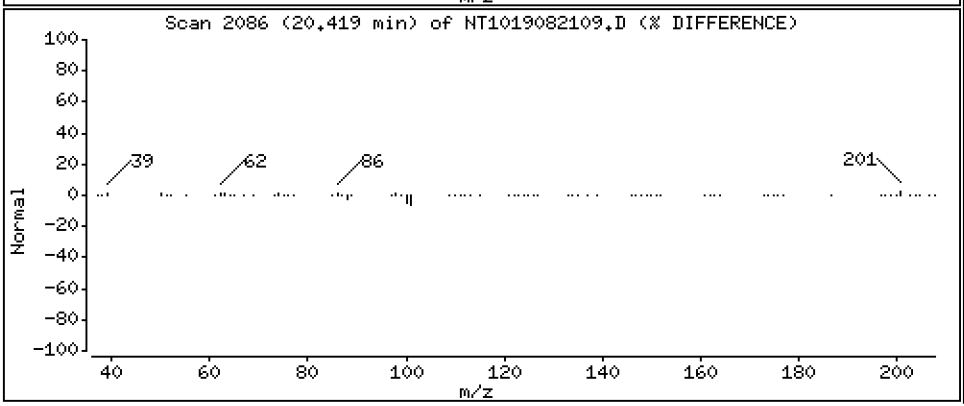












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

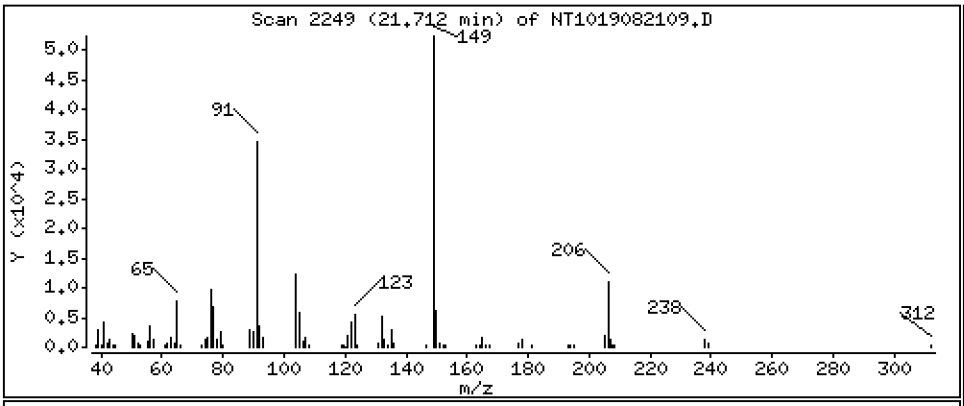
Operator: YZ

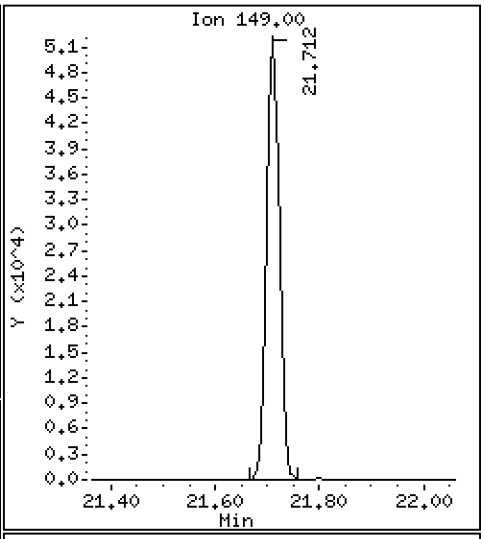
Column phase: ZB-5msi

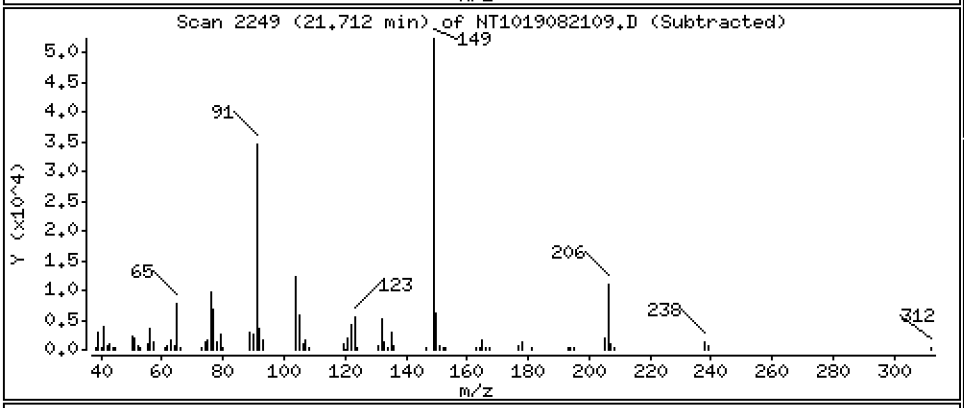
Column diameter: 0.25

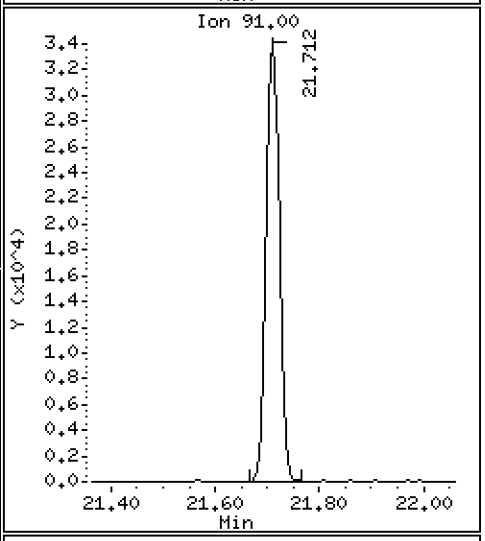
67 Butylbenzylphthalate

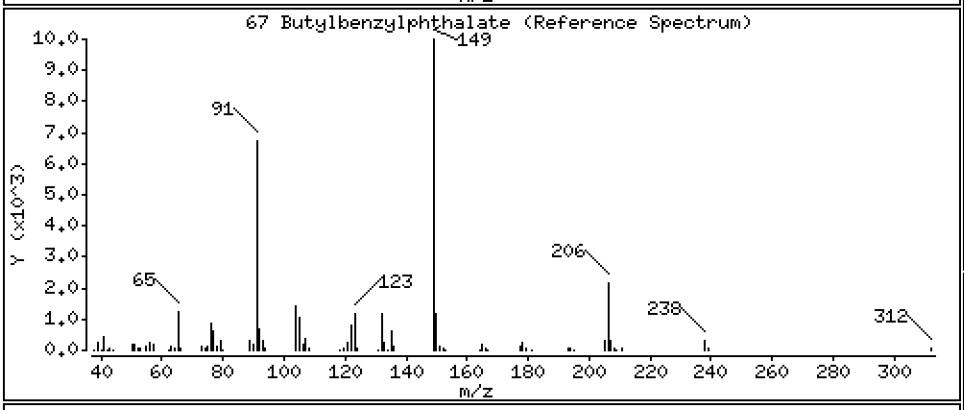
Concentration: 5.562 ug/mL

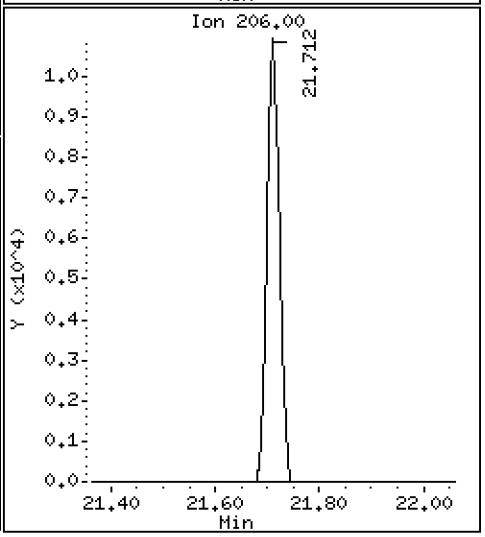


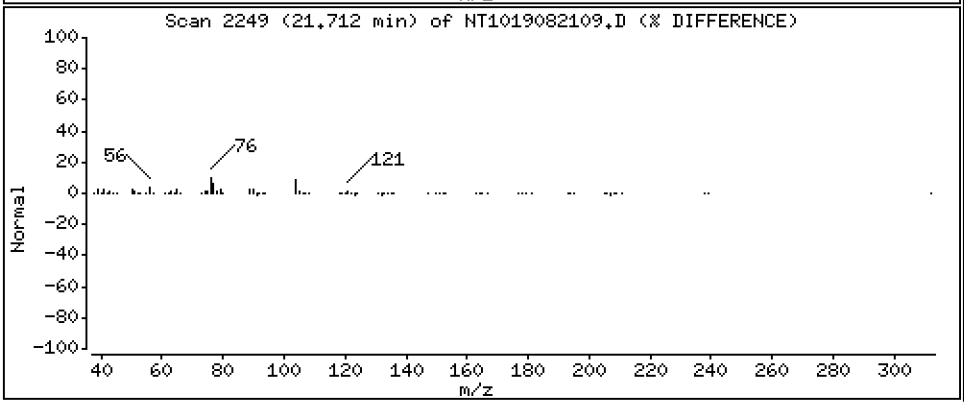












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

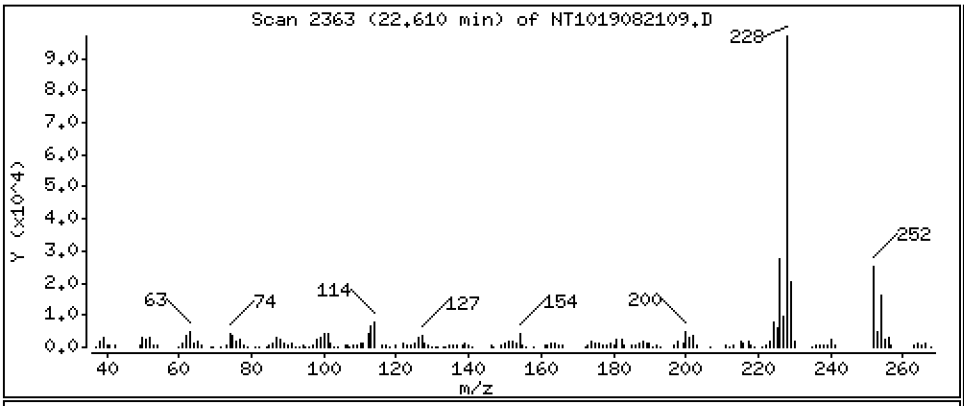
Operator: YZ

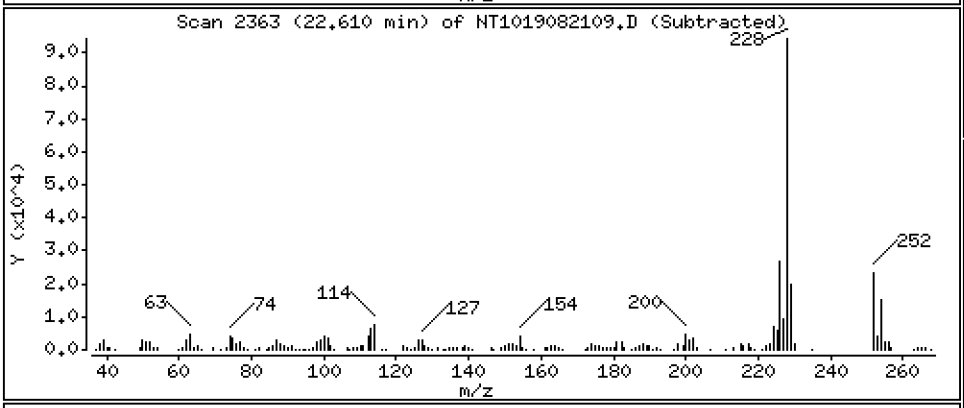
Column phase: ZB-5msi

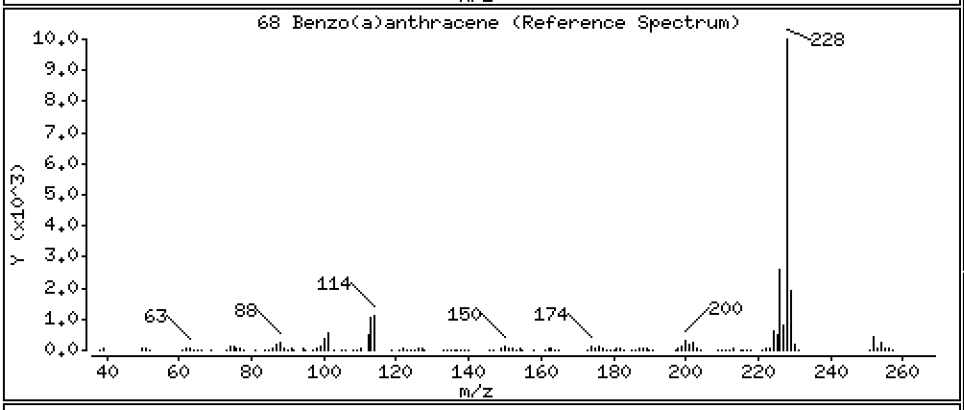
Column diameter: 0.25

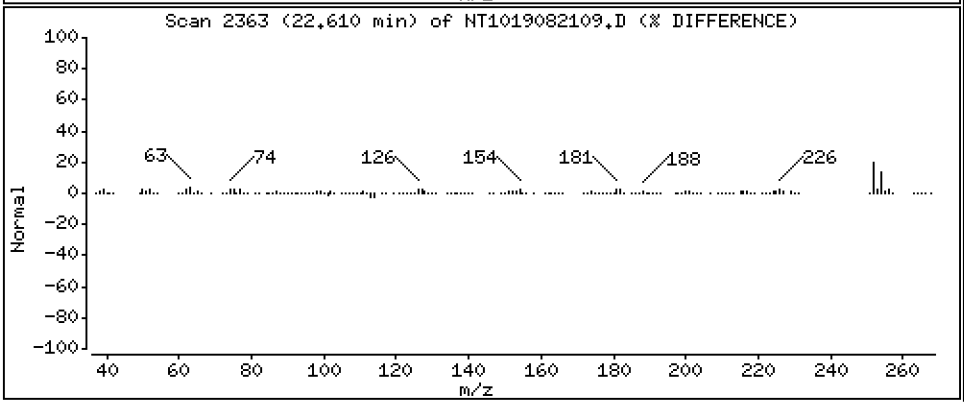
68 Benzo(a)anthracene

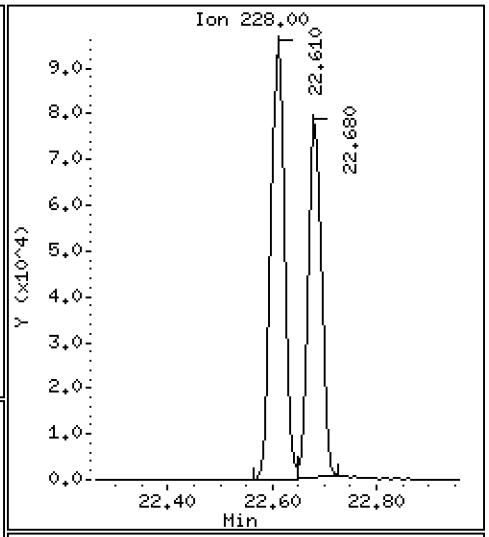
Concentration: 5.616 ug/mL

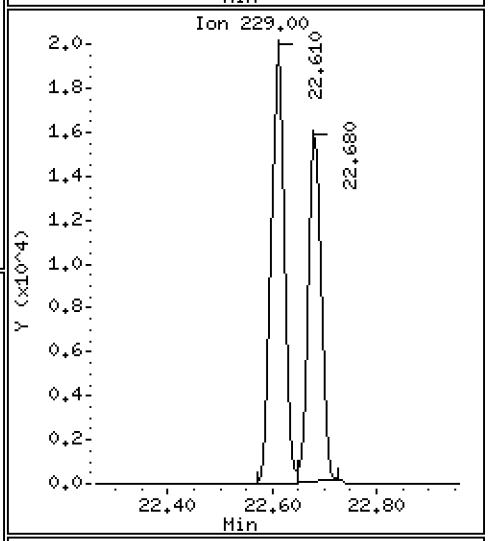


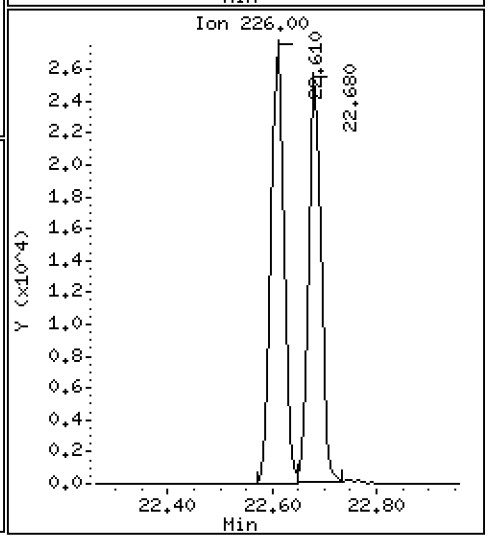












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

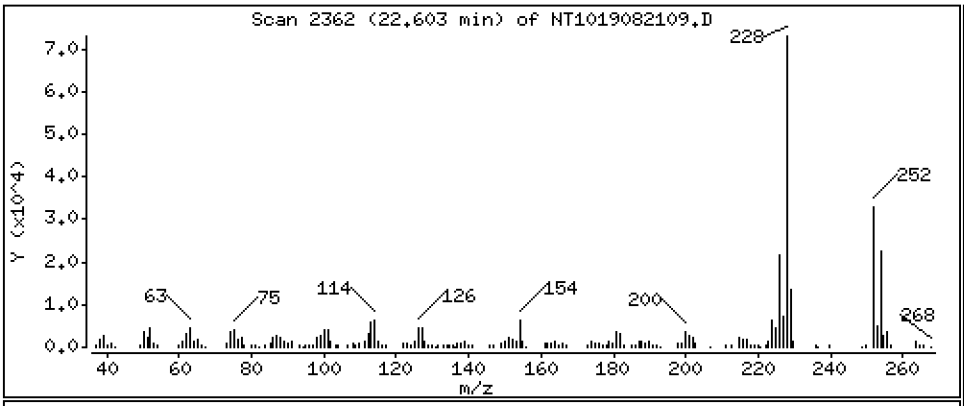
Operator: YZ

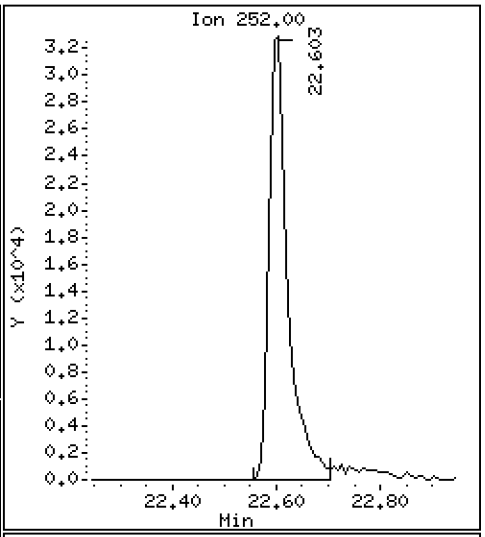
Column phase: ZB-5msi

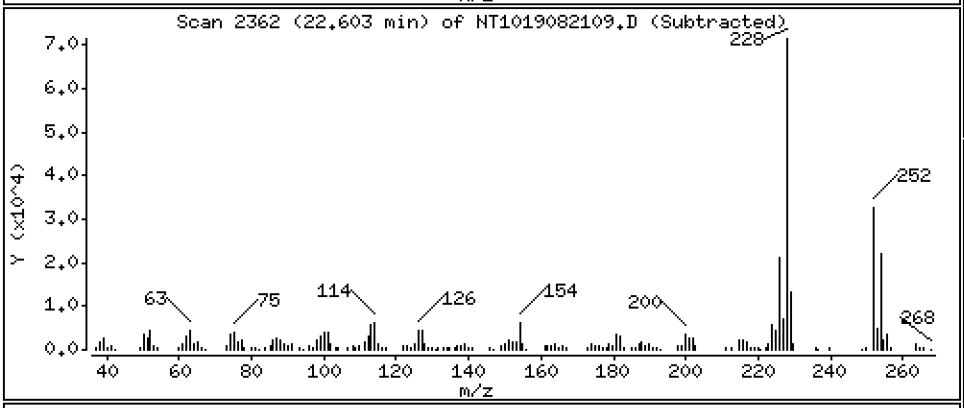
Column diameter: 0.25

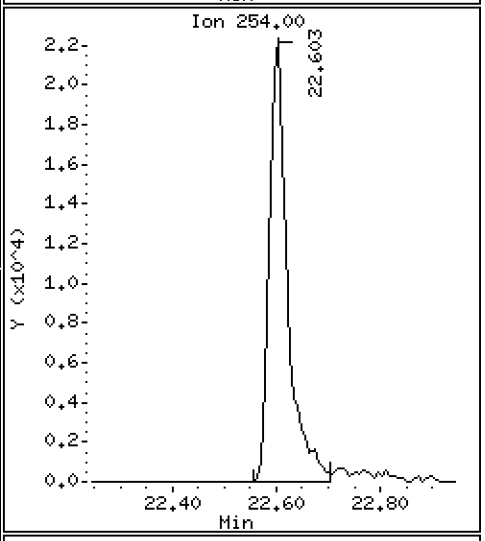
70 3,3'-Dichlorobenzidine

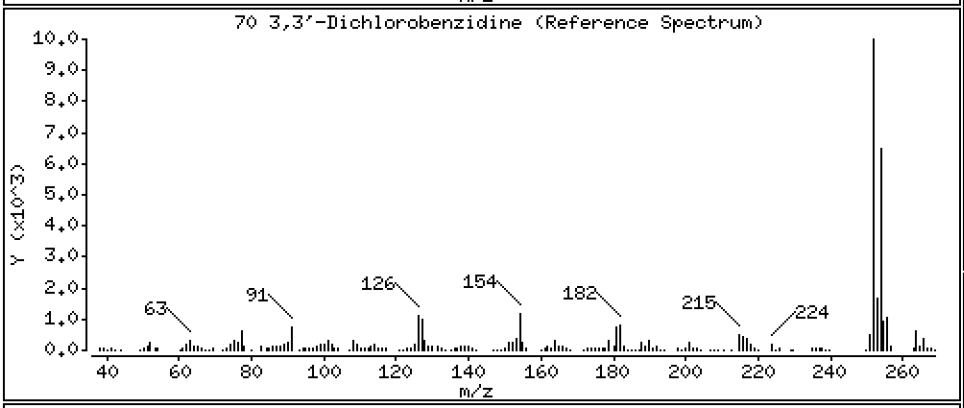
Concentration: 7.811 ug/mL

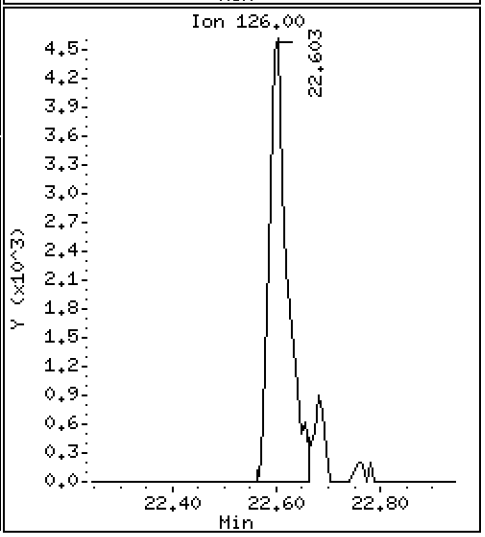


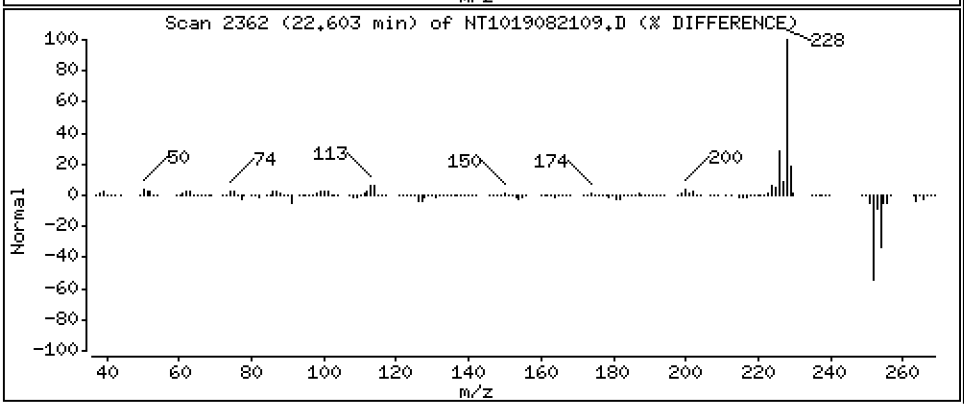












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D

Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

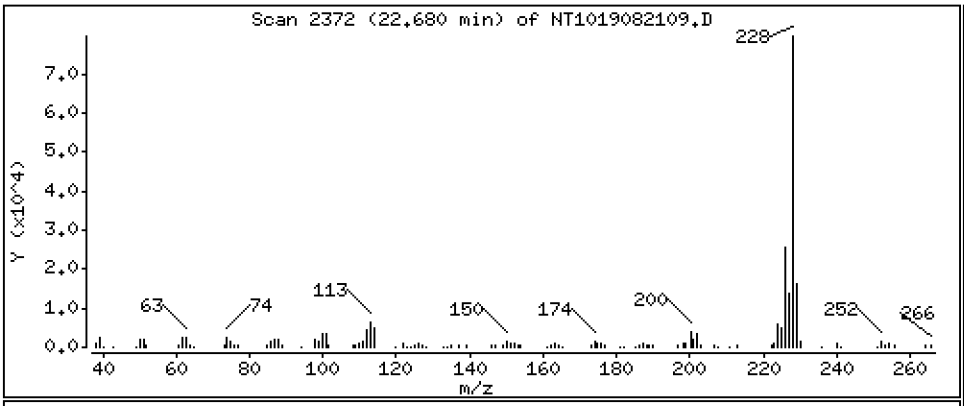
Operator: YZ

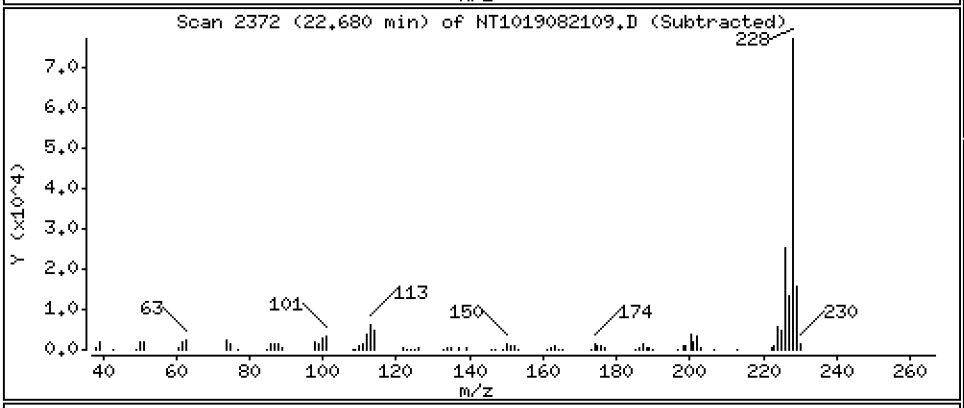
Column phase: ZB-5msi

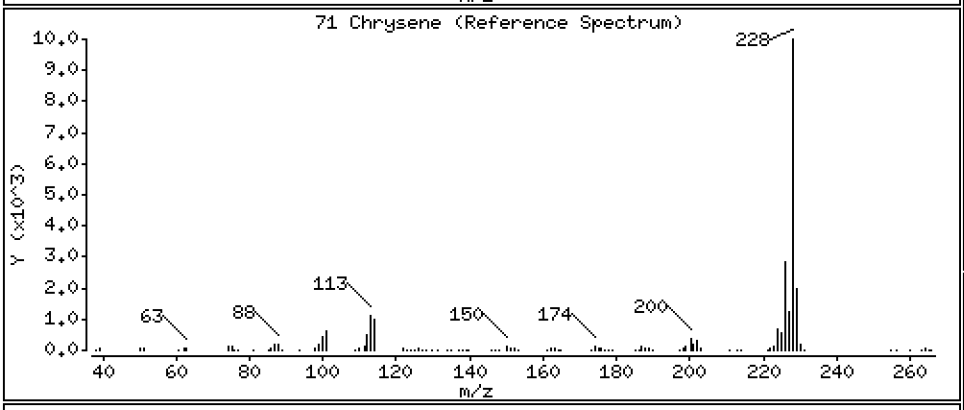
Column diameter: 0.25

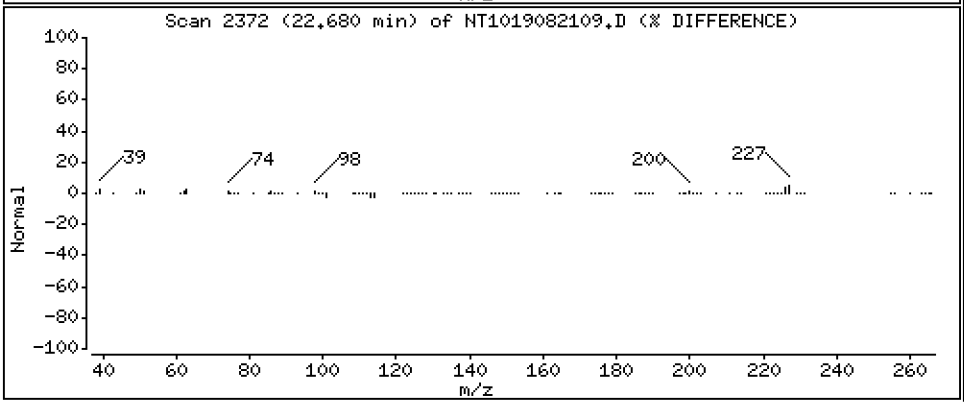
71 Chrysene

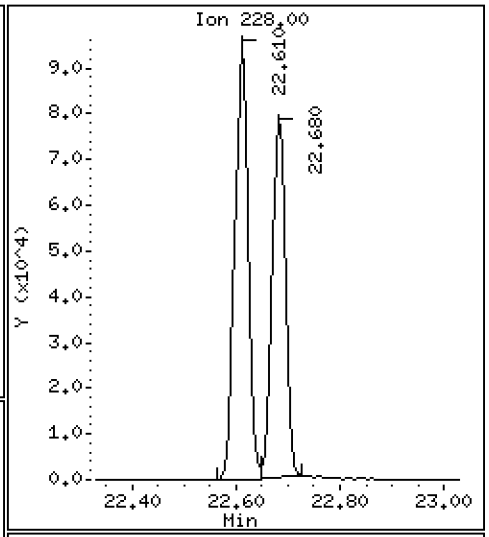
Concentration: 5.091 ug/mL

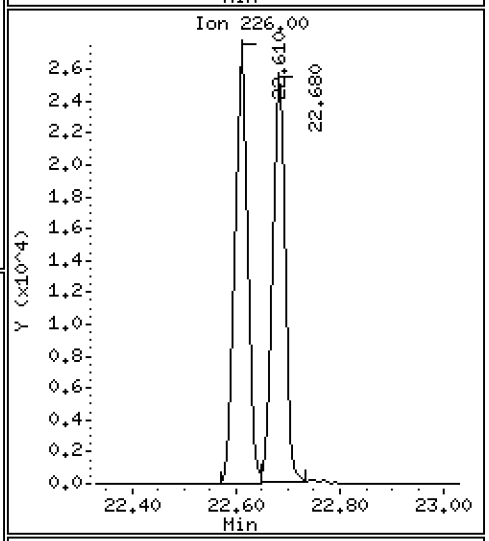


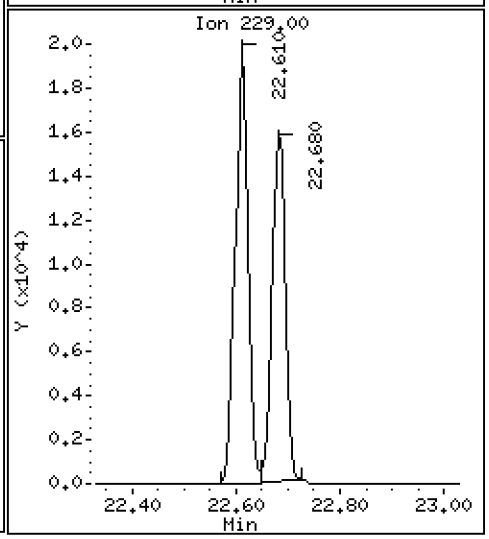












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

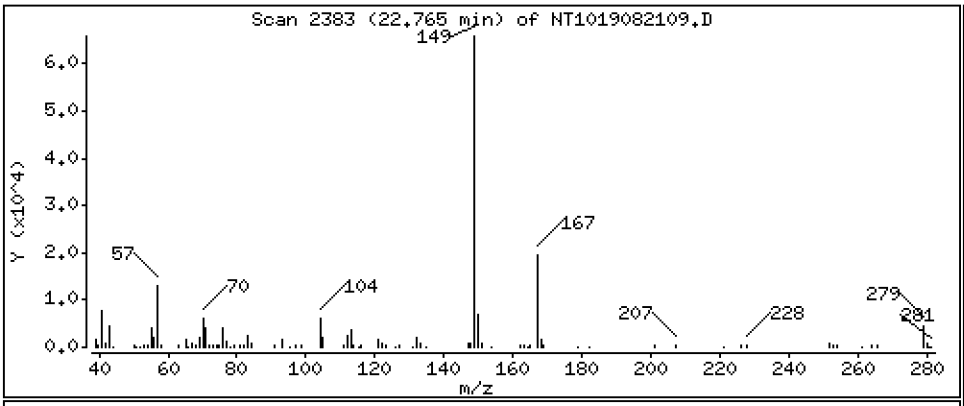
Operator: YZ

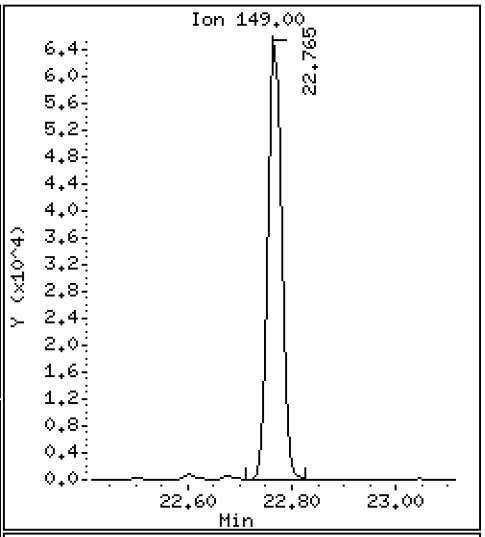
Column phase: ZB-5msi

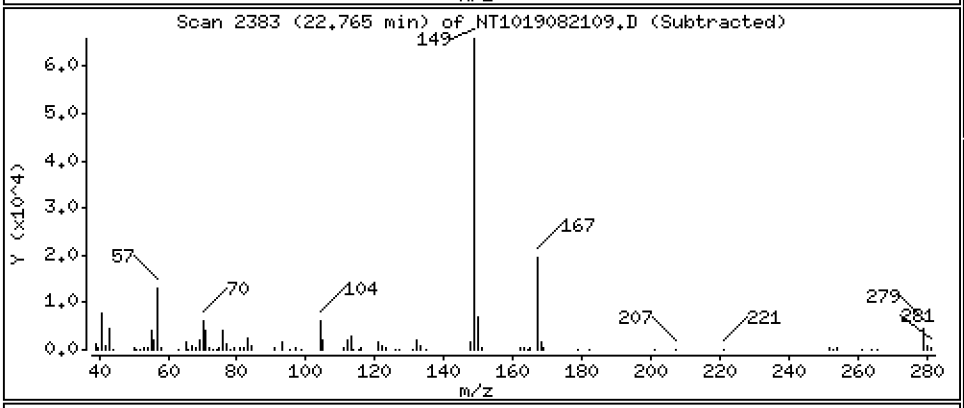
Column diameter: 0.25

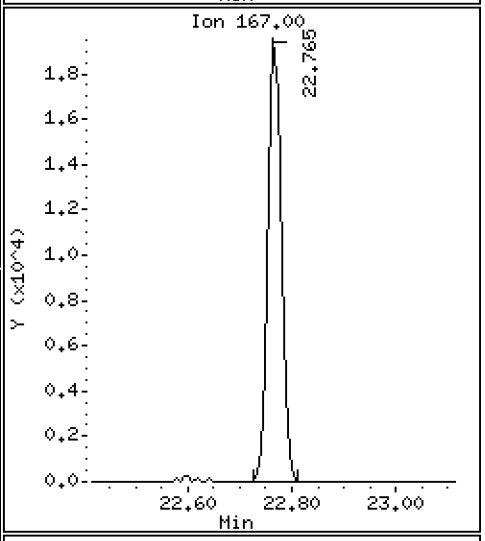
72 bis(2-Ethylhexyl)phthalate

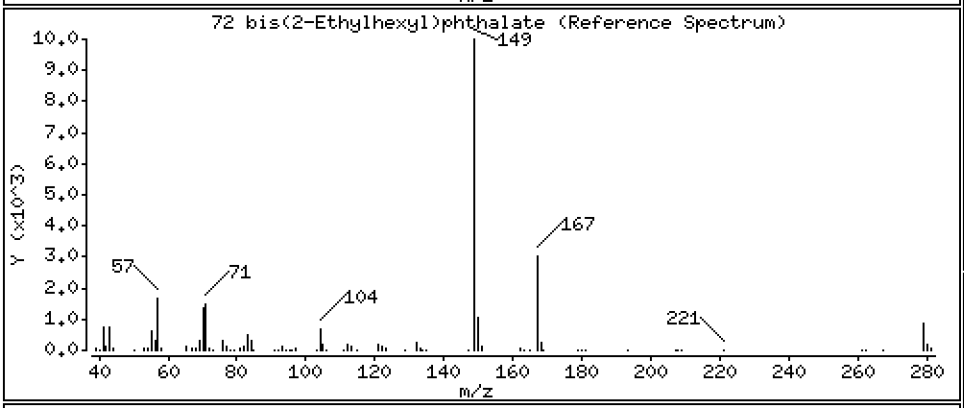
Concentration: 5.658 ug/mL

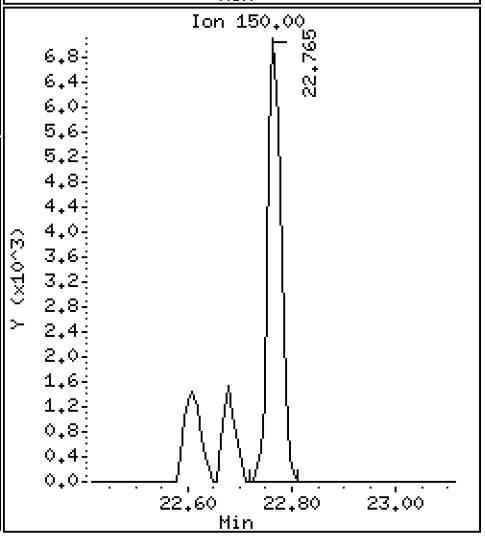


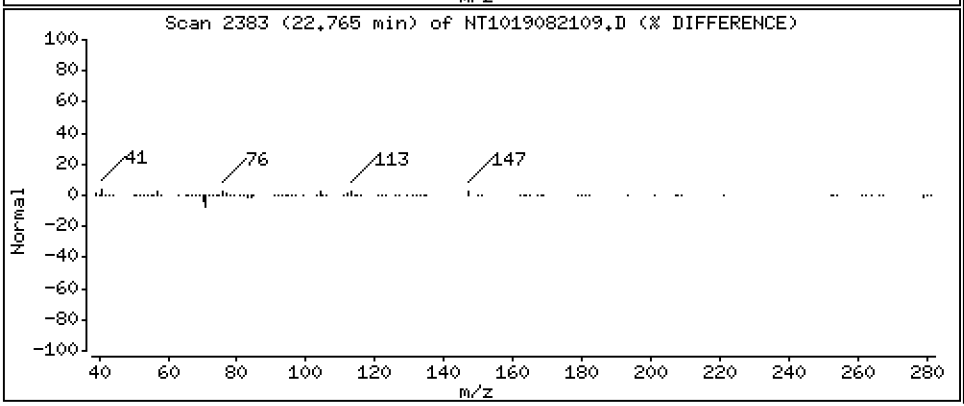












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

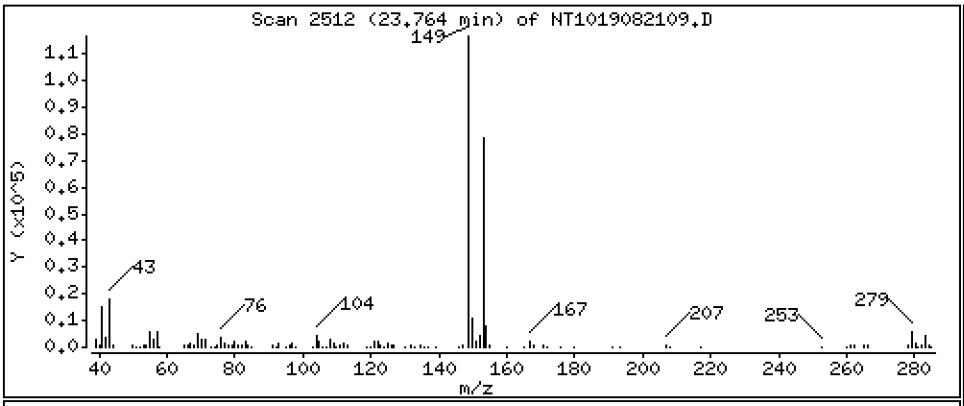
Operator: YZ

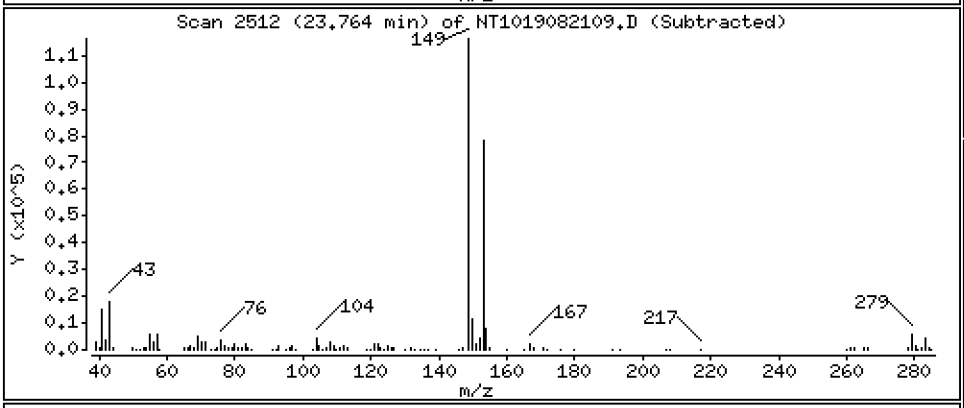
Column phase: ZB-5msi

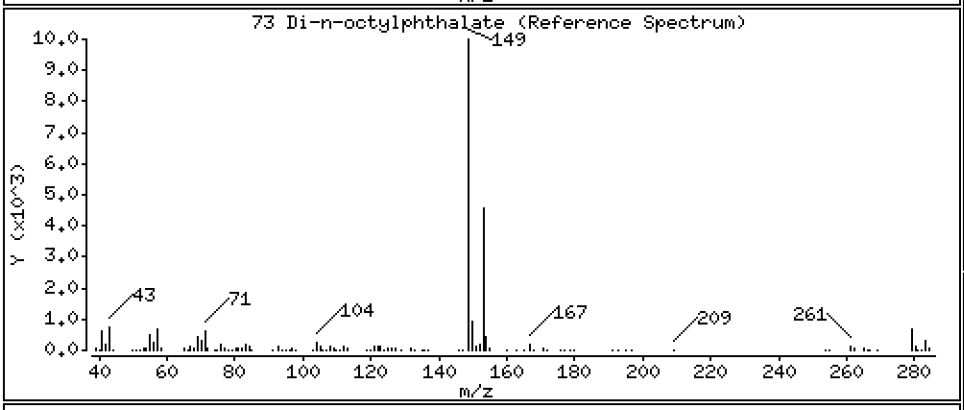
Column diameter: 0.25

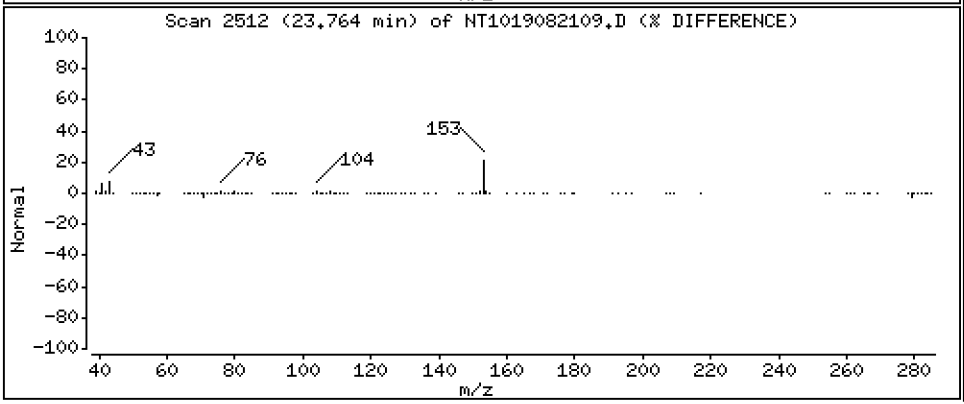
73 Di-n-octylphthalate

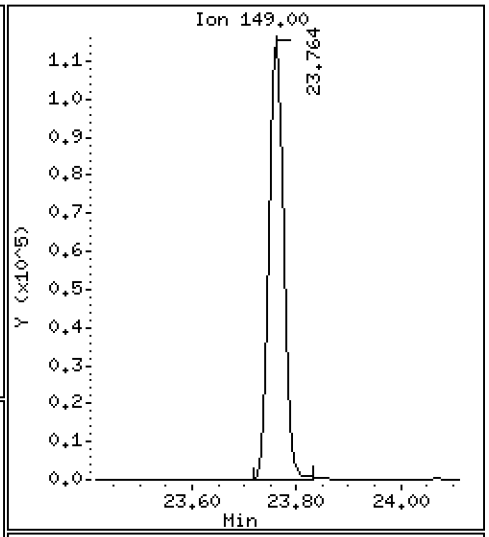
Concentration: 5.096 ug/mL

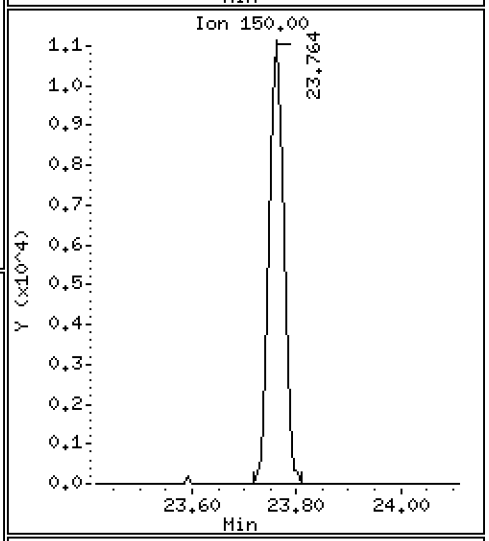


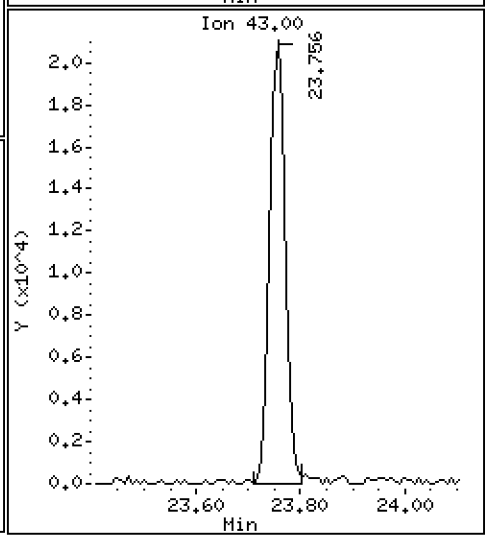












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

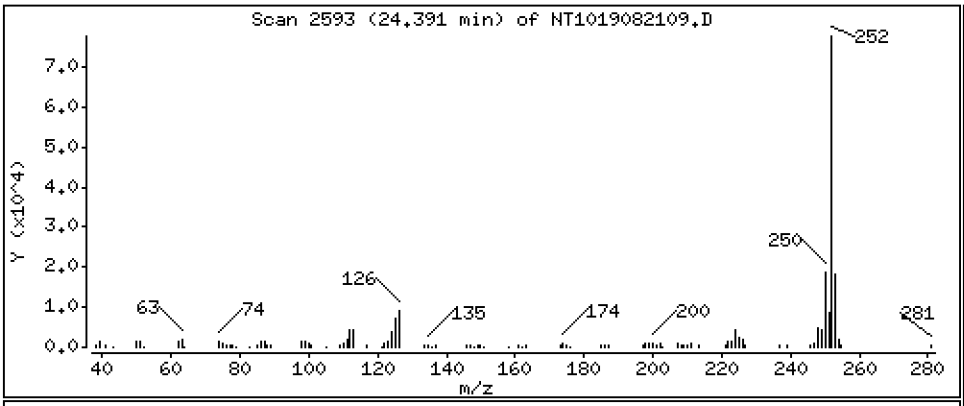
Operator: YZ

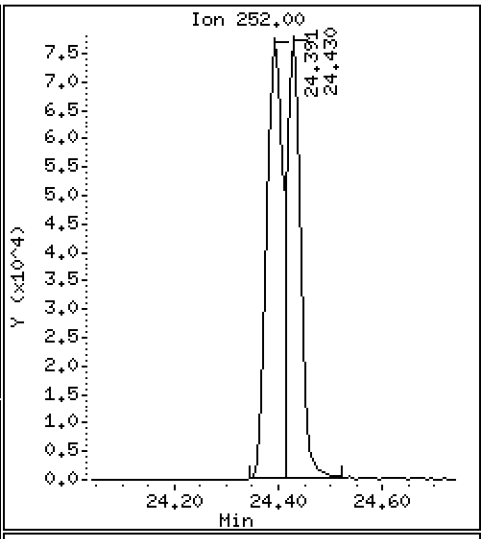
Column phase: ZB-5msi

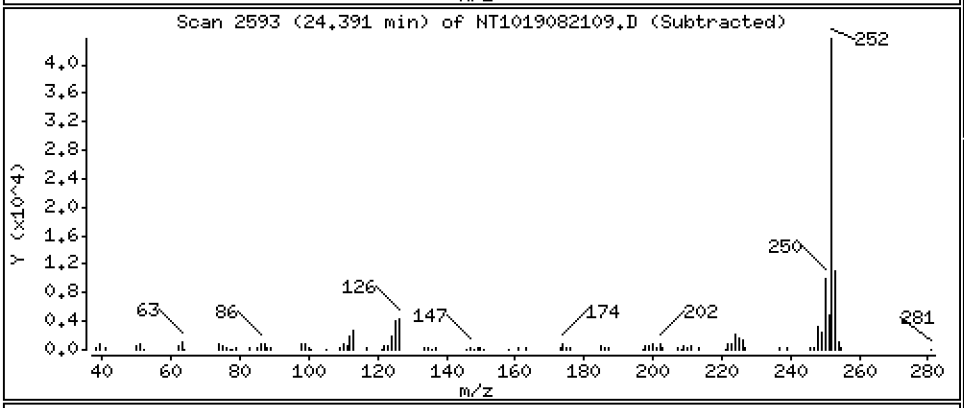
Column diameter: 0.25

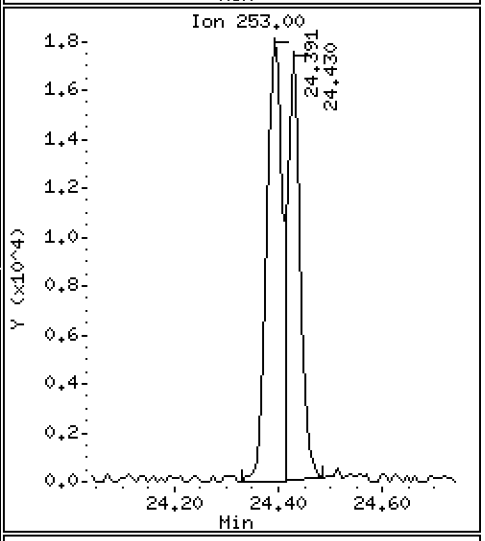
74 Benzo(b)fluoranthene

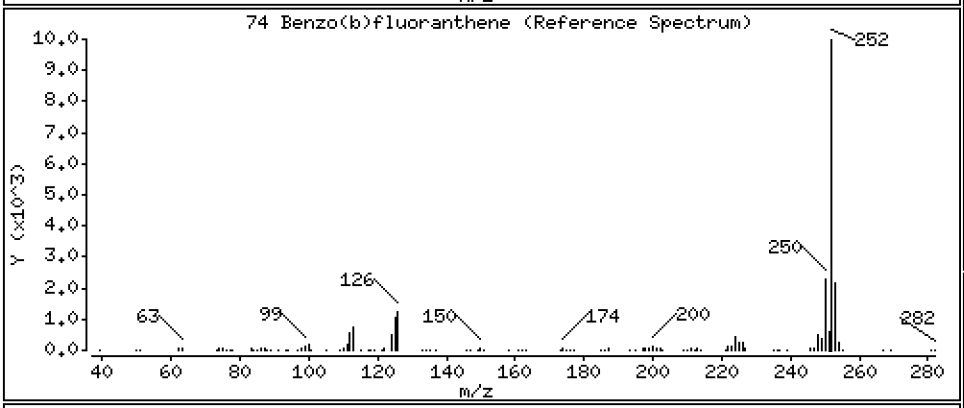
Concentration: 6.663 ug/mL

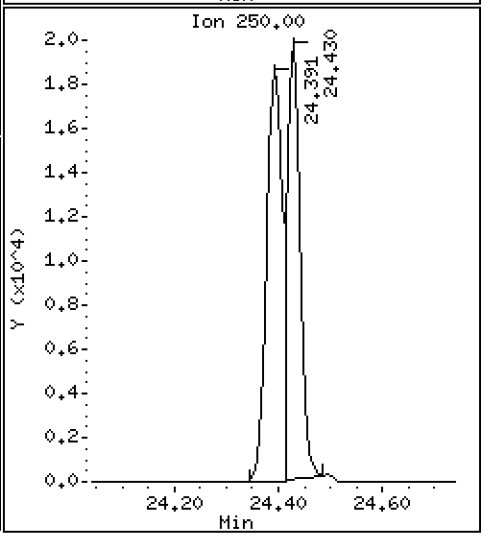


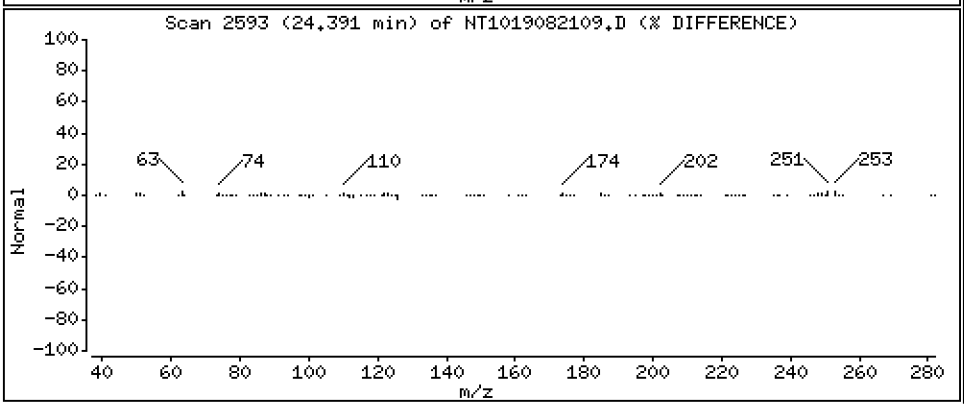












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

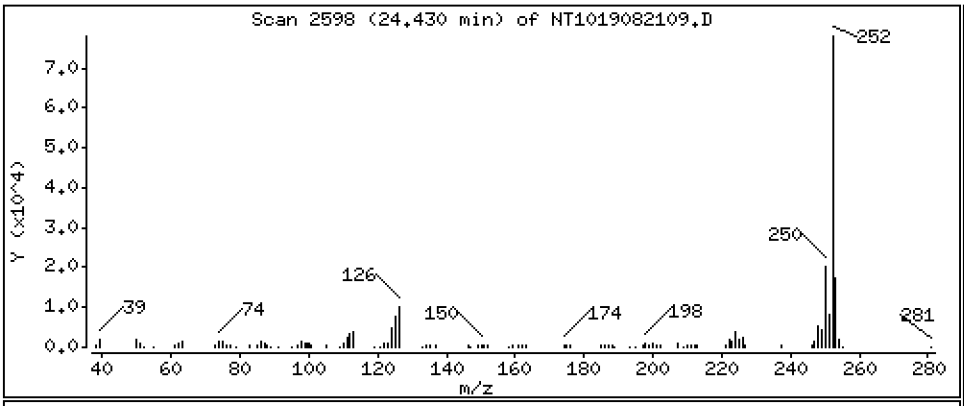
Operator: YZ

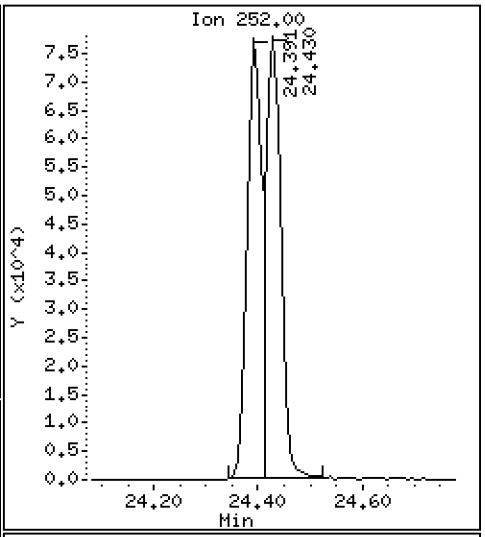
Column phase: ZB-5msi

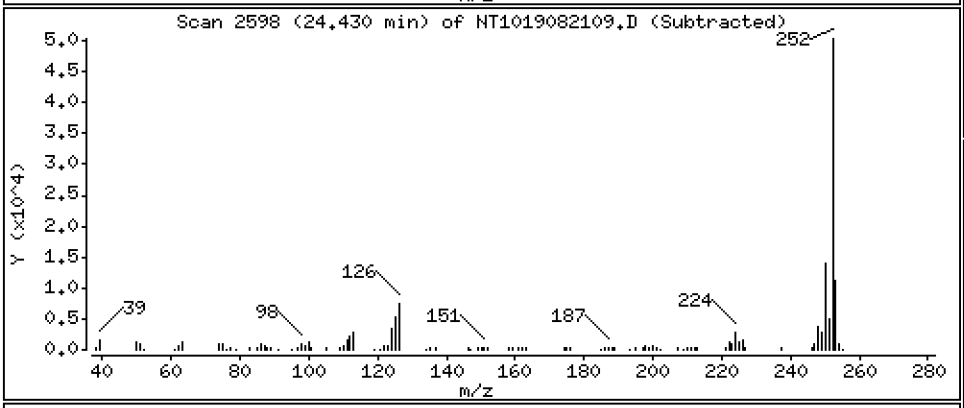
Column diameter: 0.25

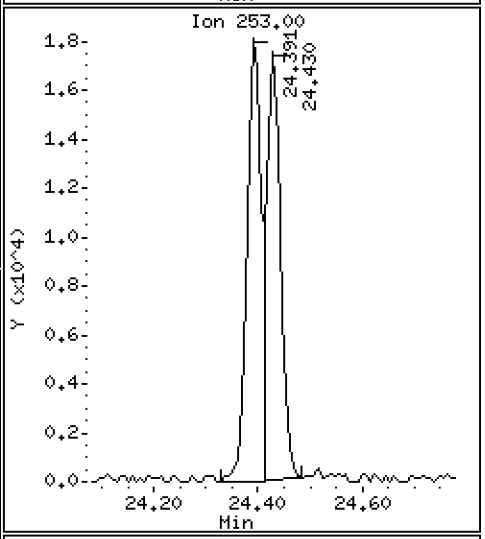
75 Benzo(k)fluoranthene

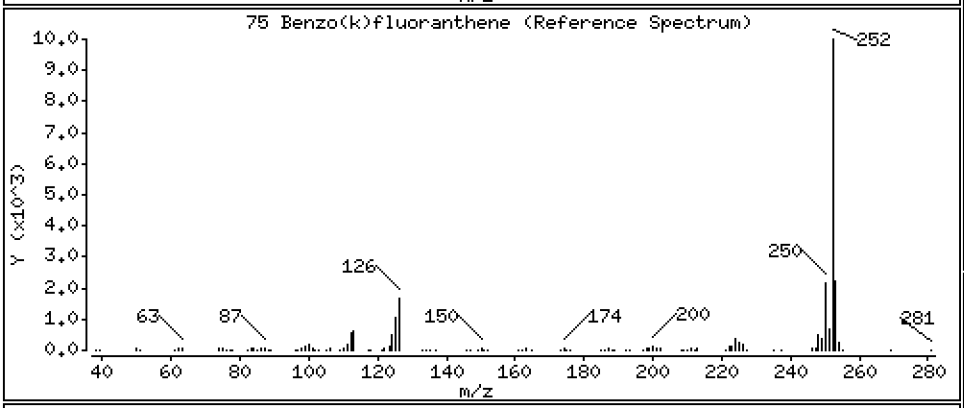
Concentration: 5.892 ug/mL

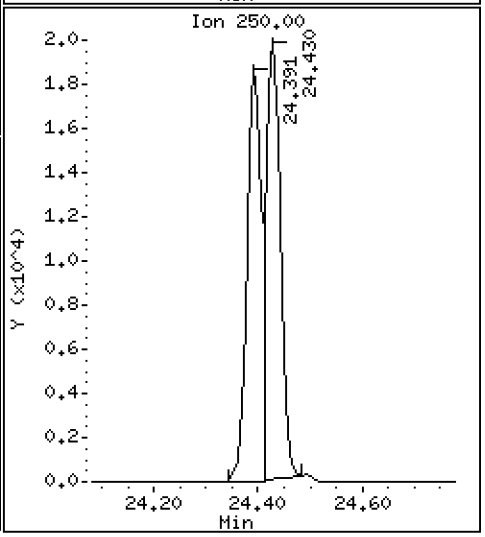


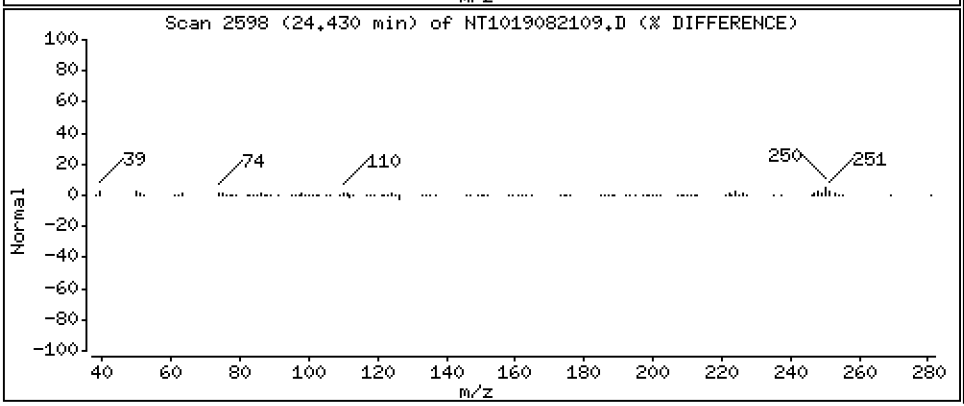












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

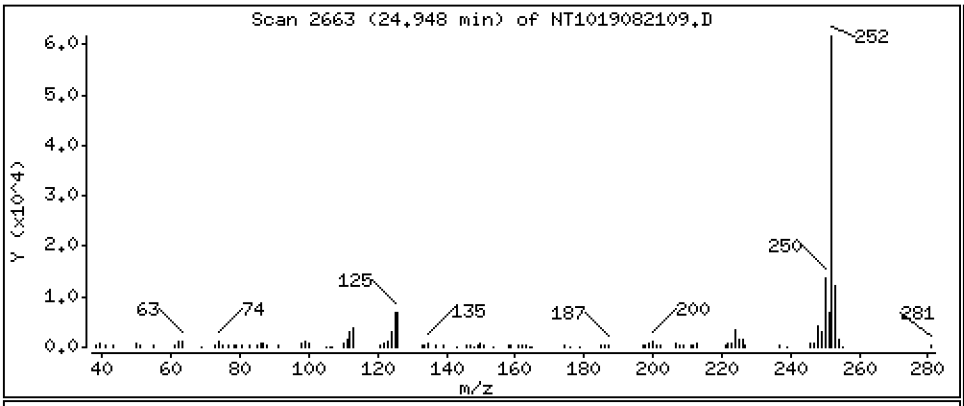
Operator: YZ

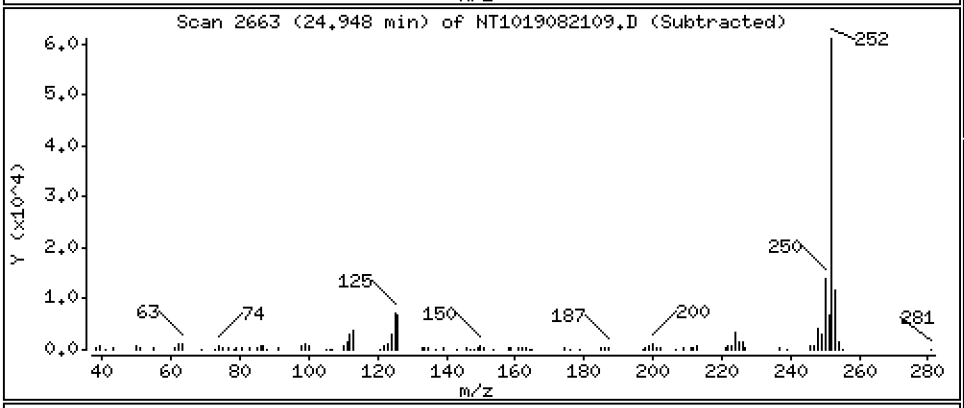
Column phase: ZB-5msi

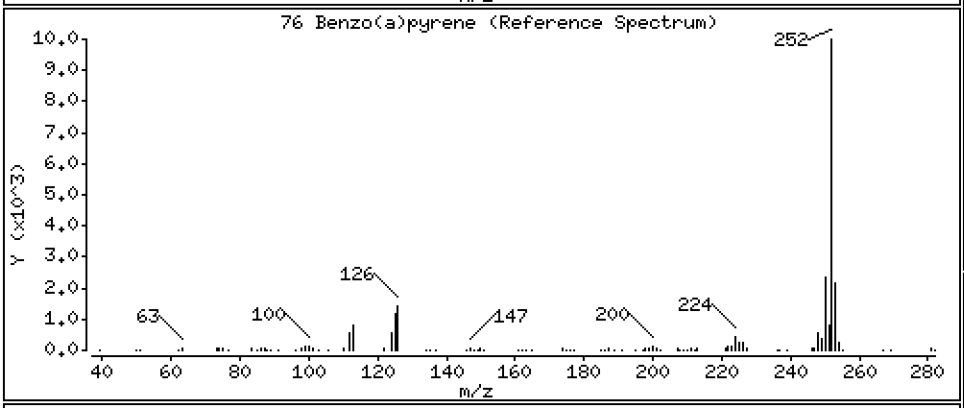
Column diameter: 0.25

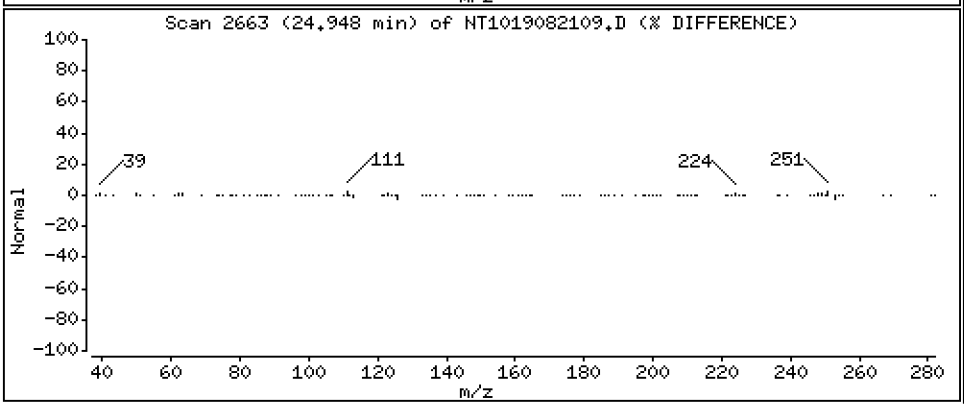
76 Benzo(a)pyrene

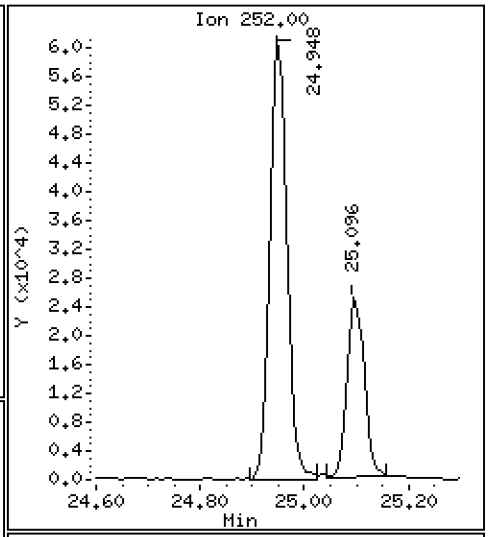
Concentration: 5.929 ug/mL

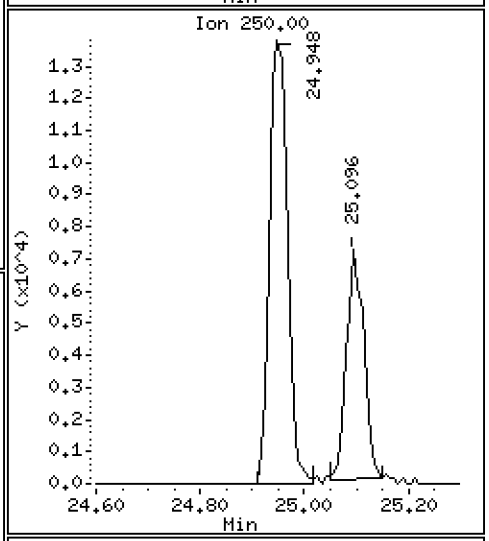


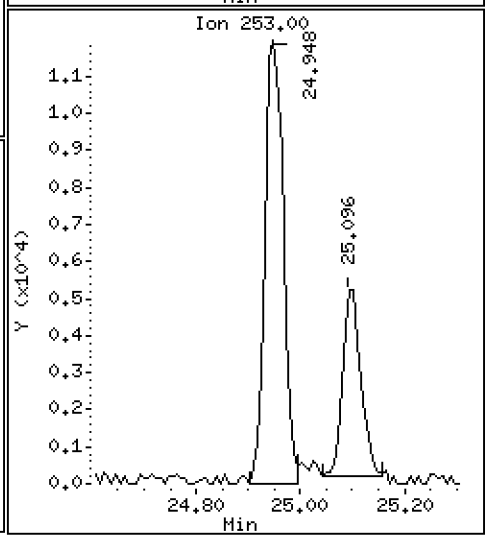












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

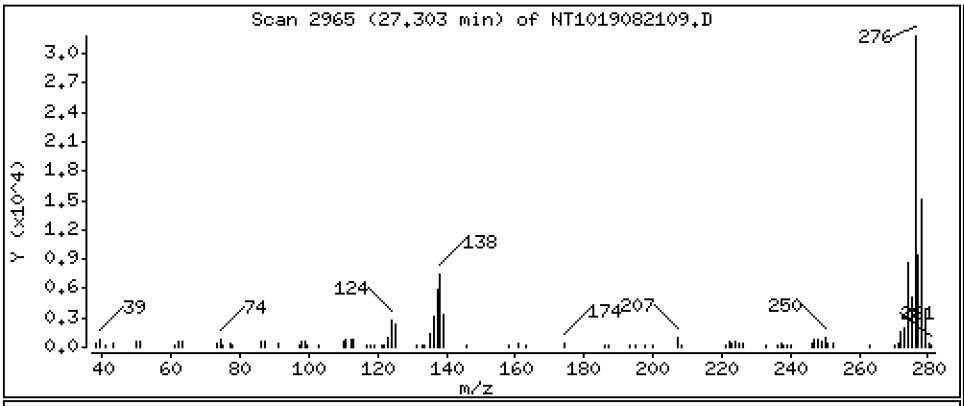
Operator: YZ

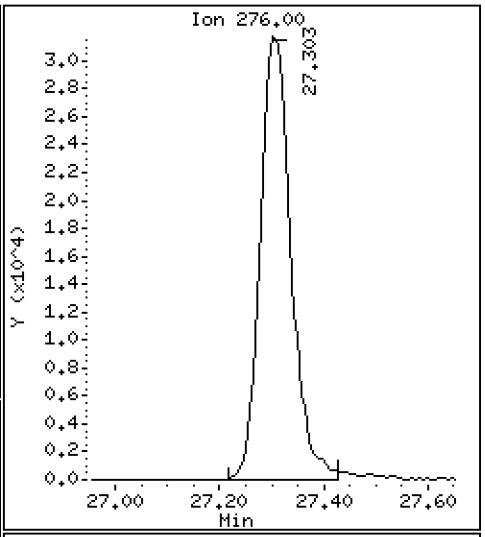
Column phase: ZB-5msi

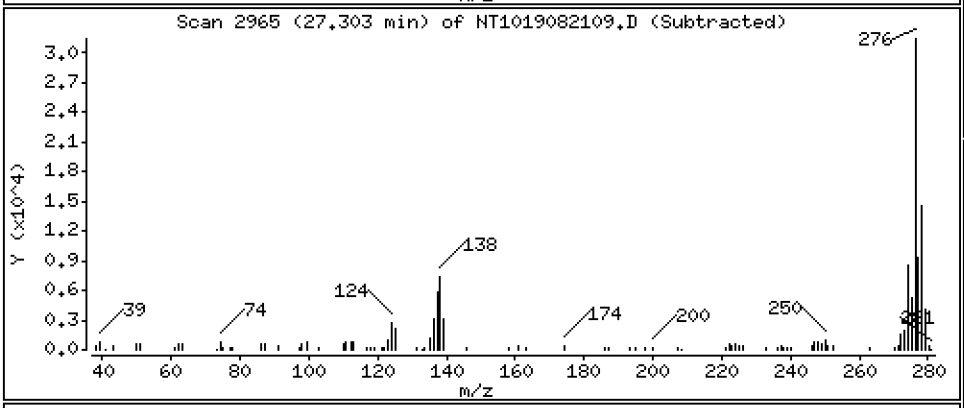
Column diameter: 0.25

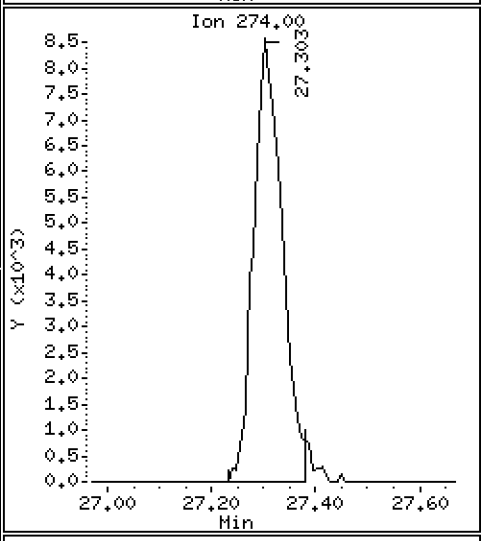
78 Indeno(1,2,3-cd)pyrene

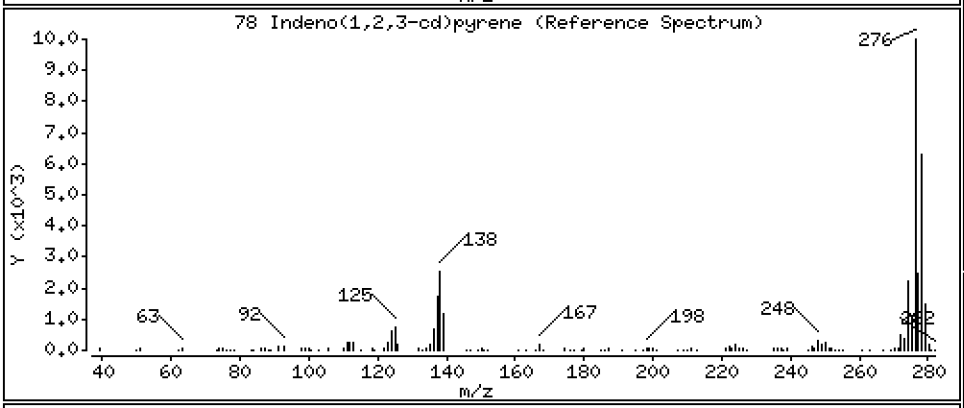
Concentration: 4.776 ug/mL

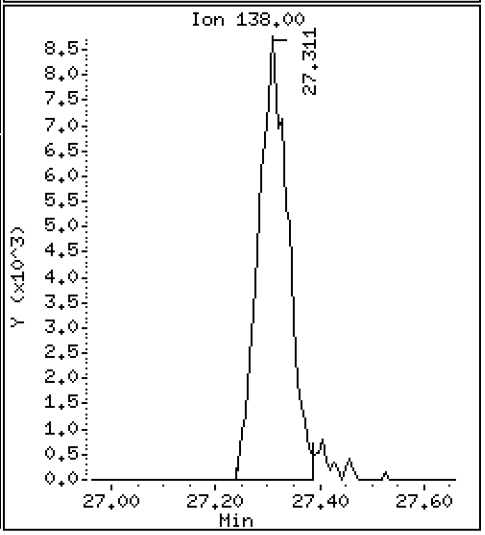


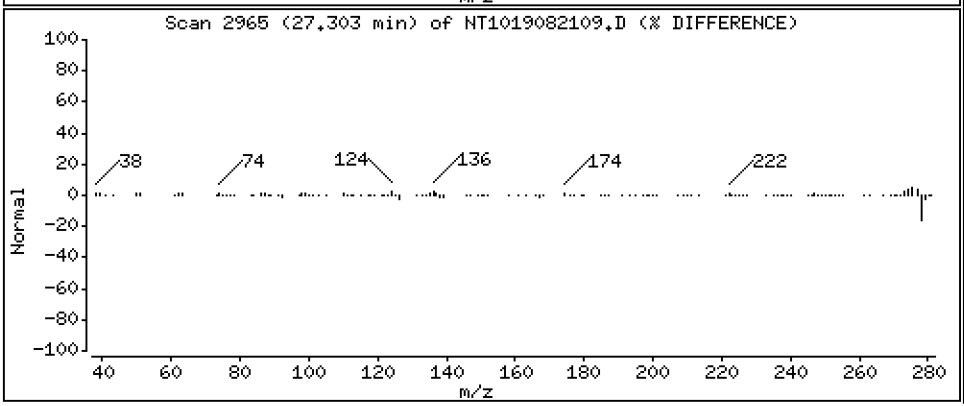












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

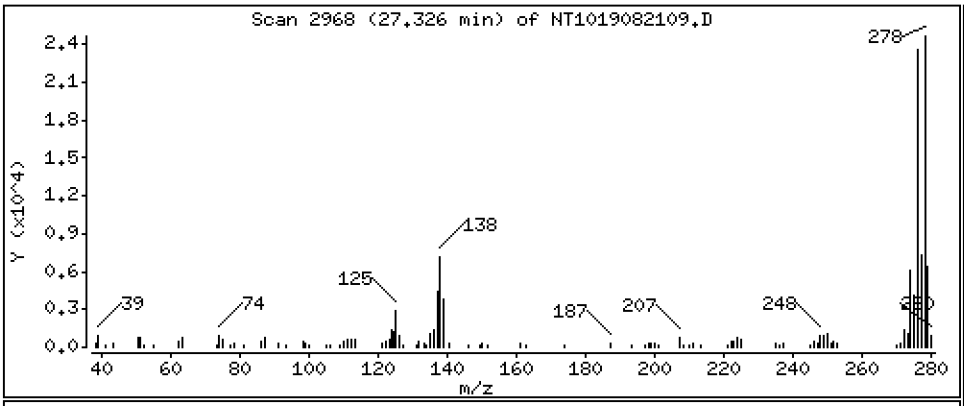
Operator: YZ

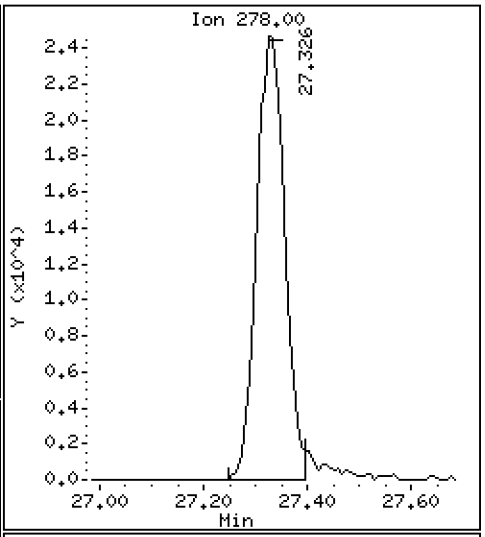
Column phase: ZB-5msi

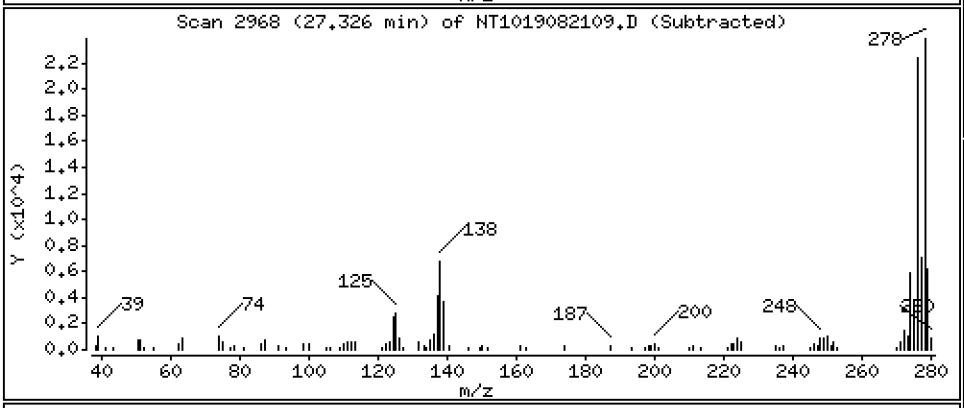
Column diameter: 0.25

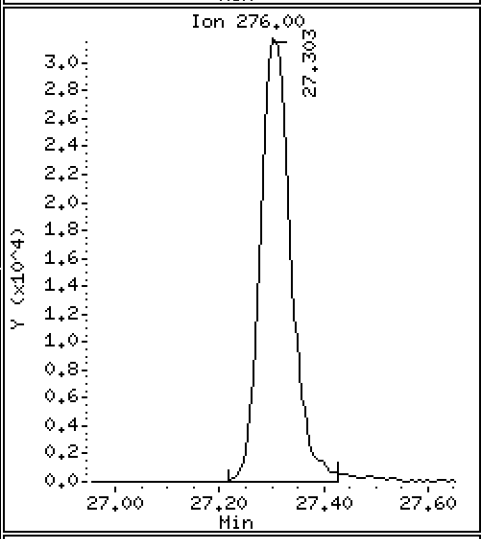
79 Dibenzo(a,h)anthracene

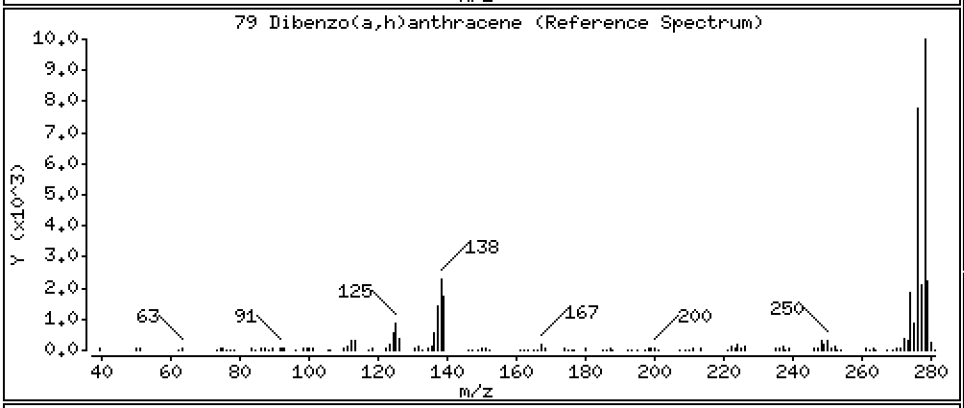
Concentration: 4.192 ug/mL

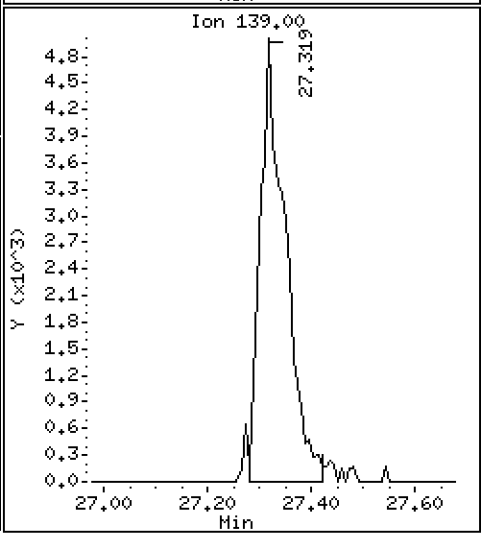


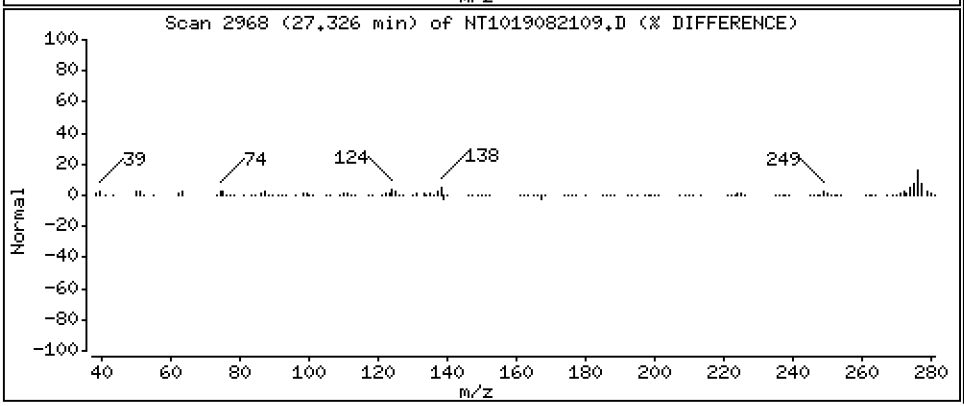












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

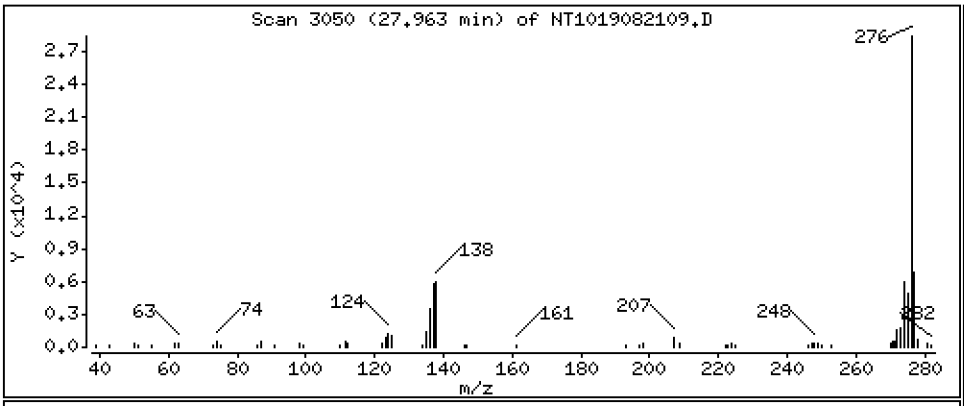
Operator: YZ

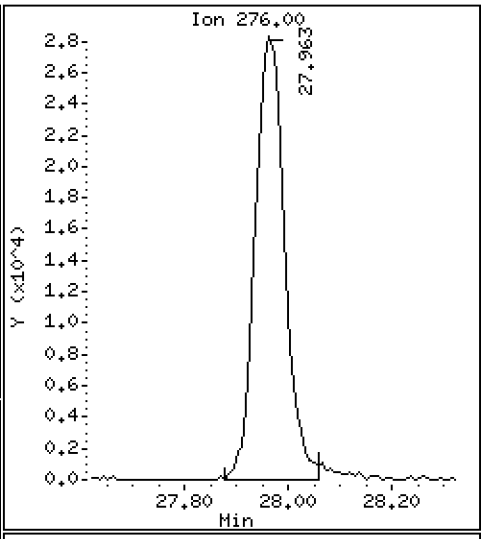
Column phase: ZB-5msi

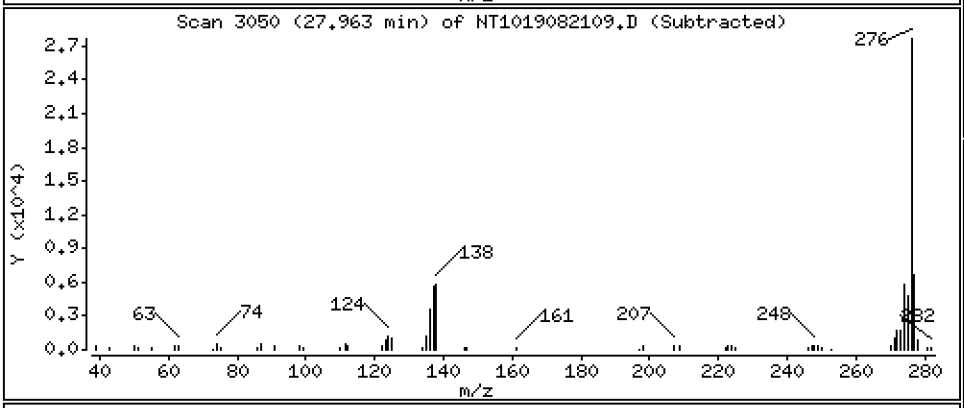
Column diameter: 0.25

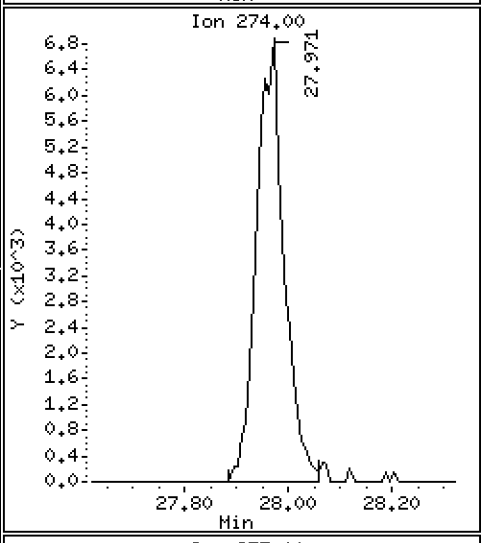
80 Benzo(g,h,i)perylene

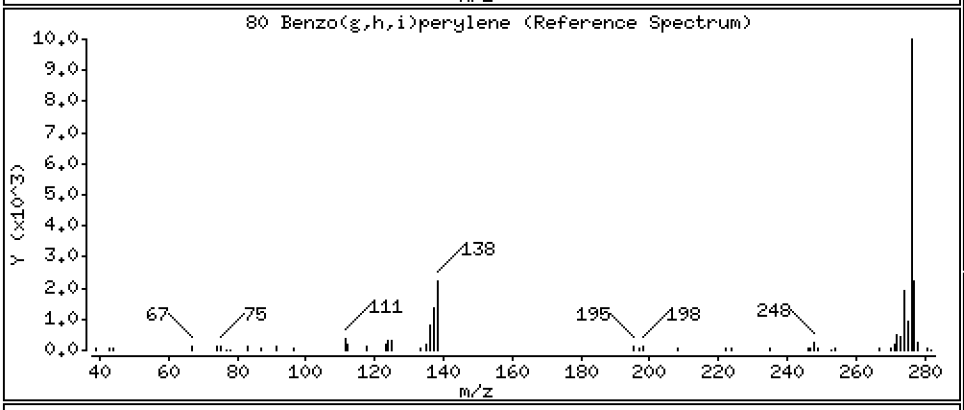
Concentration: 4.872 ug/mL

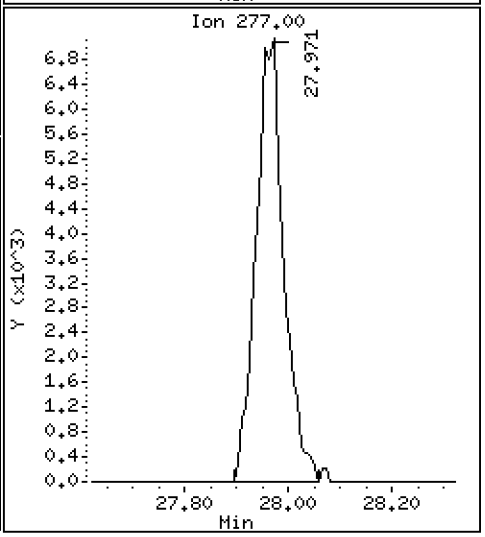


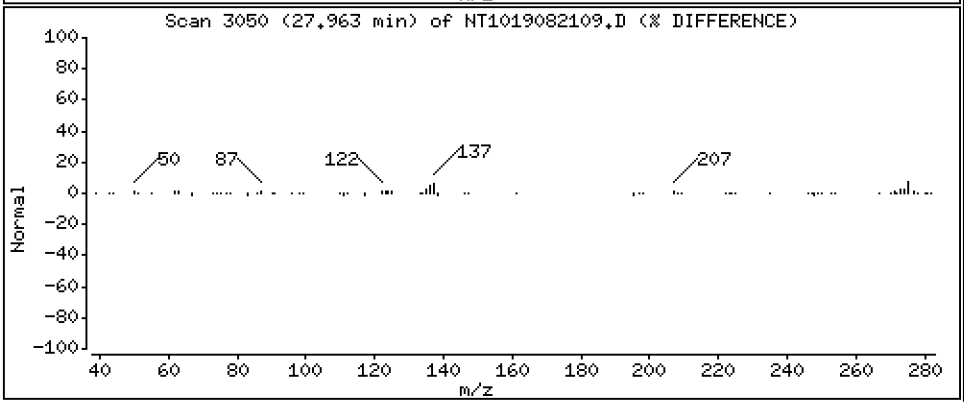












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

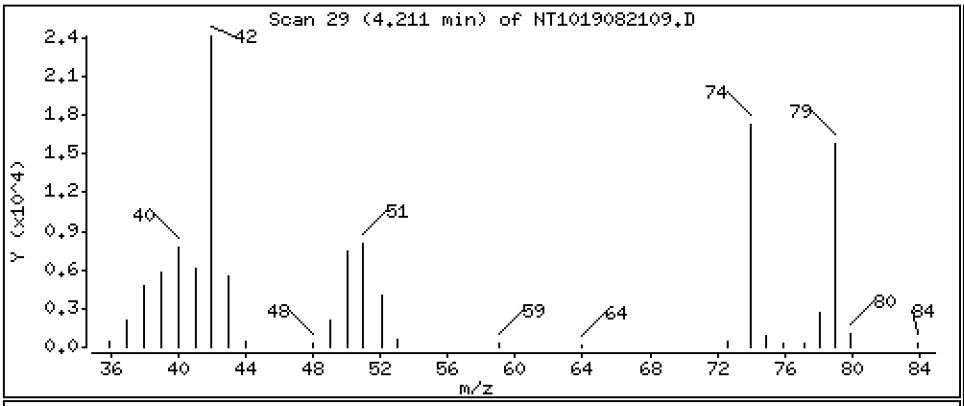
Operator: YZ

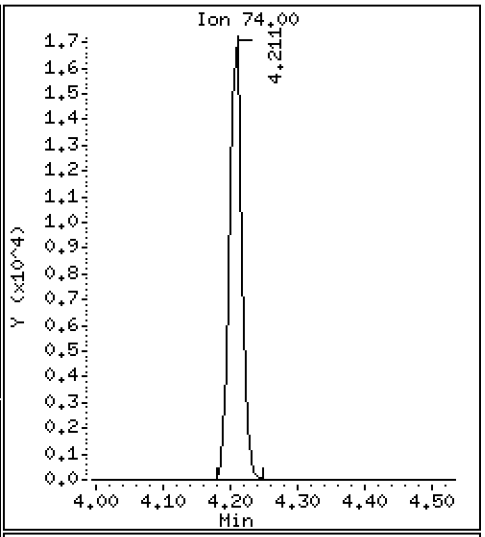
Column phase: ZB-5msi

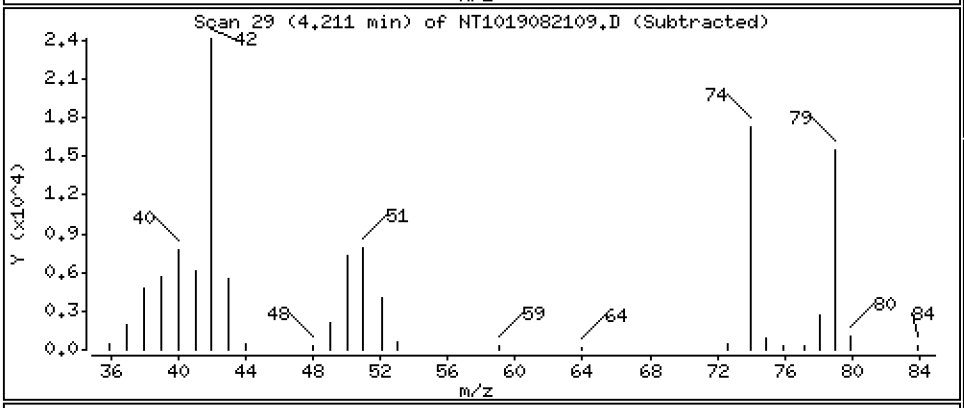
Column diameter: 0.25

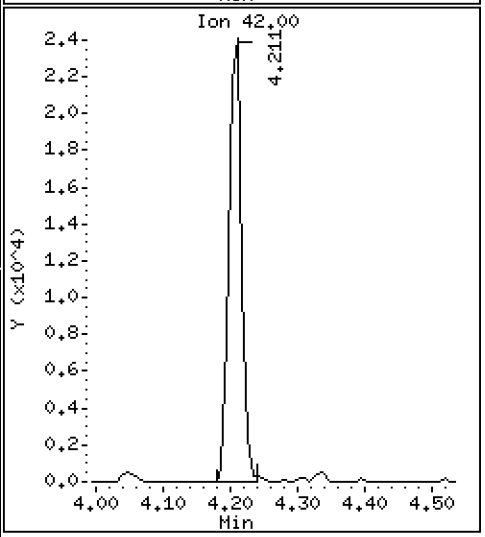
90 N-Nitrosodimethylamine

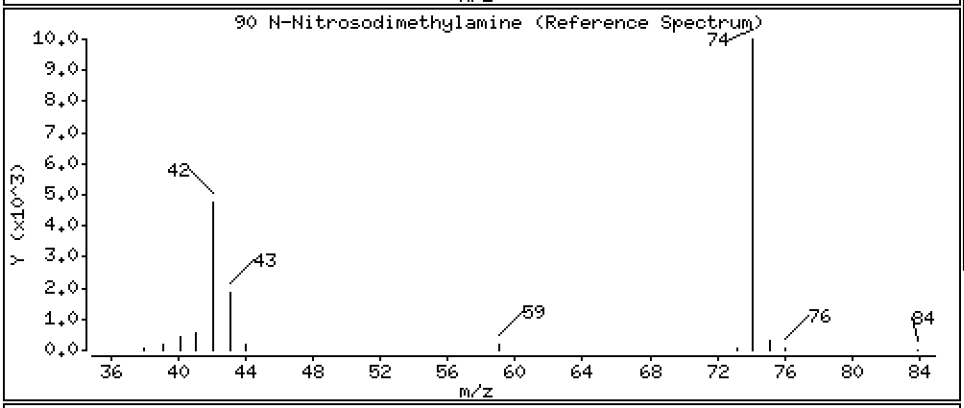
Concentration: 7.541 ug/mL

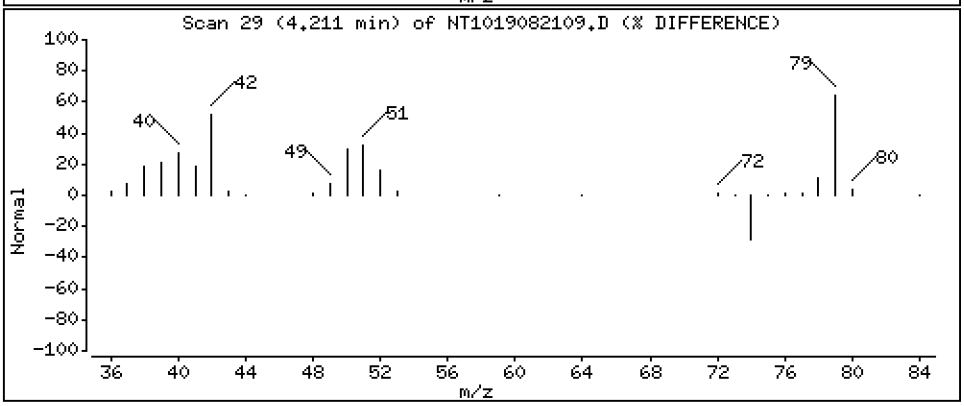












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

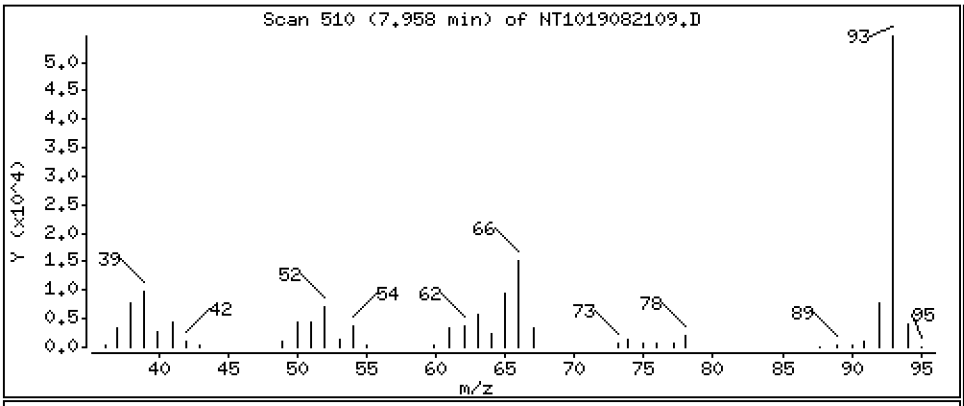
Operator: YZ

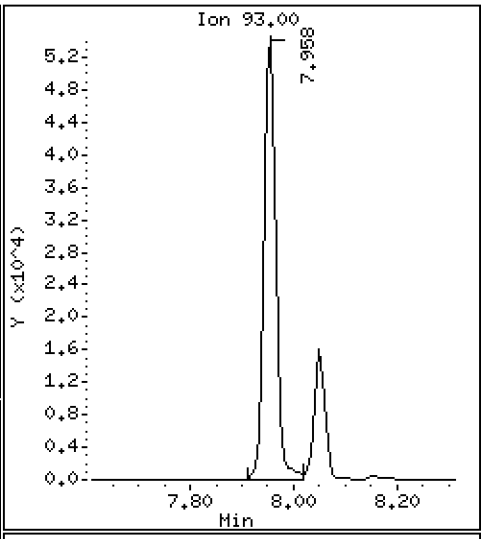
Column phase: ZB-5msi

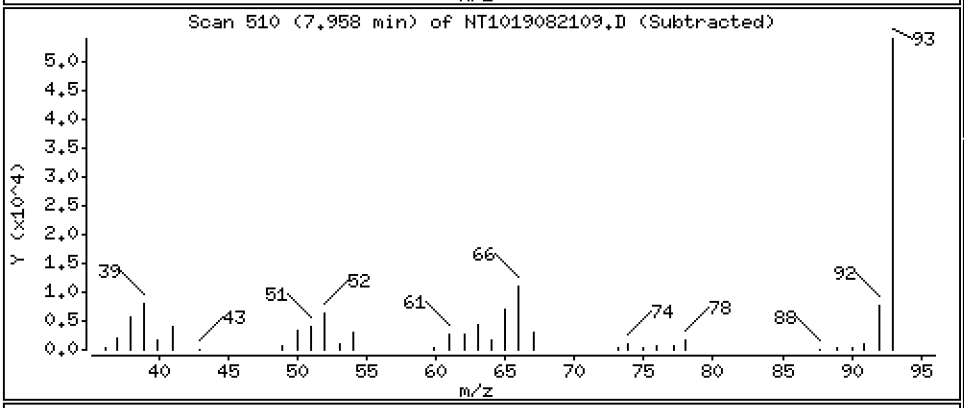
Column diameter: 0.25

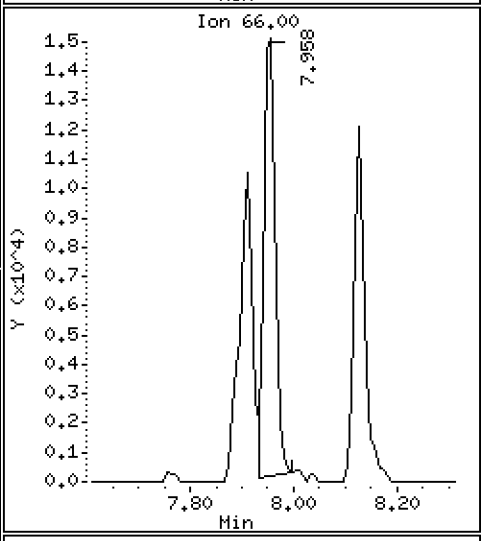
91 Aniline

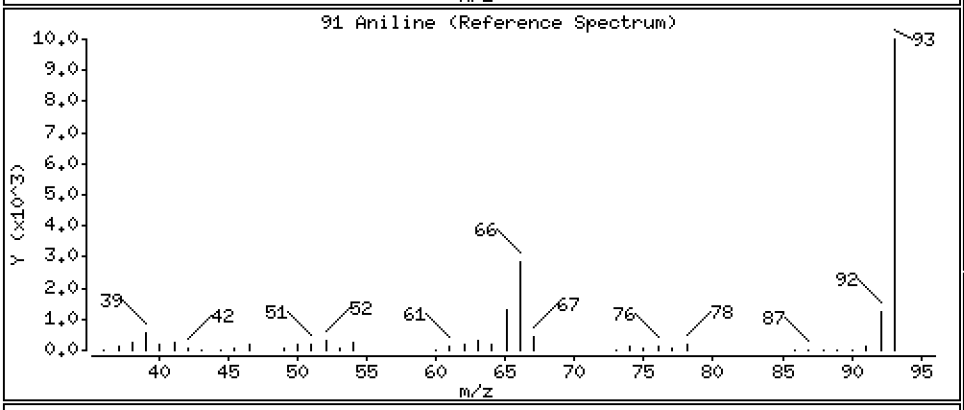
Concentration: 11.79 ug/mL

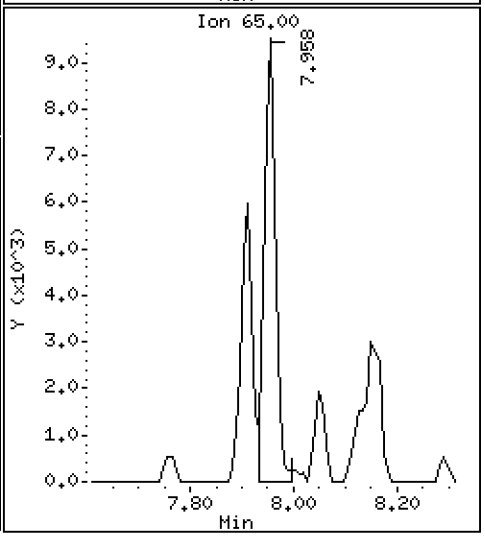


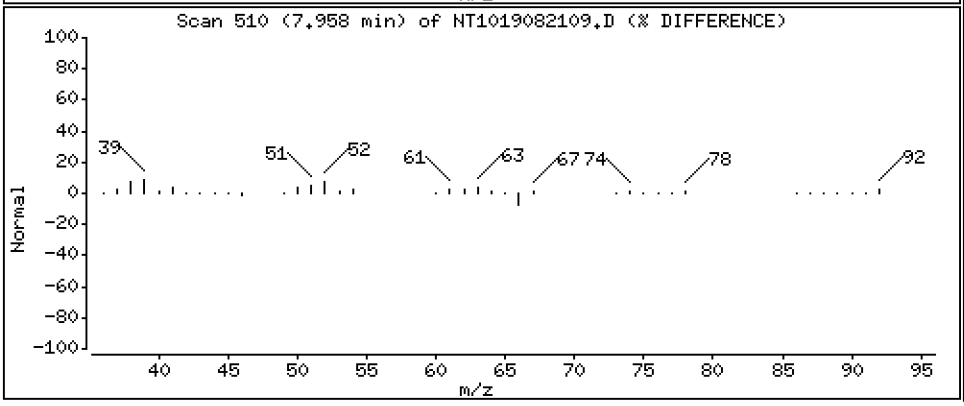












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

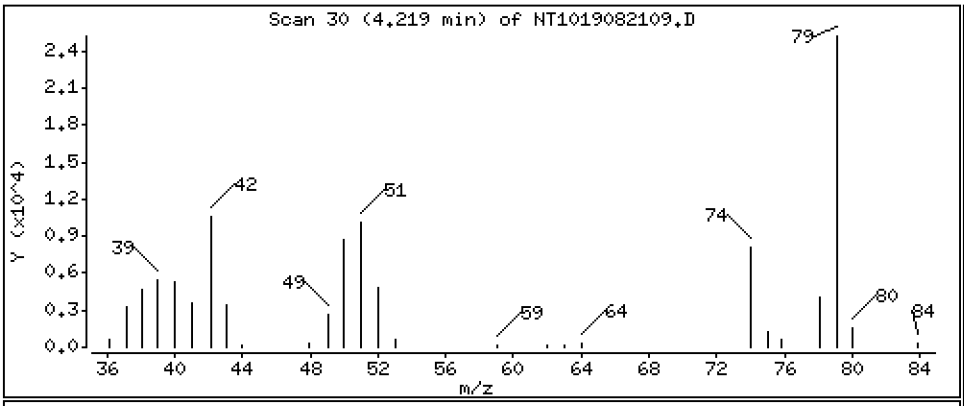
Operator: YZ

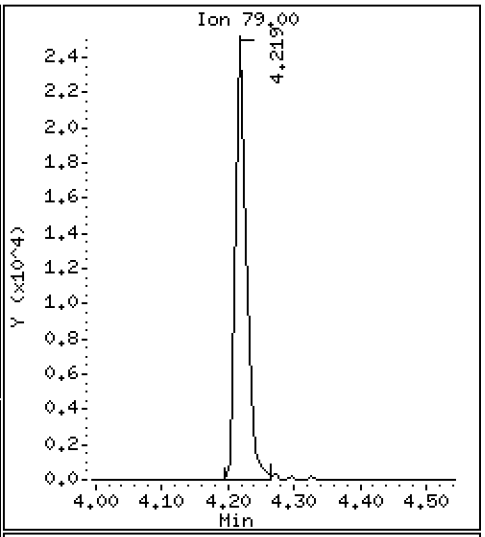
Column phase: ZB-5msi

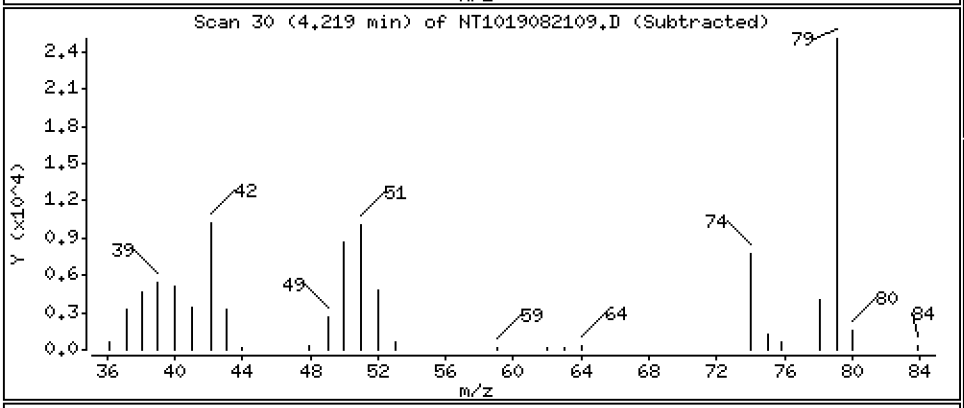
Column diameter: 0.25

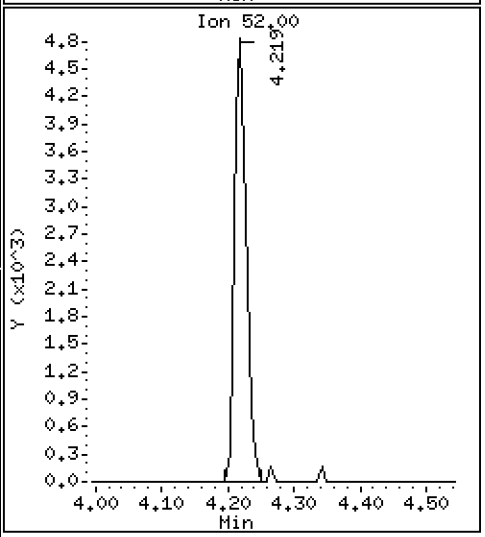
103 Pyridine

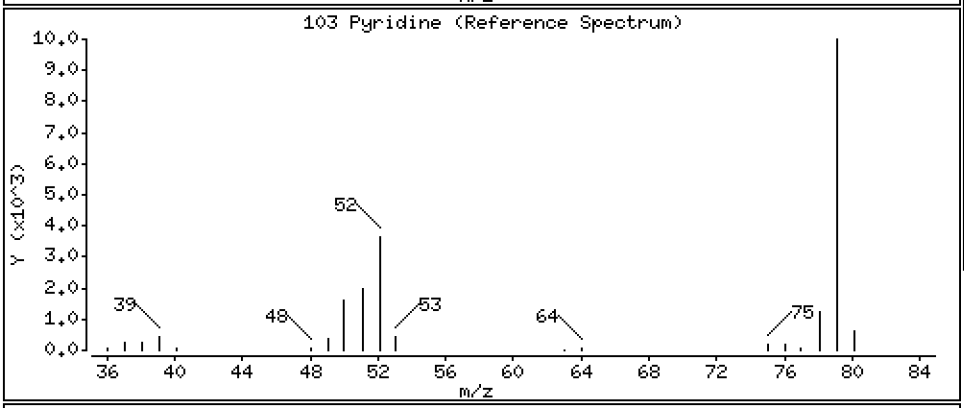
Concentration: 5.441 ug/mL

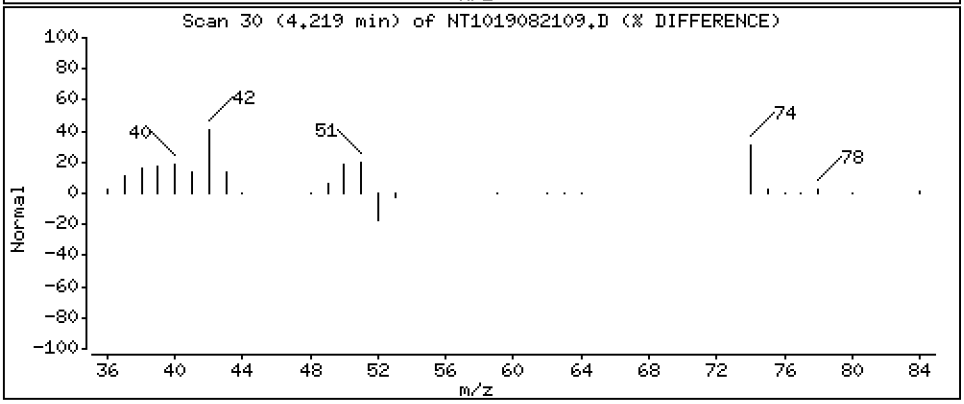












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

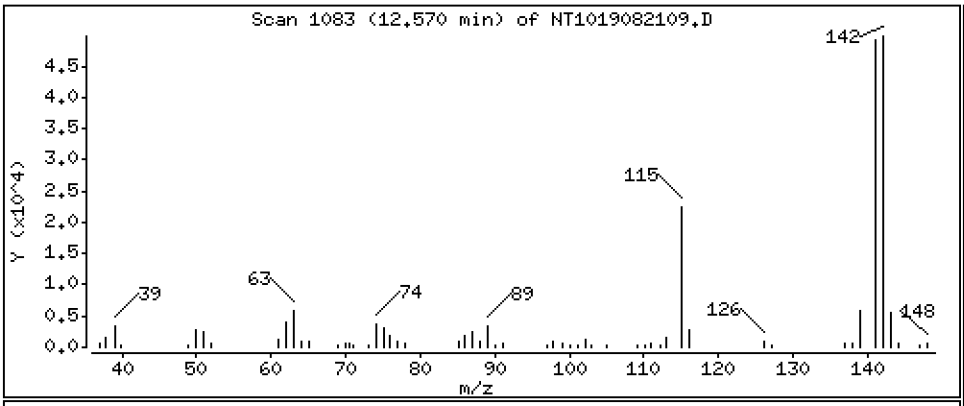
Operator: YZ

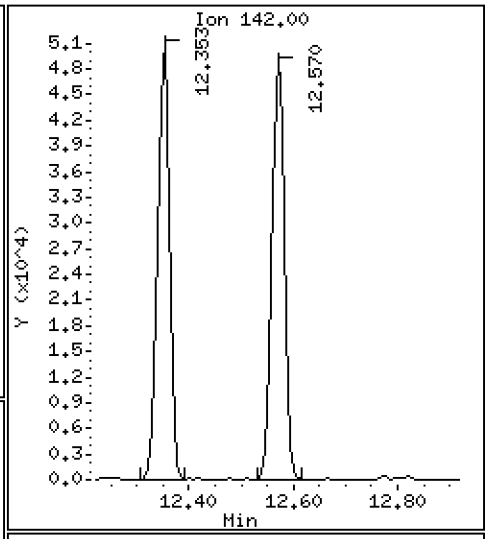
Column phase: ZB-5msi

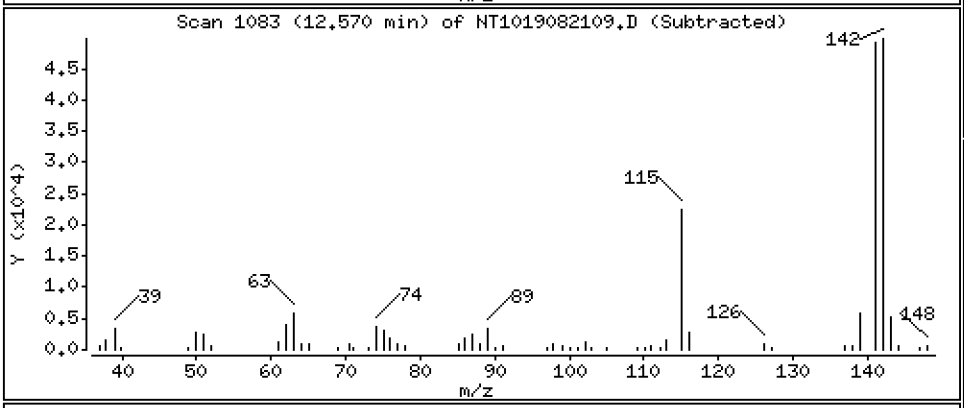
Column diameter: 0.25

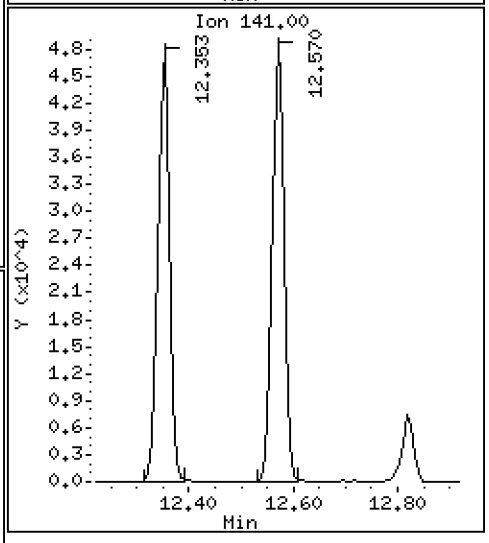
105 1-methylnaphthalene

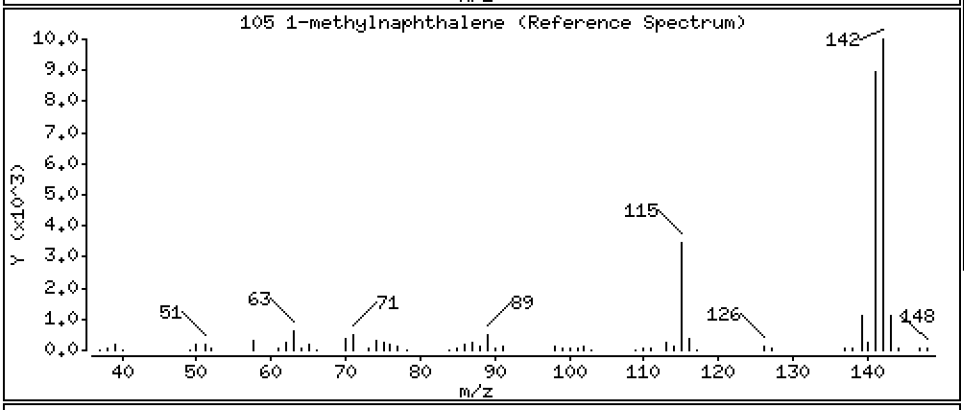
Concentration: 3.919 ug/mL

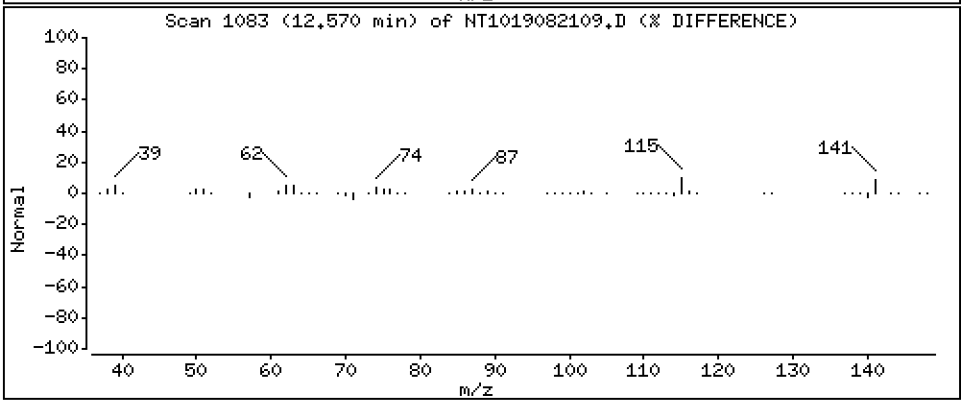












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

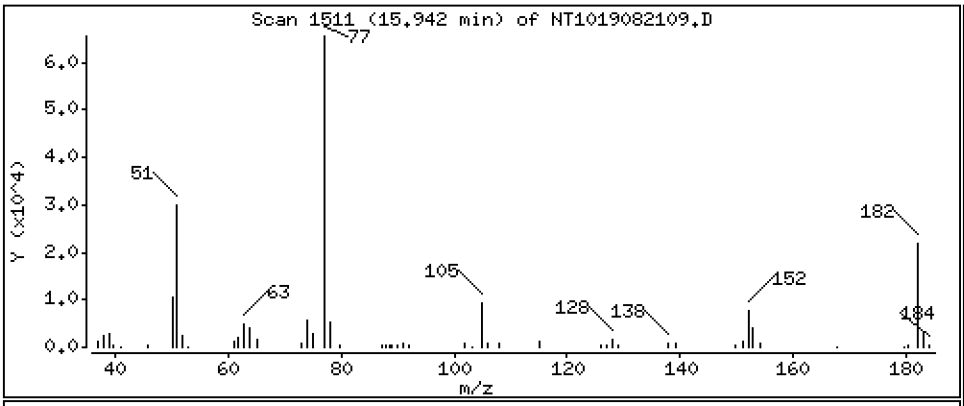
Operator: YZ

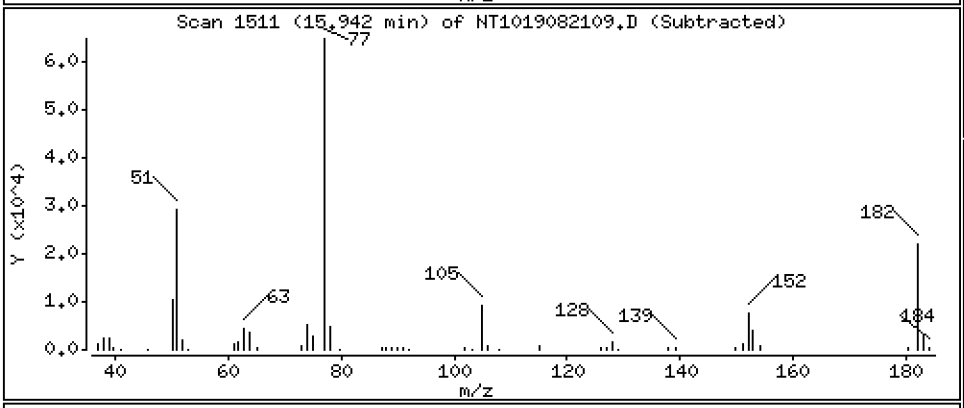
Column phase: ZB-5msi

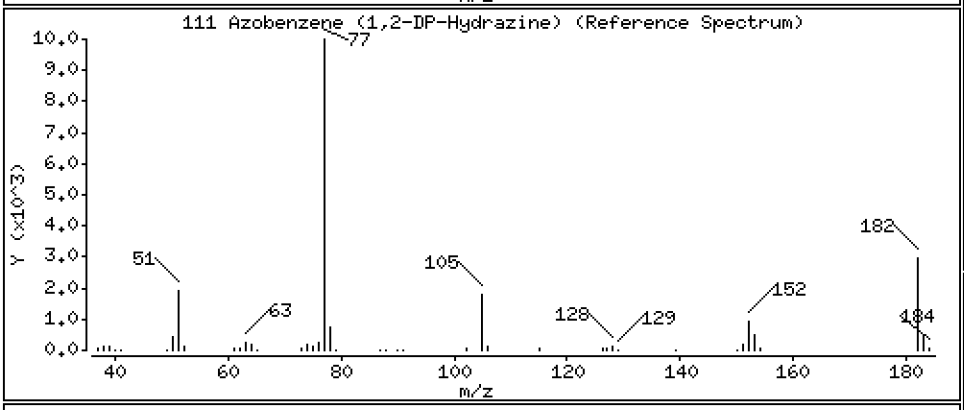
Column diameter: 0.25

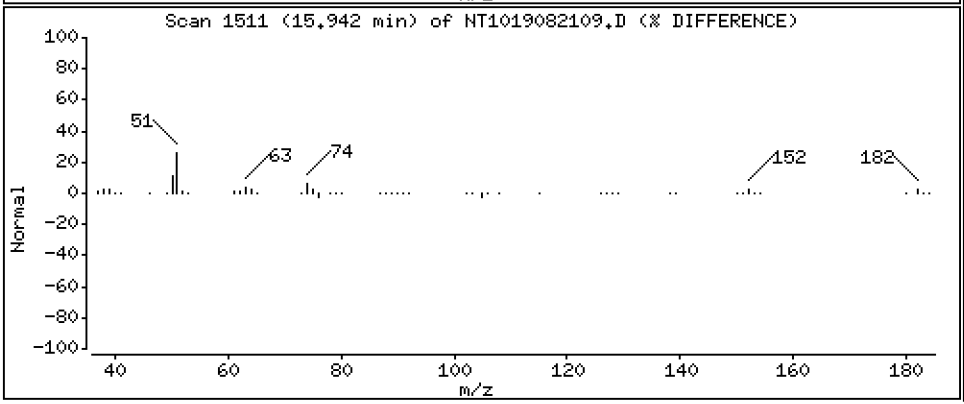
111 Azobenzene (1,2-DP-Hydrazine)

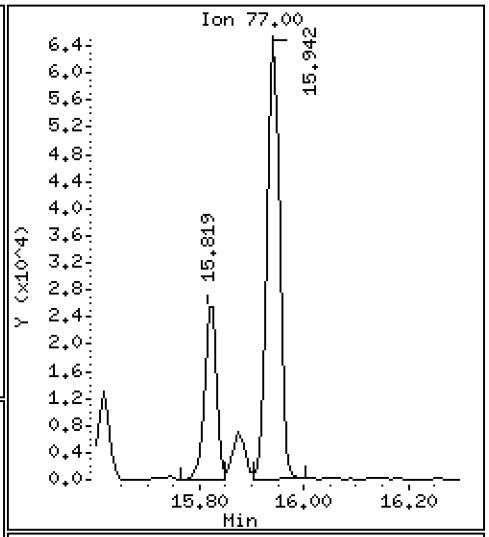
Concentration: 4.732 ug/mL

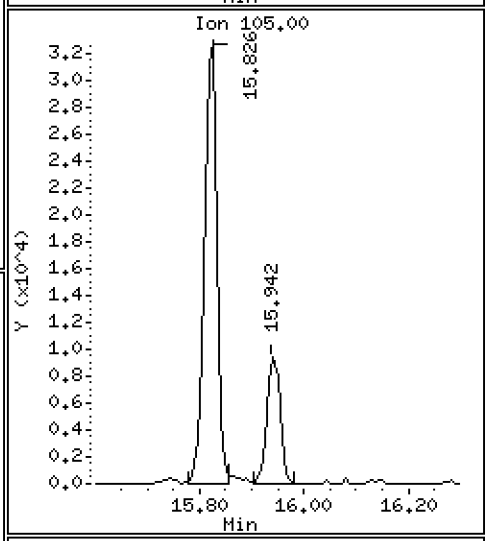


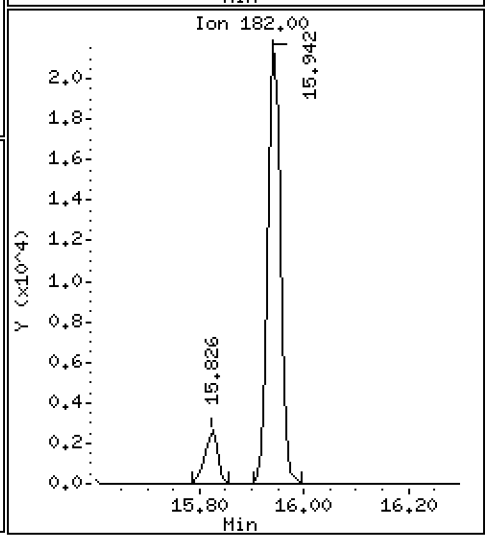












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

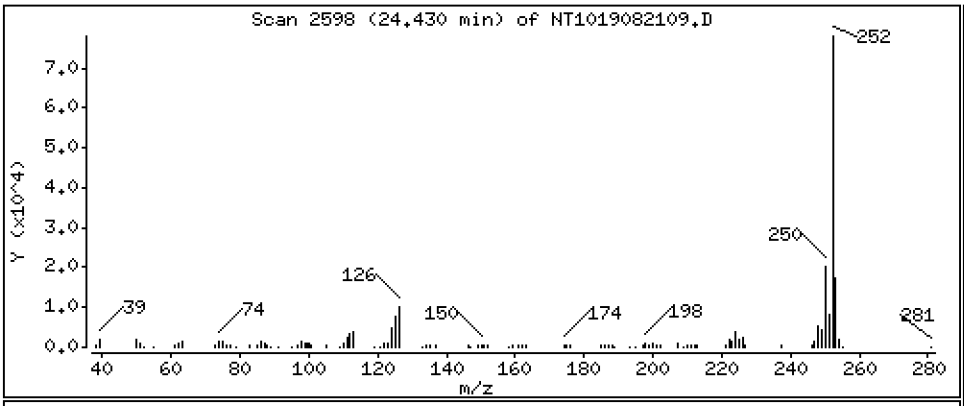
Operator: YZ

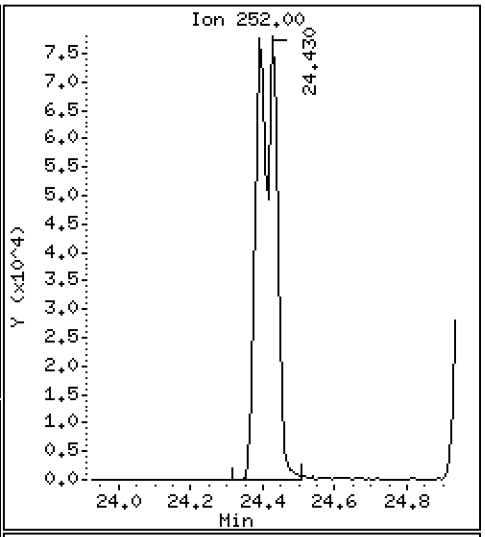
Column phase: ZB-5msi

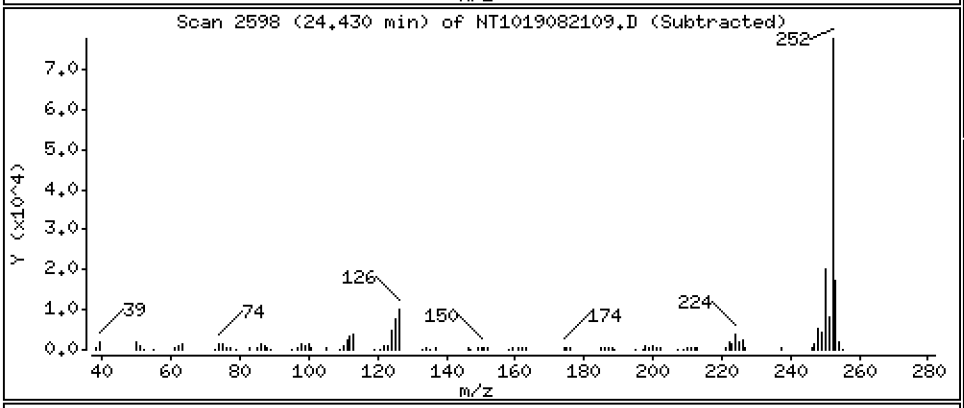
Column diameter: 0.25

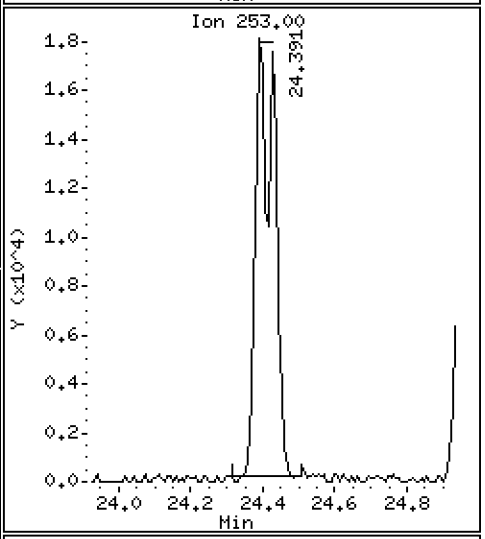
187 Total Benzofluoranthenes

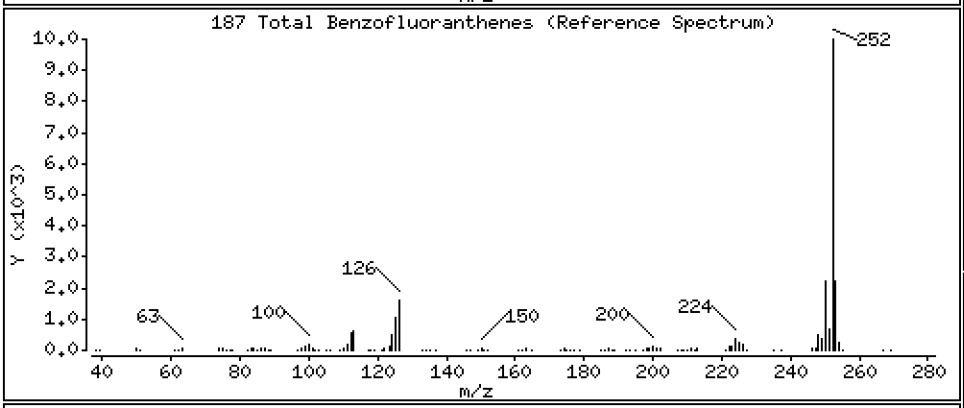
Concentration: 12.29 ug/mL

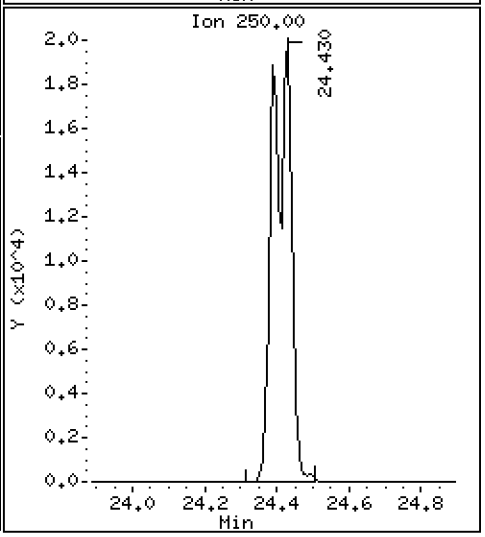


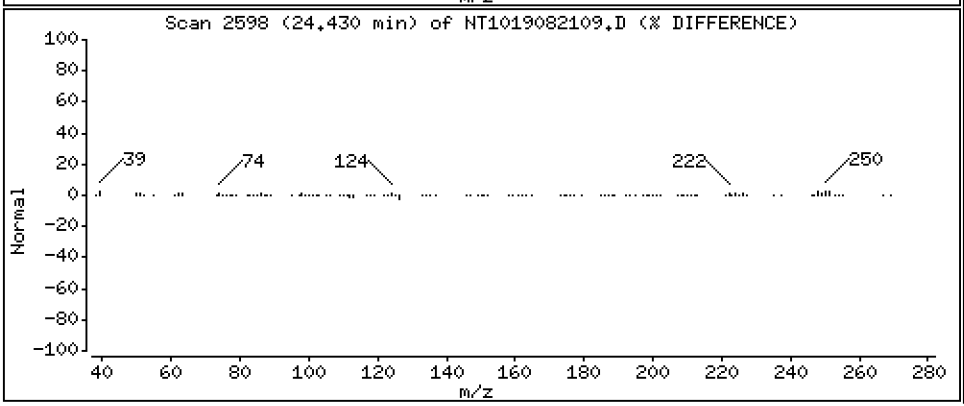












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

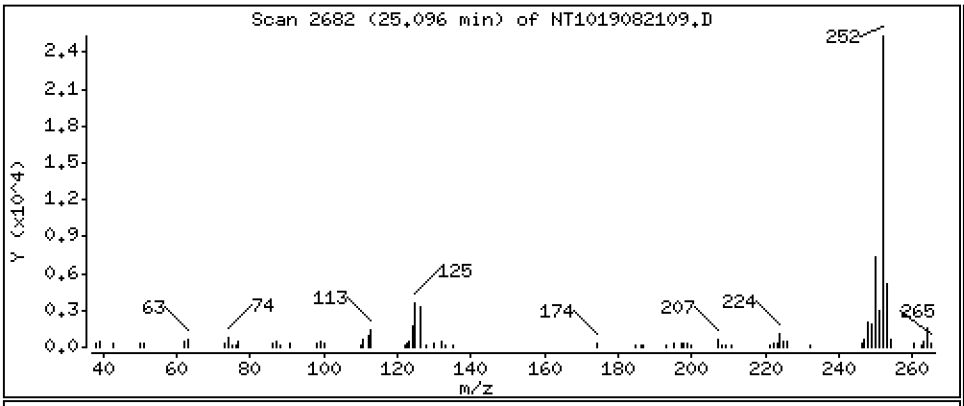
Operator: YZ

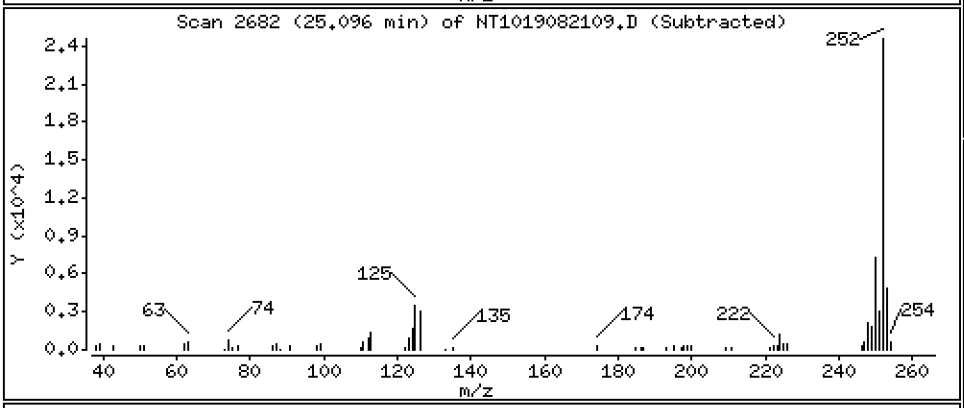
Column phase: ZB-5msi

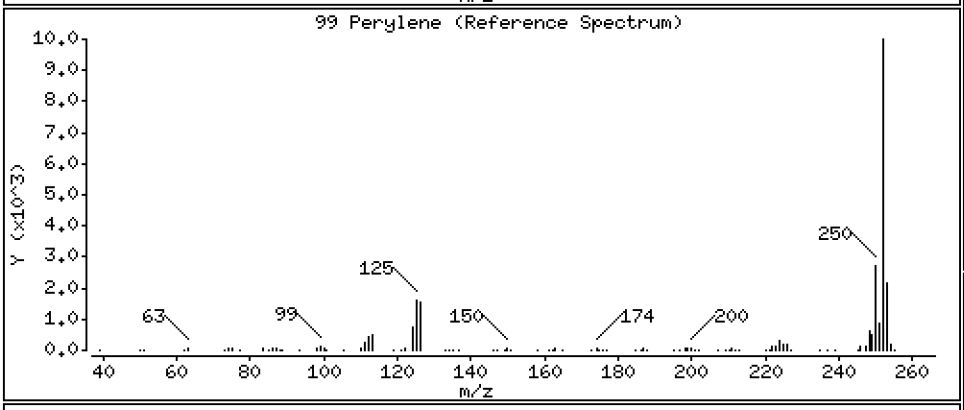
Column diameter: 0.25

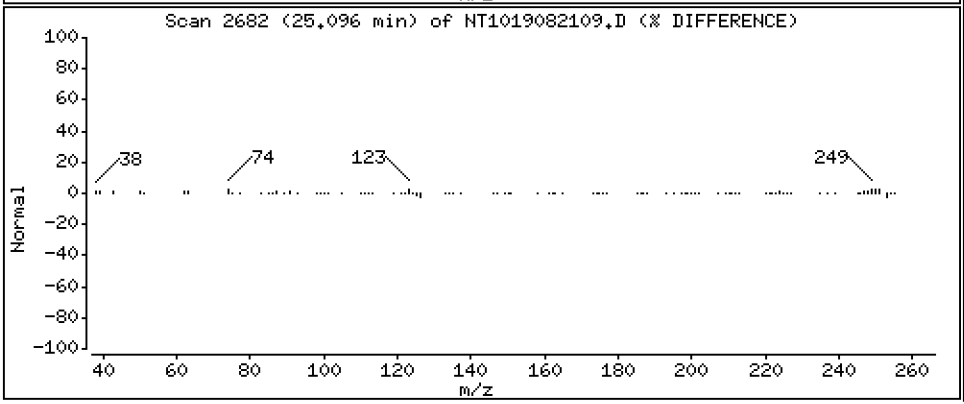
99 Perylene

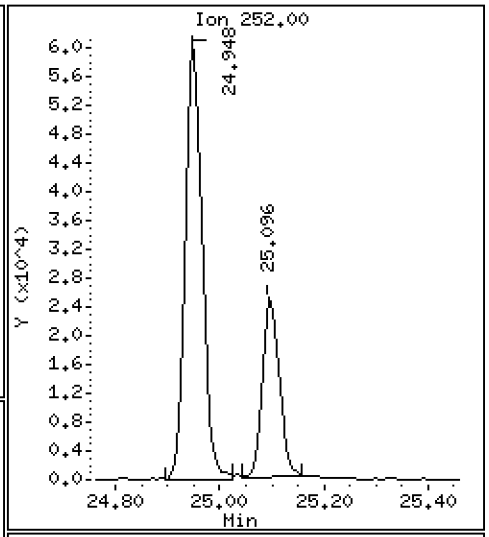
Concentration: 2.667 ug/mL

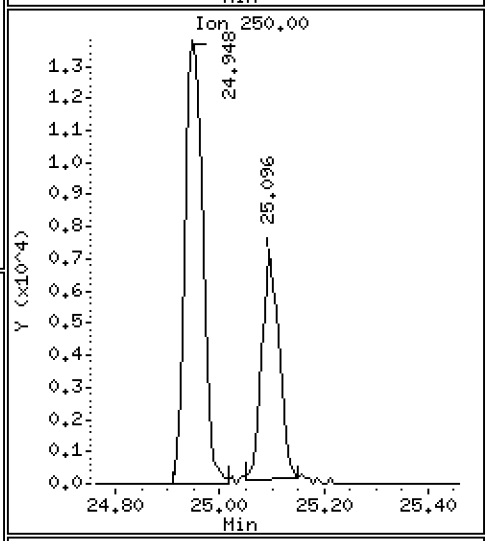


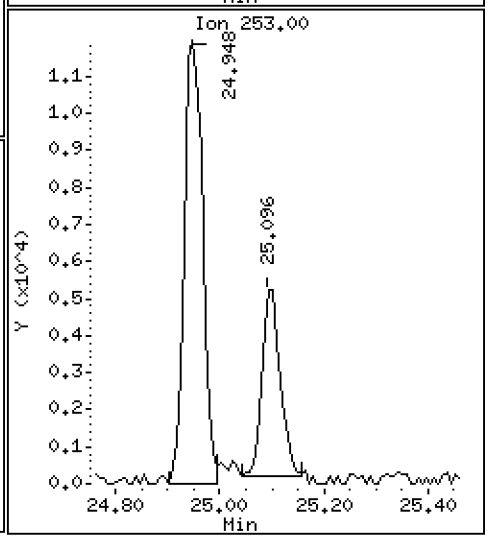












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Date : 21-AUG-2019 15:06

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-BS1

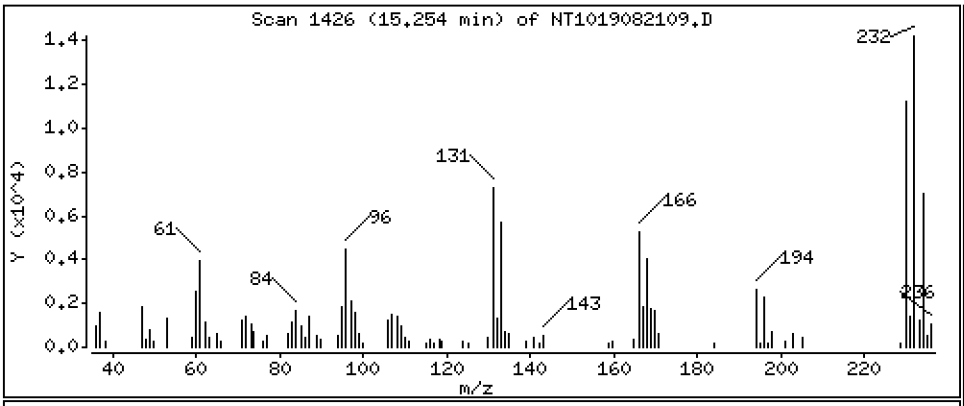
Operator: YZ

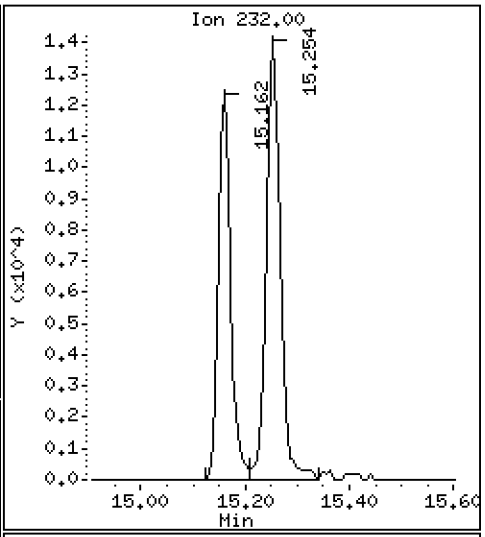
Column phase: ZB-5msi

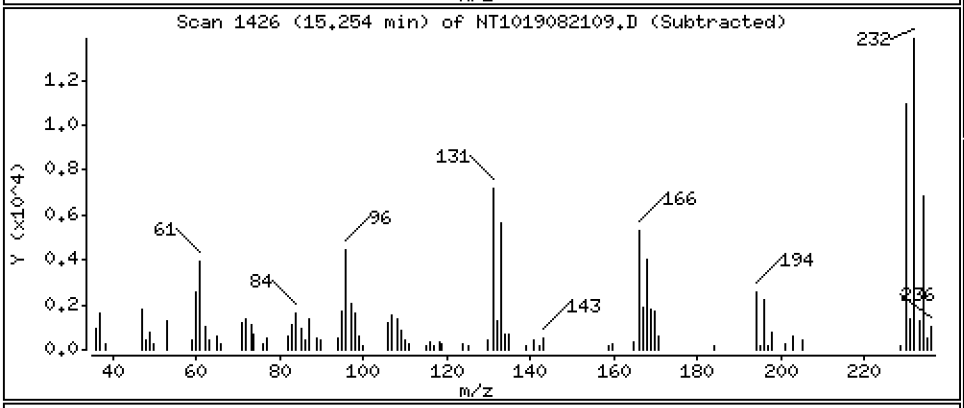
Column diameter: 0.25

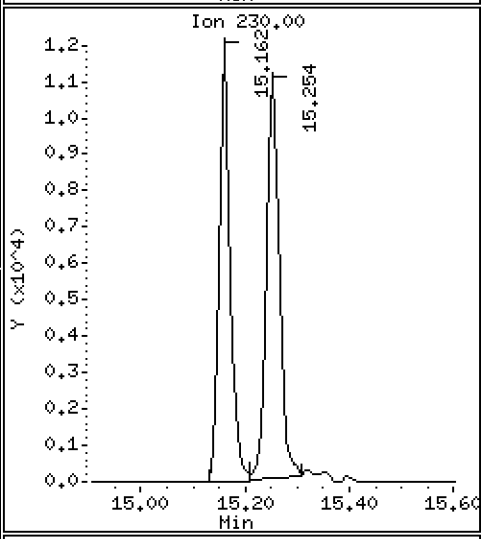
120 2,3,4,6-Tetrachlorophenol

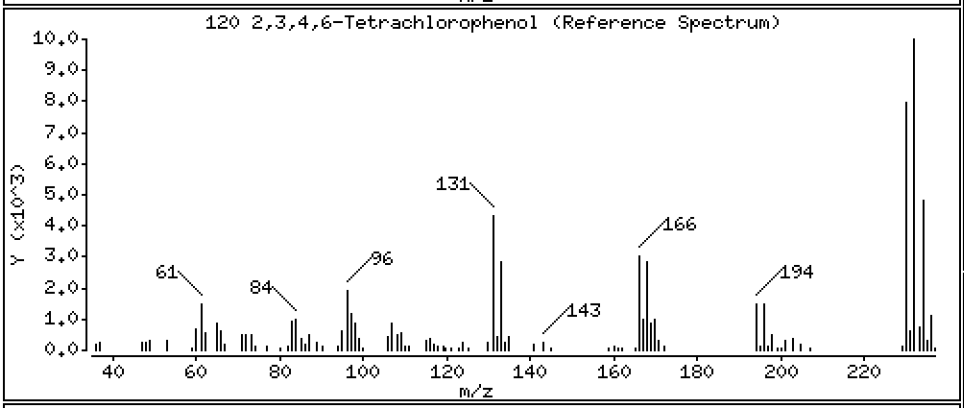
Concentration: 5.389 ug/mL

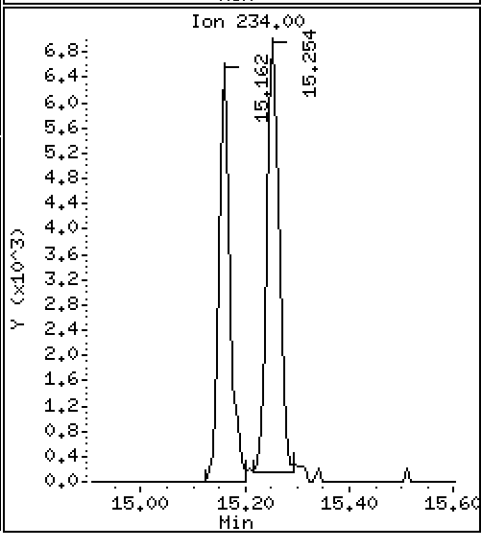


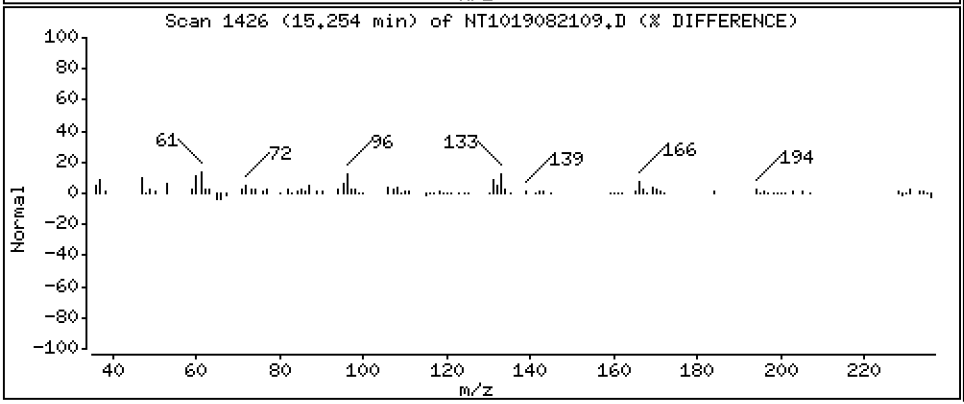












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082109.D
Lab Smp Id: BHH0289-BS1
Inj Date : 21-AUG-2019 15:06
Operator : YZ Inst ID: nt10.i
Smp Info : BHH0289-BS1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:10 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.319	6.311	(0.745)	42925	5.68226	5.682
$	2 Phenol-d5	99	7.888	7.888	(0.930)	43920	5.18772	5.188
	3 Phenol	94	7.911	7.911	(0.933)	26536	3.37143	3.371
$	5 2-Chlorophenol-d4	132	8.127	8.127	(0.958)	62986	6.91109	6.911
	4 Bis(2-Chloroethyl)ether	93	8.050	8.050	(0.949)	21722	3.40591	3.406
	6 2-Chlorophenol	128	8.158	8.158	(0.962)	40243	4.58255	4.583
	7 1,3-Dichlorobenzene	146	8.413	8.421	(0.992)	43064	4.30284	4.303
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	26902	4.00000	
	9 1,4-Dichlorobenzene	146	8.514	8.514	(1.004)	40571	4.20964	4.210
$	10 1,2-Dichlorobenzene-d4	152	8.832	8.832	(1.041)	28781	4.61903	4.619
	12 1,2-Dichlorobenzene	146	8.856	8.855	(1.044)	40978	4.46929	4.469
	11 Benzyl alcohol	108	8.762	8.762	(1.033)	15266	2.93055	2.931
	14 2,2'-oxybis(1-Chloropropane)	121	9.065	9.057	(1.069)	11271	4.06830	4.068
	13 2-Methylphenol	108	9.003	9.003	(1.061)	24583	4.06605	4.066
	17 Hexachloroethane	117	9.438	9.438	(1.113)	17920	4.46900	4.469
	16 N-Nitroso-di-n-propylamine	70	9.314	9.313	(1.098)	12778	3.31261	3.313
	15 4-Methylphenol	108	9.275	9.267	(1.093)	26406	4.12044	4.120
$	18 Nitrobenzene-d5	82	9.562	9.554	(0.876)	31826	4.05366	4.054
	19 Nitrobenzene	77	9.593	9.600	(0.878)	29694	3.94089	3.941
	20 Isophorone	82	10.035	10.043	(0.919)	46979	3.71750	3.718
	21 2-Nitrophenol	139	10.213	10.221	(0.935)	22069	4.42050	4.421
	22 2,4-Dimethylphenol	107	10.298	10.298	(0.943)	101264	12.0152	12.02
	23 Bis(2-Chloroethoxy)methane	93	10.485	10.485	(0.960)	19395	2.67718	2.677
	24 Benzoic acid	105	10.527	10.510	(0.964)	79289	13.8490	13.85
	25 2,4-Dichlorophenol	162	10.672	10.671	(0.977)	106539	15.2244	15.22
	26 1,2,4-Trichlorobenzene	180	10.844	10.852	(0.993)	38389	4.84570	4.846
*	27 Naphthalene-d8	136	10.922	10.929	(1.000)	100385	4.00000	
	28 Naphthalene	128	10.968	10.968	(1.004)	100973	4.37598	4.376
	29 4-Chloroaniline	127	11.115	11.114	(1.018)	112935	11.1611	11.16
	30 Hexachlorobutadiene	225	11.339	11.338	(1.038)	23797	4.89626	4.896
	31 4-Chloro-3-methylphenol	107	12.097	12.097	(1.108)	101698	14.1864	14.19
	32 2-Methylnaphthalene	142	12.353	12.353	(1.131)	78421	4.00675	4.007
	33 Hexachlorocyclopentadiene	237	12.817	12.824	(0.883)	67310	11.7901	11.79

		QUANT SIG					CONCENTRATIONS	
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34 2,4,6-Trichlorophenol	196	12.979	12.987	(0.894)	88083	15.6818	15.68
	35 2,4,5-Trichlorophenol	196	13.057	13.057	(0.900)	93203	16.0710	16.07
$	36 2-Fluorobiphenyl	172	13.142	13.142	(0.906)	94843	4.54366	4.544
	37 2-Chloronaphthalene	162	13.335	13.335	(0.919)	80327	4.49213	4.492
	38 2-Nitroaniline	65	13.614	13.614	(0.938)	50302	13.1192	13.12
	39 Dimethylphthalate	163	14.055	14.055	(0.969)	101862	5.02287	5.023
	40 Acenaphthylene	152	14.195	14.195	(0.978)	121157	4.60562	4.606
	41 2,6-Dinitrotoluene	165	14.195	14.194	(0.978)	70843	15.8261	15.83
*	42 Acenaphthene-d10	164	14.512	14.512	(1.000)	54573	4.00000	
	43 3-Nitroaniline	138	14.465	14.473	(0.997)	57895	11.0045	11.00
	44 Acenaphthene	153	14.574	14.574	(1.004)	76731	4.64203	4.642
	45 2,4-Dinitrophenol	184	14.682	14.682	(1.012)	71421	22.5701	22.57
	46 Dibenzofuran	168	14.906	14.898	(1.027)	114160	4.20226	4.202
	47 4-Nitrophenol	109	14.829	14.836	(1.022)	47716	14.2212	14.22
	48 2,4-Dinitrotoluene	165	14.991	14.991	(1.033)	99709	16.3717	16.37
	50 Diethylphthalate	149	15.517	15.517	(1.069)	105725	5.41451	5.415
	49 Fluorene	166	15.610	15.610	(1.076)	91746	4.93830	4.938
	51 4-Chlorophenyl-phenylether	204	15.617	15.617	(1.076)	46752	4.88462	4.885
	52 4-Nitroaniline	138	15.741	15.741	(1.085)	47820	8.13638	8.136
	53 4,6-Dinitro-2-methylphenol	198	15.826	15.826	(0.903)	163869	30.5663	30.57
	54 N-Nitrosodiphenylamine	169	15.880	15.872	(0.906)	87504	5.85987	5.860
$	55 2,4,6-Tribromophenol	330	16.150	16.142	(1.113)	25329	6.13813	6.138
	56 4-Bromophenyl-phenylether	248	16.612	16.620	(0.948)	42517	4.85697	4.857
	57 Hexachlorobenzene	284	16.906	16.913	(0.965)	39011	4.18292	4.183
	58 Pentachlorophenol	266	17.285	17.285	(0.986)	42613	10.8327	10.83
*	59 Phenanthrene-d10	188	17.525	17.525	(1.000)	108786	4.00000	
	60 Phenanthrene	178	17.572	17.572	(1.003)	136786	5.14755	5.148
	61 Anthracene	178	17.665	17.665	(1.008)	134001	4.96640	4.966
	62 Carbazole	167	18.013	18.012	(1.028)	112149	4.41699	4.417
	63 Di-n-butylphthalate	149	18.871	18.872	(1.077)	193056	5.25142	5.251
	64 Fluoranthene	202	19.993	19.993	(0.883)	174686	5.59354	5.594
	65 Pyrene	202	20.419	20.411	(0.902)	176875	5.42369	5.424
$	66 Terphenyl-d14	244	20.744	20.744	(0.916)	118728	5.36823	5.368
	67 Butylbenzylphthalate	149	21.712	21.712	(0.959)	84500	5.56245	5.562
	68 Benzo(a)anthracene	228	22.610	22.610	(0.999)	166508	5.61566	5.616
*	69 Chrysene-d12	240	22.641	22.633	(1.000)	102195	4.00000	
	70 3,3'-Dichlorobenzidine	252	22.602	22.594	(0.998)	81365	7.81113	7.811
	71 Chrysene	228	22.680	22.680	(1.002)	133565	5.09068	5.091
	72 bis(2-Ethylhexyl)phthalate	149	22.765	22.765	(0.959)	113610	5.65823	5.658
*	134 Di-n-octylphthalate-d4	153	23.748	23.756	(1.000)	228285	4.00000	
	73 Di-n-octylphthalate	149	23.763	23.763	(1.001)	215195	5.09551	5.096
	74 Benzo(b)fluoranthene	252	24.390	24.390	(0.973)	168163	6.66286	6.663
	75 Benzo(k)fluoranthene	252	24.429	24.429	(0.975)	149601	5.89191	5.892
	76 Benzo(a)pyrene	252	24.948	24.948	(0.996)	134294	5.92869	5.929
*	77 Perylene-d12	264	25.056	25.056	(1.000)	87969	4.00000	
	78 Indeno(1,2,3-cd)pyrene	276	27.303	27.303	(1.090)	129994	4.77624	4.776
	79 Dibenzo(a,h)anthracene	278	27.326	27.334	(1.091)	92888	4.19202	4.192
	80 Benzo(g,h,i)perylene	276	27.963	27.971	(1.116)	111691	4.87242	4.872
	90 N-Nitrosodimethylamine	74	4.211	4.187	(0.496)	22009	7.54090	7.541
	91 Aniline	93	7.957	7.957	(0.938)	82143	11.7872	11.79
	93 Benzidine	184	Compound Not Detected.					
	103 Pyridine	79	4.219	4.195	(0.497)	29451	5.44086	5.441
	105 1-methylnaphthalene	142	12.569	12.569	(1.151)	77107	3.91874	3.919
	111 Azobenzene (1,2-DP-Hydrazine)	77	15.942	15.949	(1.099)	102752	4.73181	4.732

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
187	Total Benzofluoranthenes	252	24.429	24.429	(0.975)	297468	12.2874	12.29
99	Perylene	252	25.095	25.110	(1.002)	55575	2.66712	2.667
98	Retene	219	Compound Not Detected.					
120	2,3,4,6-Tetrachlorophenol	232	15.254	15.254	(1.051)	25177	5.38865	5.389

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082109.D
Lab Smp Id: BHH0289-BS1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	26902	-17.83
27 Naphthalene-d8	117487	58744	234974	100385	-14.56
42 Acenaphthene-d10	61859	30930	123718	54573	-11.78
59 Phenanthrene-d10	113574	56787	227148	108786	-4.22
69 Chrysene-d12	105788	52894	211576	102195	-3.40
134 Di-n-octylphthala	252823	126412	505646	228285	-9.71
77 Perylene-d12	113992	56996	227984	87969	-22.83

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	-0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.92	-0.07
42 Acenaphthene-d10	14.51	14.01	15.01	14.51	-0.00
59 Phenanthrene-d10	17.53	17.03	18.03	17.53	-0.00
69 Chrysene-d12	22.63	22.13	23.13	22.64	0.03
134 Di-n-octylphthala	23.76	23.26	24.26	23.75	-0.03
77 Perylene-d12	25.06	24.56	25.56	25.06	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082109.D

Lab ID: BHH0289-BS1
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 15:06

RT	CO-ELUTION COMPOUNDS
14.195	2,6-Dinitrotoluene and Acenaphthylene

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.949	1.033	-0.0840	Benzyl alcohol
0.962	1.004	-0.0418	Naphthalene
0.992	0.962	0.0301	Benzoic acid
1.000	1.130	-0.1302	2-Methylnaphthalene
1.004	0.978	0.0255	Acenaphthylene
1.044	0.969	0.0754	Dimethylphthalate
1.033	1.004	0.0287	Acenaphthene
1.069	1.027	0.0420	Dibenzofuran
1.061	1.076	-0.0144	Fluorene
1.113	1.069	0.0433	Diethylphthalate
1.098	0.906	0.1922	N-Nitrosodiphenylamine
1.093	1.003	0.0907	Phenanthrene
0.878	1.008	-0.1296	Anthracene
0.919	1.077	-0.1580	Di-n-butylphthalate
0.935	0.883	0.0518	Fluoranthene
0.943	0.902	0.0411	Pyrene
0.977	0.999	-0.0219	Benzo(a)anthracene
0.993	1.002	-0.0091	Chrysene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate
0.964	0.973	-0.0095	Benzo(b)fluoranthene
1.018	0.975	0.0427	Benzo(k)fluoranthene
1.038	0.996	0.0425	Benzo(a)pyrene
1.108	1.090	0.0180	Indeno(1,2,3-cd)pyrene
1.131	1.091	0.0401	Dibenzo(a,h)anthracene
0.883	1.116	-0.2331	Benzo(g,h,i)perylene
0.894	1.150	-0.2556	1-methylnaphthalene
0.900	0.975	-0.0752	Total Benzofluoranthenes
0.919	1.000	-0.0811	1,4-Dichlorobenzene-d4
0.938	1.000	-0.0619	Naphthalene-d8
0.978	1.000	-0.0219	Acenaphthene-d10
0.969	1.000	-0.0315	Phenanthrene-d10
0.978	1.000	-0.0219	Chrysene-d12
0.997	0.744	0.2528	2-Fluorophenol
1.012	0.930	0.0819	Phenol-d5
1.027	1.041	-0.0140	1,2-Dichlorobenzene-d4
1.022	0.874	0.1477	Nitrobenzene-d5
1.033	0.906	0.1274	2-Fluorobiphenyl
1.076	1.112	-0.0367	2,4,6-Tribromophenol
1.076	0.917	0.1597	Terphenyl-d14

RRT check based on Ccal File: NT1019082105.D

On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

LCS / LCS DUPLICATE RECOVERY

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Wipes	Analyzed:	08/21/19 23:14
Batch:	BHH0299	Laboratory ID:	BHH0299-BS1
Preparation:	EPA 3580A (Shake Out)	Sequence Name:	LCS
Initial/Final:	1 Wipe / 1 mL		

COMPOUND	SPIKE ADDED (ug/Wipe)	LCS CONCENTRATION (ug/Wipe)	Q	LCS % REC. #	QC LIMITS REC.
Phenol	5.00	2.2	Q	45.0	34 - 120
Benzyl Alcohol	5.00	1.5	Q	29.5	19 - 120
Benzoic acid	27.5	9.1	Q	33.0	10 - 120
N-Nitrosodiphenylamine	5.00	4.3		85.7	36 - 120
Phenanthrene	5.00	3.3		66.3	49 - 120
Fluoranthene	5.00	5.1		102	53 - 120
Pyrene	5.00	4.9		98.8	48 - 121
Butylbenzylphthalate	5.00	4.8		96.5	45 - 132
Benzo(a)anthracene	5.00	4.0		80.7	49 - 120
Chrysene	5.00	3.6		72.9	47 - 120
bis(2-Ethylhexyl)phthalate	5.00	4.3		86.7	34 - 130
Di-n-Octylphthalate	5.00	3.4		67.1	28 - 124
Benzofluoranthenes, Total	10.0	8.0		80.0	30 - 160
Benzo(a)pyrene	5.00	3.9		78.8	42 - 120
Indeno(1,2,3-cd)pyrene	5.00	2.5		49.1	42 - 123
Dibenzo(a,h)anthracene	5.00	2.3		45.5	30 - 133
Benzo(g,h,i)perylene	5.00	1.9		38.9	38 - 126

* Indicates values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

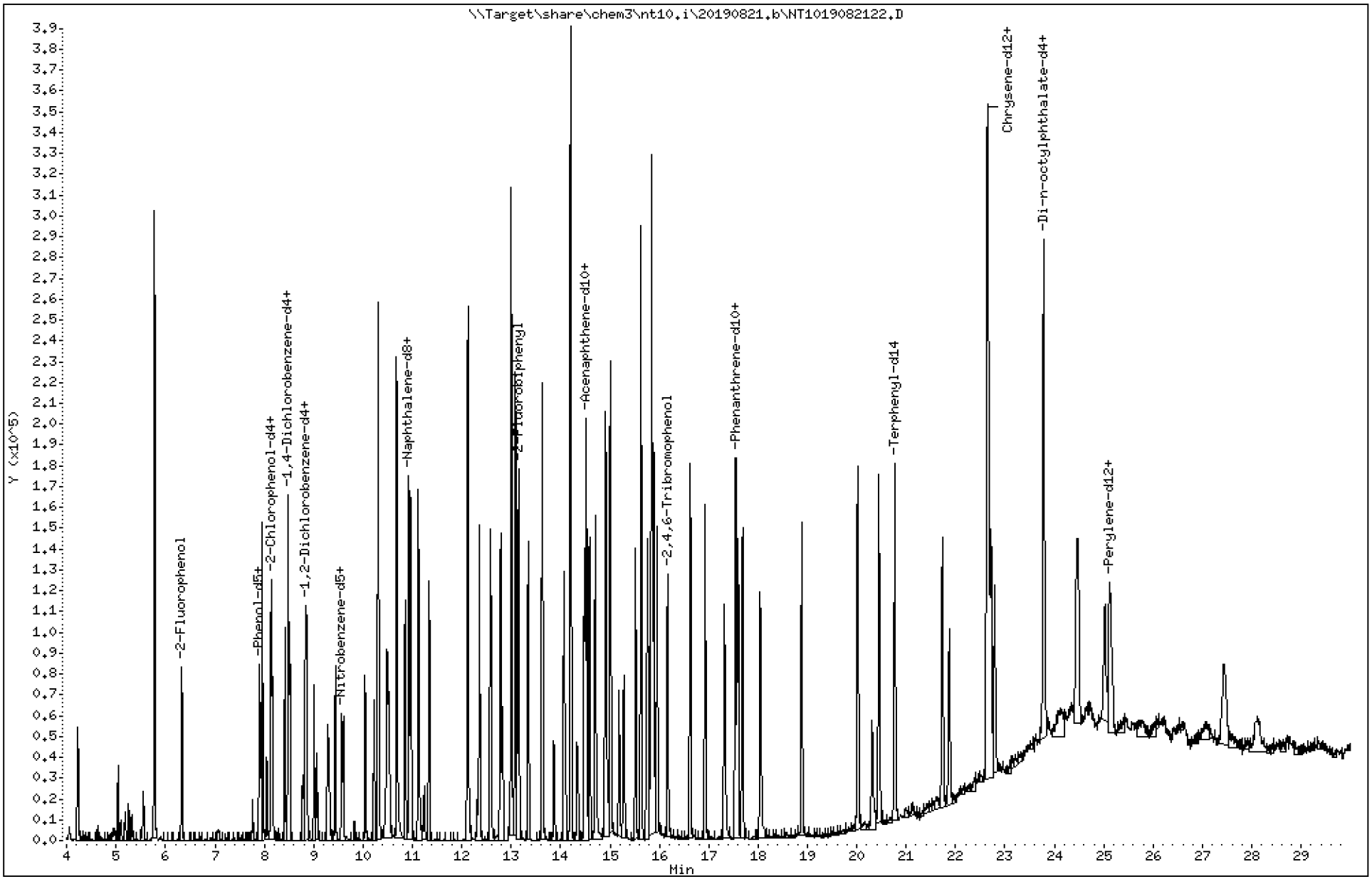
Instrument: nt10.i

Sample Info: BHH0299-BS1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

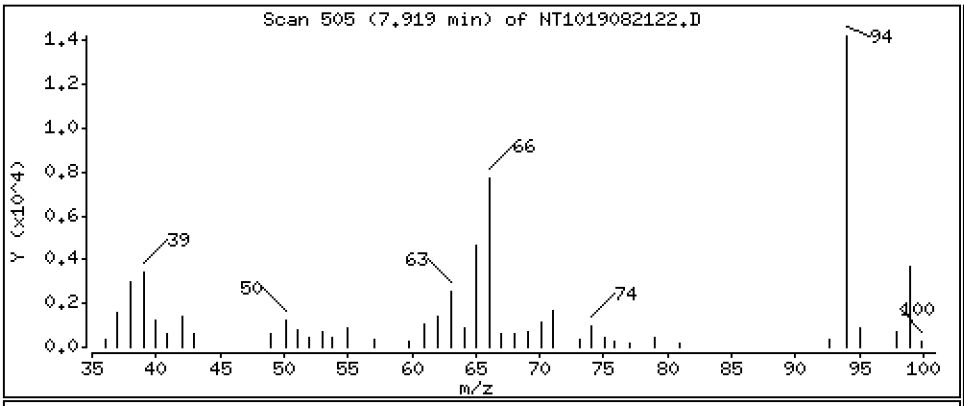
Operator: YZ

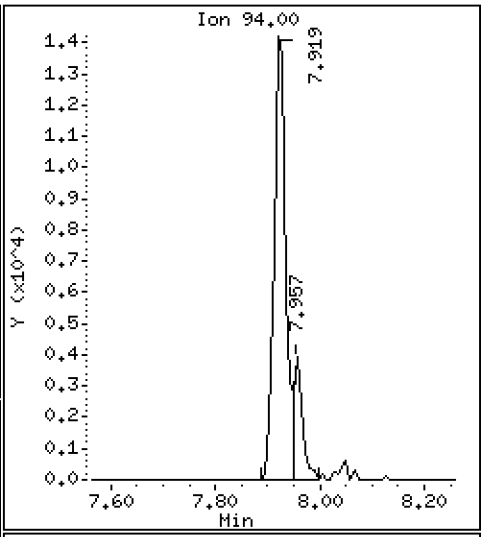
Column phase: ZB-5msi

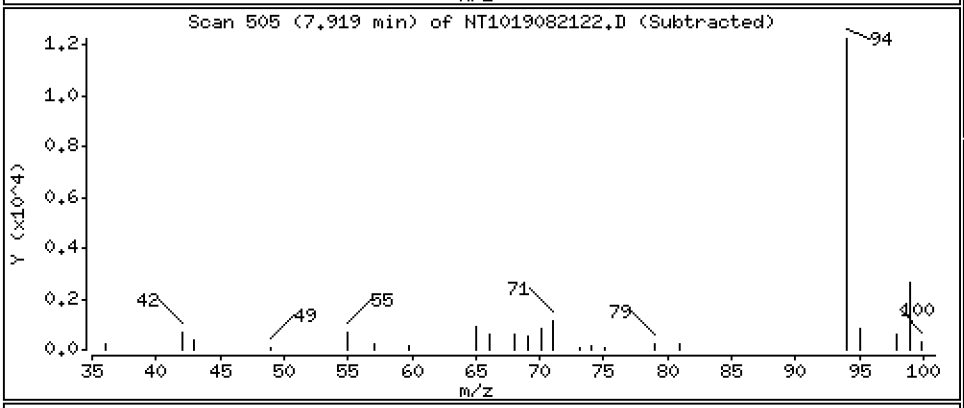
Column diameter: 0.25

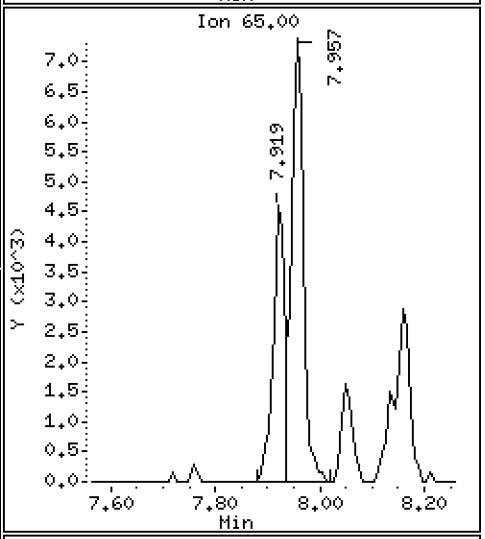
3 Phenol

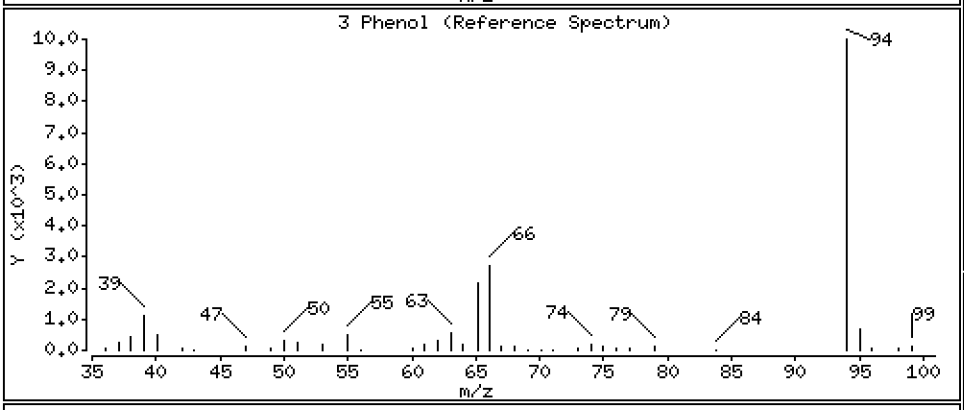
Concentration: 2.250 ug/mL

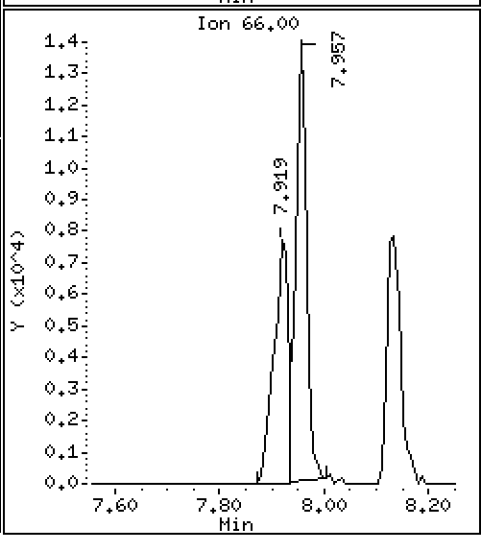


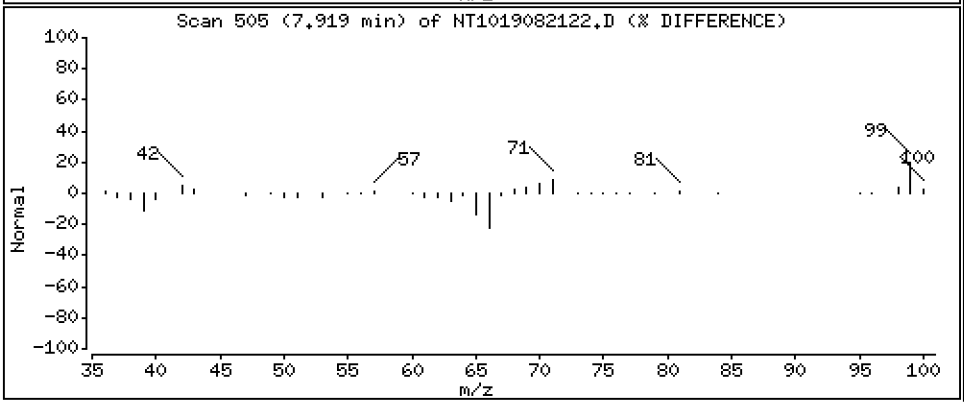












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

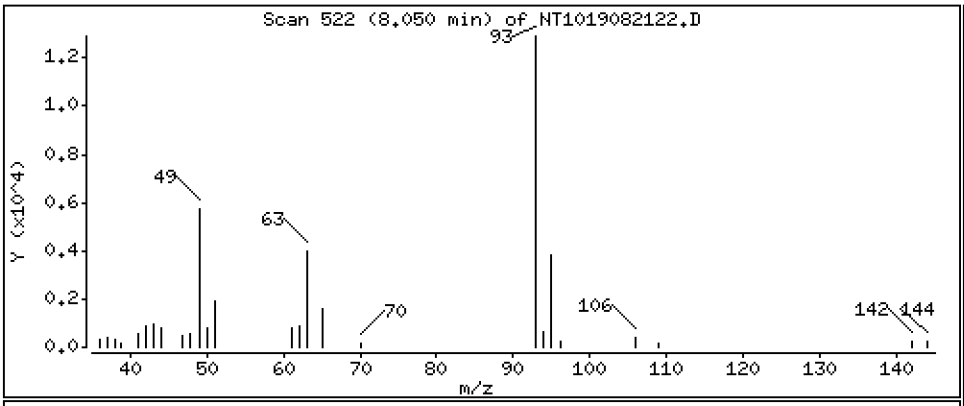
Operator: YZ

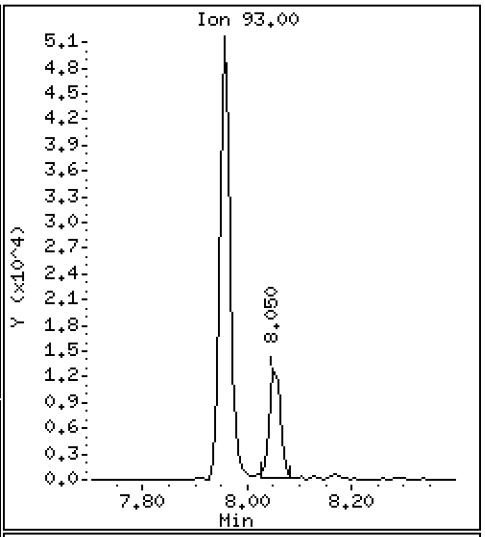
Column phase: ZB-5msi

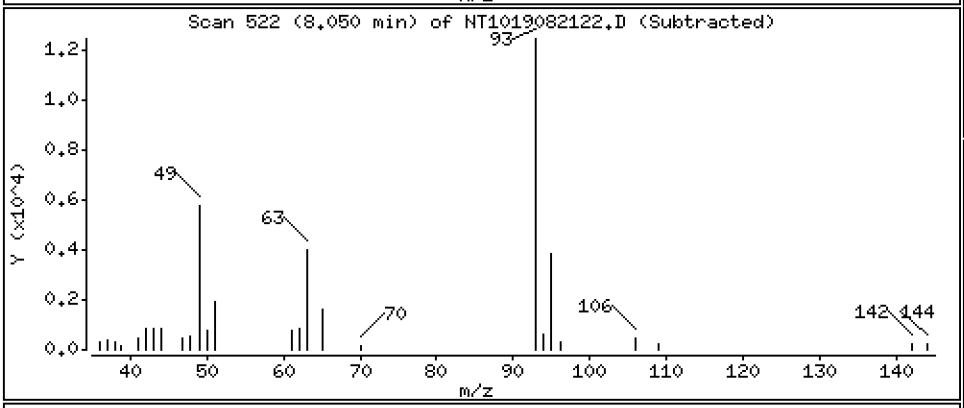
Column diameter: 0.25

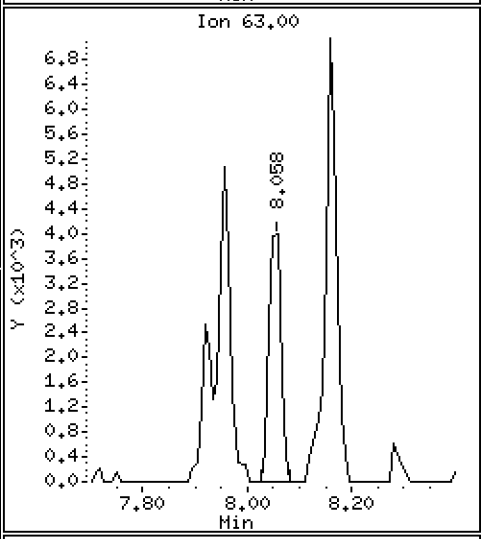
4 Bis(2-Chloroethyl)ether

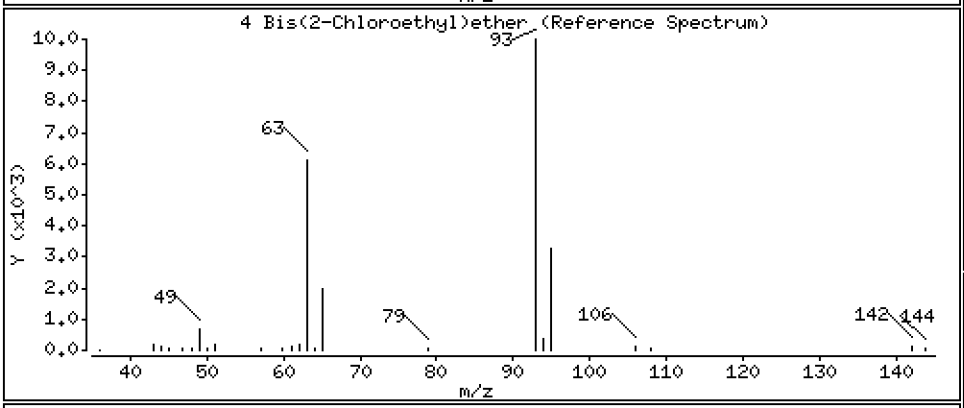
Concentration: 2.144 ug/mL

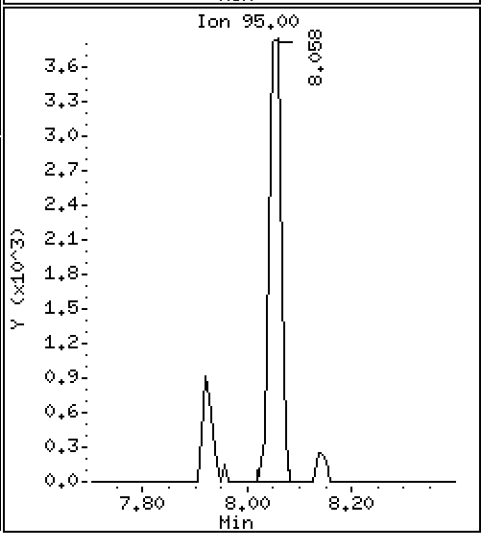


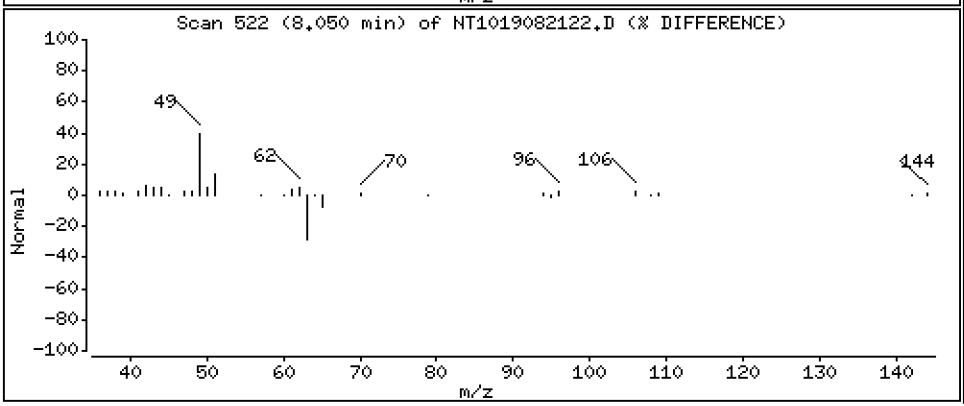












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

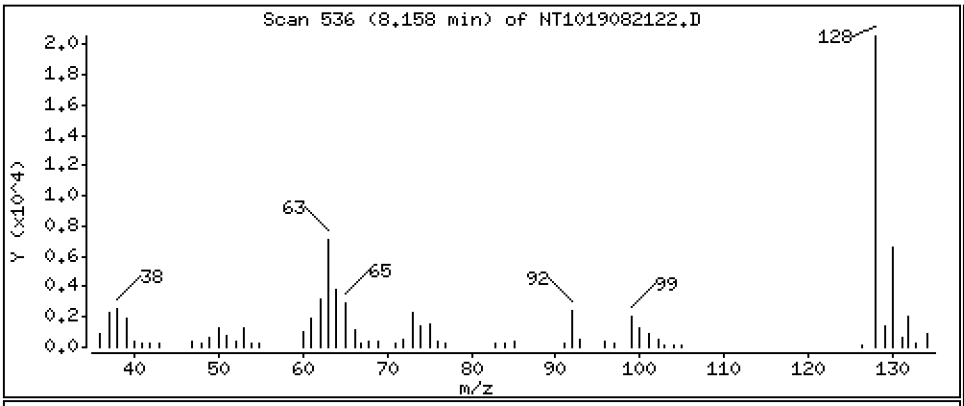
Operator: YZ

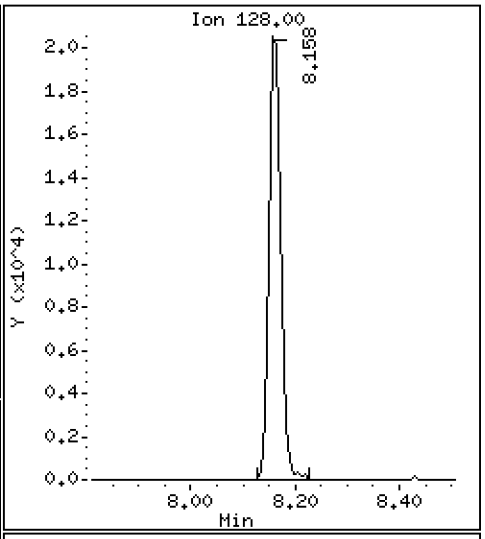
Column phase: ZB-5msi

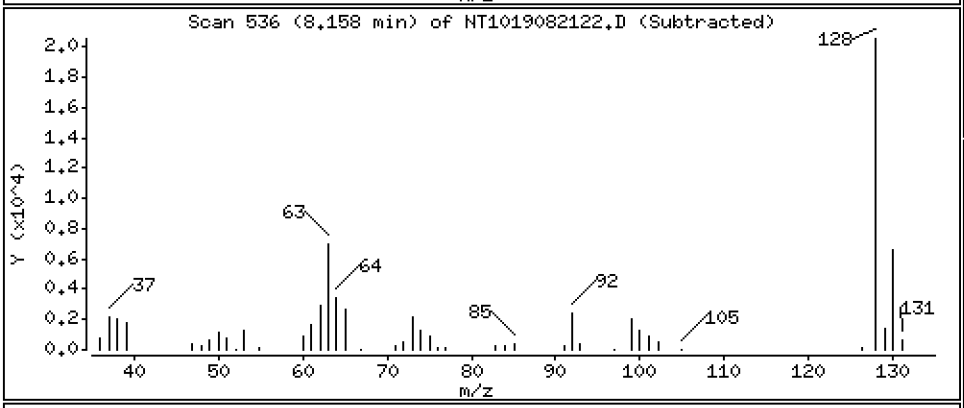
Column diameter: 0.25

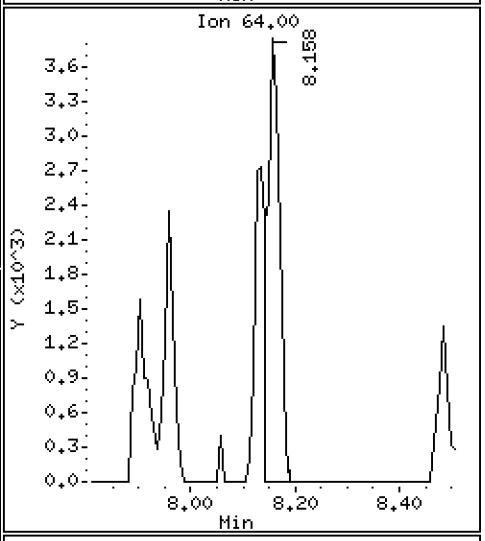
6 2-Chlorophenol

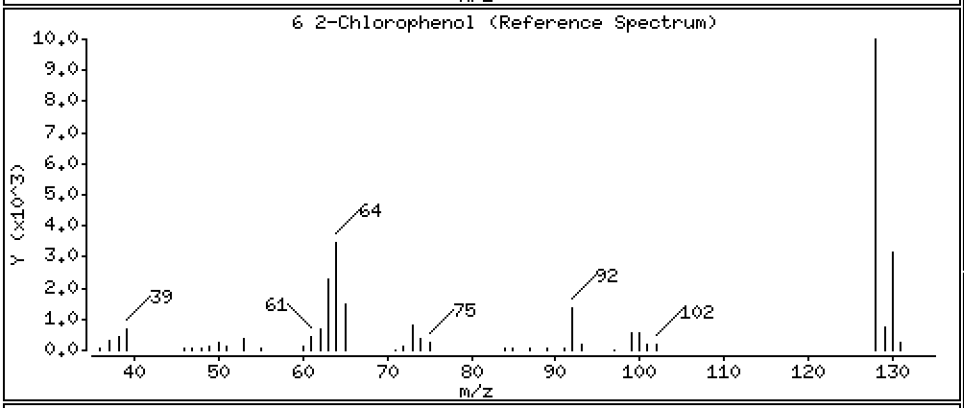
Concentration: 2.761 ug/mL

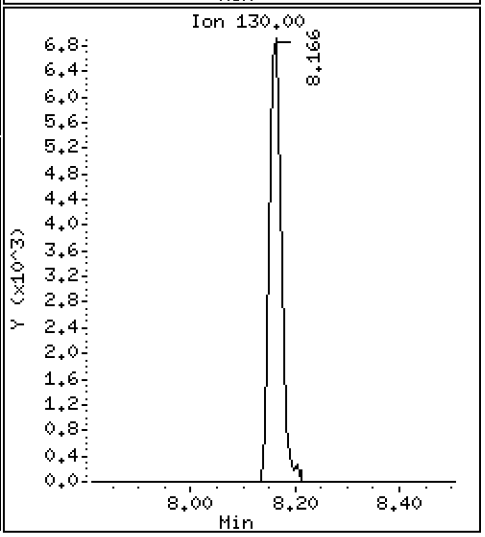


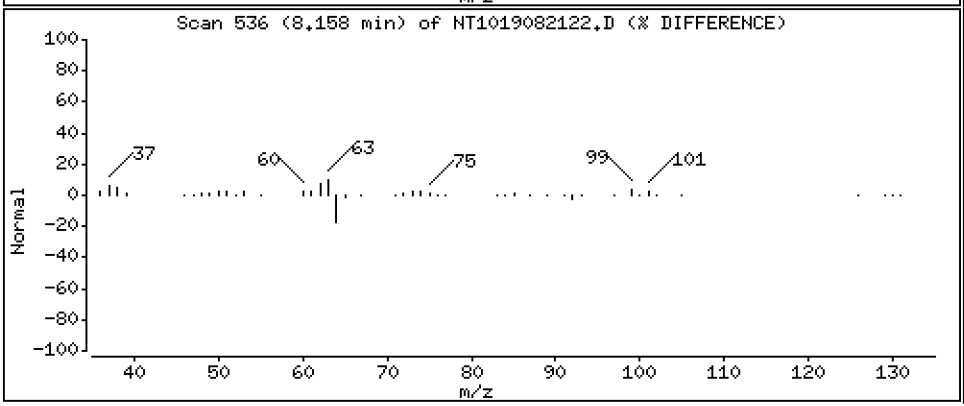












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

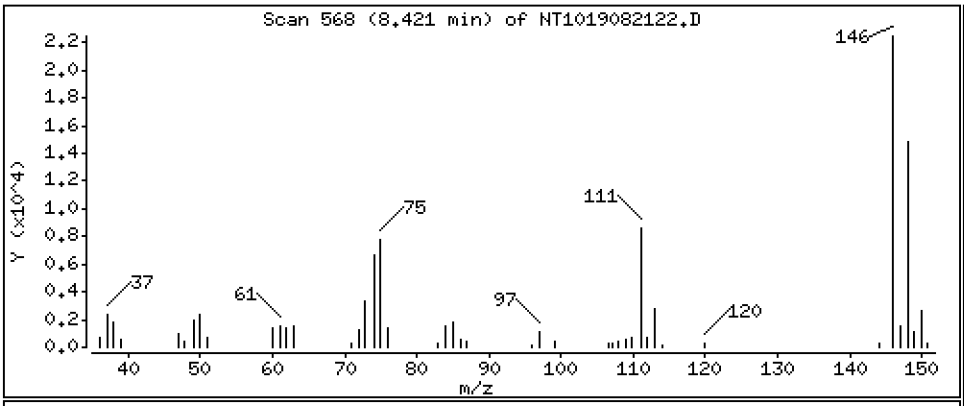
Operator: YZ

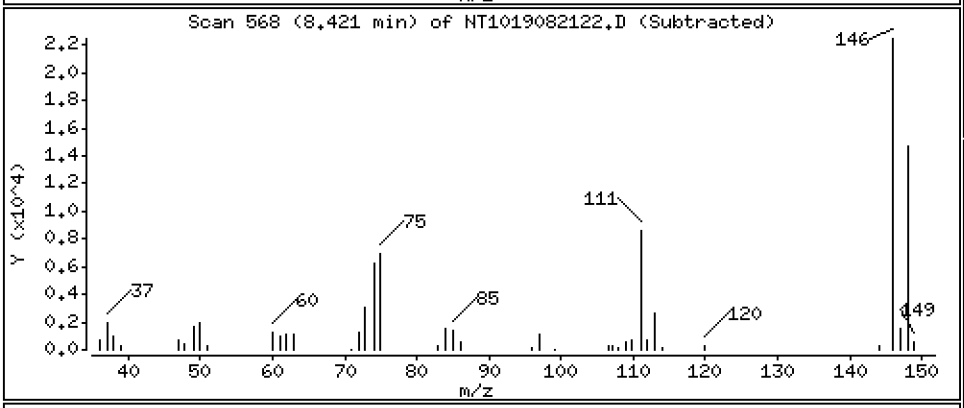
Column phase: ZB-5msi

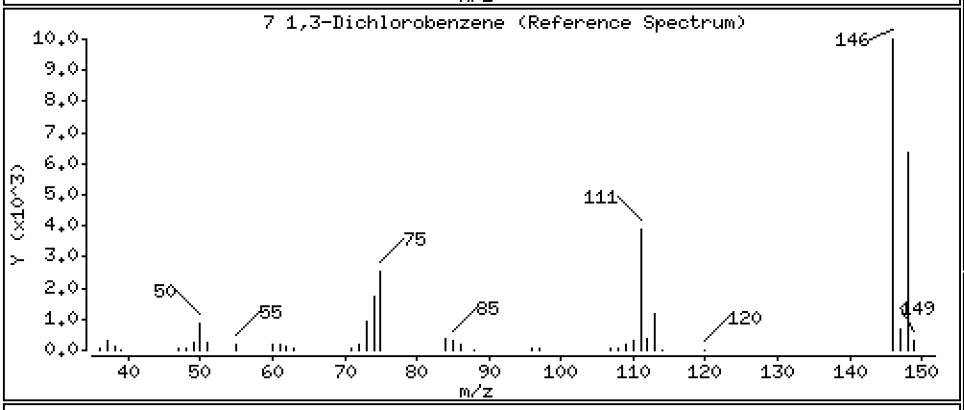
Column diameter: 0.25

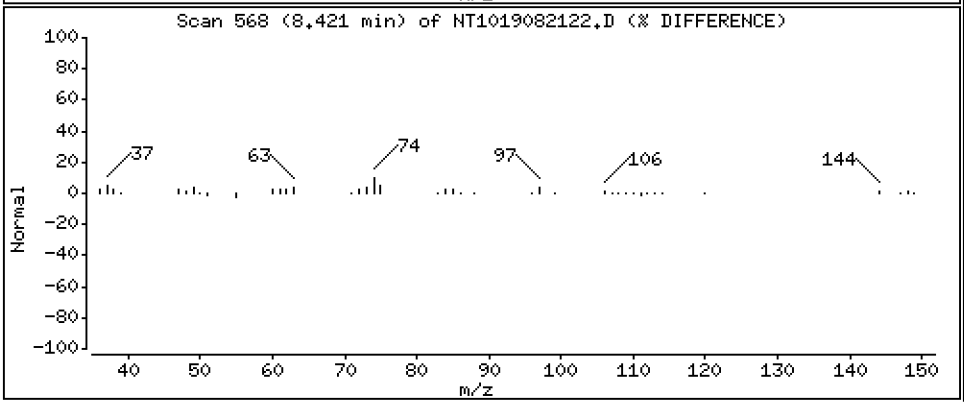
7 1,3-Dichlorobenzene

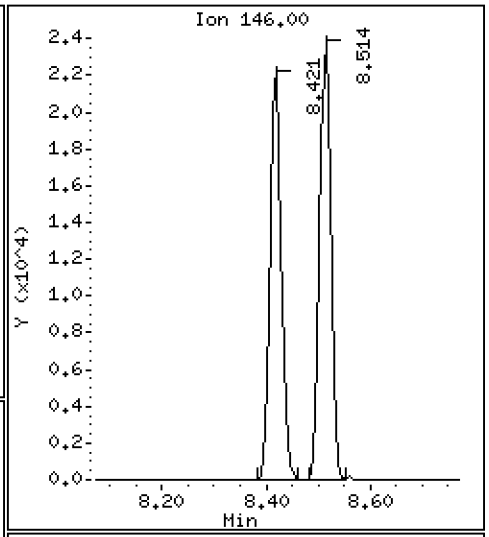
Concentration: 2.614 ug/mL

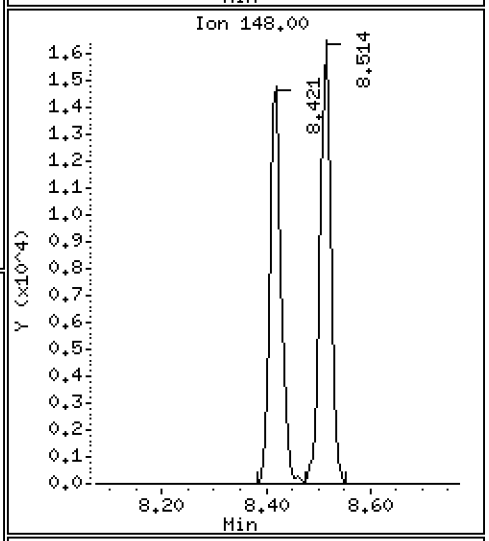


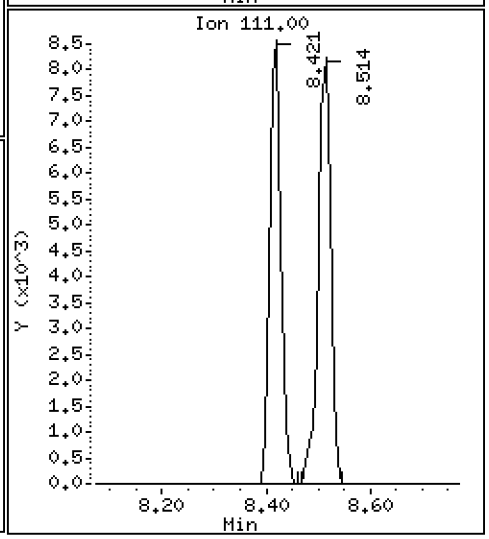












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

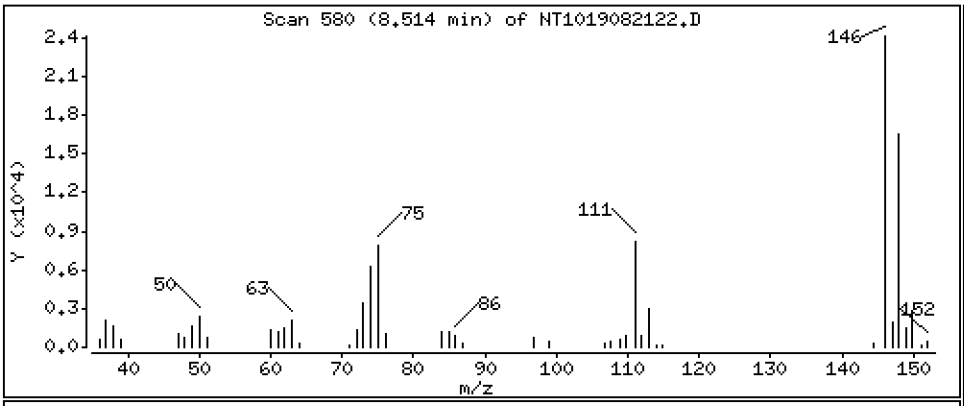
Operator: YZ

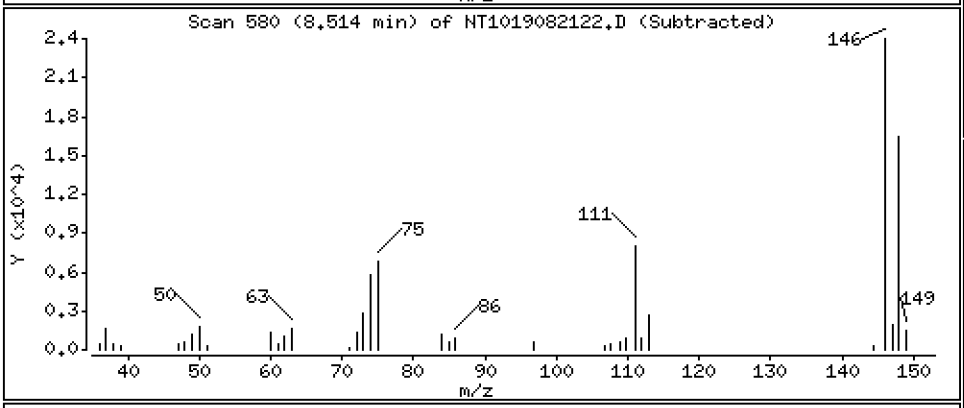
Column phase: ZB-5msi

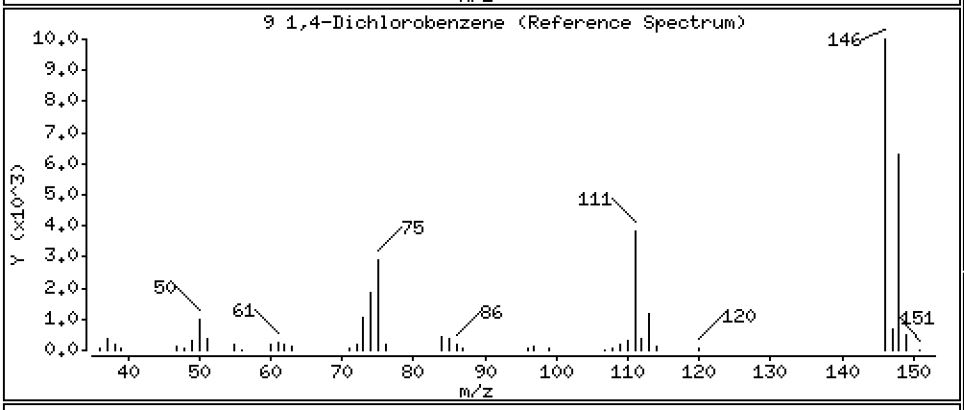
Column diameter: 0.25

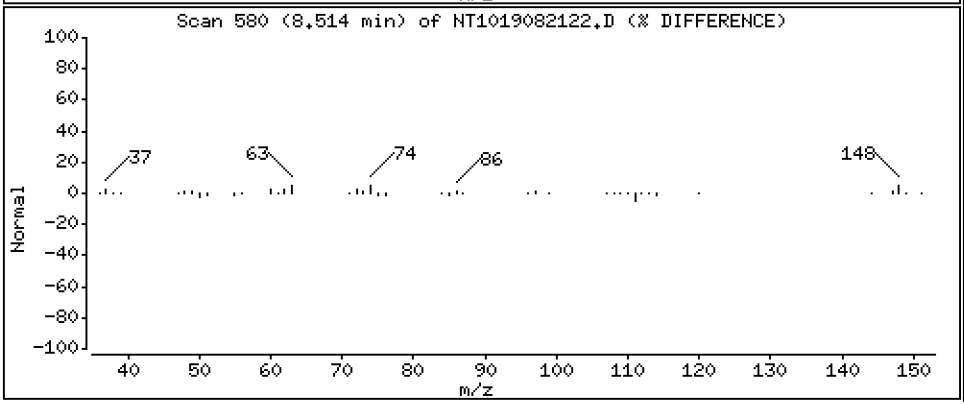
9 1,4-Dichlorobenzene

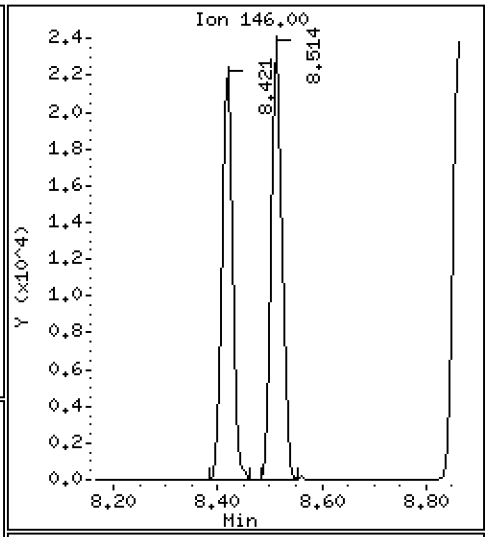
Concentration: 2.743 ug/mL

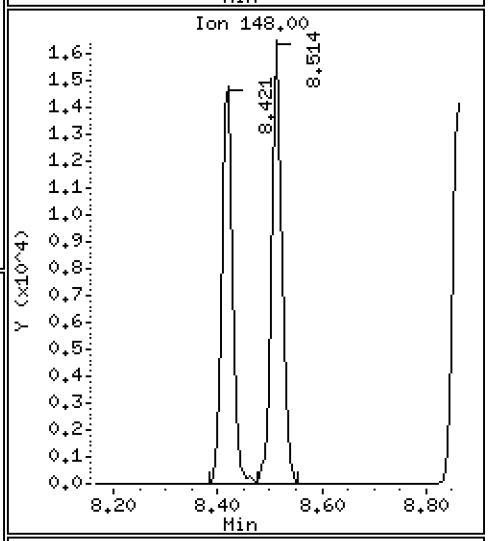


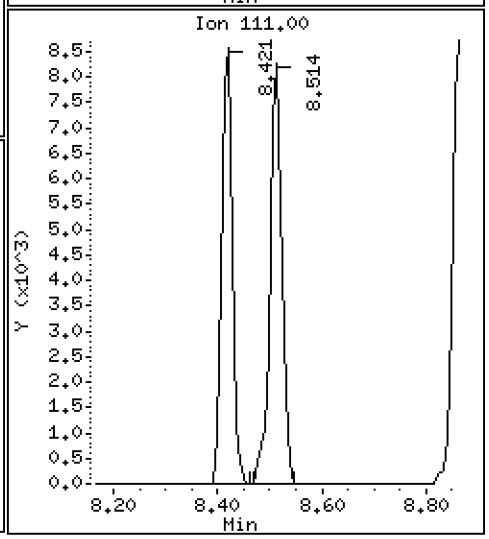












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

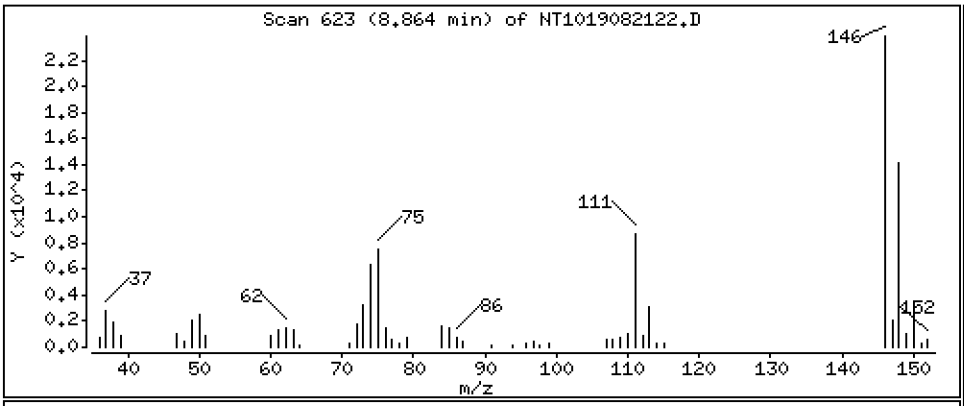
Operator: YZ

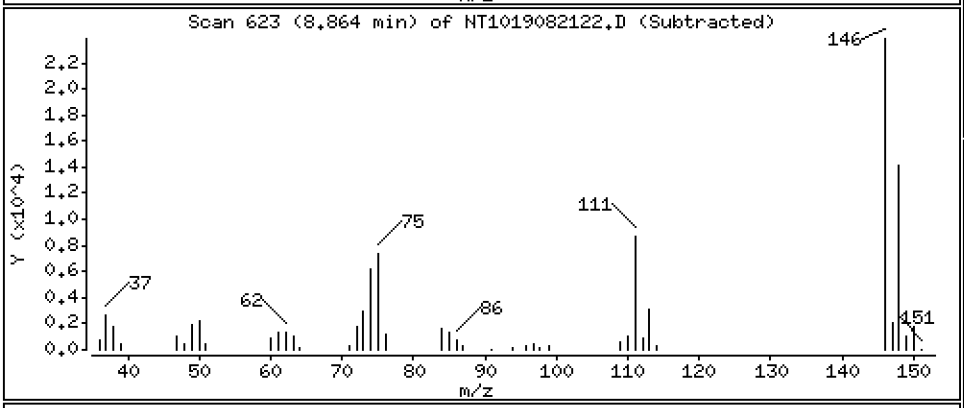
Column phase: ZB-5msi

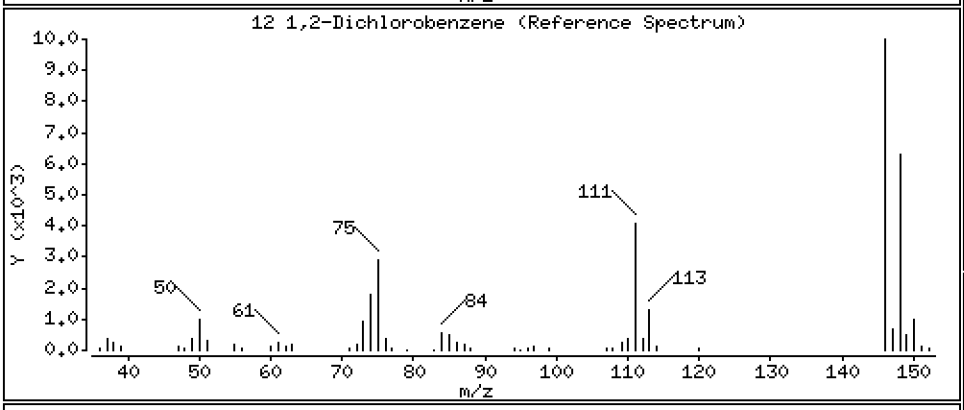
Column diameter: 0.25

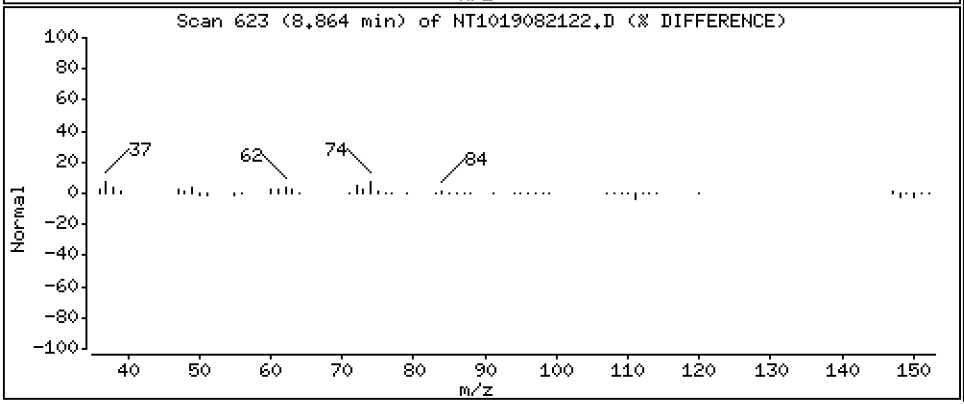
12 1,2-Dichlorobenzene

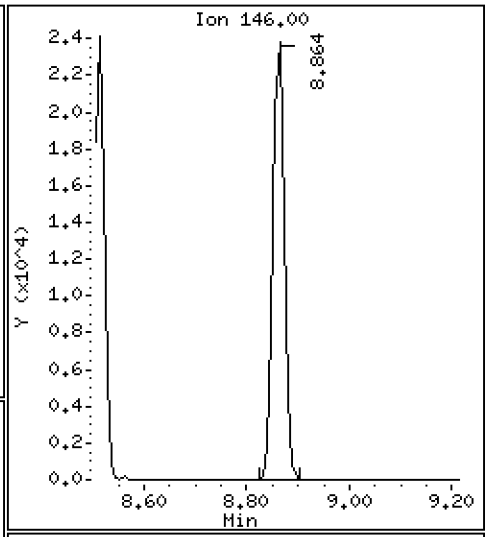
Concentration: 2.920 ug/mL

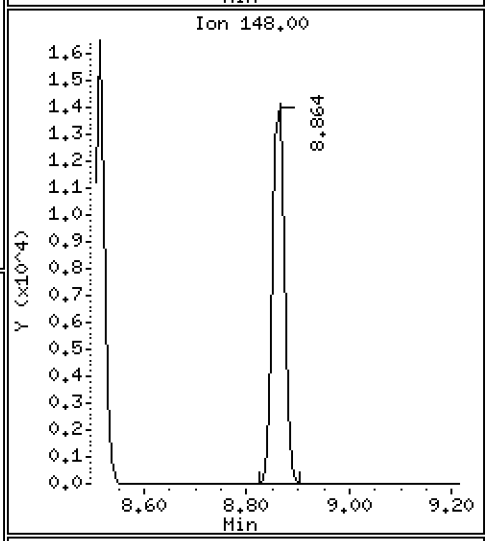


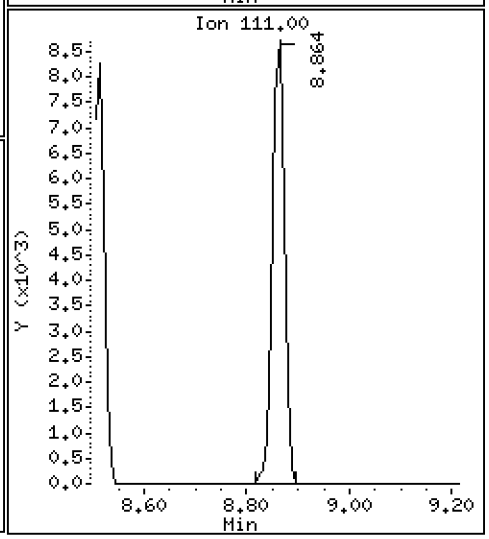












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

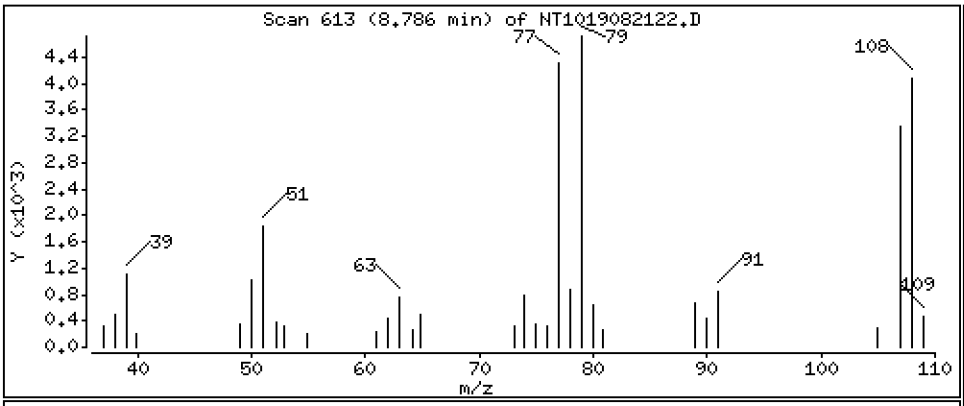
Operator: YZ

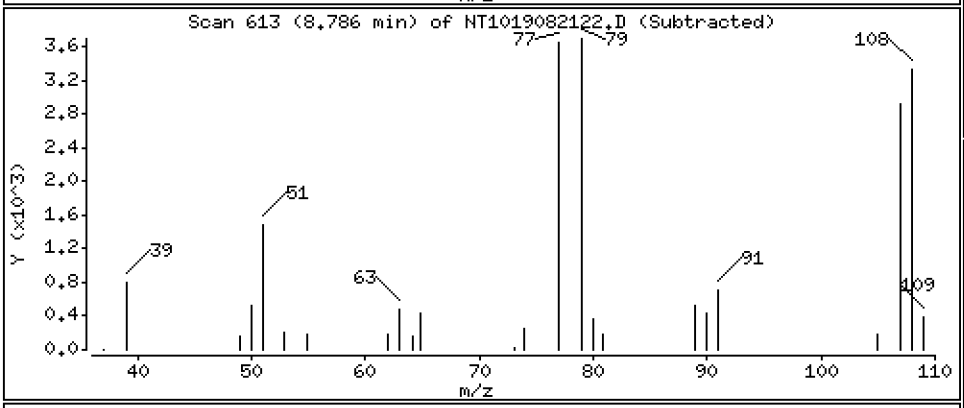
Column phase: ZB-5msi

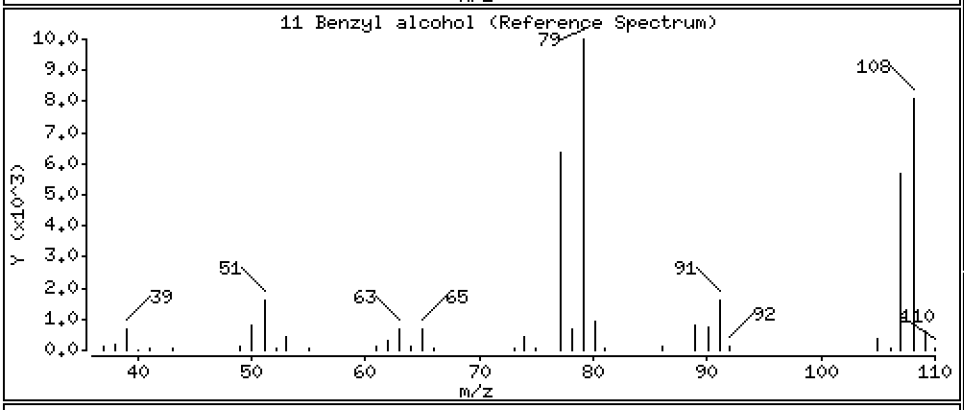
Column diameter: 0.25

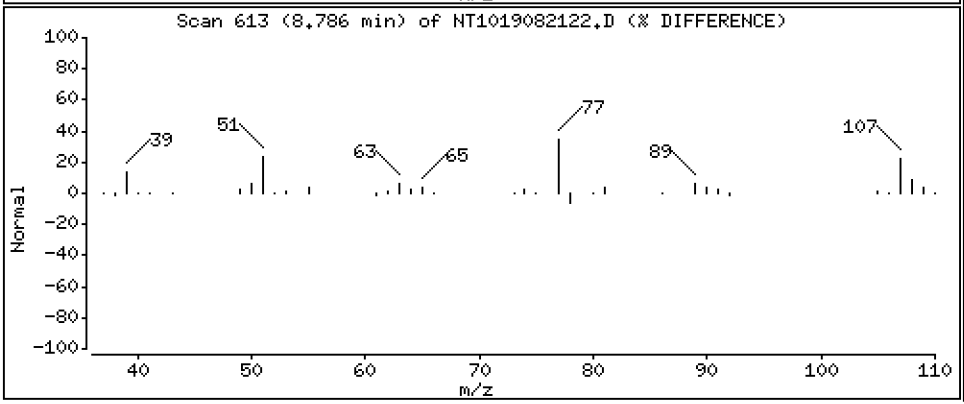
11 Benzyl alcohol

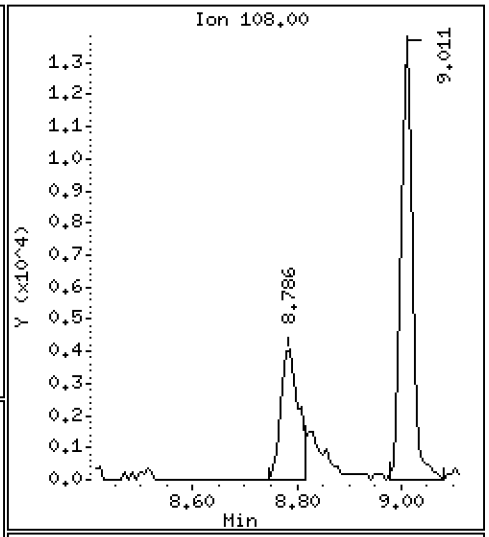
Concentration: 1.476 ug/mL

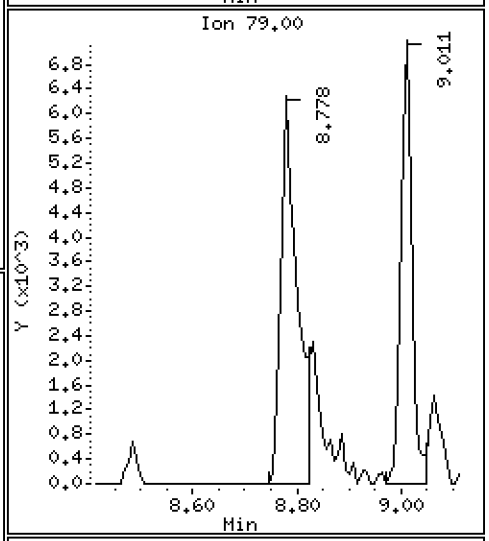


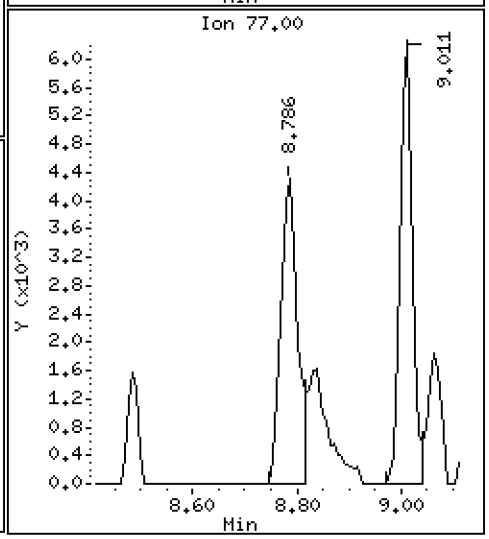












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

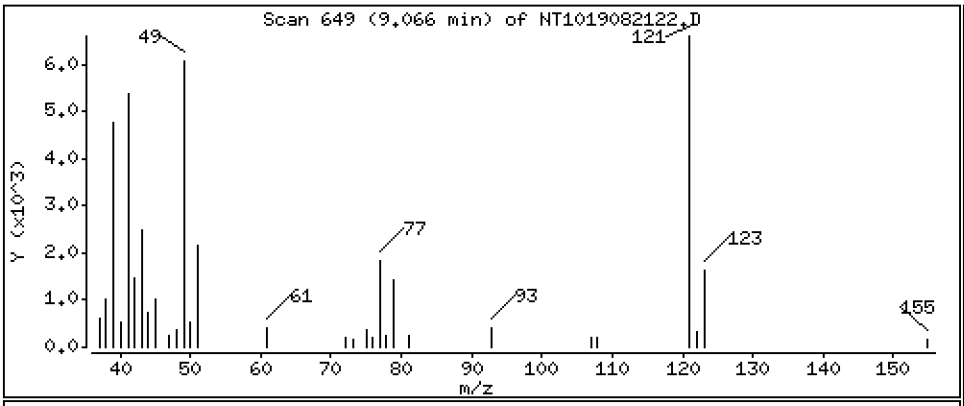
Operator: YZ

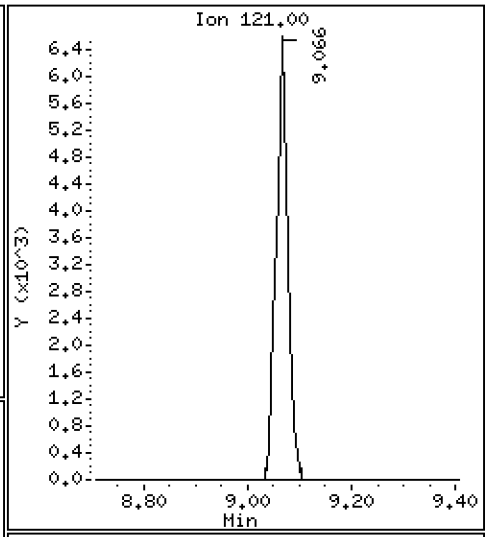
Column phase: ZB-5msi

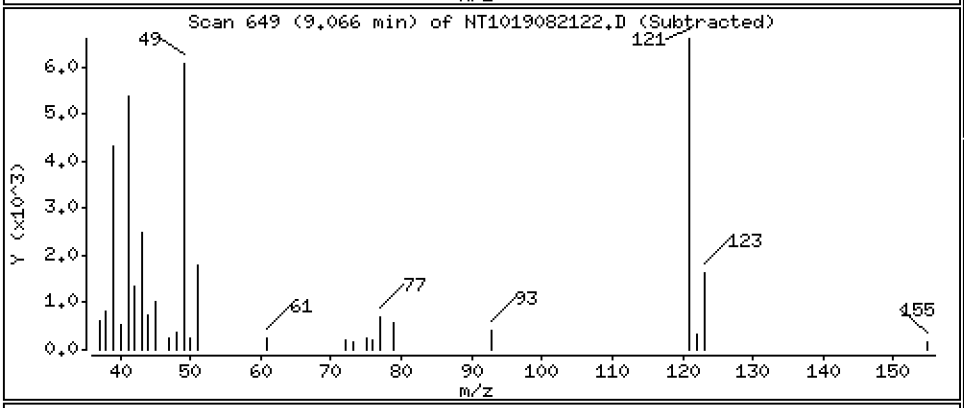
Column diameter: 0.25

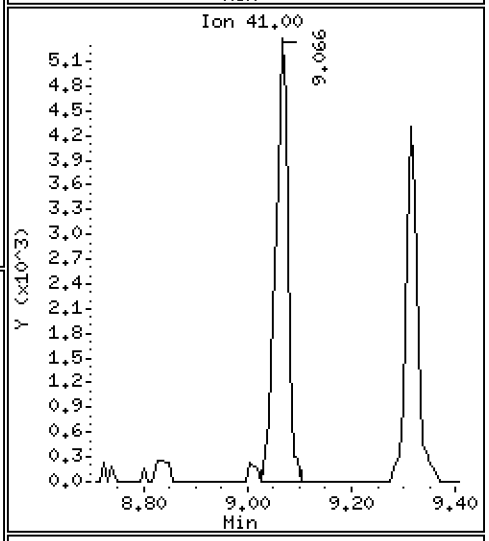
14 2,2'-oxybis(1-Chloropropane)

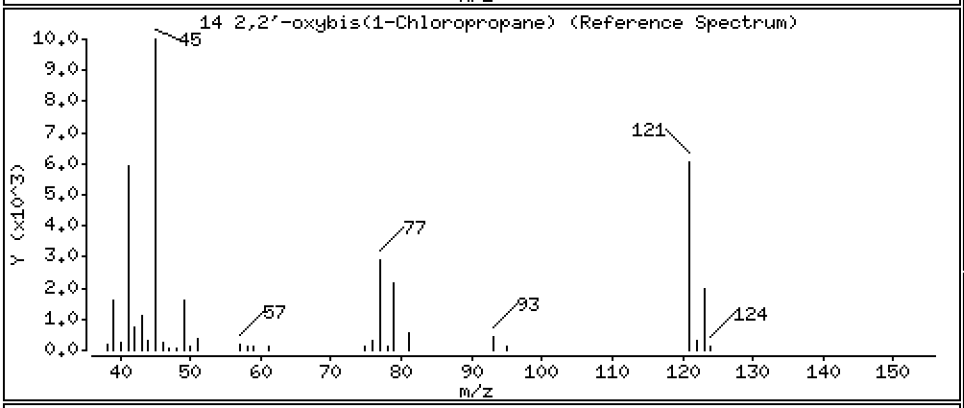
Concentration: 2.829 ug/mL

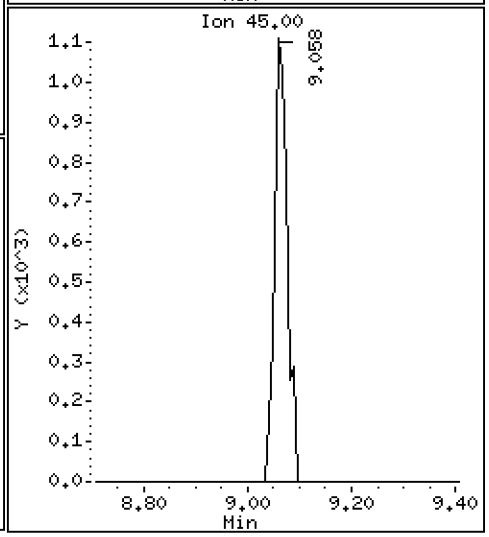


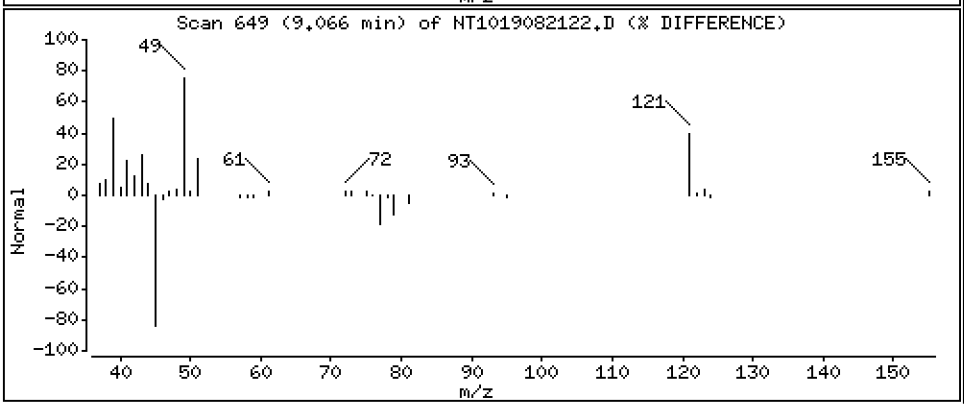












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

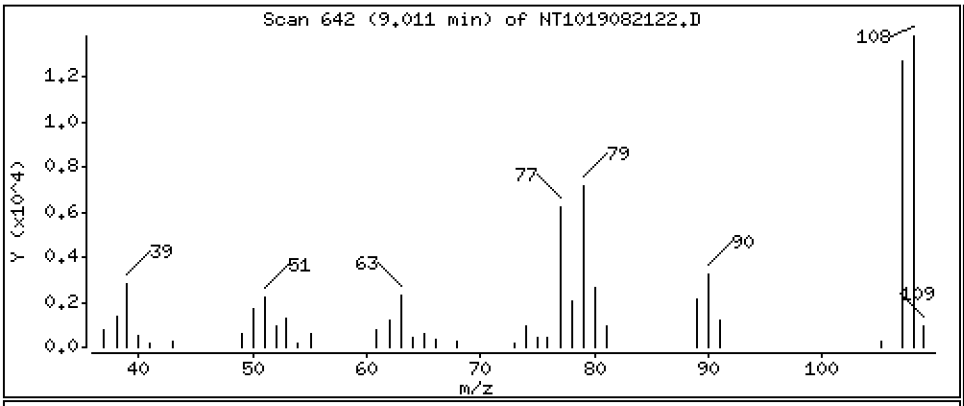
Operator: YZ

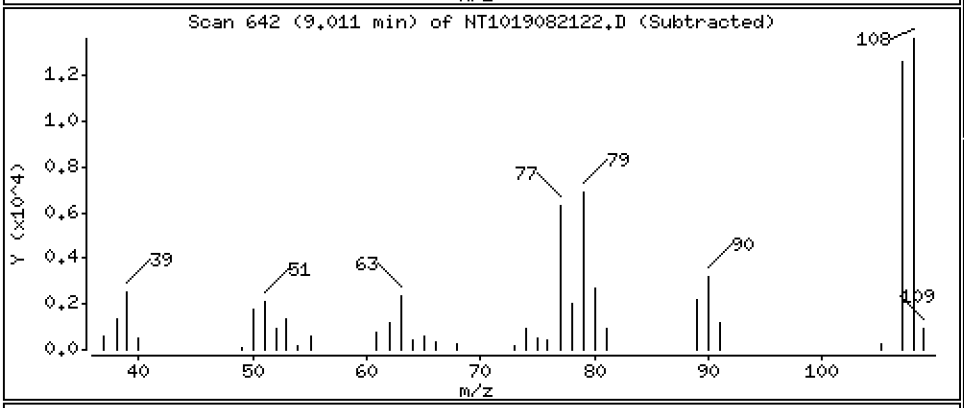
Column phase: ZB-5msi

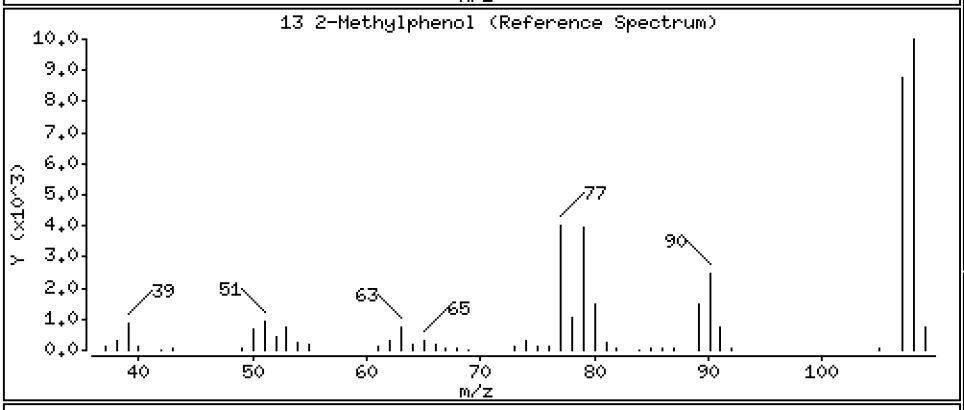
Column diameter: 0.25

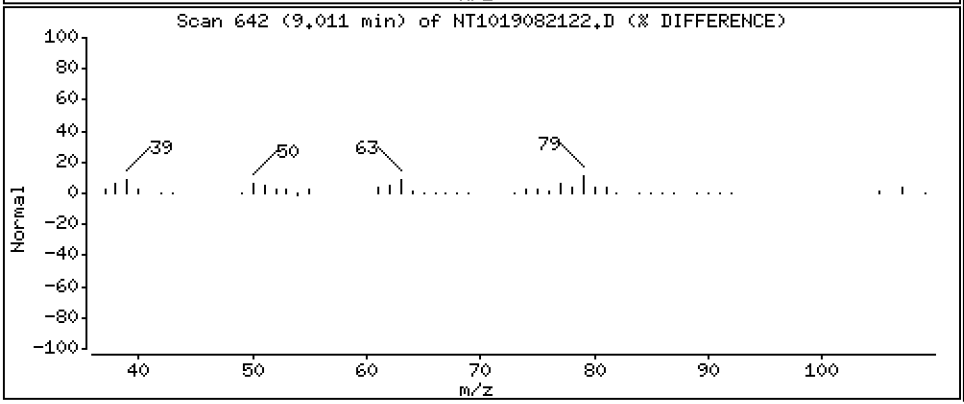
13 2-Methylphenol

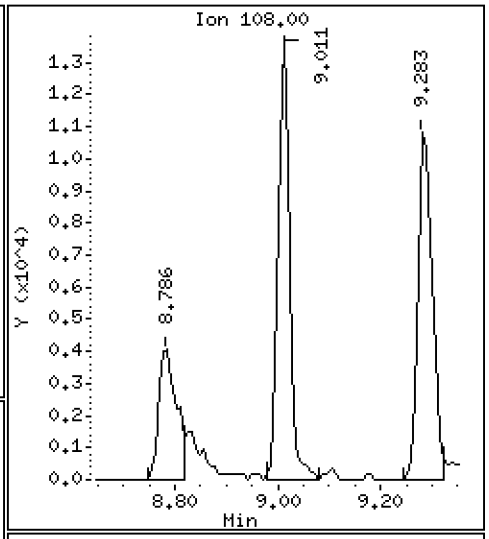
Concentration: 2.684 ug/mL

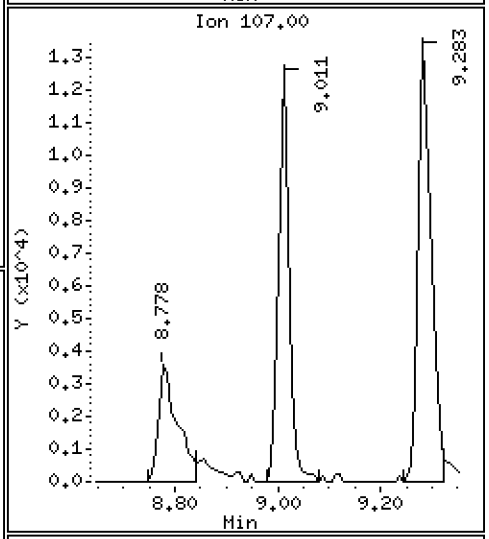


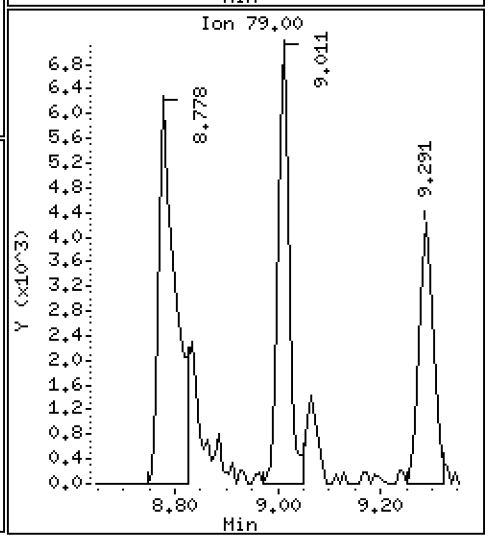












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

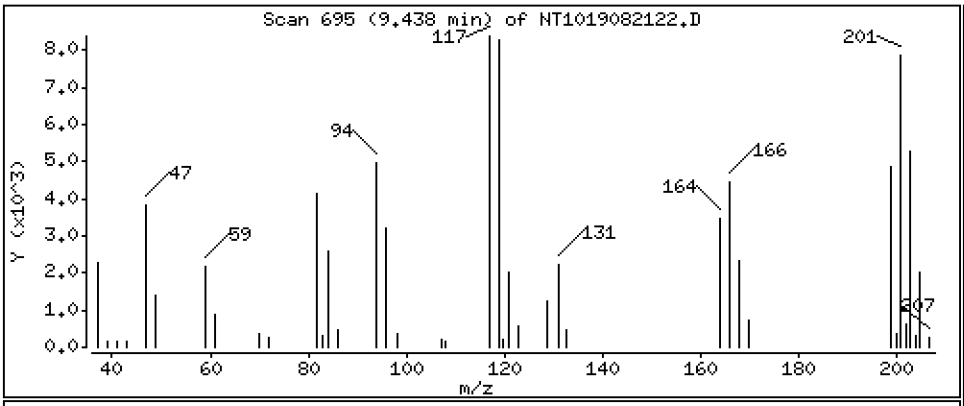
Operator: YZ

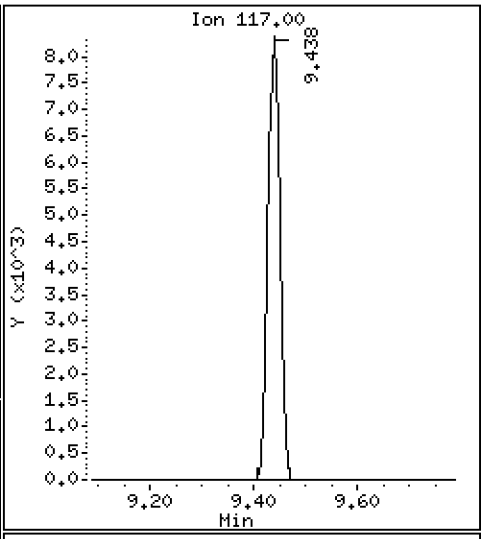
Column phase: ZB-5msi

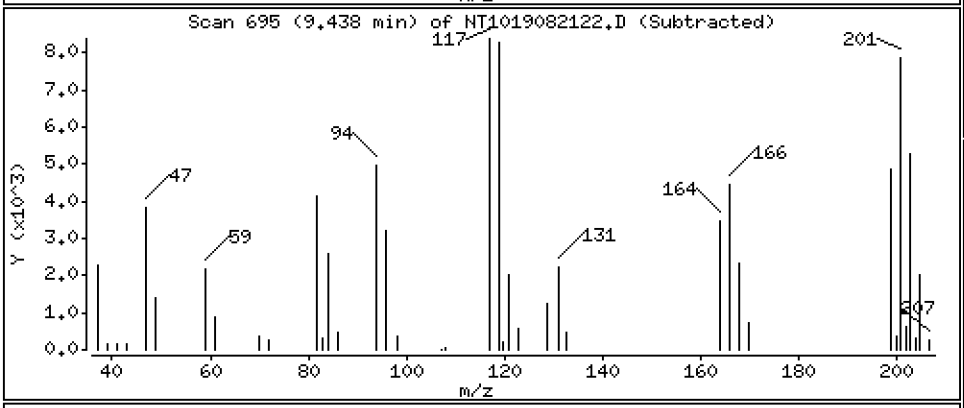
Column diameter: 0.25

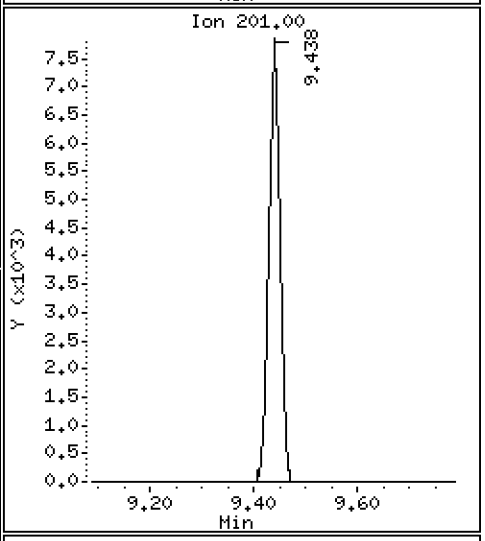
17 Hexachloroethane

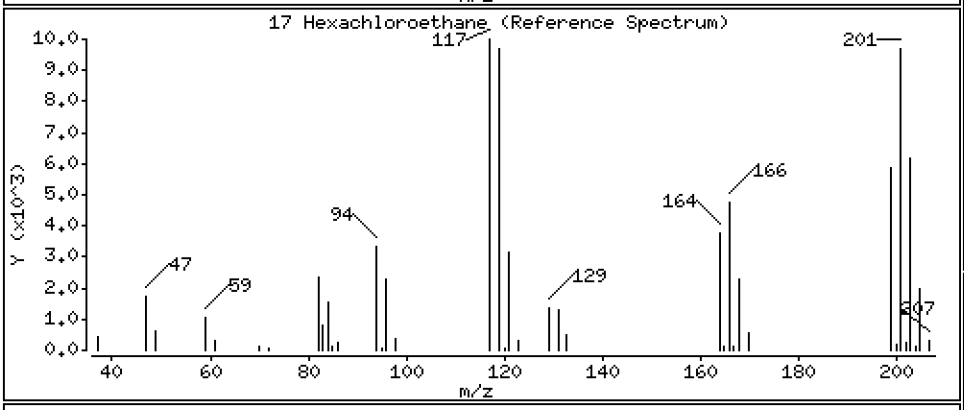
Concentration: 2.473 ug/mL

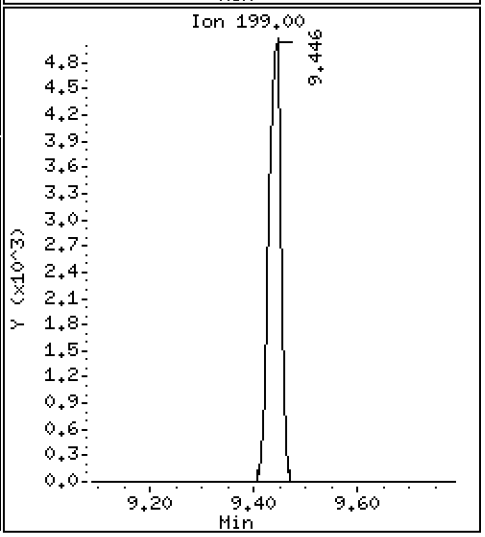


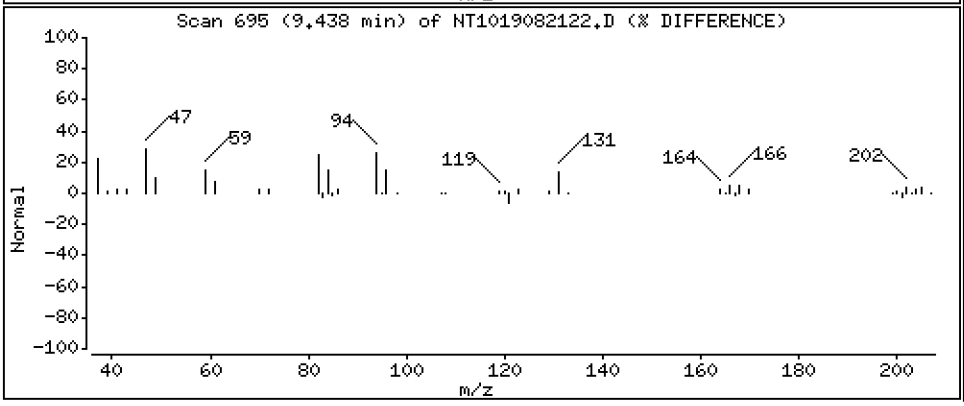












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

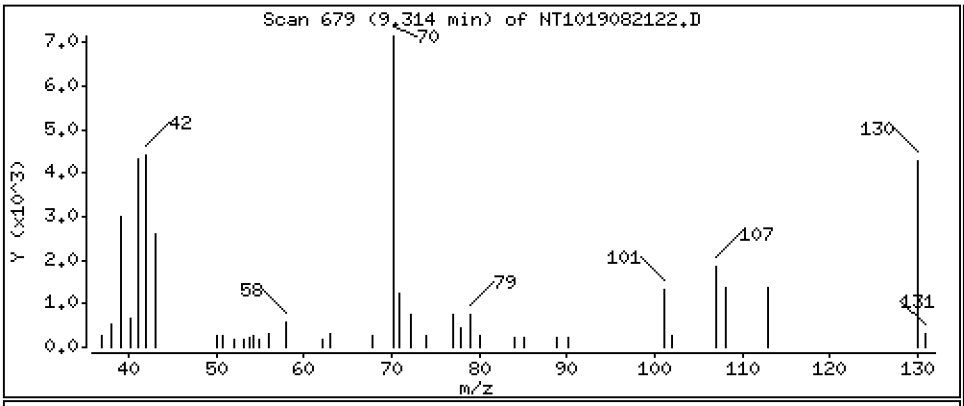
Operator: YZ

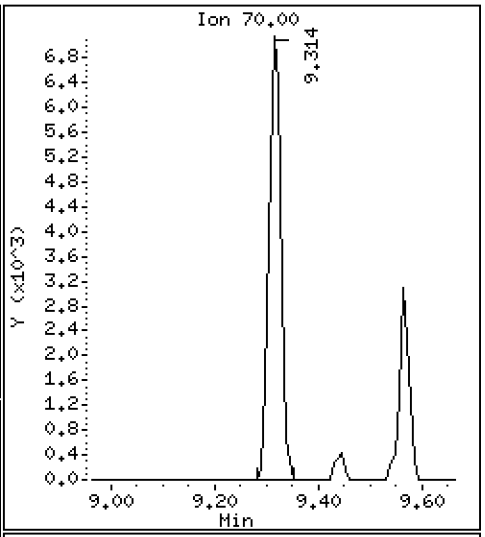
Column phase: ZB-5msi

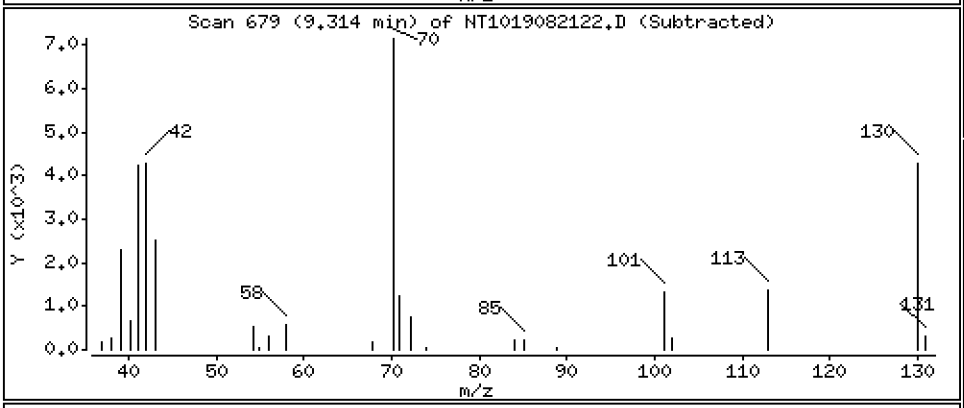
Column diameter: 0.25

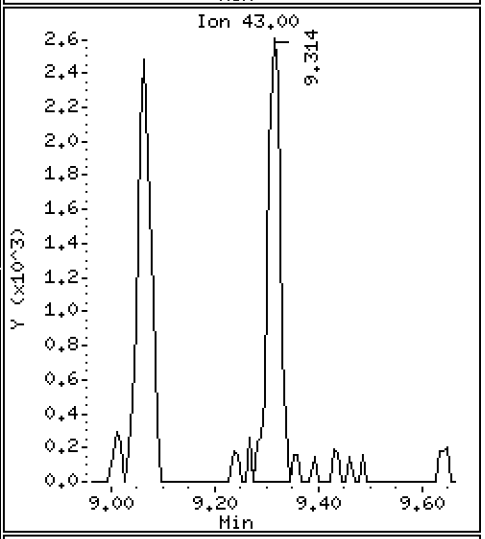
16 N-Nitroso-di-n-propylamine

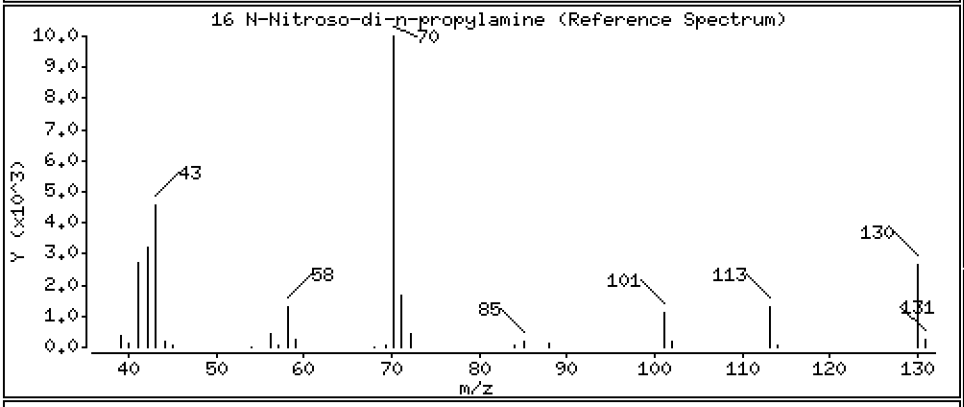
Concentration: 2.192 ug/mL

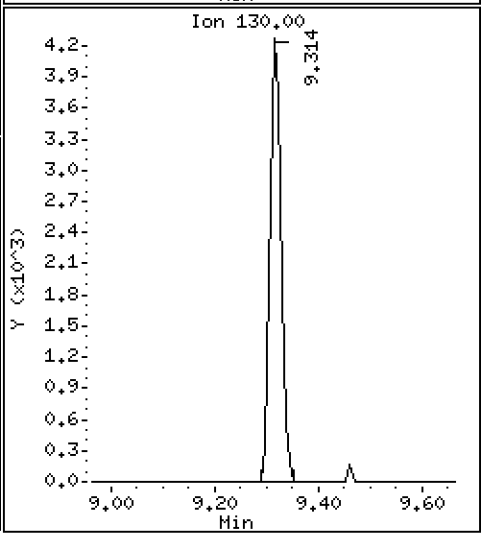


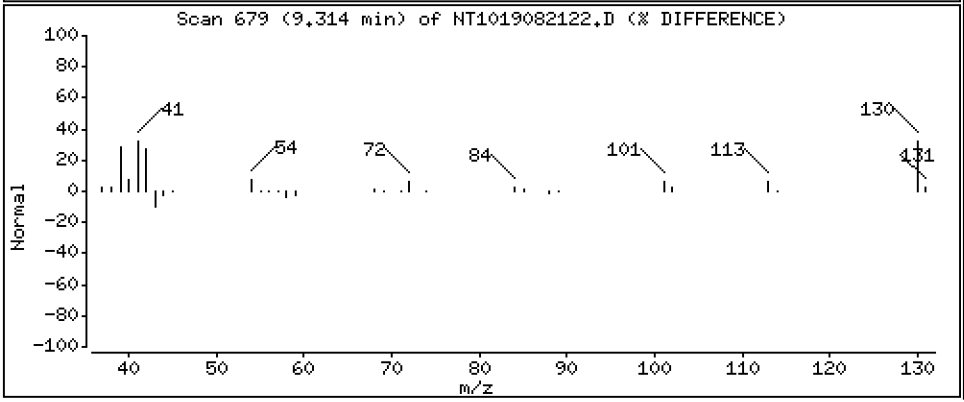












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

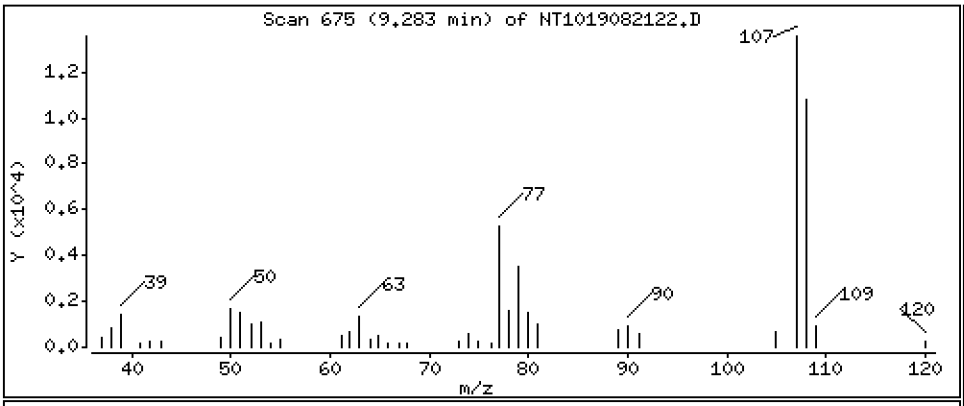
Operator: YZ

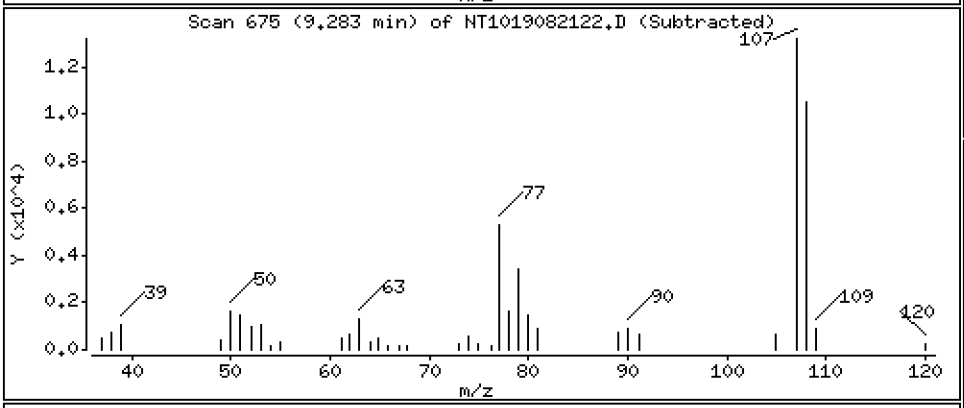
Column phase: ZB-5msi

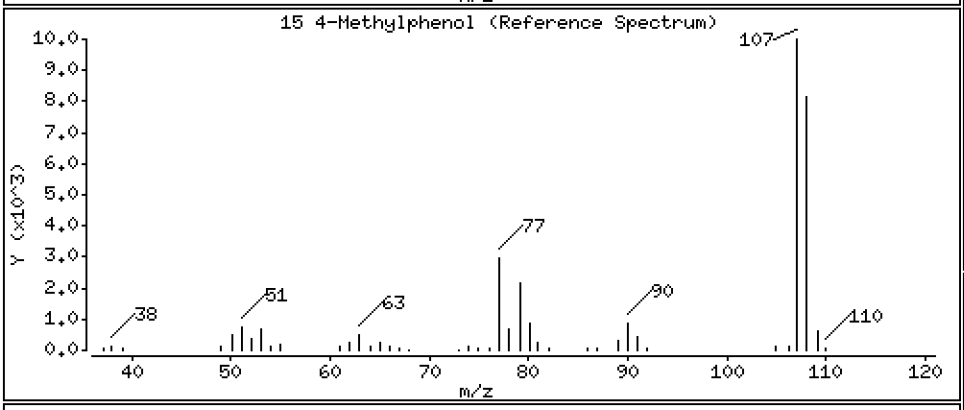
Column diameter: 0.25

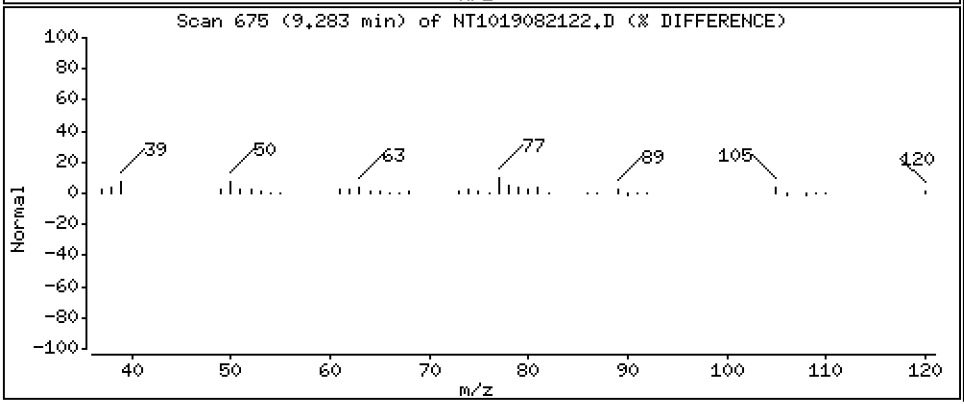
15 4-Methylphenol

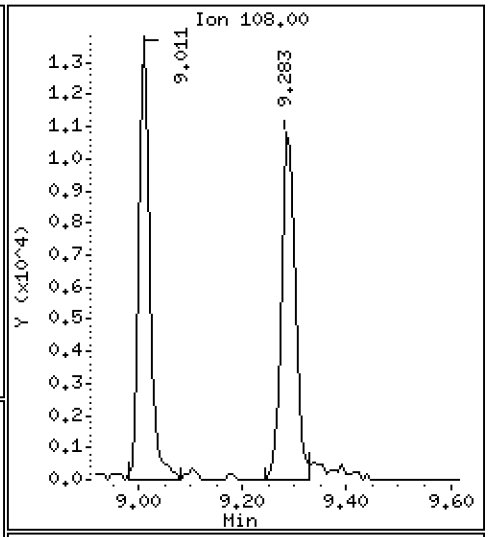
Concentration: 2.549 ug/mL

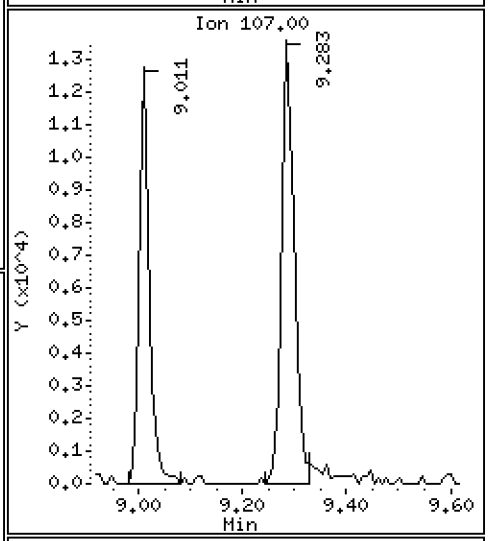


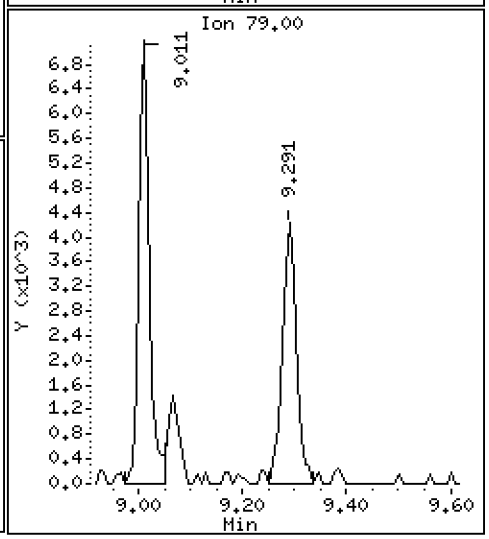












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

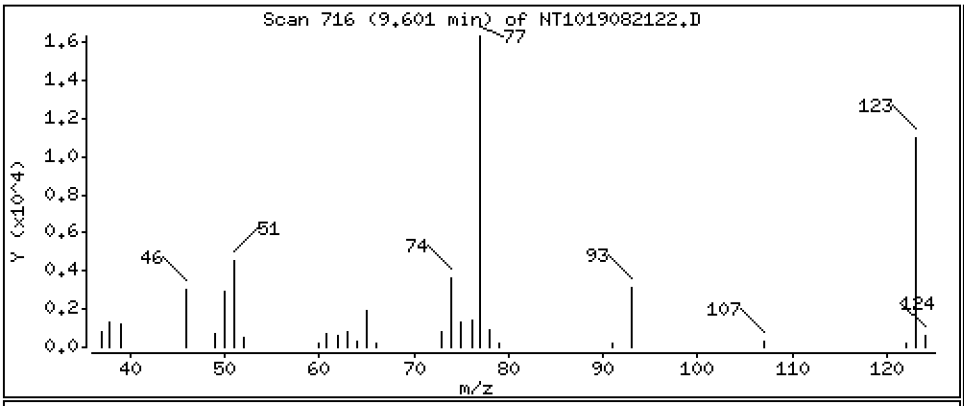
Operator: YZ

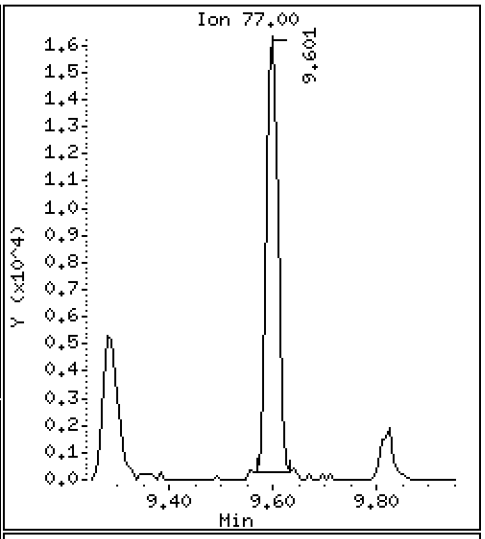
Column phase: ZB-5msi

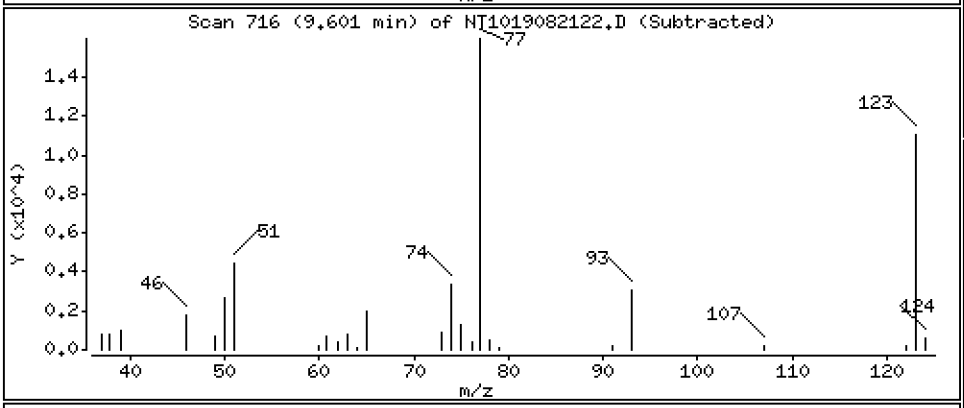
Column diameter: 0.25

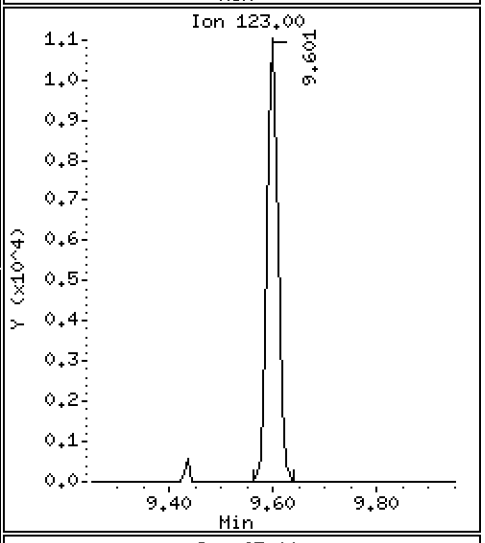
19 Nitrobenzene

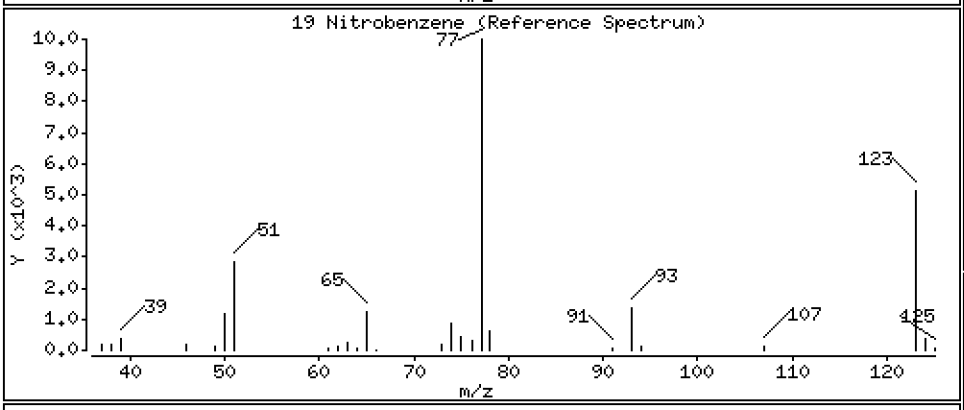
Concentration: 2.574 ug/mL

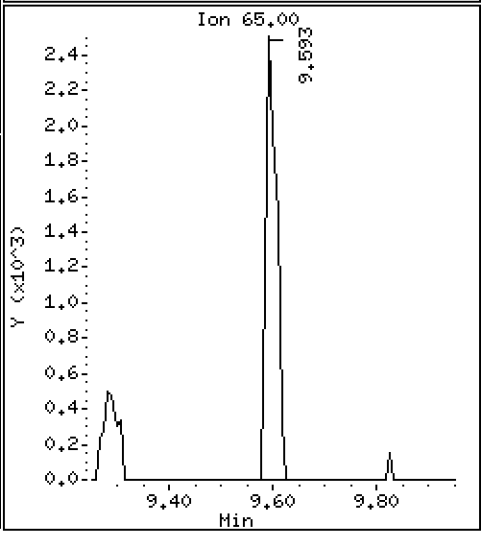


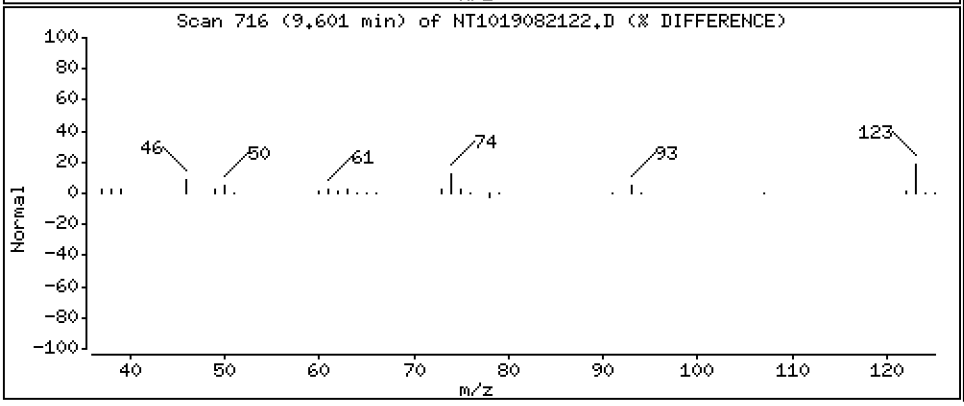












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

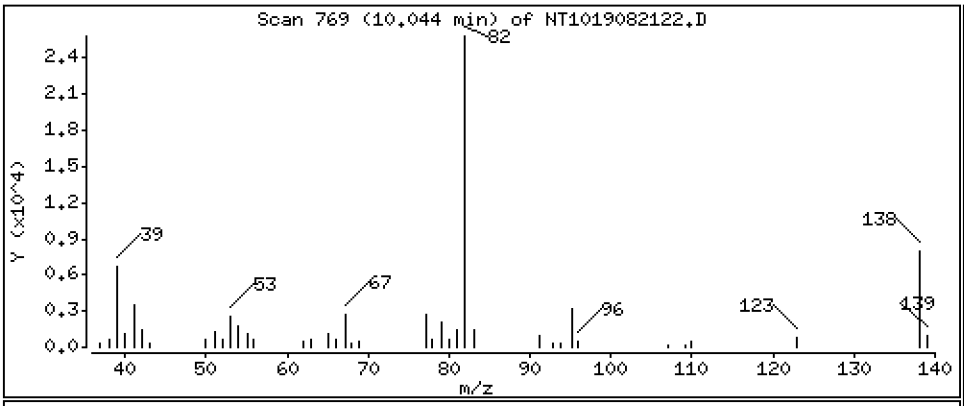
Operator: YZ

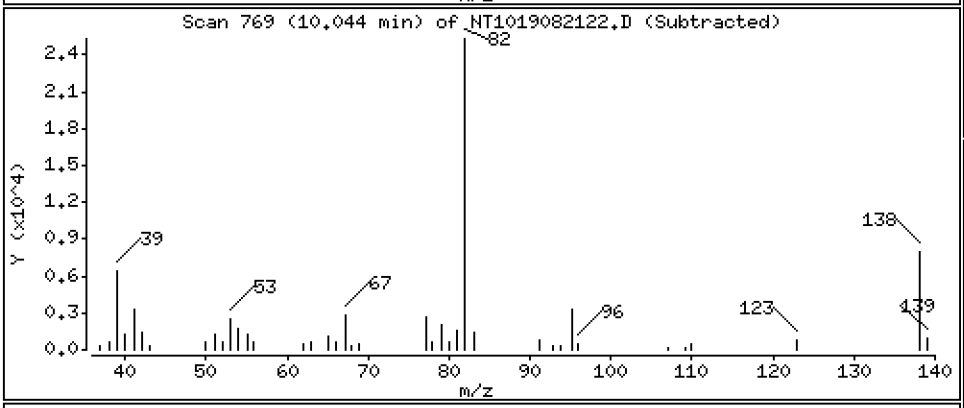
Column phase: ZB-5msi

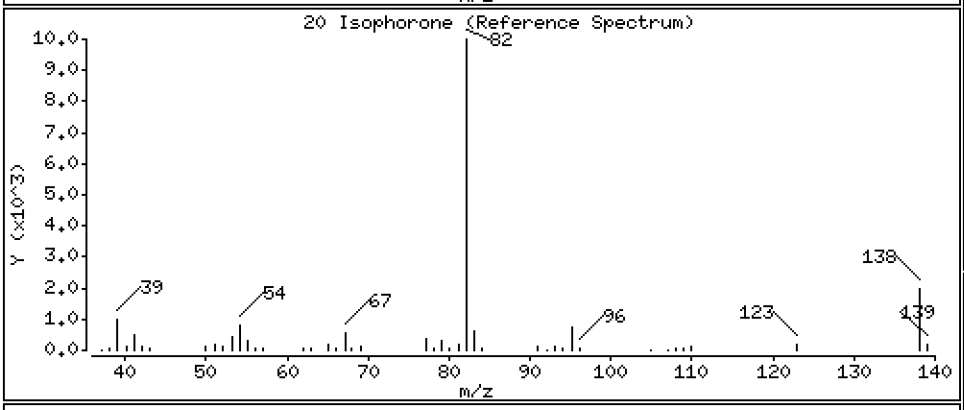
Column diameter: 0.25

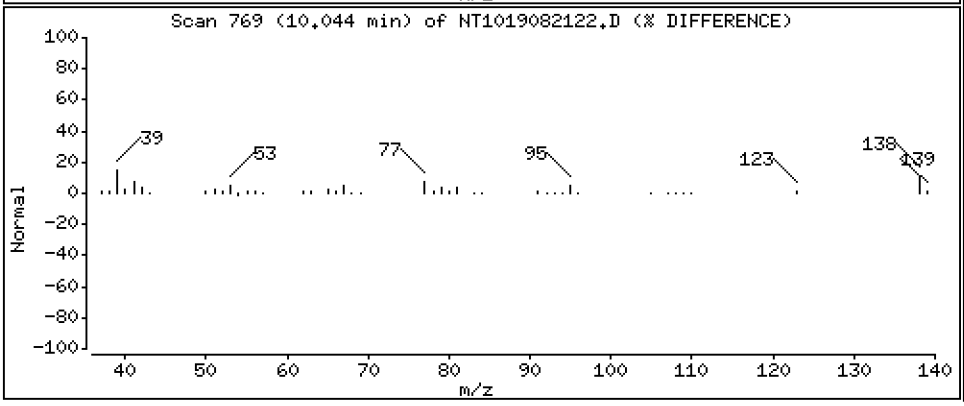
20 Isophorone

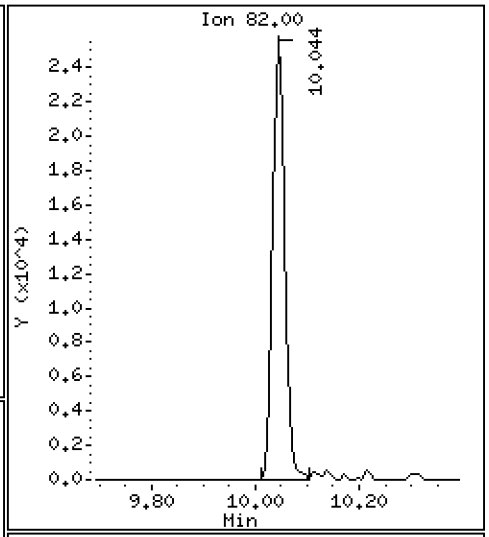
Concentration: 2.694 ug/mL

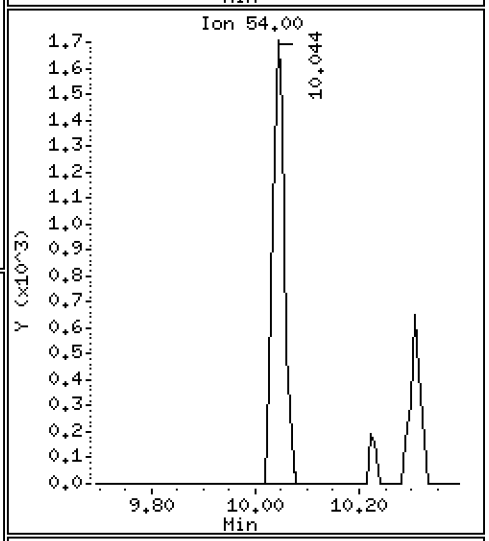


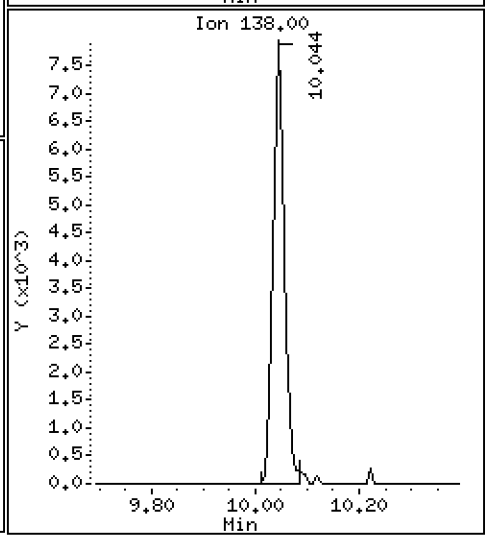












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

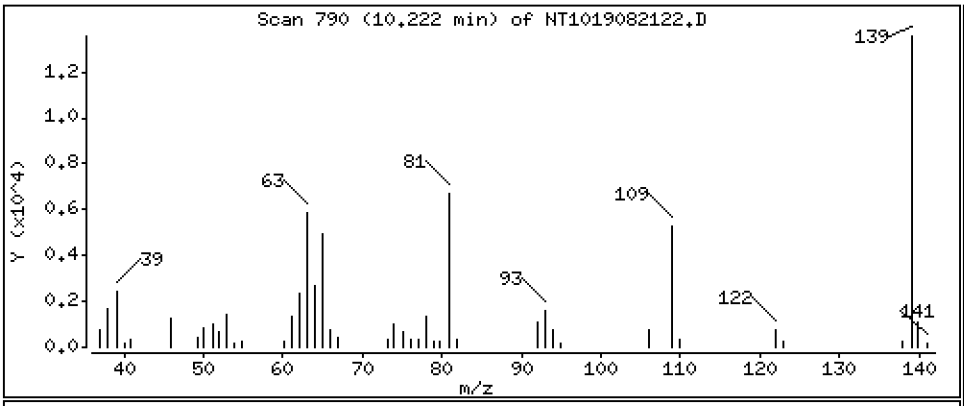
Operator: YZ

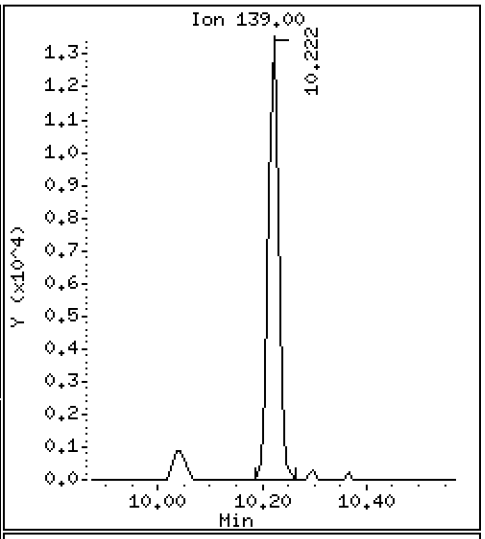
Column phase: ZB-5msi

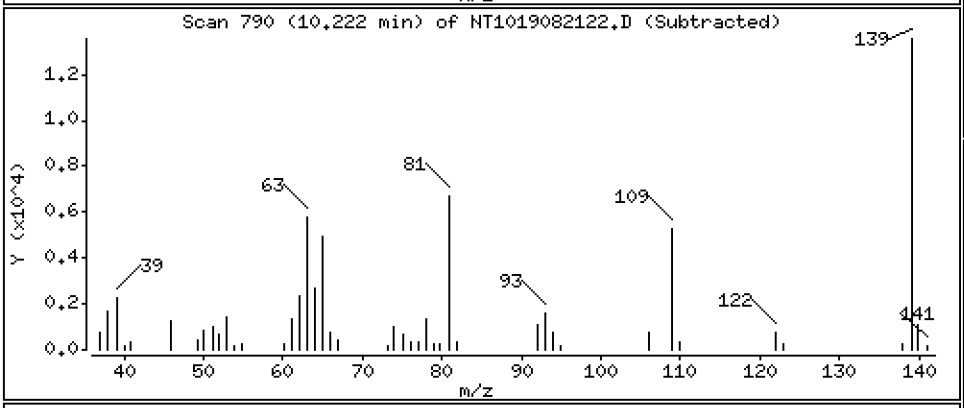
Column diameter: 0.25

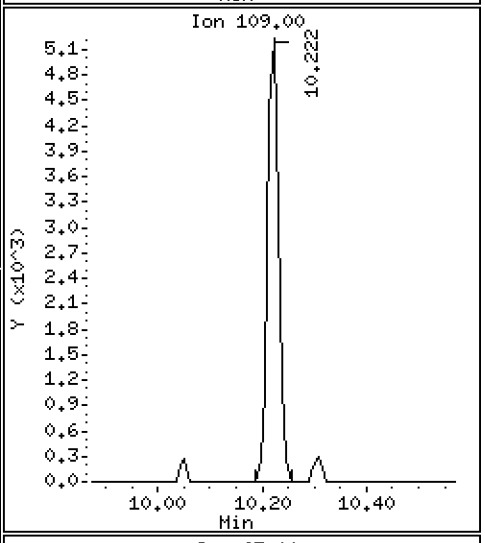
21 2-Nitrophenol

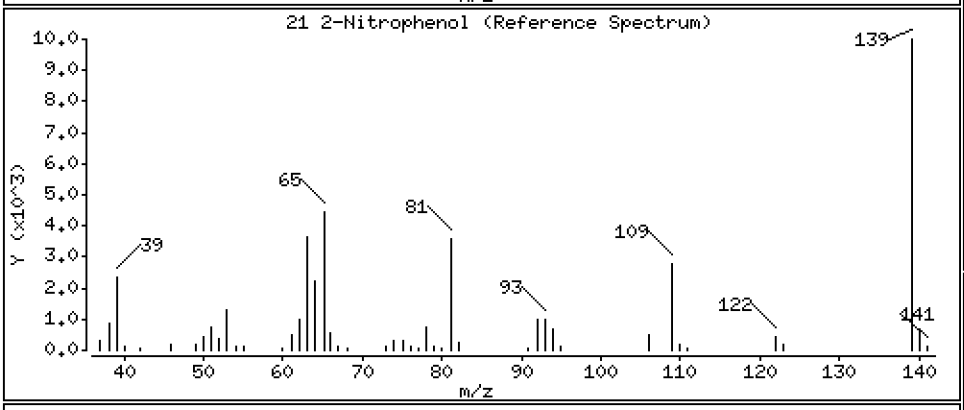
Concentration: 3.144 ug/mL

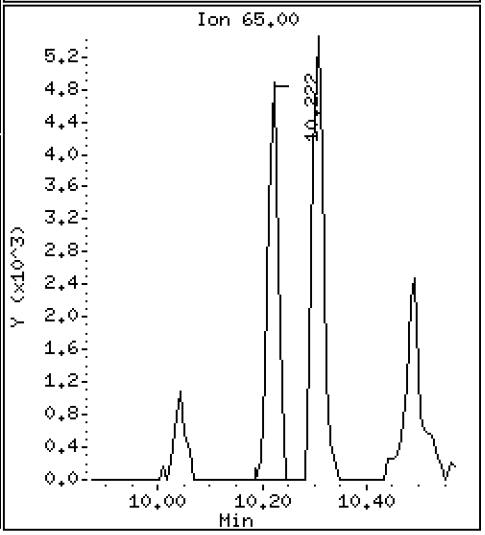


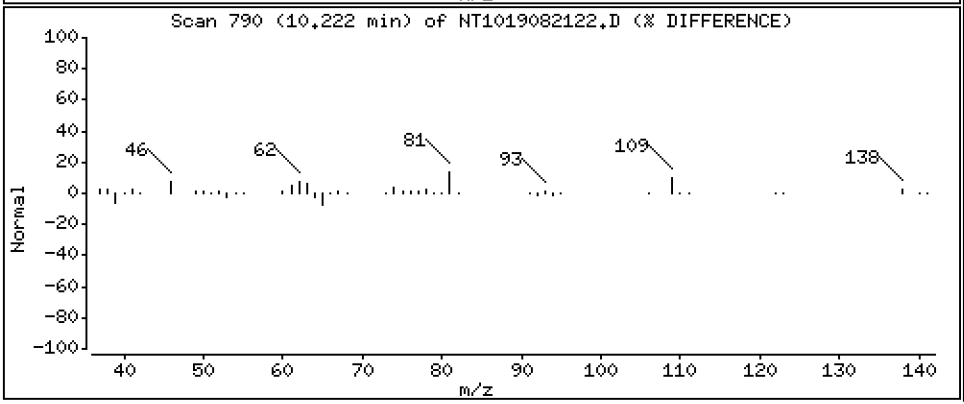












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

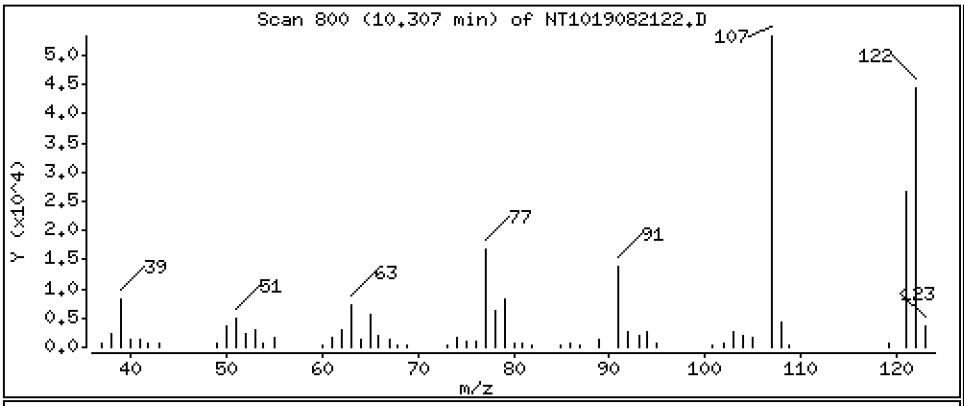
Operator: YZ

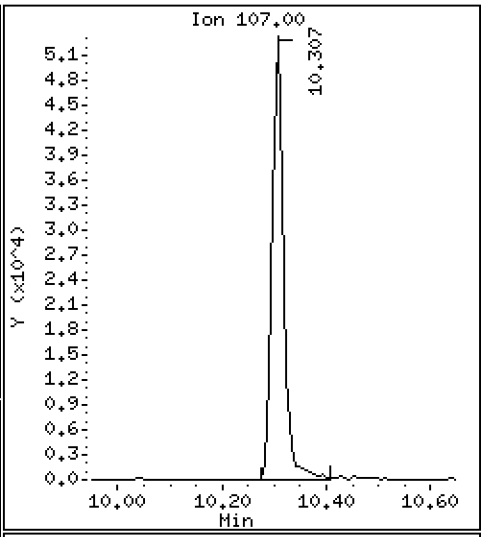
Column phase: ZB-5msi

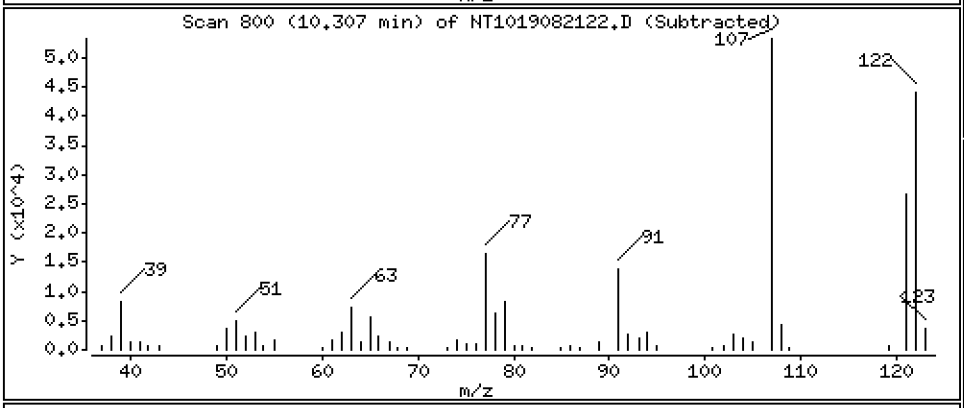
Column diameter: 0.25

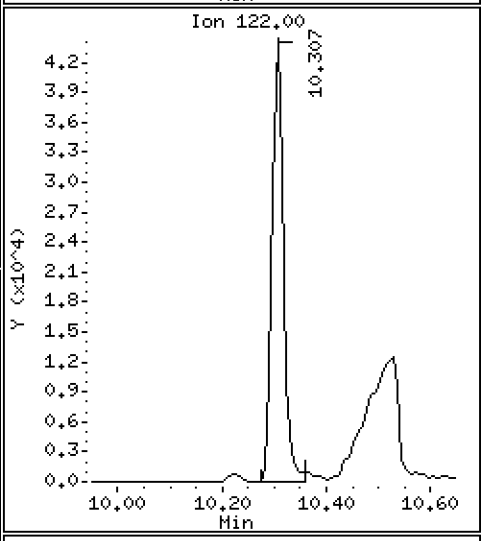
22 2,4-Dimethylphenol

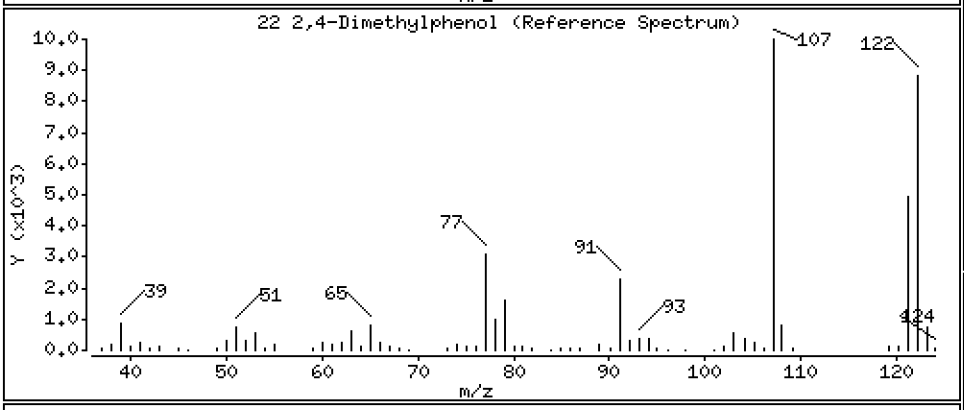
Concentration: 7.978 ug/mL

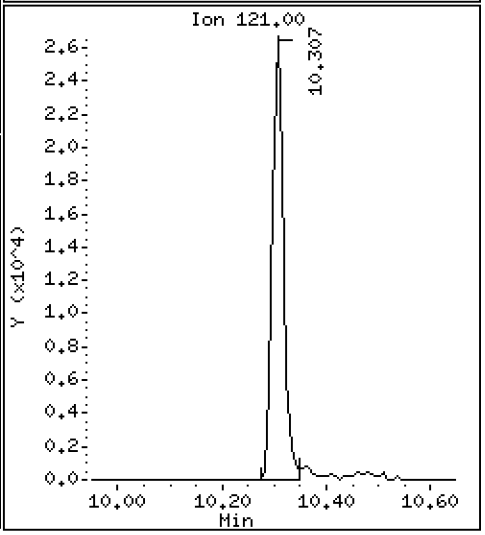


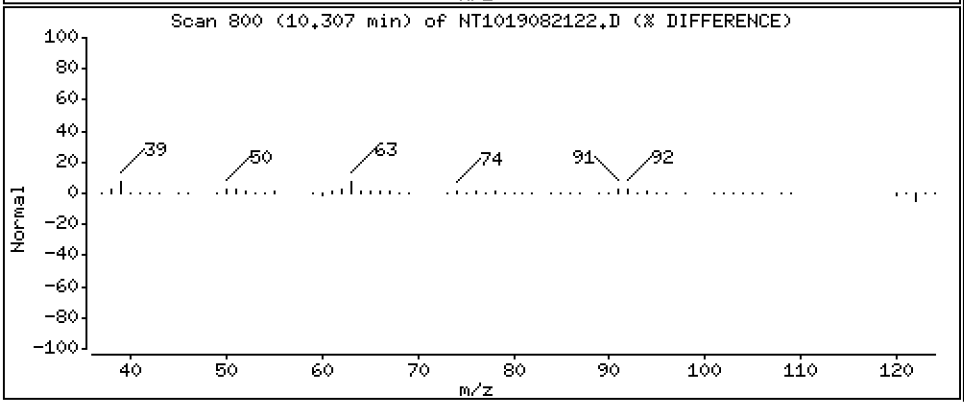












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

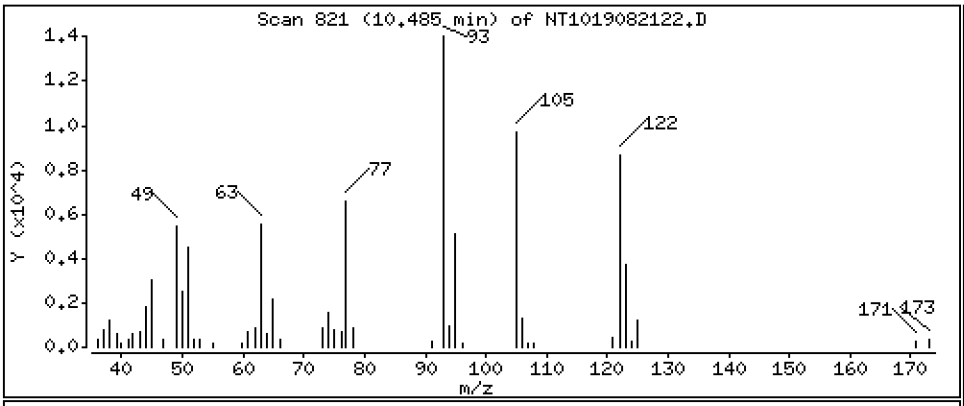
Operator: YZ

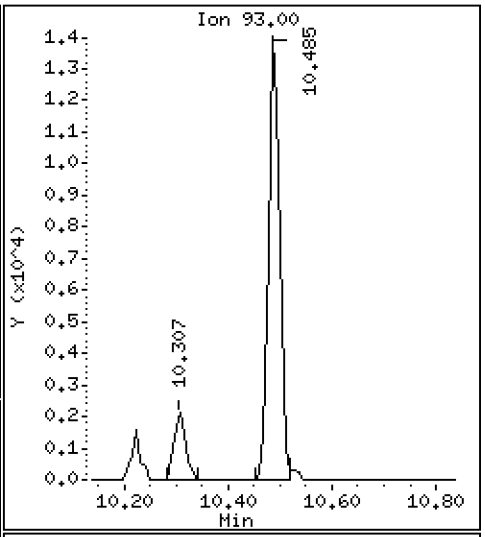
Column phase: ZB-5msi

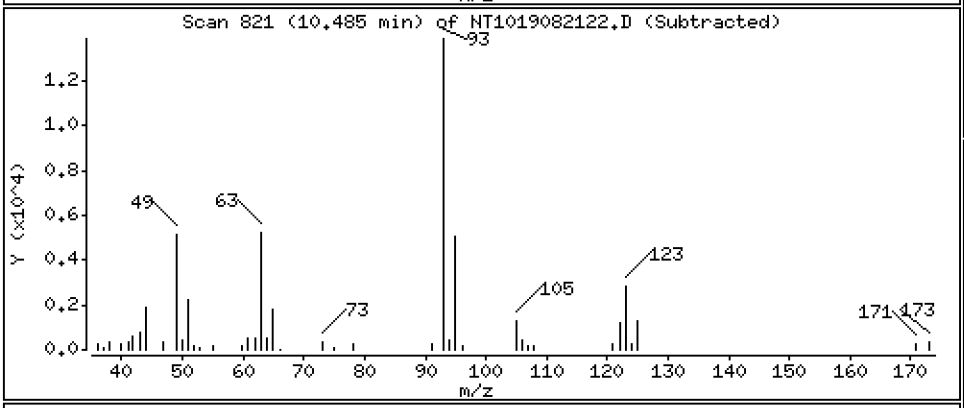
Column diameter: 0.25

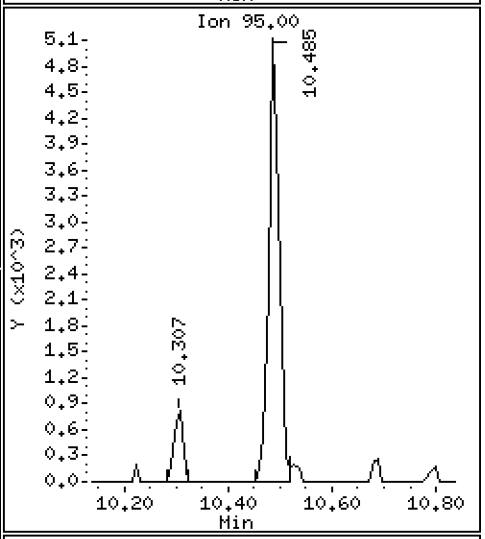
23 Bis(2-Chloroethoxy)methane

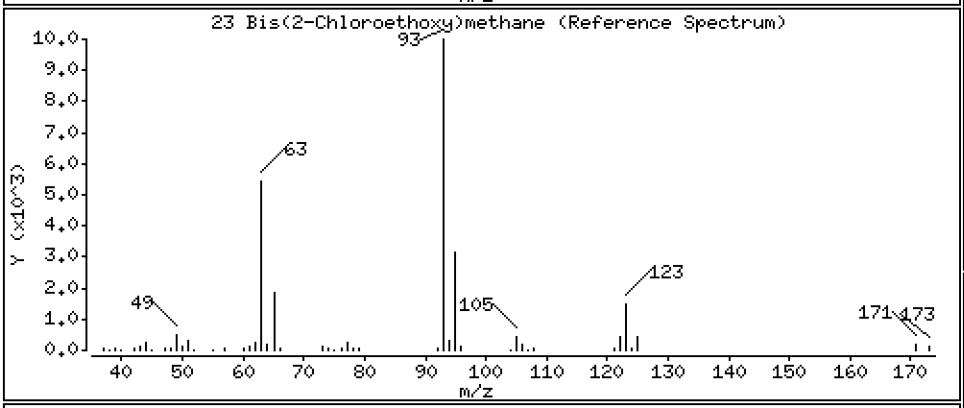
Concentration: 2.380 ug/mL

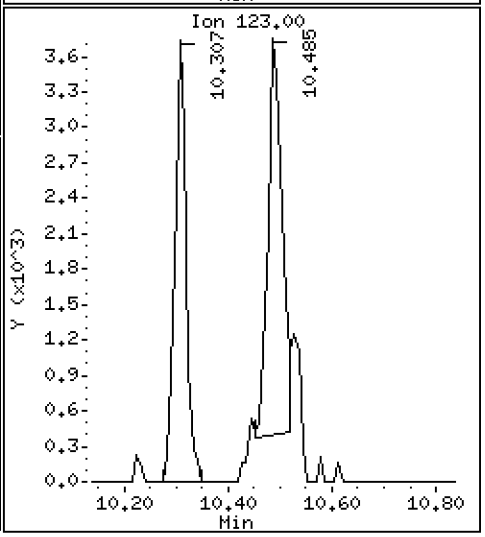


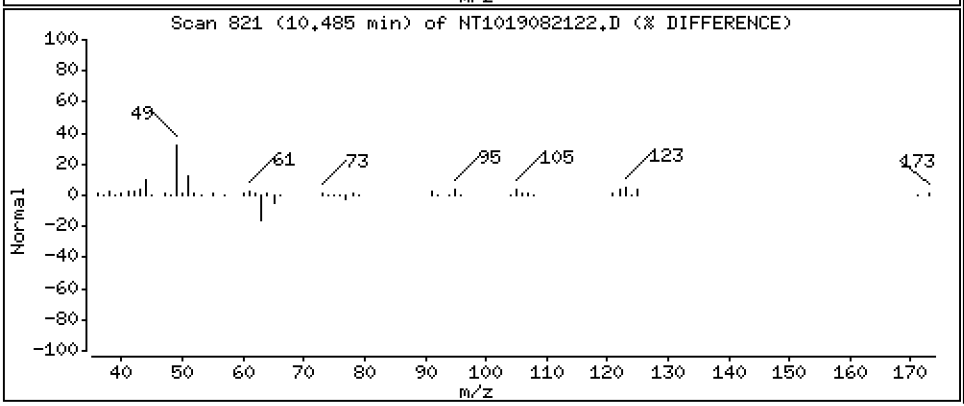












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

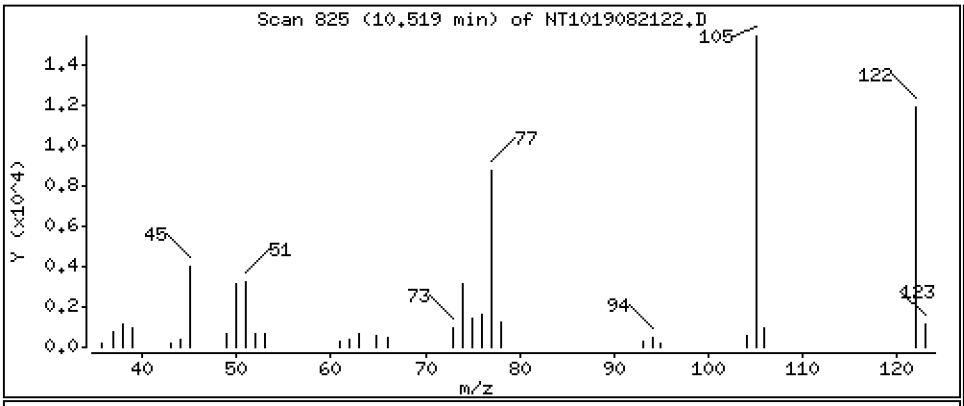
Operator: YZ

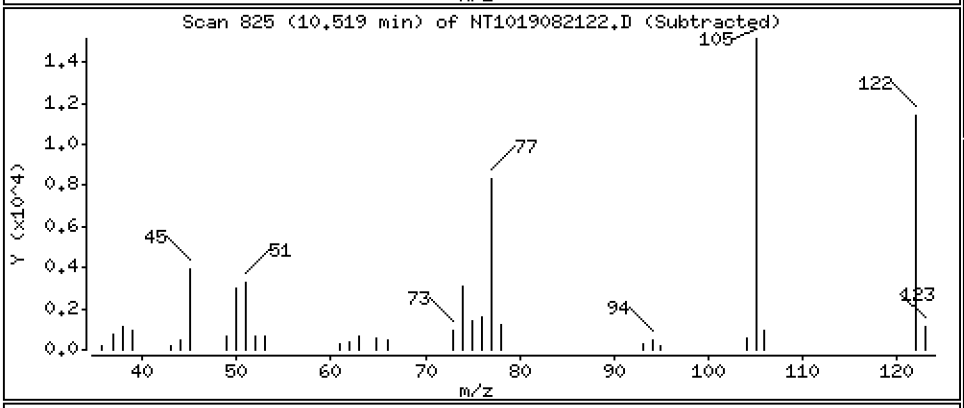
Column phase: ZB-5msi

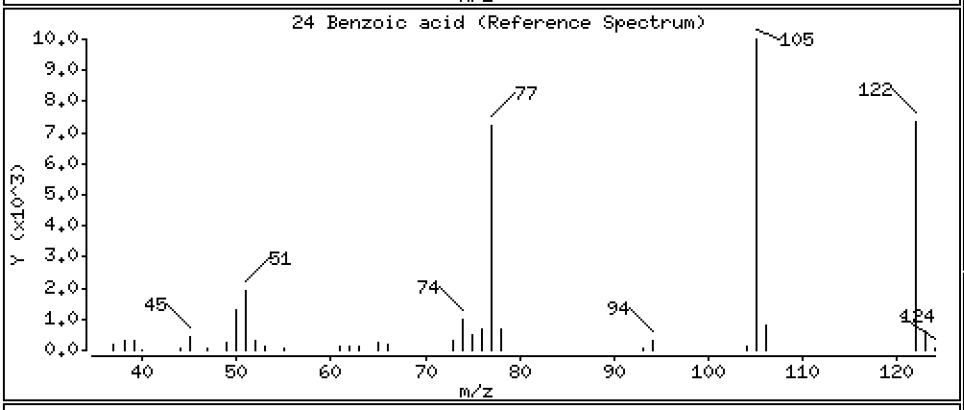
Column diameter: 0.25

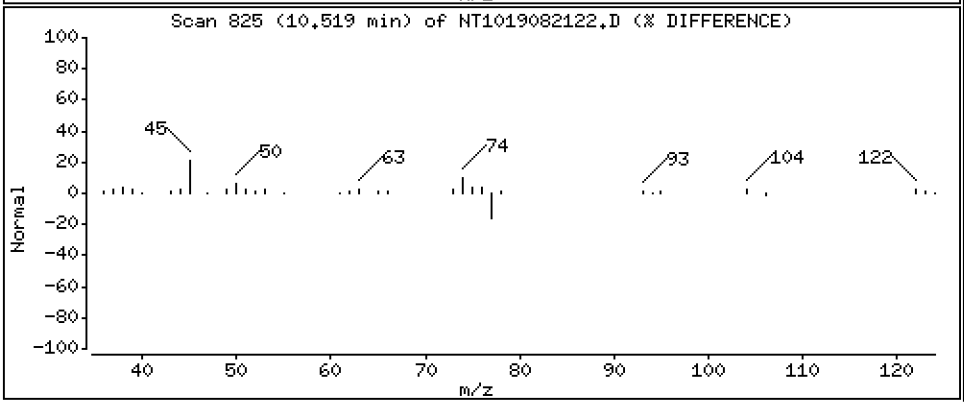
24 Benzoic acid

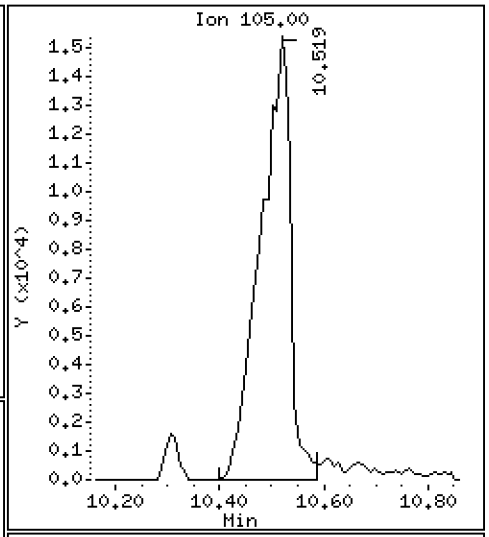
Concentration: 9.085 ug/mL

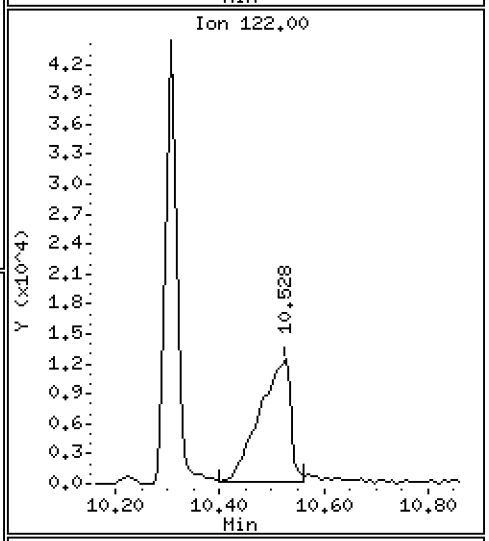


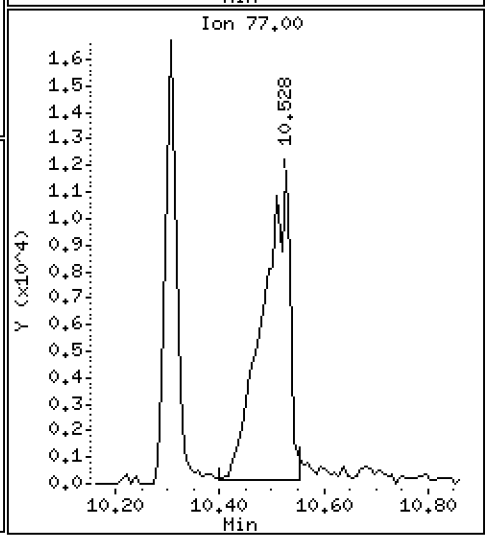












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

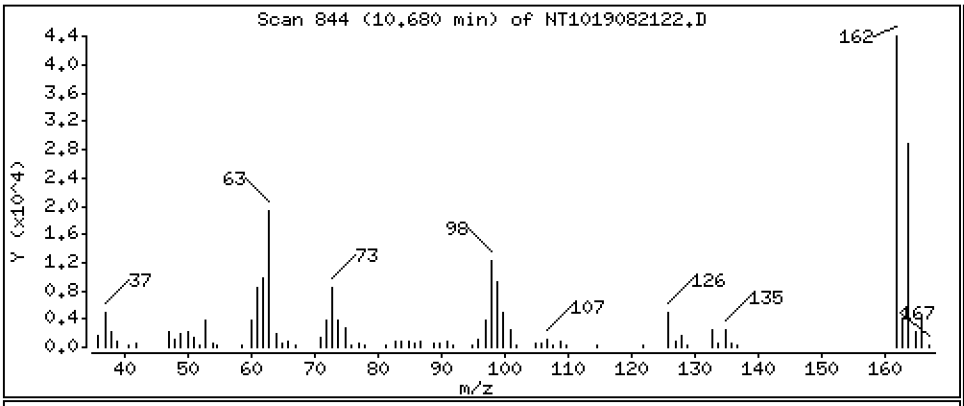
Operator: YZ

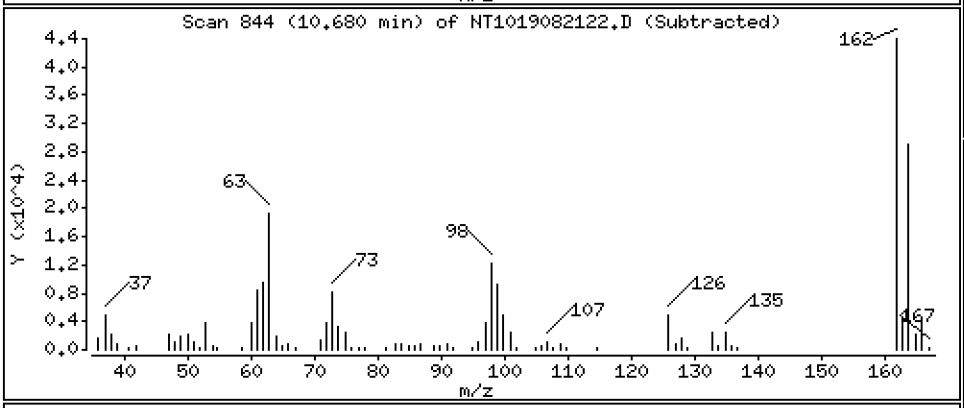
Column phase: ZB-5msi

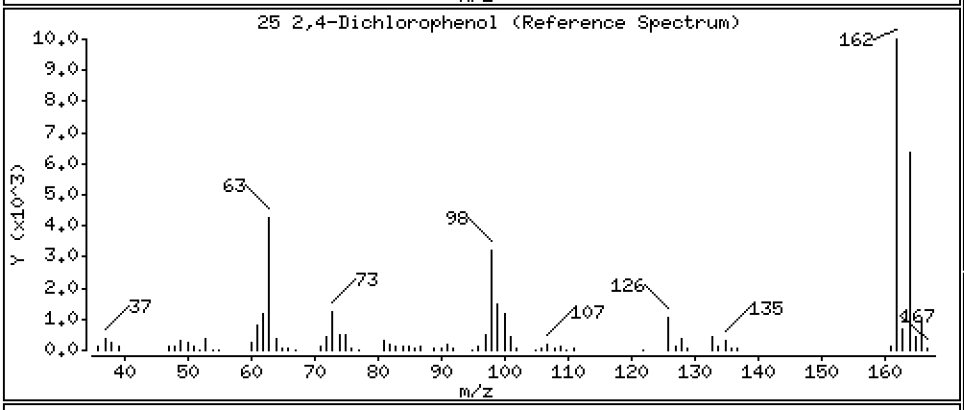
Column diameter: 0.25

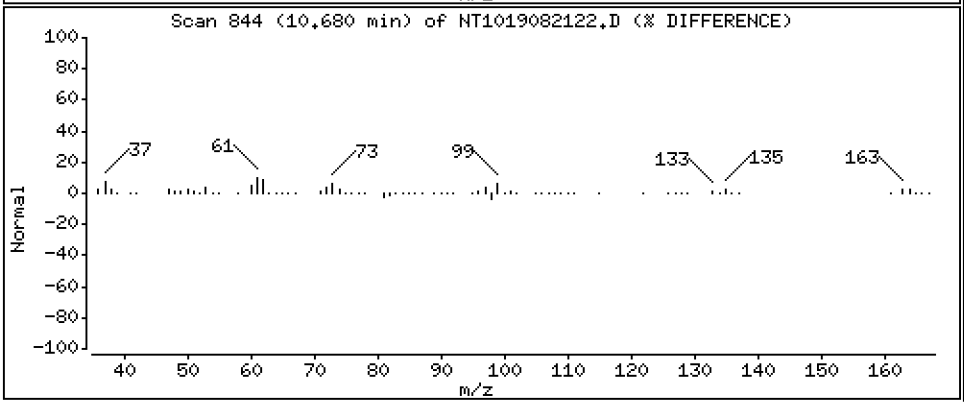
25 2,4-Dichlorophenol

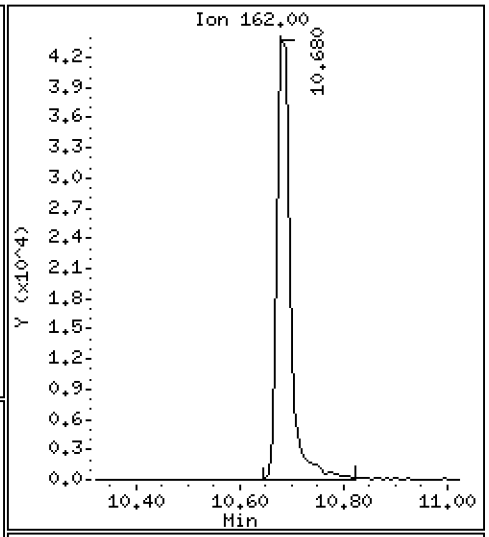
Concentration: 10.19 ug/mL

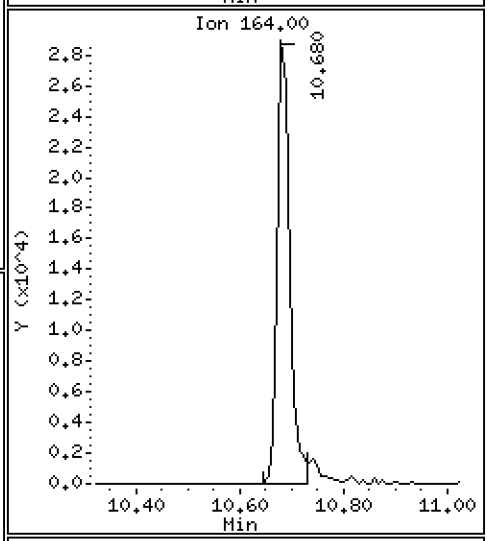


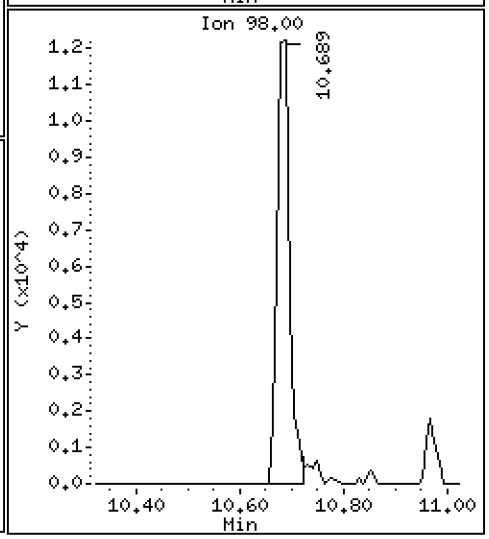












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

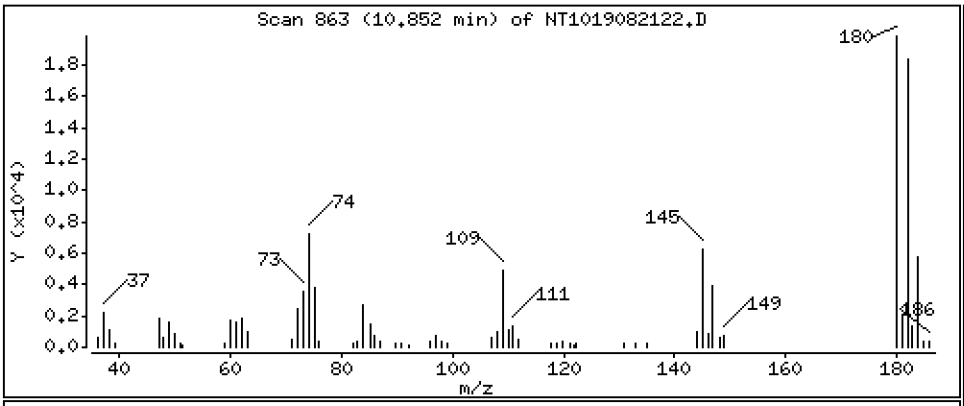
Operator: YZ

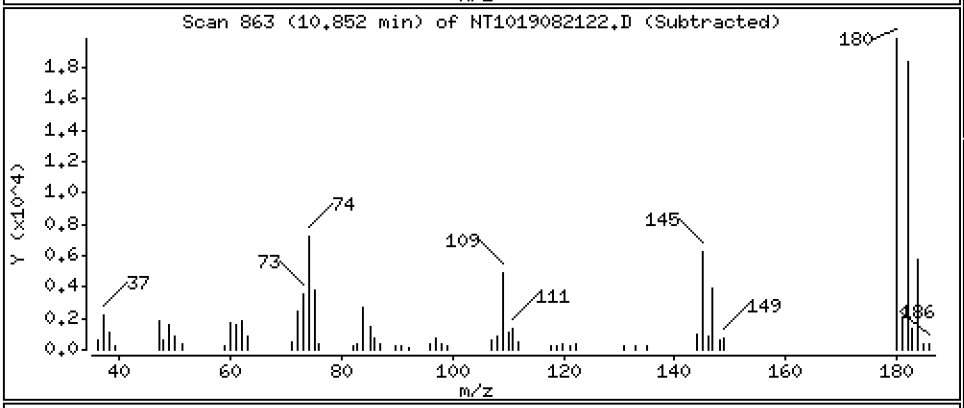
Column phase: ZB-5msi

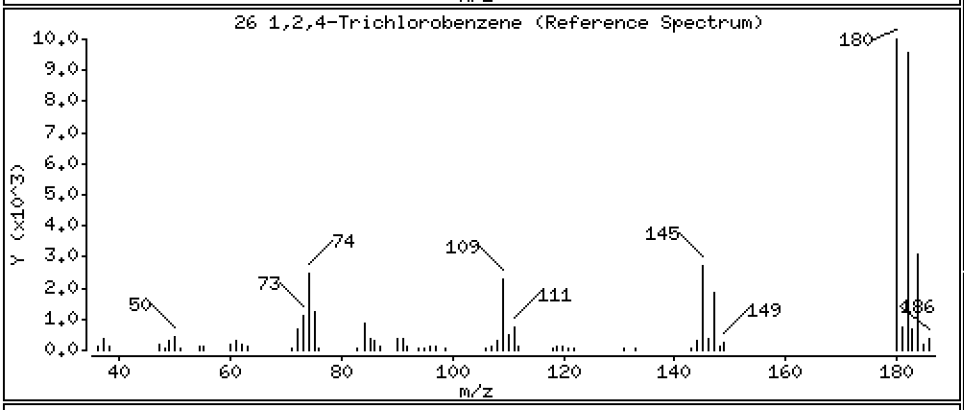
Column diameter: 0.25

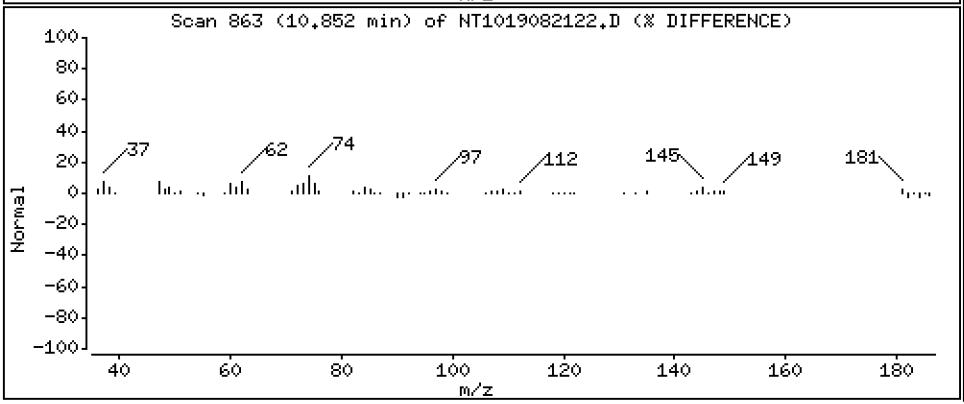
26 1,2,4-Trichlorobenzene

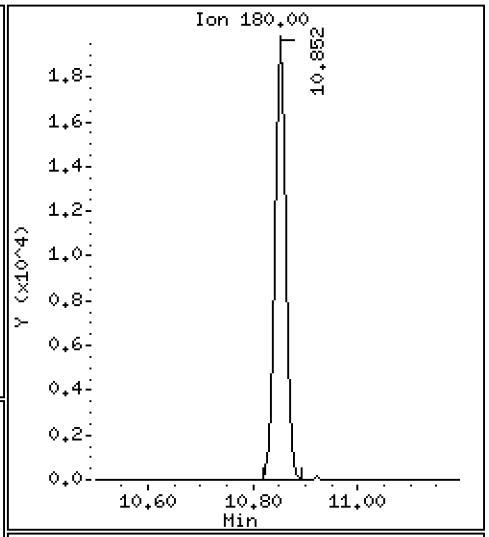
Concentration: 3.093 ug/mL

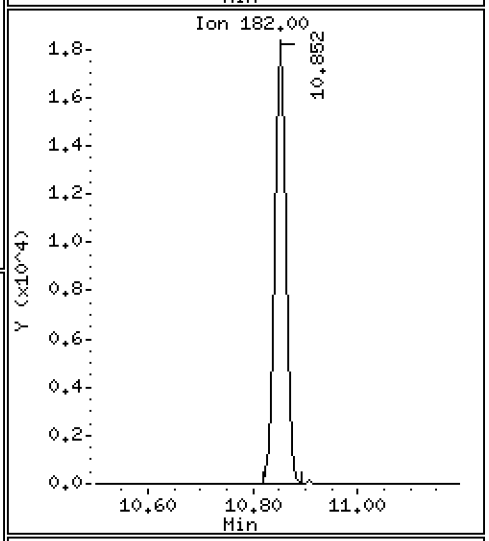


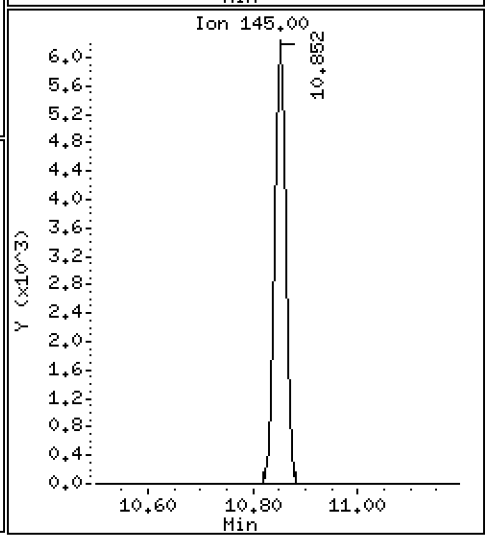












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

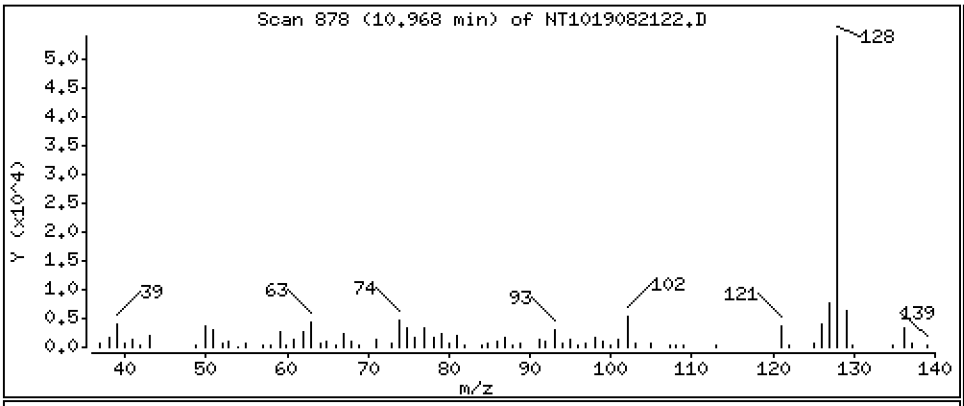
Operator: YZ

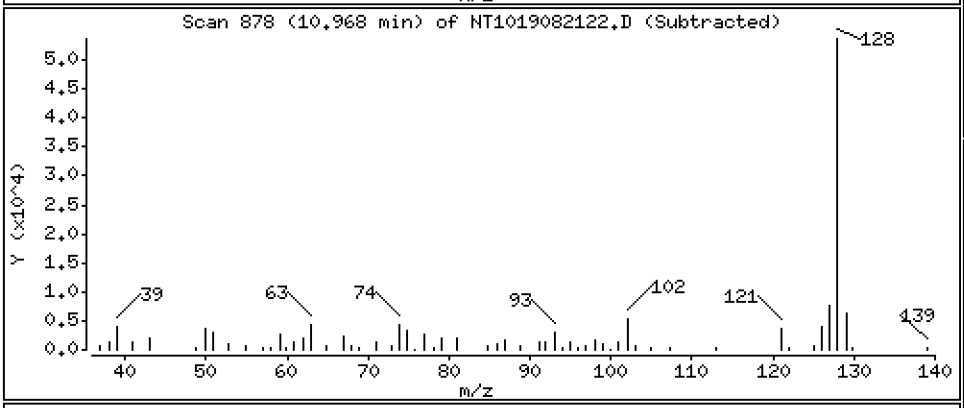
Column phase: ZB-5msi

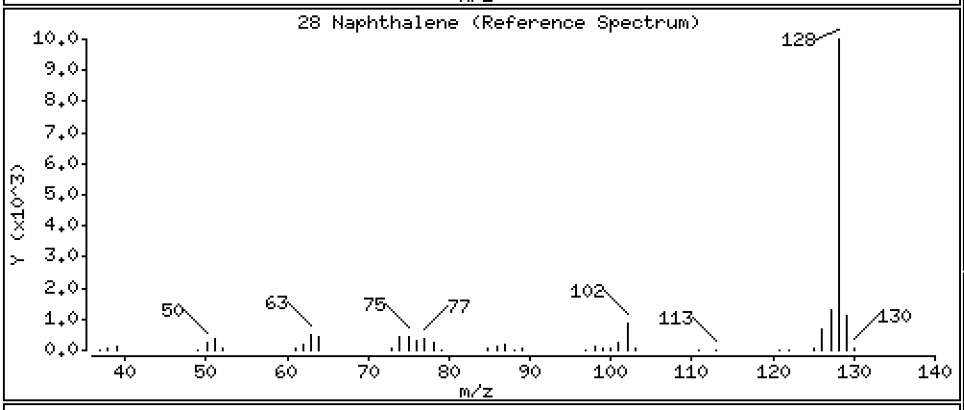
Column diameter: 0.25

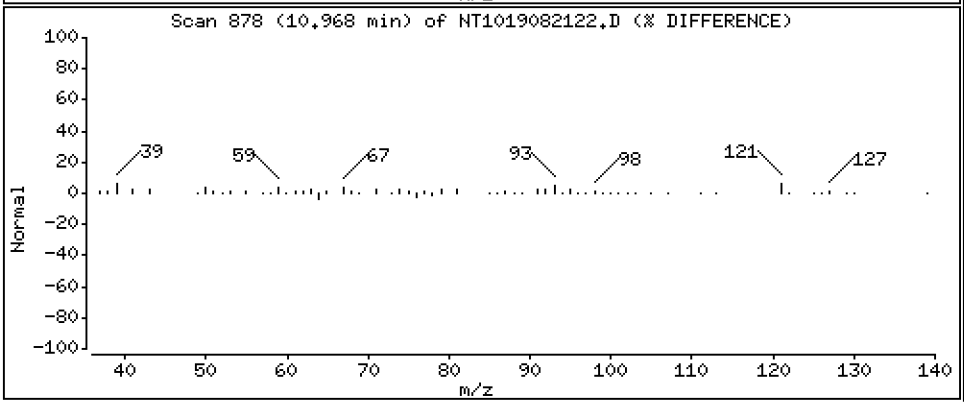
28 Naphthalene

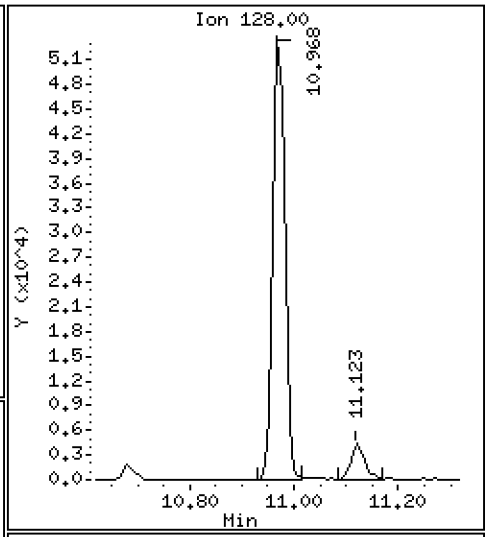
Concentration: 2.901 ug/mL

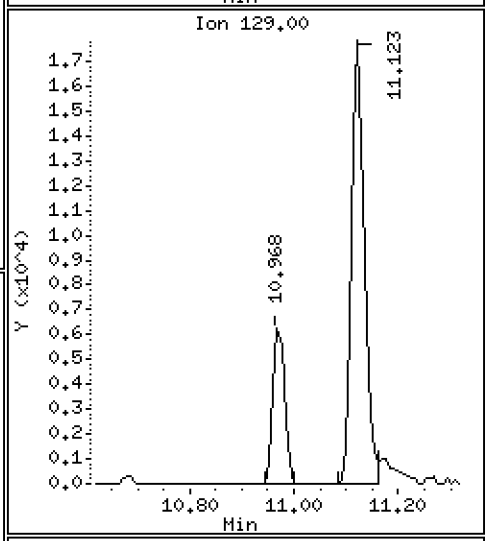


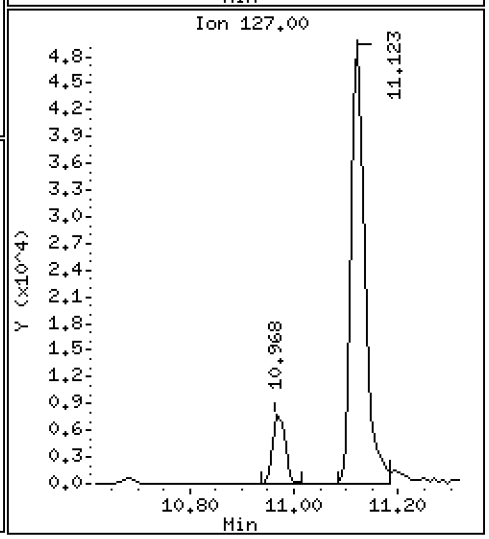












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

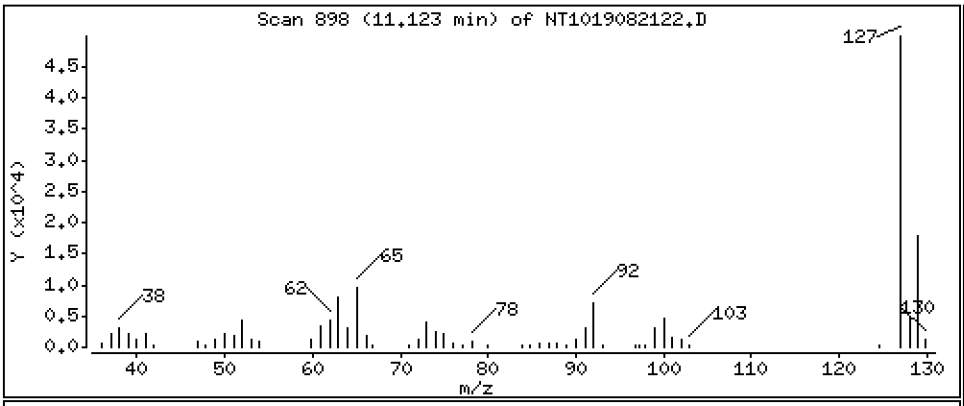
Operator: YZ

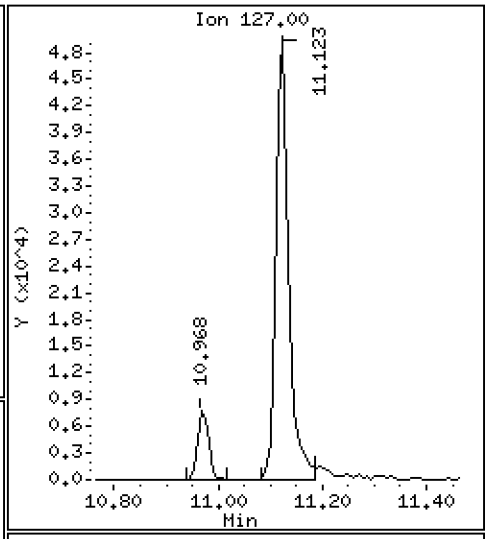
Column phase: ZB-5msi

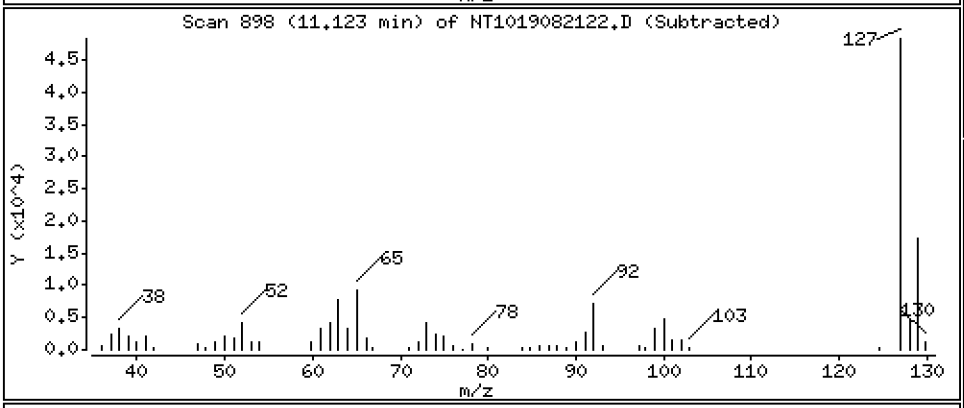
Column diameter: 0.25

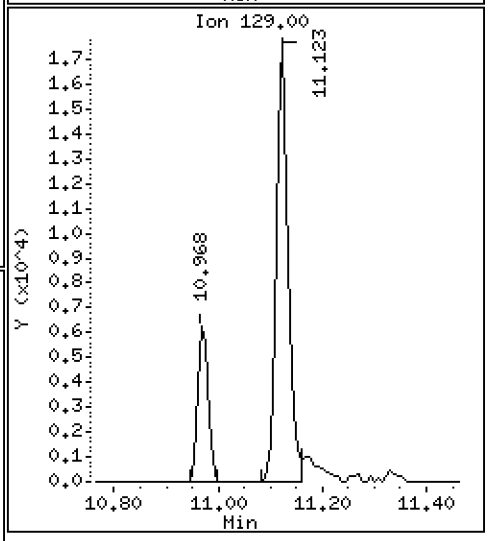
29 4-Chloroaniline

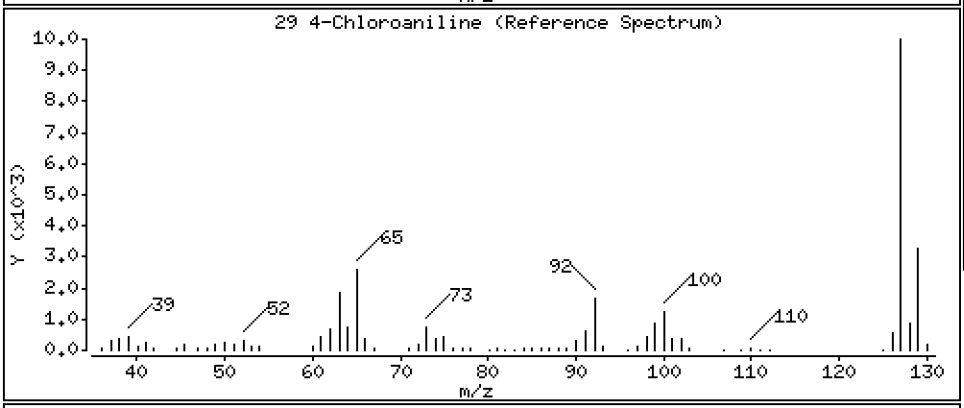
Concentration: 7.147 ug/mL

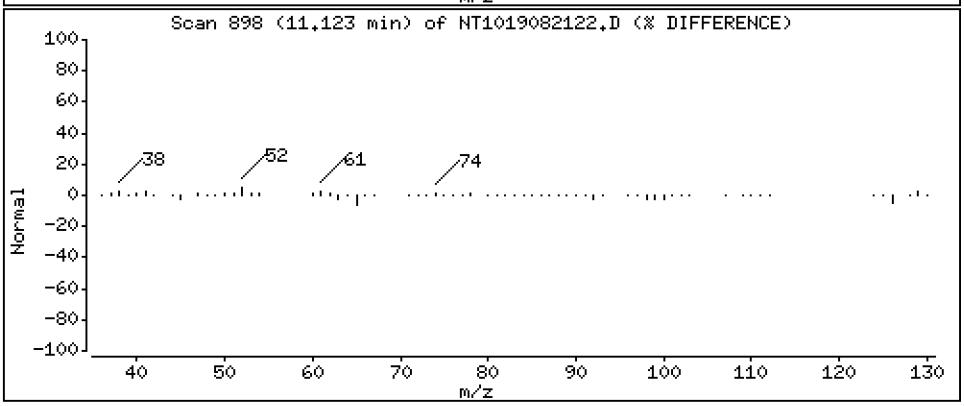












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

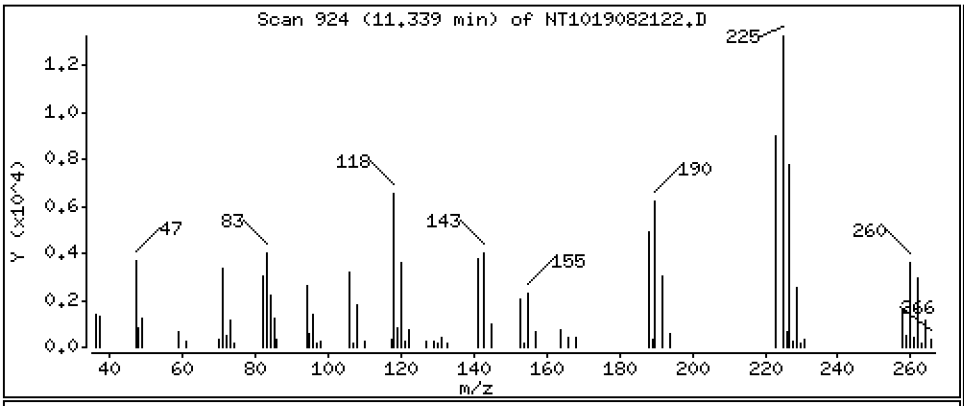
Operator: YZ

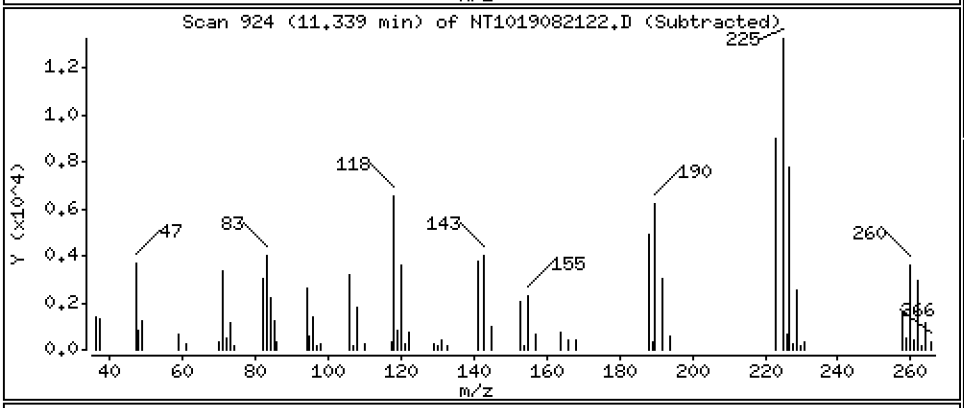
Column phase: ZB-5msi

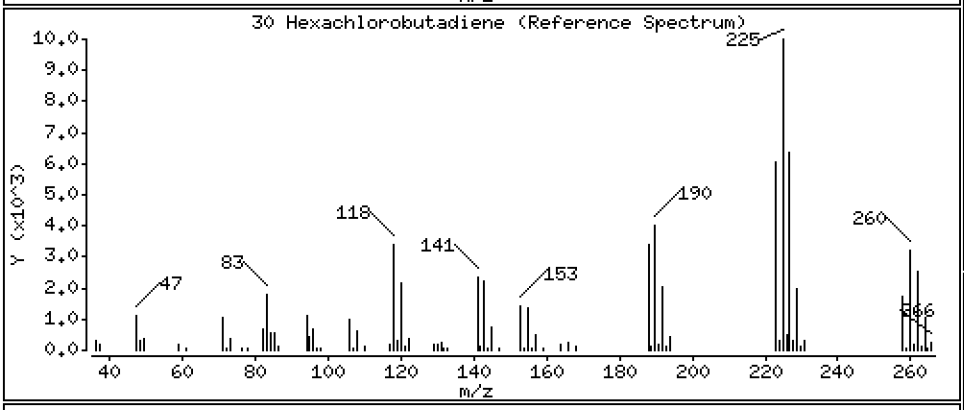
Column diameter: 0.25

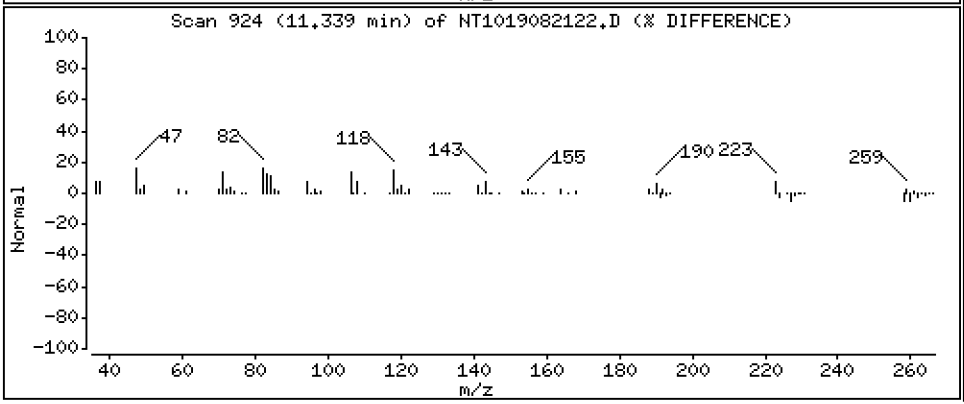
30 Hexachlorobutadiene

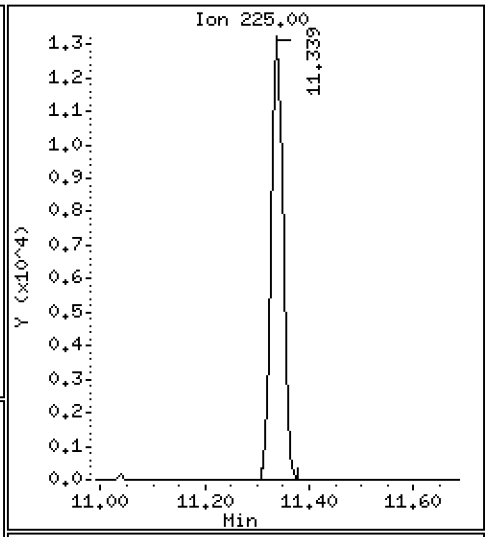
Concentration: 3.326 ug/mL

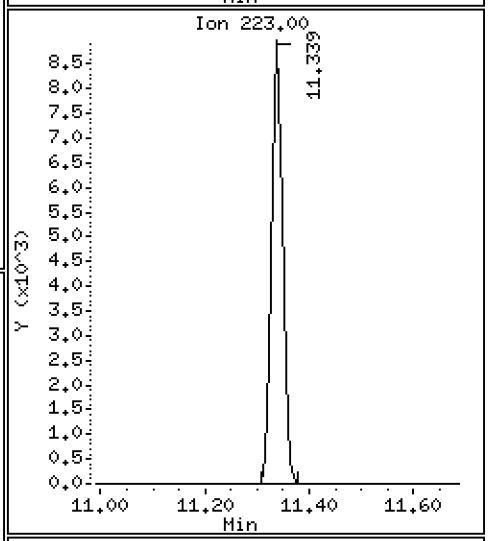


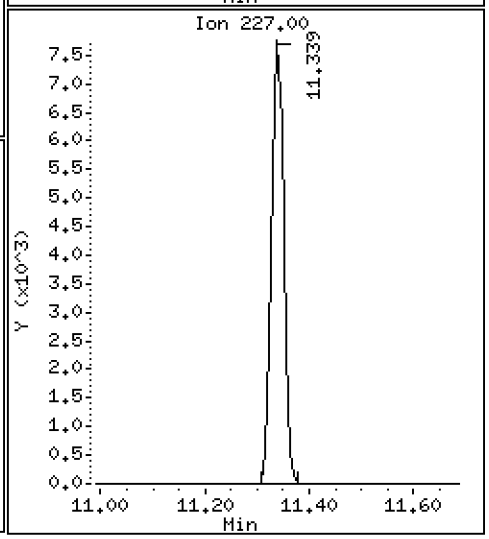












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

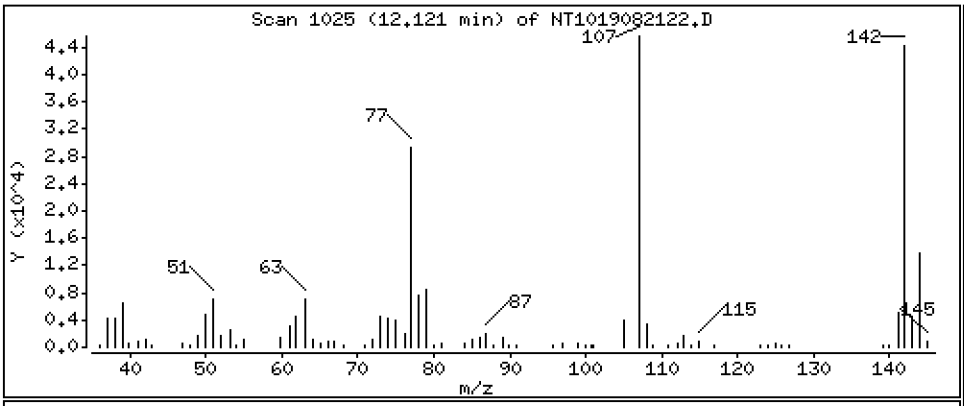
Operator: YZ

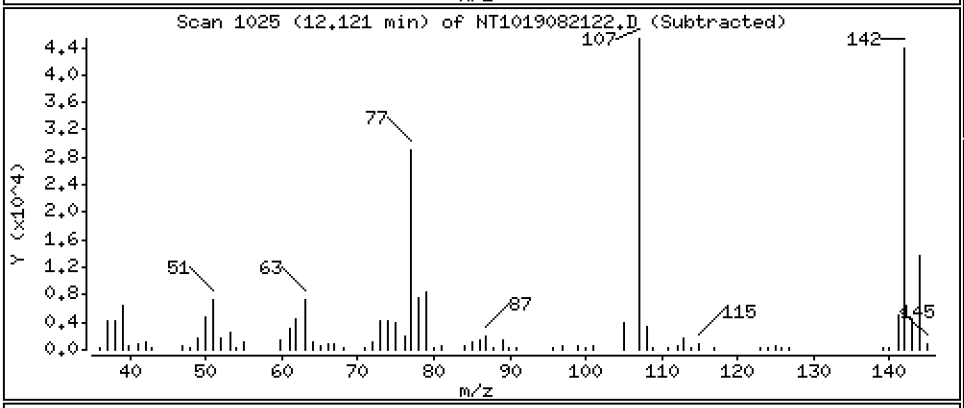
Column phase: ZB-5msi

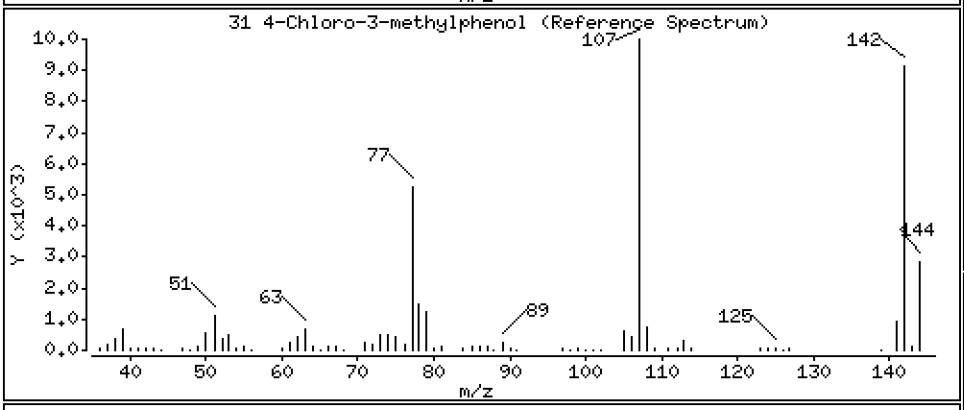
Column diameter: 0.25

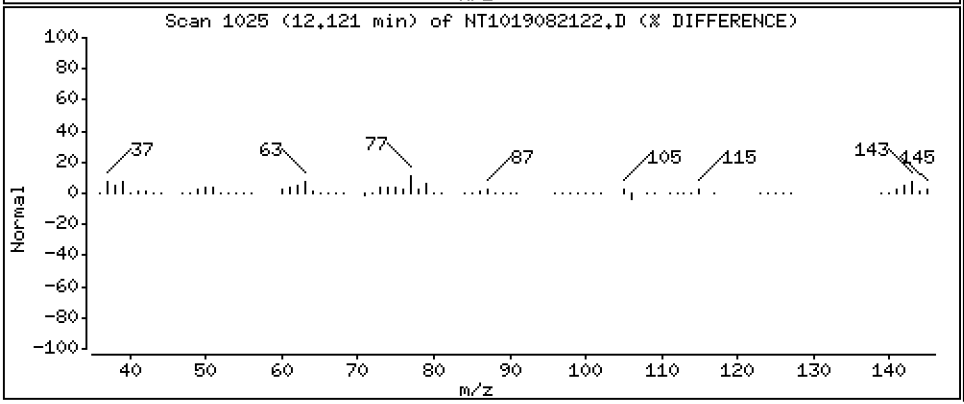
31 4-Chloro-3-methylphenol

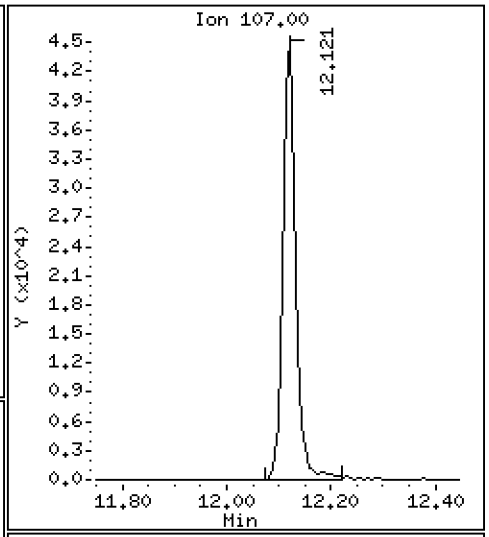
Concentration: 9.120 ug/mL

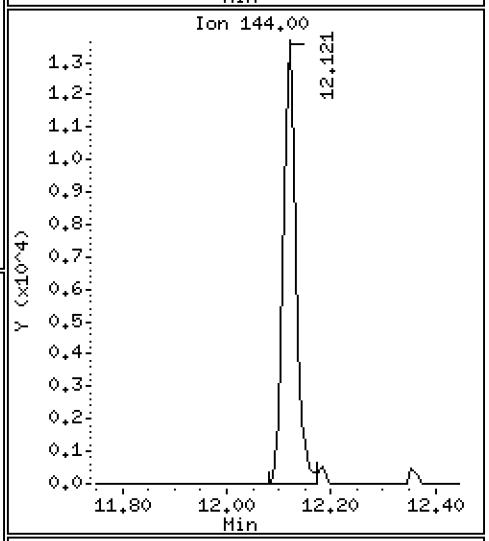


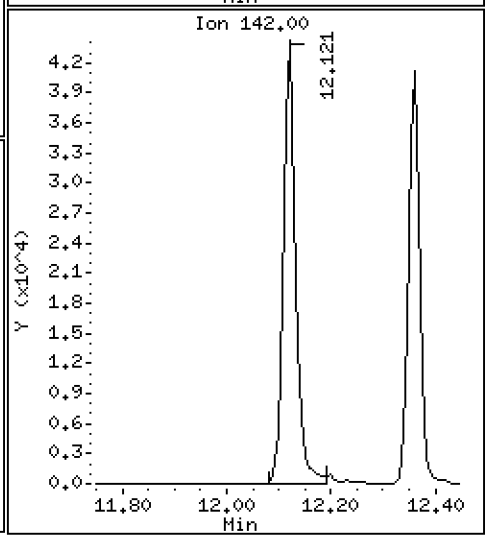












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

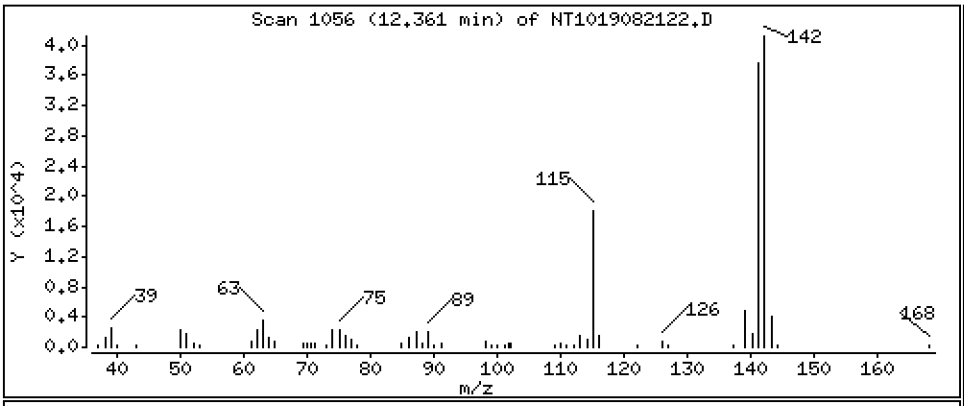
Operator: YZ

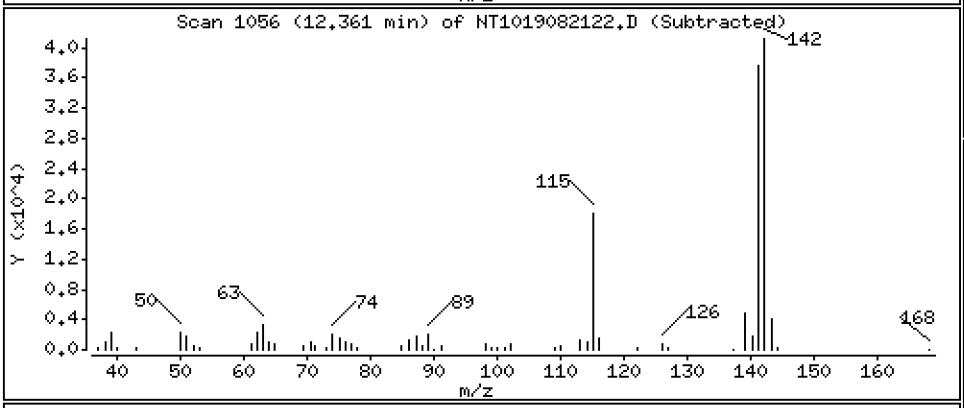
Column phase: ZB-5msi

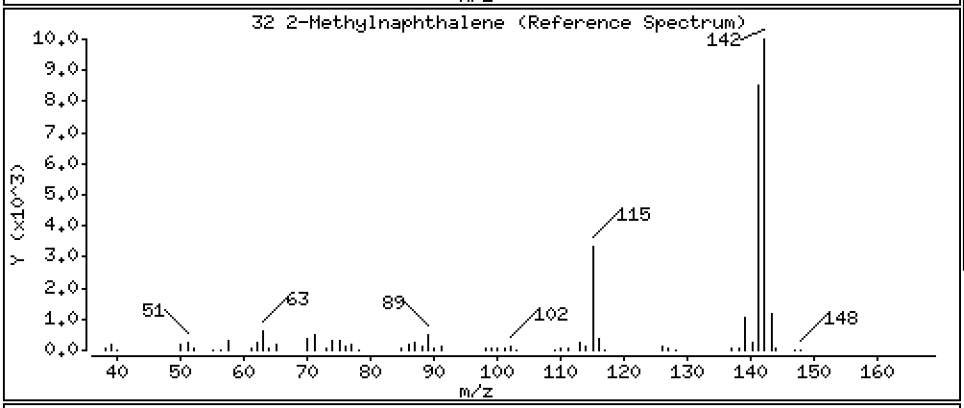
Column diameter: 0.25

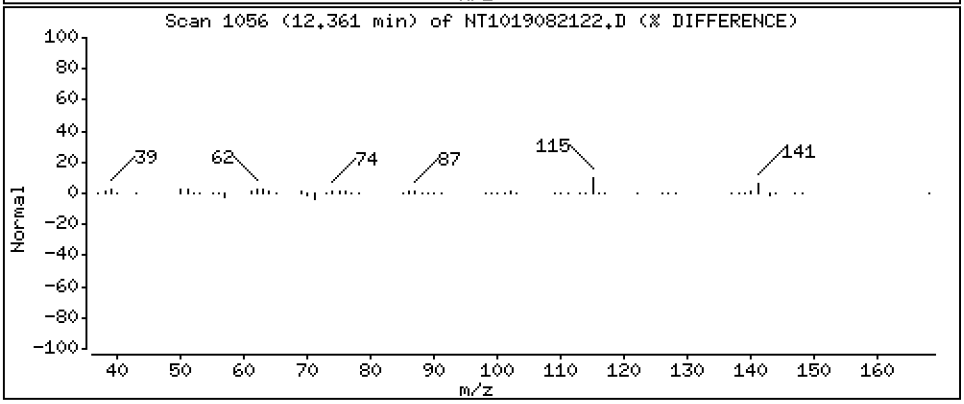
32 2-Methylnaphthalene

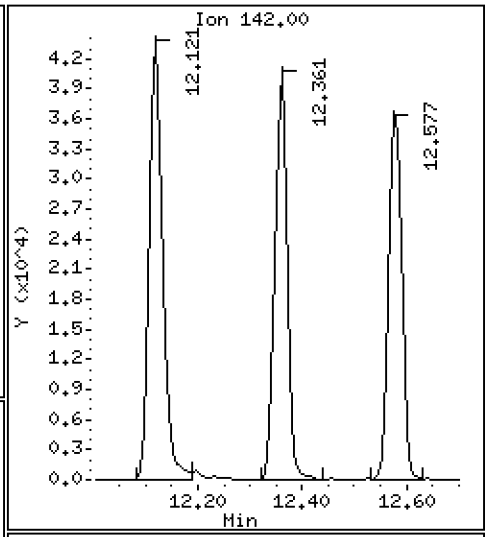
Concentration: 2.738 ug/mL

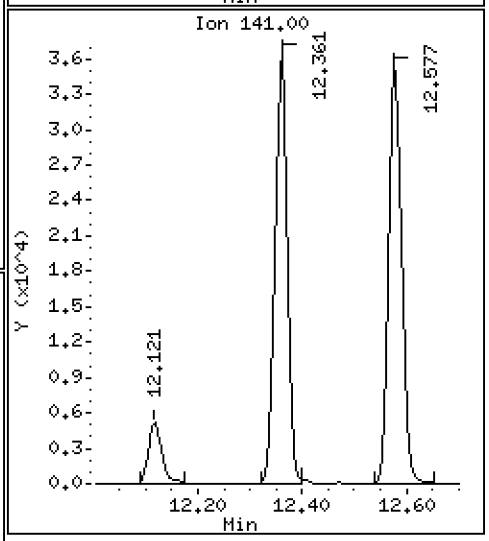












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

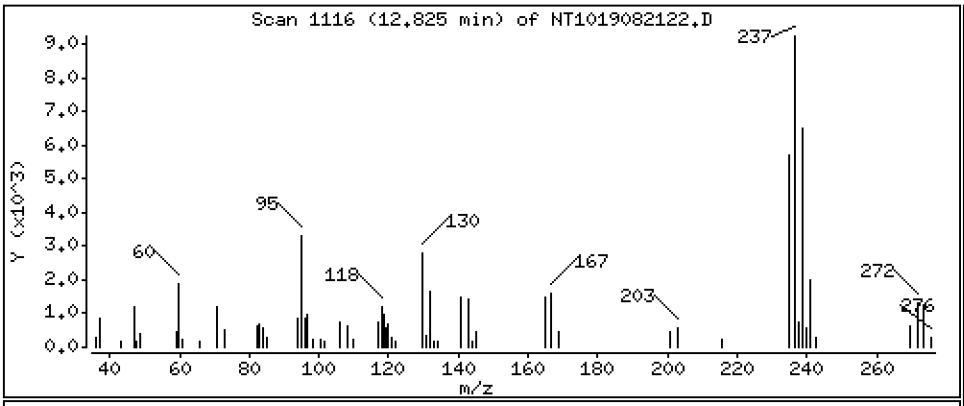
Operator: YZ

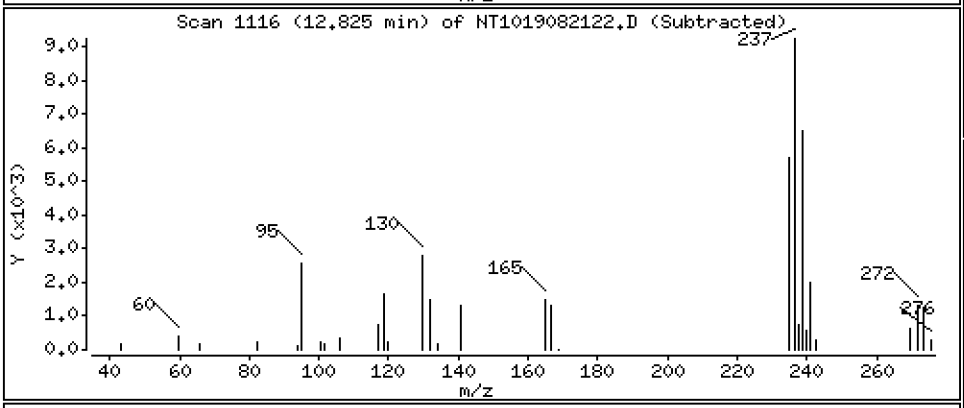
Column phase: ZB-5msi

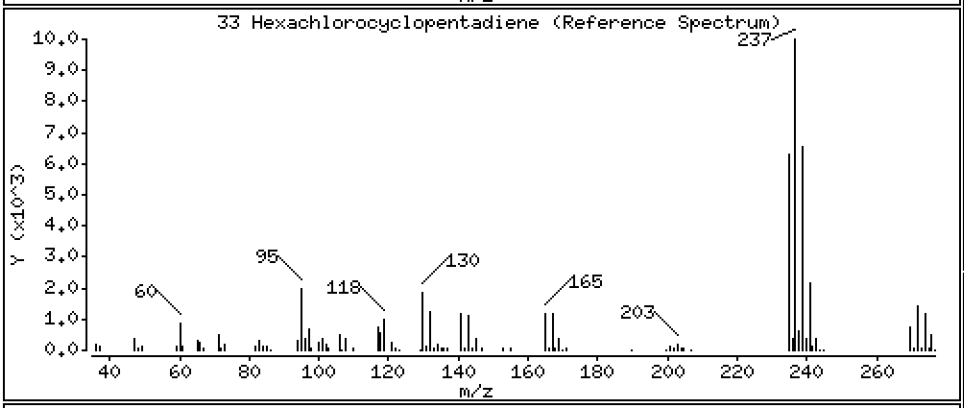
Column diameter: 0.25

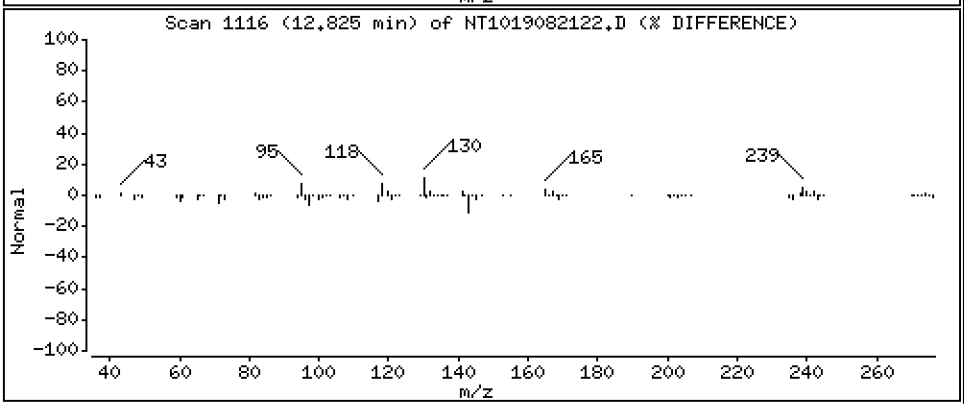
33 Hexachlorocyclopentadiene

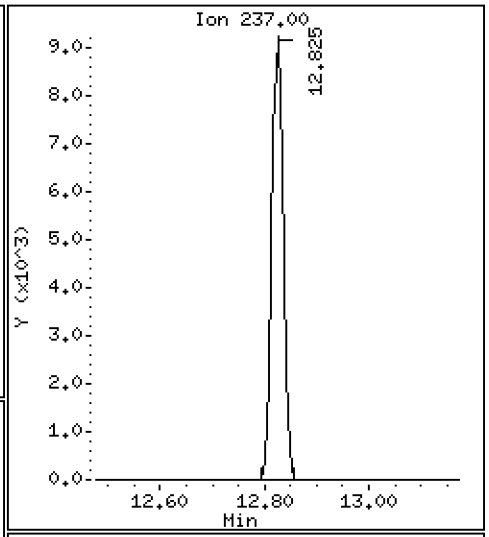
Concentration: 1.886 ug/mL

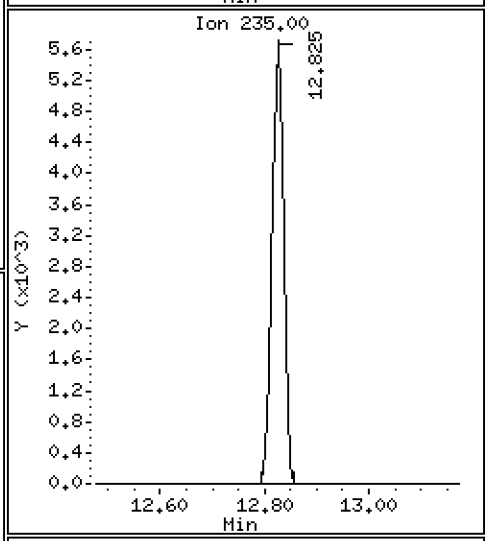


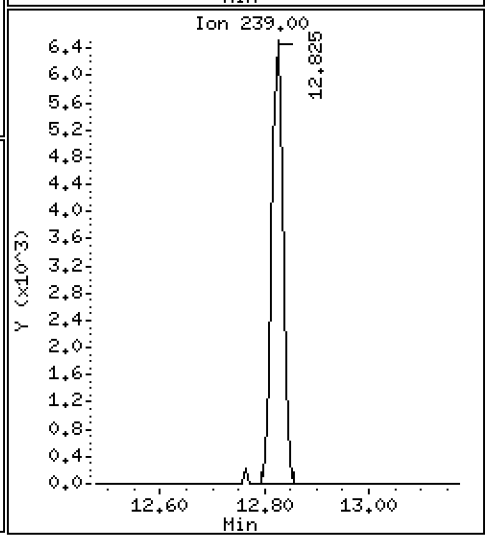












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

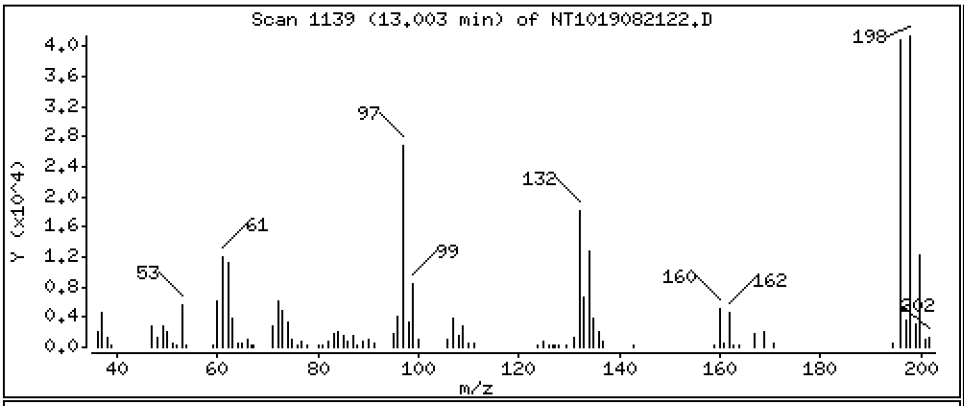
Operator: YZ

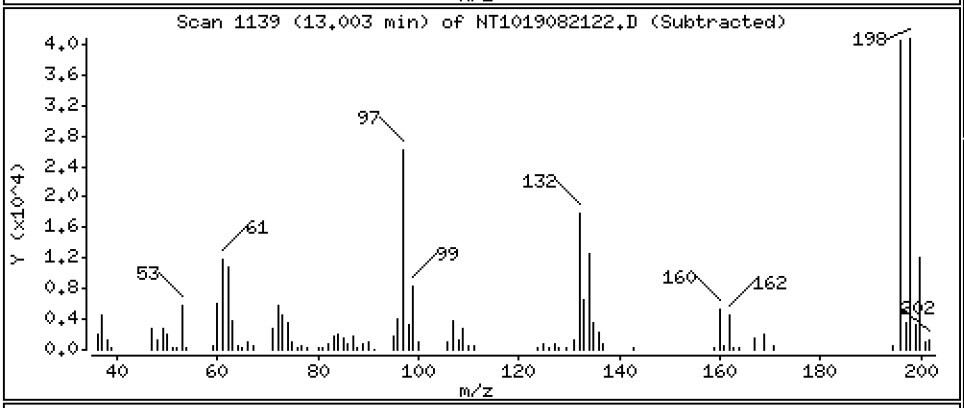
Column phase: ZB-5msi

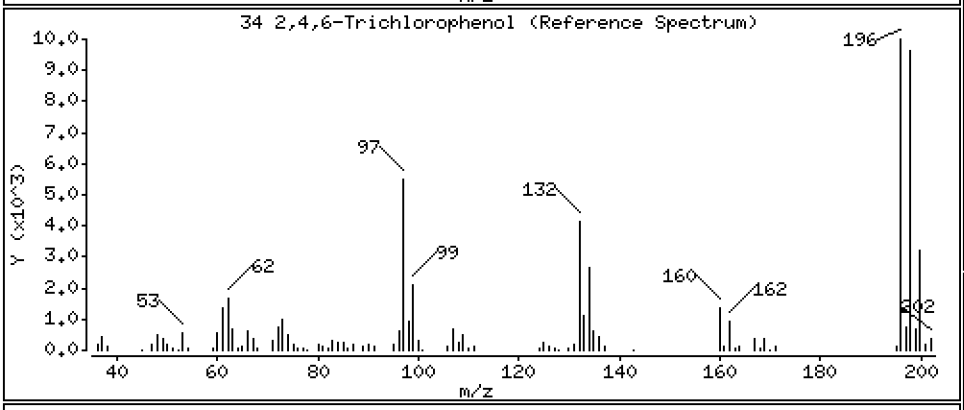
Column diameter: 0.25

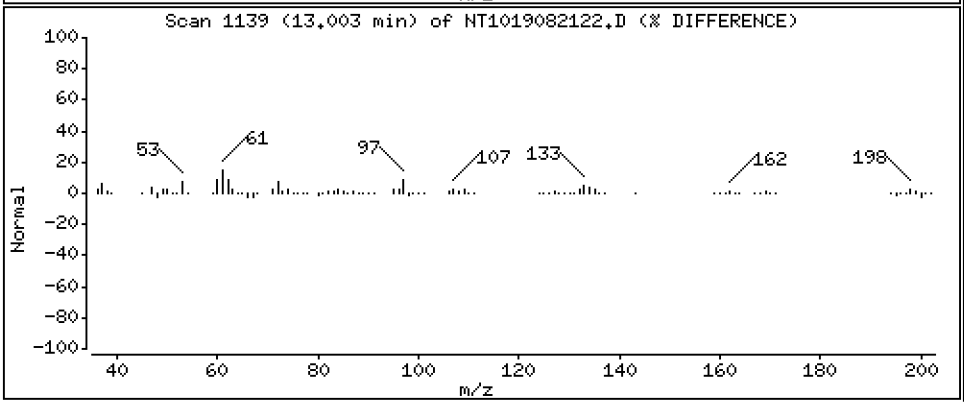
34 2,4,6-Trichlorophenol

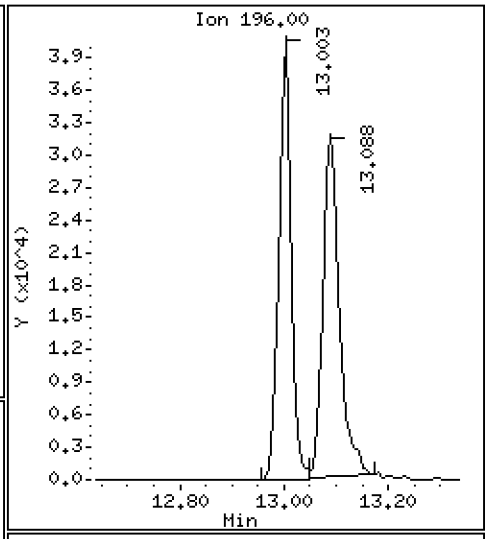
Concentration: 9.726 ug/mL

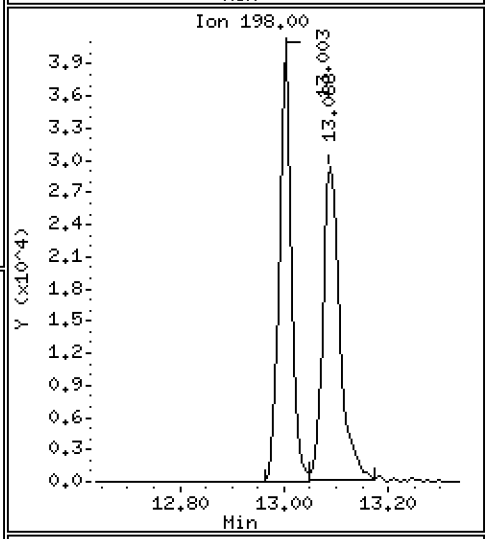


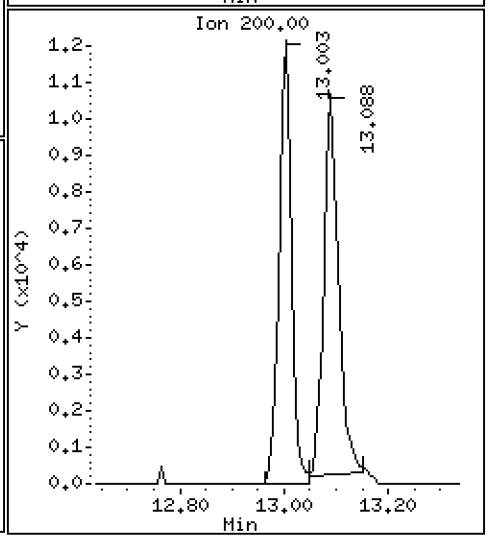












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

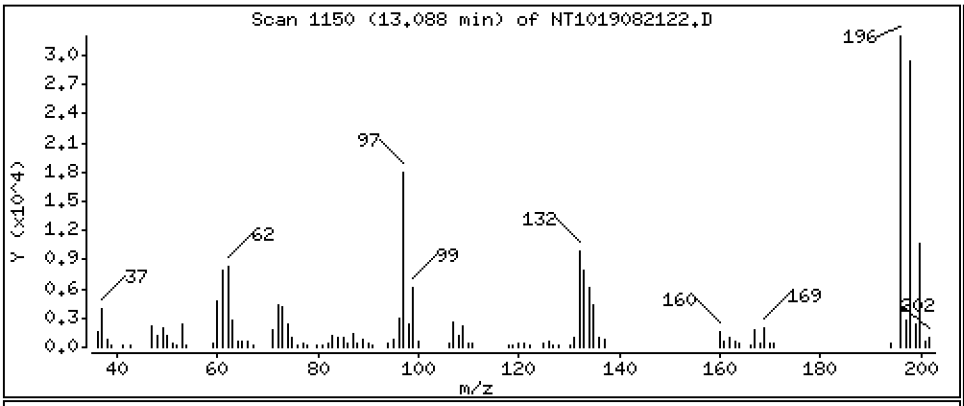
Operator: YZ

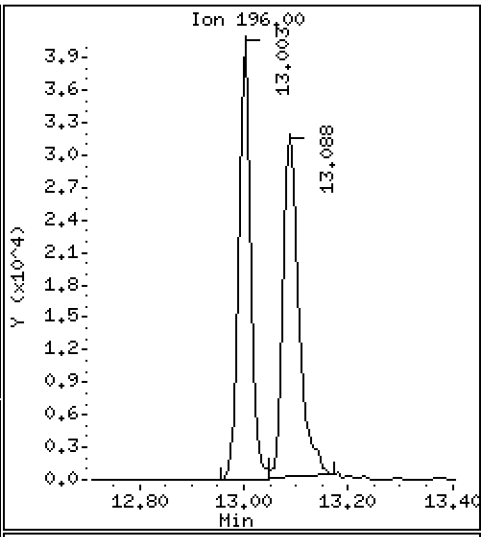
Column phase: ZB-5msi

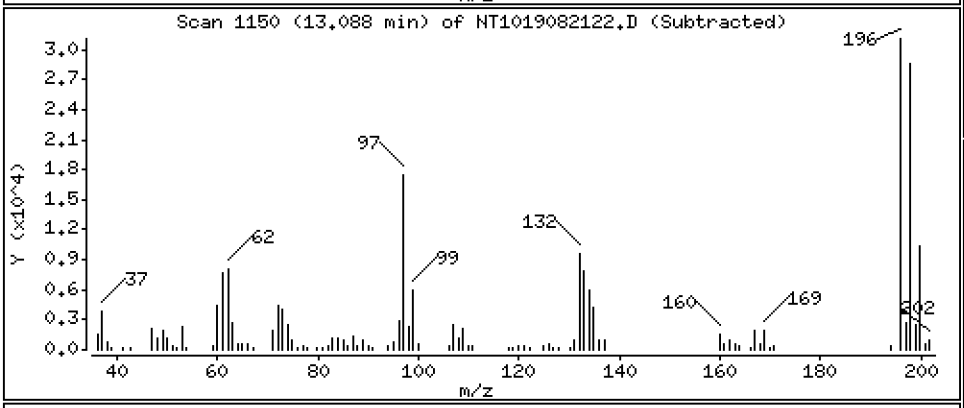
Column diameter: 0.25

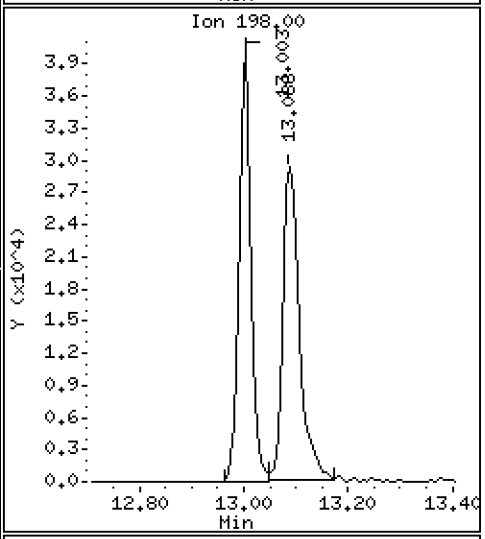
35 2,4,5-Trichlorophenol

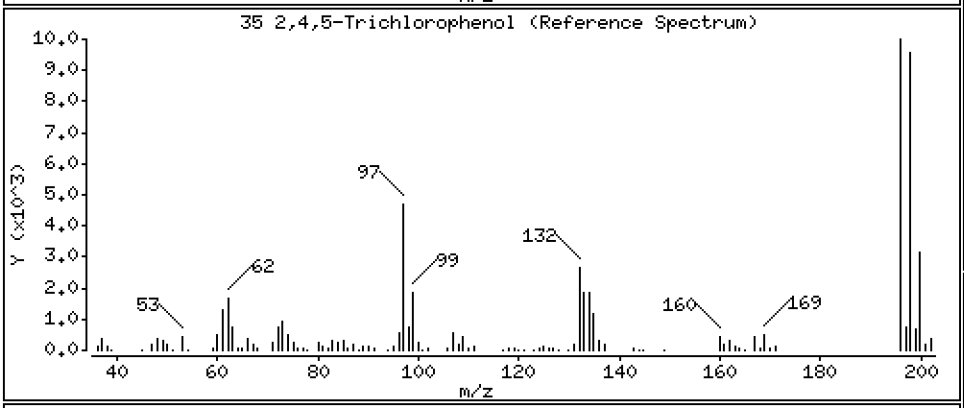
Concentration: 9.904 ug/mL

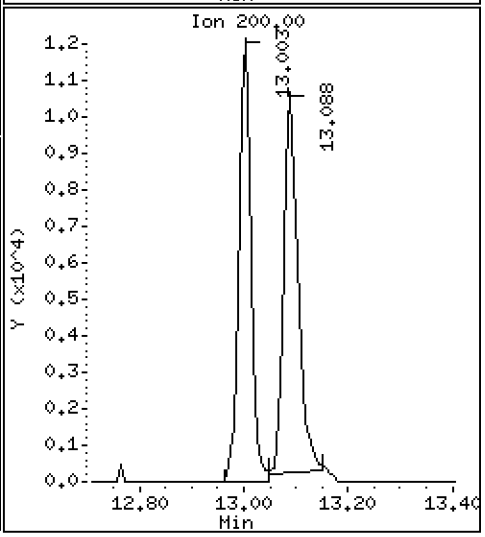


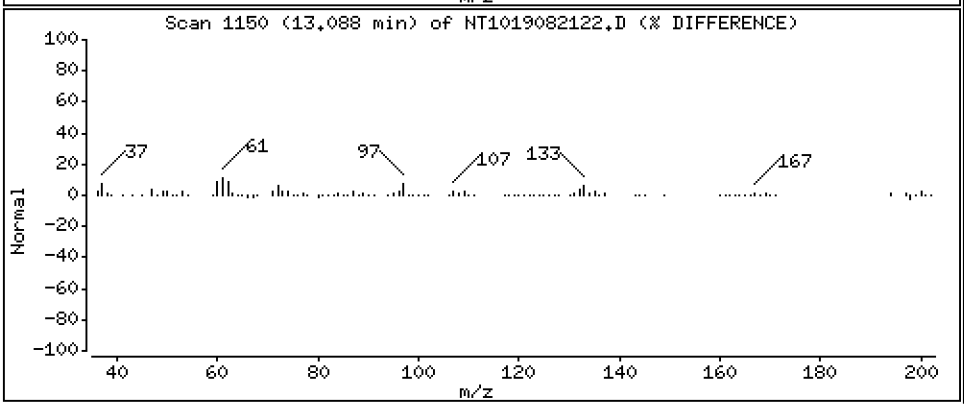












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

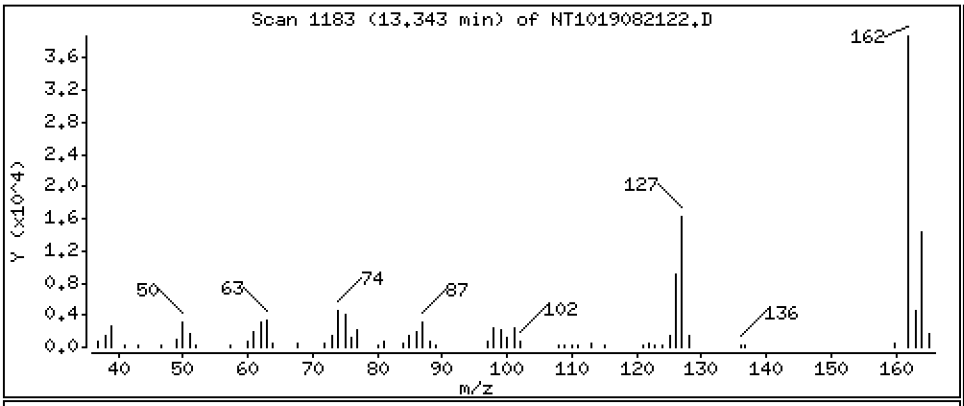
Operator: YZ

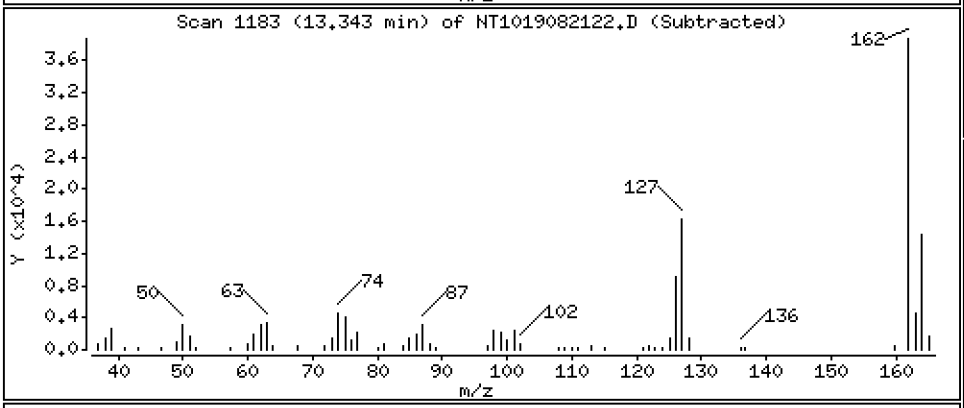
Column phase: ZB-5msi

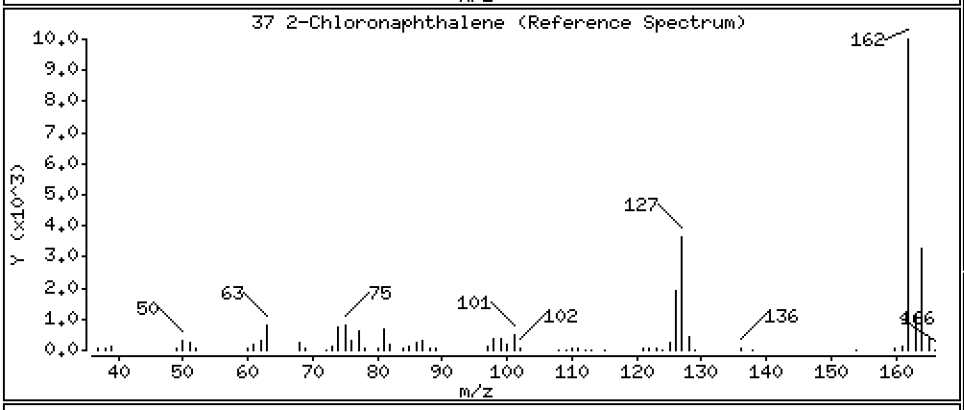
Column diameter: 0.25

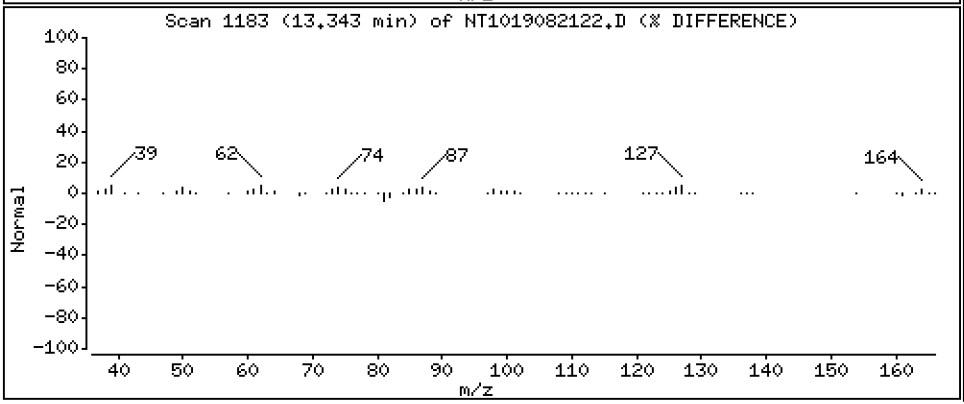
37 2-Chloronaphthalene

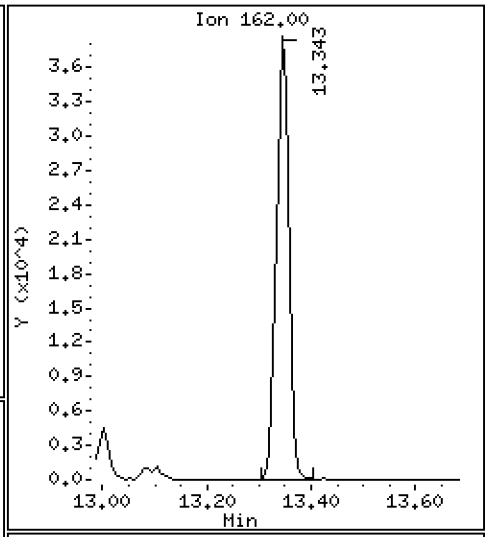
Concentration: 2.923 ug/mL

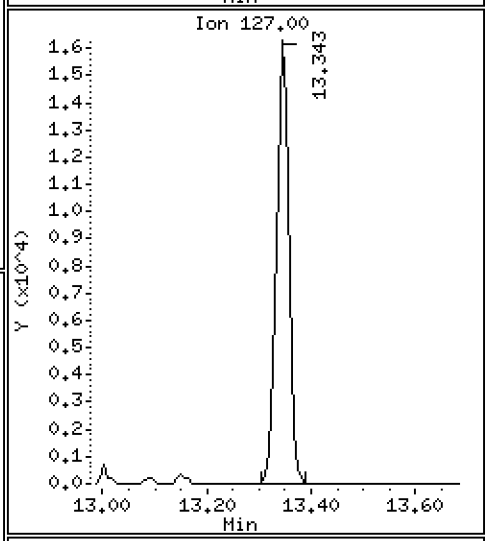


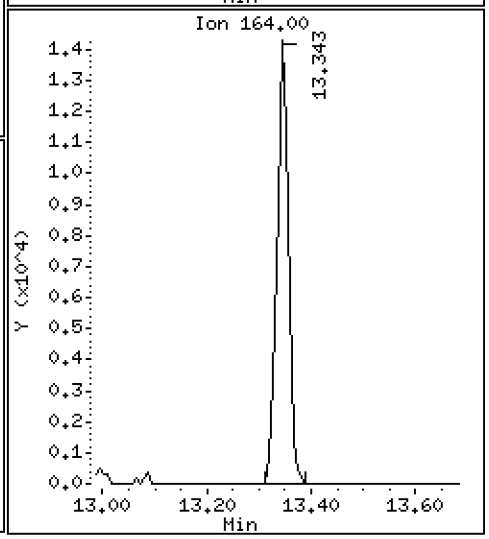












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

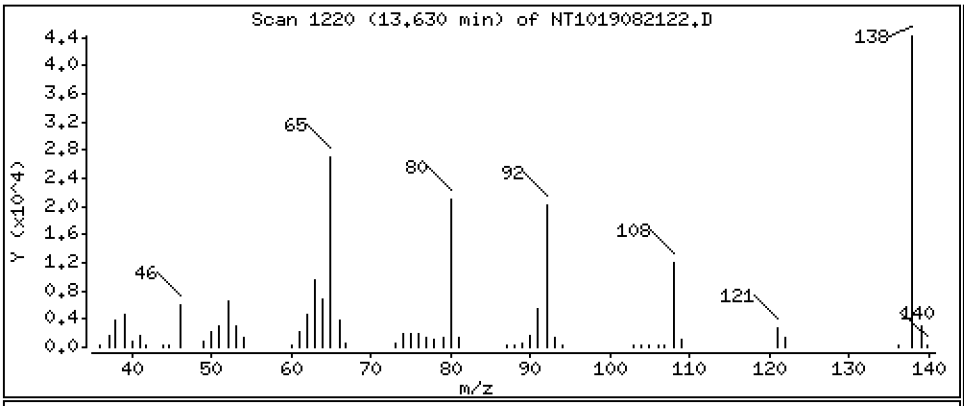
Operator: YZ

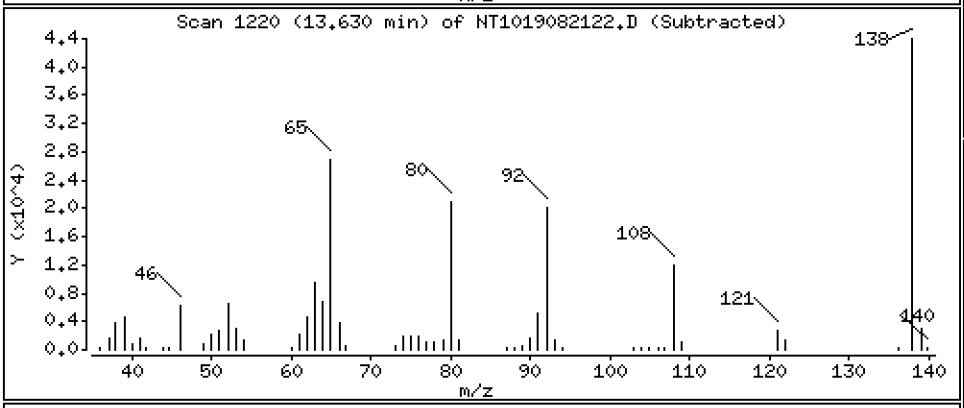
Column phase: ZB-5msi

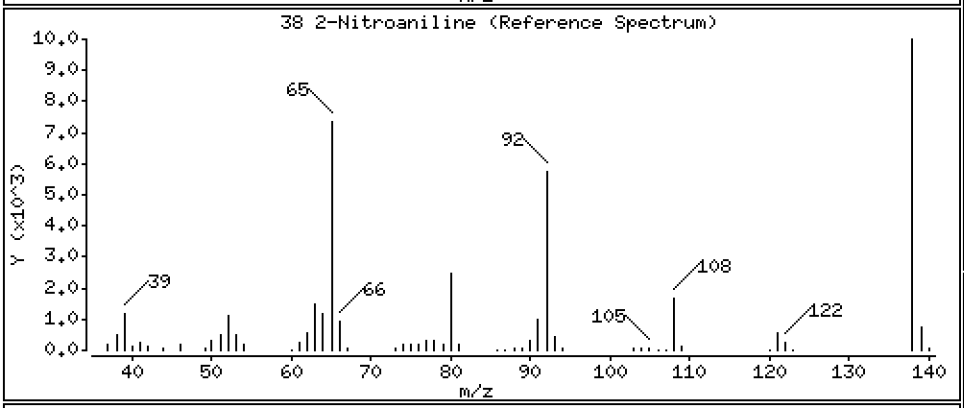
Column diameter: 0.25

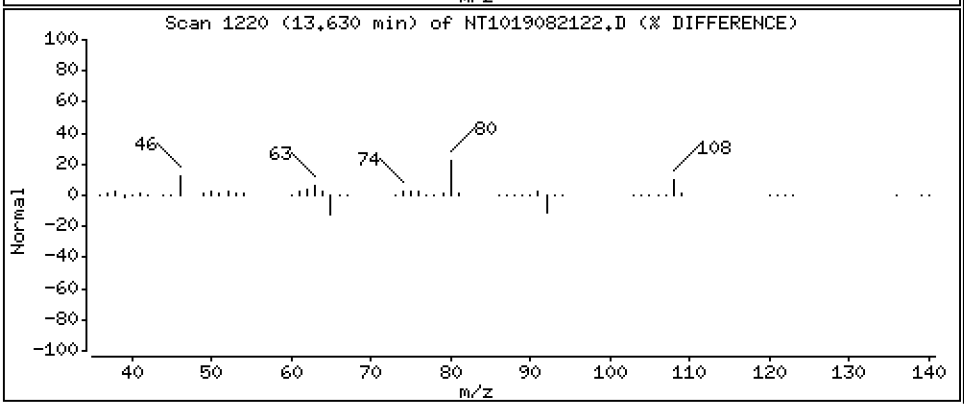
38 2-Nitroaniline

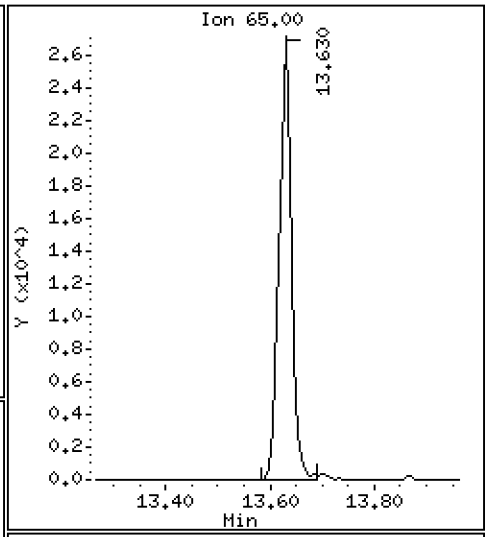
Concentration: 9.222 ug/mL

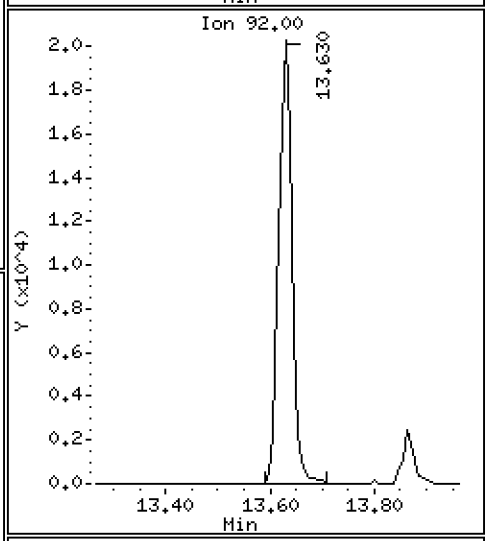


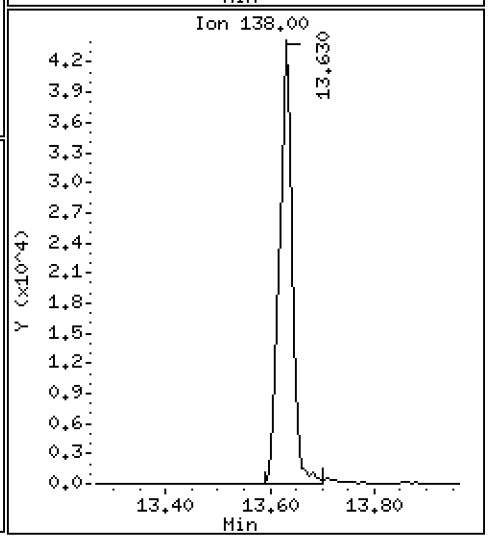












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

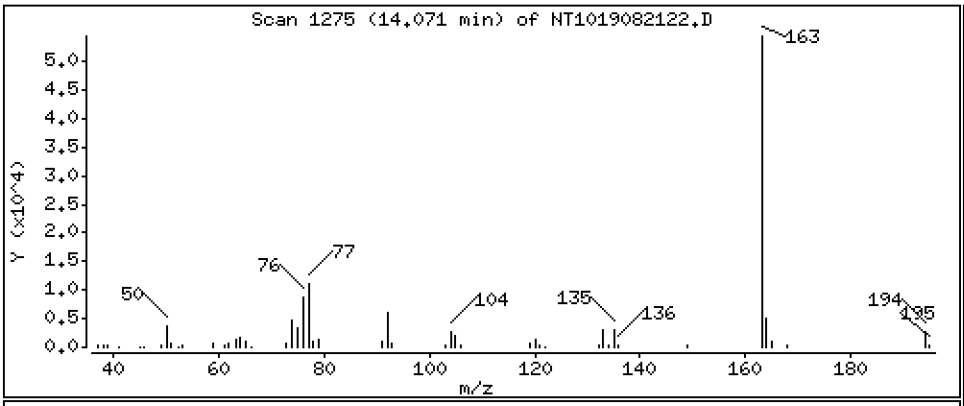
Operator: YZ

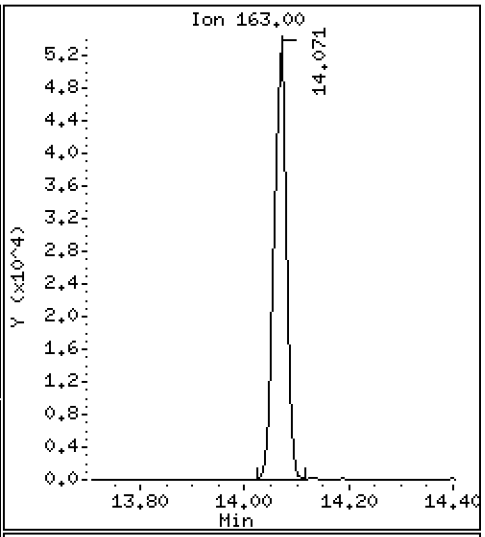
Column phase: ZB-5msi

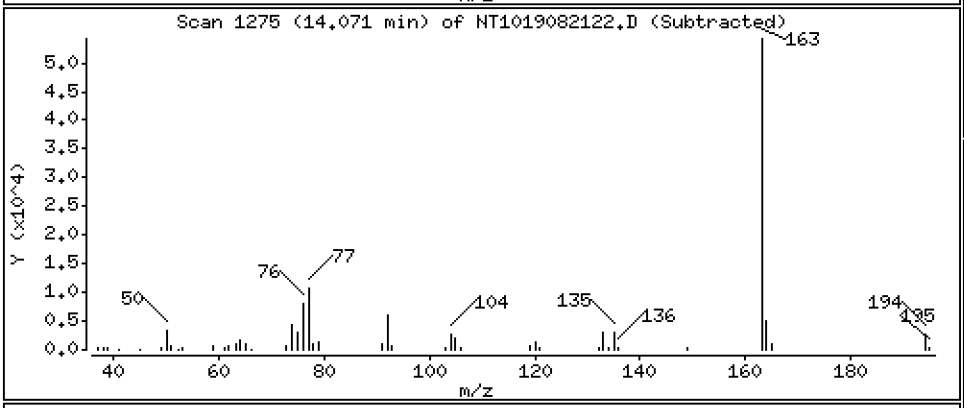
Column diameter: 0.25

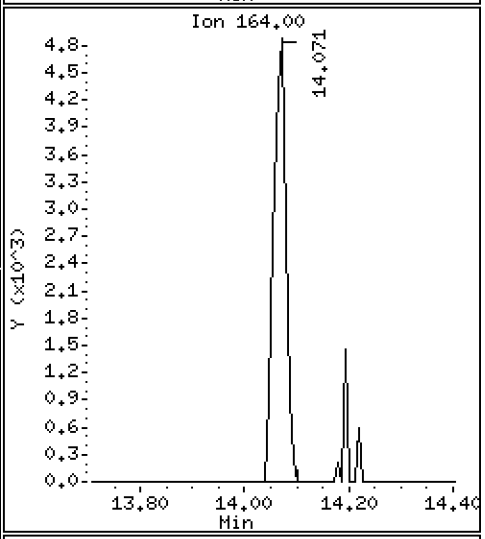
39 Dimethylphthalate

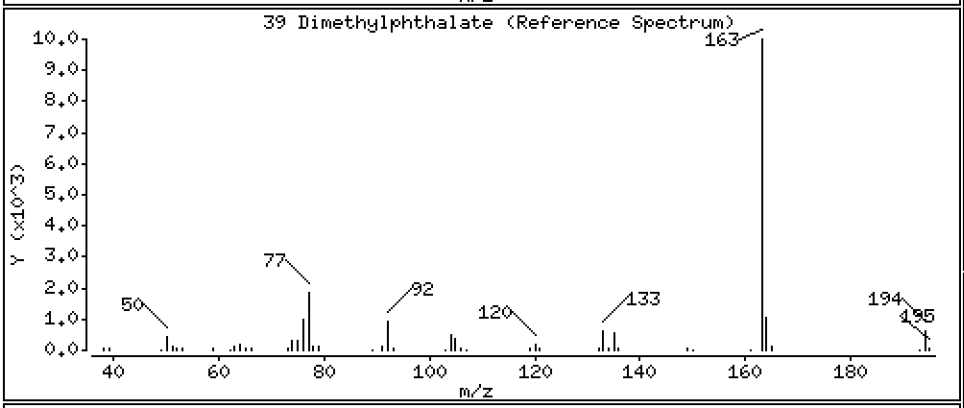
Concentration: 3.421 ug/mL

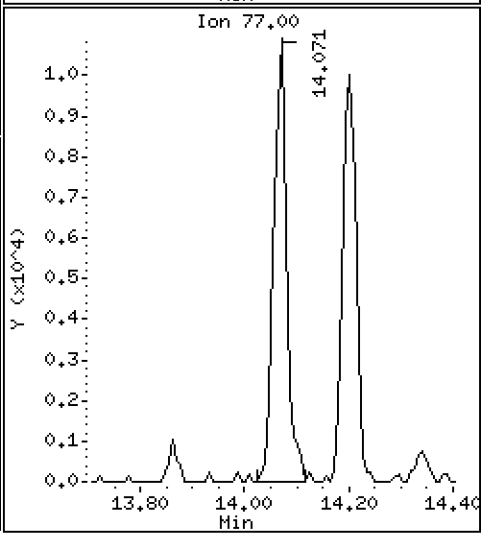


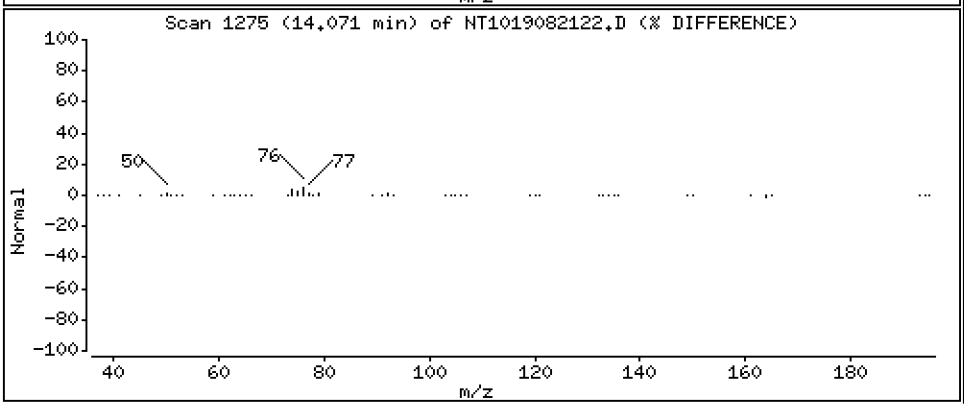












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

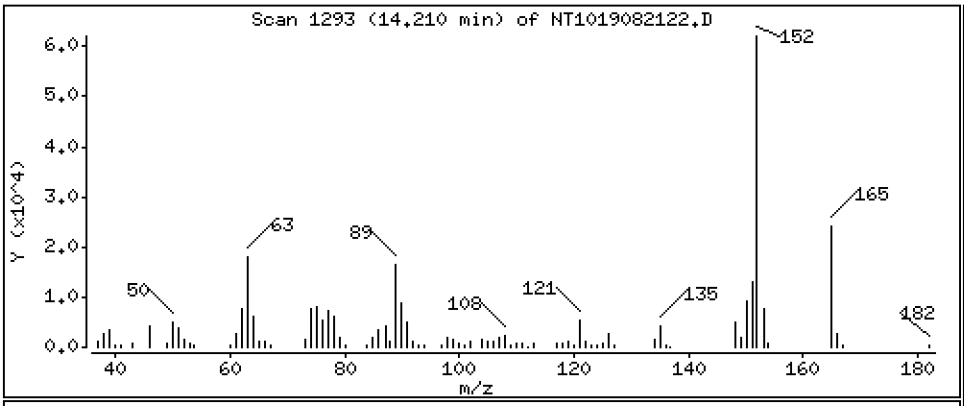
Operator: YZ

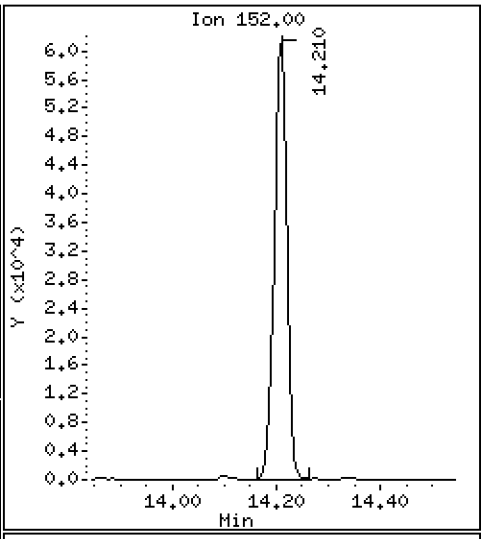
Column phase: ZB-5msi

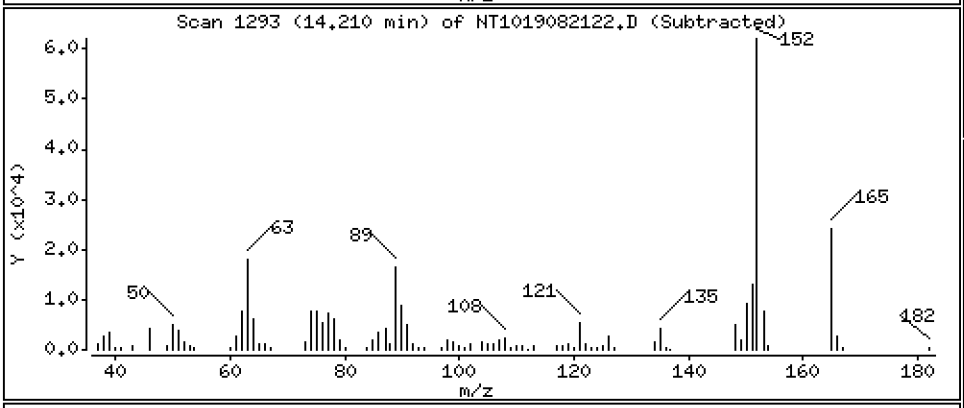
Column diameter: 0.25

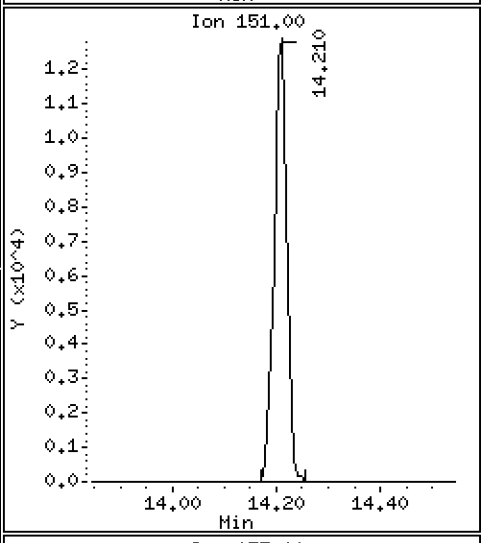
40 Acenaphthylene

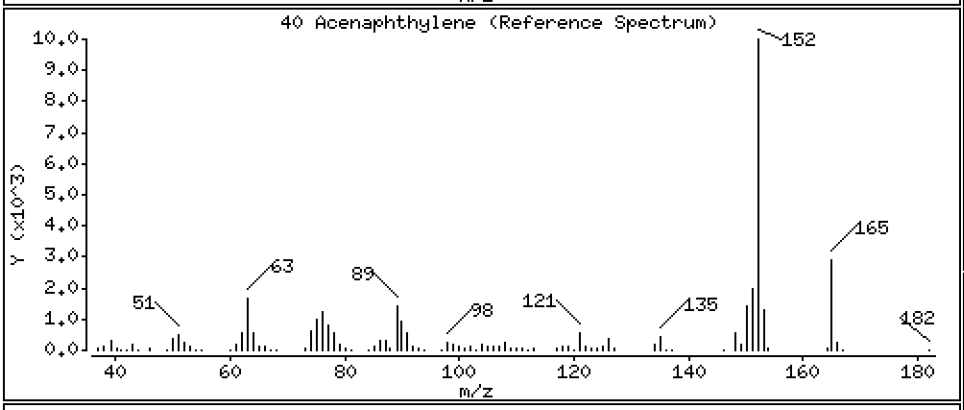
Concentration: 3.252 ug/mL

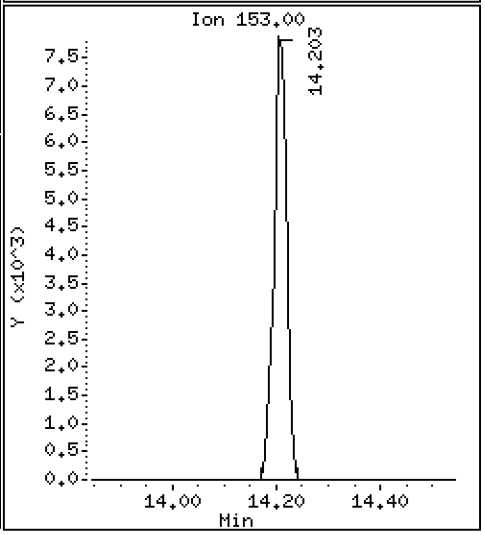


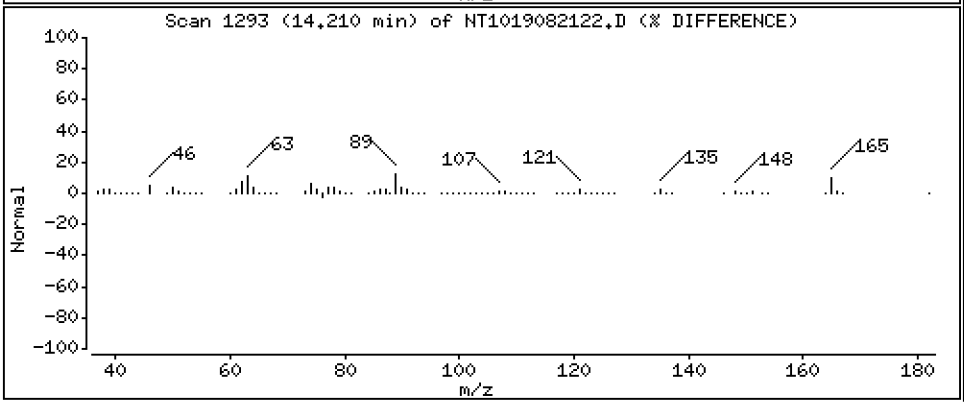












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

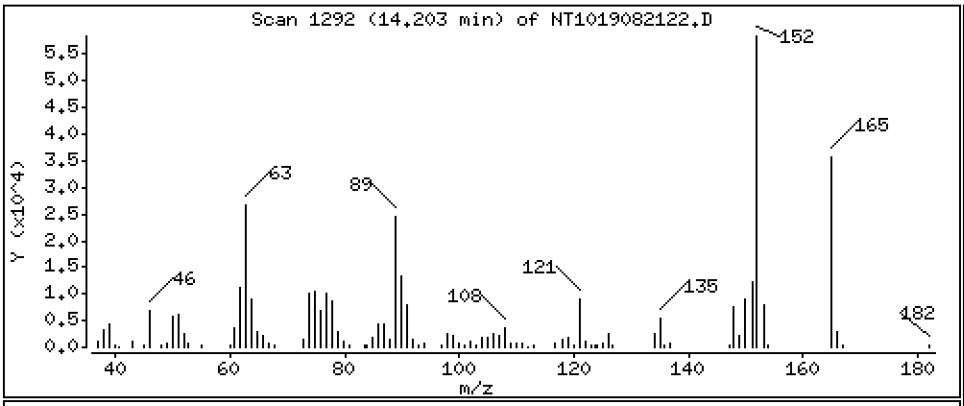
Operator: YZ

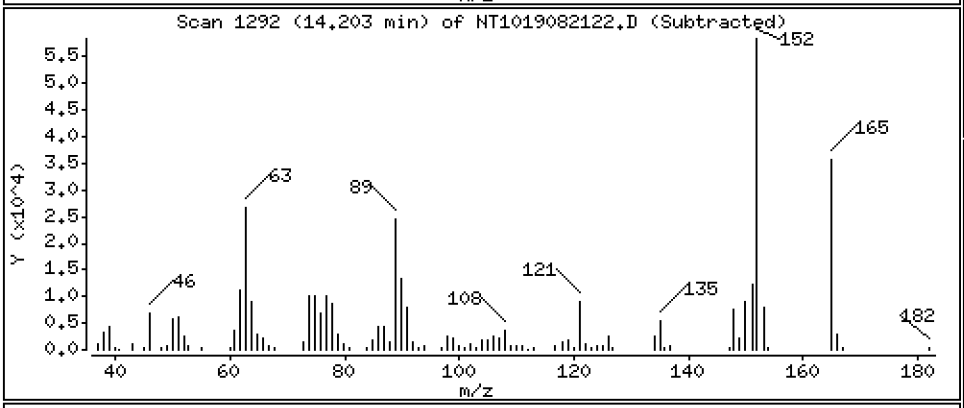
Column phase: ZB-5msi

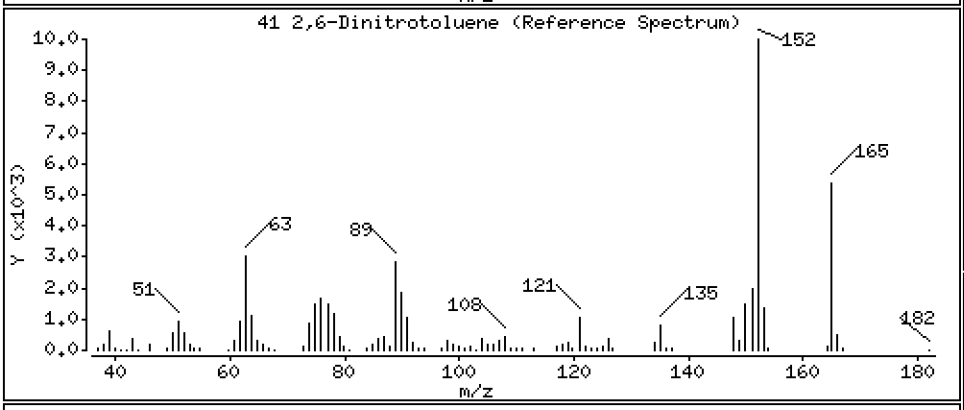
Column diameter: 0.25

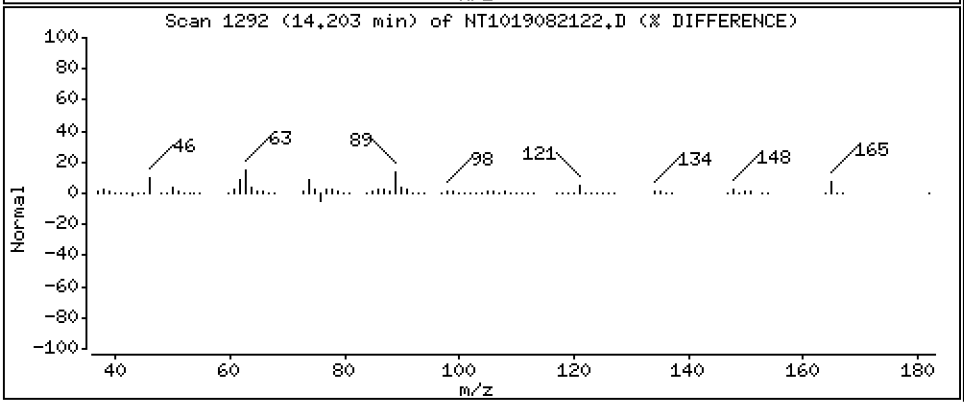
41 2,6-Dinitrotoluene

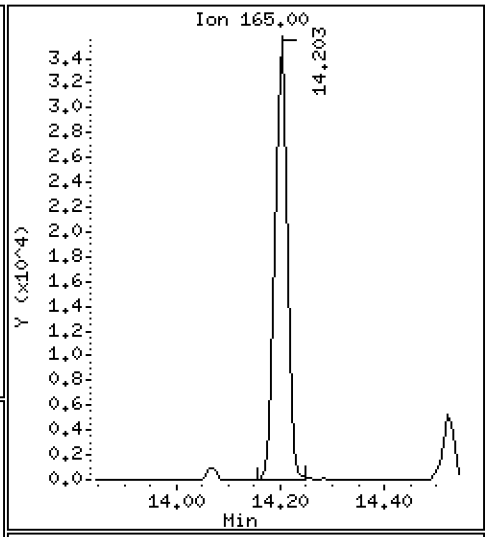
Concentration: 10.37 ug/mL

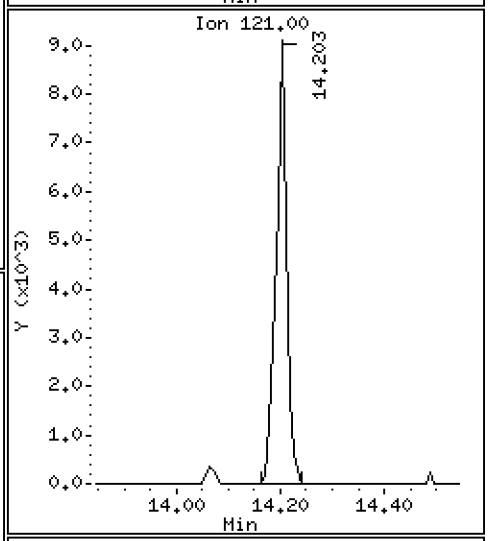


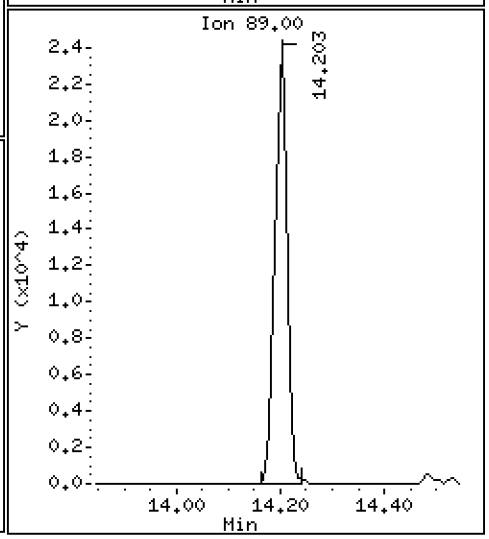












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

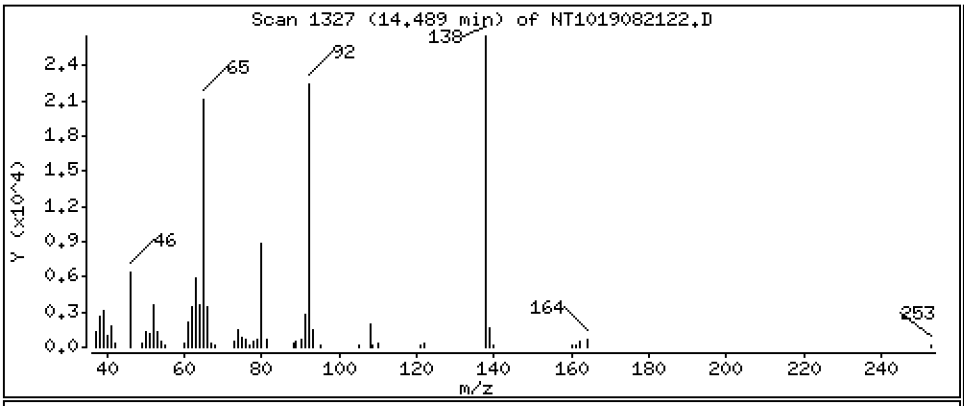
Operator: YZ

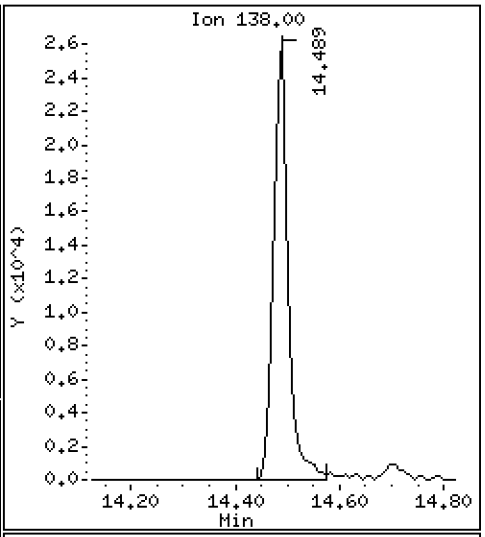
Column phase: ZB-5msi

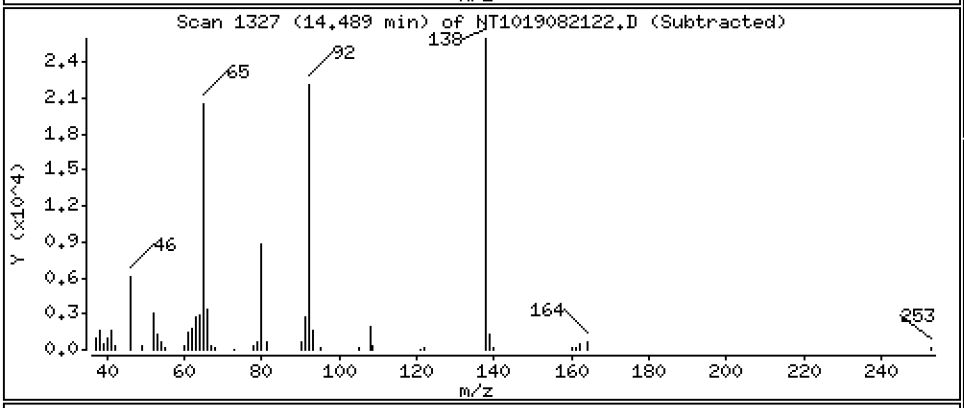
Column diameter: 0.25

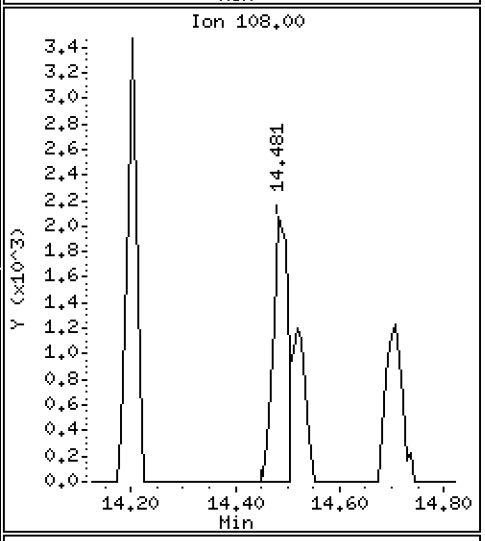
43 3-Nitroaniline

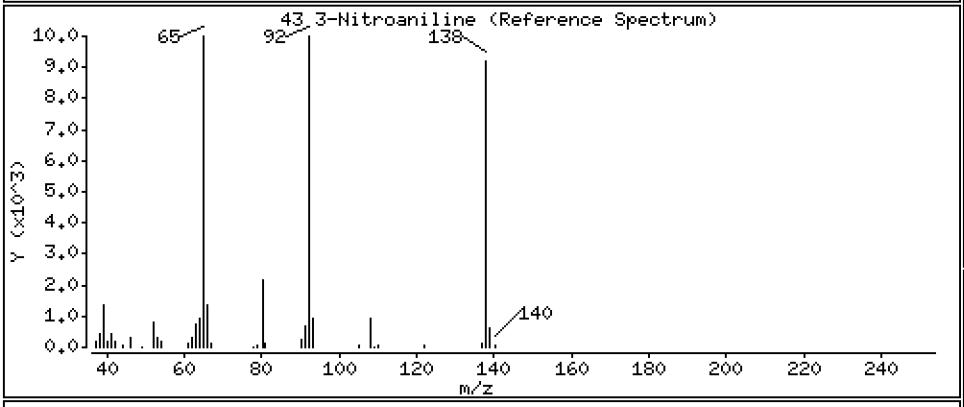
Concentration: 7.874 ug/mL

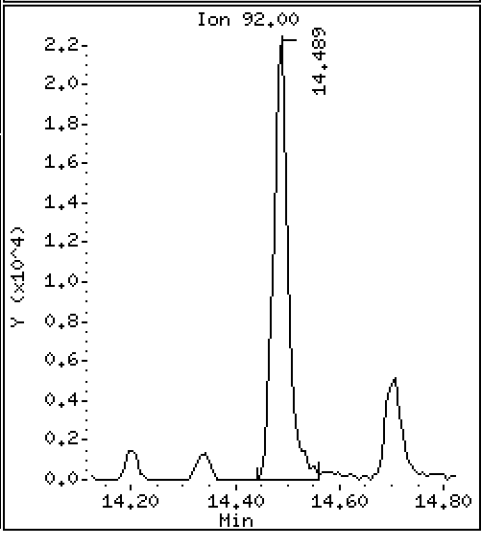


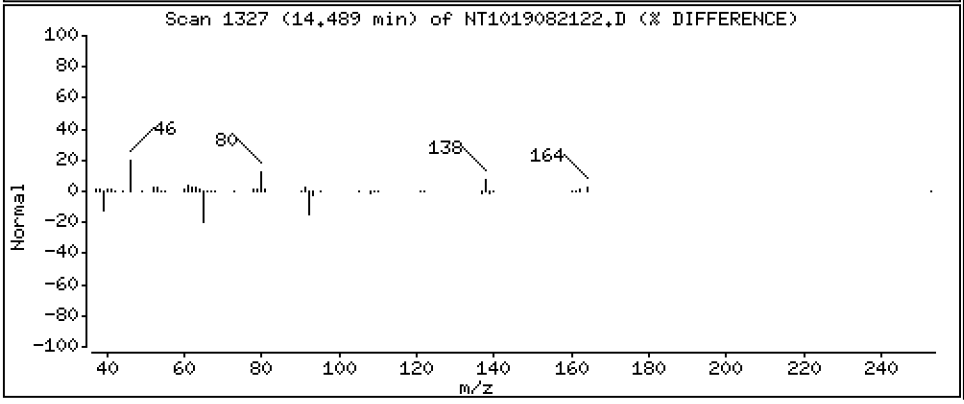












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

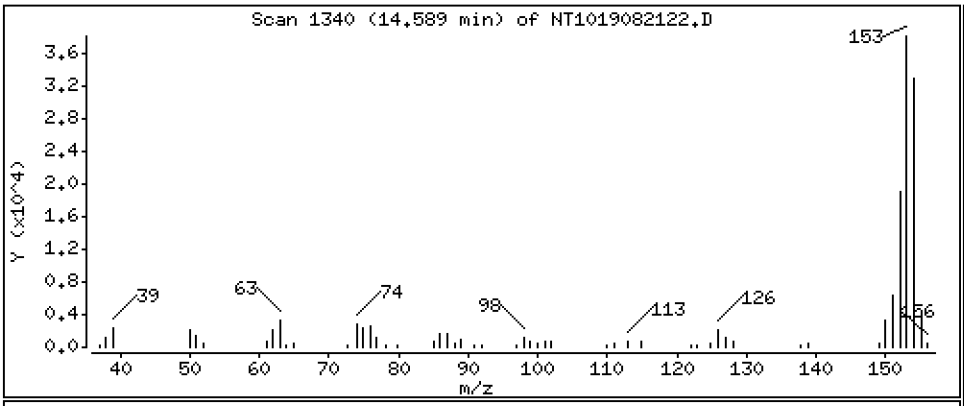
Operator: YZ

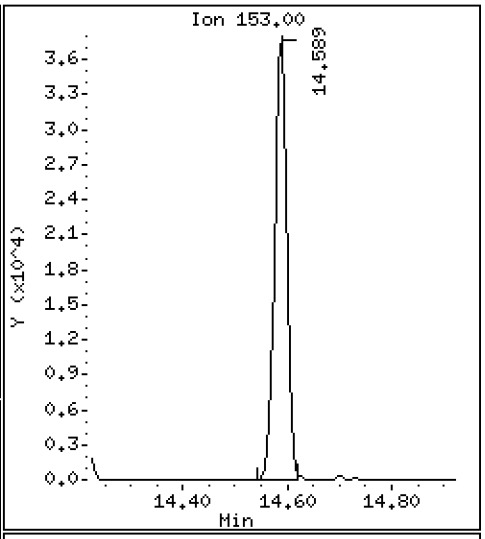
Column phase: ZB-5msi

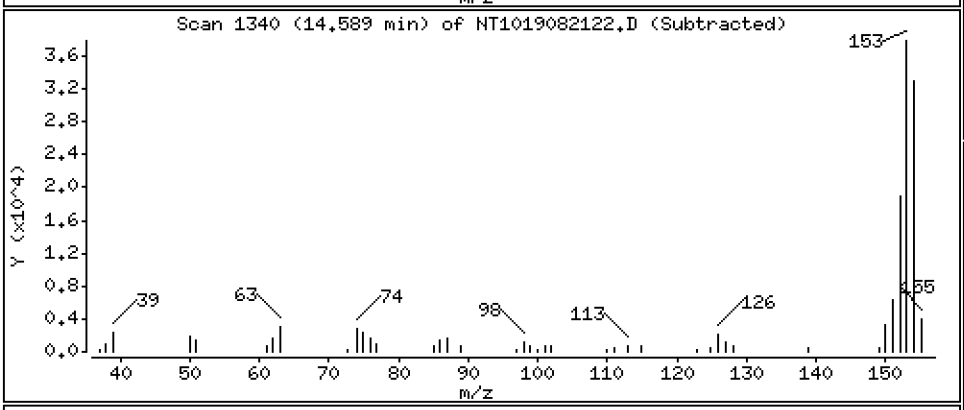
Column diameter: 0.25

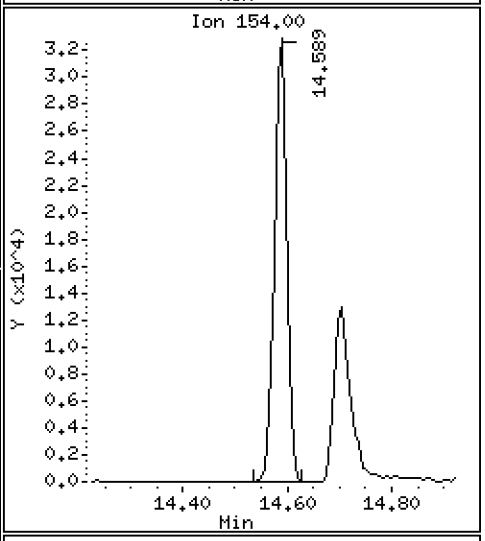
44 Acenaphthene

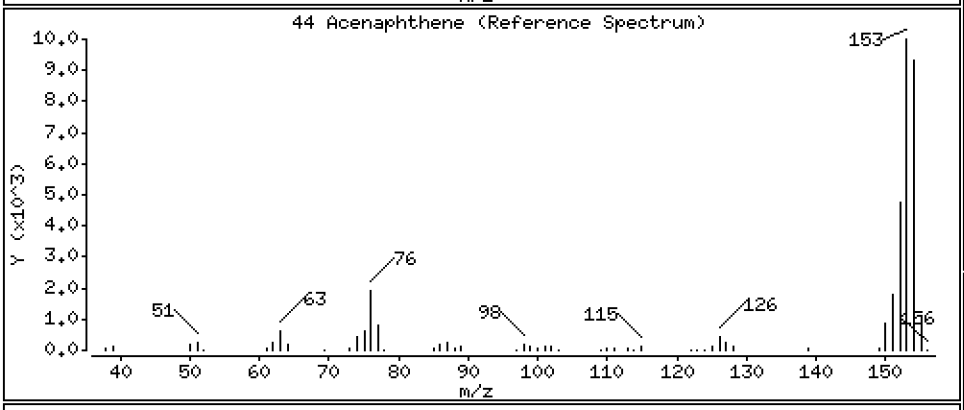
Concentration: 3.064 ug/mL

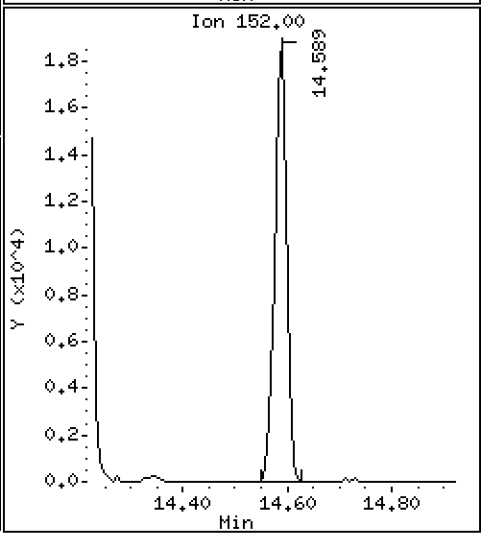


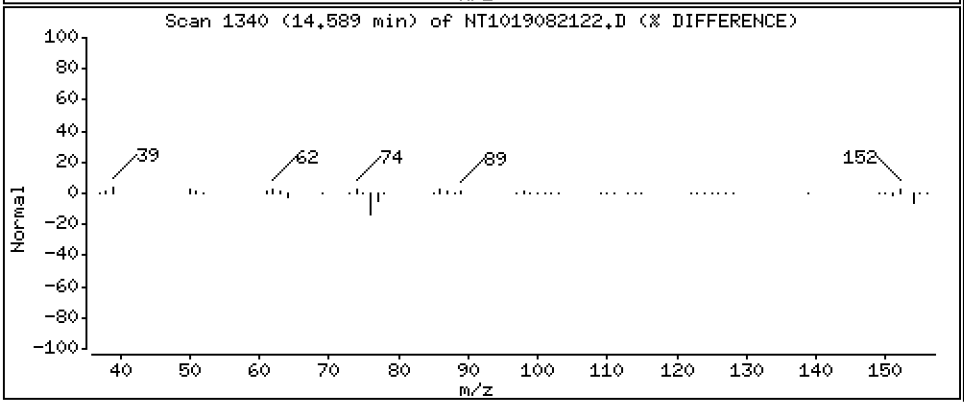












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

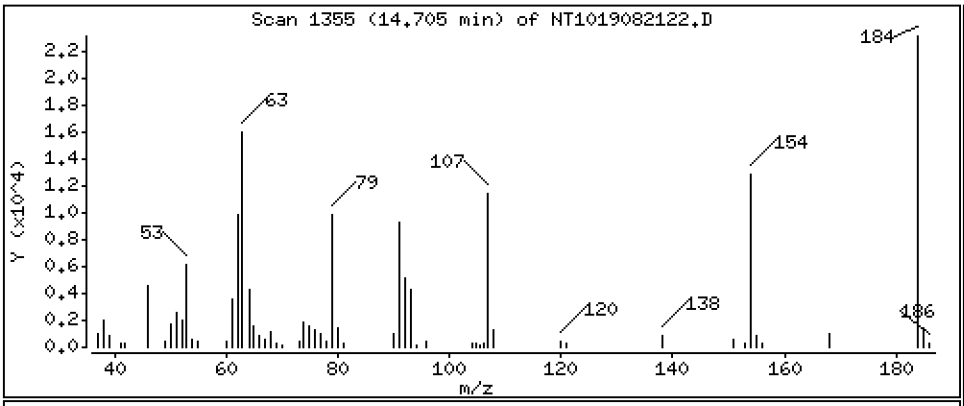
Operator: YZ

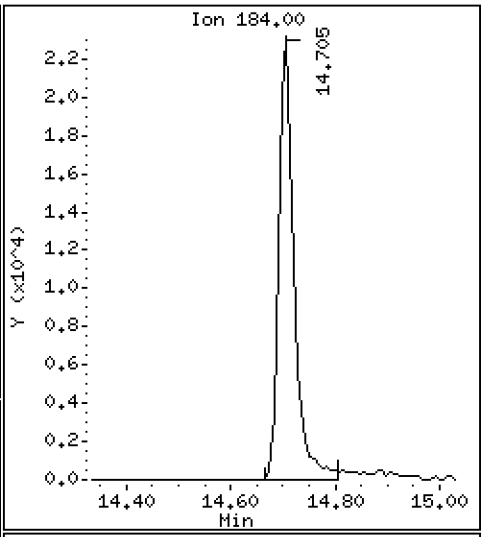
Column phase: ZB-5msi

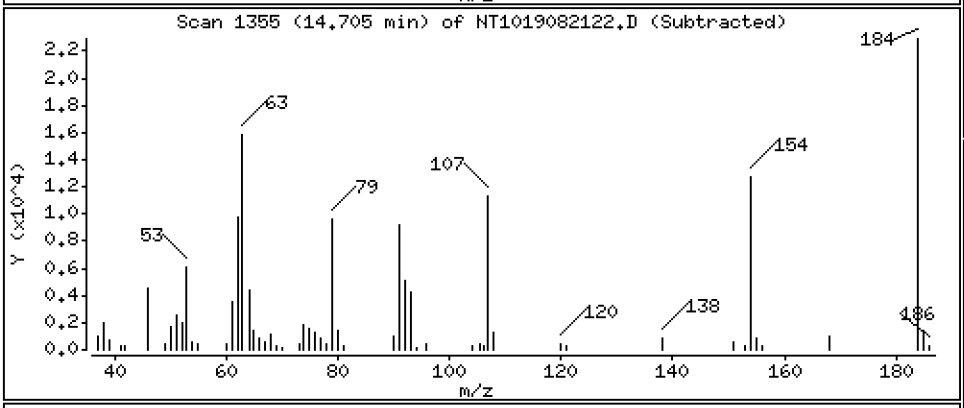
Column diameter: 0.25

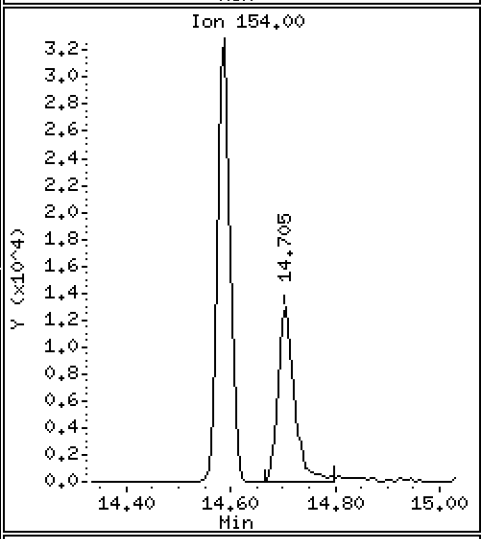
45 2,4-Dinitrophenol

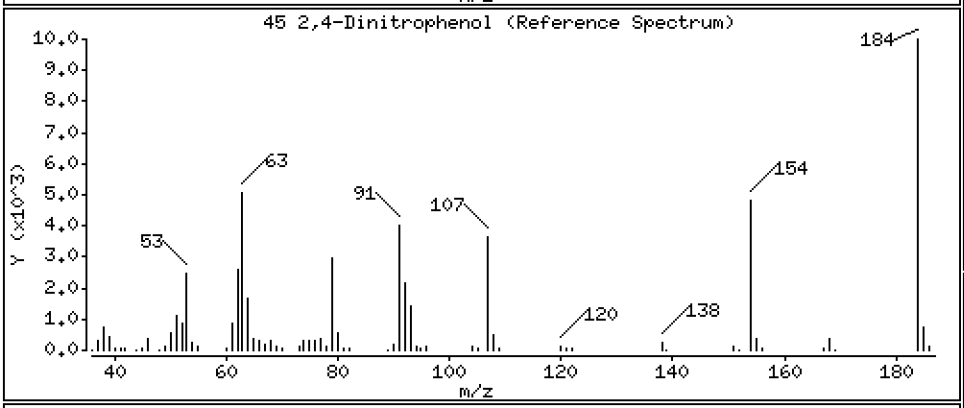
Concentration: 12.71 ug/mL

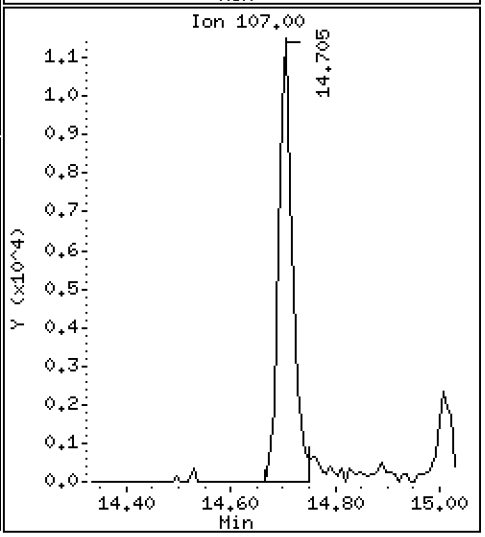


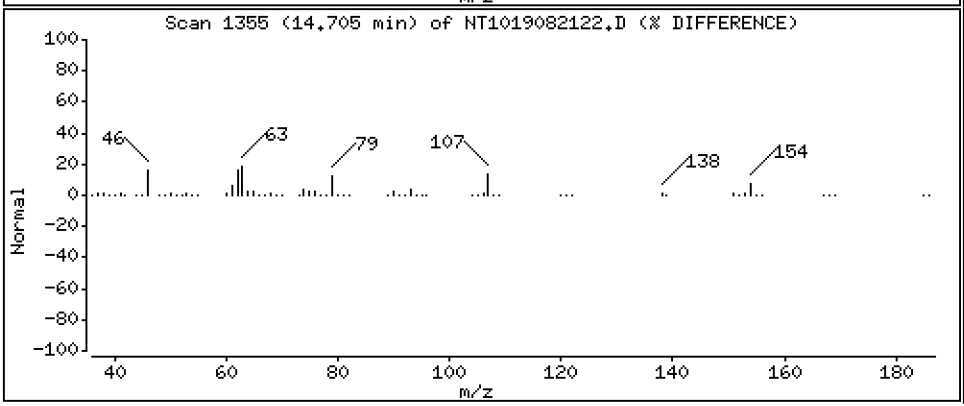












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

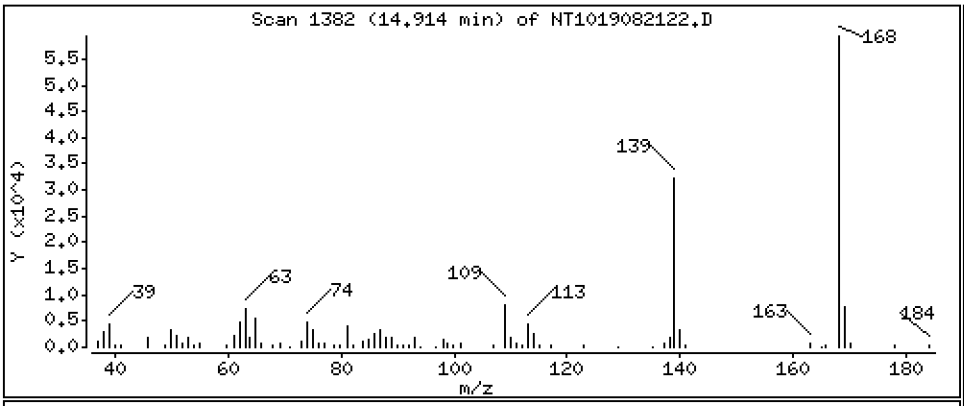
Operator: YZ

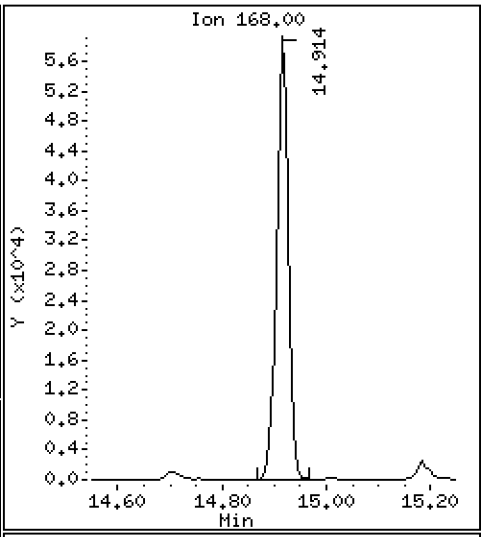
Column phase: ZB-5msi

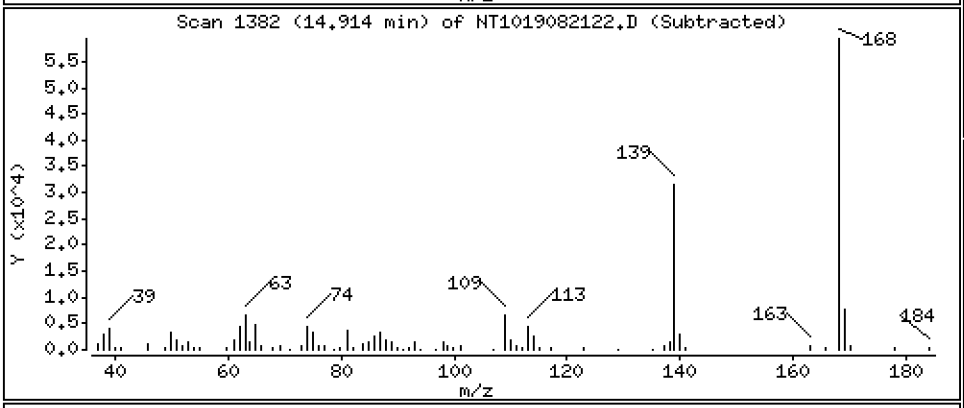
Column diameter: 0.25

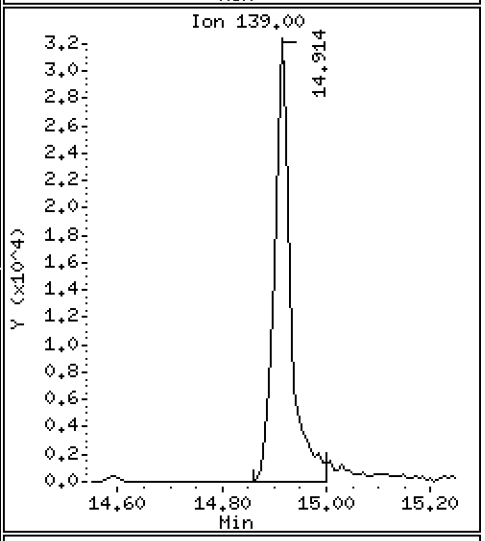
46 Dibenzofuran

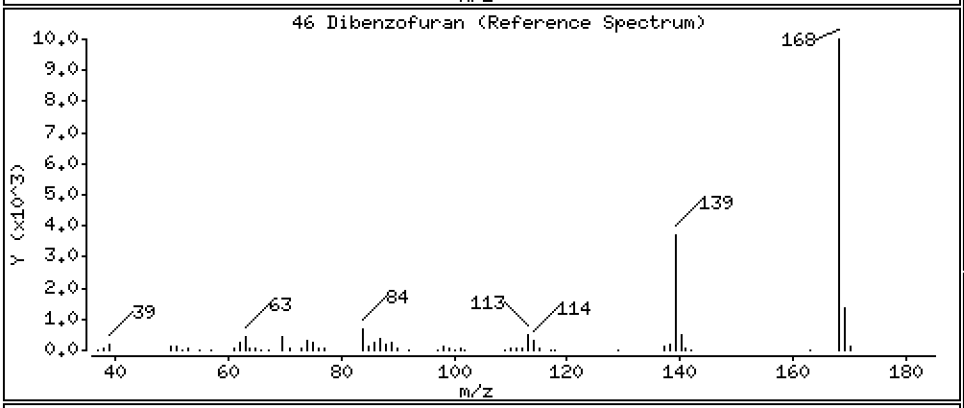
Concentration: 2.813 ug/mL

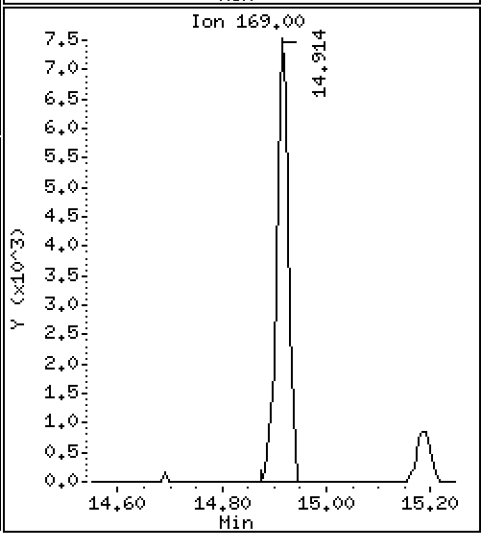


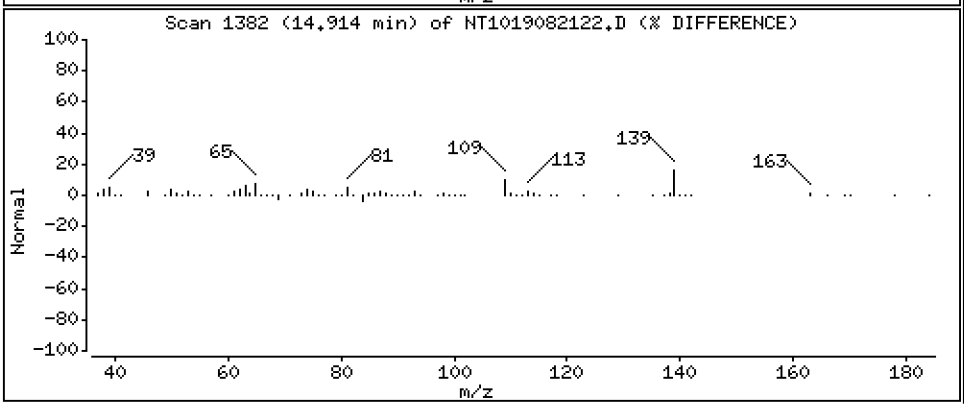












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

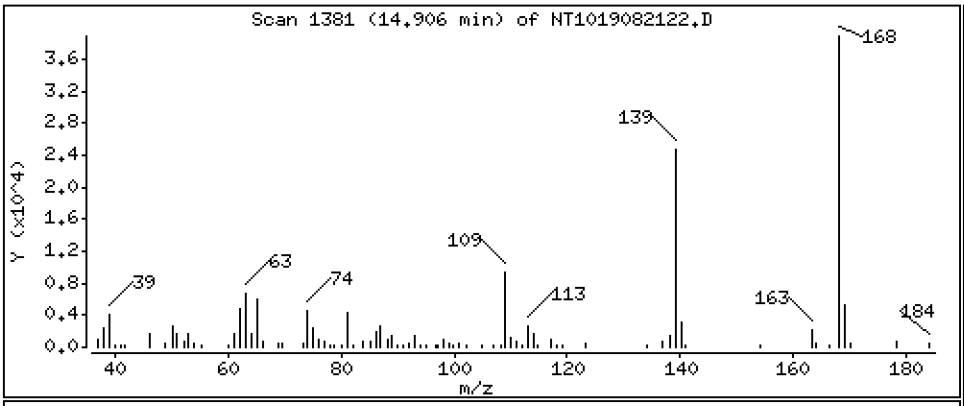
Operator: YZ

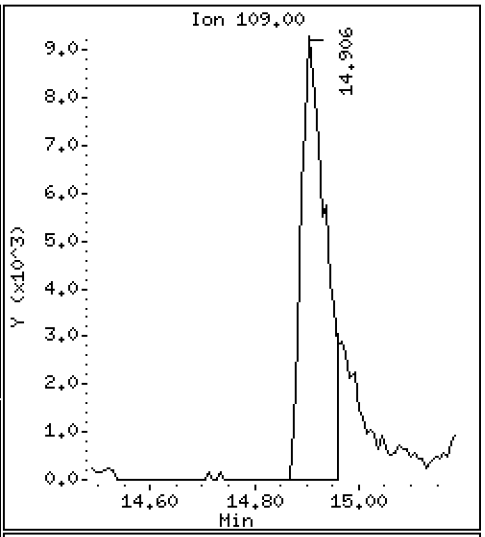
Column phase: ZB-5msi

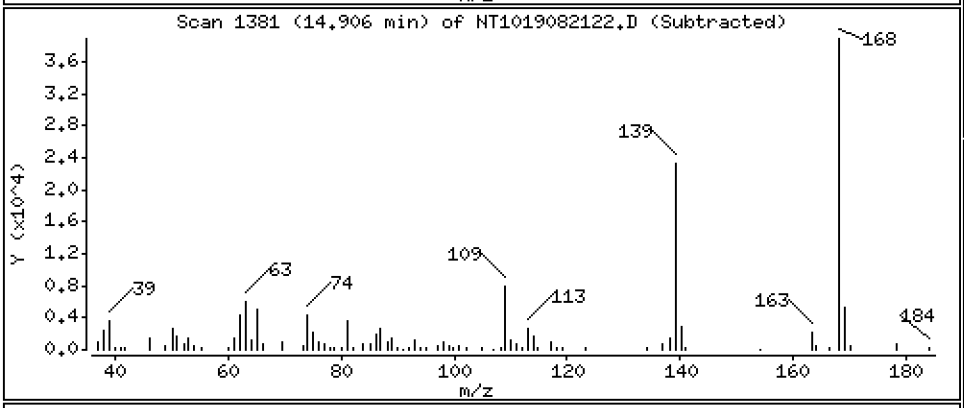
Column diameter: 0.25

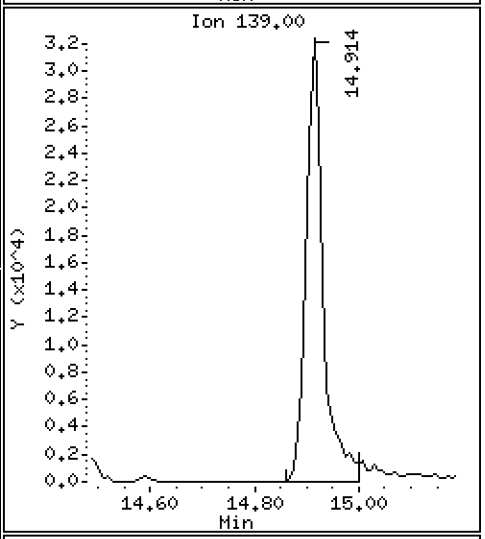
47 4-Nitrophenol

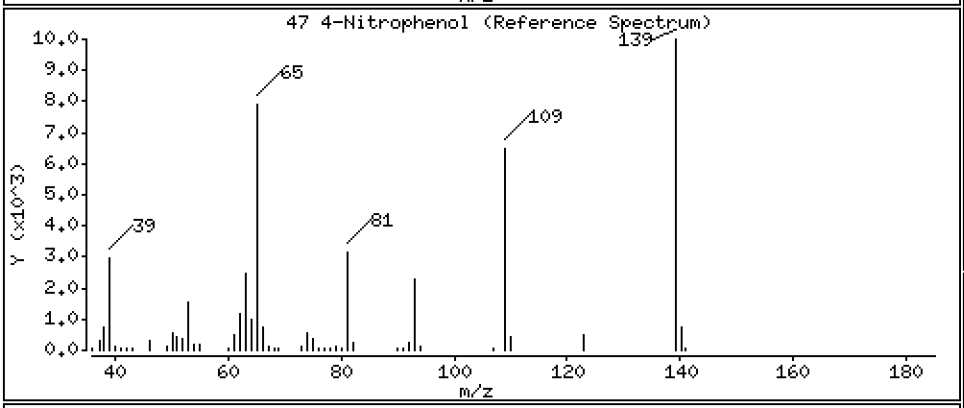
Concentration: 7.200 ug/mL

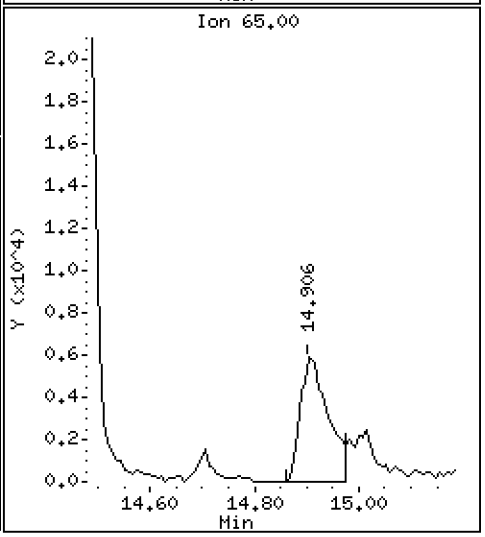


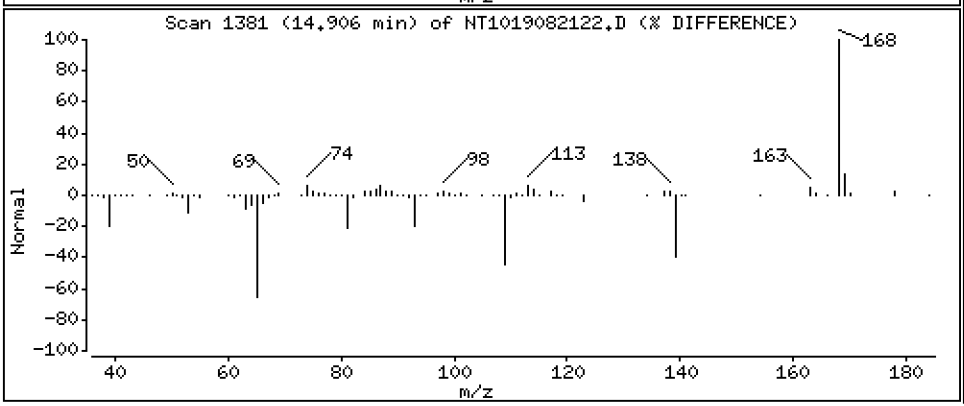












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

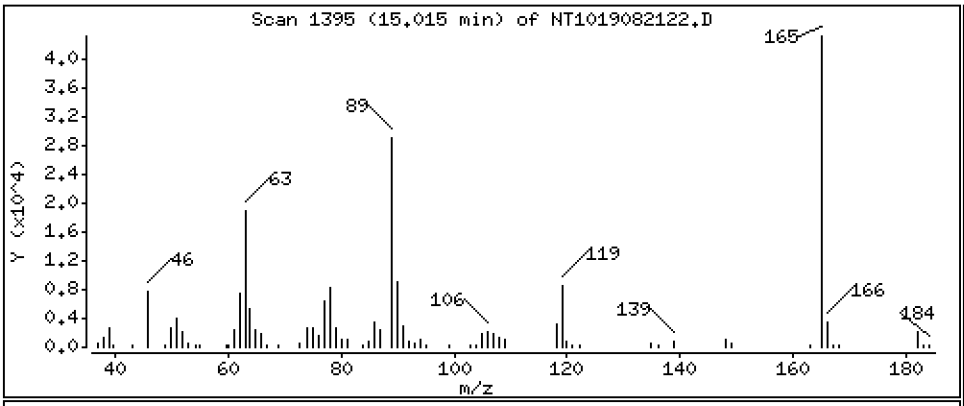
Operator: YZ

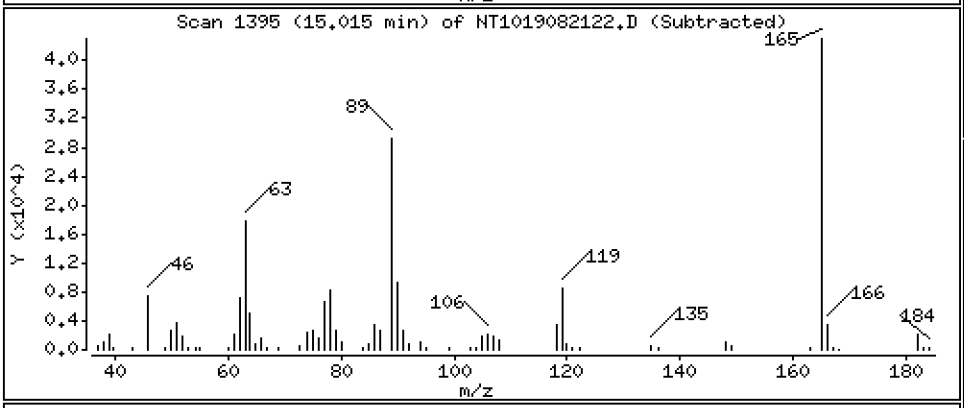
Column phase: ZB-5msi

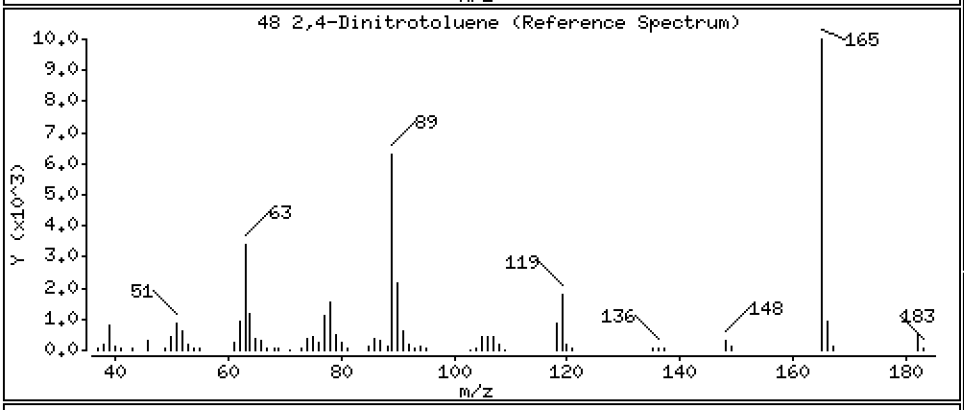
Column diameter: 0.25

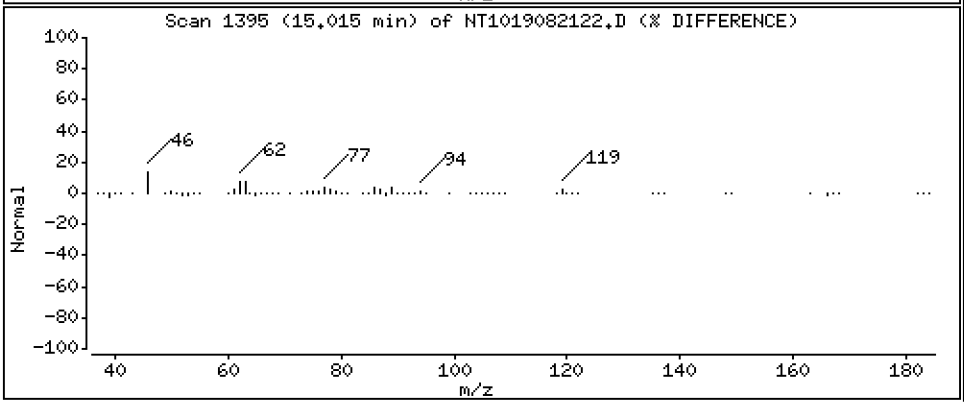
48 2,4-Dinitrotoluene

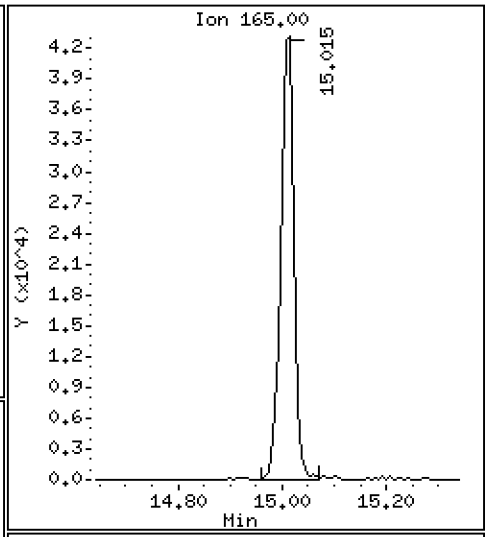
Concentration: 10.44 ug/mL

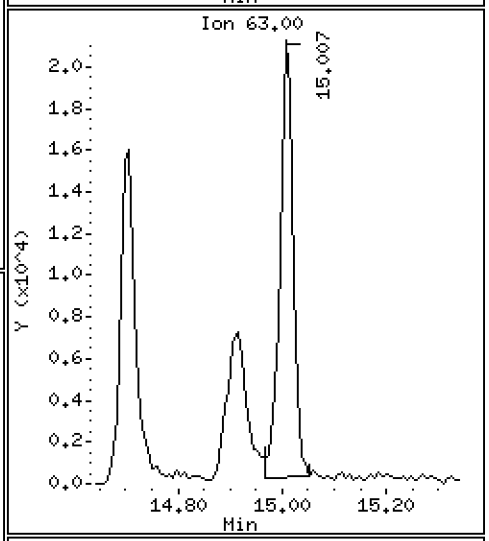


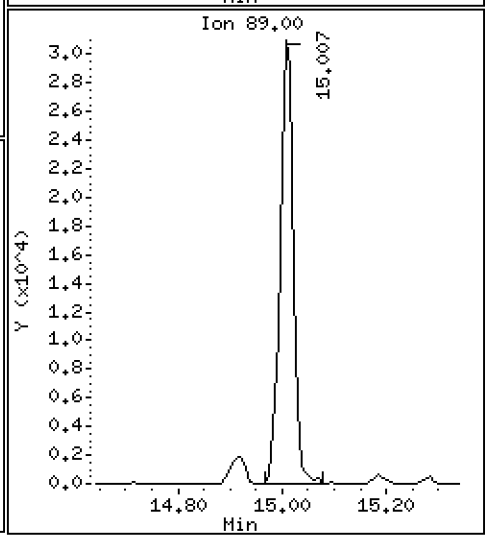












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

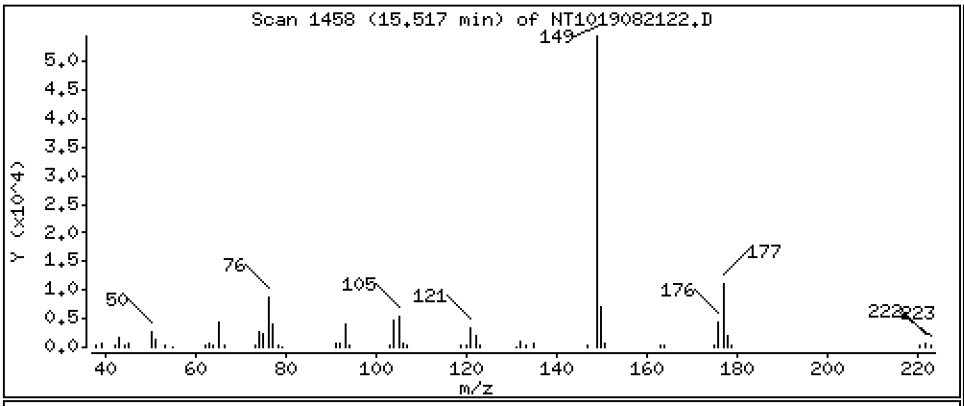
Operator: YZ

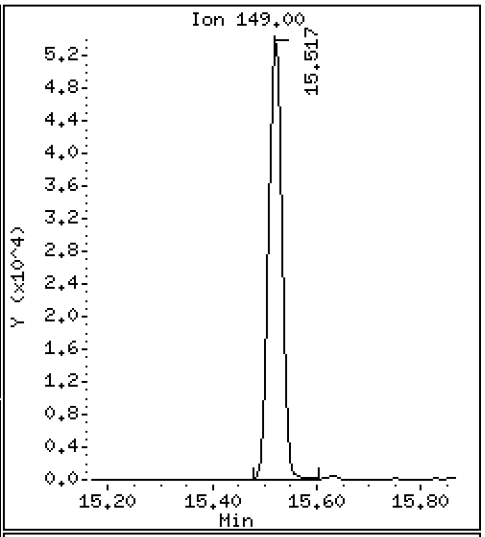
Column phase: ZB-5msi

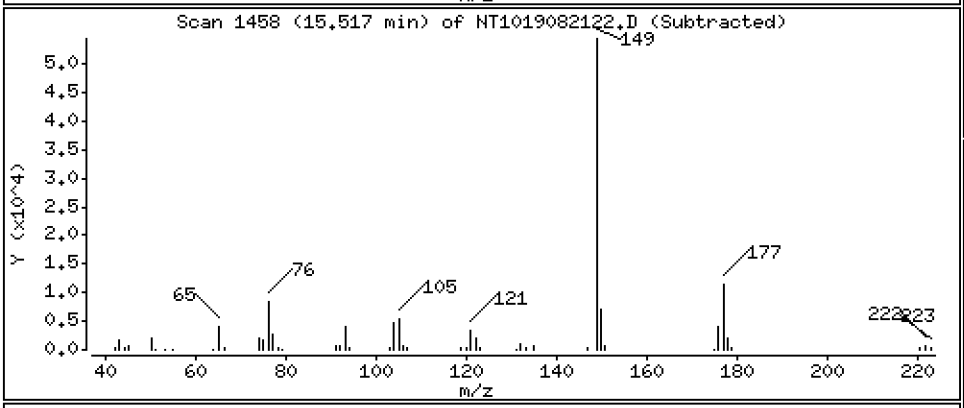
Column diameter: 0.25

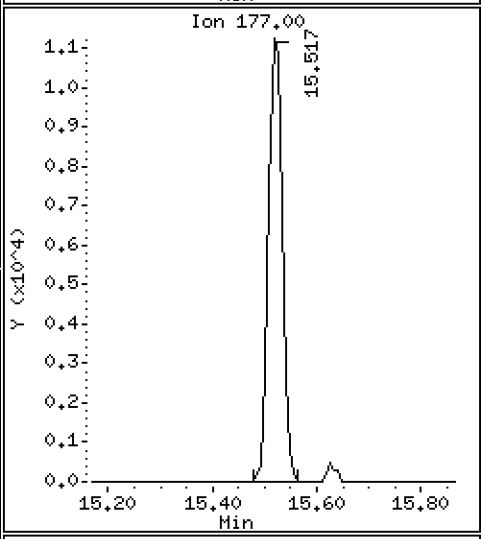
50 Diethylphthalate

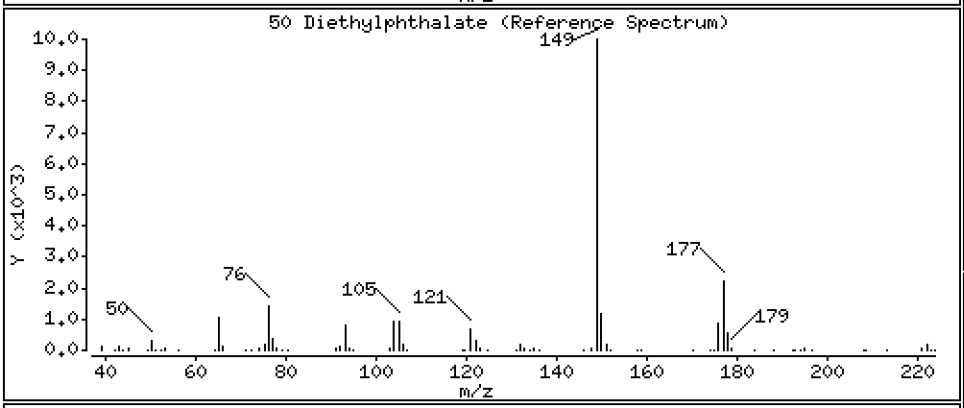
Concentration: 3.844 ug/mL

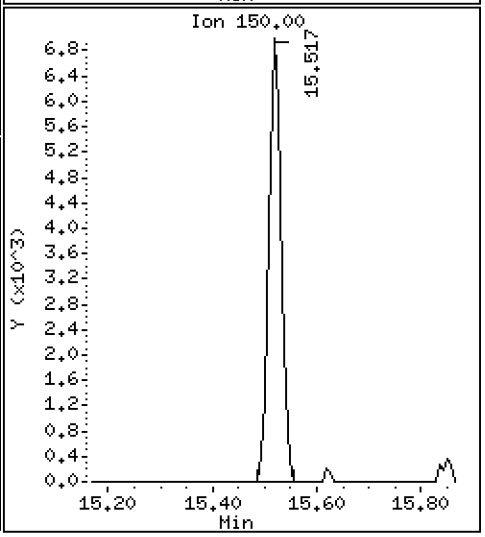


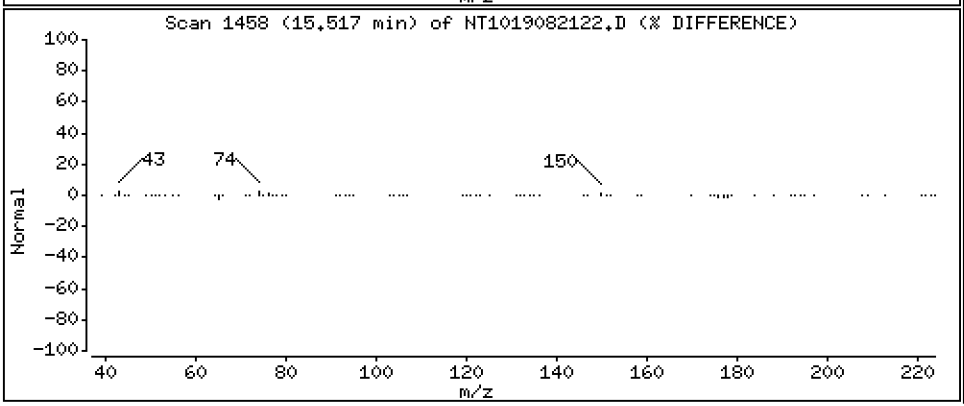












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

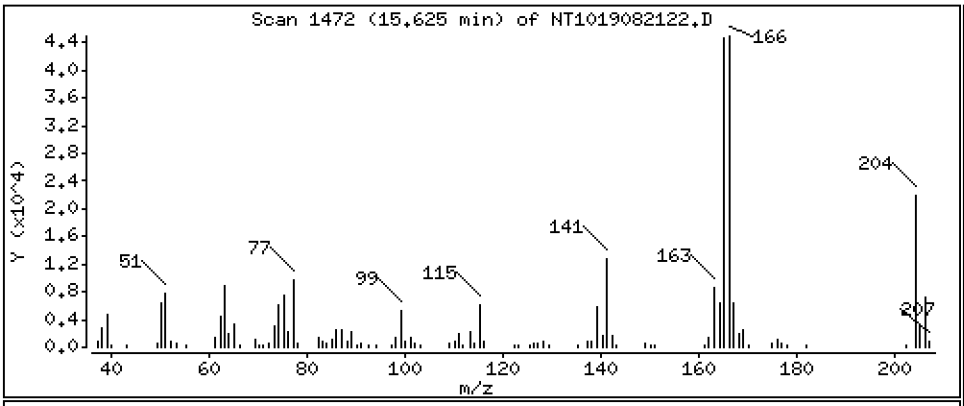
Operator: YZ

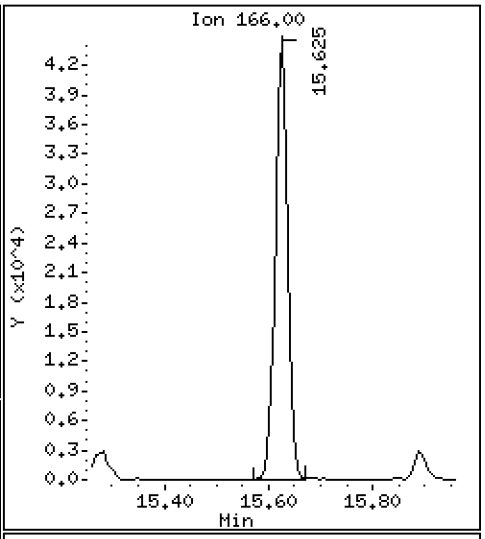
Column phase: ZB-5msi

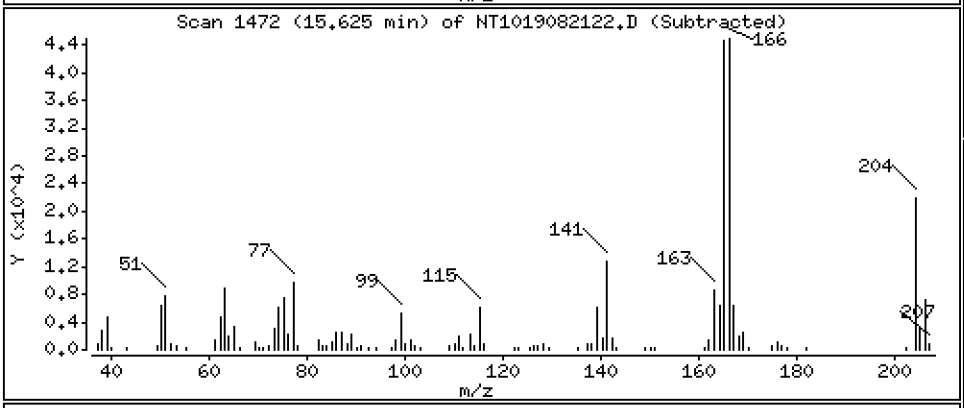
Column diameter: 0.25

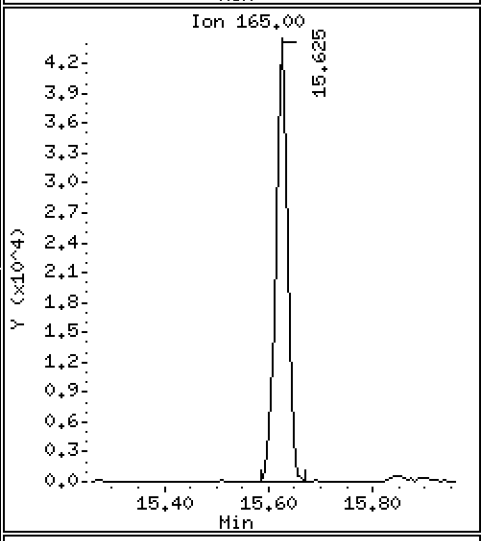
49 Fluorene

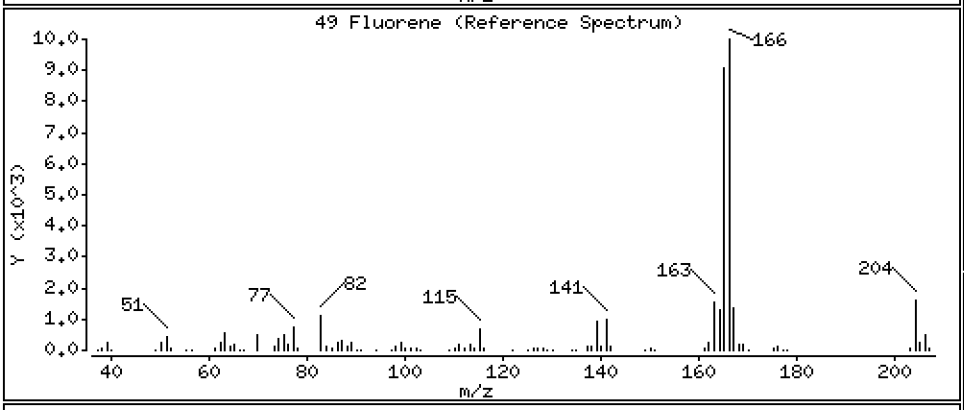
Concentration: 3.273 ug/mL

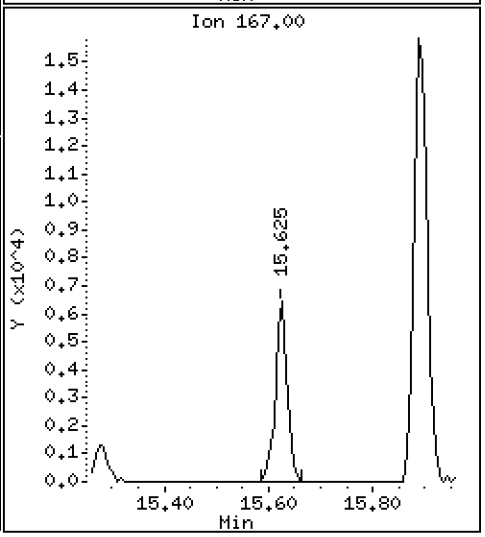


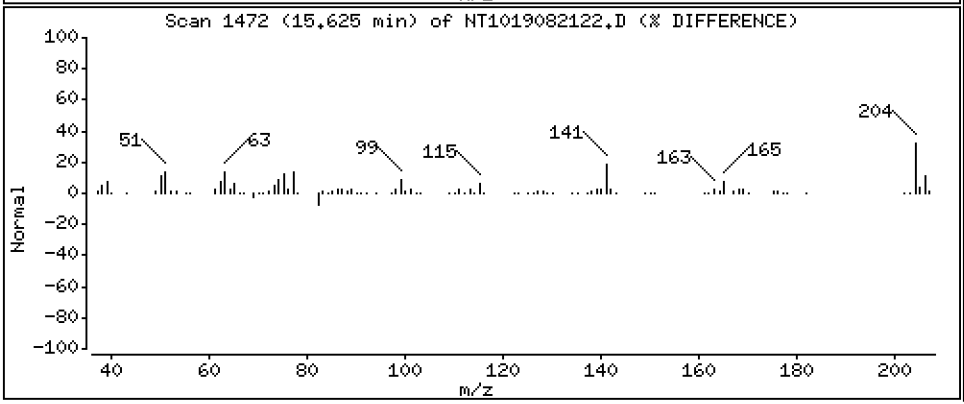












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

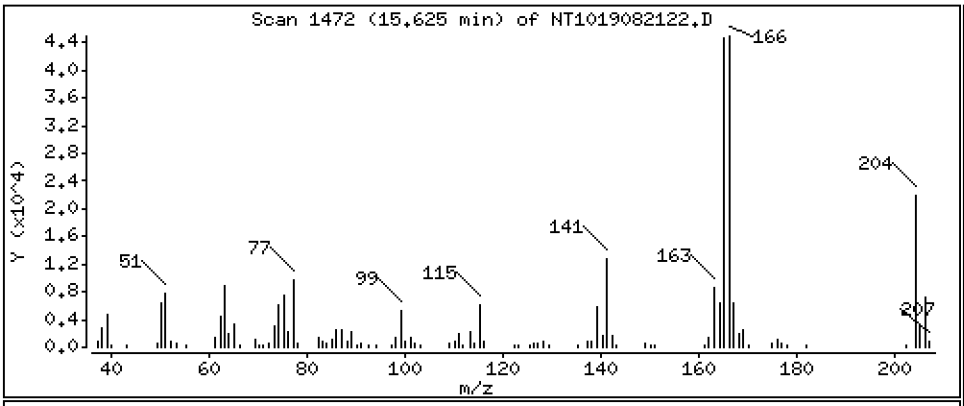
Operator: YZ

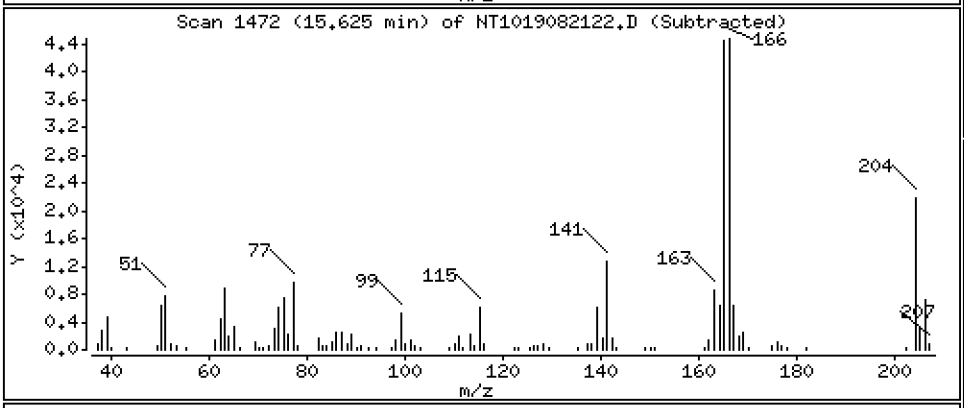
Column phase: ZB-5msi

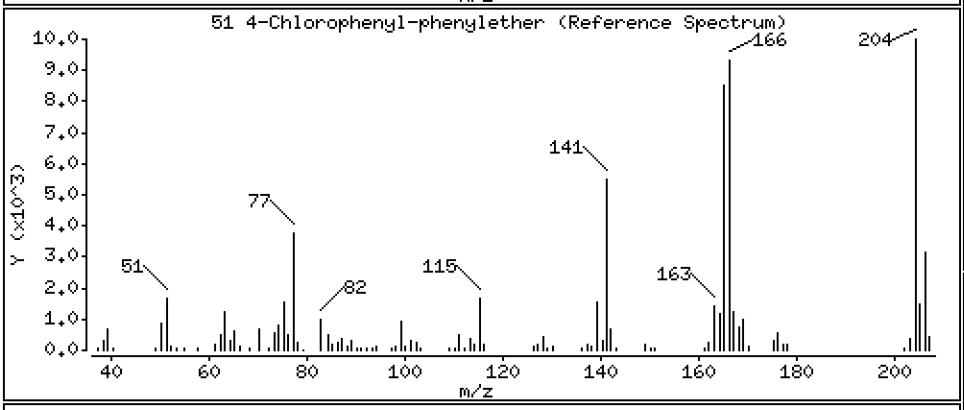
Column diameter: 0.25

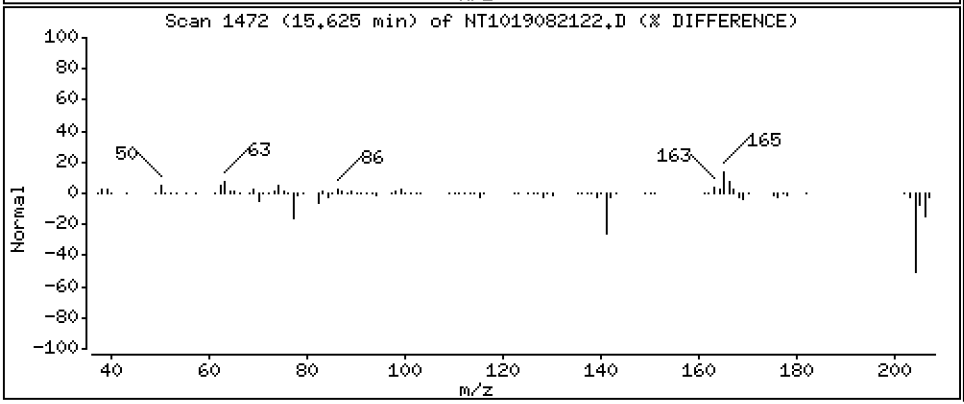
51 4-Chlorophenyl-phenylether

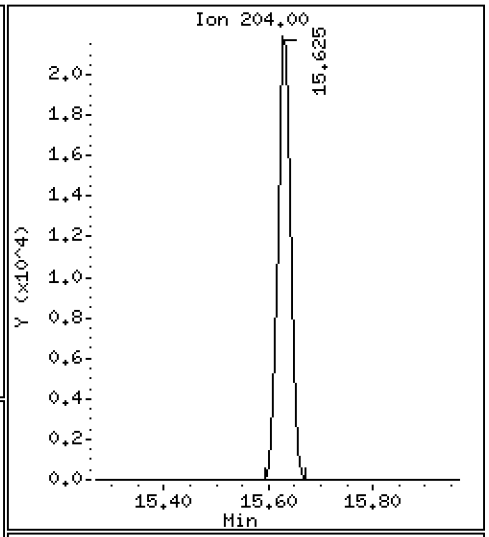
Concentration: 3.226 ug/mL

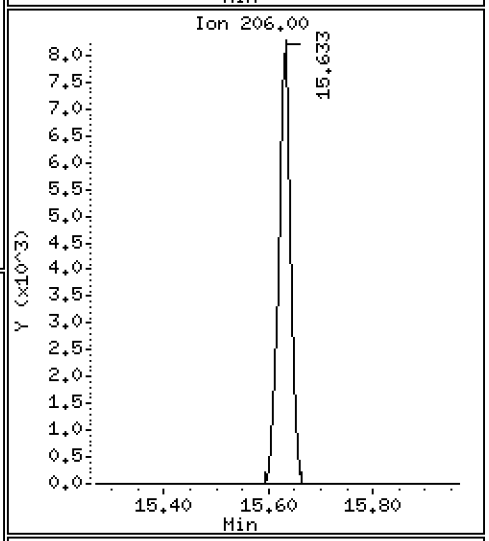


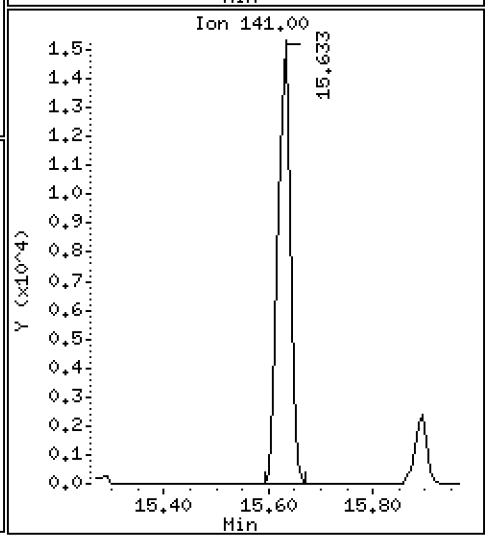












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

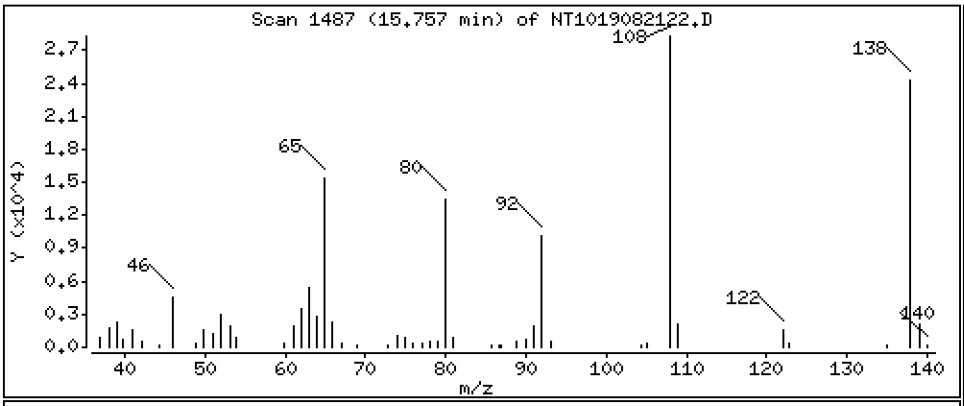
Operator: YZ

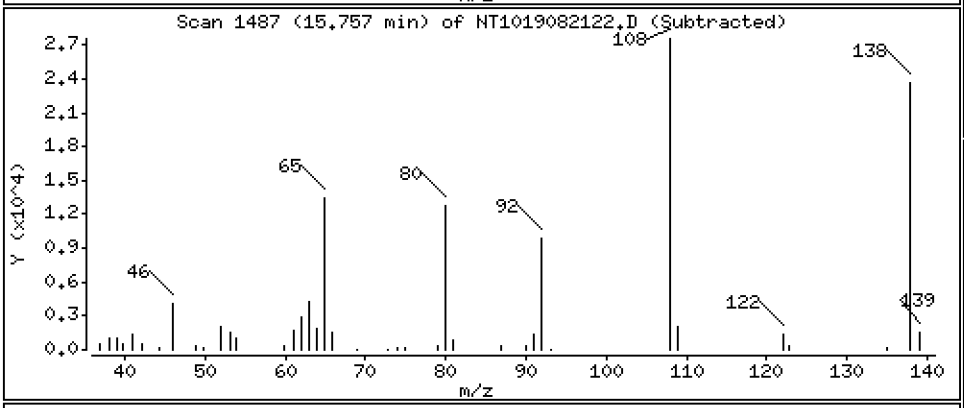
Column phase: ZB-5msi

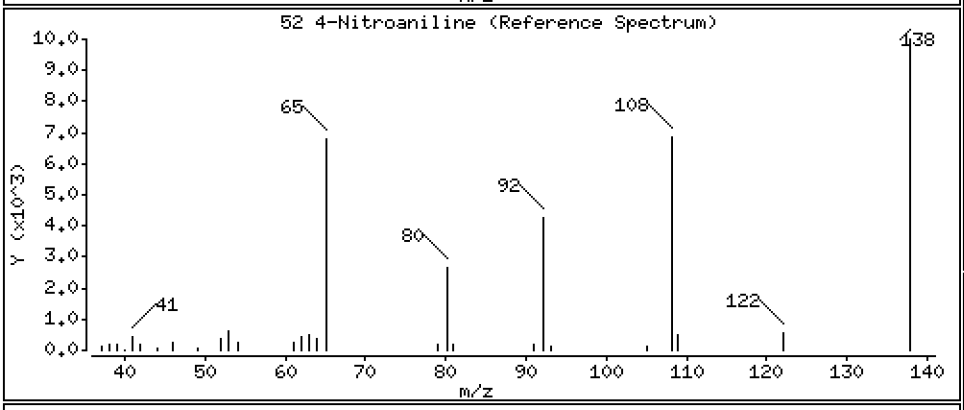
Column diameter: 0.25

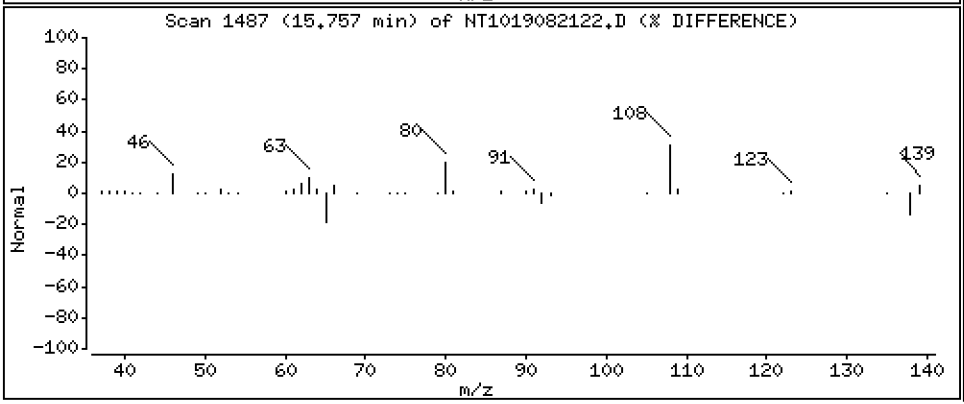
52 4-Nitroaniline

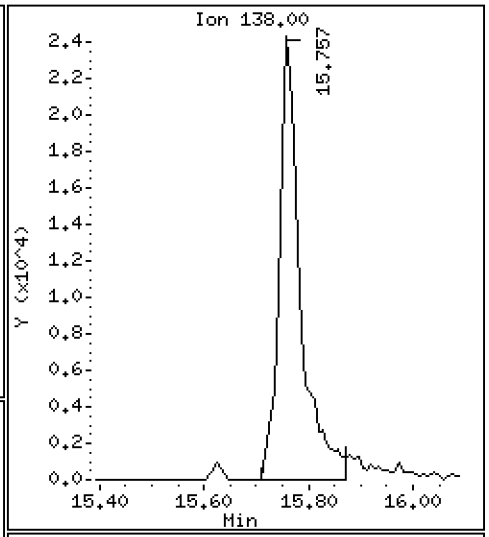
Concentration: 10.42 ug/mL

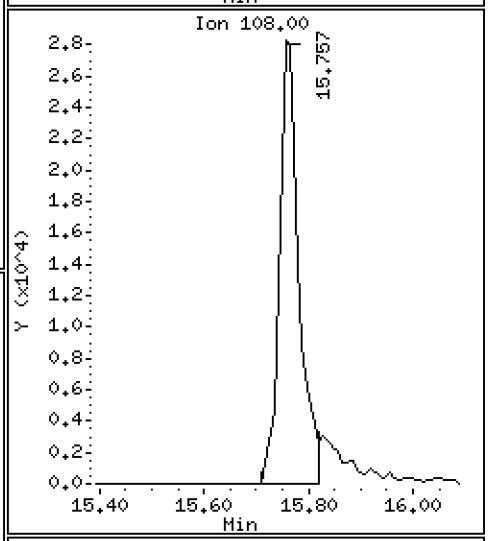


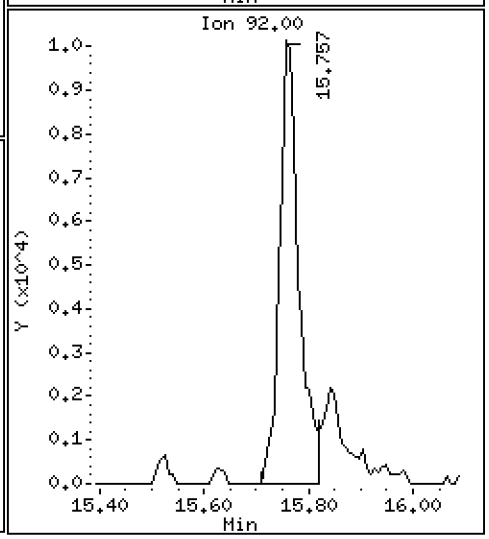












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

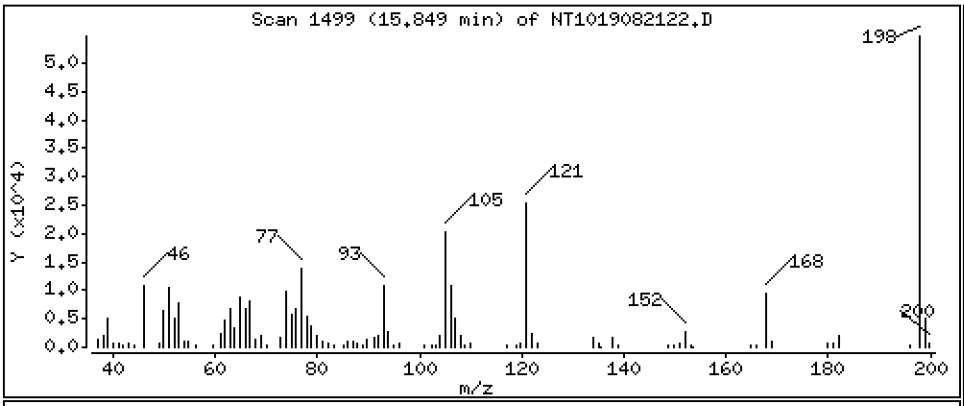
Operator: YZ

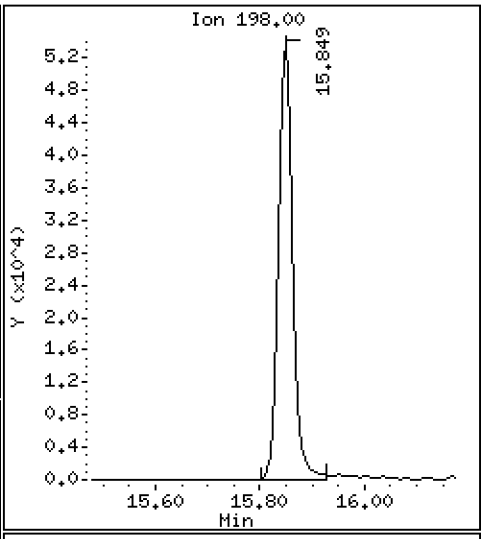
Column phase: ZB-5msi

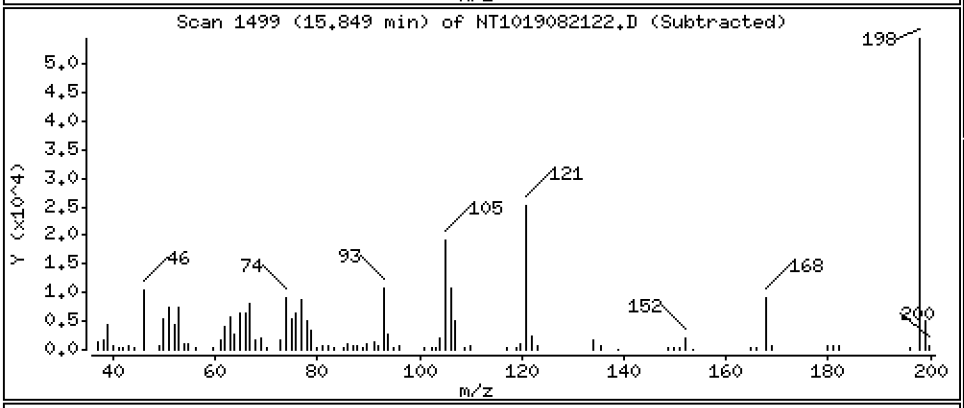
Column diameter: 0.25

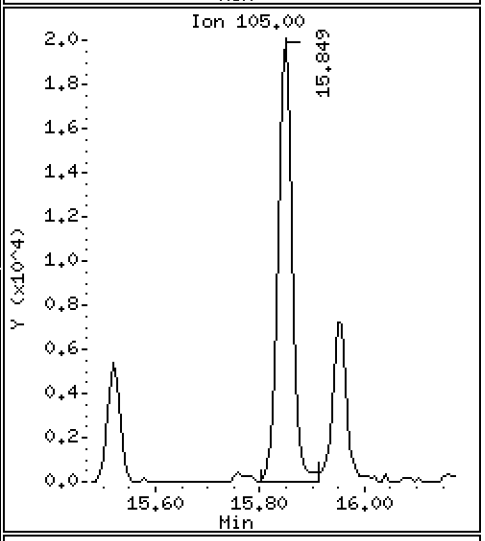
53 4,6-Dinitro-2-methylphenol

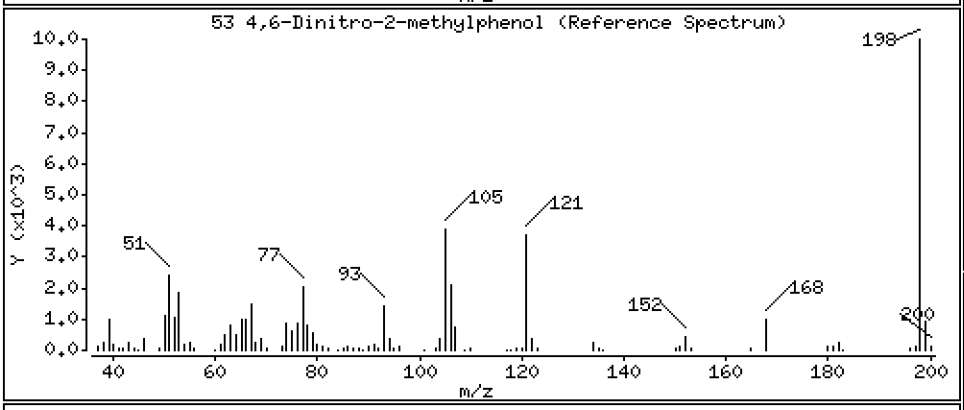
Concentration: 16.76 ug/mL

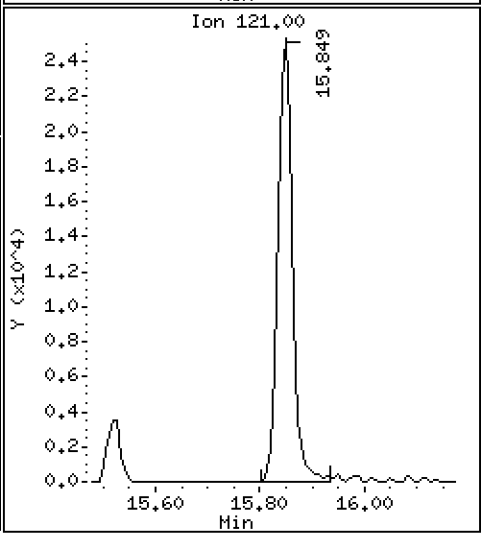


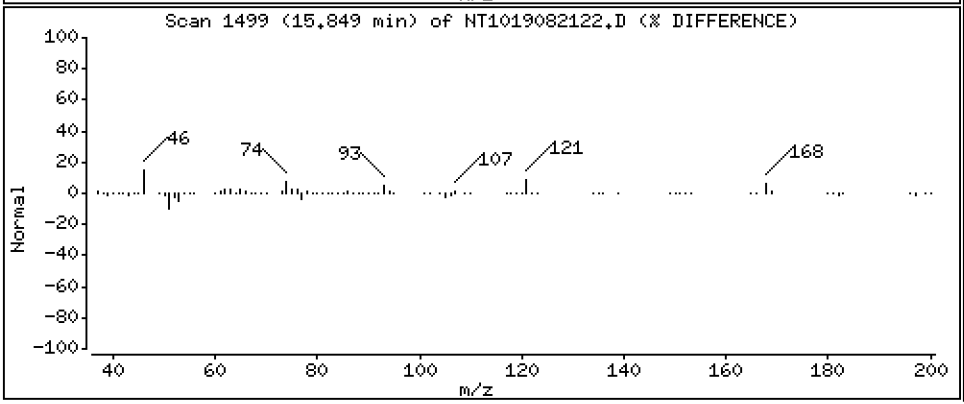












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

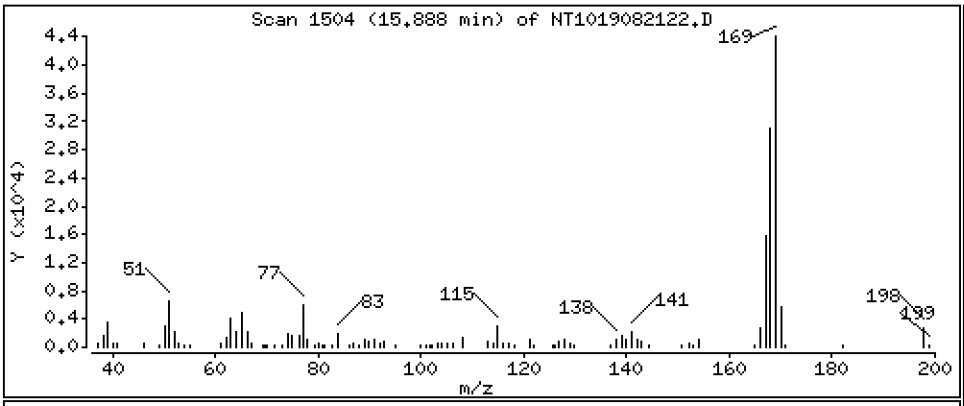
Operator: YZ

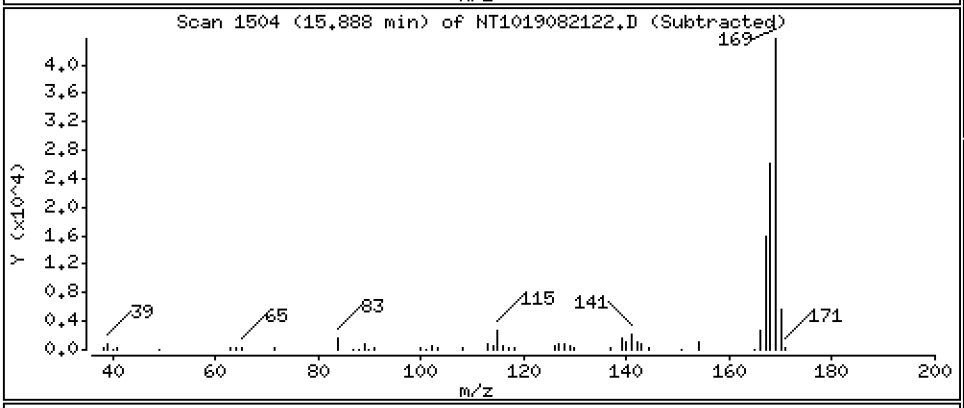
Column phase: ZB-5msi

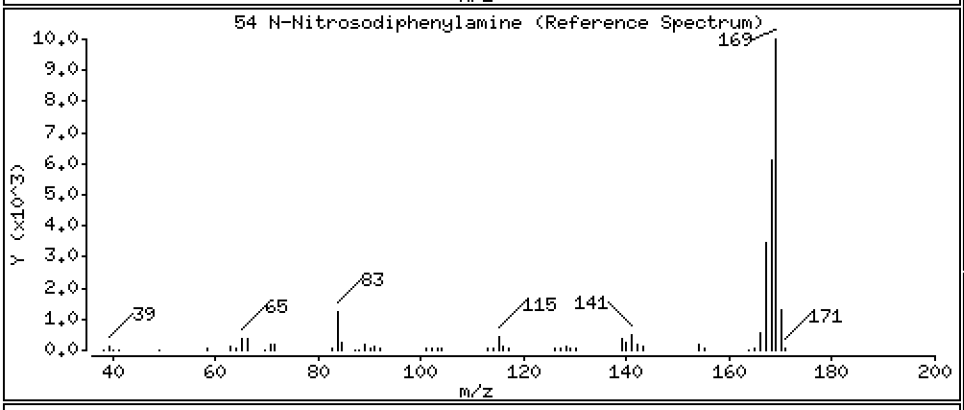
Column diameter: 0.25

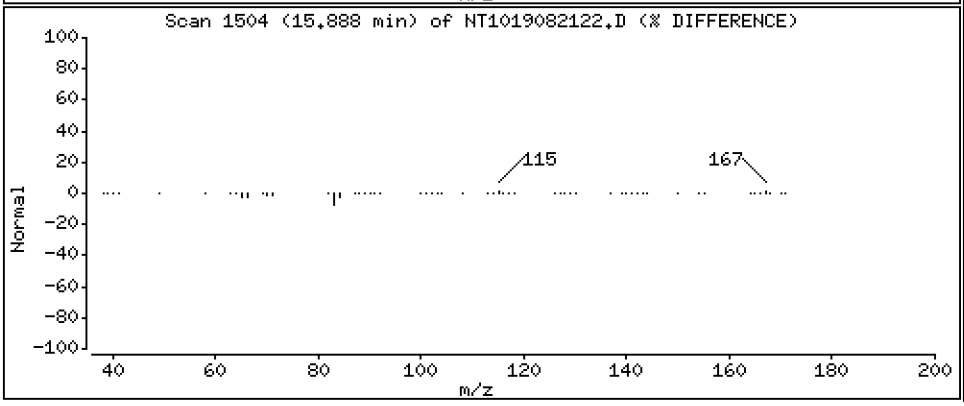
54 N-Nitrosodiphenylamine

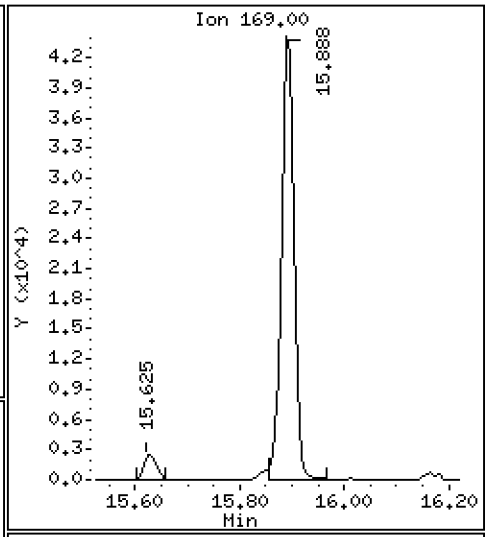
Concentration: 4.283 ug/mL

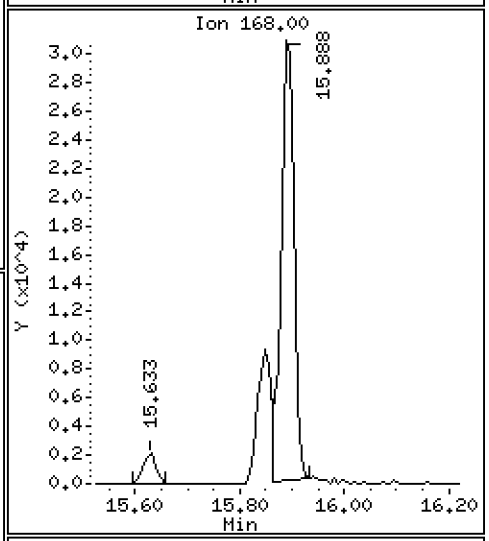


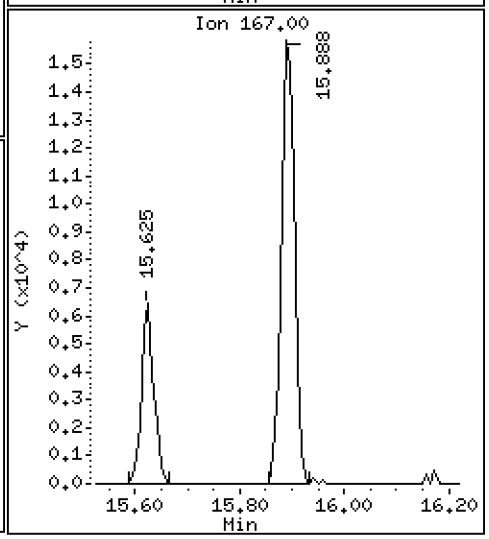












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

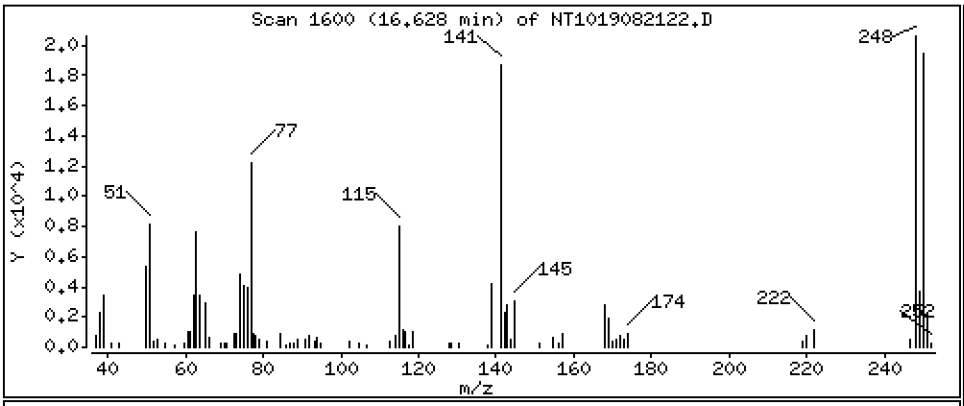
Operator: YZ

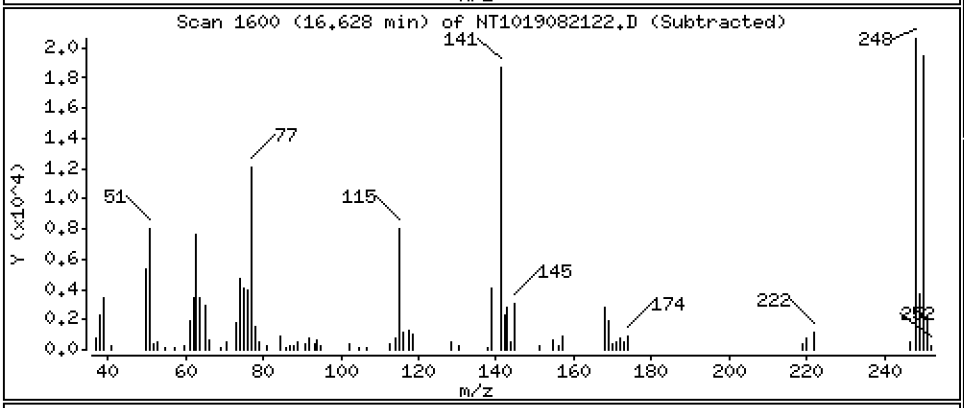
Column phase: ZB-5msi

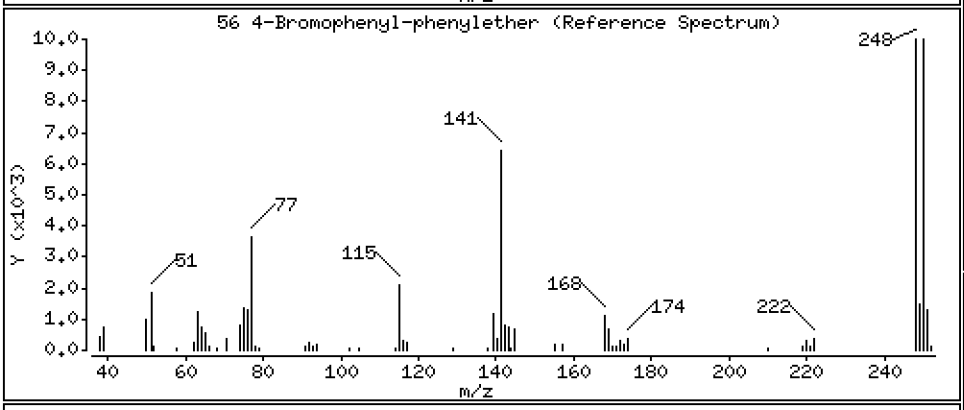
Column diameter: 0.25

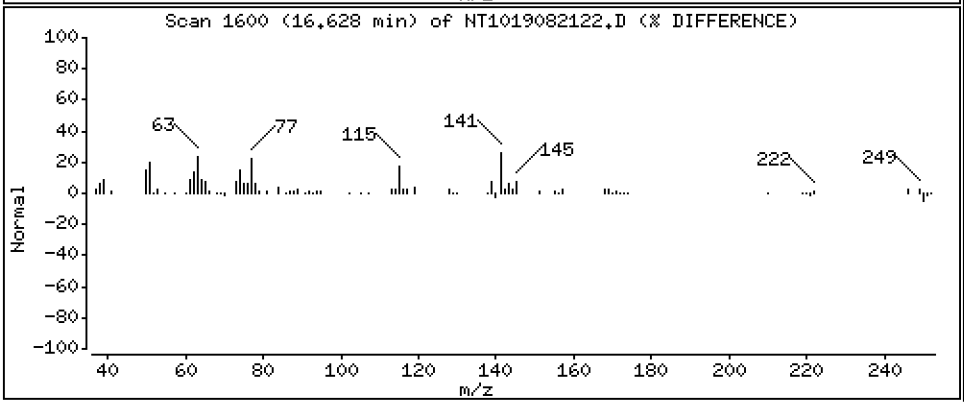
56 4-Bromophenyl-phenylether

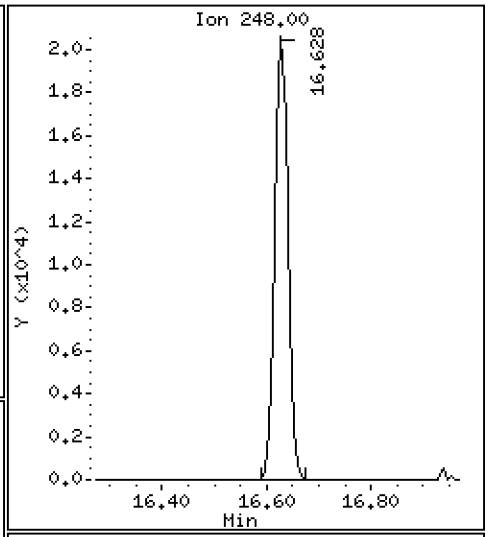
Concentration: 3.276 ug/mL

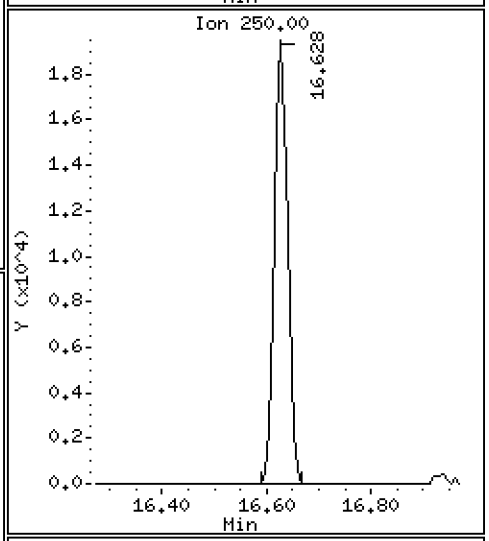


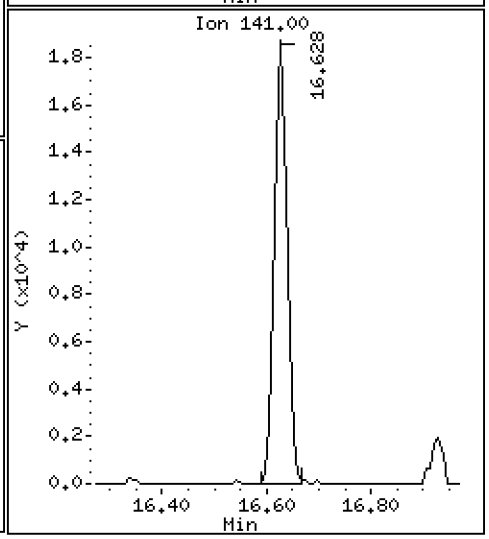












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

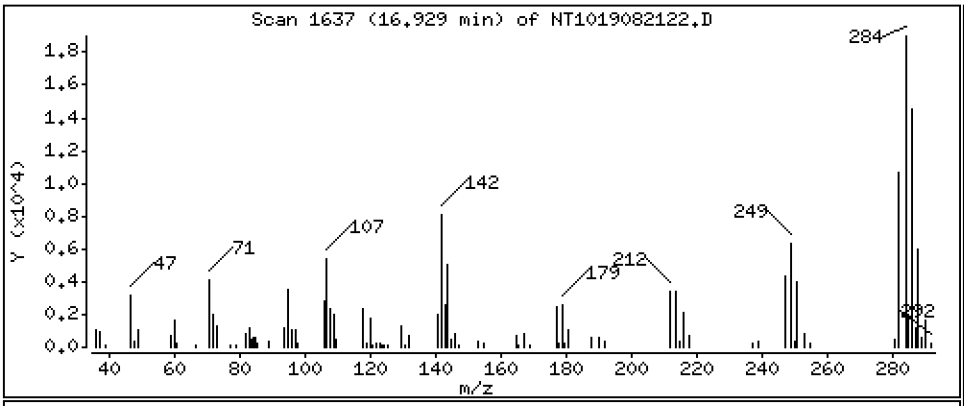
Operator: YZ

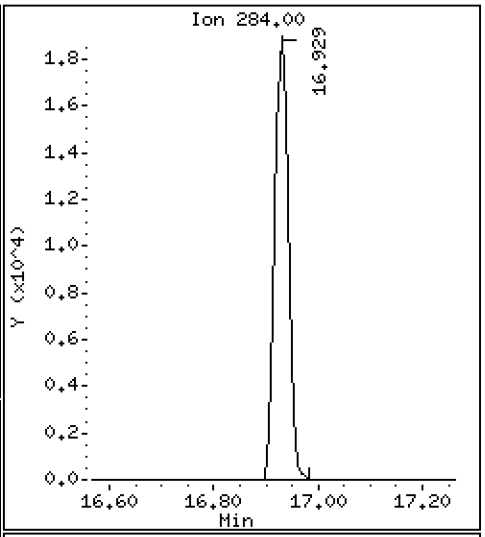
Column phase: ZB-5msi

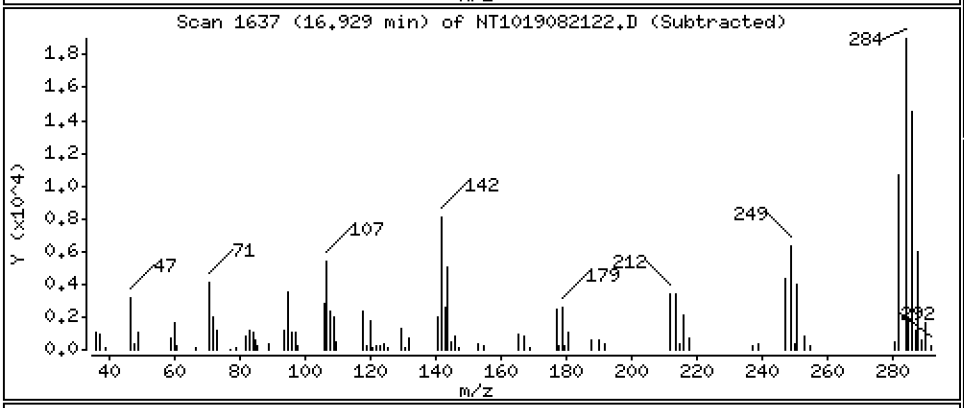
Column diameter: 0.25

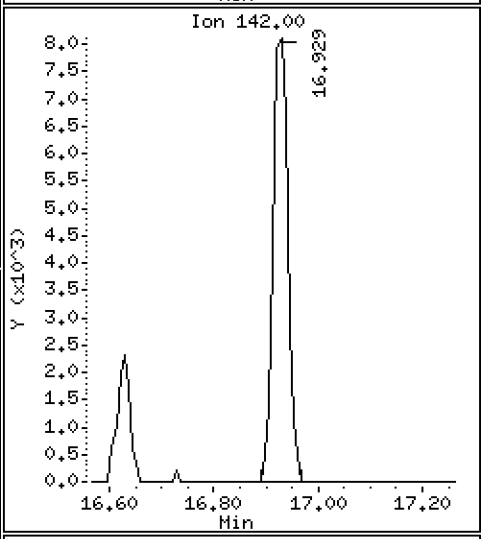
57 Hexachlorobenzene

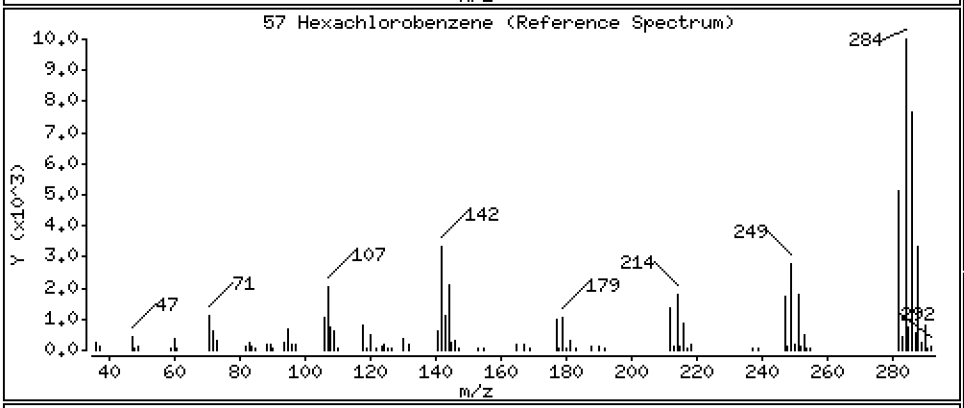
Concentration: 2.978 ug/mL

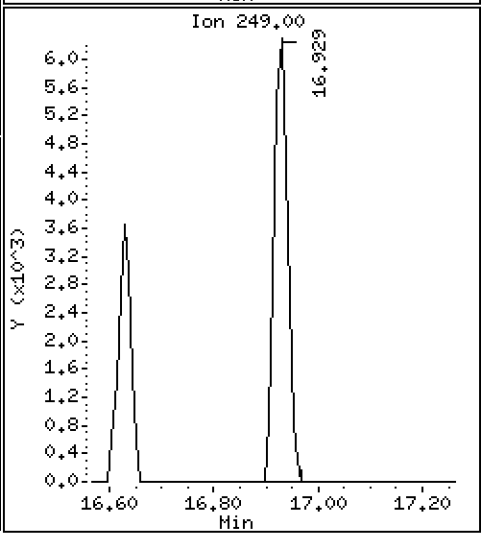


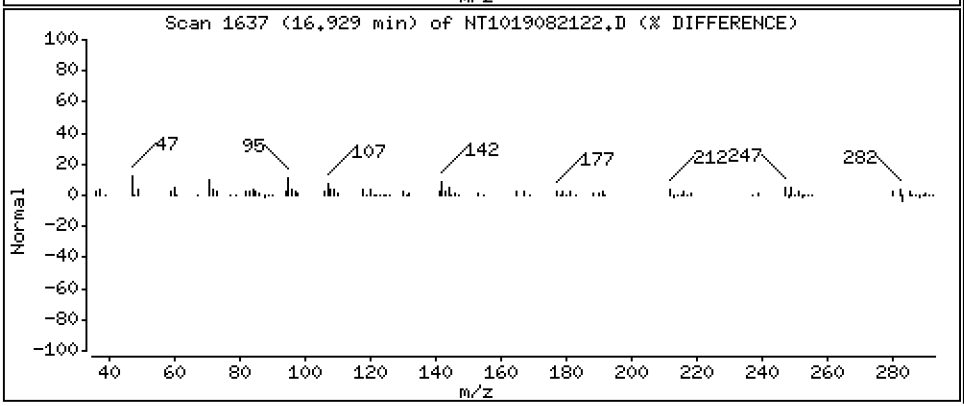












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

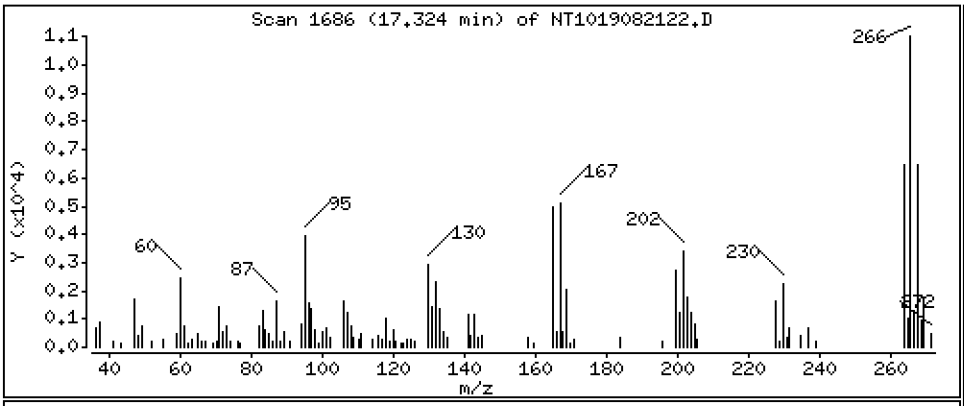
Operator: YZ

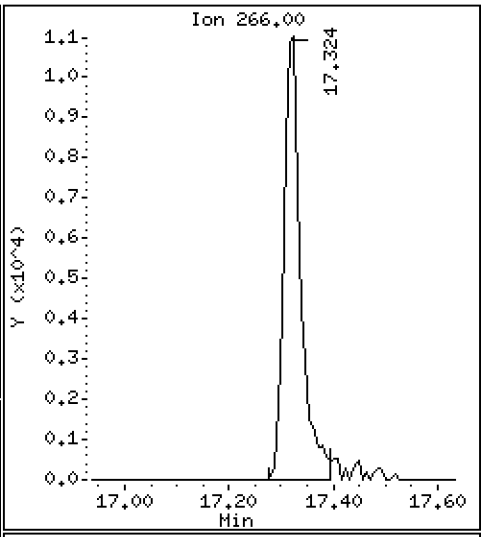
Column phase: ZB-5msi

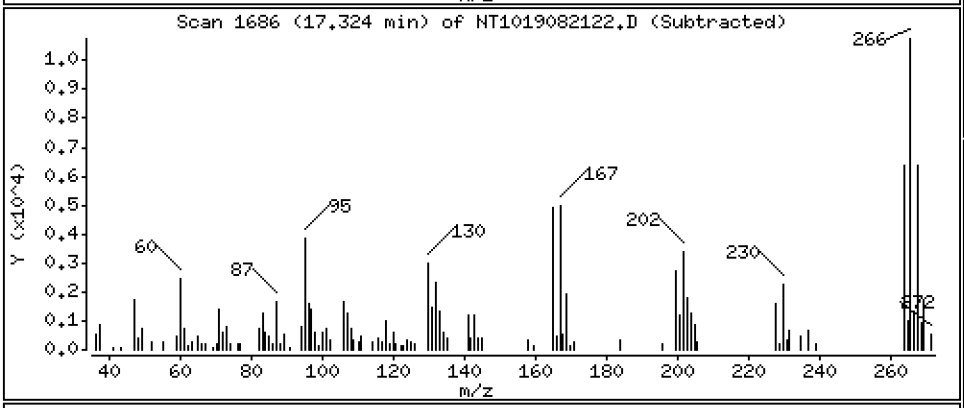
Column diameter: 0.25

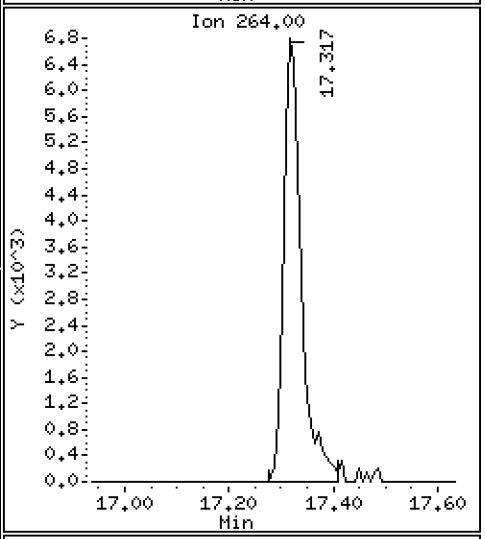
58 Pentachlorophenol

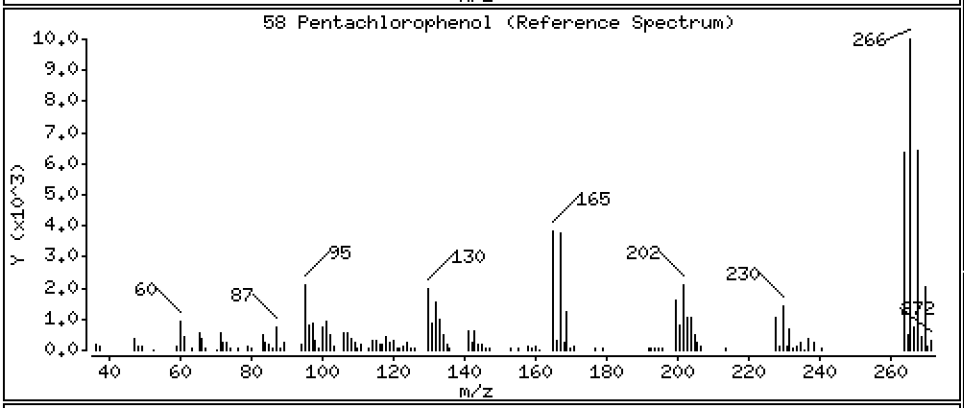
Concentration: 5.582 ug/mL

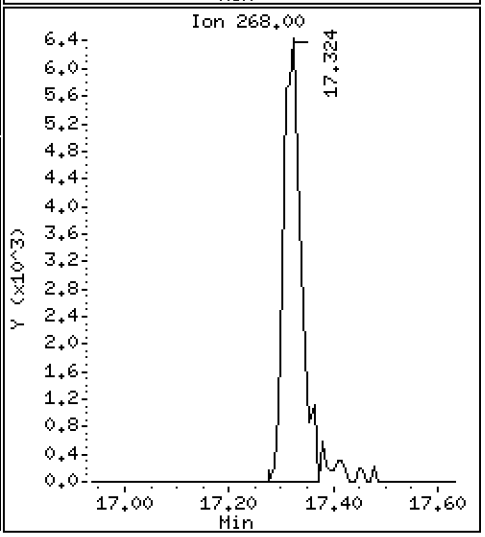


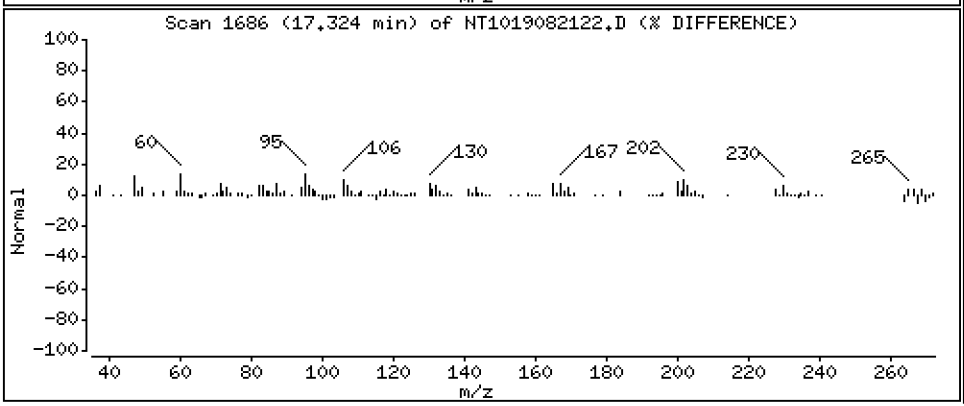












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

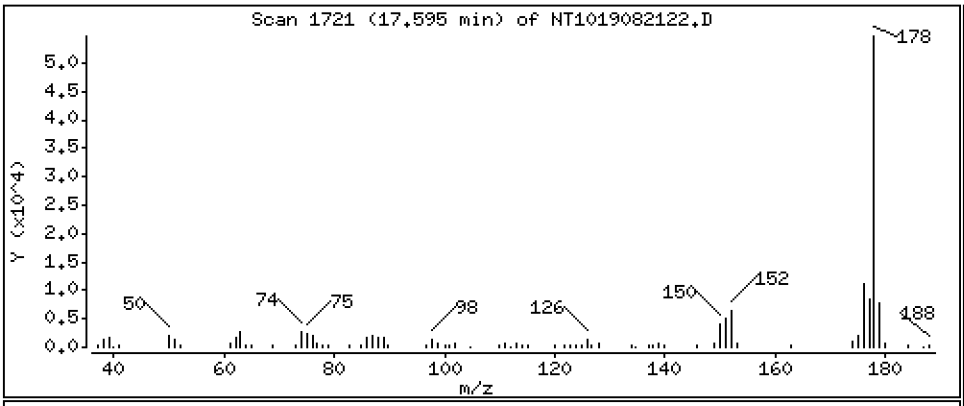
Operator: YZ

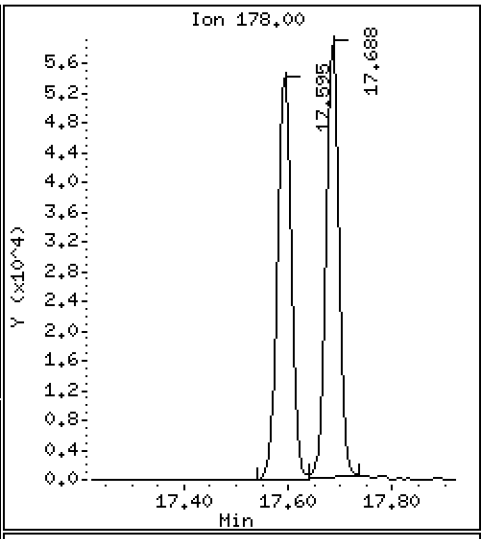
Column phase: ZB-5msi

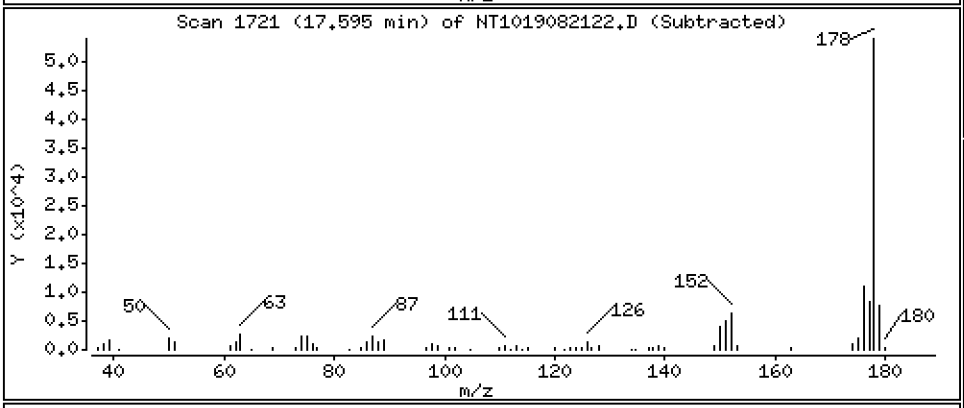
Column diameter: 0.25

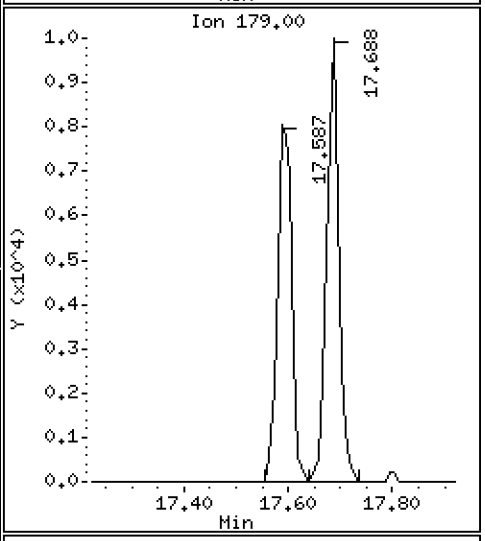
60 Phenanthrene

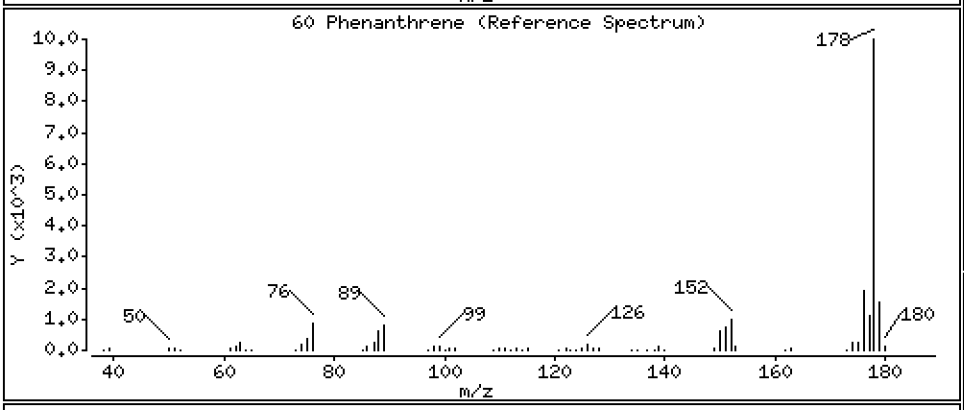
Concentration: 3.315 ug/mL

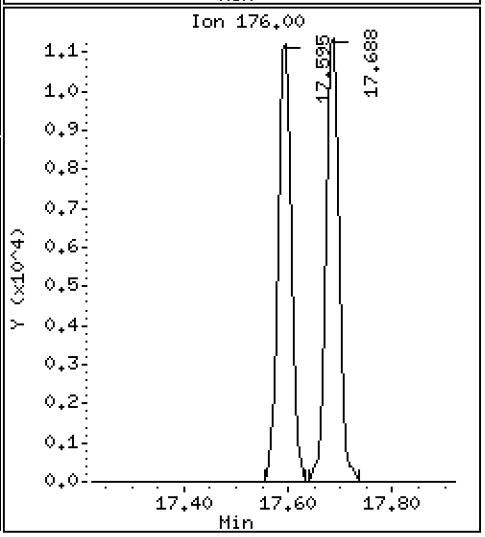


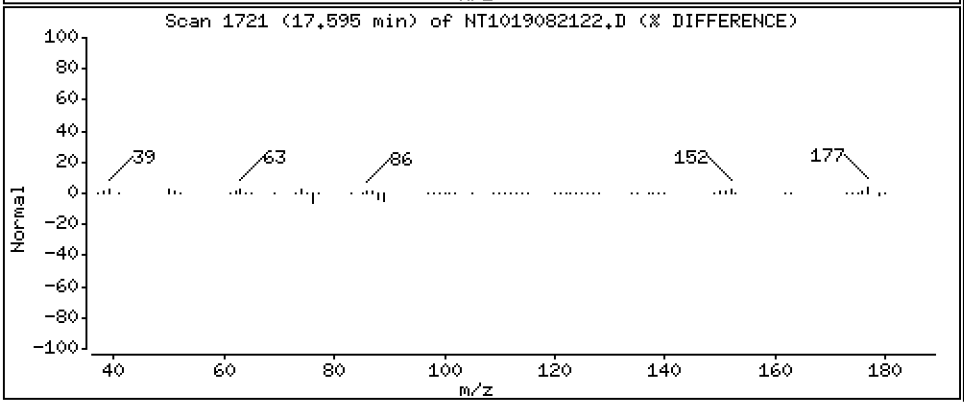












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

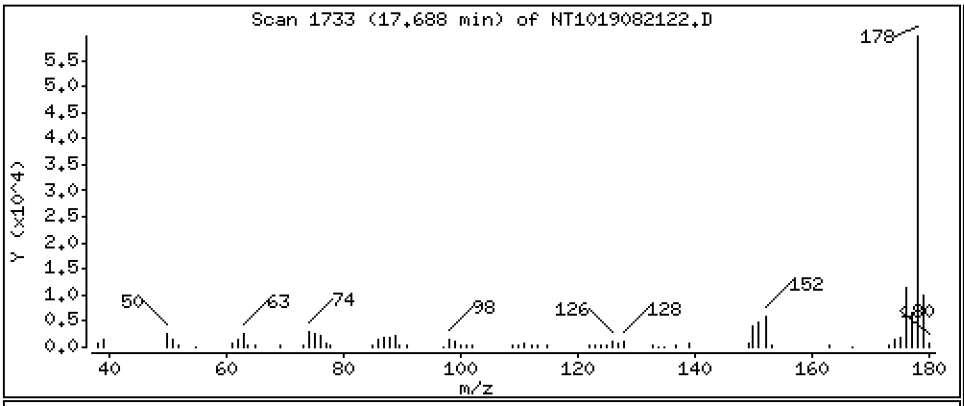
Operator: YZ

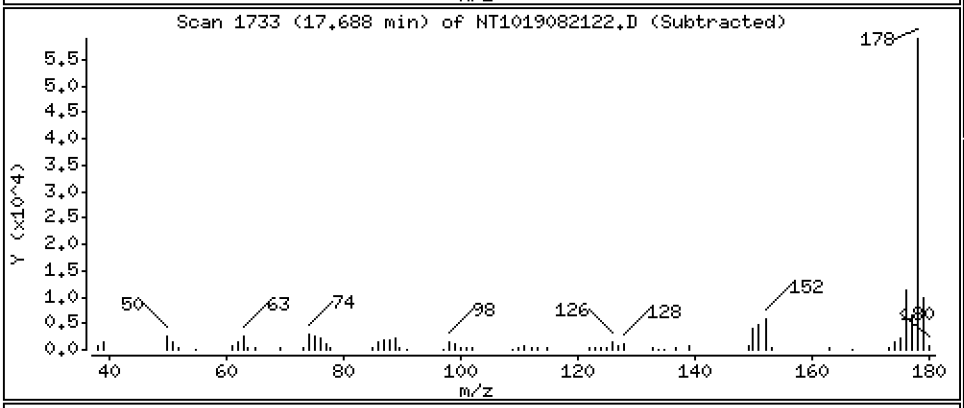
Column phase: ZB-5msi

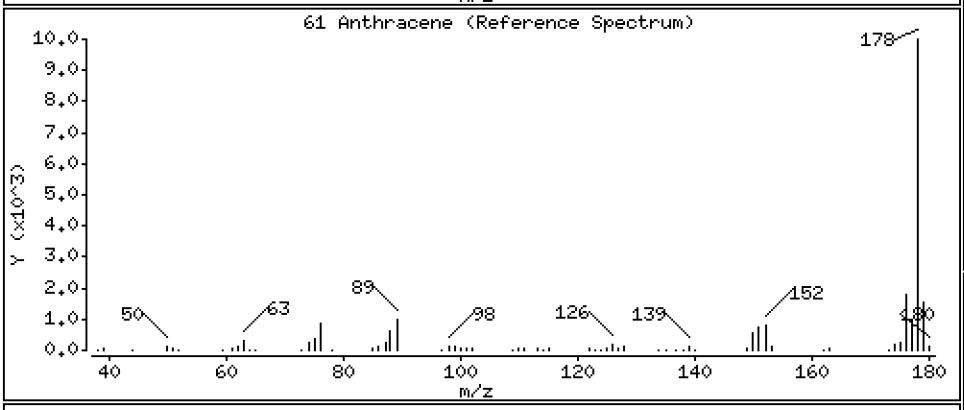
Column diameter: 0.25

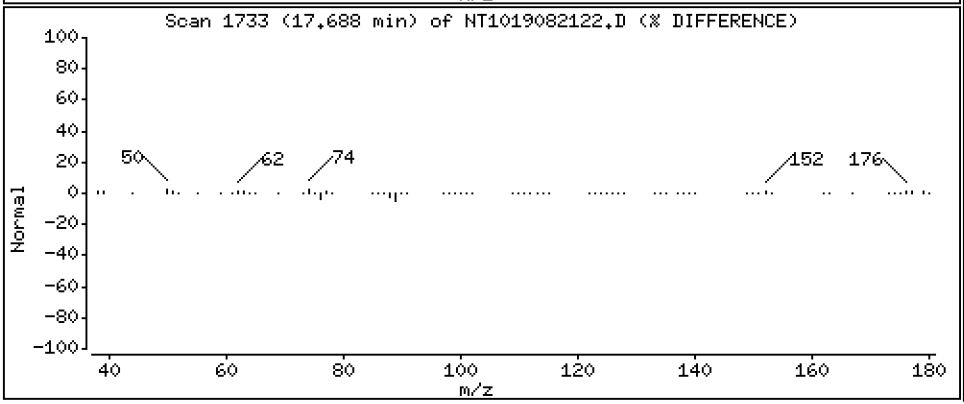
61 Anthracene

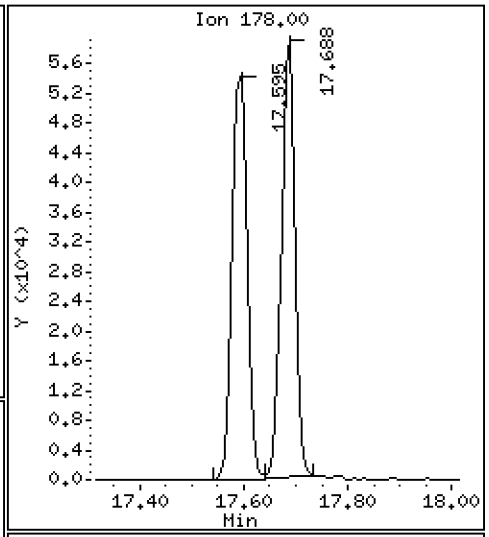
Concentration: 3.302 ug/mL

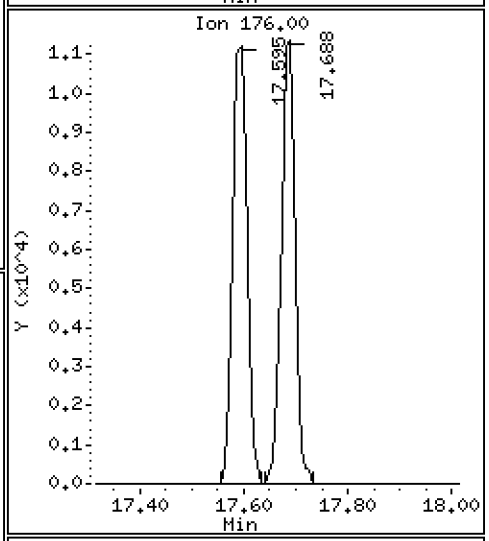


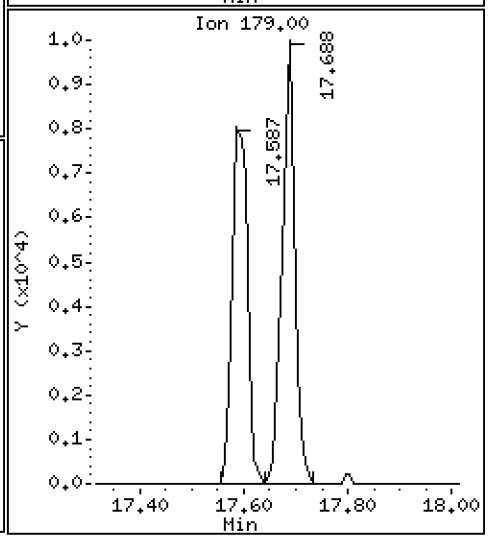












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

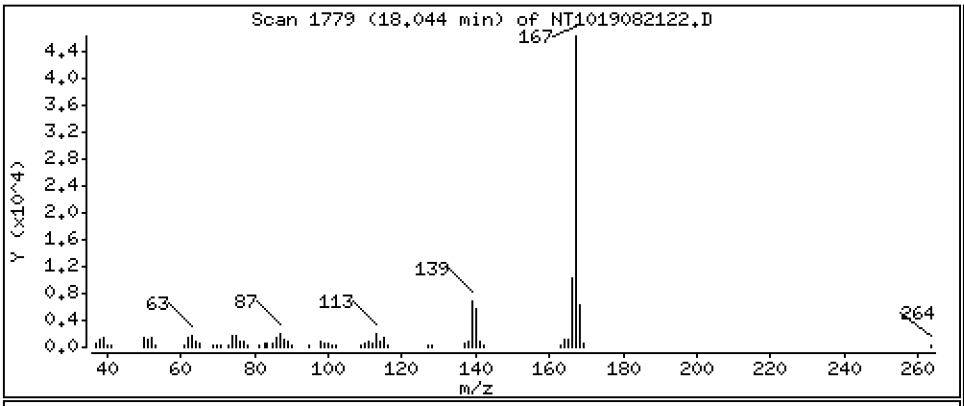
Operator: YZ

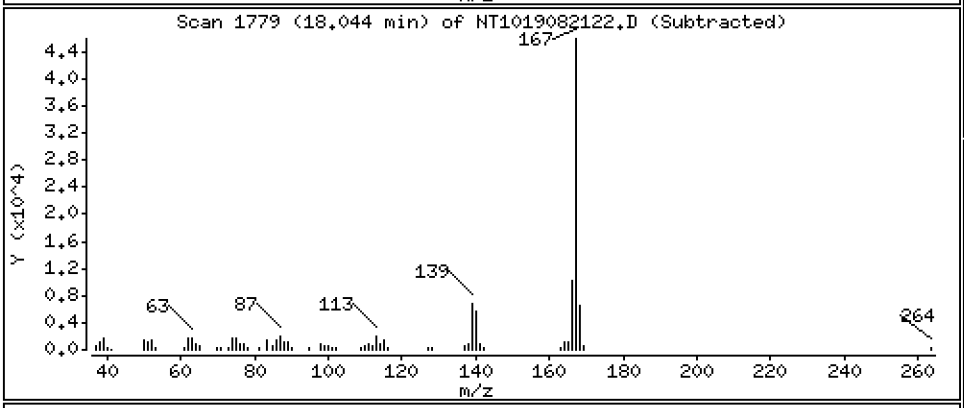
Column phase: ZB-5msi

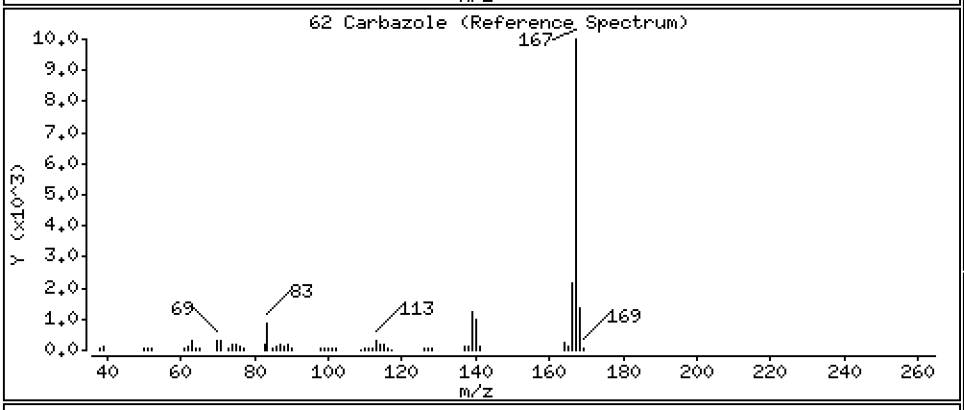
Column diameter: 0.25

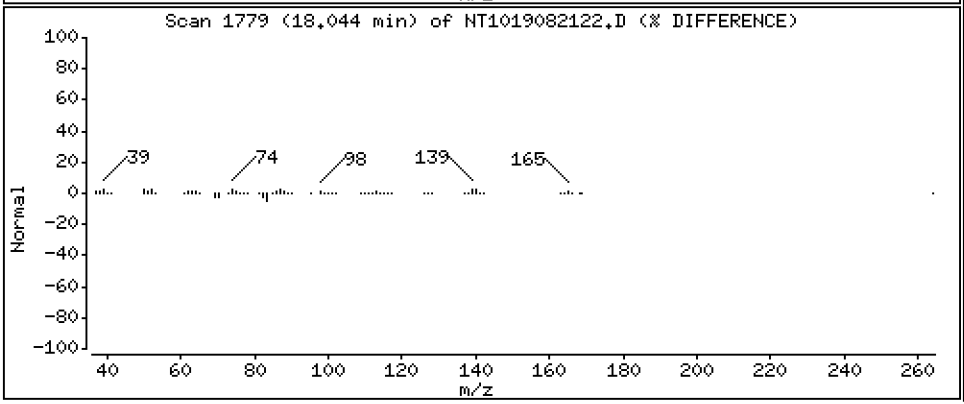
62 Carbazole

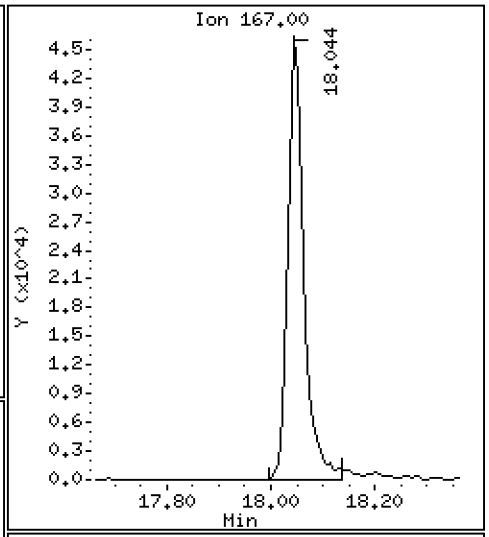
Concentration: 3.418 ug/mL

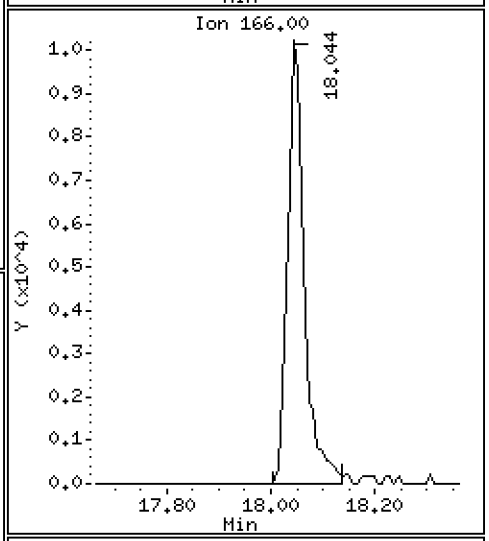


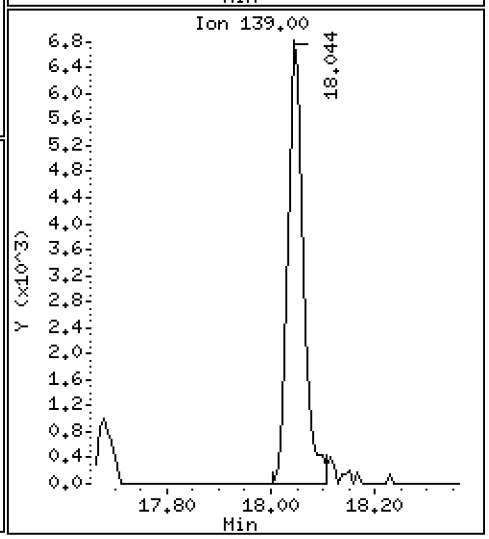












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

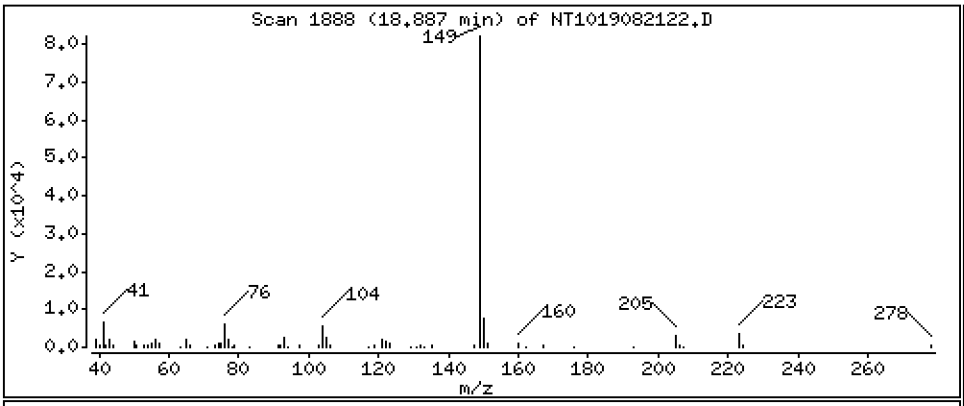
Operator: YZ

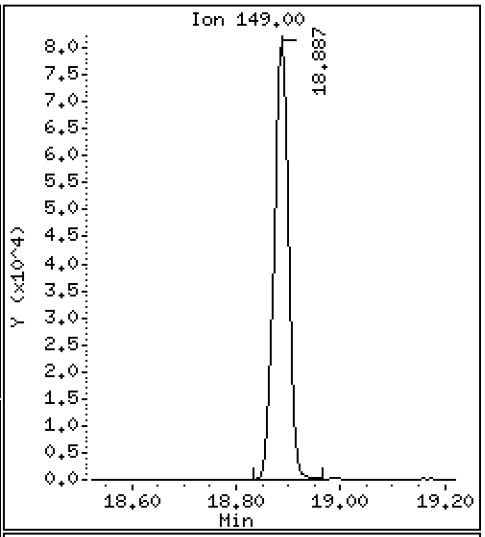
Column phase: ZB-5msi

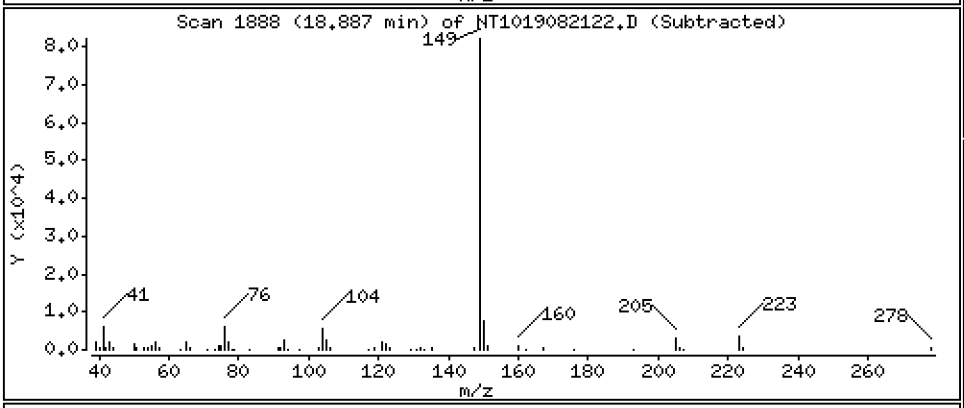
Column diameter: 0.25

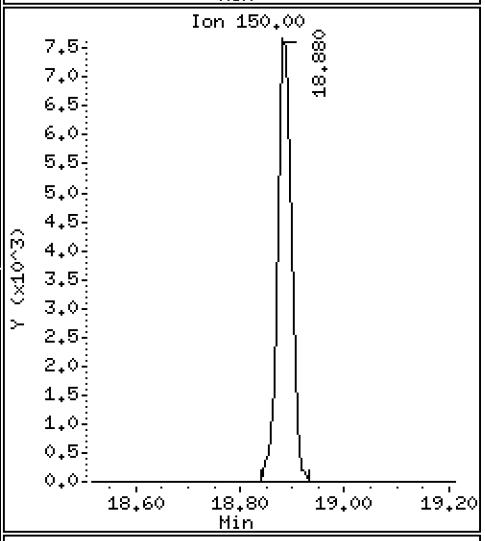
63 Di-n-butylphthalate

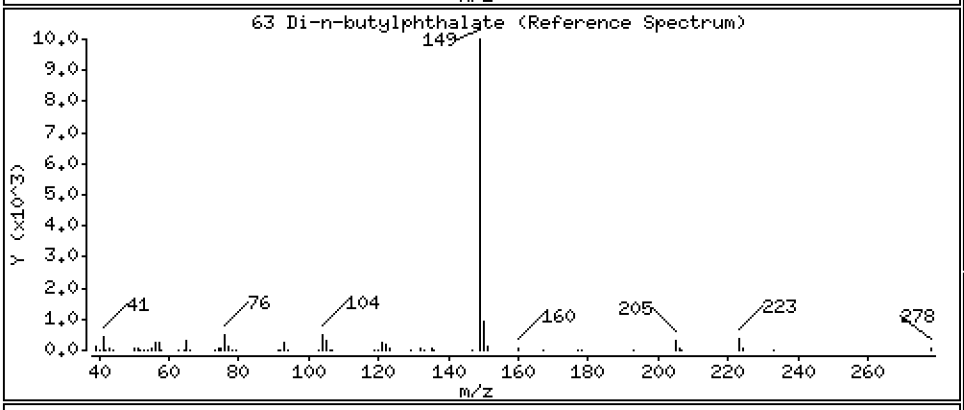
Concentration: 3.626 ug/mL

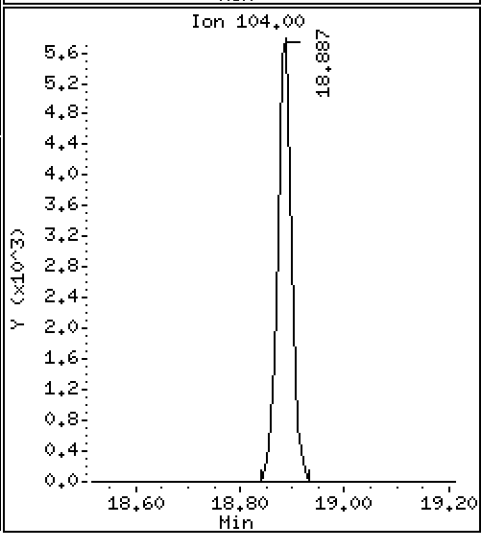


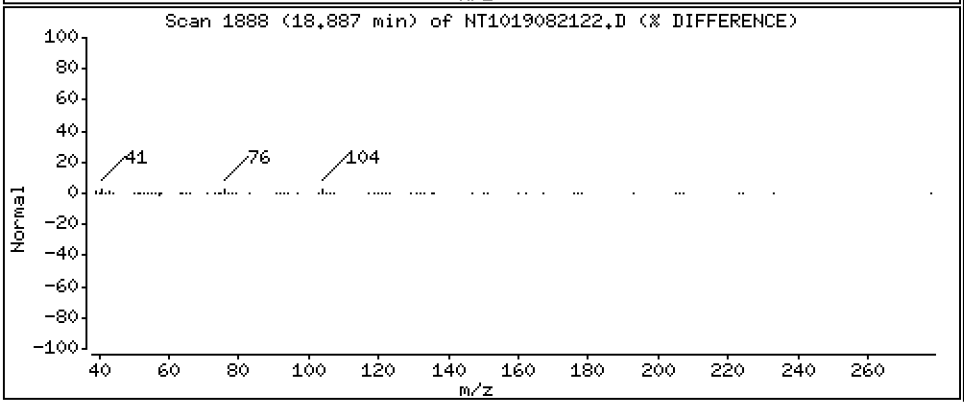












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

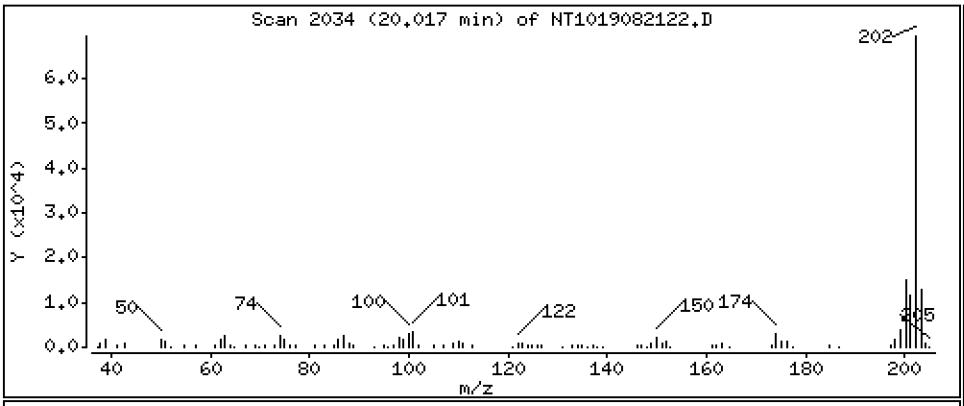
Operator: YZ

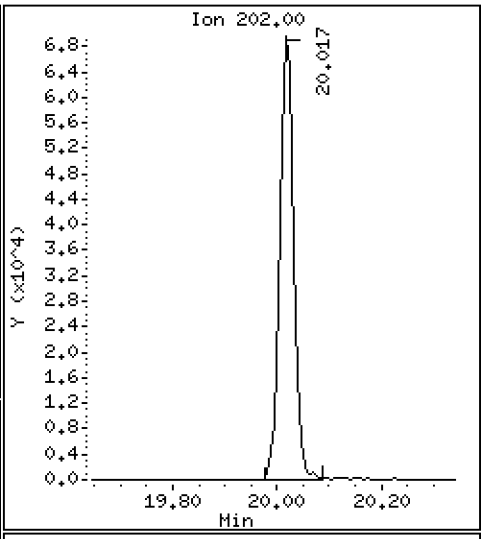
Column phase: ZB-5msi

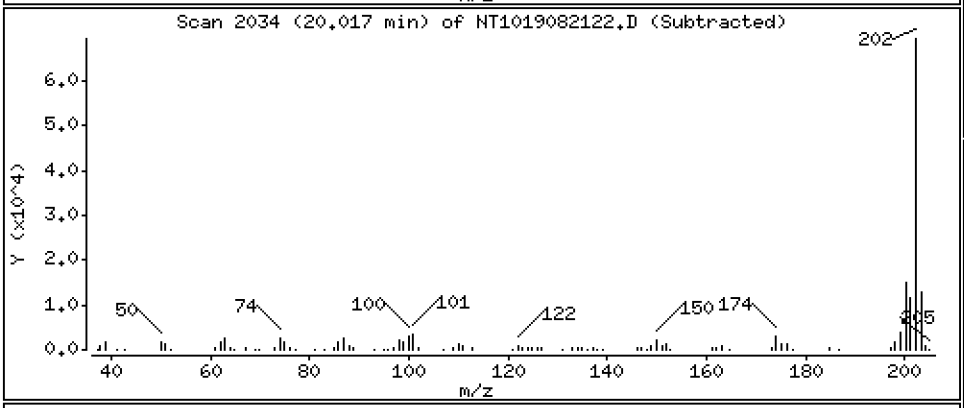
Column diameter: 0.25

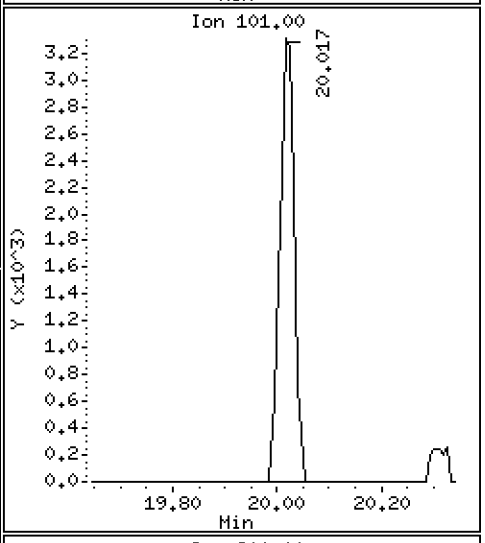
64 Fluoranthene

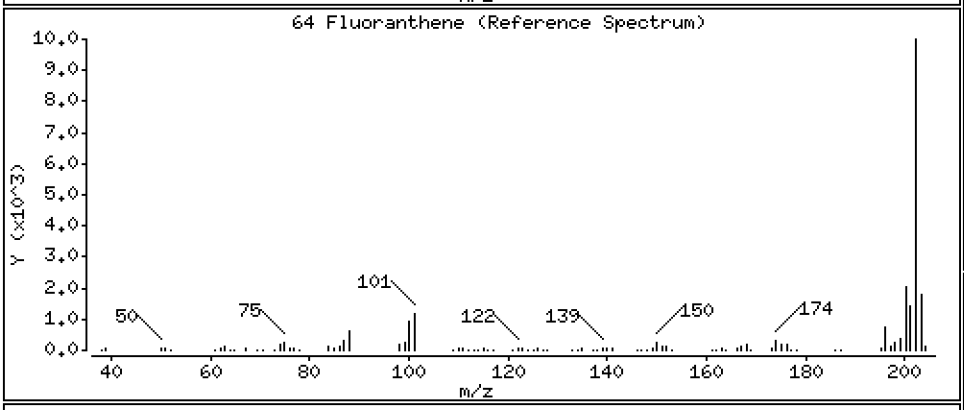
Concentration: 5.088 ug/mL

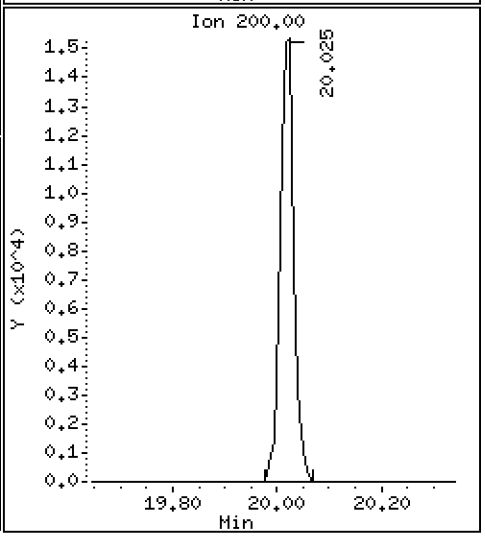


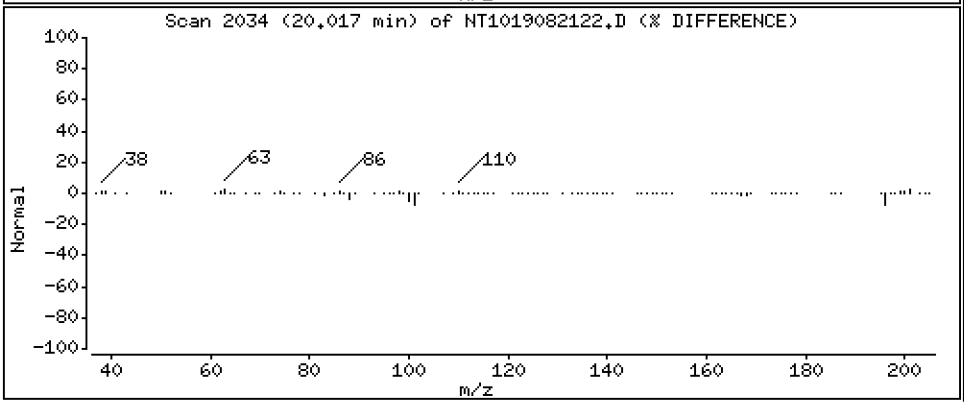












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

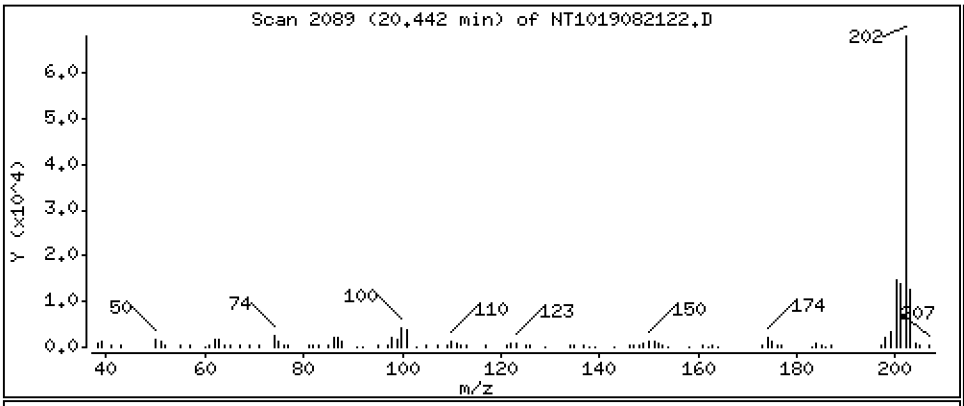
Operator: YZ

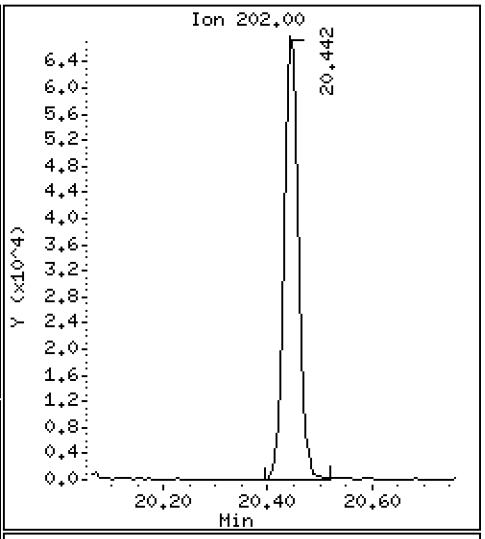
Column phase: ZB-5msi

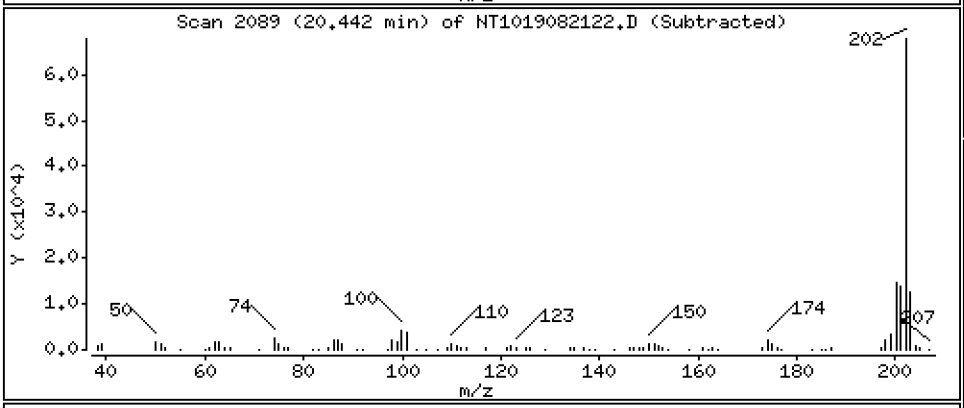
Column diameter: 0.25

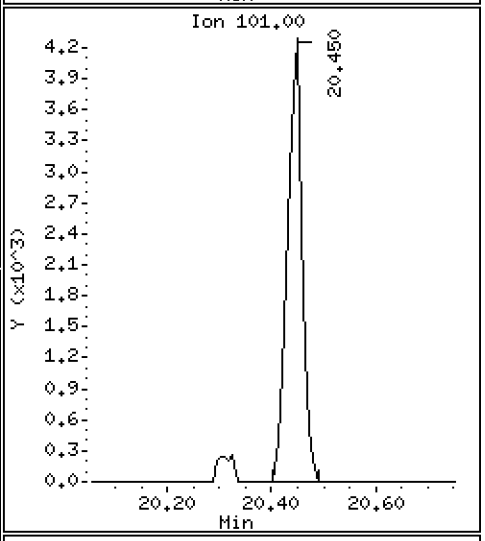
65 Pyrene

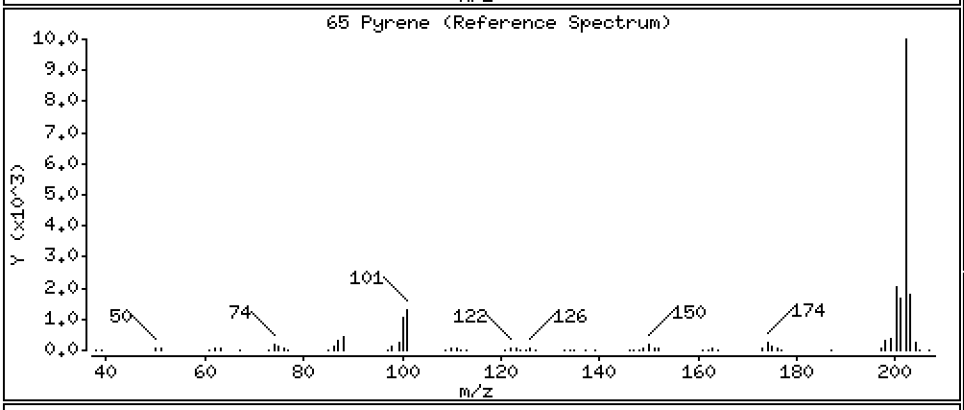
Concentration: 4.941 ug/mL

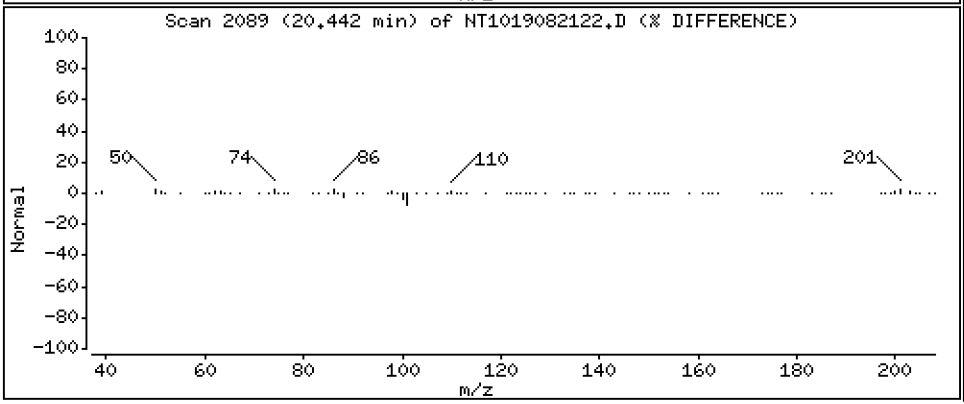


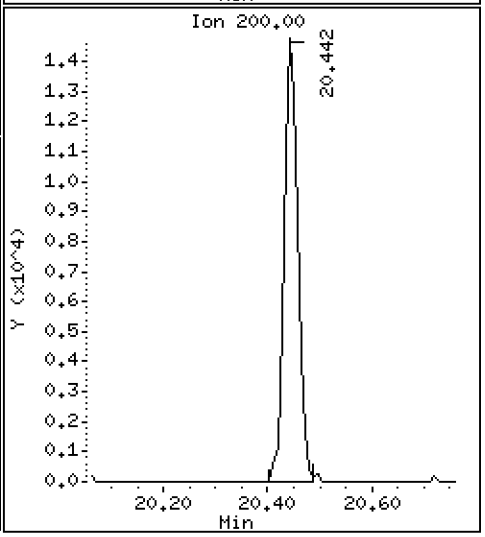












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

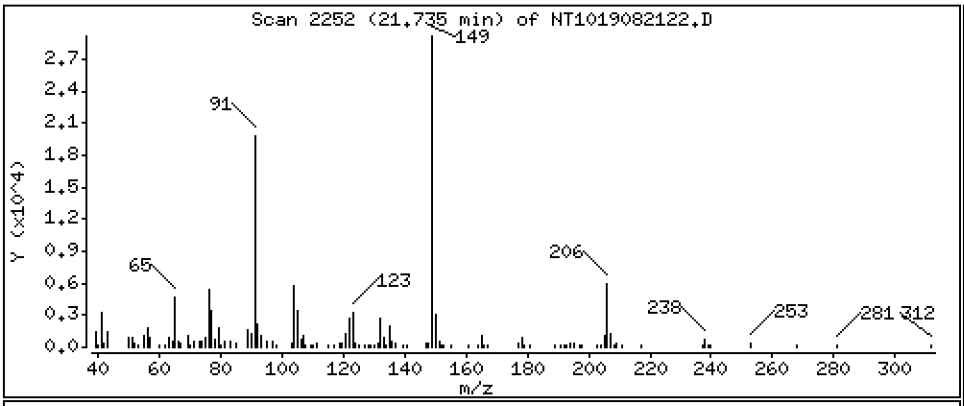
Operator: YZ

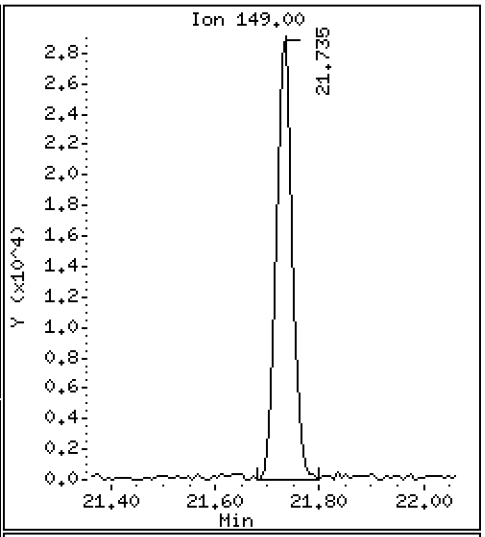
Column phase: ZB-5msi

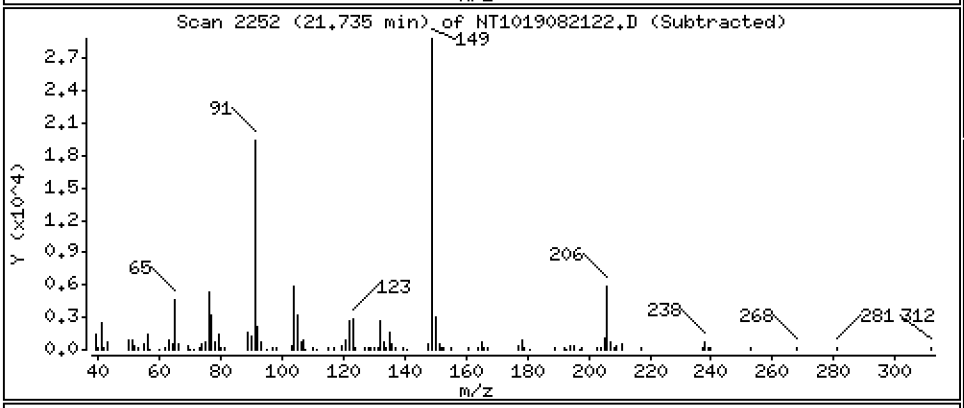
Column diameter: 0.25

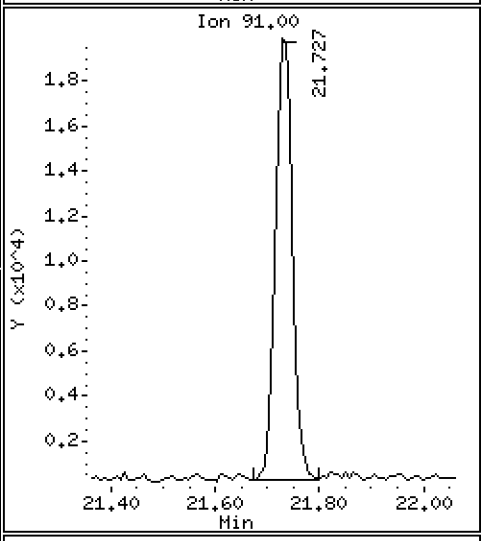
67 Butylbenzylphthalate

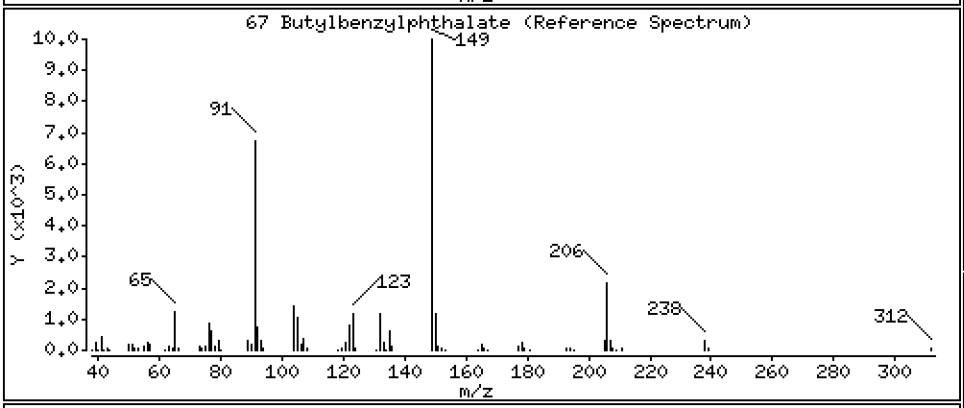
Concentration: 4.824 ug/mL

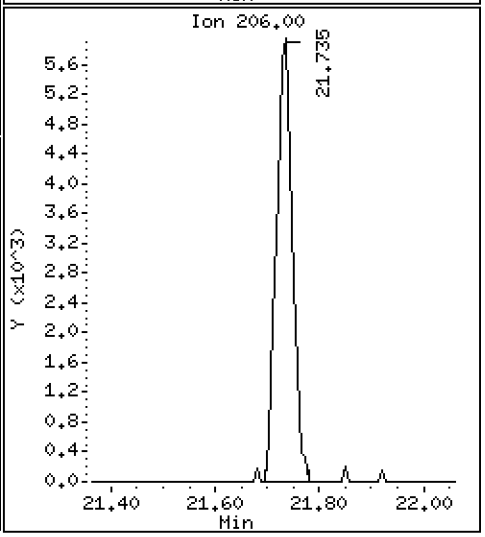


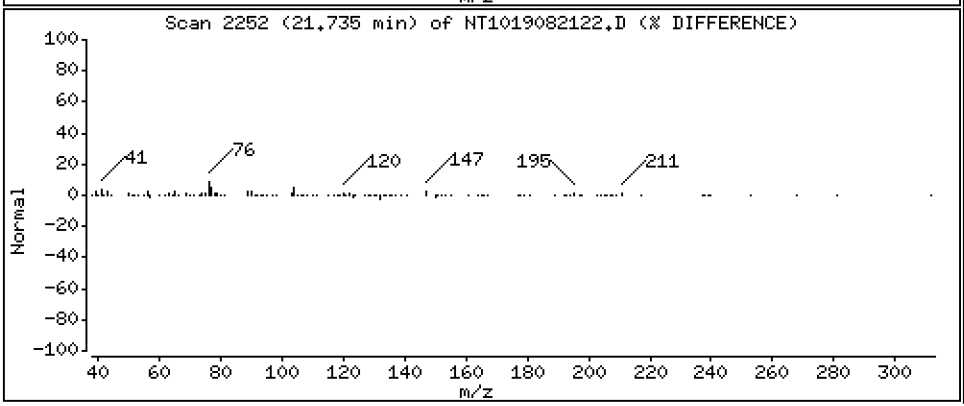












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

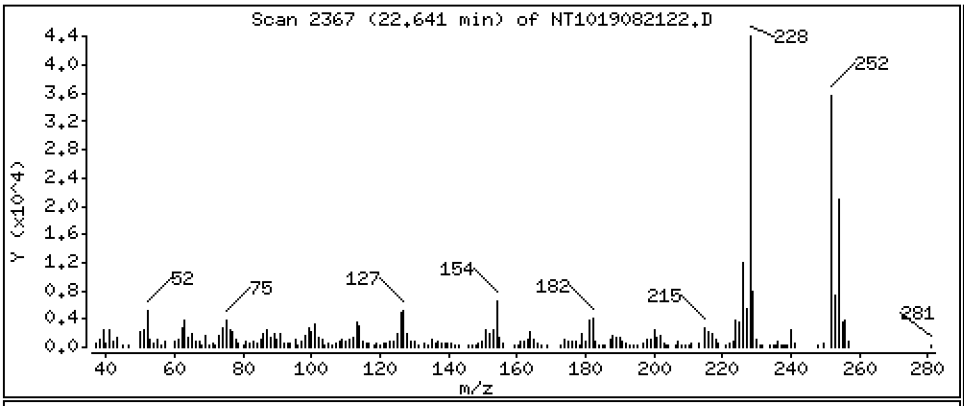
Operator: YZ

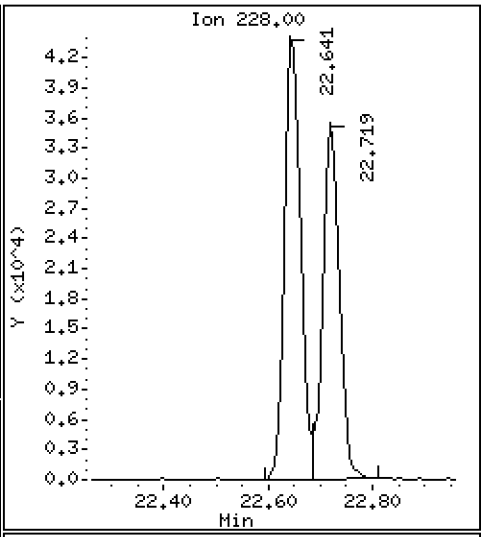
Column phase: ZB-5msi

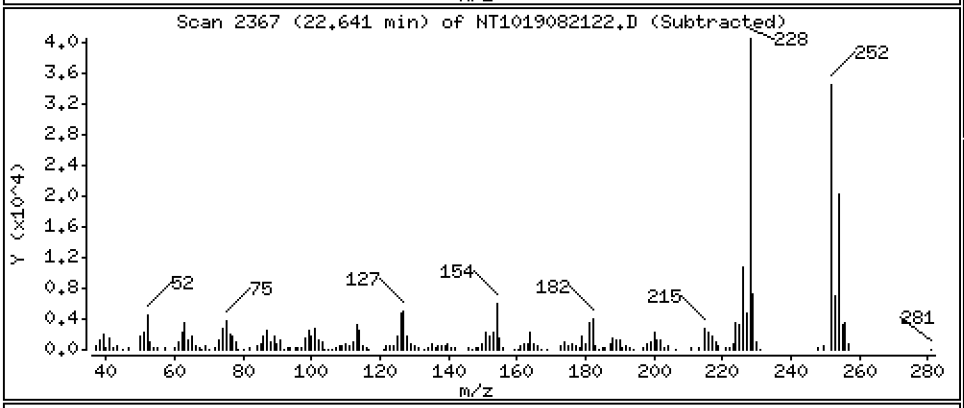
Column diameter: 0.25

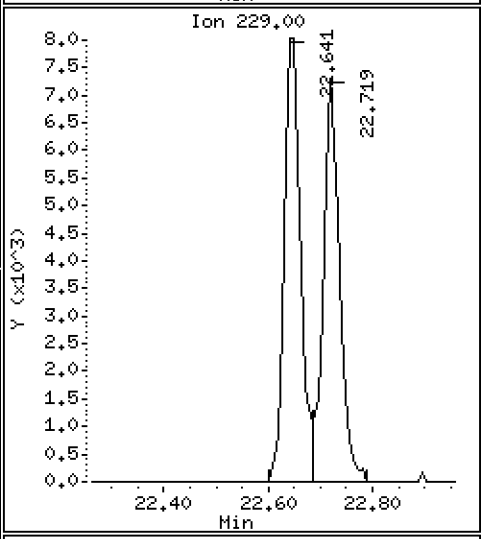
68 Benzo(a)anthracene

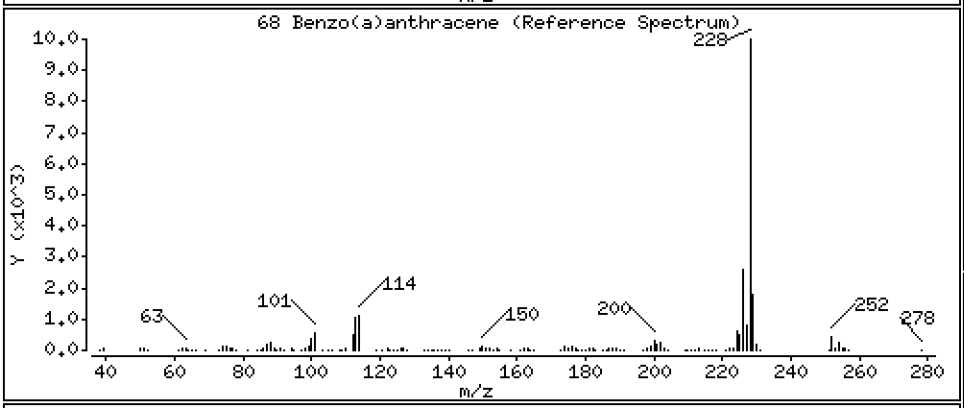
Concentration: 4.034 ug/mL

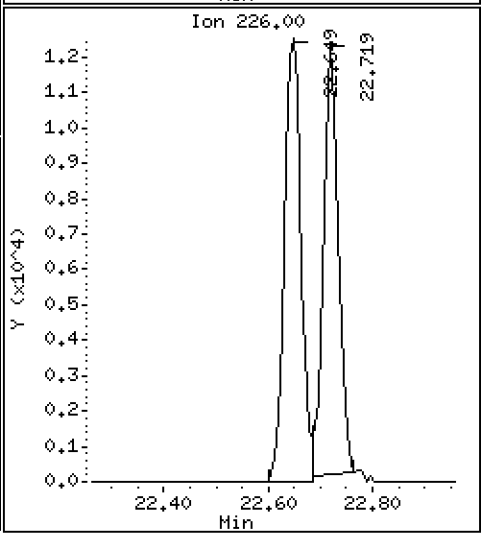


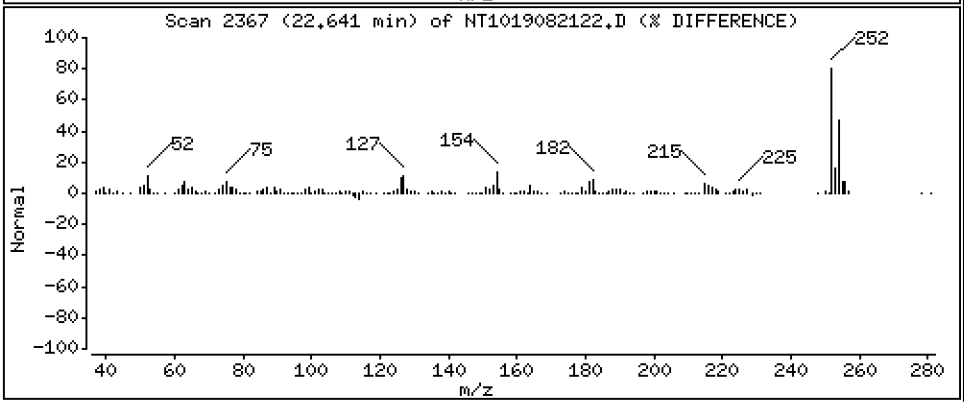












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

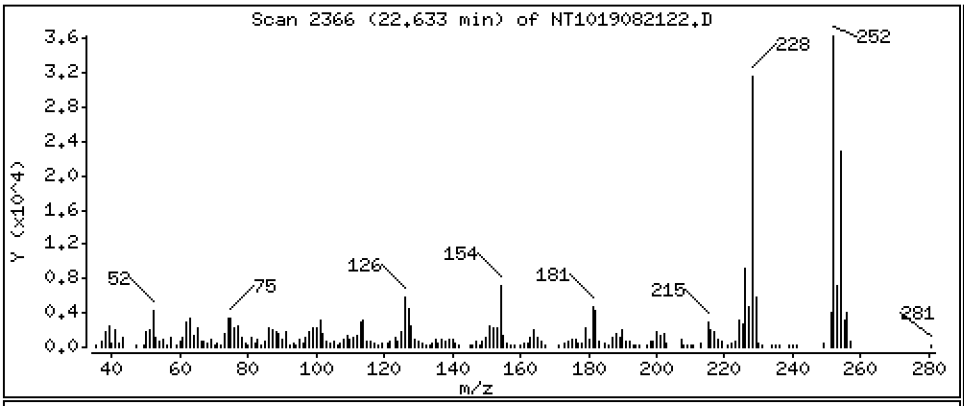
Operator: YZ

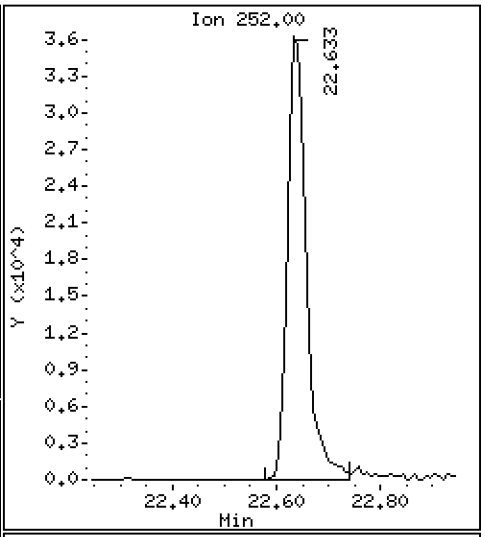
Column phase: ZB-5msi

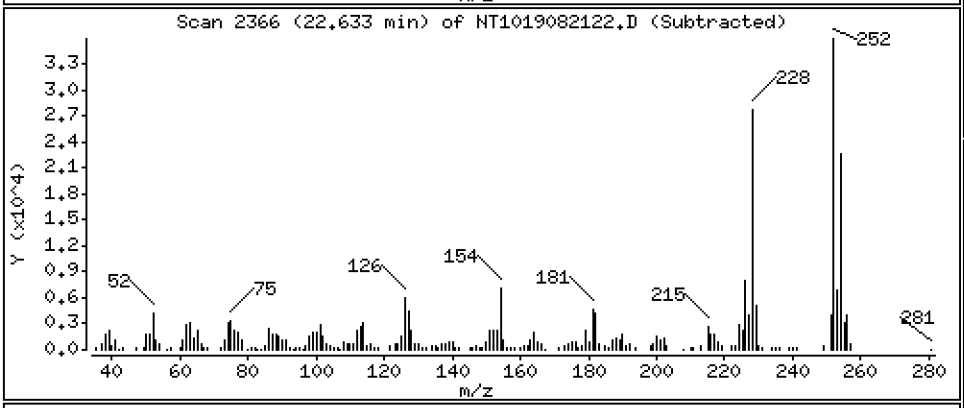
Column diameter: 0.25

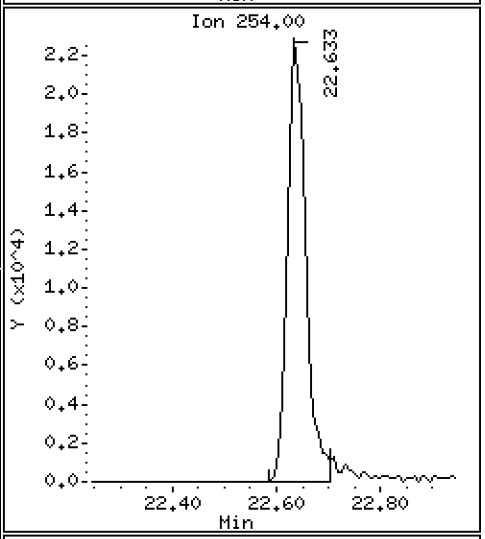
70 3,3'-Dichlorobenzidine

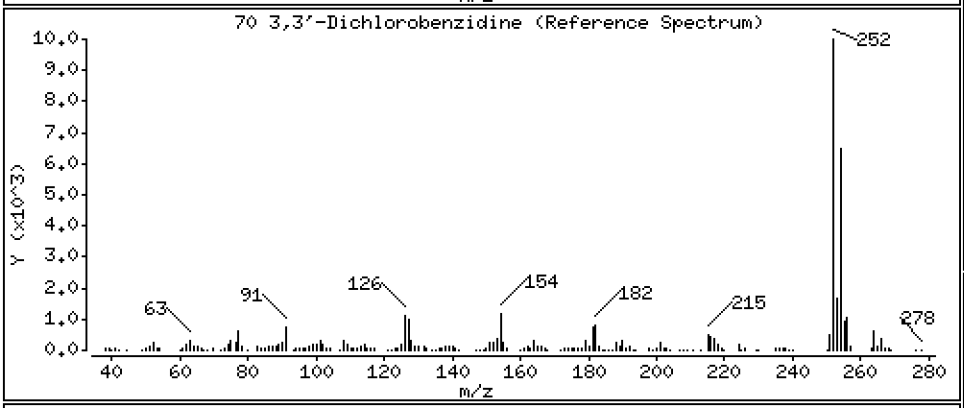
Concentration: 10.90 ug/mL

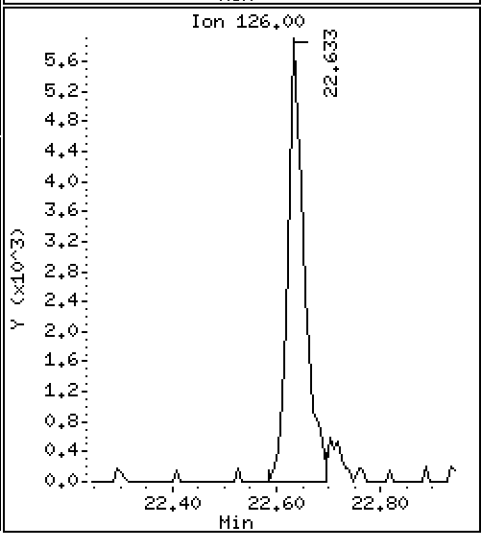


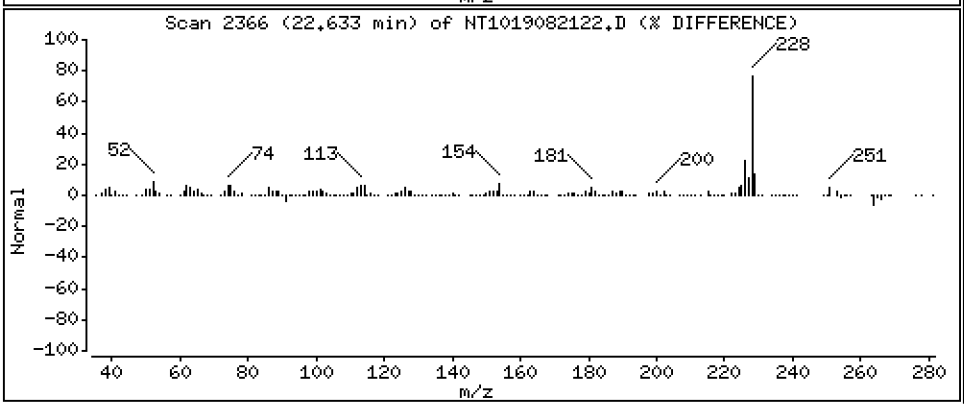












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

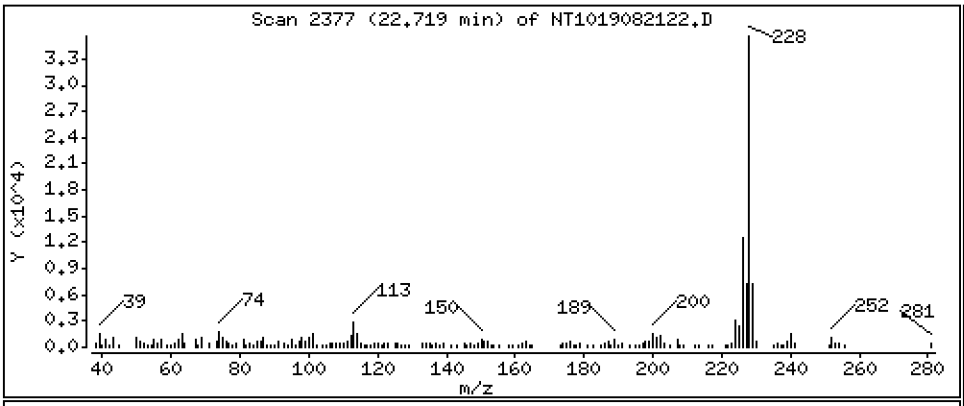
Operator: YZ

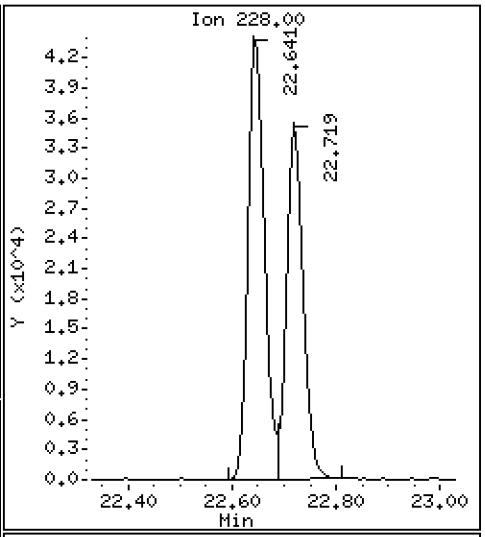
Column phase: ZB-5msi

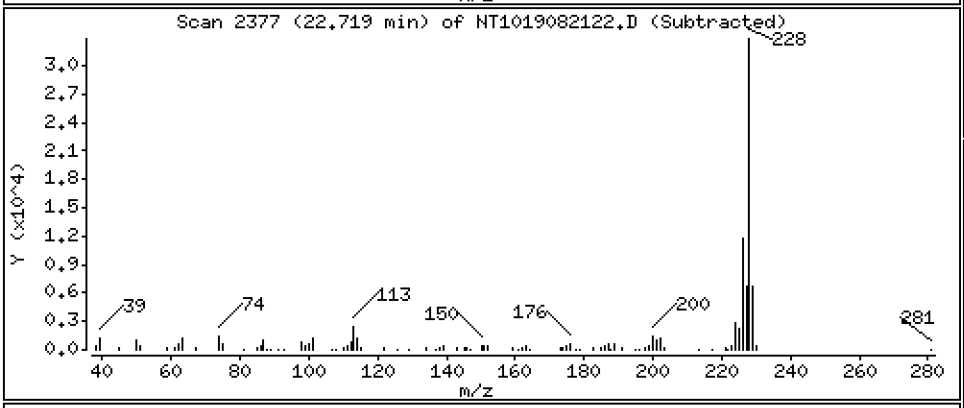
Column diameter: 0.25

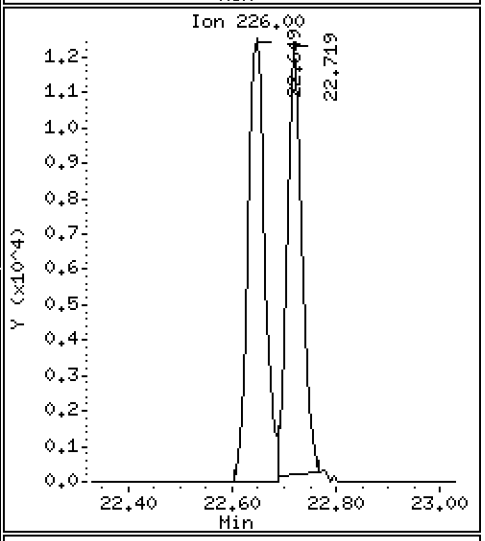
71 Chrysene

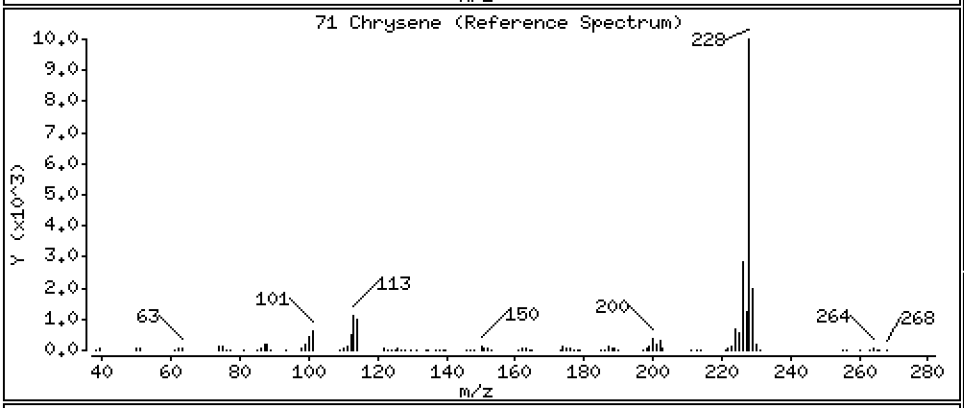
Concentration: 3.644 ug/mL

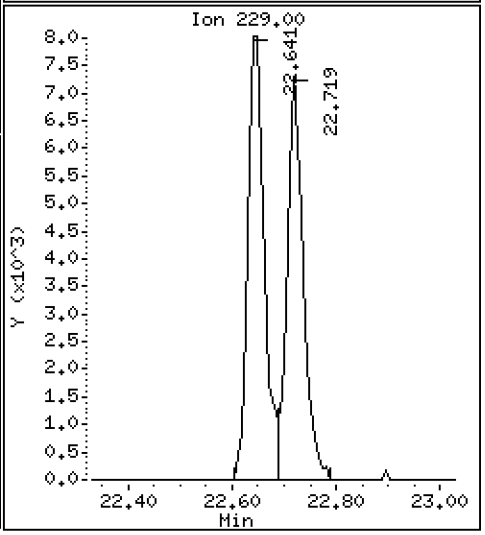


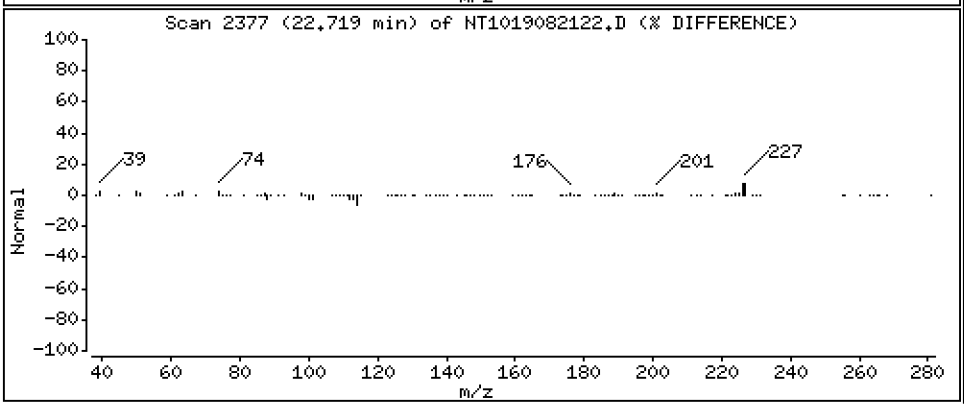












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

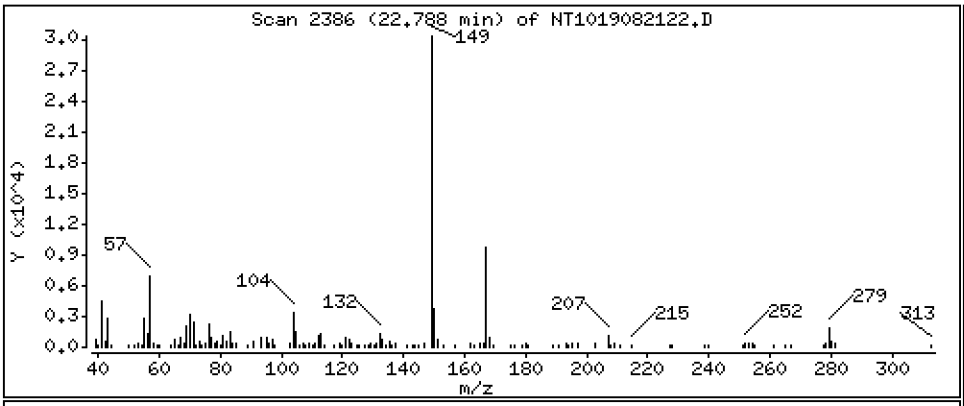
Operator: YZ

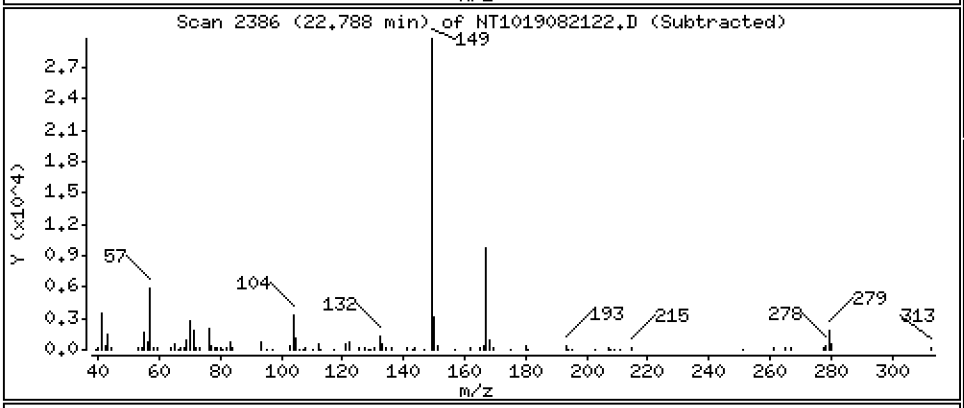
Column phase: ZB-5msi

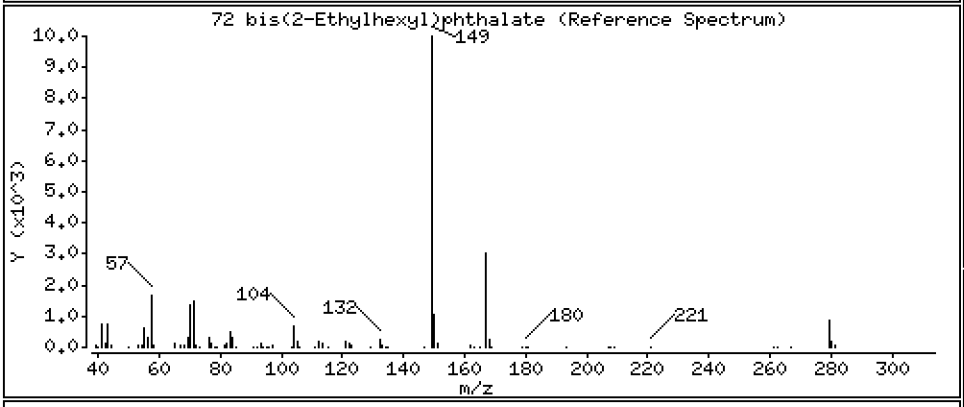
Column diameter: 0.25

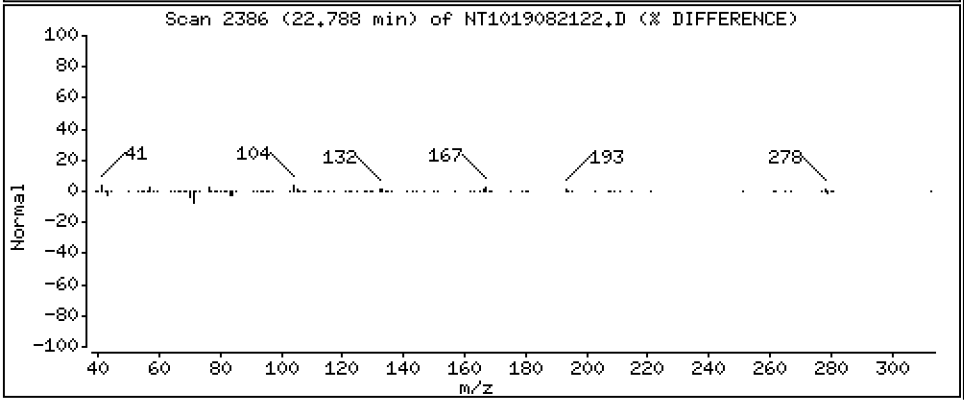
72 bis(2-Ethylhexyl)phthalate

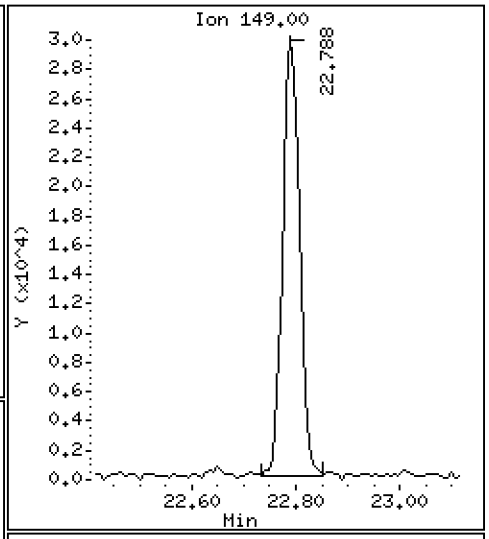
Concentration: 4.333 ug/mL

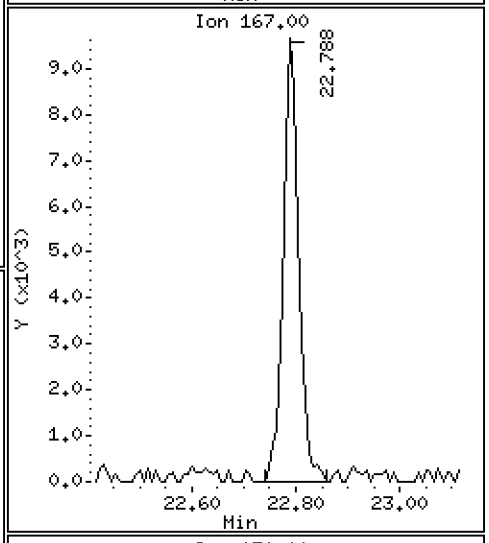


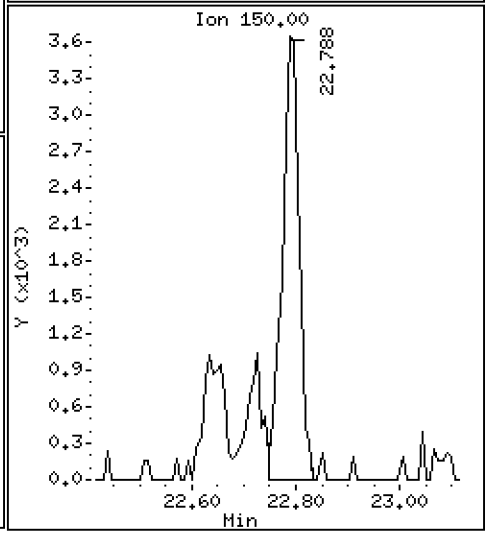












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

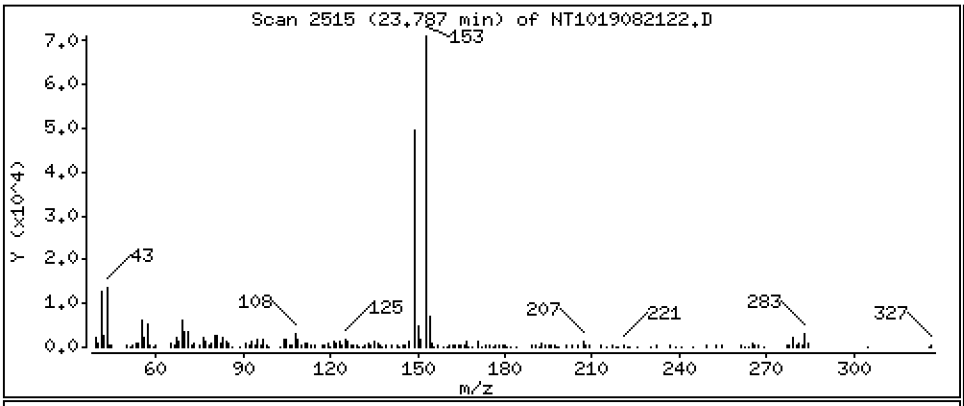
Operator: YZ

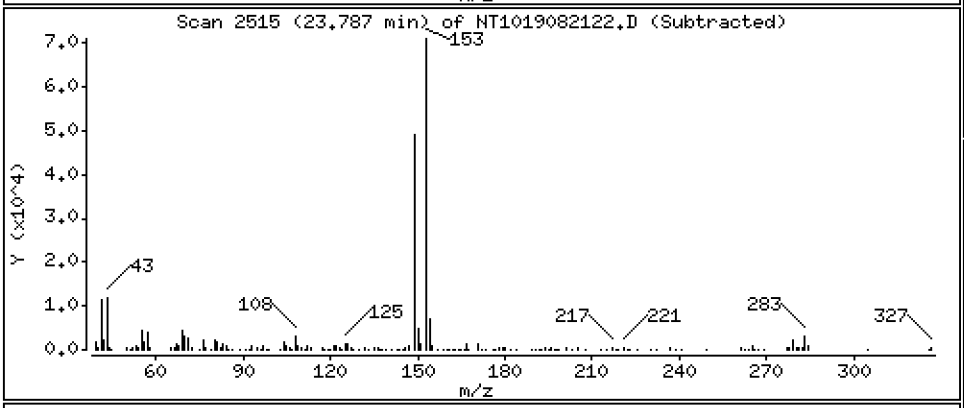
Column phase: ZB-5msi

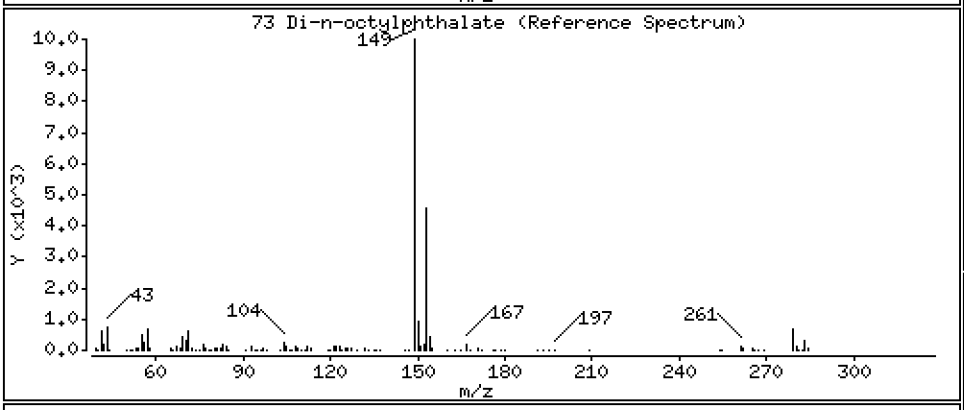
Column diameter: 0.25

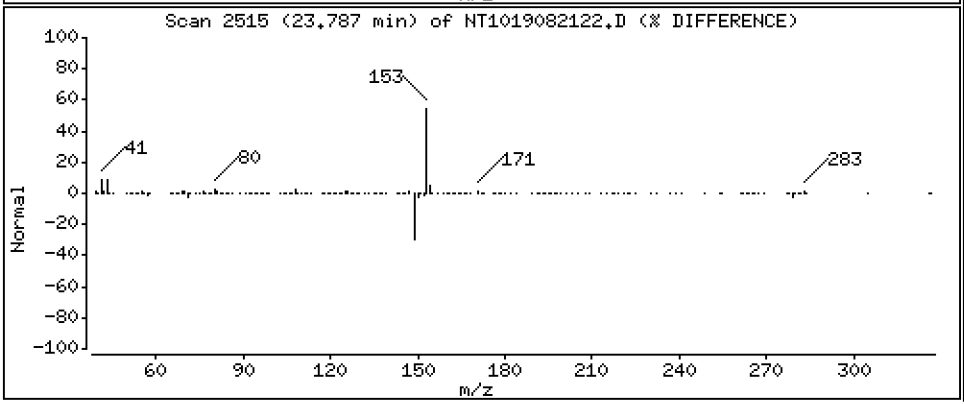
73 Di-n-octylphthalate

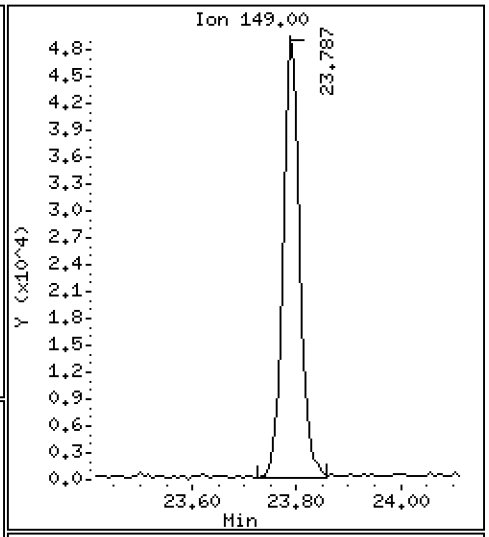
Concentration: 3.357 ug/mL

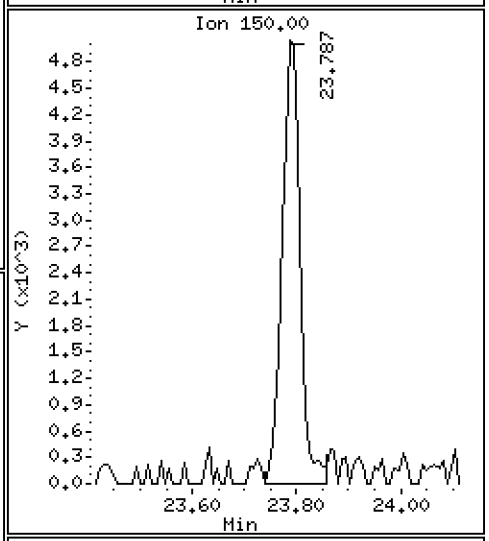


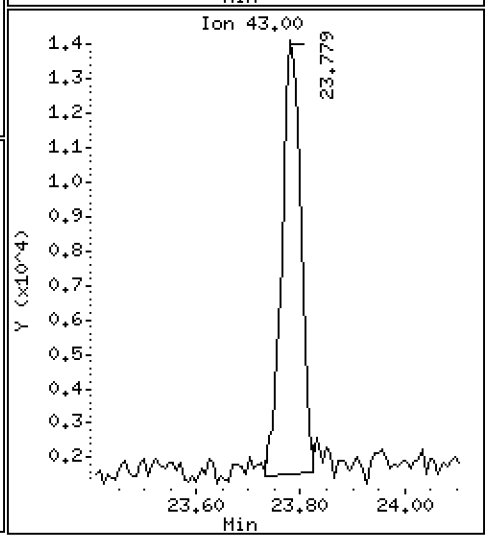












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

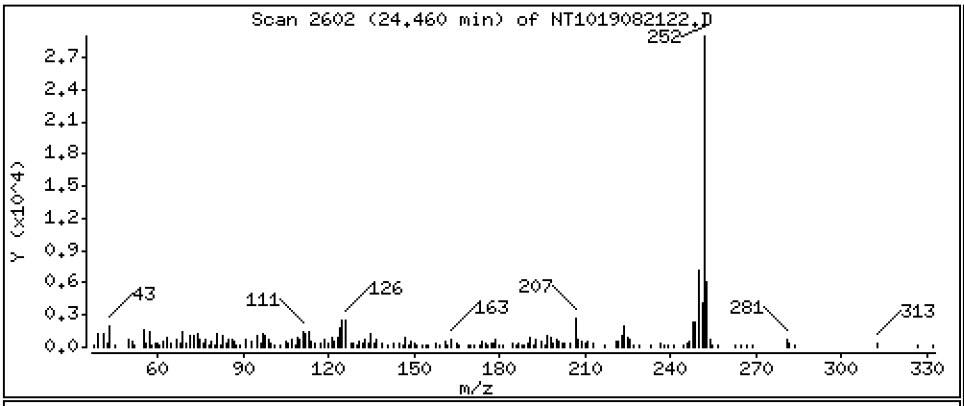
Operator: YZ

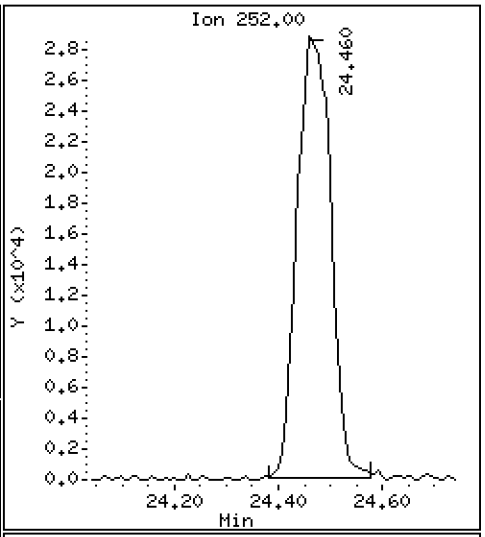
Column phase: ZB-5msi

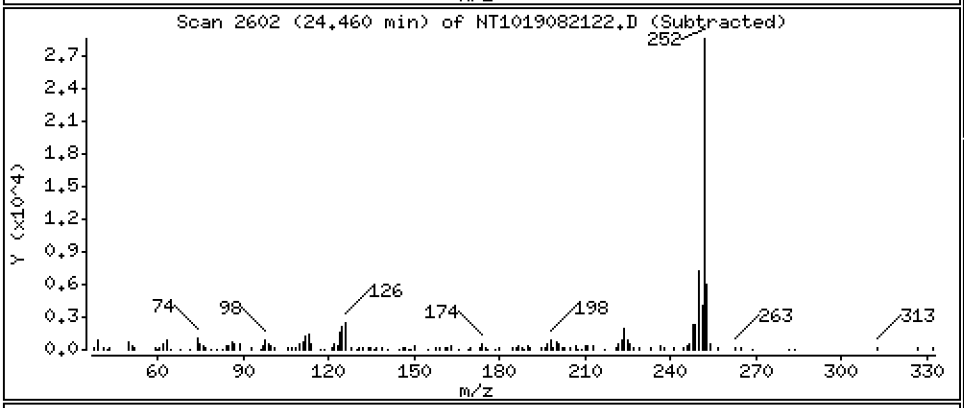
Column diameter: 0.25

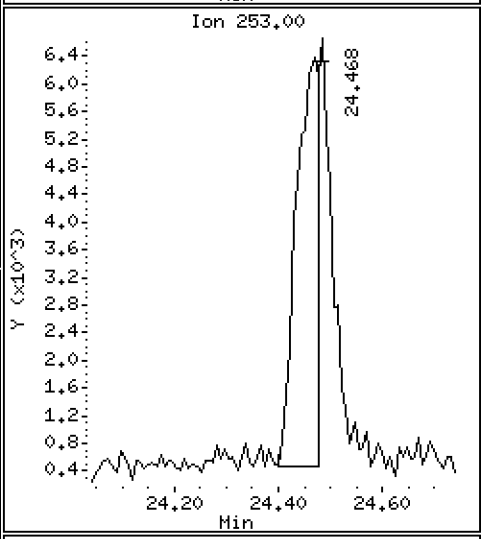
74 Benzo(b)fluoranthene

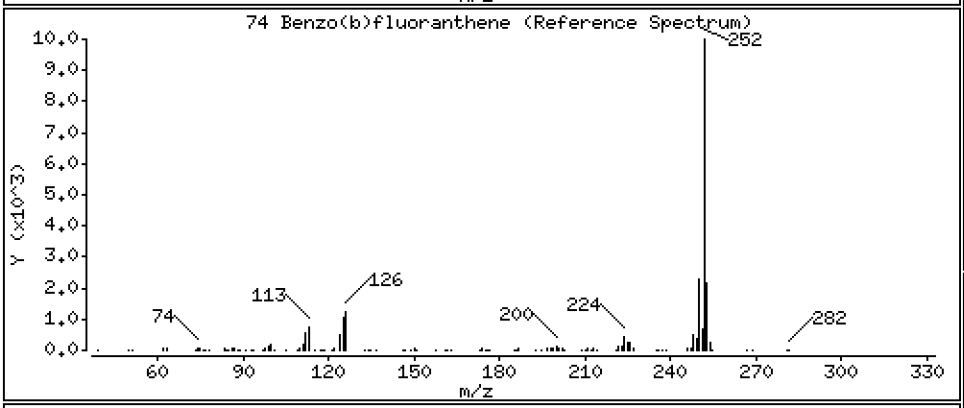
Concentration: 7.714 ug/mL

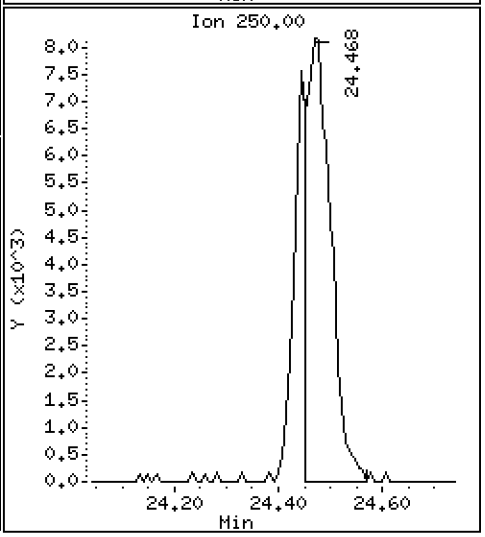


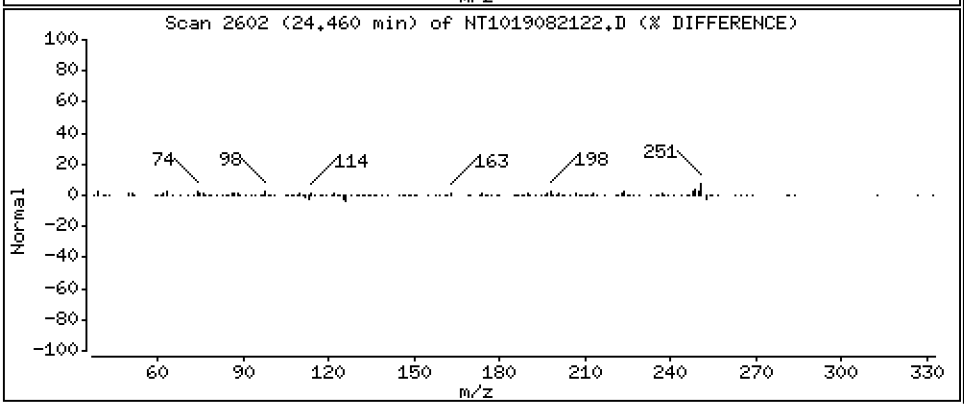












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

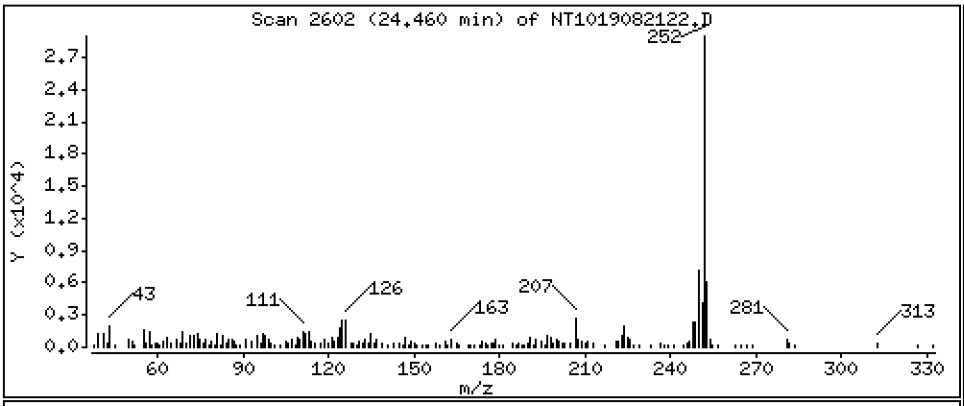
Operator: YZ

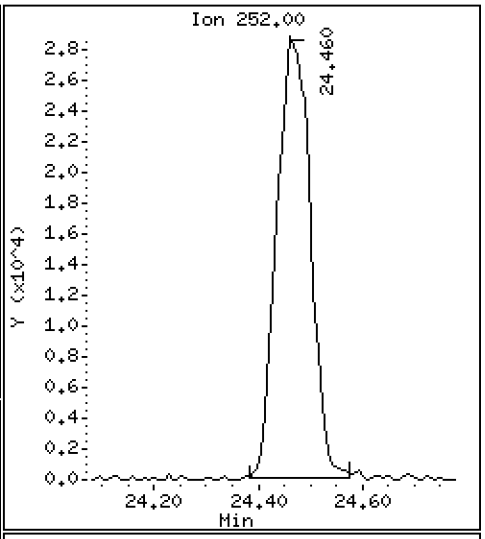
Column phase: ZB-5msi

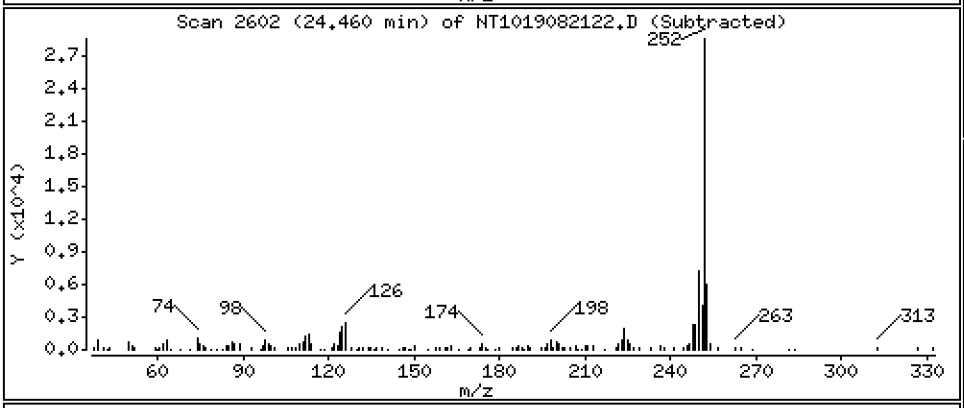
Column diameter: 0.25

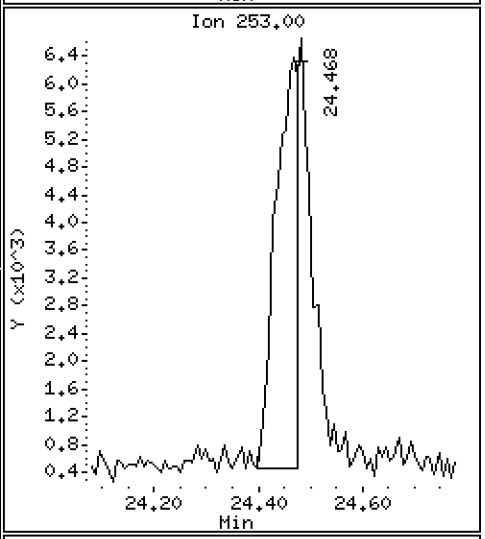
75 Benzo(k)fluoranthene

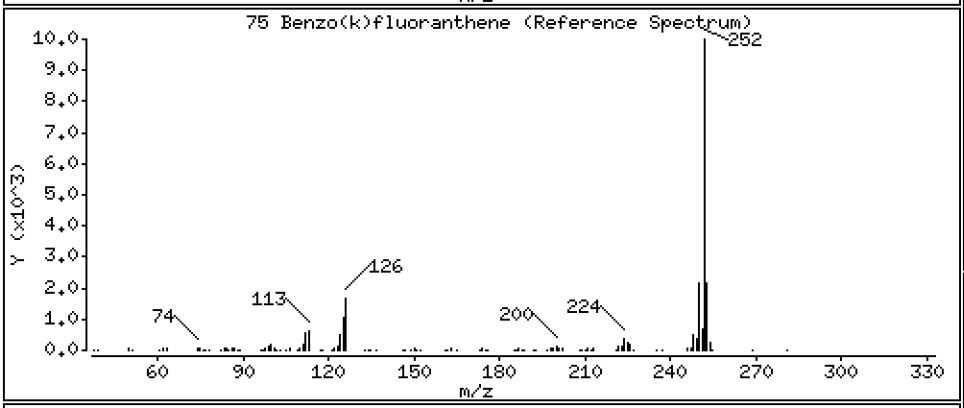
Concentration: 7.668 ug/mL

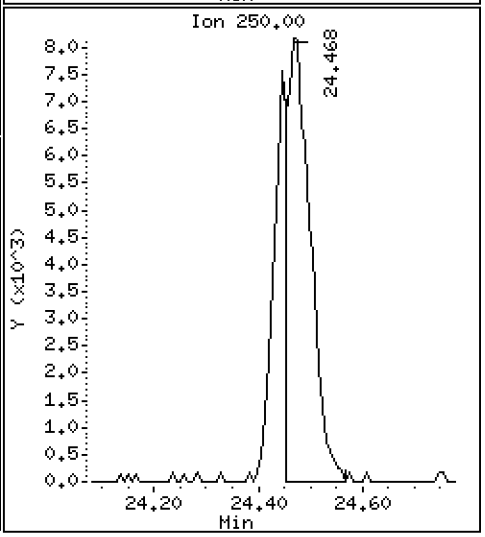


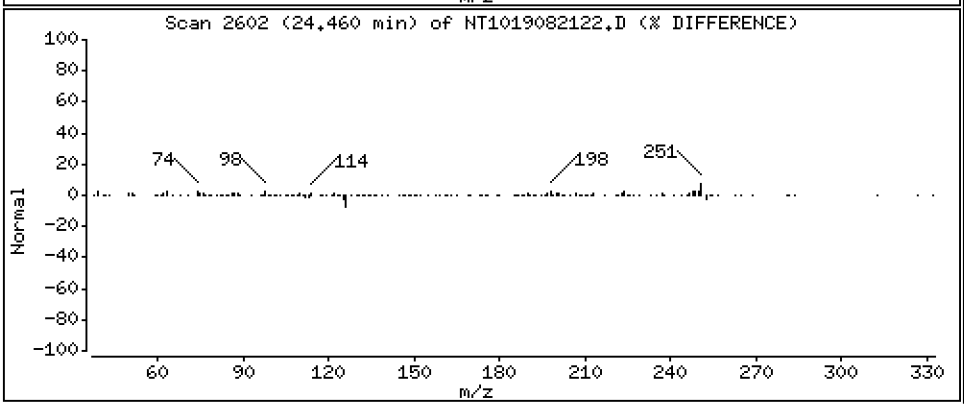












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

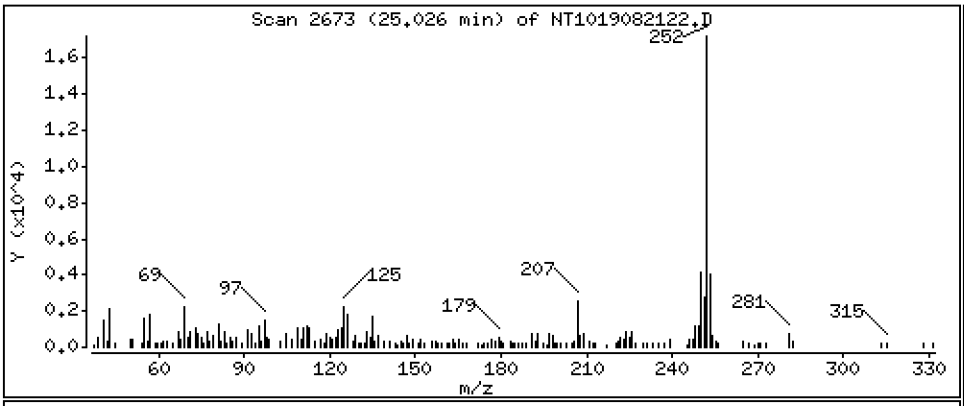
Operator: YZ

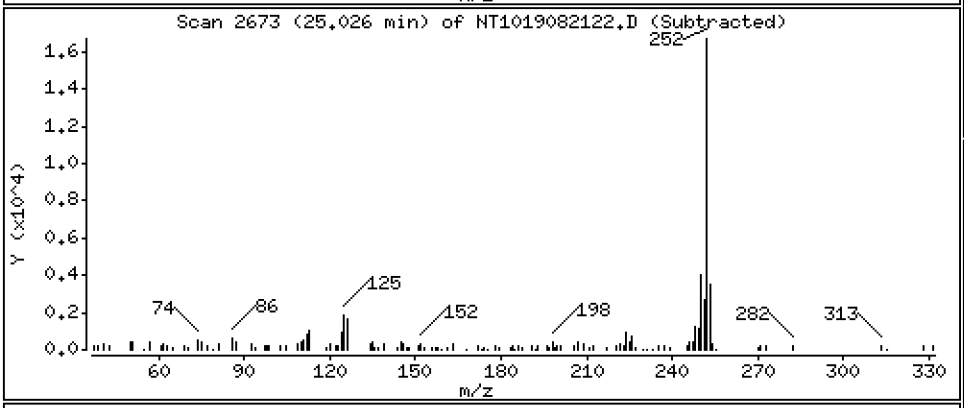
Column phase: ZB-5msi

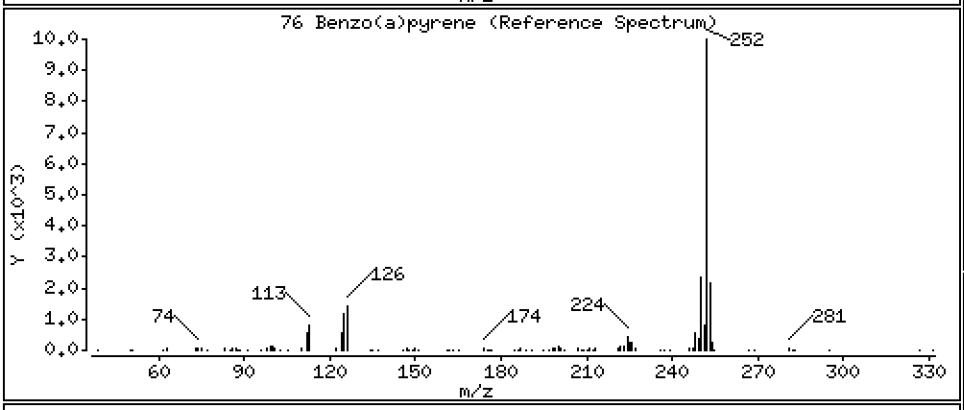
Column diameter: 0.25

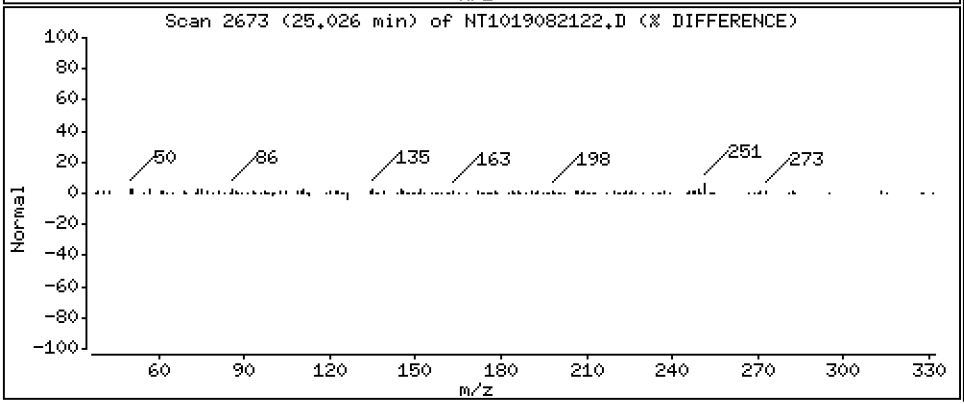
76 Benzo(a)pyrene

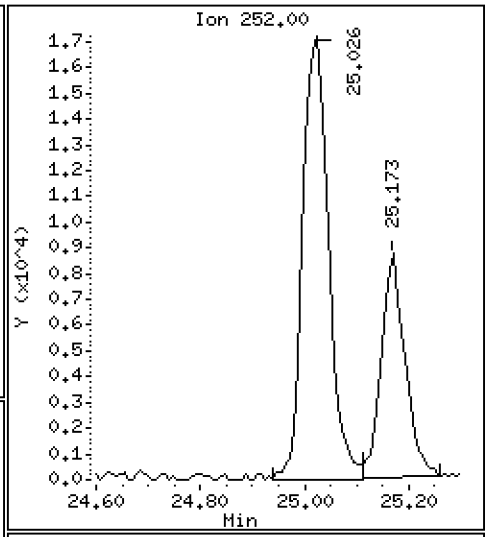
Concentration: 3.940 ug/mL

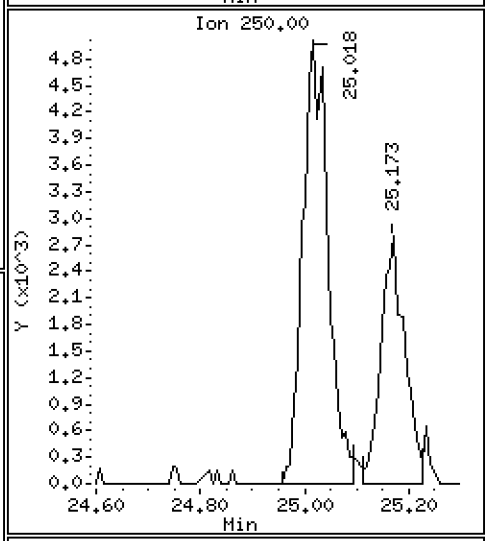


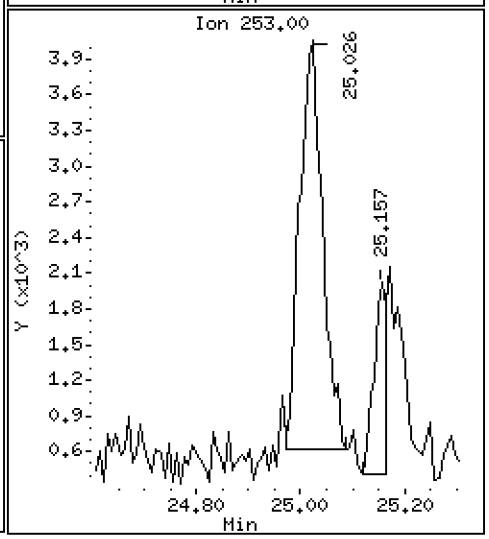












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

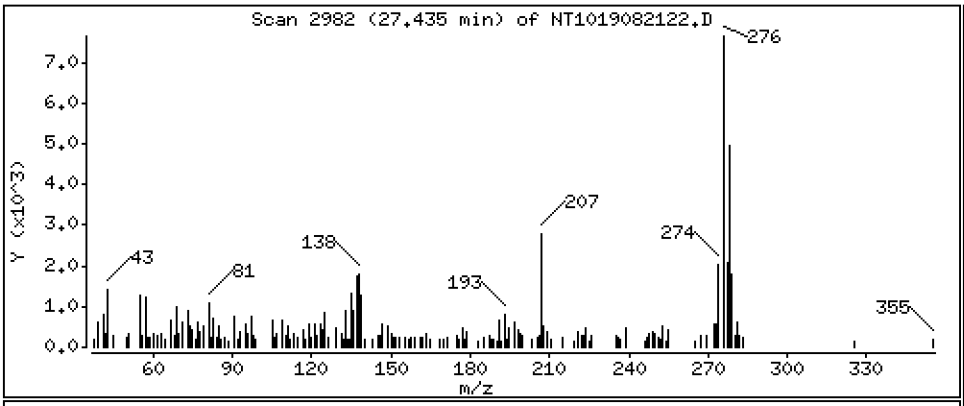
Operator: YZ

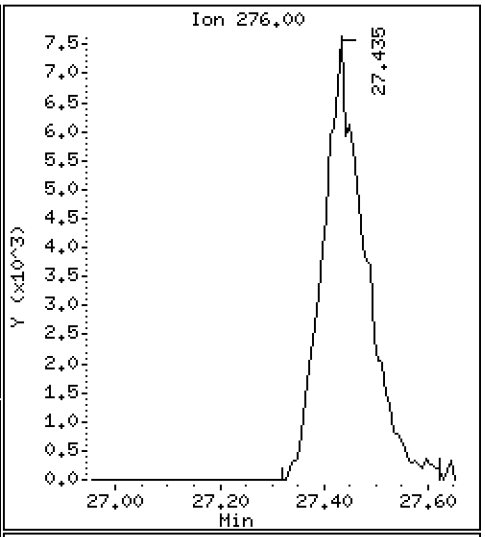
Column phase: ZB-5msi

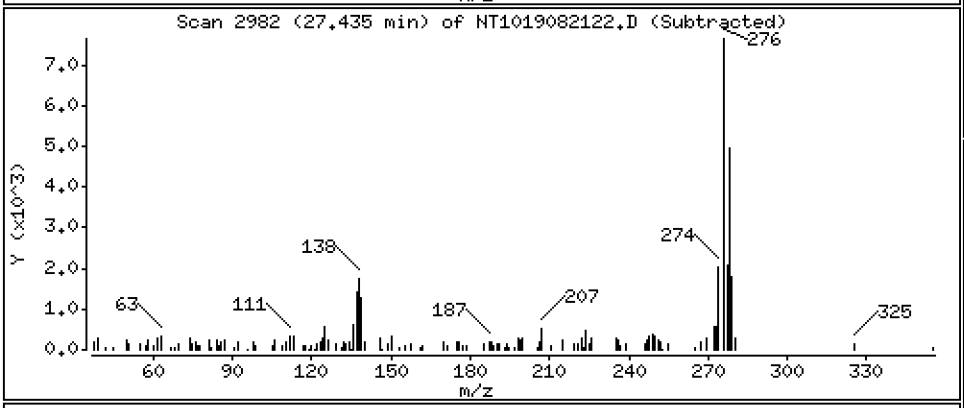
Column diameter: 0.25

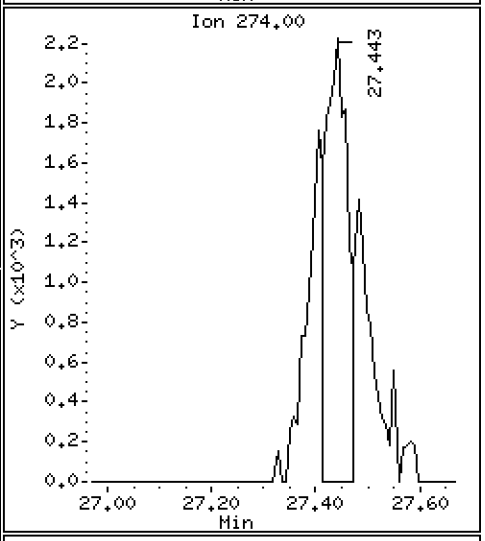
78 Indeno(1,2,3-cd)pyrene

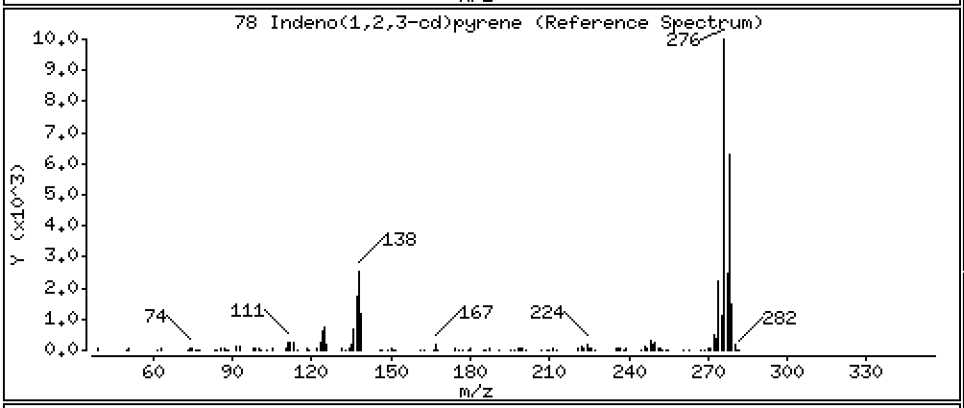
Concentration: 2.453 ug/mL

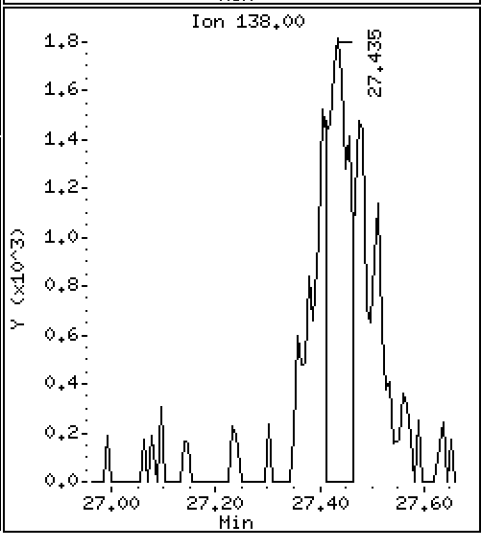


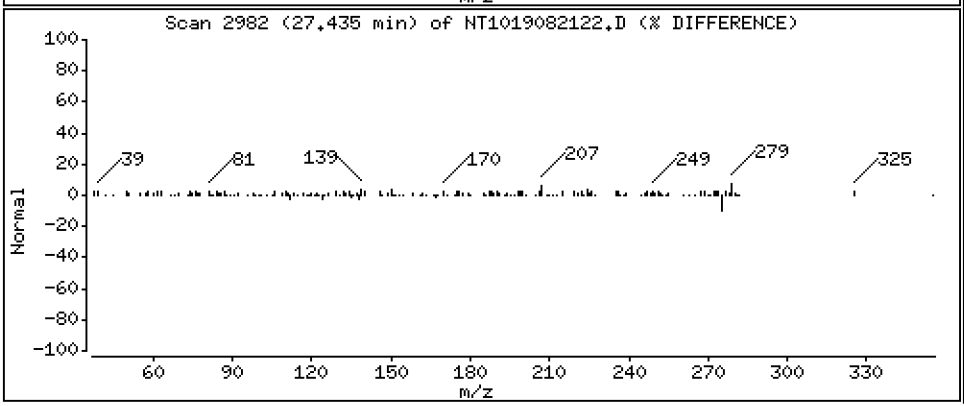












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

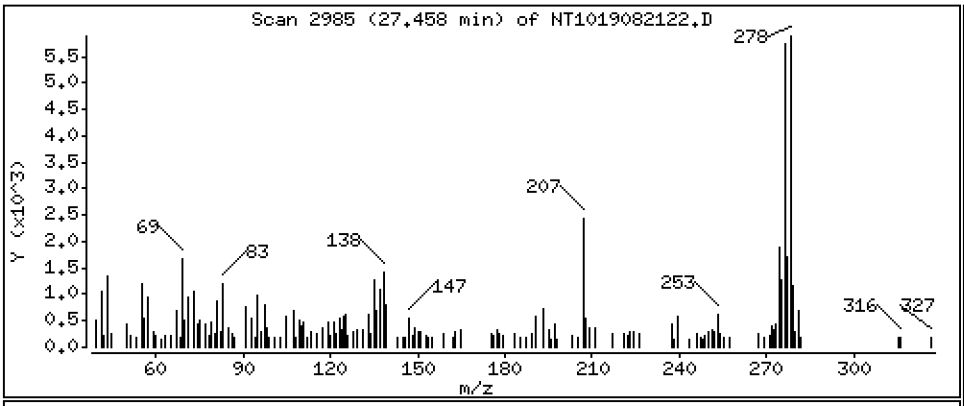
Operator: YZ

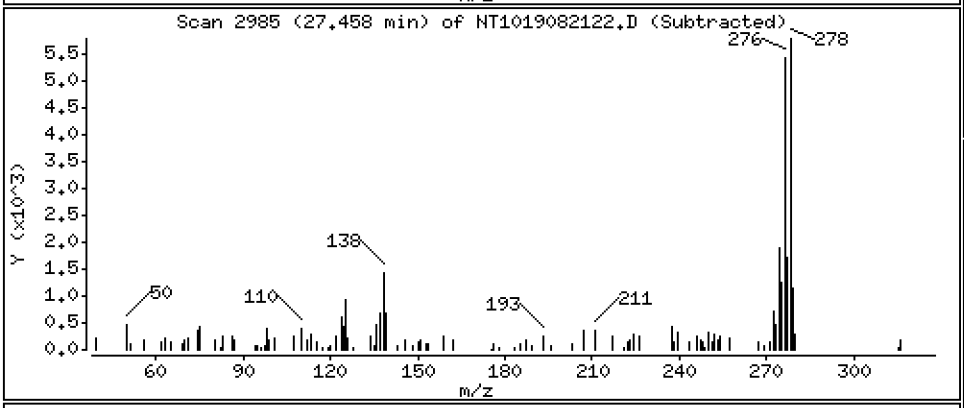
Column phase: ZB-5msi

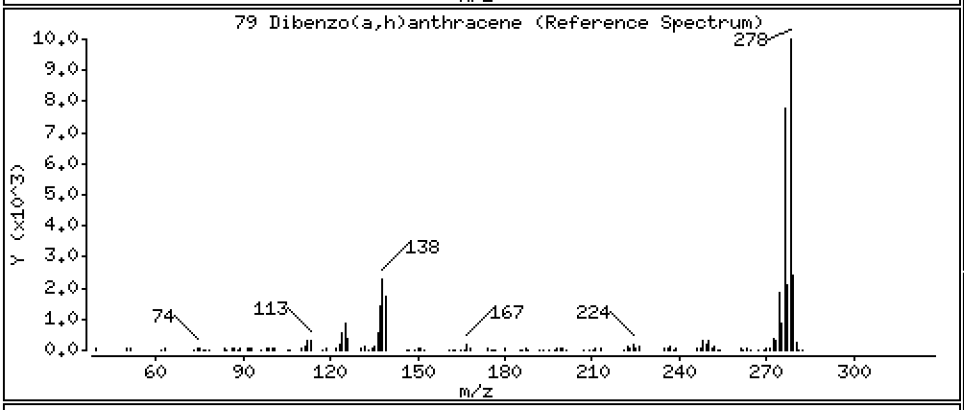
Column diameter: 0.25

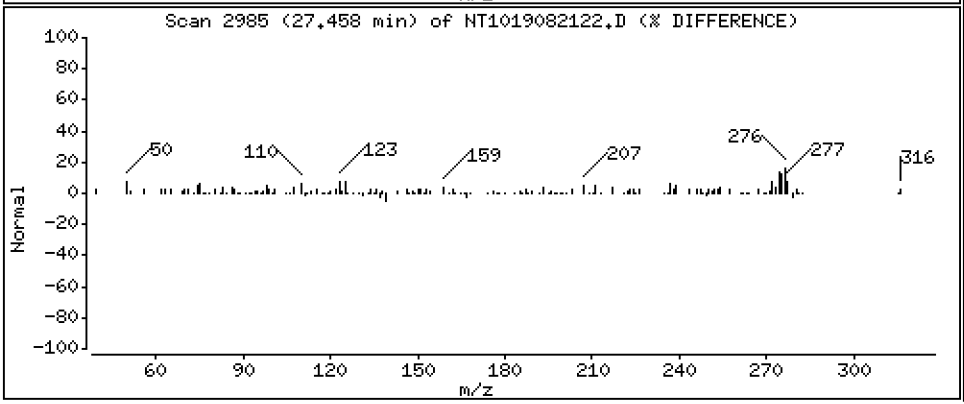
79 Dibenzo(a,h)anthracene

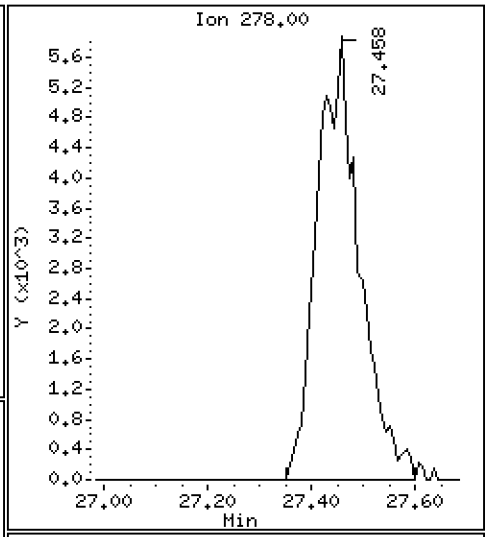
Concentration: 2.274 ug/mL

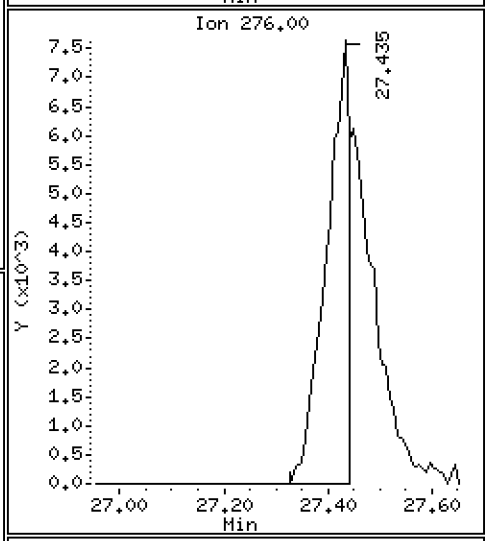


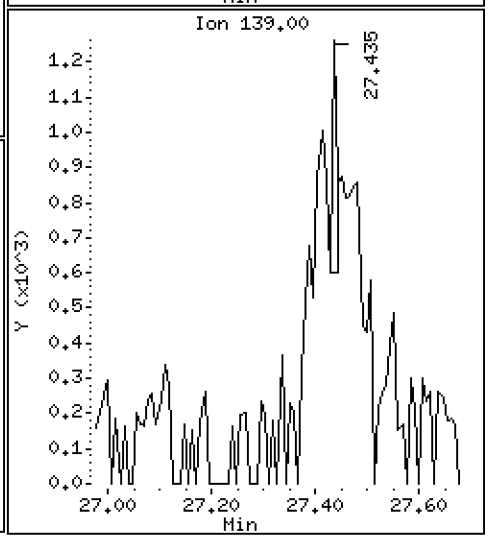












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

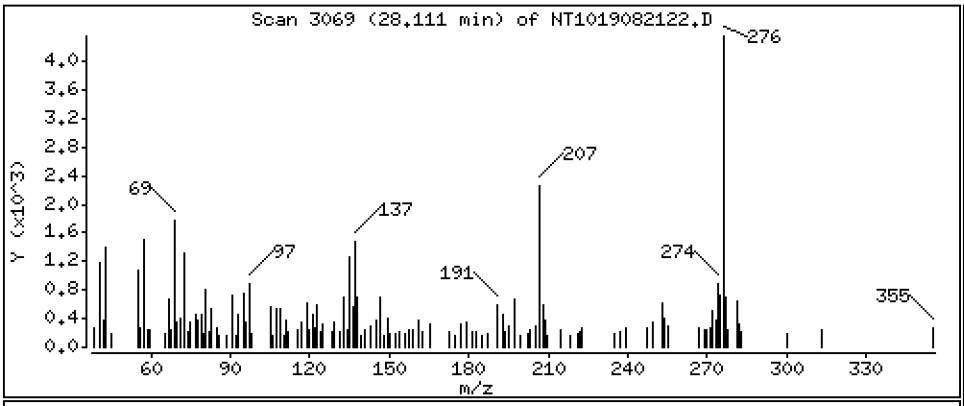
Operator: YZ

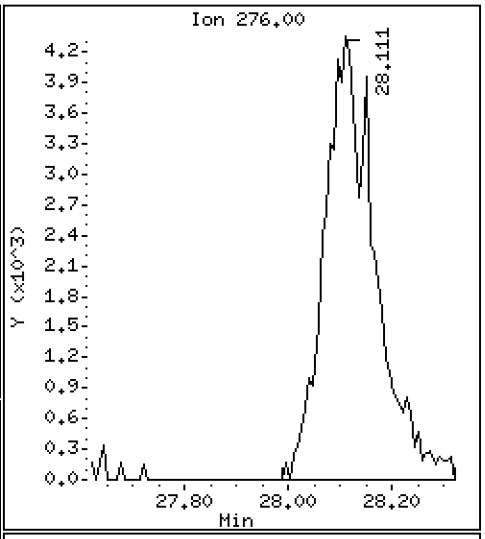
Column phase: ZB-5msi

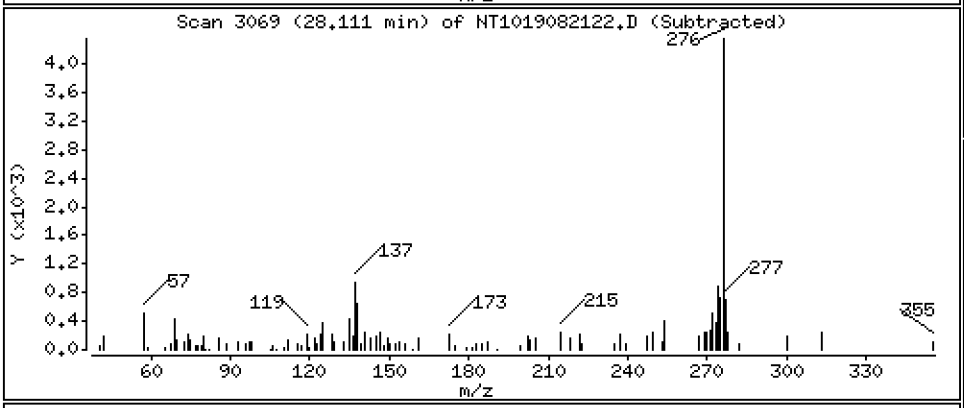
Column diameter: 0.25

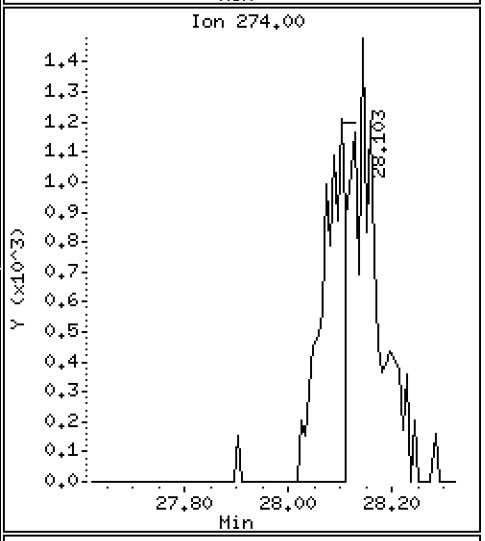
80 Benzo(g,h,i)perylene

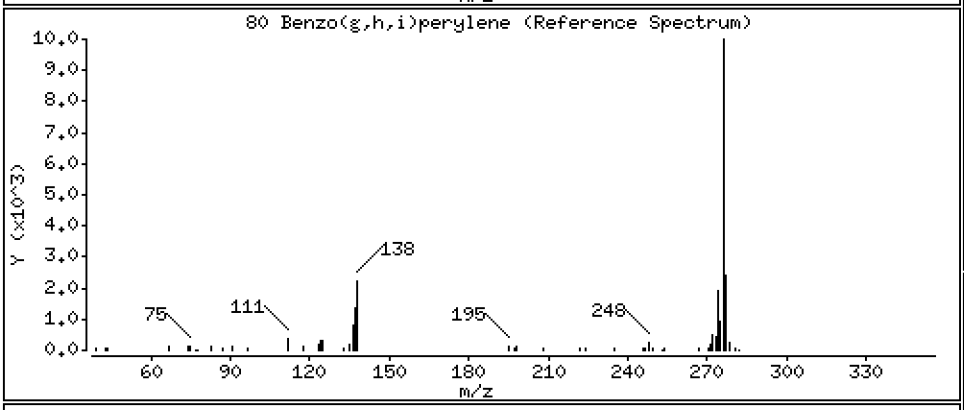
Concentration: 1.945 ug/mL

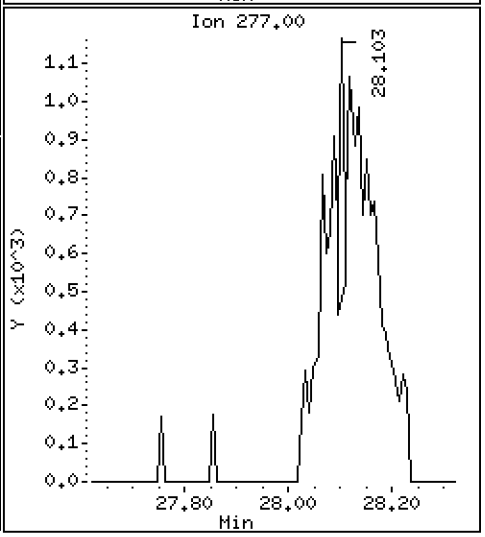


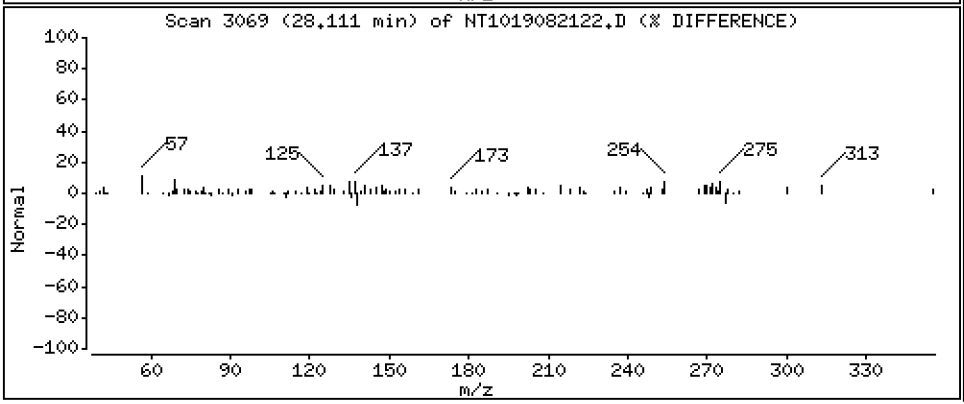












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

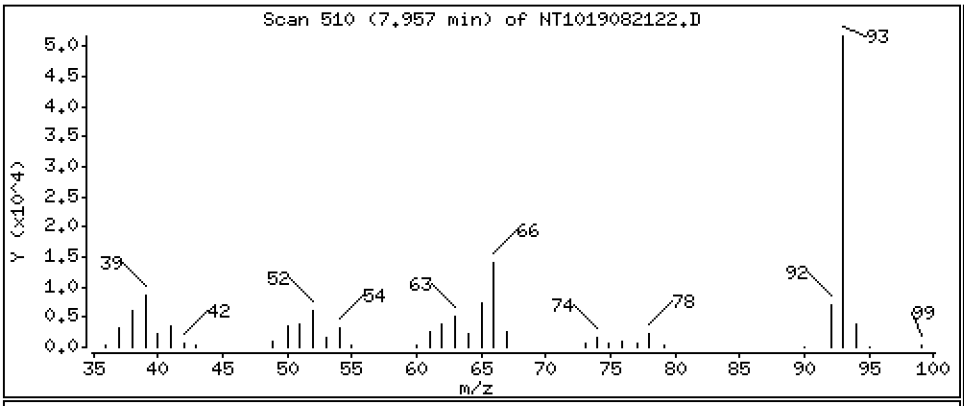
Operator: YZ

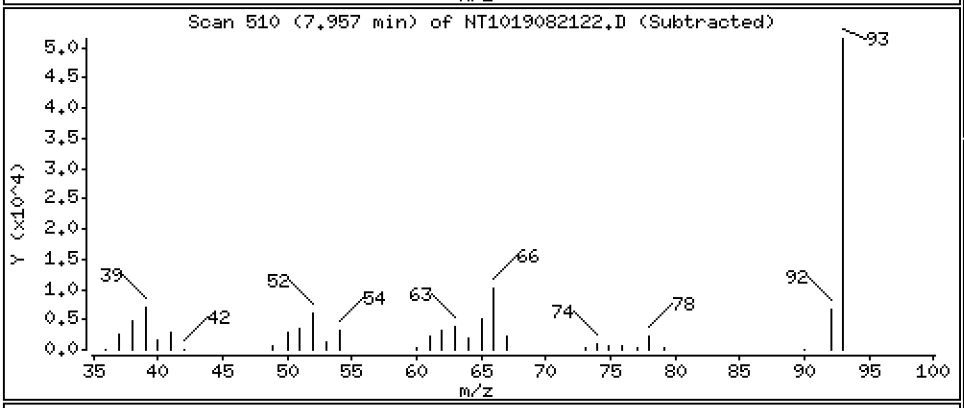
Column phase: ZB-5msi

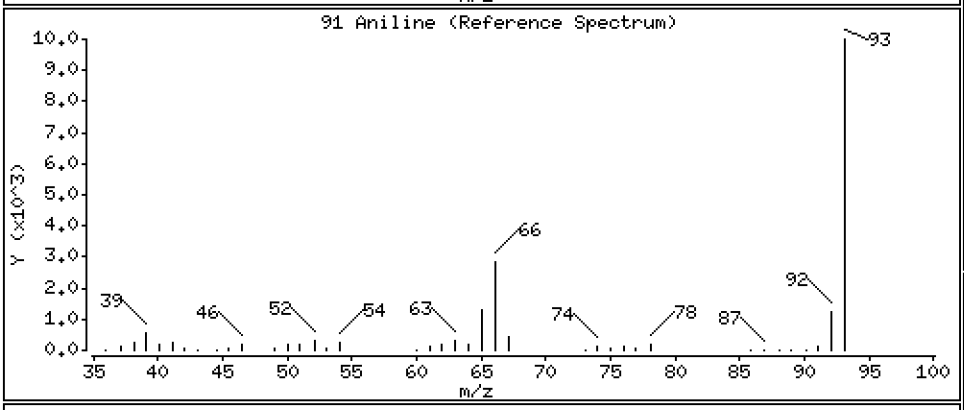
Column diameter: 0.25

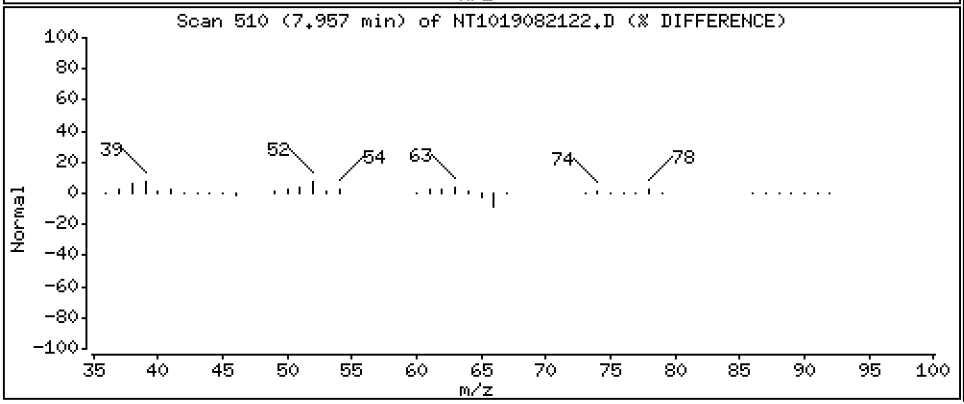
91 Aniline

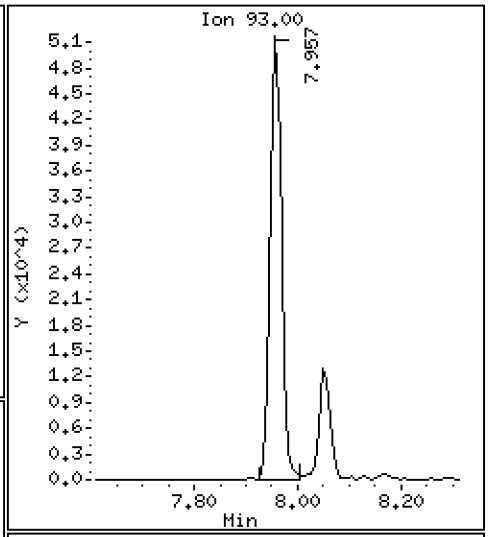
Concentration: 8.168 ug/mL

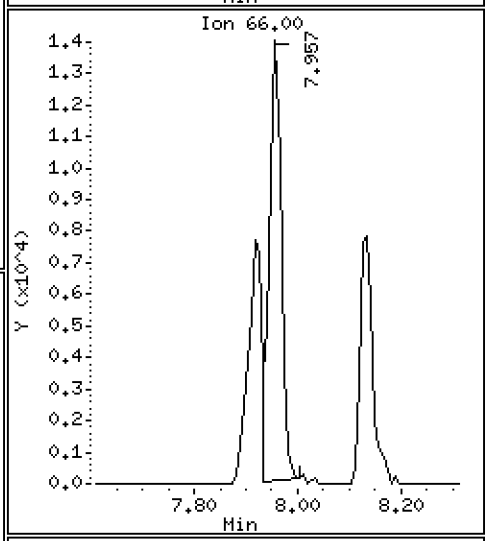


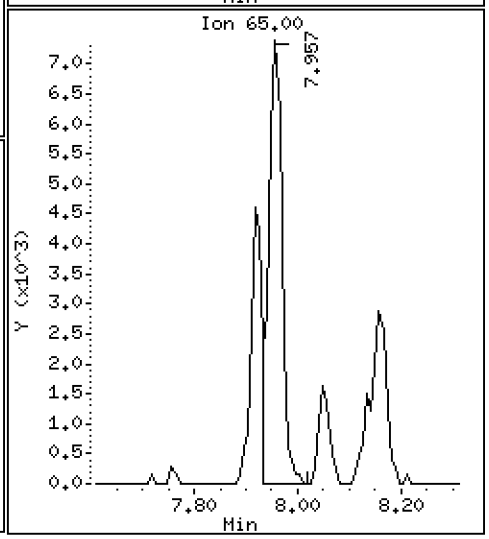












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

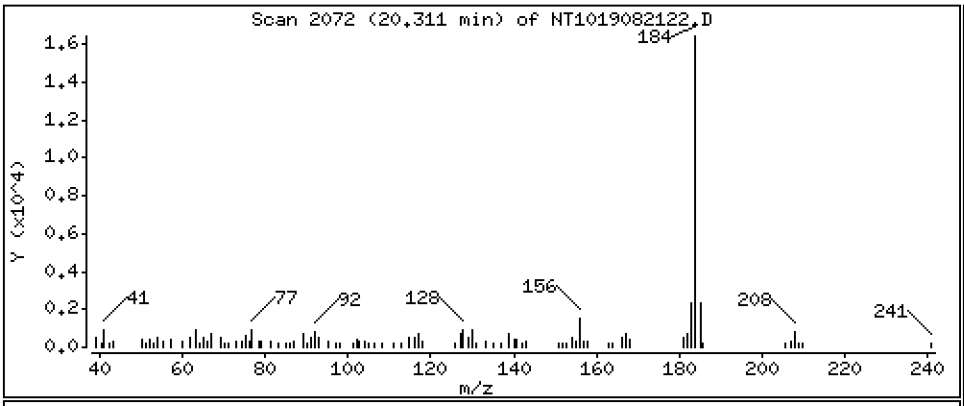
Operator: YZ

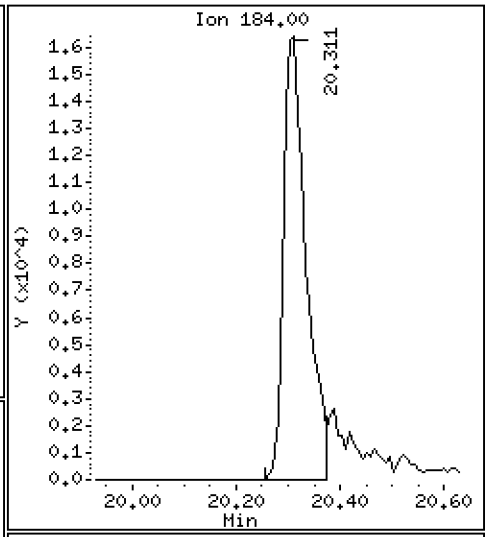
Column phase: ZB-5msi

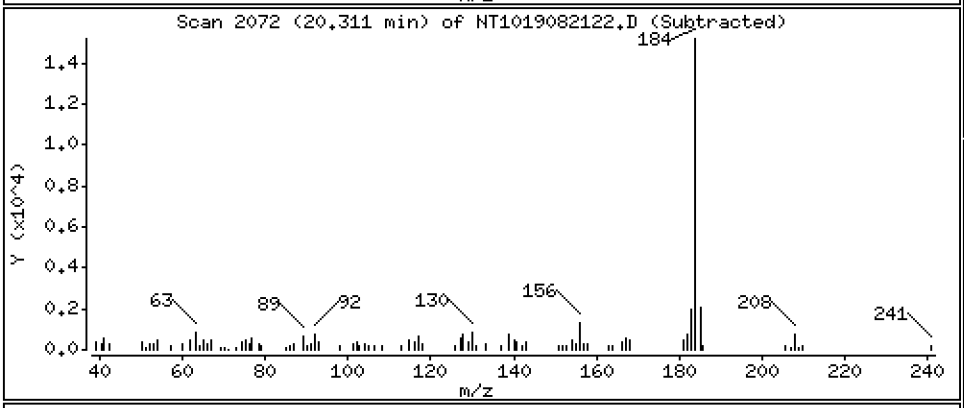
Column diameter: 0.25

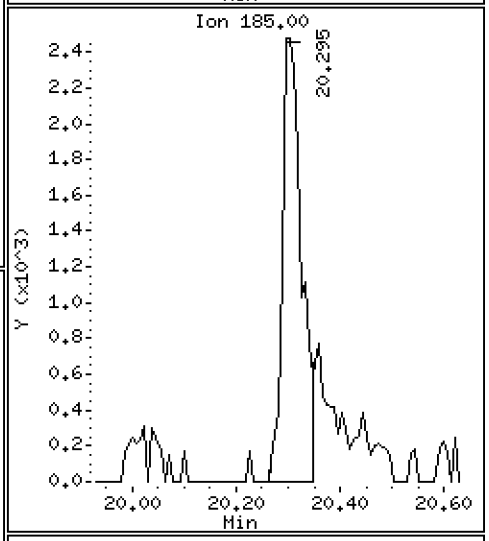
93 Benzidine

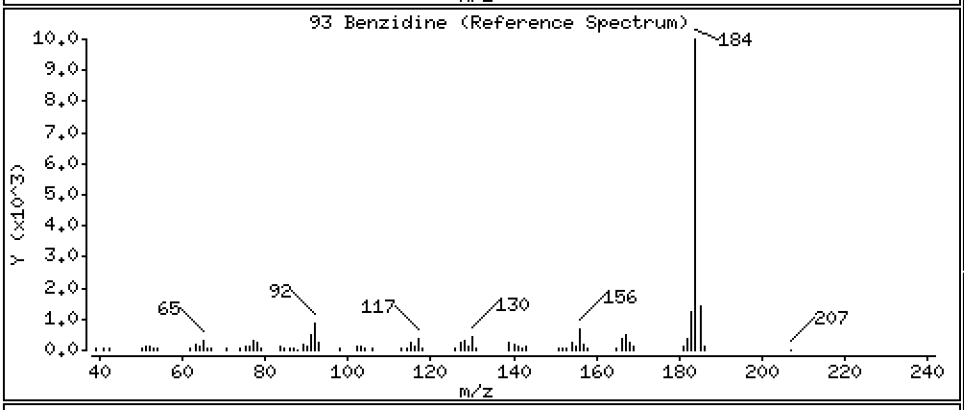
Concentration: 4.089 ug/mL

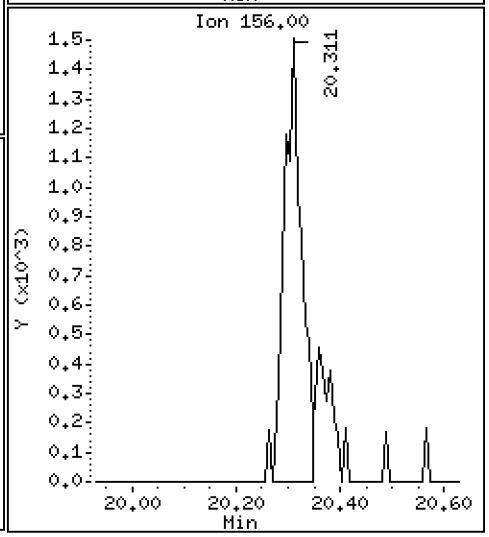


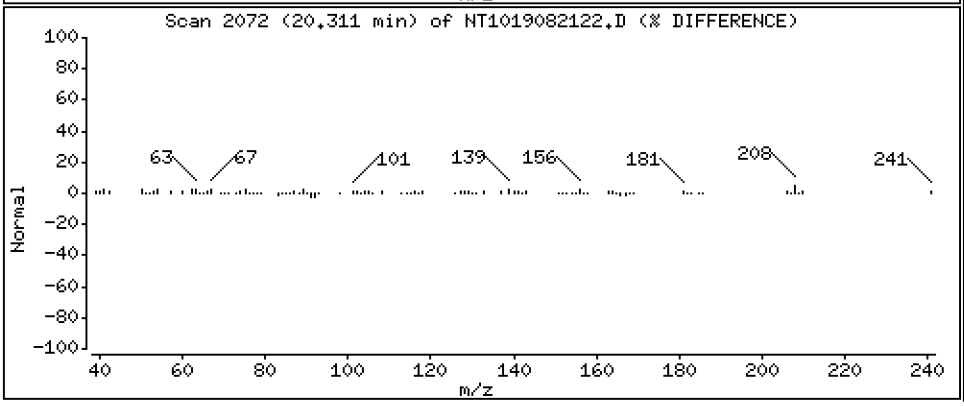












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

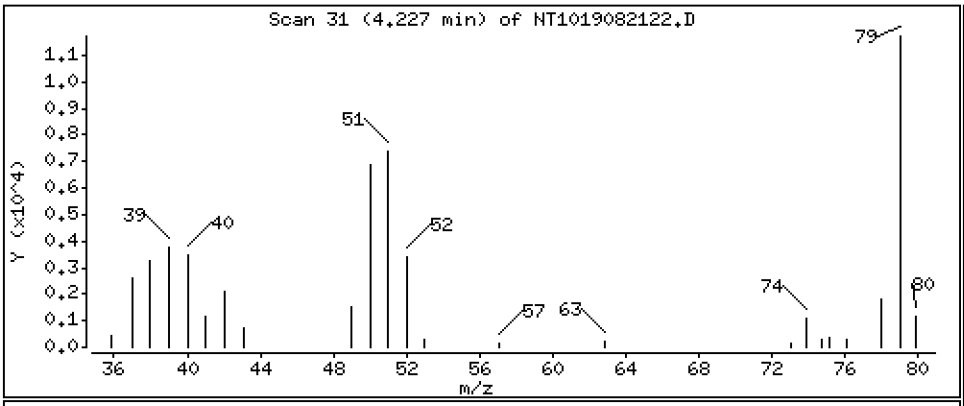
Operator: YZ

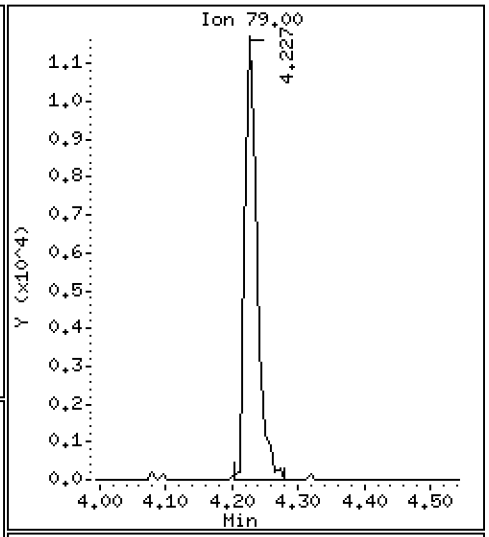
Column phase: ZB-5msi

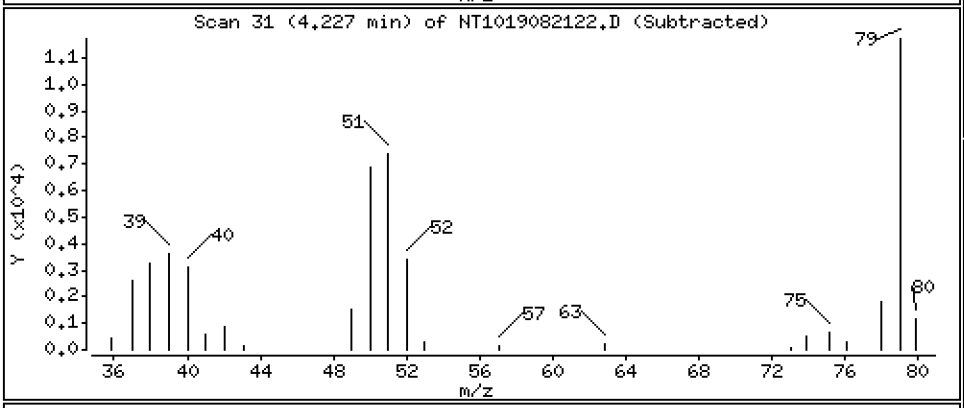
Column diameter: 0.25

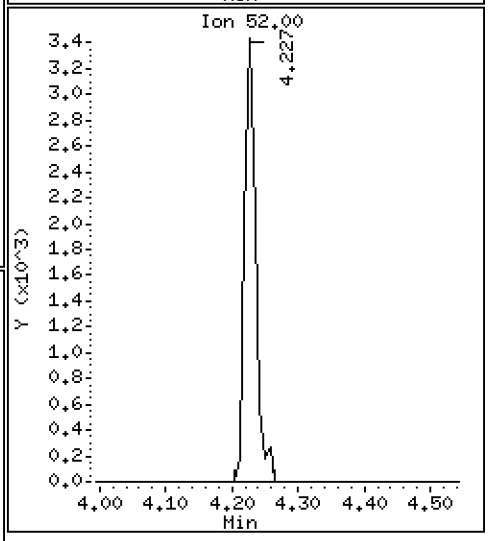
103 Pyridine

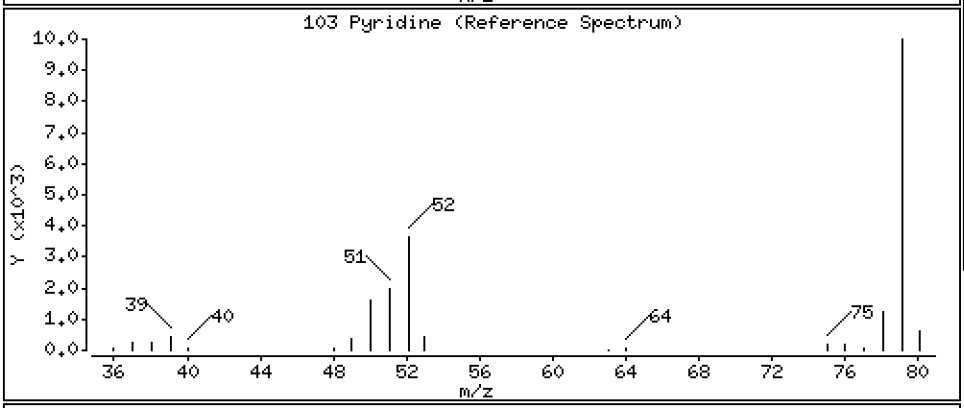
Concentration: 2.170 ug/mL

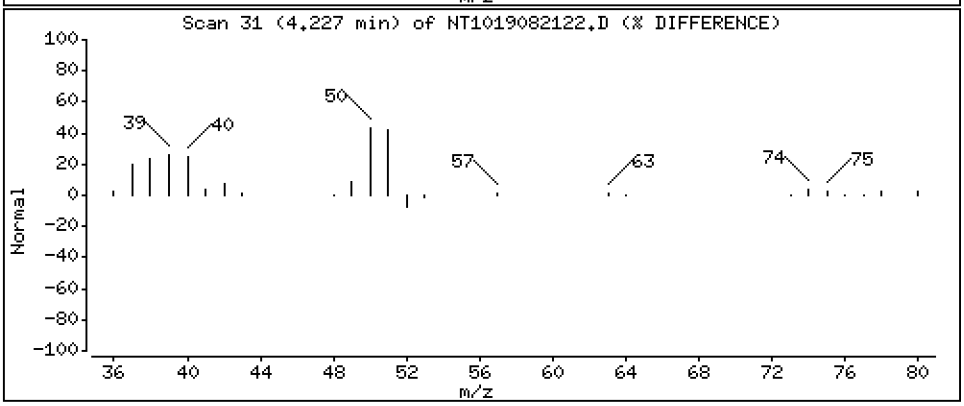












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

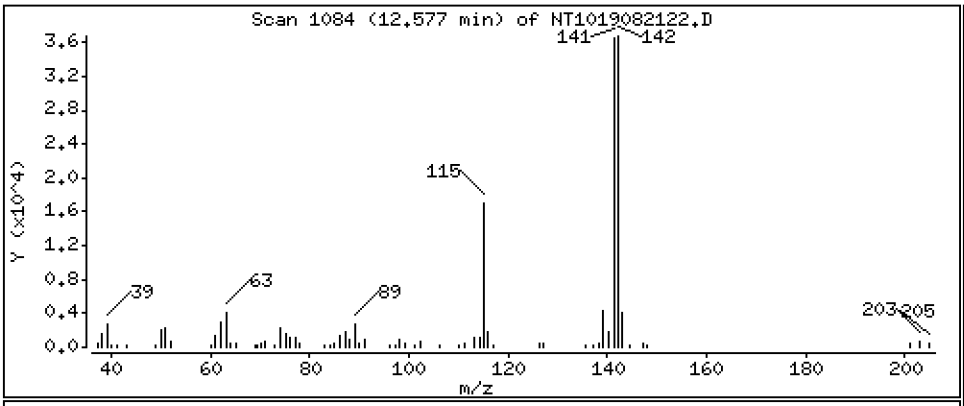
Operator: YZ

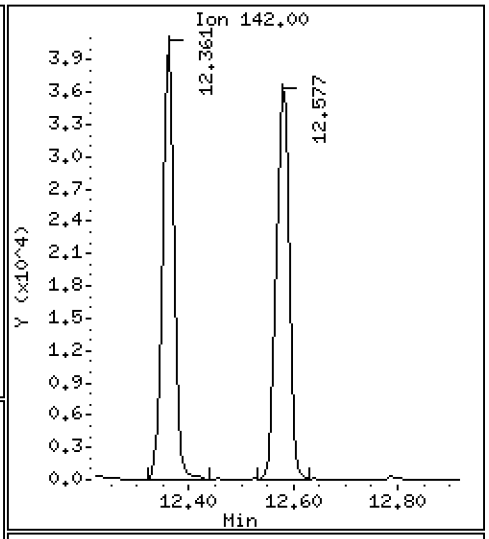
Column phase: ZB-5msi

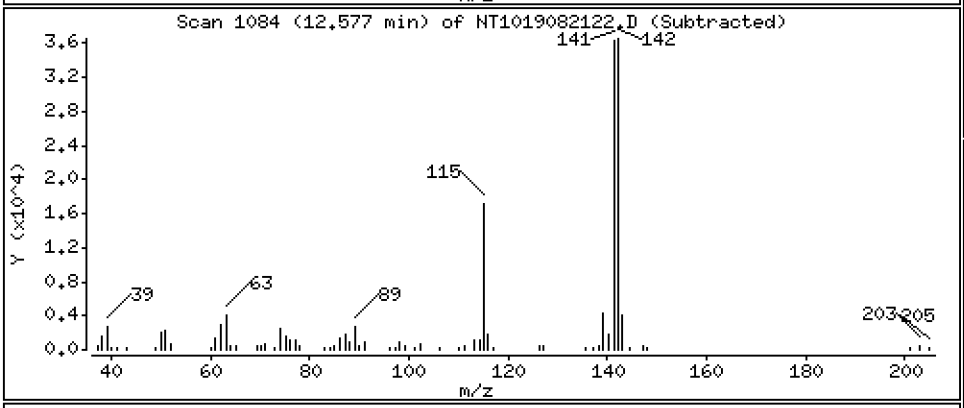
Column diameter: 0.25

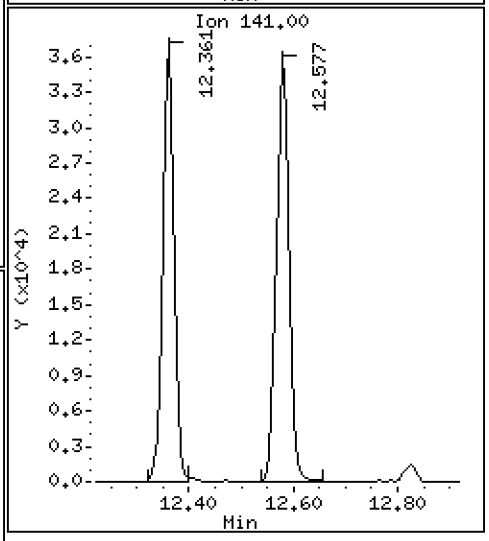
105 1-methylnaphthalene

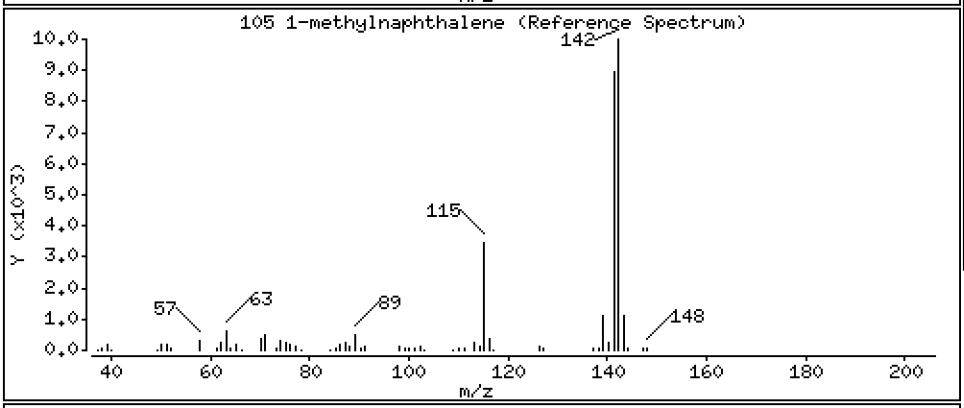
Concentration: 2.634 ug/mL

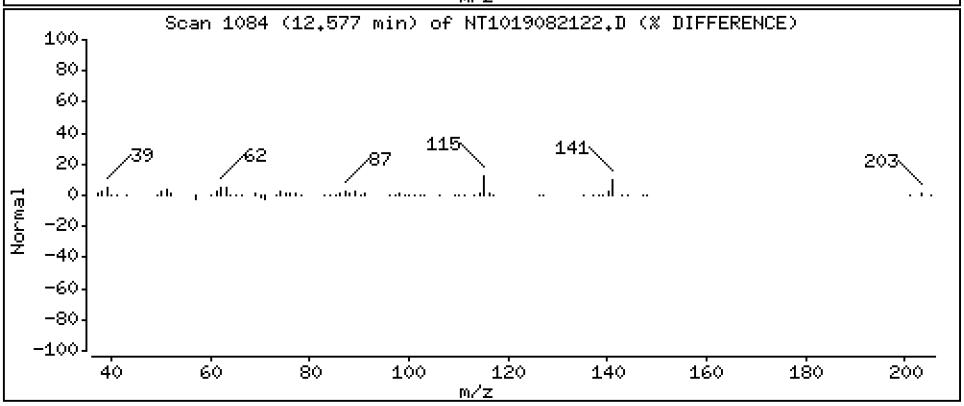












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Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

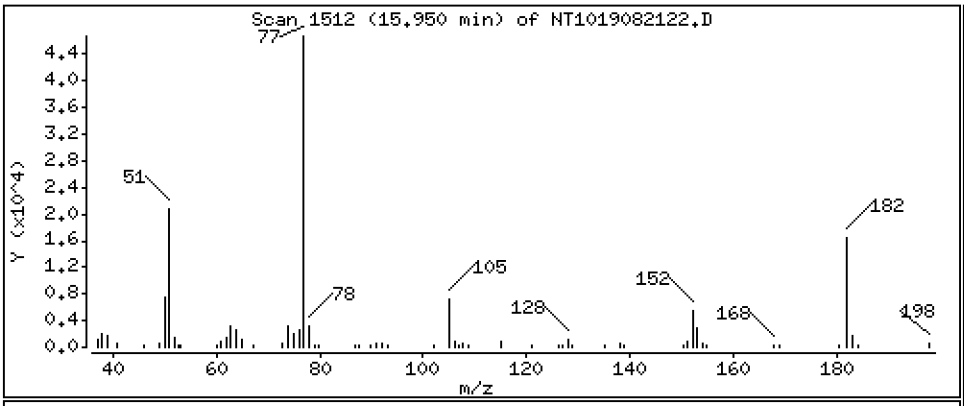
Operator: YZ

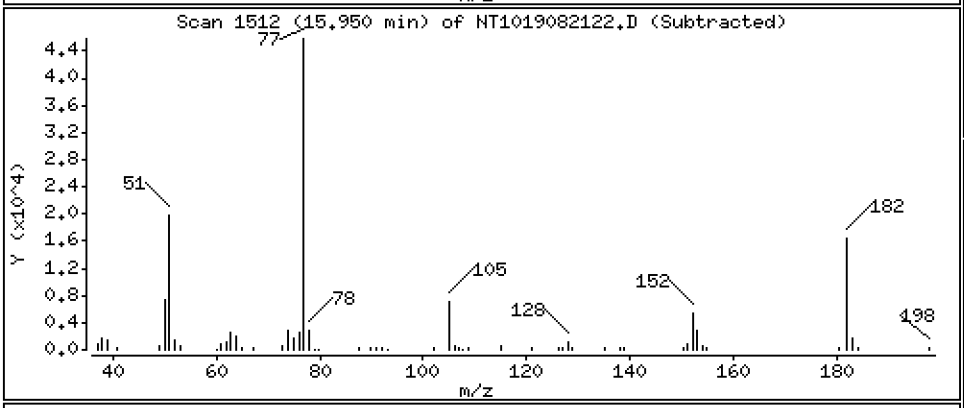
Column phase: ZB-5msi

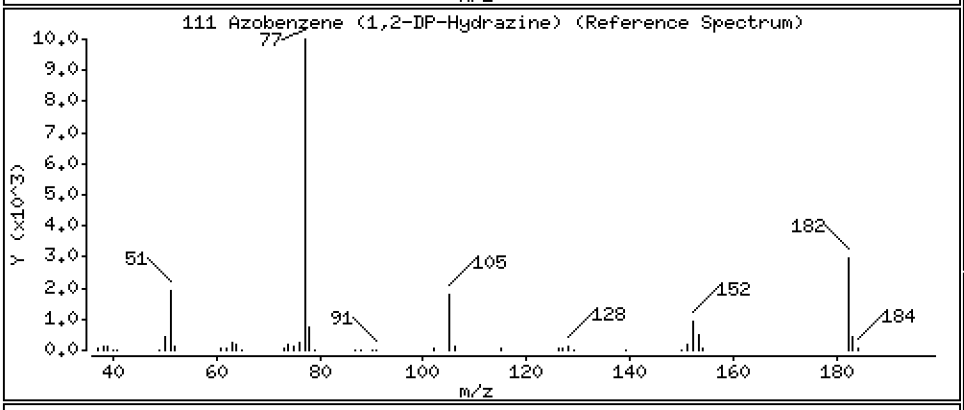
Column diameter: 0.25

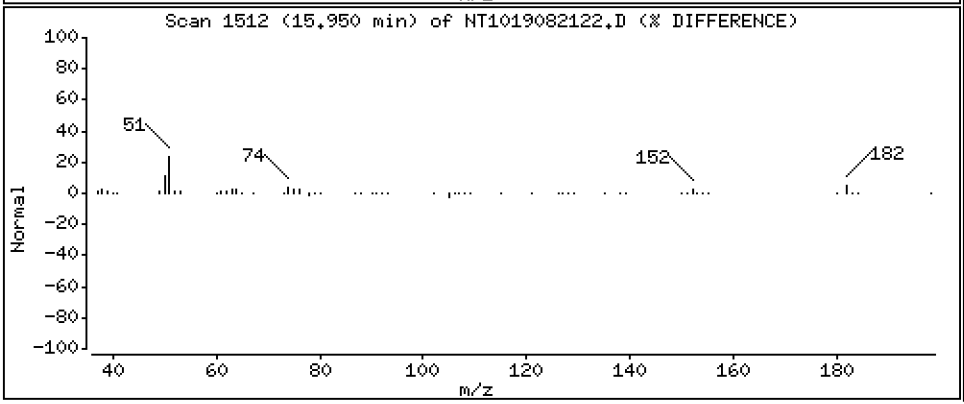
111 Azobenzene (1,2-DP-Hydrazine)

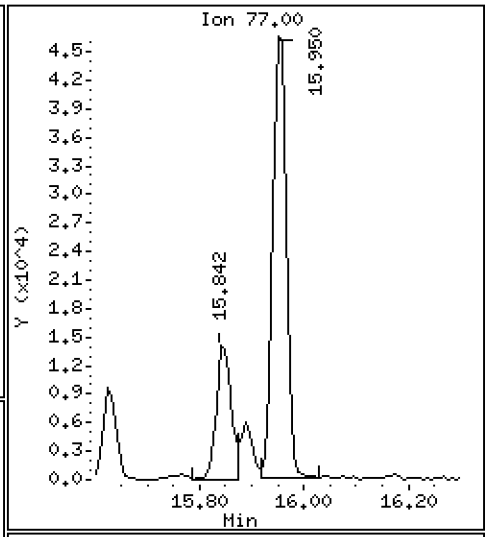
Concentration: 3.058 ug/mL

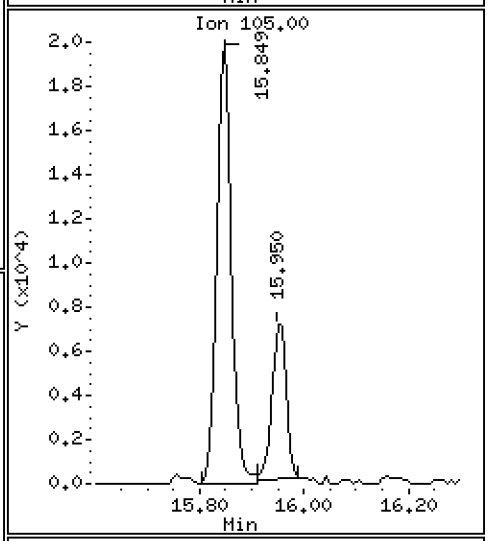


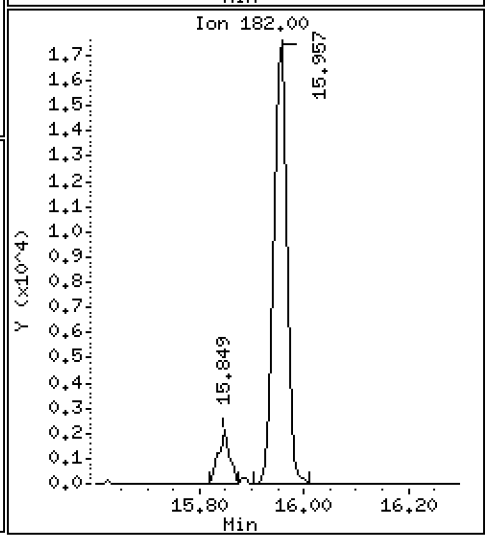












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

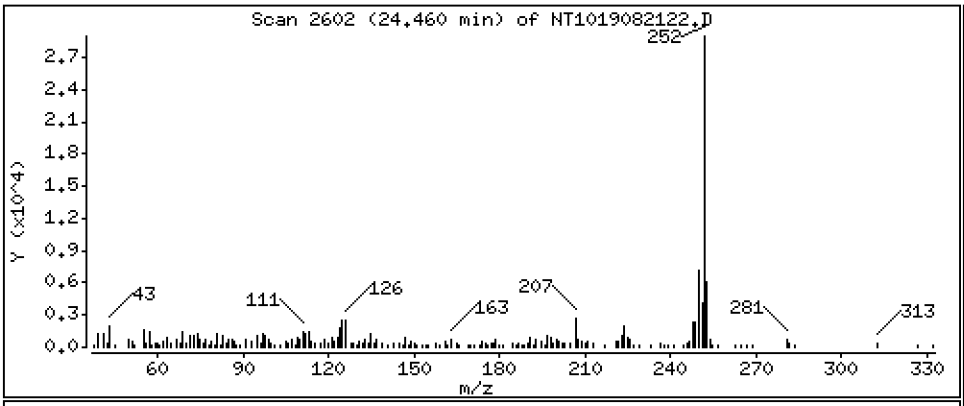
Operator: YZ

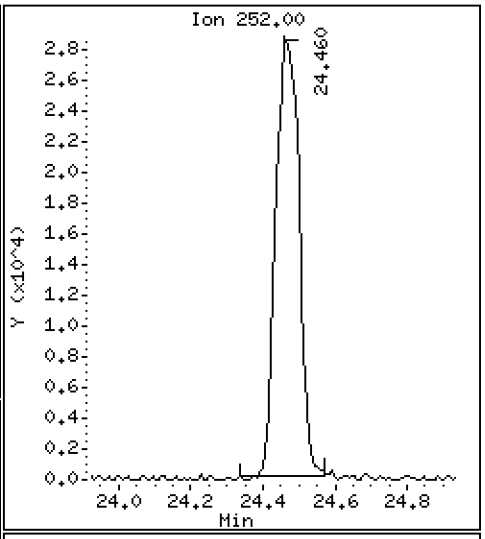
Column phase: ZB-5msi

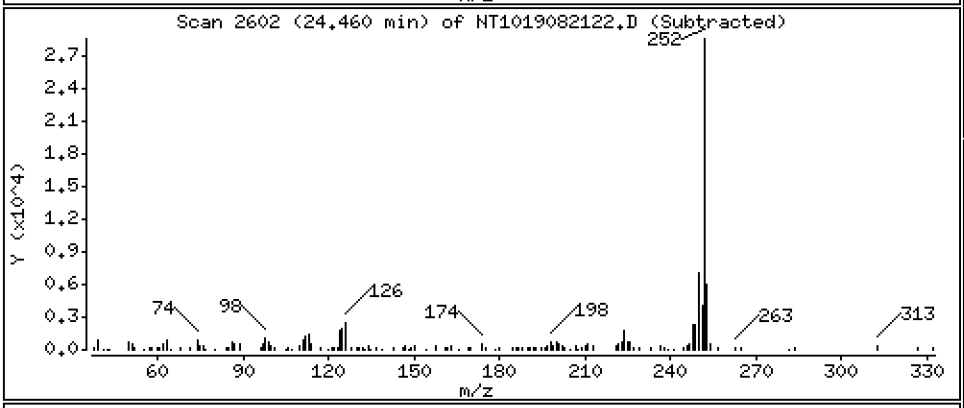
Column diameter: 0.25

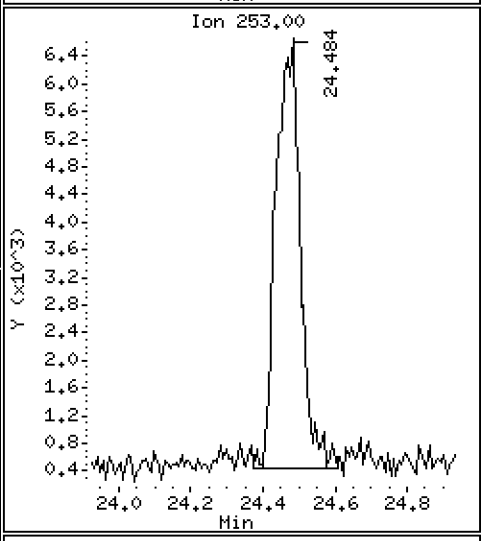
187 Total Benzofluoranthenes

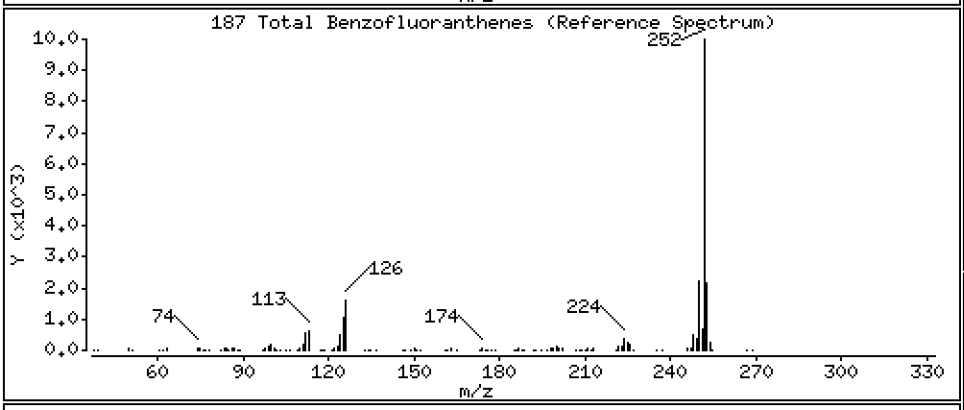
Concentration: 7.998 ug/mL

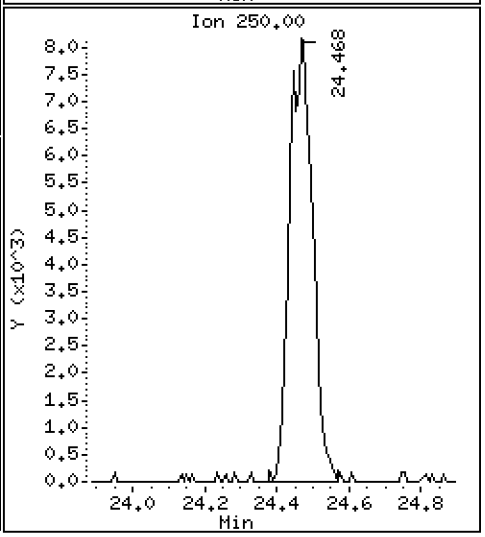


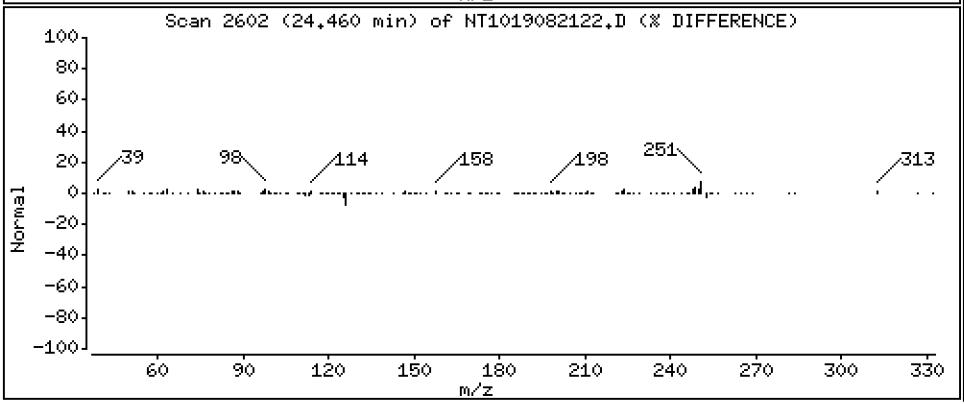












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

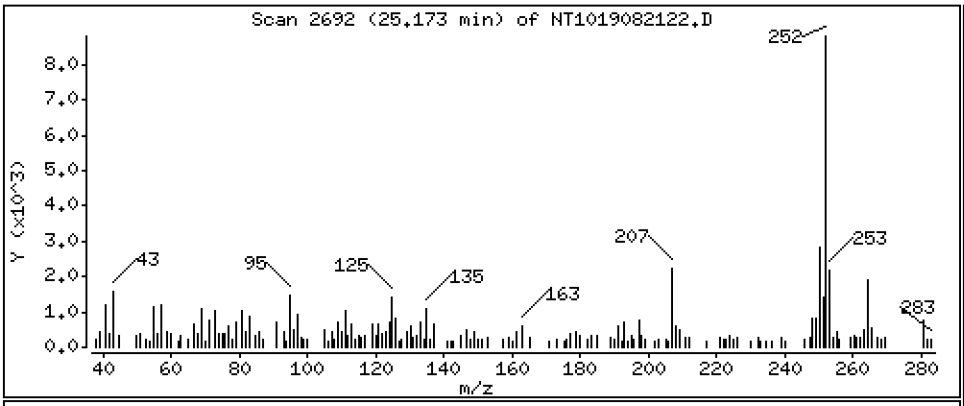
Operator: YZ

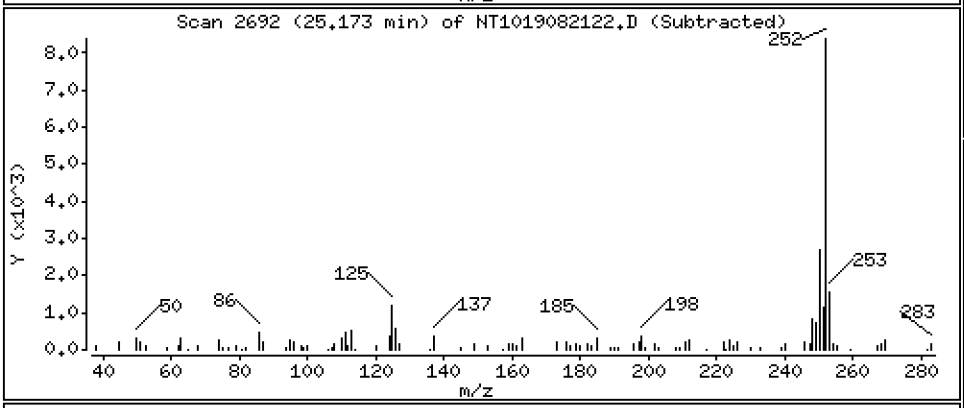
Column phase: ZB-5msi

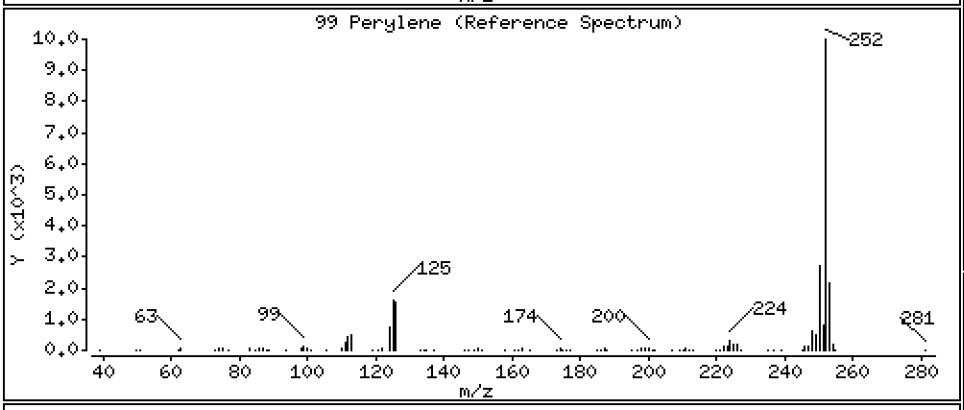
Column diameter: 0.25

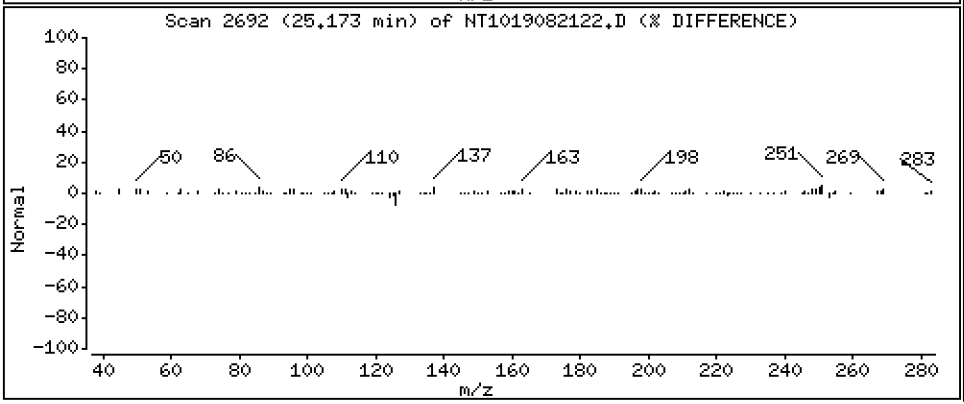
99 Perylene

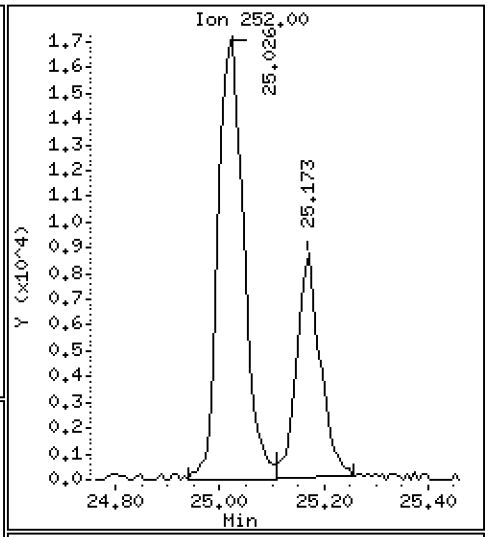
Concentration: 1.987 ug/mL

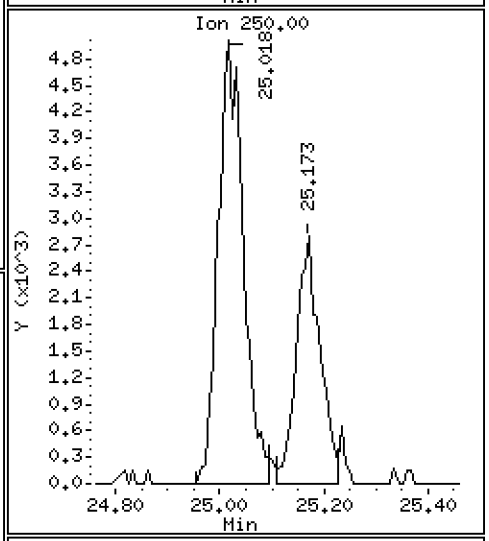


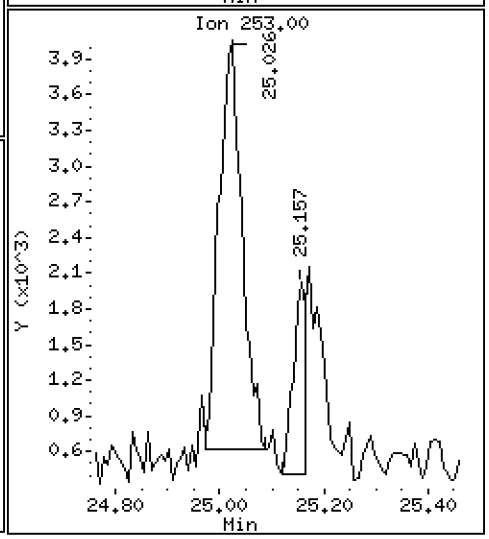












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D

Date : 21-AUG-2019 23:14

Client ID:

Instrument: nt10.i

Sample Info: BHH0299-BS1

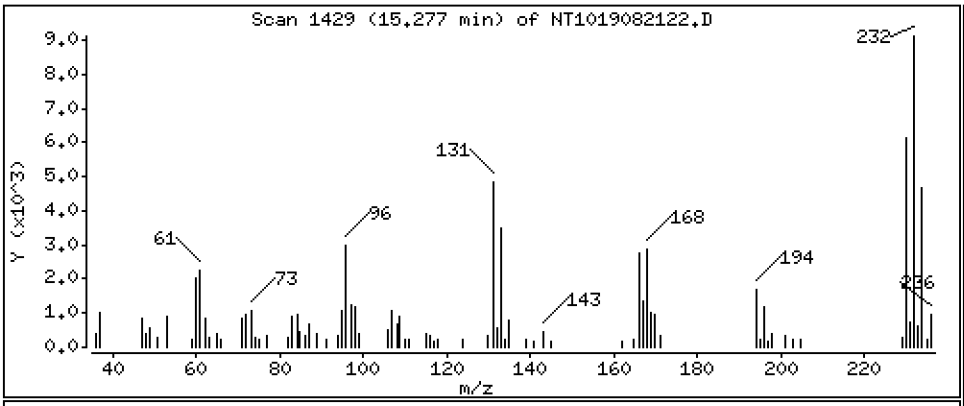
Operator: YZ

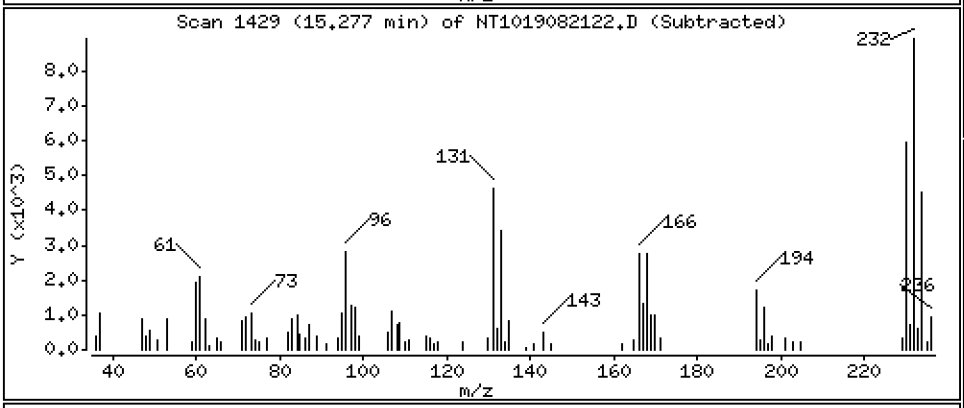
Column phase: ZB-5msi

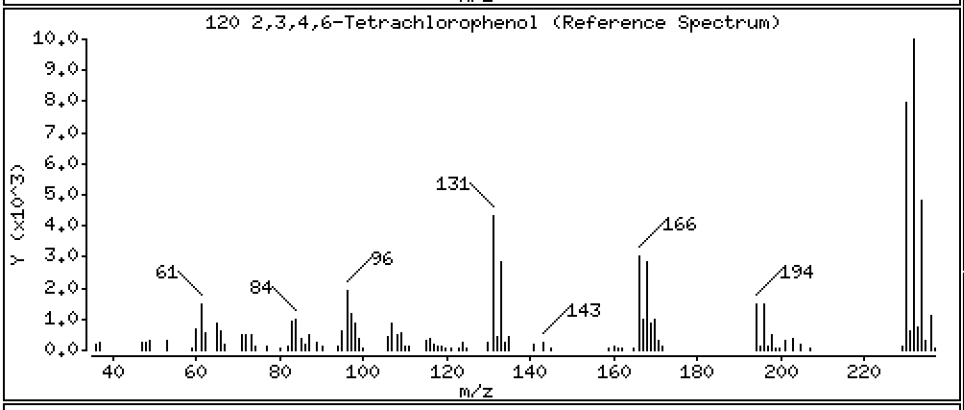
Column diameter: 0.25

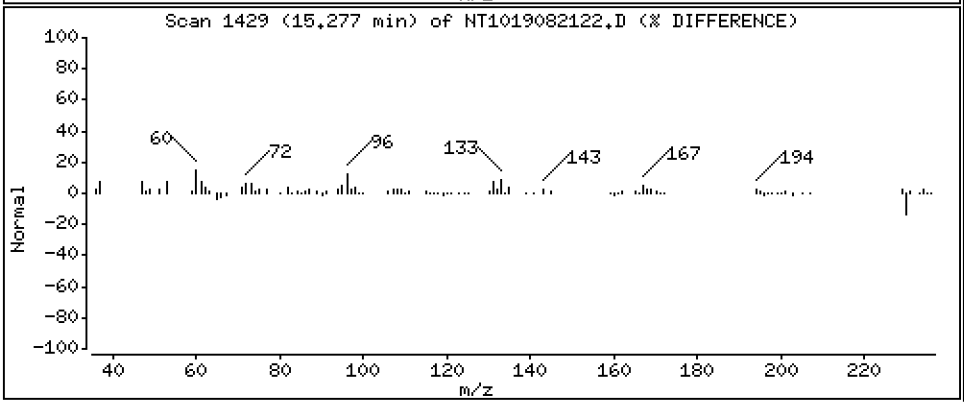
120 2,3,4,6-Tetrachlorophenol

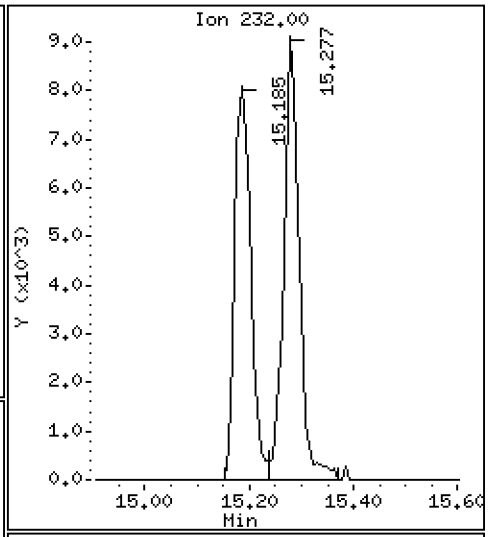
Concentration: 3.344 ug/mL

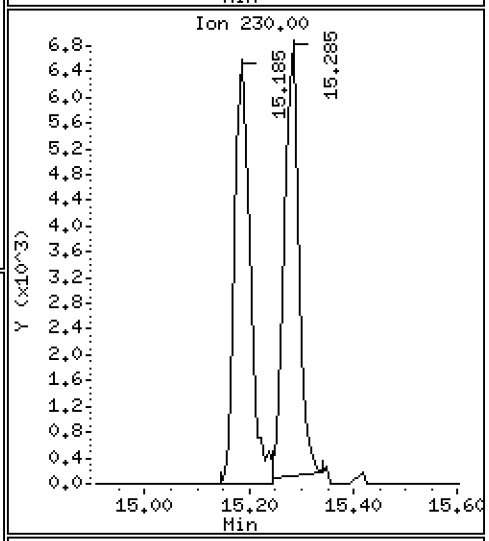


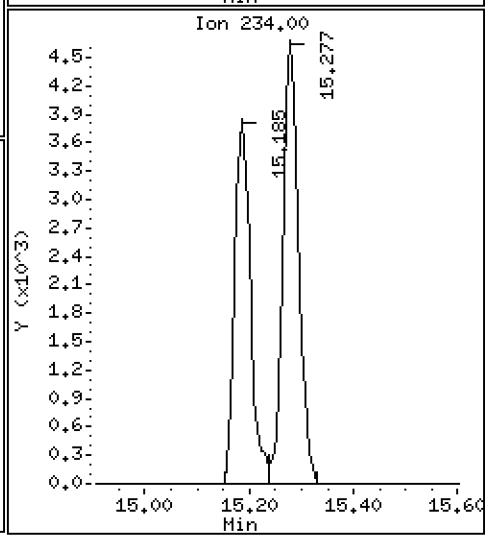












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082122.D
Lab Smp Id: BHH0299-BS1
Inj Date : 21-AUG-2019 23:14
Operator : YZ Inst ID: nt10.i
Smp Info : BHH0299-BS1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 18
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.327	6.311	(0.746)	33645	3.47586	3.476
$	2 Phenol-d5	99	7.895	7.888	(0.931)	36007	3.31919	3.319
	3 Phenol	94	7.918	7.911	(0.933)	22690	2.24980	2.250
$	5 2-Chlorophenol-d4	132	8.135	8.127	(0.959)	49789	4.26350	4.264
	4 Bis(2-Chloroethyl)ether	93	8.050	8.050	(0.949)	17521	2.14399	2.144
	6 2-Chlorophenol	128	8.158	8.158	(0.962)	31072	2.76132	2.761
	7 1,3-Dichlorobenzene	146	8.421	8.421	(0.993)	33517	2.61358	2.614
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	34471	4.00000	
	9 1,4-Dichlorobenzene	146	8.514	8.514	(1.004)	33868	2.74252	2.743
$	10 1,2-Dichlorobenzene-d4	152	8.832	8.832	(1.041)	21804	2.73094	2.731
	12 1,2-Dichlorobenzene	146	8.863	8.855	(1.045)	34306	2.92004	2.920
	11 Benzyl alcohol	108	8.786	8.762	(1.036)	9851	1.47583	1.476
	14 2,2'-oxybis(1-Chloropropane)	121	9.065	9.057	(1.069)	10043	2.82908	2.829
	13 2-Methylphenol	108	9.011	9.003	(1.062)	20792	2.68389	2.684
	17 Hexachloroethane	117	9.438	9.438	(1.113)	12706	2.47293	2.473
	16 N-Nitroso-di-n-propylamine	70	9.313	9.313	(1.098)	10833	2.19173	2.192
	15 4-Methylphenol	108	9.282	9.267	(1.094)	20928	2.54859	2.549
$	18 Nitrobenzene-d5	82	9.570	9.554	(0.876)	26287	2.75989	2.760
	19 Nitrobenzene	77	9.601	9.600	(0.878)	23532	2.57436	2.574
	20 Isophorone	82	10.043	10.043	(0.919)	41303	2.69411	2.694
	21 2-Nitrophenol	139	10.222	10.221	(0.935)	19042	3.14403	3.144
	22 2,4-Dimethylphenol	107	10.306	10.298	(0.943)	81572	7.97818	7.978
	23 Bis(2-Chloroethoxy)methane	93	10.485	10.485	(0.959)	20913	2.37952	2.380
	24 Benzoic acid	105	10.519	10.510	(0.962)	62800	9.08473	9.085
	25 2,4-Dichlorophenol	162	10.680	10.671	(0.977)	86482	10.1869	10.19
	26 1,2,4-Trichlorobenzene	180	10.852	10.852	(0.993)	29727	3.09305	3.093
*	27 Naphthalene-d8	136	10.929	10.929	(1.000)	121782	4.00000	
	28 Naphthalene	128	10.968	10.968	(1.004)	81199	2.90072	2.901
	29 4-Chloroaniline	127	11.122	11.114	(1.018)	87728	7.14662	7.147
	30 Hexachlorobutadiene	225	11.339	11.338	(1.037)	19613	3.32638	3.326
	31 4-Chloro-3-methylphenol	107	12.120	12.097	(1.109)	79311	9.11964	9.120
	32 2-Methylnaphthalene	142	12.360	12.353	(1.131)	65020	2.73837	2.738
	33 Hexachlorocyclopentadiene	237	12.824	12.824	(0.883)	13194	1.88592	1.886

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	13.002	12.987	(0.896)	66944	9.72574	9.726
	35	2,4,5-Trichlorophenol	196	13.088	13.057	(0.901)	70389	9.90433	9.904
$	36	2-Fluorobiphenyl	172	13.150	13.142	(0.906)	75691	2.95905	2.959
	37	2-Chloronaphthalene	162	13.343	13.335	(0.919)	64048	2.92283	2.923
	38	2-Nitroaniline	65	13.629	13.614	(0.939)	43329	9.22164	9.222
	39	Dimethylphthalate	163	14.071	14.055	(0.969)	85022	3.42120	3.421
	40	Acenaphthylene	152	14.210	14.195	(0.979)	104830	3.25187	3.252
	41	2,6-Dinitrotoluene	165	14.202	14.194	(0.978)	56866	10.3666	10.37
*	42	Acenaphthene-d10	164	14.519	14.512	(1.000)	66876	4.00000	
	43	3-Nitroaniline	138	14.488	14.473	(0.998)	50766	7.87429	7.874
	44	Acenaphthene	153	14.589	14.574	(1.005)	62055	3.06352	3.064
	45	2,4-Dinitrophenol	184	14.705	14.682	(1.013)	48609	12.7115	12.71
	46	Dibenzofuran	168	14.914	14.898	(1.027)	93632	2.81256	2.813
	47	4-Nitrophenol	109	14.906	14.836	(1.027)	29604	7.19998	7.200
	48	2,4-Dinitrotoluene	165	15.014	14.991	(1.034)	77908	10.4388	10.44
	50	Diethylphthalate	149	15.517	15.517	(1.069)	91991	3.84445	3.844
	49	Fluorene	166	15.625	15.610	(1.076)	74516	3.27301	3.273
	51	4-Chlorophenyl-phenylether	204	15.625	15.617	(1.076)	37842	3.22636	3.226
	52	4-Nitroaniline	138	15.756	15.741	(1.085)	76025	10.4226	10.42
	53	4,6-Dinitro-2-methylphenol	198	15.849	15.826	(0.904)	106967	16.7560	16.76
	54	N-Nitrosodiphenylamine	169	15.887	15.872	(0.906)	76156	4.28292	4.283
$	55	2,4,6-Tribromophenol	330	16.165	16.142	(1.113)	22676	4.48428	4.484
	56	4-Bromophenyl-phenylether	248	16.628	16.620	(0.948)	34150	3.27619	3.276
	57	Hexachlorobenzene	284	16.929	16.913	(0.965)	33077	2.97848	2.978
	58	Pentachlorophenol	266	17.324	17.285	(0.988)	26149	5.58248	5.582
*	59	Phenanthrene-d10	188	17.541	17.525	(1.000)	129538	4.00000	
	60	Phenanthrene	178	17.595	17.572	(1.003)	104901	3.31523	3.315
	61	Anthracene	178	17.688	17.665	(1.008)	106087	3.30196	3.302
	62	Carbazole	167	18.043	18.012	(1.029)	103345	3.41819	3.418
	63	Di-n-butylphthalate	149	18.887	18.872	(1.077)	158719	3.62576	3.626
	64	Fluoranthene	202	20.016	19.993	(0.883)	134399	5.08791	5.088
	65	Pyrene	202	20.442	20.411	(0.902)	136284	4.94070	4.941
$	66	Terphenyl-d14	244	20.767	20.744	(0.916)	87800	4.69339	4.693
	67	Butylbenzylphthalate	149	21.735	21.712	(0.959)	61987	4.82420	4.824
	68	Benzo(a)anthracene	228	22.641	22.610	(0.999)	101172	4.03405	4.034
*	69	Chrysene-d12	240	22.672	22.633	(1.000)	86440	4.00000	
	70	3,3'-Dichlorobenzidine	252	22.633	22.594	(0.998)	96036	10.9000	10.90
	71	Chrysene	228	22.718	22.680	(1.002)	80859	3.64356	3.644
	72	bis(2-Ethylhexyl)phthalate	149	22.788	22.765	(0.958)	68973	4.33332	4.333
*	134	Di-n-octylphthalate-d4	153	23.779	23.756	(1.000)	180967	4.00000	
	73	Di-n-octylphthalate	149	23.786	23.763	(1.000)	112396	3.35725	3.357
	74	Benzo(b)fluoranthene	252	24.460	24.390	(0.974)	129327	7.71420	7.714
	75	Benzo(k)fluoranthene	252	24.460	24.429	(0.974)	129327	7.66801	7.668
	76	Benzo(a)pyrene	252	25.025	24.948	(0.996)	59285	3.94020	3.940
*	77	Perylene-d12	264	25.118	25.056	(1.000)	58433	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	27.435	27.303	(1.092)	44341	2.45267	2.453(M)
	79	Dibenzo(a,h)anthracene	278	27.458	27.334	(1.093)	33468	2.27387	2.274(M)
	80	Benzo(g,h,i)perylene	276	28.110	27.971	(1.119)	29614	1.94489	1.945(M)
	90	N-Nitrosodimethylamine	74	Compound Not Detected.					
	91	Aniline	93	7.957	7.957	(0.938)	72936	8.16791	8.168
	93	Benzidine	184	20.310	20.279	(0.896)	50879	4.08872	4.089
	103	Pyridine	79	4.226	4.195	(0.498)	15049	2.16973	2.170
	105	1-methylnaphthalene	142	12.577	12.569	(1.151)	62877	2.63409	2.634
	111	Azobenzene (1,2-DP-Hydrazine)	77	15.949	15.949	(1.098)	81364	3.05757	3.058

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
187	Total Benzofluoranthenes	252	24.460	24.429	(0.974)	128614	7.99796	7.998
99	Perylene	252	25.172	25.110	(1.002)	27496	1.98657	1.987
98	Retene	219	Compound Not Detected.					
120	2,3,4,6-Tetrachlorophenol	232	15.277	15.254	(1.052)	19147	3.34414	3.344

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082122.D
Lab Smp Id: BHH0299-BS1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	34471	5.29
27 Naphthalene-d8	117487	58744	234974	121782	3.66
42 Acenaphthene-d10	61859	30930	123718	66876	8.11
59 Phenanthrene-d10	113574	56787	227148	129538	14.06
69 Chrysene-d12	105788	52894	211576	86440	-18.29
134 Di-n-octylphthala	252823	126412	505646	180967	-28.42
77 Perylene-d12	113992	56996	227984	58433	-48.74

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	-0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	-0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.52	0.05
59 Phenanthrene-d10	17.53	17.03	18.03	17.54	0.09
69 Chrysene-d12	22.63	22.13	23.13	22.67	0.17
134 Di-n-octylphthala	23.76	23.26	24.26	23.78	0.10
77 Perylene-d12	25.06	24.56	25.56	25.12	0.25

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082122.D

Lab ID: BHH0299-BS1
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 23:14

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.949	1.033	-0.0840	Benzyl alcohol
0.962	1.004	-0.0418	Naphthalene
0.993	0.962	0.0310	Benzoic acid
1.000	1.130	-0.1302	2-Methylnaphthalene
1.004	0.978	0.0255	Acenaphthylene
1.045	0.969	0.0763	Dimethylphthalate
1.036	1.004	0.0314	Acenaphthene
1.069	1.027	0.0420	Dibenzofuran
1.062	1.076	-0.0134	Fluorene
1.113	1.069	0.0433	Diethylphthalate
1.098	0.906	0.1922	N-Nitrosodiphenylamine
1.094	1.003	0.0916	Phenanthrene
0.878	1.008	-0.1295	Anthracene
0.919	1.077	-0.1578	Di-n-butylphthalate
0.935	0.883	0.0519	Fluoranthene
0.943	0.902	0.0412	Pyrene
0.977	0.999	-0.0218	Benzo(a)anthracene
0.993	1.002	-0.0091	Chrysene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate
0.962	0.973	-0.0110	Benzo(b)fluoranthene
1.018	0.975	0.0427	Benzo(k)fluoranthene
1.037	0.996	0.0418	Benzo(a)pyrene
1.109	1.090	0.0193	Indeno(1,2,3-cd)pyrene
1.131	1.091	0.0400	Dibenzo(a,h)anthracene
0.883	1.116	-0.2330	Benzo(g,h,i)perylene
0.896	1.150	-0.2545	1-methylnaphthalene
0.901	0.975	-0.0736	Total Benzofluoranthenes
0.919	1.000	-0.0810	1,4-Dichlorobenzene-d4
0.939	1.000	-0.0613	Naphthalene-d8
0.979	1.000	-0.0213	Acenaphthene-d10
0.969	1.000	-0.0309	Phenanthrene-d10
0.978	1.000	-0.0219	Chrysene-d12
0.998	0.958	0.0398	2-Chlorophenol-d4
1.013	0.744	0.2688	2-Fluorophenol
1.027	0.930	0.0974	Phenol-d5
1.027	1.041	-0.0145	1,2-Dichlorobenzene-d4
1.034	0.874	0.1599	Nitrobenzene-d5
1.076	0.906	0.1705	2-Fluorobiphenyl
1.076	1.112	-0.0362	2,4,6-Tribromophenol
1.069	0.917	0.1522	Terphenyl-d14

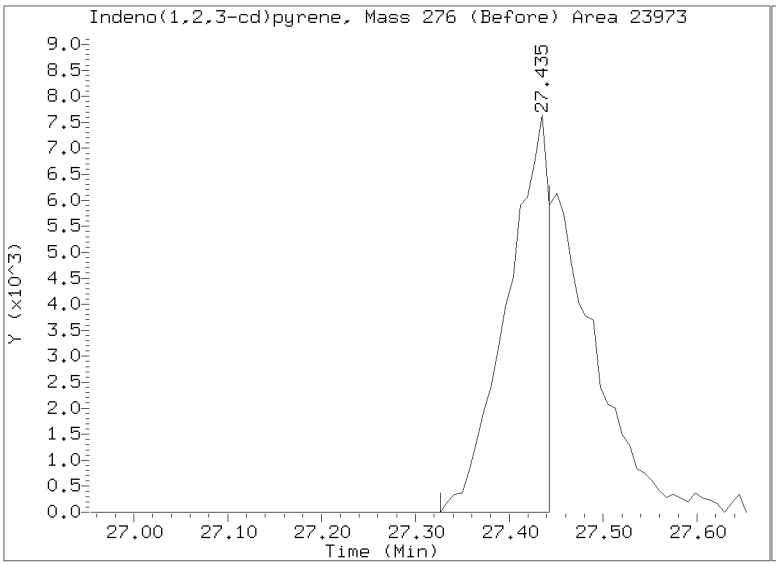
RRT check based on Ccal File: NT1019082105.D

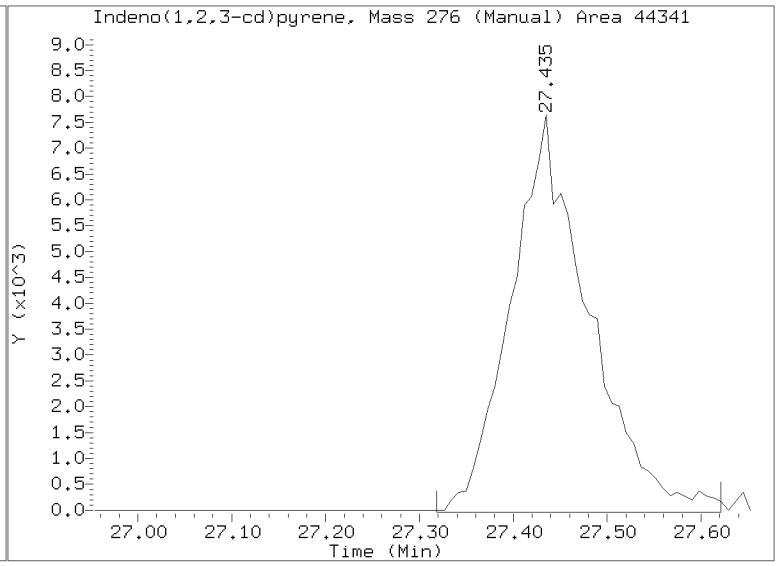
On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

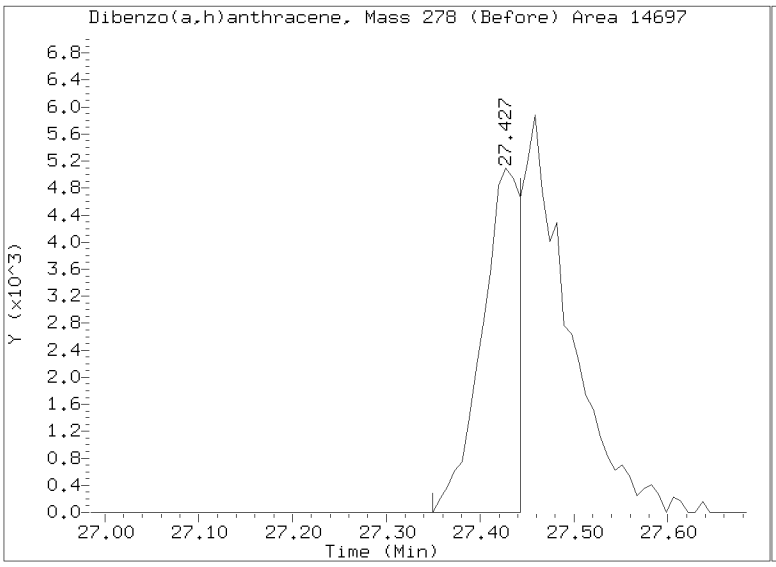
* Only compounds listed in the work order have been verified by the analyst *

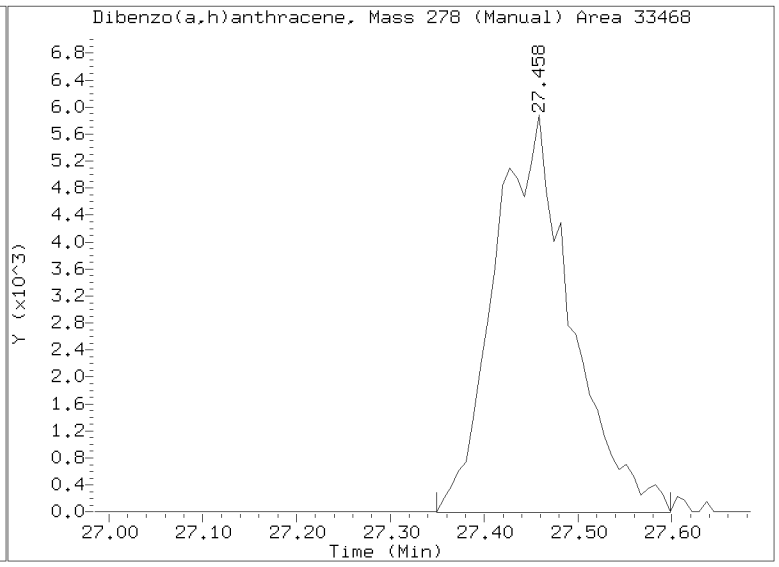
Quant Ion Manual Peak Adjustment Report

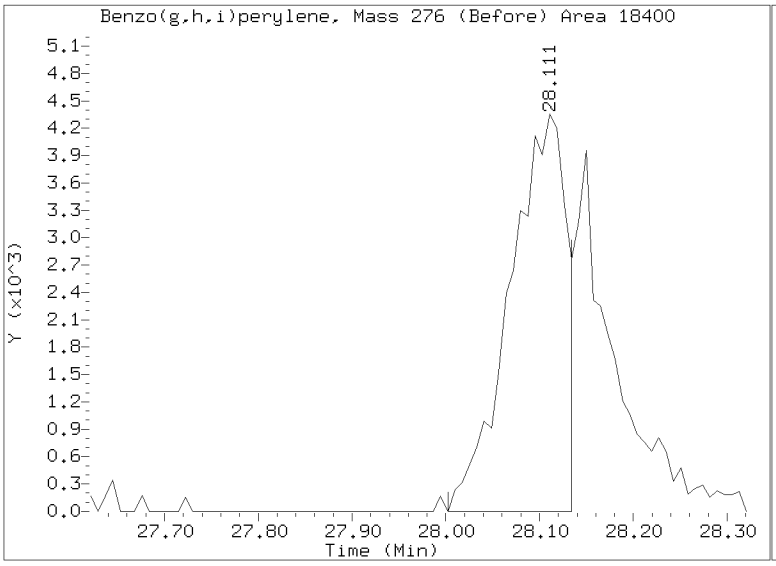
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082122.D
Injection Date: 21-AUG-2019 23:14
Lab ID:BHH0299-BS1 Client ID:
Report Date: 08/22/2019 12:51

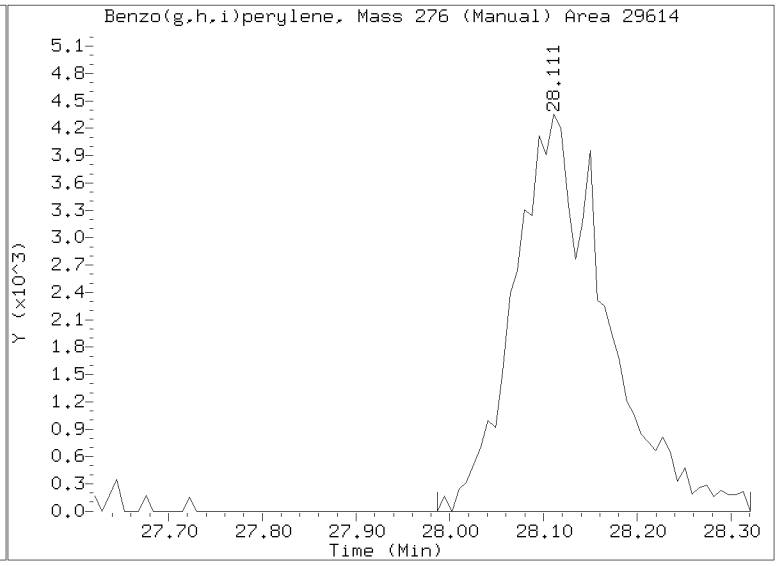












MS / MS DUPLICATE RECOVERY
EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/21/19 15:44
Batch:	BHH0289	Laboratory ID:	BHH0289-MS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	Matrix Spike
Initial/Final:	25.26 g / 1 mL	Source Sample:	SL4-SG-WC3-2019

COMPOUND	SPIKE ADDED (ug/kg dry)	SAMPLE CONCENTRATION (ug/kg dry)	Q	MS CONCENTRATION (ug/kg dry)	Q	MS % REC. #		QC LIMITS REC.
Phenol	498	48.4	Q	314	Q	53.2		34 - 120
Benzyl Alcohol	498	16.7	J	275	Q	51.8		19 - 120
Benzoic acid	2740	99.9	J	1280	Q	42.9		10 - 120
N-Nitrosodiphenylamine	498	12.8	J	560		110		36 - 120
Phenanthrene	498	392		706		63.0		49 - 120
Fluoranthene	498	1440		2040	E	120		53 - 120
Pyrene	498	1020		1660	*	129	*	48 - 121
Butylbenzylphthalate	498	42.4		653		122		45 - 132
Benzo(a)anthracene	498	174		628		91.0		49 - 120
Chrysene	498	715		1400	*	138	*	47 - 120
bis(2-Ethylhexyl)phthalate	498	2090	E	2730	E	129		34 - 130
Di-n-Octylphthalate	498	ND	U	410		82.3		28 - 124
Benzofluoranthenes, Total	997	819		3820	*	301	*	30 - 160
Benzo(a)pyrene	498	599		1010		82.8		42 - 120
Indeno(1,2,3-cd)pyrene	498	147		856	*	142	*	42 - 123
Dibenzo(a,h)anthracene	498	ND	U	607		122		30 - 133
Benzo(g,h,i)perylene	498	124		949	*	166	*	38 - 126

* Values outside of QC limits

MS / MS DUPLICATE RECOVERY
EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/21/19 16:22
Batch:	BHH0289	Laboratory ID:	BHH0289-MSD1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	Matrix Spike Dup
Initial/Final:	25.28 g / 1 mL	Source Sample:	SL4-SG-WC3-2019

COMPOUND	SPIKE ADDED (ug/kg dry)	MSD CONCENTRATION (ug/kg dry)	Q	MSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	498	411	Q	72.8	26.9	30	34 - 120
Benzyl Alcohol	498	342	Q	65.4	21.8	30	19 - 120
Benzoic acid	2740	1650	Q	56.4	25.3	30	10 - 120
N-Nitrosodiphenylamine	498	595		117	6.07	30	36 - 120
Phenanthrene	498	730		67.9	3.33	30	49 - 120
Fluoranthene	498	2180	*, E	148 *	6.56	30	53 - 120
Pyrene	498	1690	*	135 *	1.62	30	48 - 121
Butylbenzylphthalate	498	688		130	5.24	30	45 - 132
Benzo(a)anthracene	498	556		76.6	12.1	30	49 - 120
Chrysene	498	1170		92.2	17.7	30	47 - 120
bis(2-Ethylhexyl)phthalate	498	2970	*, E	176 *	8.21	30	34 - 130
Di-n-Octylphthalate	498	568	*	114	32.2 *	30	28 - 124
Benzofluoranthenes, Total	996	2010	*	119	62.3 *	30	30 - 160
Benzo(a)pyrene	498	1120		105	10.3	30	42 - 120
Indeno(1,2,3-cd)pyrene	498	457	*	62.3	60.7 *	30	42 - 123
Dibenzo(a,h)anthracene	498	335	*	67.3	57.7 *	30	30 - 133
Benzo(g,h,i)perylene	498	412	*	57.8	79.1 *	30	38 - 126

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

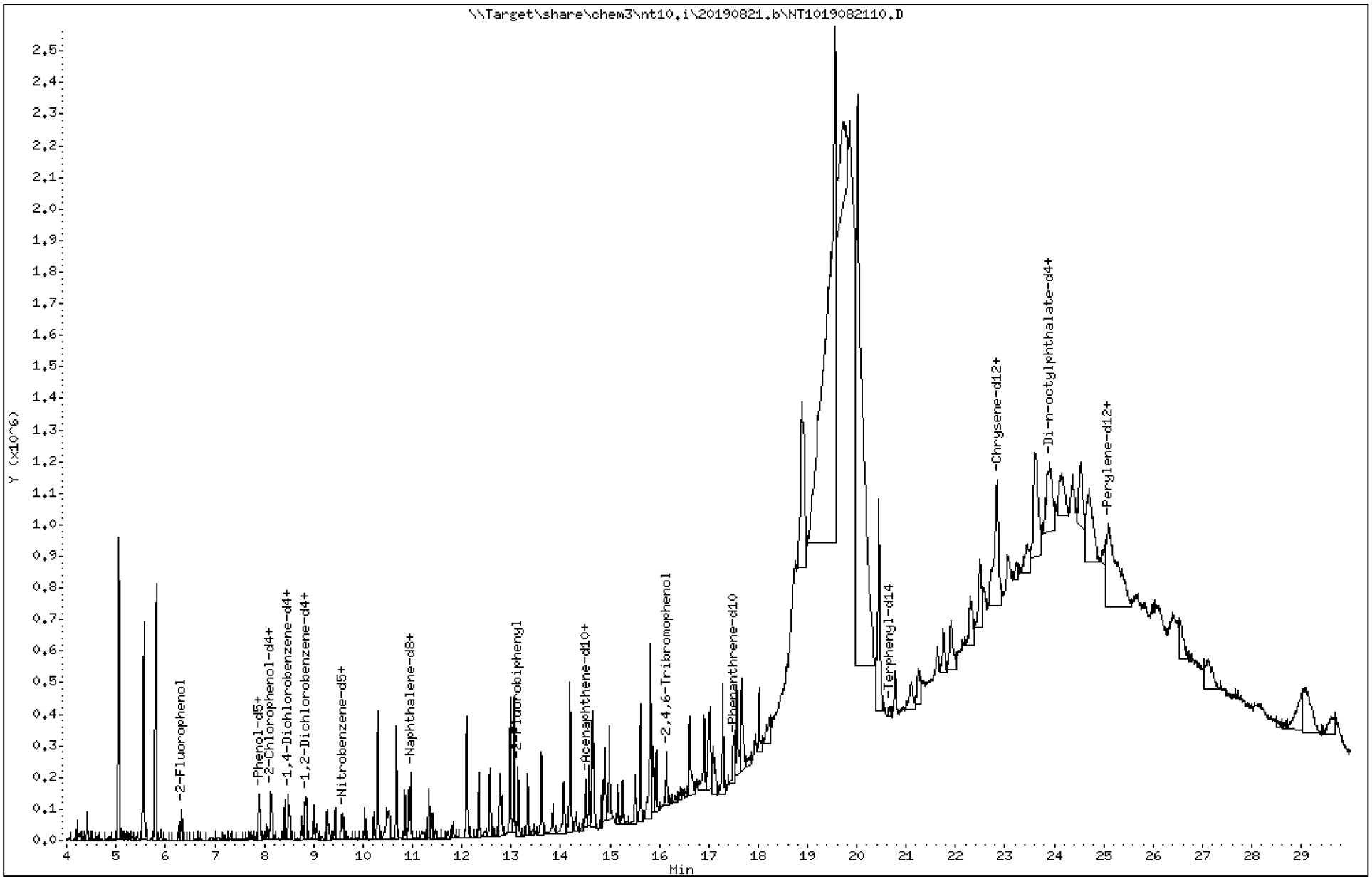
Instrument: nt10.i

Sample Info: BHH0289-MS1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

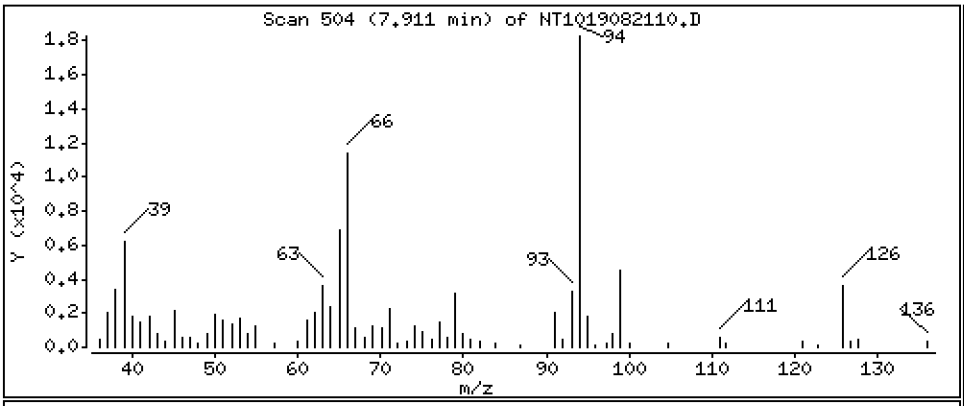
Operator: YZ

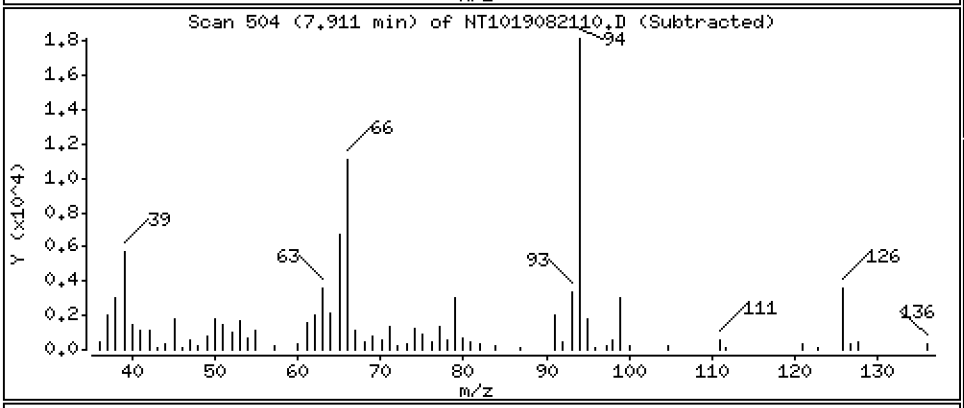
Column phase: ZB-5msi

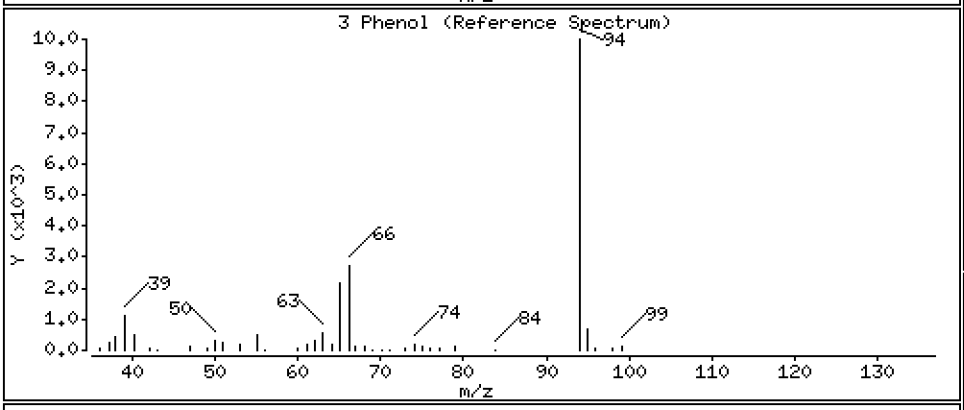
Column diameter: 0.25

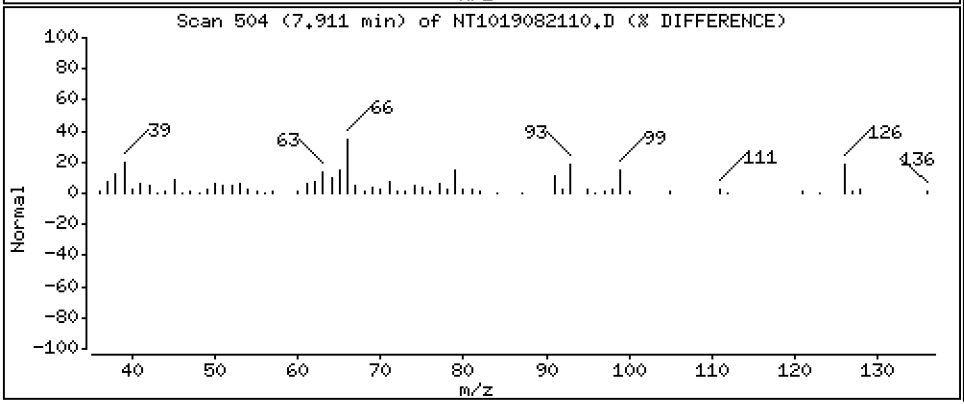
3 Phenol

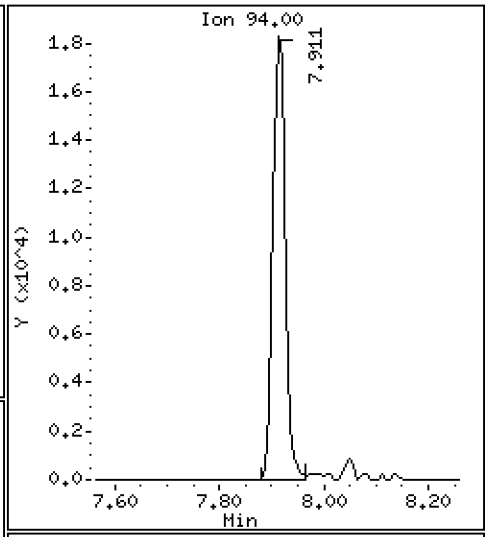
Concentration: 3.146 ug/mL

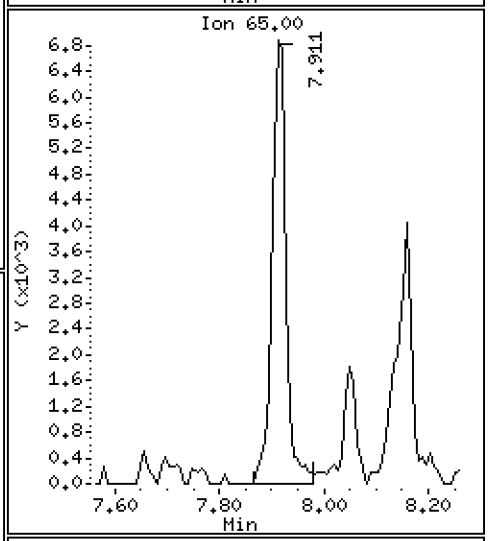


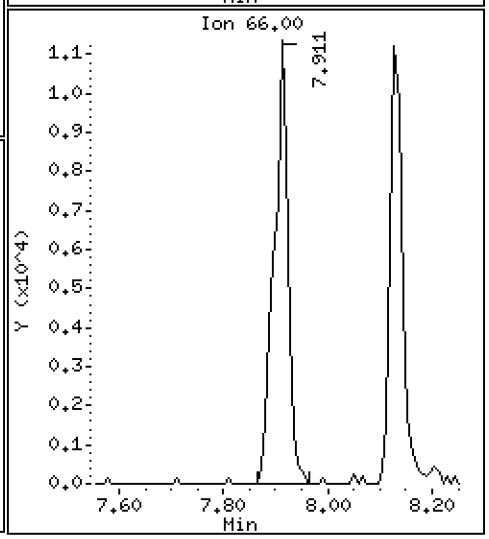












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

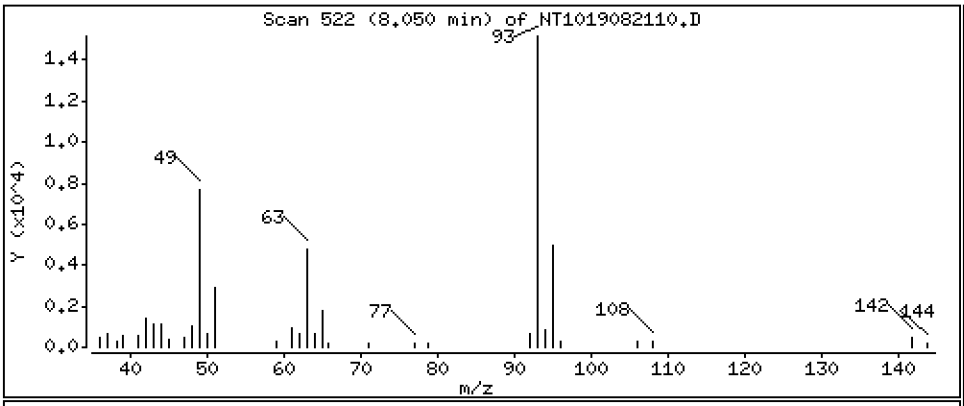
Operator: YZ

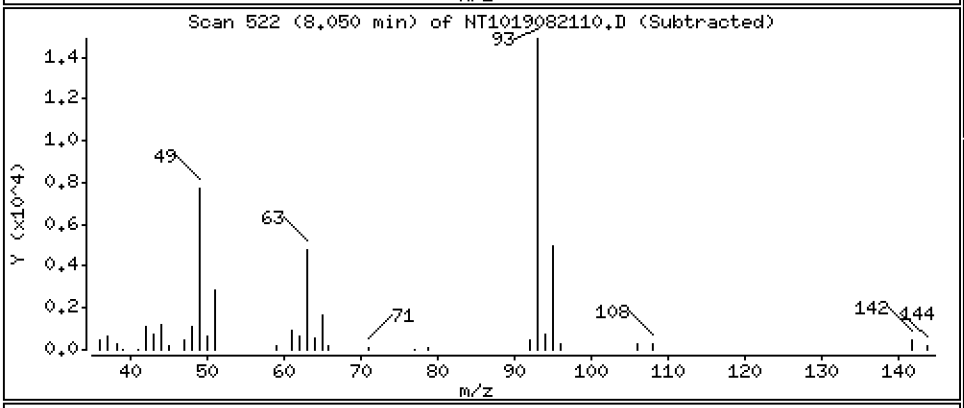
Column phase: ZB-5msi

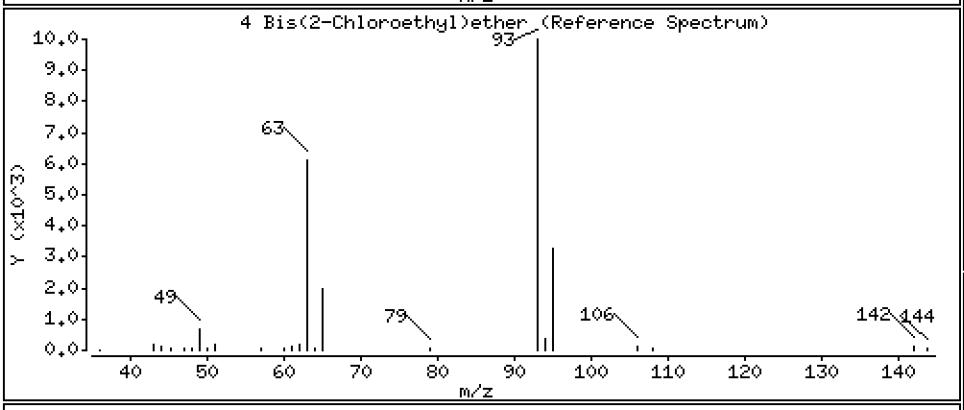
Column diameter: 0.25

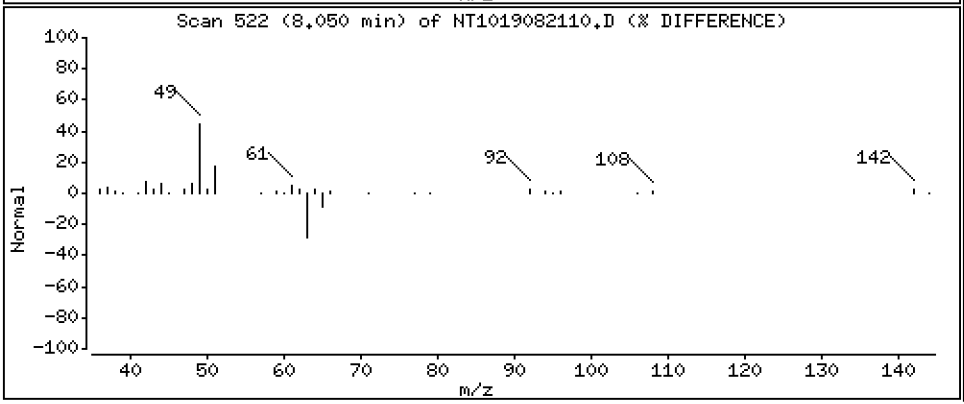
4 Bis(2-Chloroethyl)ether

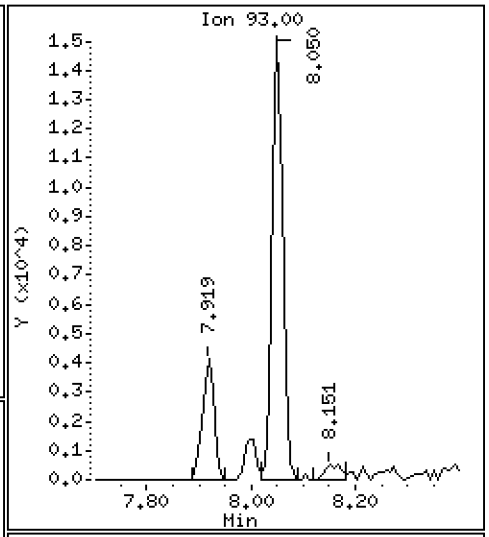
Concentration: 2.699 ug/mL

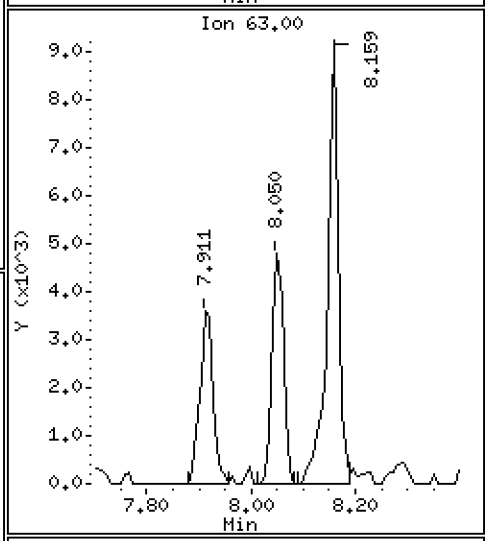


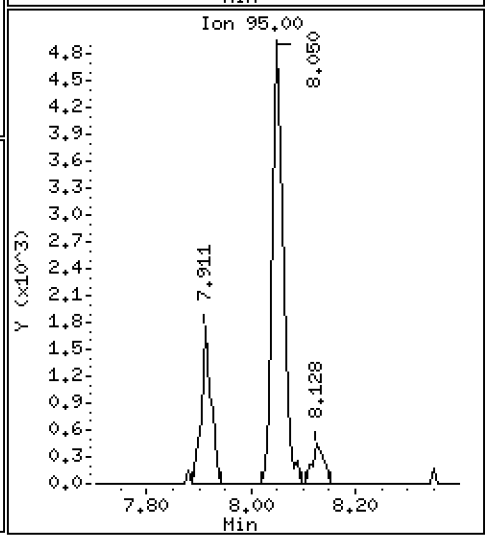












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

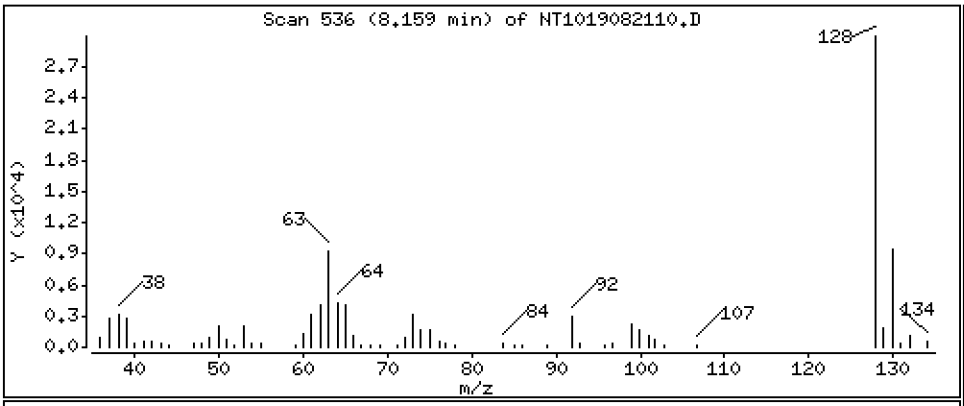
Operator: YZ

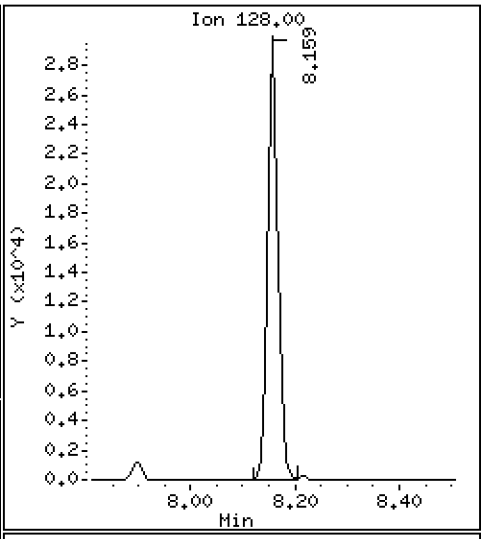
Column phase: ZB-5msi

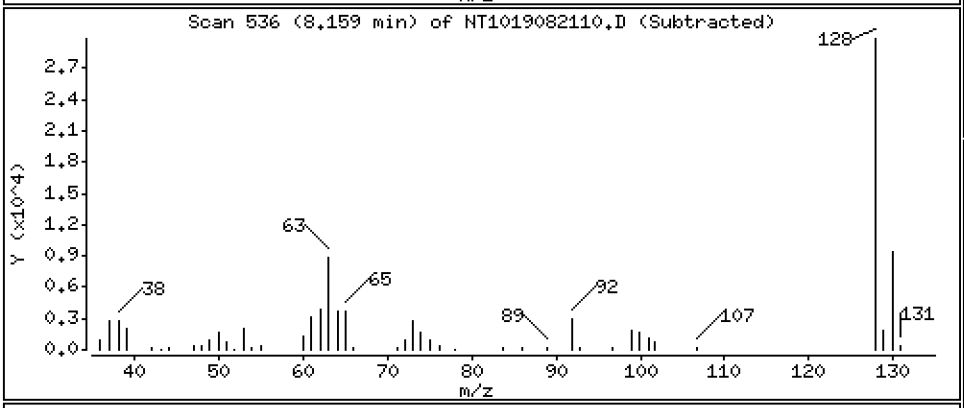
Column diameter: 0.25

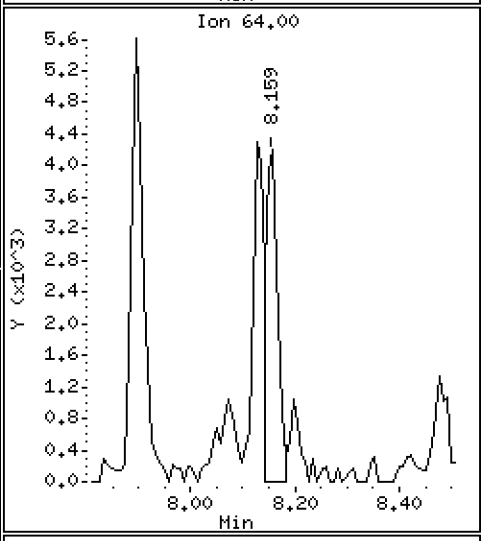
6 2-Chlorophenol

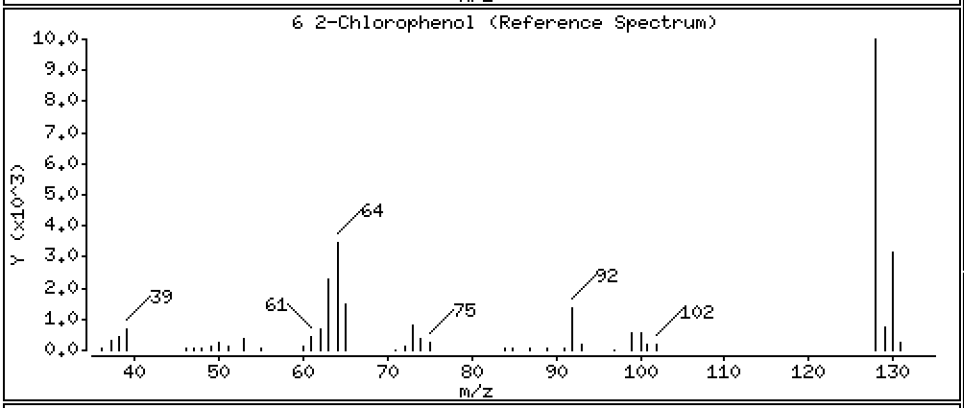
Concentration: 3.906 ug/mL

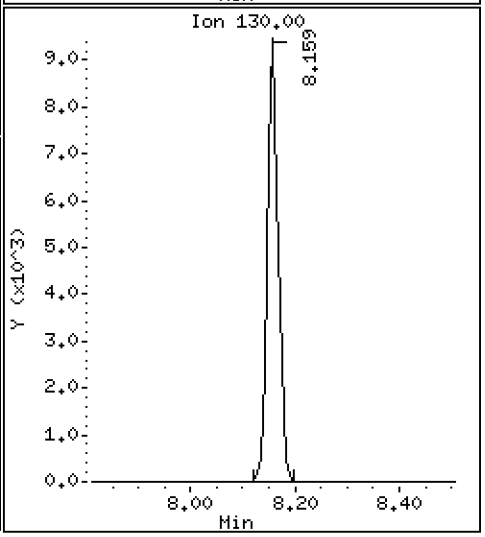


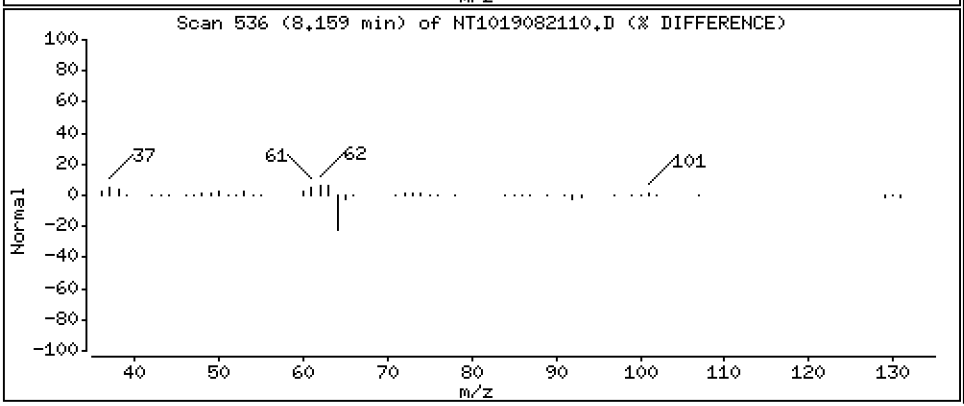












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

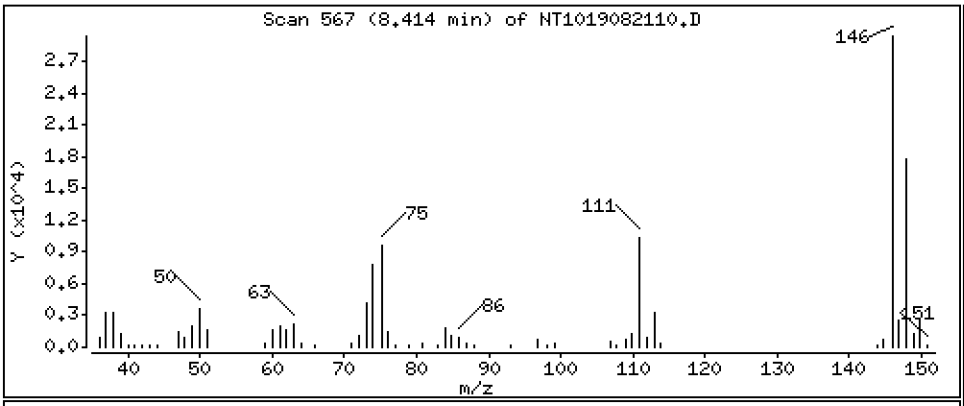
Operator: YZ

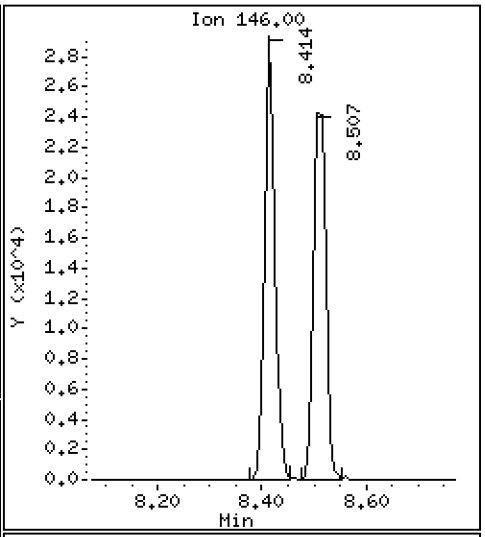
Column phase: ZB-5msi

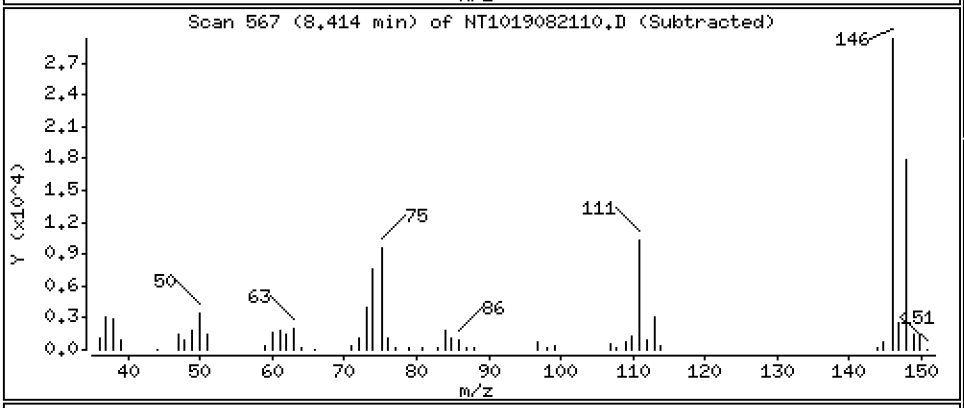
Column diameter: 0.25

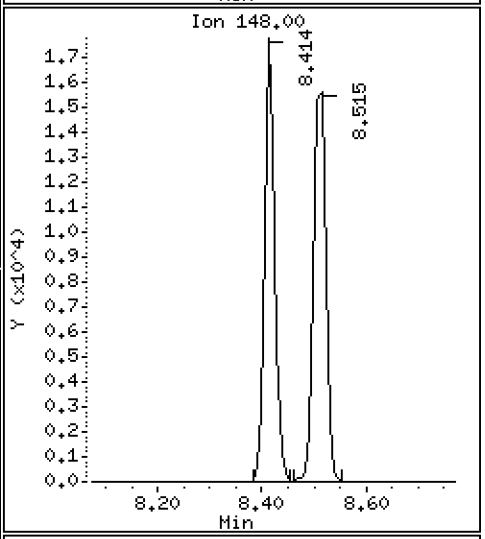
7 1,3-Dichlorobenzene

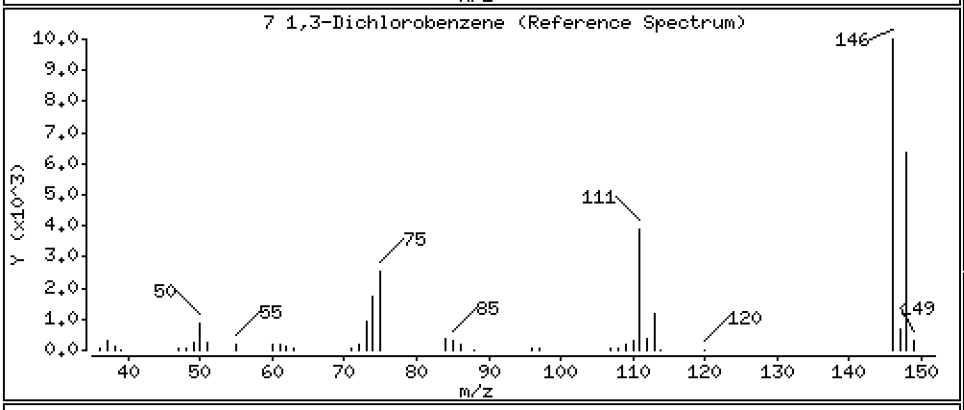
Concentration: 3.458 ug/mL

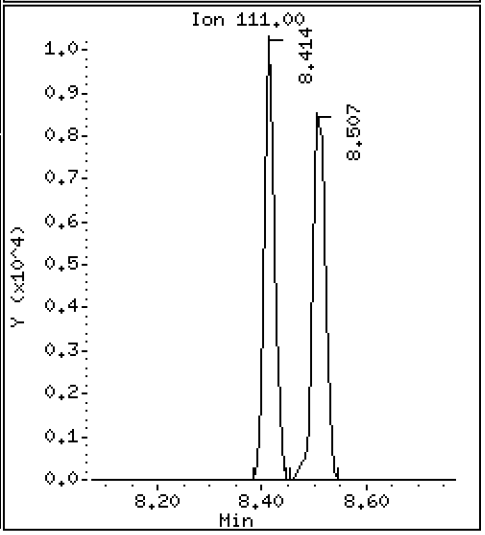


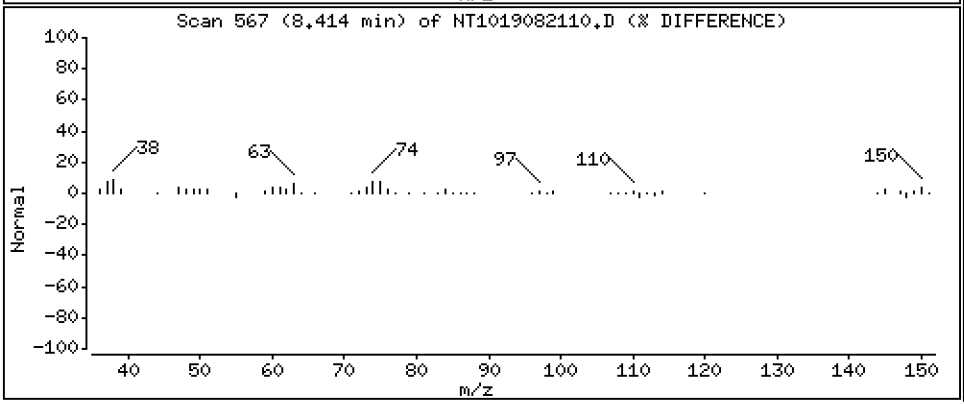












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

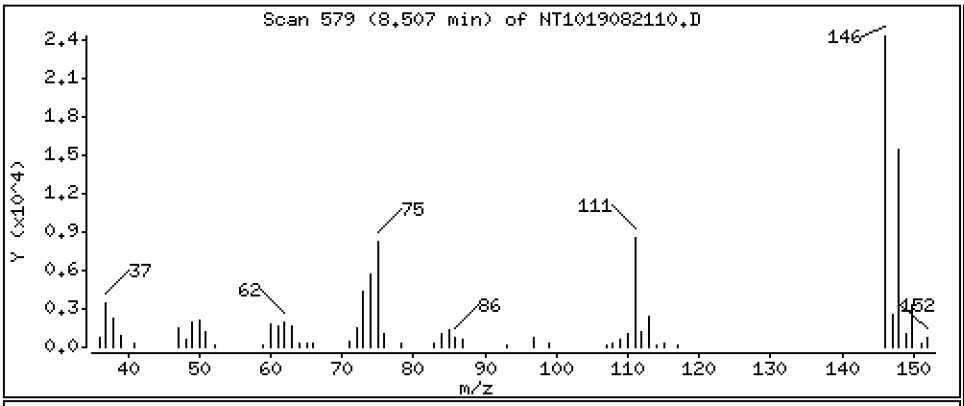
Operator: YZ

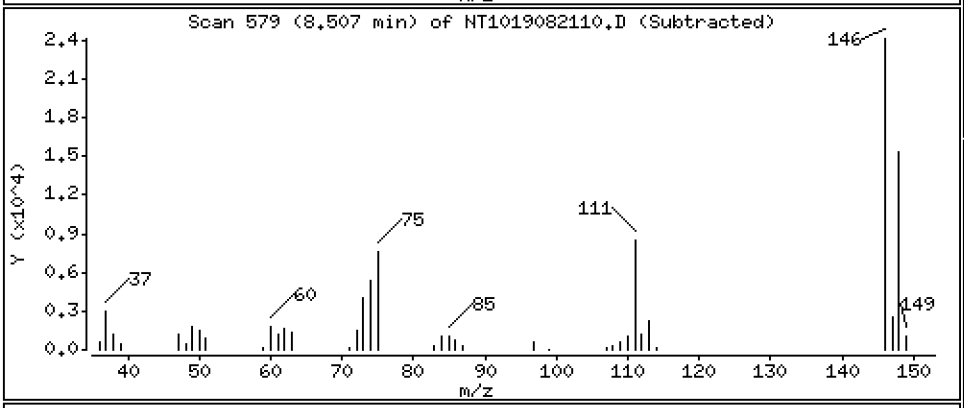
Column phase: ZB-5msi

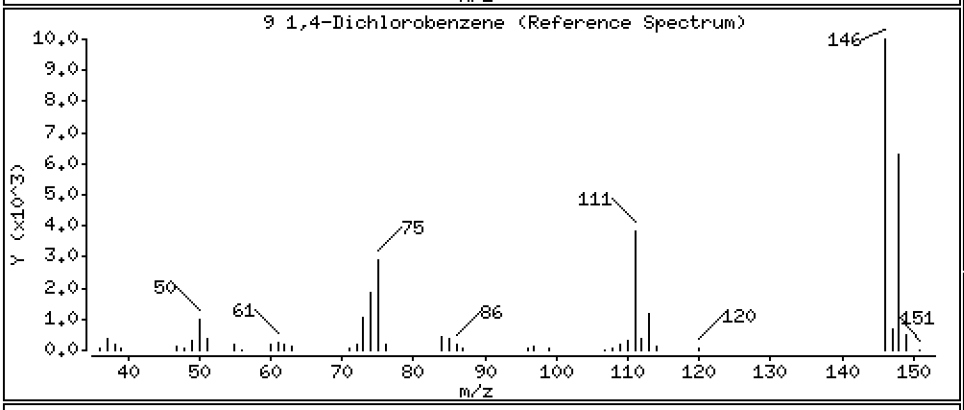
Column diameter: 0.25

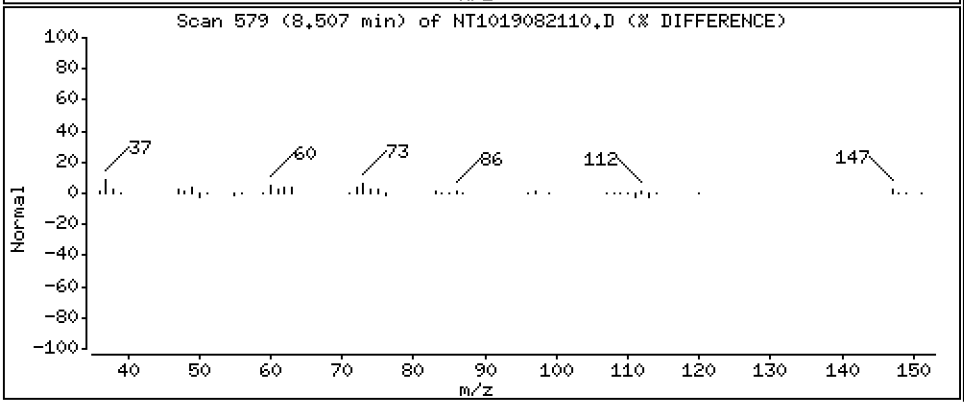
9 1,4-Dichlorobenzene

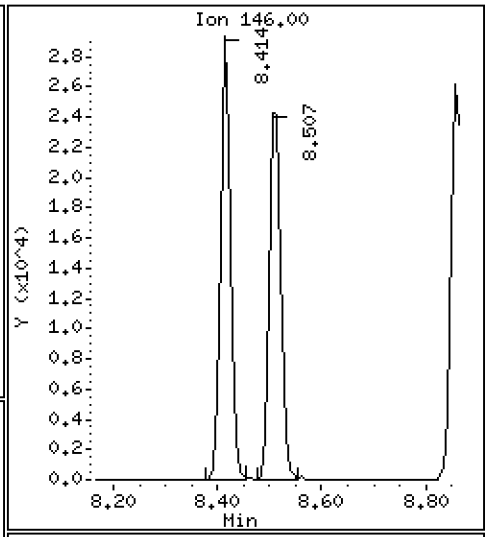
Concentration: 3.393 ug/mL

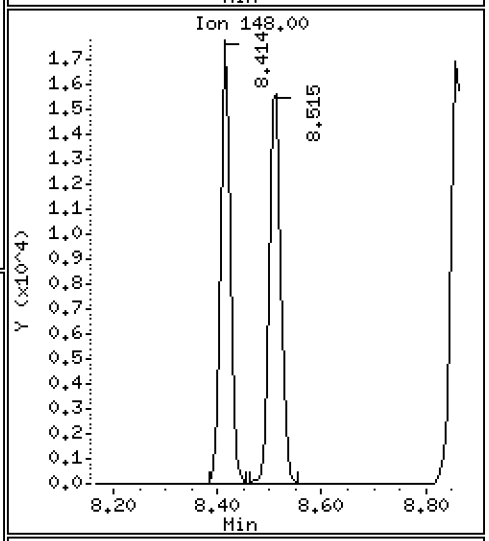


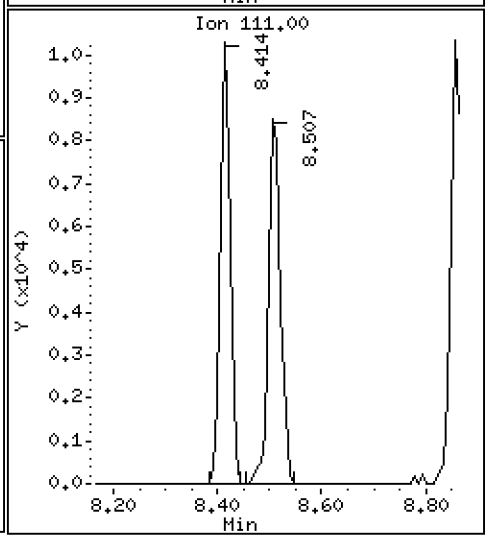












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

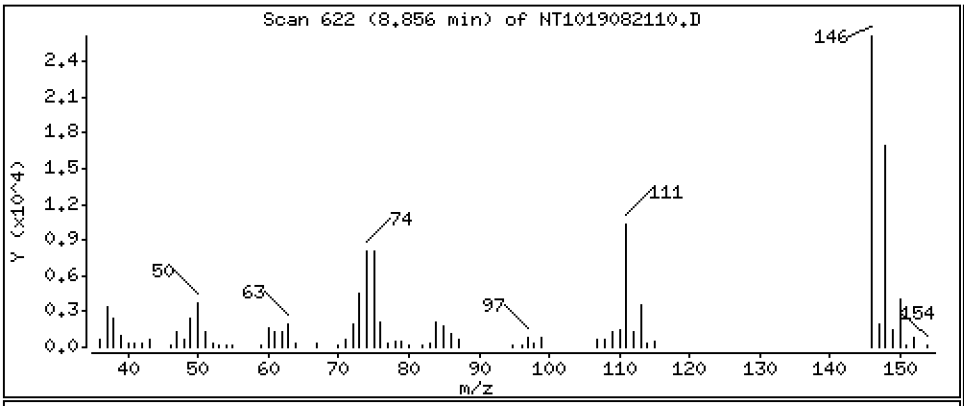
Operator: YZ

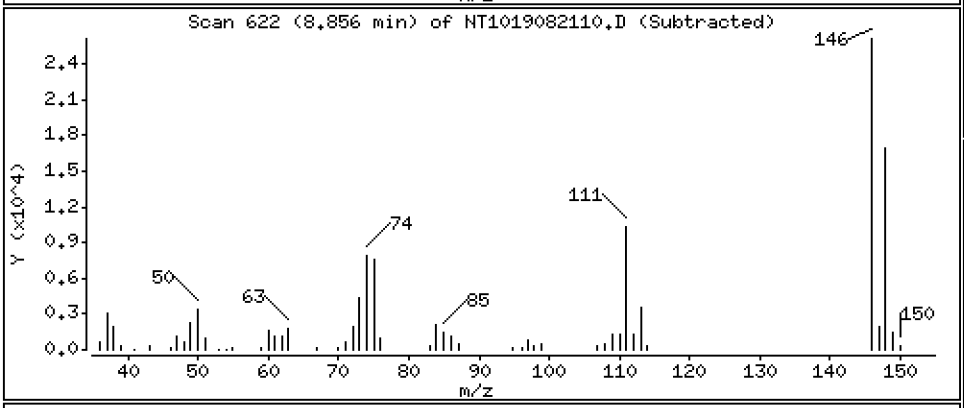
Column phase: ZB-5msi

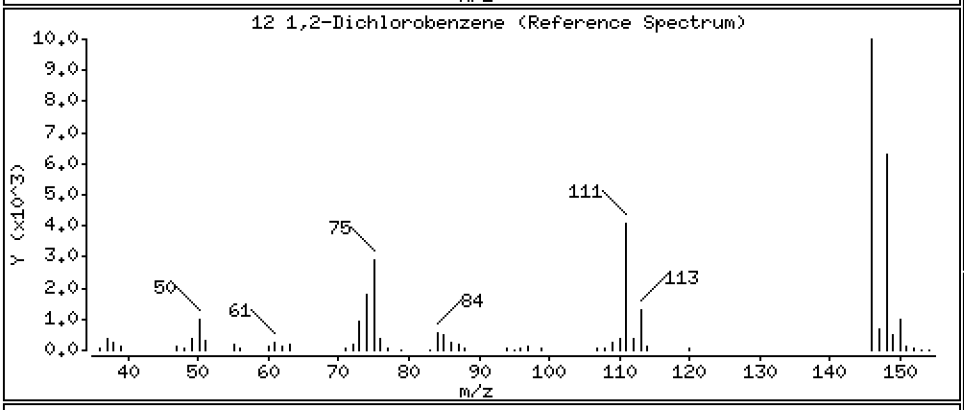
Column diameter: 0.25

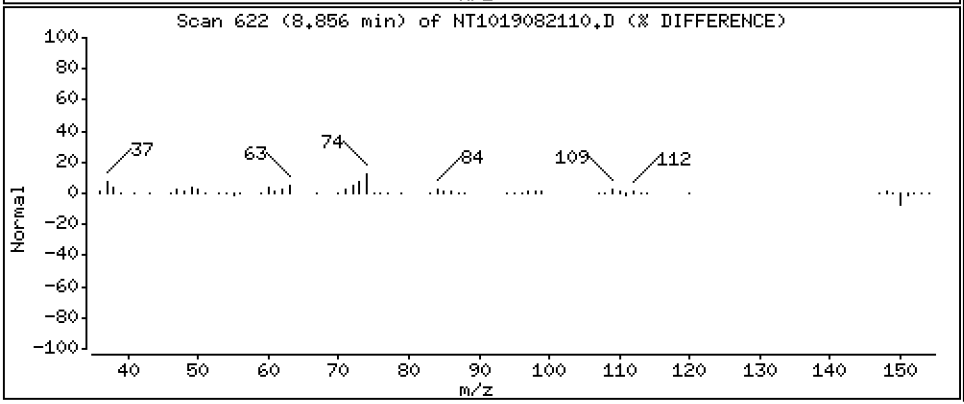
12 1,2-Dichlorobenzene

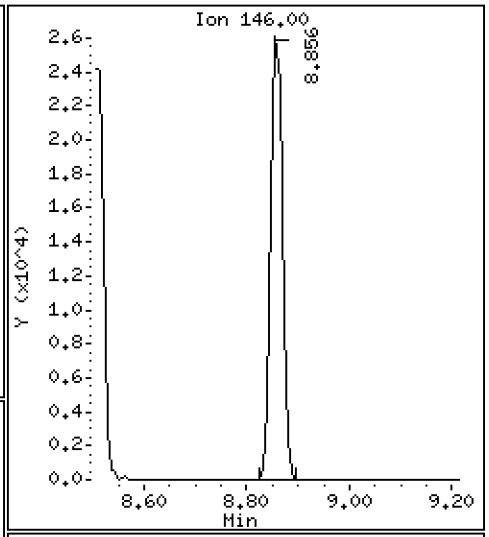
Concentration: 3.626 ug/mL

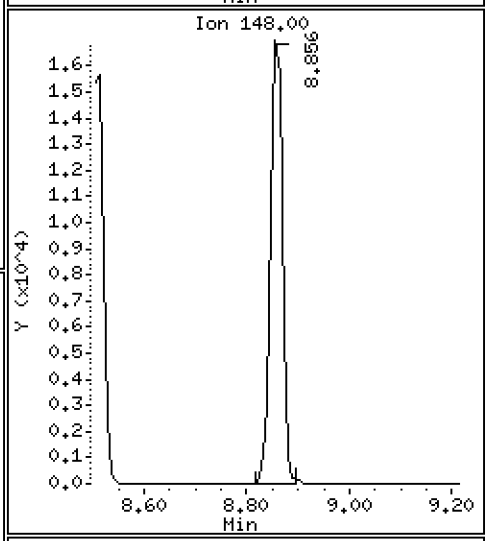


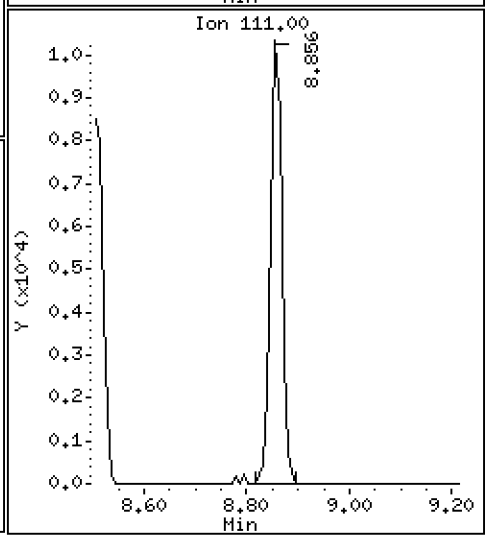












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

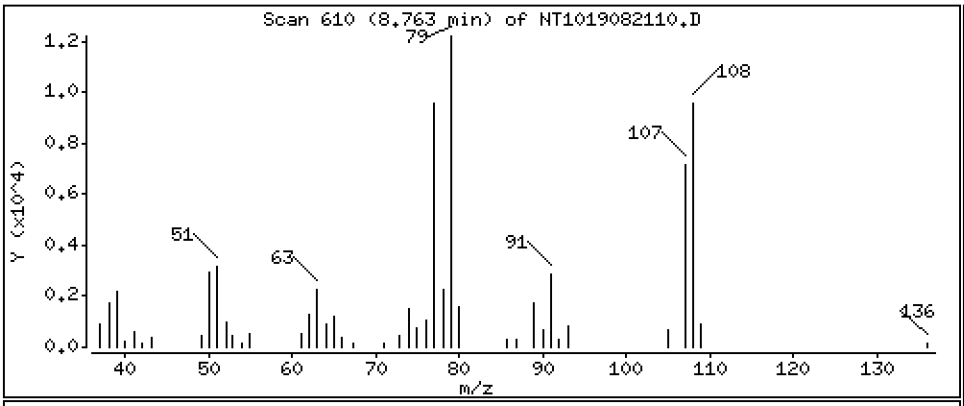
Operator: YZ

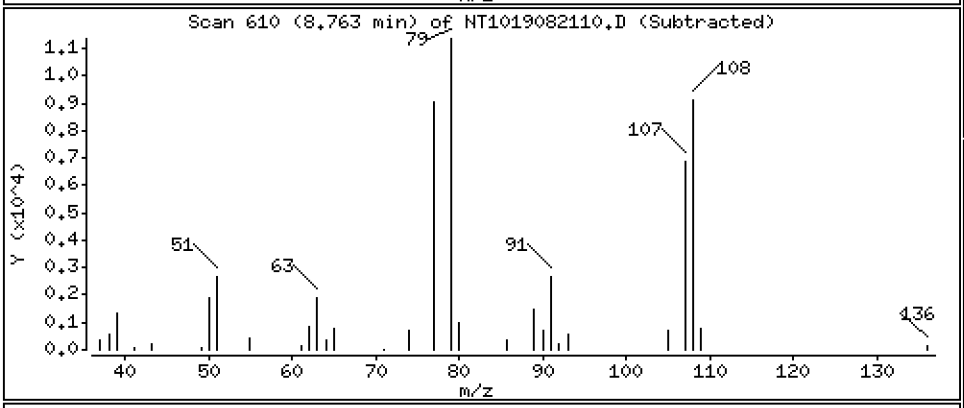
Column phase: ZB-5msi

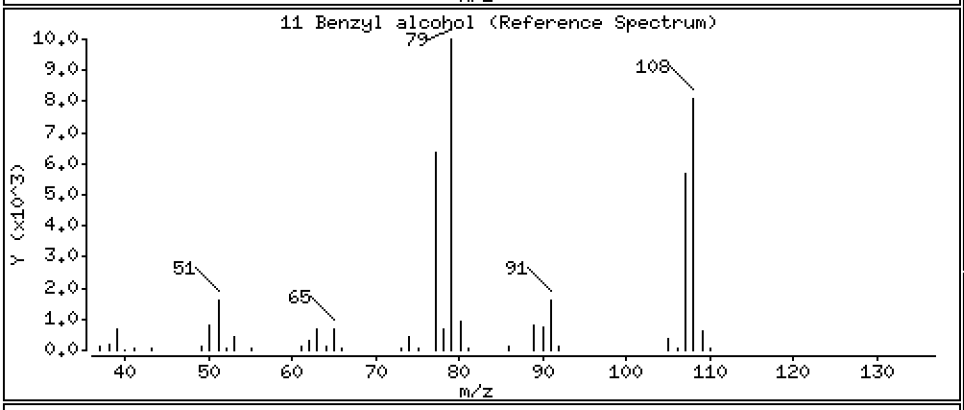
Column diameter: 0.25

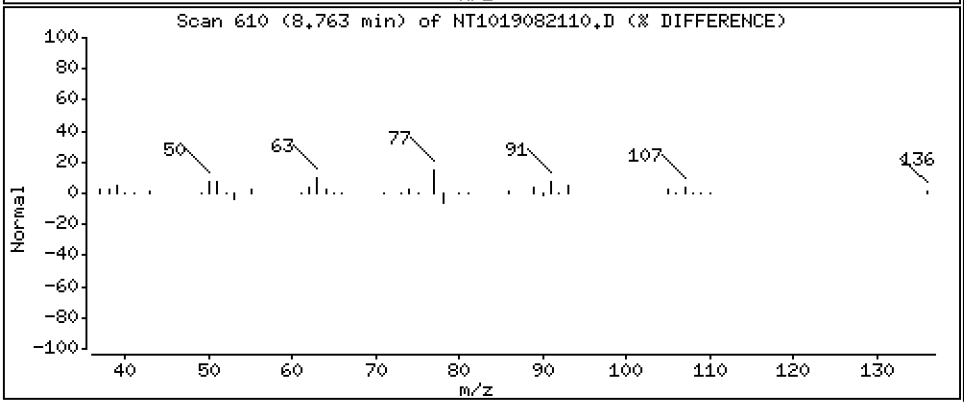
11 Benzyl alcohol

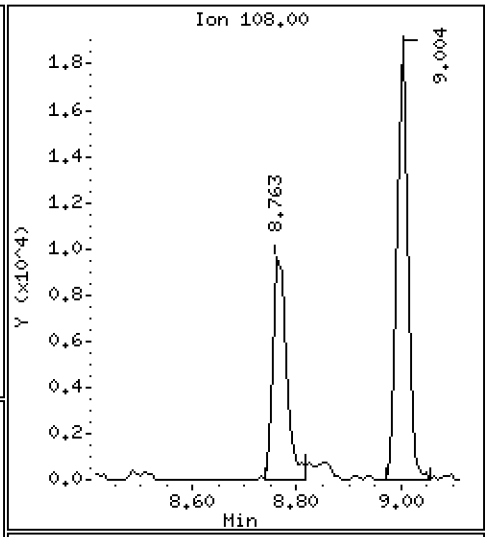
Concentration: 2.759 ug/mL

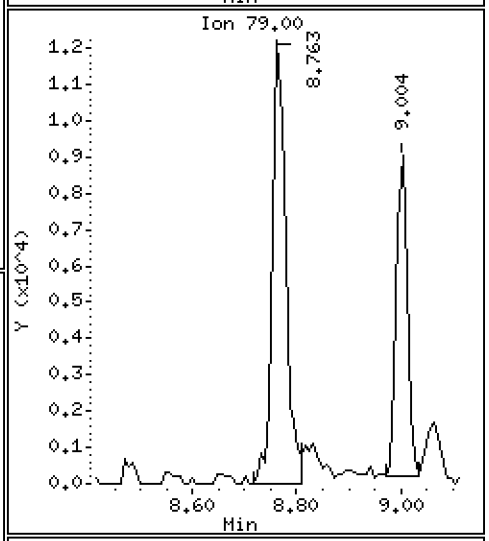


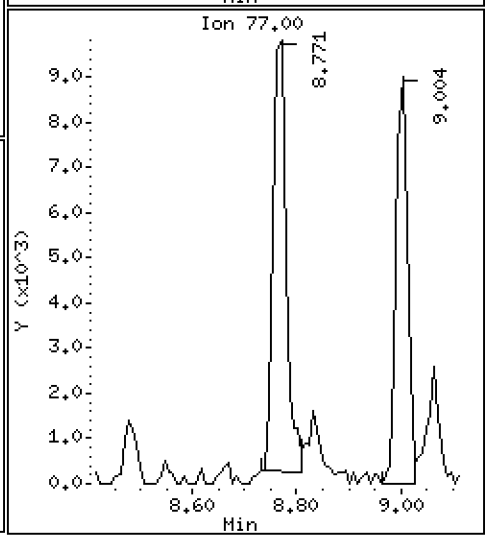












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

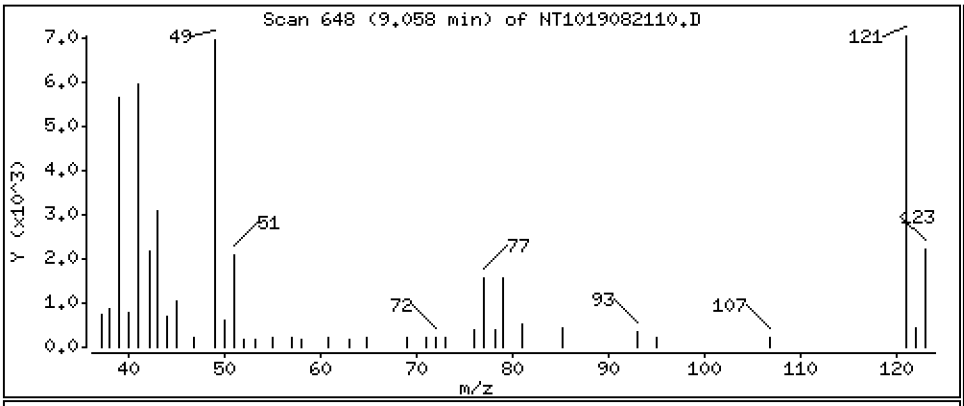
Operator: YZ

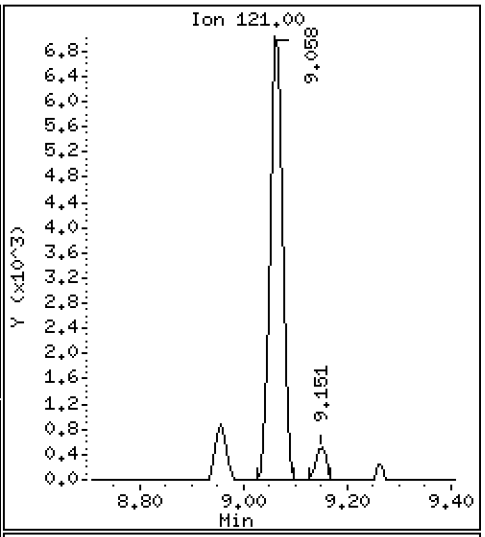
Column phase: ZB-5msi

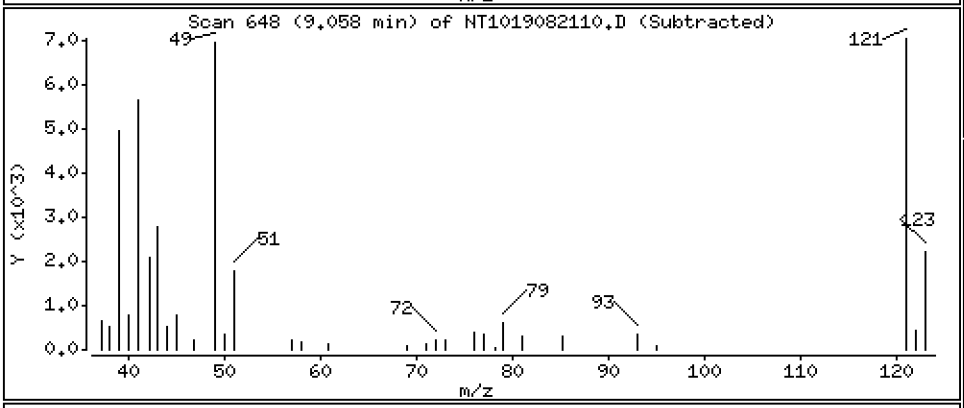
Column diameter: 0.25

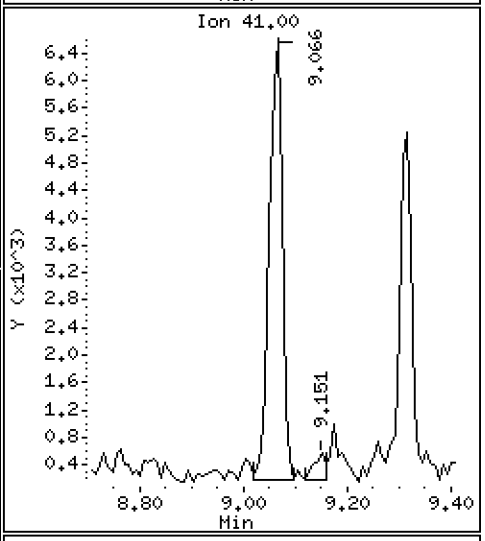
14 2,2'-oxybis(1-Chloropropane)

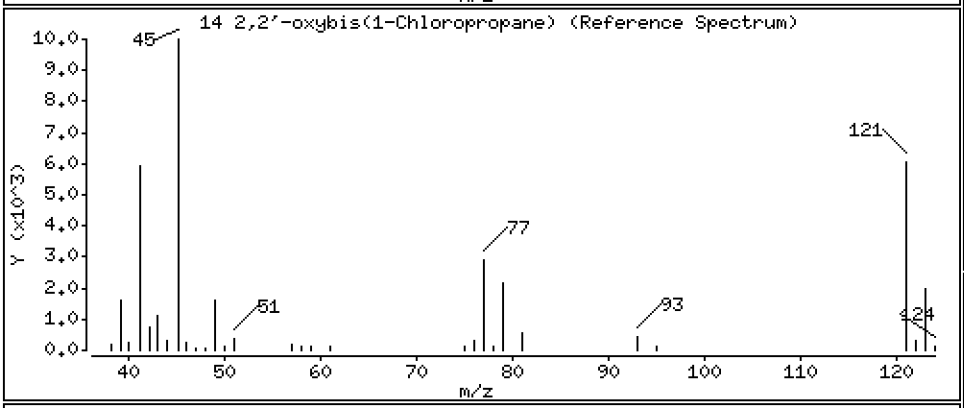
Concentration: 3.535 ug/mL

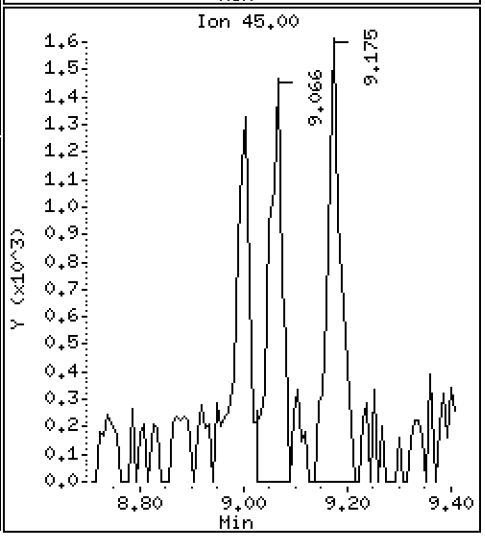


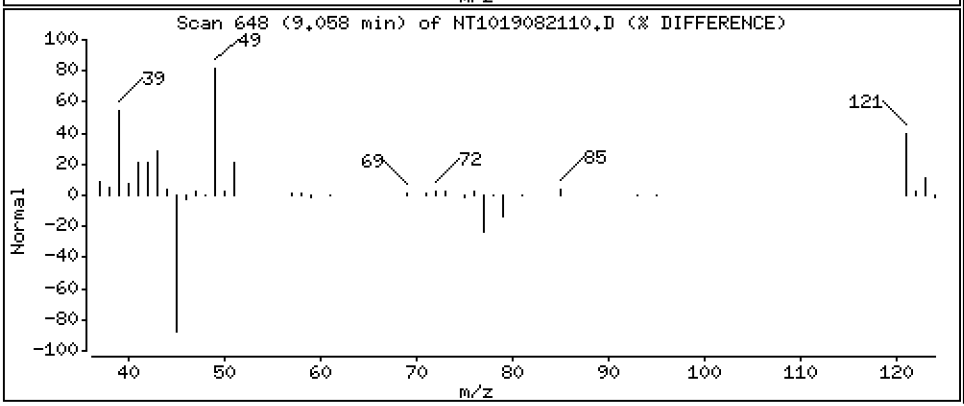












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

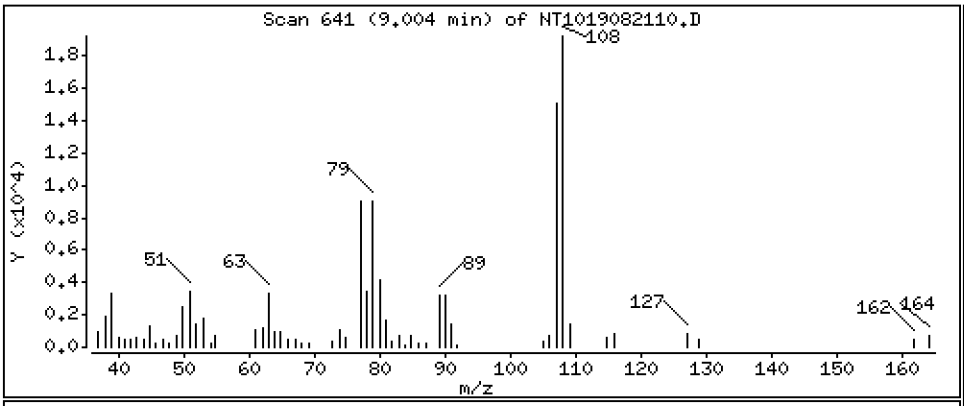
Operator: YZ

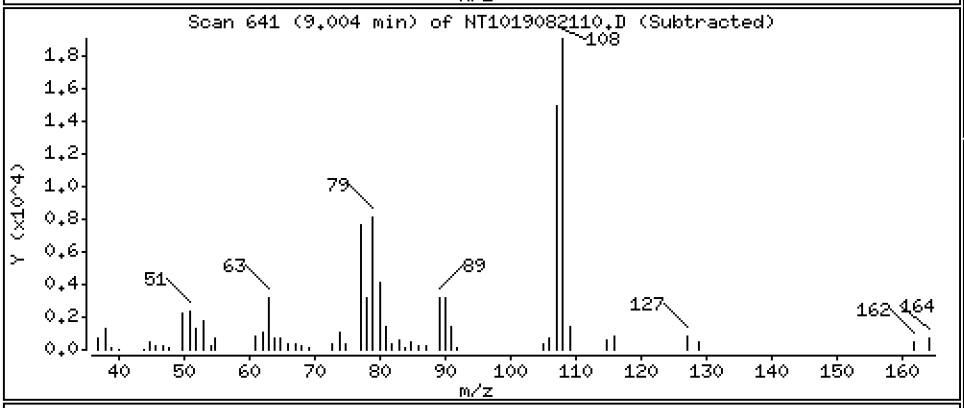
Column phase: ZB-5msi

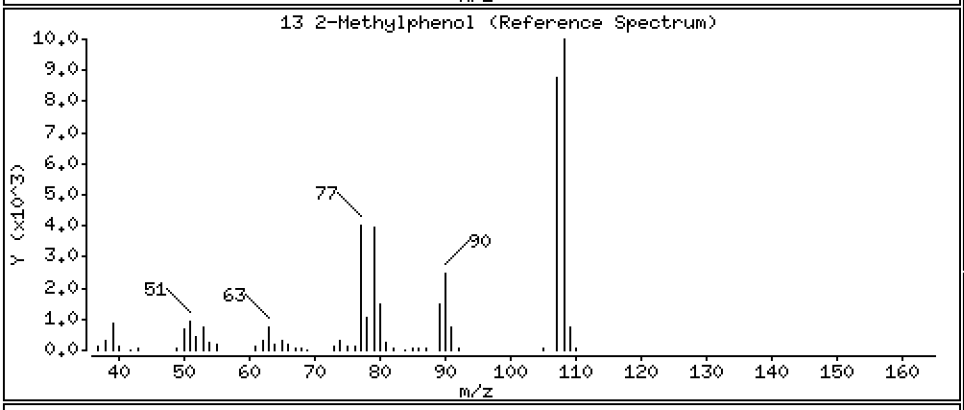
Column diameter: 0.25

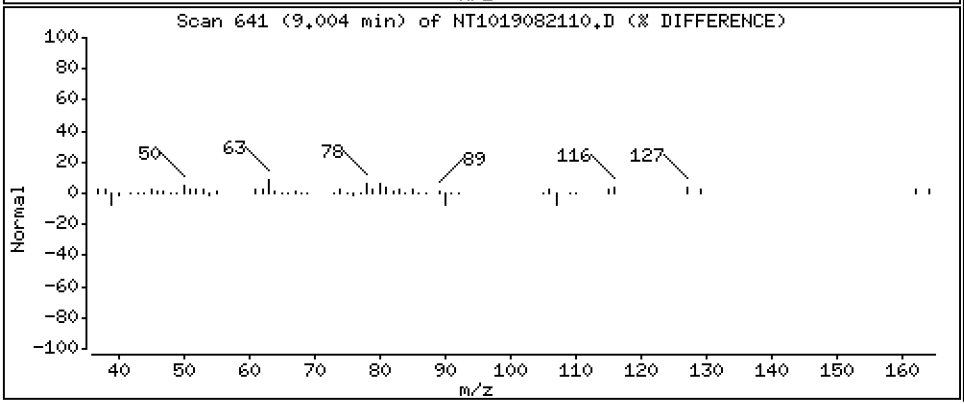
13 2-Methylphenol

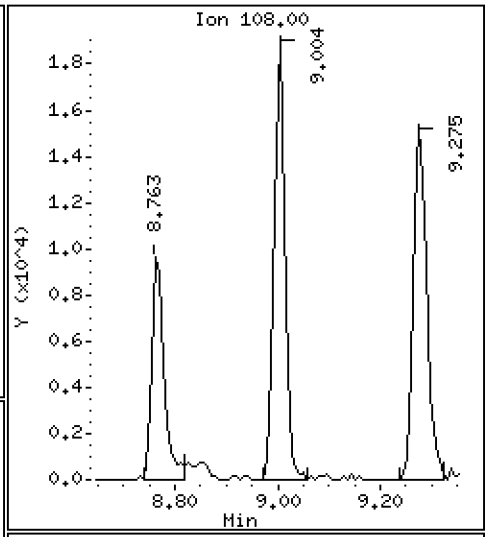
Concentration: 3.635 ug/mL

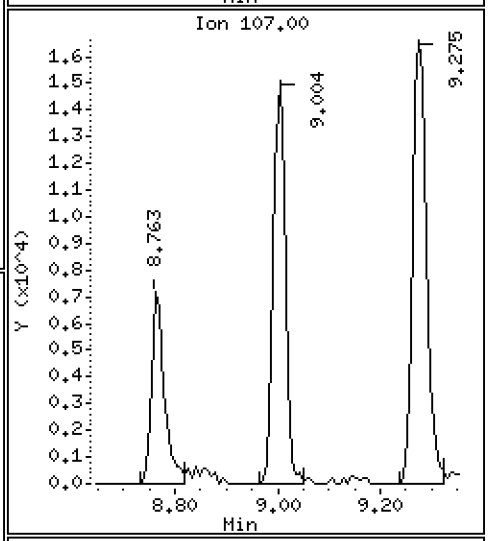


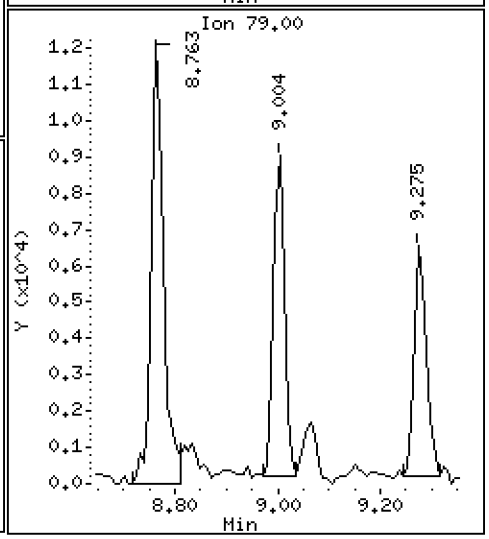












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

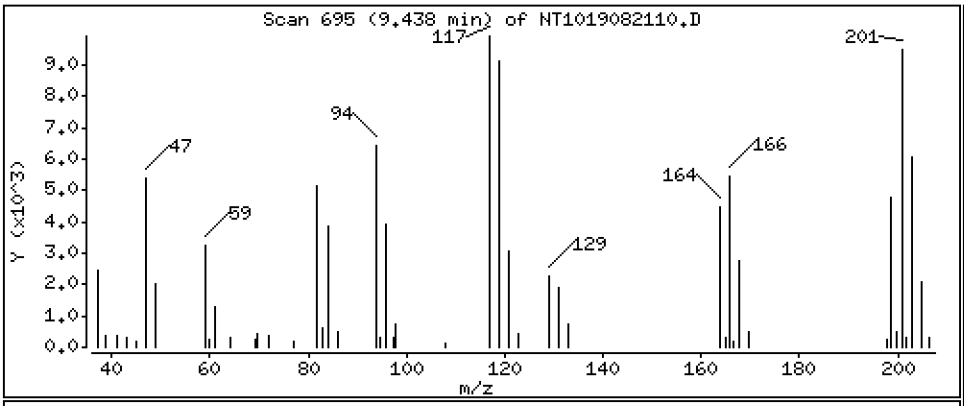
Operator: YZ

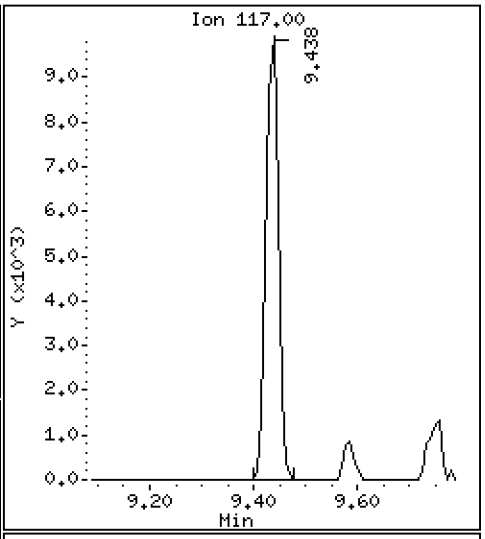
Column phase: ZB-5msi

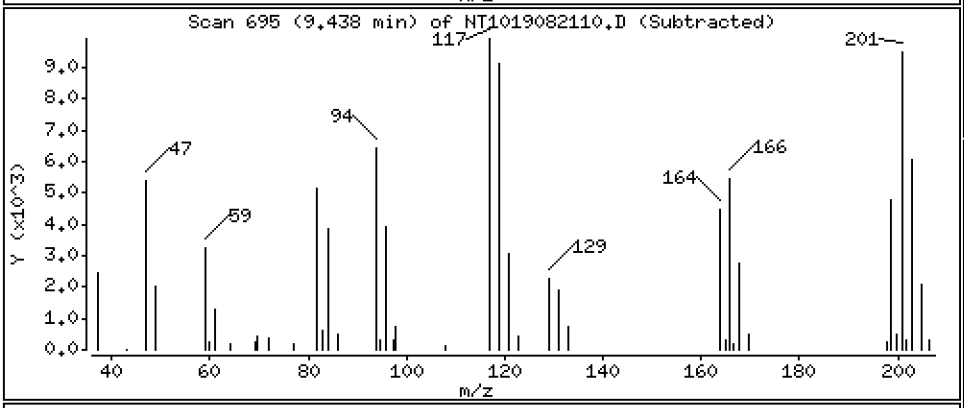
Column diameter: 0.25

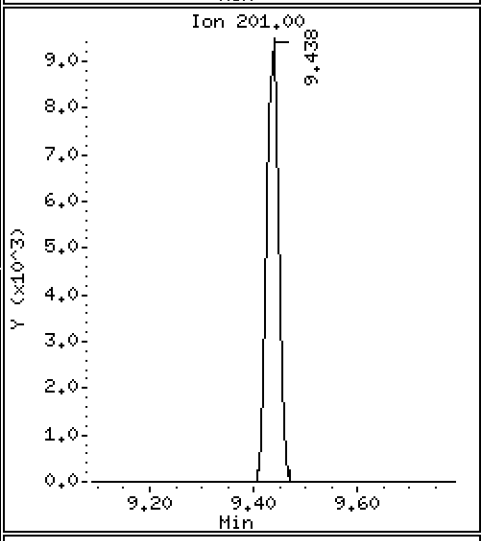
17 Hexachloroethane

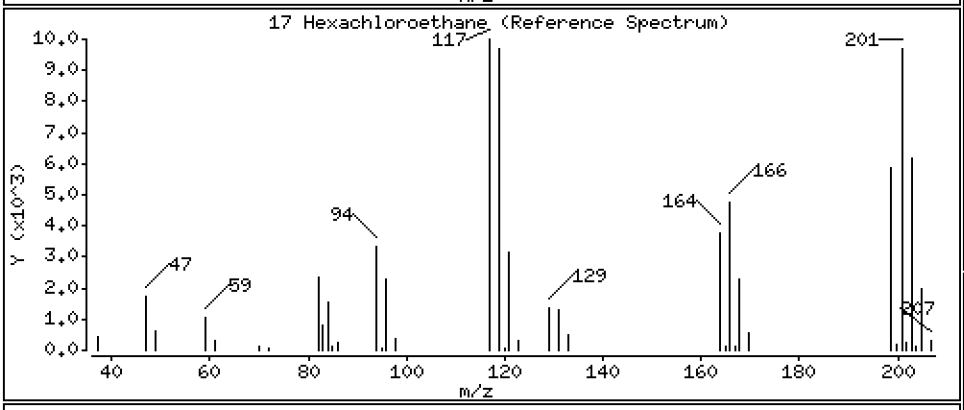
Concentration: 3.354 ug/mL

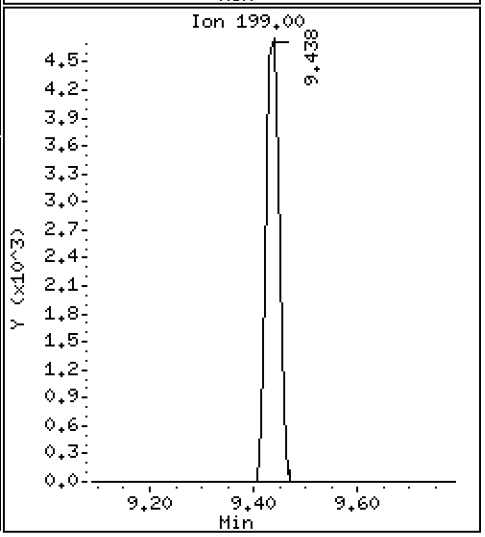


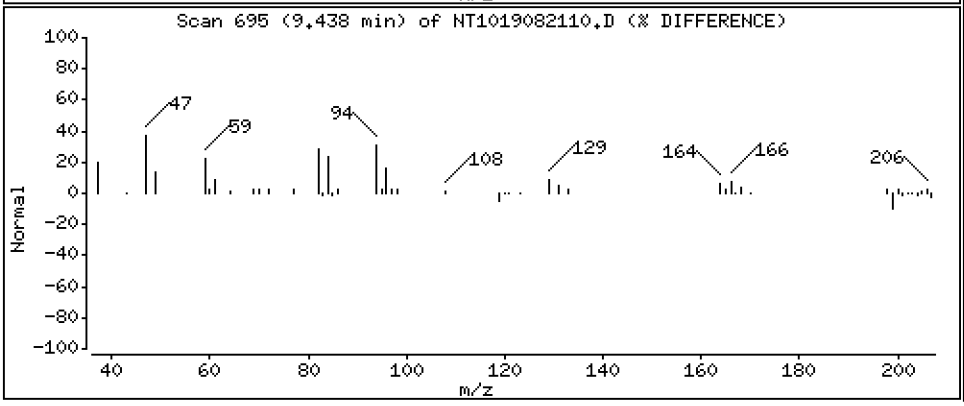












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

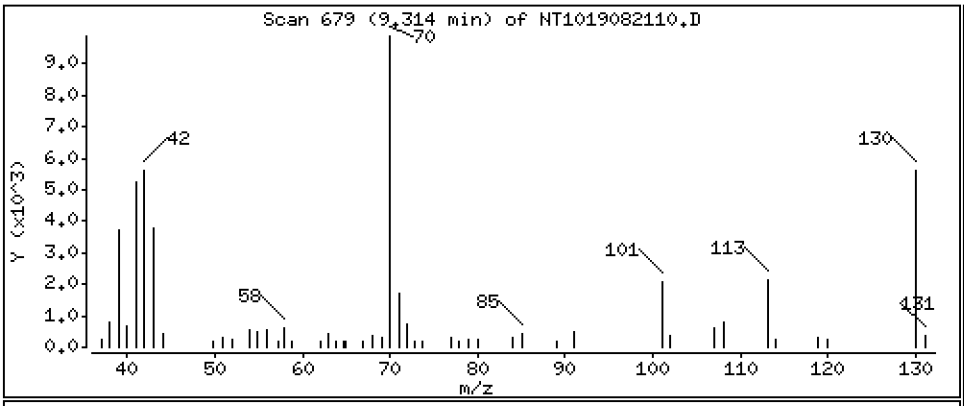
Operator: YZ

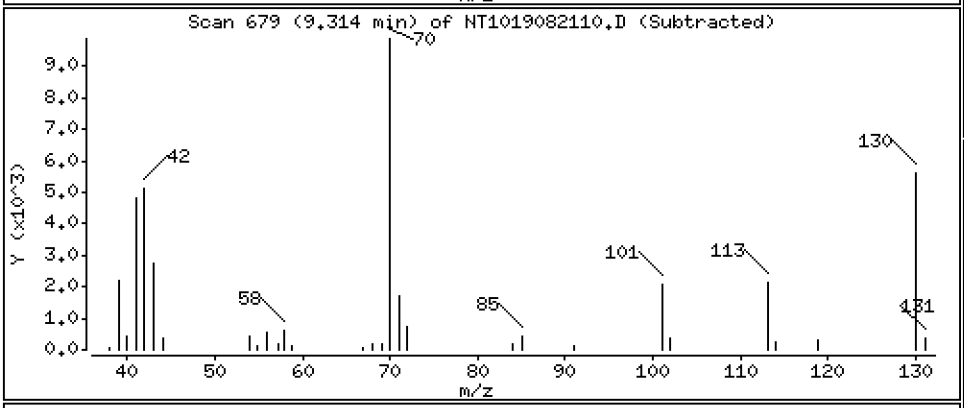
Column phase: ZB-5msi

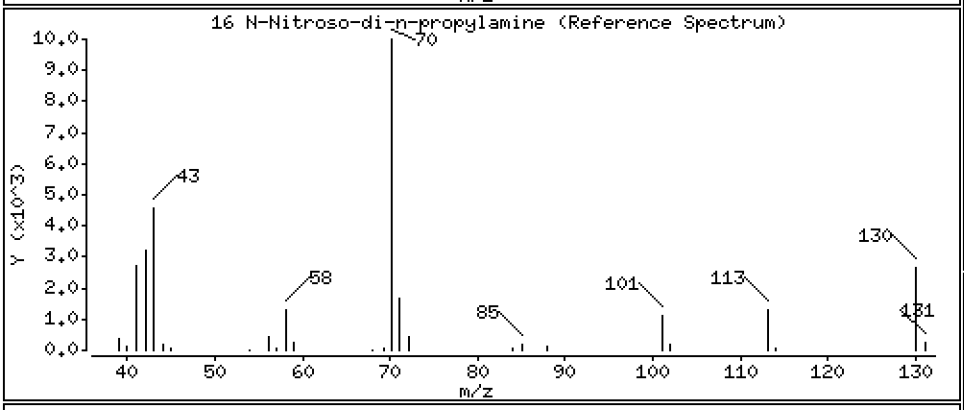
Column diameter: 0.25

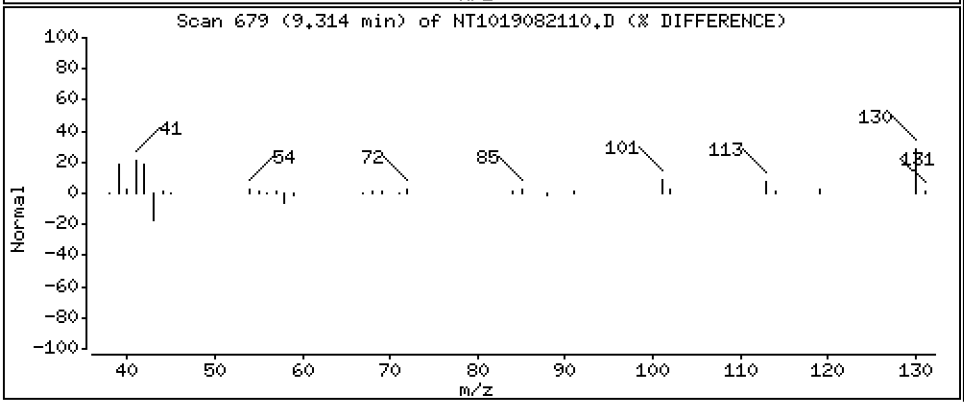
16 N-Nitroso-di-n-propylamine

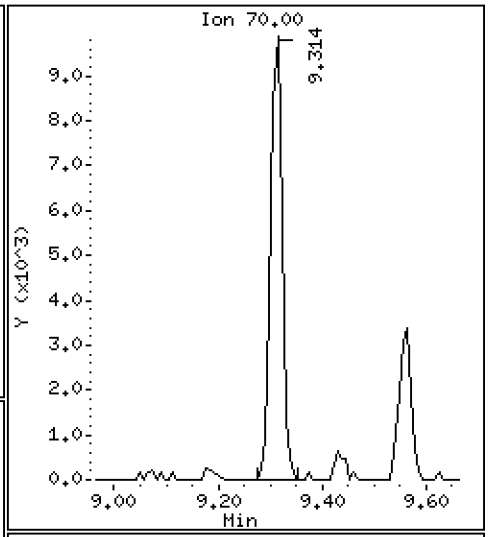
Concentration: 3.216 ug/mL

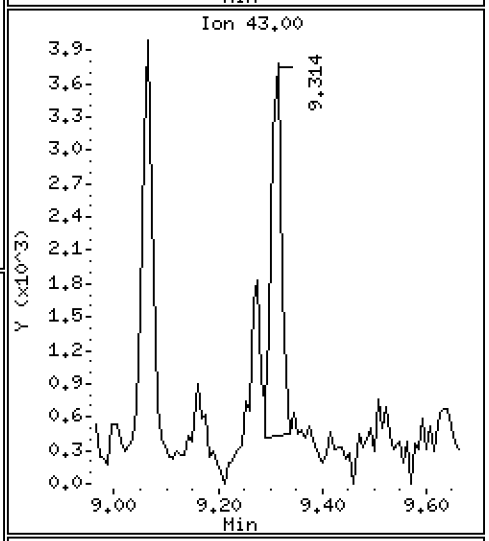


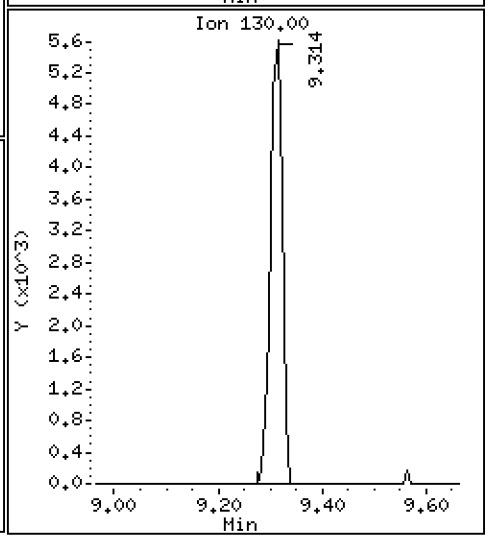












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

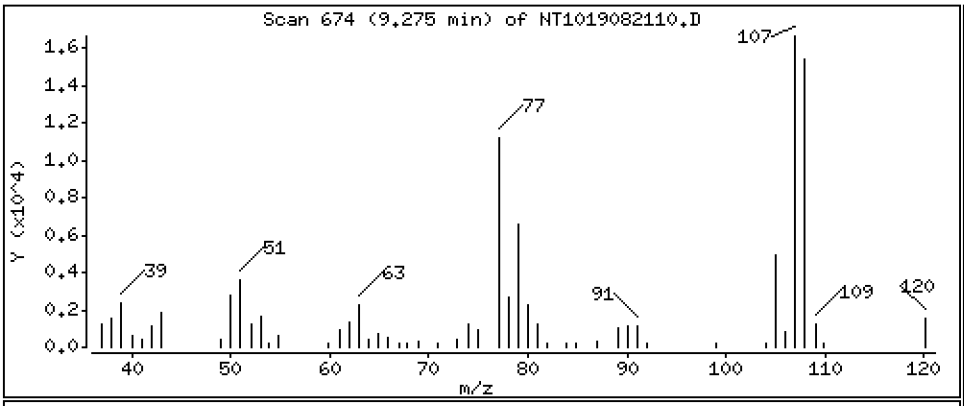
Operator: YZ

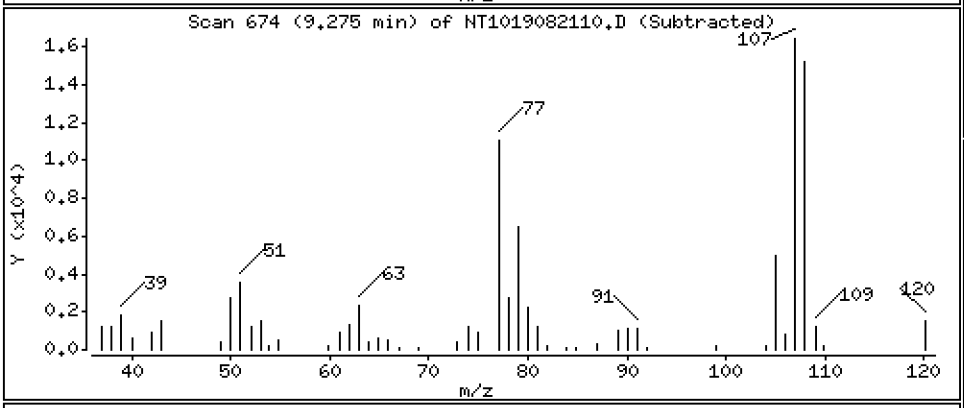
Column phase: ZB-5msi

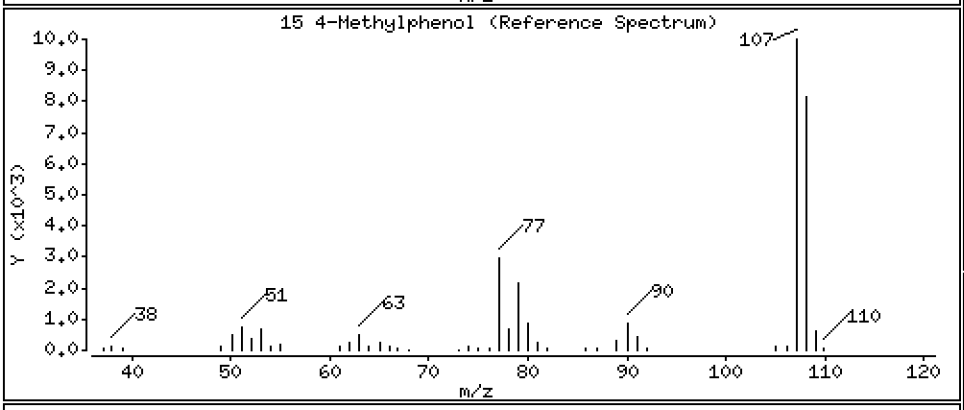
Column diameter: 0.25

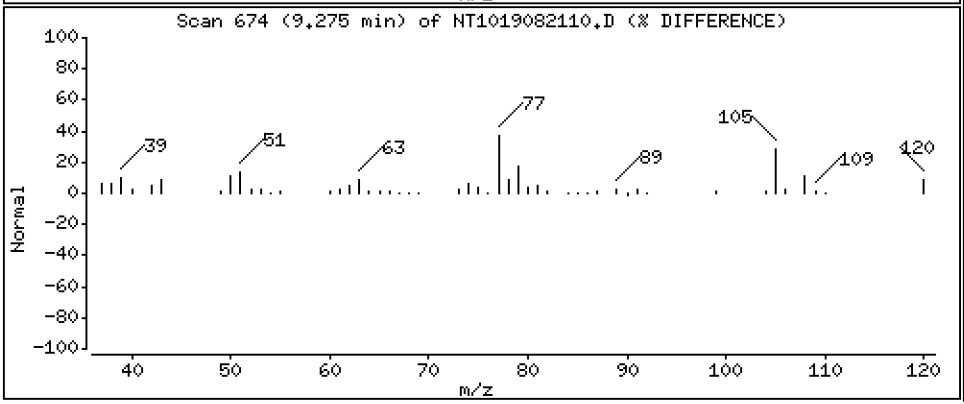
15 4-Methylphenol

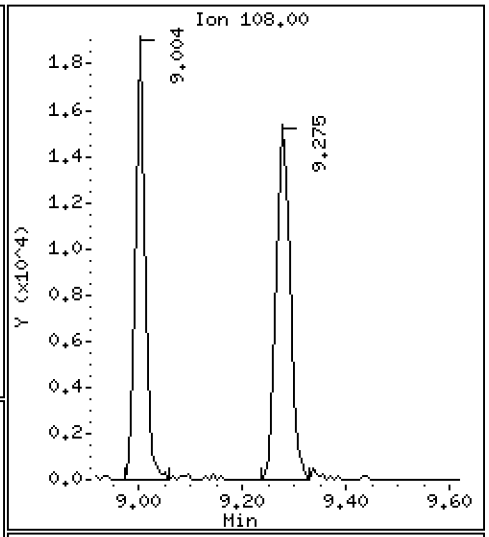
Concentration: 3.838 ug/mL

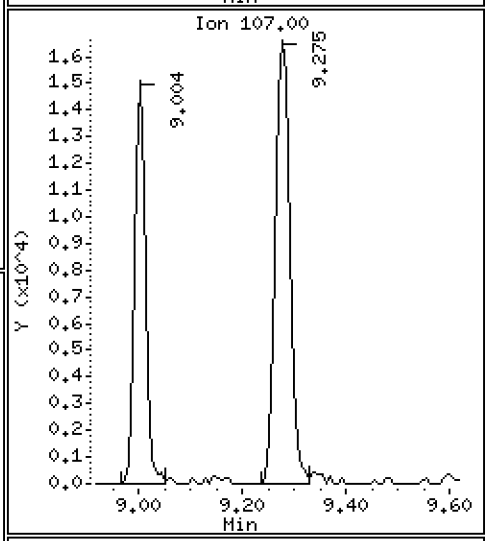


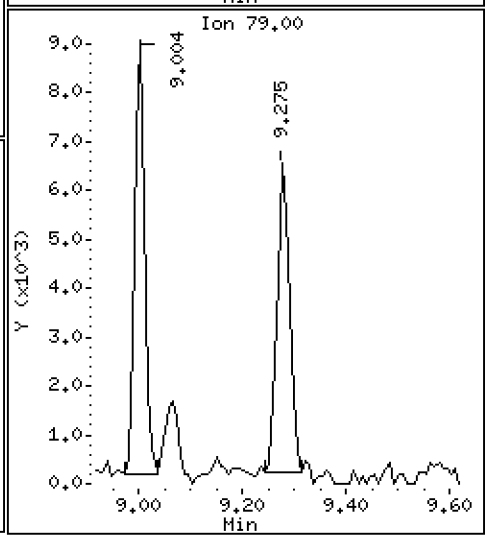












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

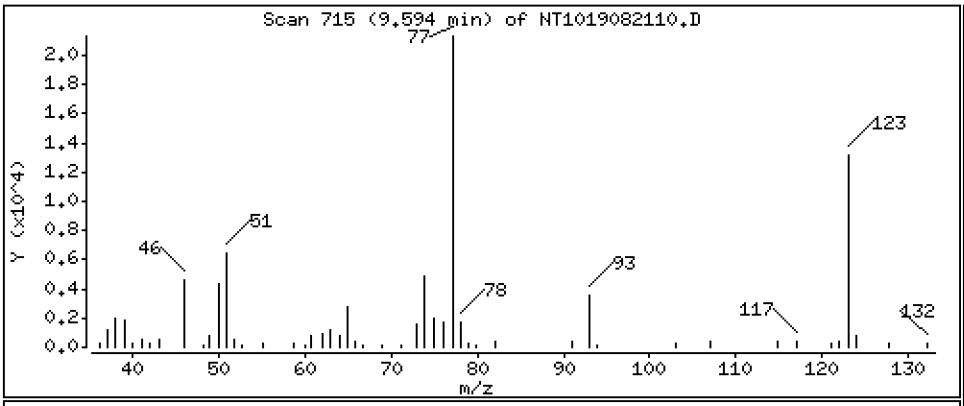
Operator: YZ

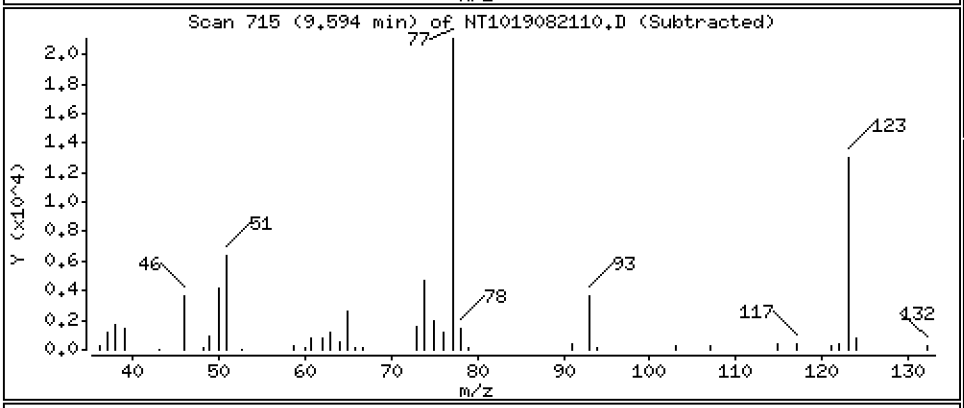
Column phase: ZB-5msi

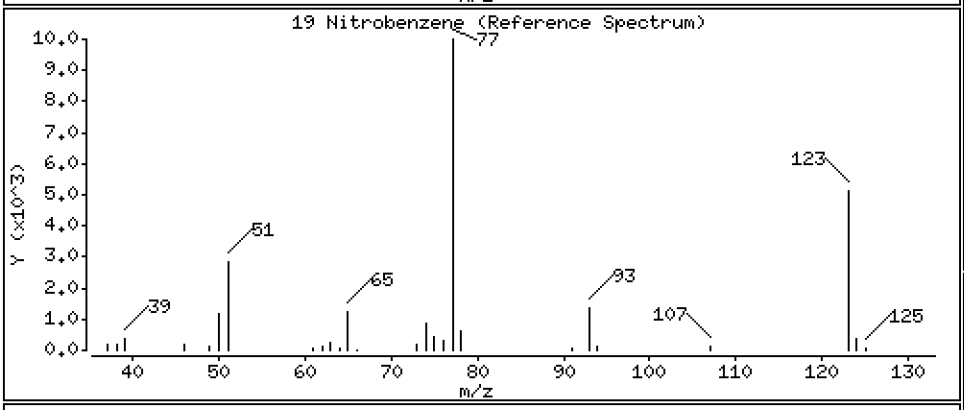
Column diameter: 0.25

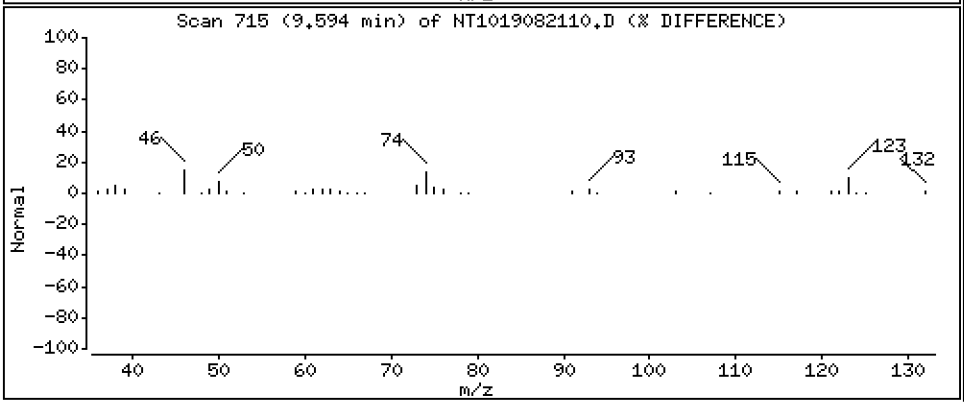
19 Nitrobenzene

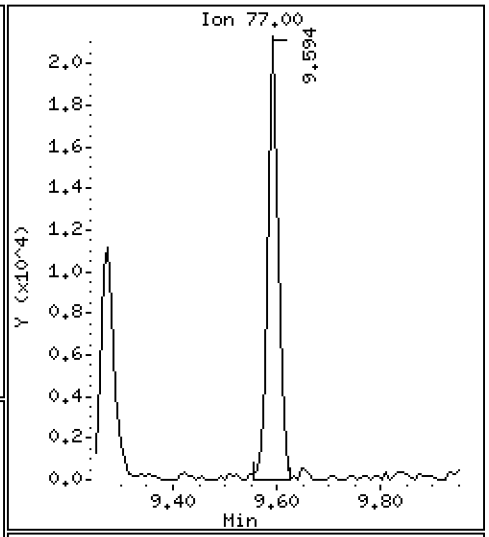
Concentration: 3.364 ug/mL

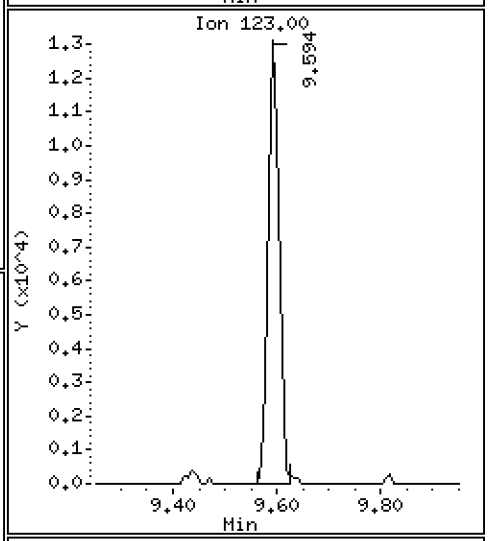


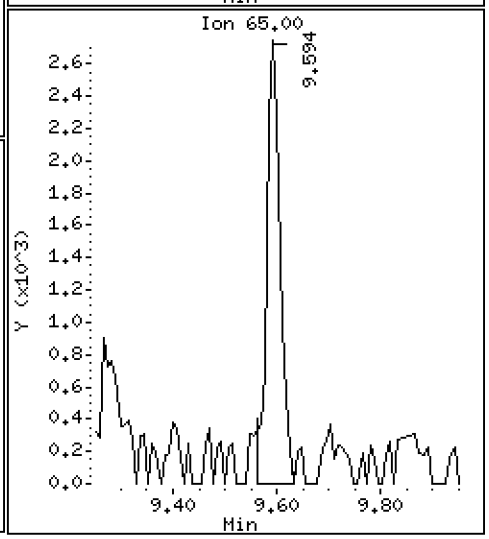












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

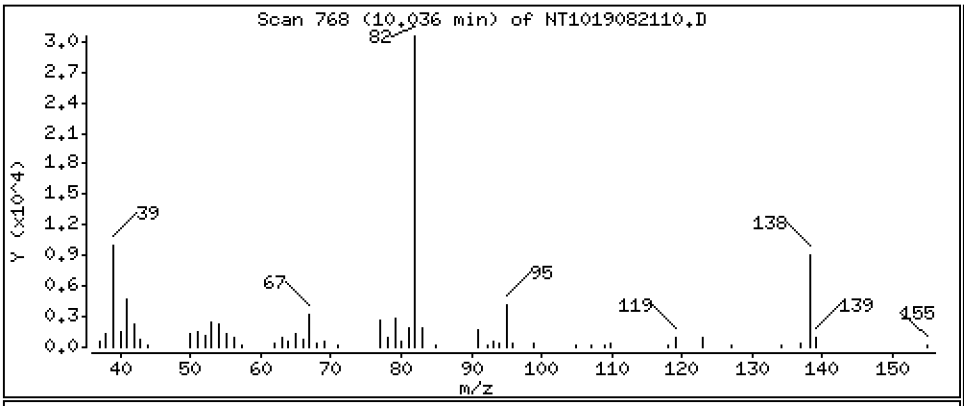
Operator: YZ

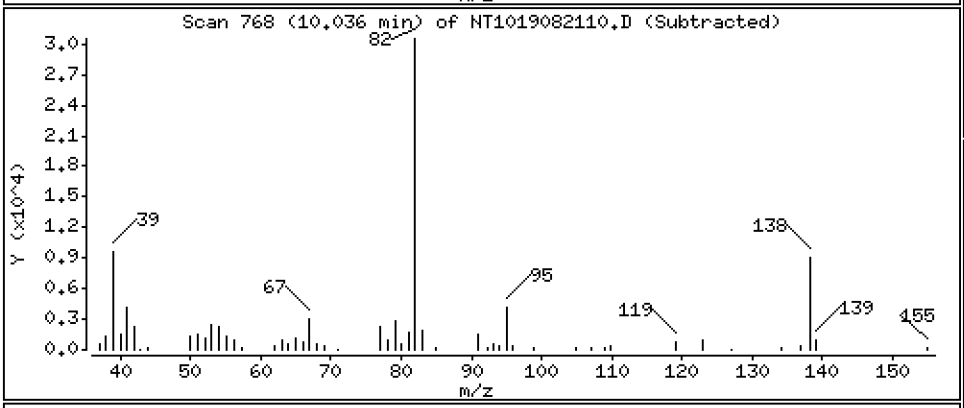
Column phase: ZB-5msi

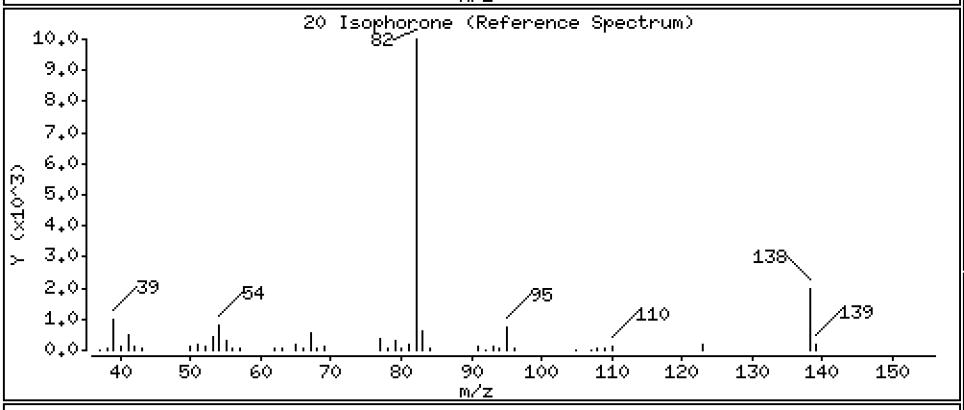
Column diameter: 0.25

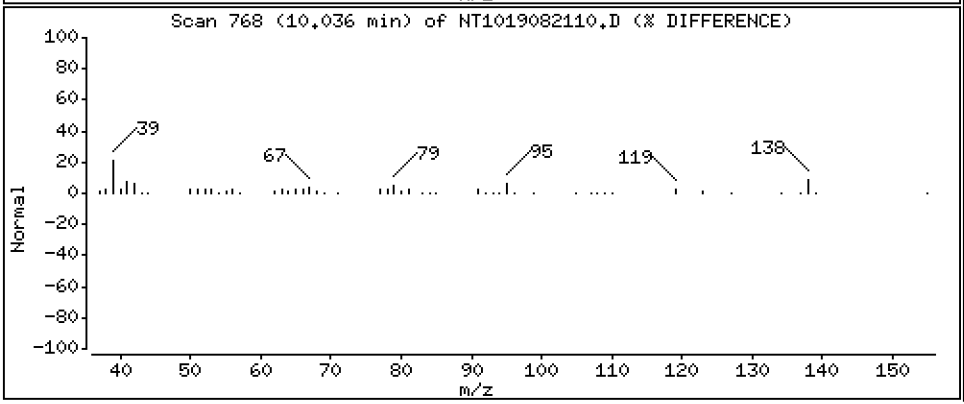
20 Isophorone

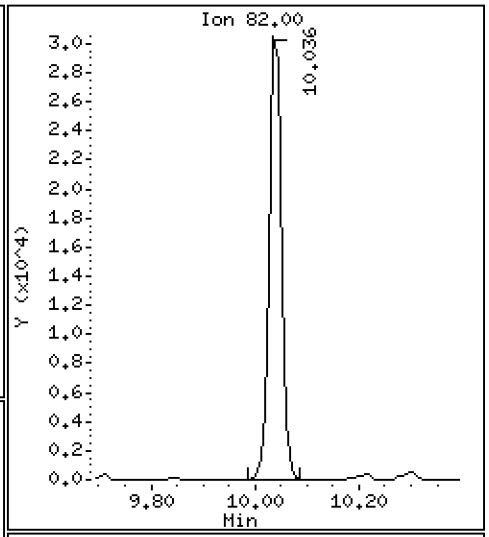
Concentration: 3.437 ug/mL

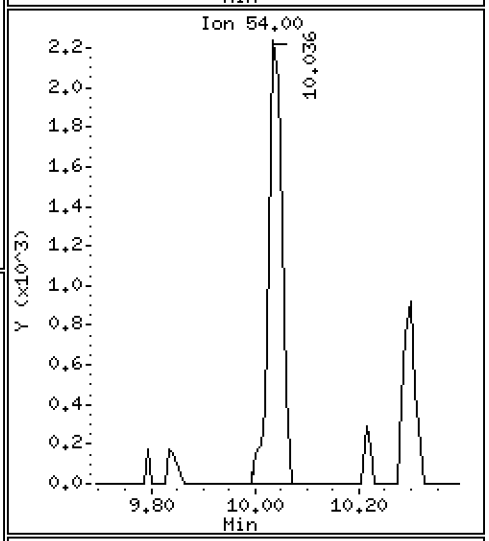


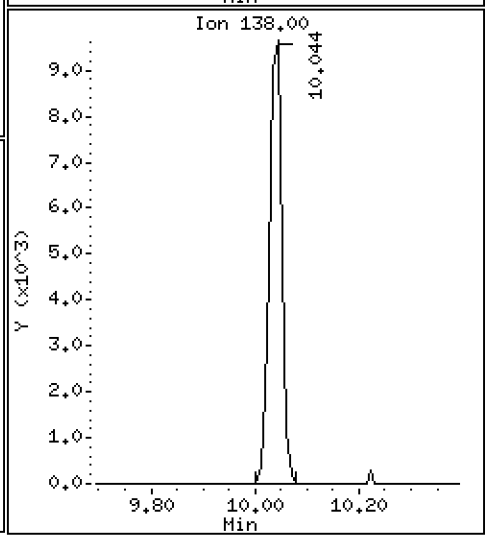












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

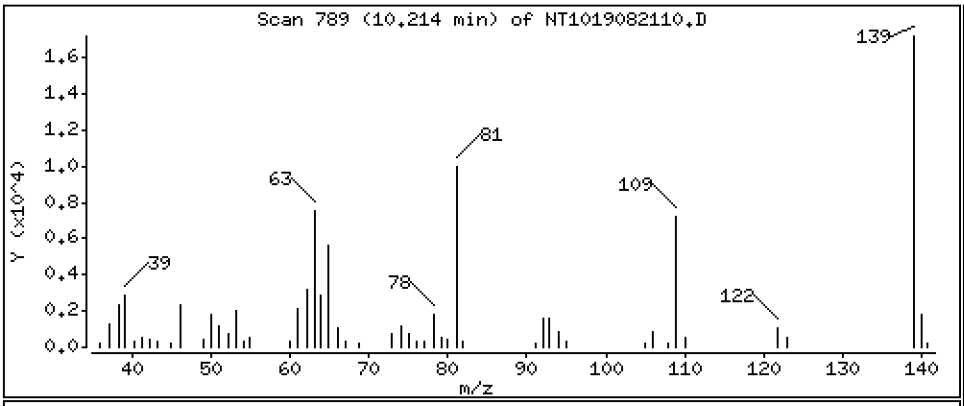
Operator: YZ

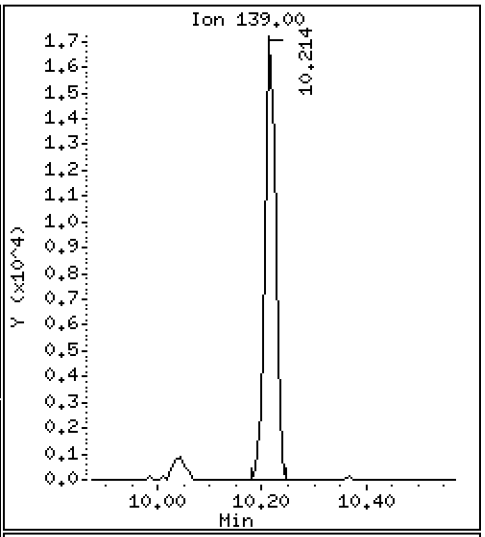
Column phase: ZB-5msi

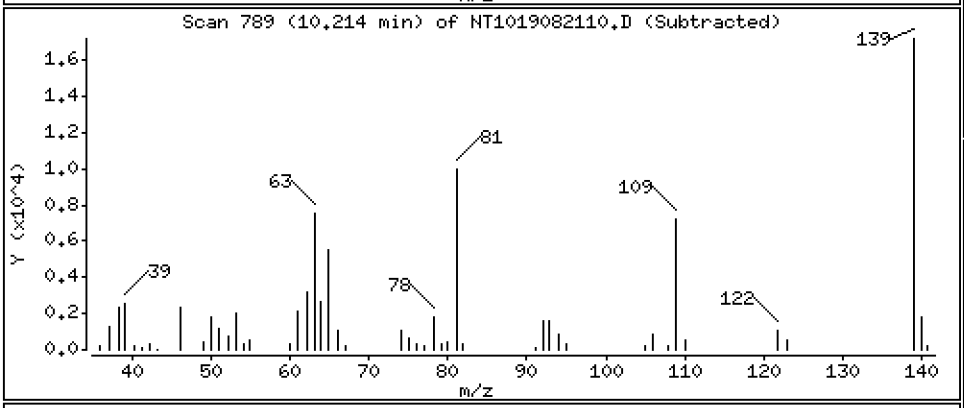
Column diameter: 0.25

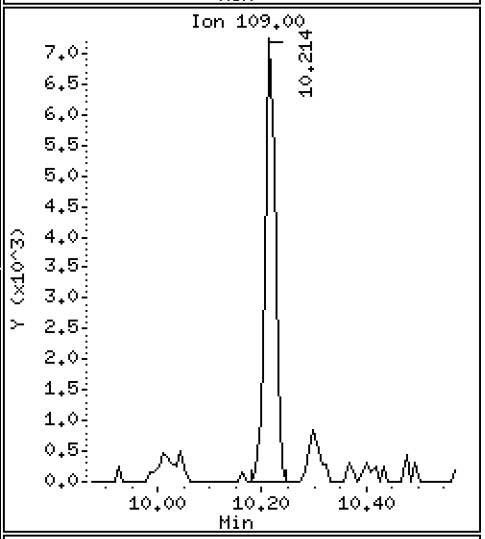
21 2-Nitrophenol

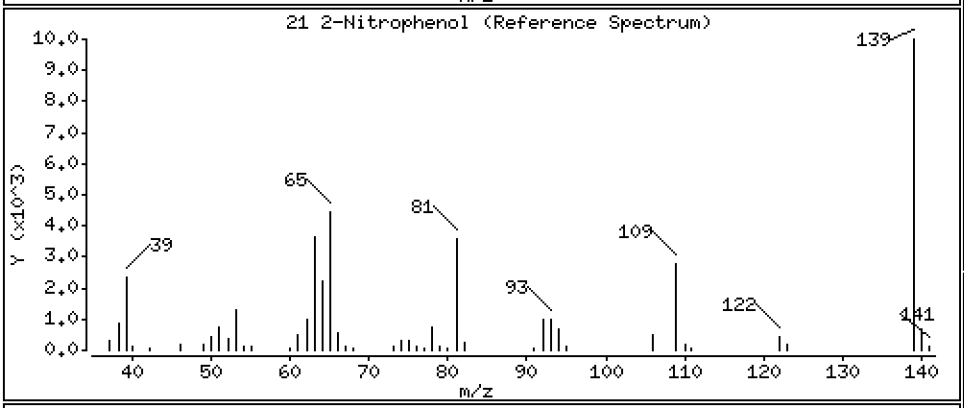
Concentration: 4.226 ug/mL

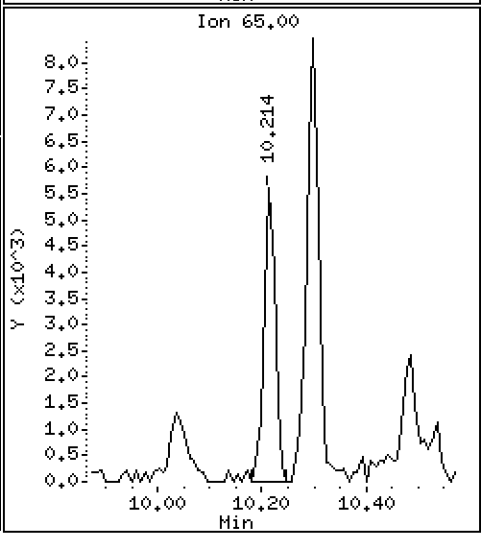


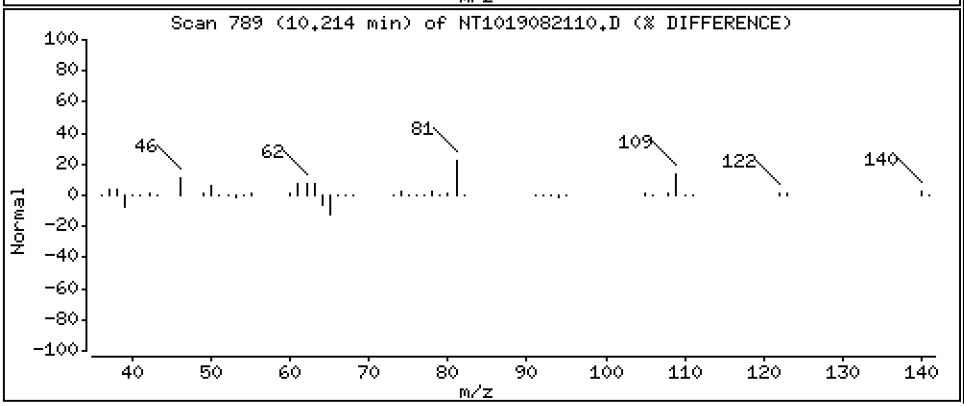












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

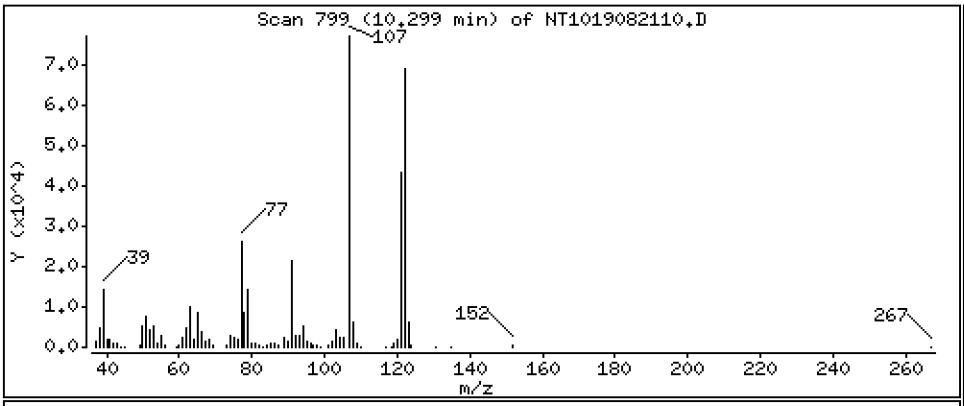
Operator: YZ

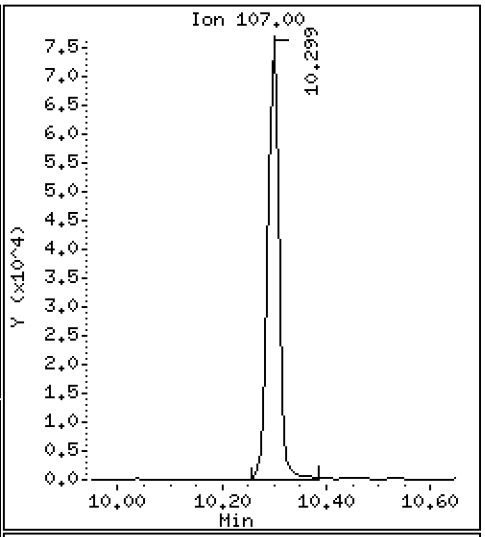
Column phase: ZB-5msi

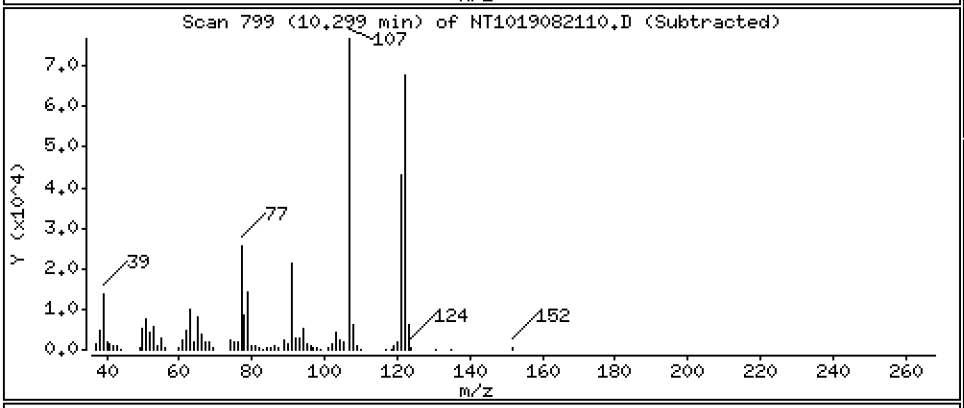
Column diameter: 0.25

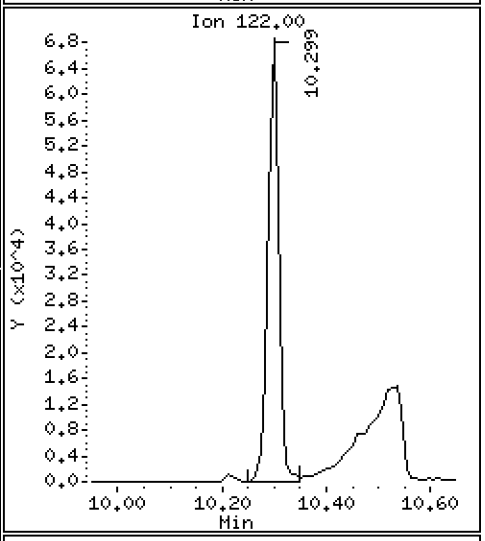
22 2,4-Dimethylphenol

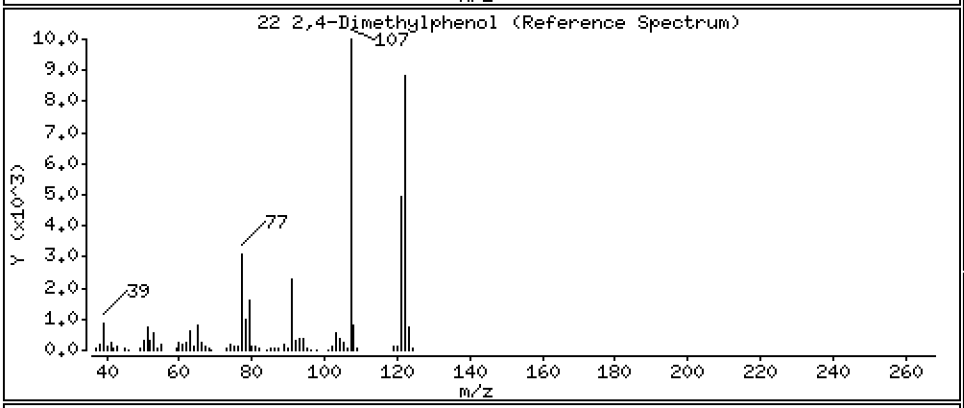
Concentration: 11.95 ug/mL

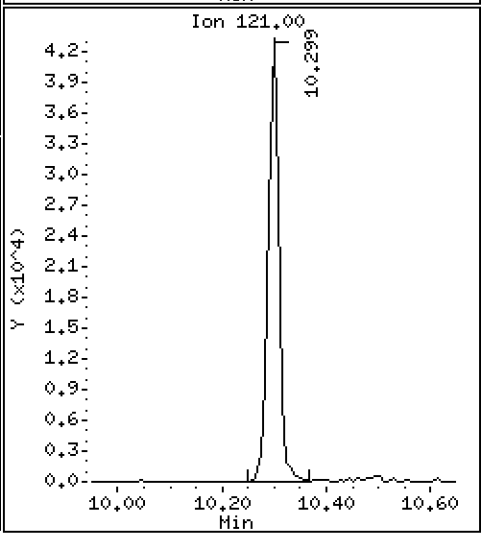


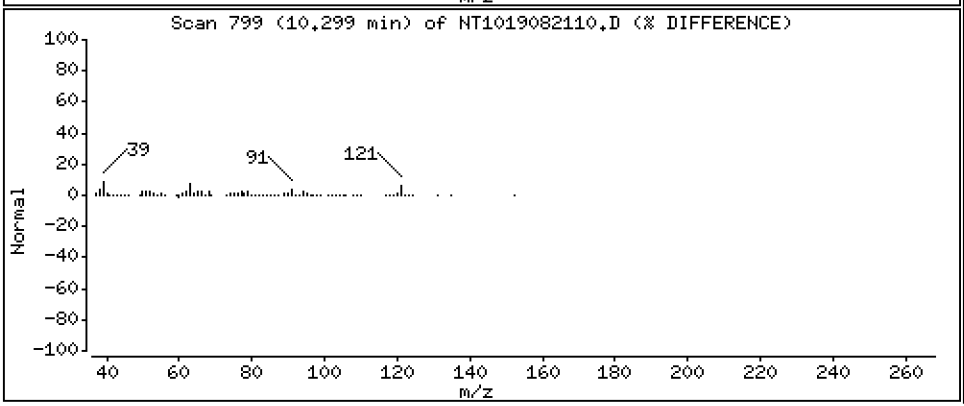












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

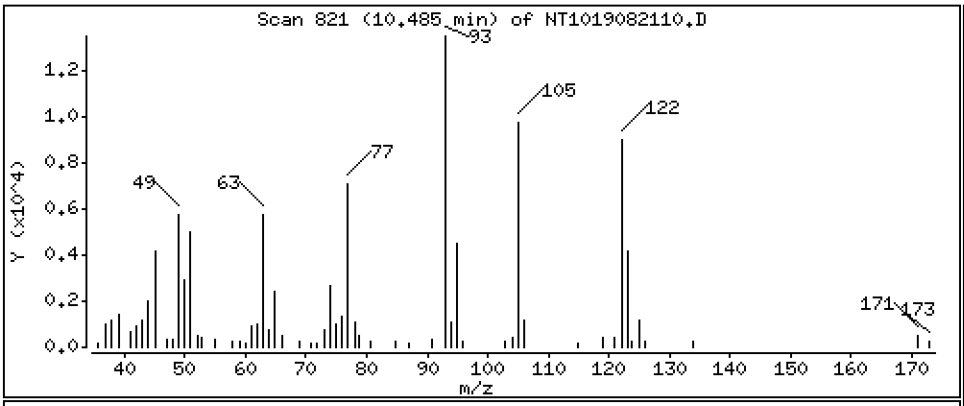
Operator: YZ

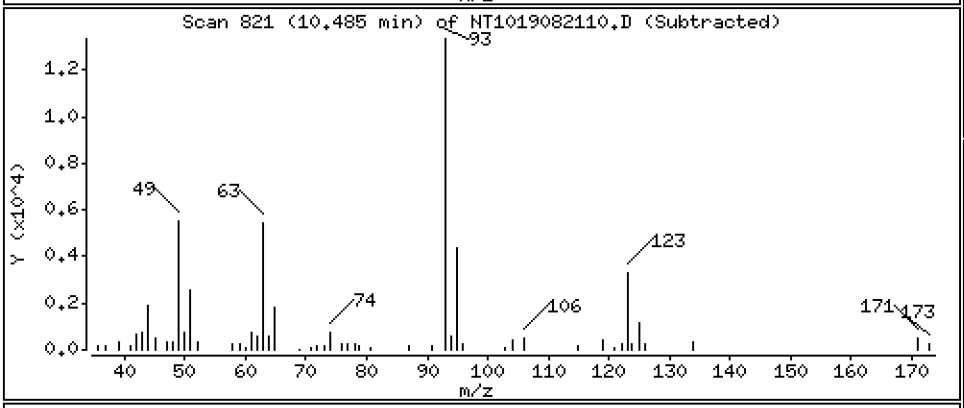
Column phase: ZB-5msi

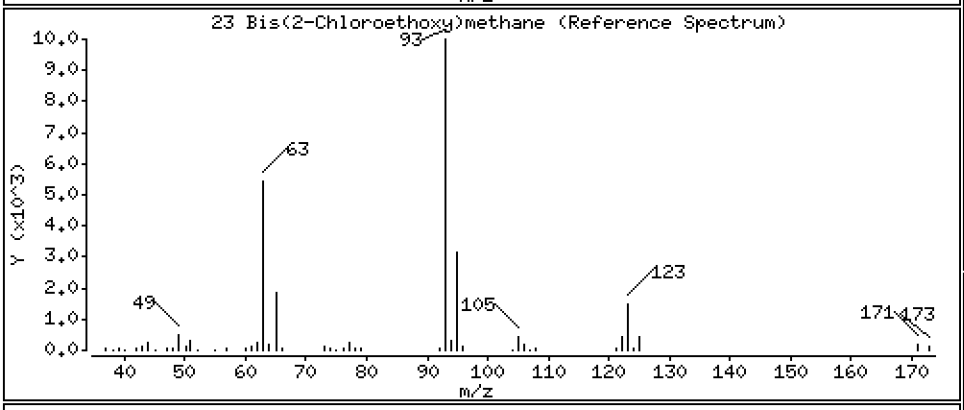
Column diameter: 0.25

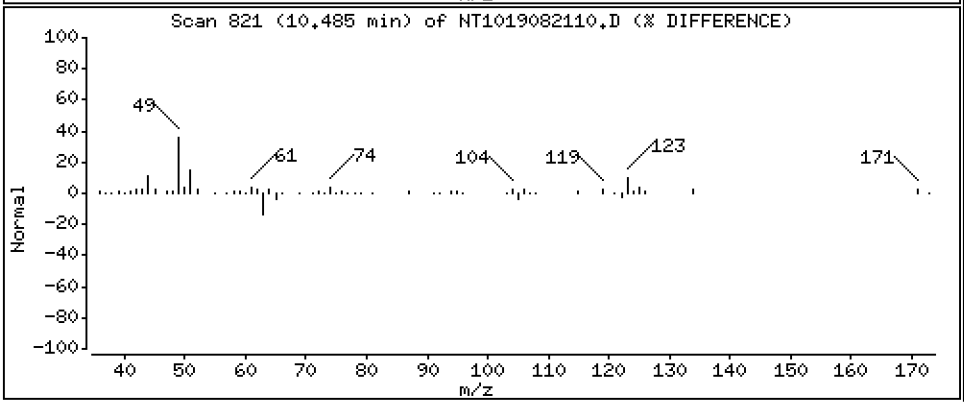
23 Bis(2-Chloroethoxy)methane

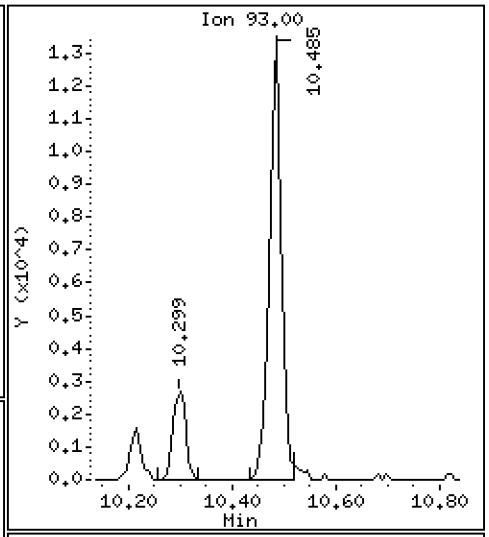
Concentration: 2.570 ug/mL

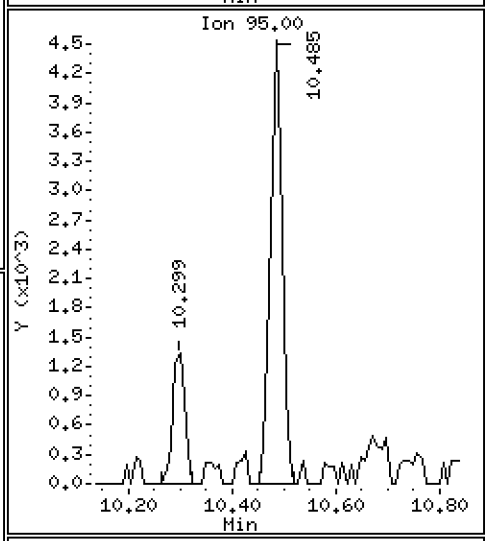


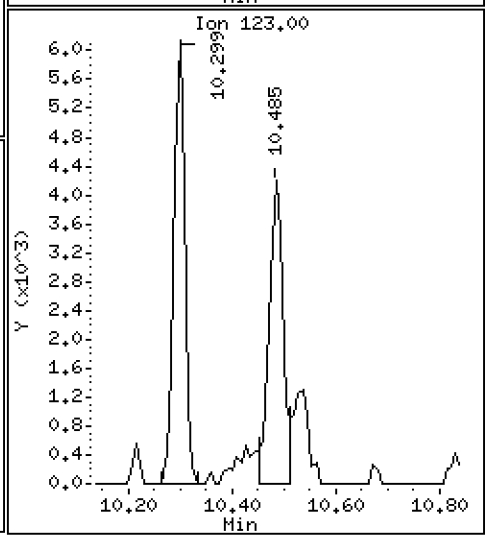












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

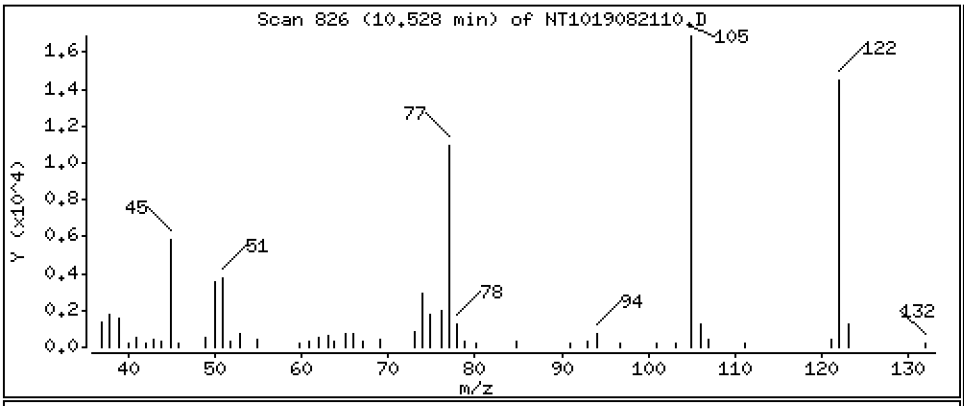
Operator: YZ

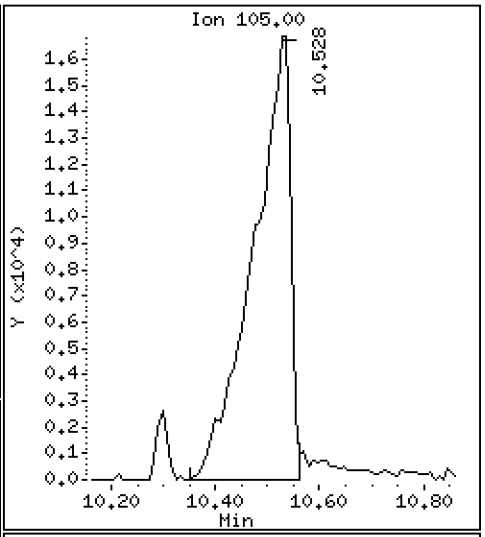
Column phase: ZB-5msi

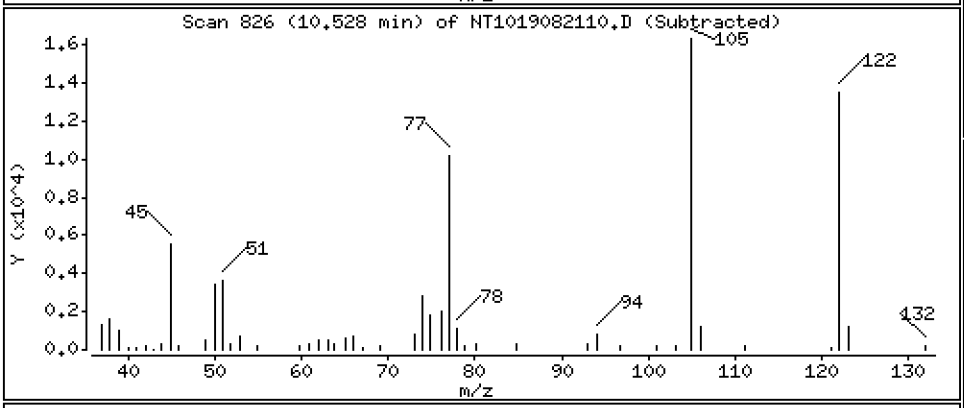
Column diameter: 0.25

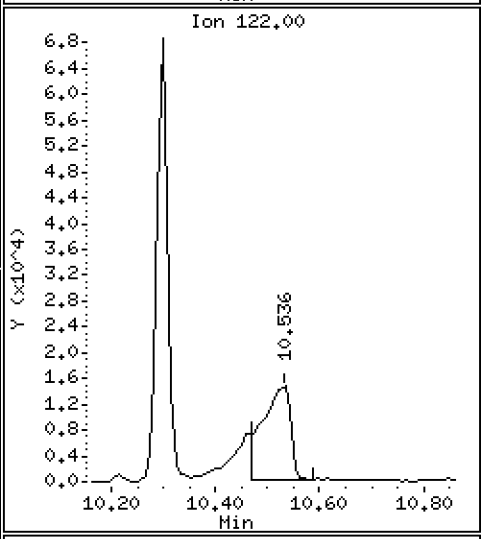
24 Benzoic acid

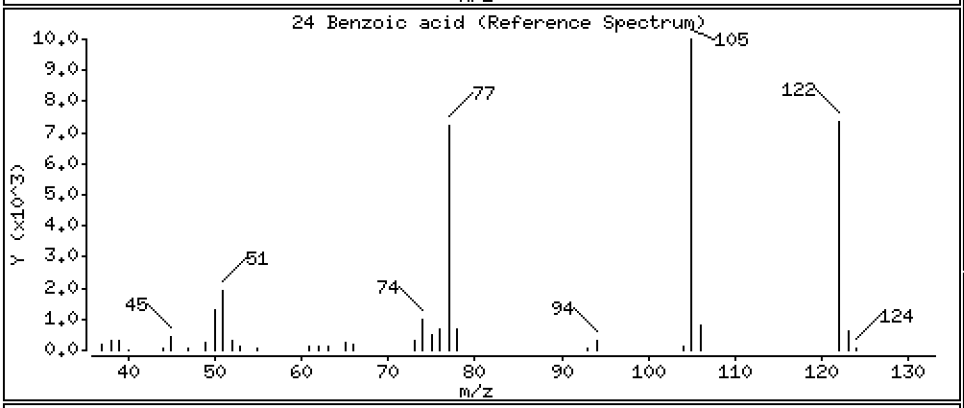
Concentration: 12.80 ug/mL

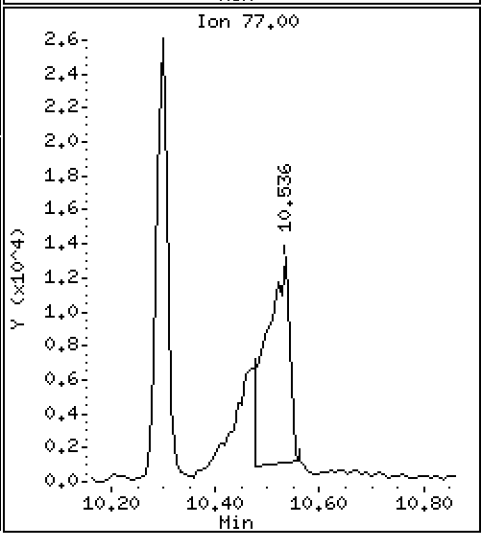


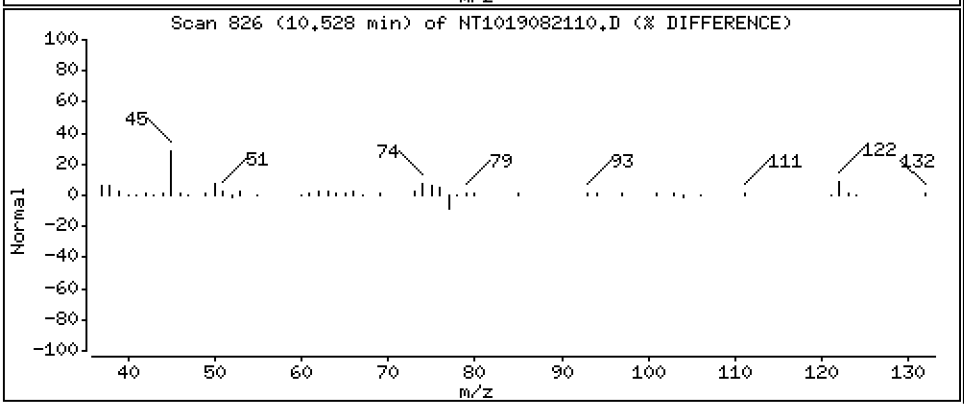












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

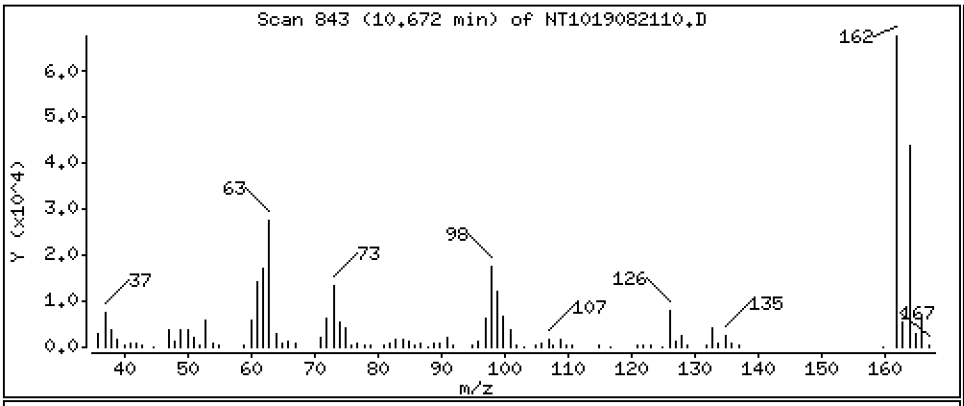
Operator: YZ

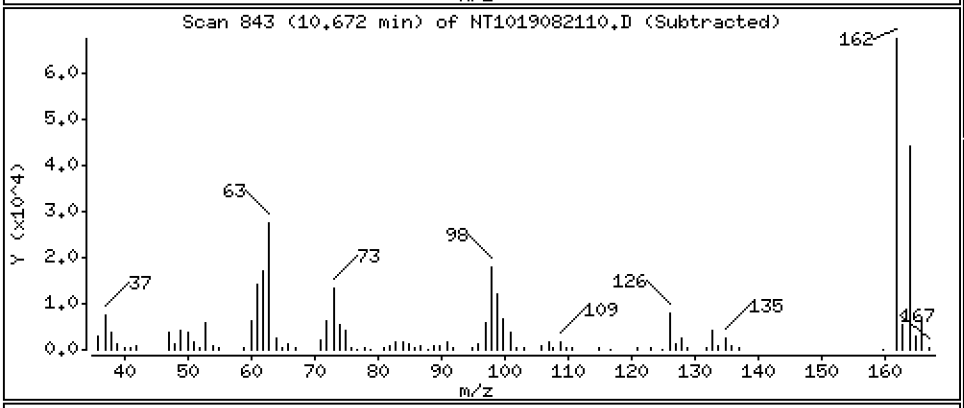
Column phase: ZB-5msi

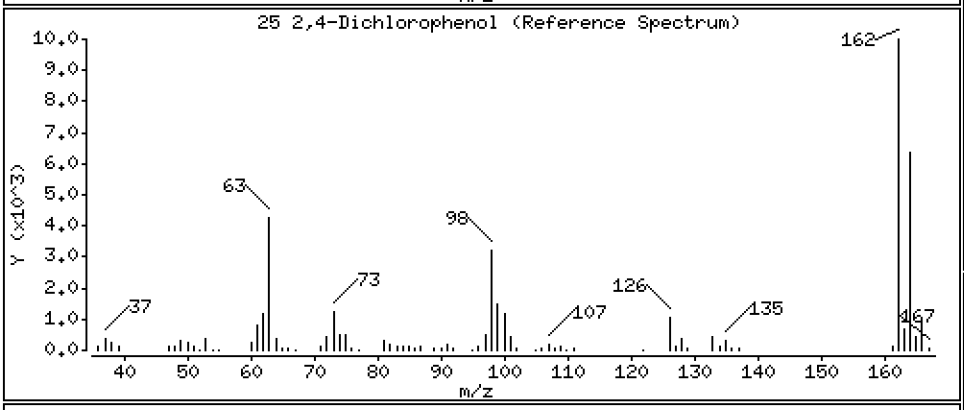
Column diameter: 0.25

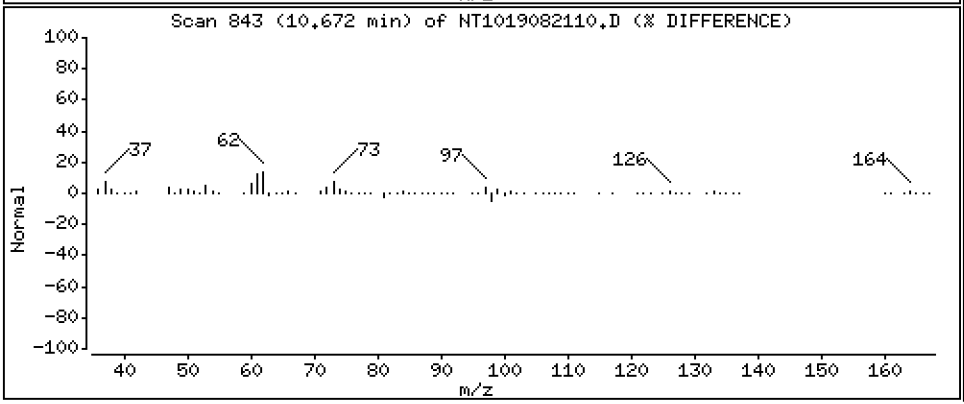
25 2,4-Dichlorophenol

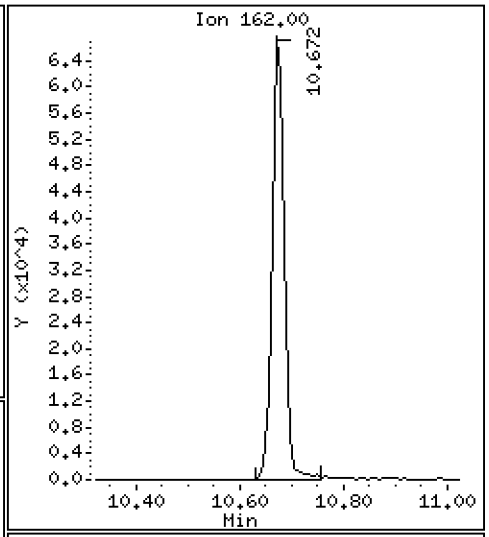
Concentration: 13.86 ug/mL

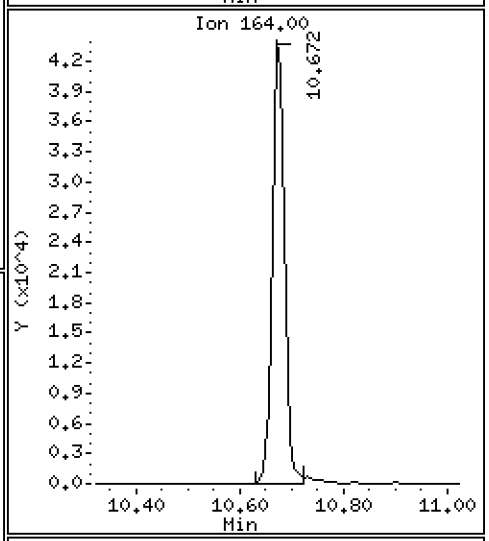


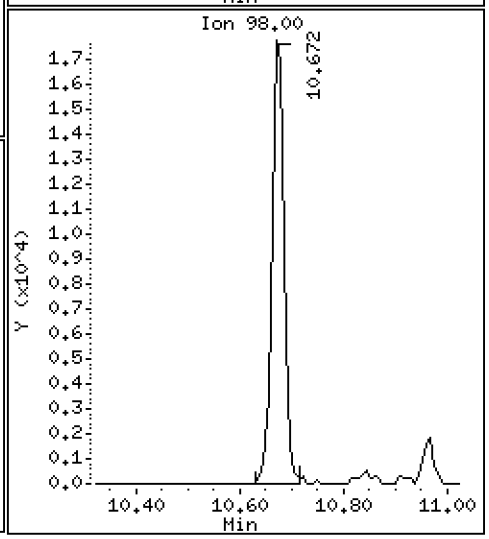












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

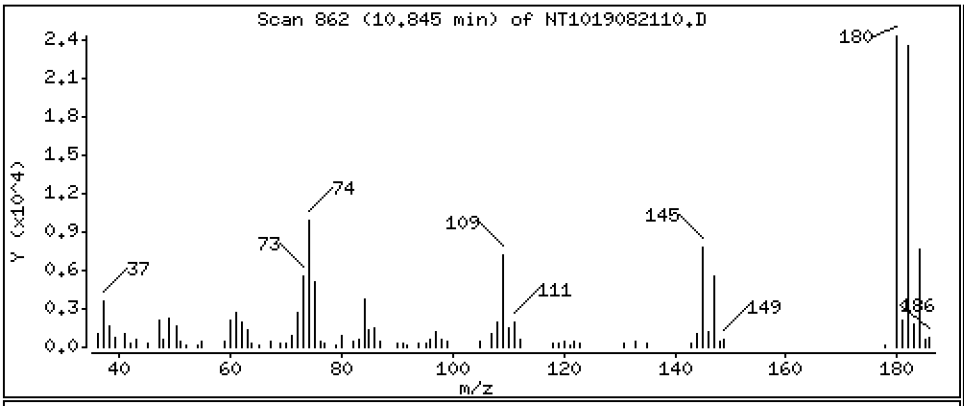
Operator: YZ

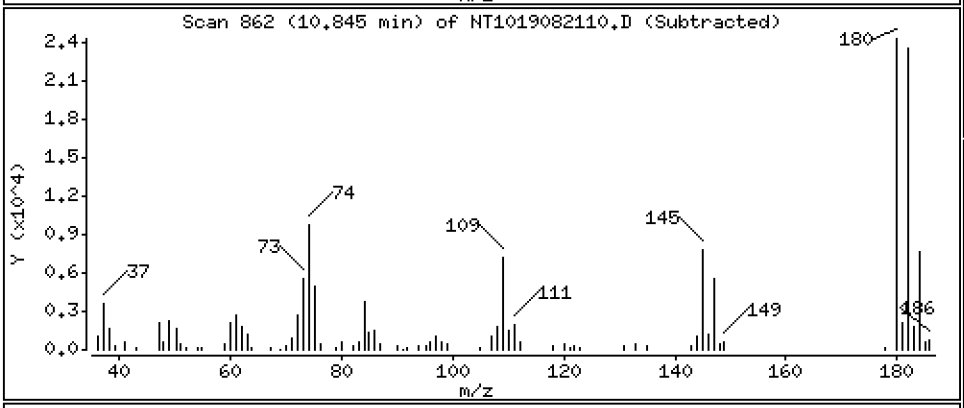
Column phase: ZB-5msi

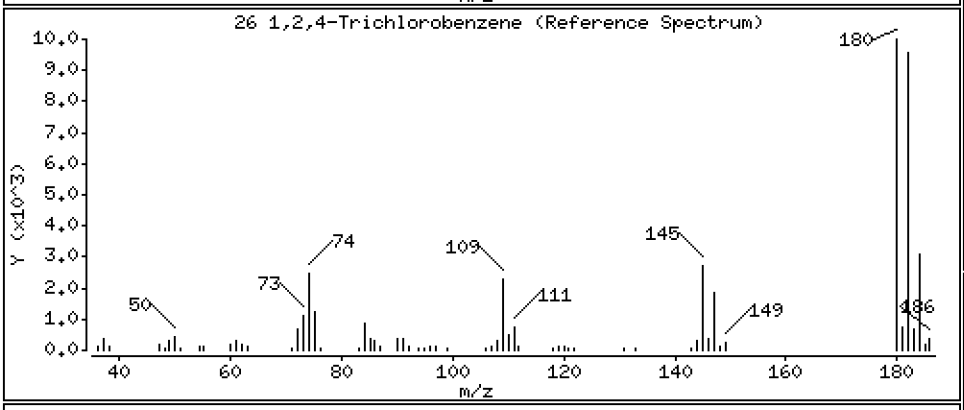
Column diameter: 0.25

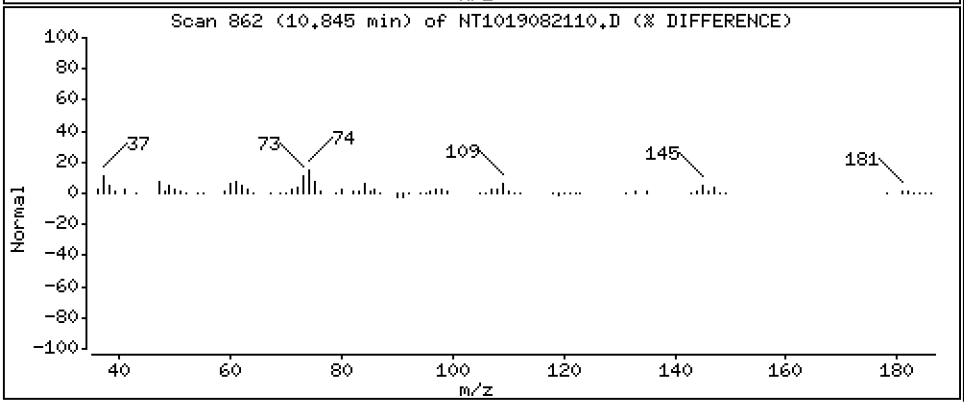
26 1,2,4-Trichlorobenzene

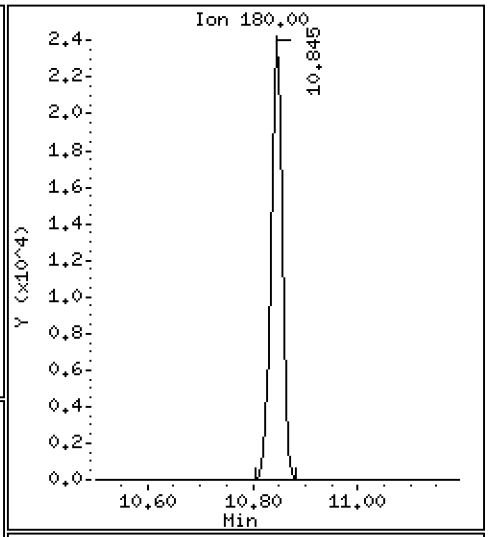
Concentration: 4.061 ug/mL

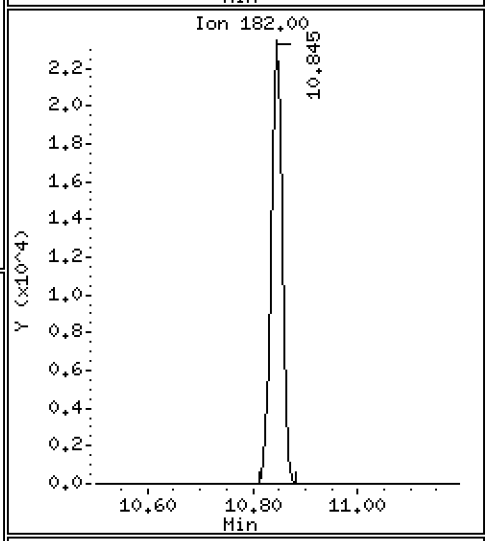


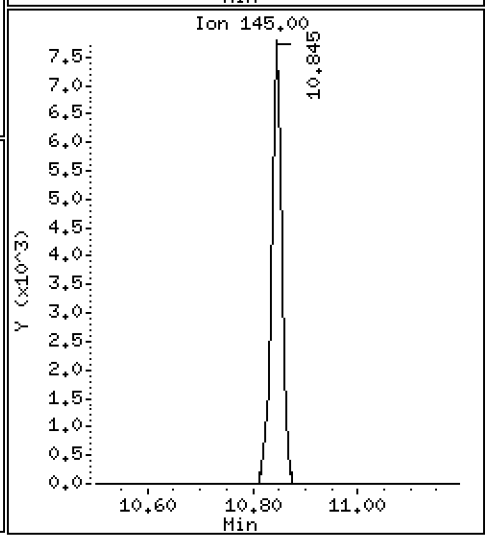












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

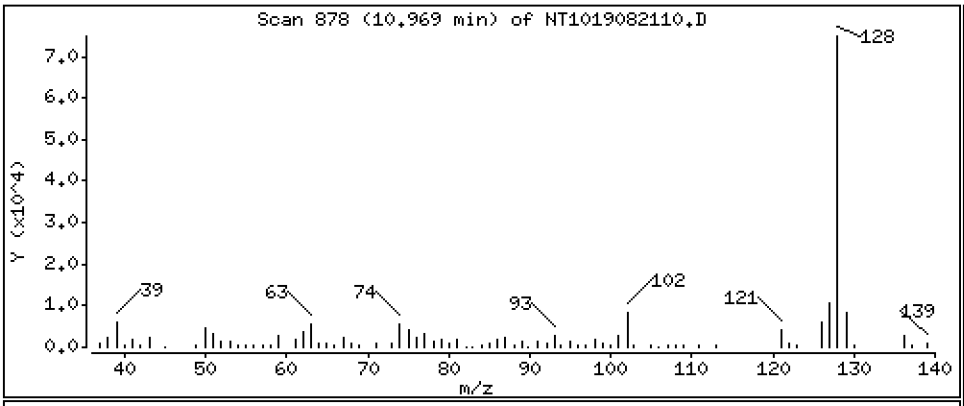
Operator: YZ

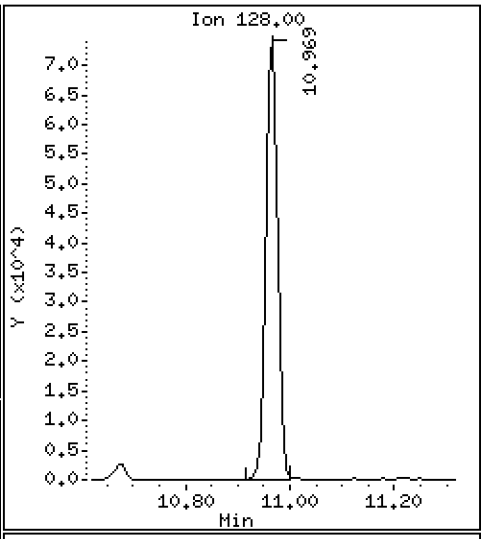
Column phase: ZB-5msi

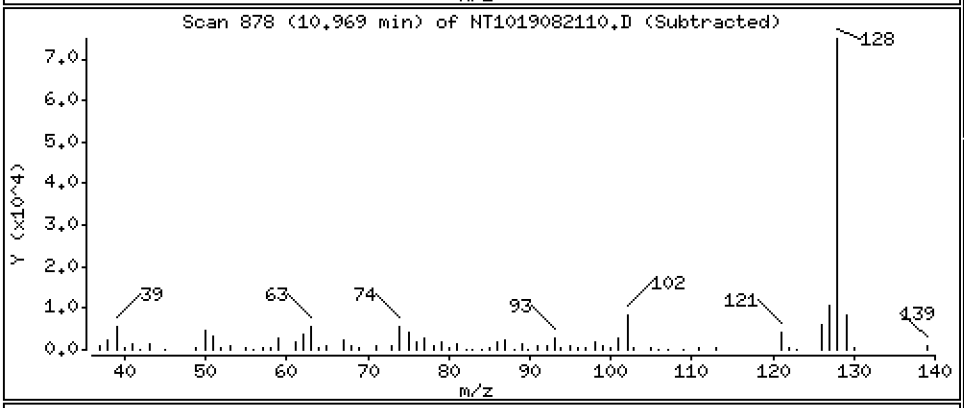
Column diameter: 0.25

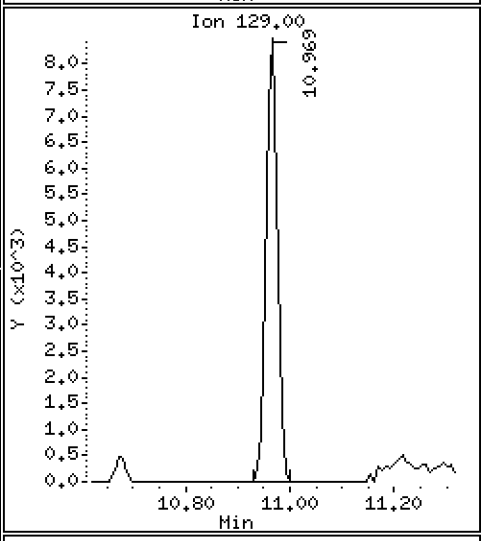
28 Naphthalene

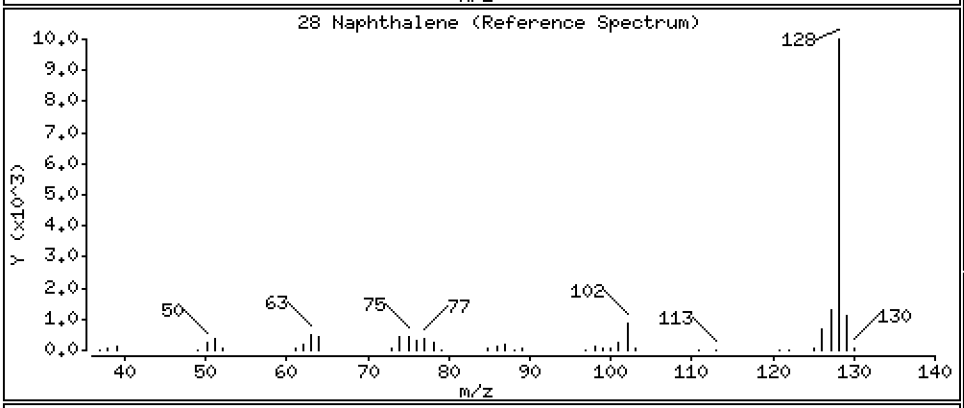
Concentration: 4.126 ug/mL

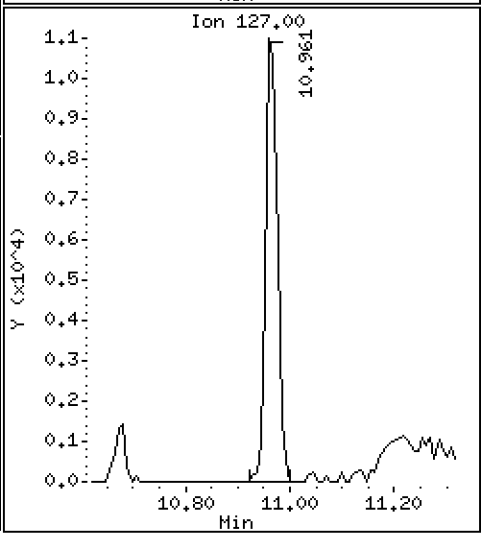


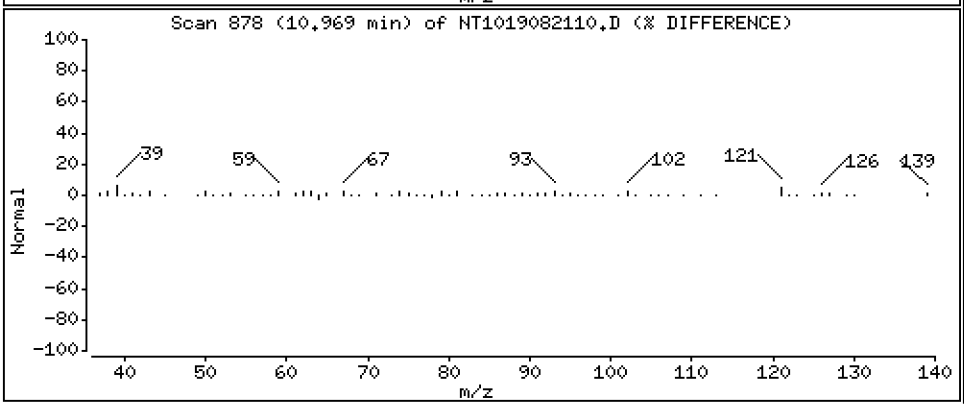












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

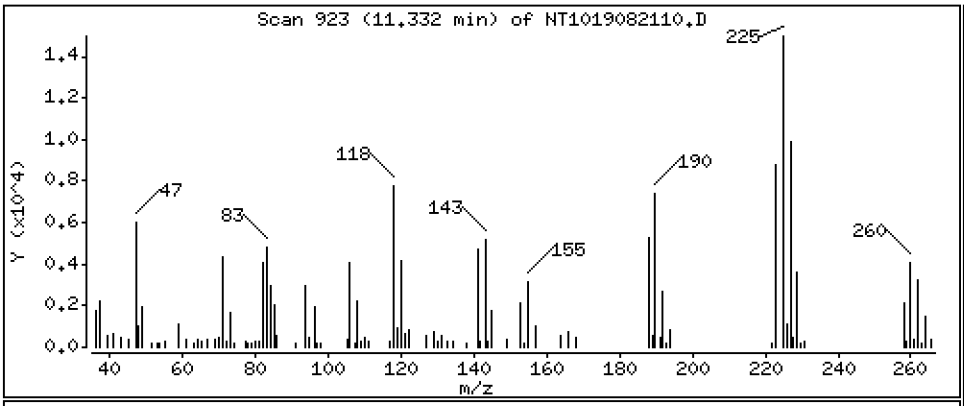
Operator: YZ

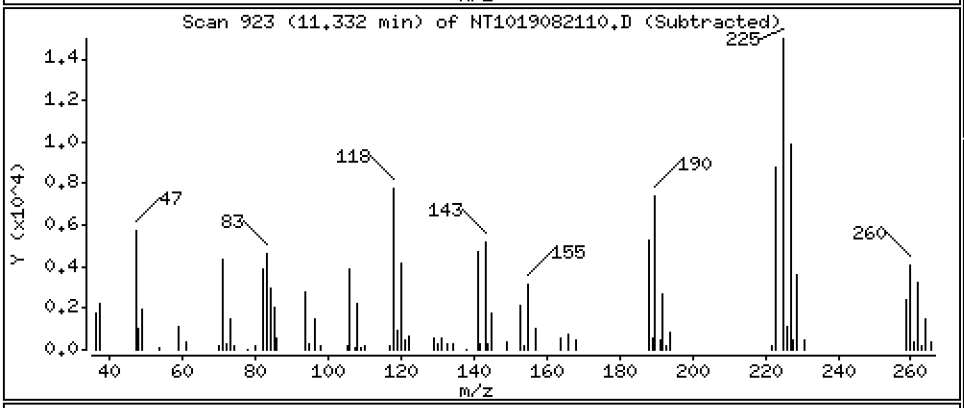
Column phase: ZB-5msi

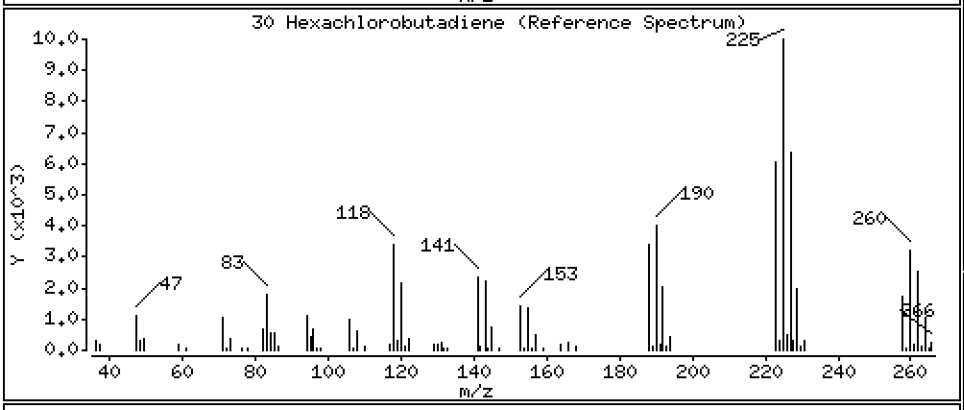
Column diameter: 0.25

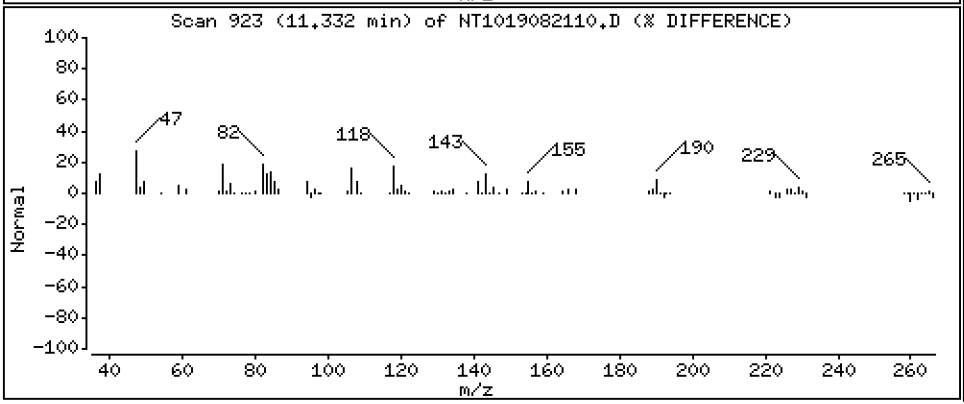
30 Hexachlorobutadiene

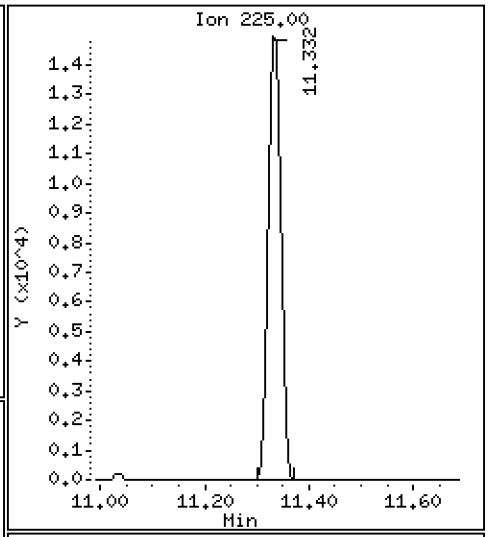
Concentration: 4.383 ug/mL

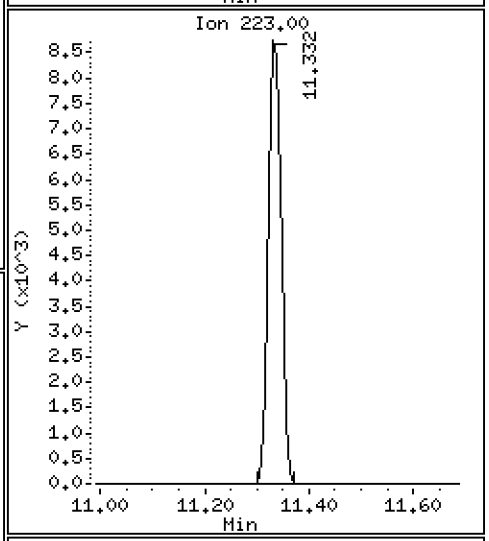


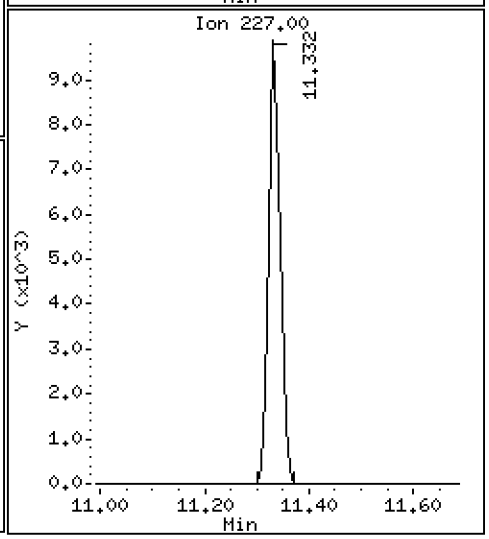












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

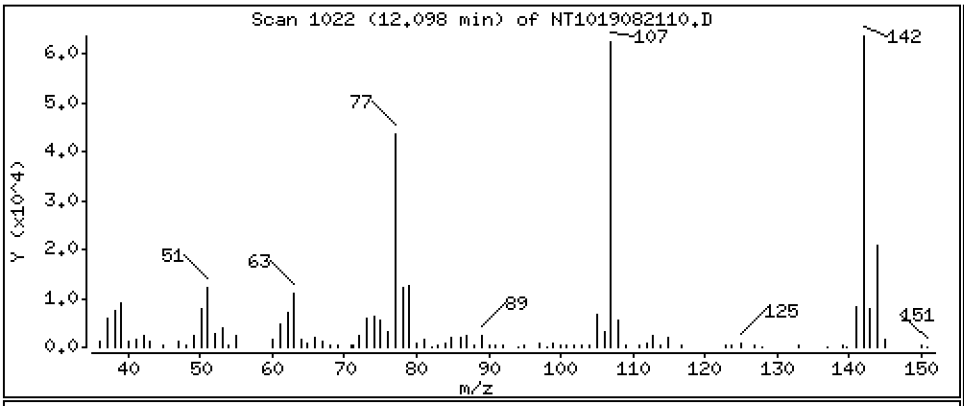
Operator: YZ

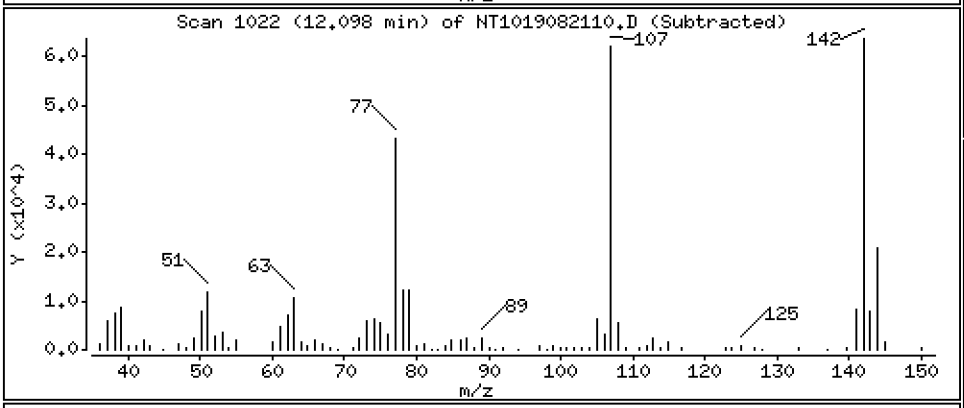
Column phase: ZB-5msi

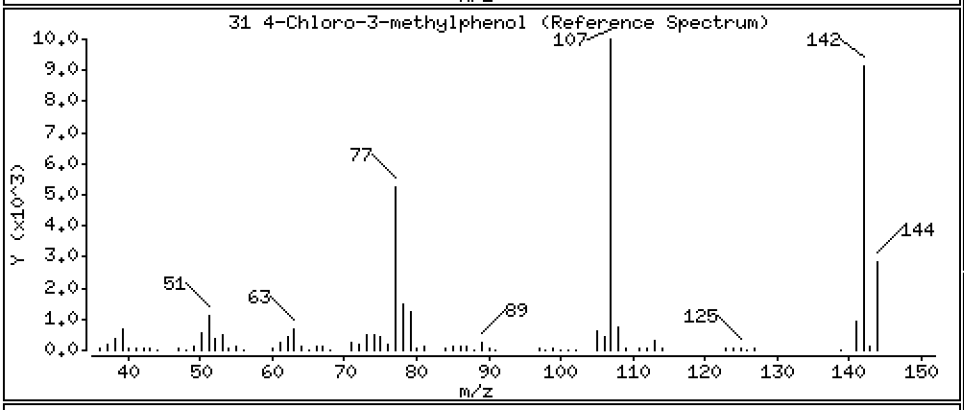
Column diameter: 0.25

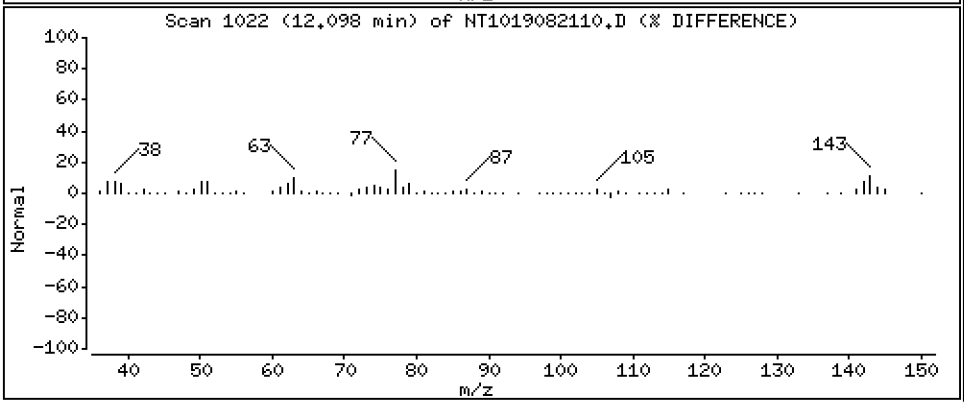
31 4-Chloro-3-methylphenol

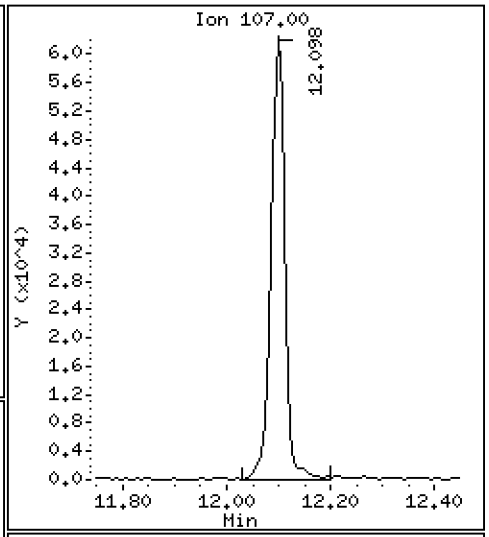
Concentration: 13.32 ug/mL

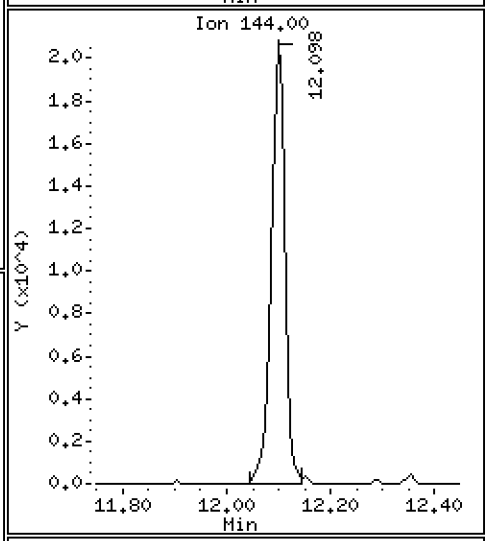


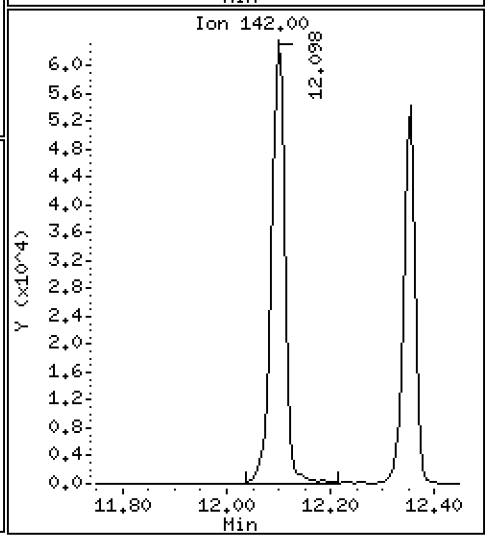












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

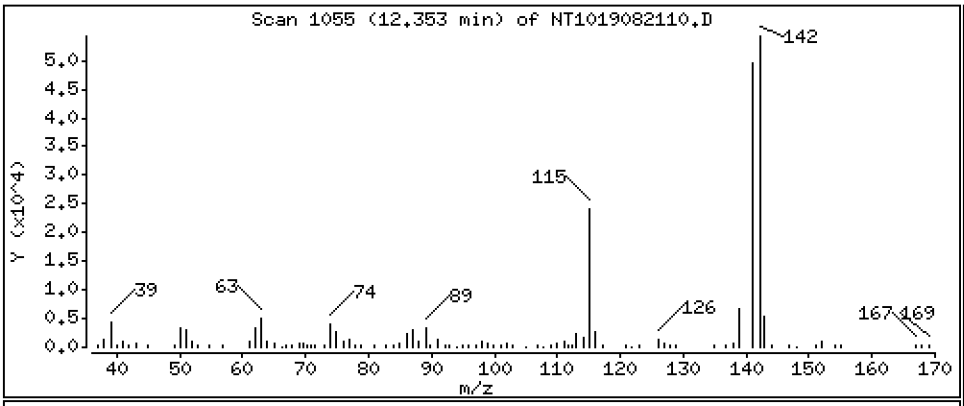
Operator: YZ

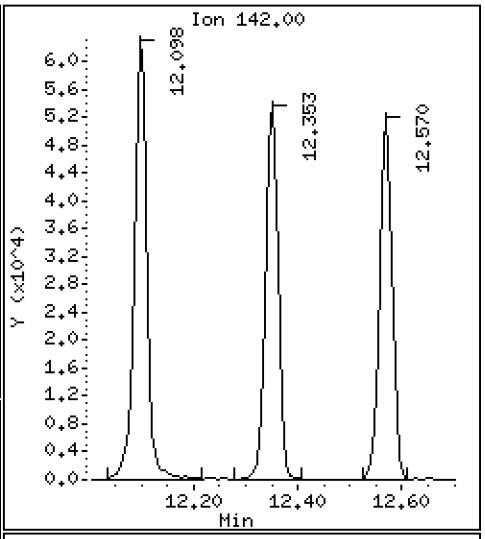
Column phase: ZB-5msi

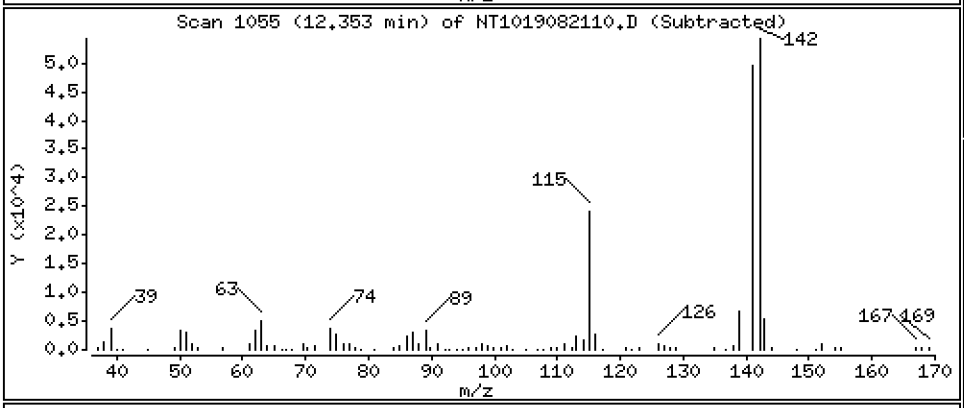
Column diameter: 0.25

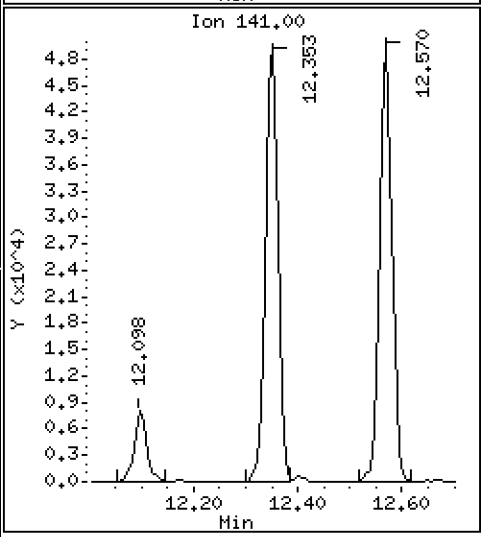
32 2-Methylnaphthalene

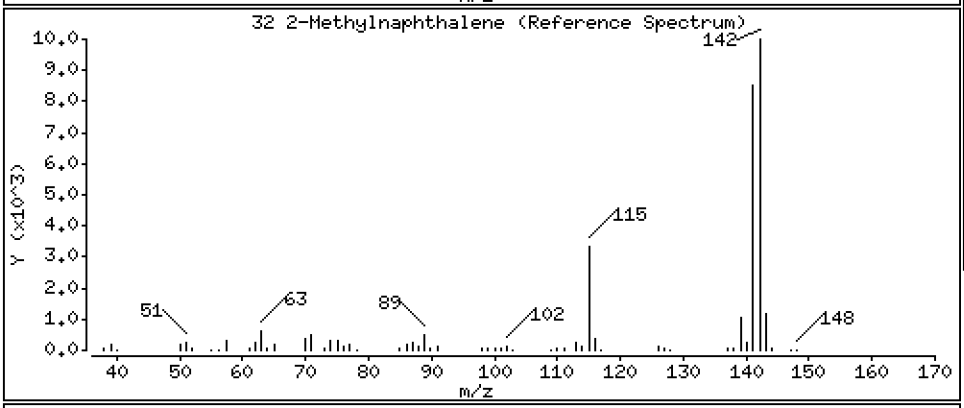
Concentration: 3.821 ug/mL

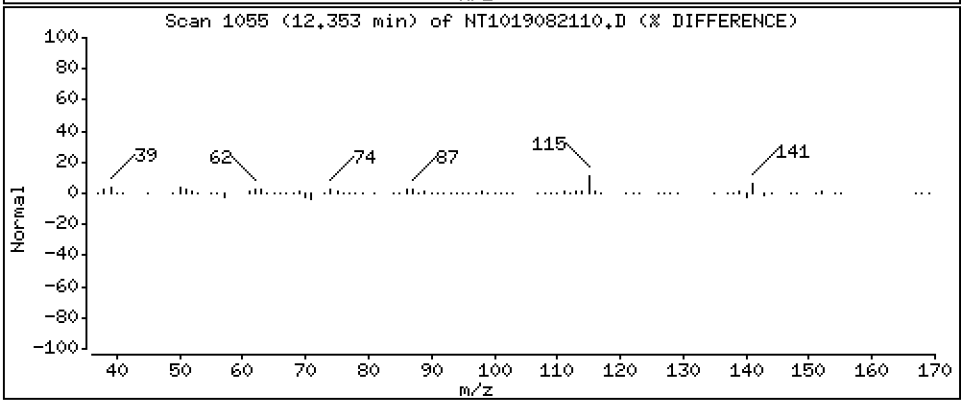












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

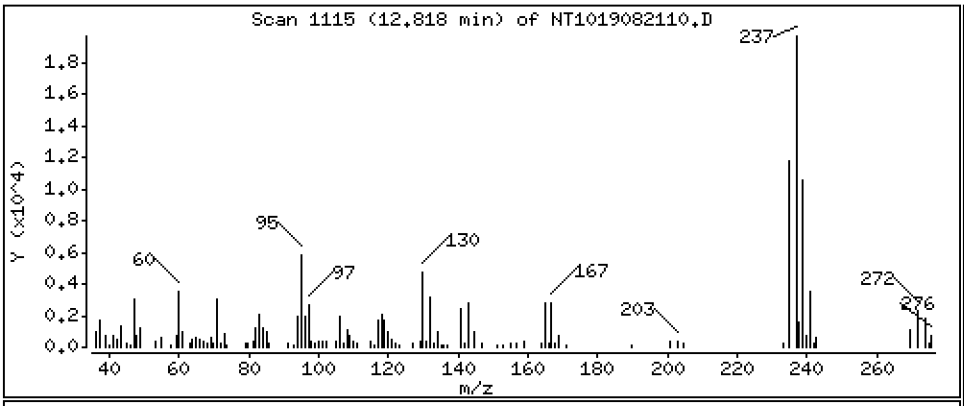
Operator: YZ

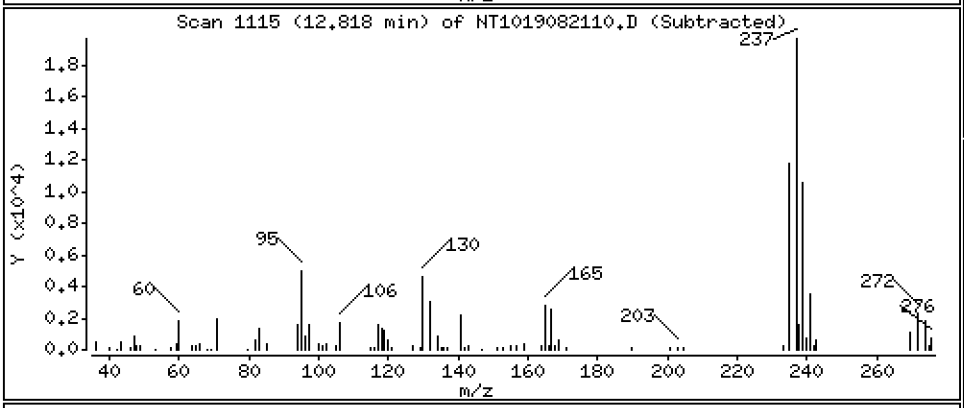
Column phase: ZB-5msi

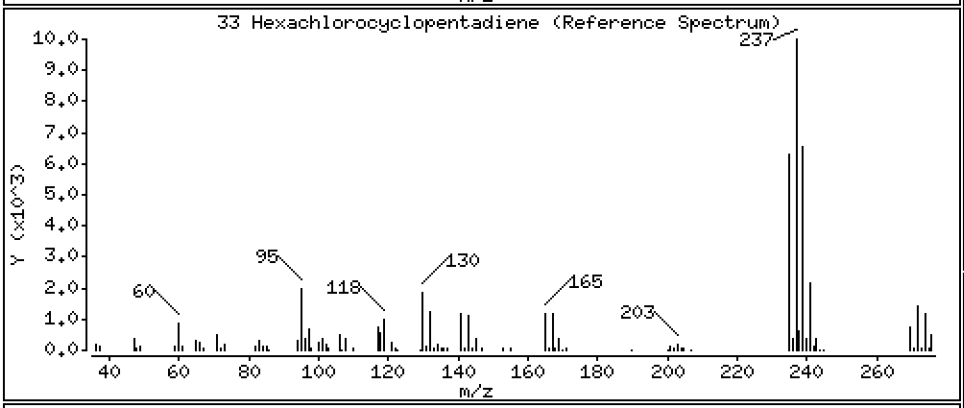
Column diameter: 0.25

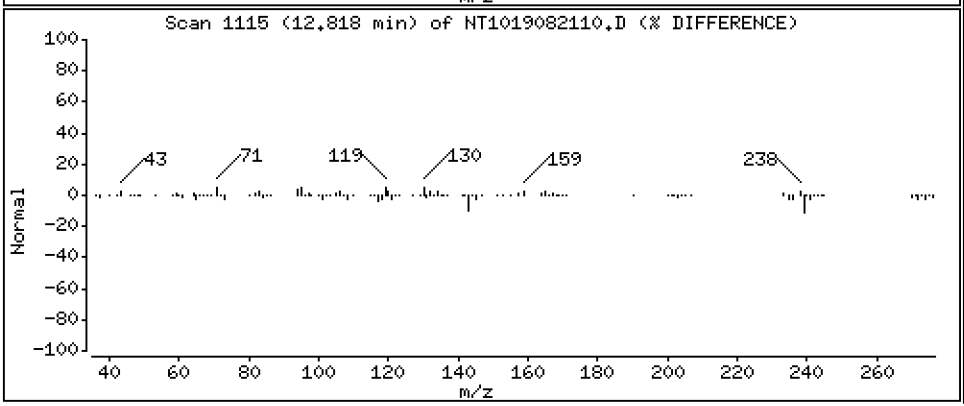
33 Hexachlorocyclopentadiene

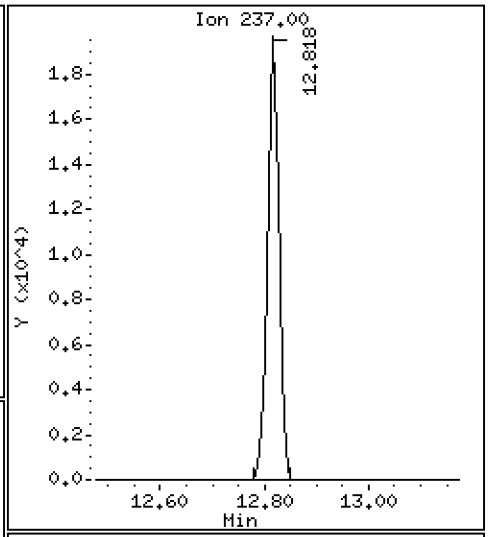
Concentration: 4.570 ug/mL

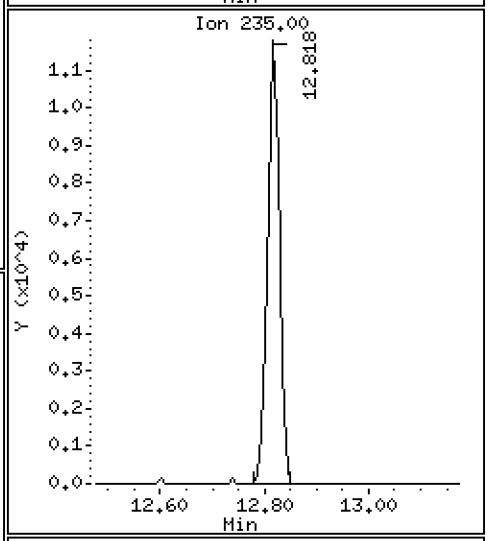


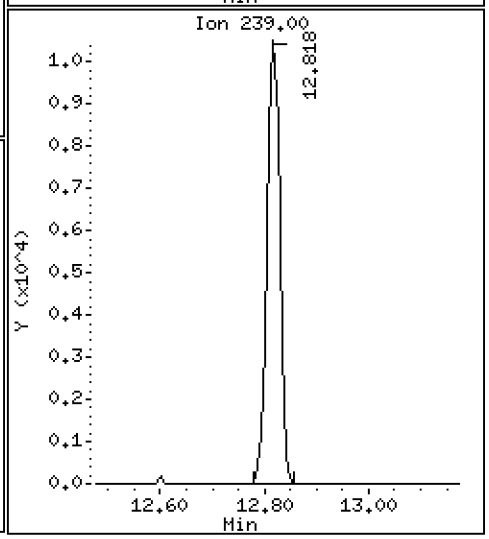












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

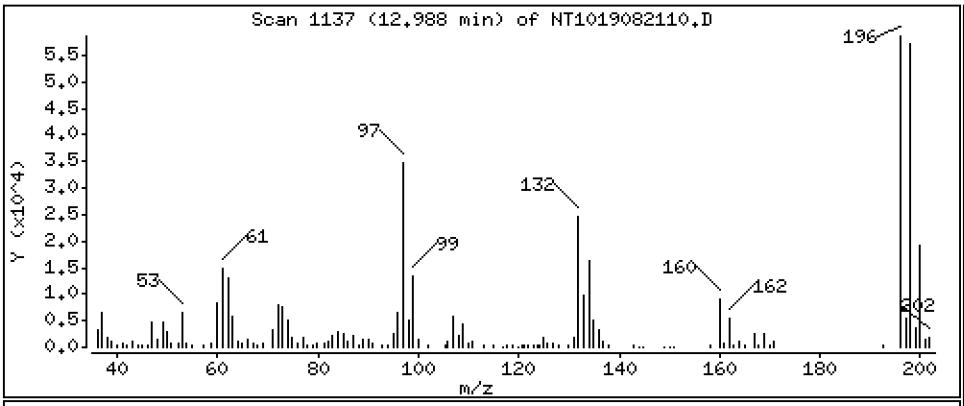
Operator: YZ

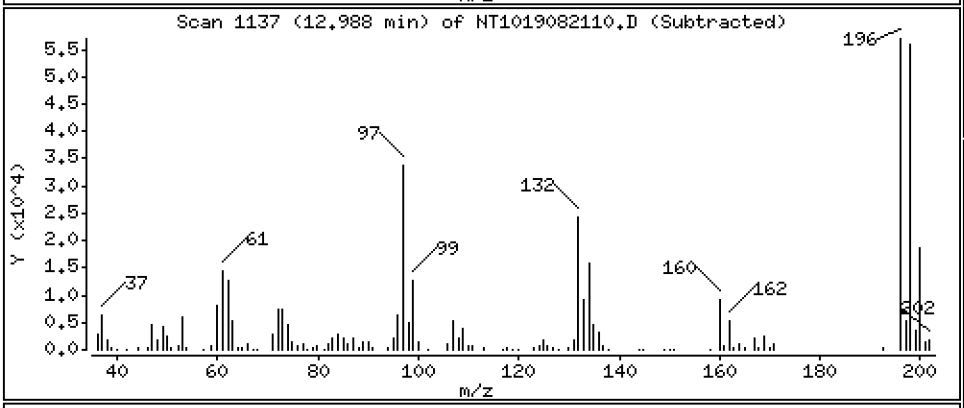
Column phase: ZB-5msi

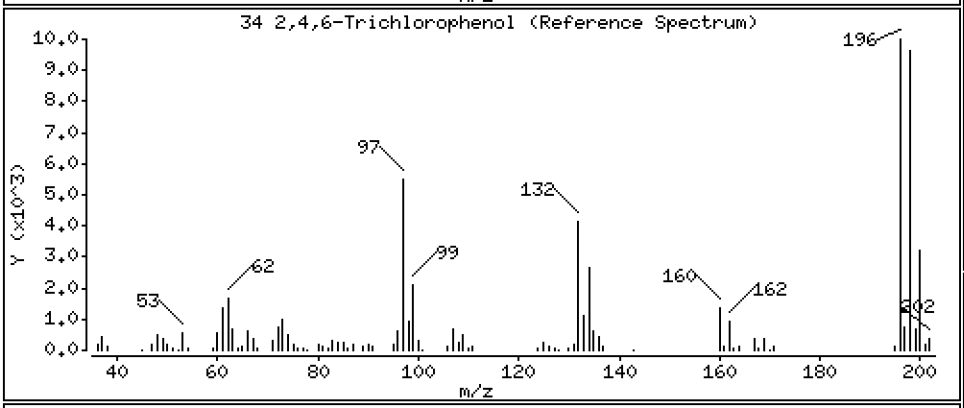
Column diameter: 0.25

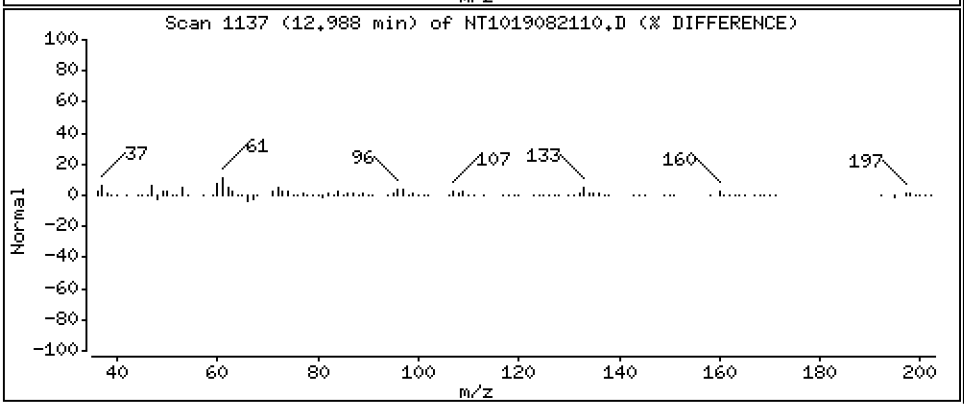
34 2,4,6-Trichlorophenol

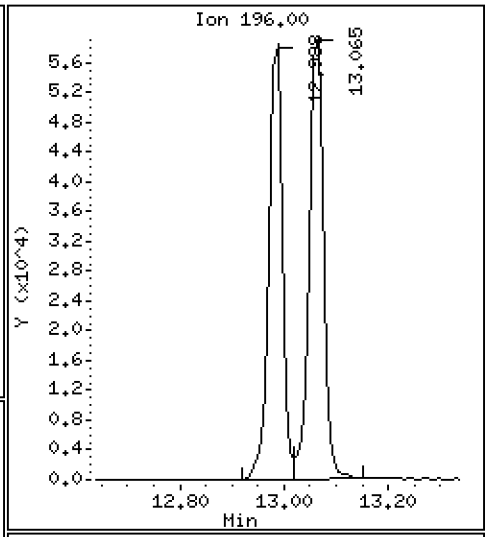
Concentration: 16.95 ug/mL

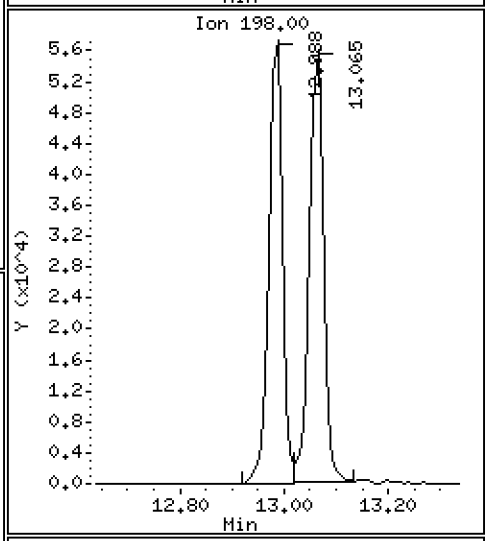


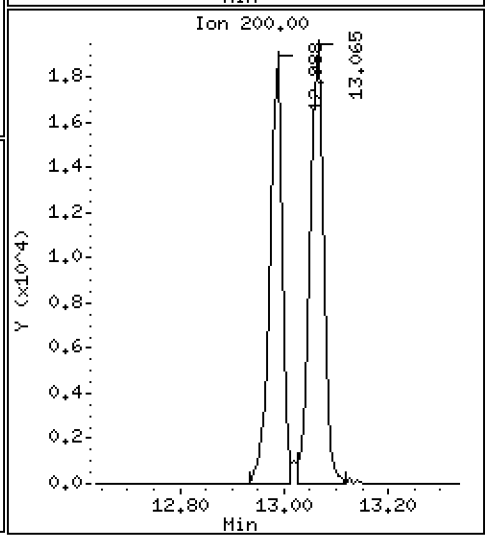












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

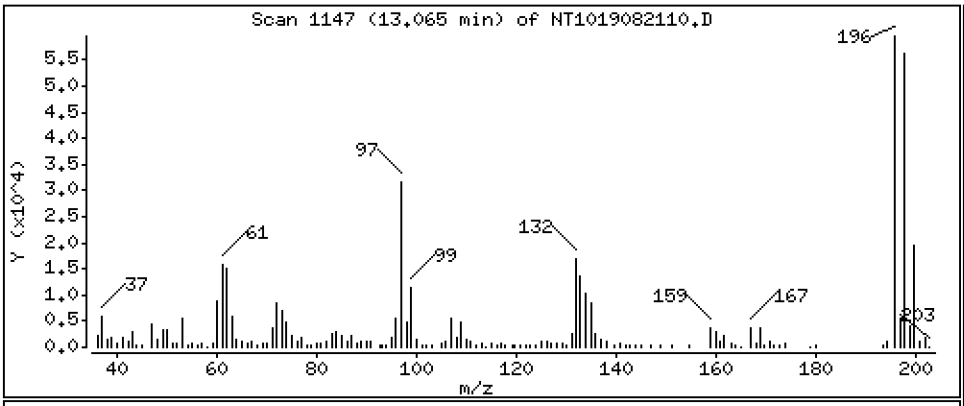
Operator: YZ

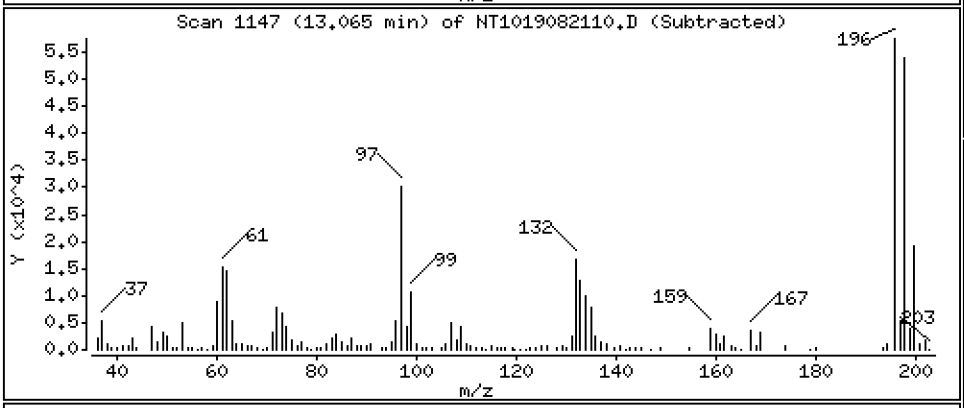
Column phase: ZB-5msi

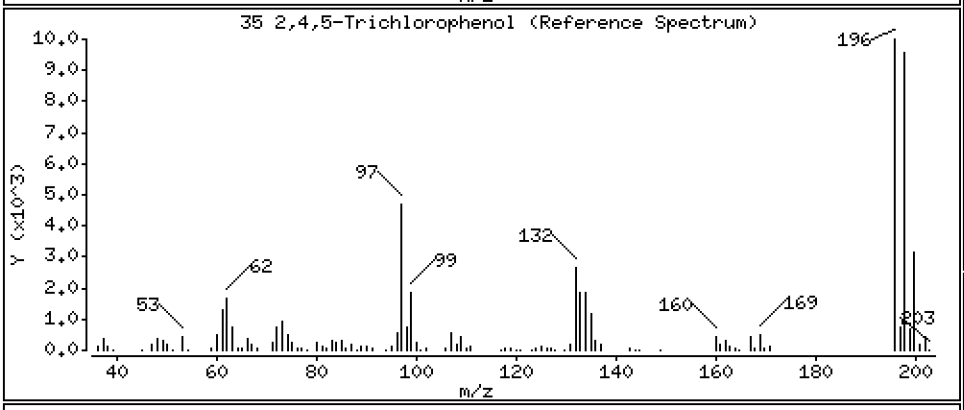
Column diameter: 0.25

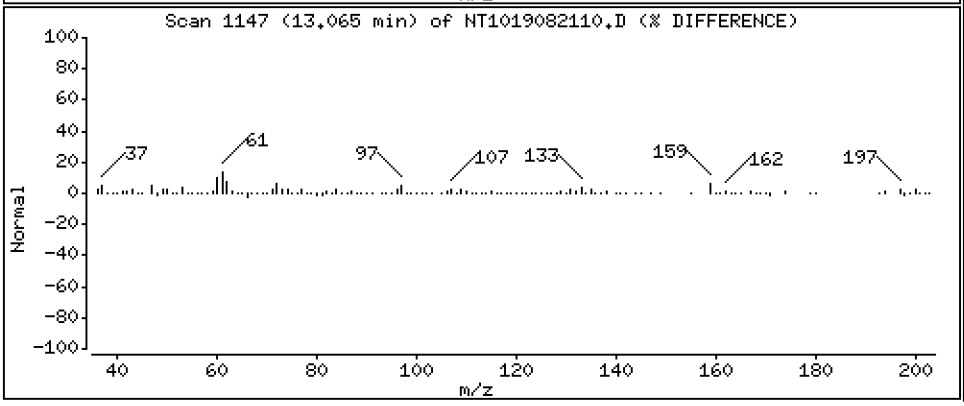
35 2,4,5-Trichlorophenol

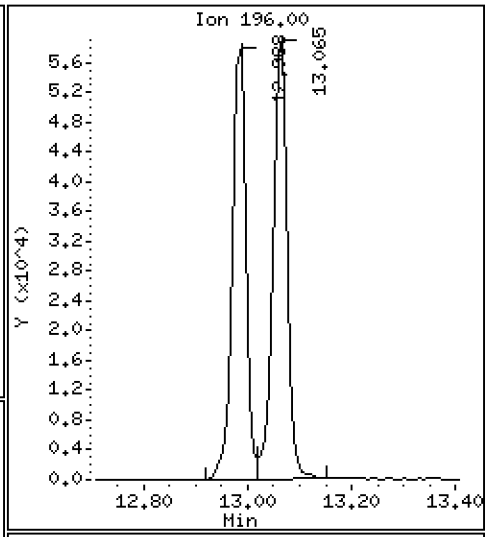
Concentration: 17.55 ug/mL

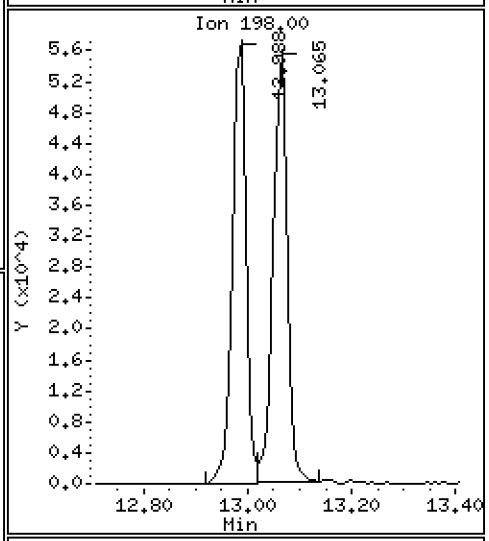


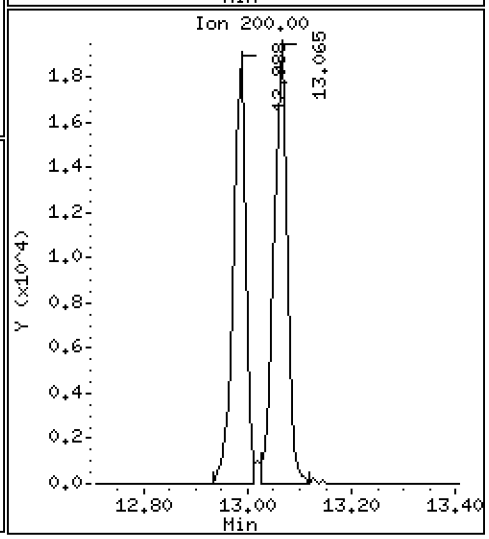












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

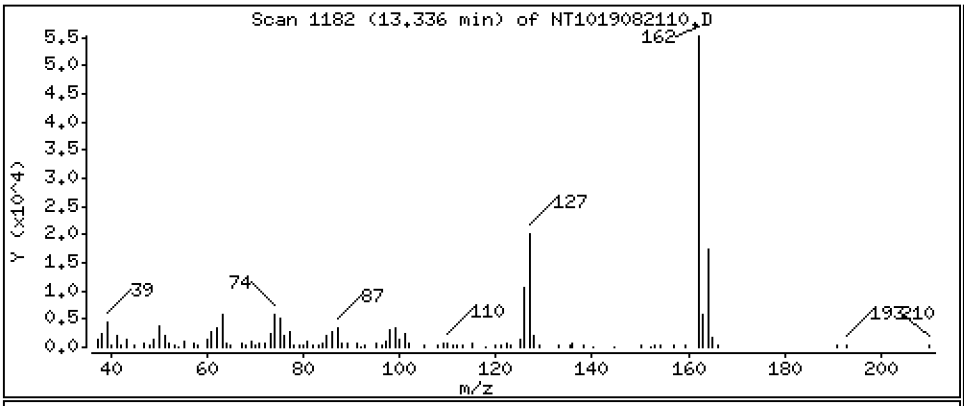
Operator: YZ

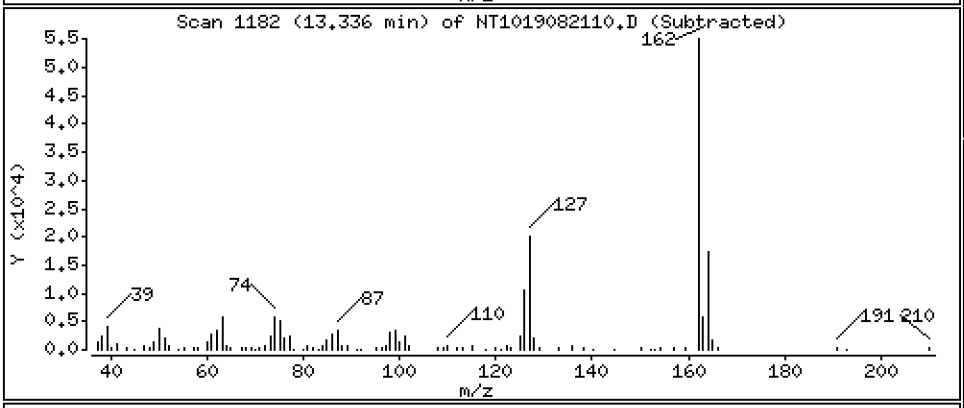
Column phase: ZB-5msi

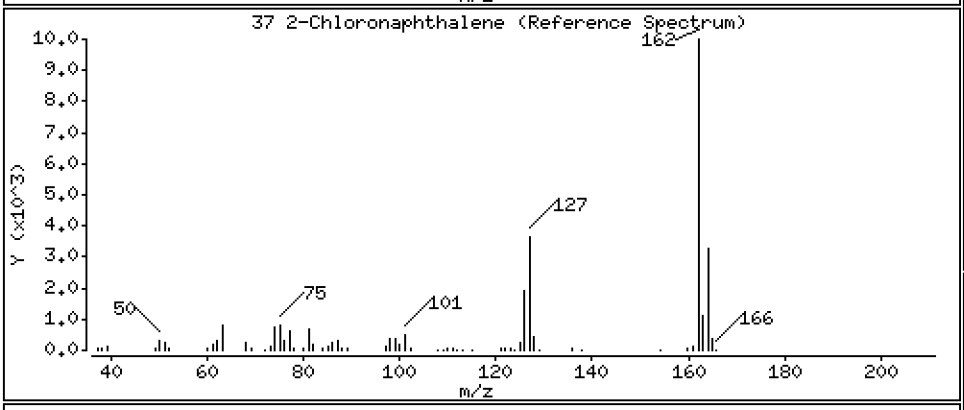
Column diameter: 0.25

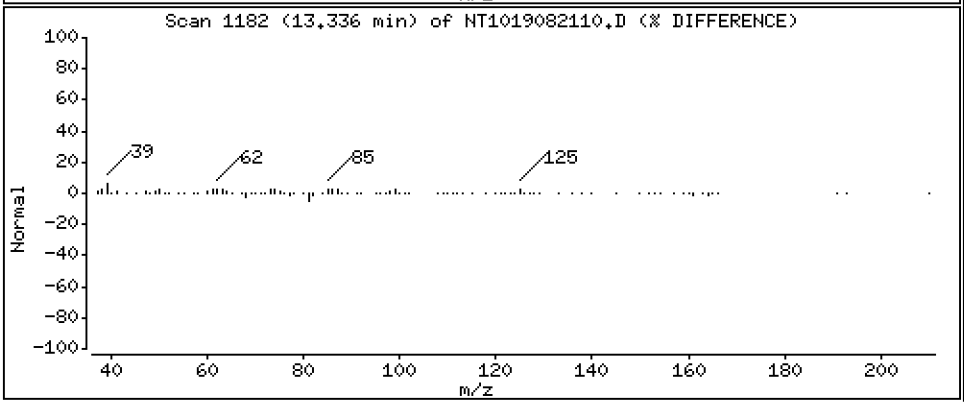
37 2-Chloronaphthalene

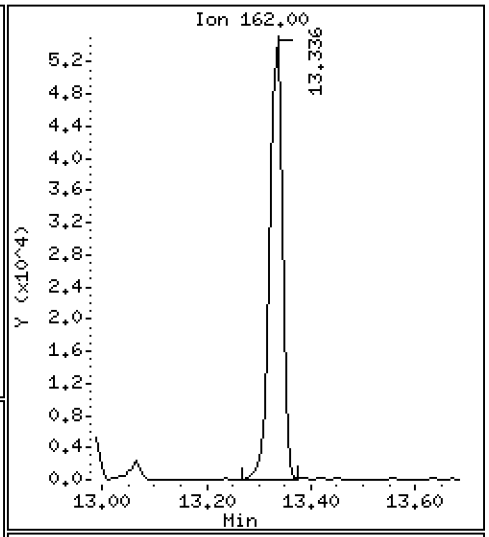
Concentration: 4.636 ug/mL

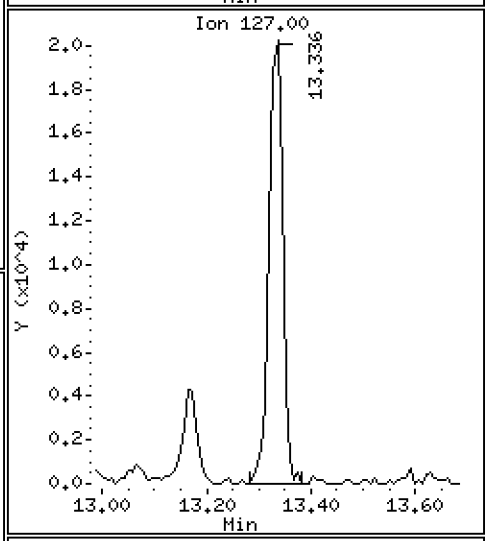


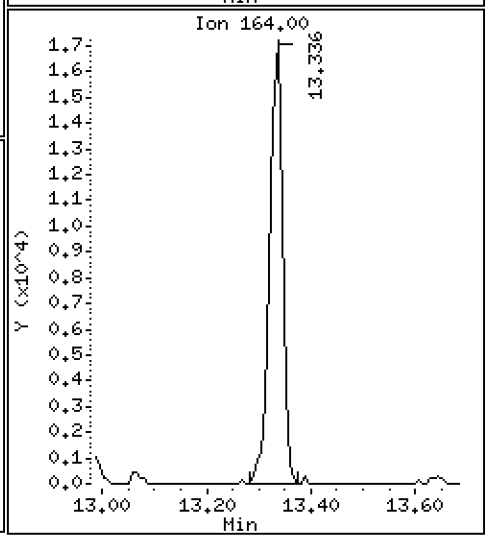












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

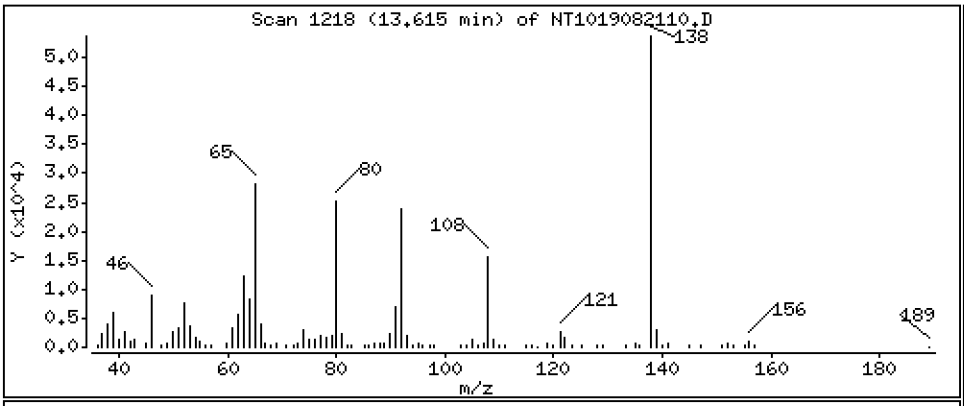
Operator: YZ

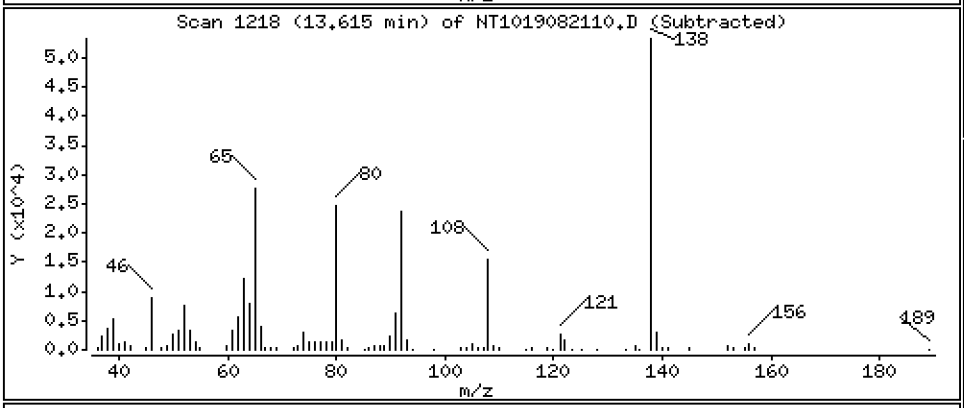
Column phase: ZB-5msi

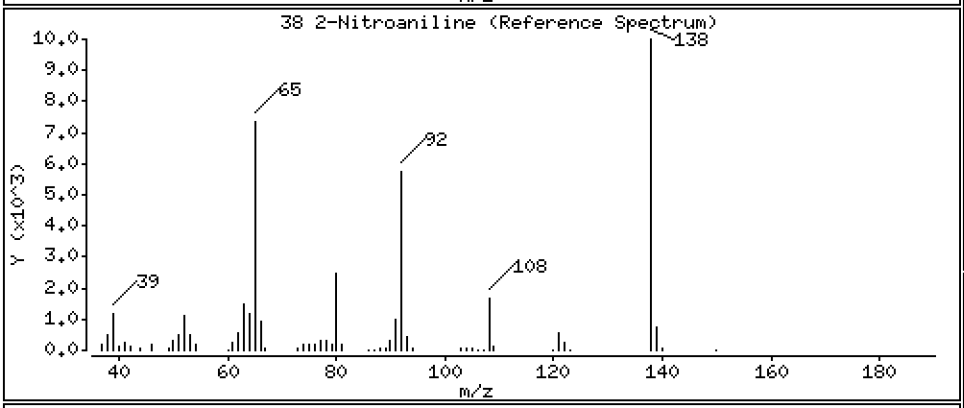
Column diameter: 0.25

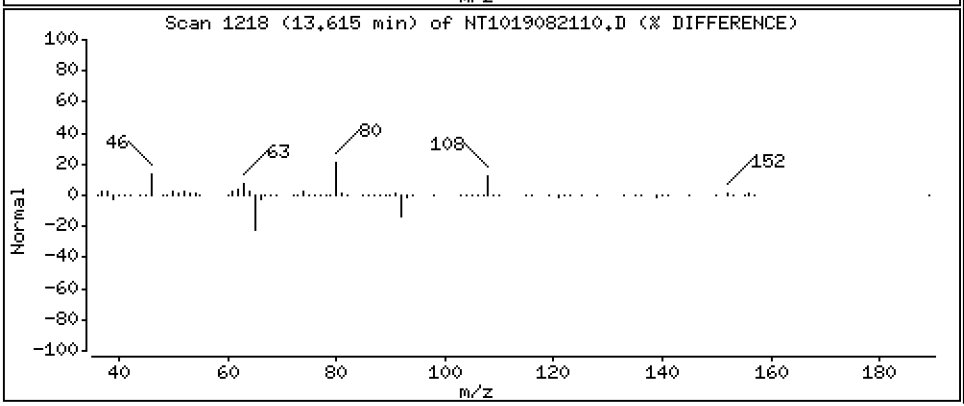
38 2-Nitroaniline

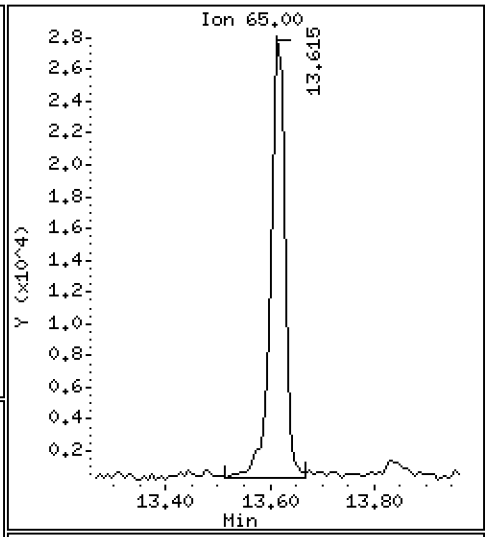
Concentration: 12.27 ug/mL

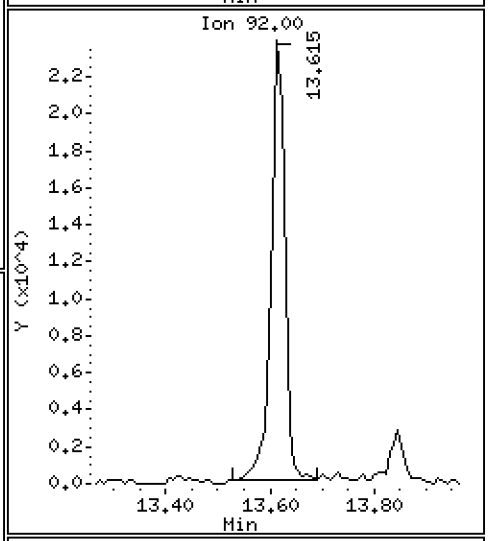


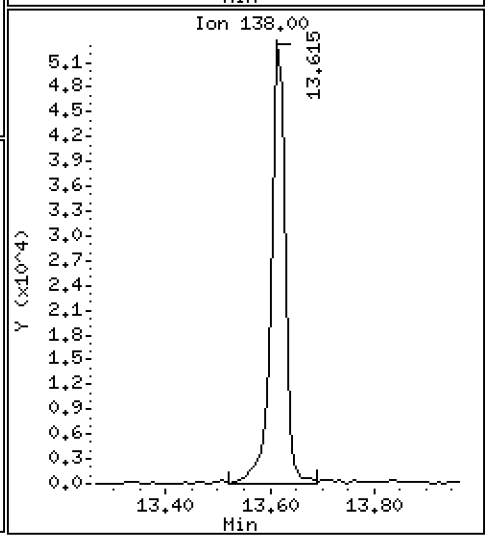












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

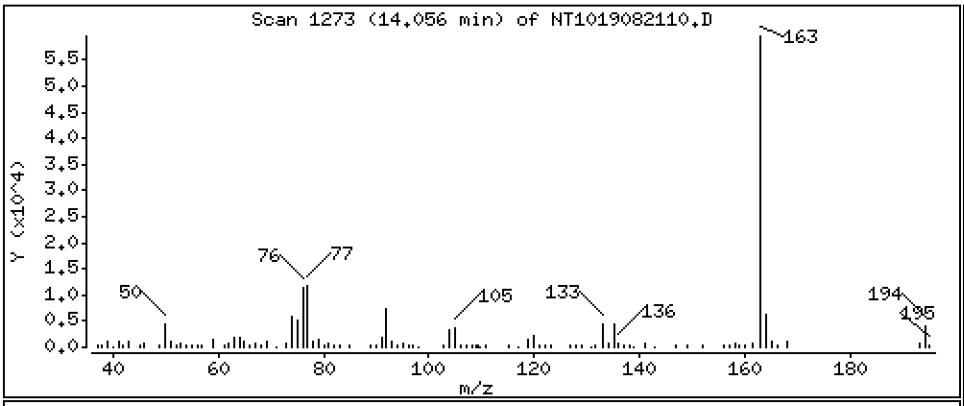
Operator: YZ

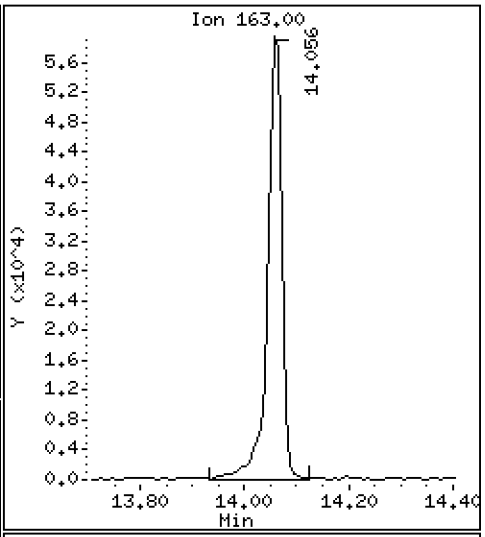
Column phase: ZB-5msi

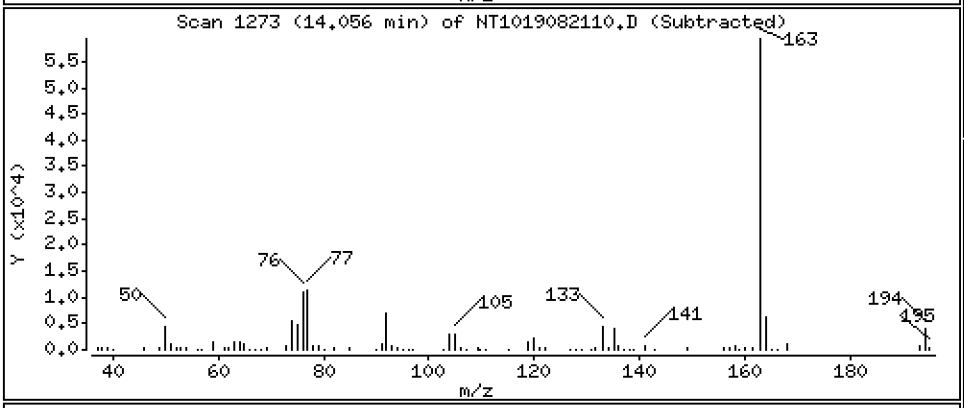
Column diameter: 0.25

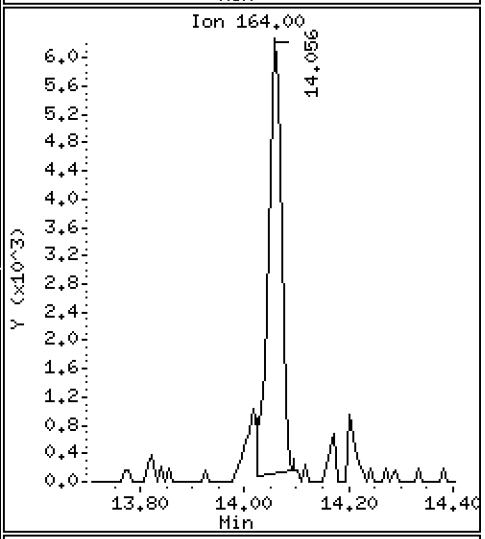
39 Dimethylphthalate

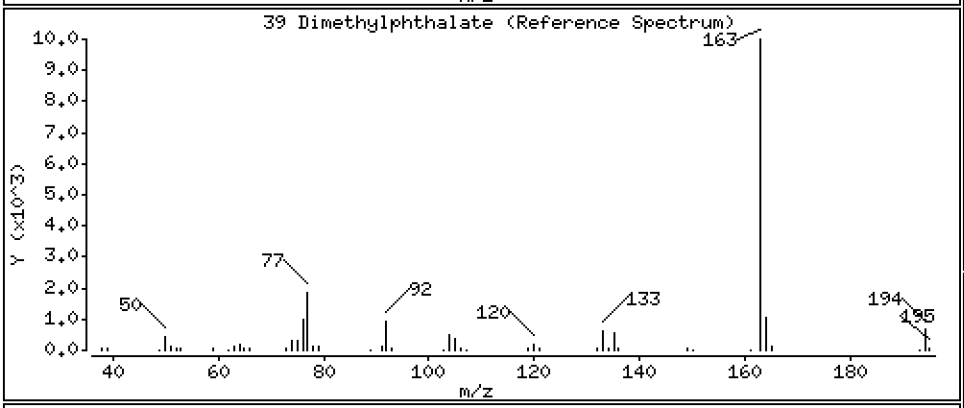
Concentration: 5.105 ug/mL

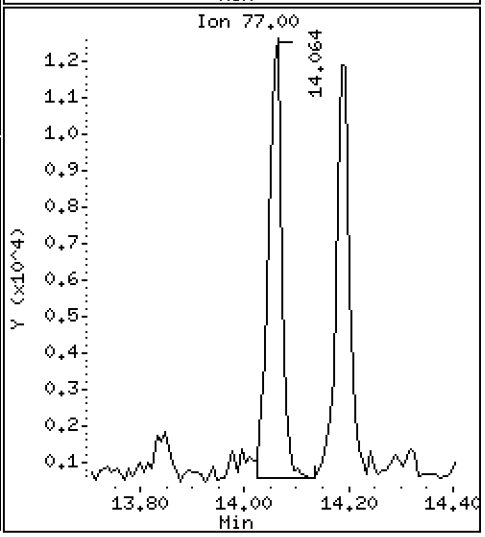


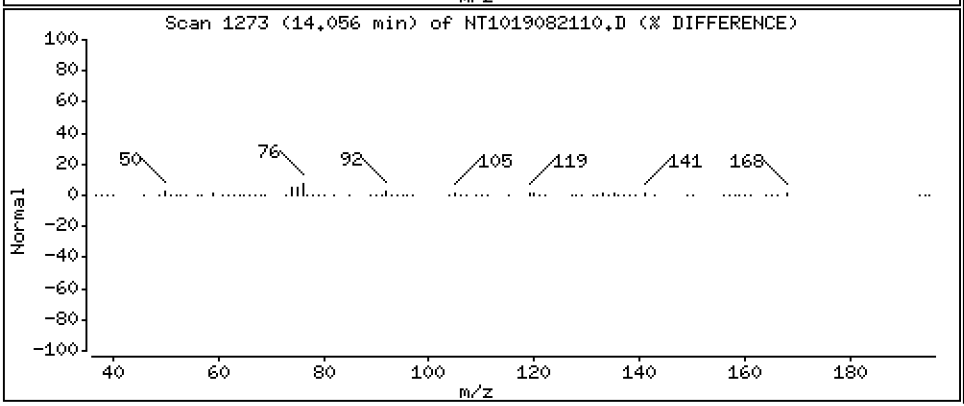












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

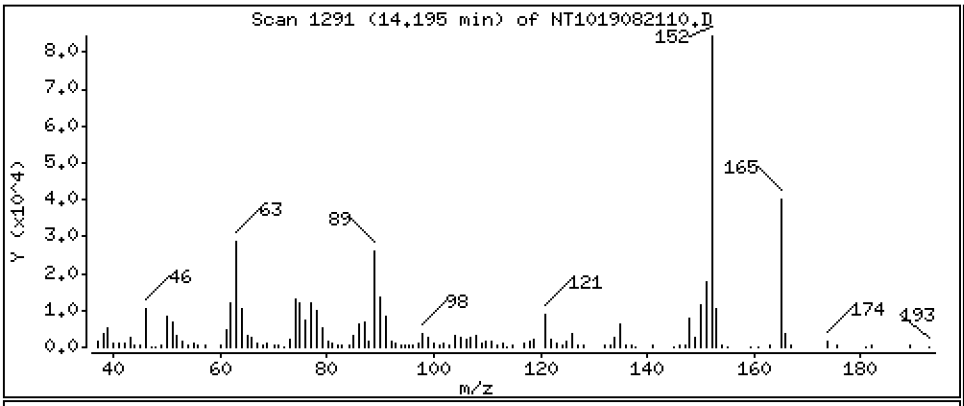
Operator: YZ

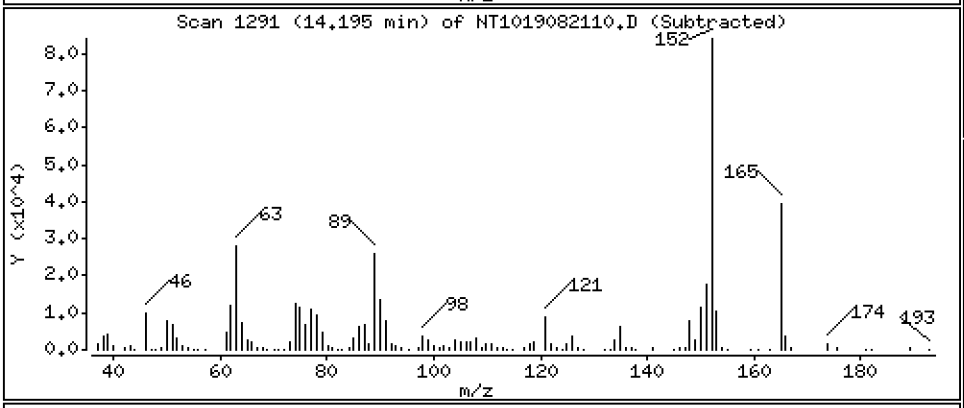
Column phase: ZB-5msi

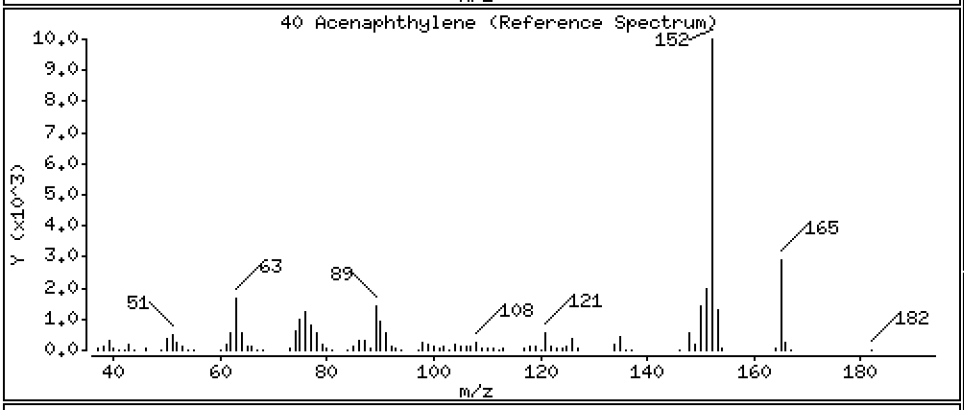
Column diameter: 0.25

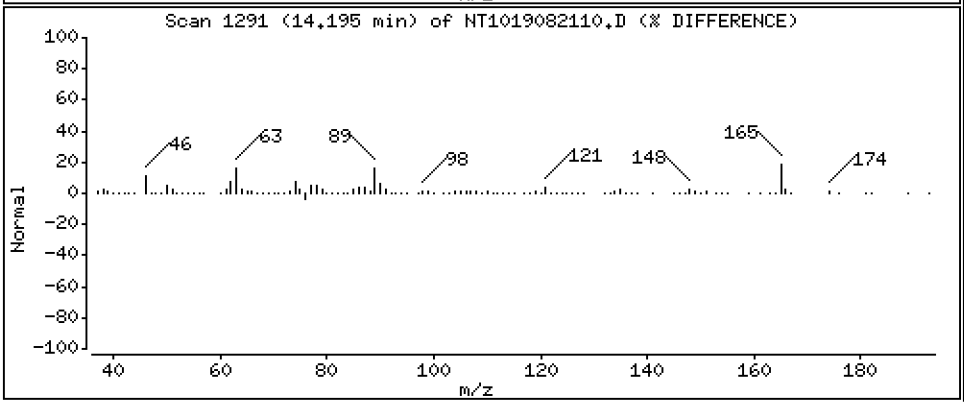
40 Acenaphthylene

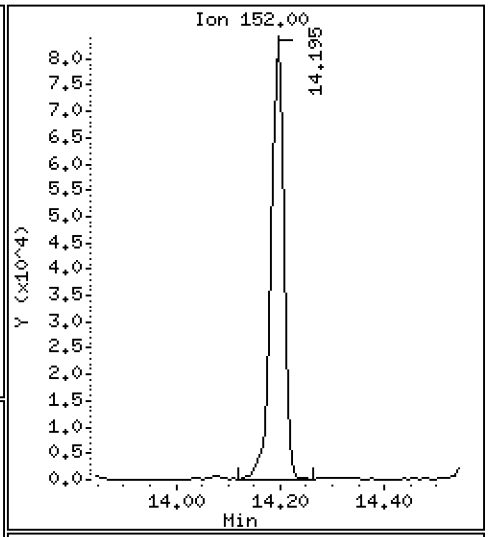
Concentration: 4.878 ug/mL

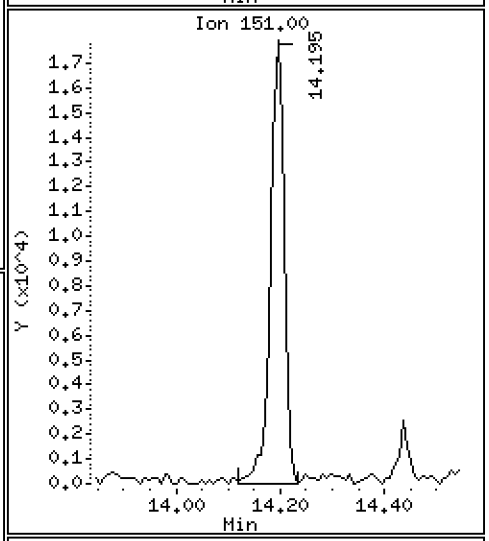


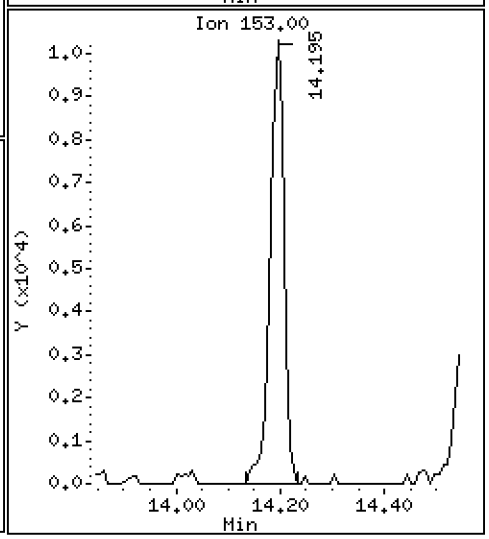












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

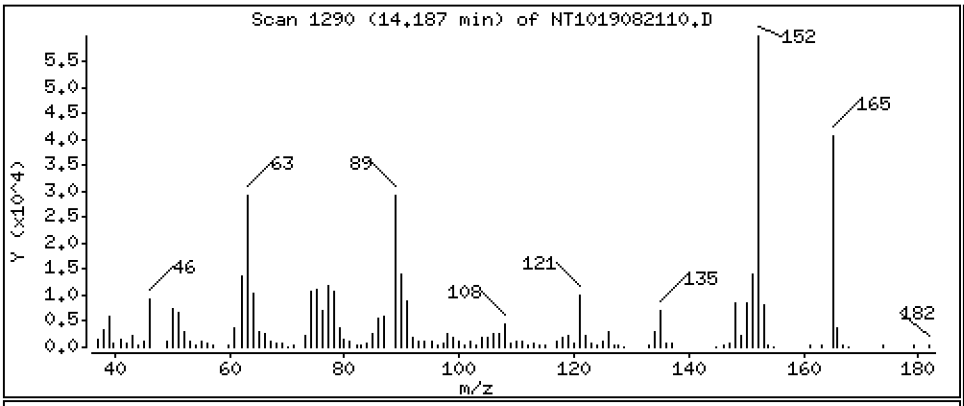
Operator: YZ

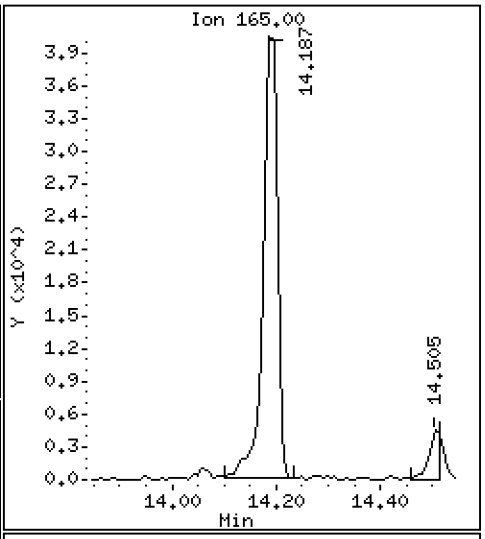
Column phase: ZB-5msi

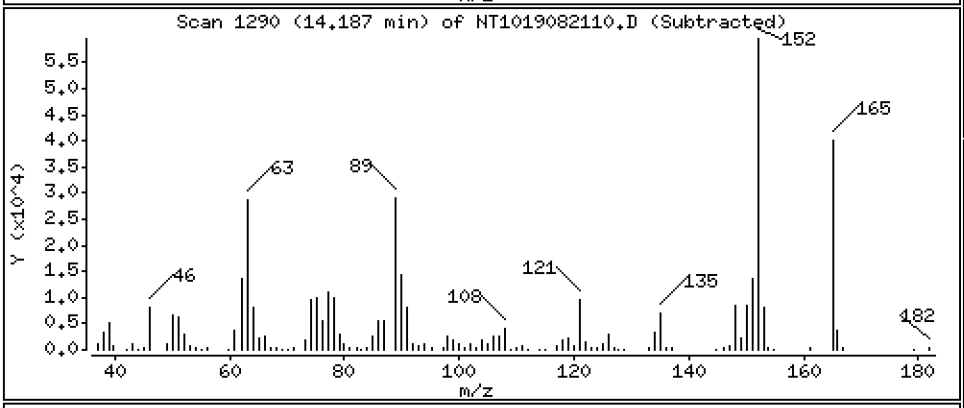
Column diameter: 0.25

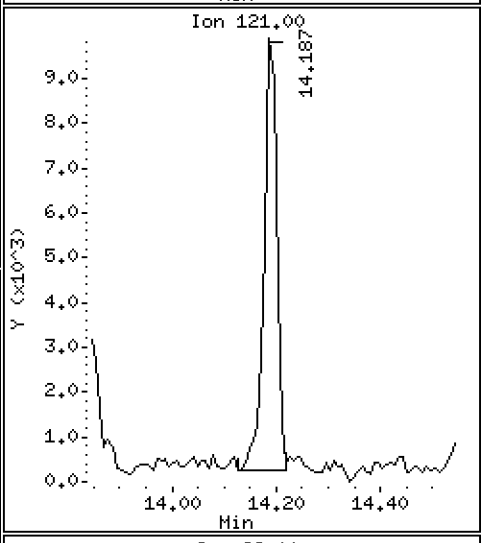
41 2,6-Dinitrotoluene

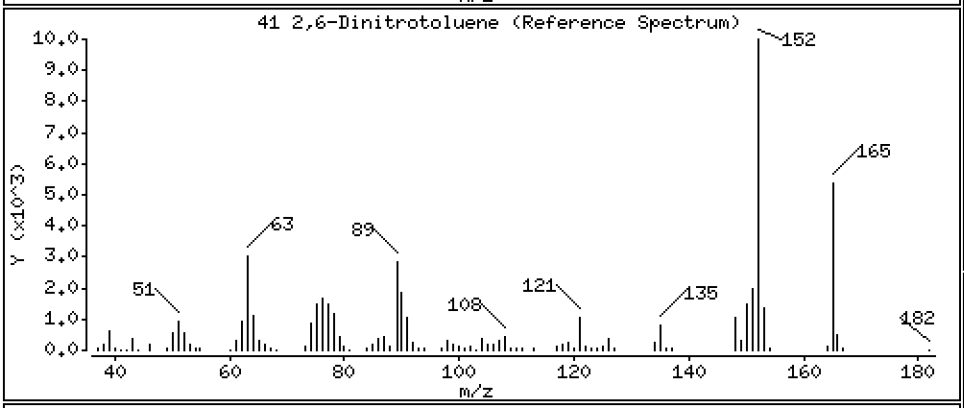
Concentration: 15.26 ug/mL

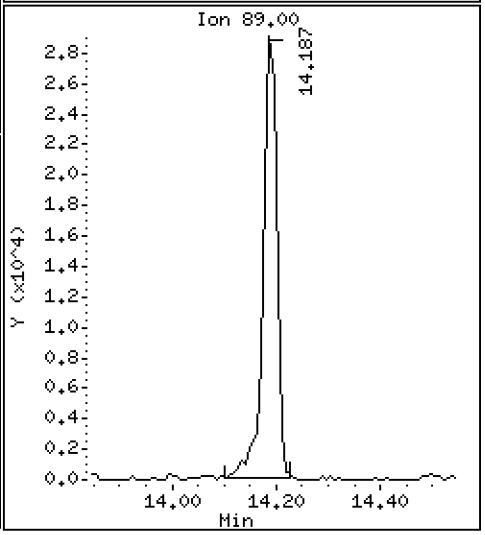


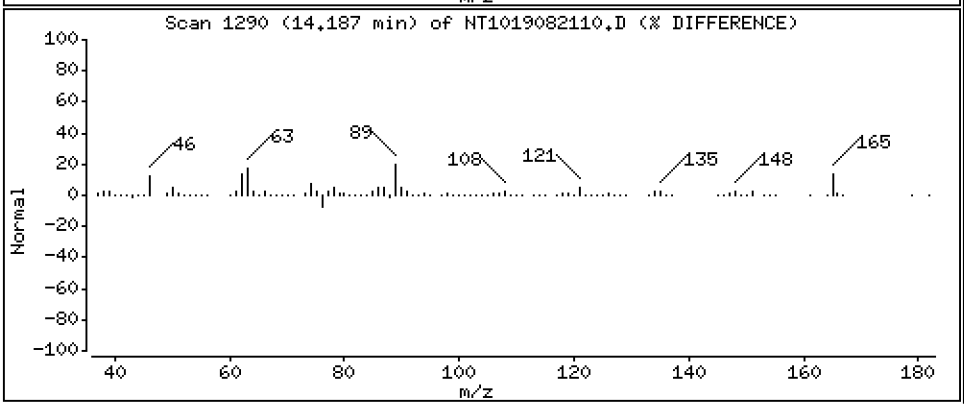












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

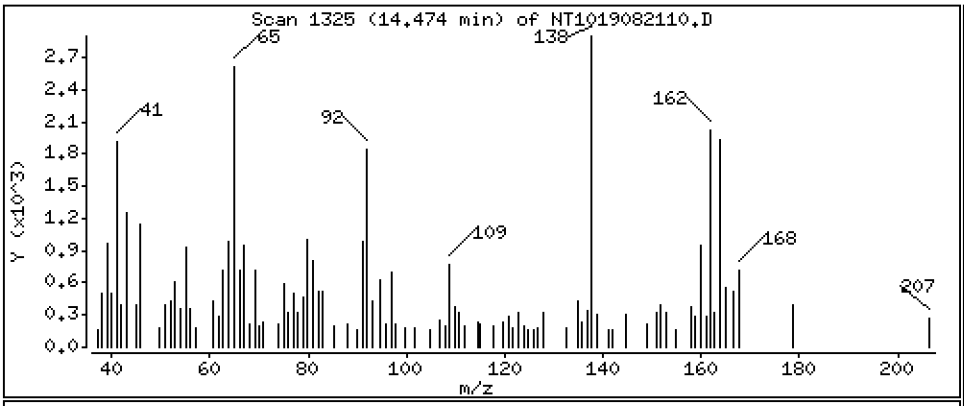
Operator: YZ

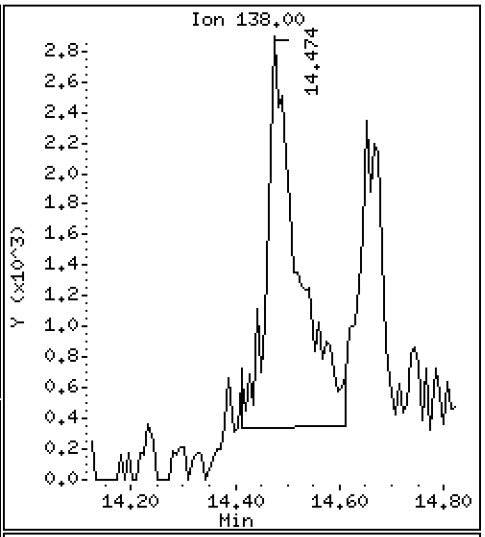
Column phase: ZB-5msi

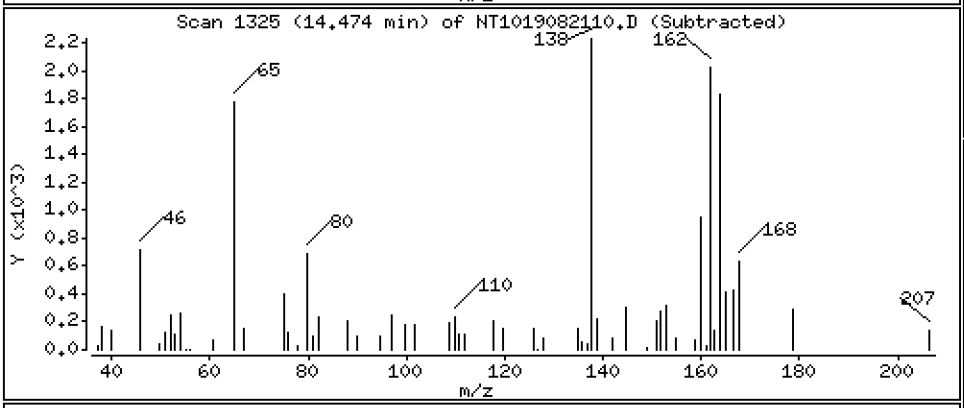
Column diameter: 0.25

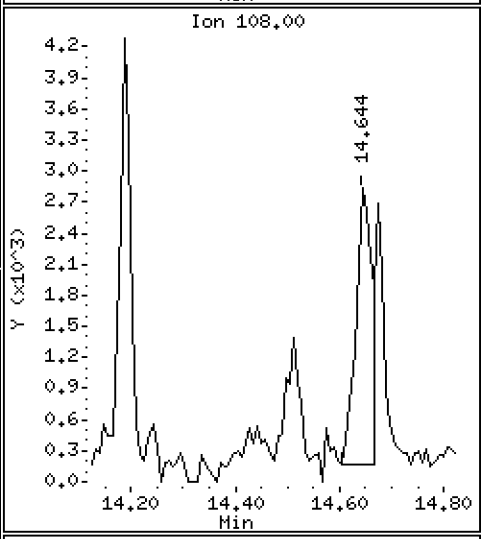
43 3-Nitroaniline

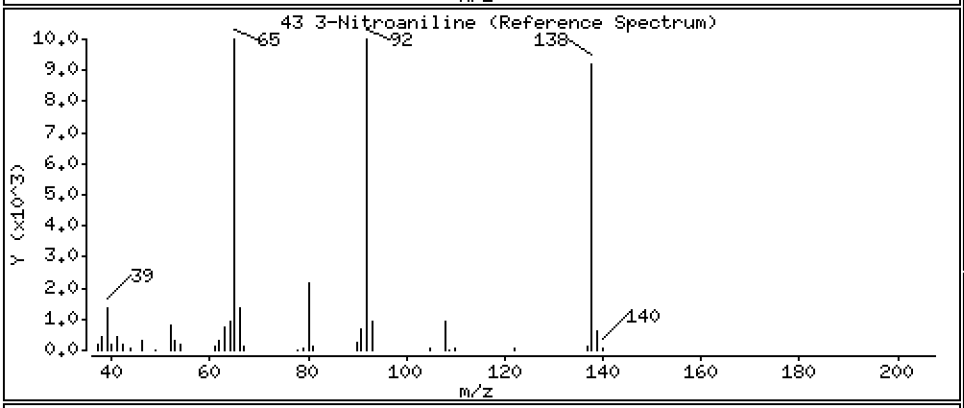
Concentration: 1.876 ug/mL

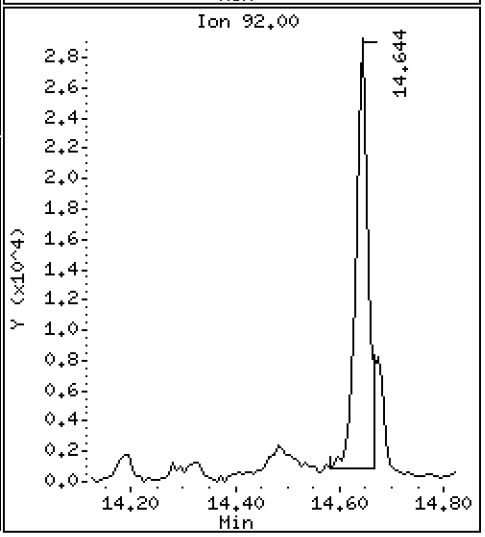


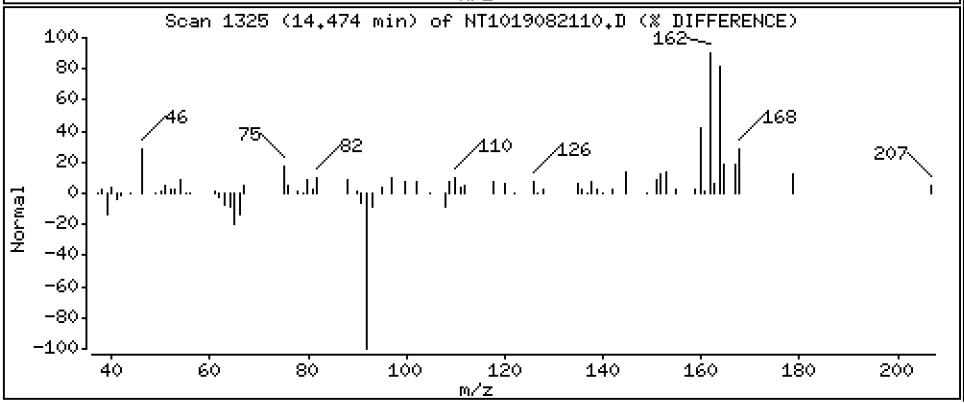












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

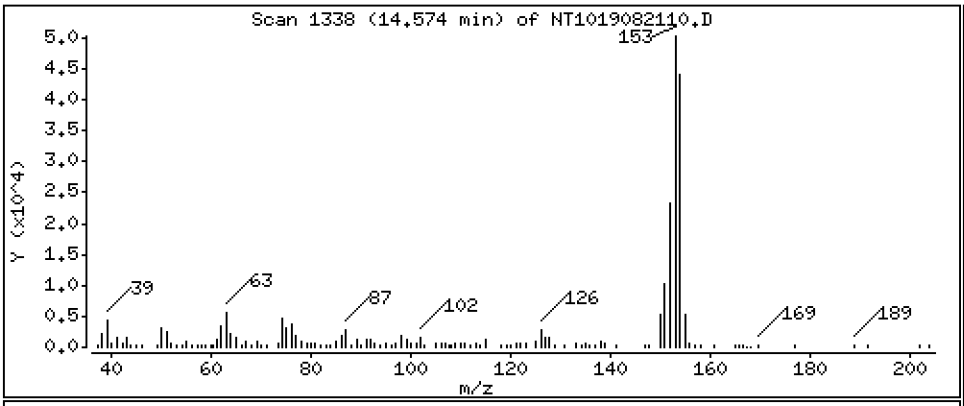
Operator: YZ

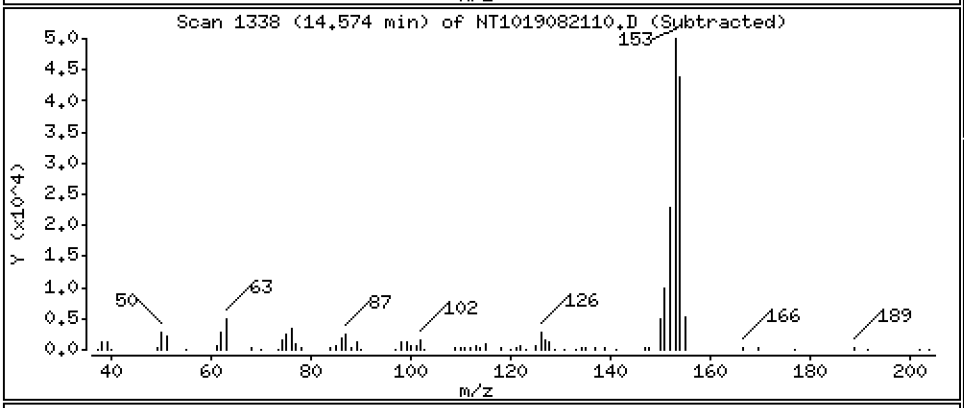
Column phase: ZB-5msi

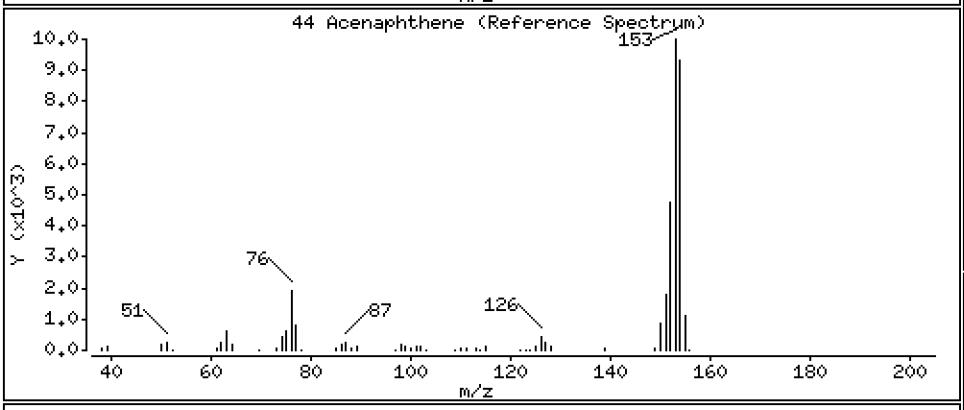
Column diameter: 0.25

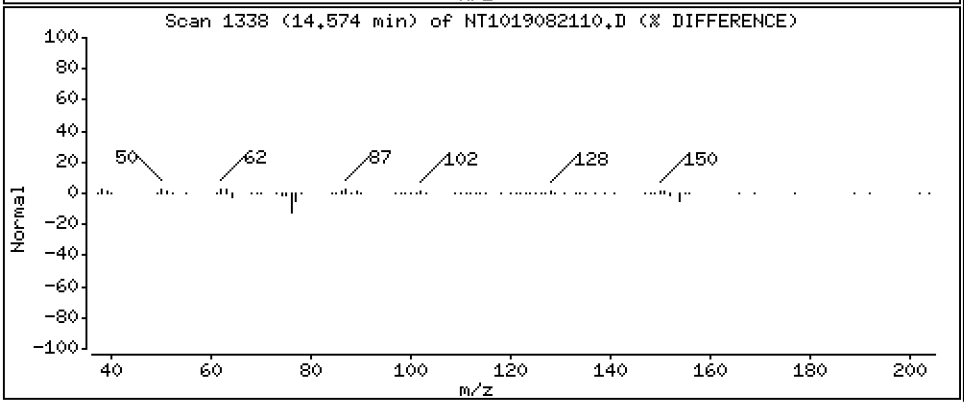
44 Acenaphthene

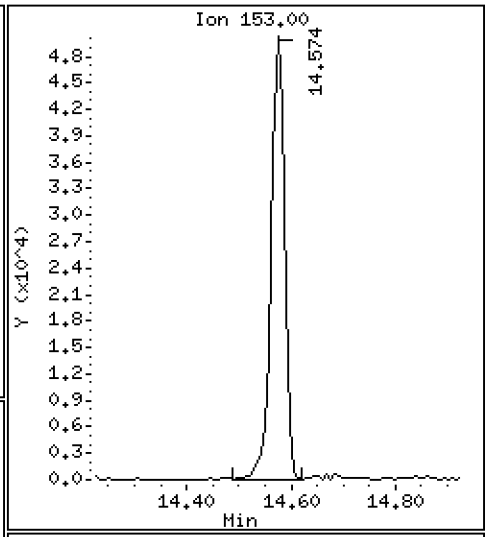
Concentration: 4.894 ug/mL

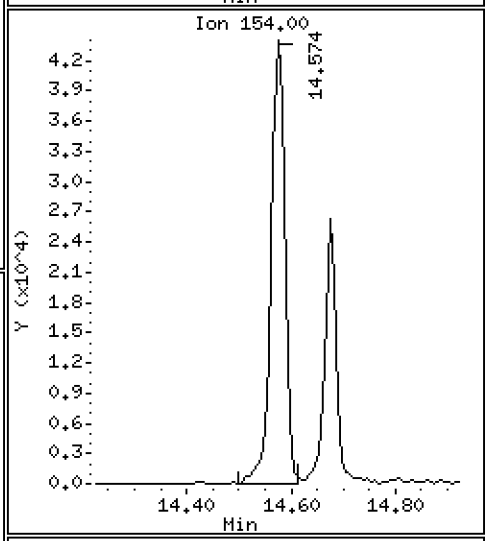


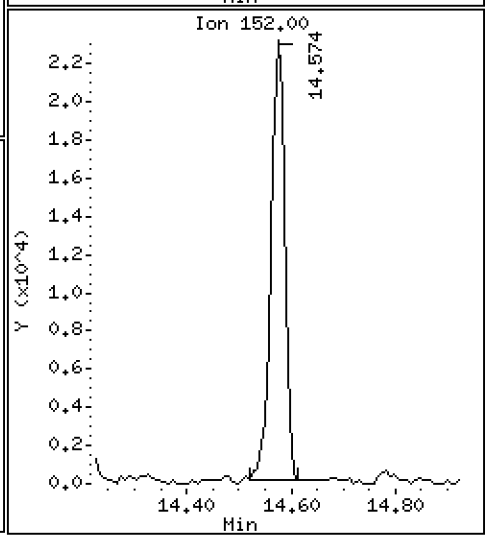












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

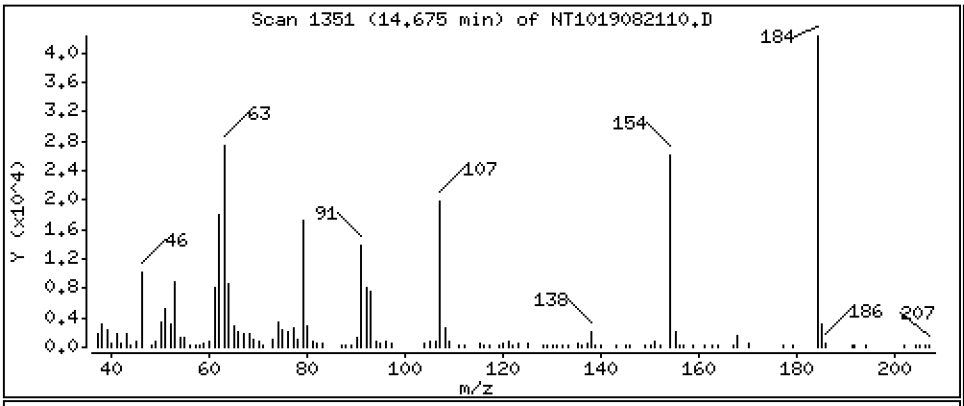
Operator: YZ

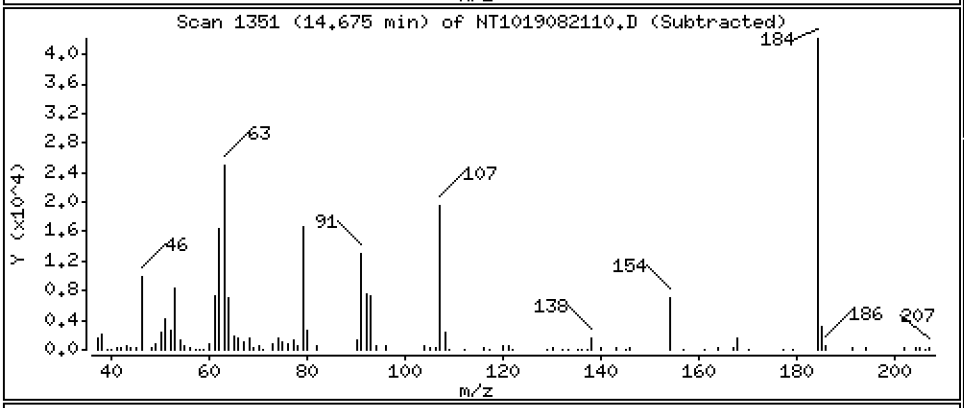
Column phase: ZB-5msi

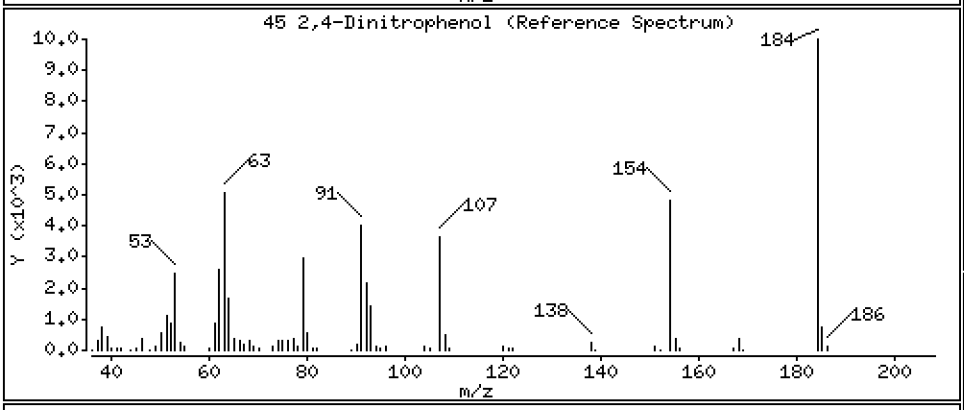
Column diameter: 0.25

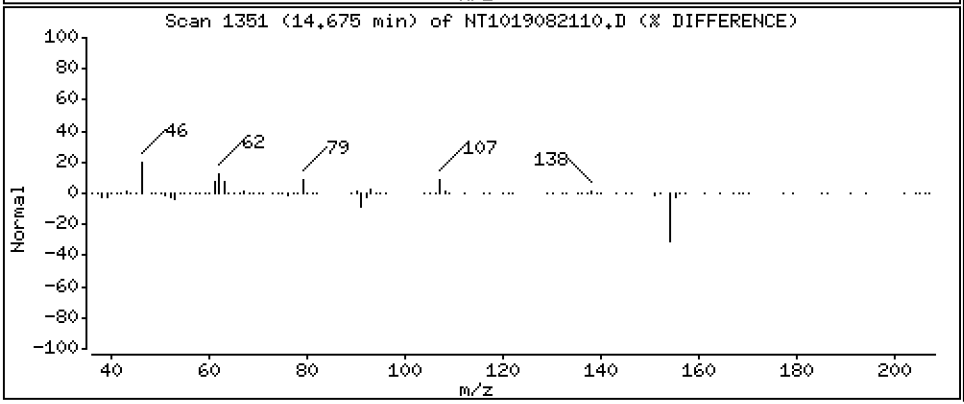
45 2,4-Dinitrophenol

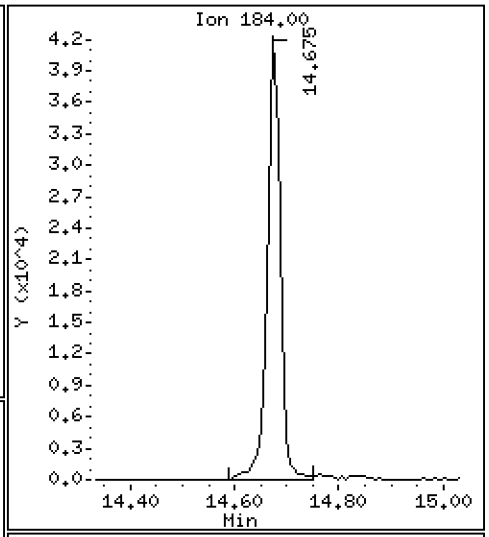
Concentration: 20.56 ug/mL

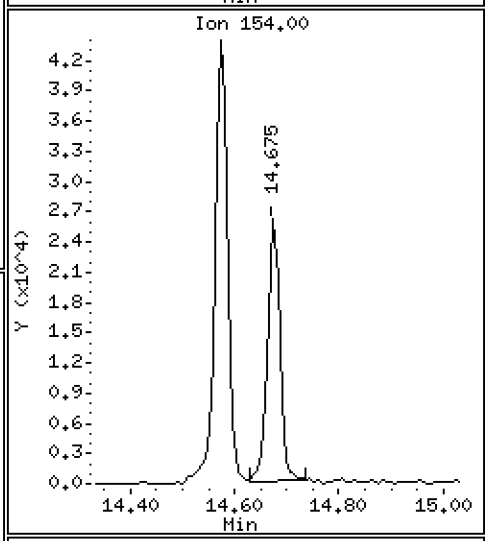


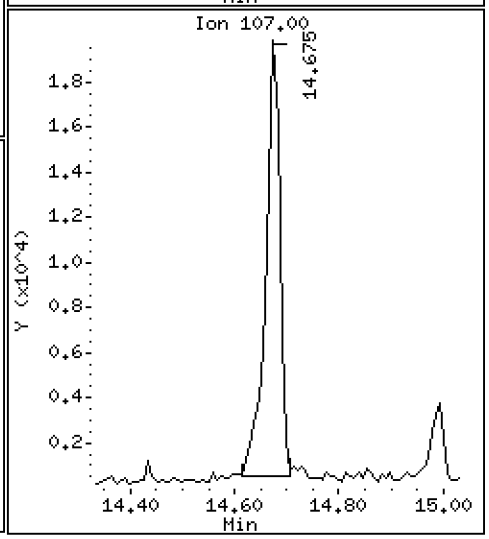












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

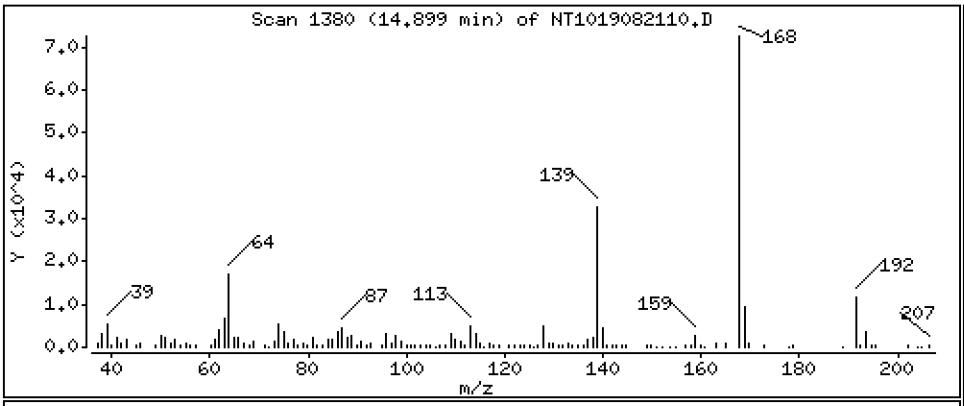
Operator: YZ

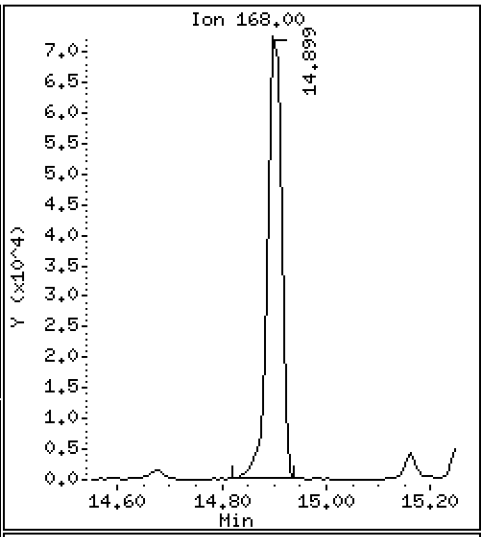
Column phase: ZB-5msi

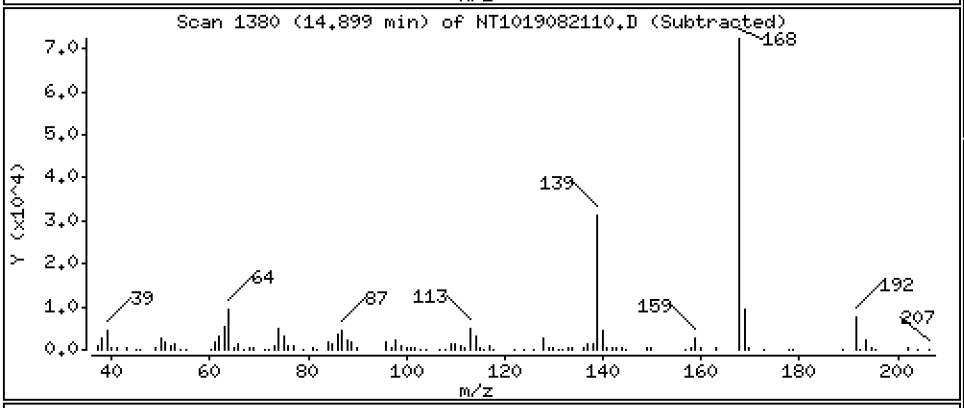
Column diameter: 0.25

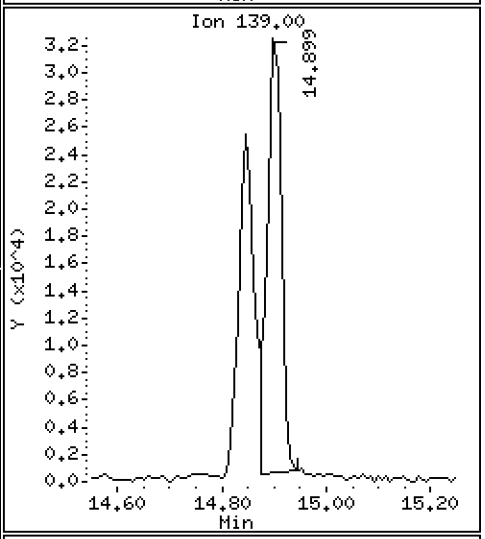
46 Dibenzofuran

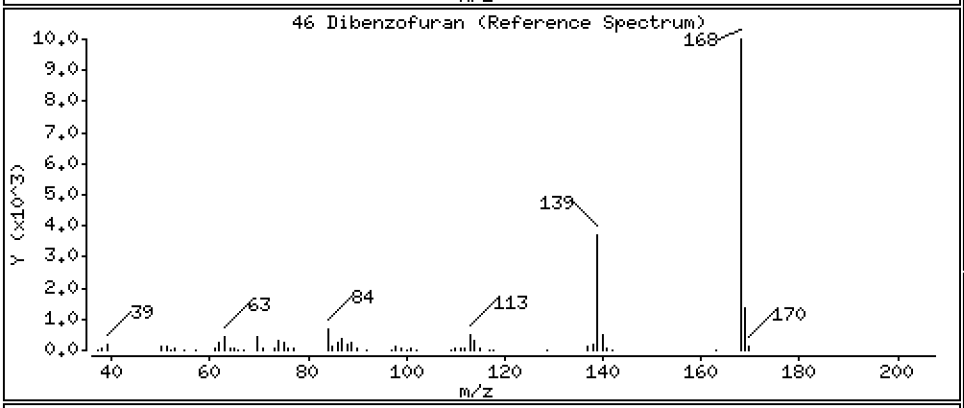
Concentration: 4.473 ug/mL

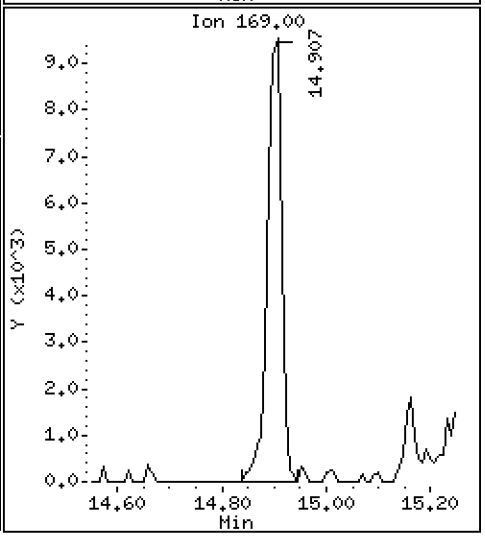


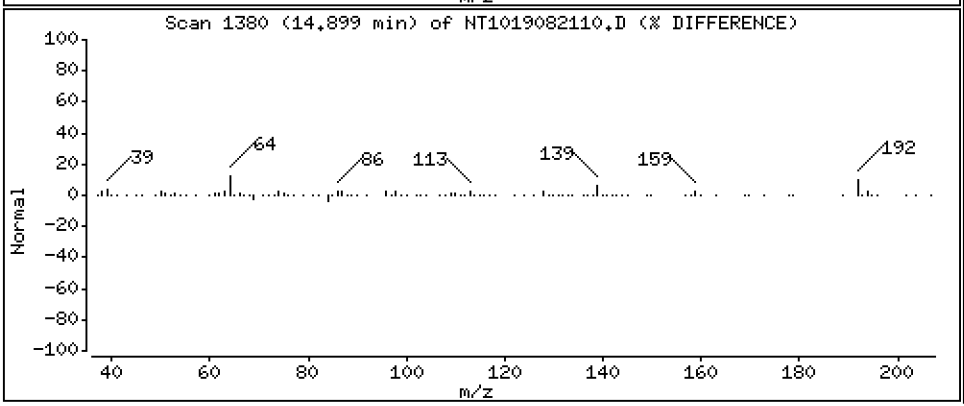












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

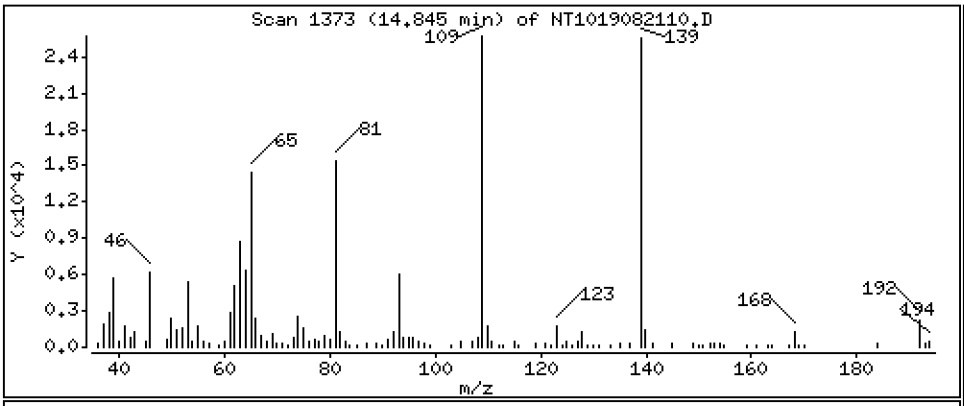
Operator: YZ

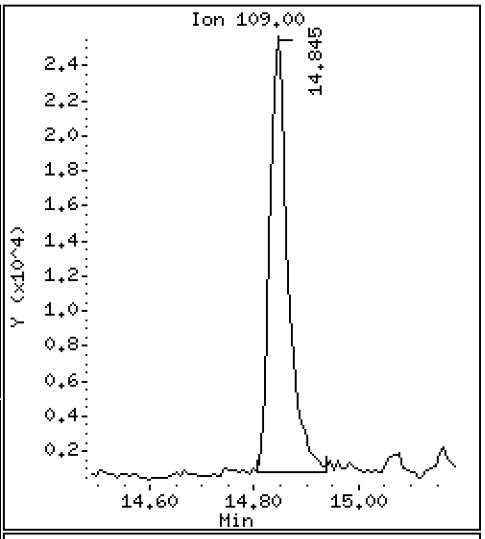
Column phase: ZB-5msi

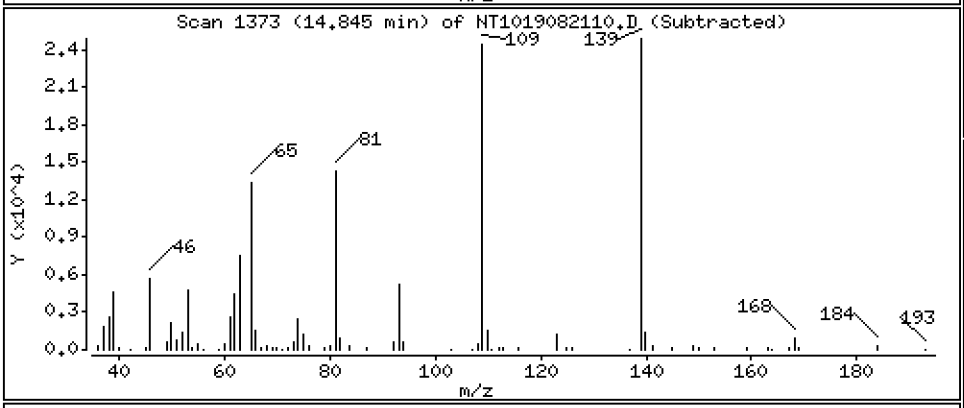
Column diameter: 0.25

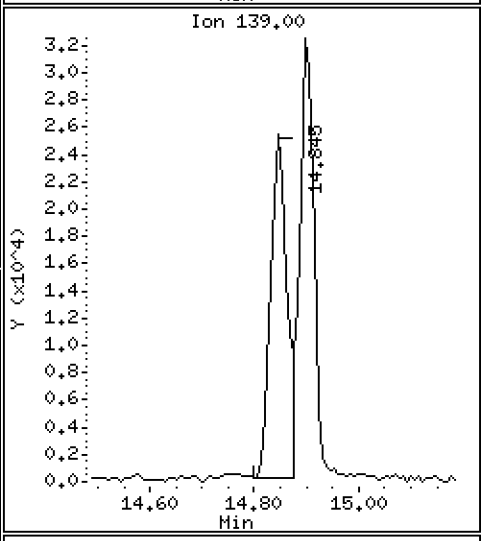
47 4-Nitrophenol

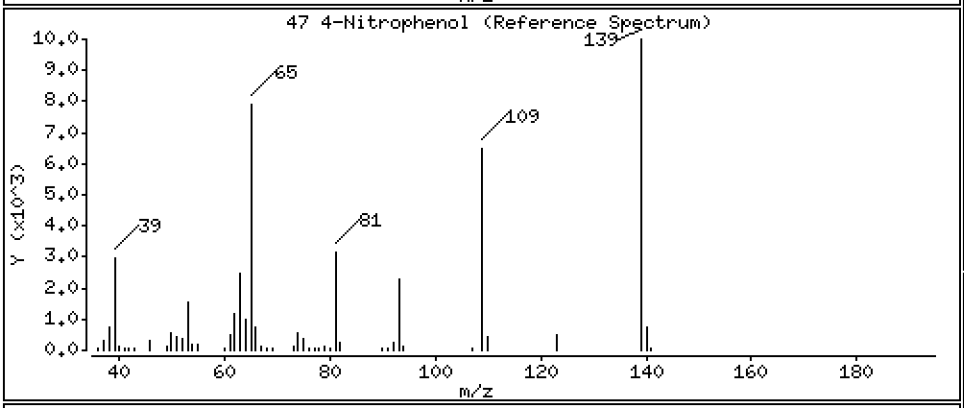
Concentration: 16.64 ug/mL

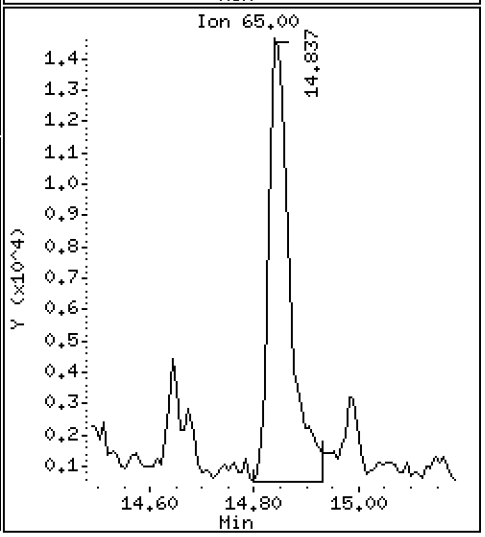


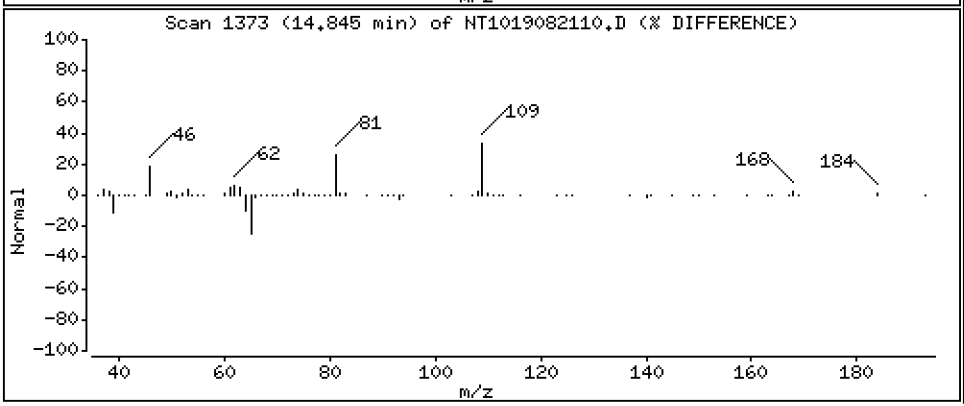












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

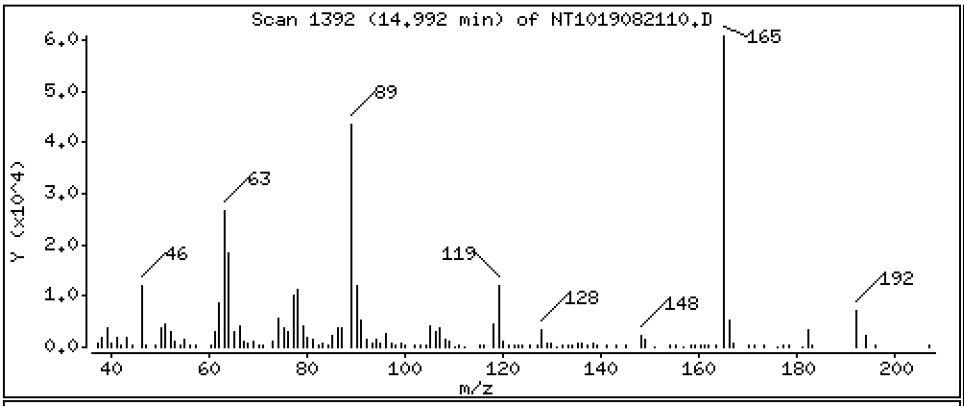
Operator: YZ

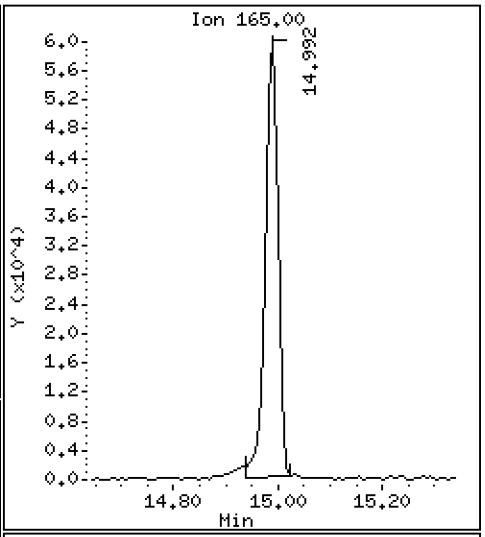
Column phase: ZB-5msi

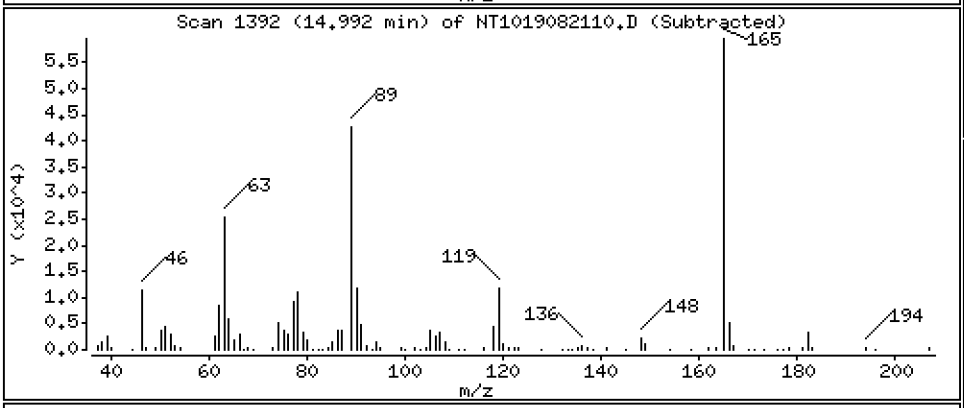
Column diameter: 0.25

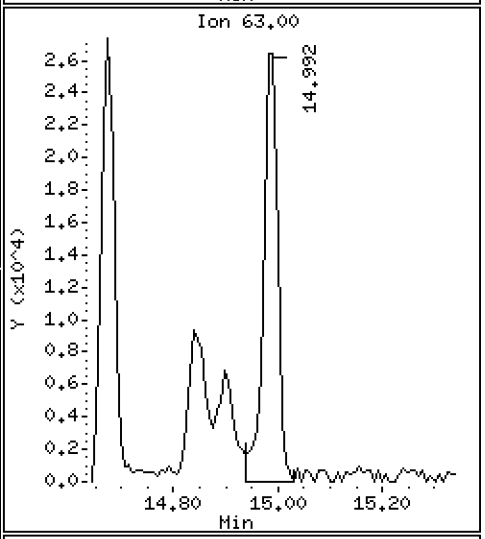
48 2,4-Dinitrotoluene

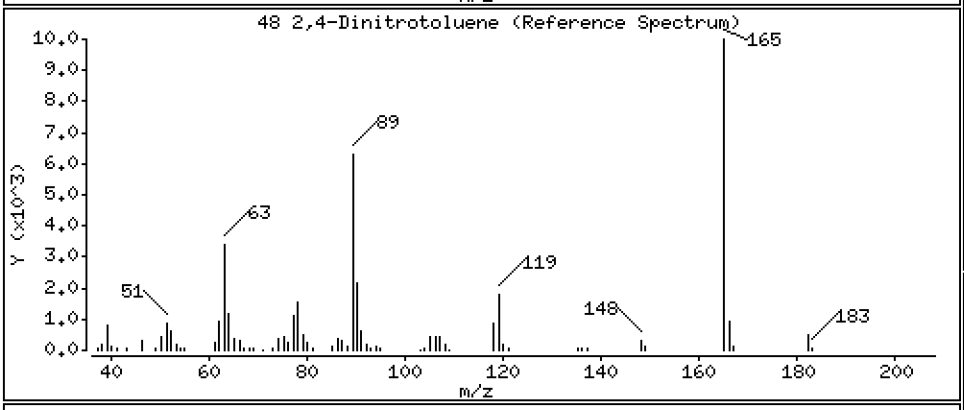
Concentration: 15.00 ug/mL

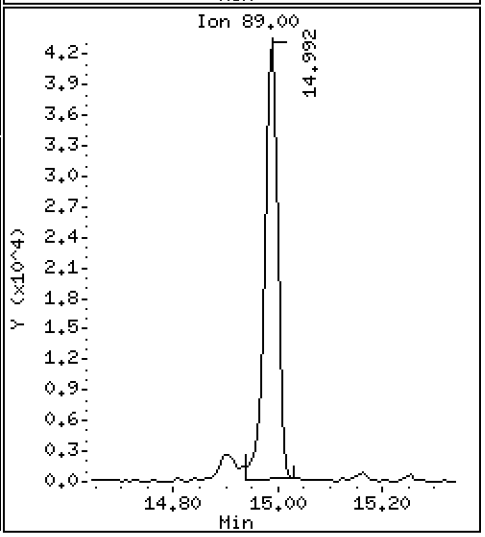


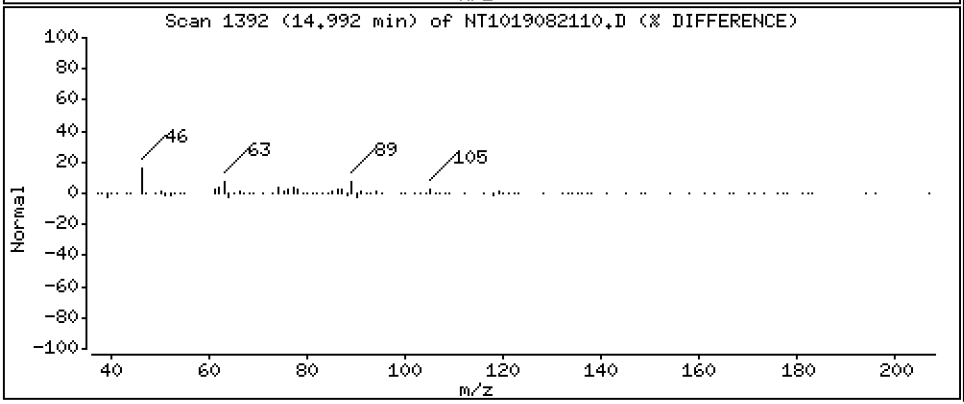












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

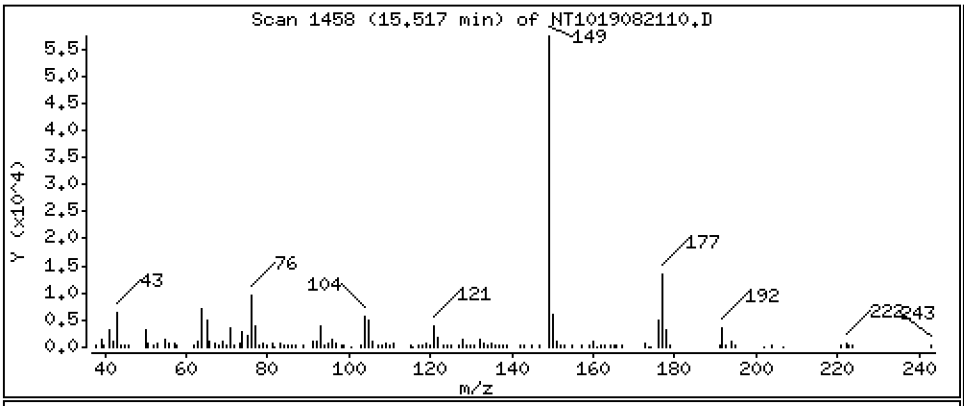
Operator: YZ

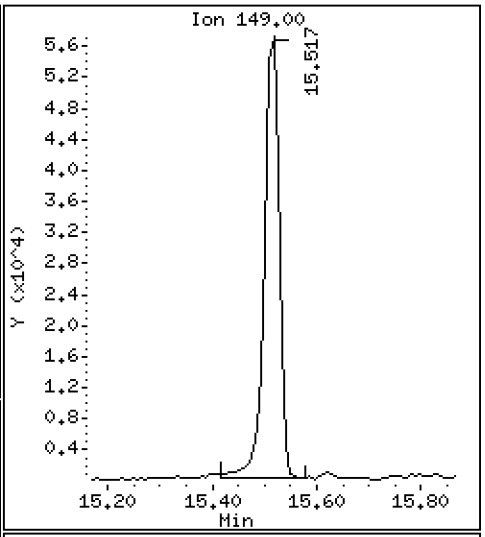
Column phase: ZB-5msi

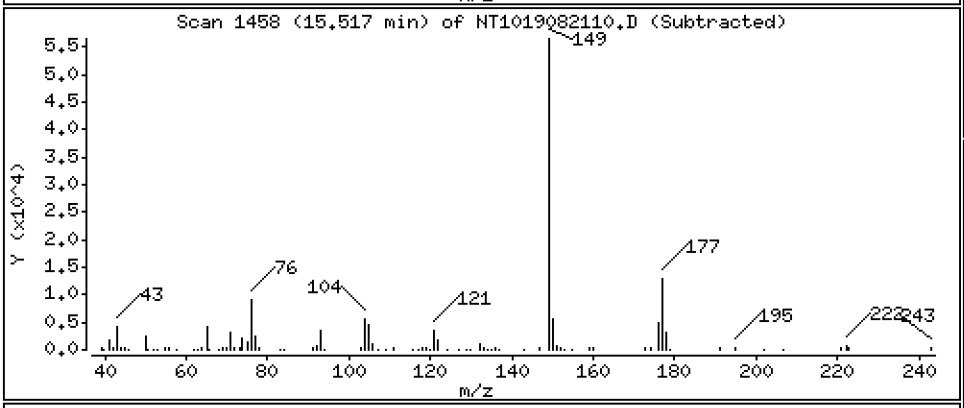
Column diameter: 0.25

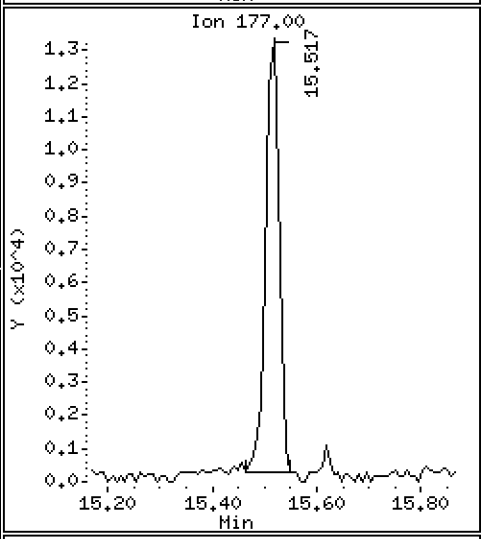
50 Diethylphthalate

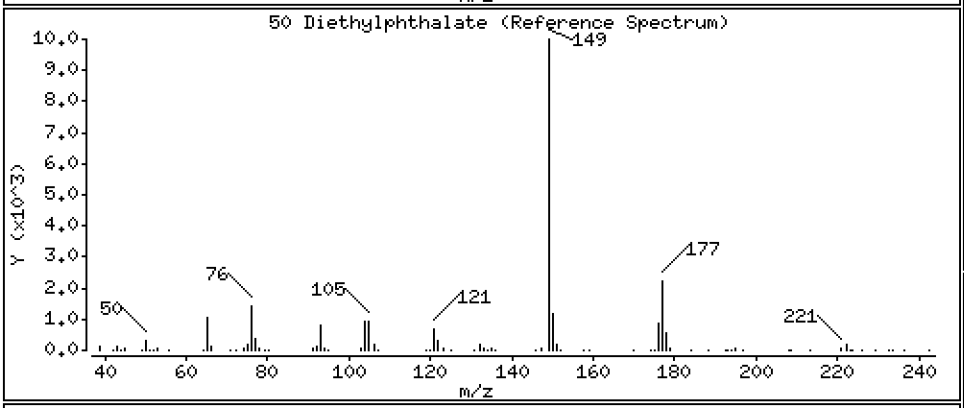
Concentration: 5.278 ug/mL

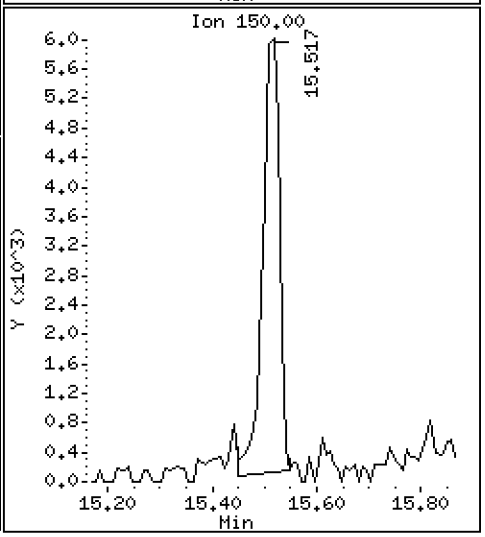


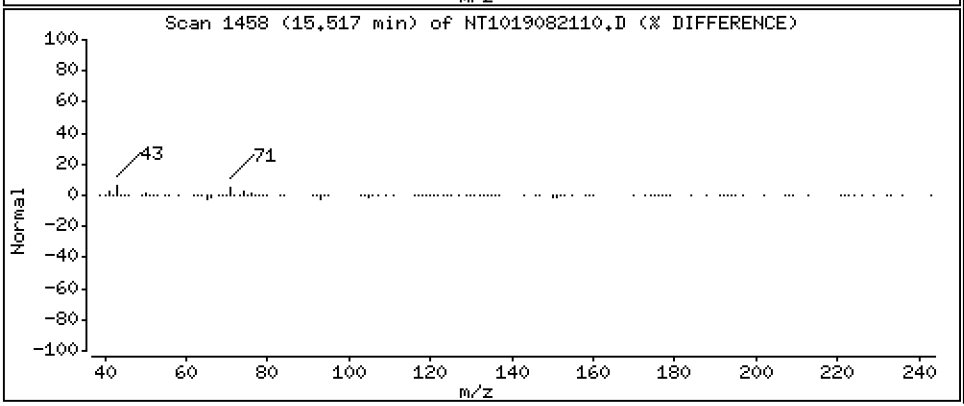












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

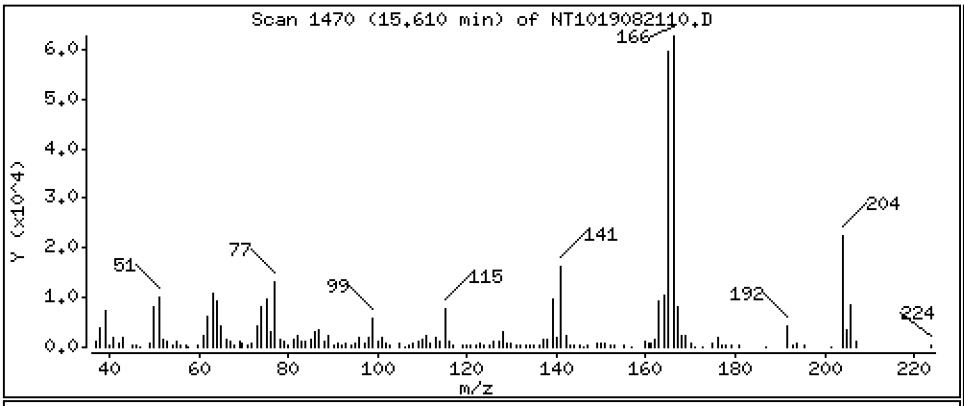
Operator: YZ

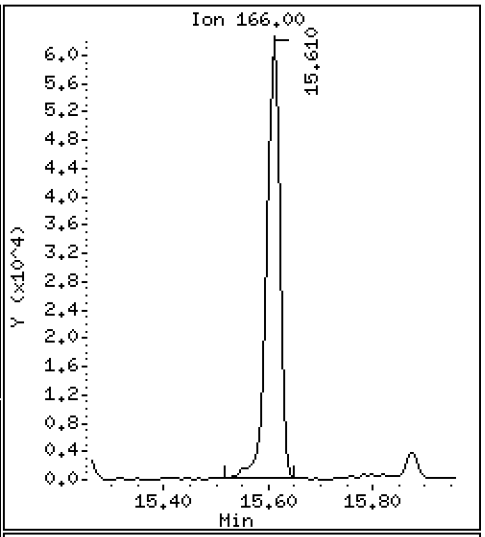
Column phase: ZB-5msi

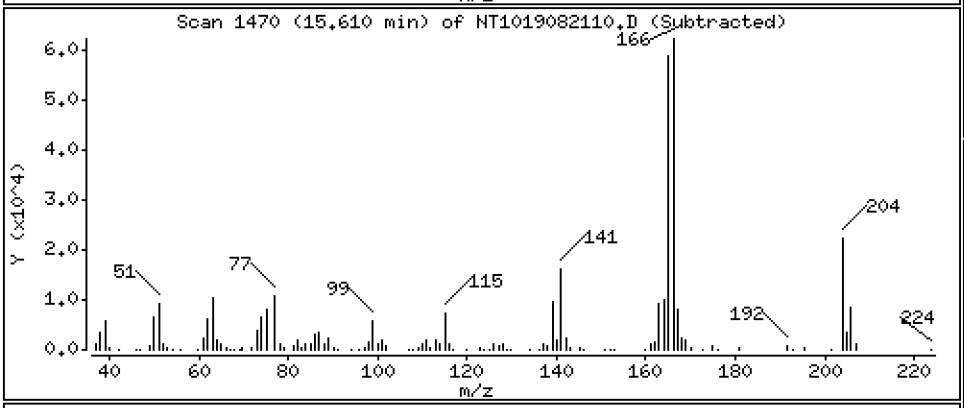
Column diameter: 0.25

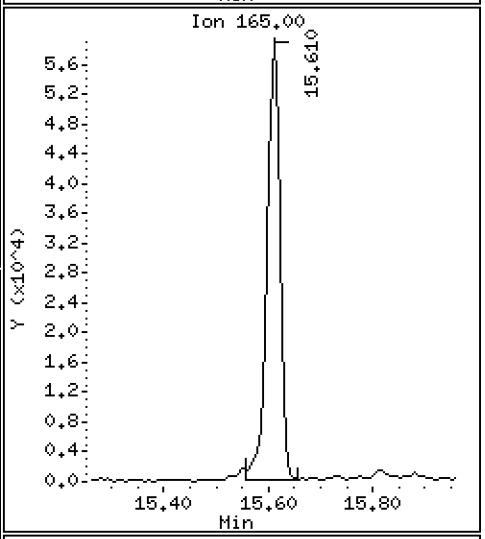
49 Fluorene

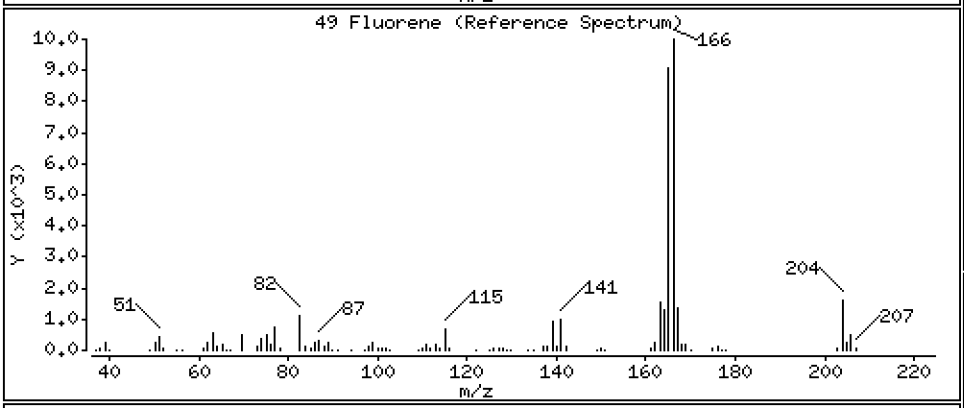
Concentration: 5.237 ug/mL

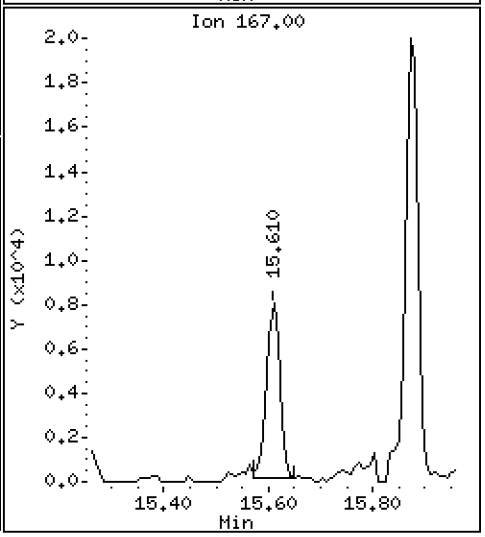


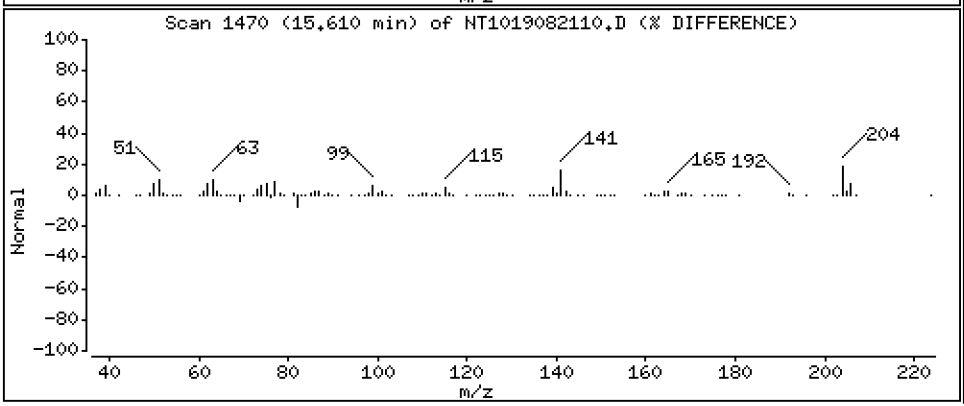












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

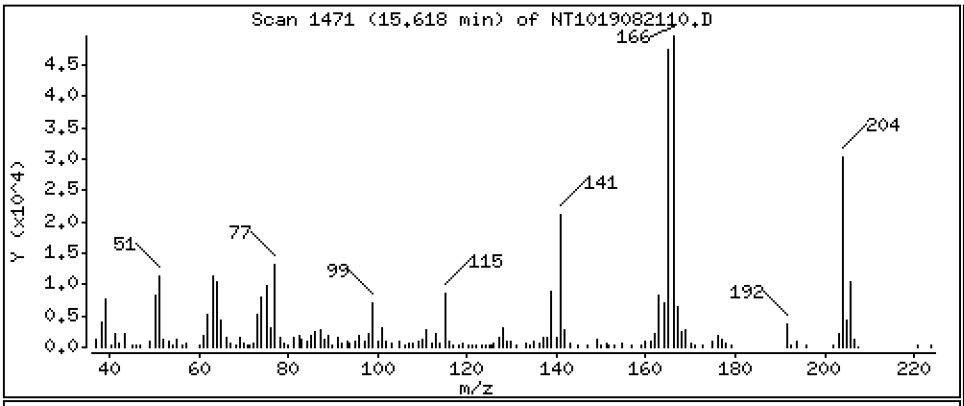
Operator: YZ

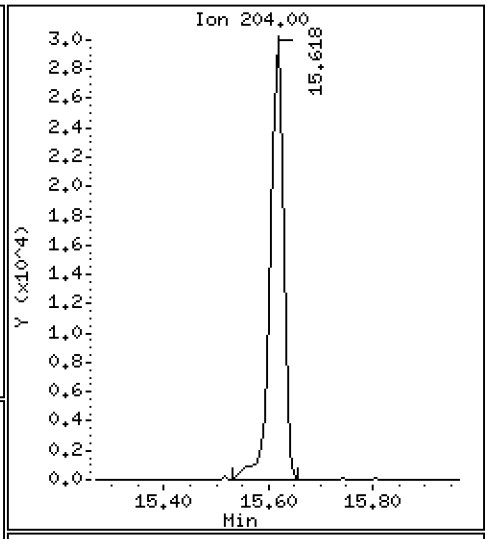
Column phase: ZB-5msi

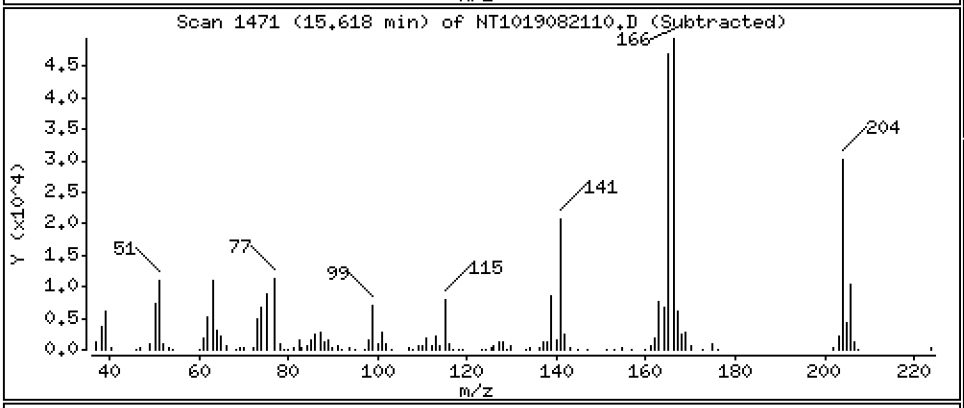
Column diameter: 0.25

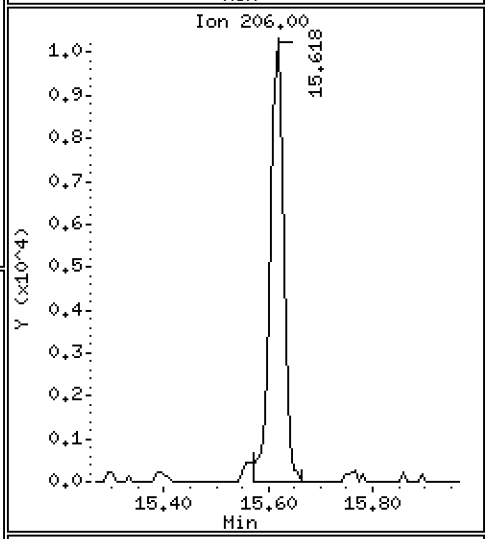
51 4-Chlorophenyl-phenylether

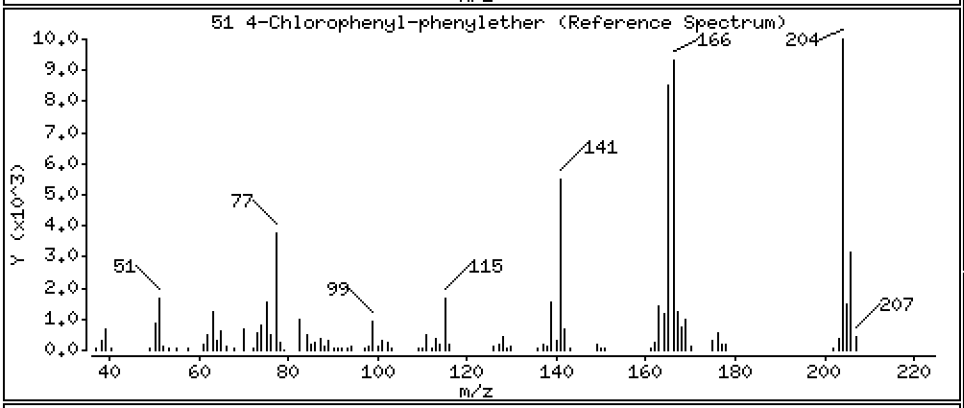
Concentration: 5.006 ug/mL

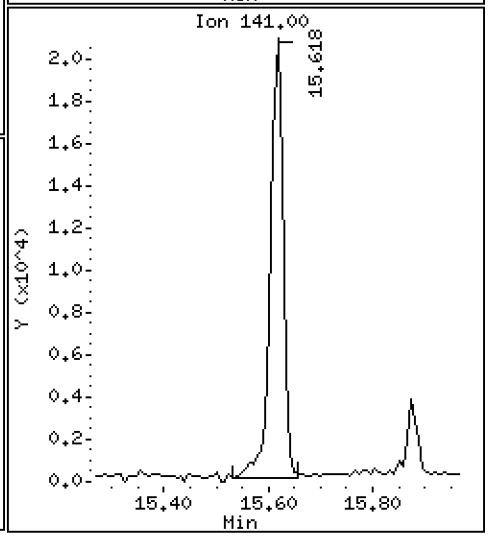


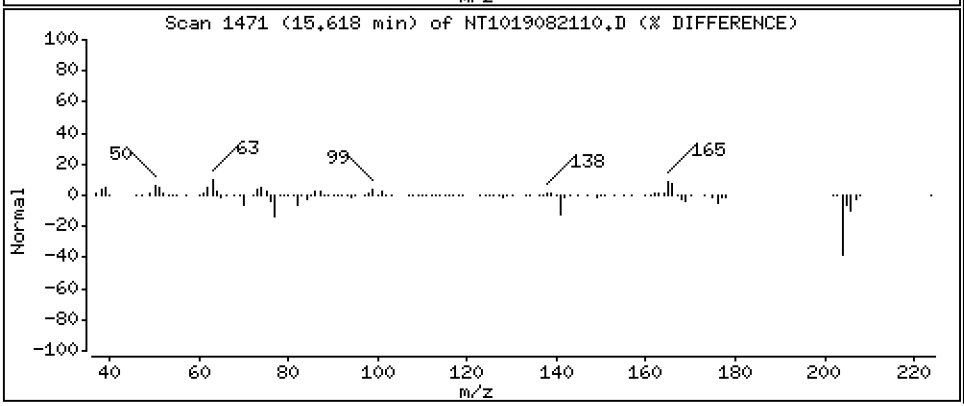












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

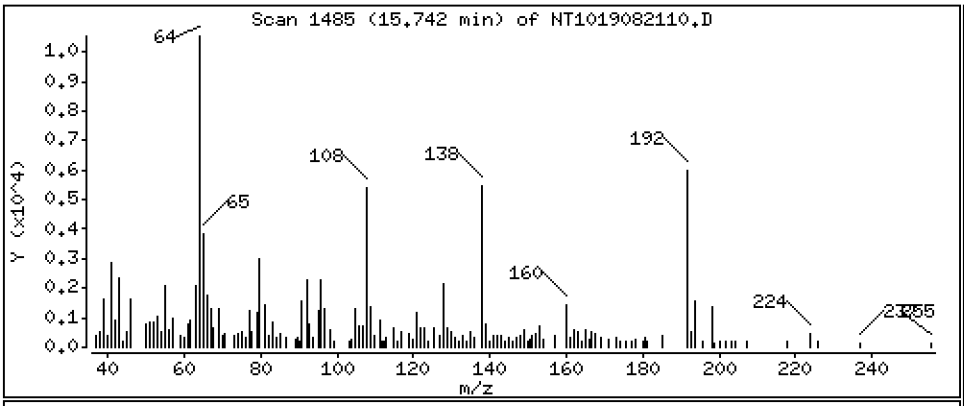
Operator: YZ

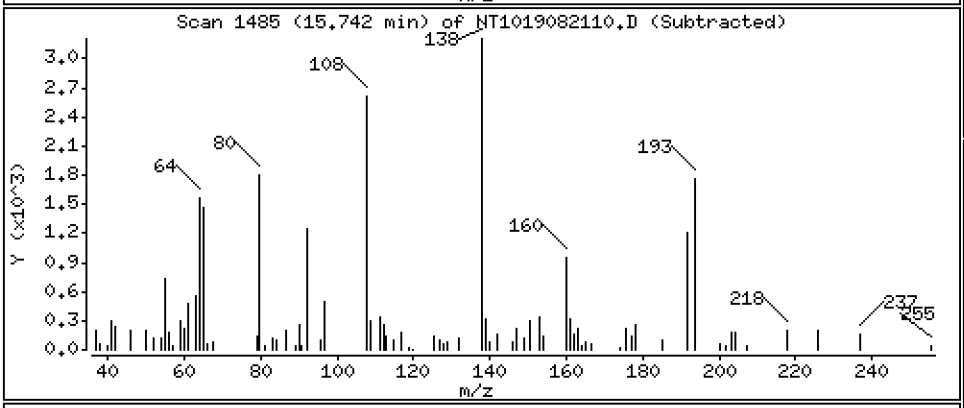
Column phase: ZB-5msi

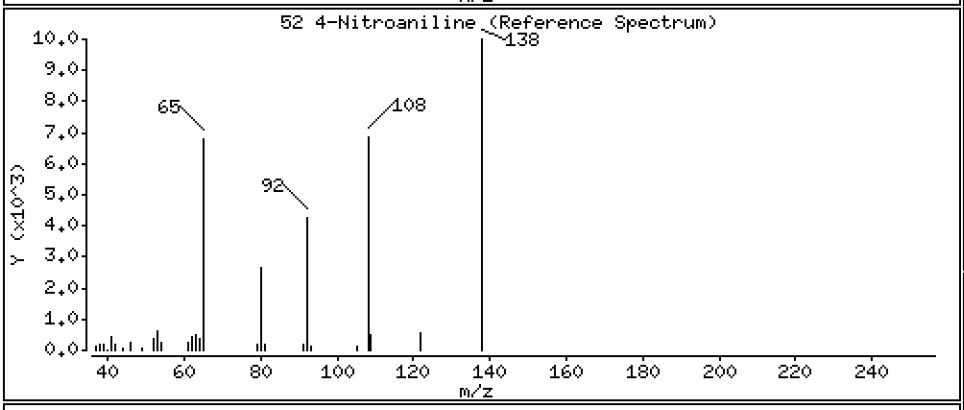
Column diameter: 0.25

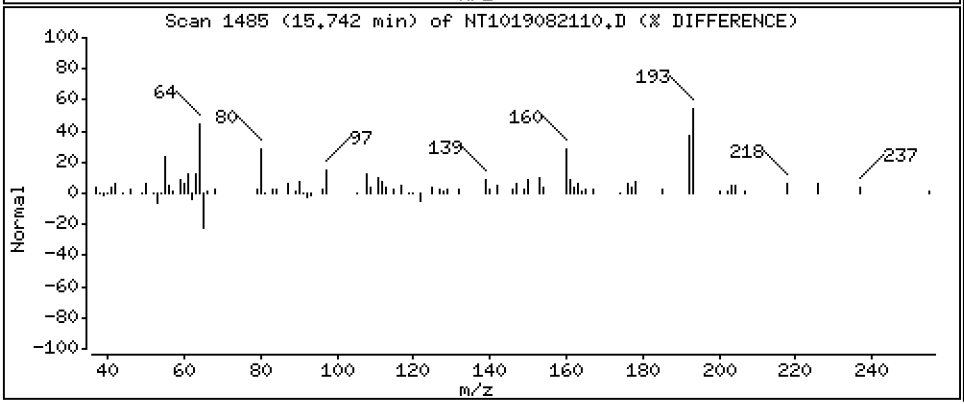
52 4-Nitroaniline

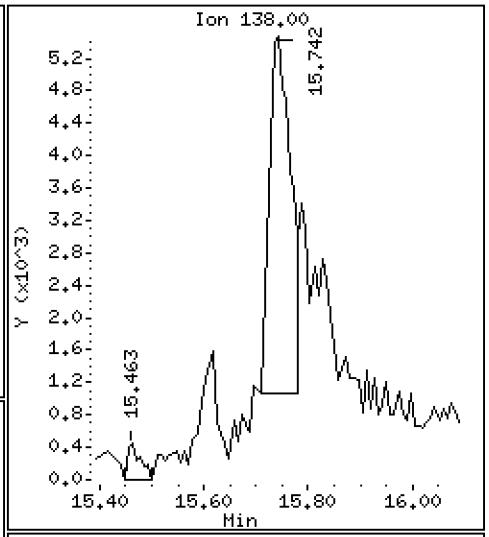
Concentration: 2.279 ug/mL

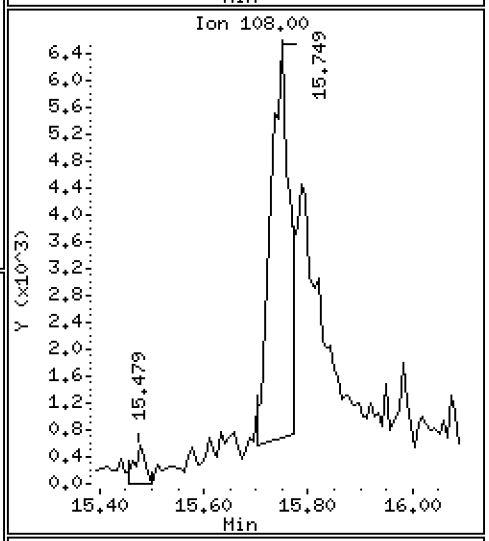


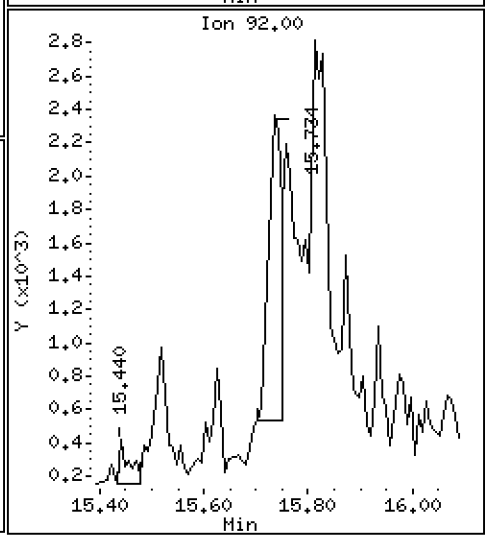












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

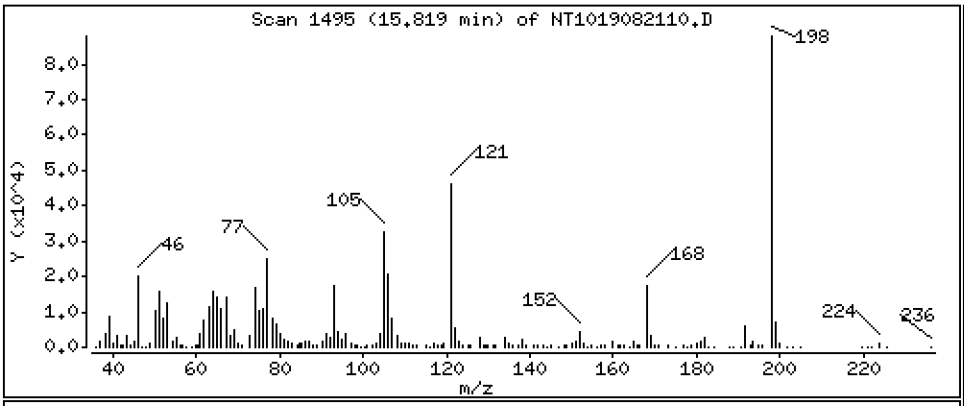
Operator: YZ

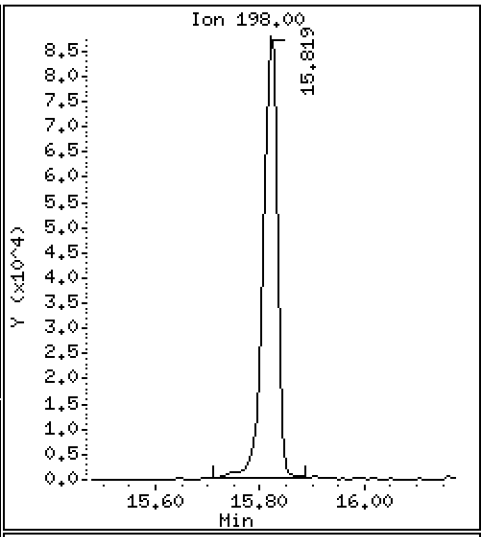
Column phase: ZB-5msi

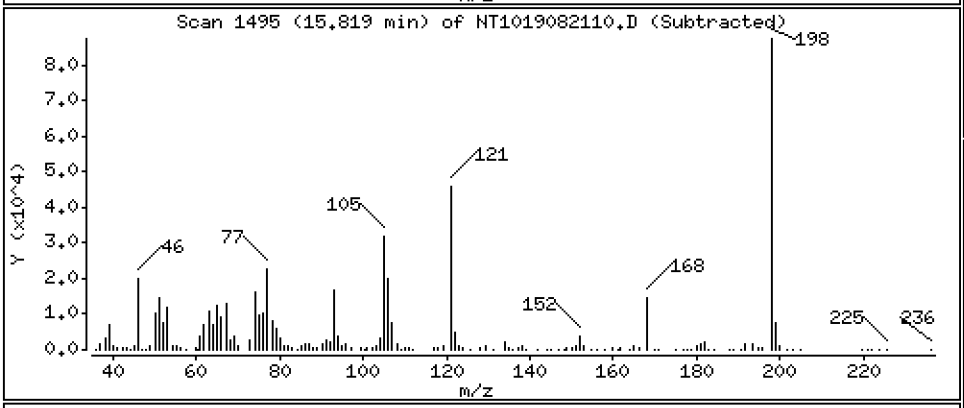
Column diameter: 0.25

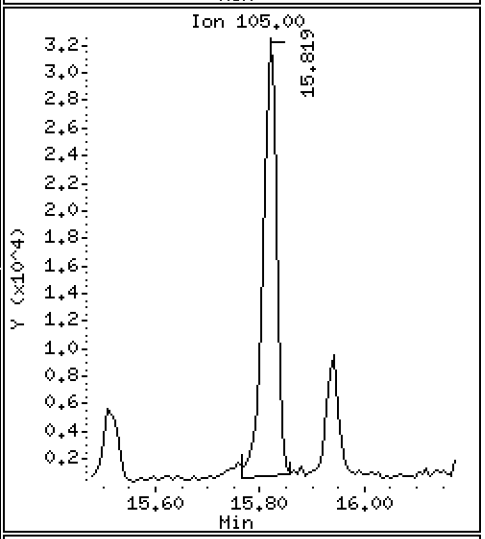
53 4,6-Dinitro-2-methylphenol

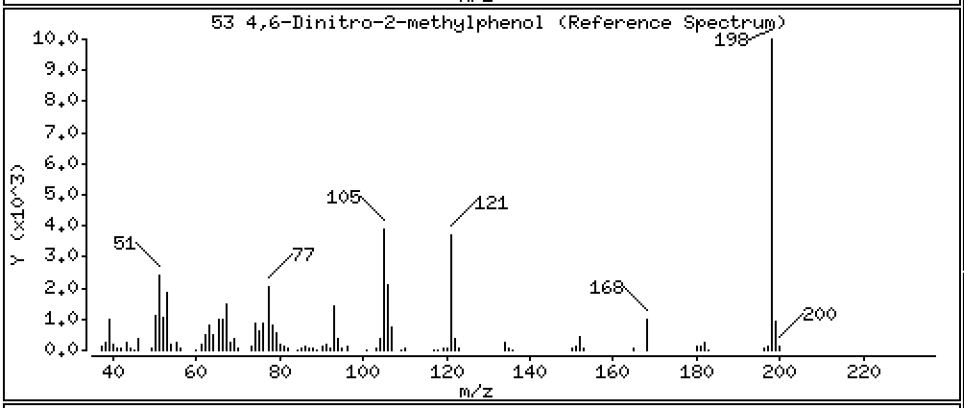
Concentration: 32.50 ug/mL

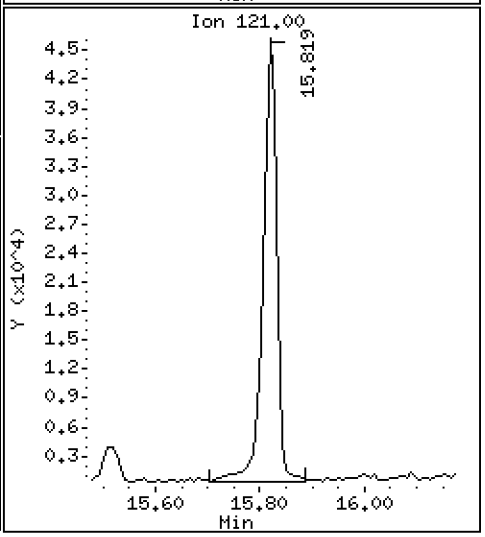


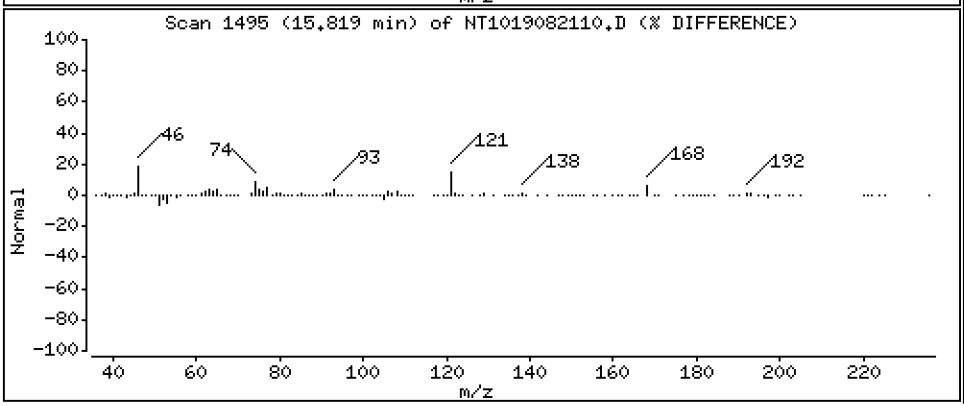












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

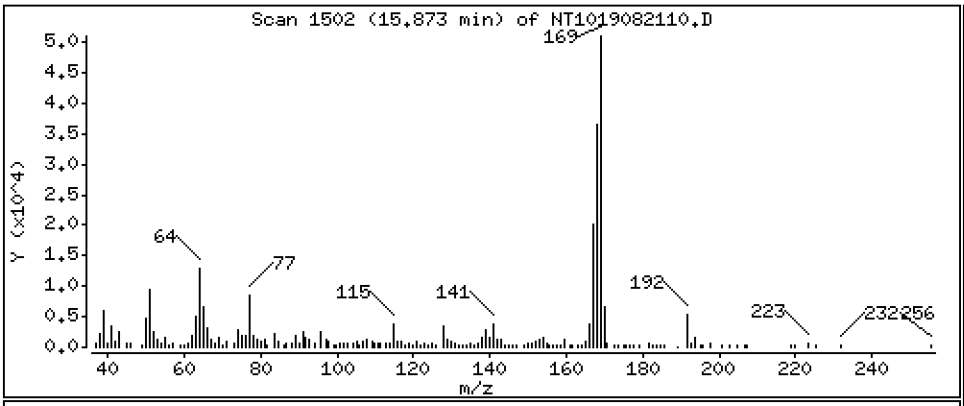
Operator: YZ

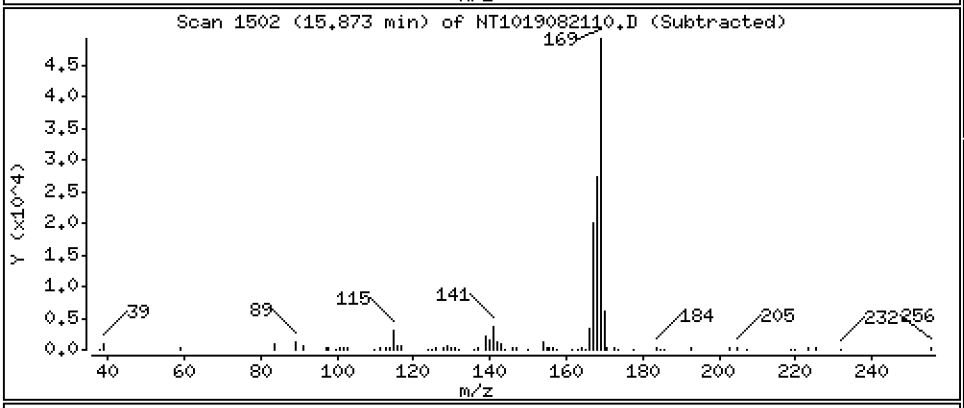
Column phase: ZB-5msi

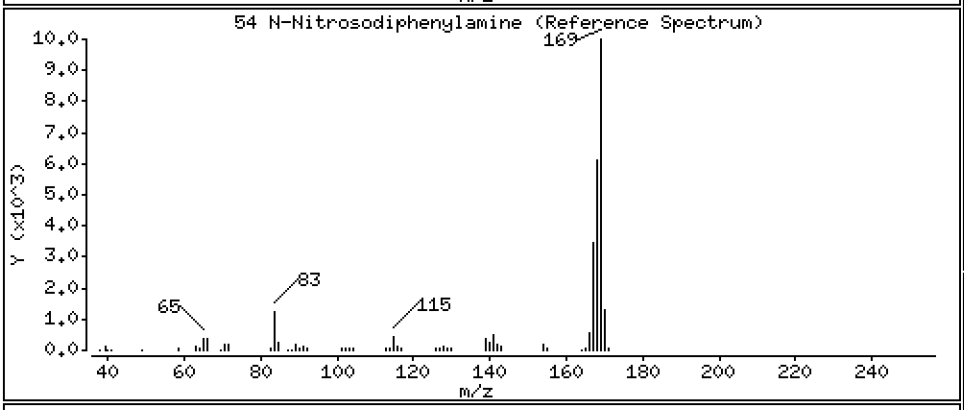
Column diameter: 0.25

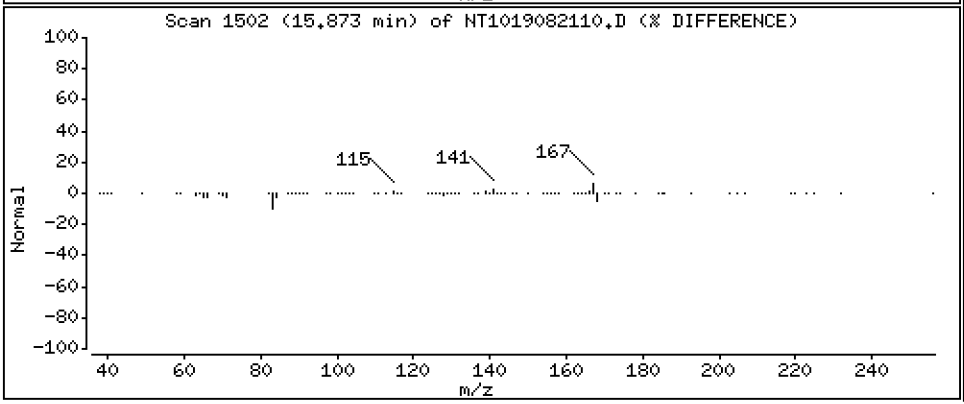
54 N-Nitrosodiphenylamine

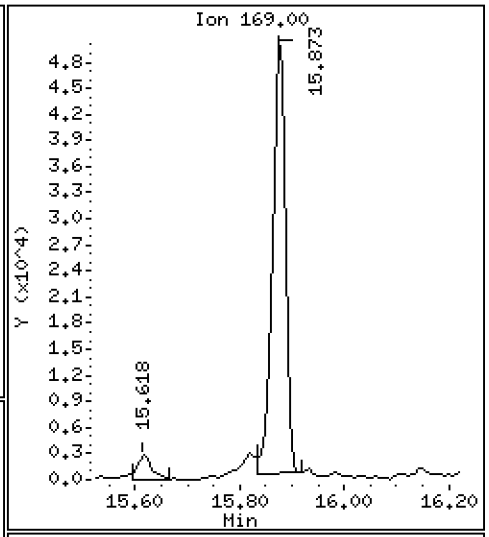
Concentration: 5.616 ug/mL

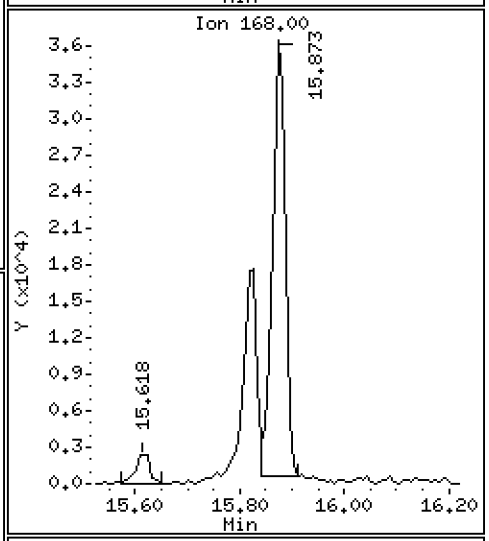


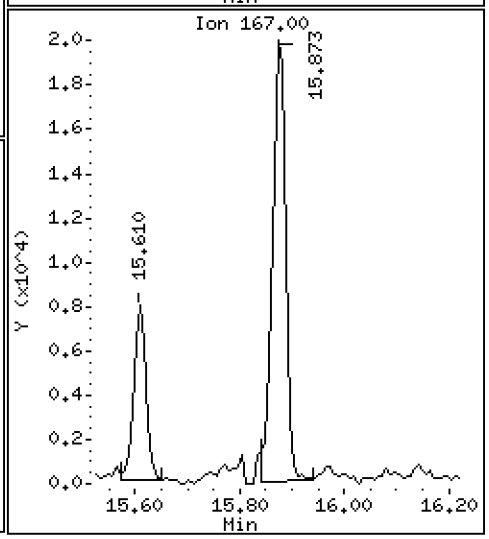












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

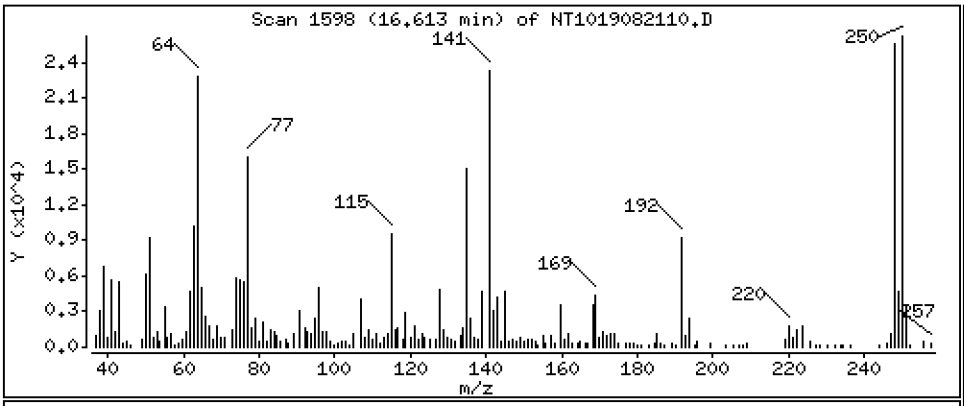
Operator: YZ

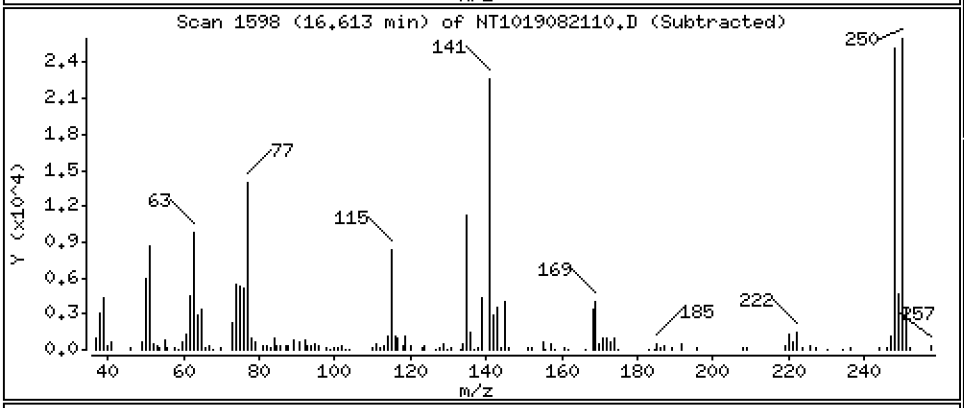
Column phase: ZB-5msi

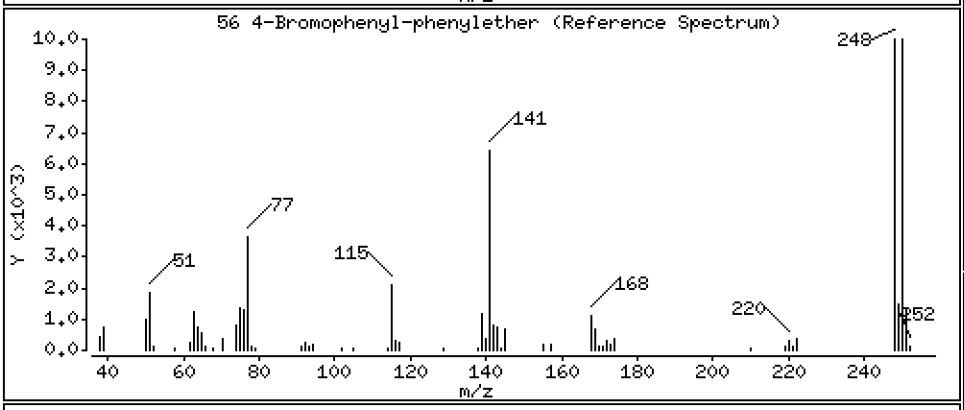
Column diameter: 0.25

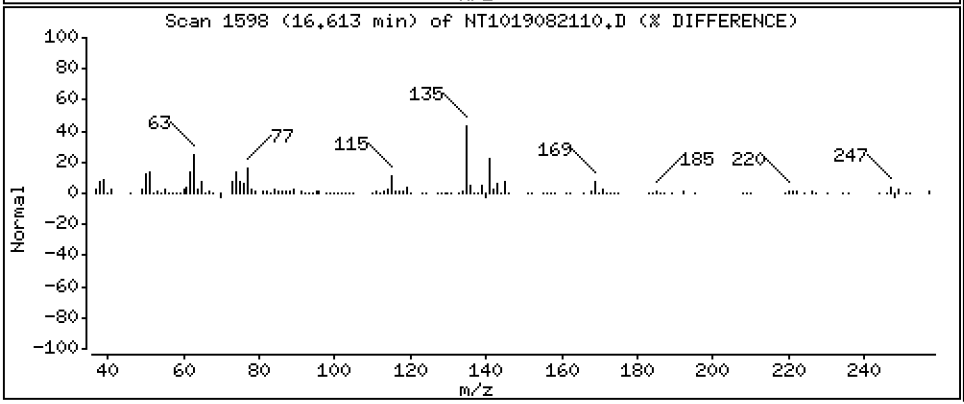
56 4-Bromophenyl-phenylether

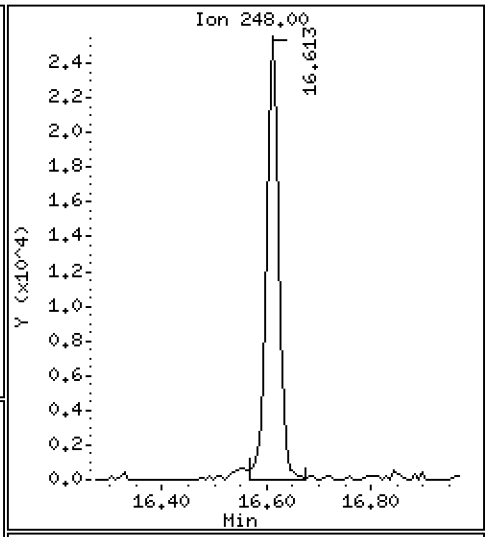
Concentration: 4.847 ug/mL

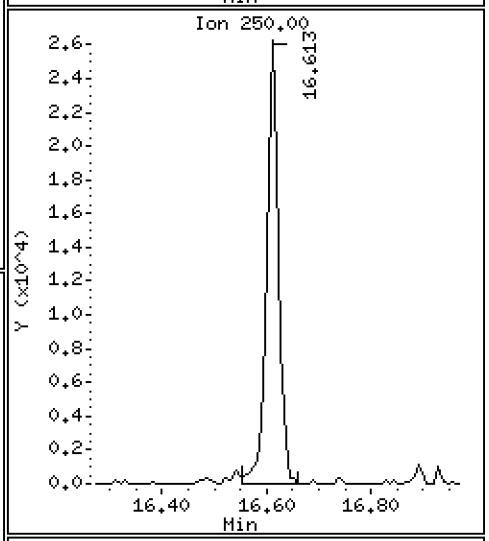


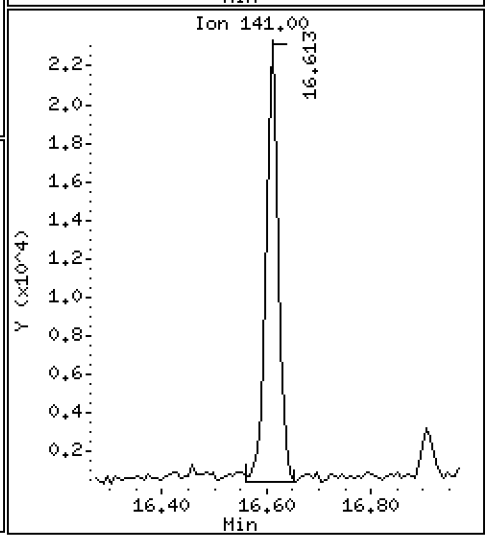












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

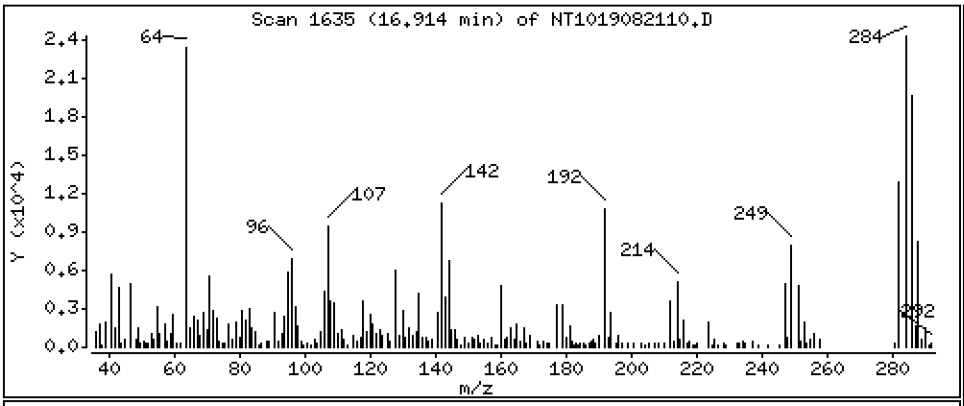
Operator: YZ

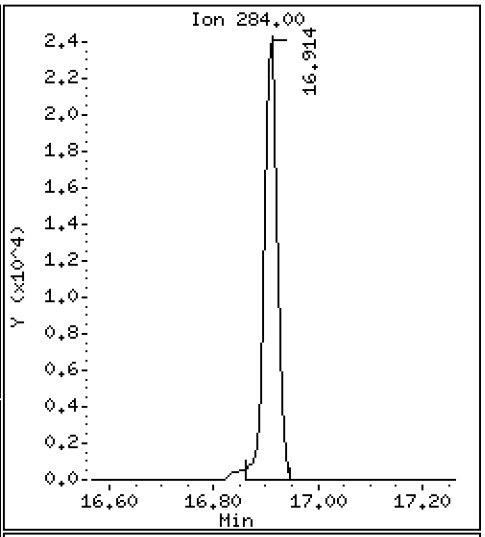
Column phase: ZB-5msi

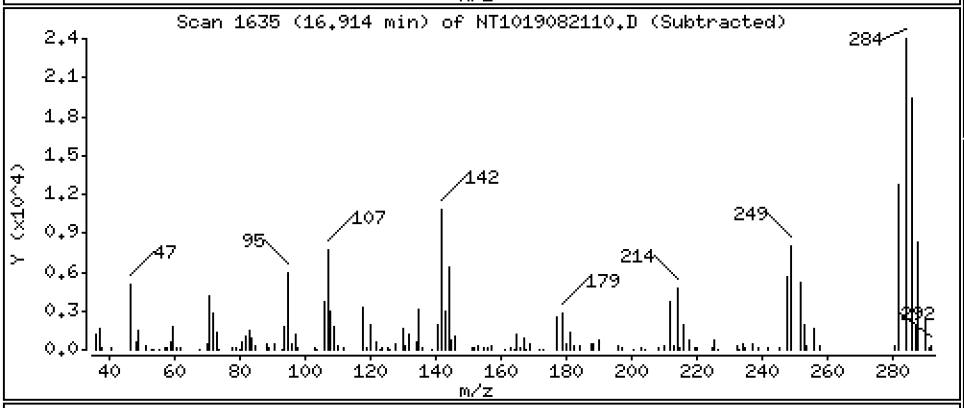
Column diameter: 0.25

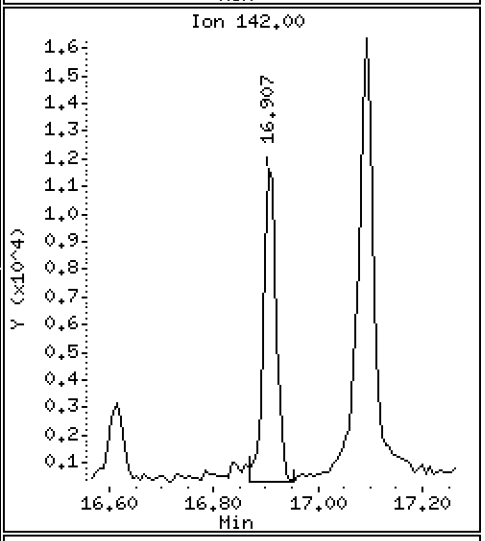
57 Hexachlorobenzene

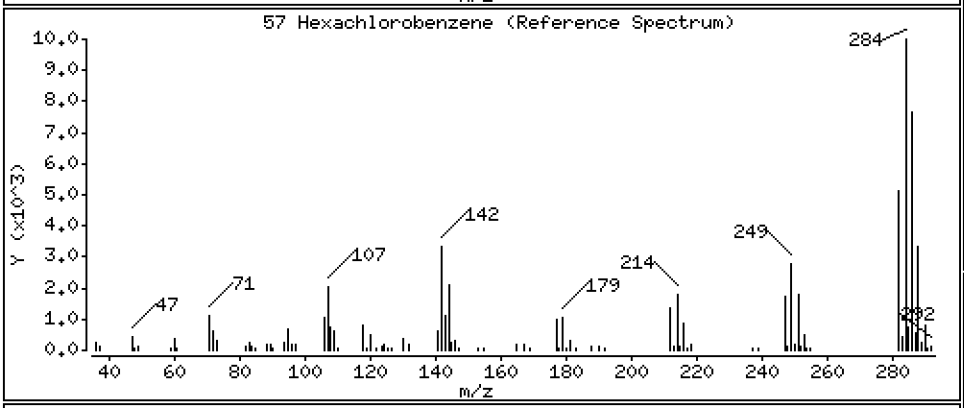
Concentration: 4.474 ug/mL

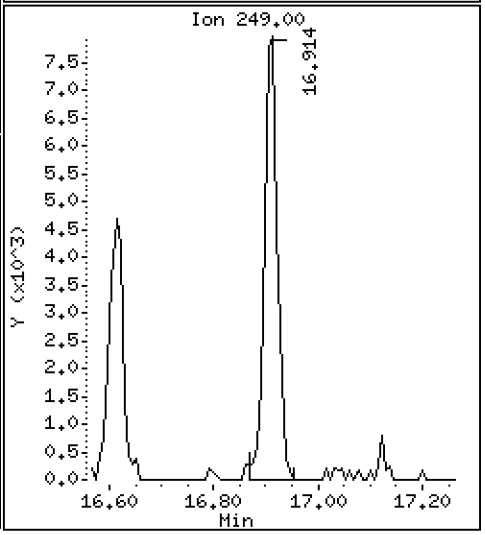


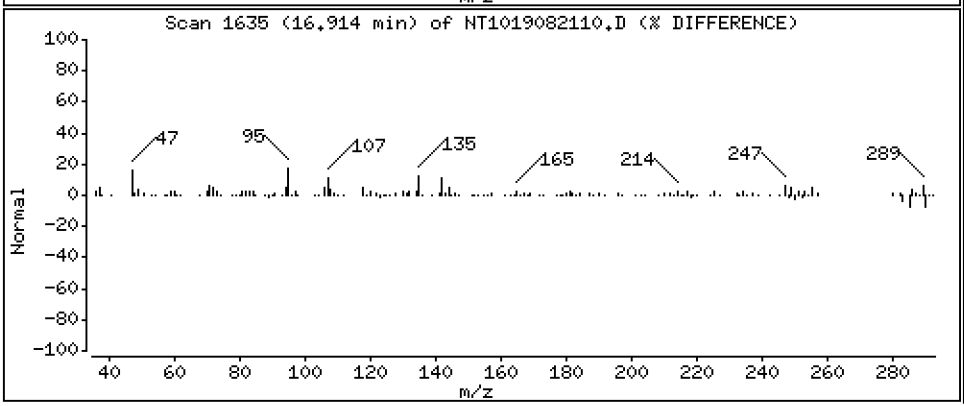












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

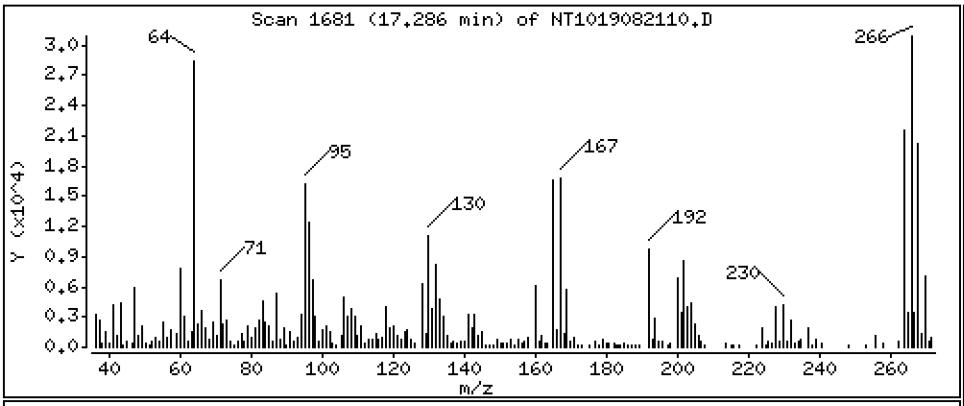
Operator: YZ

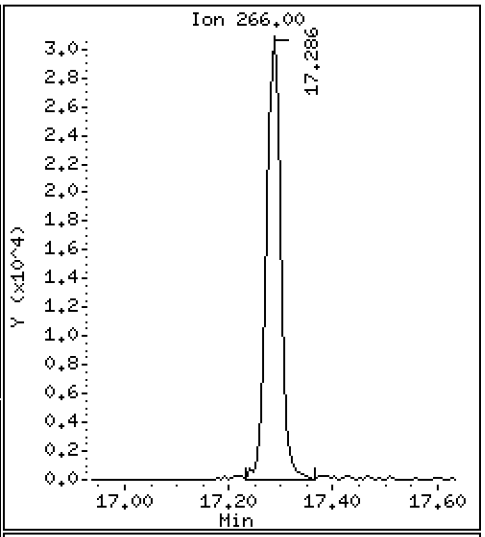
Column phase: ZB-5msi

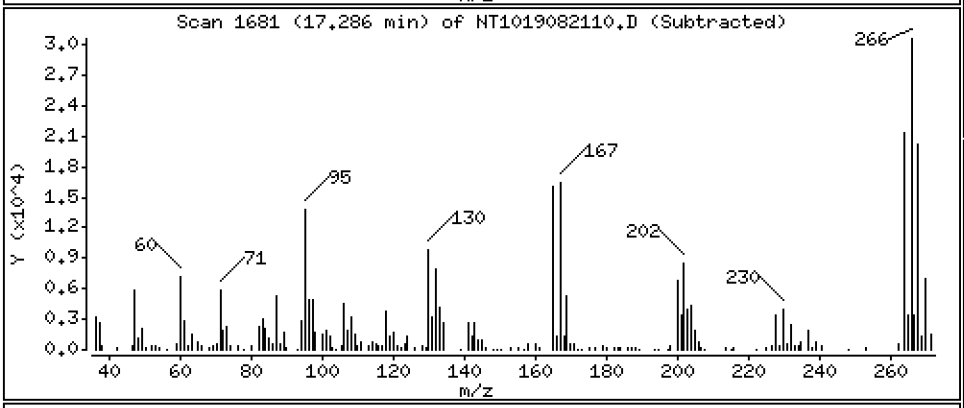
Column diameter: 0.25

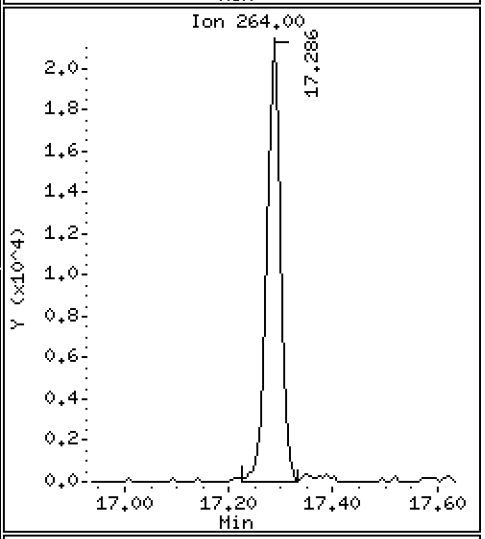
58 Pentachlorophenol

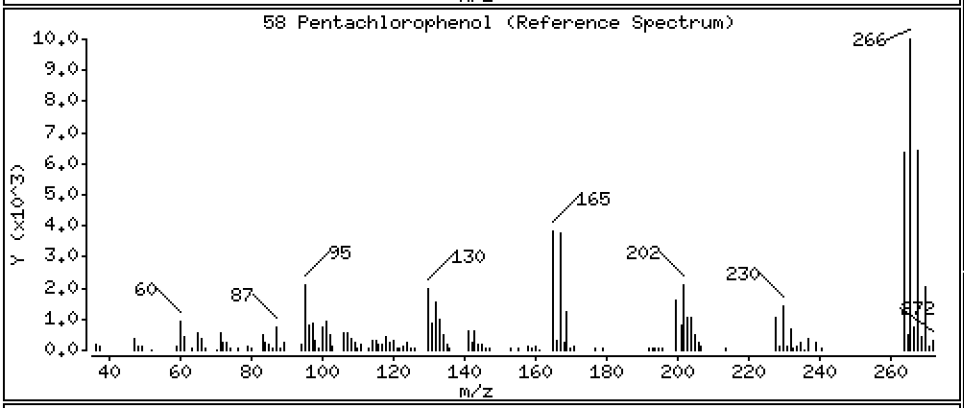
Concentration: 14.09 ug/mL

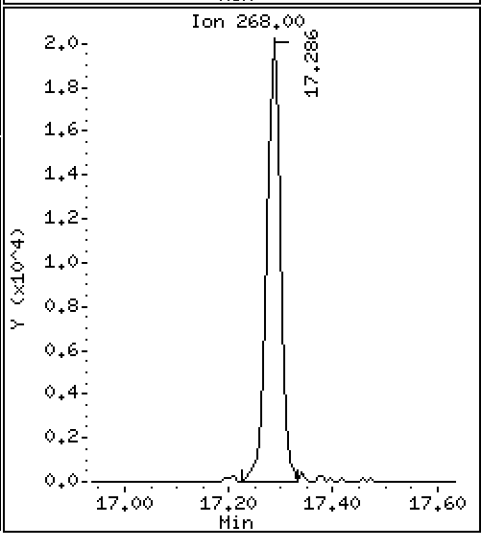


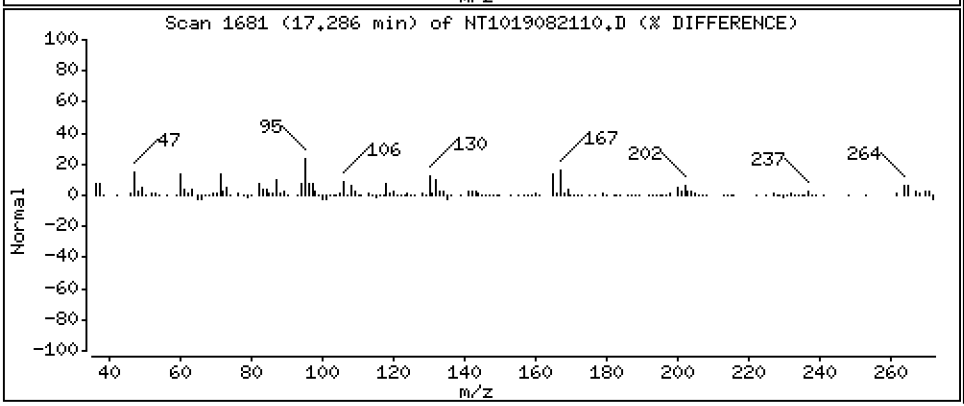












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

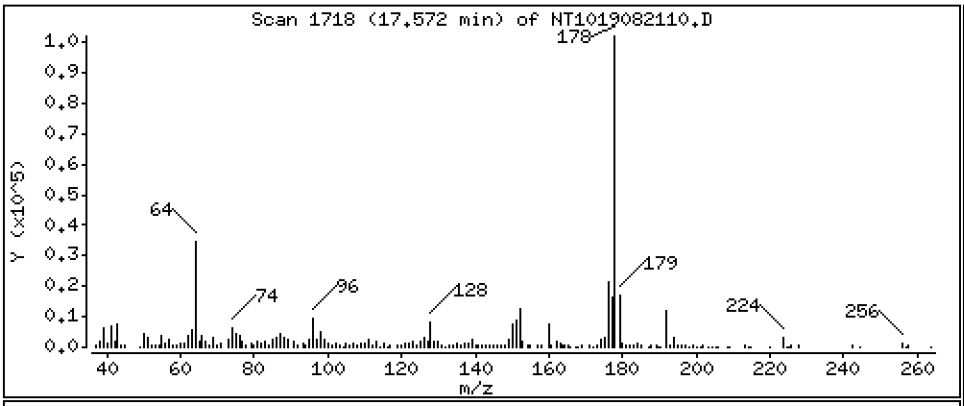
Operator: YZ

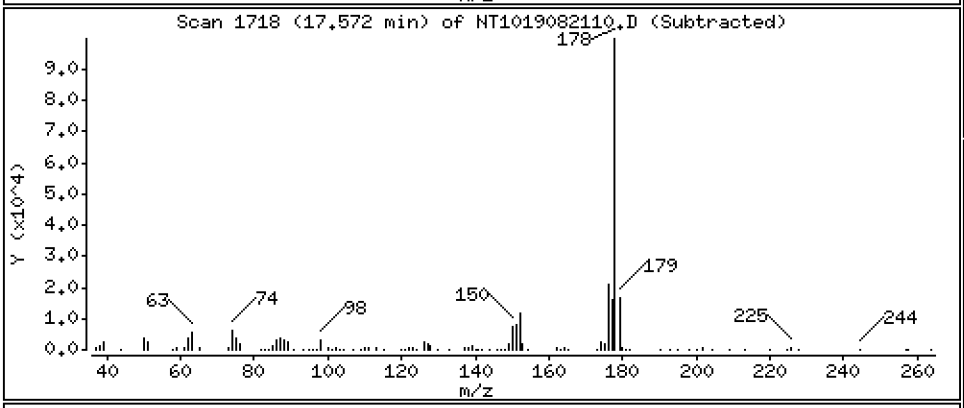
Column phase: ZB-5msi

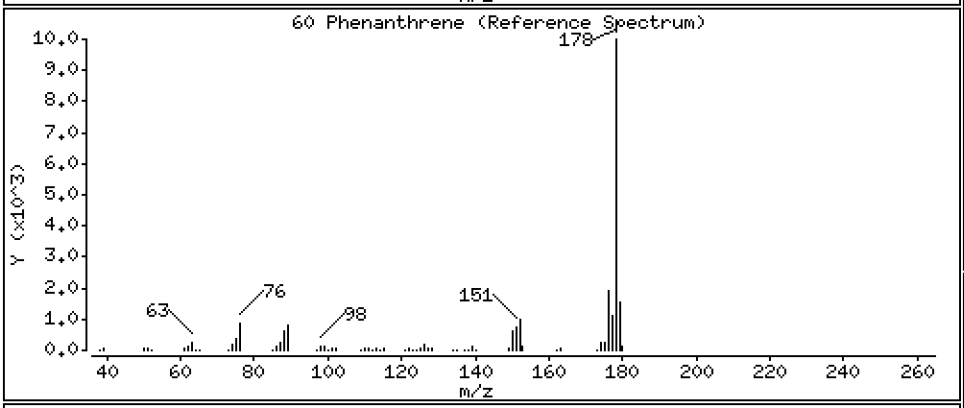
Column diameter: 0.25

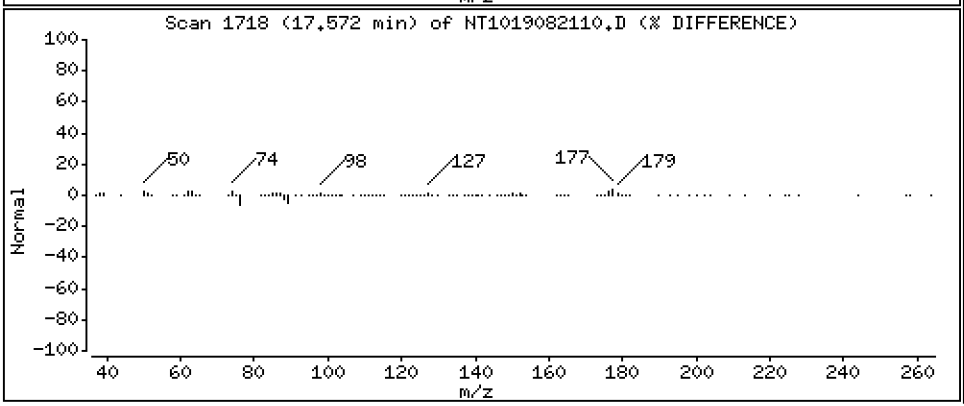
60 Phenanthrene

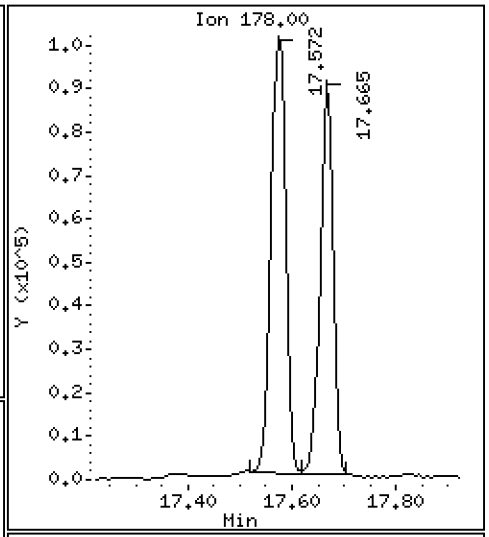
Concentration: 7.083 ug/mL

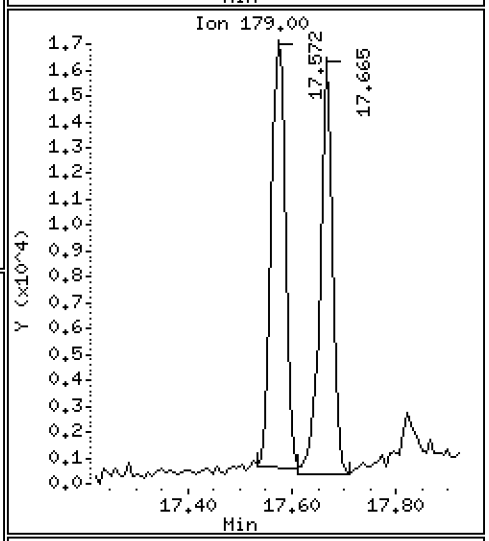


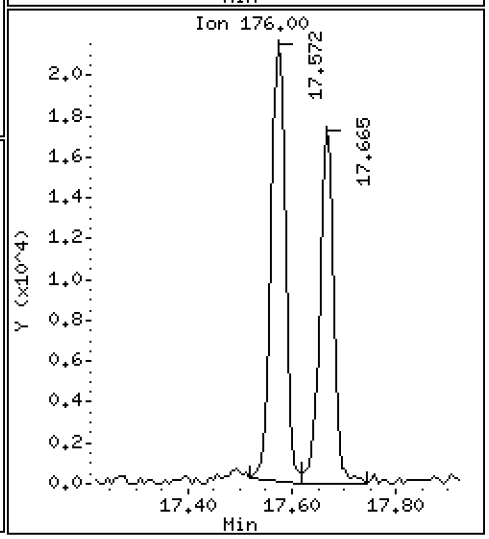












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

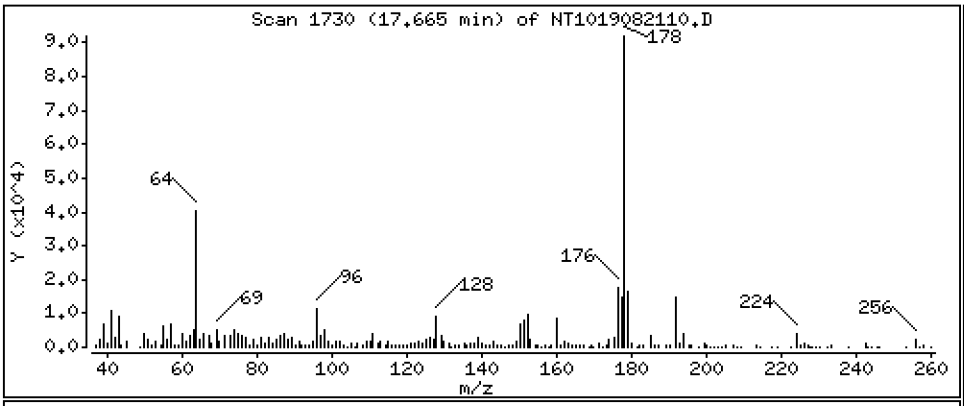
Operator: YZ

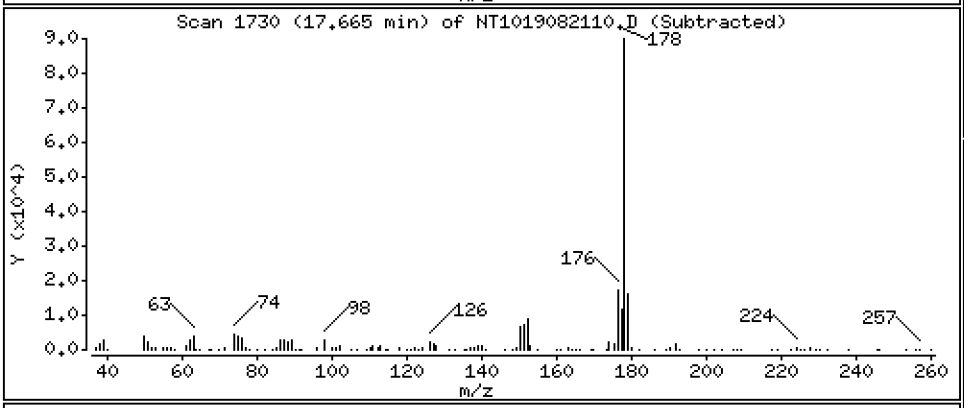
Column phase: ZB-5msi

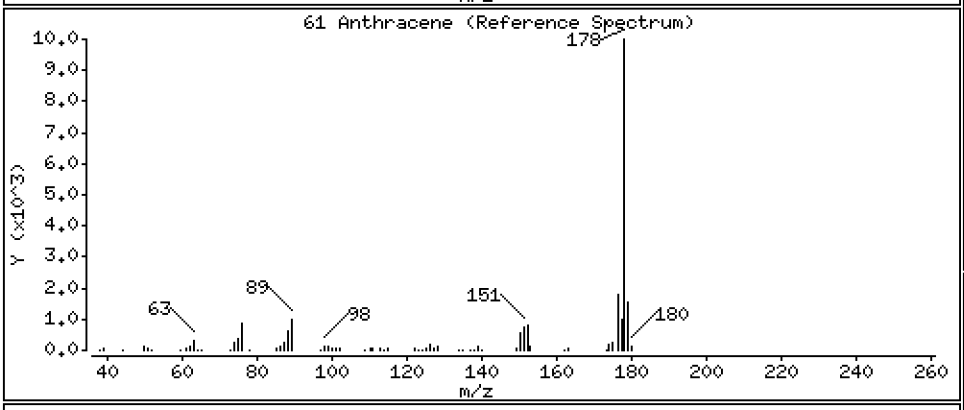
Column diameter: 0.25

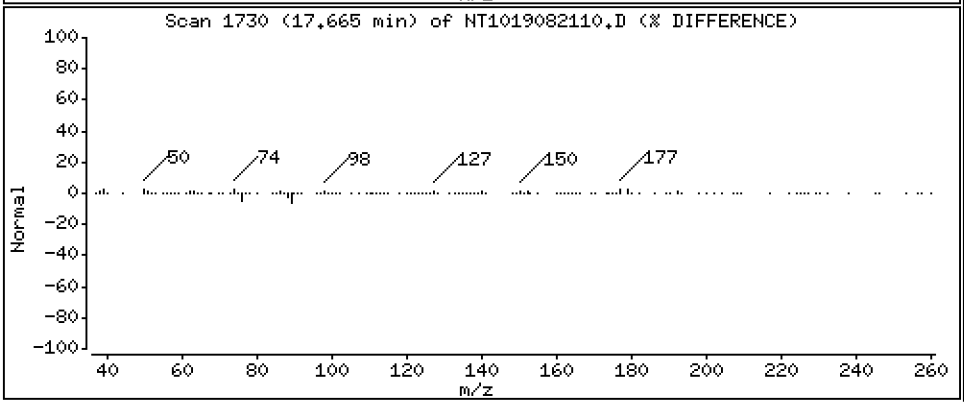
61 Anthracene

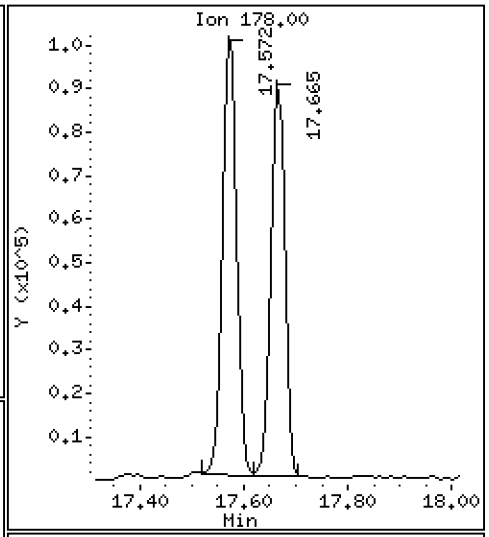
Concentration: 5.799 ug/mL

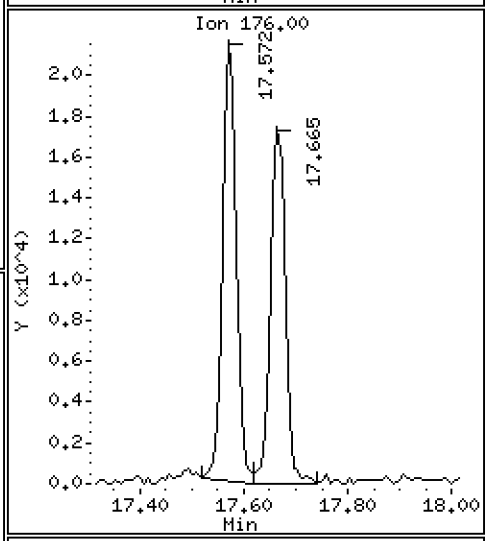


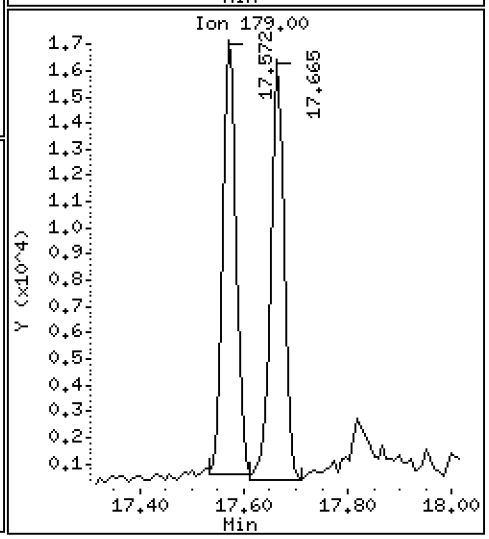












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

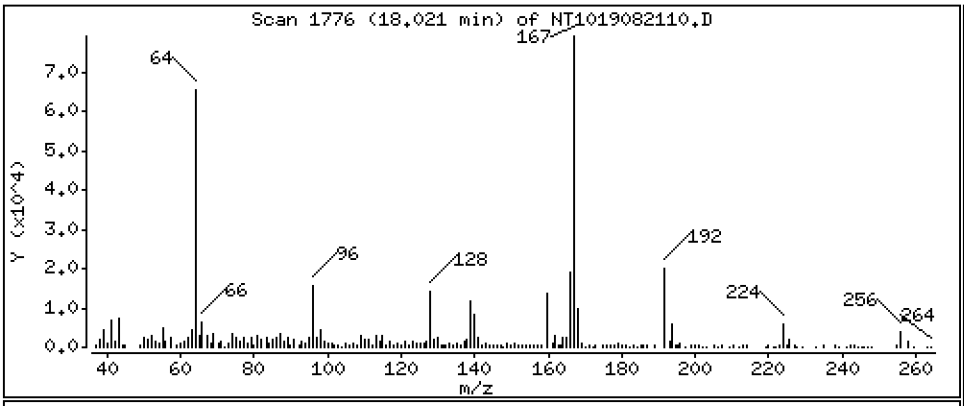
Operator: YZ

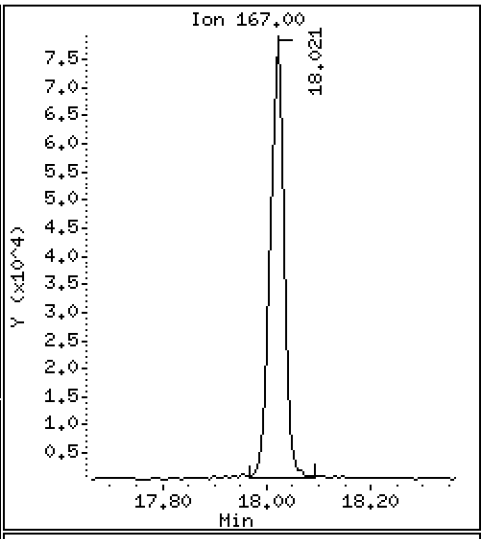
Column phase: ZB-5msi

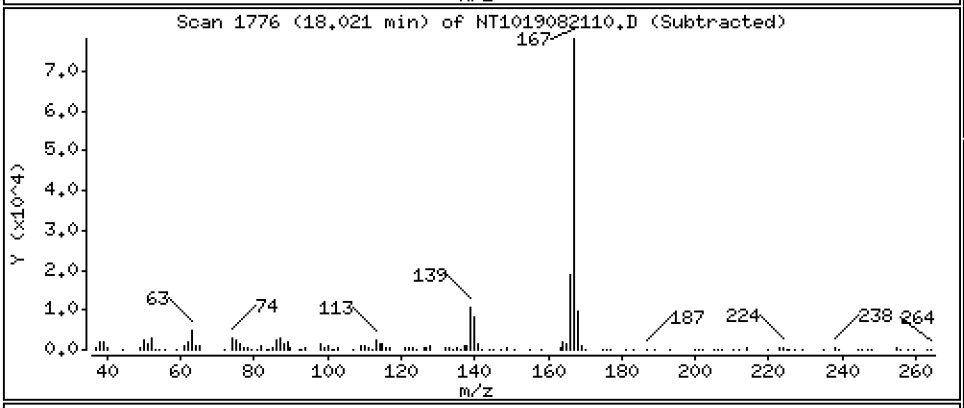
Column diameter: 0.25

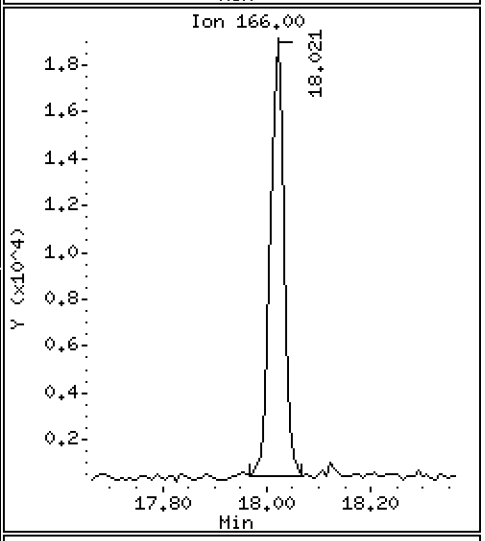
62 Carbazole

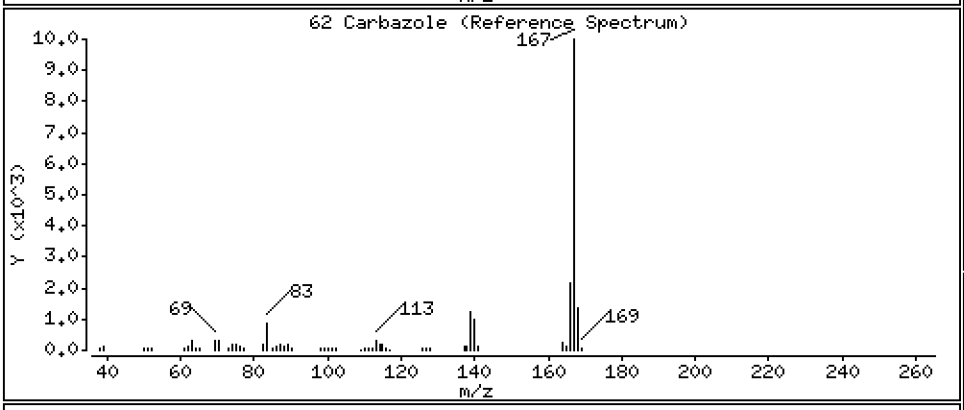
Concentration: 5.448 ug/mL

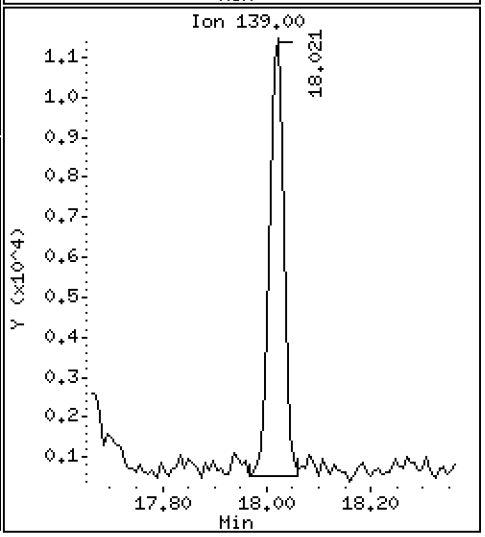


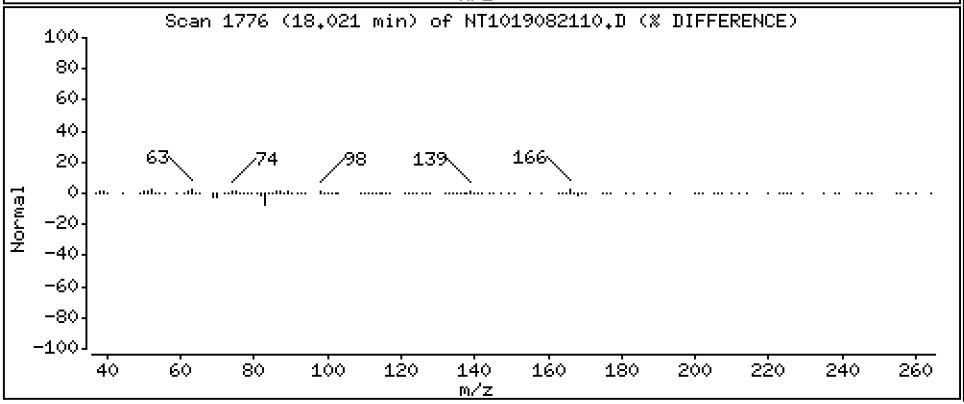












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

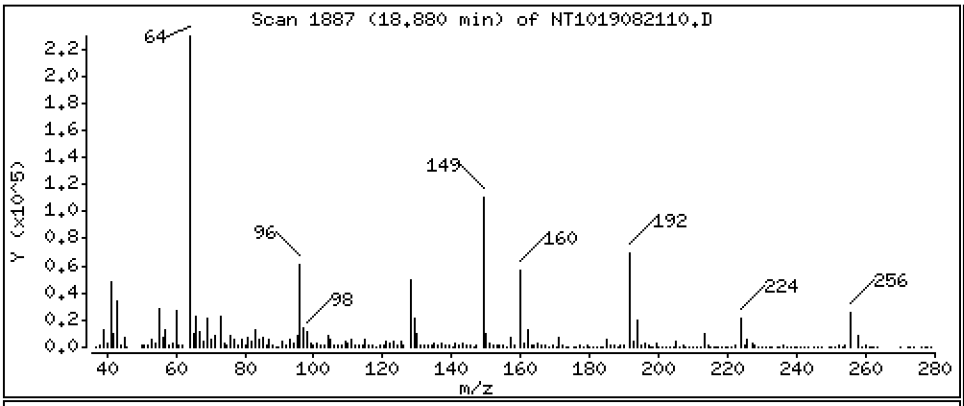
Operator: YZ

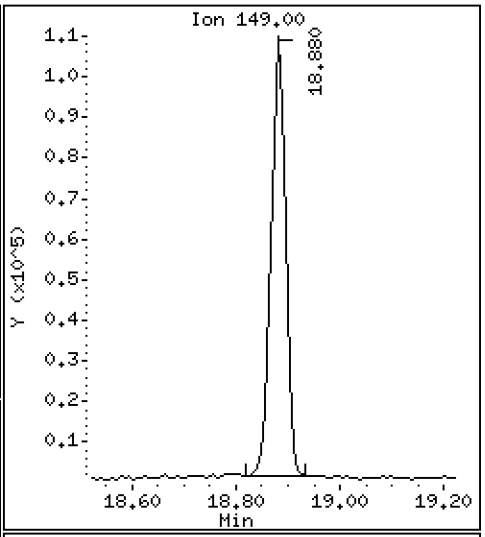
Column phase: ZB-5msi

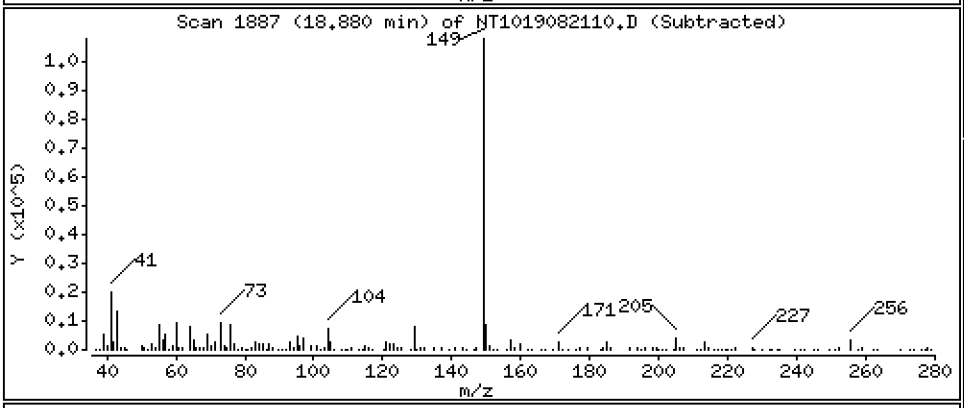
Column diameter: 0.25

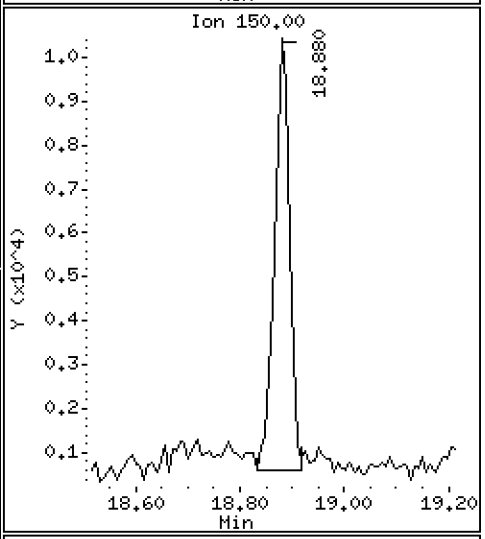
63 Di-n-butylphthalate

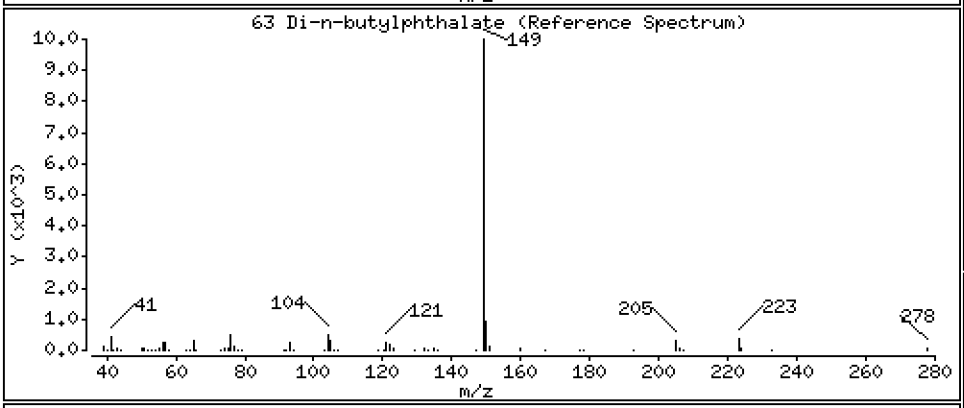
Concentration: 5.571 ug/mL

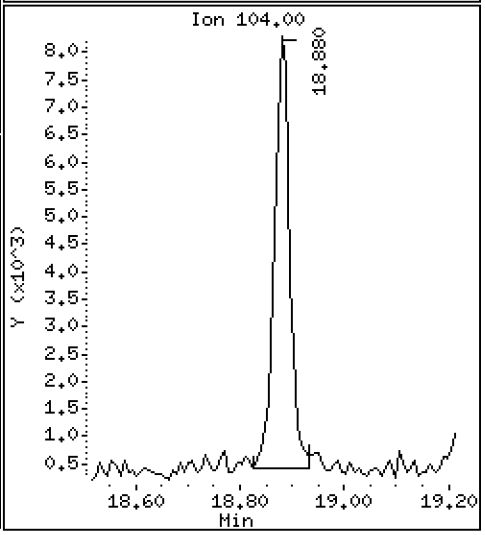


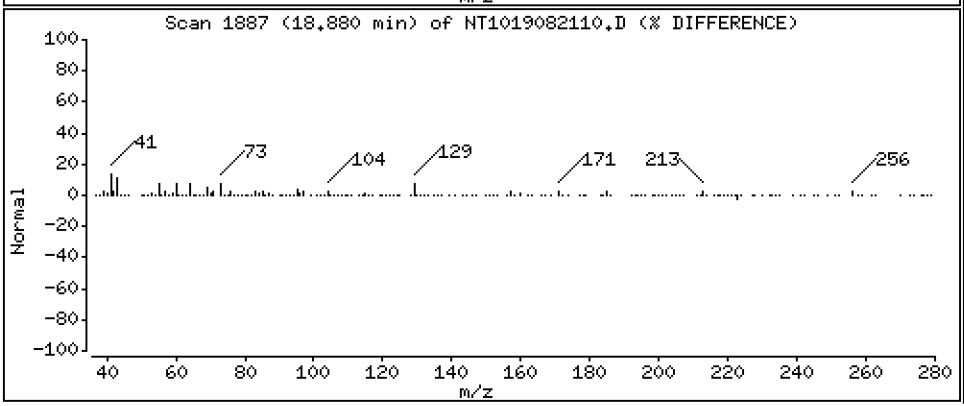












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

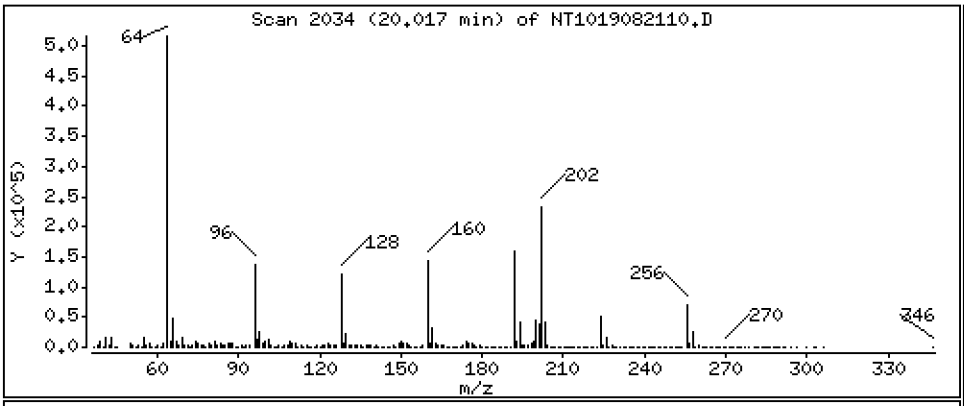
Operator: YZ

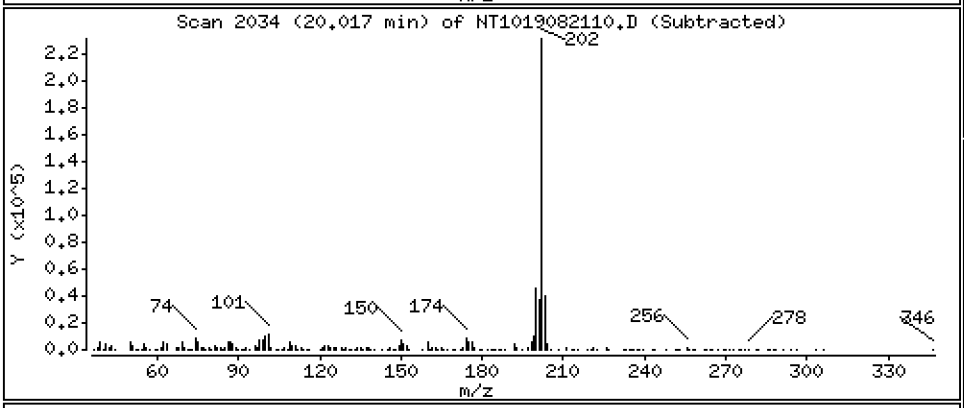
Column phase: ZB-5msi

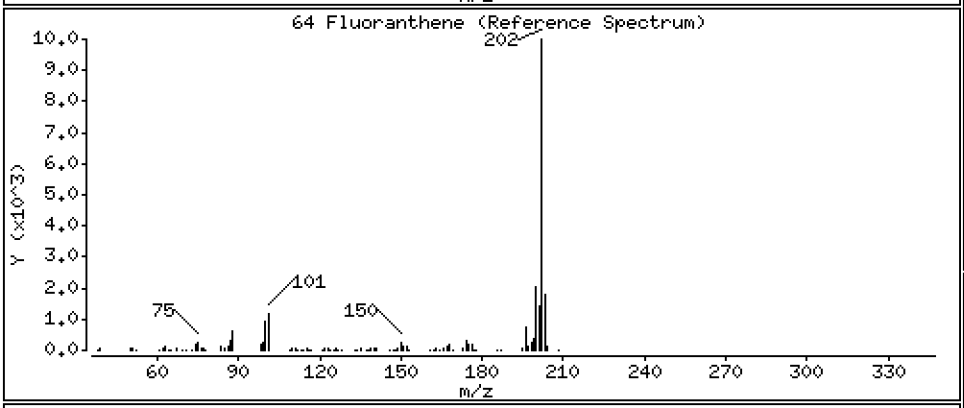
Column diameter: 0.25

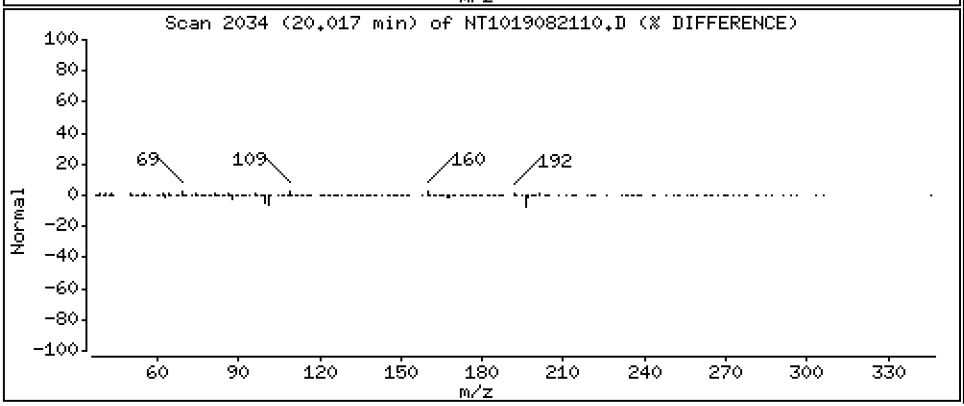
64 Fluoranthene

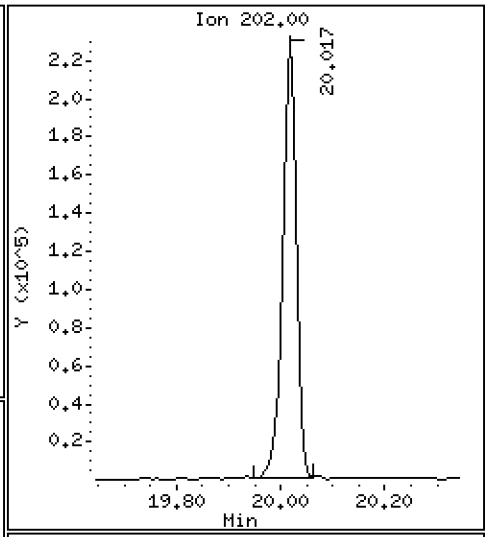
Concentration: 20.45 ug/mL

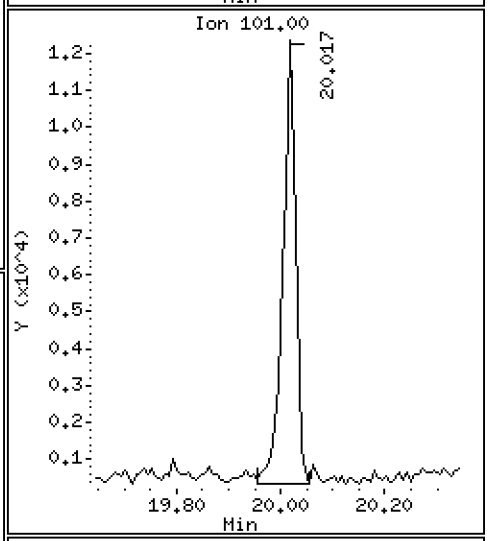


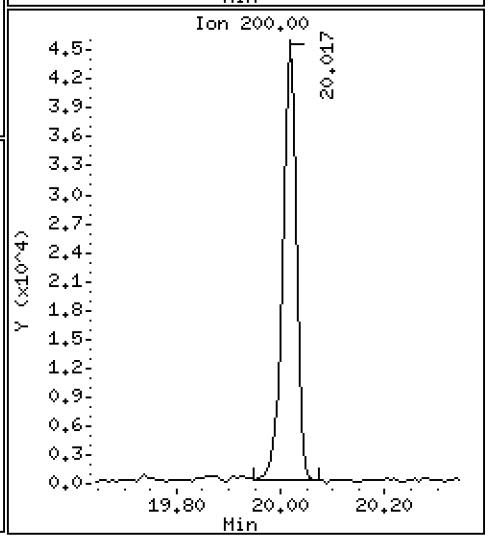












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

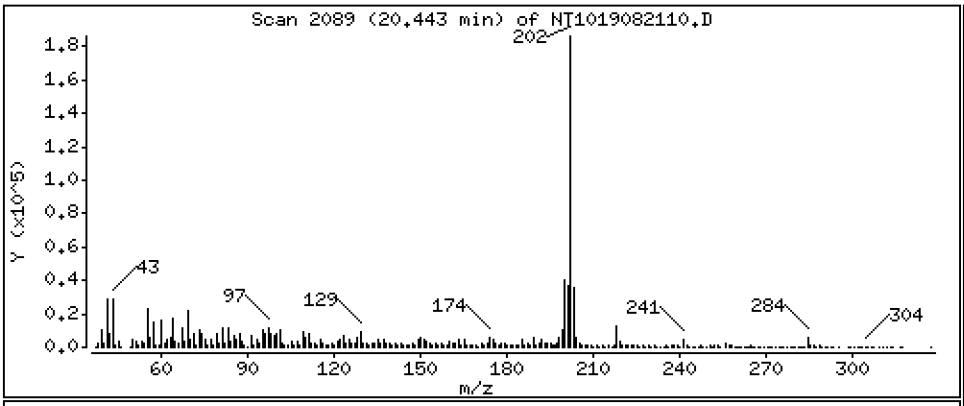
Operator: YZ

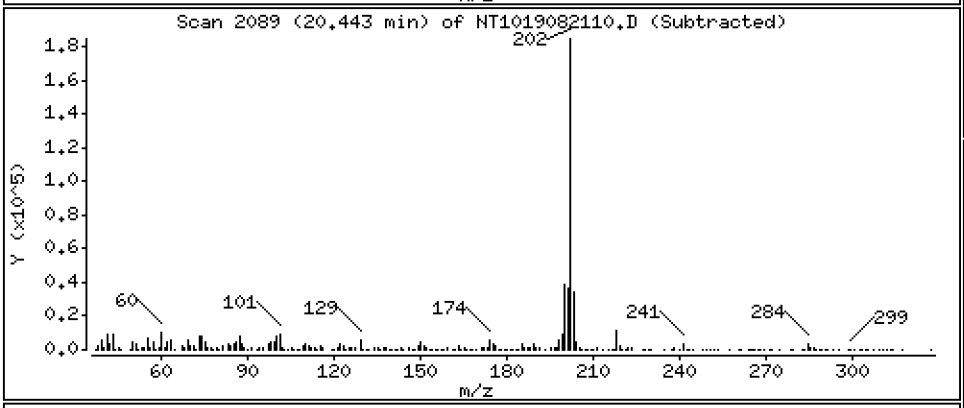
Column phase: ZB-5msi

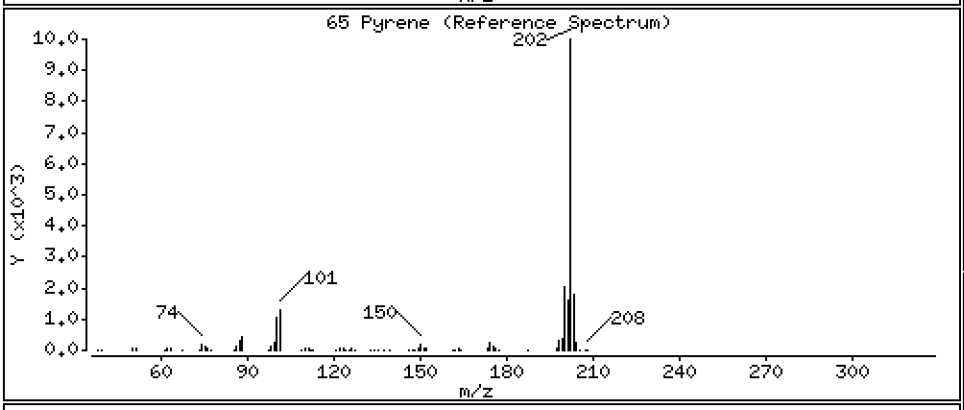
Column diameter: 0.25

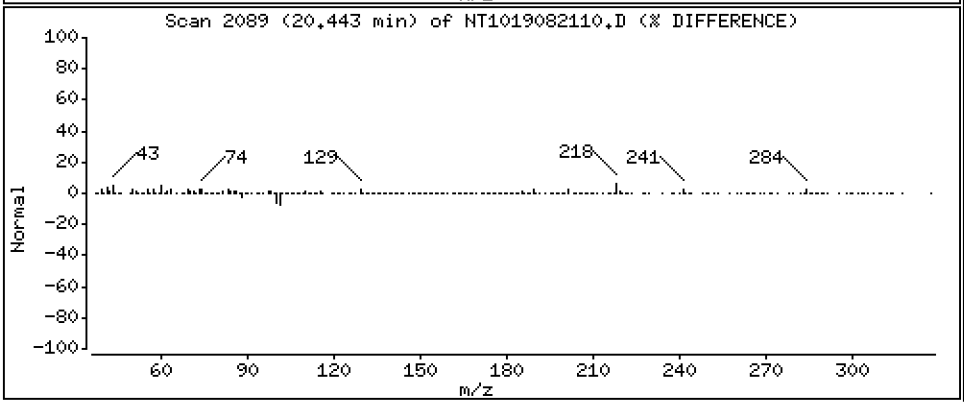
65 Pyrene

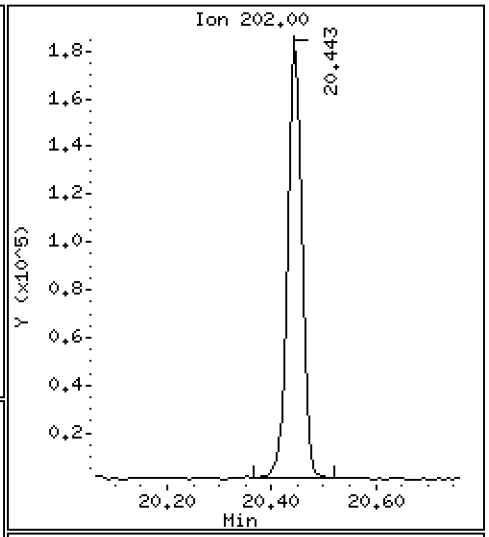
Concentration: 16.67 ug/mL

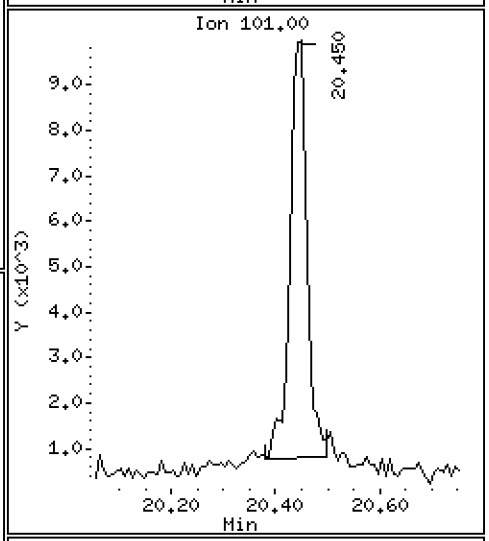


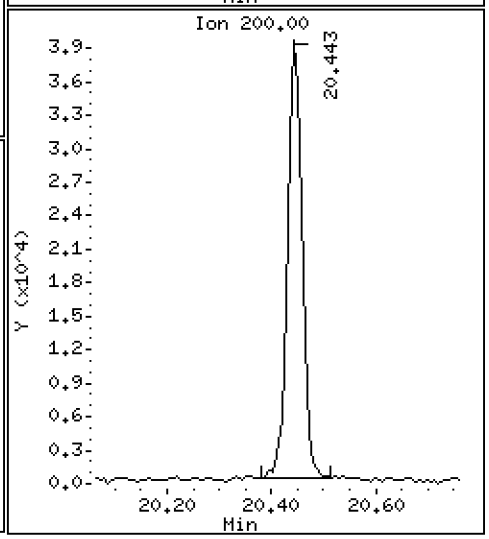












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

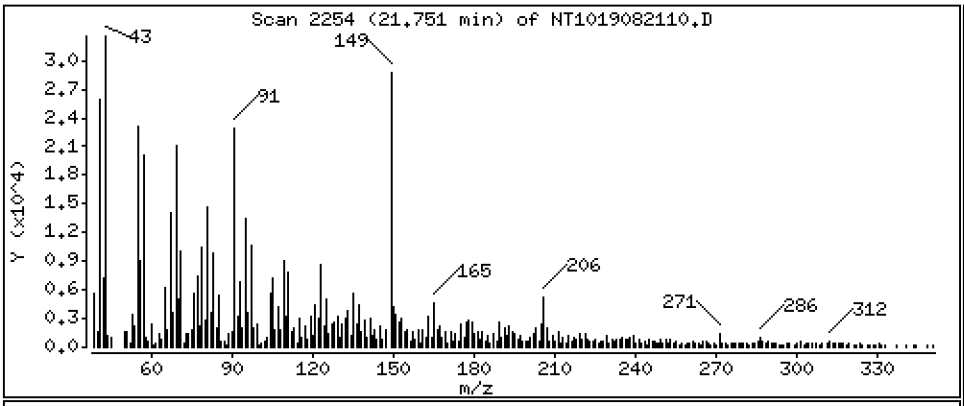
Operator: YZ

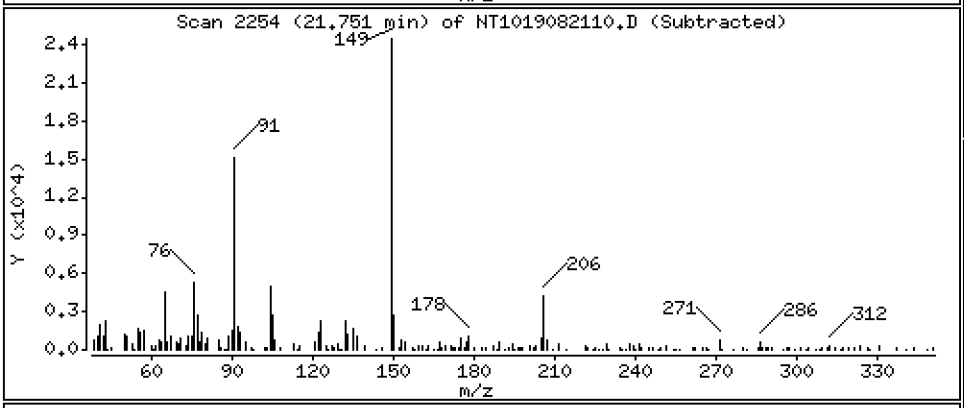
Column phase: ZB-5msi

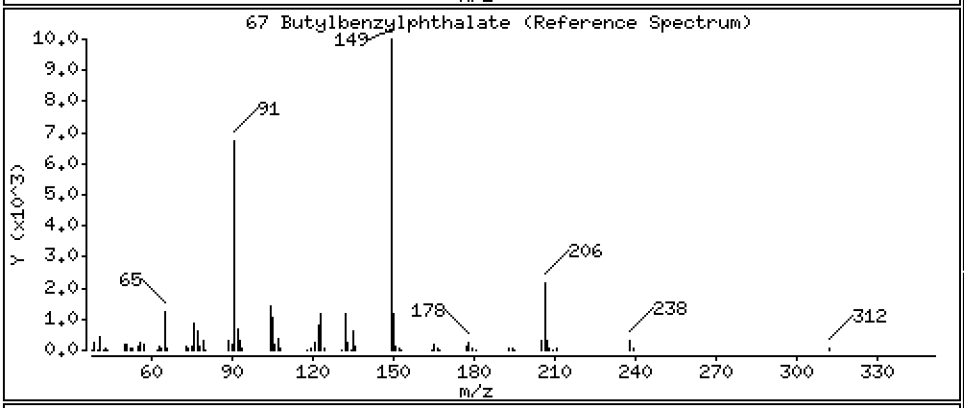
Column diameter: 0.25

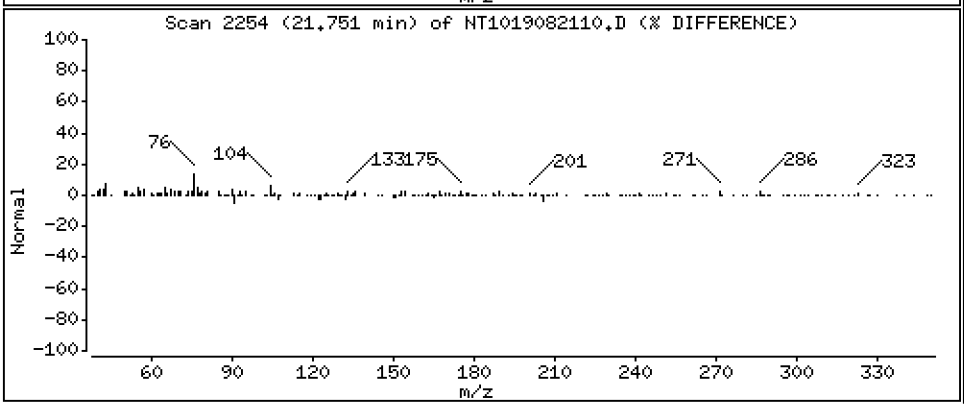
67 Butylbenzylphthalate

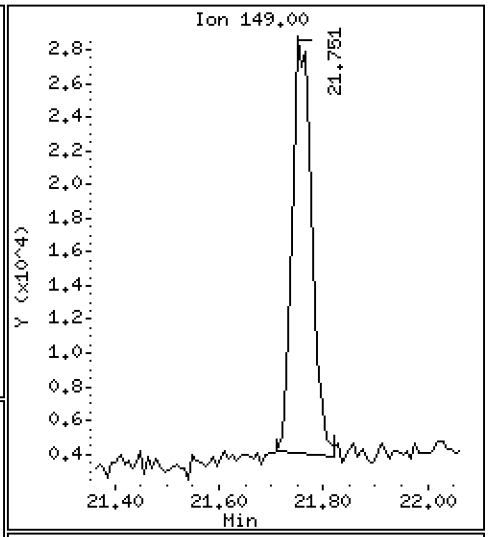
Concentration: 6.550 ug/mL

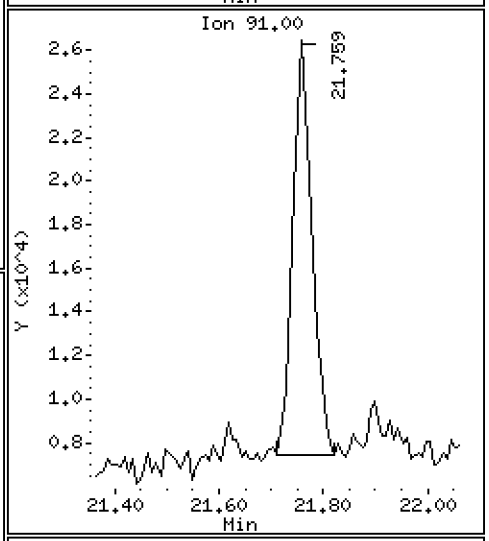


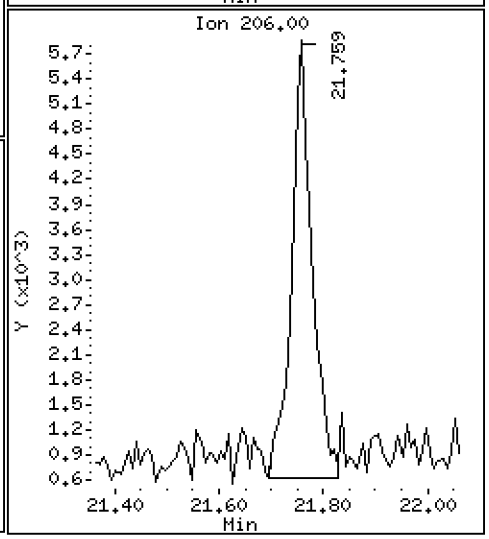












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

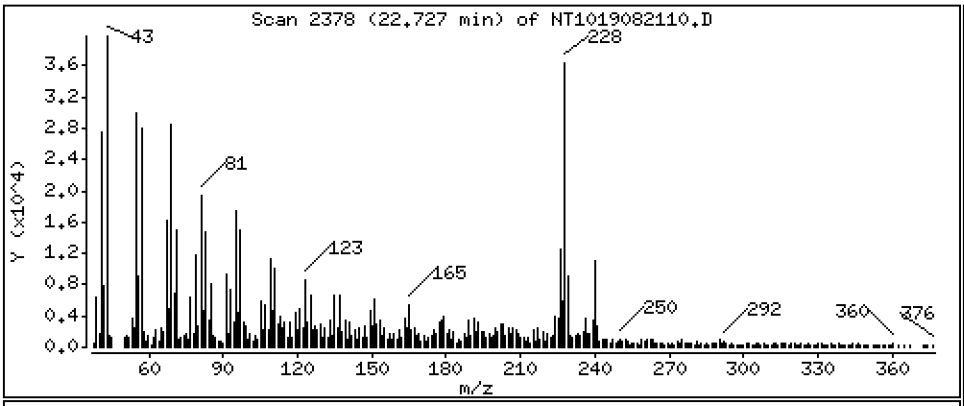
Operator: YZ

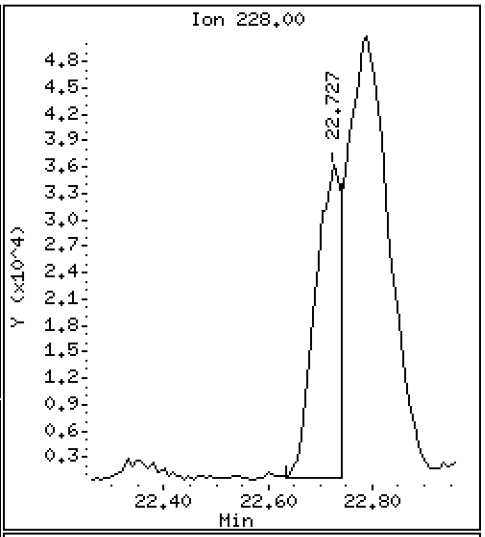
Column phase: ZB-5msi

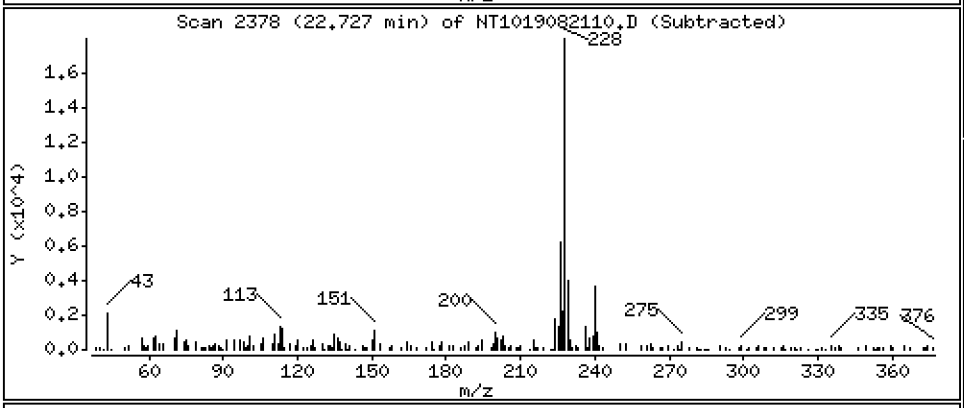
Column diameter: 0.25

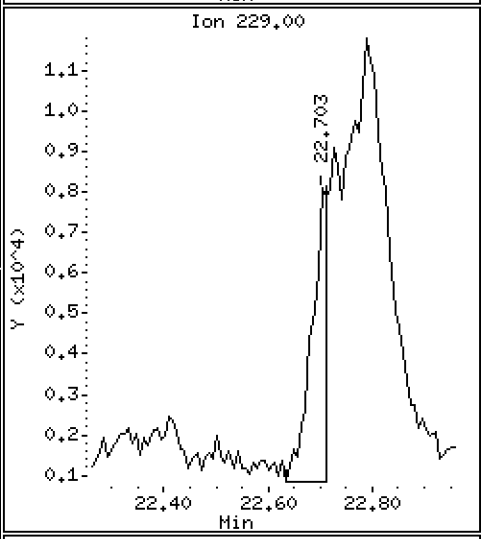
68 Benzo(a)anthracene

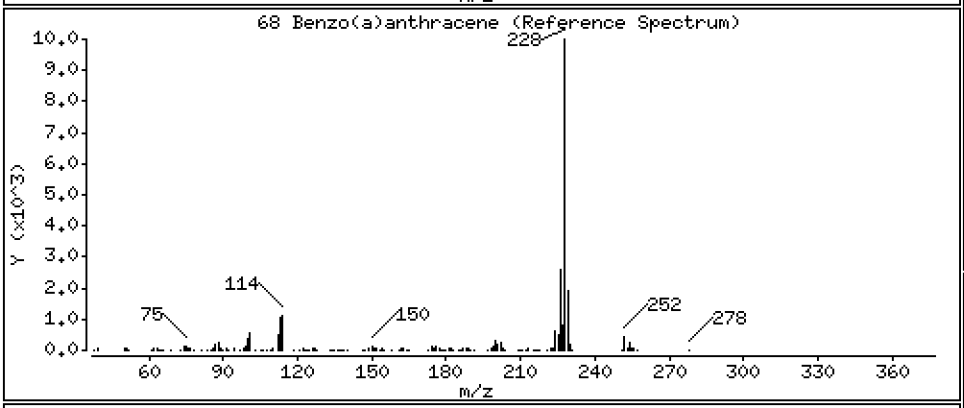
Concentration: 6.298 ug/mL

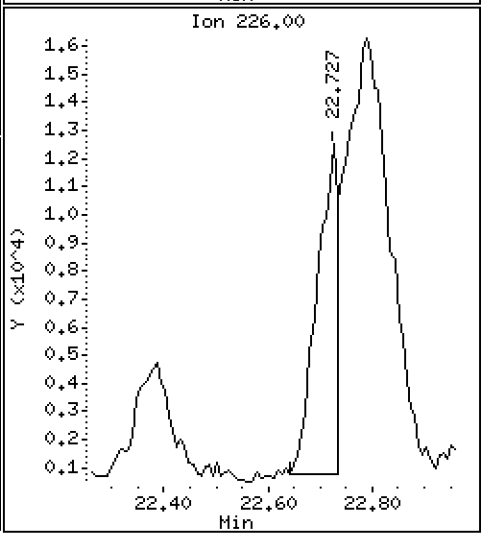


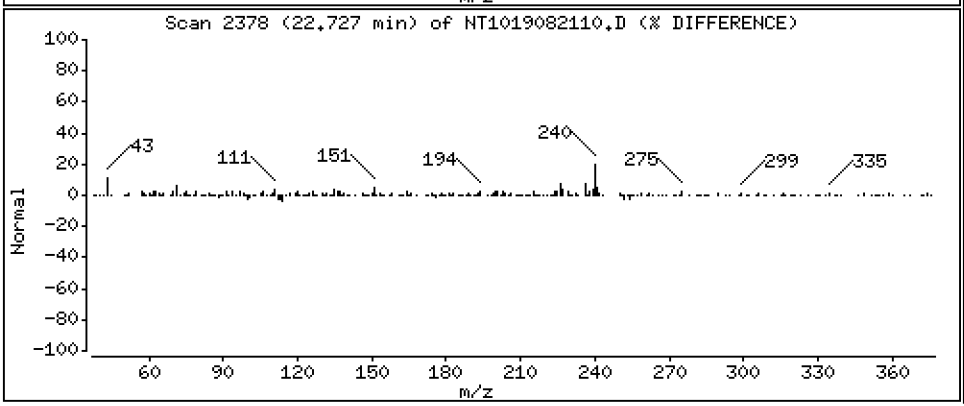












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

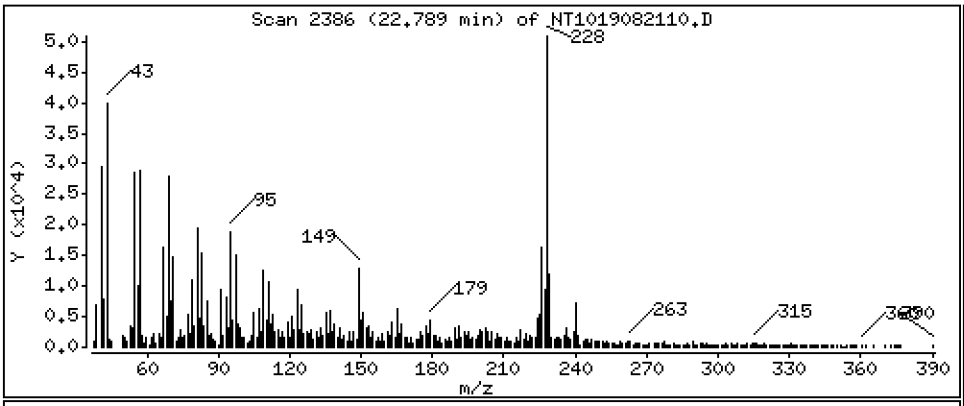
Operator: YZ

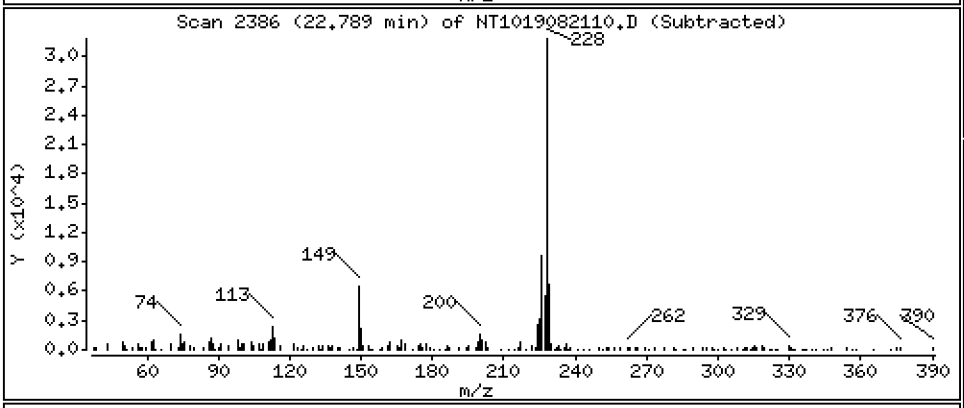
Column phase: ZB-5msi

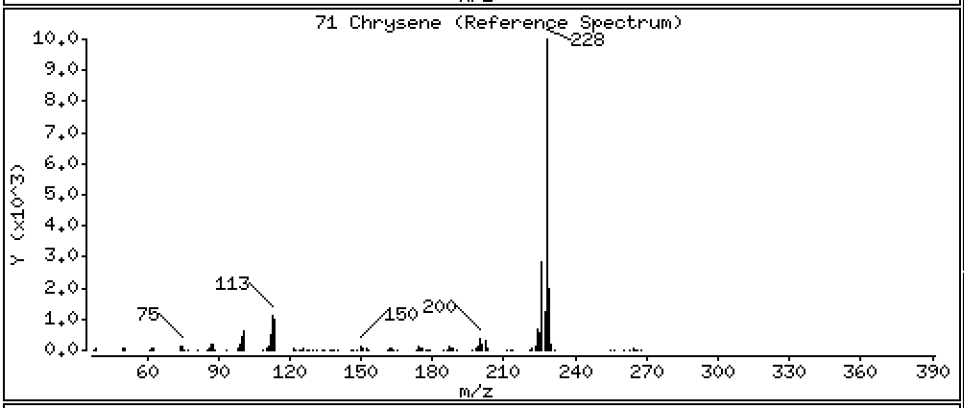
Column diameter: 0.25

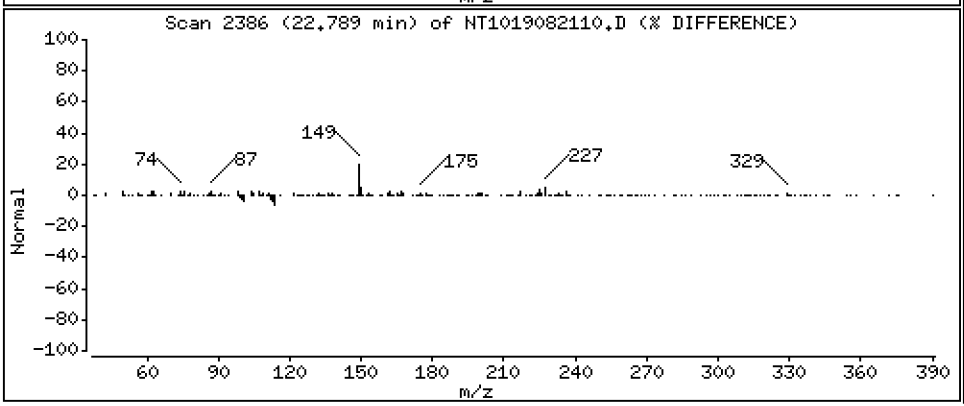
71 Chrysene

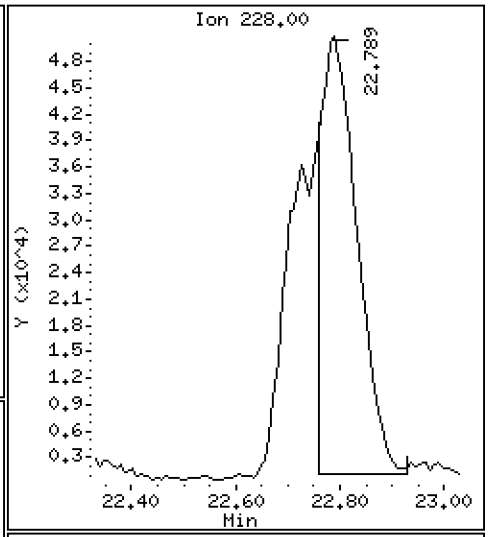
Concentration: 14.07 ug/mL

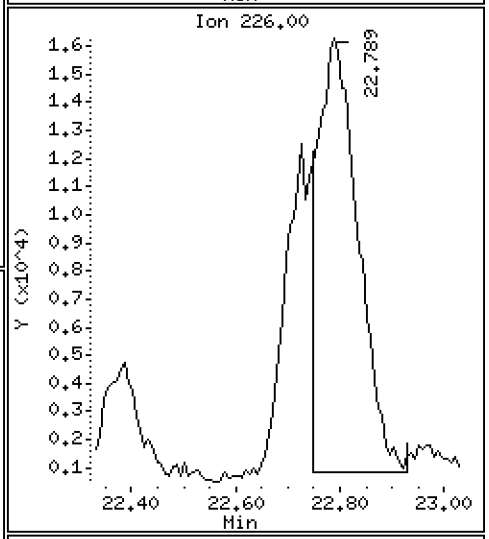


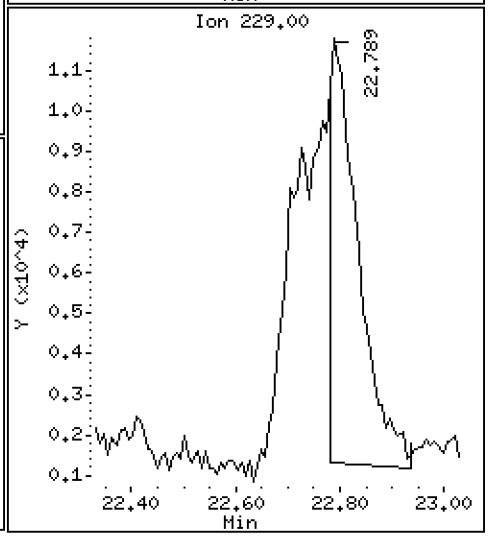












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

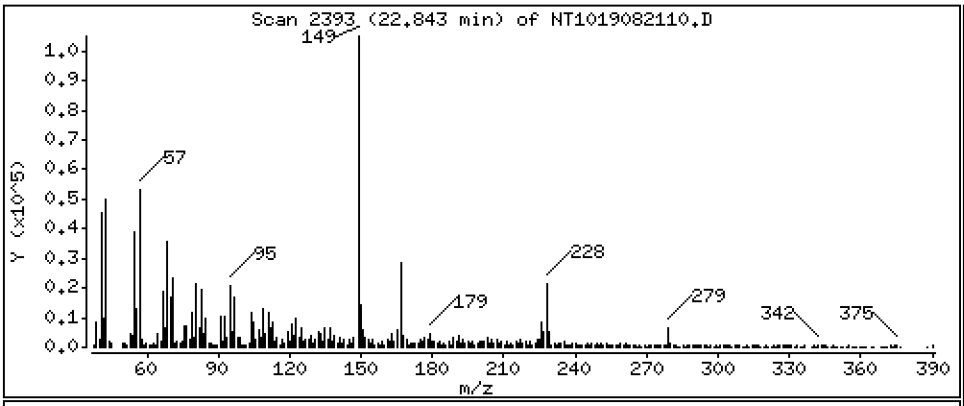
Operator: YZ

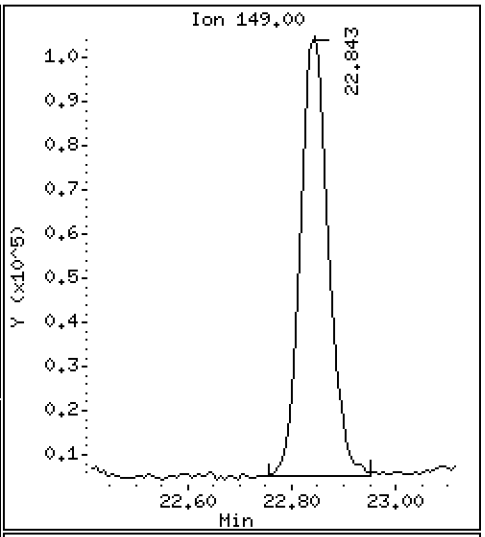
Column phase: ZB-5msi

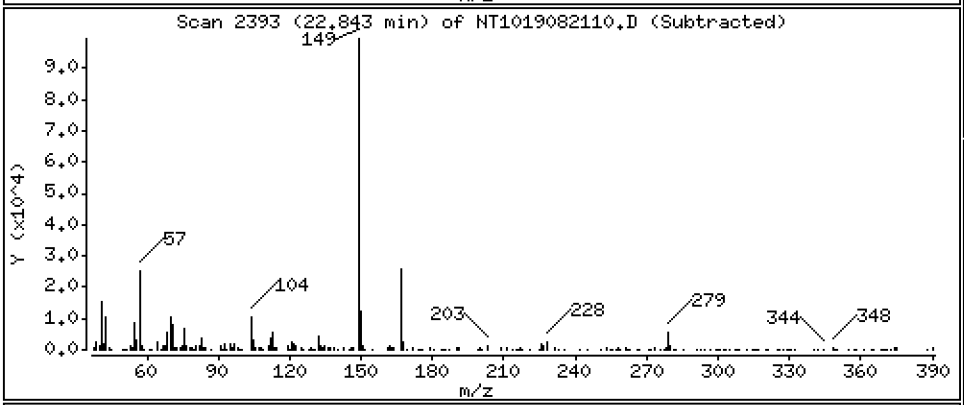
Column diameter: 0.25

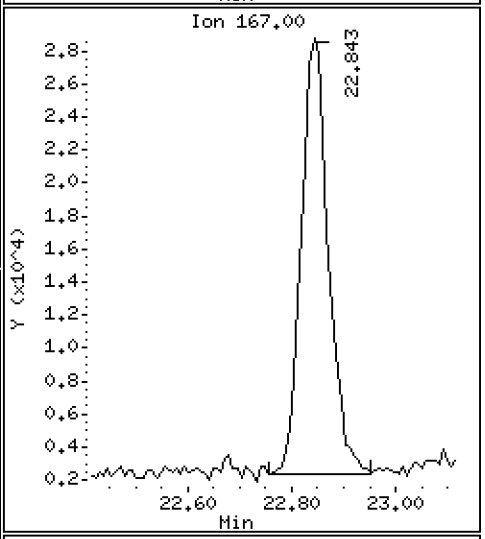
72 bis(2-Ethylhexyl)phthalate

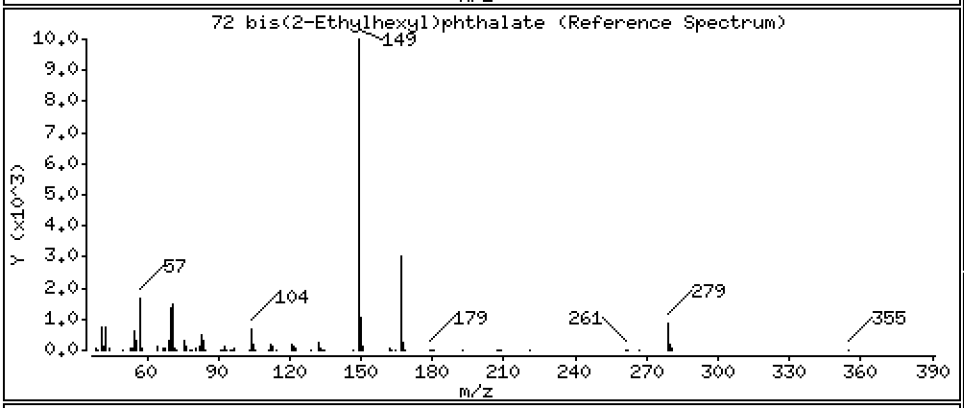
Concentration: 27.41 ug/mL

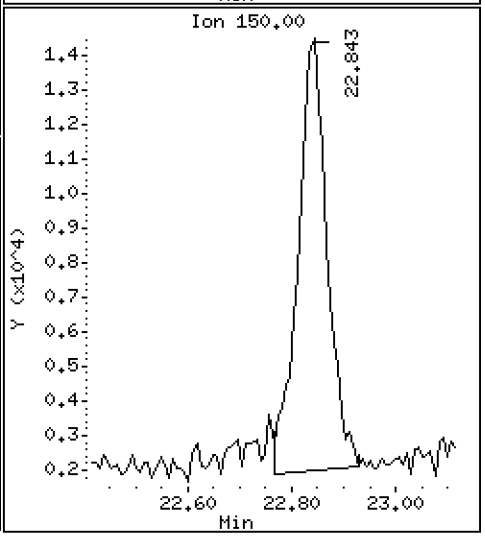


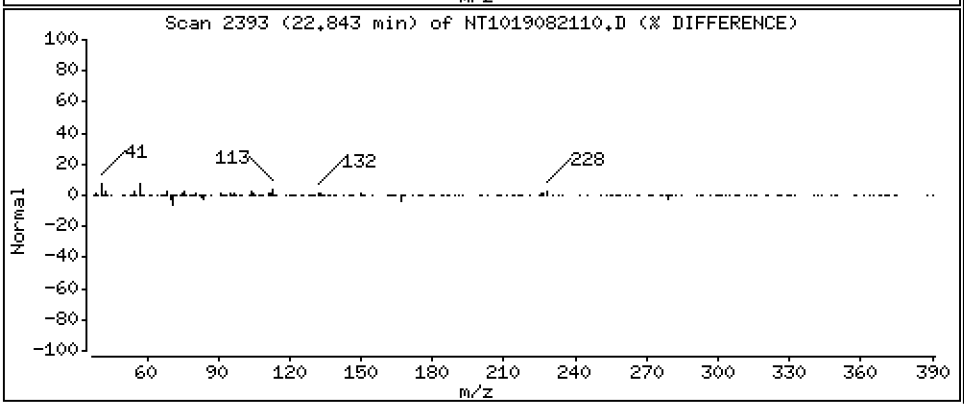












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

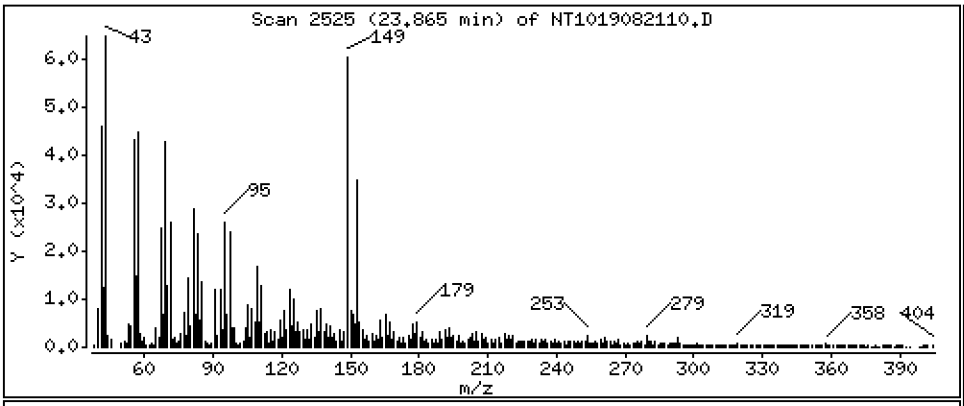
Operator: YZ

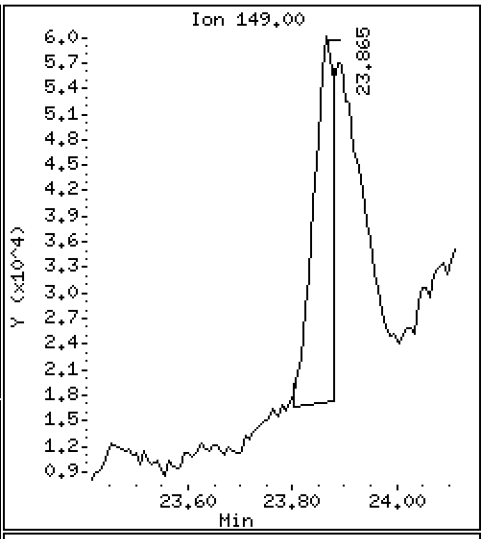
Column phase: ZB-5msi

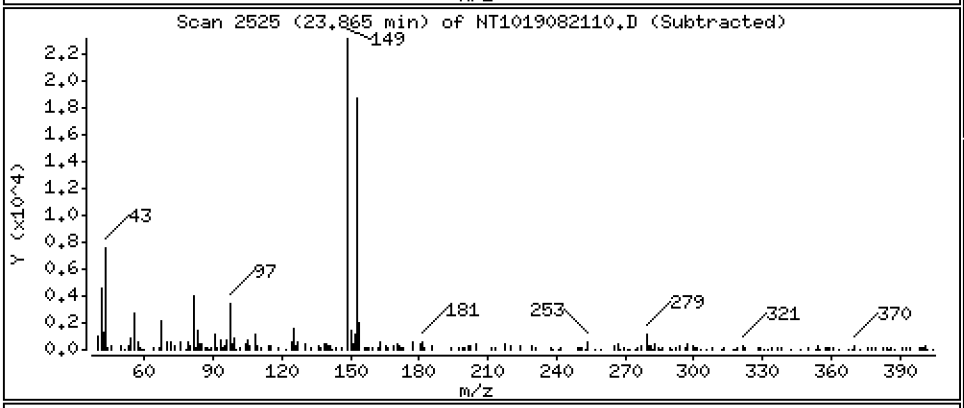
Column diameter: 0.25

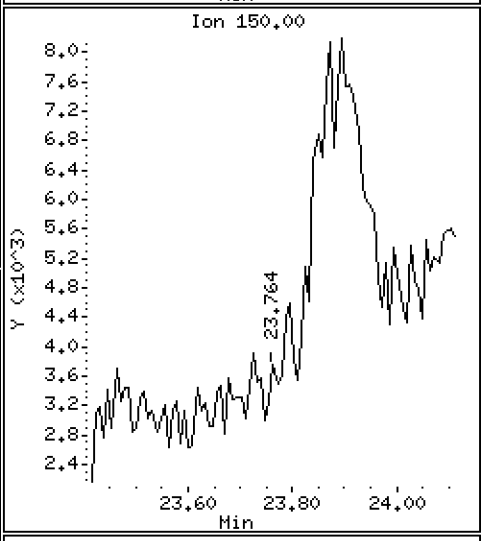
73 Di-n-octylphthalate

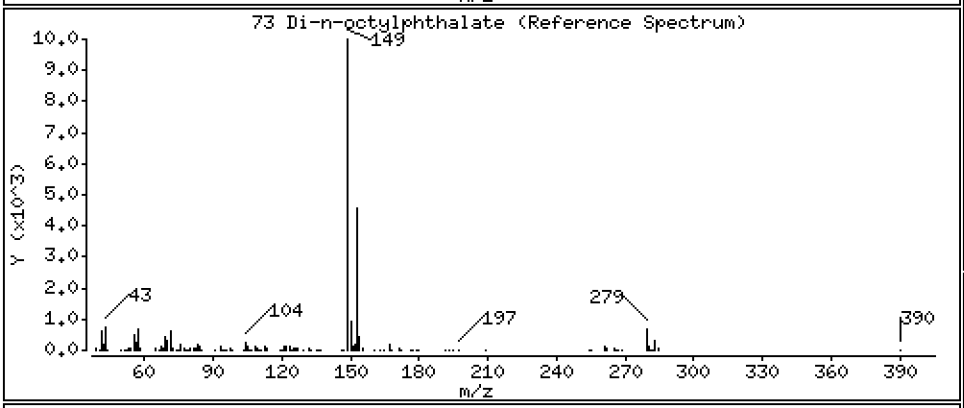
Concentration: 4.117 ug/mL

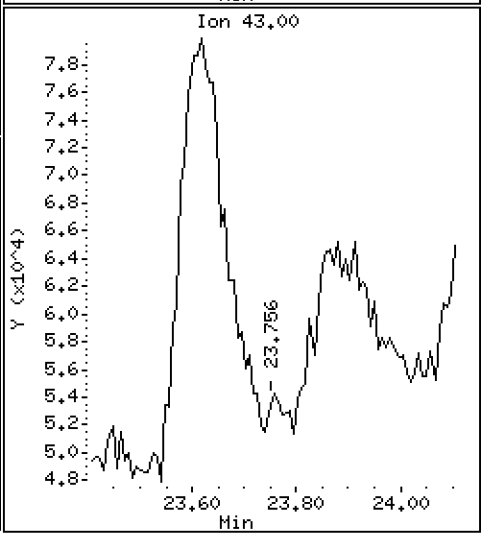


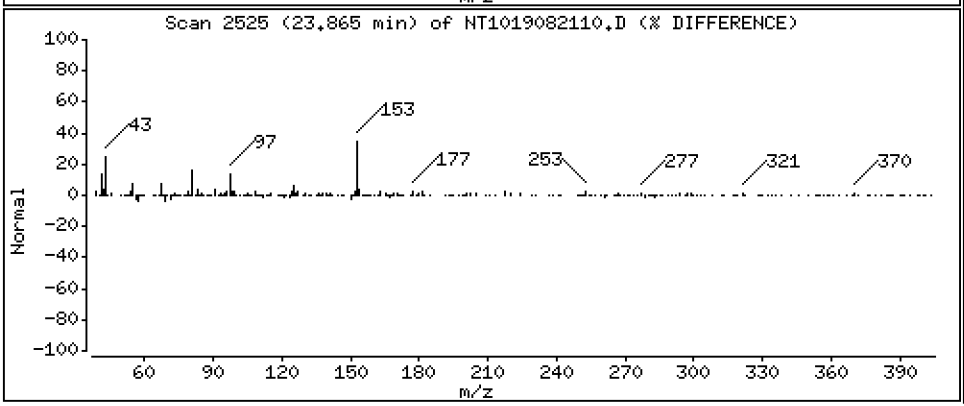












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

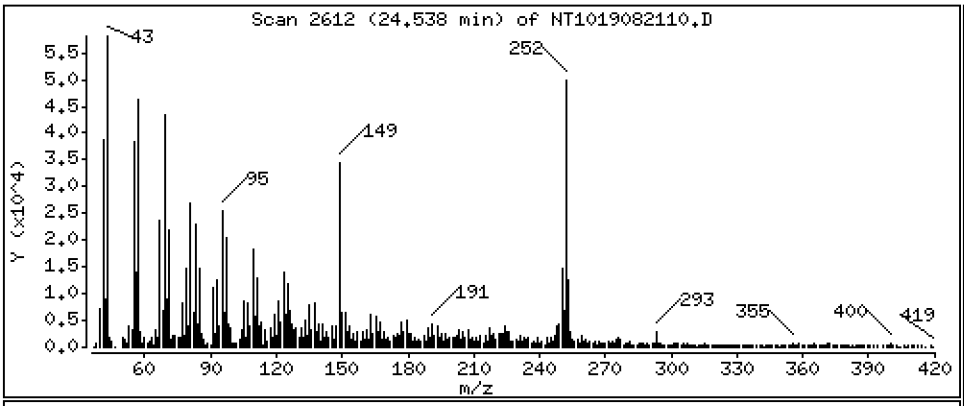
Operator: YZ

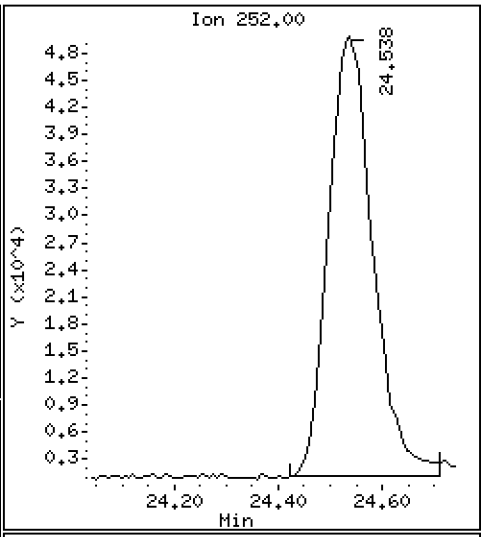
Column phase: ZB-5msi

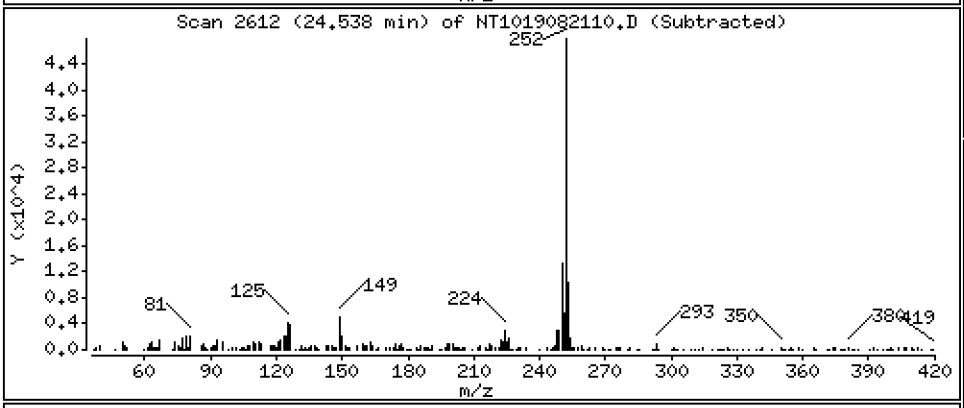
Column diameter: 0.25

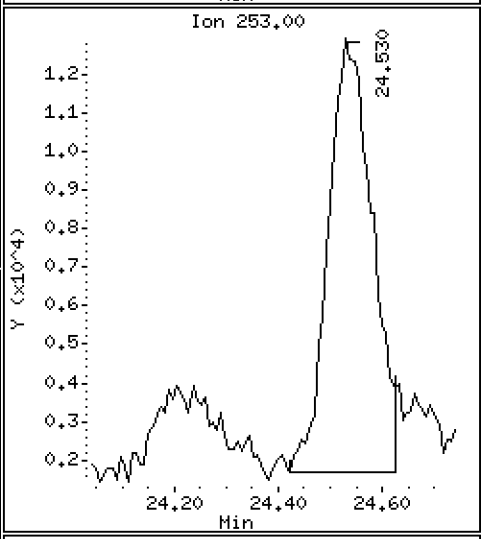
74 Benzo(b)fluoranthene

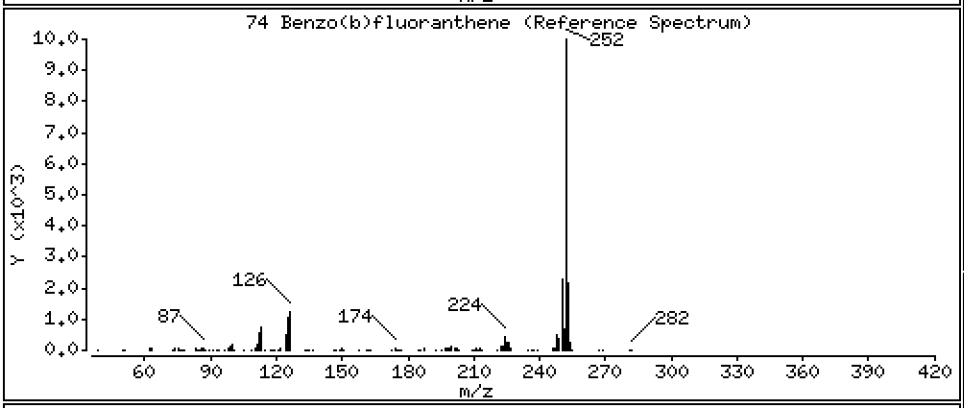
Concentration: 34.32 ug/mL

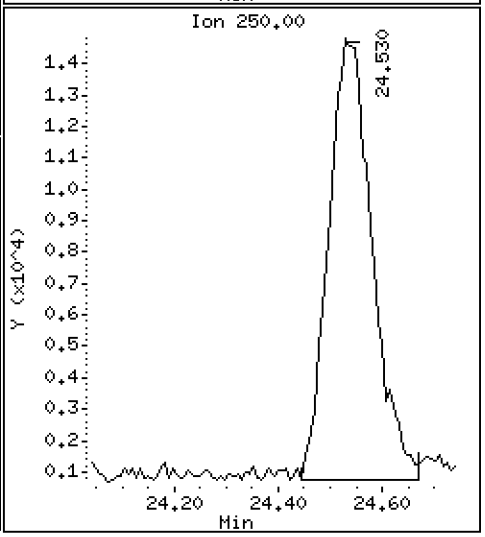


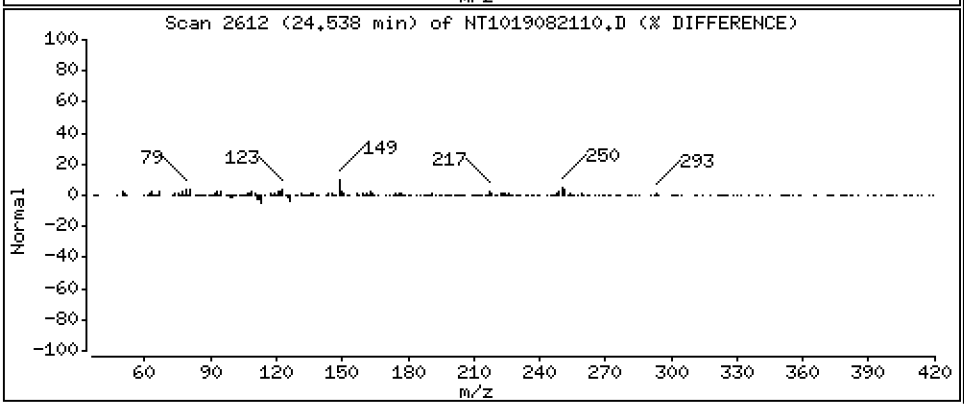












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

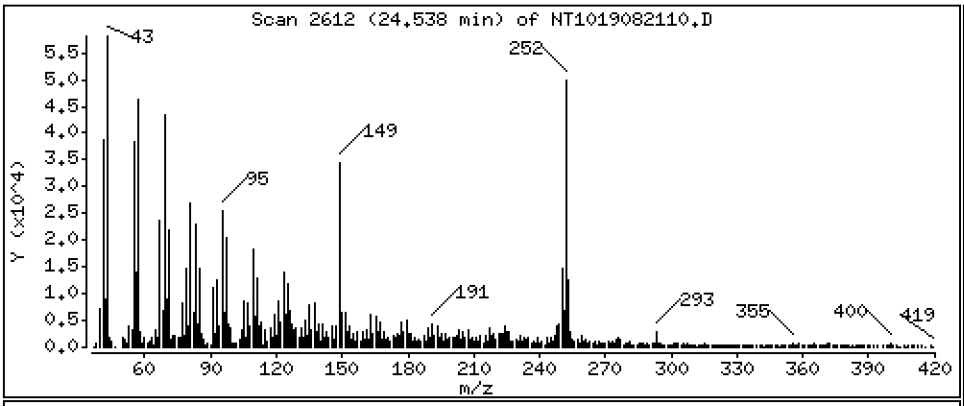
Operator: YZ

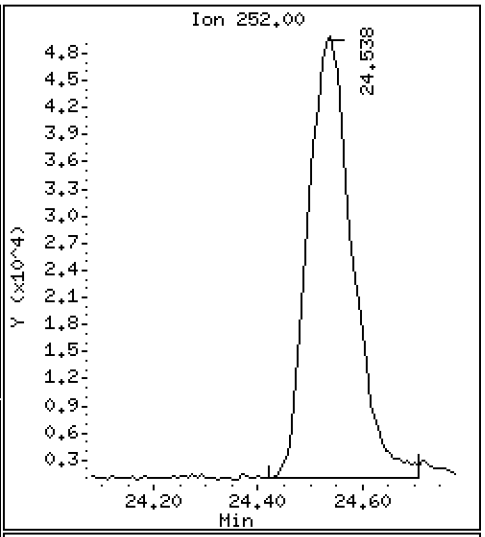
Column phase: ZB-5msi

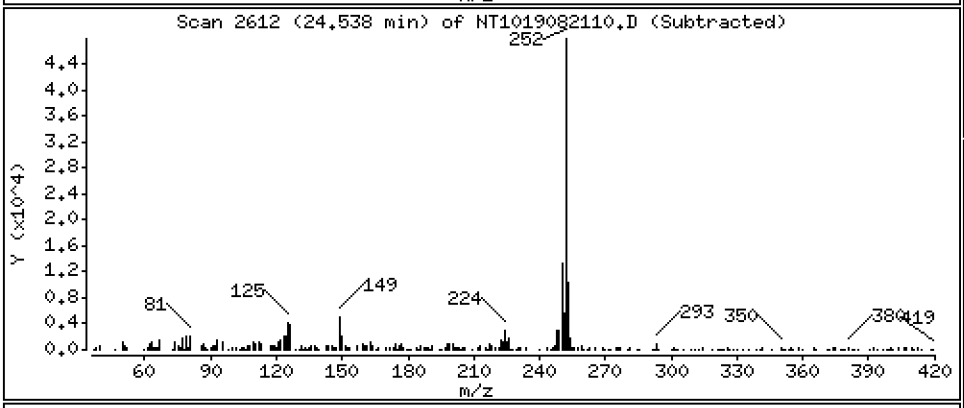
Column diameter: 0.25

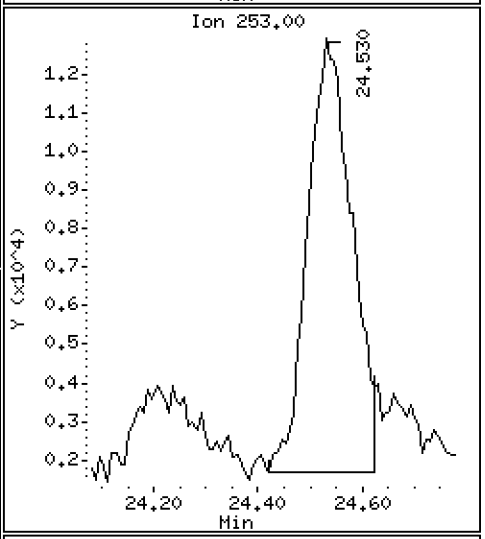
75 Benzo(k)fluoranthene

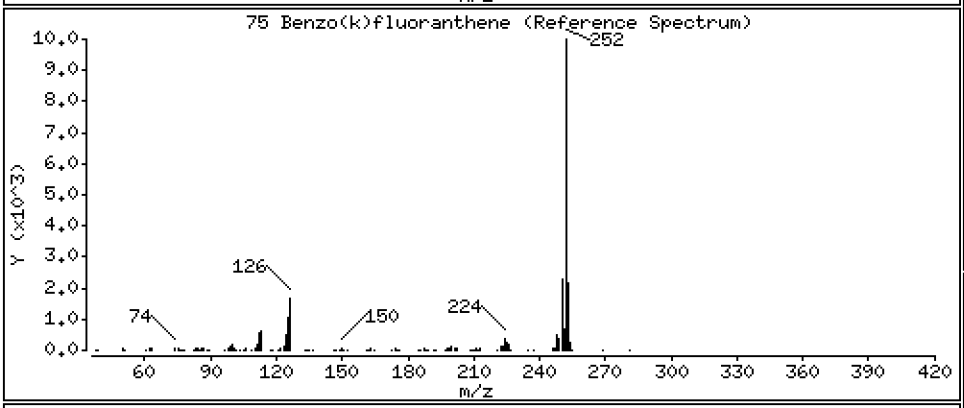
Concentration: 34.12 ug/mL

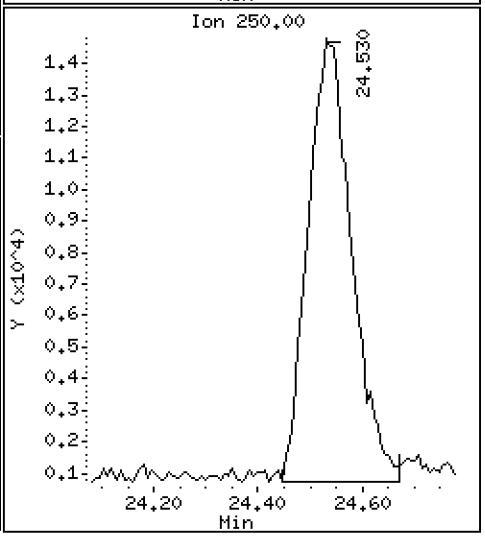


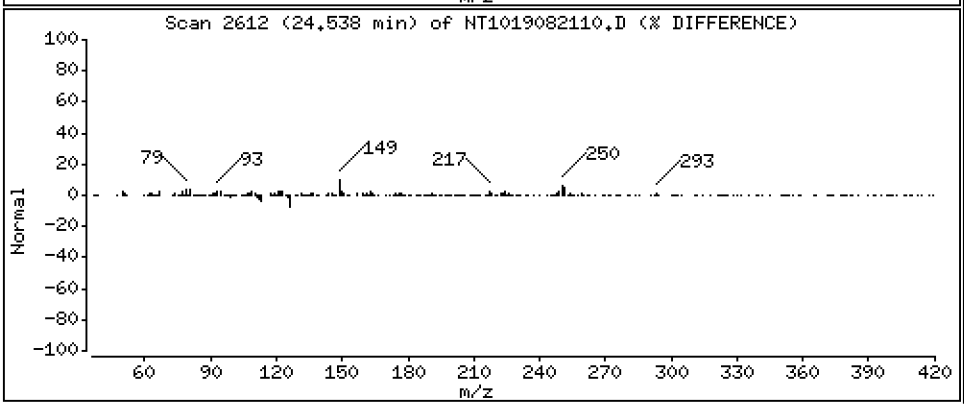












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

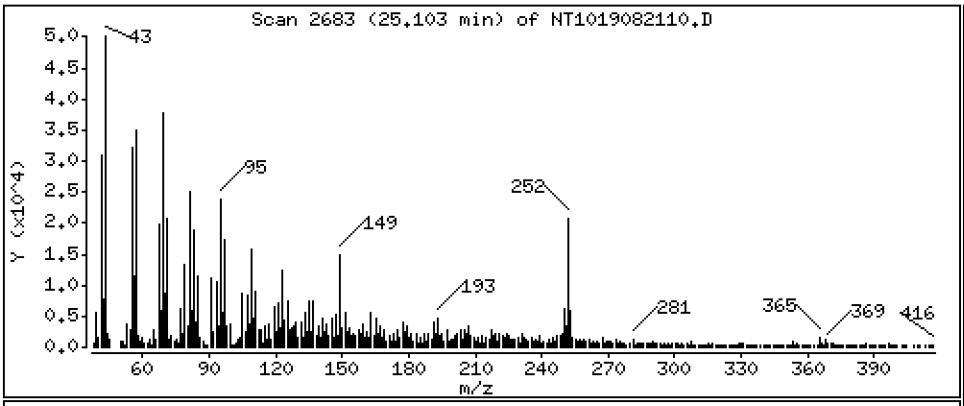
Operator: YZ

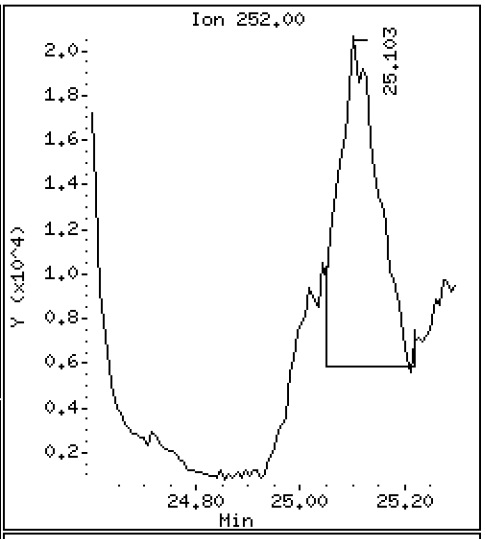
Column phase: ZB-5msi

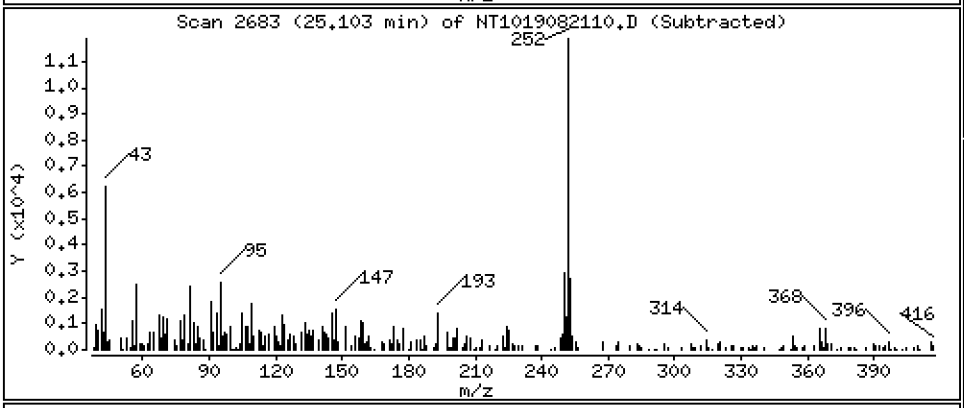
Column diameter: 0.25

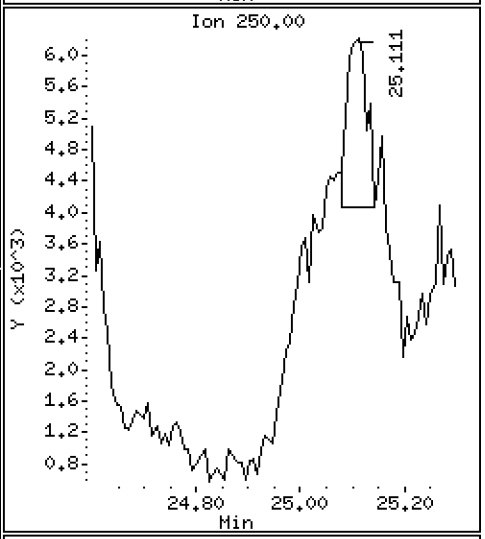
76 Benzo(a)pyrene

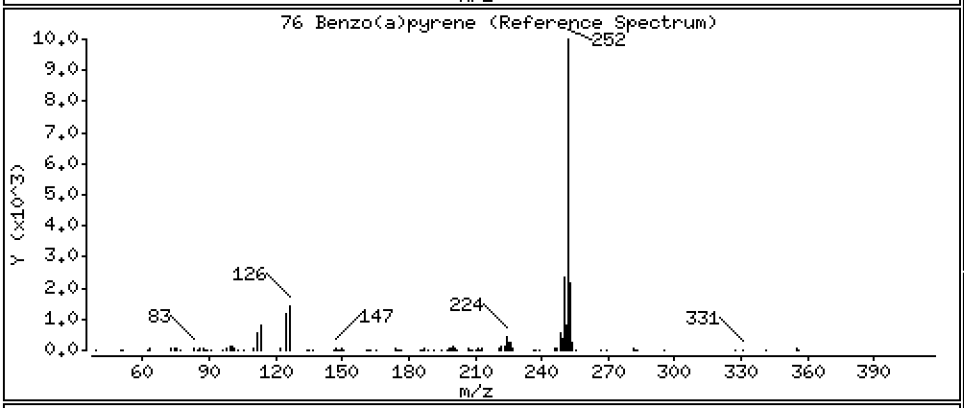
Concentration: 10.14 ug/mL

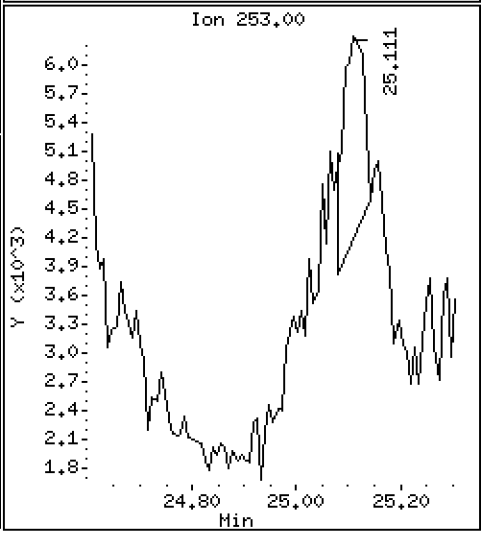


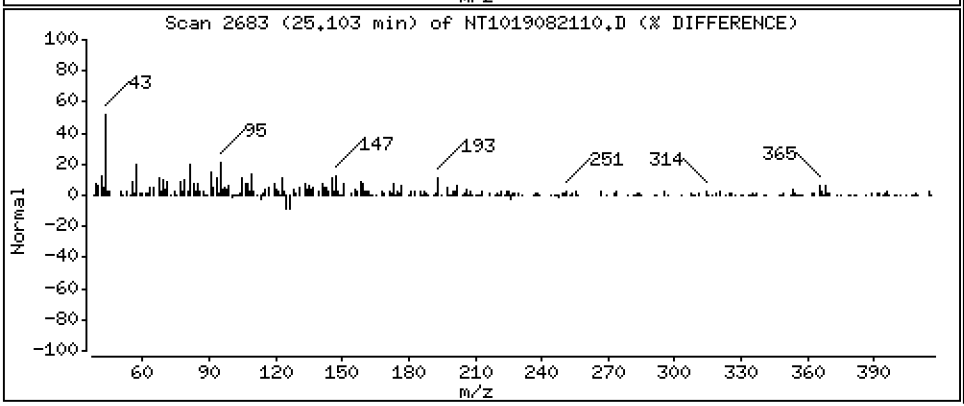












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

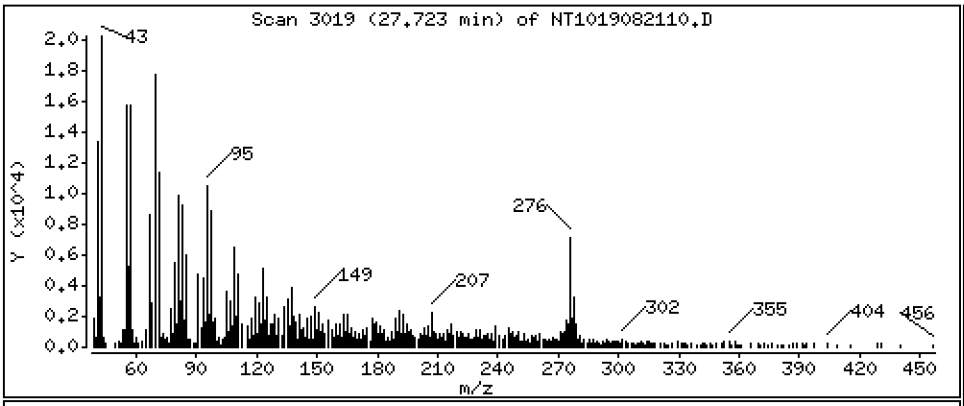
Operator: YZ

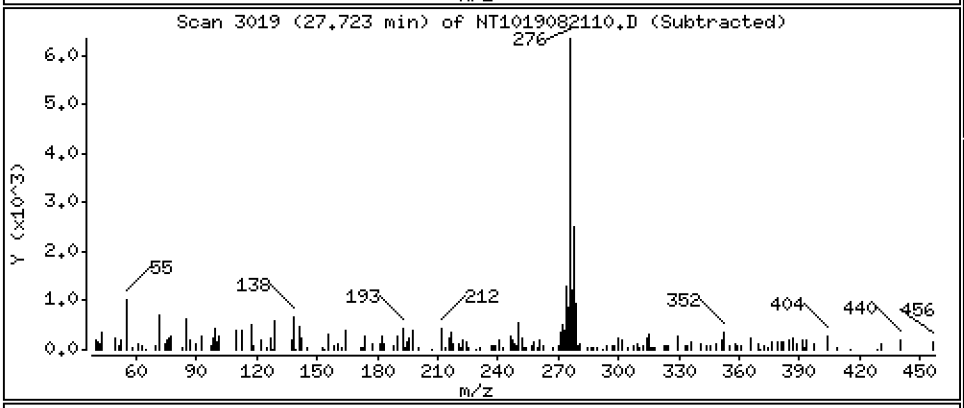
Column phase: ZB-5msi

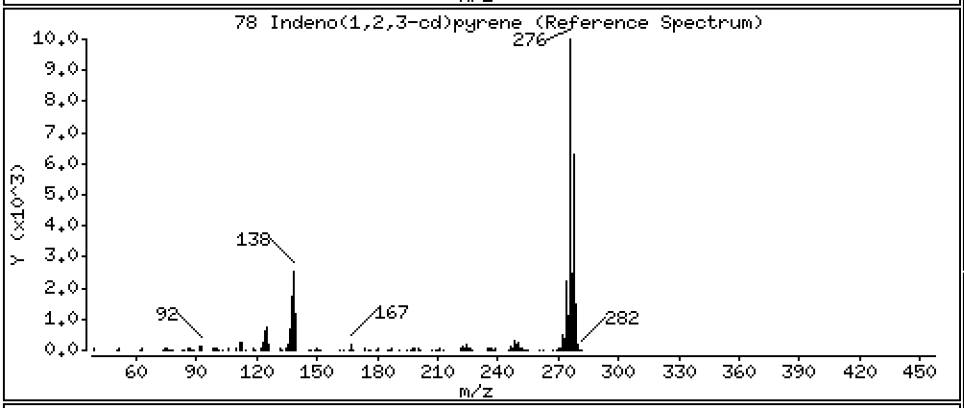
Column diameter: 0.25

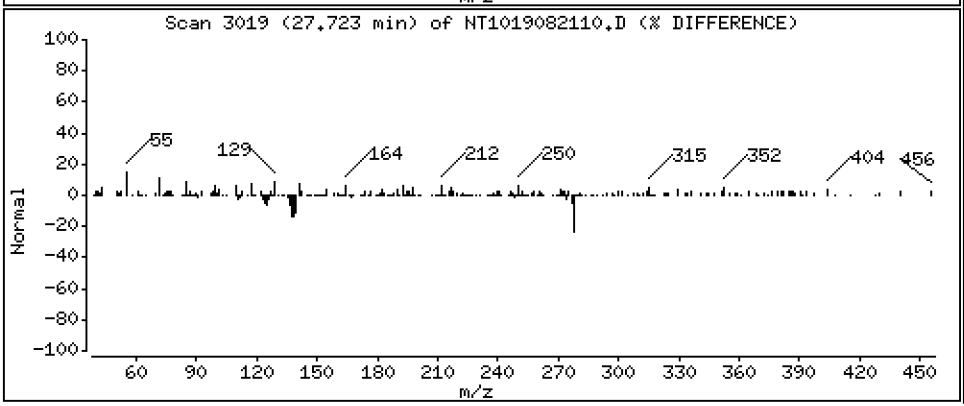
78 Indeno(1,2,3-cd)pyrene

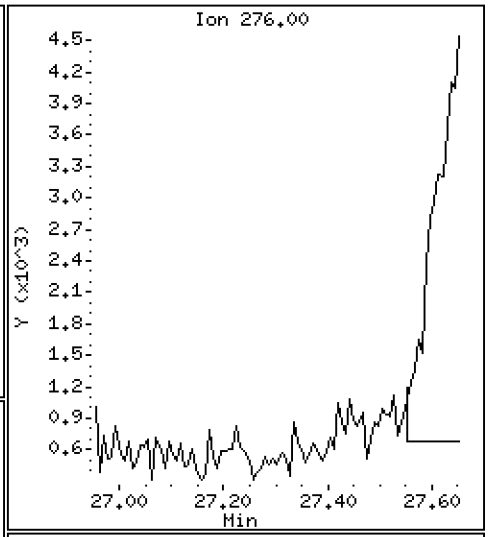
Concentration: 8.585 ug/mL

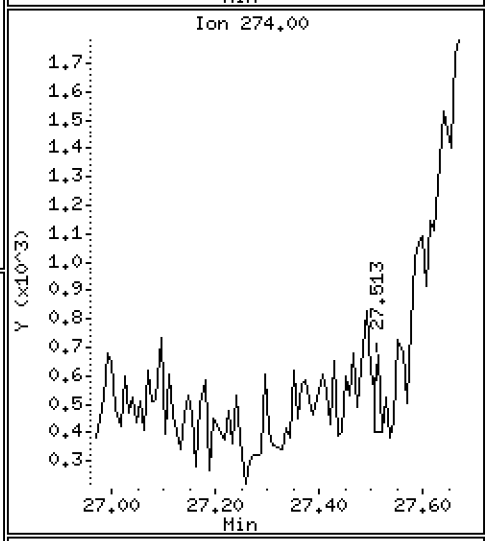


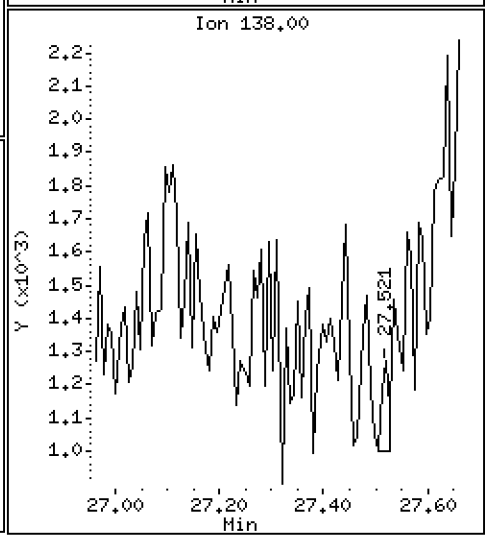












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

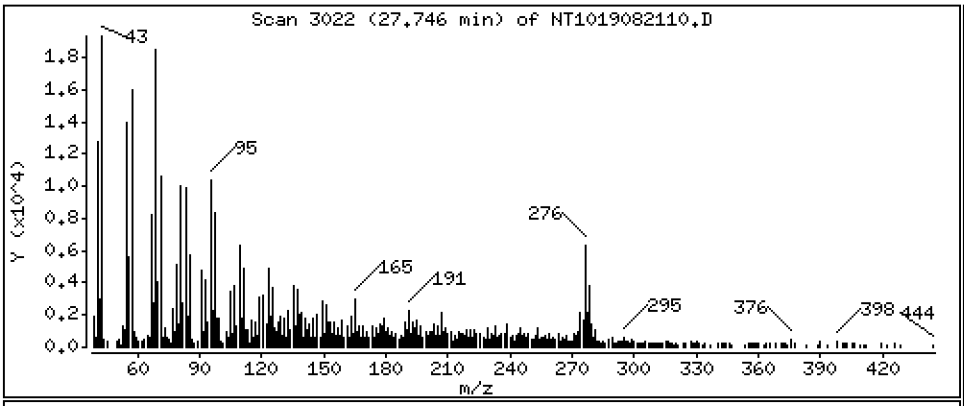
Operator: YZ

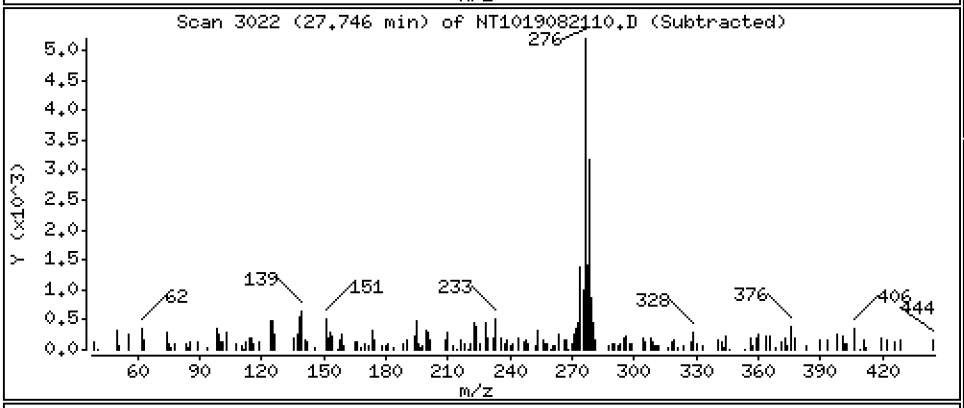
Column phase: ZB-5msi

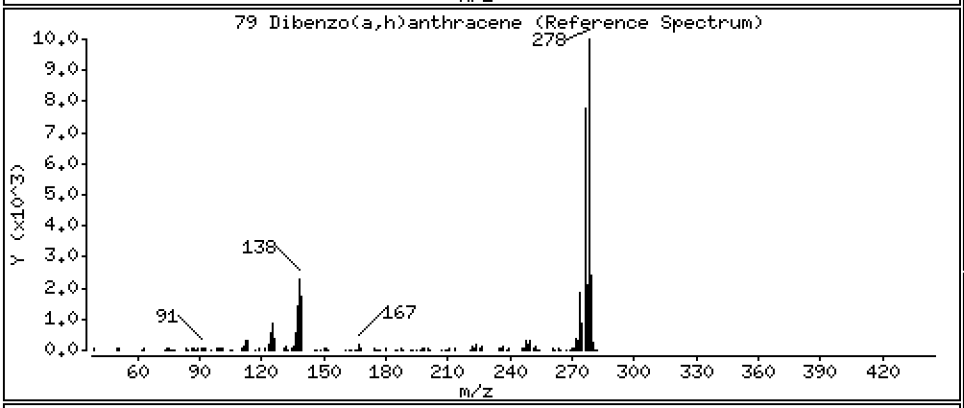
Column diameter: 0.25

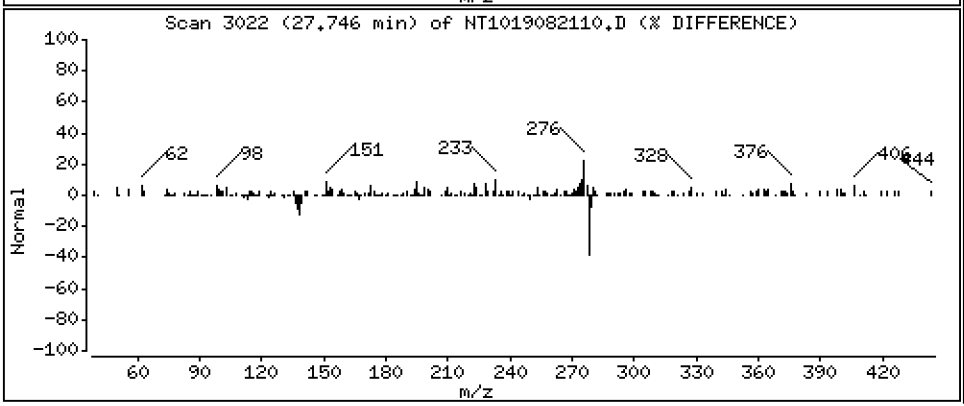
79 Dibenzo(a,h)anthracene

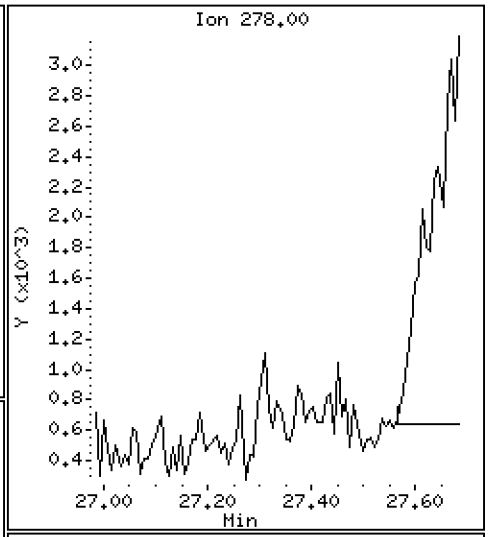
Concentration: 6.088 ug/mL

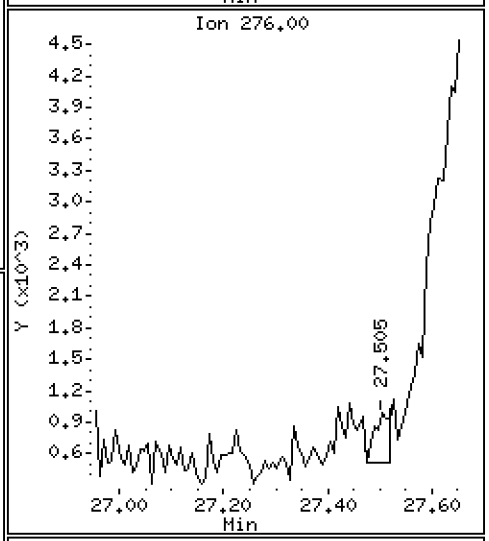


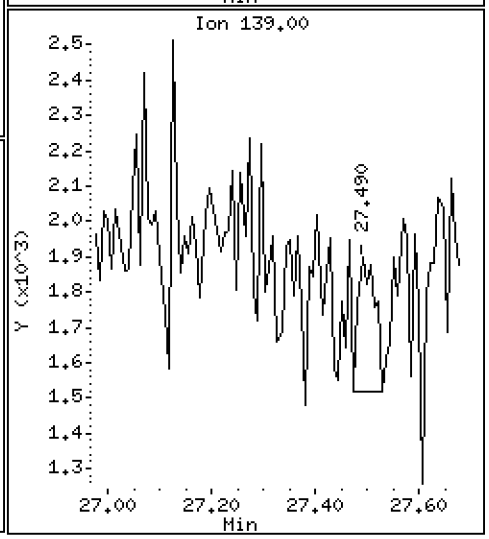












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082110.D

Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

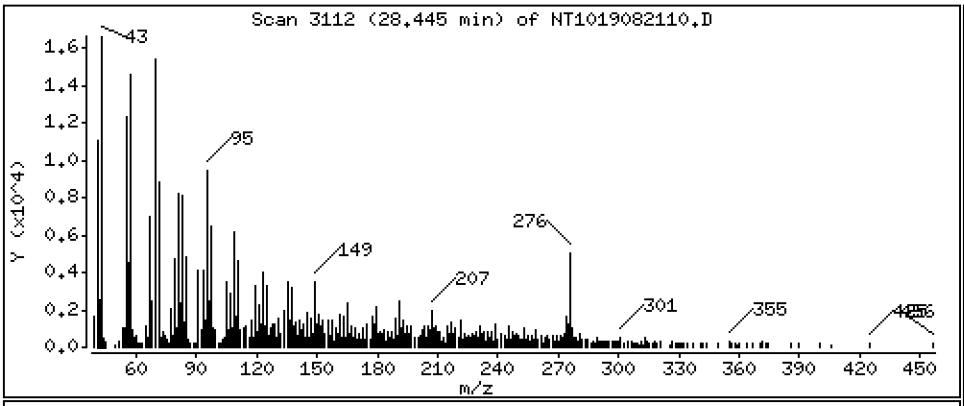
Operator: YZ

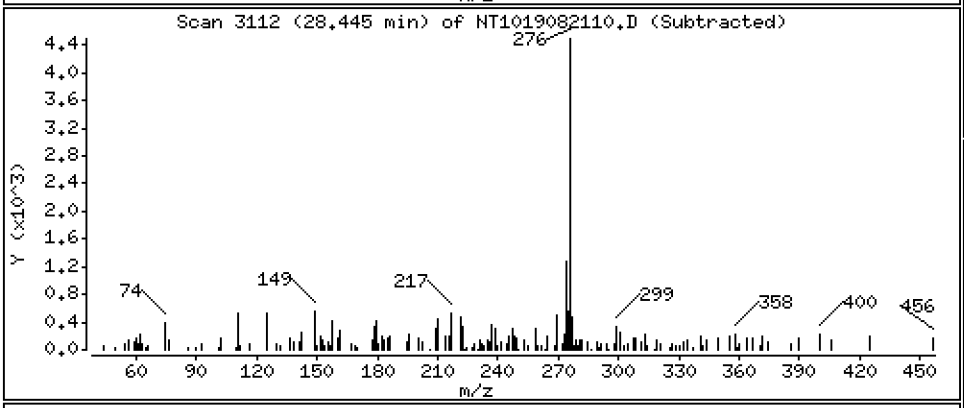
Column phase: ZB-5msi

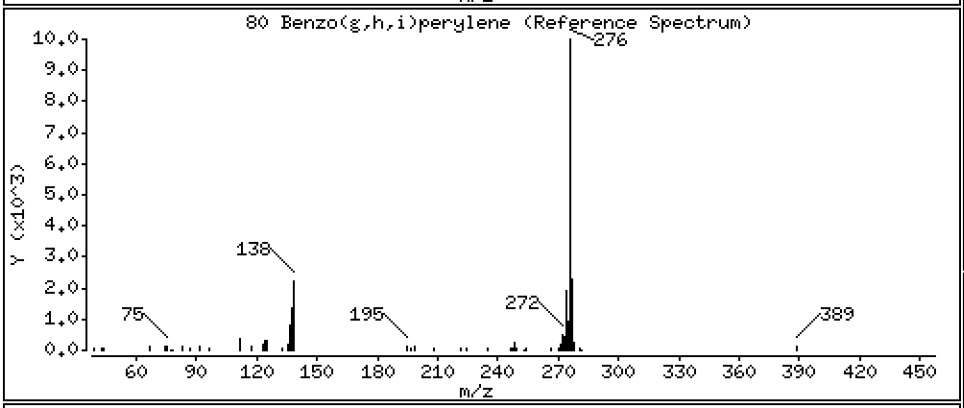
Column diameter: 0.25

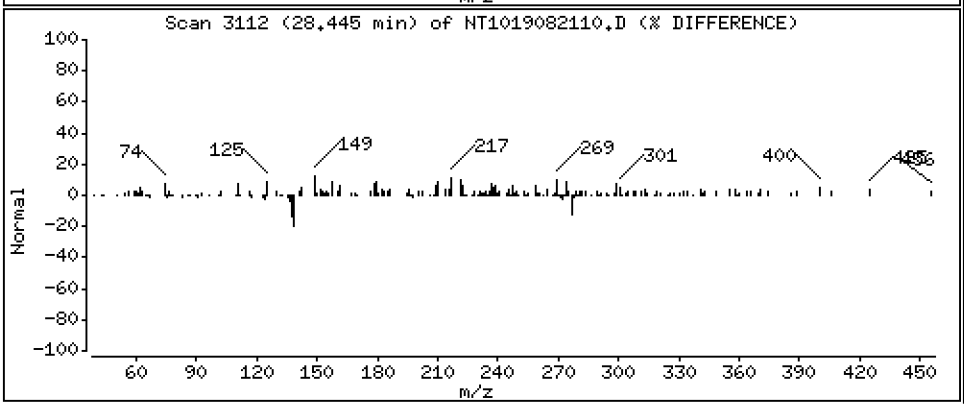
80 Benzo(g,h,i)perylene

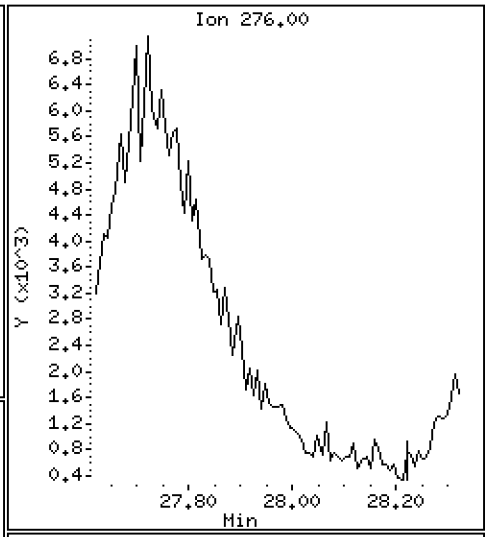
Concentration: 9.524 ug/mL

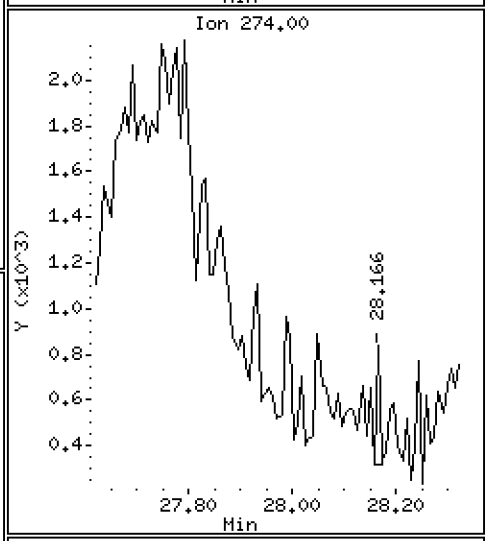


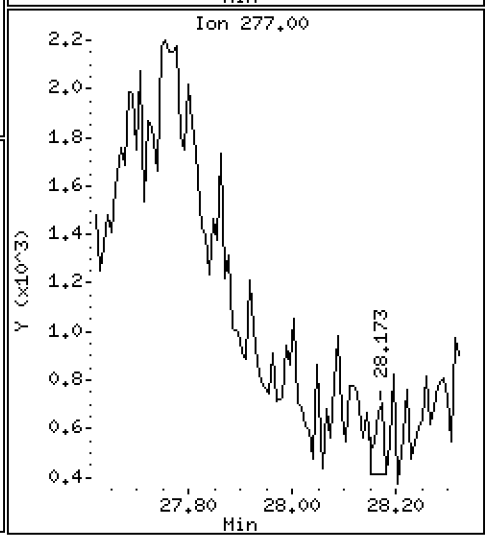












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

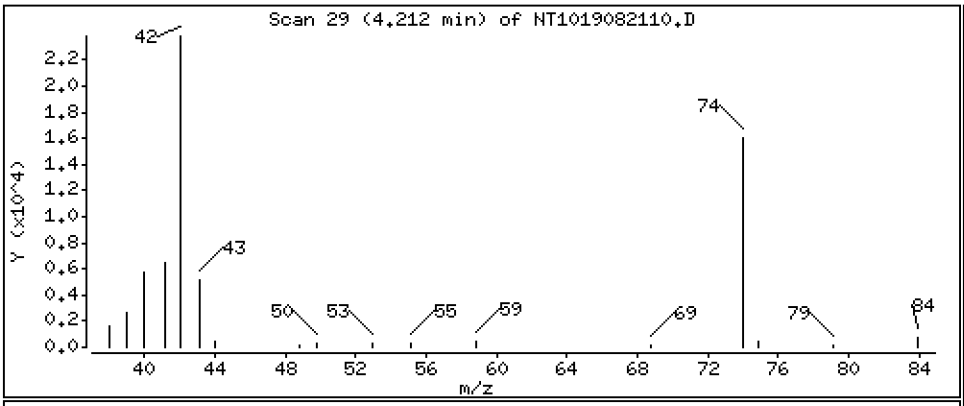
Operator: YZ

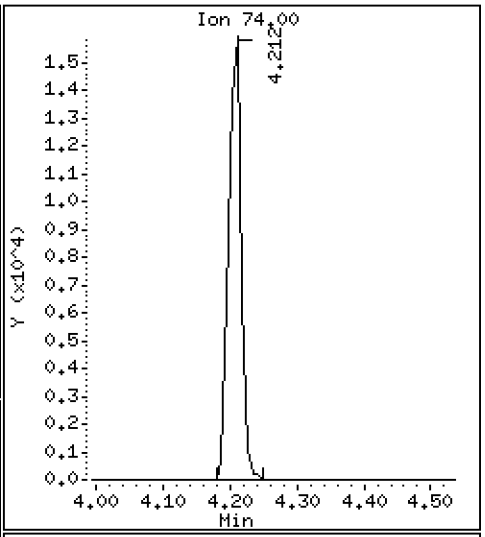
Column phase: ZB-5msi

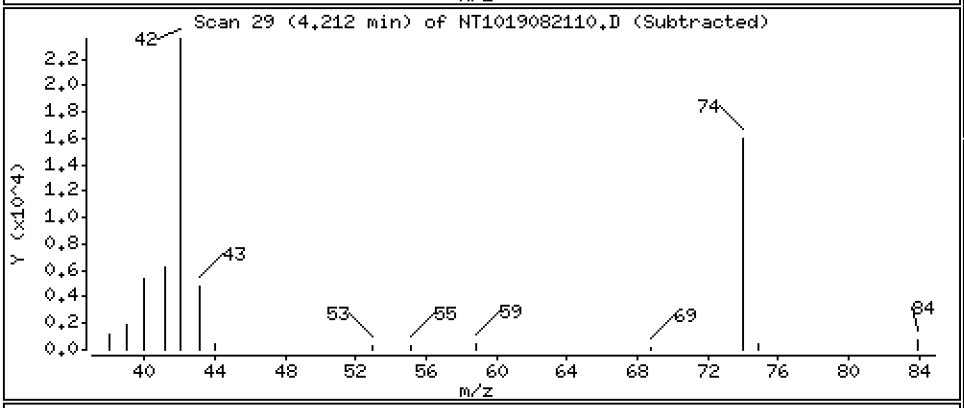
Column diameter: 0.25

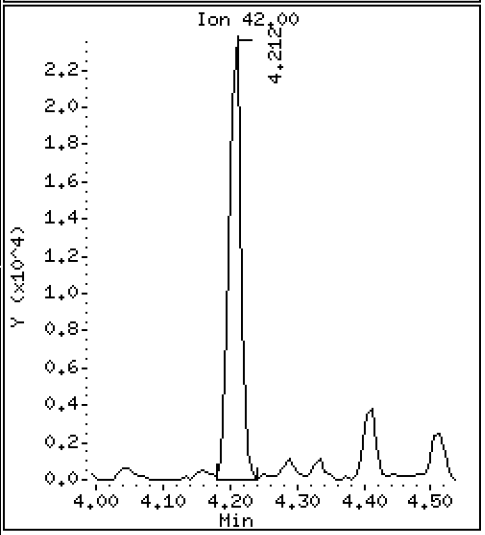
90 N-Nitrosodimethylamine

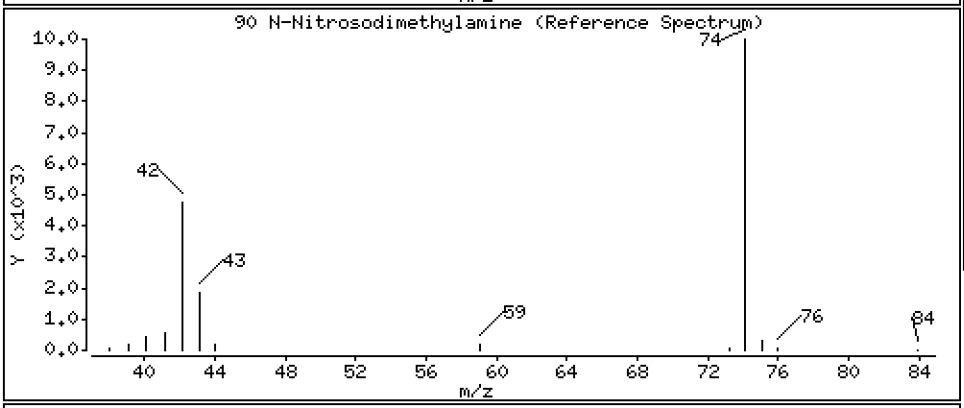
Concentration: 6.114 ug/mL

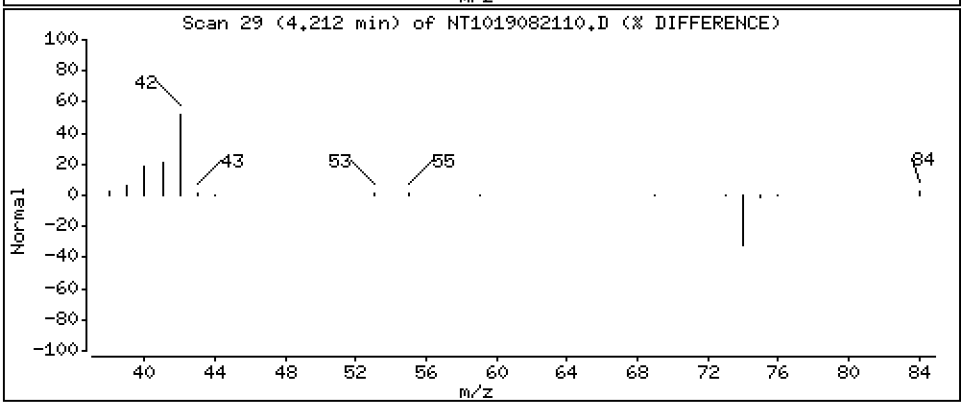












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

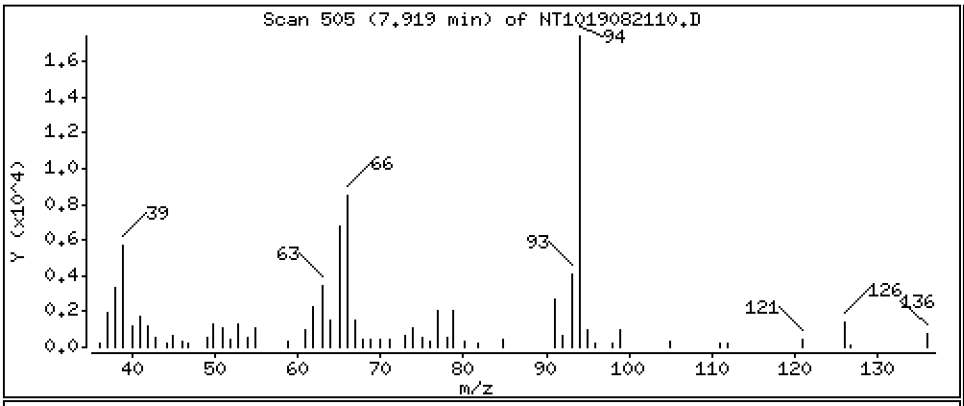
Operator: YZ

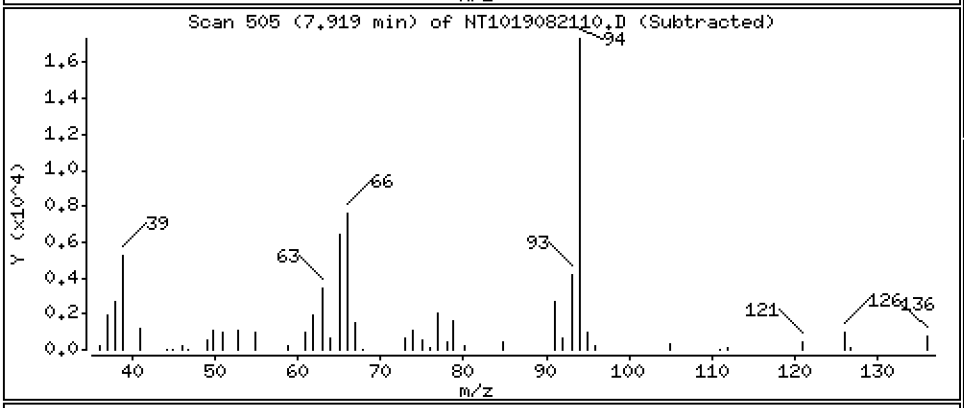
Column phase: ZB-5msi

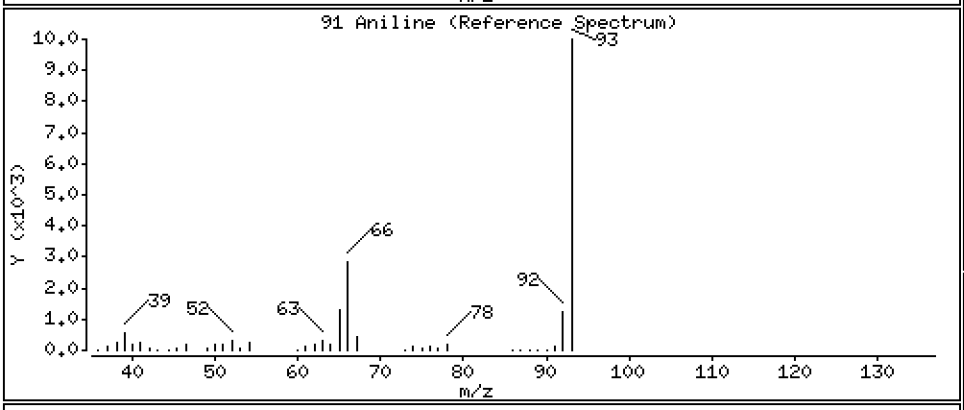
Column diameter: 0.25

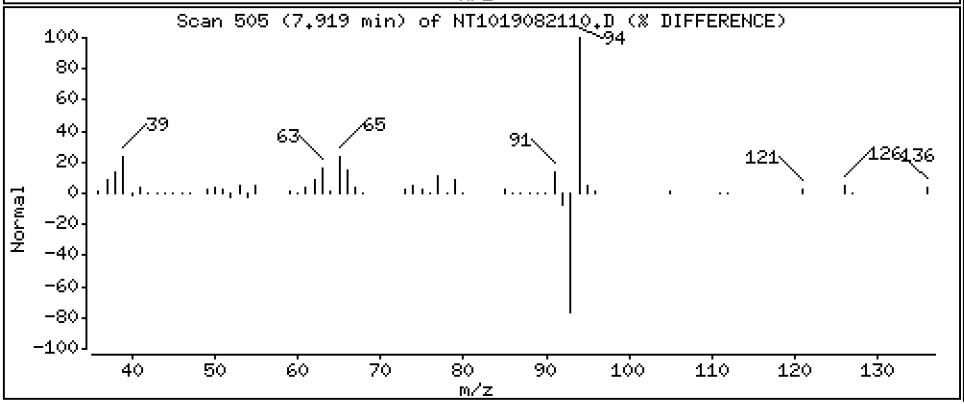
91 Aniline

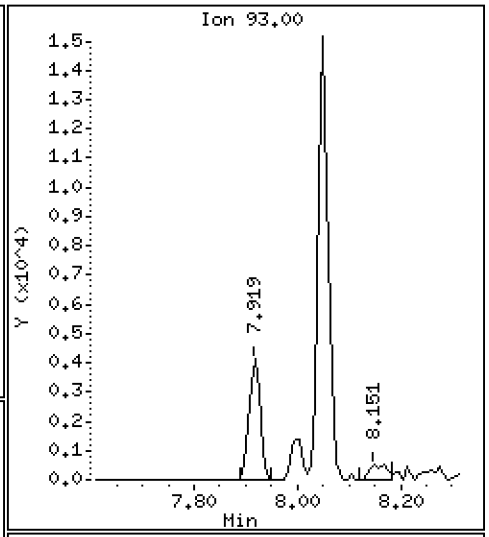
Concentration: 0.8016 ug/mL

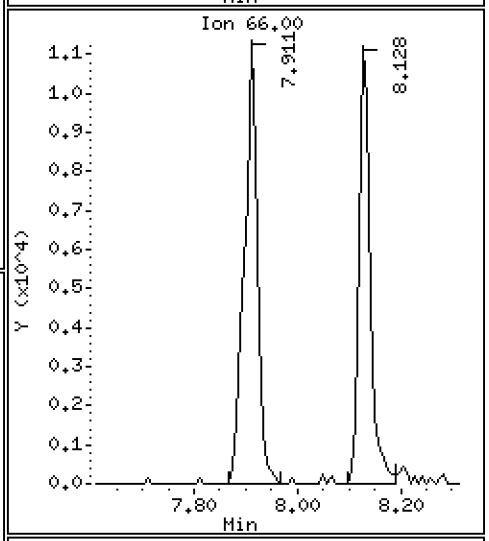


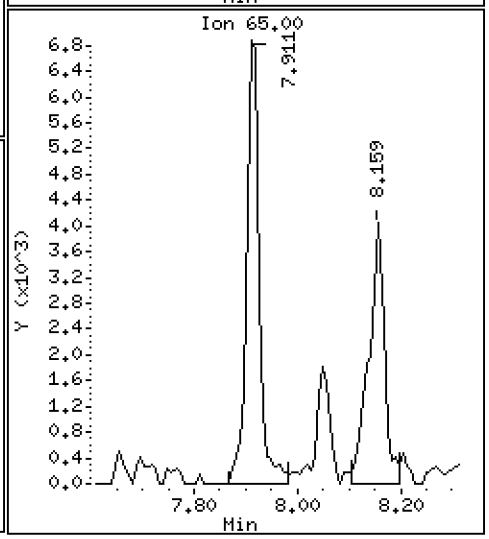












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

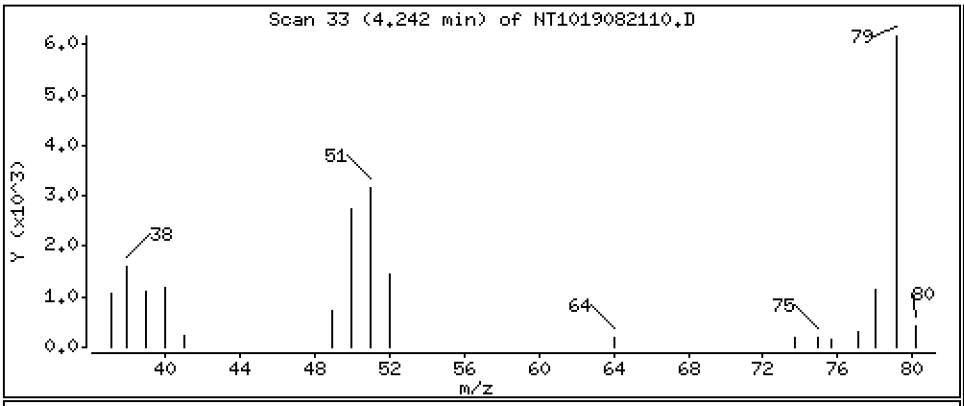
Operator: YZ

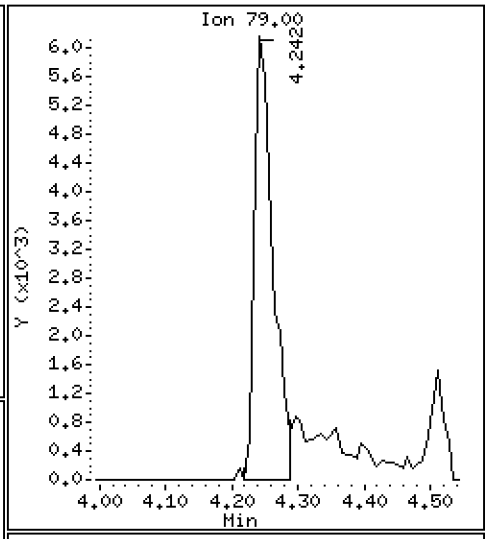
Column phase: ZB-5msi

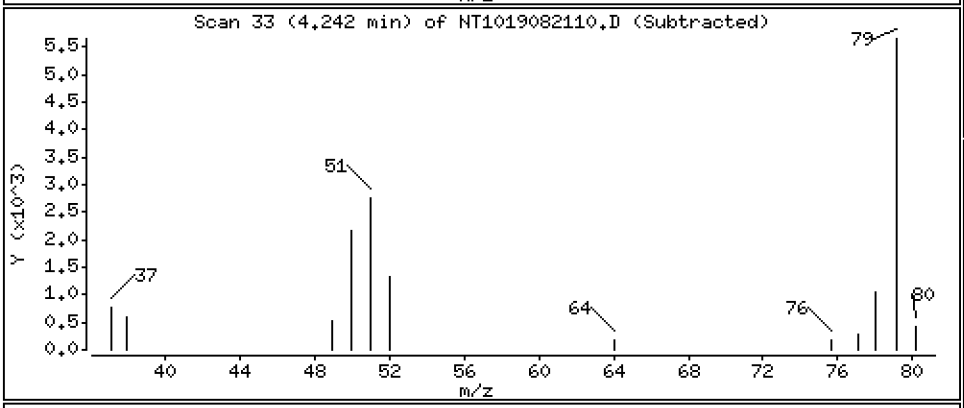
Column diameter: 0.25

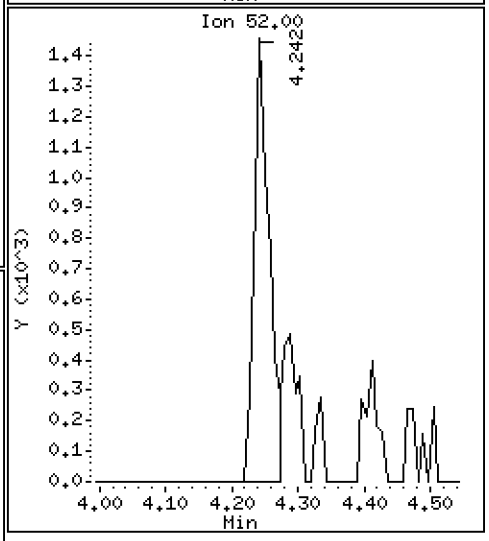
103 Pyridine

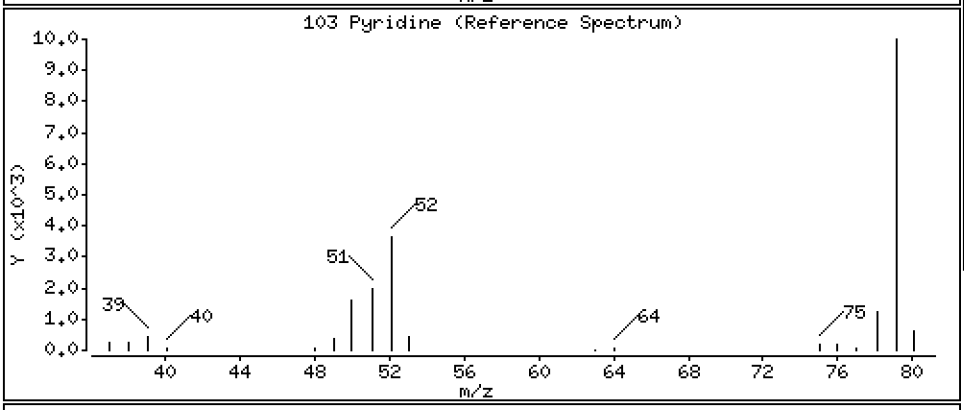
Concentration: 1.950 ug/mL

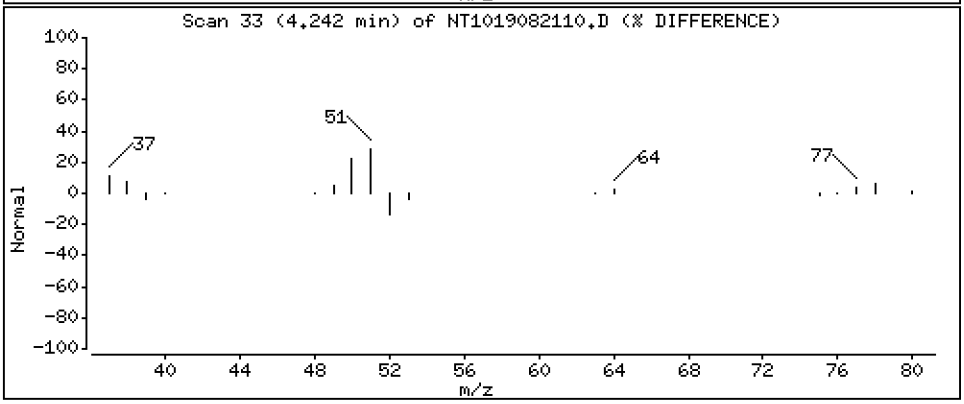












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

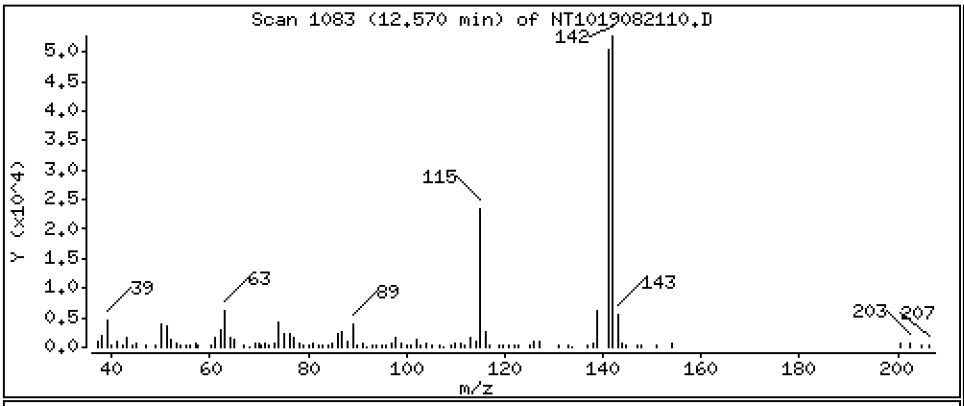
Operator: YZ

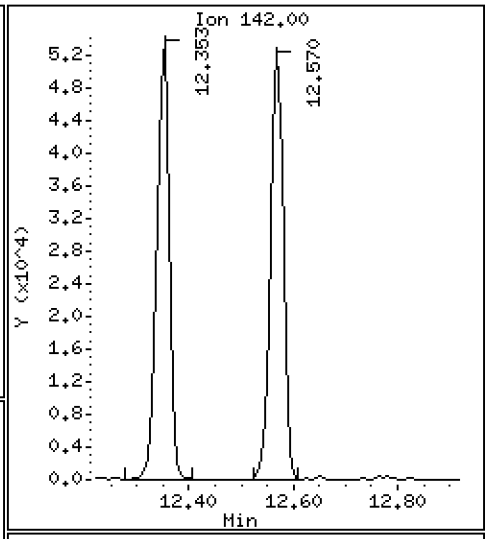
Column phase: ZB-5msi

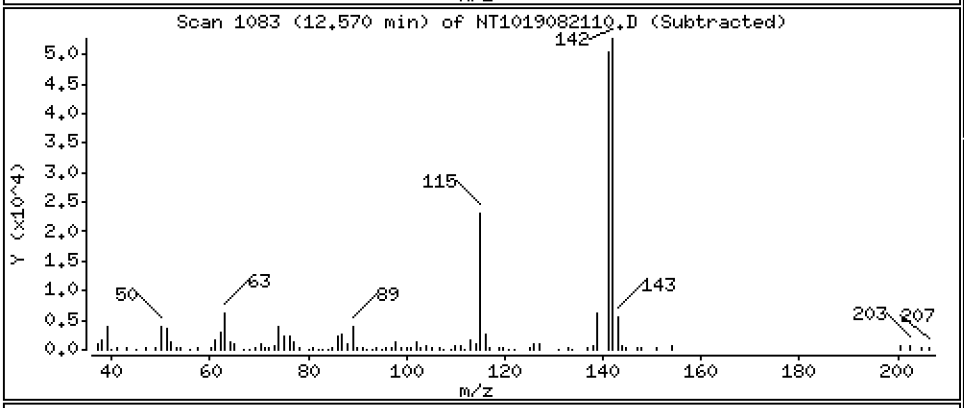
Column diameter: 0.25

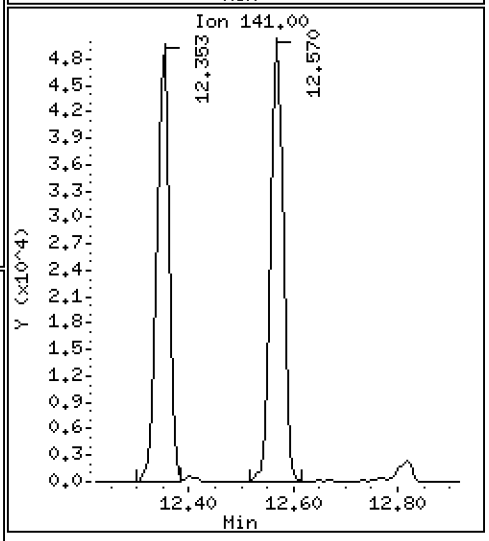
105 1-methylnaphthalene

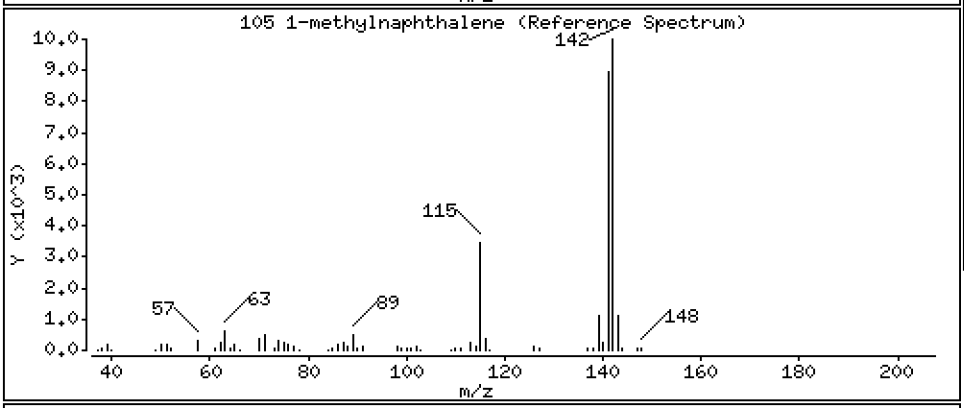
Concentration: 3.756 ug/mL

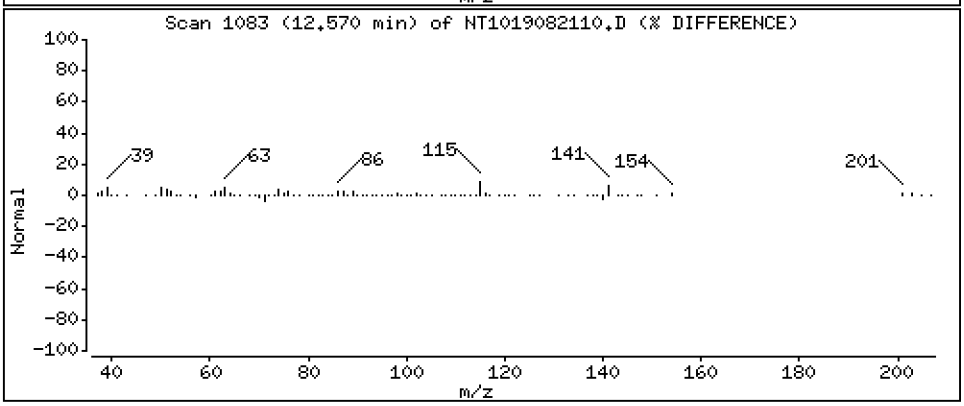












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

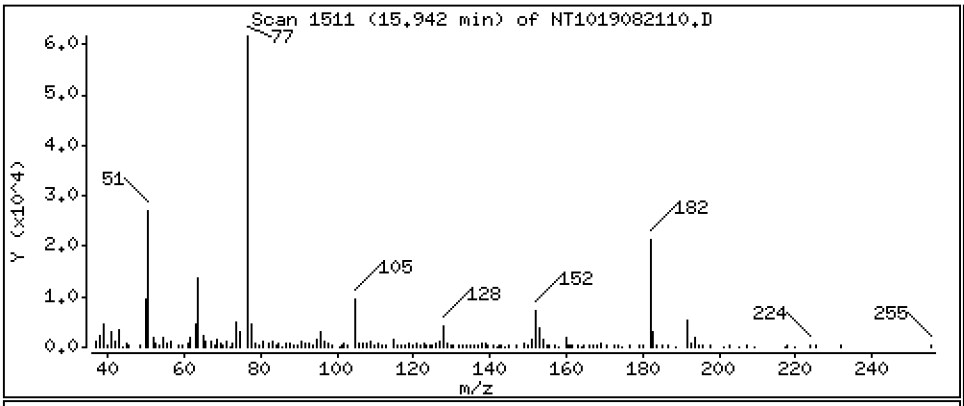
Operator: YZ

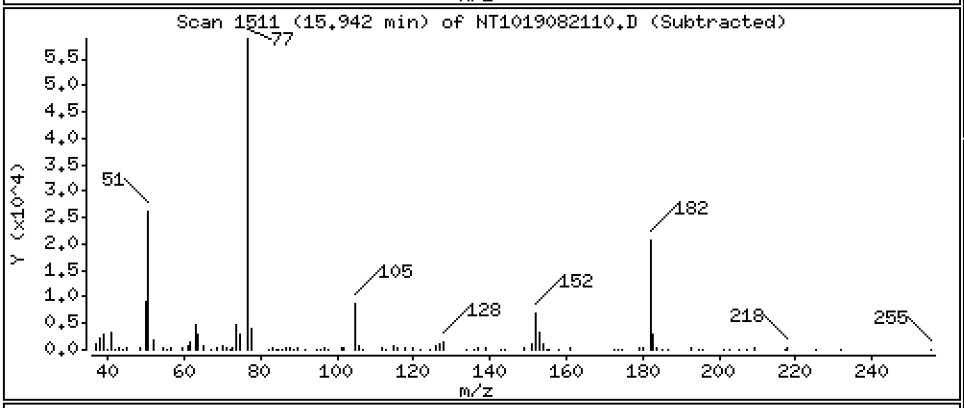
Column phase: ZB-5msi

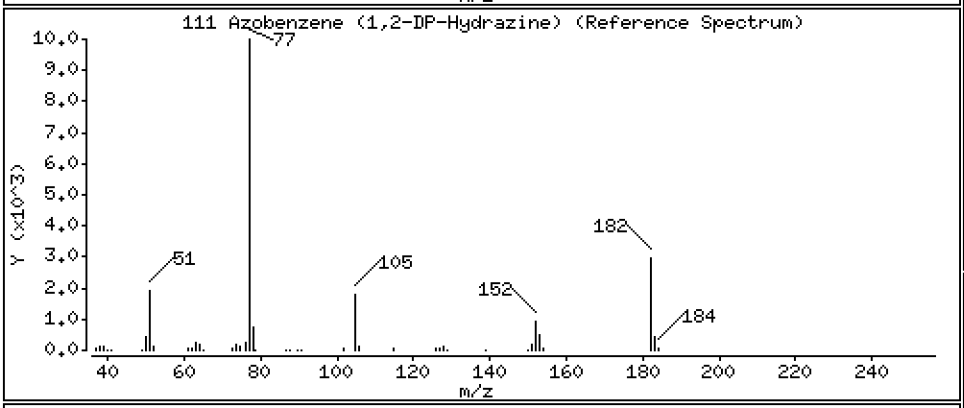
Column diameter: 0.25

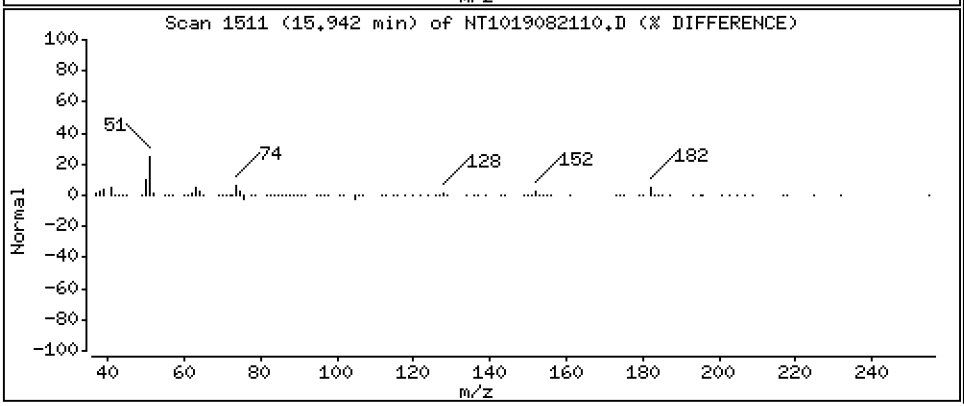
111 Azobenzene (1,2-DP-Hydrazine)

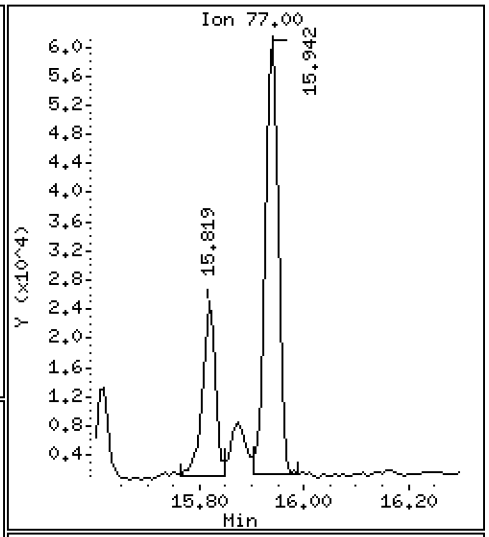
Concentration: 4.280 ug/mL

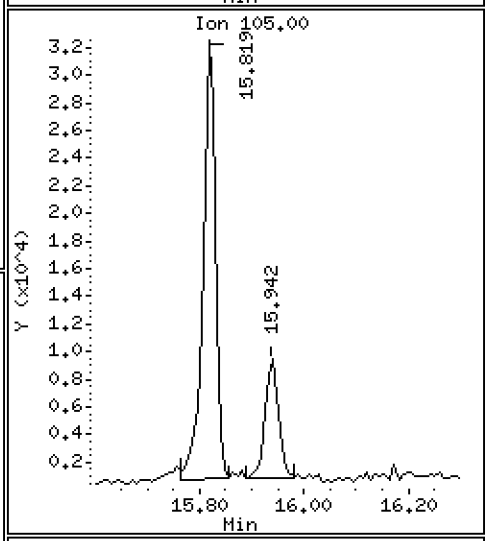


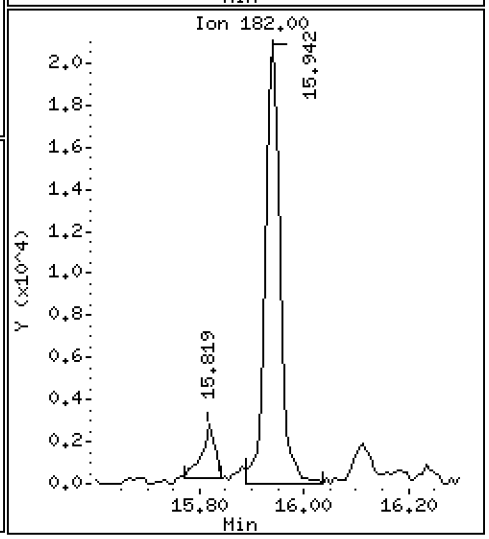












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

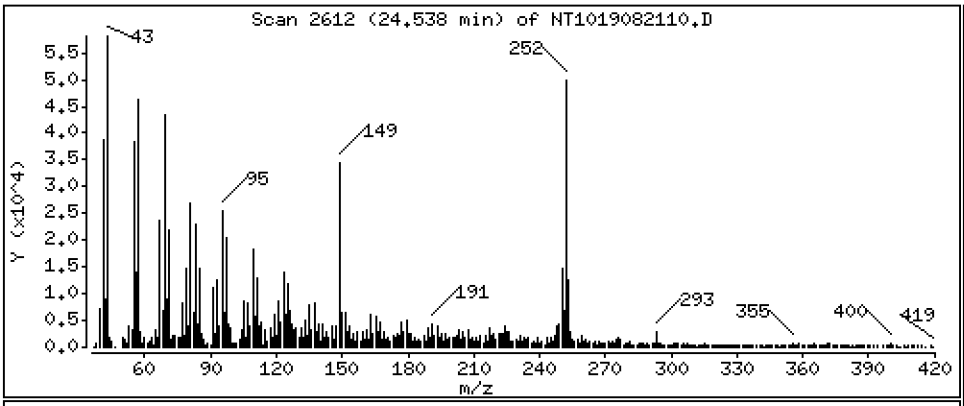
Operator: YZ

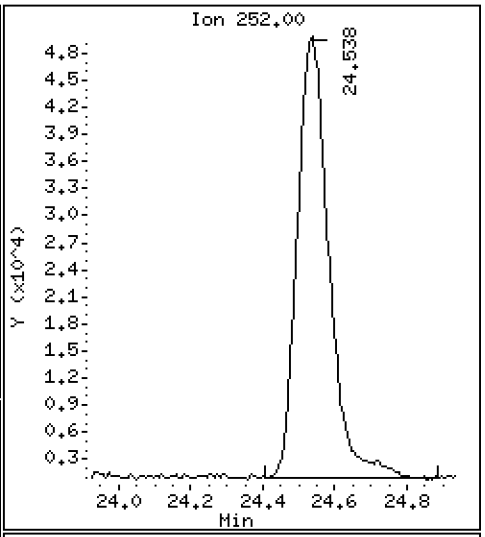
Column phase: ZB-5msi

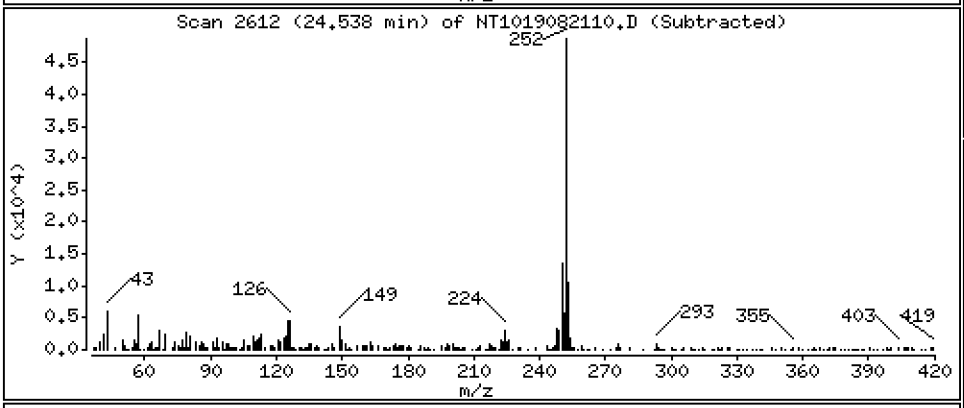
Column diameter: 0.25

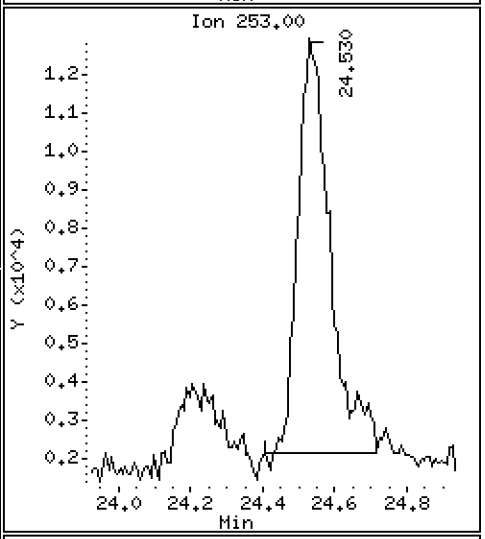
187 Total Benzofluoranthenes

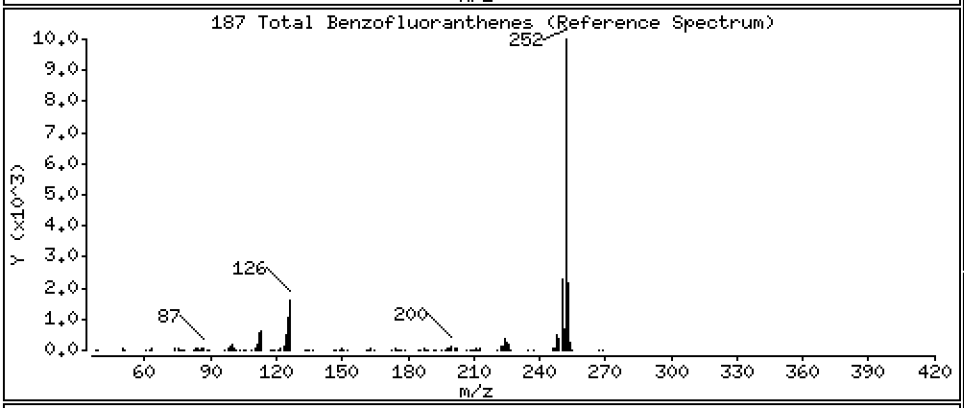
Concentration: 38.34 ug/mL

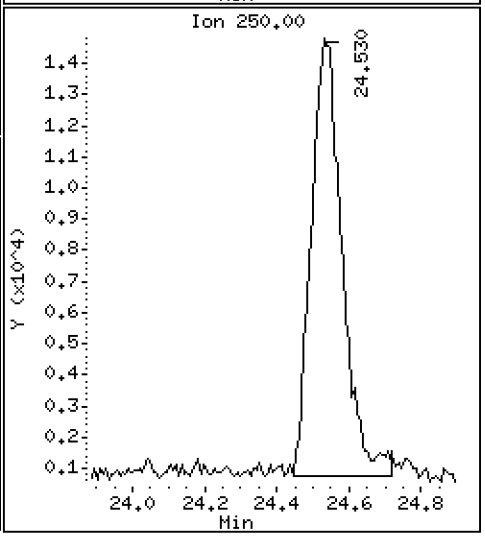


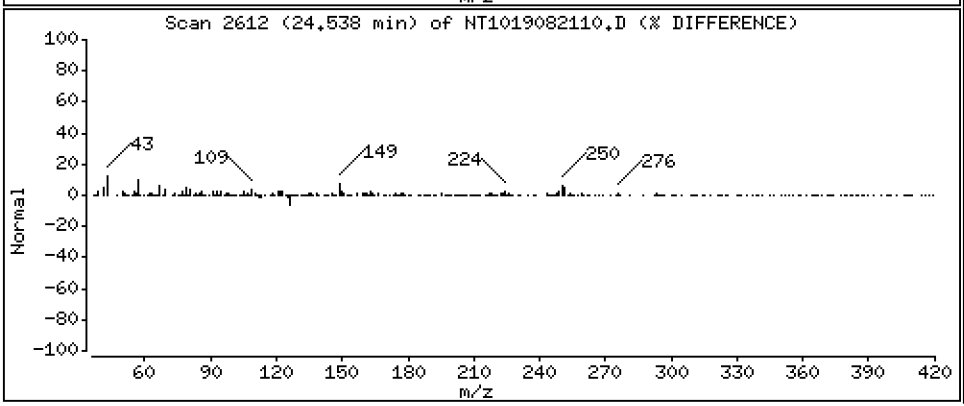












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

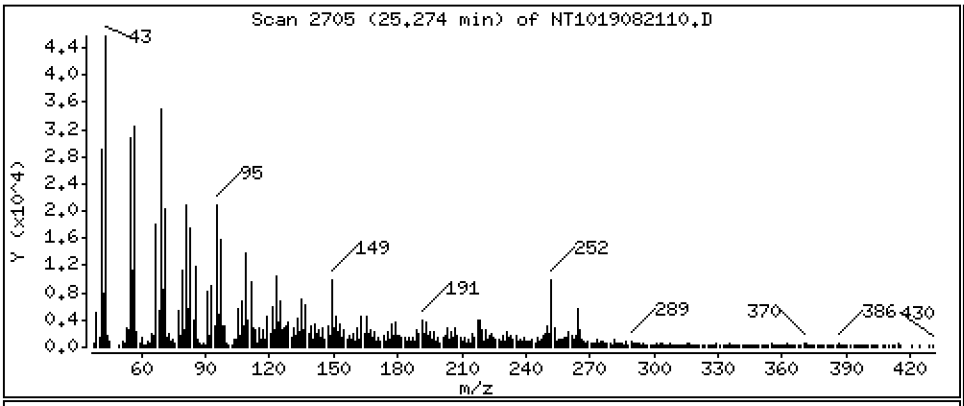
Operator: YZ

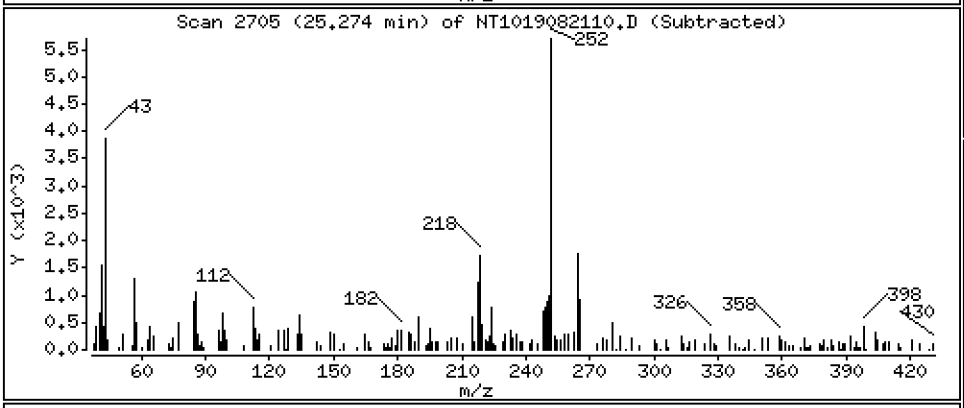
Column phase: ZB-5msi

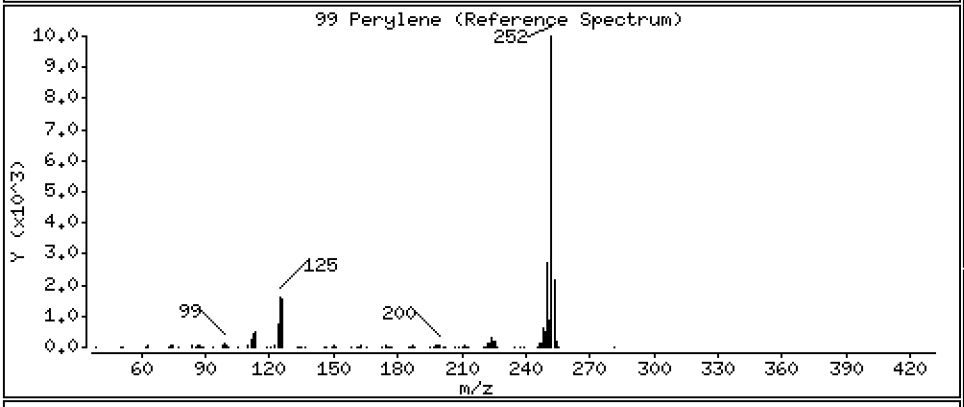
Column diameter: 0.25

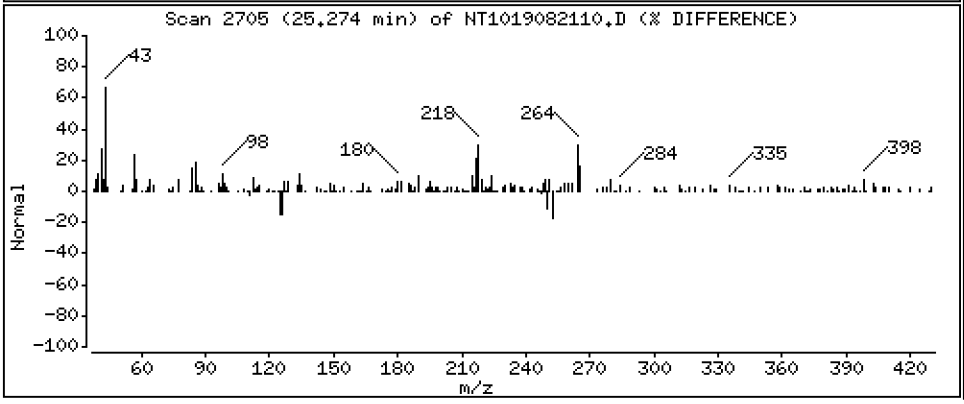
99 Perylene

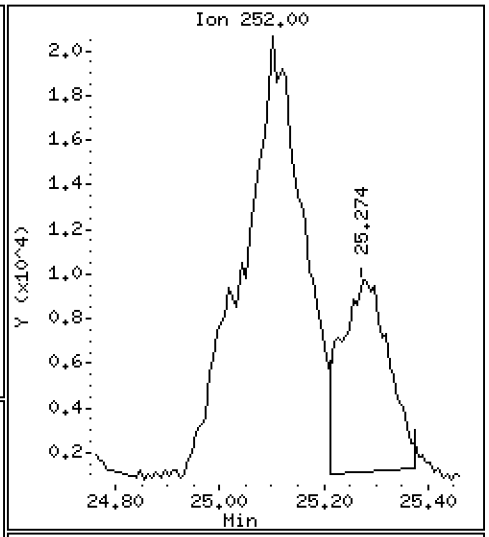
Concentration: 8.055 ug/mL

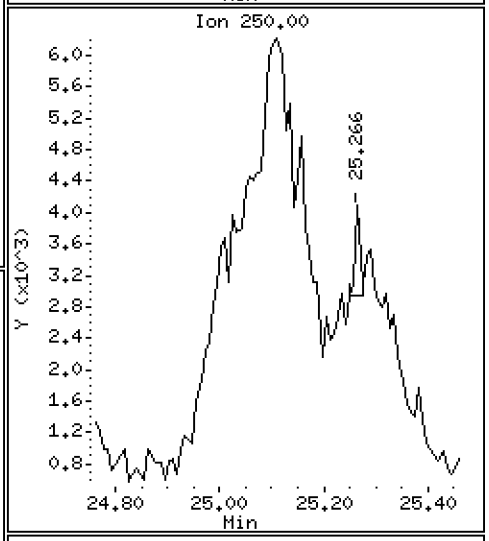


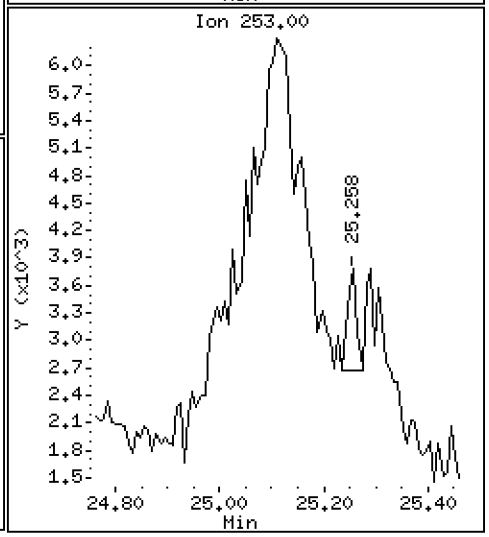












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Date : 21-AUG-2019 15:44

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MS1

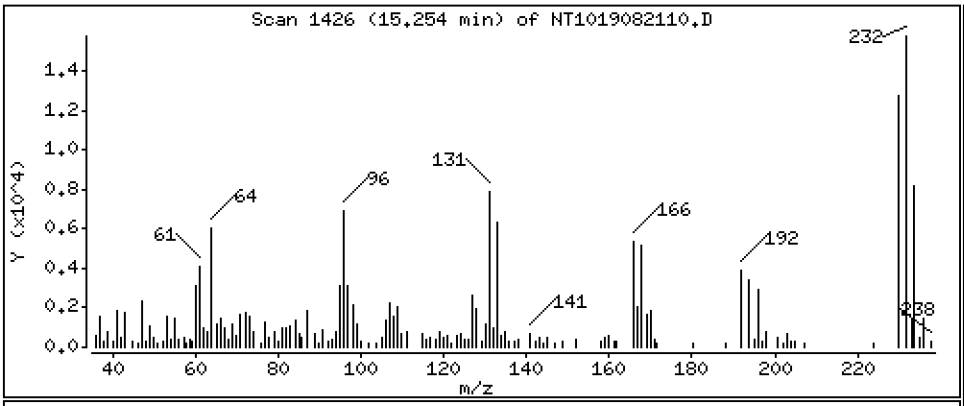
Operator: YZ

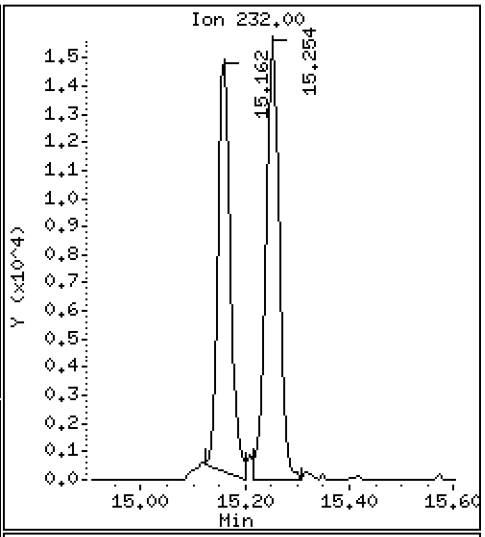
Column phase: ZB-5msi

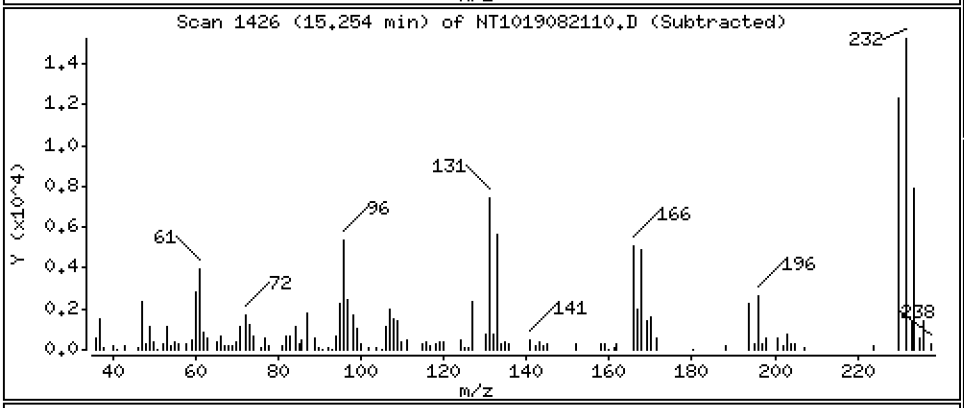
Column diameter: 0.25

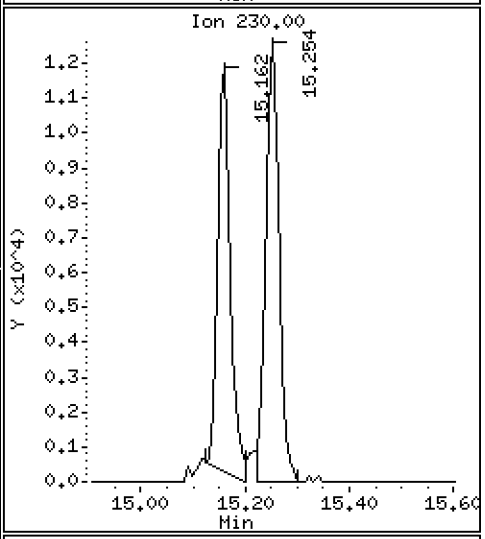
120 2,3,4,6-Tetrachlorophenol

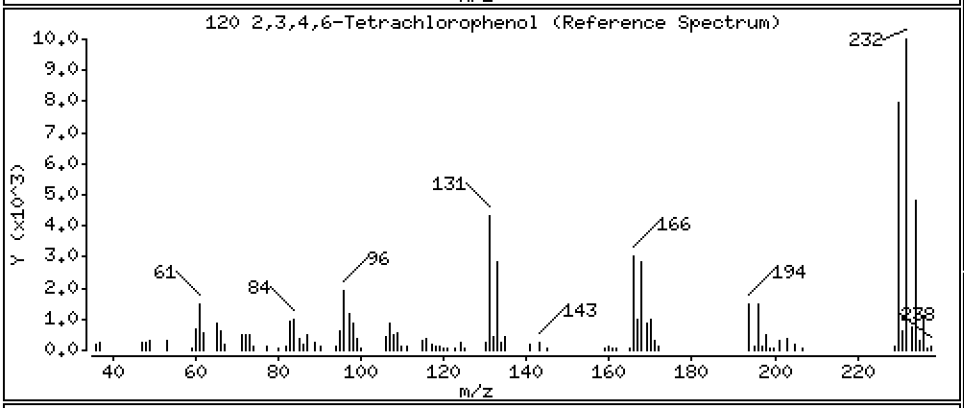
Concentration: 5.366 ug/mL

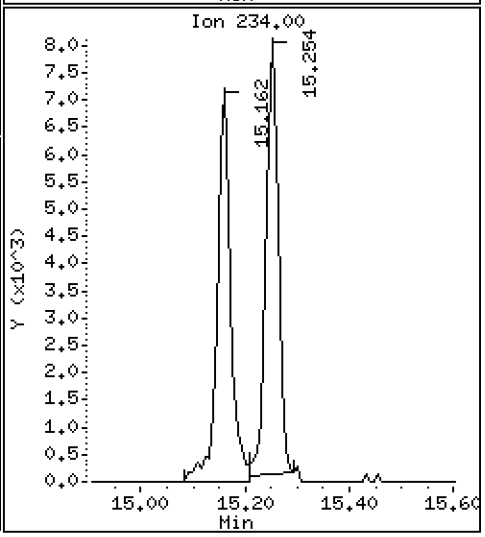


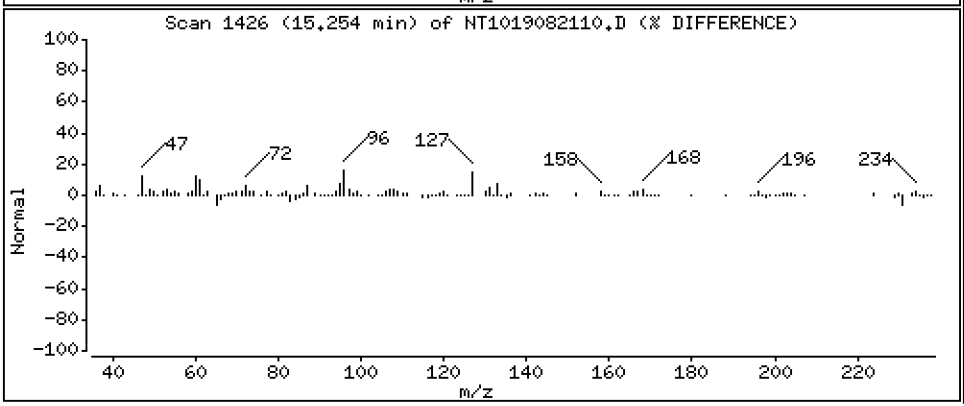












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

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Lab Smp Id: BHH0289-MS1
Inj Date : 21-AUG-2019 15:44
Operator : YZ Inst ID: nt10.i
Smp Info : BHH0289-MS1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.327	6.311	(0.746)	38193	4.34434	4.344
$	2 Phenol-d5	99	7.896	7.888	(0.931)	43168	4.38133	4.381
	3 Phenol	94	7.911	7.911	(0.933)	28817	3.14599	3.146
$	5 2-Chlorophenol-d4	132	8.127	8.127	(0.958)	59727	5.63122	5.631
	4 Bis(2-Chloroethyl)ether	93	8.050	8.050	(0.949)	20032	2.69890	2.699
	6 2-Chlorophenol	128	8.158	8.158	(0.962)	39924	3.90643	3.906
	7 1,3-Dichlorobenzene	146	8.413	8.421	(0.992)	40273	3.45767	3.458
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	31308	4.00000	
	9 1,4-Dichlorobenzene	146	8.507	8.514	(1.003)	38052	3.39263	3.393
$	10 1,2-Dichlorobenzene-d4	152	8.832	8.832	(1.041)	25677	3.54094	3.541
	12 1,2-Dichlorobenzene	146	8.856	8.855	(1.044)	38686	3.62552	3.626
	11 Benzyl alcohol	108	8.763	8.762	(1.033)	16724	2.75863	2.759
	14 2,2'-oxybis(1-Chloropropane)	121	9.058	9.057	(1.068)	11396	3.53453	3.535
	13 2-Methylphenol	108	9.003	9.003	(1.061)	25577	3.63510	3.635
	17 Hexachloroethane	117	9.438	9.438	(1.113)	15653	3.35428	3.354
	16 N-Nitroso-di-n-propylamine	70	9.314	9.313	(1.098)	14439	3.21643	3.216
	15 4-Methylphenol	108	9.275	9.267	(1.093)	28625	3.83810	3.838
$	18 Nitrobenzene-d5	82	9.562	9.554	(0.876)	31370	3.46169	3.462
	19 Nitrobenzene	77	9.593	9.600	(0.878)	29254	3.36372	3.364
	20 Isophorone	82	10.035	10.043	(0.919)	50129	3.43673	3.437
	21 2-Nitrophenol	139	10.213	10.221	(0.935)	24352	4.22603	4.226
	22 2,4-Dimethylphenol	107	10.298	10.298	(0.943)	116249	11.9502	11.95
	23 Bis(2-Chloroethoxy)methane	93	10.485	10.485	(0.960)	21494	2.57048	2.570
	24 Benzoic acid	105	10.527	10.510	(0.964)	84526	12.8044	12.80
	25 2,4-Dichlorophenol	162	10.672	10.671	(0.977)	111989	13.8649	13.86
	26 1,2,4-Trichlorobenzene	180	10.845	10.852	(0.993)	37131	4.06065	4.061
*	27 Naphthalene-d8	136	10.922	10.929	(1.000)	115867	4.00000	
	28 Naphthalene	128	10.968	10.968	(1.004)	109897	4.12634	4.126
	29 4-Chloroaniline	127	Compound Not Detected.					
	30 Hexachlorobutadiene	225	11.331	11.338	(1.037)	24587	4.38285	4.383
	31 4-Chloro-3-methylphenol	107	12.097	12.097	(1.108)	110237	13.3228	13.32
	32 2-Methylnaphthalene	142	12.353	12.353	(1.131)	86322	3.82112	3.821
	33 Hexachlorocyclopentadiene	237	12.817	12.824	(0.883)	27823	4.57035	4.570

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	12.987	12.987	(0.895)	101493	16.9452	16.95
	35	2,4,5-Trichlorophenol	196	13.065	13.057	(0.900)	108557	17.5541	17.55
$	36	2-Fluorobiphenyl	172	13.142	13.142	(0.906)	101908	4.57842	4.578
	37	2-Chloronaphthalene	162	13.336	13.335	(0.919)	88399	4.63602	4.636
	38	2-Nitroaniline	65	13.614	13.614	(0.938)	50178	12.2728	12.27
	39	Dimethylphthalate	163	14.055	14.055	(0.969)	110387	5.10464	5.105
	40	Acenaphthylene	152	14.195	14.195	(0.978)	136825	4.87767	4.878
	41	2,6-Dinitrotoluene	165	14.187	14.194	(0.978)	72833	15.2585	15.26
*	42	Acenaphthene-d10	164	14.512	14.512	(1.000)	58193	4.00000	
	43	3-Nitroaniline	138	14.473	14.473	(0.997)	10523	1.87576	1.876(M)
	44	Acenaphthene	153	14.574	14.574	(1.004)	86270	4.89445	4.894
	45	2,4-Dinitrophenol	184	14.674	14.682	(1.011)	69159	20.5553	20.56
	46	Dibenzofuran	168	14.898	14.898	(1.027)	129588	4.47344	4.473
	47	4-Nitrophenol	109	14.844	14.836	(1.023)	59552	16.6447	16.64
	48	2,4-Dinitrotoluene	165	14.991	14.991	(1.033)	97415	15.0001	15.00
	50	Diethylphthalate	149	15.517	15.517	(1.069)	109905	5.27844	5.278
	49	Fluorene	166	15.610	15.610	(1.076)	103748	5.23693	5.237
	51	4-Chlorophenyl-phenylether	204	15.618	15.617	(1.076)	51092	5.00600	5.006
	52	4-Nitroaniline	138	15.741	15.741	(1.085)	13856	2.27914	2.279
	53	4,6-Dinitro-2-methylphenol	198	15.818	15.826	(0.903)	177166	32.4954	32.50
	54	N-Nitrosodiphenylamine	169	15.872	15.872	(0.906)	85287	5.61616	5.616
$	55	2,4,6-Tribromophenol	330	16.150	16.142	(1.113)	27371	6.22037	6.220
	56	4-Bromophenyl-phenylether	248	16.613	16.620	(0.948)	43145	4.84652	4.847
	57	Hexachlorobenzene	284	16.914	16.913	(0.965)	42432	4.47386	4.474
	58	Pentachlorophenol	266	17.286	17.285	(0.986)	56385	14.0947	14.09
*	59	Phenanthrene-d10	188	17.525	17.525	(1.000)	110631	4.00000	
	60	Phenanthrene	178	17.572	17.572	(1.003)	191410	7.08303	7.083
	61	Anthracene	178	17.665	17.665	(1.008)	159107	5.79855	5.799
	62	Carbazole	167	18.021	18.012	(1.028)	140668	5.44781	5.448
	63	Di-n-butylphthalate	149	18.879	18.872	(1.077)	208270	5.57079	5.571
	64	Fluoranthene	202	20.017	19.993	(0.880)	430543	20.4473	20.45
	65	Pyrene	202	20.442	20.411	(0.899)	366568	16.6715	16.67
$	66	Terphenyl-d14	244	20.783	20.744	(0.914)	91954	6.16651	6.167
	67	Butylbenzylphthalate	149	21.750	21.712	(0.957)	67088	6.55007	6.550
	68	Benzo(a)anthracene	228	22.726	22.610	(1.000)	125910	6.29821	6.298
*	69	Chrysene-d12	240	22.734	22.633	(1.000)	68903	4.00000	
	70	3,3'-Dichlorobenzidine	252	Compound Not Detected.					
	71	Chrysene	228	22.788	22.680	(1.002)	248874	14.0687	14.07(M)
	72	bis(2-Ethylhexyl)phthalate	149	22.842	22.765	(0.957)	369250	27.4069	27.41
*	134	Di-n-octylphthalate-d4	153	23.856	23.756	(1.000)	153180	4.00000	
	73	Di-n-octylphthalate	149	23.864	23.763	(1.000)	116674	4.11723	4.117(M)
	74	Benzo(b)fluoranthene	252	24.538	24.390	(0.973)	291970	34.3221	34.32
	75	Benzo(k)fluoranthene	252	24.538	24.429	(0.973)	291970	34.1165	34.12
	76	Benzo(a)pyrene	252	25.103	24.948	(0.995)	77435	10.1425	10.14(M)
*	77	Perylene-d12	264	25.227	25.056	(1.000)	29650	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	27.722	27.303	(1.099)	78758	8.58543	8.585(M)
	79	Dibenzo(a,h)anthracene	278	27.746	27.334	(1.100)	45470	6.08827	6.088(M)
	80	Benzo(g,h,i)perylene	276	28.445	27.971	(1.128)	73584	9.52390	9.524(M)
	90	N-Nitrosodimethylamine	74	4.211	4.187	(0.496)	20767	6.11400	6.114
	91	Aniline	93	7.919	7.957	(0.933)	6501	0.80158	0.8016
	93	Benzidine	184	Compound Not Detected.					
	103	Pyridine	79	4.242	4.195	(0.500)	12285	1.95017	1.950
	105	1-methylnaphthalene	142	12.569	12.569	(1.151)	85310	3.75631	3.756
	111	Azobenzene (1,2-DP-Hydrazine)	77	15.942	15.949	(1.099)	99115	4.28039	4.280

						CONCENTRATIONS	
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
187 Total Benzofluoranthenes	252	24.538	24.429	(0.973)	312840	38.3395	38.34
99 Perylene	252	25.273	25.110	(1.002)	56568	8.05450	8.055(M)
98 Retene	219	Compound Not Detected.					
120 2,3,4,6-Tetrachlorophenol	232	15.254	15.254	(1.051)	26732	5.36556	5.366

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082110.D
Lab Smp Id: BHH0289-MS1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	31308	-4.37
27 Naphthalene-d8	117487	58744	234974	115867	-1.38
42 Acenaphthene-d10	61859	30930	123718	58193	-5.93
59 Phenanthrene-d10	113574	56787	227148	110631	-2.59
69 Chrysene-d12	105788	52894	211576	68903	-34.87
134 Di-n-octylphthala	252823	126412	505646	153180	-39.41
77 Perylene-d12	113992	56996	227984	29650	-73.99 <-

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.92	-0.07
42 Acenaphthene-d10	14.51	14.01	15.01	14.51	0.00
59 Phenanthrene-d10	17.53	17.03	18.03	17.53	0.00
69 Chrysene-d12	22.63	22.13	23.13	22.73	0.45
134 Di-n-octylphthala	23.76	23.26	24.26	23.86	0.42
77 Perylene-d12	25.06	24.56	25.56	25.23	0.68

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082110.D

Lab ID: BHH0289-MS1
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 15:44

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.949	1.033	-0.0840	Benzyl alcohol
0.962	1.004	-0.0418	Naphthalene
0.992	0.962	0.0301	Benzoic acid
1.000	1.130	-0.1302	2-Methylnaphthalene
1.003	0.978	0.0246	Acenaphthylene
1.044	0.969	0.0754	Dimethylphthalate
1.033	1.004	0.0287	Acenaphthene
1.068	1.027	0.0411	Dibenzofuran
1.061	1.076	-0.0144	Fluorene
1.113	1.069	0.0433	Diethylphthalate
1.098	0.906	0.1922	N-Nitrosodiphenylamine
1.093	1.003	0.0907	Phenanthrene
0.878	1.008	-0.1296	Anthracene
0.919	1.077	-0.1580	Di-n-butylphthalate
0.935	0.883	0.0518	Fluoranthene
0.943	0.902	0.0411	Pyrene
0.977	0.999	-0.0219	Benzo(a)anthracene
0.993	1.002	-0.0091	Chrysene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate
0.964	0.973	-0.0095	Benzo(b)fluoranthene
1.037	0.996	0.0418	Benzo(a)pyrene
1.108	1.090	0.0180	Indeno(1,2,3-cd)pyrene
1.131	1.091	0.0401	Dibenzo(a,h)anthracene
0.883	1.116	-0.2331	Benzo(g,h,i)perylene
0.895	1.150	-0.2551	1-methylnaphthalene
0.900	0.975	-0.0747	Total Benzofluoranthenes
0.919	1.000	-0.0811	1,4-Dichlorobenzene-d4
0.938	1.000	-0.0619	Naphthalene-d8
0.978	1.000	-0.0219	Acenaphthene-d10
0.969	1.000	-0.0315	Phenanthrene-d10
0.978	1.000	-0.0224	Chrysene-d12
0.997	0.958	0.0393	2-Chlorophenol-d4
1.011	0.744	0.2672	2-Fluorophenol
1.027	0.930	0.0968	Phenol-d5
1.023	1.041	-0.0183	1,2-Dichlorobenzene-d4
1.033	0.874	0.1588	Nitrobenzene-d5
1.076	0.906	0.1701	2-Fluorobiphenyl
1.076	1.112	-0.0362	2,4,6-Tribromophenol
1.069	0.917	0.1527	Terphenyl-d14

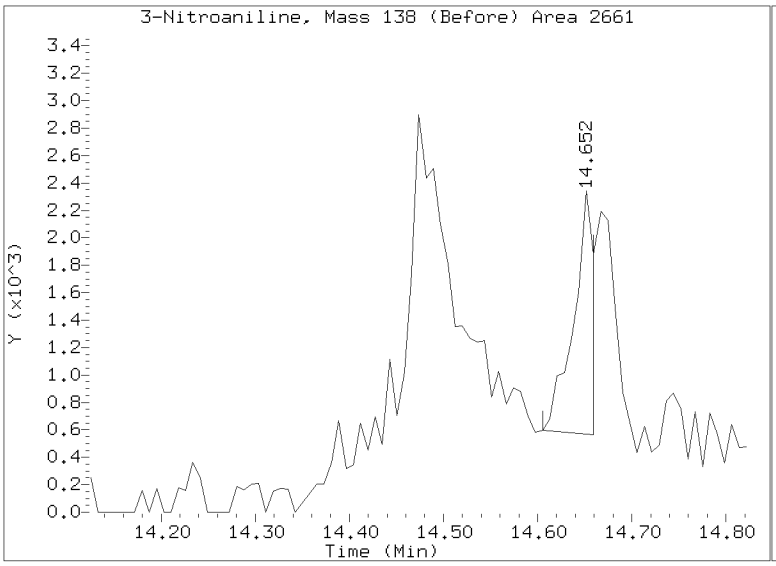
RRT check based on Ccal File: NT1019082105.D

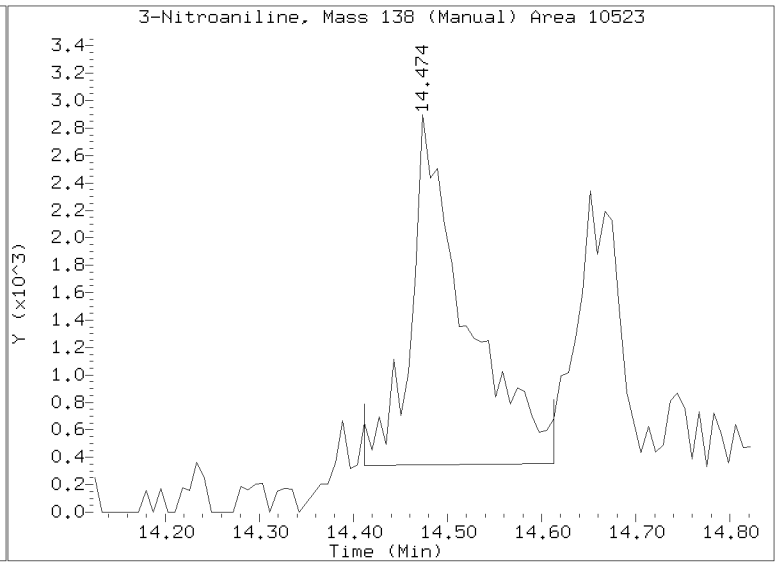
On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

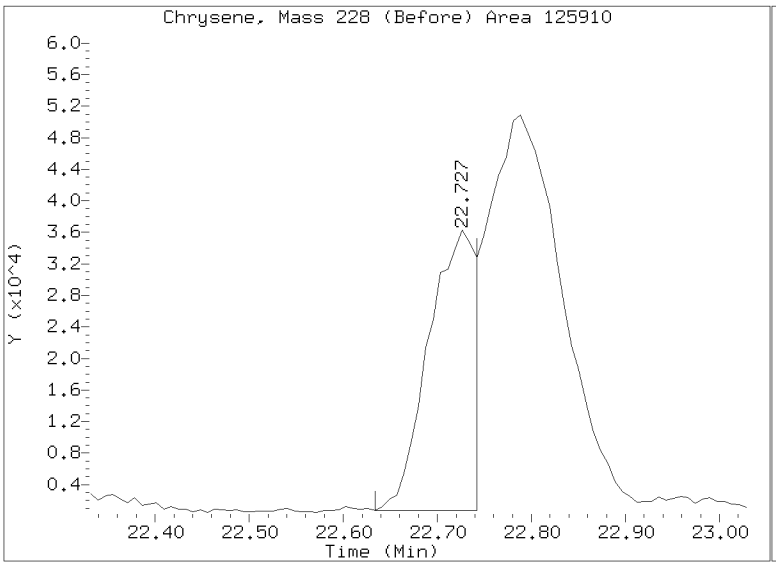
* Only compounds listed in the work order have been verified by the analyst *

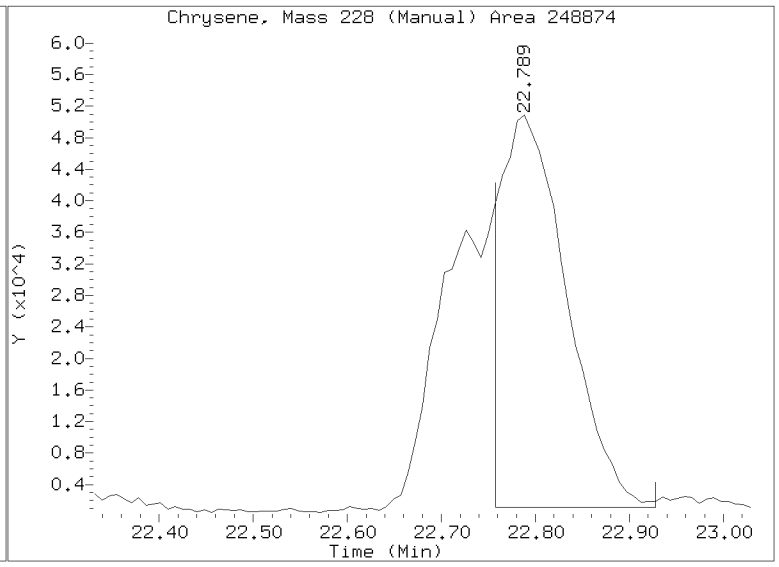
Quant Ion Manual Peak Adjustment Report

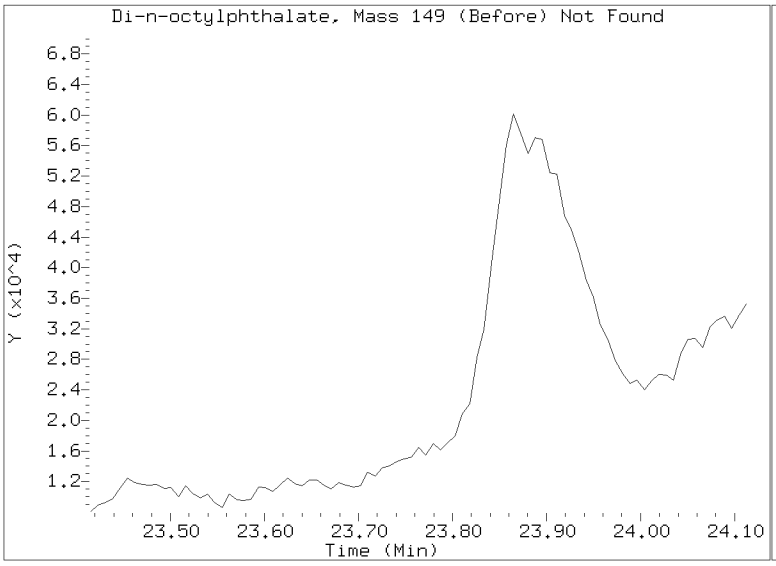
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082110.D
Injection Date: 21-AUG-2019 15:44
Lab ID:BHH0289-MS1 Client ID:
Report Date: 08/22/2019 12:50

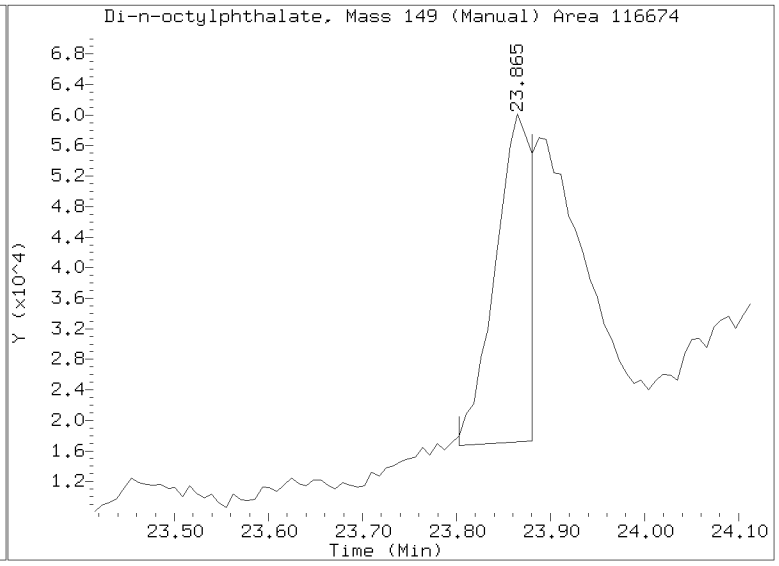












Quant Ion Manual Peak Adjustment Report

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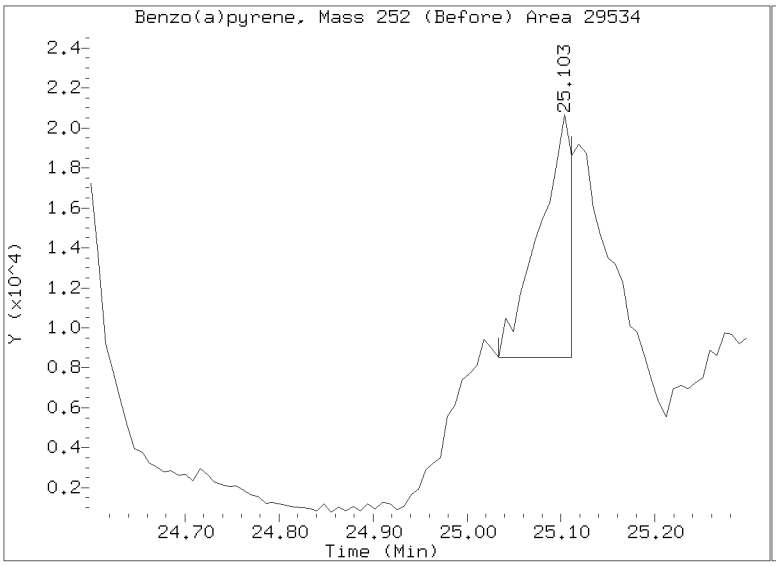
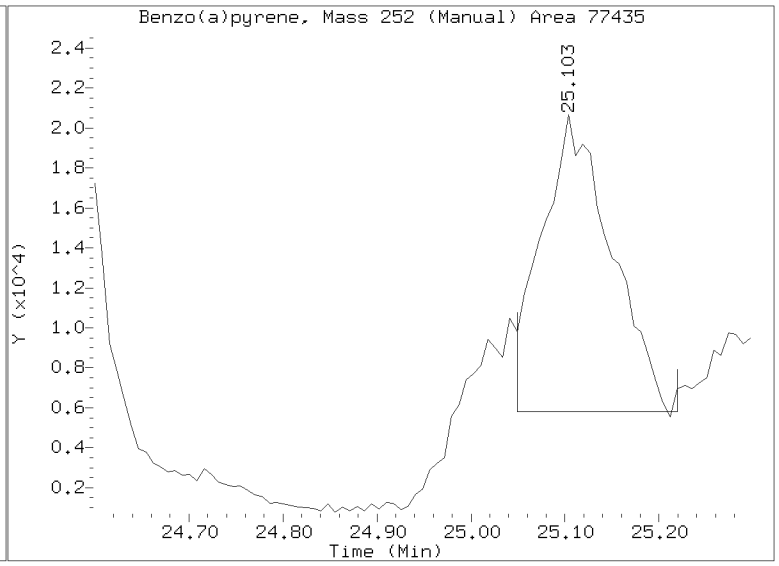
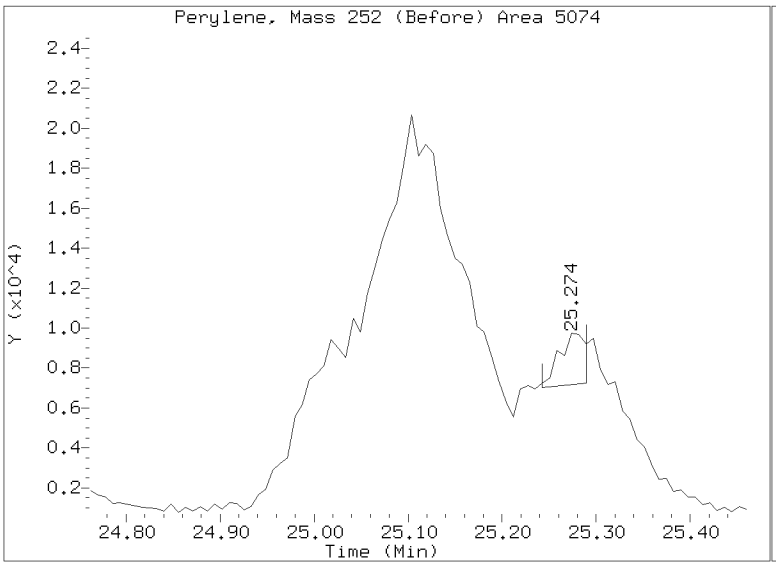
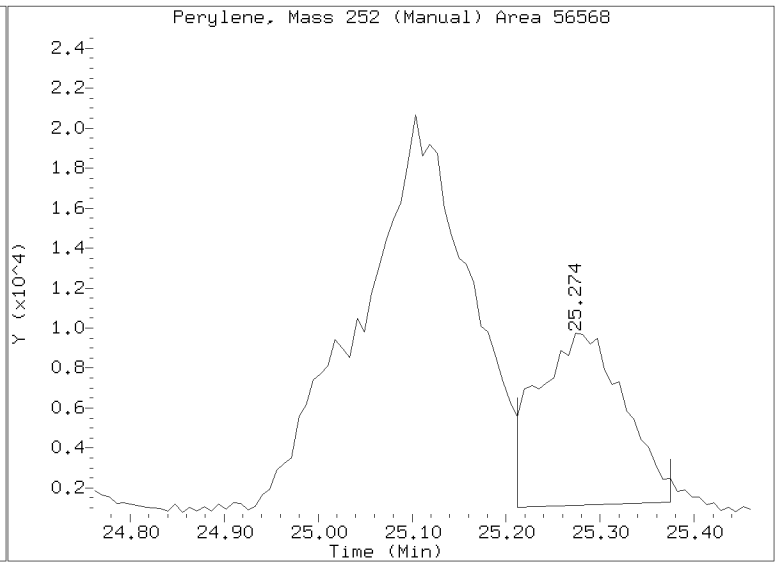
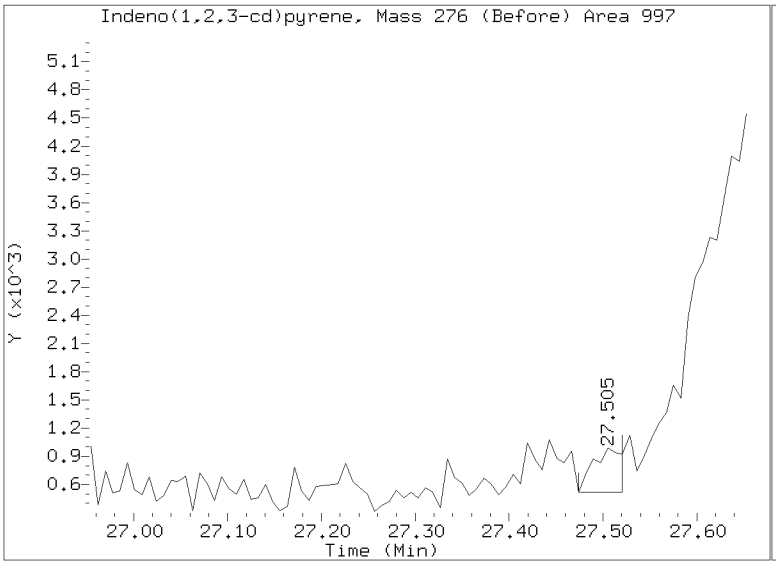
Lab ID:BHH0289-MS1 Client ID:
Report Date: 08/22/2019 12:50

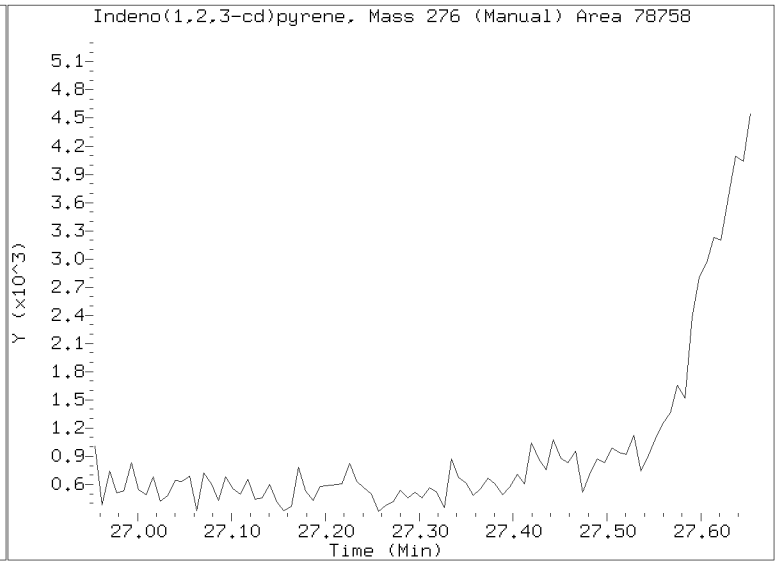












Quant Ion Manual Peak Adjustment Report

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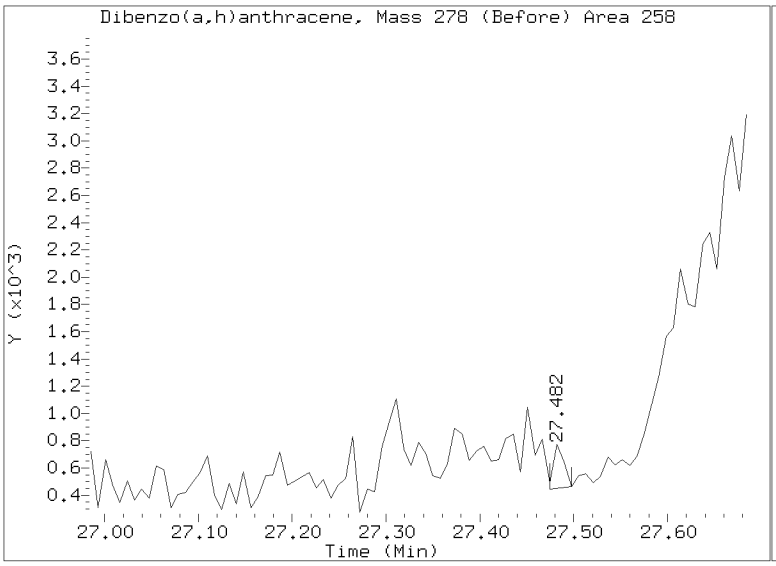
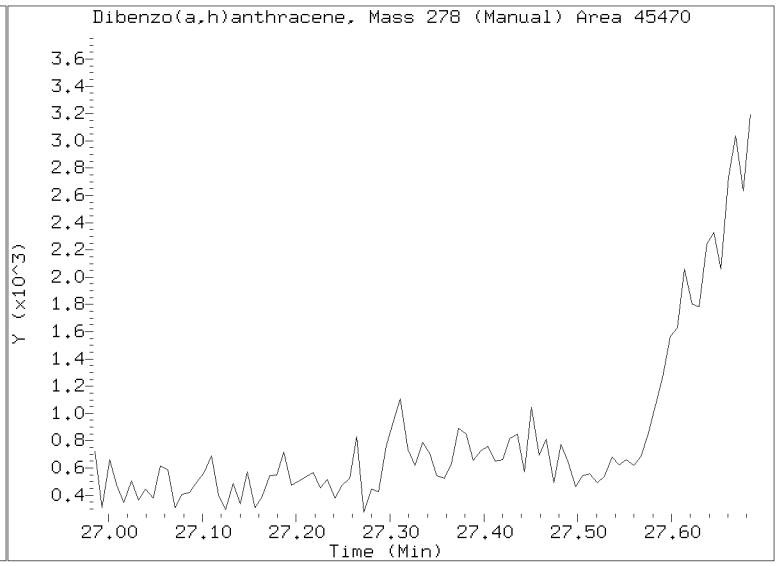
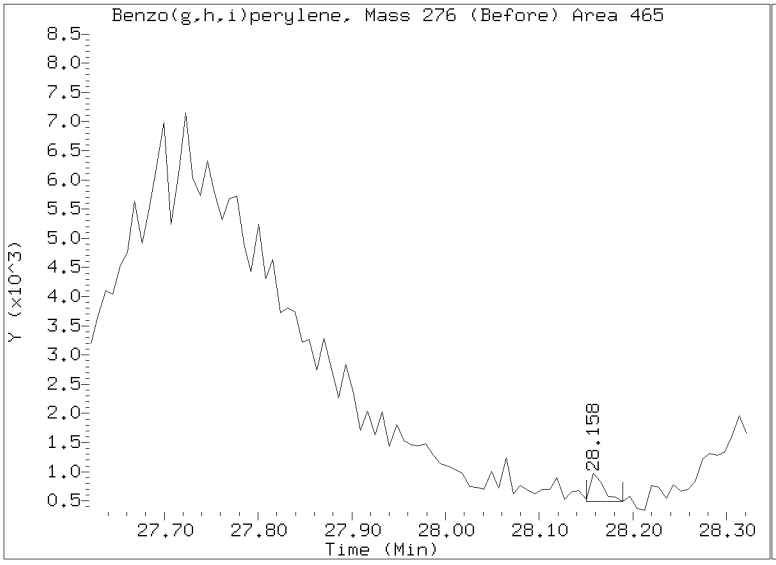
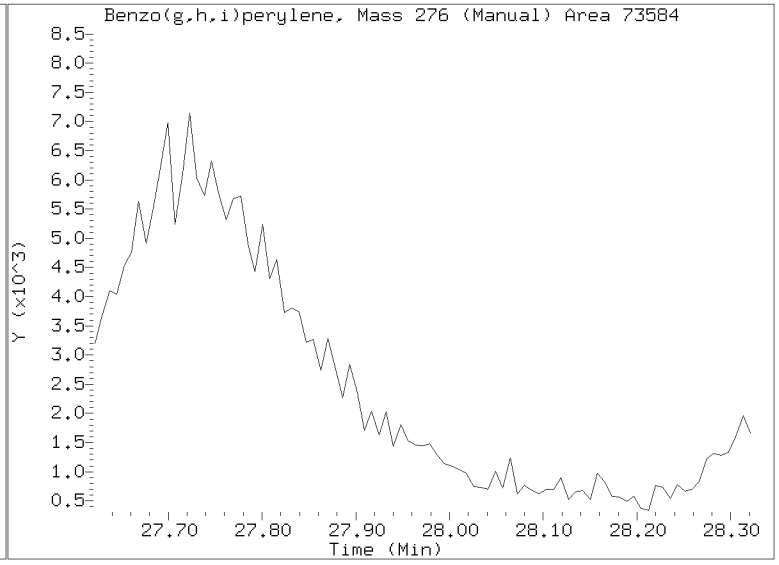
Injection Date: 21-AUG-2019 15:44
Lab ID:BHH0289-MS1 Client ID:
Report Date: 08/22/2019 12:50









Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

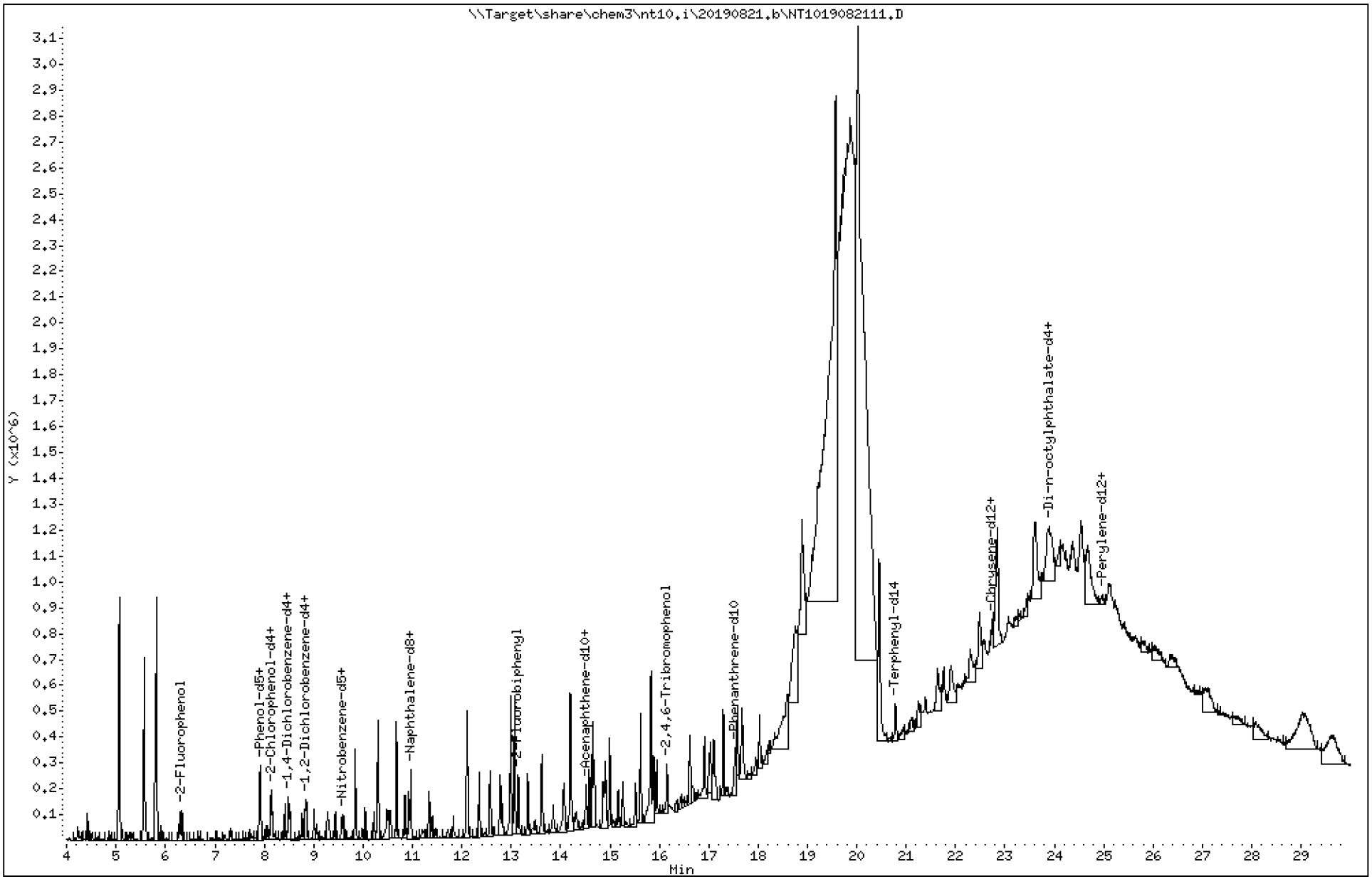
Instrument: nt10.i

Sample Info: BHH0289-MSD1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

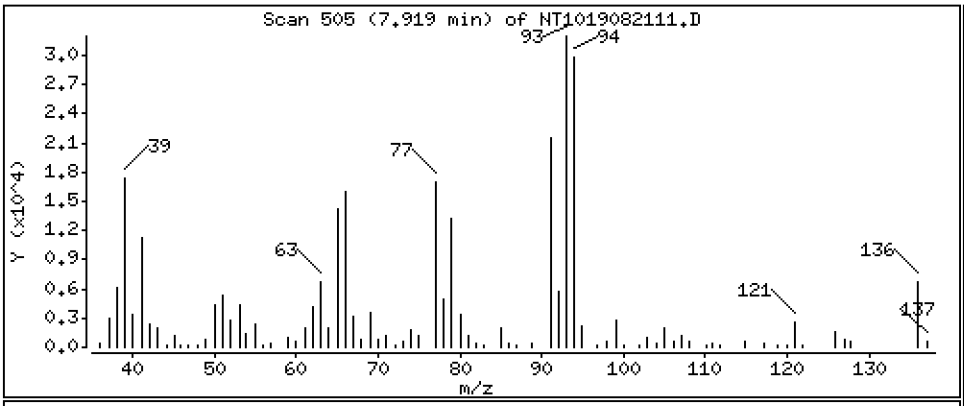
Operator: YZ

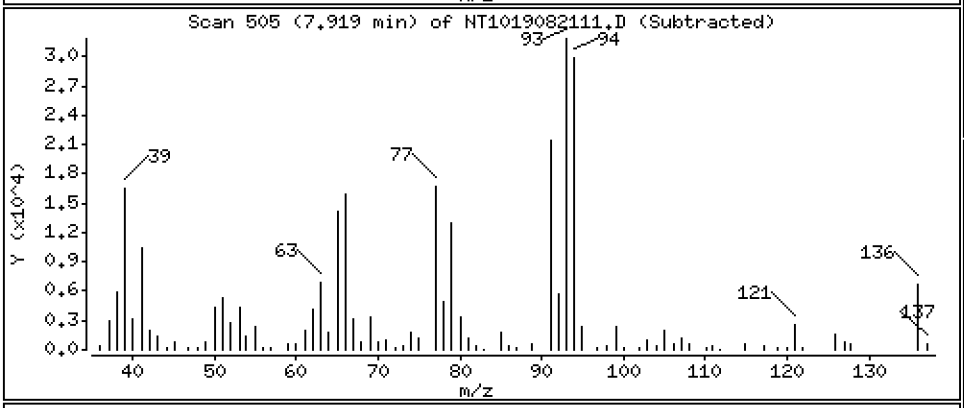
Column phase: ZB-5msi

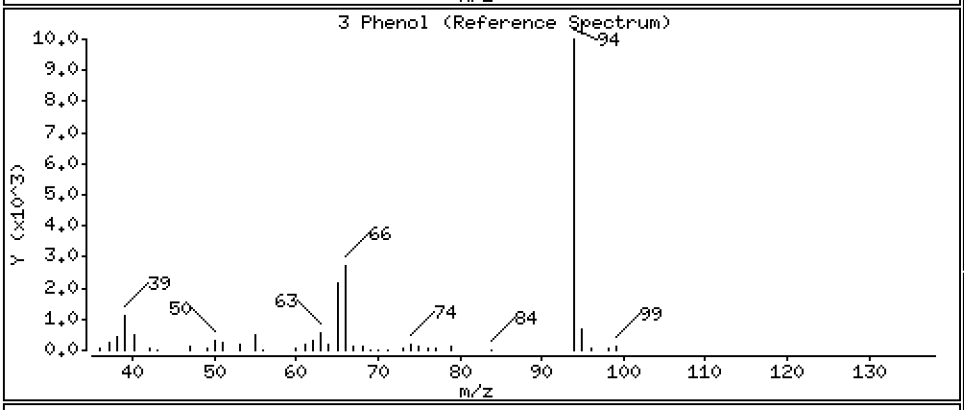
Column diameter: 0.25

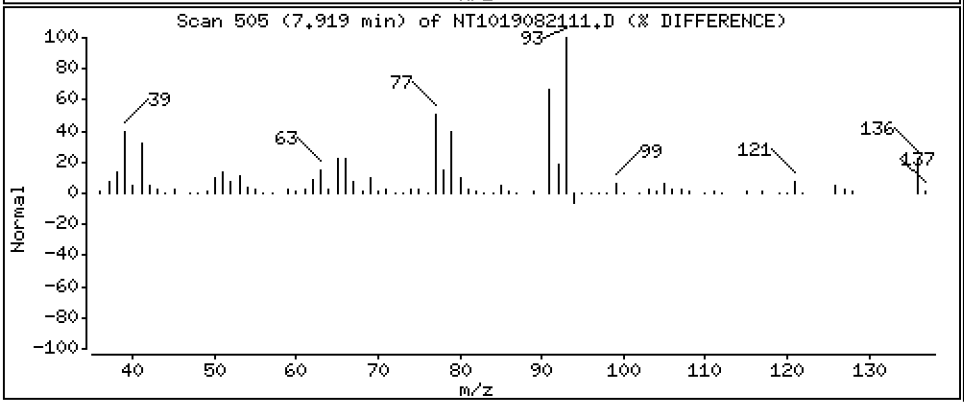
3 Phenol

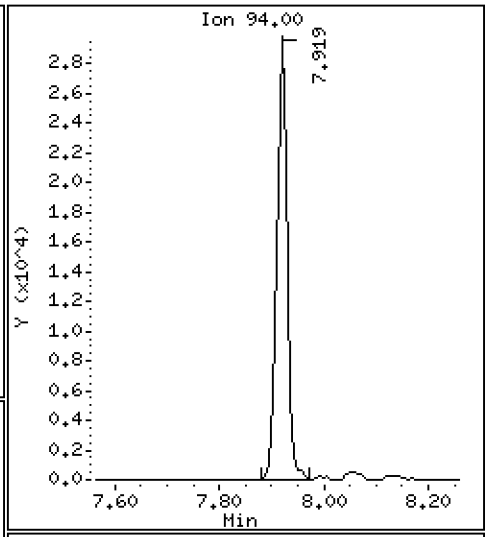
Concentration: 4.125 ug/mL

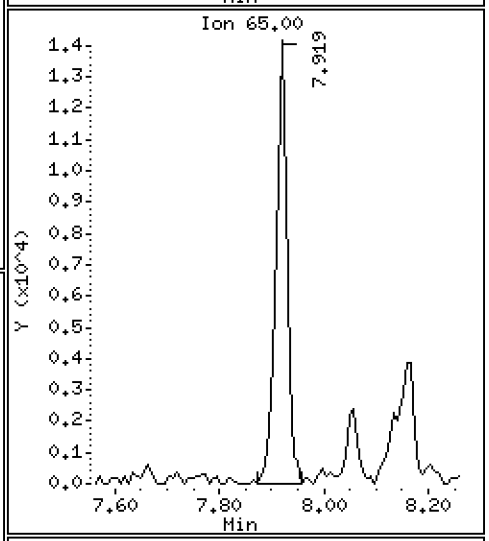


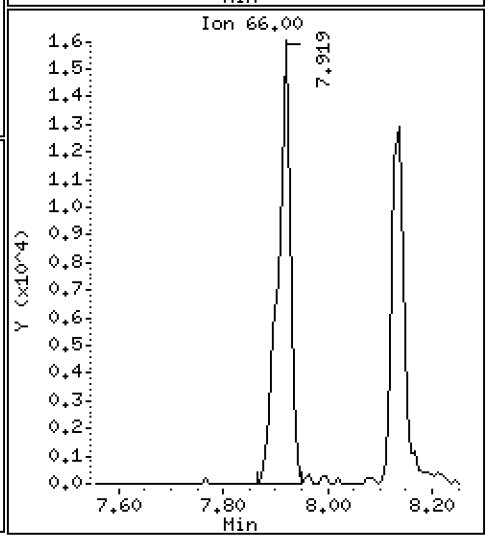












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

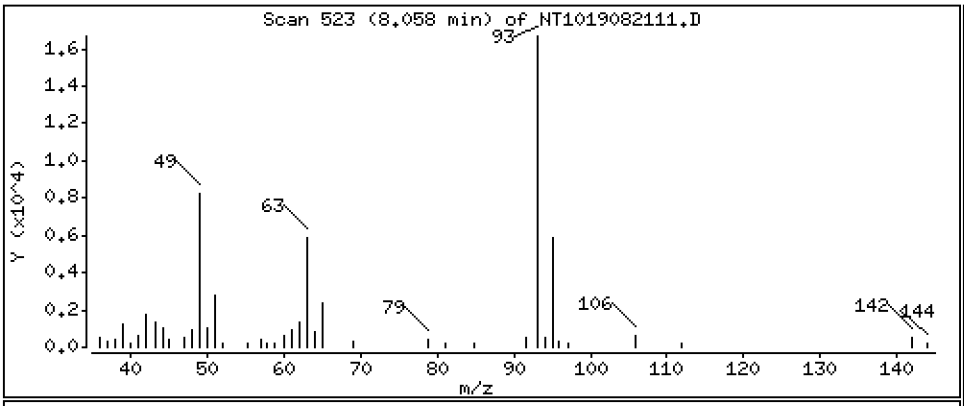
Operator: YZ

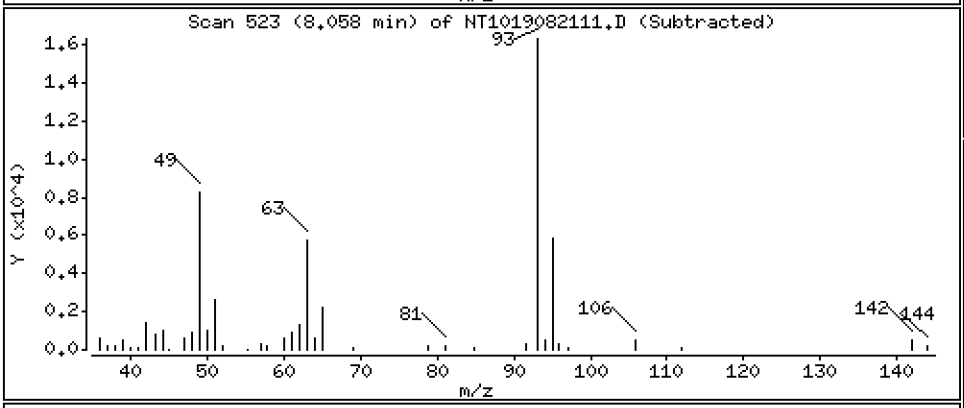
Column phase: ZB-5msi

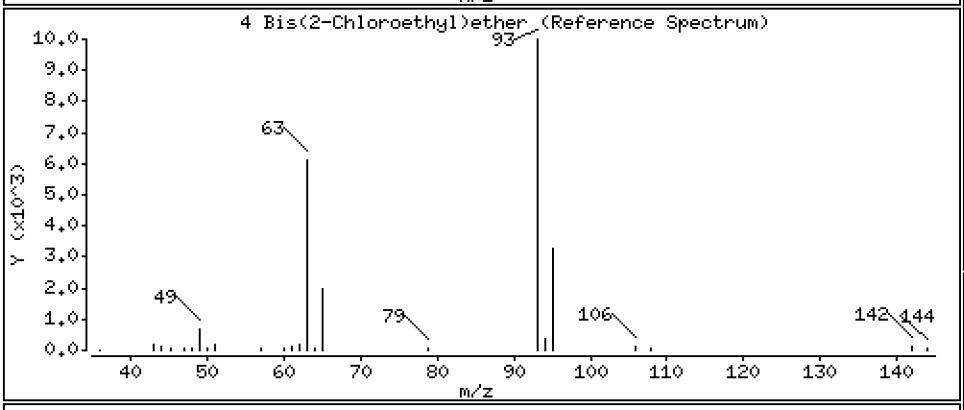
Column diameter: 0.25

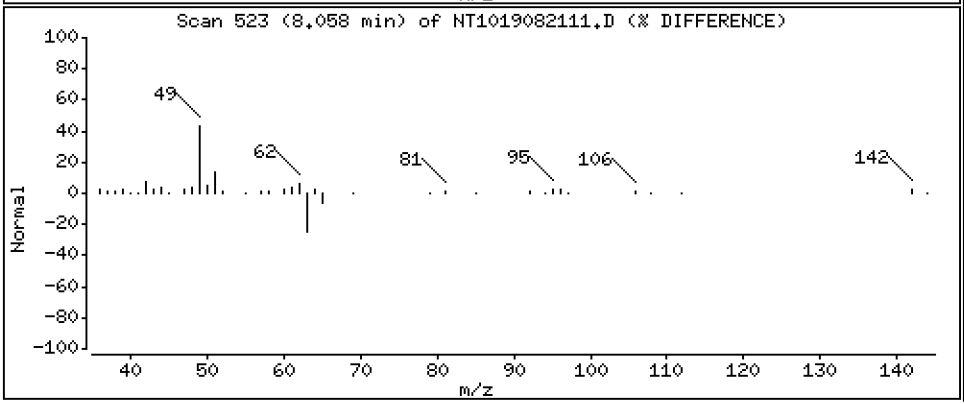
4 Bis(2-Chloroethyl)ether

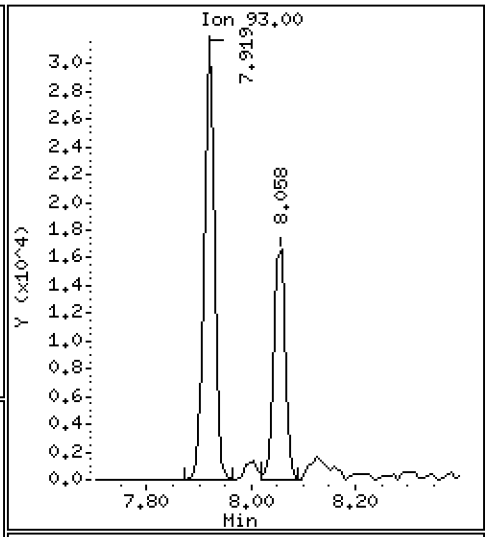
Concentration: 3.032 ug/mL

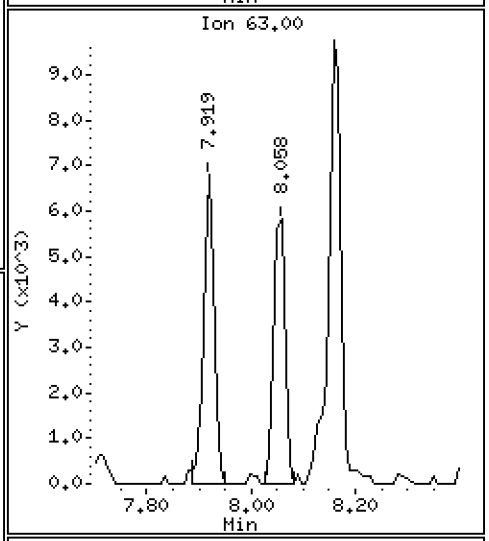


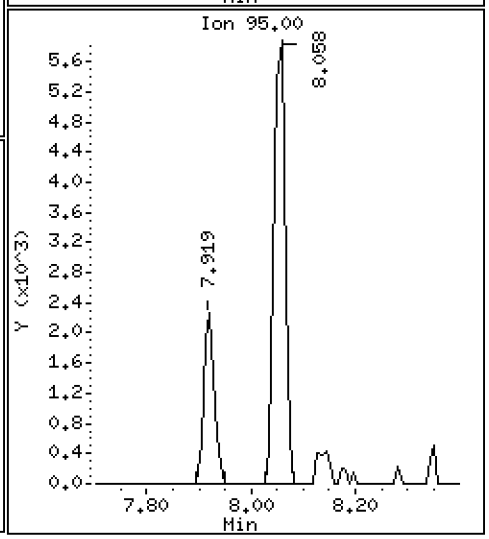












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

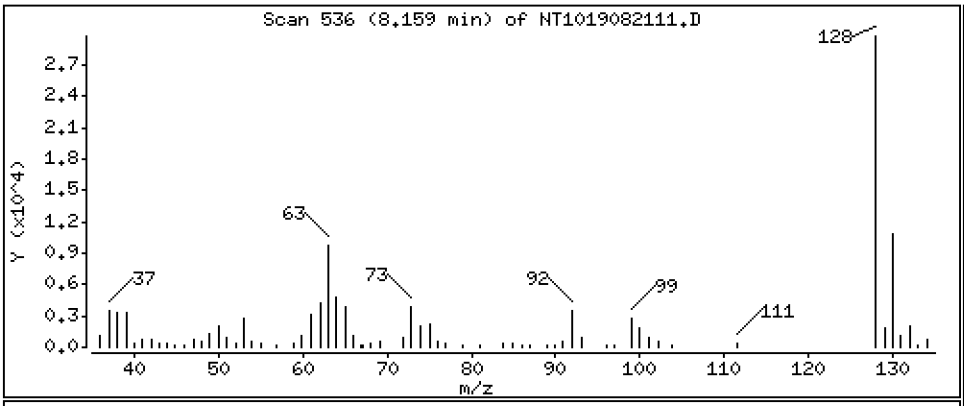
Operator: YZ

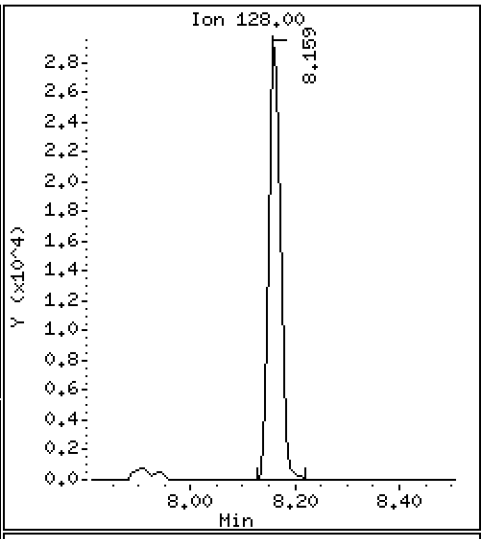
Column phase: ZB-5msi

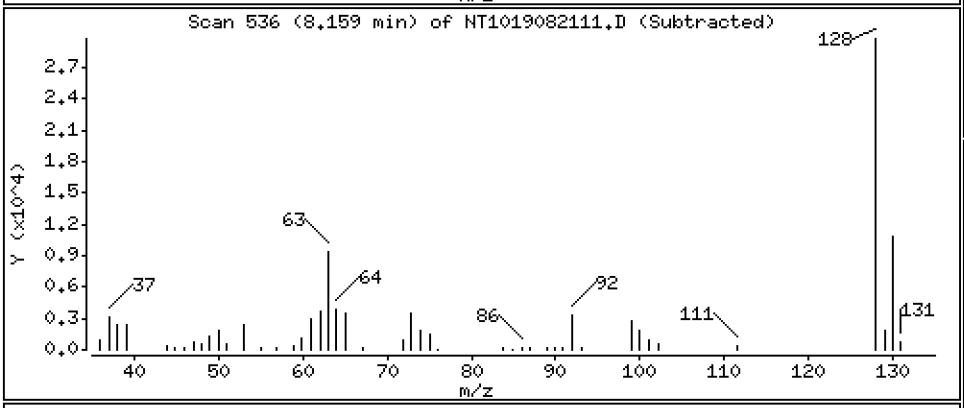
Column diameter: 0.25

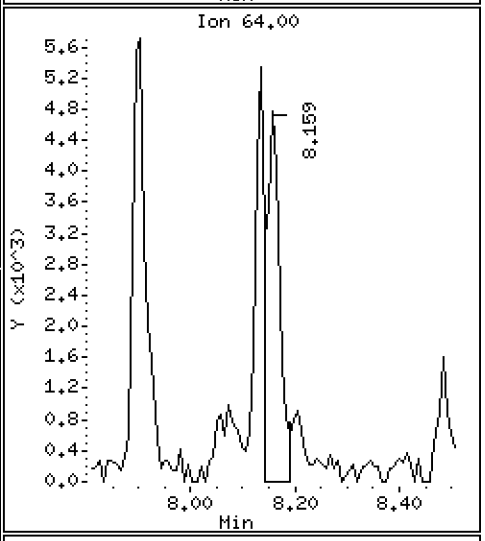
6 2-Chlorophenol

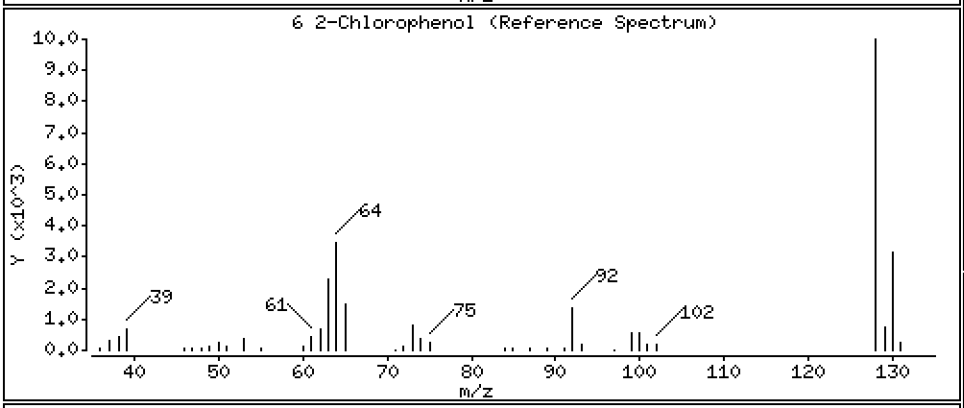
Concentration: 4.109 ug/mL

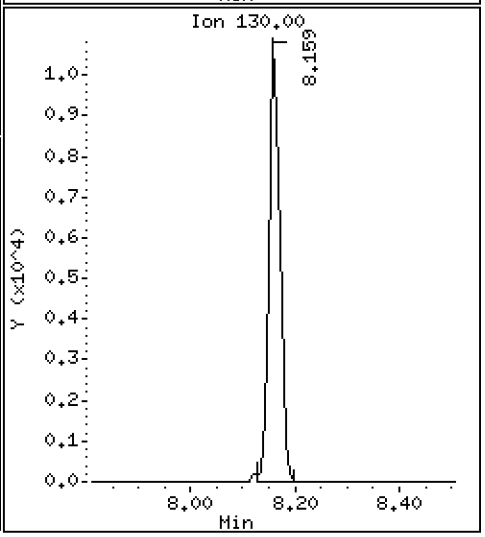


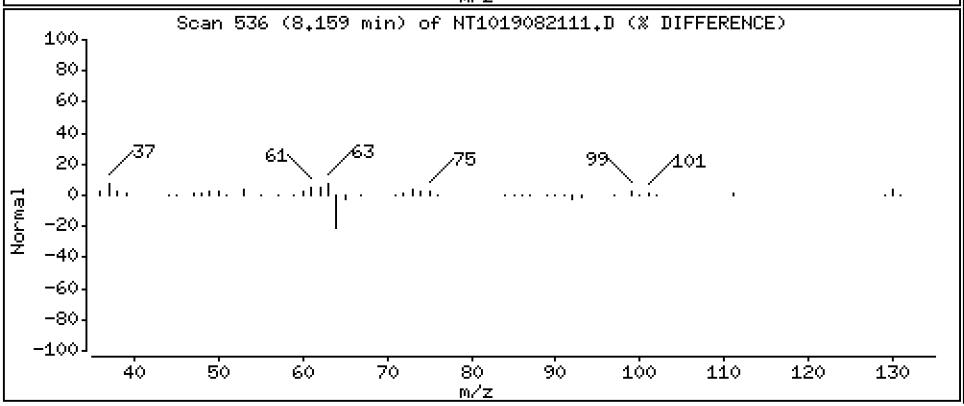












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

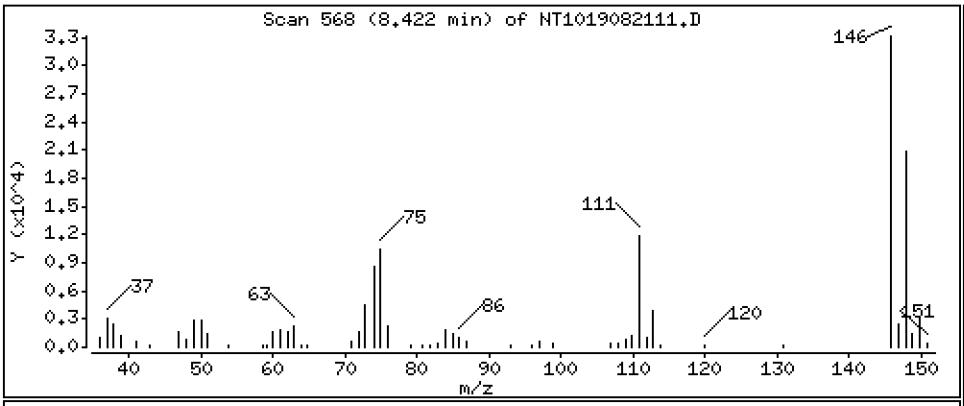
Operator: YZ

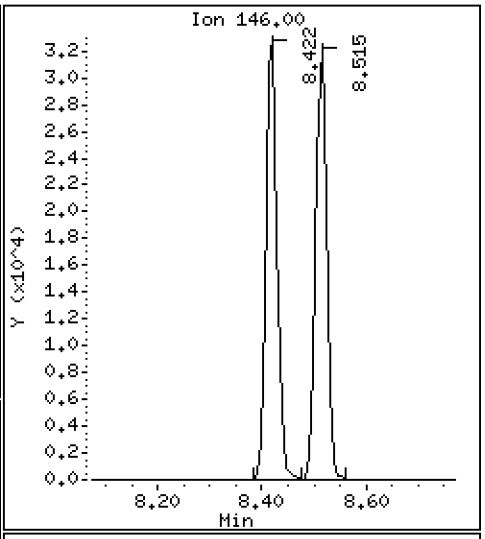
Column phase: ZB-5msi

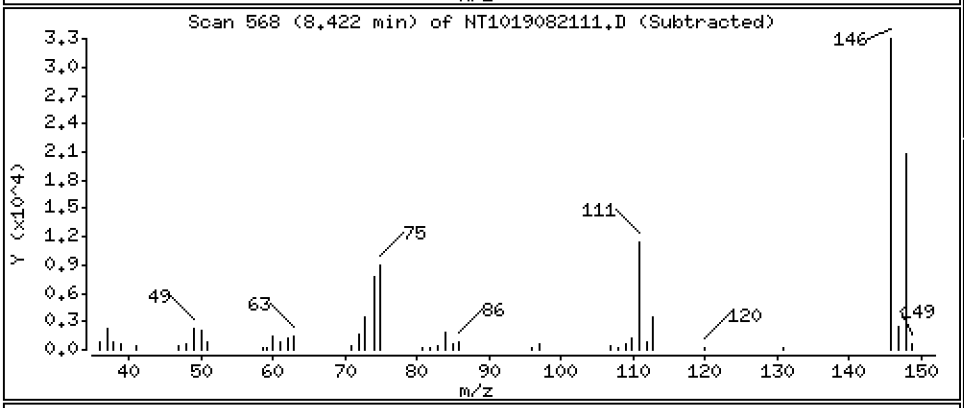
Column diameter: 0.25

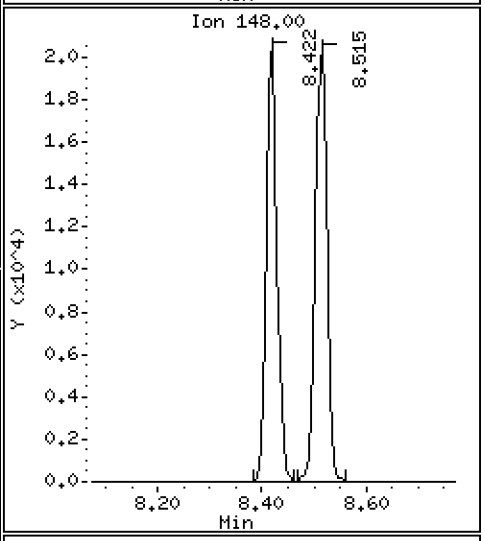
7 1,3-Dichlorobenzene

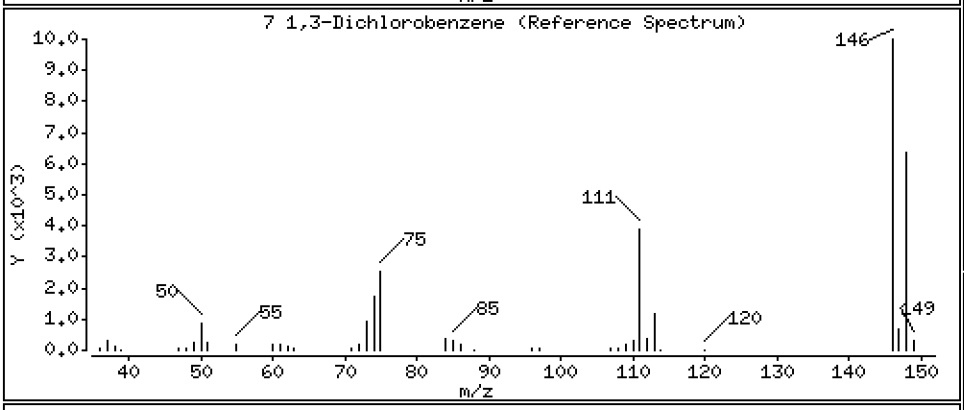
Concentration: 3.942 ug/mL

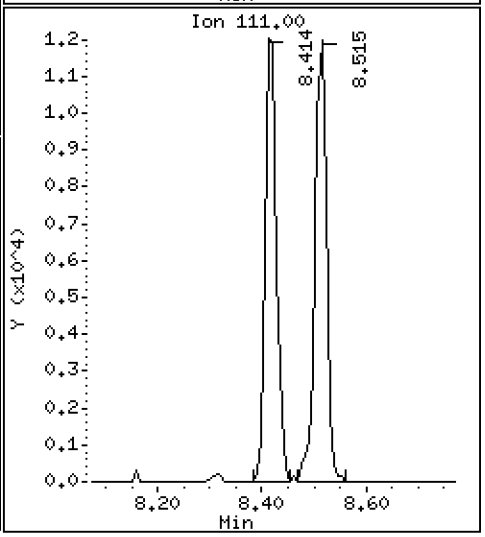


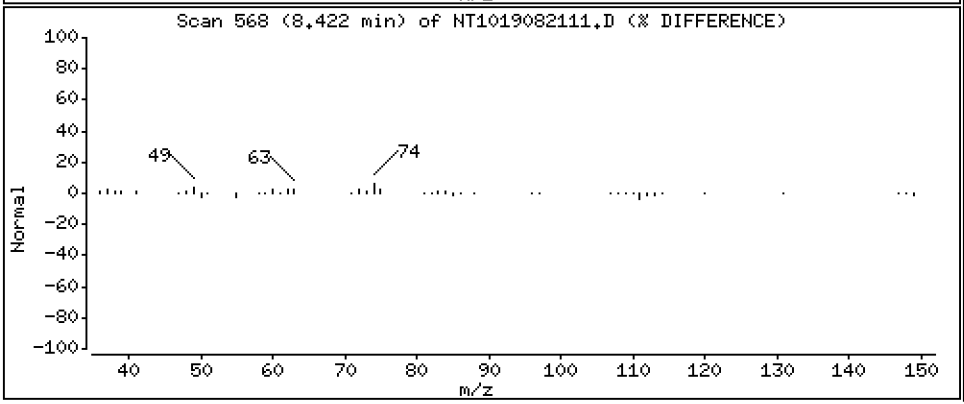












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

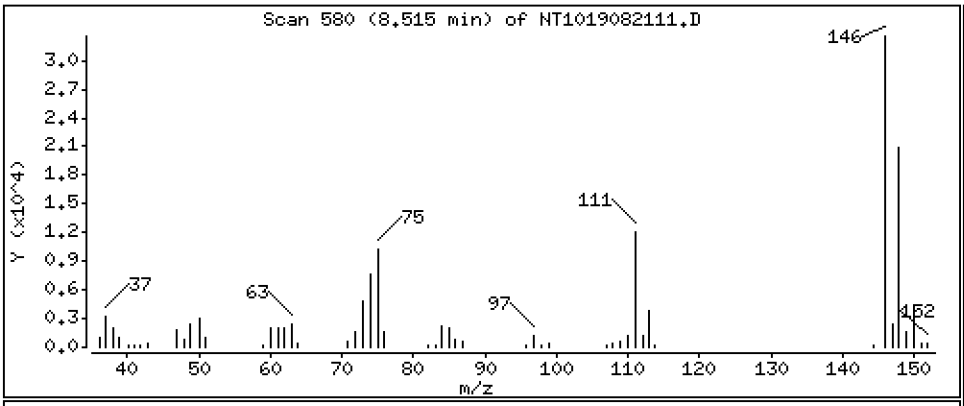
Operator: YZ

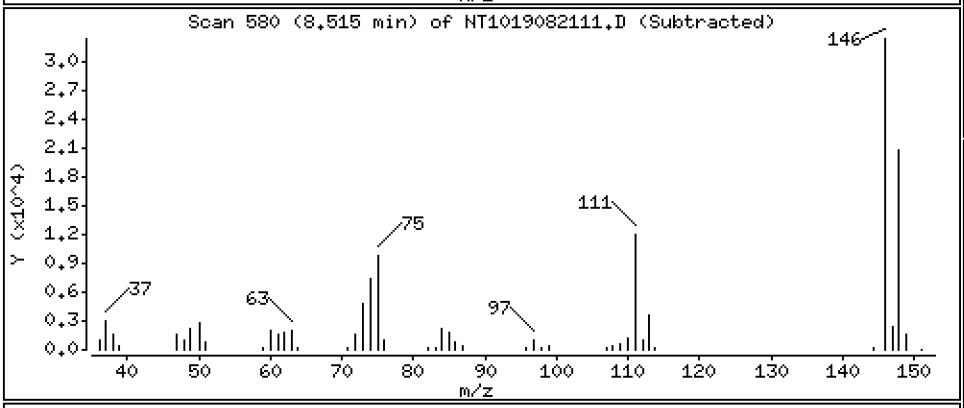
Column phase: ZB-5msi

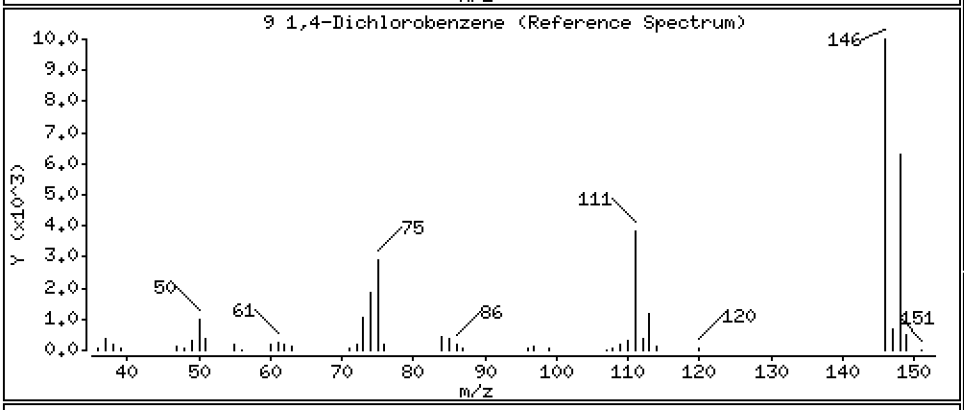
Column diameter: 0.25

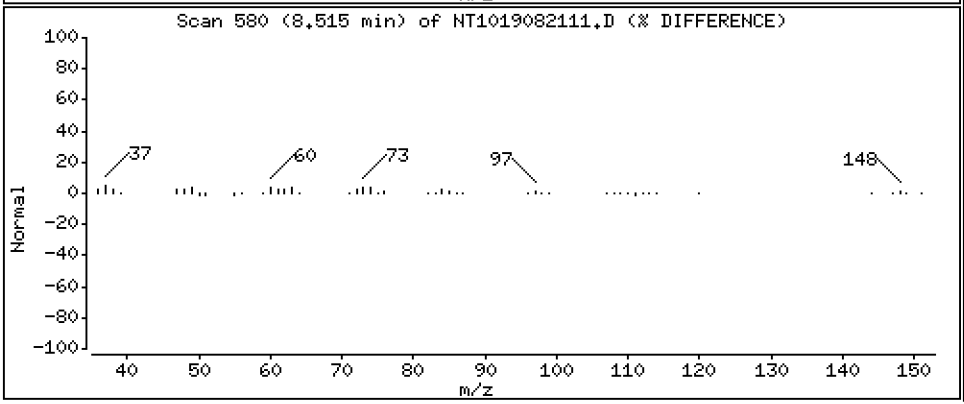
9 1,4-Dichlorobenzene

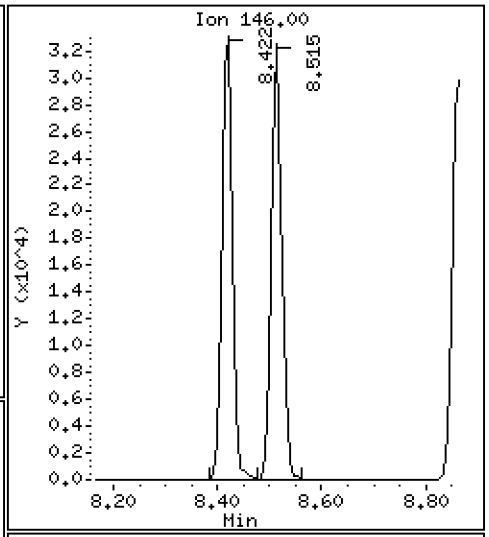
Concentration: 3.779 ug/mL

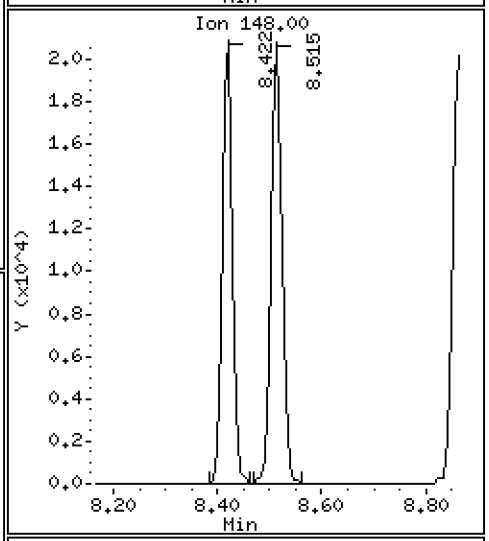


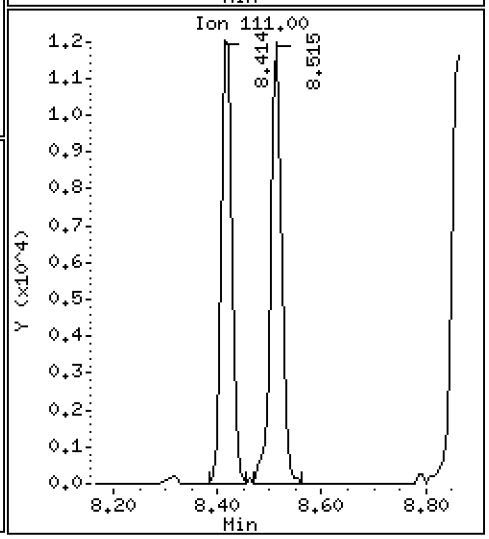












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

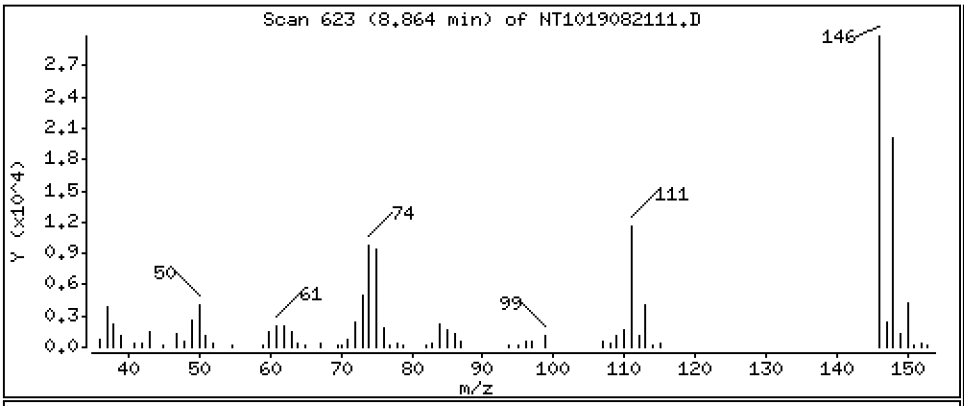
Operator: YZ

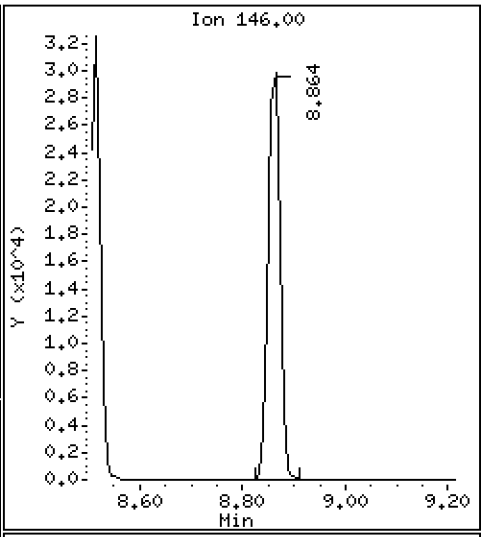
Column phase: ZB-5msi

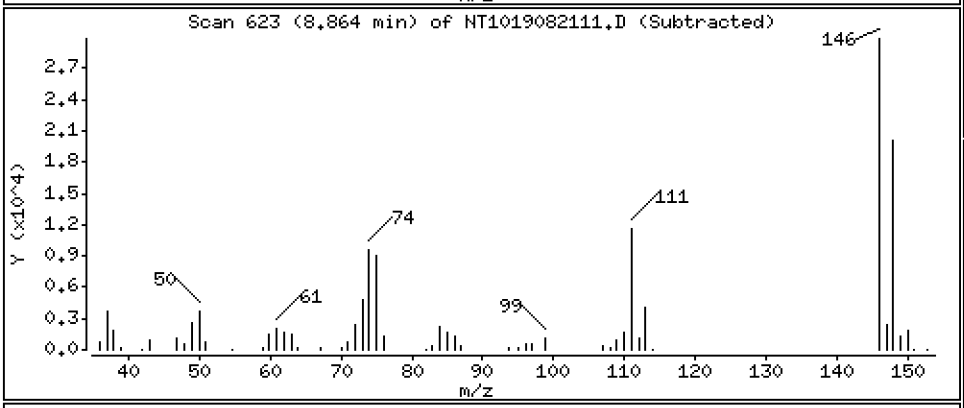
Column diameter: 0.25

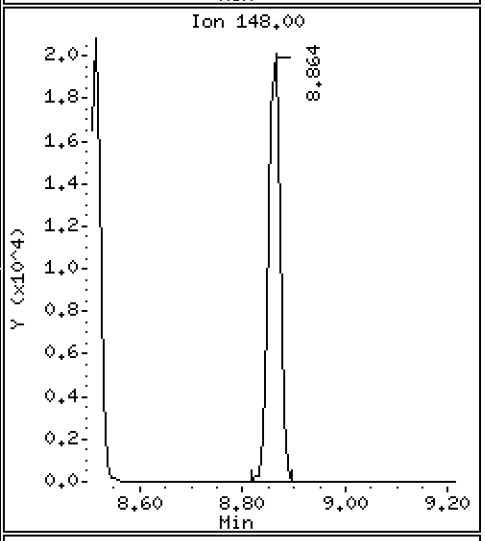
12 1,2-Dichlorobenzene

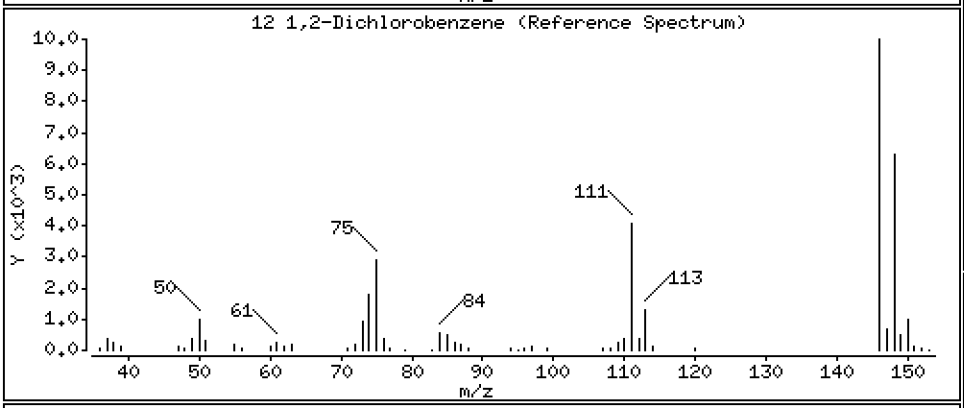
Concentration: 4.006 ug/mL

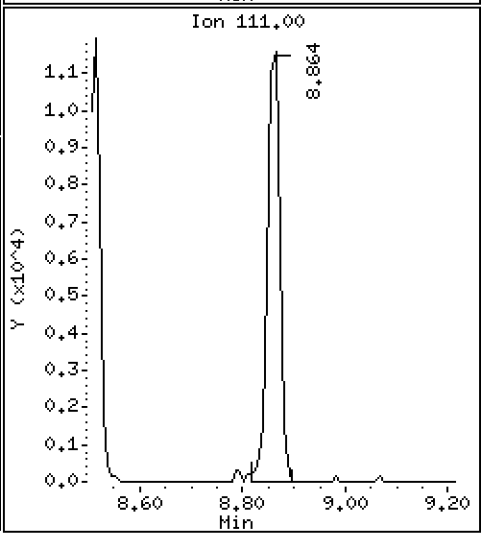


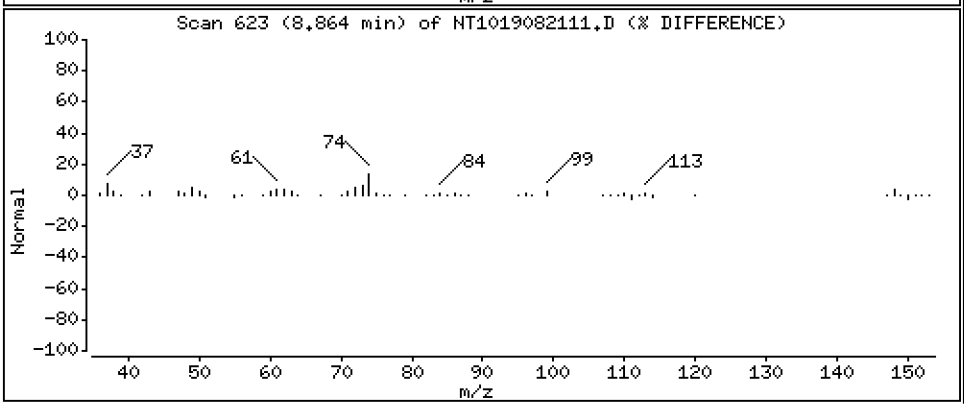












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

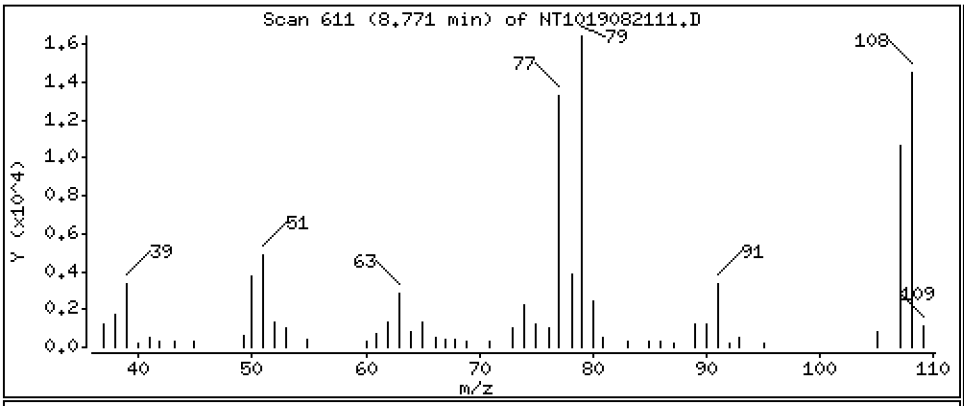
Operator: YZ

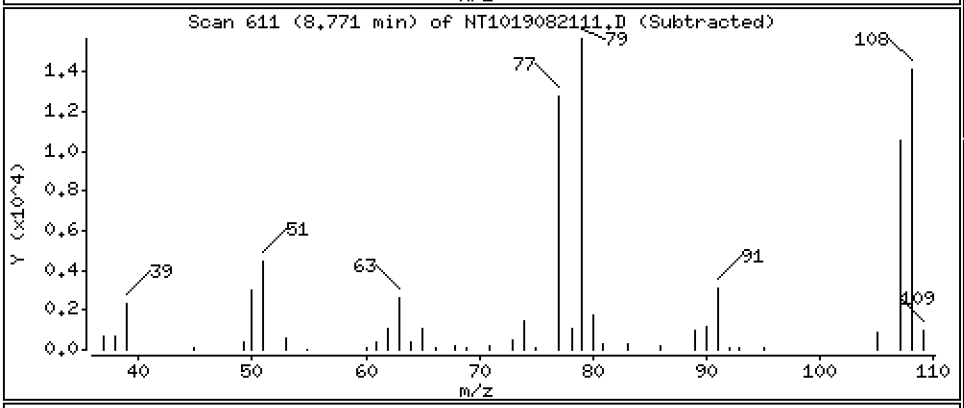
Column phase: ZB-5msi

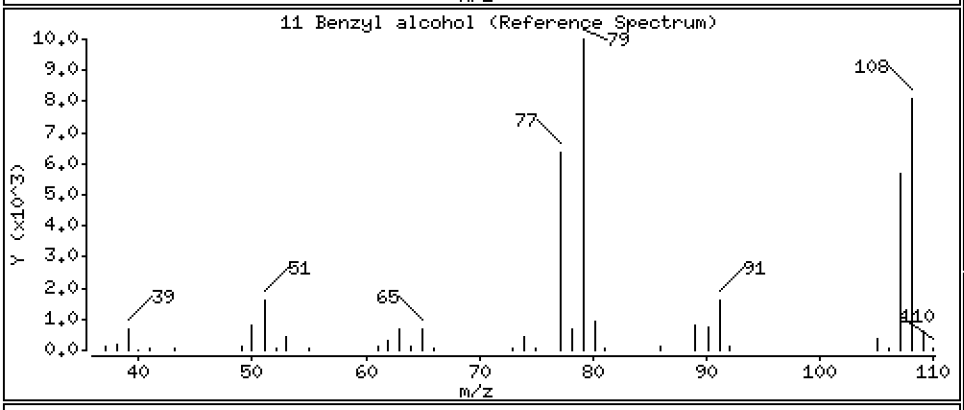
Column diameter: 0.25

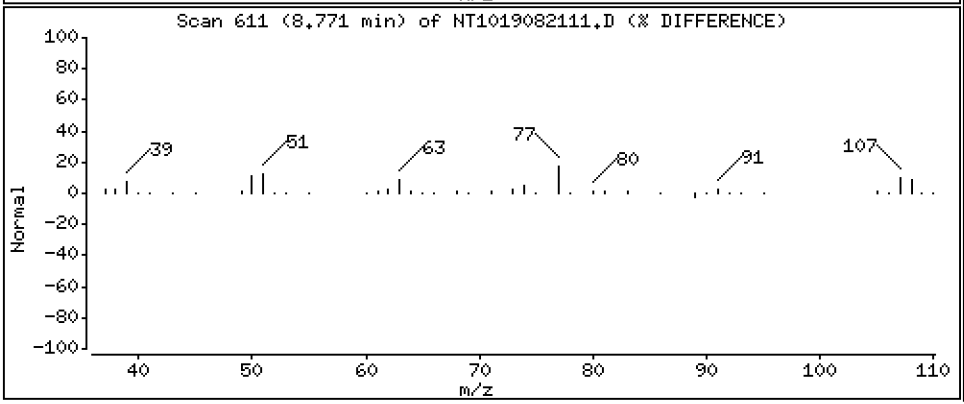
11 Benzyl alcohol

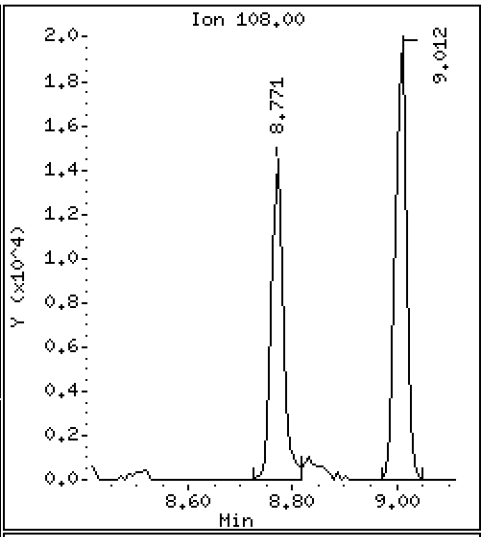
Concentration: 3.436 ug/mL

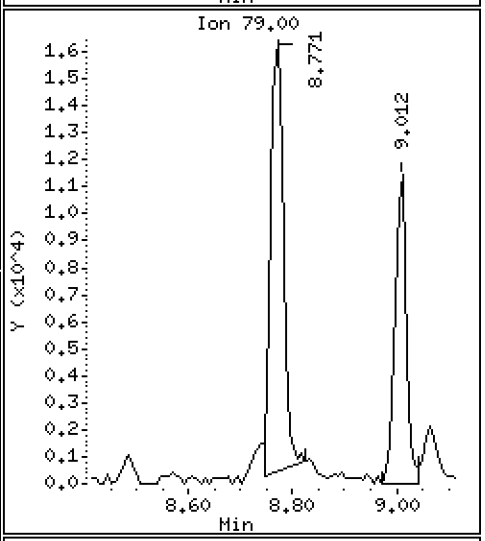


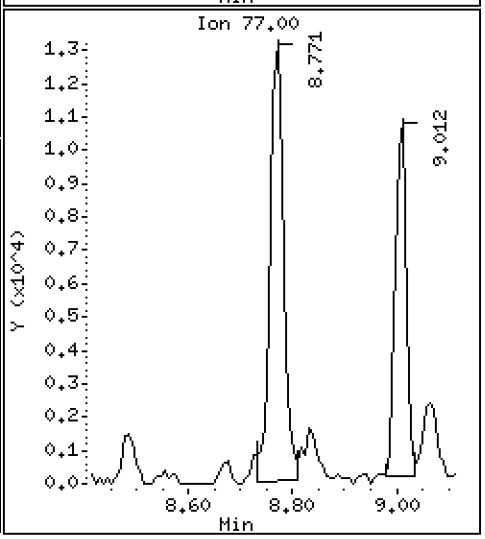












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

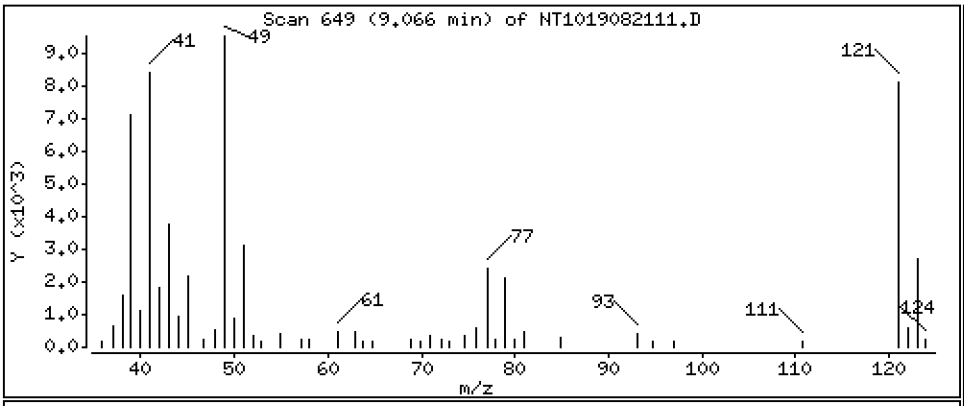
Operator: YZ

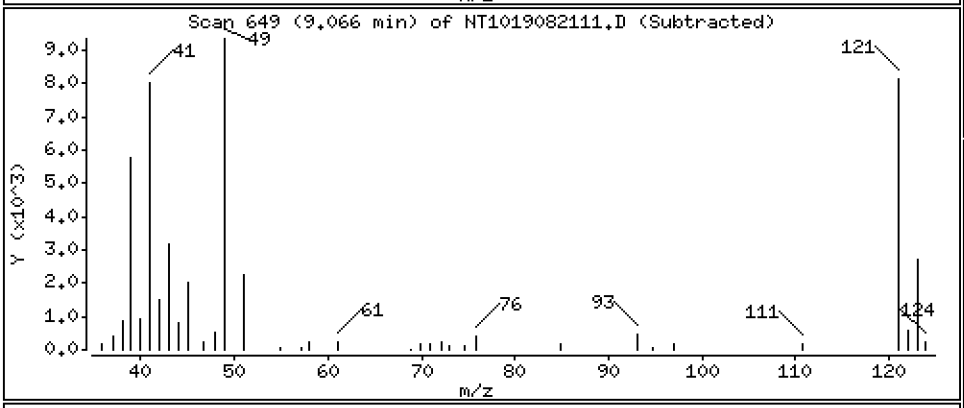
Column phase: ZB-5msi

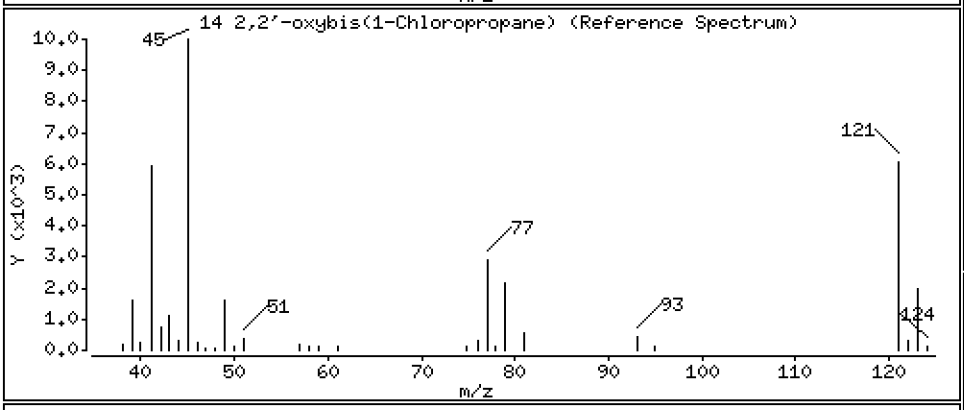
Column diameter: 0.25

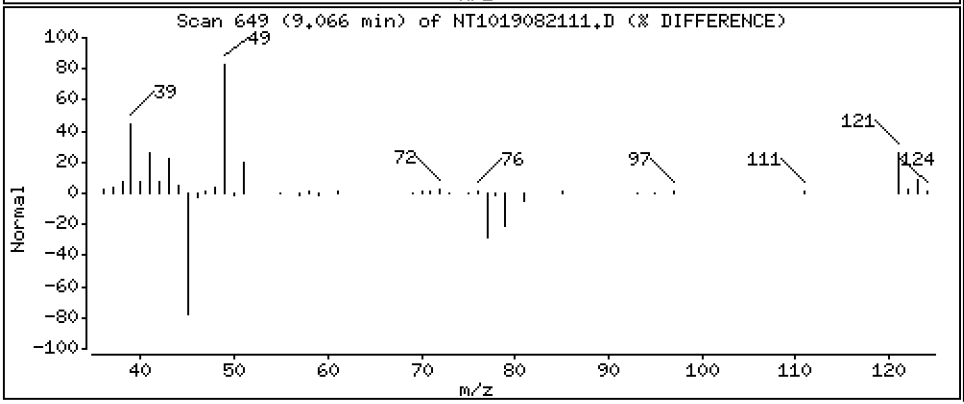
14 2,2'-oxybis(1-Chloropropane)

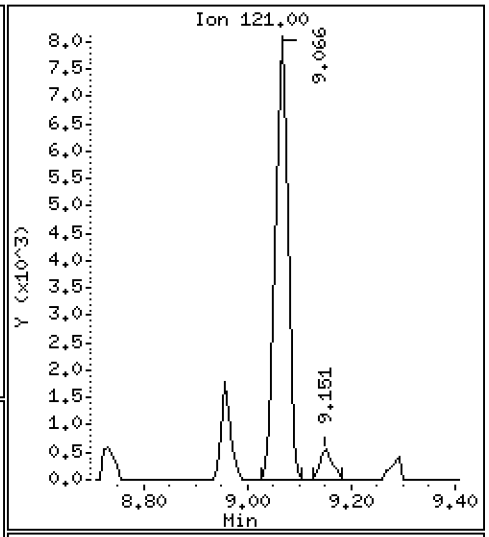
Concentration: 3.960 ug/mL

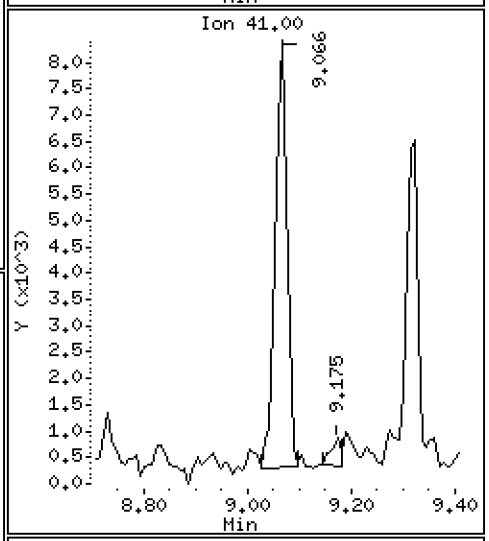


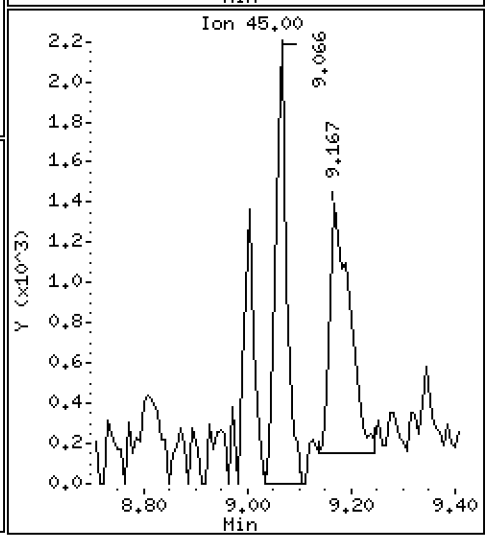












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

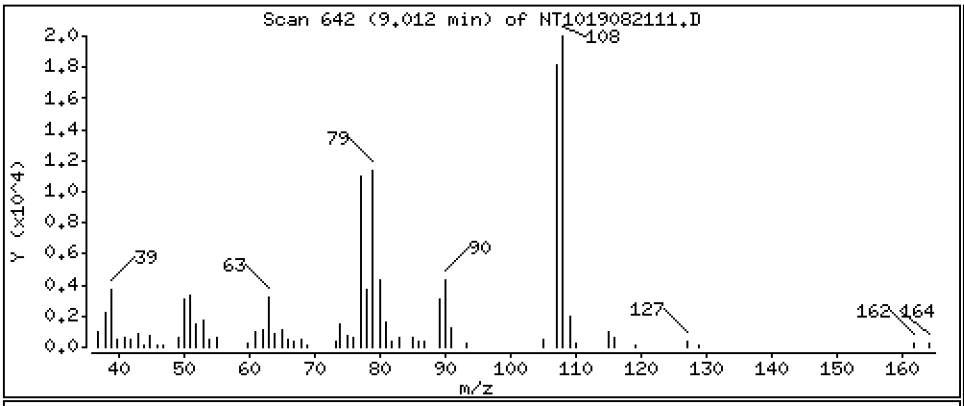
Operator: YZ

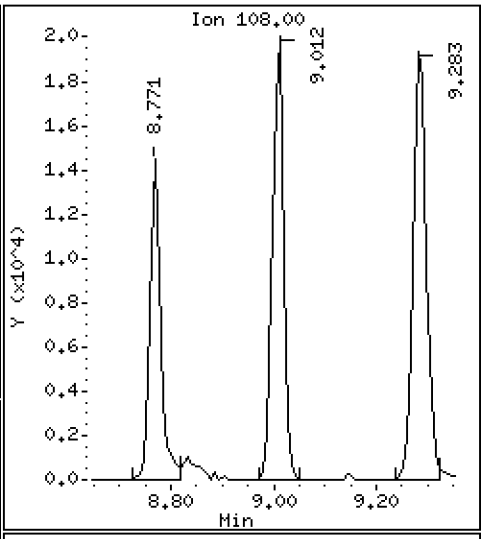
Column phase: ZB-5msi

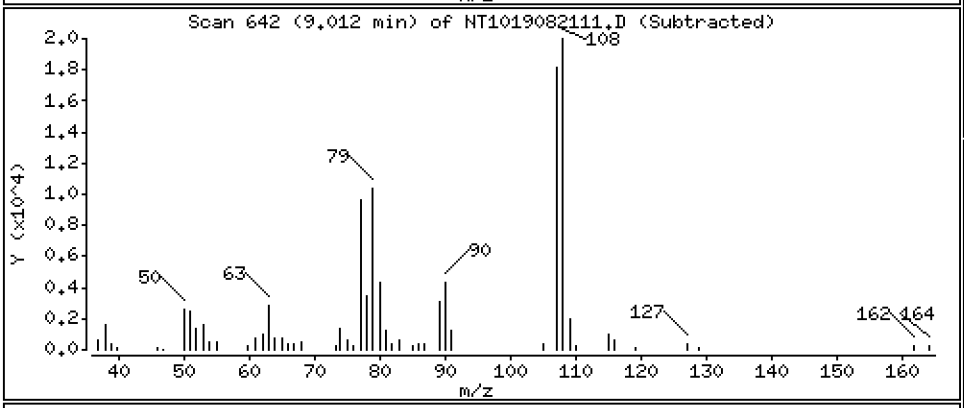
Column diameter: 0.25

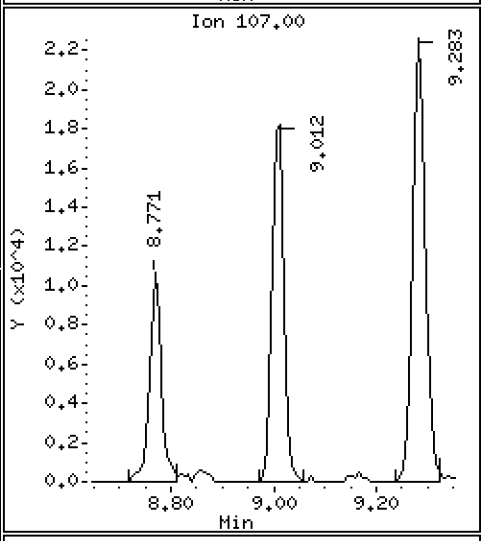
13 2-Methylphenol

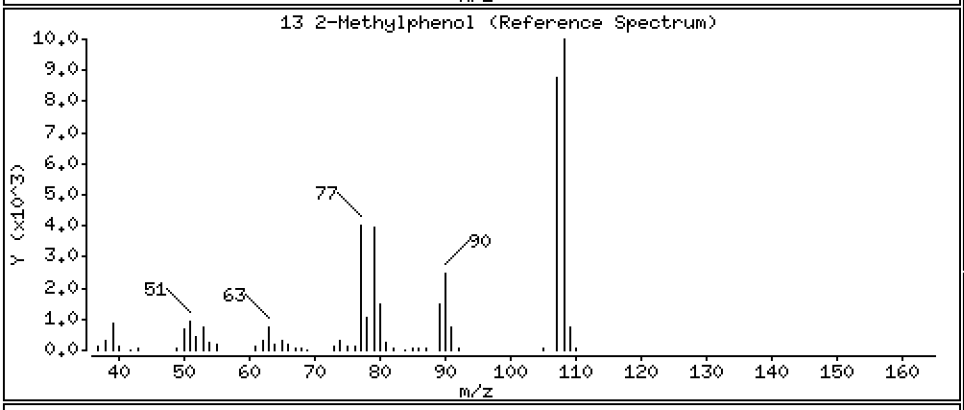
Concentration: 3.844 ug/mL

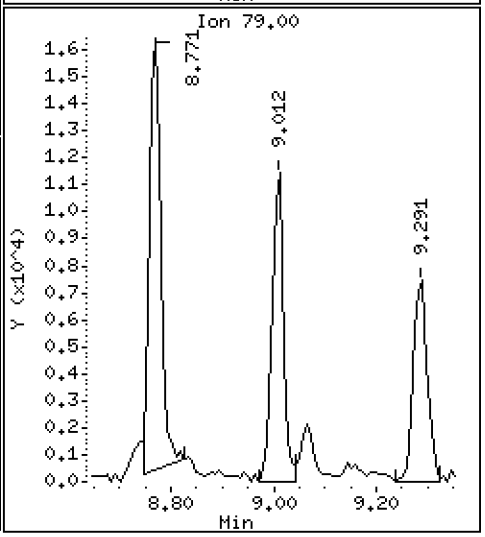


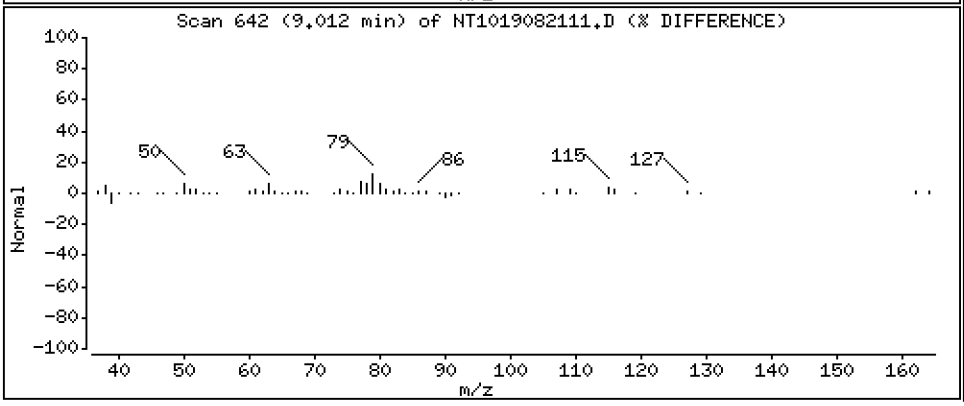












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

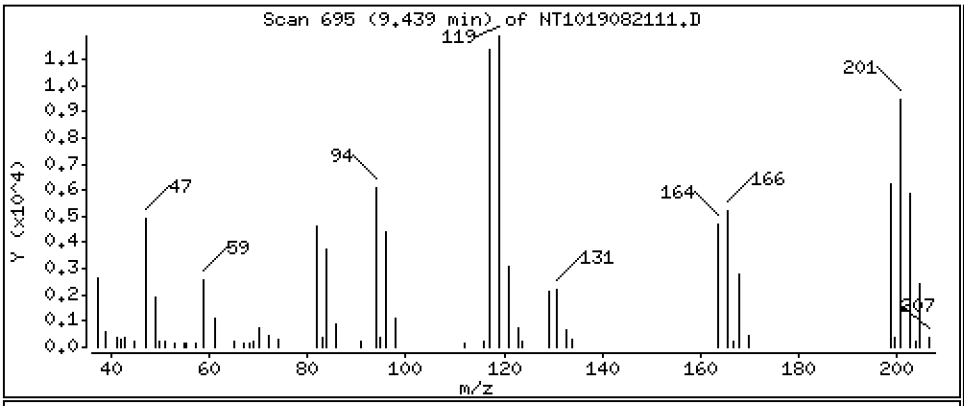
Operator: YZ

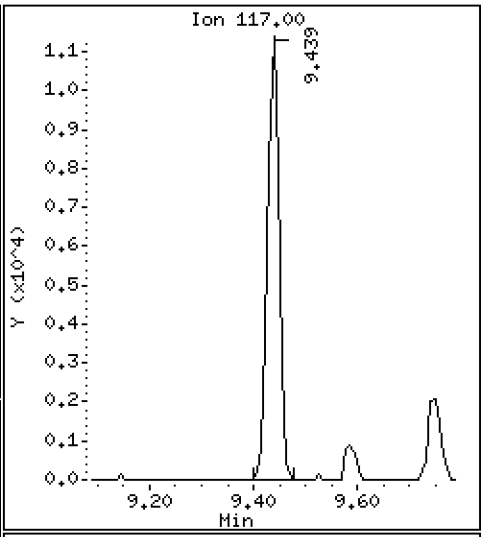
Column phase: ZB-5msi

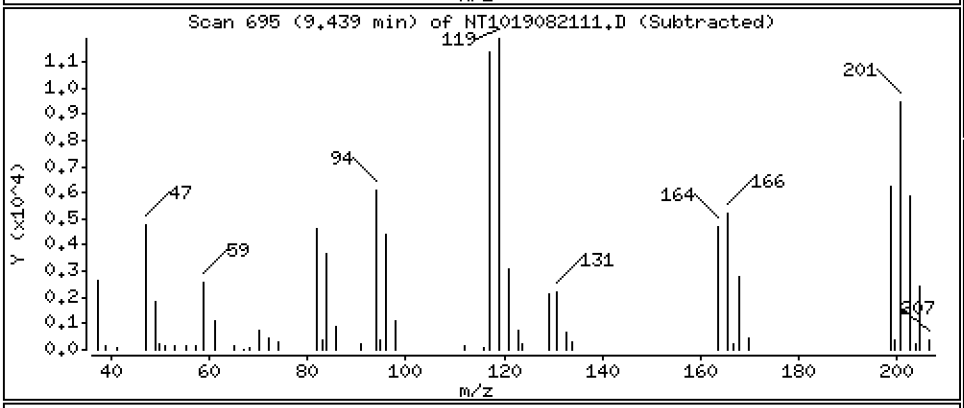
Column diameter: 0.25

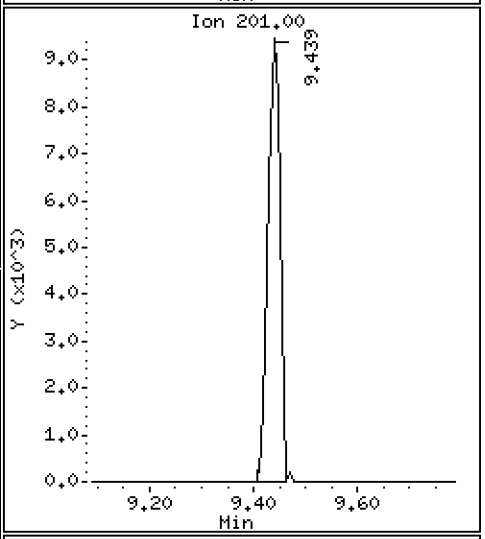
17 Hexachloroethane

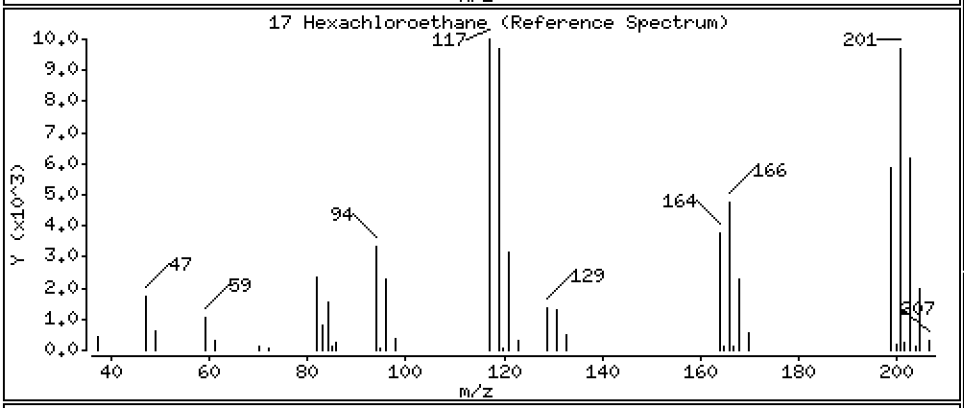
Concentration: 3.363 ug/mL

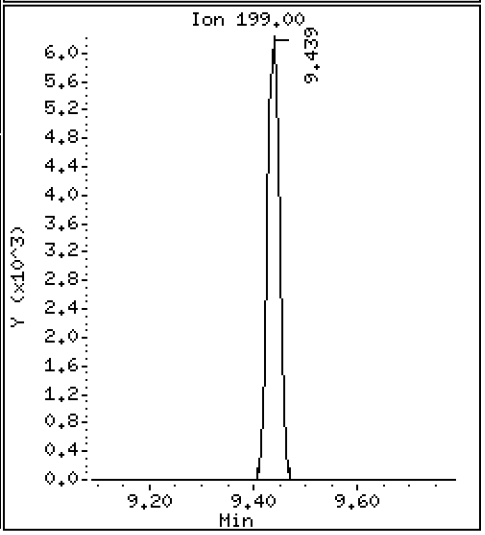


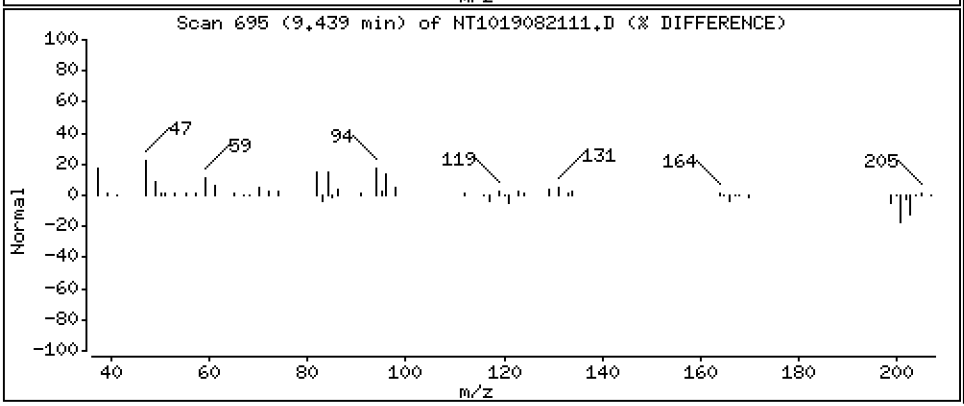












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

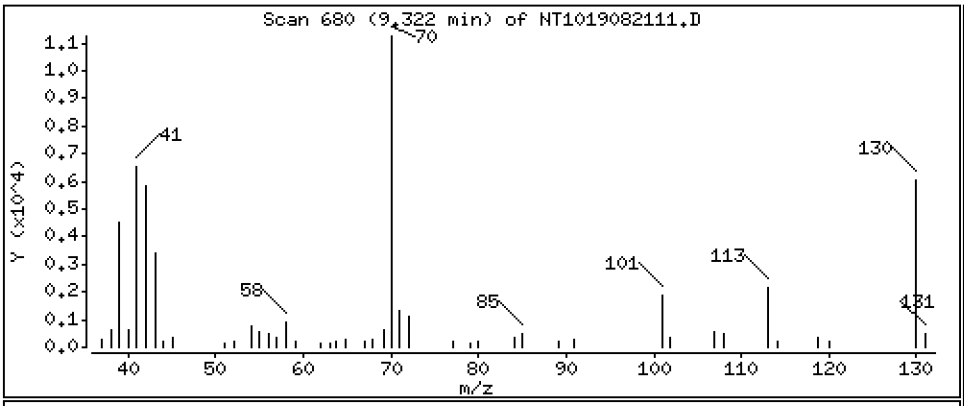
Operator: YZ

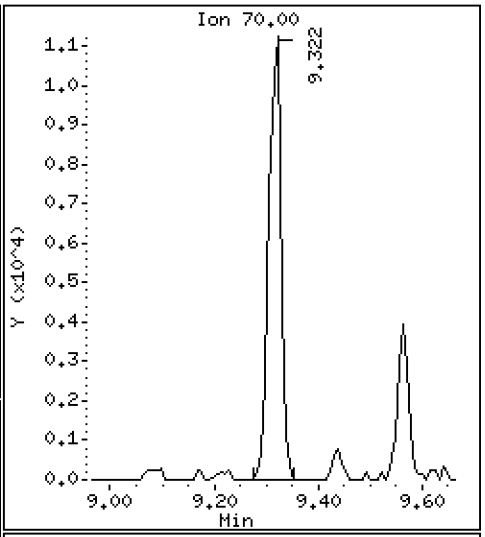
Column phase: ZB-5msi

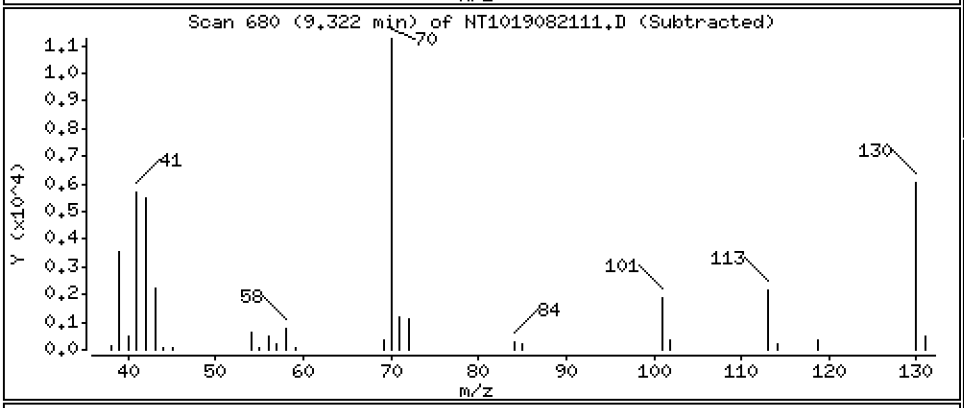
Column diameter: 0.25

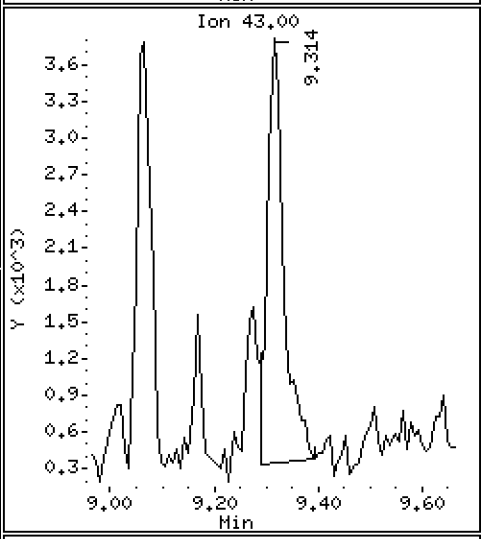
16 N-Nitroso-di-n-propylamine

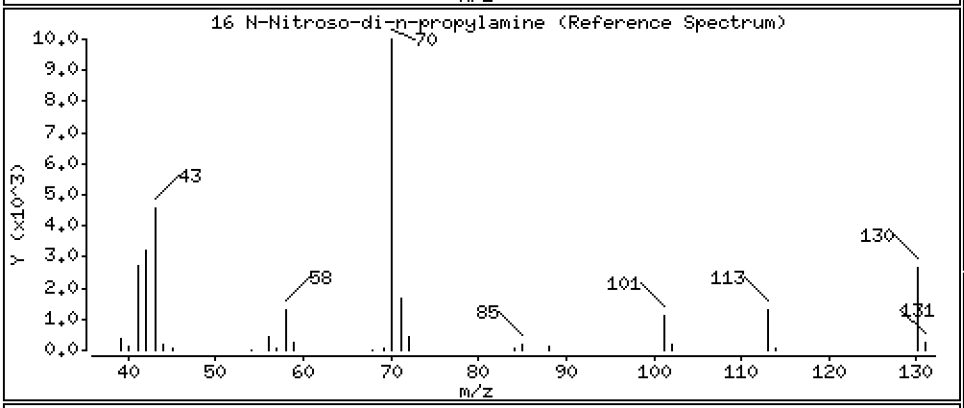
Concentration: 3.719 ug/mL

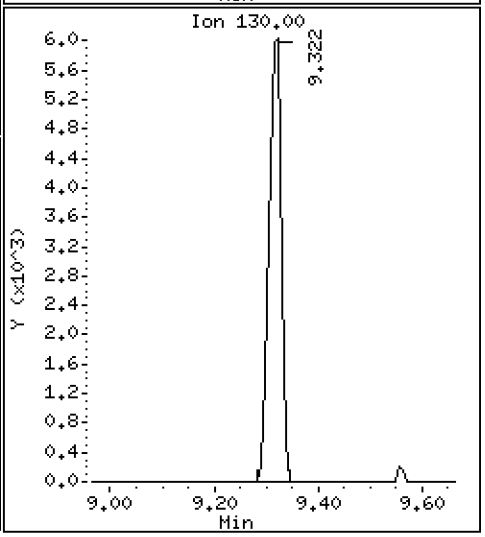


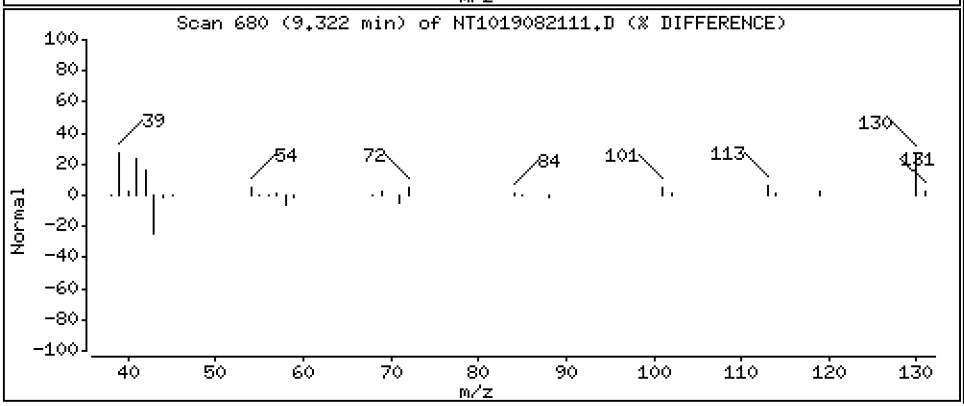












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

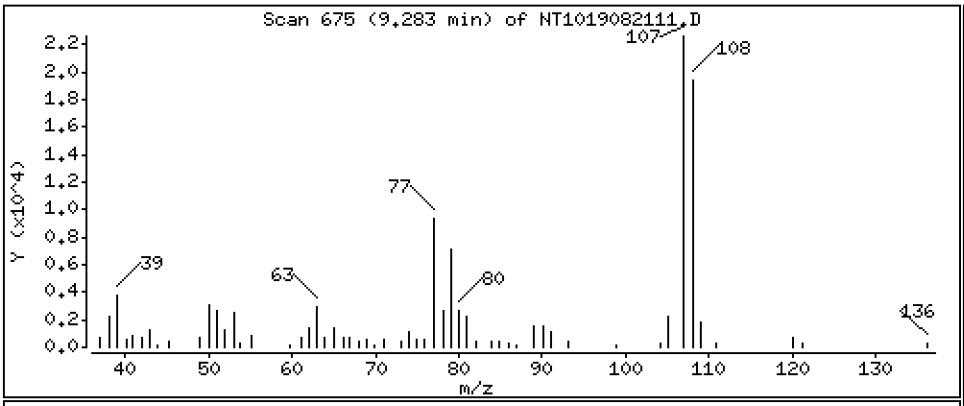
Operator: YZ

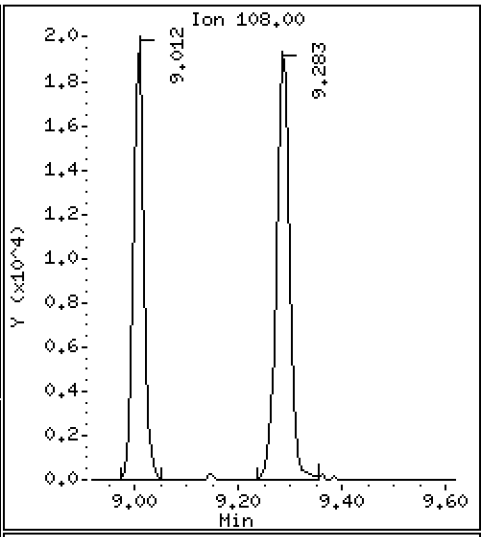
Column phase: ZB-5msi

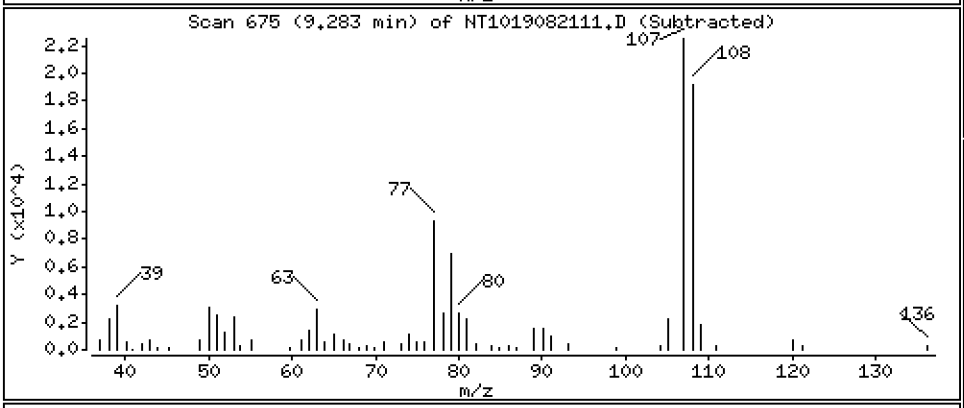
Column diameter: 0.25

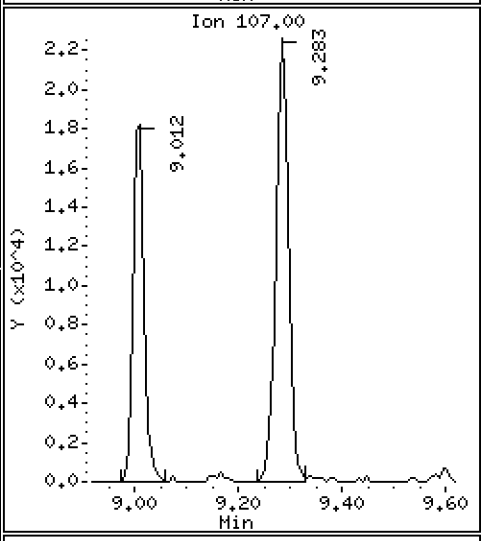
15 4-Methylphenol

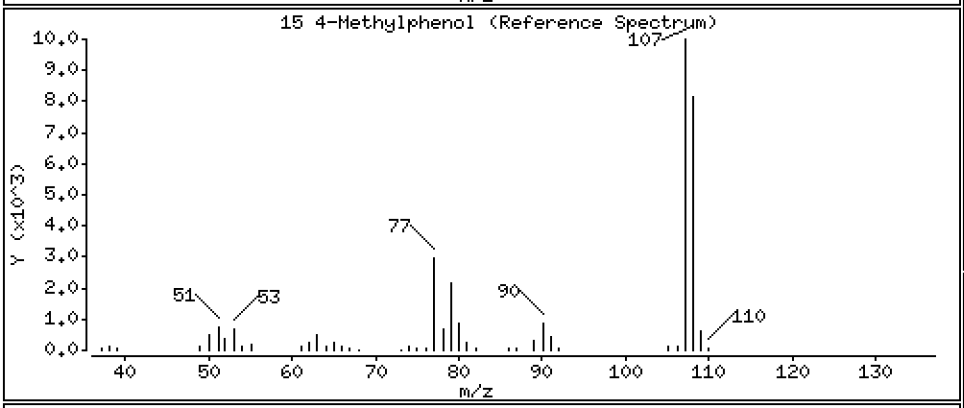
Concentration: 4.437 ug/mL

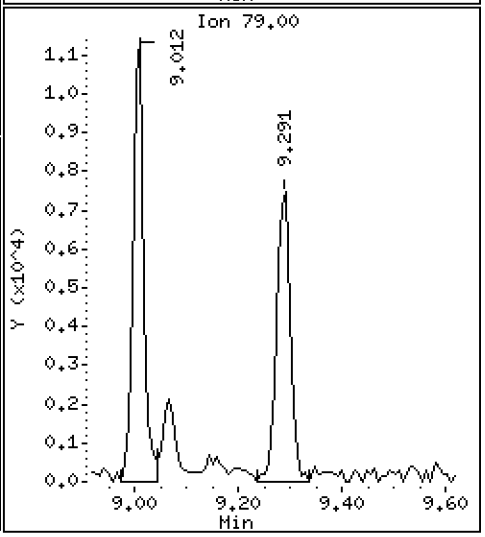


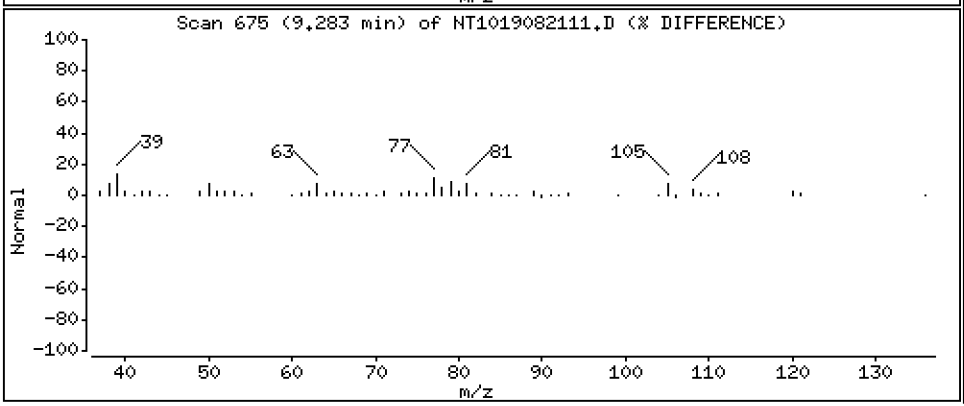












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

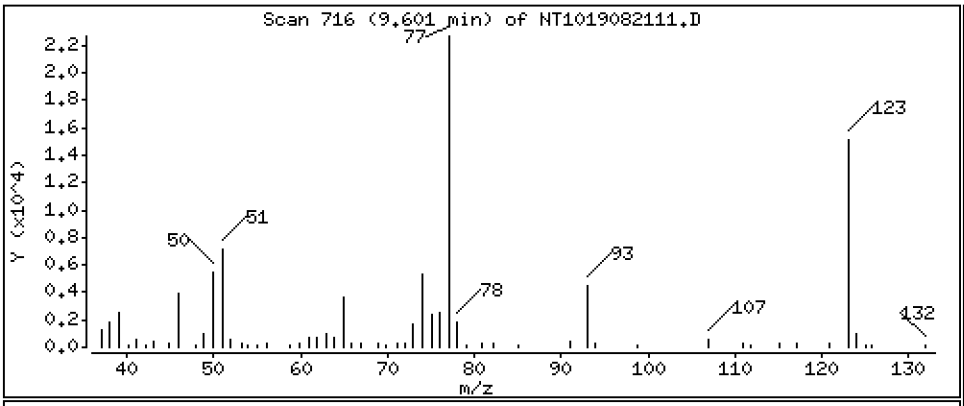
Operator: YZ

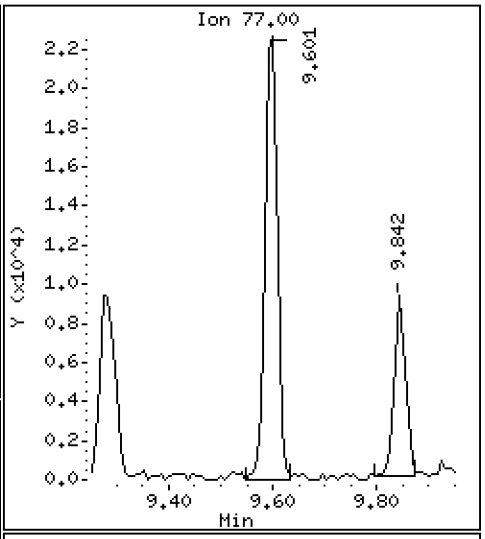
Column phase: ZB-5msi

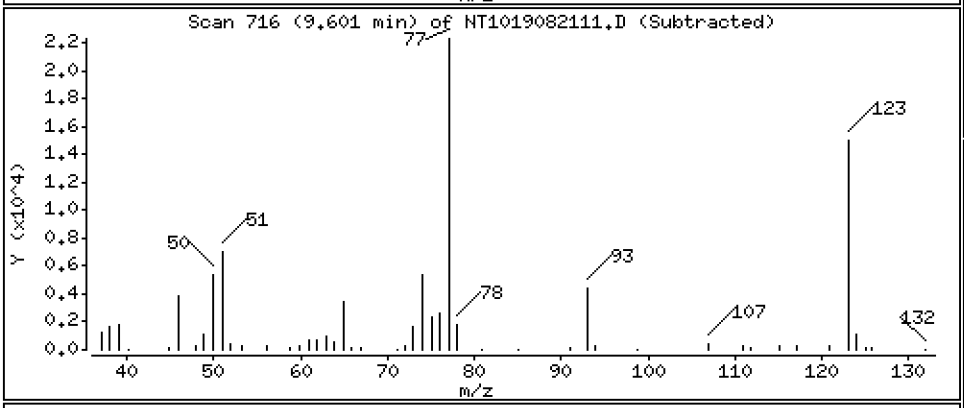
Column diameter: 0.25

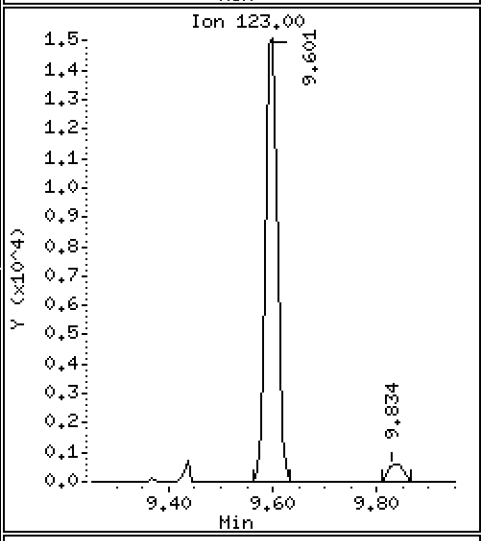
19 Nitrobenzene

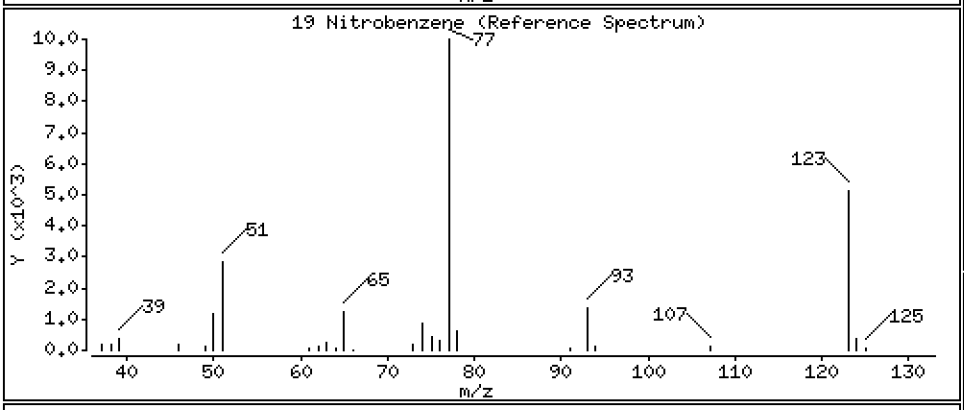
Concentration: 3.791 ug/mL

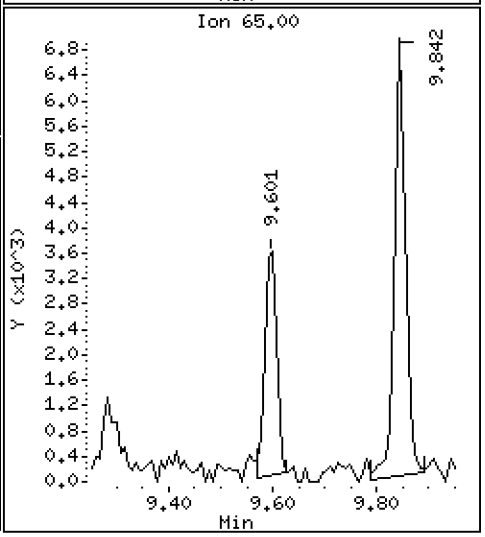


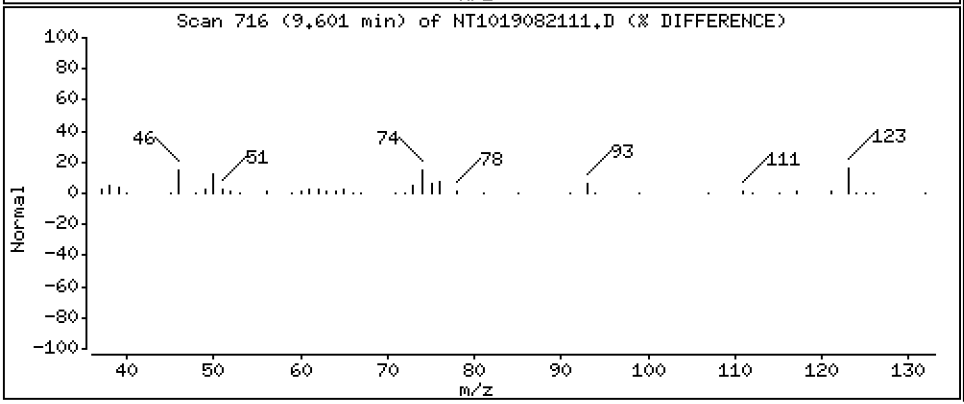












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

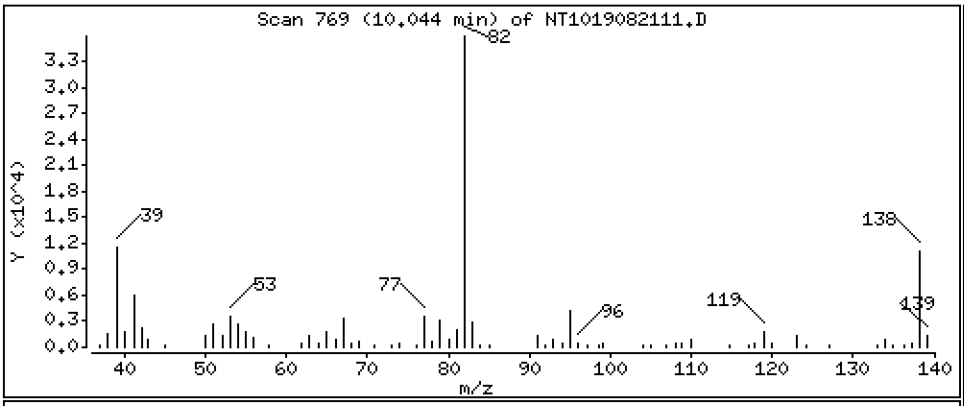
Operator: YZ

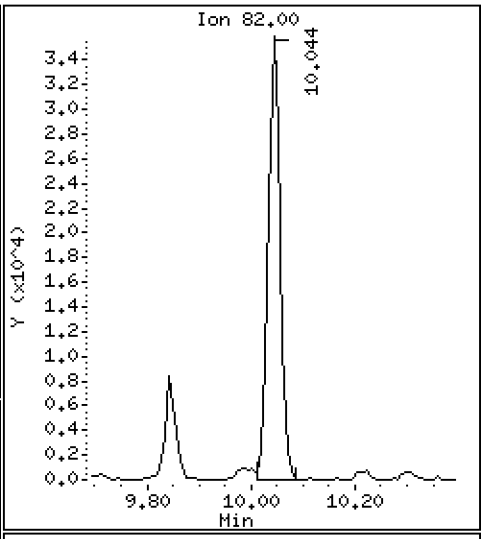
Column phase: ZB-5msi

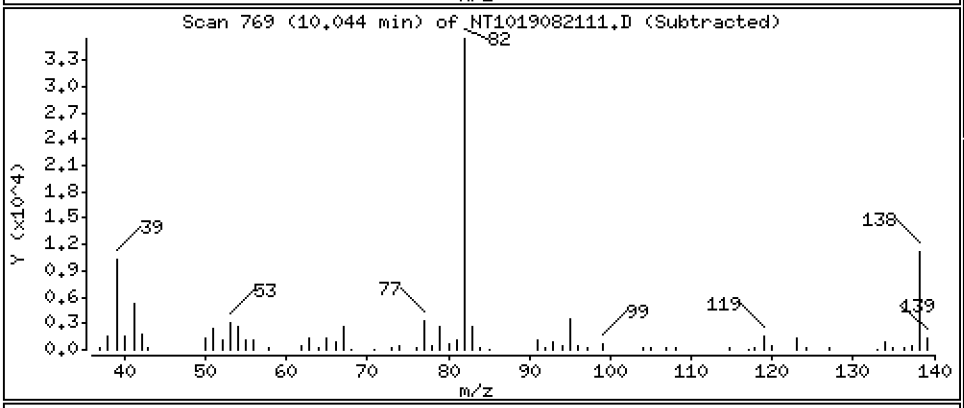
Column diameter: 0.25

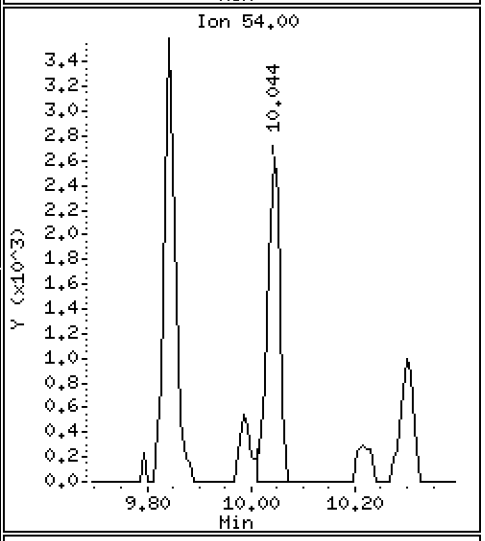
20 Isophorone

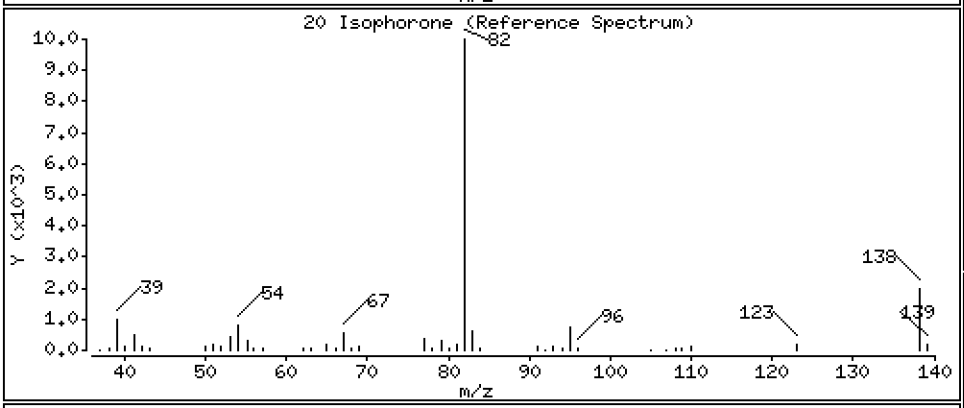
Concentration: 3.640 ug/mL

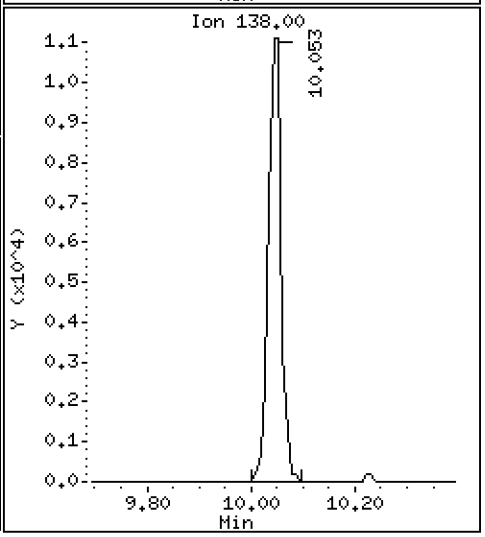


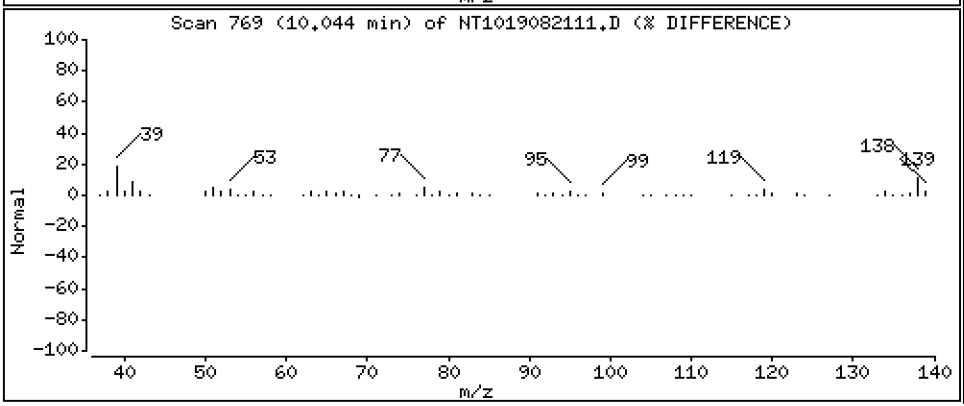












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

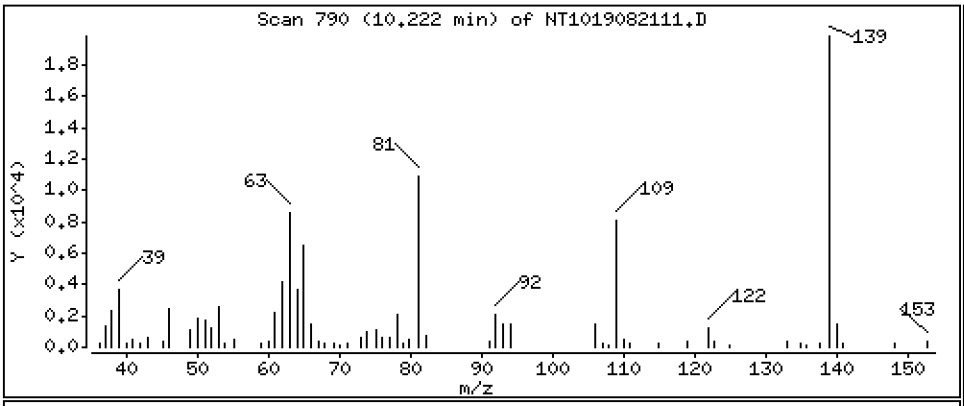
Operator: YZ

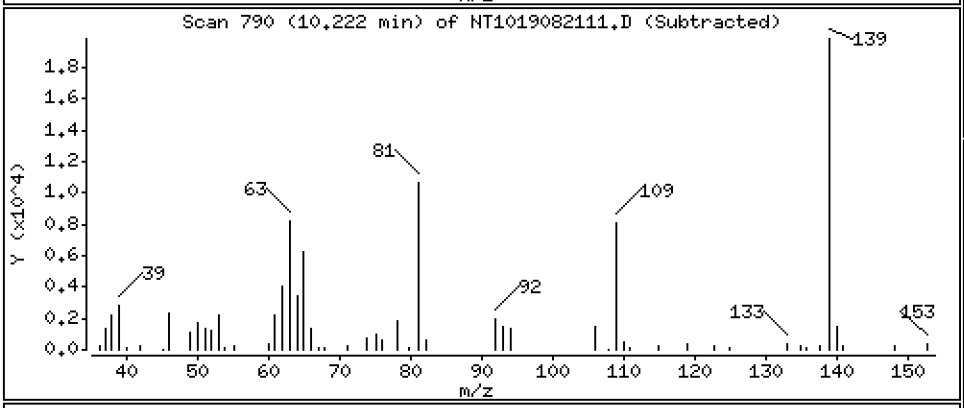
Column phase: ZB-5msi

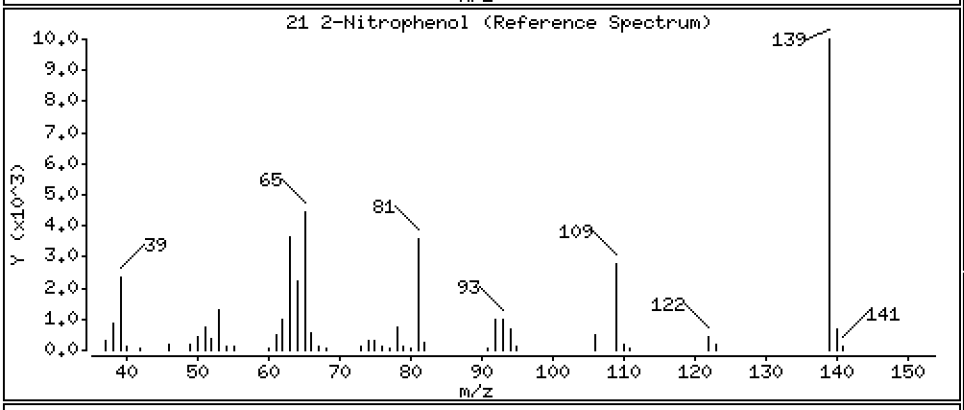
Column diameter: 0.25

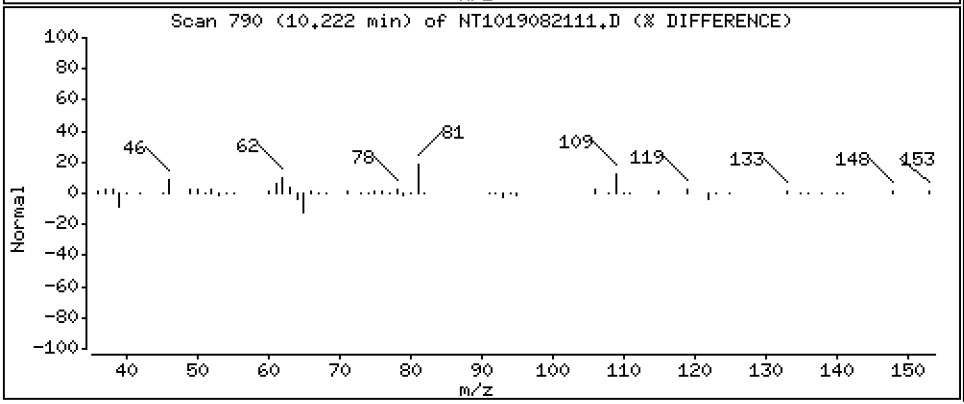
21 2-Nitrophenol

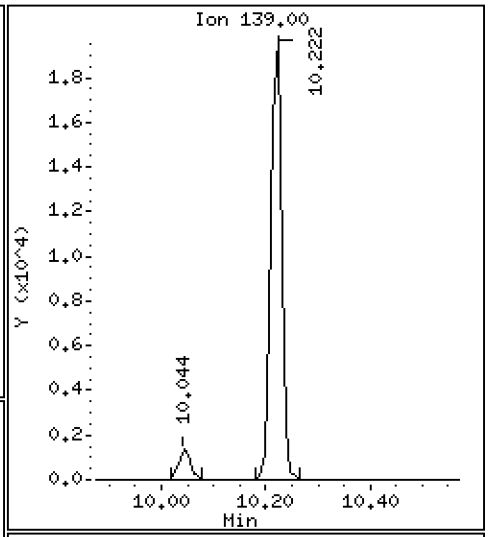
Concentration: 4.632 ug/mL

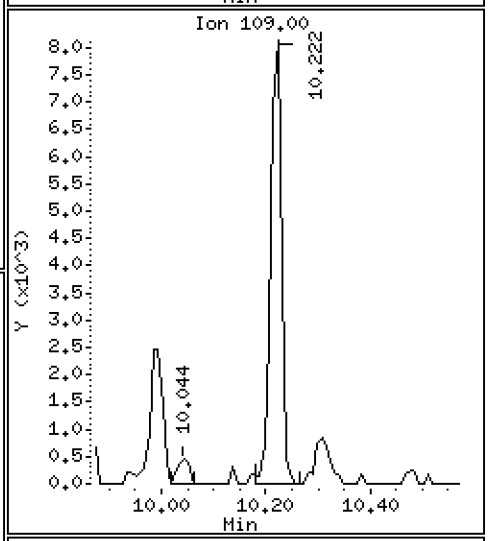


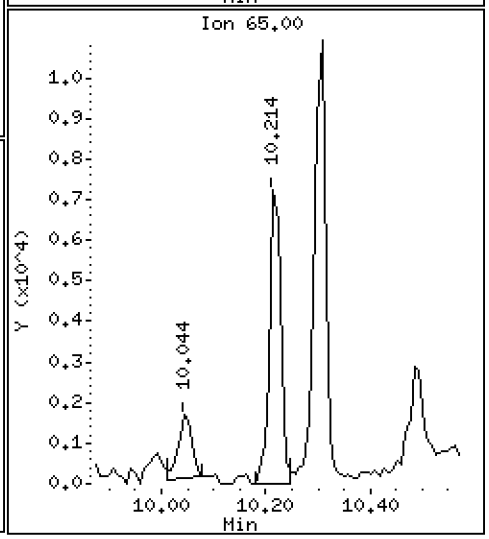












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

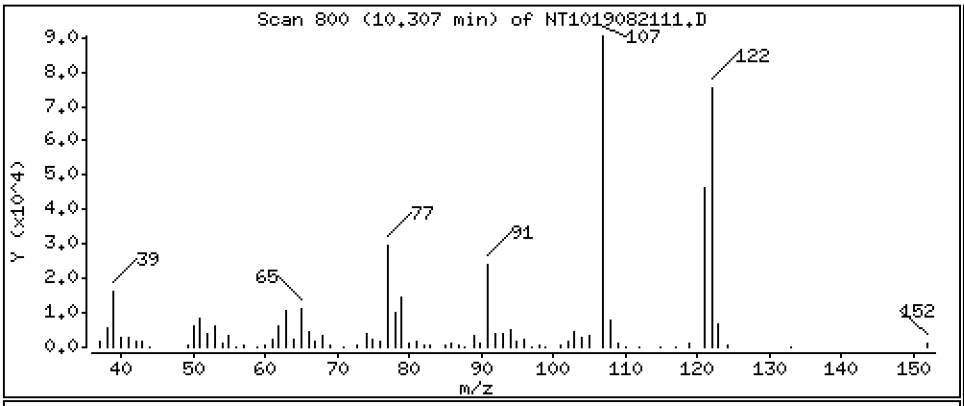
Operator: YZ

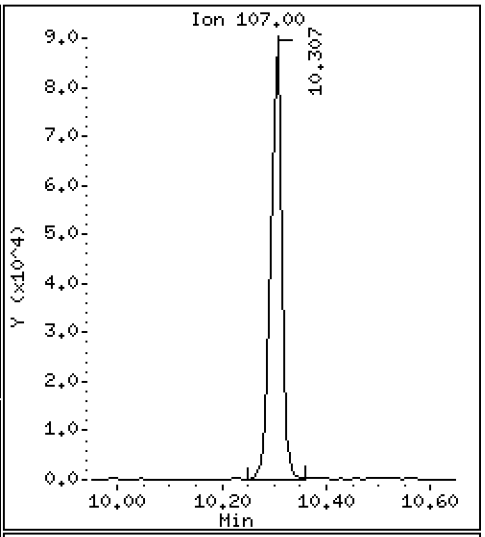
Column phase: ZB-5msi

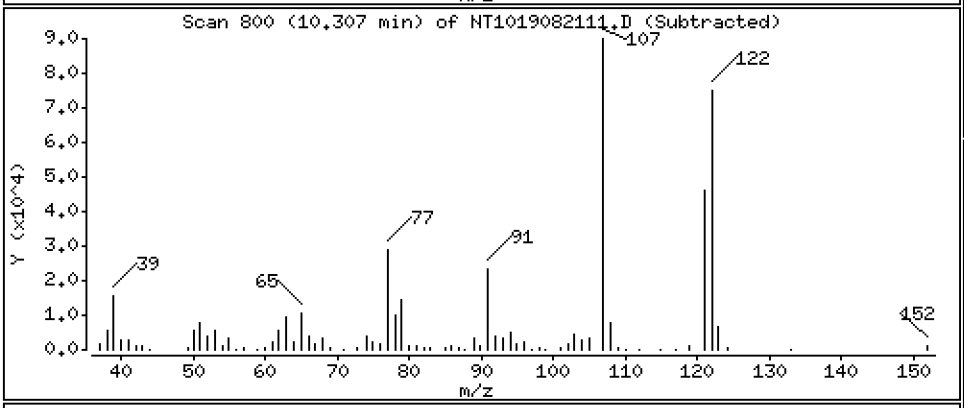
Column diameter: 0.25

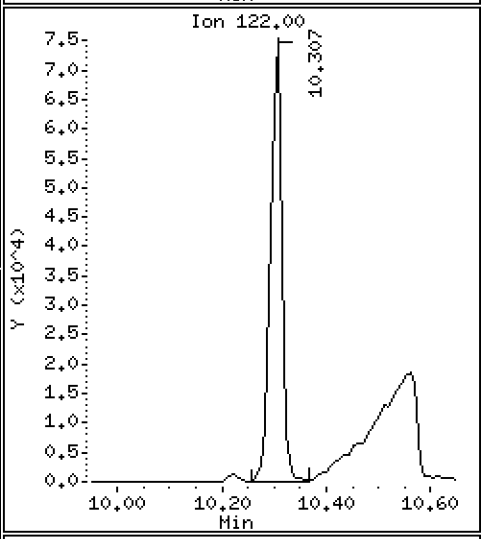
22 2,4-Dimethylphenol

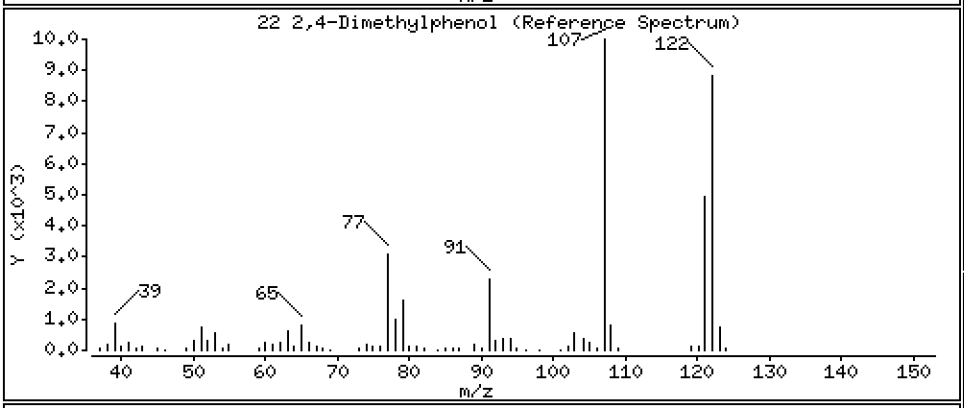
Concentration: 13.06 ug/mL

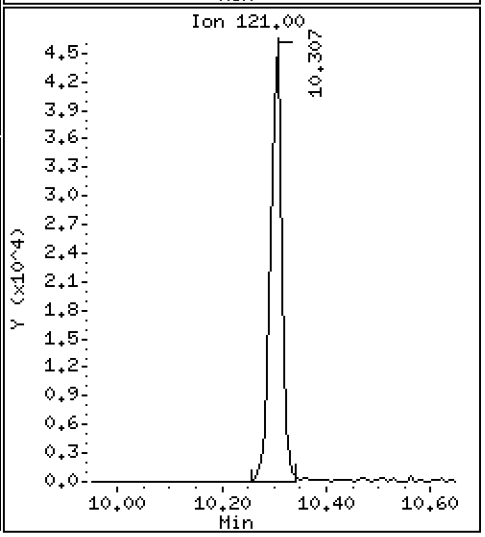


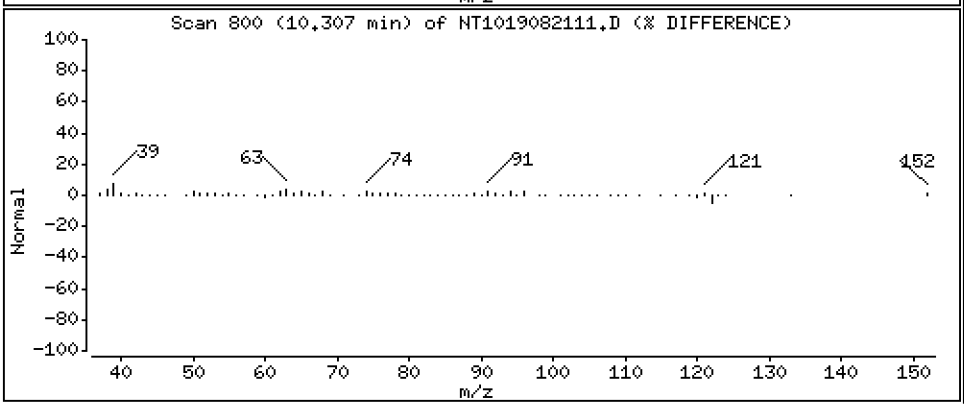












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

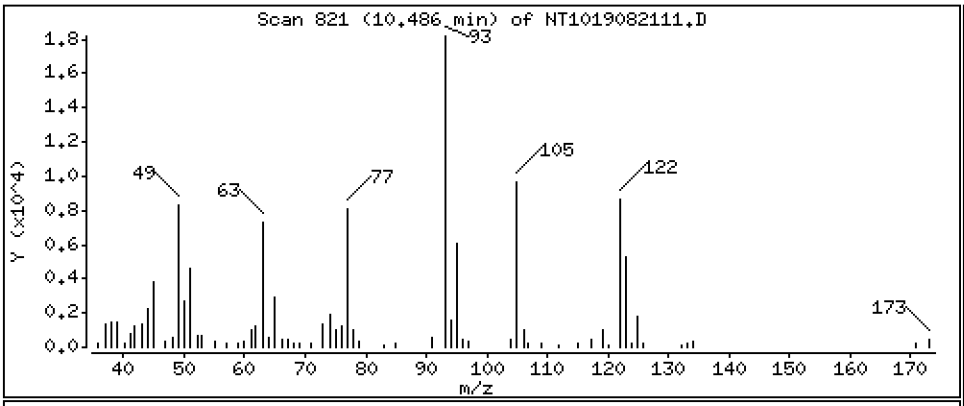
Operator: YZ

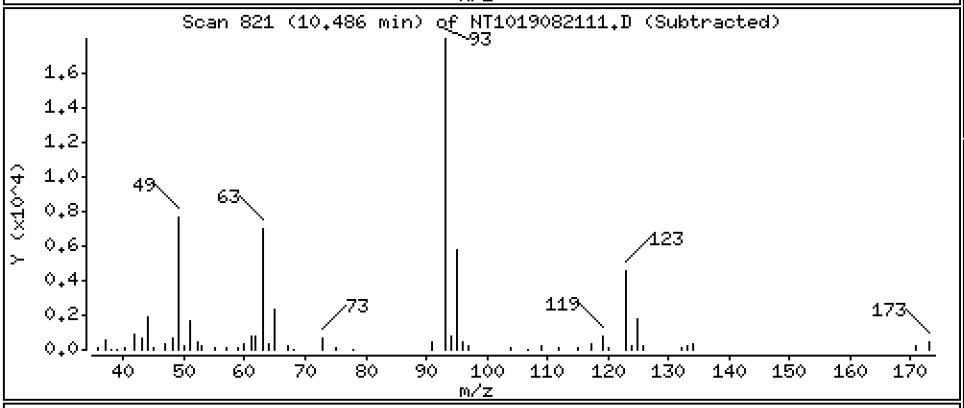
Column phase: ZB-5msi

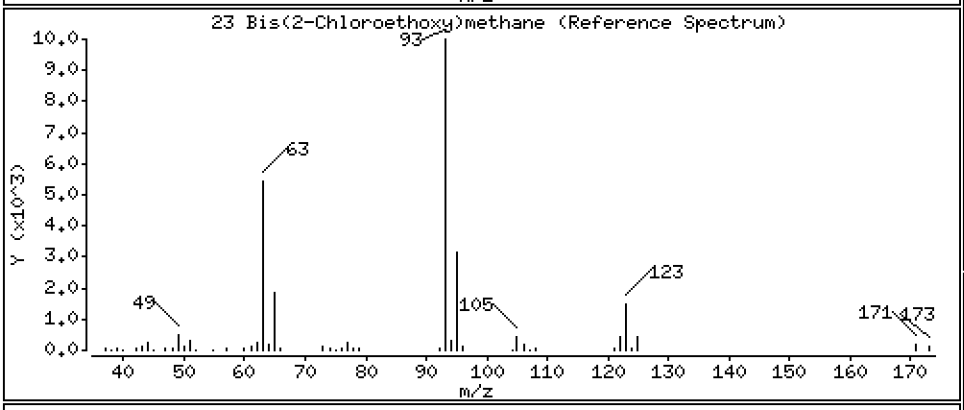
Column diameter: 0.25

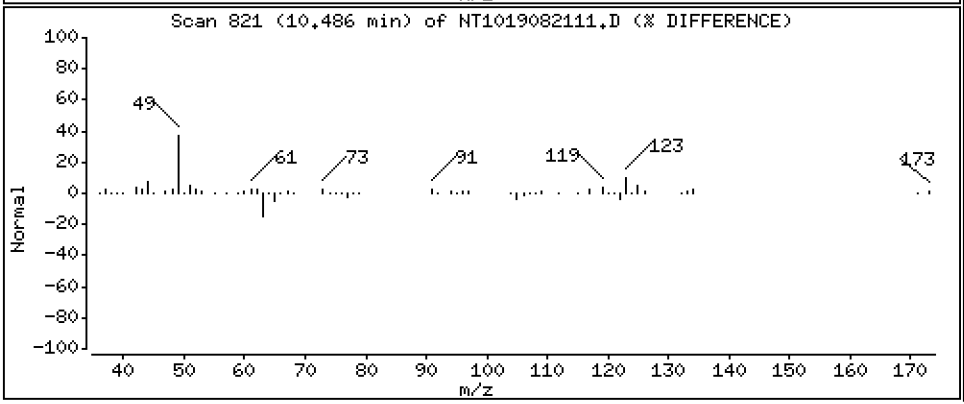
23 Bis(2-Chloroethoxy)methane

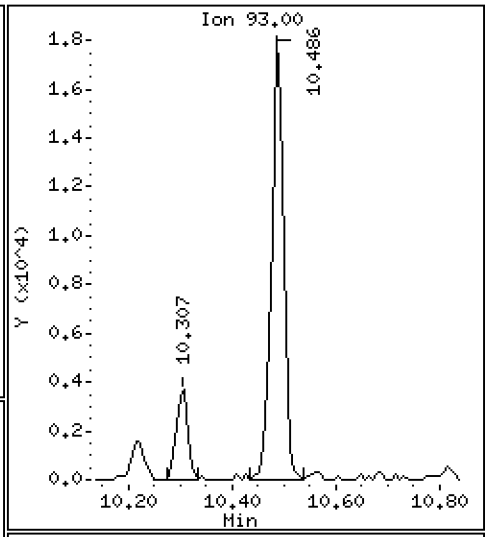
Concentration: 3.235 ug/mL

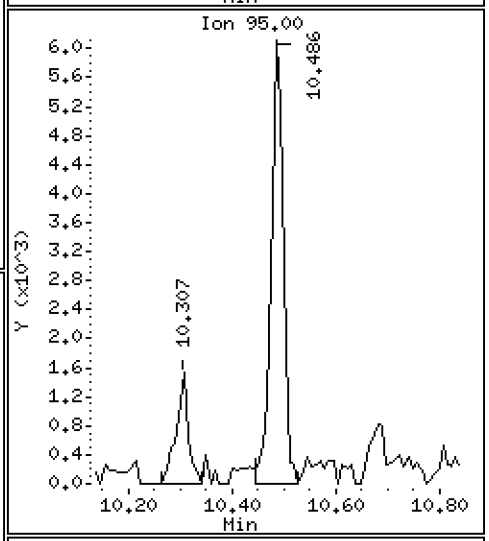


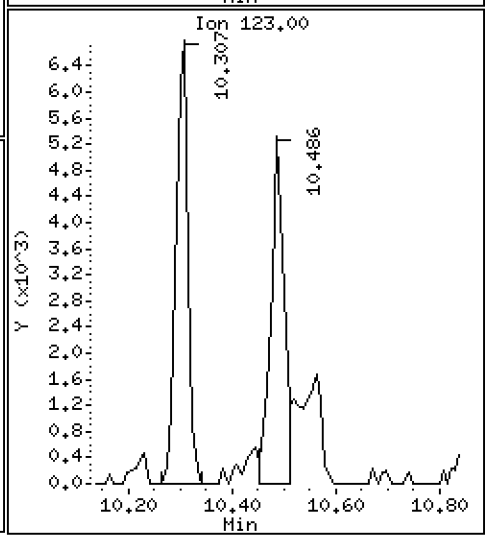












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

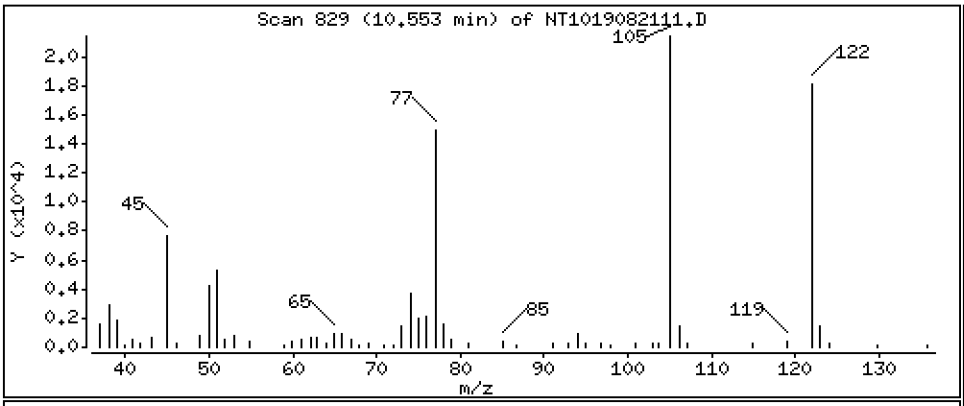
Operator: YZ

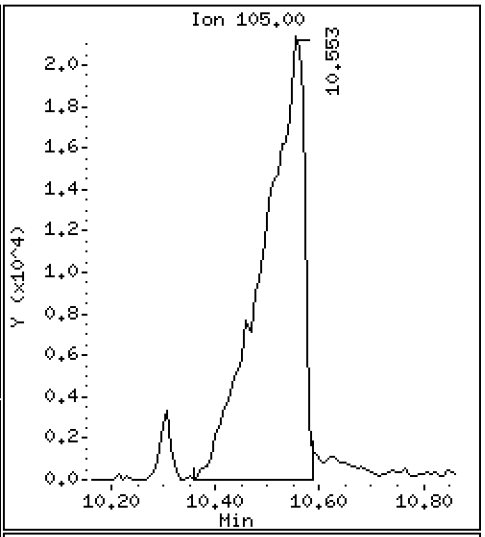
Column phase: ZB-5msi

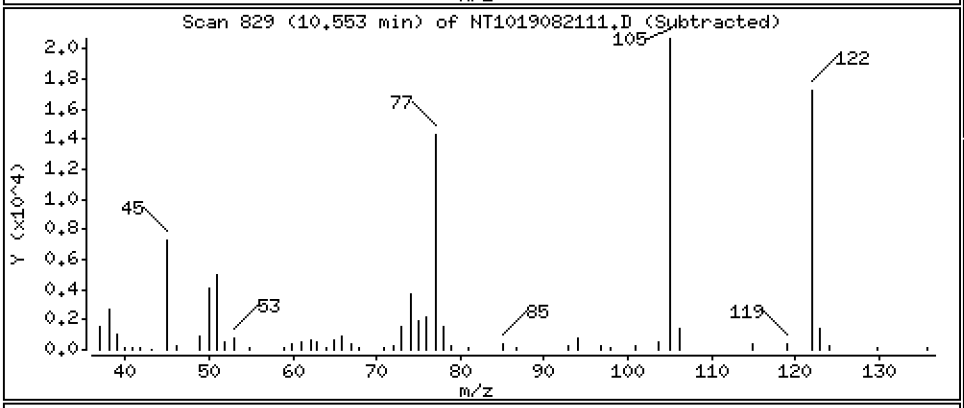
Column diameter: 0.25

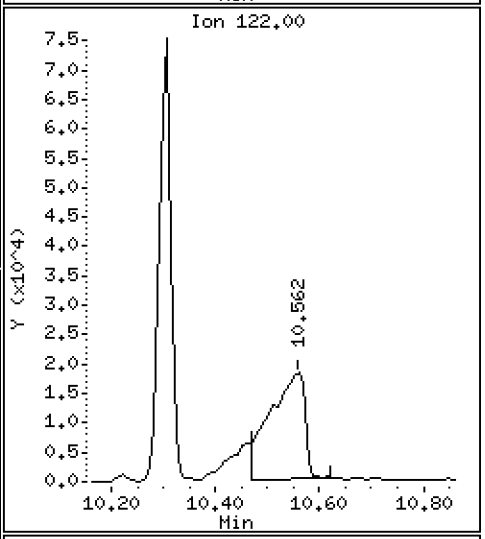
24 Benzoic acid

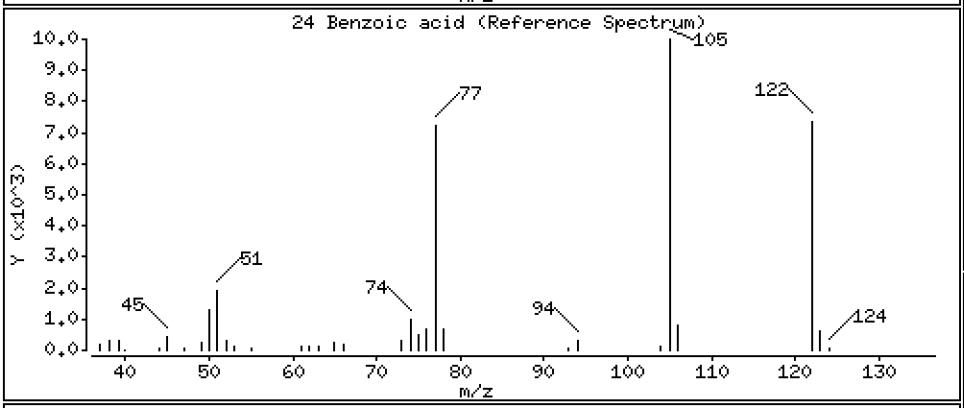
Concentration: 16.52 ug/mL

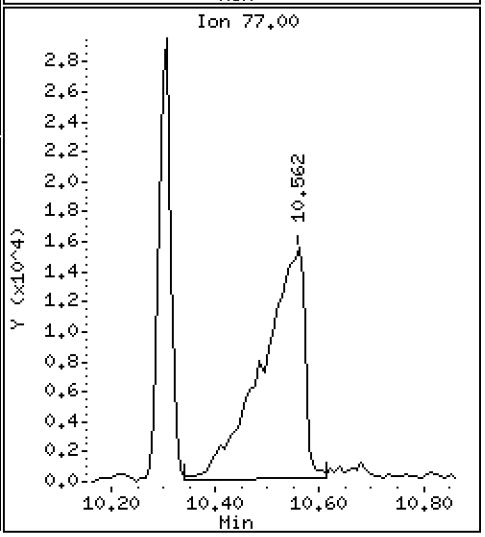


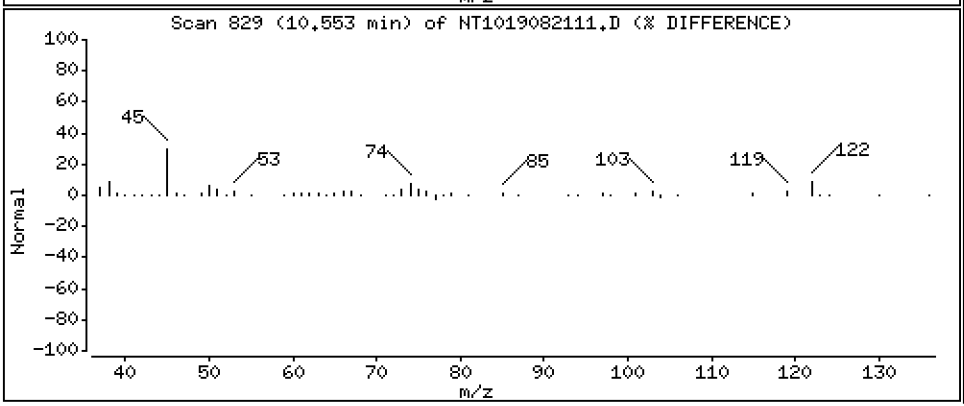












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

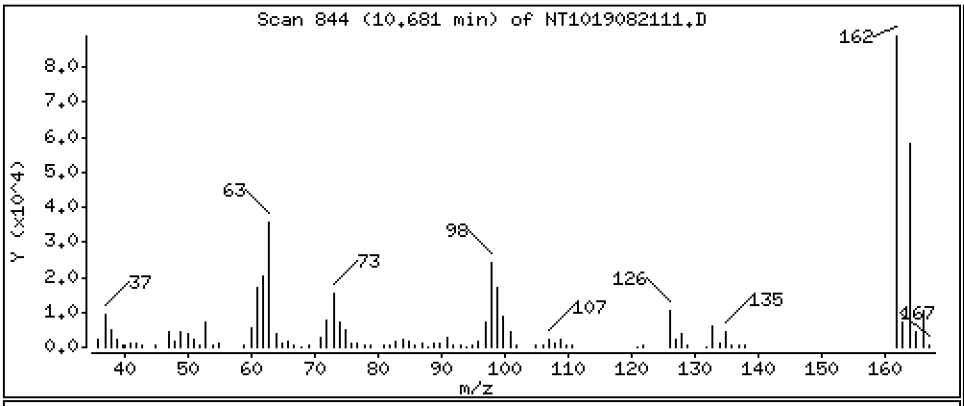
Operator: YZ

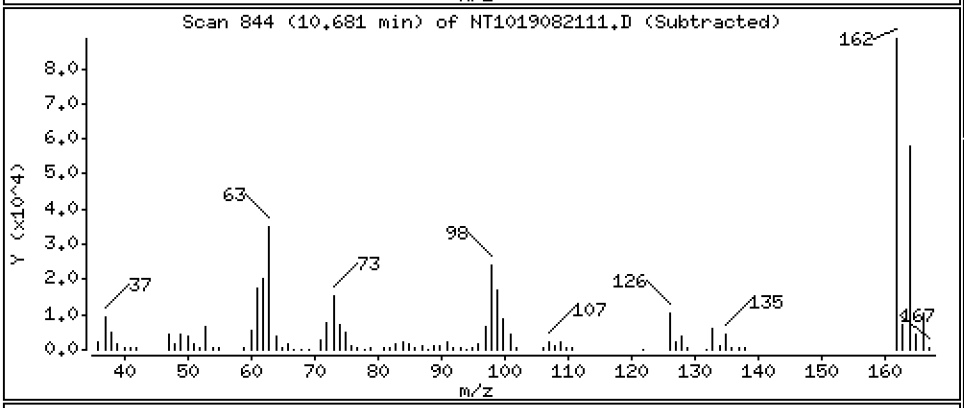
Column phase: ZB-5msi

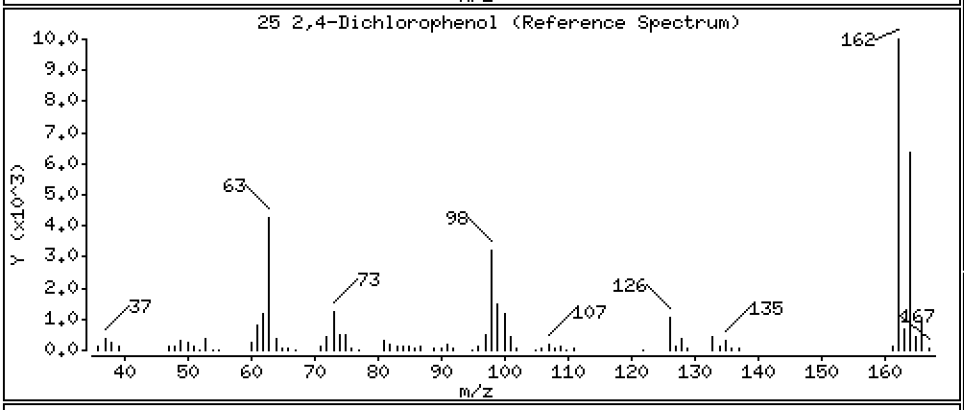
Column diameter: 0.25

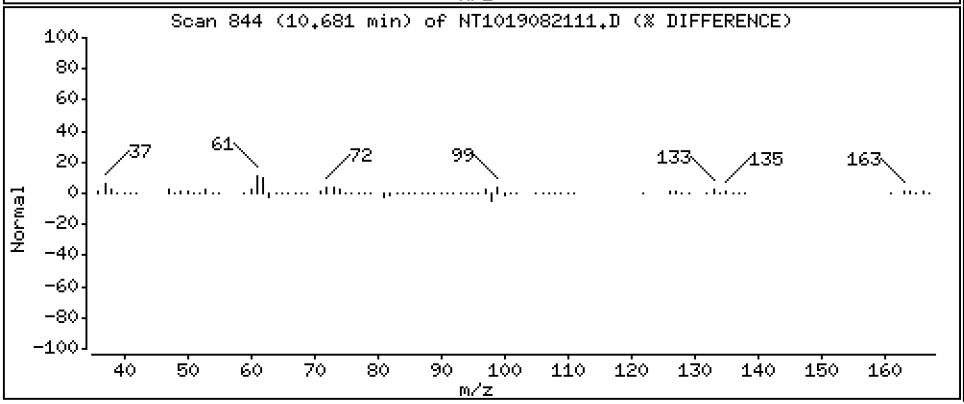
25 2,4-Dichlorophenol

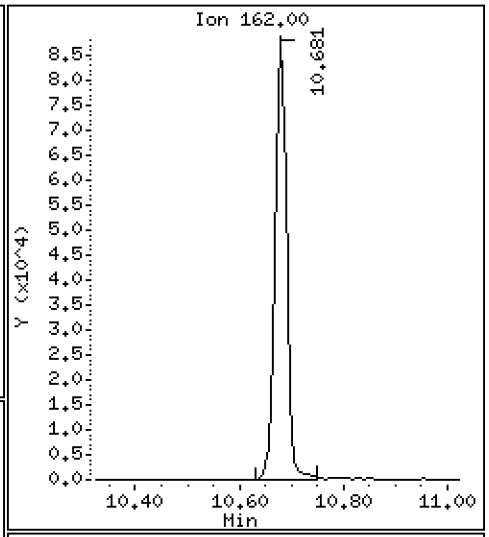
Concentration: 15.71 ug/mL

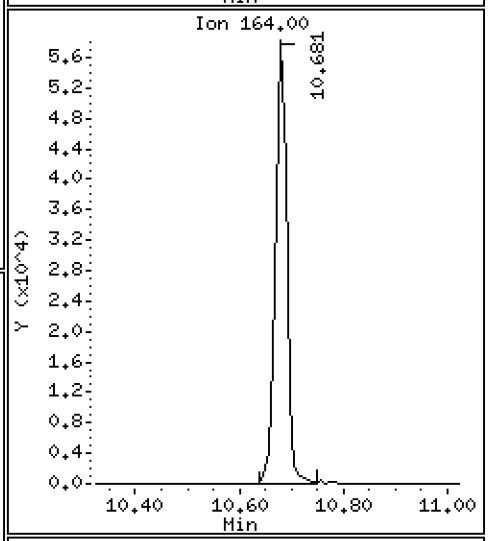


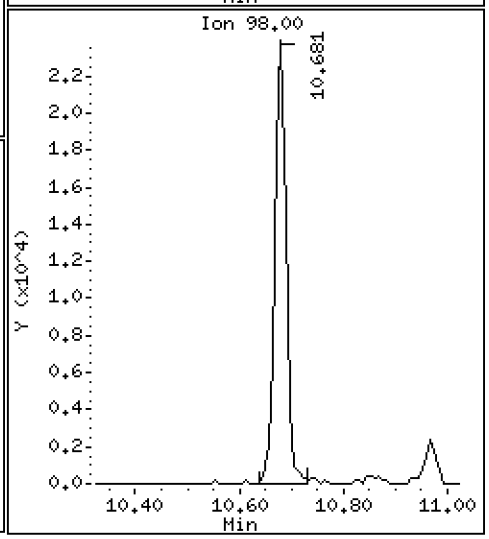












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

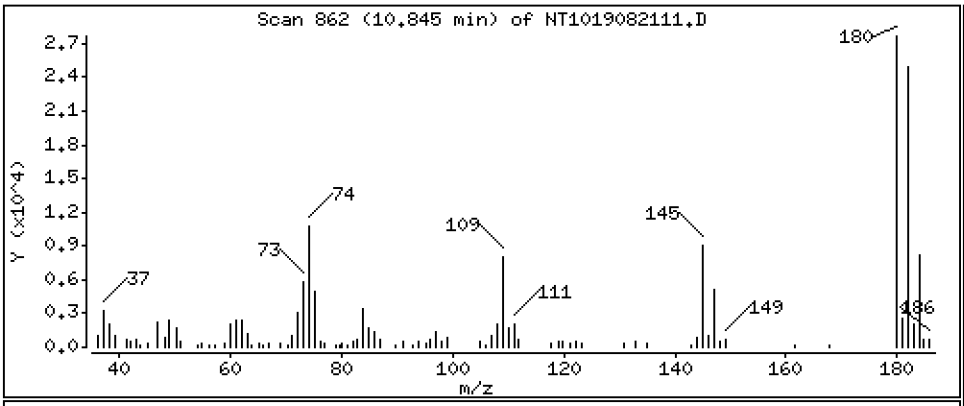
Operator: YZ

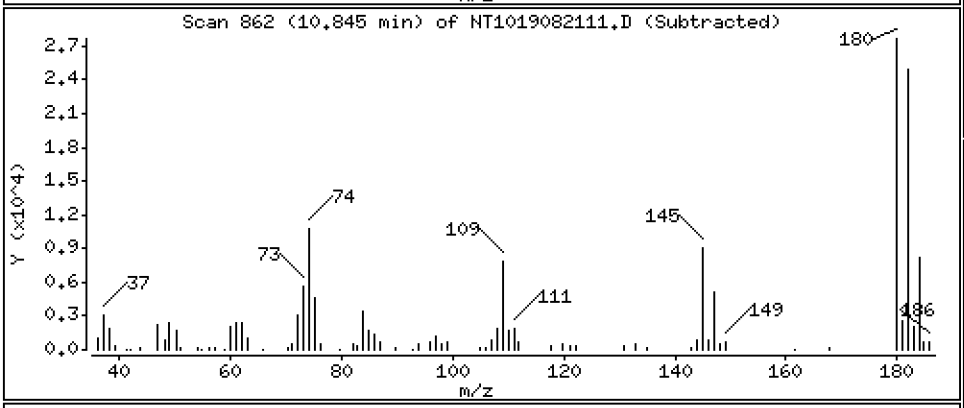
Column phase: ZB-5msi

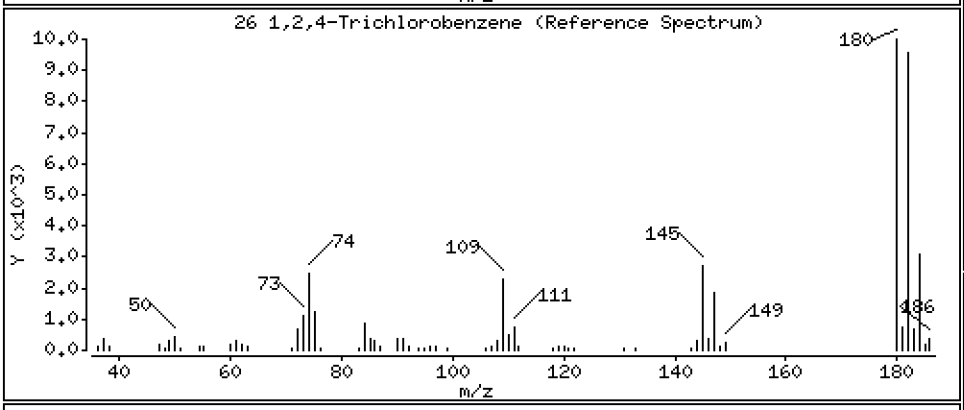
Column diameter: 0.25

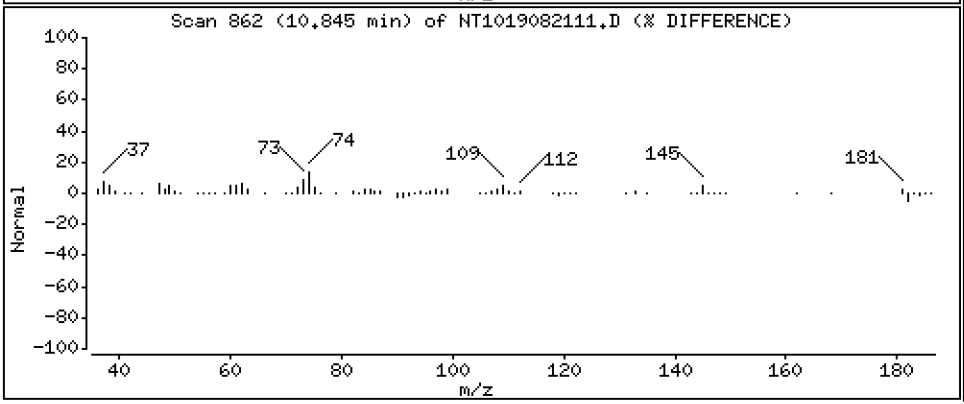
26 1,2,4-Trichlorobenzene

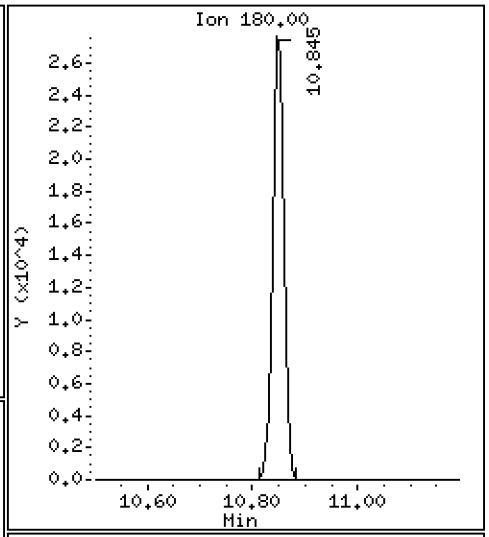
Concentration: 4.333 ug/mL

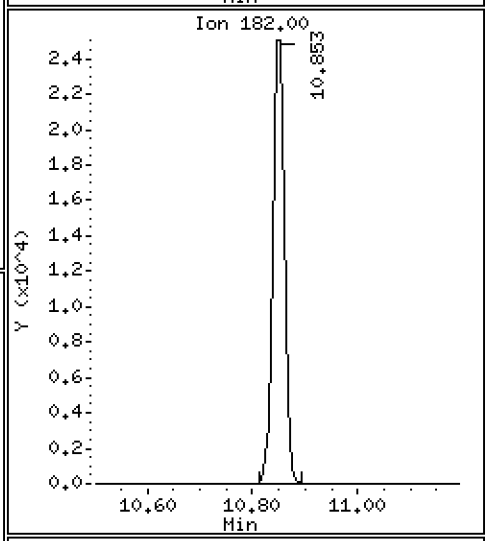


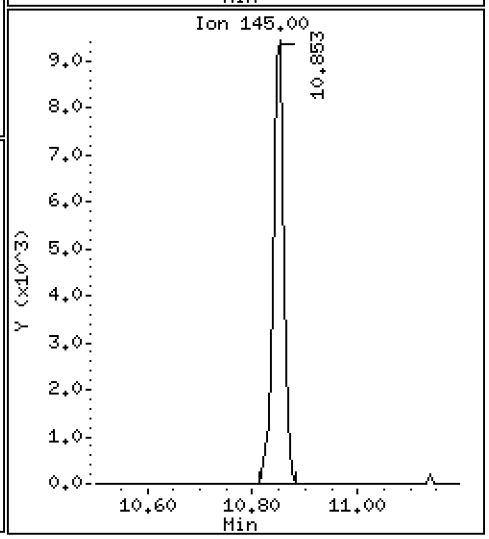












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

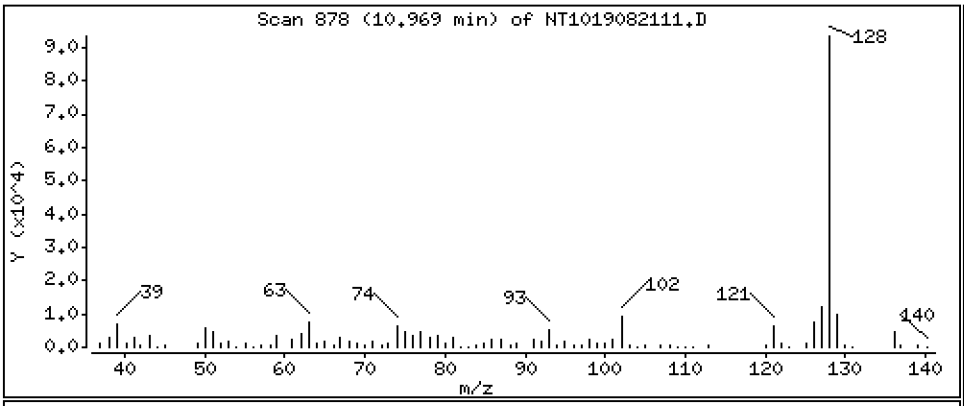
Operator: YZ

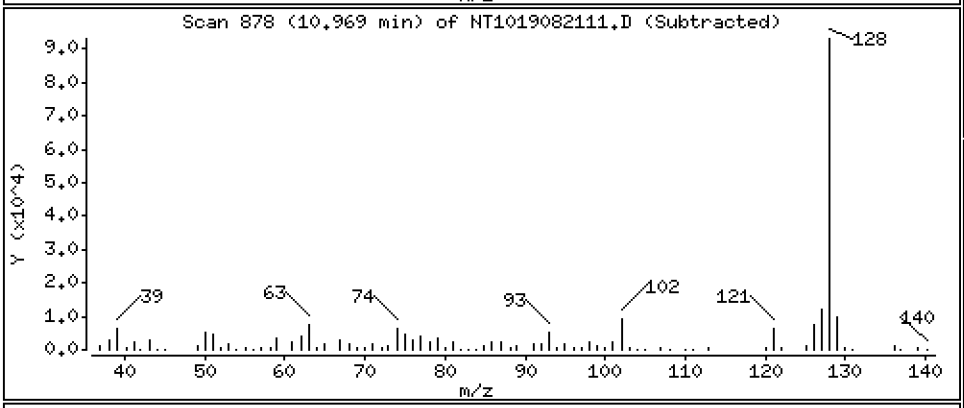
Column phase: ZB-5msi

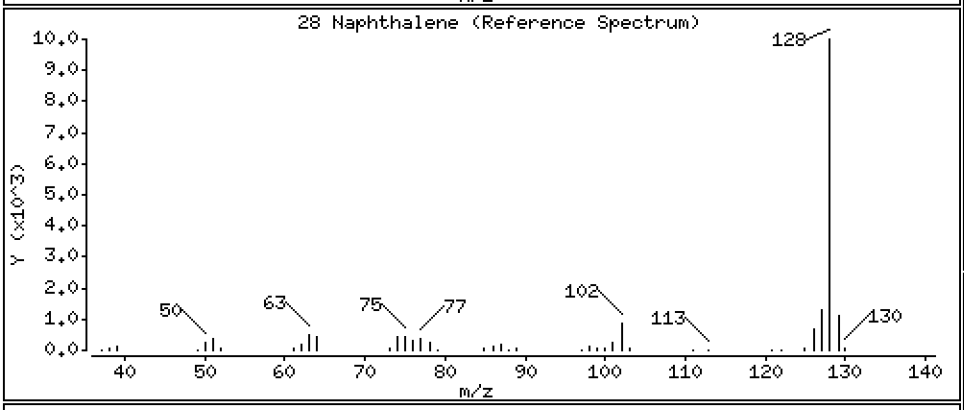
Column diameter: 0.25

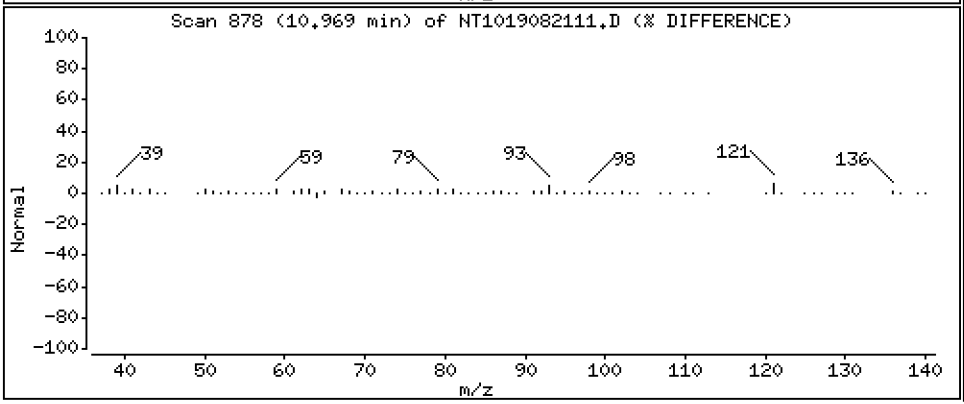
28 Naphthalene

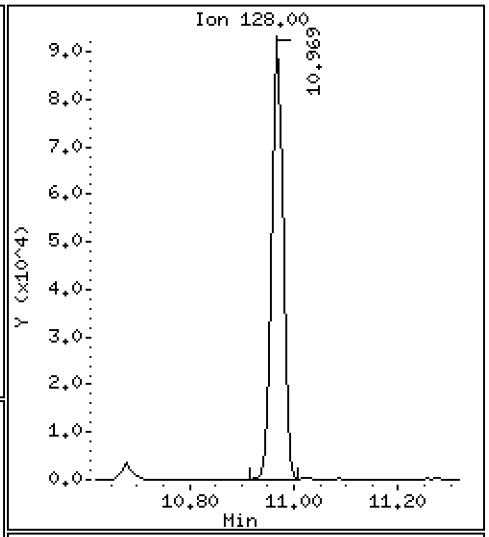
Concentration: 4.533 ug/mL

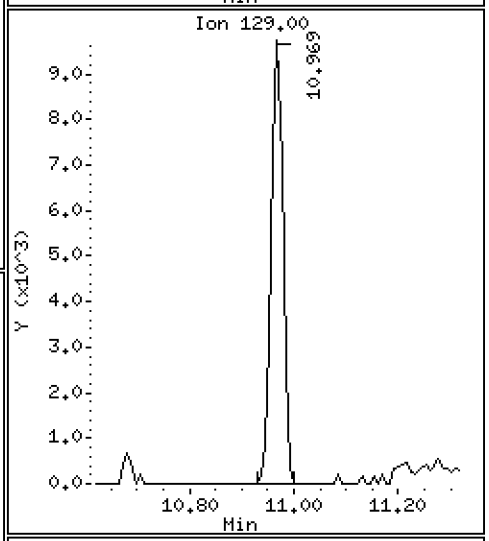


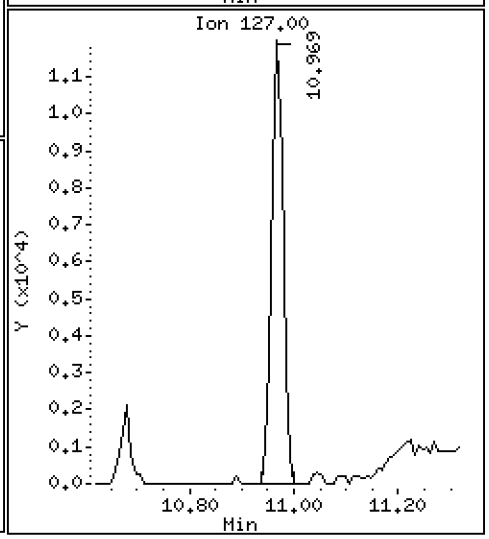












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

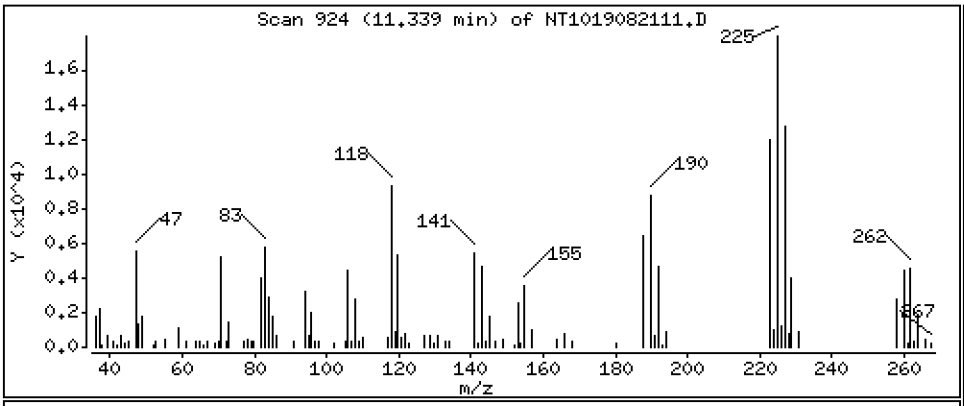
Operator: YZ

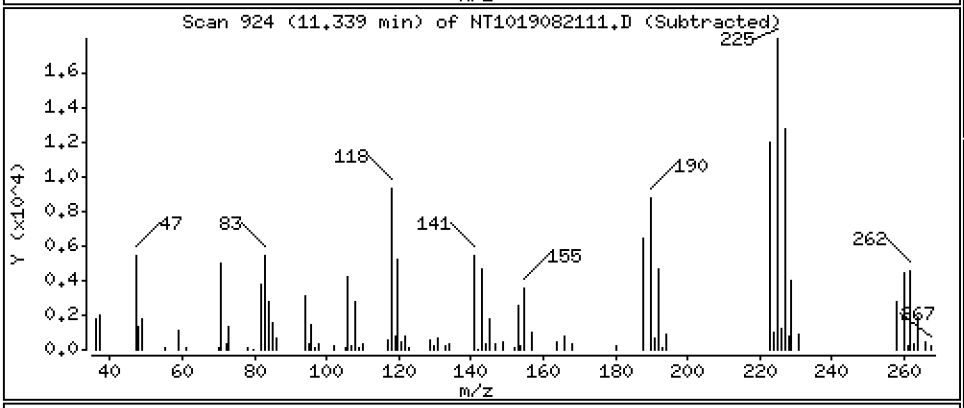
Column phase: ZB-5msi

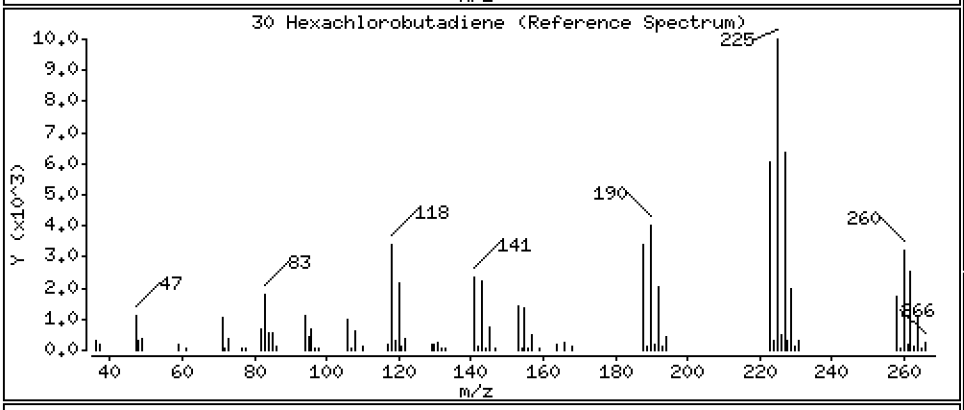
Column diameter: 0.25

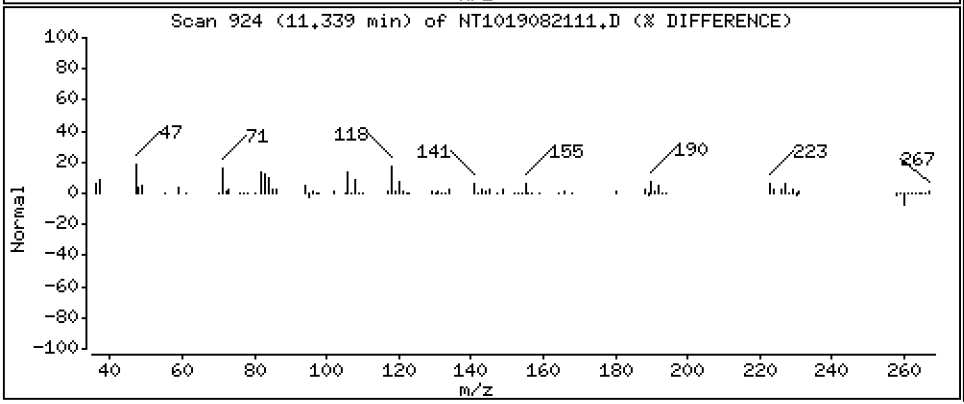
30 Hexachlorobutadiene

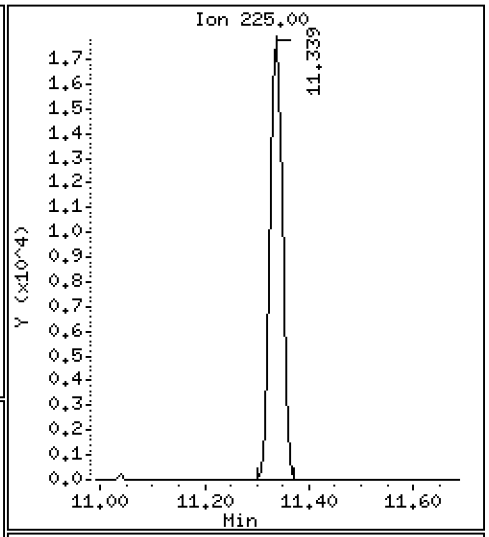
Concentration: 4.630 ug/mL

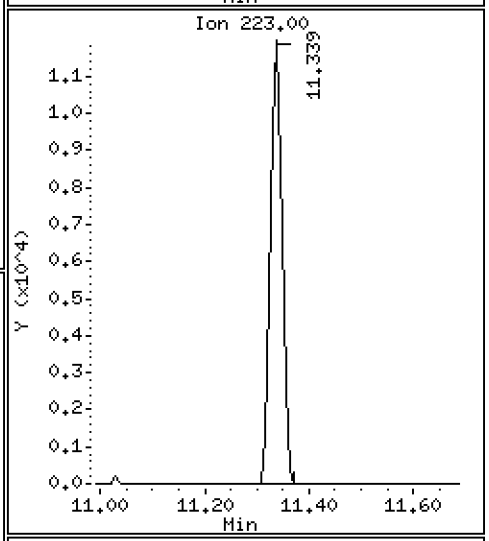


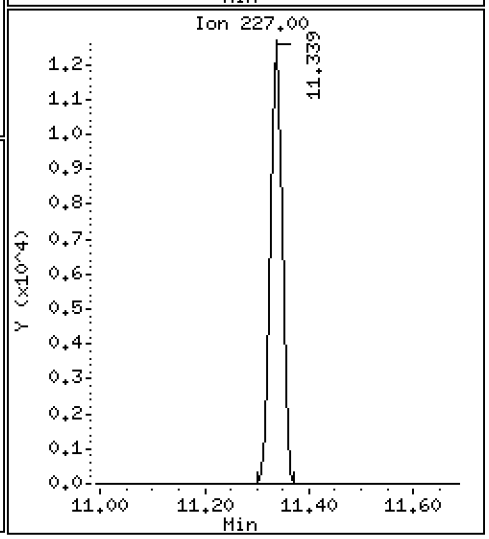












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

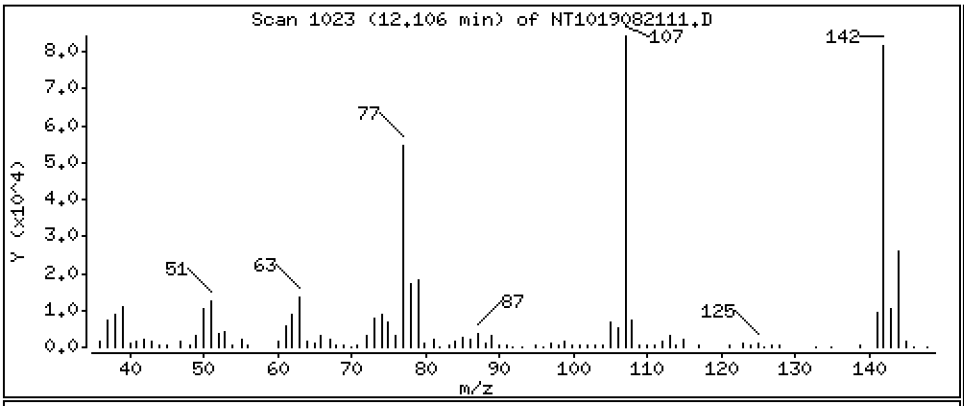
Operator: YZ

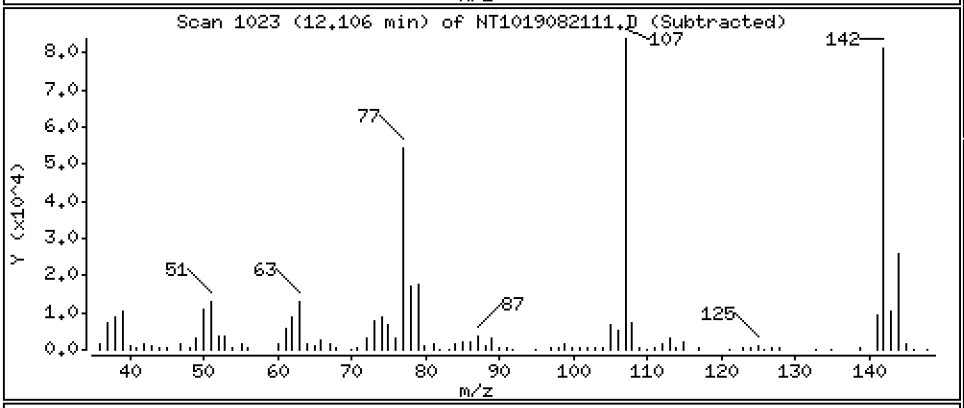
Column phase: ZB-5msi

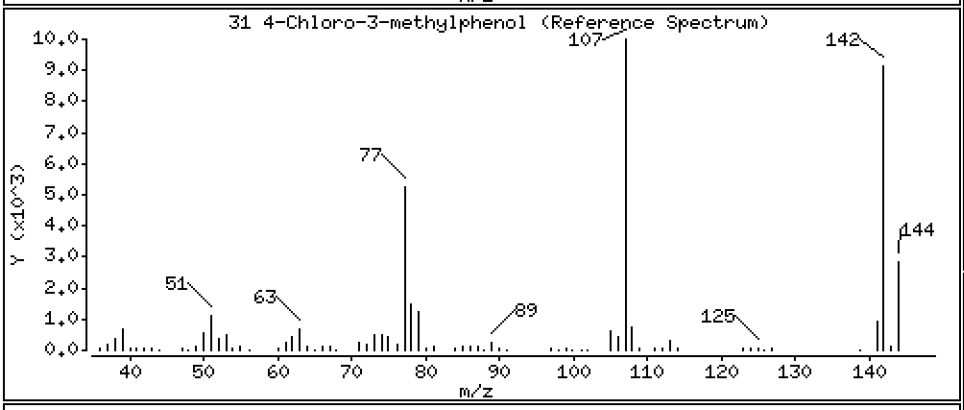
Column diameter: 0.25

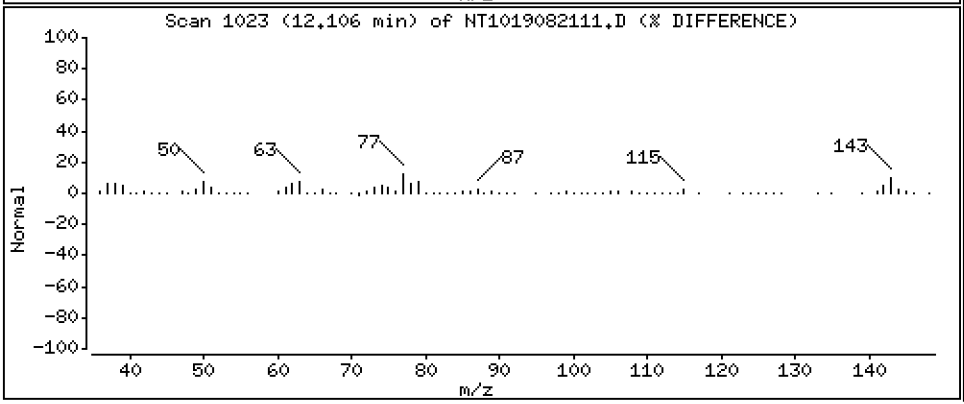
31 4-Chloro-3-methylphenol

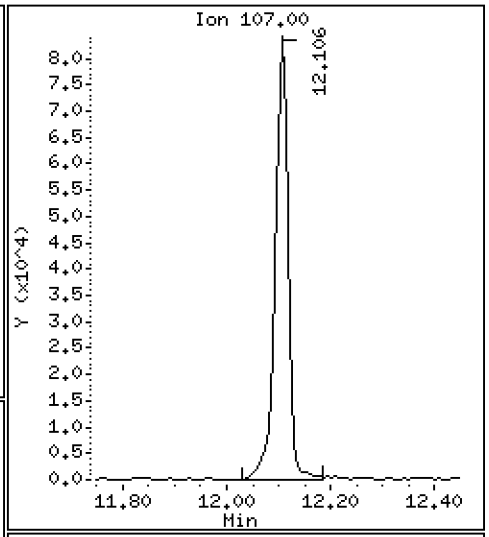
Concentration: 15.44 ug/mL

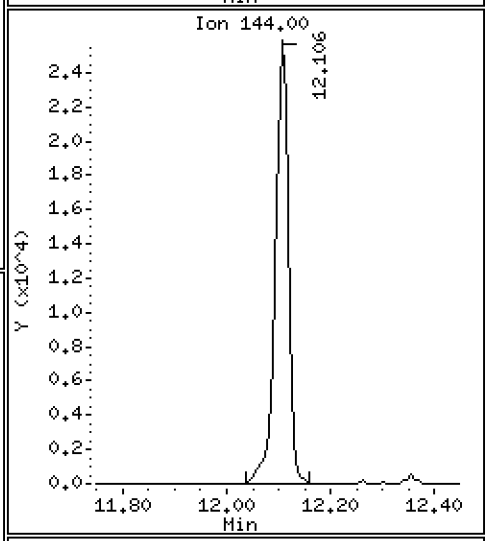


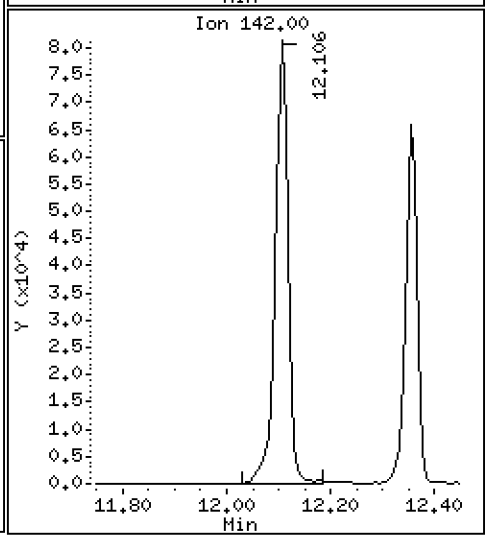












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

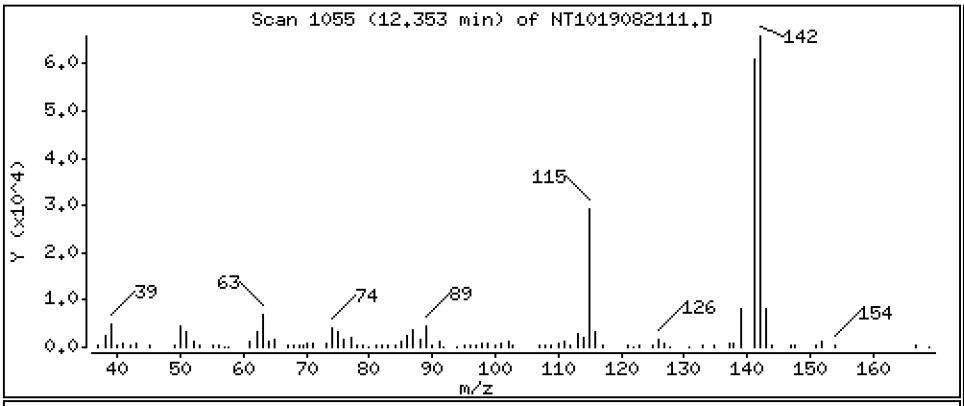
Operator: YZ

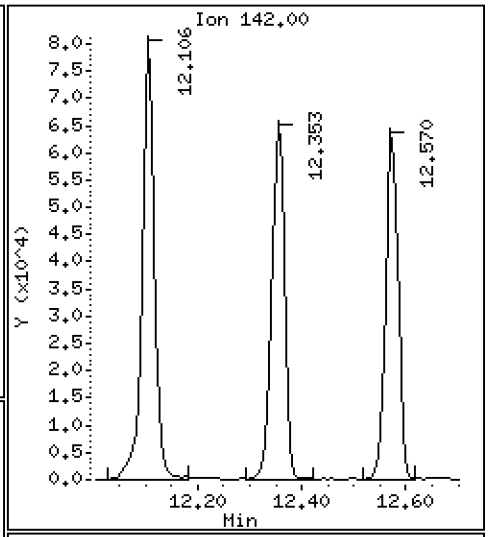
Column phase: ZB-5msi

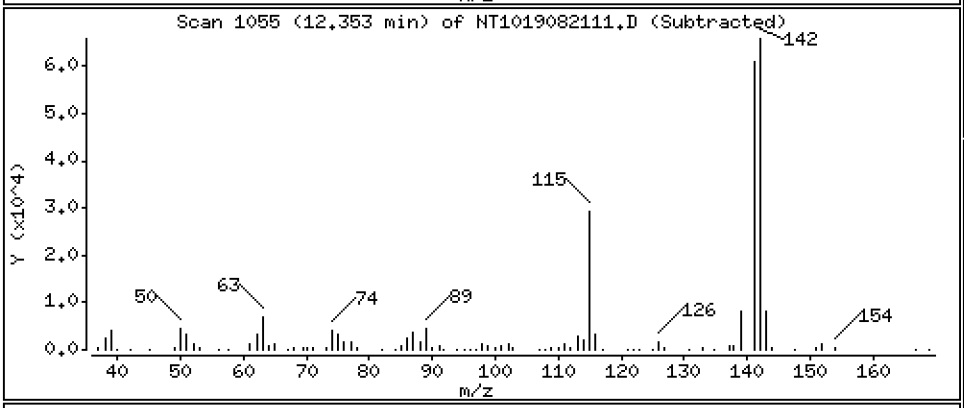
Column diameter: 0.25

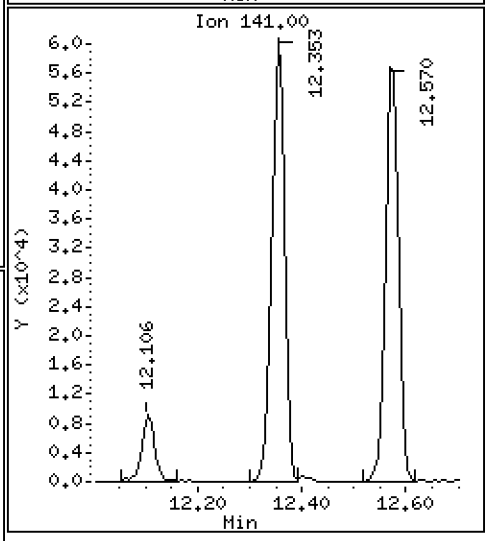
32 2-Methylnaphthalene

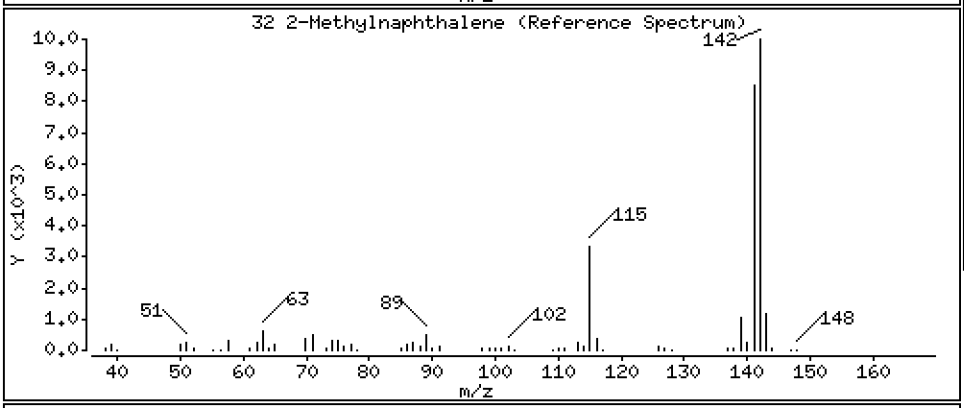
Concentration: 4.350 ug/mL

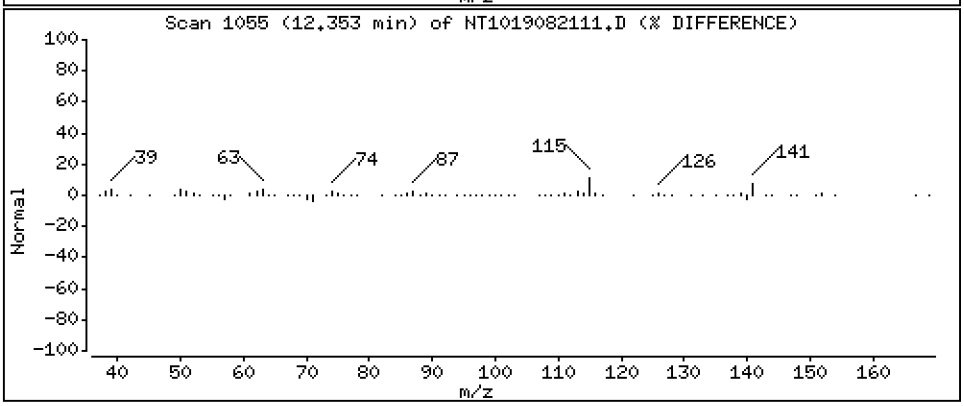












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

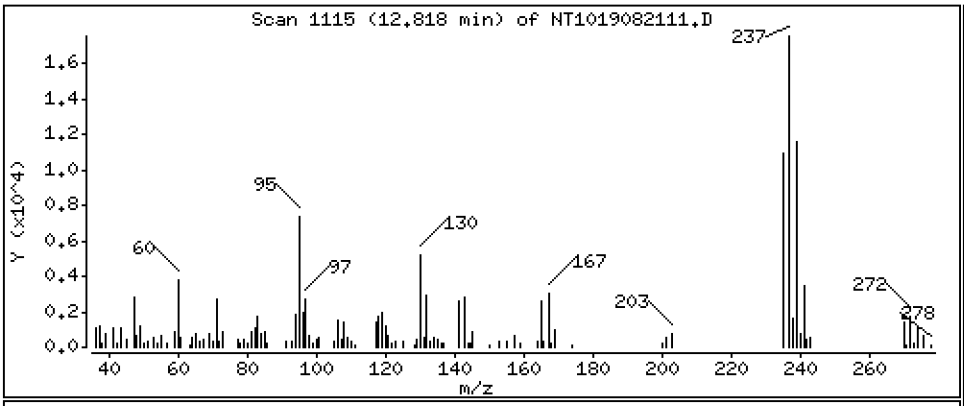
Operator: YZ

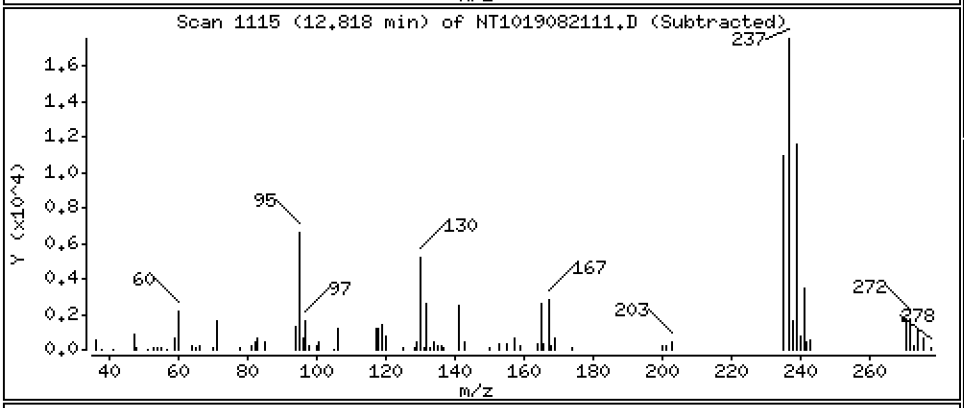
Column phase: ZB-5msi

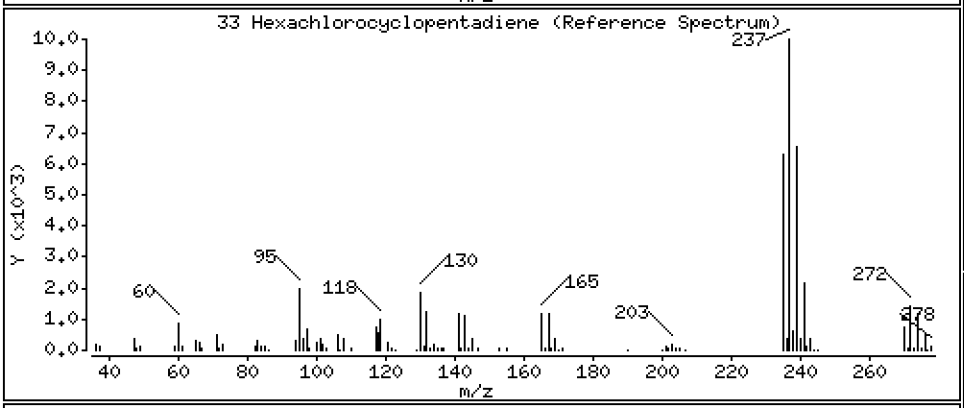
Column diameter: 0.25

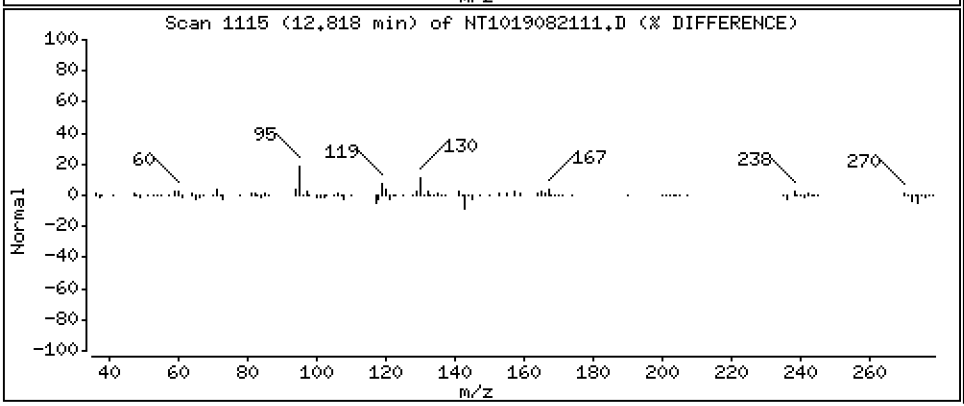
33 Hexachlorocyclopentadiene

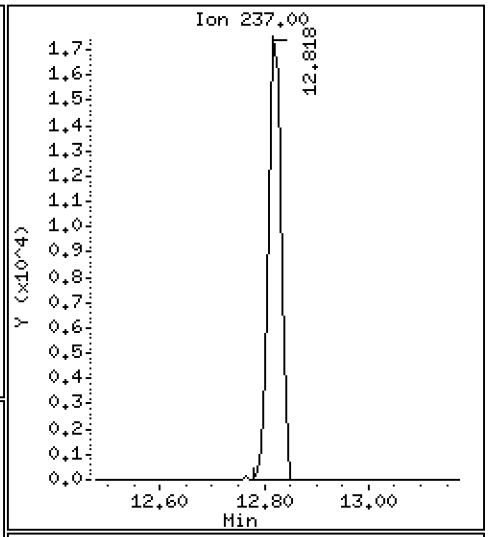
Concentration: 4.137 ug/mL

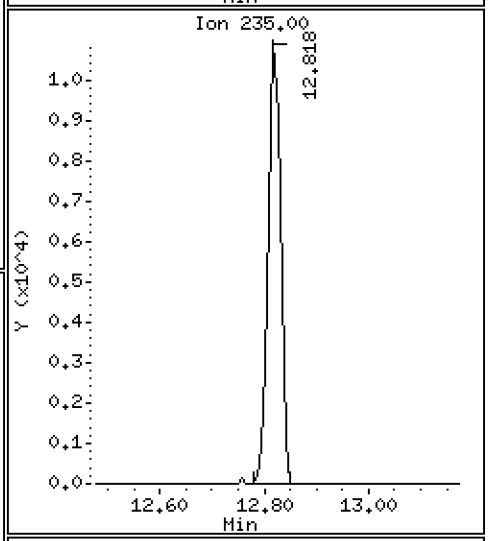


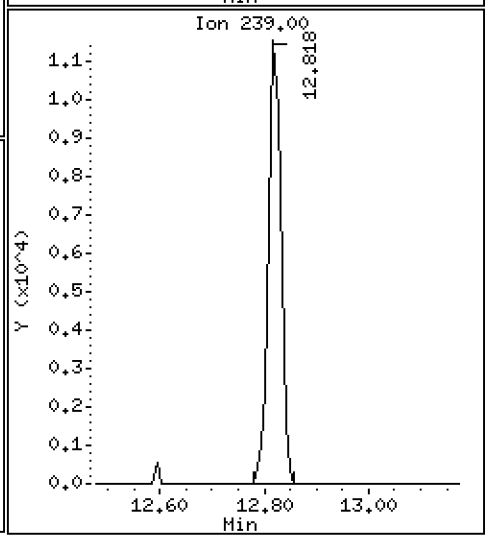












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

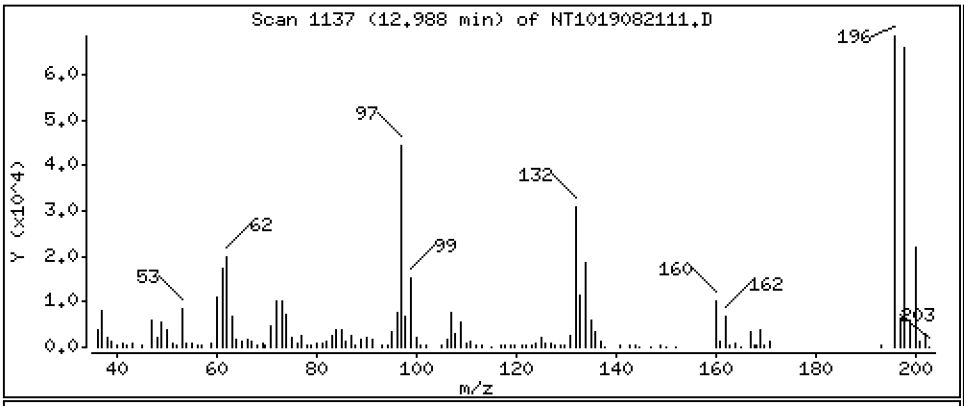
Operator: YZ

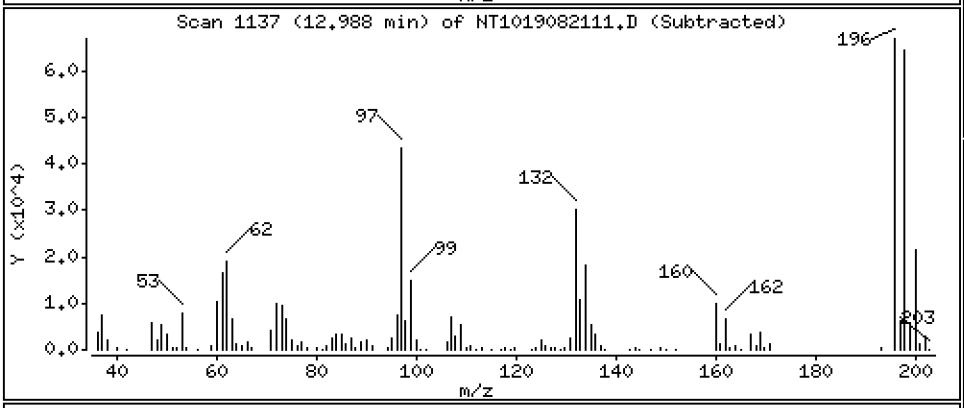
Column phase: ZB-5msi

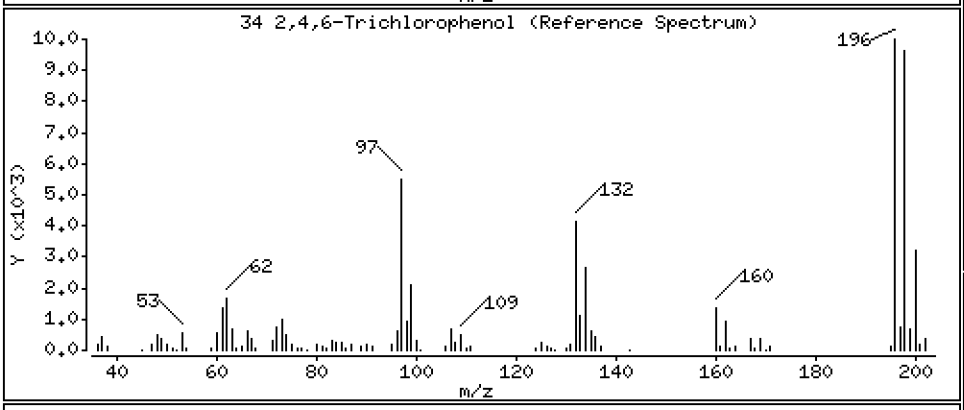
Column diameter: 0.25

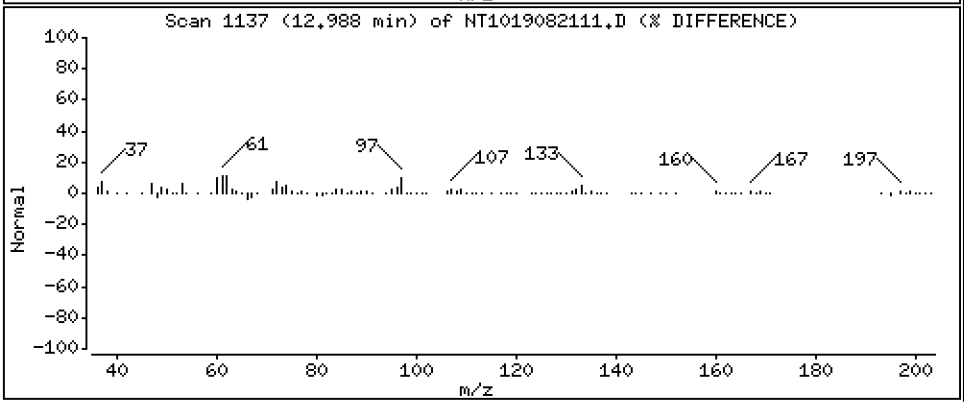
34 2,4,6-Trichlorophenol

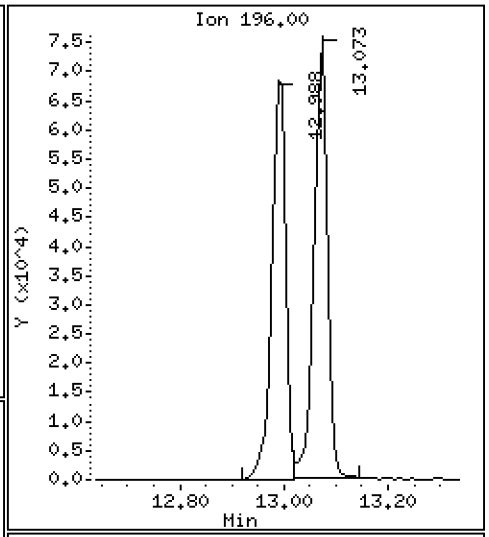
Concentration: 18.46 ug/mL

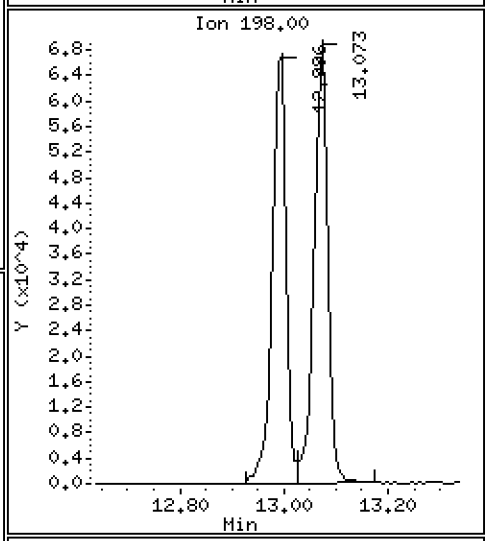


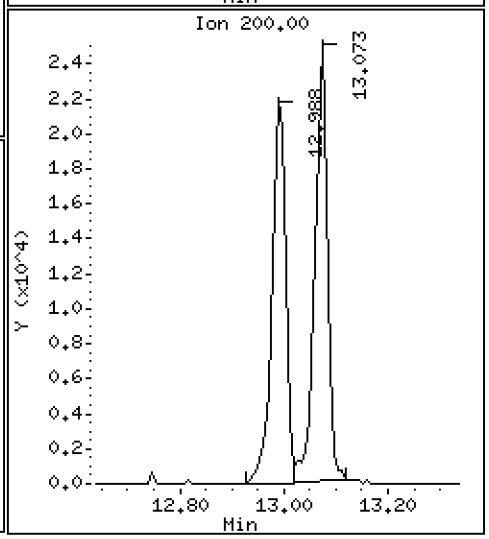












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

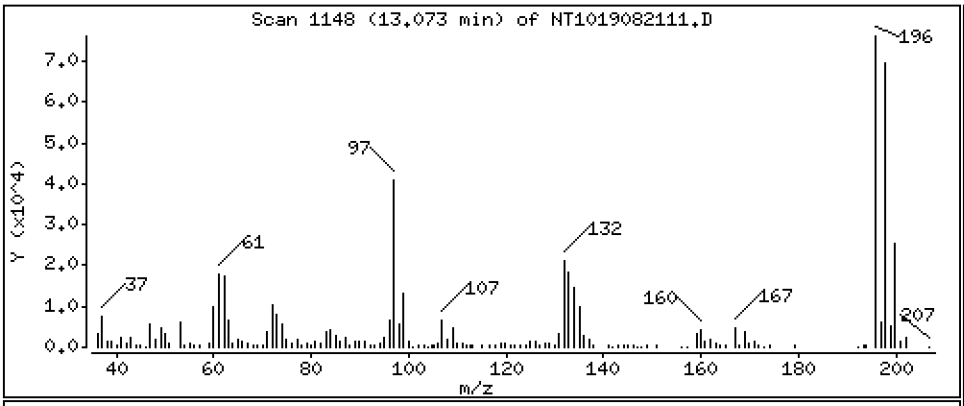
Operator: YZ

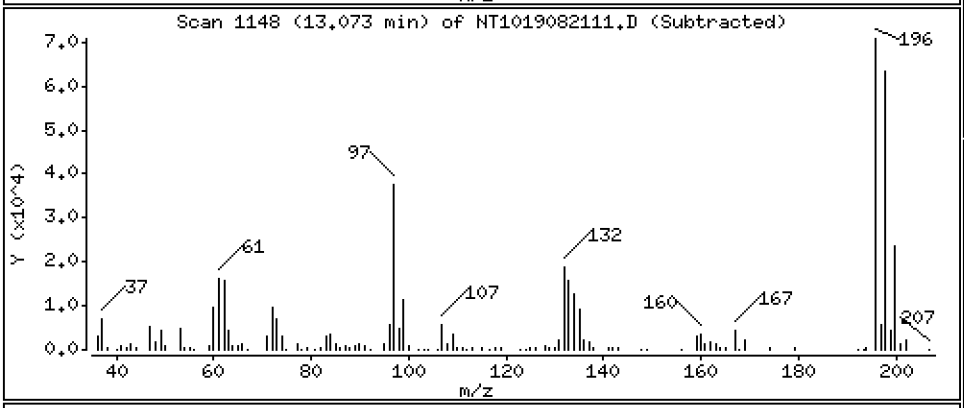
Column phase: ZB-5msi

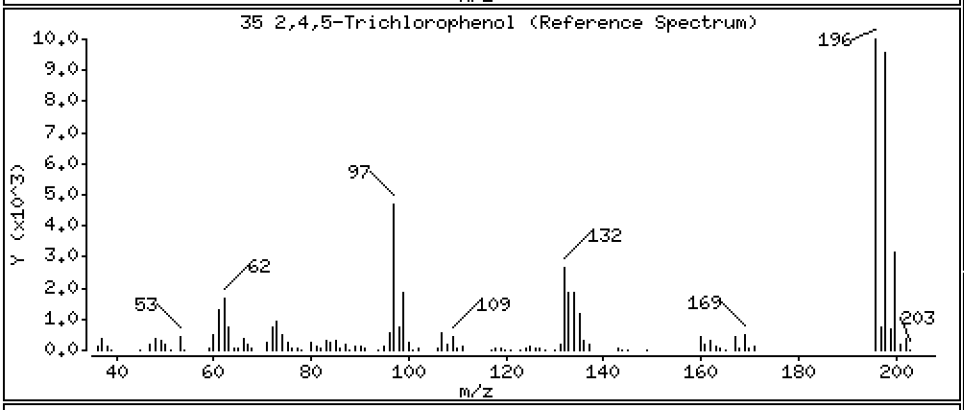
Column diameter: 0.25

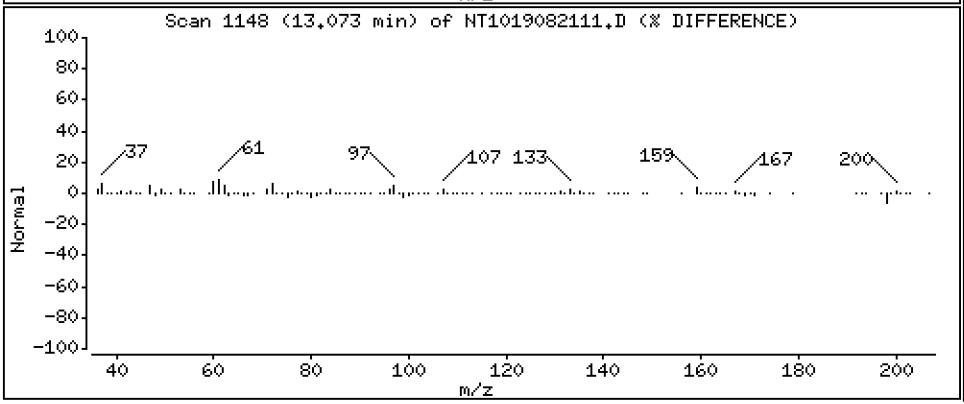
35 2,4,5-Trichlorophenol

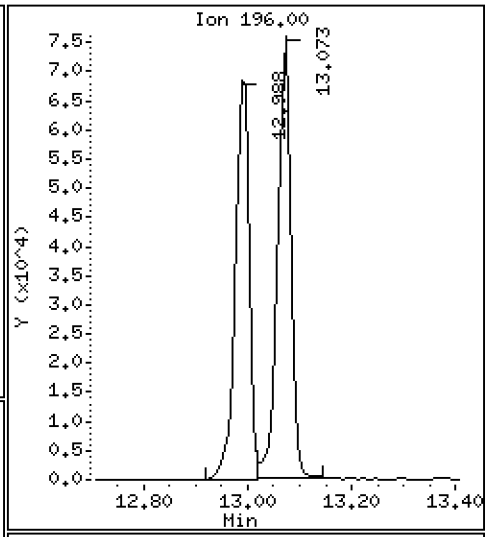
Concentration: 19.00 ug/mL

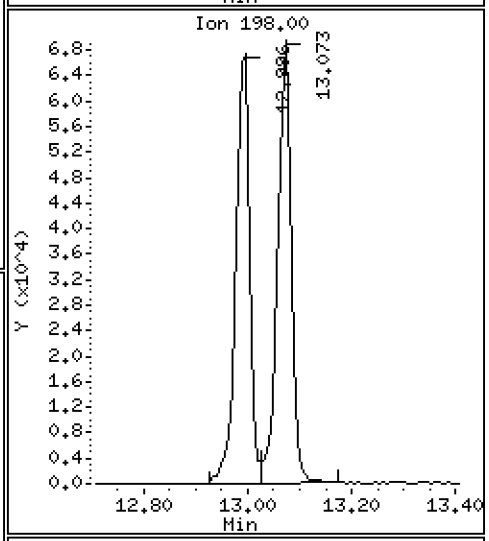


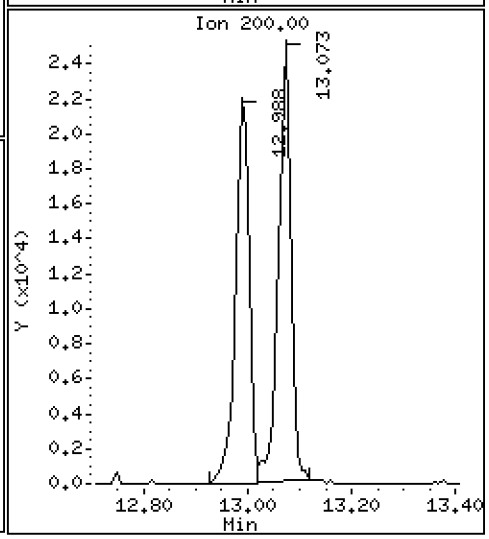












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

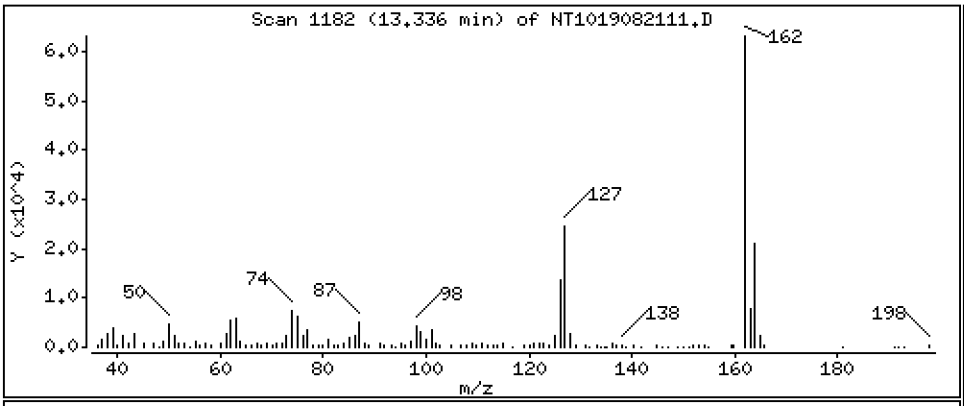
Operator: YZ

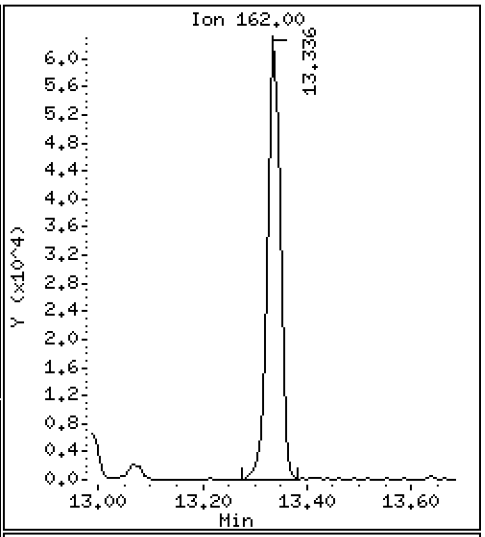
Column phase: ZB-5msi

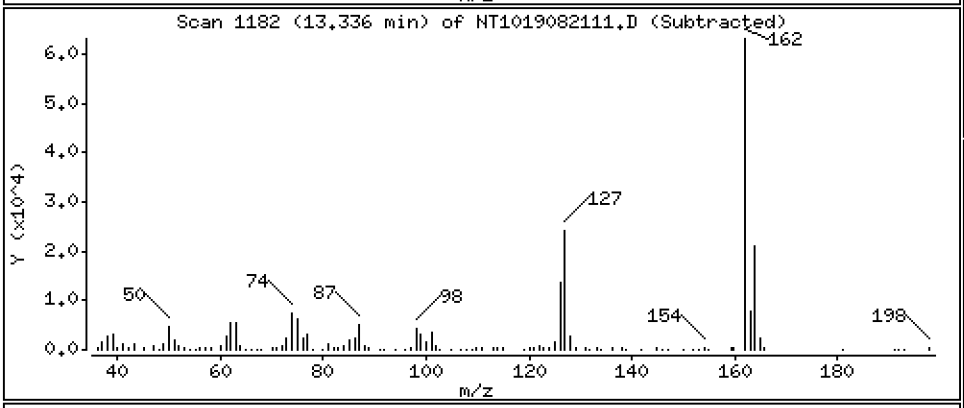
Column diameter: 0.25

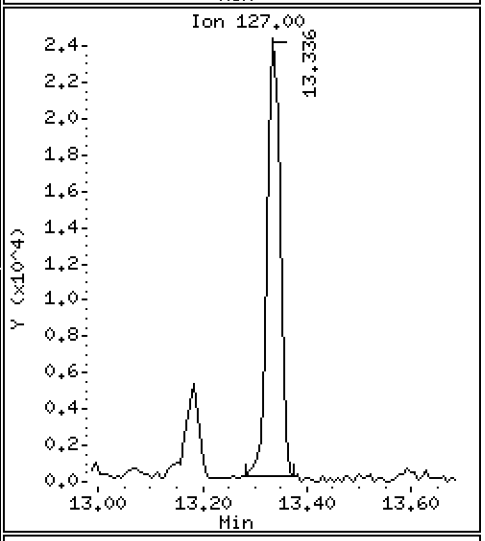
37 2-Chloronaphthalene

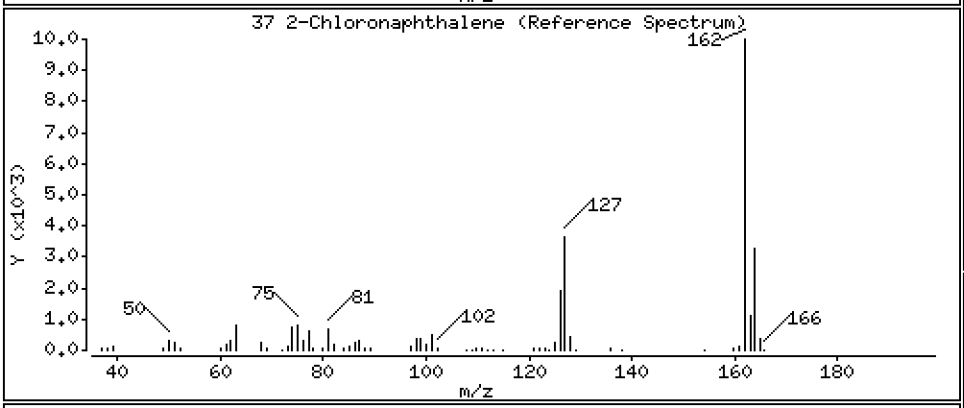
Concentration: 4.788 ug/mL

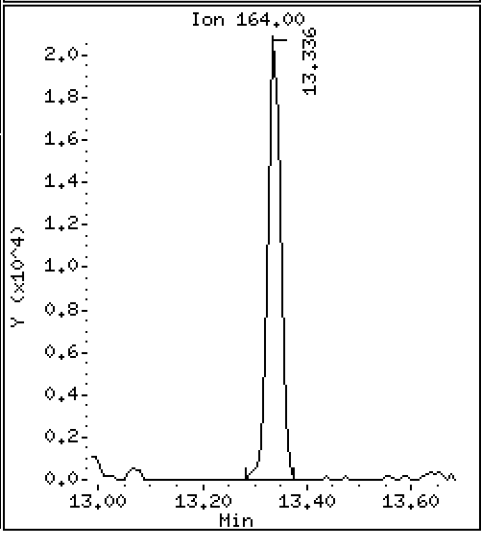


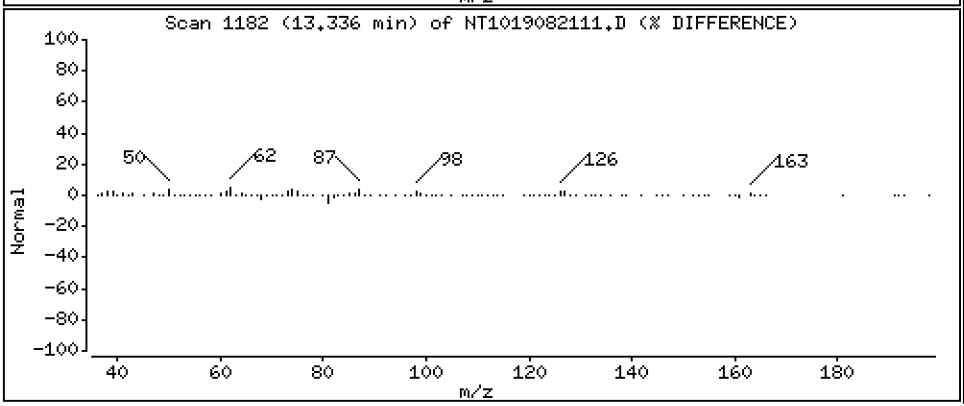












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

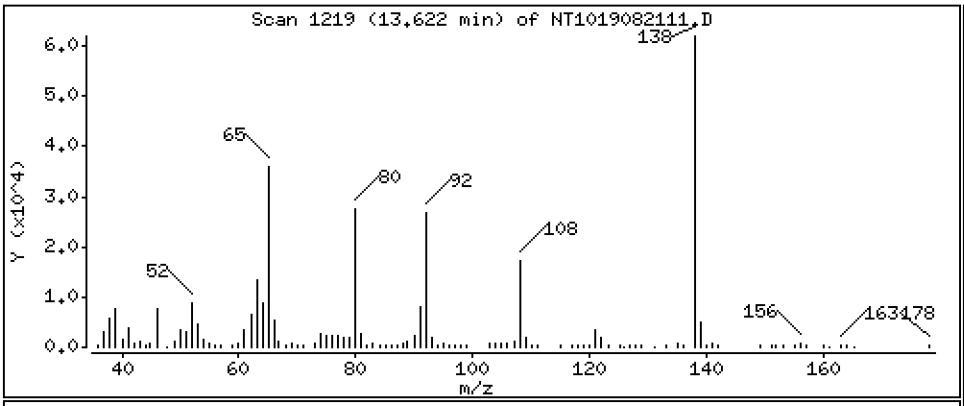
Operator: YZ

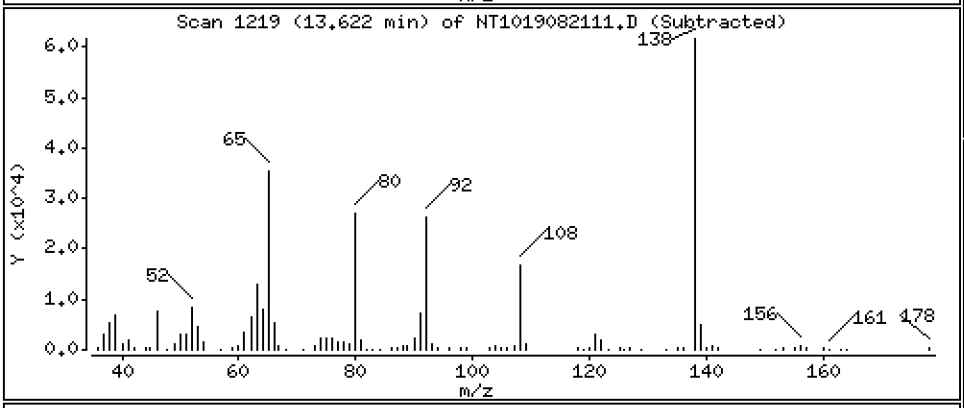
Column phase: ZB-5msi

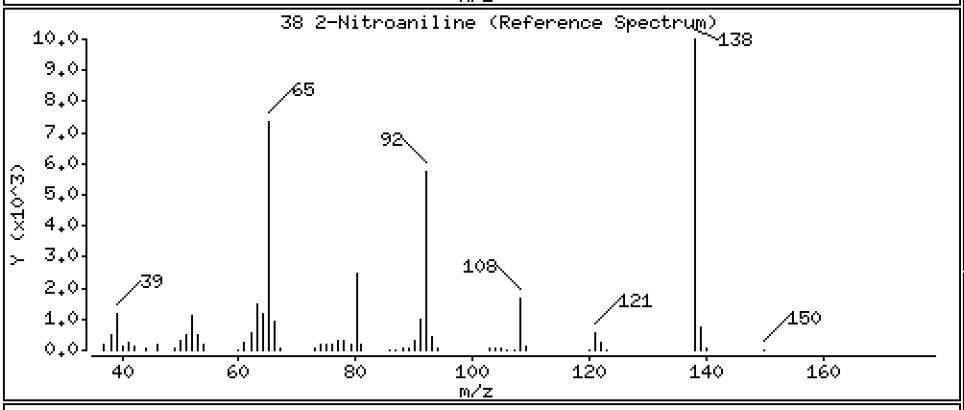
Column diameter: 0.25

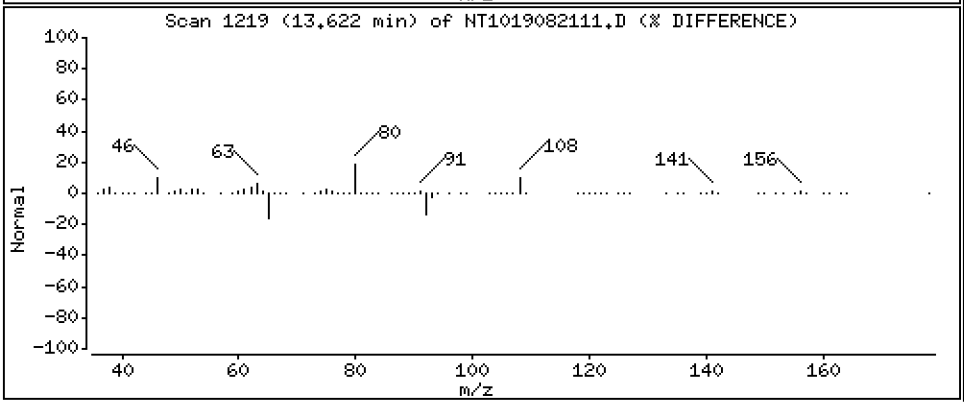
38 2-Nitroaniline

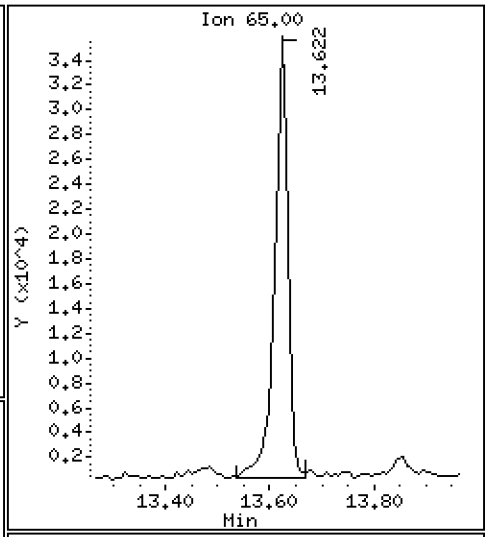
Concentration: 13.56 ug/mL

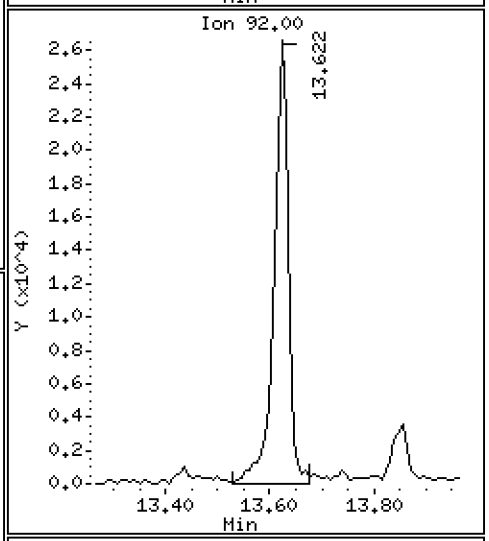


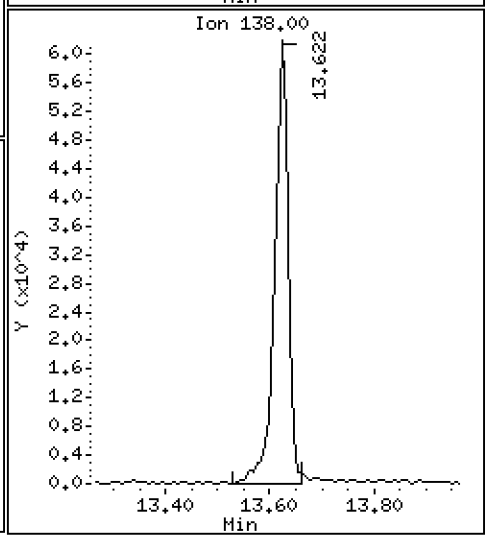












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

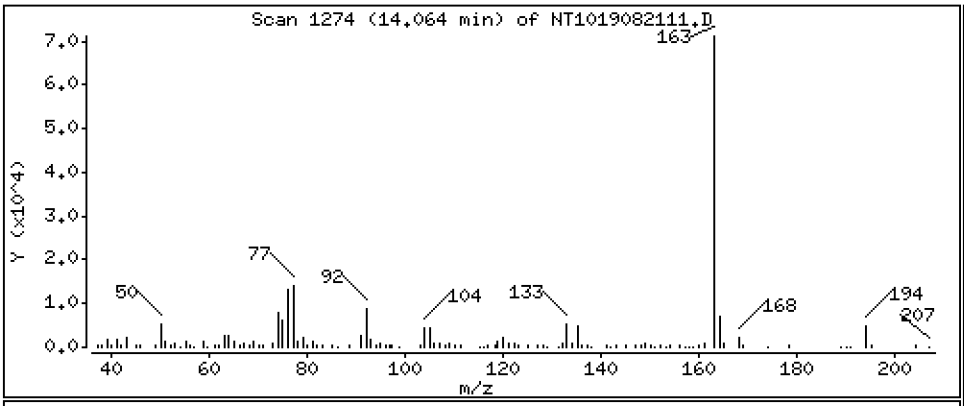
Operator: YZ

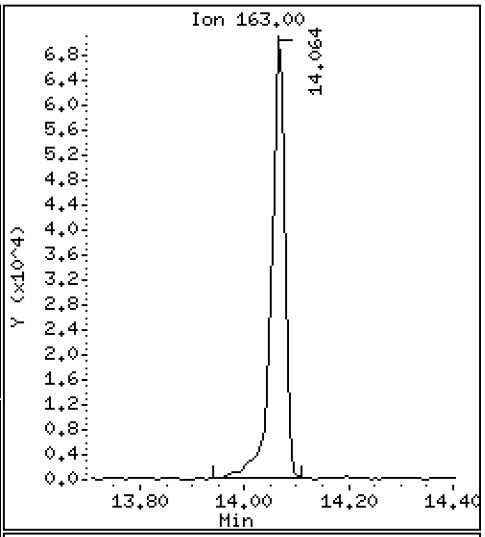
Column phase: ZB-5msi

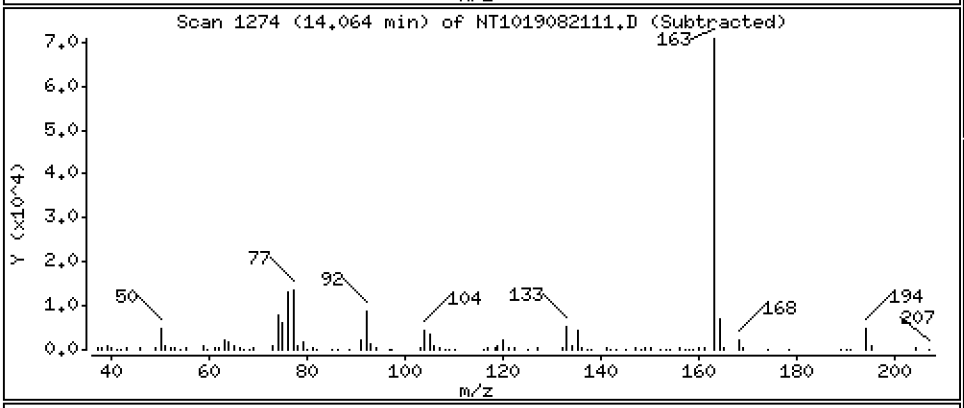
Column diameter: 0.25

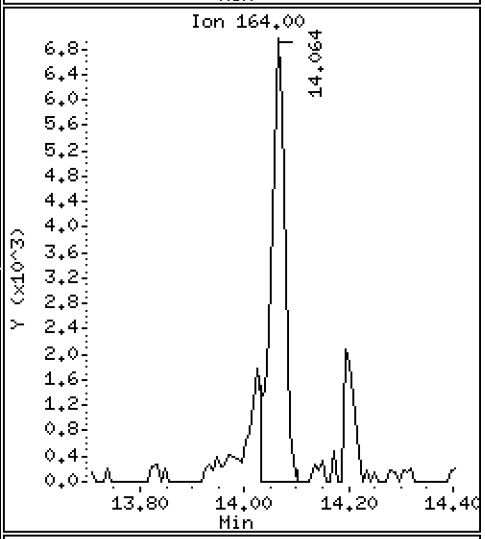
39 Dimethylphthalate

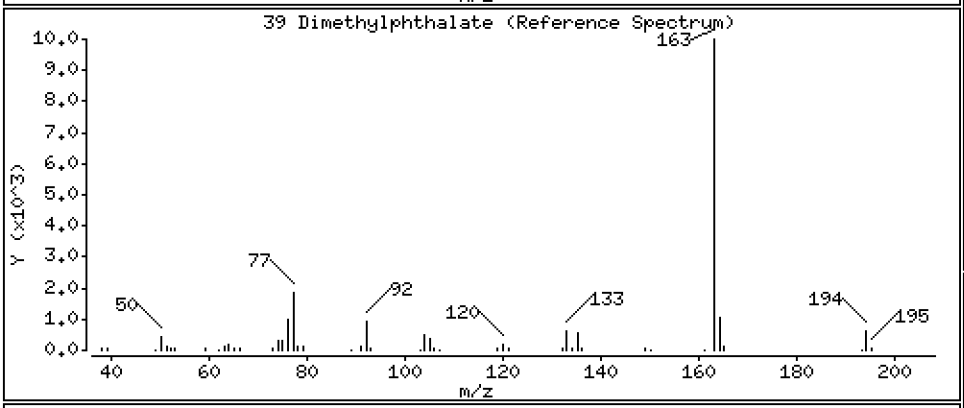
Concentration: 5.275 ug/mL

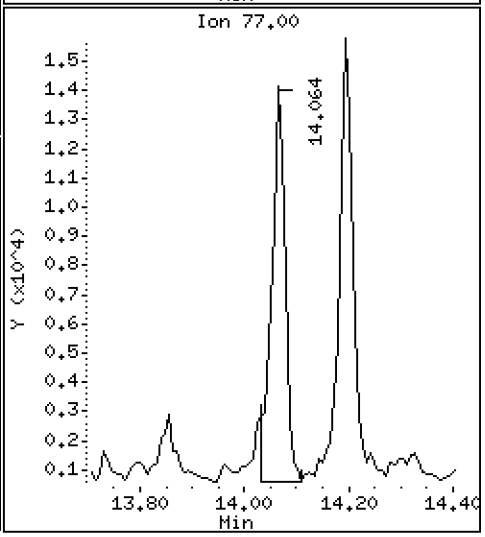


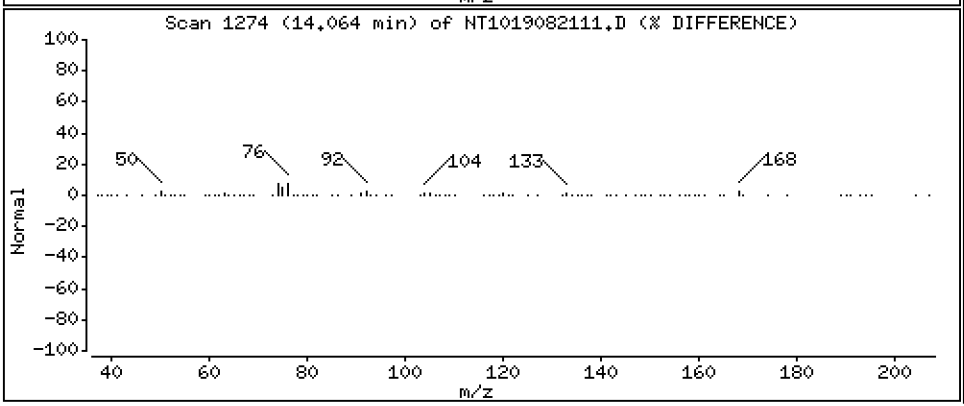












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

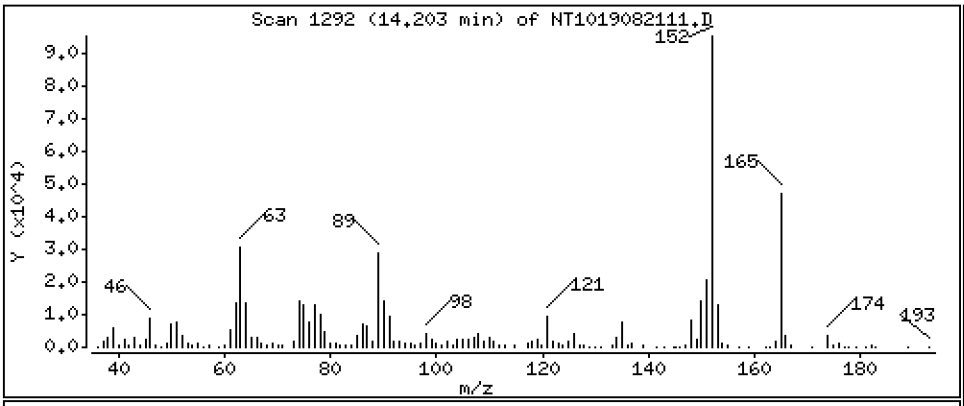
Operator: YZ

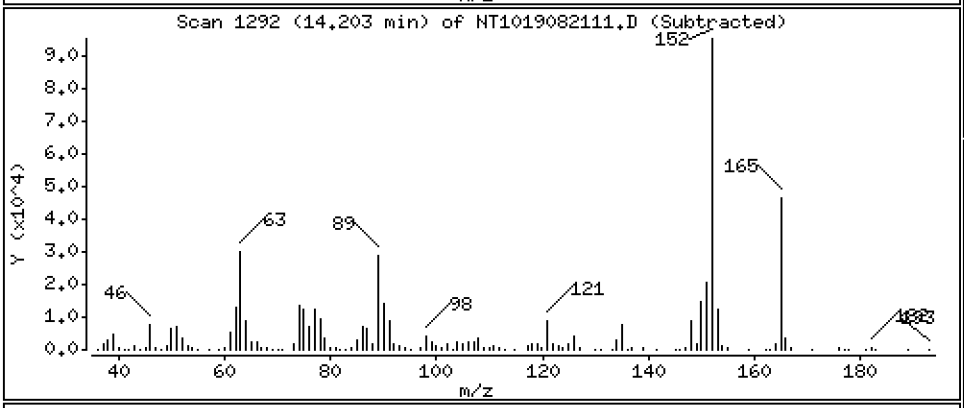
Column phase: ZB-5msi

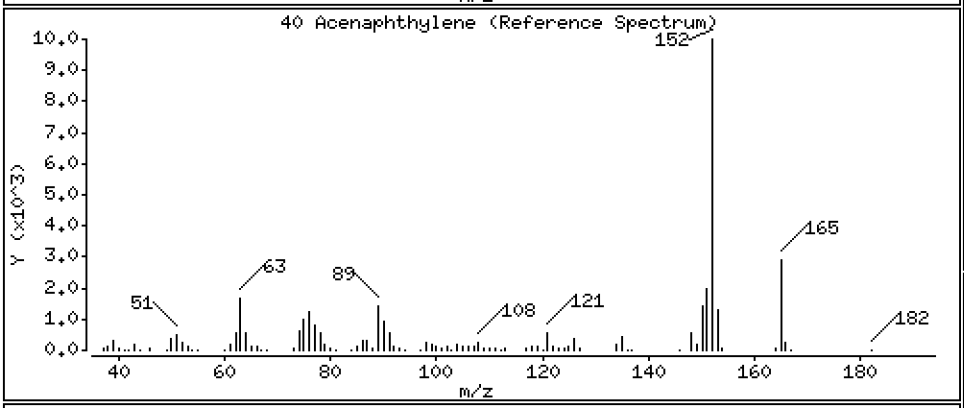
Column diameter: 0.25

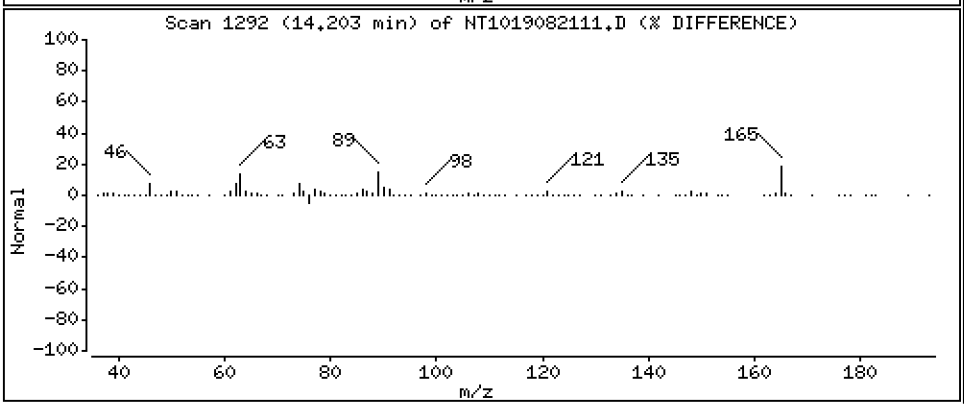
40 Acenaphthylene

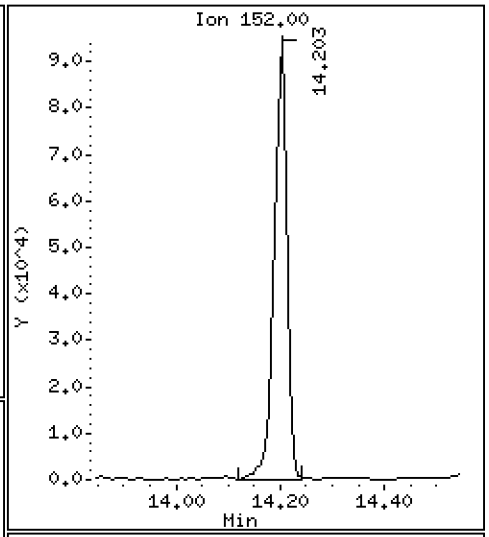
Concentration: 5.013 ug/mL

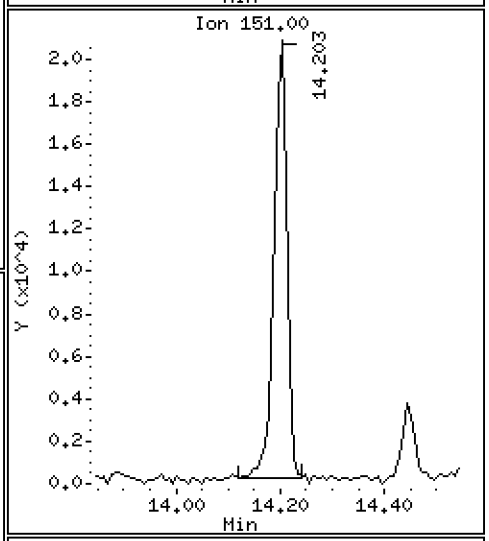


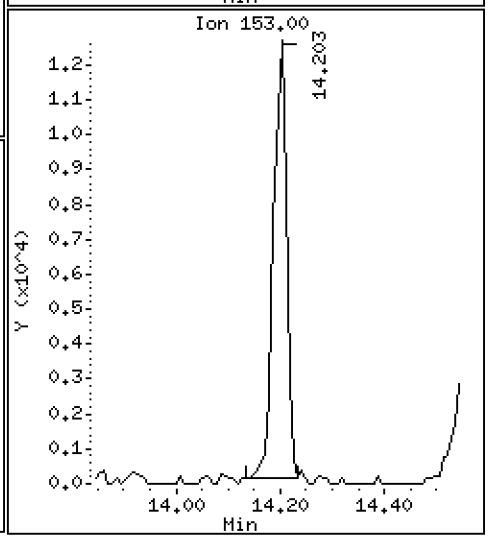












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

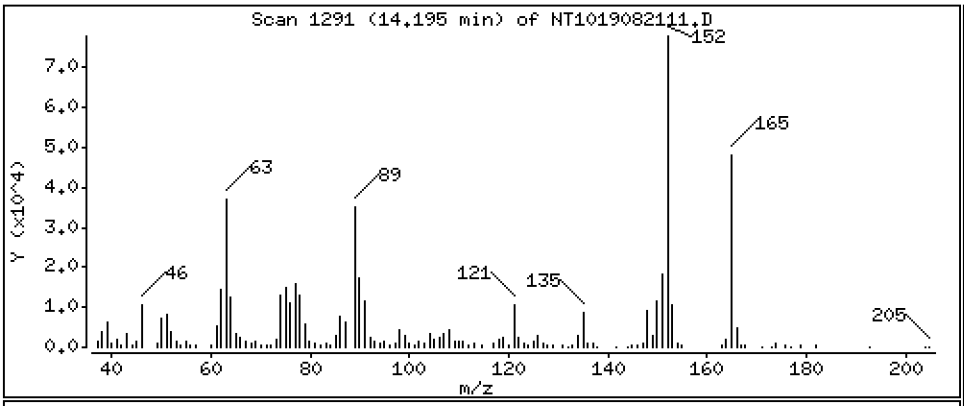
Operator: YZ

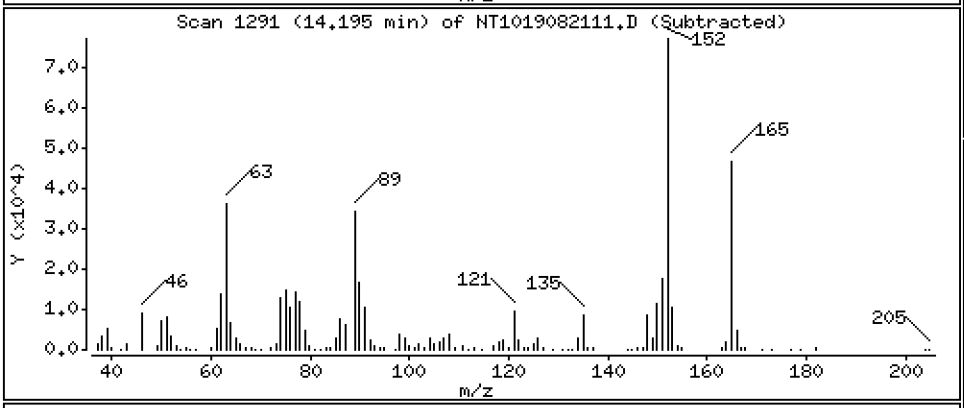
Column phase: ZB-5msi

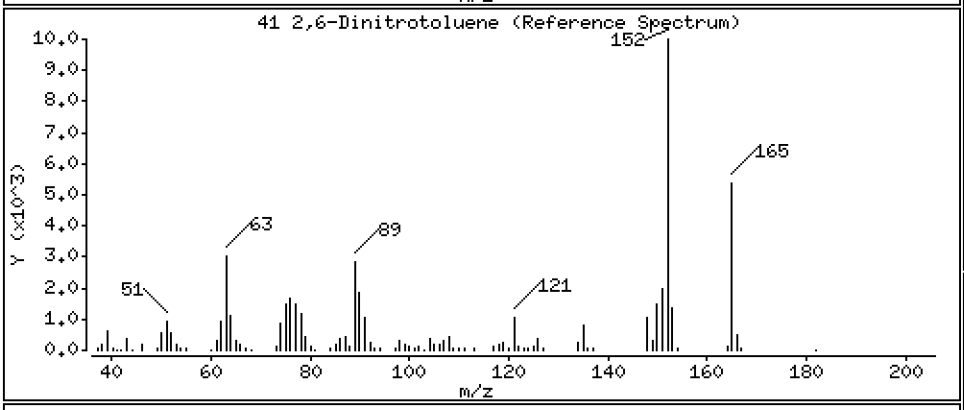
Column diameter: 0.25

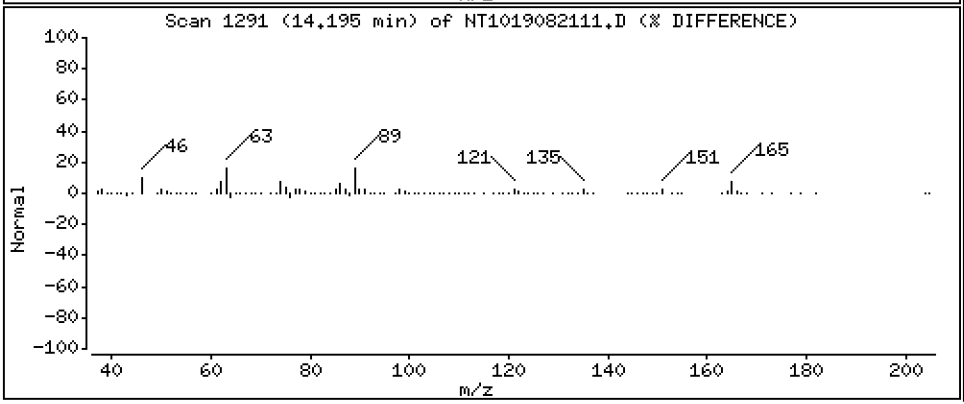
41 2,6-Dinitrotoluene

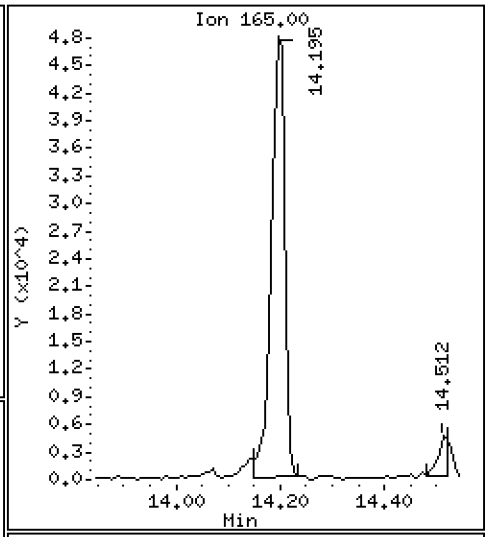
Concentration: 15.43 ug/mL

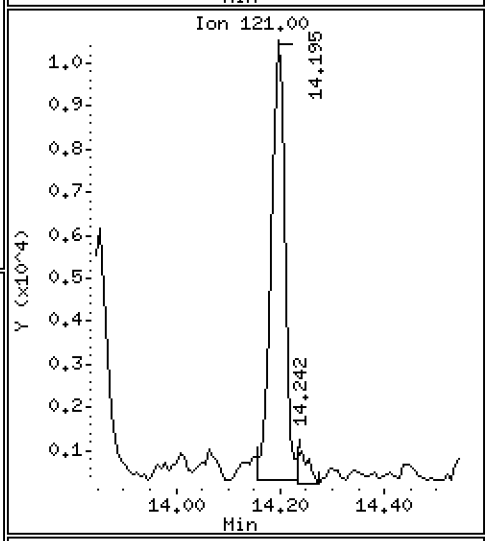


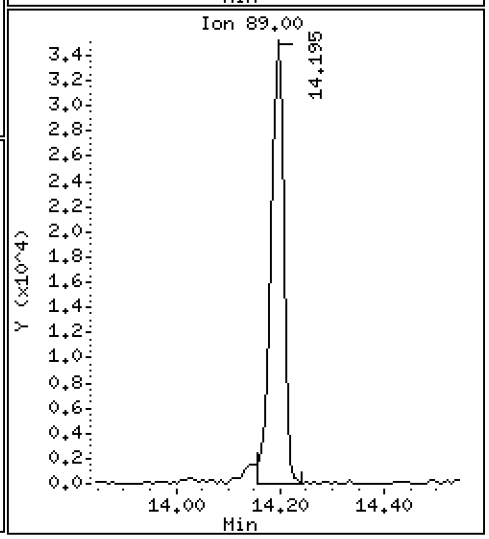












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

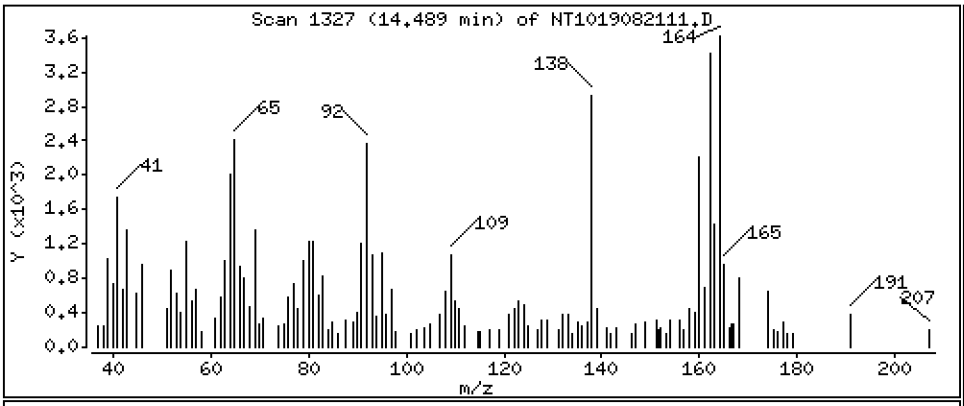
Operator: YZ

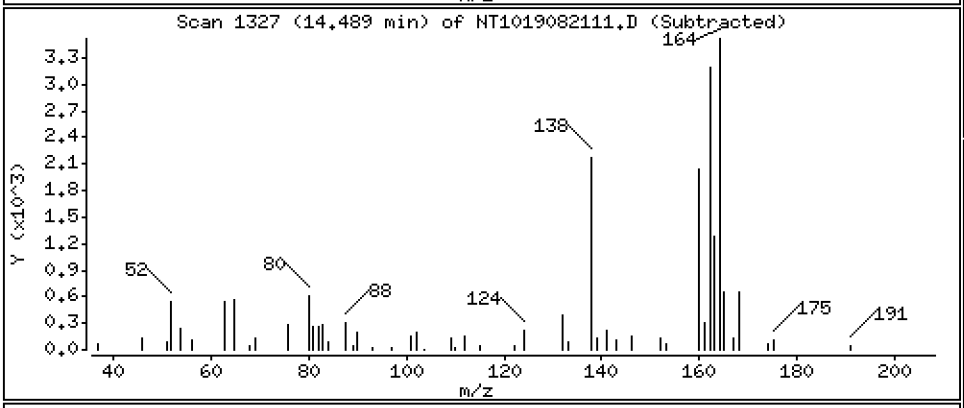
Column phase: ZB-5msi

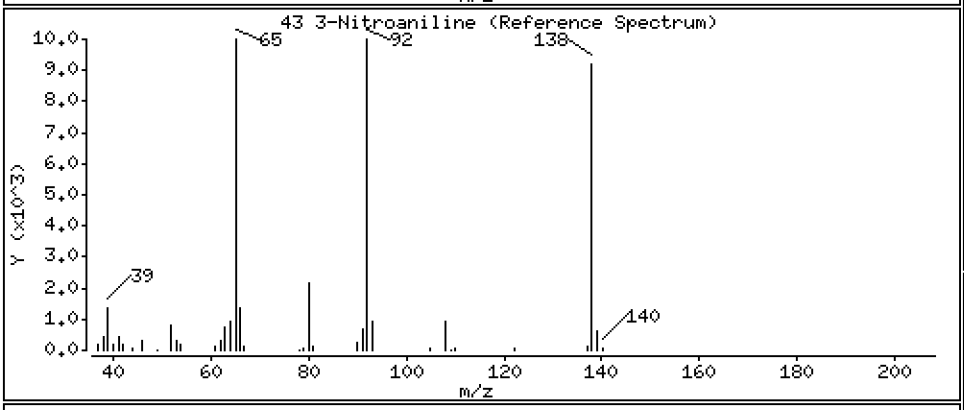
Column diameter: 0.25

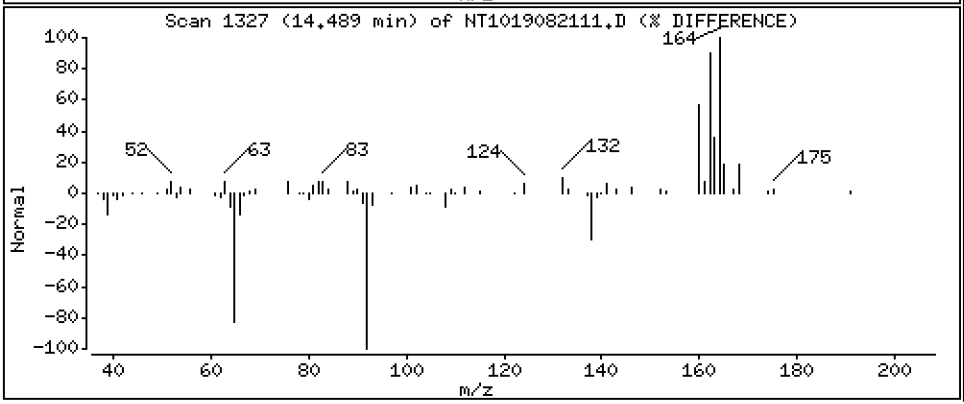
43 3-Nitroaniline

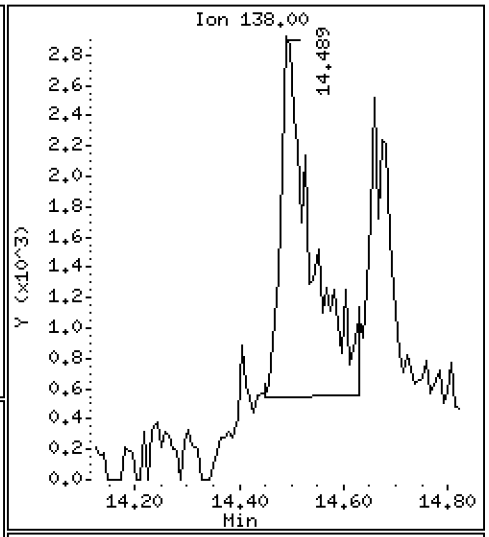
Concentration: 1.582 ug/mL

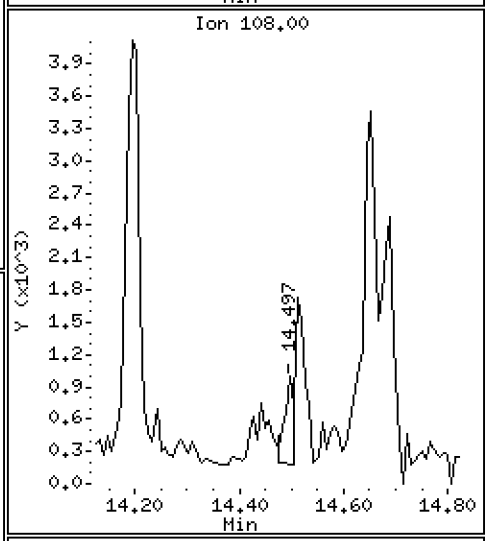


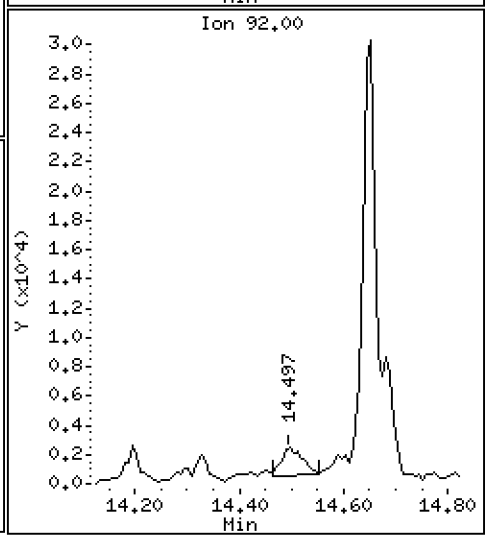












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

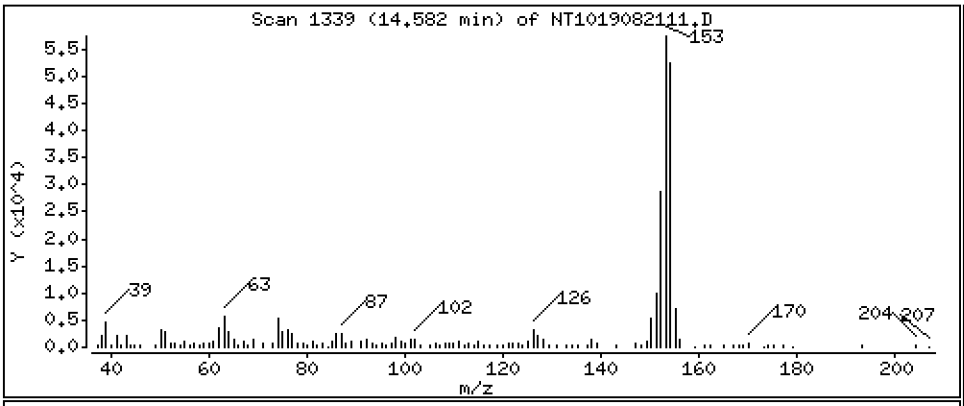
Operator: YZ

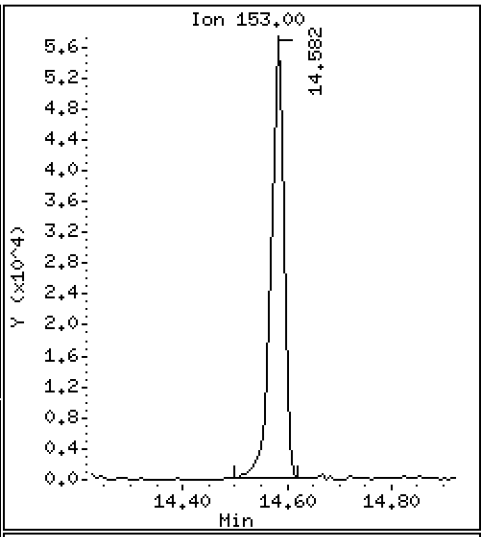
Column phase: ZB-5msi

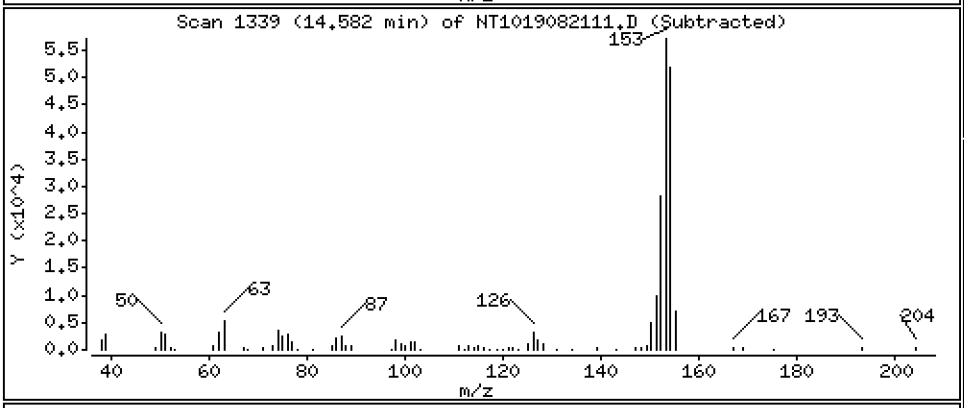
Column diameter: 0.25

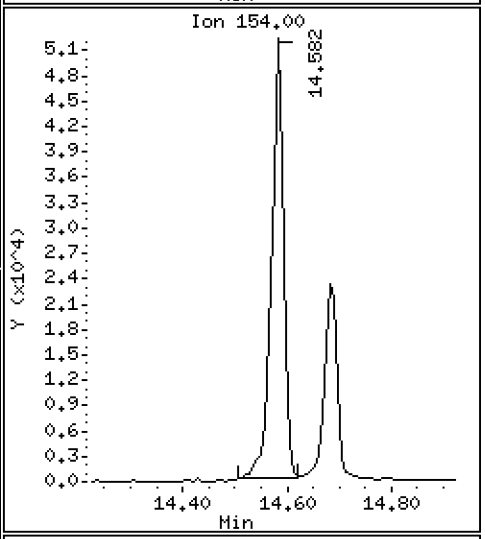
44 Acenaphthene

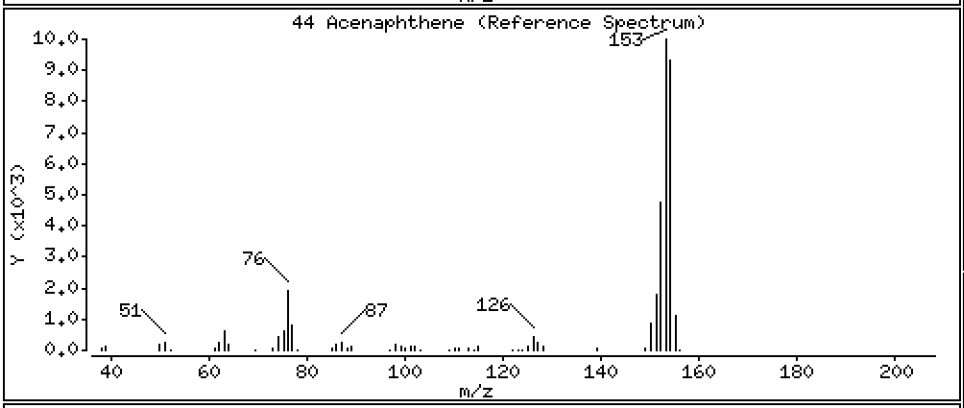
Concentration: 4.910 ug/mL

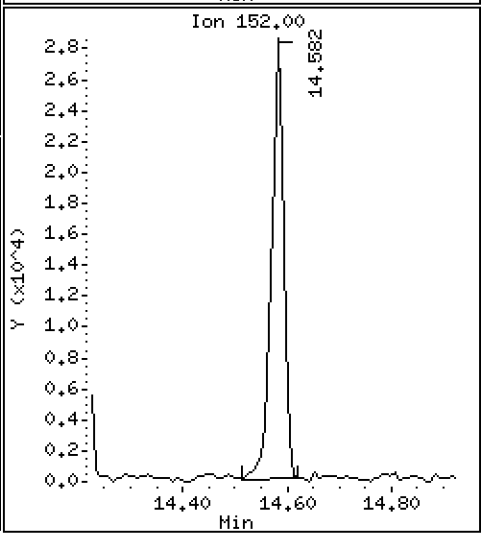


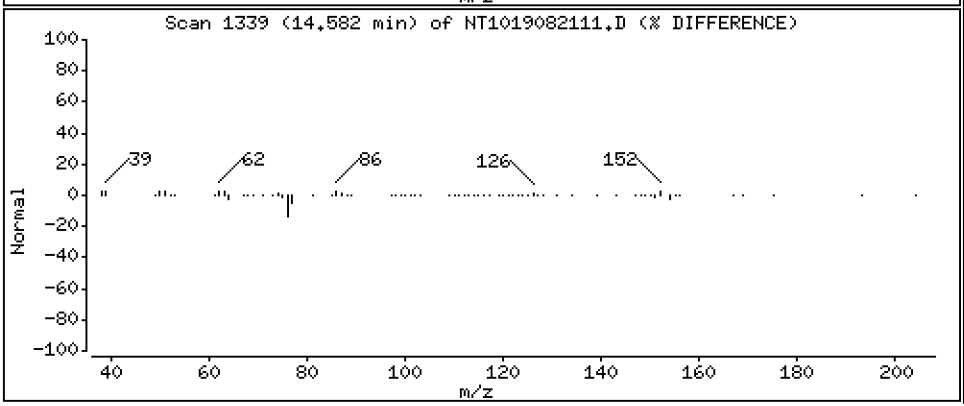












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

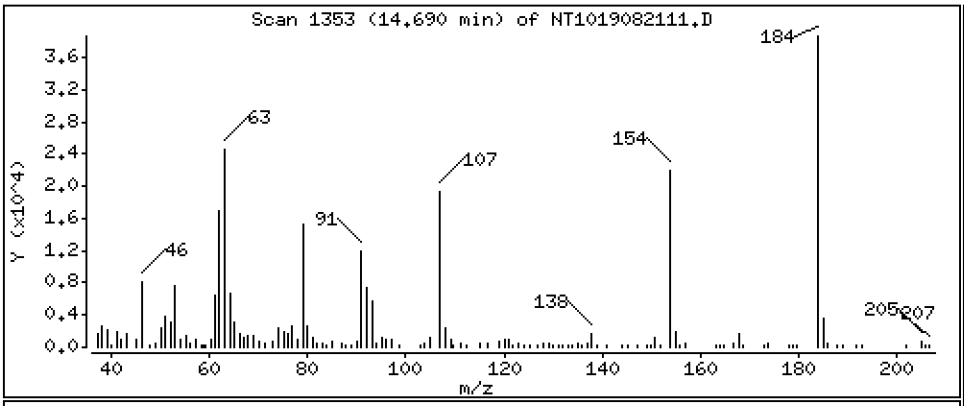
Operator: YZ

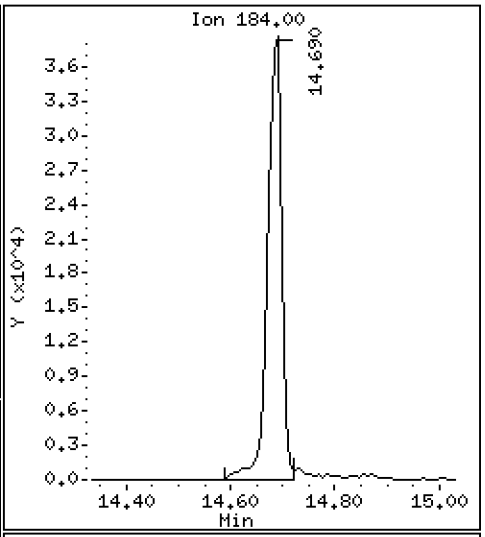
Column phase: ZB-5msi

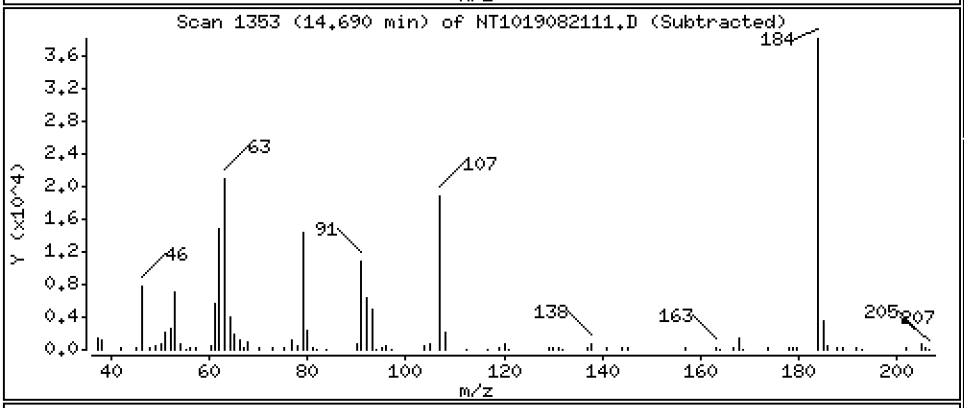
Column diameter: 0.25

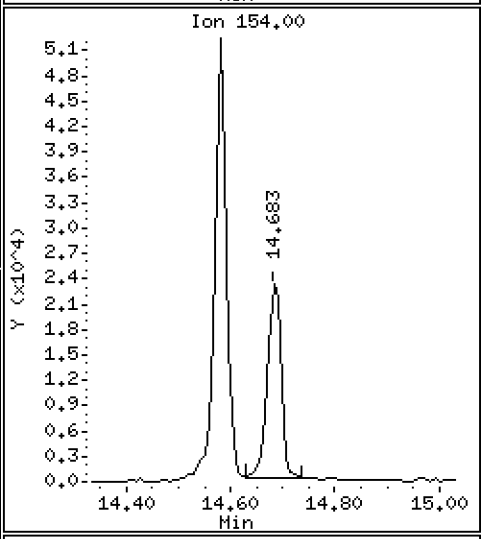
45 2,4-Dinitrophenol

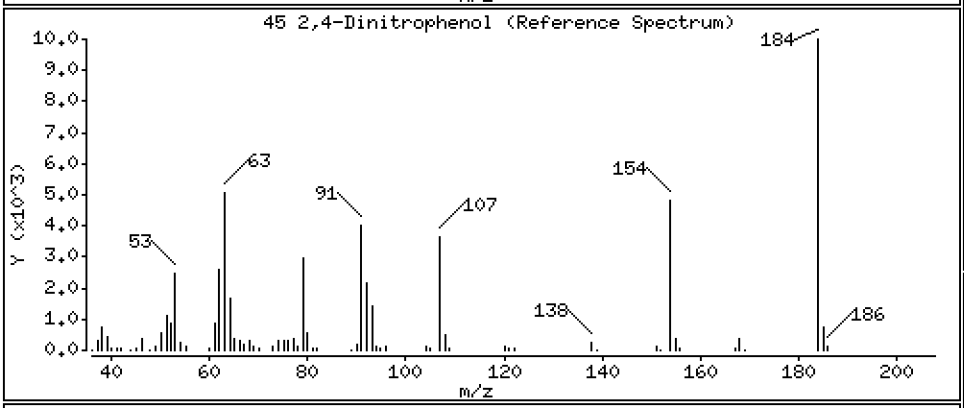
Concentration: 18.76 ug/mL

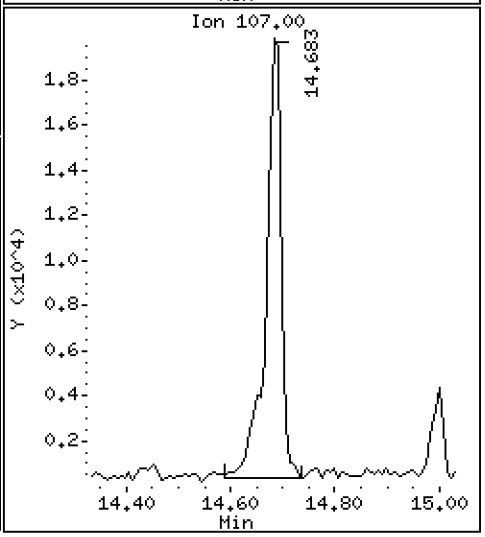


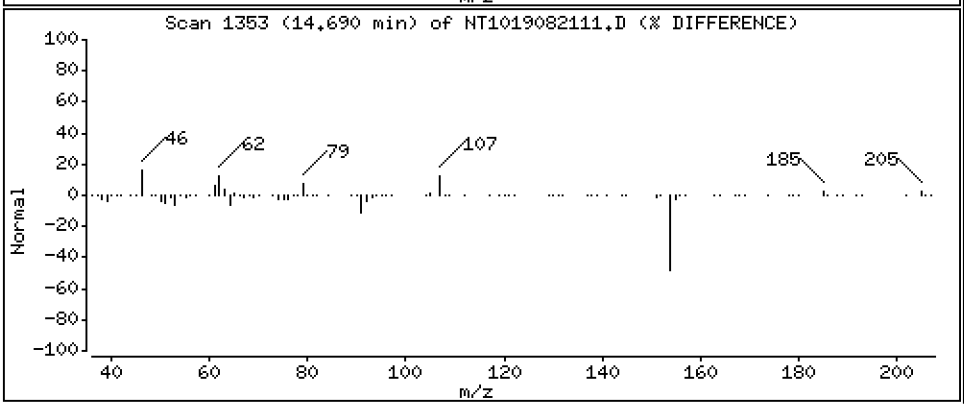












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

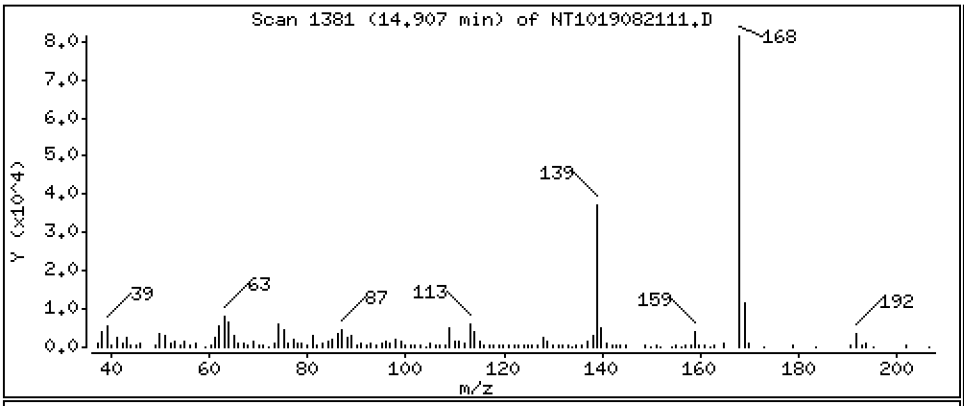
Operator: YZ

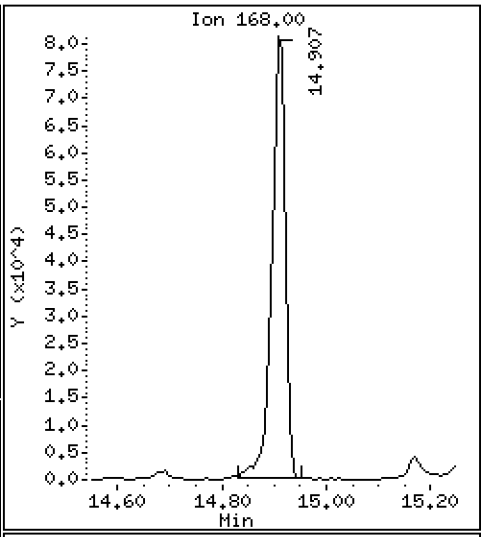
Column phase: ZB-5msi

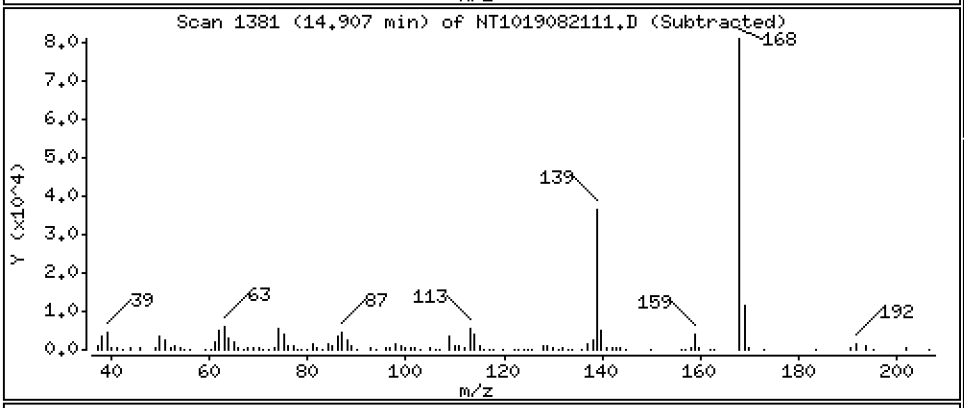
Column diameter: 0.25

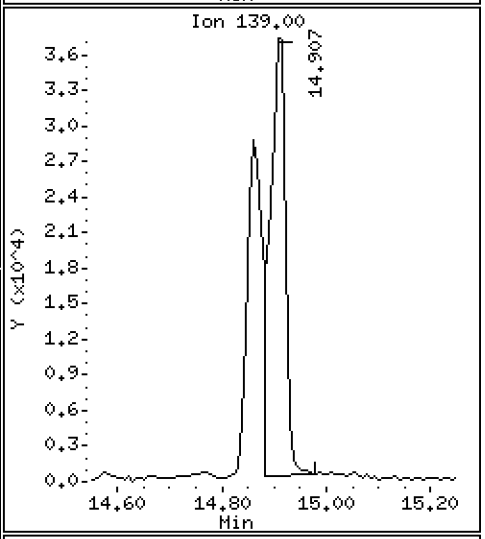
46 Dibenzofuran

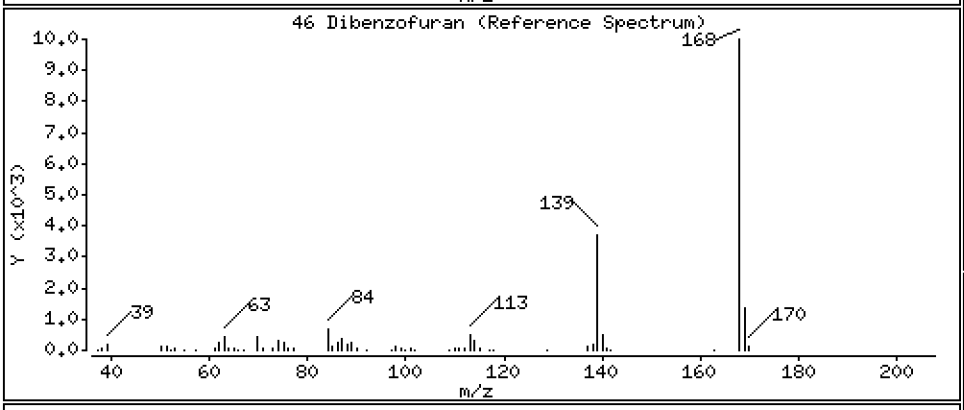
Concentration: 4.498 ug/mL

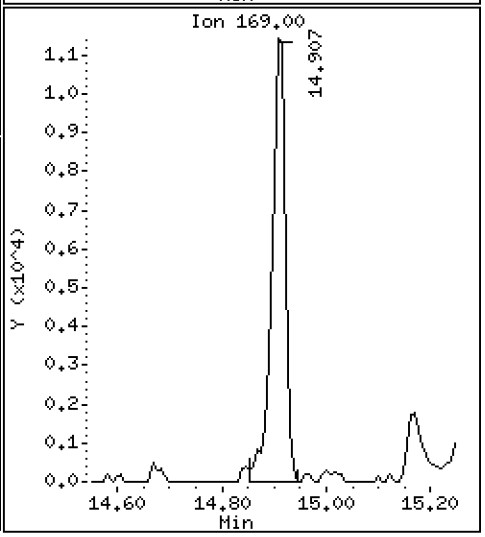


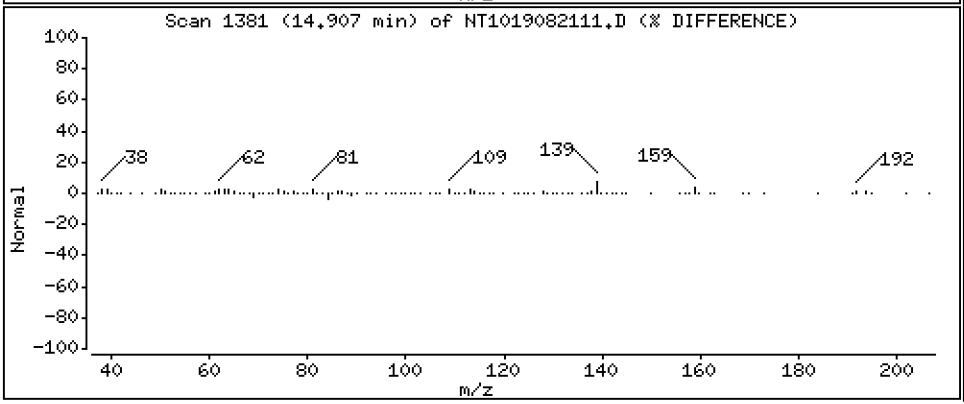












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

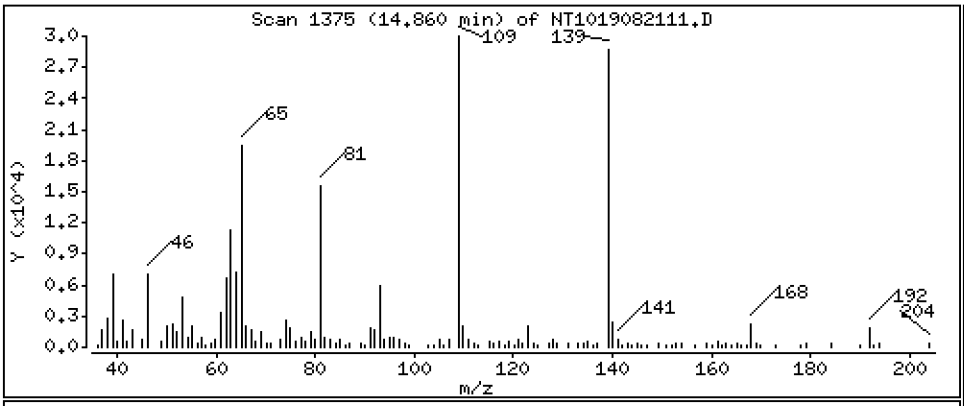
Operator: YZ

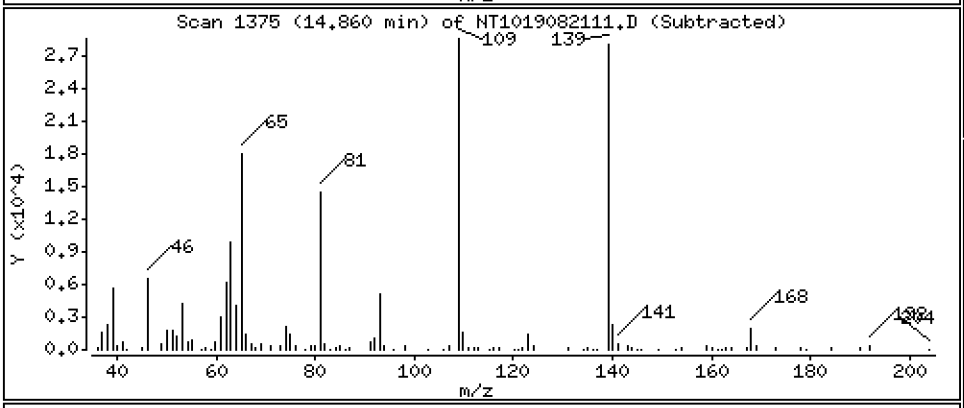
Column phase: ZB-5msi

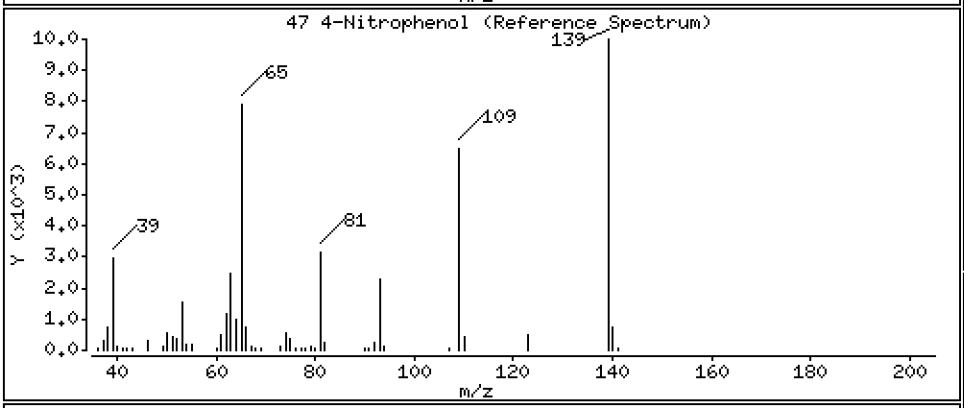
Column diameter: 0.25

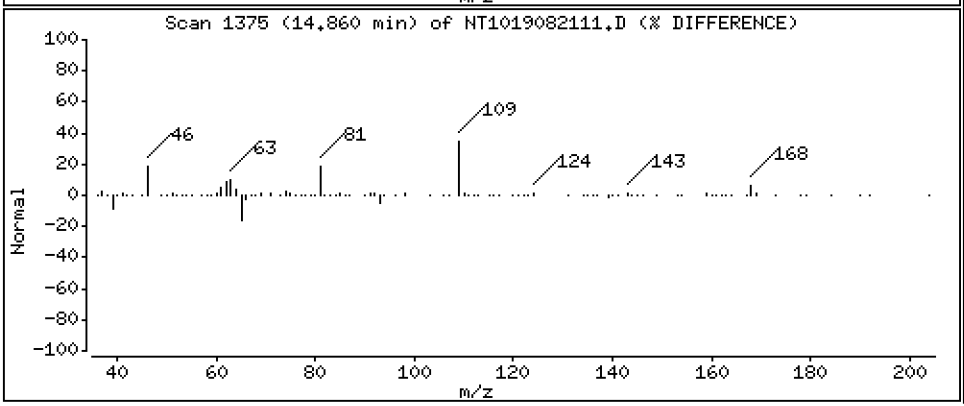
47 4-Nitrophenol

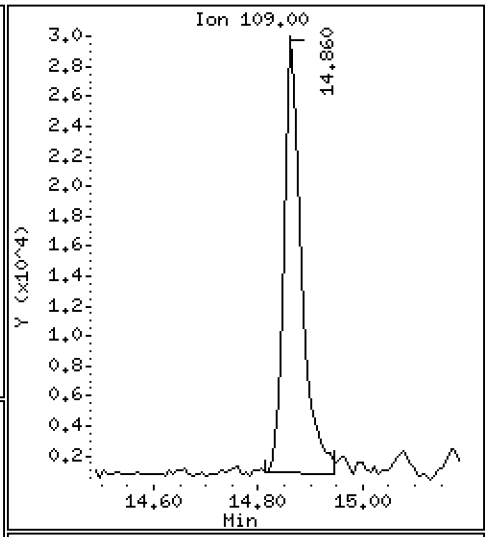
Concentration: 17.68 ug/mL

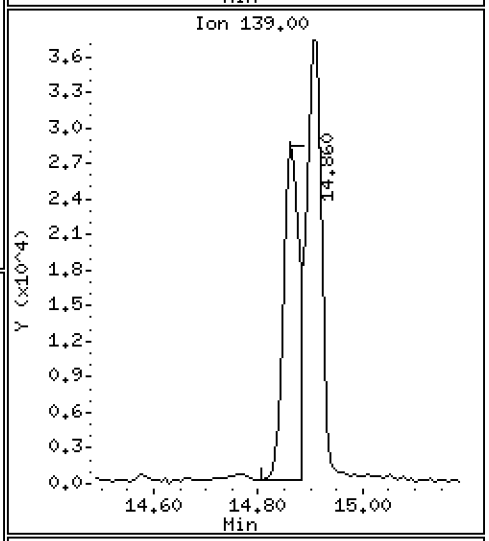


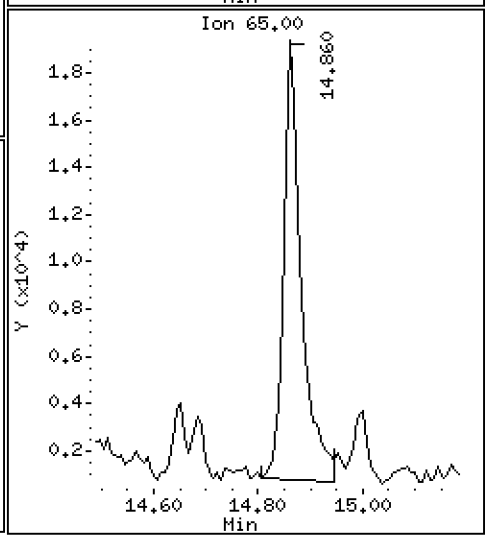












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

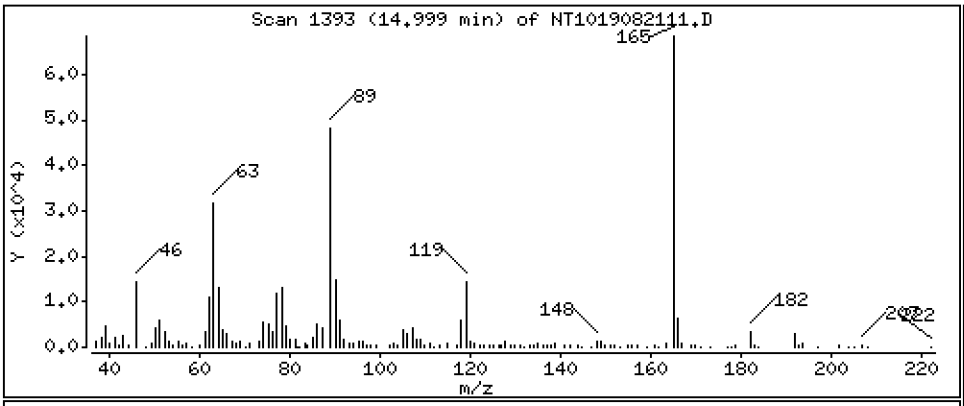
Operator: YZ

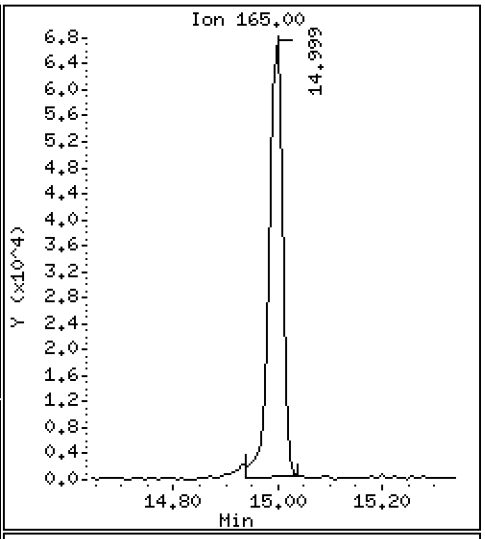
Column phase: ZB-5msi

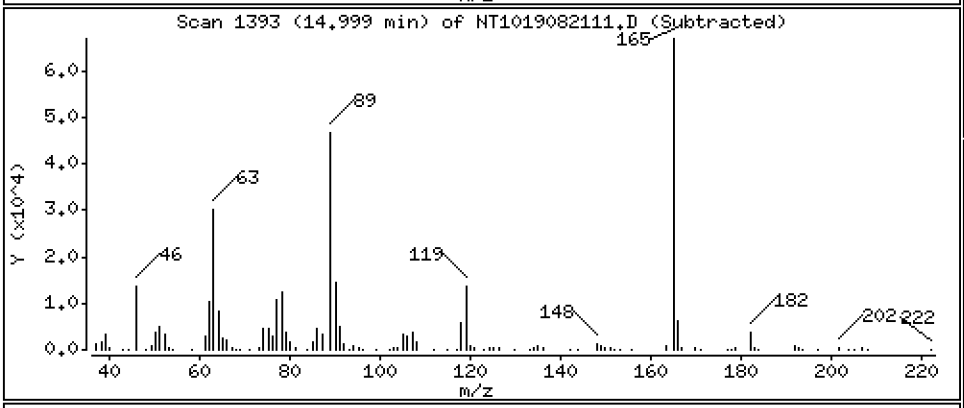
Column diameter: 0.25

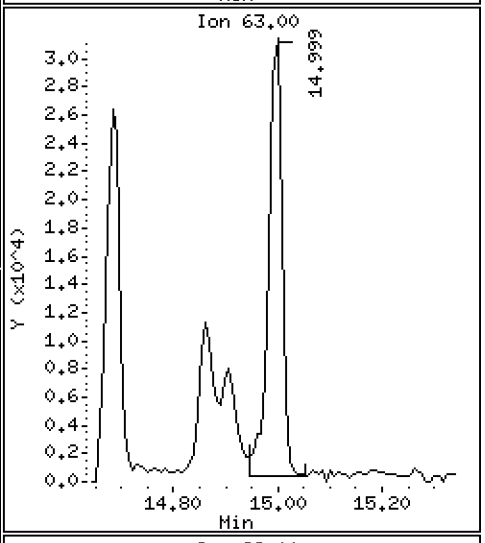
48 2,4-Dinitrotoluene

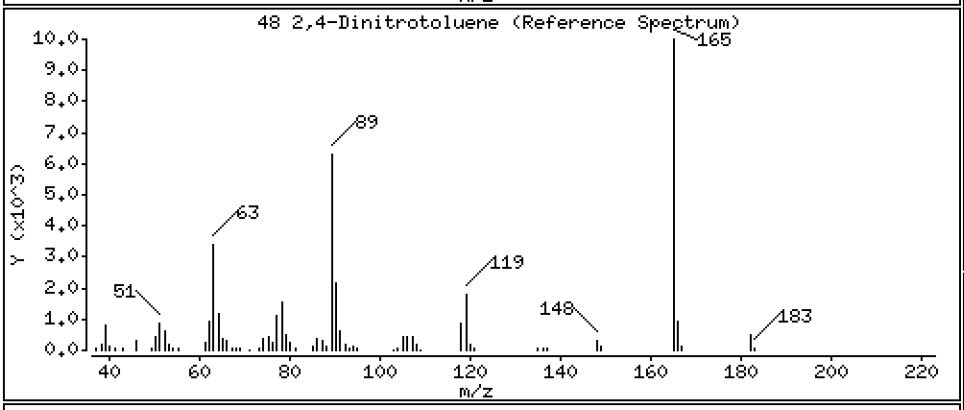
Concentration: 15.88 ug/mL

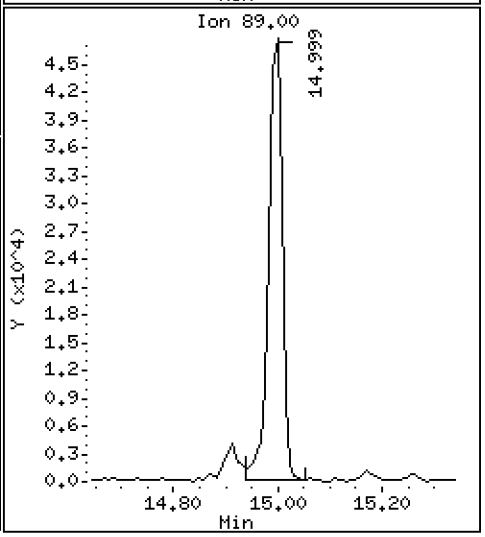


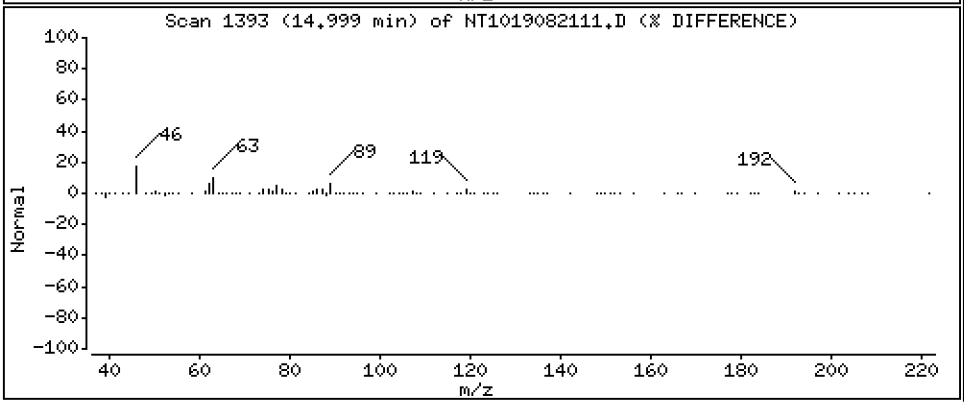












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

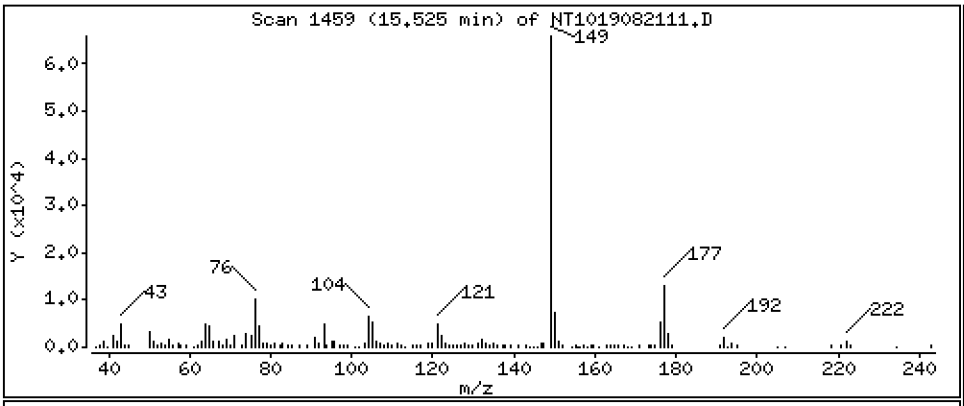
Operator: YZ

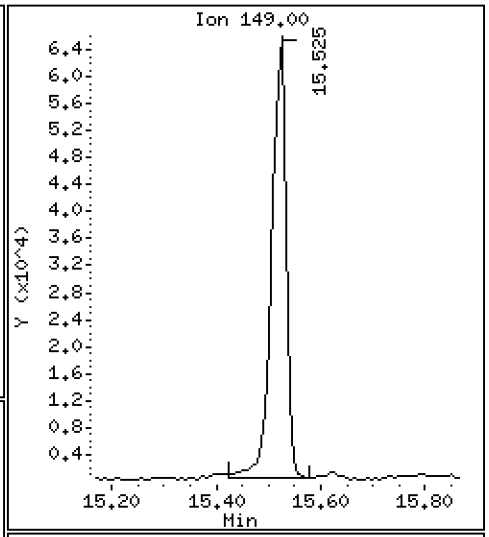
Column phase: ZB-5msi

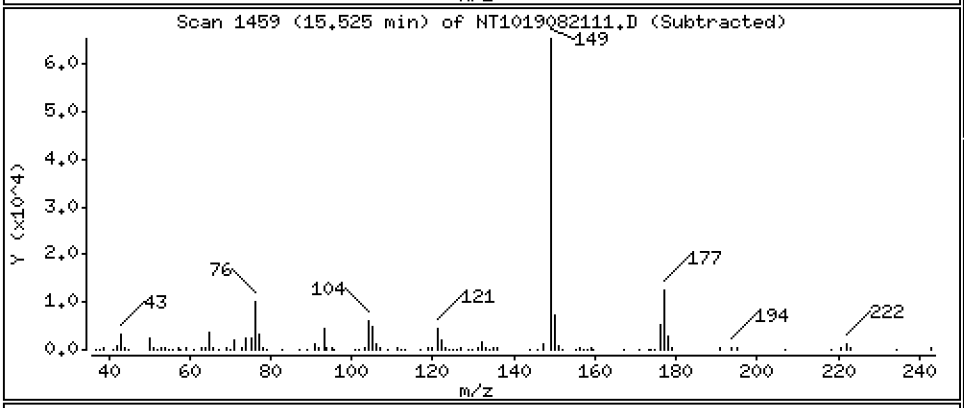
Column diameter: 0.25

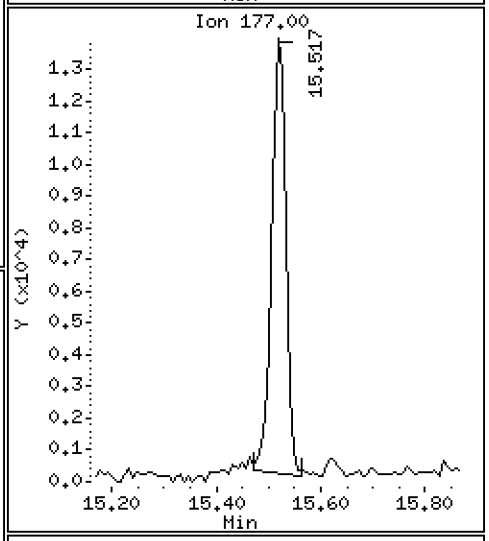
50 Diethylphthalate

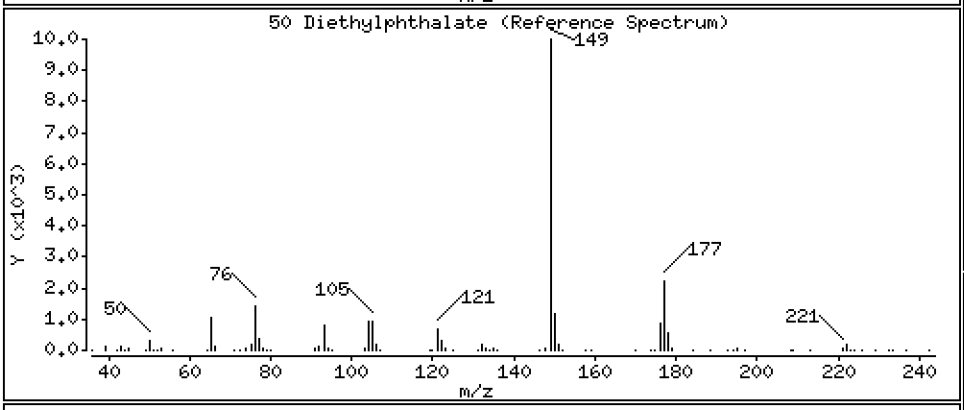
Concentration: 5.332 ug/mL

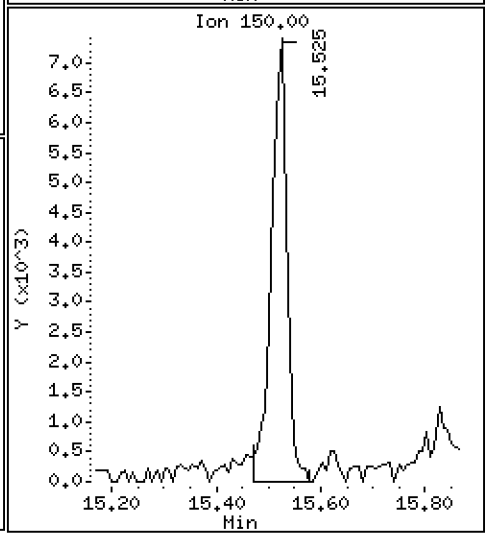


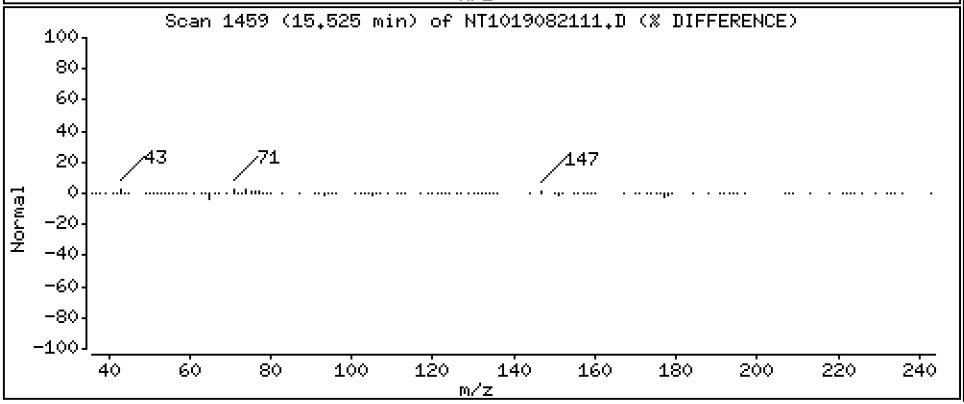












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

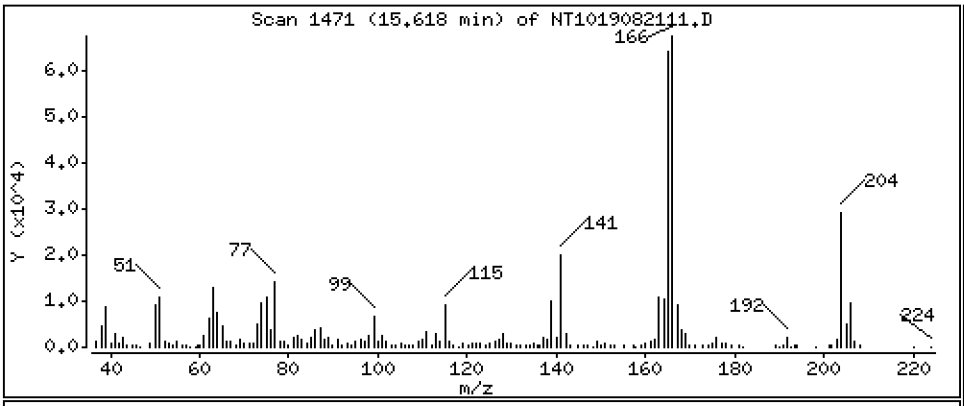
Operator: YZ

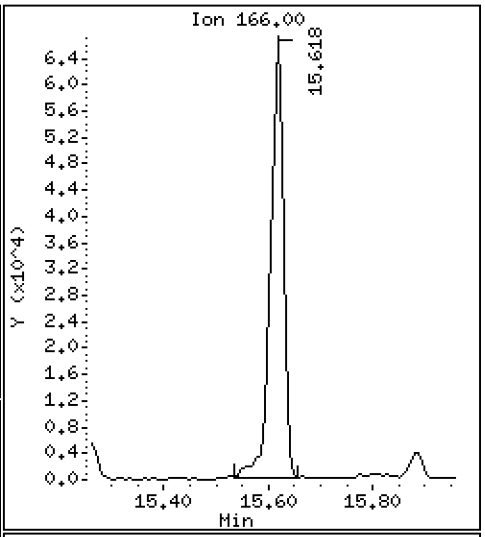
Column phase: ZB-5msi

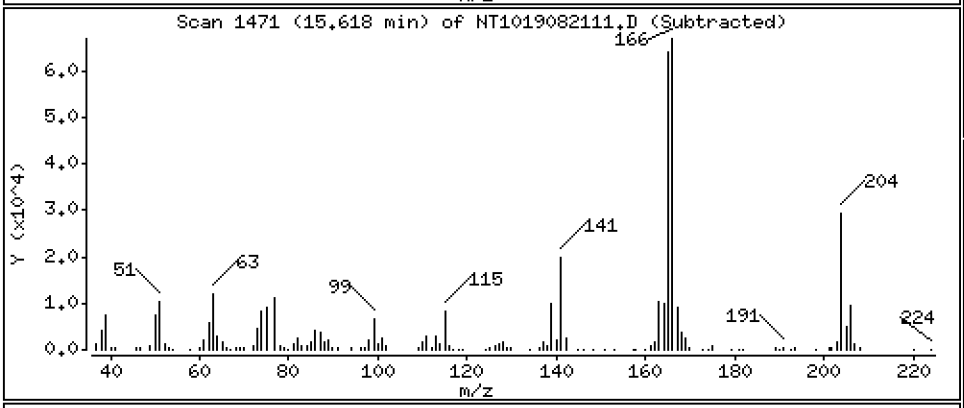
Column diameter: 0.25

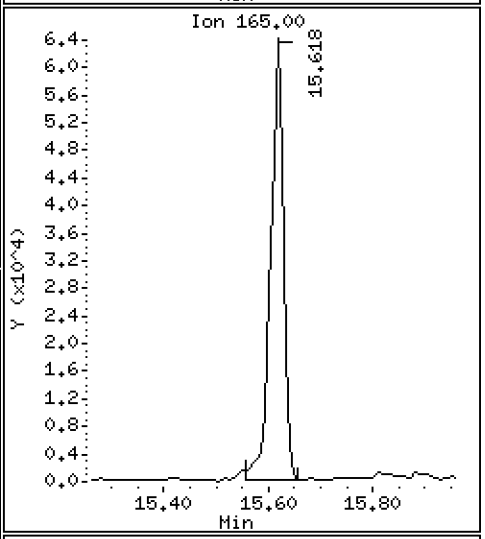
49 Fluorene

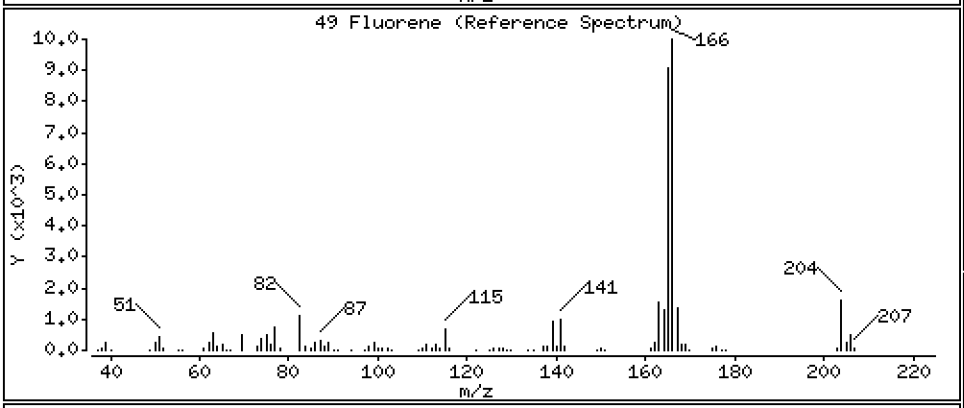
Concentration: 5.130 ug/mL

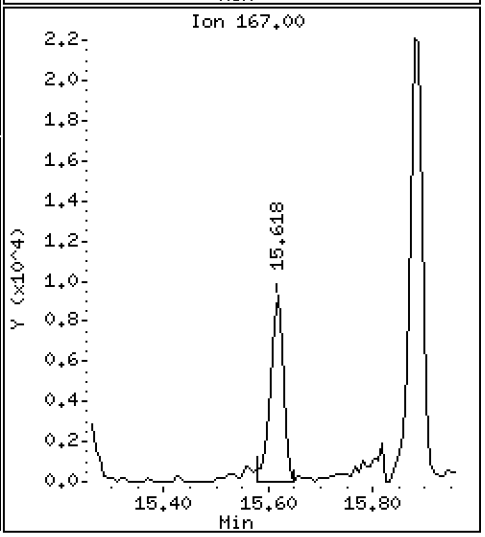


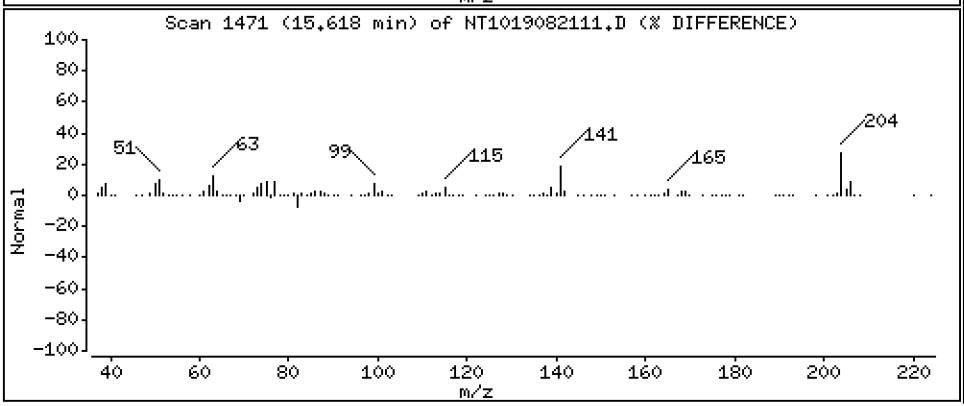












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

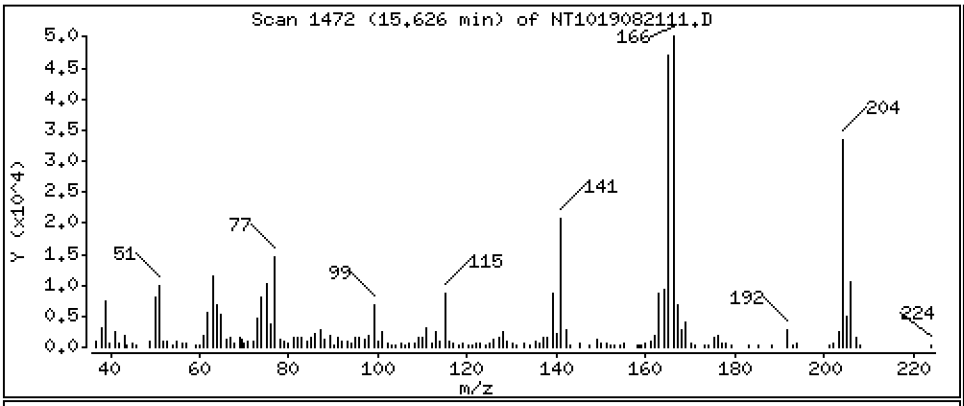
Operator: YZ

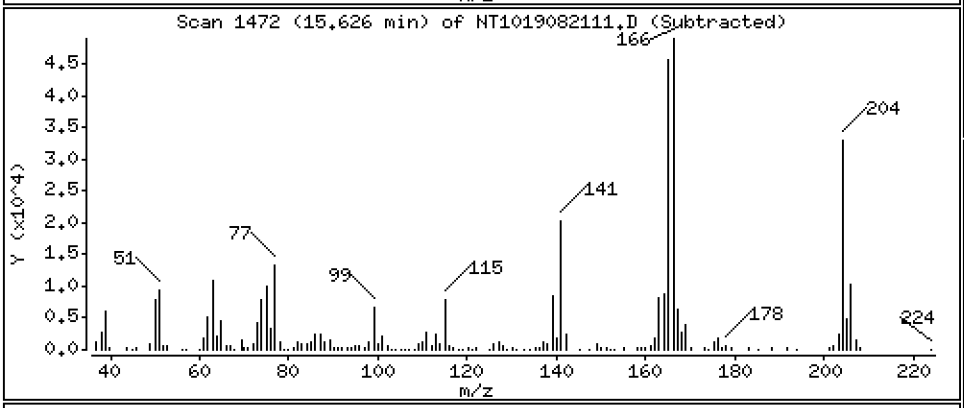
Column phase: ZB-5msi

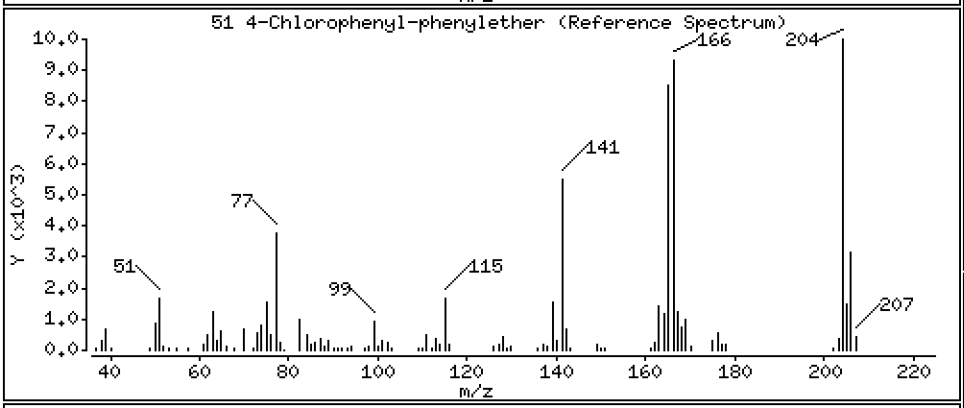
Column diameter: 0.25

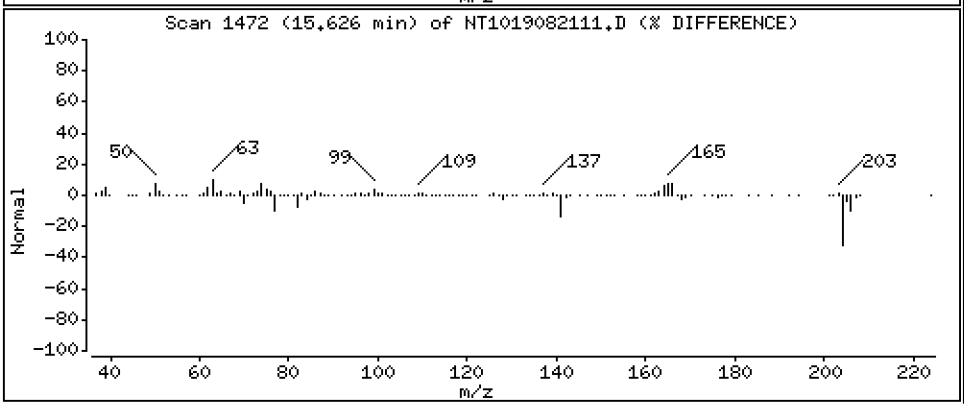
51 4-Chlorophenyl-phenylether

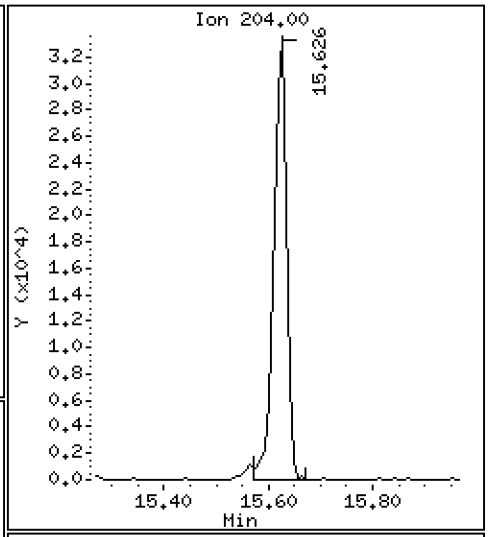
Concentration: 4.884 ug/mL

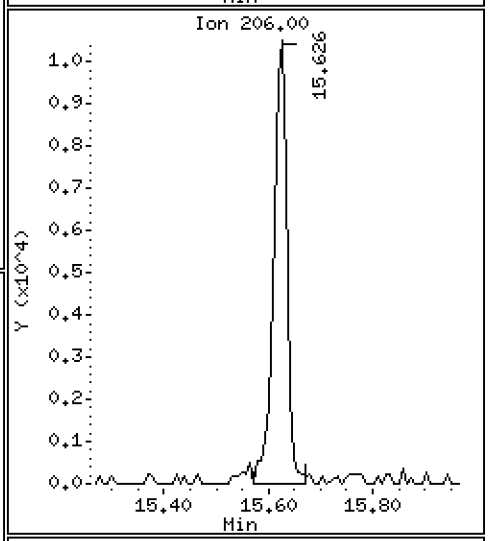


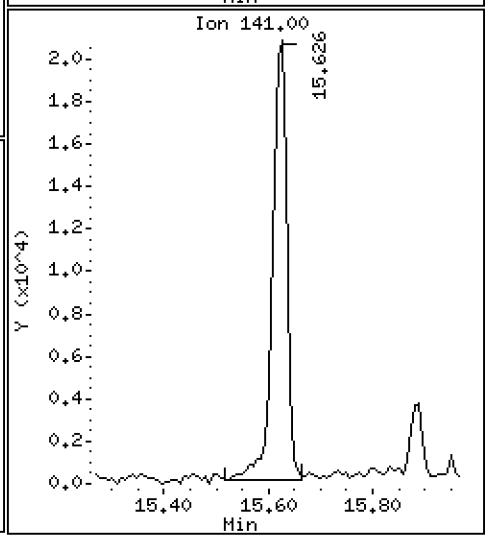












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

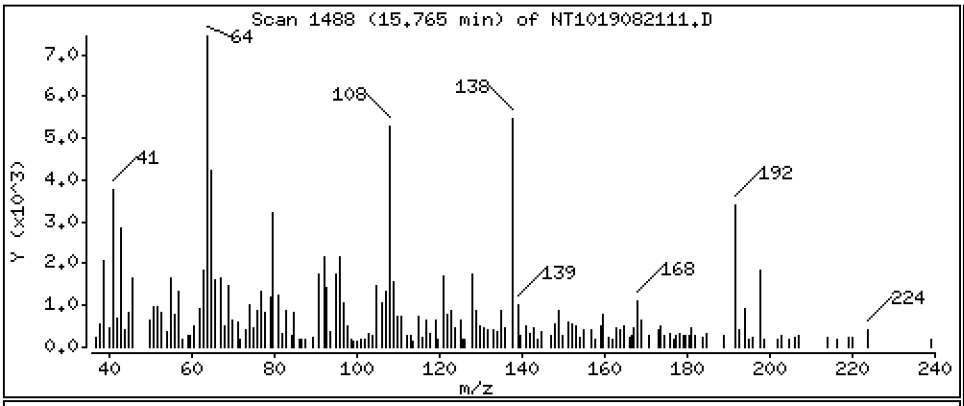
Operator: YZ

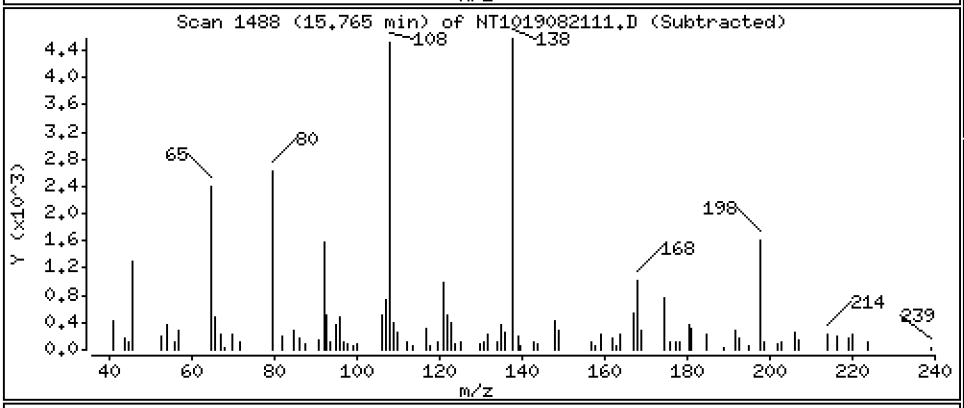
Column phase: ZB-5msi

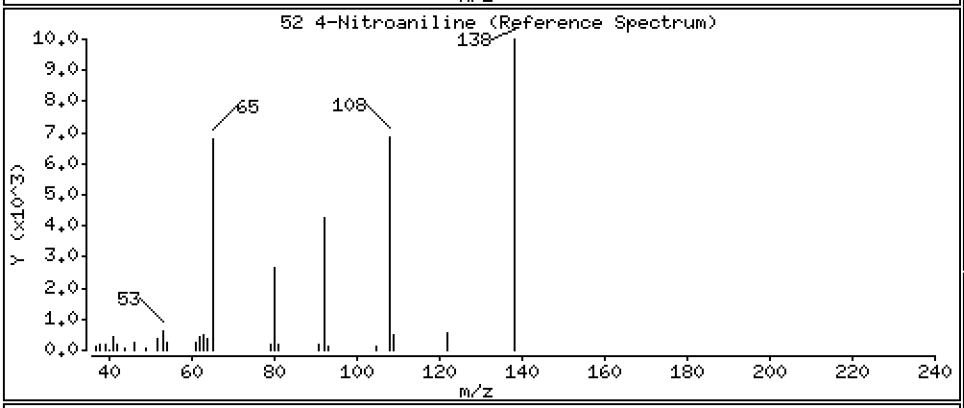
Column diameter: 0.25

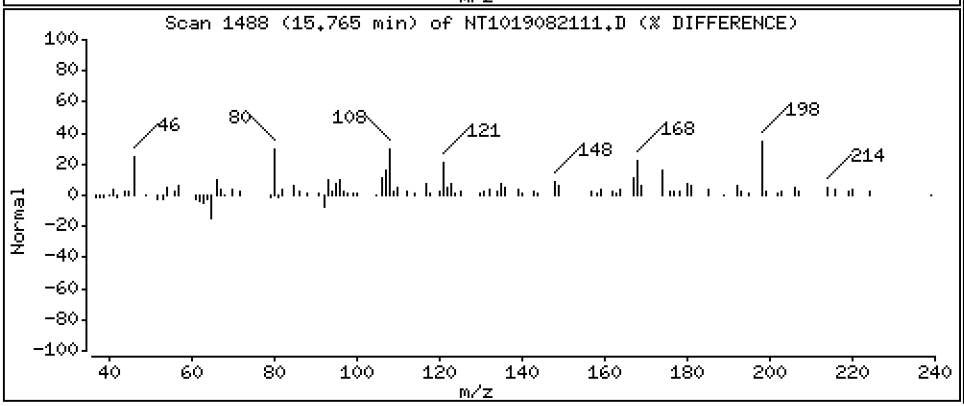
52 4-Nitroaniline

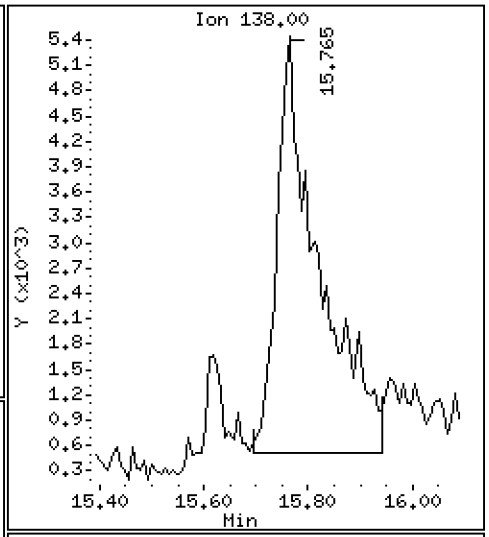
Concentration: 4.158 ug/mL

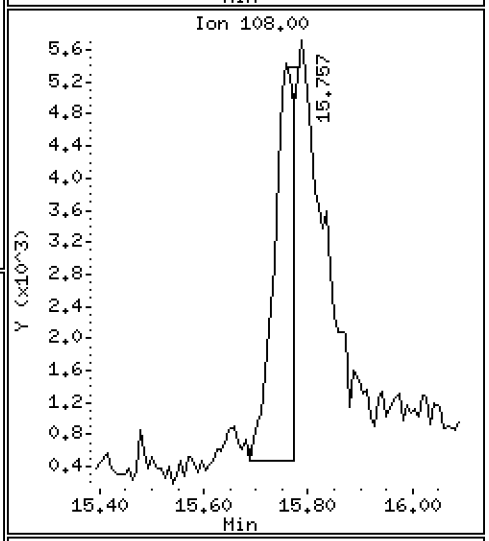


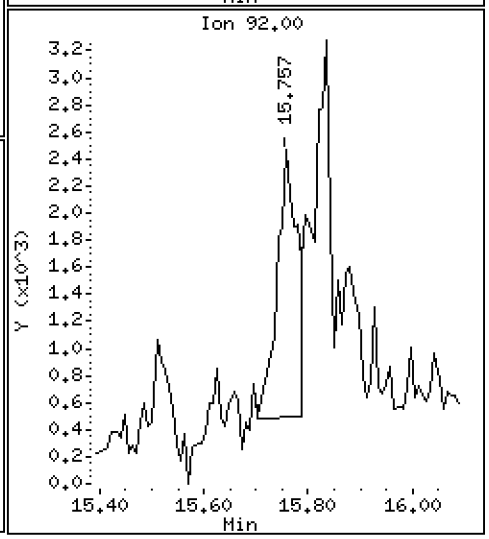












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

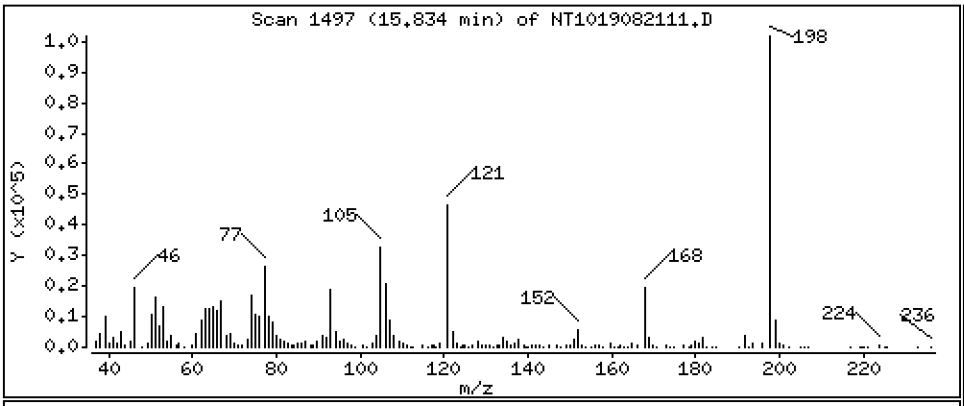
Operator: YZ

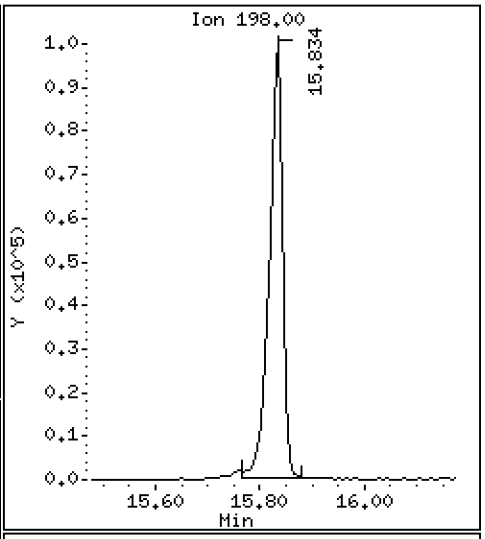
Column phase: ZB-5msi

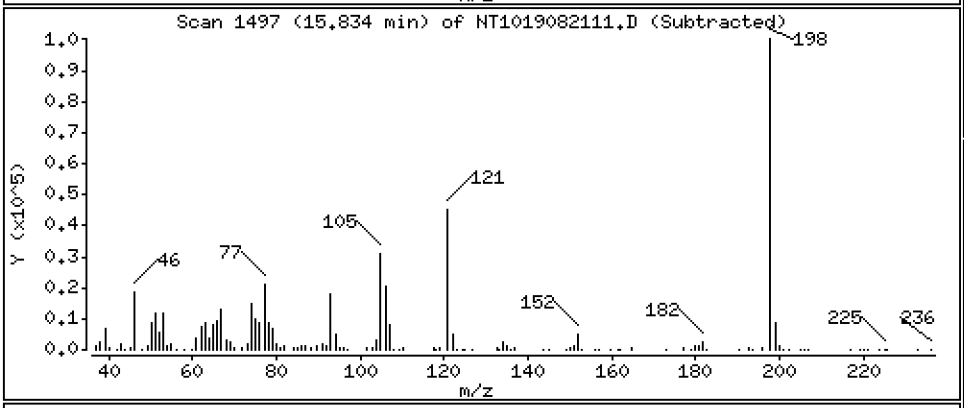
Column diameter: 0.25

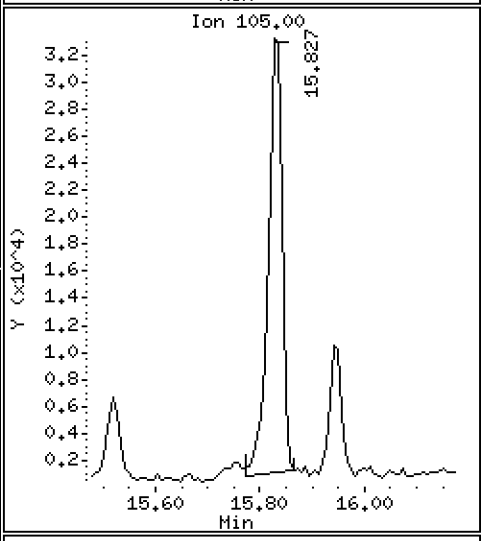
53 4,6-Dinitro-2-methylphenol

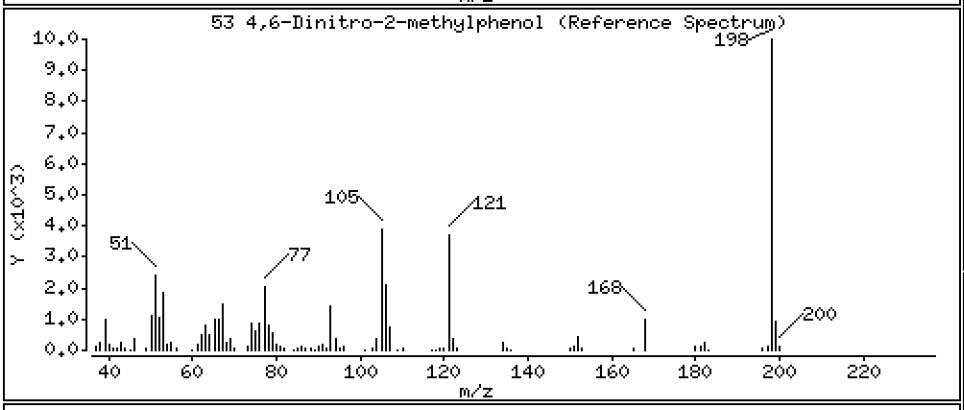
Concentration: 30.79 ug/mL

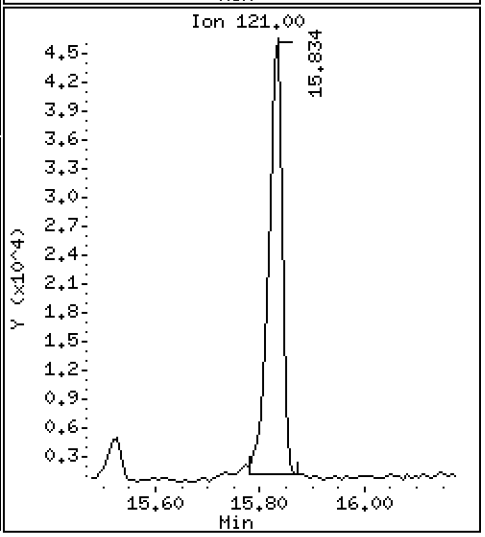


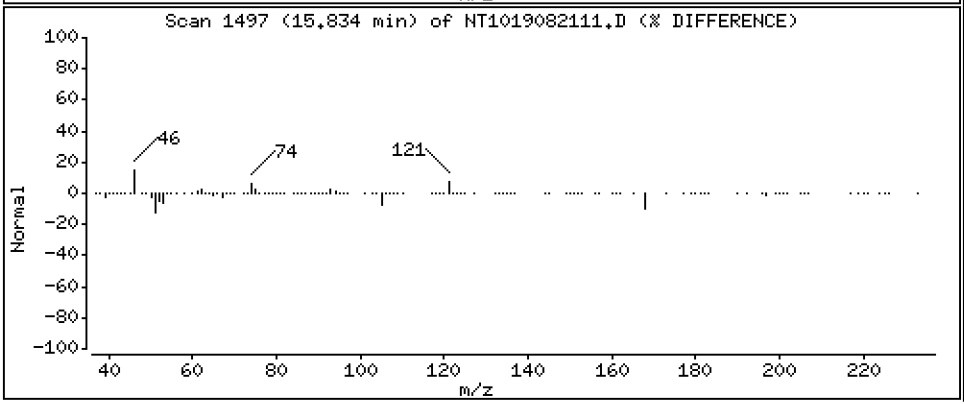












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

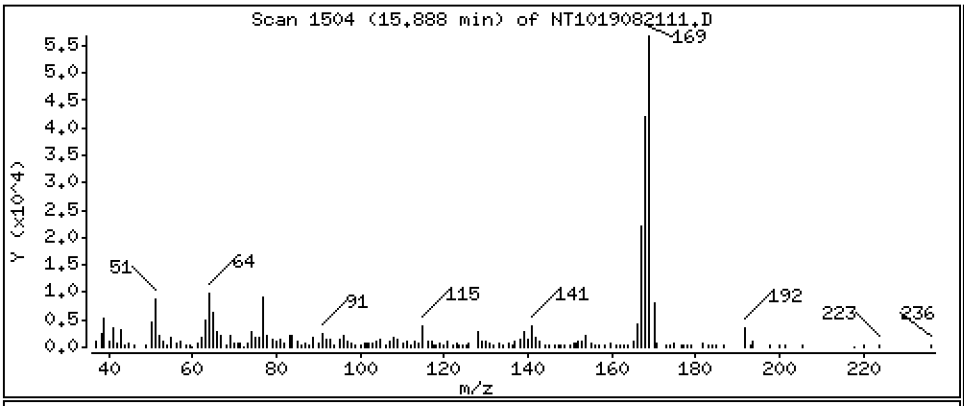
Operator: YZ

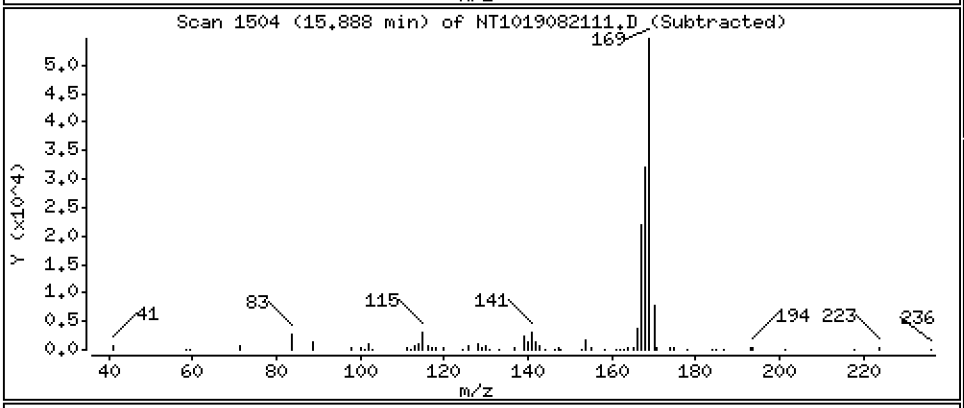
Column phase: ZB-5msi

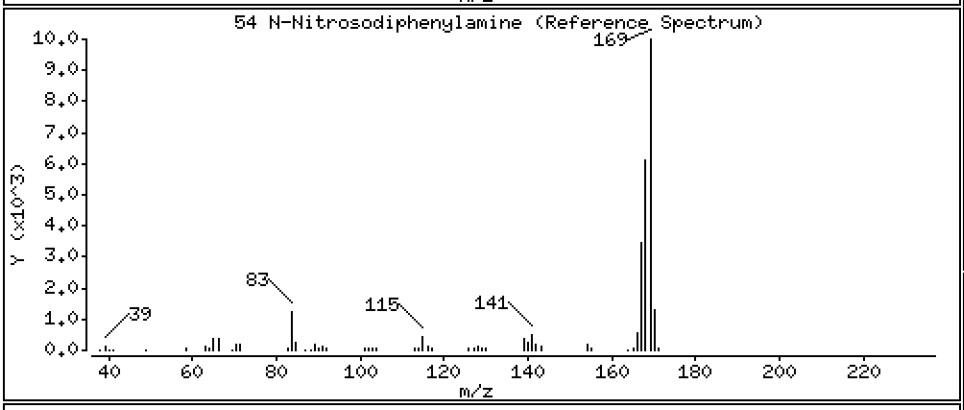
Column diameter: 0.25

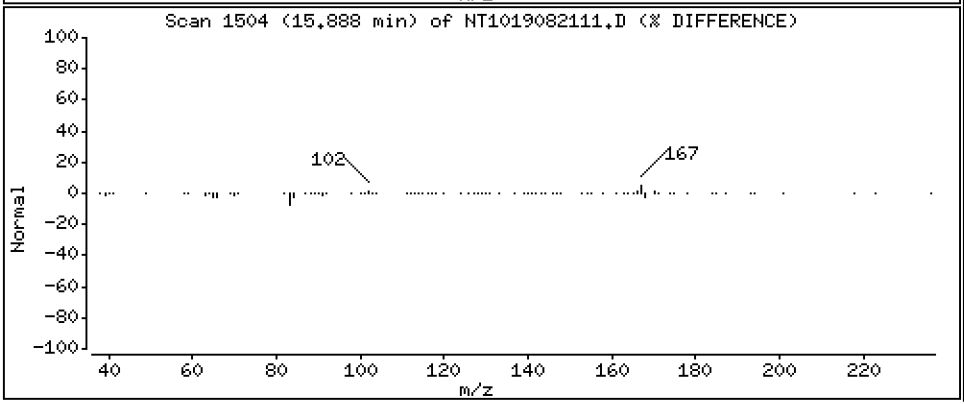
54 N-Nitrosodiphenylamine

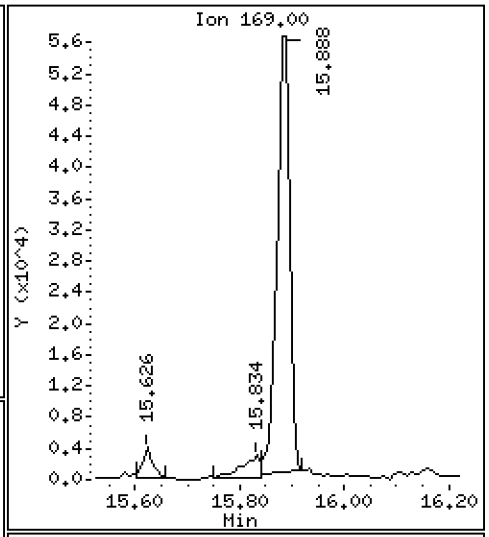
Concentration: 5.972 ug/mL

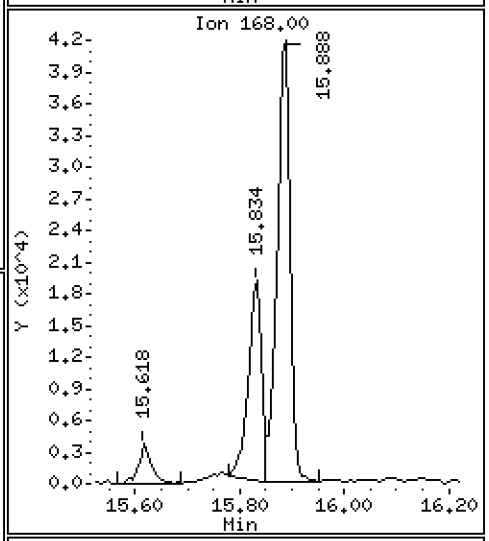


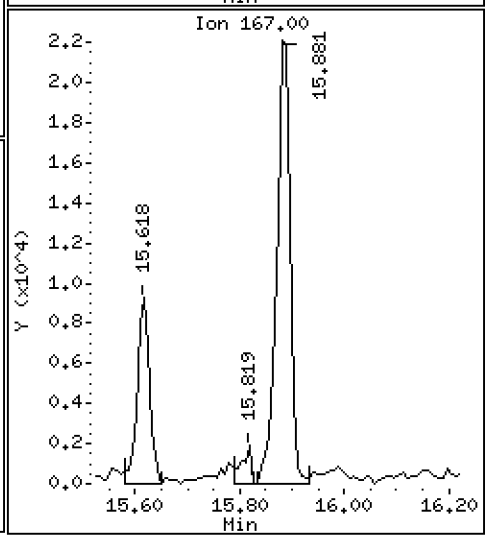












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

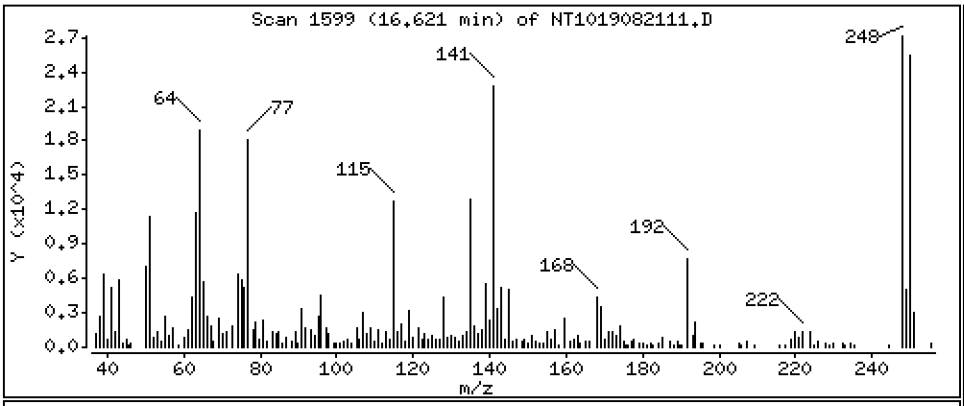
Operator: YZ

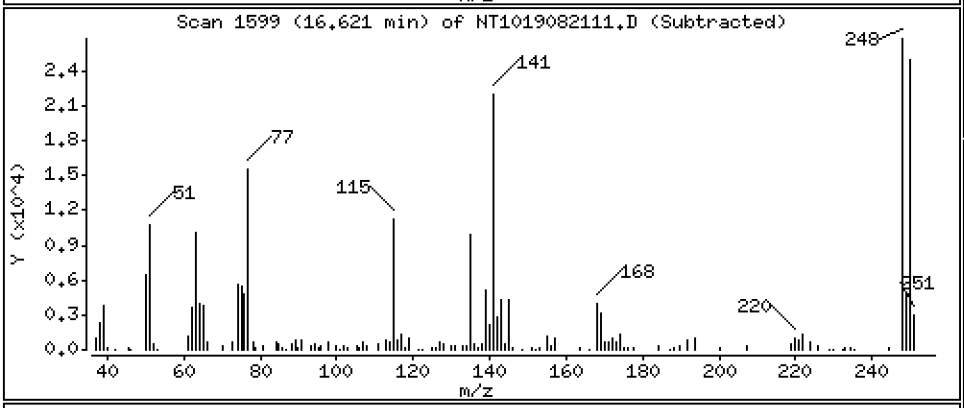
Column phase: ZB-5msi

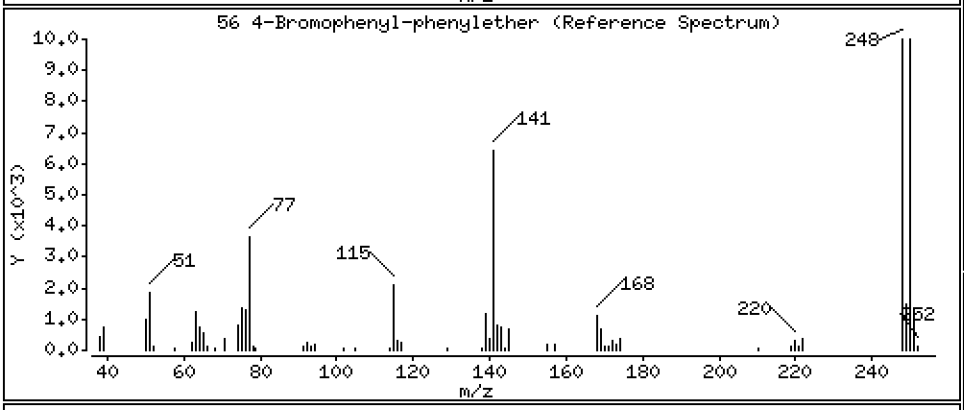
Column diameter: 0.25

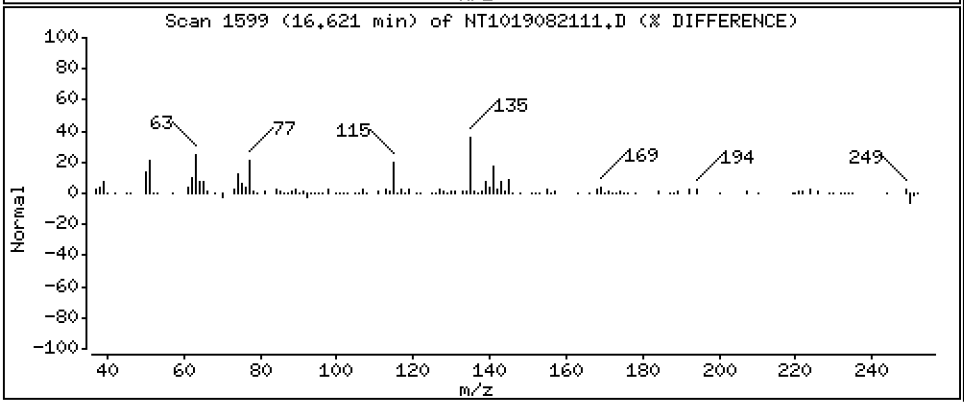
56 4-Bromophenyl-phenylether

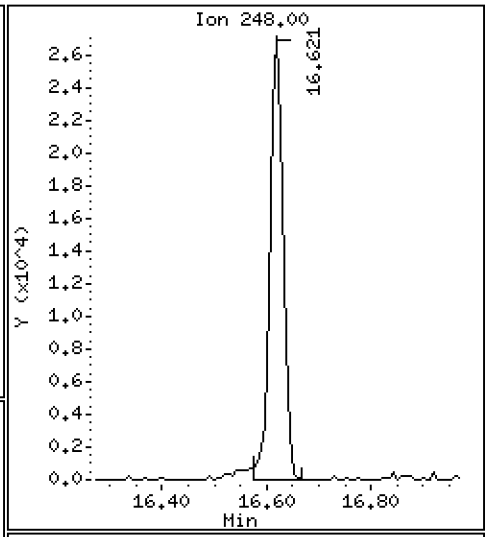
Concentration: 4.989 ug/mL

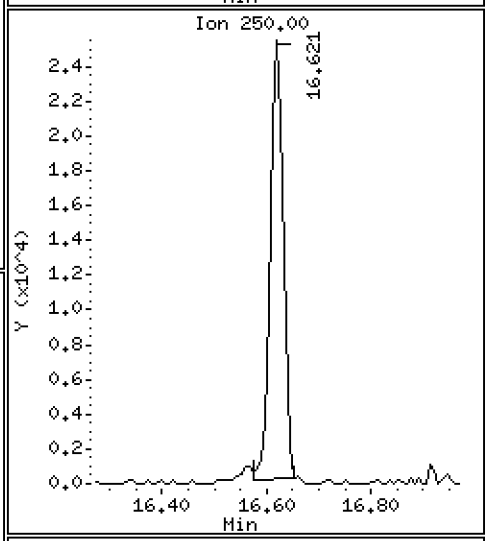


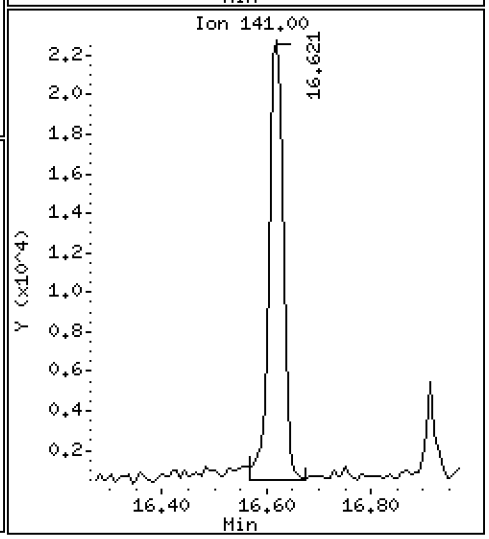












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

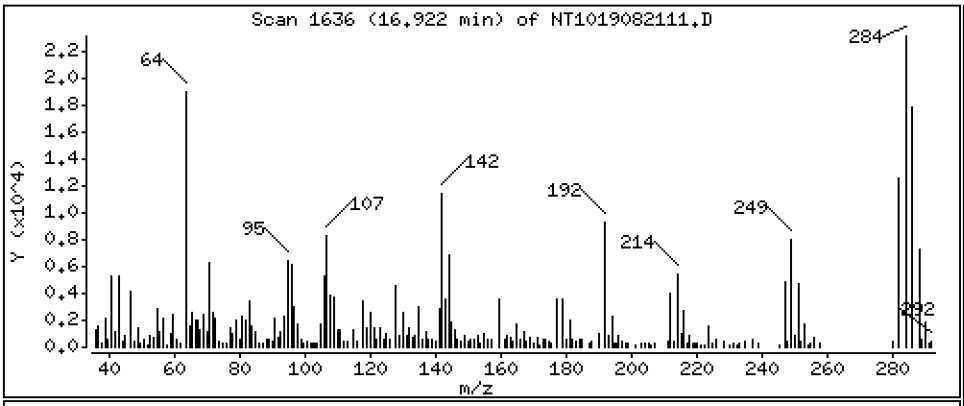
Operator: YZ

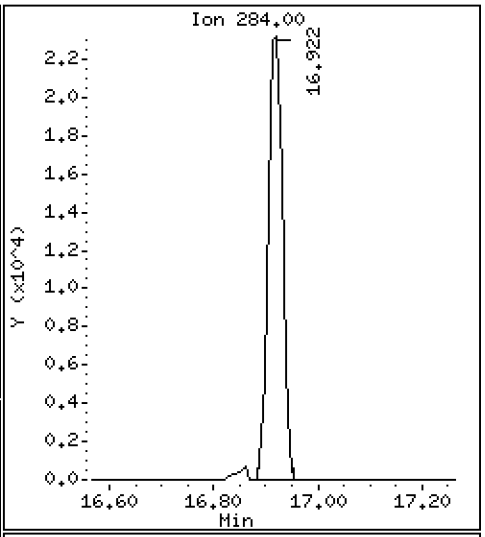
Column phase: ZB-5msi

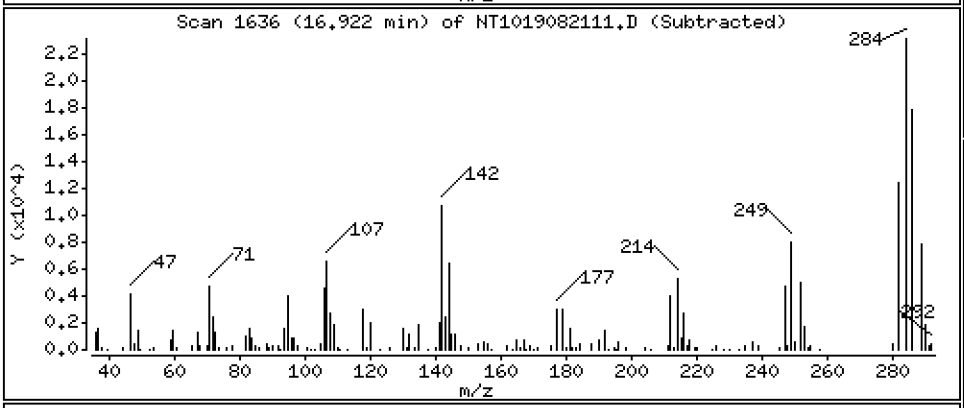
Column diameter: 0.25

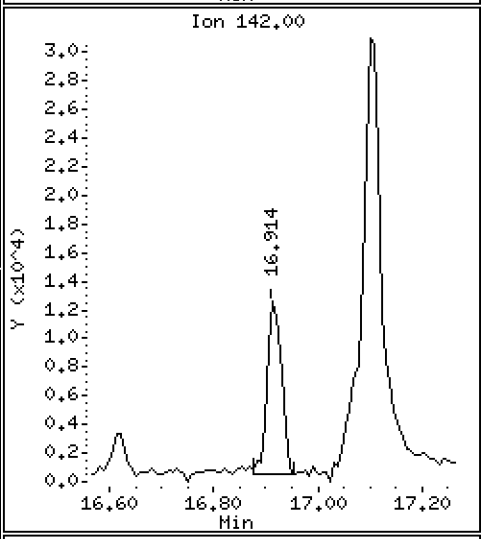
57 Hexachlorobenzene

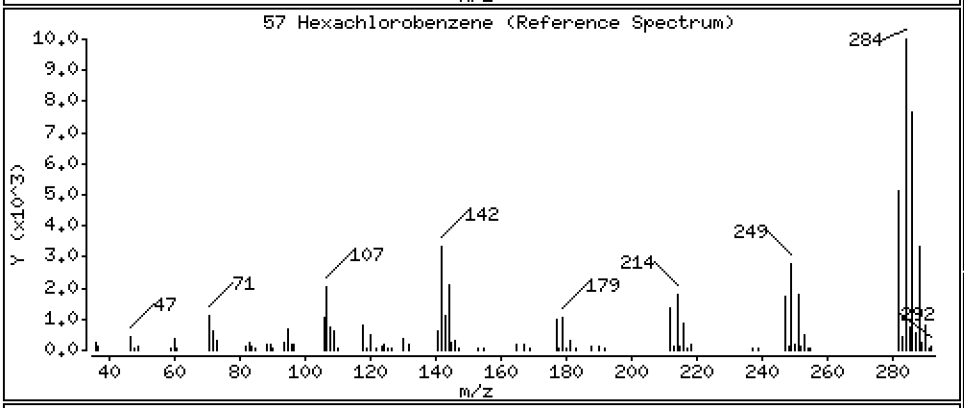
Concentration: 4.276 ug/mL

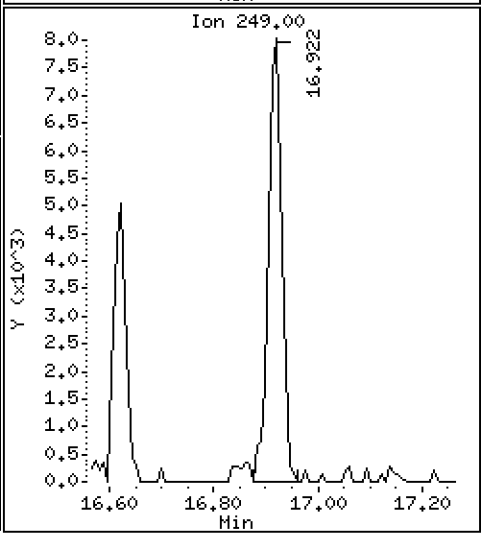


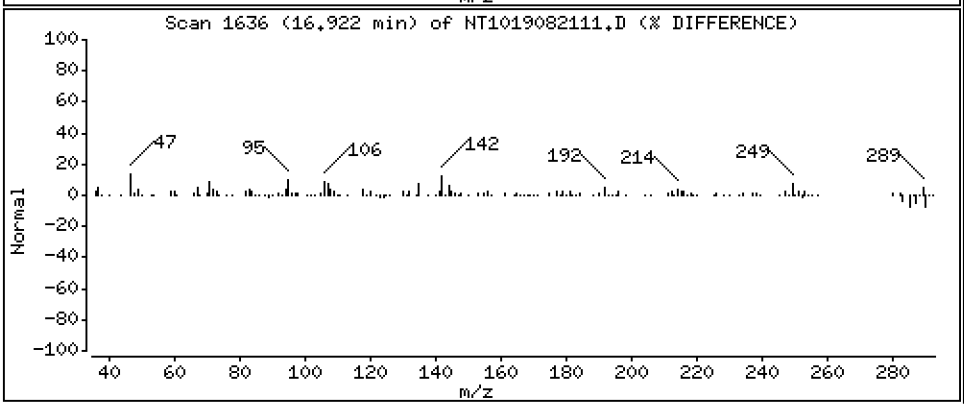












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

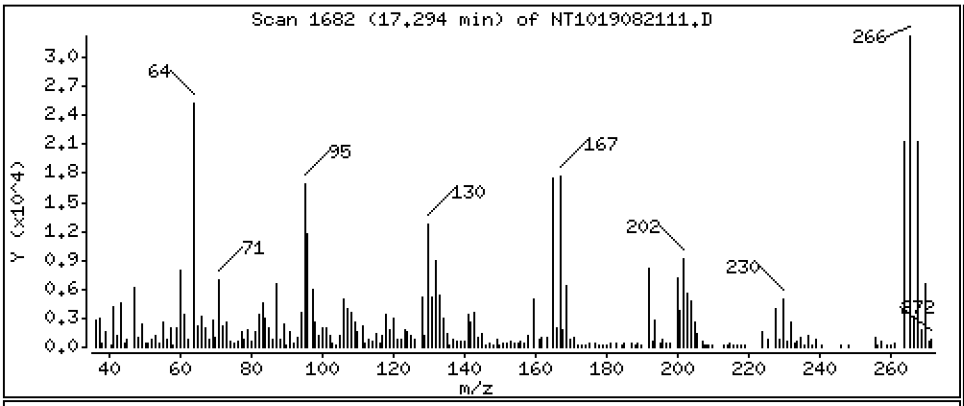
Operator: YZ

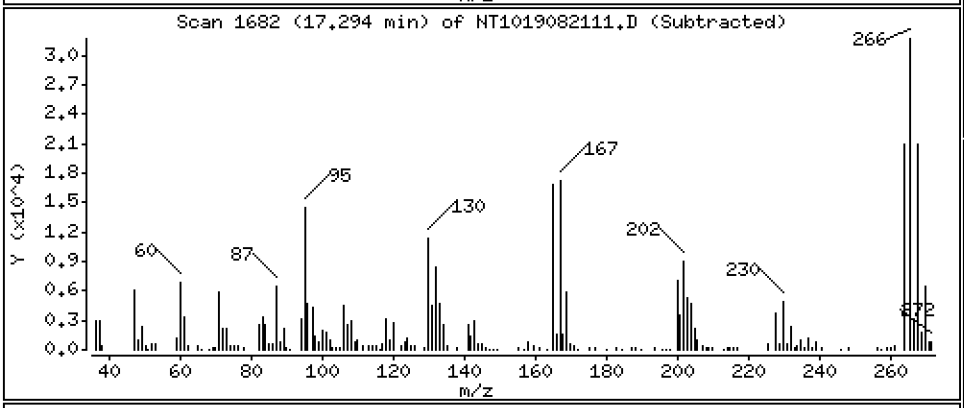
Column phase: ZB-5msi

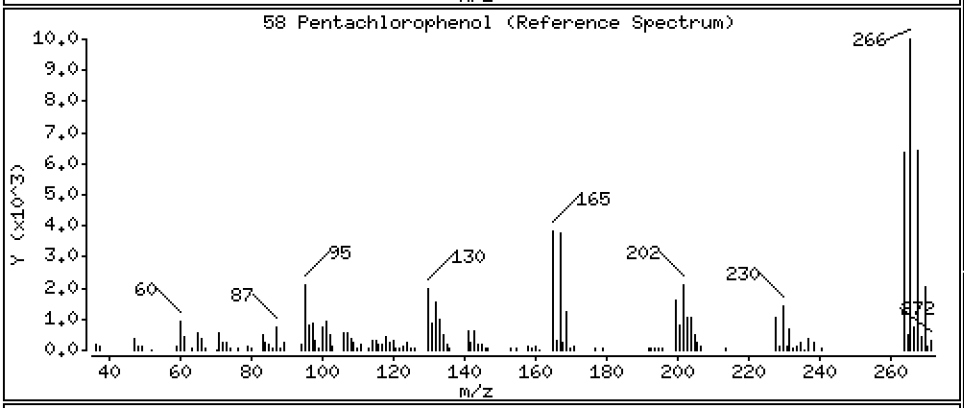
Column diameter: 0.25

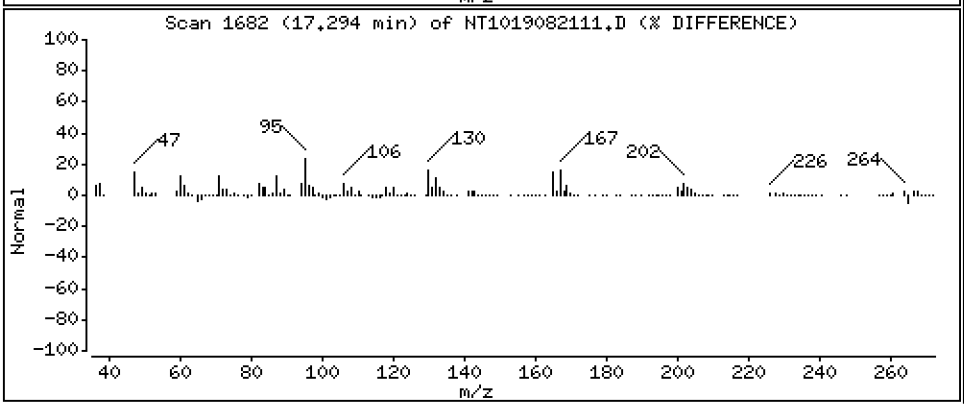
58 Pentachlorophenol

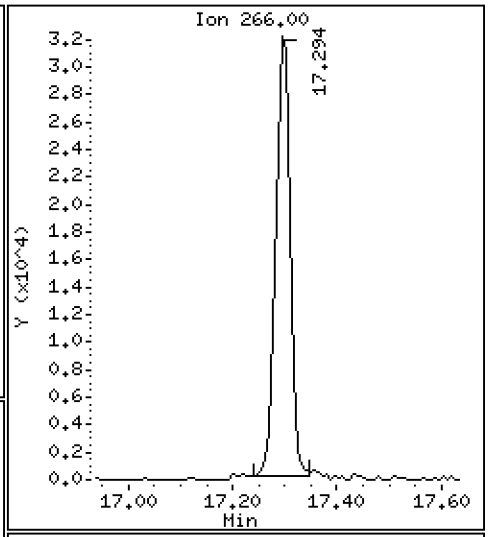
Concentration: 14.50 ug/mL

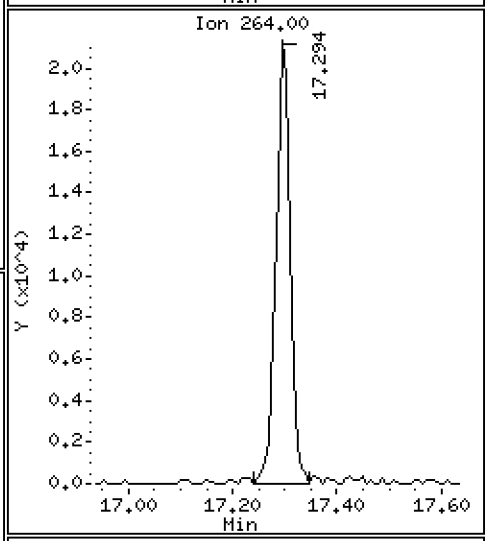


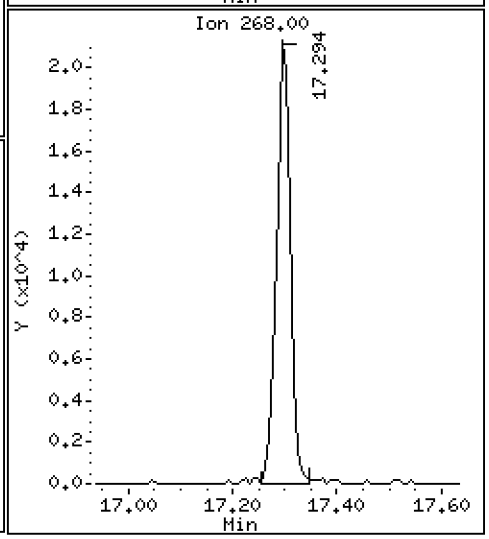












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

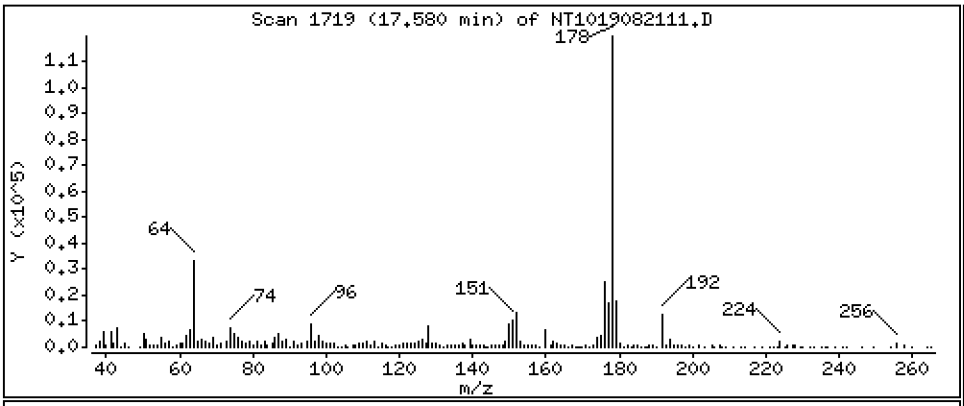
Operator: YZ

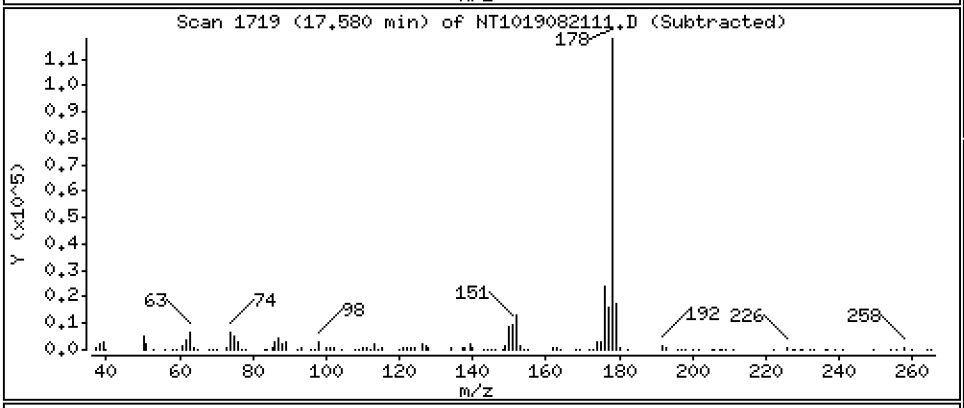
Column phase: ZB-5msi

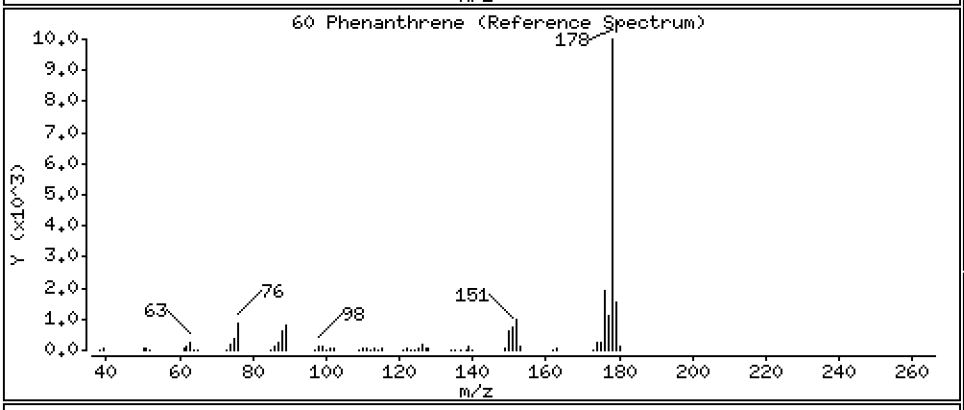
Column diameter: 0.25

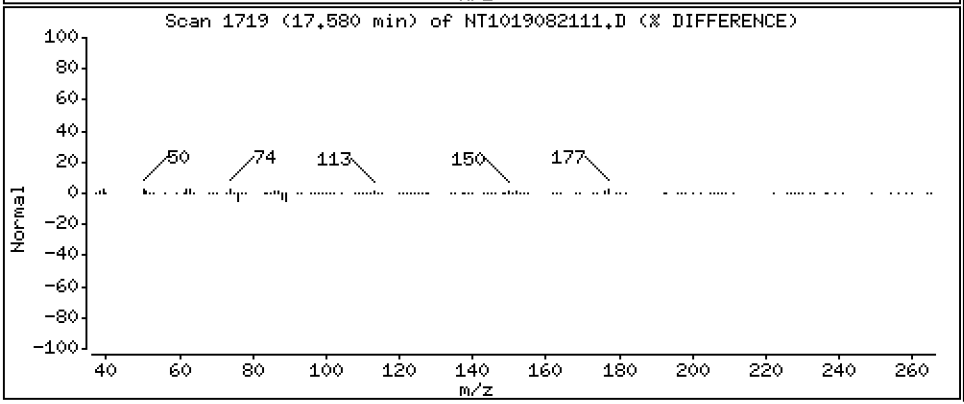
60 Phenanthrene

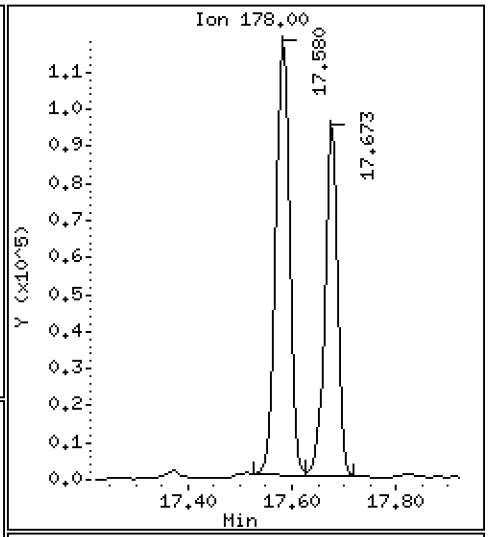
Concentration: 7.329 ug/mL

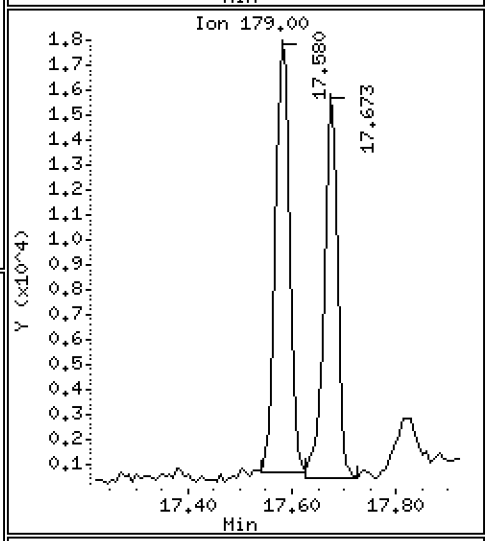


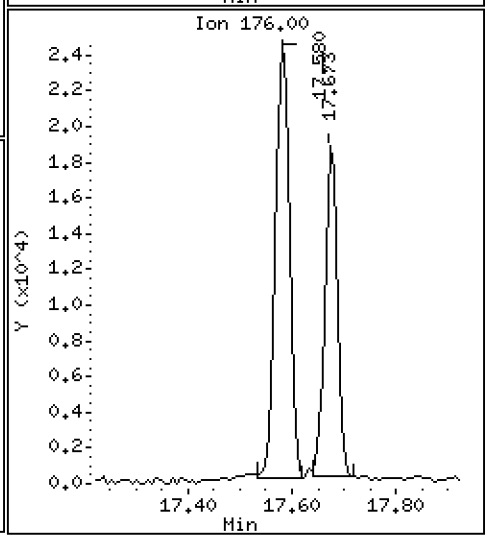












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

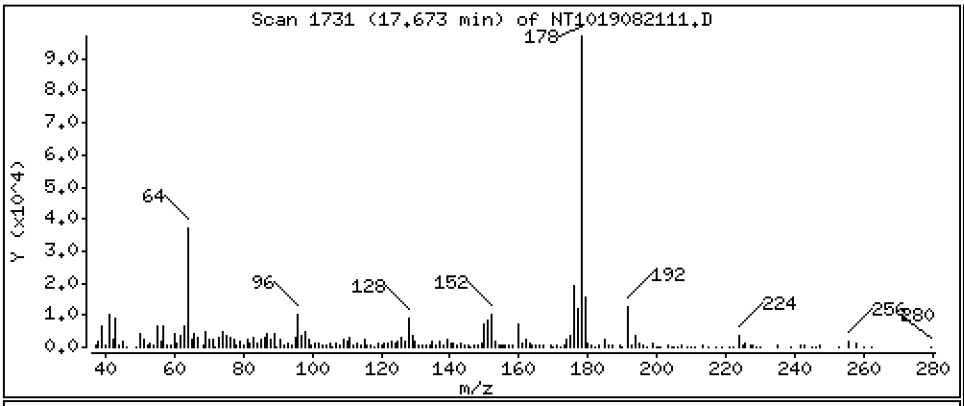
Operator: YZ

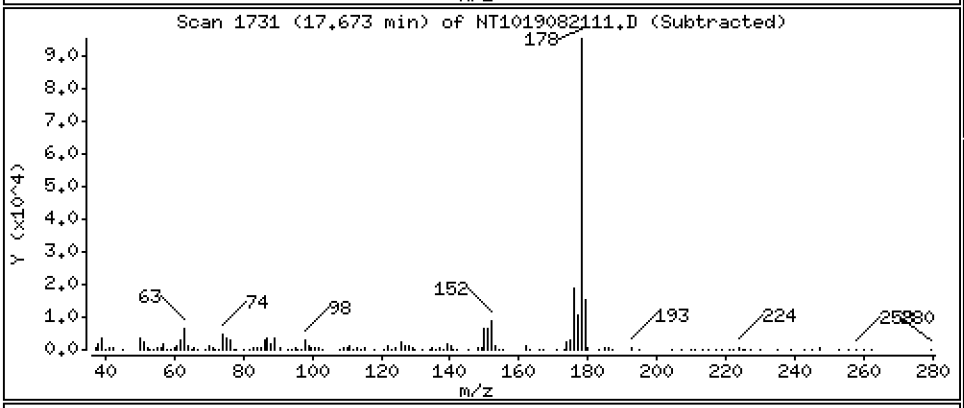
Column phase: ZB-5msi

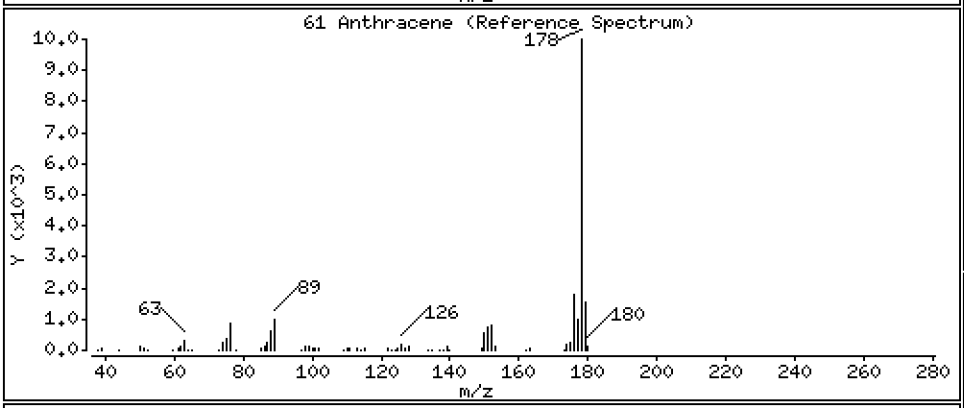
Column diameter: 0.25

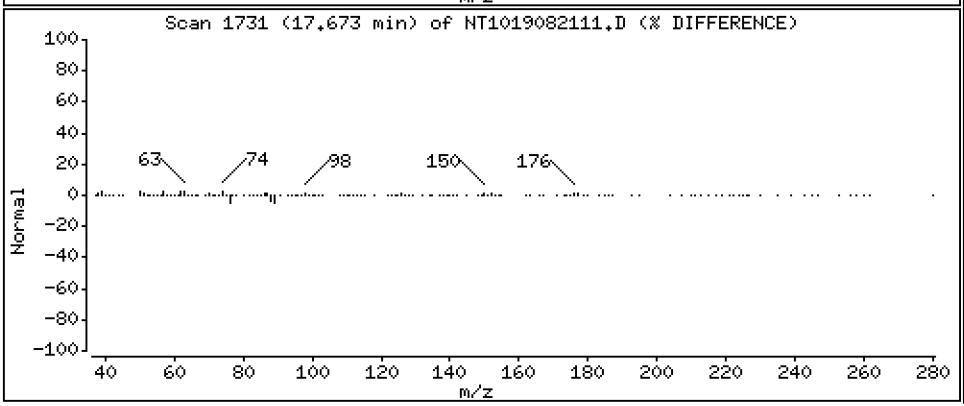
61 Anthracene

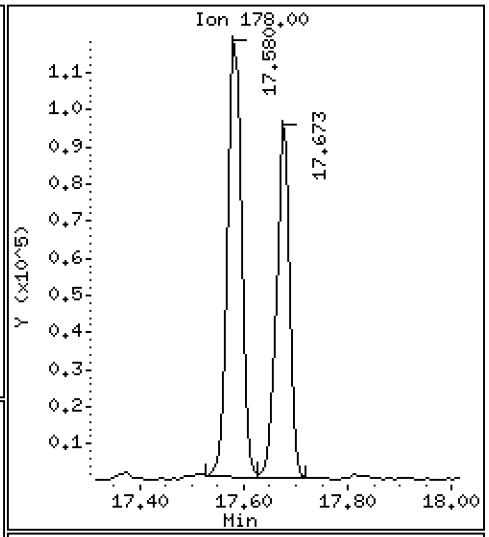
Concentration: 5.697 ug/mL

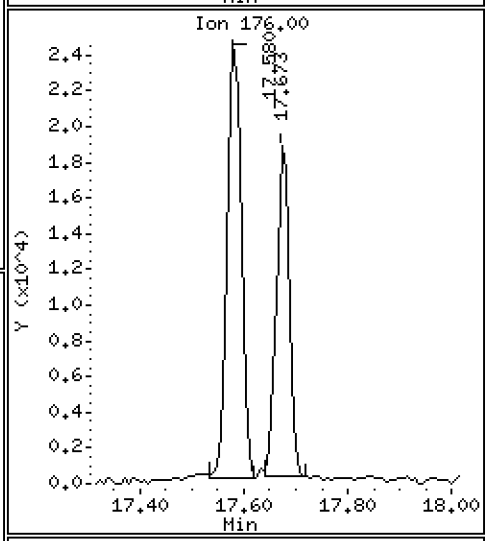


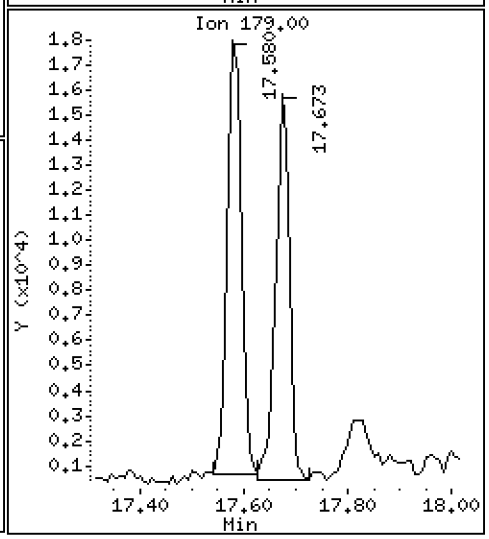












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

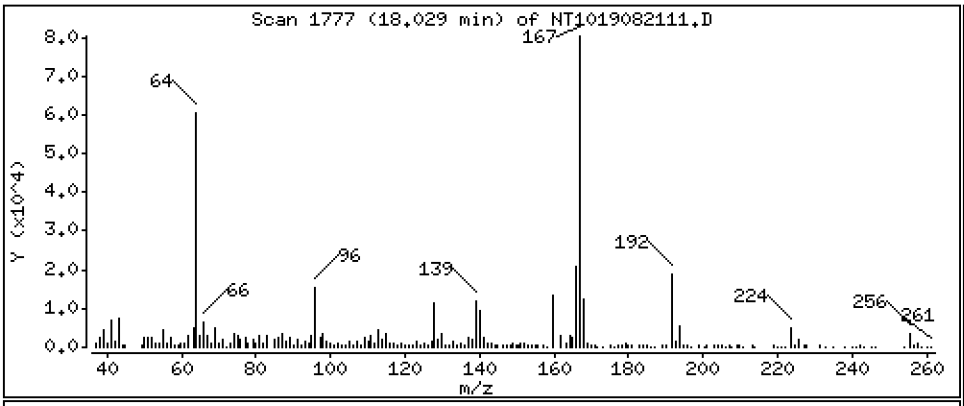
Operator: YZ

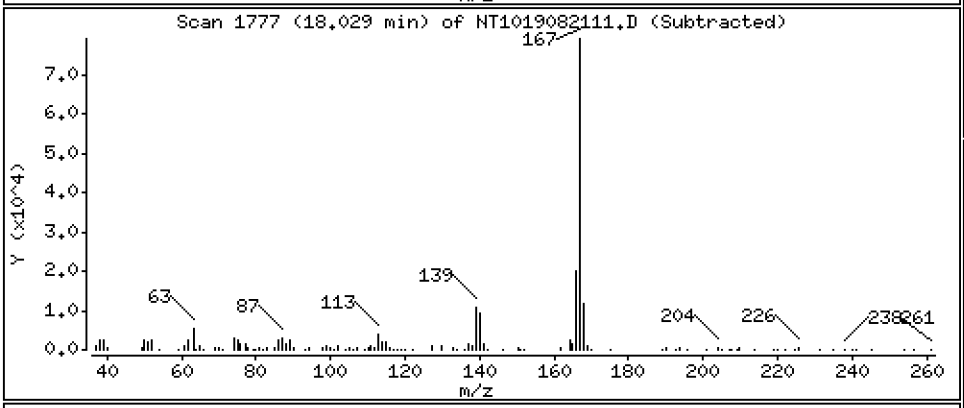
Column phase: ZB-5msi

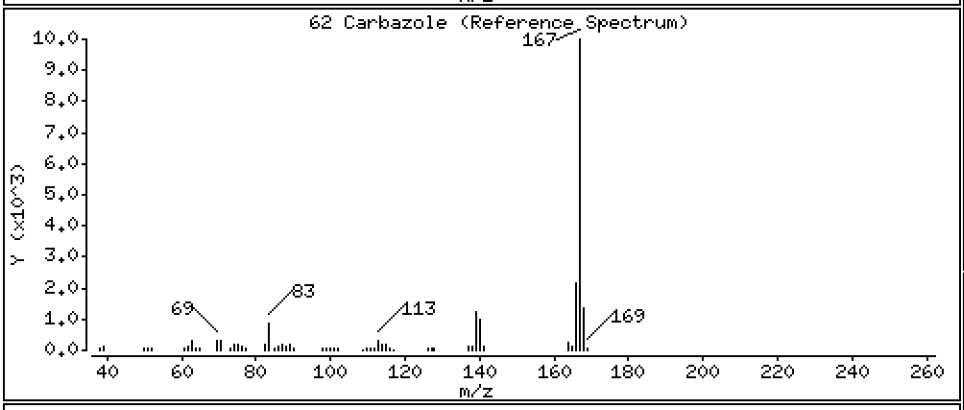
Column diameter: 0.25

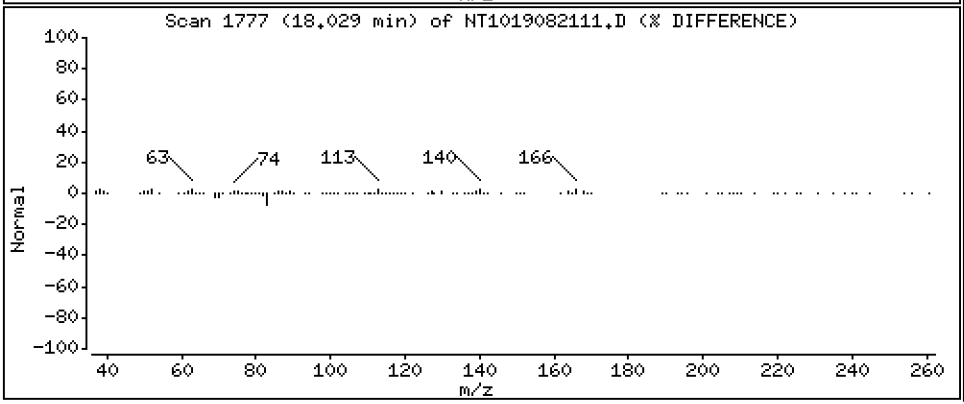
62 Carbazole

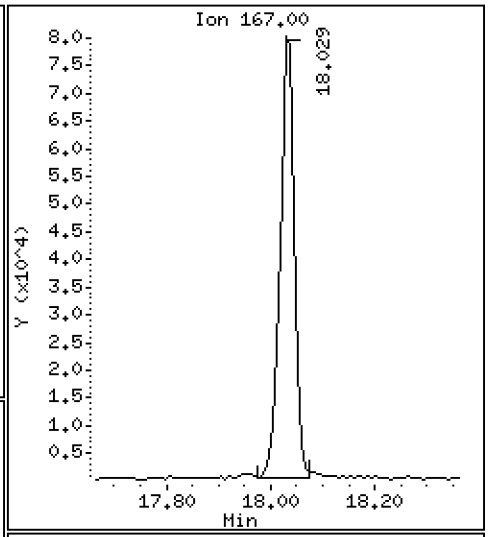
Concentration: 5.502 ug/mL

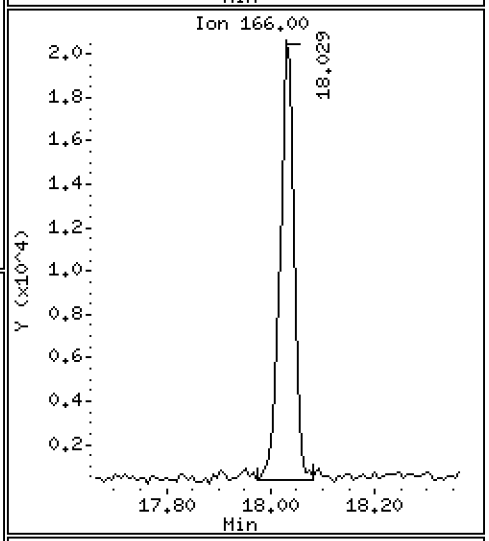


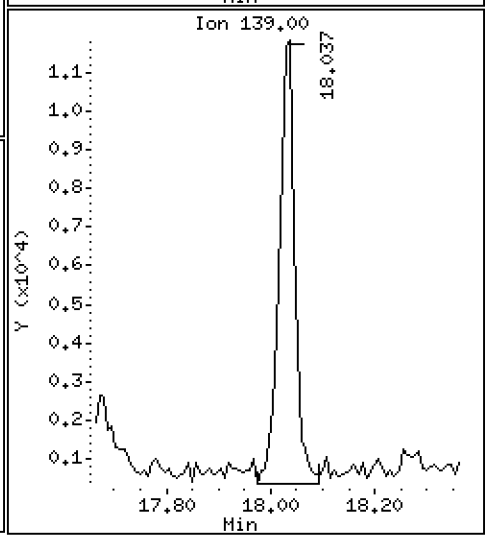












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

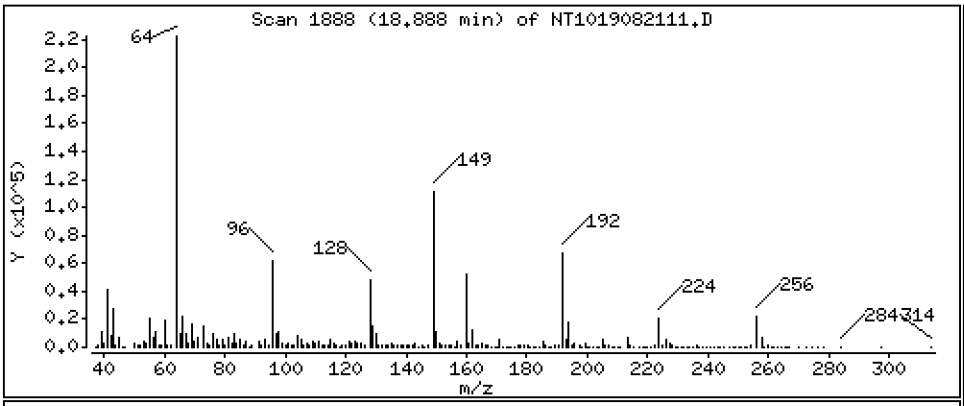
Operator: YZ

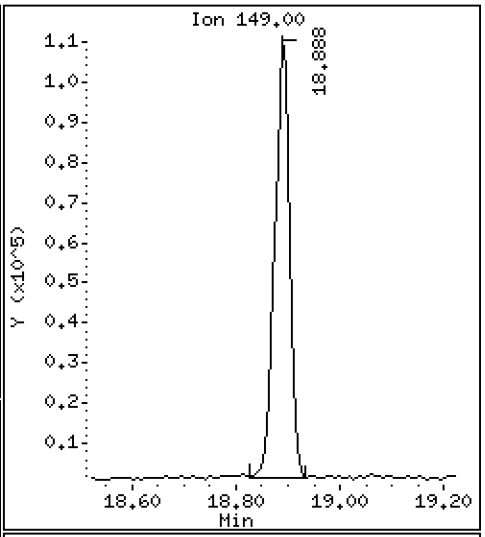
Column phase: ZB-5msi

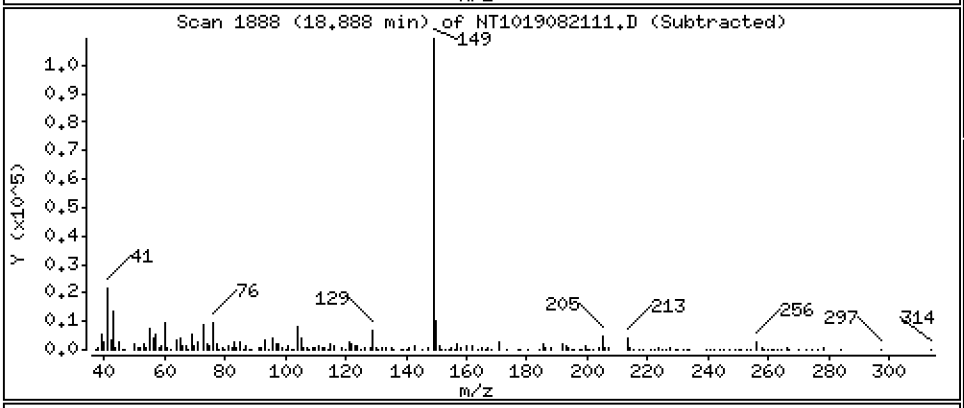
Column diameter: 0.25

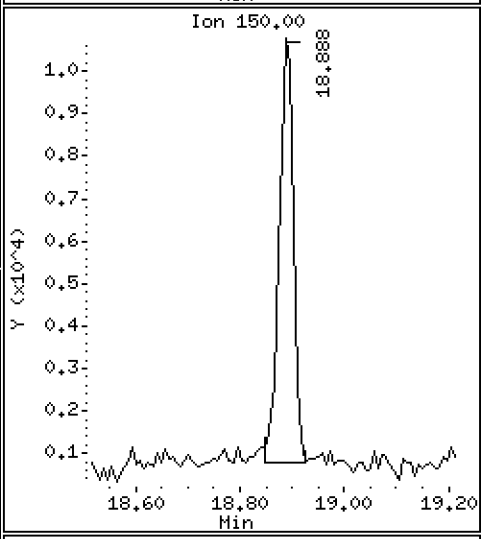
63 Di-n-butylphthalate

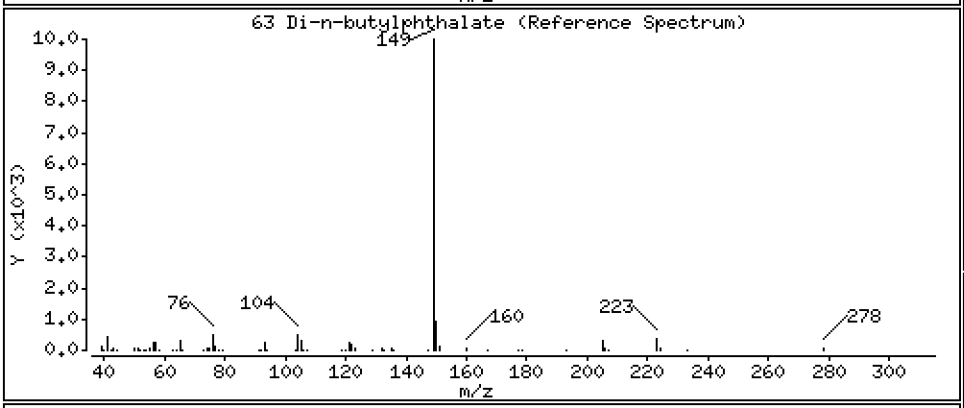
Concentration: 5.423 ug/mL

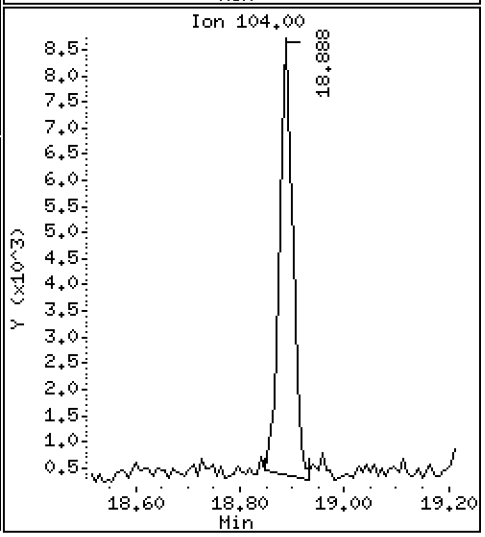


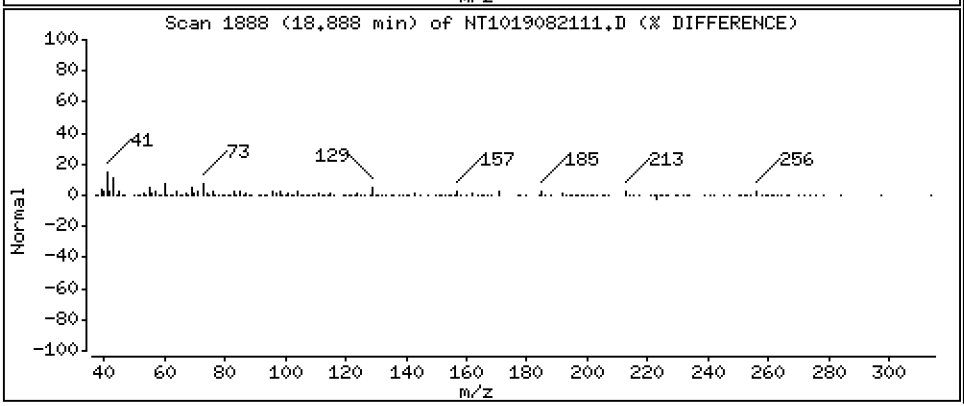












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

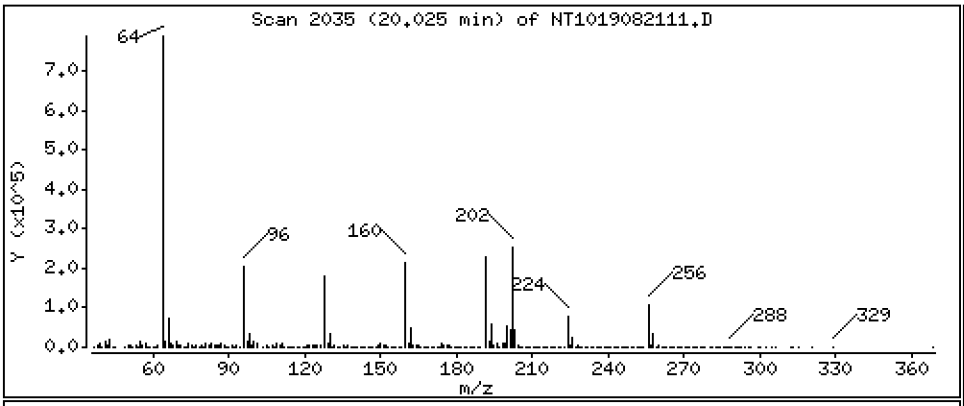
Operator: YZ

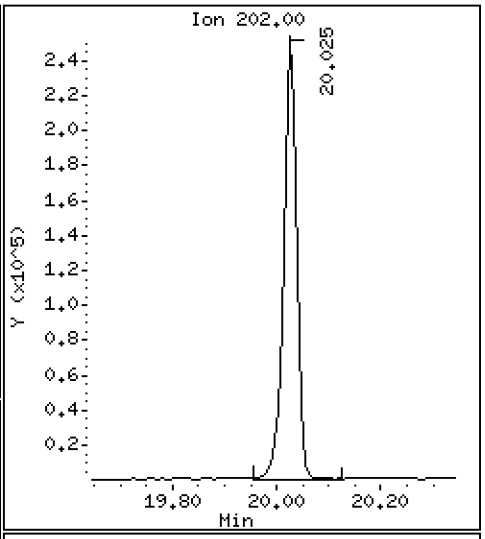
Column phase: ZB-5msi

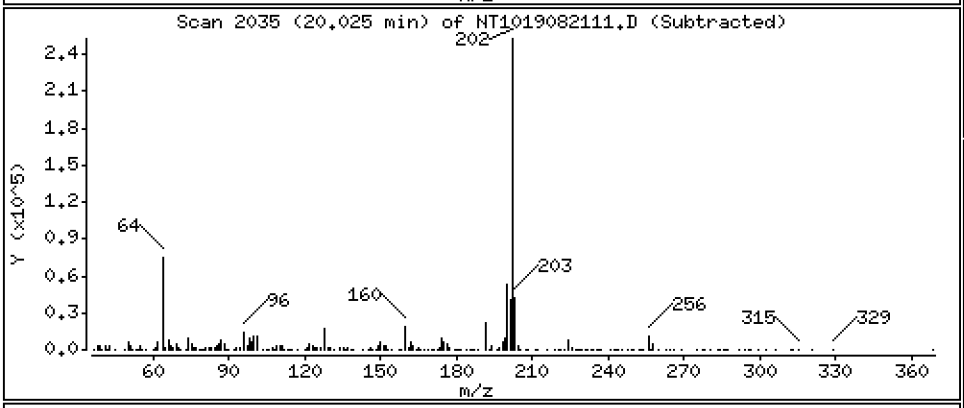
Column diameter: 0.25

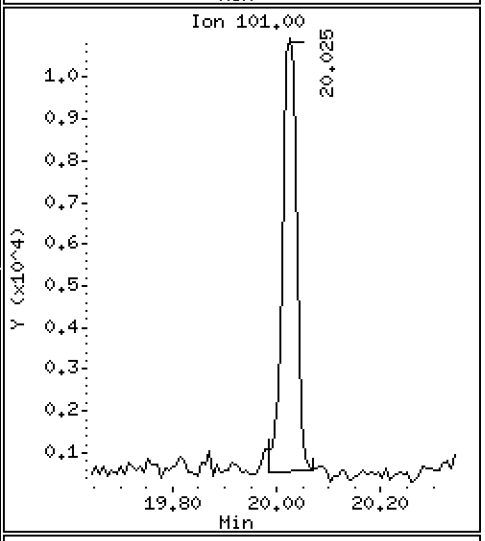
64 Fluoranthene

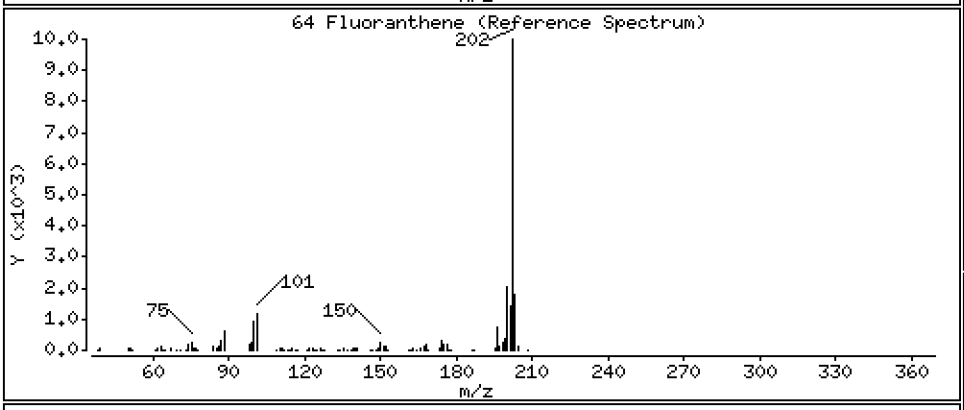
Concentration: 21.85 ug/mL

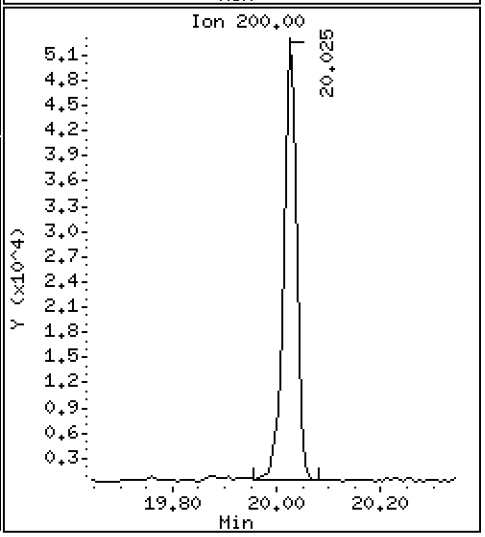


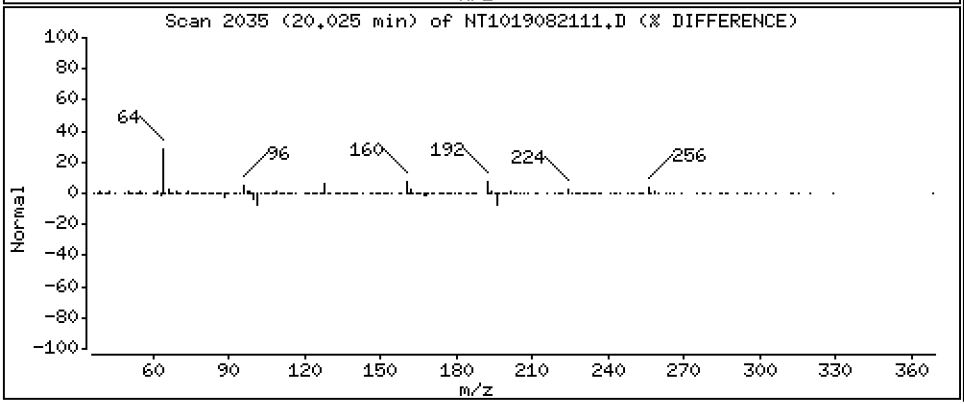












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

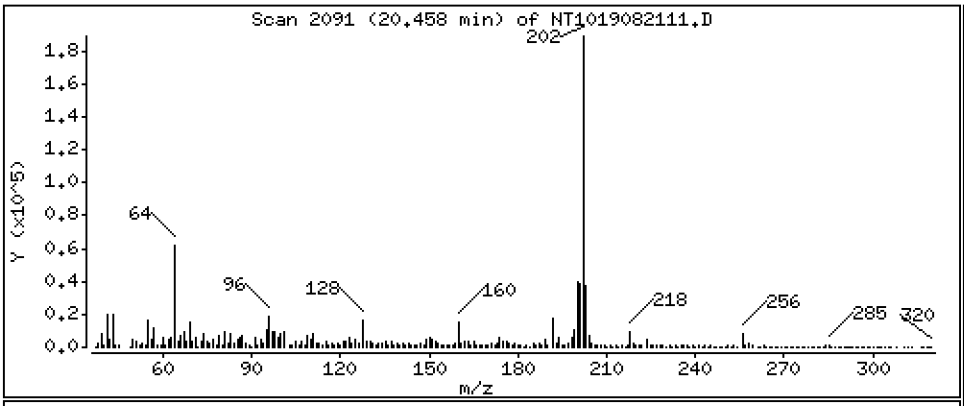
Operator: YZ

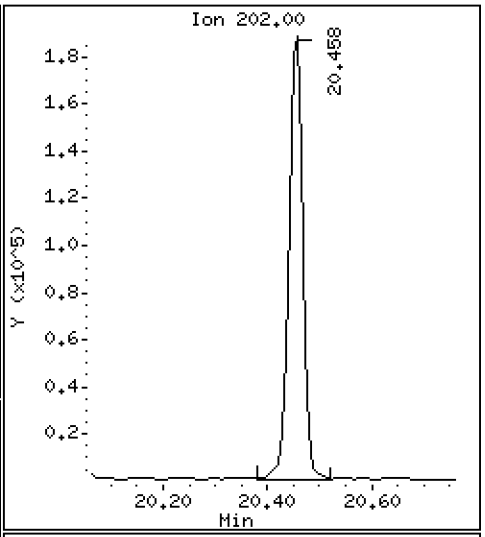
Column phase: ZB-5msi

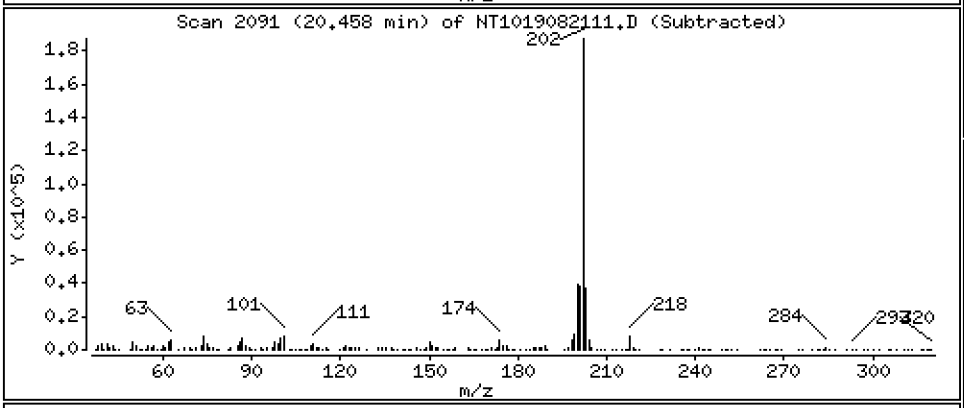
Column diameter: 0.25

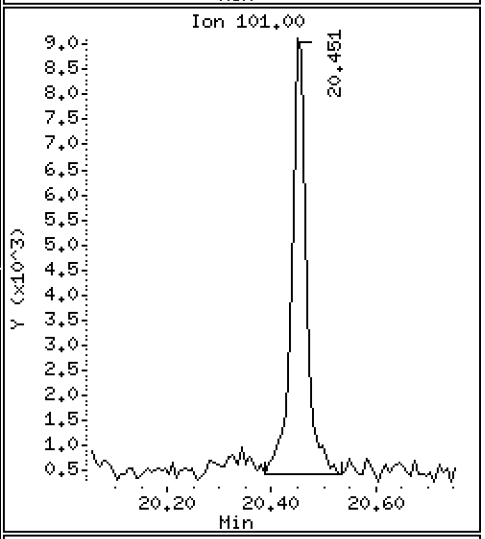
65 Pyrene

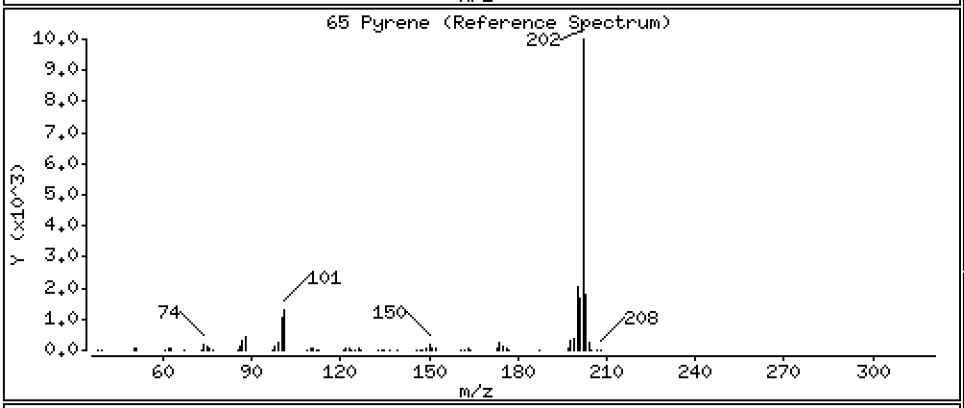
Concentration: 16.96 ug/mL

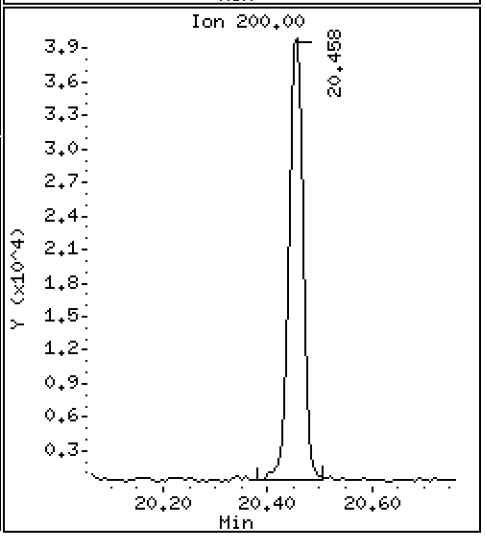


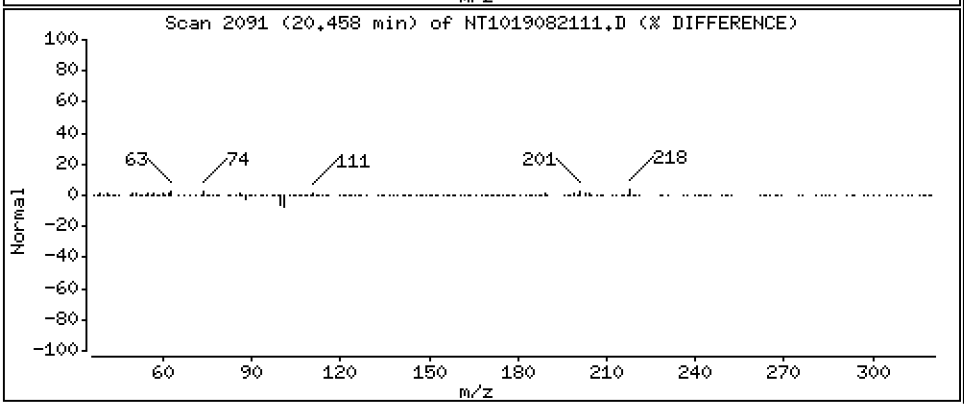












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

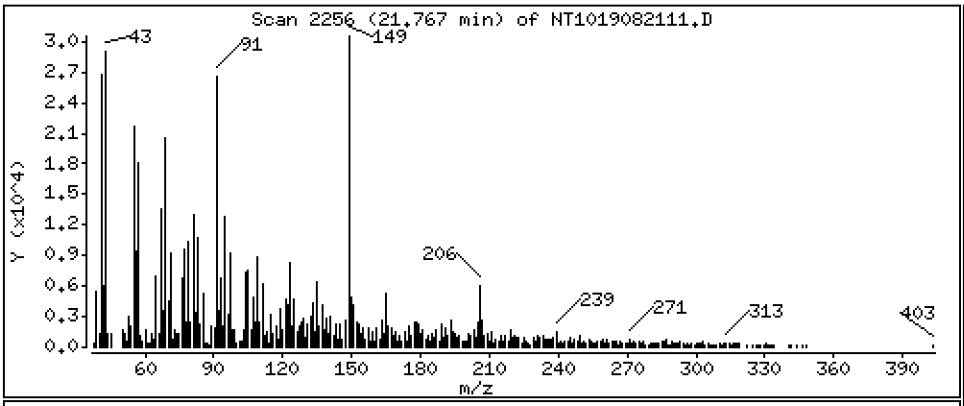
Operator: YZ

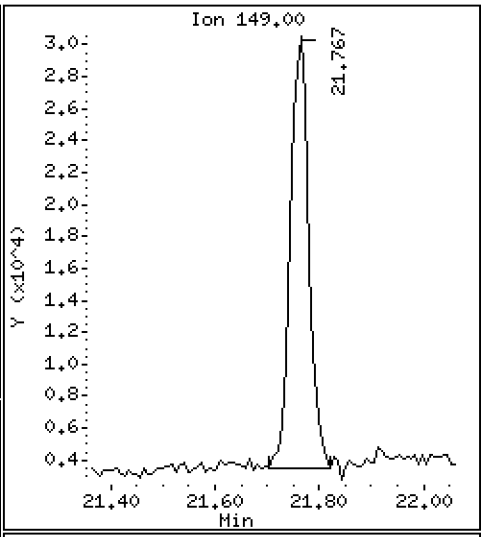
Column phase: ZB-5msi

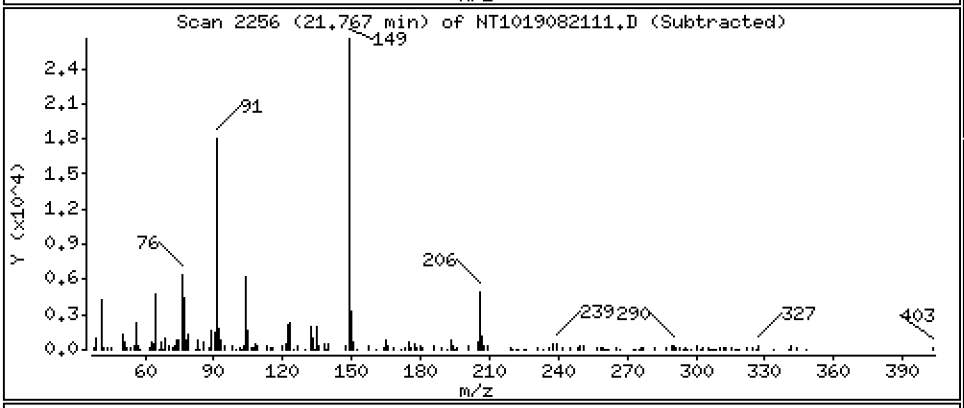
Column diameter: 0.25

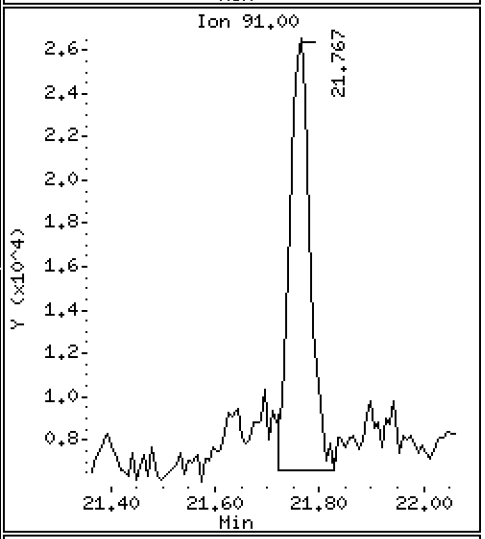
67 Butylbenzylphthalate

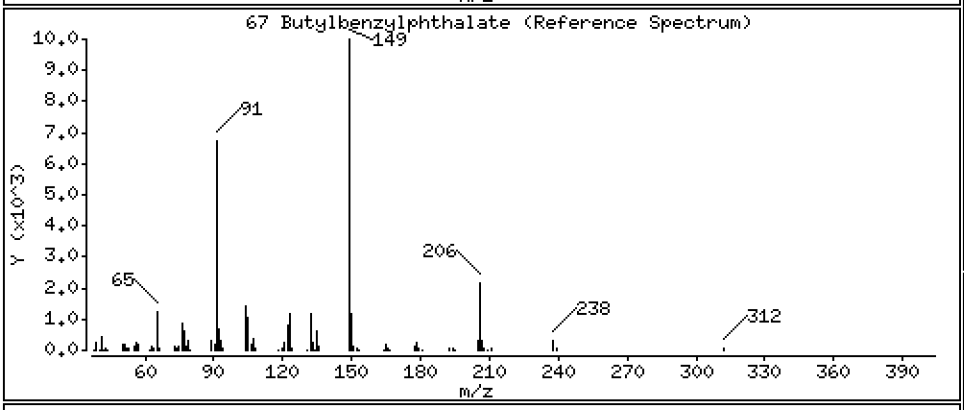
Concentration: 6.908 ug/mL

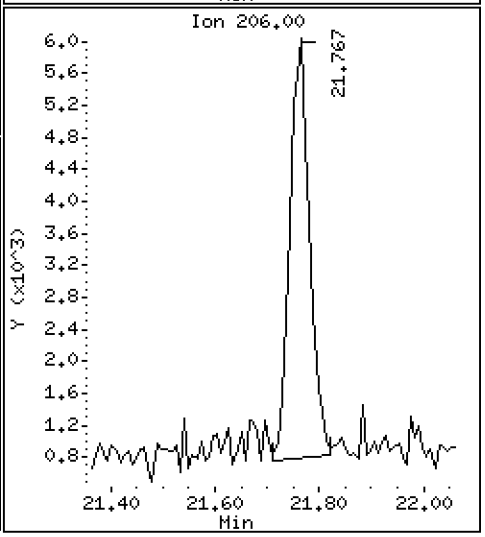


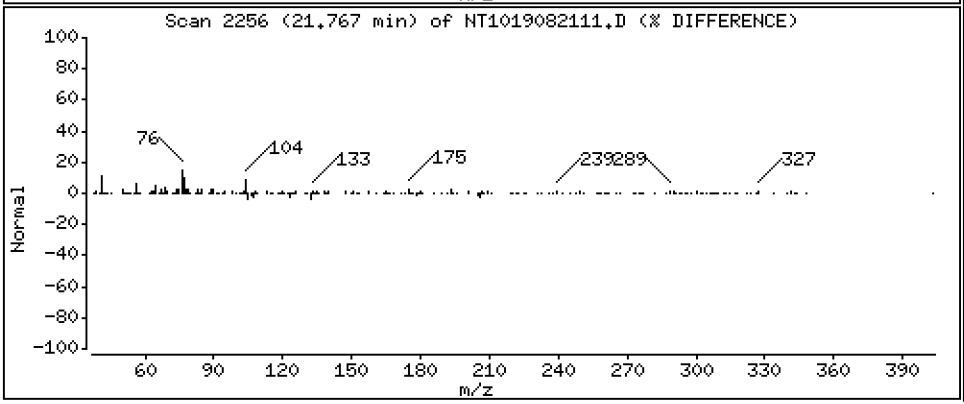












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

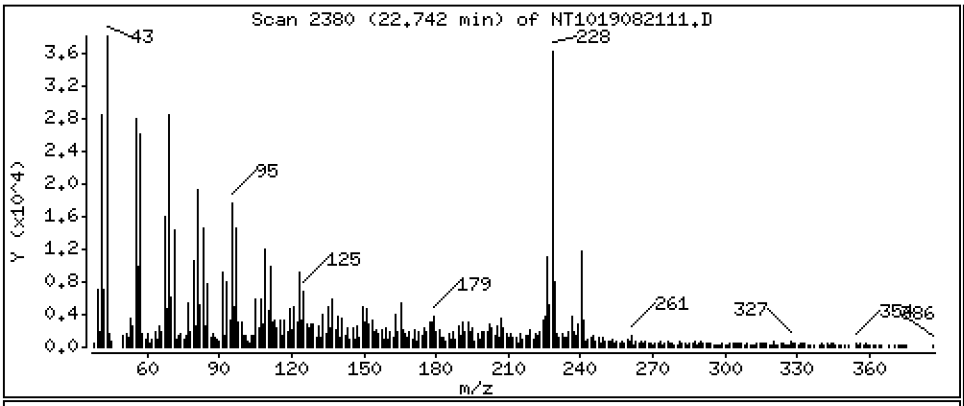
Operator: YZ

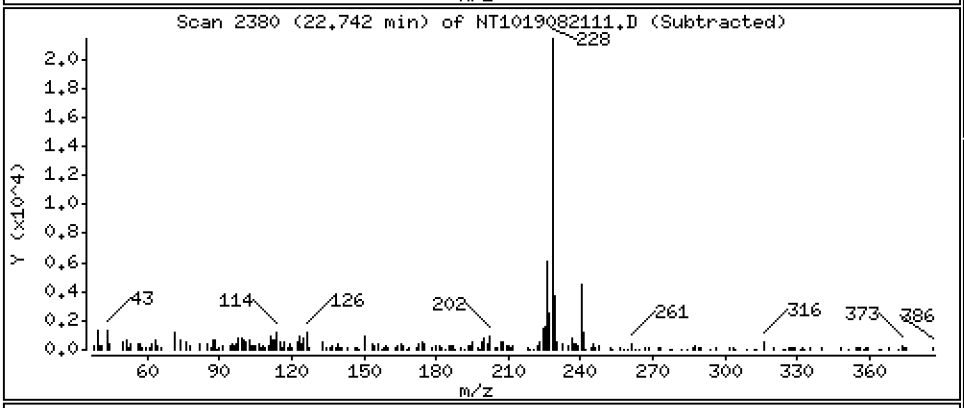
Column phase: ZB-5msi

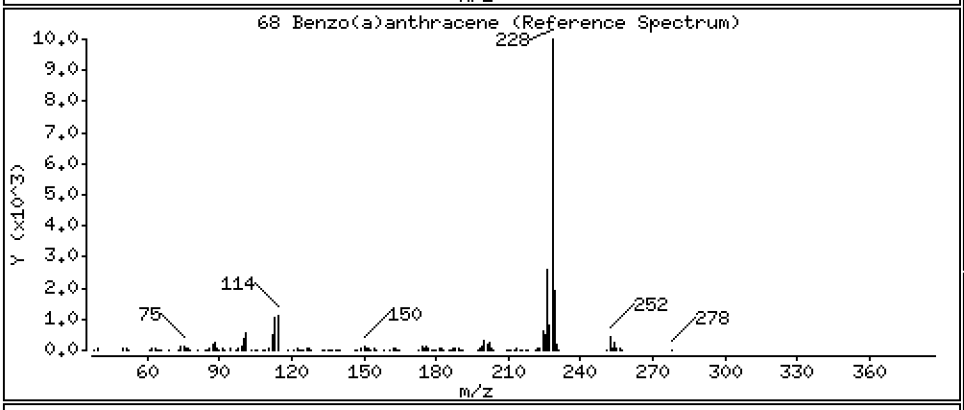
Column diameter: 0.25

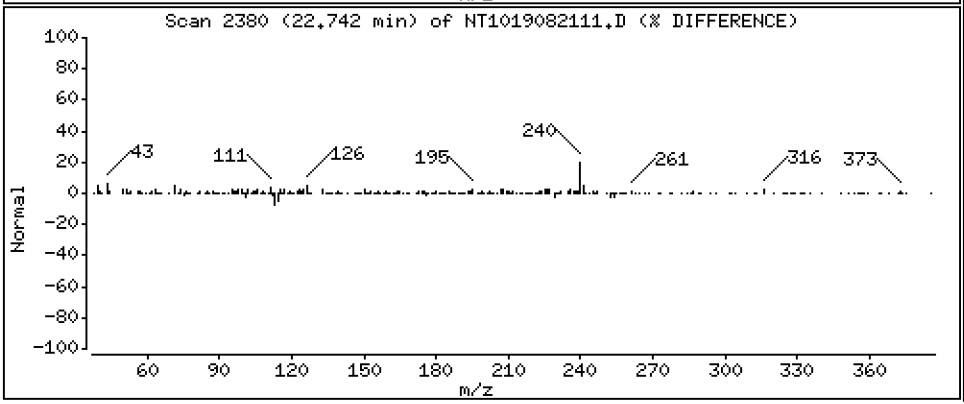
68 Benzo(a)anthracene

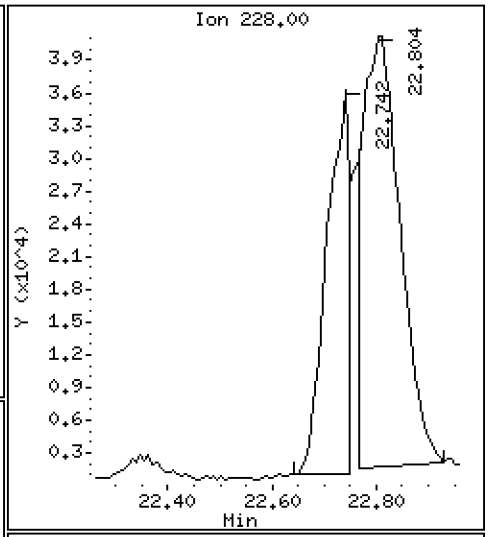
Concentration: 5.584 ug/mL

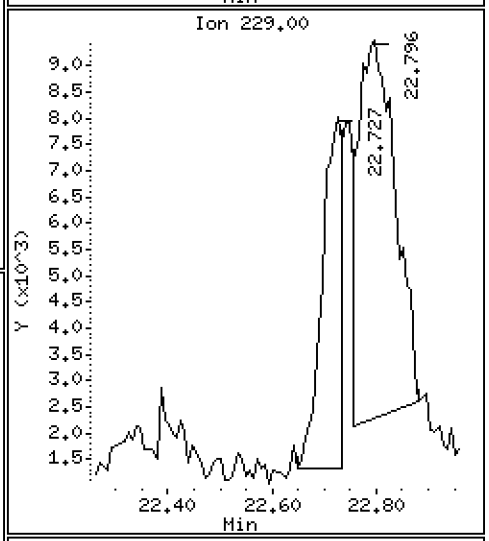


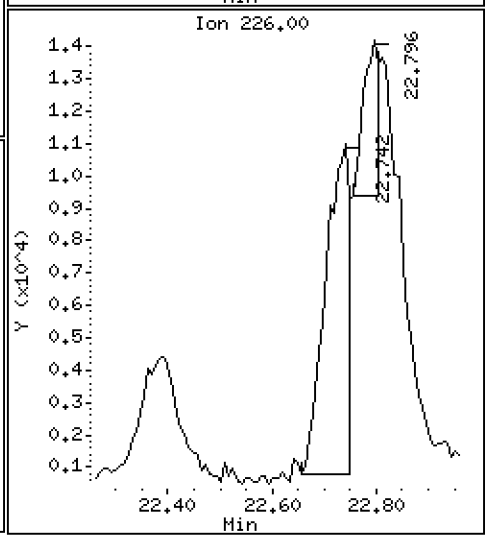












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

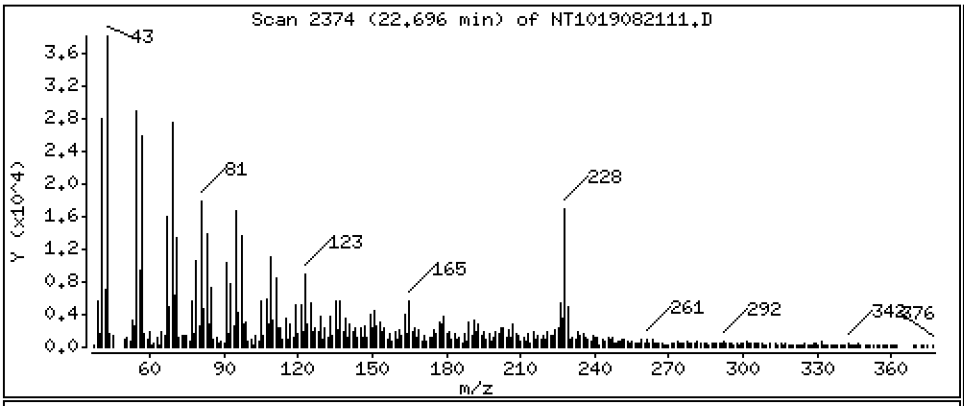
Operator: YZ

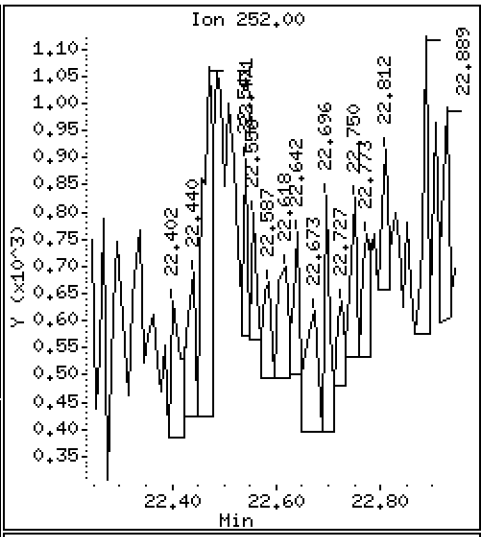
Column phase: ZB-5msi

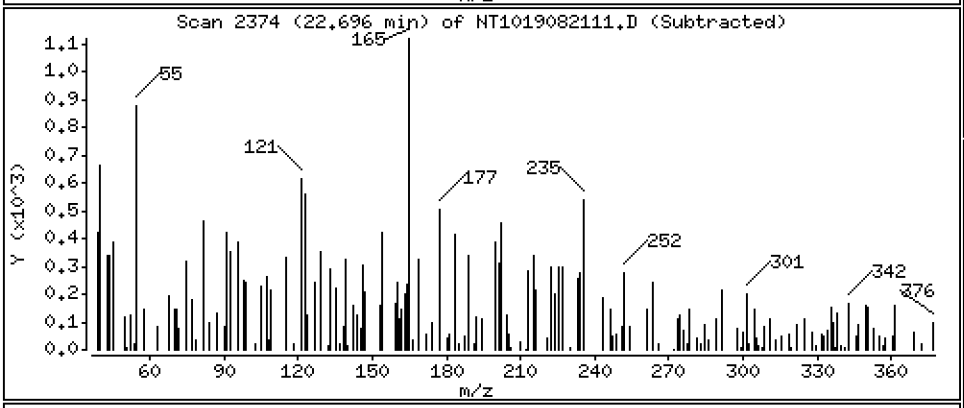
Column diameter: 0.25

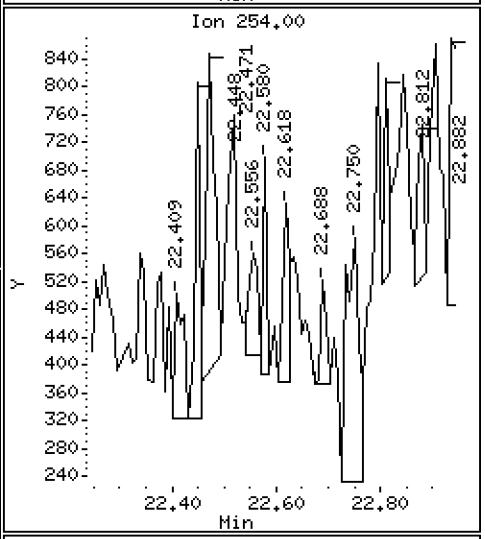
70 3,3'-Dichlorobenzidine

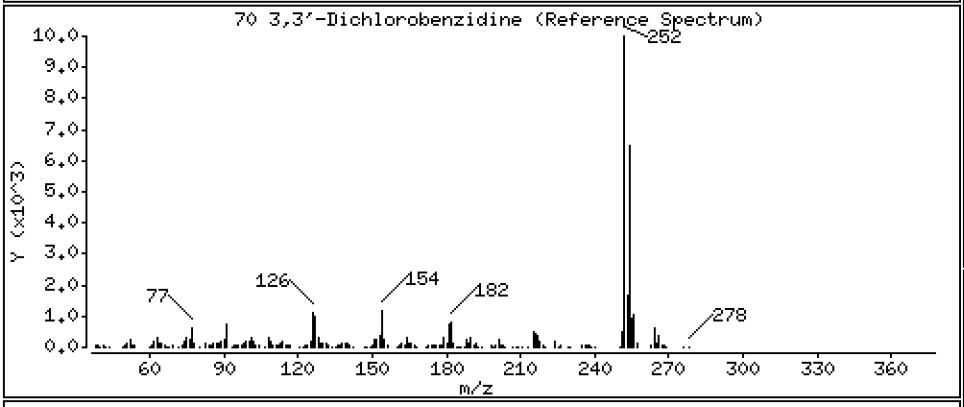
Concentration: 0.04809 ug/mL

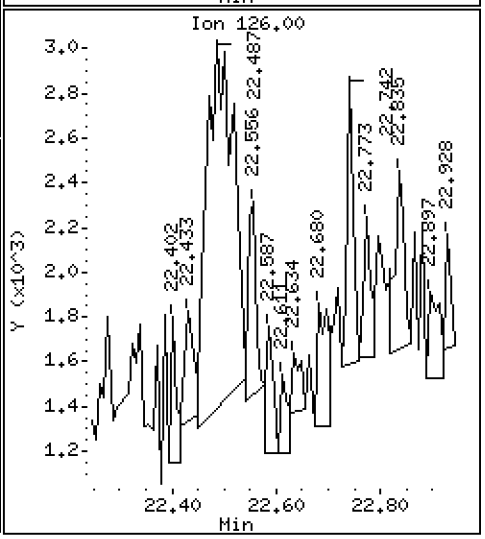


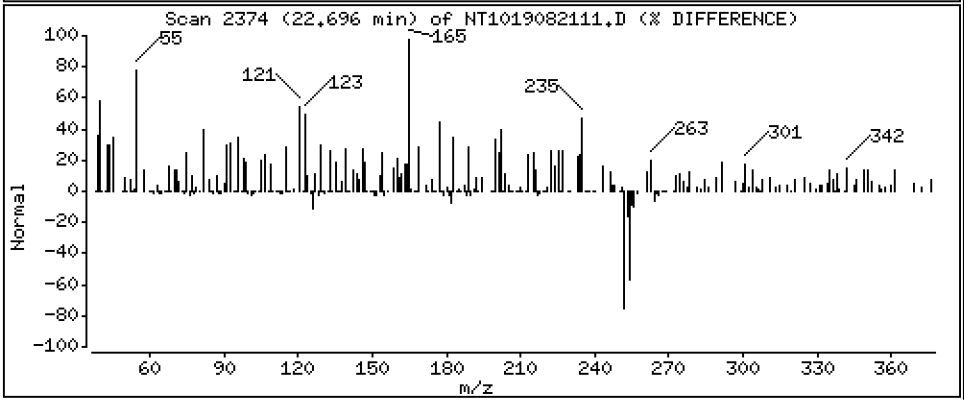












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

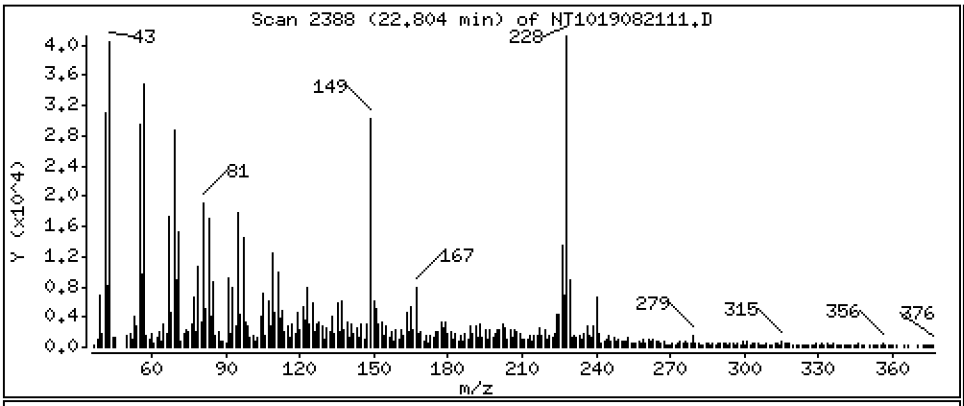
Operator: YZ

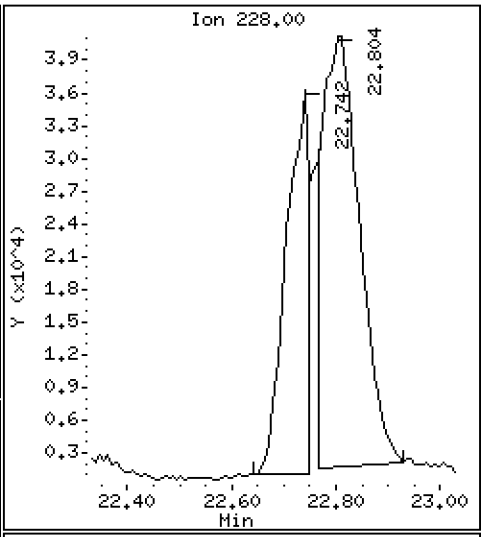
Column phase: ZB-5msi

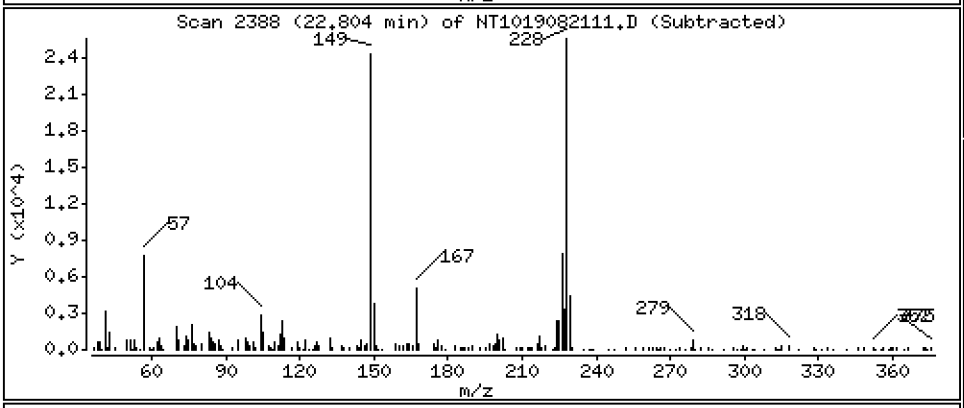
Column diameter: 0.25

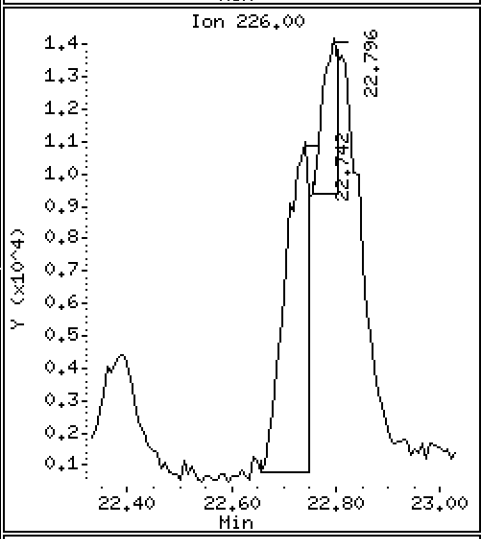
71 Chrysene

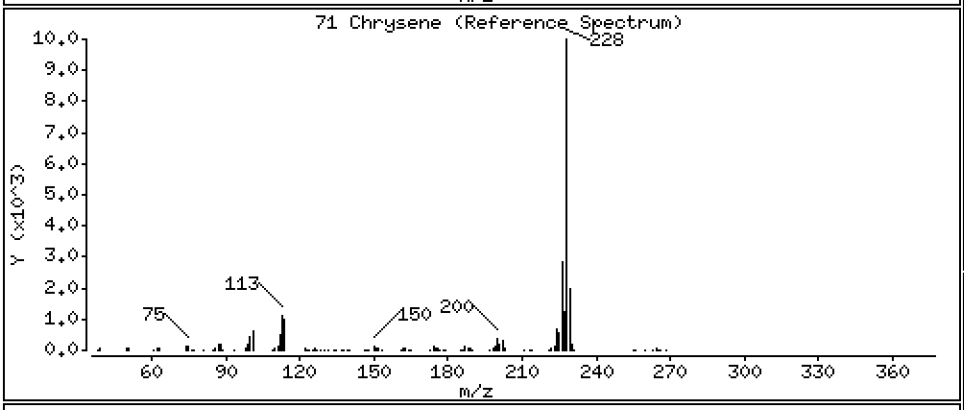
Concentration: 11.79 ug/mL

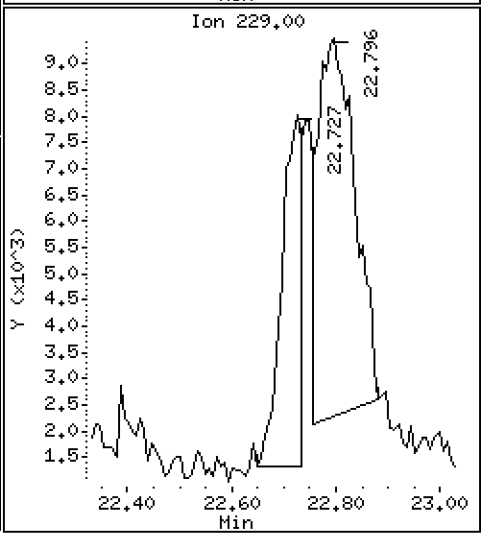


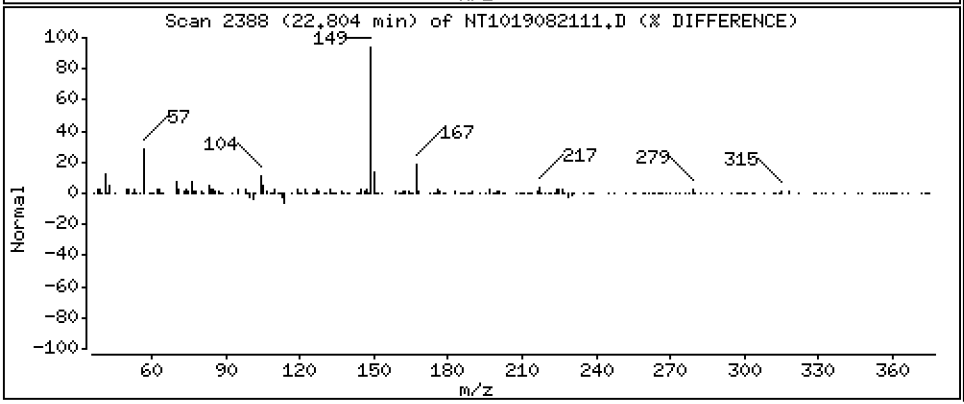












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

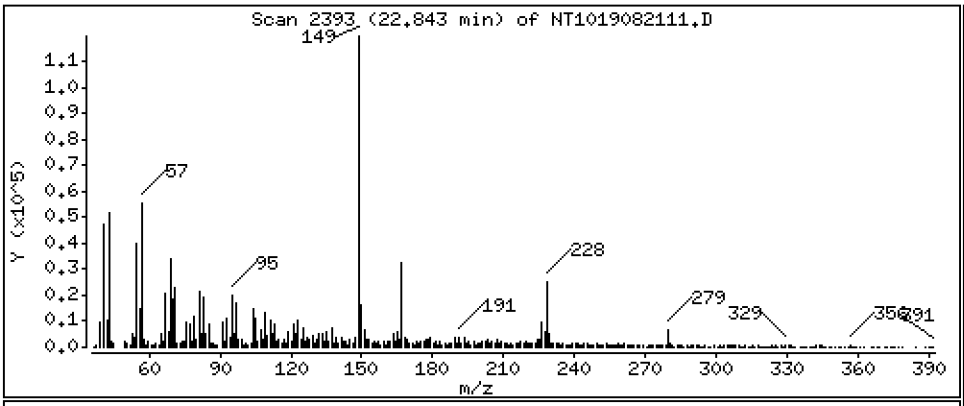
Operator: YZ

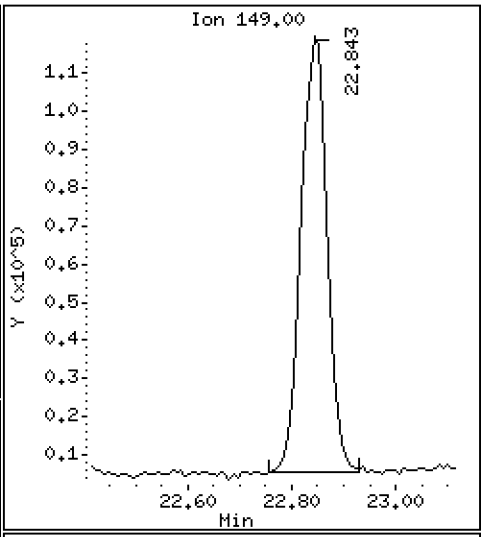
Column phase: ZB-5msi

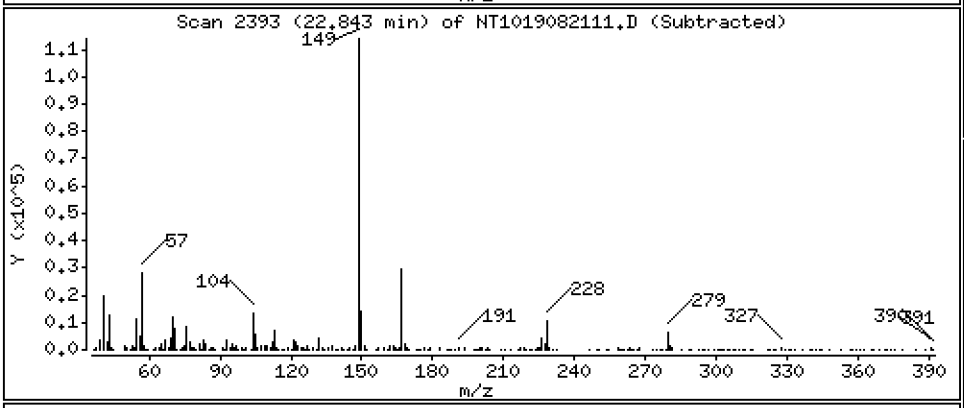
Column diameter: 0.25

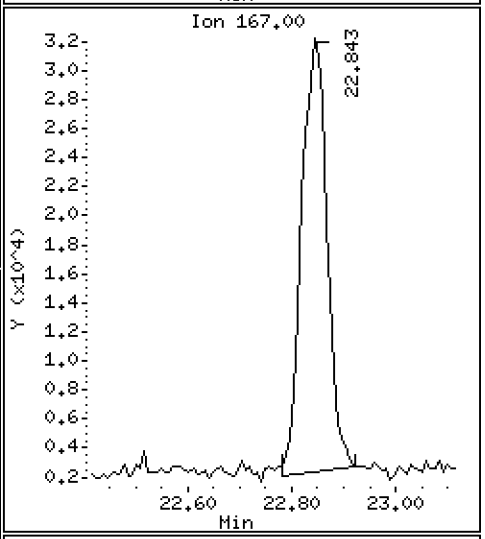
72 bis(2-Ethylhexyl)phthalate

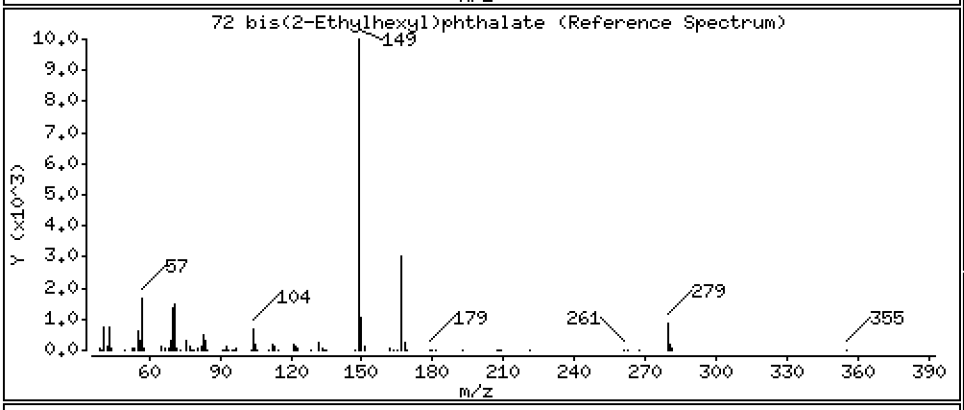
Concentration: 29.78 ug/mL

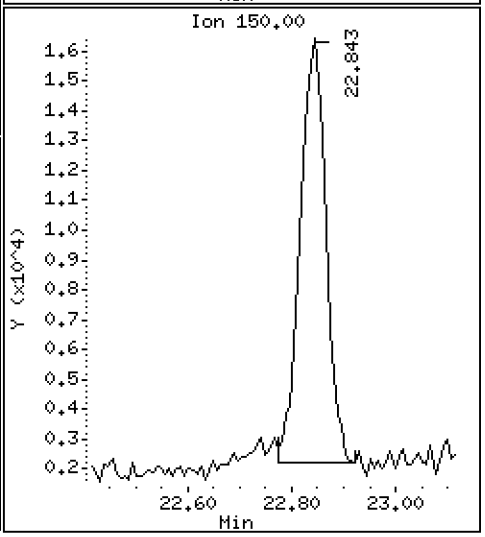


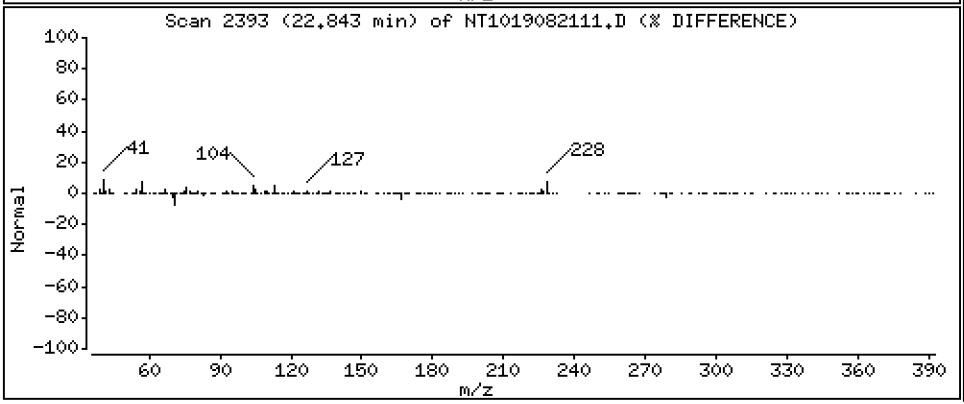












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

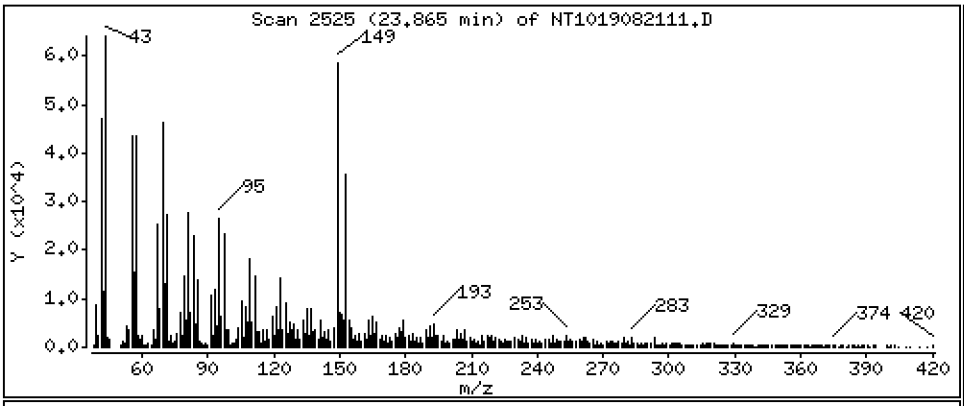
Operator: YZ

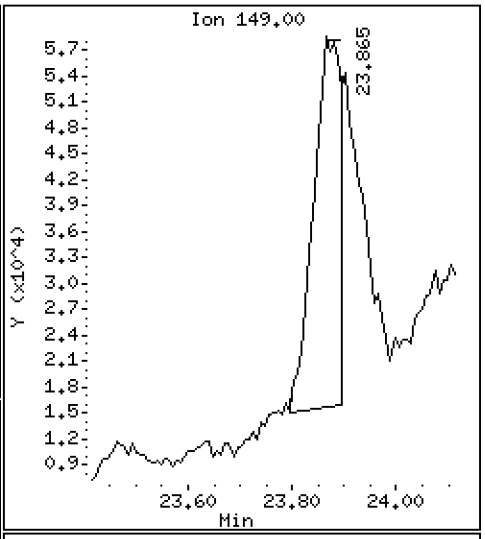
Column phase: ZB-5msi

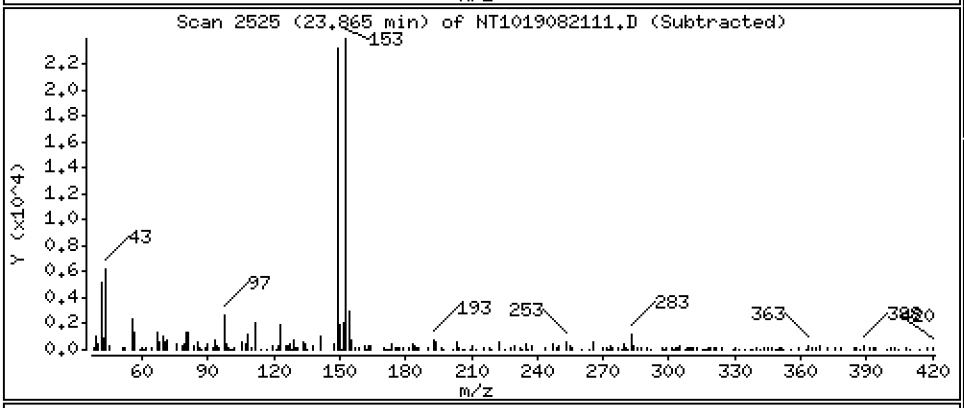
Column diameter: 0.25

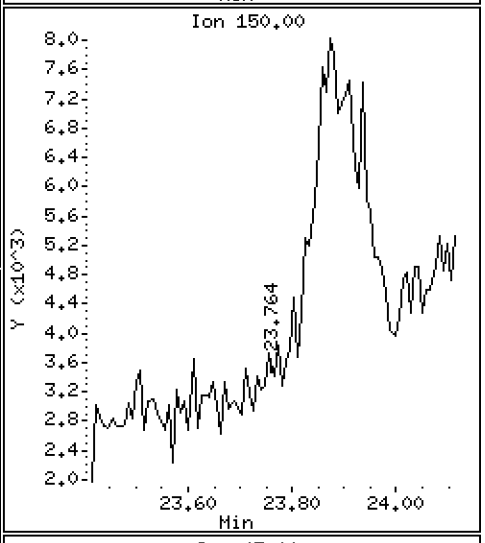
73 Di-n-octylphthalate

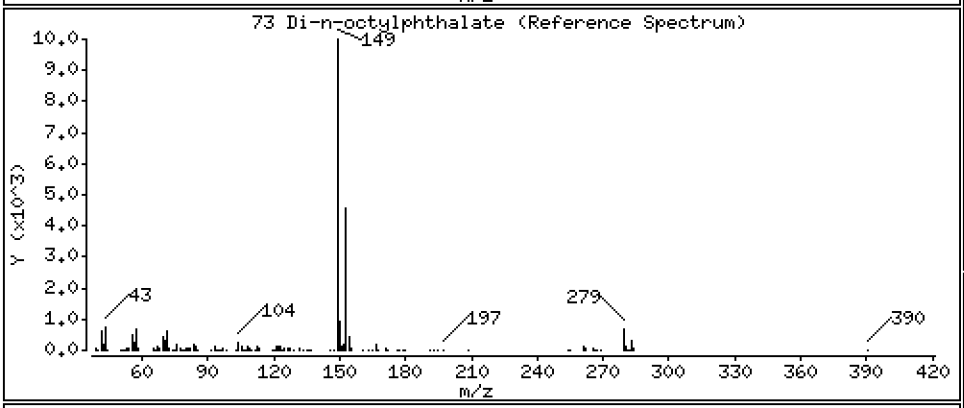
Concentration: 5.703 ug/mL

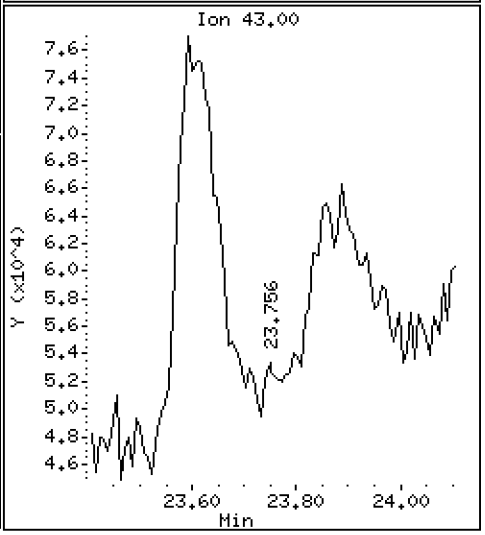


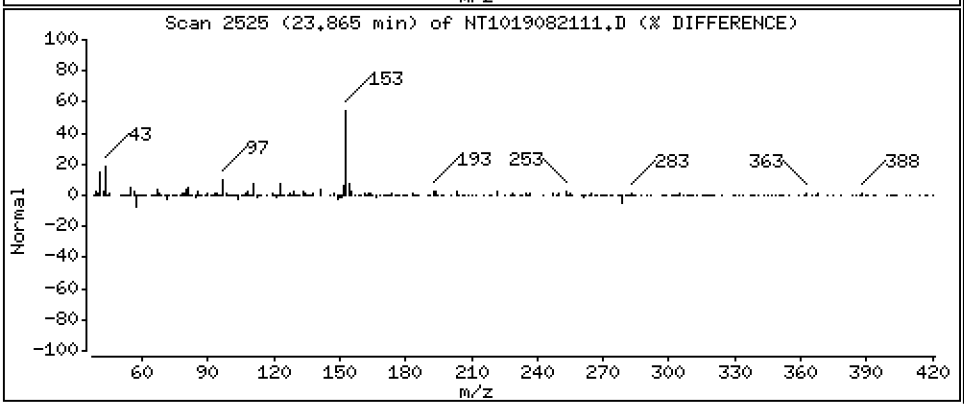












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

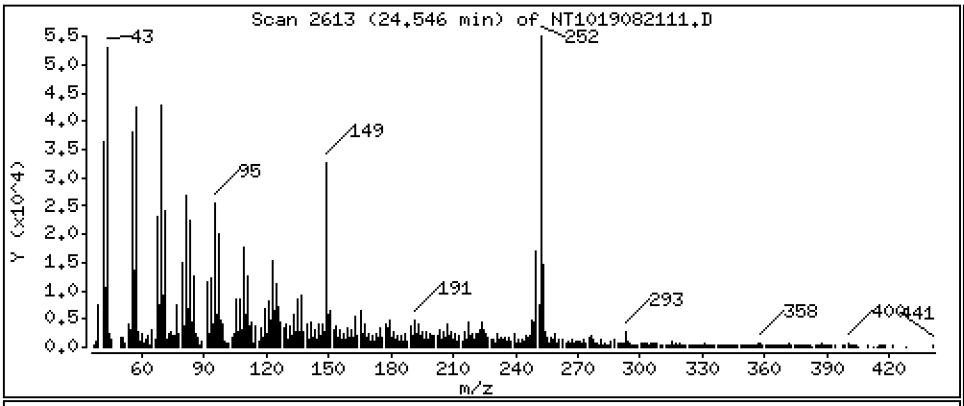
Operator: YZ

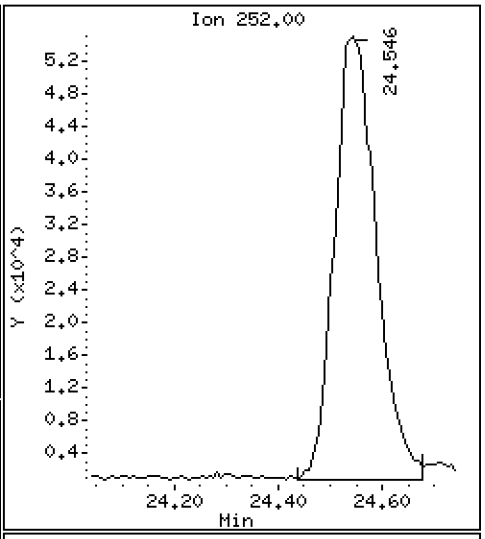
Column phase: ZB-5msi

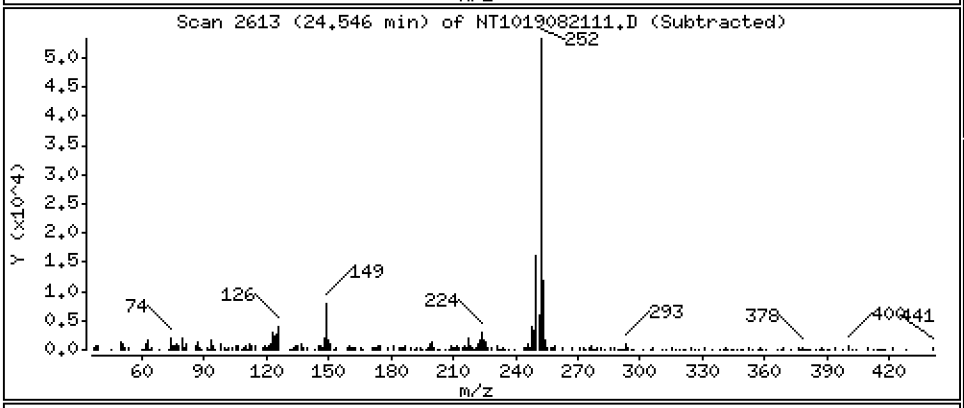
Column diameter: 0.25

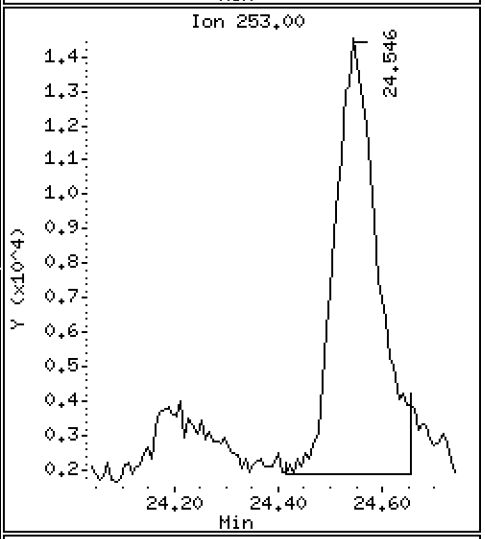
74 Benzo(b)fluoranthene

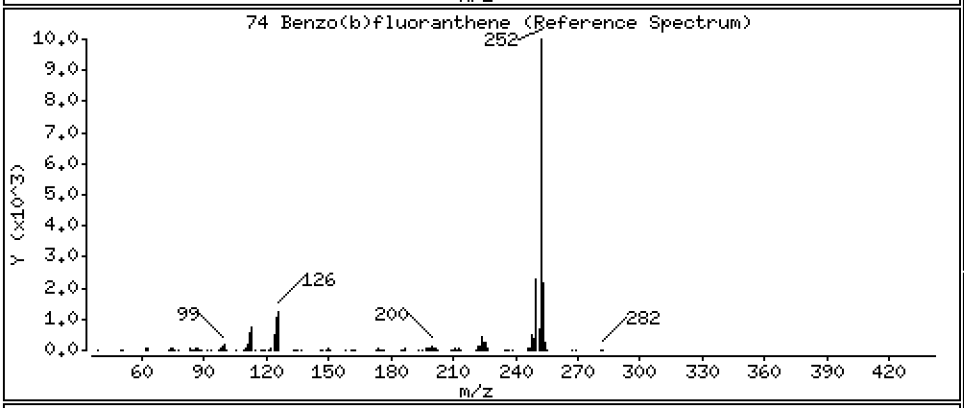
Concentration: 18.03 ug/mL

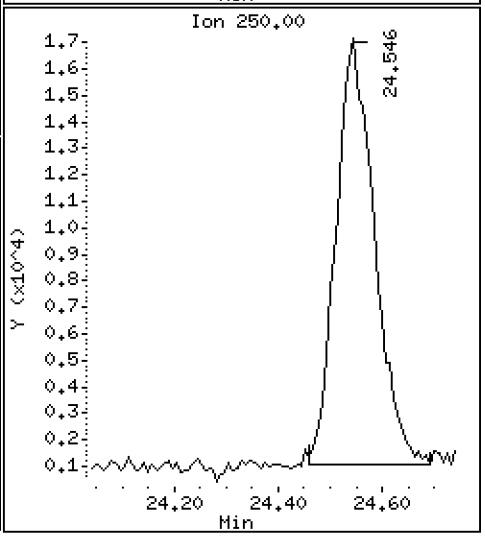


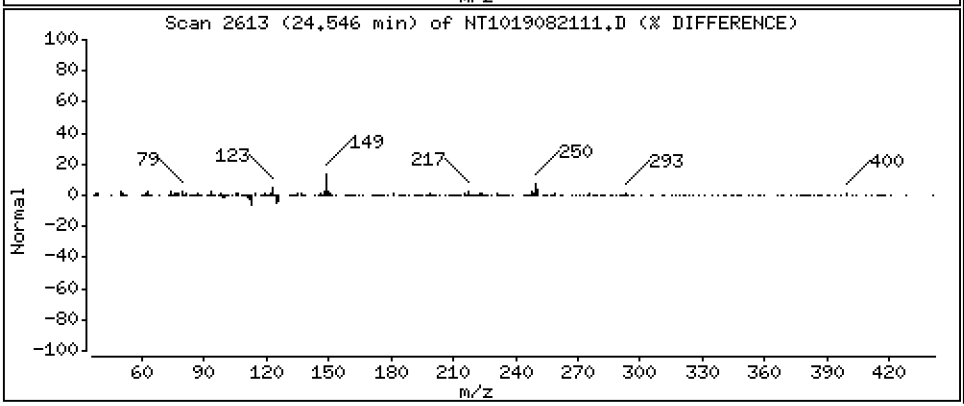












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

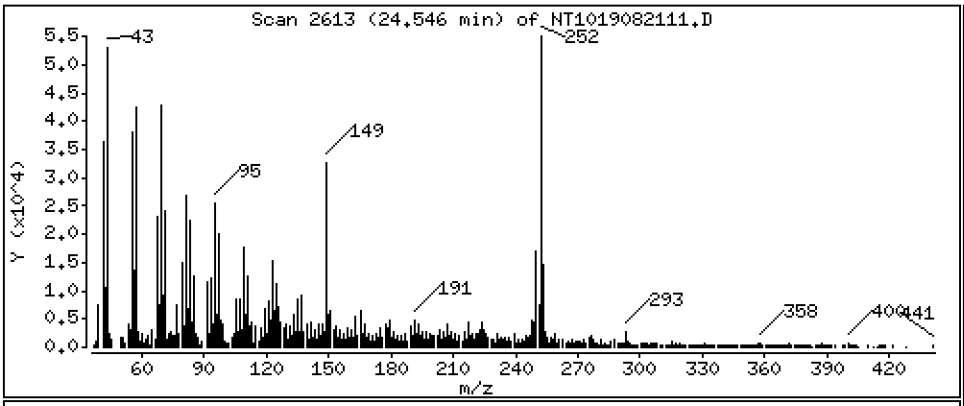
Operator: YZ

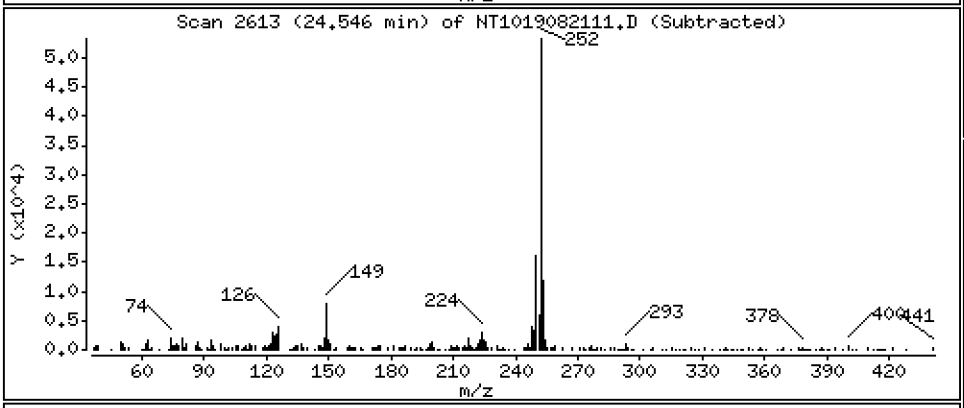
Column phase: ZB-5msi

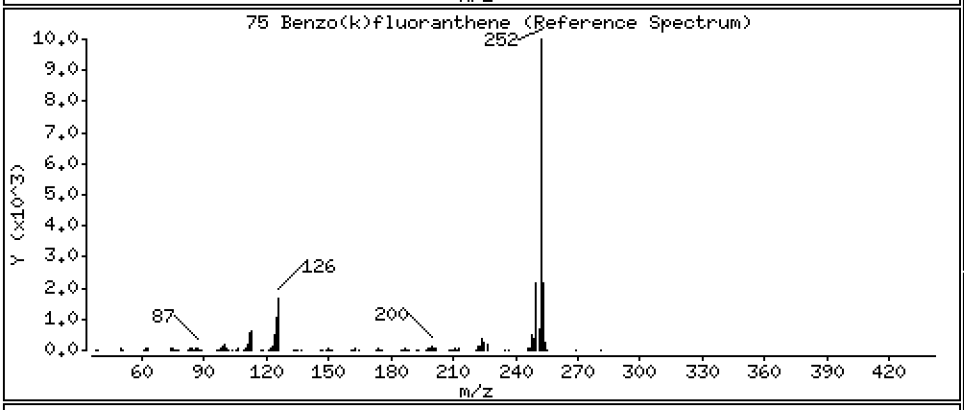
Column diameter: 0.25

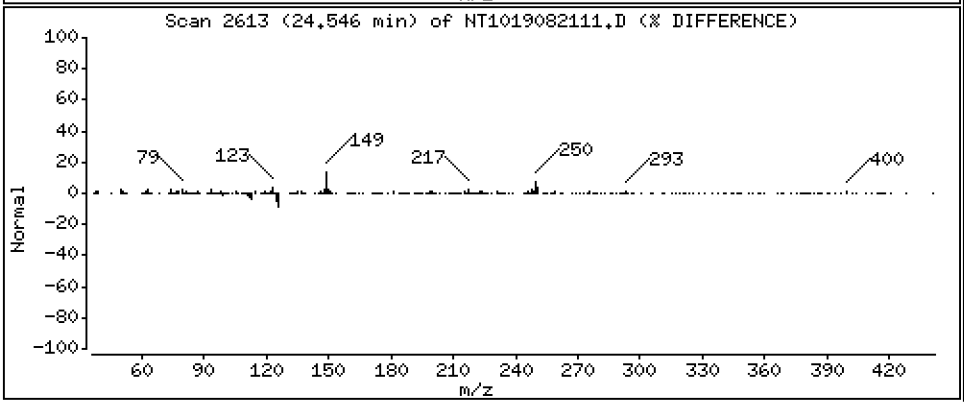
75 Benzo(k)fluoranthene

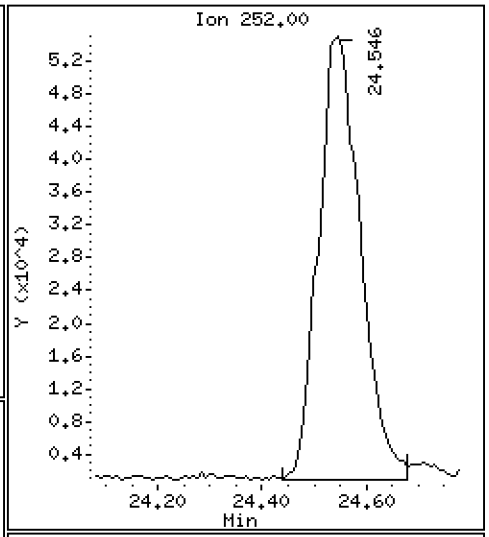
Concentration: 17.93 ug/mL

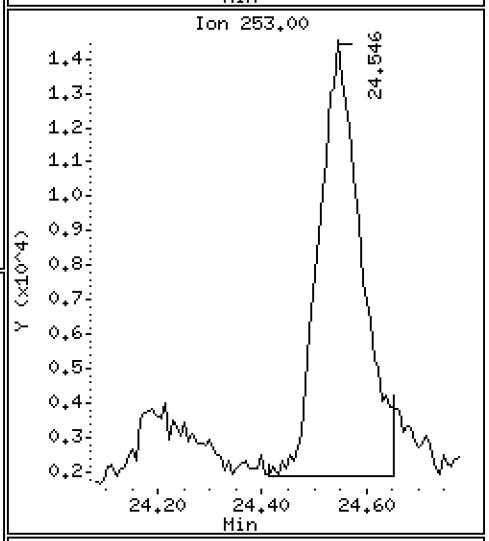


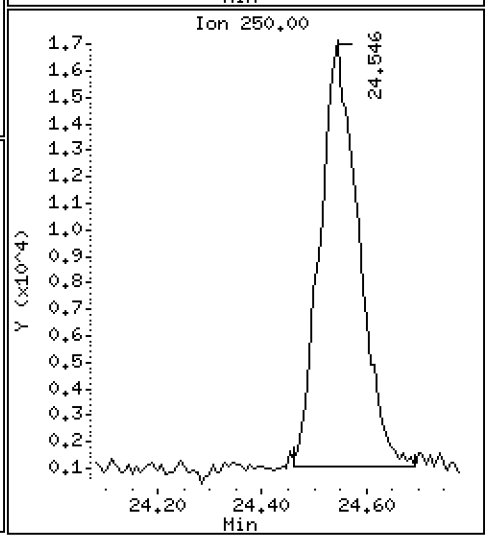












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082111.D

Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

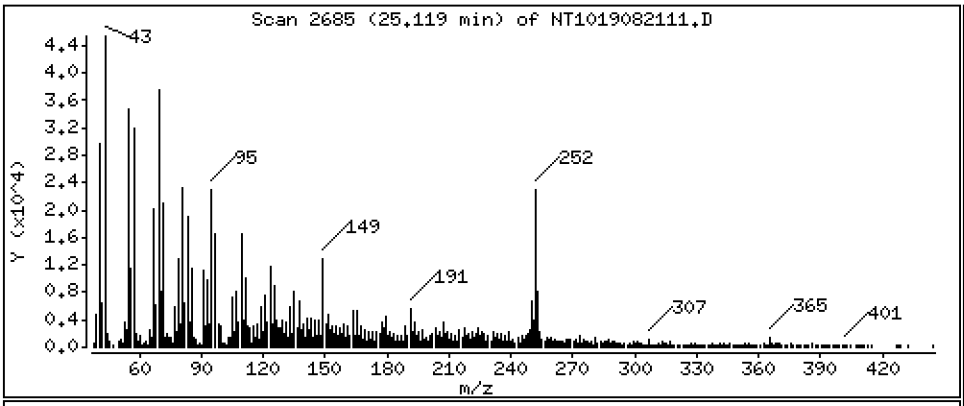
Operator: YZ

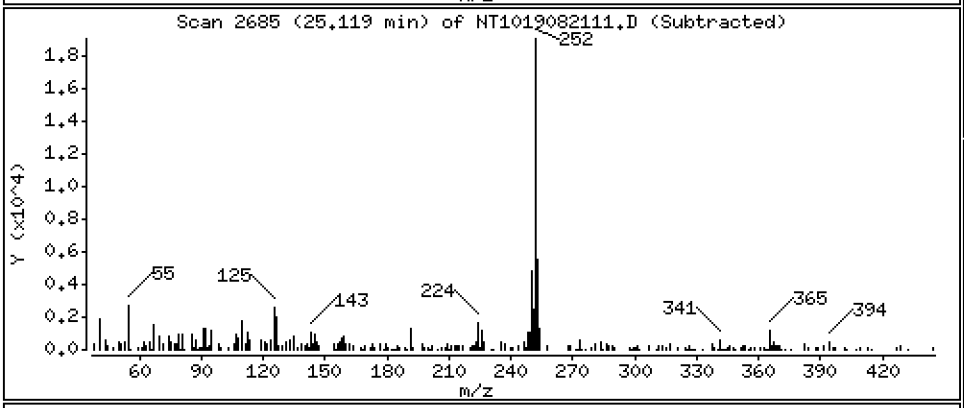
Column phase: ZB-5msi

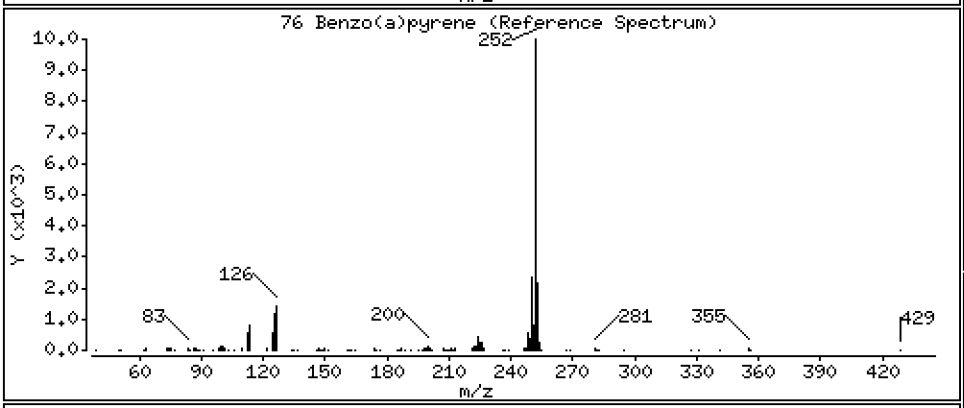
Column diameter: 0.25

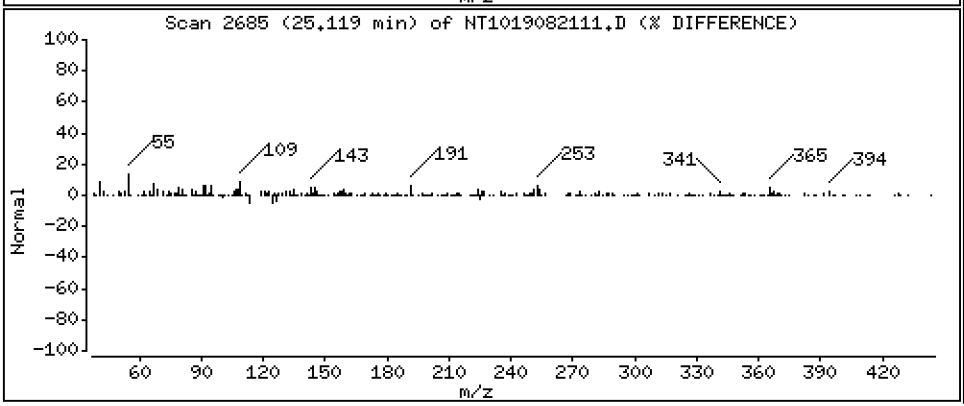
76 Benzo(a)pyrene

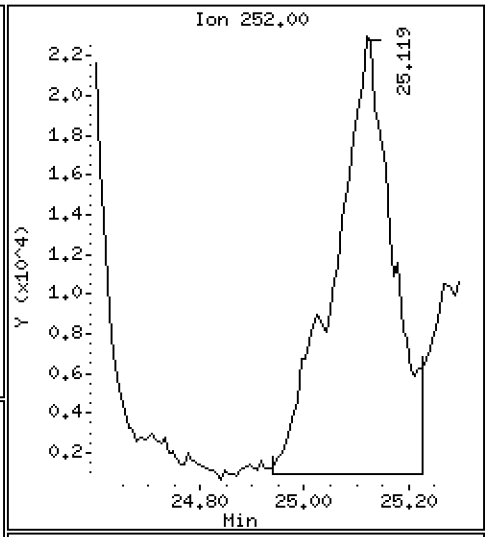
Concentration: 11.25 ug/mL

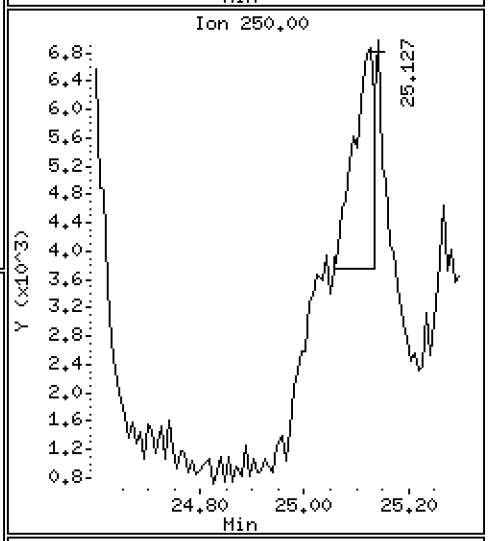


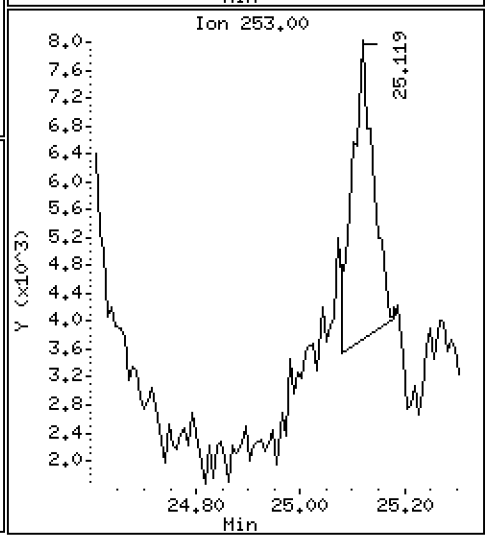












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

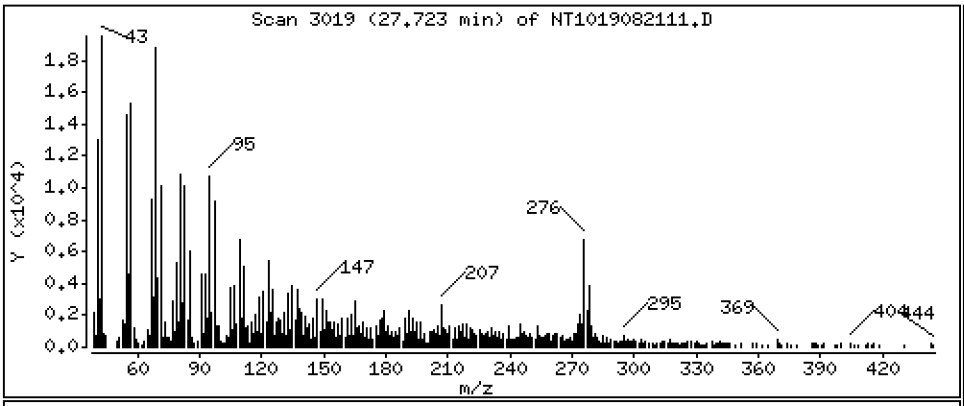
Operator: YZ

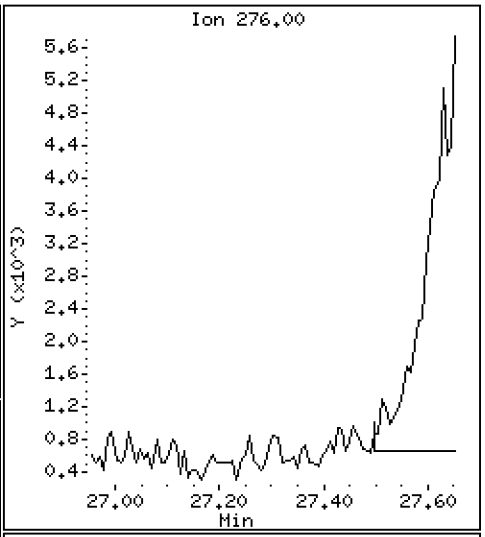
Column phase: ZB-5msi

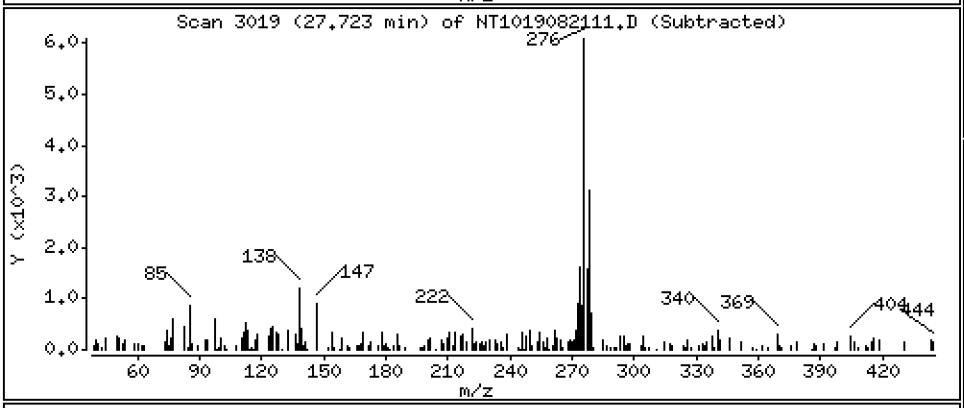
Column diameter: 0.25

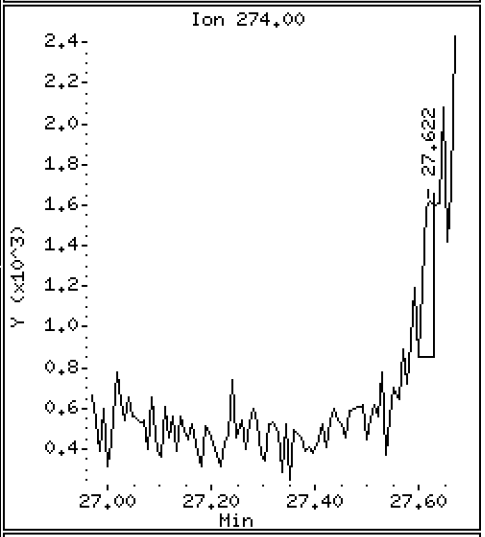
78 Indeno(1,2,3-cd)pyrene

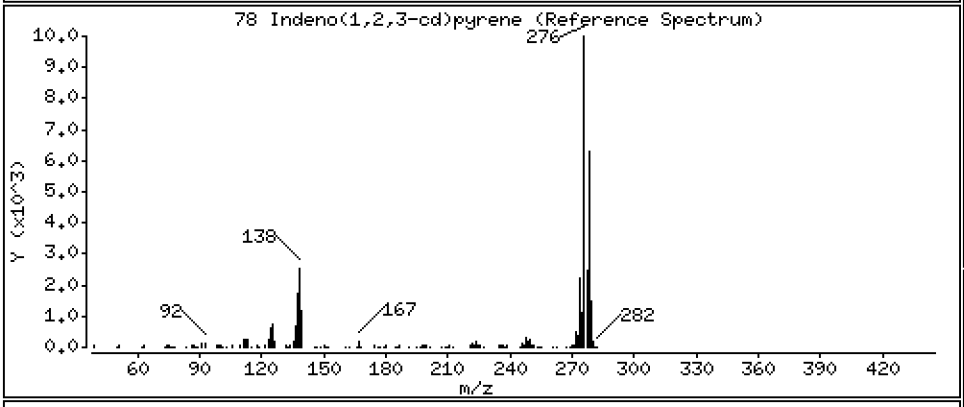
Concentration: 4.591 ug/mL

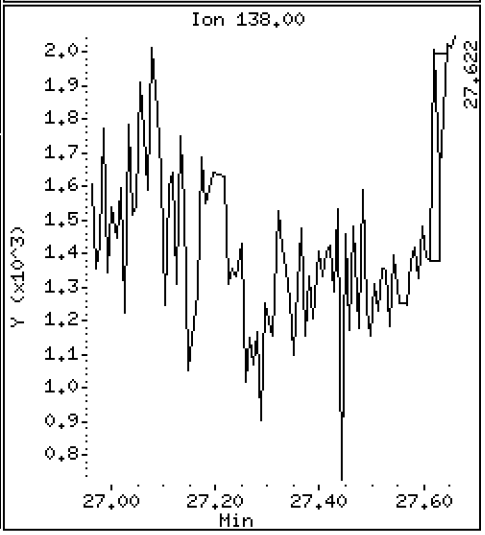


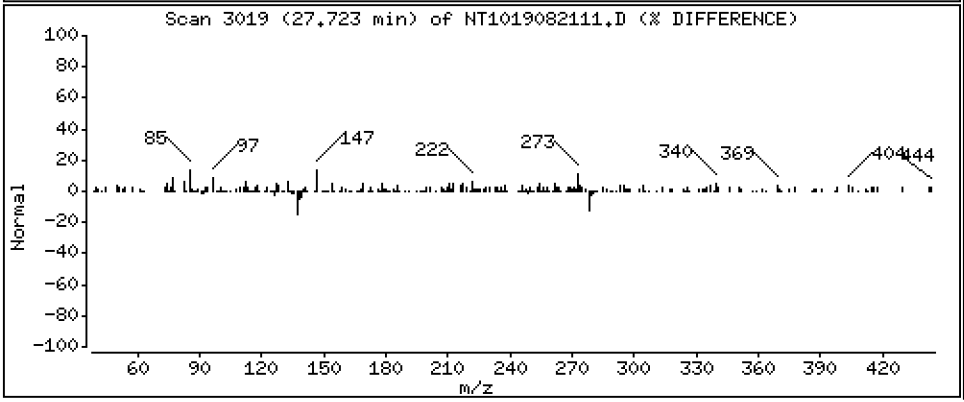












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

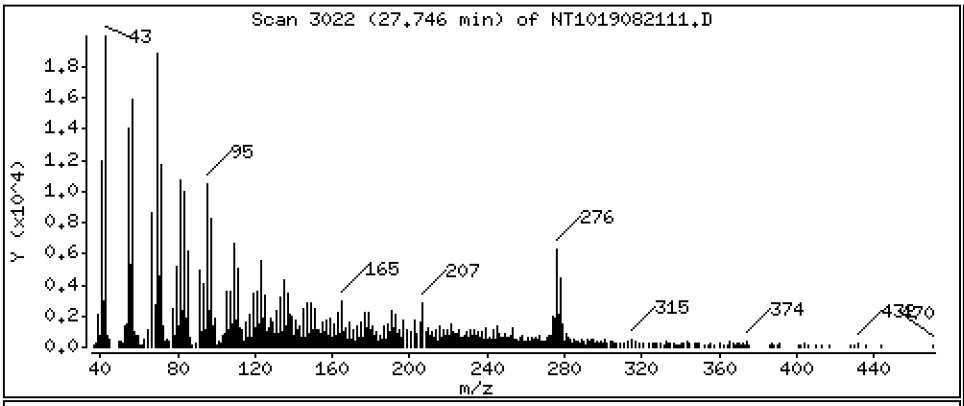
Operator: YZ

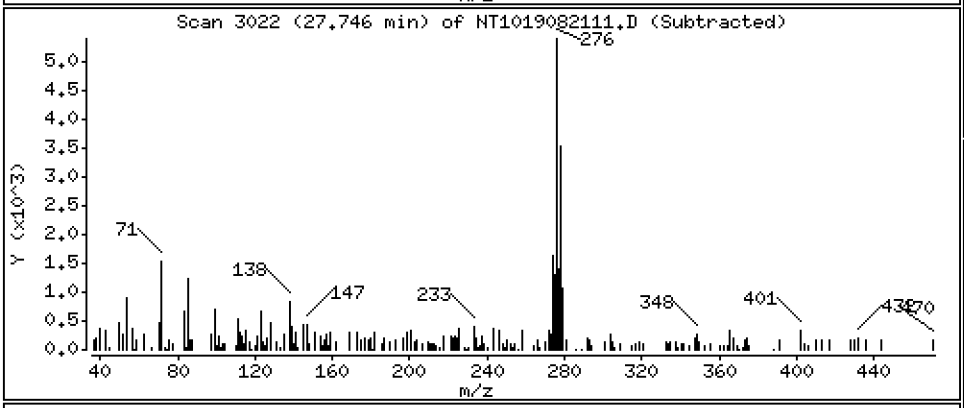
Column phase: ZB-5msi

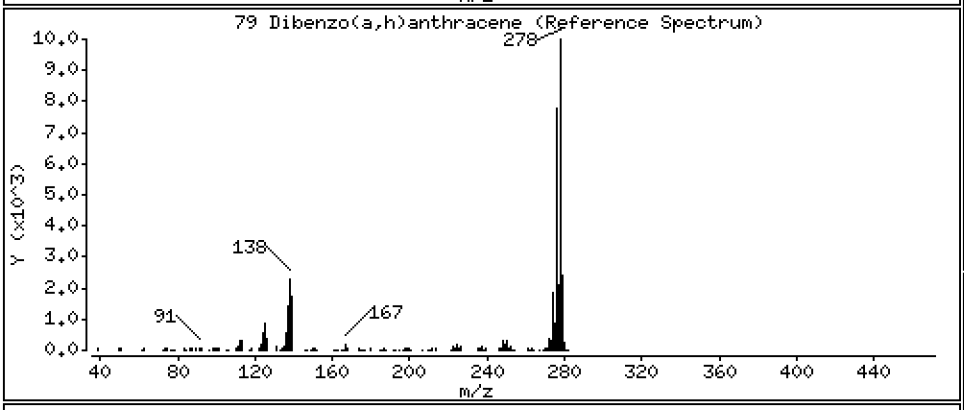
Column diameter: 0.25

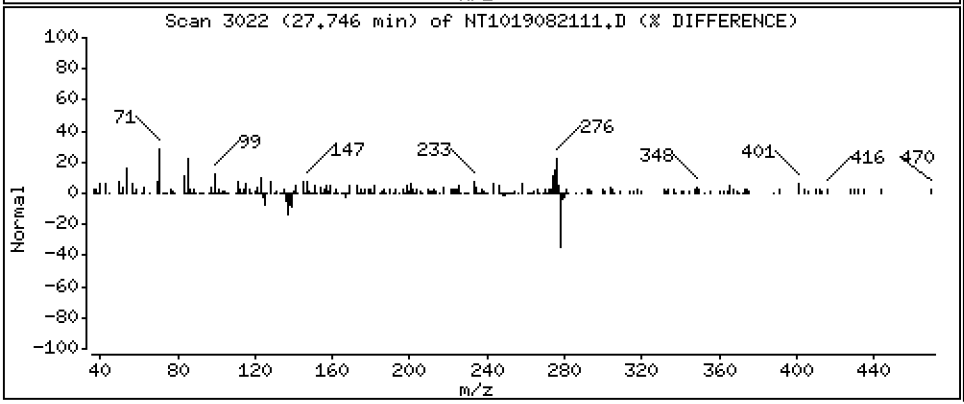
79 Dibenzo(a,h)anthracene

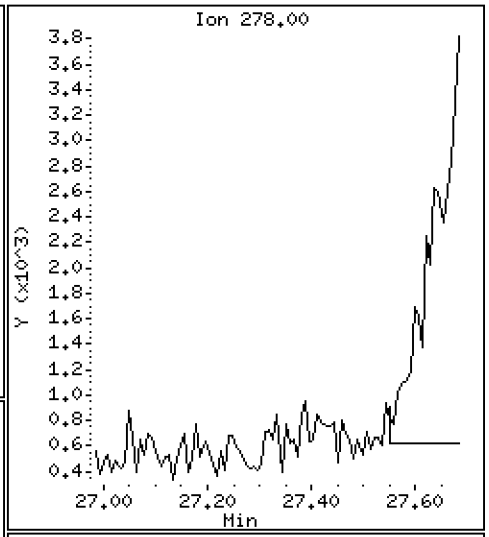
Concentration: 3.366 ug/mL

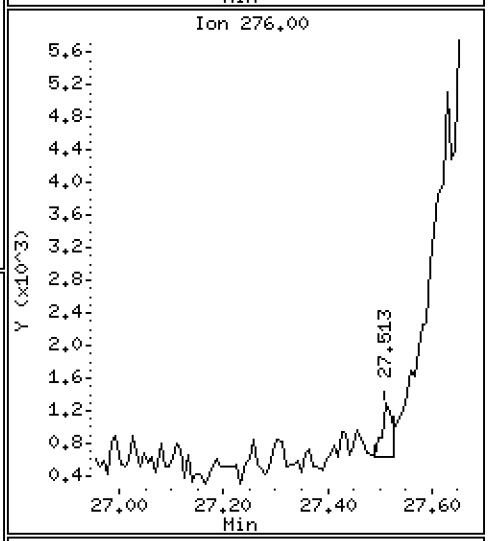


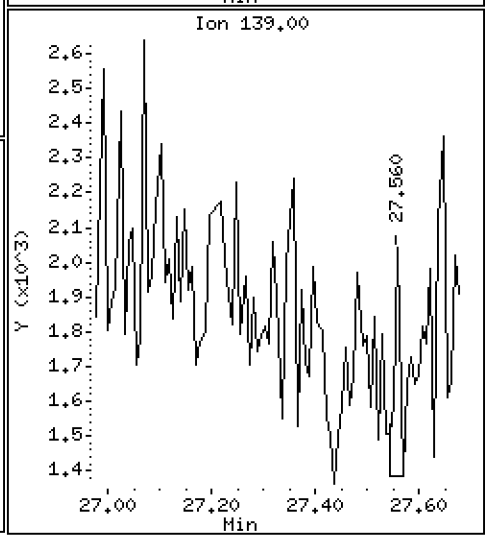












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

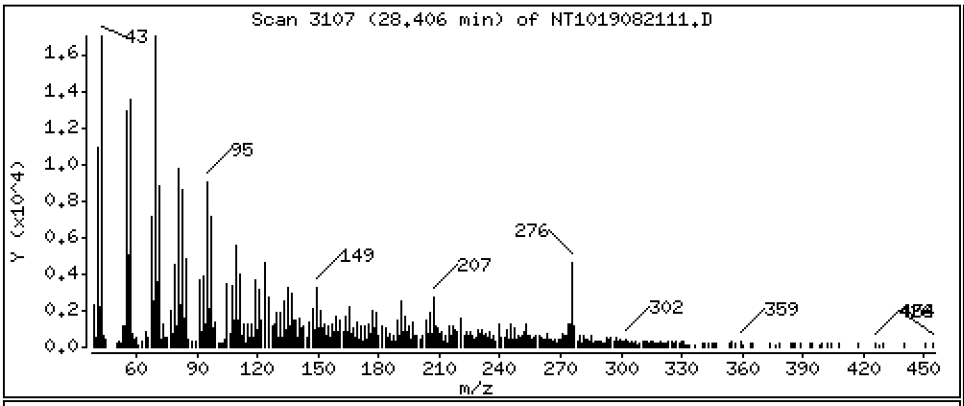
Operator: YZ

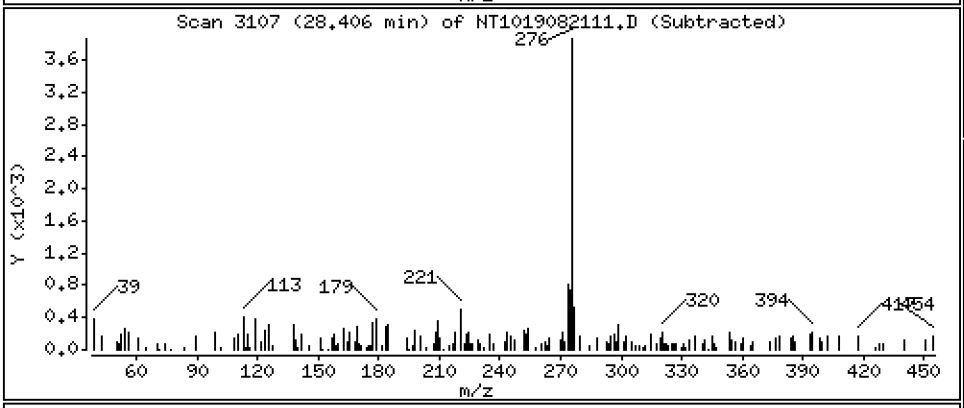
Column phase: ZB-5msi

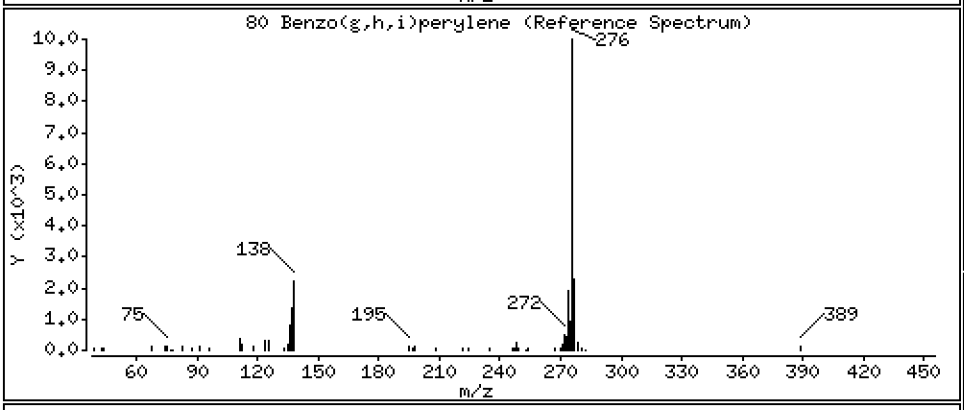
Column diameter: 0.25

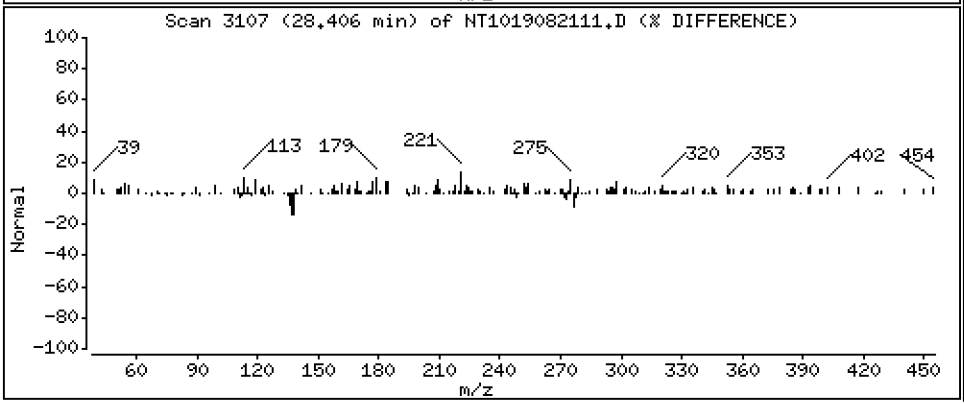
80 Benzo(g,h,i)perylene

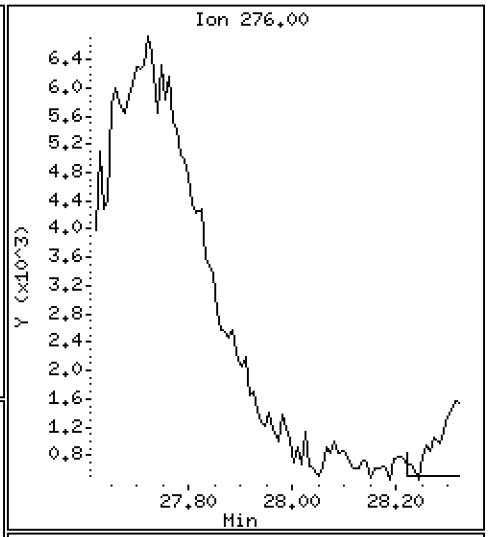
Concentration: 4.131 ug/mL

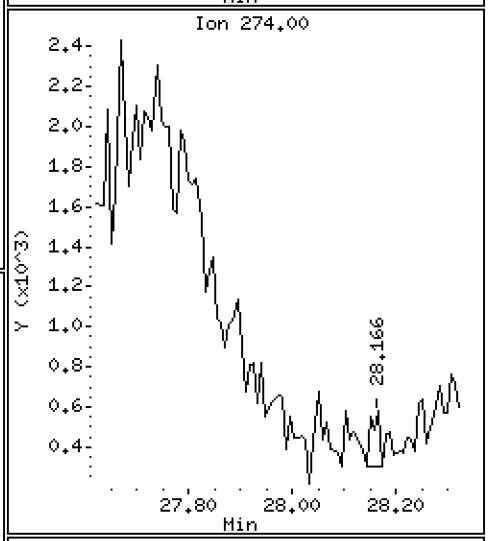


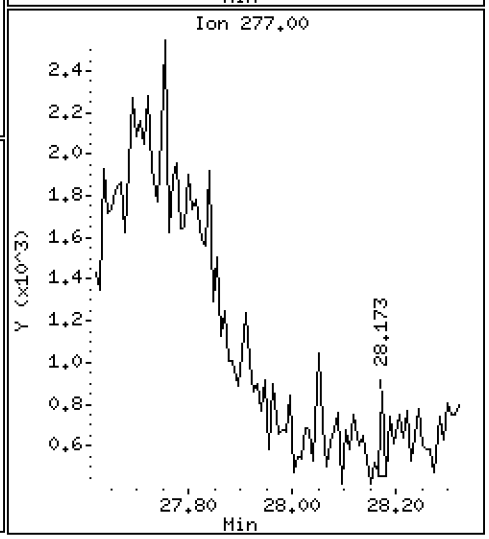












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

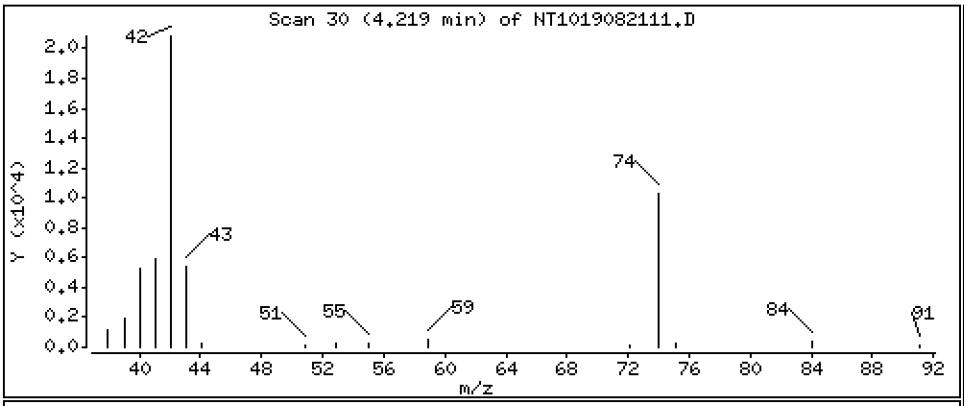
Operator: YZ

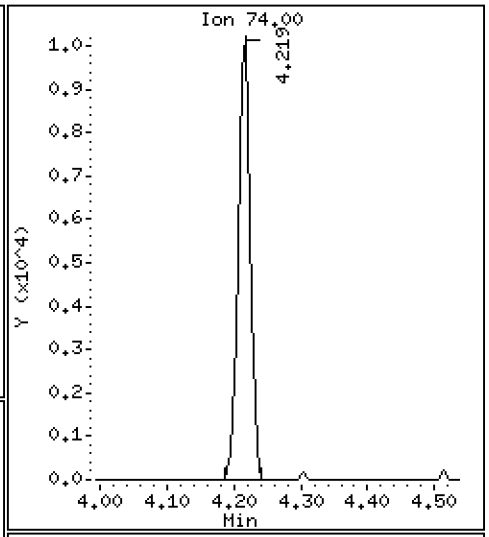
Column phase: ZB-5msi

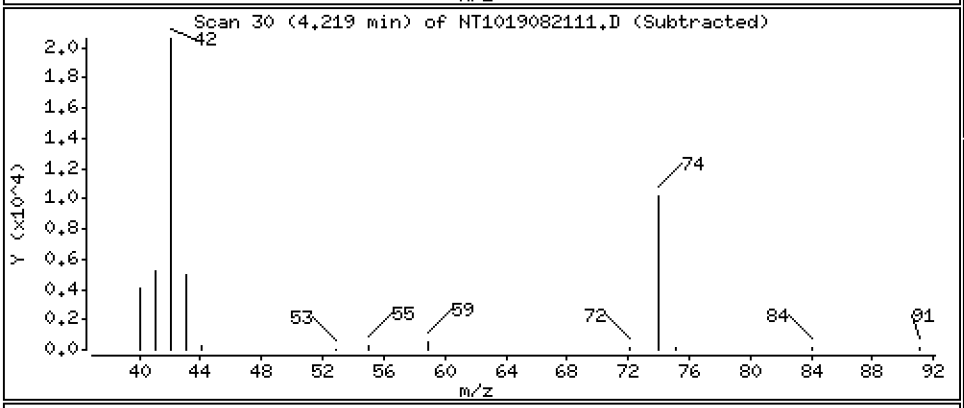
Column diameter: 0.25

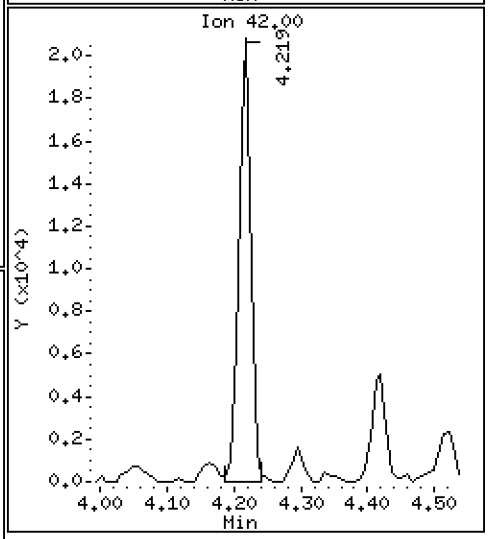
90 N-Nitrosodimethylamine

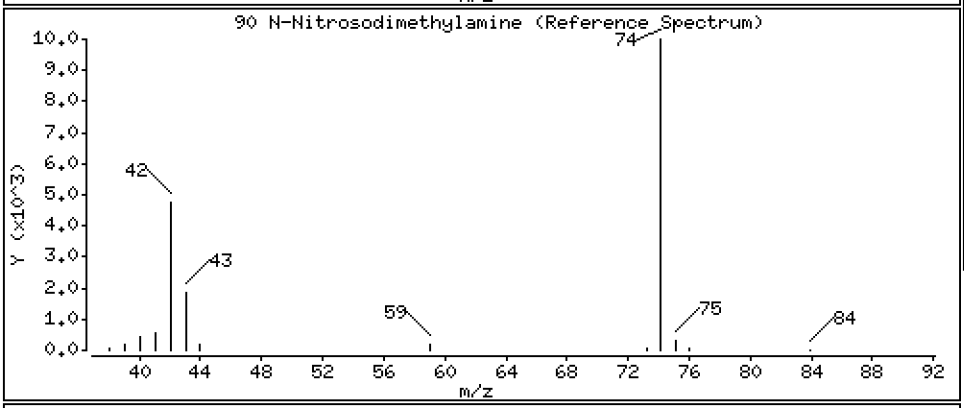
Concentration: 3.630 ug/mL

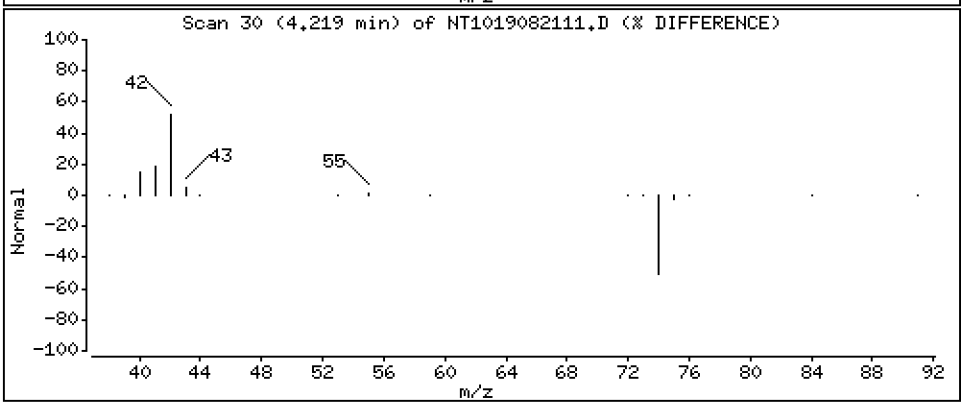












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

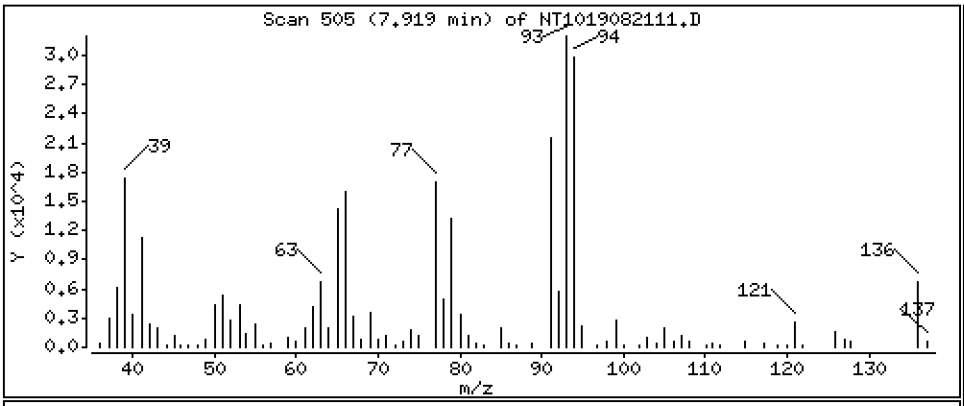
Operator: YZ

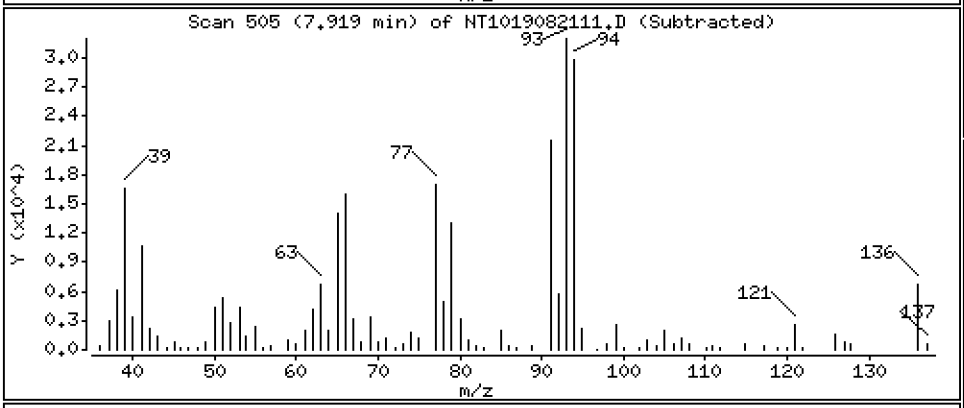
Column phase: ZB-5msi

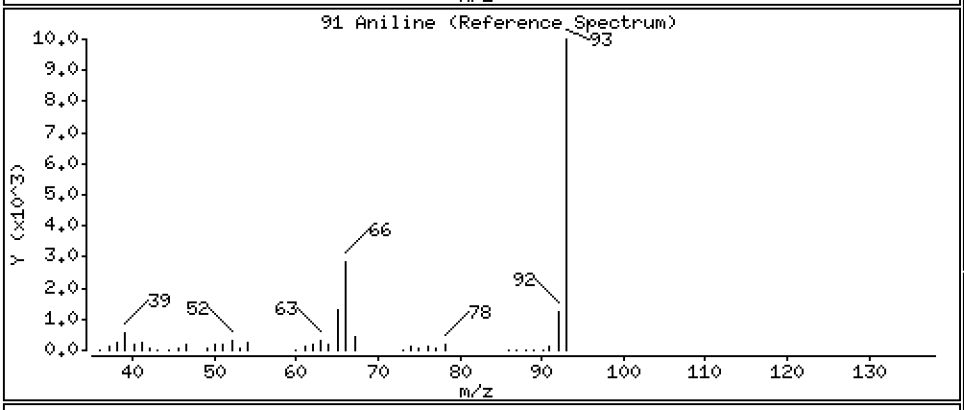
Column diameter: 0.25

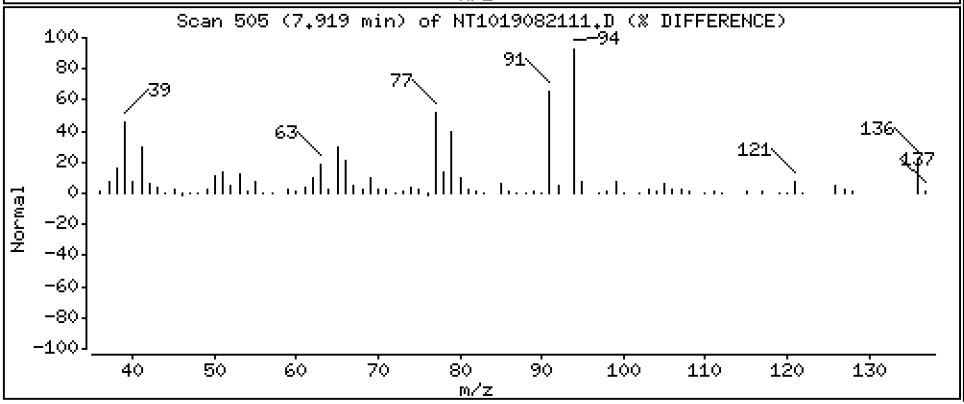
91 Aniline

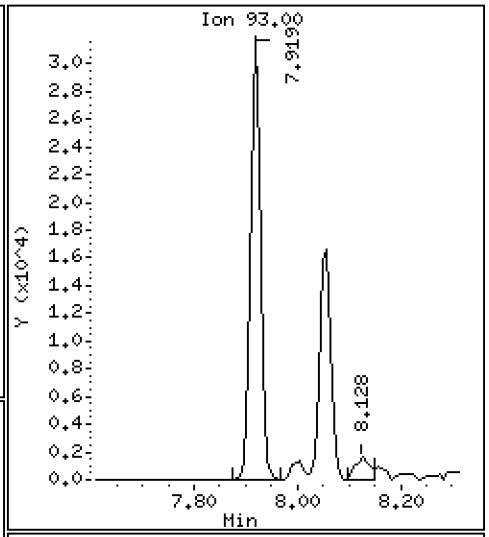
Concentration: 5.202 ug/mL

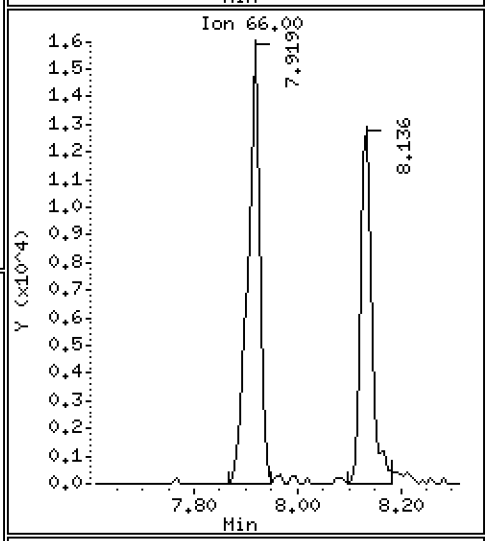


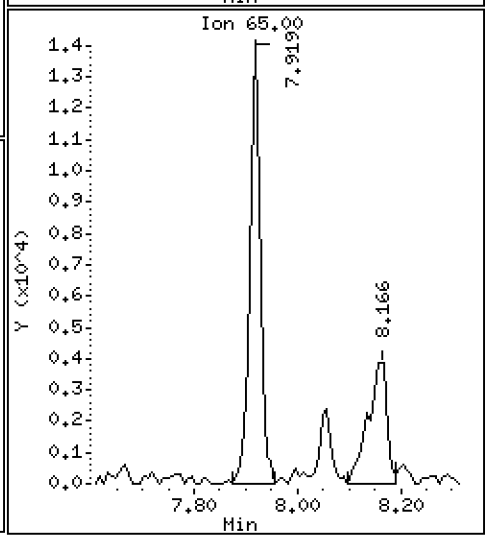












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

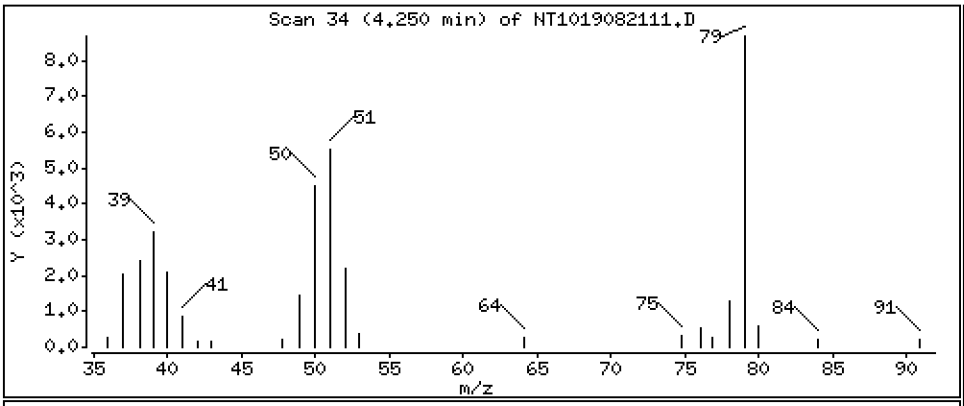
Operator: YZ

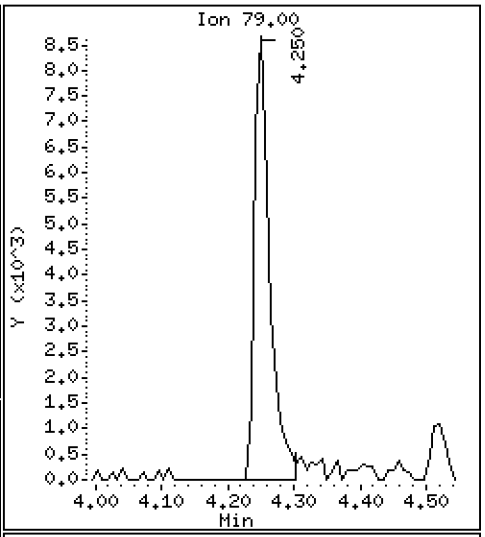
Column phase: ZB-5msi

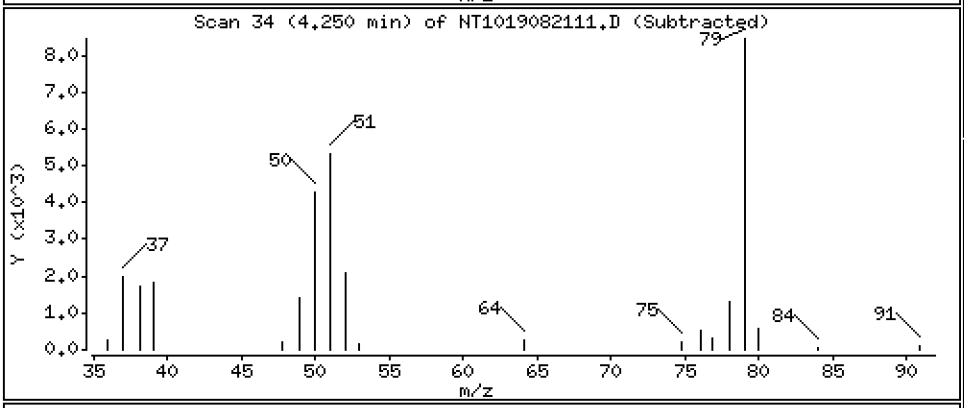
Column diameter: 0.25

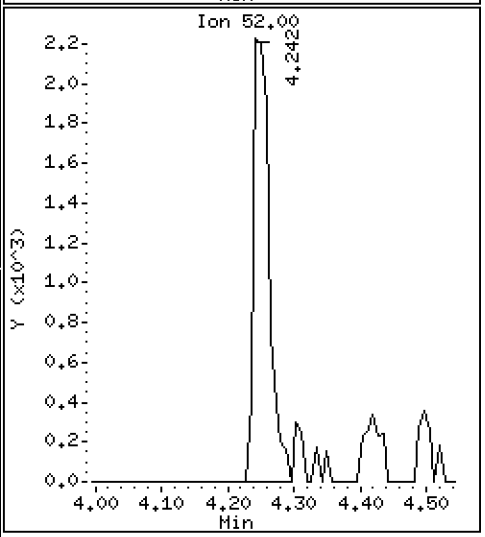
103 Pyridine

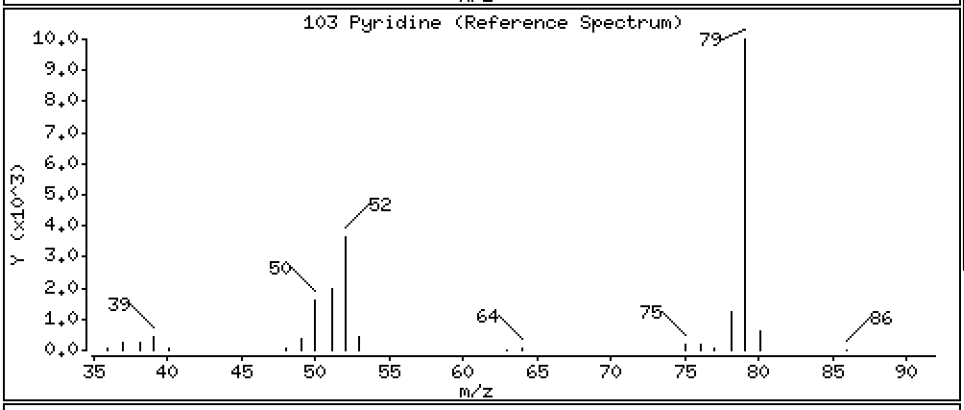
Concentration: 2.117 ug/mL

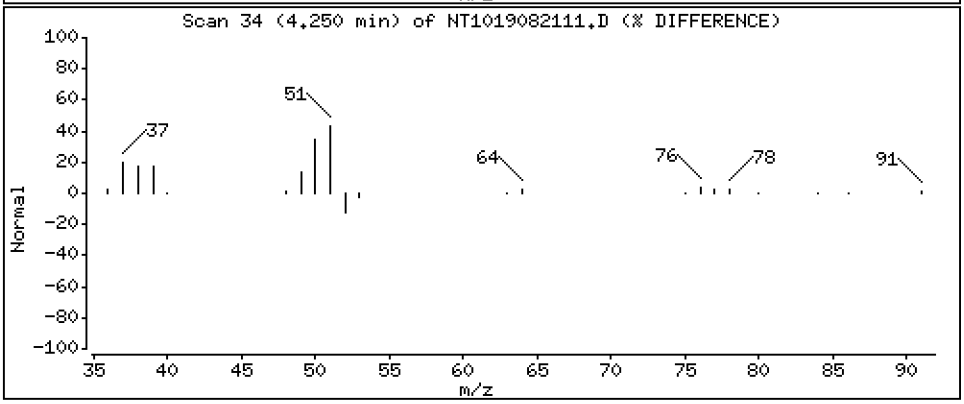












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

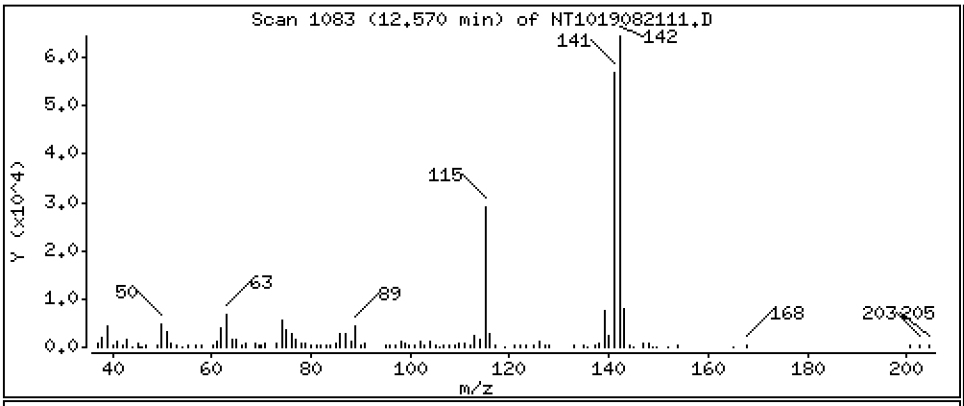
Operator: YZ

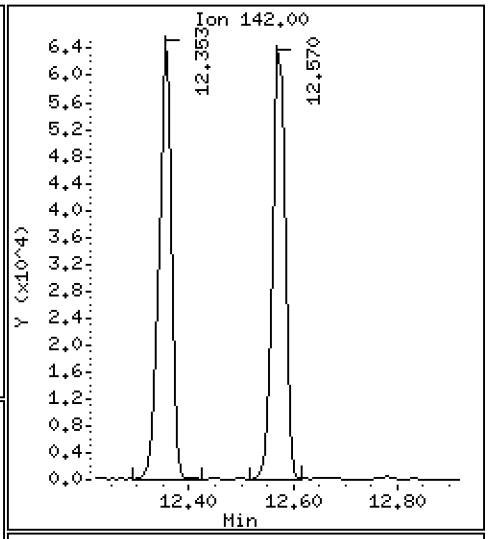
Column phase: ZB-5msi

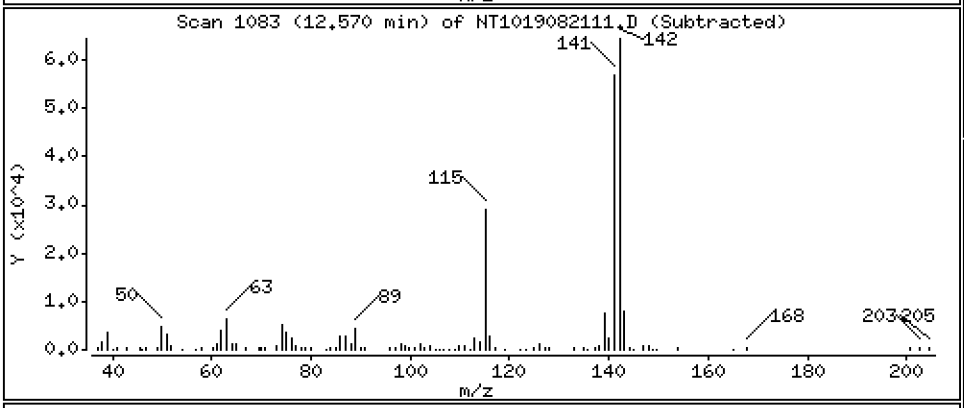
Column diameter: 0.25

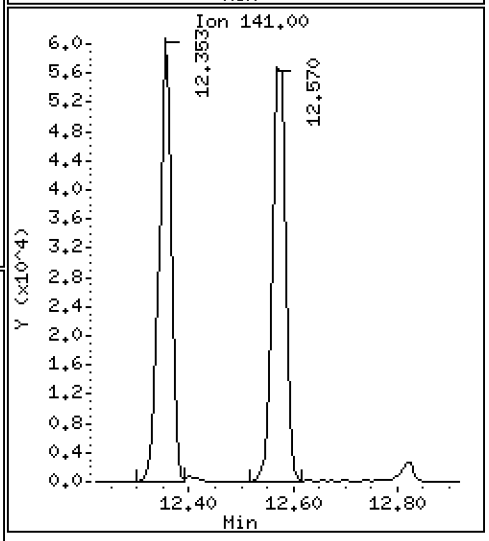
105 1-methylnaphthalene

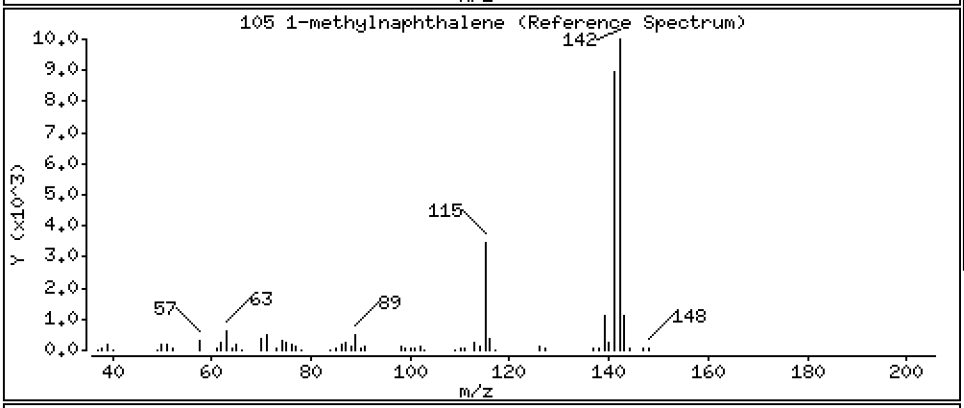
Concentration: 4.157 ug/mL

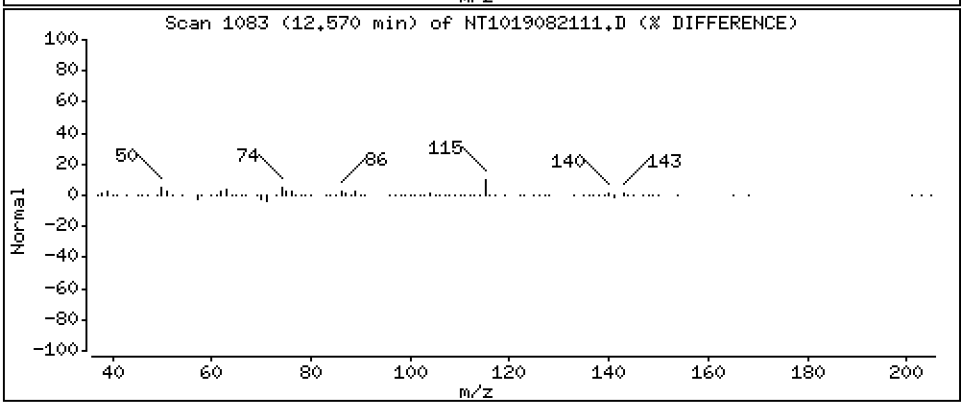












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

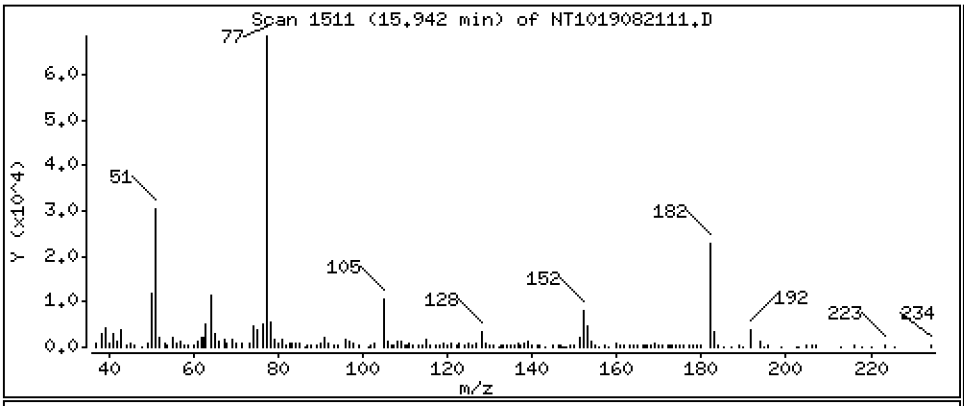
Operator: YZ

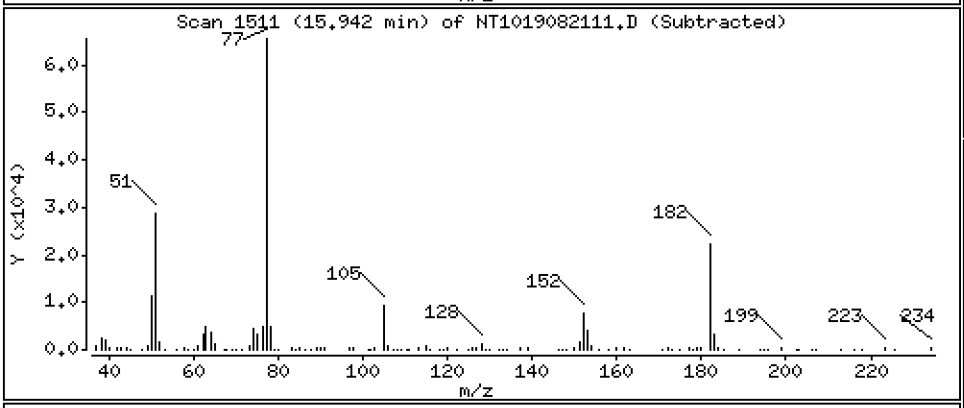
Column phase: ZB-5msi

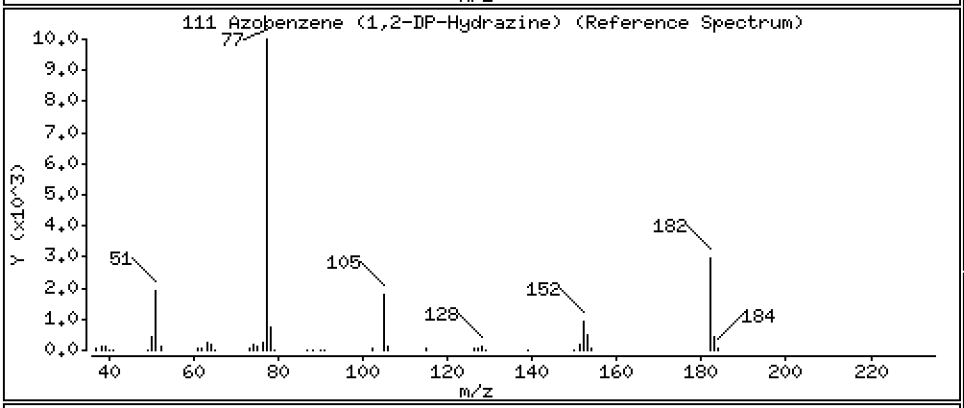
Column diameter: 0.25

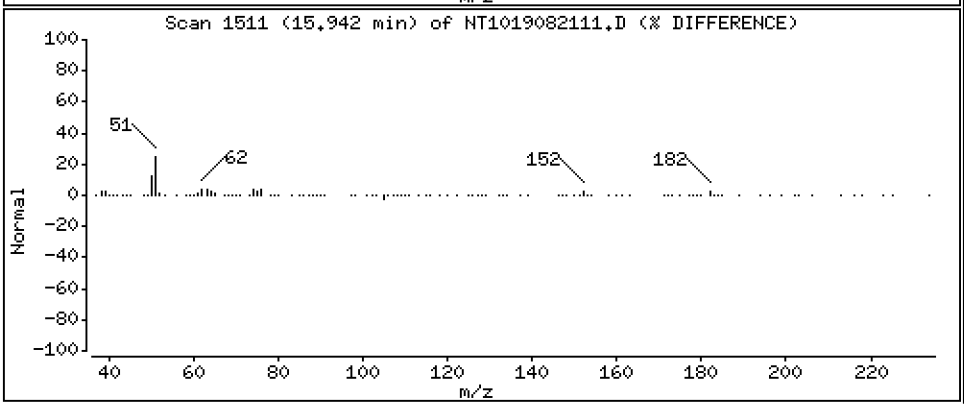
111 Azobenzene (1,2-DP-Hydrazine)

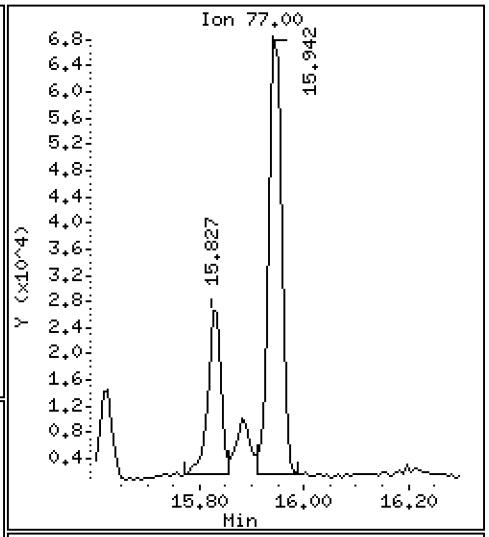
Concentration: 4.250 ug/mL

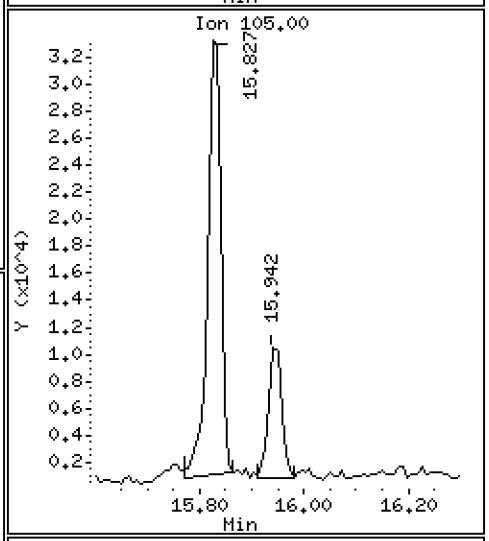


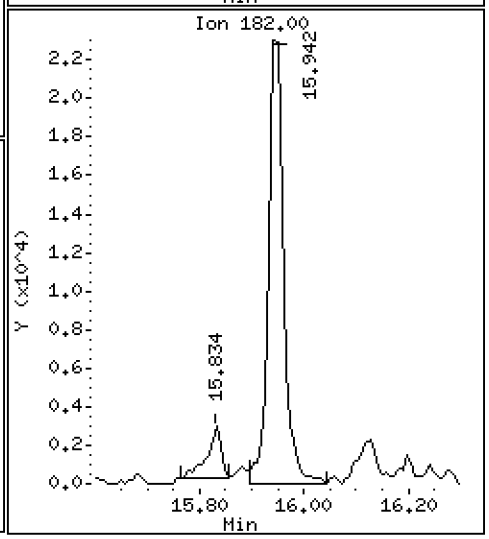












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

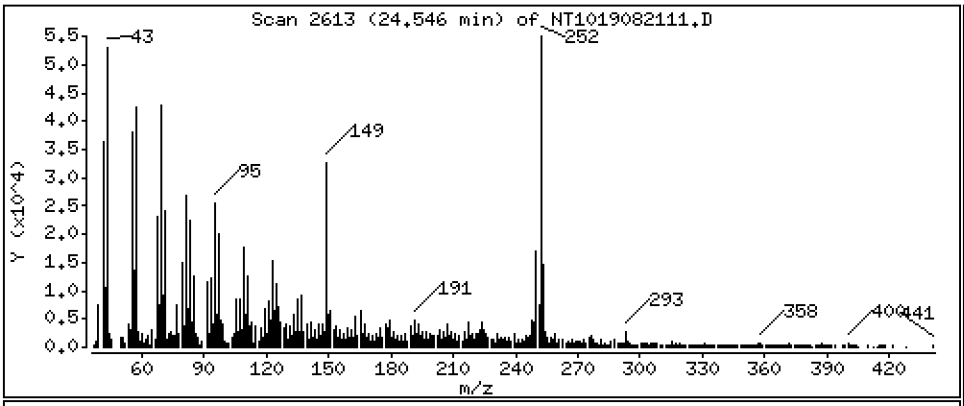
Operator: YZ

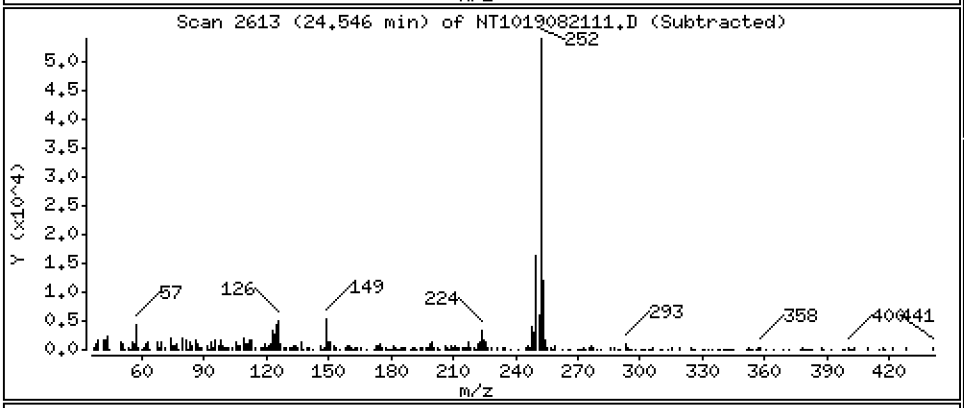
Column phase: ZB-5msi

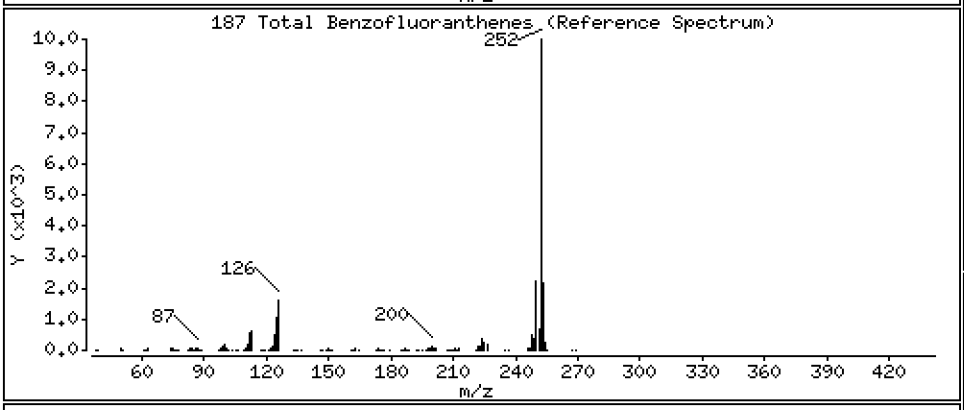
Column diameter: 0.25

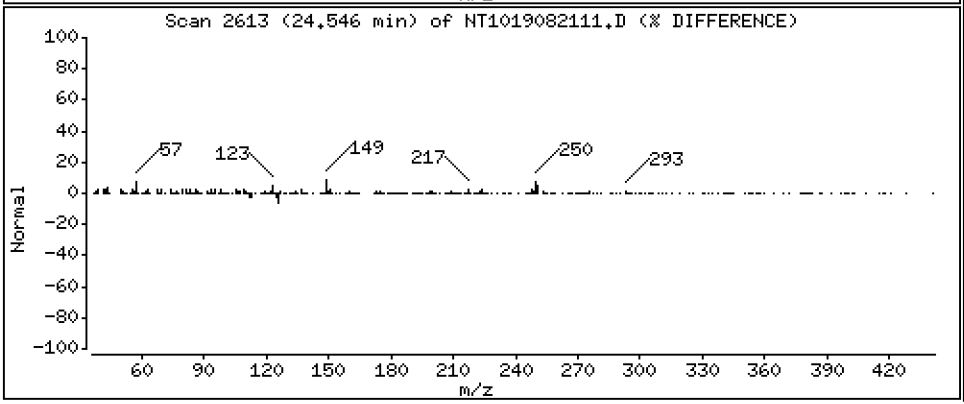
187 Total Benzofluoranthenes

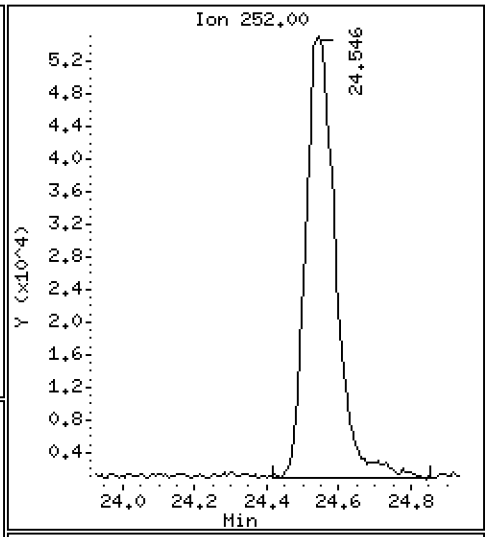
Concentration: 20.15 ug/mL

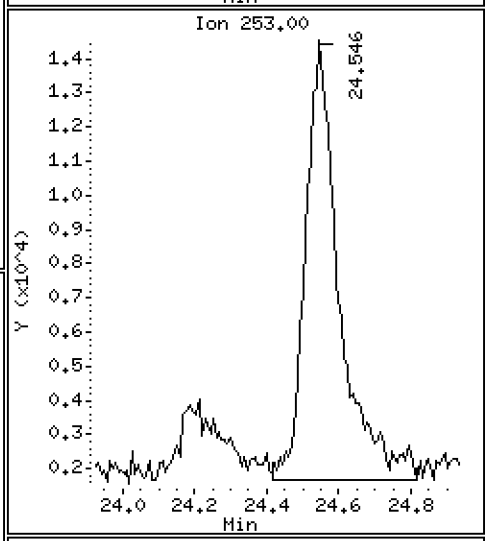


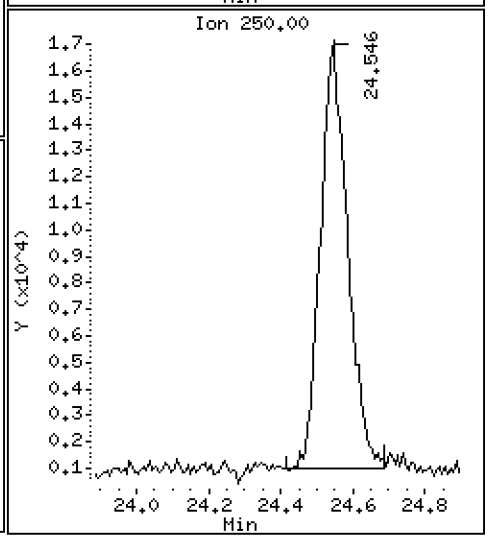












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

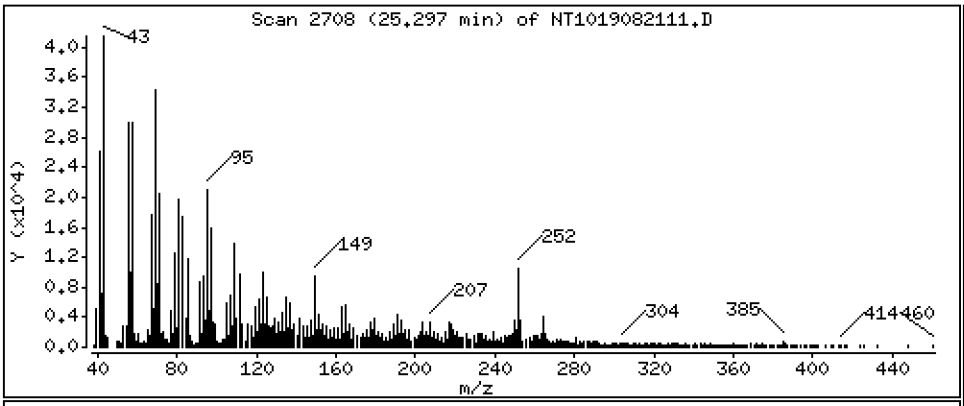
Operator: YZ

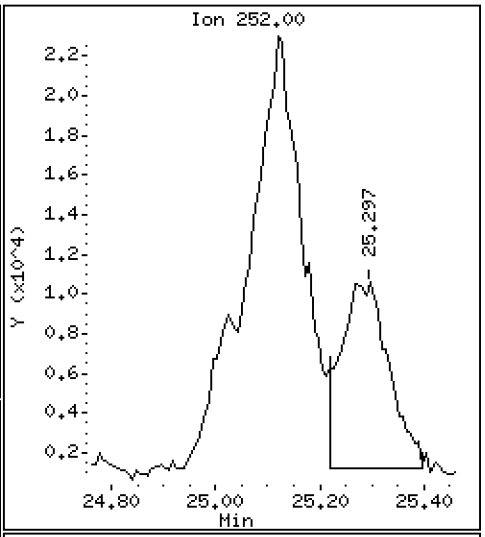
Column phase: ZB-5msi

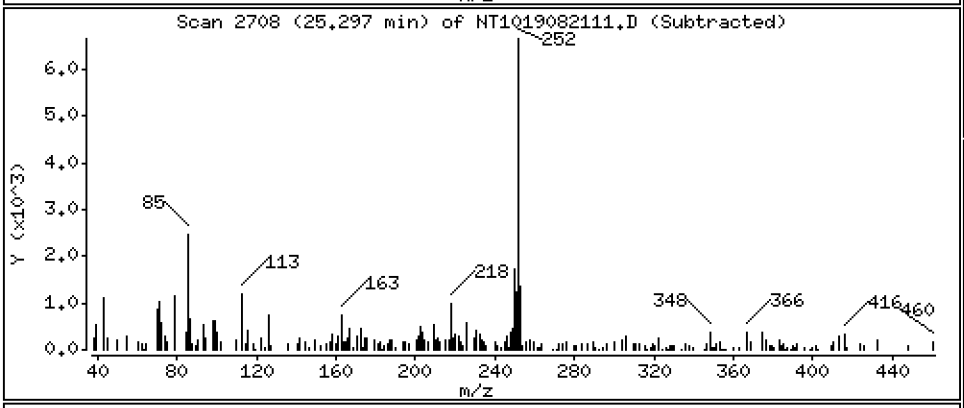
Column diameter: 0.25

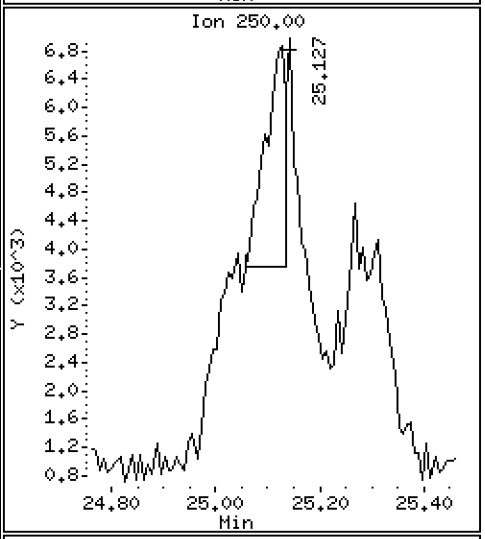
99 Perylene

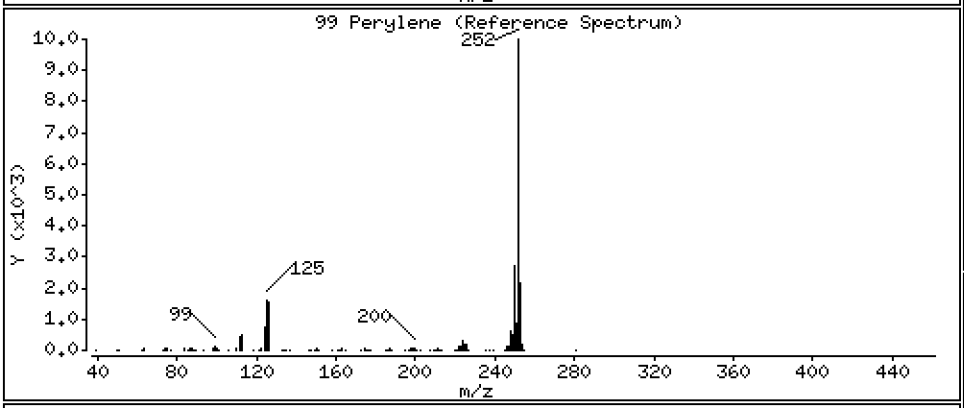
Concentration: 4.368 ug/mL

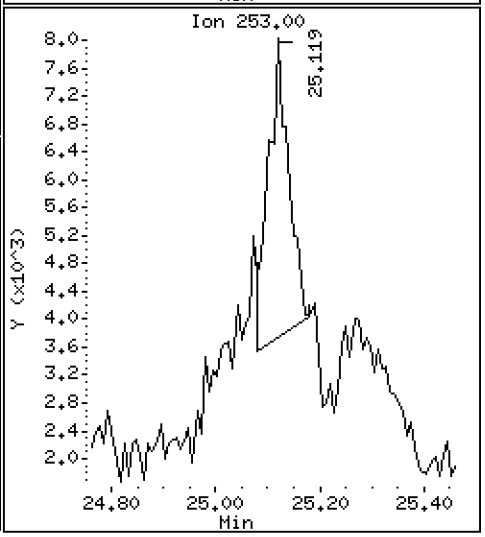


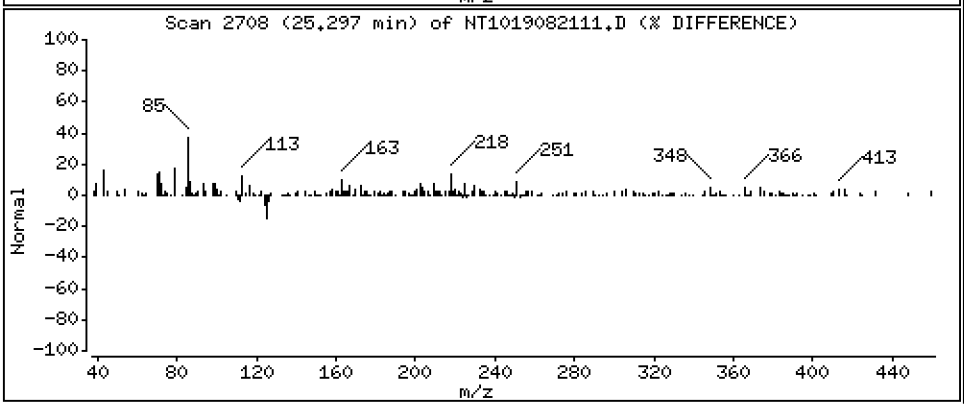












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Date : 21-AUG-2019 16:22

Client ID:

Instrument: nt10.i

Sample Info: BHH0289-MSD1

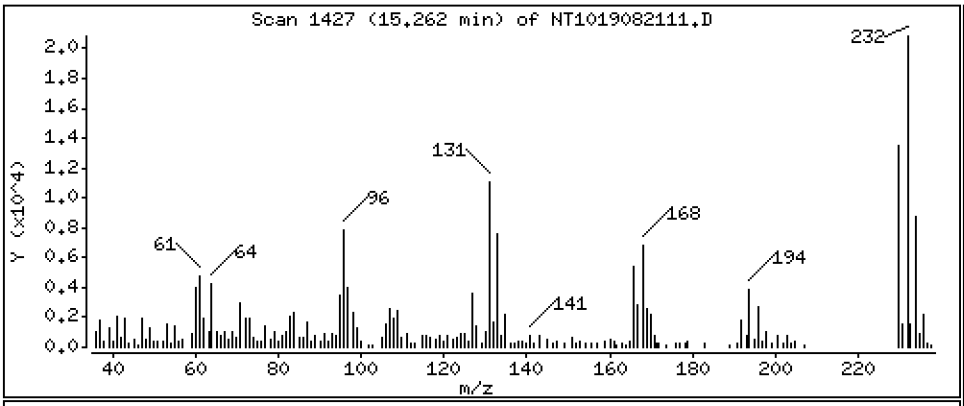
Operator: YZ

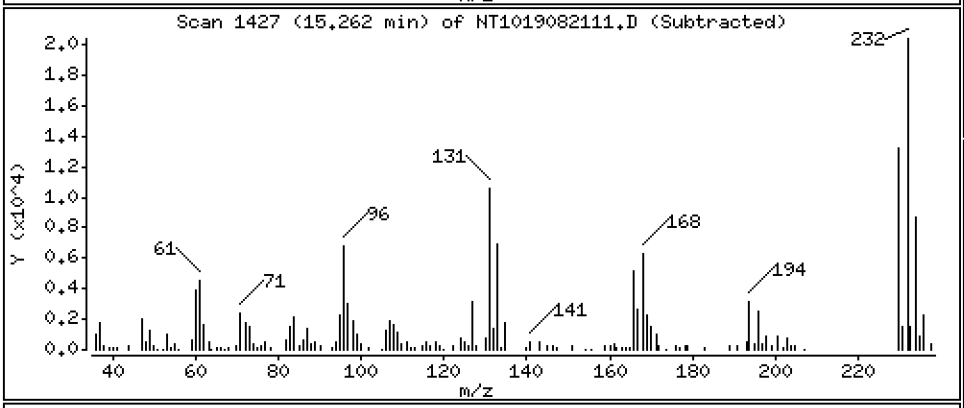
Column phase: ZB-5msi

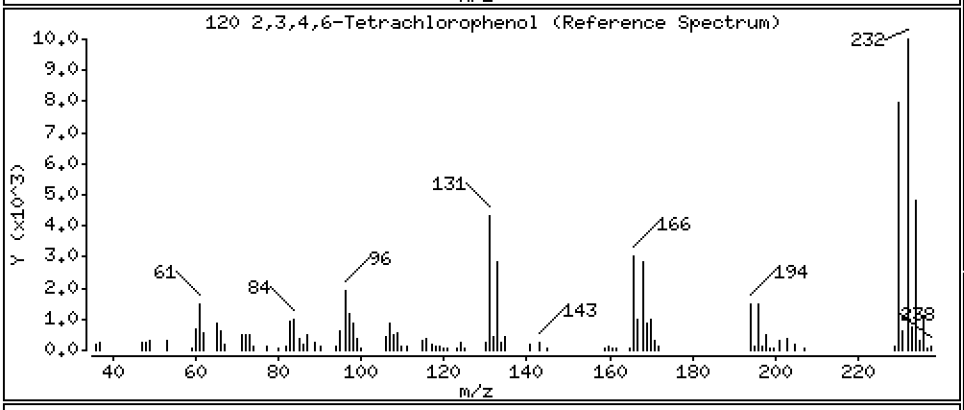
Column diameter: 0.25

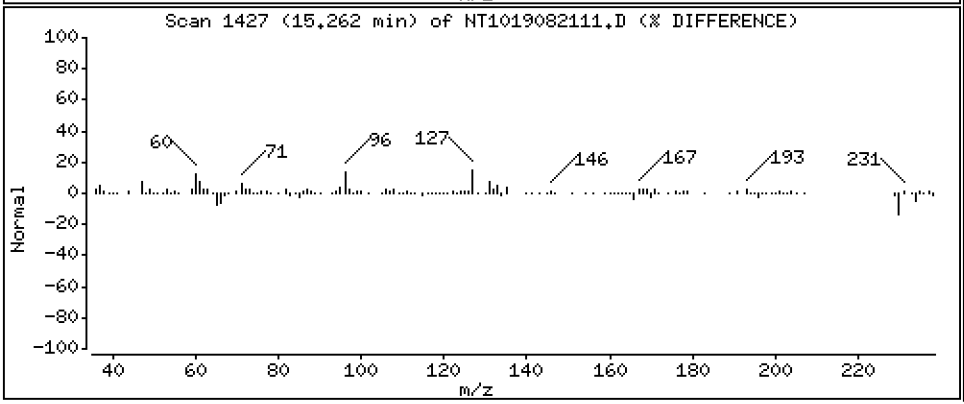
120 2,3,4,6-Tetrachlorophenol

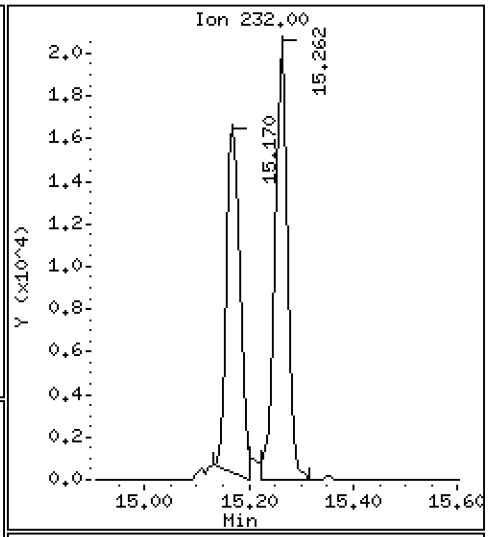
Concentration: 5.851 ug/mL

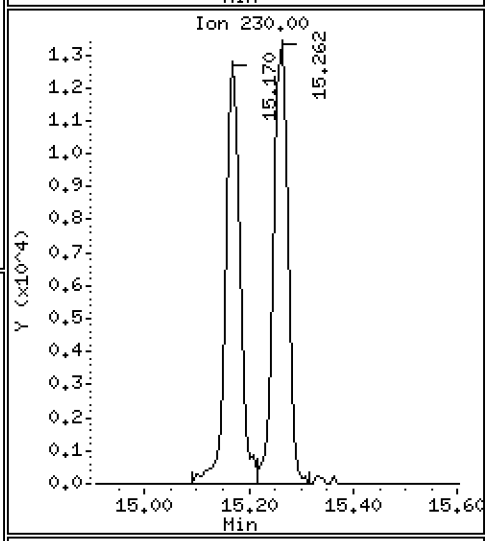


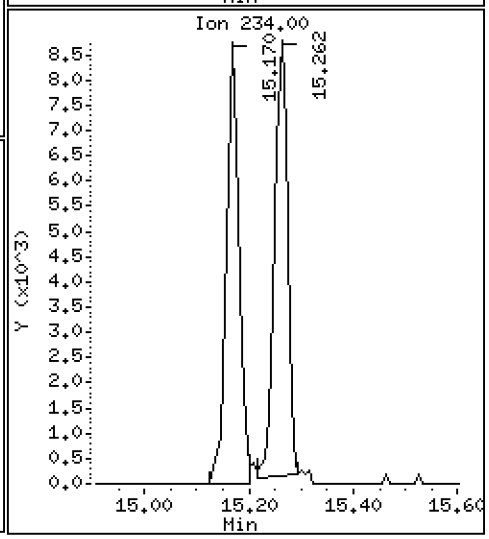












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

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Lab Smp Id: BHH0289-MSD1
Inj Date : 21-AUG-2019 16:22
Operator : YZ Inst ID: nt10.i
Smp Info : BHH0289-MSD1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.327	6.311	(0.746)	42763	4.59915	4.599
$	2 Phenol-d5	99	7.896	7.888	(0.931)	51594	4.95123	4.951
	3 Phenol	94	7.919	7.911	(0.933)	39963	4.12512	4.125
$	5 2-Chlorophenol-d4	132	8.135	8.127	(0.959)	71670	6.38909	6.389
	4 Bis(2-Chloroethyl)ether	93	8.058	8.050	(0.950)	23802	3.03212	3.032
	6 2-Chlorophenol	128	8.158	8.158	(0.962)	44413	4.10891	4.109
	7 1,3-Dichlorobenzene	146	8.421	8.421	(0.993)	48560	3.94202	3.942
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	33112	4.00000	
	9 1,4-Dichlorobenzene	146	8.514	8.514	(1.004)	44827	3.77893	3.779
$	10 1,2-Dichlorobenzene-d4	152	8.833	8.832	(1.041)	29917	3.90088	3.901
	12 1,2-Dichlorobenzene	146	8.864	8.855	(1.045)	45210	4.00610	4.006
	11 Benzyl alcohol	108	8.770	8.762	(1.034)	22032	3.43619	3.436
	14 2,2'-oxybis(1-Chloropropane)	121	9.065	9.057	(1.069)	13505	3.96045	3.960
	13 2-Methylphenol	108	9.011	9.003	(1.062)	28602	3.84355	3.844
	17 Hexachloroethane	117	9.438	9.438	(1.113)	16600	3.36341	3.363
	16 N-Nitroso-di-n-propylamine	70	9.322	9.313	(1.099)	17656	3.71876	3.719
	15 4-Methylphenol	108	9.283	9.267	(1.094)	35000	4.43719	4.437
$	18 Nitrobenzene-d5	82	9.562	9.554	(0.875)	35578	3.62476	3.625
	19 Nitrobenzene	77	9.601	9.600	(0.878)	35713	3.79126	3.791
	20 Isophorone	82	10.044	10.043	(0.919)	57515	3.64050	3.640
	21 2-Nitrophenol	139	10.222	10.221	(0.935)	28909	4.63184	4.632
	22 2,4-Dimethylphenol	107	10.307	10.298	(0.943)	137559	13.0556	13.06
	23 Bis(2-Chloroethoxy)methane	93	10.485	10.485	(0.959)	29297	3.23476	3.235
	24 Benzoic acid	105	10.553	10.510	(0.966)	118573	16.5216	16.52
	25 2,4-Dichlorophenol	162	10.680	10.671	(0.977)	137482	15.7148	15.71
	26 1,2,4-Trichlorobenzene	180	10.845	10.852	(0.992)	42914	4.33292	4.333
*	27 Naphthalene-d8	136	10.930	10.929	(1.000)	125498	4.00000	
	28 Naphthalene	128	10.968	10.968	(1.004)	130755	4.53273	4.533
	29 4-Chloroaniline	127	Compound Not Detected.					
	30 Hexachlorobutadiene	225	11.339	11.338	(1.037)	28134	4.63026	4.630
	31 4-Chloro-3-methylphenol	107	12.105	12.097	(1.108)	138403	15.4432	15.44
	32 2-Methylnaphthalene	142	12.353	12.353	(1.130)	106439	4.35003	4.350
	33 Hexachlorocyclopentadiene	237	12.817	12.824	(0.883)	28058	4.13705	4.137

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	12.987	12.987	(0.894)	123161	18.4574	18.46
	35	2,4,5-Trichlorophenol	196	13.073	13.057	(0.900)	130868	18.9951	19.00
$	36	2-Fluorobiphenyl	172	13.142	13.142	(0.905)	118212	4.76713	4.767
	37	2-Chloronaphthalene	162	13.336	13.335	(0.918)	101717	4.78828	4.788
	38	2-Nitroaniline	65	13.622	13.614	(0.938)	61778	13.5628	13.56
	39	Dimethylphthalate	163	14.063	14.055	(0.969)	127075	5.27467	5.275
	40	Acenaphthylene	152	14.203	14.195	(0.978)	156670	5.01326	5.013
	41	2,6-Dinitrotoluene	165	14.195	14.194	(0.978)	82070	15.4332	15.43
*	42	Acenaphthene-d10	164	14.520	14.512	(1.000)	64831	4.00000	
	43	3-Nitroaniline	138	14.489	14.473	(0.998)	9887	1.58194	1.582(M)
	44	Acenaphthene	153	14.582	14.574	(1.004)	96419	4.91015	4.910
	45	2,4-Dinitrophenol	184	14.690	14.682	(1.012)	70124	18.7563	18.76
	46	Dibenzofuran	168	14.906	14.898	(1.027)	145153	4.49770	4.498
	47	4-Nitrophenol	109	14.860	14.836	(1.023)	70484	17.6831	17.68
	48	2,4-Dinitrotoluene	165	14.999	14.991	(1.033)	114912	15.8826	15.88
	50	Diethylphthalate	149	15.525	15.517	(1.069)	123674	5.33156	5.332
	49	Fluorene	166	15.618	15.610	(1.076)	113232	5.13044	5.130
	51	4-Chlorophenyl-phenylether	204	15.625	15.617	(1.076)	55532	4.88393	4.884
	52	4-Nitroaniline	138	15.764	15.741	(1.086)	28429	4.15795	4.158(M)
	53	4,6-Dinitro-2-methylphenol	198	15.834	15.826	(0.903)	177032	30.7909	30.79
	54	N-Nitrosodiphenylamine	169	15.888	15.872	(0.906)	95642	5.97219	5.972
$	55	2,4,6-Tribromophenol	330	16.158	16.142	(1.113)	31103	6.34477	6.345
	56	4-Bromophenyl-phenylether	248	16.620	16.620	(0.948)	46836	4.98894	4.989
	57	Hexachlorobenzene	284	16.922	16.913	(0.965)	42770	4.27619	4.276
	58	Pentachlorophenol	266	17.293	17.285	(0.986)	61187	14.5037	14.50
*	59	Phenanthrene-d10	188	17.533	17.525	(1.000)	116667	4.00000	
	60	Phenanthrene	178	17.580	17.572	(1.003)	208864	7.32904	7.329
	61	Anthracene	178	17.672	17.665	(1.008)	164839	5.69664	5.697
	62	Carbazole	167	18.028	18.012	(1.028)	149827	5.50232	5.502
	63	Di-n-butylphthalate	149	18.887	18.872	(1.077)	213810	5.42309	5.423
	64	Fluoranthene	202	20.024	19.993	(0.880)	450891	21.8517	21.85
	65	Pyrene	202	20.458	20.411	(0.899)	365363	16.9566	16.96
$	66	Terphenyl-d14	244	20.783	20.744	(0.914)	90491	6.19252	6.193
	67	Butylbenzylphthalate	149	21.766	21.712	(0.957)	69335	6.90790	6.908
	68	Benzo(a)anthracene	228	22.742	22.610	(1.000)	109386	5.58357	5.584
*	69	Chrysene-d12	240	22.749	22.633	(1.000)	67522	4.00000	
	70	3,3'-Dichlorobenzidine	252	22.695	22.594	(0.998)	331	0.04809	0.04809
	71	Chrysene	228	22.804	22.680	(1.002)	204352	11.7882	11.79
	72	bis(2-Ethylhexyl)phthalate	149	22.842	22.765	(0.958)	395409	29.7754	29.78
*	134	Di-n-octylphthalate-d4	153	23.849	23.756	(1.000)	150984	4.00000	
	73	Di-n-octylphthalate	149	23.864	23.763	(1.001)	159301	5.70322	5.703(M)
	74	Benzo(b)fluoranthene	252	24.545	24.390	(0.973)	303915	18.0340	18.03
	75	Benzo(k)fluoranthene	252	24.545	24.429	(0.973)	303915	17.9260	17.93
	76	Benzo(a)pyrene	252	25.119	24.948	(0.995)	170227	11.2549	11.25(M)
*	77	Perylene-d12	264	25.235	25.056	(1.000)	58738	4.00000	(M)
	78	Indeno(1,2,3-cd)pyrene	276	27.722	27.303	(1.099)	83441	4.59148	4.591(M)
	79	Dibenzo(a,h)anthracene	278	27.746	27.334	(1.100)	49803	3.36612	3.366(M)
	80	Benzo(g,h,i)perylene	276	28.406	27.971	(1.126)	63230	4.13105	4.131(M)
	90	N-Nitrosodimethylamine	74	4.219	4.187	(0.497)	13042	3.63050	3.630
	91	Aniline	93	7.919	7.957	(0.933)	44622	5.20220	5.202
	93	Benzidine	184	Compound Not Detected.					
	103	Pyridine	79	4.250	4.195	(0.501)	14106	2.11724	2.117
	105	1-methylnaphthalene	142	12.569	12.569	(1.150)	102260	4.15710	4.157
	111	Azobenzene (1,2-DP-Hydrazine)	77	15.942	15.949	(1.098)	109633	4.24985	4.250

						CONCENTRATIONS	
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
187 Total Benzofluoranthenes	252	24.545	24.429	(0.973)	325674	20.1471	20.15
99 Perylene	252	25.297	25.110	(1.002)	60768	4.36766	4.368(M)
98 Retene	219	Compound Not Detected.					
120 2,3,4,6-Tetrachlorophenol	232	15.262	15.254	(1.051)	32477	5.85123	5.851

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082111.D
Lab Smp Id: BHH0289-MSD1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	33112	1.14
27 Naphthalene-d8	117487	58744	234974	125498	6.82
42 Acenaphthene-d10	61859	30930	123718	64831	4.80
59 Phenanthrene-d10	113574	56787	227148	116667	2.72
69 Chrysene-d12	105788	52894	211576	67522	-36.17
134 Di-n-octylphthala	252823	126412	505646	150984	-40.28
77 Perylene-d12	113992	56996	227984	58738	-48.47

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.52	0.05
59 Phenanthrene-d10	17.53	17.03	18.03	17.53	0.05
69 Chrysene-d12	22.63	22.13	23.13	22.75	0.51
134 Di-n-octylphthala	23.76	23.26	24.26	23.85	0.39
77 Perylene-d12	25.06	24.56	25.56	25.24	0.71

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082111.D

Lab ID: BHH0289-MSD1
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 16:22

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.950	1.033	-0.0831	Benzyl alcohol
0.962	1.004	-0.0418	Naphthalene
0.993	0.962	0.0310	Benzoic acid
1.000	1.130	-0.1302	2-Methylnaphthalene
1.004	0.978	0.0255	Acenaphthylene
1.045	0.969	0.0763	Dimethylphthalate
1.034	1.004	0.0296	Acenaphthene
1.069	1.027	0.0420	Dibenzofuran
1.062	1.076	-0.0134	Fluorene
1.113	1.069	0.0433	Diethylphthalate
1.099	0.906	0.1931	N-Nitrosodiphenylamine
1.094	1.003	0.0916	Phenanthrene
0.878	1.008	-0.1295	Anthracene
0.919	1.077	-0.1578	Di-n-butylphthalate
0.935	0.883	0.0519	Fluoranthene
0.943	0.902	0.0412	Pyrene
0.977	0.999	-0.0218	Benzo(a)anthracene
0.992	1.002	-0.0098	Chrysene
1.000	0.958	0.0417	bis(2-Ethylhexyl)phthalate
0.966	0.973	-0.0079	Benzo(b)fluoranthene
1.037	0.996	0.0418	Benzo(a)pyrene
1.108	1.090	0.0179	Indeno(1,2,3-cd)pyrene
1.130	1.091	0.0393	Dibenzo(a,h)anthracene
0.883	1.116	-0.2336	Benzo(g,h,i)perylene
0.894	1.150	-0.2556	1-methylnaphthalene
0.900	0.975	-0.0746	Total Benzofluoranthenes
0.918	1.000	-0.0816	1,4-Dichlorobenzene-d4
0.938	1.000	-0.0618	Naphthalene-d8
0.978	1.000	-0.0219	Acenaphthene-d10
0.969	1.000	-0.0314	Phenanthrene-d10
0.978	1.000	-0.0224	Chrysene-d12
0.998	0.958	0.0398	2-Chlorophenol-d4
1.012	0.744	0.2677	2-Fluorophenol
1.027	0.930	0.0968	Phenol-d5
1.023	1.041	-0.0177	1,2-Dichlorobenzene-d4
1.033	0.874	0.1588	Nitrobenzene-d5
1.076	0.906	0.1700	2-Fluorobiphenyl
1.076	1.112	-0.0362	2,4,6-Tribromophenol
1.069	0.917	0.1527	Terphenyl-d14

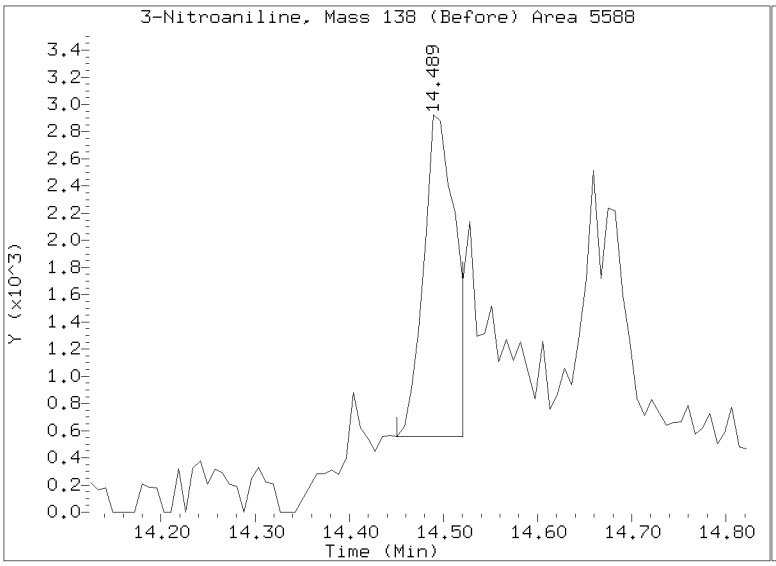
RRT check based on Ccal File: NT1019082105.D

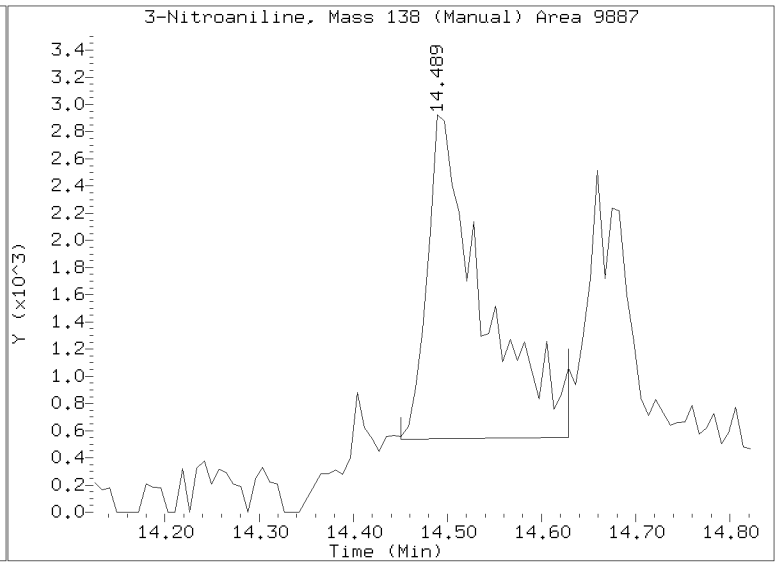
On Column LOD for nt10.i, 20190821.b\ABN.m, PSDDAICAL.sub = 0.0000

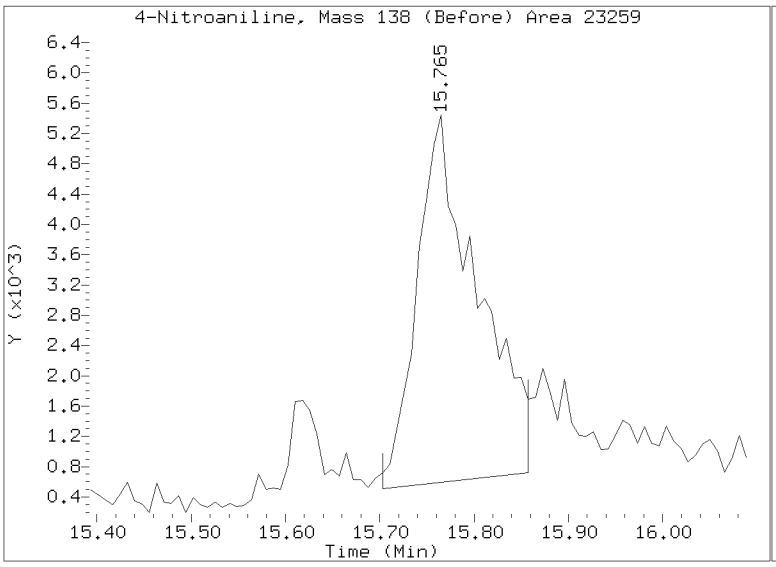
* Only compounds listed in the work order have been verified by the analyst *

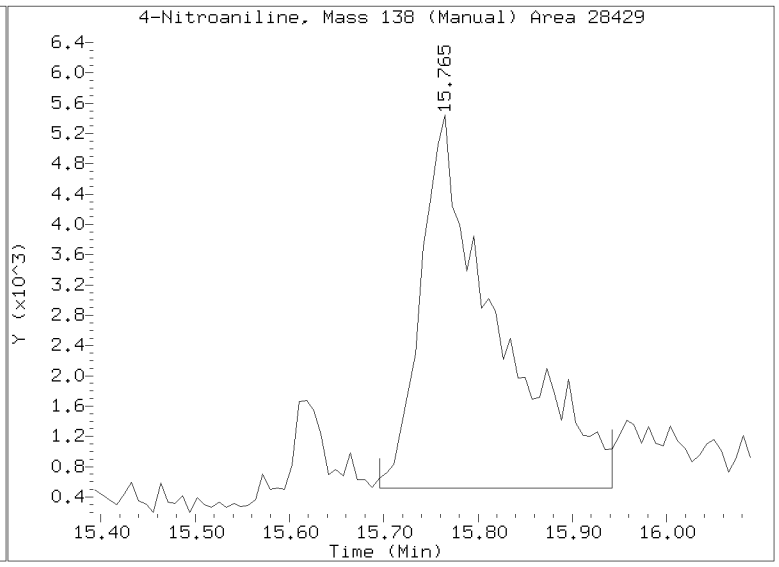
Quant Ion Manual Peak Adjustment Report

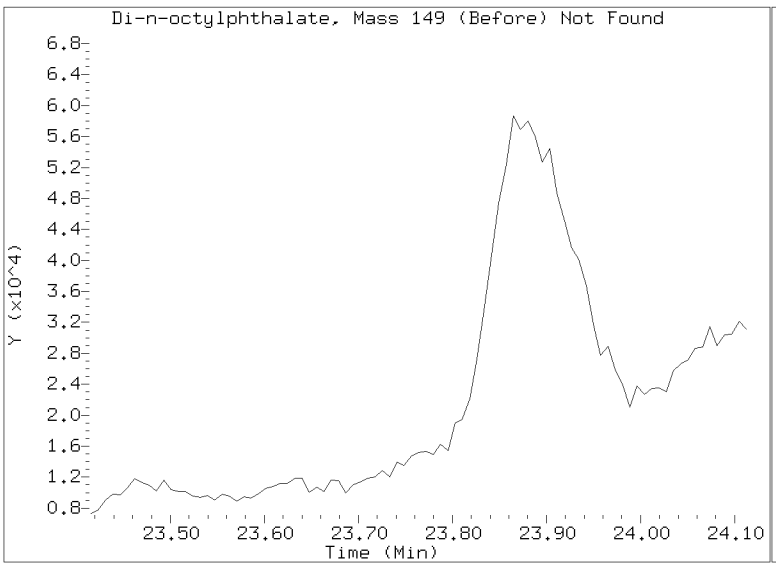
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082111.D
Injection Date: 21-AUG-2019 16:22
Lab ID:BHH0289-MSD1 Client ID:
Report Date: 08/22/2019 12:50

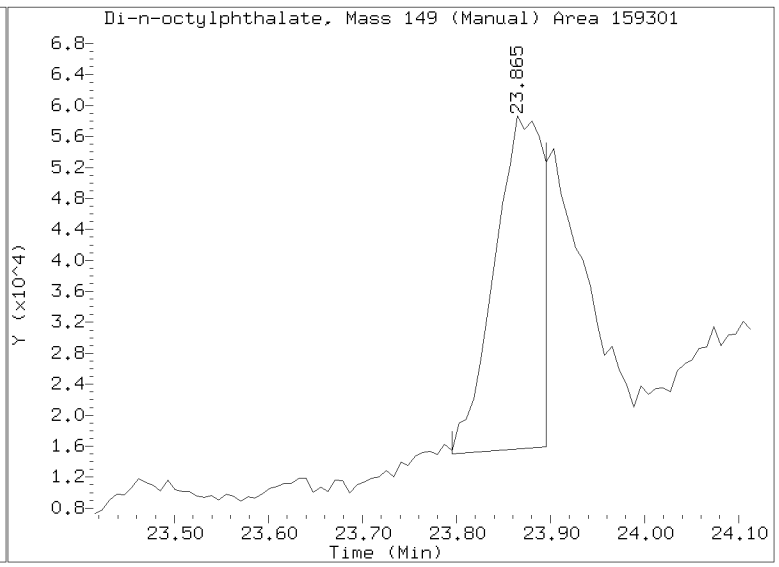






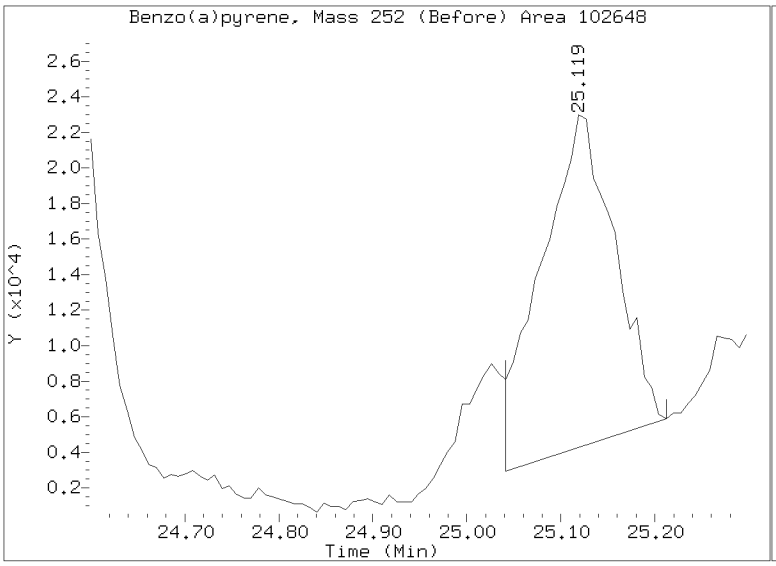


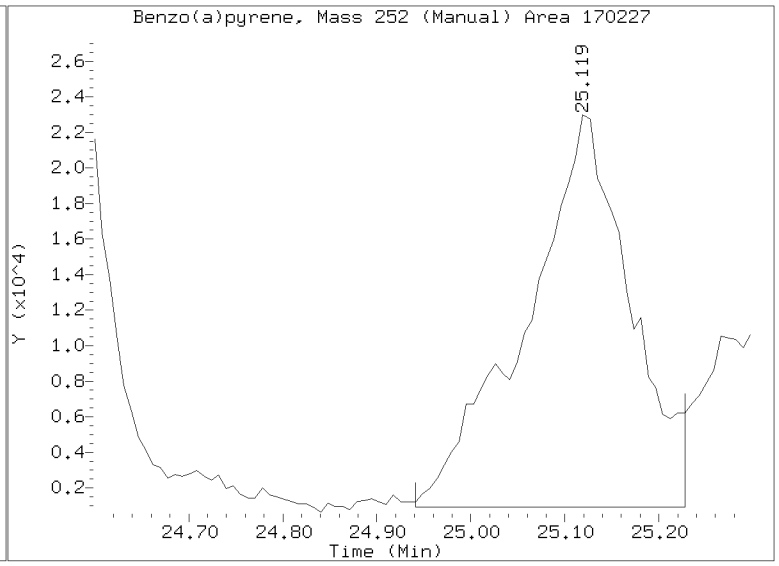


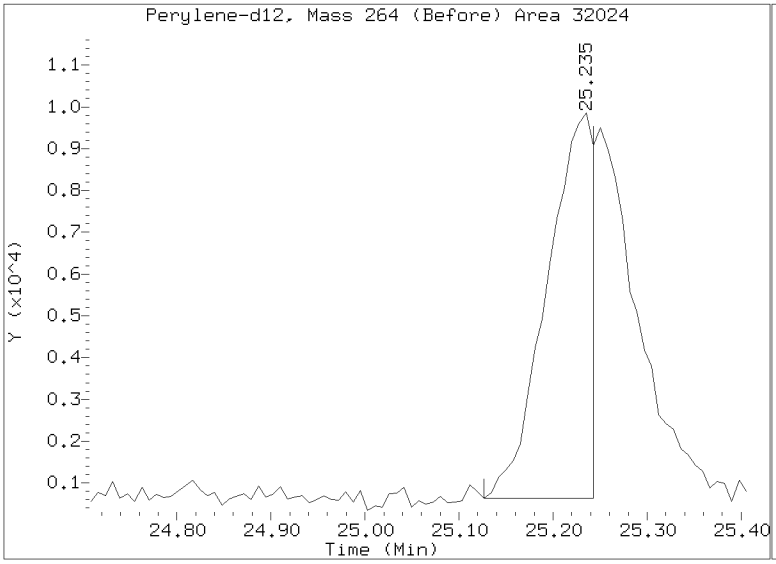


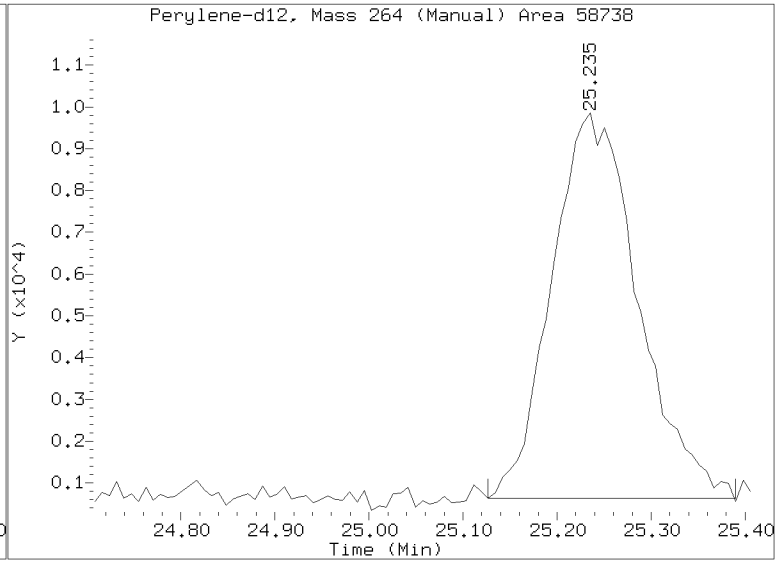
Quant Ion Manual Peak Adjustment Report

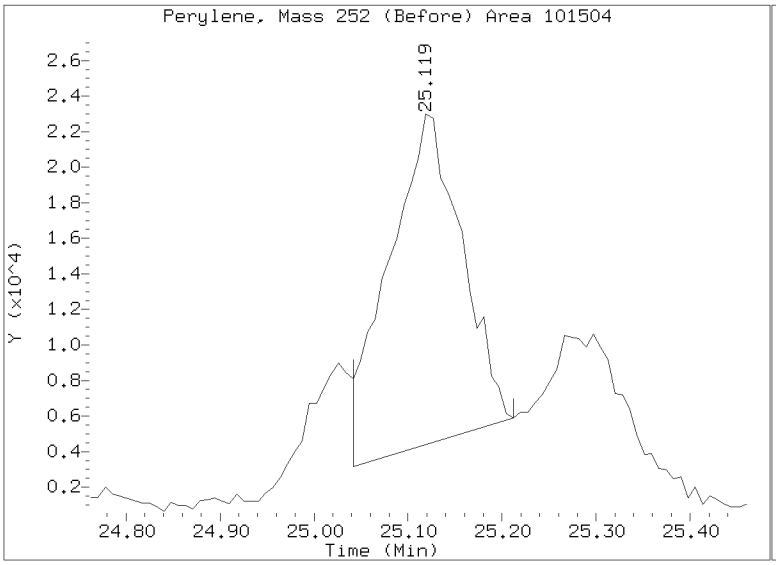
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082111.D
Injection Date: 21-AUG-2019 16:22
Lab ID:BHH0289-MSD1 Client ID:
Report Date: 08/22/2019 12:50

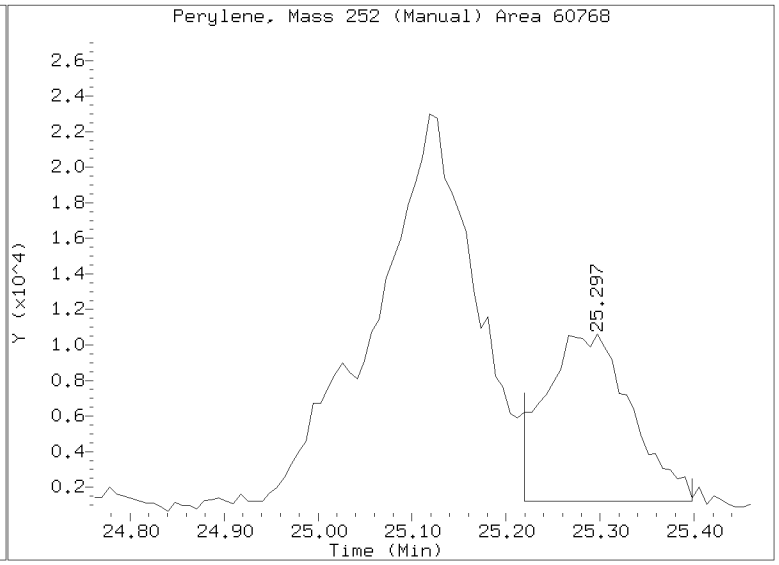






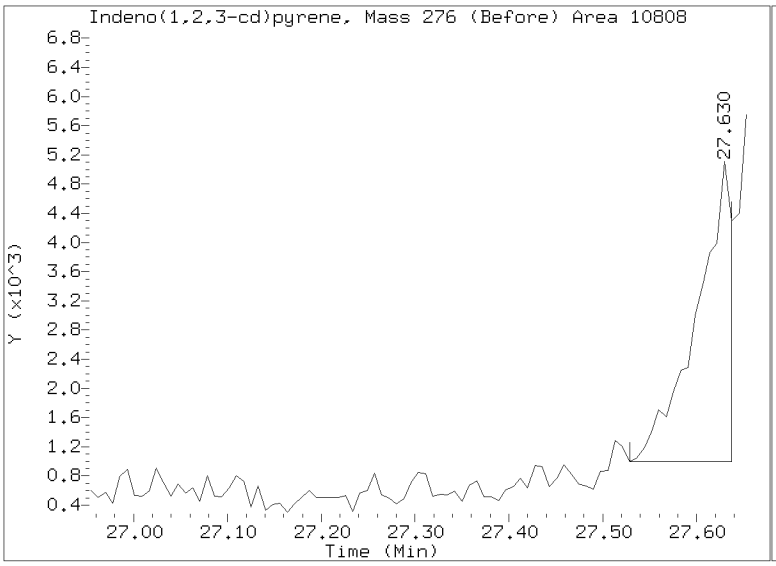


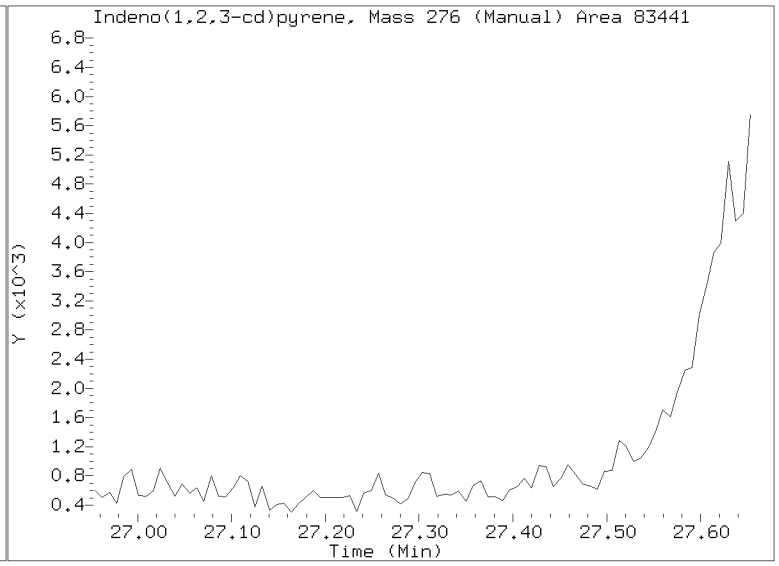


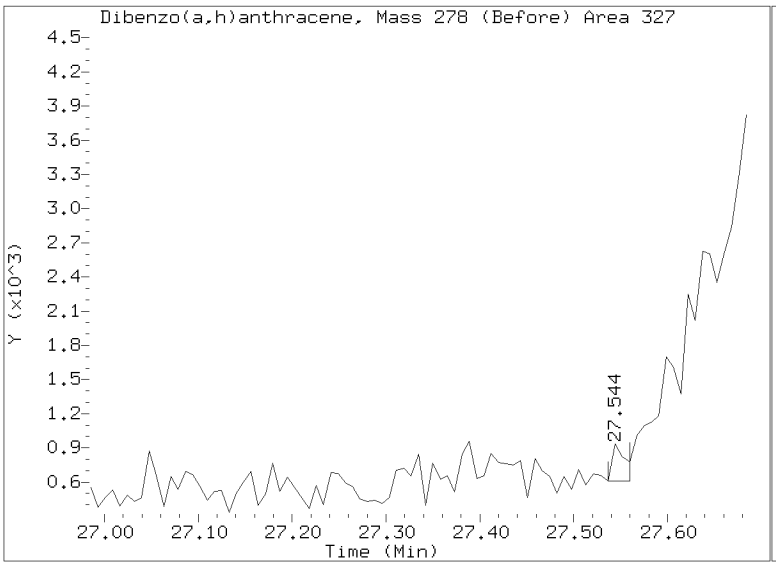


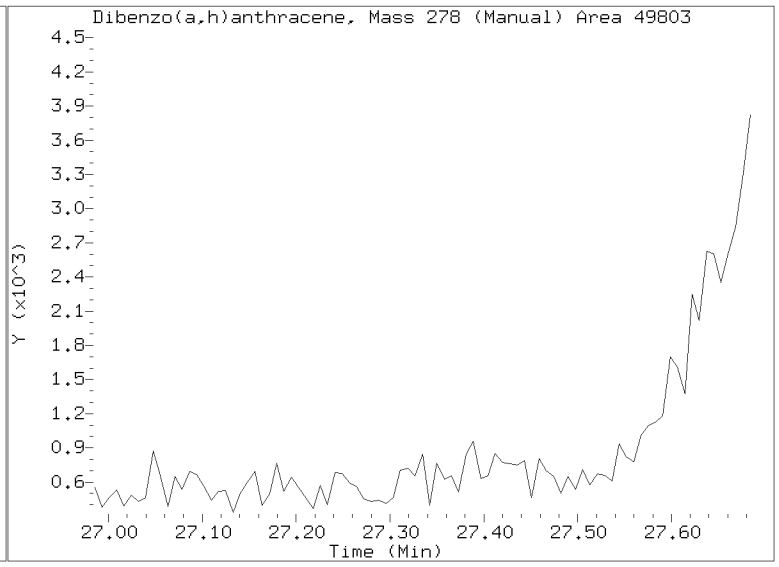
Quant Ion Manual Peak Adjustment Report

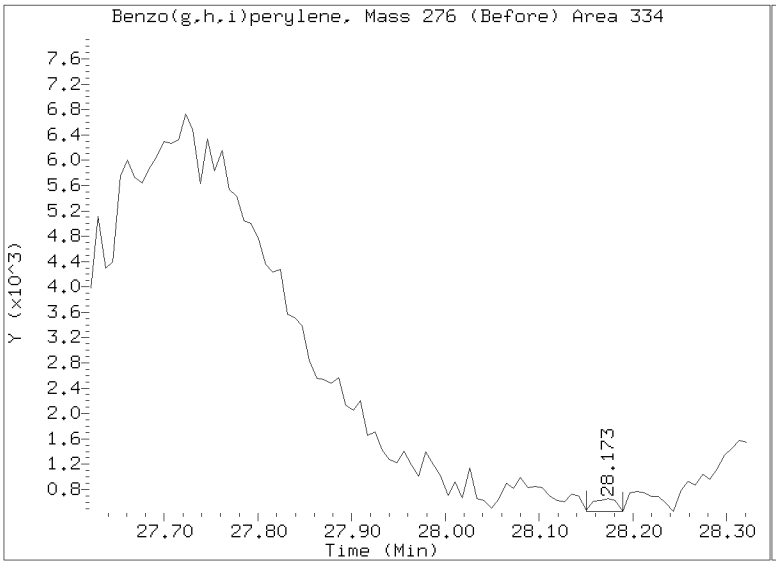
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082111.D
Injection Date: 21-AUG-2019 16:22
Lab ID:BHH0289-MSD1 Client ID:
Report Date: 08/22/2019 12:50

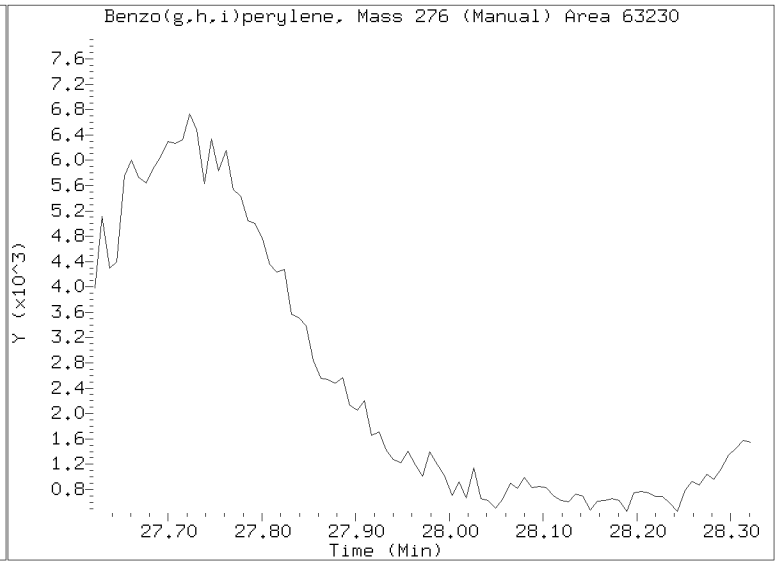












Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D

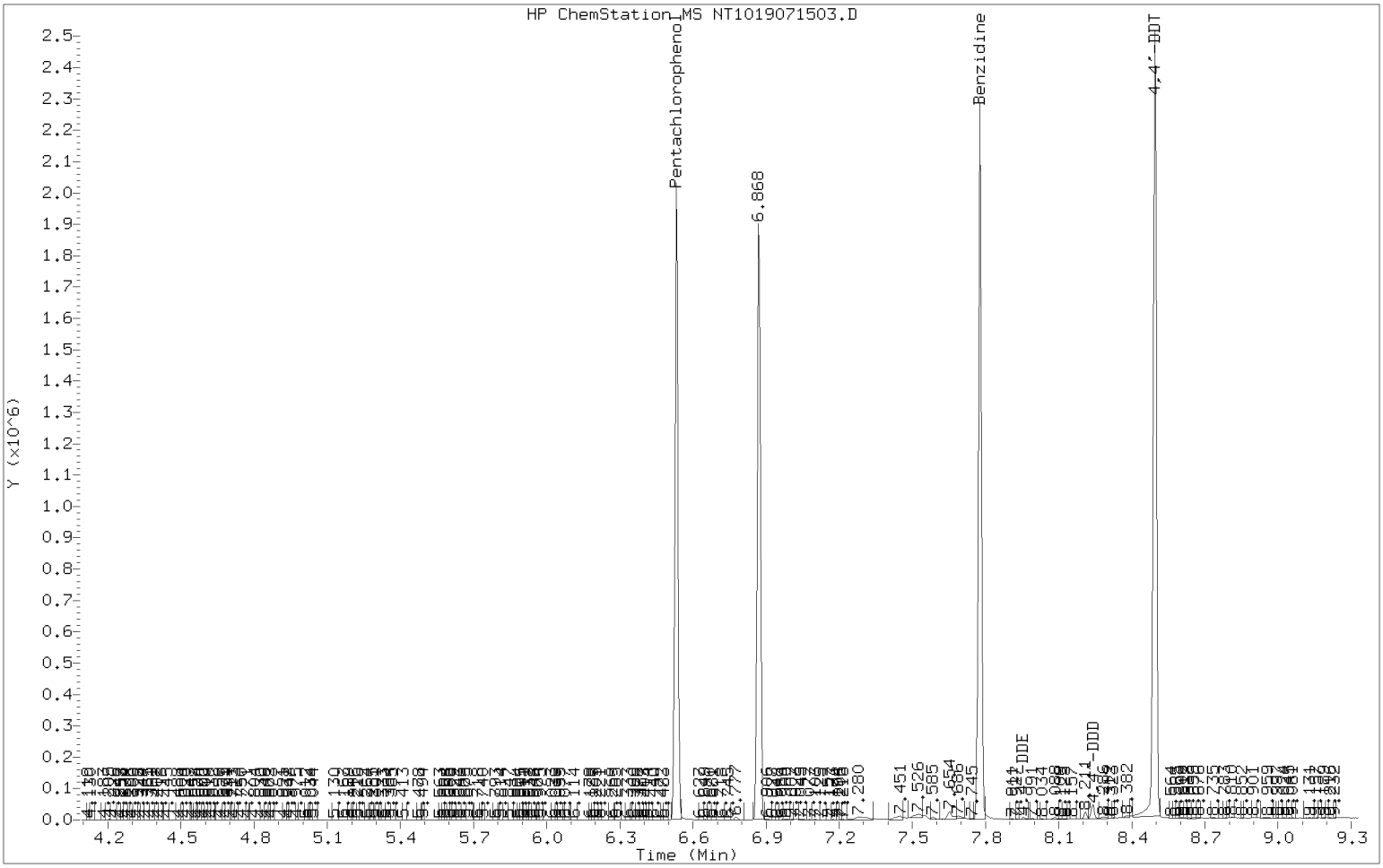
Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Lab File ID:	NT1019071503.D	Injection Date:	07/15/19
Instrument ID:	NT10	Injection Time:	15:18
Sequence:	SHG0206	Lab Sample ID:	SHG0206-TUN1

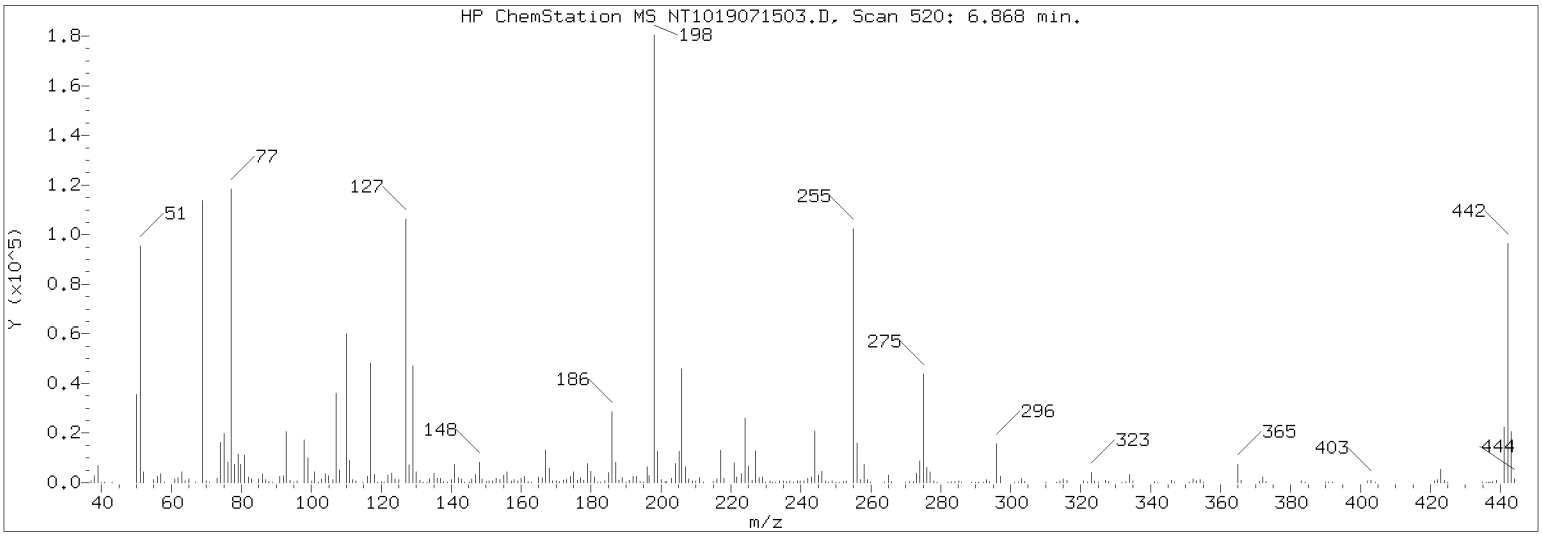
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	48.7	PASS
68	Less than 2% of 69	0	PASS
69	Less than 100% of 198	58.5	PASS
70	Less than 2% of 69	0.71	PASS
127	10 - 80% of 198	55.8	PASS
197	Less than 2% of 198	0	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	6.75	PASS
275	10 - 60% of 198	26	PASS
365	1 - 100% of 198	4.47	PASS
441	0.1 - 24% of 442	23.4	PASS
442	50 - 200% of 198	62	PASS
443	15 - 24% of 442	19.7	PASS
4,4'-DDD	Less than 20% of		
4,4'-DDE	Less than 20% of		
4,4'-DDT	Less than 200% of		

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHG0206-TUN1	NT1019071503.D	07/15/2019	15:18
Cal Standard	SHG0206-CAL5	NT1019071504.D	07/15/2019	15:33
Initial Cal Check	SHG0206-ICV1	NT1019071504A.D	07/15/2019	15:33
Cal Standard	SHG0206-CAL7	NT1019071505.D	07/15/2019	16:10
Cal Standard	SHG0206-CAL1	NT1019071506.D	07/15/2019	16:47
Cal Standard	SHG0206-CAL3	NT1019071507.D	07/15/2019	17:24
Cal Standard	SHG0206-CAL6	NT1019071508.D	07/15/2019	18:01
Cal Standard	SHG0206-CAL4	NT1019071510.D	07/15/2019	19:15
Cal Standard	SHG0206-CAL2	NT1019071512.D	07/15/2019	20:29
Blank	BHG0142-BLK1	NT1019071514.D	07/15/2019	21:43
LCS	BHG0142-BS1	NT1019071515.D	07/15/2019	22:20
ZZZZZ	19G0054-01	NT1019071516.D	07/15/2019	22:57
ZZZZZ	19G0054-02	NT1019071517.D	07/15/2019	23:34
ZZZZZ	19G0054-03	NT1019071518.D	07/16/2019	0:11
ZZZZZ	19G0054-04	NT1019071519.D	07/16/2019	0:47
Calibration Check	SHG0206-CCV1	NT1019071520.D	07/16/2019	1:24

DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20190715.b/NT1019071503.D/NT1019071503.D
Method Used: \20190715.b\df8270.m Inst: nt10
Injection Date: 15-JUL-2019 15:18 Operator: YZ
Sample Info: SHG0000-TUN1 SHG0000-TUN1
Report Date: 07/15/2019 15:50





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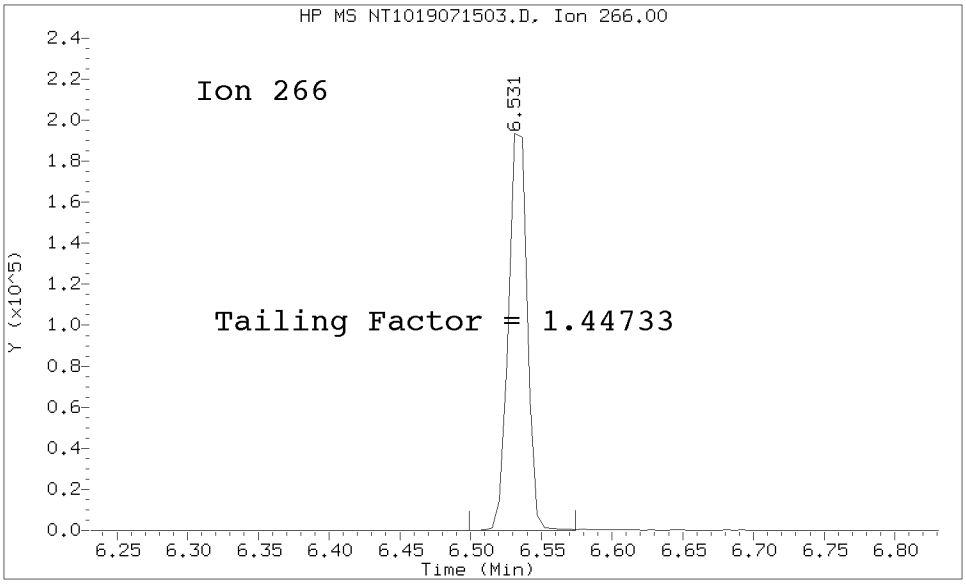
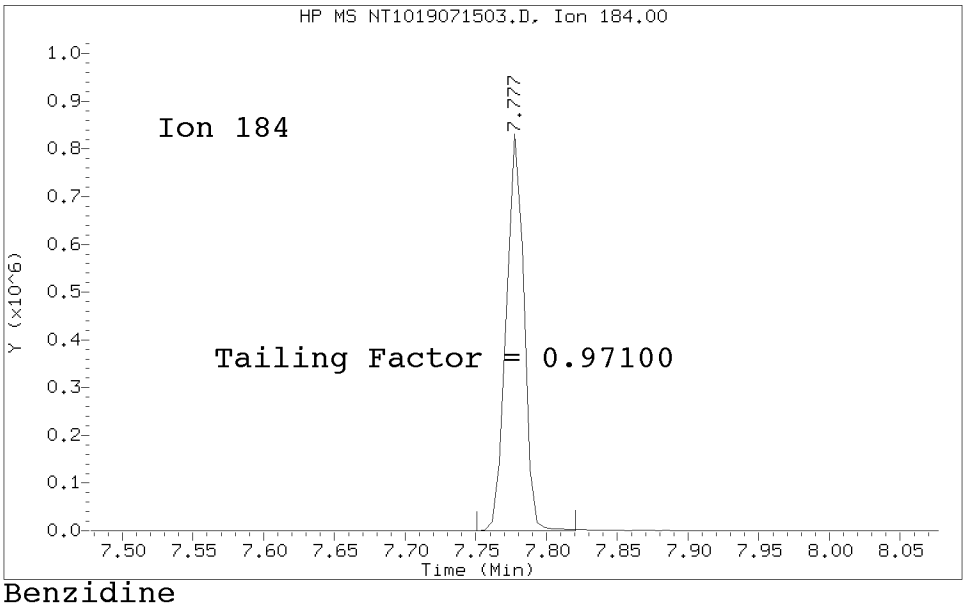
Method Used: \20190715.b\df8270.m\sw846ddt.m Inst: nt10
Injection Date: 15-JUL-2019 15:18 Operator: YZ
Sample Info: SHG0000-TUN1
Report Date: 07/15/2019 15:50



Pentachlorophenol
==========
Exp. RT = 6.531
Found RT = 6.531

Tail Factor = 1.447 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.777
Found RT = 7.777

Tail Factor = 0.971 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	1.4473258	2.000	PASS
Benzidine	0.9709962	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	361362			N/A
4,4-DDE	657	0.2	20.0	PASS
4,4-DDD	7142	1.9	20.0	PASS
4,4-DDD + DDE	7799	2.1	20.0	PASS

Tuning Sample, nt10.i/20190715.b/NT1019071503.D, *** PASSED ***

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	48.66
68	Less than 2.00% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	58.49
70	Less than 2.00% of mass 69	0.42 (0.71)
127	10.00 - 80.00% of mass 198	55.78
197	Less than 2.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.75
275	10.00 - 60.00% of mass 198	25.98
365	Greater than 1.00% of mass 198	4.47
441	0.01 - 24.00% of mass 442	14.50 (23.39)
442	50.00 - 200.00% of mass 198	62.00
443	15.00 - 24.00% of mass 442	12.20 (19.68)

Data File: NT1019071503.D
Spectrum: Avg. Scans 519-521 (6.87), Background Scan 514
Location of Maximum: 198.00
Number of points: 294

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	653	128.00	6021	203.00	1373	291.00	142
38.00	1830	129.00	36056	204.00	6092	292.00	119
39.00	4713	130.00	2850	205.00	9479	293.00	957
40.00	292	131.00	657	206.00	37128	294.00	238
41.00	170	132.00	292	207.00	5048	295.00	378
49.00	645	133.00	171	208.00	1436	296.00	13349
50.00	26392	134.00	1208	209.00	527	297.00	2057
51.00	70656	135.00	3365	210.00	641	298.00	83
52.00	3568	136.00	1273	211.00	1819	301.00	206
53.00	66	137.00	1479	212.00	252	302.00	240
55.00	834	138.00	364	215.00	505	303.00	1255
56.00	1863	139.00	184	216.00	1161	304.00	460
57.00	2871	140.00	716	217.00	10204	308.00	125
58.00	101	141.00	5337	218.00	1236	310.00	134
61.00	1095	142.00	1431	220.00	105	313.00	211
62.00	1481	143.00	1067	221.00	6429	314.00	610
63.00	3320	144.00	265	222.00	1687	315.00	1506
64.00	544	145.00	208	223.00	2644	316.00	721
65.00	1191	146.00	1043	224.00	20488	317.00	68
67.00	200	147.00	2781	225.00	5542	321.00	383
69.00	84944	148.00	6471	226.00	886	322.00	268
70.00	603	149.00	1084	227.00	10550	323.00	3454
71.00	157	150.00	401	228.00	1489	324.00	644
73.00	1302	151.00	504	229.00	1949	325.00	64
74.00	12358	152.00	451	230.00	307	327.00	778
75.00	15513	153.00	1505	231.00	656	328.00	476
76.00	6240	154.00	1202	232.00	159	329.00	62
77.00	89744	155.00	2448	233.00	262	332.00	224
78.00	5958	156.00	3607	234.00	764	333.00	527
79.00	8851	157.00	551	235.00	728	334.00	2641
80.00	5606	158.00	906	236.00	393	335.00	564
81.00	8152	159.00	533	237.00	614	341.00	438
82.00	1886	160.00	1438	238.00	91	342.00	224
83.00	1129	161.00	1922	239.00	559	346.00	833
84.00	154	162.00	454	240.00	365	347.00	178
85.00	1242	163.00	200	241.00	669	351.00	59
86.00	2551	164.00	83	242.00	1349	352.00	1211
87.00	907	165.00	1940	243.00	1936	353.00	773
88.00	369	166.00	1570	244.00	16824	354.00	1083
89.00	233	167.00	10438	245.00	2332	355.00	84
91.00	1970	168.00	4809	246.00	3899	365.00	6488
92.00	2013	169.00	653	247.00	775	366.00	831
93.00	15758	170.00	371	248.00	141	370.00	55
94.00	779	171.00	394	249.00	596	371.00	442
95.00	292	172.00	823	250.00	219	372.00	1889
96.00	537	173.00	1041	251.00	215	373.00	469
98.00	12960	174.00	1995	252.00	383	383.00	612
99.00	7258	175.00	3122	253.00	727	384.00	170
100.00	709	176.00	905	255.00	83288	390.00	195

101.00	3447	177.00	1644	256.00	12791	391.00	184
102.00	376	178.00	660	257.00	1129	392.00	136
103.00	1324	179.00	5948	258.00	5785	401.00	155
104.00	2616	180.00	3758	259.00	1139	402.00	756
105.00	2169	181.00	1836	260.00	151	403.00	998
106.00	734	182.00	516	264.00	110	404.00	323
107.00	28360	183.00	50	265.00	2573	419.00	54
108.00	3947	184.00	598	266.00	333	420.00	68
110.00	45424	185.00	3669	270.00	170	421.00	939
111.00	7046	186.00	22480	271.00	291	422.00	1237
112.00	1031	187.00	6189	272.00	501	423.00	5216
113.00	468	188.00	707	273.00	2990	424.00	1103
114.00	60	189.00	1648	274.00	7290	425.00	144
115.00	172	190.00	222	275.00	37728	434.00	65
116.00	1508	191.00	776	276.00	5075	435.00	179
117.00	37224	192.00	2068	277.00	3745	436.00	245
118.00	2555	193.00	1963	278.00	581	437.00	310
119.00	310	194.00	445	279.00	153	438.00	872
120.00	438	195.00	217	282.00	123	439.00	508
121.00	214	196.00	6004	283.00	533	441.00	21056
122.00	2203	198.00	145216	284.00	226	442.00	90040
123.00	3036	199.00	9800	285.00	552	443.00	17720
124.00	1351	200.00	859	286.00	107	444.00	1440
125.00	1266	201.00	941	289.00	132		
127.00	81000	202.00	96	290.00	75		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Lab File ID:	NT1019082104.D	Injection Date:	08/21/19
Instrument ID:	NT10	Injection Time:	12:14
Sequence:	SHH0303	Lab Sample ID:	SHH0303-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	54.4	PASS
68	Less than 2% of 69	0	PASS
69	Less than 100% of 198	54.6	PASS
70	Less than 2% of 69	0.747	PASS
127	10 - 80% of 198	53.8	PASS
197	Less than 2% of 198	0	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	7.18	PASS
275	10 - 60% of 198	27.8	PASS
365	1 - 100% of 198	5.54	PASS
441	0.1 - 24% of 442	23.1	PASS
442	50 - 200% of 198	70.8	PASS
443	15 - 24% of 442	18.3	PASS
4,4'-DDD	Less than 20% of		
4,4'-DDE	Less than 20% of		
4,4'-DDT	Less than 200% of		

Analytical Resources, Incorporated
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MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D

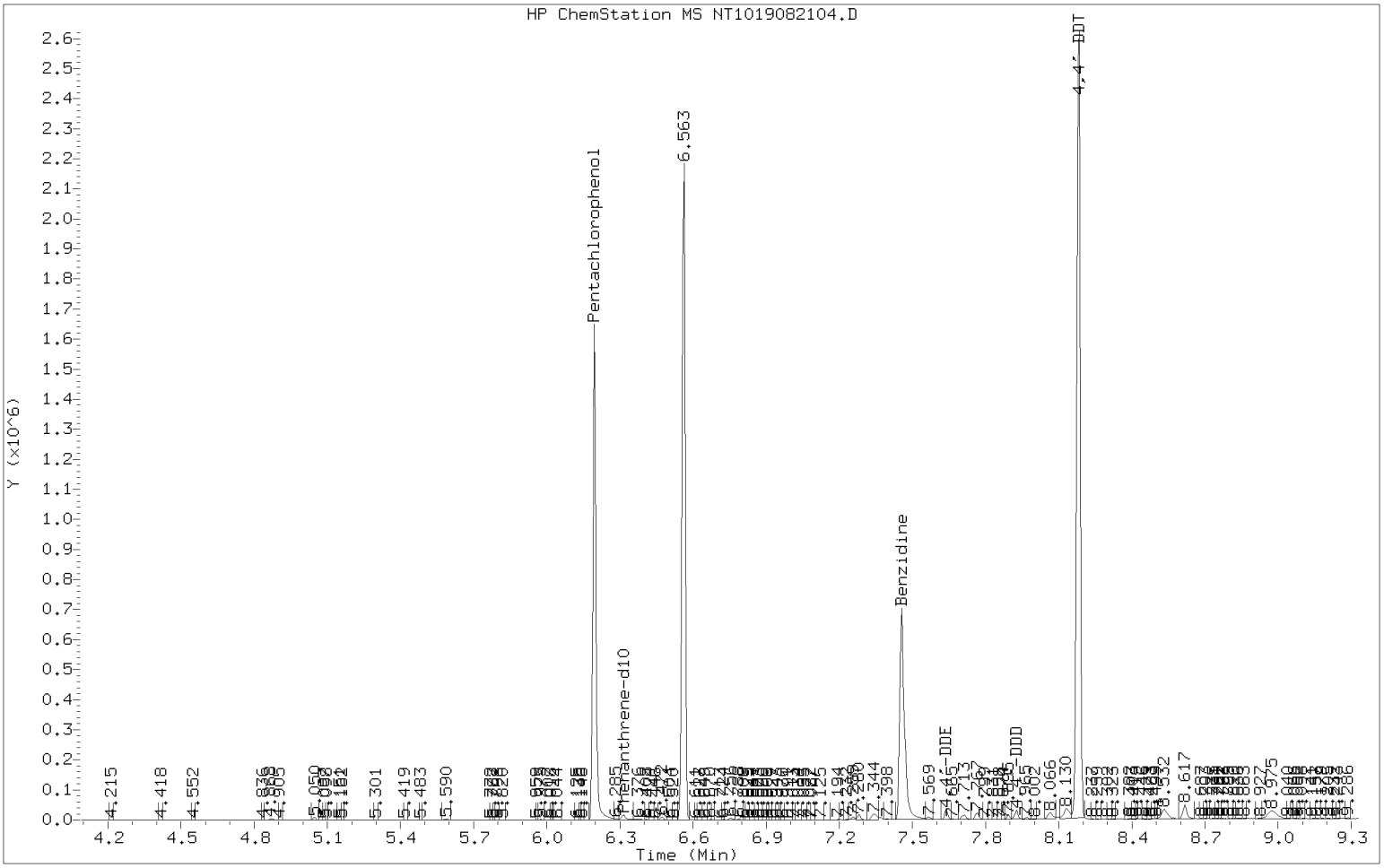
Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Lab File ID:	NT1019082104.D	Injection Date:	08/21/19
Instrument ID:	NT10	Injection Time:	12:14
Sequence:	SHH0303	Lab Sample ID:	SHH0303-TUN1

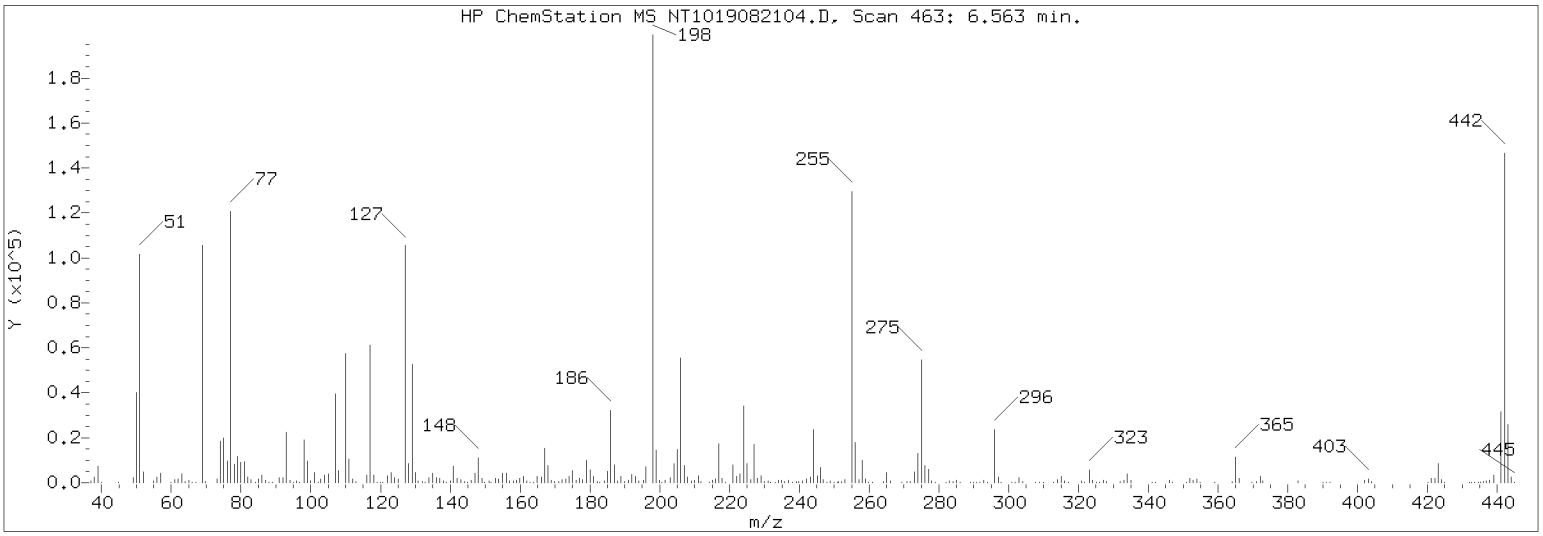
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	54.4	PASS
68	Less than 2% of 69	0	PASS
69	Less than 100% of 198	54.6	PASS
70	Less than 2% of 69	0.747	PASS
127	10 - 80% of 198	53.8	PASS
197	Less than 2% of 198	0	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	7.18	PASS
275	10 - 60% of 198	27.8	PASS
365	1 - 100% of 198	5.54	PASS
441	0.1 - 24% of 442	23.1	PASS
442	50 - 200% of 198	70.8	PASS
443	15 - 24% of 442	18.3	PASS
4,4'-DDD	Less than 20% of		
4,4'-DDE	Less than 20% of		
4,4'-DDT	Less than 200% of		

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHH0303-TUN1	NT1019082104.D	08/21/2019	12:14
Initial Cal Check	SHH0303-ICV1	NT1019082105.D	08/21/2019	12:30
Low Cal Check	SHH0303-LCV1	NT1019082106.D	08/21/2019	13:08
Low Cal Check	SHH0303-LCV2	NT1019082107.D	08/21/2019	13:50
Blank	BHH0289-BLK1	NT1019082108.D	08/21/2019	14:28
LCS	BHH0289-BS1	NT1019082109.D	08/21/2019	15:06
Matrix Spike	BHH0289-MS1	NT1019082110.D	08/21/2019	15:44
Matrix Spike Dup	BHH0289-MSD1	NT1019082111.D	08/21/2019	16:22
SL4-SG-WC3-2019	19H0024-03	NT1019082112.D	08/21/2019	17:00
SL4-SG-WC7-2019	19H0024-04	NT1019082113.D	08/21/2019	17:38
SL4-SG-WC7-FD-2019	19H0024-05	NT1019082114.D	08/21/2019	18:15
SL4-SG-WC8-2019	19H0024-06	NT1019082115.D	08/21/2019	18:53
SL4-SG-WC4-2019	19H0024-07	NT1019082116.D	08/21/2019	19:31
SL4-SG-WC2-2019	19H0024-08	NT1019082117.D	08/21/2019	20:08
SL4-SG-WC1-2019	19H0024-09	NT1019082118.D	08/21/2019	20:45
SL4-IC-SC2-2019	19H0024-10	NT1019082119.D	08/21/2019	21:23
SL4-IC-SC3-2019	19H0024-11	NT1019082120.D	08/21/2019	22:00
Blank	BHH0299-BLK1	NT1019082121.D	08/21/2019	22:37
LCS	BHH0299-BS1	NT1019082122.D	08/21/2019	23:14
SL4-SG-WC3-FW-2019	19H0024-02	NT1019082123.D	08/21/2019	23:52
Calibration Check	SHH0303-CCV1	NT1019082129.D	08/22/2019	2:20

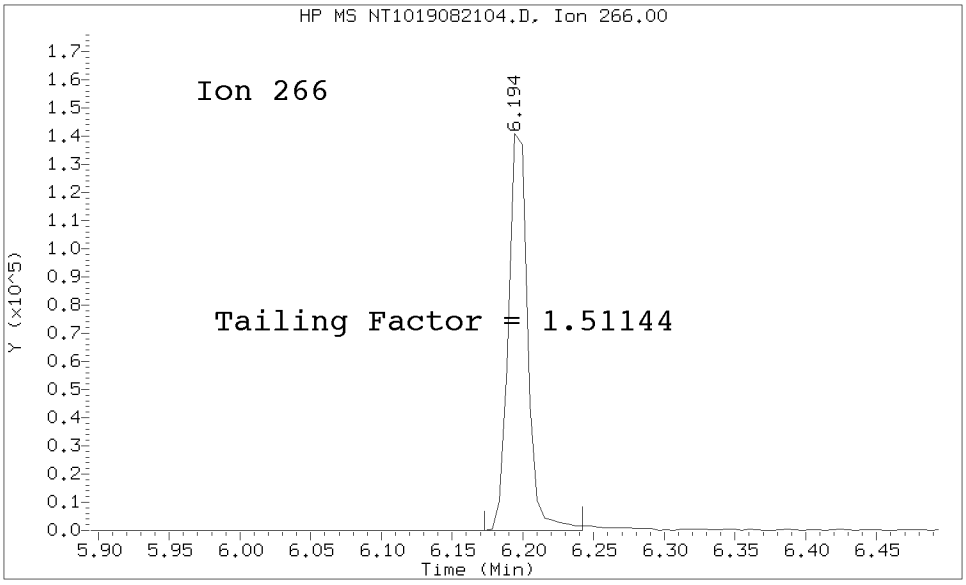
DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20190821.b/NT1019082104.D/NT1019082104.D
Method Used: \20190821.b\df8270.m Inst: nt10
Injection Date: 21-AUG-2019 12:14 Operator: YZ
Sample Info: SHH0303-TUN1 SHH0303-TUN1
Report Date: 08/22/2019 13:44



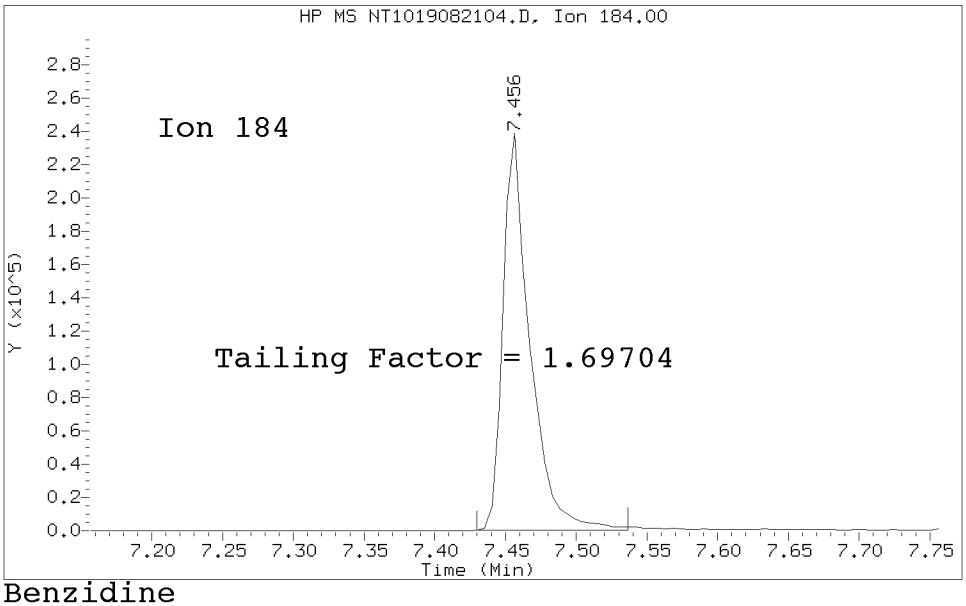


Datafile Analyzed: /20190821.b/NT1019082104.D/NT1019082104.D
Method Used: \20190821.b\df8270.m\sw846ddt.m Inst: nt10
Injection Date: 21-AUG-2019 12:14 Operator: YZ
Sample Info: SHH0303-TUN1
Report Date: 08/22/2019 13:44



Pentachlorophenol
==========
Exp. RT = 6.194
Found RT = 6.194

Tail Factor = 1.511 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.456
Found RT = 7.456

Tail Factor = 1.697 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	1.5114379	2.000	PASS
Benzidine	1.6970362	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	387891			N/A
4,4-DDE	3657	0.9	20.0	PASS
4,4-DDD	4150	1.1	20.0	PASS
4,4-DDD + DDE	7807	2.0	20.0	PASS

Tuning Sample, nt10.i/20190821.b/NT1019082104.D, *** PASSED ***

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	54.40
68	Less than 2.00% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	54.59
70	Less than 2.00% of mass 69	0.41 (0.75)
127	10.00 - 80.00% of mass 198	53.76
197	Less than 2.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	7.18
275	10.00 - 60.00% of mass 198	27.75
365	Greater than 1.00% of mass 198	5.54
441	0.01 - 24.00% of mass 442	16.34 (23.08)
442	50.00 - 200.00% of mass 198	70.78
443	15.00 - 24.00% of mass 442	12.94 (18.28)

Data File: NT1019082104.D
Spectrum: Avg. Scans 462-464 (6.56), Background Scan 456
Location of Maximum: 198.00
Number of points: 310

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	748	131.00	676	210.00	829	296.00	17056
38.00	2125	132.00	485	211.00	1790	297.00	1864
39.00	5774	133.00	185	212.00	399	298.00	189
40.00	253	134.00	1462	213.00	50	301.00	307
44.00	50	135.00	3506	214.00	54	302.00	355
45.00	62	136.00	1342	215.00	801	303.00	1661
48.00	84	137.00	1661	216.00	1408	304.00	535
49.00	941	138.00	489	217.00	13076	308.00	199
50.00	31848	139.00	197	218.00	1569	309.00	188
51.00	81640	140.00	647	219.00	122	310.00	282
52.00	4105	141.00	5569	220.00	93	313.00	221
55.00	615	142.00	1627	221.00	6263	314.00	886
56.00	1994	143.00	1170	222.00	1924	315.00	2145
57.00	3169	144.00	284	223.00	3146	316.00	975
60.00	76	145.00	140	224.00	24896	317.00	154
61.00	1071	146.00	1016	225.00	6680	321.00	476
62.00	1575	147.00	2876	226.00	1059	322.00	589
63.00	3081	148.00	8993	227.00	12992	323.00	4316
64.00	353	149.00	1350	228.00	1732	324.00	728
65.00	887	150.00	397	229.00	2414	325.00	141
66.00	106	151.00	752	230.00	438	326.00	56
67.00	261	152.00	369	231.00	680	327.00	776
69.00	81928	153.00	1647	232.00	164	328.00	452
70.00	612	154.00	1238	233.00	405	332.00	386
73.00	1316	155.00	3129	234.00	687	333.00	660
74.00	14515	156.00	3597	235.00	861	334.00	2908
75.00	15742	157.00	761	236.00	579	335.00	847
76.00	7458	158.00	1011	237.00	738	341.00	465
77.00	93376	159.00	906	238.00	212	342.00	224
78.00	6517	160.00	1700	239.00	610	346.00	879
79.00	8967	161.00	2113	240.00	502	347.00	131
80.00	6263	162.00	746	241.00	714	351.00	228
81.00	7300	163.00	131	242.00	1560	352.00	1291
82.00	1640	164.00	357	243.00	1382	353.00	825
83.00	1205	165.00	2043	244.00	18008	354.00	1337
84.00	51	166.00	1922	245.00	2747	355.00	243
85.00	1342	167.00	12079	246.00	4992	359.00	68
86.00	2869	168.00	5530	247.00	967	361.00	96
87.00	778	169.00	751	248.00	158	363.00	132
88.00	356	170.00	496	249.00	667	364.00	501
89.00	148	171.00	558	250.00	175	365.00	8307
91.00	1684	172.00	875	251.00	524	366.00	1377
92.00	1843	173.00	1173	252.00	458	370.00	109
93.00	17120	174.00	2143	253.00	708	371.00	404
94.00	834	175.00	4096	254.00	733	372.00	2399
96.00	598	176.00	1101	255.00	94752	373.00	687
97.00	187	177.00	1665	256.00	13041	383.00	539
98.00	15043	178.00	869	257.00	1006	384.00	64
99.00	7590	179.00	7715	258.00	7686	390.00	299

100.00	802	180.00	4215	259.00	1280	391.00	190
101.00	3620	181.00	2179	260.00	76	392.00	141
102.00	188	182.00	439	261.00	254	401.00	78
103.00	1209	183.00	278	264.00	497	402.00	1115
104.00	2996	184.00	640	265.00	3340	403.00	1152
105.00	2865	185.00	4012	266.00	649	404.00	312
106.00	165	186.00	23504	269.00	122	418.00	55
107.00	30136	187.00	6562	270.00	81	419.00	76
108.00	4356	188.00	551	271.00	452	420.00	68
110.00	44968	189.00	2016	272.00	551	421.00	1213
111.00	7454	190.00	374	273.00	3656	422.00	1463
112.00	1145	191.00	997	274.00	9411	423.00	6215
113.00	344	192.00	2579	275.00	41648	424.00	1255
114.00	68	193.00	2471	276.00	5559	425.00	61
115.00	226	194.00	629	277.00	4652	432.00	127
116.00	1926	195.00	705	278.00	860	433.00	149
117.00	46944	196.00	5323	279.00	147	434.00	268
118.00	2958	198.00	150080	282.00	56	435.00	494
119.00	274	199.00	10780	283.00	560	436.00	396
120.00	304	200.00	1013	284.00	314	437.00	772
121.00	122	201.00	726	285.00	849	438.00	1198
122.00	2603	202.00	159	286.00	153	439.00	1837
123.00	3648	203.00	1655	289.00	146	441.00	24520
124.00	1873	204.00	6627	290.00	108	442.00	106232
125.00	1458	205.00	11546	291.00	201	443.00	19416
127.00	80680	206.00	41584	292.00	80	444.00	1841
128.00	6603	207.00	5314	293.00	967	445.00	54
129.00	40496	208.00	1862	294.00	354		
130.00	3580	209.00	769	295.00	239		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D

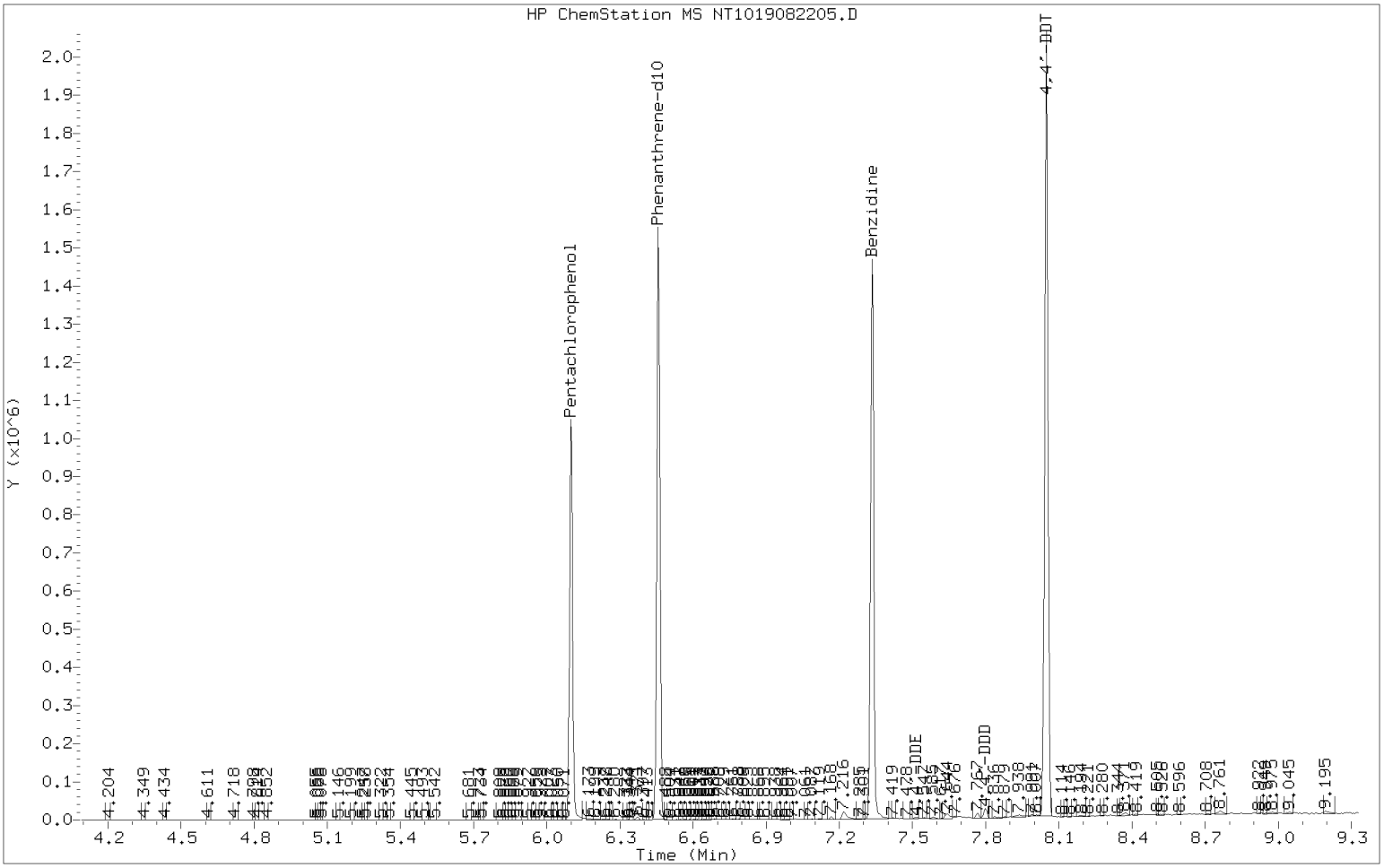
Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Lab File ID:	NT1019082205.D	Injection Date:	08/22/19
Instrument ID:	NT10	Injection Time:	16:35
Sequence:	SHH0325	Lab Sample ID:	SHH0325-TUN1

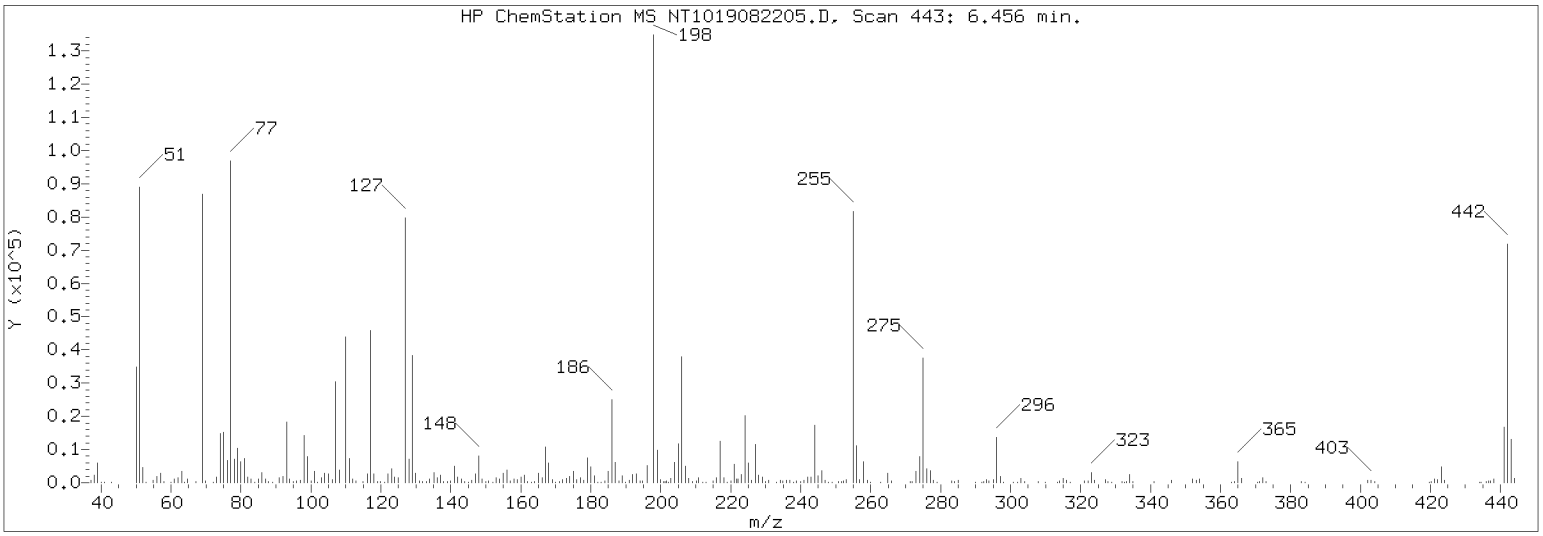
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	62.7	PASS
68	Less than 2% of 69	1.58	PASS
69	Less than 100% of 198	60.6	PASS
70	Less than 2% of 69	0.634	PASS
127	10 - 80% of 198	58.5	PASS
197	Less than 2% of 198	0	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	7.27	PASS
275	10 - 60% of 198	27.5	PASS
365	1 - 100% of 198	5.35	PASS
441	0.1 - 24% of 442	22	PASS
442	50 - 200% of 198	62.1	PASS
443	15 - 24% of 442	18.5	PASS
4,4'-DDD	Less than 20% of		
4,4'-DDE	Less than 20% of		
4,4'-DDT	Less than 200% of		

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHH0325-TUN1	NT1019082205.D	08/22/2019	16:35
Initial Cal Check	SHH0325-ICV1	NT1019082206.D	08/22/2019	16:51
Low Cal Check	SHH0325-LCV1	NT1019082207.D	08/22/2019	17:29
Low Cal Check	SHH0325-LCV2	NT1019082208.D	08/22/2019	18:06
SL4-SG-WC3-2019	19H0024-03RE1	NT1019082209.D	08/22/2019	18:44
SL4-SG-WC7-2019	19H0024-04RE1	NT1019082210.D	08/22/2019	19:21
SL4-SG-WC7-FD-2019	19H0024-05RE1	NT1019082211.D	08/22/2019	19:59
SL4-SG-WC8-2019	19H0024-06RE1	NT1019082212.D	08/22/2019	20:36
SL4-SG-WC4-2019	19H0024-07RE1	NT1019082213.D	08/22/2019	21:13
SL4-SG-WC2-2019	19H0024-08RE1	NT1019082214.D	08/22/2019	21:50
SL4-SG-WC1-2019	19H0024-09RE1	NT1019082215.D	08/22/2019	22:26
SL4-IC-SC2-2019	19H0024-10RE1	NT1019082216.D	08/22/2019	23:03
SL4-IC-SC3-2019	19H0024-11RE1	NT1019082217.D	08/22/2019	23:40
Blank	BHH0493-BLK1	NT1019082218.D	08/23/2019	0:17
LCS	BHH0493-BS1	NT1019082219.D	08/23/2019	0:53
ZZZZZ	19H0139-01	NT1019082220.D	08/23/2019	1:30
Calibration Check	SHH0325-CCV1	NT1019082221.D	08/23/2019	2:07

DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20190822.b/NT1019082205.D/NT1019082205.D
Method Used: \20190822.b\df8270.m Inst: nt10
Injection Date: 22-AUG-2019 16:35 Operator: YZ
Sample Info: SHH0325-TUN1 SHH0325-TUN1
Report Date: 08/23/2019 11:15





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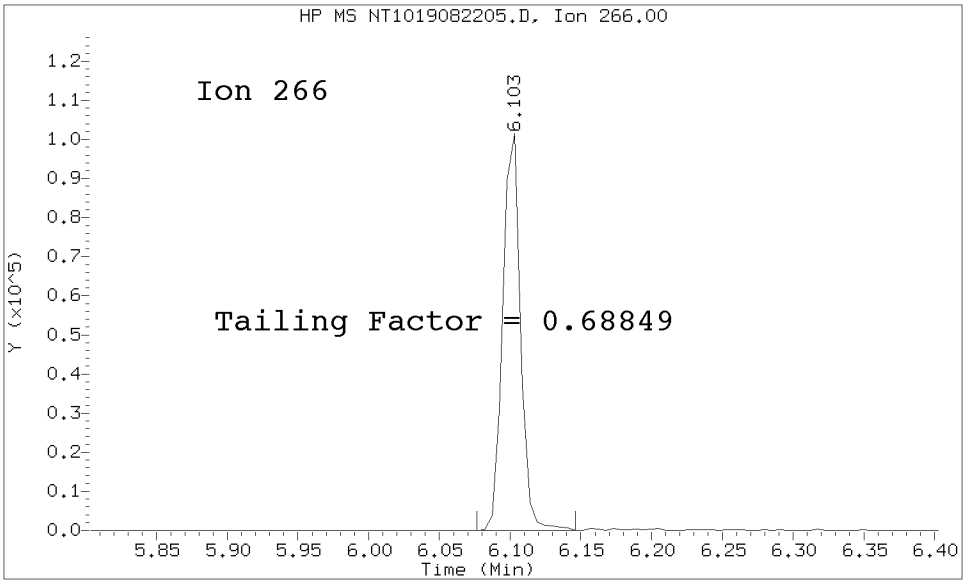
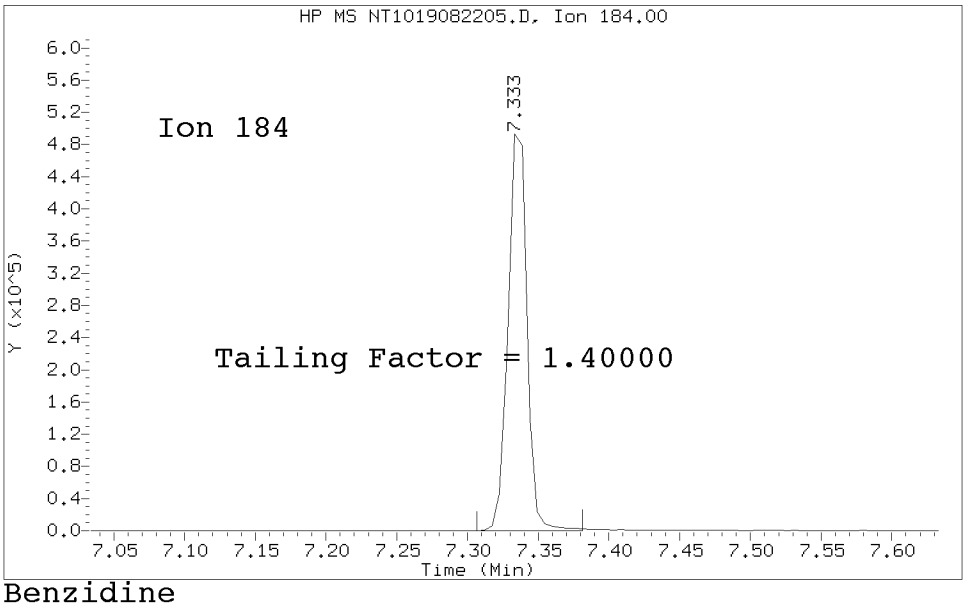
Method Used: \20190822.b\df8270.m\sw846ddt.m Inst: nt10
Injection Date: 22-AUG-2019 16:35 Operator: YZ
Sample Info: SHH0325-TUN1
Report Date: 08/23/2019 11:15



Pentachlorophenol
==========
Exp. RT = 6.103
Found RT = 6.103

Tail Factor = 0.688 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.333
Found RT = 7.333

Tail Factor = 1.400 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	0.6884876	2.000	PASS
Benzidine	1.4000000	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	276298			N/A
4,4-DDE	477	0.2	20.0	PASS
4,4-DDD	3179	1.1	20.0	PASS
4,4-DDD + DDE	3656	1.3	20.0	PASS

Tuning Sample, nt10.i/20190822.b/NT1019082205.D, *** PASSED ***

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	62.71
68	Less than 2.00% of mass 69	0.96 (1.58)
69	Mass 69 relative abundance	60.63
70	Less than 2.00% of mass 69	0.38 (0.63)
127	10.00 - 80.00% of mass 198	58.54
197	Less than 2.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	7.27
275	10.00 - 60.00% of mass 198	27.48
365	Greater than 1.00% of mass 198	5.35
441	0.01 - 24.00% of mass 442	13.67 (22.01)
442	50.00 - 200.00% of mass 198	62.10
443	15.00 - 24.00% of mass 442	11.50 (18.52)

Data File: NT1019082205.D
Spectrum: Avg. Scans 442-444 (6.46), Background Scan 438
Location of Maximum: 198.00
Number of points: 292

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	648	121.00	170	196.00	3956	283.00	343
38.00	1791	122.00	1909	198.00	105080	284.00	327
39.00	4556	123.00	2864	199.00	7640	285.00	668
40.00	302	124.00	1439	200.00	846	290.00	63
41.00	185	125.00	1201	201.00	660	292.00	257
43.00	141	127.00	61512	202.00	210	293.00	688
44.00	60	128.00	5168	203.00	1275	294.00	255
48.00	125	129.00	29864	204.00	4843	295.00	291
49.00	239	130.00	2303	205.00	9315	296.00	11906
50.00	26136	131.00	574	206.00	30664	297.00	1473
51.00	65896	132.00	348	207.00	4291	298.00	65
52.00	3654	133.00	292	208.00	1503	301.00	116
53.00	118	134.00	986	209.00	335	302.00	164
55.00	559	135.00	2648	210.00	890	303.00	1147
56.00	1334	136.00	1091	211.00	1322	304.00	246
57.00	2396	137.00	1413	212.00	148	308.00	196
58.00	133	138.00	290	213.00	133	310.00	119
60.00	127	139.00	166	215.00	466	313.00	134
61.00	790	140.00	566	216.00	976	314.00	559
62.00	1229	141.00	4014	217.00	10007	315.00	1069
63.00	2615	142.00	1347	218.00	1221	316.00	559
64.00	266	143.00	836	219.00	127	317.00	168
65.00	841	144.00	278	220.00	400	321.00	364
67.00	276	145.00	254	221.00	4765	322.00	394
68.00	1007	146.00	806	222.00	1607	323.00	2866
69.00	63712	147.00	2138	223.00	2257	324.00	477
70.00	404	148.00	6346	224.00	17400	327.00	754
72.00	71	149.00	1076	225.00	4771	328.00	315
73.00	1262	150.00	268	226.00	681	329.00	59
74.00	11335	151.00	633	227.00	9504	332.00	317
75.00	12207	152.00	202	228.00	1595	333.00	340
76.00	5284	153.00	1188	229.00	1681	334.00	2120
77.00	75128	154.00	930	230.00	281	335.00	378
78.00	5276	155.00	2189	231.00	569	341.00	295
79.00	7281	156.00	2833	233.00	152	346.00	741
80.00	4794	157.00	563	234.00	560	347.00	61
81.00	5769	158.00	849	235.00	584	352.00	962
82.00	1293	159.00	613	236.00	586	353.00	622
83.00	905	160.00	1284	237.00	705	354.00	982
84.00	189	161.00	1696	238.00	111	363.00	60
85.00	877	162.00	404	239.00	363	364.00	334
86.00	2137	163.00	181	240.00	242	365.00	5627
87.00	776	164.00	132	241.00	658	366.00	1014
88.00	231	165.00	1823	242.00	1189	370.00	139
89.00	168	166.00	1463	243.00	1247	371.00	429
91.00	1161	167.00	8772	244.00	12982	372.00	1274
92.00	1918	168.00	4213	245.00	1747	373.00	287
93.00	14117	169.00	669	246.00	3345	383.00	231
94.00	861	170.00	170	247.00	773	384.00	56

95.00	206	171.00	327	248.00	157	390.00	67
96.00	352	172.00	735	249.00	423	391.00	80
97.00	457	173.00	875	250.00	73	402.00	599
98.00	11231	174.00	1586	251.00	190	403.00	719
99.00	6291	175.00	2928	252.00	509	404.00	293
100.00	529	176.00	736	253.00	927	420.00	248
101.00	2662	177.00	1228	255.00	65464	421.00	883
102.00	120	178.00	544	256.00	9341	422.00	895
103.00	1097	179.00	5948	257.00	913	423.00	4331
104.00	2202	180.00	3494	258.00	5608	424.00	717
105.00	2213	181.00	1533	259.00	878	433.00	78
106.00	843	182.00	261	260.00	166	434.00	122
107.00	23448	183.00	247	263.00	119	435.00	203
108.00	3102	184.00	619	264.00	107	436.00	575
109.00	247	185.00	2696	265.00	2340	437.00	447
110.00	32184	186.00	18448	266.00	266	438.00	1074
111.00	5759	187.00	4884	271.00	294	439.00	180
112.00	821	188.00	480	272.00	385	441.00	14366
113.00	350	189.00	1550	273.00	2895	442.00	65256
115.00	169	190.00	230	274.00	6735	443.00	12087
116.00	1894	191.00	613	275.00	28872	444.00	1153
117.00	36400	192.00	1948	276.00	3799		
118.00	2240	193.00	2006	277.00	3356		
119.00	167	194.00	467	278.00	528		
120.00	354	195.00	557	279.00	62		

INITIAL CALIBRATION DATA

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CG00040	Instrument:	NT10
Calibration Date:	07/16/2019 11:00	Column (1):	ZB-5MSi

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Phenol	0.2	1.197187	0.5	1.126977	1	1.094934	2.5	1.069763	5	1.310804	10	1.167726
Benzyl Alcohol	0.2	0.7304486	0.5	0.7246029	1	0.7812333	2.5	0.7378358	5	0.8515104	10	0.779001
Benzoic acid			2	0.1592049	4	0.1963753	10	0.2085186	20	0.250232	40	0.2288772
N-Nitrosodiphenylamine	0.2	0.5427612	0.5	0.5343493	1	0.5920288	2.5	0.5498992	5	0.5422509	10	0.5593609
Phenanthrene	0.2	0.947957	0.5	0.9979108	1	0.9640963	2.5	0.9149576	5	0.9533027	10	1.027641
Fluoranthene	0.2	1.097811	0.5	1.187131	1	1.190195	2.5	1.164689	5	1.253957	10	1.281186
Pyrene	0.2	1.274218	0.5	1.17227	1	1.158753	2.5	1.209578	5	1.31227	10	1.380667
Butylbenzylphthalate	0.2	0.5192857	0.5	0.5170153	1	0.5992191	2.5	0.5816801	5	0.6505766	10	0.6509606
Benzo(a)anthracene	0.2	1.11787	0.5	1.169937	1	1.133442	2.5	1.126548	5	1.175891	10	1.192611
Chrysene	0.2	1.019825	0.5	1.015455	1	0.9954121	2.5	1.005462	5	1.006398	10	1.071875
bis(2-Ethylhexyl)phthalate	0.2	0.3376623	0.5	0.3138809	1	0.3586288	2.5	0.3558842	5	0.3623246	10	0.3827349
Di-n-Octylphthalate	0.2	0.7916883	0.5	0.7622043	1	0.7153736	2.5	0.7128225	5	0.7115872	10	0.7525694
Benzofluoranthenes, Total	0.4	1.057992	1	1.072575	2	1.076104	5	1.082541	10	1.11651	20	1.157483
Benzo(a)pyrene	0.2	1.008915	0.5	0.9365399	1	0.9903273	2.5	1.008004	5	1.049323	10	1.093663
Indeno(1,2,3-cd)pyrene	0.2	1.244124	0.5	1.162223	1	1.202801	2.5	1.253758	5	1.259043	10	1.295286
Dibenzo(a,h)anthracene	0.2	1.067627	0.5	0.9856648	1	1.005504	2.5	0.9940605	5	1.008183	10	1.033388
Benzo(g,h,i)perylene	0.2	1.051418	0.5	0.9969618	1	1.016301	2.5	1.019178	5	1.066159	10	1.084183
2-Fluorophenol	0.3	1.122895	0.75	1.041891	1.5	1.127512	3.75	1.052889	7.5	1.238205	15	1.121186
Phenol-d5	0.3	1.163727	0.75	1.182603	1.5	1.215559	3.75	1.170329	7.5	1.418948	15	1.26249
2-Chlorophenol-d4	0.3	1.476776	0.75	1.236033	1.5	1.343689	3.75	1.331556	7.5	1.398129	15	1.342032
1,2-Dichlorobenzene-d4	0.2	0.9867861	0.5	0.9960545	1	0.9626112	2.5	0.8966816	5	0.9065396	10	0.8544702
Nitrobenzene-d5	0.2	0.3060592	0.5	0.3115532	1	0.310875	2.5	0.2897508	5	0.338543	10	0.3121818
2-Fluorobiphenyl	0.2	1.66685	0.5	1.507998	1	1.554944	2.5	1.439356	5	1.51586	10	1.503979
2,4,6-Tribromophenol			0.75	0.2890754	1.5	0.2803079	3.75	0.2911097	7.5	0.3264111	15	0.3082393
p-Terphenyl-d14	0.2	0.8694756	0.5	0.8163036	1	0.8677389	2.5	0.8665833	5	0.9288766	10	0.8521427

INITIAL CALIBRATION DATA

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CG00040	Instrument:	NT10
Calibration Date:	07/16/2019 11:00	Column (1):	ZB-5MSi

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF
Phenol	20	1.224696										
Benzyl Alcohol	20	0.8172424										
Benzoic acid	80	0.2460474										
N-Nitrosodiphenylamine	20	0.5228324										
Phenanthrene	20	1.033668										
Fluoranthene	20	1.381608										
Pyrene	20	1.427349										
Butylbenzylphthalate	20	0.643425										
Benzo(a)anthracene	20	1.207568										
Chrysene	20	1.074189										
bis(2-Ethylhexyl)phthalate	20	0.3516134										
Di-n-Octylphthalate	20	0.7337019										
Benzofluoranthenes, Total	40	1.142441										
Benzo(a)pyrene	20	1.123076										
Indeno(1,2,3-cd)pyrene	20	1.245714										
Dibenzo(a,h)anthracene	20	0.9584225										
Benzo(g,h,i)perylene	20	1.062085										
2-Fluorophenol	30	1.157965										
Phenol-d5	30	1.398028										
2-Chlorophenol-d4	30	1.357522										
1,2-Dichlorobenzene-d4	20	0.8821341										
Nitrobenzene-d5	20	0.3209359										
2-Fluorobiphenyl	20	1.520777										
2,4,6-Tribromophenol	30	0.3195994										
p-Terphenyl-d14	20	0.8585744										

INITIAL CALIBRATION DATA

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CG00040	Instrument:	NT10
Calibration Date:	07/16/2019 11:00	Column (1):	ZB-5MSi

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Phenol	1.170298	7.1			RSD (15)	
Benzyl Alcohol	0.7745535	6.1			RSD (15)	
Benzoic acid	0.2148759	16.0		0.9988	QCOD (0.99)	
N-Nitrosodiphenylamine	0.549069	4.0			RSD (15)	
Phenanthrene	0.9770762	4.5			RSD (15)	
Fluoranthene	1.222368	7.5			RSD (15)	
Pyrene	1.276444	8.1			RSD (15)	
Butylbenzylphthalate	0.5945946	9.8			RSD (15)	
Benzo(a)anthracene	1.160552	3.0			RSD (15)	
Chrysene	1.026945	3.2			RSD (15)	
bis(2-Ethylhexyl)phthalate	0.3518184	6.1			RSD (15)	
Di-n-Octylphthalate	0.7399924	4.1			RSD (15)	
Benzofluoranthenes, Total	1.100807	3.5			RSD (15)	
Benzo(a)pyrene	1.029978	6.2			RSD (15)	
Indeno(1,2,3-cd)pyrene	1.237564	3.5			RSD (15)	
Dibenzo(a,h)anthracene	1.00755	3.5			RSD (15)	
Benzo(g,h,i)perylene	1.042327	3.1			RSD (15)	
2-Fluorophenol	1.12322	5.9			RSD (15)	
Phenol-d5	1.258812	8.6			RSD (15)	
2-Chlorophenol-d4	1.355105	5.4			RSD (15)	
1,2-Dichlorobenzene-d4	0.9264682	5.9			RSD (15)	
Nitrobenzene-d5	0.3128427	4.7			RSD (15)	
2-Fluorobiphenyl	1.529966	4.5			RSD (15)	
2,4,6-Tribromophenol	0.3024571	6.1			RSD (15)	
p-Terphenyl-d14	0.8656707	3.9			RSD (15)	

Printed: 7/17/2019 12:36:20PM

ANALYSIS SEQUENCE

SHG0206

Instrument: NT10 Element Column ID: g010888
Calibration ID: CG00040 Tune File: 190420
EM Voltage: 1850u

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHG0206-TUN1	MS Tune	QC		1	G009674		
SHG0206-CAL1	ABN 0.2	QC		2	H004929	H002564	
SHG0206-CAL2	ABN 0.5	QC		3	H004928	H002564	
SHG0206-CAL3	ABN 1.0	QC		4	H004927	H002564	
SHG0206-CAL4	ABN 2.5	QC		5	H004926	H002564	
SHG0206-CAL5	ABN 5.0	QC		6	H004385	H002564	
SHG0206-CAL6	ABN 10	QC		7	H004924	H002564	
SHG0206-CAL7	ABN 20	QC		8	H004925	H002564	
SHG0206-ICV1	Initial Cal Check	QC		9	H004385	H002564	
BHG0142-BLK1	Blank	QC		10		H002564	
BHG0142-BS1	LCS	QC		11		H002564	
19G0054-01	MKJ-070319-1	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	B 02	12		H002564	
19G0054-02	MKJ-070319-2	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	B 02	13		H002564	
19G0054-03	MKJ-070319-3	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	B 02	14		H002564	
19G0054-04	MKJ-070319-4	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	B 02	15		H002564	
SHG0206-CCV1	ABN 5	QC		16	H004385	H002564	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190715.b

	Time	Filename	LabID	ClientId	DF																				
1	1430	NT1019071501.D	SHG0000-TUN1		1	|NO ISTDS FOUND||																		
2	1445	NT1019071502.D	SHG0000-CAL5		1	| 9.04	34834	||11.51	122464	||15.10	63299	||18.11	115758	||23.14	106620	||25.71	111204	||24.17	253962	|					
3	1518	NT1019071503.D	SHG0000-TUN1		1	|NO ISTDS FOUND||																			
4	1533	NT1019071504.D	SHG0206-CAL5		1	| 9.05	32739	||11.51	117487	||15.11	61859	||18.12	113574	||23.15	105788	||25.71	113992	||24.18	252823	|					
5	1533	NT1019071504A.D	SHG0206-ICV1		1	| 9.05	32739	||11.51	117487	||15.11	61859	||18.12	113574	||23.15	105788	||25.71	113992	||24.18	252823	|					
6	1610	NT1019071505.D	SHG0206-CAL7		1	| 9.05	29033	||11.52	103134	||15.11	56789	||18.13	103730	||23.16	100532	||25.72	106957	||24.18	252363	|					
7	1647	NT1019071506.D	SHG0206-CAL1		1	| 9.05	35266	||11.51	130759	||15.10	63509	||18.12	117326	||23.15	106685	||25.71	111050	||24.17	231000	|					
8	1724	NT1019071507.D	SHG0206-CAL3		1	| 9.05	31801	||11.51	114271	||15.10	55948	||18.11	102218	||23.14	96559	||25.70	104107	||24.17	214439	|					
9	1801	NT1019071508.D	SHG0206-CAL6		1	| 9.05	27068	||11.52	94978	||15.11	49539	||18.12	90381	||23.15	89163	||25.71	95741	||24.17	209949	|					
10	1838	NT1019071509.D	SHG0000-CAL1		1	| 9.05	31909	||11.51	113674	||15.10	54497	||18.12	101527	||23.14	93925	||25.70	99295	||24.17	199832	|					
11	1915	NT1019071510.D	SHG0206-CAL4		1	| 9.05	29110	||11.52	105111	||15.10	53654	||18.12	99675	||23.15	92708	||25.71	97079	||24.17	203401	|					
12	1952	NT1019071511.D	SHG0000-CAL2		1	| 9.05	28064	||11.51	111702	||15.10	52826	||18.12	99010	||23.14	89695	||25.70	96754	||24.17	188454	|					
13	2029	NT1019071512.D	SHG0206-CAL2		1	| 9.05	29147	||11.52	103841	||15.10	51825	||18.12	97644	||23.15	92593	||25.71	93476	||24.18	190773	|					
14	2106	NT1019071513.D	SHG0000-SCV1		1	| 9.05	27249	||11.52	97217	||15.11	50993	||18.12	92262	||23.15	89152	||25.70	91616	||24.18	192394	|					
15	2143	NT1019071514.D	BHG0142-BLK1		1	| 9.05	27409	||11.51	104918	||15.10	50409	||18.12	97270	||23.14	87170	||25.71	88134	||24.17	184234	|					
16	2220	NT1019071515.D	BHG0142-BS1		1	| 9.05	26984	||11.52	99854	||15.11	49276	||18.12	91689	||23.15	88010	||25.70	89891	||24.17	198872	|					
17	2257	NT1019071516.D	19G0054-01		1	| 9.05	23811	||11.52	92704	||15.11	48486	||18.13	91012	||23.17	57786	||25.76	47354	||24.20	126561	|					
18	2334	NT1019071517.D	19G0054-02		1	| 9.05	26611	||11.52	103214	||15.11	50561	||18.13	94388	||23.17	54959	||25.77	42938	||24.20	123374	|					
19	0011	NT1019071518.D	19G0054-03		1	| 9.05	28950	||11.52	112495	||15.11	55500	||18.13	93593	||23.17	54247	||25.76	44587	||24.20	124846	|					
20	0047	NT1019071519.D	19G0054-04		1	| 9.05	29883	||11.52	114500	||15.11	56378	||18.13	100237	||23.17	56271	||25.77	42258	||24.20	131570	|					

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190715.b

	Time	Filename	LabID	ClientId	DF																
21	0124	NT1019071520.D	SHG0206-CCV1		1	| 9.05	31163	| 11.52	105369	| 15.11	55275	| 18.13	103741	| 23.16	62189	| 25.73	52929	| 24.18	140348 |	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190715.b

ARI Job No.: SHG0 Method: df8270.m Instrument: nt10.i Date: 15-JUL-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1430	NT1019071501.D	SHG0000-TUN1		1	NO MANUAL INTEGRATION
1445	NT1019071502.D	SHG0000-CAL5		1	NO MANUAL INTEGRATION
1518	NT1019071503.D	SHG0000-TUN1		1	NO MANUAL INTEGRATION
1533	NT1019071504.D	SHG0206-CAL5		1	Benzoic acid,
1533	NT1019071504A.D	SHG0206-ICV1		1	Benzoic acid,
1610	NT1019071505.D	SHG0206-CAL7		1	NO MANUAL INTEGRATION
1647	NT1019071506.D	SHG0206-CAL1		1	Nitrobenzene, Isophorone, 3-Nitroaniline, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene, 2,4,6-Tribromophenol,
1724	NT1019071507.D	SHG0206-CAL3		1	3-Nitroaniline, Benzo(g,h,i)perylene,
1801	NT1019071508.D	SHG0206-CAL6		1	Benzoic acid,
1838	NT1019071509.D	SHG0000-CAL1		1	NO MANUAL INTEGRATION
1915	NT1019071510.D	SHG0206-CAL4		1	Indeno(1,2,3-cd)pyrene,
1952	NT1019071511.D	SHG0000-CAL2		1	NO MANUAL INTEGRATION
2029	NT1019071512.D	SHG0206-CAL2		1	NO MANUAL INTEGRATION
2106	NT1019071513.D	SHG0000-SCV1		1	NO MANUAL INTEGRATION
2143	NT1019071514.D	BHG0142-BLK1		1	NO MANUAL INTEGRATION
2220	NT1019071515.D	BHG0142-BS1		1	NO MANUAL INTEGRATION
2257	NT1019071516.D	19G0054-01		1	Diethylphthalate, Carbazole, Chrysene-d12, bis(2-Ethylhexyl)phthalate, Perylene-d12, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene, Di-n-octylphthalate-d4,

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190715.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2334	NT1019071517.D	19G0054-02		1	Total Benzofluoranthenes,
0011	NT1019071518.D	19G0054-03		1	Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Total Benzofluoranthenes,
0047	NT1019071519.D	19G0054-04		1	Fluorene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Total Benzofluoranthenes,
0124	NT1019071520.D	SHG0206-CCV1		1	NO MANUAL INTEGRATION

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Batch File: \\Target\share\chem3\nt10.i\20190715.b
Inst ID: nt10.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07
FILENAME:	NT1019071504	NT1019071505	NT1019071506	NT1019071507	NT1019071508	NT1019071510	NT1019071512
INJ.DATE:	15-JUL-2019	15-JUL-2019	15-JUL-2019	15-JUL-2019	15-JUL-2019	15-JUL-2019	15-JUL-2019
INJ.TIME:	15:33	16:10	16:47	17:24	18:01	19:15	20:29

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
$ 1 2-Fluorophenol	6.827	6.835	6.828	6.827	6.827	6.827	6.827	6.827	3.827-9.827	6.828	0.003
186 Carbaryl	+++++	+++++	+++++	+++++	+++++	+++++	+++++	18.785	15.785-21.785	+++++	+++++
179 n-Decane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	8.645	5.645-11.645	+++++	+++++
180 n-Octadecane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	17.455	14.455-20.455	+++++	+++++
169 4-tert-Butylphenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	20.696	17.696-23.696	+++++	+++++
170 N,N-Dimethylaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	19.219	16.219-22.219	+++++	+++++
171 2,3-Dimethylaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	19.559	16.559-22.559	+++++	+++++
172 2,4-Dimethylaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	19.559	16.559-22.559	+++++	+++++
173 2,5-Dimethylaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	22.949	19.949-25.949	+++++	+++++
174 2,6-Dimethylaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	19.196	16.196-22.196	+++++	+++++
175 3,4-Dimethylaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	19.559	16.559-22.559	+++++	+++++
176 3,5-Dimethylaniline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	20.503	17.503-23.503	+++++	+++++
177 p-Benzoquinone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	7.827	4.827-10.827	+++++	+++++
168 Pentachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	15.842	12.842-18.842	+++++	+++++
145 4,4'-DDE	+++++	+++++	+++++	+++++	+++++	+++++	+++++	47.212	44.212-50.212	+++++	+++++
146 4,4'-DDD	+++++	+++++	+++++	+++++	+++++	+++++	+++++	47.746	44.746-50.746	+++++	+++++
147 4,4'-DDT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	48.216	45.216-51.216	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Batch File: \\Target\share\chem3\nt10.i\20190715.b
Inst ID: nt10.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
148 Dieldrin	+++++	+++++	+++++	+++++	+++++	+++++	+++++	47.281	44.281-50.281	+++++	+++++
149 TCMX	+++++	+++++	+++++	+++++	+++++	+++++	+++++	43.387	40.387-46.387	+++++	+++++
150 DCBP	+++++	+++++	+++++	+++++	+++++	+++++	+++++	50.989	47.989-53.989	+++++	+++++
138 Chlorobenzilate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	67.733	64.733-70.733	+++++	+++++
139 Isodrin	+++++	+++++	+++++	+++++	+++++	+++++	+++++	65.067	62.067-68.067	+++++	+++++
140 Diallate A	+++++	+++++	+++++	+++++	+++++	+++++	+++++	65.487	62.487-68.487	+++++	+++++
141 Diallate B	+++++	+++++	+++++	+++++	+++++	+++++	+++++	65.487	62.487-68.487	+++++	+++++
142 1,2-Dibromo-3-Chloropr	+++++	+++++	+++++	+++++	+++++	+++++	+++++	49.917	46.917-52.917	+++++	+++++
135 2,3,5,6-Tetrachlorophe	+++++	+++++	+++++	+++++	+++++	+++++	+++++	16.383	13.383-19.383	+++++	+++++
136 2,3,4,5-tetrachlorophe	+++++	+++++	+++++	+++++	+++++	+++++	+++++	39.317	36.317-42.317	+++++	+++++
$ 137 d8-1,4-Dioxane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	2.445	0.000-5.445	+++++	+++++
* 134 Di-n-octylphthalate-d4	24.179	24.179	24.172	24.172	24.172	24.171	24.179	24.179	21.179-27.179	24.175	0.004
133 Butylatedhydroxytoluen	+++++	+++++	+++++	+++++	+++++	+++++	+++++	15.571	12.571-18.571	+++++	+++++
132 3,6-Dimethylphenanthre	+++++	+++++	+++++	+++++	+++++	+++++	+++++	65.450	62.450-68.450	+++++	+++++
131 1-Methylphenanthrene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	64.400	61.400-67.400	+++++	+++++
130 Dibenzothiophene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	62.100	59.100-65.100	+++++	+++++
129 1-Methylfluorene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	54.912	51.912-57.912	+++++	+++++
128 N-Hexadecane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	54.212	51.212-57.212	+++++	+++++
127 2-Isopropylnaphthalene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	57.650	54.650-60.650	+++++	+++++
126 N-Tetradecane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	56.750	53.750-59.750	+++++	+++++
144 alpha-Terpineol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	11.447	8.447-14.447	+++++	+++++
125 Safrole	+++++	+++++	+++++	+++++	+++++	+++++	+++++	52.166	49.166-55.166	+++++	+++++

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Inst ID: nt10.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
124 3,4-Dimethylphenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	50.617	47.617-53.617	+++++	+++++
123 Acetophenone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	10.252	7.252-13.252	+++++	+++++
122 Furfuraldehyde	+++++	+++++	+++++	+++++	+++++	+++++	+++++	43.467	40.467-46.467	+++++	+++++
143 1,4-Dioxane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	2.697	0.000-5.697	+++++	+++++
121 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	54.500	51.500-57.500	+++++	+++++
120 2,3,4,6-Tetrachlorophe	15.824	15.825	15.825	15.817	15.825	15.824	15.824	15.824	12.824-18.824	15.824	0.003
178 2-Benzyl-4-Chloropheno	+++++	+++++	+++++	+++++	+++++	+++++	+++++	18.963	15.963-21.963	+++++	+++++
119 7,12-Dimethylbenz(a)an	+++++	+++++	+++++	+++++	+++++	+++++	+++++	47.069	44.069-50.069	+++++	+++++
118 Triphenyl Phosphate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	21.215	18.215-24.215	+++++	+++++
117 Butyl Diphenyl Phospha	+++++	+++++	+++++	+++++	+++++	+++++	+++++	16.761	13.761-19.761	+++++	+++++
116 Dibutyl Phenyl Phospha	+++++	+++++	+++++	+++++	+++++	+++++	+++++	18.747	15.747-21.747	+++++	+++++
115 Tributyl Phosphate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	16.923	13.923-19.923	+++++	+++++
114 Beta-Pinene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	48.950	45.950-51.950	+++++	+++++
113 Diphenyl Oxide	+++++	+++++	+++++	+++++	+++++	+++++	+++++	14.341	11.341-17.341	+++++	+++++
112 Biphenyl	+++++	+++++	+++++	+++++	+++++	+++++	+++++	14.085	11.085-17.085	+++++	+++++
111 Azobenzene (1,2-DP-Hyd	16.512	16.520	16.513	16.505	16.521	16.512	16.512	16.512	13.512-19.512	16.514	0.005
110 Tetrachloroguaiacol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	17.140	14.140-20.140	+++++	+++++
109 3,4,5-Trichloroguaiaco	+++++	+++++	+++++	+++++	+++++	+++++	+++++	15.070	12.070-18.070	+++++	+++++
181 3,4,6-Trichloroguaiaco	+++++	+++++	+++++	+++++	+++++	+++++	+++++	15.232	12.232-18.232	+++++	+++++
108 4,5,6-Trichloroguaiaco	+++++	+++++	+++++	+++++	+++++	+++++	+++++	16.374	13.374-19.374	+++++	+++++
184 3,4-Dichloroguaiacol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	13.120	10.120-16.120	+++++	+++++
107 4,5-Dichloroguaiacol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	14.096	11.096-17.096	+++++	+++++
182 4,6-Dichloroguaiacol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	14.096	11.096-17.096	+++++	+++++
185 4-Chloroguaiacol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	11.735	8.735-14.735	+++++	+++++

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Method File: \\Target\share\chem3\nt10.i\20190715.b\ABN.m
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Inst ID: nt10.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
106 Guaiacol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	9.243	6.243-12.243	+++++	+++++
105 1-methylnaphthalene	13.155	13.164	13.156	13.156	13.164	13.155	13.163	13.163	10.163-16.163	13.159	0.004
151 1,2,4,5-Tetrachloroben	+++++	+++++	+++++	+++++	+++++	+++++	+++++	11.499	8.499-14.499	+++++	+++++
152 Benzo(e)pyrene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	30.943	27.943-33.943	+++++	+++++
153 Chlorpyrifos	+++++	+++++	+++++	+++++	+++++	+++++	+++++	27.642	24.642-30.642	+++++	+++++
154 Diazinon	+++++	+++++	+++++	+++++	+++++	+++++	+++++	25.953	22.953-28.953	+++++	+++++
155 Kelthane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	27.750	24.750-30.750	+++++	+++++
156 Methyl Parathion	+++++	+++++	+++++	+++++	+++++	+++++	+++++	26.464	23.464-29.464	+++++	+++++
157 Ethyl Parathion	+++++	+++++	+++++	+++++	+++++	+++++	+++++	27.099	24.099-30.099	+++++	+++++
158 Ethion	+++++	+++++	+++++	+++++	+++++	+++++	+++++	24.513	21.513-27.513	+++++	+++++
159 4-Nonylphenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	25.132	22.132-28.132	+++++	+++++
160 Tetraethyl Tin	+++++	+++++	+++++	+++++	+++++	+++++	+++++	19.528	16.528-22.528	+++++	+++++
161 1,2,3-Trichloronaphtha	+++++	+++++	+++++	+++++	+++++	+++++	+++++	36.246	33.246-39.246	+++++	+++++
162 1,2,3,4-Tetrachloronap	+++++	+++++	+++++	+++++	+++++	+++++	+++++	37.506	34.506-40.506	+++++	+++++
163 1,2,3,5,8-Pentachloron	+++++	+++++	+++++	+++++	+++++	+++++	+++++	38.893	35.893-41.893	+++++	+++++
164 1,2,3,4,6,7-Hexachloro	+++++	+++++	+++++	+++++	+++++	+++++	+++++	39.681	36.681-42.681	+++++	+++++
165 1,2,3,4,5,6,7-Heptachl	+++++	+++++	+++++	+++++	+++++	+++++	+++++	41.123	38.123-44.123	+++++	+++++
166 Octachloronaphthalene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	42.253	39.253-45.253	+++++	+++++
167 2,2',4,4',5-Pentabromo	+++++	+++++	+++++	+++++	+++++	+++++	+++++	42.033	39.033-45.033	+++++	+++++
$ 2 Phenol-d5	8.396	8.411	8.396	8.396	8.404	8.396	8.396	8.396	5.396-11.396	8.399	0.006
3 Phenol	8.419	8.435	8.420	8.419	8.427	8.419	8.419	8.419	5.419-11.419	8.423	0.006
4 Bis(2-Chloroethyl)ethe	8.597	8.605	8.589	8.589	8.597	8.589	8.597	8.597	5.597-11.597	8.595	0.006
$ 5 2-Chlorophenol-d4	8.682	8.689	8.682	8.682	8.682	8.682	8.682	8.682	5.682-11.682	8.683	0.003

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Inst ID: nt10.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	6 2-Chlorophenol	8.705	8.713	8.713	8.705	8.713	8.713	8.713	8.713	5.713-11.713	8.711	0.004
	7 1,3-Dichlorobenzene	8.983	8.983	8.976	8.976	8.984	8.983	8.983	8.983	5.983-11.983	8.981	0.004
*	8 1,4-Dichlorobenzene-d4	9.045	9.045	9.046	9.045	9.046	9.045	9.045	9.045	6.045-12.045	9.045	0.000
	9 1,4-Dichlorobenzene	9.076	9.076	9.069	9.076	9.077	9.076	9.076	9.076	6.076-12.076	9.075	0.003
$	10 1,2-Dichlorobenzene-d4	9.402	9.402	9.395	9.402	9.403	9.402	9.402	9.402	6.402-12.402	9.401	0.003
	11 Benzyl alcohol	9.309	9.317	9.302	9.301	9.309	9.309	9.309	9.309	6.309-12.309	9.308	0.005
	12 1,2-Dichlorobenzene	9.426	9.433	9.426	9.426	9.426	9.426	9.426	9.426	6.426-12.426	9.427	0.003
	13 2-Methylphenol	9.526	9.534	9.527	9.527	9.535	9.527	9.527	9.527	6.527-12.527	9.529	0.004
	14 2,2'-oxybis(1-Chloropr	9.612	9.612	9.612	9.612	9.612	9.612	9.612	9.612	6.612-12.612	9.612	0.000
	15 4-Methylphenol	9.798	9.806	9.791	9.791	9.799	9.790	9.790	9.790	6.790-12.790	9.795	0.006
	16 N-Nitroso-di-n-propyla	9.868	9.884	9.861	9.860	9.876	9.868	9.860	9.860	6.860-12.860	9.868	0.009
	17 Hexachloroethane	10.015	10.016	10.016	10.016	10.016	10.016	10.016	10.016	7.016-13.016	10.016	0.000
$	18 Nitrobenzene-d5	10.132	10.140	10.132	10.132	10.132	10.132	10.132	10.132	7.132-13.132	10.133	0.003
	19 Nitrobenzene	10.171	10.179	10.171	10.163	10.171	10.163	10.163	10.163	7.163-13.163	10.169	0.006
	20 Isophorone	10.605	10.623	10.607	10.606	10.615	10.606	10.606	10.606	7.606-13.606	10.610	0.007
	21 2-Nitrophenol	10.792	10.793	10.793	10.793	10.793	10.792	10.792	10.792	7.792-13.792	10.793	0.001
	22 2,4-Dimethylphenol	10.835	10.844	10.836	10.835	10.836	10.835	10.835	10.835	7.835-13.835	10.836	0.003
	23 Bis(2-Chloroethoxy)met	11.038	11.048	11.031	11.031	11.039	11.038	11.038	11.038	8.038-14.038	11.038	0.006
	24 Benzoic acid	11.030	11.166	10.904	10.937	11.082	10.987	10.920	10.920	7.920-13.920	11.004	0.096
	25 2,4-Dichlorophenol	11.233	11.243	11.235	11.234	11.235	11.234	11.234	11.234	8.234-14.234	11.235	0.003
	26 1,2,4-Trichlorobenzene	11.423	11.431	11.431	11.423	11.424	11.423	11.423	11.423	8.423-14.423	11.425	0.004
*	27 Naphthalene-d8	11.507	11.516	11.509	11.508	11.516	11.515	11.515	11.515	8.515-14.515	11.512	0.004
	28 Naphthalene	11.554	11.555	11.547	11.547	11.555	11.554	11.554	11.554	8.554-14.554	11.552	0.003
	29 4-Chloroaniline	11.677	11.694	11.678	11.678	11.686	11.677	11.677	11.677	8.677-14.677	11.681	0.006

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Inst ID: nt10.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	30 Hexachlorobutadiene	11.909	11.910	11.918	11.902	11.910	11.909	11.909	11.909	8.909-14.909	11.910	0.005
	31 4-Chloro-3-methylpheno	12.629	12.637	12.622	12.622	12.630	12.629	12.621	12.621	9.621-15.621	12.627	0.006
	32 2-Methylnaphthalene	12.938	12.939	12.940	12.932	12.939	12.938	12.938	12.938	9.938-15.938	12.938	0.003
	33 Hexachlorocyclopentadi	13.403	13.404	13.396	13.396	13.404	13.403	13.403	13.403	10.403-16.403	13.401	0.003
	34 2,4,6-Trichlorophenol	13.550	13.558	13.551	13.551	13.551	13.550	13.550	13.550	10.550-16.550	13.551	0.003
	35 2,4,5-Trichlorophenol	13.619	13.628	13.621	13.620	13.621	13.619	13.619	13.619	10.619-16.619	13.621	0.003
$	36 2-Fluorobiphenyl	13.712	13.721	13.713	13.713	13.713	13.712	13.712	13.712	10.712-16.712	13.714	0.003
	37 2-Chloronaphthalene	13.921	13.930	13.922	13.922	13.922	13.921	13.921	13.921	10.921-16.921	13.923	0.003
	38 2-Nitroaniline	14.184	14.201	14.178	14.177	14.185	14.177	14.184	14.184	11.184-17.184	14.184	0.008
	39 Dimethylphthalate	14.610	14.626	14.611	14.611	14.619	14.610	14.610	14.610	11.610-17.610	14.614	0.006
	40 Acenaphthylene	14.788	14.797	14.789	14.789	14.789	14.788	14.788	14.788	11.788-17.788	14.790	0.003
	41 2,6-Dinitrotoluene	14.749	14.766	14.751	14.743	14.758	14.749	14.749	14.749	11.749-17.749	14.752	0.008
*	42 Acenaphthene-d10	15.105	15.106	15.099	15.098	15.106	15.098	15.098	15.098	12.098-18.098	15.101	0.004
	43 3-Nitroaniline	15.028	15.052	15.029	15.021	15.037	15.028	15.020	15.020	12.020-18.020	15.031	0.011
	44 Acenaphthene	15.167	15.176	15.161	15.160	15.168	15.167	15.167	15.167	12.167-18.167	15.167	0.005
	45 2,4-Dinitrophenol	15.237	15.261	15.238	15.230	15.245	15.237	15.237	15.237	12.237-18.237	15.241	0.010
	46 Dibenzofuran	15.492	15.500	15.493	15.485	15.493	15.492	15.484	15.484	12.484-18.484	15.491	0.005
	47 4-Nitrophenol	15.337	15.361	15.338	15.330	15.346	15.329	15.329	15.329	12.329-18.329	15.339	0.012
	48 2,4-Dinitrotoluene	15.554	15.570	15.547	15.547	15.562	15.554	15.546	15.546	12.546-18.546	15.554	0.009
	49 Fluorene	16.195	16.204	16.197	16.196	16.204	16.195	16.195	16.195	13.195-19.195	16.198	0.004
	50 Diethylphthalate	16.064	16.080	16.057	16.049	16.073	16.056	16.056	16.056	13.056-19.056	16.062	0.011
	51 4-Chlorophenyl-phenyle	16.188	16.196	16.189	16.189	16.189	16.188	16.188	16.188	13.188-19.188	16.189	0.003
	52 4-Nitroaniline	16.288	16.335	16.289	16.289	16.305	16.288	16.288	16.288	13.288-19.288	16.298	0.018
	53 4,6-Dinitro-2-methylph	16.381	16.412	16.374	16.374	16.397	16.381	16.381	16.381	13.381-19.381	16.386	0.014

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Batch File: \\Target\share\chem3\nt10.i\20190715.b
Inst ID: nt10.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	54 N-Nitrosodiphenylamine	16.435	16.451	16.436	16.436	16.444	16.435	16.435	16.435	13.435-19.435	16.439	0.006
$	55 2,4,6-Tribromophenol	16.728	16.736	16.729	16.729	16.729	16.728	16.728	16.728	13.728-19.728	16.729	0.003
	56 4-Bromophenyl-phenylet	17.190	17.191	17.192	17.184	17.191	17.190	17.190	17.190	14.190-20.190	17.190	0.003
	57 Hexachlorobenzene	17.499	17.508	17.500	17.500	17.500	17.499	17.499	17.499	14.499-20.499	17.501	0.003
	58 Pentachlorophenol	17.848	17.856	17.849	17.849	17.857	17.848	17.856	17.856	14.856-20.856	17.852	0.004
*	59 Phenanthrene-d10	18.119	18.127	18.120	18.112	18.120	18.119	18.119	18.119	15.119-21.119	18.119	0.004
	60 Phenanthrene	18.165	18.174	18.166	18.158	18.166	18.165	18.165	18.165	15.165-21.165	18.166	0.004
	61 Anthracene	18.258	18.266	18.259	18.251	18.259	18.258	18.258	18.258	15.258-21.258	18.258	0.004
	62 Carbazole	18.583	18.591	18.584	18.584	18.584	18.583	18.583	18.583	15.583-21.583	18.584	0.003
	63 Di-n-butylphthalate	19.387	19.388	19.389	19.388	19.388	19.387	19.387	19.387	16.387-22.387	19.388	0.001
	64 Fluoranthene	20.548	20.549	20.541	20.541	20.549	20.540	20.540	20.540	17.540-23.540	20.544	0.004
	65 Pyrene	20.966	20.974	20.967	20.967	20.967	20.966	20.966	20.966	17.966-23.966	20.967	0.003
$	66 Terphenyl-d14	21.252	21.261	21.253	21.253	21.253	21.252	21.252	21.252	18.252-24.252	21.254	0.003
	67 Butylbenzylphthalate	22.181	22.182	22.175	22.174	22.182	22.173	22.181	22.181	19.181-25.181	22.178	0.004
	68 Benzo(a)anthracene	23.118	23.127	23.119	23.119	23.127	23.118	23.118	23.118	20.118-26.118	23.121	0.004
*	69 Chrysene-d12	23.149	23.158	23.150	23.142	23.150	23.149	23.149	23.149	20.149-26.149	23.150	0.004
	70 3,3'-Dichlorobenzidine	23.079	23.096	23.081	23.072	23.080	23.079	23.079	23.079	20.079-26.079	23.081	0.007
	71 Chrysene	23.195	23.204	23.197	23.189	23.197	23.188	23.188	23.188	20.188-26.188	23.194	0.006
	72 bis(2-Ethylhexyl)phtha	23.203	23.204	23.204	23.196	23.204	23.195	23.203	23.203	20.203-26.203	23.202	0.004
	73 Di-n-octylphthalate	24.186	24.187	24.188	24.180	24.187	24.179	24.186	24.186	21.186-27.186	24.185	0.004
	74 Benzo(b)fluoranthene	24.968	24.977	24.962	24.961	24.969	24.961	24.961	24.961	21.961-27.961	24.966	0.006
	75 Benzo(k)fluoranthene	25.015	25.023	25.000	25.000	25.016	24.999	24.999	24.999	21.999-27.999	25.008	0.010
	187 Total Benzofluoranthen	24.968	25.023	24.962	25.000	25.016	24.999	24.999	24.999	21.999-27.999	24.995	0.023
	76 Benzo(a)pyrene	25.603	25.612	25.597	25.589	25.604	25.595	25.595	25.595	22.595-28.595	25.599	0.008

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RETENTION TIME SUMMARY REPORT

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Batch File: \\Target\share\chem3\nt10.i\20190715.b
Inst ID: nt10.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
*	77 Perylene-d12	25.712	25.720	25.713	25.705	25.713	25.712	25.712	25.712	22.712-28.712	25.712	0.004
	78 Indeno(1,2,3-cd)pyrene	28.276	28.308	28.262	28.269	28.285	28.261	28.268	28.268	25.268-31.268	28.275	0.017
	79 Dibenzo(a,h)anthracene	28.292	28.316	28.285	28.269	28.293	28.276	28.276	28.276	25.276-31.276	28.287	0.015
	80 Benzo(g,h,i)perylene	29.029	29.069	29.031	29.015	29.046	29.014	29.014	29.014	26.014-32.014	29.031	0.021
$	85 p-Cresol-d4	+++++	+++++	+++++	+++++	+++++	+++++	+++++	51.633	48.633-54.633	+++++	+++++
$	86 Anthracene-d10	+++++	+++++	+++++	+++++	+++++	+++++	+++++	63.533	60.533-66.533	+++++	+++++
$	87 Fluoranthene-d10	+++++	+++++	+++++	+++++	+++++	+++++	+++++	60.273	57.273-63.273	+++++	+++++
$	88 Dibenz(a,h)anthracene-	+++++	+++++	+++++	+++++	+++++	+++++	+++++	78.600	75.600-81.600	+++++	+++++
$	89 Diphenyl-d10	+++++	+++++	+++++	+++++	+++++	+++++	+++++	50.841	47.841-53.841	+++++	+++++
	90 N-Nitrosodimethylamine	4.696	4.711	4.704	4.696	4.704	4.696	4.696	4.696	1.696-7.696	4.701	0.006
	91 Aniline	8.504	8.512	8.505	8.504	8.512	8.504	8.504	8.504	5.504-11.504	8.506	0.004
	92 1,2-Diphenylhydrazine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	56.160	53.160-59.160	+++++	+++++
	93 Benzidine	20.780	20.796	20.781	20.781	20.781	20.780	20.780	20.780	17.780-23.780	20.783	0.006
$	95 D10-1-methylnaphthalen	+++++	+++++	+++++	+++++	+++++	+++++	+++++	52.075	49.075-55.075	+++++	+++++
	96 p-Cymene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	49.250	46.250-52.250	+++++	+++++
	97 Caffeine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	61.202	58.202-64.202	+++++	+++++
	98 Retene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	19.071	16.071-22.071	+++++	+++++
	99 Perylene	25.766	25.782	25.759	25.759	25.767	25.758	25.758	25.758	22.758-28.758	25.764	0.009
	100 3-beta-Coprostanol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	25.411	22.411-28.411	+++++	+++++
	101 Cholesterol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	26.023	23.023-29.023	+++++	+++++
	102 beta-Sitosterol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	79.550	76.550-82.550	+++++	+++++
	103 Pyridine	4.719	4.711	+++++	4.727	4.719	4.727	4.742	4.742	1.742-7.742	4.724	0.011
	188 2,6-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	11.874	8.874-14.874	+++++	+++++
	189 N-Nitrosomethylethylam	+++++	+++++	+++++	+++++	+++++	+++++	+++++	5.818	2.818-8.818	+++++	+++++

ARI Labs, Inc.

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Integrator : HP RTE
Method file : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Last Edit : 16-Jul-2019 09:43 yev

Calibration File Names:
Level 1: \\Target\share\chem3\nt10.i\20190715.b\NT1019071506.D
Level 2: \\Target\share\chem3\nt10.i\20190715.b\NT1019071512.D
Level 3: \\Target\share\chem3\nt10.i\20190715.b\NT1019071507.D
Level 4: \\Target\share\chem3\nt10.i\20190715.b\NT1019071510.D
Level 5: \\Target\share\chem3\nt10.i\20190715.b\NT1019071504.D
Level 6: \\Target\share\chem3\nt10.i\20190715.b\NT1019071508.D
Level 7: \\Target\share\chem3\nt10.i\20190715.b\NT1019071505.D

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	20.0000 Level 7	Curve	Coefficients b	m1	m2	%RSD or R^2	
186 Carbaryl	+++++	+++++	+++++	+++++	+++++	+++++	+++++						
								AVRG		0.000e+000		0.000e+000	<-
179 n-Decane	+++++	+++++	+++++	+++++	+++++	+++++	+++++						
								AVRG		0.000e+000		0.000e+000	<-
180 n-Octadecane	+++++	+++++	+++++	+++++	+++++	+++++	+++++						
								AVRG		0.000e+000		0.000e+000	<-
169 4-tert-Butylphenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++						
								AVRG		0.000e+000		0.000e+000	

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Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
170 N,N-Dimethylaniline	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
171 2,3-Dimethylaniline	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
172 2,4-Dimethylaniline	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
173 2,5-Dimethylaniline	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
174 2,6-Dimethylaniline	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
175 3,4-Dimethylaniline	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
176 3,5-Dimethylaniline	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000

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Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
177 p-Benzoquinone	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
168 Pentachlorobenzene	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
145 4,4'-DDE	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
146 4,4'-DDD	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
147 4,4'-DDT	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
148 Dieldrin	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
149 TCMX	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	

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Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
	20.0000 Level 7											
150 DCBP	*****	*****	*****	*****	*****	*****						
	*****						AVRG		0.000e+000		0.000e+000	
138 Chlorobenzilate	*****	*****	*****	*****	*****	*****						
	*****						AVRG		0.000e+000		0.000e+000	
139 Isodrin	*****	*****	*****	*****	*****	*****						
	*****						AVRG		0.000e+000		0.000e+000	
140 Diallate A	*****	*****	*****	*****	*****	*****						
	*****						AVRG		0.000e+000		0.000e+000	
141 Diallate B	*****	*****	*****	*****	*****	*****						
	*****						AVRG		0.000e+000		0.000e+000	
142 1,2-Dibromo-3-Chloropropane	*****	*****	*****	*****	*****	*****						
	*****						AVRG		0.000e+000		0.000e+000	
135 2,3,5,6-Tetrachlorophenol	*****	*****	*****	*****	*****	*****						
	*****						AVRG		0.000e+000		0.000e+000	<-

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Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
136 2,3,4,5-tetrachlorophenol	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
133 Butylatedhydroxytoluene	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
132 3,6-Dimethylphenanthrene	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
131 1-Methylphenanthrene	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
130 Dibenzothiophene	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
129 1-Methylfluorene	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
128 N-Hexadecane	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	

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Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
127 2-Isopropylnaphthalene	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
126 N-Tetradecane	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
144 alpha-Terpineol	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
125 Safrole	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
124 3,4-Dimethylphenol	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
123 Acetophenone	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
122 Furfuraldehyde	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	

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Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
143 1,4-Dioxane	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
121 Quinoline	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
120 2,3,4,6-Tetrachlorophenol	0.28815 / 0.38848	0.31475	0.31808	0.34696	0.37083	0.36994	AVRG		0.34246		10.66947	
178 2-Benzyl-4-Chlorophenol	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
119 7,12-Dimethylbenz(a)anthracen	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
118 Triphenyl Phosphate	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
117 Butyl Diphenyl Phosphate	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-

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Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
116 Dibutyl Phenyl Phosphate	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	<-
115 Tributyl Phosphate	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	<-
114 Beta-Pinene	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	
113 Diphenyl Oxide	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	<-
112 Biphenyl	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	<-
111 Azobenzene (1,2-DP-Hydrazine)	1.67567	1.71377	1.61200	1.50365	1.55402	1.56406						
	1.51832						AVRG		1.59164		4.97923	
110 Tetrachloroguaiacol	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	<-

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Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
109 3,4,5-Trichloroguaiacol	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
181 3,4,6-Trichloroguaiacol	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
108 4,5,6-Trichloroguaiacol	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
184 3,4-Dichloroguaiacol	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
107 4,5-Dichloroguaiacol	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
182 4,6-Dichloroguaiacol	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
185 4-Chloroguaiacol	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-

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Start Cal Date : 15-JUL-2019 15:33
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Target Version : 4.14
Integrator : HP RTE
Method file : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Last Edit : 16-Jul-2019 09:43 yev

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
	20.0000 Level 7											
106 Guaiacol	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	<-
105 1-methylnaphthalene	0.71307	0.76764	0.75757	0.76730	0.82182	0.80528						
	0.85562						AVRG		0.78404		6.00253	
151 1,2,4,5-Tetrachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	<-
152 Benzo(e)pyrene	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	
153 Chlorpyrifos	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	
154 Diazinon	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	
155 Kelthane	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	

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Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	20.0000 Level 7										
156 Methyl Parathion	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++						AVRG		0.000e+000		0.000e+000
157 Ethyl Parathion	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++						AVRG		0.000e+000		0.000e+000
158 Ethion	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++						AVRG		0.000e+000		0.000e+000
159 4-Nonylphenol	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++						AVRG		0.000e+000		0.000e+000
160 Tetraethyl Tin	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++						AVRG		0.000e+000		0.000e+000
161 1,2,3-Trichloronaphthalene	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++						AVRG		0.000e+000		0.000e+000
162 1,2,3,4-Tetrachloronapthalene	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++						AVRG		0.000e+000		0.000e+000

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Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
163 1,2,3,5,8-Pentachloronaphthal	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
164 1,2,3,4,6,7-Hexachloronaphtha	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
165 1,2,3,4,5,6,7-Heptachloronaph	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
166 Octachloronaphthalene	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
167 2,2',4,4',5-Pentabromobipheny	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
3 Phenol	1.19719 / 1.22470	1.12698	1.09493	1.06976	1.31080	1.16773	AVRG		1.17030		7.07162
4 Bis(2-Chloroethyl)ether	1.03499 / 0.98557	0.86294	0.91733	0.86997	1.04160	0.92565	AVRG		0.94829		7.76148

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Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	20.0000 Level 7										
6 2-Chlorophenol	1.27772	1.20191	1.35191	1.27236	1.39599	1.32601					
	1.31433						AVRG		1.30574		4.78690
7 1,3-Dichlorobenzene	1.50060	1.43850	1.47102	1.50892	1.52506	1.49703					
	1.47564						AVRG		1.48811		1.92864
9 1,4-Dichlorobenzene	1.42630	1.48297	1.46725	1.38861	1.45507	1.42339					
	1.38740						AVRG		1.43300		2.60232
11 Benzyl alcohol	0.73045	0.72460	0.78123	0.73784	0.85151	0.77900					
	0.81724						AVRG		0.77455		6.14617
12 1,2-Dichlorobenzene	1.34521	1.53072	1.29858	1.29457	1.37778	1.34342					
	1.35275						AVRG		1.36329		5.83661
13 2-Methylphenol	0.92270	0.86376	0.91091	0.88058	0.95270	0.85982					
	0.90221						AVRG		0.89896		3.72114
14 2,2'-oxybis(1-Chloropropane)	0.32099	0.39112	0.42187	0.42537	0.44375	0.43746					
	0.44296						AVRG		0.41193		10.67858

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Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	20.0000 Level 7										
15 4-Methylphenol	0.92554	0.87693	0.96978	0.93840	1.06202	0.92576					
	0.97167						AVRG		0.95287		6.06083
16 N-Nitroso-di-n-propylamine	0.61476	0.59011	0.53923	0.51094	0.60268	0.56450					
	0.59259						AVRG		0.57355		6.50929
17 Hexachloroethane	0.69869	0.53714	0.58552	0.53705	0.60107	0.59741					
	0.61663						AVRG		0.59622		9.19875
19 Nitrobenzene	0.31126	0.28790	0.28648	0.27753	0.30963	0.30544					
	0.32343						AVRG		0.30024		5.49314
20 Isophorone	0.47263	0.44029	0.48341	0.46121	0.54681	0.53396					
	0.58655						AVRG		0.50355		10.52148
21 2-Nitrophenol	+++++	0.18305	0.17996	0.18636	0.21272	0.20838					
	0.22312						AVRG		0.19893		9.08888
22 2,4-Dimethylphenol	0.33673	0.35689	0.32335	0.32817	0.34723	0.32723					
	0.33118						AVRG		0.33583		3.61514

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Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	20.0000 Level 7										
23 Bis(2-Chloroethoxy)methane	0.27654	0.29784	0.30289	0.25940	0.29652	0.28619					
	0.30132						AVRG		0.28867		5.51032
24 Benzoic acid	+++++	8266	22440	54794	146995	217383					
	507517						QUAD	0.000e+000	4.44353	-0.07610	0.99890
25 2,4-Dichlorophenol	0.28105	0.27881	0.27472	0.26984	0.28684	0.28052					
	0.28012						AVRG		0.27884		1.91632
26 1,2,4-Trichlorobenzene	0.28801	0.33081	0.32253	0.30033	0.31965	0.32682					
	0.32158						AVRG		0.31568		4.92763
28 Naphthalene	0.94433	0.93358	0.88596	0.85074	0.91272	0.93790					
	0.97081						AVRG		0.91944		4.36952
29 4-Chloroaniline	+++++	0.39399	0.37987	0.37980	0.41059	0.41657					
	0.43835						AVRG		0.40319		5.70576
30 Hexachlorobutadiene	0.21796	0.20624	0.17415	0.18021	0.18821	0.19376					
	0.19512						AVRG		0.19366		7.72227

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Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	20.0000 Level 7										
31 4-Chloro-3-methylphenol	+++++	0.24141	0.27230	0.26984	0.31219	0.29211					
	0.32605						AVRG		0.28565		10.80582
32 2-Methylnaphthalene	0.75895	0.76286	0.76047	0.73396	0.79393	0.80034					
	0.84869						AVRG		0.77989		4.84439
33 Hexachlorocyclopentadiene	+++++	0.37989	0.38829	0.40440	0.41761	0.45838					
	0.46212						AVRG		0.41845		8.34449
34 2,4,6-Trichlorophenol	0.38451	0.42674	0.39229	0.40793	0.41736	0.41863					
	0.43442						AVRG		0.41170		4.38179
35 2,4,5-Trichlorophenol	0.38782	0.40181	0.43701	0.40968	0.44578	0.44464					
	0.44881						AVRG		0.42508		5.82882
37 2-Chloronaphthalene	1.40484	1.27768	1.25867	1.21600	1.26733	1.36779					
	1.38233						AVRG		1.31066		5.56312
38 2-Nitroaniline	0.25335	0.24536	0.27804	0.26518	0.31194	0.29726					
	0.31610						AVRG		0.28104		10.00898

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Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	Coefficients m1	Coefficients m2	%RSD or R^2
39 Dimethylphthalate	1.61237	1.50645	1.51905	1.41165	1.43841	1.50667					
	1.41035						AVRG		1.48642		4.86856
40 Acenaphthylene	1.93831	1.97218	1.96046	1.88008	1.90336	1.95404					
	1.88868						AVRG		1.92816		1.92190
41 2,6-Dinitrotoluene	+++++	0.31259	0.32384	0.32686	0.33497	0.33815					
	0.33218						AVRG		0.32810		2.81051
43 3-Nitroaniline	+++++	0.37495	0.37942	0.38247	0.39287	0.38621					
	0.39775						AVRG		0.38561		2.20718
44 Acenaphthene	1.21526	1.19078	1.19125	1.14506	1.19867	1.27441					
	1.26550						AVRG		1.21156		3.73815
45 2,4-Dinitrophenol	+++++	2884	9031	25418	71256	120430					
	289387						QUAD	0.000e+000	4.44783	-0.10419	0.99944
46 Dibenzofuran	2.13009	2.06325	1.90026	1.88500	2.00433	1.95931					
	1.99609						AVRG		1.99119		4.36105

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Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
47 4-Nitrophenol	+++++	0.20152	0.24065	0.23734	0.26170	0.26254					
	0.27180						AVRG		0.24593		10.39513
48 2,4-Dinitrotoluene	+++++	0.42265	0.43187	0.41822	0.44258	0.47861					
	0.48445						AVRG		0.44640		6.39085
49 Fluorene	1.26911	1.47203	1.35562	1.32971	1.34564	1.39626					
	1.36377						AVRG		1.36173		4.57258
50 Diethylphthalate	1.41649	1.36891	1.46114	1.39278	1.46986	1.48588					
	1.42335						AVRG		1.43120		2.99378
51 4-Chlorophenyl-phenylether	0.74226	0.70082	0.70830	0.67765	0.67708	0.71643					
	0.68824						AVRG		0.70154		3.32878
52 4-Nitroaniline	+++++	3492	6397	22040	61256	120640					
	314904						QUAD	0.000e+000	2.41975	-0.11230	0.99828
53 4,6-Dinitro-2-methylphenol	+++++	0.15526	0.18715	0.19239	0.21589	0.21746					
	0.21461						AVRG		0.19712		12.31391

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54 N-Nitrosodiphenylamine	0.54276	0.53435	0.59203	0.54990	0.54225	0.55936					
	0.52283						AVRG		0.54907		4.03392
56 4-Bromophenyl-phenylether	0.31468	0.31101	0.30515	0.30539	0.32048	0.34682					
	0.34958						AVRG		0.32187		5.82993
57 Hexachlorobenzene	0.38627	0.32526	0.34471	0.32239	0.33894	0.34496					
	0.33790						AVRG		0.34292		6.14139
58 Pentachlorophenol	+++++	0.12486	0.13092	0.13714	0.16020	0.15607					
	0.15866						AVRG		0.14464		10.73270
60 Phenanthrene	0.94796	0.99791	0.96410	0.91496	0.95330	1.02764					
	1.03367						AVRG		0.97708		4.50668
61 Anthracene	0.93142	0.94179	0.93334	0.96787	0.99106	1.08080					
	1.09839						AVRG		0.99209		7.05814
62 Carbazole	0.94676	0.92229	0.92567	0.82911	0.87108	0.98248					
	1.05774						AVRG		0.93359		7.94267

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	20.0000 Level 7										
63 Di-n-butylphthalate	1.22650	1.18897	1.25892	1.25786	1.40256	1.51478					
	1.61259						AVRG		1.35174		11.95983
64 Fluoranthene	1.09781	1.18713	1.19019	1.16469	1.25396	1.28119					
	1.38161						AVRG		1.22237		7.53739
65 Pyrene	1.27422	1.17227	1.15875	1.20958	1.31227	1.38067					
	1.42735						AVRG		1.27644		8.09736
67 Butylbenzylphthalate	0.51929	0.51702	0.59922	0.58168	0.65058	0.65096					
	0.64342						AVRG		0.59459		9.84825
68 Benzo(a)anthracene	1.11787	1.16994	1.13344	1.12655	1.17589	1.19261					
	1.20757						AVRG		1.16055		3.00030
70 3,3'-Dichlorobenzidine	+++++	0.43753	0.46511	0.34432	0.34700	0.37967					
	0.47264						AVRG		0.40771		14.25530
71 Chrysene	1.01982	1.01545	0.99541	1.00546	1.00640	1.07188					
	1.07419						AVRG		1.02695		3.15822

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Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
72 bis(2-Ethylhexyl)phthalate	0.33766	0.31388	0.35863	0.35588	0.36232	0.38273					
	0.35161						AVRG		0.35182		6.10594
73 Di-n-octylphthalate	0.79169	0.76220	0.71537	0.71282	0.71159	0.75257					
	0.73370						AVRG		0.73999		4.09694
74 Benzo(b)fluoranthene	1.11571	1.06064	1.03897	1.12384	1.19757	1.25470					
	1.24195						AVRG		1.14763		7.44621
75 Benzo(k)fluoranthene	1.11337	1.15315	1.23788	1.12092	1.12695	1.17337					
	1.15614						AVRG		1.15454		3.69019
187 Total Benzofluoranthenes	1.05799	1.07257	1.07610	1.08254	1.11651	1.15748					
	1.14244						AVRG		1.10081		3.47232
76 Benzo(a)pyrene	1.00891	0.93654	0.99033	1.00800	1.04932	1.09366					
	1.12308						AVRG		1.02998		6.18211
78 Indeno(1,2,3-cd)pyrene	1.24412	1.16222	1.20280	1.25376	1.25904	1.29529					
	1.24571						AVRG		1.23756		3.46760

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Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
79 Dibenzo(a,h)anthracene	1.06763	0.98566	1.00550	0.99406	1.00818	1.03339					
	0.95842						AVRG		1.00755		3.47517
80 Benzo(g,h,i)perylene	1.05142	0.99696	1.01630	1.01918	1.06616	1.08418					
	1.06208						AVRG		1.04233		3.05005
90 N-Nitrosodimethylamine	0.44122	0.36422	0.40376	0.39522	0.47112	0.47298					
	0.48922						AVRG		0.43396		10.84356
91 Aniline	1.01996	1.00168	1.02582	0.96640	1.15587	1.01683					
	1.06672						AVRG		1.03618		5.85210
92 1,2-Diphenylhydrazine	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++						AVRG		0.000e+000		0.000e+000
93 Benzidine	+++++	14598	30429	53023	170105	308973					
	847141						QUAD	0.10269	1.59129	-0.04951	0.99876
96 p-Cymene	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++						AVRG		0.000e+000		0.000e+000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 15-JUL-2019 15:33
End Cal Date : 15-JUL-2019 20:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Last Edit : 16-Jul-2019 09:43 yev

Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
97 Caffeine	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
98 Retene	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
99 Perylene	0.90032 / 1.00121	0.95254	0.92205	0.91584	0.94270	0.99766	AVRG		0.94747		4.16101	
100 3-beta-Coprostanol	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
101 Cholesterol	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
102 beta-Sitosterol	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	
103 Pyridine	+++++ / 0.91474	0.66202	0.76903	0.77856	0.85899	0.84568	AVRG		0.80484		10.97989	<-

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 15-JUL-2019 15:33
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Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Last Edit : 16-Jul-2019 09:43 yev

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
	20.0000 Level 7											
188 2,6-Dichlorophenol	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	<-
189 N-Nitrosomethylethylamine	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	<-
$ 1 2-Fluorophenol	1.12289	1.04189	1.12751	1.05289	1.23821	1.12119						
	1.15797						AVRG		1.12322		5.86204	
$ 137 d8-1,4-Dioxane	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++						AVRG		0.000e+000		0.000e+000	<-
$ 2 Phenol-d5	+++++	1.18260	1.21556	1.17033	1.41895	1.26249						
	1.39803						AVRG		1.27466		8.52492	
$ 5 2-Chlorophenol-d4	1.47678	1.23603	1.34369	1.33156	1.39813	1.34203						
	1.35752						AVRG		1.35511		5.36345	
$ 10 1,2-Dichlorobenzene-d4	0.98679	0.99605	0.96261	0.89668	0.90654	0.85447						
	0.88213						AVRG		0.92647		5.94803	

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 15-JUL-2019 15:33
End Cal Date : 15-JUL-2019 20:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Last Edit : 16-Jul-2019 09:43 yev

Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
$ 18 Nitrobenzene-d5	0.30606	0.31155	0.31088	0.28975	0.33854	0.31218					
	0.32094						AVRG		0.31284		4.72538
$ 36 2-Fluorobiphenyl	1.66685	1.50800	1.55494	1.43936	1.51586	1.50398					
	1.52078						AVRG		1.52997		4.54503
$ 55 2,4,6-Tribromophenol	+++++	2809	5881	14643	37859	57262					
	136123						QUAD	0.000e+000	3.26510	-0.05581	0.99962
$ 66 Terphenyl-d14	0.86948	0.81630	0.86774	0.86658	0.92888	0.85214					
	0.85857						AVRG		0.86567		3.85588
$ 85 p-Cresol-d4	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++						AVRG		0.000e+000		0.000e+000
$ 86 Anthracene-d10	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++						AVRG		0.000e+000		0.000e+000
$ 87 Fluoranthene-d10	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++						AVRG		0.000e+000		0.000e+000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 15-JUL-2019 15:33
End Cal Date : 15-JUL-2019 20:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Last Edit : 16-Jul-2019 09:43 yev

Compound	0.2000000 Level 1 / 20.0000 Level 7	0.5000000 Level 2	1.0000 Level 3	2.5000 Level 4	5.0000 Level 5	10.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
$ 88 Dibenz(a,h)anthracene-d14	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
$ 89 Diphenyl-d10	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000
$ 95 D10-1-methylnaphthalene	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000

ARI Labs, Inc.

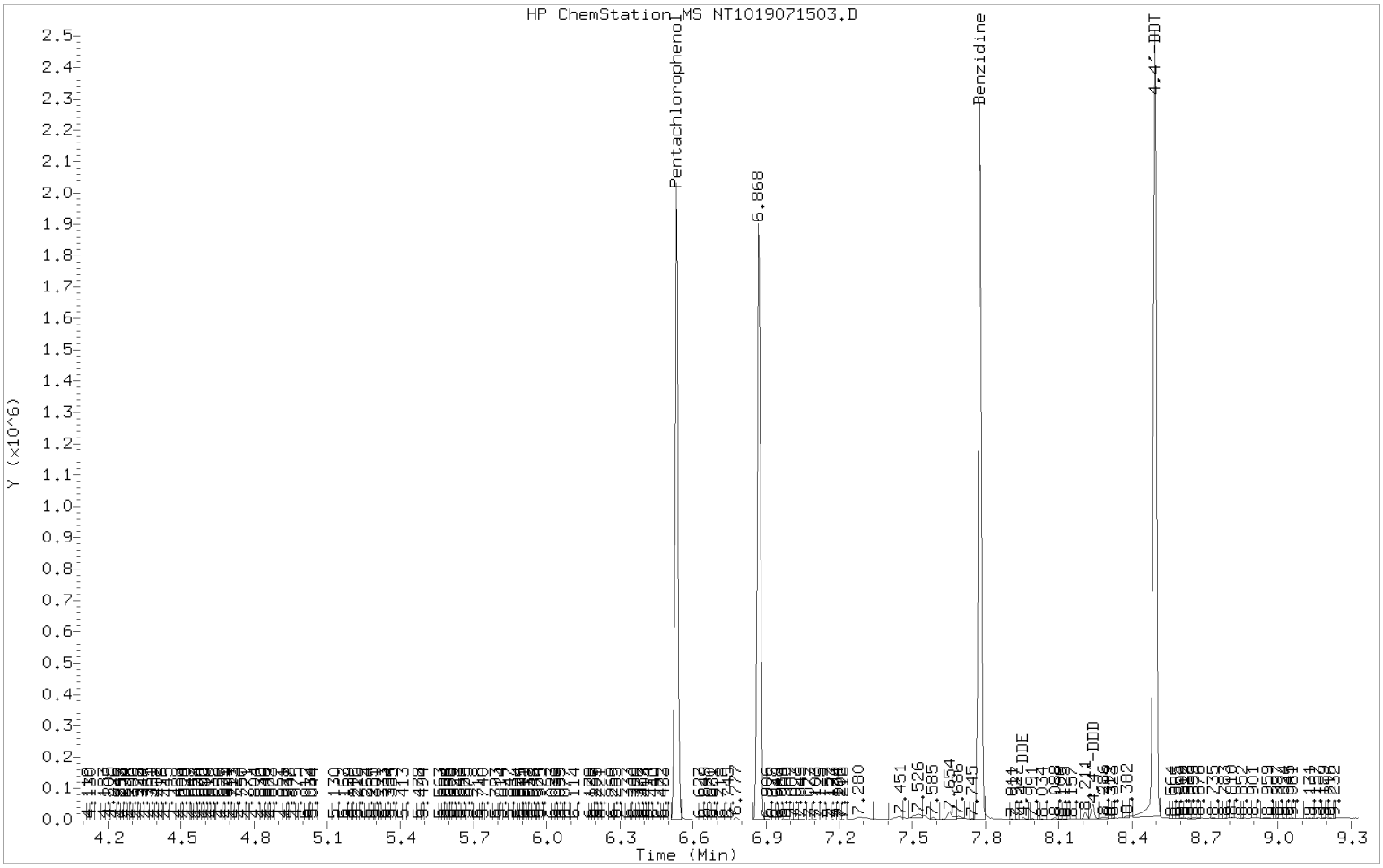
INITIAL CALIBRATION DATA

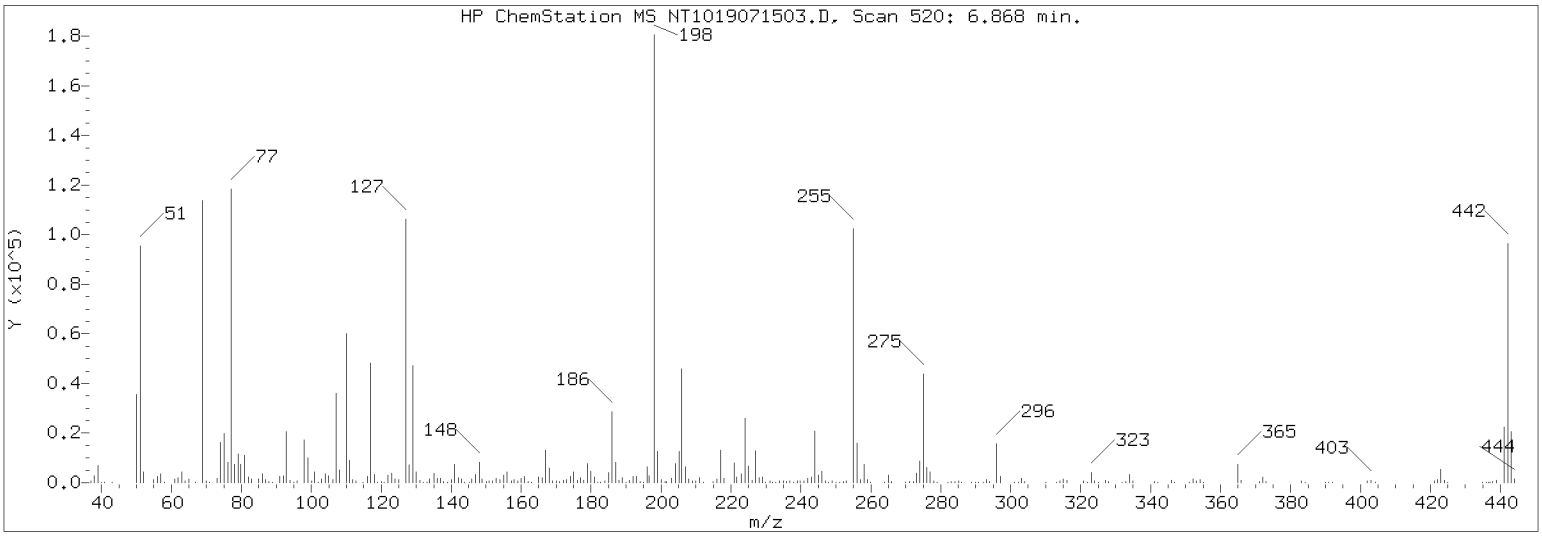
Start Cal Date : 15-JUL-2019 15:33
End Cal Date : 15-JUL-2019 20:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Last Edit : 16-Jul-2019 09:43 yev

Curve	Formula	Units
Averaged	Amt = Rsp/m1	Response
Quad	Amt = b + m1*Rsp + m2*Rsp^2	Response

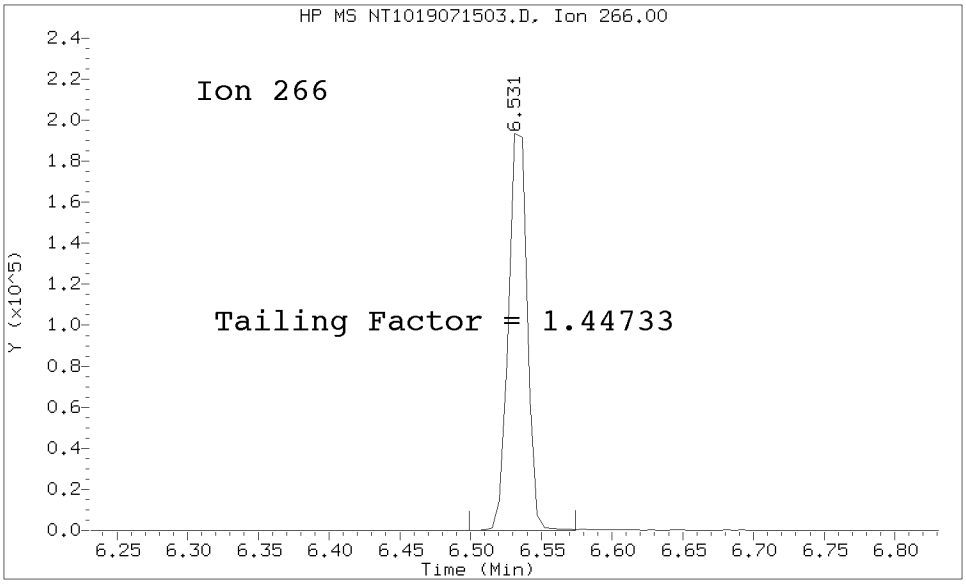
DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20190715.b/NT1019071503.D/NT1019071503.D
Method Used: \20190715.b\df8270.m Inst: nt10
Injection Date: 15-JUL-2019 15:18 Operator: YZ
Sample Info: SHG0000-TUN1 SHG0000-TUN1
Report Date: 07/15/2019 15:50



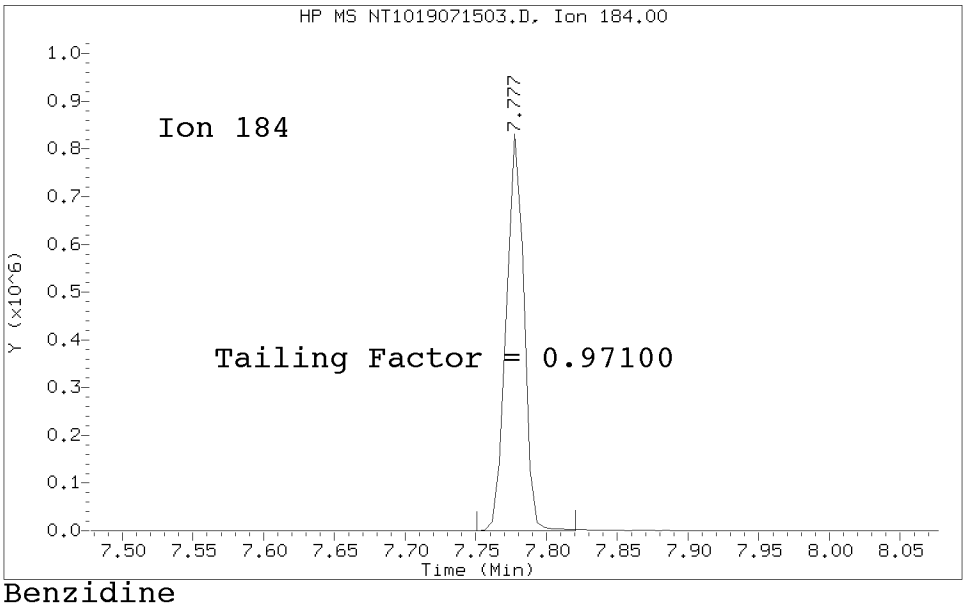


Datafile Analyzed: /20190715.b/NT1019071503.D/NT1019071503.D
Method Used: \20190715.b\df8270.m\sw846ddt.m Inst: nt10
Injection Date: 15-JUL-2019 15:18 Operator: YZ
Sample Info: SHG0000-TUN1
Report Date: 07/15/2019 15:50



Pentachlorophenol
==========
Exp. RT = 6.531
Found RT = 6.531

Tail Factor = 1.447 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.777
Found RT = 7.777

Tail Factor = 0.971 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	1.4473258	2.000	PASS
Benzidine	0.9709962	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	361362			N/A
4,4-DDE	657	0.2	20.0	PASS
4,4-DDD	7142	1.9	20.0	PASS
4,4-DDD + DDE	7799	2.1	20.0	PASS

Tuning Sample, nt10.i/20190715.b/NT1019071503.D, *** PASSED ***

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	48.66
68	Less than 2.00% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	58.49
70	Less than 2.00% of mass 69	0.42 (0.71)
127	10.00 - 80.00% of mass 198	55.78
197	Less than 2.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.75
275	10.00 - 60.00% of mass 198	25.98
365	Greater than 1.00% of mass 198	4.47
441	0.01 - 24.00% of mass 442	14.50 (23.39)
442	50.00 - 200.00% of mass 198	62.00
443	15.00 - 24.00% of mass 442	12.20 (19.68)

Data File: NT1019071503.D
Spectrum: Avg. Scans 519-521 (6.87), Background Scan 514
Location of Maximum: 198.00
Number of points: 294

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	653	128.00	6021	203.00	1373	291.00	142
38.00	1830	129.00	36056	204.00	6092	292.00	119
39.00	4713	130.00	2850	205.00	9479	293.00	957
40.00	292	131.00	657	206.00	37128	294.00	238
41.00	170	132.00	292	207.00	5048	295.00	378
49.00	645	133.00	171	208.00	1436	296.00	13349
50.00	26392	134.00	1208	209.00	527	297.00	2057
51.00	70656	135.00	3365	210.00	641	298.00	83
52.00	3568	136.00	1273	211.00	1819	301.00	206
53.00	66	137.00	1479	212.00	252	302.00	240
55.00	834	138.00	364	215.00	505	303.00	1255
56.00	1863	139.00	184	216.00	1161	304.00	460
57.00	2871	140.00	716	217.00	10204	308.00	125
58.00	101	141.00	5337	218.00	1236	310.00	134
61.00	1095	142.00	1431	220.00	105	313.00	211
62.00	1481	143.00	1067	221.00	6429	314.00	610
63.00	3320	144.00	265	222.00	1687	315.00	1506
64.00	544	145.00	208	223.00	2644	316.00	721
65.00	1191	146.00	1043	224.00	20488	317.00	68
67.00	200	147.00	2781	225.00	5542	321.00	383
69.00	84944	148.00	6471	226.00	886	322.00	268
70.00	603	149.00	1084	227.00	10550	323.00	3454
71.00	157	150.00	401	228.00	1489	324.00	644
73.00	1302	151.00	504	229.00	1949	325.00	64
74.00	12358	152.00	451	230.00	307	327.00	778
75.00	15513	153.00	1505	231.00	656	328.00	476
76.00	6240	154.00	1202	232.00	159	329.00	62
77.00	89744	155.00	2448	233.00	262	332.00	224
78.00	5958	156.00	3607	234.00	764	333.00	527
79.00	8851	157.00	551	235.00	728	334.00	2641
80.00	5606	158.00	906	236.00	393	335.00	564
81.00	8152	159.00	533	237.00	614	341.00	438
82.00	1886	160.00	1438	238.00	91	342.00	224
83.00	1129	161.00	1922	239.00	559	346.00	833
84.00	154	162.00	454	240.00	365	347.00	178
85.00	1242	163.00	200	241.00	669	351.00	59
86.00	2551	164.00	83	242.00	1349	352.00	1211
87.00	907	165.00	1940	243.00	1936	353.00	773
88.00	369	166.00	1570	244.00	16824	354.00	1083
89.00	233	167.00	10438	245.00	2332	355.00	84
91.00	1970	168.00	4809	246.00	3899	365.00	6488
92.00	2013	169.00	653	247.00	775	366.00	831
93.00	15758	170.00	371	248.00	141	370.00	55
94.00	779	171.00	394	249.00	596	371.00	442
95.00	292	172.00	823	250.00	219	372.00	1889
96.00	537	173.00	1041	251.00	215	373.00	469
98.00	12960	174.00	1995	252.00	383	383.00	612
99.00	7258	175.00	3122	253.00	727	384.00	170
100.00	709	176.00	905	255.00	83288	390.00	195

101.00	3447	177.00	1644	256.00	12791	391.00	184
102.00	376	178.00	660	257.00	1129	392.00	136
103.00	1324	179.00	5948	258.00	5785	401.00	155
104.00	2616	180.00	3758	259.00	1139	402.00	756
105.00	2169	181.00	1836	260.00	151	403.00	998
106.00	734	182.00	516	264.00	110	404.00	323
107.00	28360	183.00	50	265.00	2573	419.00	54
108.00	3947	184.00	598	266.00	333	420.00	68
110.00	45424	185.00	3669	270.00	170	421.00	939
111.00	7046	186.00	22480	271.00	291	422.00	1237
112.00	1031	187.00	6189	272.00	501	423.00	5216
113.00	468	188.00	707	273.00	2990	424.00	1103
114.00	60	189.00	1648	274.00	7290	425.00	144
115.00	172	190.00	222	275.00	37728	434.00	65
116.00	1508	191.00	776	276.00	5075	435.00	179
117.00	37224	192.00	2068	277.00	3745	436.00	245
118.00	2555	193.00	1963	278.00	581	437.00	310
119.00	310	194.00	445	279.00	153	438.00	872
120.00	438	195.00	217	282.00	123	439.00	508
121.00	214	196.00	6004	283.00	533	441.00	21056
122.00	2203	198.00	145216	284.00	226	442.00	90040
123.00	3036	199.00	9800	285.00	552	443.00	17720
124.00	1351	200.00	859	286.00	107	444.00	1440
125.00	1266	201.00	941	289.00	132		
127.00	81000	202.00	96	290.00	75		

Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071504.D

Date : 15-JUL-2019 15:33

Client ID:

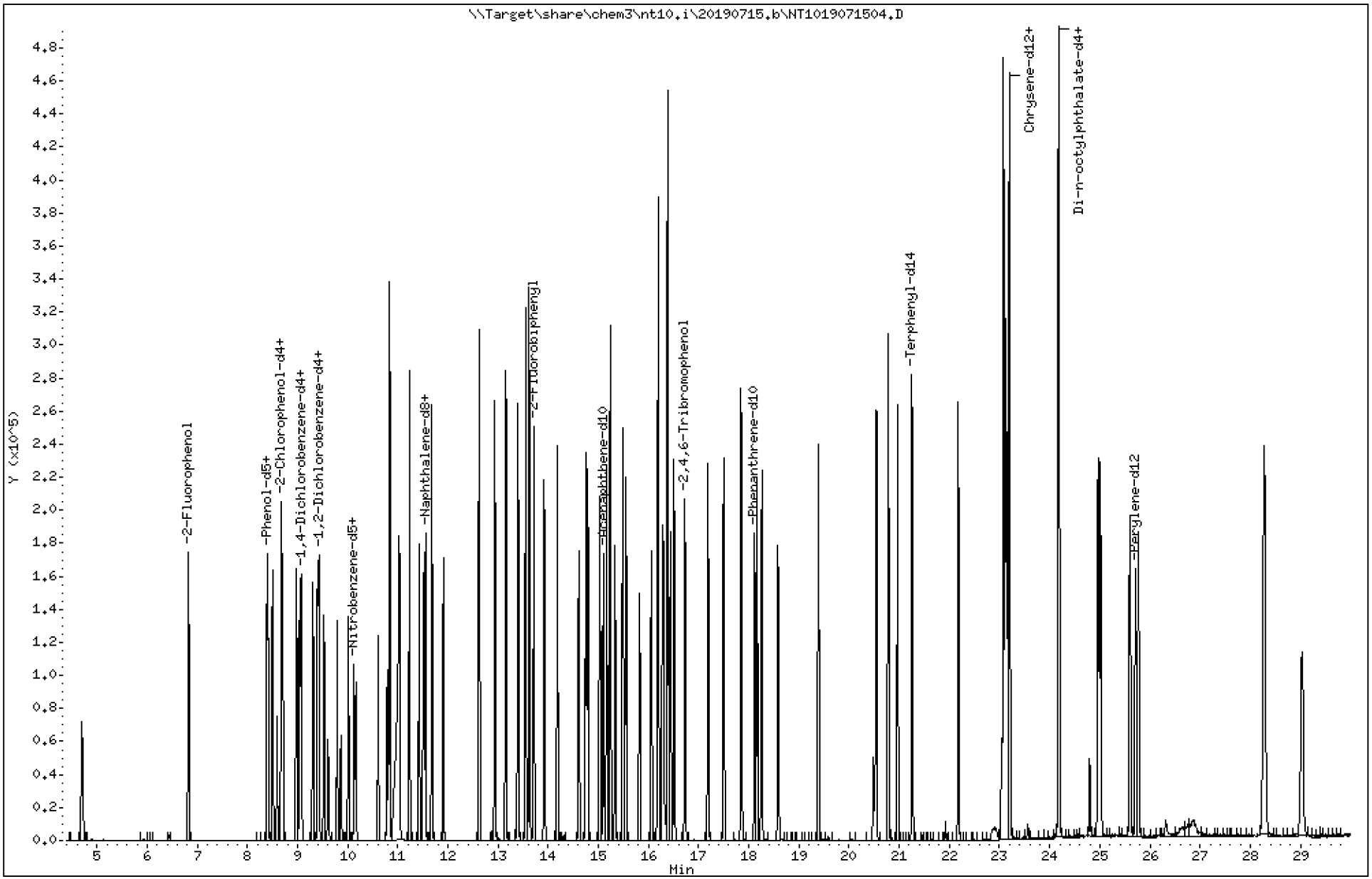
Instrument: nt10.i

Sample Info: SHG0206-CAL5

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190715.b\NT1019071504.D
Lab Smp Id: SHG0206-CAL5
Inj Date : 15-JUL-2019 15:33
Operator : YZ Inst ID: nt10.i
Smp Info : SHG0206-CAL5
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Meth Date : 17-Jul-2019 12:31 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 2 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 2-Fluorophenol	112	6.827	6.827	(0.755)	76008	7.50000	8.268
$	2 Phenol-d5	99	8.395	8.395	(0.928)	87103	7.50000	8.454
	3 Phenol	94	8.419	8.419	(0.931)	53643	5.00000	5.600
$	5 2-Chlorophenol-d4	132	8.681	8.681	(0.960)	85825	7.50000	7.738
	4 Bis(2-Chloroethyl)ether	93	8.596	8.596	(0.950)	42626	5.00000	5.492
	6 2-Chlorophenol	128	8.704	8.704	(0.962)	57129	5.00000	5.346
	7 1,3-Dichlorobenzene	146	8.983	8.983	(0.993)	62411	5.00000	5.124
*	8 1,4-Dichlorobenzene-d4	152	9.045	9.045	(1.000)	32739	4.00000	
	9 1,4-Dichlorobenzene	146	9.076	9.076	(1.003)	59547	5.00000	5.077
$	10 1,2-Dichlorobenzene-d4	152	9.402	9.402	(1.039)	37099	5.00000	4.892
	12 1,2-Dichlorobenzene	146	9.425	9.425	(1.042)	56384	5.00000	5.053
	11 Benzyl alcohol	108	9.309	9.309	(1.029)	34847	5.00000	5.497
	14 2,2'-oxybis(1-Chloropropane)	121	9.611	9.611	(1.063)	18160	5.00000	5.386
	13 2-Methylphenol	108	9.526	9.526	(1.053)	38988	5.00000	5.299
	17 Hexachloroethane	117	10.015	10.015	(1.107)	24598	5.00000	5.041
	16 N-Nitroso-di-n-propylamine	70	9.868	9.868	(1.091)	24664	5.00000	5.254
	15 4-Methylphenol	108	9.798	9.798	(1.083)	43462	5.00000	5.573
$	18 Nitrobenzene-d5	82	10.131	10.131	(0.880)	49718	5.00000	5.411
	19 Nitrobenzene	77	10.170	10.170	(0.884)	45472	5.00000	5.156
	20 Isophorone	82	10.605	10.605	(0.922)	80304	5.00000	5.430
	21 2-Nitrophenol	139	10.792	10.792	(0.938)	31240	5.00000	5.347
	22 2,4-Dimethylphenol	107	10.834	10.834	(0.942)	101988	10.0000	10.34
	23 Bis(2-Chloroethoxy)methane	93	11.038	11.038	(0.959)	43546	5.00000	5.136
	24 Benzoic acid	105	11.029	11.029	(0.958)	146995	20.0000	21.76(M)
	25 2,4-Dichlorophenol	162	11.233	11.233	(0.976)	84249	10.0000	10.29
	26 1,2,4-Trichlorobenzene	180	11.422	11.422	(0.993)	46943	5.00000	5.063
*	27 Naphthalene-d8	136	11.507	11.507	(1.000)	117487	4.00000	
	28 Naphthalene	128	11.553	11.553	(1.004)	134041	5.00000	4.963
	29 4-Chloroaniline	127	11.677	11.677	(1.015)	120596	10.0000	10.18
	30 Hexachlorobutadiene	225	11.909	11.909	(1.035)	27641	5.00000	4.859
	31 4-Chloro-3-methylphenol	107	12.628	12.628	(1.097)	91695	10.0000	10.93
	32 2-Methylnaphthalene	142	12.938	12.938	(1.124)	116595	5.00000	5.090
	33 Hexachlorocyclopentadiene	237	13.402	13.402	(0.887)	64583	10.0000	9.980

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
	34	2,4,6-Trichlorophenol	196	13.549	13.549	(0.897)	64543	10.0000	10.14
	35	2,4,5-Trichlorophenol	196	13.619	13.619	(0.902)	68938	10.0000	10.49
$	36	2-Fluorobiphenyl	172	13.712	13.712	(0.908)	117212	5.00000	4.954
	37	2-Chloronaphthalene	162	13.921	13.921	(0.922)	97995	5.00000	4.835
	38	2-Nitroaniline	65	14.184	14.184	(0.939)	48241	10.0000	11.10
	39	Dimethylphthalate	163	14.610	14.610	(0.967)	111223	5.00000	4.838
	40	Acenaphthylene	152	14.788	14.788	(0.979)	147175	5.00000	4.936
	41	2,6-Dinitrotoluene	165	14.749	14.749	(0.976)	51803	10.0000	10.21
*	42	Acenaphthene-d10	164	15.105	15.105	(1.000)	61859	4.00000	
	43	3-Nitroaniline	138	15.027	15.027	(0.995)	60757	10.0000	10.19
	44	Acenaphthene	153	15.167	15.167	(1.004)	92686	5.00000	4.947
	45	2,4-Dinitrophenol	184	15.236	15.236	(1.009)	71256	20.0000	19.94
	46	Dibenzofuran	168	15.491	15.491	(1.026)	154982	5.00000	5.033
	47	4-Nitrophenol	109	15.337	15.337	(1.015)	40472	10.0000	10.64
	48	2,4-Dinitrotoluene	165	15.553	15.553	(1.030)	68444	10.0000	9.915
	50	Diethylphthalate	149	16.063	16.063	(1.063)	113655	5.00000	5.135
	49	Fluorene	166	16.195	16.195	(1.072)	104050	5.00000	4.941
	51	4-Chlorophenyl-phenylether	204	16.187	16.187	(1.072)	52354	5.00000	4.826
	52	4-Nitroaniline	138	16.288	16.288	(1.078)	61256	10.0000	9.144
	53	4,6-Dinitro-2-methylphenol	198	16.380	16.380	(0.904)	122595	20.0000	21.90
	54	N-Nitrosodiphenylamine	169	16.434	16.434	(0.907)	76982	5.00000	4.938
$	55	2,4,6-Tribromophenol	330	16.727	16.727	(1.107)	37859	7.50000	8.094
	56	4-Bromophenyl-phenylether	248	17.190	17.190	(0.949)	45498	5.00000	4.978
	57	Hexachlorobenzene	284	17.499	17.499	(0.966)	48119	5.00000	4.942
	58	Pentachlorophenol	266	17.847	17.847	(0.985)	45487	10.0000	11.08
*	59	Phenanthrene-d10	188	18.118	18.118	(1.000)	113574	4.00000	
	60	Phenanthrene	178	18.164	18.164	(1.003)	135338	5.00000	4.878
	61	Anthracene	178	18.257	18.257	(1.008)	140698	5.00000	4.995
	62	Carbazole	167	18.582	18.582	(1.026)	123665	5.00000	4.665
	63	Di-n-butylphthalate	149	19.387	19.387	(1.070)	199118	5.00000	5.188
	64	Fluoranthene	202	20.547	20.547	(0.888)	165817	5.00000	5.129
	65	Pyrene	202	20.965	20.965	(0.906)	173528	5.00000	5.140
$	66	Terphenyl-d14	244	21.252	21.252	(0.918)	122830	5.00000	5.365
	67	Butylbenzylphthalate	149	22.181	22.181	(0.958)	86029	5.00000	5.471
	68	Benzo(a)anthracene	228	23.118	23.118	(0.999)	155494	5.00000	5.066
*	69	Chrysene-d12	240	23.149	23.149	(1.000)	105788	4.00000	
	70	3,3'-Dichlorobenzidine	252	23.079	23.079	(0.997)	137655	15.0000	12.77
	71	Chrysene	228	23.195	23.195	(1.002)	133081	5.00000	4.900
	72	bis(2-Ethylhexyl)phthalate	149	23.203	23.203	(0.960)	114505	5.00000	5.149
*	134	Di-n-octylphthalate-d4	153	24.178	24.178	(1.000)	252823	4.00000	
	73	Di-n-octylphthalate	149	24.186	24.186	(1.000)	224882	5.00000	4.808
	74	Benzo(b)fluoranthene	252	24.968	24.968	(0.971)	170642	5.00000	5.218
	75	Benzo(k)fluoranthene	252	25.014	25.014	(0.973)	160579	5.00000	4.881
	76	Benzo(a)pyrene	252	25.603	25.603	(0.996)	149518	5.00000	5.094
*	77	Perylene-d12	264	25.711	25.711	(1.000)	113992	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	28.276	28.276	(1.100)	179401	5.00000	5.087
	79	Dibenzo(a,h)anthracene	278	28.291	28.291	(1.100)	143656	5.00000	5.003
	80	Benzo(g,h,i)perylene	276	29.029	29.029	(1.129)	151917	5.00000	5.114
	90	N-Nitrosodimethylamine	74	4.695	4.695	(0.519)	38560	10.0000	10.86
	91	Aniline	93	8.504	8.504	(0.940)	94605	10.0000	11.16
	93	Benzidine	184	20.780	20.780	(0.898)	170105	10.0000	10.13
	103	Pyridine	79	4.719	4.719	(0.522)	35153	5.00000	5.336
	105	1-methylnaphthalene	142	13.155	13.155	(1.143)	120692	5.00000	5.241
	111	Azobenzene (1,2-DP-Hydrazine)	77	16.511	16.511	(1.093)	120163	5.00000	4.882

						AMOUNTS	
	QUANT SIG					CAL-AMT	ON-COL
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/mL)	(ug/mL)
187 Total Benzofluoranthenes	252	24.968	24.968	(0.971)	318183	10.0000	10.14
99 Perylene	252	25.765	25.765	(1.002)	134325	5.00000	4.975
98 Retene	219	Compound Not Detected.					
120 2,3,4,6-Tetrachlorophenol	232	15.824	15.824	(1.048)	28674	5.00000	5.414

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019071504.D
Lab Smp Id: SHG0206-CAL5
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Misc Info:

Calibration Date: 15-JUL-2019
Calibration Time: 15:33
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	32739	0.00
27 Naphthalene-d8	117487	58744	234974	117487	0.00
42 Acenaphthene-d10	61859	30930	123718	61859	0.00
59 Phenanthrene-d10	113574	56787	227148	113574	0.00
69 Chrysene-d12	105788	52894	211576	105788	0.00
134 Di-n-octylphthala	252823	126412	505646	252823	0.00
77 Perylene-d12	113992	56996	227984	113992	0.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	9.05	8.55	9.55	9.05	0.00
27 Naphthalene-d8	11.51	11.01	12.01	11.51	0.00
42 Acenaphthene-d10	15.11	14.61	15.61	15.11	0.00
59 Phenanthrene-d10	18.12	17.62	18.62	18.12	0.00
69 Chrysene-d12	23.15	22.65	23.65	23.15	0.00
134 Di-n-octylphthala	24.18	23.68	24.68	24.18	0.00
77 Perylene-d12	25.71	25.21	26.21	25.71	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019071504.D

Lab ID: SHG0206-CAL5
nt10.i, 20190715.b\ABN.m,   15-JUL-2019 15:33

RT	CO-ELUTION COMPOUNDS
NO CO-ELUTIONS	

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
NONE			

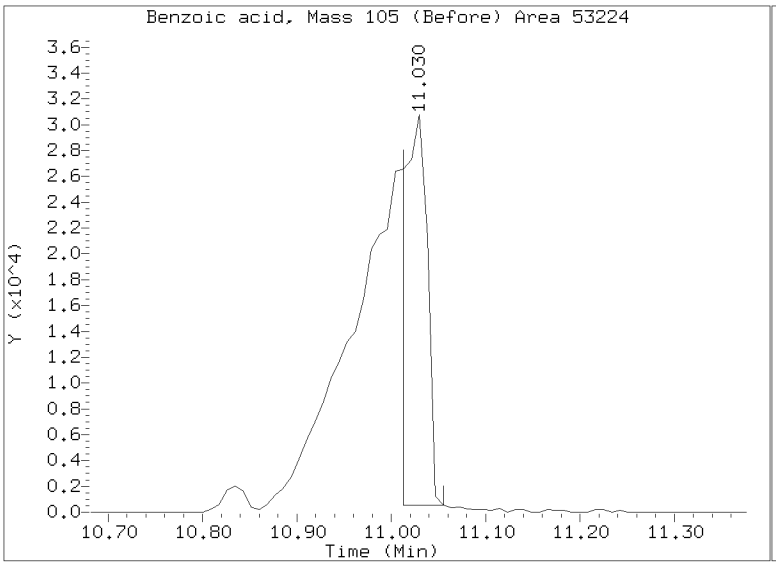
RRT check based on Ccal File: NT1019071504A.D

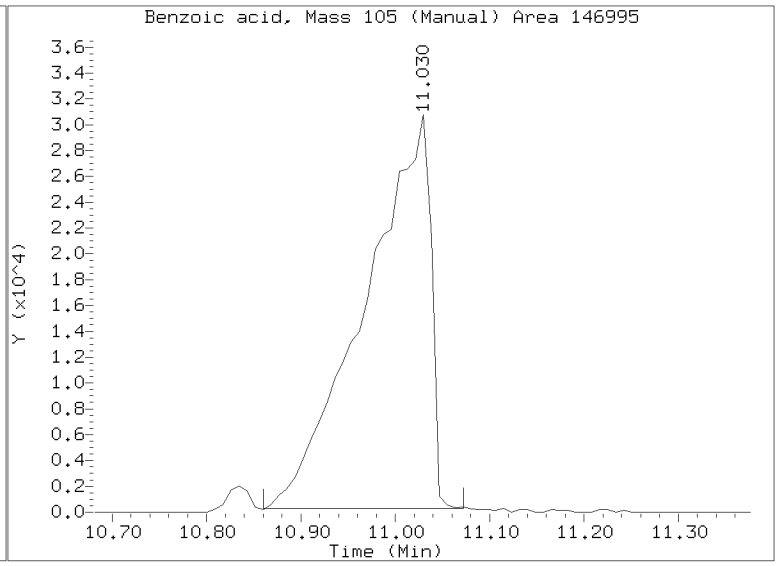
On Column LOD for nt10.i, 20190715.b\ABN.m, PSDDAICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190715.b/NT1019071504.D
Injection Date: 15-JUL-2019 15:33
Lab ID:SHG0206-CAL5 Client ID:
Report Date: 07/17/2019 12:31





Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071505.D

Date : 15-JUL-2019 16:10

Client ID:

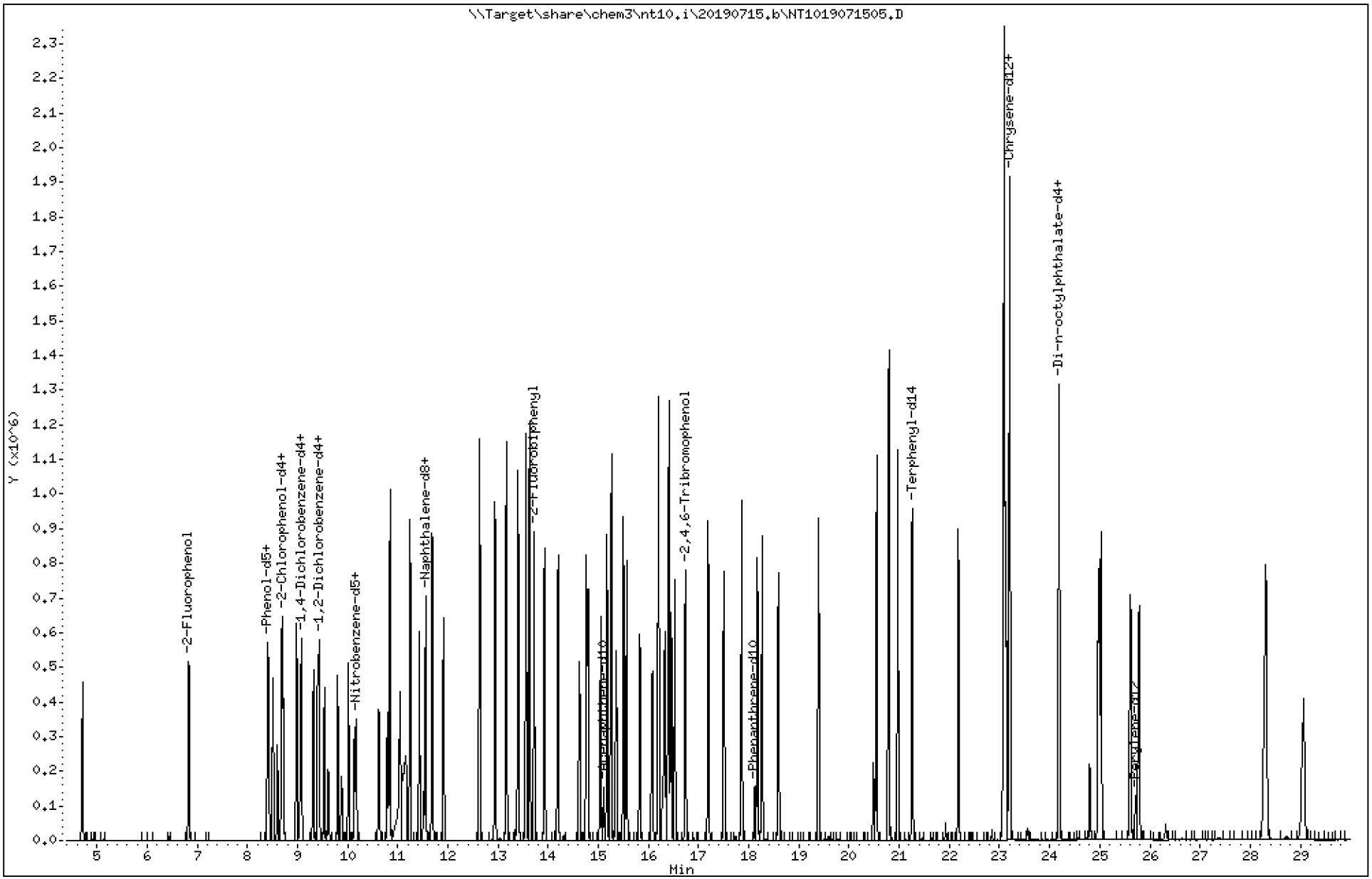
Instrument: nt10.i

Sample Info: SHG0206-CAL7

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190715.b\NT1019071505.D
Lab Smp Id: SHG0206-CAL7
Inj Date : 15-JUL-2019 16:10
Operator : YZ Inst ID: nt10.i
Smp Info : SHG0206-CAL7
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Meth Date : 17-Jul-2019 12:31 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 3 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 2-Fluorophenol	112	6.834	6.827	(0.756)	252144	30.0000	30.93
$	2 Phenol-d5	99	8.411	8.395	(0.930)	304417	30.0000	33.32
	3 Phenol	94	8.434	8.419	(0.932)	177783	20.0000	20.93
$	5 2-Chlorophenol-d4	132	8.689	8.681	(0.961)	295597	30.0000	30.05
	4 Bis(2-Chloroethyl)ether	93	8.604	8.596	(0.951)	143070	20.0000	20.79
	6 2-Chlorophenol	128	8.712	8.704	(0.963)	190794	20.0000	20.13
	7 1,3-Dichlorobenzene	146	8.983	8.983	(0.993)	214211	20.0000	19.83
*	8 1,4-Dichlorobenzene-d4	152	9.045	9.045	(1.000)	29033	4.00000	
	9 1,4-Dichlorobenzene	146	9.076	9.076	(1.003)	201402	20.0000	19.36
$	10 1,2-Dichlorobenzene-d4	152	9.402	9.402	(1.039)	128055	20.0000	19.04
	12 1,2-Dichlorobenzene	146	9.433	9.425	(1.043)	196372	20.0000	19.85
	11 Benzyl alcohol	108	9.316	9.309	(1.030)	118635	20.0000	21.10
	14 2,2'-oxybis(1-Chloropropane)	121	9.611	9.611	(1.063)	64302	20.0000	21.51
	13 2-Methylphenol	108	9.534	9.526	(1.054)	130970	20.0000	20.07
	17 Hexachloroethane	117	10.015	10.015	(1.107)	89513	20.0000	20.68
	16 N-Nitroso-di-n-propylamine	70	9.883	9.868	(1.093)	86024	20.0000	20.66
	15 4-Methylphenol	108	9.806	9.798	(1.084)	141052	20.0000	20.39
$	18 Nitrobenzene-d5	82	10.139	10.131	(0.880)	165497	20.0000	20.52
	19 Nitrobenzene	77	10.178	10.170	(0.884)	166784	20.0000	21.55
	20 Isophorone	82	10.623	10.605	(0.922)	302467	20.0000	23.30
	21 2-Nitrophenol	139	10.793	10.792	(0.937)	115055	20.0000	22.43
	22 2,4-Dimethylphenol	107	10.843	10.834	(0.942)	341560	40.0000	39.45
	23 Bis(2-Chloroethoxy)methane	93	11.047	11.038	(0.959)	155382	20.0000	20.88
	24 Benzoic acid	105	11.166	11.029	(0.970)	507517	80.0000	80.09
	25 2,4-Dichlorophenol	162	11.242	11.233	(0.976)	288902	40.0000	40.18
	26 1,2,4-Trichlorobenzene	180	11.431	11.422	(0.993)	165828	20.0000	20.37
*	27 Naphthalene-d8	136	11.515	11.507	(1.000)	103134	4.00000	
	28 Naphthalene	128	11.554	11.553	(1.003)	500616	20.0000	21.12
	29 4-Chloroaniline	127	11.693	11.677	(1.015)	452093	40.0000	43.49
	30 Hexachlorobutadiene	225	11.909	11.909	(1.034)	100616	20.0000	20.15
	31 4-Chloro-3-methylphenol	107	12.637	12.628	(1.097)	336270	40.0000	45.66
	32 2-Methylnaphthalene	142	12.939	12.938	(1.124)	437646	20.0000	21.76
	33 Hexachlorocyclopentadiene	237	13.403	13.402	(0.887)	262434	40.0000	44.17

		QUANT SIG					AMOUNTS	
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
	34 2,4,6-Trichlorophenol	196	13.558	13.549	(0.898)	246704	40.0000	42.21
	35 2,4,5-Trichlorophenol	196	13.627	13.619	(0.902)	254874	40.0000	42.23
$	36 2-Fluorobiphenyl	172	13.720	13.712	(0.908)	431817	20.0000	19.88
	37 2-Chloronaphthalene	162	13.929	13.921	(0.922)	392506	20.0000	21.09
	38 2-Nitroaniline	65	14.200	14.184	(0.940)	179510	40.0000	44.99
	39 Dimethylphthalate	163	14.626	14.610	(0.968)	400461	20.0000	18.98
	40 Acenaphthylene	152	14.796	14.788	(0.980)	536281	20.0000	19.59
	41 2,6-Dinitrotoluene	165	14.765	14.749	(0.977)	188642	40.0000	40.50
*	42 Acenaphthene-d10	164	15.106	15.105	(1.000)	56789	4.00000	
	43 3-Nitroaniline	138	15.051	15.027	(0.996)	225878	40.0000	41.26
	44 Acenaphthene	153	15.175	15.167	(1.005)	359332	20.0000	20.89
	45 2,4-Dinitrophenol	184	15.260	15.236	(1.010)	289387	80.0000	79.84
	46 Dibenzofuran	168	15.500	15.491	(1.026)	566780	20.0000	20.05
	47 4-Nitrophenol	109	15.361	15.337	(1.017)	154354	40.0000	44.21
	48 2,4-Dinitrotoluene	165	15.569	15.553	(1.031)	275115	40.0000	43.41
	50 Diethylphthalate	149	16.080	16.063	(1.064)	404153	20.0000	19.89
	49 Fluorene	166	16.203	16.195	(1.073)	387237	20.0000	20.03
	51 4-Chlorophenyl-phenylether	204	16.196	16.187	(1.072)	195423	20.0000	19.62
	52 4-Nitroaniline	138	16.335	16.288	(1.081)	314904	40.0000	39.86
	53 4,6-Dinitro-2-methylphenol	198	16.412	16.380	(0.905)	445220	80.0000	87.09
	54 N-Nitrosodiphenylamine	169	16.450	16.434	(0.908)	271167	20.0000	19.04
$	55 2,4,6-Tribromophenol	330	16.736	16.727	(1.108)	136123	30.0000	31.70
	56 4-Bromophenyl-phenylether	248	17.191	17.190	(0.948)	181309	20.0000	21.72
	57 Hexachlorobenzene	284	17.507	17.499	(0.966)	175251	20.0000	19.71
	58 Pentachlorophenol	266	17.856	17.847	(0.985)	164573	40.0000	43.88
*	59 Phenanthrene-d10	188	18.127	18.118	(1.000)	103730	4.00000	
	60 Phenanthrene	178	18.173	18.164	(1.003)	536112	20.0000	21.16
	61 Anthracene	178	18.266	18.257	(1.008)	569681	20.0000	22.14
	62 Carbazole	167	18.591	18.582	(1.026)	548597	20.0000	22.66
	63 Di-n-butylphthalate	149	19.388	19.387	(1.070)	836370	20.0000	23.86
	64 Fluoranthene	202	20.548	20.547	(0.887)	694479	20.0000	22.61
	65 Pyrene	202	20.974	20.965	(0.906)	717471	20.0000	22.36
$	66 Terphenyl-d14	244	21.260	21.252	(0.918)	431571	20.0000	19.84
	67 Butylbenzylphthalate	149	22.181	22.181	(0.958)	323424	20.0000	21.64
	68 Benzo(a)anthracene	228	23.126	23.118	(0.999)	606996	20.0000	20.81
*	69 Chrysene-d12	240	23.157	23.149	(1.000)	100532	4.00000	
	70 3,3'-Dichlorobenzidine	252	23.095	23.079	(0.997)	712734	60.0000	69.56
	71 Chrysene	228	23.204	23.195	(1.002)	539952	20.0000	20.92
	72 bis(2-Ethylhexyl)phthalate	149	23.204	23.203	(0.960)	443671	20.0000	19.99
*	134 Di-n-octylphthalate-d4	153	24.179	24.178	(1.000)	252363	4.00000	
	73 Di-n-octylphthalate	149	24.187	24.186	(1.000)	925796	20.0000	19.83
	74 Benzo(b)fluoranthene	252	24.976	24.968	(0.971)	664177	20.0000	21.64
	75 Benzo(k)fluoranthene	252	25.023	25.014	(0.973)	618284	20.0000	20.03
	76 Benzo(a)pyrene	252	25.611	25.603	(0.996)	600604	20.0000	21.81
*	77 Perylene-d12	264	25.720	25.711	(1.000)	106957	4.00000	
	78 Indeno(1,2,3-cd)pyrene	276	28.307	28.276	(1.101)	666189	20.0000	20.13
	79 Dibenzo(a,h)anthracene	278	28.315	28.291	(1.101)	512550	20.0000	19.02
	80 Benzo(g,h,i)perylene	276	29.069	29.029	(1.130)	567987	20.0000	20.38
	90 N-Nitrosodimethylamine	74	4.711	4.695	(0.521)	142036	40.0000	45.09
	91 Aniline	93	8.511	8.504	(0.941)	309702	40.0000	41.18
	93 Benzidine	184	20.796	20.780	(0.898)	847141	40.0000	39.98
	103 Pyridine	79	4.711	4.719	(0.521)	132788	20.0000	22.73
	105 1-methylnaphthalene	142	13.163	13.155	(1.143)	441215	20.0000	21.83
	111 Azobenzene (1,2-DP-Hydrazine)	77	16.520	16.511	(1.094)	431118	20.0000	19.08

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
187	Total Benzofluoranthenes	252	25.023	24.968	(0.973)	1221921	40.0000	41.51
99	Perylene	252	25.782	25.765	(1.002)	535431	20.0000	21.13
98	Retene	219	Compound Not Detected.					
120	2,3,4,6-Tetrachlorophenol	232	15.824	15.824	(1.048)	110308	20.0000	22.69

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019071505.D
Lab Smp Id: SHG0206-CAL7
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Misc Info:

Calibration Date: 15-JUL-2019
Calibration Time: 15:33
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	29033	-11.32
27 Naphthalene-d8	117487	58744	234974	103134	-12.22
42 Acenaphthene-d10	61859	30930	123718	56789	-8.20
59 Phenanthrene-d10	113574	56787	227148	103730	-8.67
69 Chrysene-d12	105788	52894	211576	100532	-4.97
134 Di-n-octylphthala	252823	126412	505646	252363	-0.18
77 Perylene-d12	113992	56996	227984	106957	-6.17

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	9.05	8.55	9.55	9.05	0.00
27 Naphthalene-d8	11.51	11.01	12.01	11.52	0.07
42 Acenaphthene-d10	15.11	14.61	15.61	15.11	0.01
59 Phenanthrene-d10	18.12	17.62	18.62	18.13	0.05
69 Chrysene-d12	23.15	22.65	23.65	23.16	0.04
134 Di-n-octylphthala	24.18	23.68	24.68	24.18	0.00
77 Perylene-d12	25.71	25.21	26.21	25.72	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019071505.D

Lab ID: SHG0206-CAL7
nt10.i, 20190715.b\ABN.m,   15-JUL-2019 16:10

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.970	0.958	0.0111	Benzoic acid

RRT check based on Ccal File: NT1019071504A.D

On Column LOD for nt10.i, 20190715.b\ABN.m, PSDDAICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071506.D

Date : 15-JUL-2019 16:47

Client ID:

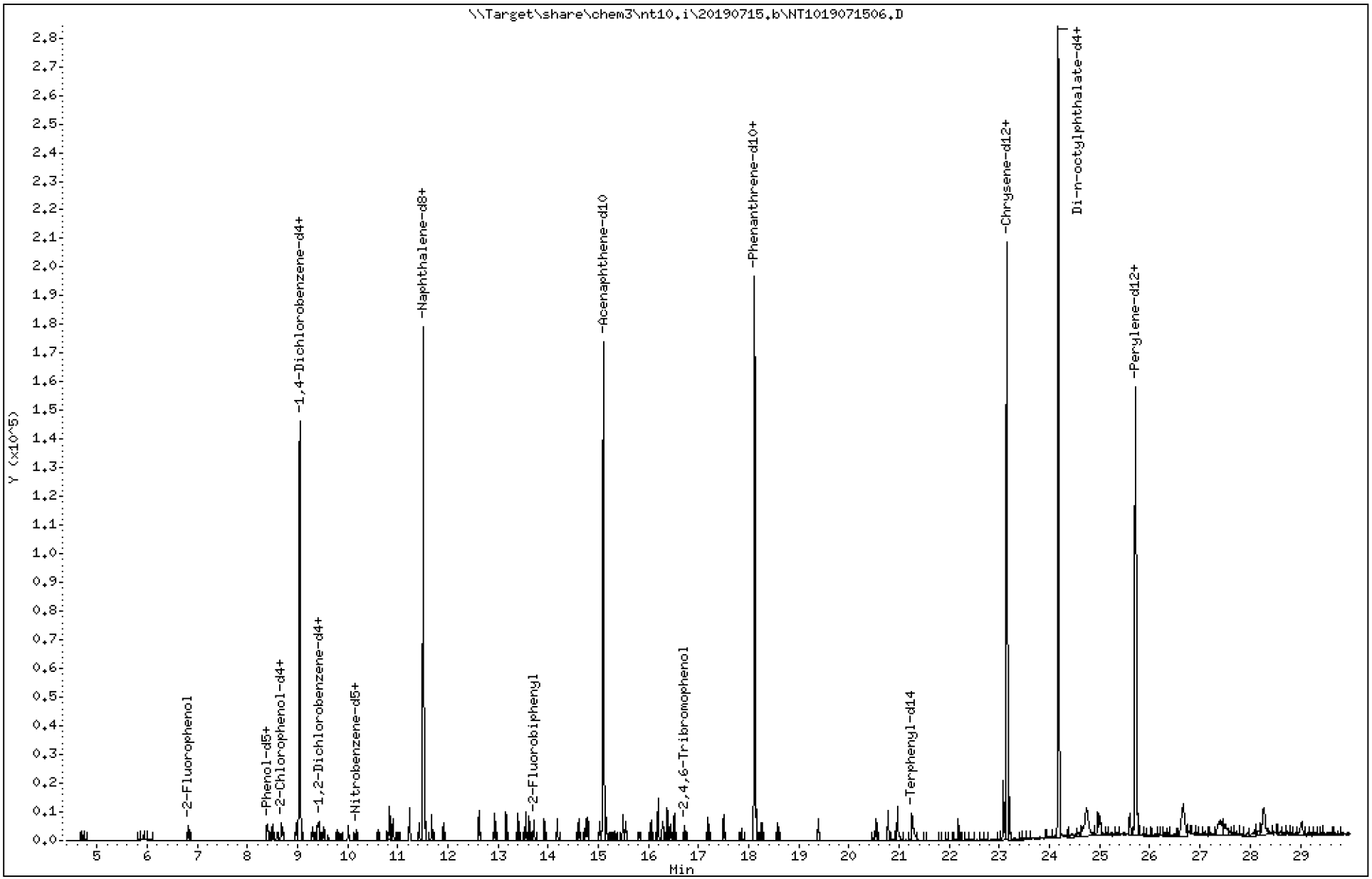
Instrument: nt10.i

Sample Info: SHG0206-CAL1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190715.b\NT1019071506.D
Lab Smp Id: SHG0206-CAL1
Inj Date : 15-JUL-2019 16:47
Operator : YZ Inst ID: nt10.i
Smp Info : SHG0206-CAL1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Meth Date : 17-Jul-2019 12:31 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 4 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1	2-Fluorophenol	112	6.827	6.827	(0.755)	2970	0.30000	0.2999
$	2	Phenol-d5	99	8.396	8.395	(0.928)	3078	0.30000	0.2773
	3	Phenol	94	8.419	8.419	(0.931)	2111	0.20000	0.2046
$	5	2-Chlorophenol-d4	132	8.682	8.681	(0.960)	3906	0.30000	0.3269
	4	Bis(2-Chloroethyl)ether	93	8.589	8.596	(0.950)	1825	0.20000	0.2183
	6	2-Chlorophenol	128	8.713	8.704	(0.963)	2253	0.20000	0.1957
	7	1,3-Dichlorobenzene	146	8.975	8.983	(0.992)	2646	0.20000	0.2017
*	8	1,4-Dichlorobenzene-d4	152	9.045	9.045	(1.000)	35266	4.00000	
	9	1,4-Dichlorobenzene	146	9.069	9.076	(1.003)	2515	0.20000	0.1991
$	10	1,2-Dichlorobenzene-d4	152	9.394	9.402	(1.039)	1740	0.20000	0.2130
	12	1,2-Dichlorobenzene	146	9.426	9.425	(1.042)	2372	0.20000	0.1973
	11	Benzyl alcohol	108	9.301	9.309	(1.028)	1288	0.20000	0.1886
	14	2,2'-oxybis(1-Chloropropane)	121	9.612	9.611	(1.063)	566	0.20000	0.1558
	13	2-Methylphenol	108	9.526	9.526	(1.053)	1627	0.20000	0.2053
	17	Hexachloroethane	117	10.015	10.015	(1.107)	1232	0.20000	0.2344
	16	N-Nitroso-di-n-propylamine	70	9.860	9.868	(1.090)	1084	0.20000	0.2144
	15	4-Methylphenol	108	9.790	9.798	(1.082)	1632	0.20000	0.1943
$	18	Nitrobenzene-d5	82	10.132	10.131	(0.880)	2001	0.20000	0.1957
	19	Nitrobenzene	77	10.171	10.170	(0.884)	2035	0.20000	0.2073(M)
	20	Isophorone	82	10.606	10.605	(0.922)	3090	0.20000	0.1877(M)
	21	2-Nitrophenol	139	10.793	10.792	(0.938)	1282	0.20000	0.1971
	22	2,4-Dimethylphenol	107	10.835	10.834	(0.942)	4403	0.40000	0.4011
	23	Bis(2-Chloroethoxy)methane	93	11.031	11.038	(0.958)	1808	0.20000	0.1916
	24	Benzoic acid	105	10.903	11.029	(0.947)	3506	0.80000	0.4764
	25	2,4-Dichlorophenol	162	11.234	11.233	(0.976)	3675	0.40000	0.4032
	26	1,2,4-Trichlorobenzene	180	11.431	11.422	(0.993)	1883	0.20000	0.1825
*	27	Naphthalene-d8	136	11.508	11.507	(1.000)	130759	4.00000	
	28	Naphthalene	128	11.547	11.553	(1.003)	6174	0.20000	0.2054
	29	4-Chloroaniline	127	11.678	11.677	(1.015)	4790	0.40000	0.3634
	30	Hexachlorobutadiene	225	11.918	11.909	(1.036)	1425	0.20000	0.2251
	31	4-Chloro-3-methylphenol	107	12.622	12.628	(1.097)	3279	0.40000	0.3512
	32	2-Methylnaphthalene	142	12.939	12.938	(1.124)	4962	0.20000	0.1946
	33	Hexachlorocyclopentadiene	237	13.396	13.402	(0.887)	2687	0.40000	0.4044

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
	34	2,4,6-Trichlorophenol	196	13.550	13.549	(0.897)	2442	0.40000	0.3736
	35	2,4,5-Trichlorophenol	196	13.620	13.619	(0.902)	2463	0.40000	0.3649
$	36	2-Fluorobiphenyl	172	13.713	13.712	(0.908)	5293	0.20000	0.2179
	37	2-Chloronaphthalene	162	13.922	13.921	(0.922)	4461	0.20000	0.2144
	38	2-Nitroaniline	65	14.177	14.184	(0.939)	1609	0.40000	0.3606
	39	Dimethylphthalate	163	14.611	14.610	(0.968)	5120	0.20000	0.2169
	40	Acenaphthylene	152	14.789	14.788	(0.980)	6155	0.20000	0.2011
	41	2,6-Dinitrotoluene	165	14.750	14.749	(0.977)	2379	0.40000	0.4567
*	42	Acenaphthene-d10	164	15.098	15.105	(1.000)	63509	4.00000	
	43	3-Nitroaniline	138	15.029	15.027	(0.995)	2271	0.40000	0.3709(M)
	44	Acenaphthene	153	15.160	15.167	(1.004)	3859	0.20000	0.2006
	45	2,4-Dinitrophenol	184	15.237	15.236	(1.009)	961	0.80000	0.2691
	46	Dibenzofuran	168	15.492	15.491	(1.026)	6764	0.20000	0.2140
	47	4-Nitrophenol	109	15.338	15.337	(1.016)	1364	0.40000	0.3493
	48	2,4-Dinitrotoluene	165	15.547	15.553	(1.030)	2337	0.40000	0.3297
	50	Diethylphthalate	149	16.057	16.063	(1.063)	4498	0.20000	0.1979
	49	Fluorene	166	16.196	16.195	(1.073)	4030	0.20000	0.1864
	51	4-Chlorophenyl-phenylether	204	16.188	16.187	(1.072)	2357	0.20000	0.2116
	52	4-Nitroaniline	138	16.289	16.288	(1.079)	2336	0.40000	0.3554
	53	4,6-Dinitro-2-methylphenol	198	16.374	16.380	(0.904)	3557	0.80000	0.6152
	54	N-Nitrosodiphenylamine	169	16.435	16.434	(0.907)	3184	0.20000	0.1977
$	55	2,4,6-Tribromophenol	330	16.728	16.727	(1.108)	770	0.30000	0.1603(M)
	56	4-Bromophenyl-phenylether	248	17.191	17.190	(0.949)	1846	0.20000	0.1955
	57	Hexachlorobenzene	284	17.500	17.499	(0.966)	2266	0.20000	0.2253
	58	Pentachlorophenol	266	17.848	17.847	(0.985)	1267	0.40000	0.2986
*	59	Phenanthrene-d10	188	18.119	18.118	(1.000)	117326	4.00000	
	60	Phenanthrene	178	18.166	18.164	(1.003)	5561	0.20000	0.1940
	61	Anthracene	178	18.259	18.257	(1.008)	5464	0.20000	0.1878
	62	Carbazole	167	18.583	18.582	(1.026)	5554	0.20000	0.2028
	63	Di-n-butylphthalate	149	19.388	19.387	(1.070)	7195	0.20000	0.1815
	64	Fluoranthene	202	20.541	20.547	(0.887)	5856	0.20000	0.1796
	65	Pyrene	202	20.966	20.965	(0.906)	6797	0.20000	0.1997
$	66	Terphenyl-d14	244	21.253	21.252	(0.918)	4638	0.20000	0.2009
	67	Butylbenzylphthalate	149	22.174	22.181	(0.958)	2770	0.20000	0.1747
	68	Benzo(a)anthracene	228	23.119	23.118	(0.999)	5963	0.20000	0.1926
*	69	Chrysene-d12	240	23.150	23.149	(1.000)	106685	4.00000	
	70	3,3'-Dichlorobenzidine	252	23.080	23.079	(0.997)	7756	0.60000	0.7132
	71	Chrysene	228	23.196	23.195	(1.002)	5440	0.20000	0.1986
	72	bis(2-Ethylhexyl)phthalate	149	23.204	23.203	(0.960)	3900	0.20000	0.1920
*	134	Di-n-octylphthalate-d4	153	24.172	24.178	(1.000)	231000	4.00000	
	73	Di-n-octylphthalate	149	24.187	24.186	(1.001)	9144	0.20000	0.2140
	74	Benzo(b)fluoranthene	252	24.961	24.968	(0.971)	6195	0.20000	0.1944
	75	Benzo(k)fluoranthene	252	25.000	25.014	(0.972)	6182	0.20000	0.1929
	76	Benzo(a)pyrene	252	25.596	25.603	(0.995)	5602	0.20000	0.1959
*	77	Perylene-d12	264	25.712	25.711	(1.000)	111050	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	28.261	28.276	(1.099)	6908	0.20000	0.2011(M)
	79	Dibenzo(a,h)anthracene	278	28.285	28.291	(1.100)	5928	0.20000	0.2119(M)
	80	Benzo(g,h,i)perylene	276	29.030	29.029	(1.129)	5838	0.20000	0.2017(M)
	90	N-Nitrosodimethylamine	74	4.704	4.695	(0.520)	1556	0.40000	0.4067
	91	Aniline	93	8.504	8.504	(0.940)	3597	0.40000	0.3937
	93	Benzidine	184	20.781	20.780	(0.898)	7381	0.40000	0.8502
	103	Pyridine	79	Compound Not Detected.					
	105	1-methylnaphthalene	142	13.156	13.155	(1.143)	4662	0.20000	0.1819
	111	Azobenzene (1,2-DP-Hydrazine)	77	16.513	16.511	(1.094)	5321	0.20000	0.2106

						AMOUNTS	
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
187 Total Benzofluoranthenes	252	24.961	24.968	(0.971)	11749	0.40000	0.3844
99 Perylene	252	25.759	25.765	(1.002)	4999	0.20000	0.1900
98 Retene	219	Compound Not Detected.					
120 2,3,4,6-Tetrachlorophenol	232	15.825	15.824	(1.048)	915	0.20000	0.1683

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019071506.D
Lab Smp Id: SHG0206-CAL1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Misc Info:

Calibration Date: 15-JUL-2019
Calibration Time: 15:33
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	35266	7.72
27 Naphthalene-d8	117487	58744	234974	130759	11.30
42 Acenaphthene-d10	61859	30930	123718	63509	2.67
59 Phenanthrene-d10	113574	56787	227148	117326	3.30
69 Chrysene-d12	105788	52894	211576	106685	0.85
134 Di-n-octylphthala	252823	126412	505646	231000	-8.63
77 Perylene-d12	113992	56996	227984	111050	-2.58

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	9.05	8.55	9.55	9.05	0.01
27 Naphthalene-d8	11.51	11.01	12.01	11.51	0.01
42 Acenaphthene-d10	15.11	14.61	15.61	15.10	-0.04
59 Phenanthrene-d10	18.12	17.62	18.62	18.12	0.01
69 Chrysene-d12	23.15	22.65	23.65	23.15	0.01
134 Di-n-octylphthala	24.18	23.68	24.68	24.17	-0.03
77 Perylene-d12	25.71	25.21	26.21	25.71	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019071506.D

Lab ID: SHG0206-CAL1
nt10.i, 20190715.b\ABN.m,   15-JUL-2019 16:47

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.947	0.958	-0.0111	Benzoic acid

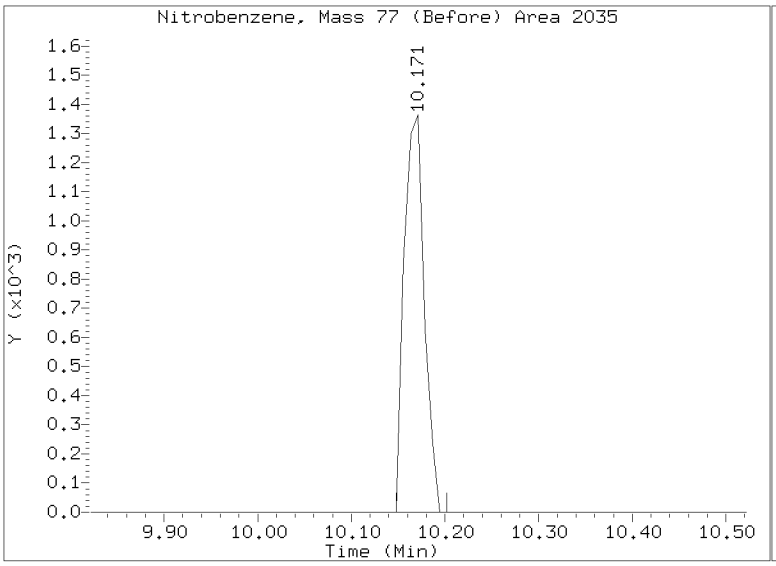
RRT check based on Ccal File: NT1019071504A.D

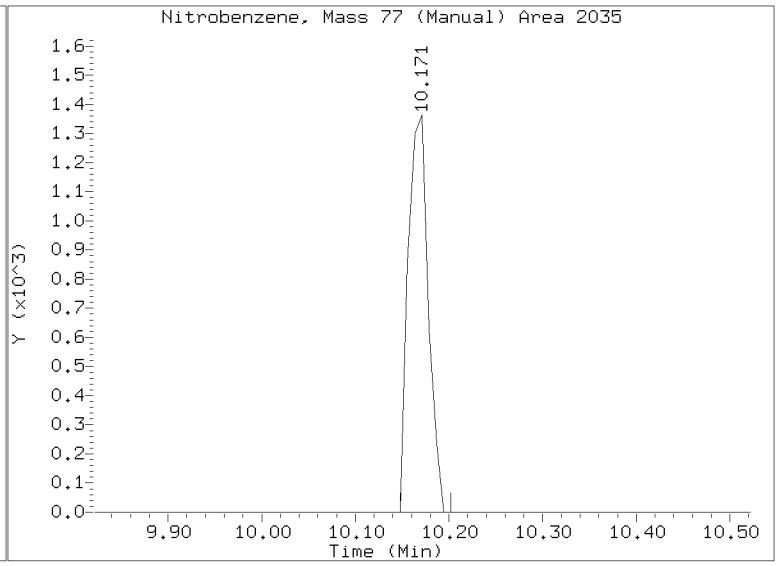
On Column LOD for nt10.i, 20190715.b\ABN.m, PSDDAICAL.sub = 0.0000

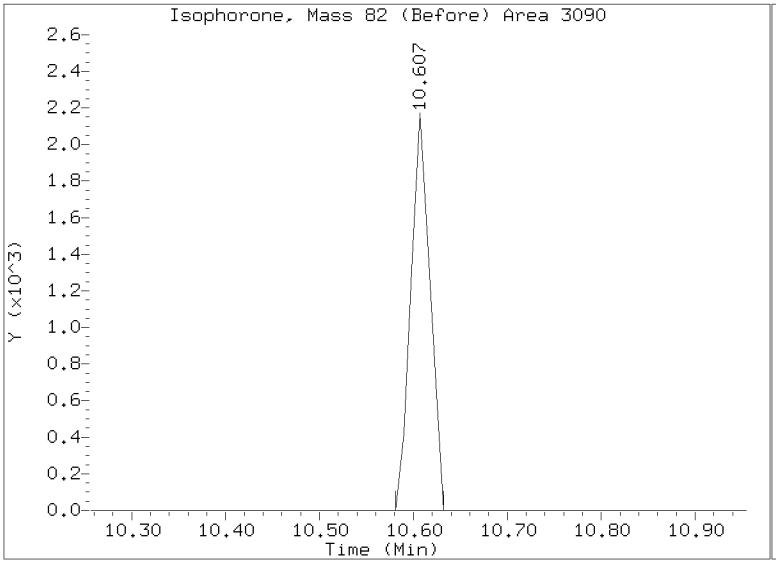
* Only compounds listed in the work order have been verified by the analyst *

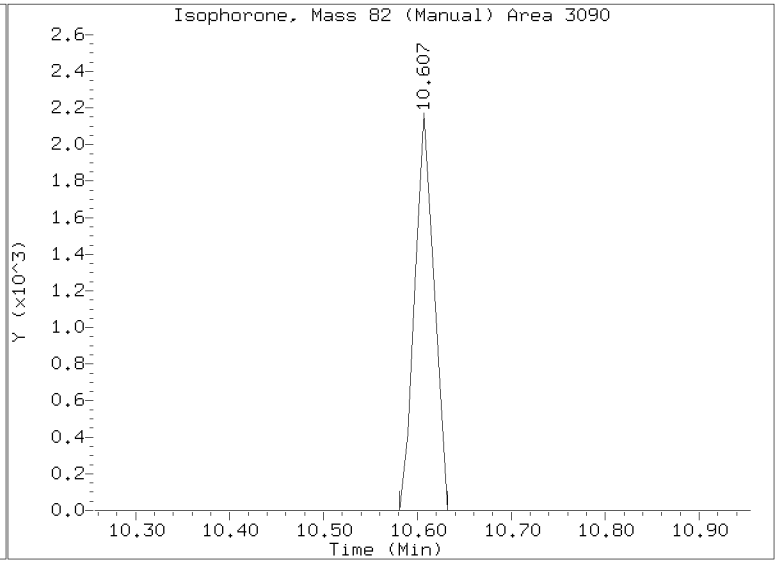
Quant Ion Manual Peak Adjustment Report

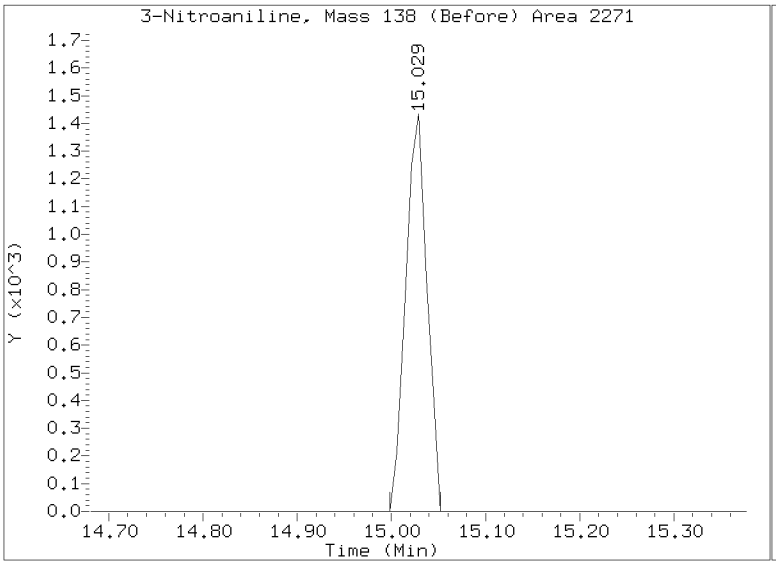
Datafile: //Target/share/chem3/nt10.i/20190715.b/NT1019071506.D
Injection Date: 15-JUL-2019 16:47
Lab ID:SHG0206-CAL1 Client ID:
Report Date: 07/17/2019 12:31

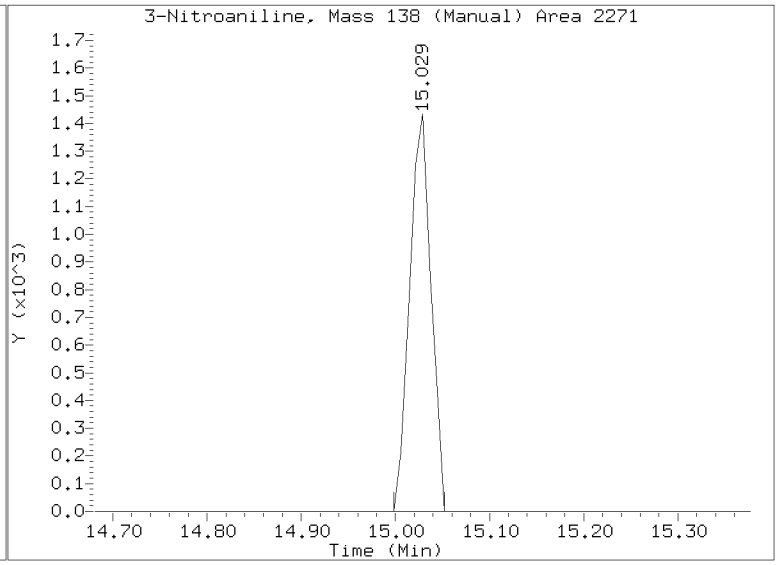






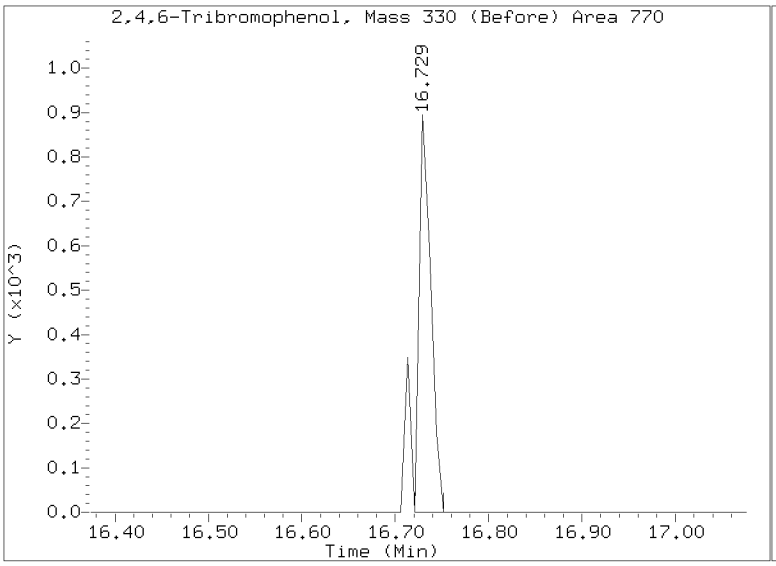


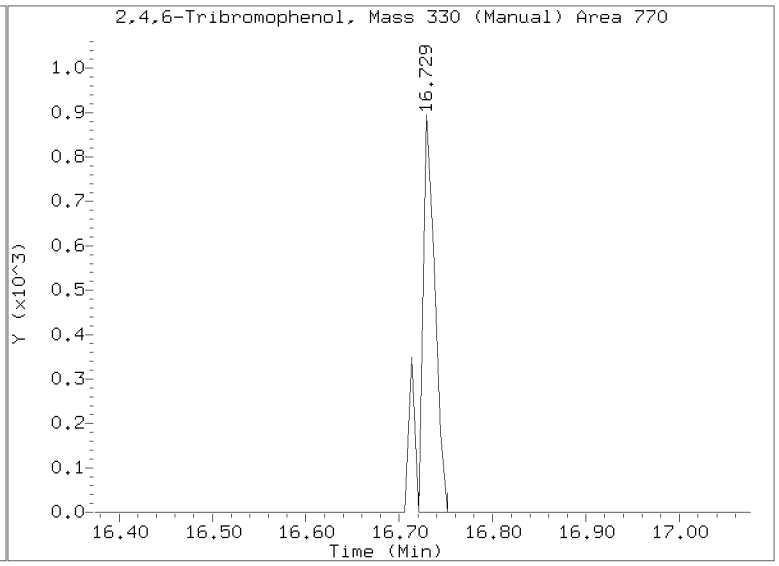


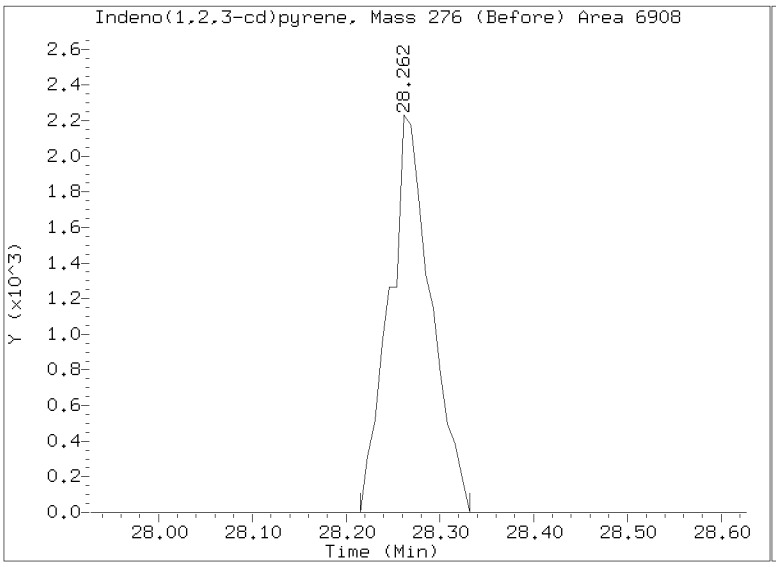


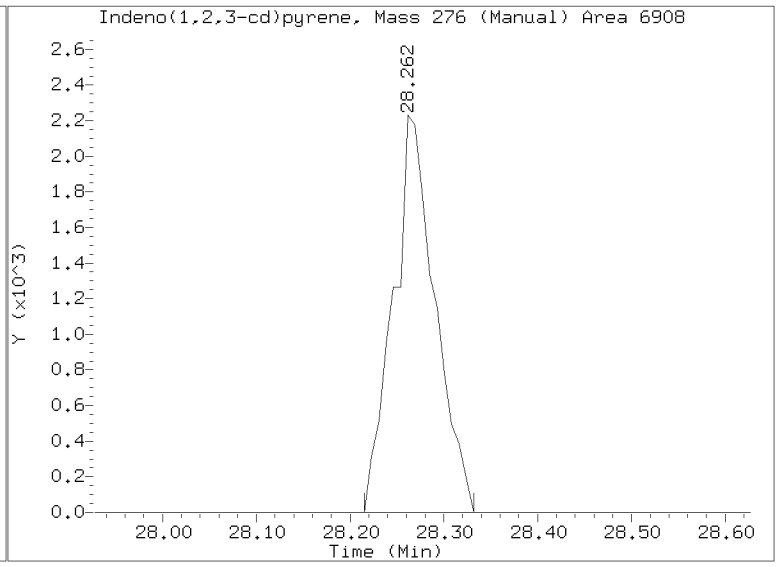
Quant Ion Manual Peak Adjustment Report

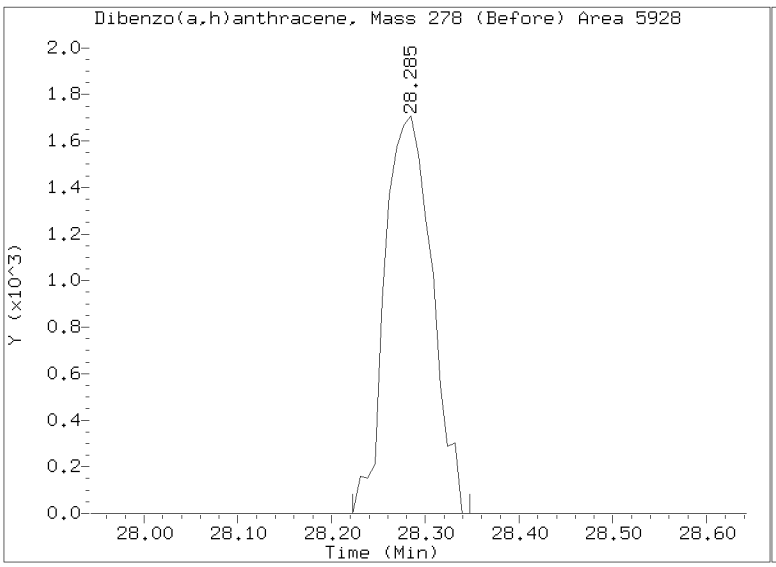
Datafile: //Target/share/chem3/nt10.i/20190715.b/NT1019071506.D
Injection Date: 15-JUL-2019 16:47
Lab ID:SHG0206-CAL1 Client ID:
Report Date: 07/17/2019 12:31

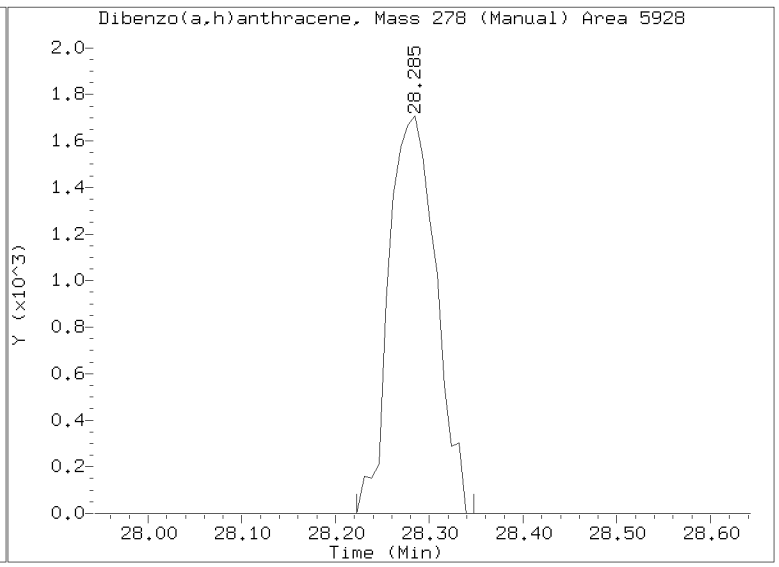






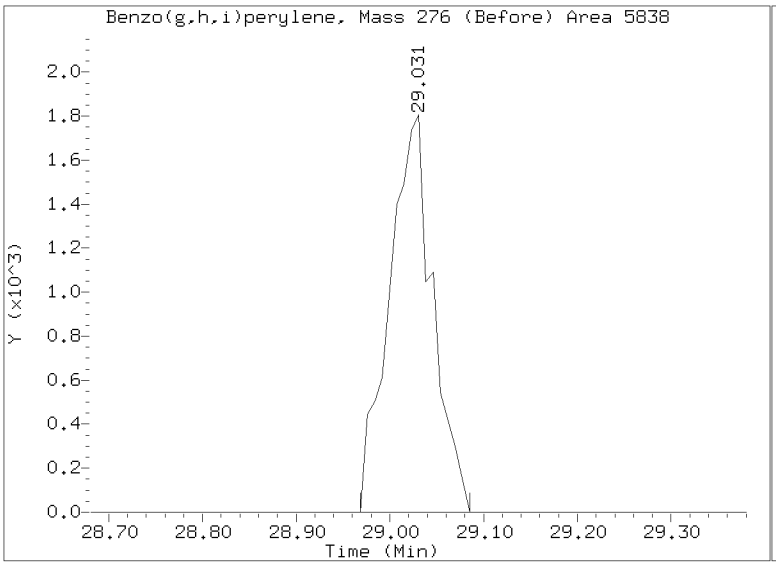


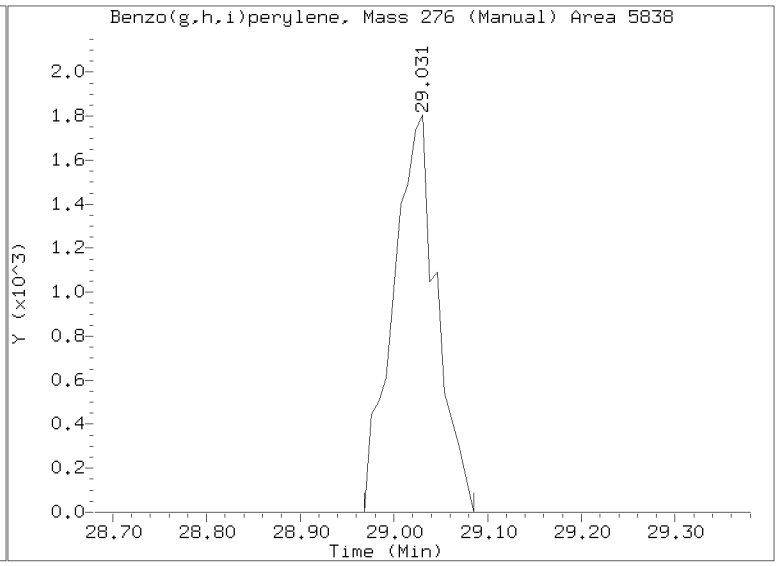




Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190715.b/NT1019071506.D
Injection Date: 15-JUL-2019 16:47
Lab ID:SHG0206-CAL1 Client ID:
Report Date: 07/17/2019 12:31





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Date : 15-JUL-2019 17:24

Client ID:

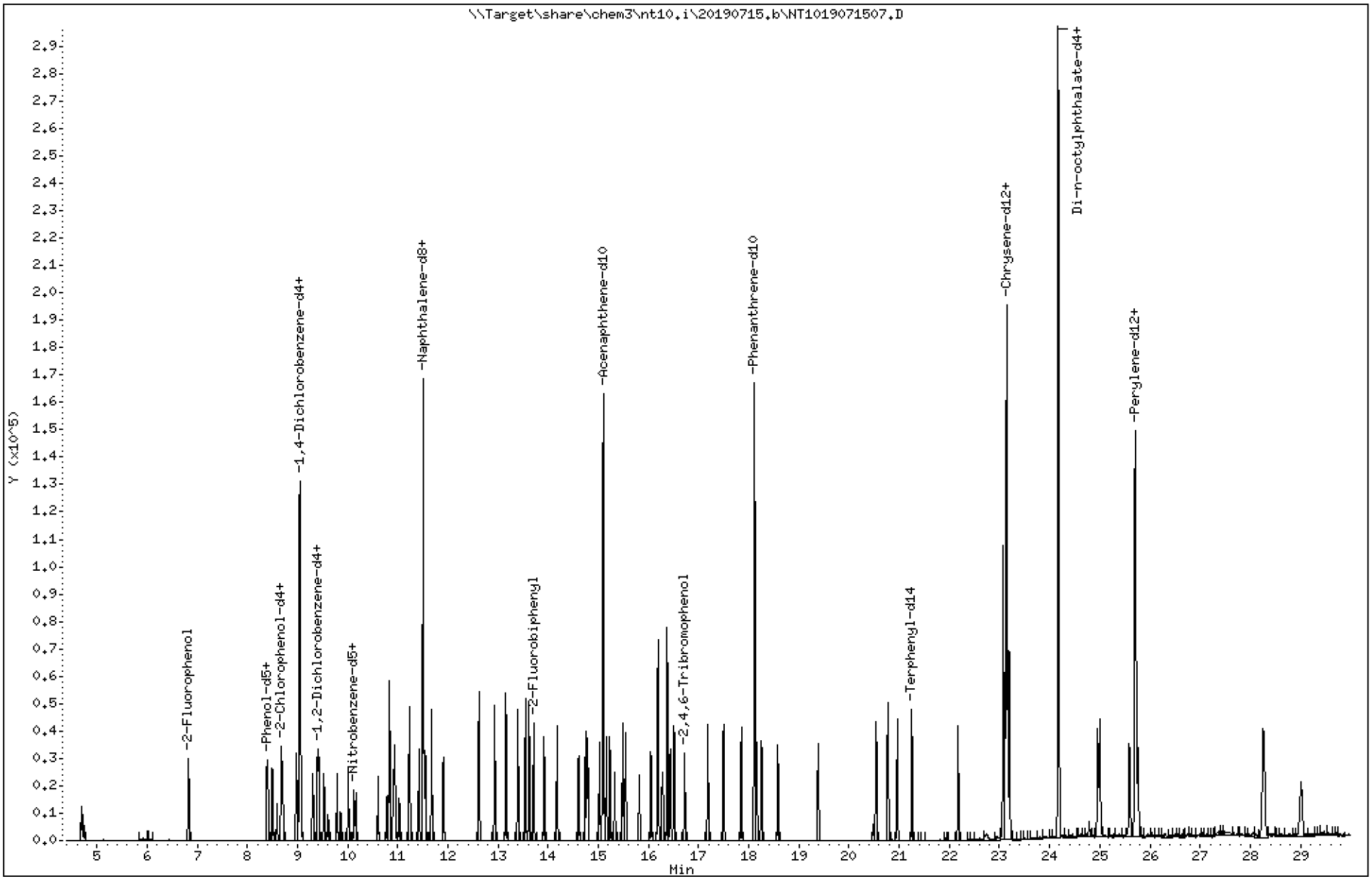
Instrument: nt10.i

Sample Info: SHG0206-CAL3

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190715.b\NT1019071507.D
Lab Smp Id: SHG0206-CAL3
Inj Date : 15-JUL-2019 17:24
Operator : YZ Inst ID: nt10.i
Smp Info : SHG0206-CAL3
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Meth Date : 17-Jul-2019 12:31 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 2-Fluorophenol	112	6.827	6.827	(0.755)	13446	1.50000	1.506
$	2 Phenol-d5	99	8.396	8.395	(0.928)	14496	1.50000	1.448
	3 Phenol	94	8.419	8.419	(0.931)	8705	1.00000	0.9356
$	5 2-Chlorophenol-d4	132	8.681	8.681	(0.960)	16024	1.50000	1.487
	4 Bis(2-Chloroethyl)ether	93	8.589	8.596	(0.950)	7293	1.00000	0.9673
	6 2-Chlorophenol	128	8.704	8.704	(0.962)	10748	1.00000	1.035
	7 1,3-Dichlorobenzene	146	8.975	8.983	(0.992)	11695	1.00000	0.9885
*	8 1,4-Dichlorobenzene-d4	152	9.045	9.045	(1.000)	31801	4.00000	
	9 1,4-Dichlorobenzene	146	9.076	9.076	(1.003)	11665	1.00000	1.024
$	10 1,2-Dichlorobenzene-d4	152	9.402	9.402	(1.039)	7653	1.00000	1.039
	12 1,2-Dichlorobenzene	146	9.425	9.425	(1.042)	10324	1.00000	0.9525
	11 Benzyl alcohol	108	9.301	9.309	(1.028)	6211	1.00000	1.009
	14 2,2'-oxybis(1-Chloropropane)	121	9.612	9.611	(1.063)	3354	1.00000	1.024
	13 2-Methylphenol	108	9.526	9.526	(1.053)	7242	1.00000	1.013
	17 Hexachloroethane	117	10.015	10.015	(1.107)	4655	1.00000	0.9821
	16 N-Nitroso-di-n-propylamine	70	9.860	9.868	(1.090)	4287	1.00000	0.9402
	15 4-Methylphenol	108	9.790	9.798	(1.082)	7710	1.00000	1.018
$	18 Nitrobenzene-d5	82	10.132	10.131	(0.880)	8881	1.00000	0.9937
	19 Nitrobenzene	77	10.163	10.170	(0.883)	8184	1.00000	0.9542
	20 Isophorone	82	10.606	10.605	(0.922)	13810	1.00000	0.9600
	21 2-Nitrophenol	139	10.793	10.792	(0.938)	5141	1.00000	0.9046
	22 2,4-Dimethylphenol	107	10.835	10.834	(0.942)	18475	2.00000	1.926
	23 Bis(2-Chloroethoxy)methane	93	11.030	11.038	(0.958)	8653	1.00000	1.049
	24 Benzoic acid	105	10.937	11.029	(0.950)	22440	4.00000	3.479
	25 2,4-Dichlorophenol	162	11.234	11.233	(0.976)	15696	2.00000	1.970
	26 1,2,4-Trichlorobenzene	180	11.423	11.422	(0.993)	9214	1.00000	1.022
*	27 Naphthalene-d8	136	11.508	11.507	(1.000)	114271	4.00000	
	28 Naphthalene	128	11.546	11.553	(1.003)	25310	1.00000	0.9636
	29 4-Chloroaniline	127	11.678	11.677	(1.015)	21704	2.00000	1.884
	30 Hexachlorobutadiene	225	11.902	11.909	(1.034)	4975	1.00000	0.8992
	31 4-Chloro-3-methylphenol	107	12.621	12.628	(1.097)	15558	2.00000	1.907
	32 2-Methylnaphthalene	142	12.931	12.938	(1.124)	21725	1.00000	0.9751
	33 Hexachlorocyclopentadiene	237	13.395	13.402	(0.887)	10862	2.00000	1.856

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
	34	2,4,6-Trichlorophenol	196	13.550	13.549	(0.897)	10974	2.00000	1.906
	35	2,4,5-Trichlorophenol	196	13.620	13.619	(0.902)	12225	2.00000	2.056
$	36	2-Fluorobiphenyl	172	13.713	13.712	(0.908)	21749	1.00000	1.016
	37	2-Chloronaphthalene	162	13.922	13.921	(0.922)	17605	1.00000	0.9603
	38	2-Nitroaniline	65	14.177	14.184	(0.939)	7778	2.00000	1.979
	39	Dimethylphthalate	163	14.610	14.610	(0.968)	21247	1.00000	1.022
	40	Acenaphthylene	152	14.788	14.788	(0.980)	27421	1.00000	1.017
	41	2,6-Dinitrotoluene	165	14.742	14.749	(0.976)	9059	2.00000	1.974
*	42	Acenaphthene-d10	164	15.098	15.105	(1.000)	55948	4.00000	
	43	3-Nitroaniline	138	15.021	15.027	(0.995)	10614	2.00000	1.968(M)
	44	Acenaphthene	153	15.160	15.167	(1.004)	16662	1.00000	0.9832
	45	2,4-Dinitrophenol	184	15.229	15.236	(1.009)	9031	4.00000	2.861
	46	Dibenzofuran	168	15.484	15.491	(1.026)	26579	1.00000	0.9543
	47	4-Nitrophenol	109	15.330	15.337	(1.015)	6732	2.00000	1.957
	48	2,4-Dinitrotoluene	165	15.546	15.553	(1.030)	12081	2.00000	1.935
	50	Diethylphthalate	149	16.049	16.063	(1.063)	20437	1.00000	1.021
	49	Fluorene	166	16.196	16.195	(1.073)	18961	1.00000	0.9955
	51	4-Chlorophenyl-phenylether	204	16.188	16.187	(1.072)	9907	1.00000	1.010
	52	4-Nitroaniline	138	16.289	16.288	(1.079)	6397	2.00000	1.101
	53	4,6-Dinitro-2-methylphenol	198	16.373	16.380	(0.904)	19130	4.00000	3.798
	54	N-Nitrosodiphenylamine	169	16.435	16.434	(0.907)	15129	1.00000	1.078
$	55	2,4,6-Tribromophenol	330	16.728	16.727	(1.108)	5881	1.50000	1.390
	56	4-Bromophenyl-phenylether	248	17.183	17.190	(0.949)	7798	1.00000	0.9481
	57	Hexachlorobenzene	284	17.500	17.499	(0.966)	8809	1.00000	1.005
	58	Pentachlorophenol	266	17.848	17.847	(0.985)	6691	2.00000	1.810
*	59	Phenanthrene-d10	188	18.111	18.118	(1.000)	102218	4.00000	
	60	Phenanthrene	178	18.158	18.164	(1.003)	24637	1.00000	0.9867
	61	Anthracene	178	18.250	18.257	(1.008)	23851	1.00000	0.9408
	62	Carbazole	167	18.583	18.582	(1.026)	23655	1.00000	0.9915
	63	Di-n-butylphthalate	149	19.388	19.387	(1.070)	32171	1.00000	0.9313
	64	Fluoranthene	202	20.541	20.547	(0.888)	28731	1.00000	0.9737
	65	Pyrene	202	20.966	20.965	(0.906)	27972	1.00000	0.9078
$	66	Terphenyl-d14	244	21.252	21.252	(0.918)	20947	1.00000	1.002
	67	Butylbenzylphthalate	149	22.174	22.181	(0.958)	14465	1.00000	1.008
	68	Benzo(a)anthracene	228	23.118	23.118	(0.999)	27361	1.00000	0.9766
*	69	Chrysene-d12	240	23.142	23.149	(1.000)	96559	4.00000	
	70	3,3'-Dichlorobenzidine	252	23.072	23.079	(0.997)	33683	3.00000	3.422
	71	Chrysene	228	23.188	23.195	(1.002)	24029	1.00000	0.9693
	72	bis(2-Ethylhexyl)phthalate	149	23.196	23.203	(0.960)	19226	1.00000	1.019
*	134	Di-n-octylphthalate-d4	153	24.171	24.178	(1.000)	214439	4.00000	
	73	Di-n-octylphthalate	149	24.179	24.186	(1.000)	38351	1.00000	0.9667
	74	Benzo(b)fluoranthene	252	24.961	24.968	(0.971)	27041	1.00000	0.9053
	75	Benzo(k)fluoranthene	252	25.000	25.014	(0.973)	32218	1.00000	1.072
	76	Benzo(a)pyrene	252	25.588	25.603	(0.995)	25775	1.00000	0.9615
*	77	Perylene-d12	264	25.704	25.711	(1.000)	104107	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	28.269	28.276	(1.100)	31305	1.00000	0.9719
	79	Dibenzo(a,h)anthracene	278	28.269	28.291	(1.100)	26170	1.00000	0.9980
	80	Benzo(g,h,i)perylene	276	29.014	29.029	(1.129)	26451	1.00000	0.9750(M)
	90	N-Nitrosodimethylamine	74	4.696	4.695	(0.519)	6420	2.00000	1.861
	91	Aniline	93	8.504	8.504	(0.940)	16311	2.00000	1.980
	93	Benzidine	184	20.780	20.780	(0.898)	30429	2.00000	2.397
	103	Pyridine	79	4.726	4.719	(0.523)	6114	1.00000	0.9555
	105	1-methylnaphthalene	142	13.155	13.155	(1.143)	21642	1.00000	0.9662
	111	Azobenzene (1,2-DP-Hydrazine)	77	16.505	16.511	(1.093)	22547	1.00000	1.013

		QUANT SIG					AMOUNTS CAL-AMT	ON-COL
Compounds		MASS	RT	EXP RT	REL RT	RESPONSE	(ug/mL)	(ug/mL)
187	Total Benzofluoranthenes	252	25.000	24.968	(0.973)	56015	2.00000	1.955
99	Perylene	252	25.758	25.765	(1.002)	23998	1.00000	0.9732
98	Retene	219	Compound Not Detected.					
120	2,3,4,6-Tetrachlorophenol	232	15.817	15.824	(1.048)	4449	1.00000	0.9288

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019071507.D
Lab Smp Id: SHG0206-CAL3
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Misc Info:

Calibration Date: 15-JUL-2019
Calibration Time: 15:33
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	31801	-2.87
27 Naphthalene-d8	117487	58744	234974	114271	-2.74
42 Acenaphthene-d10	61859	30930	123718	55948	-9.56
59 Phenanthrene-d10	113574	56787	227148	102218	-10.00
69 Chrysene-d12	105788	52894	211576	96559	-8.72
134 Di-n-octylphthala	252823	126412	505646	214439	-15.18
77 Perylene-d12	113992	56996	227984	104107	-8.67

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	9.05	8.55	9.55	9.05	0.00
27 Naphthalene-d8	11.51	11.01	12.01	11.51	0.01
42 Acenaphthene-d10	15.11	14.61	15.61	15.10	-0.05
59 Phenanthrene-d10	18.12	17.62	18.62	18.11	-0.04
69 Chrysene-d12	23.15	22.65	23.65	23.14	-0.03
134 Di-n-octylphthala	24.18	23.68	24.68	24.17	-0.03
77 Perylene-d12	25.71	25.21	26.21	25.70	-0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019071507.D

Lab ID: SHG0206-CAL3
nt10.i, 20190715.b\ABN.m,   15-JUL-2019 17:24

RT	CO-ELUTION COMPOUNDS
28.269	Indeno(1,2,3-cd)pyrene and Dibenzo(a,h)anthracene
28.269	Dibenzo(a,h)anthracene and Indeno(1,2,3-cd)pyrene

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.950	0.958	-0.0081	Benzoic acid

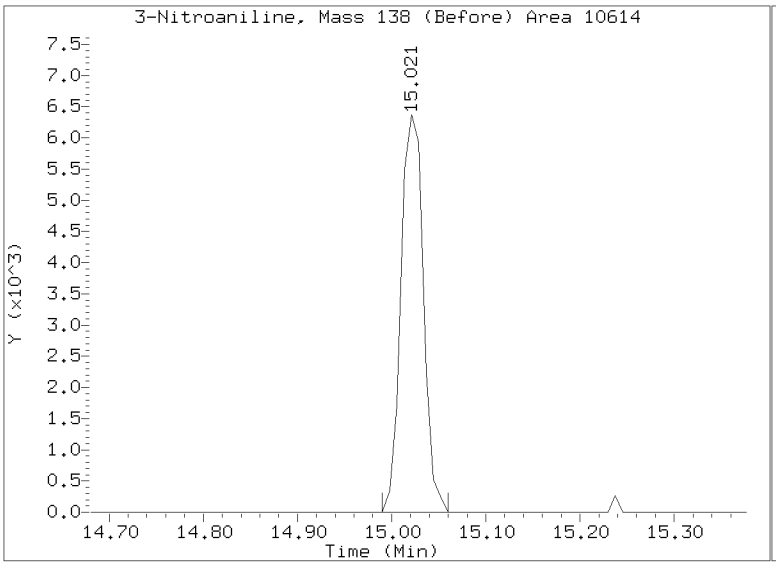
RRT check based on Ccal File: NT1019071504A.D

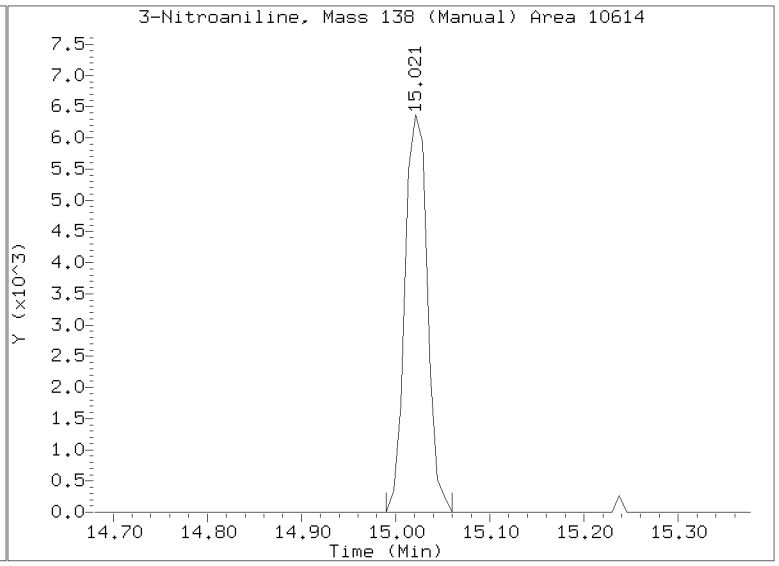
On Column LOD for nt10.i, 20190715.b\ABN.m, PSDDAICAL.sub = 0.0000

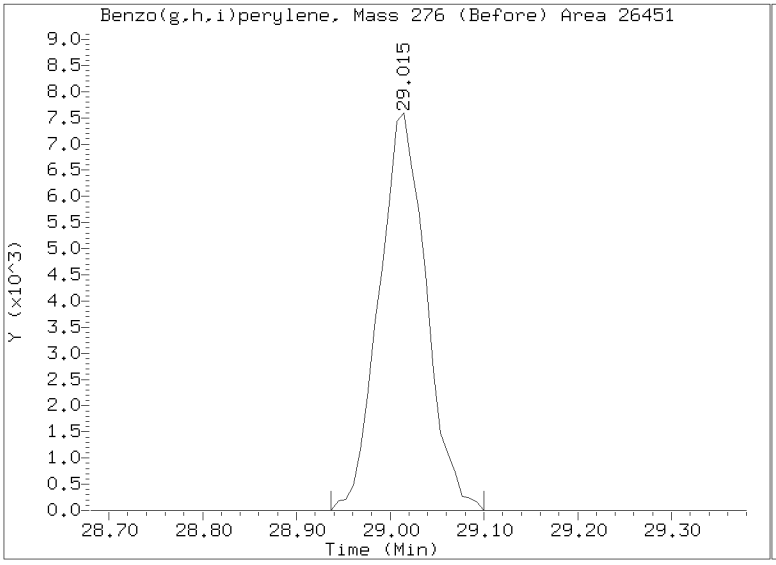
* Only compounds listed in the work order have been verified by the analyst *

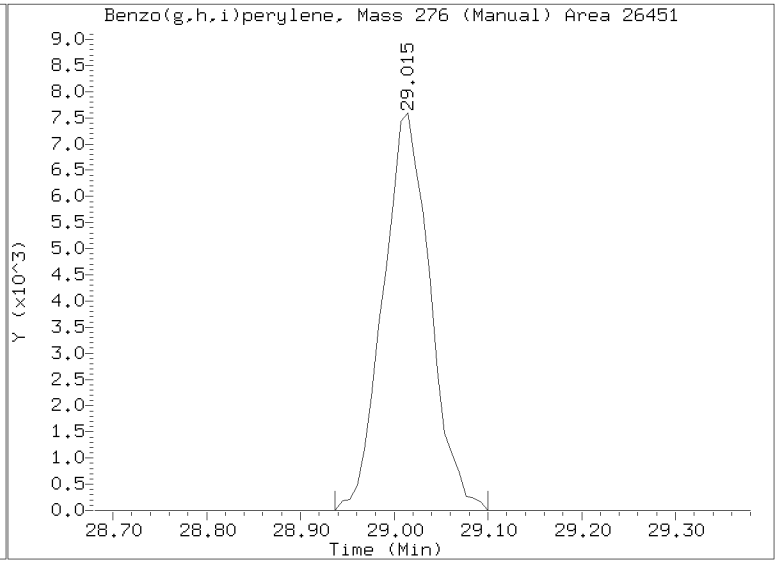
Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190715.b/NT1019071507.D
Injection Date: 15-JUL-2019 17:24
Lab ID:SHG0206-CAL3 Client ID:
Report Date: 07/17/2019 12:31









Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071508.D

Date : 15-JUL-2019 18:01

Client ID:

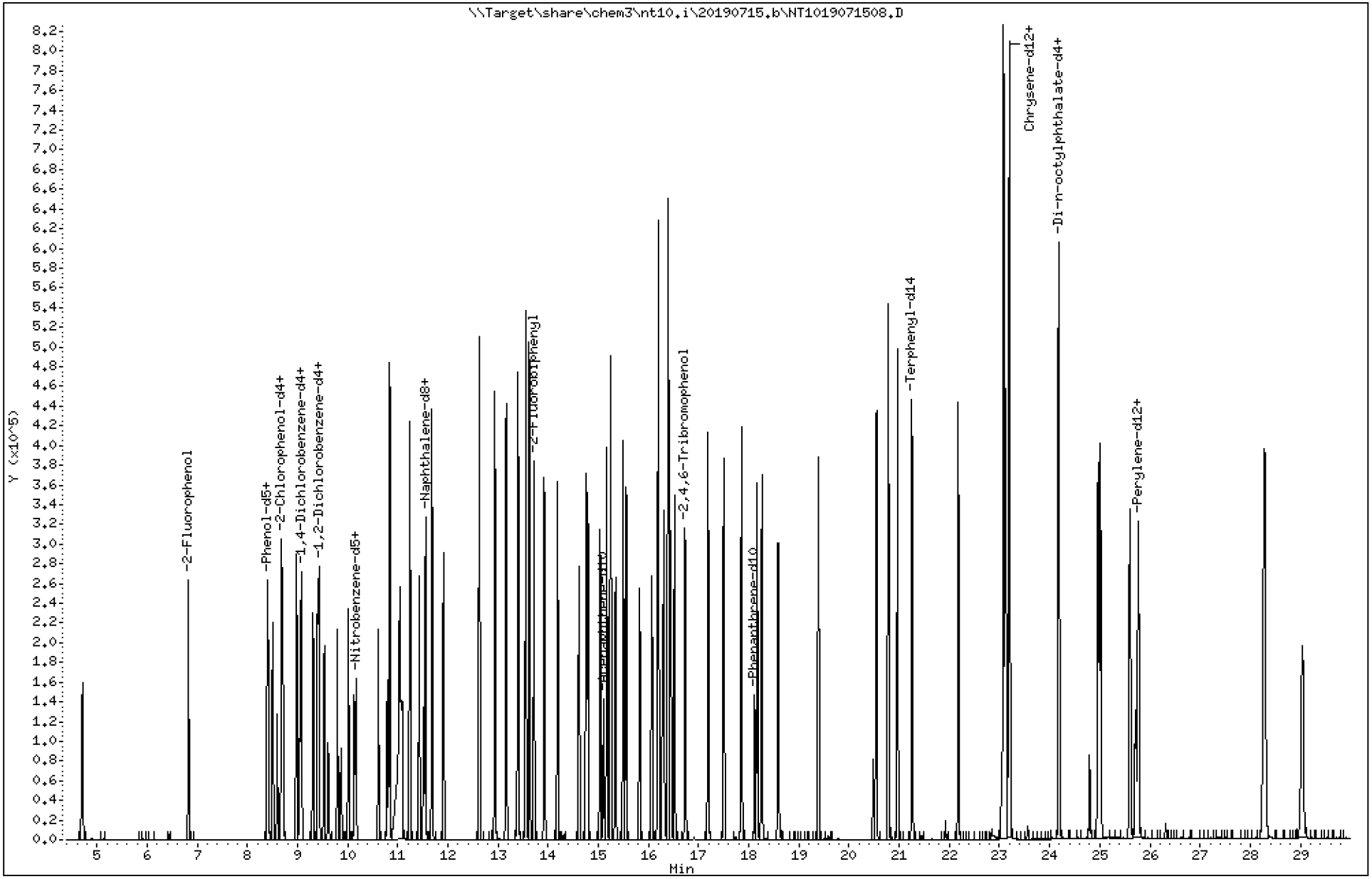
Instrument: nt10.i

Sample Info: SHG0206-CAL6

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



19H0024 CLPLIKE (Rev1) - Page 1018 of 2846

ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190715.b\NT1019071508.D
Lab Smp Id: SHG0206-CAL6
Inj Date : 15-JUL-2019 18:01
Operator : YZ Inst ID: nt10.i
Smp Info : SHG0206-CAL6
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Meth Date : 17-Jul-2019 12:31 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 6 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 2-Fluorophenol	112	6.827	6.827	(0.755)	113806	15.0000	14.97
$	2 Phenol-d5	99	8.404	8.395	(0.929)	128149	15.0000	15.04
	3 Phenol	94	8.427	8.419	(0.932)	79020	10.0000	9.978
$	5 2-Chlorophenol-d4	132	8.682	8.681	(0.960)	136223	15.0000	14.86
	4 Bis(2-Chloroethyl)ether	93	8.597	8.596	(0.950)	62639	10.0000	9.761
	6 2-Chlorophenol	128	8.712	8.704	(0.963)	89731	10.0000	10.16
	7 1,3-Dichlorobenzene	146	8.983	8.983	(0.993)	101304	10.0000	10.06
*	8 1,4-Dichlorobenzene-d4	152	9.045	9.045	(1.000)	27068	4.00000	
	9 1,4-Dichlorobenzene	146	9.076	9.076	(1.003)	96321	10.0000	9.933
$	10 1,2-Dichlorobenzene-d4	152	9.402	9.402	(1.039)	57822	10.0000	9.223
	12 1,2-Dichlorobenzene	146	9.425	9.425	(1.042)	90909	10.0000	9.854
	11 Benzyl alcohol	108	9.309	9.309	(1.029)	52715	10.0000	10.06
	14 2,2'-oxybis(1-Chloropropane)	121	9.612	9.611	(1.063)	29603	10.0000	10.62
	13 2-Methylphenol	108	9.534	9.526	(1.054)	58184	10.0000	9.565
	17 Hexachloroethane	117	10.015	10.015	(1.107)	40427	10.0000	10.02
	16 N-Nitroso-di-n-propylamine	70	9.876	9.868	(1.092)	38200	10.0000	9.842
	15 4-Methylphenol	108	9.798	9.798	(1.083)	62646	10.0000	9.715
$	18 Nitrobenzene-d5	82	10.132	10.131	(0.880)	74126	10.0000	9.979
	19 Nitrobenzene	77	10.171	10.170	(0.883)	72525	10.0000	10.17
	20 Isophorone	82	10.615	10.605	(0.922)	126786	10.0000	10.60
	21 2-Nitrophenol	139	10.793	10.792	(0.937)	49478	10.0000	10.47
	22 2,4-Dimethylphenol	107	10.835	10.834	(0.941)	155396	20.0000	19.49
	23 Bis(2-Chloroethoxy)methane	93	11.039	11.038	(0.959)	67955	10.0000	9.914
	24 Benzoic acid	105	11.081	11.029	(0.962)	217383	40.0000	39.09(M)
	25 2,4-Dichlorophenol	162	11.234	11.233	(0.976)	133217	20.0000	20.12
	26 1,2,4-Trichlorobenzene	180	11.423	11.422	(0.992)	77602	10.0000	10.35
*	27 Naphthalene-d8	136	11.516	11.507	(1.000)	94978	4.00000	
	28 Naphthalene	128	11.554	11.553	(1.003)	222700	10.0000	10.20
	29 4-Chloroaniline	127	11.686	11.677	(1.015)	197827	20.0000	20.66
	30 Hexachlorobutadiene	225	11.910	11.909	(1.034)	46007	10.0000	10.00
	31 4-Chloro-3-methylphenol	107	12.629	12.628	(1.097)	138718	20.0000	20.45
	32 2-Methylnaphthalene	142	12.939	12.938	(1.124)	190037	10.0000	10.26
	33 Hexachlorocyclopentadiene	237	13.403	13.402	(0.887)	113539	20.0000	21.91

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
	34	2,4,6-Trichlorophenol	196	13.550	13.549	(0.897)	103692	20.0000	20.34
	35	2,4,5-Trichlorophenol	196	13.620	13.619	(0.902)	110136	20.0000	20.92
$	36	2-Fluorobiphenyl	172	13.713	13.712	(0.908)	186264	10.0000	9.830
	37	2-Chloronaphthalene	162	13.922	13.921	(0.922)	169397	10.0000	10.44
	38	2-Nitroaniline	65	14.185	14.184	(0.939)	73631	20.0000	21.16
	39	Dimethylphthalate	163	14.618	14.610	(0.968)	186597	10.0000	10.14
	40	Acenaphthylene	152	14.789	14.788	(0.979)	242003	10.0000	10.13
	41	2,6-Dinitrotoluene	165	14.758	14.749	(0.977)	83758	20.0000	20.61
*	42	Acenaphthene-d10	164	15.106	15.105	(1.000)	49539	4.00000	
	43	3-Nitroaniline	138	15.036	15.027	(0.995)	95662	20.0000	20.03
	44	Acenaphthene	153	15.168	15.167	(1.004)	157833	10.0000	10.52
	45	2,4-Dinitrophenol	184	15.245	15.236	(1.009)	120430	40.0000	40.79
	46	Dibenzofuran	168	15.492	15.491	(1.026)	242656	10.0000	9.840
	47	4-Nitrophenol	109	15.345	15.337	(1.016)	65031	20.0000	21.35
	48	2,4-Dinitrotoluene	165	15.562	15.553	(1.030)	118550	20.0000	21.44
	50	Diethylphthalate	149	16.072	16.063	(1.064)	184023	10.0000	10.38
	49	Fluorene	166	16.204	16.195	(1.073)	172923	10.0000	10.25
	51	4-Chlorophenyl-phenylether	204	16.188	16.187	(1.072)	88728	10.0000	10.21
	52	4-Nitroaniline	138	16.304	16.288	(1.079)	120640	20.0000	20.91
	53	4,6-Dinitro-2-methylphenol	198	16.397	16.380	(0.905)	196547	40.0000	44.13
	54	N-Nitrosodiphenylamine	169	16.443	16.434	(0.907)	126389	10.0000	10.19
$	55	2,4,6-Tribromophenol	330	16.728	16.727	(1.107)	57262	15.0000	15.29
	56	4-Bromophenyl-phenylether	248	17.191	17.190	(0.949)	78364	10.0000	10.77
	57	Hexachlorobenzene	284	17.500	17.499	(0.966)	77945	10.0000	10.06
	58	Pentachlorophenol	266	17.856	17.847	(0.985)	70528	20.0000	21.58
*	59	Phenanthrene-d10	188	18.119	18.118	(1.000)	90381	4.00000	
	60	Phenanthrene	178	18.166	18.164	(1.003)	232198	10.0000	10.52
	61	Anthracene	178	18.258	18.257	(1.008)	244209	10.0000	10.89
	62	Carbazole	167	18.583	18.582	(1.026)	221994	10.0000	10.52
	63	Di-n-butylphthalate	149	19.388	19.387	(1.070)	342268	10.0000	11.21
	64	Fluoranthene	202	20.549	20.547	(0.888)	285586	10.0000	10.48
	65	Pyrene	202	20.966	20.965	(0.906)	307761	10.0000	10.82
$	66	Terphenyl-d14	244	21.253	21.252	(0.918)	189949	10.0000	9.844
	67	Butylbenzylphthalate	149	22.182	22.181	(0.958)	145104	10.0000	10.95
	68	Benzo(a)anthracene	228	23.126	23.118	(0.999)	265842	10.0000	10.28
*	69	Chrysene-d12	240	23.150	23.149	(1.000)	89163	4.00000	
	70	3,3'-Dichlorobenzidine	252	23.080	23.079	(0.997)	253897	30.0000	27.94
	71	Chrysene	228	23.196	23.195	(1.002)	238929	10.0000	10.44
	72	bis(2-Ethylhexyl)phthalate	149	23.204	23.203	(0.960)	200887	10.0000	10.88
*	134	Di-n-octylphthalate-d4	153	24.172	24.178	(1.000)	209949	4.00000	
	73	Di-n-octylphthalate	149	24.187	24.186	(1.001)	395003	10.0000	10.17
	74	Benzo(b)fluoranthene	252	24.969	24.968	(0.971)	300316	10.0000	10.93
	75	Benzo(k)fluoranthene	252	25.015	25.014	(0.973)	280848	10.0000	10.16
	76	Benzo(a)pyrene	252	25.604	25.603	(0.996)	261771	10.0000	10.62
*	77	Perylene-d12	264	25.712	25.711	(1.000)	95741	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	28.284	28.276	(1.100)	310030	10.0000	10.47
	79	Dibenzo(a,h)anthracene	278	28.292	28.291	(1.100)	247344	10.0000	10.26
	80	Benzo(g,h,i)perylene	276	29.046	29.029	(1.130)	259502	10.0000	10.40
	90	N-Nitrosodimethylamine	74	4.704	4.695	(0.520)	64013	20.0000	21.80
	91	Aniline	93	8.512	8.504	(0.941)	137618	20.0000	19.63
	93	Benzidine	184	20.781	20.780	(0.898)	308973	20.0000	20.09
	103	Pyridine	79	4.719	4.719	(0.522)	57227	10.0000	10.51
	105	1-methylnaphthalene	142	13.163	13.155	(1.143)	191210	10.0000	10.27
	111	Azobenzene (1,2-DP-Hydrazine)	77	16.520	16.511	(1.094)	193705	10.0000	9.827

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
187 Total Benzofluoranthenes	252	25.015	24.968	(0.973)	554093	20.0000	21.03
99 Perylene	252	25.766	25.765	(1.002)	238793	10.0000	10.53
98 Retene	219	Compound Not Detected.					
120 2,3,4,6-Tetrachlorophenol	232	15.825	15.824	(1.048)	45816	10.0000	10.80

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019071508.D
Lab Smp Id: SHG0206-CAL6
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Misc Info:

Calibration Date: 15-JUL-2019
Calibration Time: 15:33
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	27068	-17.32
27 Naphthalene-d8	117487	58744	234974	94978	-19.16
42 Acenaphthene-d10	61859	30930	123718	49539	-19.92
59 Phenanthrene-d10	113574	56787	227148	90381	-20.42
69 Chrysene-d12	105788	52894	211576	89163	-15.72
134 Di-n-octylphthala	252823	126412	505646	209949	-16.96
77 Perylene-d12	113992	56996	227984	95741	-16.01

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	9.05	8.55	9.55	9.05	0.00
27 Naphthalene-d8	11.51	11.01	12.01	11.52	0.08
42 Acenaphthene-d10	15.11	14.61	15.61	15.11	0.01
59 Phenanthrene-d10	18.12	17.62	18.62	18.12	0.01
69 Chrysene-d12	23.15	22.65	23.65	23.15	0.00
134 Di-n-octylphthala	24.18	23.68	24.68	24.17	-0.03
77 Perylene-d12	25.71	25.21	26.21	25.71	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019071508.D

Lab ID: SHG0206-CAL6
nt10.i, 20190715.b\ABN.m,   15-JUL-2019 18:01

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

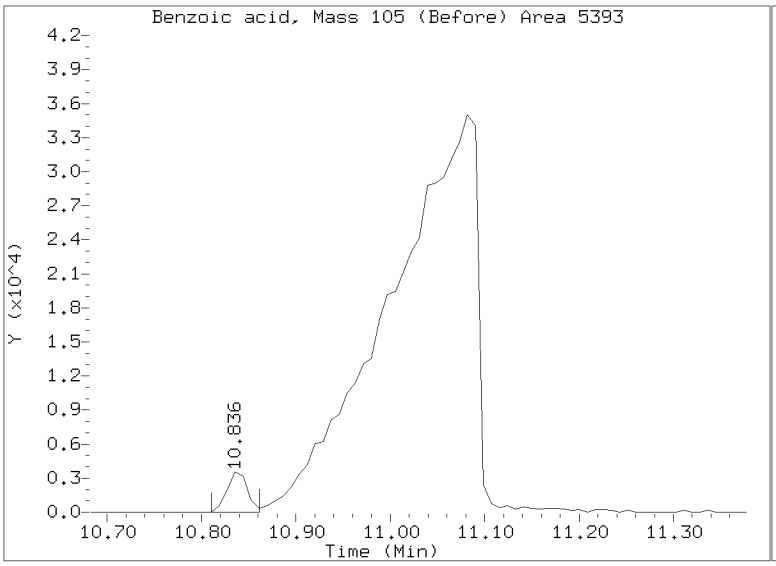
RRT check based on Ccal File: NT1019071504A.D

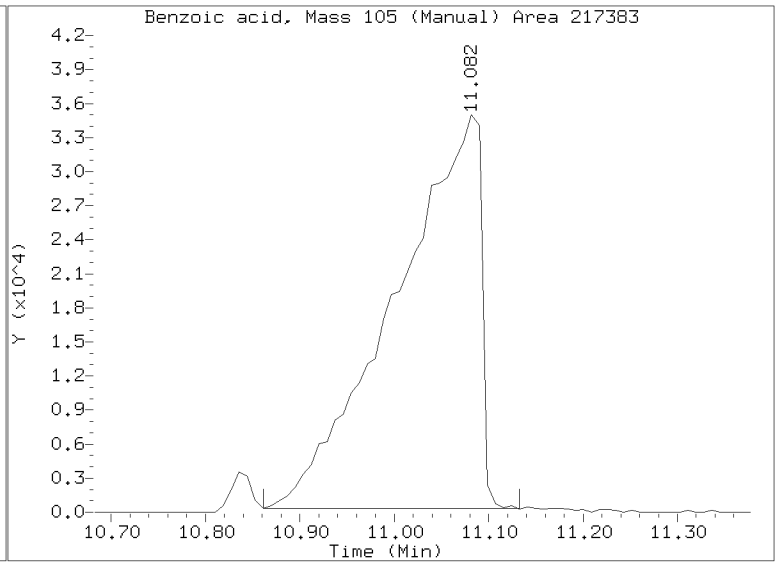
On Column LOD for nt10.i, 20190715.b\ABN.m, PSDDAICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190715.b/NT1019071508.D
Injection Date: 15-JUL-2019 18:01
Lab ID:SHG0206-CAL6 Client ID:
Report Date: 07/17/2019 12:31





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Date : 15-JUL-2019 19:15

Client ID:

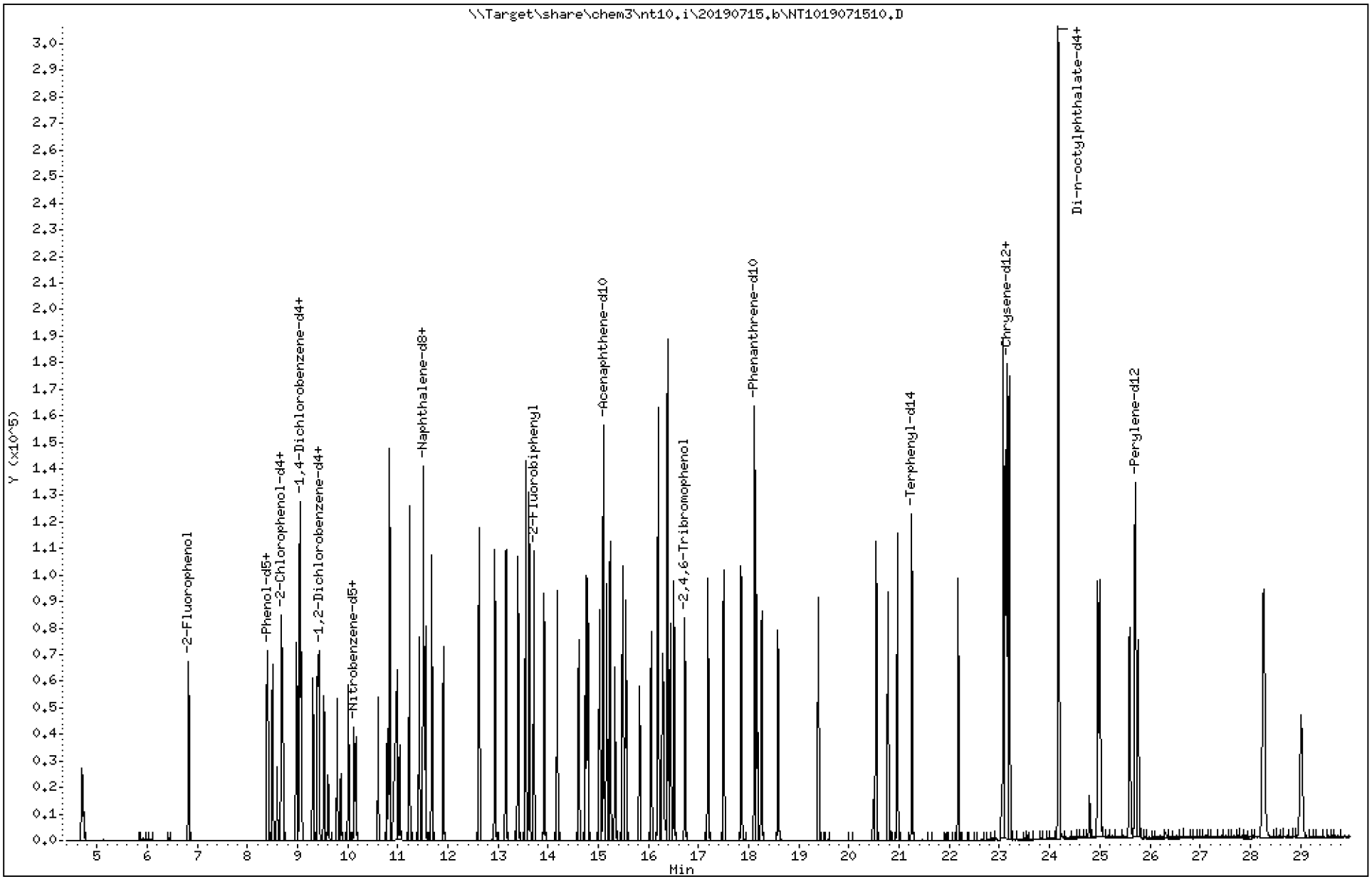
Instrument: nt10.i

Sample Info: SHG0206-CAL4

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190715.b\NT1019071510.D
Lab Smp Id: SHG0206-CAL4
Inj Date : 15-JUL-2019 19:15
Operator : YZ Inst ID: nt10.i
Smp Info : SHG0206-CAL4
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Meth Date : 17-Jul-2019 12:31 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 8 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 2-Fluorophenol	112	6.827	6.827	(0.755)	28734	3.75000	3.515
$	2 Phenol-d5	99	8.395	8.395	(0.928)	31939	3.75000	3.486
	3 Phenol	94	8.419	8.419	(0.931)	19463	2.50000	2.285
$	5 2-Chlorophenol-d4	132	8.681	8.681	(0.960)	36339	3.75000	3.685
	4 Bis(2-Chloroethyl)ether	93	8.589	8.596	(0.950)	15828	2.50000	2.294
	6 2-Chlorophenol	128	8.712	8.704	(0.963)	23149	2.50000	2.436
	7 1,3-Dichlorobenzene	146	8.983	8.983	(0.993)	27453	2.50000	2.535
*	8 1,4-Dichlorobenzene-d4	152	9.045	9.045	(1.000)	29110	4.00000	
	9 1,4-Dichlorobenzene	146	9.076	9.076	(1.003)	25264	2.50000	2.423
$	10 1,2-Dichlorobenzene-d4	152	9.402	9.402	(1.039)	16314	2.50000	2.420
	12 1,2-Dichlorobenzene	146	9.425	9.425	(1.042)	23553	2.50000	2.374
	11 Benzyl alcohol	108	9.309	9.309	(1.029)	13424	2.50000	2.381
	14 2,2'-oxybis(1-Chloropropane)	121	9.611	9.611	(1.063)	7739	2.50000	2.582
	13 2-Methylphenol	108	9.526	9.526	(1.053)	16021	2.50000	2.449
	17 Hexachloroethane	117	10.015	10.015	(1.107)	9771	2.50000	2.252
	16 N-Nitroso-di-n-propylamine	70	9.868	9.868	(1.091)	9296	2.50000	2.227
	15 4-Methylphenol	108	9.790	9.798	(1.082)	17073	2.50000	2.462
$	18 Nitrobenzene-d5	82	10.131	10.131	(0.880)	19035	2.50000	2.315
	19 Nitrobenzene	77	10.162	10.170	(0.883)	18232	2.50000	2.311
	20 Isophorone	82	10.605	10.605	(0.921)	30299	2.50000	2.290
	21 2-Nitrophenol	139	10.792	10.792	(0.937)	12243	2.50000	2.342
	22 2,4-Dimethylphenol	107	10.834	10.834	(0.941)	43118	5.00000	4.886
	23 Bis(2-Chloroethoxy)methane	93	11.038	11.038	(0.959)	17041	2.50000	2.246
	24 Benzoic acid	105	10.987	11.029	(0.954)	54794	10.0000	9.183
	25 2,4-Dichlorophenol	162	11.233	11.233	(0.976)	35454	5.00000	4.839
	26 1,2,4-Trichlorobenzene	180	11.422	11.422	(0.992)	19730	2.50000	2.378
*	27 Naphthalene-d8	136	11.515	11.507	(1.000)	105111	4.00000	
	28 Naphthalene	128	11.553	11.553	(1.003)	55889	2.50000	2.313
	29 4-Chloroaniline	127	11.677	11.677	(1.014)	49901	5.00000	4.710
	30 Hexachlorobutadiene	225	11.909	11.909	(1.034)	11839	2.50000	2.326
	31 4-Chloro-3-methylphenol	107	12.628	12.628	(1.097)	35454	5.00000	4.723
	32 2-Methylnaphthalene	142	12.938	12.938	(1.124)	48217	2.50000	2.353
	33 Hexachlorocyclopentadiene	237	13.402	13.402	(0.888)	27122	5.00000	4.832

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
	34	2,4,6-Trichlorophenol	196	13.549	13.549	(0.897)	27359	5.00000	4.954
	35	2,4,5-Trichlorophenol	196	13.619	13.619	(0.902)	27476	5.00000	4.819
$	36	2-Fluorobiphenyl	172	13.712	13.712	(0.908)	48267	2.50000	2.352
	37	2-Chloronaphthalene	162	13.921	13.921	(0.922)	40777	2.50000	2.319
	38	2-Nitroaniline	65	14.176	14.184	(0.939)	17785	5.00000	4.718
	39	Dimethylphthalate	163	14.610	14.610	(0.968)	47338	2.50000	2.374
	40	Acenaphthylene	152	14.788	14.788	(0.980)	63046	2.50000	2.438
	41	2,6-Dinitrotoluene	165	14.749	14.749	(0.977)	21922	5.00000	4.981
*	42	Acenaphthene-d10	164	15.097	15.105	(1.000)	53654	4.00000	
	43	3-Nitroaniline	138	15.027	15.027	(0.995)	25651	5.00000	4.959
	44	Acenaphthene	153	15.167	15.167	(1.005)	38398	2.50000	2.363
	45	2,4-Dinitrophenol	184	15.236	15.236	(1.009)	25418	10.0000	8.335
	46	Dibenzofuran	168	15.491	15.491	(1.026)	63211	2.50000	2.367
	47	4-Nitrophenol	109	15.329	15.337	(1.015)	15918	5.00000	4.825
	48	2,4-Dinitrotoluene	165	15.553	15.553	(1.030)	28049	5.00000	4.684
	50	Diethylphthalate	149	16.056	16.063	(1.063)	46705	2.50000	2.433
	49	Fluorene	166	16.195	16.195	(1.073)	44590	2.50000	2.441
	51	4-Chlorophenyl-phenylether	204	16.187	16.187	(1.072)	22724	2.50000	2.415
	52	4-Nitroaniline	138	16.288	16.288	(1.079)	22040	5.00000	3.900
	53	4,6-Dinitro-2-methylphenol	198	16.380	16.380	(0.904)	47940	10.0000	9.760
	54	N-Nitrosodiphenylamine	169	16.434	16.434	(0.907)	34257	2.50000	2.504
$	55	2,4,6-Tribromophenol	330	16.727	16.727	(1.108)	14643	3.75000	3.609
	56	4-Bromophenyl-phenylether	248	17.190	17.190	(0.949)	19025	2.50000	2.372
	57	Hexachlorobenzene	284	17.499	17.499	(0.966)	20084	2.50000	2.350
	58	Pentachlorophenol	266	17.847	17.847	(0.985)	17087	5.00000	4.741
*	59	Phenanthrene-d10	188	18.118	18.118	(1.000)	99675	4.00000	
	60	Phenanthrene	178	18.164	18.164	(1.003)	56999	2.50000	2.341
	61	Anthracene	178	18.257	18.257	(1.008)	60295	2.50000	2.439
	62	Carbazole	167	18.582	18.582	(1.026)	51651	2.50000	2.220
	63	Di-n-butylphthalate	149	19.387	19.387	(1.070)	78361	2.50000	2.326
	64	Fluoranthene	202	20.540	20.547	(0.887)	67485	2.50000	2.382
	65	Pyrene	202	20.965	20.965	(0.906)	70086	2.50000	2.369
$	66	Terphenyl-d14	244	21.252	21.252	(0.918)	50212	2.50000	2.503
	67	Butylbenzylphthalate	149	22.173	22.181	(0.958)	33704	2.50000	2.446
	68	Benzo(a)anthracene	228	23.118	23.118	(0.999)	65275	2.50000	2.427
*	69	Chrysene-d12	240	23.149	23.149	(1.000)	92708	4.00000	
	70	3,3'-Dichlorobenzidine	252	23.079	23.079	(0.997)	59853	7.50000	6.334
	71	Chrysene	228	23.187	23.195	(1.002)	58259	2.50000	2.448
	72	bis(2-Ethylhexyl)phthalate	149	23.195	23.203	(0.960)	45242	2.50000	2.529
*	134	Di-n-octylphthalate-d4	153	24.170	24.178	(1.000)	203401	4.00000	
	73	Di-n-octylphthalate	149	24.178	24.186	(1.000)	90618	2.50000	2.408
	74	Benzo(b)fluoranthene	252	24.960	24.968	(0.971)	68188	2.50000	2.448
	75	Benzo(k)fluoranthene	252	24.999	25.014	(0.972)	68011	2.50000	2.427
	76	Benzo(a)pyrene	252	25.595	25.603	(0.995)	61160	2.50000	2.447
*	77	Perylene-d12	264	25.711	25.711	(1.000)	97079	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	28.260	28.276	(1.099)	76071	2.50000	2.533(M)
	79	Dibenzo(a,h)anthracene	278	28.276	28.291	(1.100)	60314	2.50000	2.467
	80	Benzo(g,h,i)perylene	276	29.013	29.029	(1.128)	61838	2.50000	2.444
	90	N-Nitrosodimethylamine	74	4.695	4.695	(0.519)	14381	5.00000	4.554
	91	Aniline	93	8.504	8.504	(0.940)	35165	5.00000	4.663
	93	Benzidine	184	20.780	20.780	(0.898)	53023	5.00000	3.986
	103	Pyridine	79	4.726	4.719	(0.523)	14165	2.50000	2.418
	105	1-methylnaphthalene	142	13.155	13.155	(1.142)	50407	2.50000	2.447
	111	Azobenzene (1,2-DP-Hydrazine)	77	16.511	16.511	(1.094)	50423	2.50000	2.362

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
187 Total Benzofluoranthenes	252	24.999	24.968	(0.972)	131365	5.00000	4.917
99 Perylene	252	25.758	25.765	(1.002)	55568	2.50000	2.417
98 Retene	219	Compound Not Detected.					
120 2,3,4,6-Tetrachlorophenol	232	15.824	15.824	(1.048)	11635	2.50000	2.533

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019071510.D
Lab Smp Id: SHG0206-CAL4
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Misc Info:

Calibration Date: 15-JUL-2019
Calibration Time: 15:33
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	29110	-11.08
27 Naphthalene-d8	117487	58744	234974	105111	-10.53
42 Acenaphthene-d10	61859	30930	123718	53654	-13.26
59 Phenanthrene-d10	113574	56787	227148	99675	-12.24
69 Chrysene-d12	105788	52894	211576	92708	-12.36
134 Di-n-octylphthala	252823	126412	505646	203401	-19.55
77 Perylene-d12	113992	56996	227984	97079	-14.84

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	9.05	8.55	9.55	9.05	0.00
27 Naphthalene-d8	11.51	11.01	12.01	11.52	0.07
42 Acenaphthene-d10	15.11	14.61	15.61	15.10	-0.05
59 Phenanthrene-d10	18.12	17.62	18.62	18.12	0.00
69 Chrysene-d12	23.15	22.65	23.65	23.15	0.00
134 Di-n-octylphthala	24.18	23.68	24.68	24.17	-0.03
77 Perylene-d12	25.71	25.21	26.21	25.71	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019071510.D

Lab ID: SHG0206-CAL4
nt10.i, 20190715.b\ABN.m,   15-JUL-2019 19:15

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

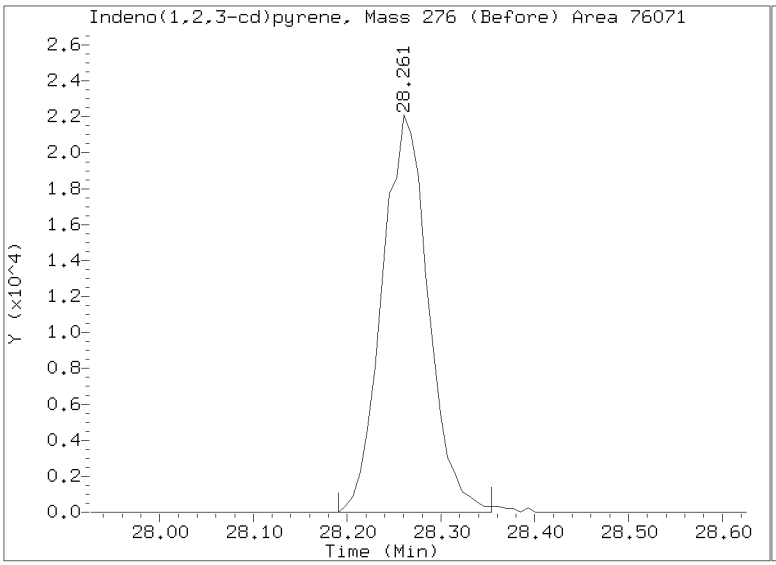
RRT check based on Ccal File: NT1019071504A.D

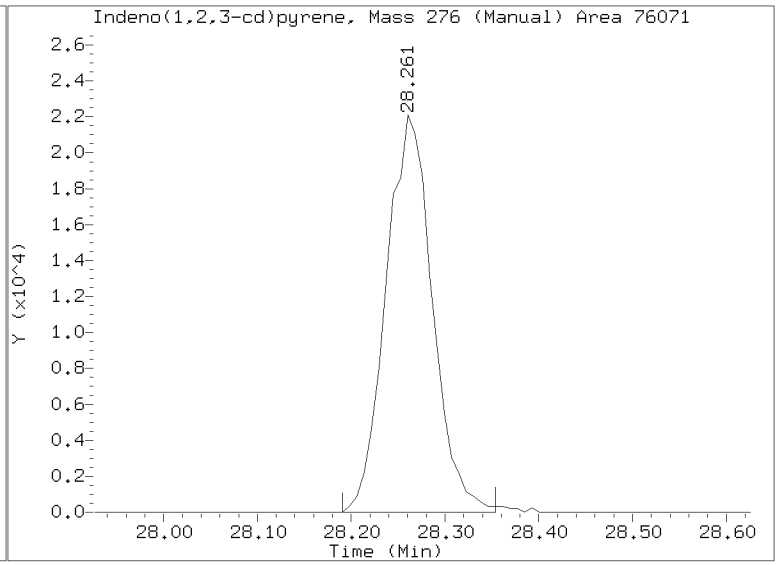
On Column LOD for nt10.i, 20190715.b\ABN.m, PSDDAICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190715.b/NT1019071510.D
Injection Date: 15-JUL-2019 19:15
Lab ID:SHG0206-CAL4 Client ID:
Report Date: 07/17/2019 12:32





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Date : 15-JUL-2019 20:29

Client ID:

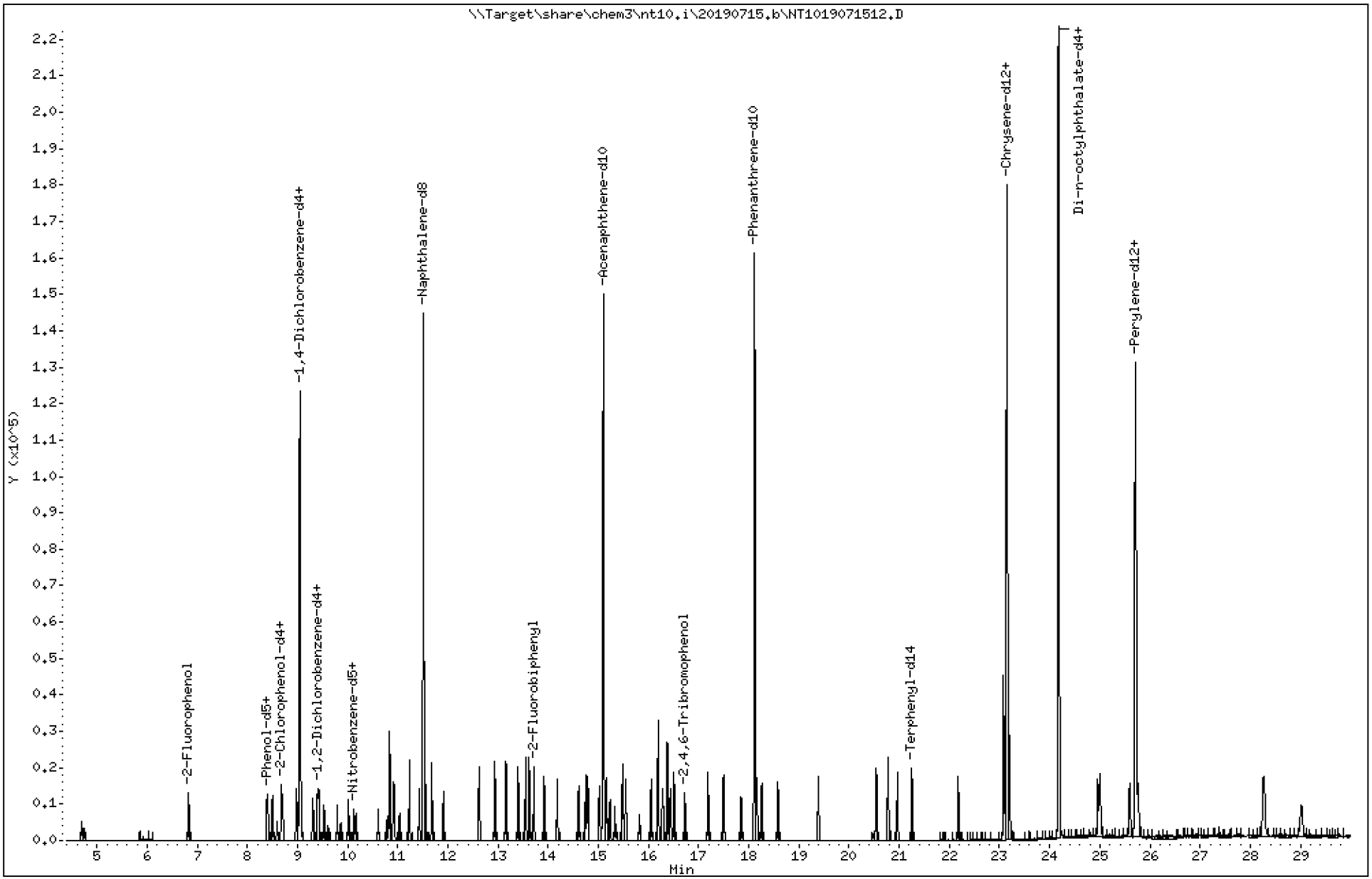
Instrument: nt10.i

Sample Info: SHG0206-CAL2

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

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Inj Date : 15-JUL-2019 20:29
Operator : YZ Inst ID: nt10.i
Smp Info : SHG0206-CAL2
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Meth Date : 17-Jul-2019 12:31 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 10 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

							AMOUNTS	
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 2-Fluorophenol	112	6.827	6.827	(0.755)	5694	0.75000	0.6957
$	2 Phenol-d5	99	8.395	8.395	(0.928)	6463	0.75000	0.7046
	3 Phenol	94	8.419	8.419	(0.931)	4106	0.50000	0.4815
$	5 2-Chlorophenol-d4	132	8.681	8.681	(0.960)	6755	0.75000	0.6841
	4 Bis(2-Chloroethyl)ether	93	8.596	8.596	(0.950)	3144	0.50000	0.4550
	6 2-Chlorophenol	128	8.712	8.704	(0.963)	4379	0.50000	0.4602
	7 1,3-Dichlorobenzene	146	8.983	8.983	(0.993)	5241	0.50000	0.4833
*	8 1,4-Dichlorobenzene-d4	152	9.045	9.045	(1.000)	29147	4.00000	
	9 1,4-Dichlorobenzene	146	9.076	9.076	(1.003)	5403	0.50000	0.5174
$	10 1,2-Dichlorobenzene-d4	152	9.402	9.402	(1.039)	3629	0.50000	0.5376
	12 1,2-Dichlorobenzene	146	9.425	9.425	(1.042)	5577	0.50000	0.5614
	11 Benzyl alcohol	108	9.309	9.309	(1.029)	2640	0.50000	0.4678
	14 2,2'-oxybis(1-Chloropropane)	121	9.611	9.611	(1.063)	1425	0.50000	0.4747
	13 2-Methylphenol	108	9.526	9.526	(1.053)	3147	0.50000	0.4804
	17 Hexachloroethane	117	10.015	10.015	(1.107)	1957	0.50000	0.4505
	16 N-Nitroso-di-n-propylamine	70	9.860	9.868	(1.090)	2150	0.50000	0.5144
	15 4-Methylphenol	108	9.790	9.798	(1.082)	3195	0.50000	0.4602
$	18 Nitrobenzene-d5	82	10.131	10.131	(0.880)	4044	0.50000	0.4979
	19 Nitrobenzene	77	10.162	10.170	(0.883)	3737	0.50000	0.4795
	20 Isophorone	82	10.605	10.605	(0.921)	5715	0.50000	0.4372
	21 2-Nitrophenol	139	10.792	10.792	(0.937)	2376	0.50000	0.4601
	22 2,4-Dimethylphenol	107	10.834	10.834	(0.941)	9265	1.00000	1.063
	23 Bis(2-Chloroethoxy)methane	93	11.038	11.038	(0.959)	3866	0.50000	0.5159
	24 Benzoic acid	105	10.919	11.029	(0.948)	8266	2.00000	1.413
	25 2,4-Dichlorophenol	162	11.233	11.233	(0.976)	7238	1.00000	0.9999
	26 1,2,4-Trichlorobenzene	180	11.422	11.422	(0.992)	4294	0.50000	0.5240
*	27 Naphthalene-d8	136	11.515	11.507	(1.000)	103841	4.00000	
	28 Naphthalene	128	11.553	11.553	(1.003)	12118	0.50000	0.5077
	29 4-Chloroaniline	127	11.677	11.677	(1.014)	10228	1.00000	0.9772
	30 Hexachlorobutadiene	225	11.909	11.909	(1.034)	2677	0.50000	0.5325
	31 4-Chloro-3-methylphenol	107	12.621	12.628	(1.096)	6267	1.00000	0.8451
	32 2-Methylnaphthalene	142	12.938	12.938	(1.124)	9902	0.50000	0.4891
	33 Hexachlorocyclopentadiene	237	13.402	13.402	(0.888)	4922	1.00000	0.9079

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
	34	2,4,6-Trichlorophenol	196	13.549	13.549	(0.897)	5529	1.00000	1.037
	35	2,4,5-Trichlorophenol	196	13.619	13.619	(0.902)	5206	1.00000	0.9453
$	36	2-Fluorobiphenyl	172	13.712	13.712	(0.908)	9769	0.50000	0.4928
	37	2-Chloronaphthalene	162	13.921	13.921	(0.922)	8277	0.50000	0.4874
	38	2-Nitroaniline	65	14.184	14.184	(0.940)	3179	1.00000	0.8731
	39	Dimethylphthalate	163	14.610	14.610	(0.968)	9759	0.50000	0.5067
	40	Acenaphthylene	152	14.788	14.788	(0.980)	12776	0.50000	0.5114
	41	2,6-Dinitrotoluene	165	14.749	14.749	(0.977)	4050	1.00000	0.9527
*	42	Acenaphthene-d10	164	15.097	15.105	(1.000)	51825	4.00000	
	43	3-Nitroaniline	138	15.020	15.027	(0.995)	4858	1.00000	0.9724
	44	Acenaphthene	153	15.167	15.167	(1.005)	7714	0.50000	0.4914
	45	2,4-Dinitrophenol	184	15.236	15.236	(1.009)	2884	2.00000	0.9888
	46	Dibenzofuran	168	15.484	15.491	(1.026)	13366	0.50000	0.5181
	47	4-Nitrophenol	109	15.329	15.337	(1.015)	2611	1.00000	0.8194
	48	2,4-Dinitrotoluene	165	15.545	15.553	(1.030)	5476	1.00000	0.9468
	50	Diethylphthalate	149	16.056	16.063	(1.063)	8868	0.50000	0.4782
	49	Fluorene	166	16.195	16.195	(1.073)	9536	0.50000	0.5405
	51	4-Chlorophenyl-phenylether	204	16.187	16.187	(1.072)	4540	0.50000	0.4995
	52	4-Nitroaniline	138	16.288	16.288	(1.079)	3492	1.00000	0.6501
	53	4,6-Dinitro-2-methylphenol	198	16.380	16.380	(0.904)	7580	2.00000	1.575
	54	N-Nitrosodiphenylamine	169	16.434	16.434	(0.907)	6522	0.50000	0.4866
$	55	2,4,6-Tribromophenol	330	16.727	16.727	(1.108)	2809	0.75000	0.7168
	56	4-Bromophenyl-phenylether	248	17.190	17.190	(0.949)	3796	0.50000	0.4831
	57	Hexachlorobenzene	284	17.499	17.499	(0.966)	3970	0.50000	0.4743
	58	Pentachlorophenol	266	17.855	17.847	(0.985)	3048	1.00000	0.8633
*	59	Phenanthrene-d10	188	18.118	18.118	(1.000)	97644	4.00000	
	60	Phenanthrene	178	18.164	18.164	(1.003)	12180	0.50000	0.5107
	61	Anthracene	178	18.257	18.257	(1.008)	11495	0.50000	0.4746
	62	Carbazole	167	18.582	18.582	(1.026)	11257	0.50000	0.4939
	63	Di-n-butylphthalate	149	19.387	19.387	(1.070)	14512	0.50000	0.4398
	64	Fluoranthene	202	20.540	20.547	(0.887)	13740	0.50000	0.4856
	65	Pyrene	202	20.965	20.965	(0.906)	13568	0.50000	0.4592
$	66	Terphenyl-d14	244	21.252	21.252	(0.918)	9448	0.50000	0.4715
	67	Butylbenzylphthalate	149	22.181	22.181	(0.958)	5984	0.50000	0.4348
	68	Benzo(a)anthracene	228	23.118	23.118	(0.999)	13541	0.50000	0.5040
*	69	Chrysene-d12	240	23.149	23.149	(1.000)	92593	4.00000	
	70	3,3'-Dichlorobenzidine	252	23.079	23.079	(0.997)	15192	1.50000	1.610
	71	Chrysene	228	23.187	23.195	(1.002)	11753	0.50000	0.4944
	72	bis(2-Ethylhexyl)phthalate	149	23.203	23.203	(0.960)	7485	0.50000	0.4461
*	134	Di-n-octylphthalate-d4	153	24.178	24.178	(1.000)	190773	4.00000	
	73	Di-n-octylphthalate	149	24.186	24.186	(1.000)	18176	0.50000	0.5150
	74	Benzo(b)fluoranthene	252	24.960	24.968	(0.971)	12393	0.50000	0.4621
	75	Benzo(k)fluoranthene	252	24.999	25.014	(0.972)	13474	0.50000	0.4994
	76	Benzo(a)pyrene	252	25.595	25.603	(0.995)	10943	0.50000	0.4546
*	77	Perylene-d12	264	25.711	25.711	(1.000)	93476	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	28.268	28.276	(1.099)	13580	0.50000	0.4696
	79	Dibenzo(a,h)anthracene	278	28.276	28.291	(1.100)	11517	0.50000	0.4891
	80	Benzo(g,h,i)perylene	276	29.013	29.029	(1.128)	11649	0.50000	0.4782
	90	N-Nitrosodimethylamine	74	4.696	4.695	(0.519)	2654	1.00000	0.8393
	91	Aniline	93	8.504	8.504	(0.940)	7299	1.00000	0.9667
	93	Benzidine	184	20.780	20.780	(0.898)	14598	1.00000	1.409
	103	Pyridine	79	4.742	4.719	(0.524)	2412	0.50000	0.4113
	105	1-methylnaphthalene	142	13.162	13.155	(1.143)	9964	0.50000	0.4895
	111	Azobenzene (1,2-DP-Hydrazine)	77	16.511	16.511	(1.094)	11102	0.50000	0.5384

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
187	Total Benzofluoranthenes	252	24.999	24.968	(0.972)	25065	1.00000	0.9744
99	Perylene	252	25.758	25.765	(1.002)	11130	0.50000	0.5027
98	Retene	219	Compound Not Detected.					
120	2,3,4,6-Tetrachlorophenol	232	15.824	15.824	(1.048)	2039	0.50000	0.4595

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019071512.D
Lab Smp Id: SHG0206-CAL2
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Misc Info:

Calibration Date: 15-JUL-2019
Calibration Time: 15:33
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	29147	-10.97
27 Naphthalene-d8	117487	58744	234974	103841	-11.61
42 Acenaphthene-d10	61859	30930	123718	51825	-16.22
59 Phenanthrene-d10	113574	56787	227148	97644	-14.03
69 Chrysene-d12	105788	52894	211576	92593	-12.47
134 Di-n-octylphthala	252823	126412	505646	190773	-24.54
77 Perylene-d12	113992	56996	227984	93476	-18.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	9.05	8.55	9.55	9.05	0.00
27 Naphthalene-d8	11.51	11.01	12.01	11.52	0.07
42 Acenaphthene-d10	15.11	14.61	15.61	15.10	-0.05
59 Phenanthrene-d10	18.12	17.62	18.62	18.12	0.00
69 Chrysene-d12	23.15	22.65	23.65	23.15	0.00
134 Di-n-octylphthala	24.18	23.68	24.68	24.18	0.00
77 Perylene-d12	25.71	25.21	26.21	25.71	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019071512.D

Lab ID: SHG0206-CAL2
nt10.i, 20190715.b\ABN.m,   15-JUL-2019 20:29

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.948	0.958	-0.0102	Benzoic acid

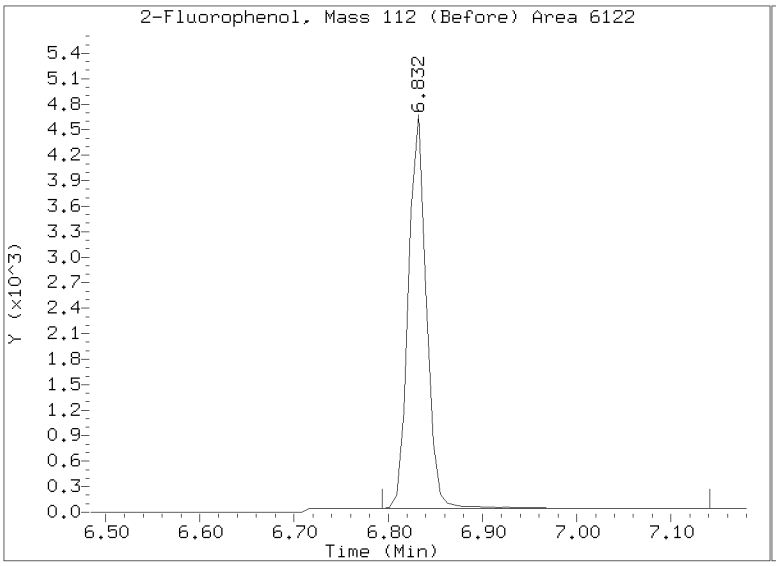
RRT check based on Ccal File: NT1019071504A.D

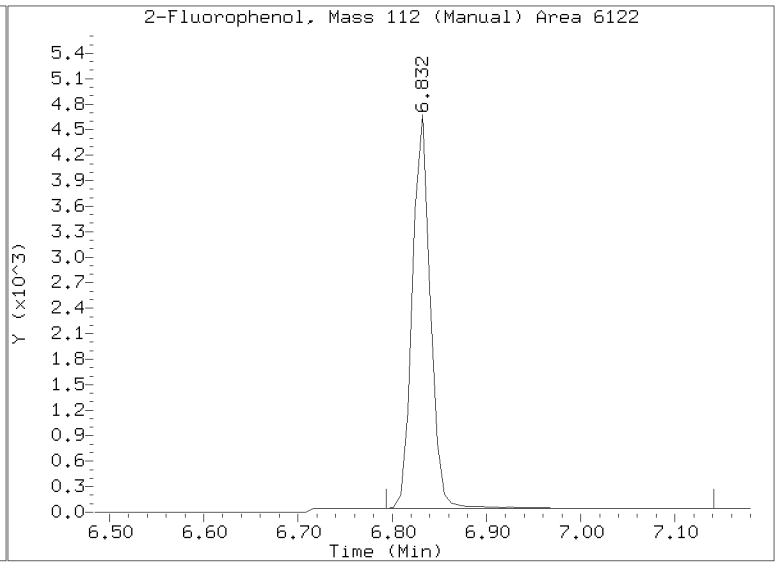
On Column LOD for nt10.i, 20190715.b\ABN.m, PSDDAICAL.sub = 0.0000

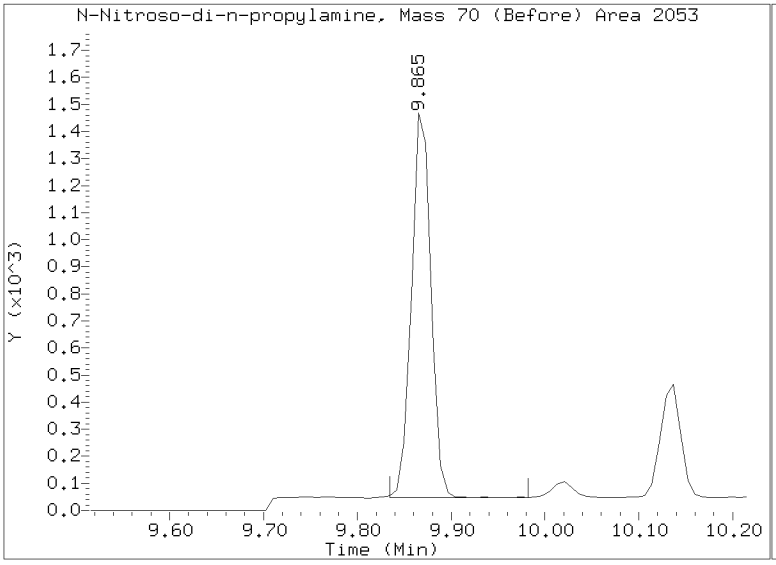
* Only compounds listed in the work order have been verified by the analyst *

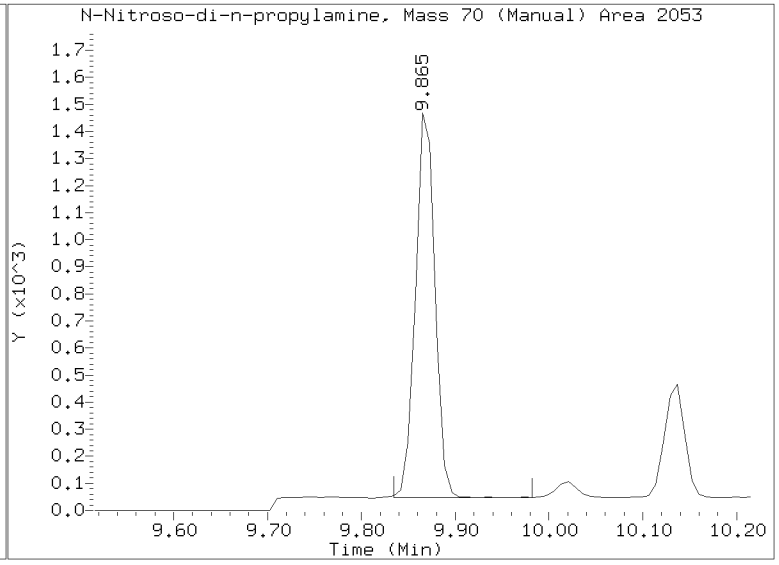
Quant Ion Manual Peak Adjustment Report

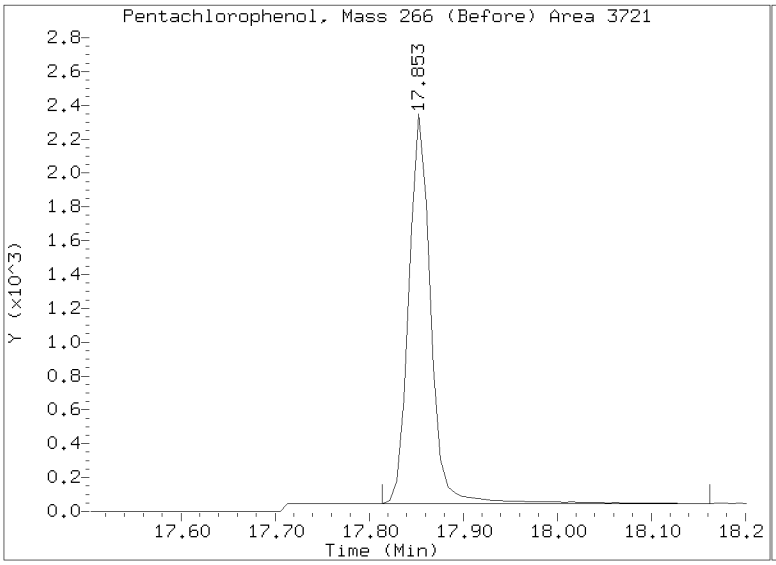
Datafile: //Target/share/chem3/nt10.i/20190715.b/SIM.b/NT1019071512.D
Injection Date: 15-JUL-2019 20:29
Lab ID:SHG0000-CAL4 Client ID:
Report Date: 07/16/2019 14:49

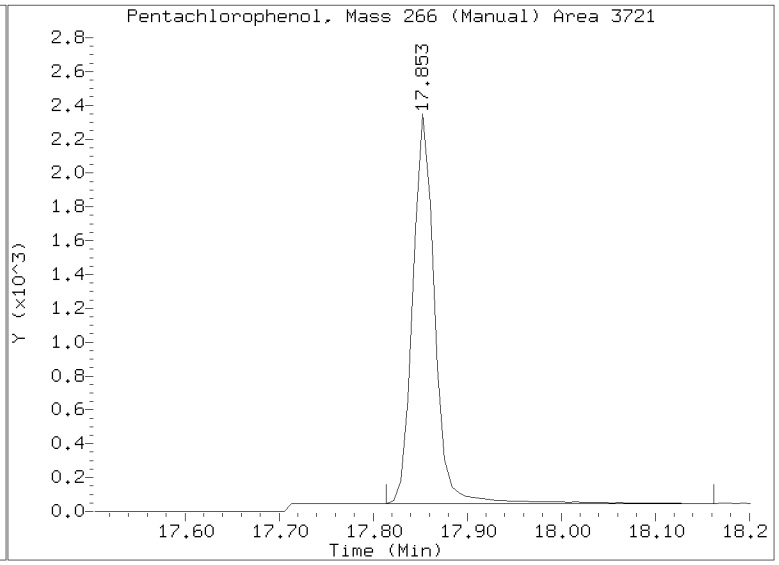












Quant Ion Manual Peak Adjustment Report

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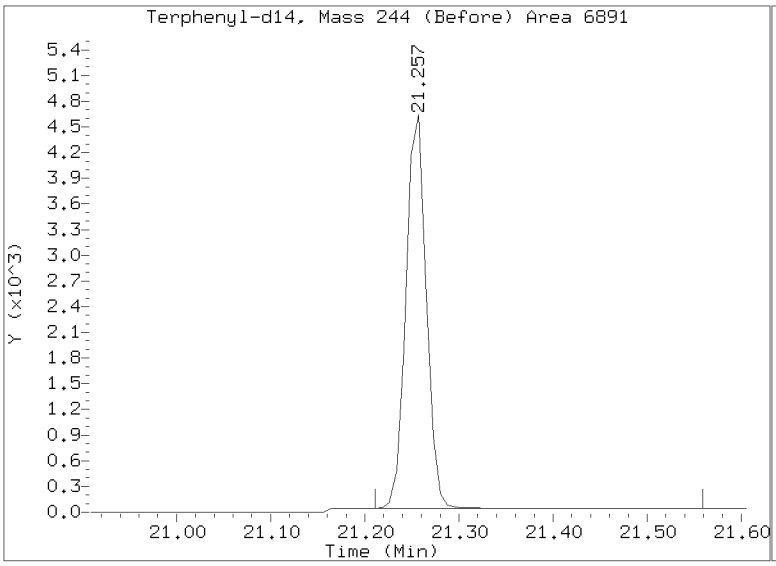
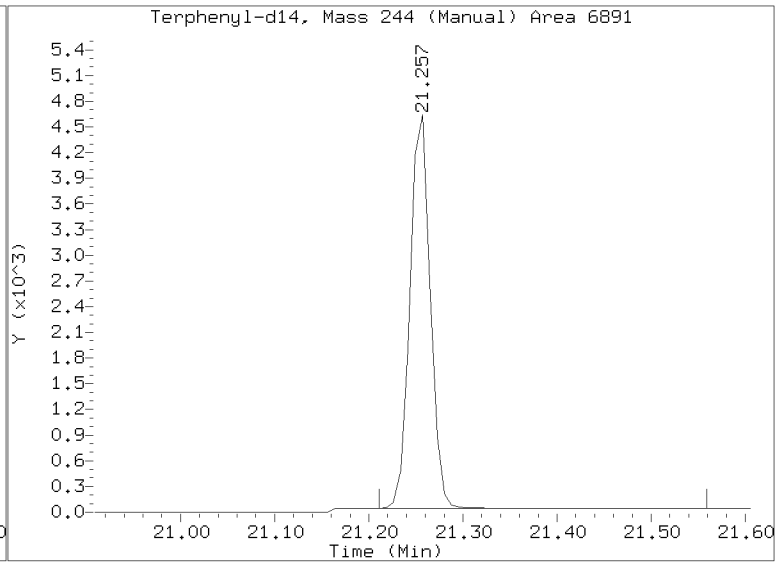
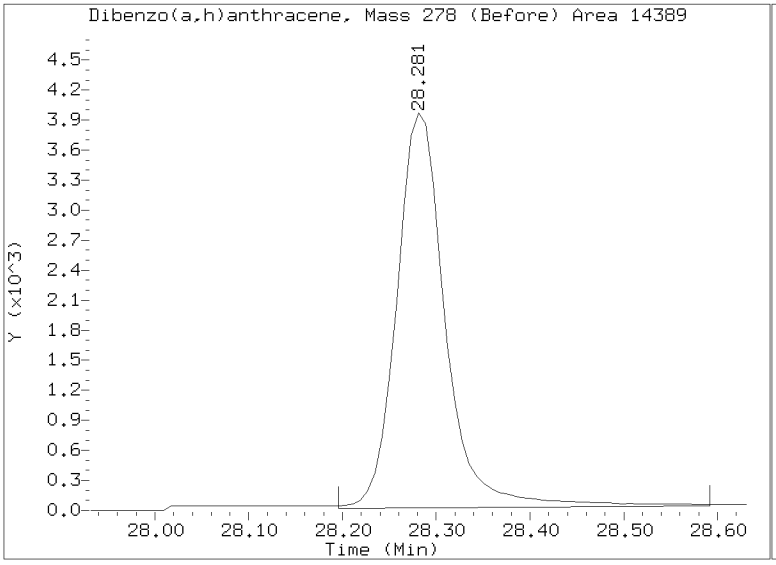
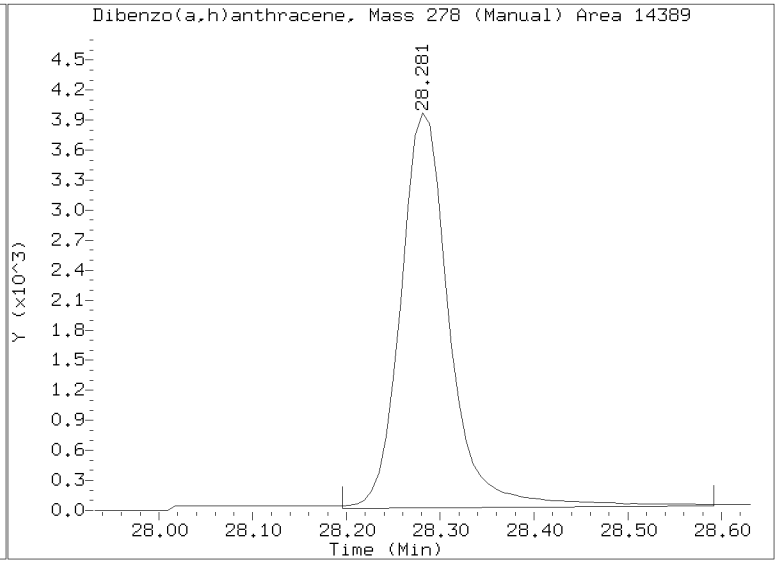
Injection Date: 15-JUL-2019 20:29
Lab ID:SHG0000-CAL4 Client ID:
Report Date: 07/16/2019 14:49









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Date : 16-JUL-2019 15:38

Client ID:

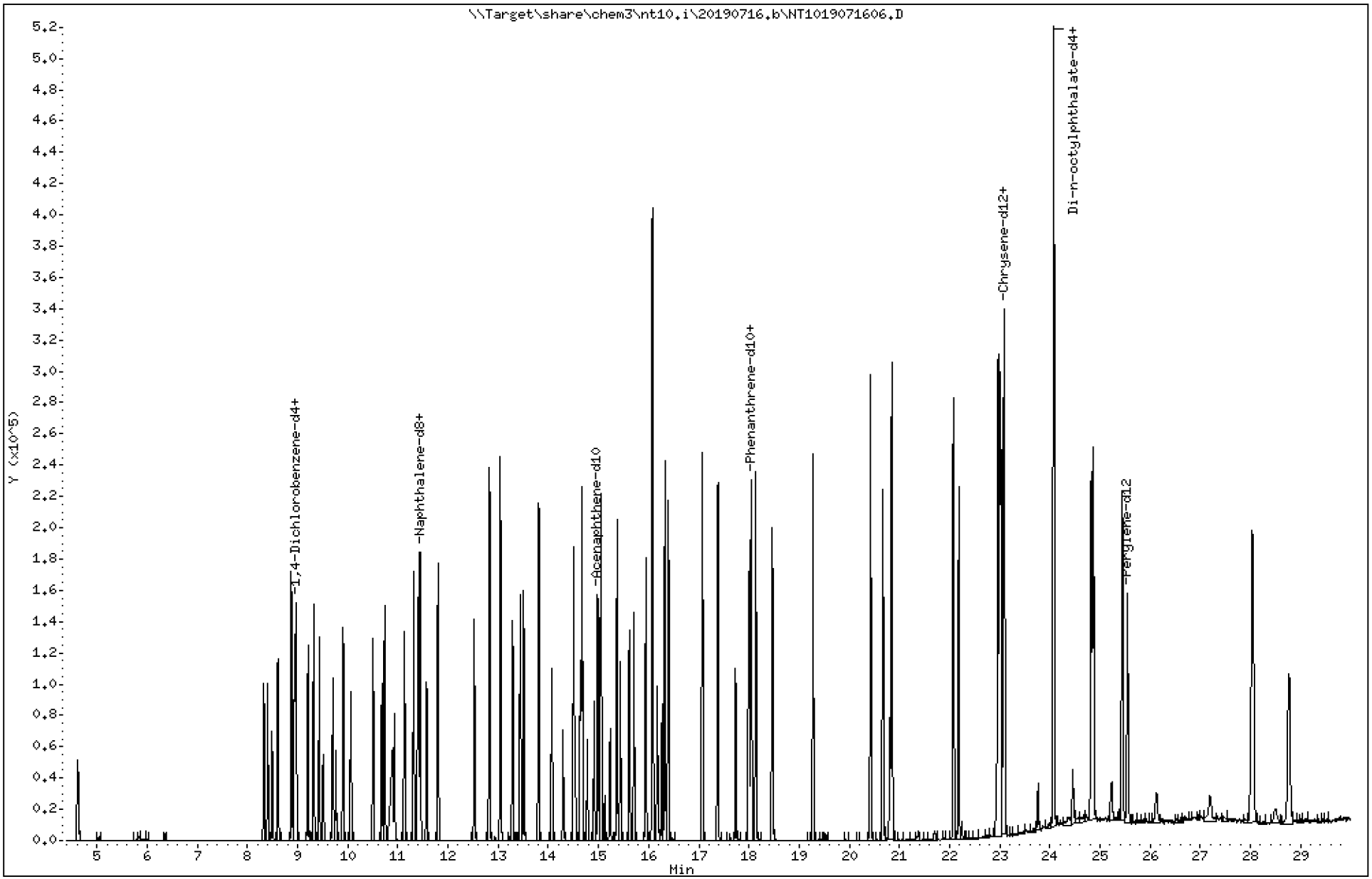
Instrument: nt10.i

Sample Info: SHG0000-SCV1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

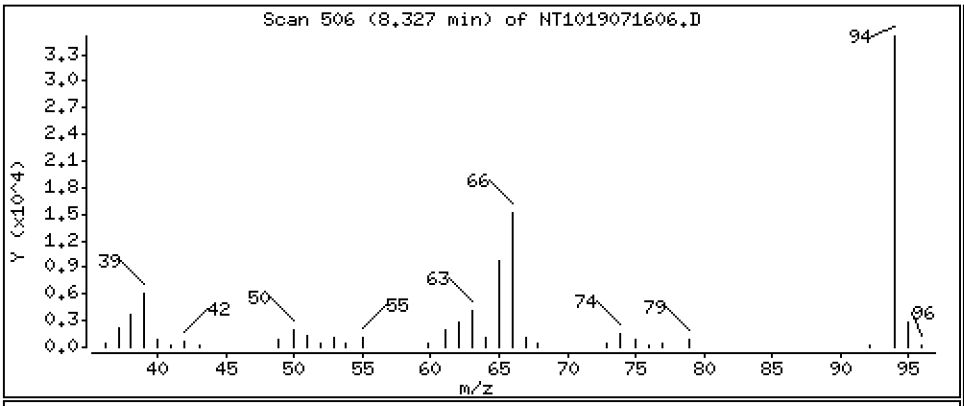
Operator: YZ

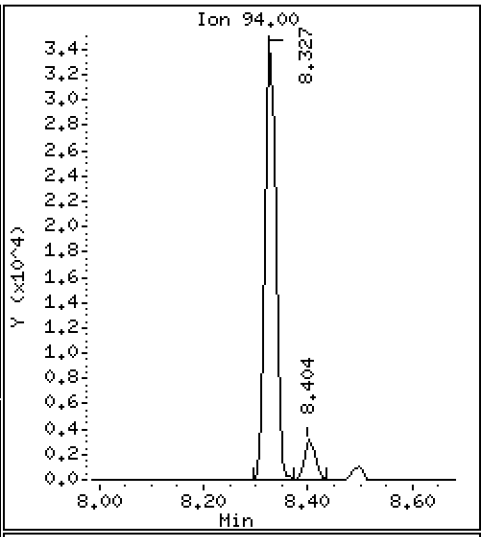
Column phase: ZB-5msi

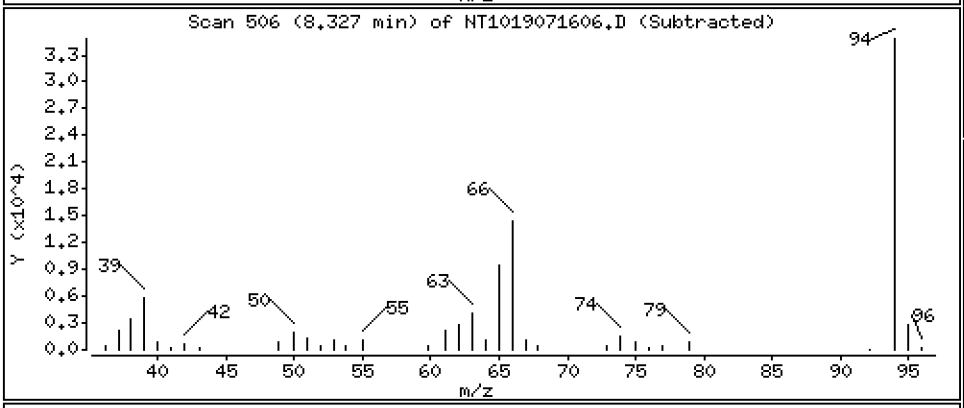
Column diameter: 0.25

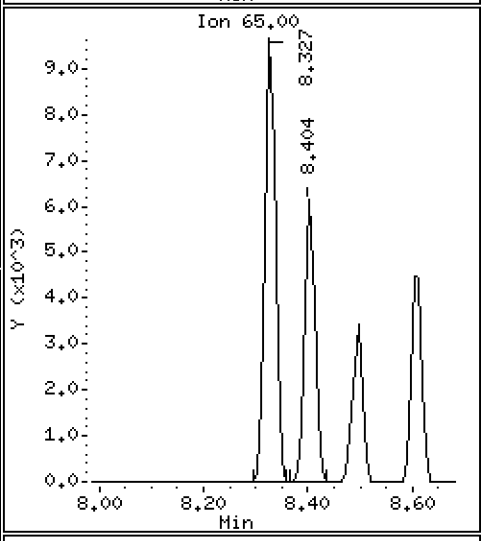
3 Phenol

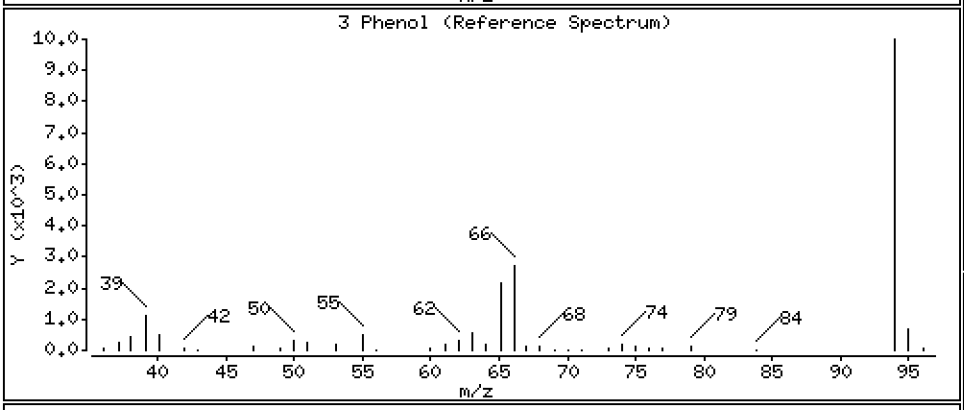
Concentration: 4.855 ug/mL

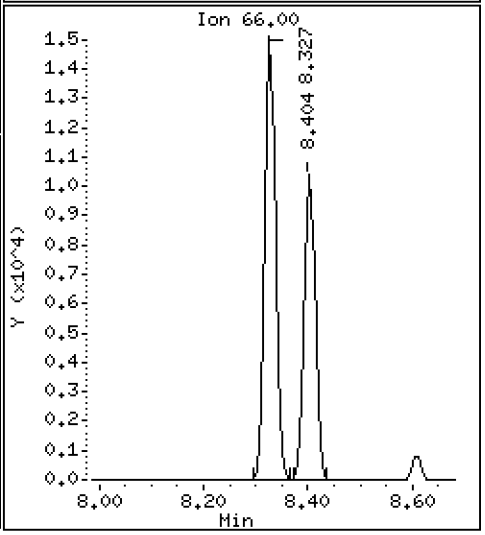


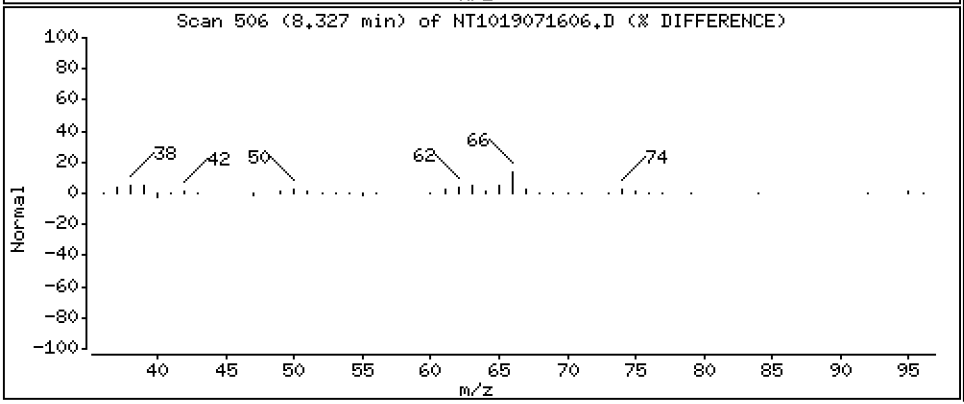












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

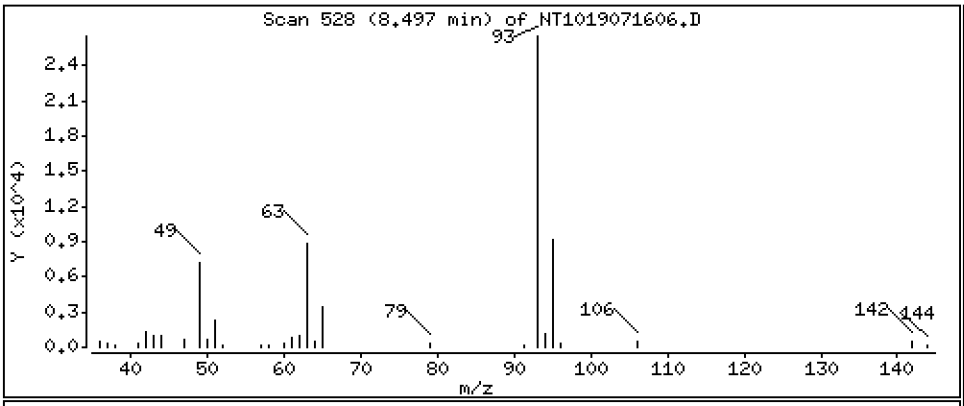
Operator: YZ

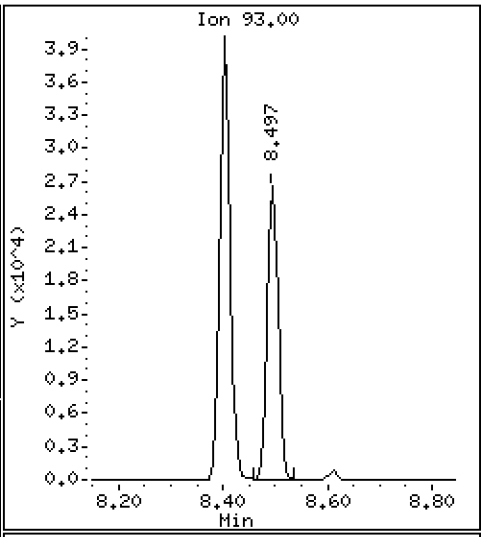
Column phase: ZB-5msi

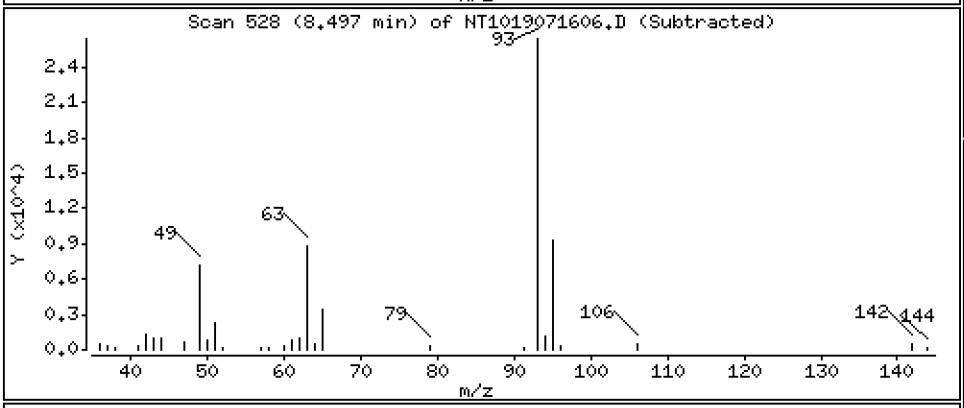
Column diameter: 0.25

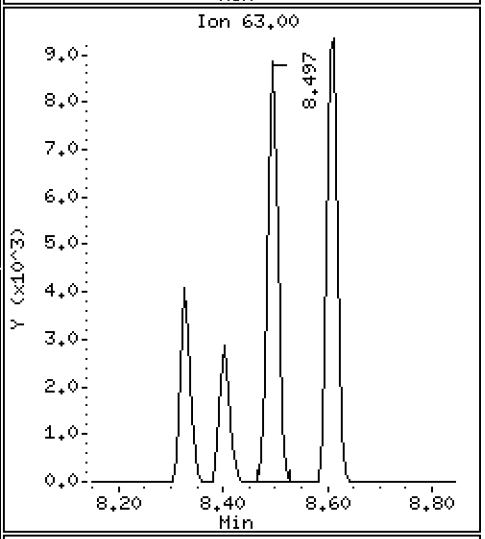
4 Bis(2-Chloroethyl)ether

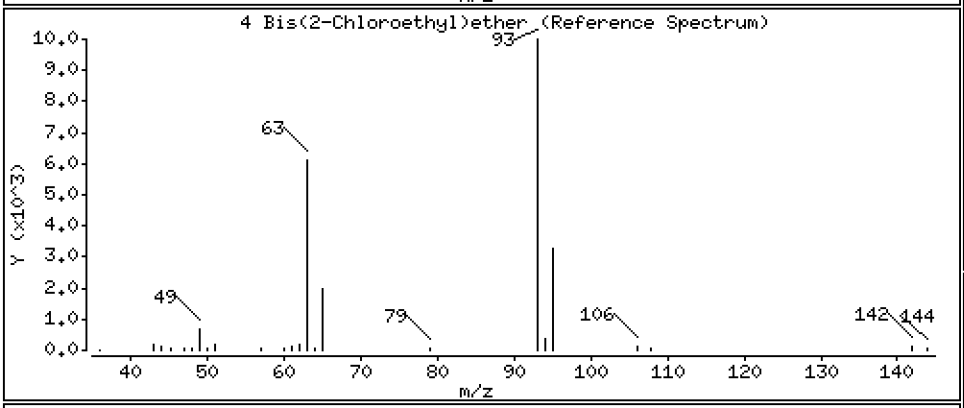
Concentration: 4.766 ug/mL

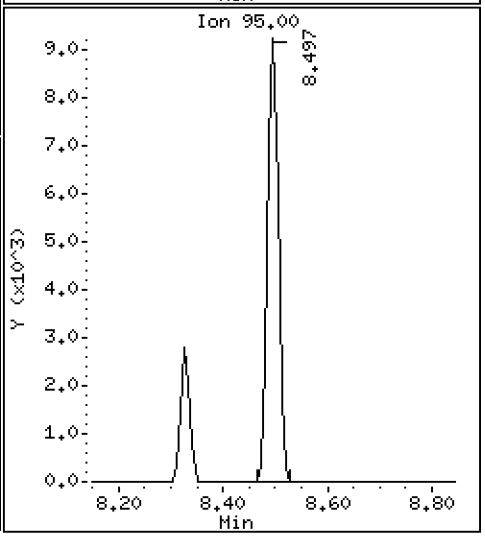


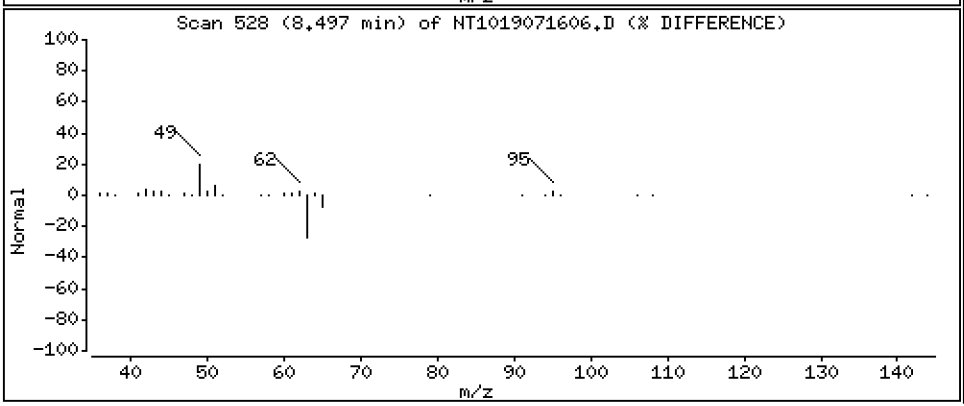












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

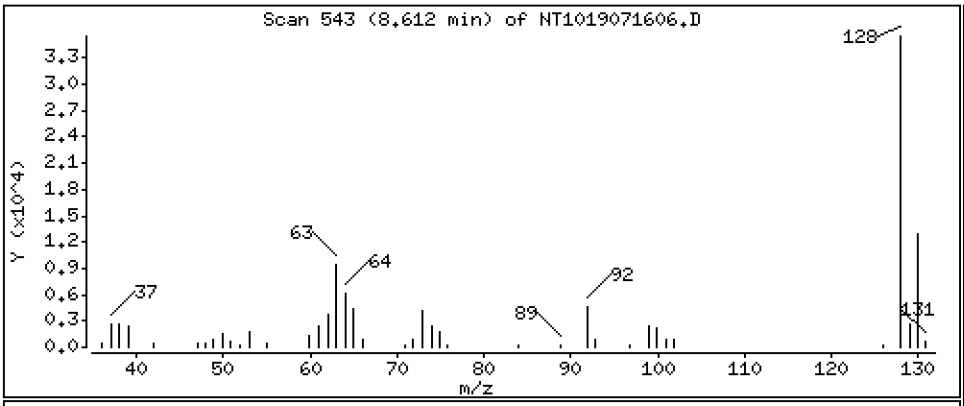
Operator: YZ

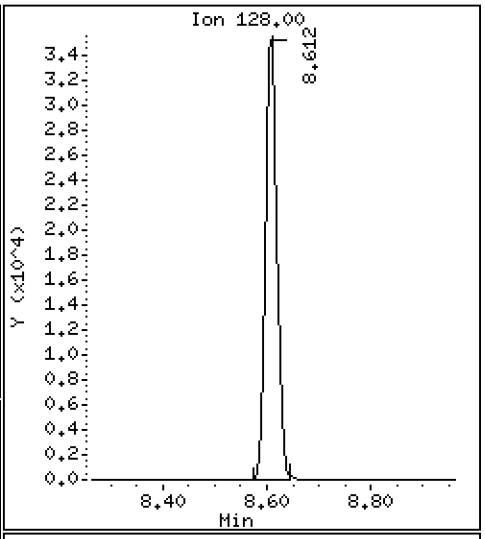
Column phase: ZB-5msi

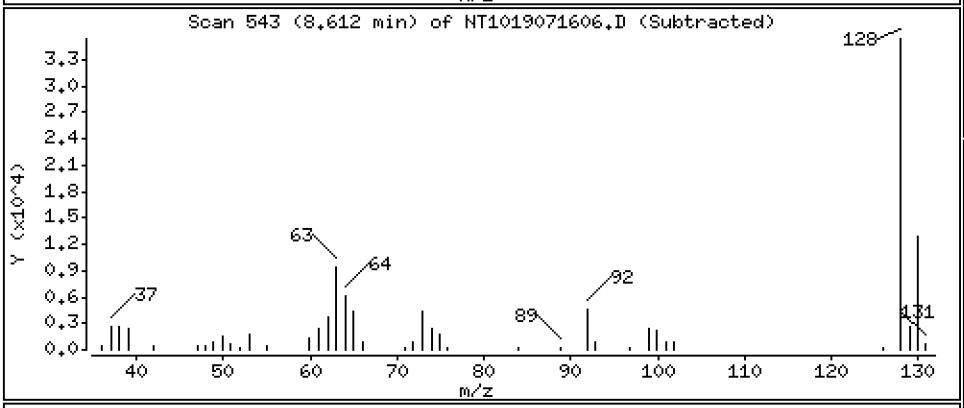
Column diameter: 0.25

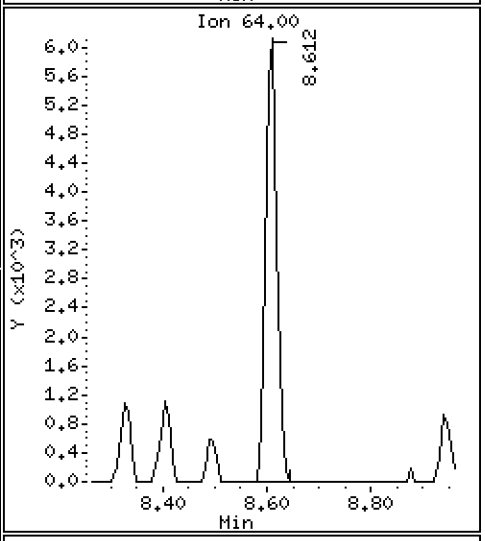
6 2-Chlorophenol

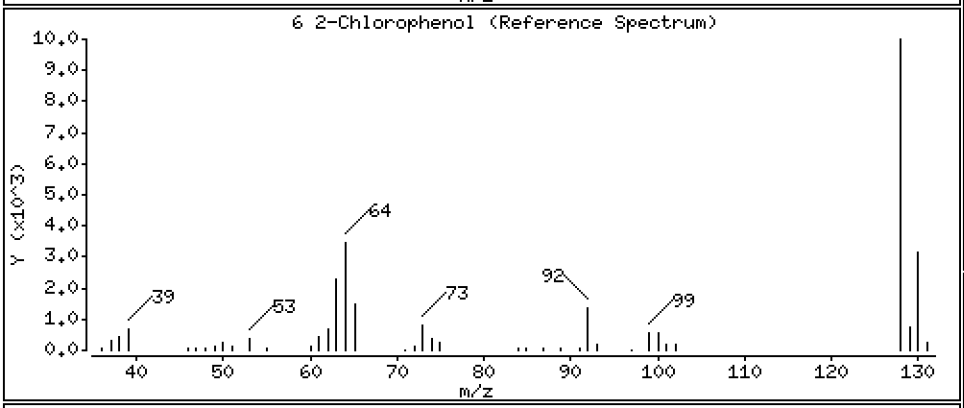
Concentration: 5.097 ug/mL

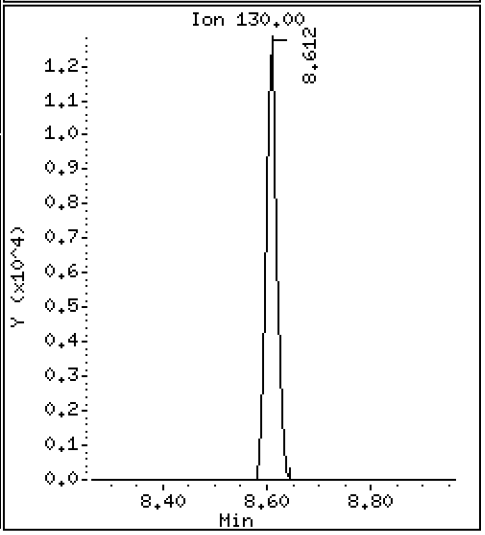


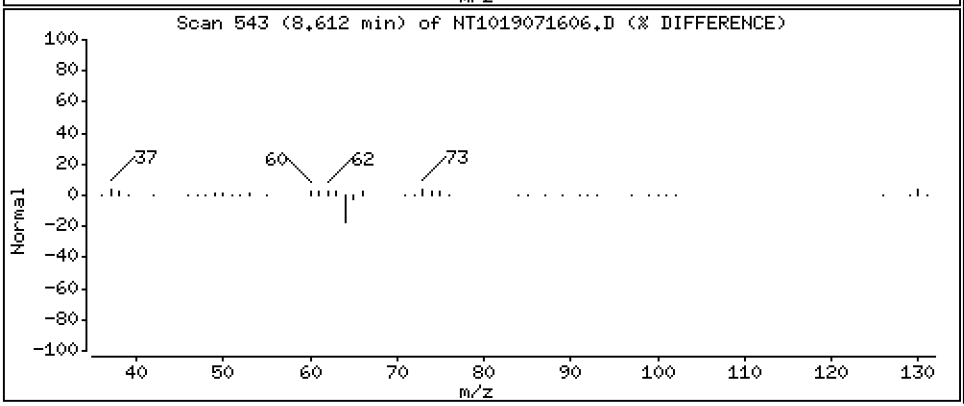












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

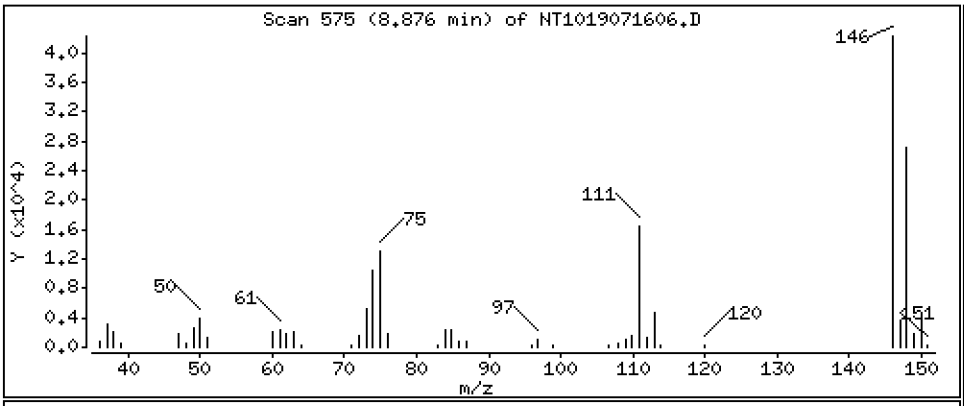
Operator: YZ

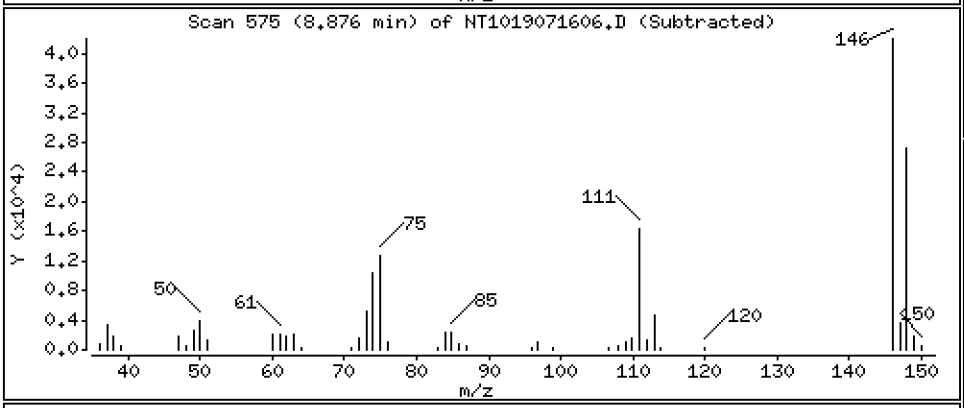
Column phase: ZB-5msi

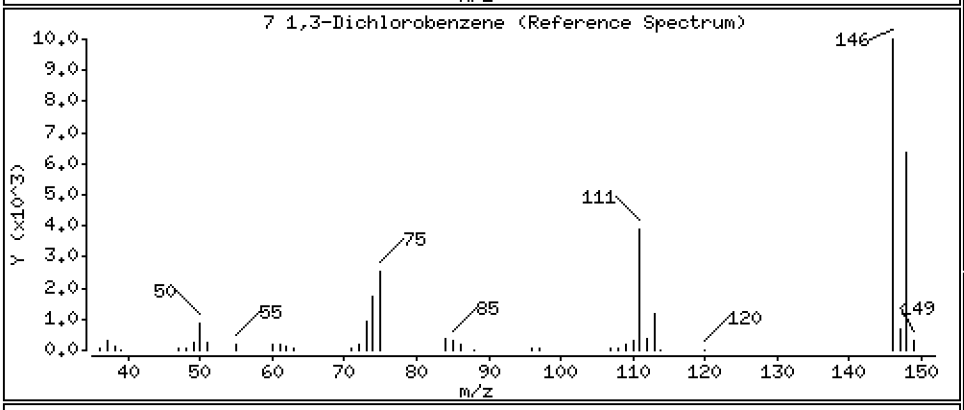
Column diameter: 0.25

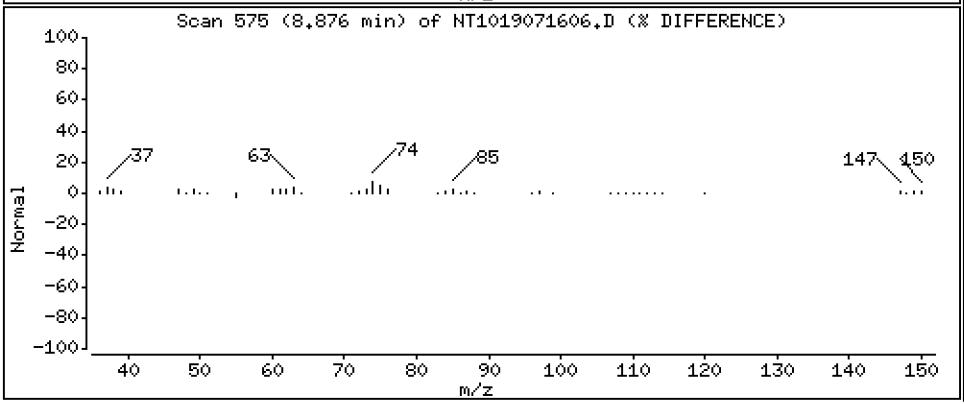
7 1,3-Dichlorobenzene

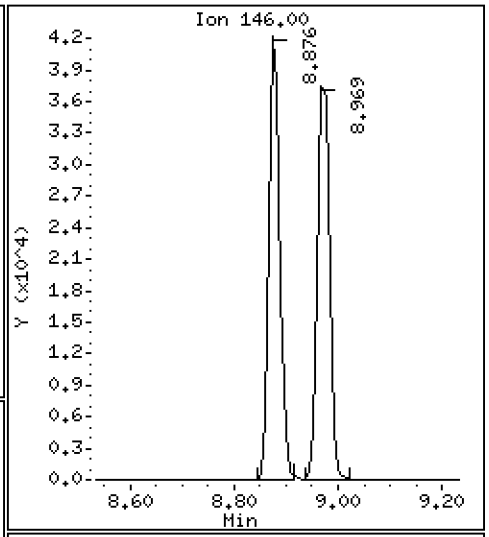
Concentration: 5.163 ug/mL

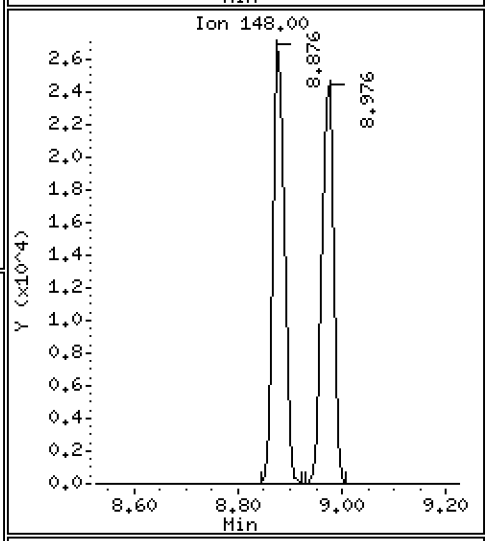


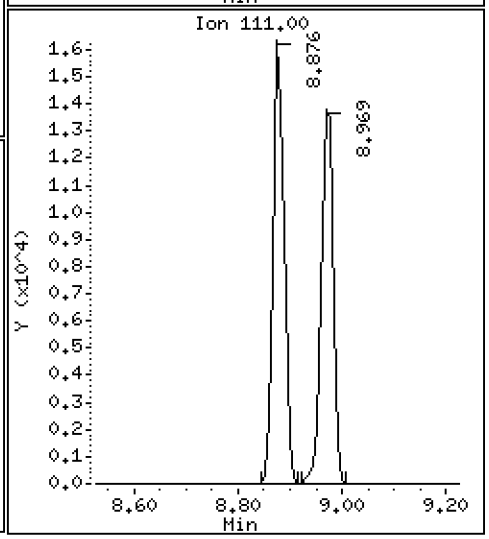












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

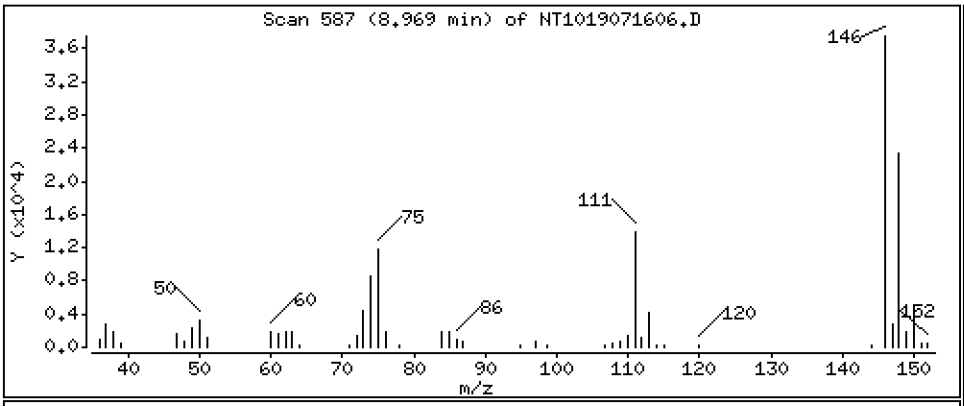
Operator: YZ

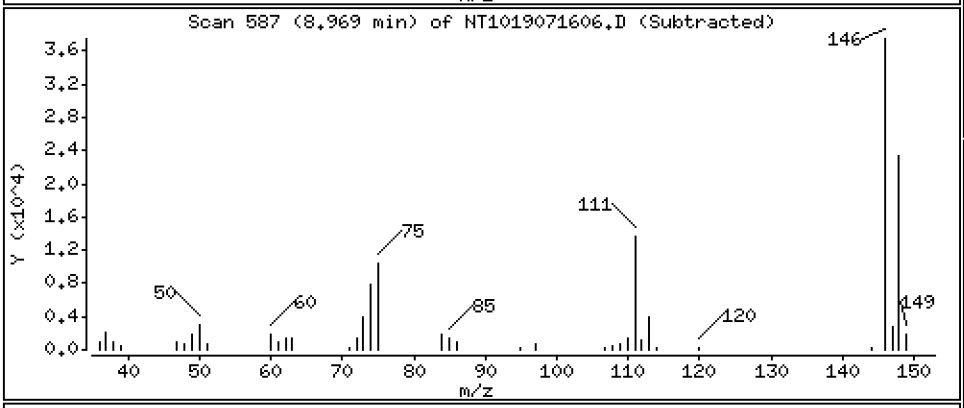
Column phase: ZB-5msi

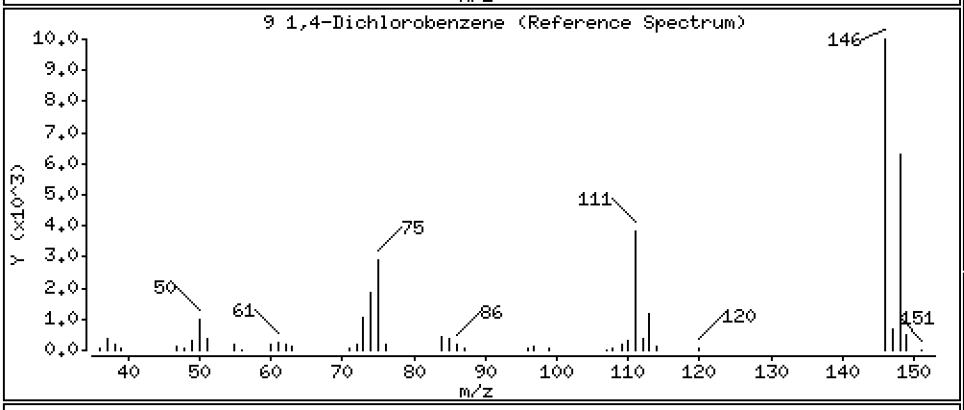
Column diameter: 0.25

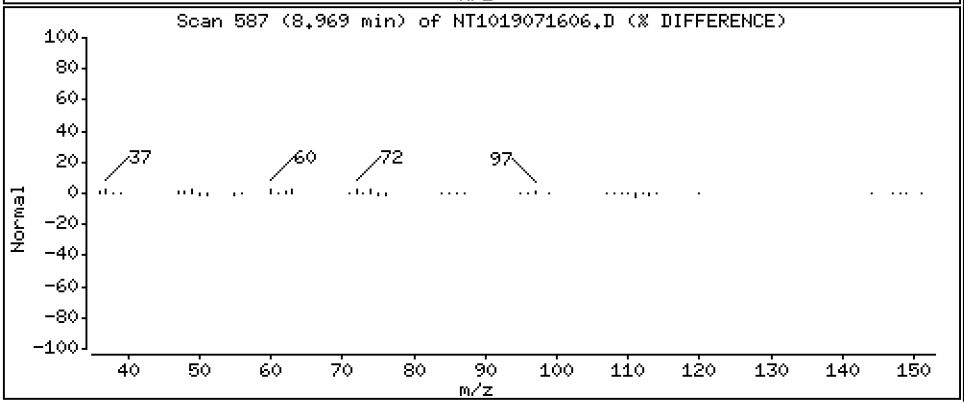
9 1,4-Dichlorobenzene

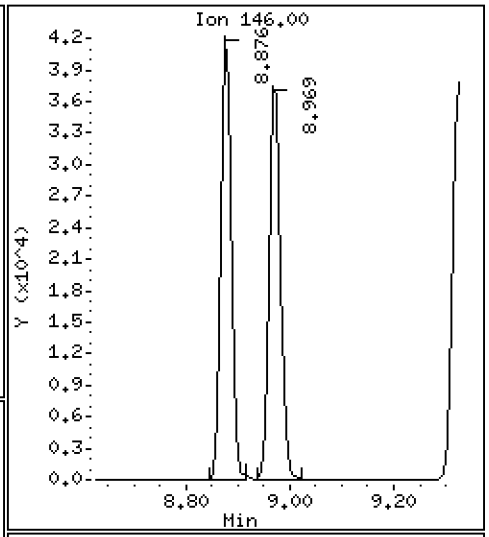
Concentration: 4.928 ug/mL

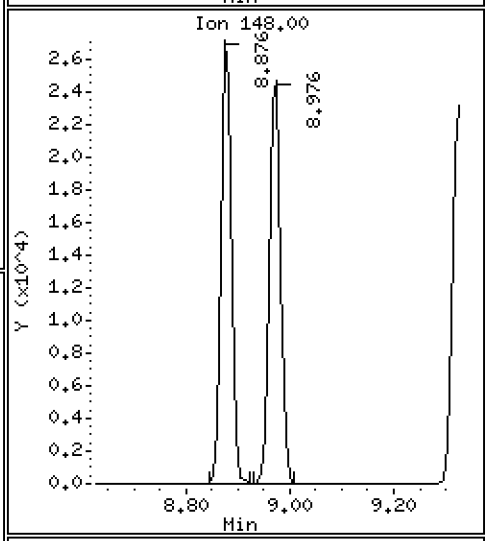


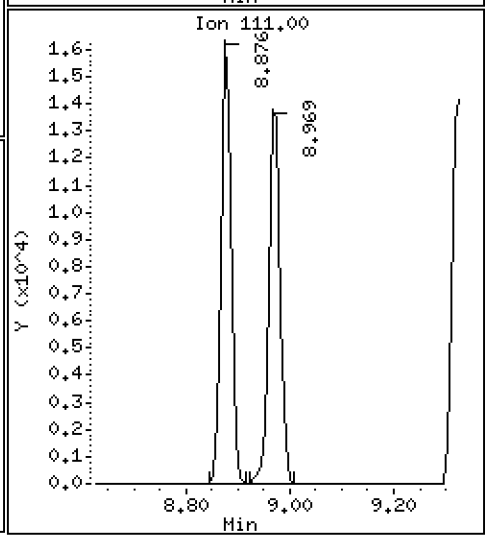












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

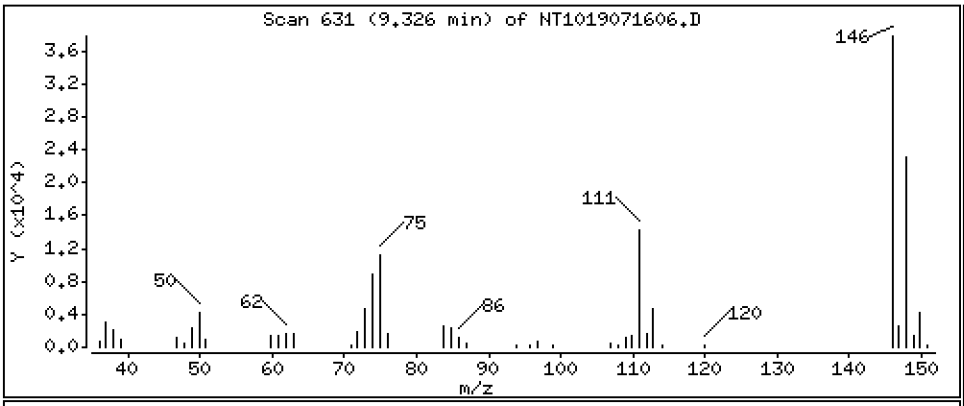
Operator: YZ

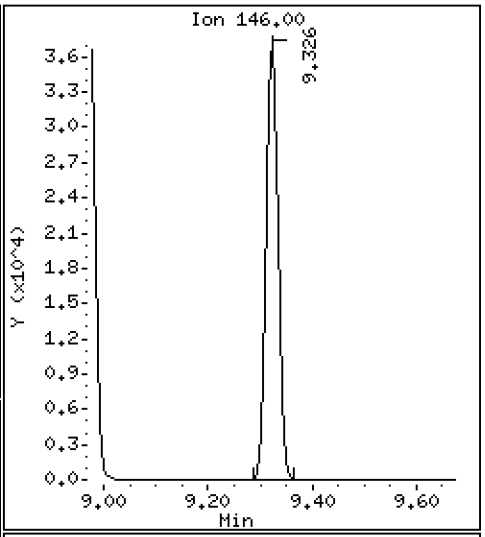
Column phase: ZB-5msi

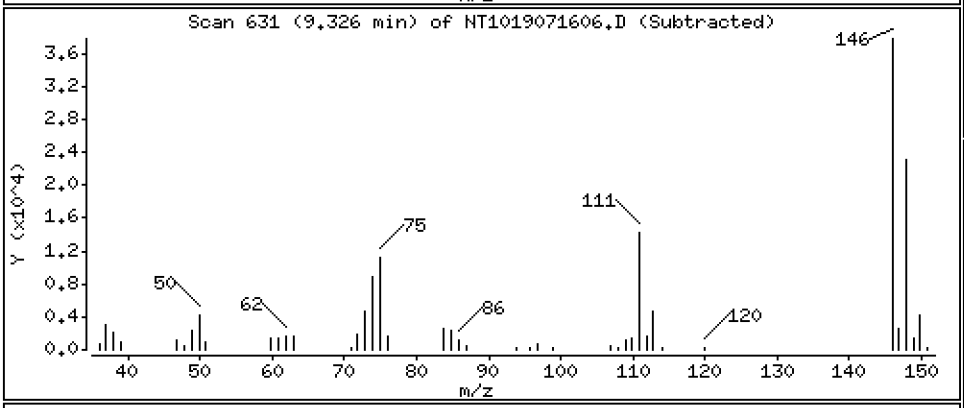
Column diameter: 0.25

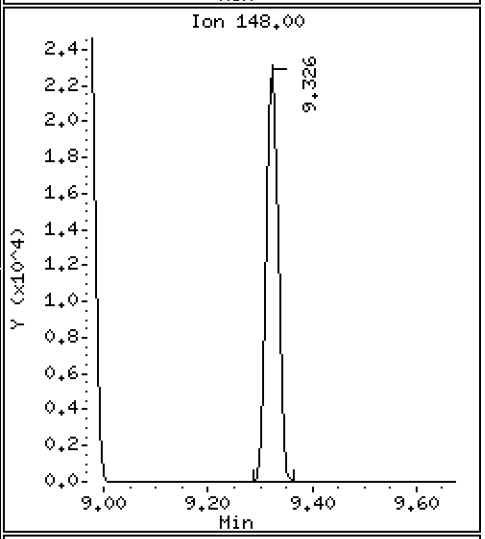
12 1,2-Dichlorobenzene

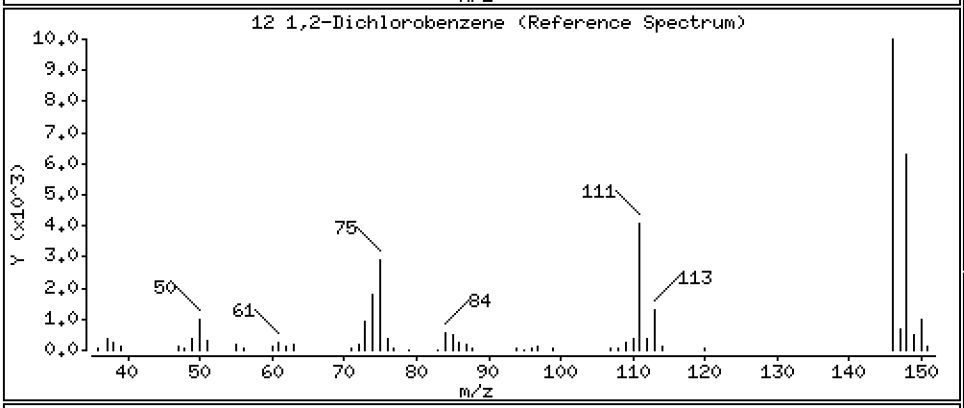
Concentration: 5.073 ug/mL

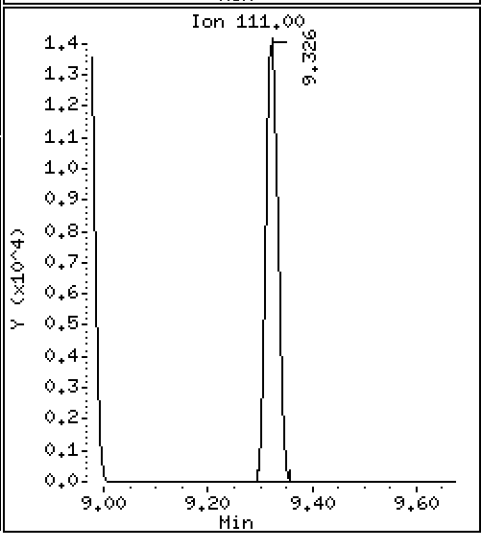


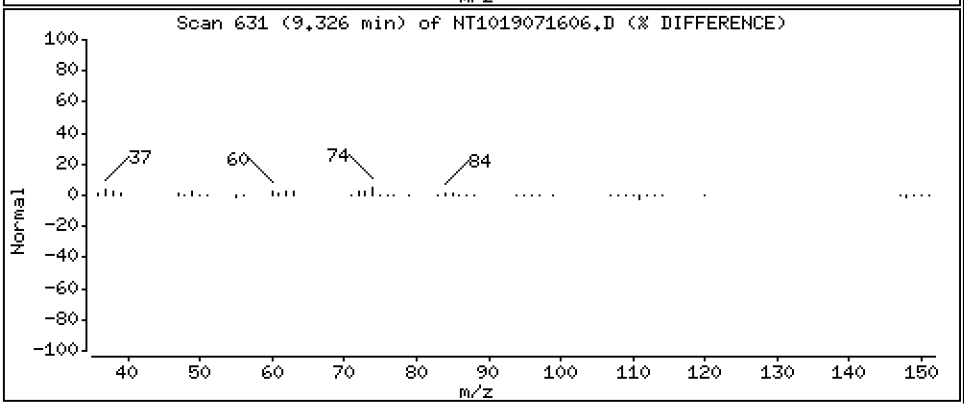












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

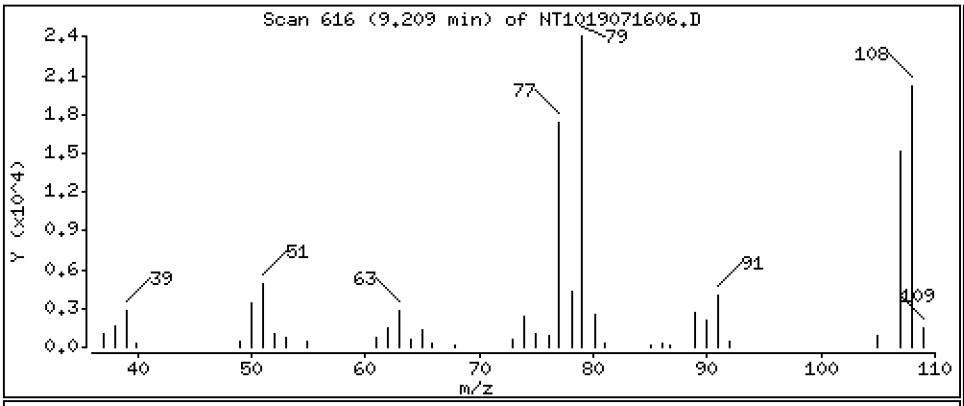
Operator: YZ

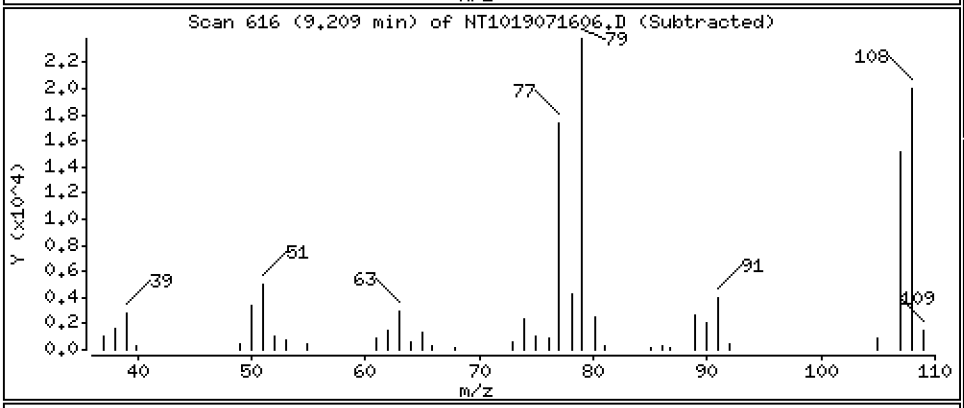
Column phase: ZB-5msi

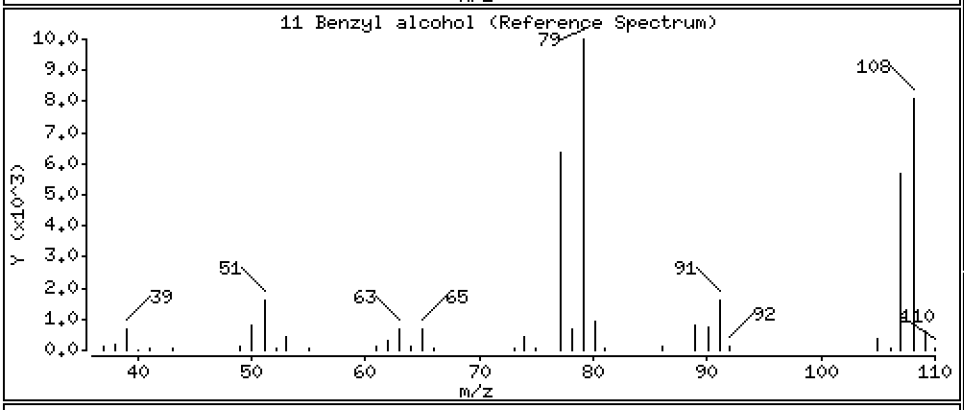
Column diameter: 0.25

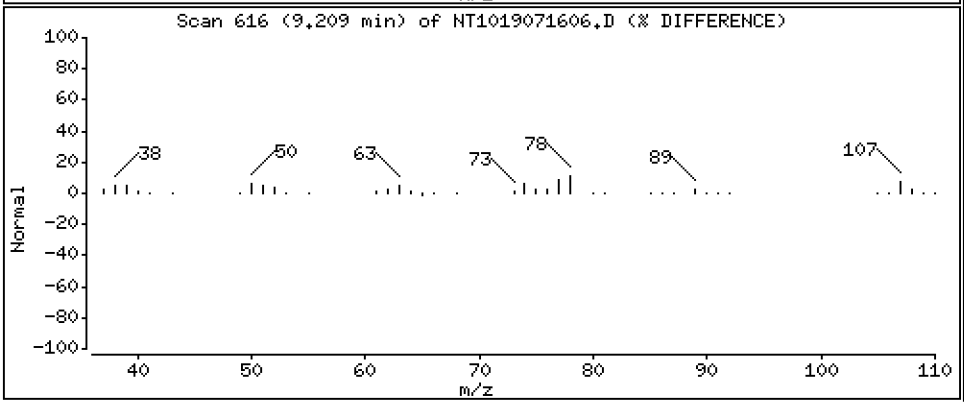
11 Benzyl alcohol

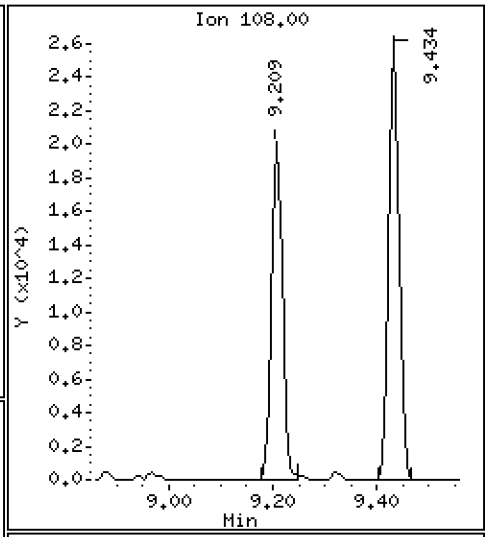
Concentration: 4.380 ug/mL

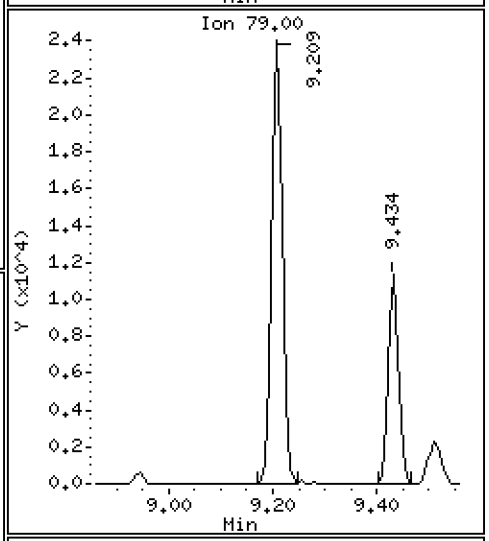


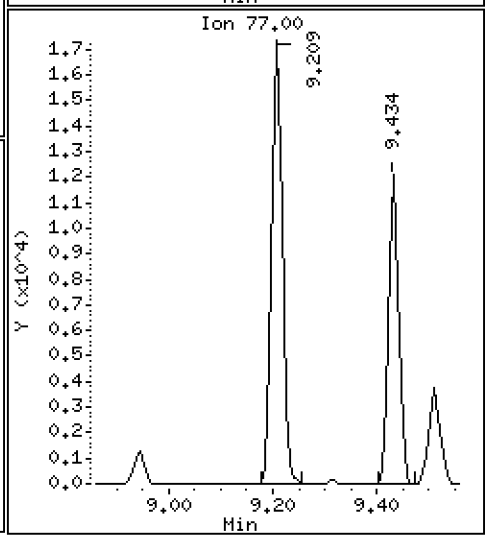












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

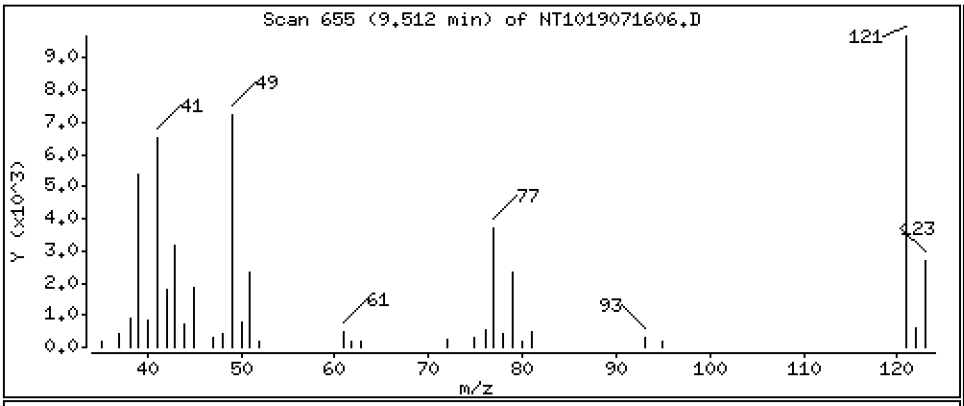
Operator: YZ

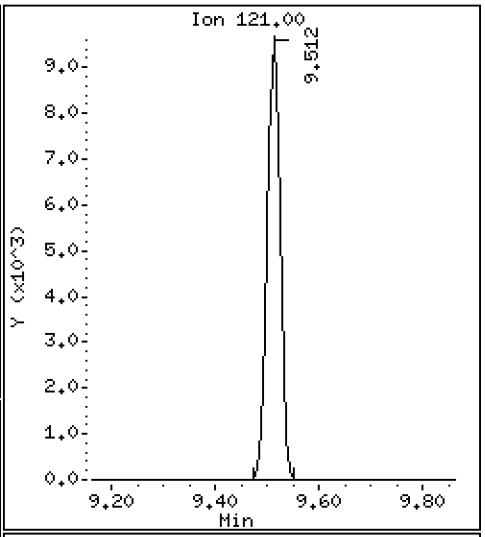
Column phase: ZB-5msi

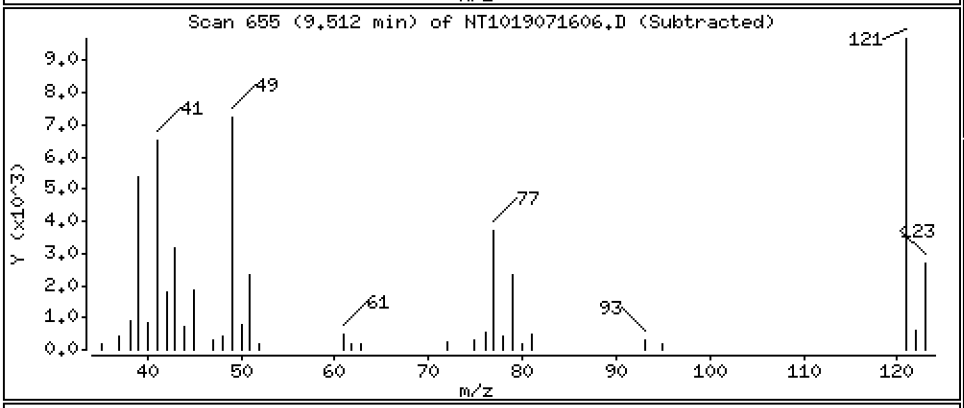
Column diameter: 0.25

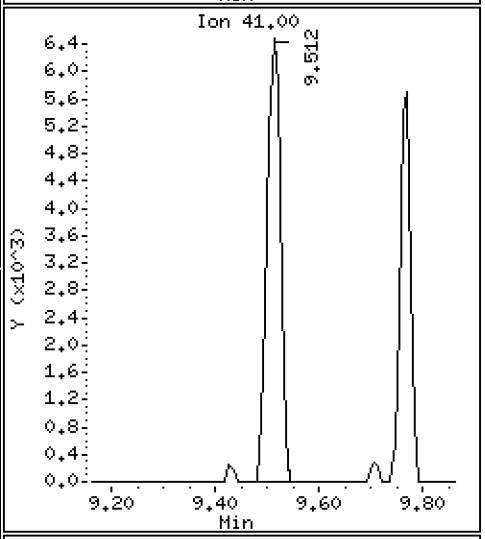
14 2,2'-oxybis(1-Chloropropane)

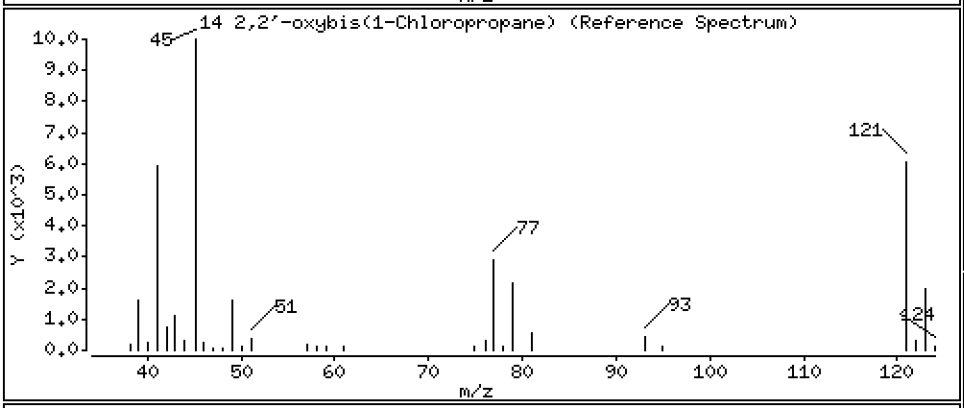
Concentration: 4.762 ug/mL

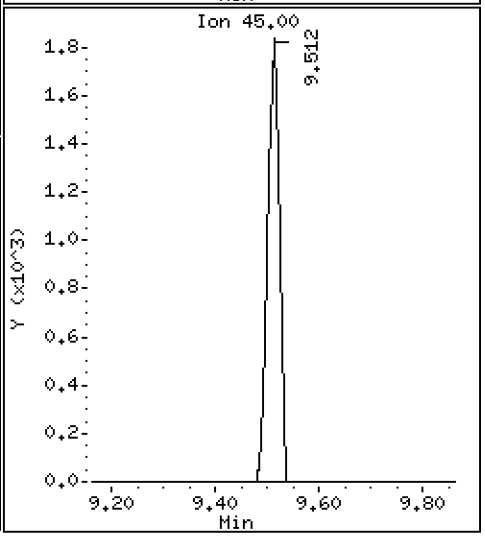


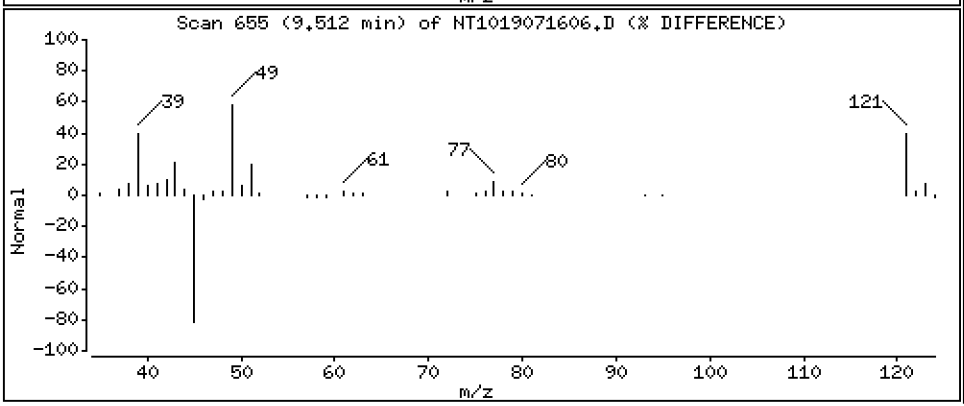












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

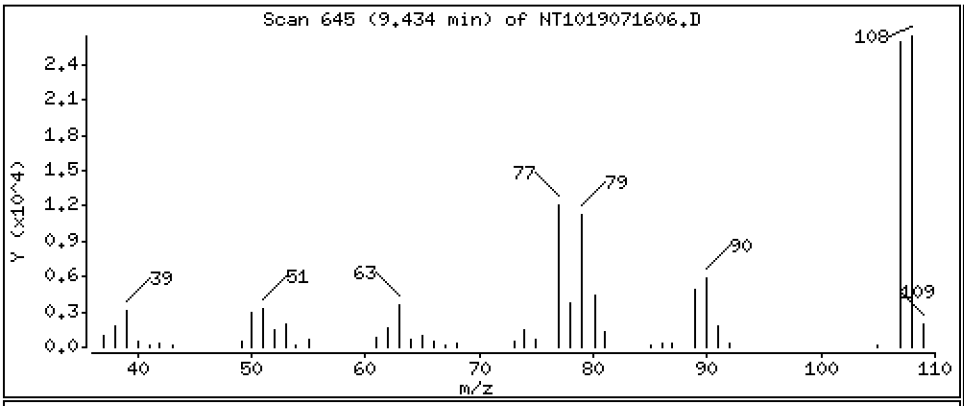
Operator: YZ

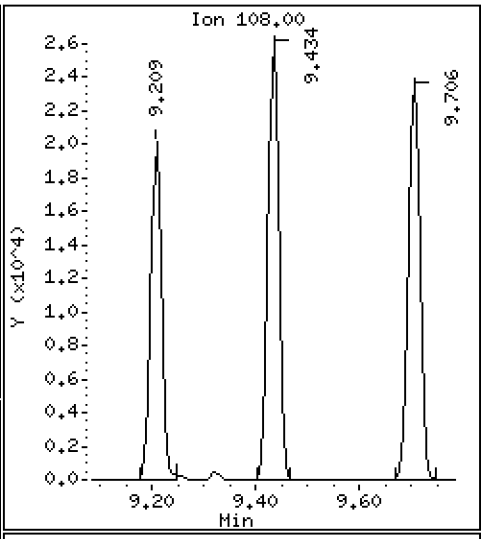
Column phase: ZB-5msi

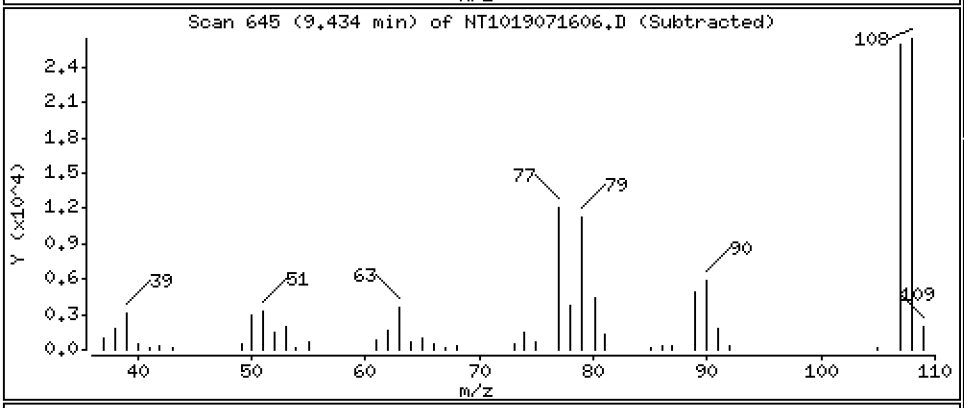
Column diameter: 0.25

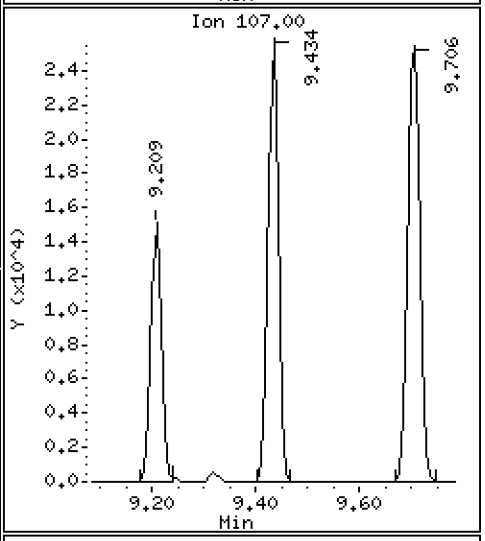
13 2-Methylphenol

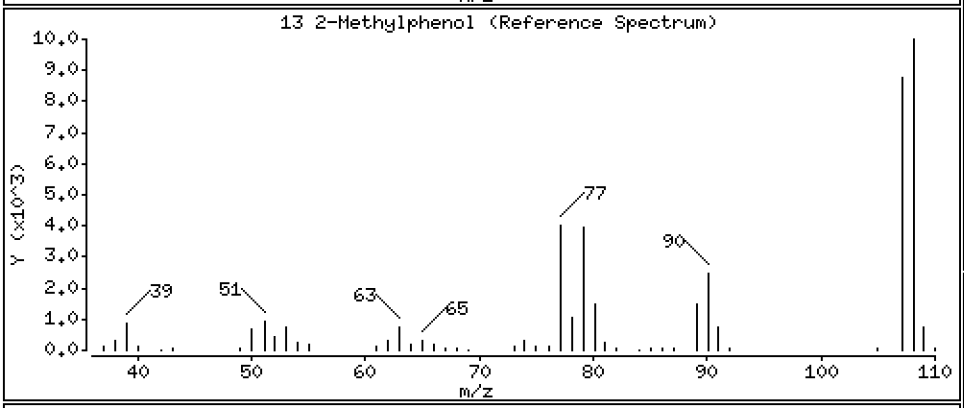
Concentration: 4.902 ug/mL

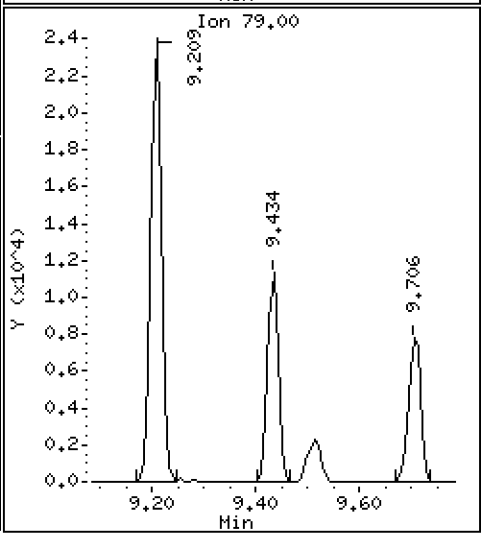


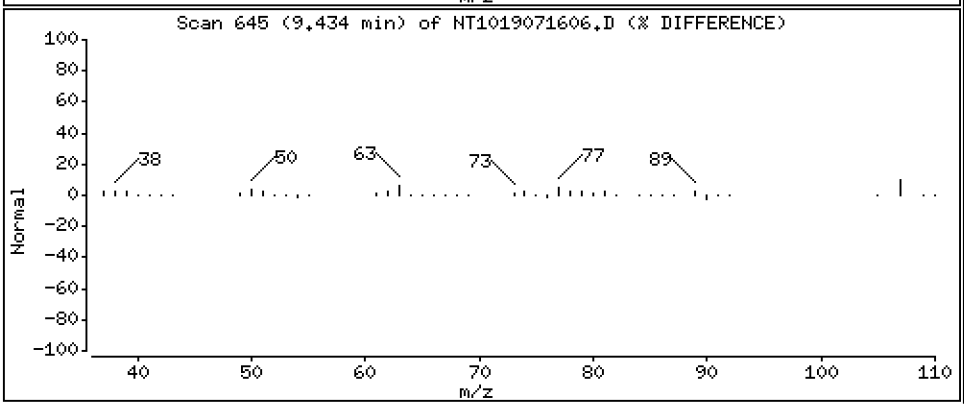












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

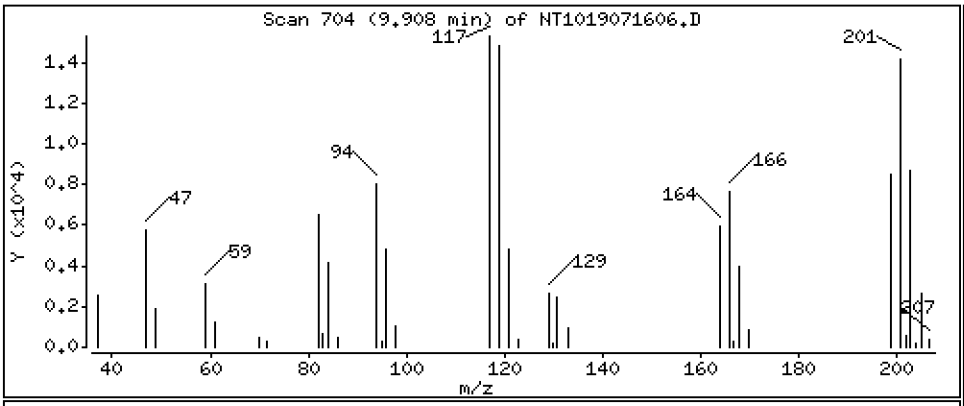
Operator: YZ

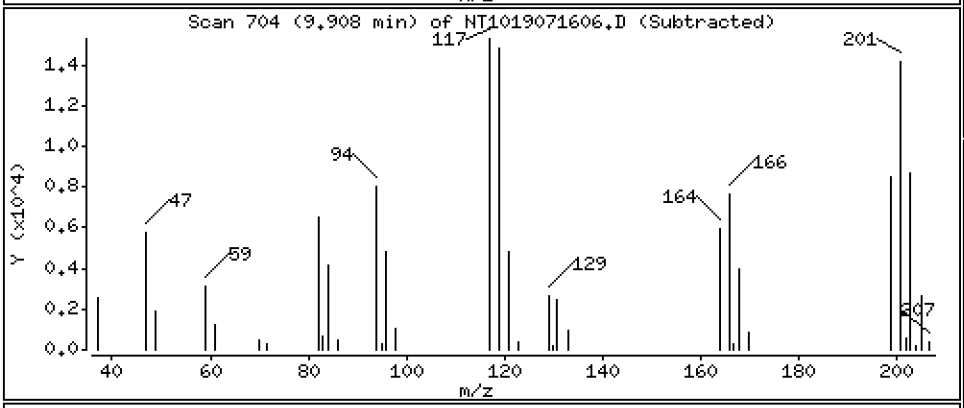
Column phase: ZB-5msi

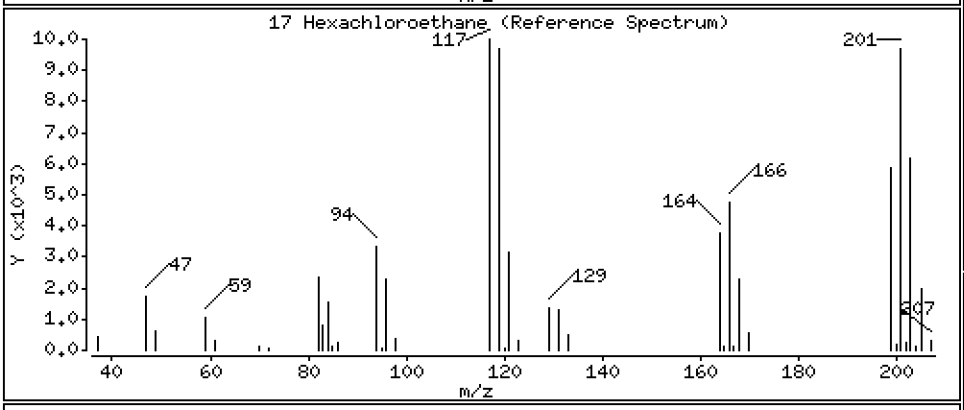
Column diameter: 0.25

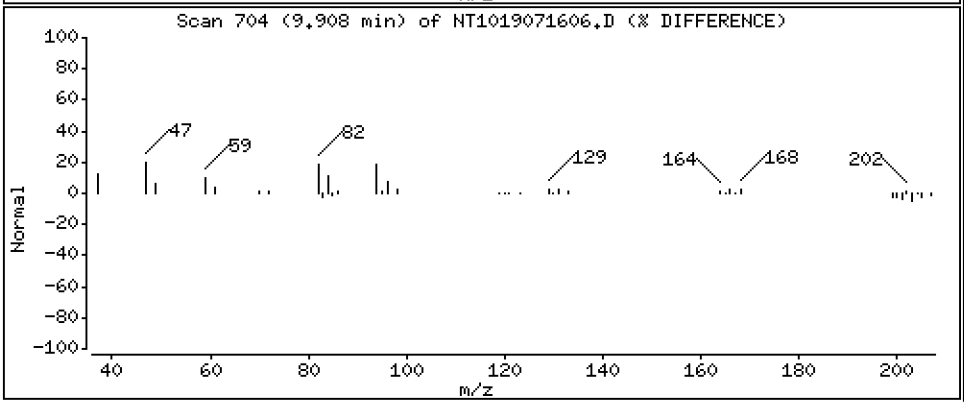
17 Hexachloroethane

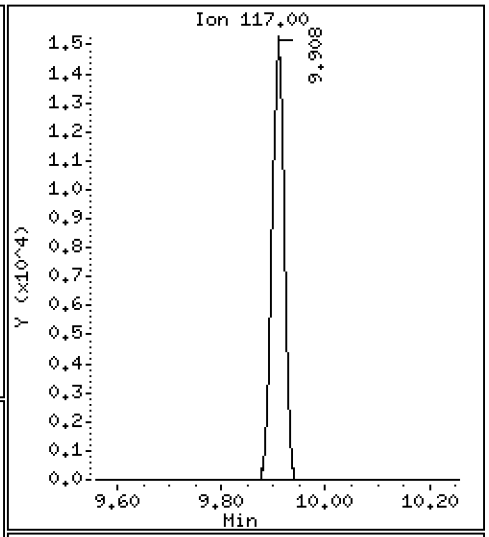
Concentration: 4.795 ug/mL

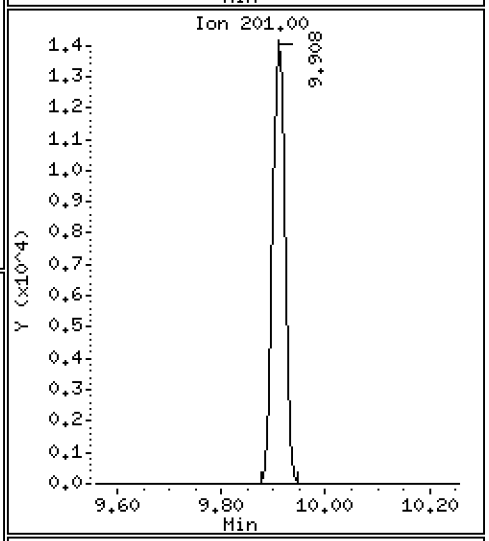


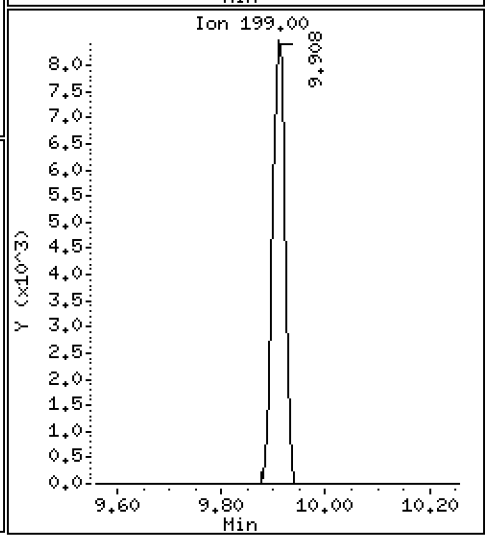












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

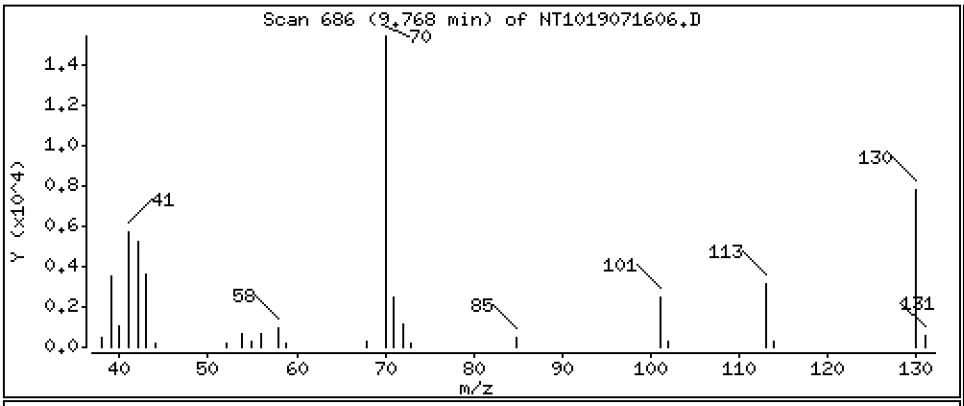
Operator: YZ

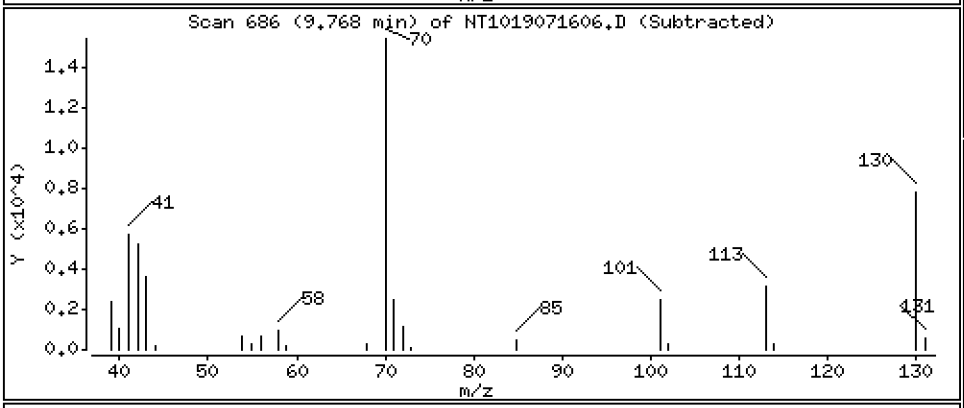
Column phase: ZB-5msi

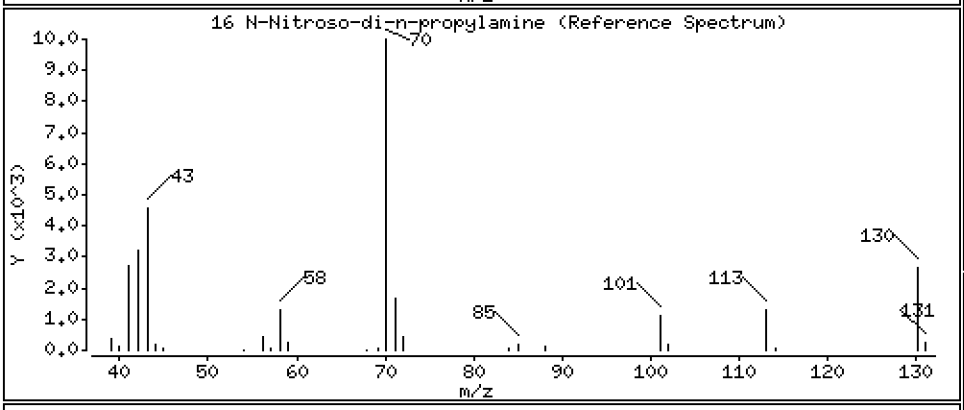
Column diameter: 0.25

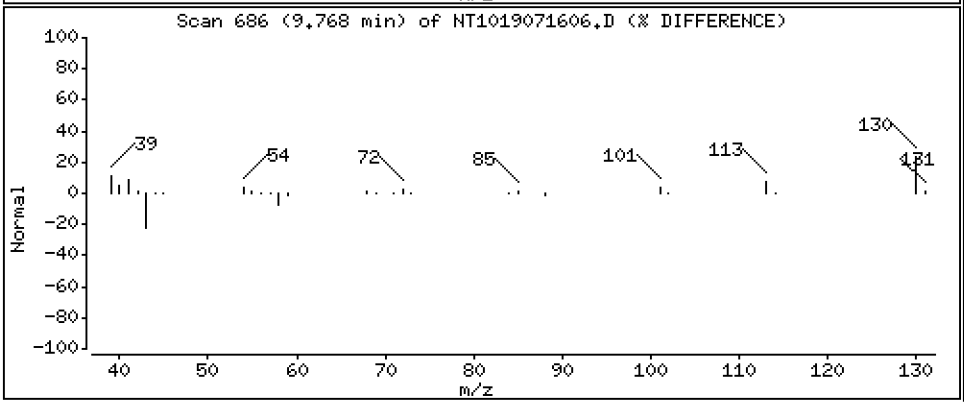
16 N-Nitroso-di-n-propylamine

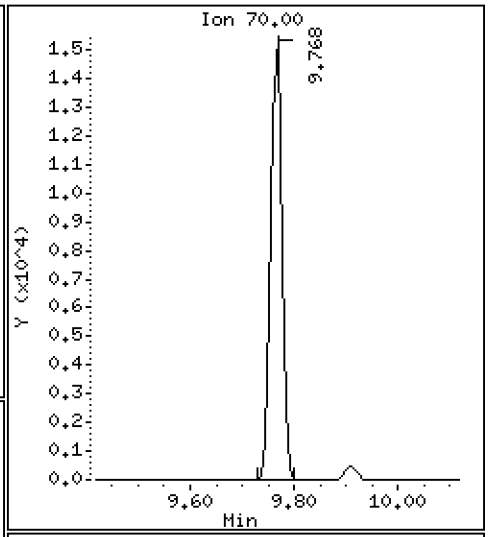
Concentration: 4.610 ug/mL

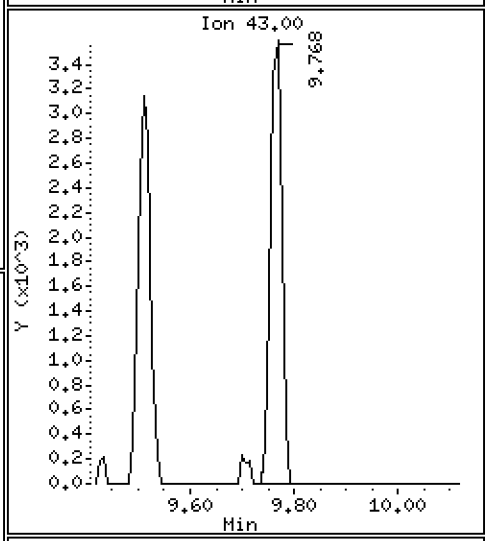


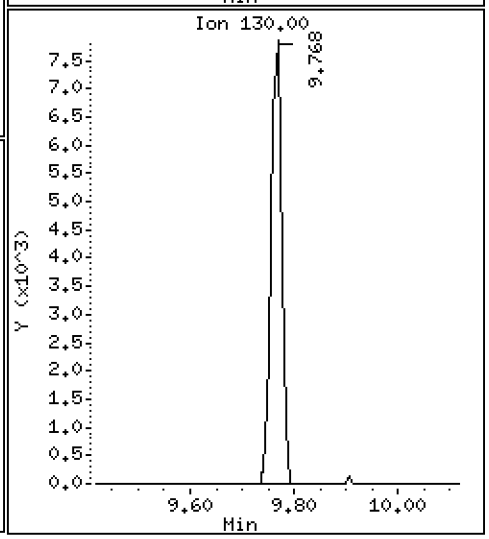












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

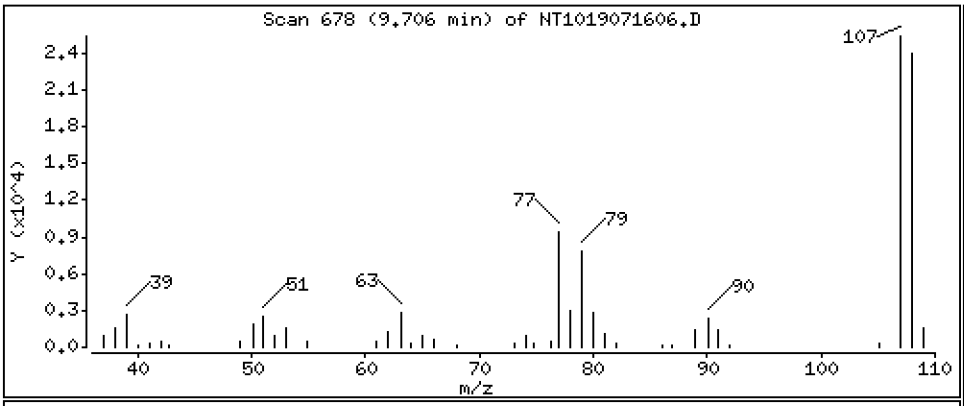
Operator: YZ

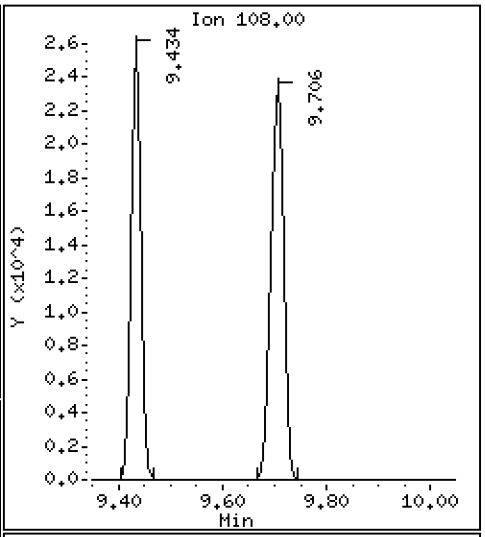
Column phase: ZB-5msi

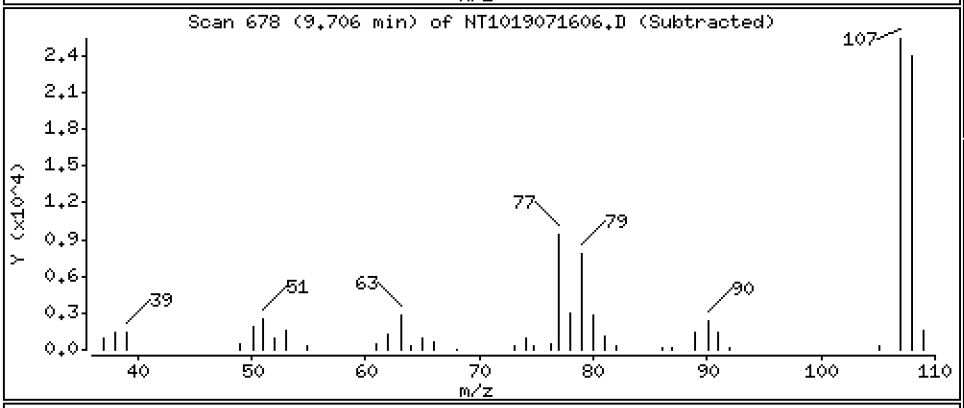
Column diameter: 0.25

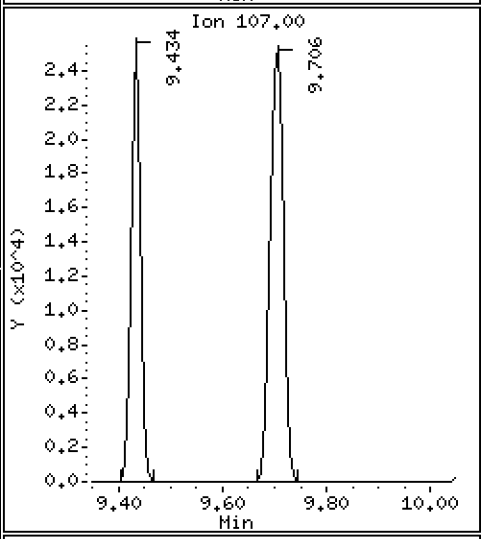
15 4-Methylphenol

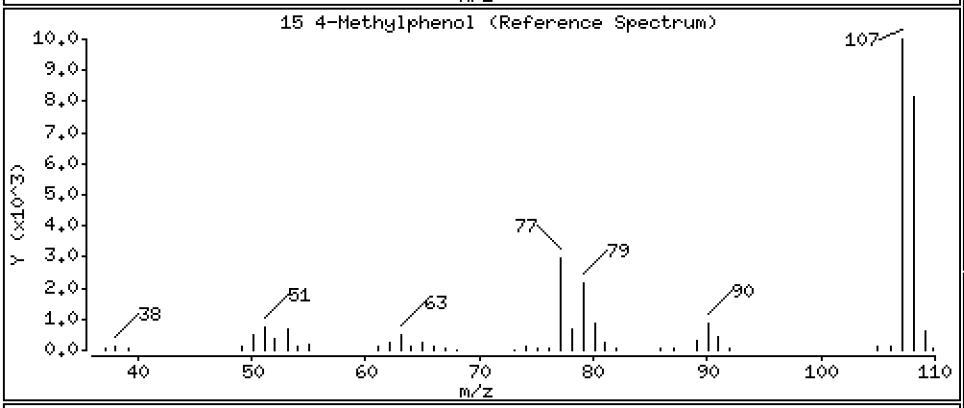
Concentration: 5.123 ug/mL

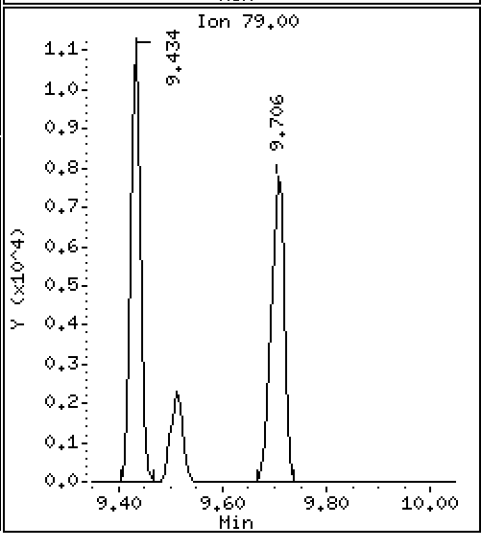


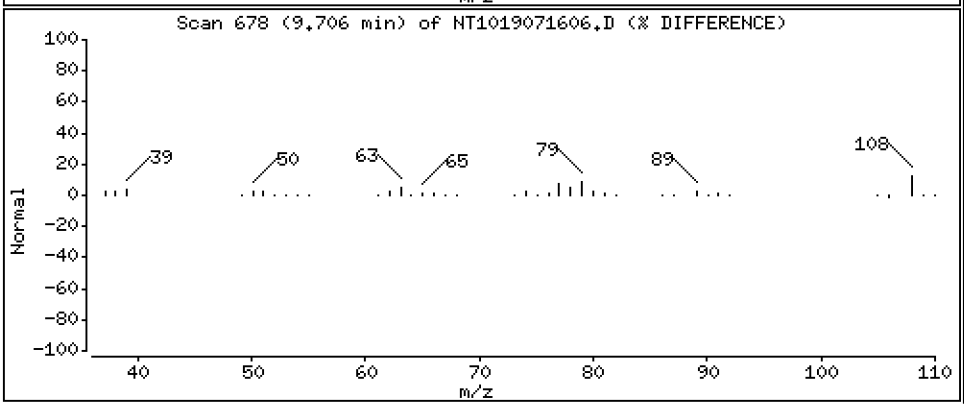












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

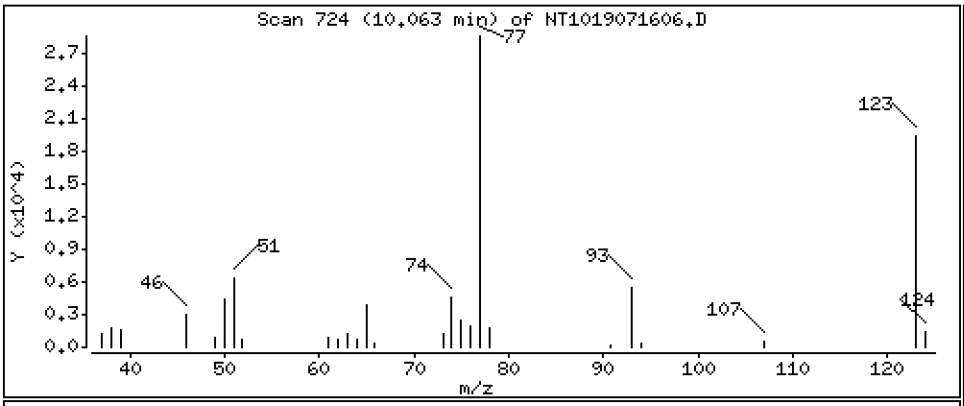
Operator: YZ

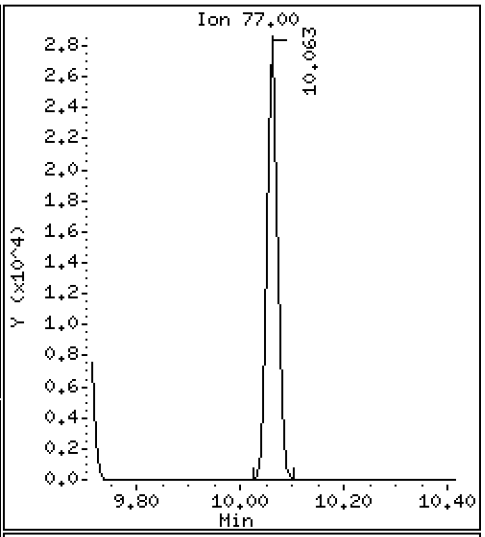
Column phase: ZB-5msi

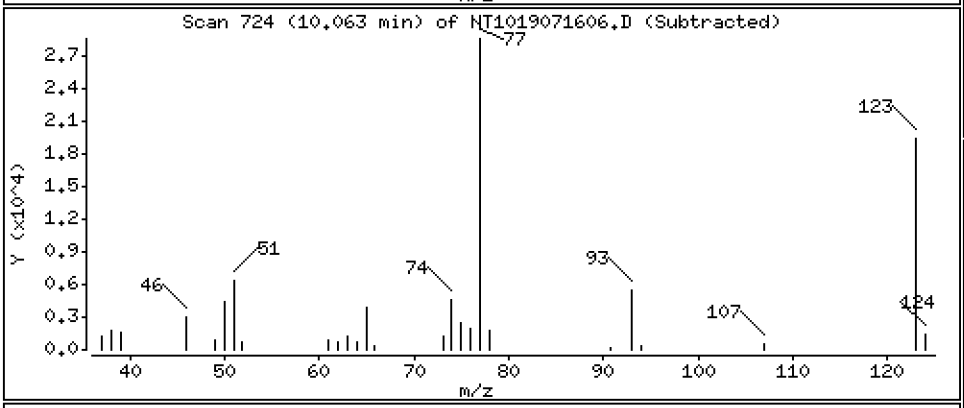
Column diameter: 0.25

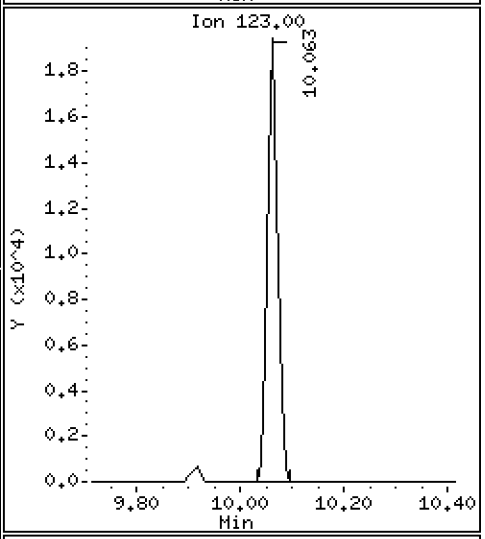
19 Nitrobenzene

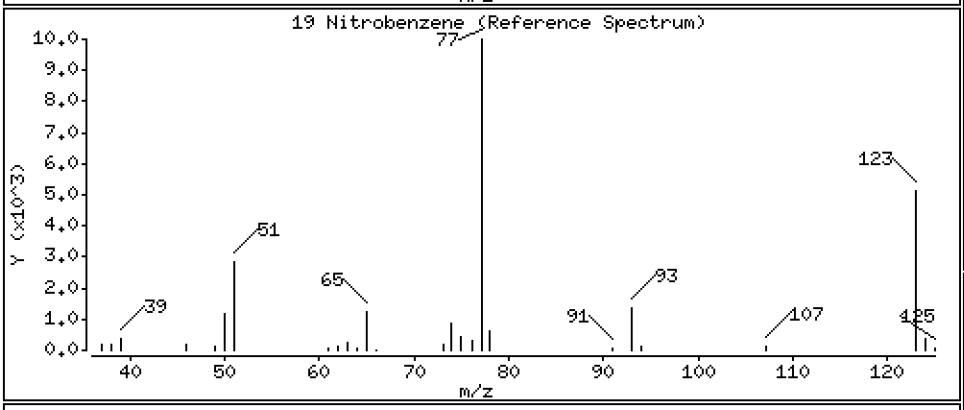
Concentration: 4.742 ug/mL

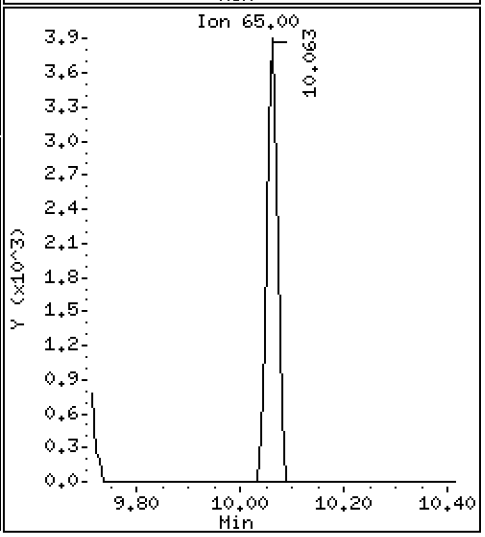


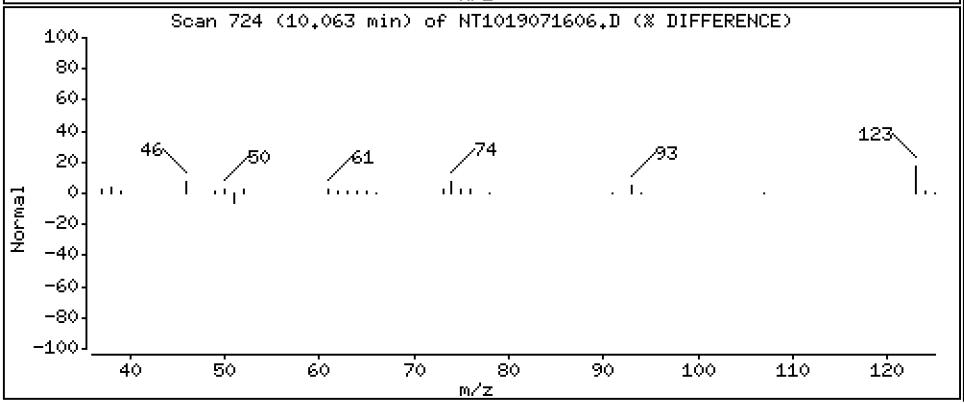












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

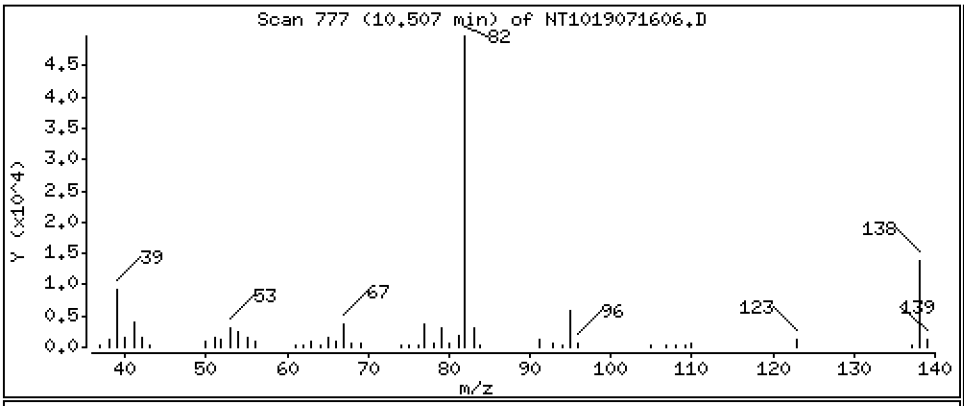
Operator: YZ

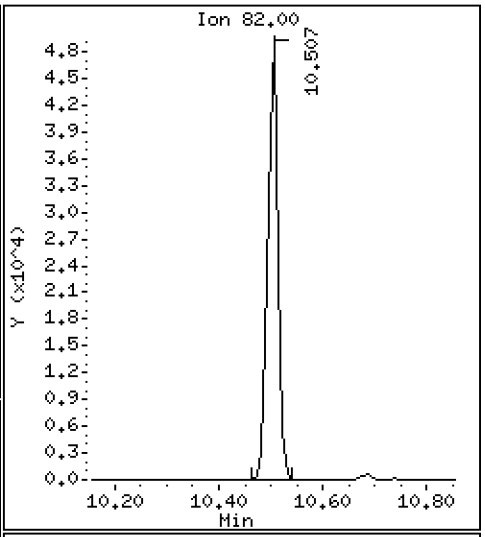
Column phase: ZB-5msi

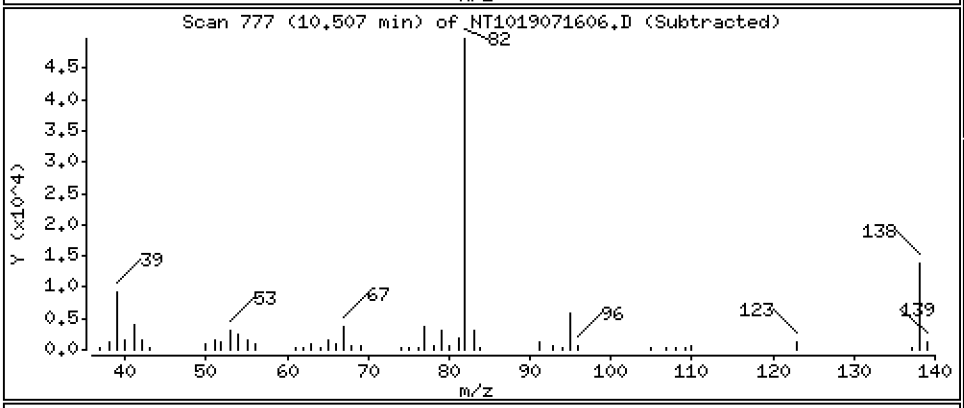
Column diameter: 0.25

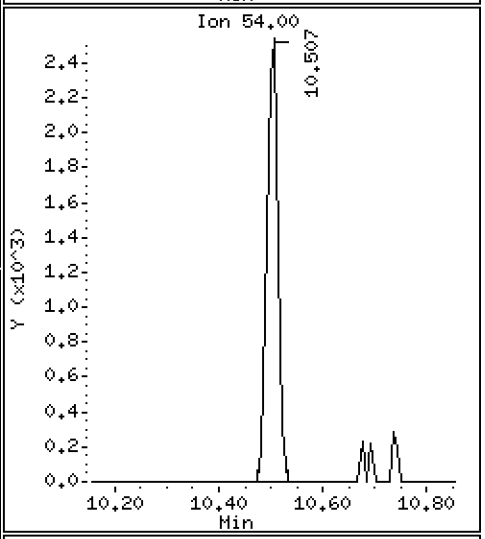
20 Isophorone

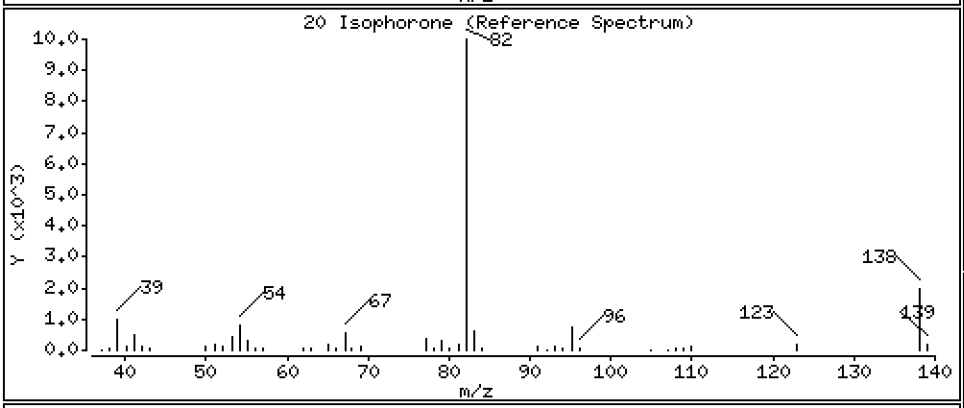
Concentration: 4.974 ug/mL

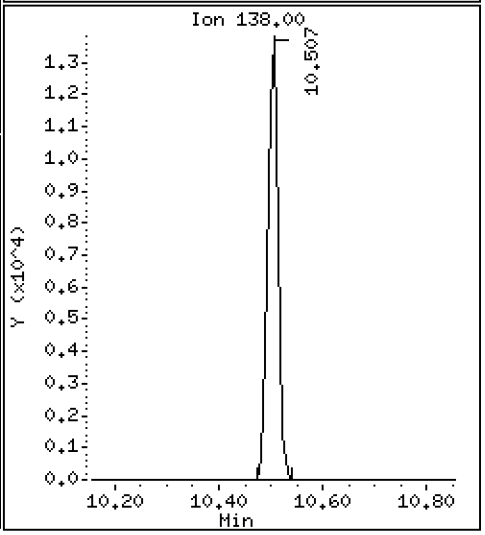


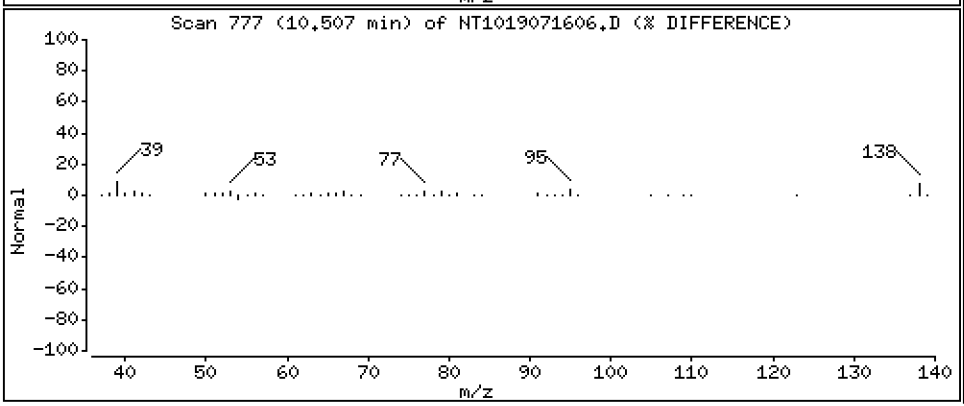












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

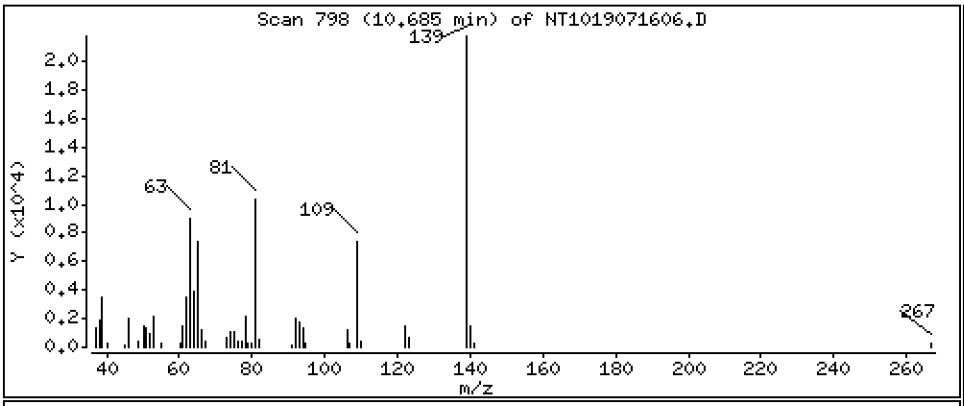
Operator: YZ

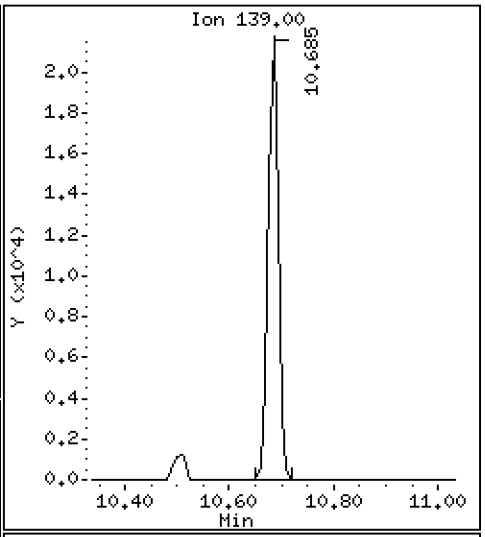
Column phase: ZB-5msi

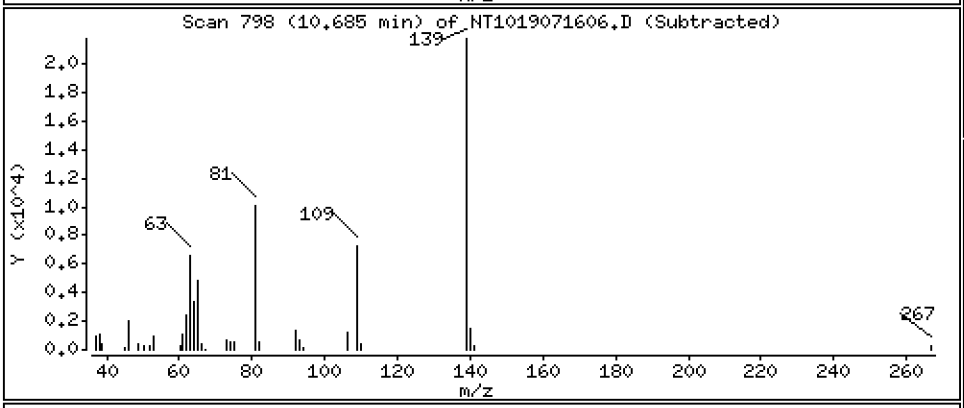
Column diameter: 0.25

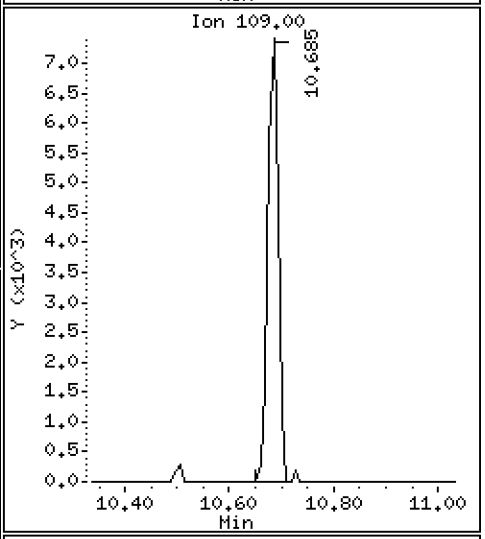
21 2-Nitrophenol

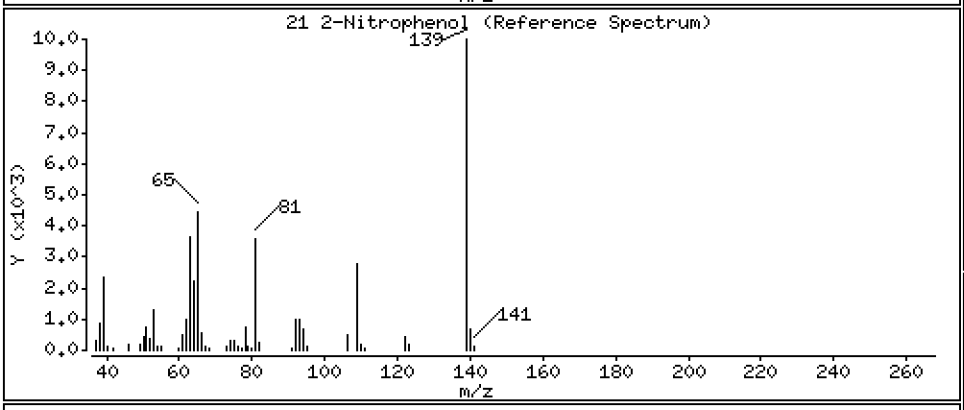
Concentration: 5.401 ug/mL

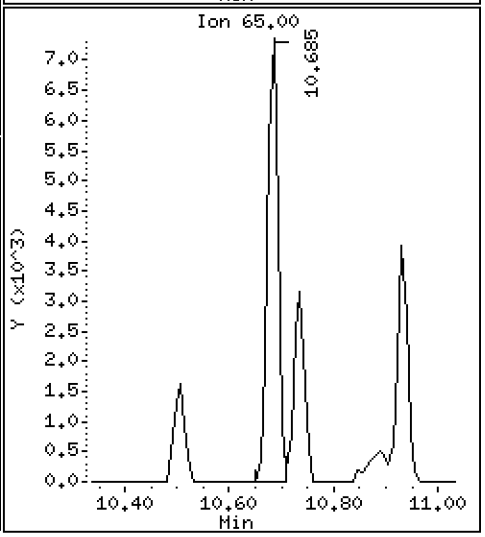


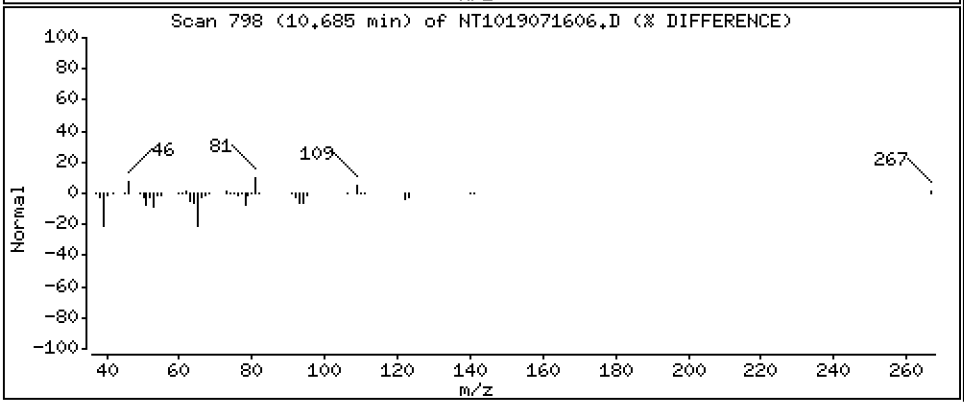












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

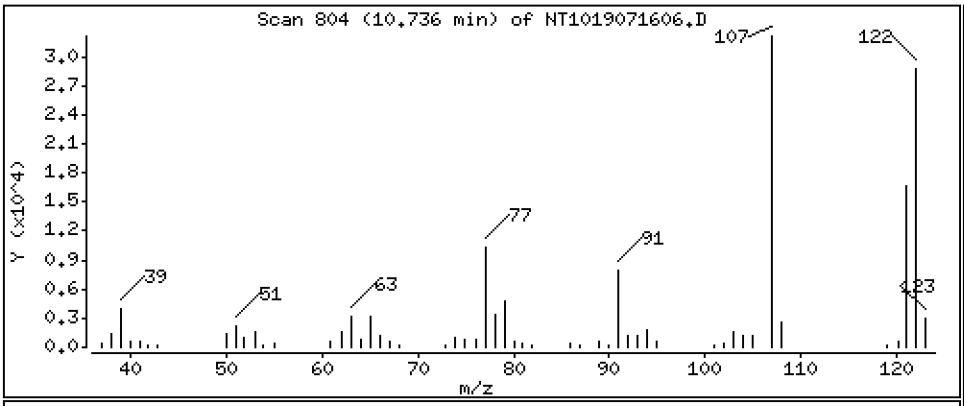
Operator: YZ

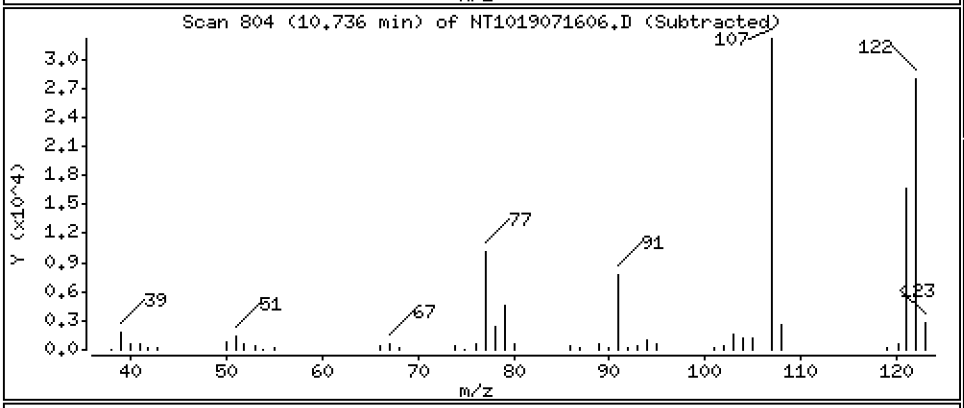
Column phase: ZB-5msi

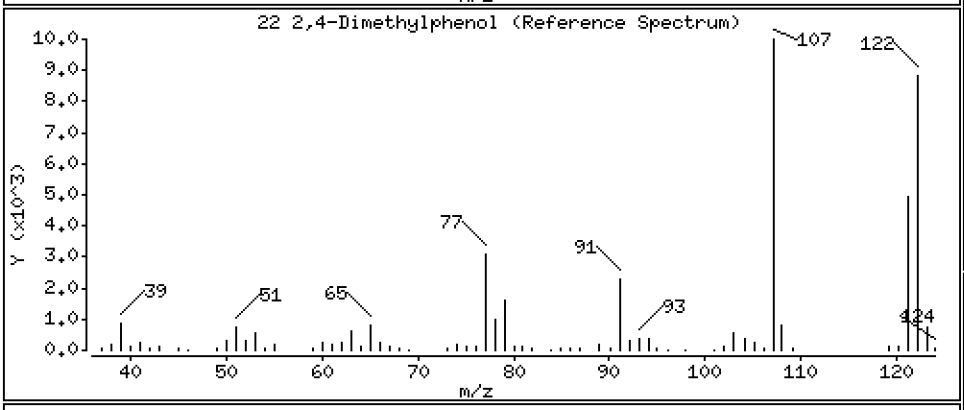
Column diameter: 0.25

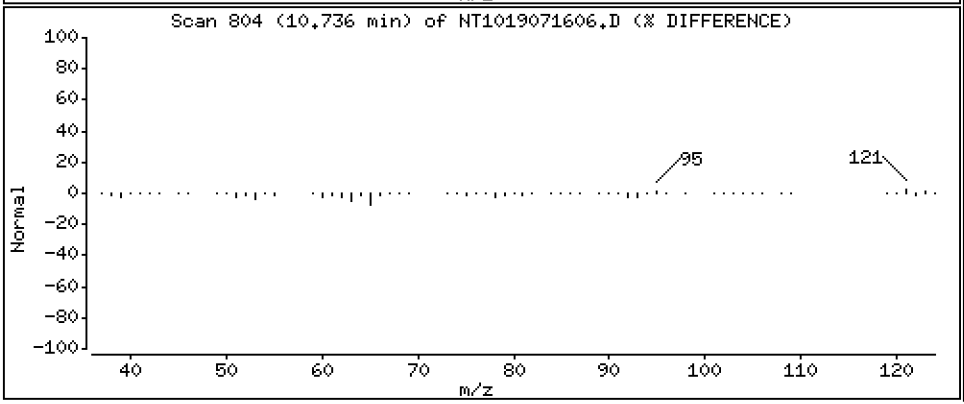
22 2,4-Dimethylphenol

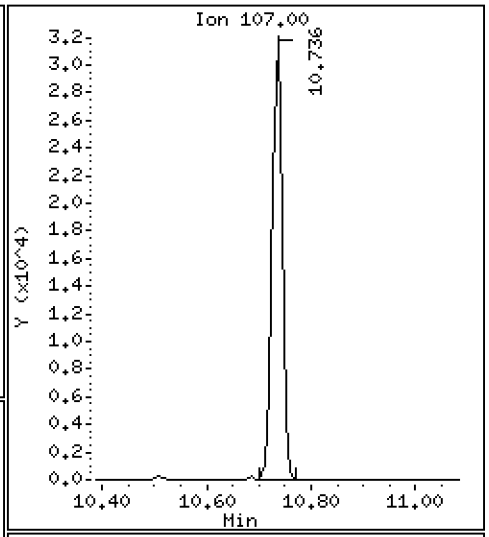
Concentration: 4.638 ug/mL

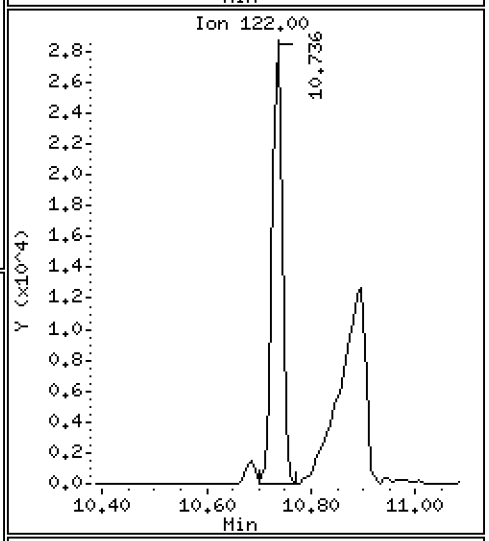


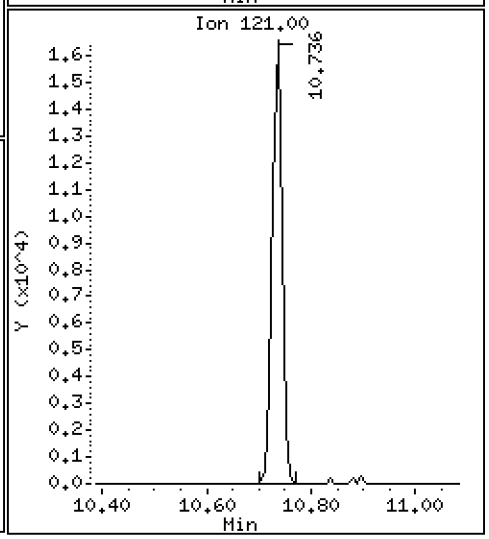












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

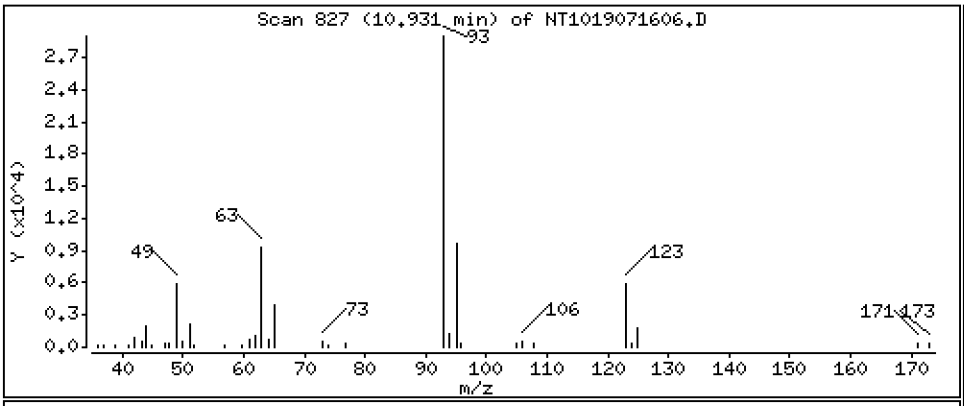
Operator: YZ

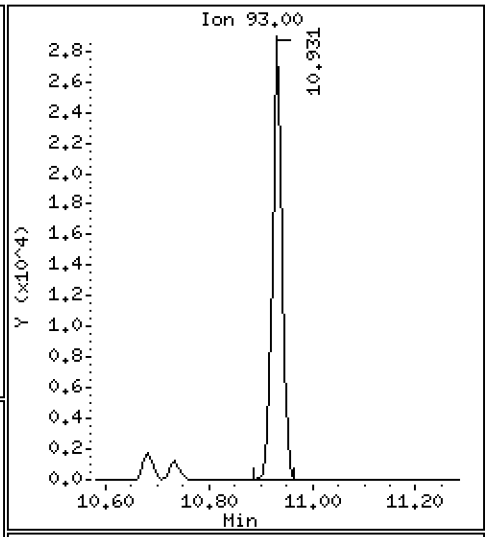
Column phase: ZB-5msi

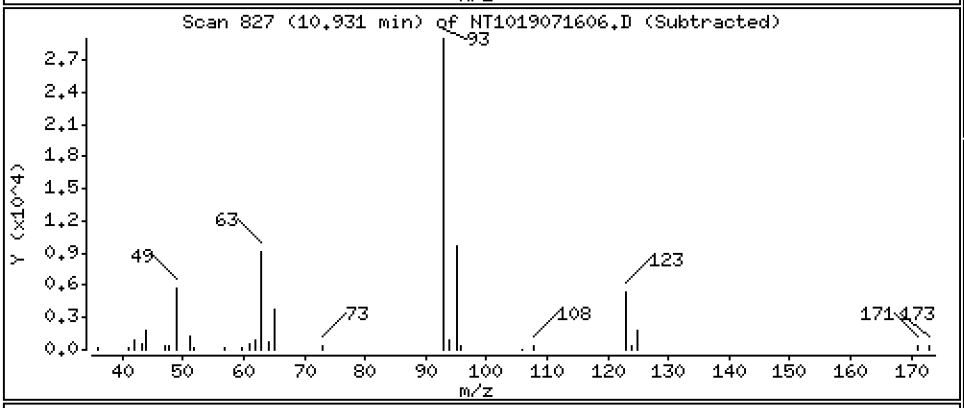
Column diameter: 0.25

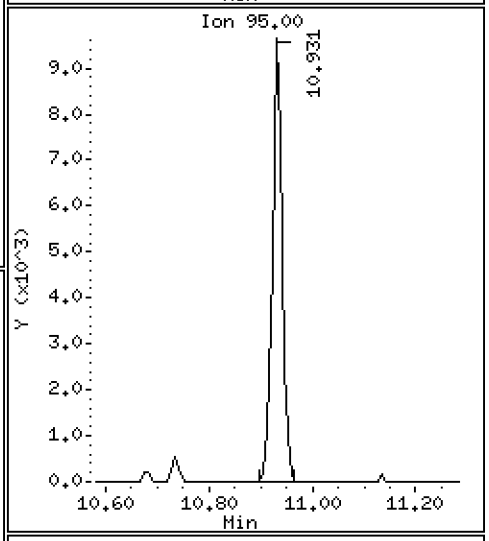
23 Bis(2-Chloroethoxy)methane

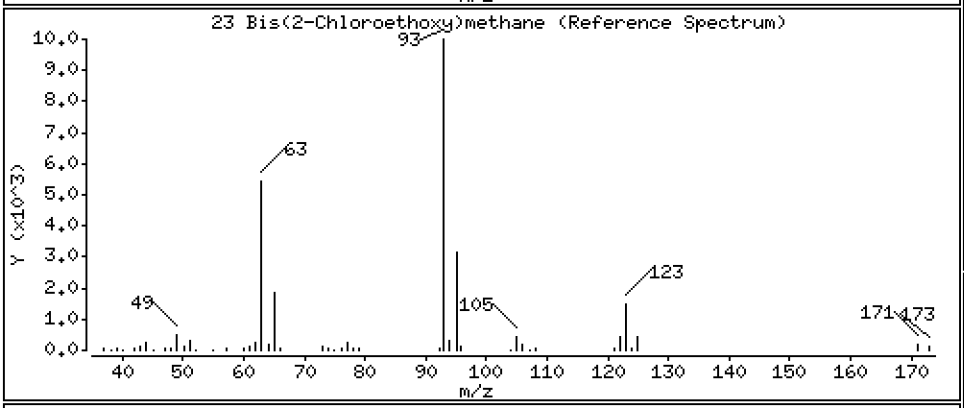
Concentration: 4.788 ug/mL

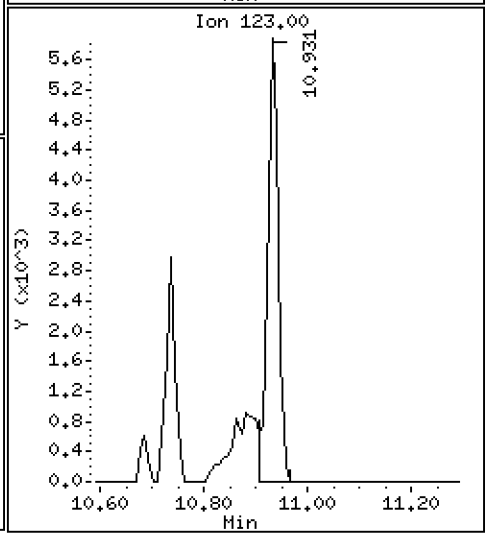


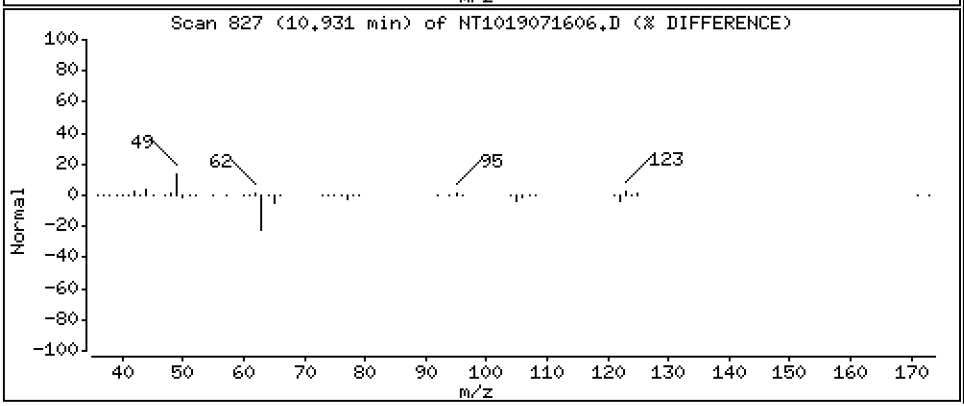












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

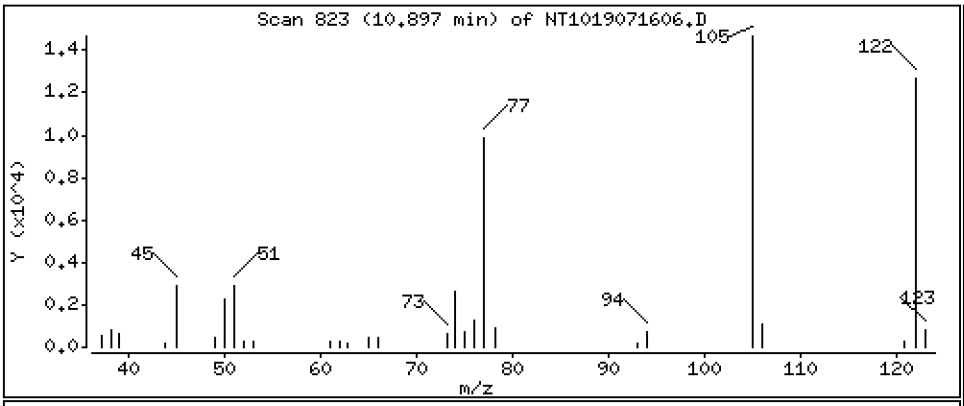
Operator: YZ

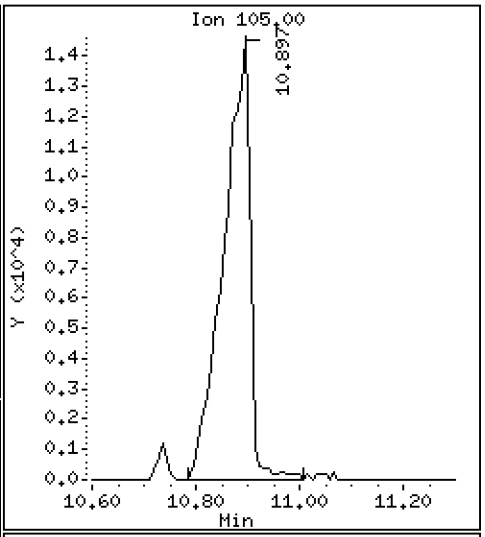
Column phase: ZB-5msi

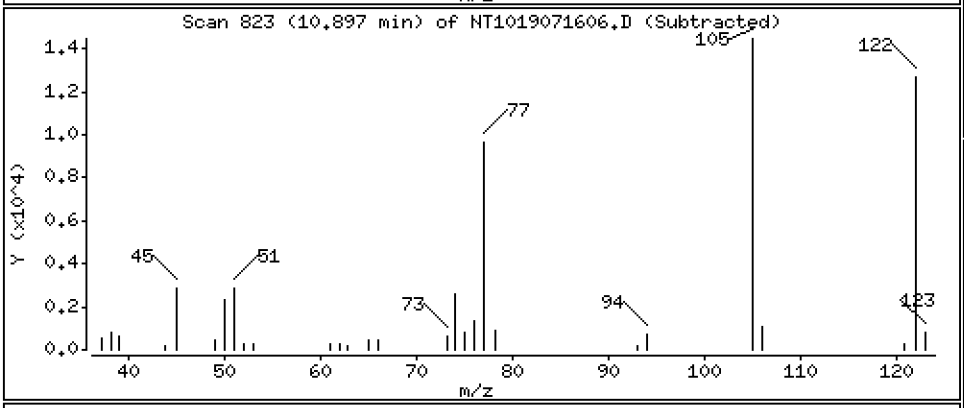
Column diameter: 0.25

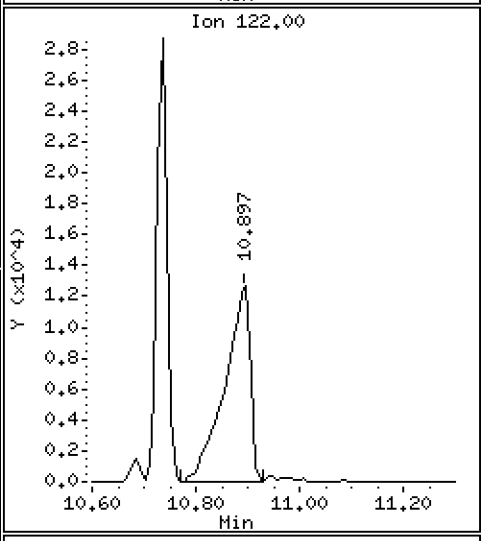
24 Benzoic acid

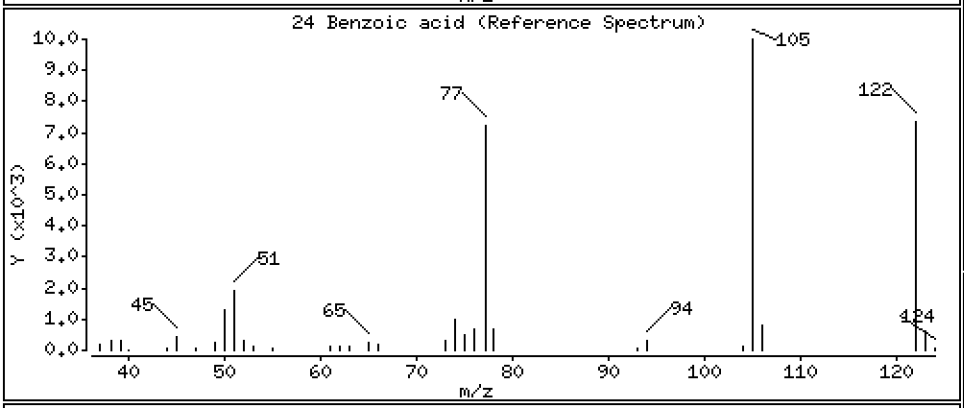
Concentration: 8.181 ug/mL

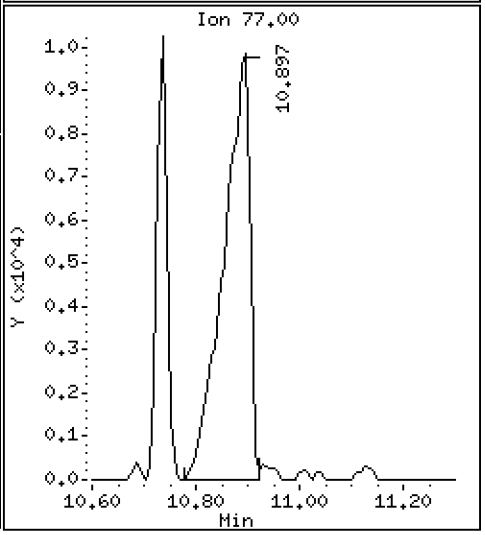


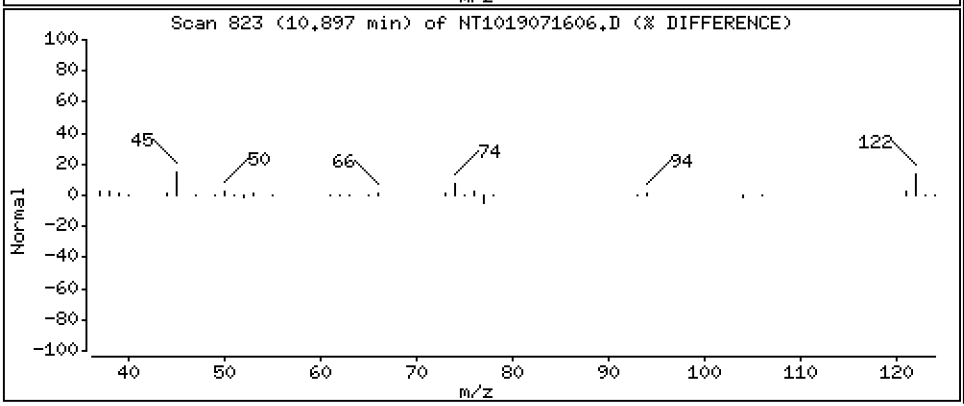












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

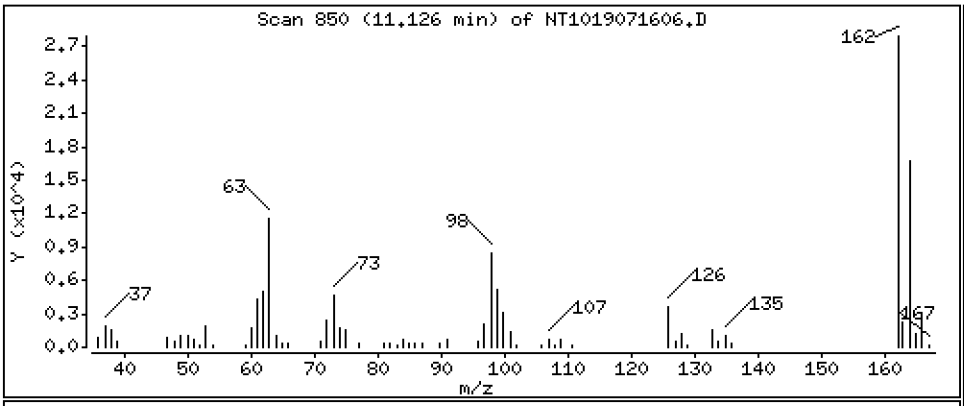
Operator: YZ

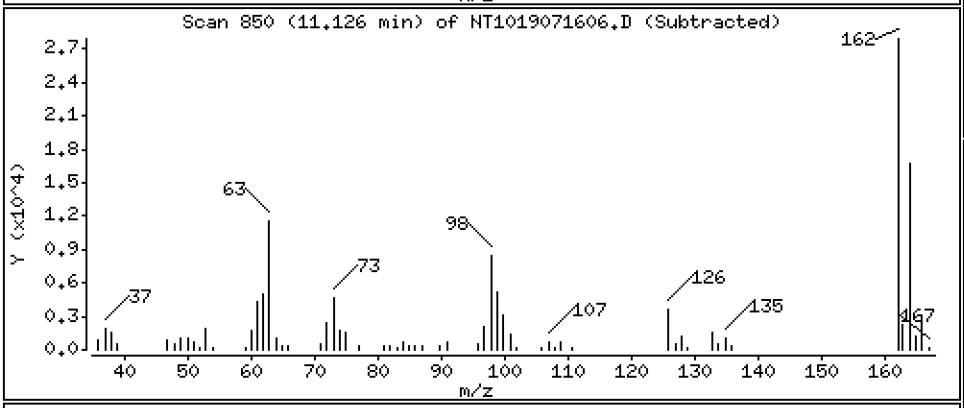
Column phase: ZB-5msi

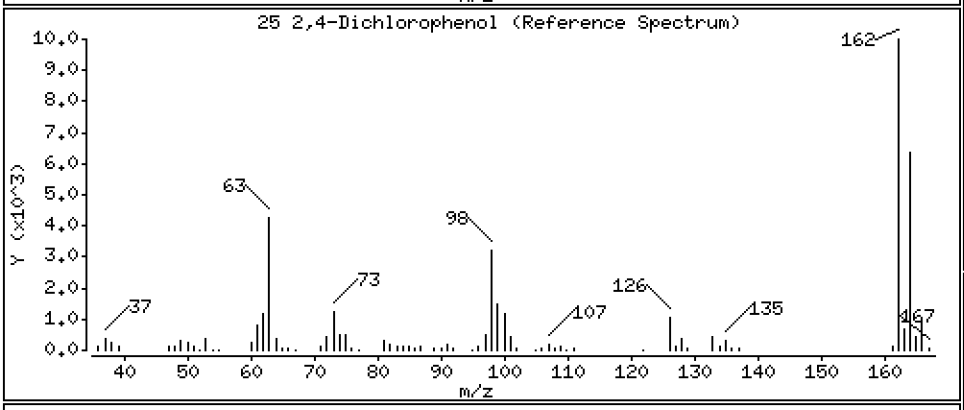
Column diameter: 0.25

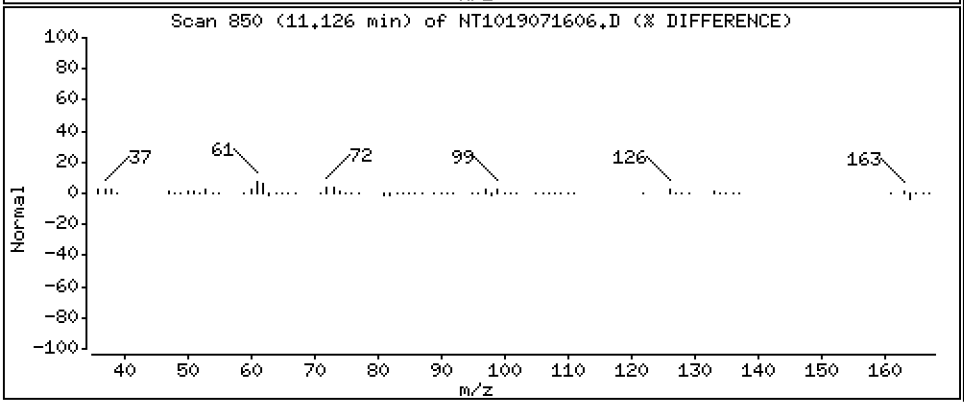
25 2,4-Dichlorophenol

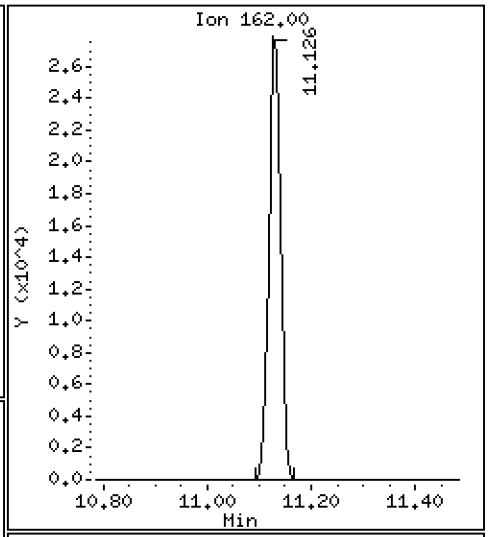
Concentration: 5.612 ug/mL

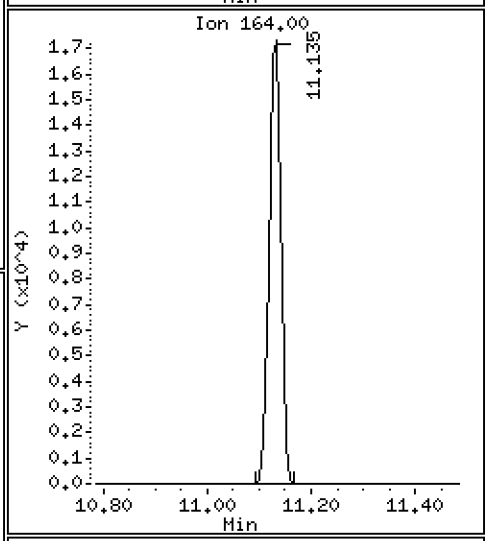


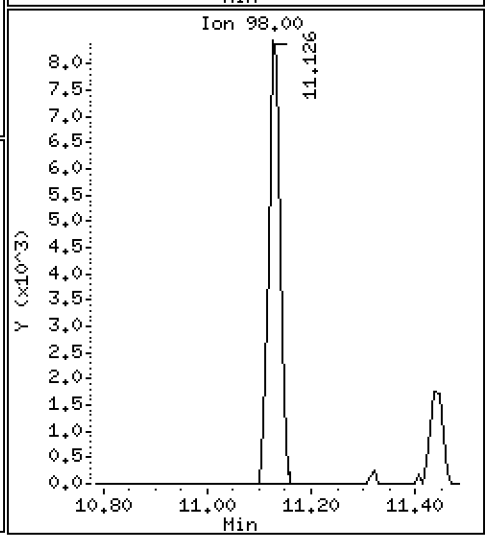












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

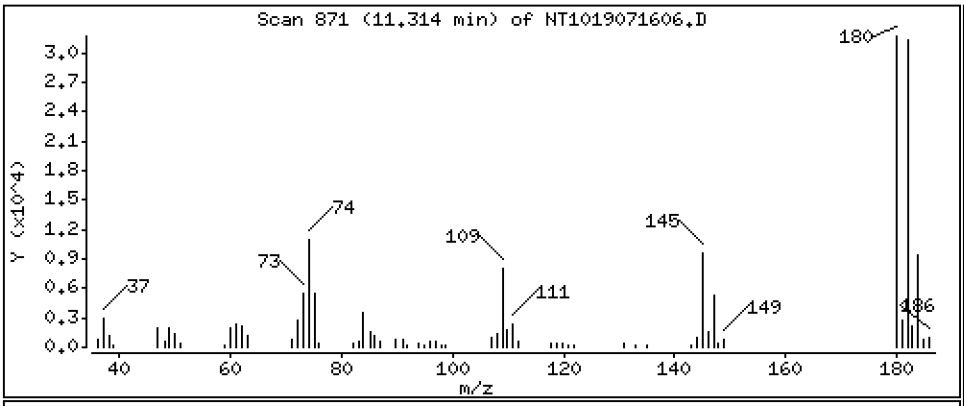
Operator: YZ

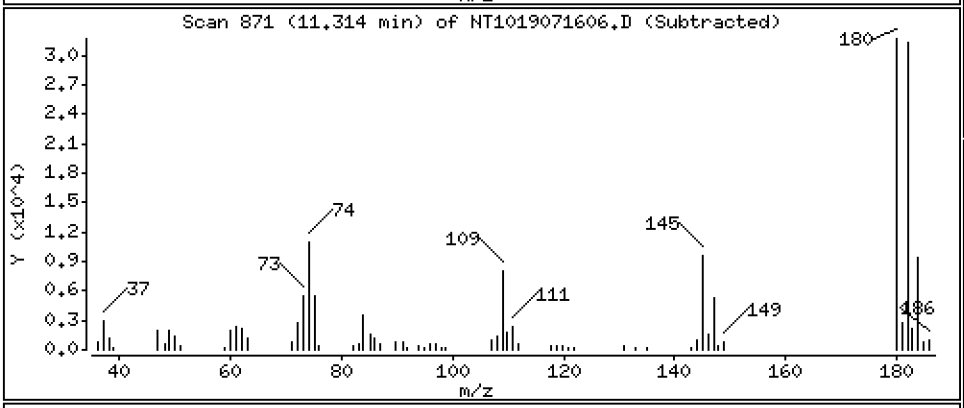
Column phase: ZB-5msi

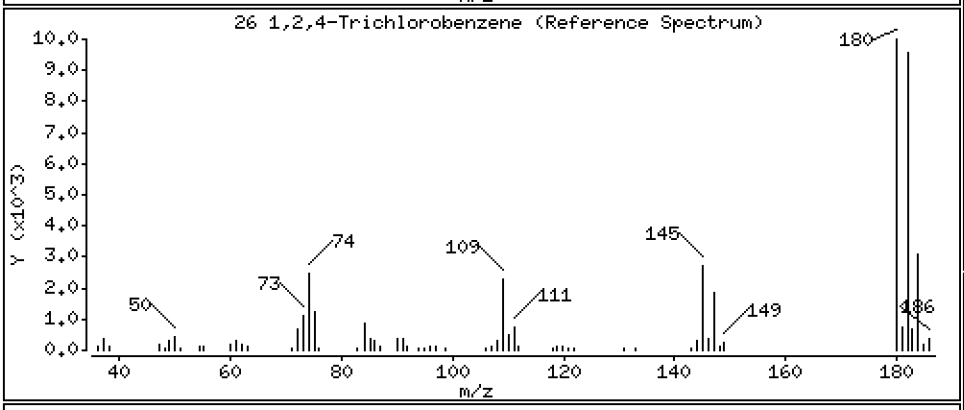
Column diameter: 0.25

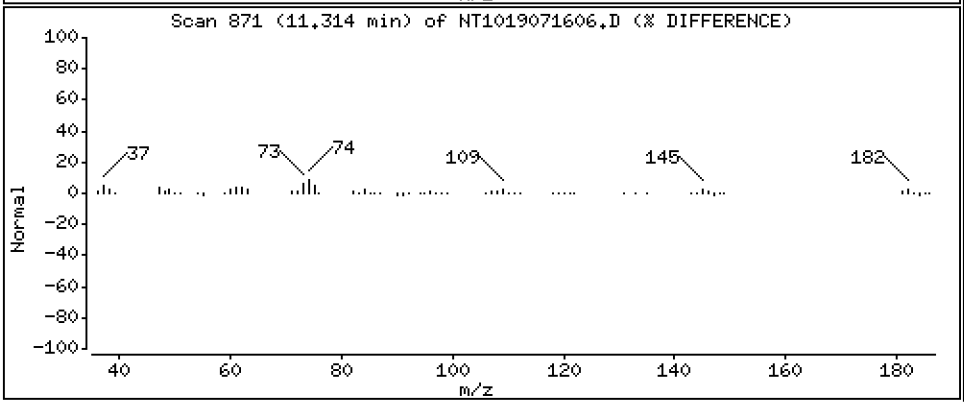
26 1,2,4-Trichlorobenzene

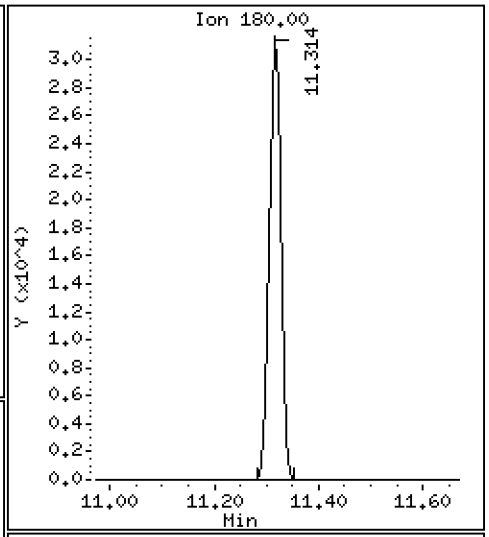
Concentration: 5.266 ug/mL

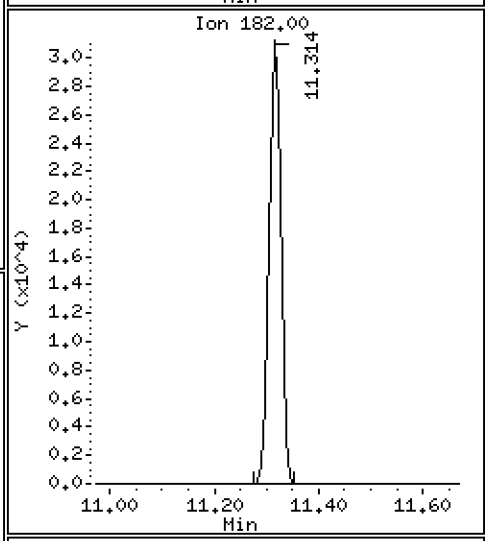


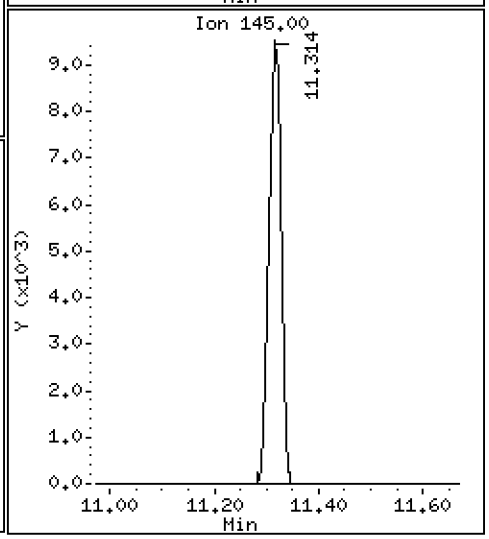












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

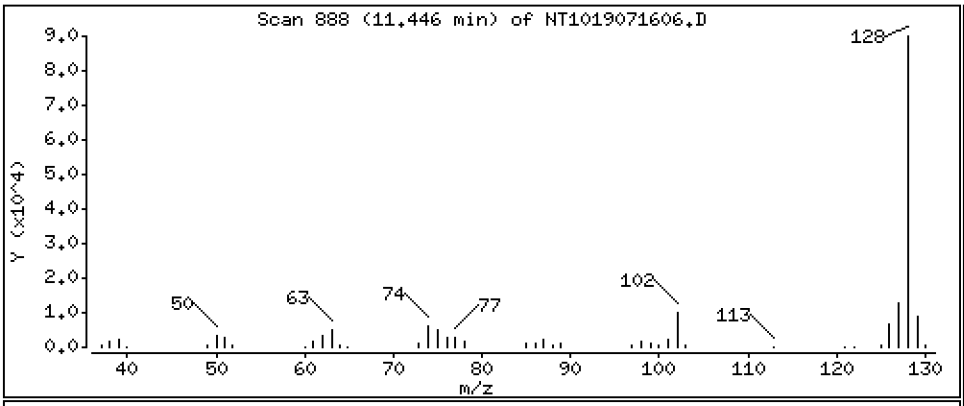
Operator: YZ

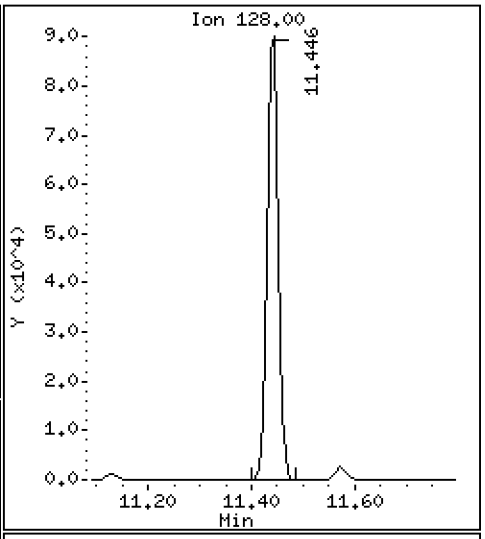
Column phase: ZB-5msi

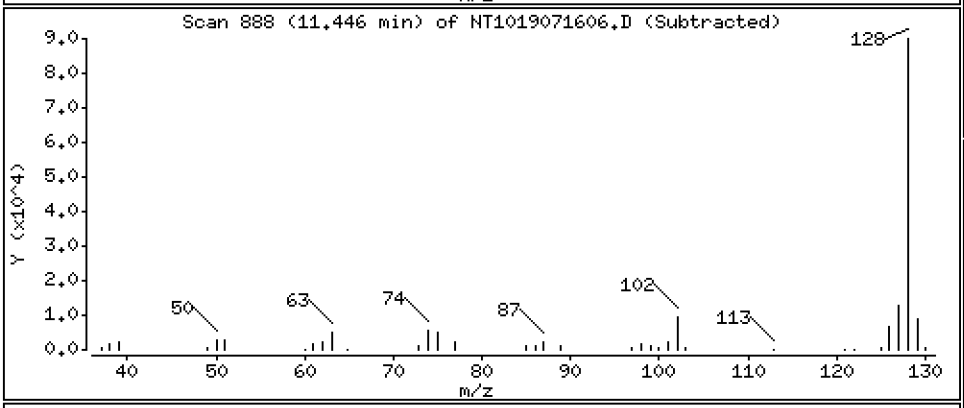
Column diameter: 0.25

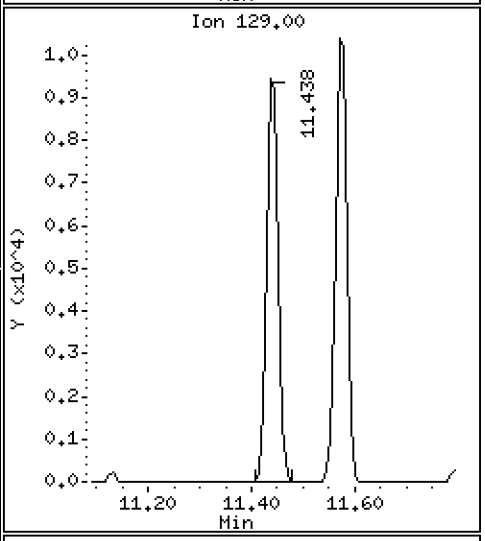
28 Naphthalene

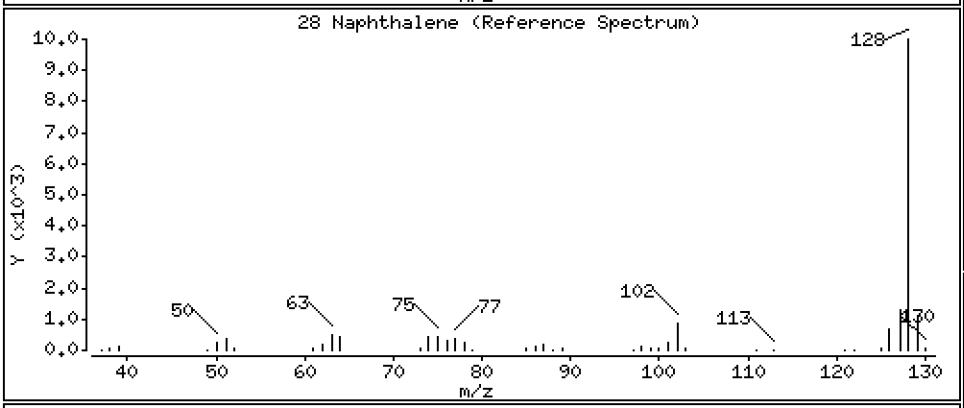
Concentration: 5.374 ug/mL

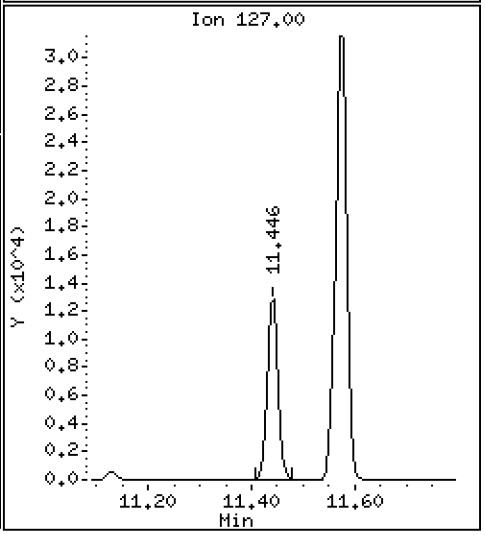


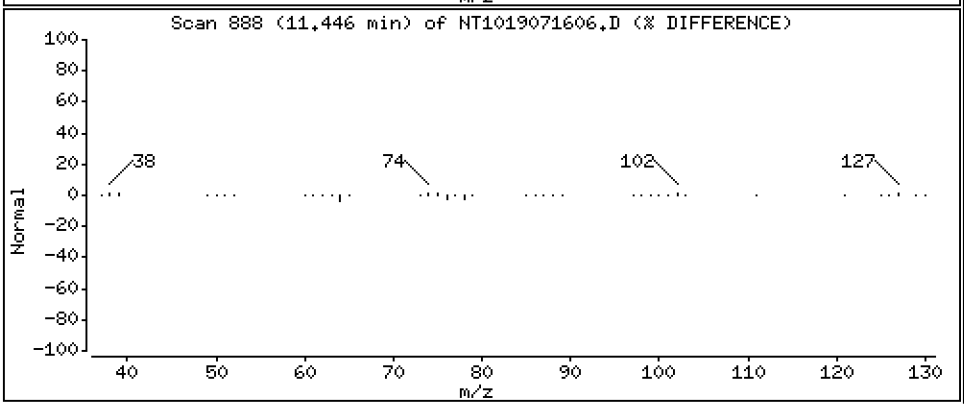












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

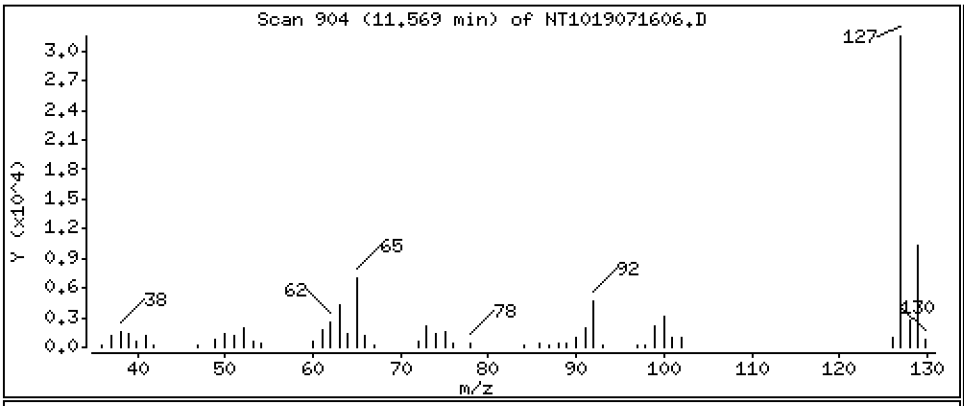
Operator: YZ

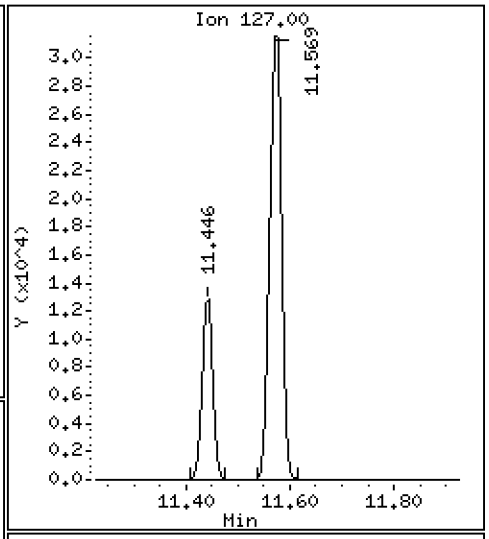
Column phase: ZB-5msi

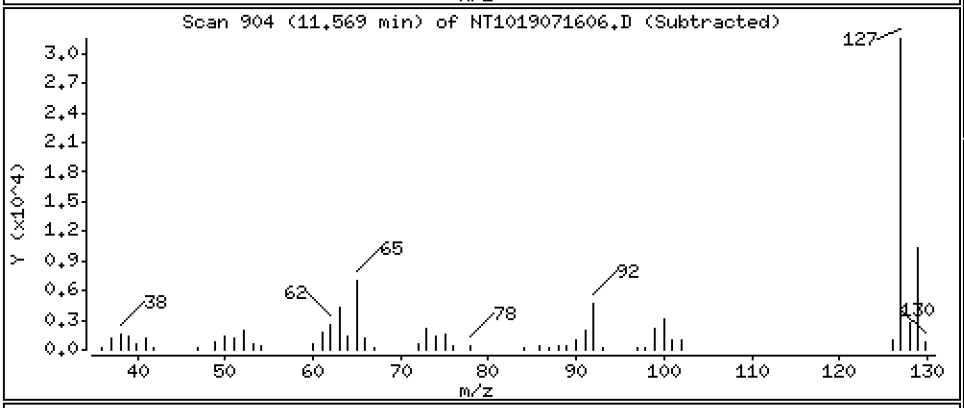
Column diameter: 0.25

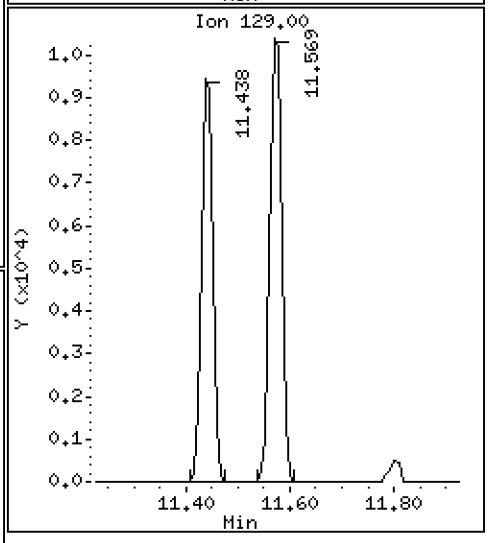
29 4-Chloroaniline

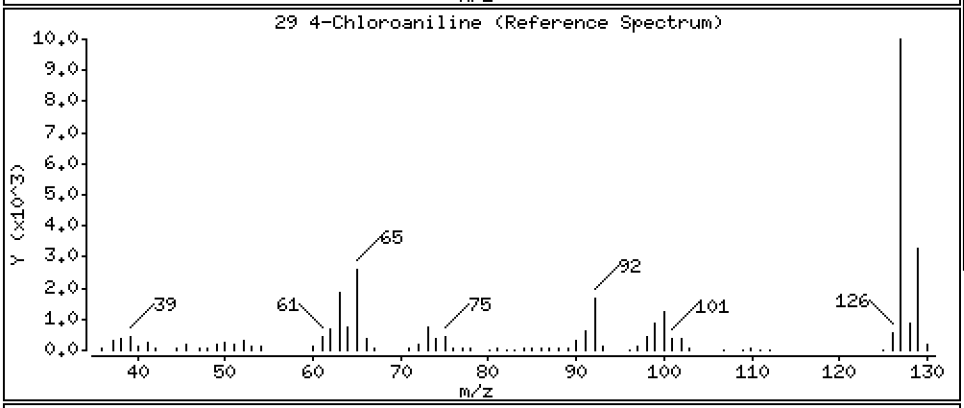
Concentration: 4.258 ug/mL

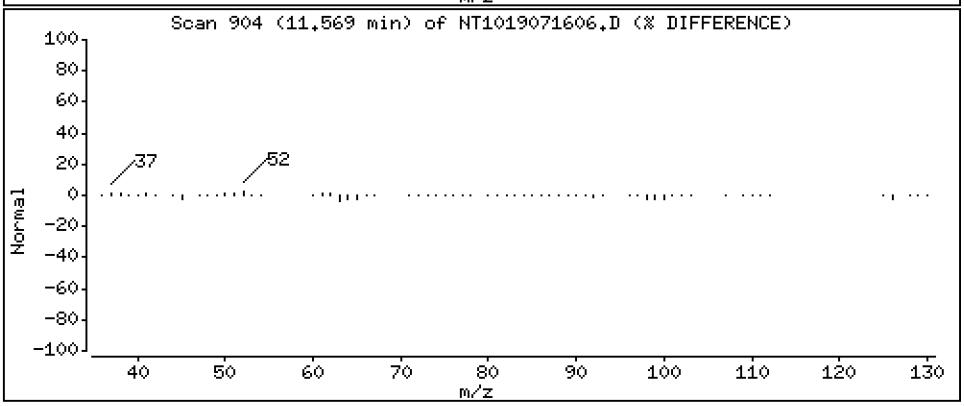












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

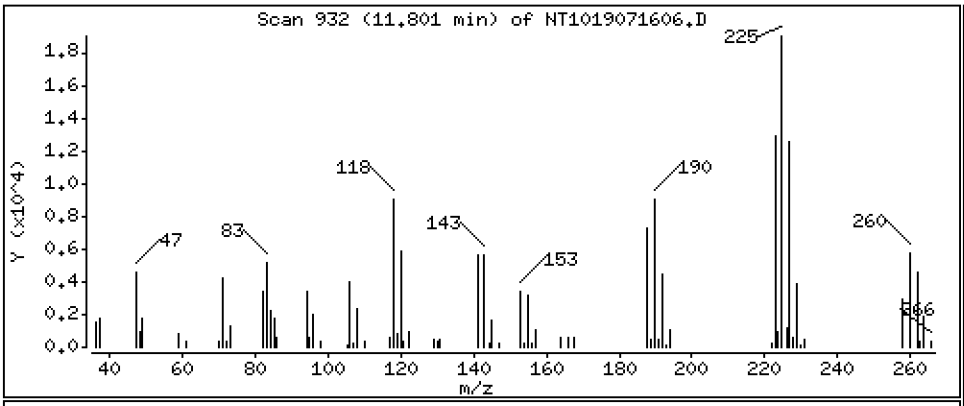
Operator: YZ

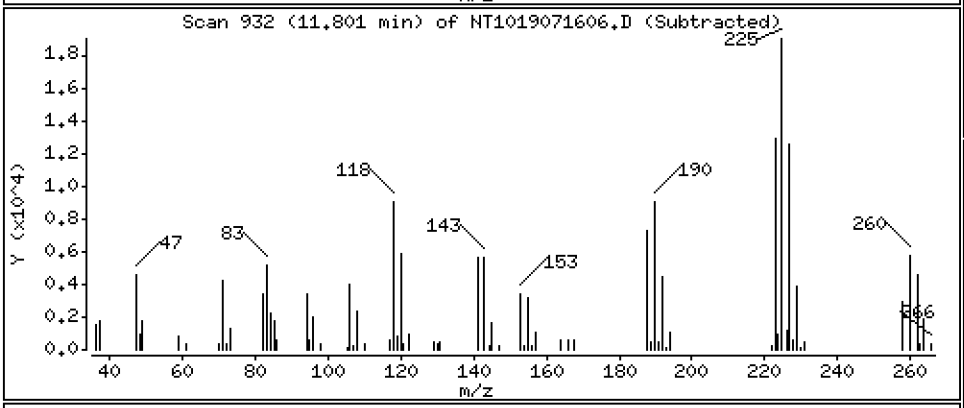
Column phase: ZB-5msi

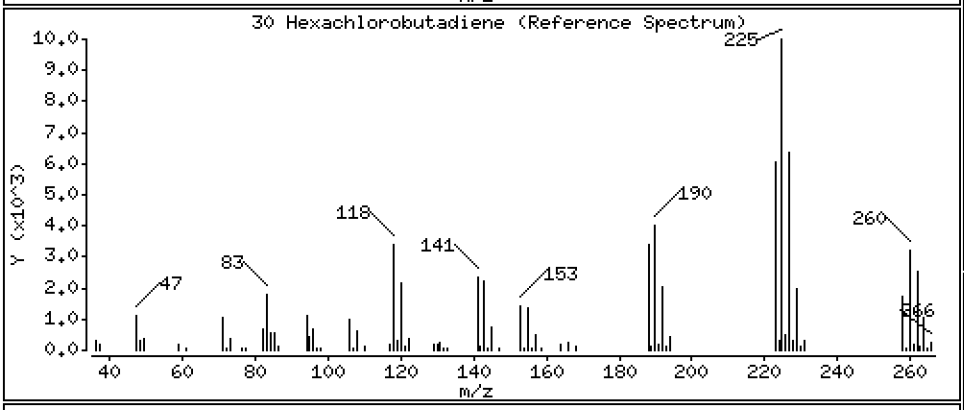
Column diameter: 0.25

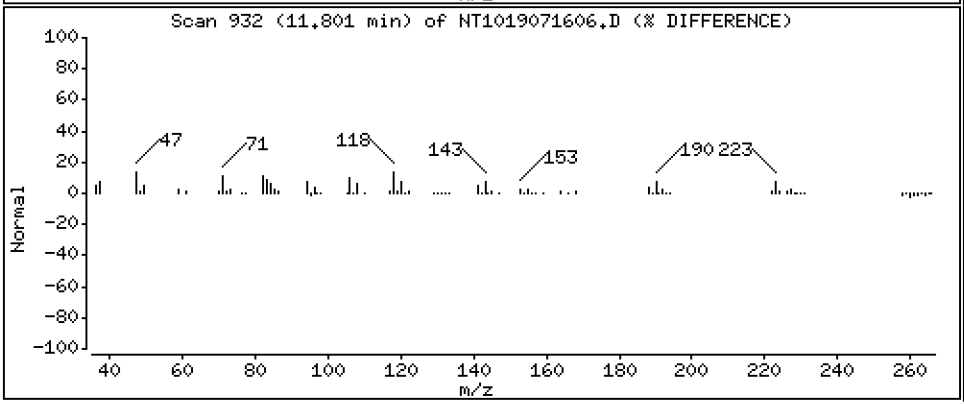
30 Hexachlorobutadiene

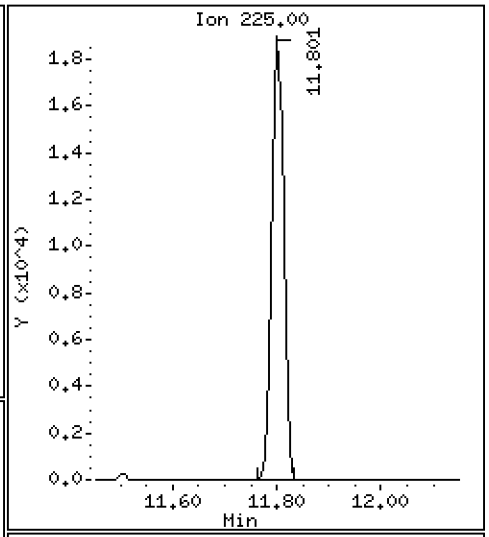
Concentration: 5.242 ug/mL

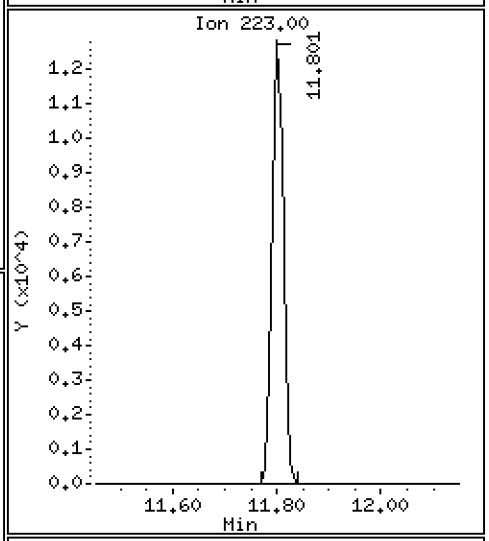


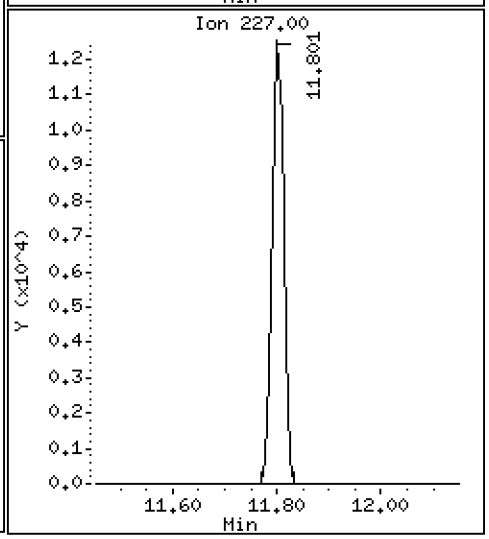












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

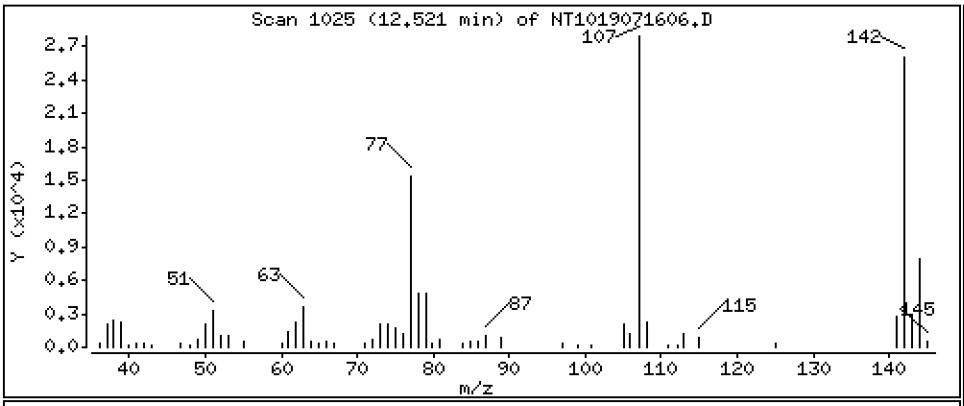
Operator: YZ

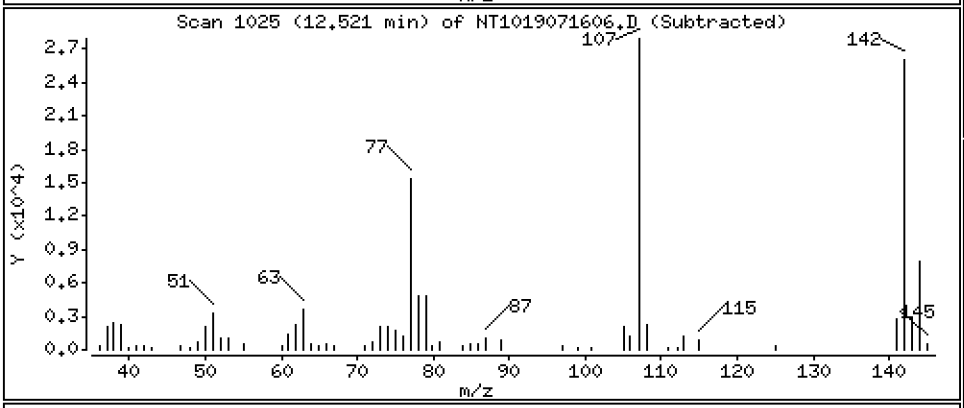
Column phase: ZB-5msi

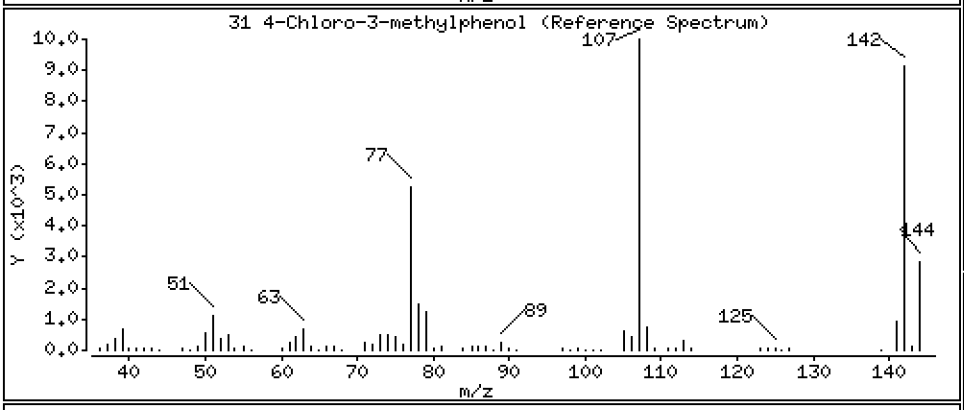
Column diameter: 0.25

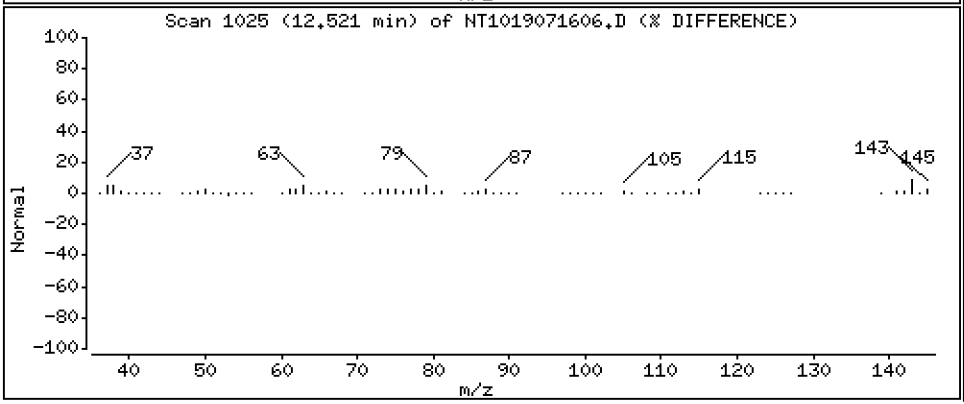
31 4-Chloro-3-methylphenol

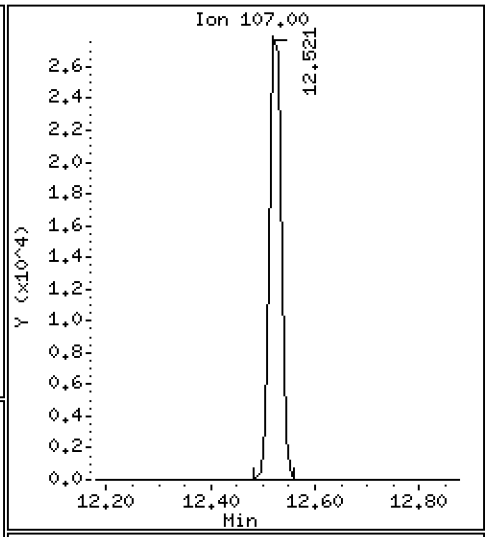
Concentration: 5.182 ug/mL

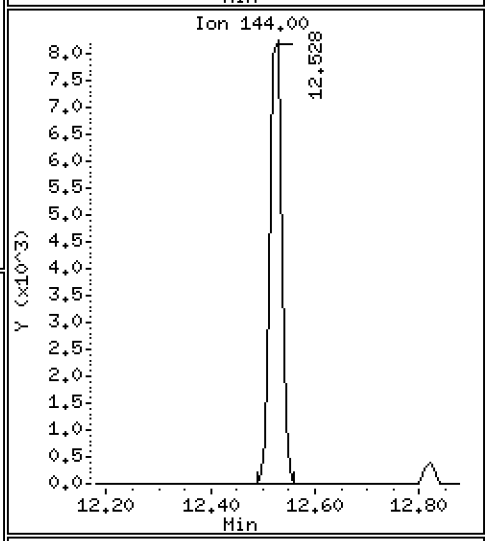


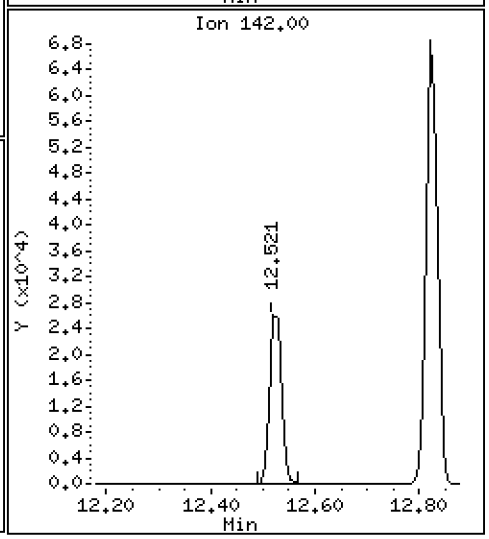












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

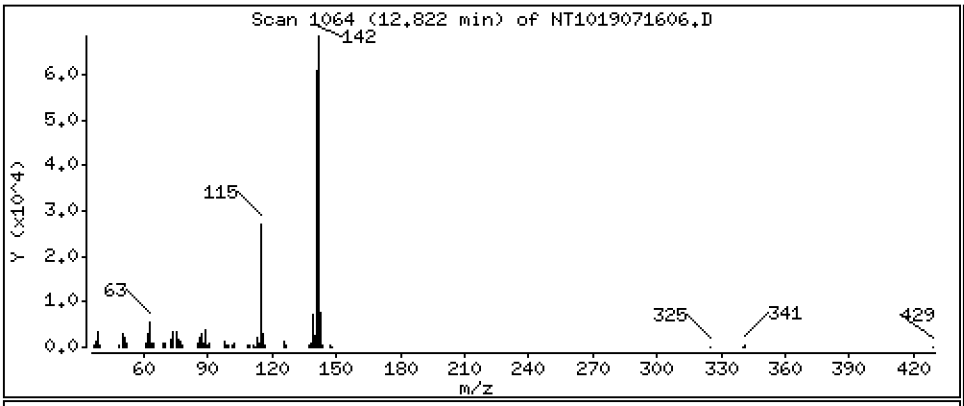
Operator: YZ

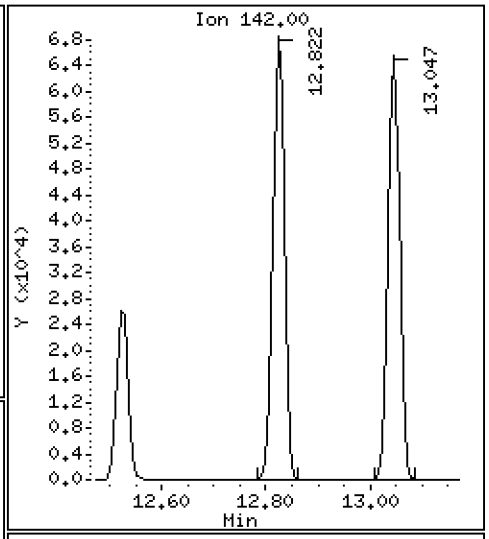
Column phase: ZB-5msi

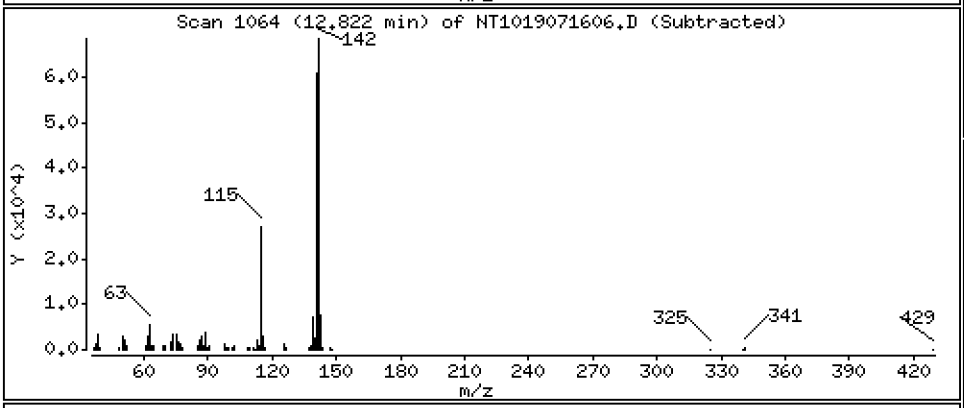
Column diameter: 0.25

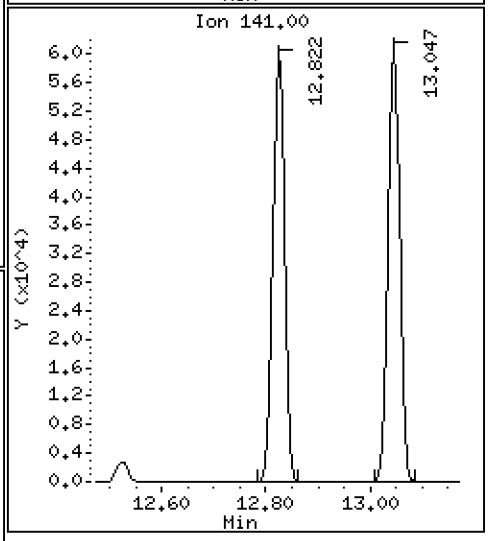
32 2-Methylnaphthalene

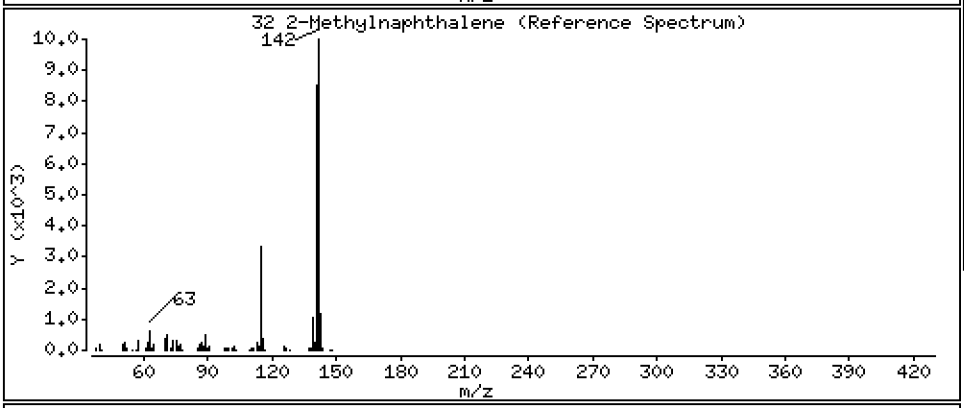
Concentration: 4.592 ug/mL

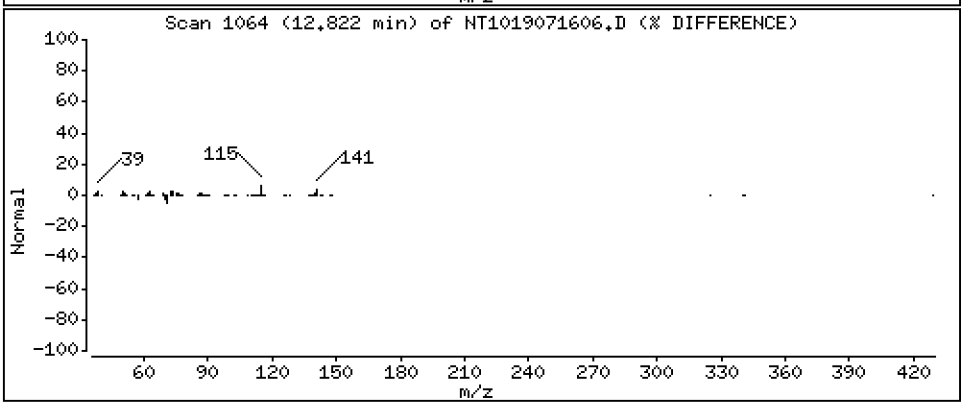












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

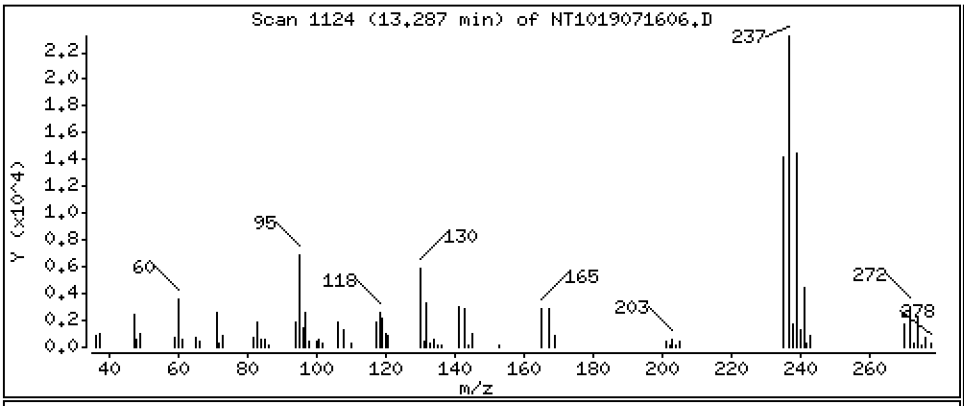
Operator: YZ

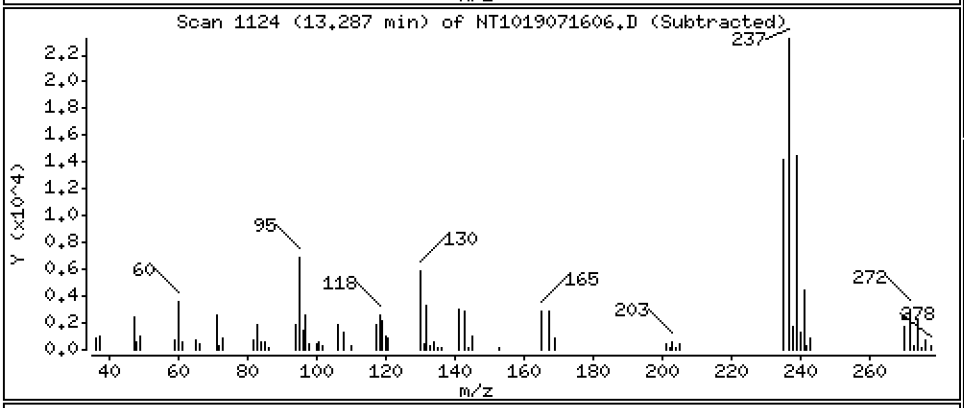
Column phase: ZB-5msi

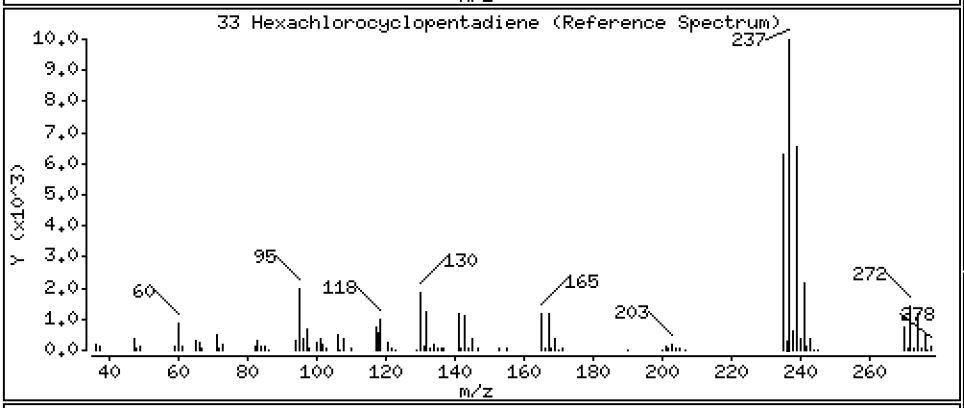
Column diameter: 0.25

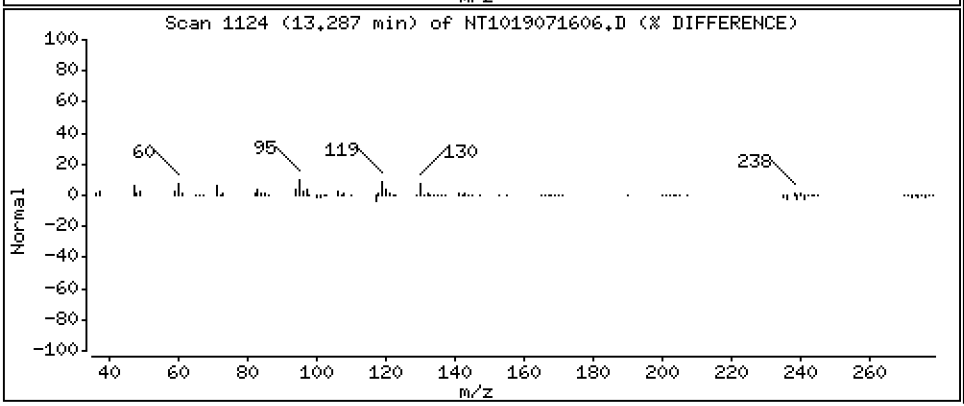
33 Hexachlorocyclopentadiene

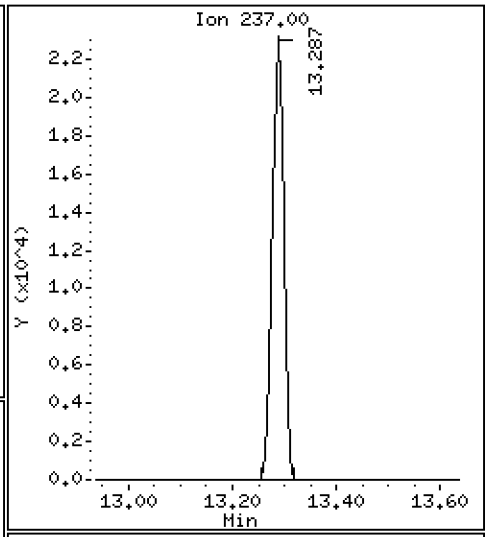
Concentration: 5.329 ug/mL

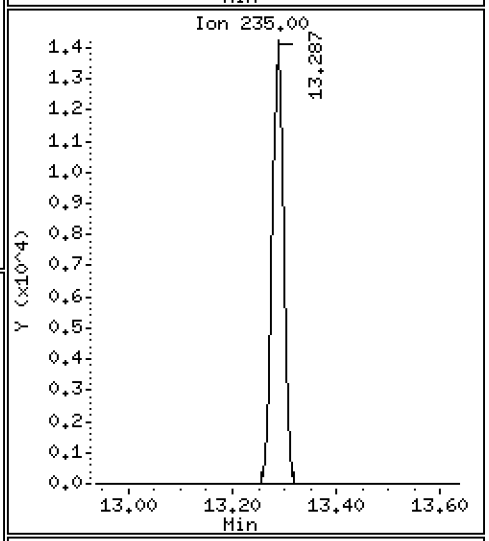


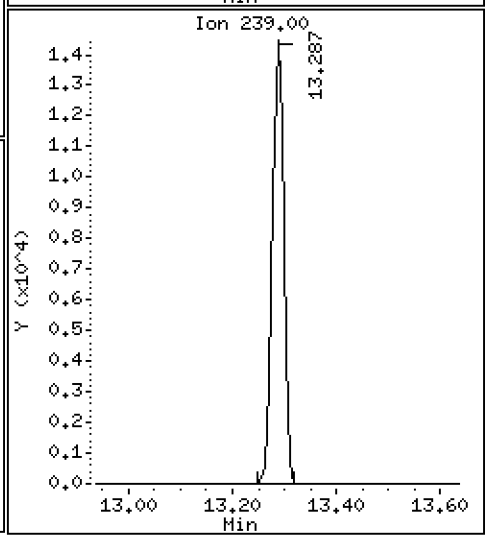












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

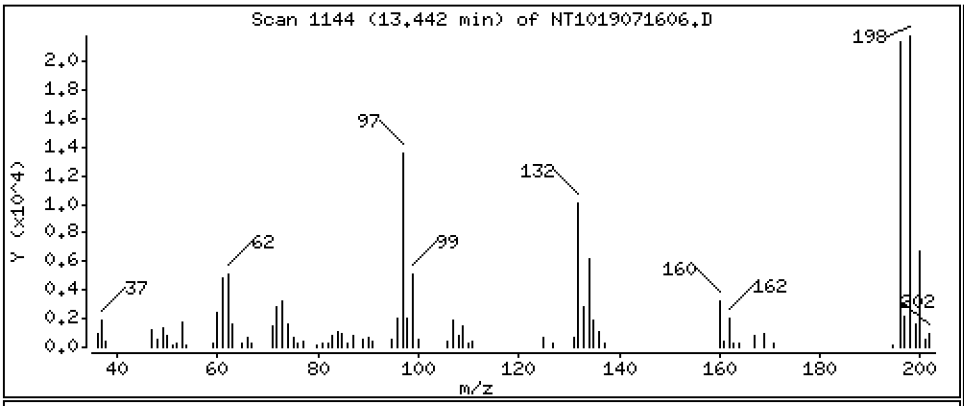
Operator: YZ

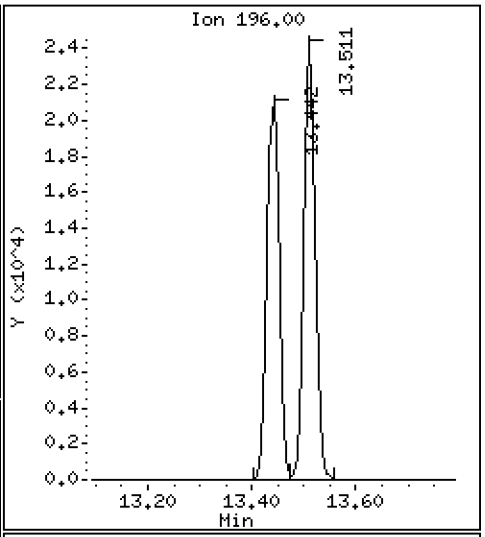
Column phase: ZB-5msi

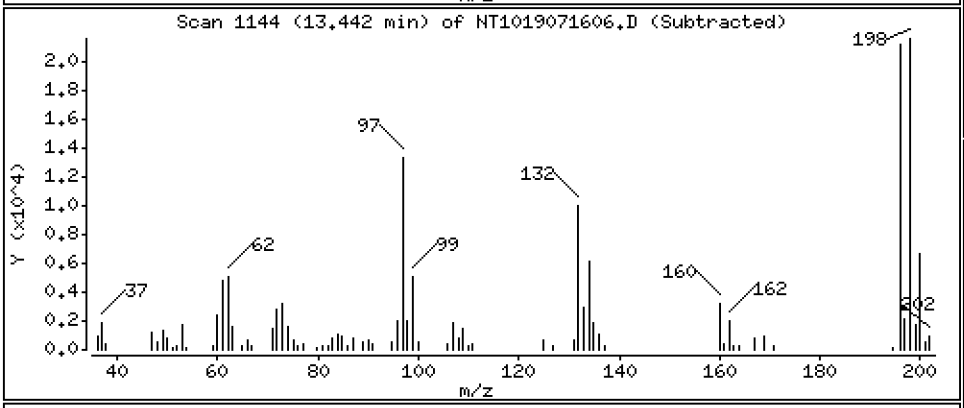
Column diameter: 0.25

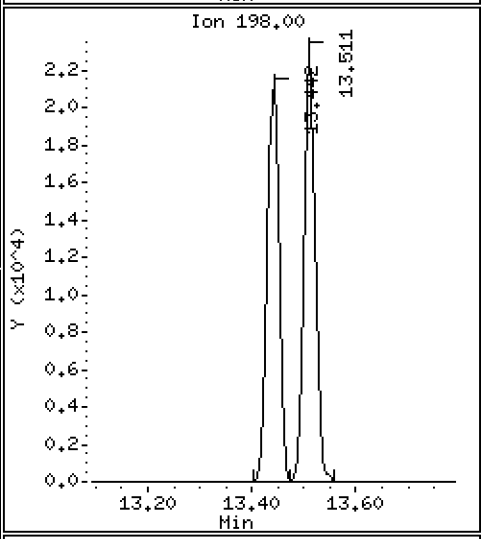
34 2,4,6-Trichlorophenol

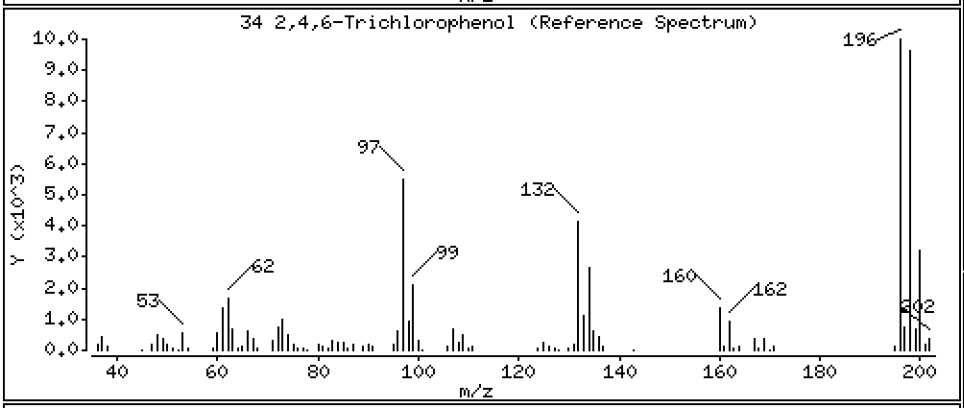
Concentration: 5.364 ug/mL

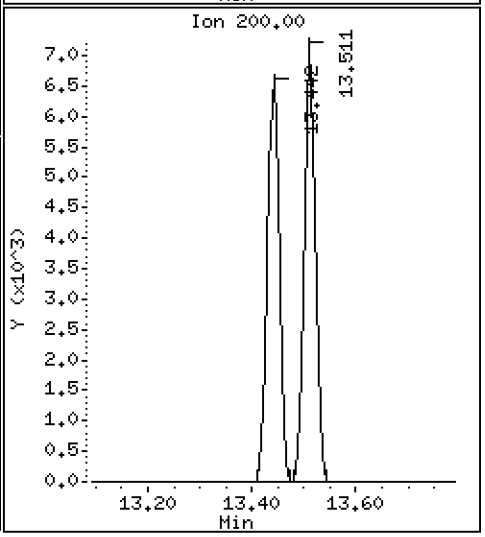


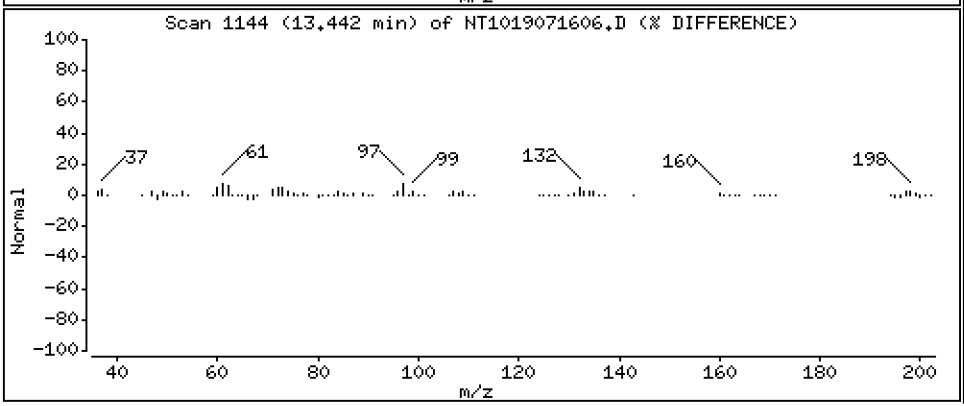












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

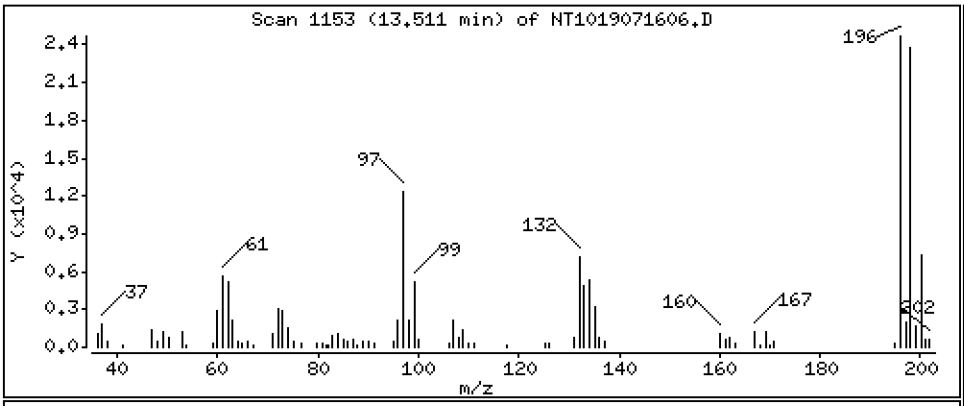
Operator: YZ

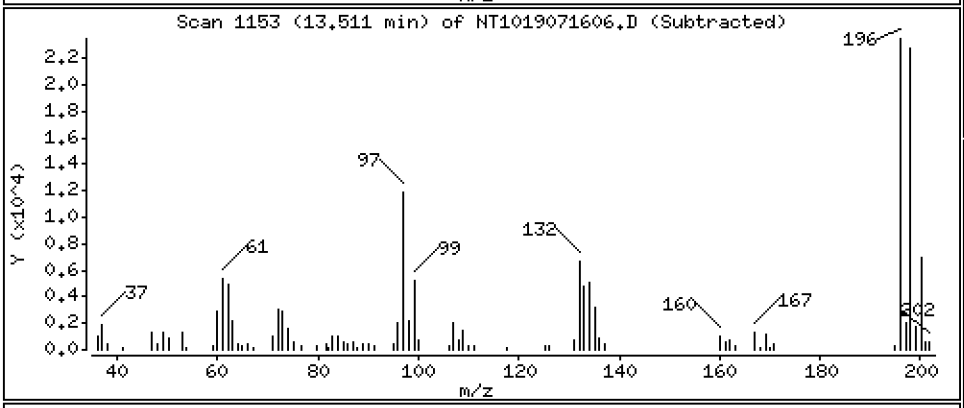
Column phase: ZB-5msi

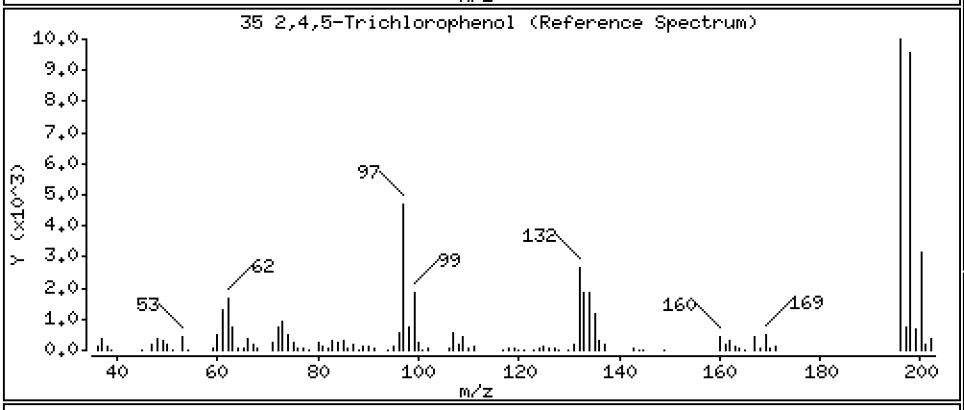
Column diameter: 0.25

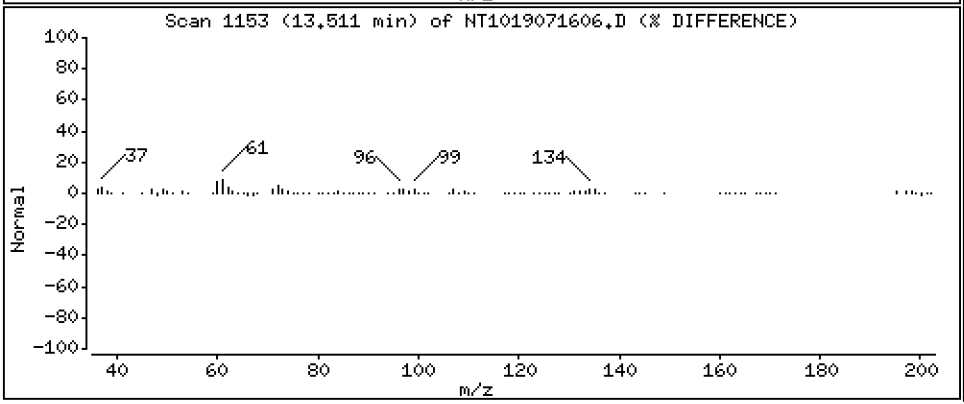
35 2,4,5-Trichlorophenol

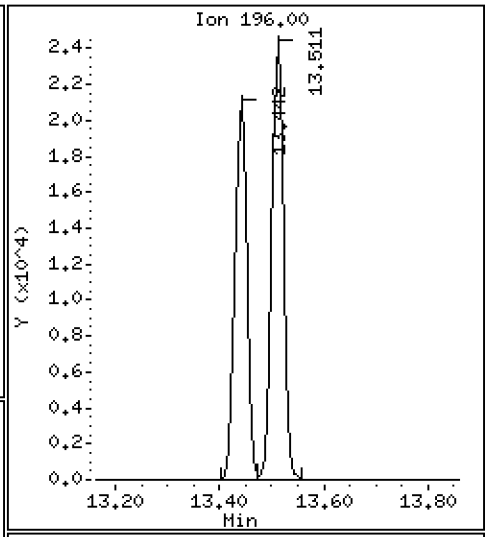
Concentration: 5.658 ug/mL

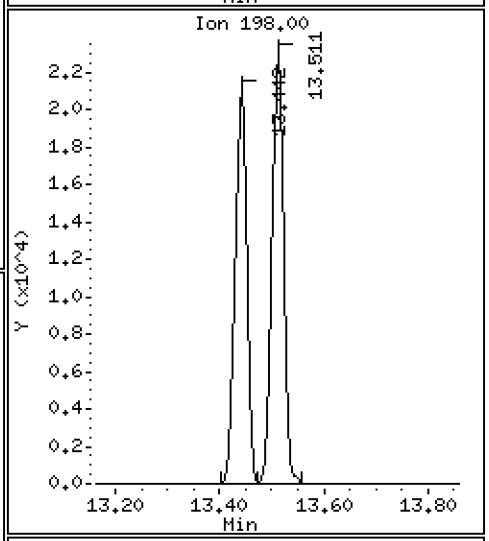


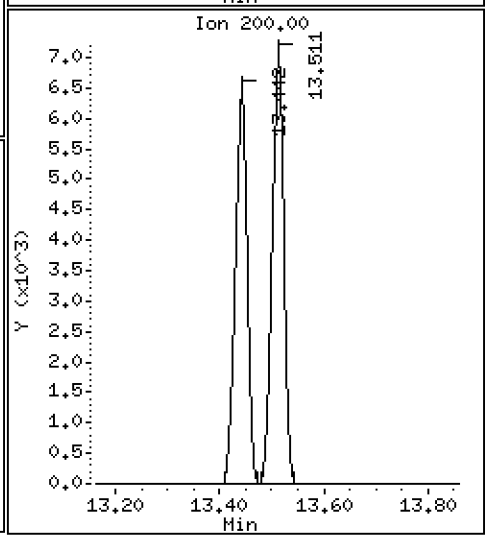












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

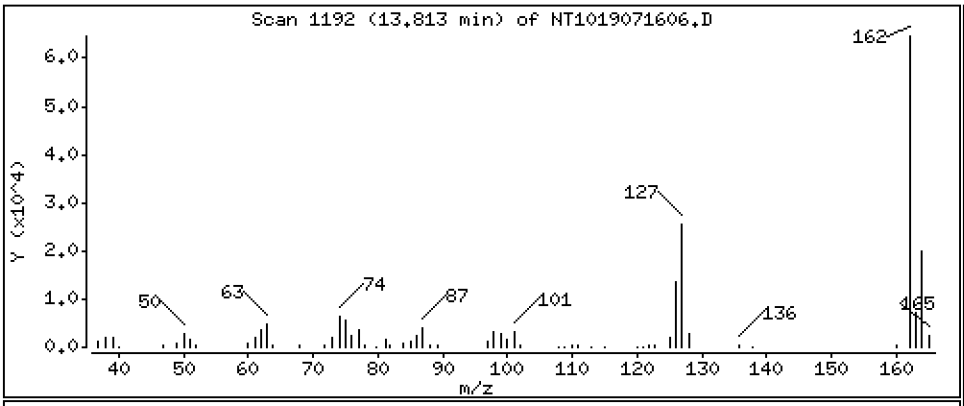
Operator: YZ

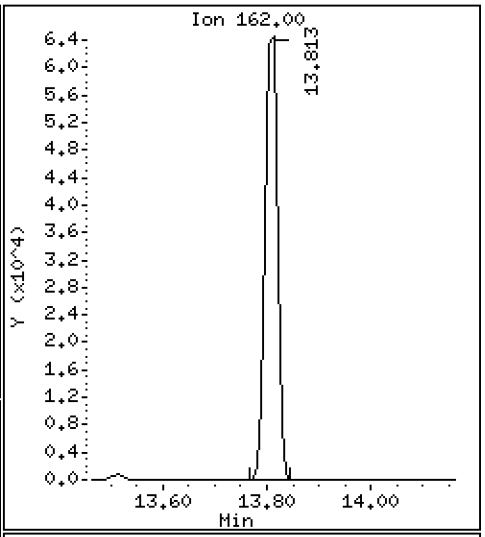
Column phase: ZB-5msi

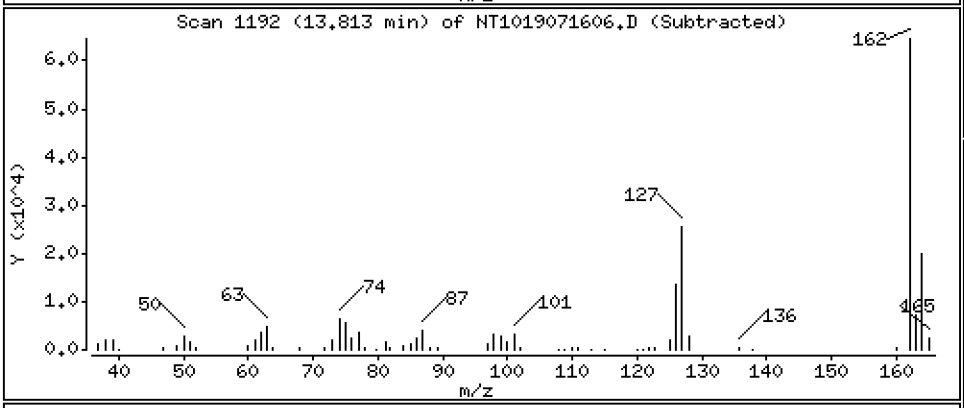
Column diameter: 0.25

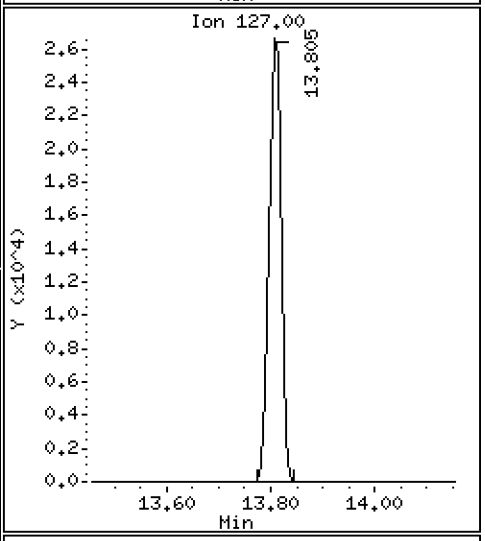
37 2-Chloronaphthalene

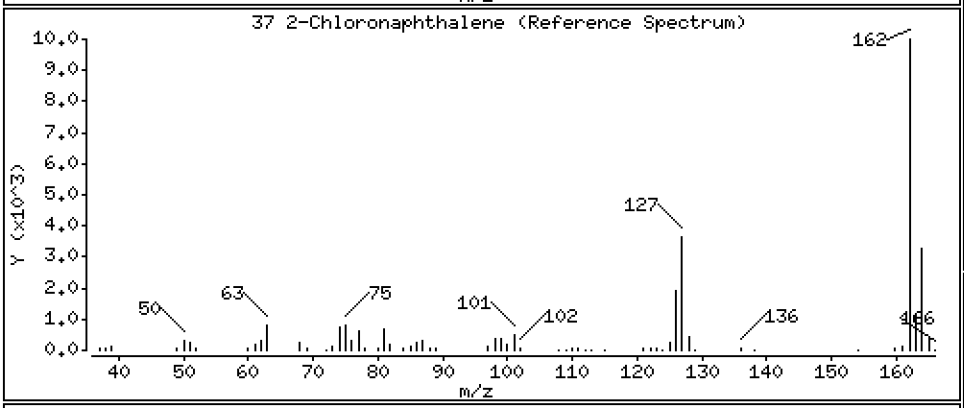
Concentration: 5.171 ug/mL

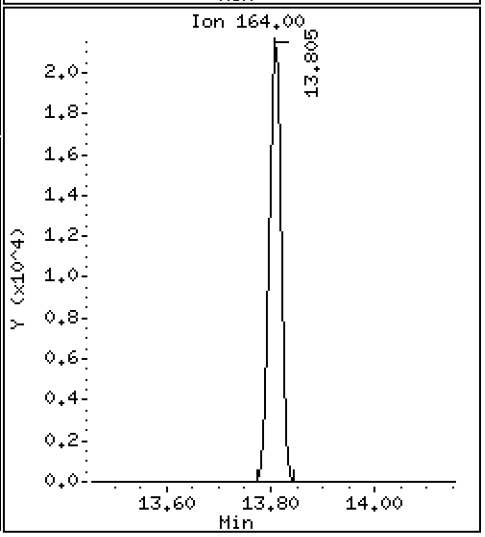


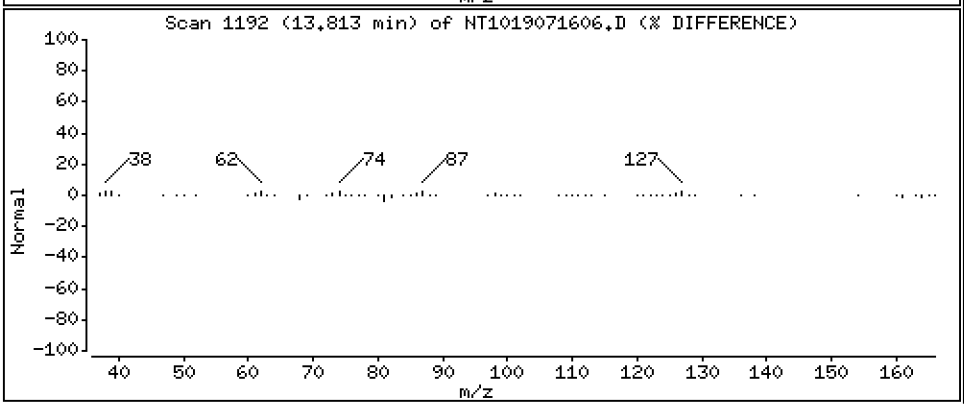












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

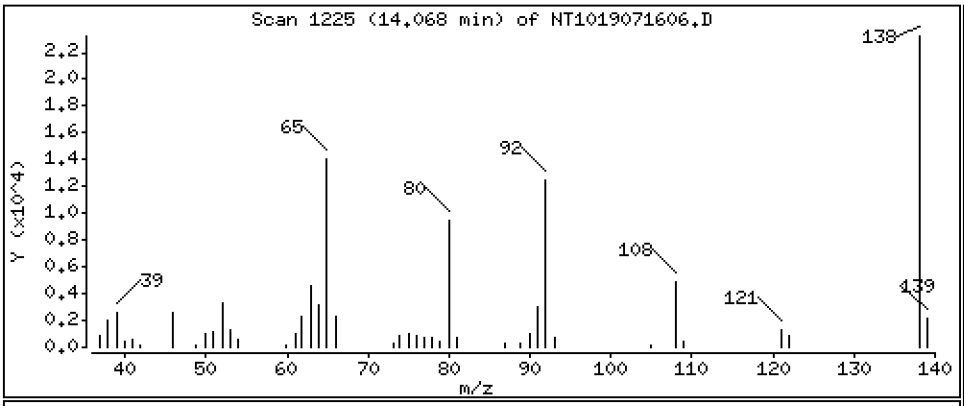
Operator: YZ

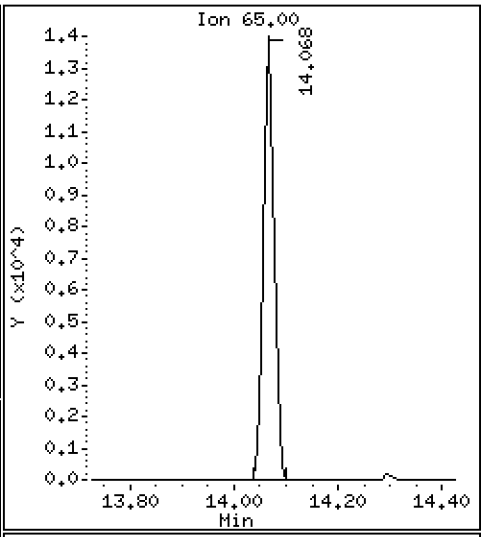
Column phase: ZB-5msi

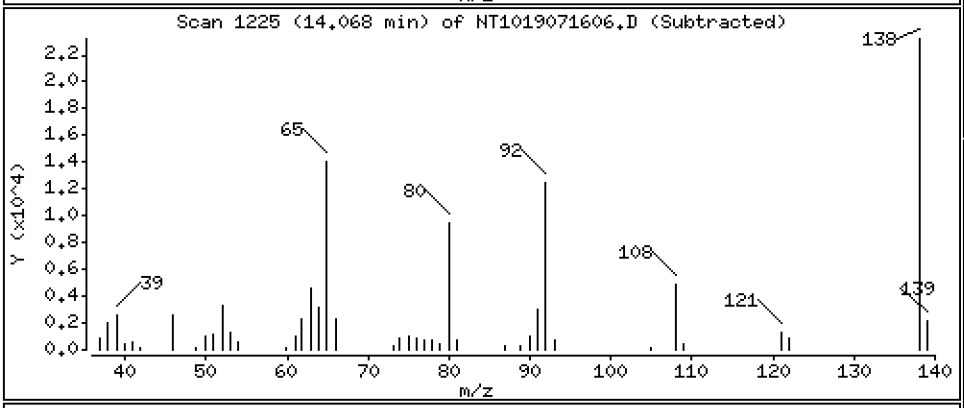
Column diameter: 0.25

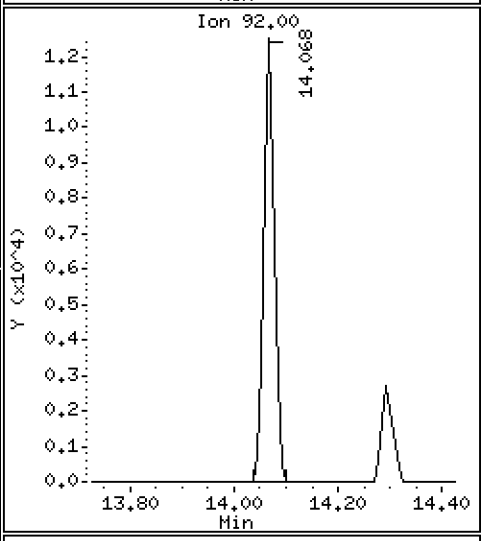
38 2-Nitroaniline

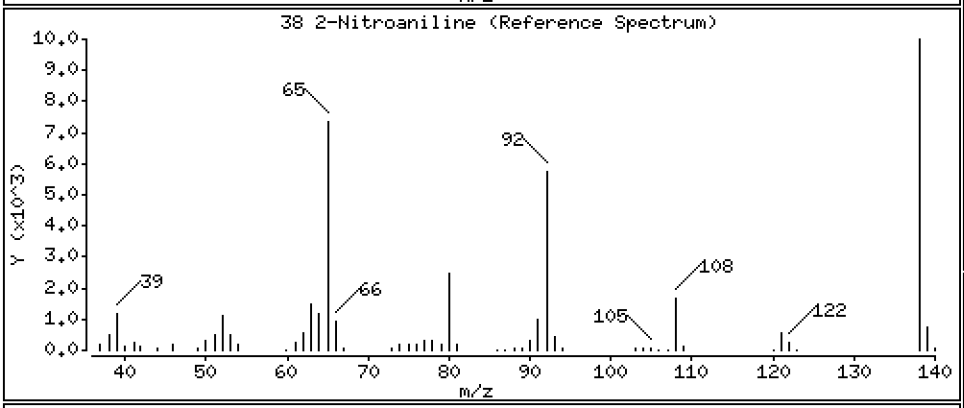
Concentration: 4.679 ug/mL

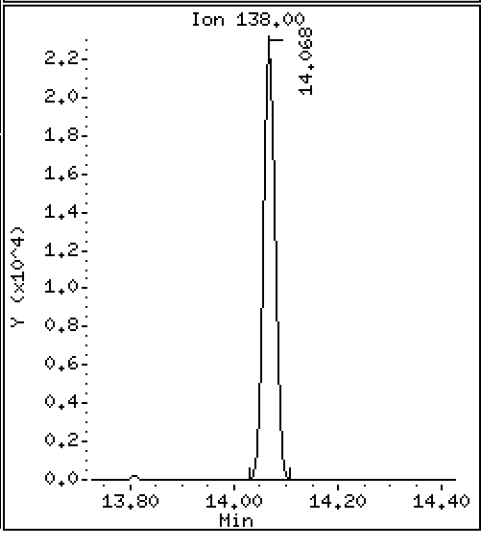


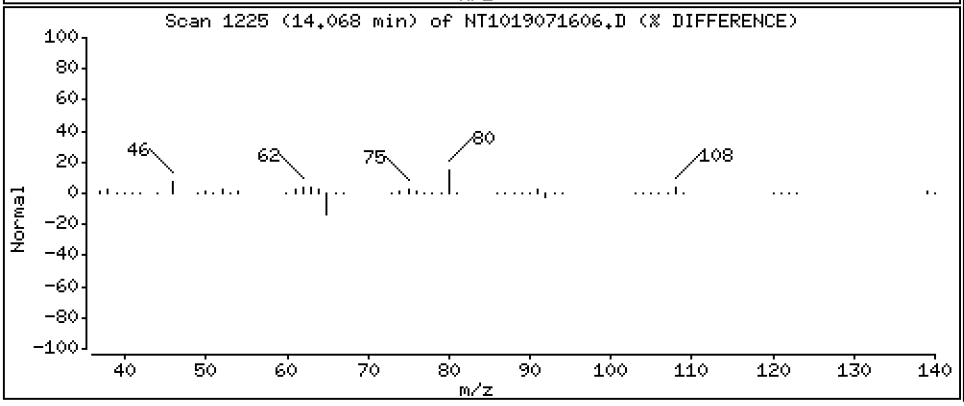












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

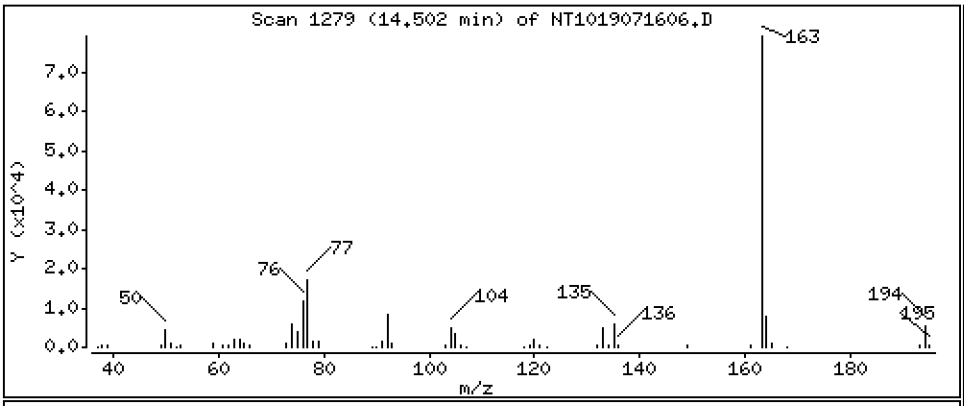
Operator: YZ

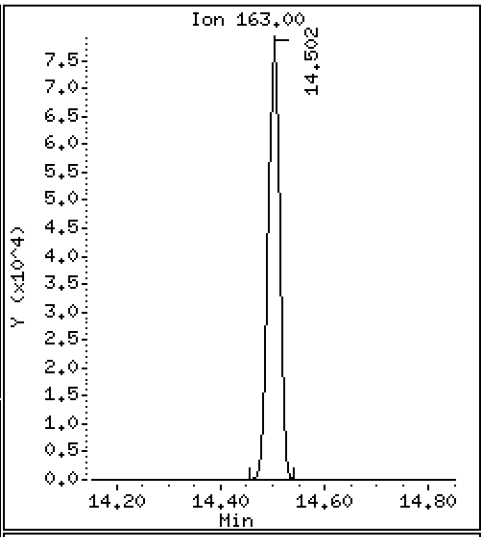
Column phase: ZB-5msi

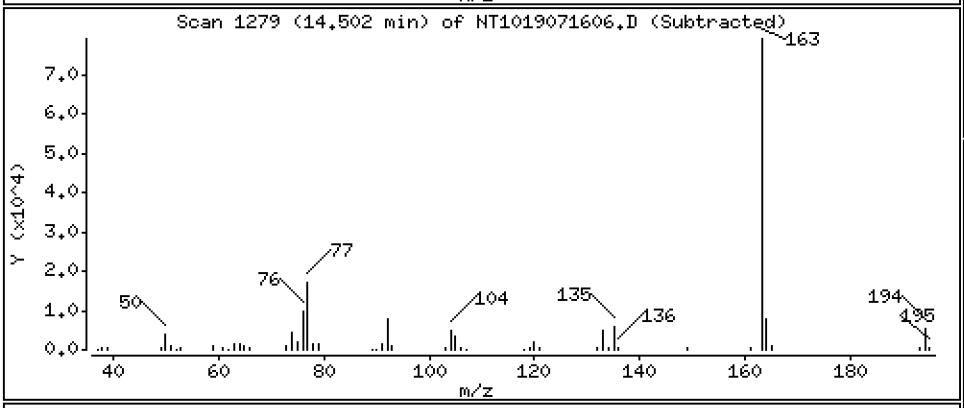
Column diameter: 0.25

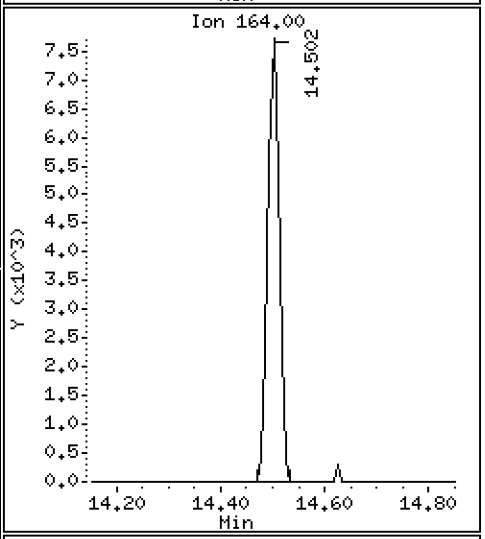
39 Dimethylphthalate

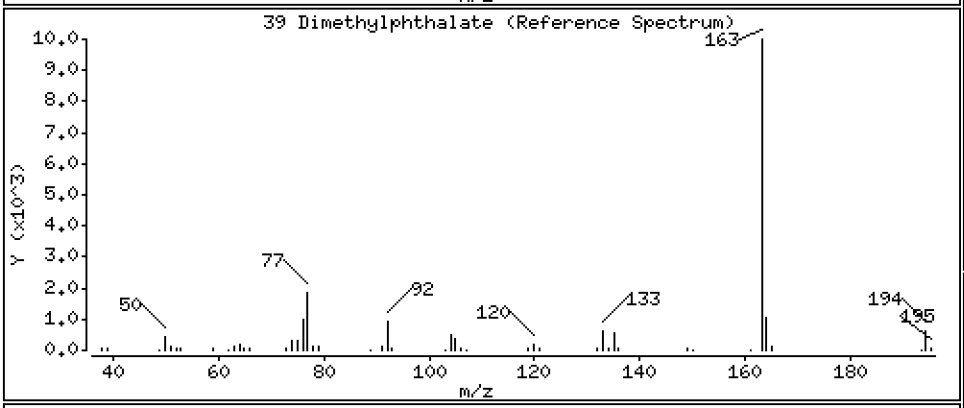
Concentration: 5.125 ug/mL

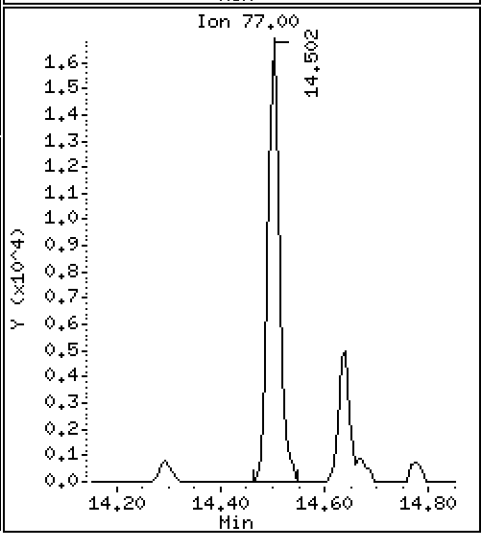


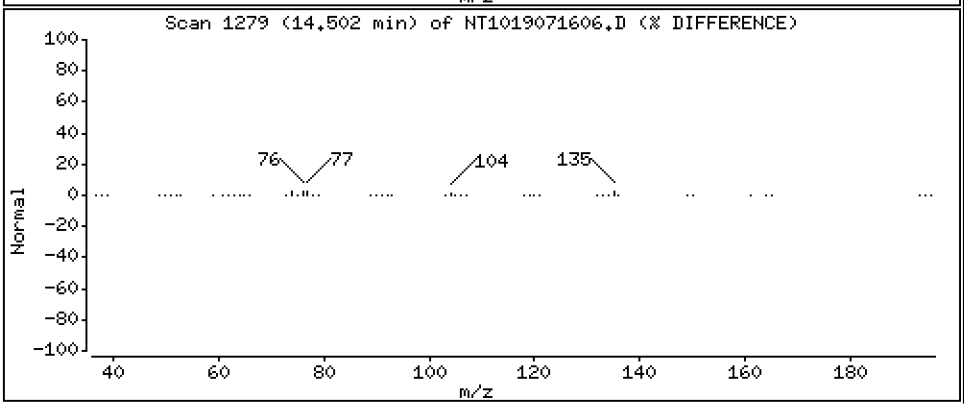












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

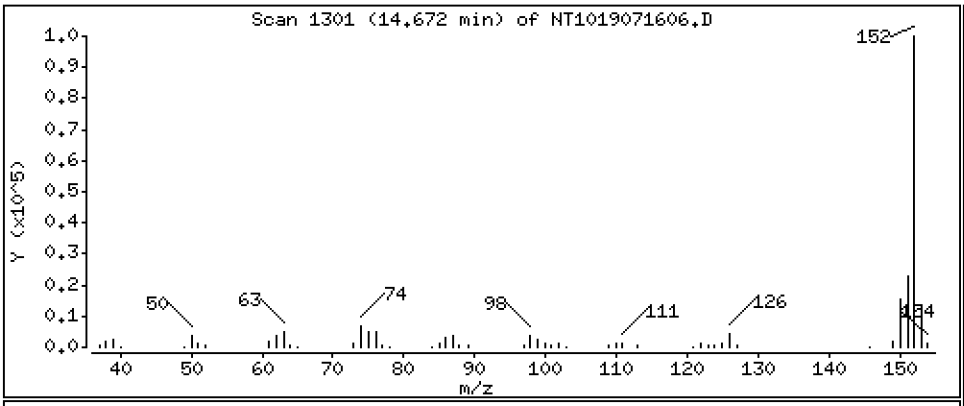
Operator: YZ

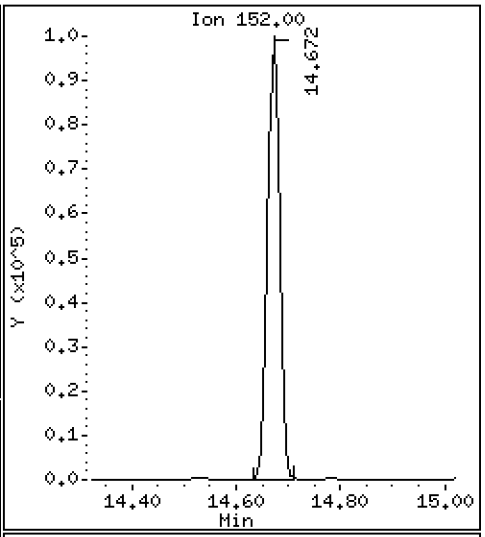
Column phase: ZB-5msi

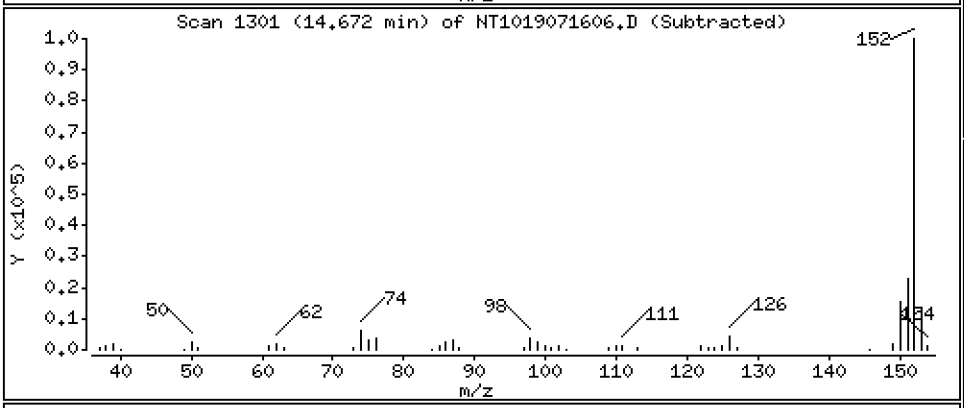
Column diameter: 0.25

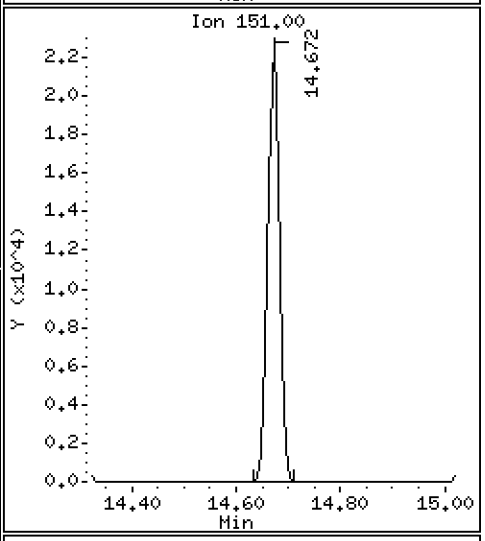
40 Acenaphthylene

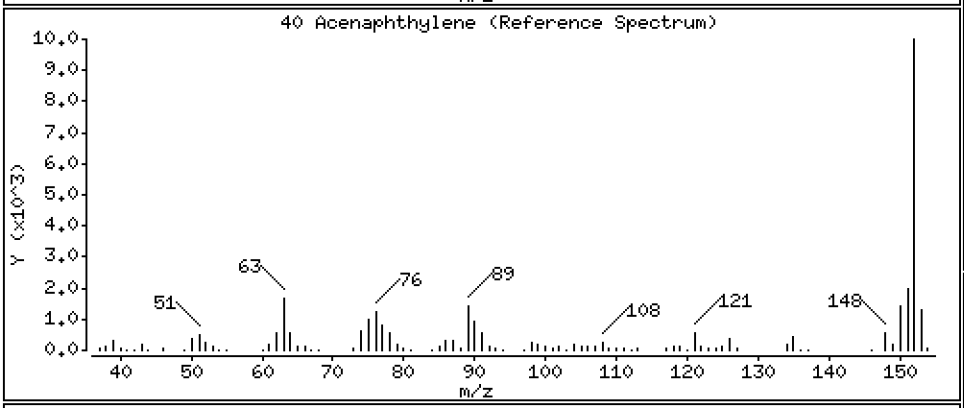
Concentration: 5.310 ug/mL

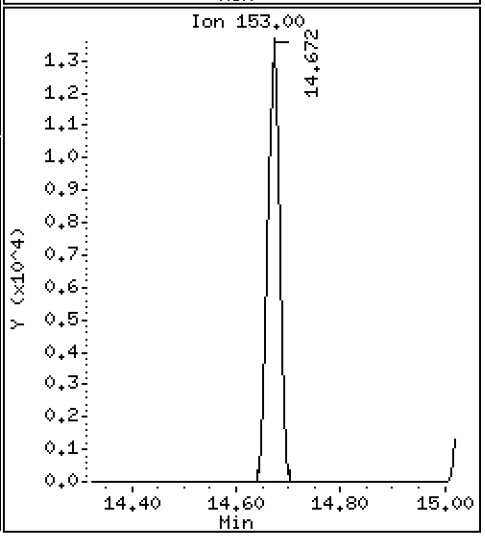


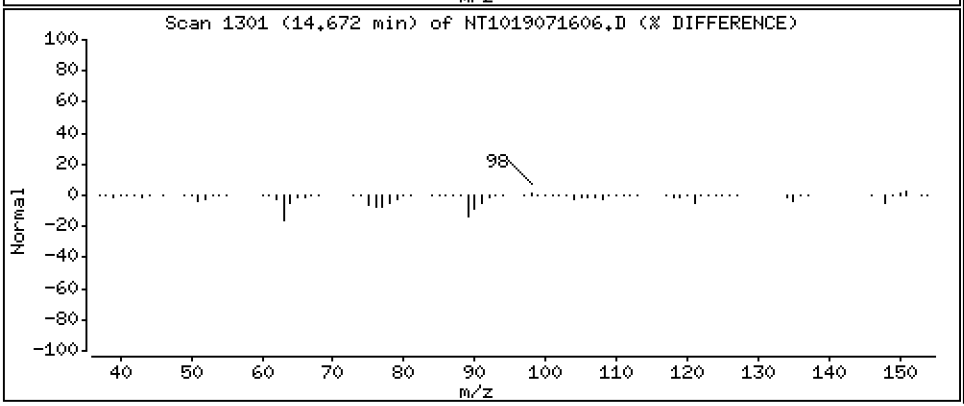












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

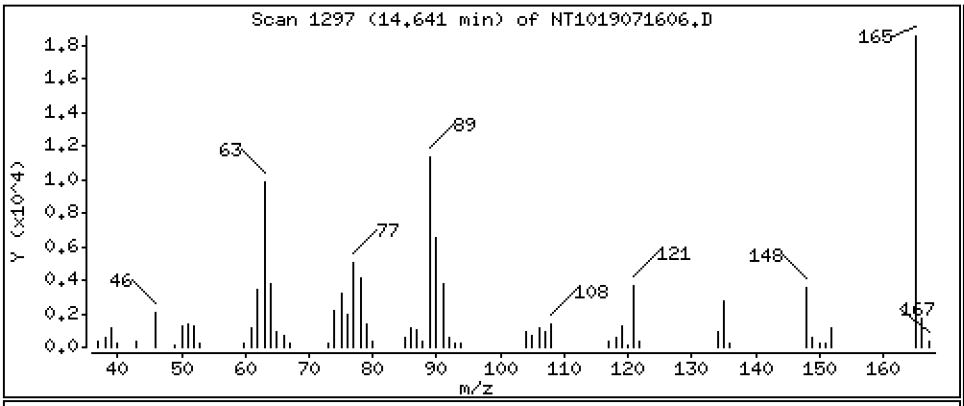
Operator: YZ

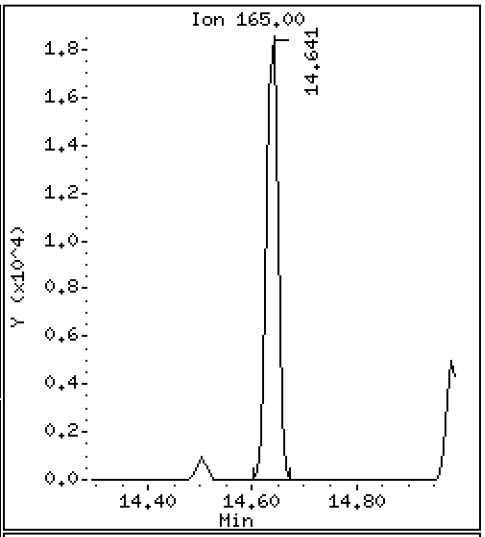
Column phase: ZB-5msi

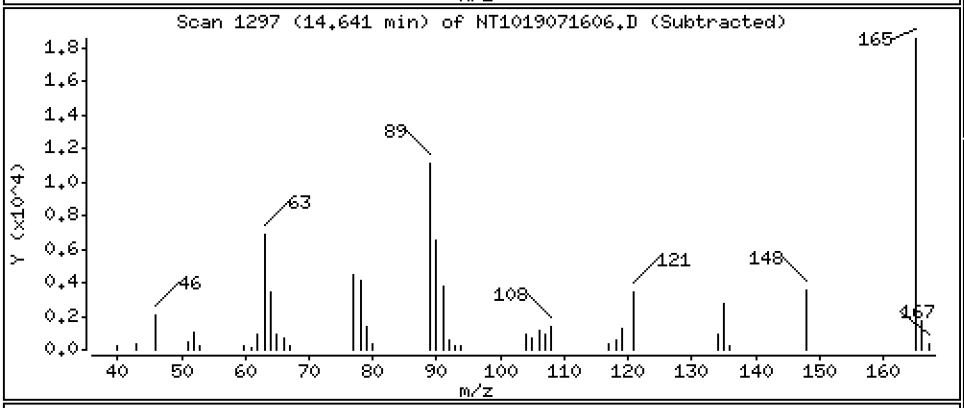
Column diameter: 0.25

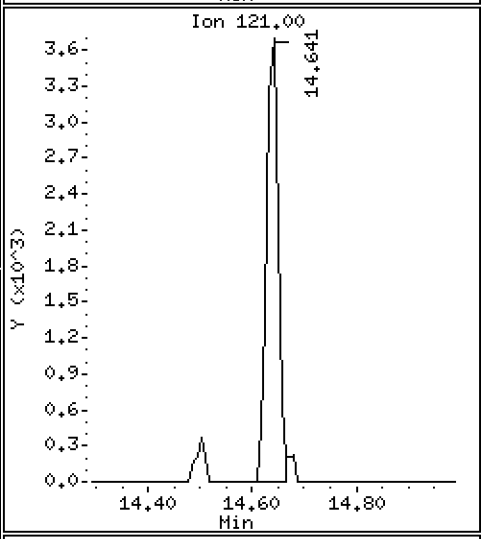
41 2,6-Dinitrotoluene

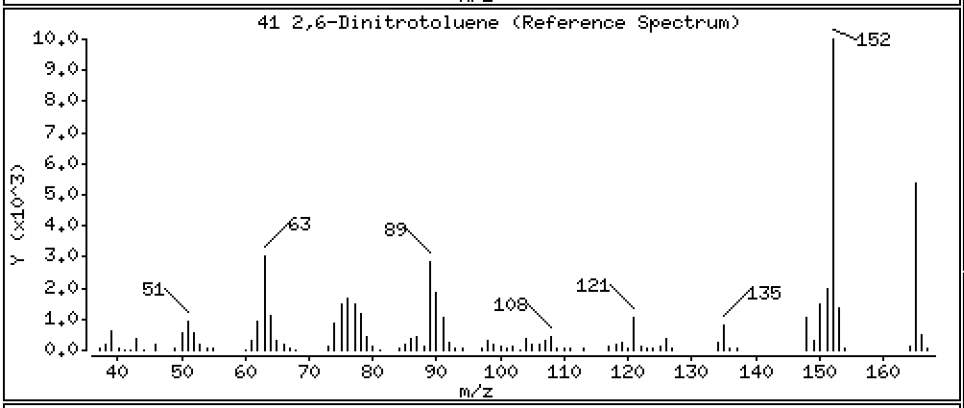
Concentration: 5.521 ug/mL

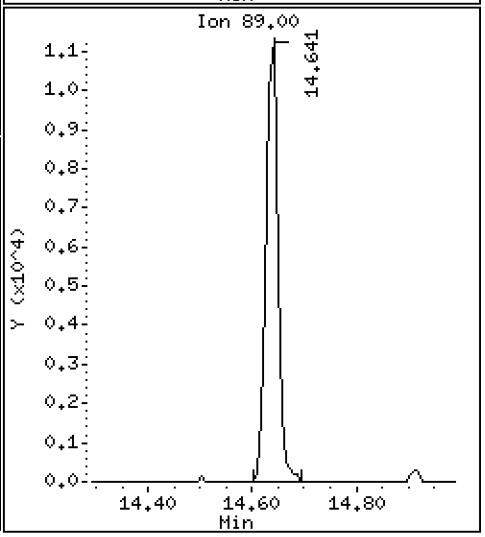


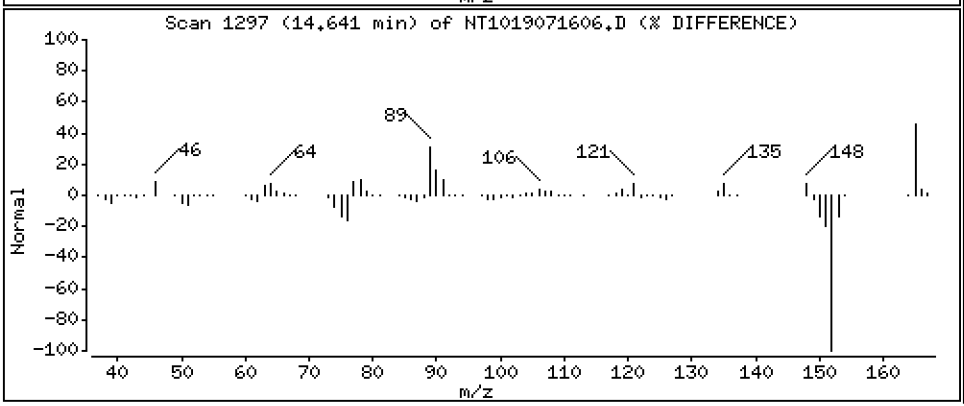












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

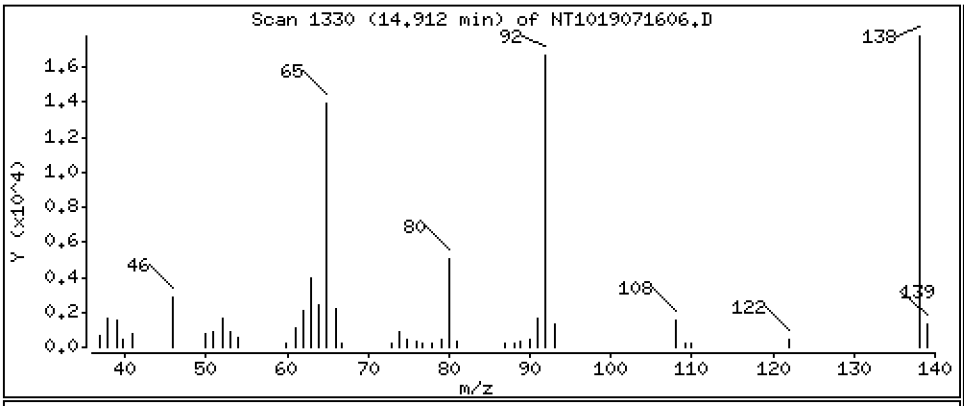
Operator: YZ

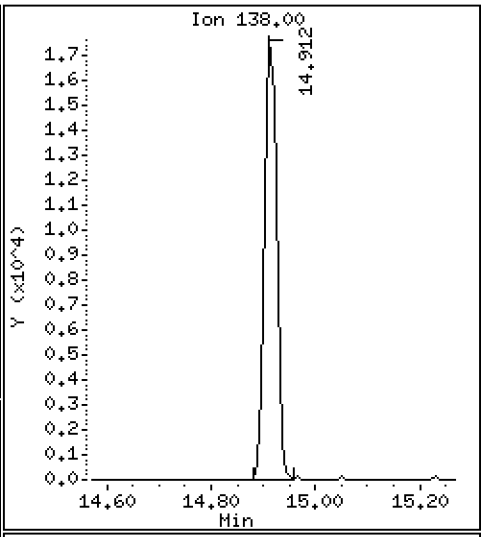
Column phase: ZB-5msi

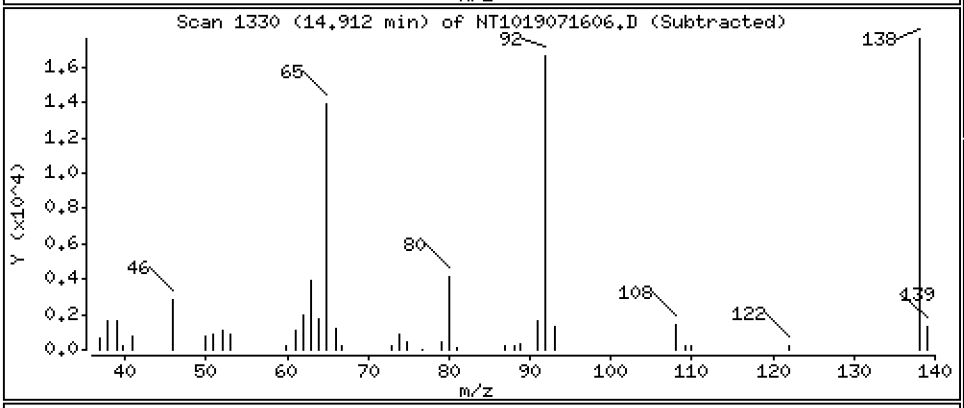
Column diameter: 0.25

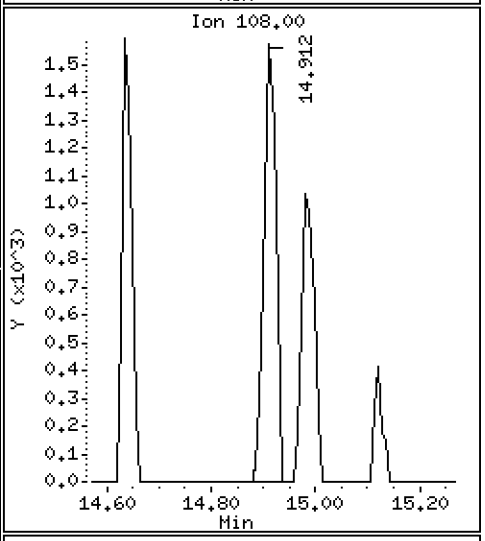
43 3-Nitroaniline

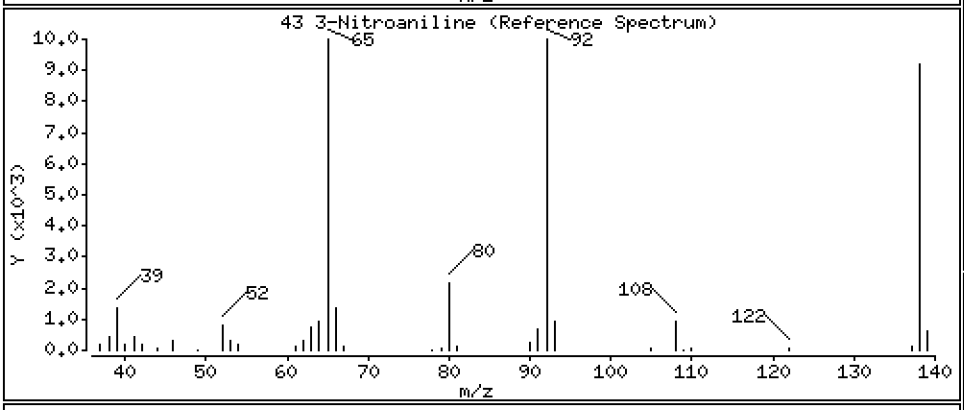
Concentration: 4.700 ug/mL

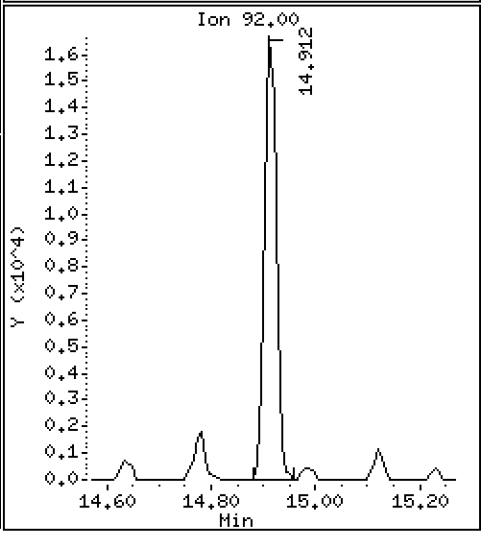


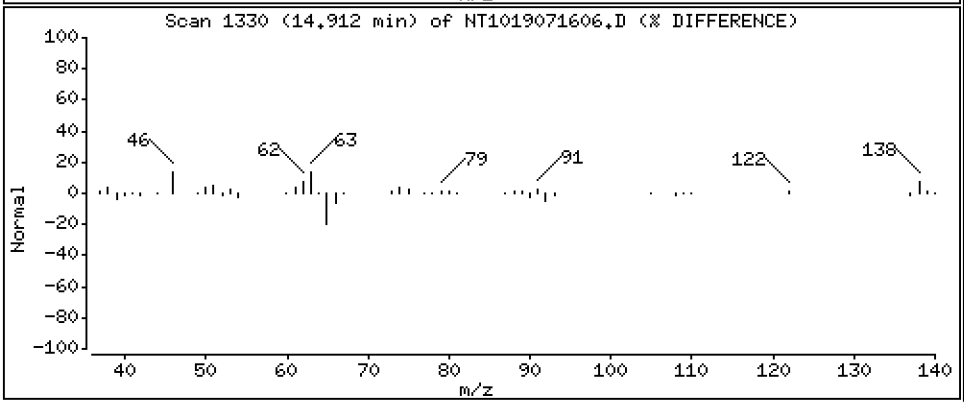












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

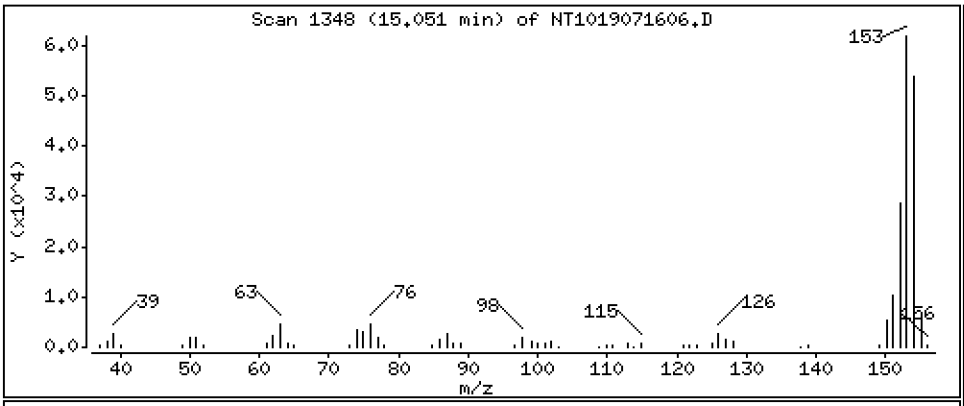
Operator: YZ

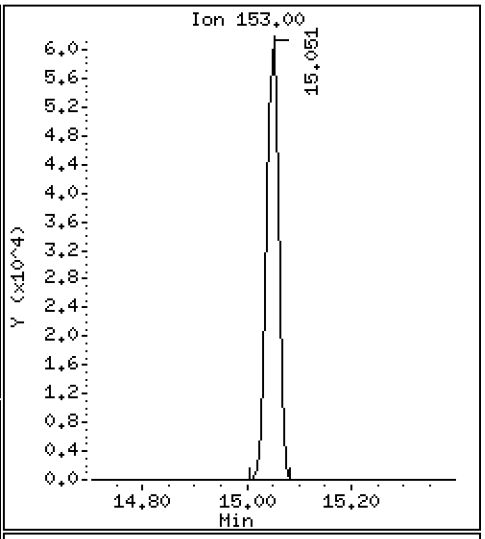
Column phase: ZB-5msi

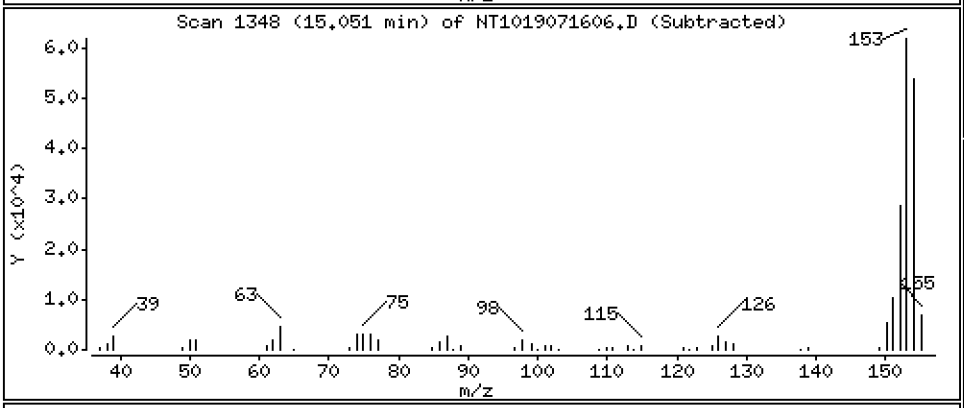
Column diameter: 0.25

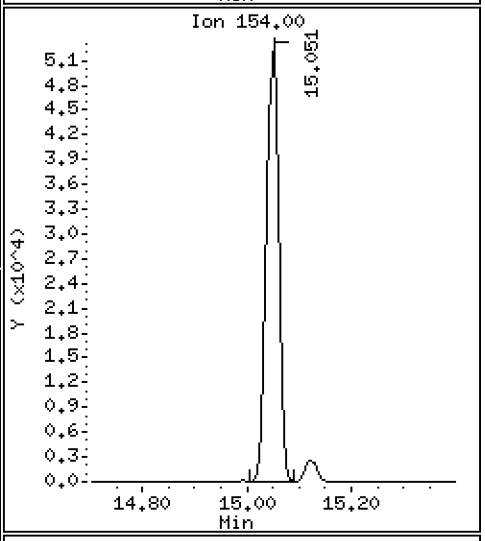
44 Acenaphthene

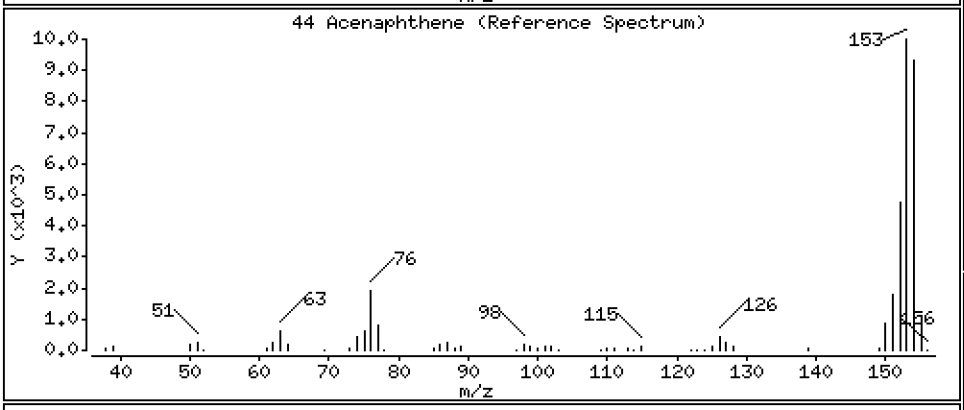
Concentration: 5.160 ug/mL

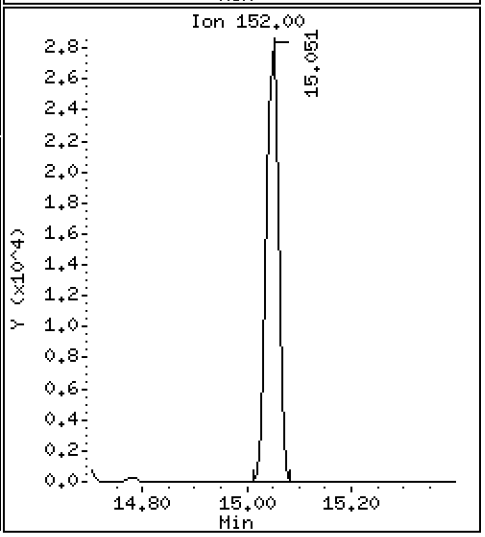


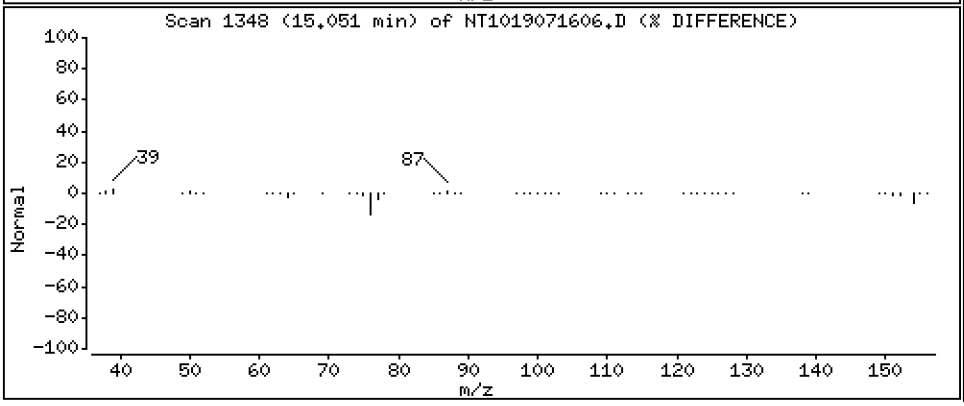












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

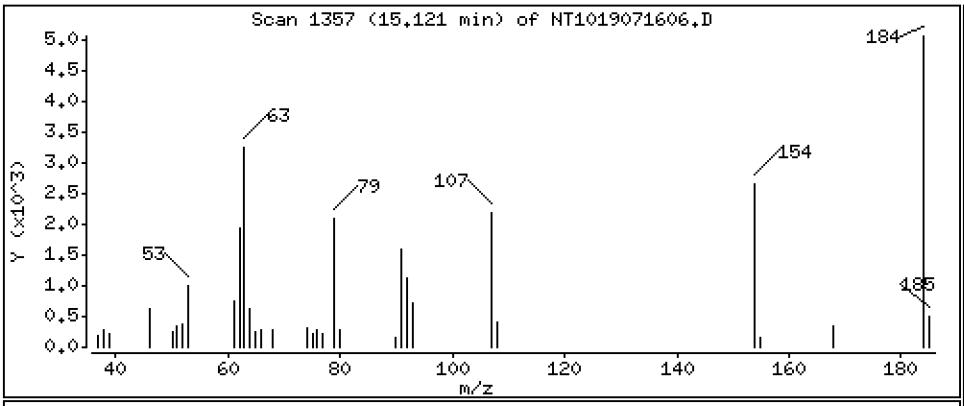
Operator: YZ

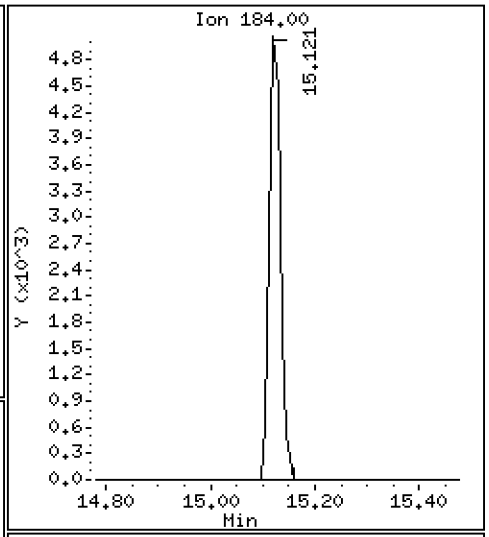
Column phase: ZB-5msi

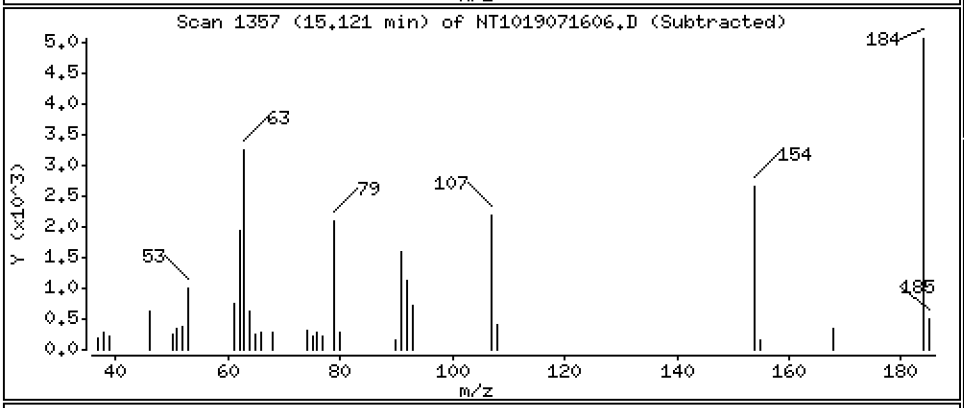
Column diameter: 0.25

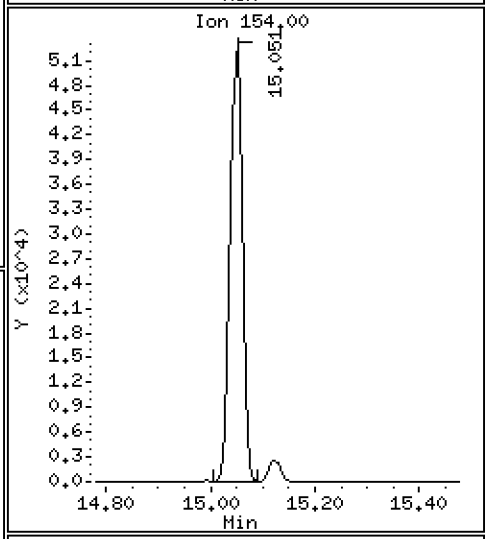
45 2,4-Dinitrophenol

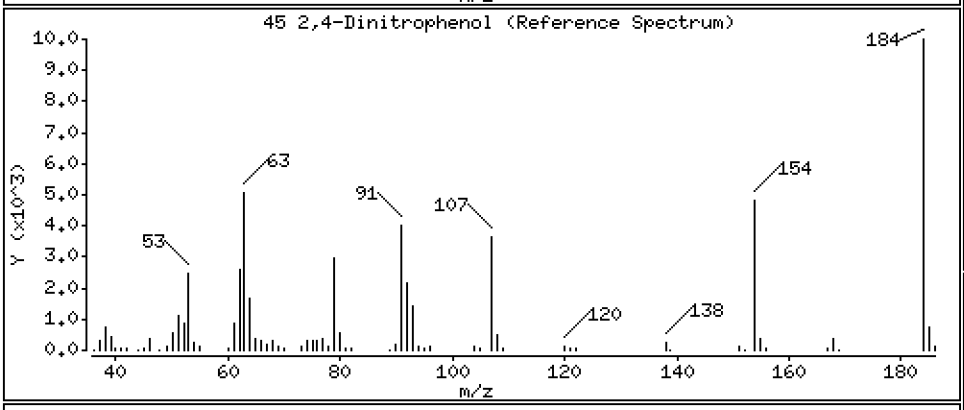
Concentration: 2.105 ug/mL

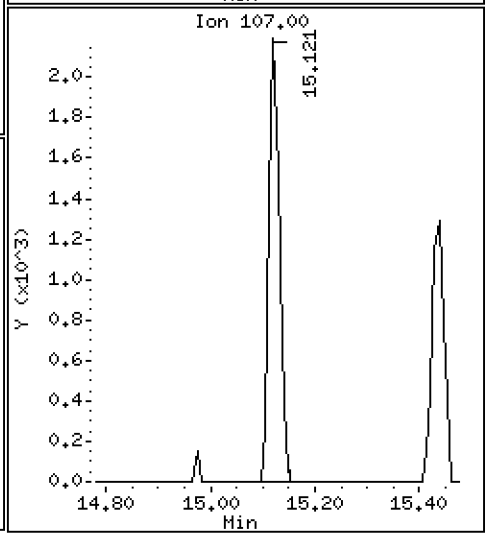


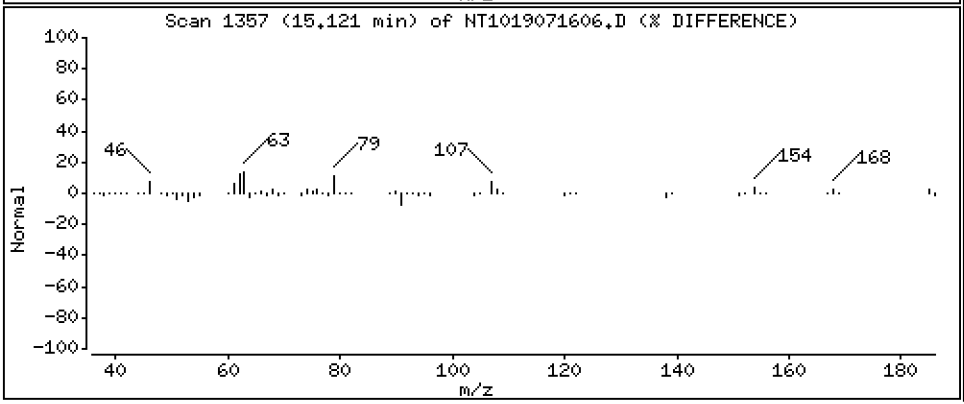












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

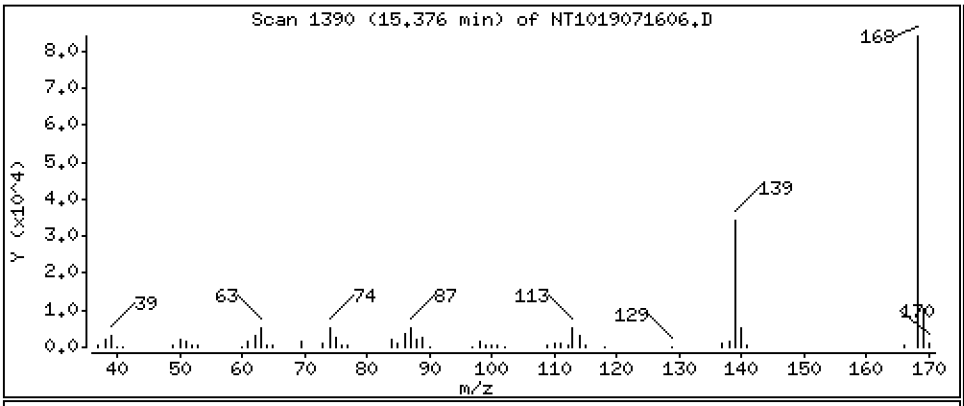
Operator: YZ

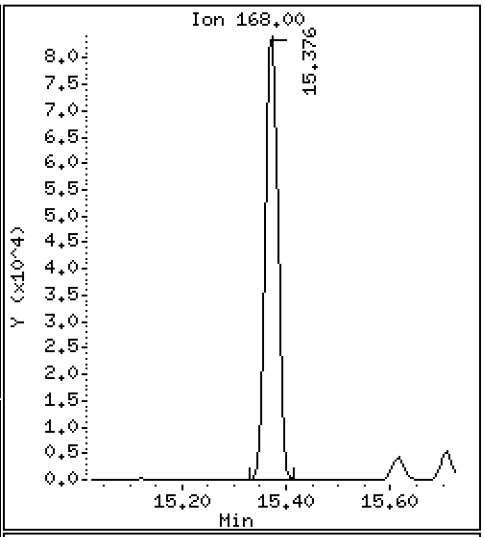
Column phase: ZB-5msi

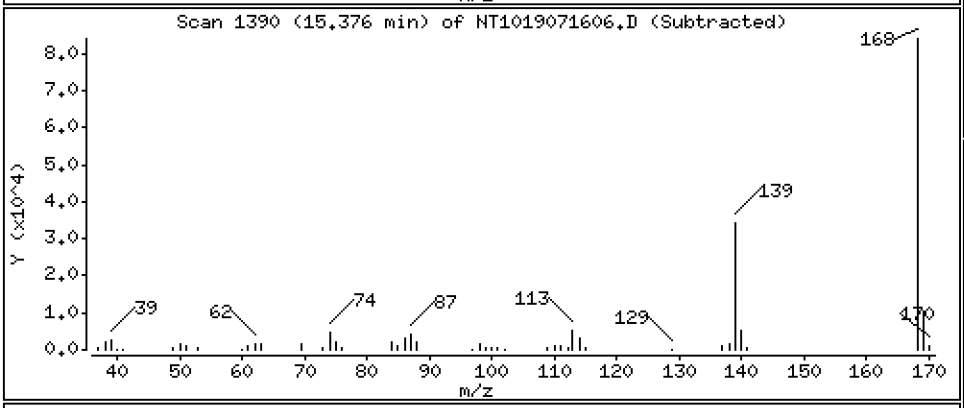
Column diameter: 0.25

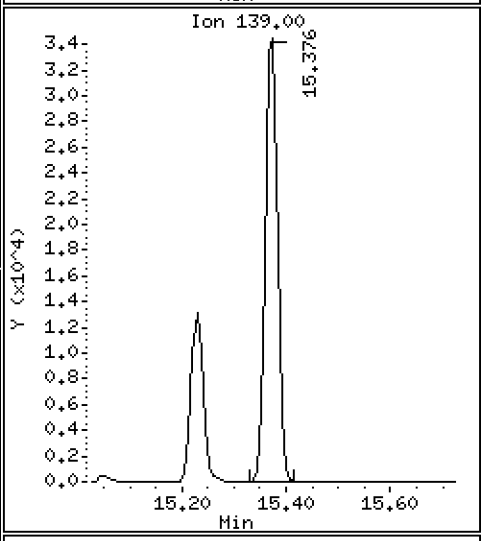
46 Dibenzofuran

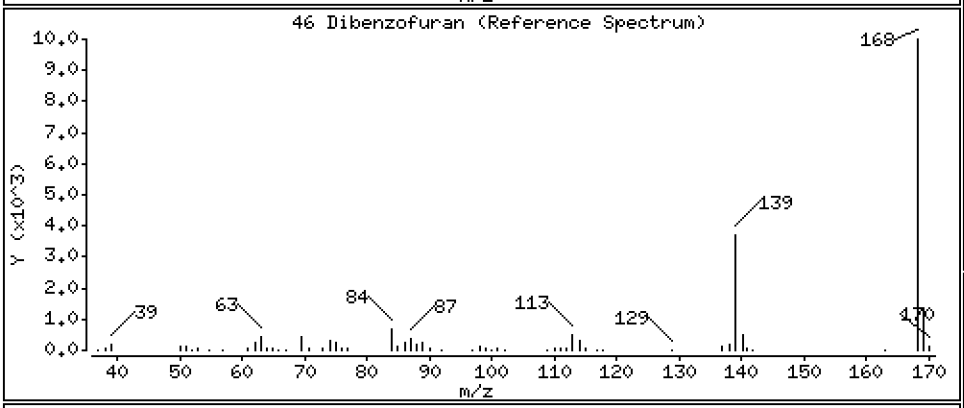
Concentration: 4.552 ug/mL

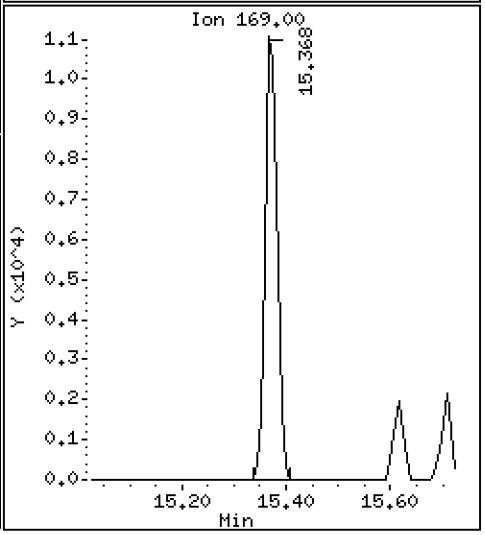


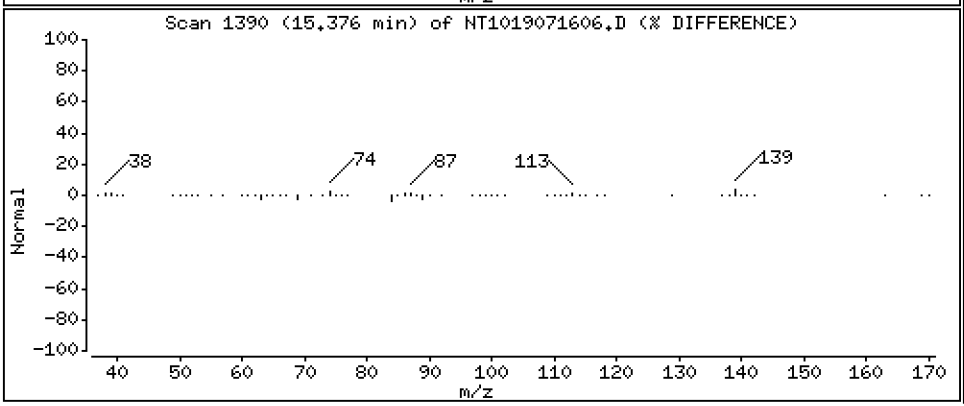












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

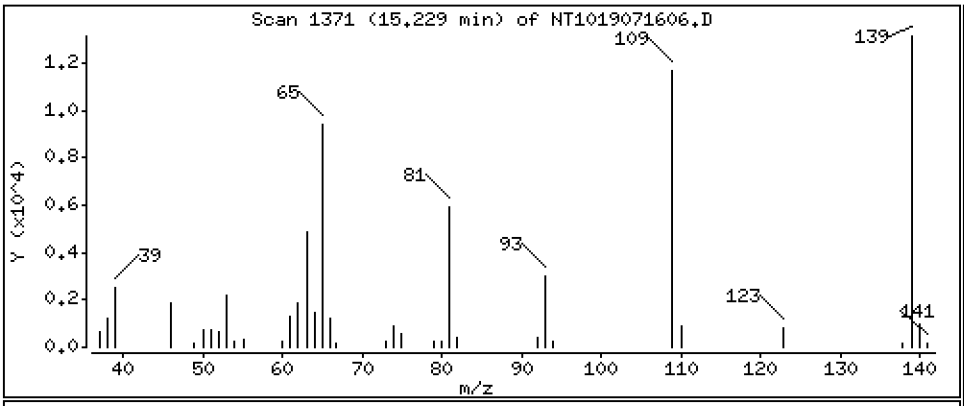
Operator: YZ

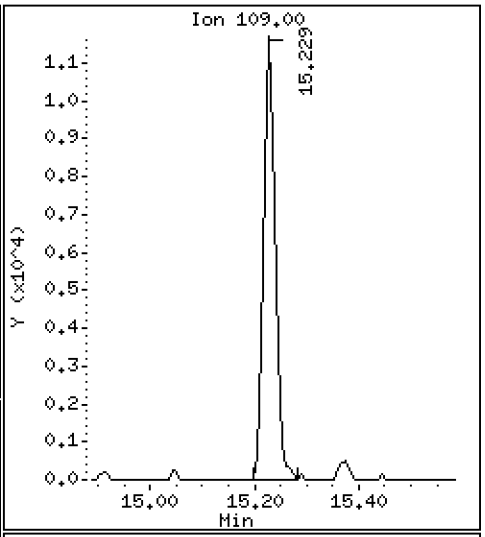
Column phase: ZB-5msi

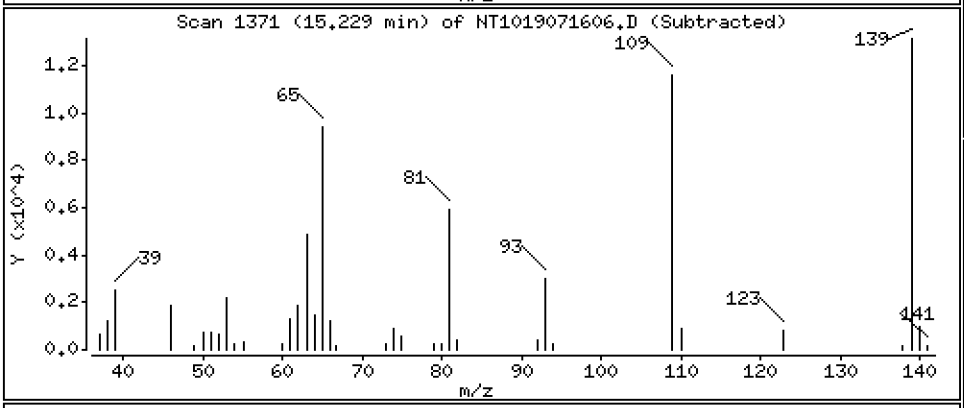
Column diameter: 0.25

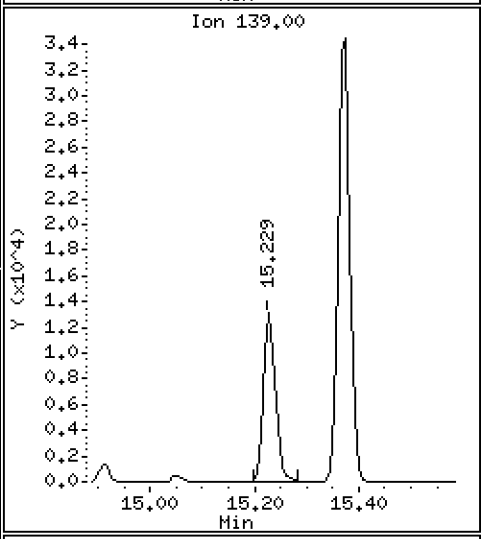
47 4-Nitrophenol

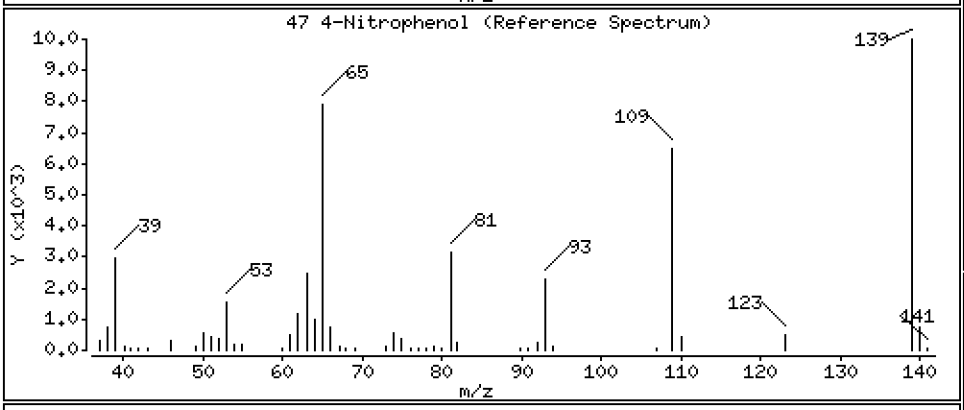
Concentration: 4.836 ug/mL

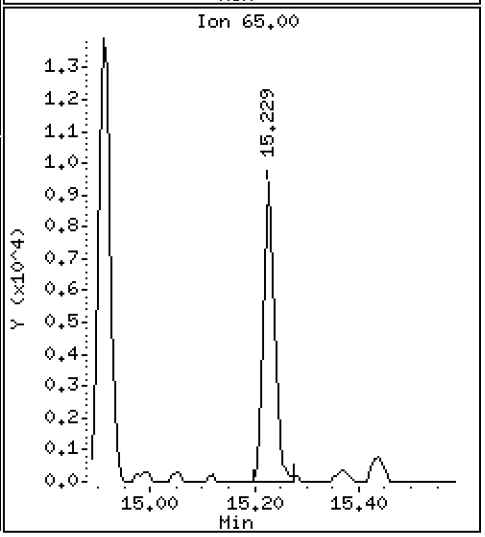


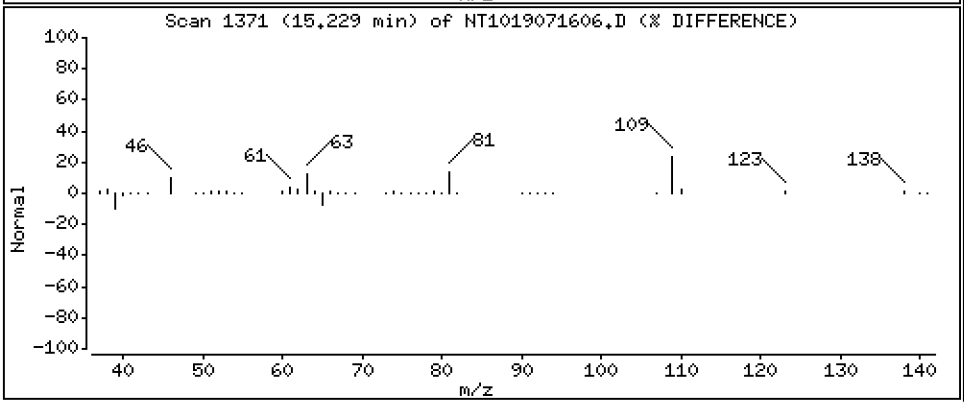












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

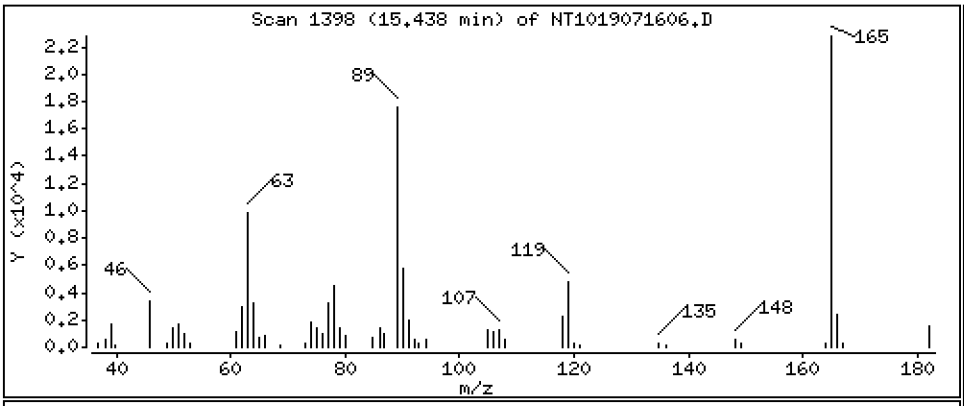
Operator: YZ

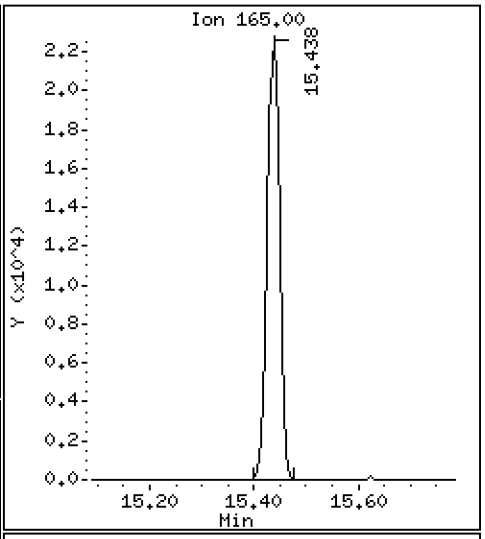
Column phase: ZB-5msi

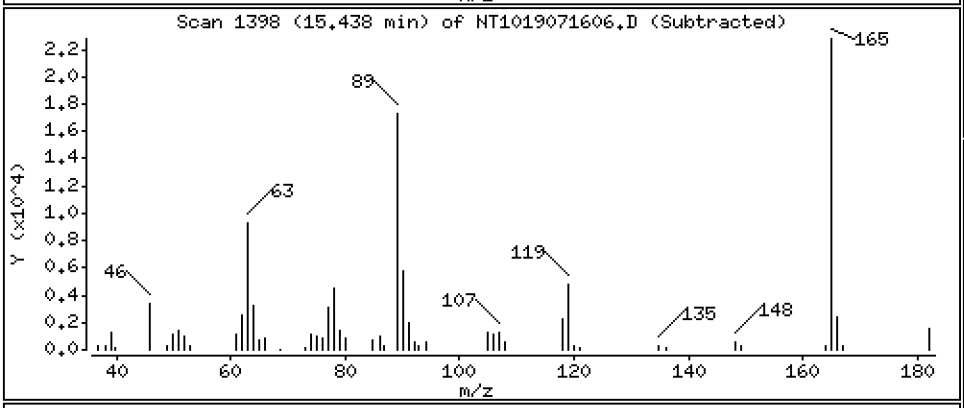
Column diameter: 0.25

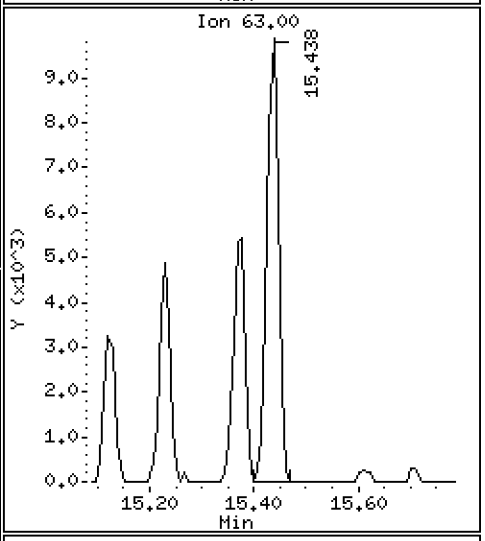
48 2,4-Dinitrotoluene

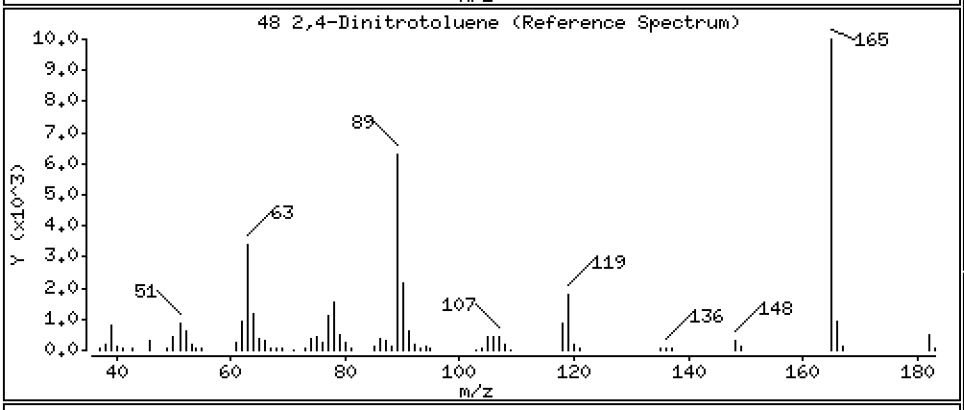
Concentration: 5.340 ug/mL

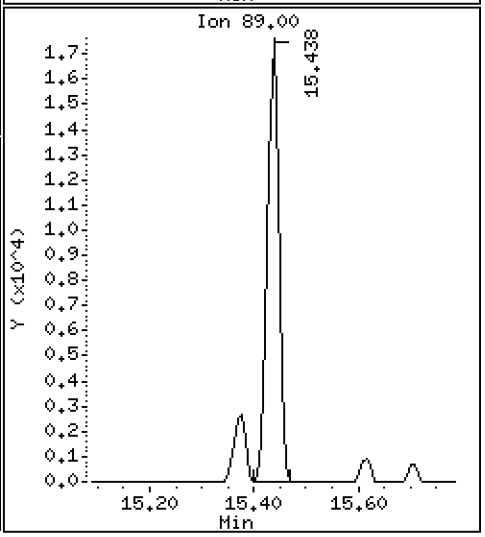


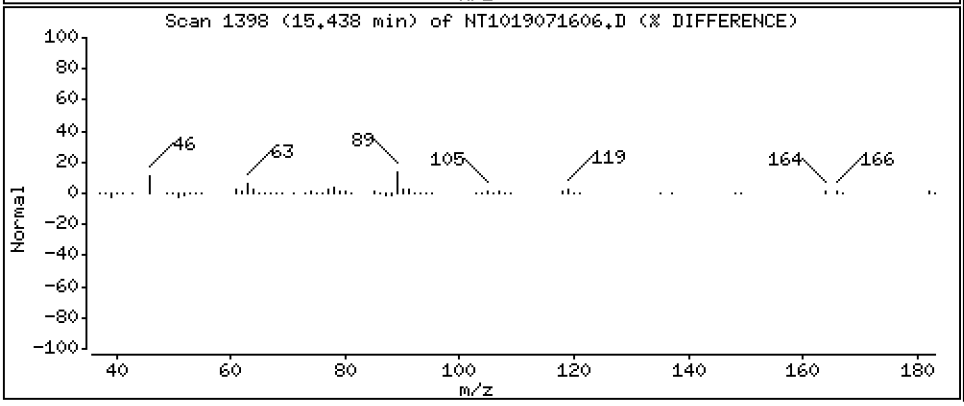












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

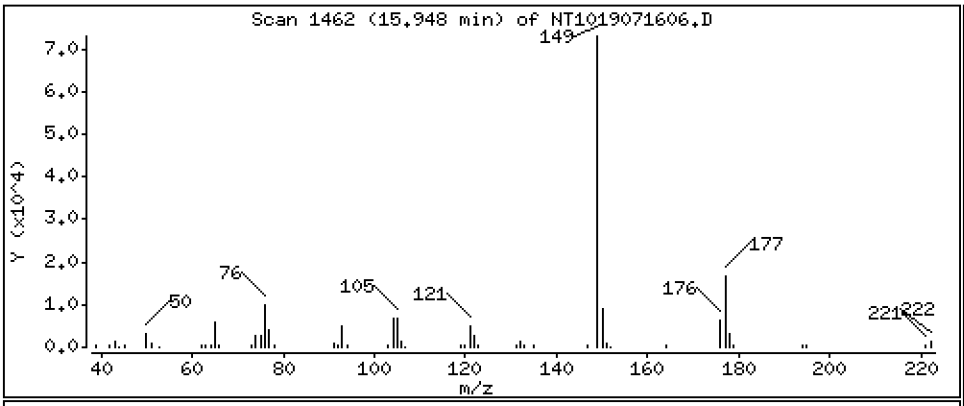
Operator: YZ

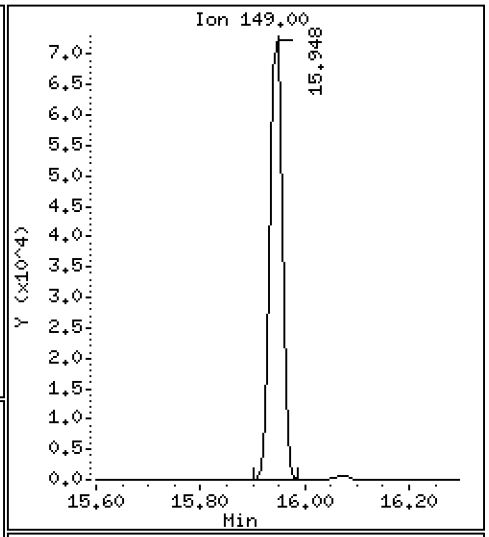
Column phase: ZB-5msi

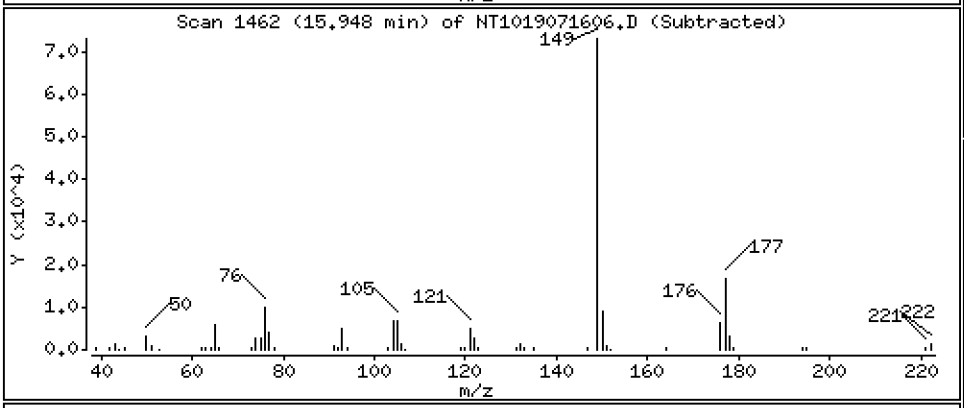
Column diameter: 0.25

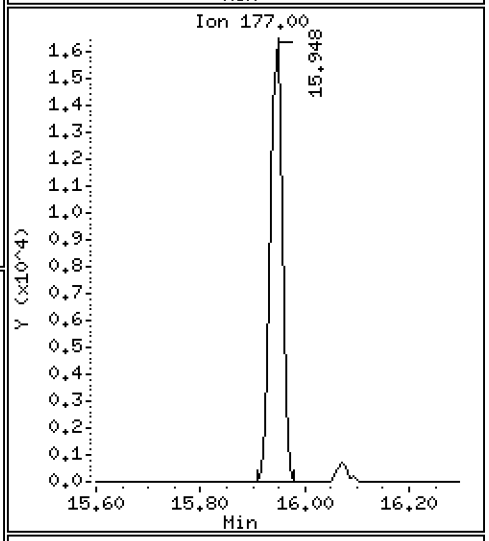
50 Diethylphthalate

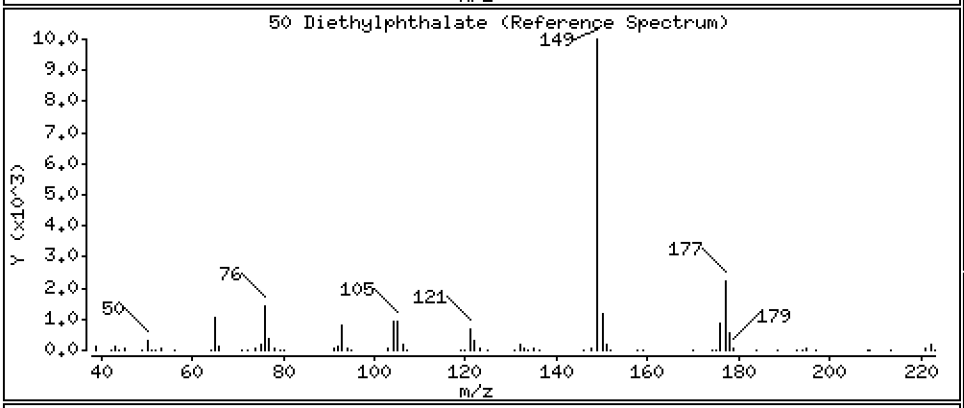
Concentration: 5.335 ug/mL

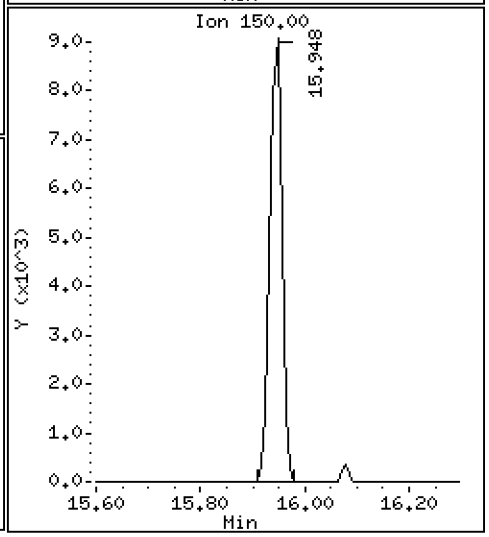


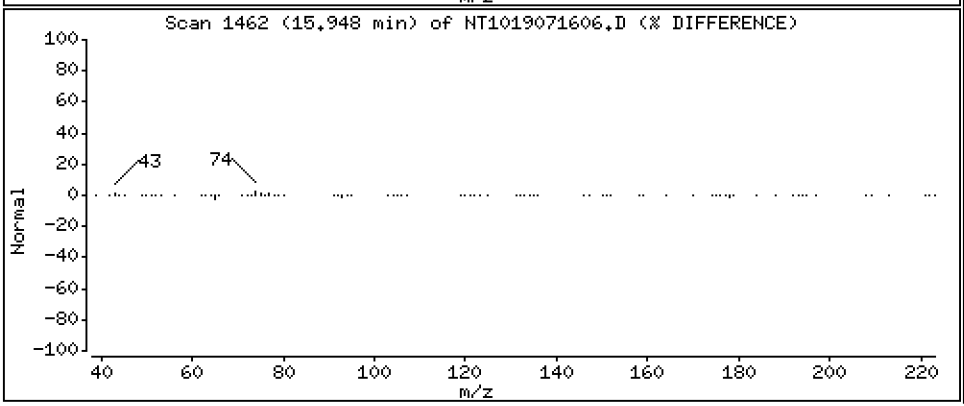












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

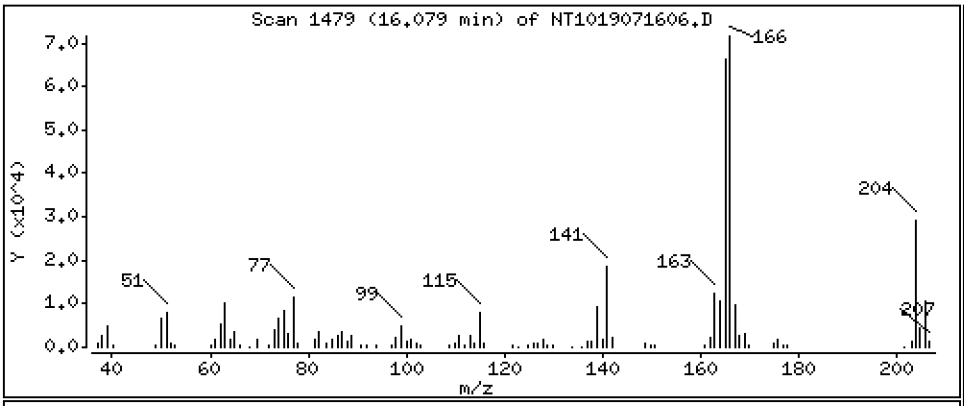
Operator: YZ

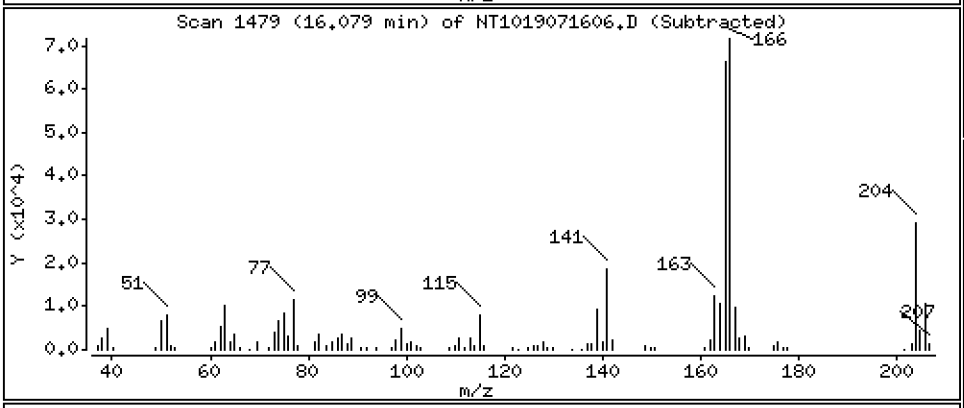
Column phase: ZB-5msi

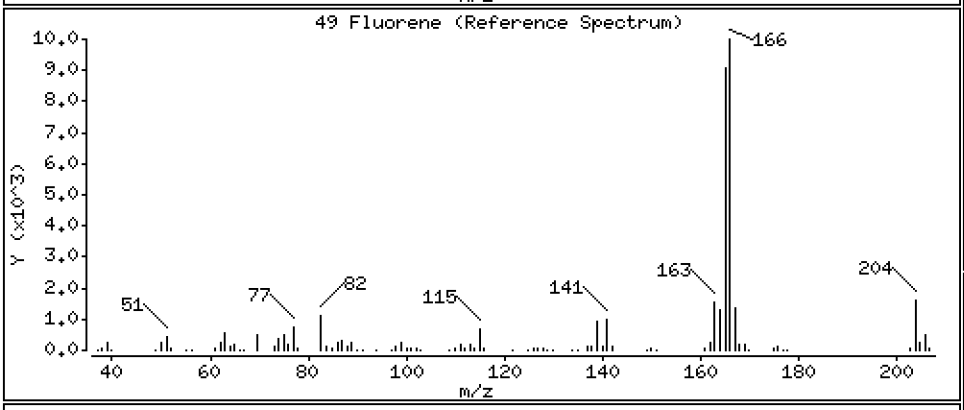
Column diameter: 0.25

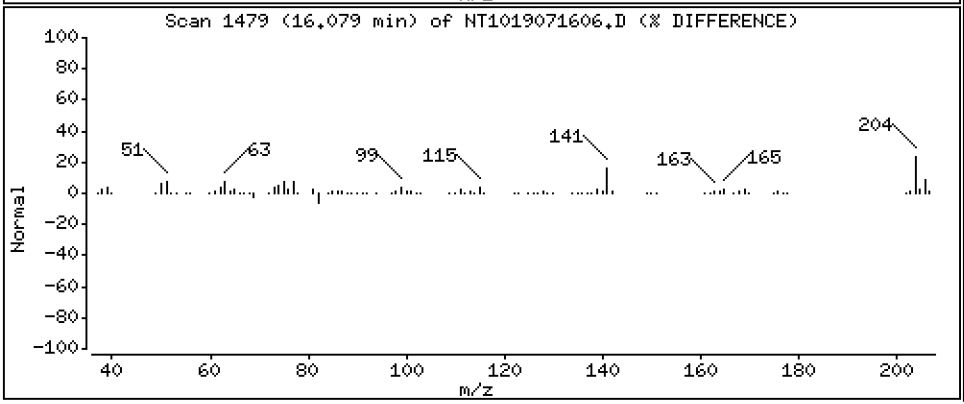
49 Fluorene

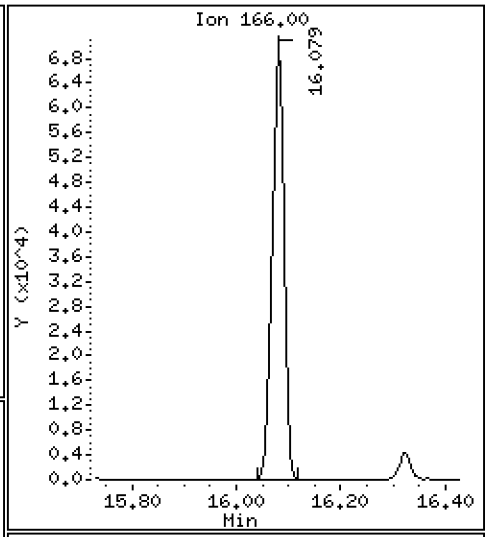
Concentration: 5.326 ug/mL

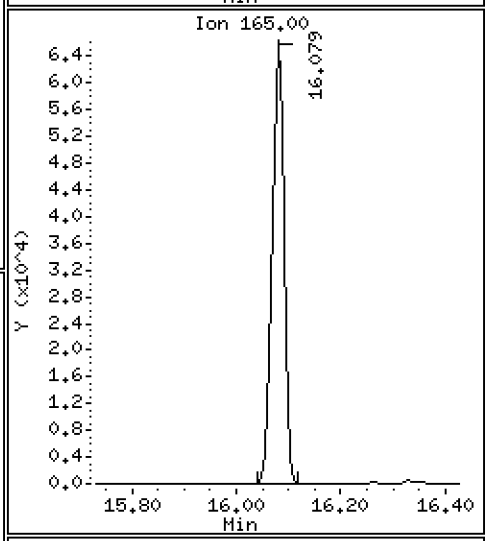


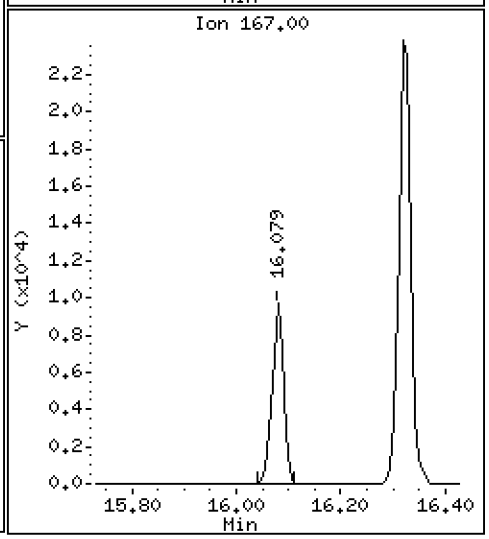












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

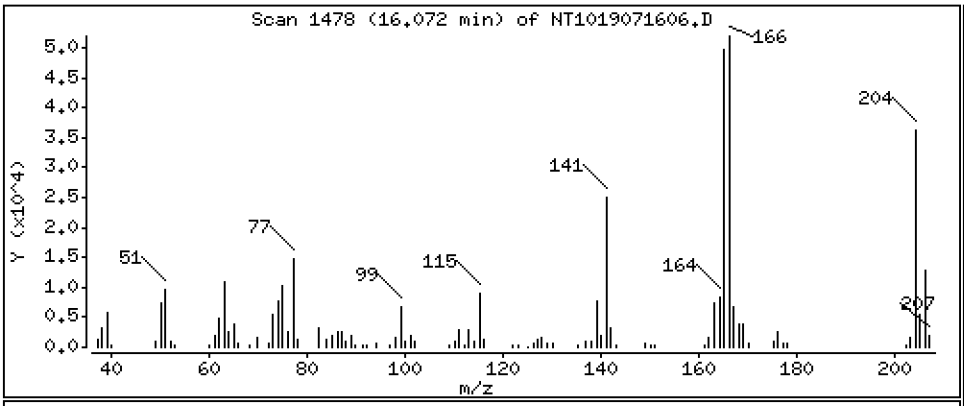
Operator: YZ

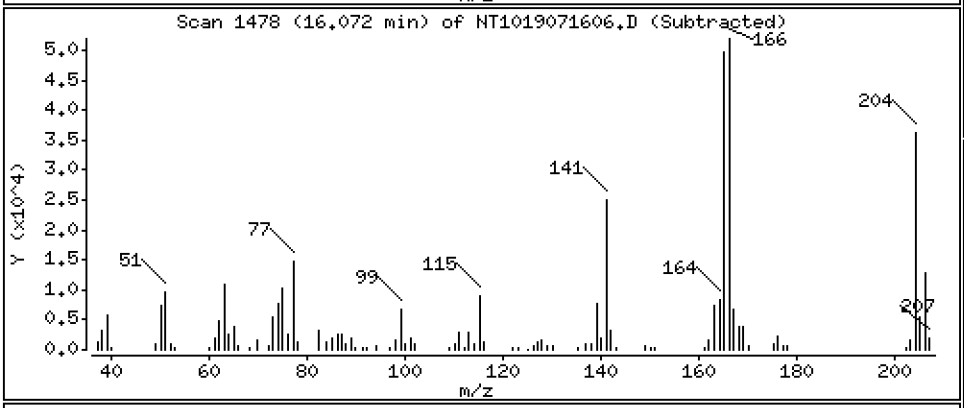
Column phase: ZB-5msi

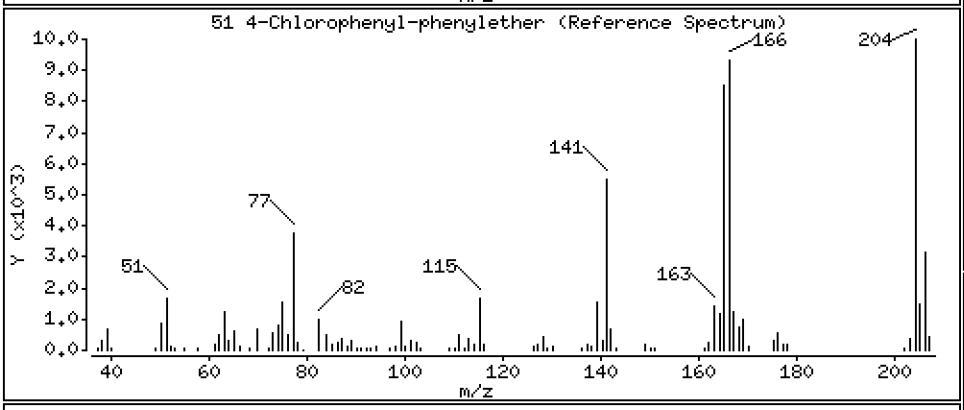
Column diameter: 0.25

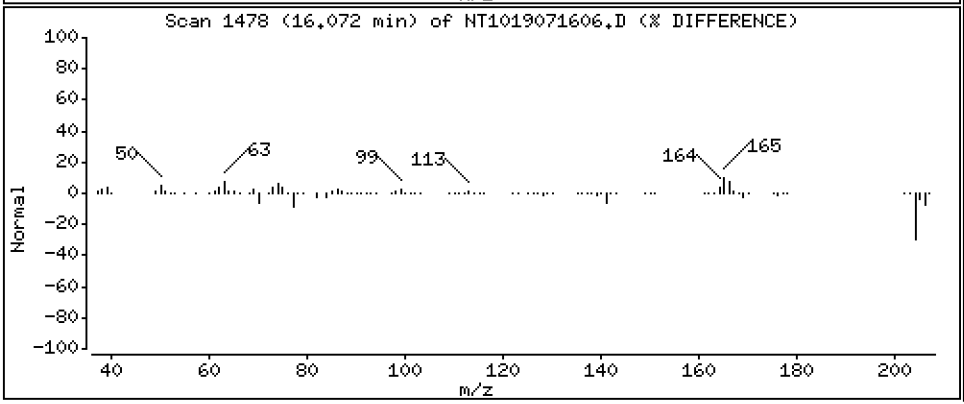
51 4-Chlorophenyl-phenylether

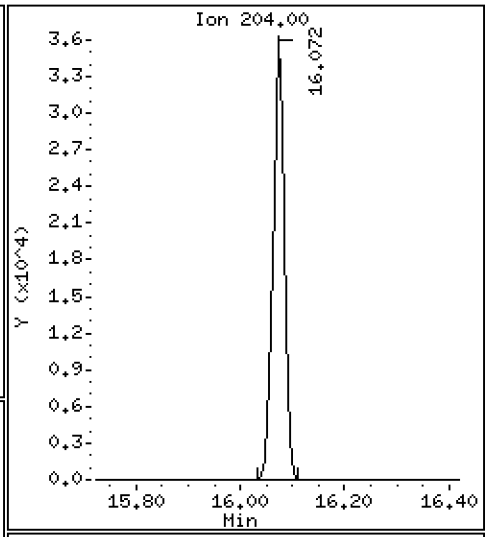
Concentration: 5.082 ug/mL

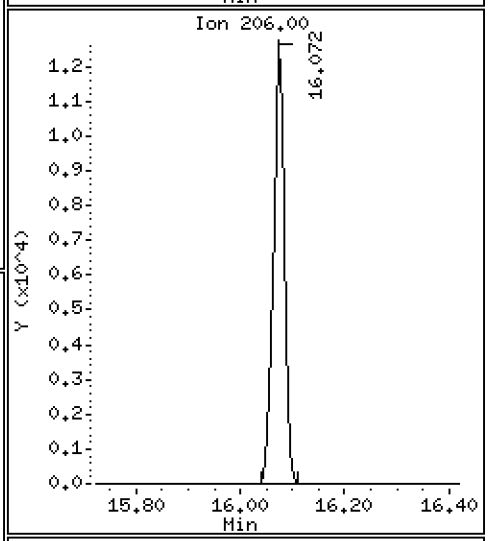


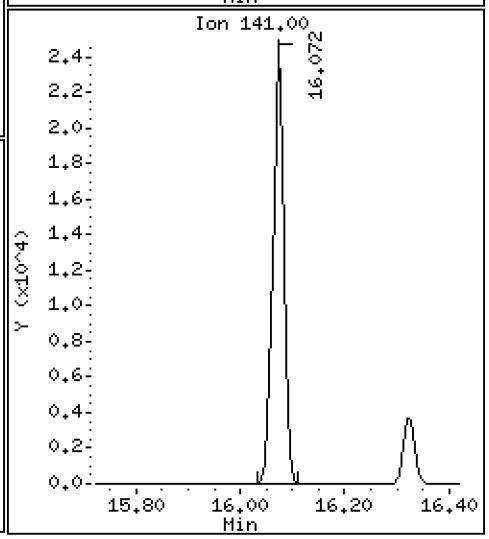












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

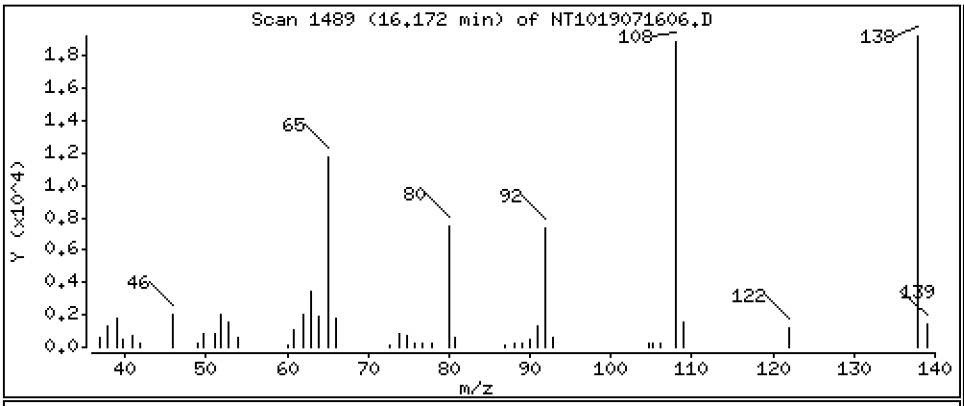
Operator: YZ

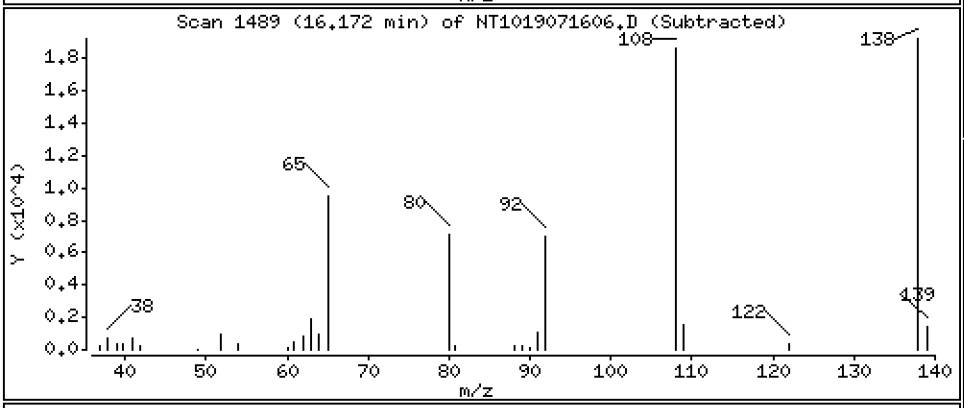
Column phase: ZB-5msi

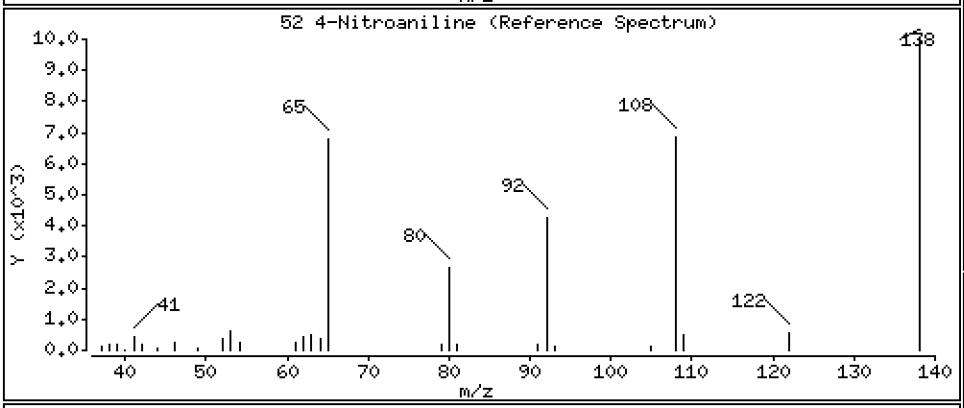
Column diameter: 0.25

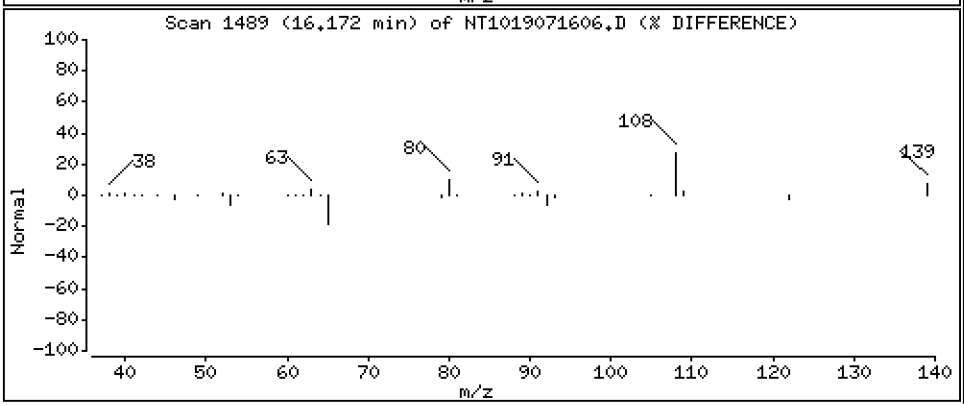
52 4-Nitroaniline

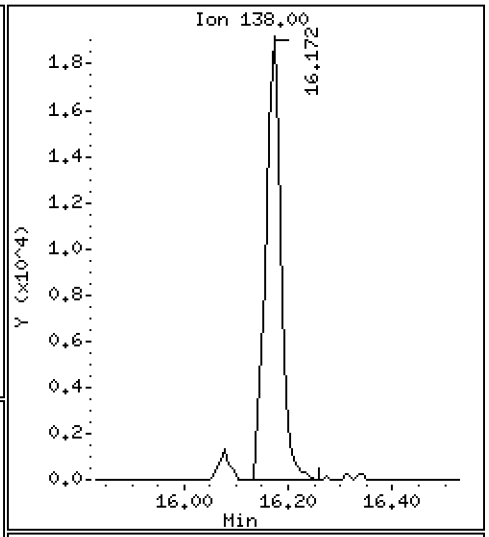
Concentration: 6.018 ug/mL

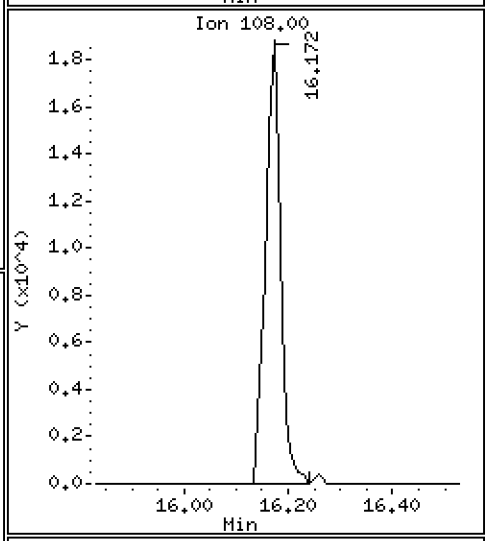


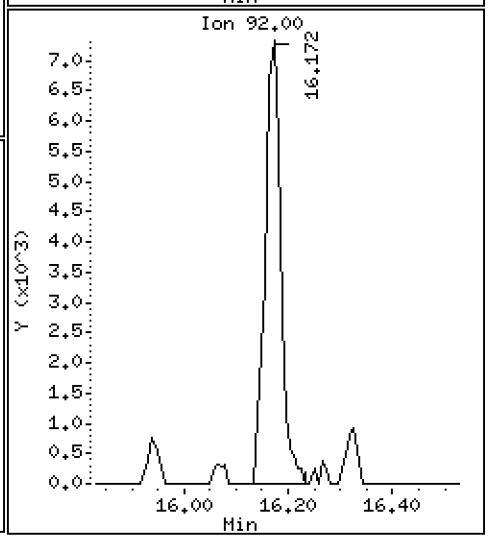












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

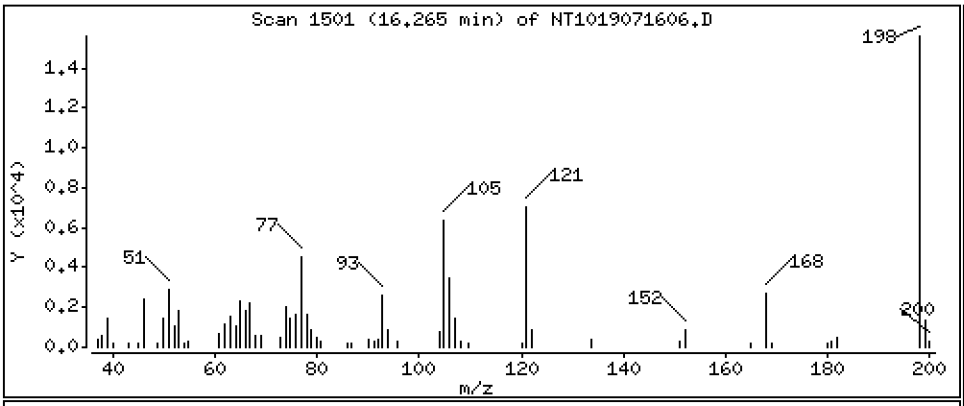
Operator: YZ

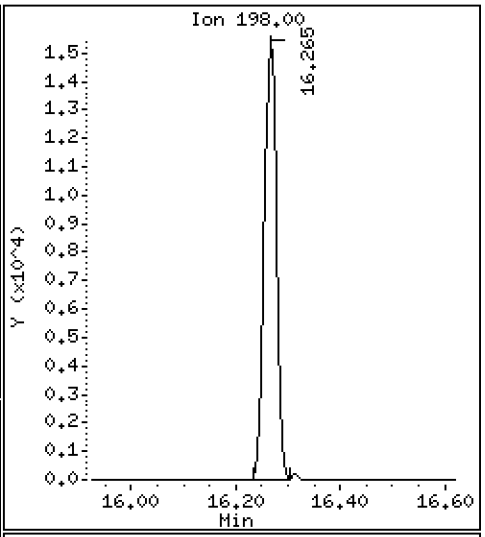
Column phase: ZB-5msi

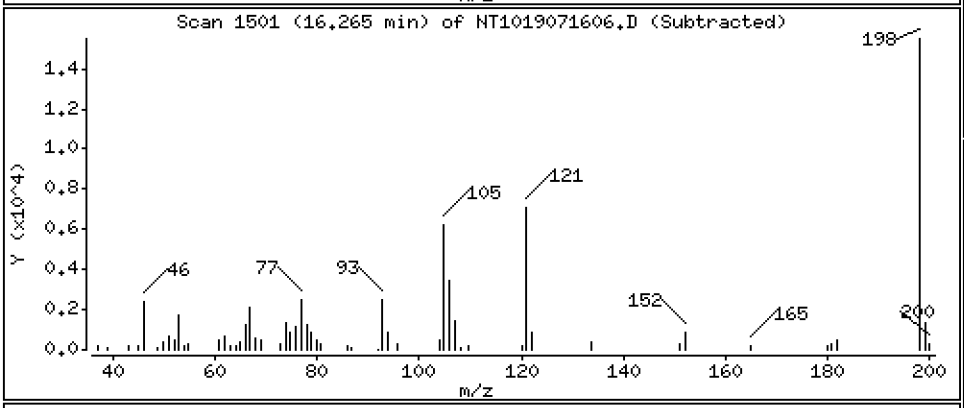
Column diameter: 0.25

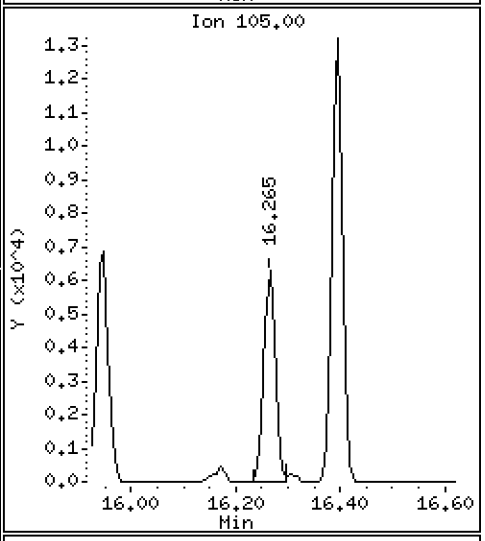
53 4,6-Dinitro-2-methylphenol

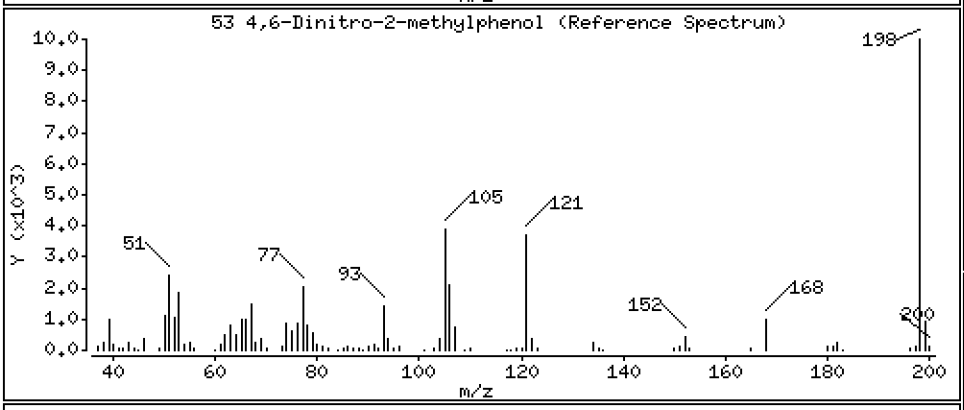
Concentration: 4.246 ug/mL

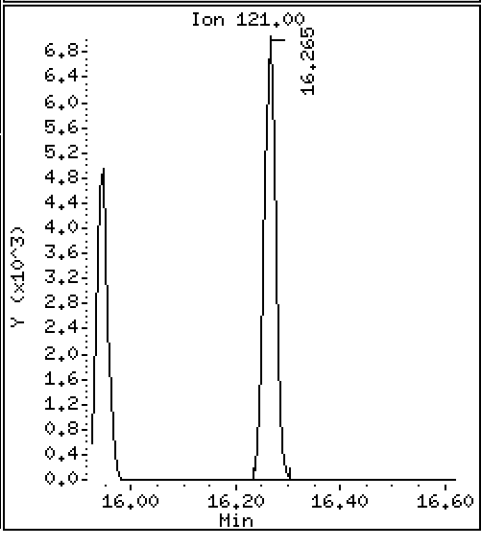


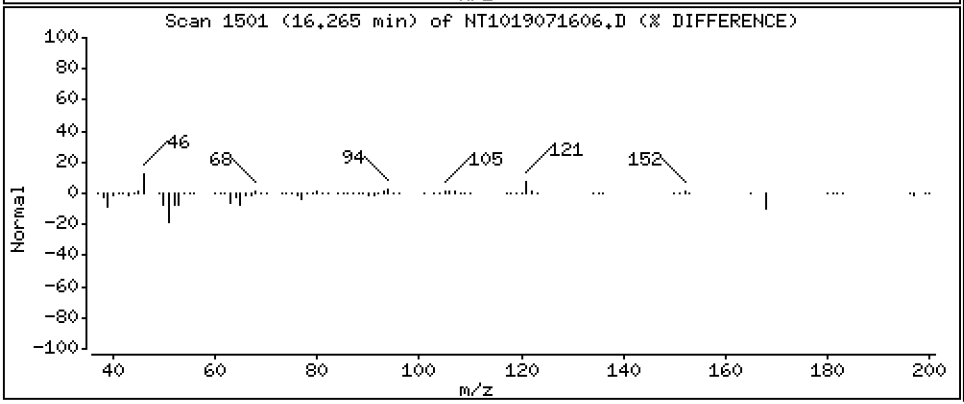












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

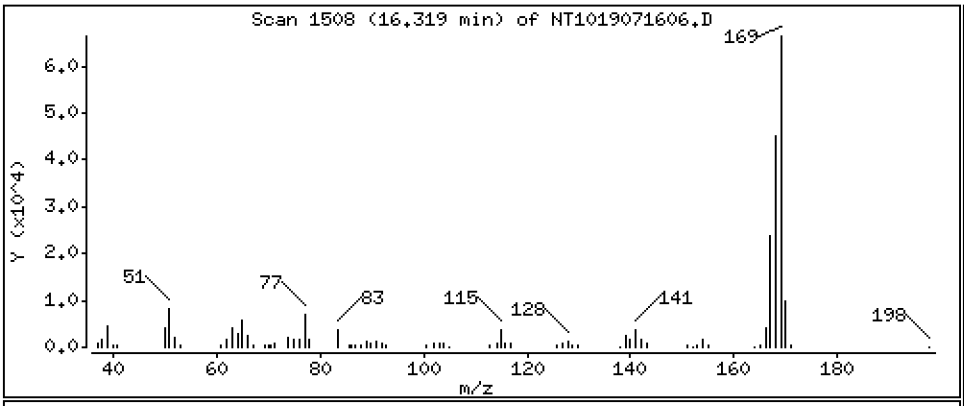
Operator: YZ

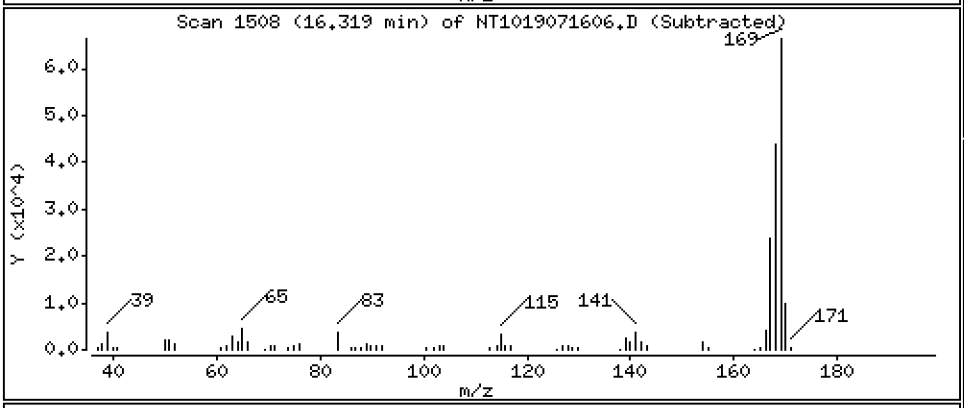
Column phase: ZB-5msi

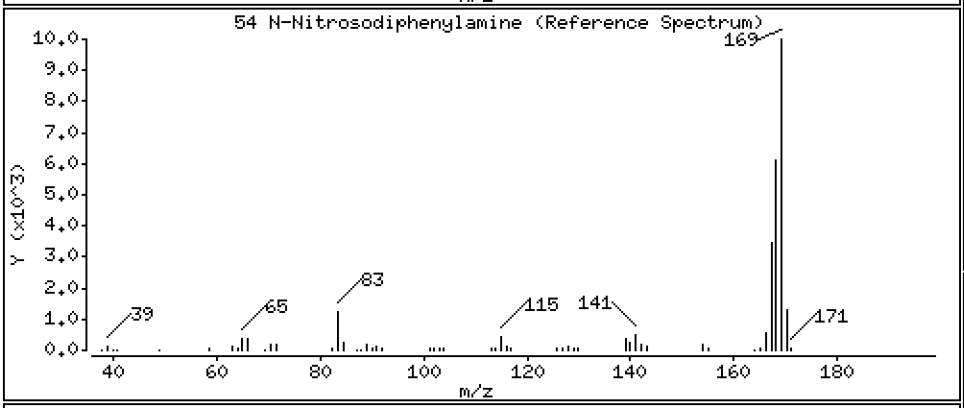
Column diameter: 0.25

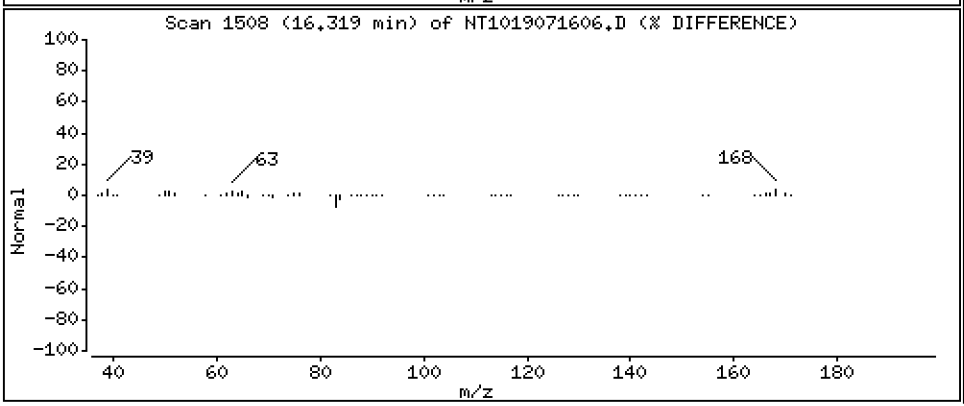
54 N-Nitrosodiphenylamine

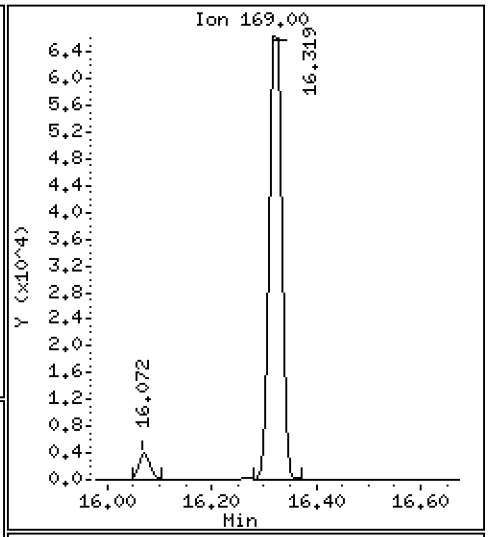
Concentration: 6.687 ug/mL

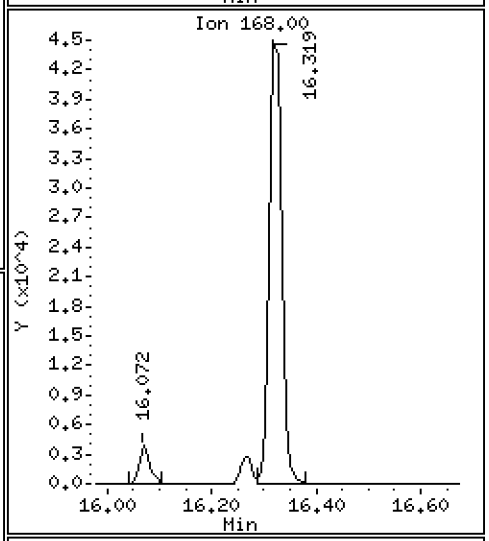


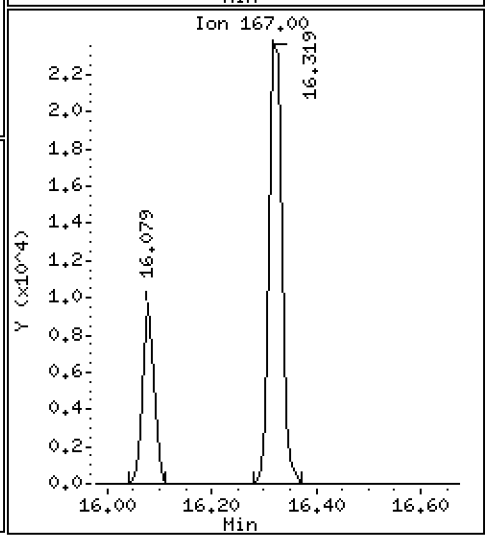












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

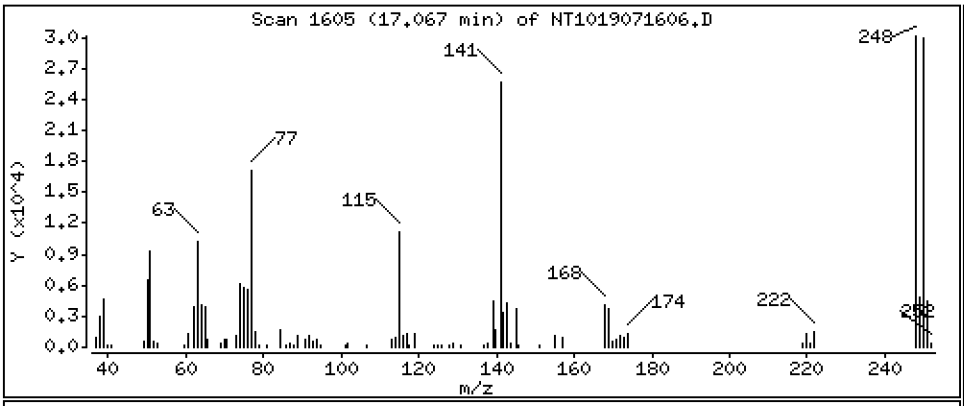
Operator: YZ

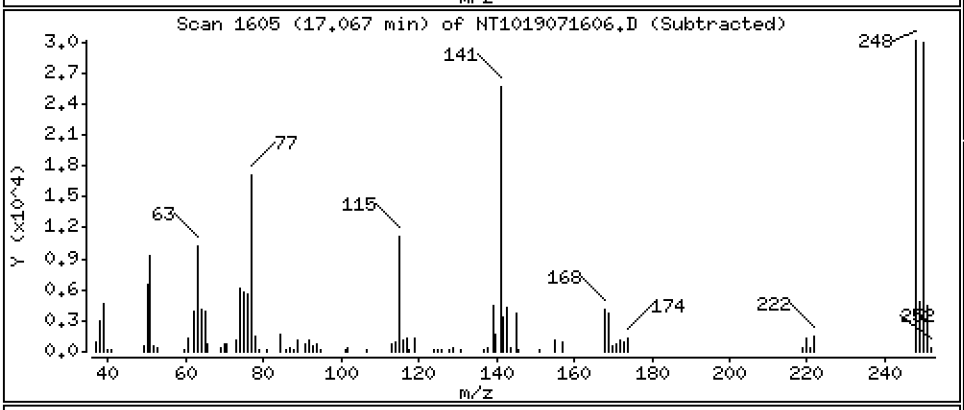
Column phase: ZB-5msi

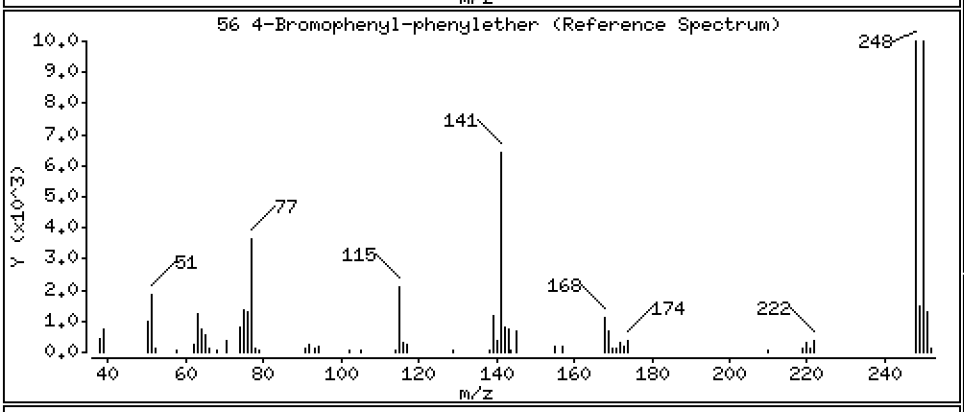
Column diameter: 0.25

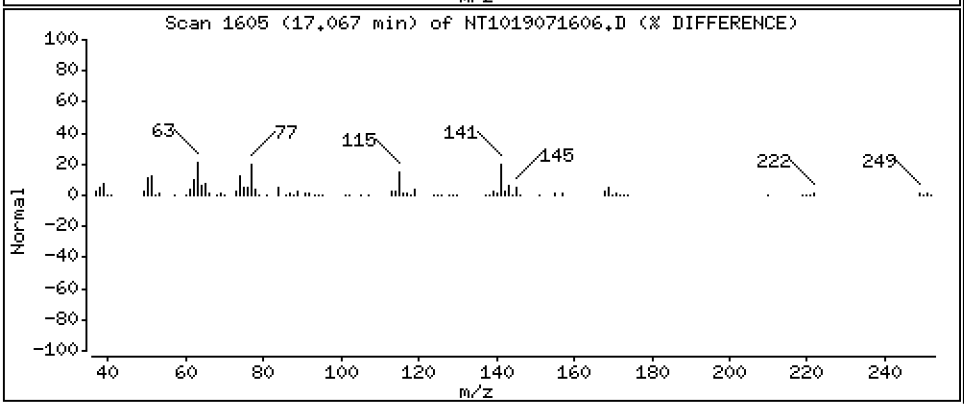
56 4-Bromophenyl-phenylether

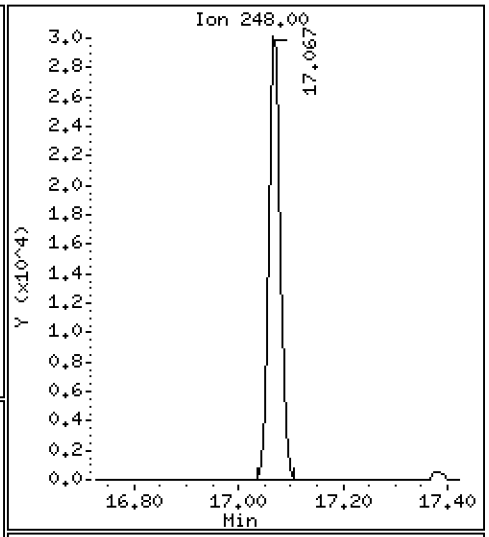
Concentration: 5.142 ug/mL

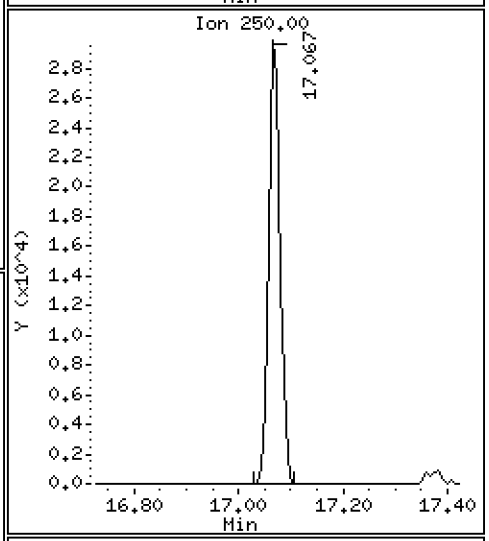


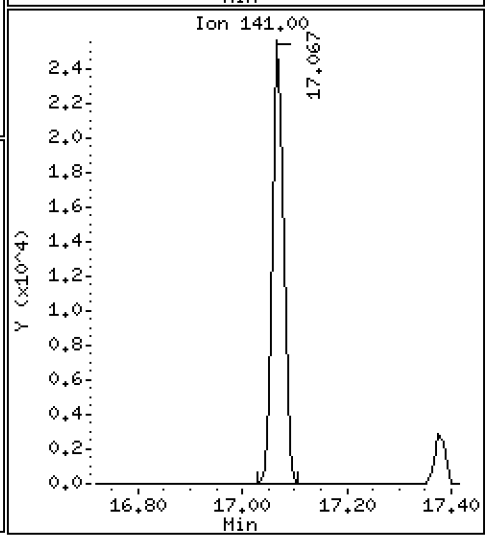












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

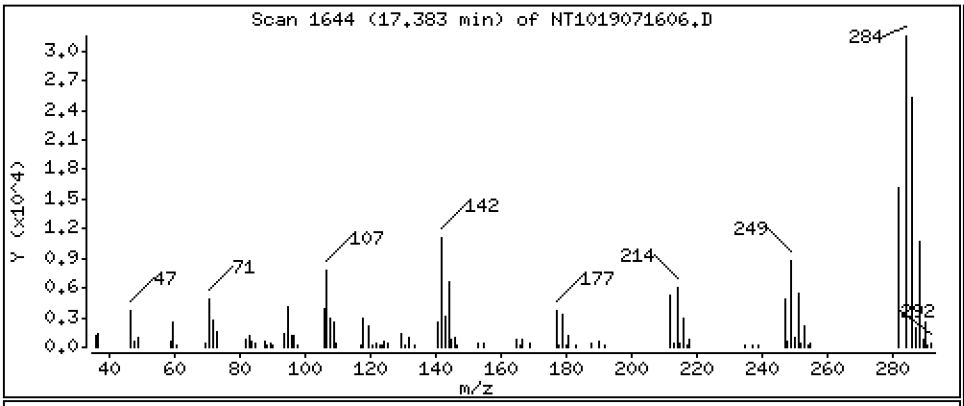
Operator: YZ

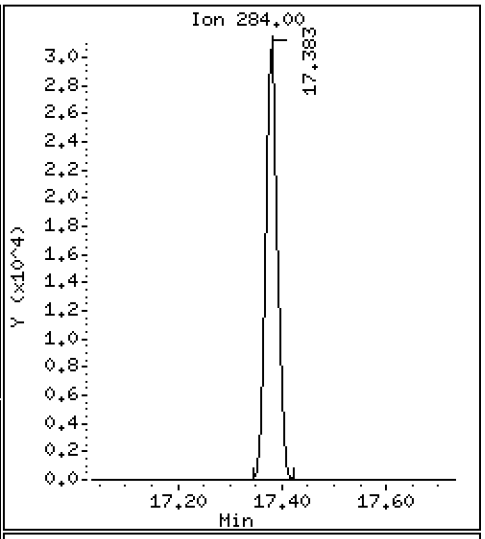
Column phase: ZB-5msi

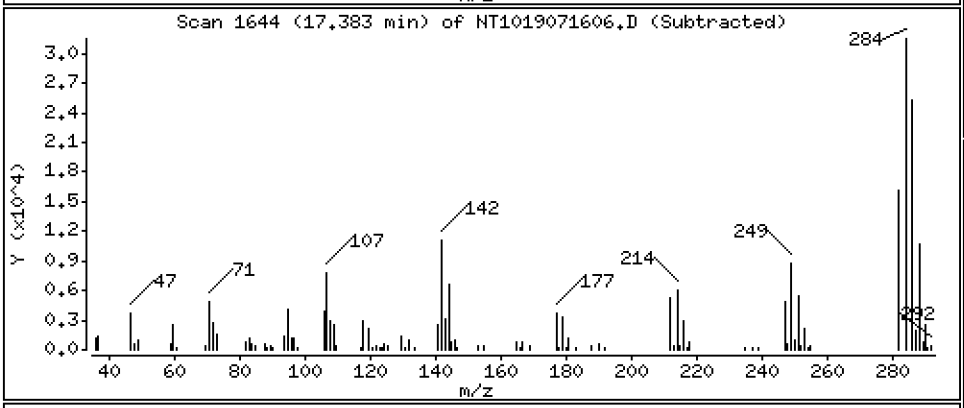
Column diameter: 0.25

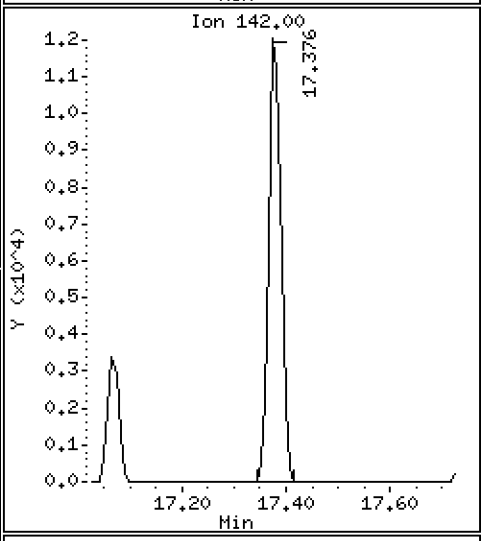
57 Hexachlorobenzene

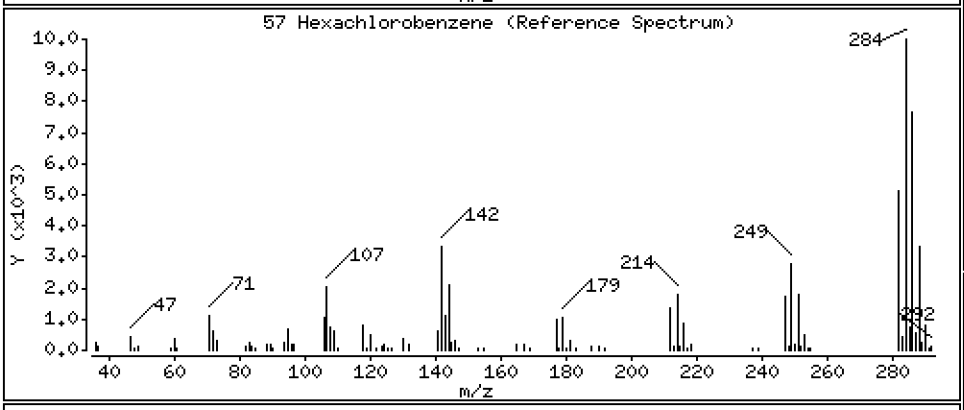
Concentration: 5.003 ug/mL

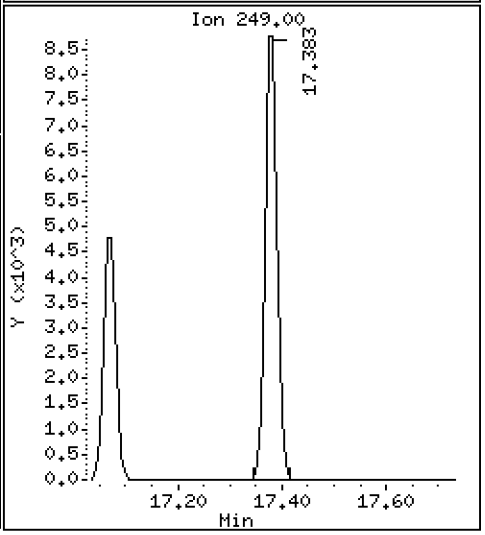


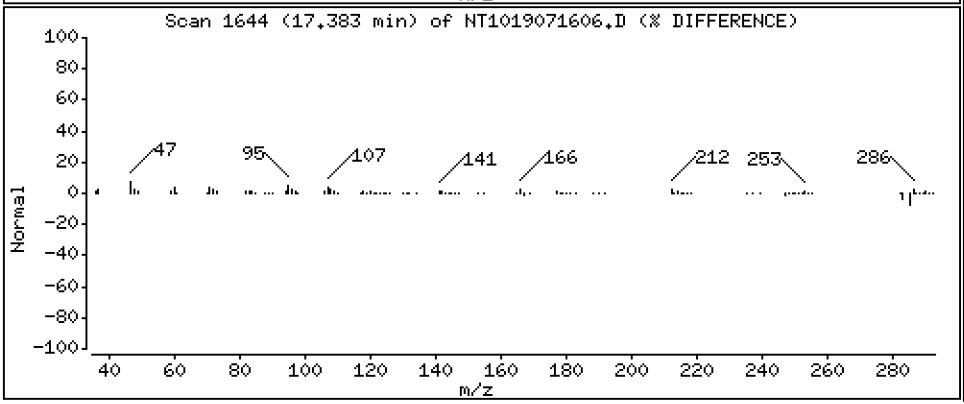












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

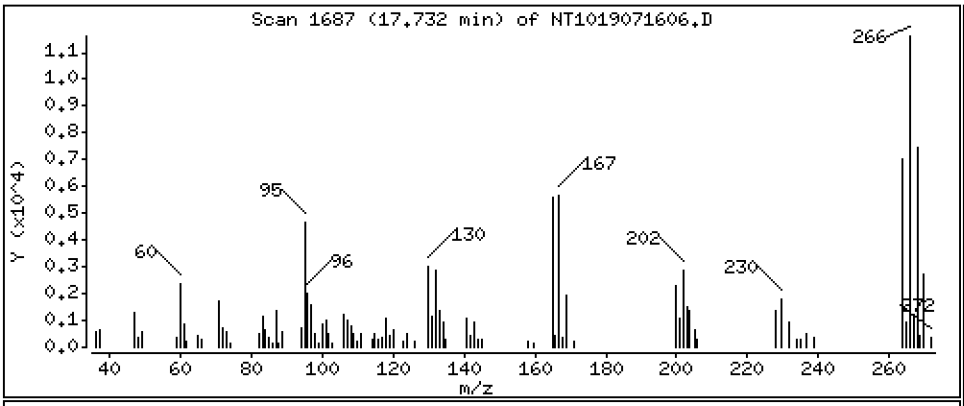
Operator: YZ

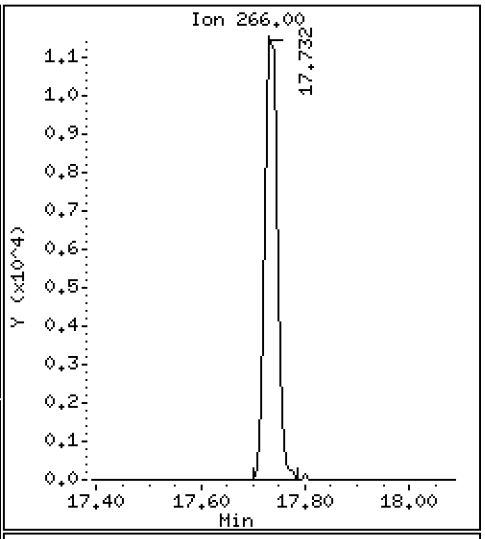
Column phase: ZB-5msi

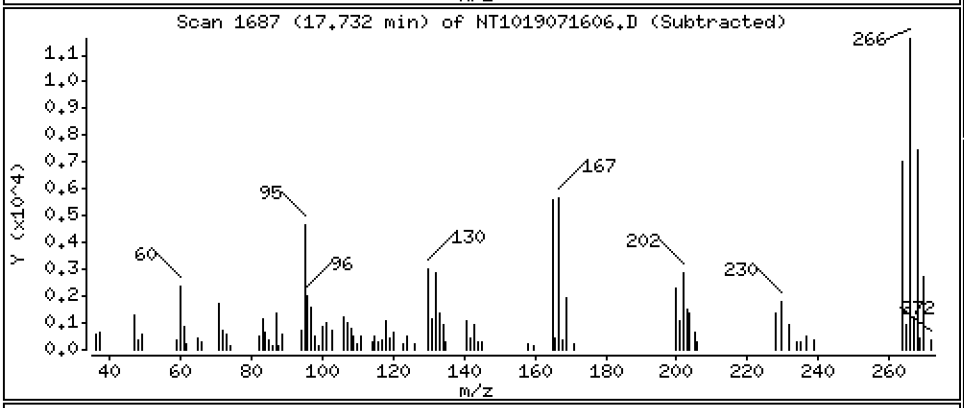
Column diameter: 0.25

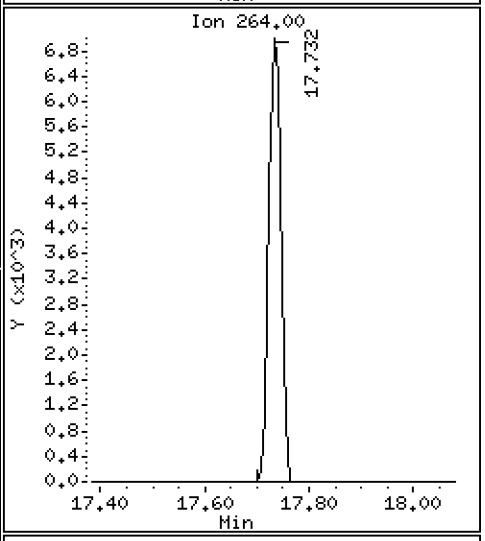
58 Pentachlorophenol

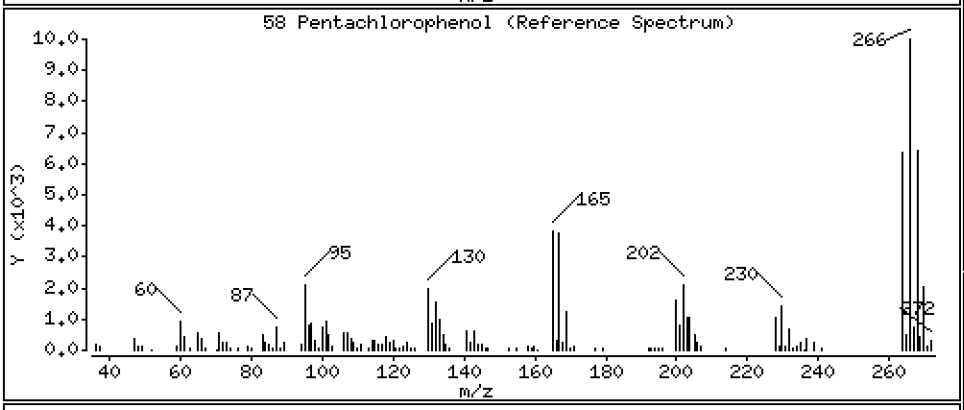
Concentration: 4.491 ug/mL

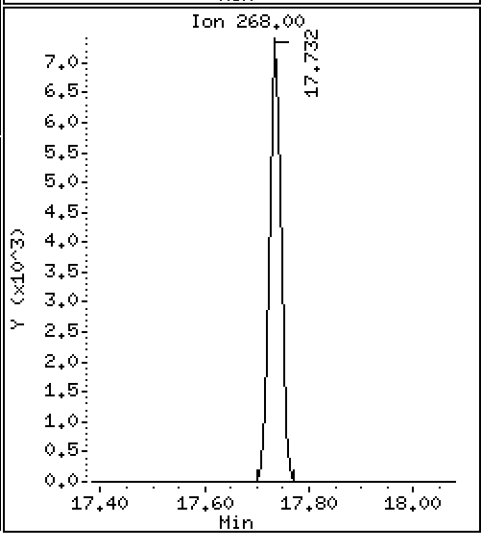


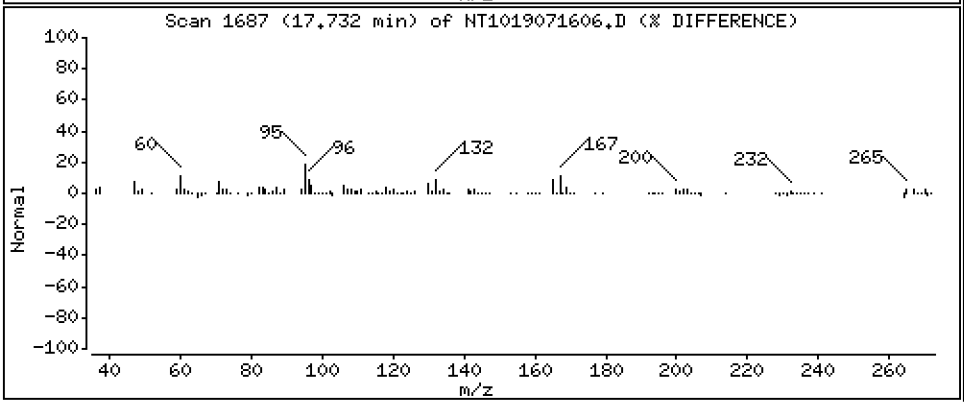












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

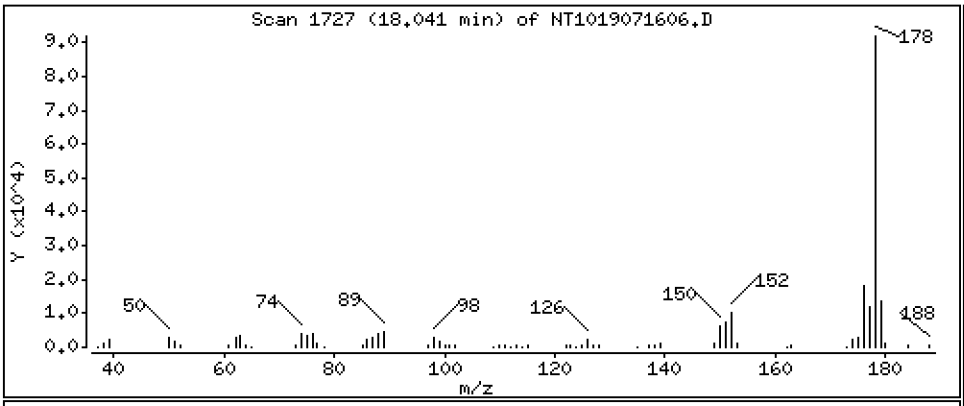
Operator: YZ

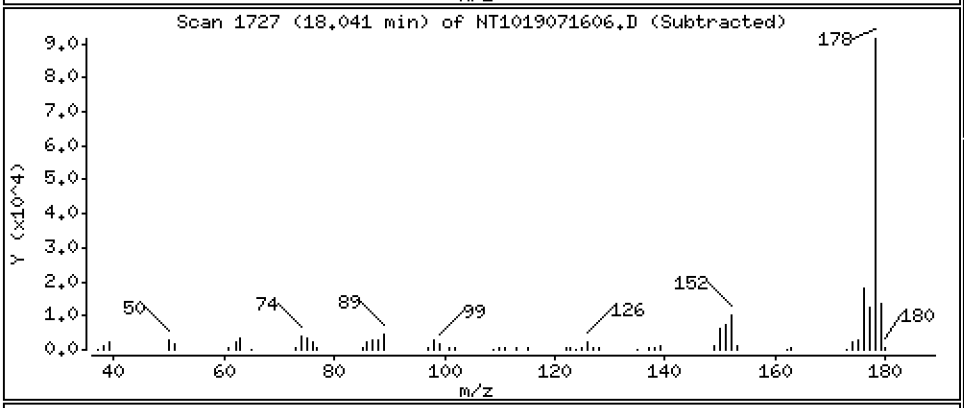
Column phase: ZB-5msi

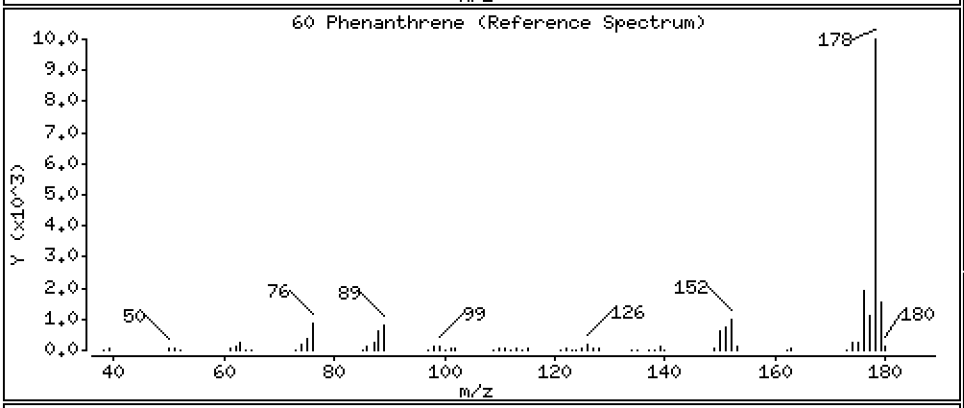
Column diameter: 0.25

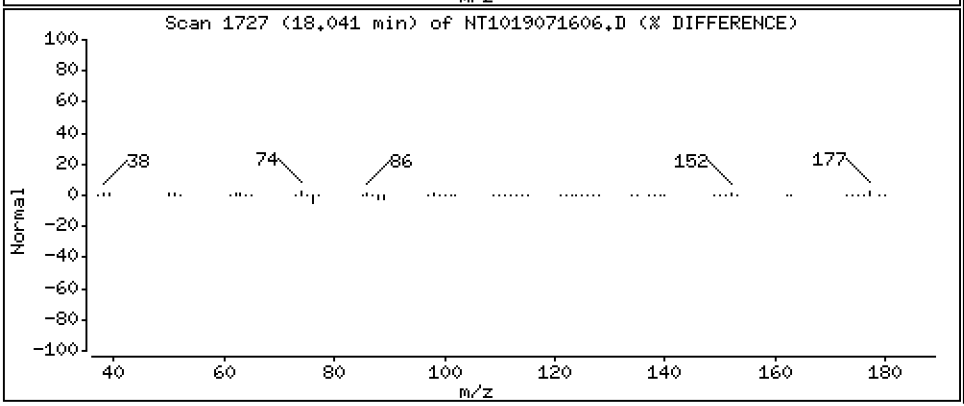
60 Phenanthrene

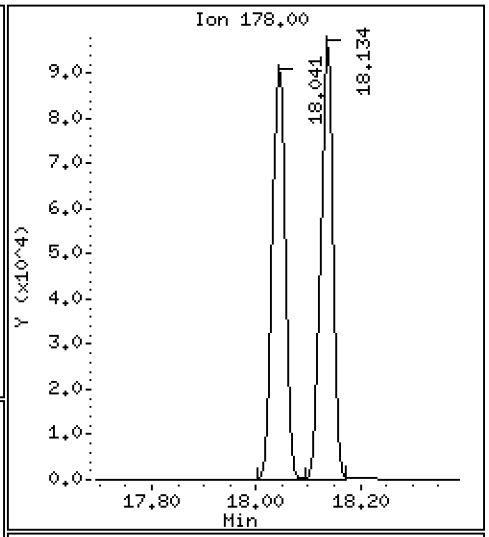
Concentration: 5.512 ug/mL

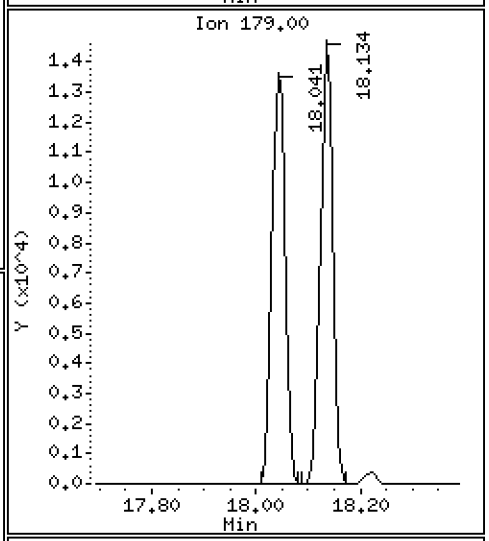


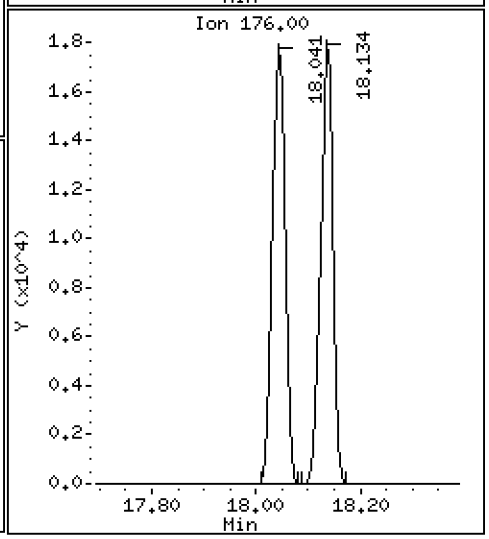












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

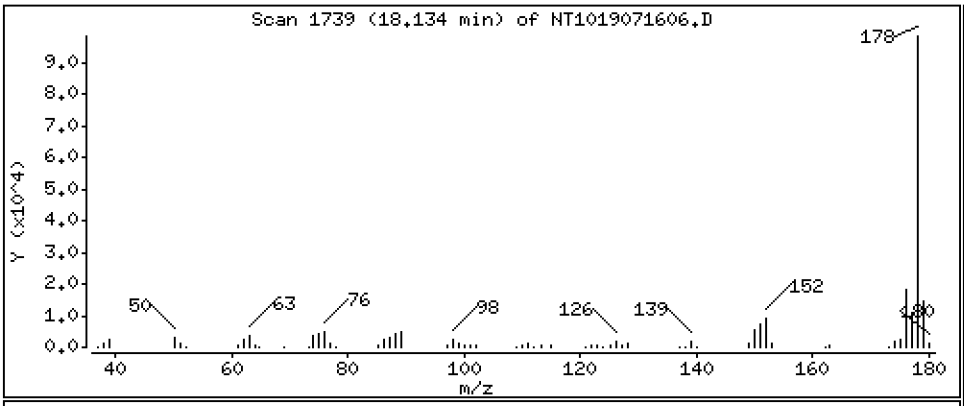
Operator: YZ

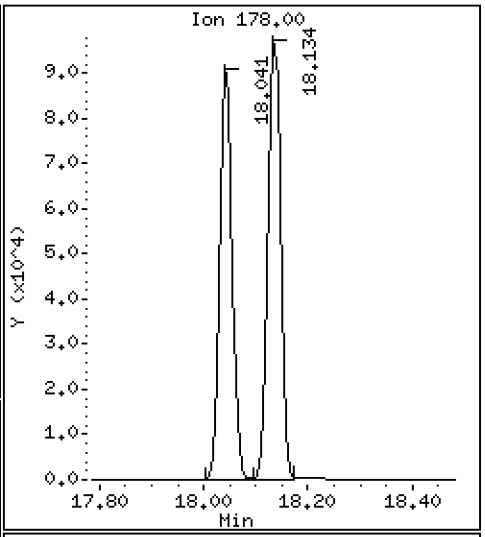
Column phase: ZB-5msi

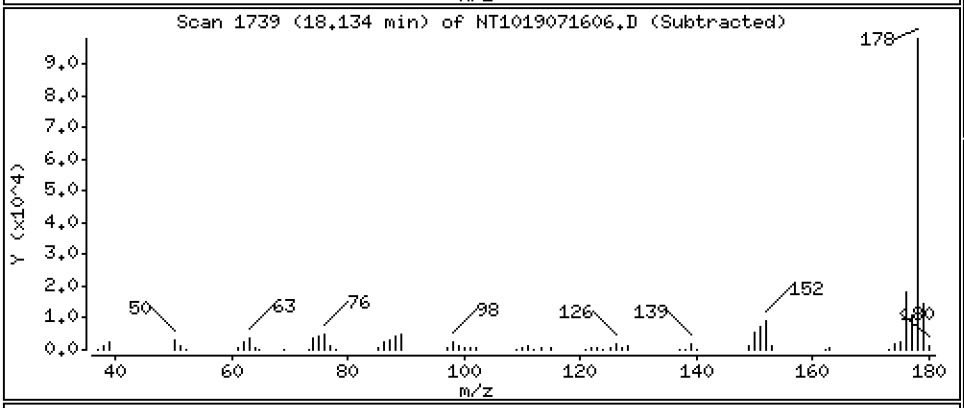
Column diameter: 0.25

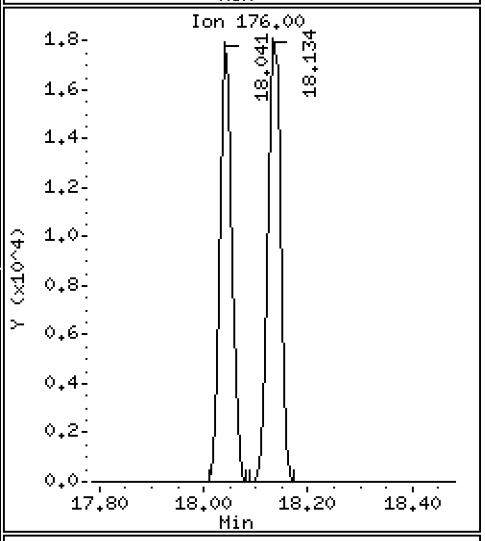
61 Anthracene

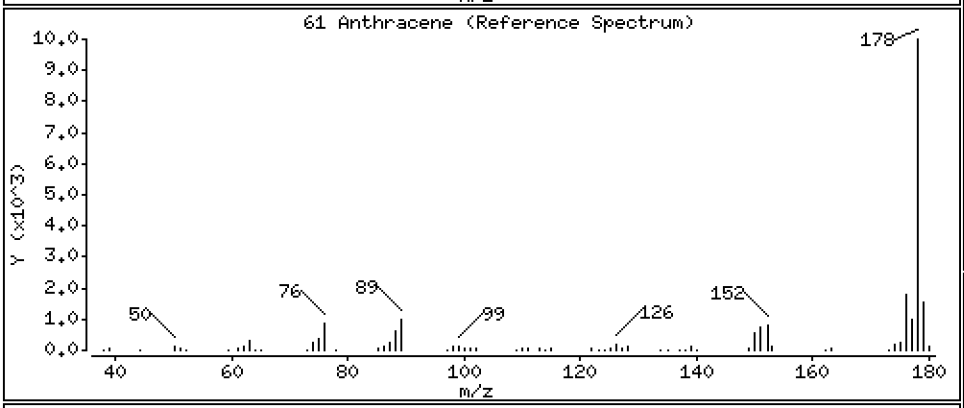
Concentration: 5.600 ug/mL

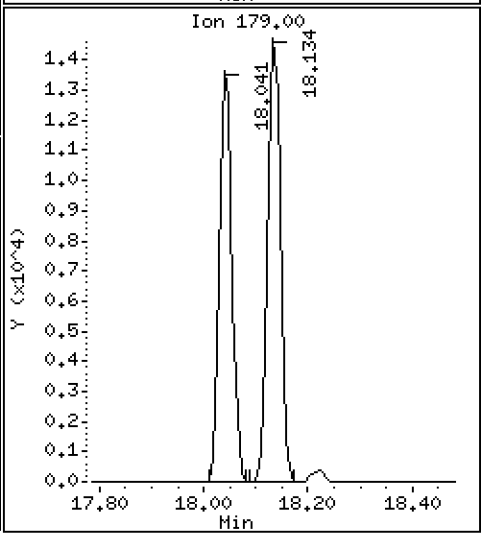


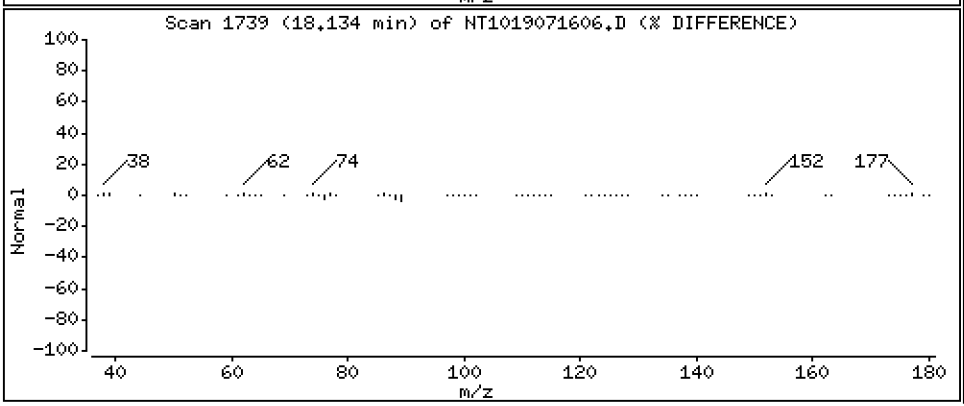












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

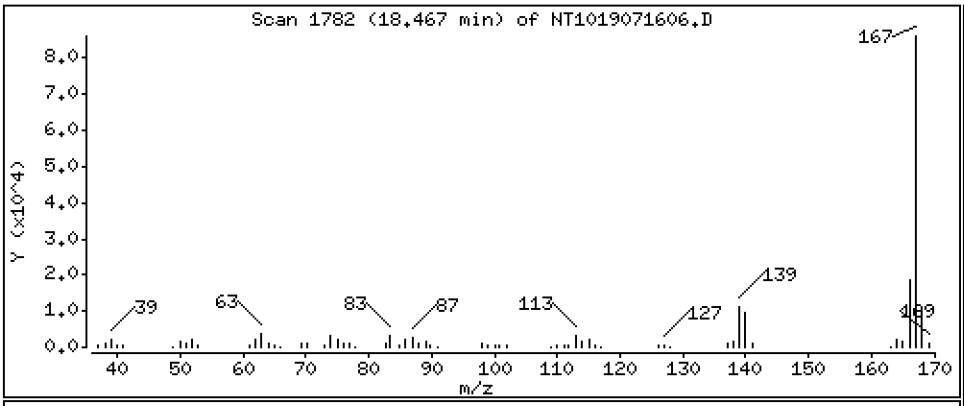
Operator: YZ

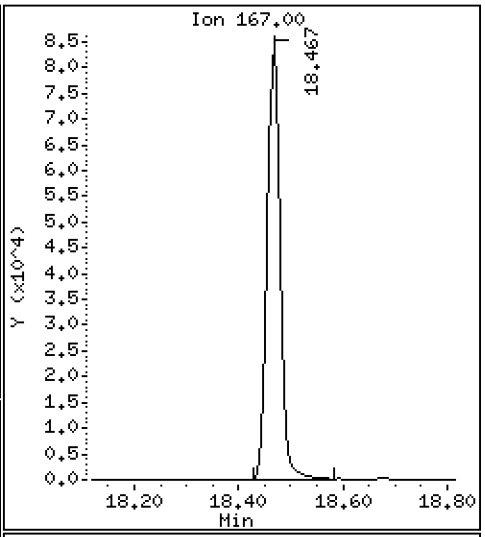
Column phase: ZB-5msi

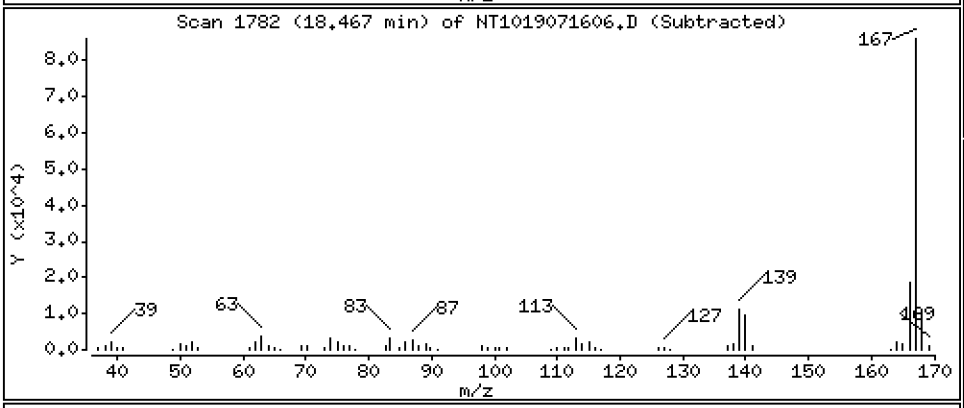
Column diameter: 0.25

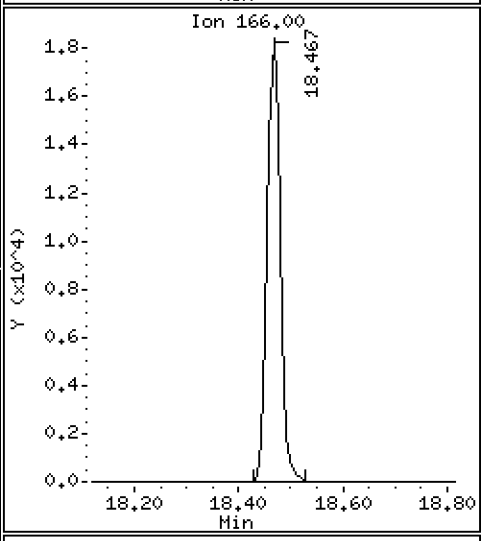
62 Carbazole

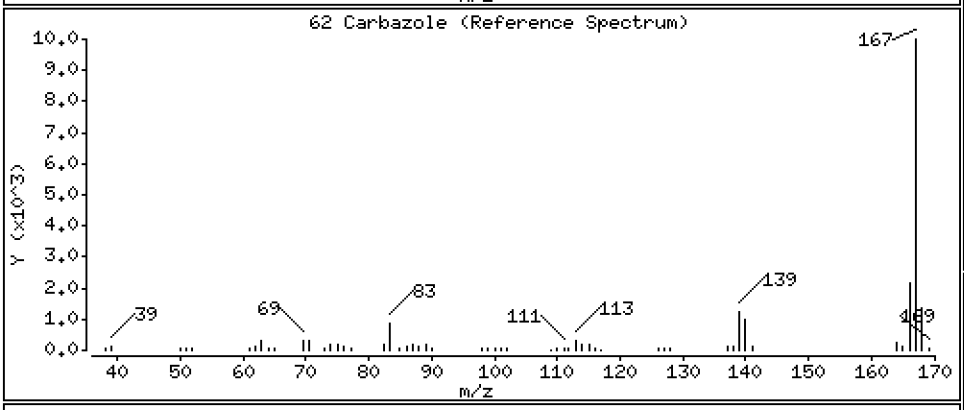
Concentration: 5.294 ug/mL

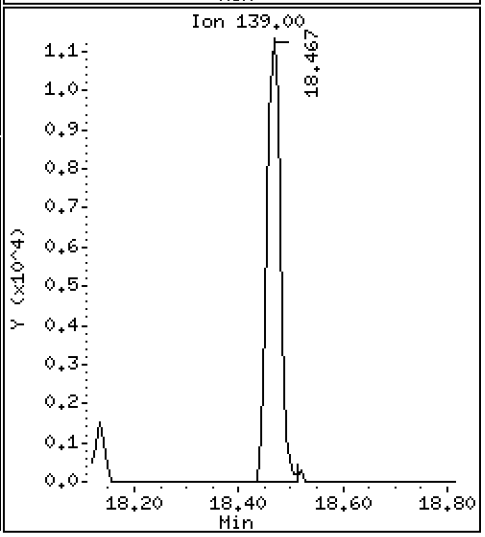


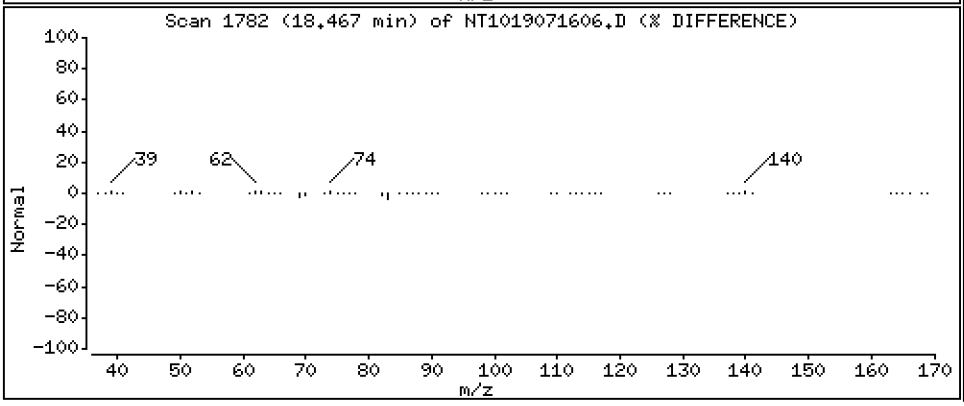












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

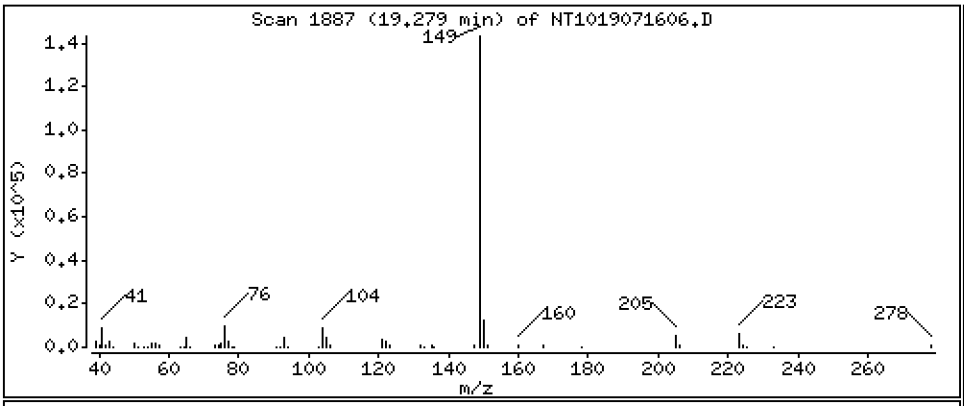
Operator: YZ

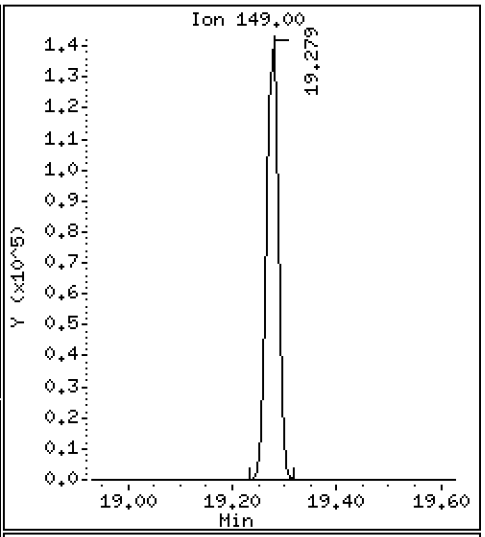
Column phase: ZB-5msi

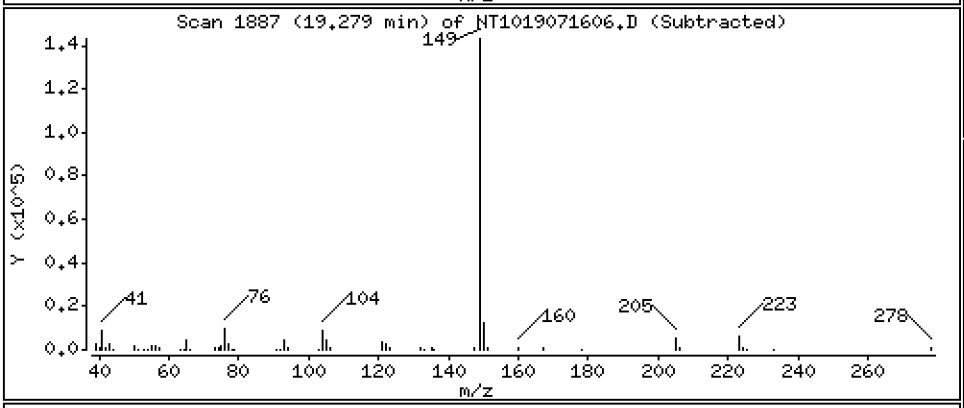
Column diameter: 0.25

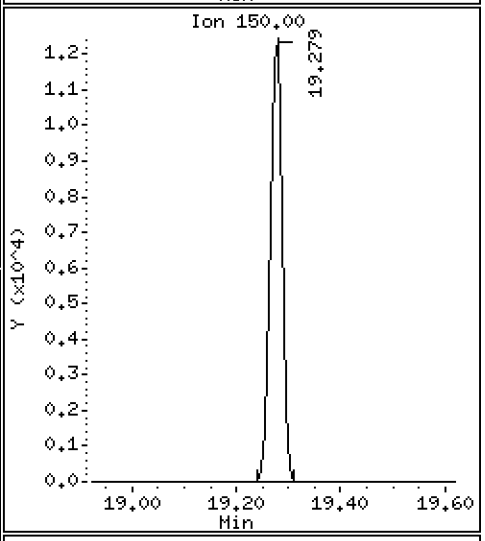
63 Di-n-butylphthalate

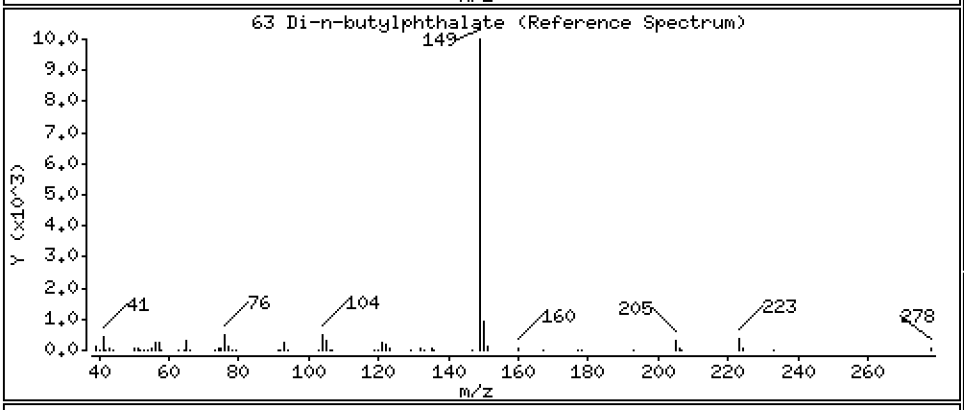
Concentration: 5.504 ug/mL

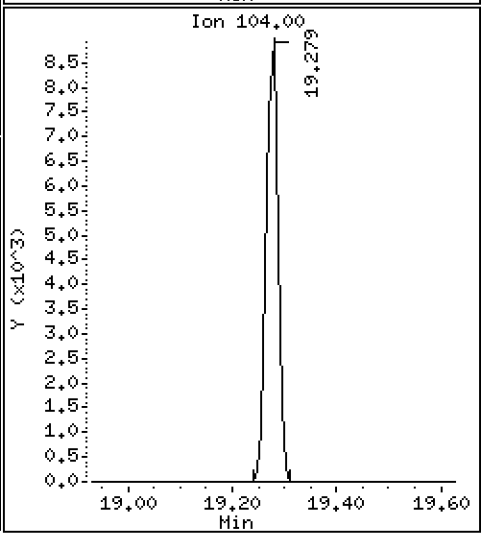


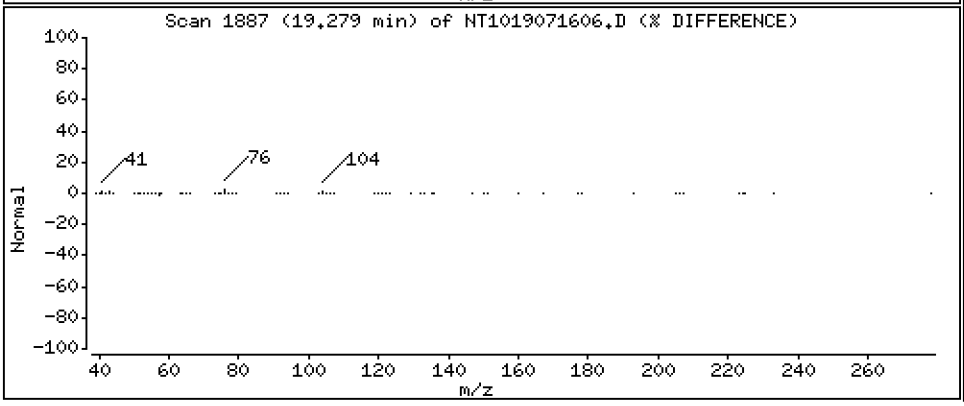












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

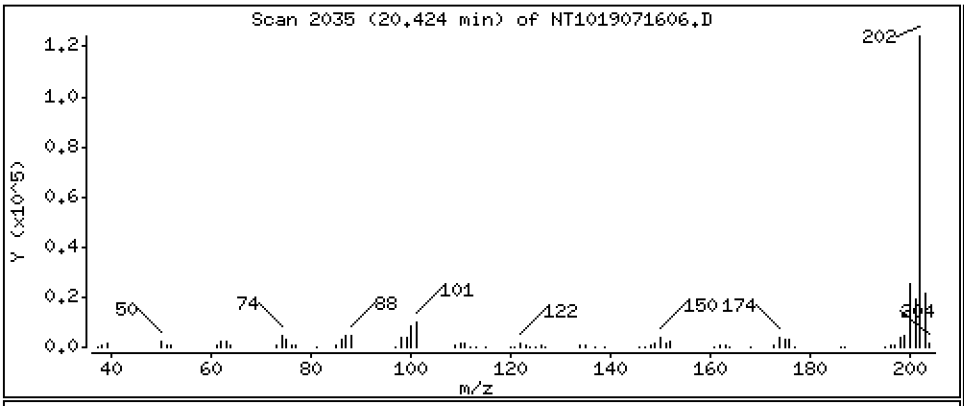
Operator: YZ

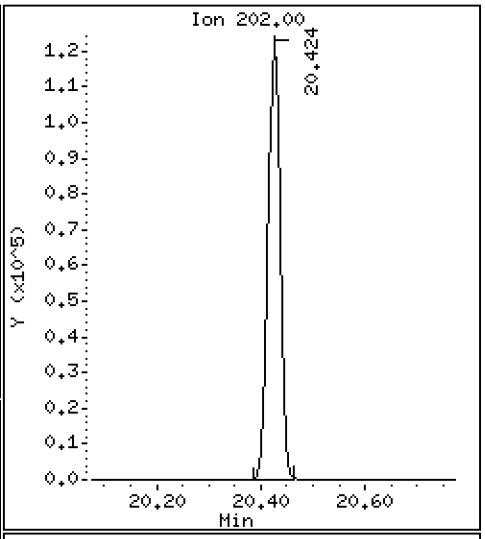
Column phase: ZB-5msi

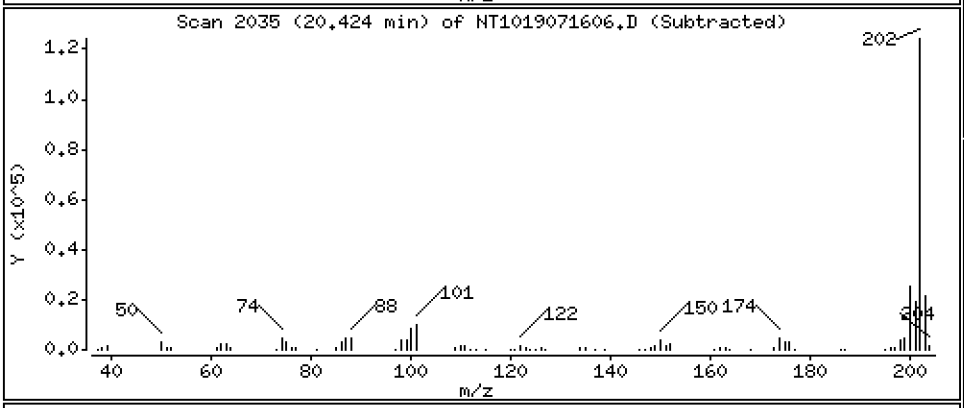
Column diameter: 0.25

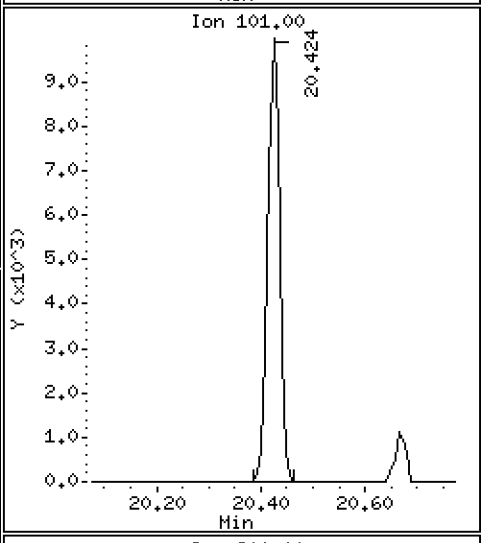
64 Fluoranthene

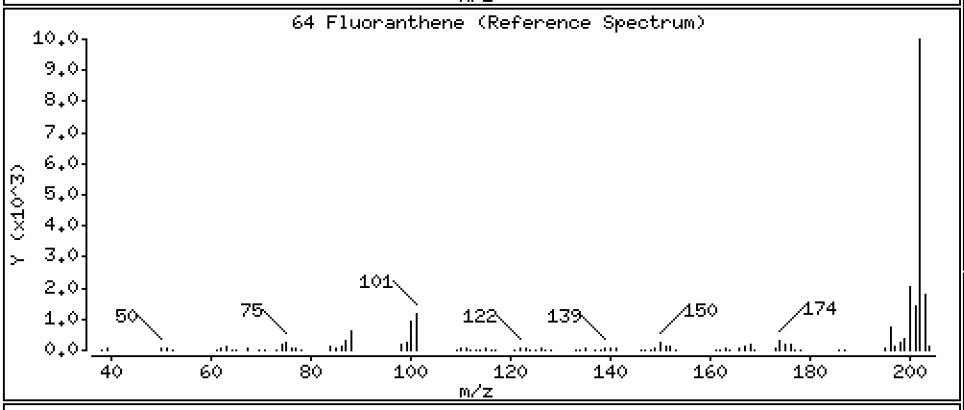
Concentration: 5.631 ug/mL

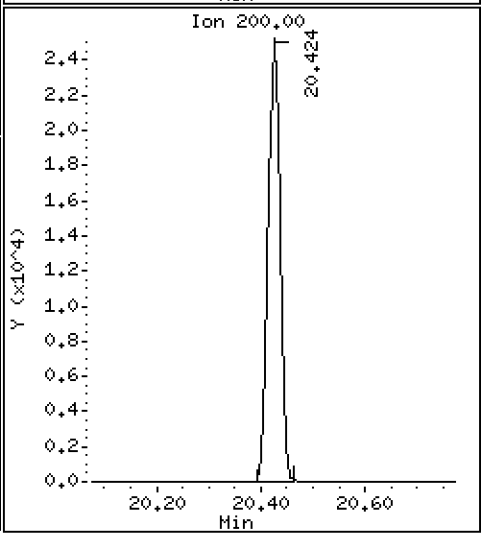


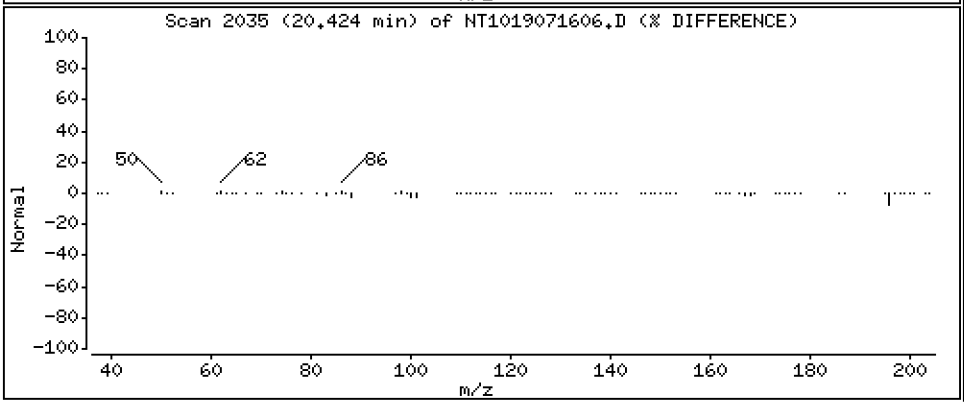












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

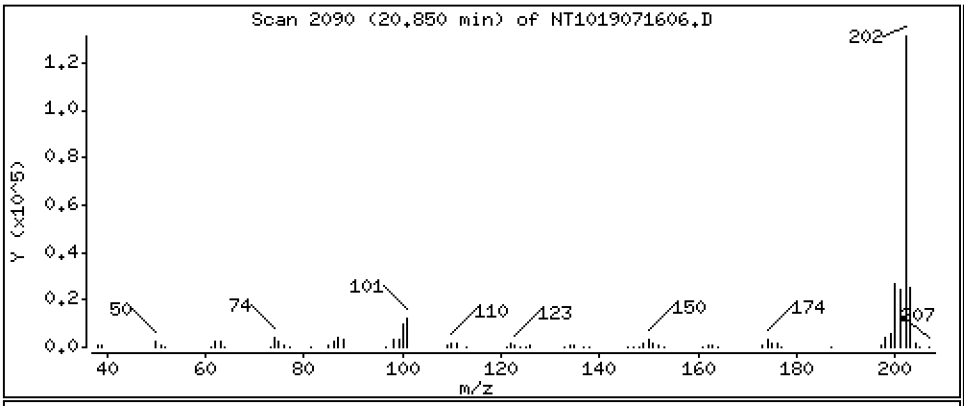
Operator: YZ

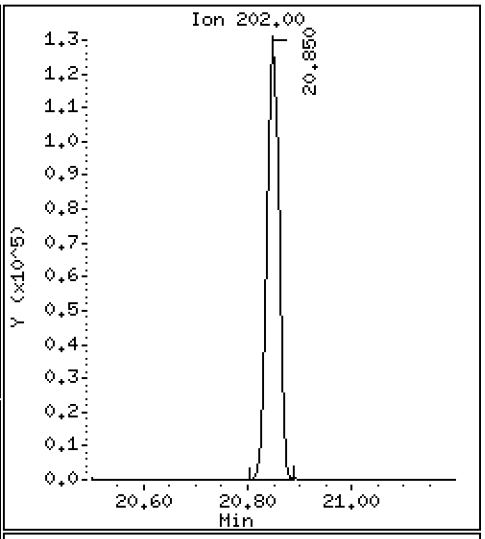
Column phase: ZB-5msi

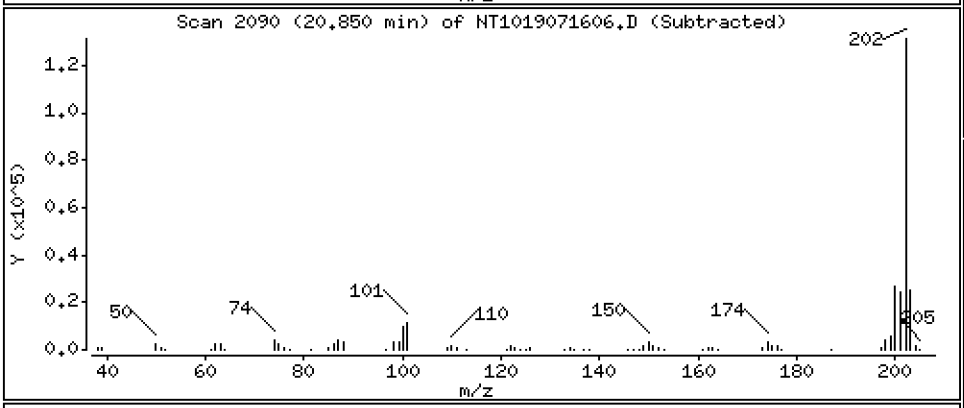
Column diameter: 0.25

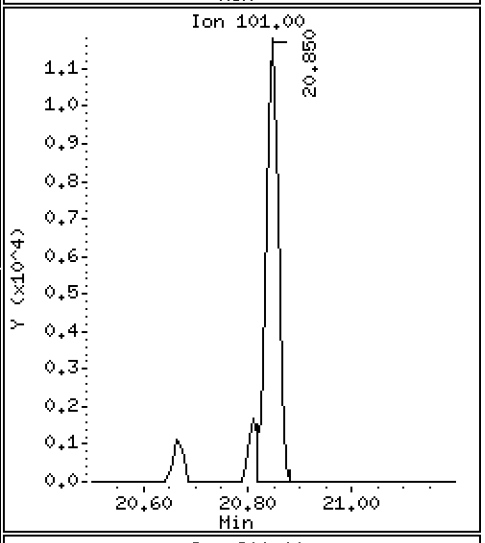
65 Pyrene

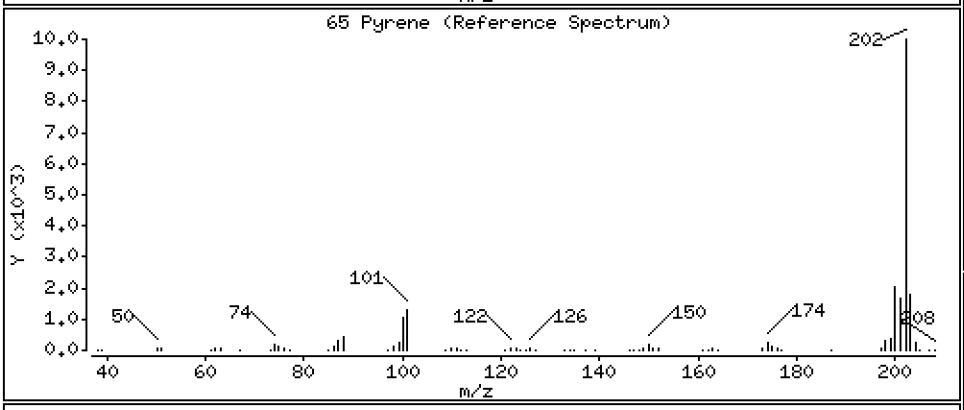
Concentration: 5.654 ug/mL

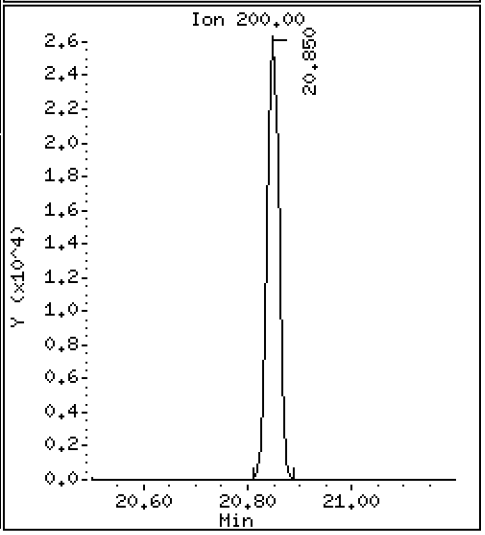


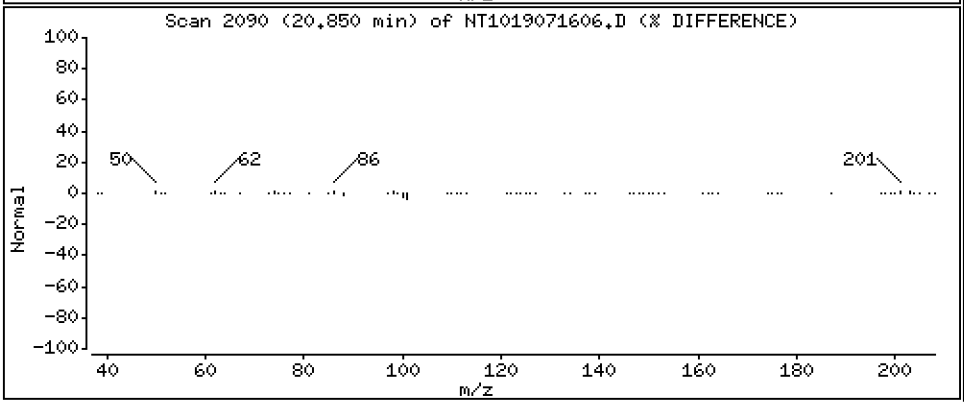












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

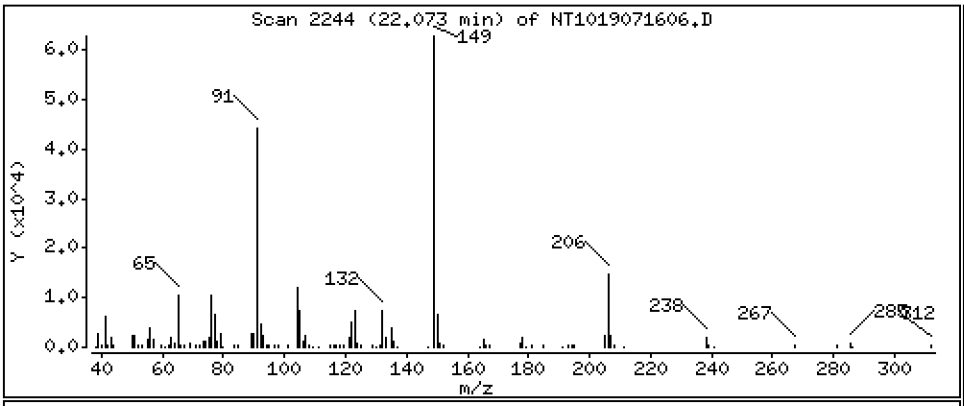
Operator: YZ

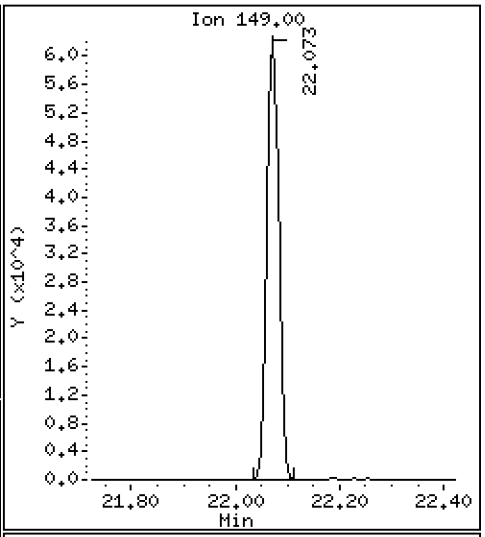
Column phase: ZB-5msi

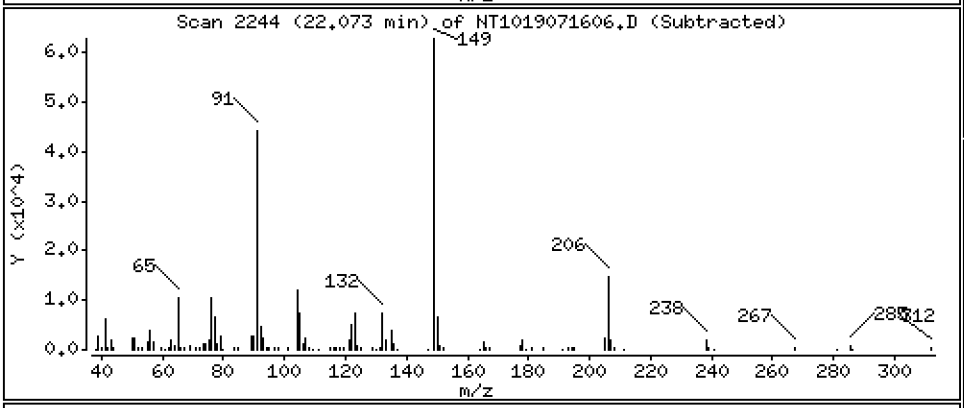
Column diameter: 0.25

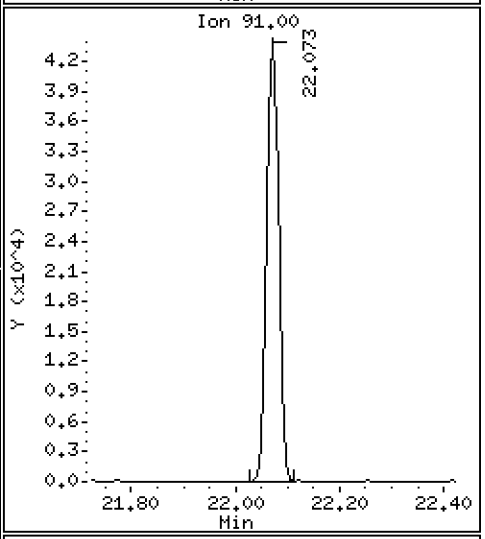
67 Butylbenzylphthalate

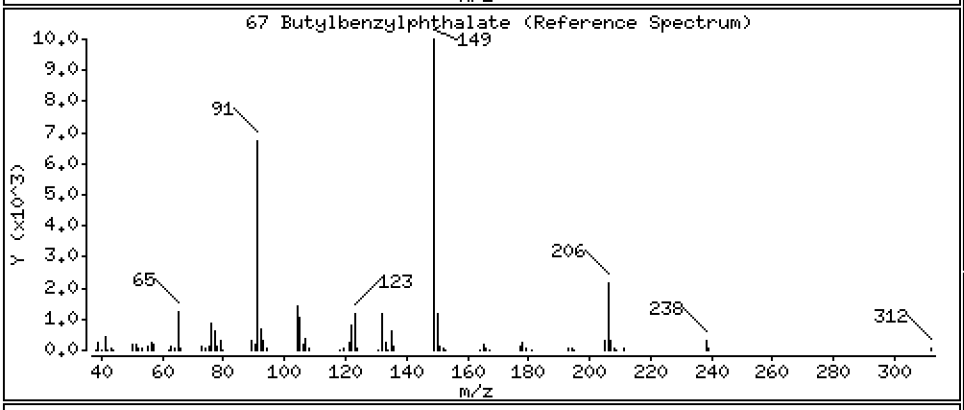
Concentration: 5.806 ug/mL

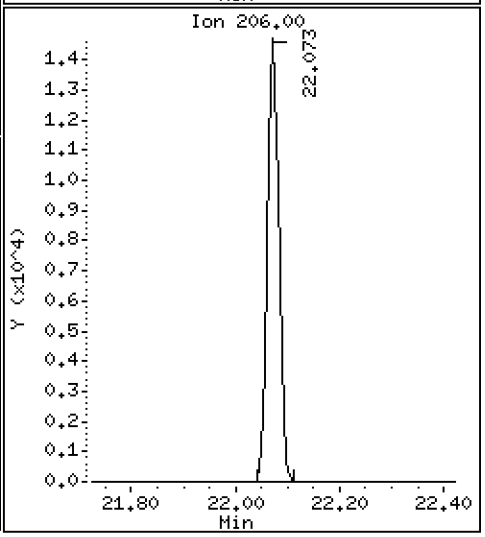


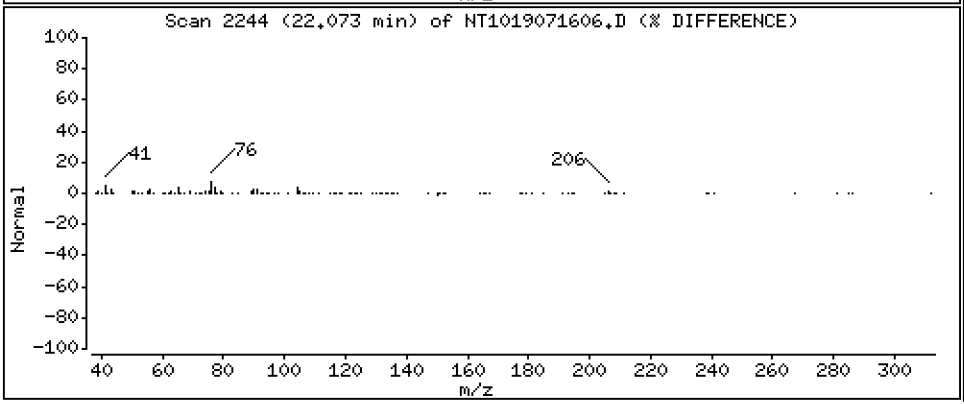












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

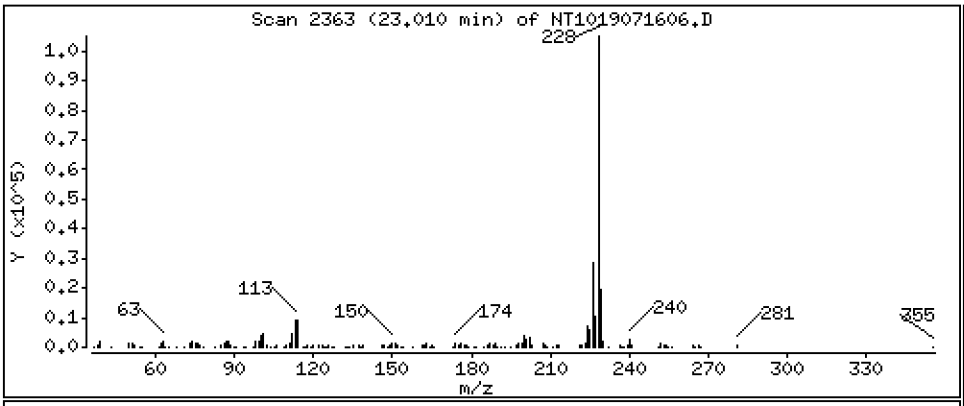
Operator: YZ

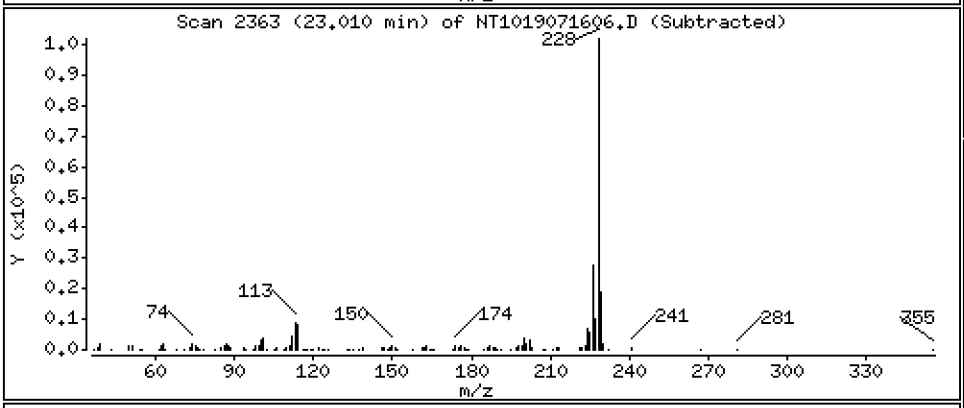
Column phase: ZB-5msi

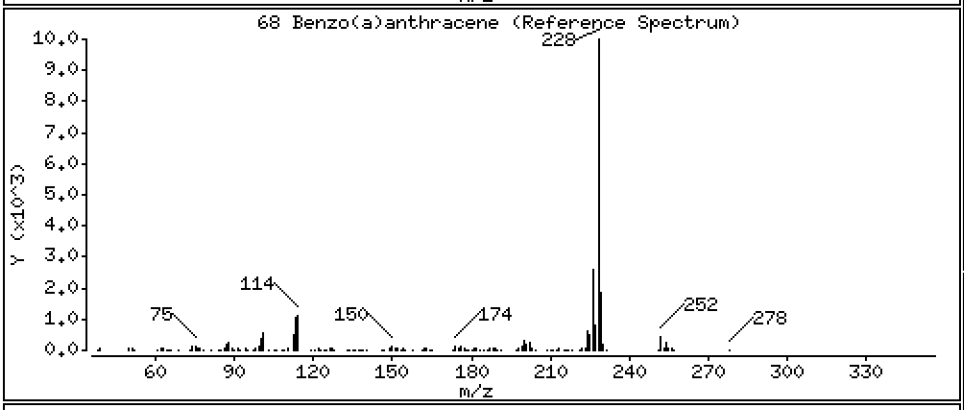
Column diameter: 0.25

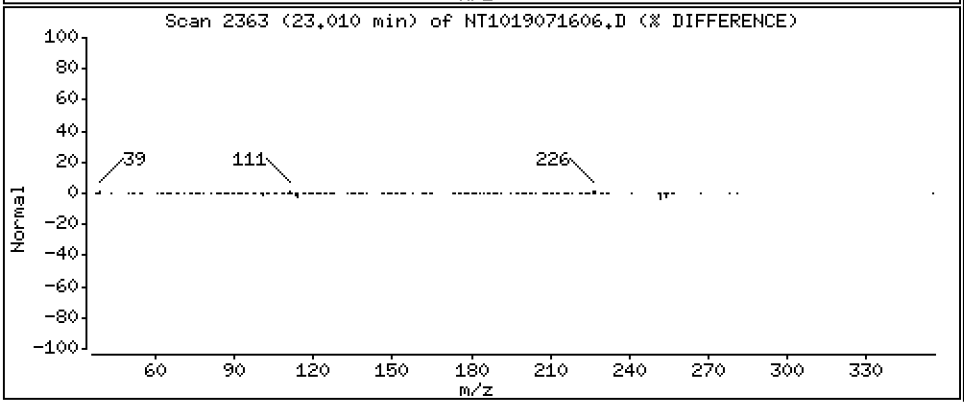
68 Benzo(a)anthracene

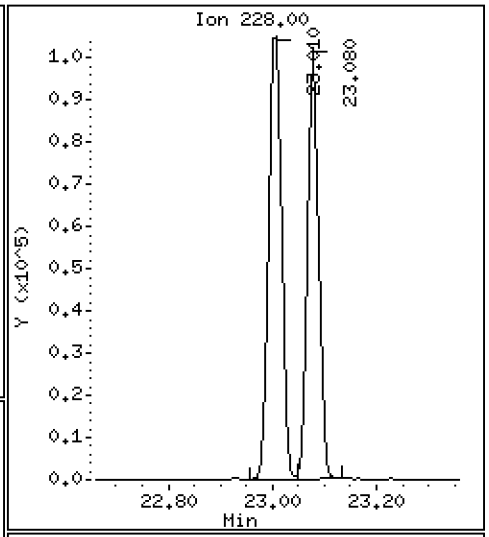
Concentration: 5.532 ug/mL

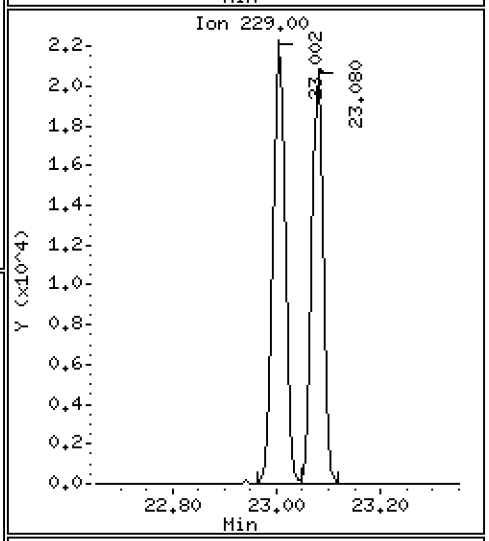


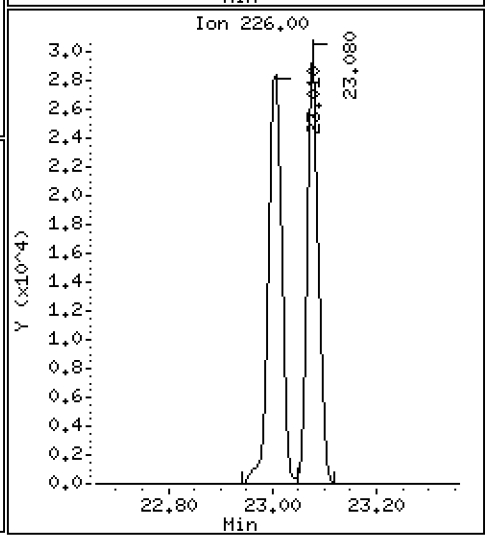












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

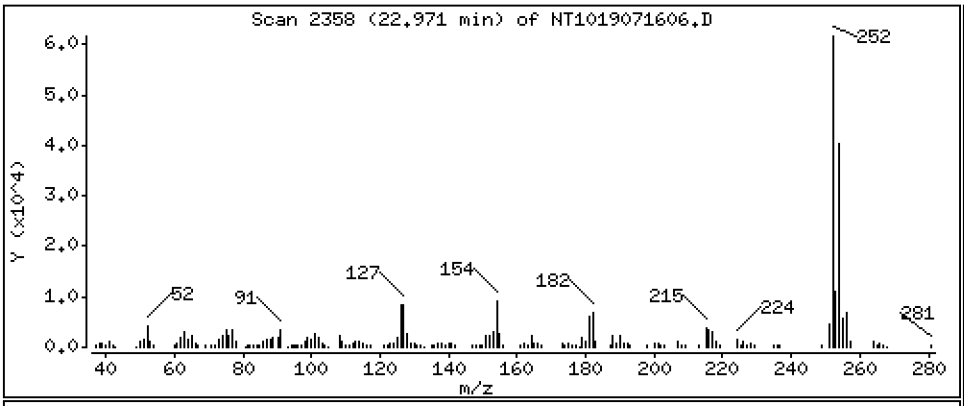
Operator: YZ

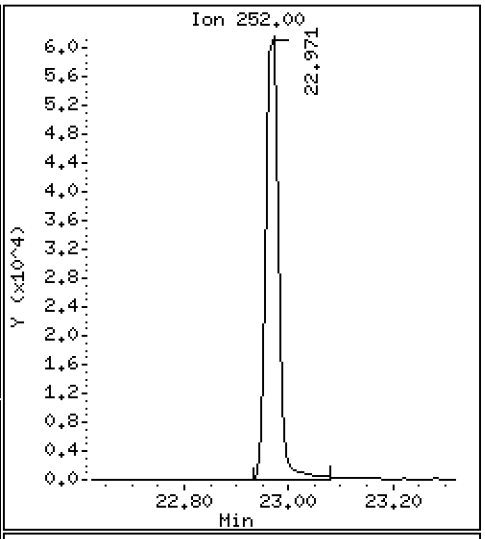
Column phase: ZB-5msi

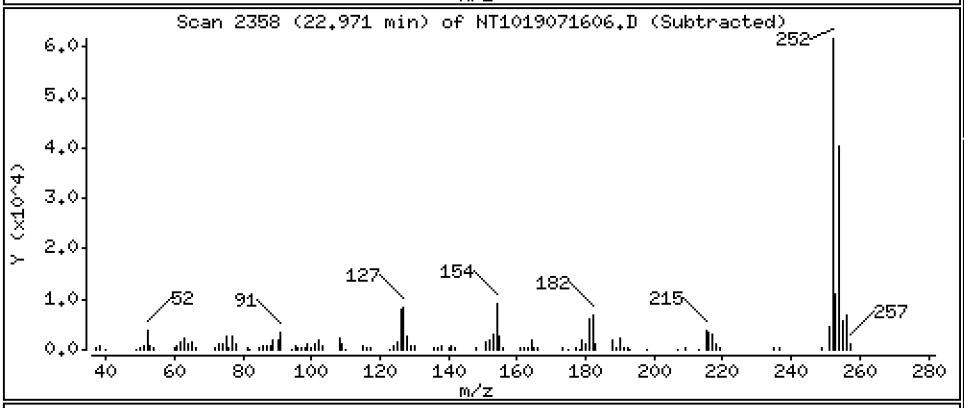
Column diameter: 0.25

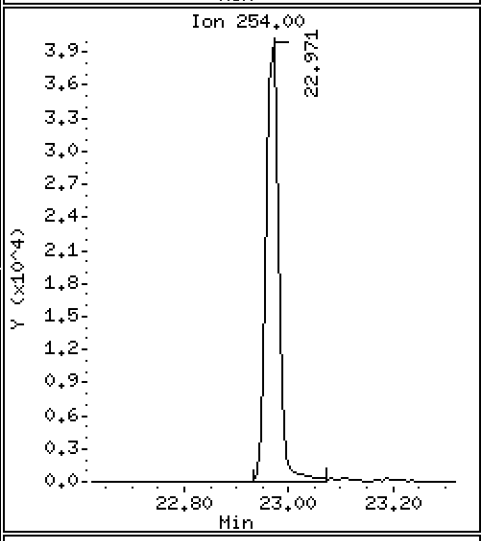
70 3,3'-Dichlorobenzidine

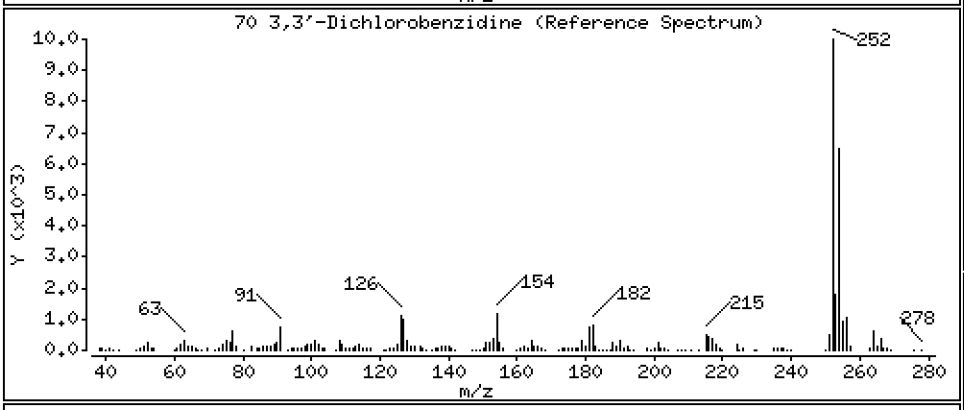
Concentration: 8.913 ug/mL

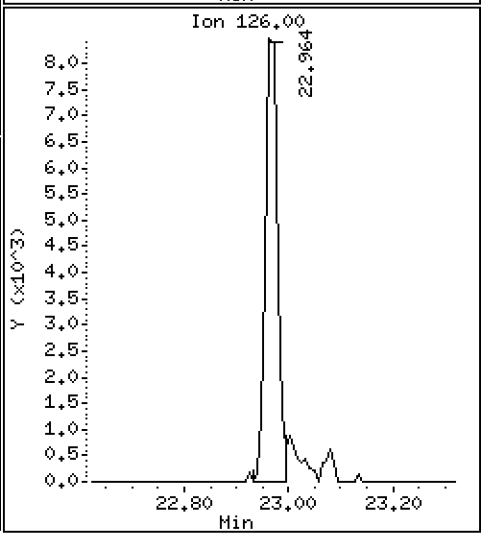


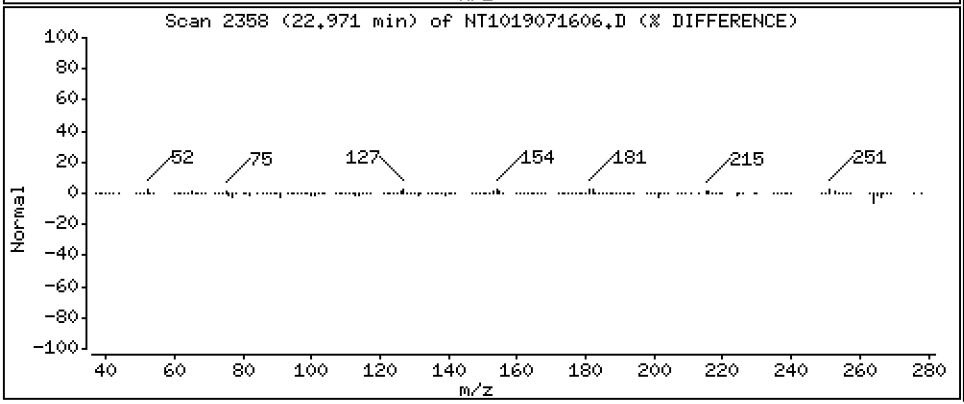












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

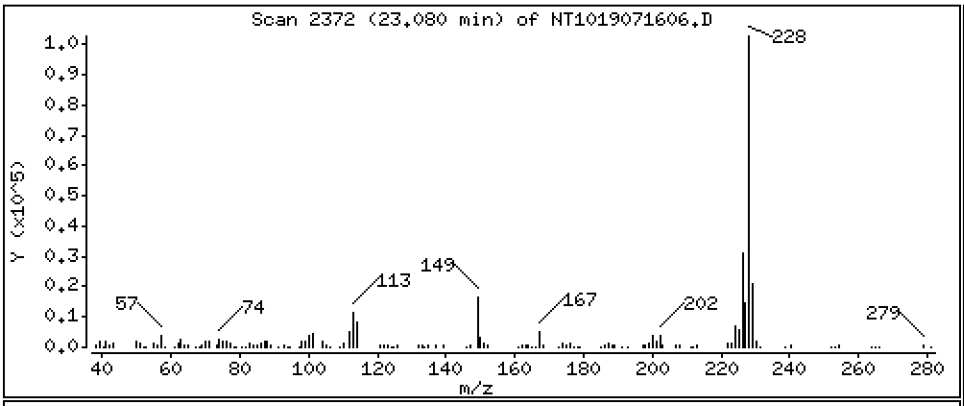
Operator: YZ

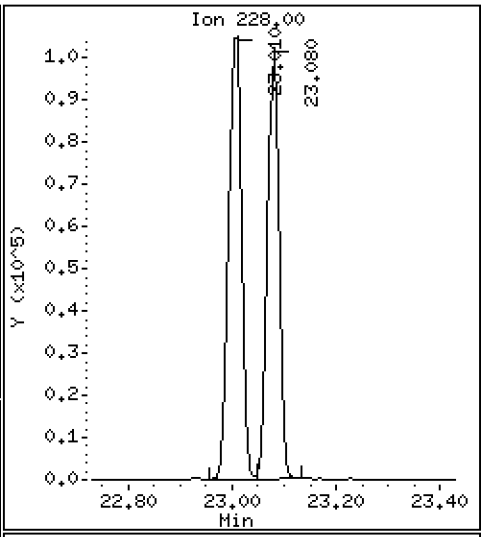
Column phase: ZB-5msi

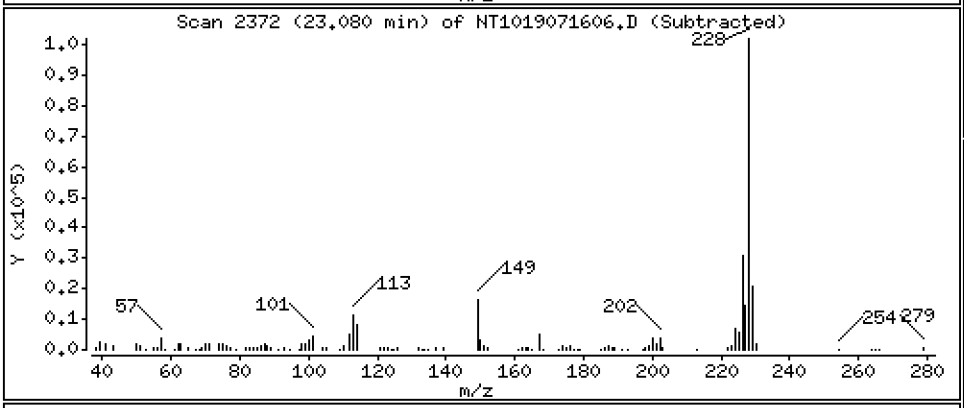
Column diameter: 0.25

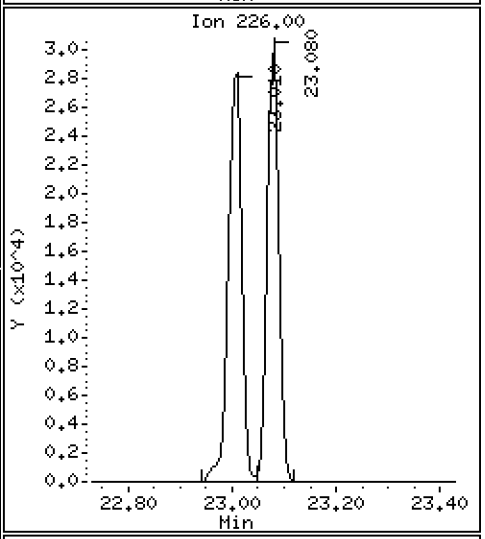
71 Chrysene

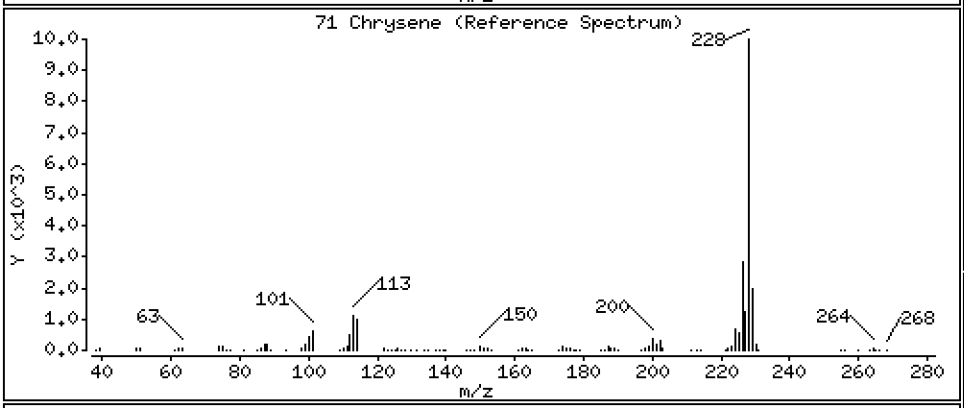
Concentration: 5.270 ug/mL

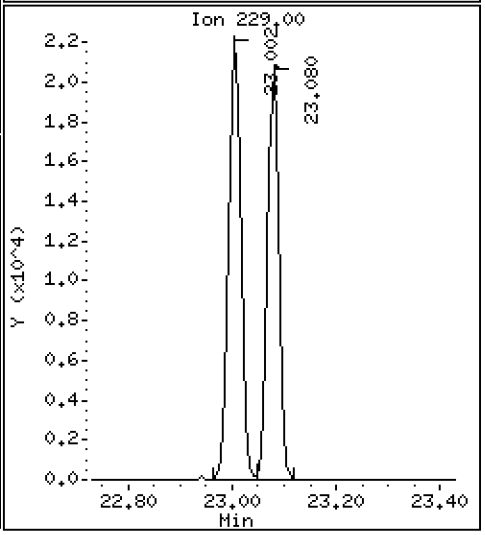


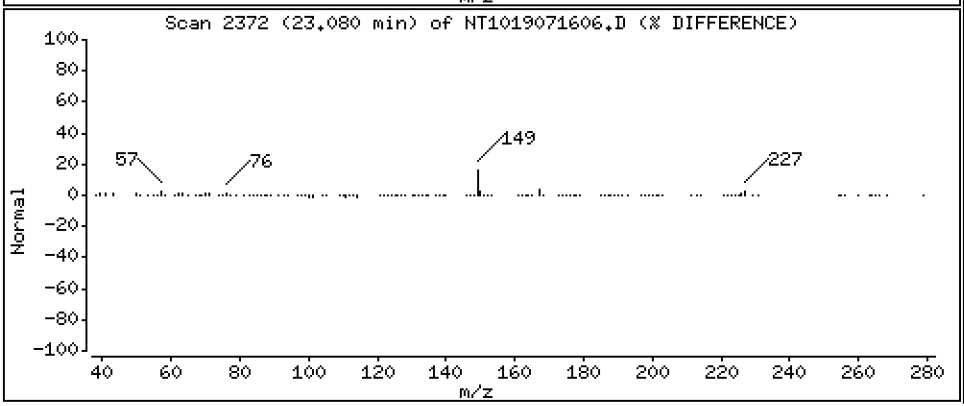












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

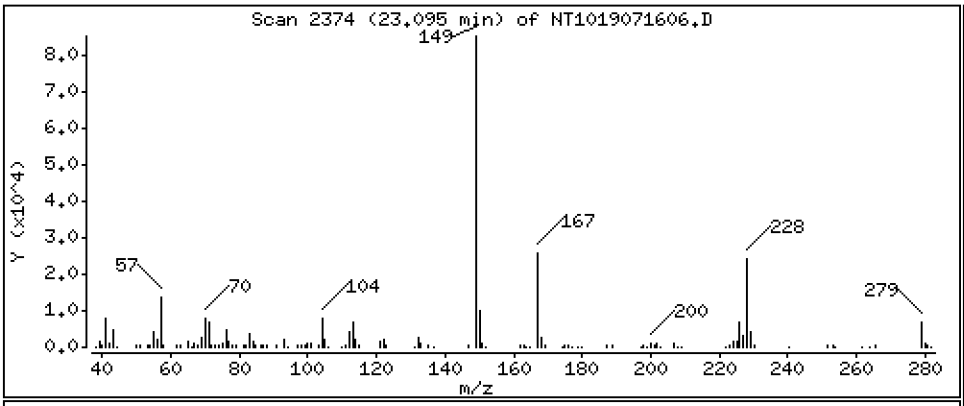
Operator: YZ

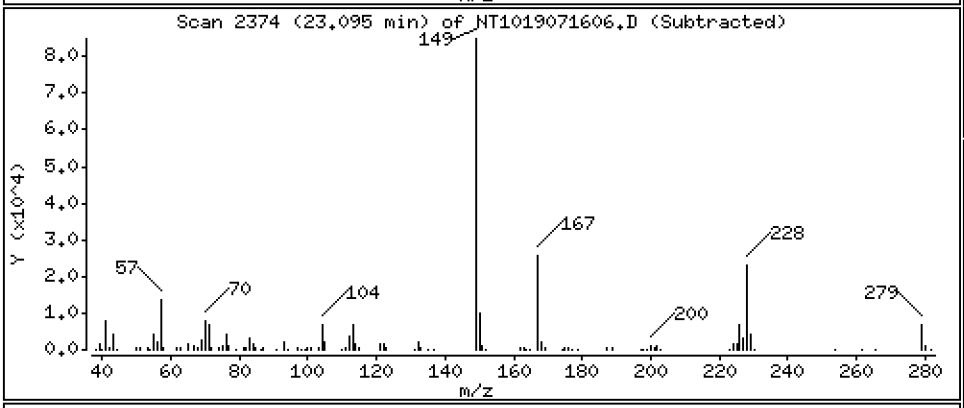
Column phase: ZB-5msi

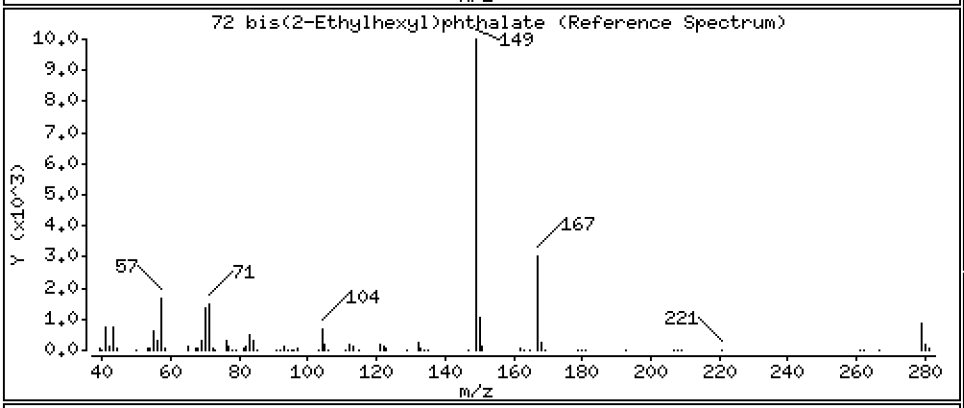
Column diameter: 0.25

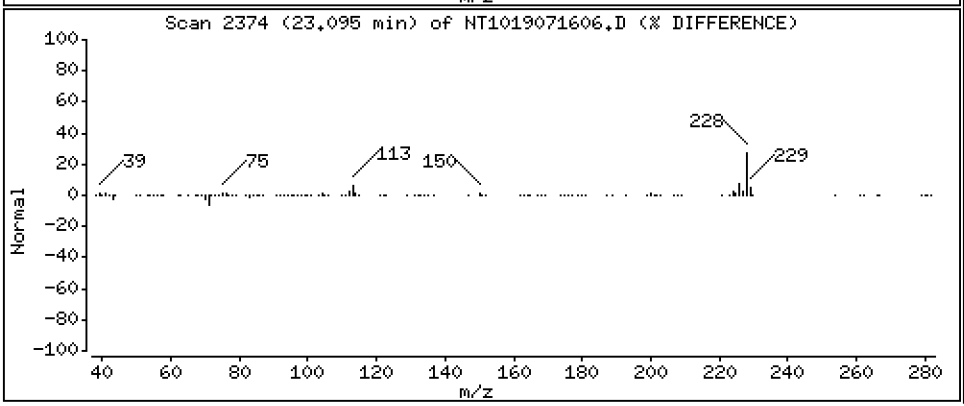
72 bis(2-Ethylhexyl)phthalate

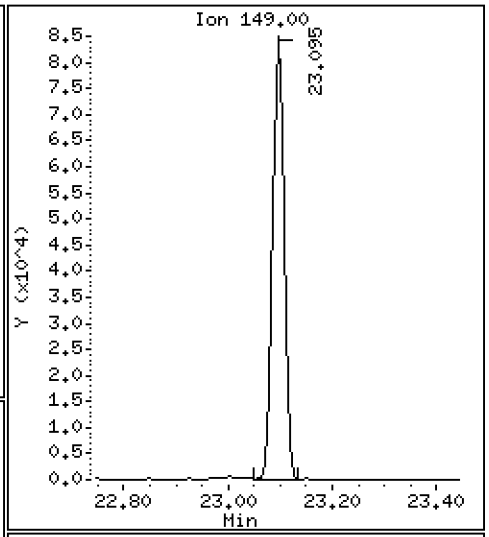
Concentration: 5.557 ug/mL

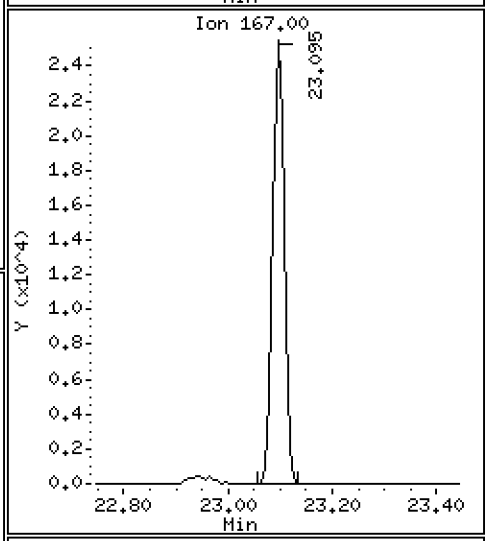


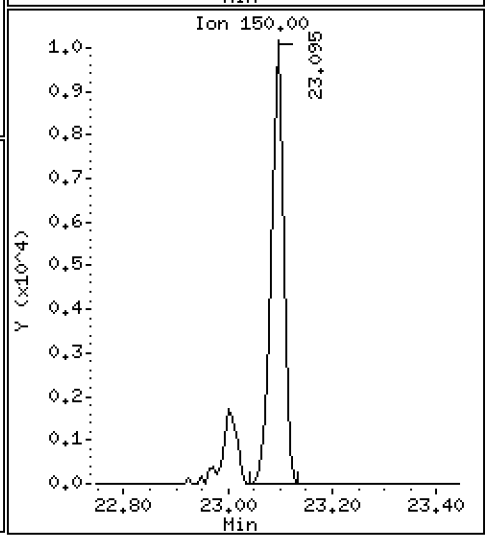












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

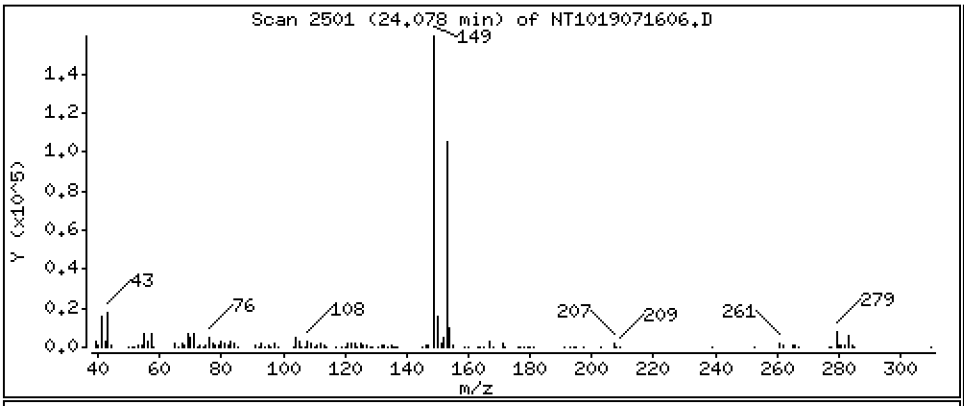
Operator: YZ

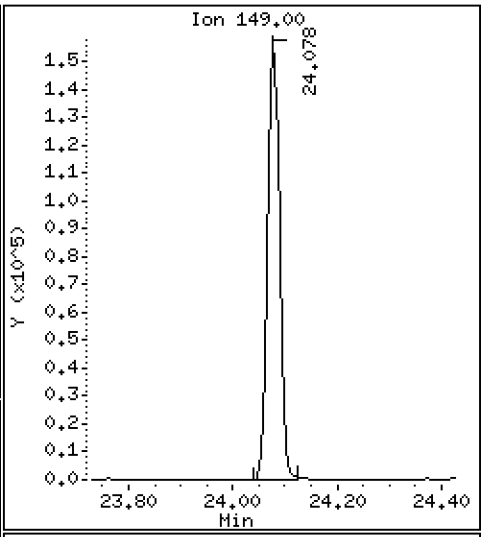
Column phase: ZB-5msi

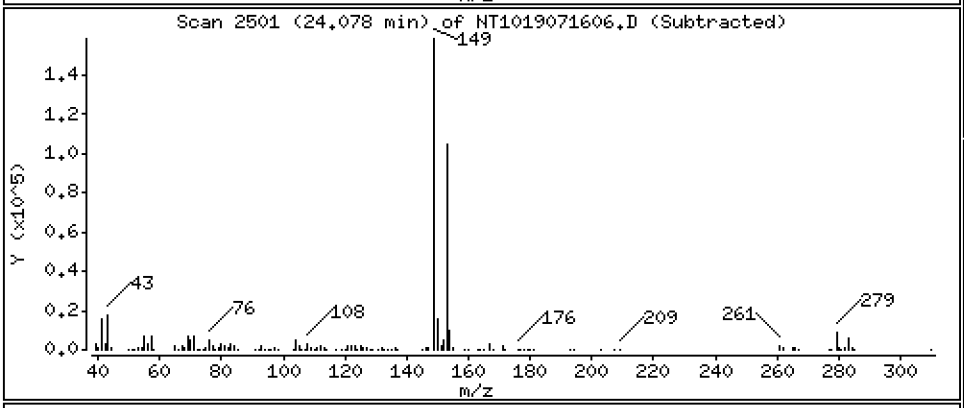
Column diameter: 0.25

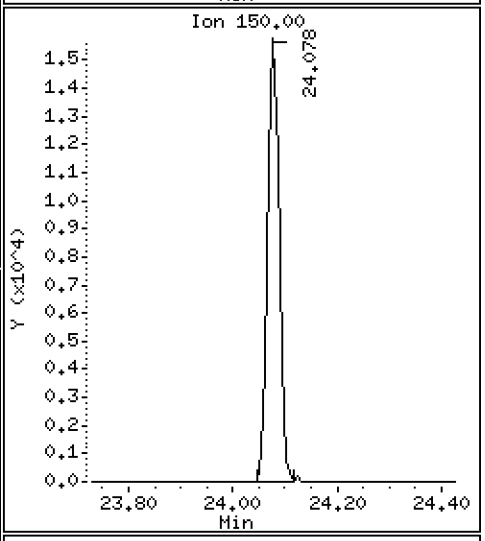
73 Di-n-octylphthalate

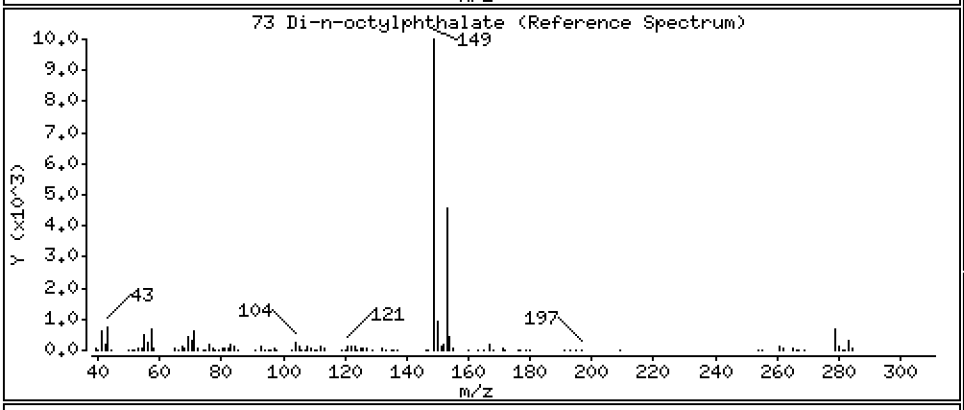
Concentration: 5.072 ug/mL

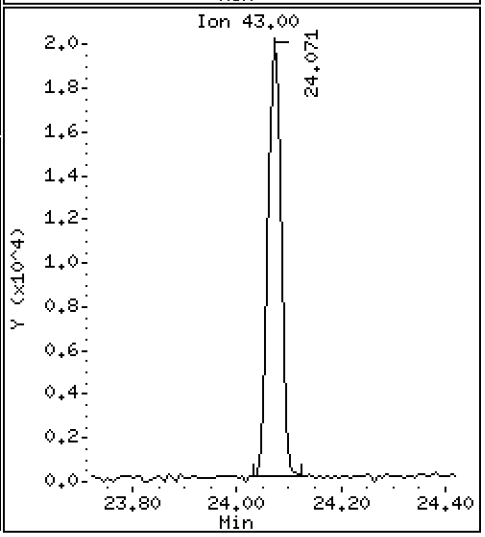


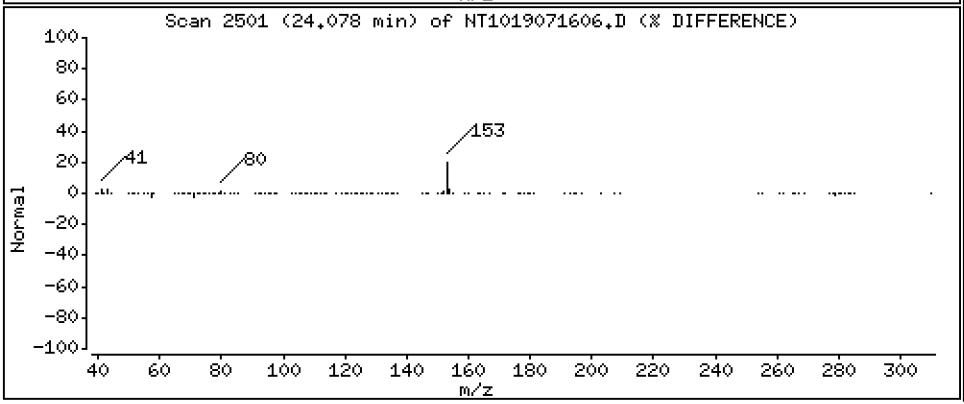












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

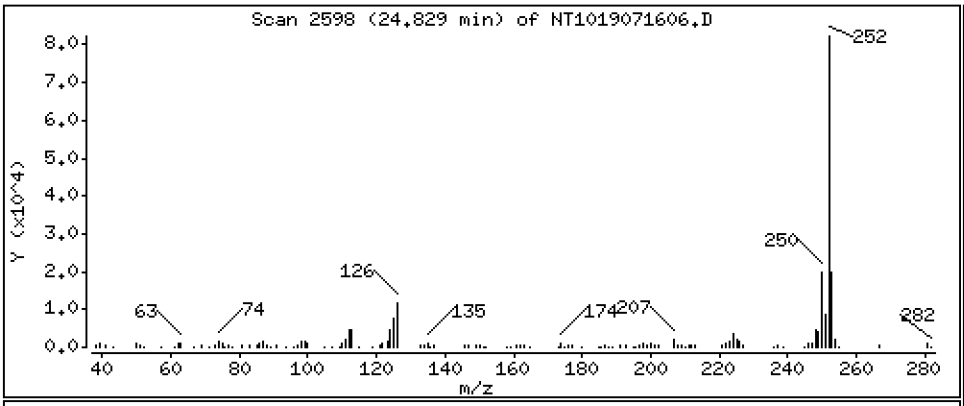
Operator: YZ

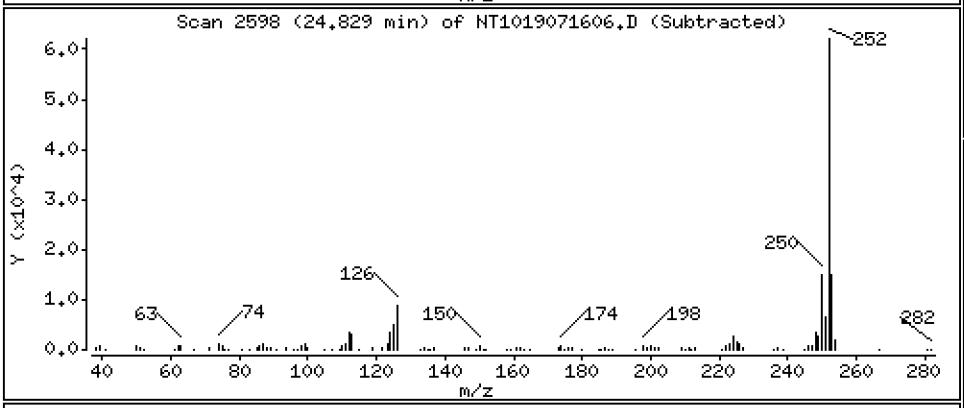
Column phase: ZB-5msi

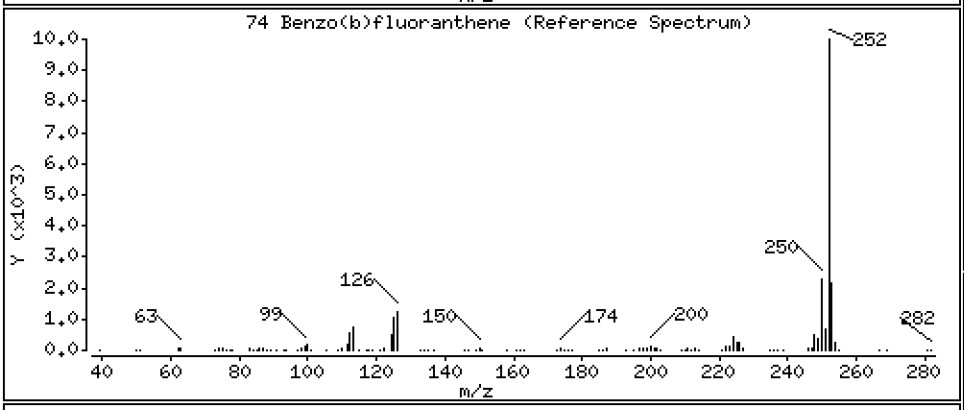
Column diameter: 0.25

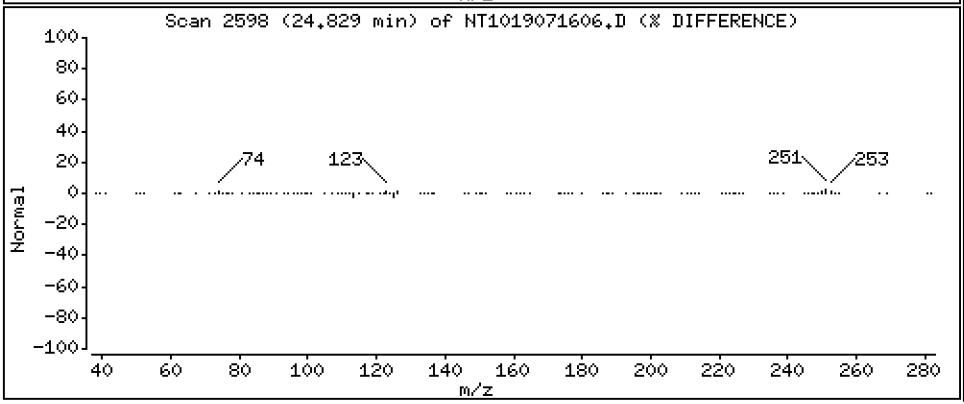
74 Benzo(b)fluoranthene

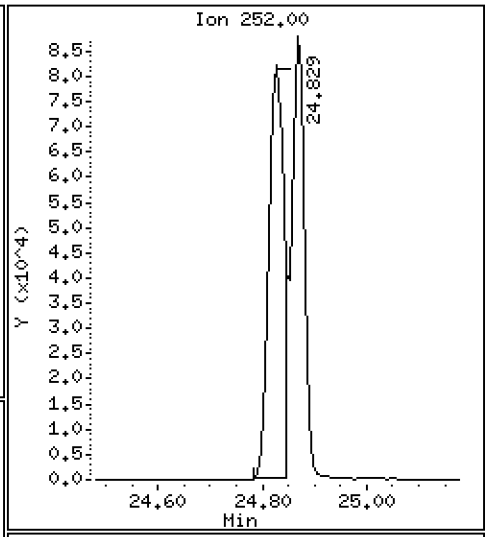
Concentration: 5.731 ug/mL

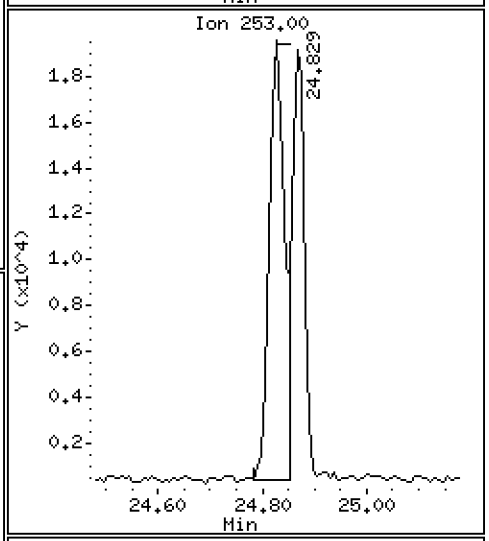


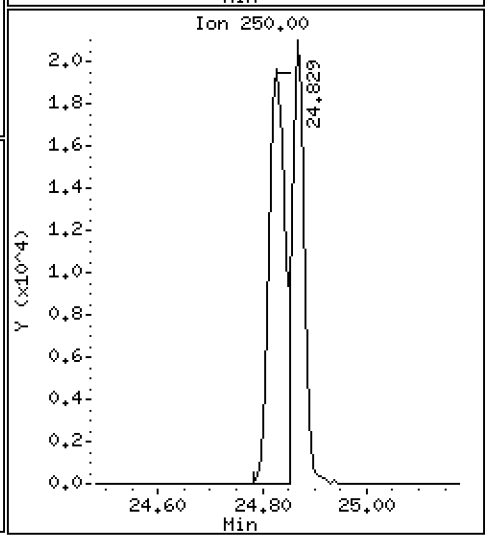












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

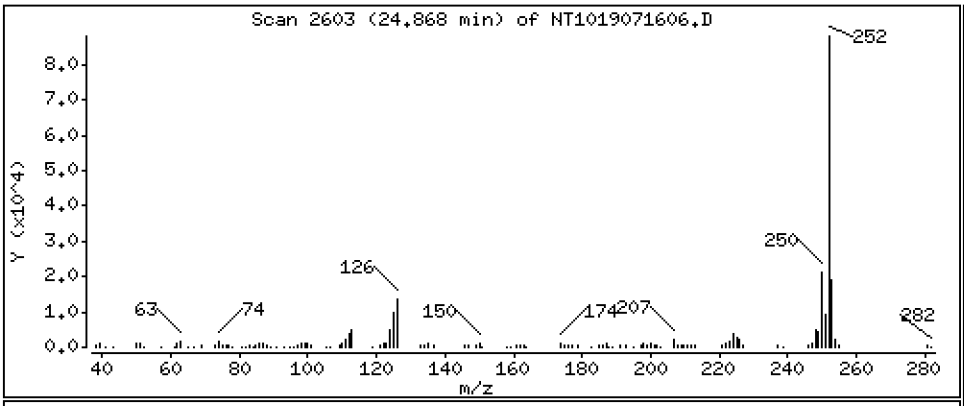
Operator: YZ

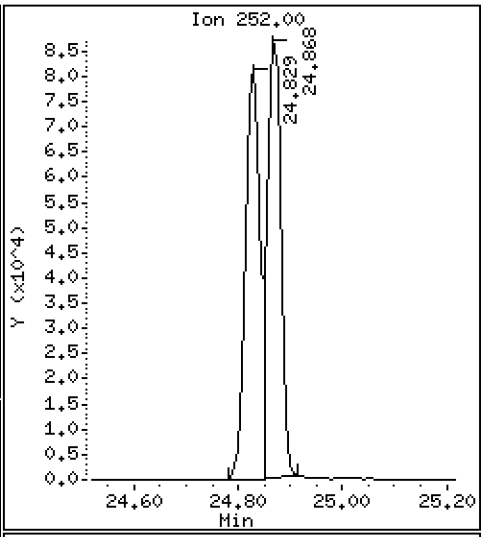
Column phase: ZB-5msi

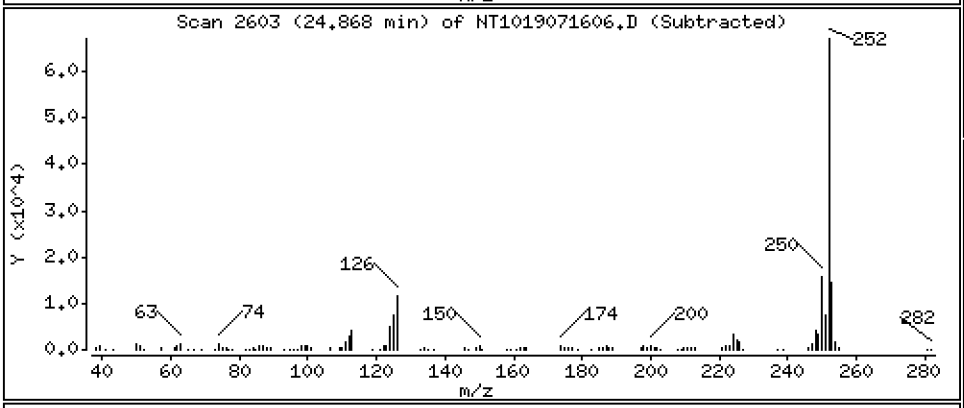
Column diameter: 0.25

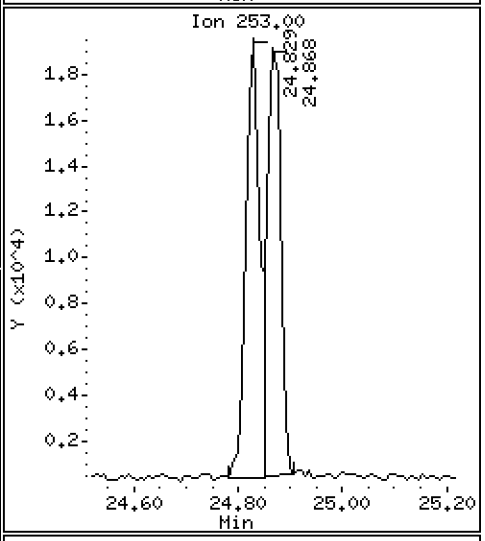
75 Benzo(k)fluoranthene

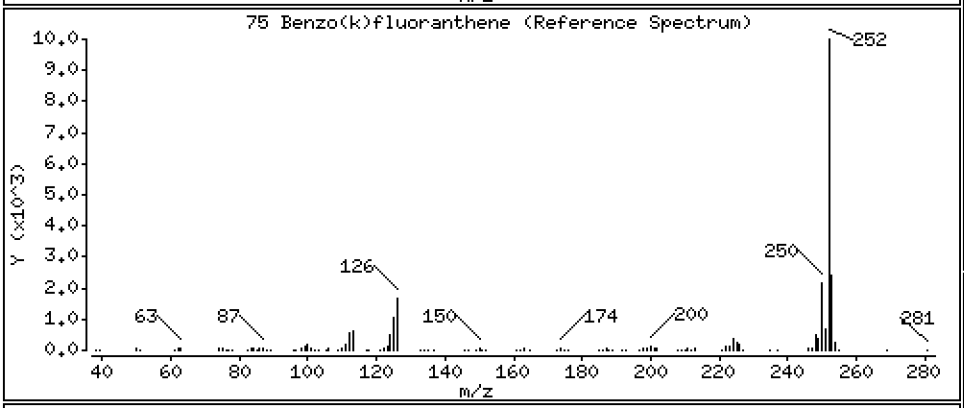
Concentration: 5.499 ug/mL

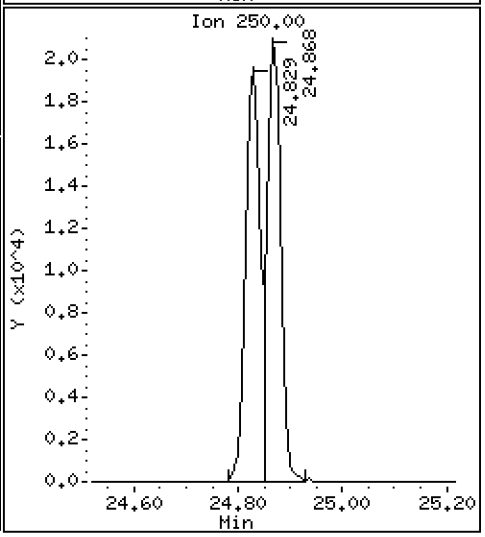


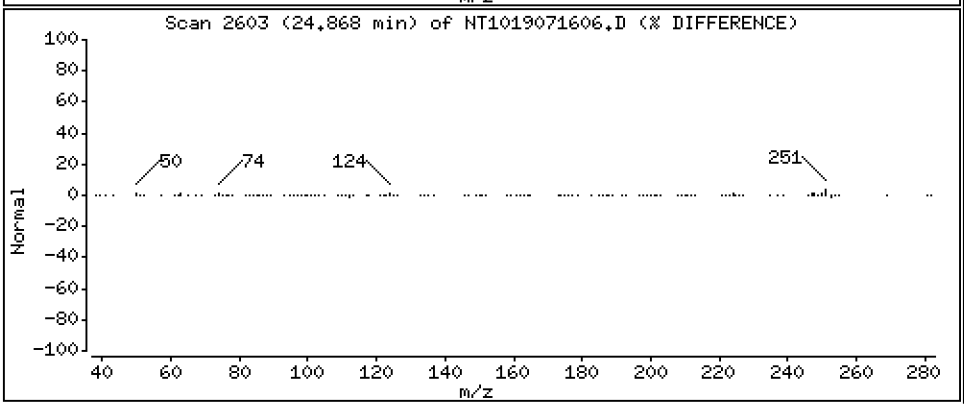












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

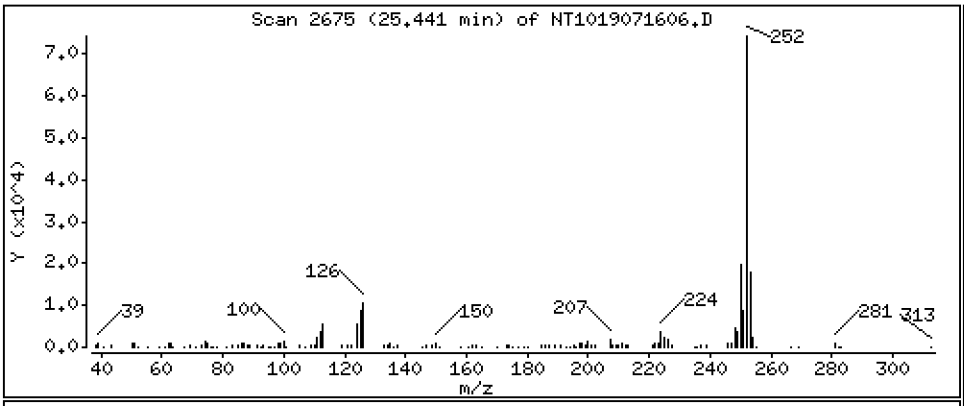
Operator: YZ

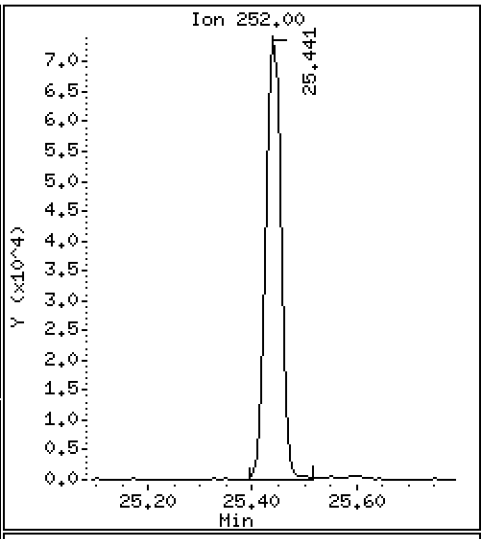
Column phase: ZB-5msi

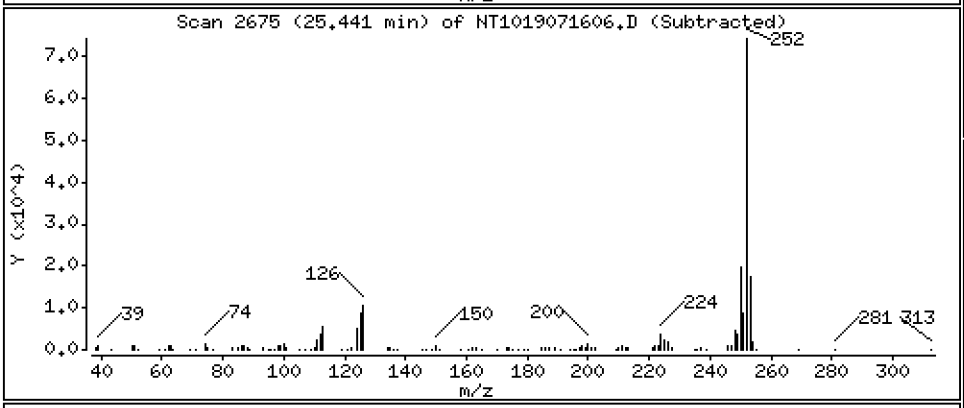
Column diameter: 0.25

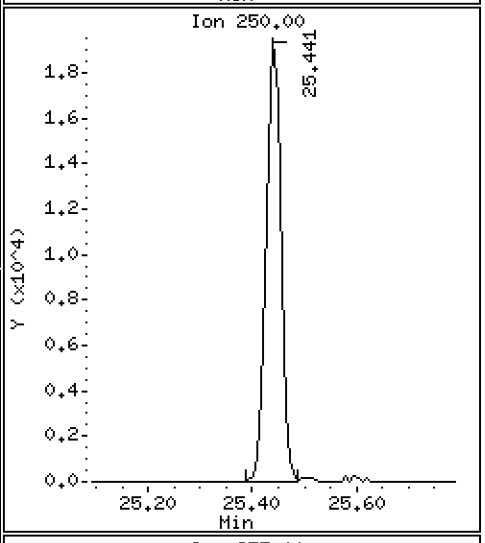
76 Benzo(a)pyrene

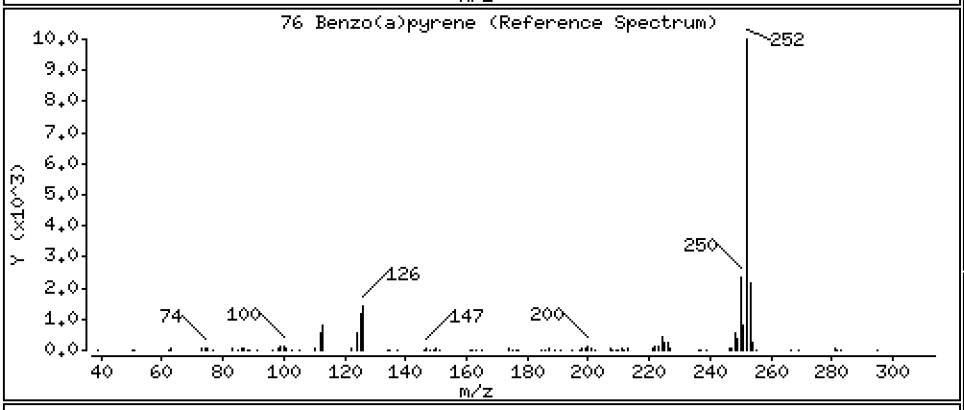
Concentration: 5.921 ug/mL

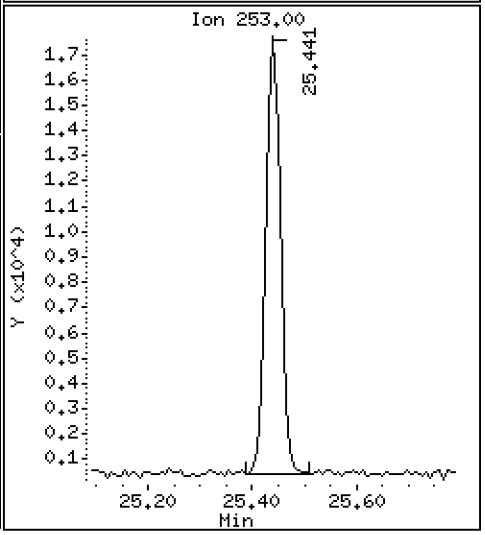


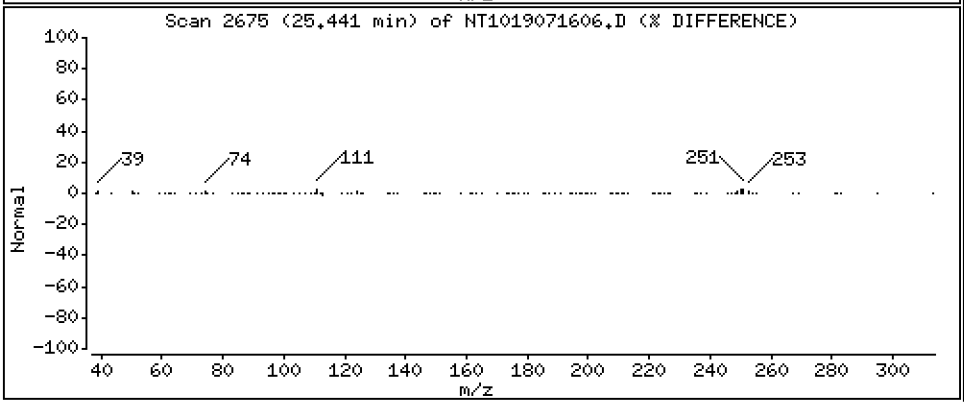












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

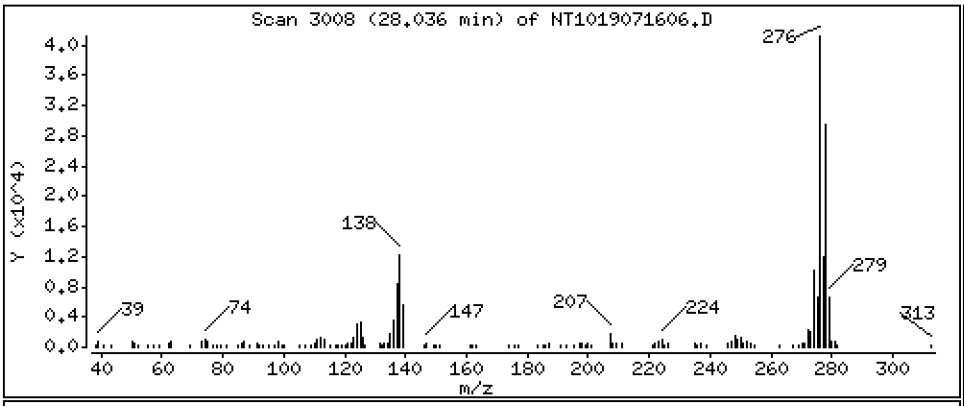
Operator: YZ

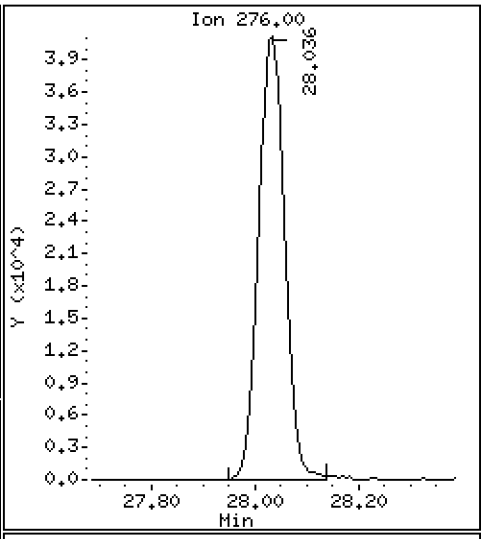
Column phase: ZB-5msi

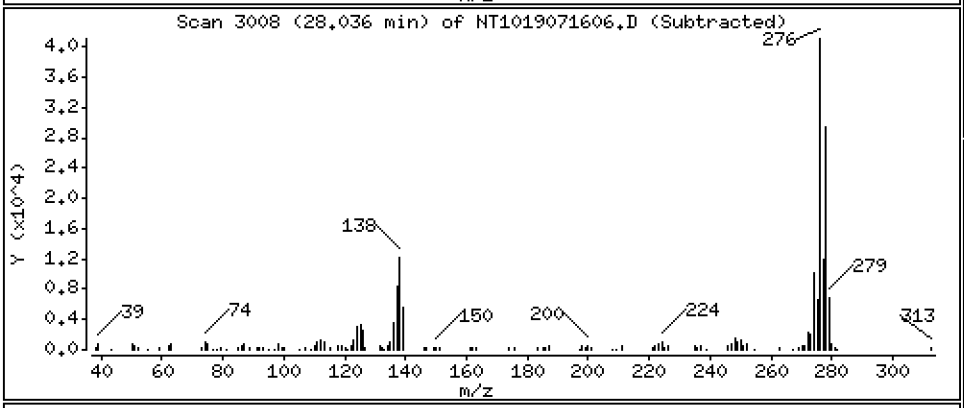
Column diameter: 0.25

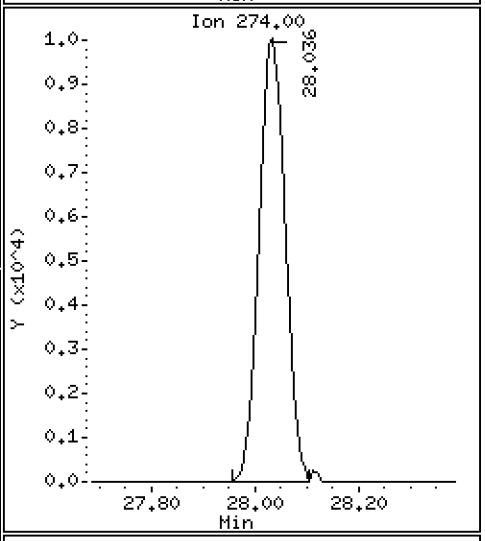
78 Indeno(1,2,3-cd)pyrene

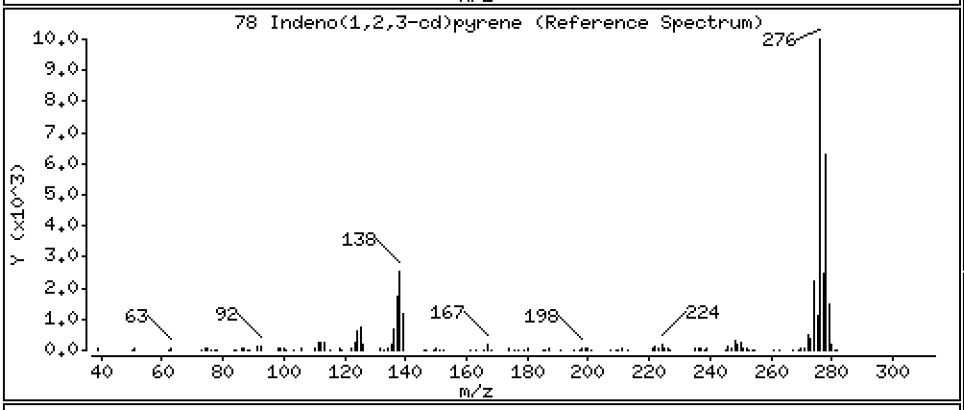
Concentration: 4.849 ug/mL

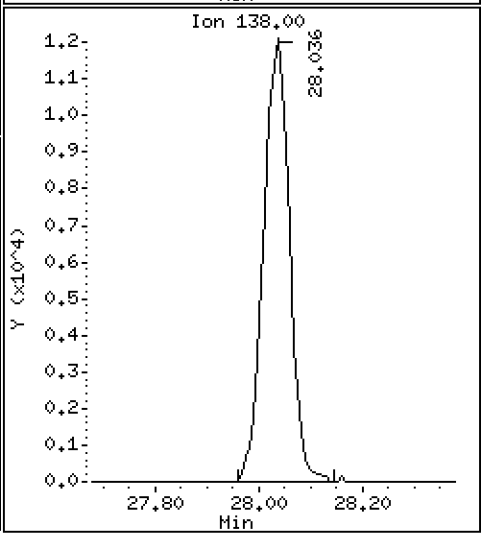


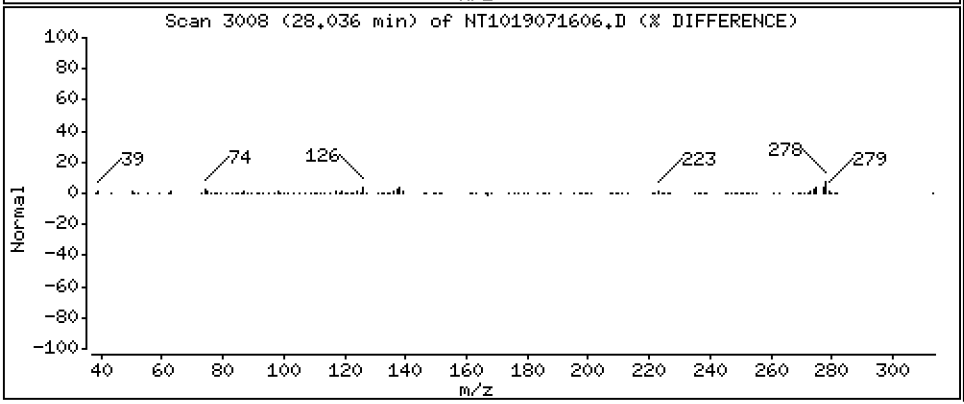












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

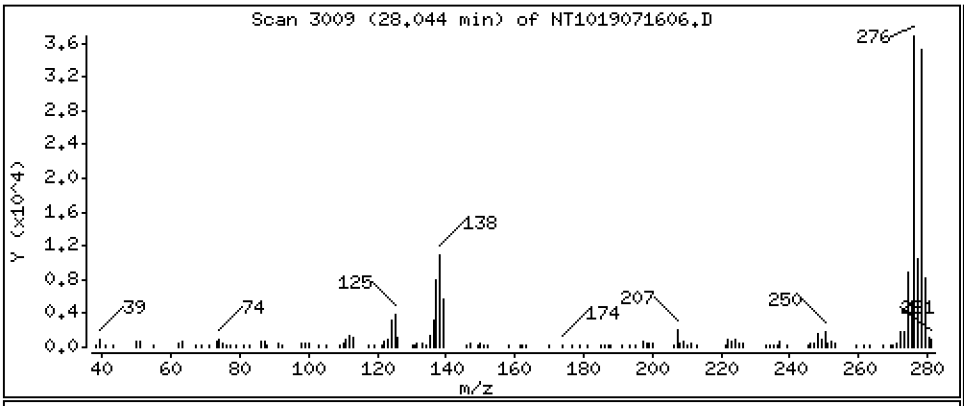
Operator: YZ

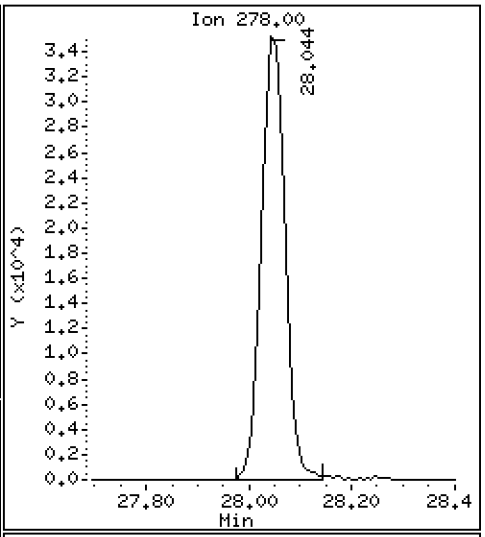
Column phase: ZB-5msi

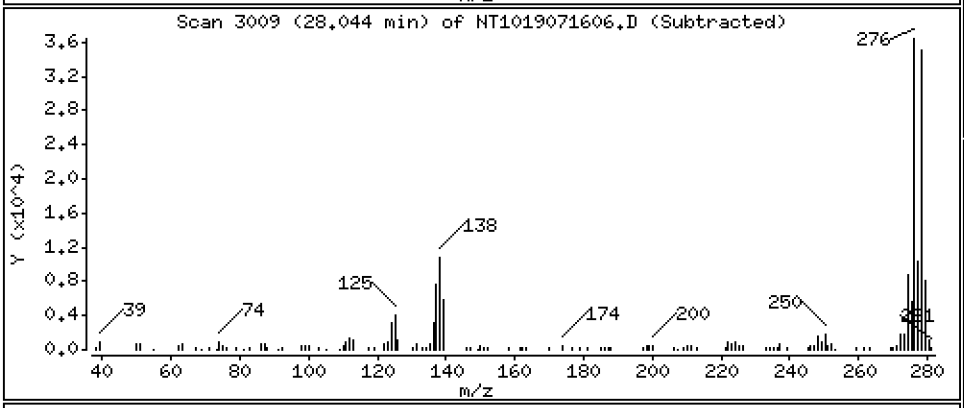
Column diameter: 0.25

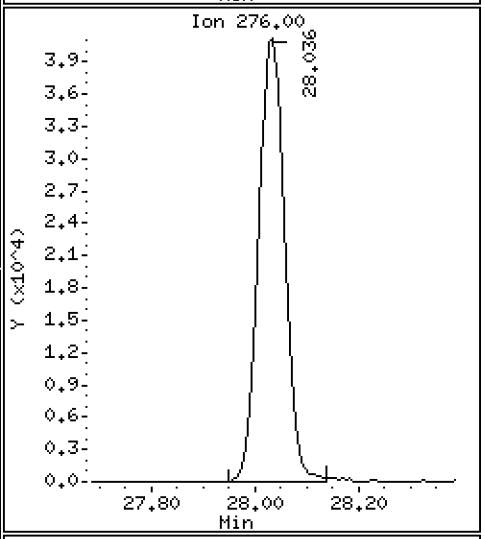
79 Dibenzo(a,h)anthracene

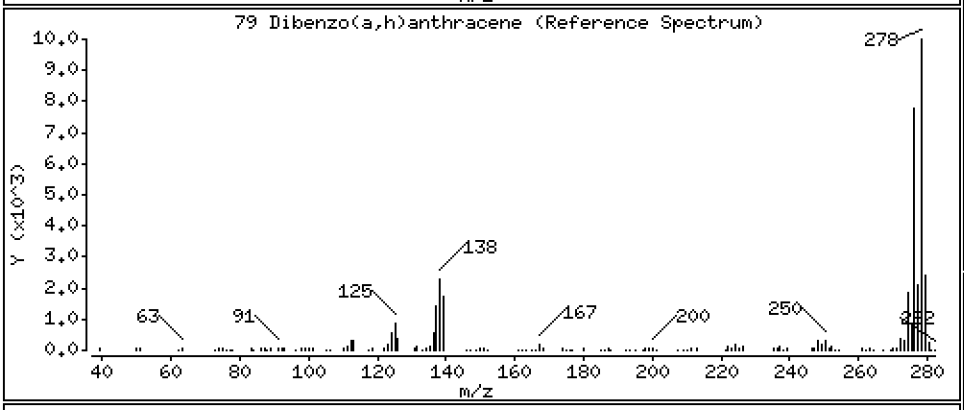
Concentration: 4.595 ug/mL

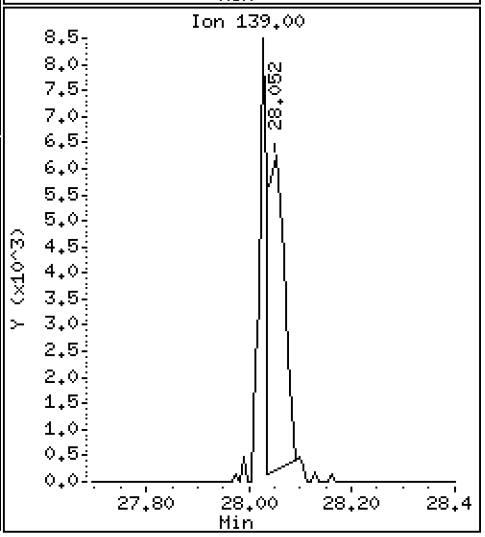


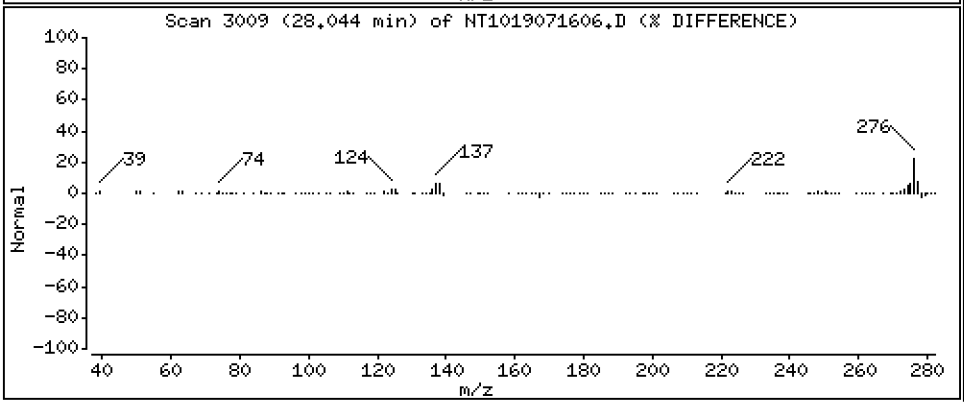












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

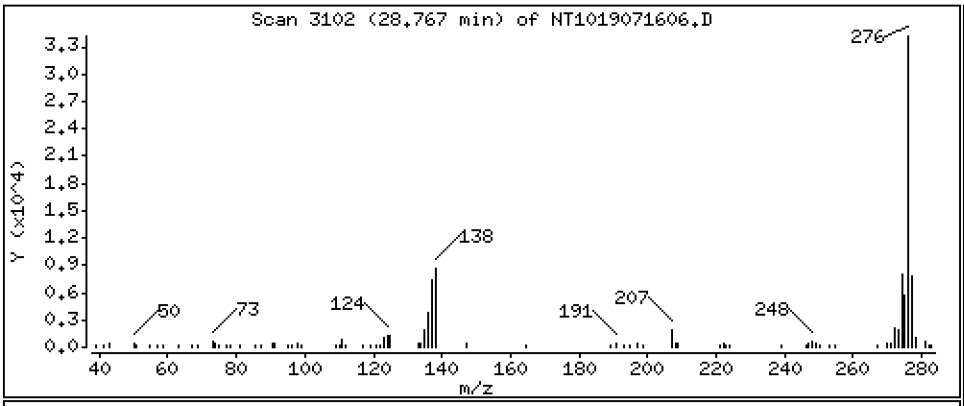
Operator: YZ

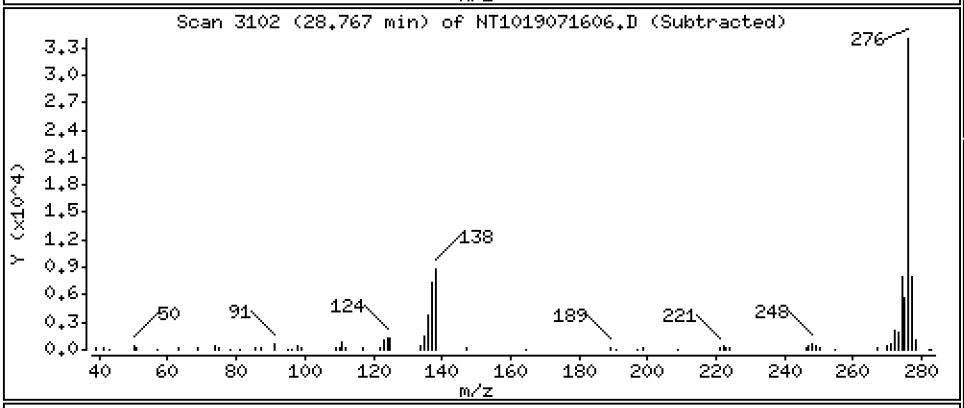
Column phase: ZB-5msi

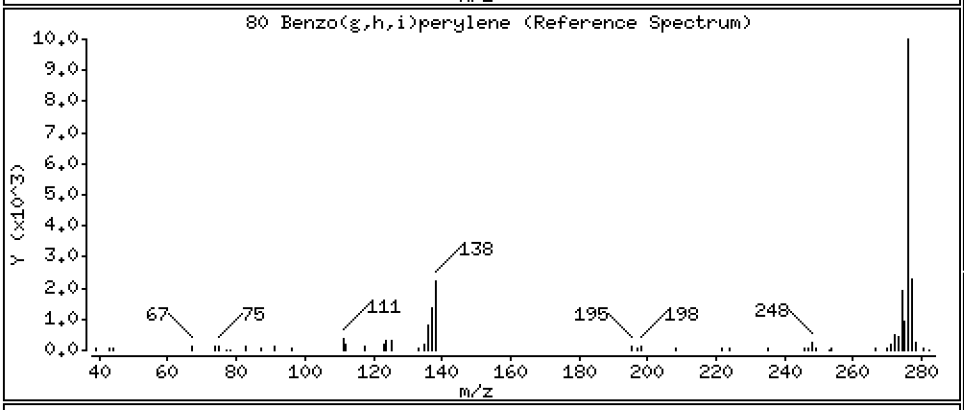
Column diameter: 0.25

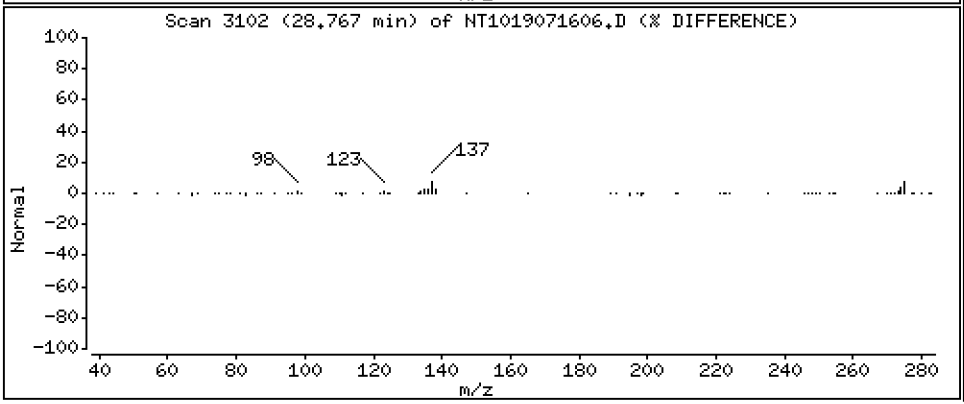
80 Benzo(g,h,i)perylene

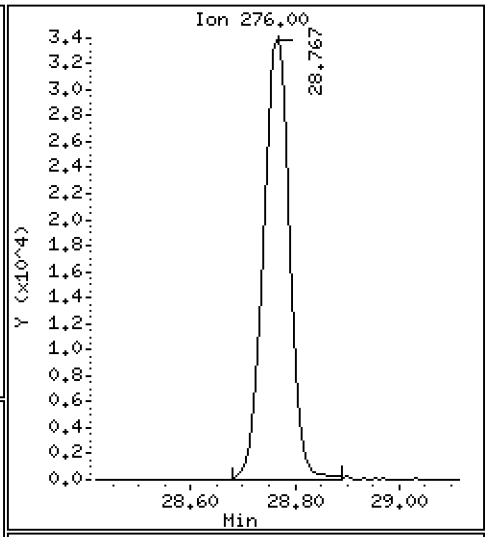
Concentration: 4.738 ug/mL

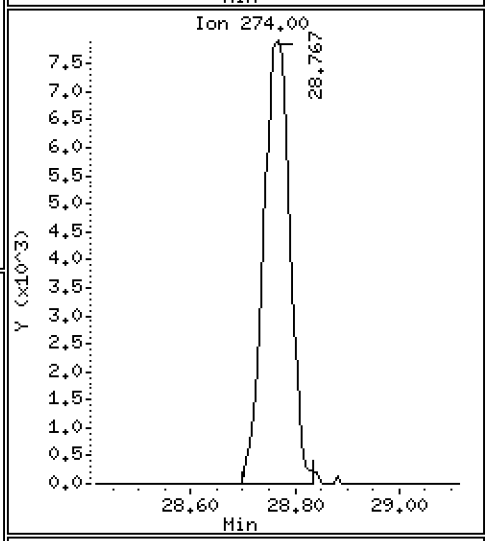


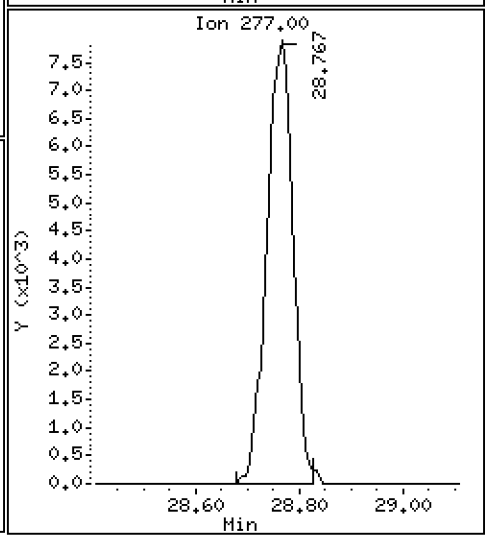












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

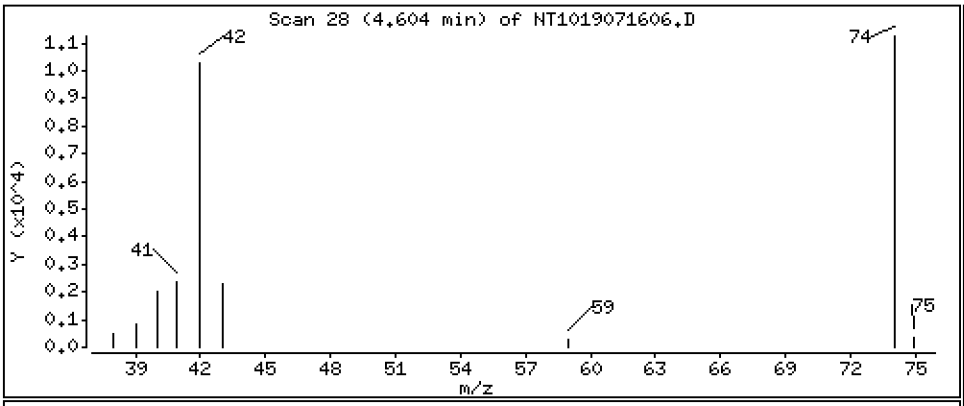
Operator: YZ

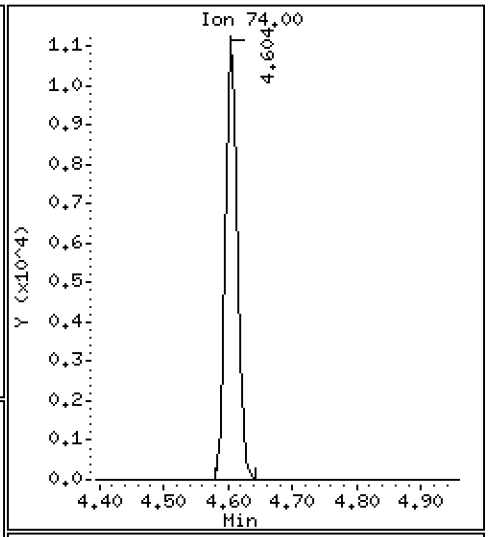
Column phase: ZB-5msi

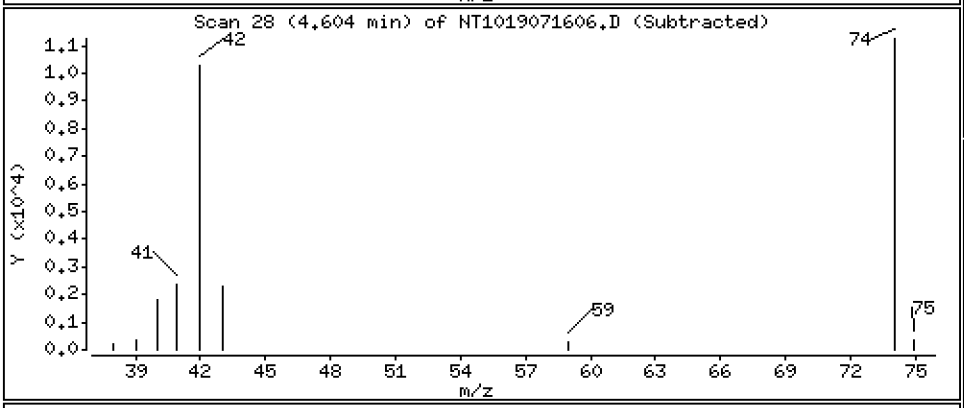
Column diameter: 0.25

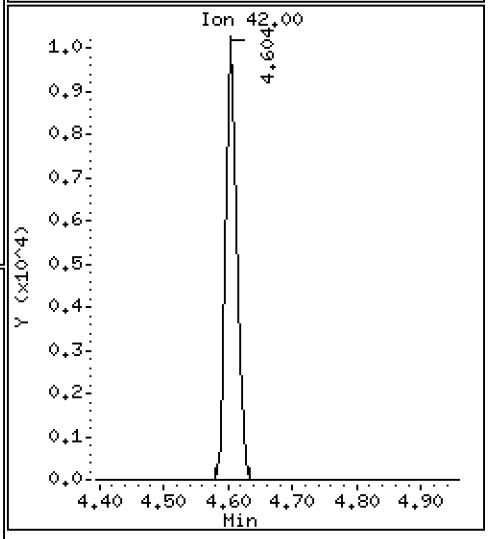
90 N-Nitrosodimethylamine

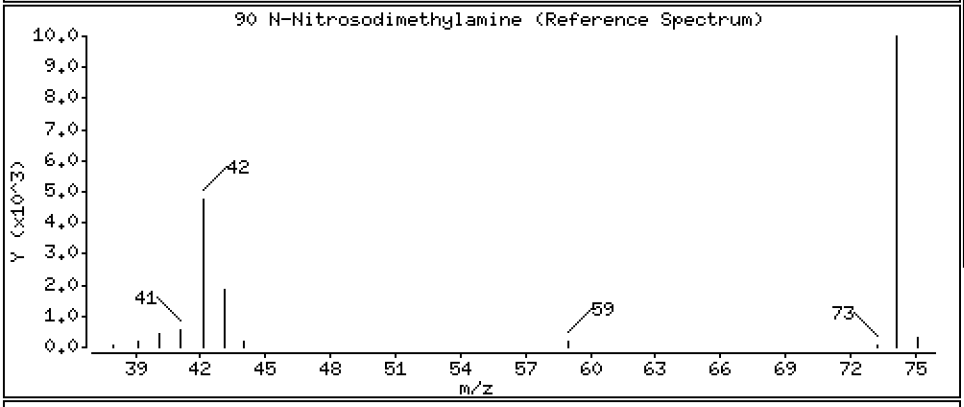
Concentration: 4.174 ug/mL

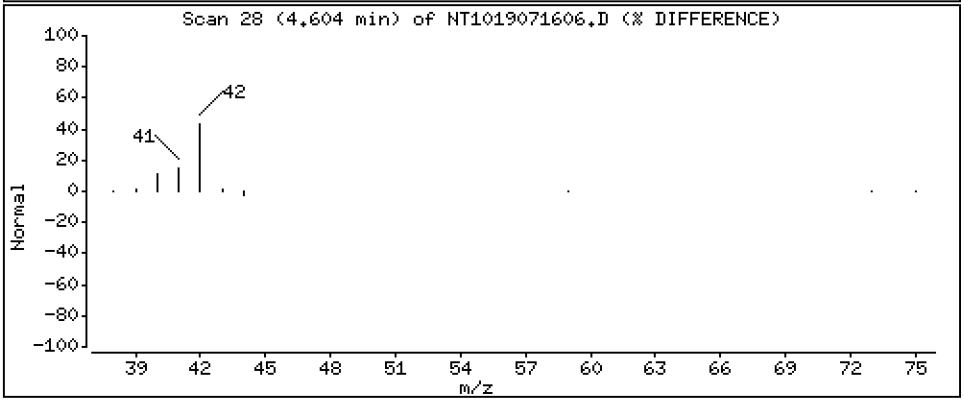












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

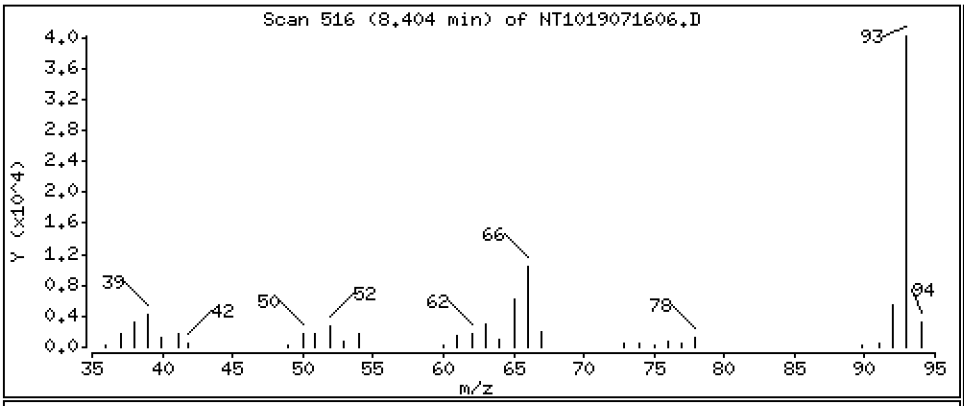
Operator: YZ

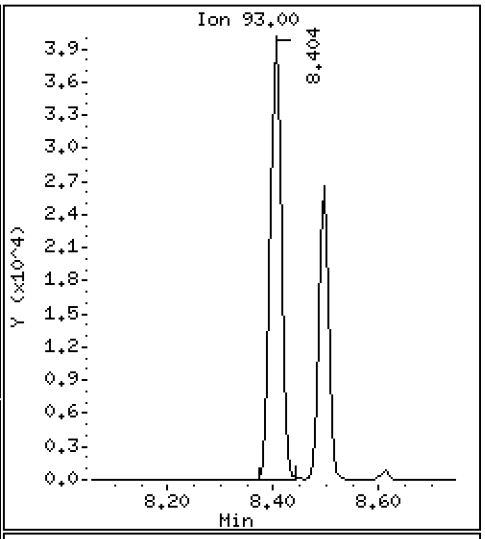
Column phase: ZB-5msi

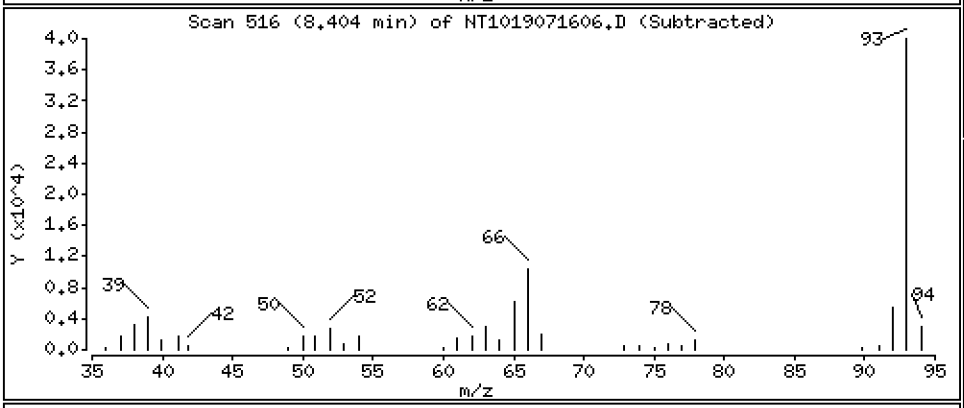
Column diameter: 0.25

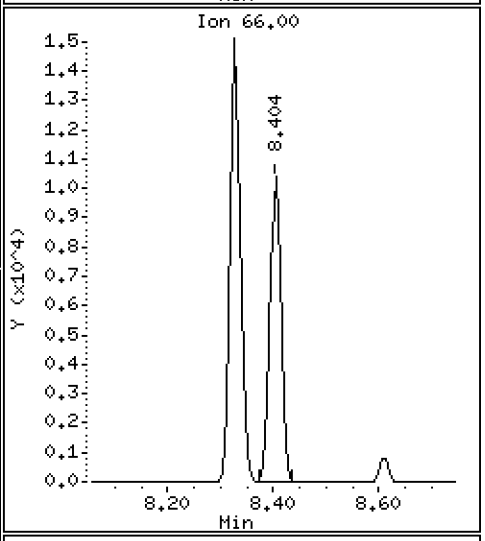
91 Aniline

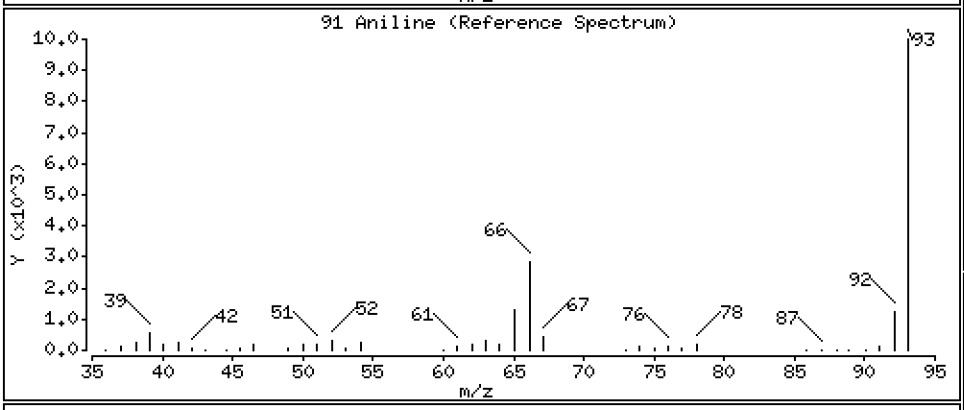
Concentration: 6.581 ug/mL

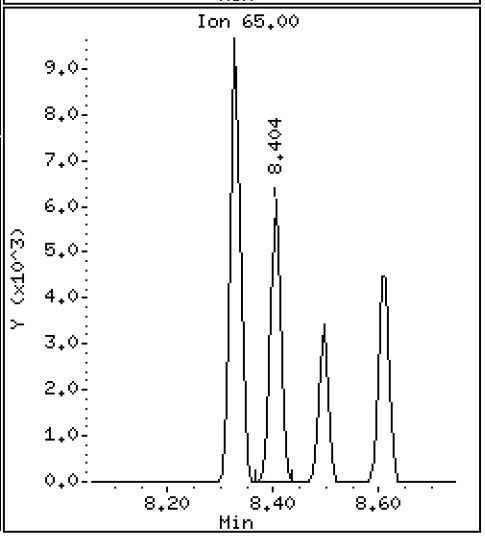


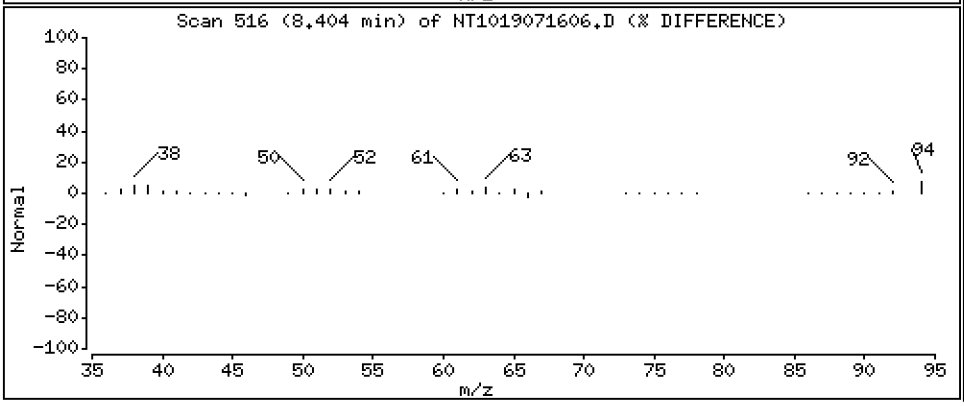












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

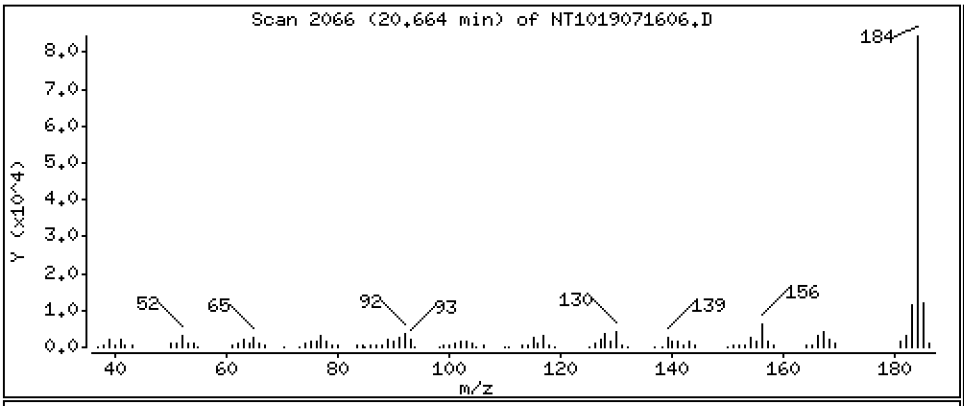
Operator: YZ

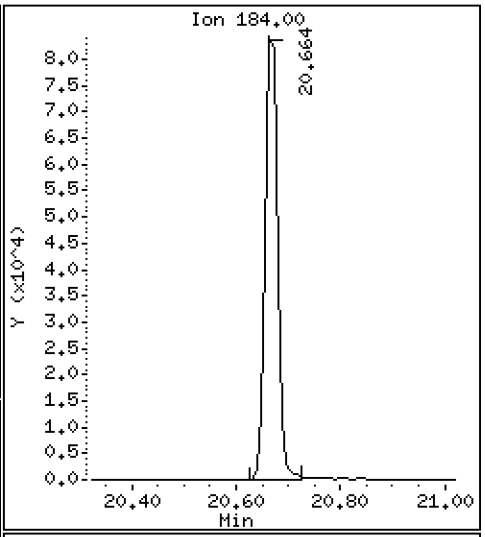
Column phase: ZB-5msi

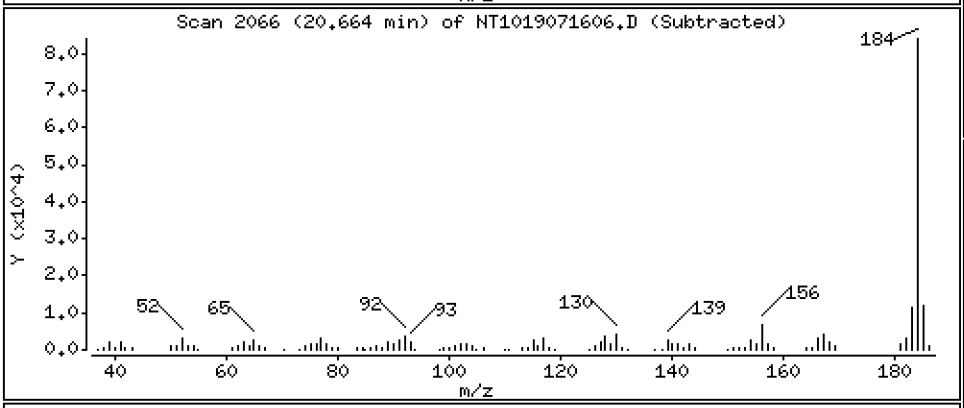
Column diameter: 0.25

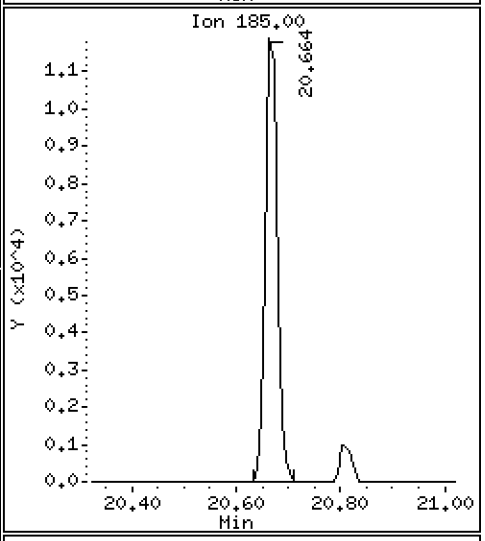
93 Benzidine

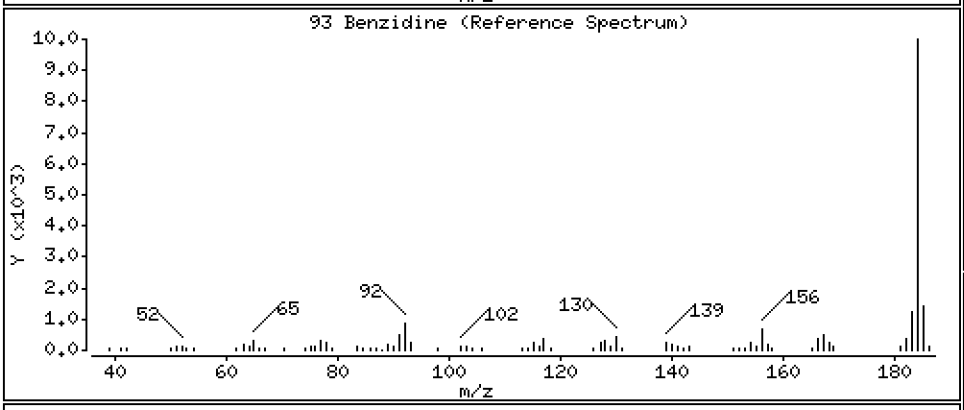
Concentration: 7.786 ug/mL

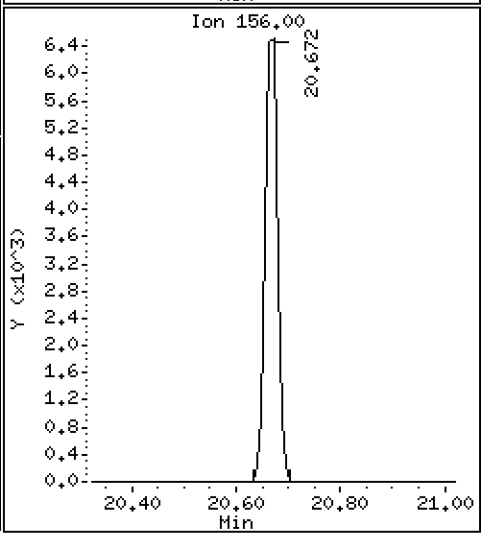


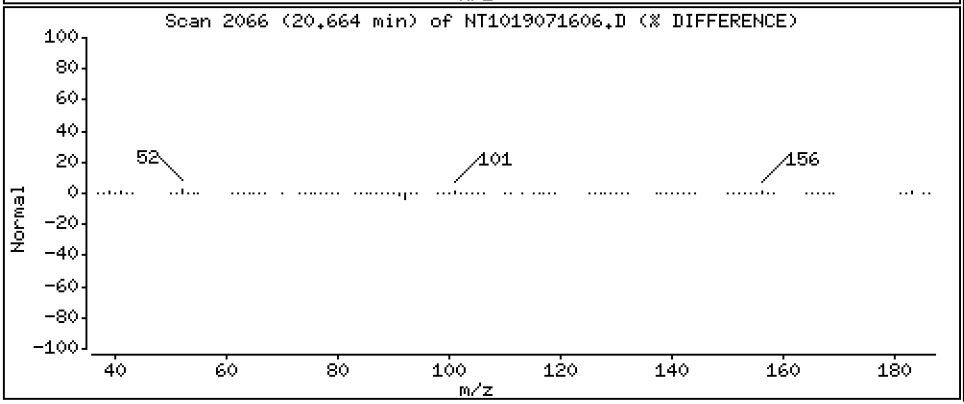












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

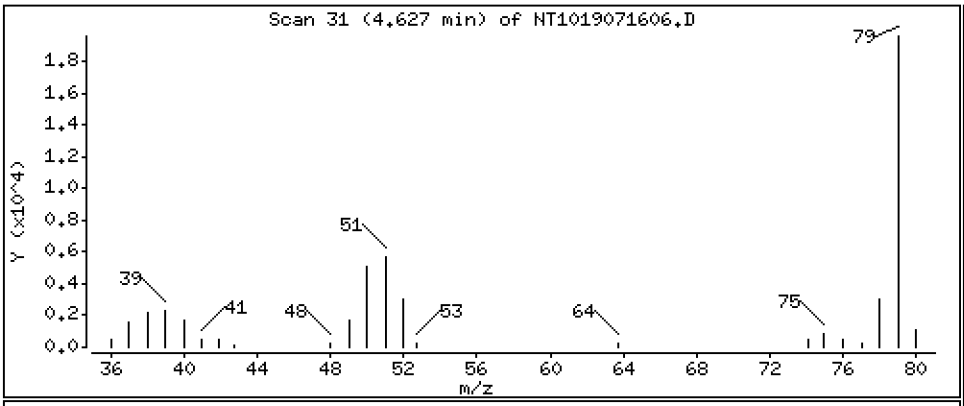
Operator: YZ

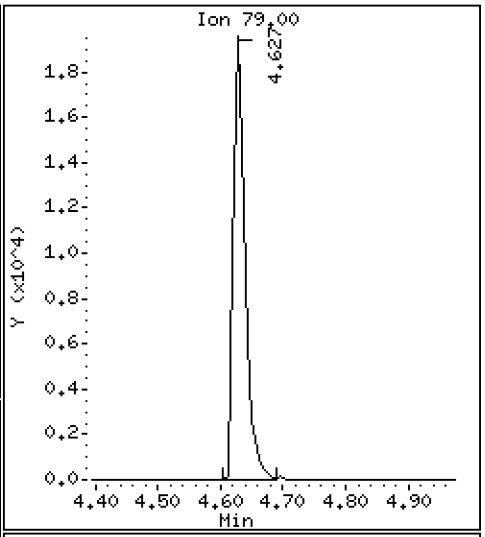
Column phase: ZB-5msi

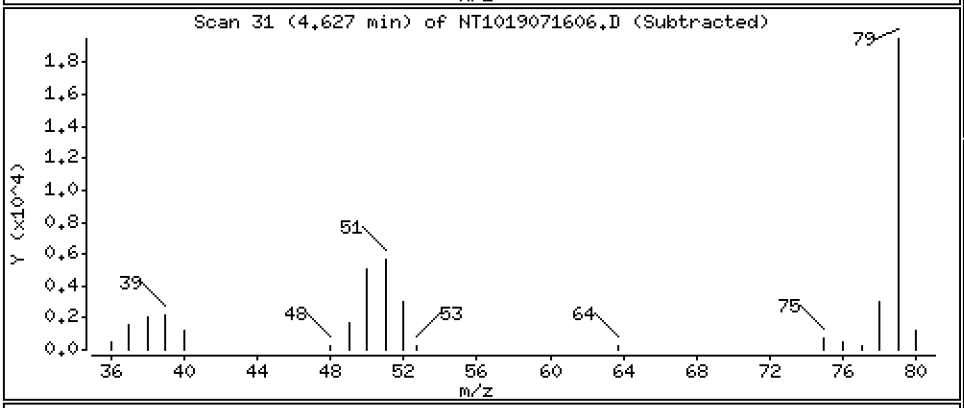
Column diameter: 0.25

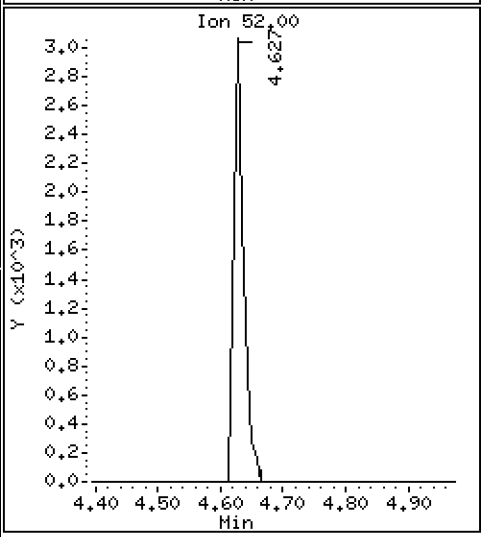
103 Pyridine

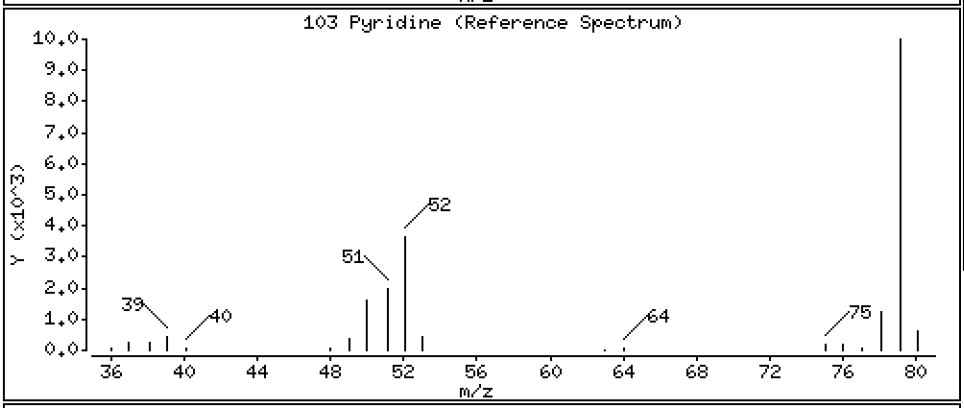
Concentration: 3.955 ug/mL

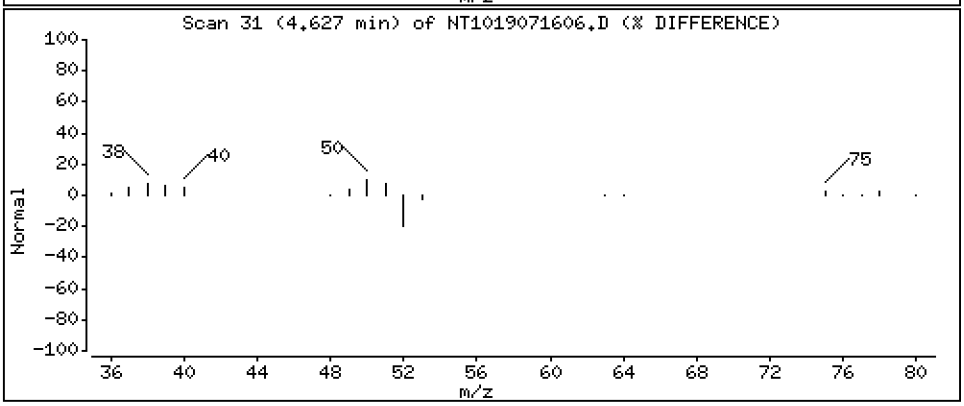












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

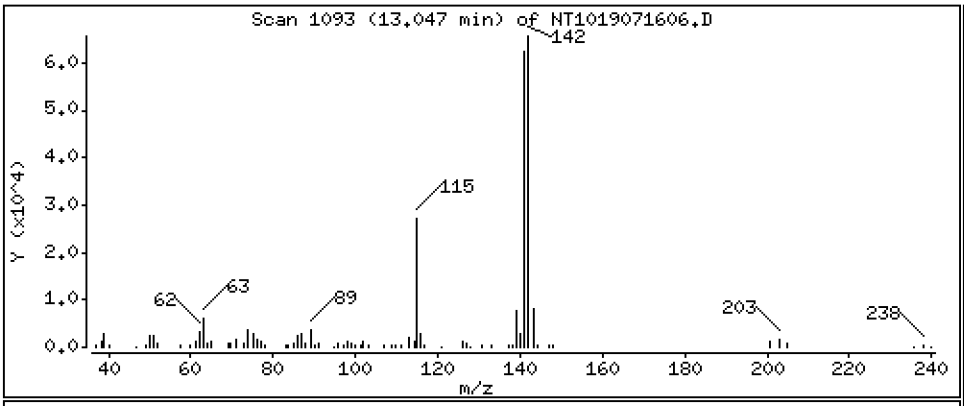
Operator: YZ

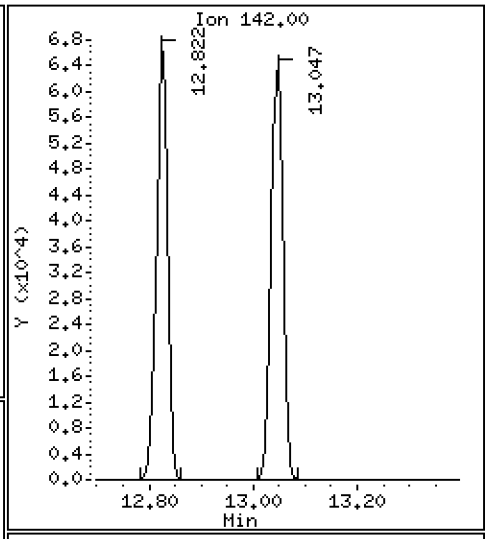
Column phase: ZB-5msi

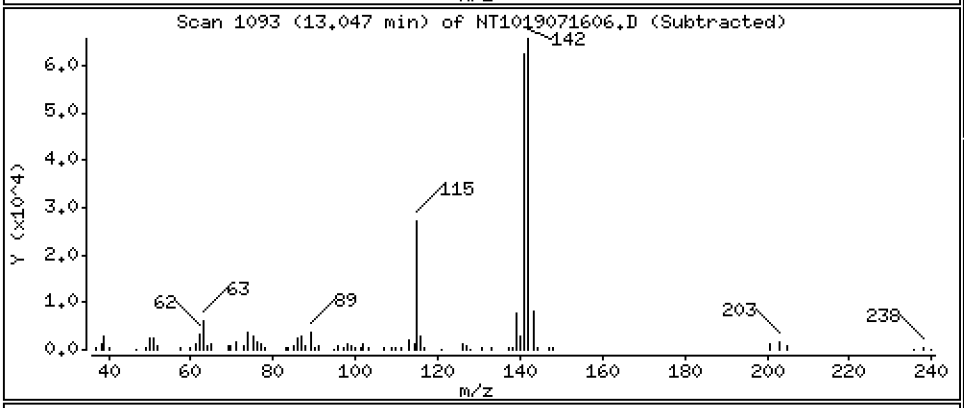
Column diameter: 0.25

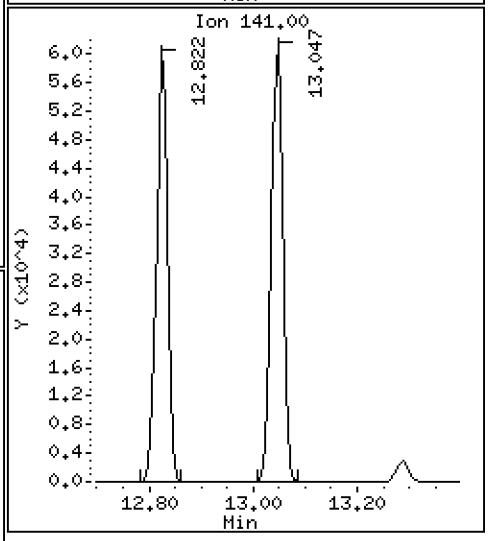
105 1-methylnaphthalene

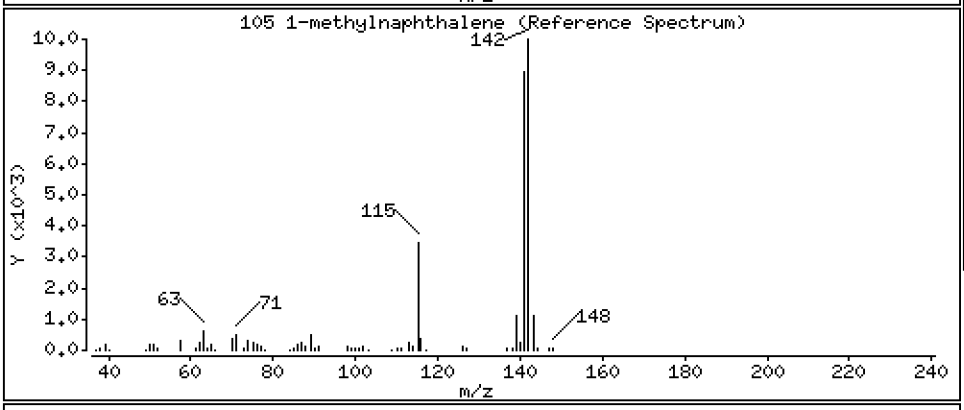
Concentration: 4.423 ug/mL

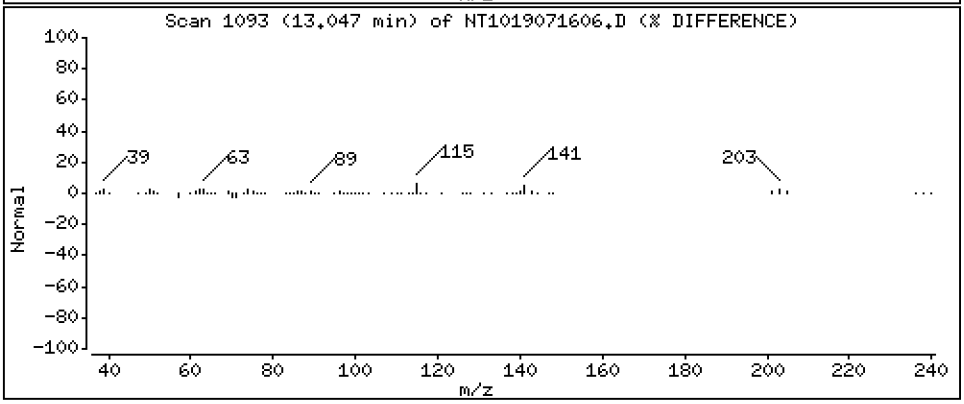












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Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

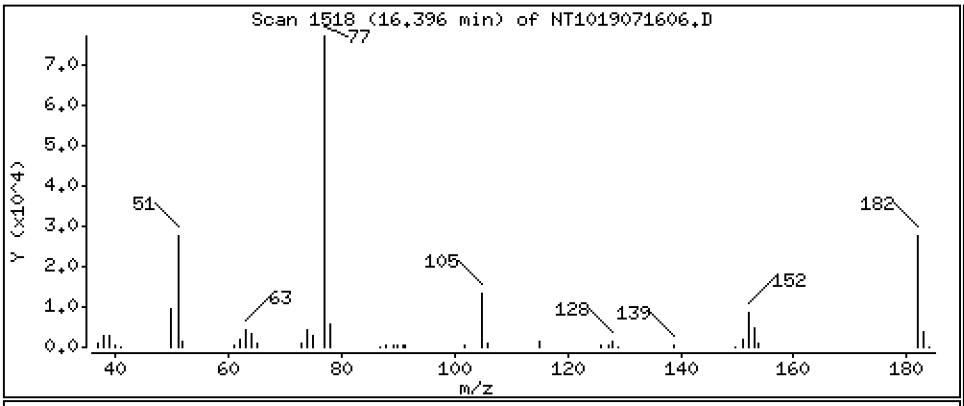
Operator: YZ

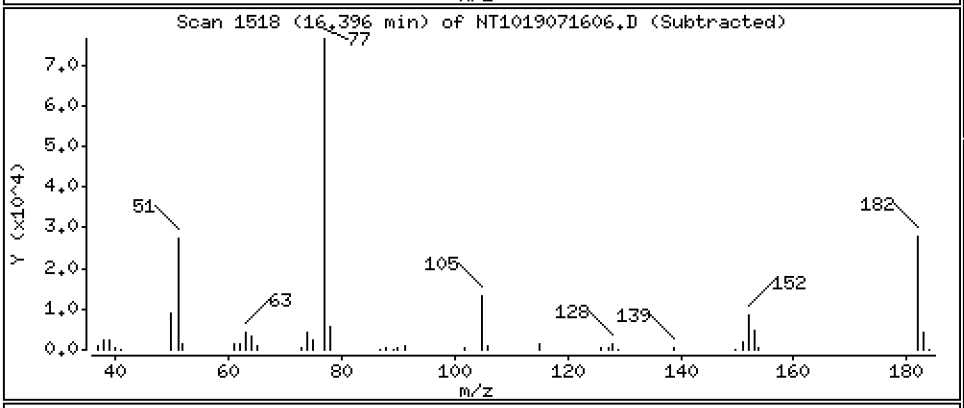
Column phase: ZB-5msi

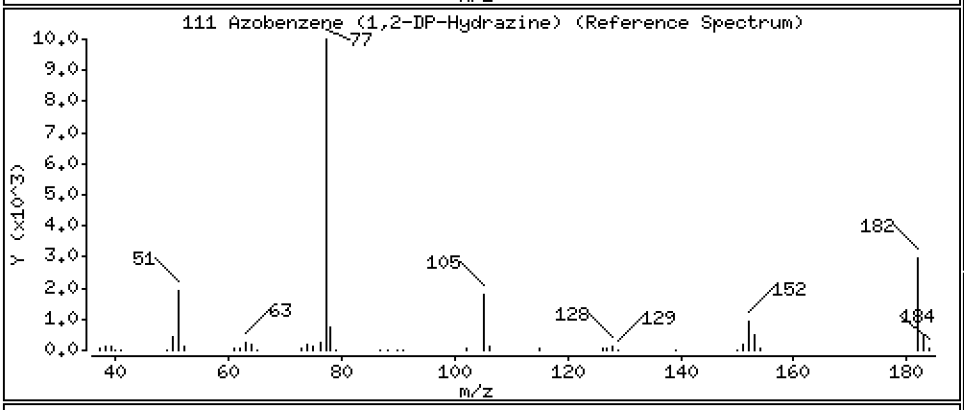
Column diameter: 0.25

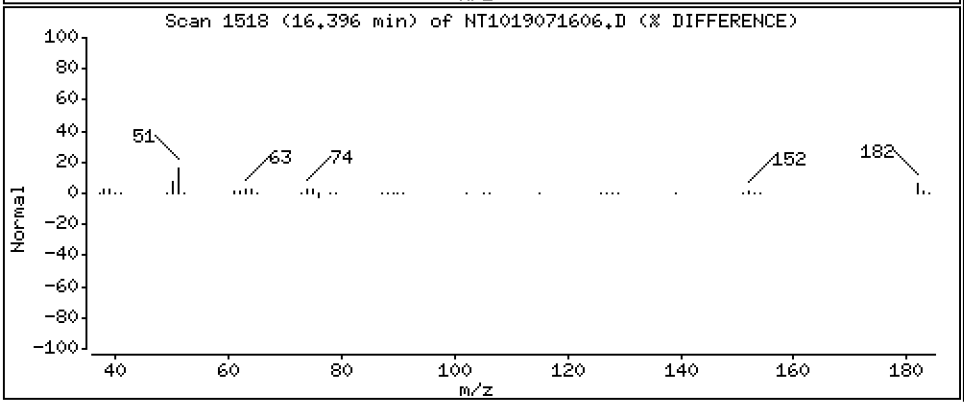
111 Azobenzene (1,2-DP-Hydrazine)

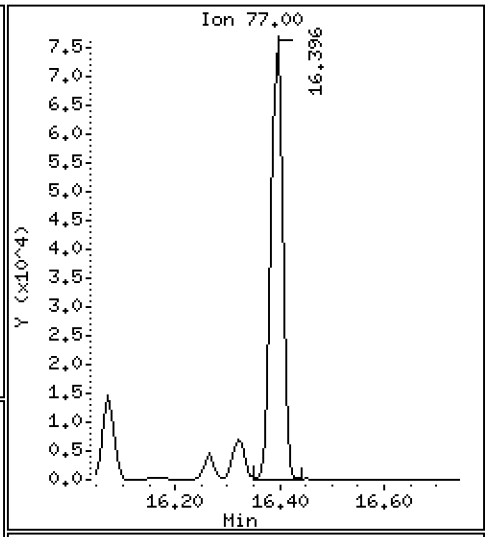
Concentration: 4.756 ug/mL

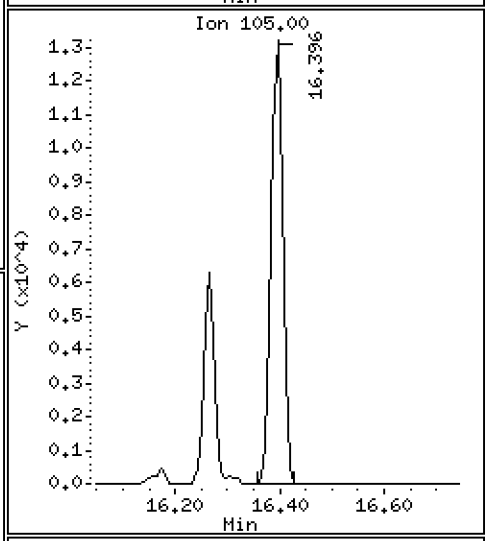


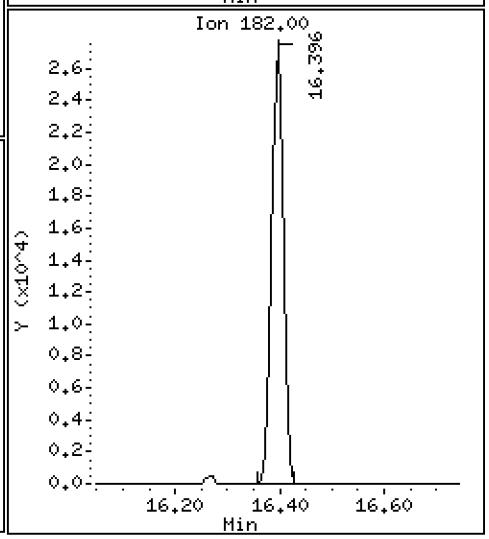












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHG0000-SCV1

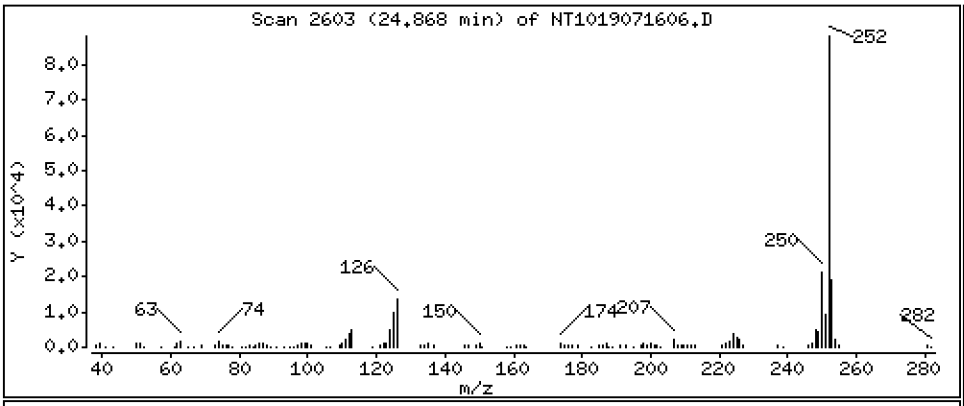
Operator: YZ

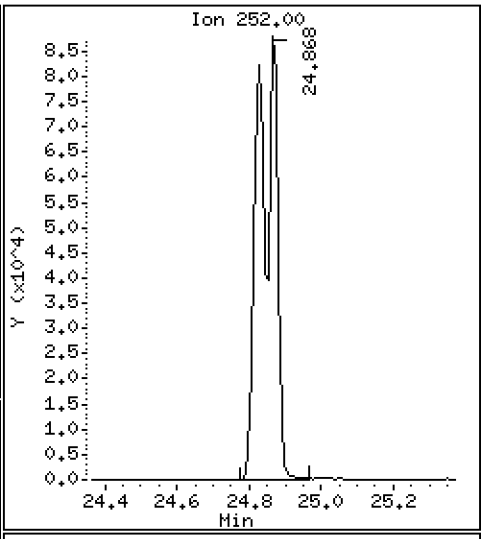
Column phase: ZB-5msi

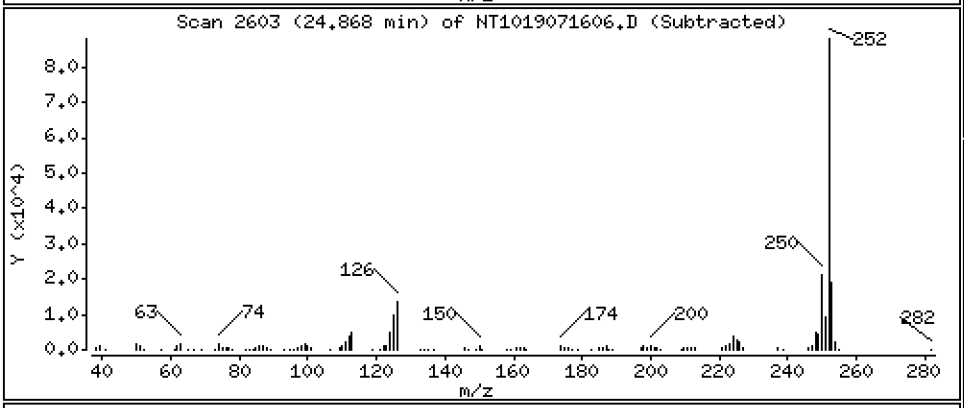
Column diameter: 0.25

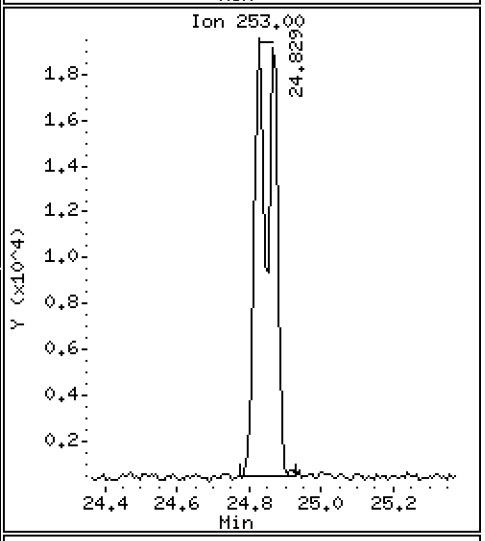
187 Total Benzofluoranthenes

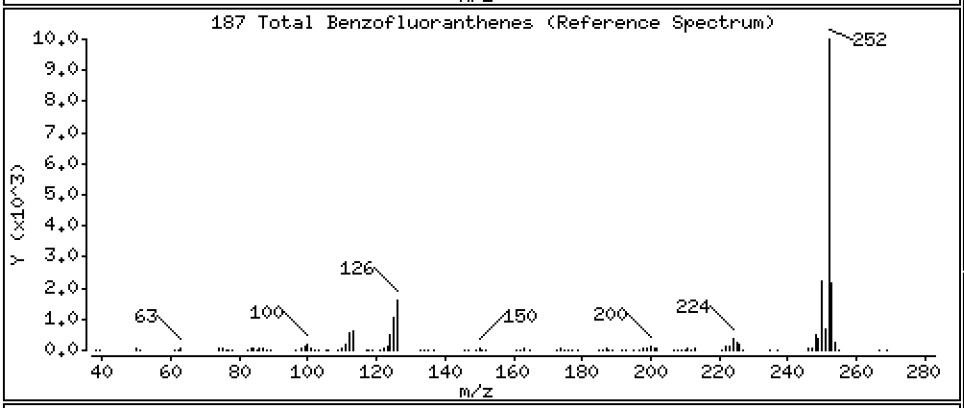
Concentration: 11.97 ug/mL

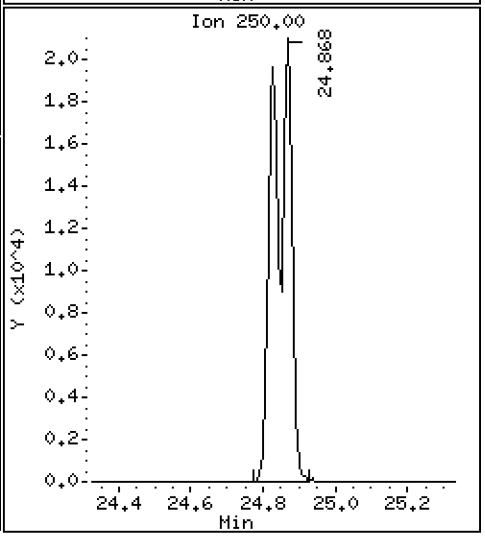


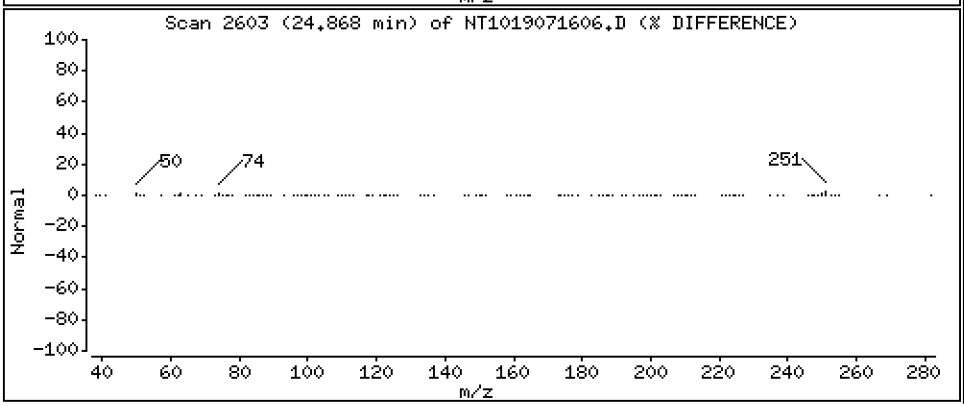












Data File: \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D

Date : 16-JUL-2019 15:38

Client ID:

Instrument: nt10.i

Sample Info: SHC0000-SCV1

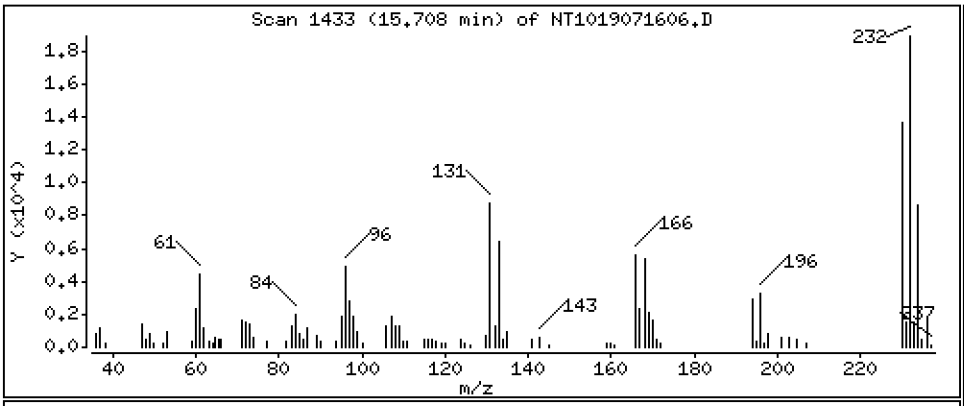
Operator: YZ

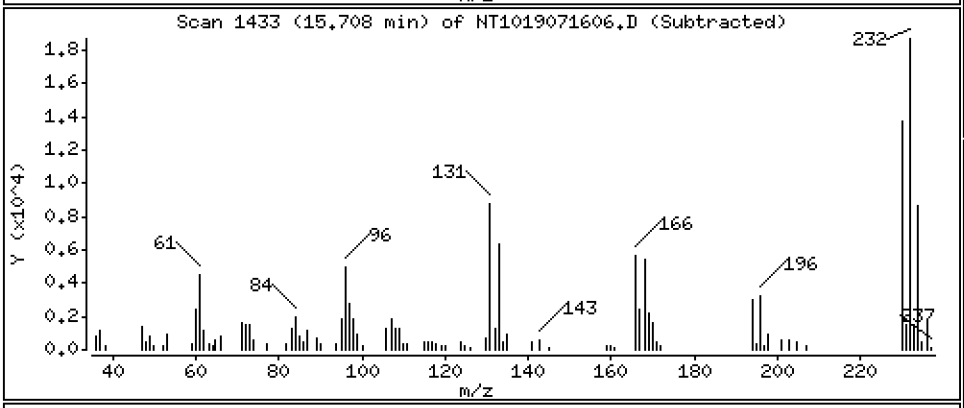
Column phase: ZB-5msi

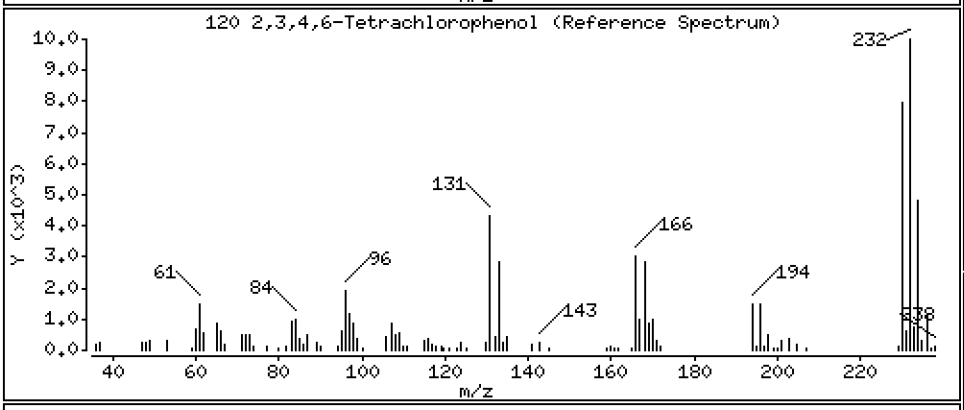
Column diameter: 0.25

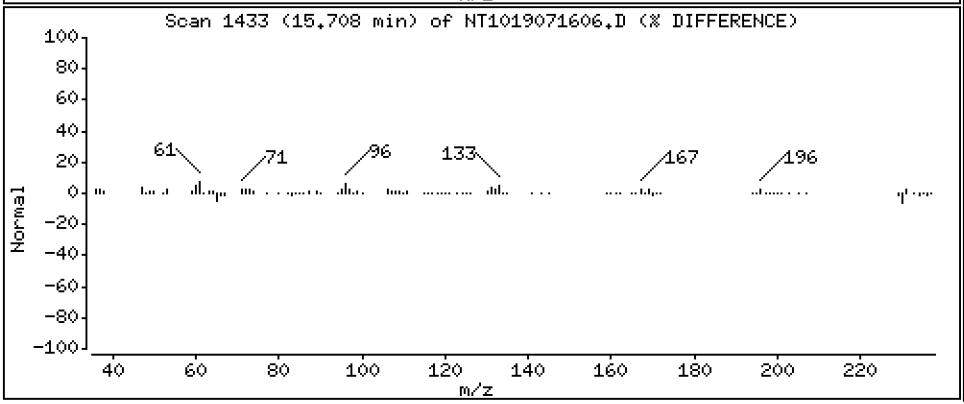
120 2,3,4,6-Tetrachlorophenol

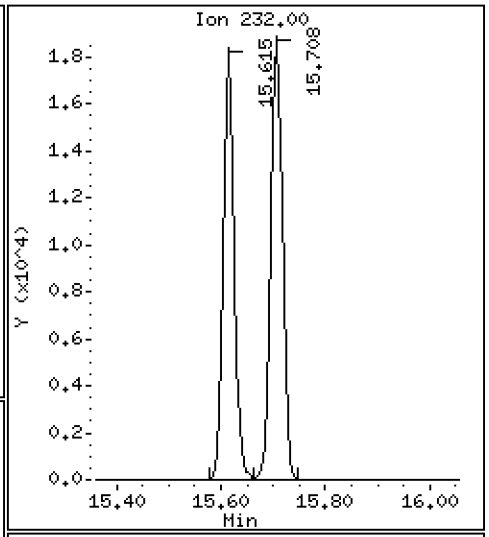
Concentration: 5.448 ug/mL

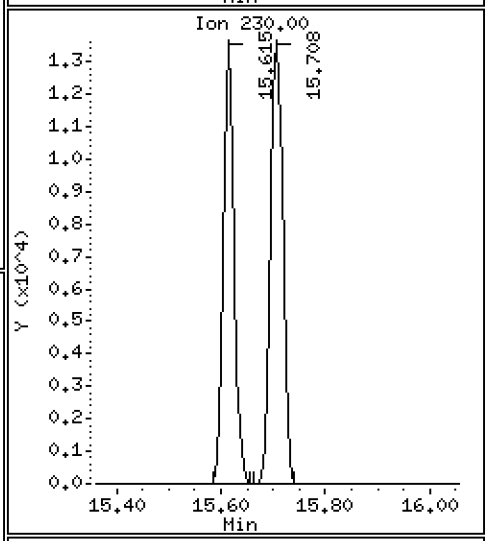


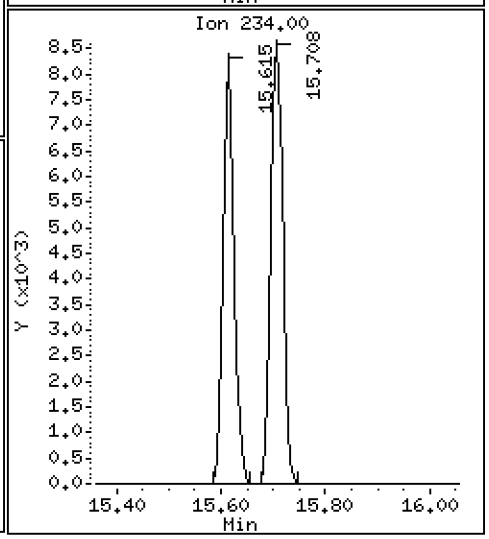












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190716.b\NT1019071606.D
Lab Smp Id: SHG0000-SCV1
Inj Date : 16-JUL-2019 15:38
Operator : YZ Inst ID: nt10.i
Smp Info : SHG0000-SCV1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190716.b\ABN.m
Meth Date : 16-Jul-2019 14:53 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$ 1	2-Fluorophenol	112	Compound Not Detected.					
$ 2	Phenol-d5	99	Compound Not Detected.					
3	Phenol	94	8.326	8.334	(0.931)	46081	4.85502	4.855
$ 5	2-Chlorophenol-d4	132	Compound Not Detected.					
4	Bis(2-Chloroethyl)ether	93	8.496	8.496	(0.950)	36655	4.76603	4.766
6	2-Chlorophenol	128	8.612	8.612	(0.963)	53973	5.09664	5.097
7	1,3-Dichlorobenzene	146	8.875	8.883	(0.992)	62316	5.16334	5.163
* 8	1,4-Dichlorobenzene-d4	152	8.945	8.945	(1.000)	32441	4.00000	
9	1,4-Dichlorobenzene	146	8.968	8.976	(1.003)	57278	4.92842	4.928
$ 10	1,2-Dichlorobenzene-d4	152	Compound Not Detected.					
12	1,2-Dichlorobenzene	146	9.325	9.325	(1.043)	56092	5.07316	5.073
11	Benzyl alcohol	108	9.209	9.209	(1.029)	27517	4.38042	4.380
14	2,2'-oxybis(1-Chloropropane)	121	9.511	9.512	(1.063)	15908	4.76164	4.762
13	2-Methylphenol	108	9.434	9.434	(1.055)	35741	4.90224	4.902
17	Hexachloroethane	117	9.907	9.907	(1.108)	23187	4.79520	4.795
16	N-Nitroso-di-n-propylamine	70	9.768	9.768	(1.092)	21442	4.60959	4.610
15	4-Methylphenol	108	9.706	9.698	(1.085)	39594	5.12343	5.123
$ 18	Nitrobenzene-d5	82	Compound Not Detected.					
19	Nitrobenzene	77	10.063	10.063	(0.883)	39648	4.74178	4.742
20	Isophorone	82	10.506	10.506	(0.922)	69754	4.97407	4.974
21	2-Nitrophenol	139	10.684	10.684	(0.937)	29921	5.40083	5.401
22	2,4-Dimethylphenol	107	10.735	10.735	(0.942)	43381	4.63844	4.638
23	Bis(2-Chloroethoxy)methane	93	10.930	10.930	(0.959)	38489	4.78761	4.788
24	Benzoic acid	105	10.896	10.947	(0.956)	51685	8.18115	8.181(M)
25	2,4-Dichlorophenol	162	11.126	11.134	(0.976)	43578	5.61170	5.612
26	1,2,4-Trichlorobenzene	180	11.314	11.322	(0.993)	46294	5.26586	5.266
* 27	Naphthalene-d8	136	11.399	11.406	(1.000)	111397	4.00000	
28	Naphthalene	128	11.445	11.445	(1.004)	137612	5.37429	5.374
29	4-Chloroaniline	127	11.569	11.576	(1.015)	47808	4.25768	4.258
30	Hexachlorobutadiene	225	11.800	11.800	(1.035)	28274	5.24234	5.242
31	4-Chloro-3-methylphenol	107	12.520	12.528	(1.098)	41222	5.18183	5.182
32	2-Methylnaphthalene	142	12.822	12.822	(1.125)	99736	4.59205	4.592
33	Hexachlorocyclopentadiene	237	13.286	13.286	(0.887)	33245	5.32886	5.329

		QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
Compounds								
34	2,4,6-Trichlorophenol	196	13.441	13.441	(0.897)	32922	5.36363	5.364
35	2,4,5-Trichlorophenol	196	13.511	13.511	(0.902)	35856	5.65775	5.658
$ 36	2-Fluorobiphenyl	172	Compound Not Detected.					
37	2-Chloronaphthalene	162	13.813	13.813	(0.922)	101042	5.17085	5.171
38	2-Nitroaniline	65	14.068	14.076	(0.939)	19606	4.67929	4.679
39	Dimethylphthalate	163	14.501	14.501	(0.968)	113575	5.12498	5.125
40	Acenaphthylene	152	14.672	14.672	(0.979)	152655	5.31031	5.310
41	2,6-Dinitrotoluene	165	14.641	14.641	(0.977)	27009	5.52147	5.521
* 42	Acenaphthene-d10	164	14.981	14.981	(1.000)	59636	4.00000	
43	3-Nitroaniline	138	14.912	14.919	(0.995)	27020	4.69987	4.700
44	Acenaphthene	153	15.051	15.051	(1.005)	93212	5.16034	5.160
45	2,4-Dinitrophenol	184	15.120	15.128	(1.009)	7077	2.10543	2.105
46	Dibenzofuran	168	15.375	15.375	(1.026)	135148	4.55248	4.552
47	4-Nitrophenol	109	15.228	15.236	(1.017)	17733	4.83643	4.836
48	2,4-Dinitrotoluene	165	15.437	15.437	(1.030)	35540	5.34008	5.340
50	Diethylphthalate	149	15.947	15.947	(1.065)	113827	5.33452	5.335
49	Fluorene	166	16.079	16.079	(1.073)	108124	5.32576	5.326
51	4-Chlorophenyl-phenylether	204	16.071	16.071	(1.073)	53158	5.08240	5.082
52	4-Nitroaniline	138	16.172	16.180	(1.079)	38219	6.01850	6.018
53	4,6-Dinitro-2-methylphenol	198	16.264	16.272	(0.904)	23587	4.24644	4.246
54	N-Nitrosodiphenylamine	169	16.318	16.326	(0.907)	103459	6.68706	6.687
$ 55	2,4,6-Tribromophenol	330	Compound Not Detected.					
56	4-Bromophenyl-phenylether	248	17.066	17.074	(0.948)	46632	5.14155	5.142
57	Hexachlorobenzene	284	17.383	17.383	(0.966)	48344	5.00313	5.003
58	Pentachlorophenol	266	17.731	17.739	(0.985)	18305	4.49130	4.491
* 59	Phenanthrene-d10	188	17.994	17.994	(1.000)	112711	4.00000	
60	Phenanthrene	178	18.041	18.041	(1.003)	151750	5.51181	5.512
61	Anthracene	178	18.134	18.134	(1.008)	156557	5.60032	5.600
62	Carbazole	167	18.466	18.466	(1.026)	139270	5.29413	5.294
63	Di-n-butylphthalate	149	19.279	19.279	(1.071)	209644	5.50406	5.504
64	Fluoranthene	202	20.424	20.424	(0.887)	187677	5.63061	5.631
65	Pyrene	202	20.849	20.849	(0.905)	196789	5.65387	5.654
$ 66	Terphenyl-d14	244	Compound Not Detected.					
67	Butylbenzylphthalate	149	22.073	22.073	(0.958)	94139	5.80624	5.806
68	Benzo(a)anthracene	228	23.009	23.009	(0.999)	175081	5.53249	5.532
* 69	Chrysene-d12	240	23.033	23.033	(1.000)	109072	4.00000	
70	3,3'-Dichlorobenzidine	252	22.971	22.971	(0.997)	99094	8.91333	8.913
71	Chrysene	228	23.079	23.079	(1.002)	147580	5.27020	5.270
72	bis(2-Ethylhexyl)phthalate	149	23.095	23.095	(0.959)	122414	5.55703	5.557
* 134	Di-n-octylphthalate-d4	153	24.070	24.070	(1.000)	250455	4.00000	
73	Di-n-octylphthalate	149	24.078	24.078	(1.000)	234982	5.07151	5.072
74	Benzo(b)fluoranthene	252	24.829	24.829	(0.972)	156896	5.73072	5.731(M)
75	Benzo(k)fluoranthene	252	24.867	24.867	(0.973)	151450	5.49868	5.499
76	Benzo(a)pyrene	252	25.440	25.440	(0.996)	145489	5.92107	5.921
* 77	Perylene-d12	264	25.549	25.549	(1.000)	95425	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	28.036	28.036	(1.097)	143150	4.84866	4.849
79	Dibenzo(a,h)anthracene	278	28.044	28.052	(1.098)	110443	4.59483	4.595
80	Benzo(g,h,i)perylene	276	28.766	28.766	(1.126)	117805	4.73759	4.738
90	N-Nitrosodimethylamine	74	4.603	4.611	(0.515)	14689	4.17355	4.174
91	Aniline	93	8.403	8.403	(0.939)	55305	6.58102	6.581
93	Benzidine	184	20.664	20.671	(0.897)	131293	7.78573	7.786
103	Pyridine	79	4.626	4.626	(0.517)	25814	3.95469	3.955
105	1-methylnaphthalene	142	13.046	13.046	(1.145)	96574	4.42291	4.423
111	Azobenzene (1,2-DP-Hydrazine)	77	16.395	16.395	(1.094)	112853	4.75576	4.756

						CONCENTRATIONS	
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
187 Total Benzofluoranthenes	252	24.867	24.867	(0.973)	314240	11.9660	11.97
99 Perylene	252	Compound Not Detected.					
98 Retene	219	Compound Not Detected.					
120 2,3,4,6-Tetrachlorophenol	232	15.708	15.708	(1.048)	27817	5.44824	5.448

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019071606.D
Lab Smp Id: SHG0000-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190716.b\ABN.m
Misc Info:

Calibration Date: 16-JUL-2019
Calibration Time: 13:56
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	32441	-0.91
27 Naphthalene-d8	117487	58744	234974	111397	-5.18
42 Acenaphthene-d10	61859	30930	123718	59636	-3.59
59 Phenanthrene-d10	113574	56787	227148	112711	-0.76
69 Chrysene-d12	105788	52894	211576	109072	3.10
134 Di-n-octylphthala	252823	126412	505646	250455	-0.94
77 Perylene-d12	113992	56996	227984	95425	-16.29

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.95	8.45	9.45	8.95	-0.00
27 Naphthalene-d8	11.41	10.91	11.91	11.40	-0.07
42 Acenaphthene-d10	14.98	14.48	15.48	14.98	-0.00
59 Phenanthrene-d10	17.99	17.49	18.49	17.99	-0.00
69 Chrysene-d12	23.03	22.53	23.53	23.03	-0.00
134 Di-n-octylphthala	24.07	23.57	24.57	24.07	-0.00
77 Perylene-d12	25.55	25.05	26.05	25.55	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019071606.D

Lab ID: SHG0000-SCV1
nt10.i, 20190716.b\ABN.m,   16-JUL-2019 15:38

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

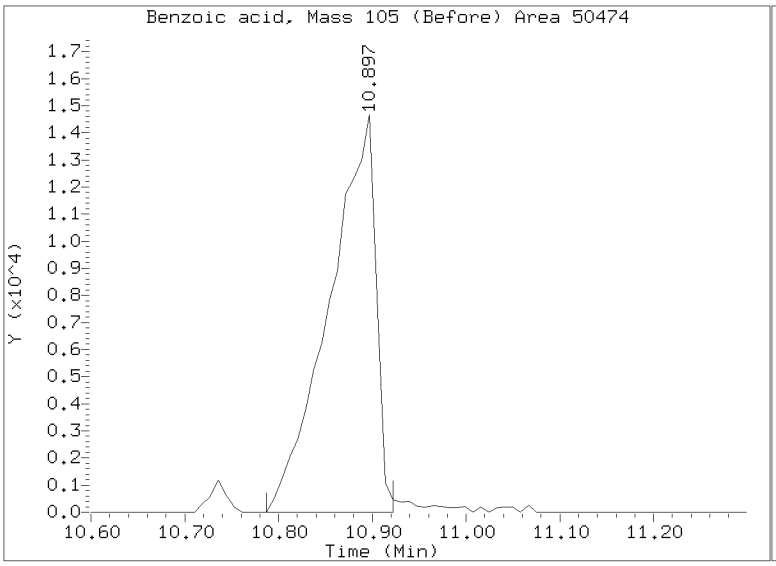
RRT check based on Ccal File: NT1019071604.D

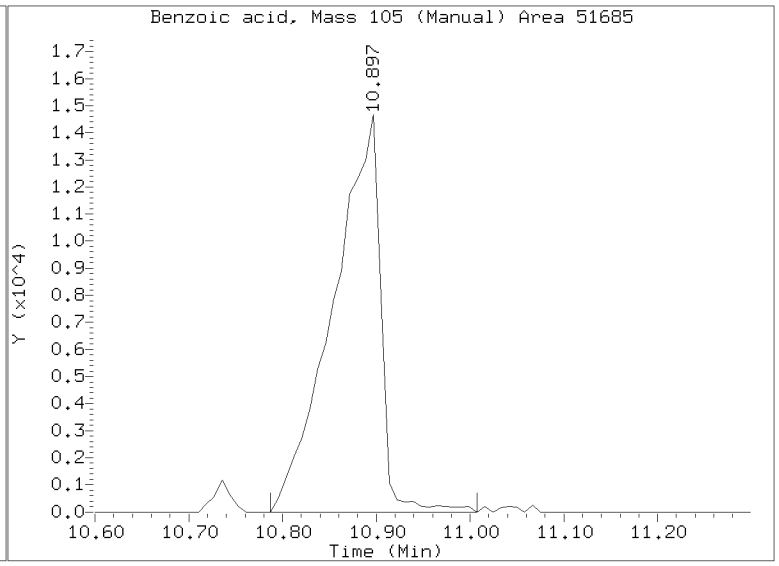
On Column LOD for nt10.i, 20190716.b\ABN.m, PSDDAICAL.sub = 0.0000

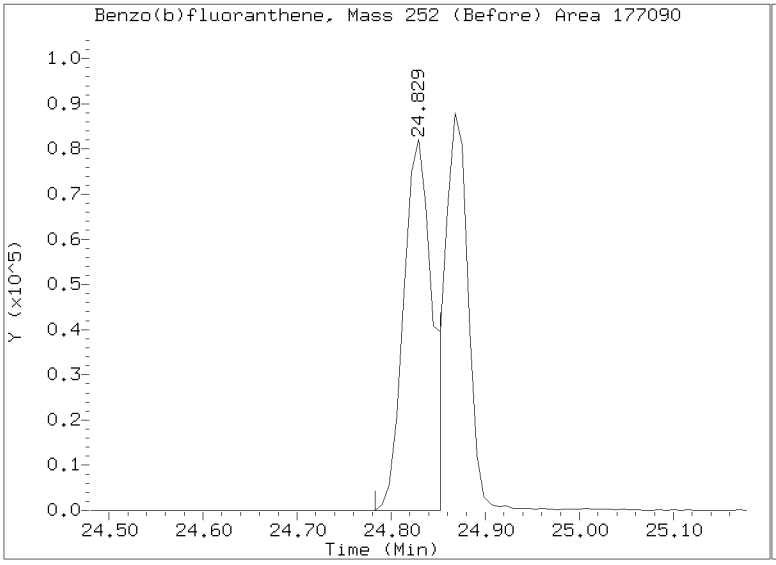
* Only compounds listed in the work order have been verified by the analyst *

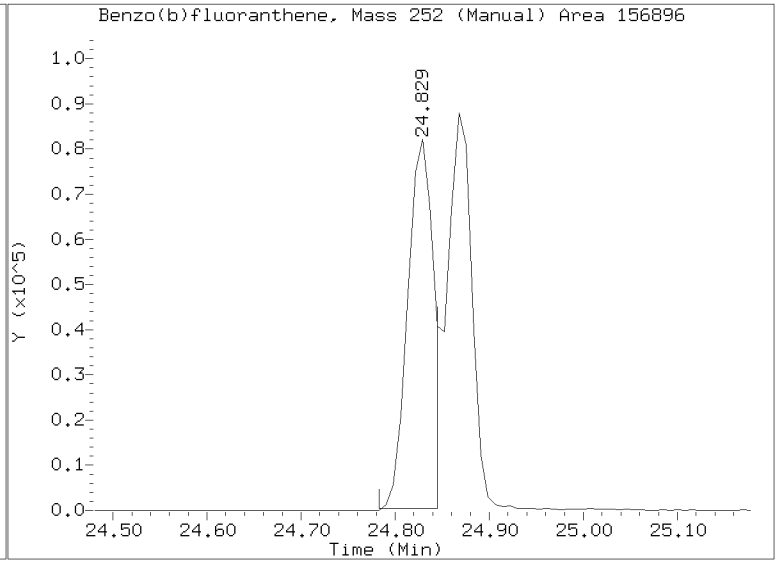
Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190716.b/NT1019071606.D
Injection Date: 16-JUL-2019 15:38
Lab ID:SHG0000-SCV1 Client ID:
Report Date: 07/17/2019 09:30









LOW-CONCENTRATION CALIBRATION VERIFICATION

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CG00040
Laboratory ID: SHH0303-LCV1
Sequence: SHH0303
Standard ID: H004929

ANALYTE	EXPECTED (ug/mL)	FOUND (ug/mL)	% DRIFT	QC LIMIT
Phenol	0.20000	0.1	-45.7	50.00
Benzyl Alcohol	0.20000	0.1	-38.8	50.00
Benzoic acid	0.80000	0.0	*	50.00
N-Nitrosodiphenylamine	0.20000	0.2	-7.2	50.00
Phenanthrene	0.20000	0.2	-8.3	50.00
Fluoranthene	0.20000	0.2	-20.5	50.00
Pyrene	0.20000	0.2	-8.5	50.00
Butylbenzylphthalate	0.20000	0.1	-41.3	50.00
Benzo(a)anthracene	0.20000	0.2	-18.0	50.00
Chrysene	0.20000	0.2	0.6	50.00
bis(2-Ethylhexyl)phthalate	0.20000	0.2	-21.2	50.00
Di-n-Octylphthalate	0.20000	0.2	-1.8	50.00
Benzofluoranthenes, Total	0.40000	0.4	-1.5	50.00
Benzo(a)pyrene	0.20000	0.2	-12.9	50.00
Indeno(1,2,3-cd)pyrene	0.20000	0.1	-45.5	50.00
Dibenzo(a,h)anthracene	0.20000	0.09	-55.6 *	50.00
Benzo(g,h,i)perylene	0.20000	0.1	-43.0	50.00
2-Fluorophenol	0.30000	0.154	-48.8	50.00
Phenol-d5	0.30000	0.137	-54.4 *	50.00
2-Chlorophenol-d4	0.30000	0.210	-30.2	50.00
1,2-Dichlorobenzene-d4	0.20000	0.182	-9.1	50.00
Nitrobenzene-d5	0.20000	0.0977	-51.1 *	50.00
2-Fluorobiphenyl	0.20000	0.154	-23.2	50.00
2,4,6-Tribromophenol	0.30000	0.0344	-88.6 *	50.00
p-Terphenyl-d14	0.20000	0.154	-22.9	50.00

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

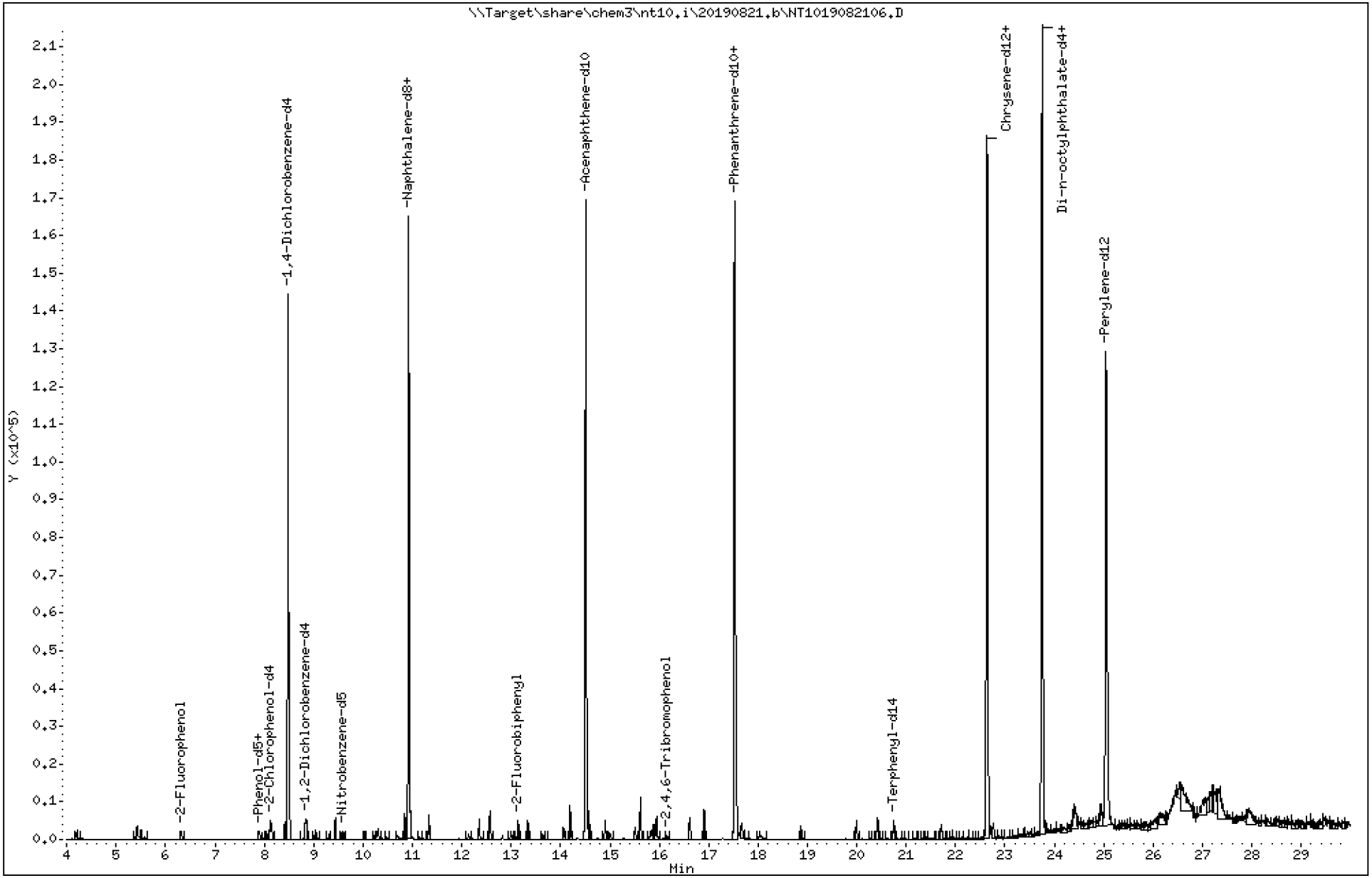
Instrument: nt10.i

Sample Info: SHH0303-LCV1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

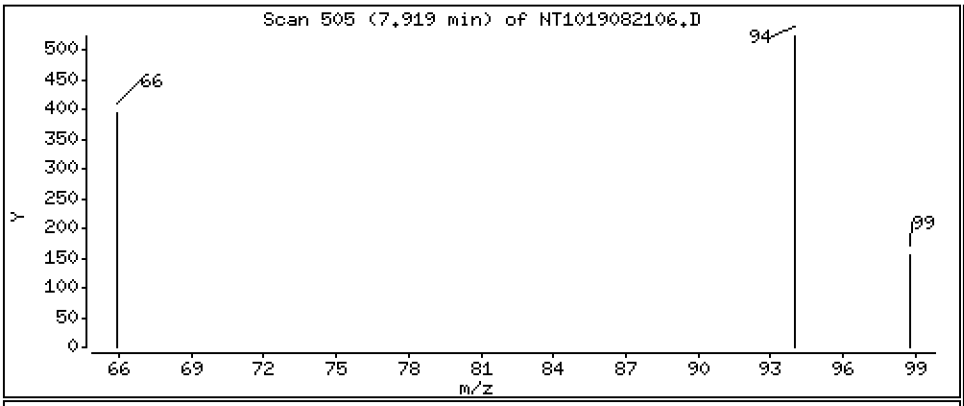
Operator: YZ

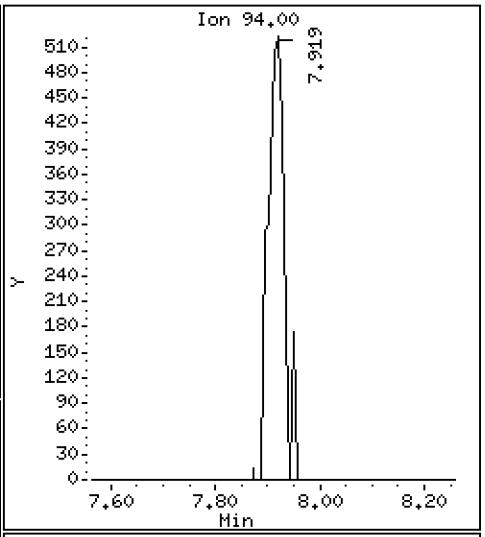
Column phase: ZB-5msi

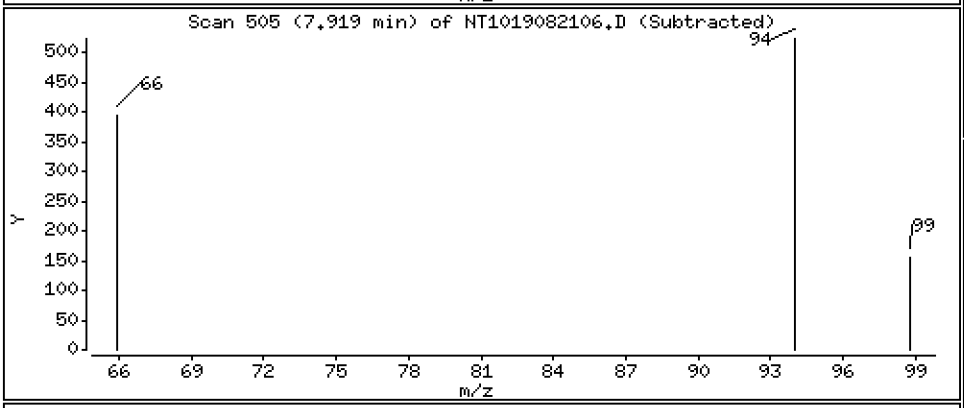
Column diameter: 0.25

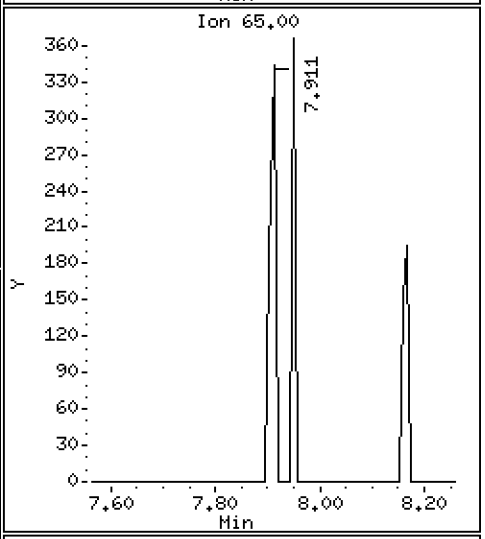
3 Phenol

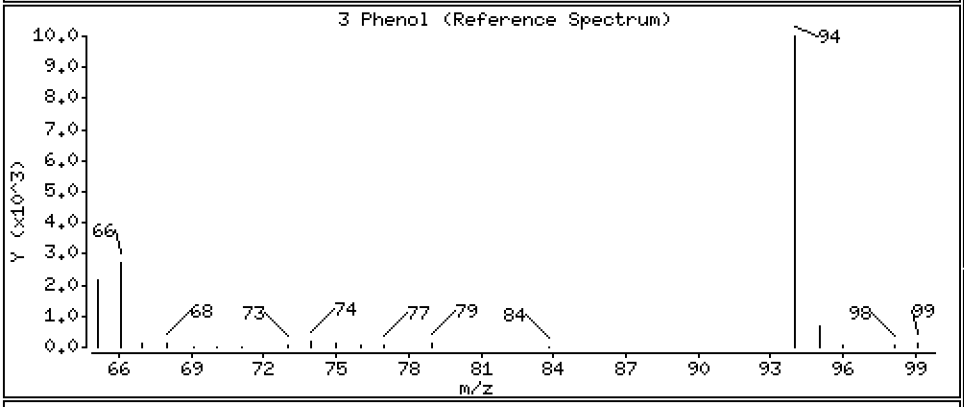
Concentration: 0.1086 ug/mL

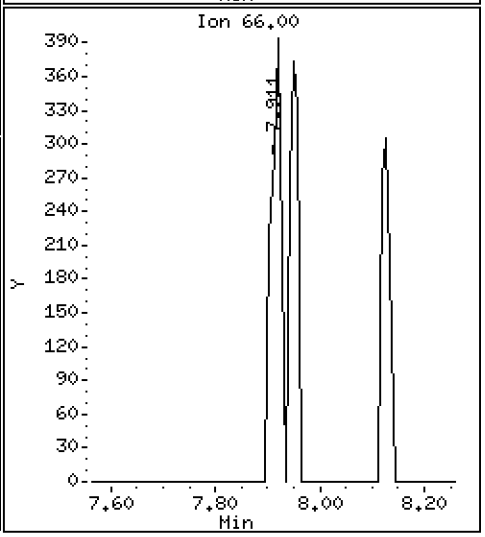


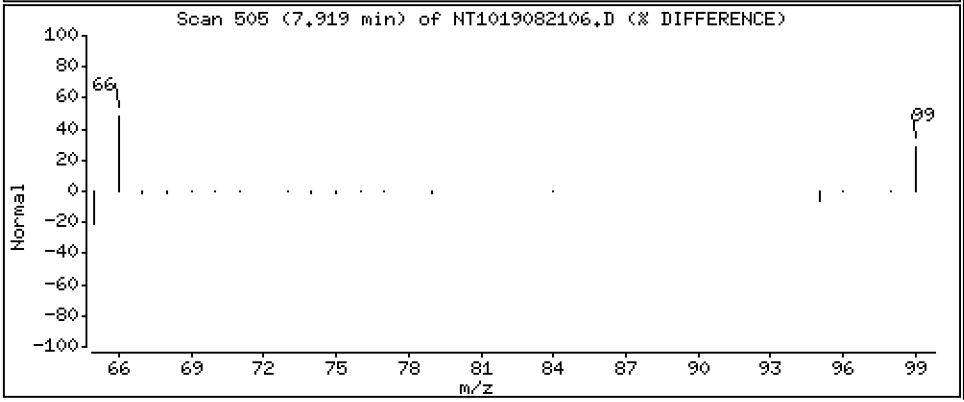












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

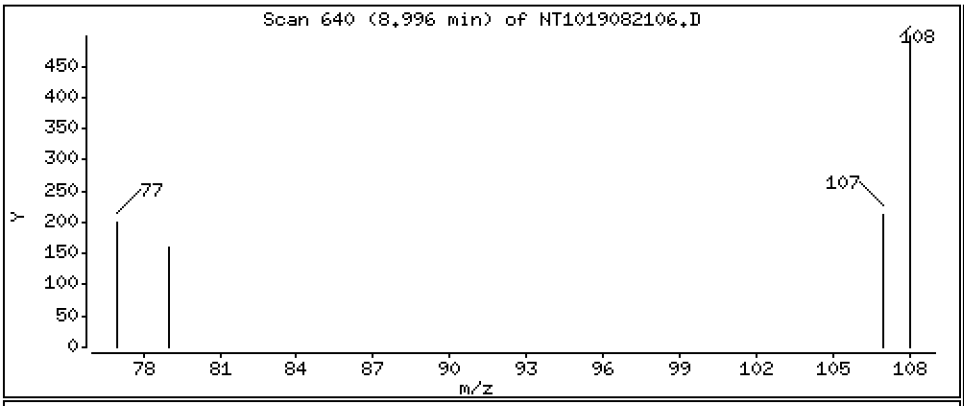
Operator: YZ

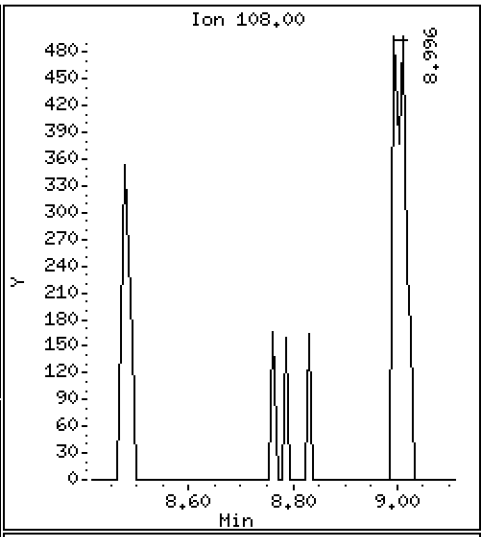
Column phase: ZB-5msi

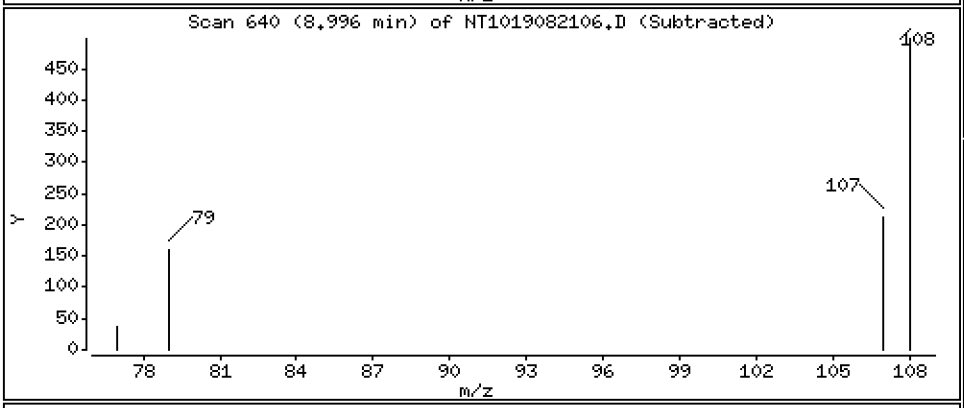
Column diameter: 0.25

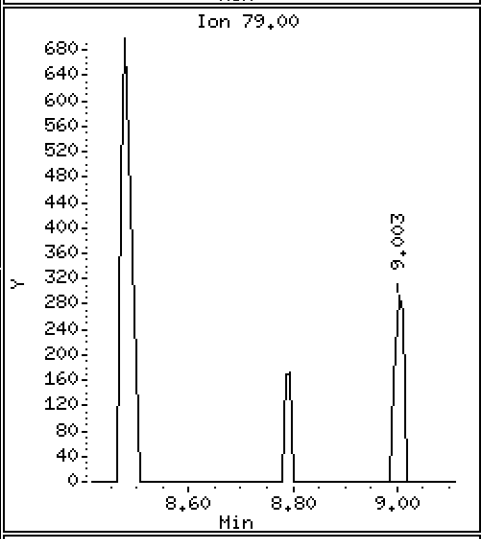
11 Benzyl alcohol

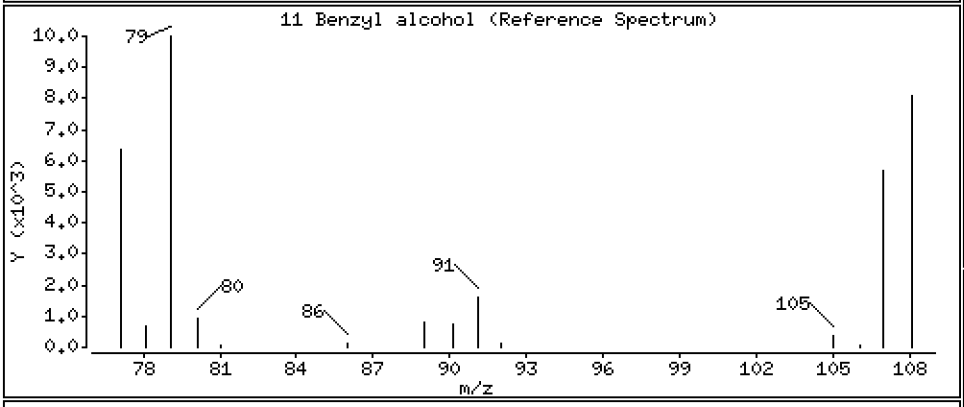
Concentration: 0.1224 ug/mL

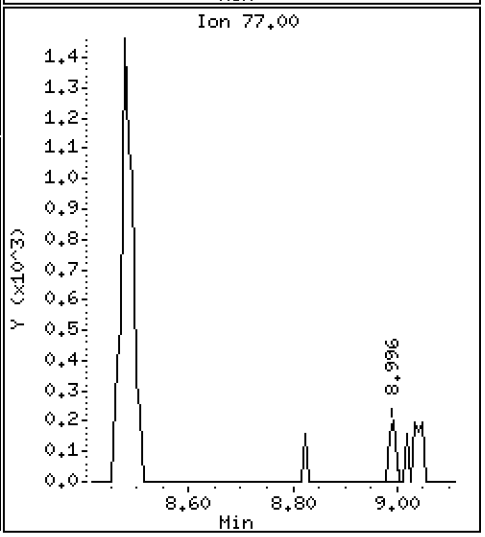


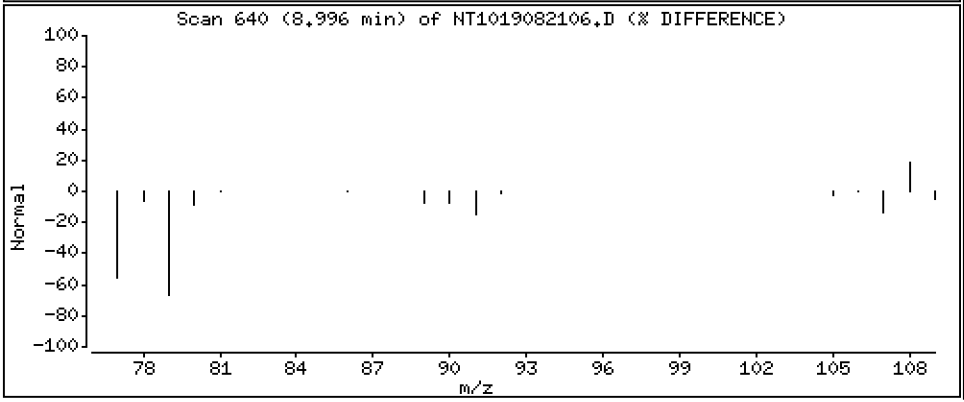












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

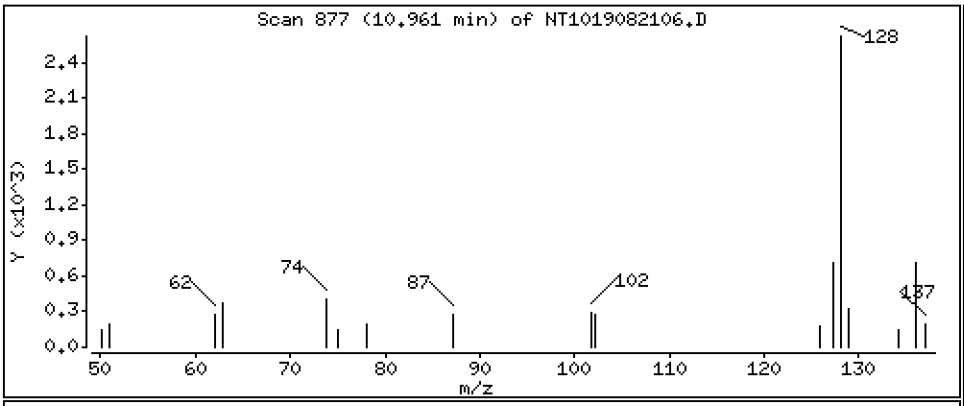
Operator: YZ

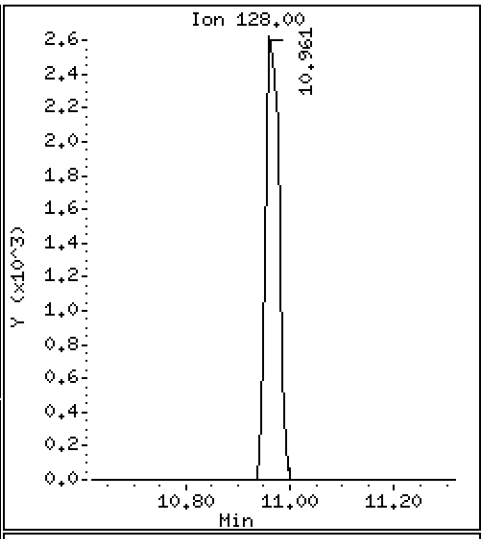
Column phase: ZB-5msi

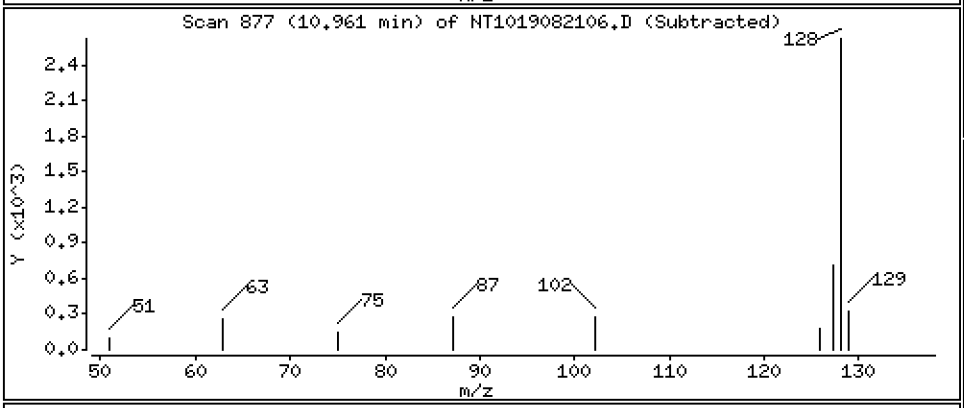
Column diameter: 0.25

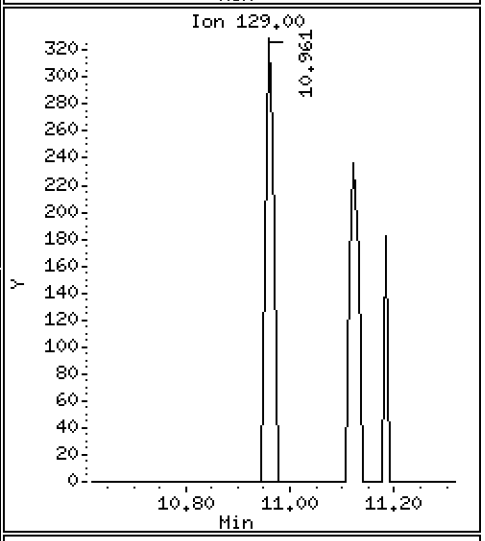
28 Naphthalene

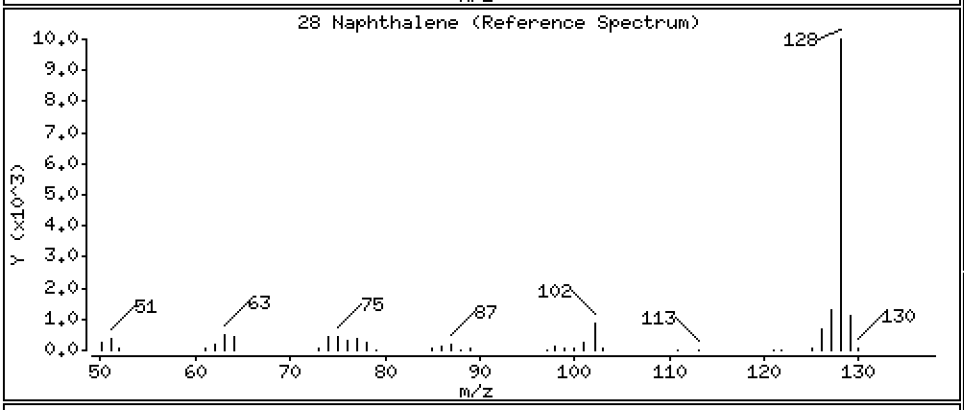
Concentration: 0.1614 ug/mL

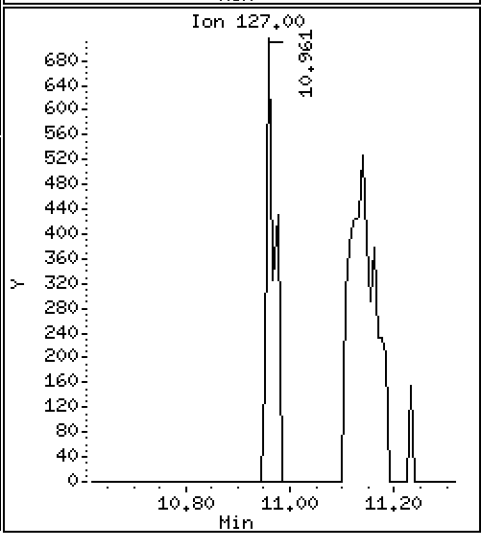


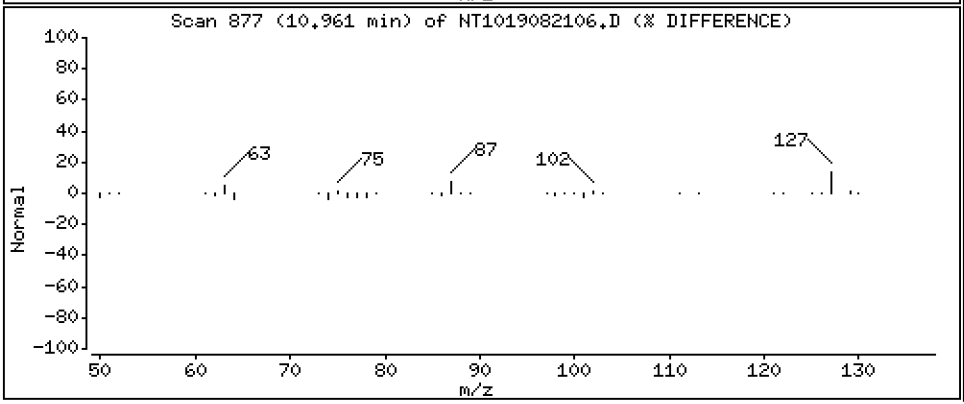












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

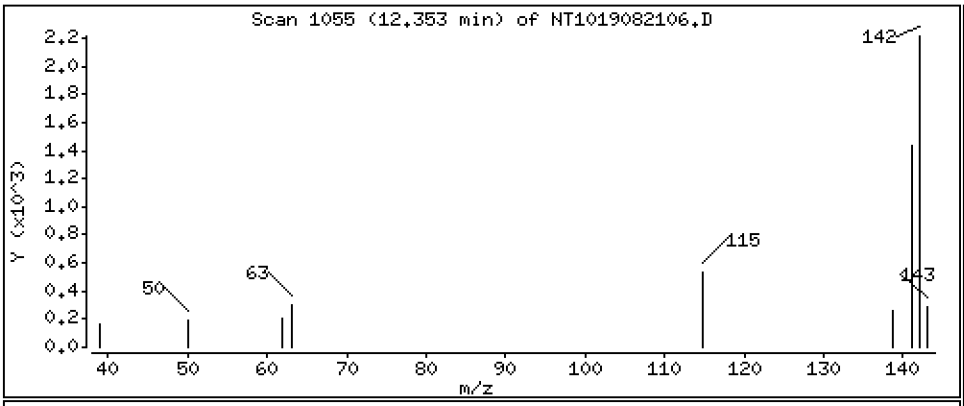
Operator: YZ

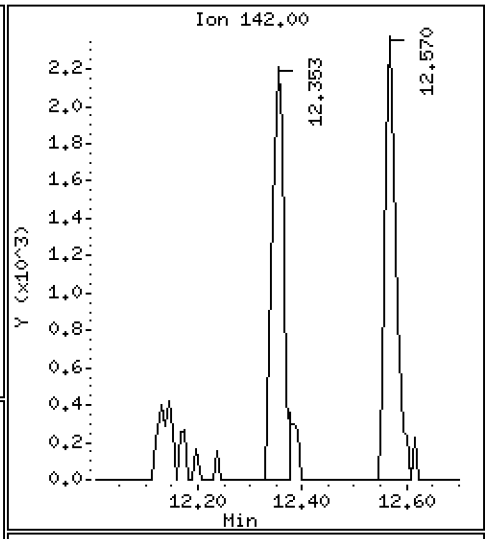
Column phase: ZB-5msi

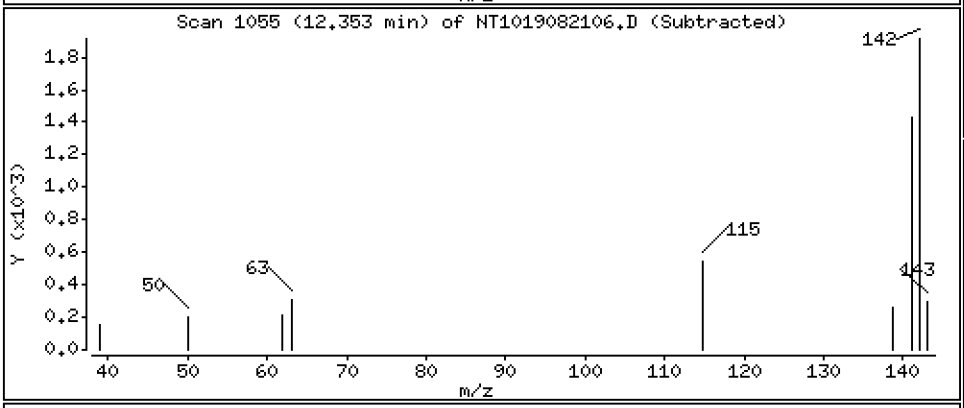
Column diameter: 0.25

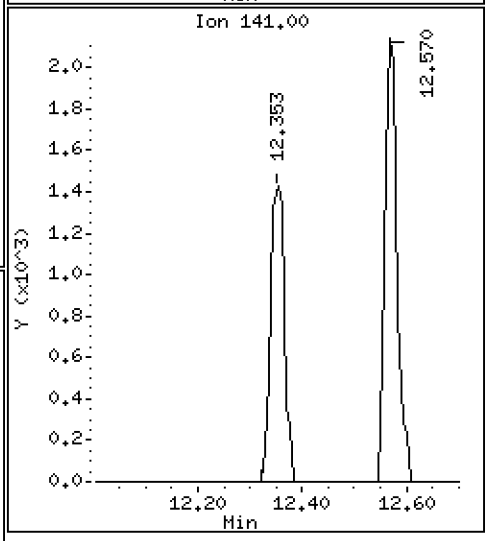
32 2-Methylnaphthalene

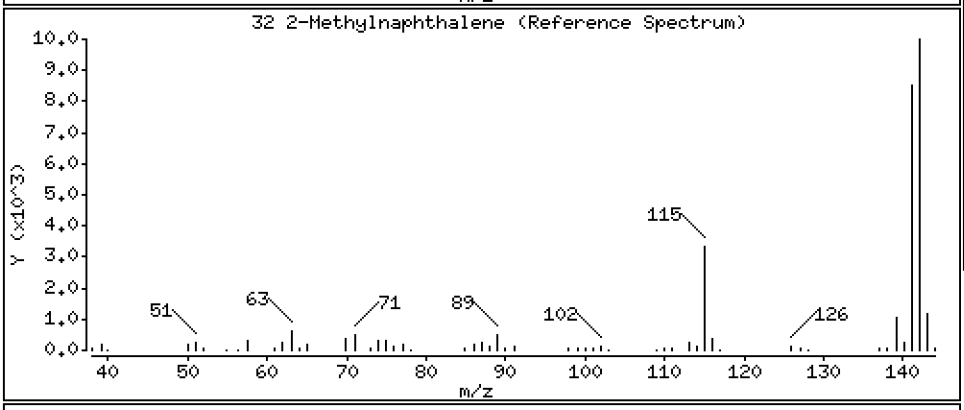
Concentration: 0.1379 ug/mL

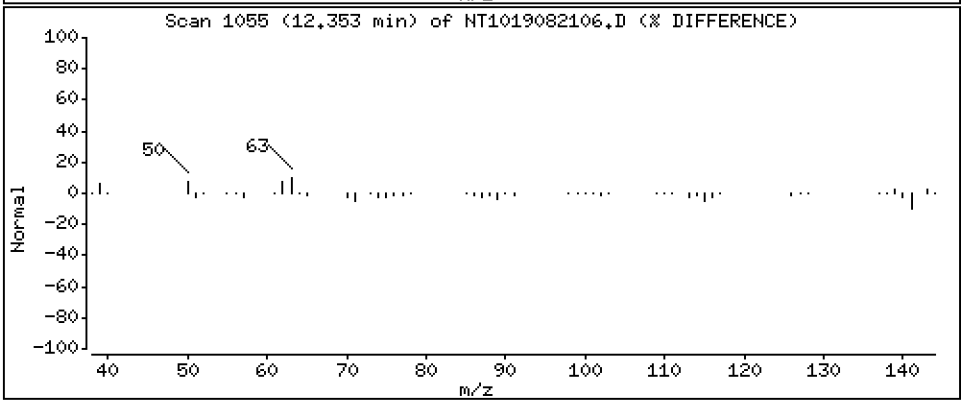












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

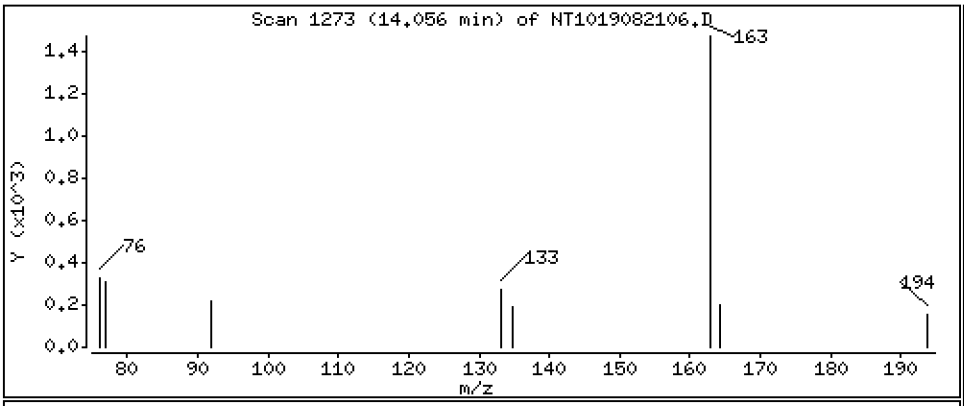
Operator: YZ

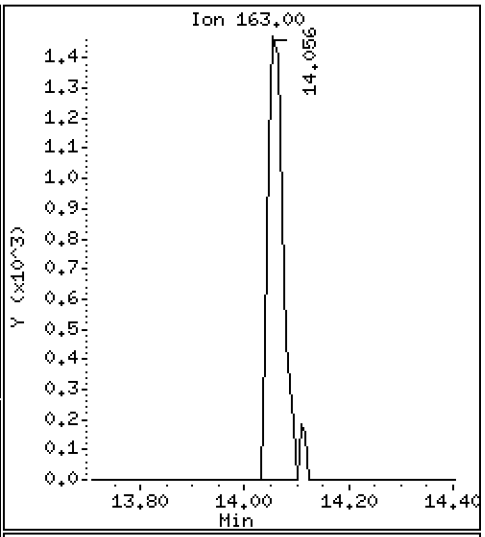
Column phase: ZB-5msi

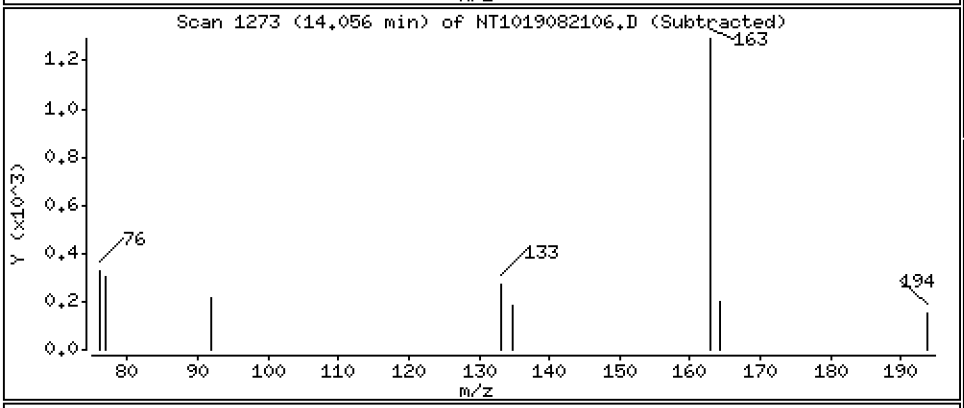
Column diameter: 0.25

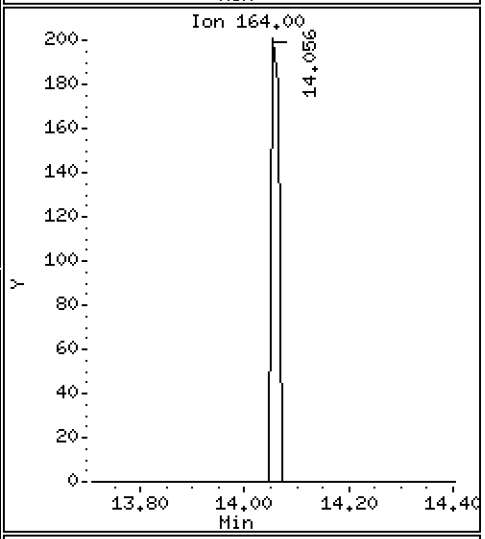
39 Dimethylphthalate

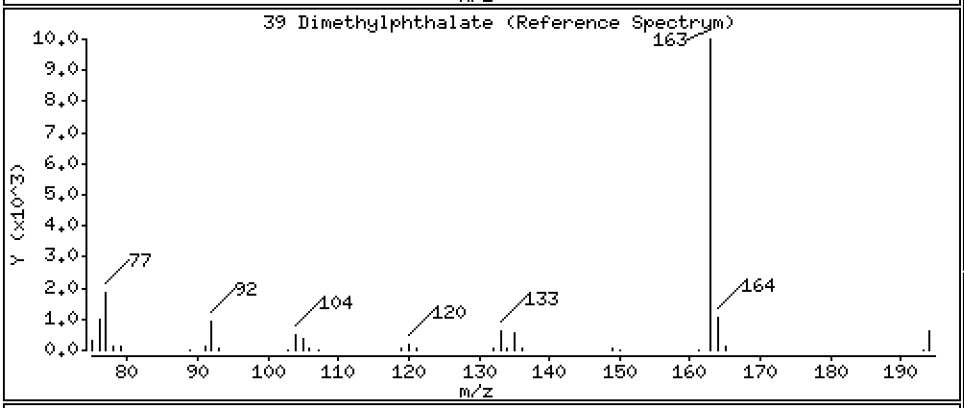
Concentration: 0.1370 ug/mL

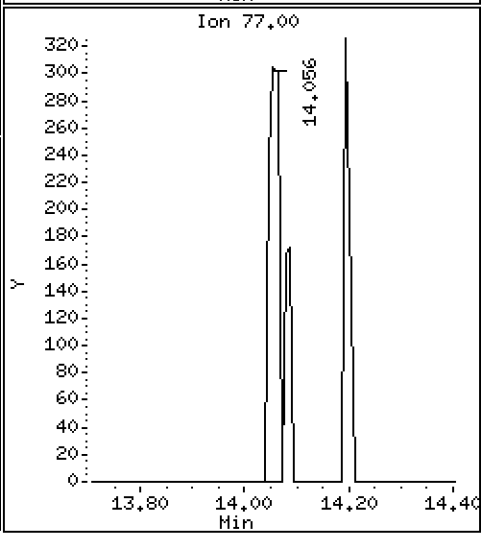


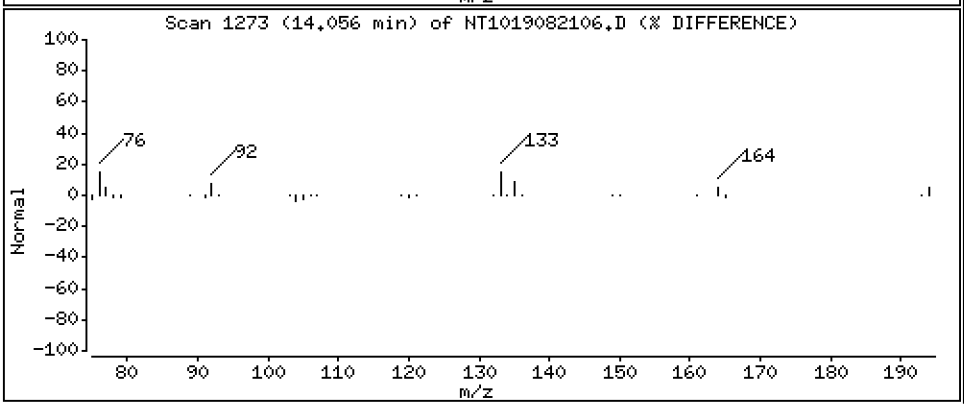












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

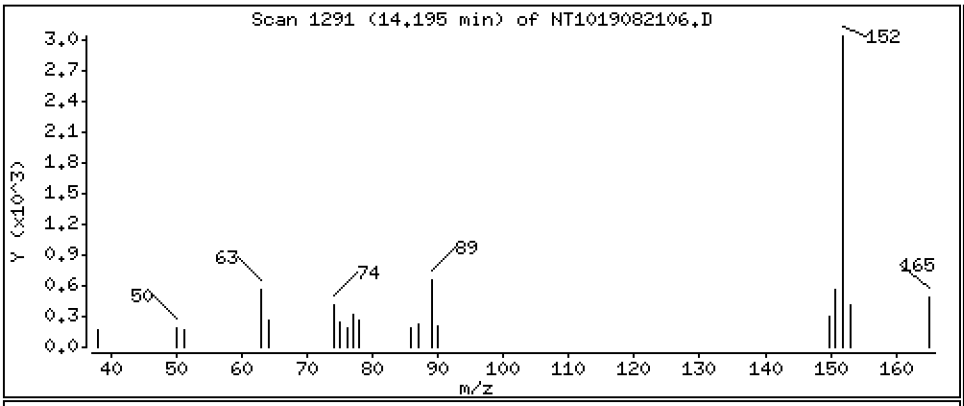
Operator: YZ

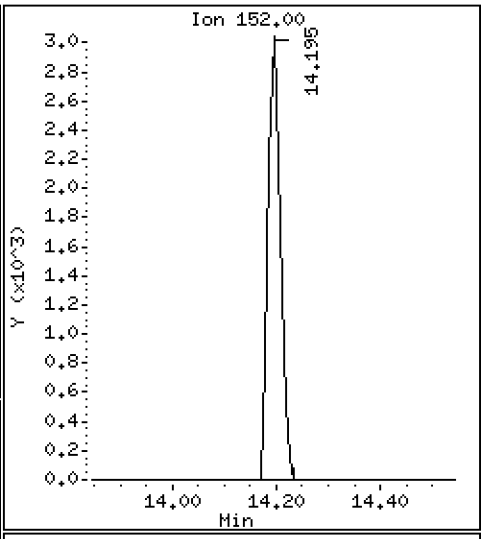
Column phase: ZB-5msi

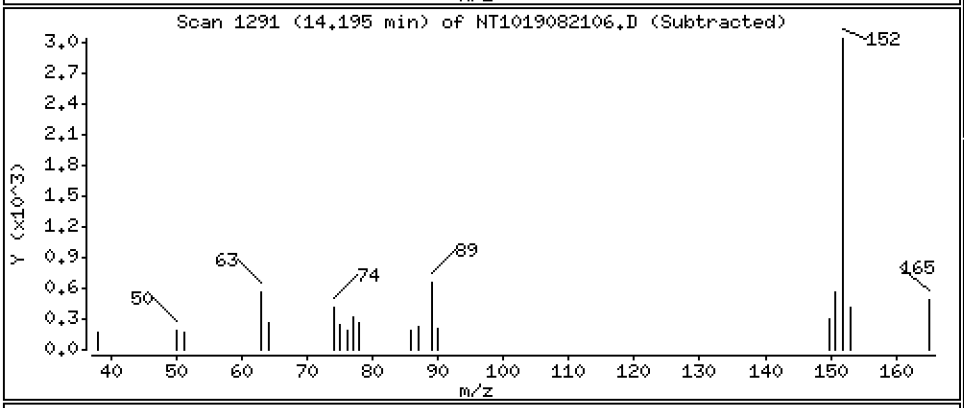
Column diameter: 0.25

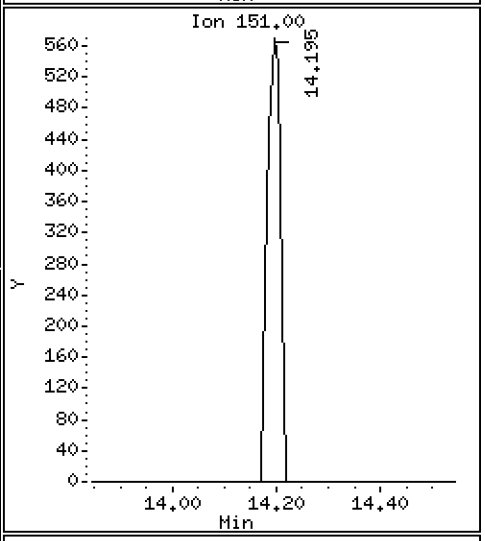
40 Acenaphthylene

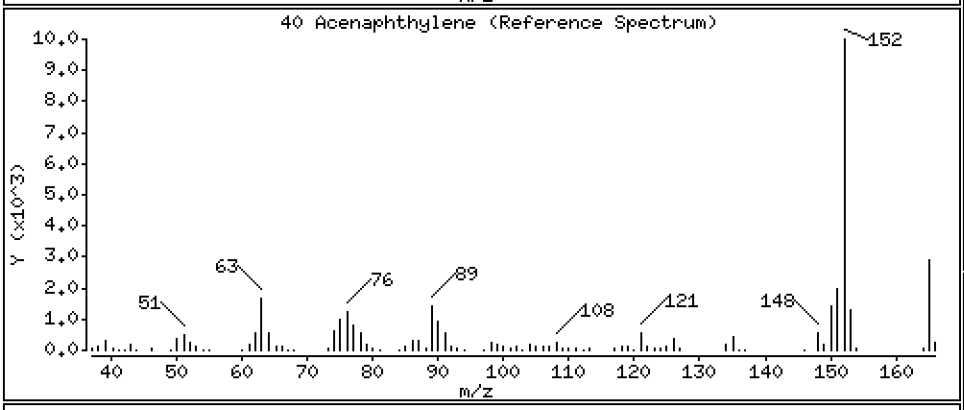
Concentration: 0.1716 ug/mL

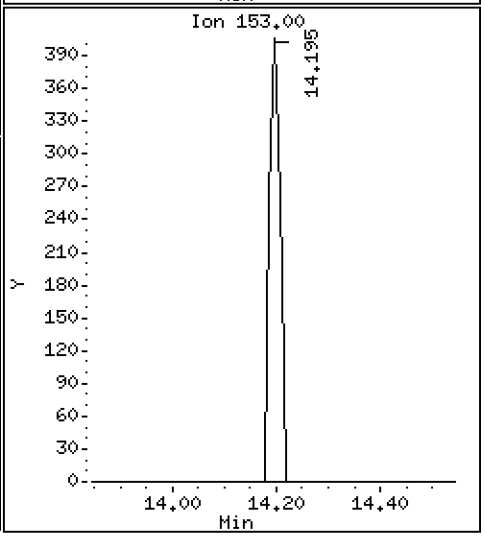


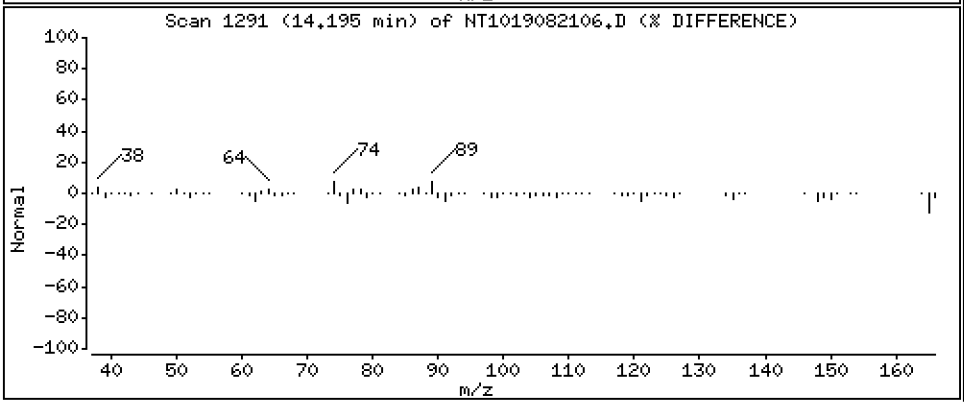












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

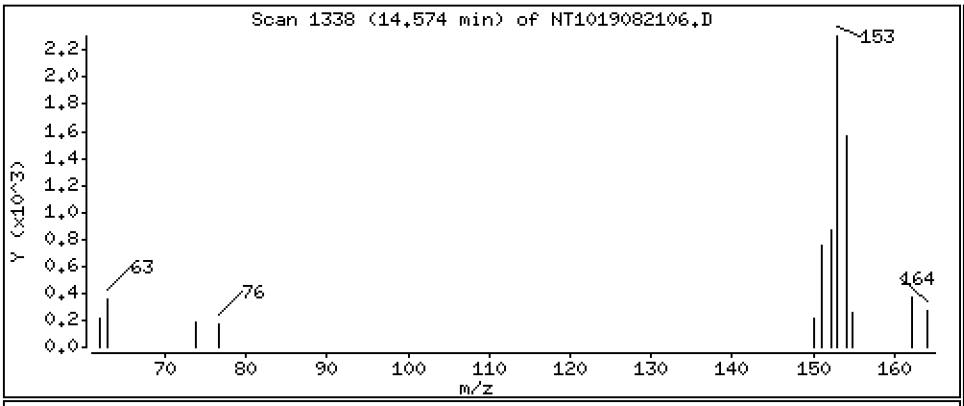
Operator: YZ

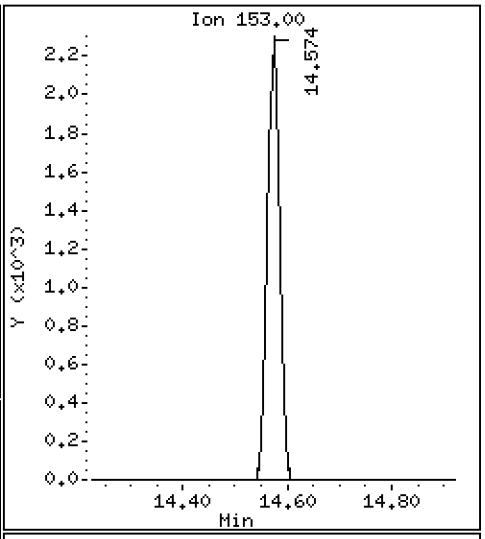
Column phase: ZB-5msi

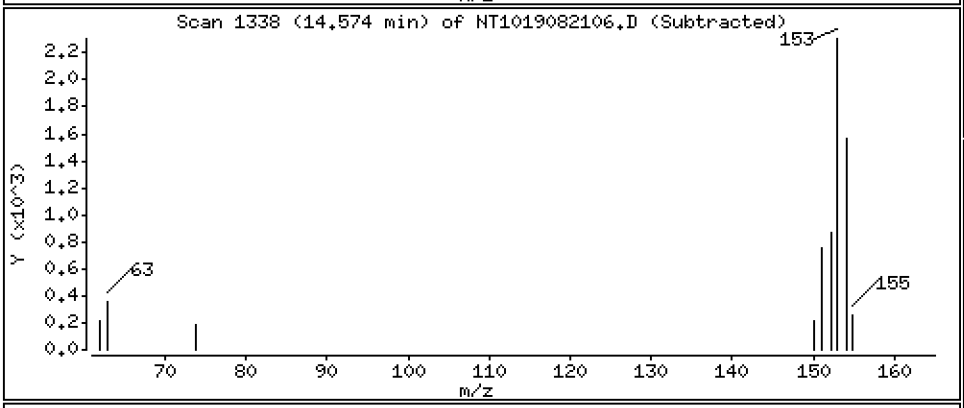
Column diameter: 0.25

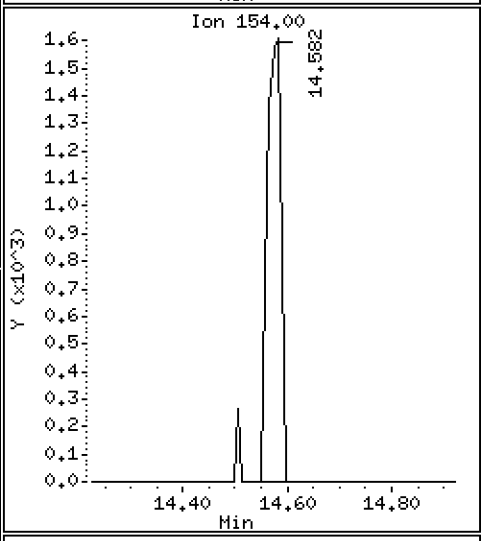
44 Acenaphthene

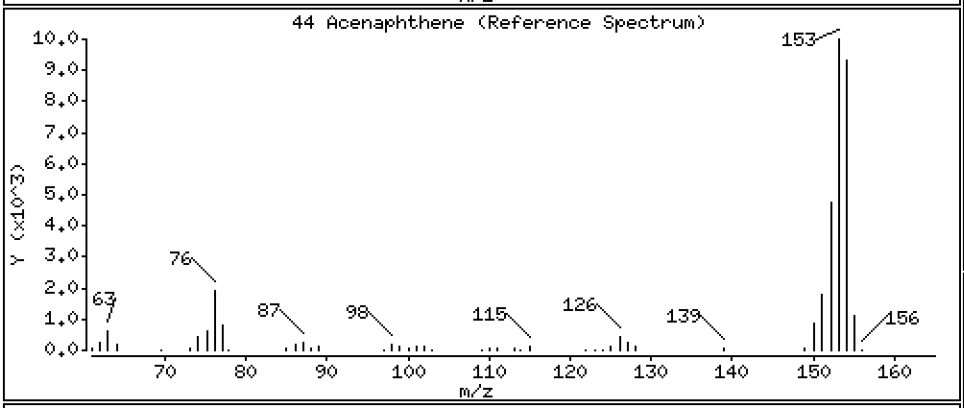
Concentration: 0.2021 ug/mL

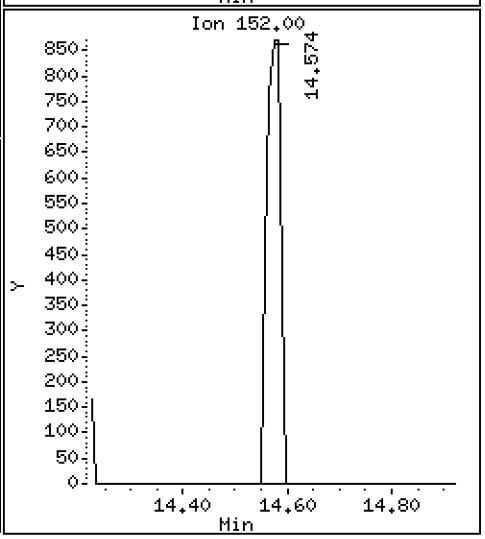


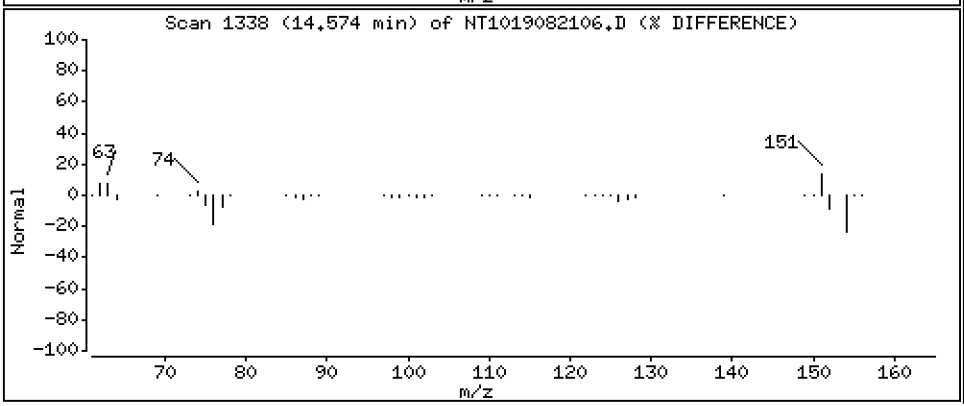












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

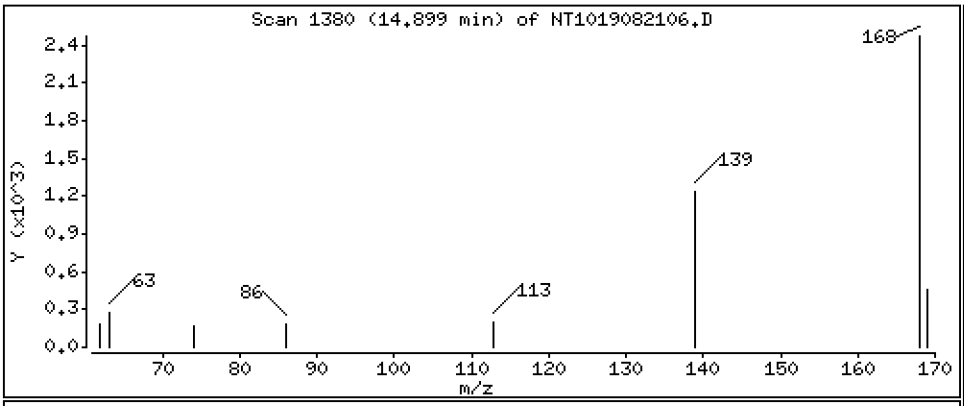
Operator: YZ

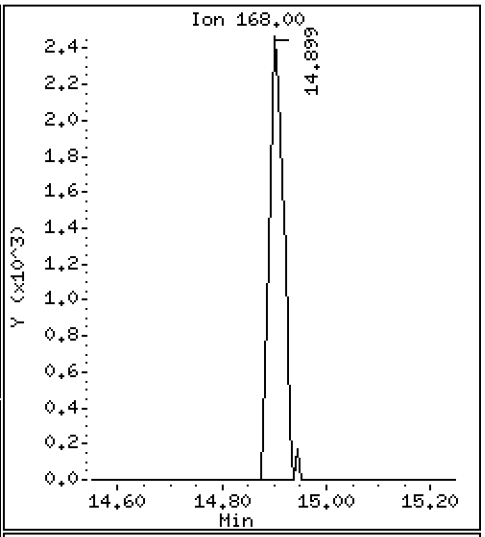
Column phase: ZB-5msi

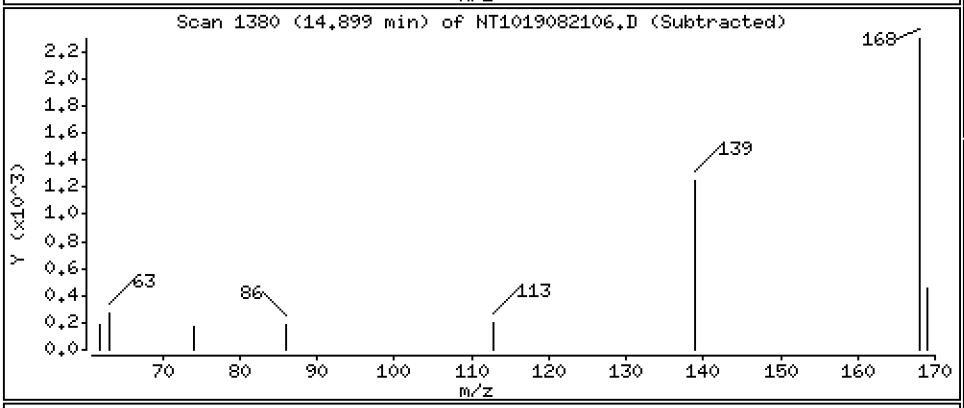
Column diameter: 0.25

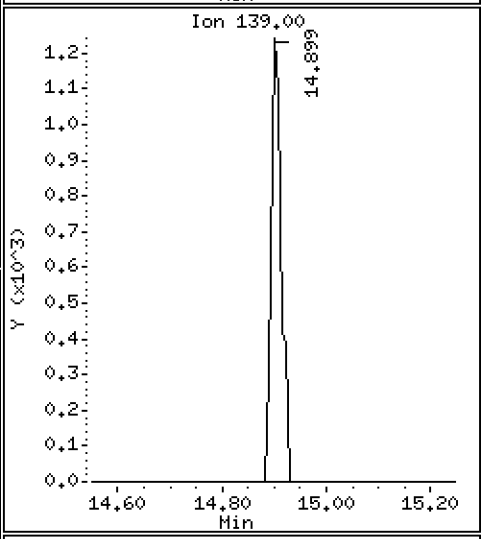
46 Dibenzofuran

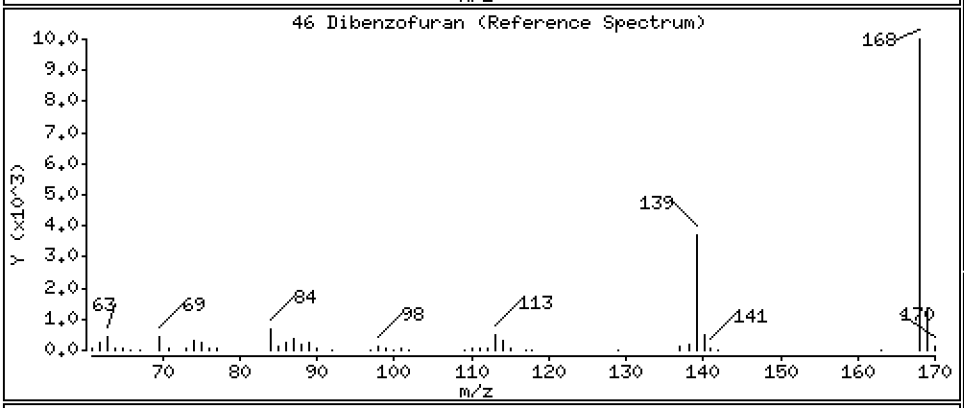
Concentration: 0.1582 ug/mL

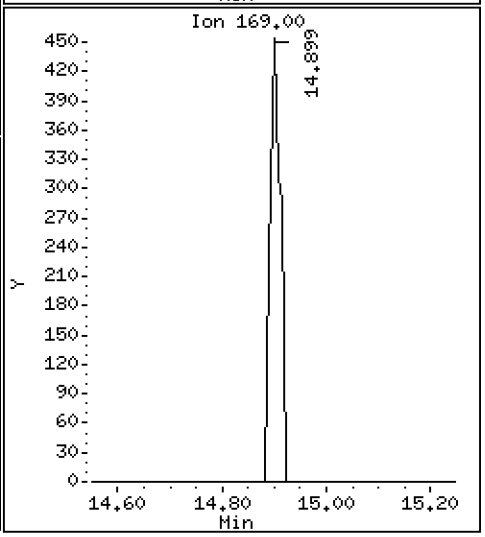


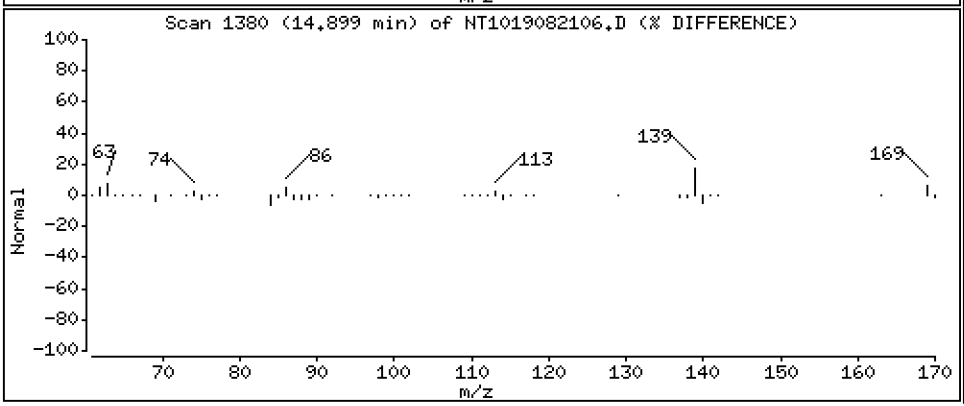












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

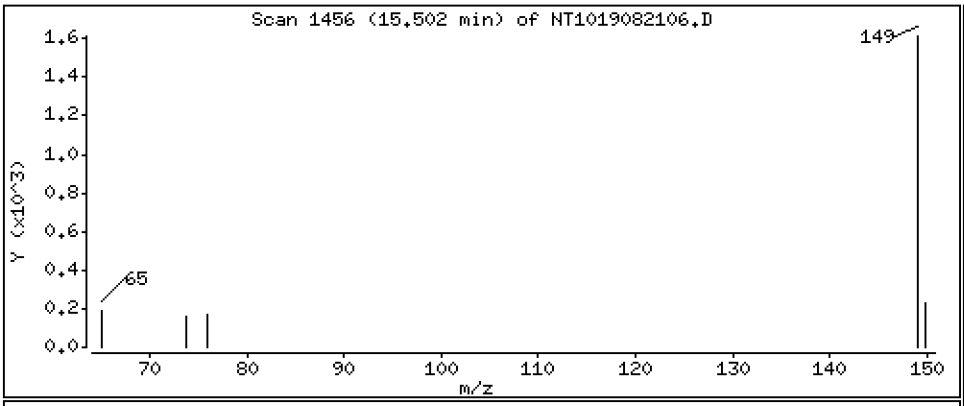
Operator: YZ

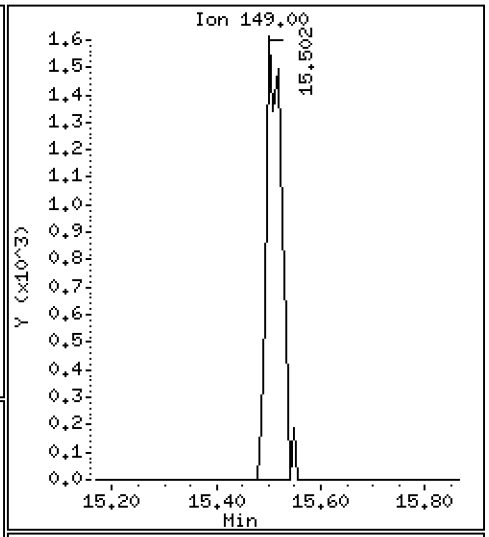
Column phase: ZB-5msi

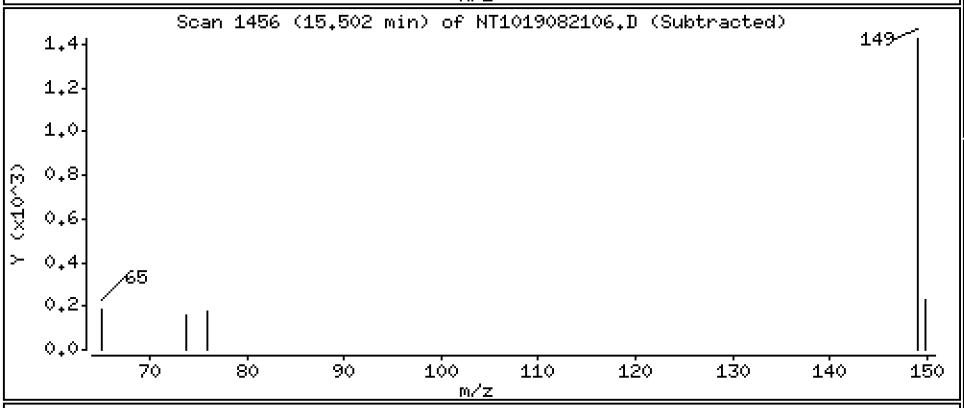
Column diameter: 0.25

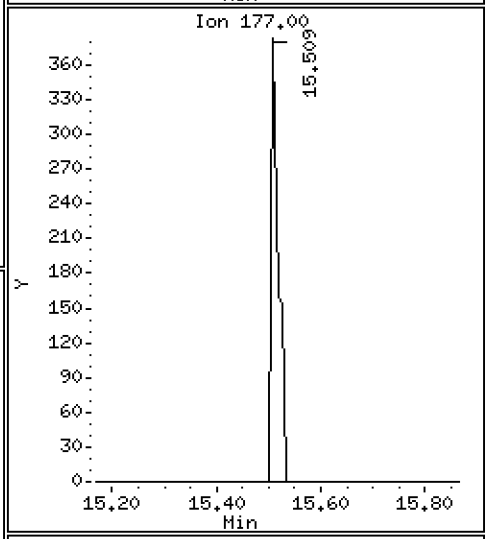
50 Diethylphthalate

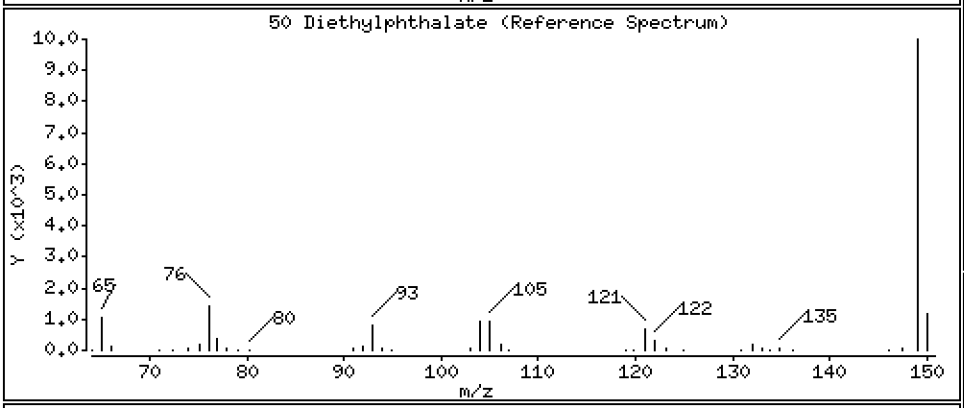
Concentration: 0.1528 ug/mL

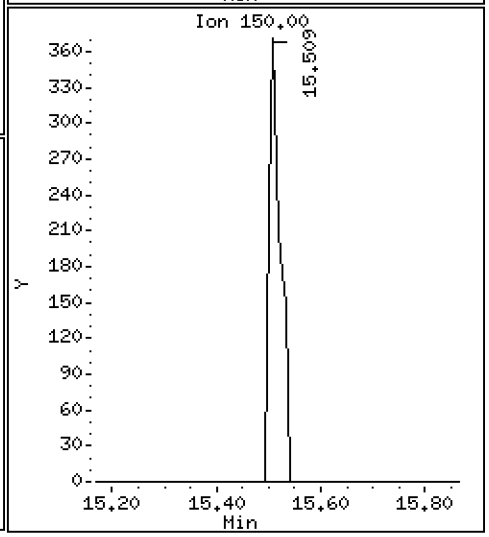


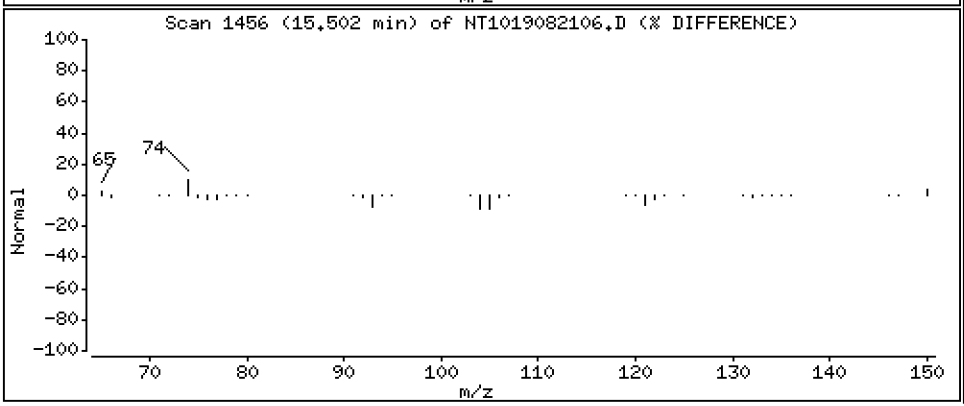












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

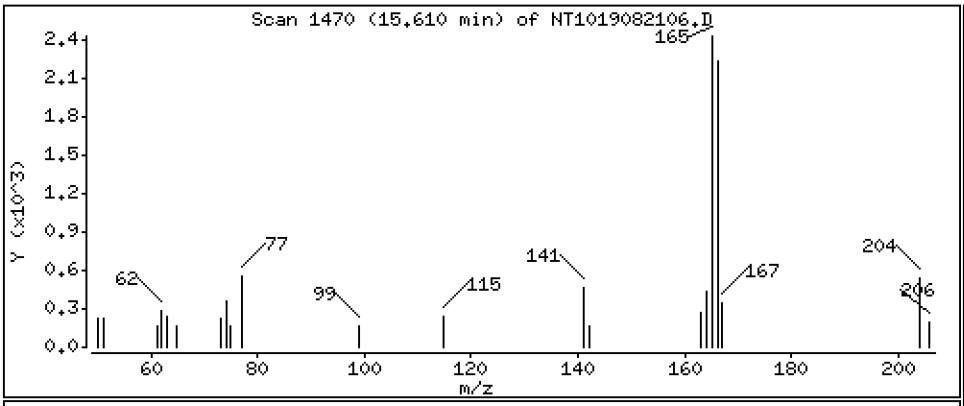
Operator: YZ

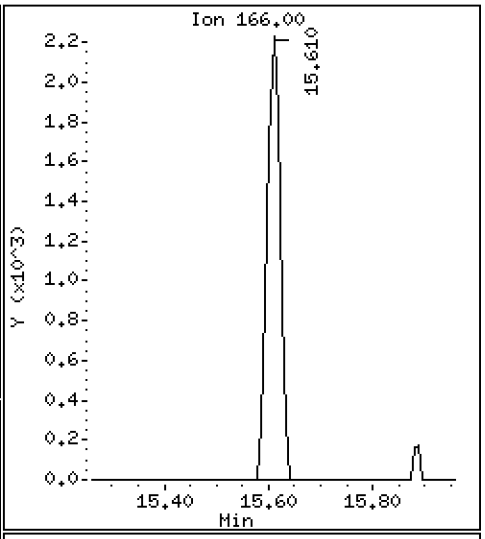
Column phase: ZB-5msi

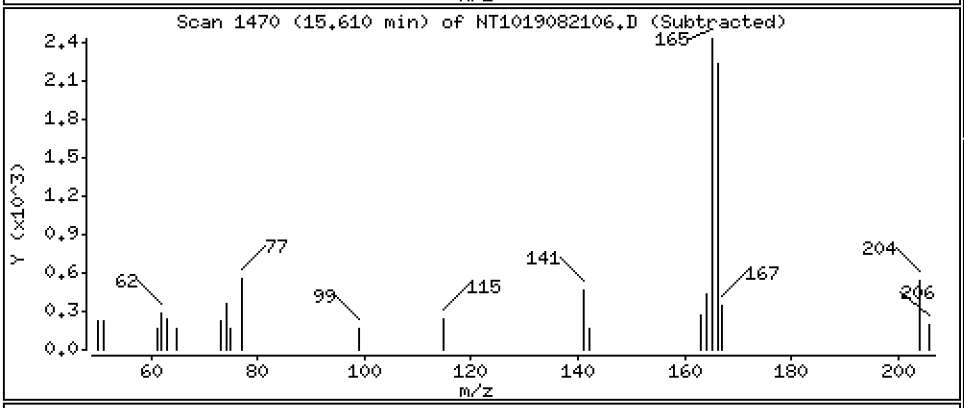
Column diameter: 0.25

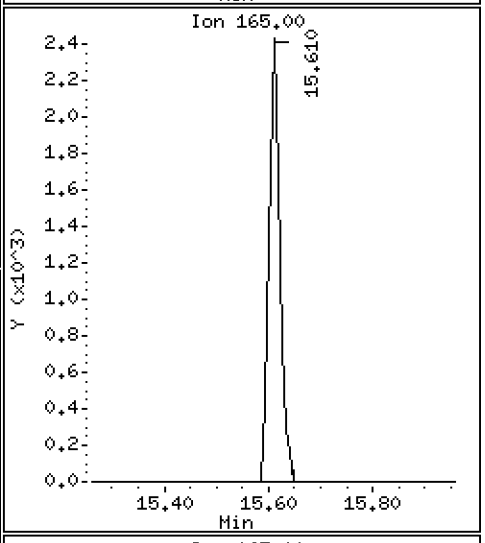
49 Fluorene

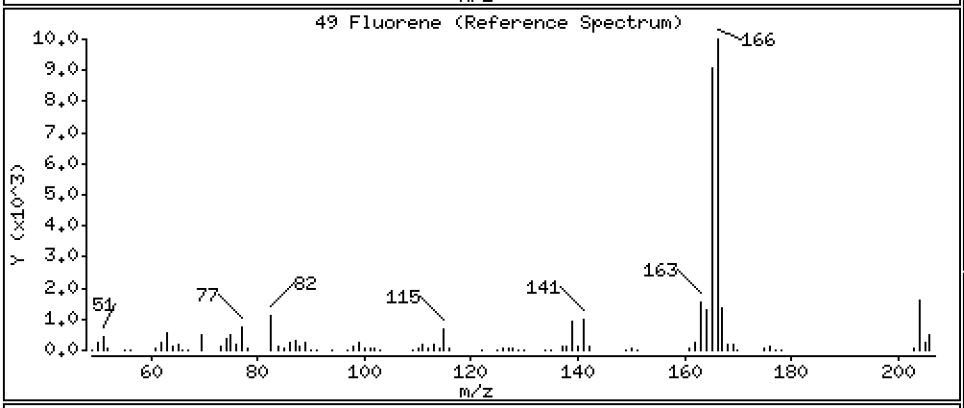
Concentration: 0.1918 ug/mL

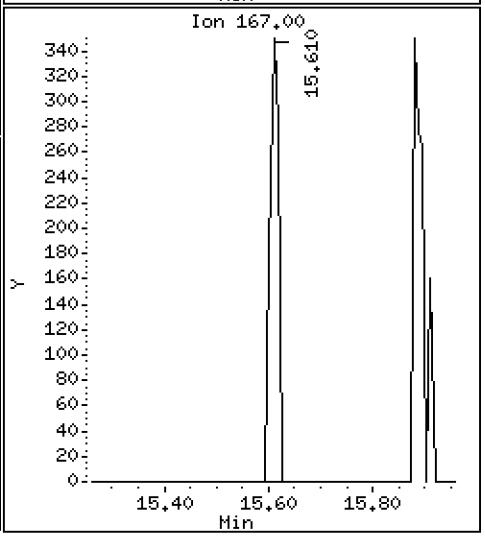


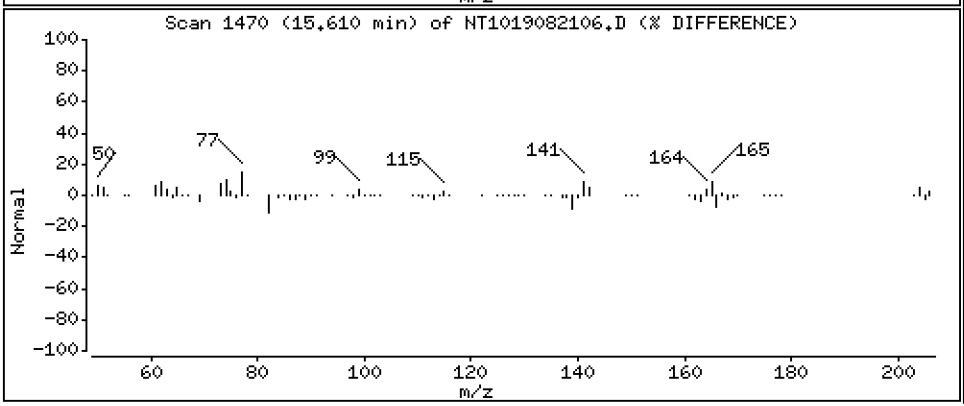












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

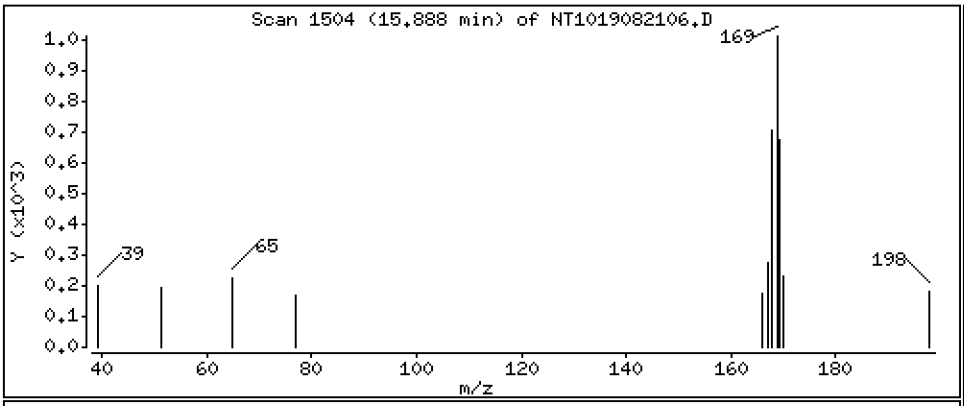
Operator: YZ

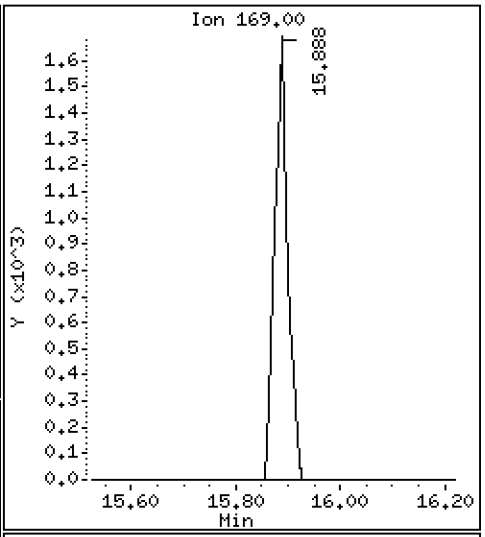
Column phase: ZB-5msi

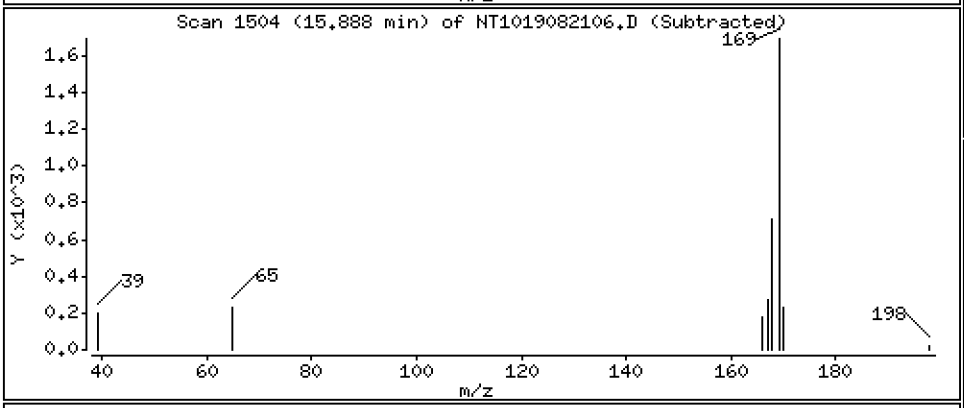
Column diameter: 0.25

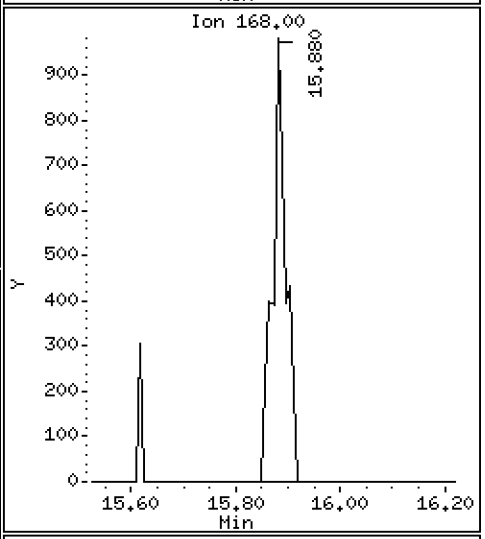
54 N-Nitrosodiphenylamine

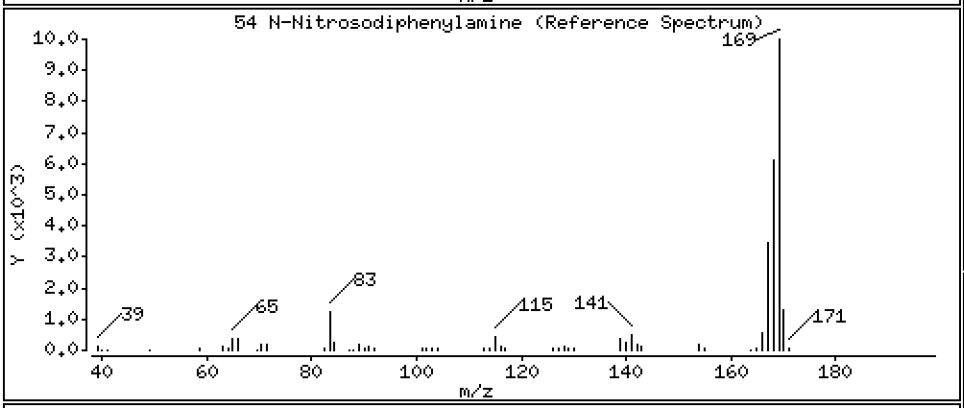
Concentration: 0.1856 ug/mL

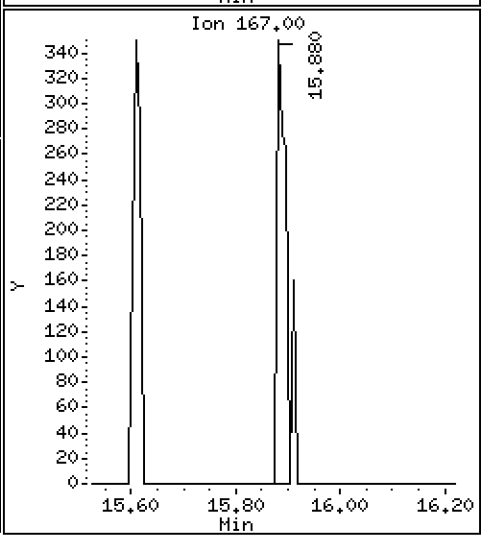


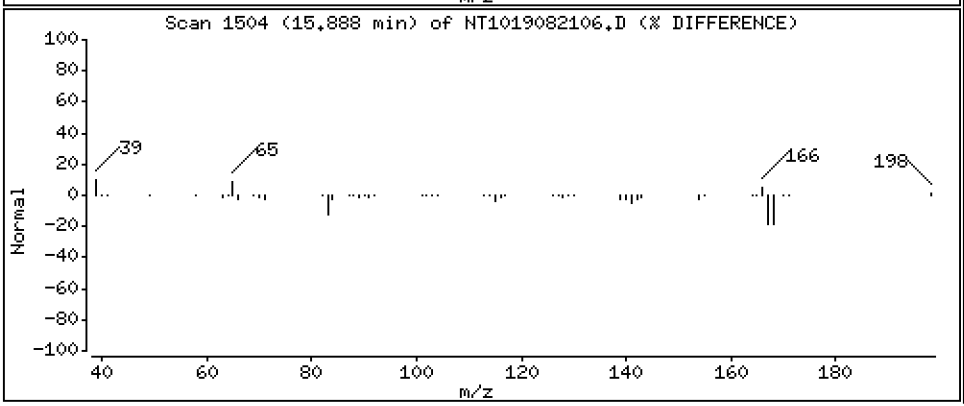












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

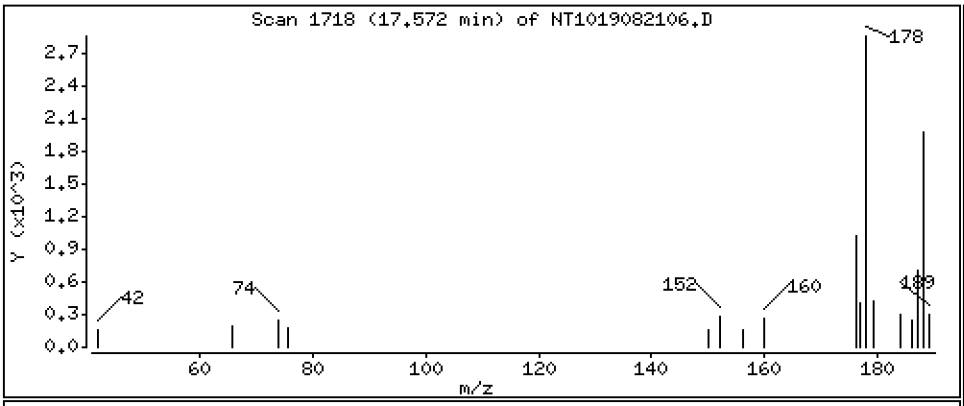
Operator: YZ

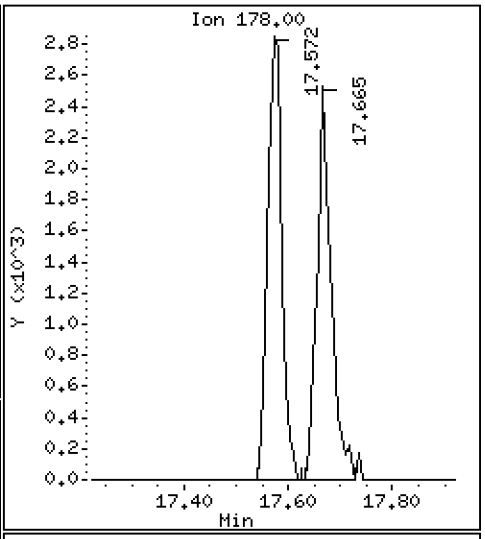
Column phase: ZB-5msi

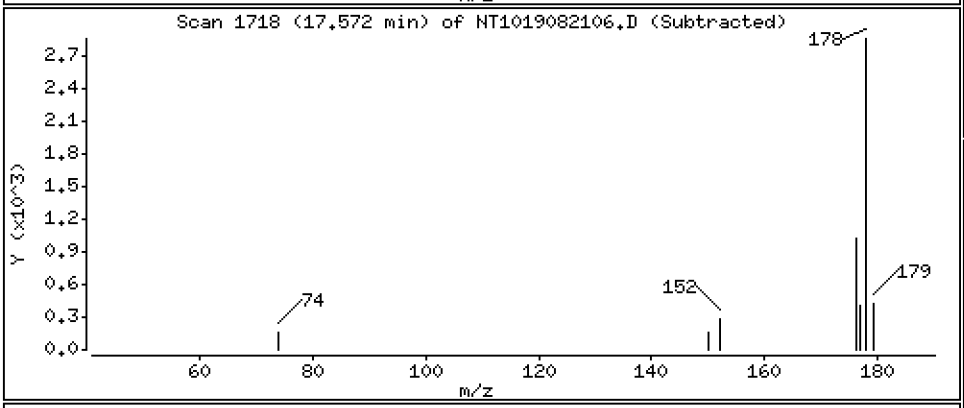
Column diameter: 0.25

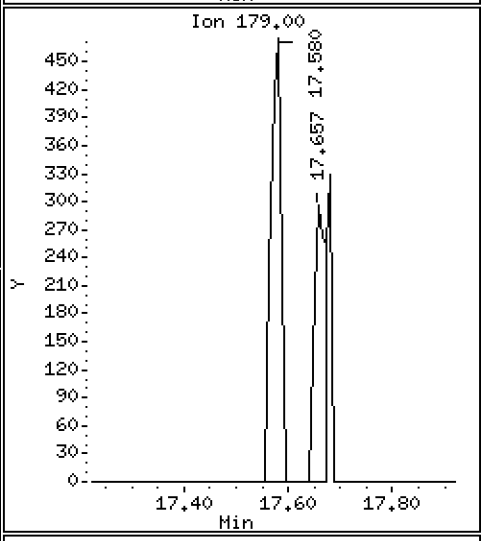
60 Phenanthrene

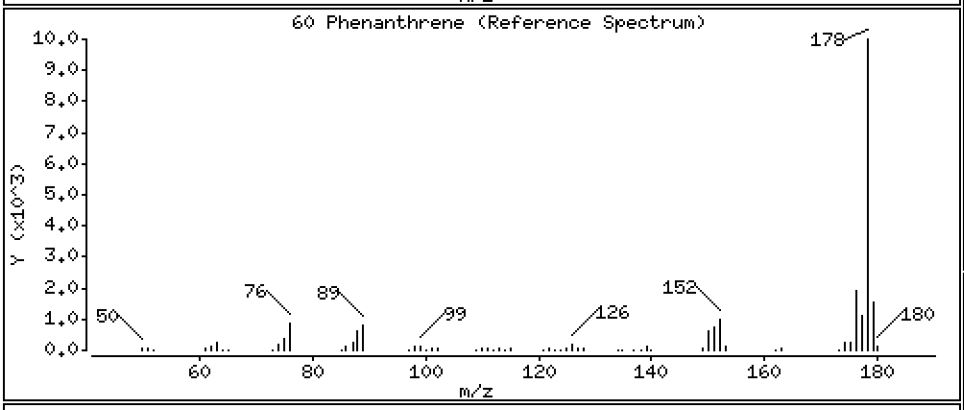
Concentration: 0.1835 ug/mL

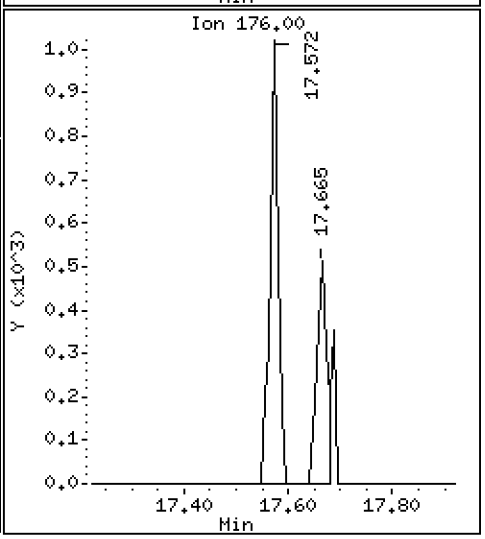


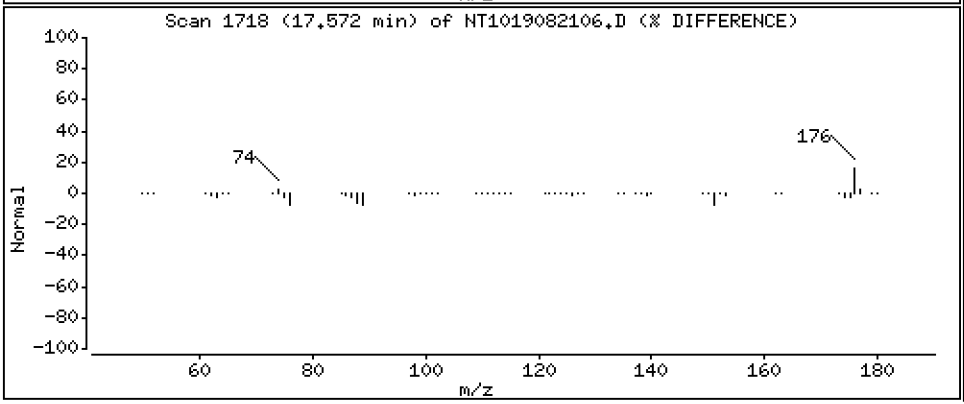












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

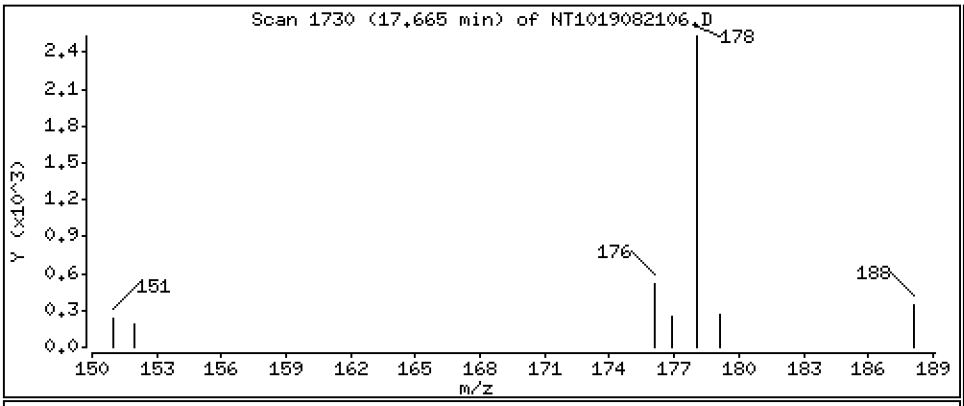
Operator: YZ

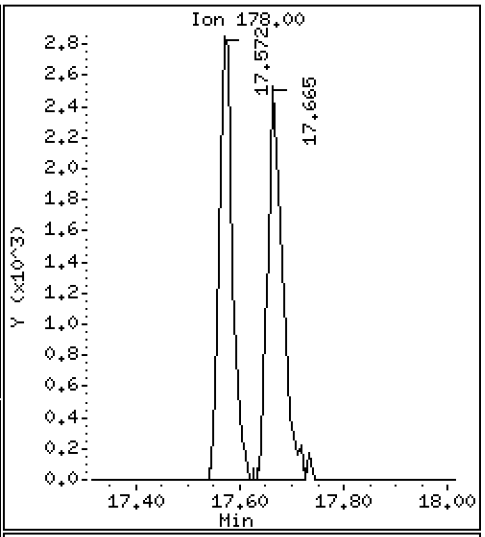
Column phase: ZB-5msi

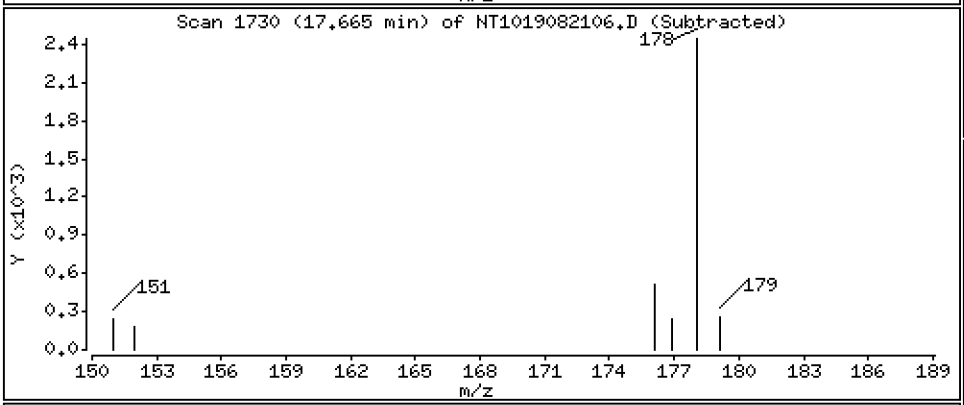
Column diameter: 0.25

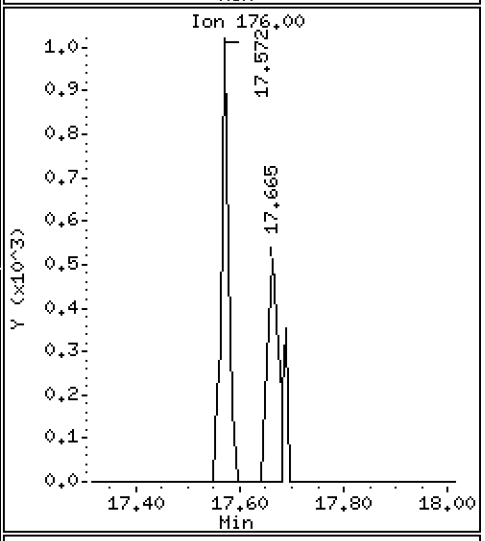
61 Anthracene

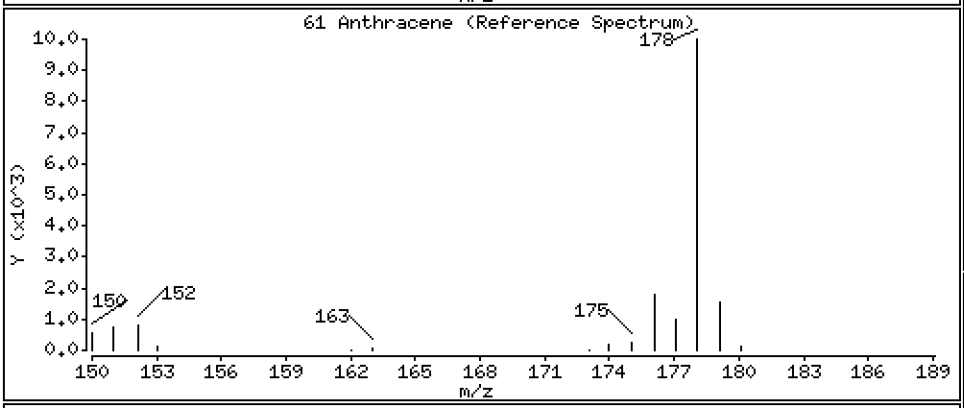
Concentration: 0.1686 ug/mL

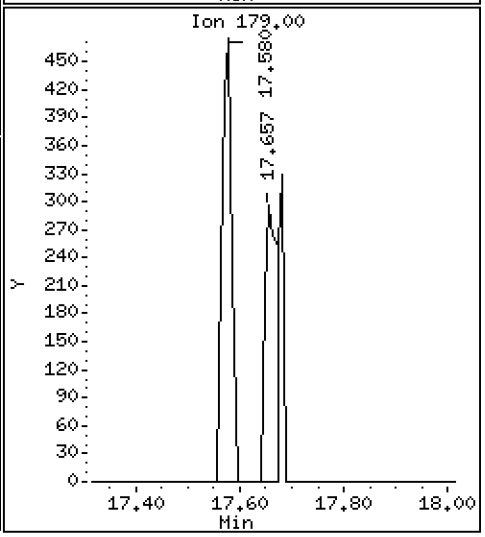


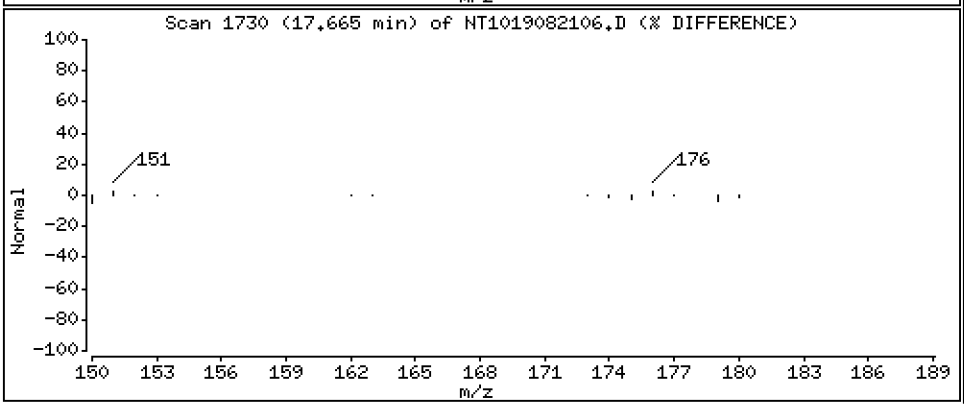












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

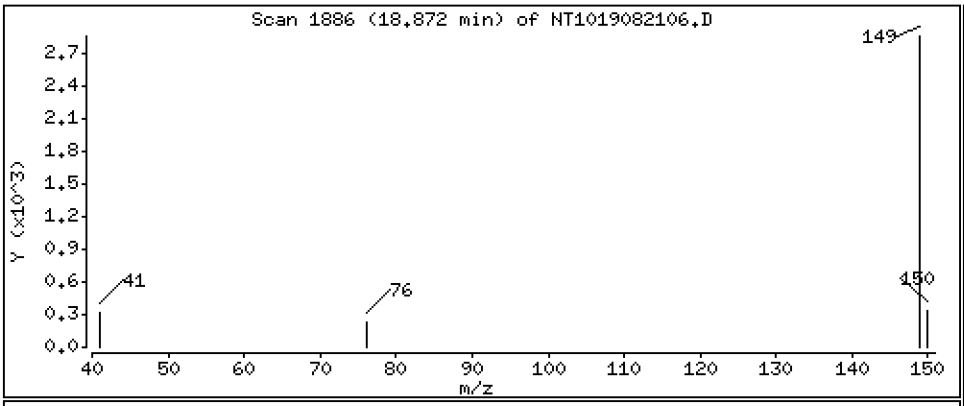
Operator: YZ

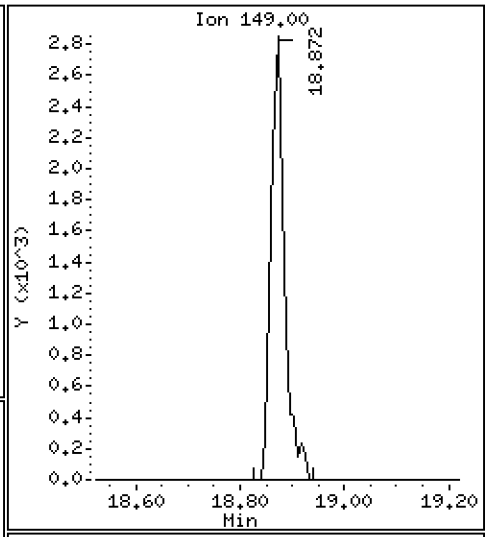
Column phase: ZB-5msi

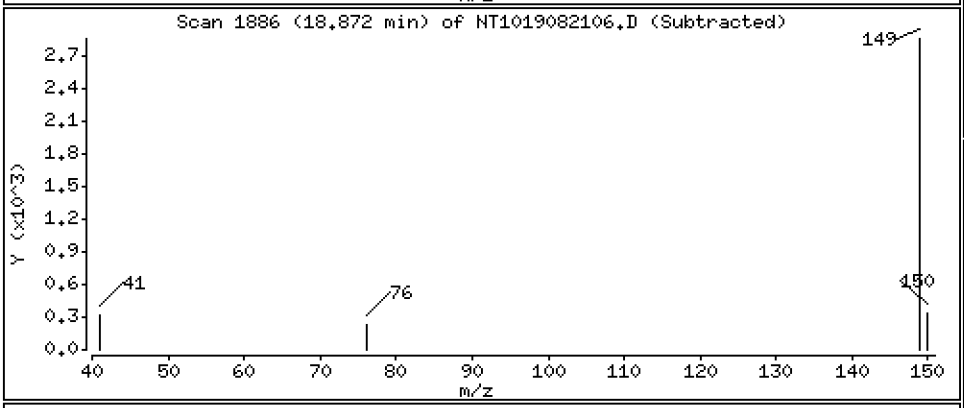
Column diameter: 0.25

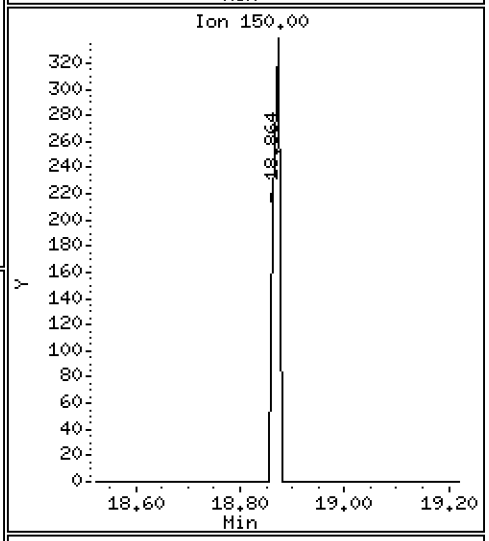
63 Di-n-butylphthalate

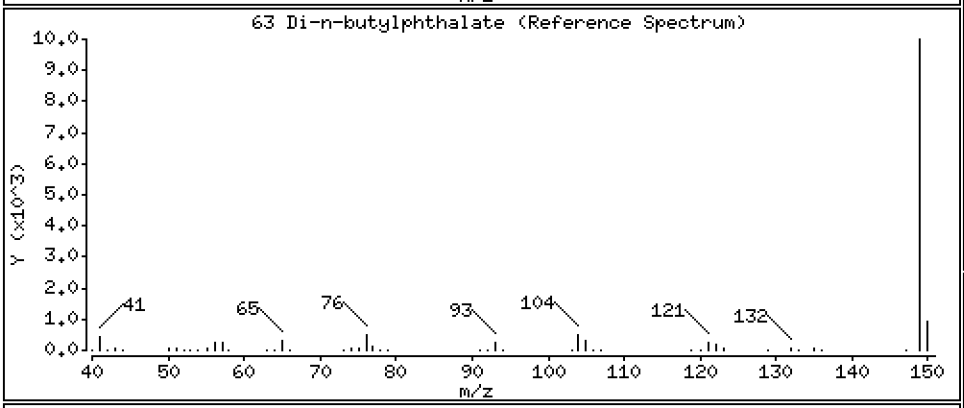
Concentration: 0.1253 ug/mL

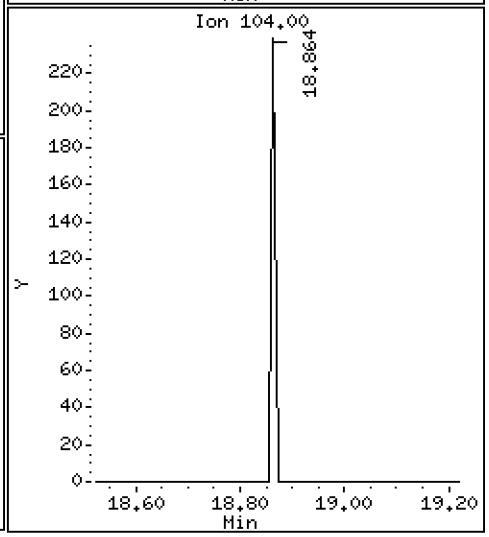


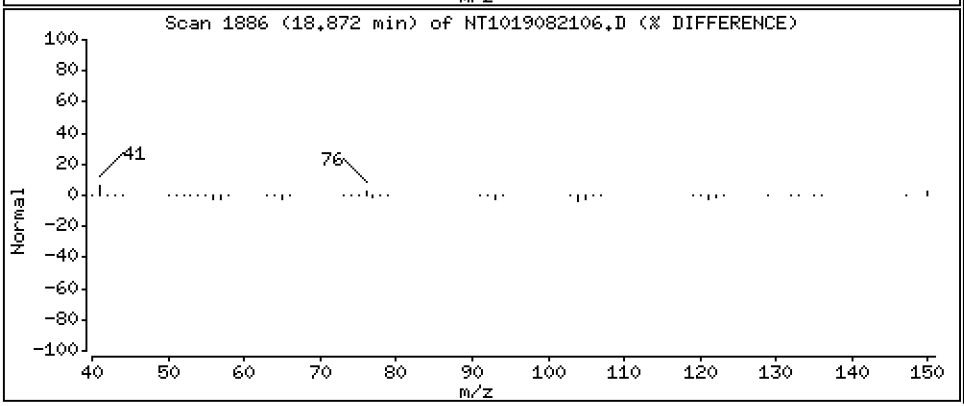












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

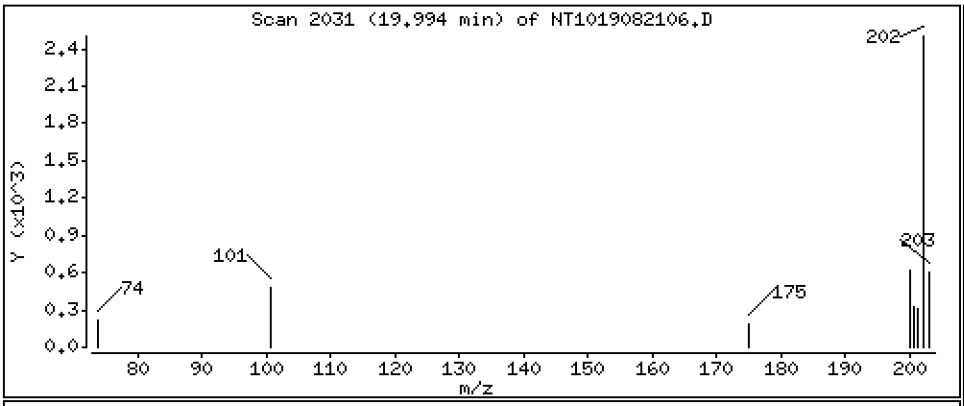
Operator: YZ

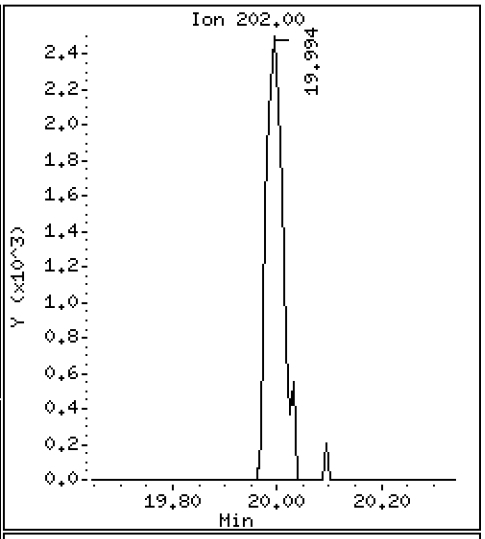
Column phase: ZB-5msi

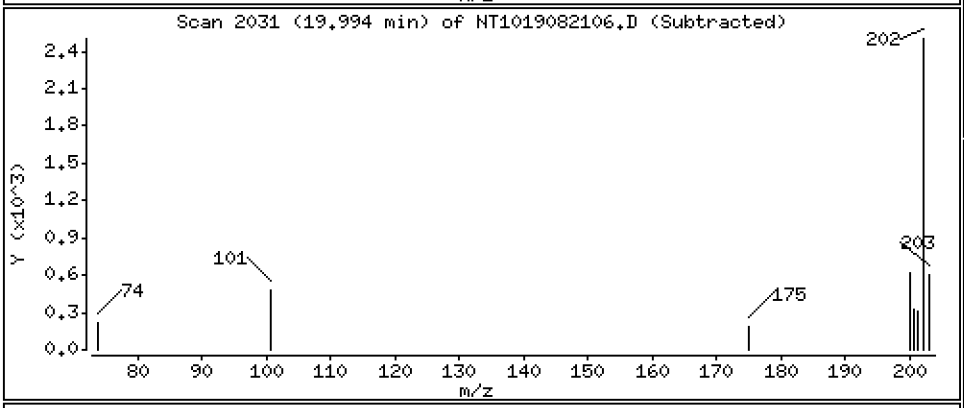
Column diameter: 0.25

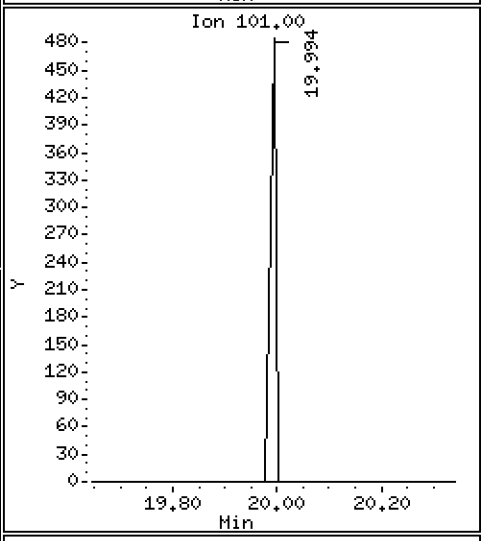
64 Fluoranthene

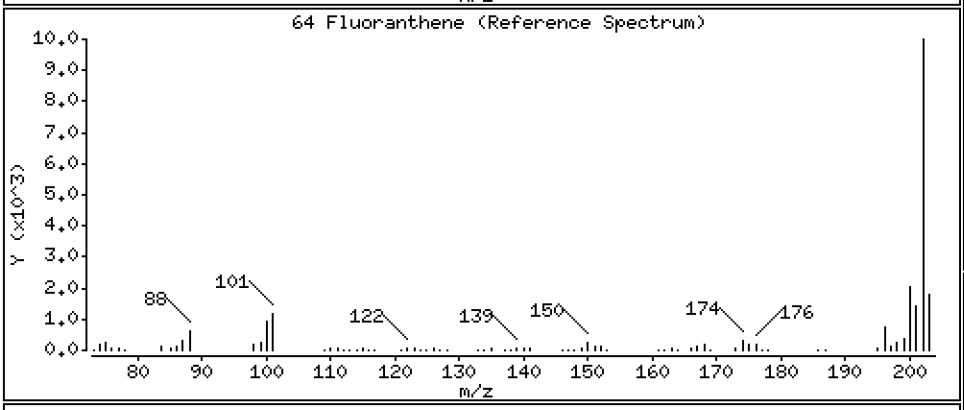
Concentration: 0.1590 ug/mL

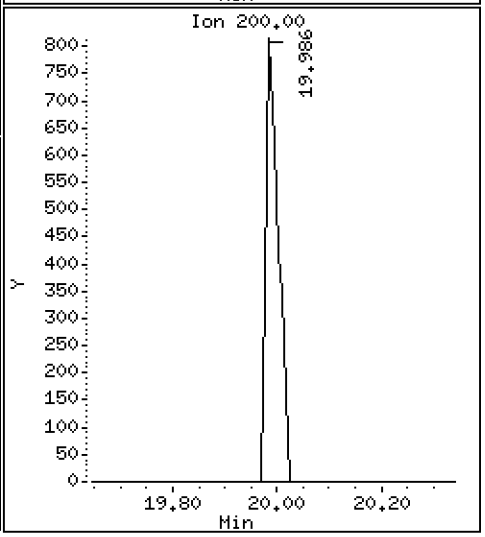


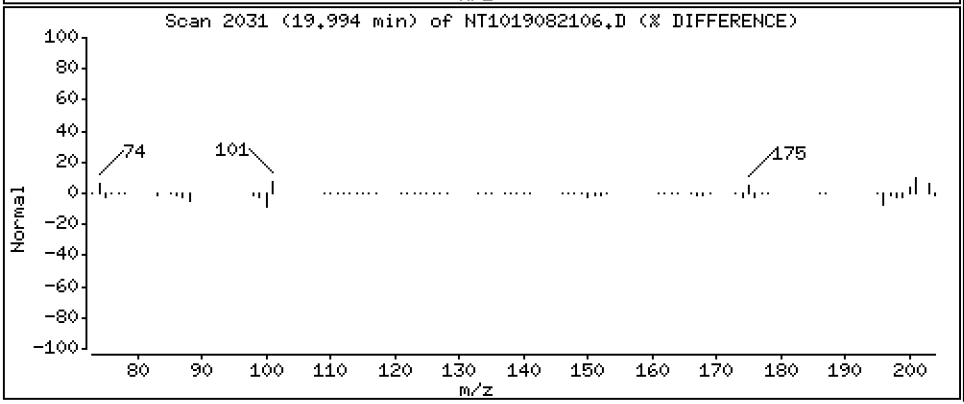












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

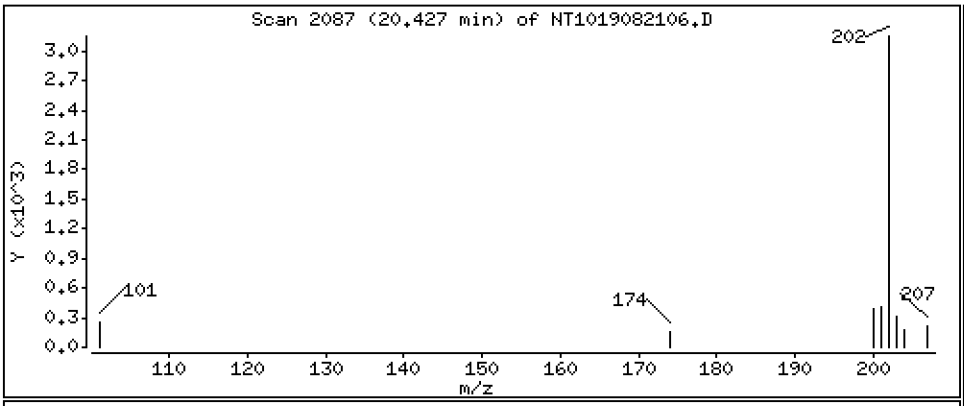
Operator: YZ

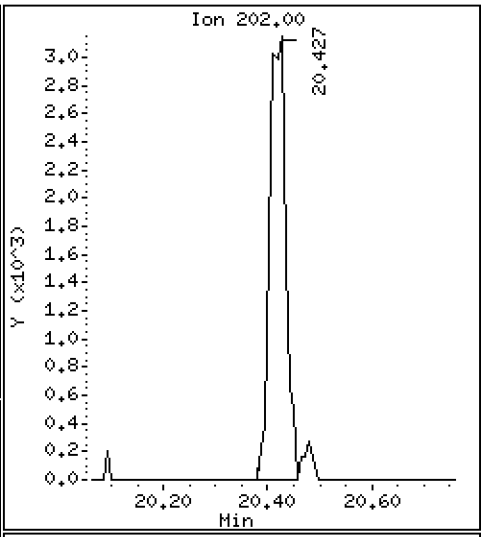
Column phase: ZB-5msi

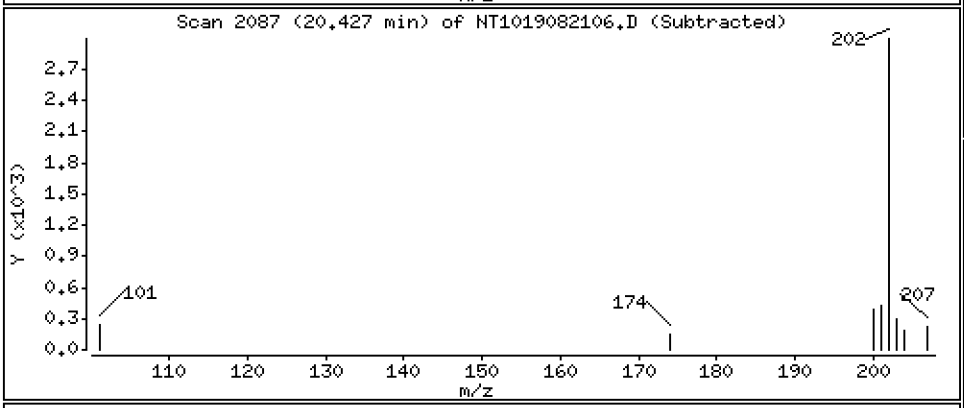
Column diameter: 0.25

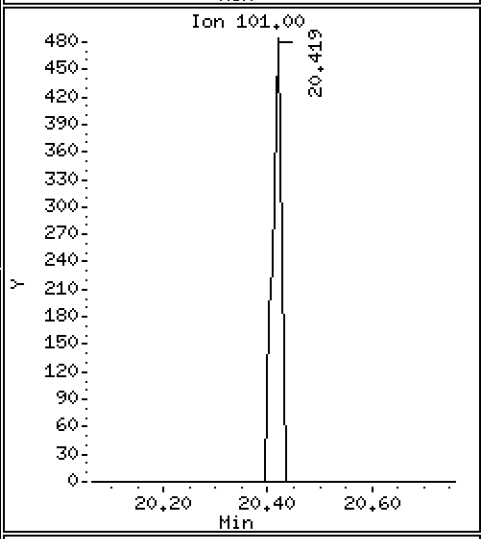
65 Pyrene

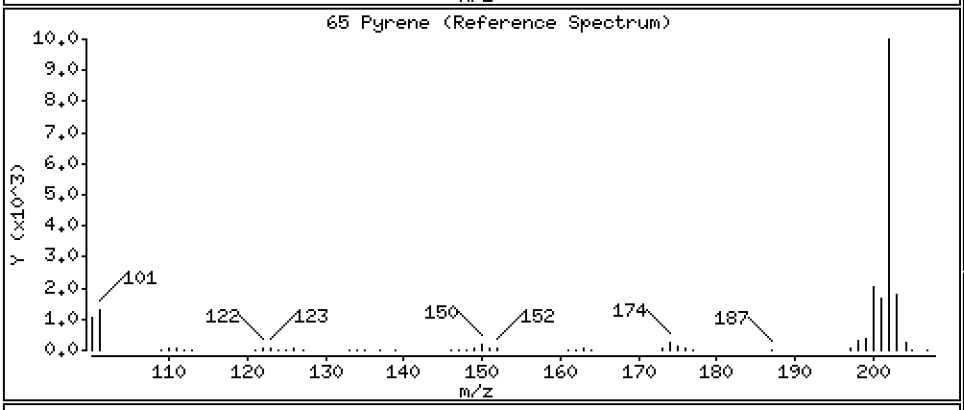
Concentration: 0.1829 ug/mL

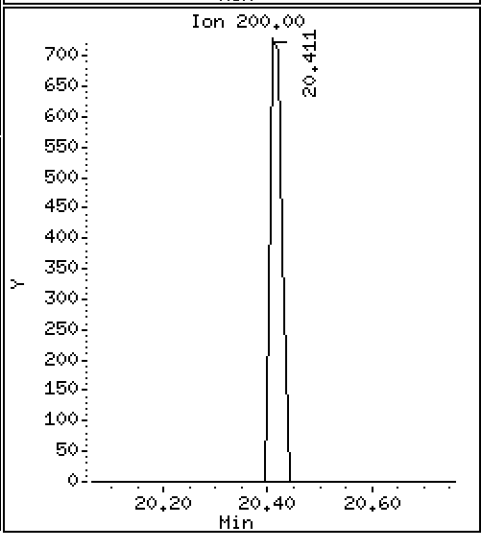


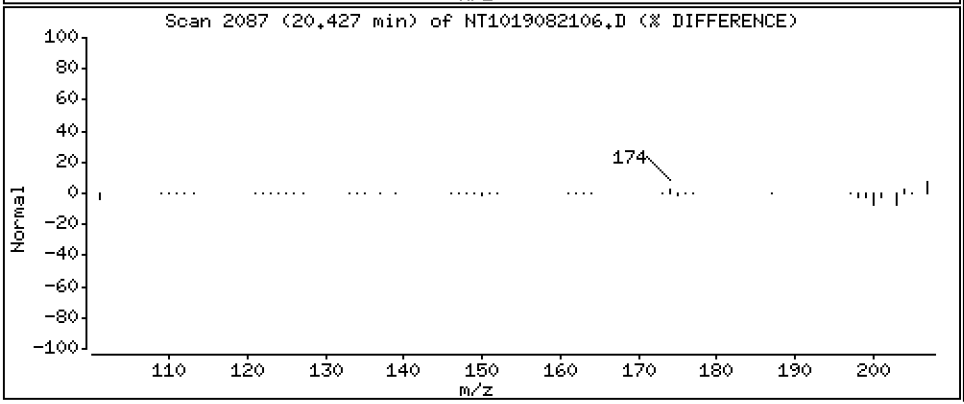












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

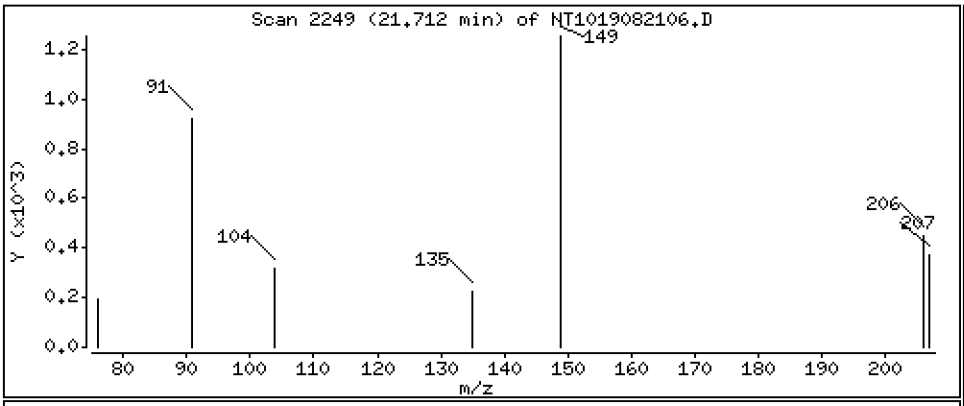
Operator: YZ

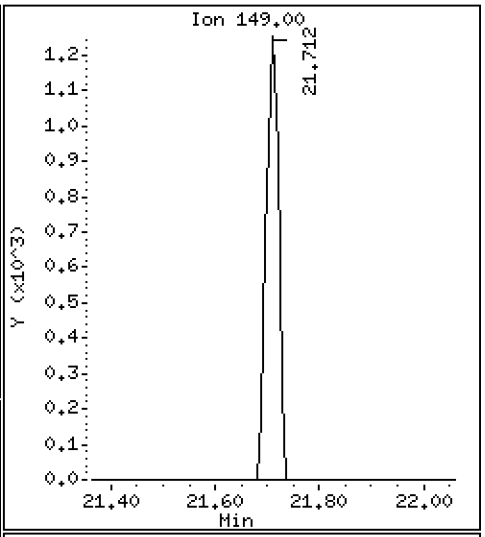
Column phase: ZB-5msi

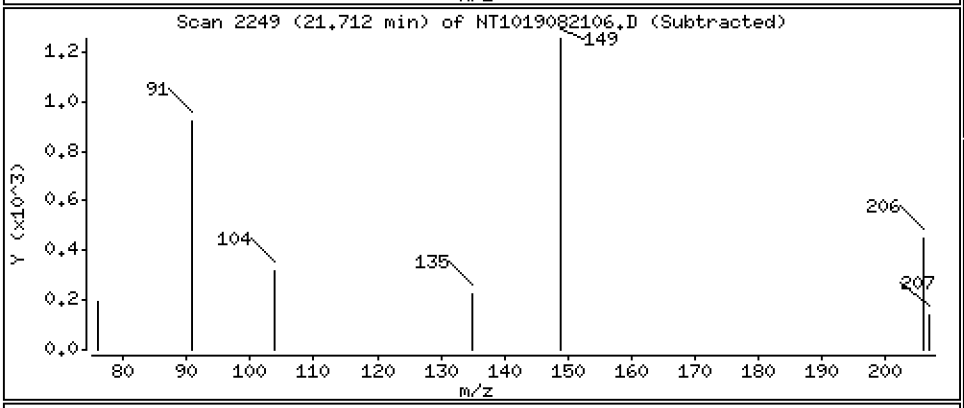
Column diameter: 0.25

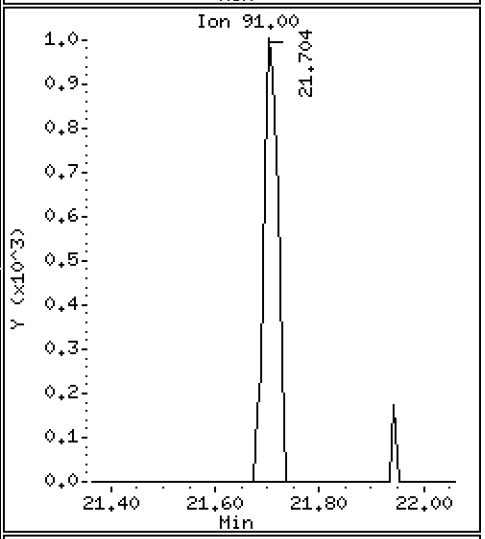
67 Butylbenzylphthalate

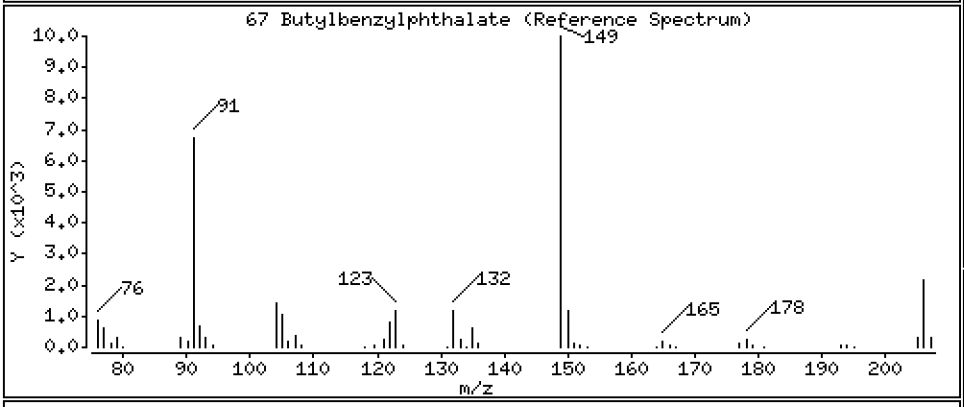
Concentration: 0.1175 ug/mL

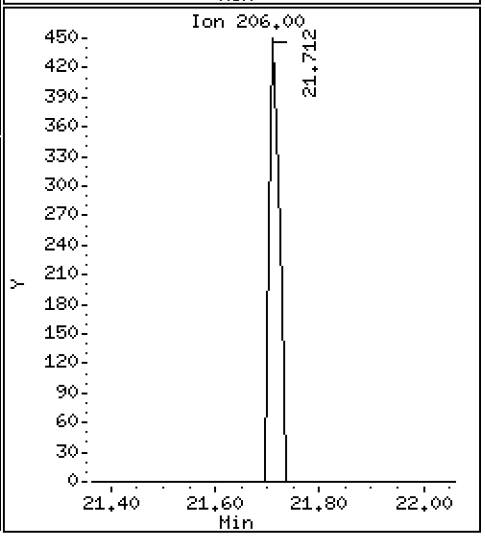


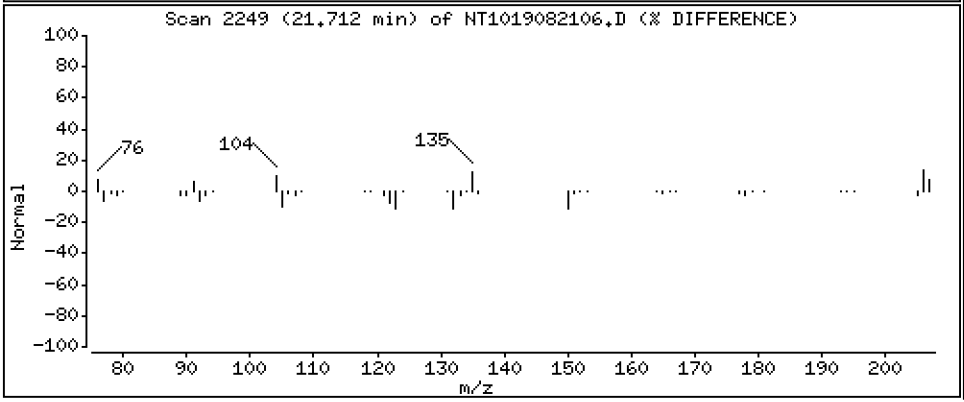












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

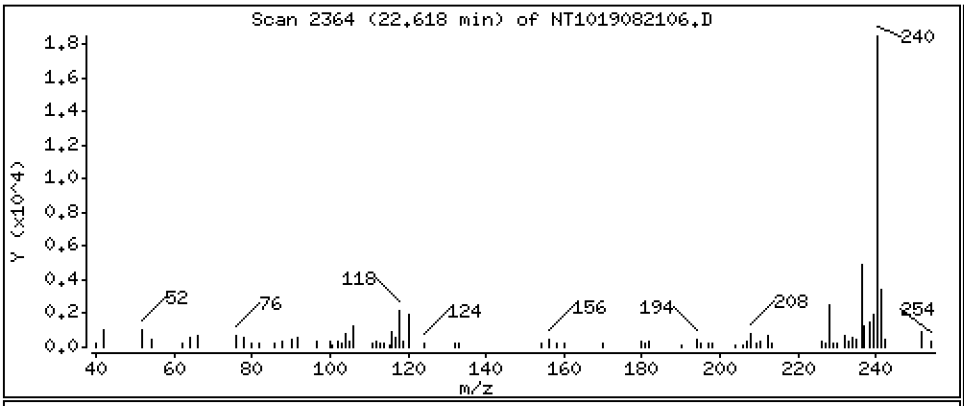
Operator: YZ

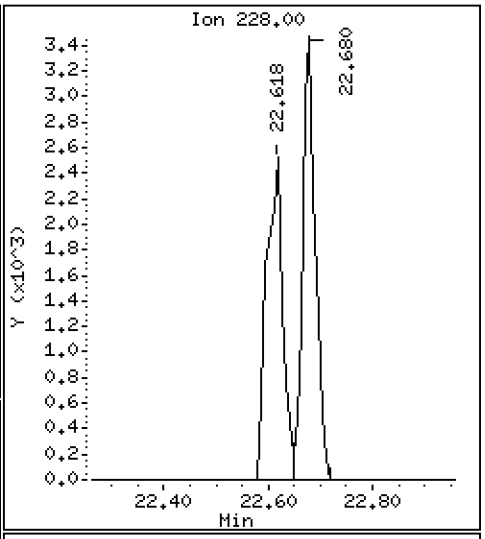
Column phase: ZB-5msi

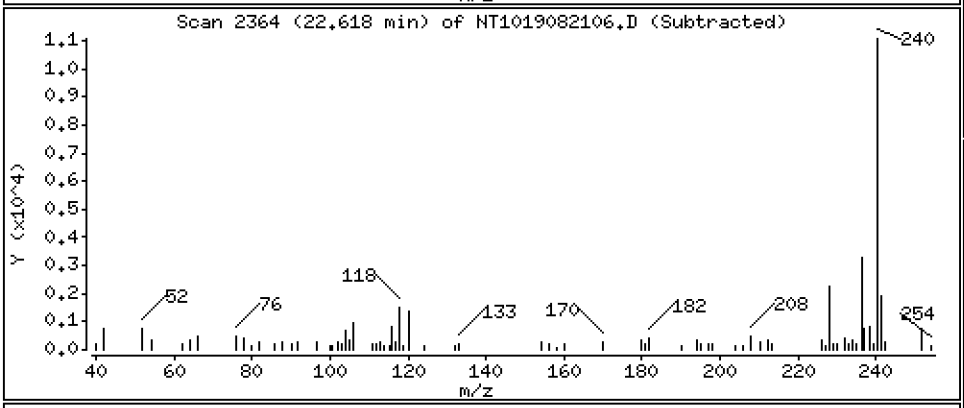
Column diameter: 0.25

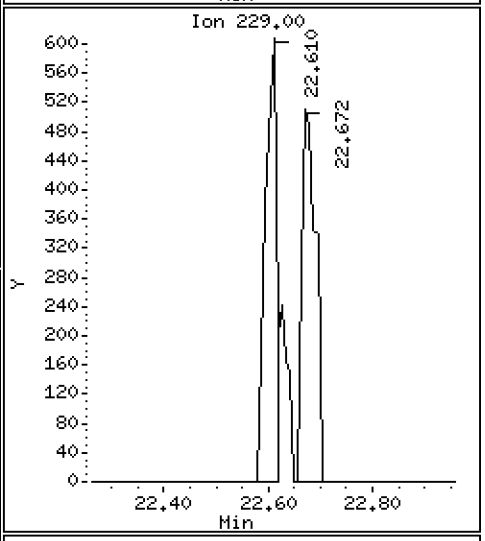
68 Benzo(a)anthracene

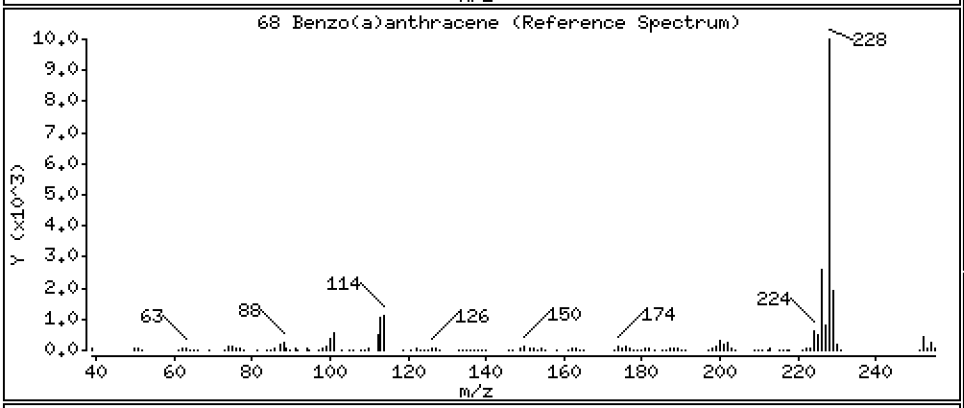
Concentration: 0.1641 ug/mL

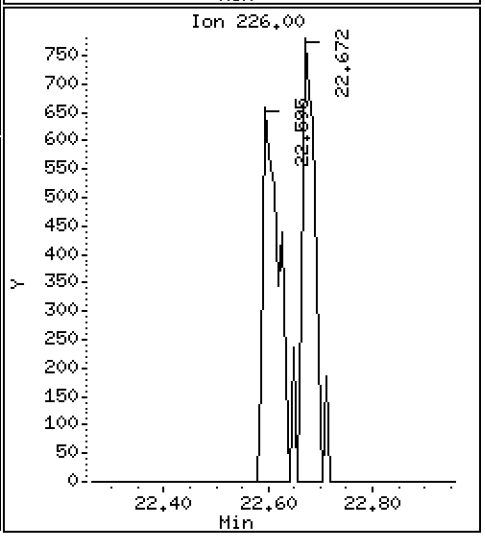


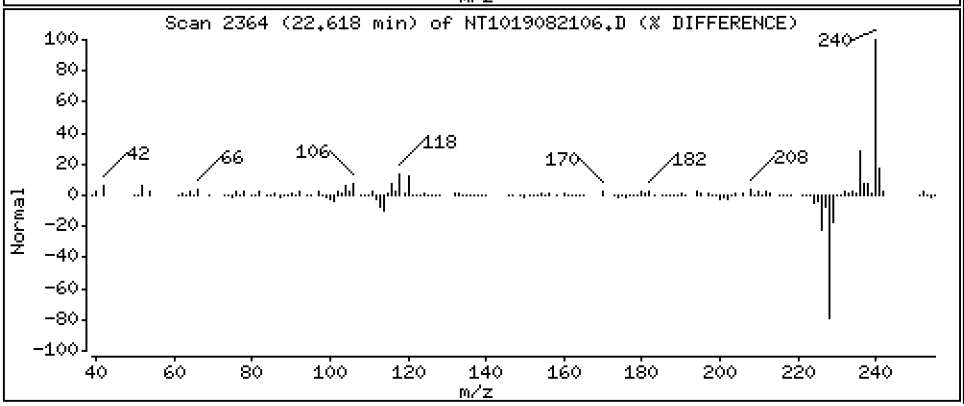












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

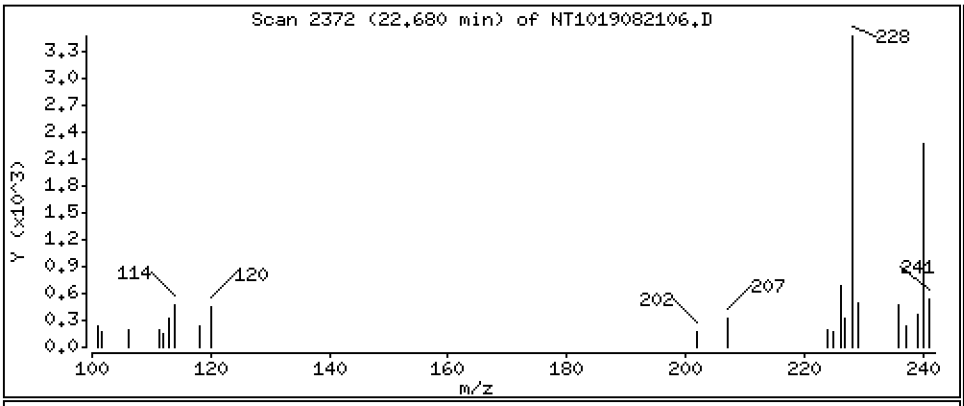
Operator: YZ

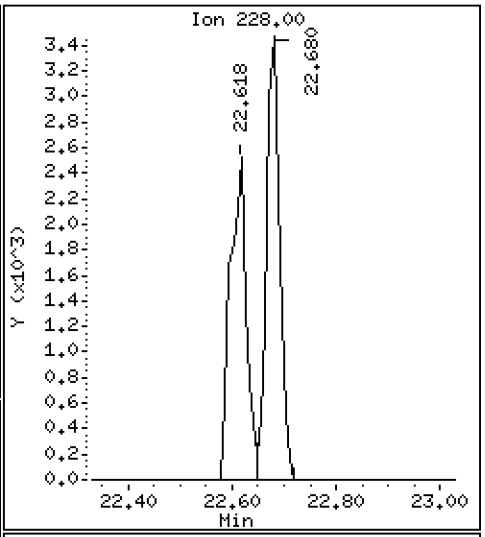
Column phase: ZB-5msi

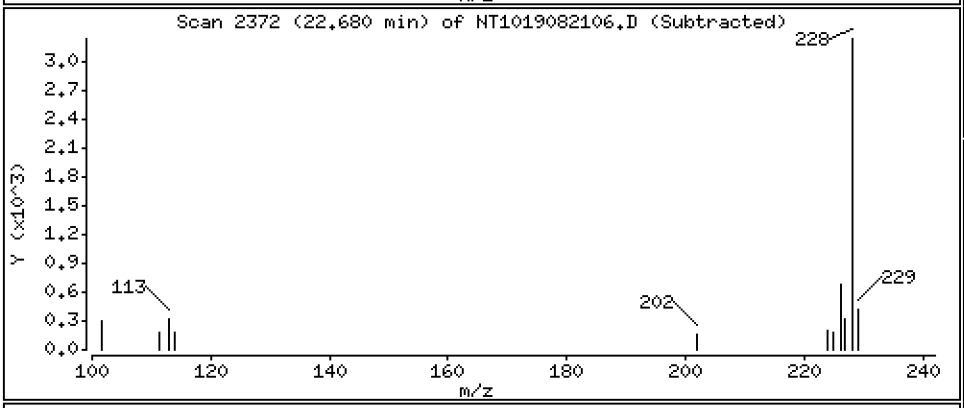
Column diameter: 0.25

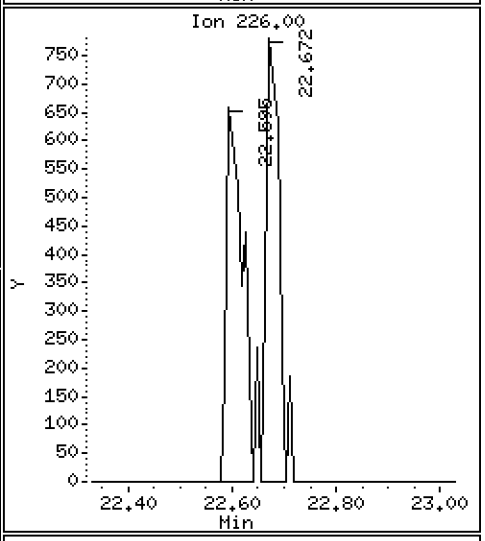
71 Chrysene

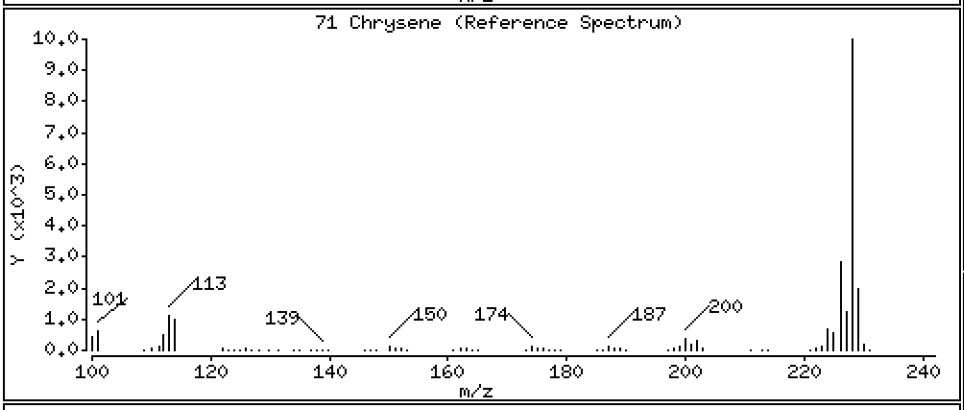
Concentration: 0.2011 ug/mL

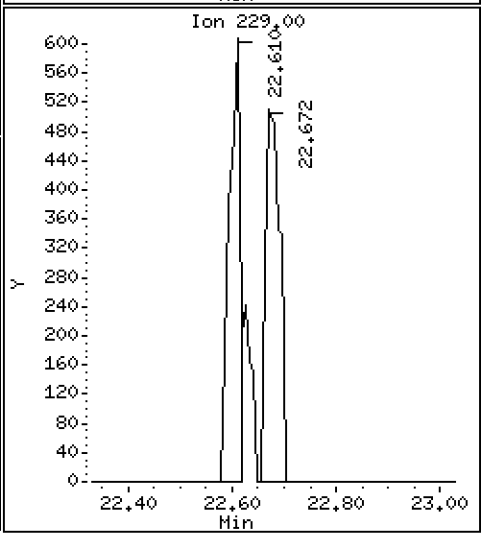


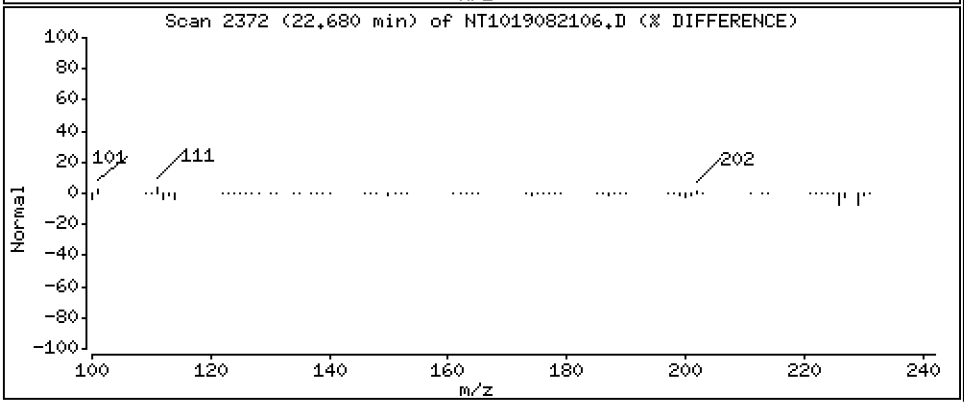












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

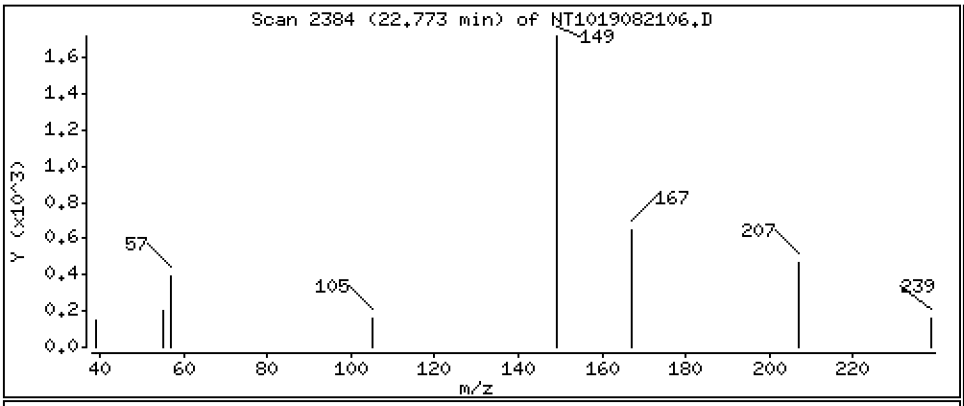
Operator: YZ

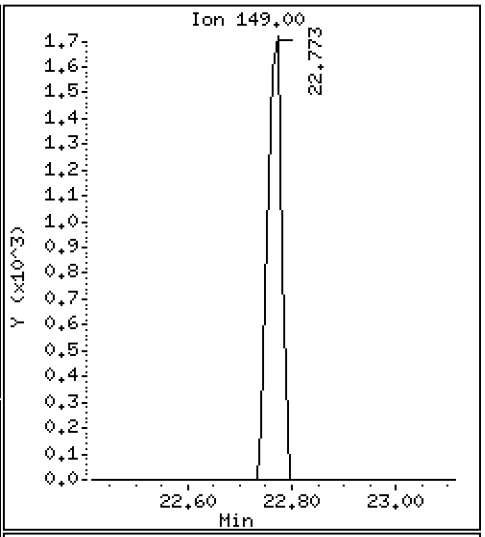
Column phase: ZB-5msi

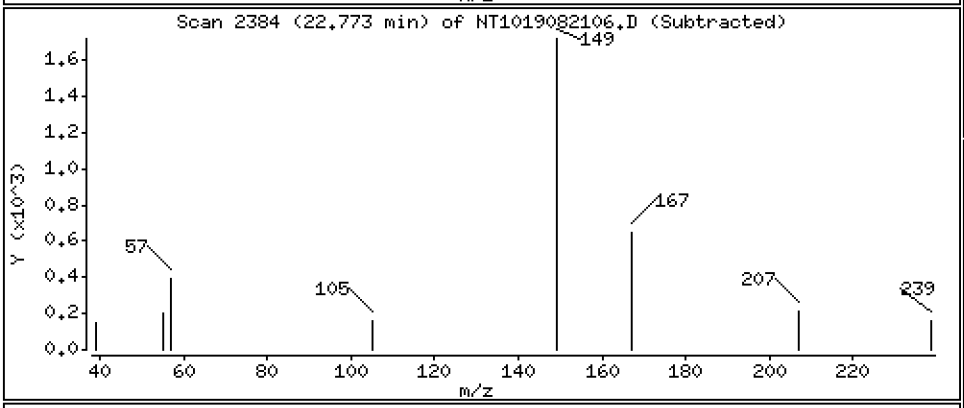
Column diameter: 0.25

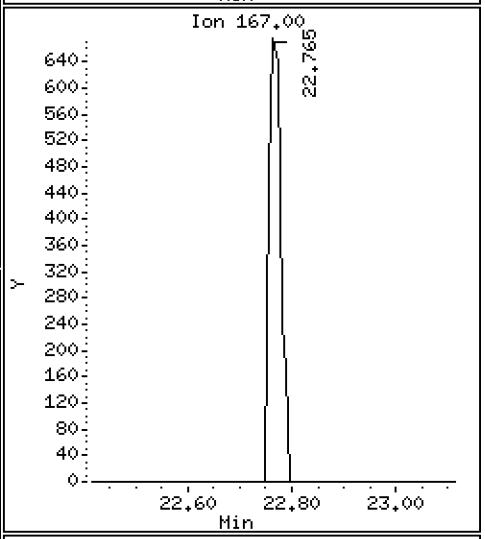
72 bis(2-Ethylhexyl)phthalate

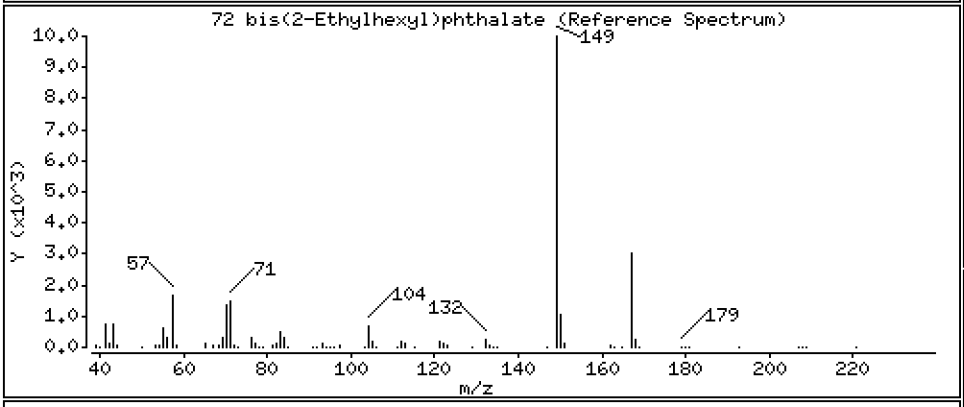
Concentration: 0.1575 ug/mL

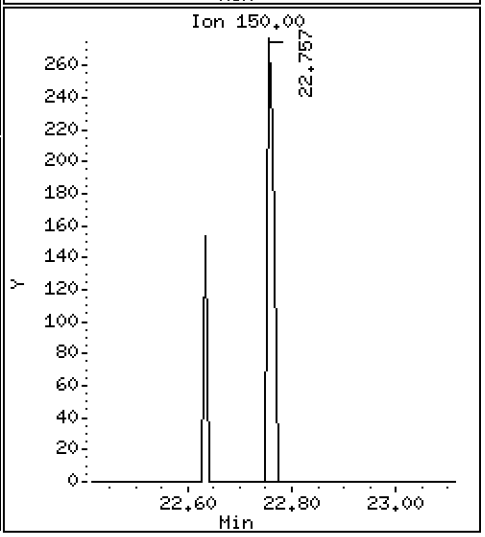


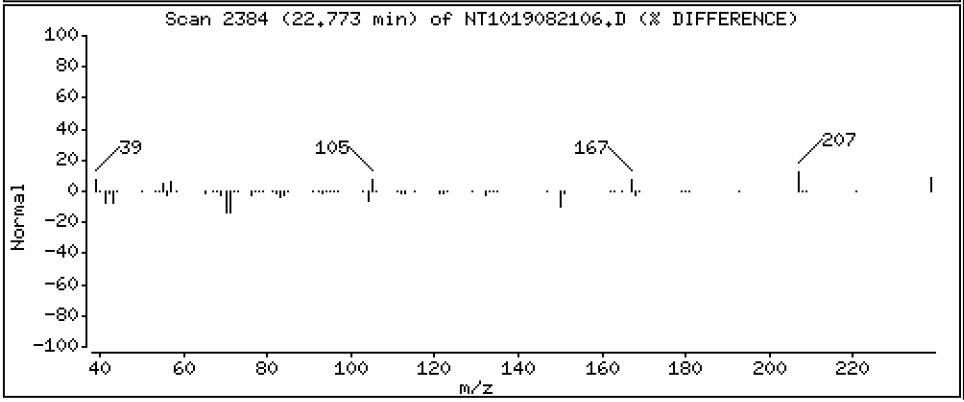












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

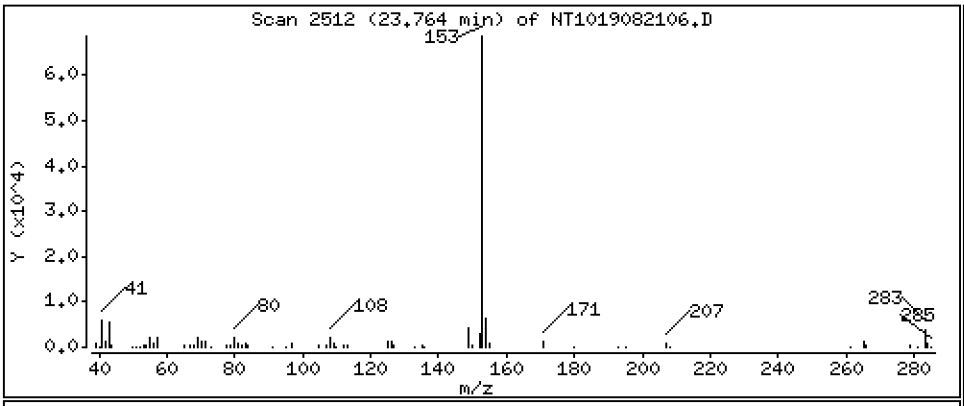
Operator: YZ

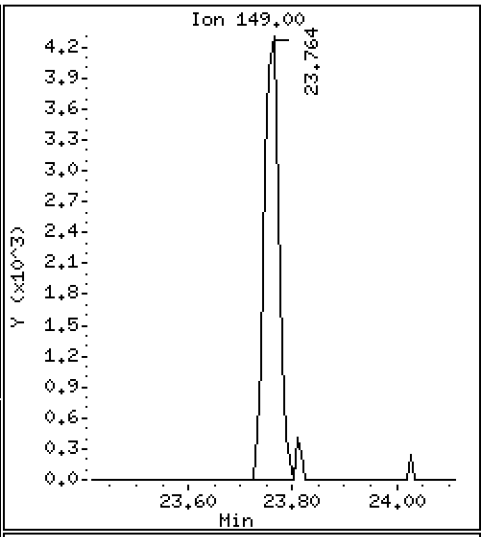
Column phase: ZB-5msi

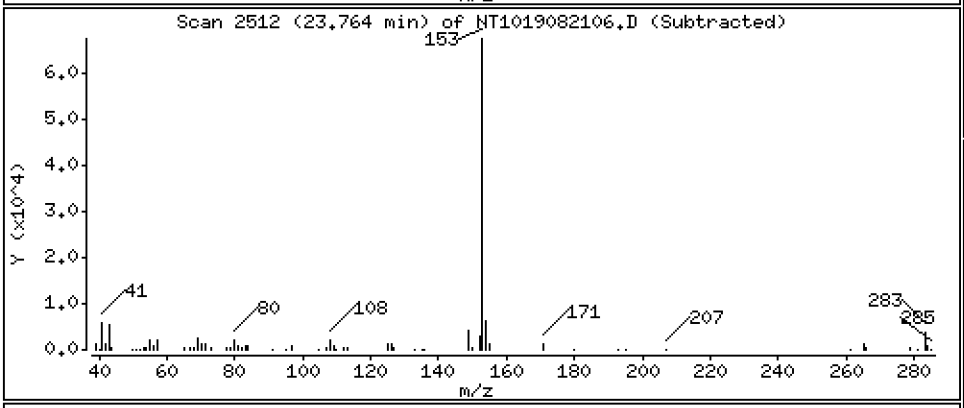
Column diameter: 0.25

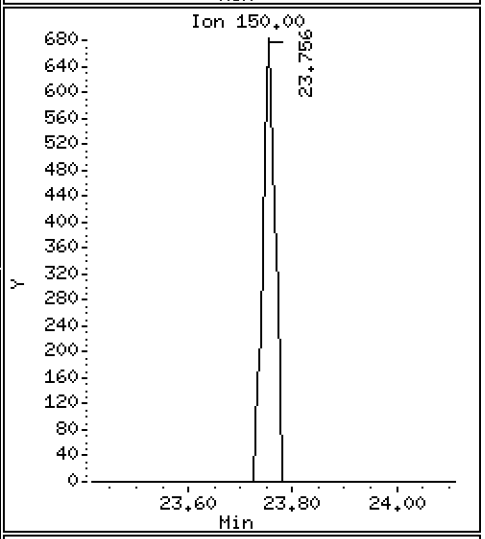
73 Di-n-octylphthalate

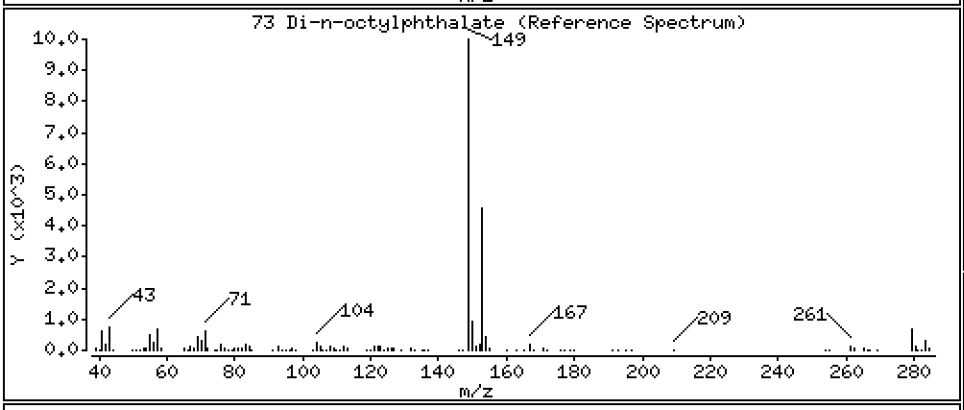
Concentration: 0.1963 ug/mL

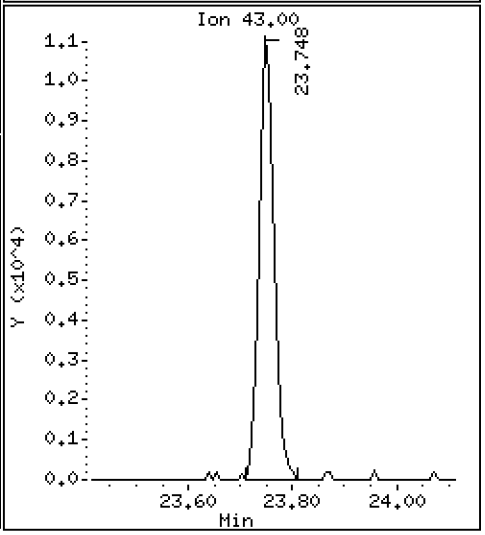


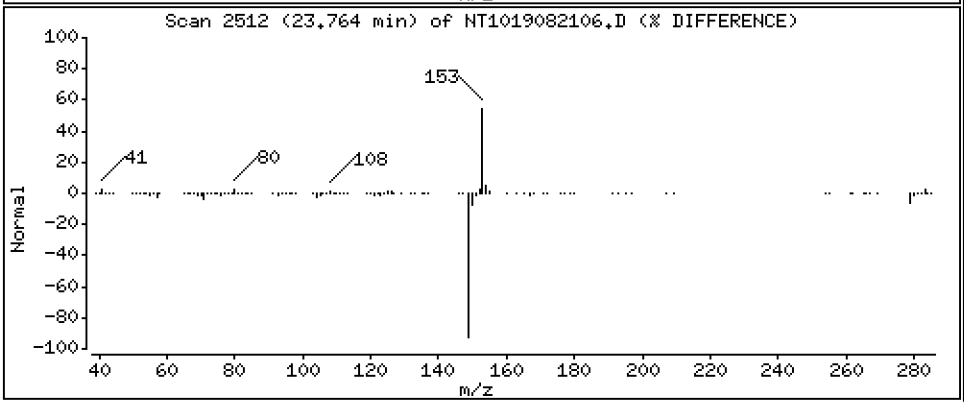












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

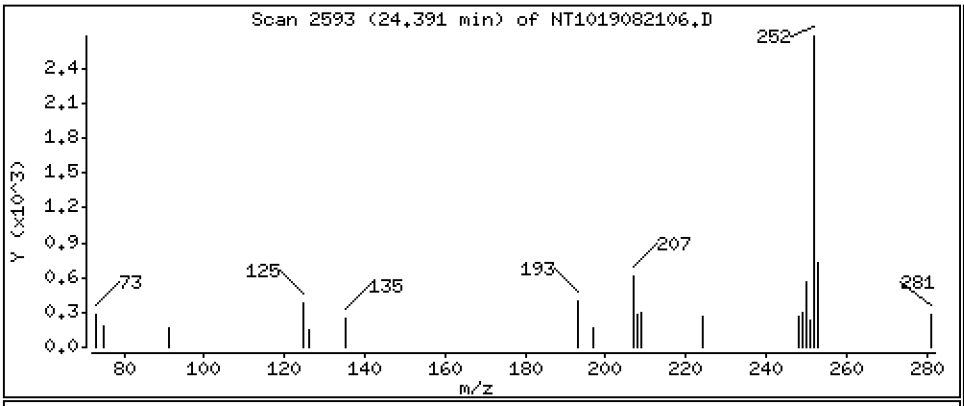
Operator: YZ

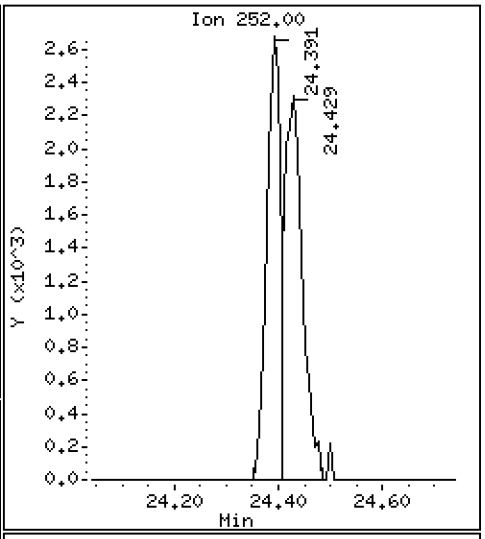
Column phase: ZB-5msi

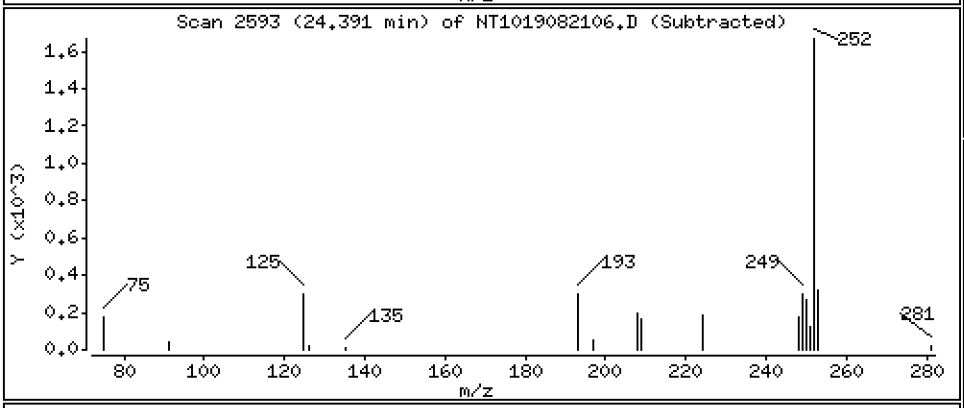
Column diameter: 0.25

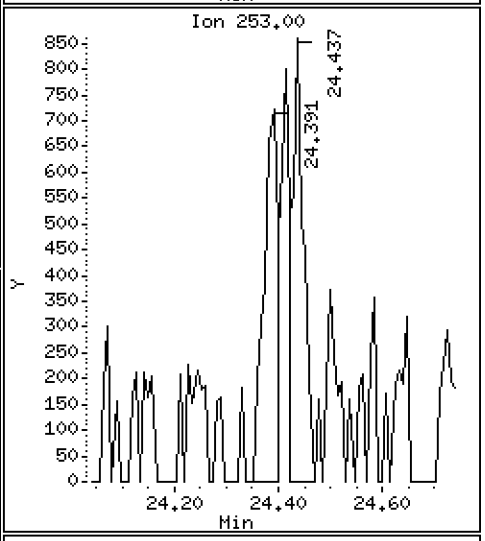
74 Benzo(b)fluoranthene

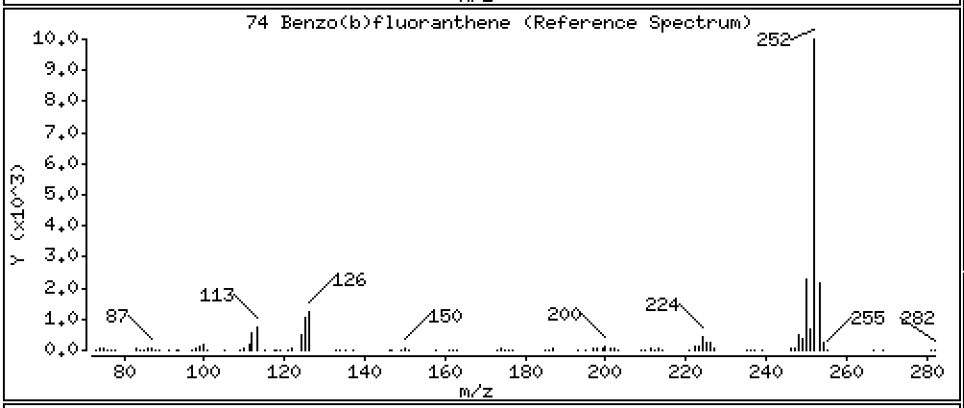
Concentration: 0.1743 ug/mL

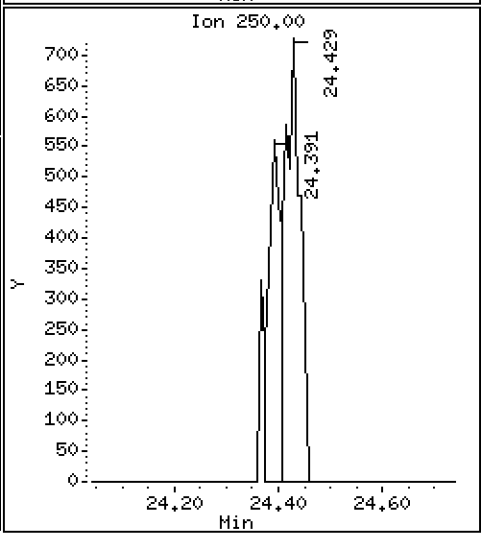


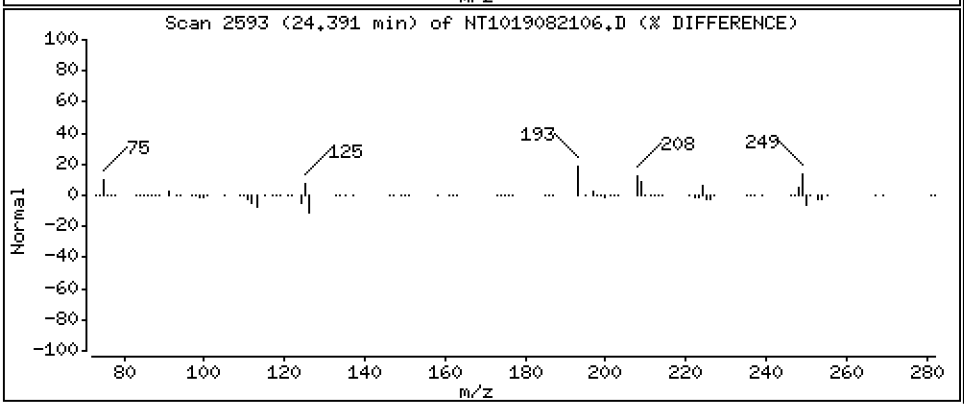












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

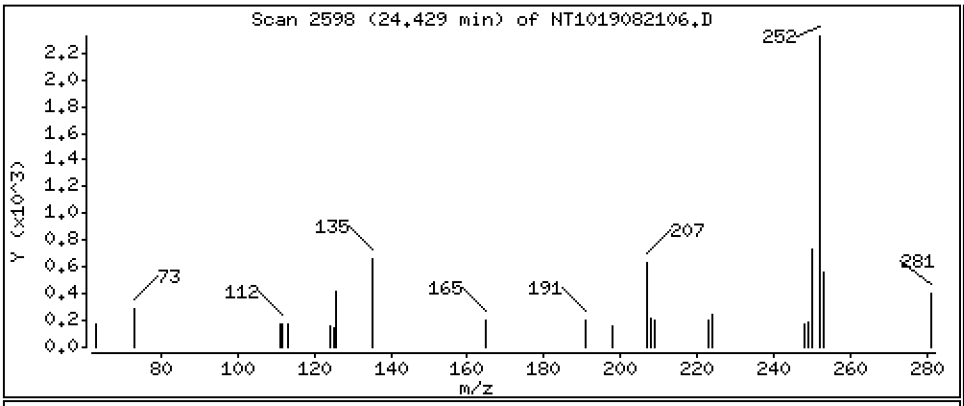
Operator: YZ

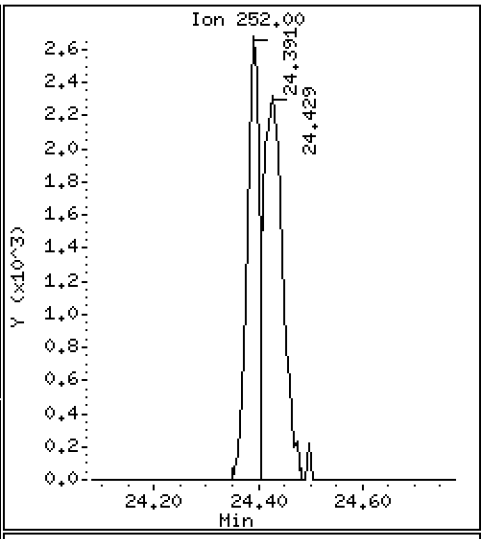
Column phase: ZB-5msi

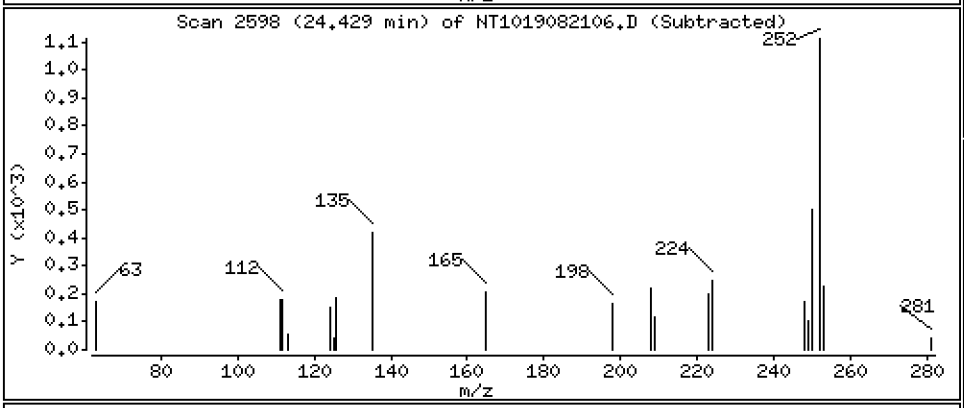
Column diameter: 0.25

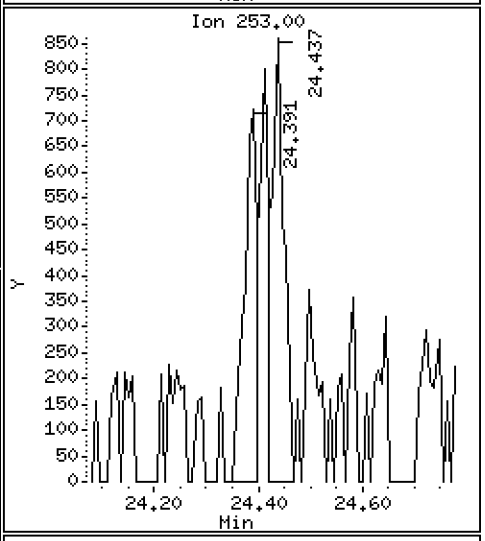
75 Benzo(k)fluoranthene

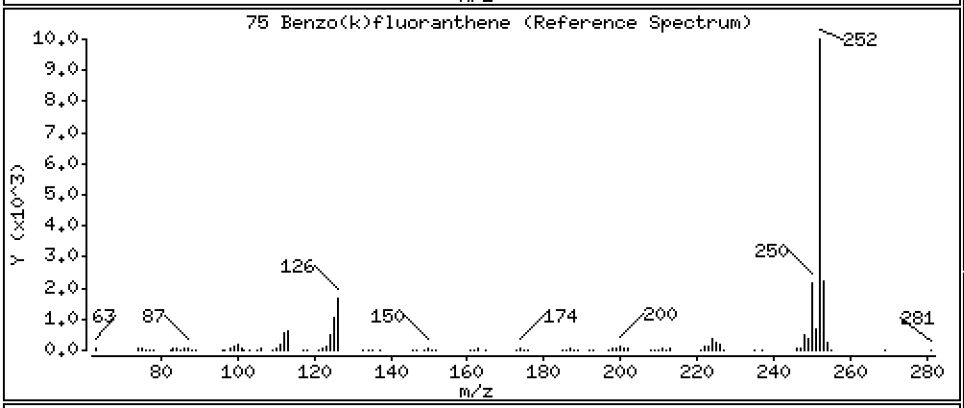
Concentration: 0.2209 ug/mL

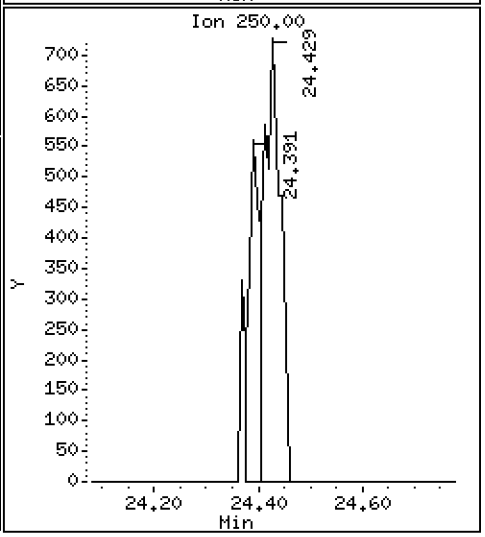


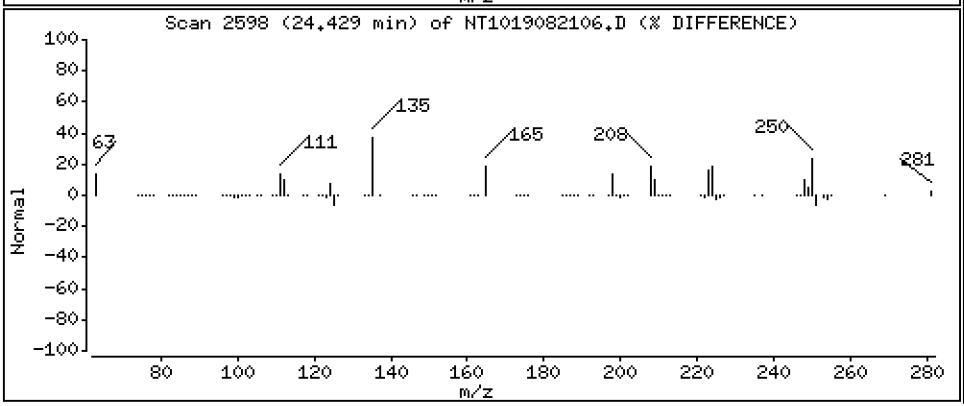












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

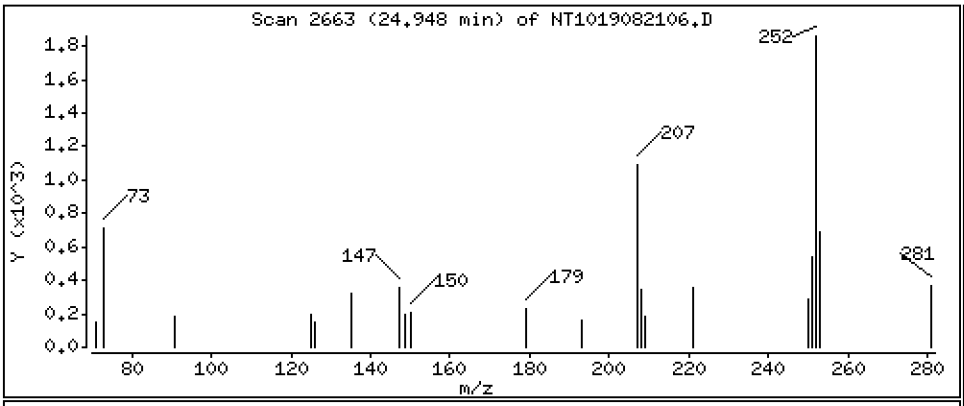
Operator: YZ

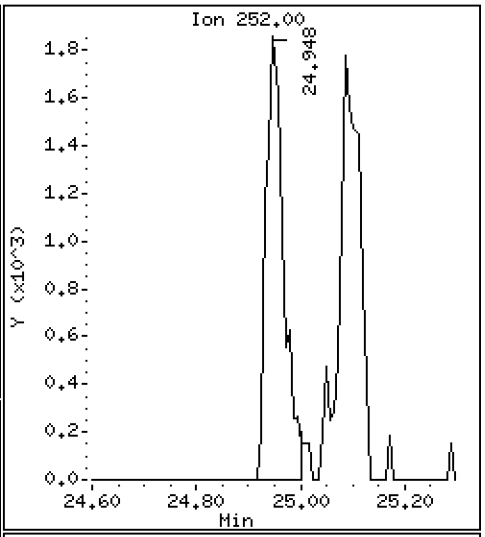
Column phase: ZB-5msi

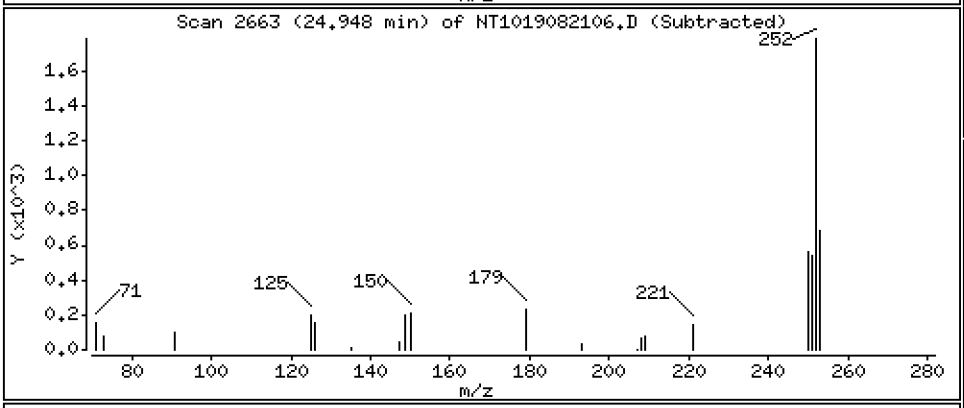
Column diameter: 0.25

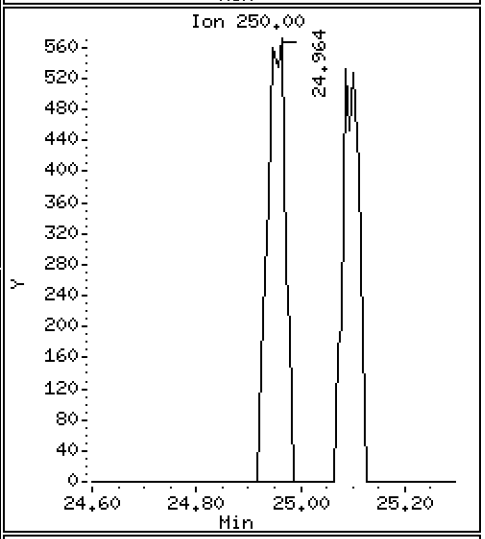
76 Benzo(a)pyrene

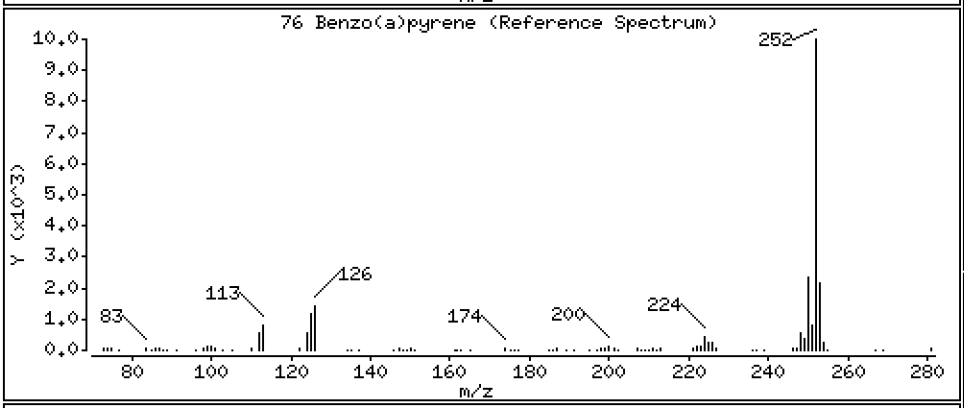
Concentration: 0.1743 ug/mL

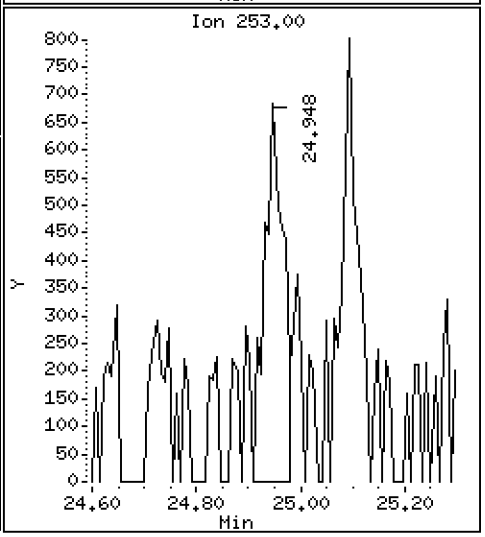


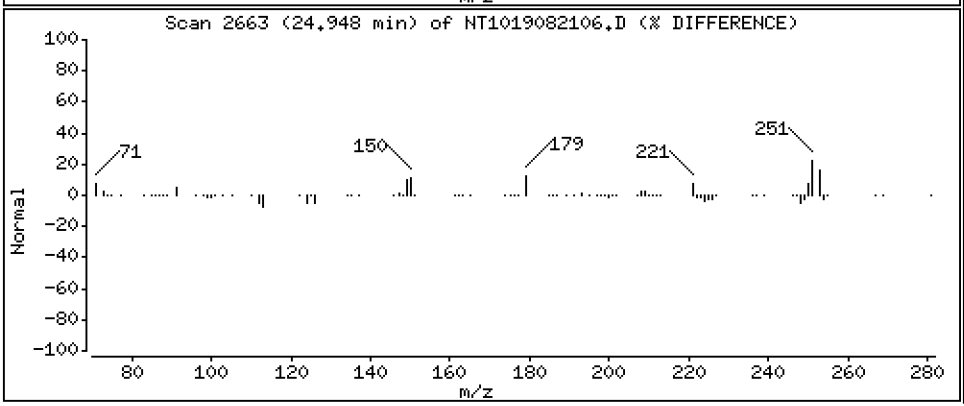












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

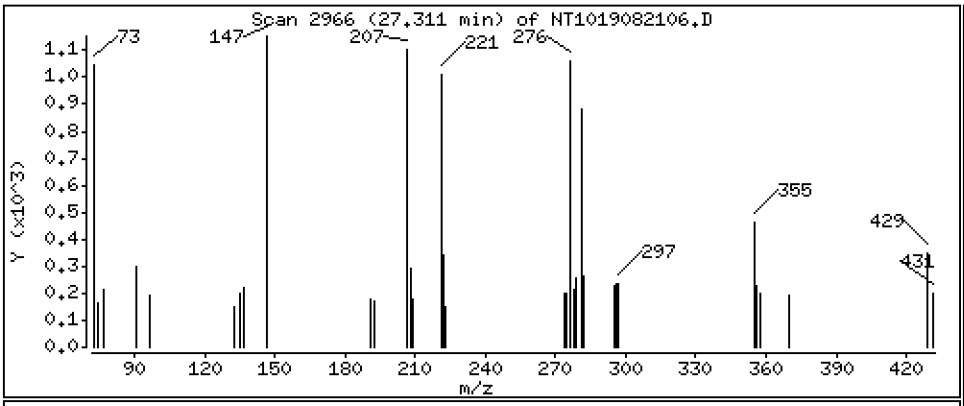
Operator: YZ

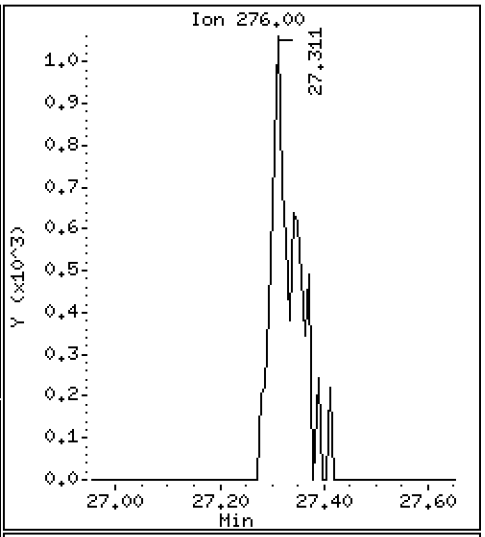
Column phase: ZB-5msi

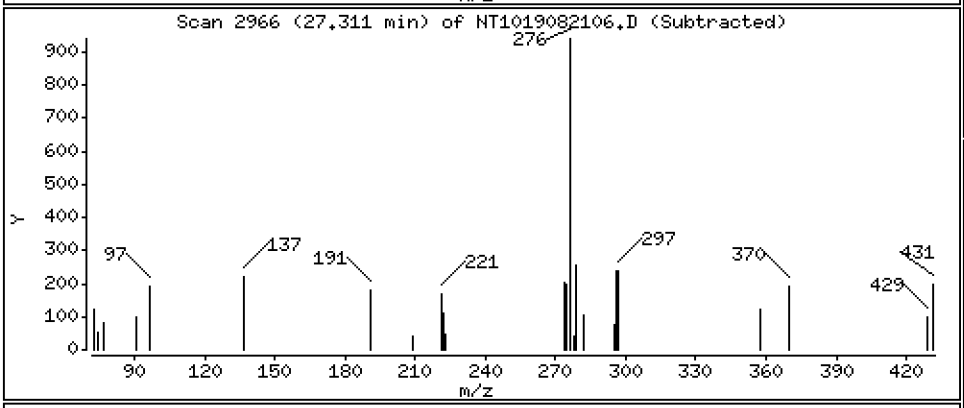
Column diameter: 0.25

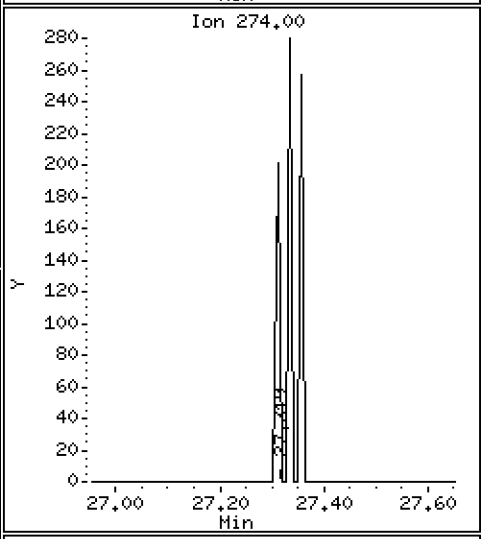
78 Indeno(1,2,3-cd)pyrene

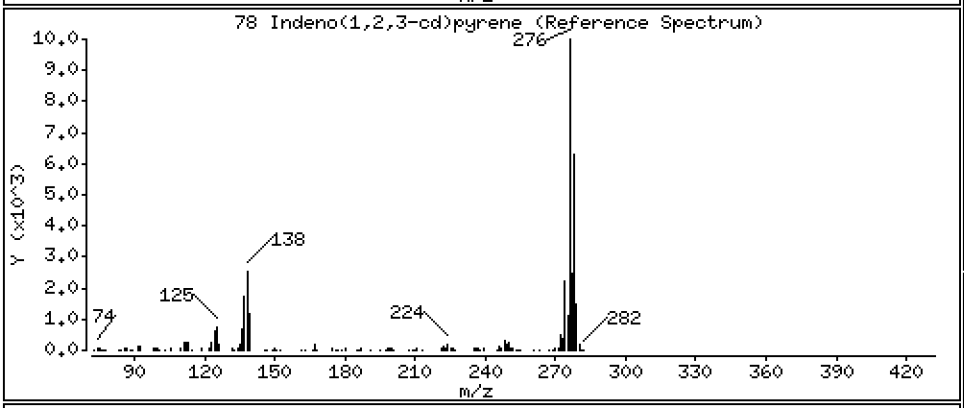
Concentration: 0.1091 ug/mL

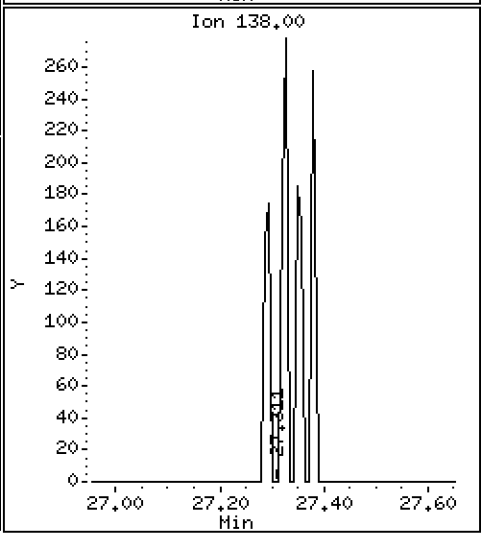


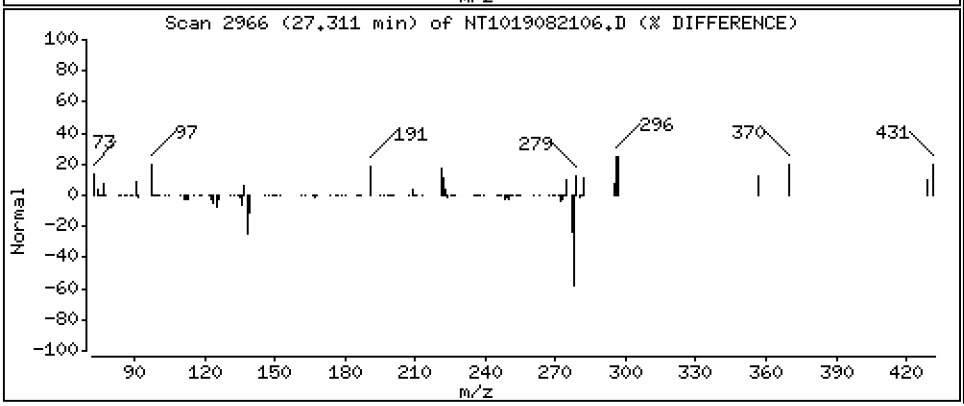












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

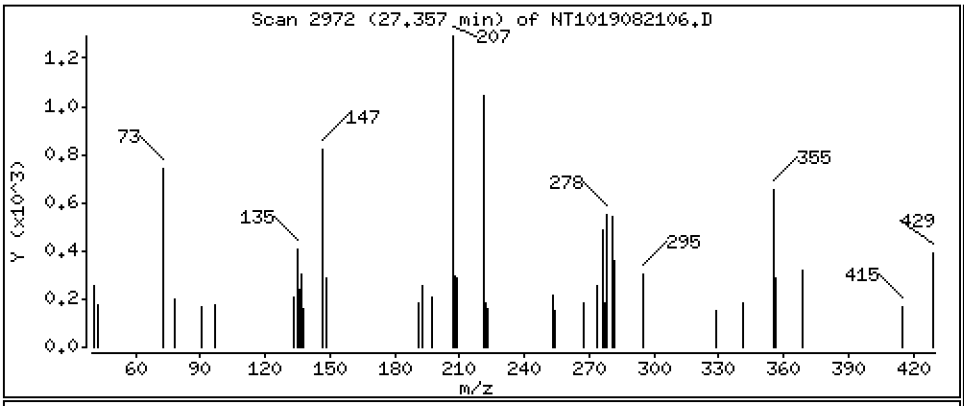
Operator: YZ

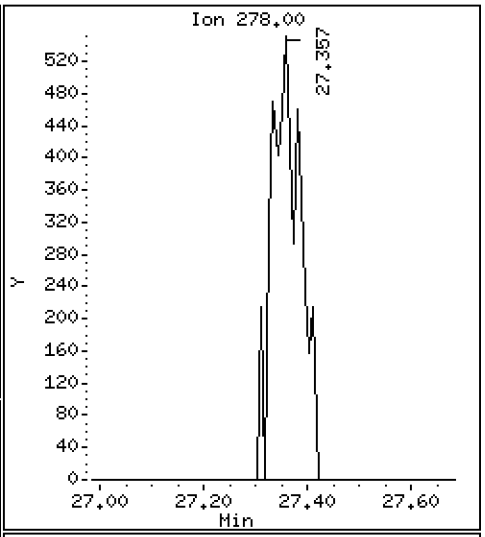
Column phase: ZB-5msi

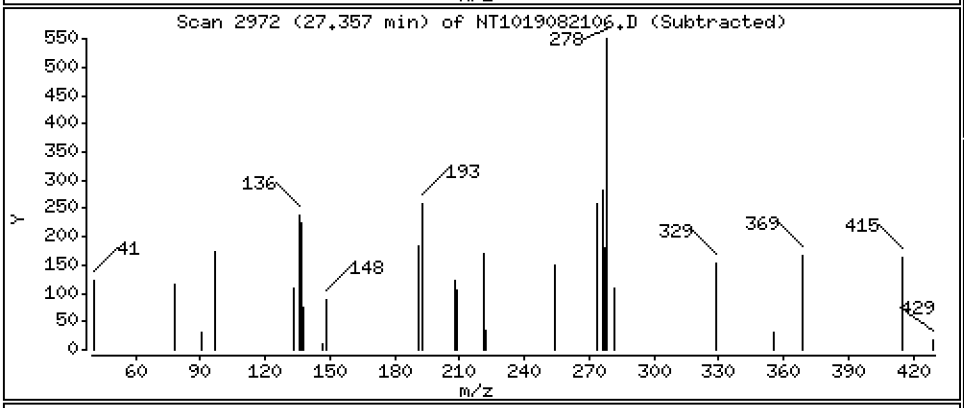
Column diameter: 0.25

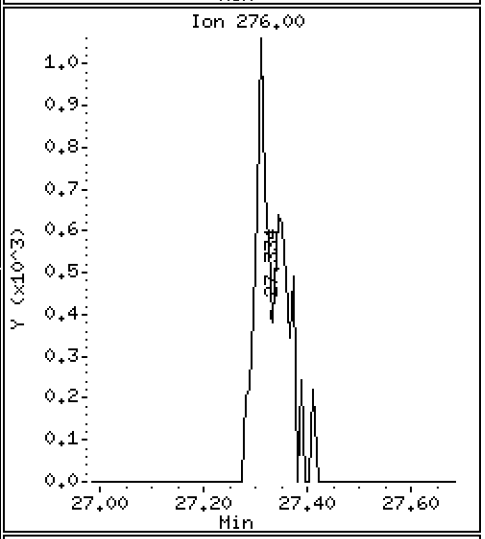
79 Dibenzo(a,h)anthracene

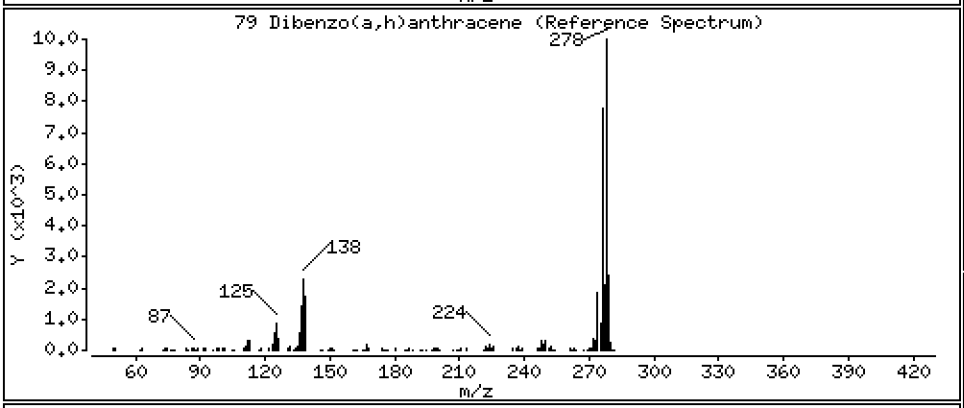
Concentration: 0.08872 ug/mL

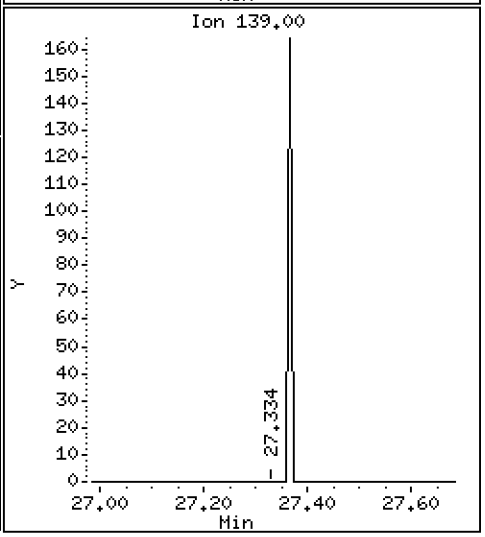


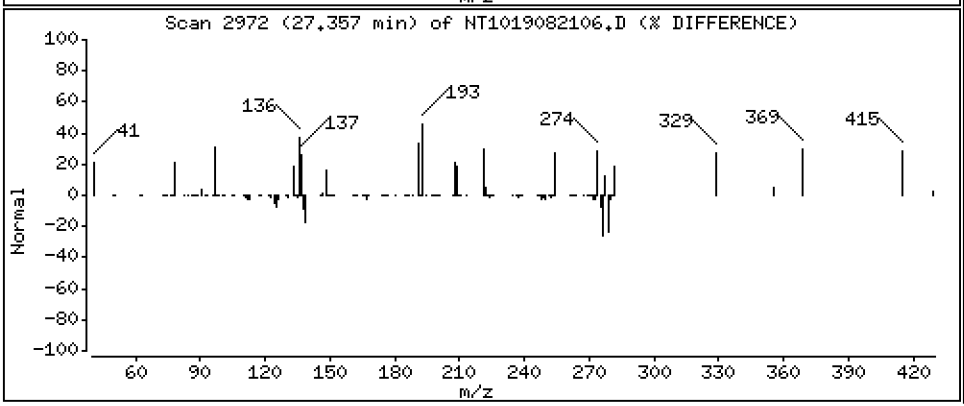












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

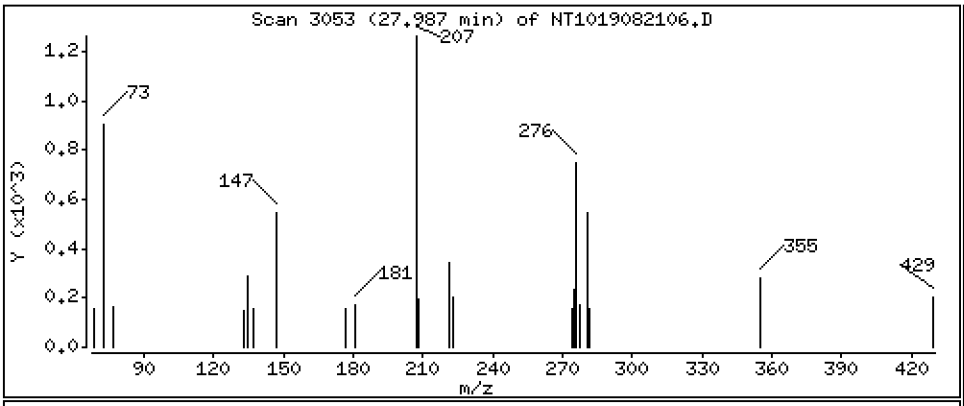
Operator: YZ

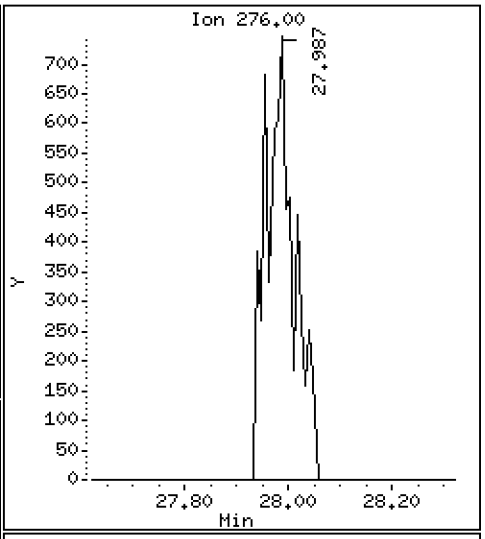
Column phase: ZB-5msi

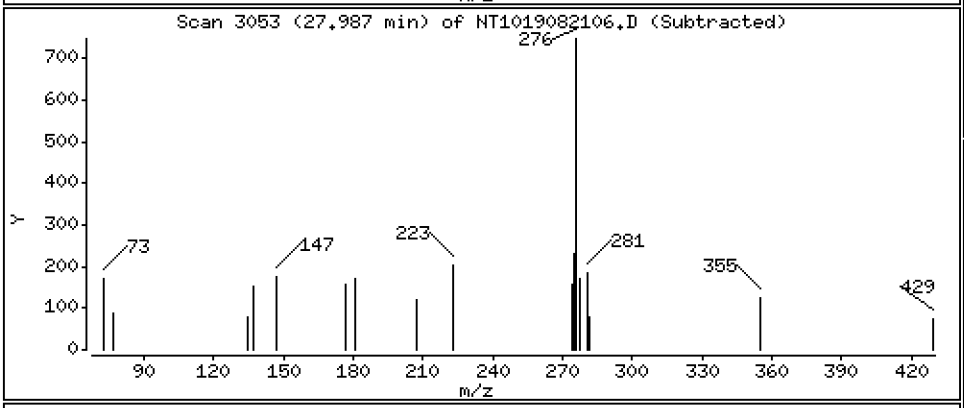
Column diameter: 0.25

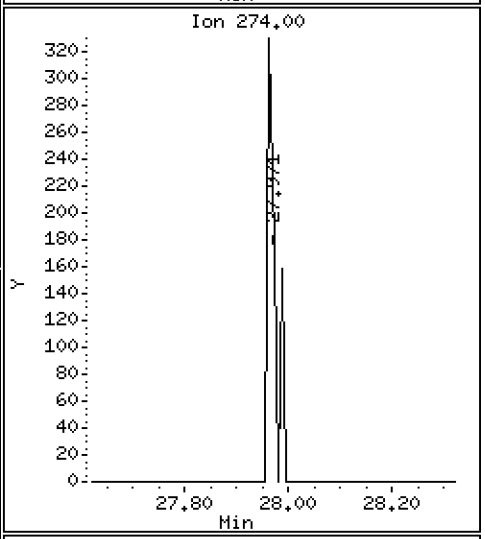
80 Benzo(g,h,i)perylene

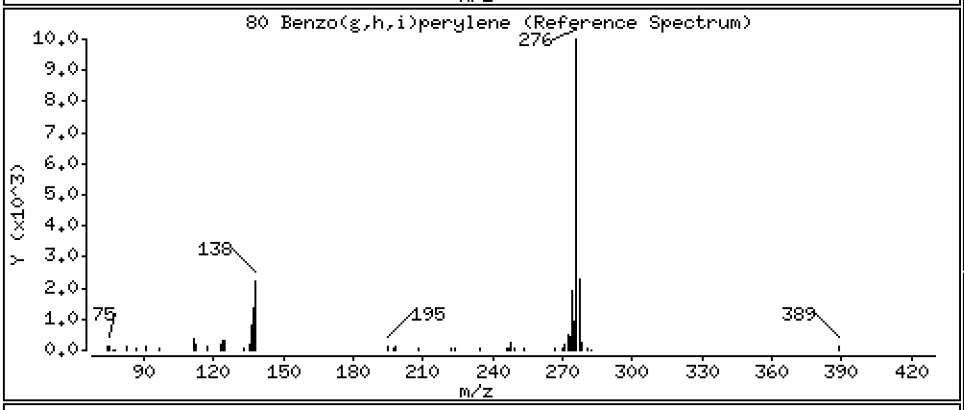
Concentration: 0.1141 ug/mL

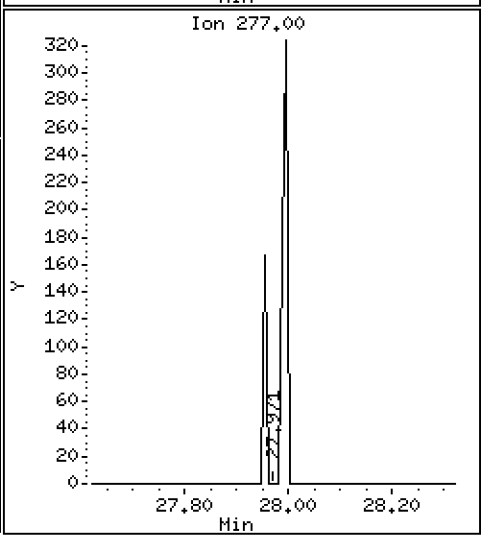


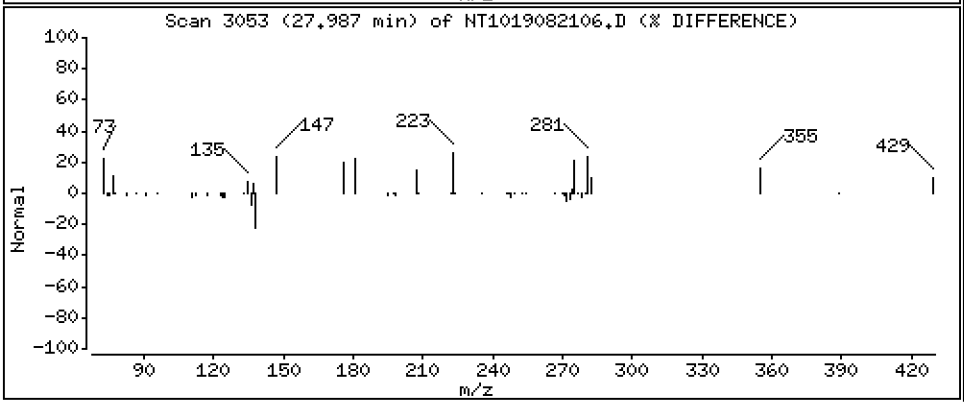












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

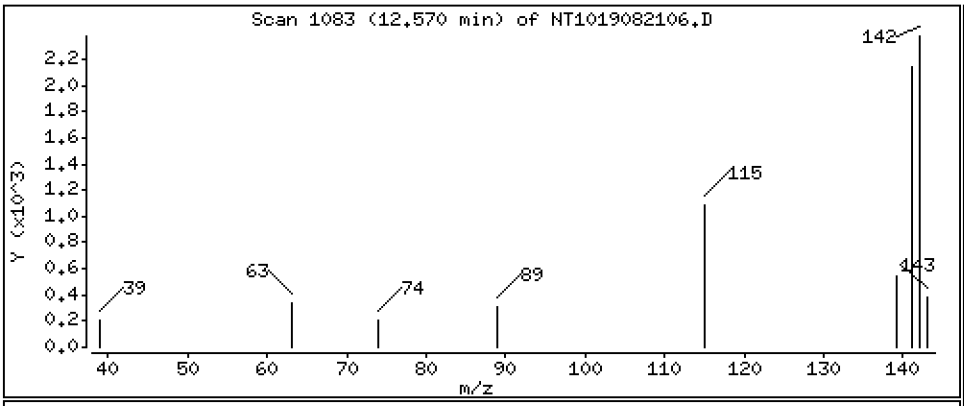
Operator: YZ

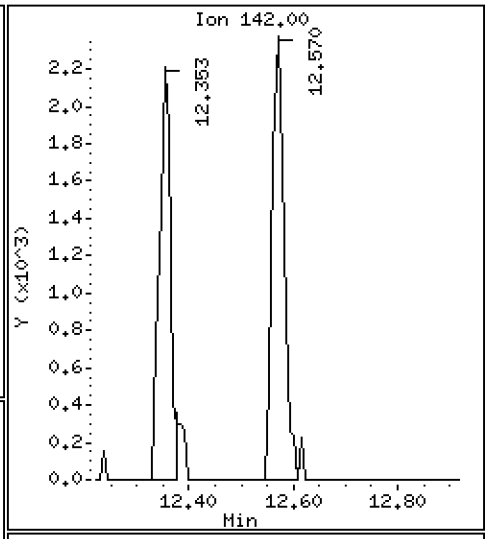
Column phase: ZB-5msi

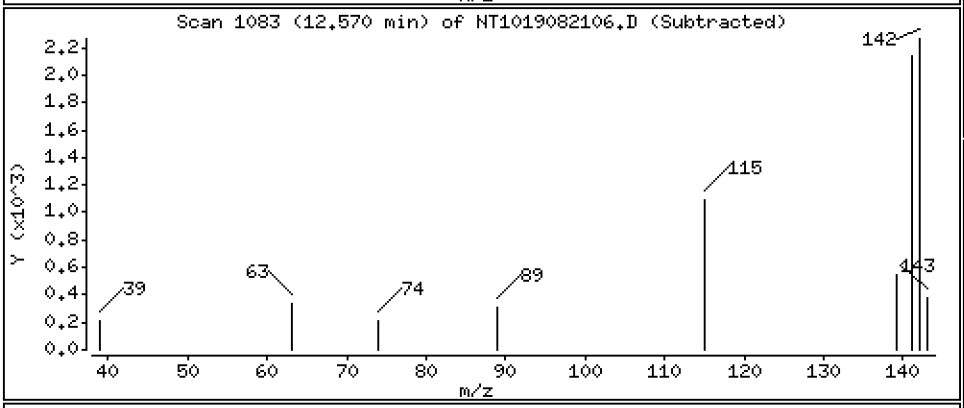
Column diameter: 0.25

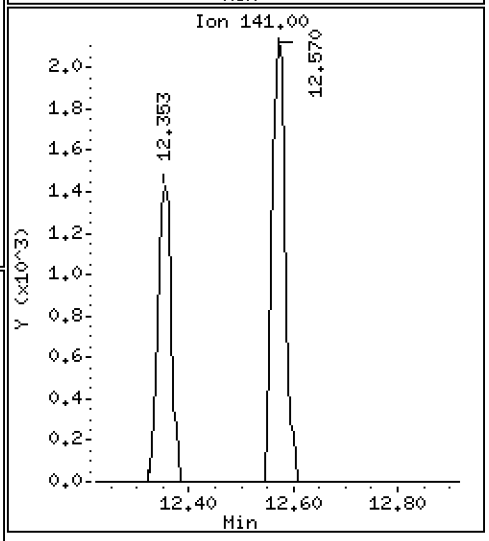
105 1-methylnaphthalene

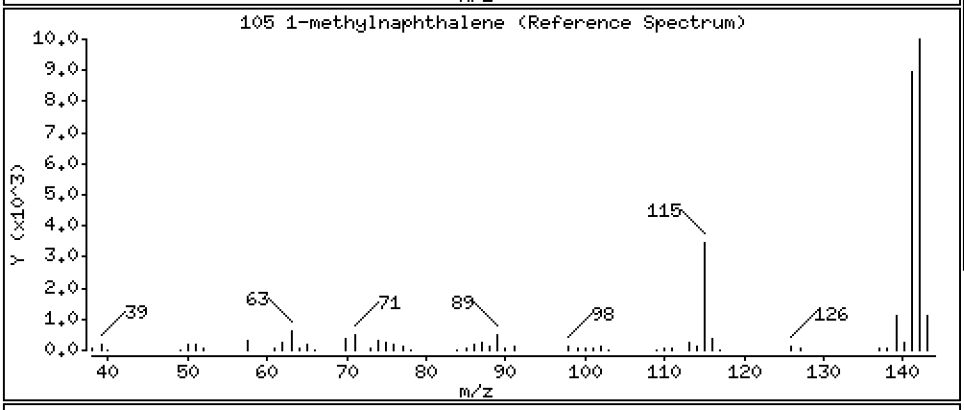
Concentration: 0.1509 ug/mL

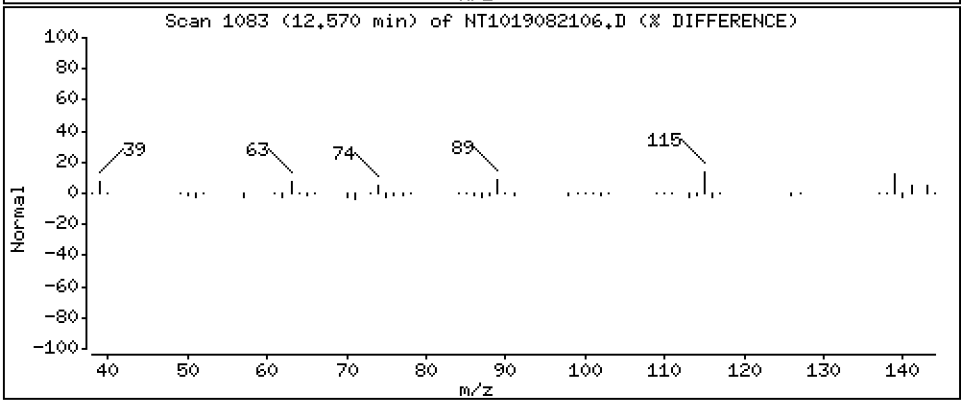












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

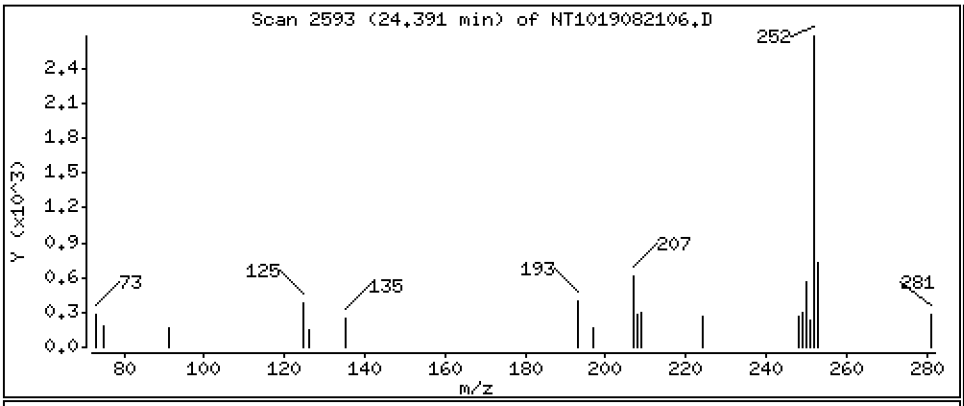
Operator: YZ

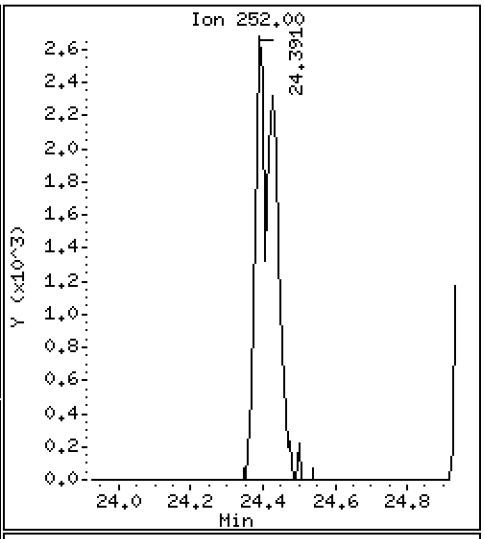
Column phase: ZB-5msi

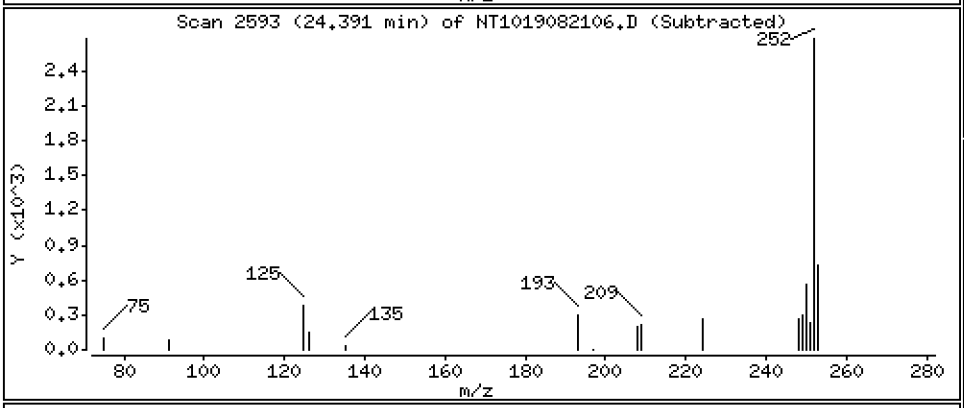
Column diameter: 0.25

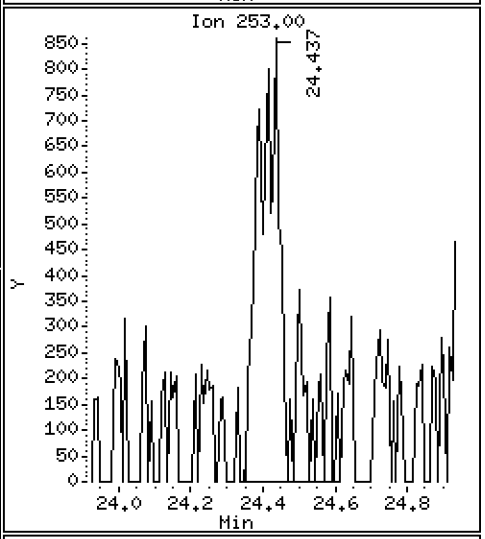
187 Total Benzofluoranthenes

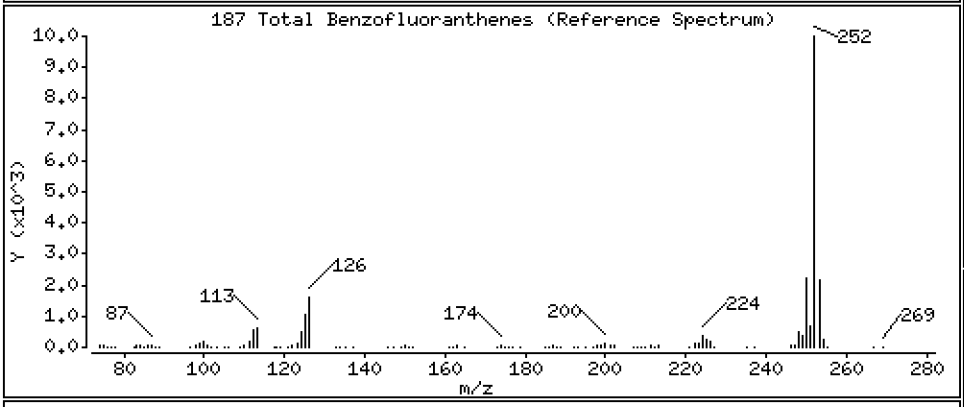
Concentration: 0.3939 ug/mL

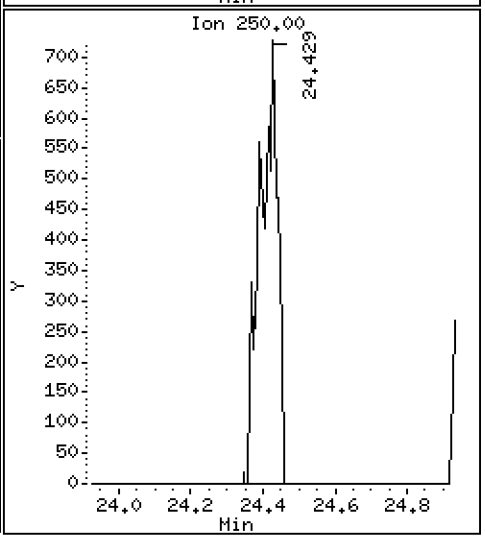


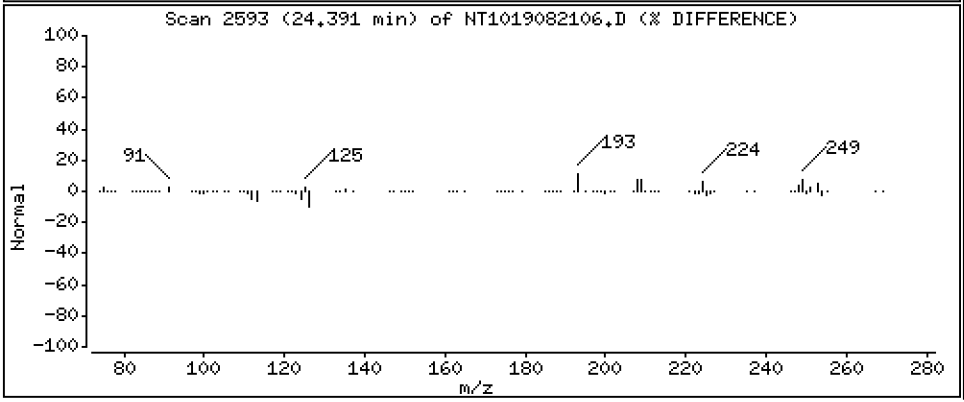












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D
Lab Smp Id: SHH0303-LCV1
Inj Date : 21-AUG-2019 13:08
Operator : YZ Inst ID: nt10.i
Smp Info : SHH0303-LCV1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 13:05 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.319	6.311	(0.745)	1506	0.15357	0.1536
$	2 Phenol-d5	99	7.887	7.888	(0.930)	1504	0.13684	0.1368
	3 Phenol	94	7.918	7.911	(0.933)	1110	0.10863	0.1086(M)
$	5 2-Chlorophenol-d4	132	8.127	8.127	(0.958)	2479	0.20953	0.2095(M)
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	34924	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.832	8.832	(1.041)	1470	0.18173	0.1817
	11 Benzyl alcohol	108	8.995	8.762	(1.060)	828	0.12244	0.1224
$	18 Nitrobenzene-d5	82	9.562	9.554	(0.876)	924	0.09773	0.09773
	24 Benzoic acid	105	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.921	10.929	(1.000)	120883	4.00000	
	28 Naphthalene	128	10.960	10.968	(1.004)	4486	0.16145	0.1614
	32 2-Methylnaphthalene	142	12.352	12.353	(1.131)	3251	0.13794	0.1379
$	36 2-Fluorobiphenyl	172	13.150	13.142	(0.906)	3370	0.15357	0.1536
	39 Dimethylphthalate	163	14.055	14.055	(0.969)	2921	0.13701	0.1370
	40 Acenaphthylene	152	14.194	14.195	(0.978)	4745	0.17158	0.1716
*	42 Acenaphthene-d10	164	14.512	14.512	(1.000)	57371	4.00000	
	44 Acenaphthene	153	14.573	14.574	(1.004)	3512	0.20210	0.2021
	46 Dibenzofuran	168	14.898	14.898	(1.027)	4517	0.15816	0.1582
	50 Diethylphthalate	149	15.501	15.517	(1.068)	3137	0.15282	0.1528
	49 Fluorene	166	15.609	15.610	(1.076)	3746	0.19180	0.1918
	54 N-Nitrosodiphenylamine	169	15.887	15.872	(0.907)	2955	0.18562	0.1856
$	55 2,4,6-Tribromophenol	330	16.157	16.142	(1.113)	149	0.03435	0.03435(M)
*	59 Phenanthrene-d10	188	17.525	17.525	(1.000)	115978	4.00000	
	60 Phenanthrene	178	17.571	17.572	(1.003)	5198	0.18348	0.1835
	61 Anthracene	178	17.664	17.665	(1.008)	4851	0.16864	0.1686
	63 Di-n-butylphthalate	149	18.871	18.872	(1.077)	4910	0.12528	0.1253(M)
	64 Fluoranthene	202	19.993	19.993	(0.883)	5470	0.15901	0.1590
	65 Pyrene	202	20.426	20.411	(0.903)	6571	0.18292	0.1829
$	66 Terphenyl-d14	244	20.751	20.744	(0.917)	3759	0.15430	0.1543
	67 Butylbenzylphthalate	149	21.711	21.712	(0.959)	1966	0.11749	0.1175
	68 Benzo(a)anthracene	228	22.617	22.610	(0.999)	5359	0.16408	0.1641
*	69 Chrysene-d12	240	22.633	22.633	(1.000)	112570	4.00000	
	71 Chrysene	228	22.679	22.680	(1.002)	5813	0.20114	0.2011

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.772	22.765	(0.959)	3083	0.15753	0.1575
* 134	Di-n-octylphthalate-d4	153	23.755	23.756	(1.000)	222512	4.00000	
73	Di-n-octylphthalate	149	23.763	23.763	(1.000)	8082	0.19634	0.1963
74	Benzo(b)fluoranthene	252	24.390	24.390	(0.974)	4726	0.17429	0.1743
75	Benzo(k)fluoranthene	252	24.429	24.429	(0.975)	6026	0.22090	0.2209
76	Benzo(a)pyrene	252	24.948	24.948	(0.996)	4241	0.17427	0.1743
* 77	Perylene-d12	264	25.048	25.056	(1.000)	94510	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	27.310	27.303	(1.090)	3190	0.10910	0.1091(M)
79	Dibenzo(a,h)anthracene	278	27.357	27.334	(1.092)	2112	0.08872	0.08872(M)
80	Benzo(g,h,i)perylene	276	27.986	27.971	(1.117)	2810	0.11410	0.1141(M)
105	1-methylnaphthalene	142	12.569	12.569	(1.151)	3575	0.15088	0.1509
187	Total Benzofluoranthenes	252	24.390	24.429	(0.974)	10244	0.39386	0.3939

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082106.D
Lab Smp Id: SHH0303-LCV1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	34924	6.67
27 Naphthalene-d8	117487	58744	234974	120883	2.89
42 Acenaphthene-d10	61859	30930	123718	57371	-7.26
59 Phenanthrene-d10	113574	56787	227148	115978	2.12
69 Chrysene-d12	105788	52894	211576	112570	6.41
134 Di-n-octylphthala	252823	126412	505646	222512	-11.99
77 Perylene-d12	113992	56996	227984	94510	-17.09

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	-0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.92	-0.07
42 Acenaphthene-d10	14.51	14.01	15.01	14.51	-0.00
59 Phenanthrene-d10	17.53	17.03	18.03	17.53	-0.00
69 Chrysene-d12	22.63	22.13	23.13	22.63	-0.00
134 Di-n-octylphthala	23.76	23.26	24.26	23.76	-0.00
77 Perylene-d12	25.06	24.56	25.56	25.05	-0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082106.D

Lab ID: SHH0303-LCV1
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 13:08

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.060	1.033	0.0275	Benzyl alcohol

RRT check based on Ccal File: NT1019082105.D

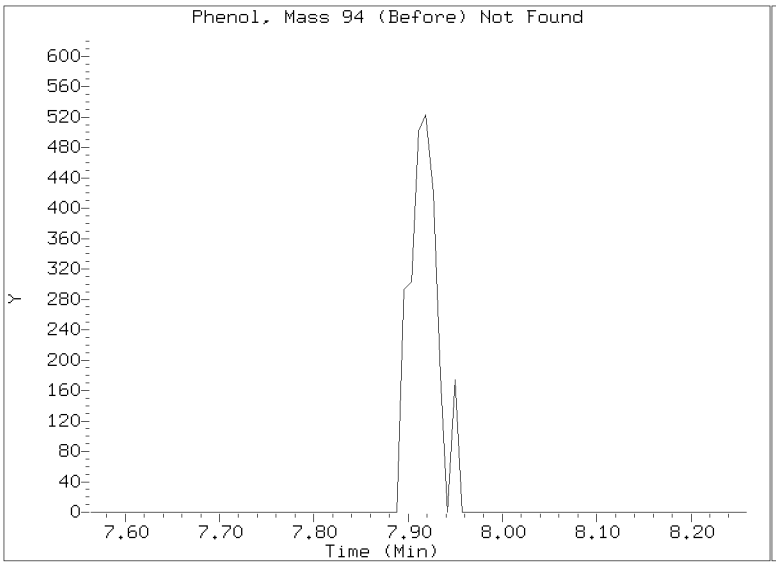
On Column LOD for nt10.i, 20190821.b\ABN.m, pnaphth.sub = 0.1000

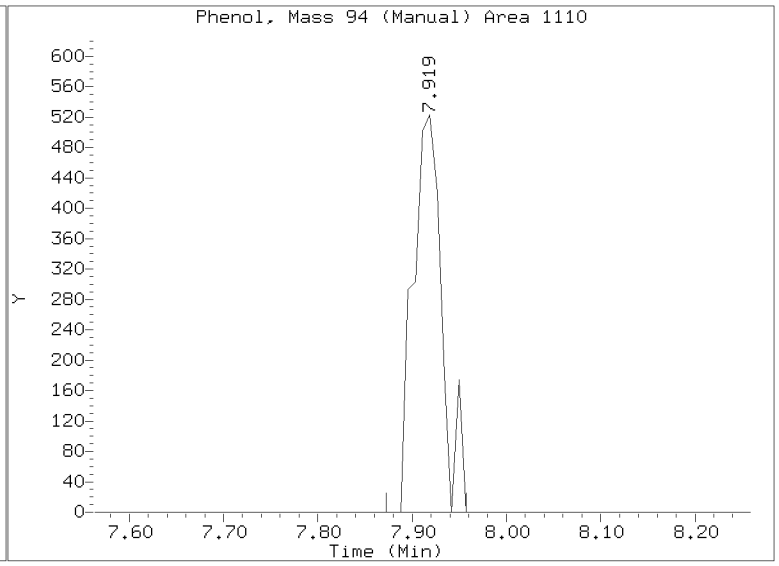
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

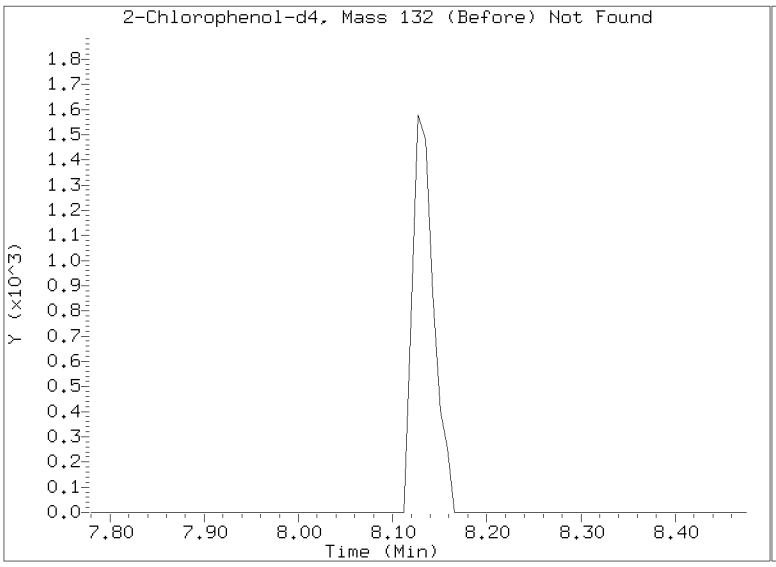
* Only compounds listed in the work order have been verified by the analyst *

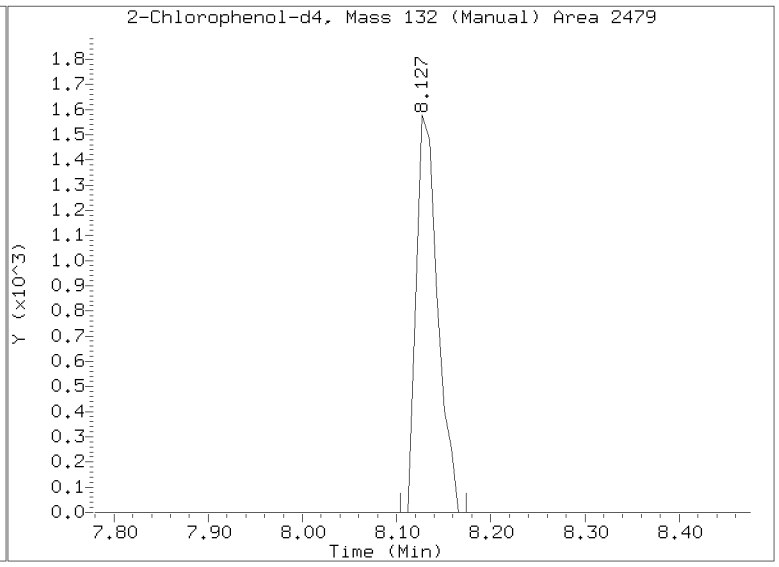
Quant Ion Manual Peak Adjustment Report

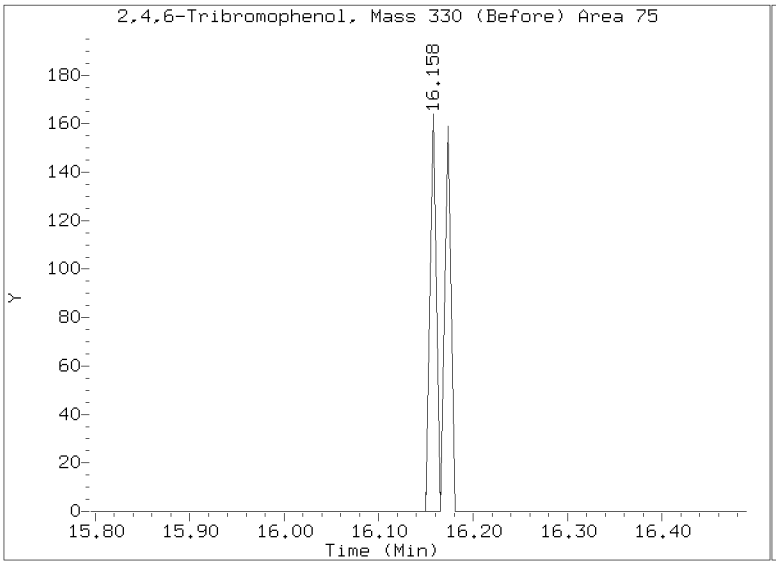
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082106.D
Injection Date: 21-AUG-2019 13:08
Lab ID:SHH0303-LCV1 Client ID:
Report Date: 08/22/2019 13:06

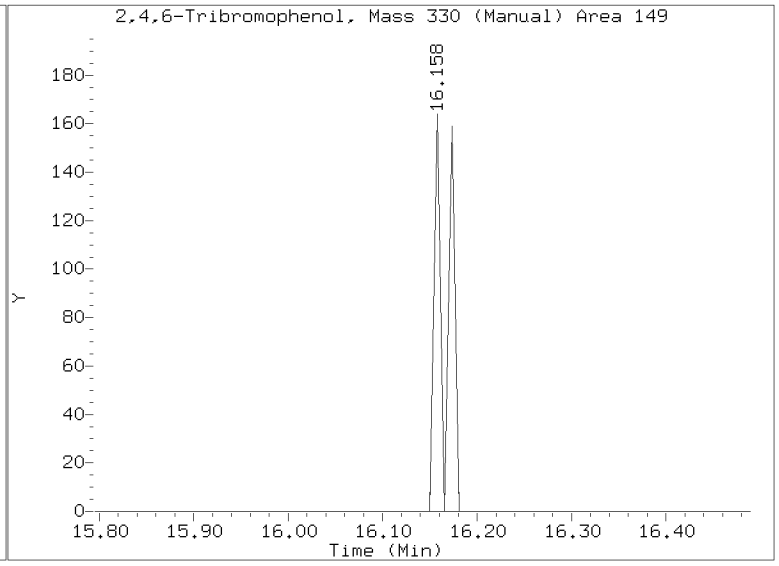












Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082106.D
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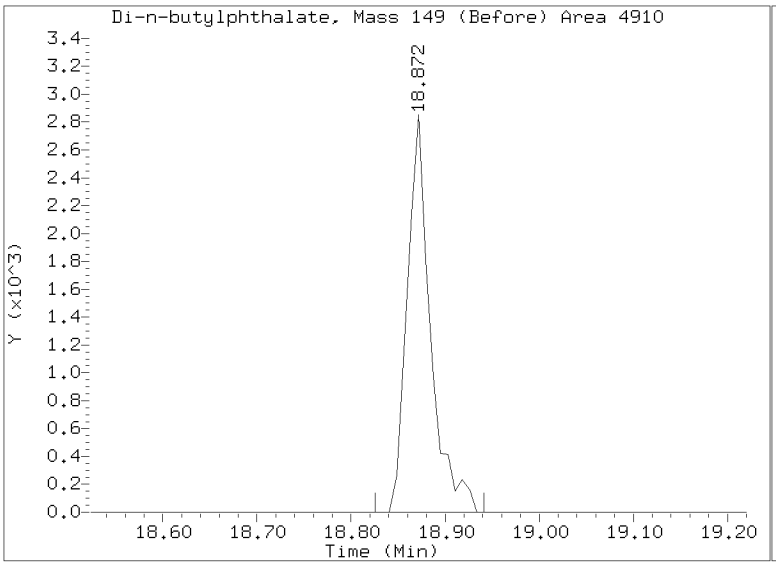
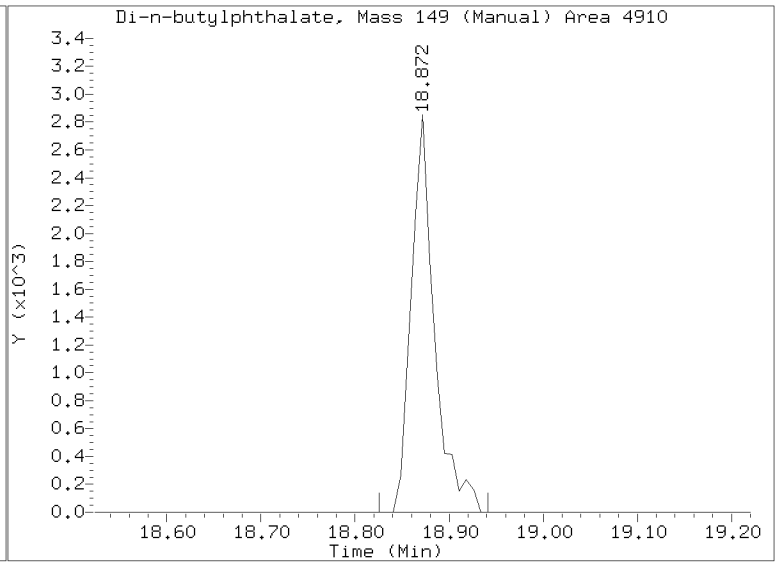
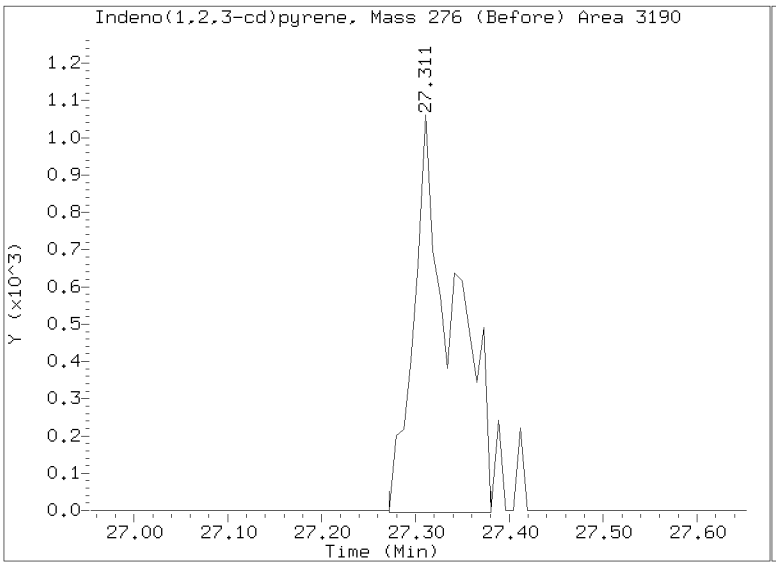
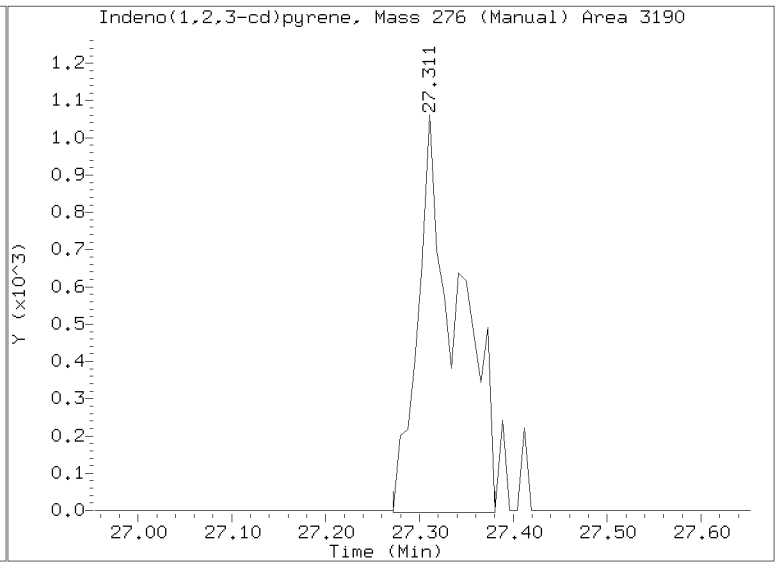
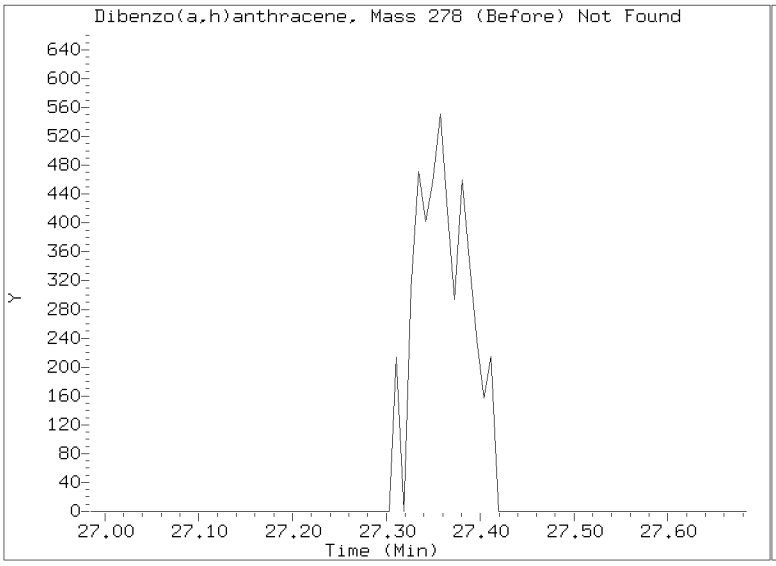
Lab ID:SHH0303-LCV1 Client ID:
Report Date: 08/22/2019 13:06

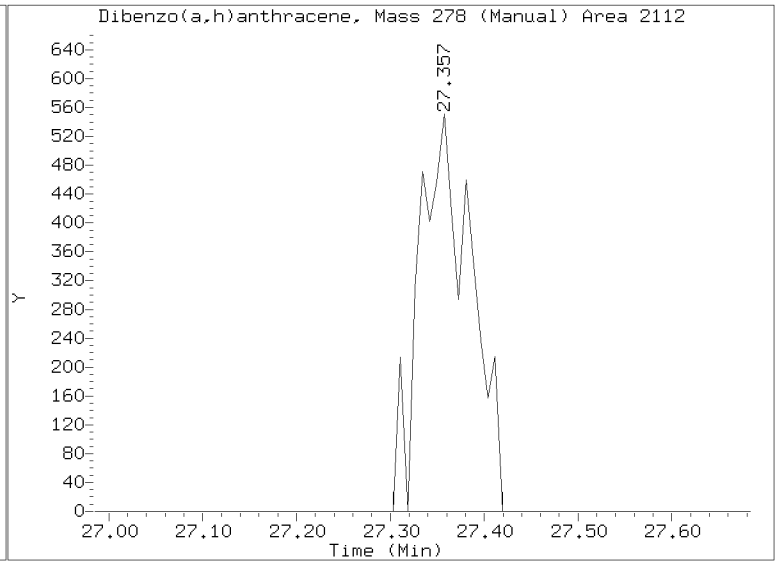






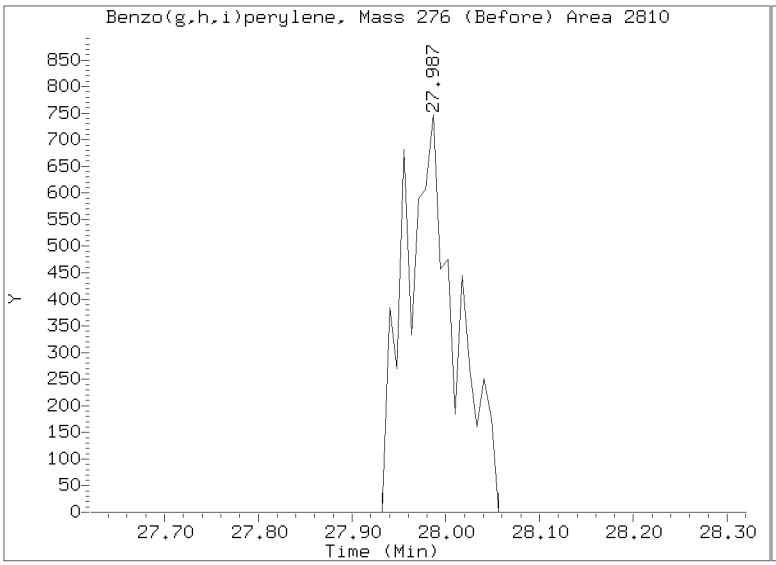


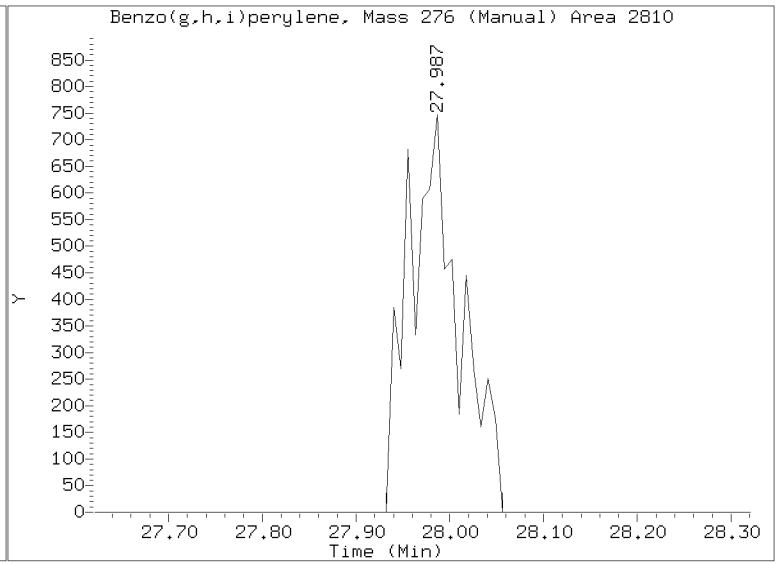




Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082106.D
Injection Date: 21-AUG-2019 13:08
Lab ID:SHH0303-LCV1 Client ID:
Report Date: 08/22/2019 13:06





LOW-CONCENTRATION CALIBRATION VERIFICATION

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CG00040
Laboratory ID: SHH0303-LCV2
Sequence: SHH0303
Standard ID: H004494

ANALYTE	EXPECTED (ug/mL)	FOUND (ug/mL)	% DRIFT	QC LIMIT
Phenol	0.50000	0.4	-16.4	50.00
Benzyl Alcohol	0.50000	0.2	-58.8 *	50.00
Benzoic acid	2.0000	0.4	-80.6 *	50.00
N-Nitrosodiphenylamine	0.50000	0.6	17.1	50.00
Phenanthrene	0.50000	0.5	-3.2	50.00
Fluoranthene	0.50000	0.5	-9.8	50.00
Pyrene	0.50000	0.5	-2.9	50.00
Butylbenzylphthalate	0.50000	0.4	-17.7	50.00
Benzo(a)anthracene	0.50000	0.5	-3.3	50.00
Chrysene	0.50000	0.5	-5.0	50.00
bis(2-Ethylhexyl)phthalate	0.50000	0.6	11.9	50.00
Di-n-Octylphthalate	0.50000	0.5	-0.4	50.00
Benzofluoranthenes, Total	1.0000	1.1	8.7	50.00
Benzo(a)pyrene	0.50000	0.5	0.9	50.00
Indeno(1,2,3-cd)pyrene	0.50000	0.4	-28.9	50.00
Dibenzo(a,h)anthracene	0.50000	0.3	-33.4	50.00
Benzo(g,h,i)perylene	0.50000	0.4	-27.6	50.00
2-Fluorophenol	0.75000	0.596	-20.5	50.00
Phenol-d5	0.75000	0.506	-32.5	50.00
2-Chlorophenol-d4	0.75000	0.693	-7.6	50.00
1,2-Dichlorobenzene-d4	0.50000	0.501	0.3	50.00
Nitrobenzene-d5	0.50000	0.468	-6.4	50.00
2-Fluorobiphenyl	0.50000	0.506	1.1	50.00
2,4,6-Tribromophenol	0.75000	0.446	-40.6	50.00
p-Terphenyl-d14	0.50000	0.551	10.2	50.00

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

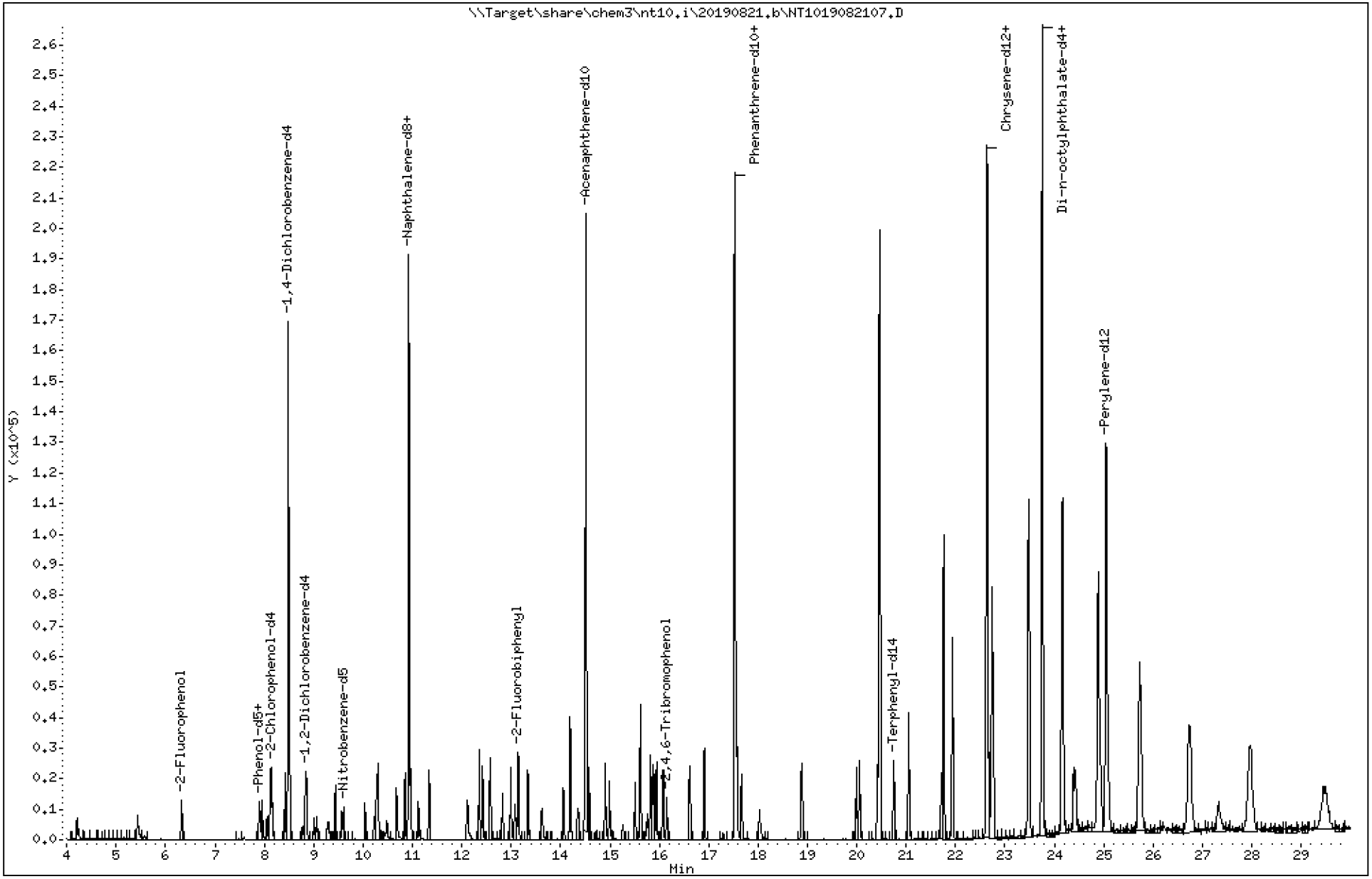
Instrument: nt10.i

Sample Info: SHH0303-LCV2

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

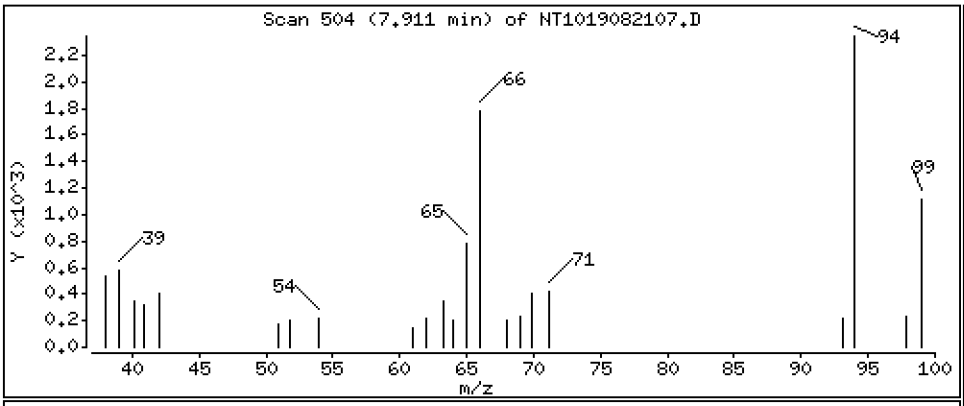
Operator: YZ

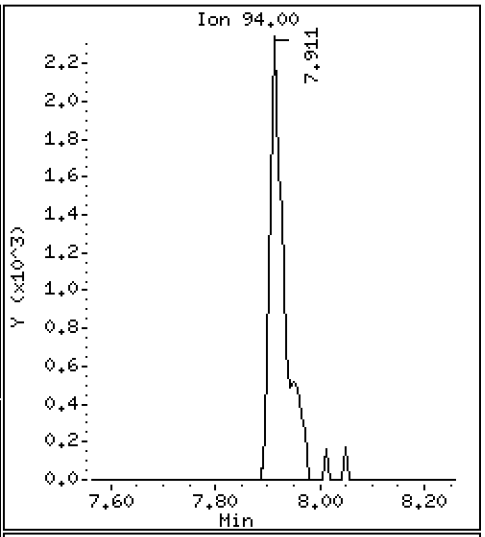
Column phase: ZB-5msi

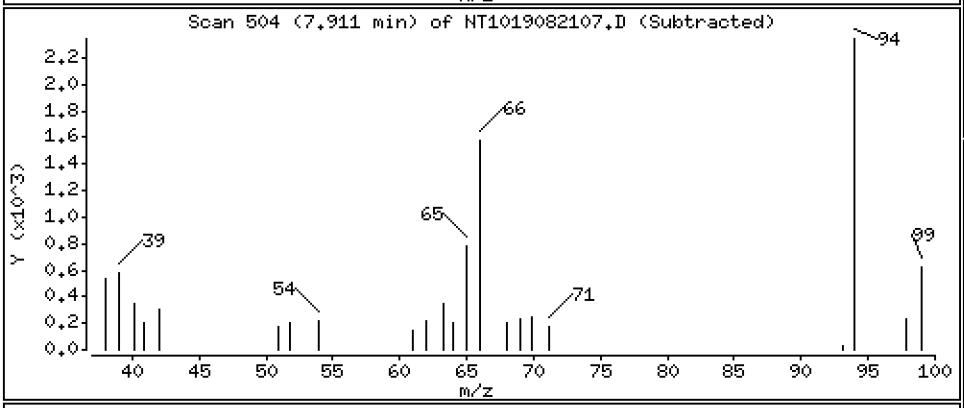
Column diameter: 0.25

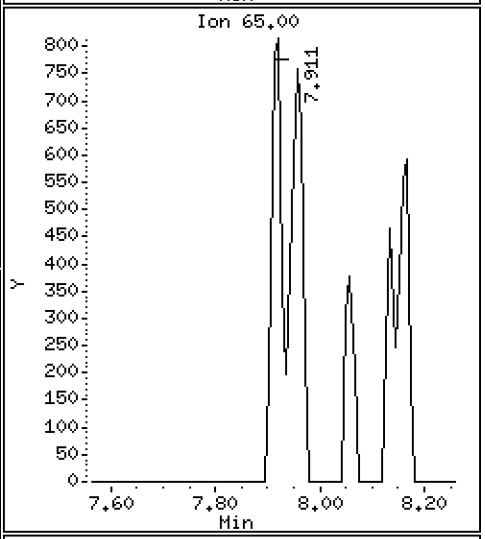
3 Phenol

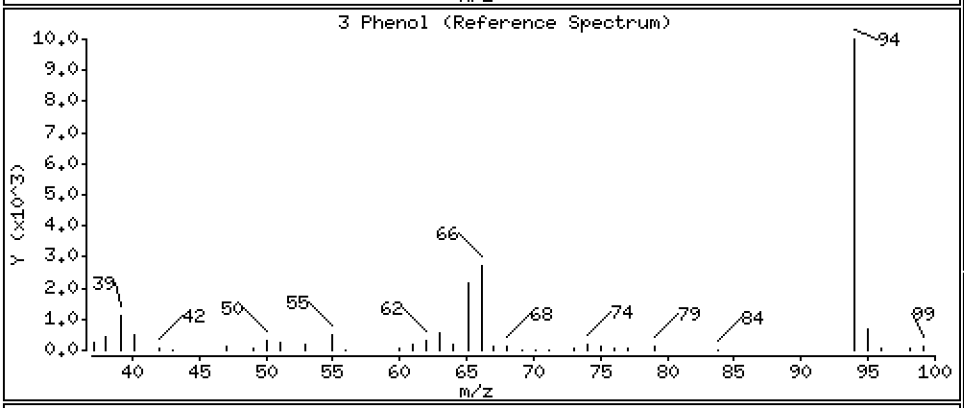
Concentration: 0.4181 ug/mL

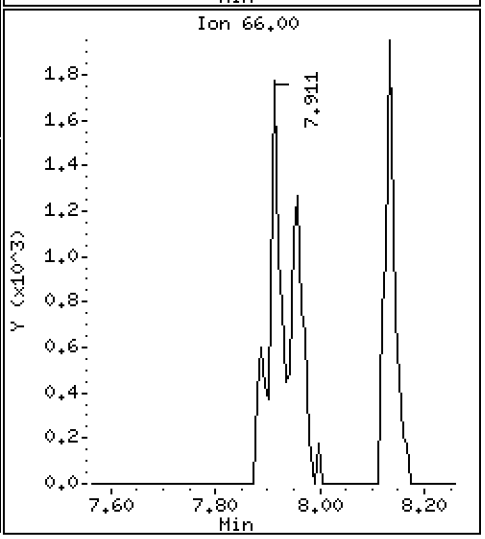


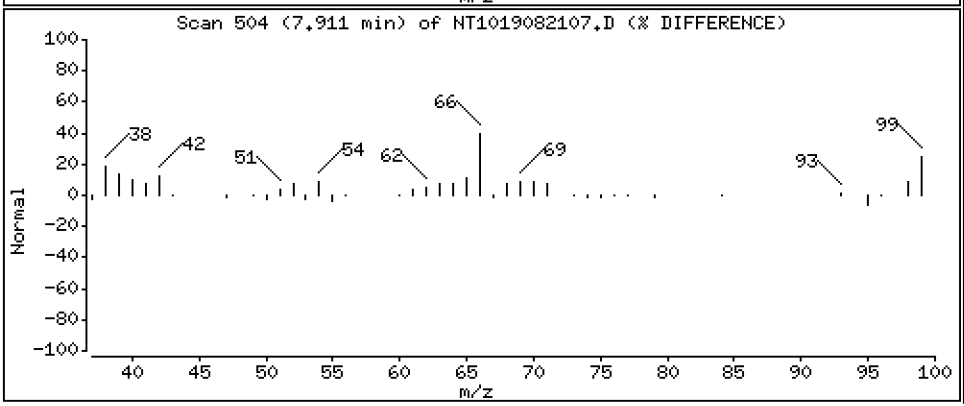












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

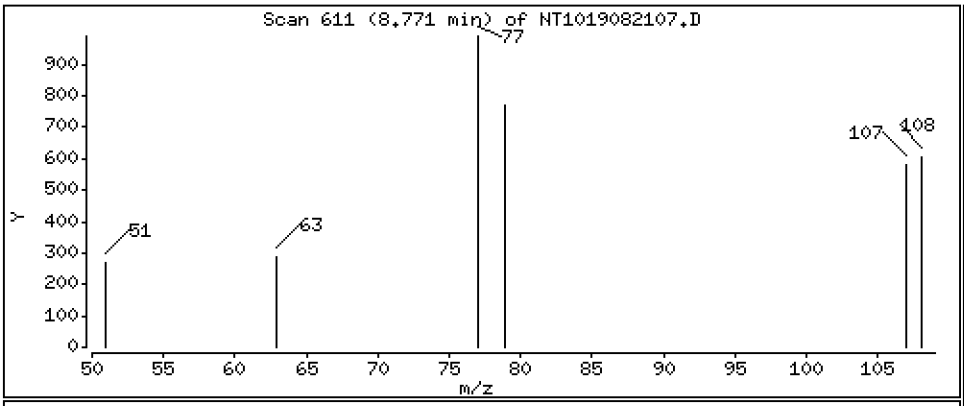
Operator: YZ

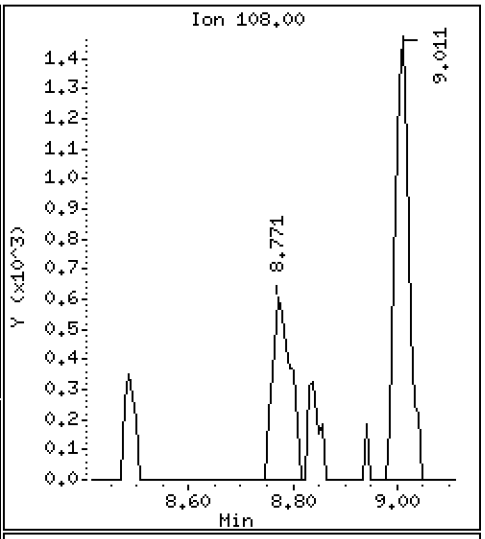
Column phase: ZB-5msi

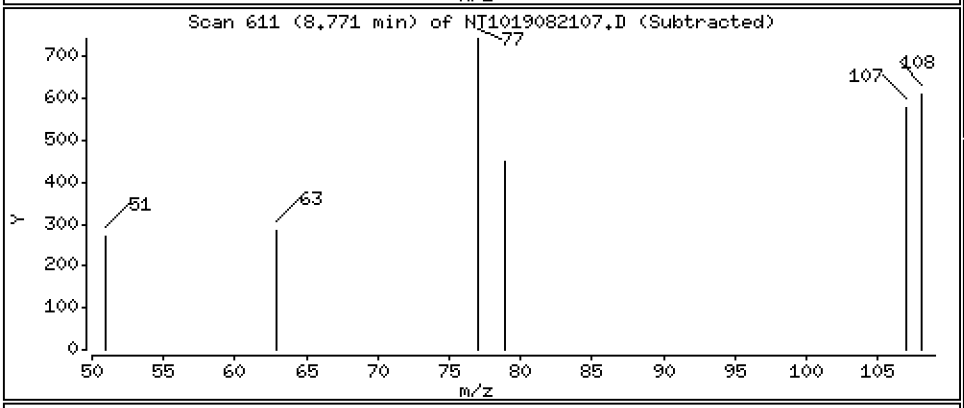
Column diameter: 0.25

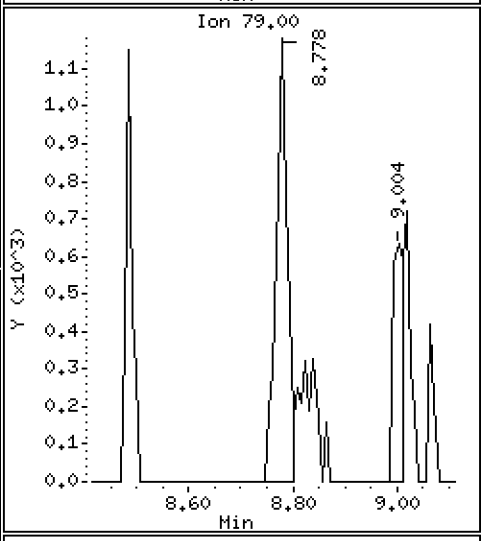
11 Benzyl alcohol

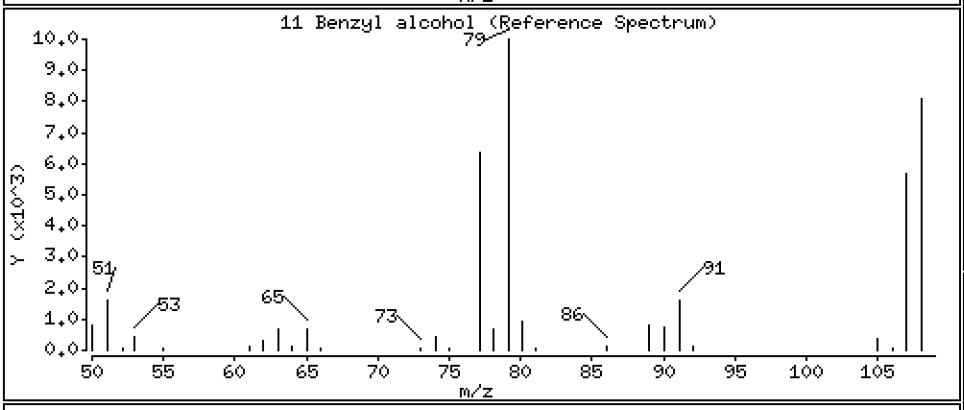
Concentration: 0.2061 ug/mL

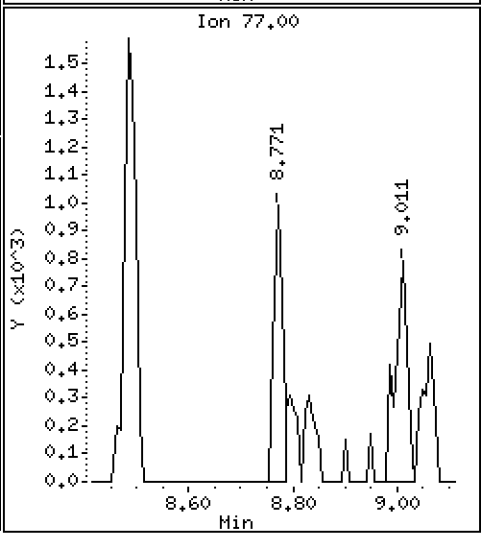


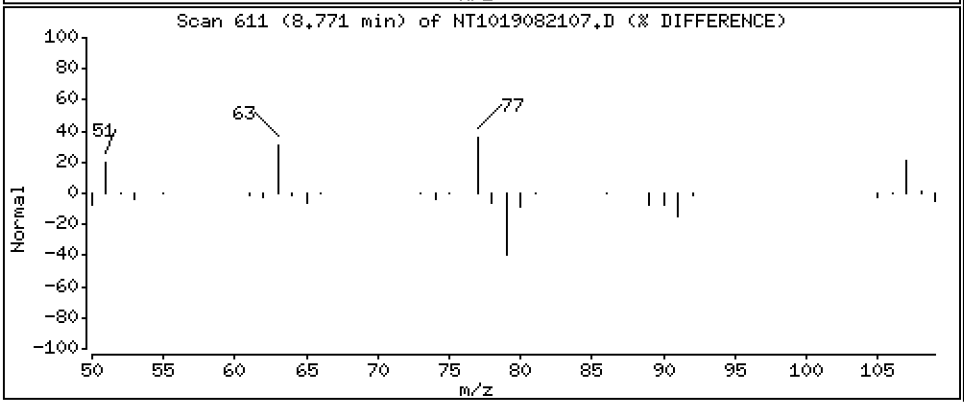












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

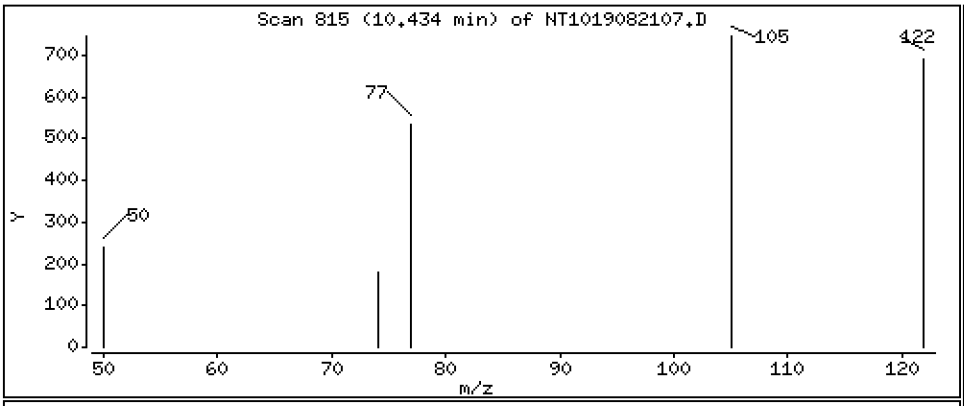
Operator: YZ

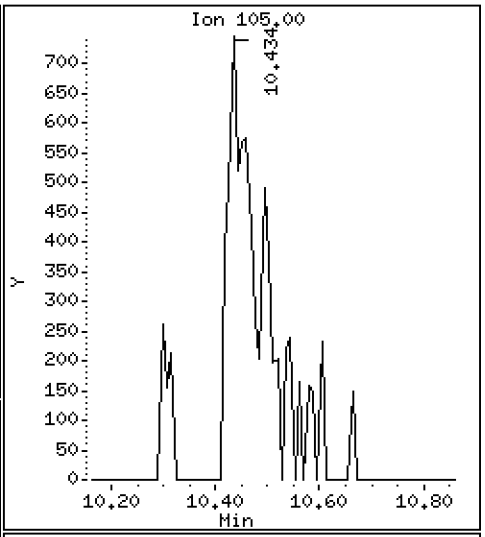
Column phase: ZB-5msi

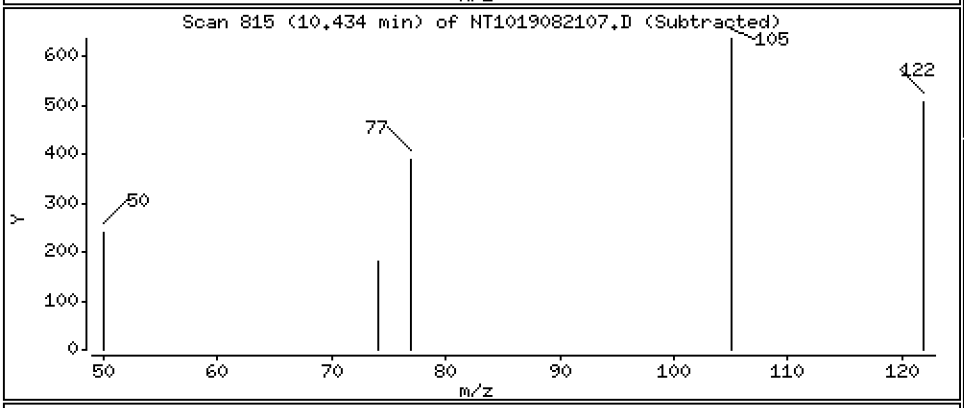
Column diameter: 0.25

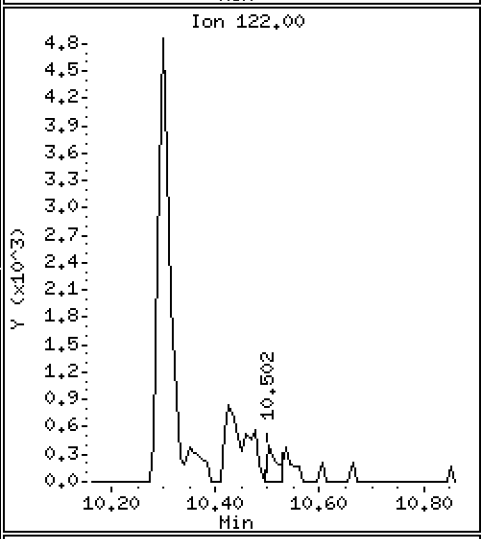
24 Benzoic acid

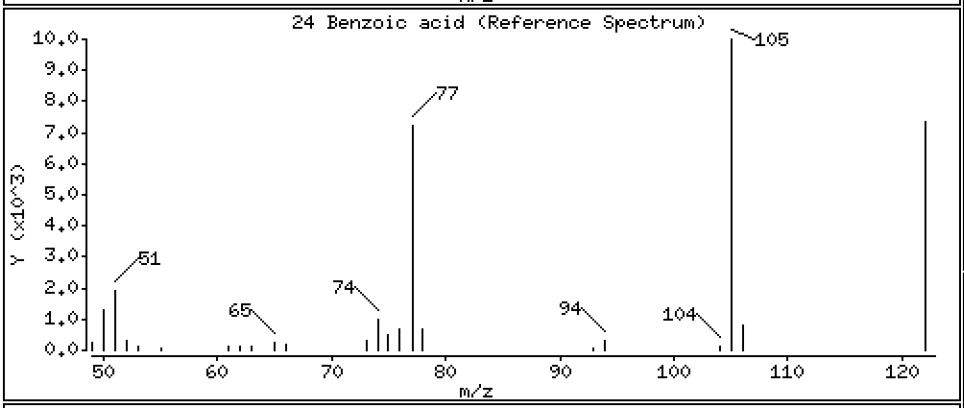
Concentration: 0.3871 ug/mL

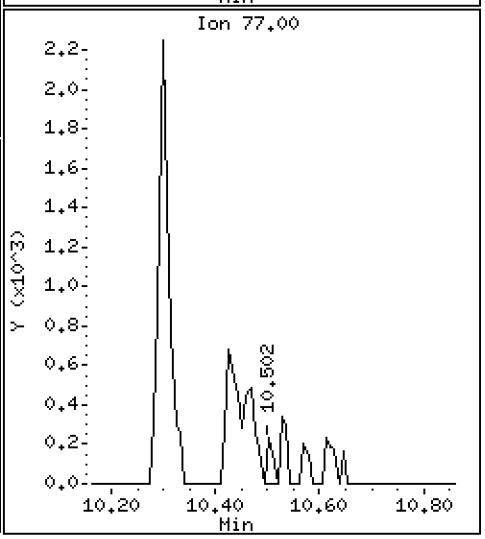


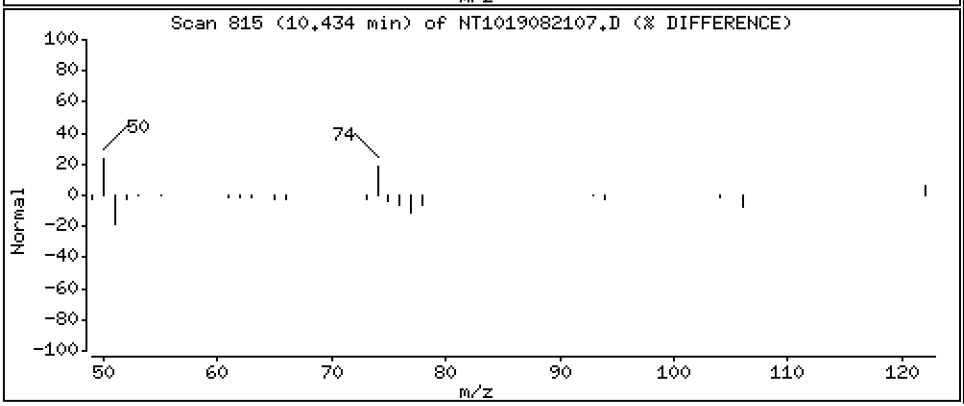












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

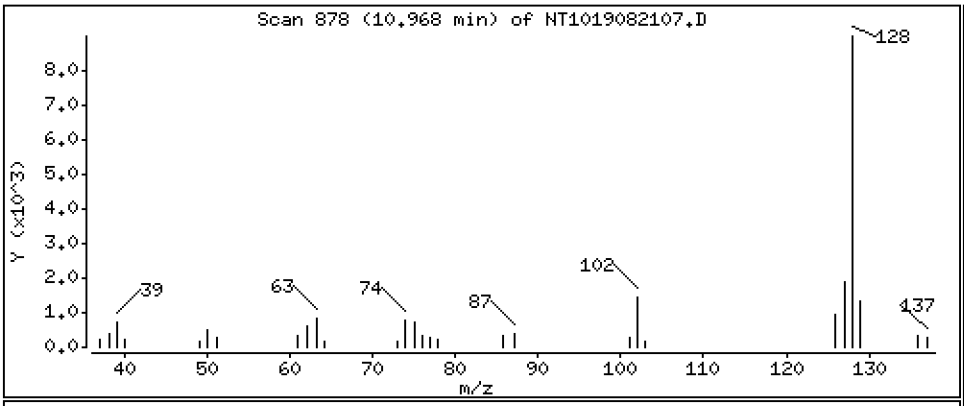
Operator: YZ

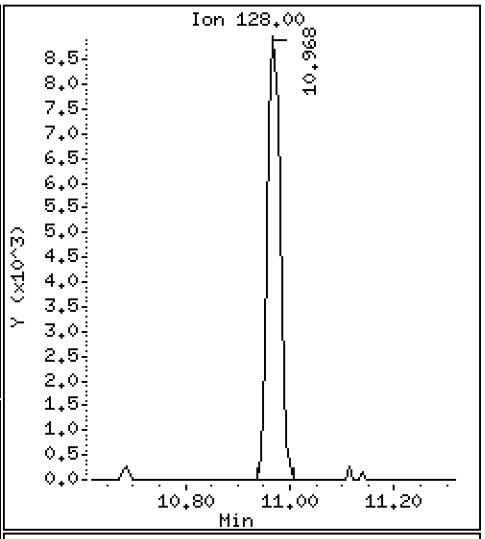
Column phase: ZB-5msi

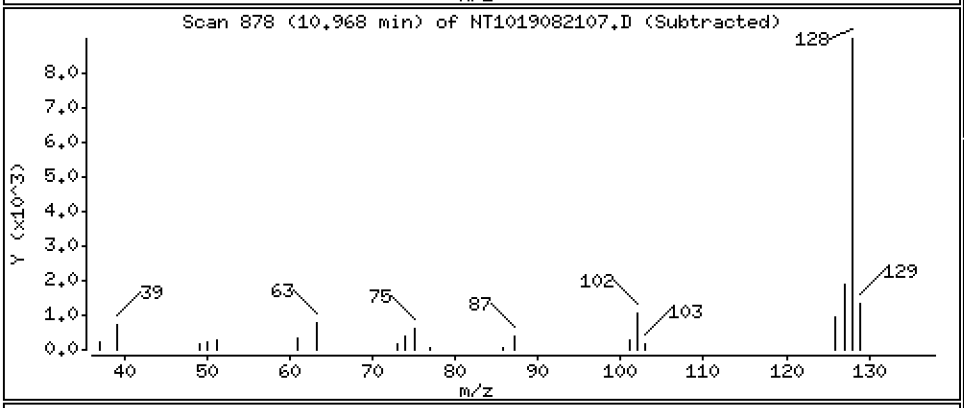
Column diameter: 0.25

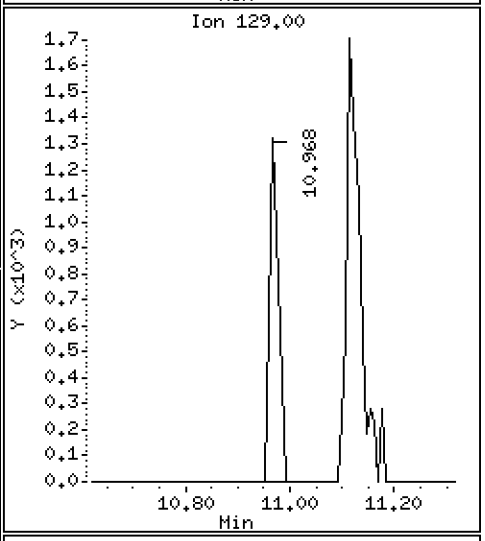
28 Naphthalene

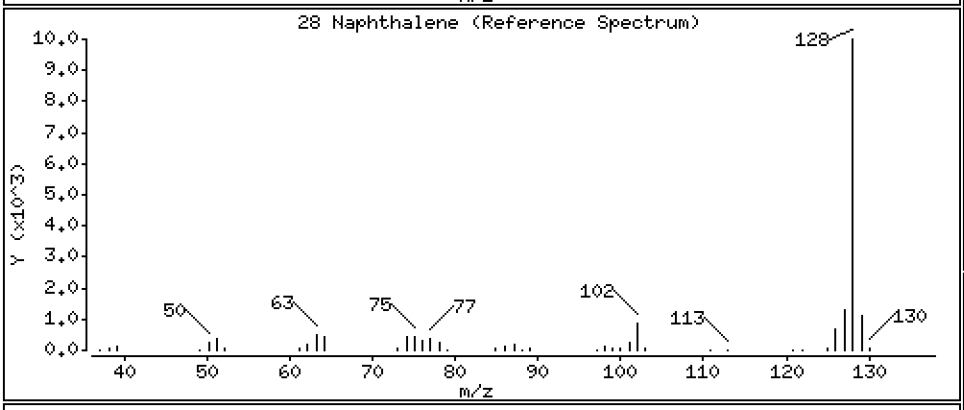
Concentration: 0.4886 ug/mL

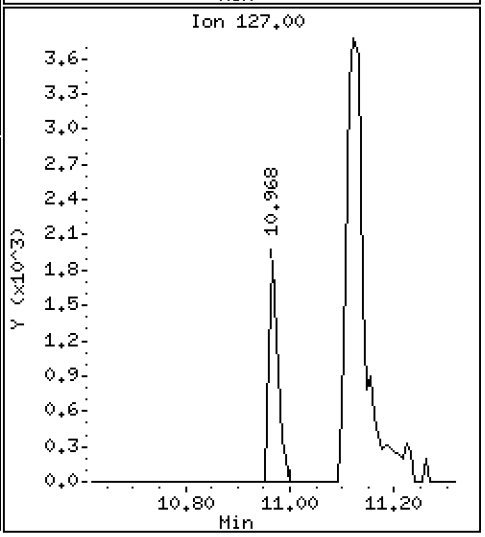


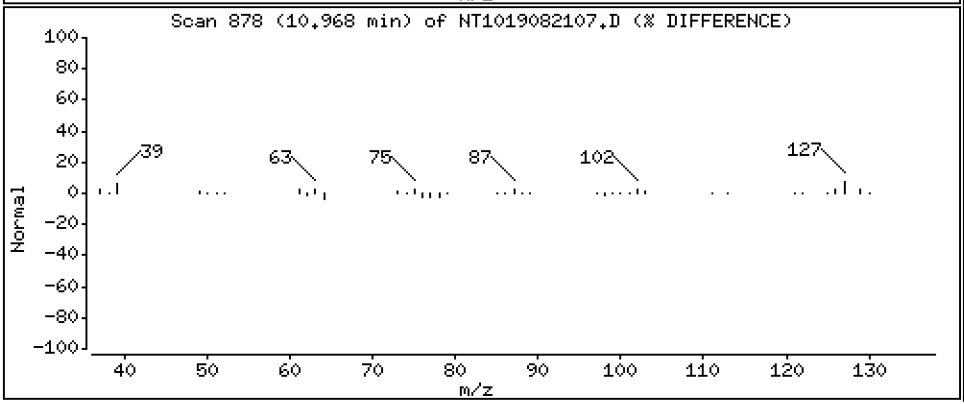












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

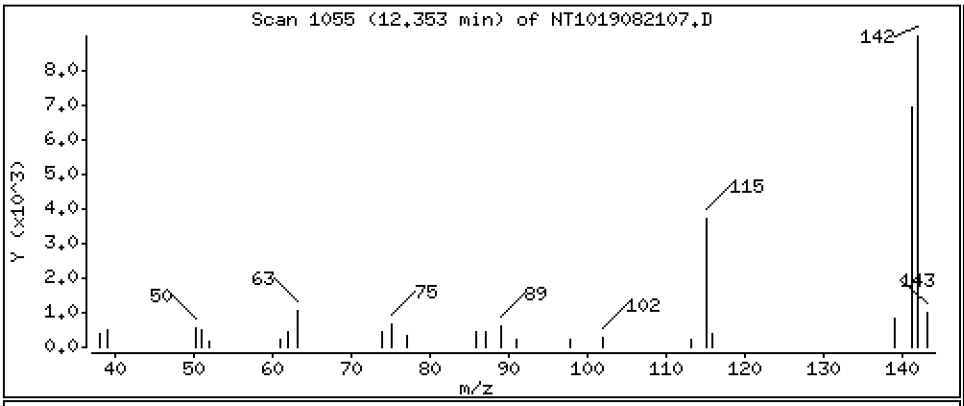
Operator: YZ

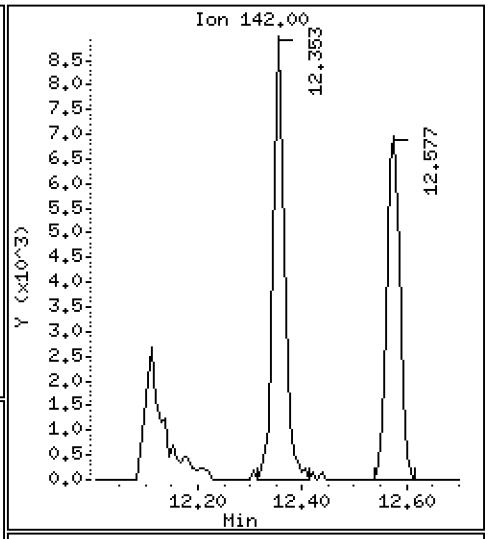
Column phase: ZB-5msi

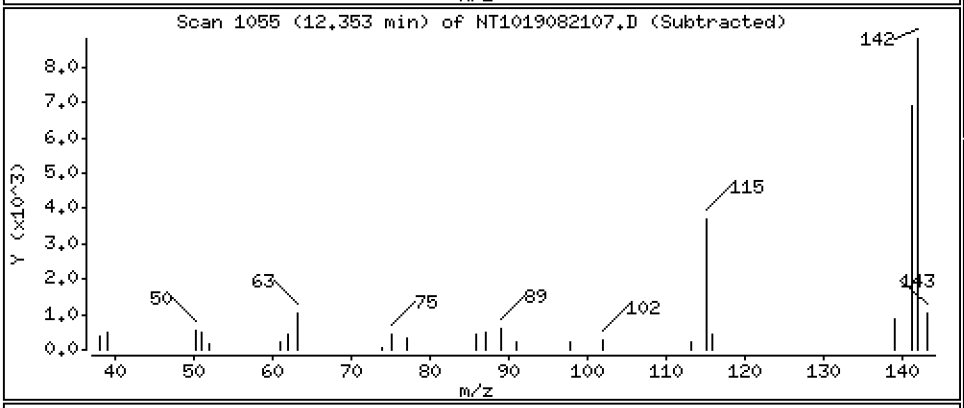
Column diameter: 0.25

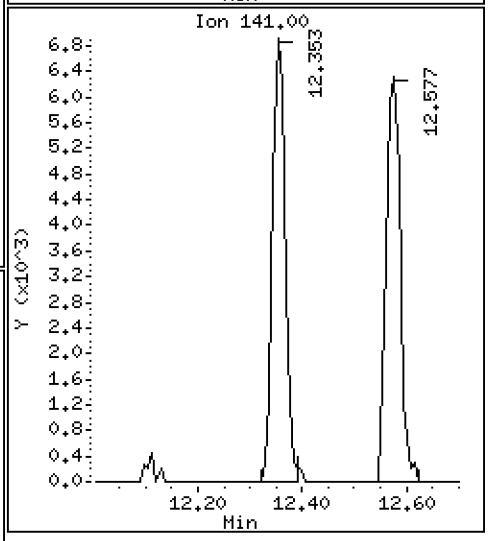
32 2-Methylnaphthalene

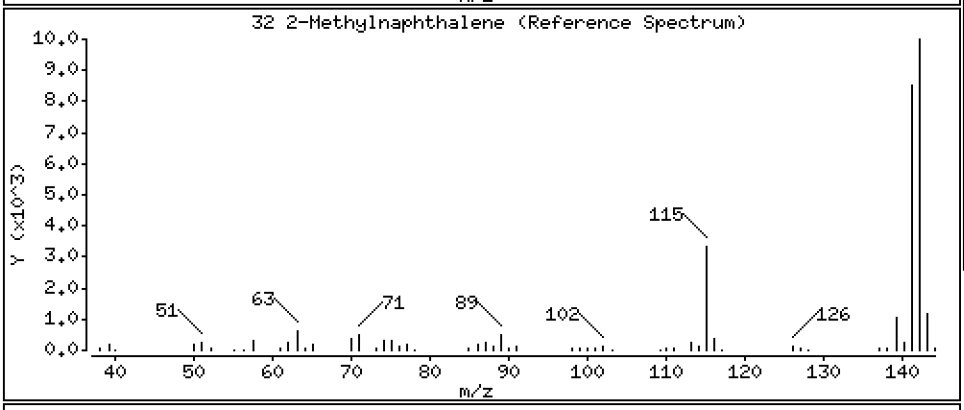
Concentration: 0.5133 ug/mL

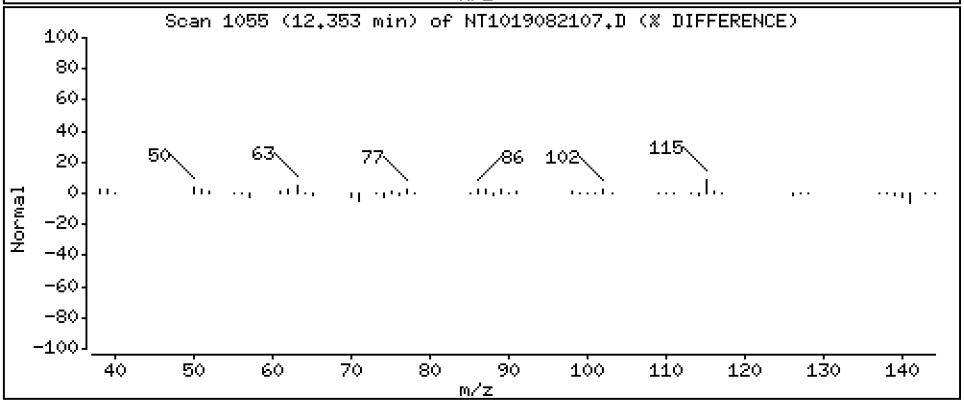












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

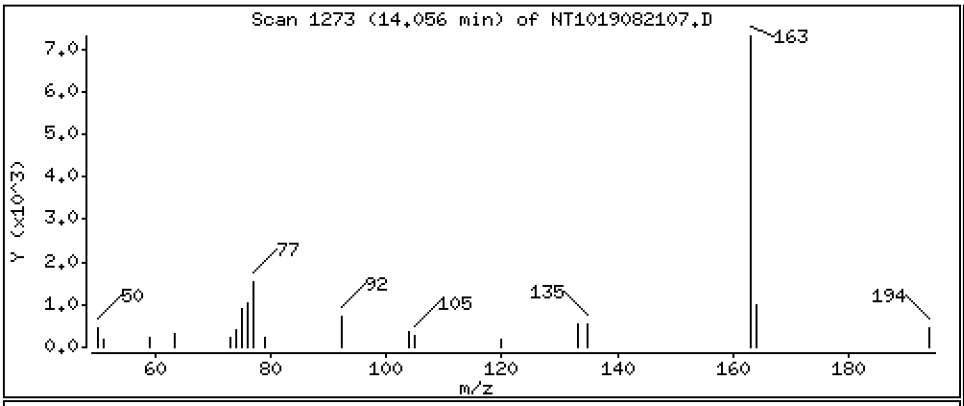
Operator: YZ

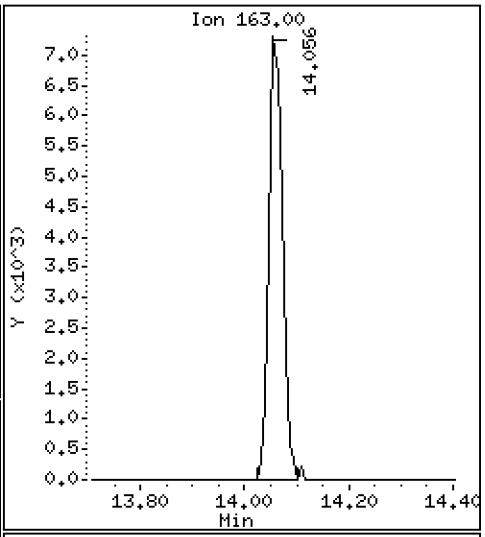
Column phase: ZB-5msi

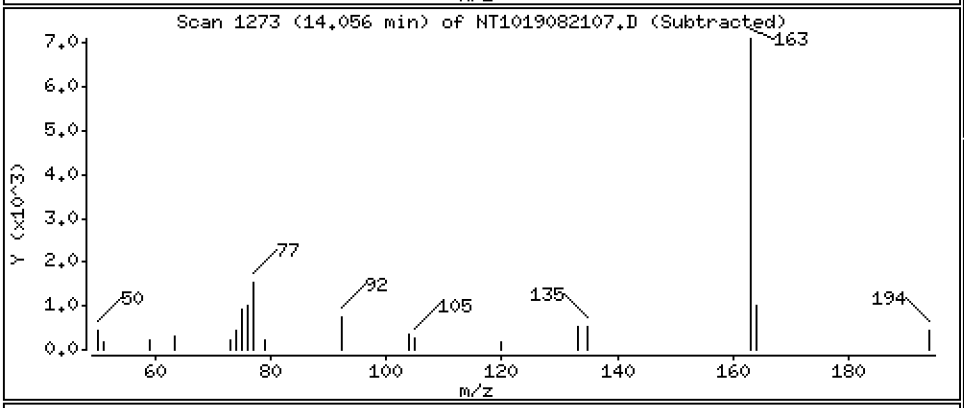
Column diameter: 0.25

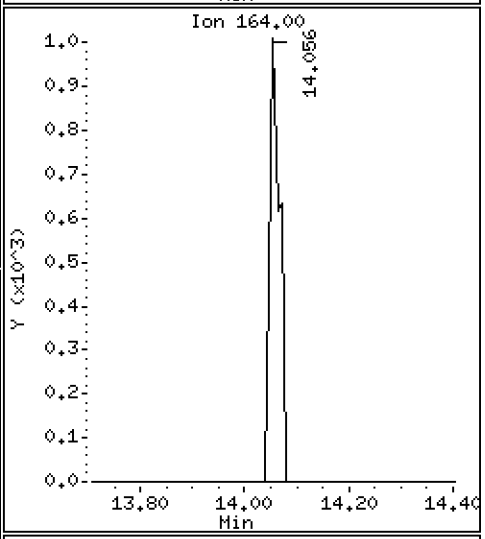
39 Dimethylphthalate

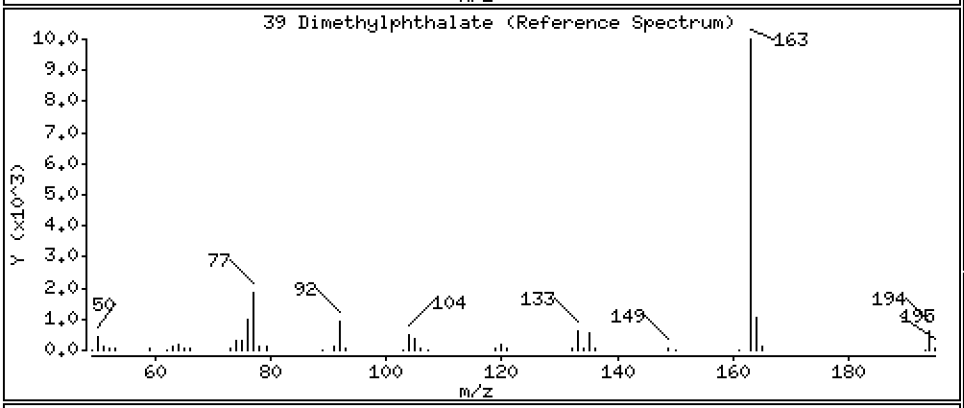
Concentration: 0.5027 ug/mL

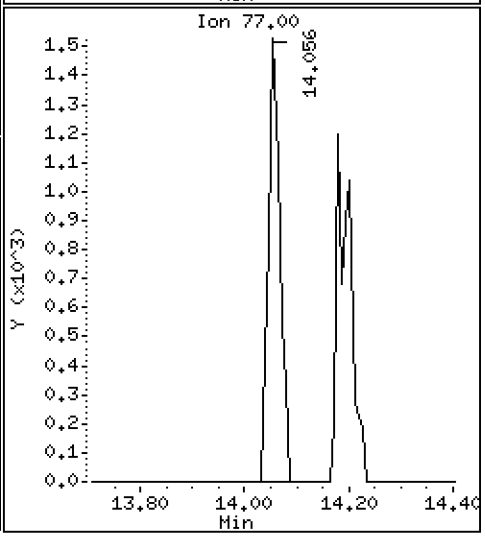


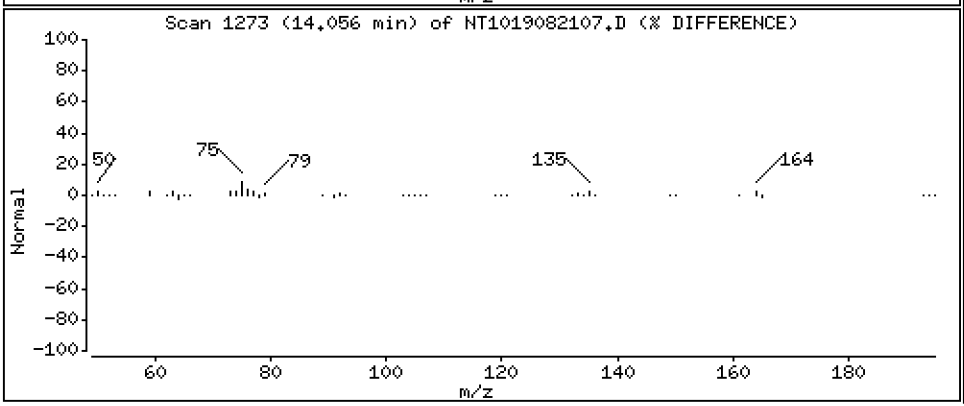












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

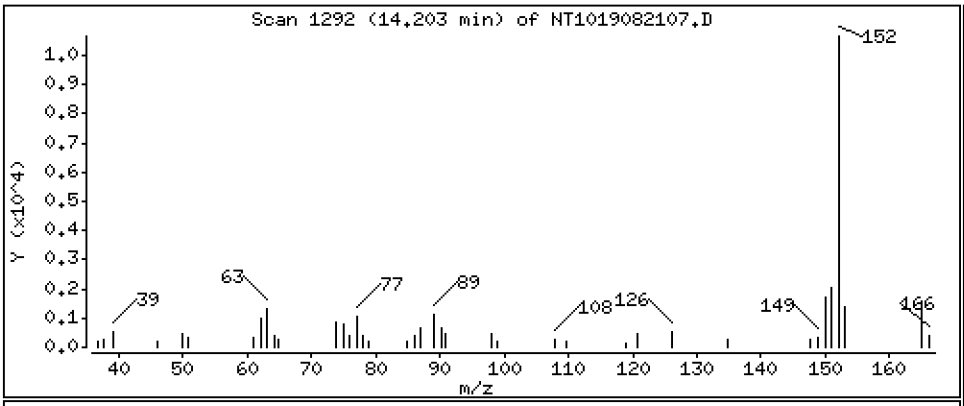
Operator: YZ

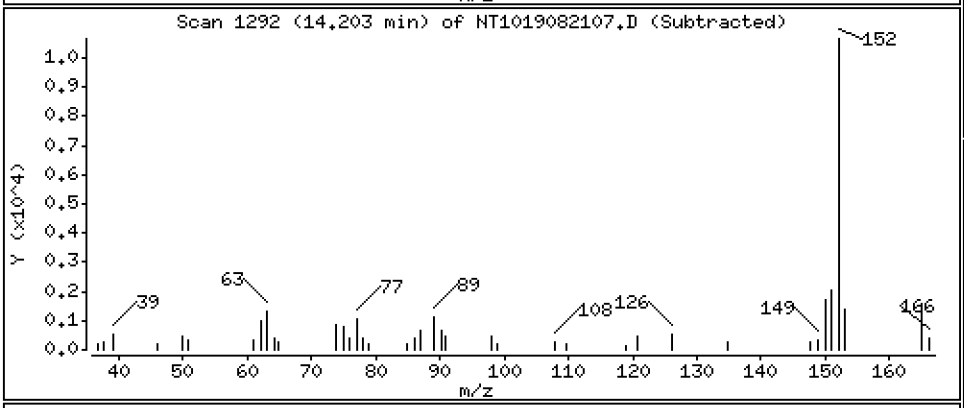
Column phase: ZB-5msi

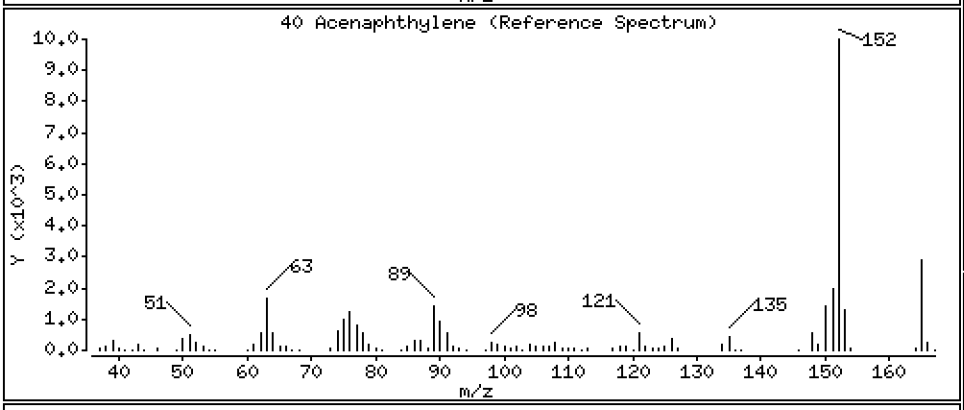
Column diameter: 0.25

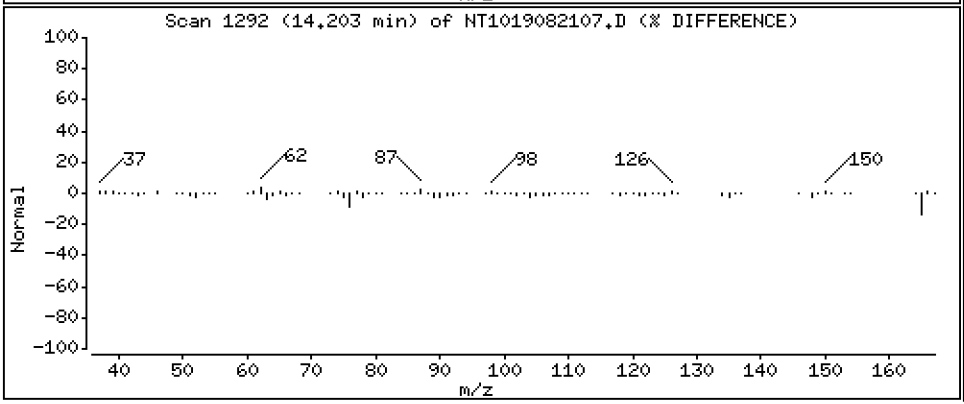
40 Acenaphthylene

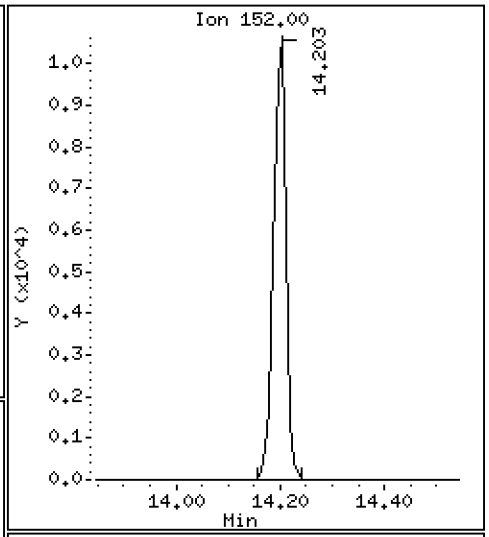
Concentration: 0.5208 ug/mL

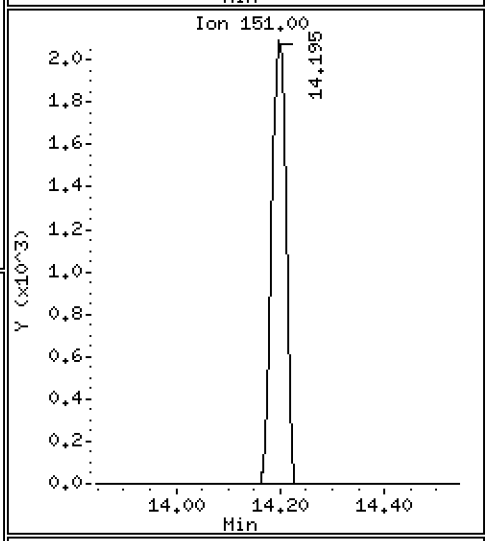


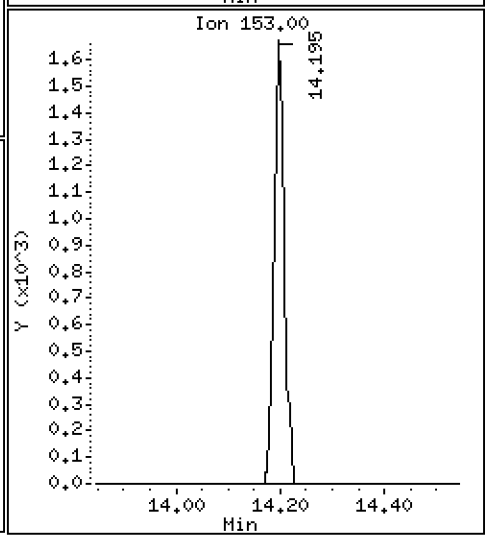












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

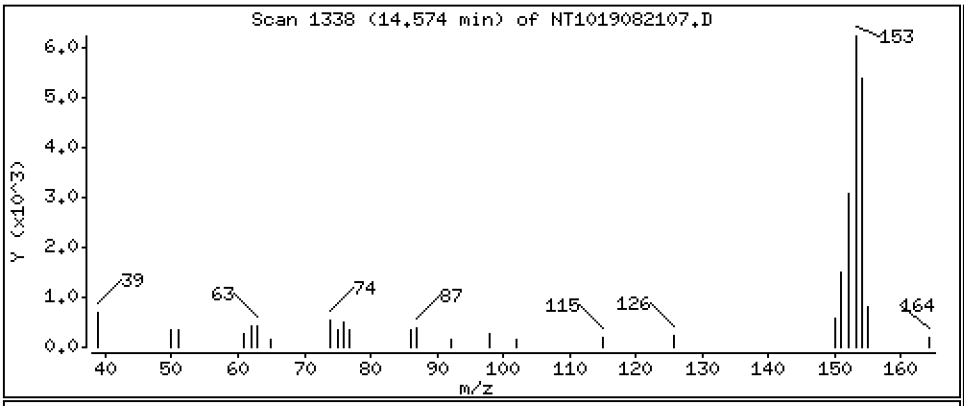
Operator: YZ

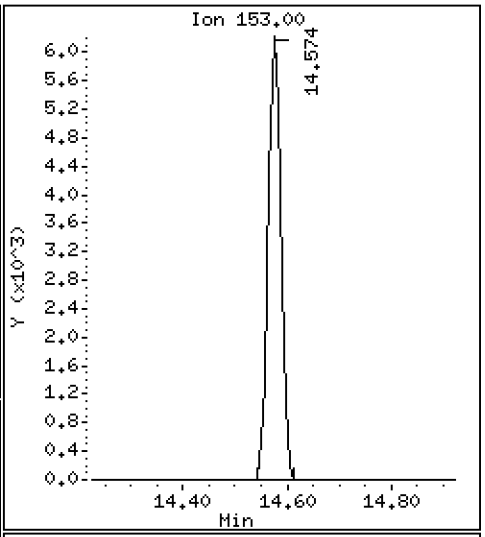
Column phase: ZB-5msi

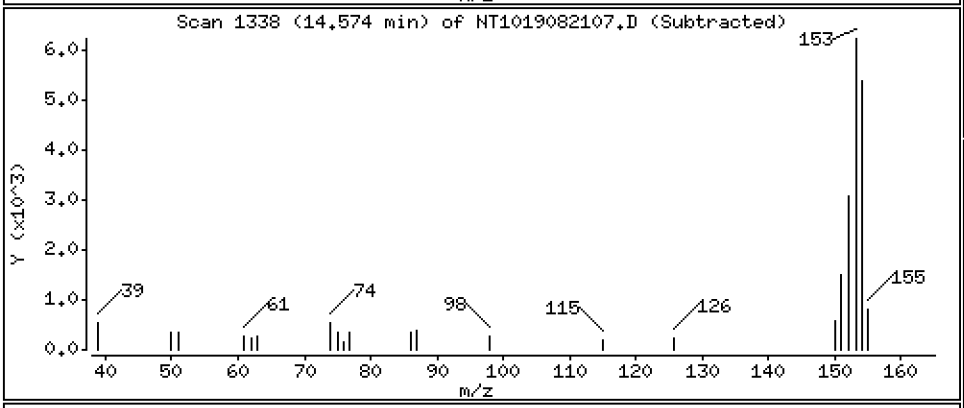
Column diameter: 0.25

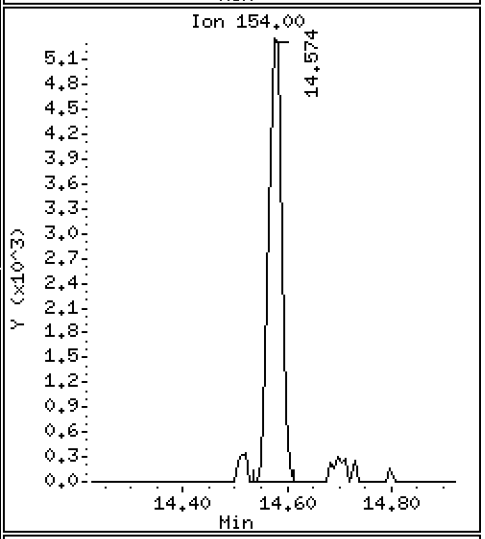
44 Acenaphthene

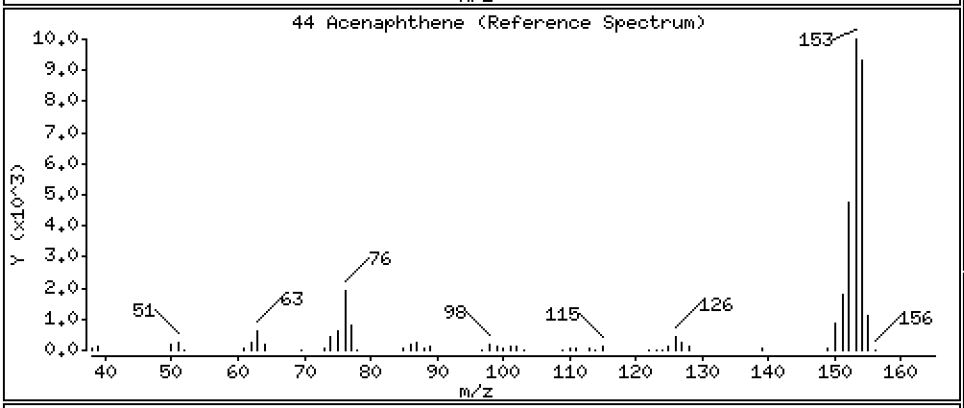
Concentration: 0.4971 ug/mL

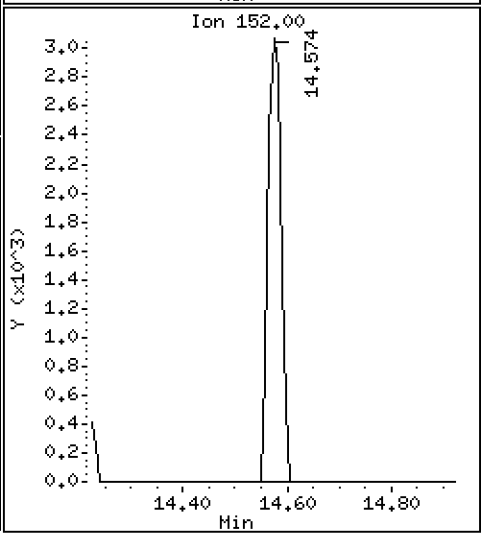


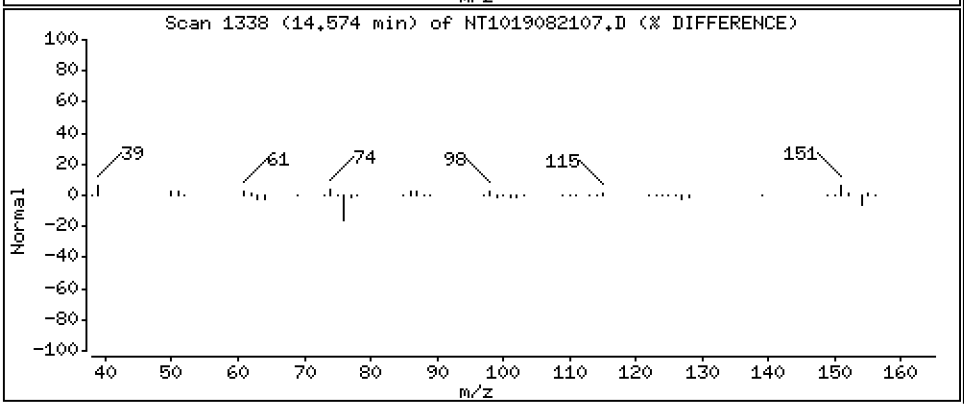












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

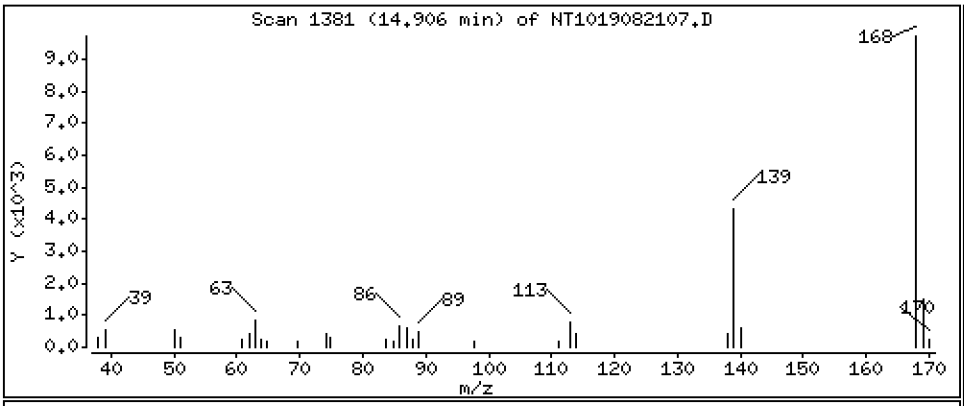
Operator: YZ

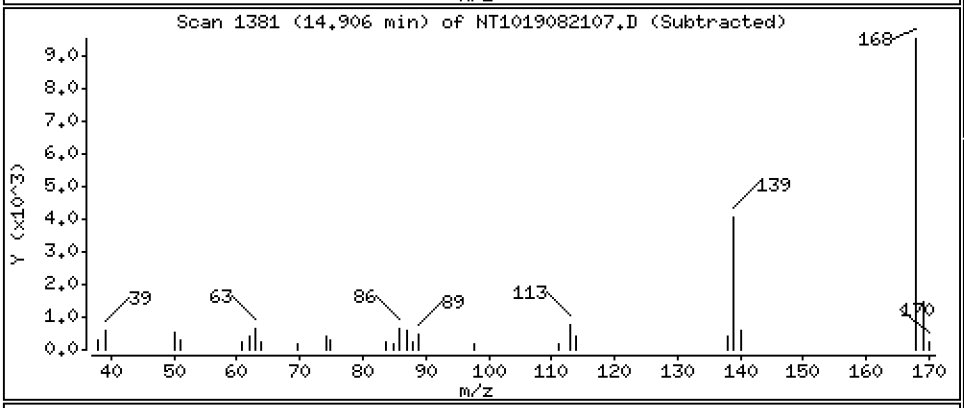
Column phase: ZB-5msi

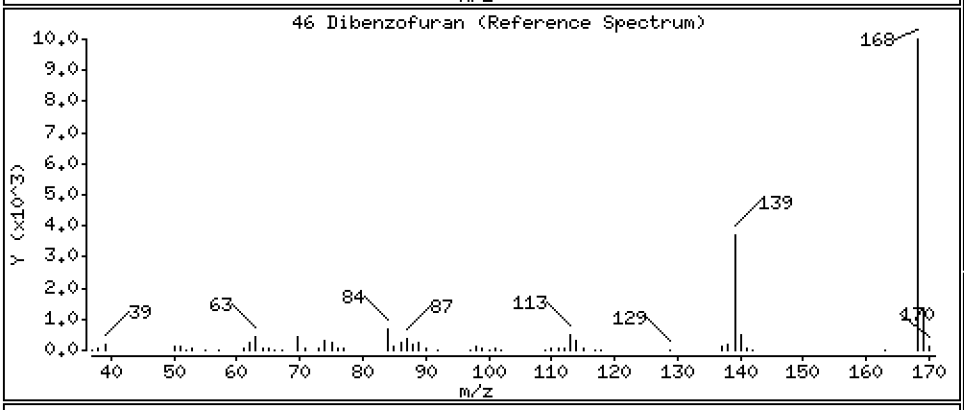
Column diameter: 0.25

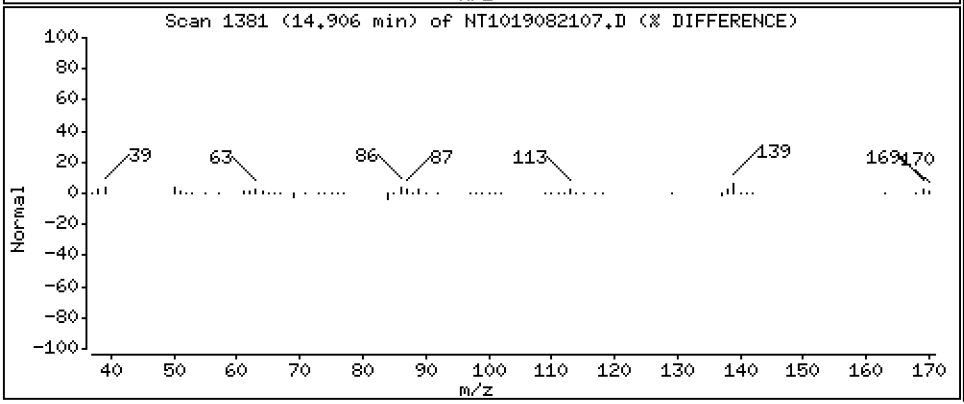
46 Dibenzofuran

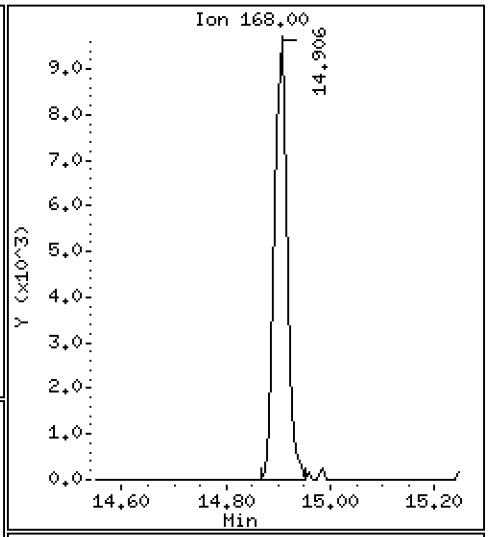
Concentration: 0.4654 ug/mL

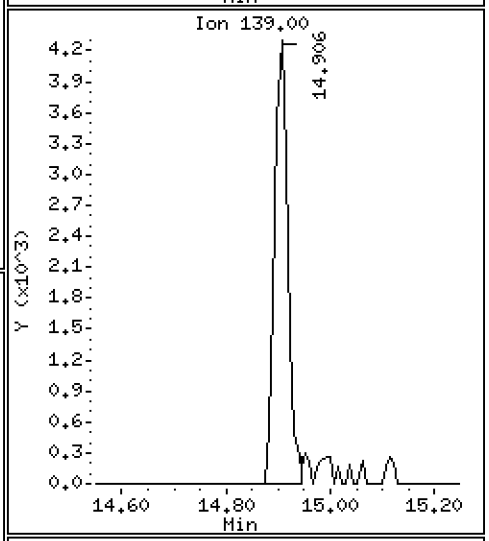


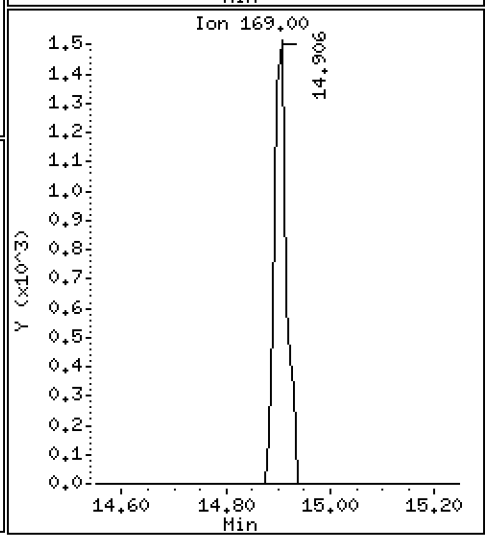












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

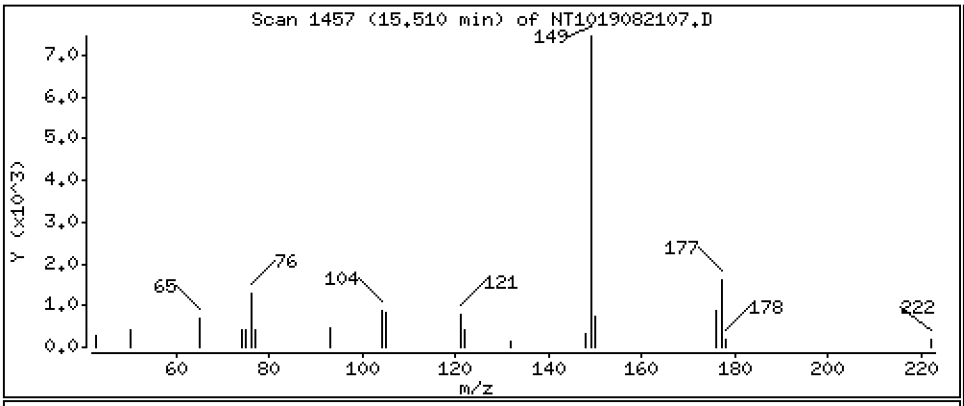
Operator: YZ

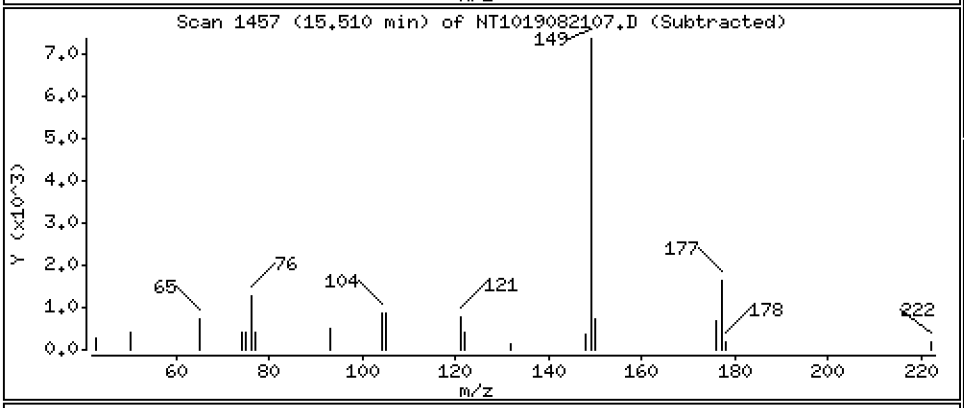
Column phase: ZB-5msi

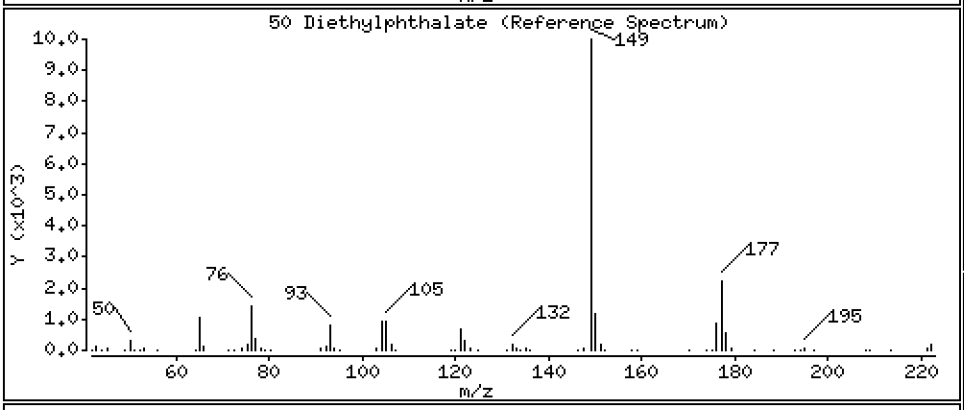
Column diameter: 0.25

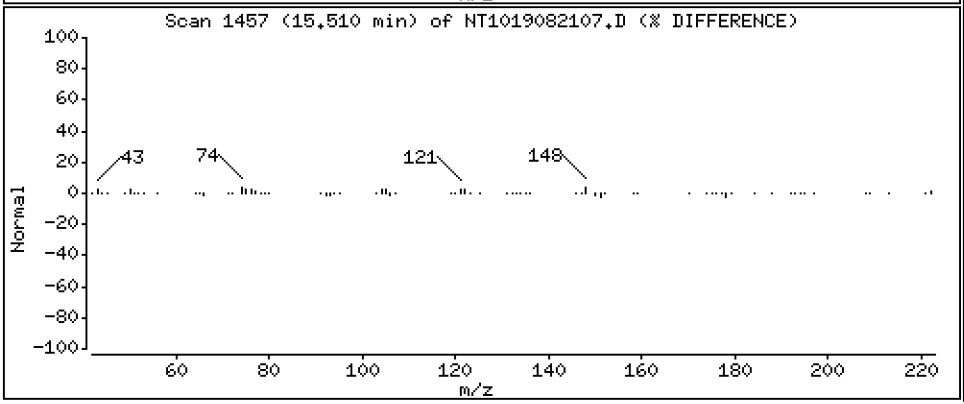
50 Diethylphthalate

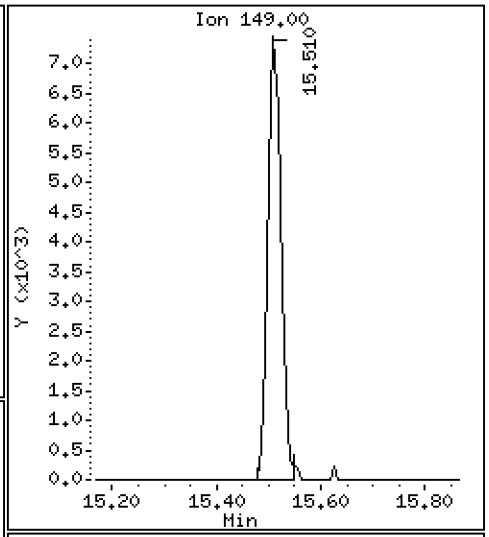
Concentration: 0.5168 ug/mL

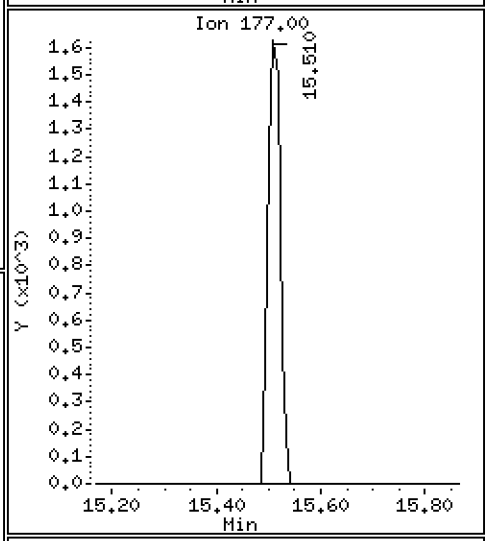


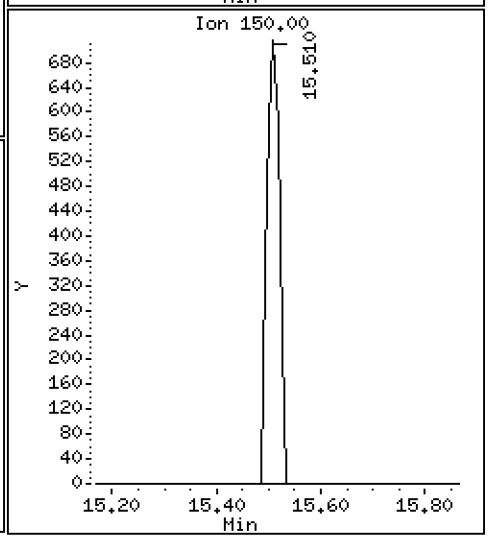












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

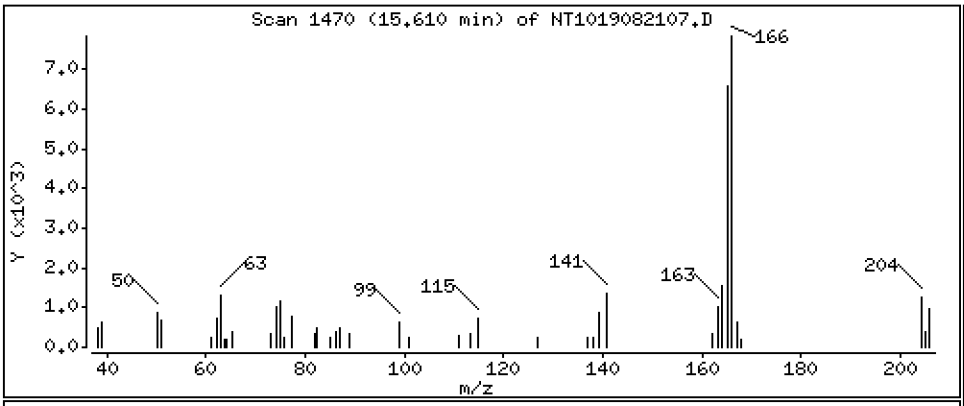
Operator: YZ

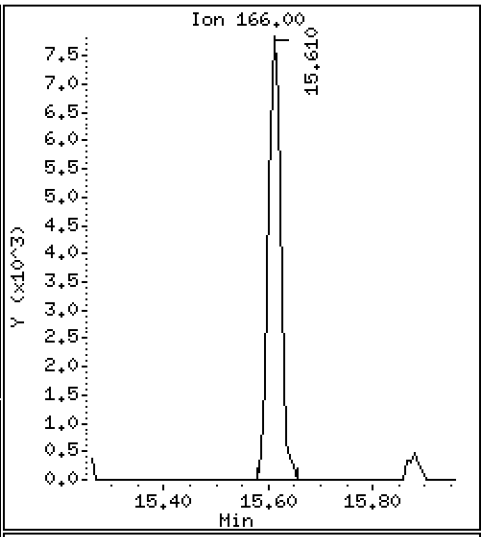
Column phase: ZB-5msi

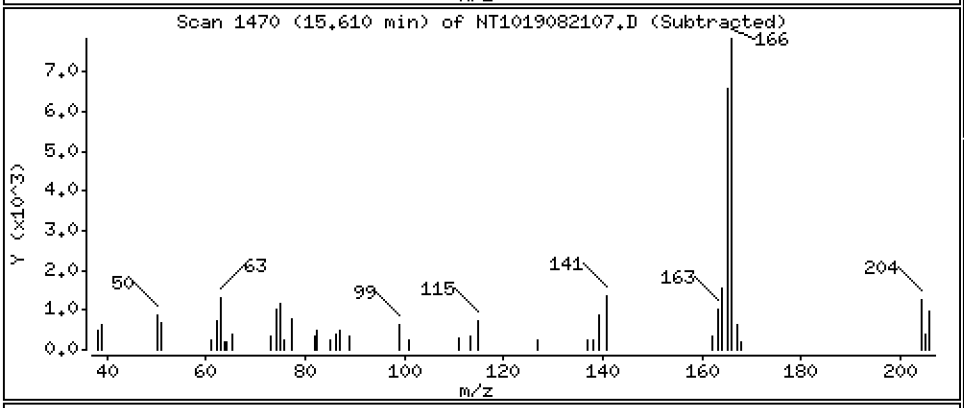
Column diameter: 0.25

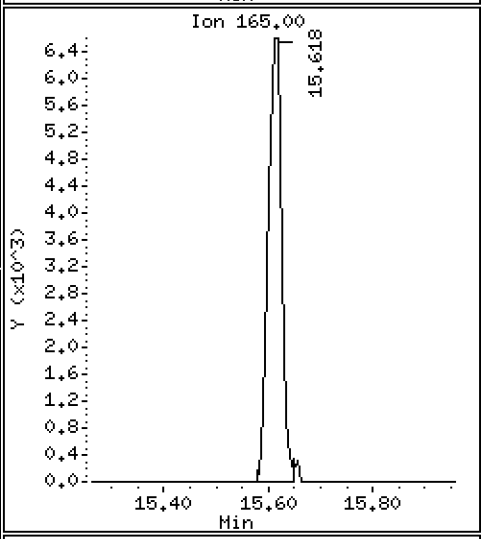
49 Fluorene

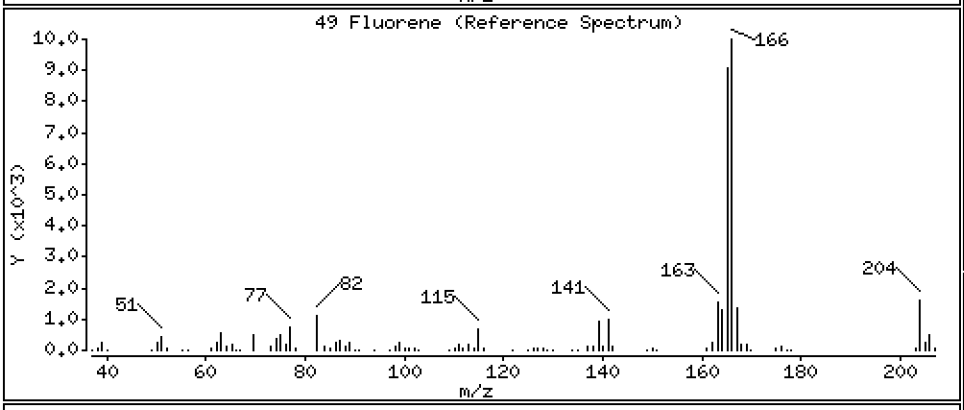
Concentration: 0.5398 ug/mL

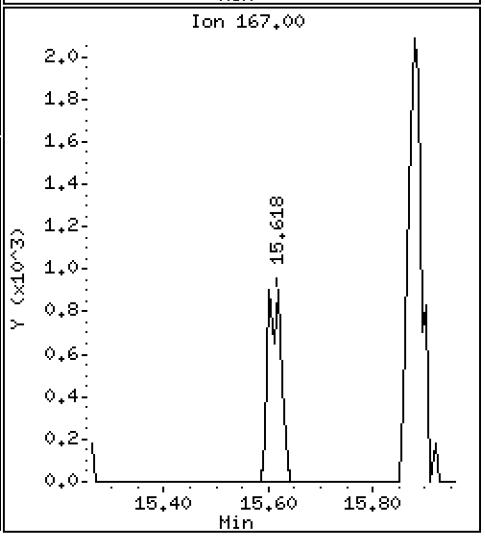


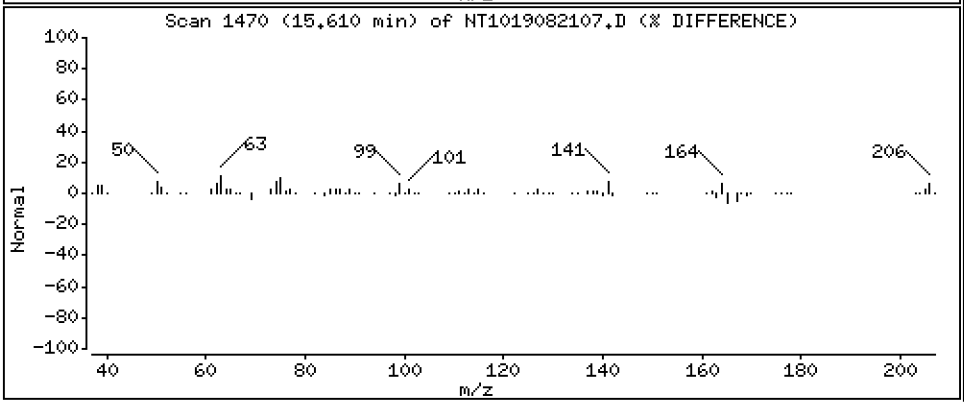












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

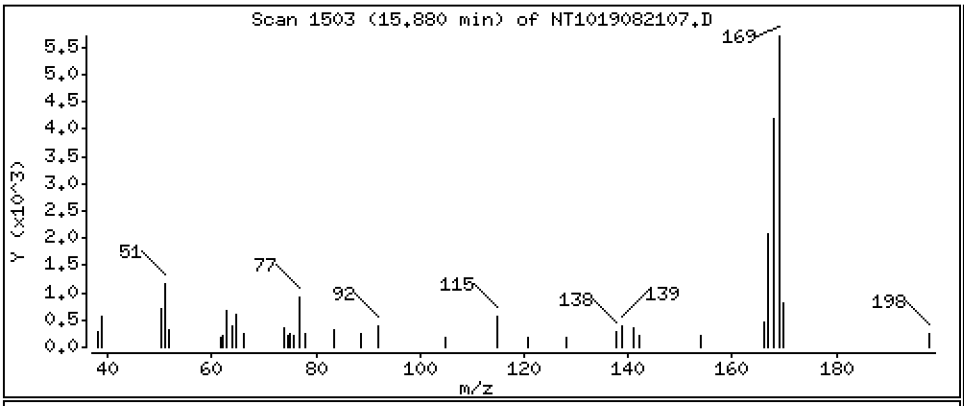
Operator: YZ

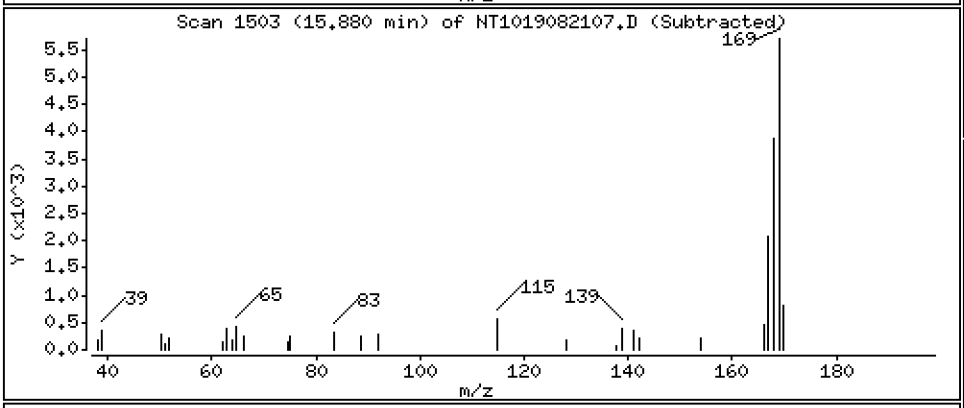
Column phase: ZB-5msi

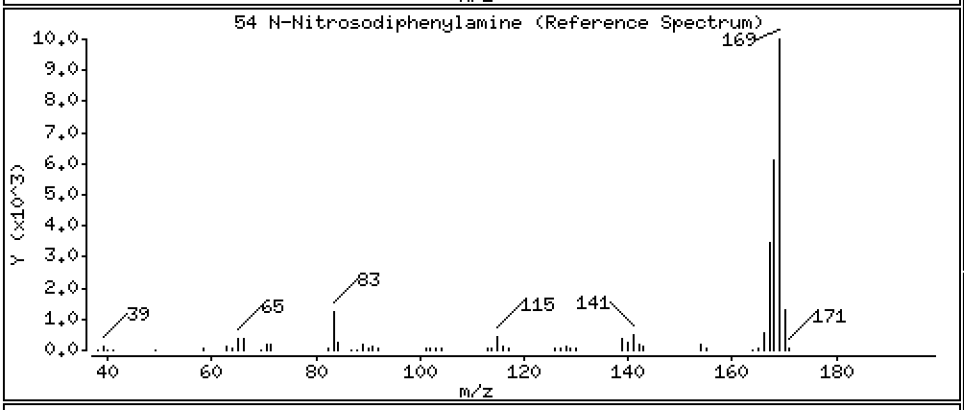
Column diameter: 0.25

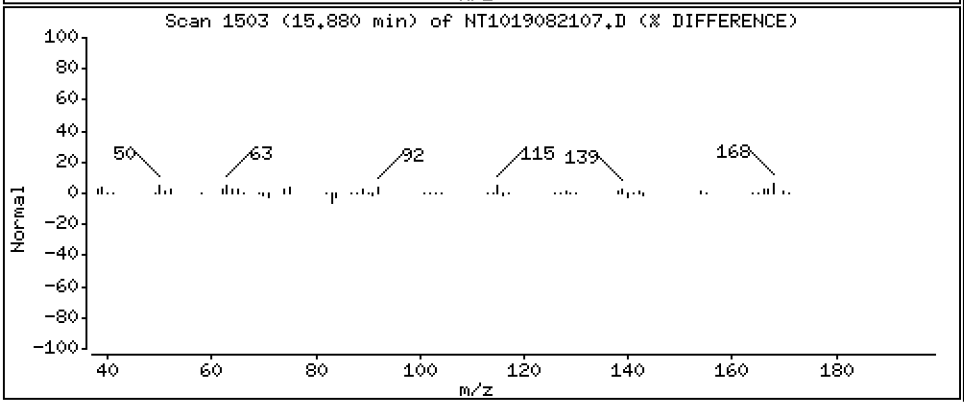
54 N-Nitrosodiphenylamine

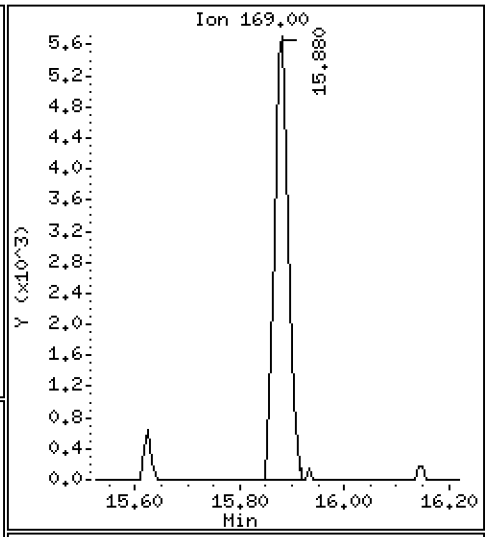
Concentration: 0.5855 ug/mL

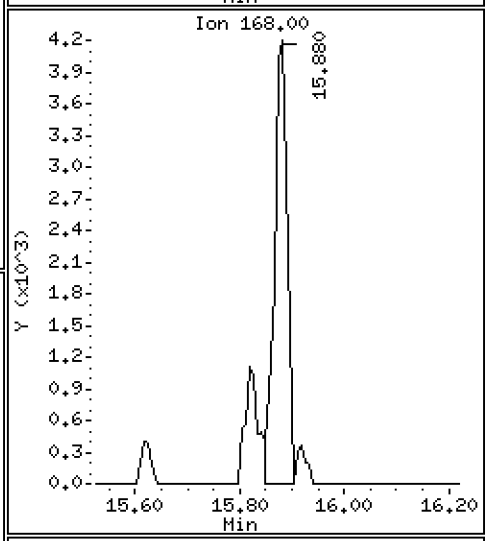


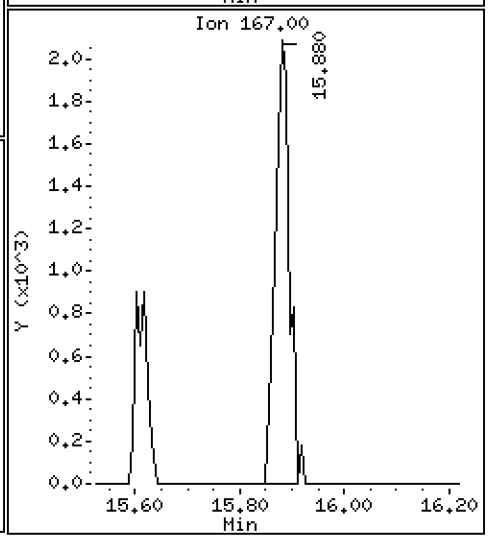












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

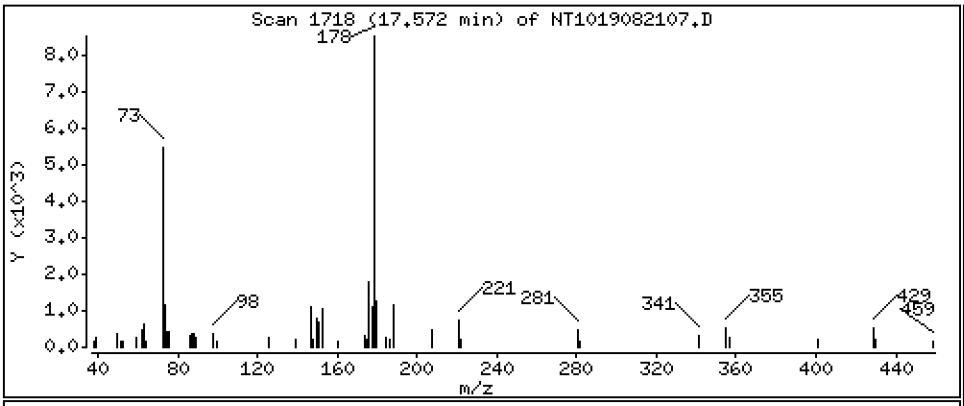
Operator: YZ

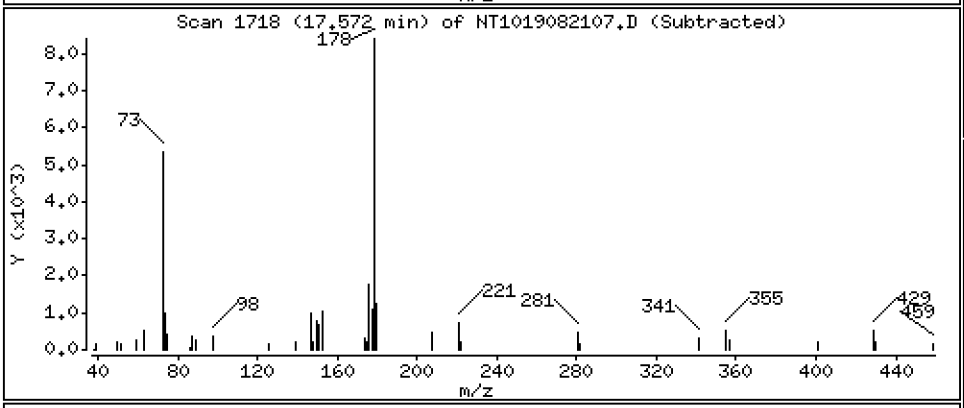
Column phase: ZB-5msi

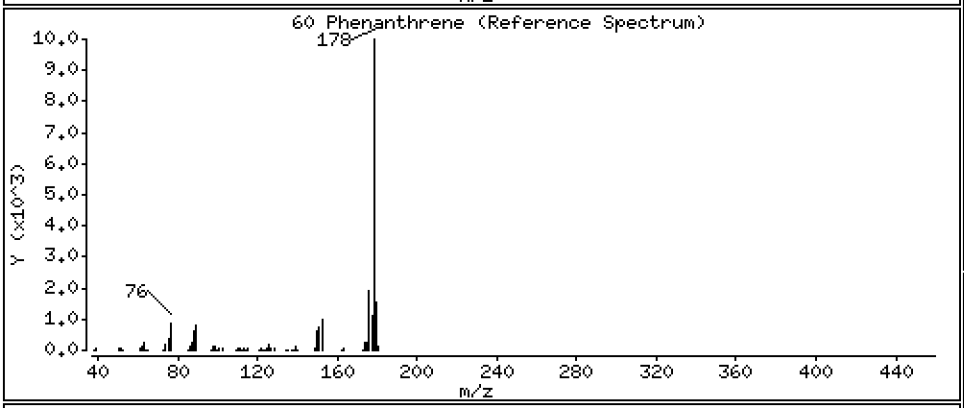
Column diameter: 0.25

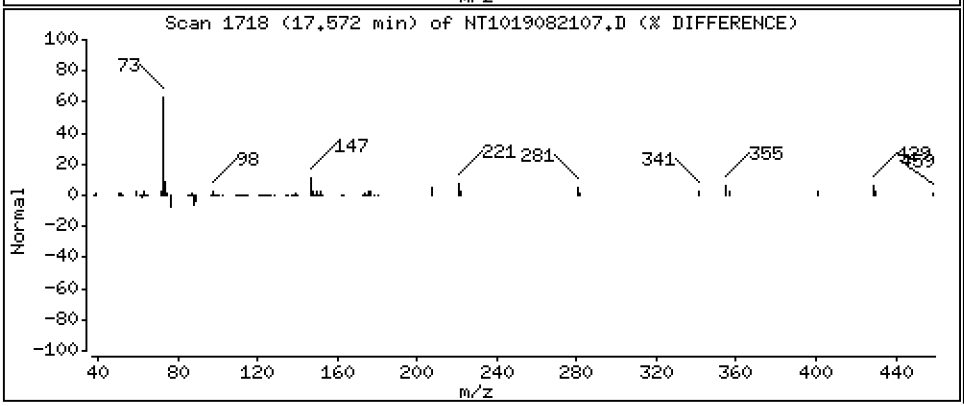
60 Phenanthrene

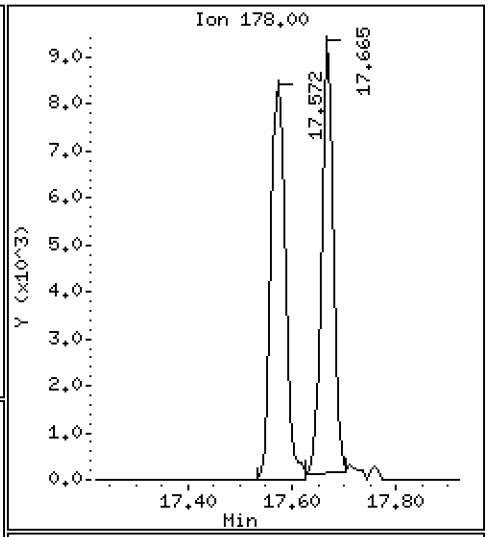
Concentration: 0.4839 ug/mL

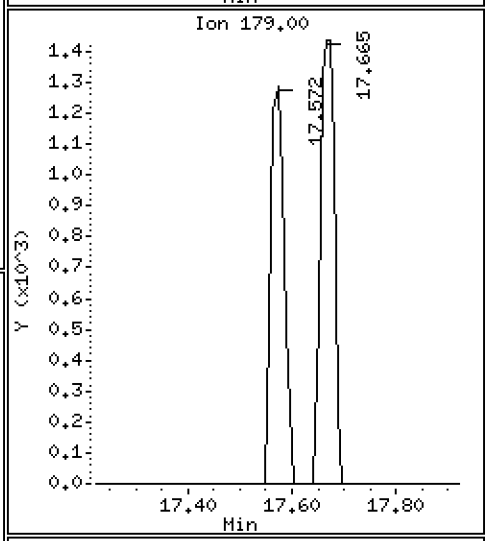


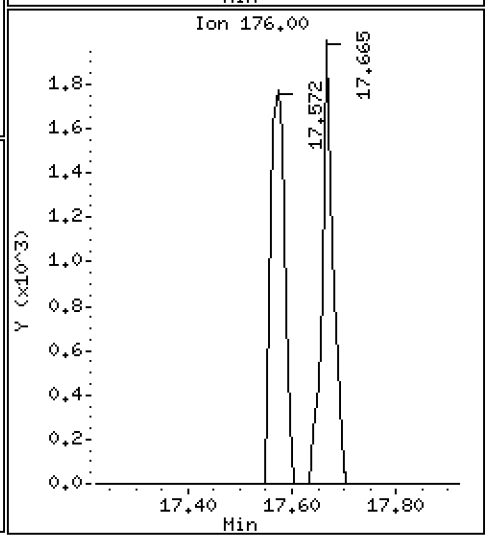












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

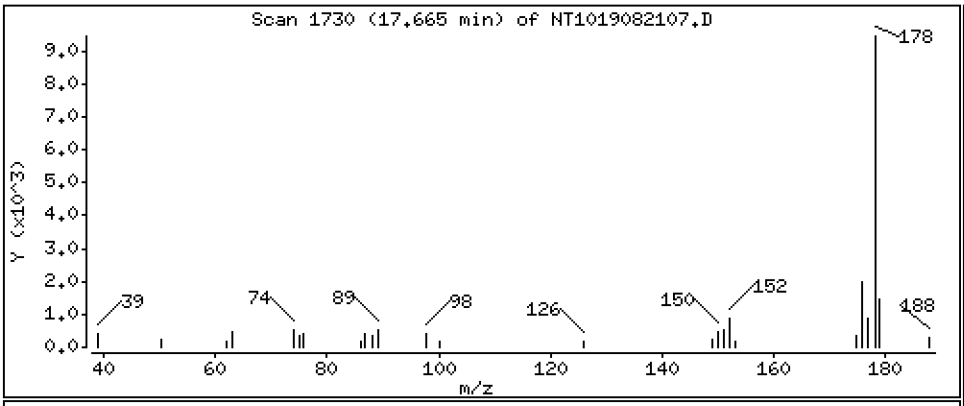
Operator: YZ

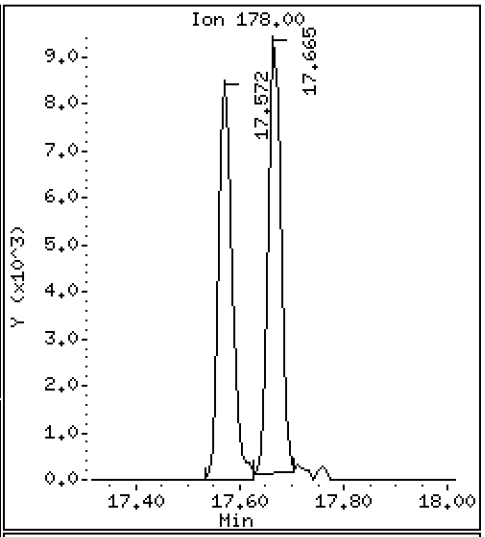
Column phase: ZB-5msi

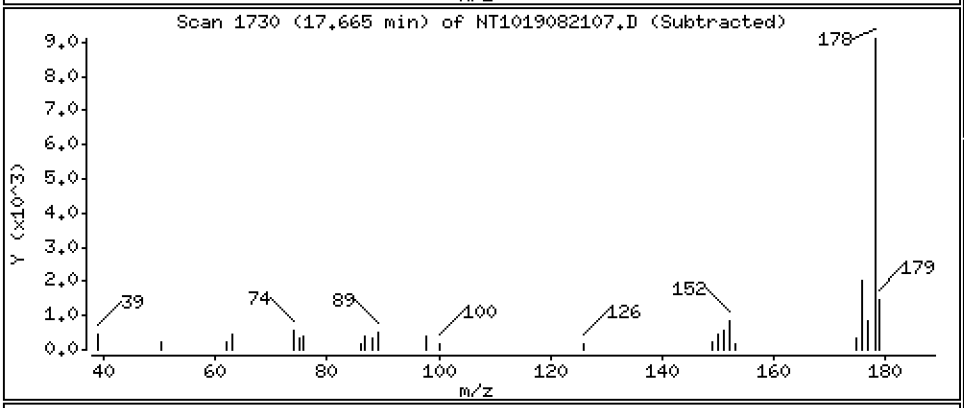
Column diameter: 0.25

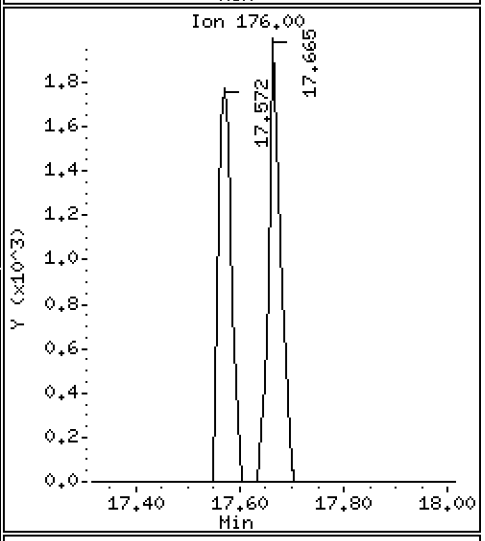
61 Anthracene

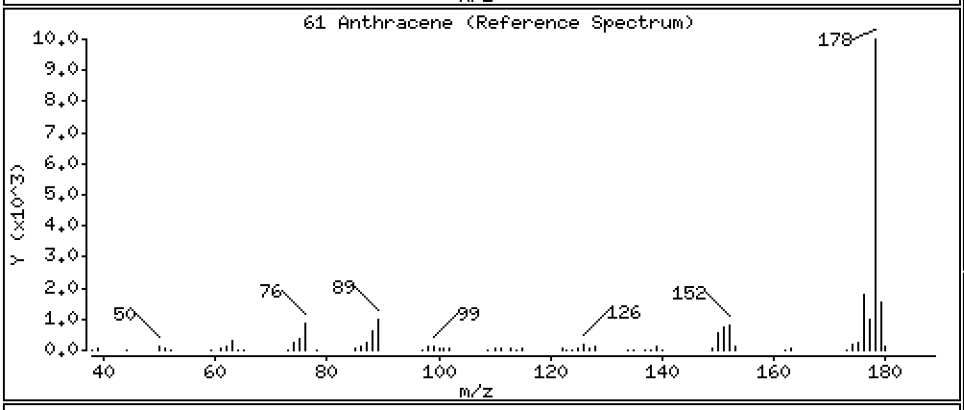
Concentration: 0.4476 ug/mL

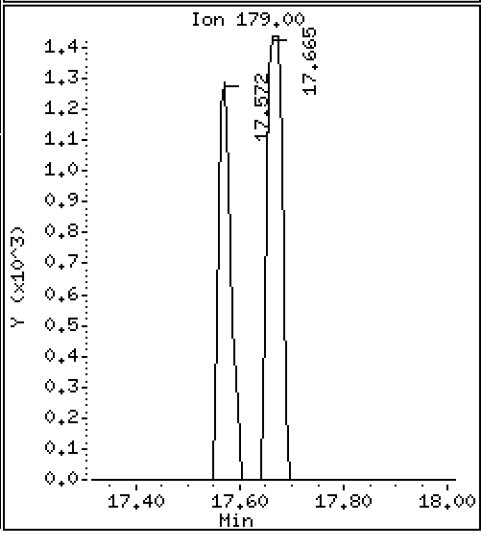


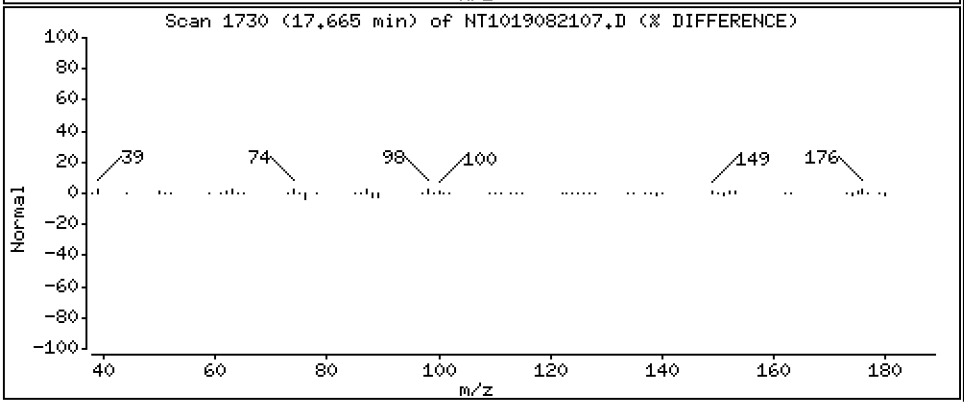












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

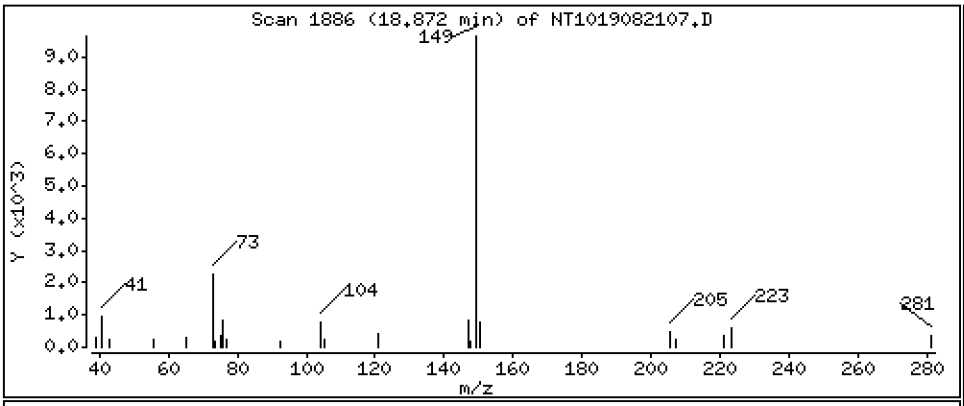
Operator: YZ

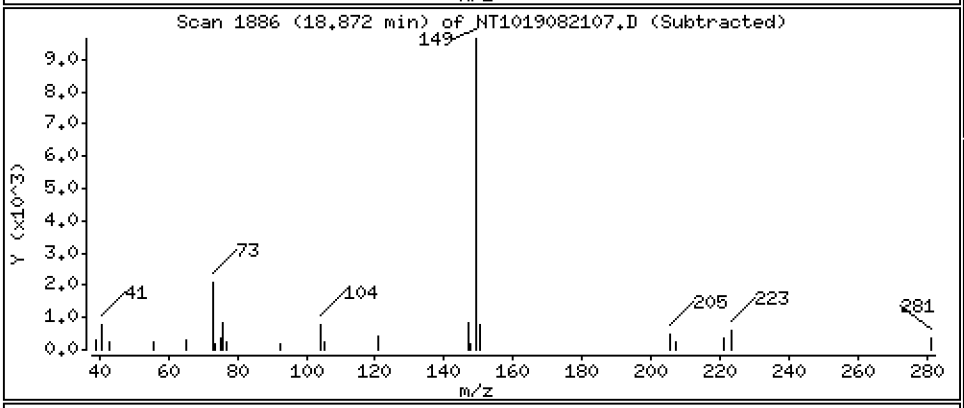
Column phase: ZB-5msi

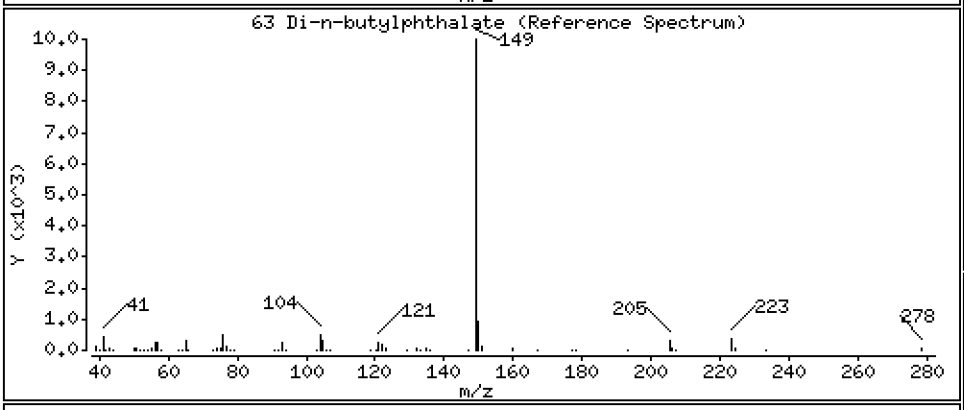
Column diameter: 0.25

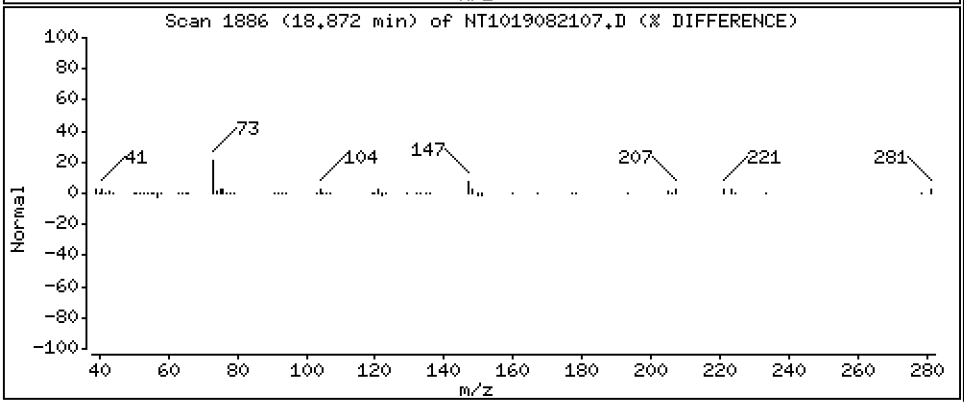
63 Di-n-butylphthalate

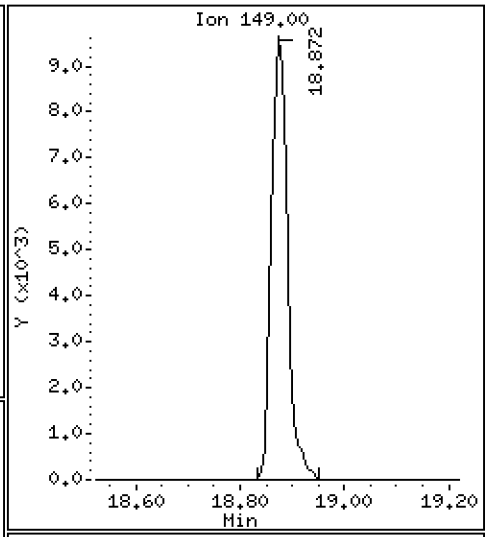
Concentration: 0.4466 ug/mL

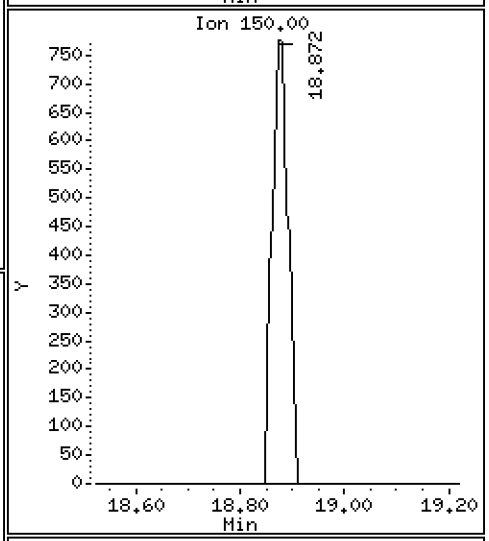


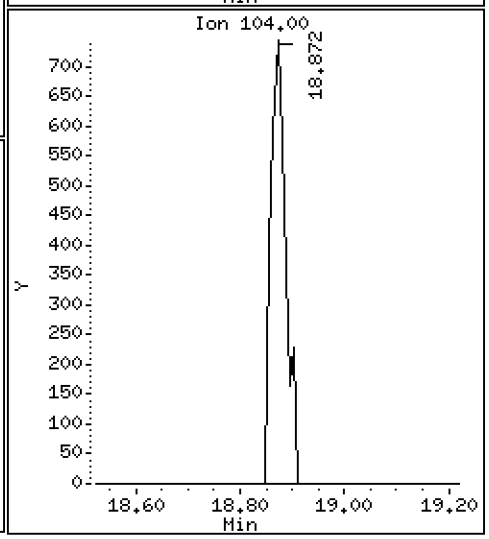












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

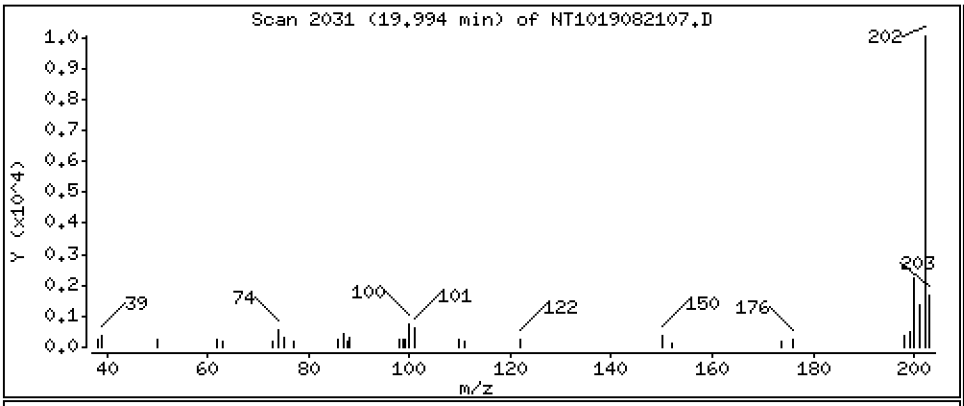
Operator: YZ

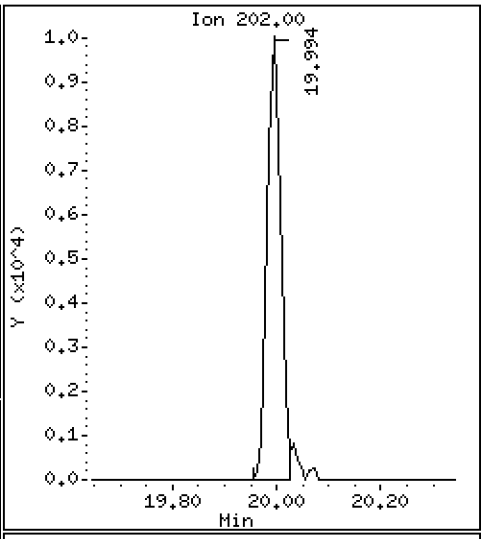
Column phase: ZB-5msi

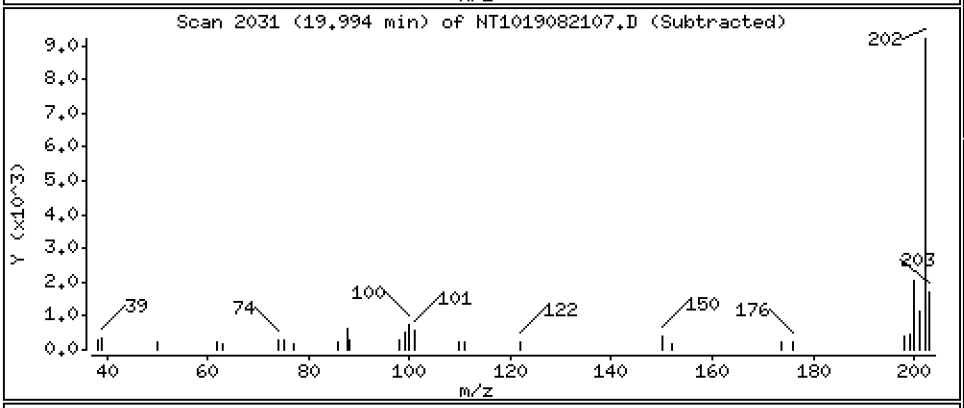
Column diameter: 0.25

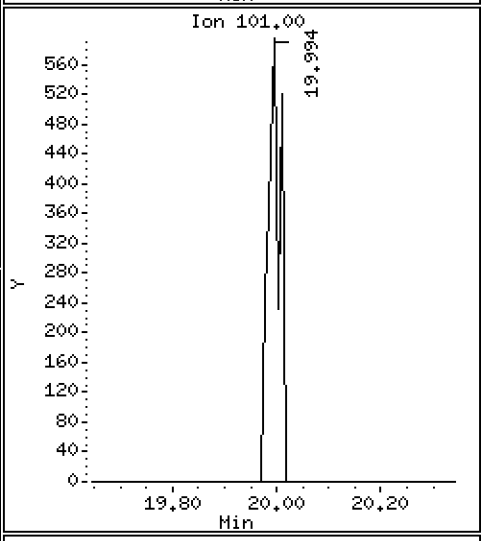
64 Fluoranthene

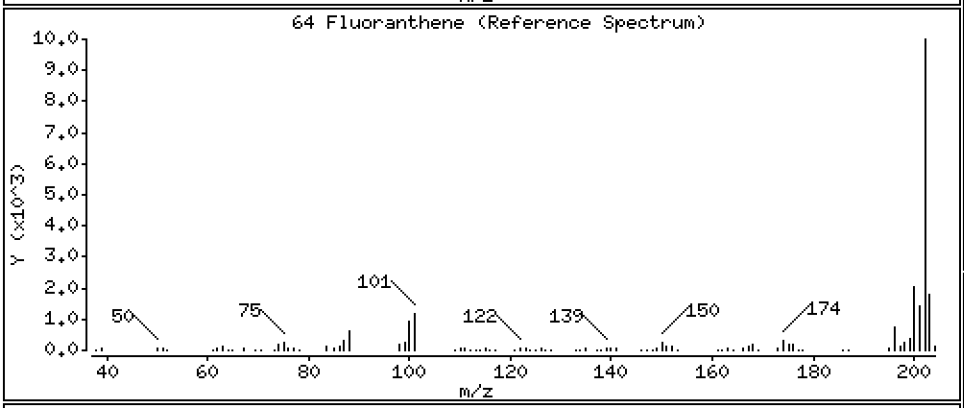
Concentration: 0.4508 ug/mL

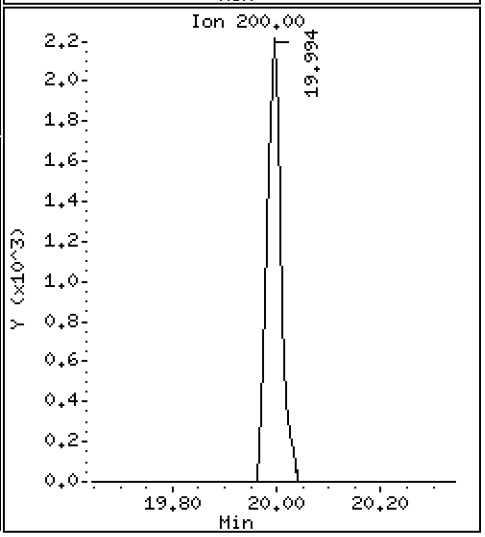


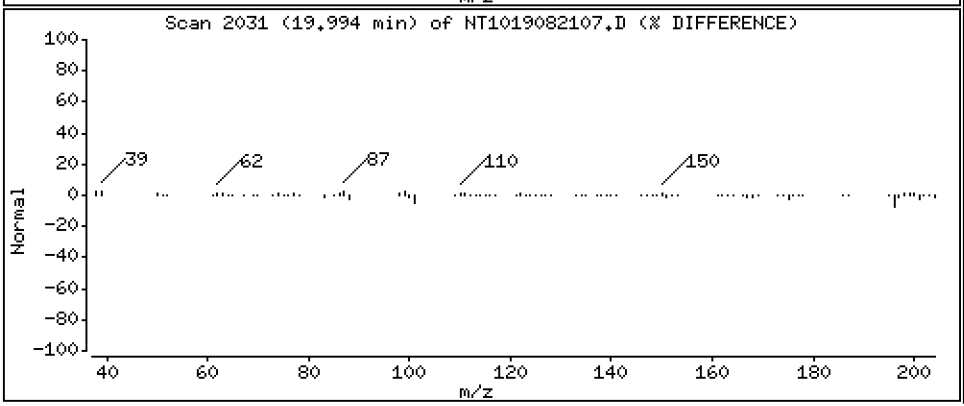












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

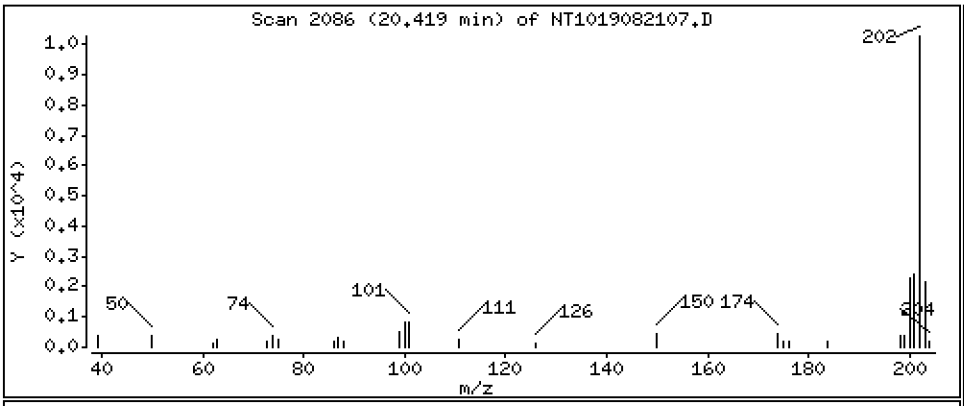
Operator: YZ

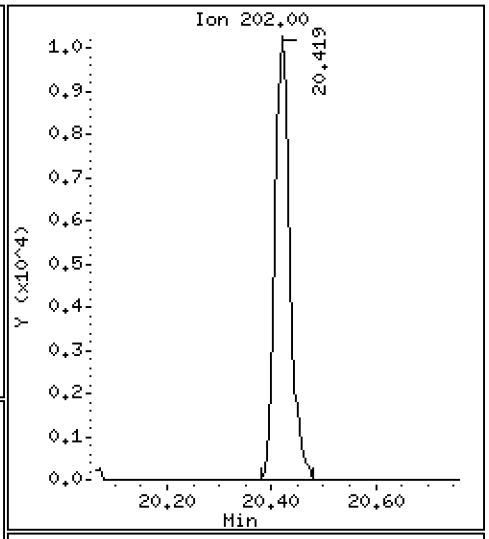
Column phase: ZB-5msi

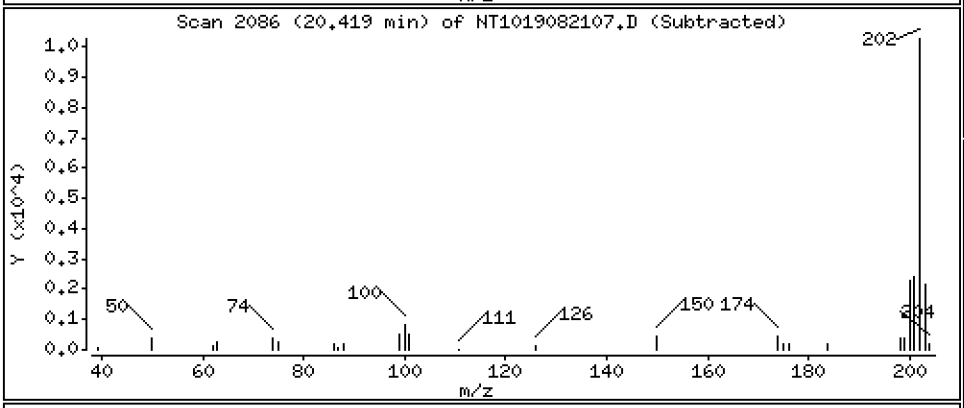
Column diameter: 0.25

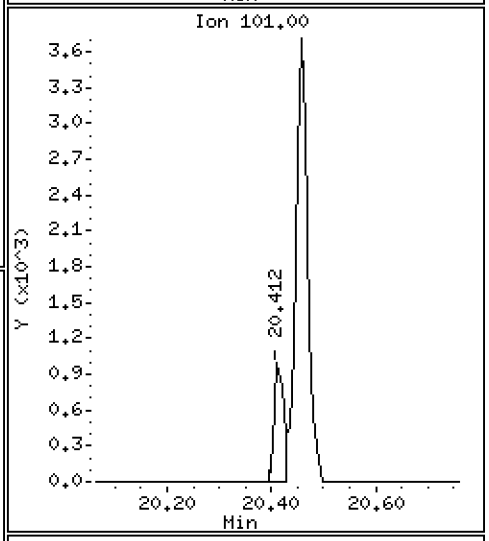
65 Pyrene

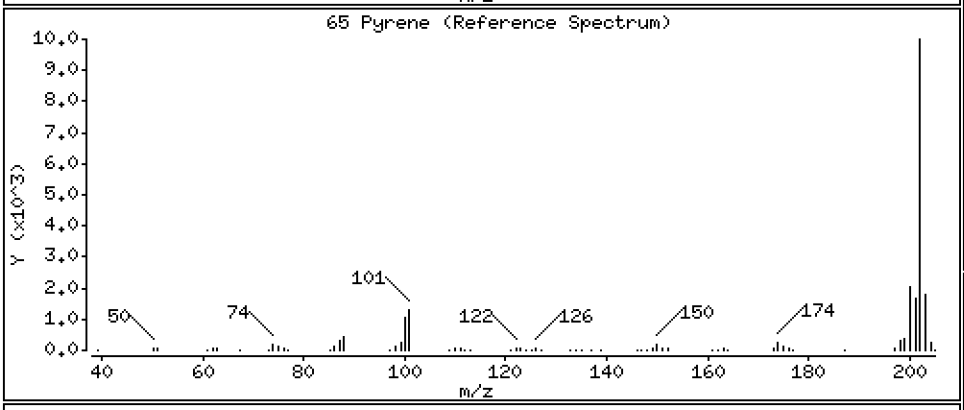
Concentration: 0.4856 ug/mL

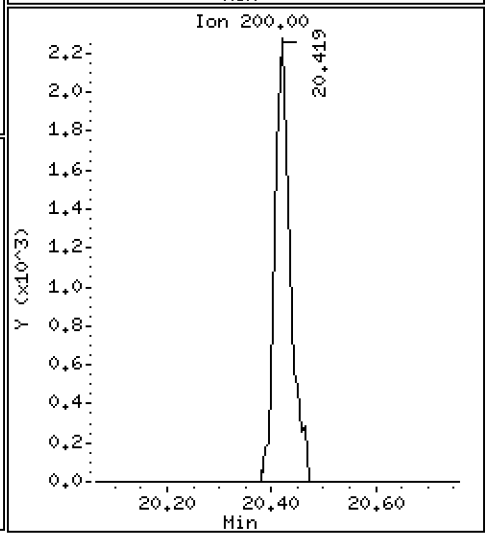


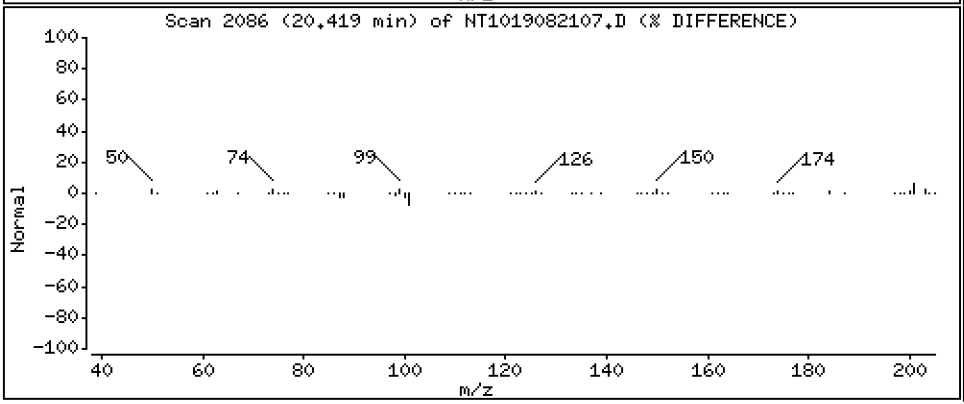












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

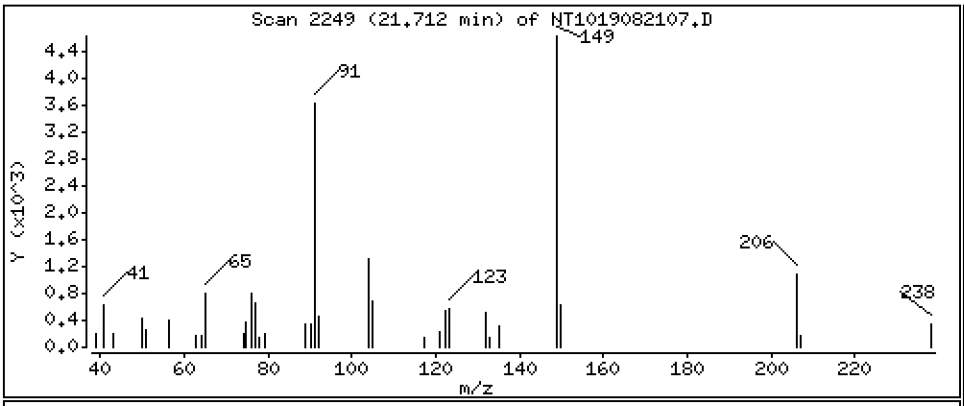
Operator: YZ

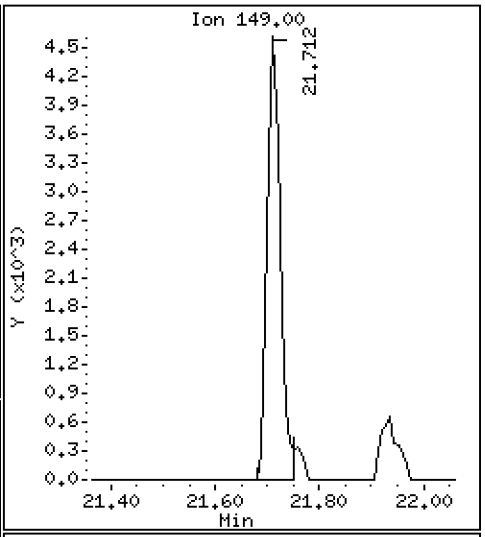
Column phase: ZB-5msi

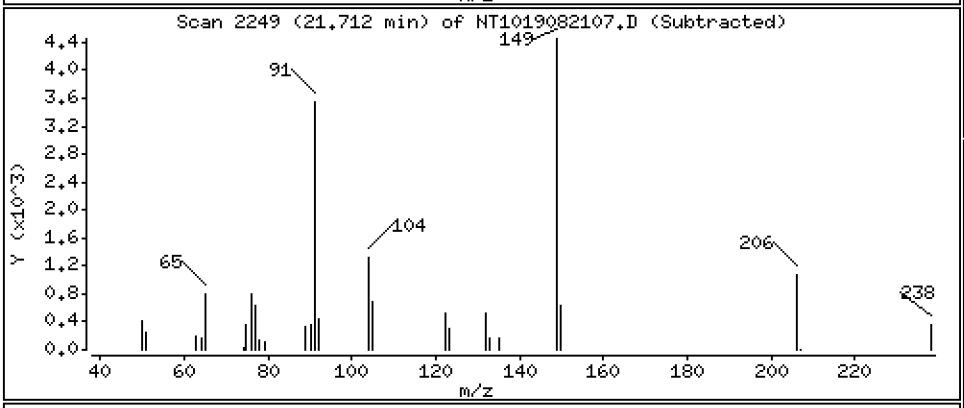
Column diameter: 0.25

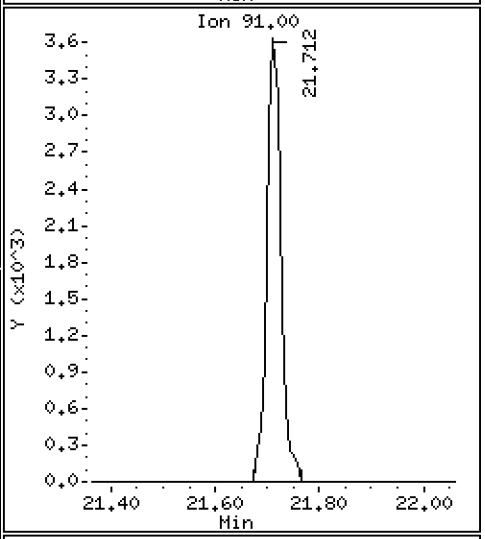
67 Butylbenzylphthalate

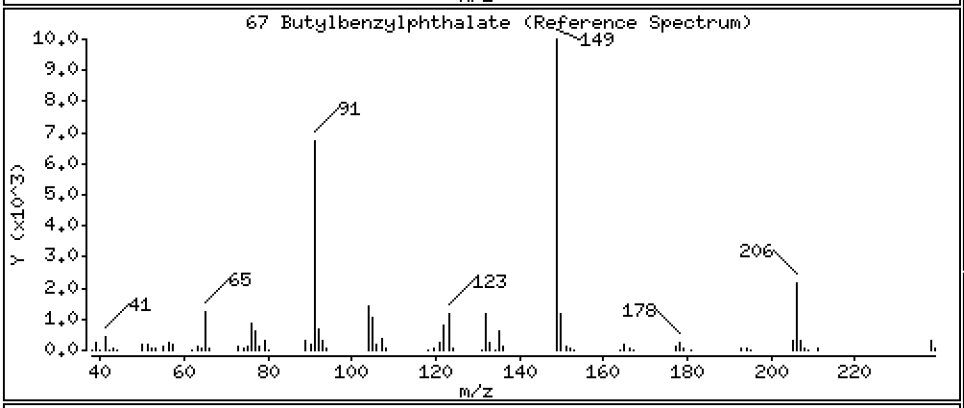
Concentration: 0.4115 ug/mL

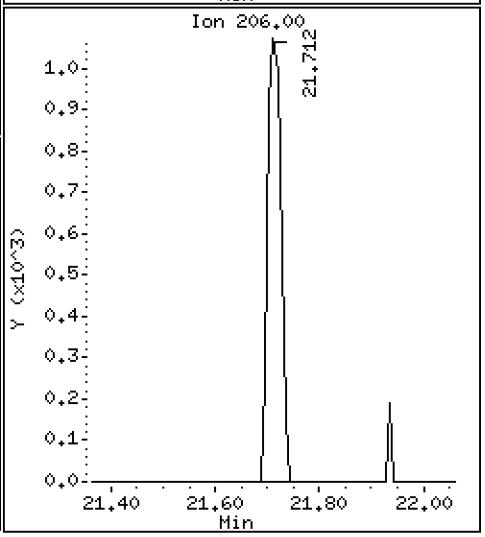


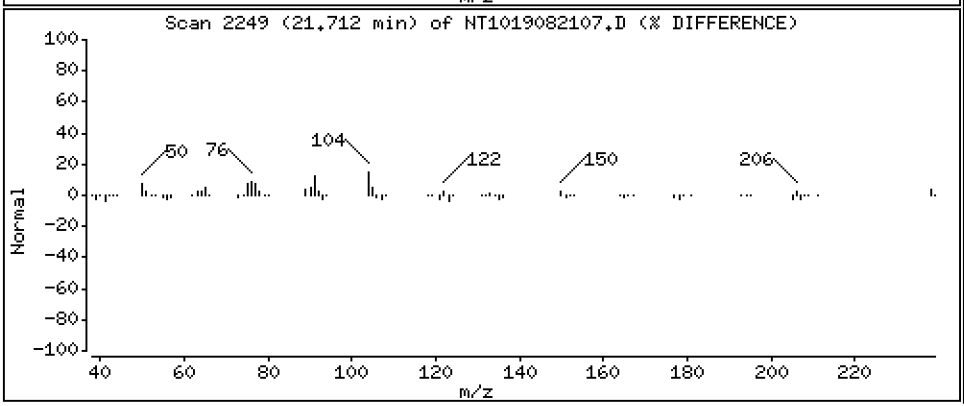












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

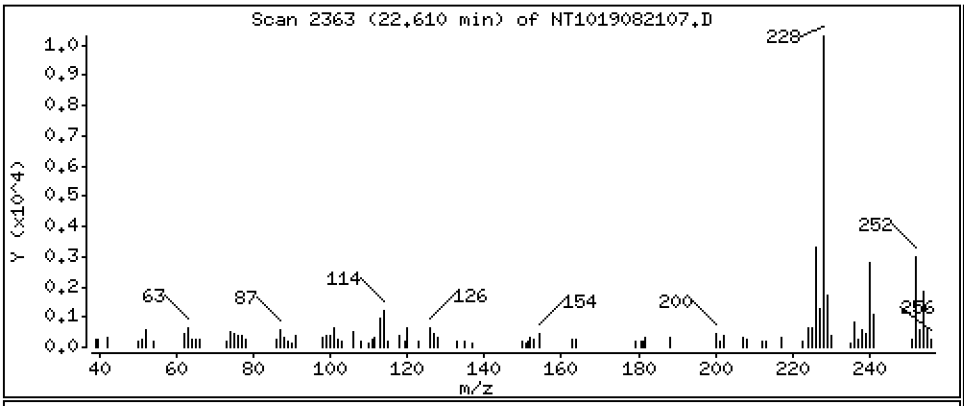
Operator: YZ

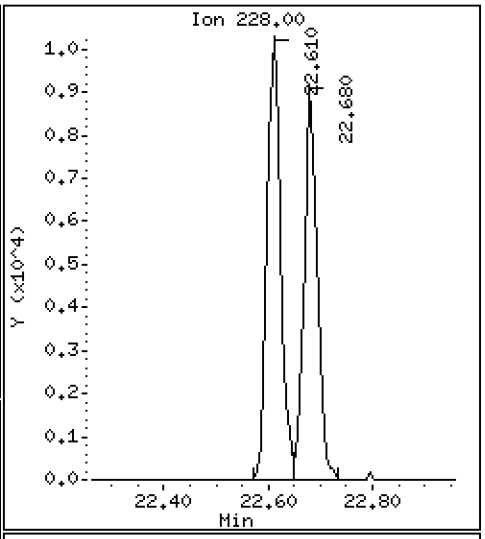
Column phase: ZB-5msi

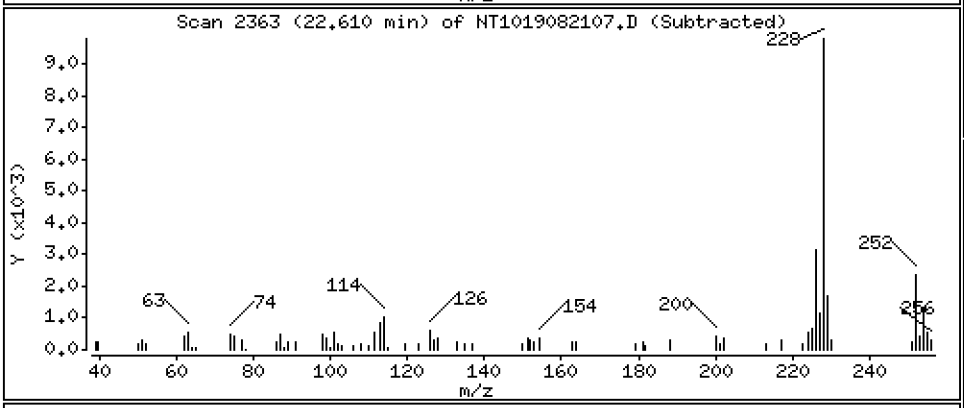
Column diameter: 0.25

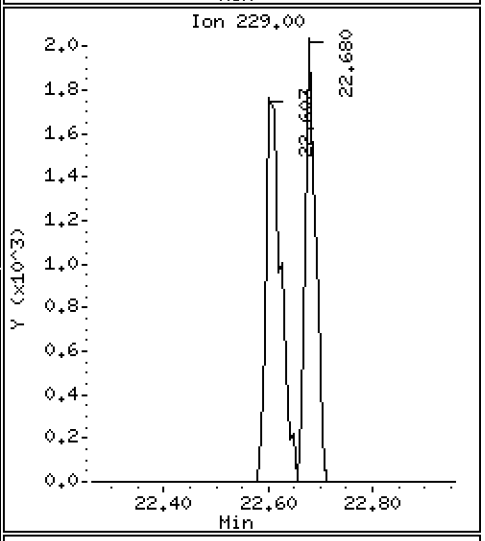
68 Benzo(a)anthracene

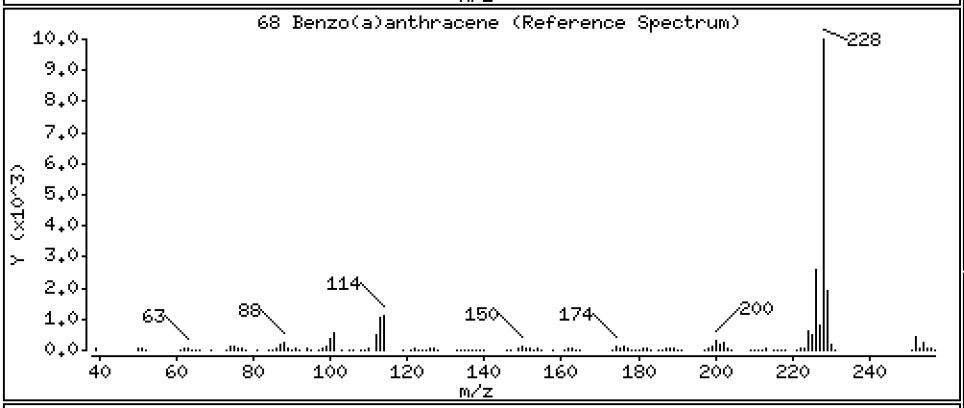
Concentration: 0.4837 ug/mL

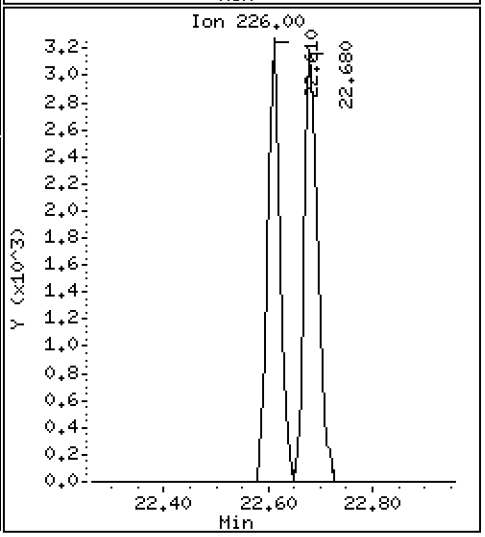


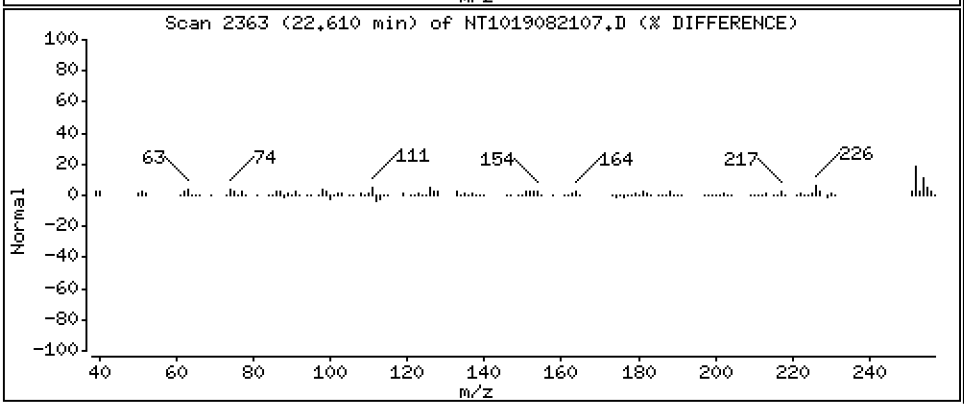












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

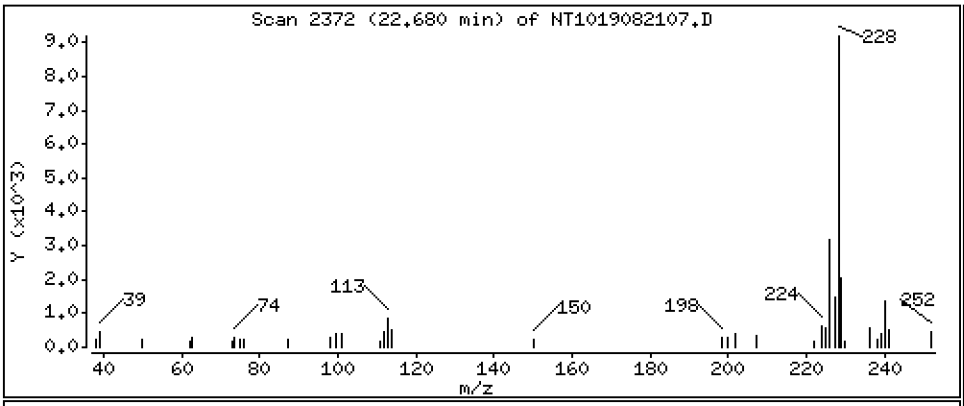
Operator: YZ

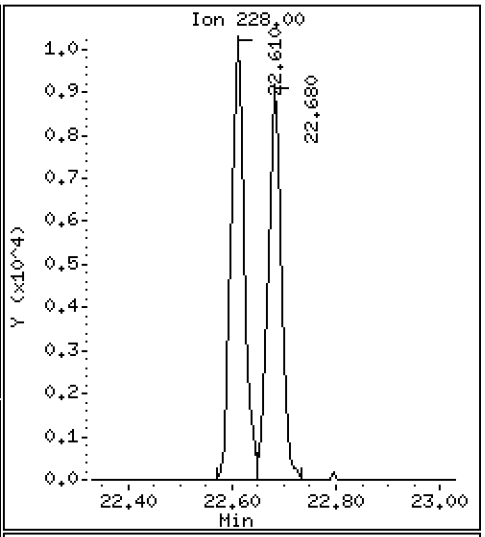
Column phase: ZB-5msi

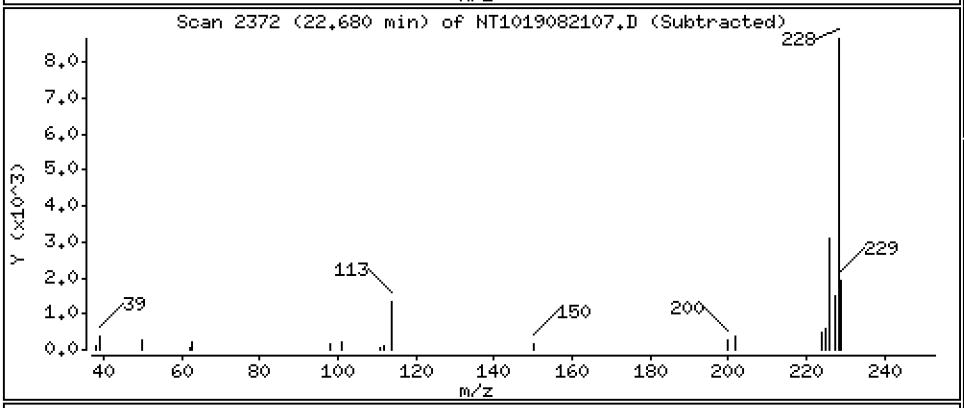
Column diameter: 0.25

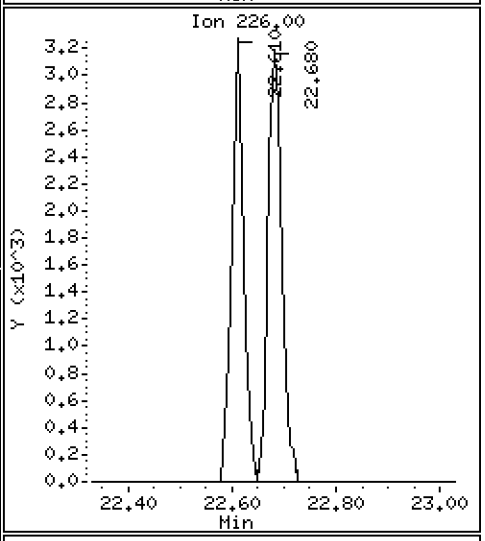
71 Chrysene

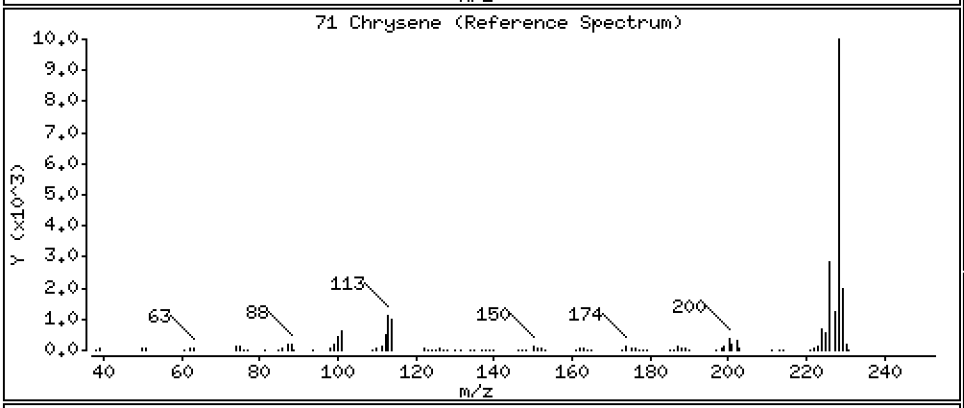
Concentration: 0.4752 ug/mL

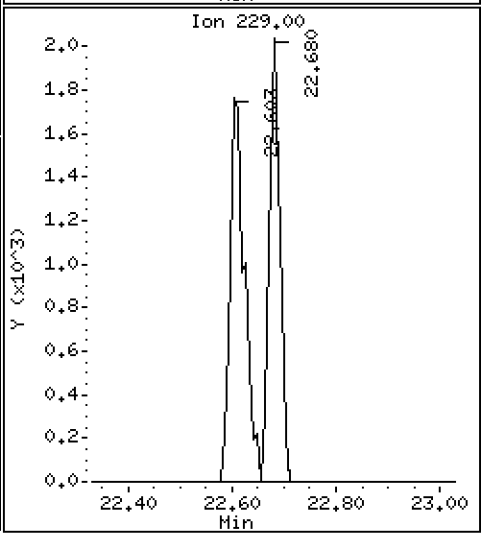


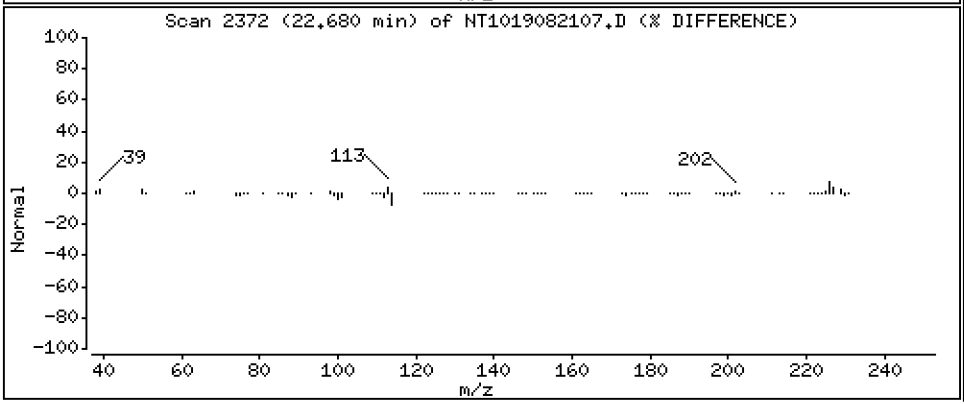












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

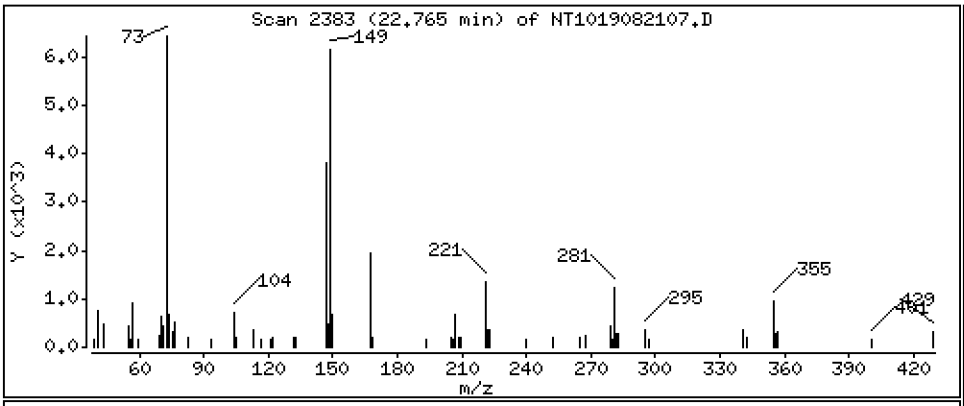
Operator: YZ

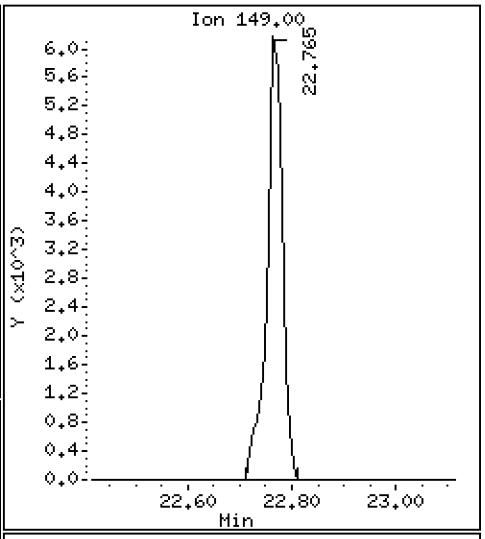
Column phase: ZB-5msi

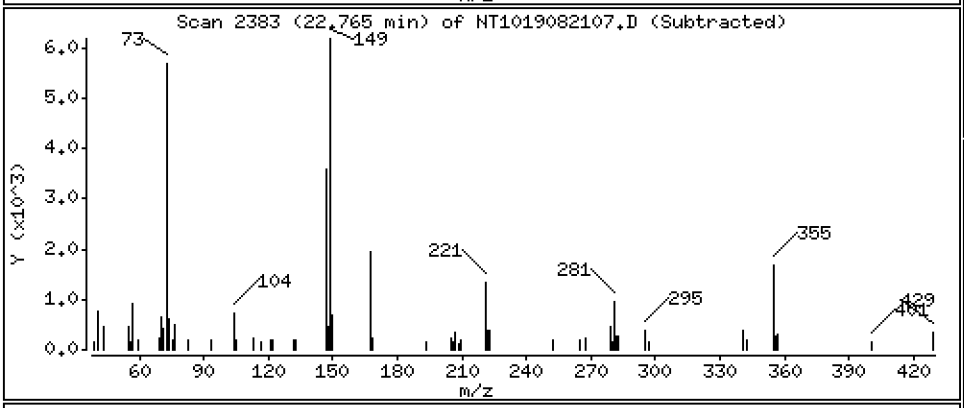
Column diameter: 0.25

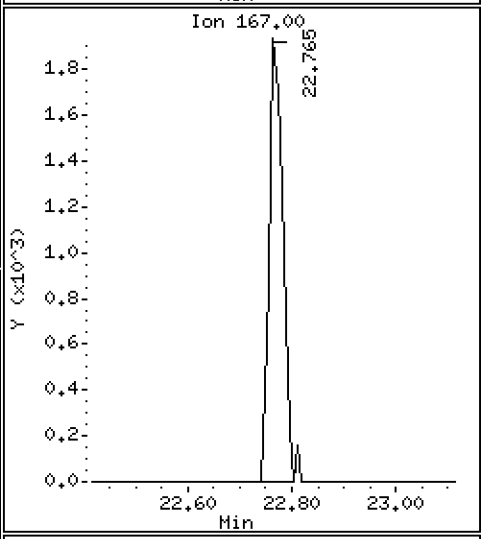
72 bis(2-Ethylhexyl)phthalate

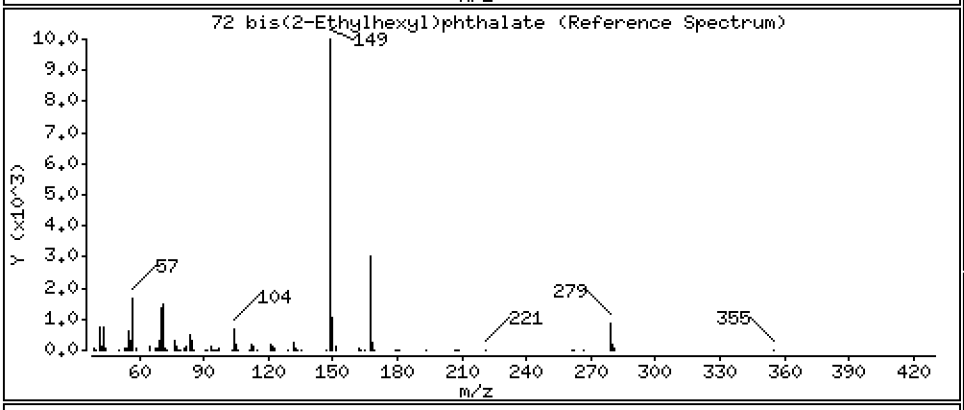
Concentration: 0.5593 ug/mL

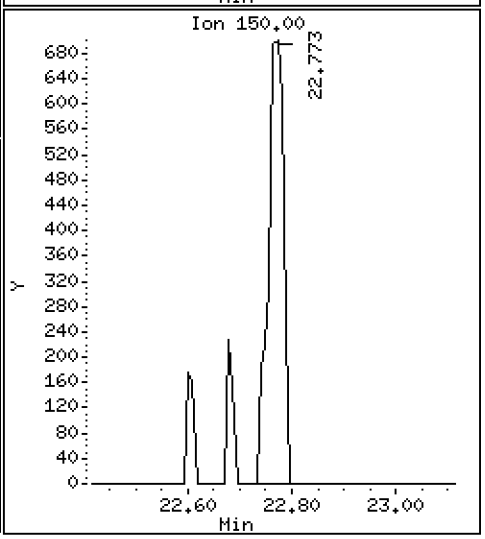


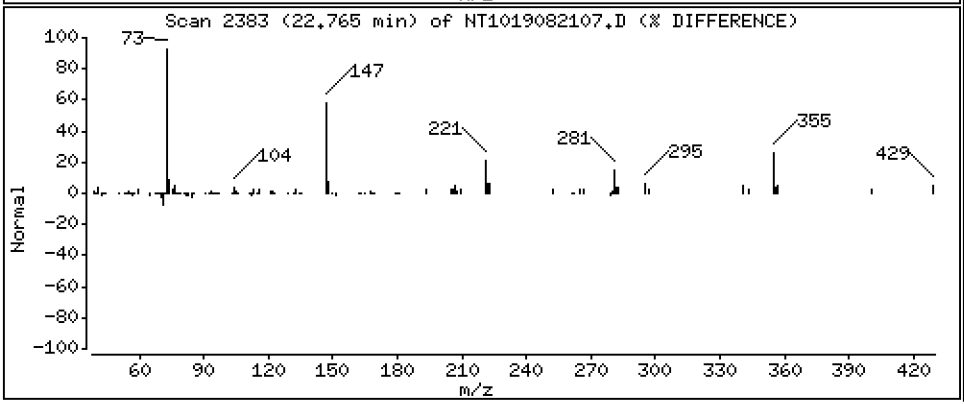












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

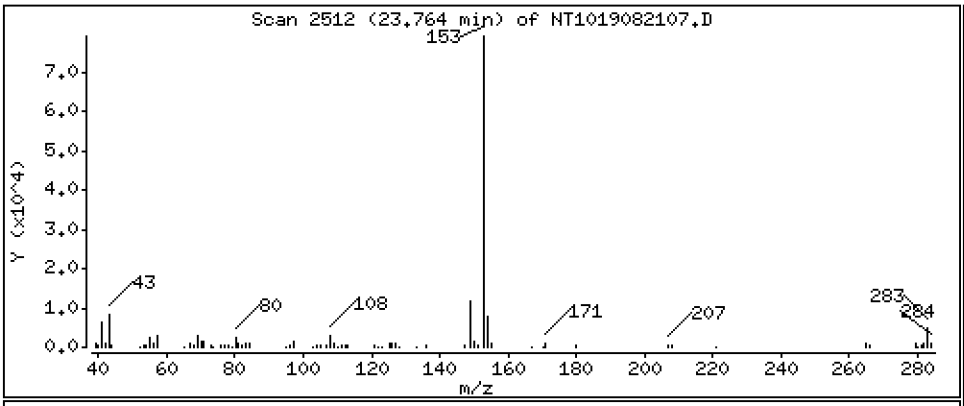
Operator: YZ

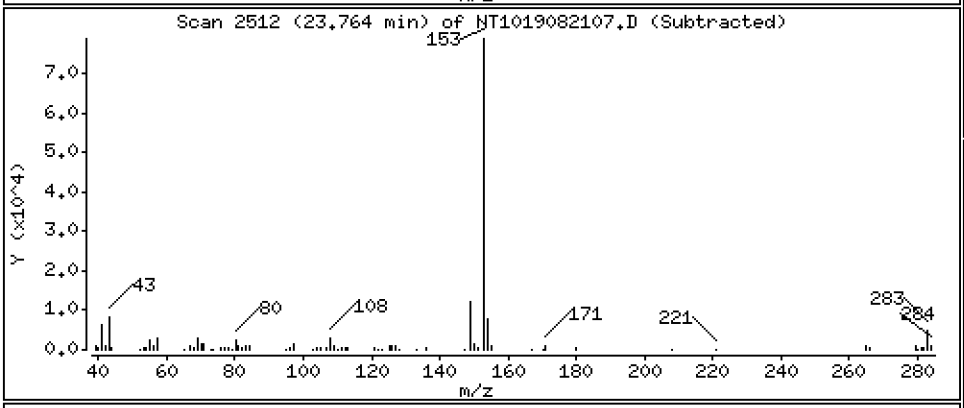
Column phase: ZB-5msi

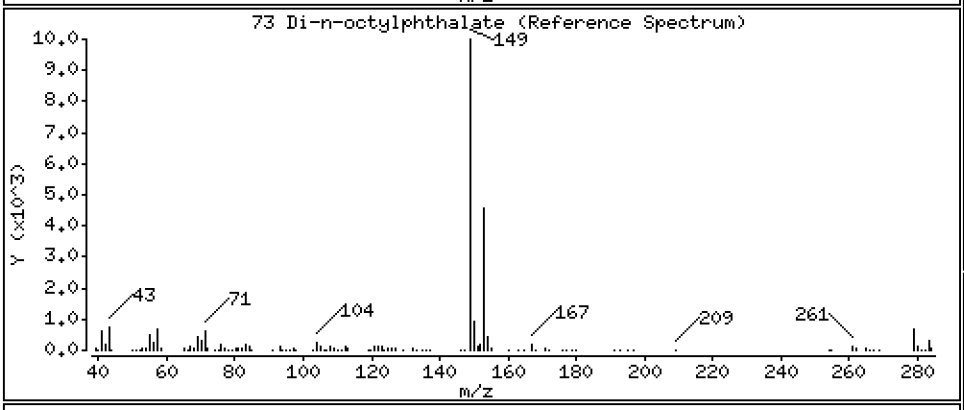
Column diameter: 0.25

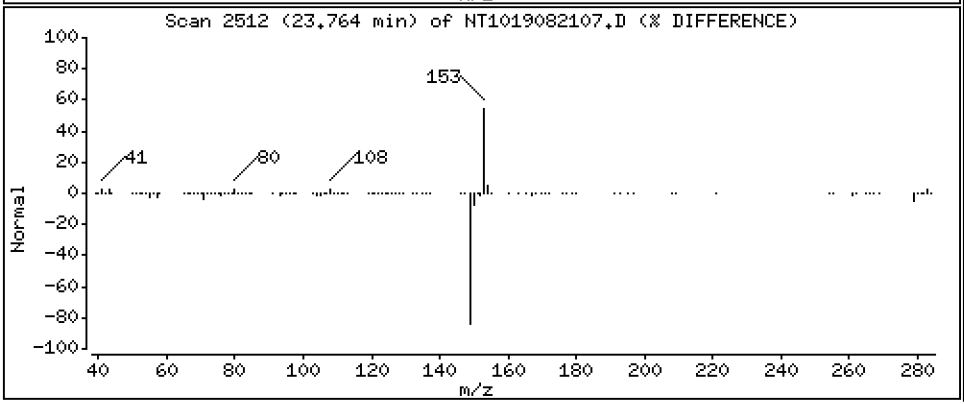
73 Di-n-octylphthalate

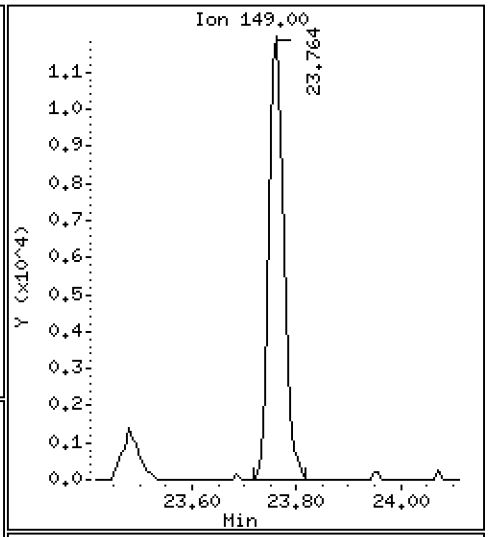
Concentration: 0.4980 ug/mL

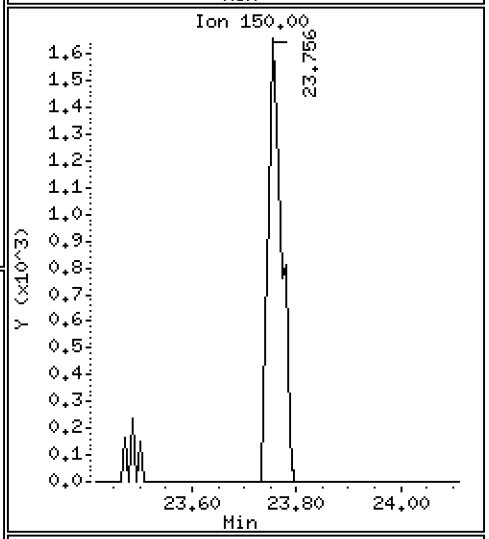


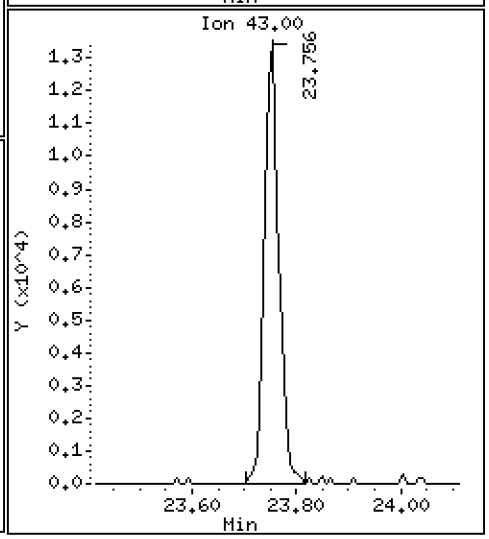












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

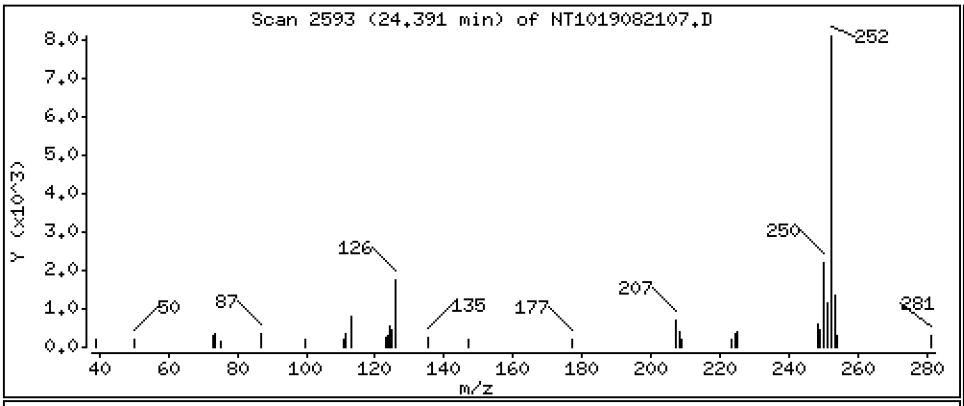
Operator: YZ

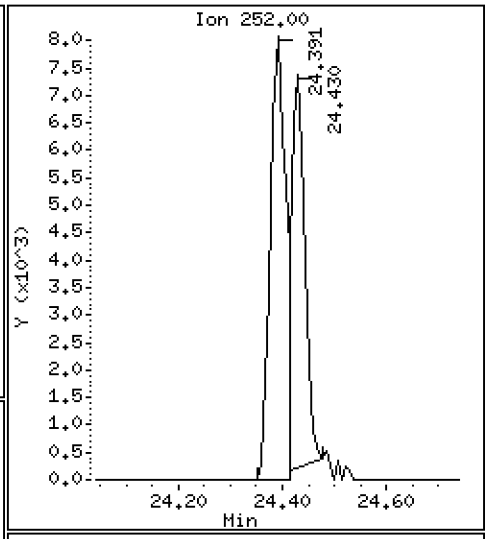
Column phase: ZB-5msi

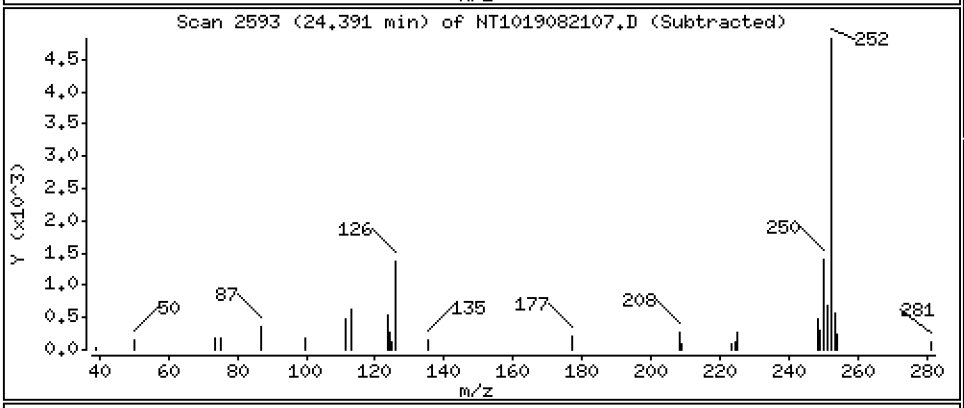
Column diameter: 0.25

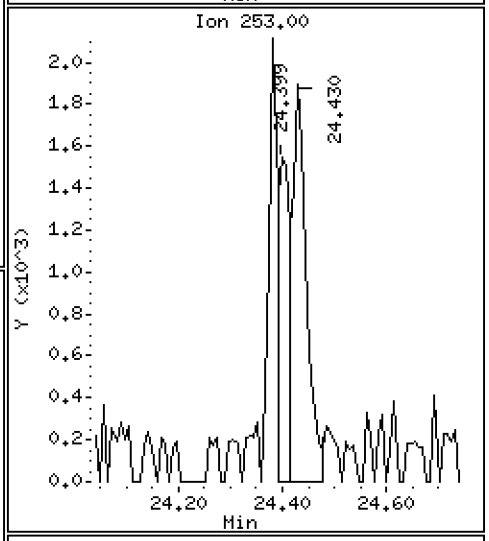
74 Benzo(b)fluoranthene

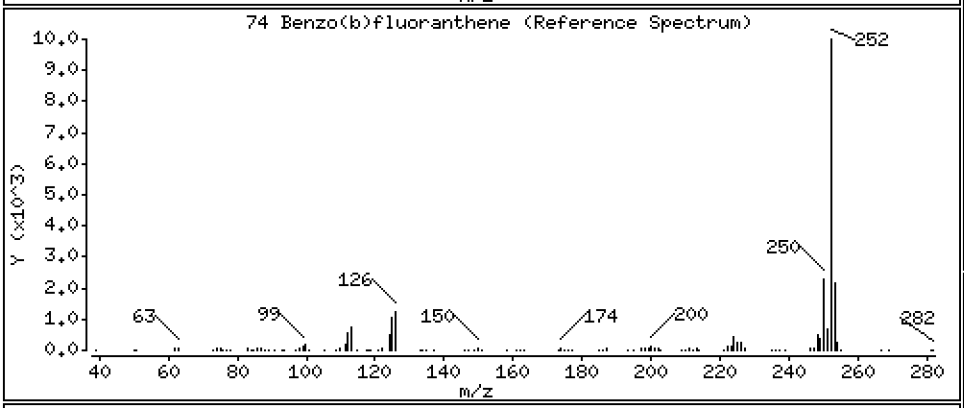
Concentration: 0.5817 ug/mL

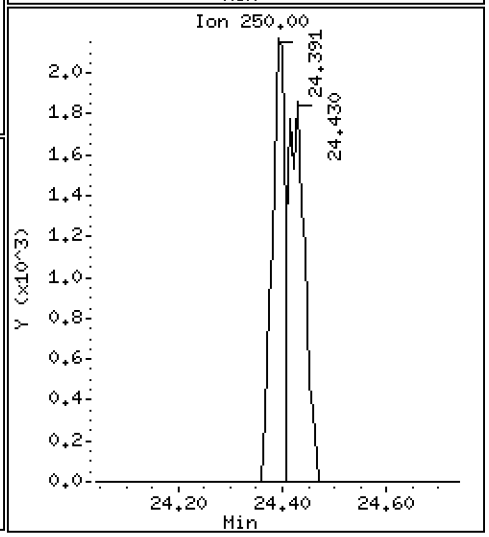


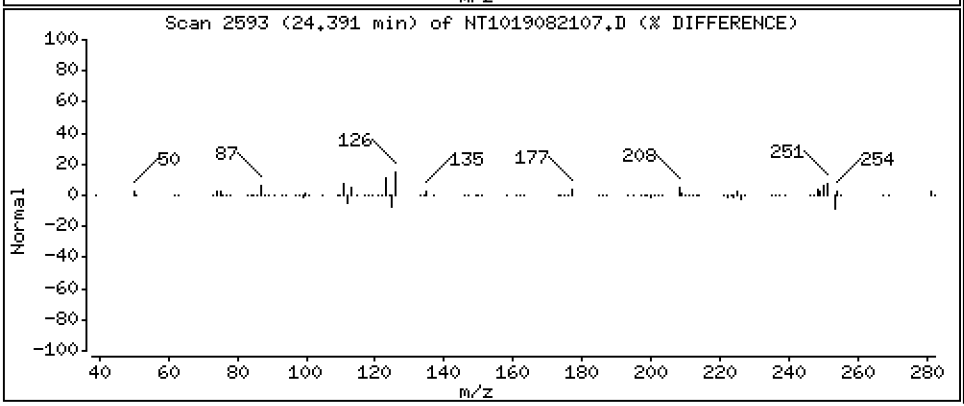












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

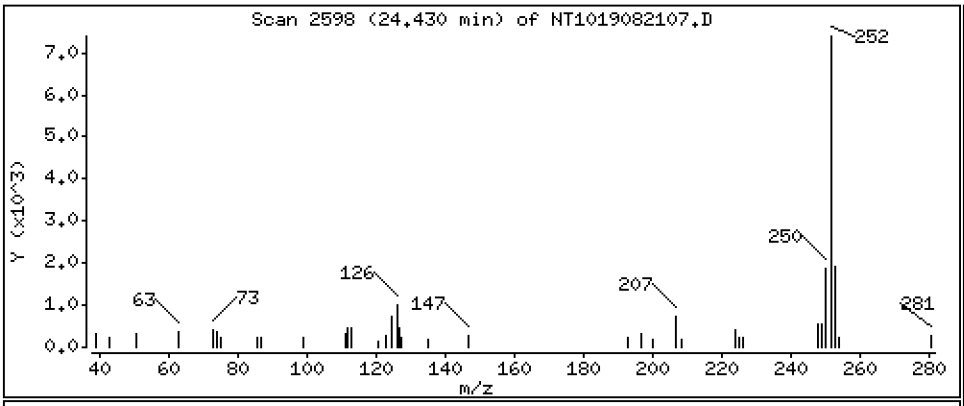
Operator: YZ

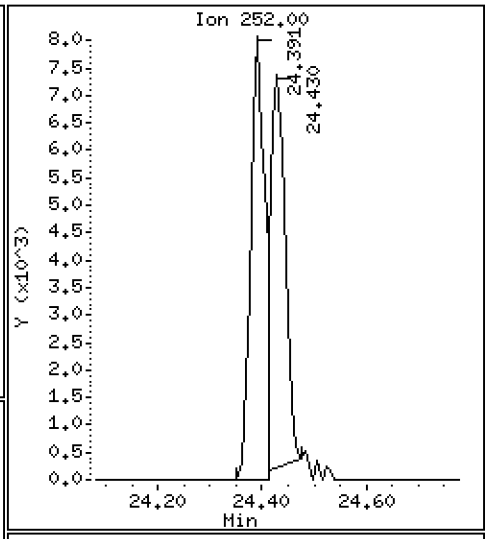
Column phase: ZB-5msi

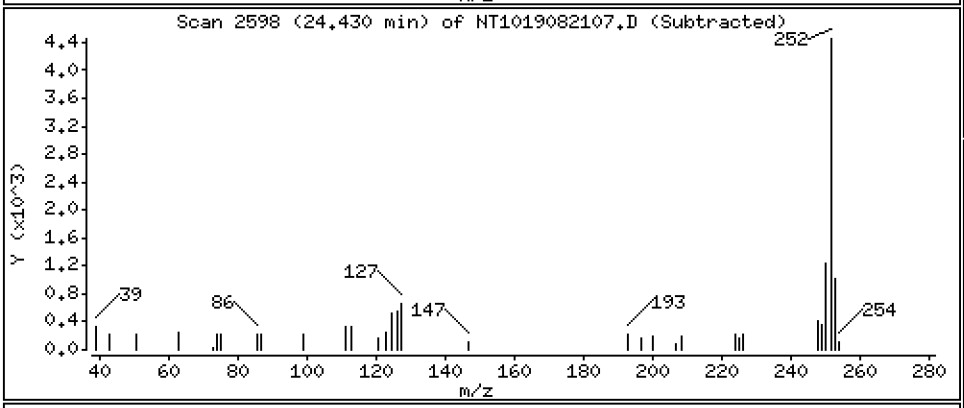
Column diameter: 0.25

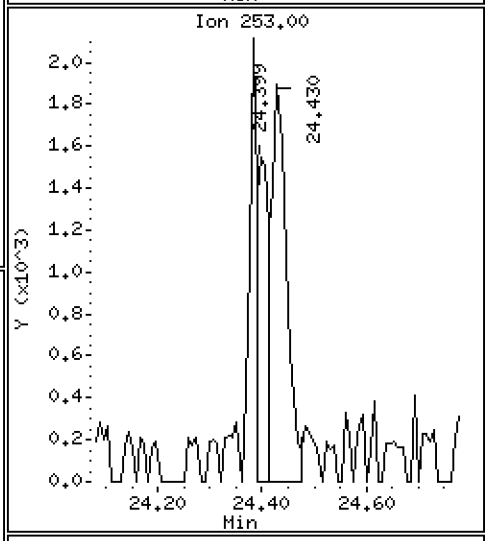
75 Benzo(k)fluoranthene

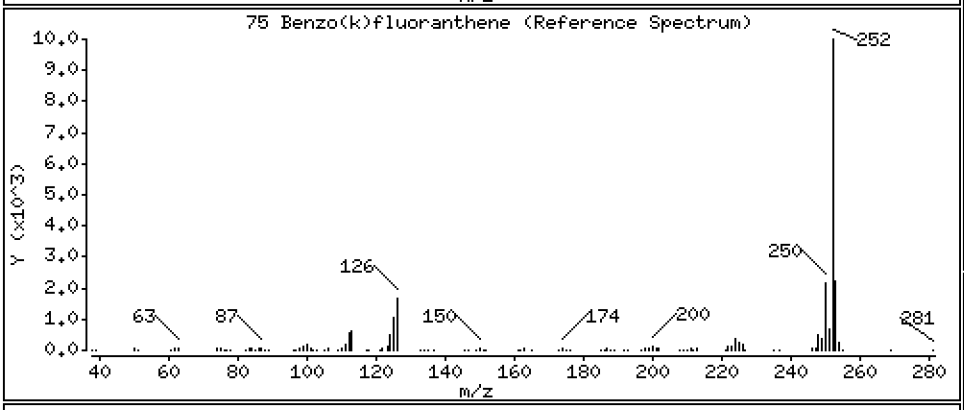
Concentration: 0.4729 ug/mL

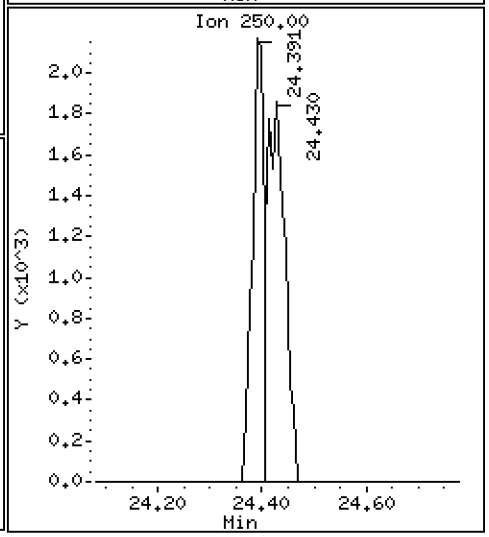


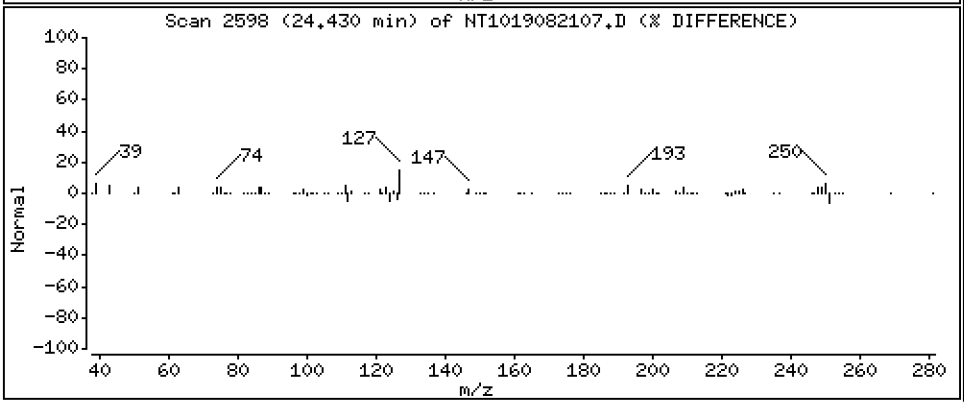












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

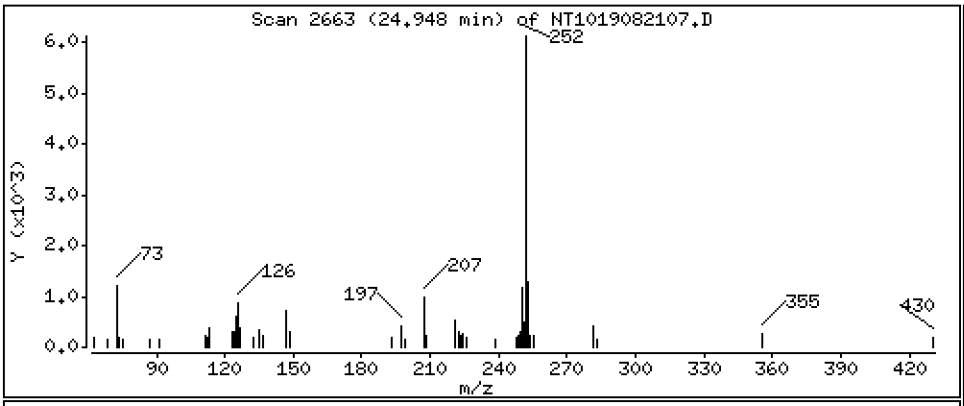
Operator: YZ

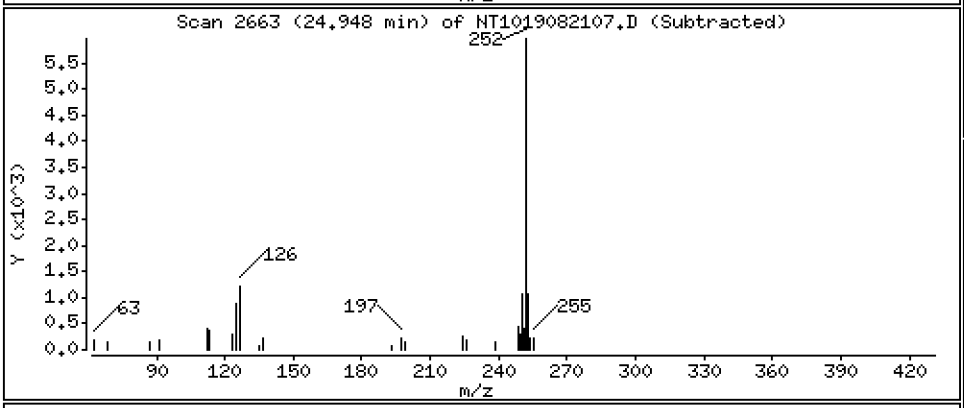
Column phase: ZB-5msi

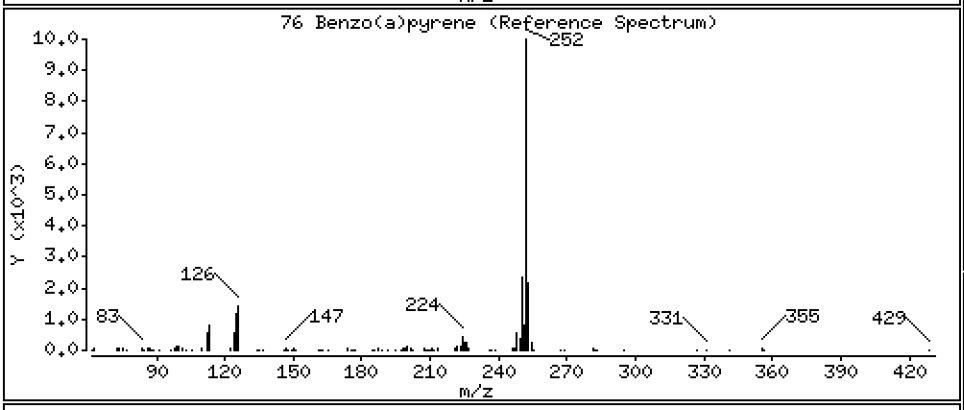
Column diameter: 0.25

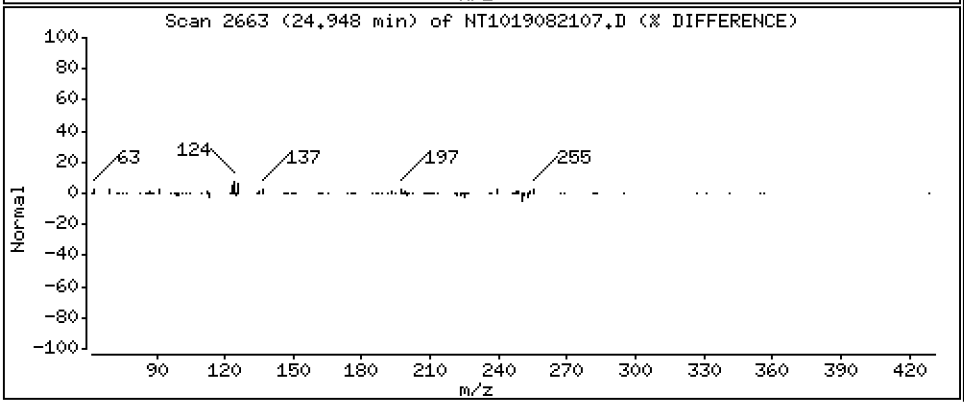
76 Benzo(a)pyrene

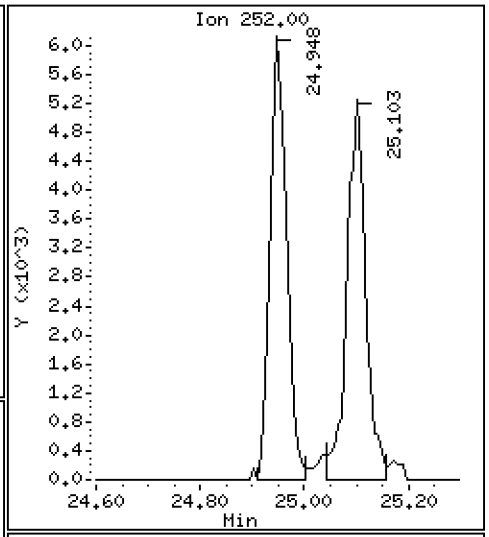
Concentration: 0.5044 ug/mL

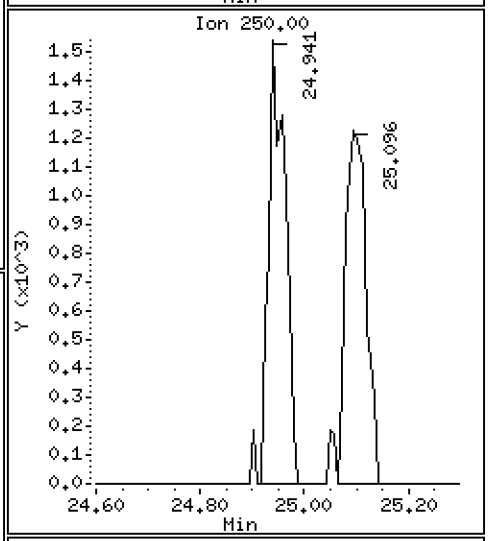


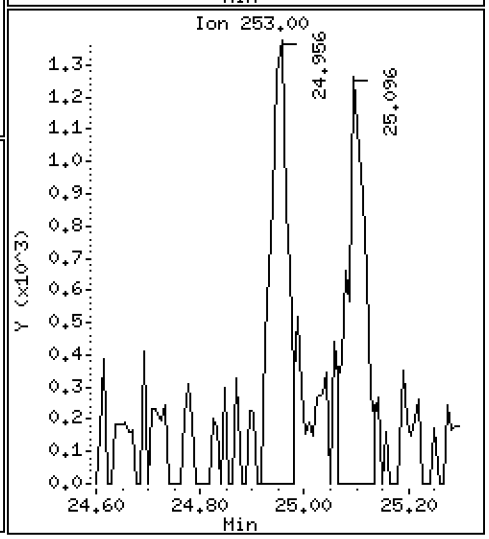












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

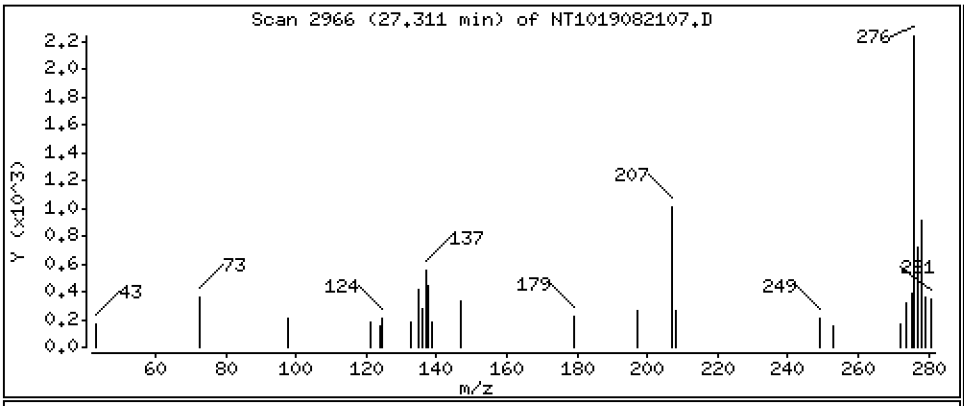
Operator: YZ

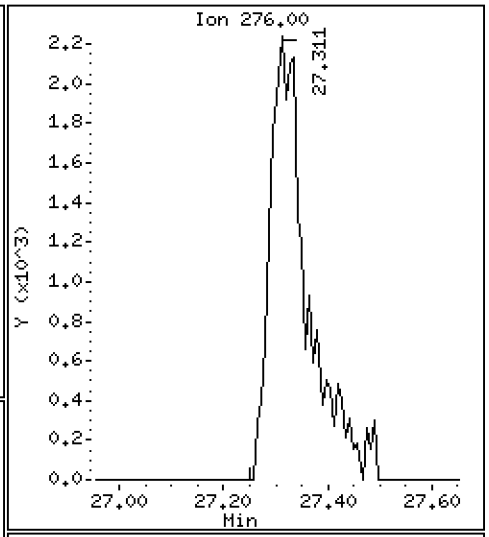
Column phase: ZB-5msi

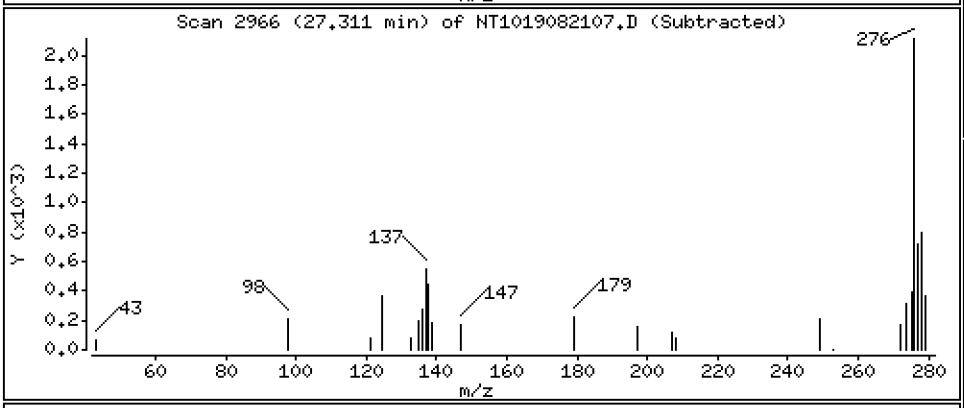
Column diameter: 0.25

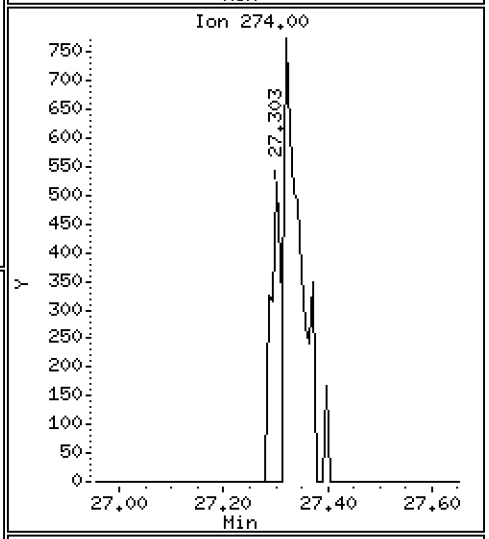
78 Indeno(1,2,3-cd)pyrene

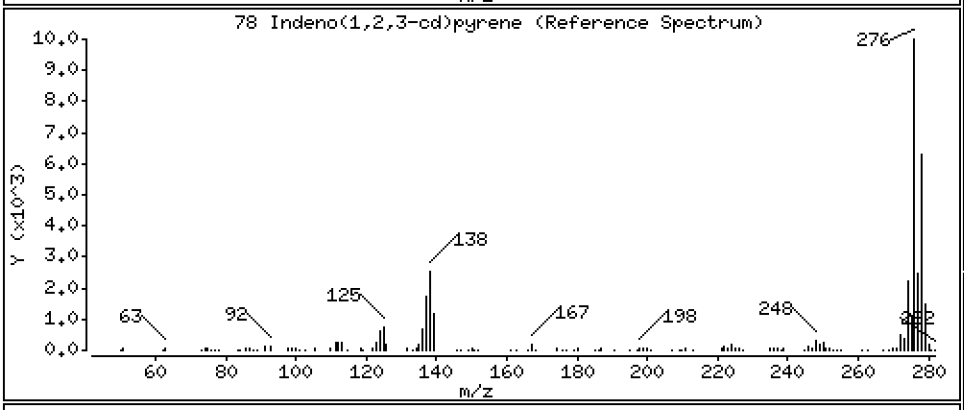
Concentration: 0.3554 ug/mL

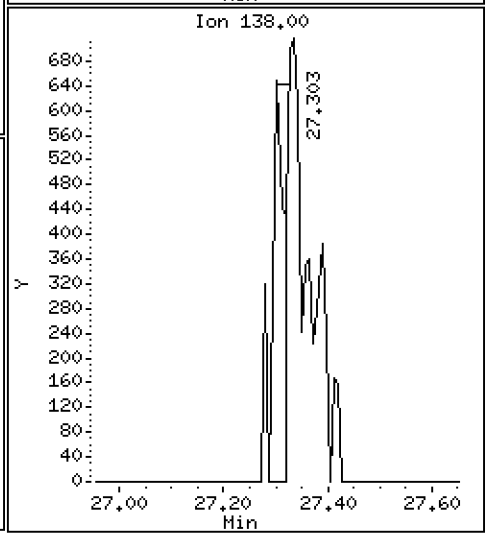


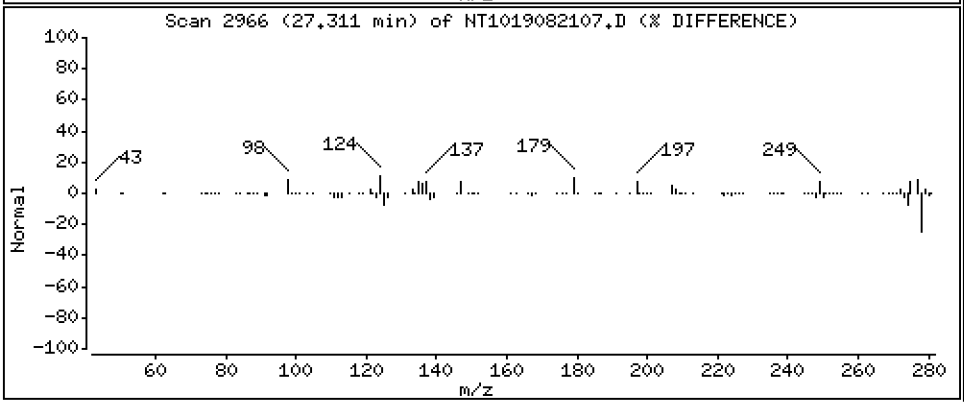












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

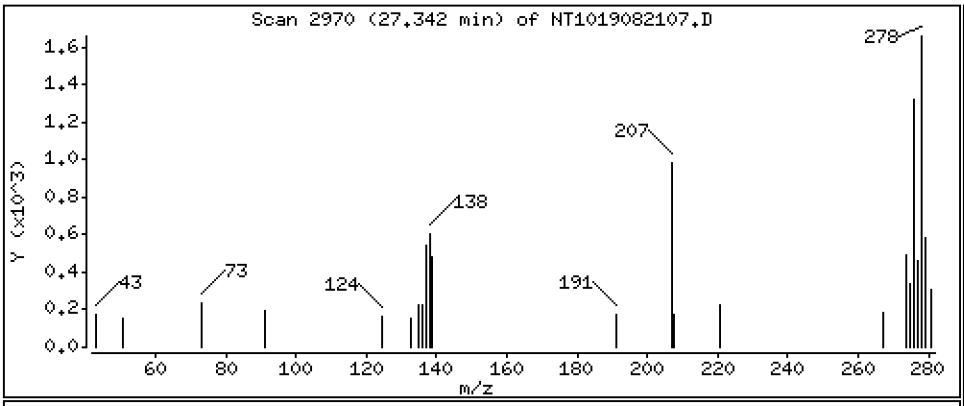
Operator: YZ

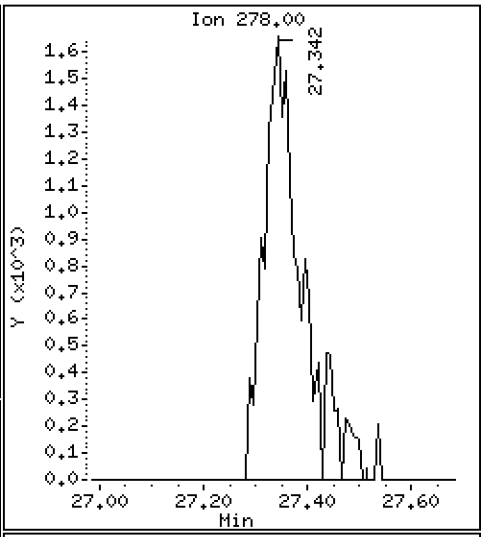
Column phase: ZB-5msi

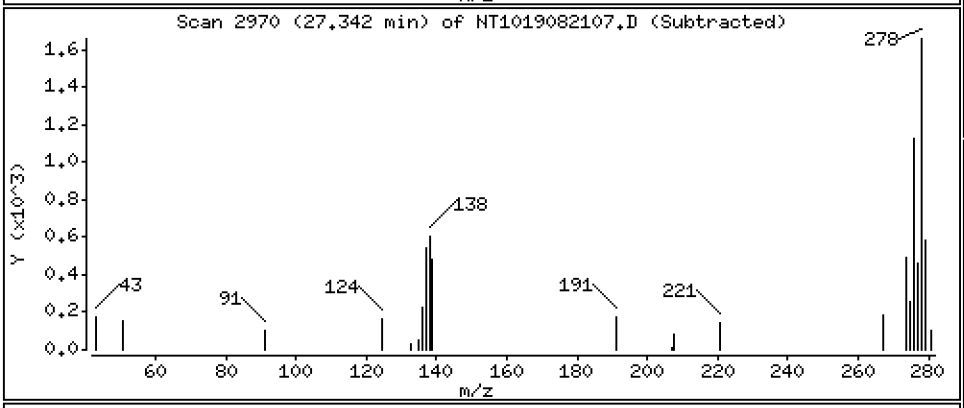
Column diameter: 0.25

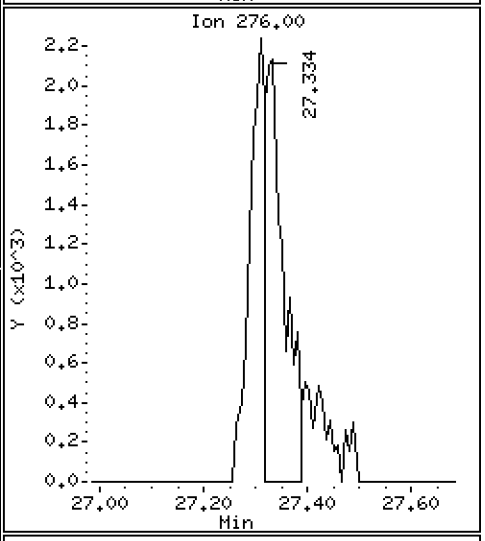
79 Dibenzo(a,h)anthracene

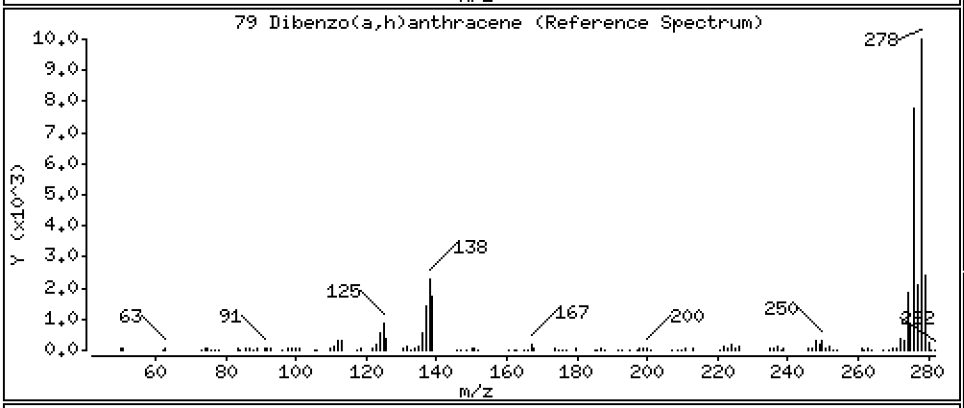
Concentration: 0.3329 ug/mL

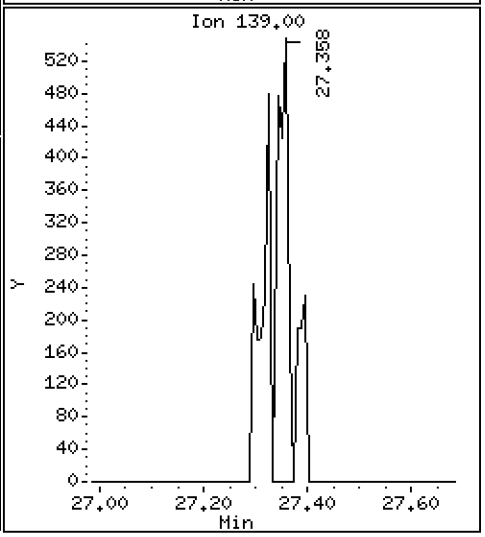


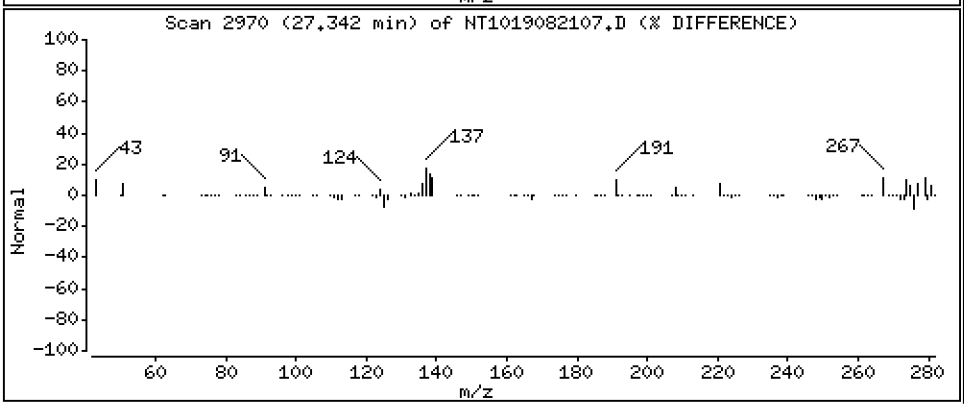












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

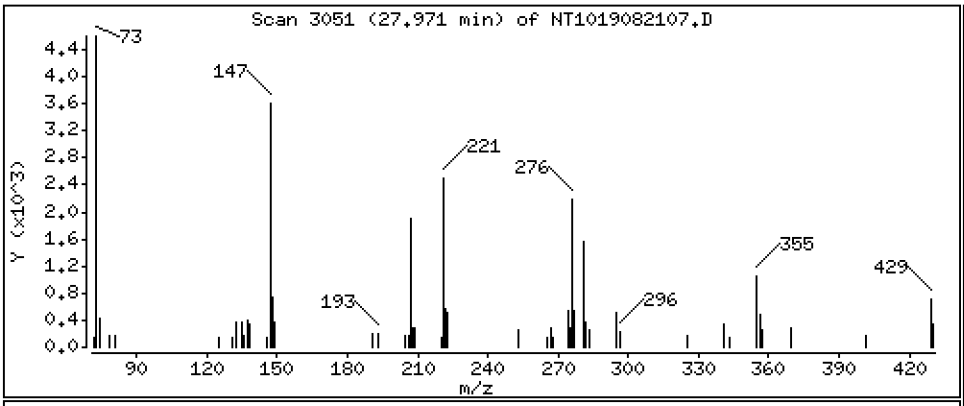
Operator: YZ

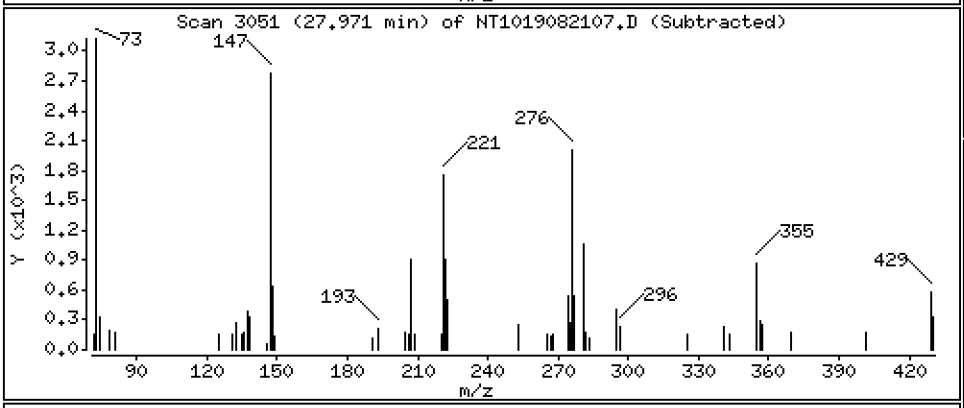
Column phase: ZB-5msi

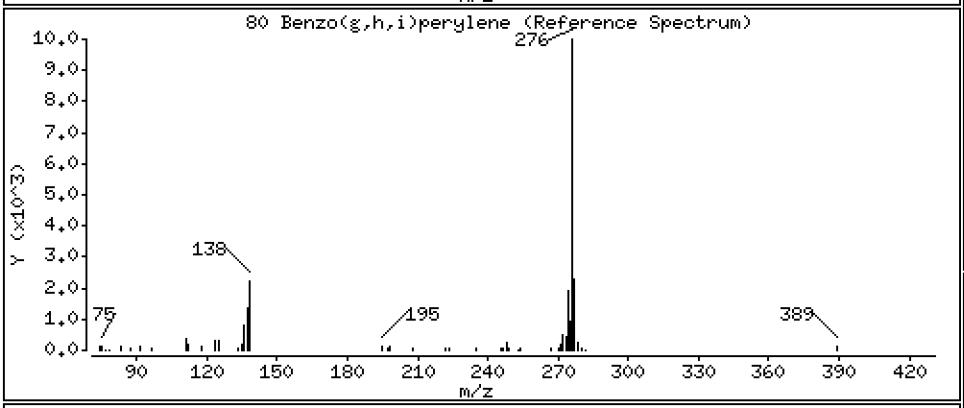
Column diameter: 0.25

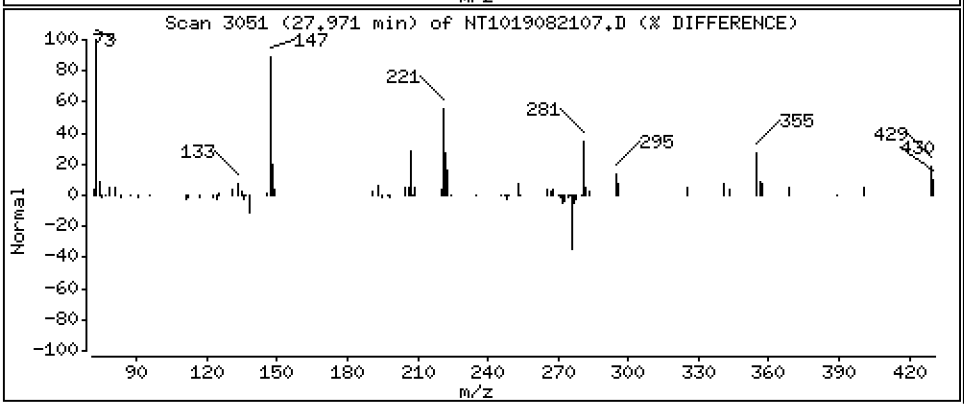
80 Benzo(g,h,i)perylene

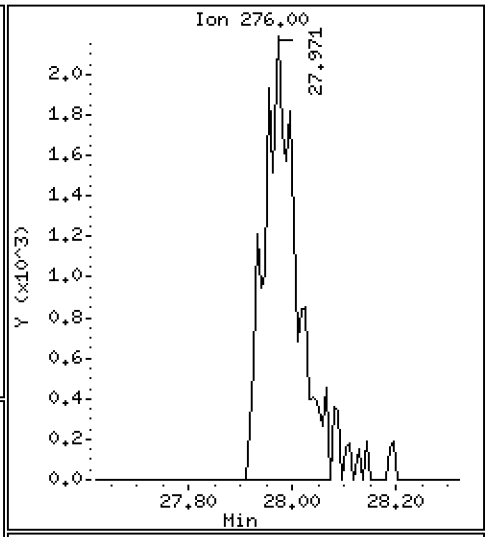
Concentration: 0.3621 ug/mL

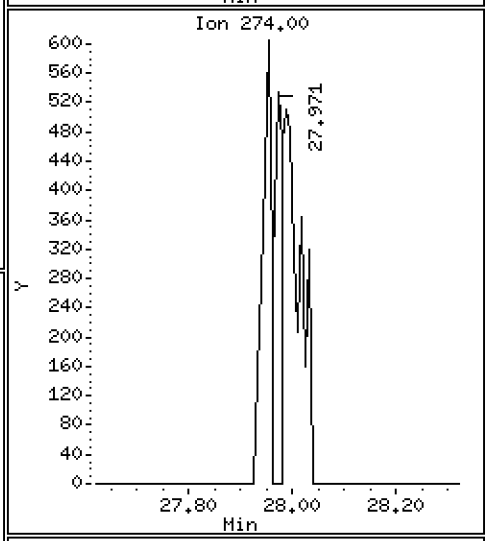


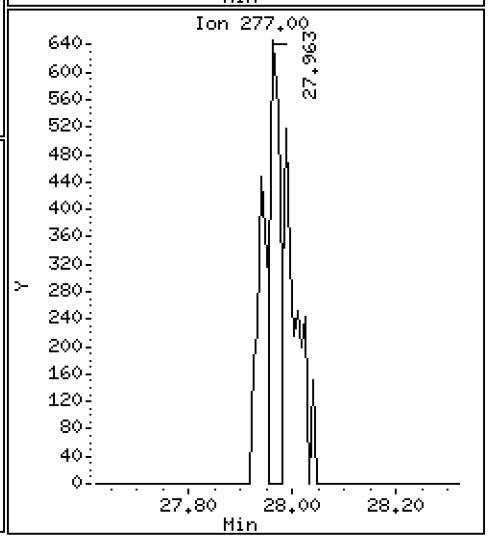












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

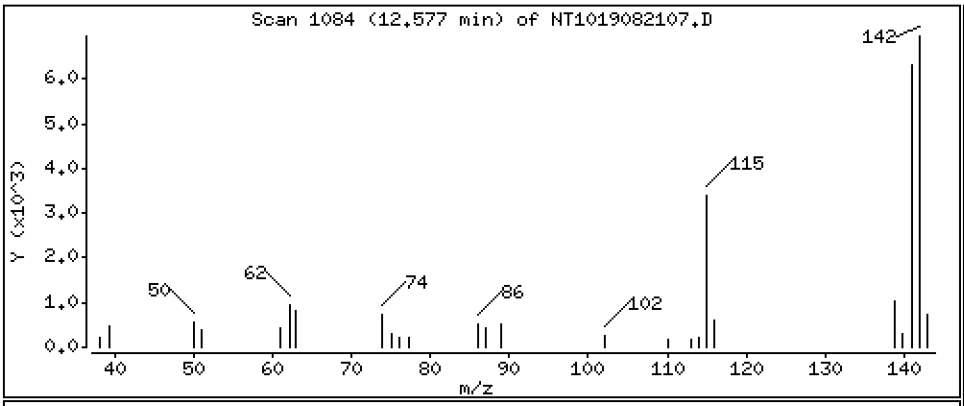
Operator: YZ

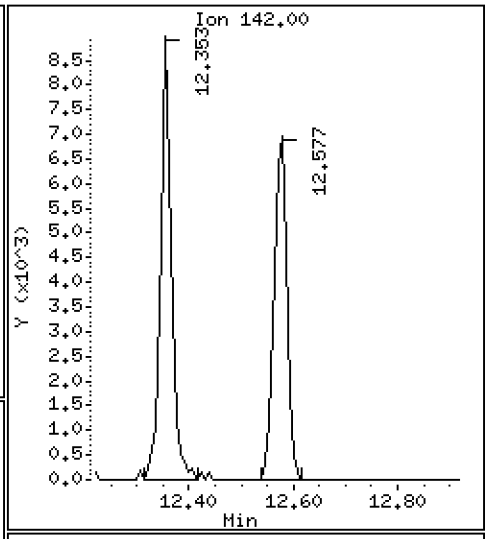
Column phase: ZB-5msi

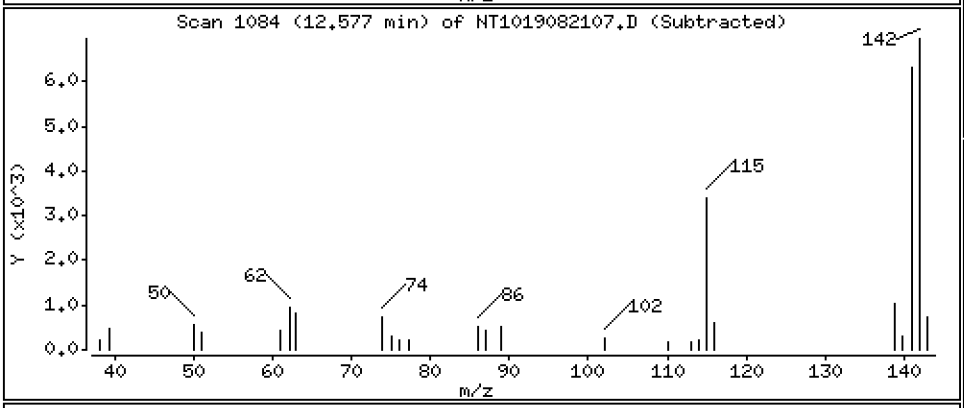
Column diameter: 0.25

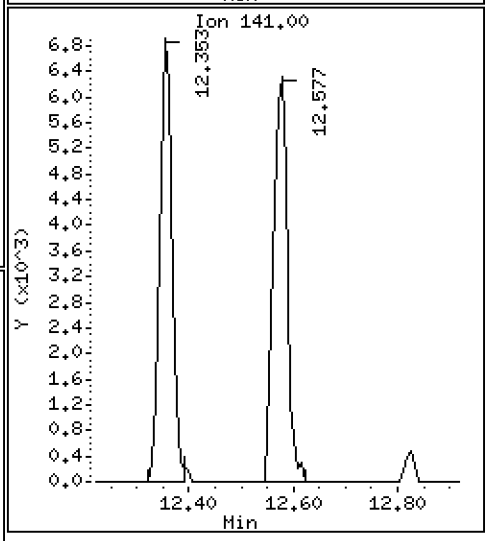
105 1-methylnaphthalene

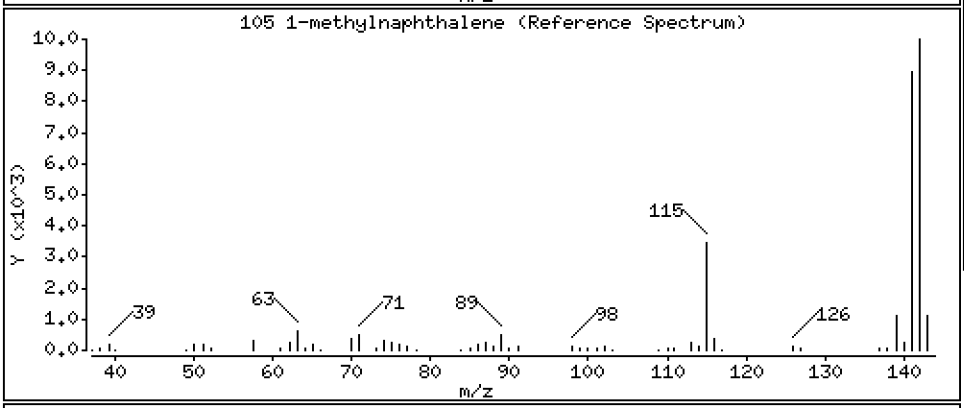
Concentration: 0.4573 ug/mL

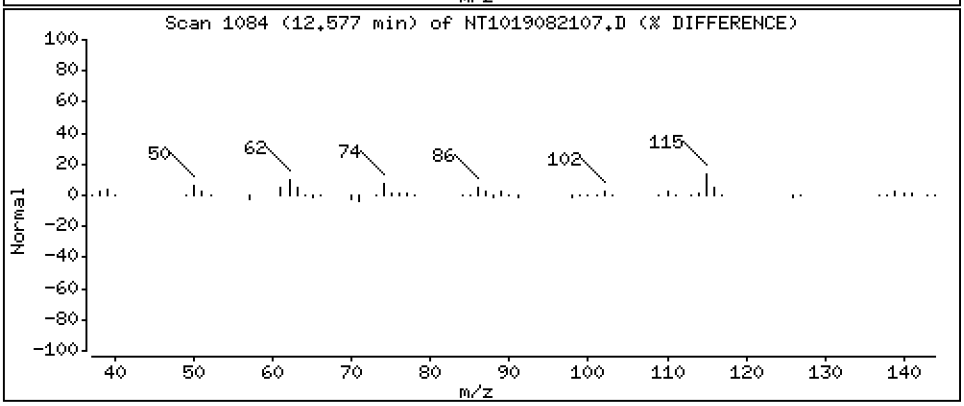












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

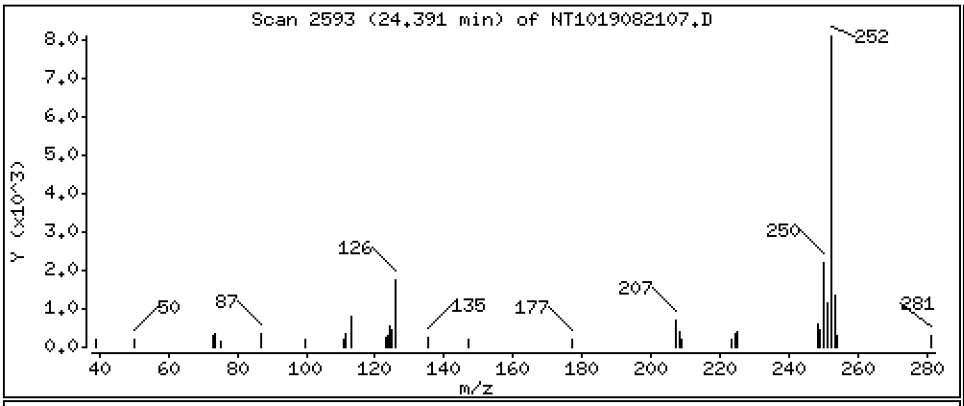
Operator: YZ

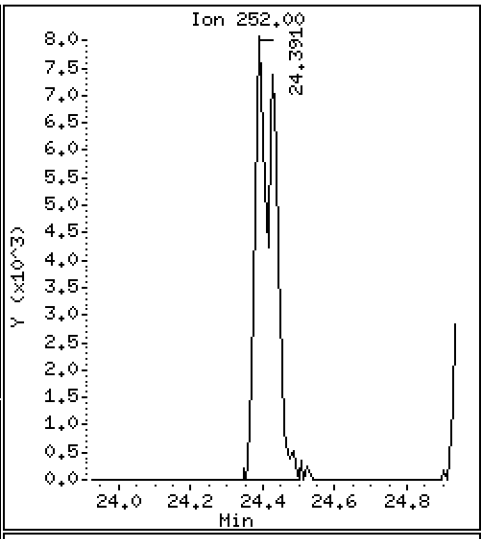
Column phase: ZB-5msi

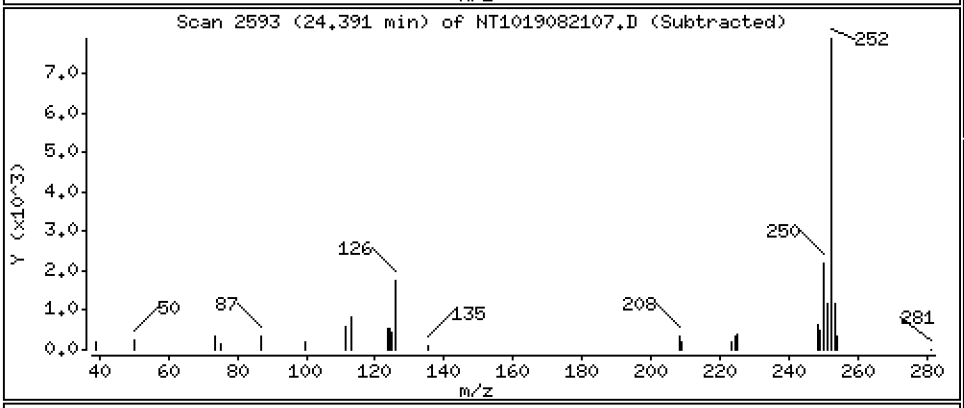
Column diameter: 0.25

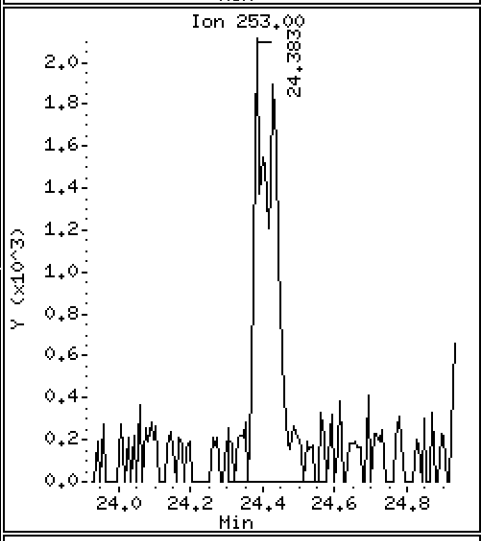
187 Total Benzofluoranthenes

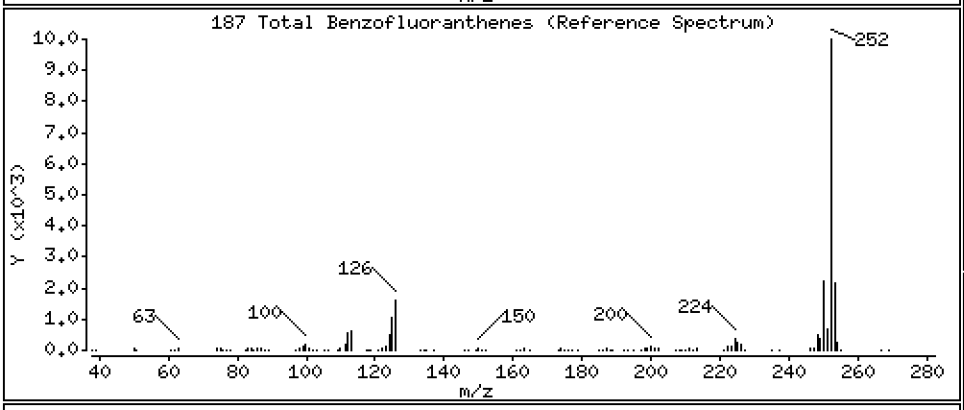
Concentration: 1.087 ug/mL

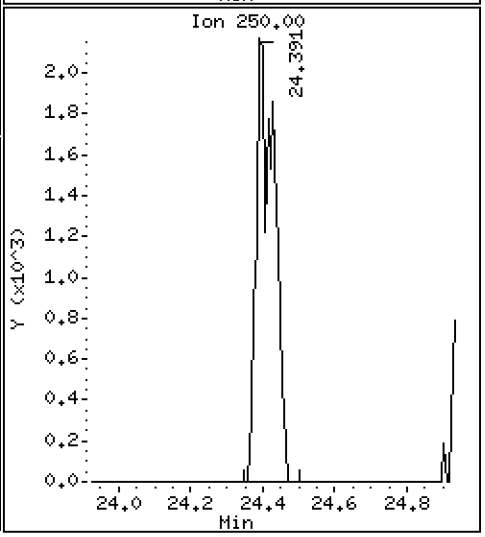


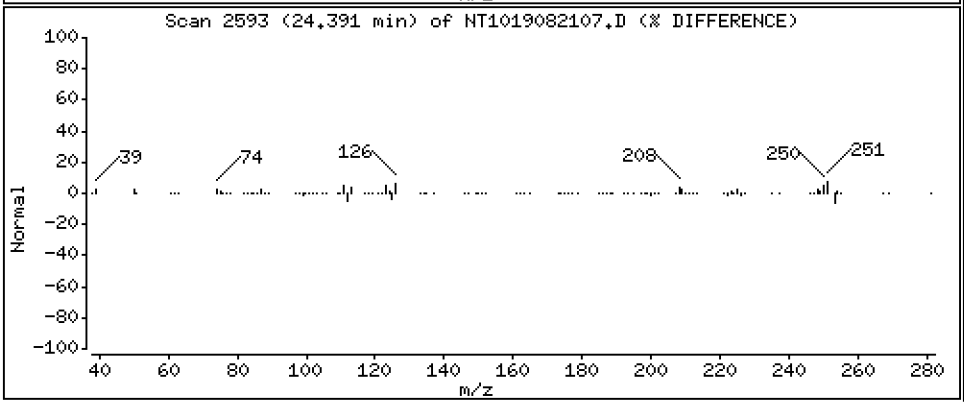












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D
Lab Smp Id: SHH0303-LCV2
Inj Date : 21-AUG-2019 13:50
Operator : YZ Inst ID: nt10.i
Smp Info : SHH0303-LCV2
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 13:05 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.327	6.311	(0.746)	6031	0.59608	0.5961
$	2 Phenol-d5	99	7.895	7.888	(0.931)	5743	0.50648	0.5065
	3 Phenol	94	7.911	7.911	(0.933)	4408	0.41815	0.4181(M)
$	5 2-Chlorophenol-d4	132	8.135	8.127	(0.959)	8458	0.69291	0.6929(M)
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	36031	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.840	8.832	(1.042)	4185	0.50147	0.5015
	11 Benzyl alcohol	108	8.770	8.762	(1.034)	1438	0.20611	0.2061
$	18 Nitrobenzene-d5	82	9.570	9.554	(0.876)	4728	0.46776	0.4678
	24 Benzoic acid	105	10.434	10.510	(0.955)	2816	0.38714	0.3871(M)
*	27 Naphthalene-d8	136	10.929	10.929	(1.000)	129237	4.00000	
	28 Naphthalene	128	10.968	10.968	(1.004)	14515	0.48862	0.4886
	32 2-Methylnaphthalene	142	12.353	12.353	(1.130)	12933	0.51326	0.5133
$	36 2-Fluorobiphenyl	172	13.142	13.142	(0.906)	12958	0.50569	0.5057
	39 Dimethylphthalate	163	14.055	14.055	(0.969)	12514	0.50266	0.5027
	40 Acenaphthylene	152	14.202	14.195	(0.979)	16817	0.52075	0.5208
*	42 Acenaphthene-d10	164	14.512	14.512	(1.000)	66994	4.00000	
	44 Acenaphthene	153	14.574	14.574	(1.004)	10087	0.49710	0.4971
	46 Dibenzofuran	168	14.906	14.898	(1.027)	15522	0.46543	0.4654
	50 Diethylphthalate	149	15.509	15.517	(1.069)	12387	0.51676	0.5168
	49 Fluorene	166	15.610	15.610	(1.076)	12311	0.53979	0.5398
	54 N-Nitrosodiphenylamine	169	15.880	15.872	(0.906)	10709	0.58546	0.5855
$	55 2,4,6-Tribromophenol	330	16.150	16.142	(1.113)	2257	0.44555	0.4455
*	59 Phenanthrene-d10	188	17.525	17.525	(1.000)	133256	4.00000	
	60 Phenanthrene	178	17.572	17.572	(1.003)	15751	0.48390	0.4839
	61 Anthracene	178	17.664	17.665	(1.008)	14792	0.44756	0.4476
	63 Di-n-butylphthalate	149	18.871	18.872	(1.077)	20110	0.44657	0.4466
	64 Fluoranthene	202	19.993	19.993	(0.883)	17467	0.45079	0.4508
	65 Pyrene	202	20.419	20.411	(0.902)	19650	0.48564	0.4856
$	66 Terphenyl-d14	244	20.744	20.744	(0.916)	15119	0.55097	0.5510
	67 Butylbenzylphthalate	149	21.712	21.712	(0.959)	7756	0.41150	0.4115
	68 Benzo(a)anthracene	228	22.610	22.610	(0.999)	17794	0.48369	0.4837
*	69 Chrysene-d12	240	22.641	22.633	(1.000)	126795	4.00000	
	71 Chrysene	228	22.680	22.680	(1.002)	15470	0.47523	0.4752

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.765	22.765	(0.959)	12295	0.55932	0.5593
* 134	Di-n-octylphthalate-d4	153	23.748	23.756	(1.000)	249924	4.00000	
73	Di-n-octylphthalate	149	23.763	23.763	(1.001)	23023	0.49795	0.4980
74	Benzo(b)fluoranthene	252	24.390	24.390	(0.974)	16741	0.58169	0.5817
75	Benzo(k)fluoranthene	252	24.429	24.429	(0.975)	13691	0.47287	0.4729
76	Benzo(a)pyrene	252	24.948	24.948	(0.996)	13028	0.50438	0.5044
* 77	Perylene-d12	264	25.049	25.056	(1.000)	100311	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	27.310	27.303	(1.090)	11030	0.35540	0.3554(M)
79	Dibenzo(a,h)anthracene	278	27.342	27.334	(1.092)	8412	0.33292	0.3329(M)
80	Benzo(g,h,i)perylene	276	27.971	27.971	(1.117)	9465	0.36210	0.3621(M)
105	1-methylnaphthalene	142	12.577	12.569	(1.151)	11585	0.45733	0.4573
187	Total Benzofluoranthenes	252	24.390	24.429	(0.974)	30017	1.08735	1.087

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082107.D
Lab Smp Id: SHH0303-LCV2
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	36031	10.06
27 Naphthalene-d8	117487	58744	234974	129237	10.00
42 Acenaphthene-d10	61859	30930	123718	66994	8.30
59 Phenanthrene-d10	113574	56787	227148	133256	17.33
69 Chrysene-d12	105788	52894	211576	126795	19.86
134 Di-n-octylphthala	252823	126412	505646	249924	-1.15
77 Perylene-d12	113992	56996	227984	100311	-12.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	-0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	-0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.51	-0.00
59 Phenanthrene-d10	17.53	17.03	18.03	17.53	-0.00
69 Chrysene-d12	22.63	22.13	23.13	22.64	0.03
134 Di-n-octylphthala	23.76	23.26	24.26	23.75	-0.03
77 Perylene-d12	25.06	24.56	25.56	25.05	-0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082107.D

Lab ID: SHH0303-LCV2
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 13:50

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.955	0.962	-0.0070	Benzoic acid

RRT check based on Ccal File: NT1019082105.D

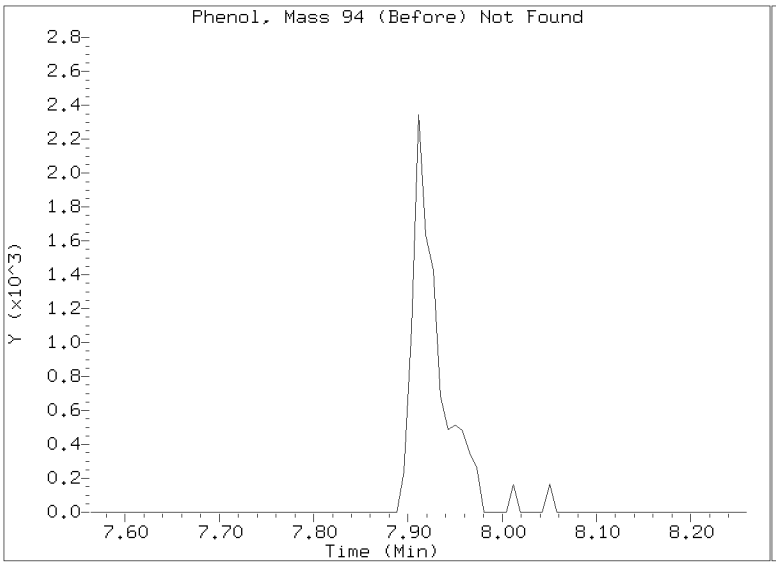
On Column LOD for nt10.i, 20190821.b\ABN.m, pnaphth.sub = 0.1000

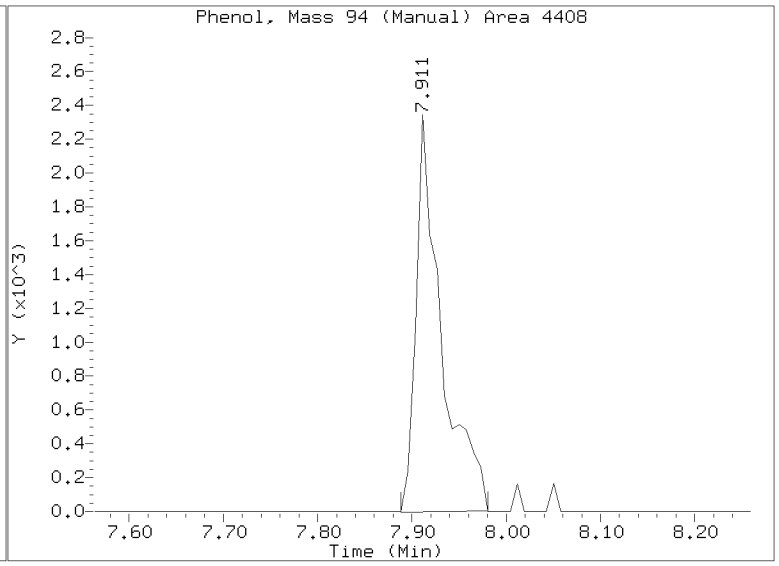
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

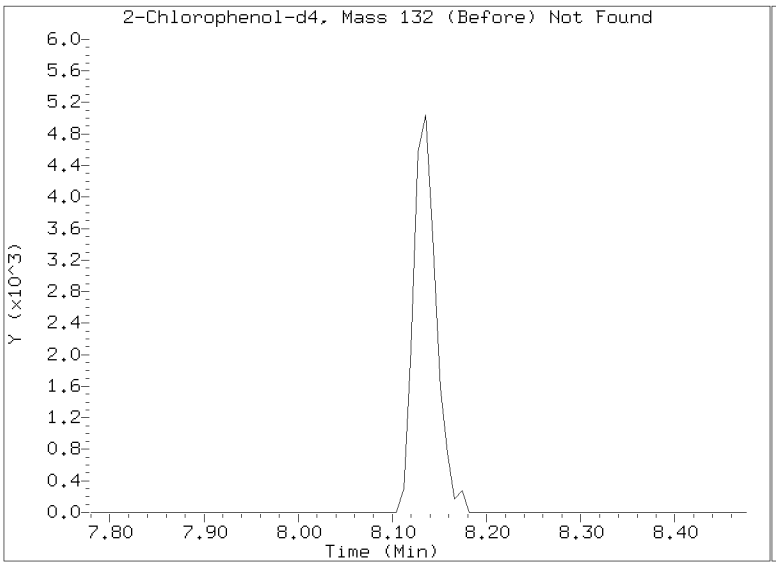
* Only compounds listed in the work order have been verified by the analyst *

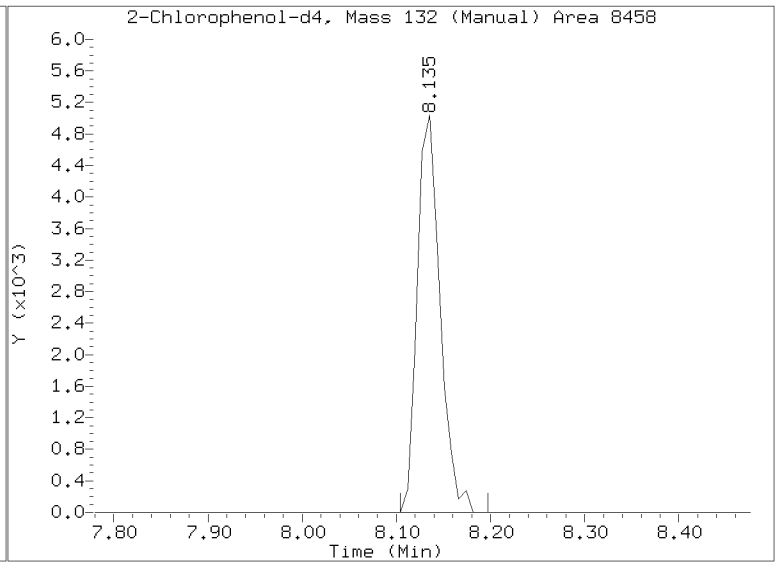
Quant Ion Manual Peak Adjustment Report

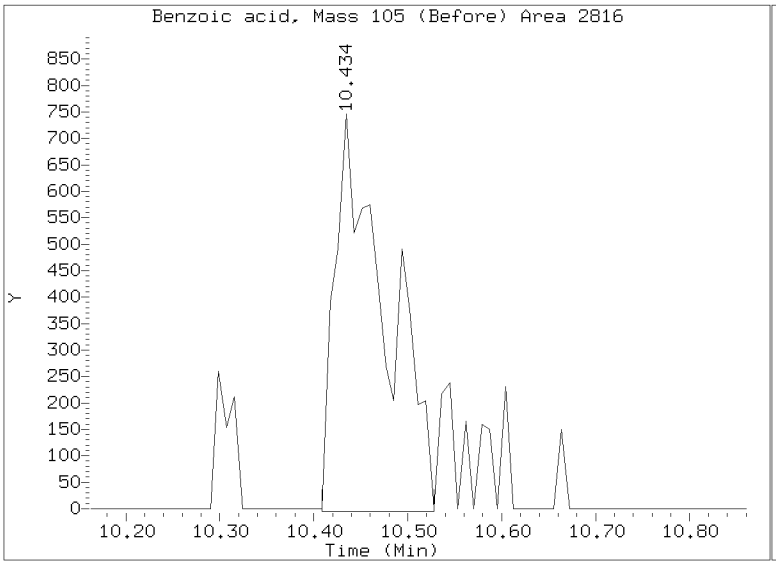
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082107.D
Injection Date: 21-AUG-2019 13:50
Lab ID:SHH0303-LCV2 Client ID:
Report Date: 08/22/2019 13:14

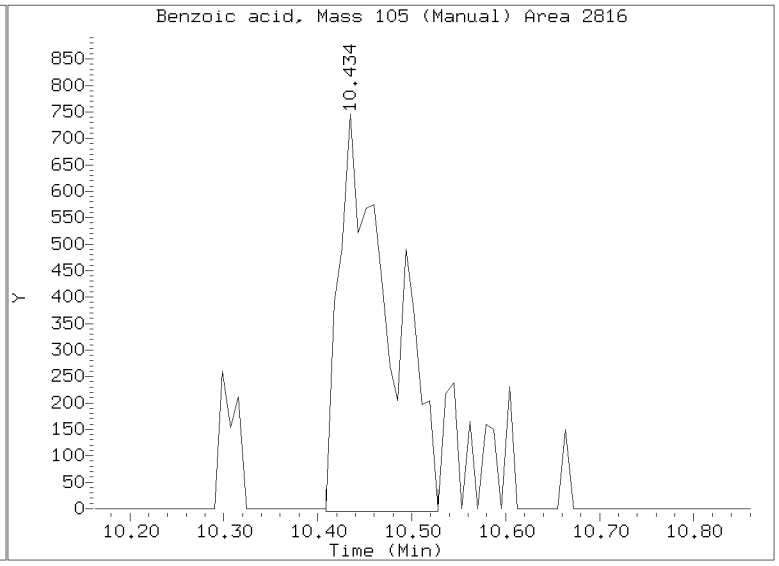






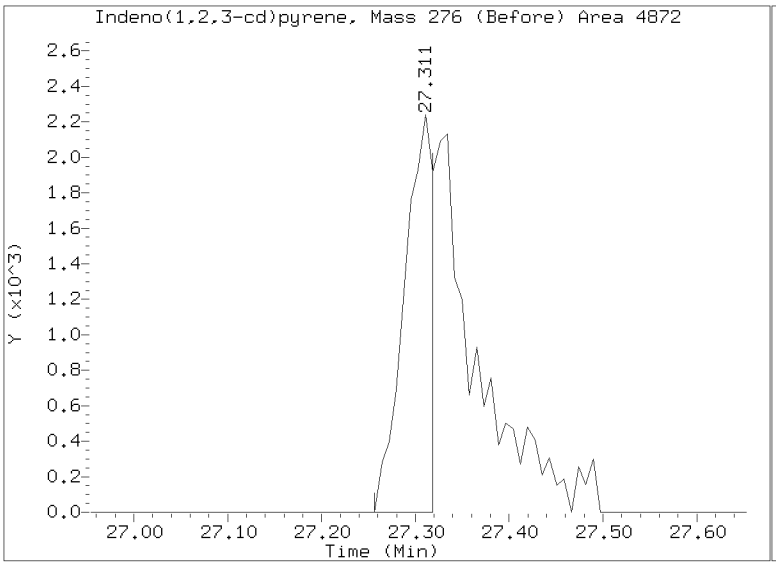


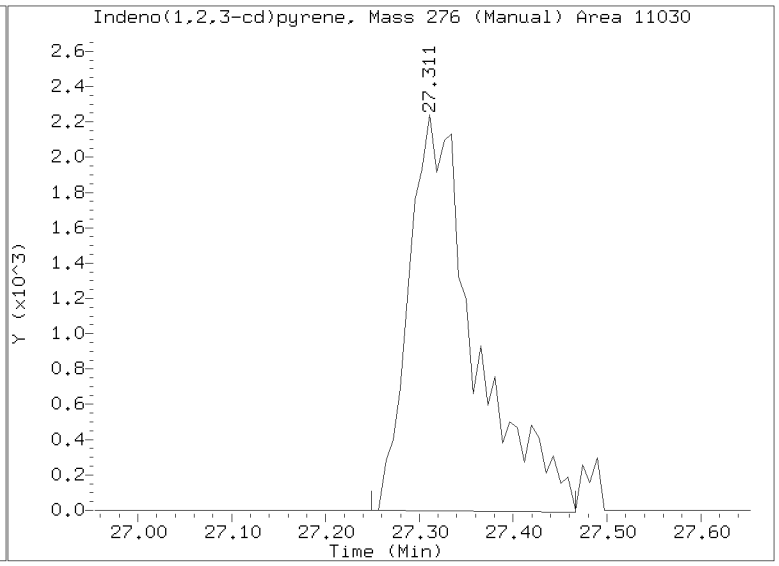


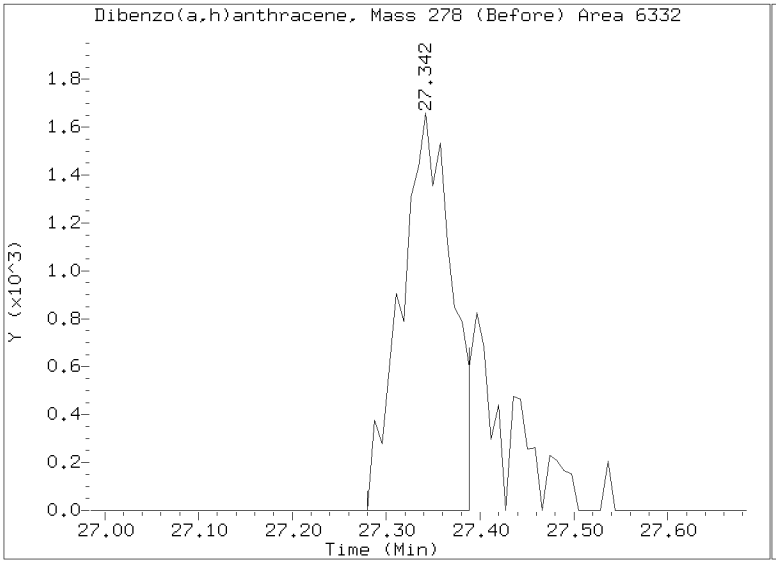


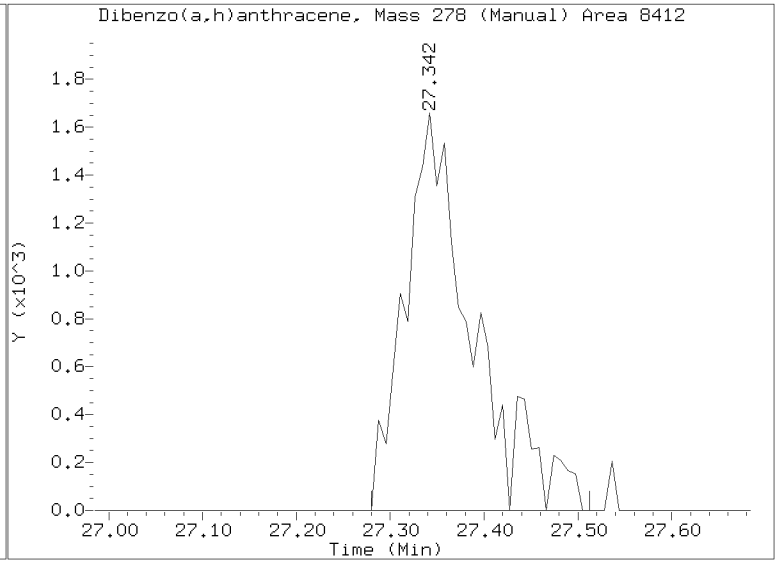
Quant Ion Manual Peak Adjustment Report

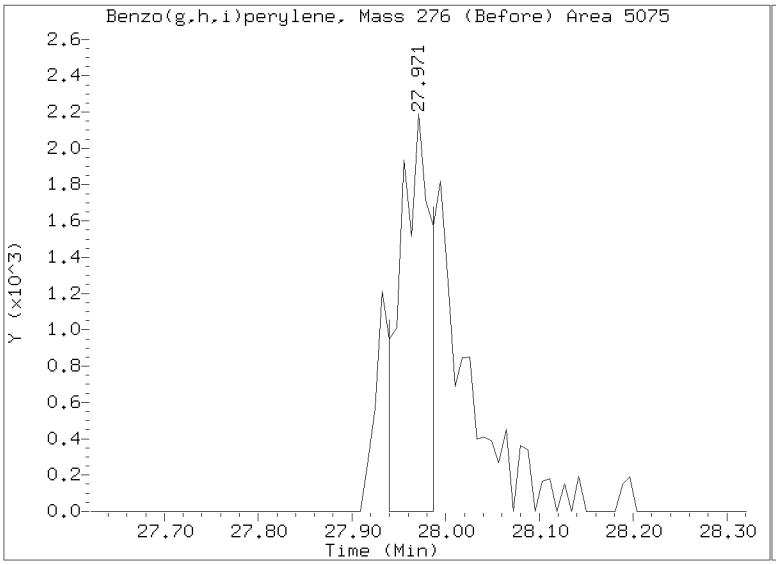
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082107.D
Injection Date: 21-AUG-2019 13:50
Lab ID:SHH0303-LCV2 Client ID:
Report Date: 08/22/2019 13:14

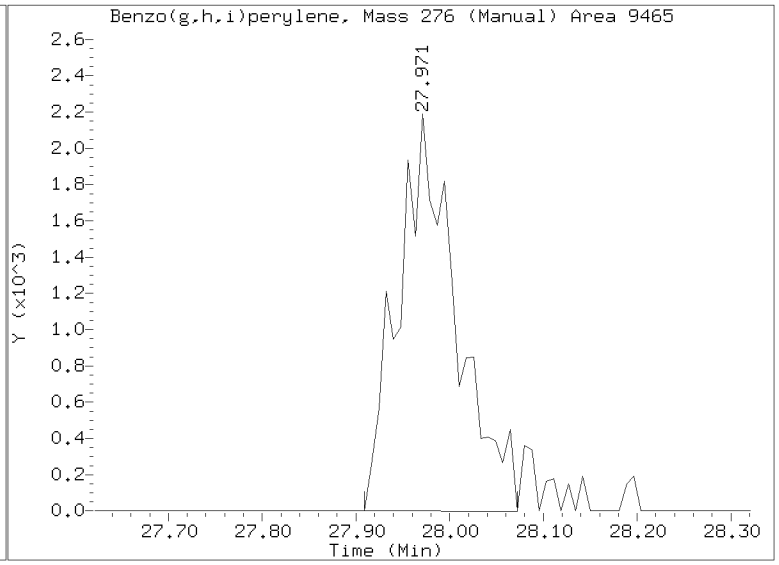












LOW-CONCENTRATION CALIBRATION VERIFICATION

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CG00040
Laboratory ID: SHH0325-LCV1
Sequence: SHH0325
Standard ID: H004929

ANALYTE	EXPECTED (ug/mL)	FOUND (ug/mL)	% DRIFT	QC LIMIT
Phenol	0.20000	0.1	-32.6	50.00
Benzyl Alcohol	0.20000	0.1	-41.0	50.00
Benzoic acid	0.80000	0.1	-86.9 *	50.00
N-Nitrosodiphenylamine	0.20000	0.2	-6.5	50.00
Phenanthrene	0.20000	0.2	-13.4	50.00
Fluoranthene	0.20000	0.2	-2.7	50.00
Pyrene	0.20000	0.2	-8.3	50.00
Butylbenzylphthalate	0.20000	0.2	4.3	50.00
Benzo(a)anthracene	0.20000	0.2	4.4	50.00
Chrysene	0.20000	0.2	-4.3	50.00
bis(2-Ethylhexyl)phthalate	0.20000	0.3	25.9	50.00
Di-n-Octylphthalate	0.20000	0.2	1.4	50.00
Benzofluoranthenes, Total	0.40000	0.4	7.5	50.00
Benzo(a)pyrene	0.20000	0.2	-3.7	50.00
Indeno(1,2,3-cd)pyrene	0.20000	0.2	-6.7	50.00
Dibenzo(a,h)anthracene	0.20000	0.2	-18.8	50.00
Benzo(g,h,i)perylene	0.20000	0.2	-6.8	50.00
2-Fluorophenol	0.30000	0.185	-38.4	50.00
Phenol-d5	0.30000	0.183	-38.9	50.00
2-Chlorophenol-d4	0.30000	0.246	-18.0	50.00
1,2-Dichlorobenzene-d4	0.20000	0.170	-14.9	50.00
Nitrobenzene-d5	0.20000	0.128	-35.8	50.00
2-Fluorobiphenyl	0.20000	0.171	-14.6	50.00
2,4,6-Tribromophenol	0.30000	0.155	-48.3	50.00
p-Terphenyl-d14	0.20000	0.166	-17.2	50.00

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

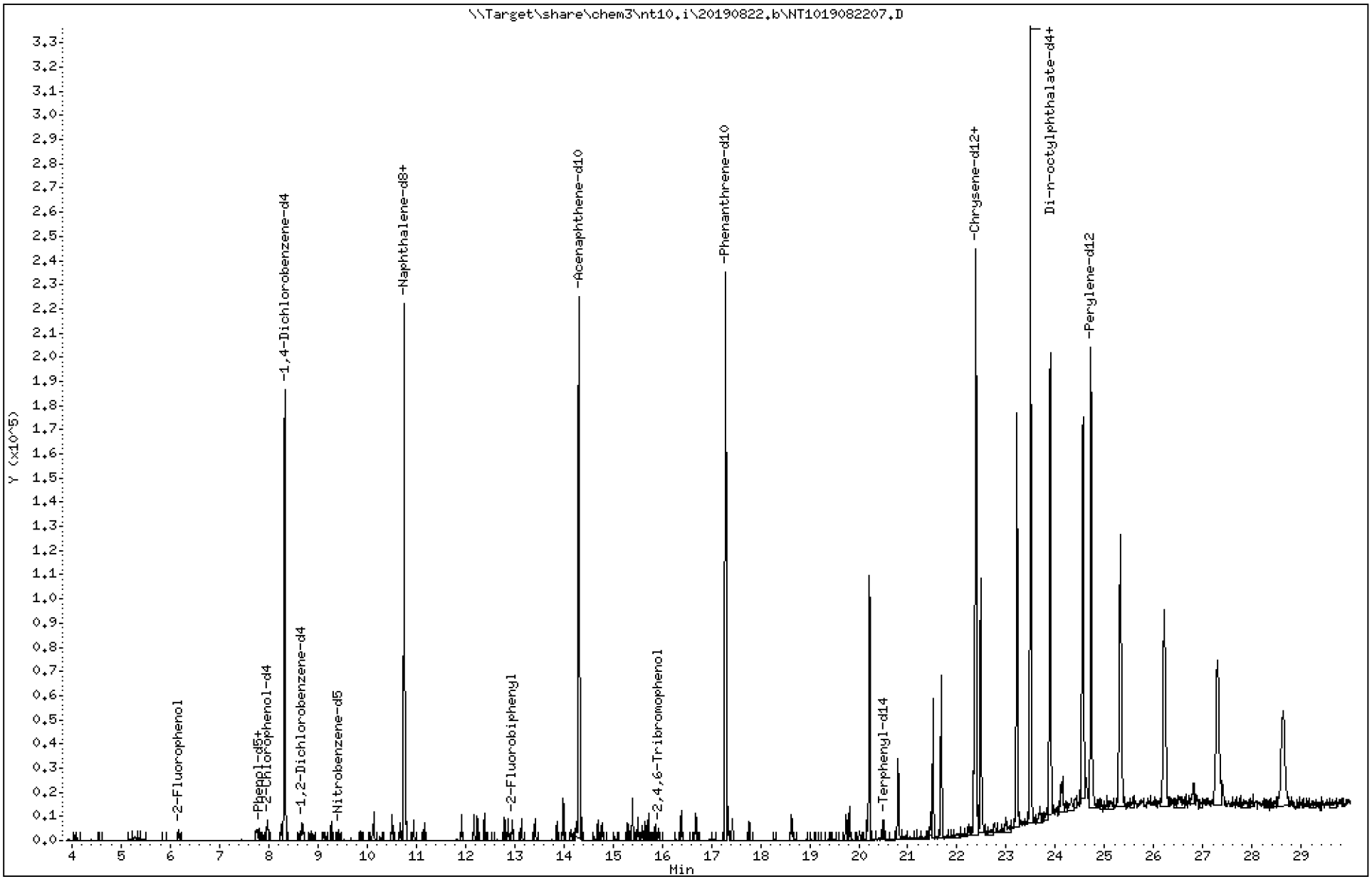
Instrument: nt10.i

Sample Info: SHH0325-LCV1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

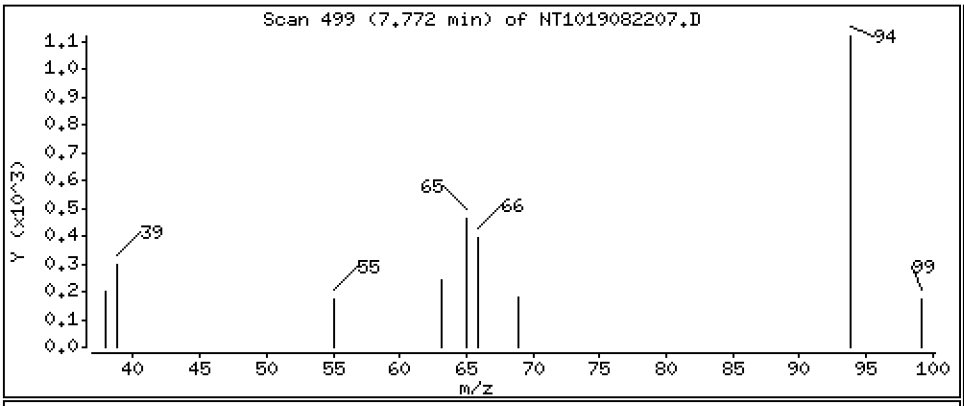
Operator: YZ

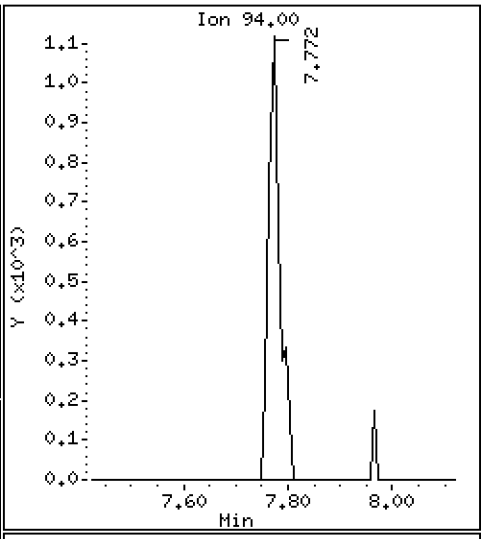
Column phase: ZB-5msi

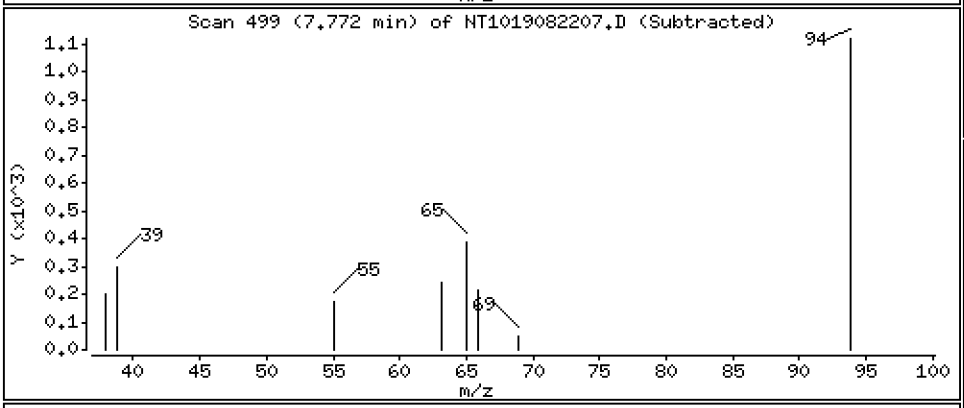
Column diameter: 0.25

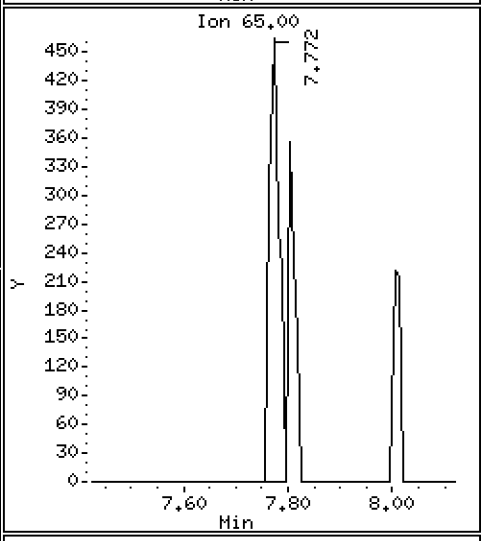
3 Phenol

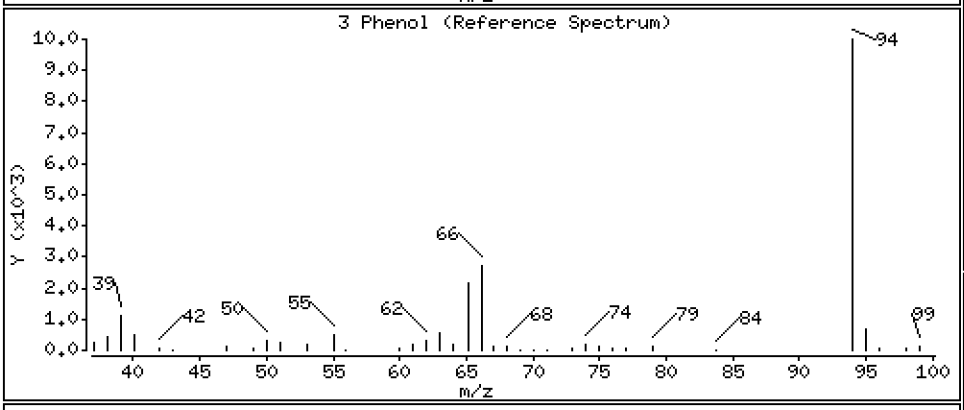
Concentration: 0.1347 ug/mL

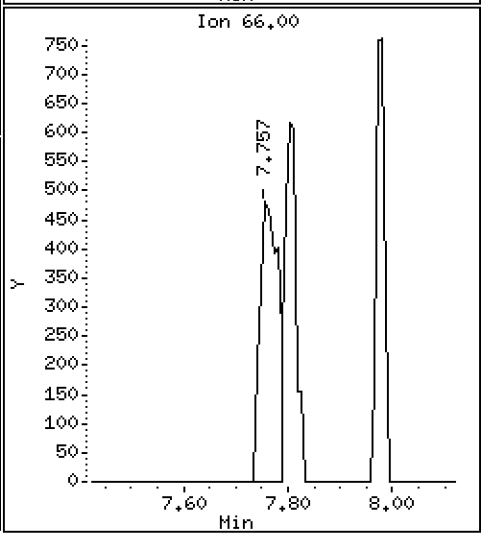


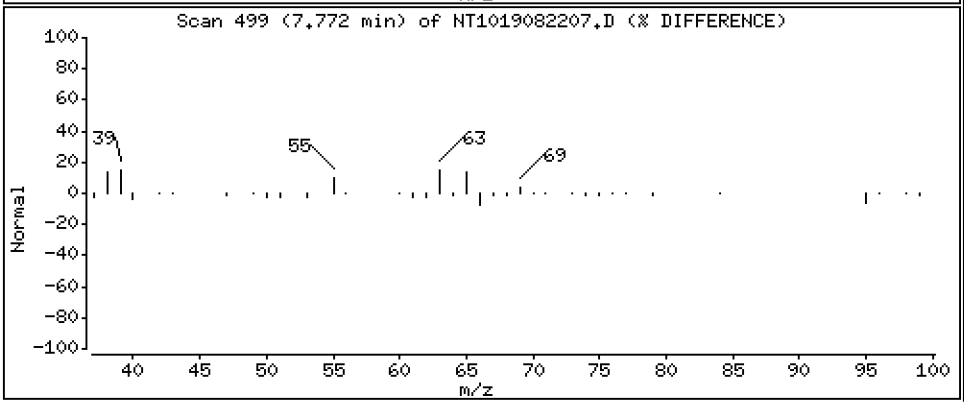












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

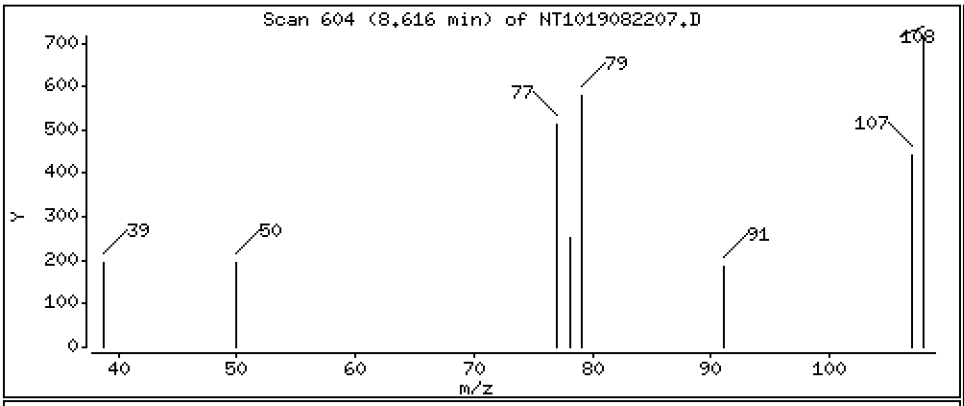
Operator: YZ

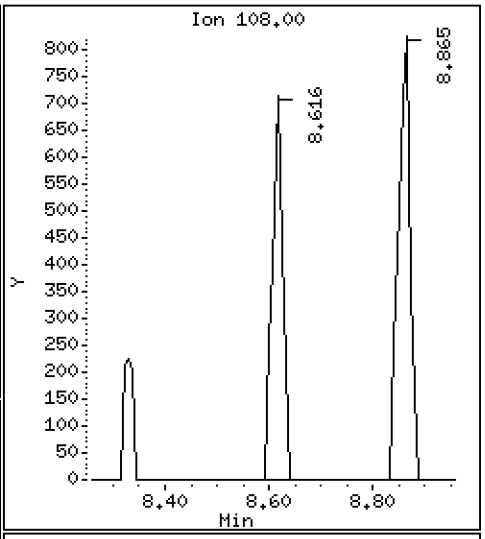
Column phase: ZB-5msi

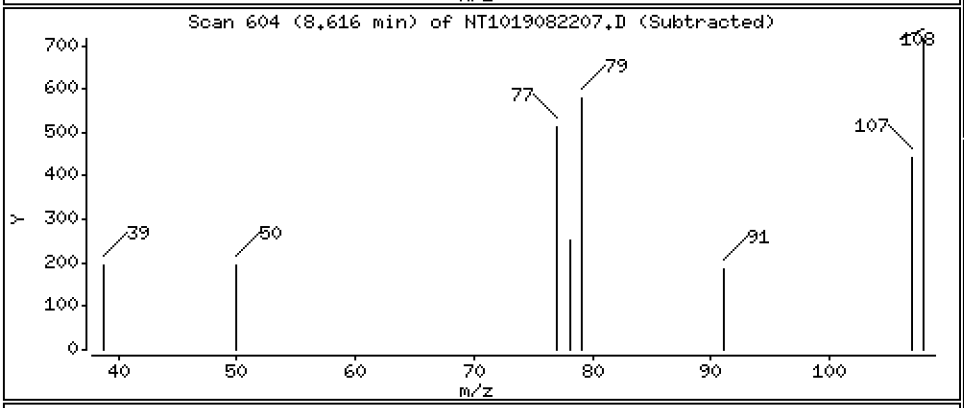
Column diameter: 0.25

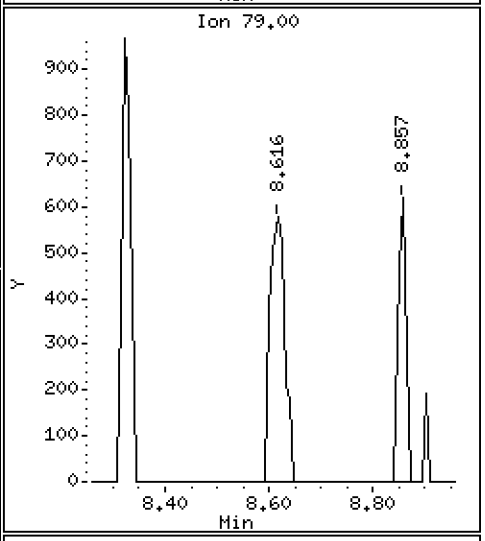
11 Benzyl alcohol

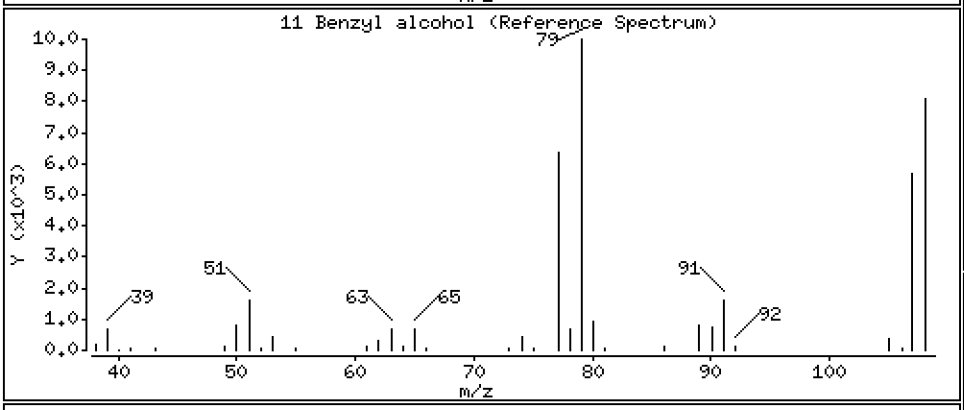
Concentration: 0.1179 ug/mL

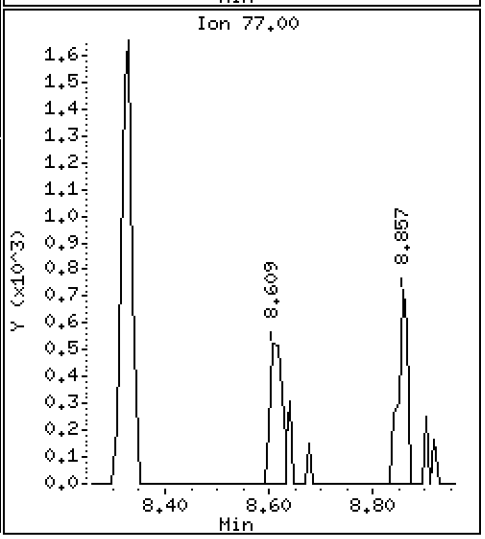


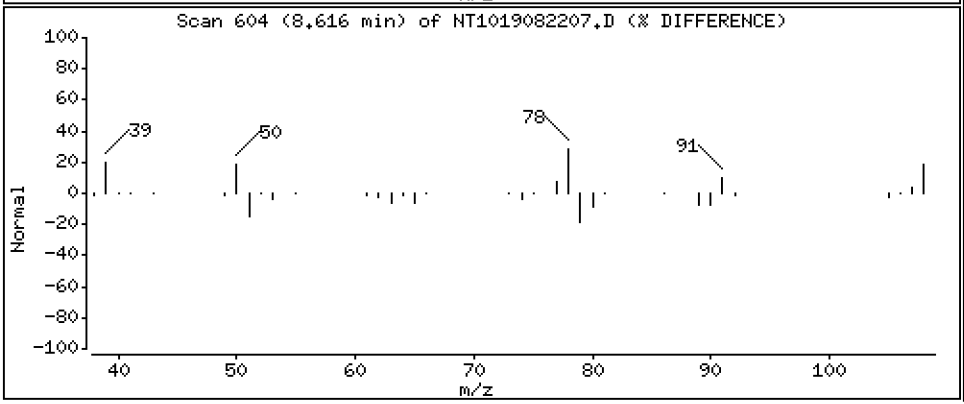












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

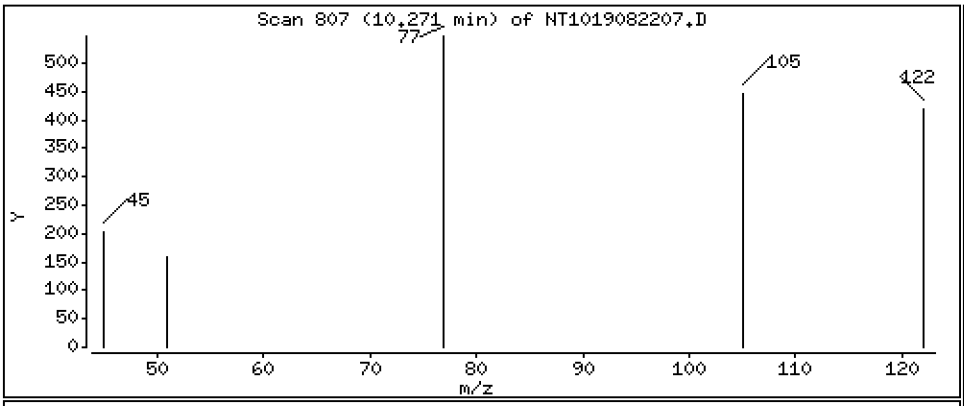
Operator: YZ

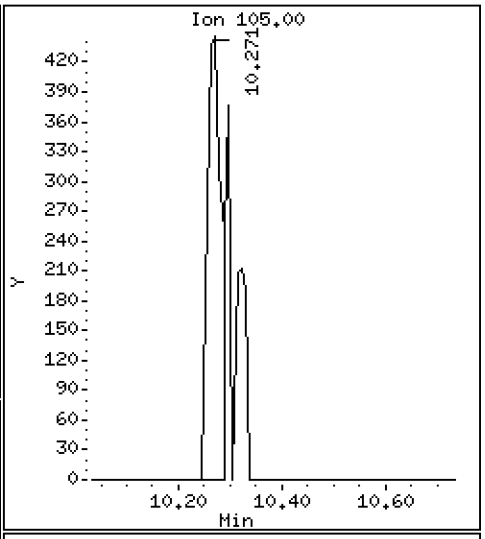
Column phase: ZB-5msi

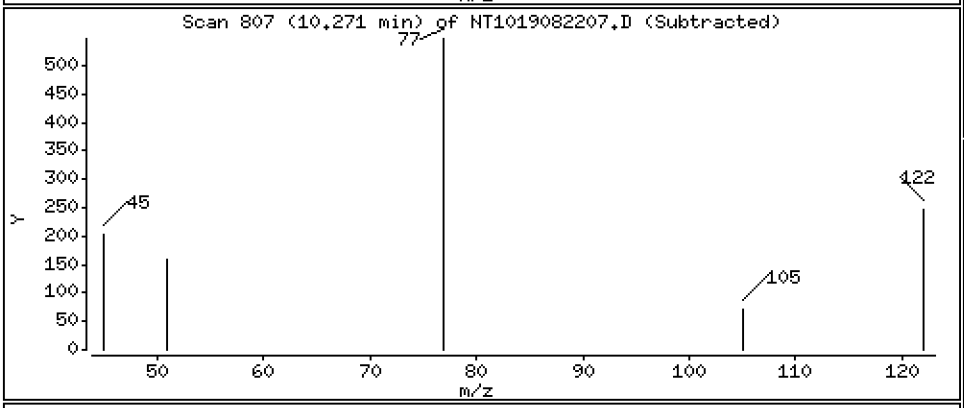
Column diameter: 0.25

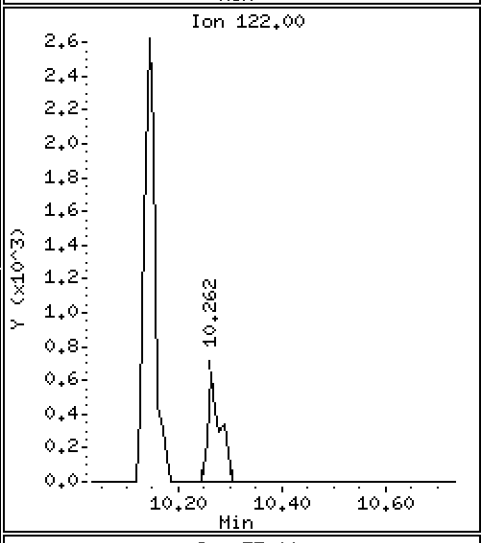
24 Benzoic acid

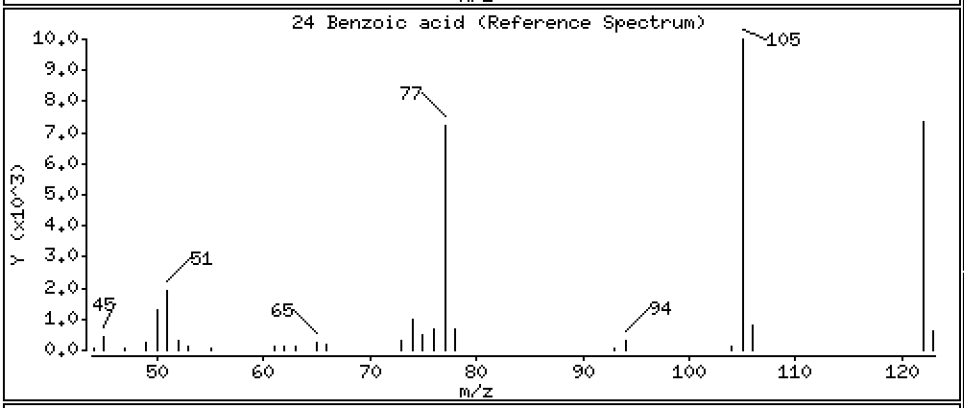
Concentration: 0.1051 ug/mL

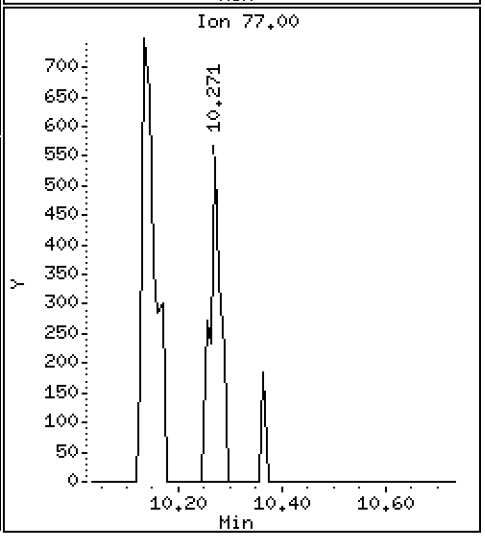


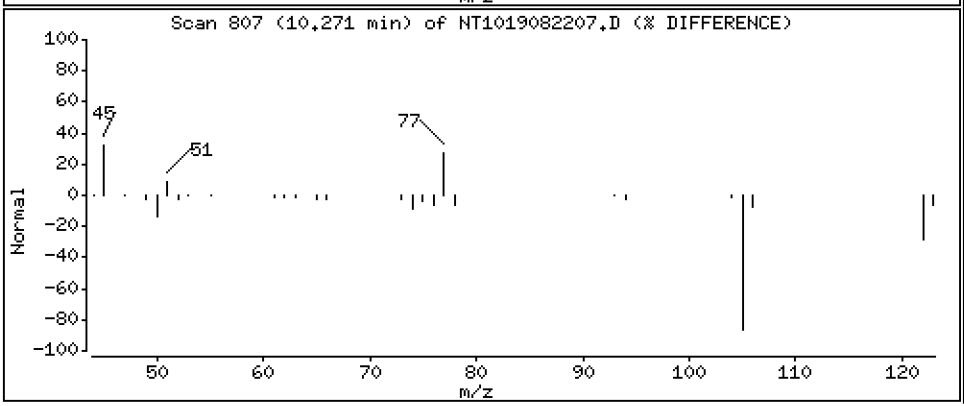












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

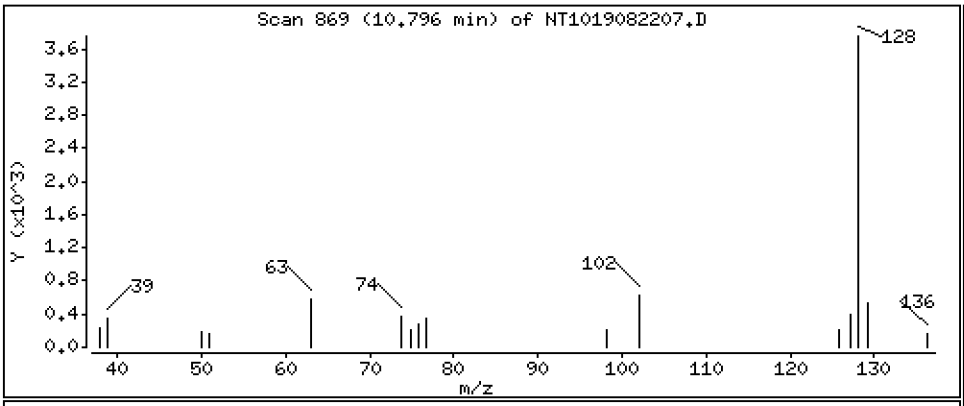
Operator: YZ

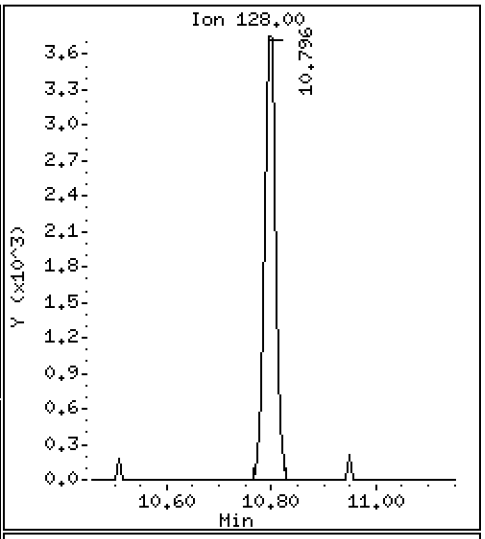
Column phase: ZB-5msi

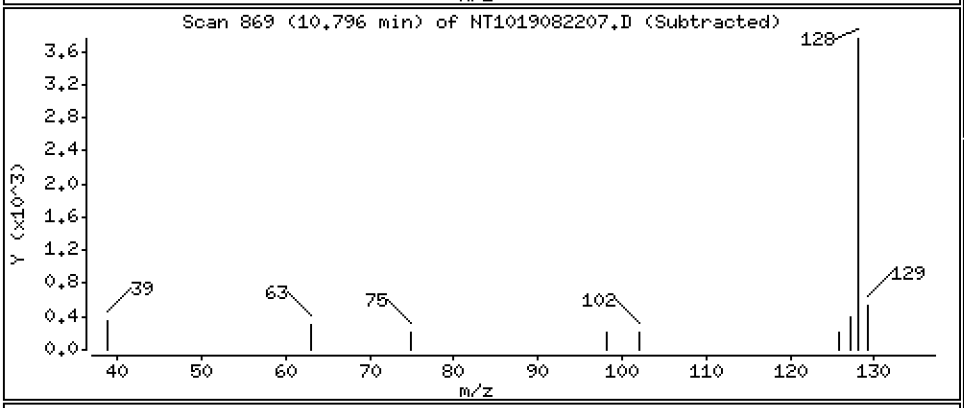
Column diameter: 0.25

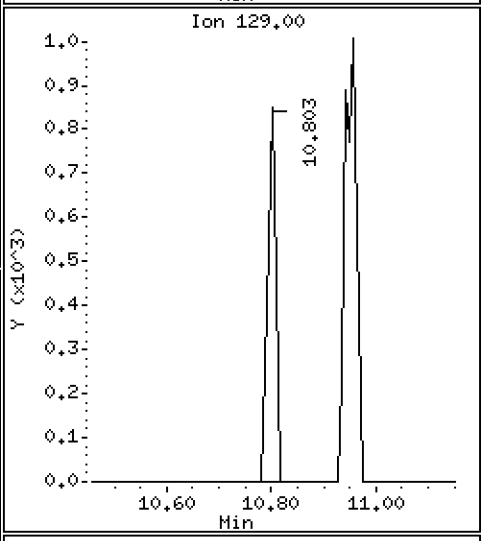
28 Naphthalene

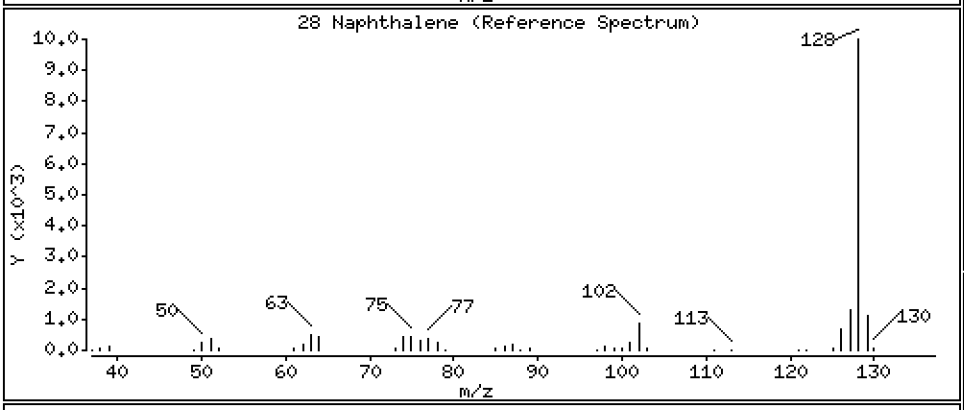
Concentration: 0.1723 ug/mL

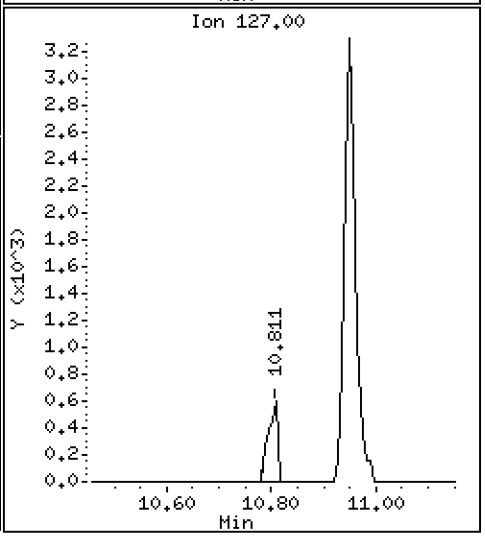


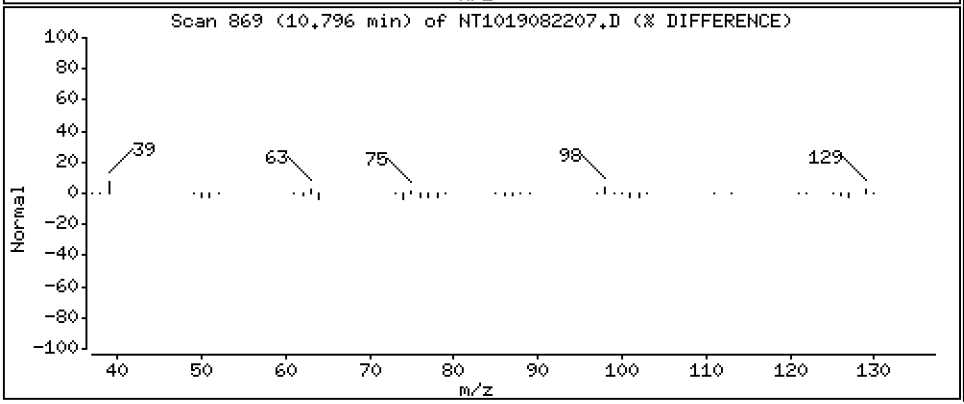












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

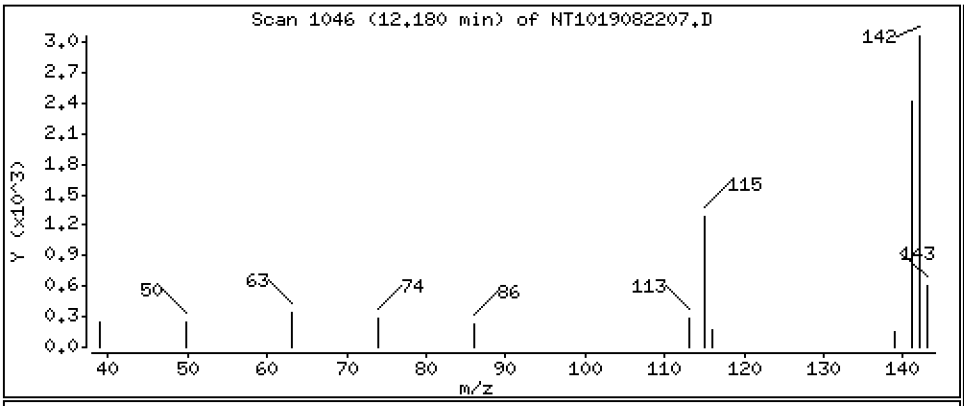
Operator: YZ

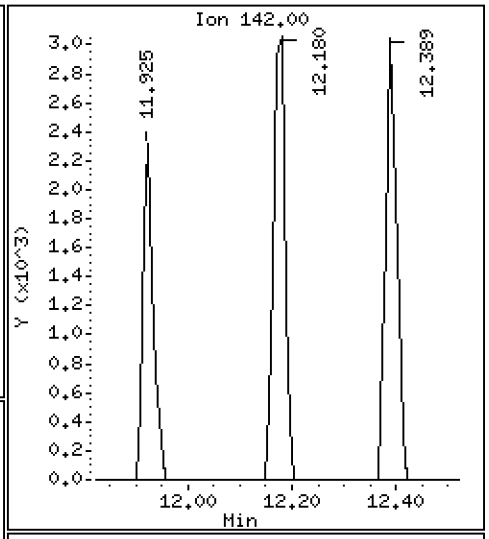
Column phase: ZB-5msi

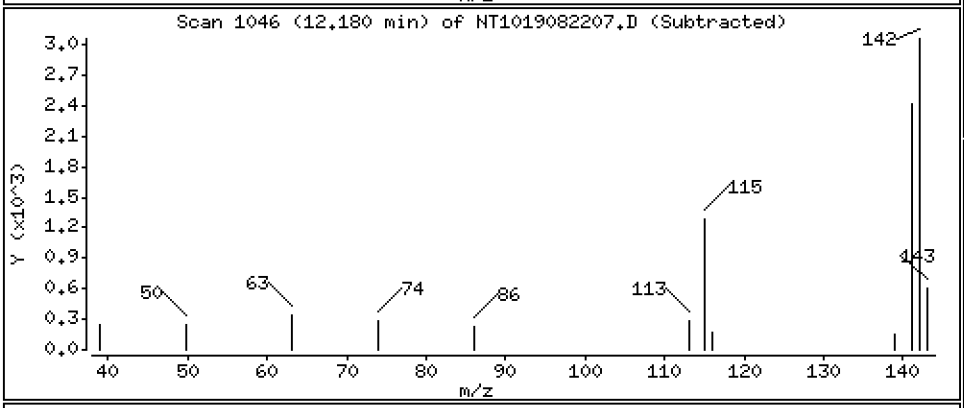
Column diameter: 0.25

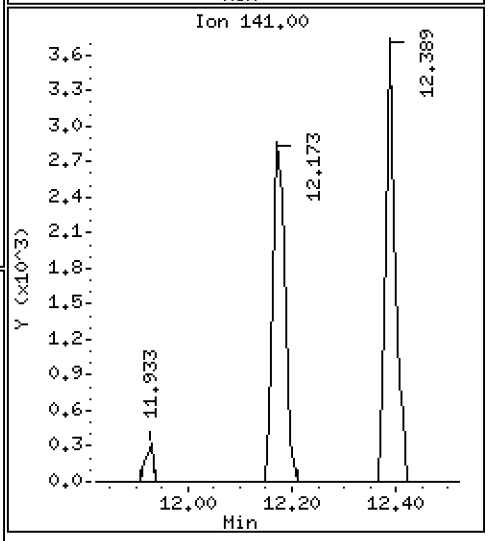
32 2-Methylnaphthalene

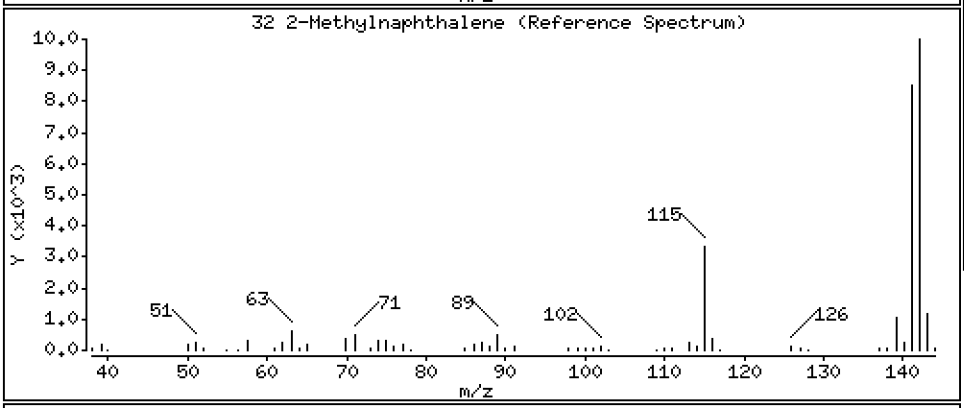
Concentration: 0.1526 ug/mL

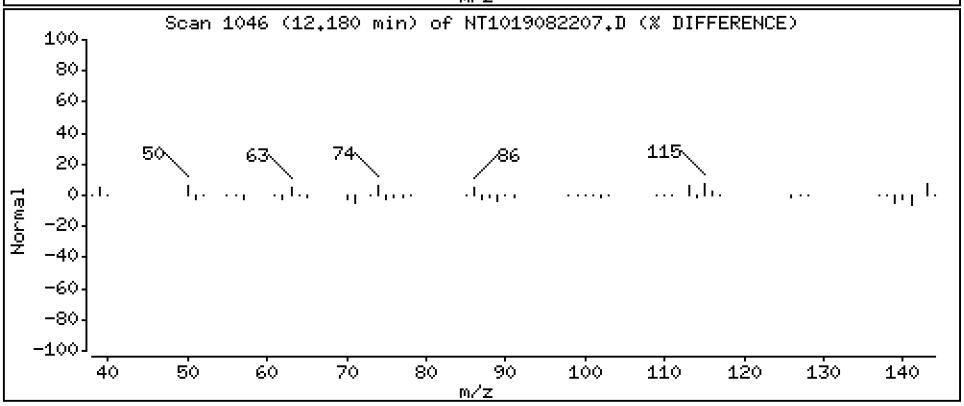












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

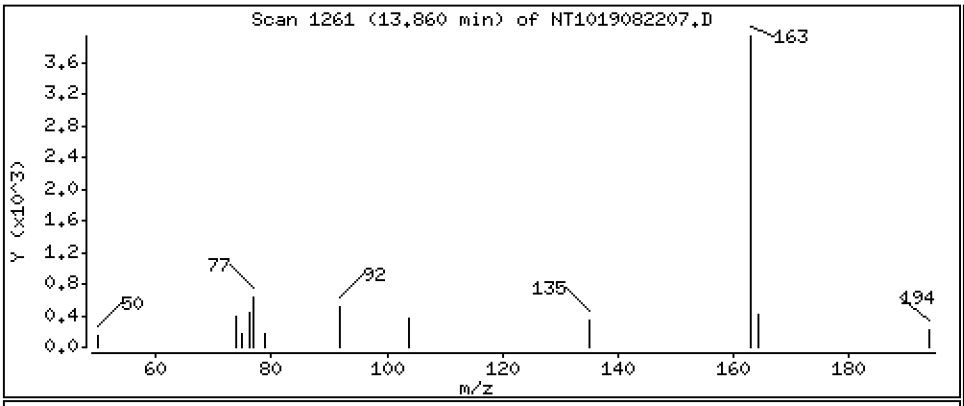
Operator: YZ

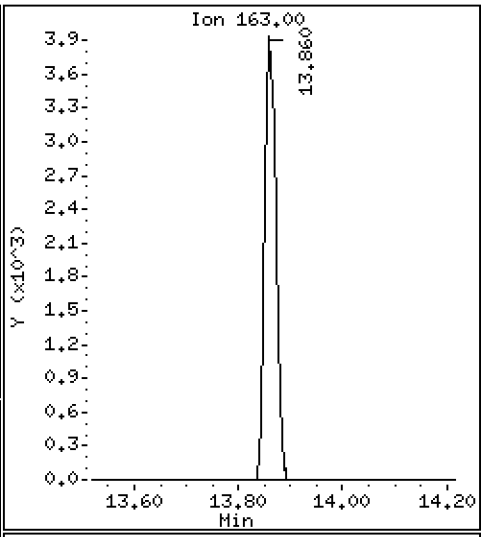
Column phase: ZB-5msi

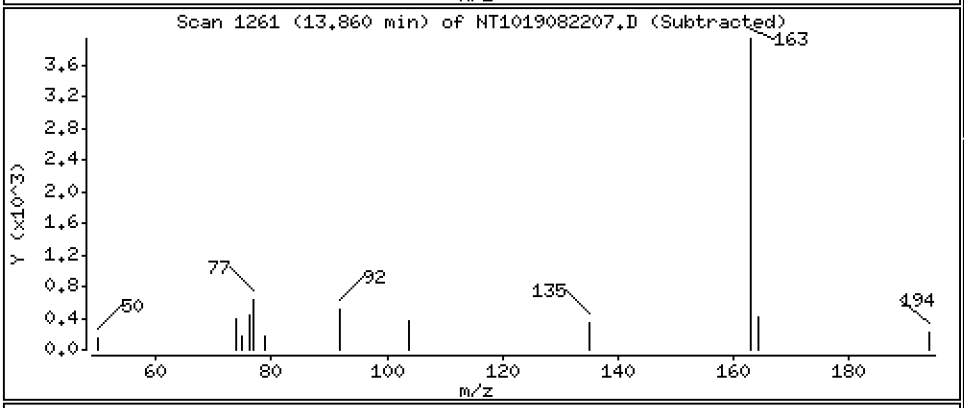
Column diameter: 0.25

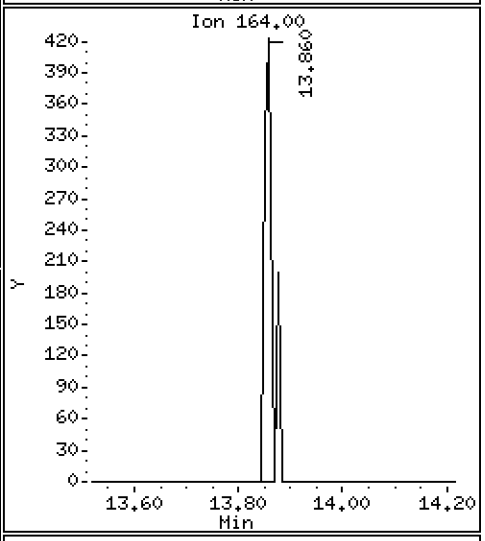
39 Dimethylphthalate

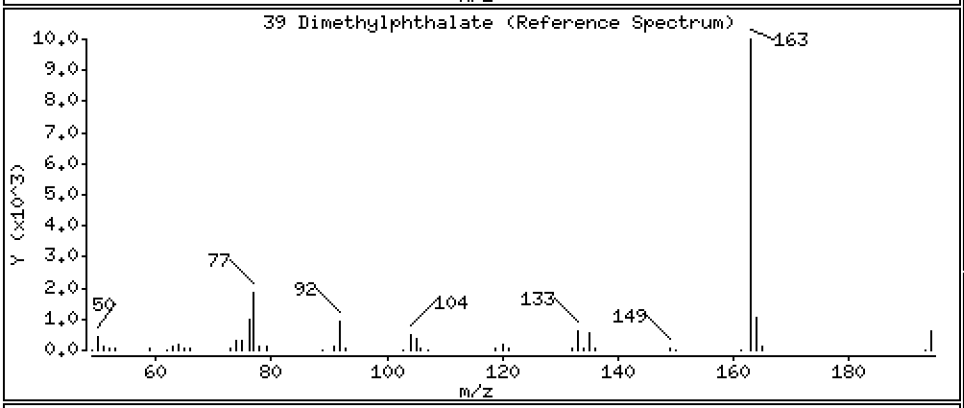
Concentration: 0.1962 ug/mL

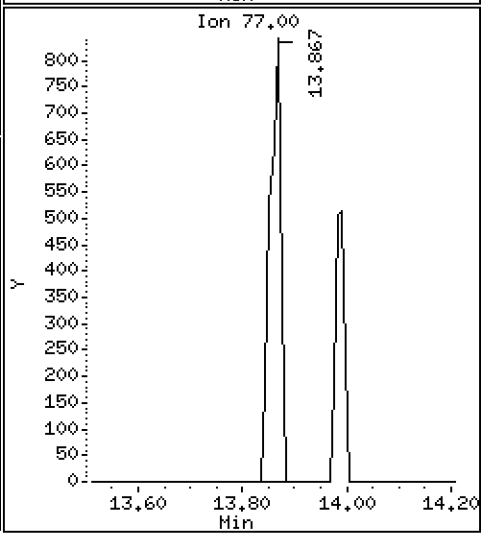


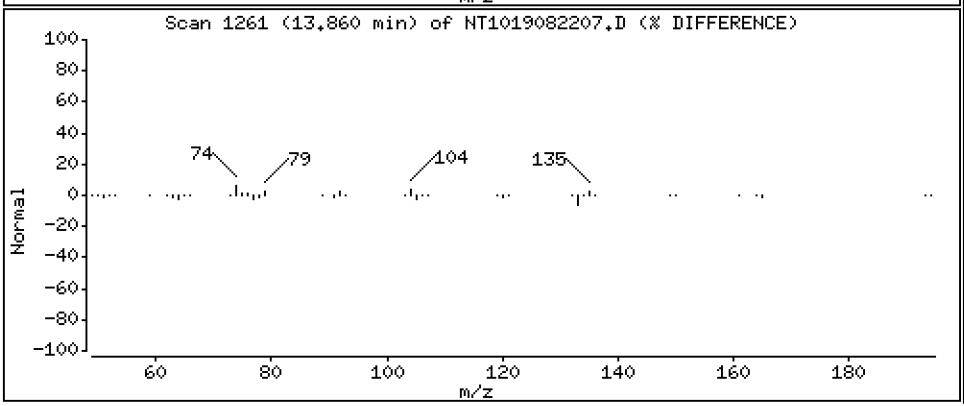












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

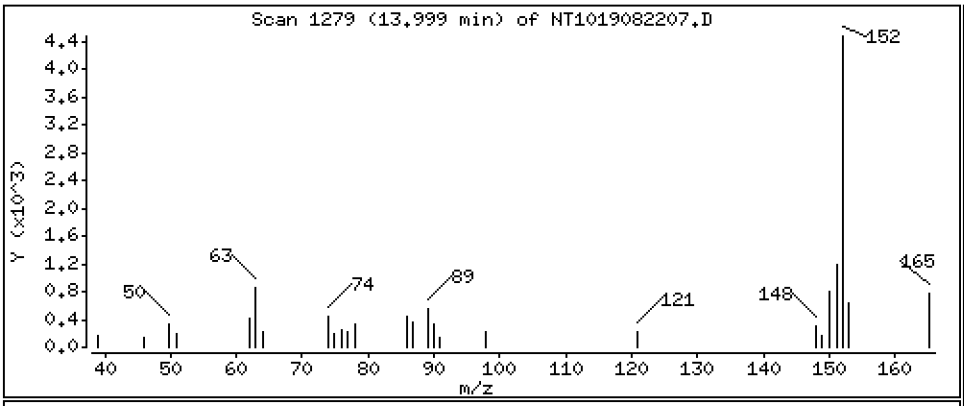
Operator: YZ

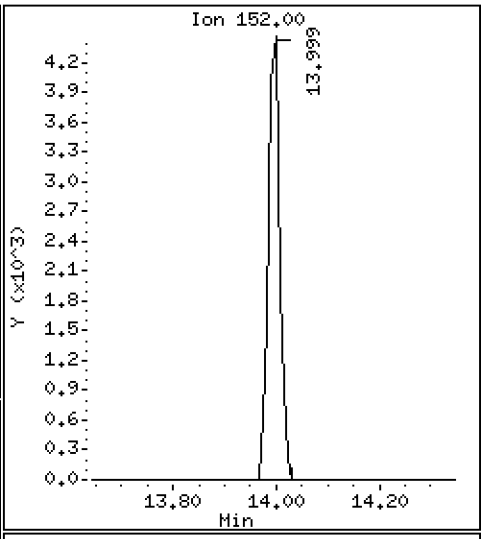
Column phase: ZB-5msi

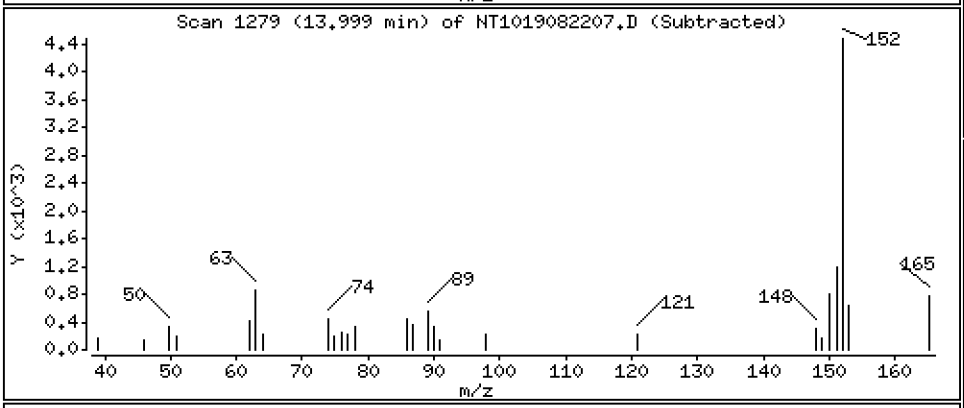
Column diameter: 0.25

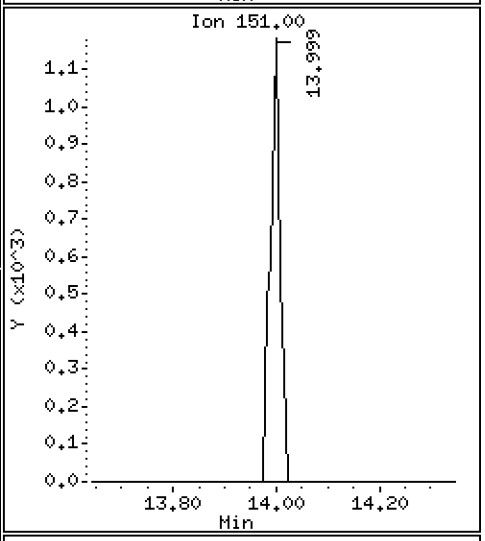
40 Acenaphthylene

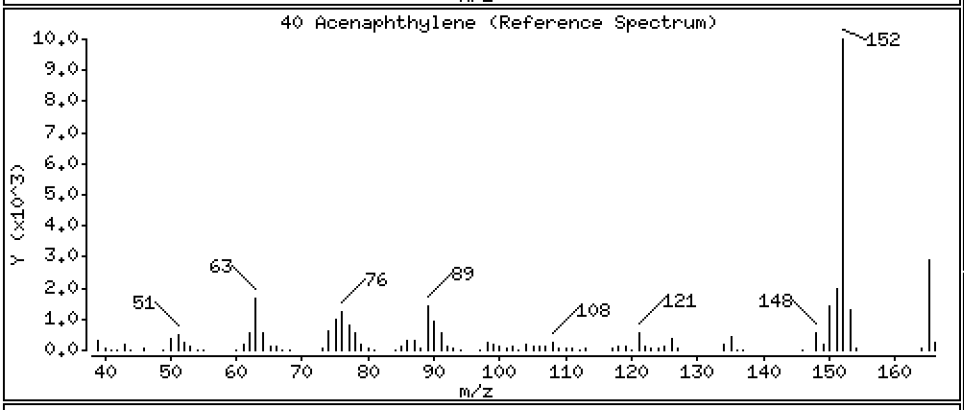
Concentration: 0.1756 ug/mL

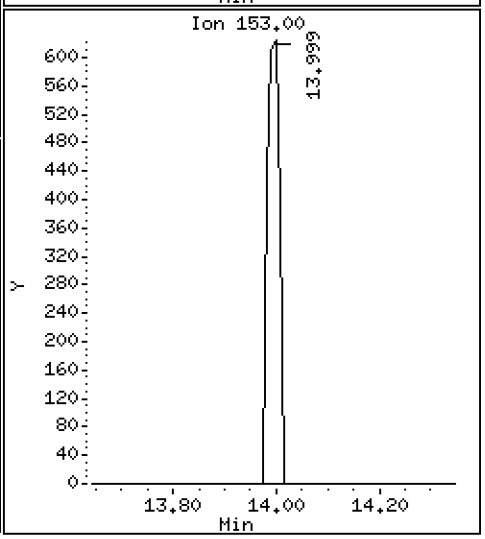


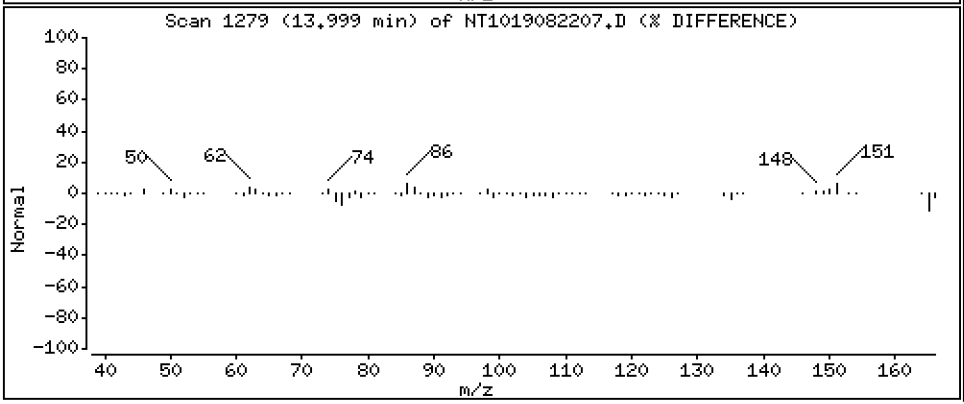












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

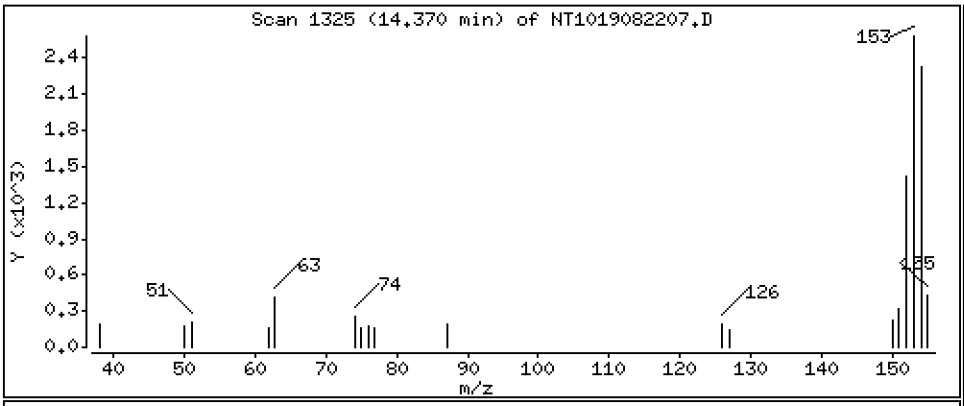
Operator: YZ

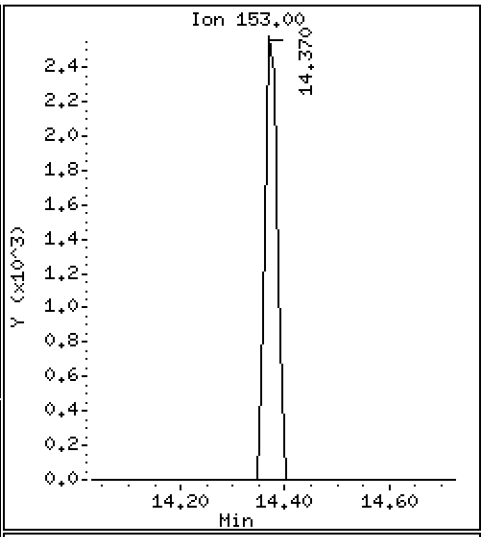
Column phase: ZB-5msi

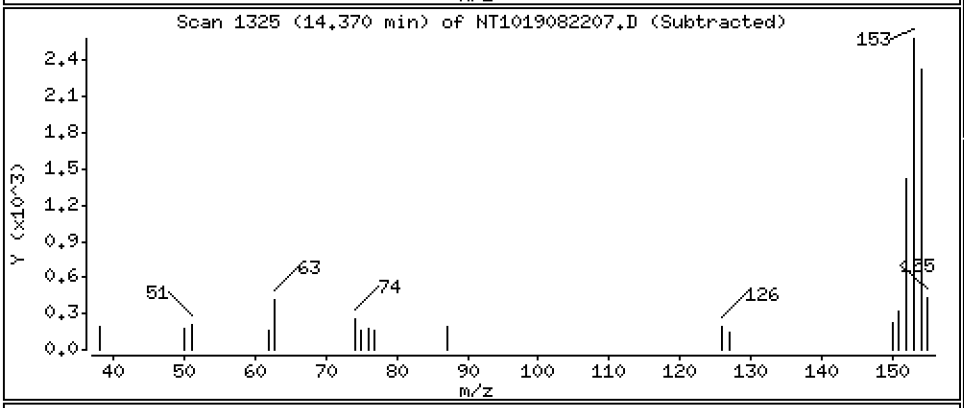
Column diameter: 0.25

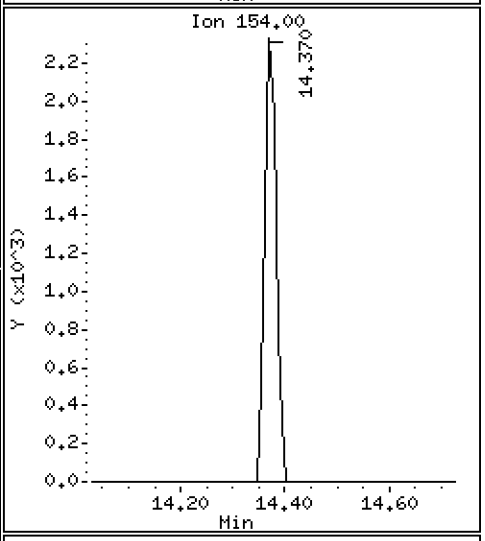
44 Acenaphthene

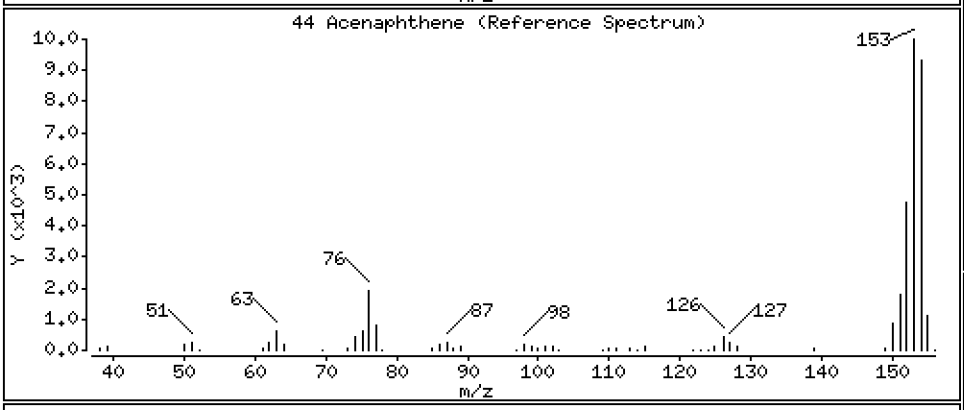
Concentration: 0.1753 ug/mL

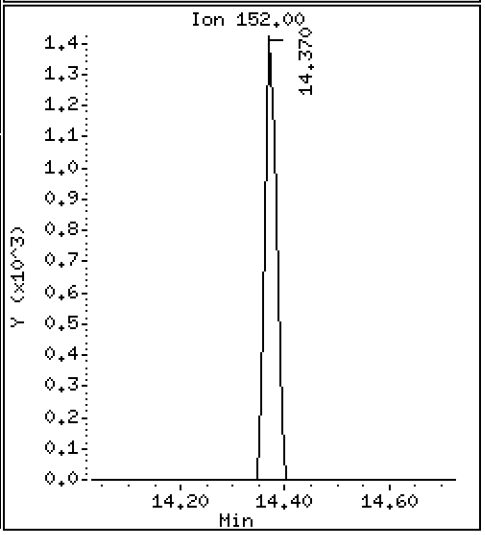


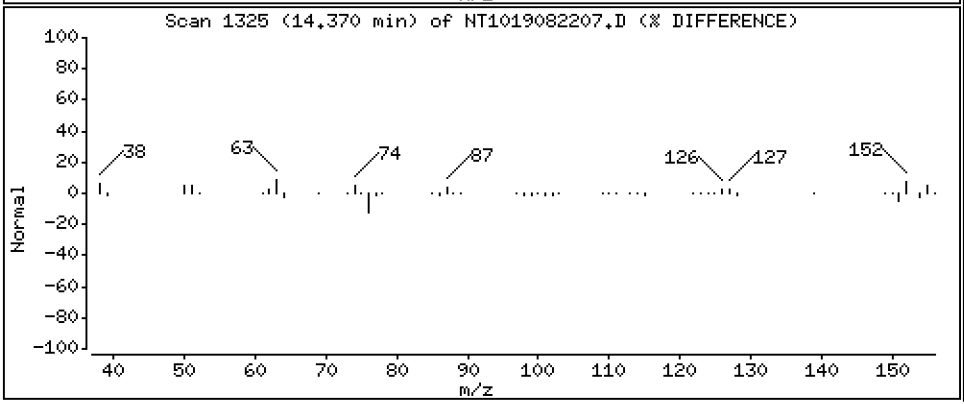












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

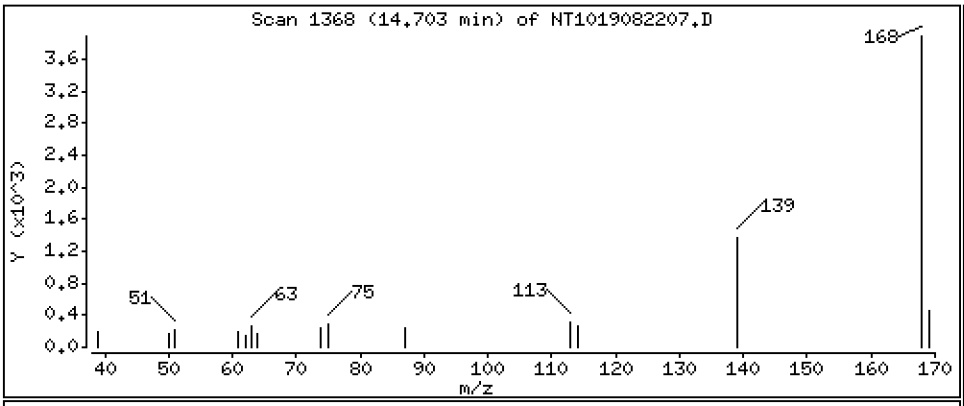
Operator: YZ

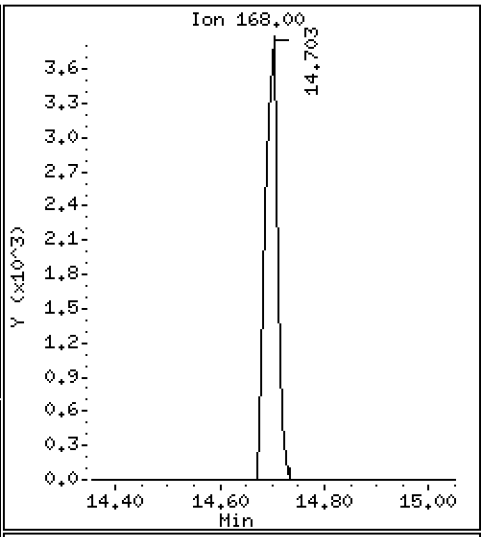
Column phase: ZB-5msi

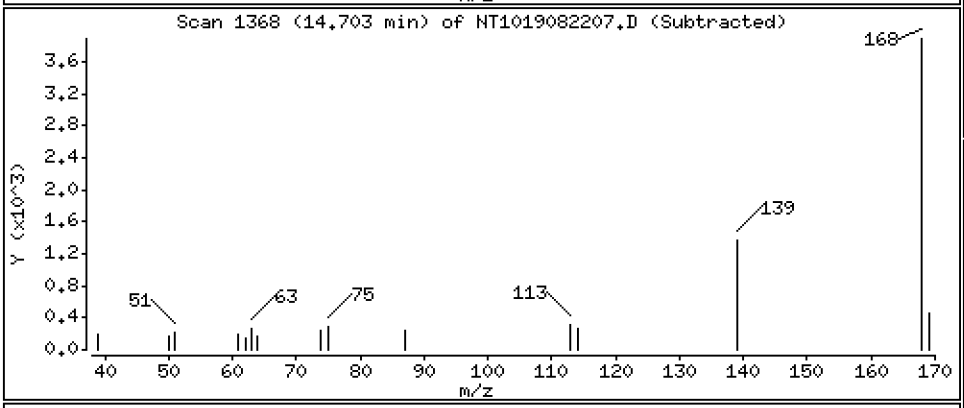
Column diameter: 0.25

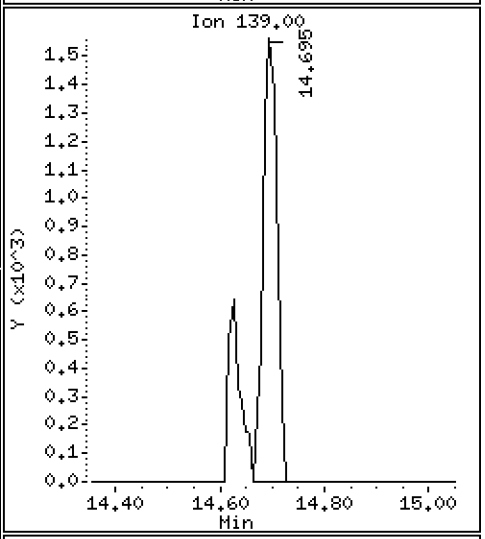
46 Dibenzofuran

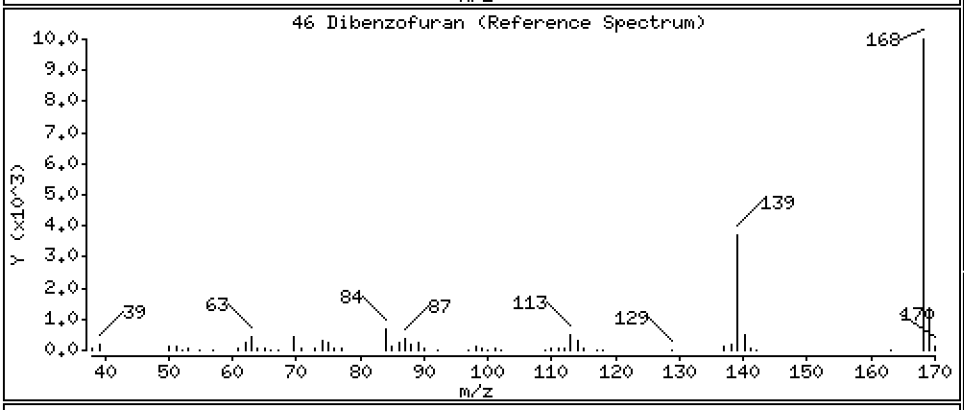
Concentration: 0.1581 ug/mL

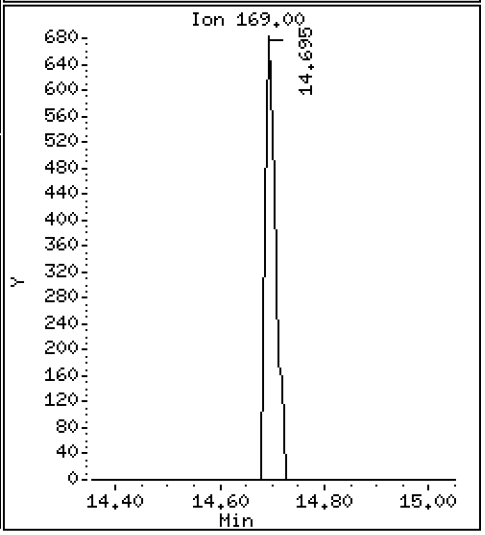


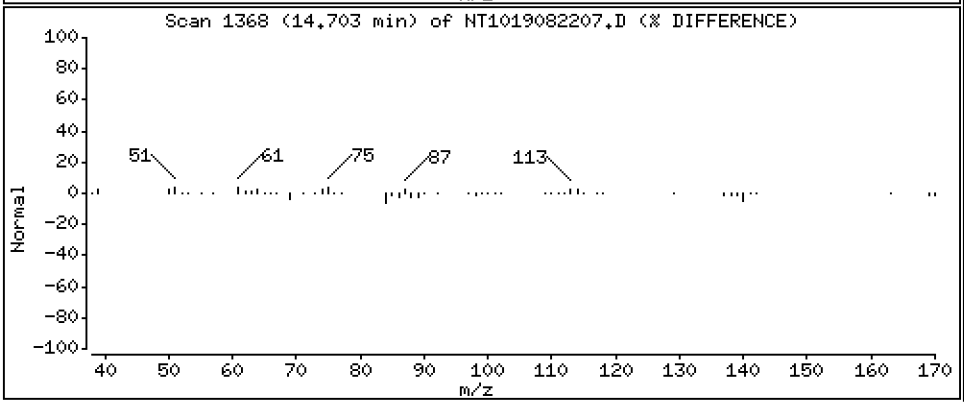












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

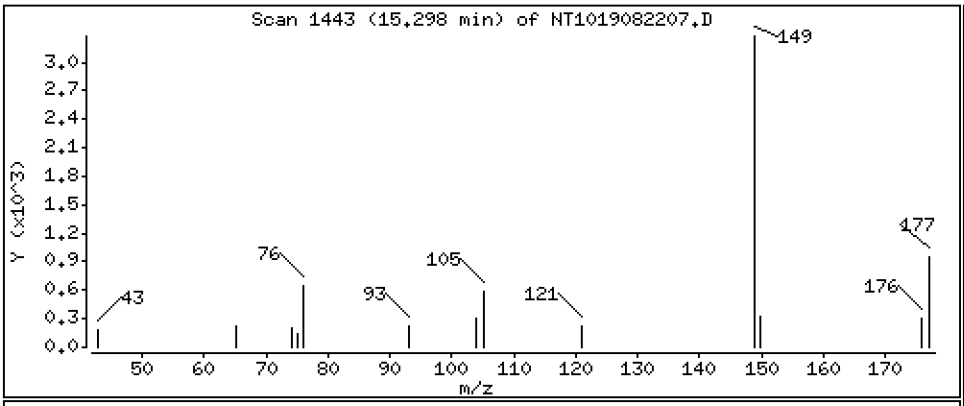
Operator: YZ

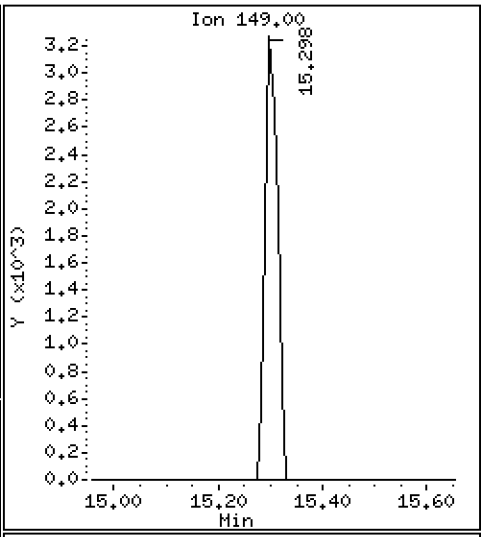
Column phase: ZB-5msi

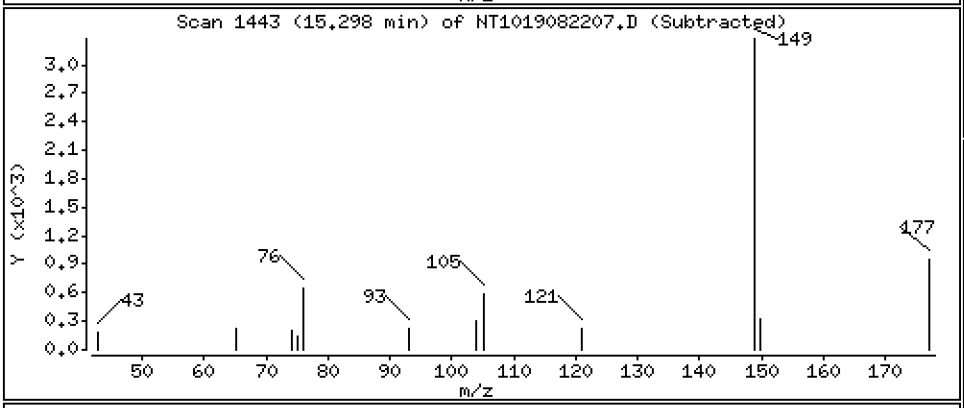
Column diameter: 0.25

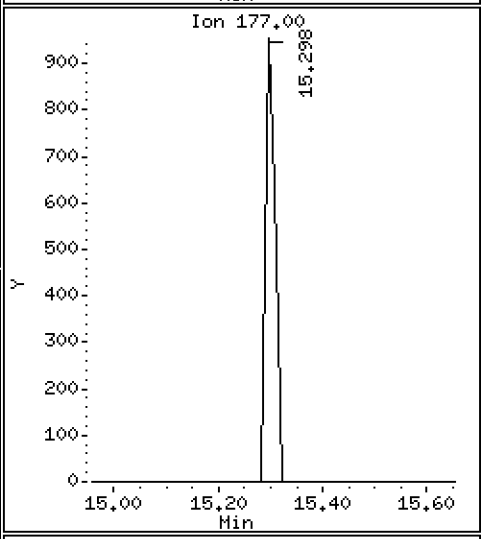
50 Diethylphthalate

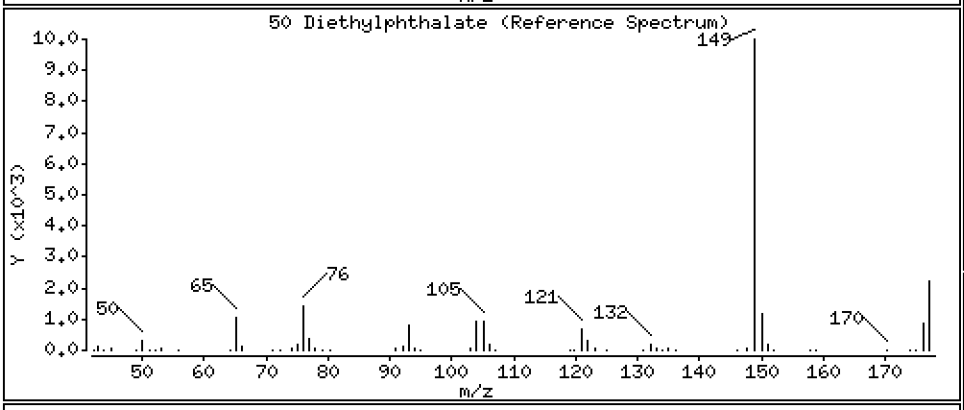
Concentration: 0.1907 ug/mL

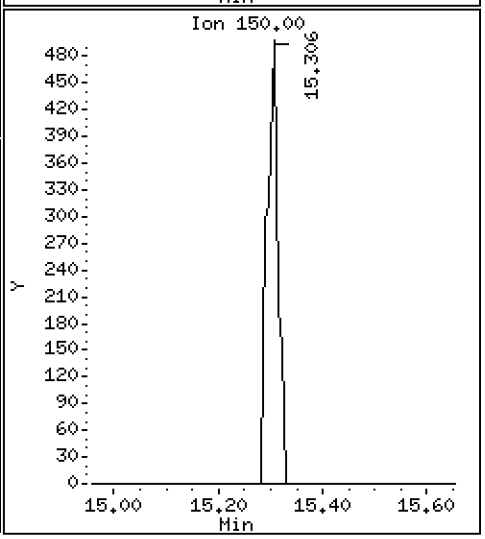


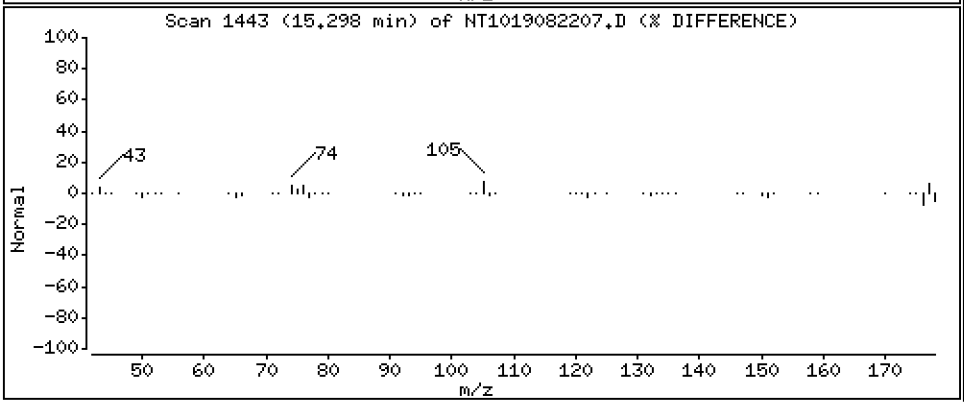












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

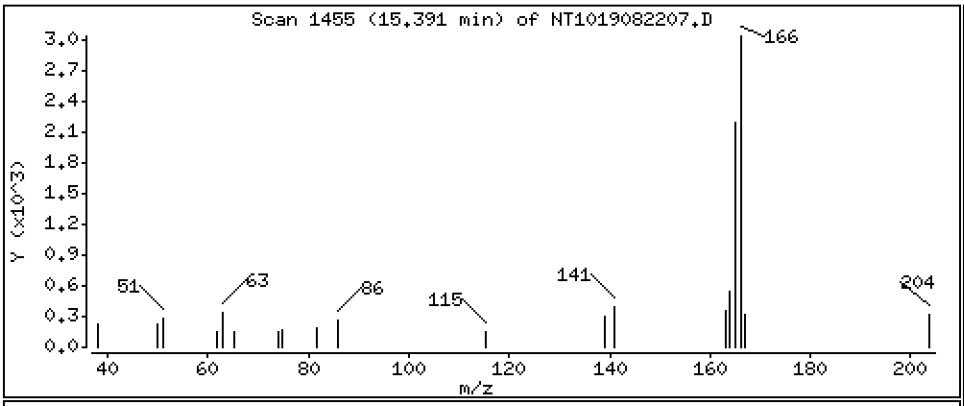
Operator: YZ

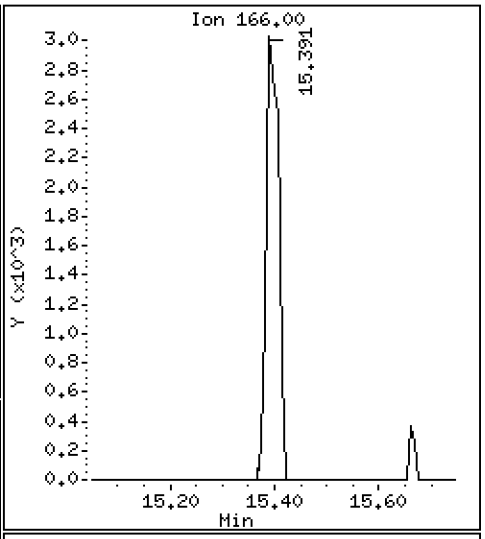
Column phase: ZB-5msi

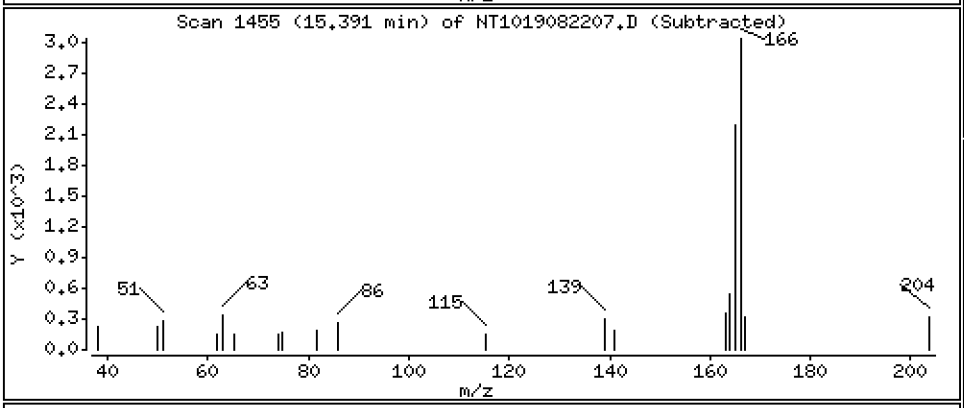
Column diameter: 0.25

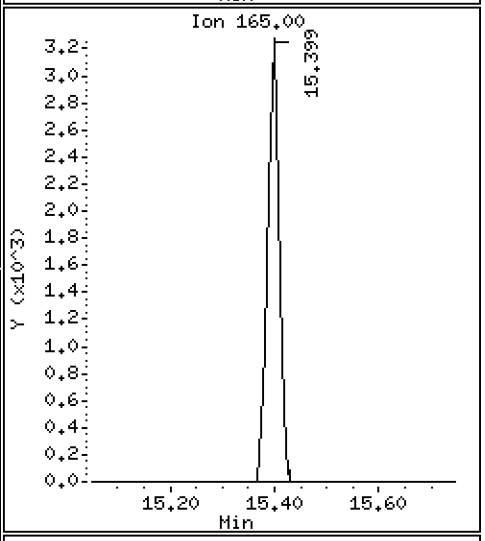
49 Fluorene

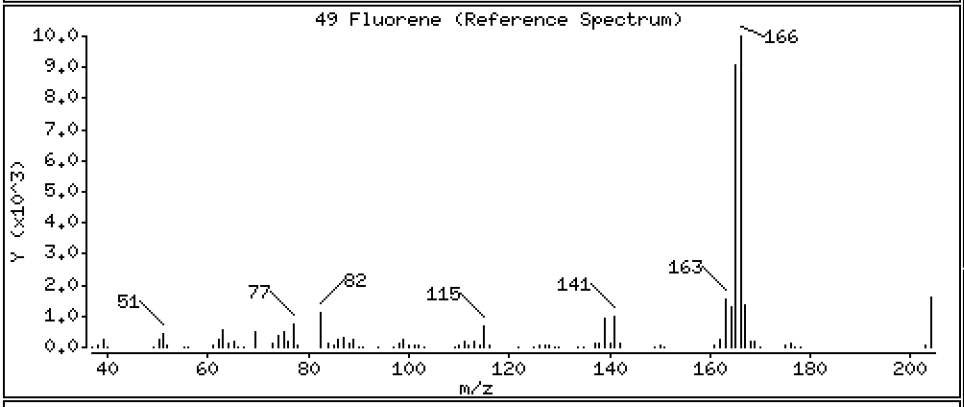
Concentration: 0.1859 ug/mL

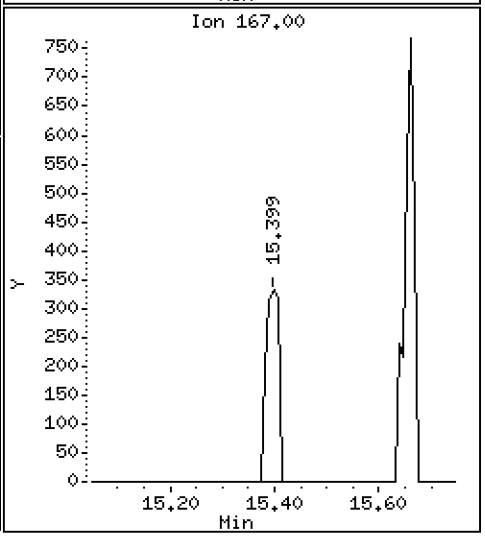


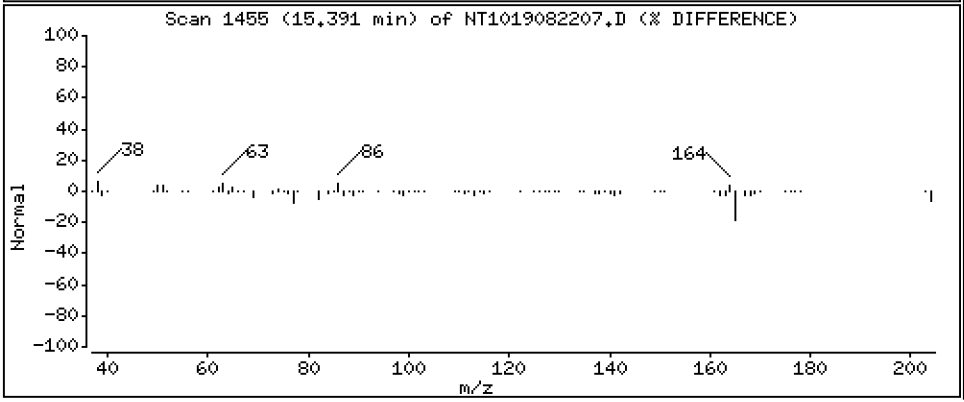












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

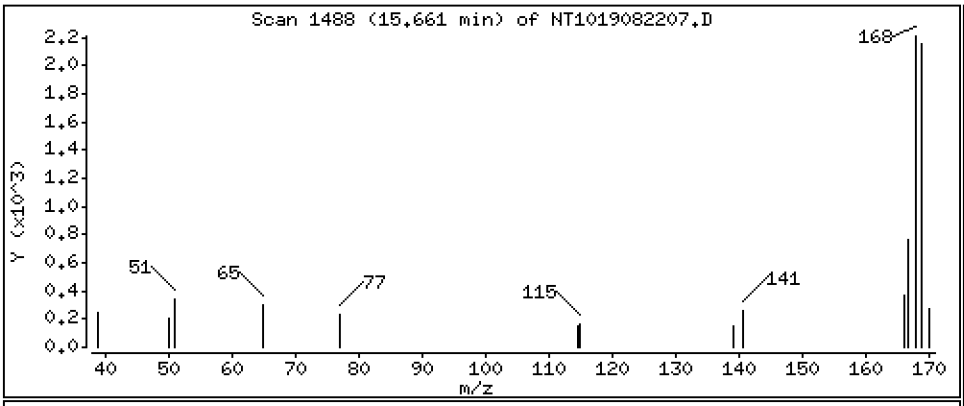
Operator: YZ

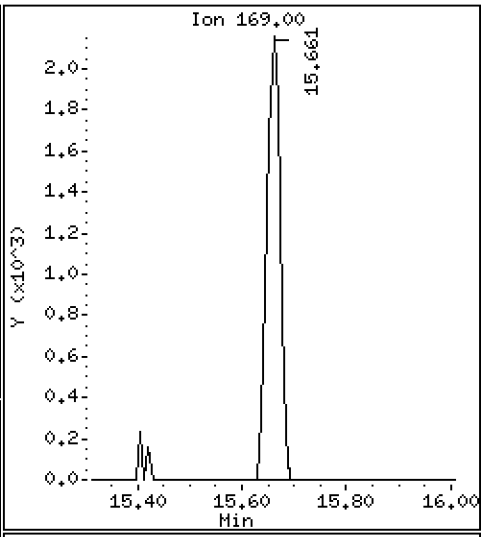
Column phase: ZB-5msi

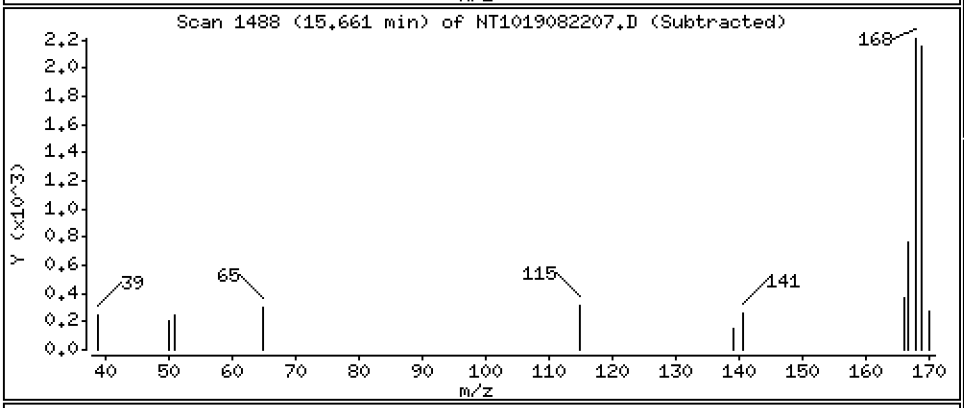
Column diameter: 0.25

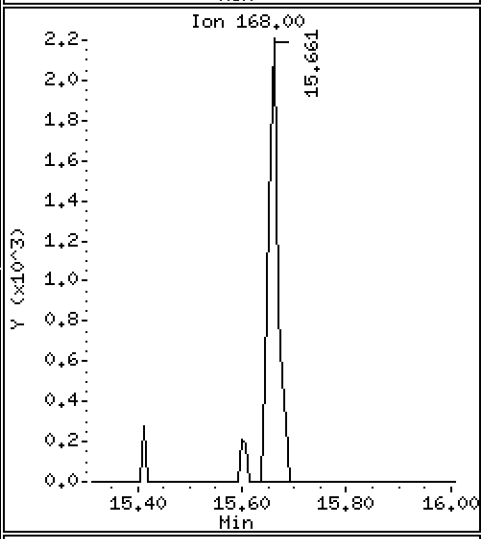
54 N-Nitrosodiphenylamine

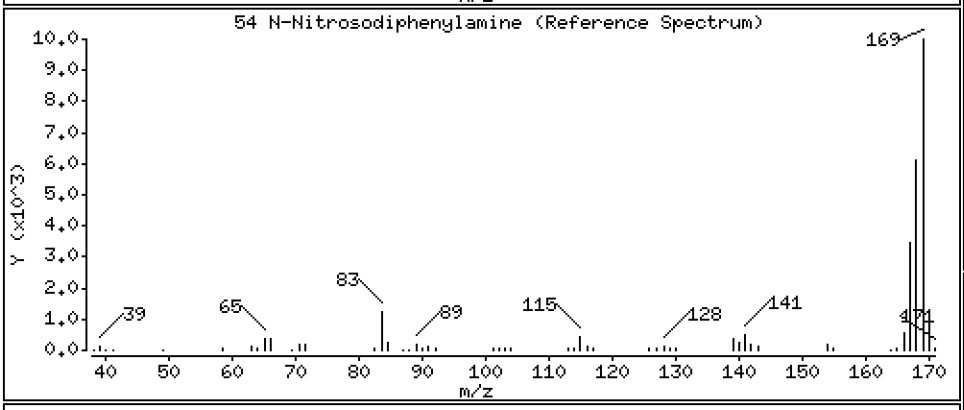
Concentration: 0.1870 ug/mL

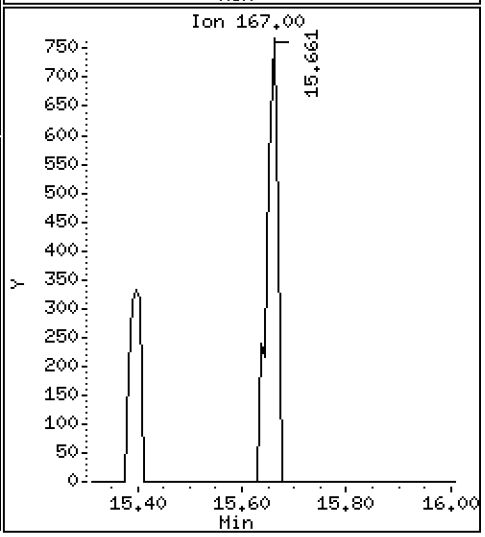


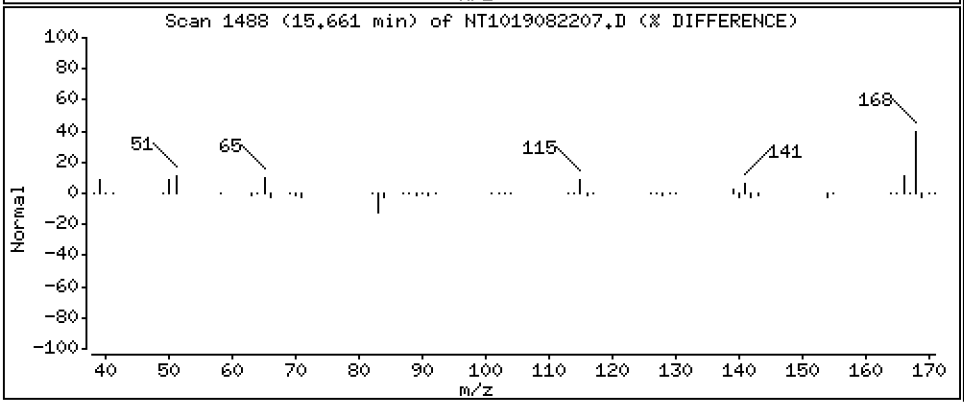












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

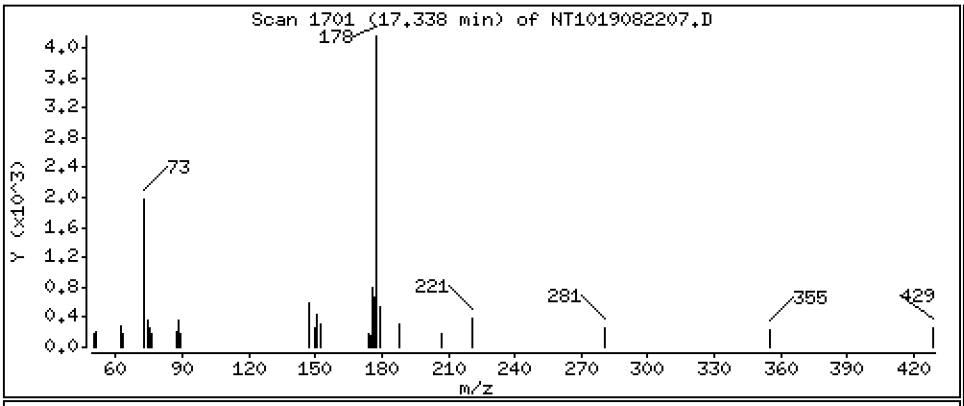
Operator: YZ

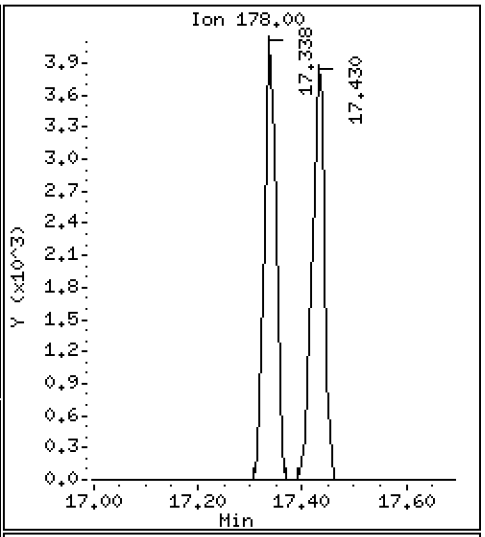
Column phase: ZB-5msi

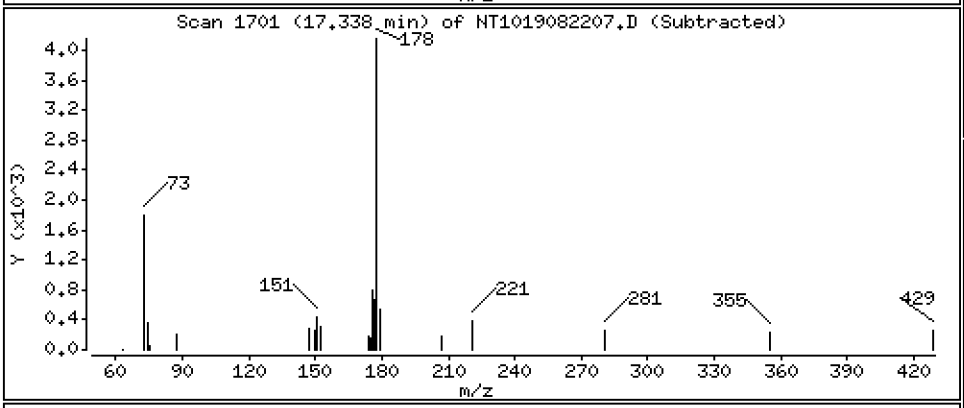
Column diameter: 0.25

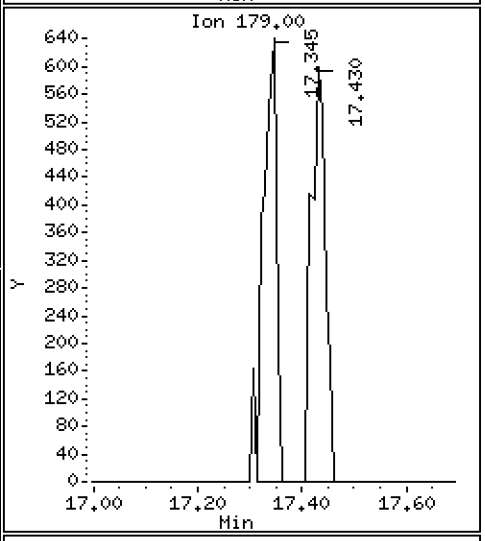
60 Phenanthrene

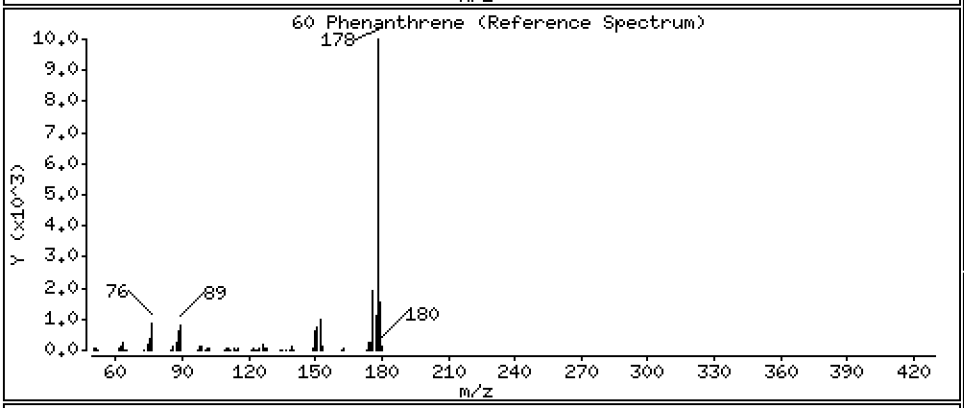
Concentration: 0.1733 ug/mL

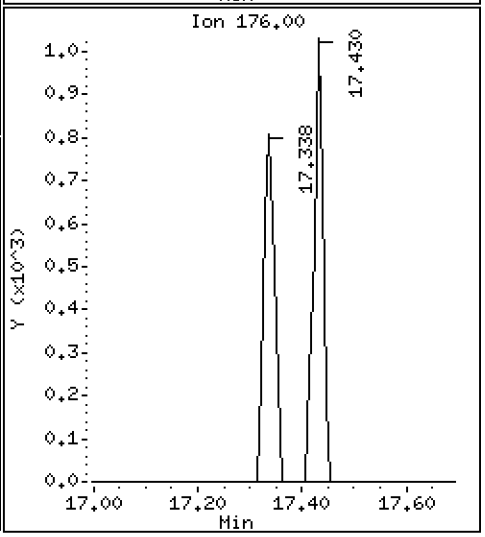


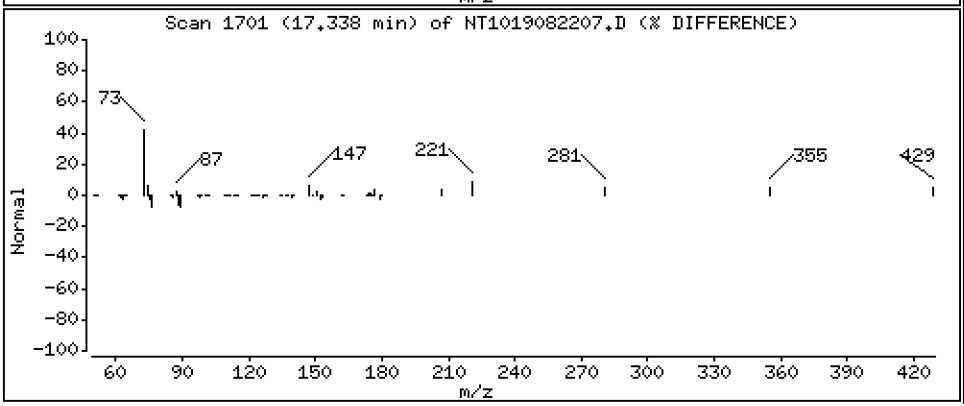












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

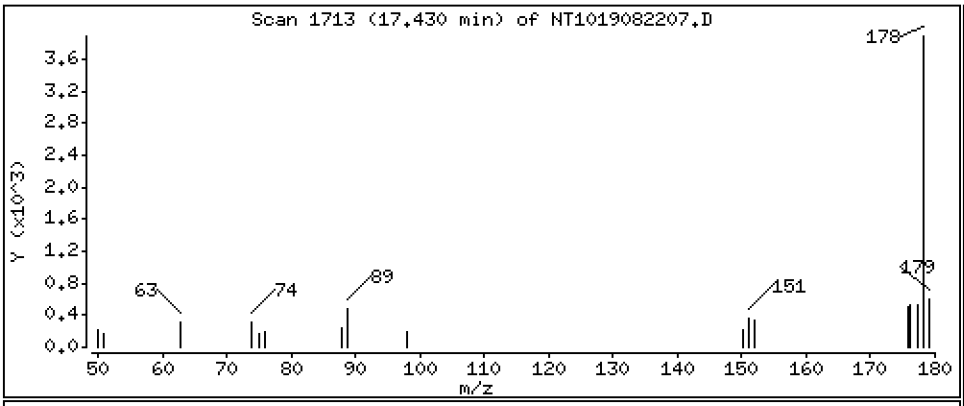
Operator: YZ

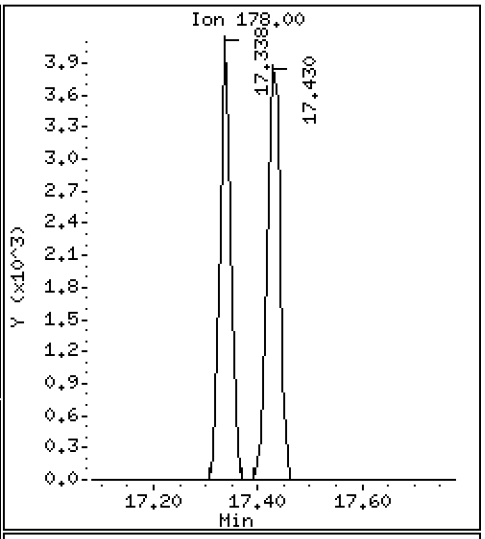
Column phase: ZB-5msi

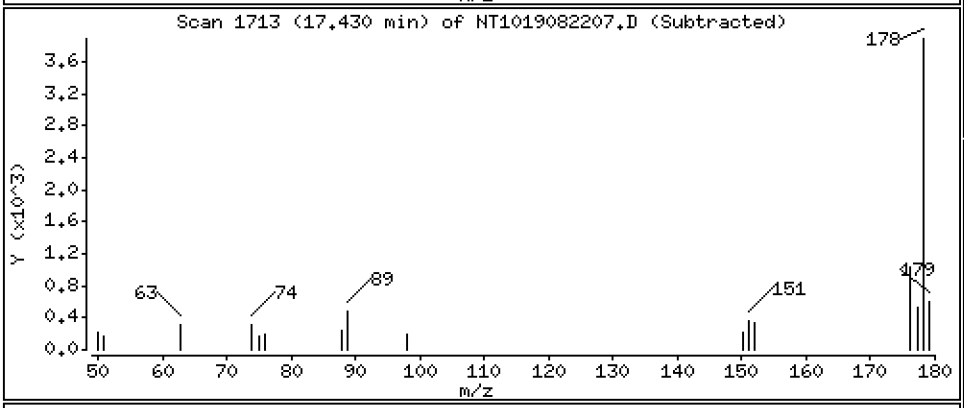
Column diameter: 0.25

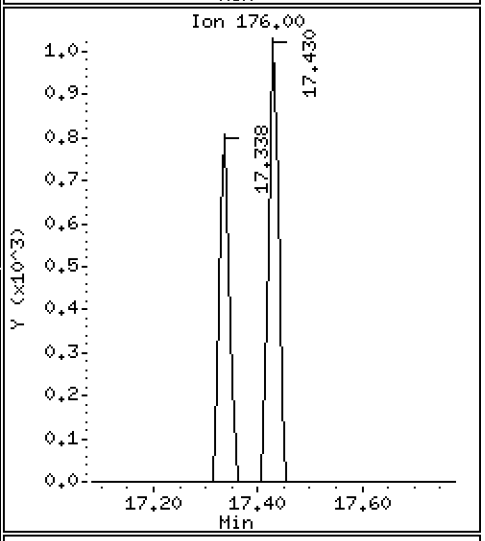
61 Anthracene

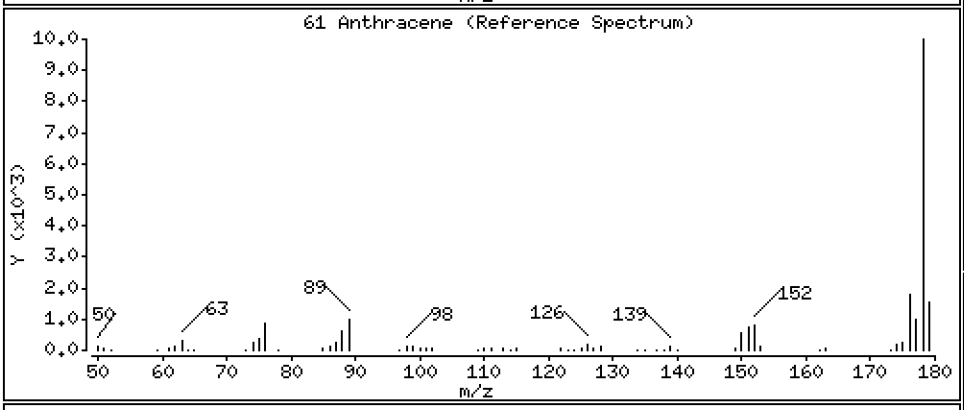
Concentration: 0.1767 ug/mL

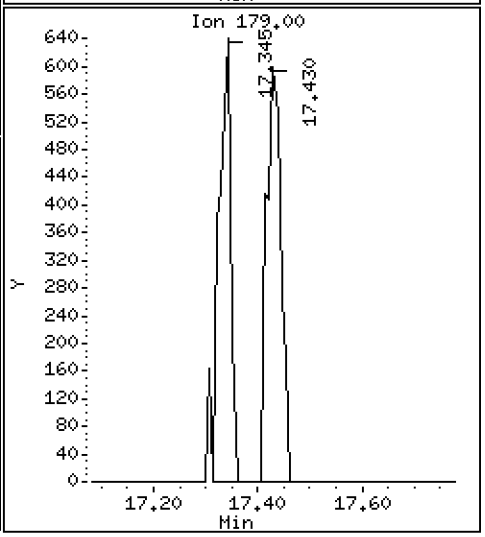


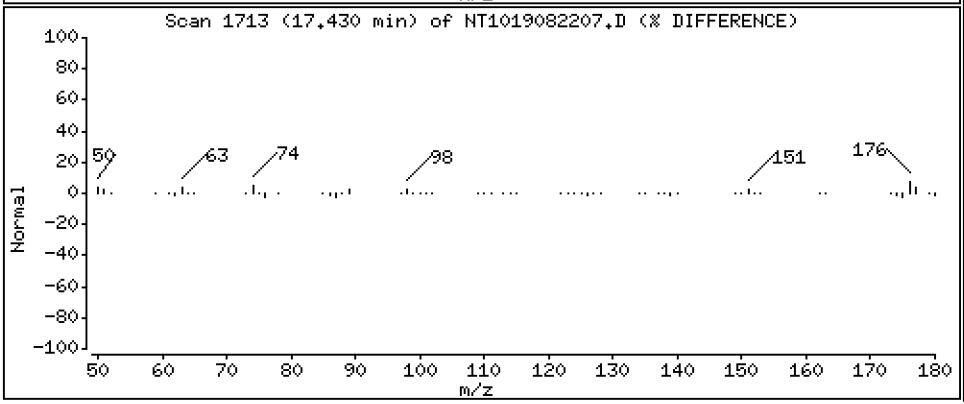












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

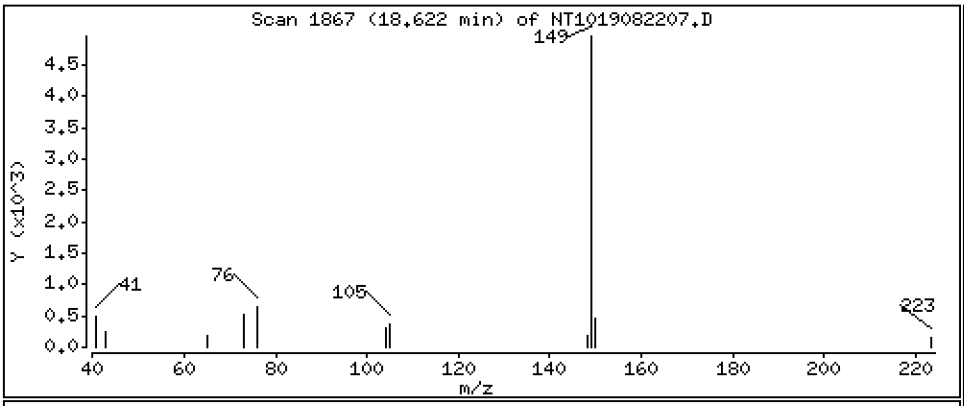
Operator: YZ

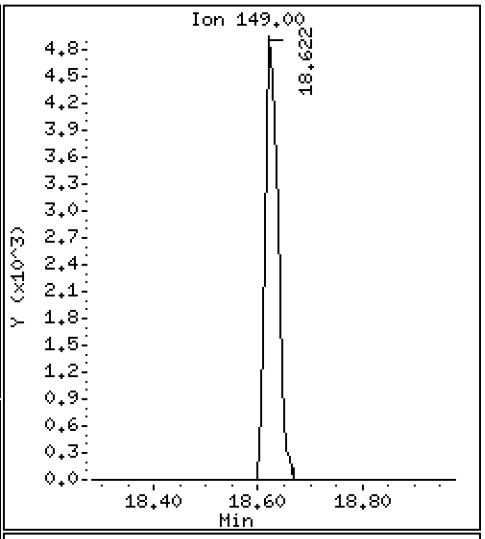
Column phase: ZB-5msi

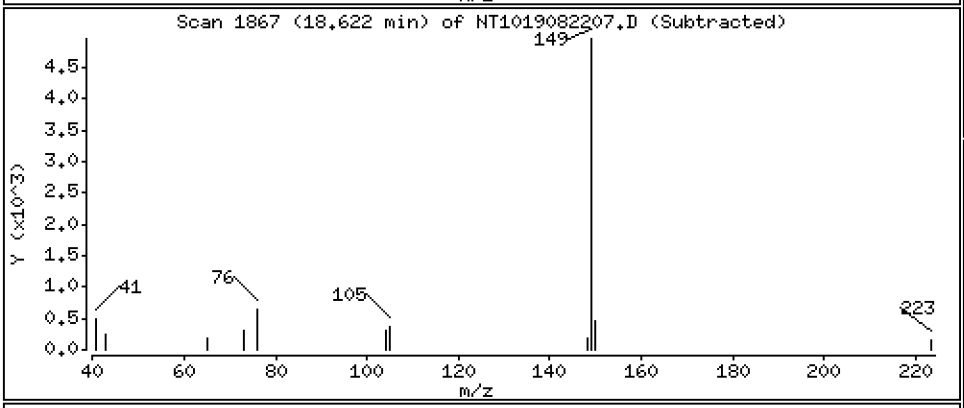
Column diameter: 0.25

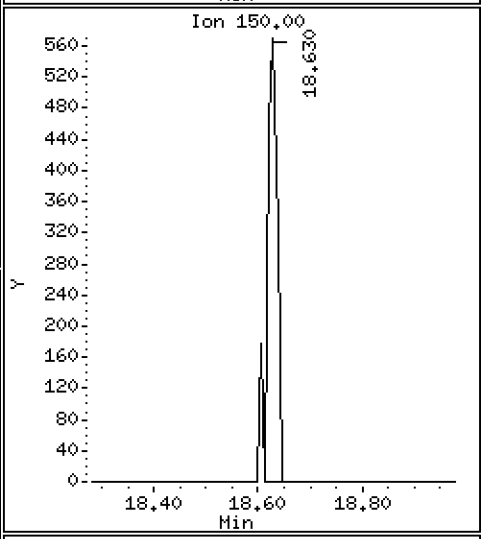
63 Di-n-butylphthalate

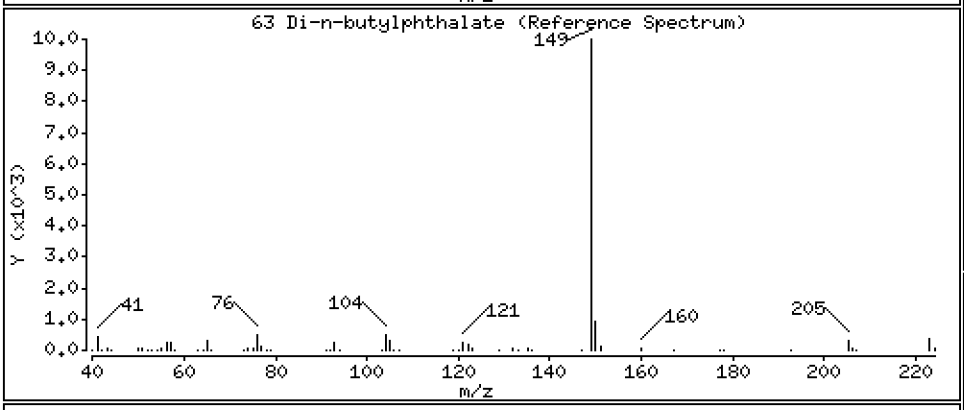
Concentration: 0.1687 ug/mL

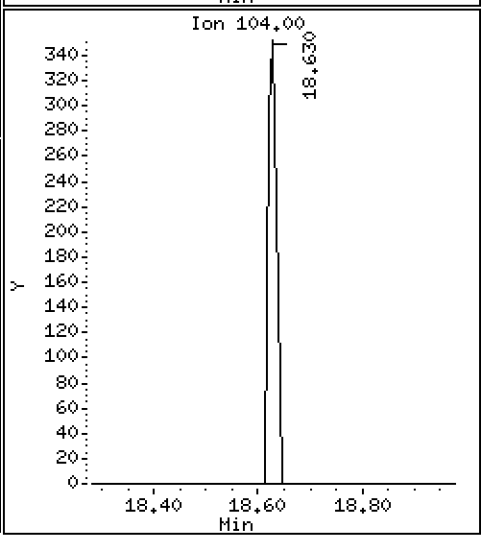


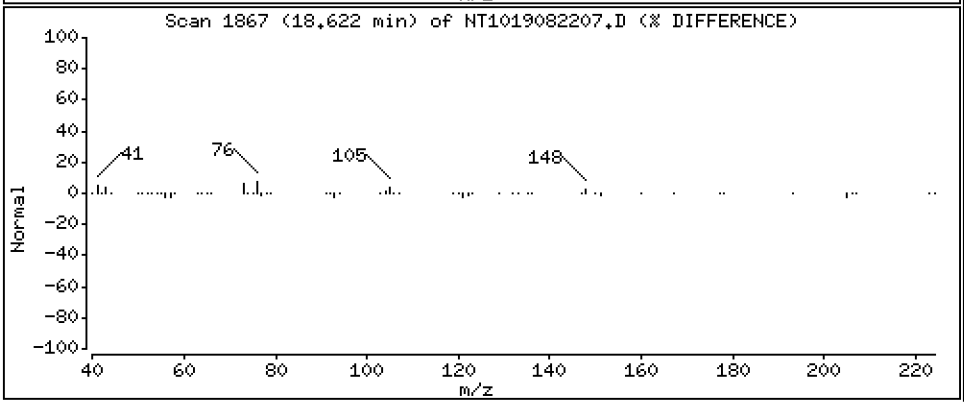












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

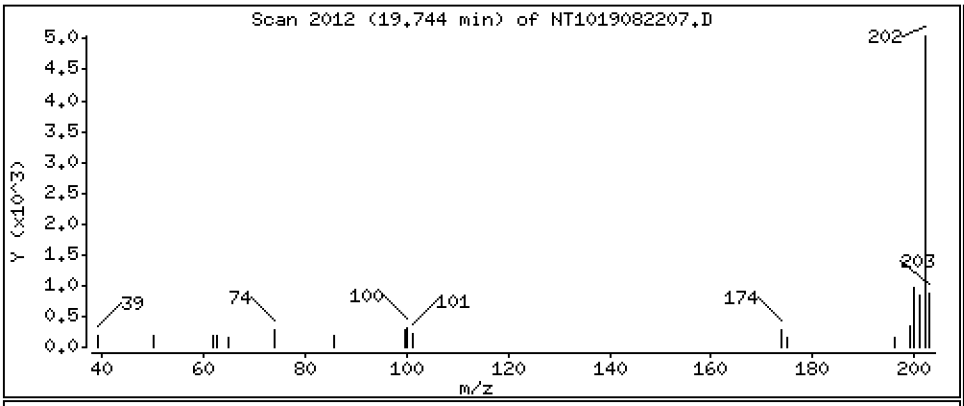
Operator: YZ

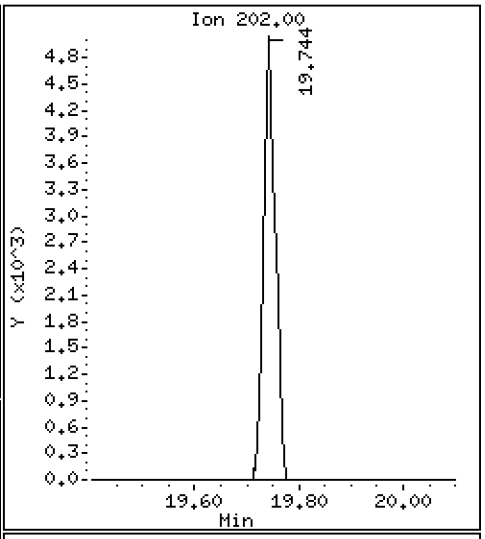
Column phase: ZB-5msi

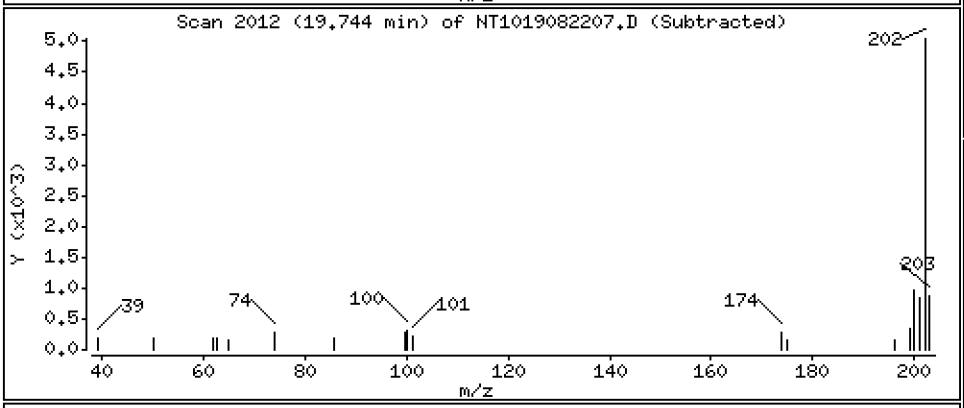
Column diameter: 0.25

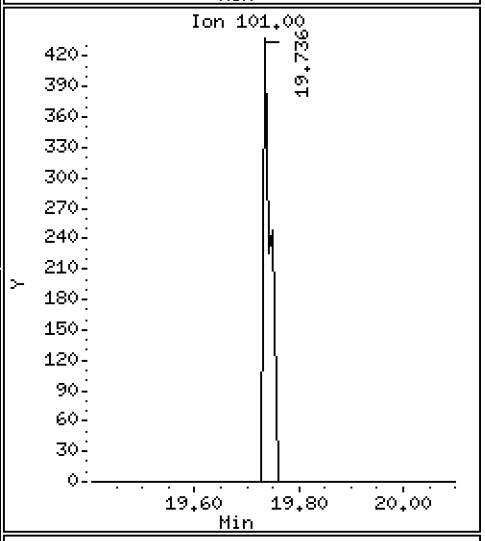
64 Fluoranthene

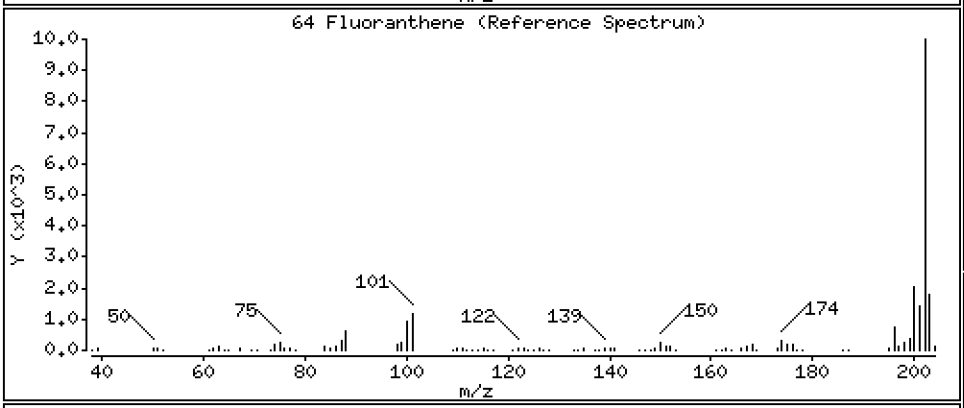
Concentration: 0.1945 ug/mL

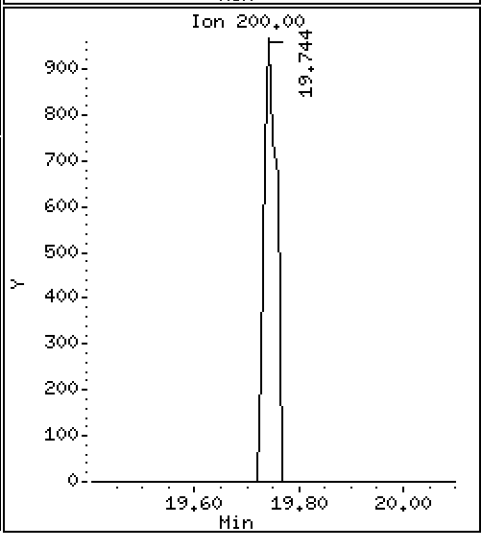


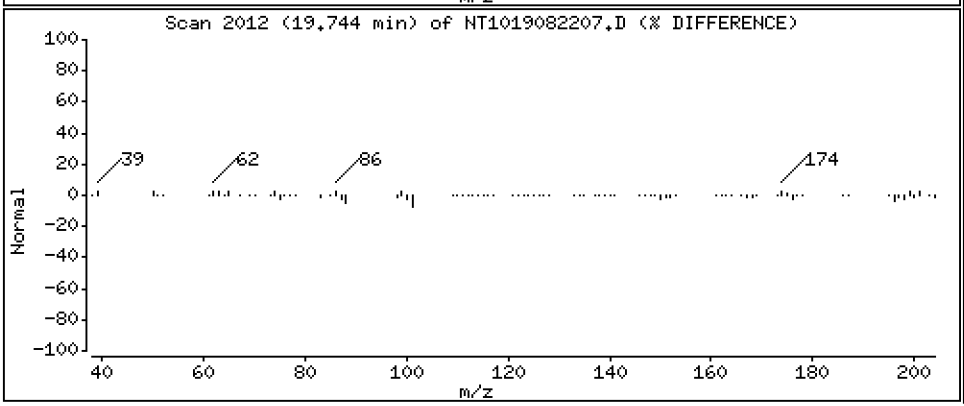












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

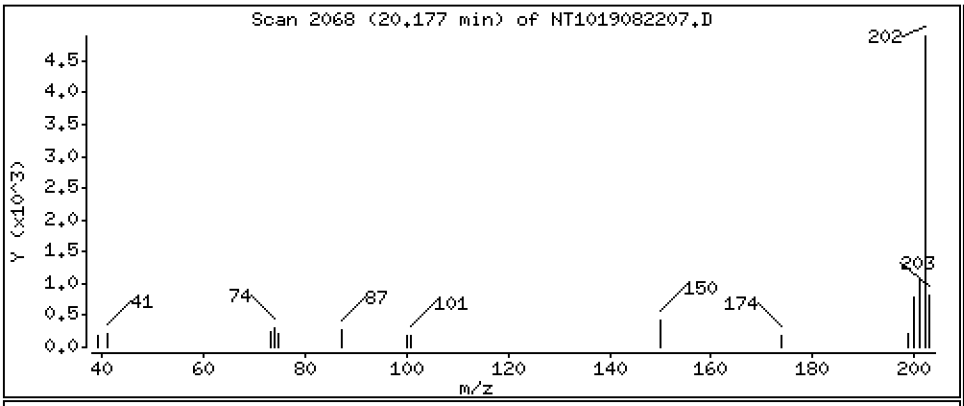
Operator: YZ

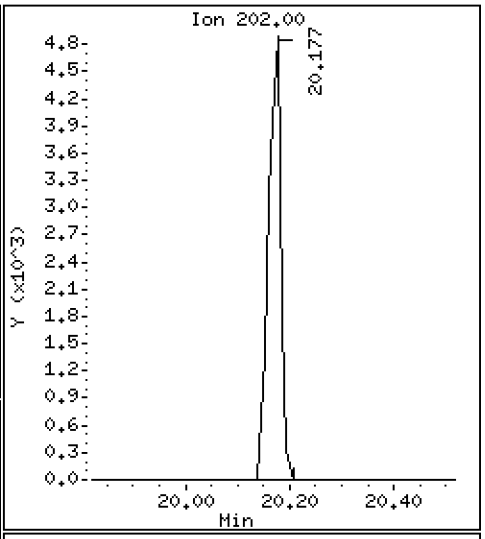
Column phase: ZB-5msi

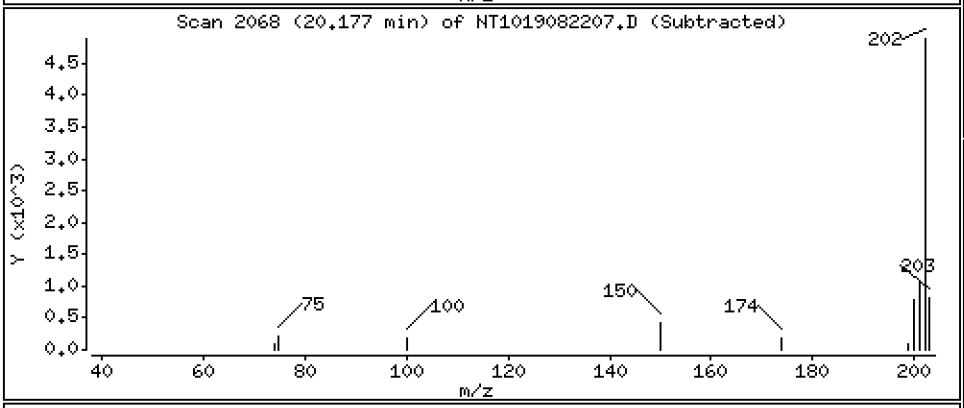
Column diameter: 0.25

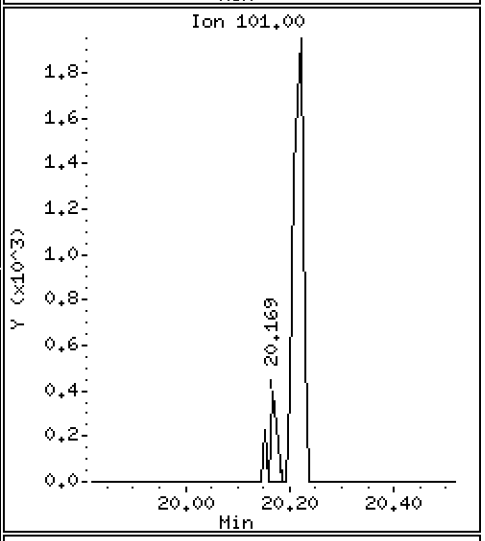
65 Pyrene

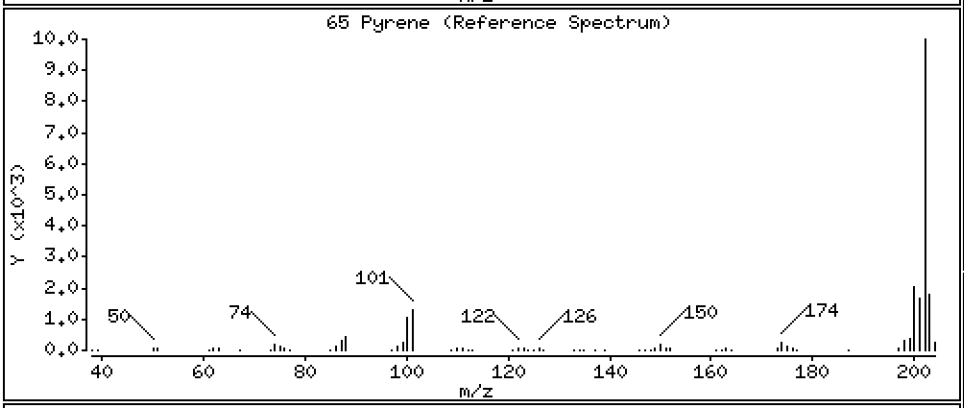
Concentration: 0.1834 ug/mL

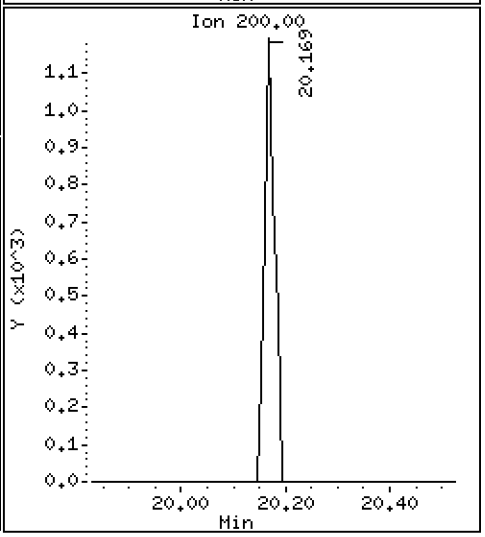


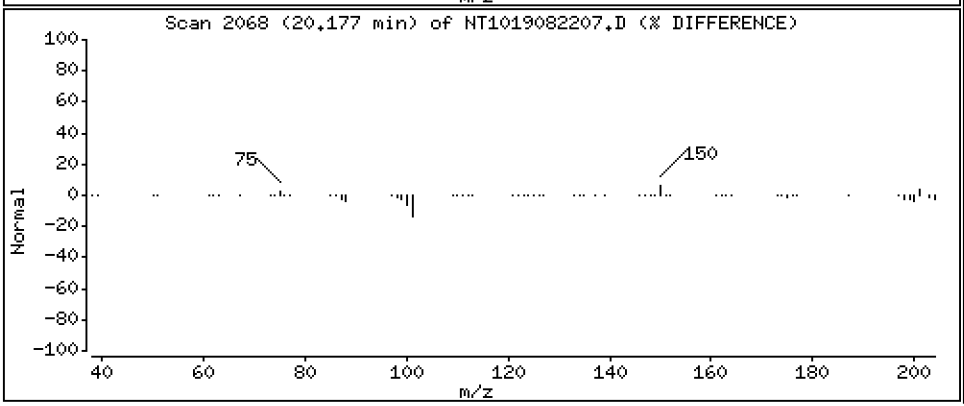












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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

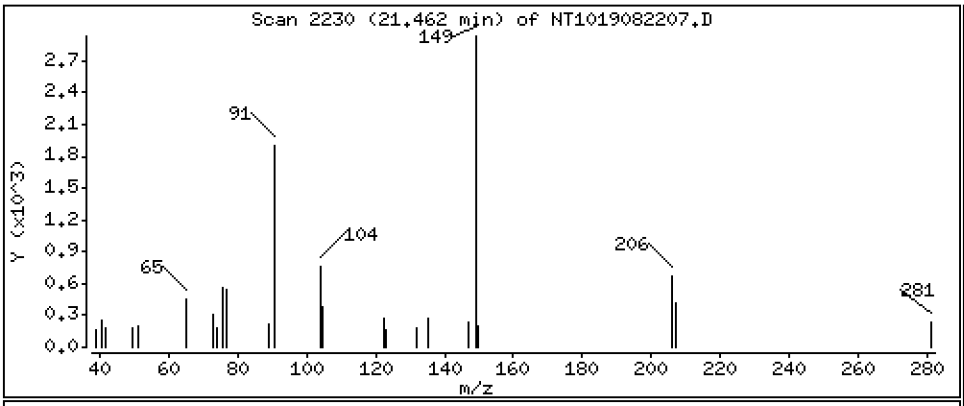
Operator: YZ

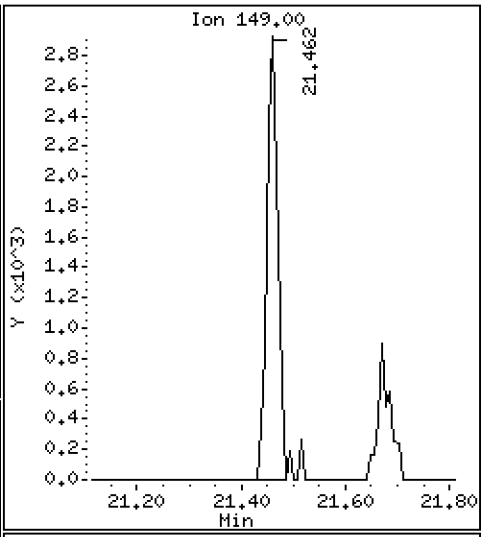
Column phase: ZB-5msi

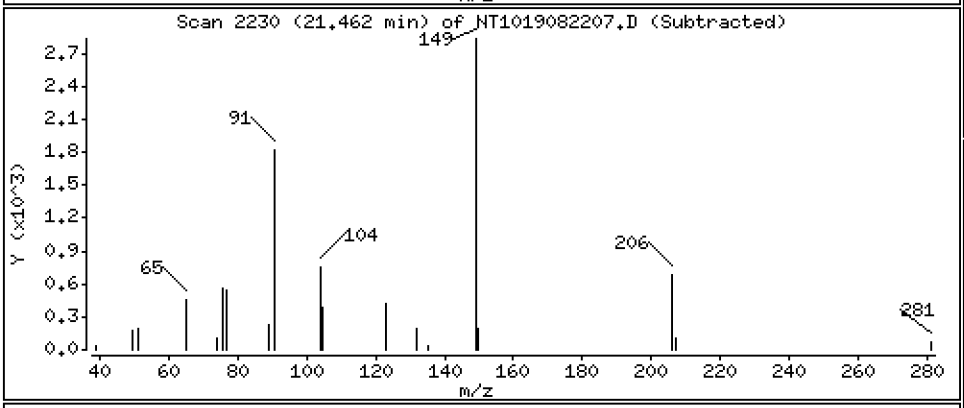
Column diameter: 0.25

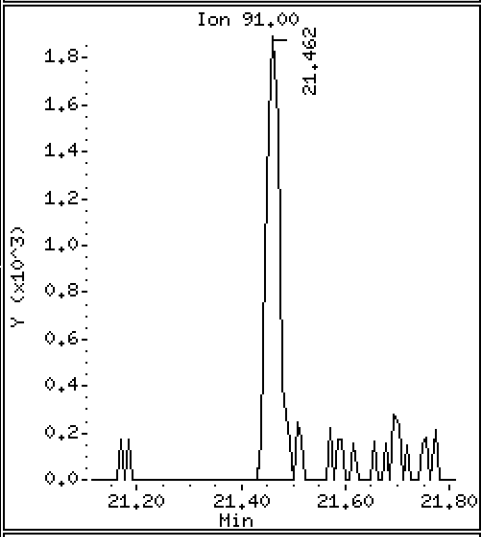
67 Butylbenzylphthalate

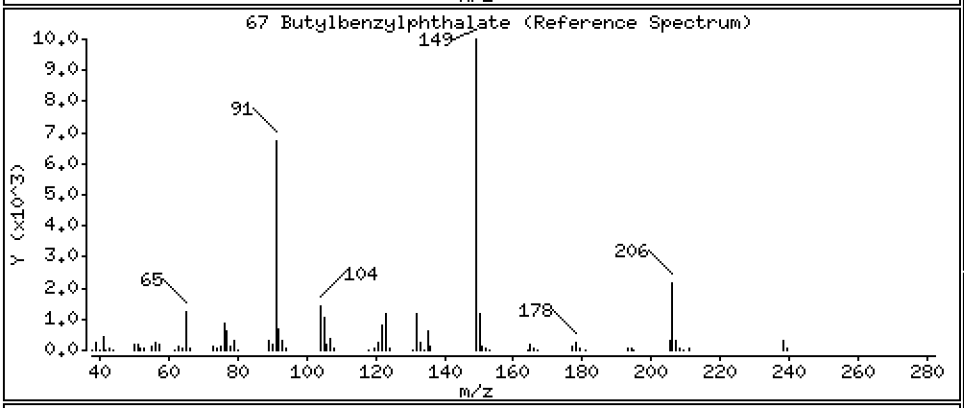
Concentration: 0.2085 ug/mL

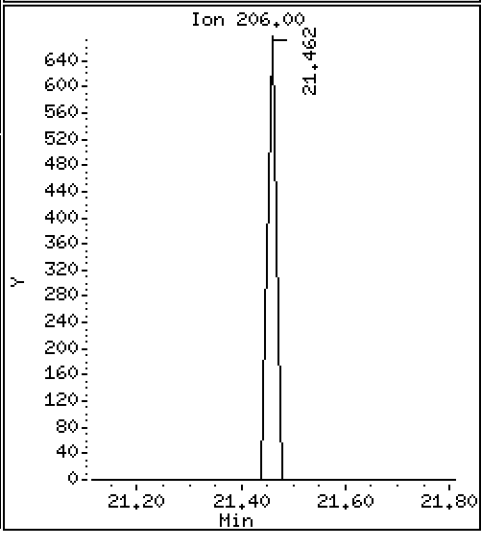


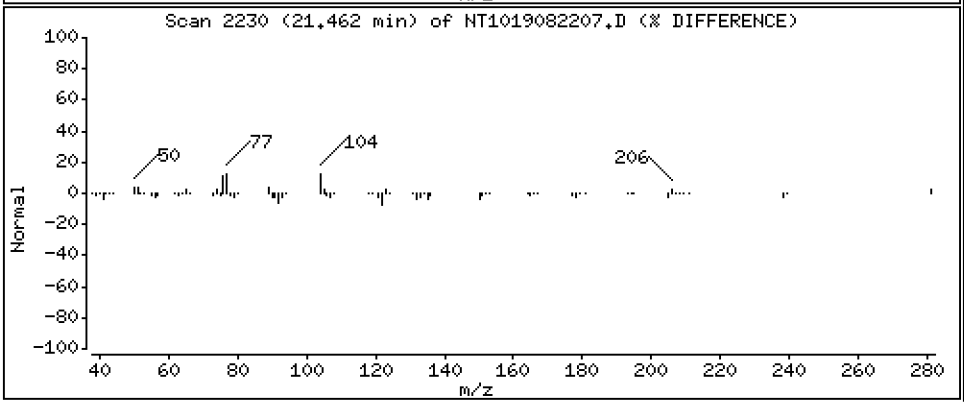












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

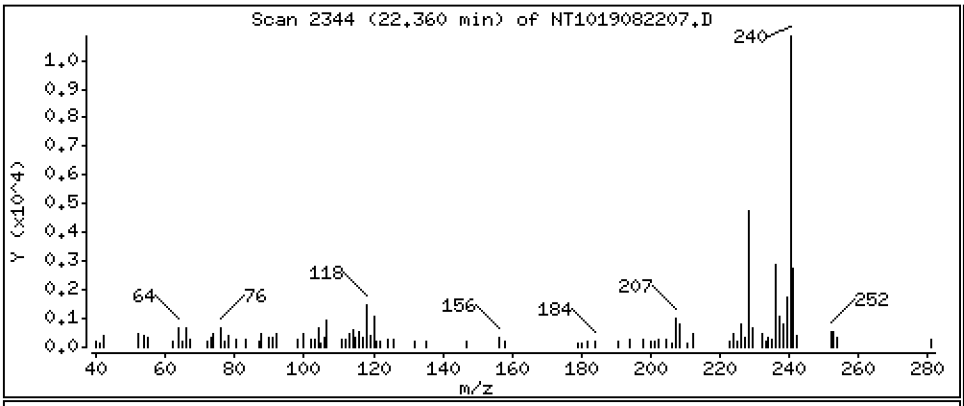
Operator: YZ

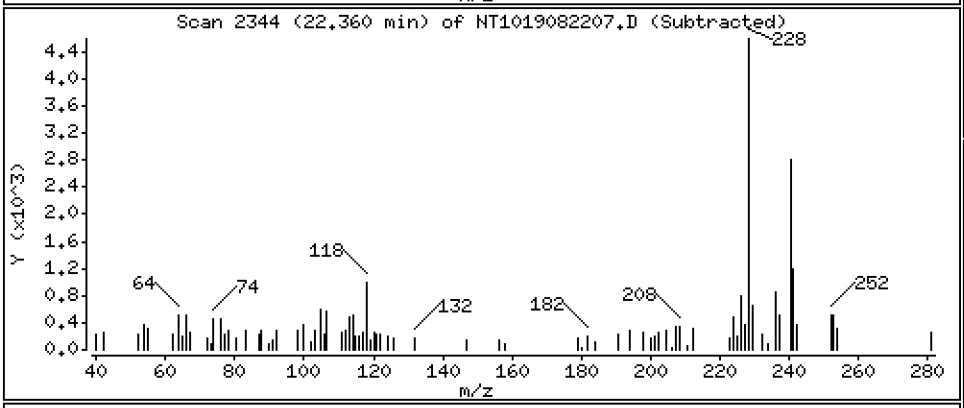
Column phase: ZB-5msi

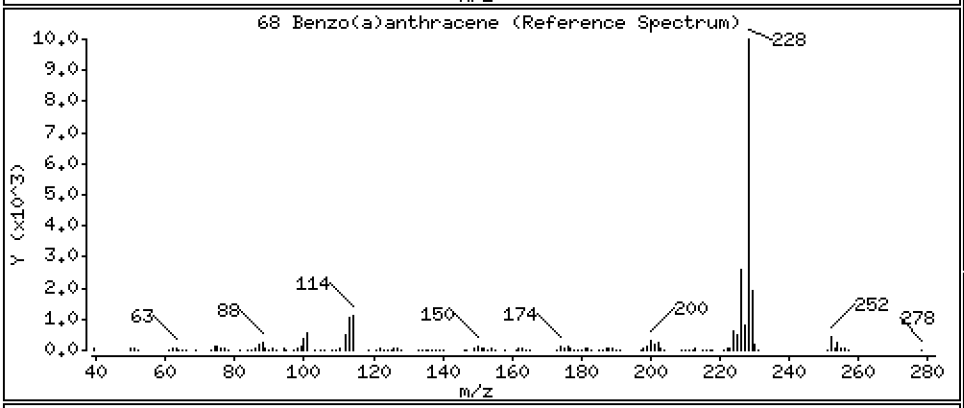
Column diameter: 0.25

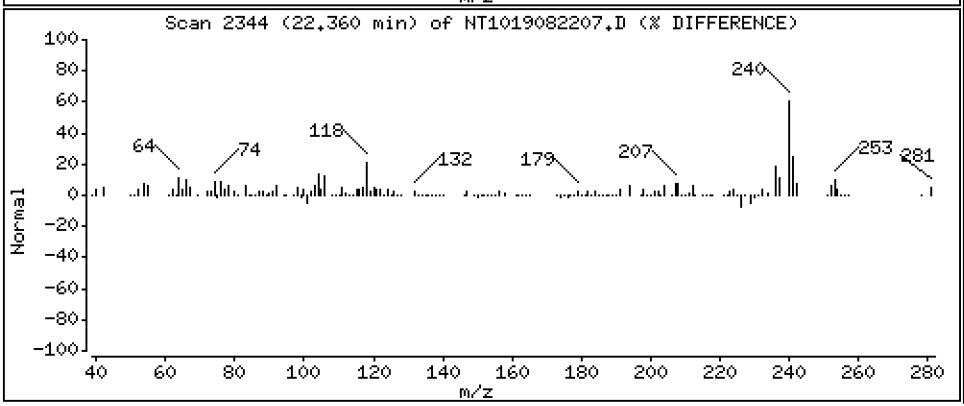
68 Benzo(a)anthracene

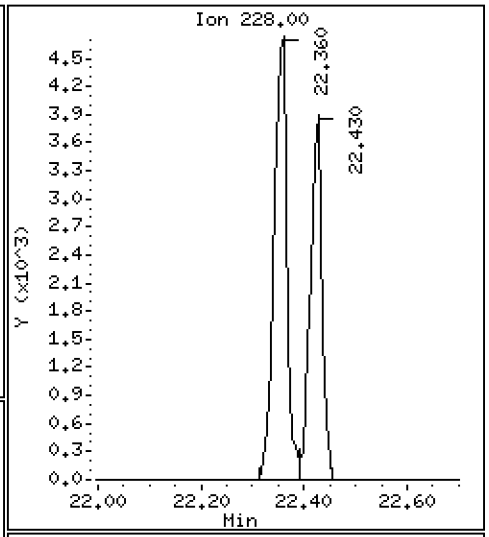
Concentration: 0.2087 ug/mL

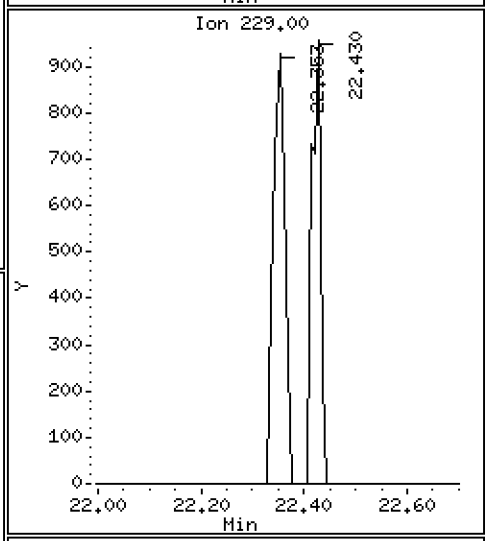


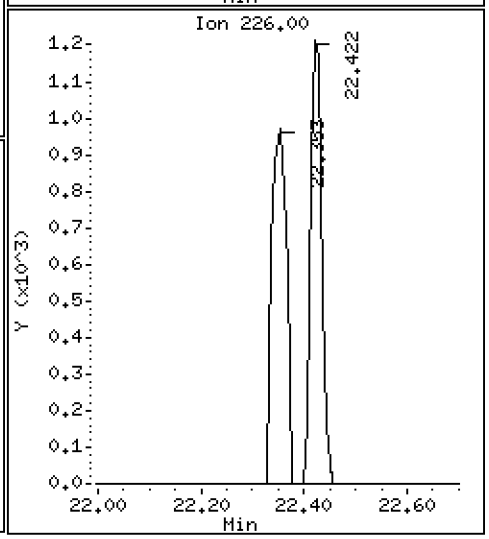












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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

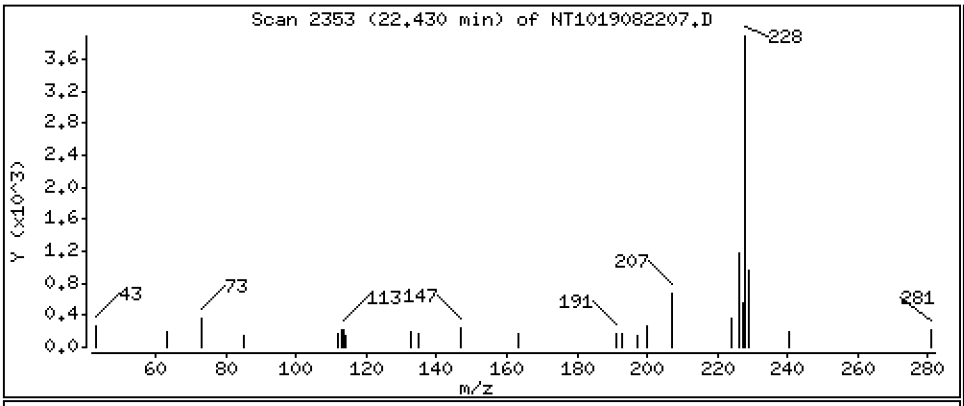
Operator: YZ

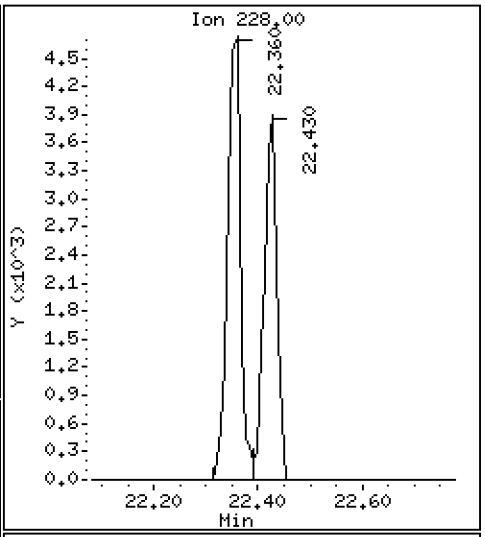
Column phase: ZB-5msi

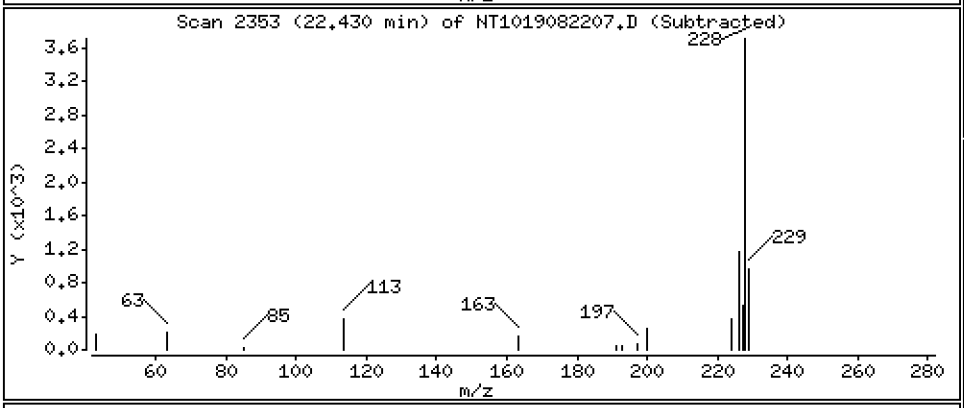
Column diameter: 0.25

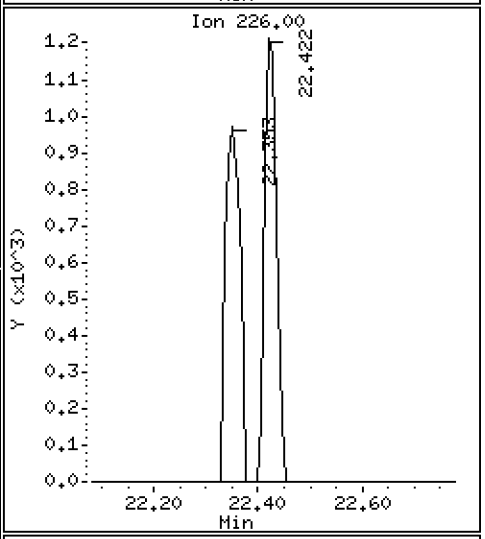
71 Chrysene

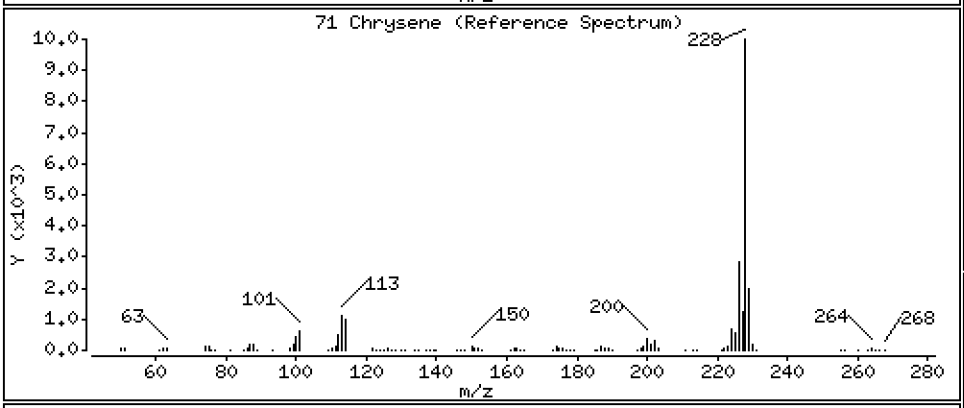
Concentration: 0.1913 ug/mL

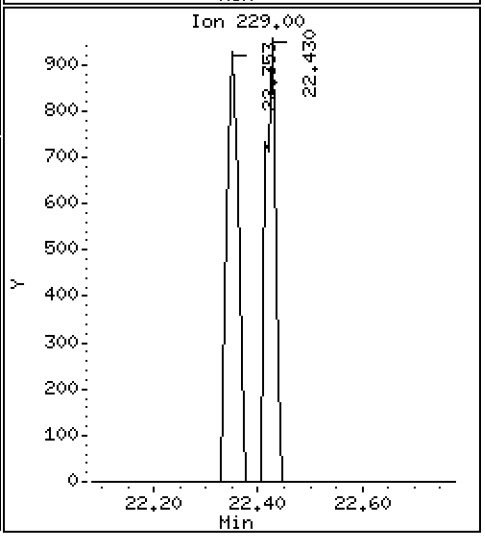


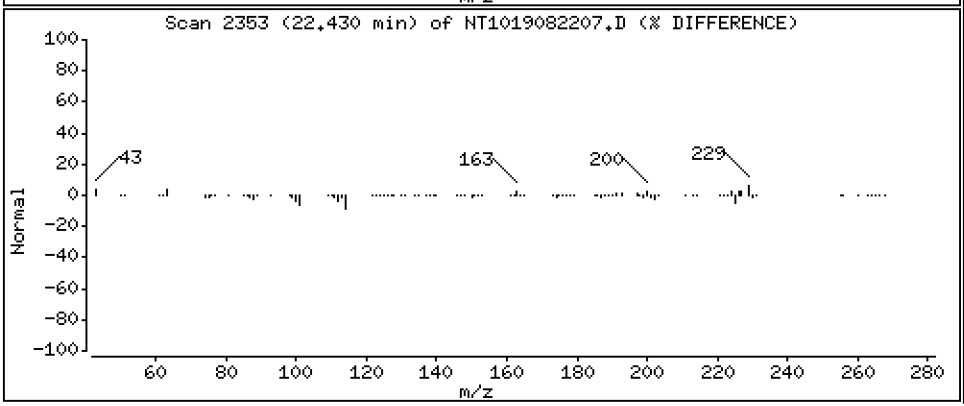












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

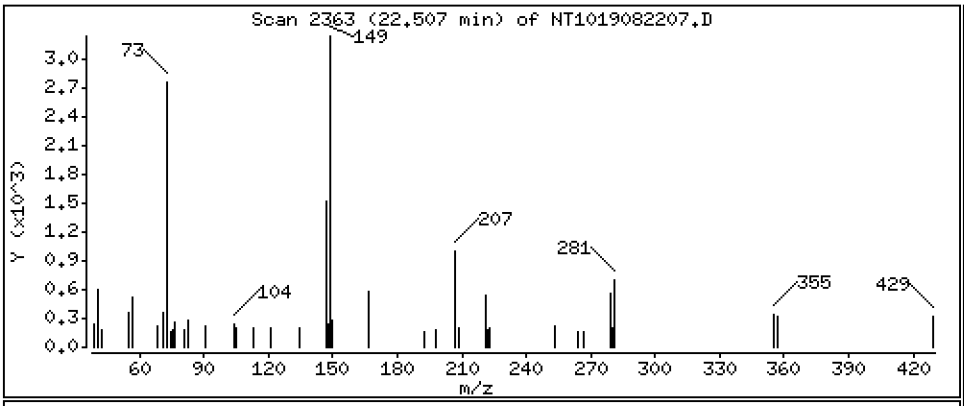
Operator: YZ

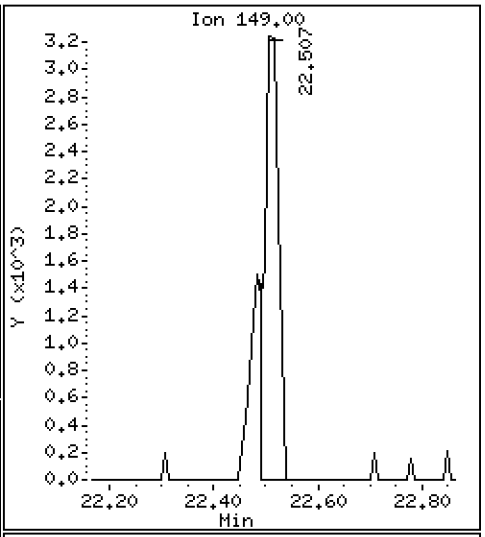
Column phase: ZB-5msi

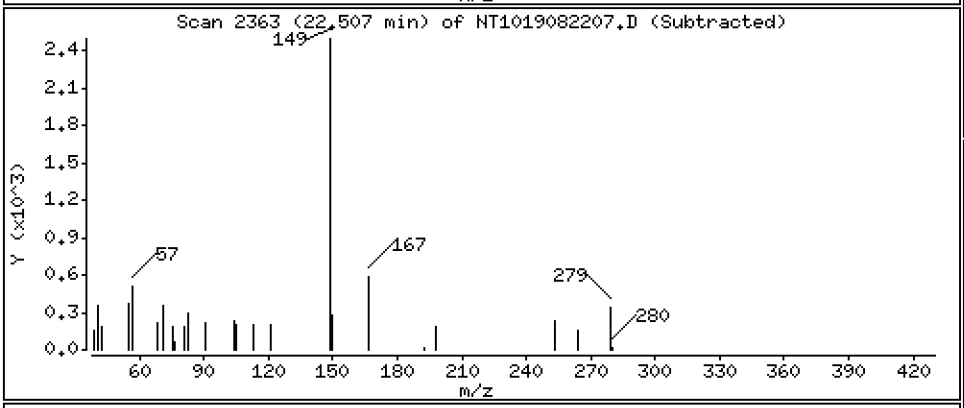
Column diameter: 0.25

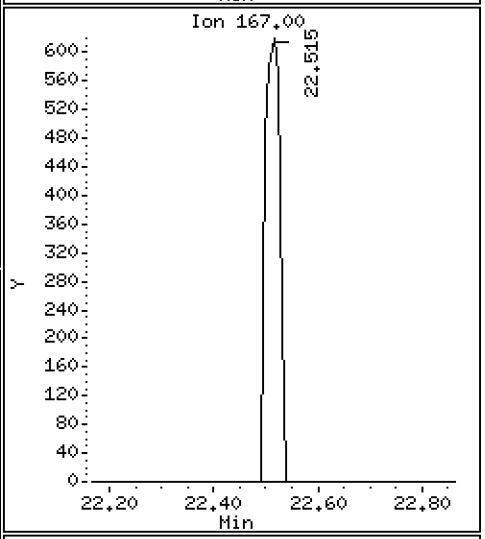
72 bis(2-Ethylhexyl)phthalate

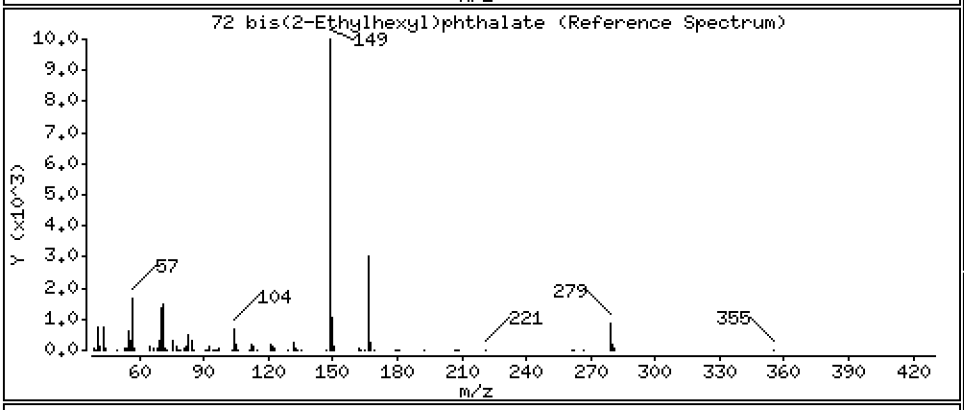
Concentration: 0.2518 ug/mL

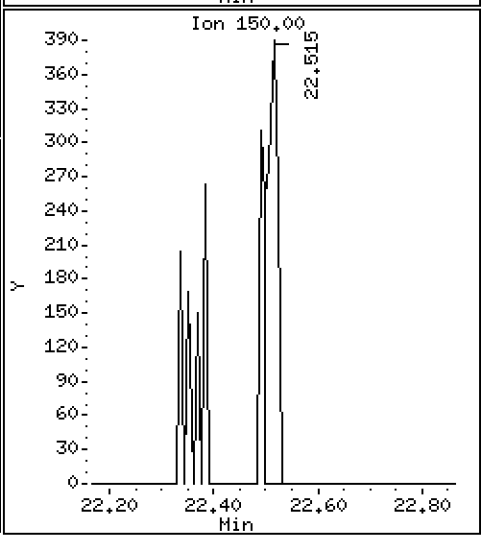


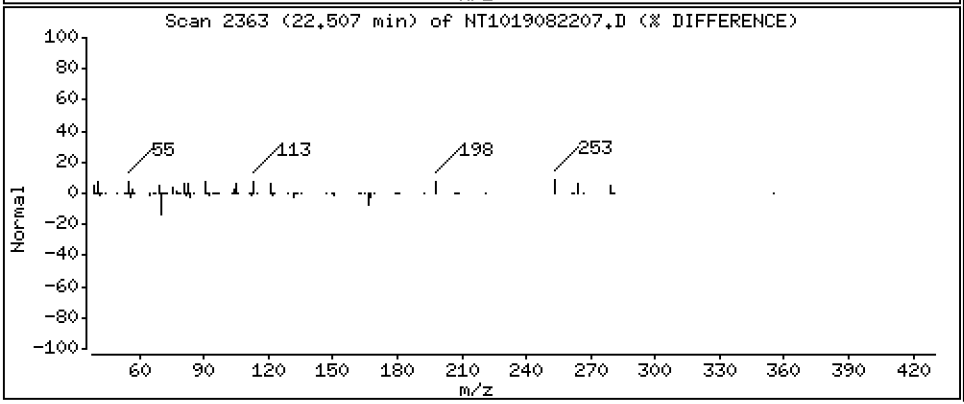












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

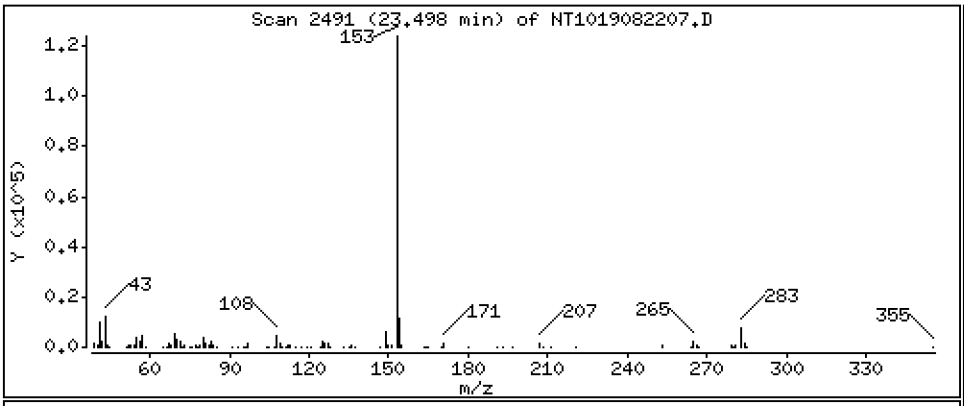
Operator: YZ

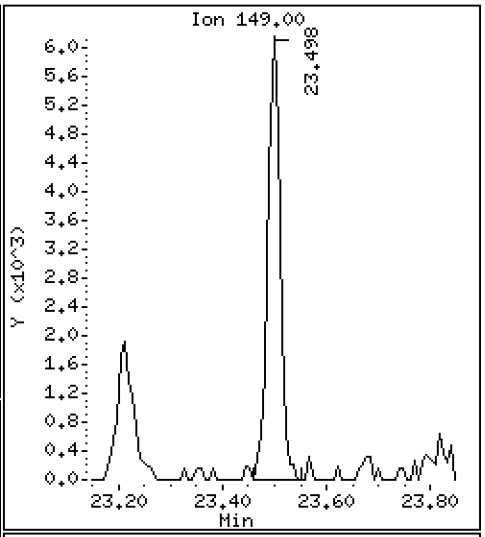
Column phase: ZB-5msi

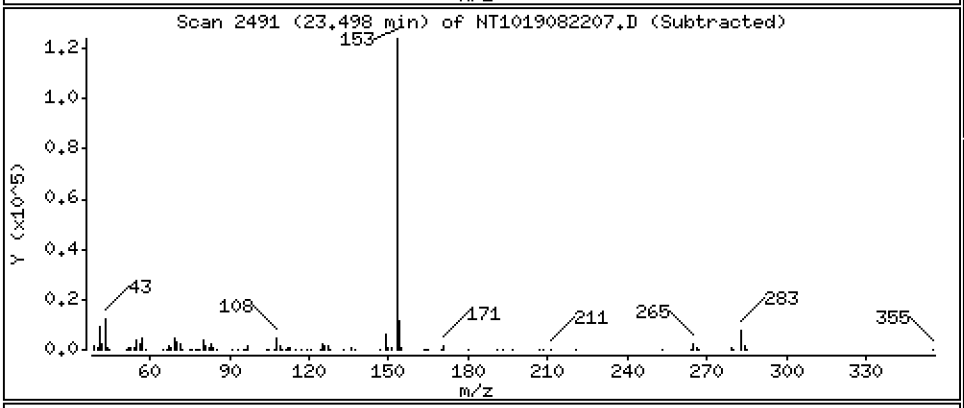
Column diameter: 0.25

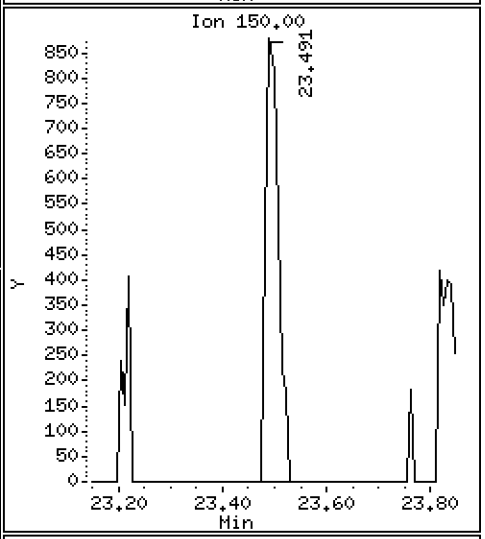
73 Di-n-octylphthalate

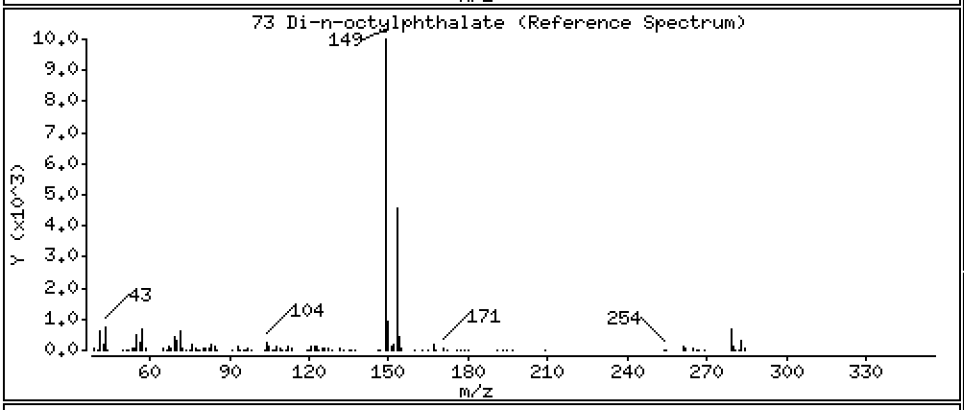
Concentration: 0.2028 ug/mL

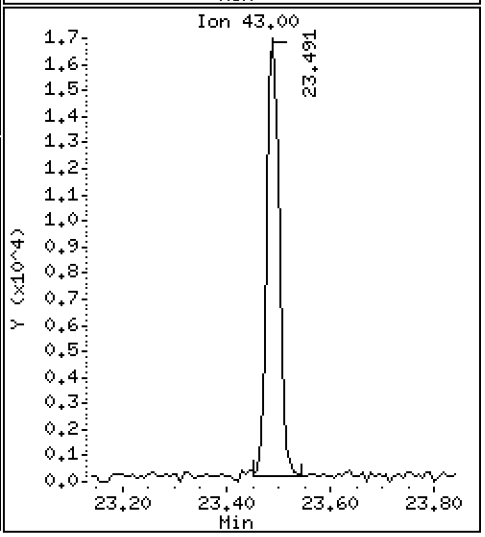


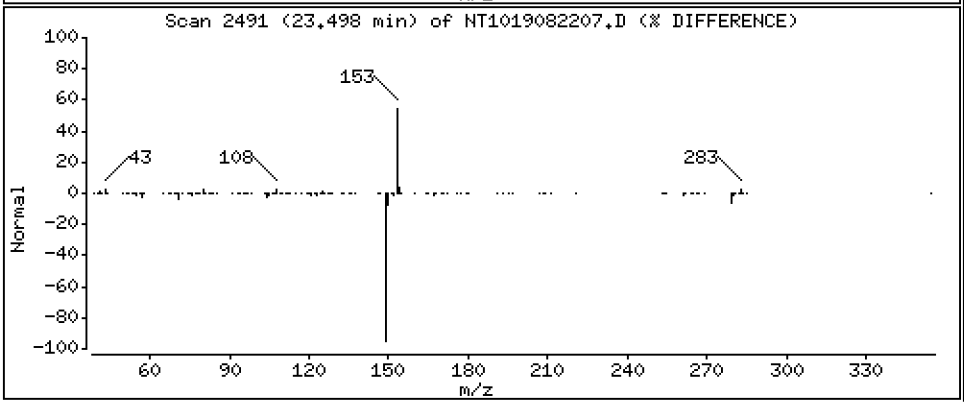












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

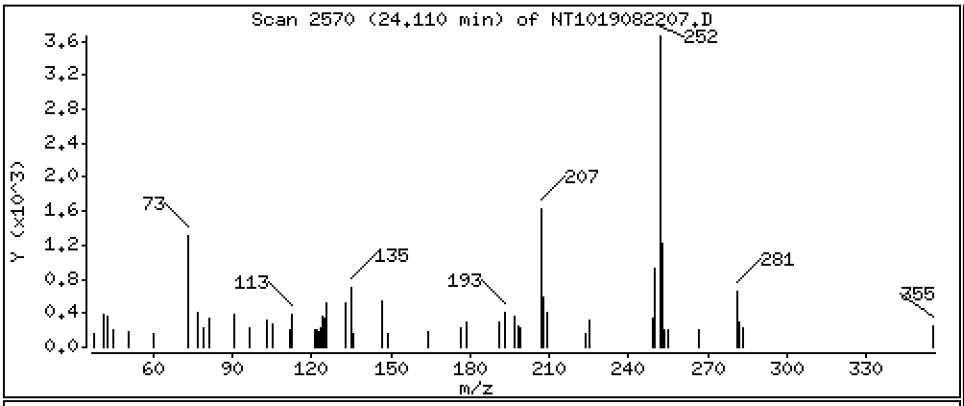
Operator: YZ

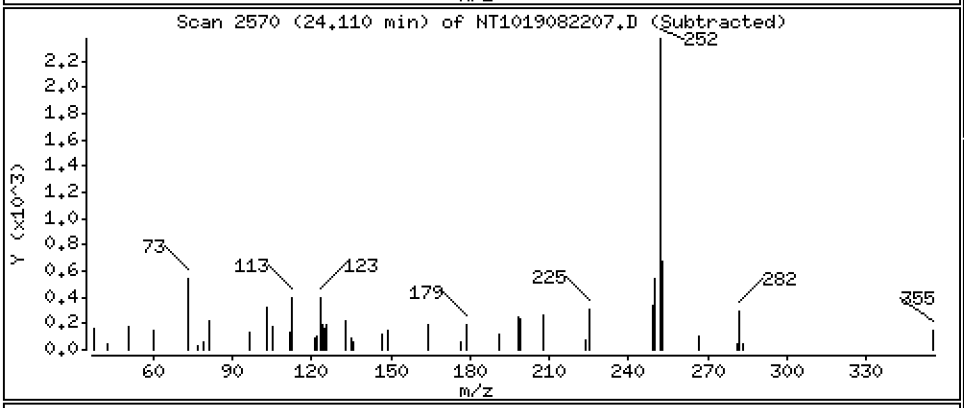
Column phase: ZB-5msi

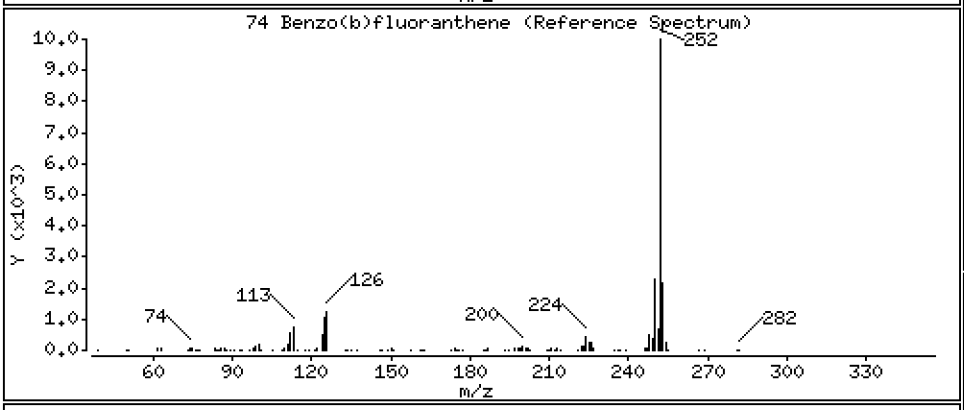
Column diameter: 0.25

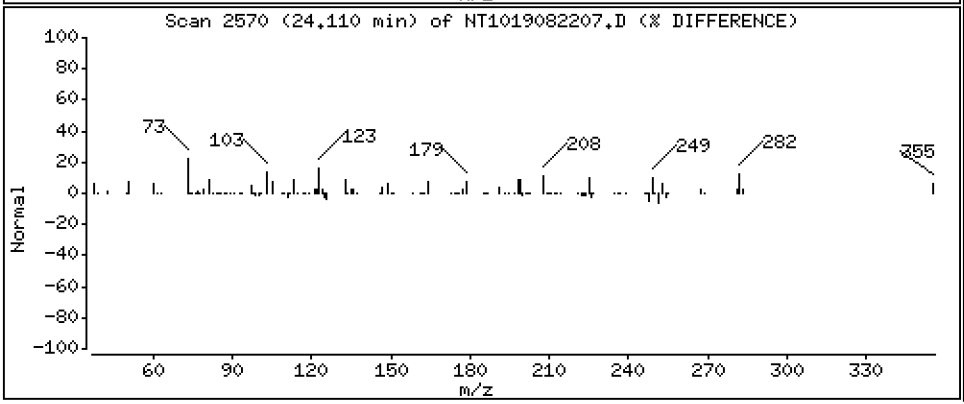
74 Benzo(b)fluoranthene

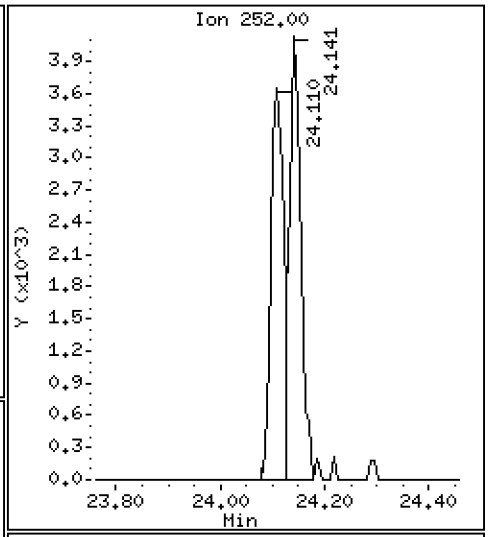
Concentration: 0.1982 ug/mL

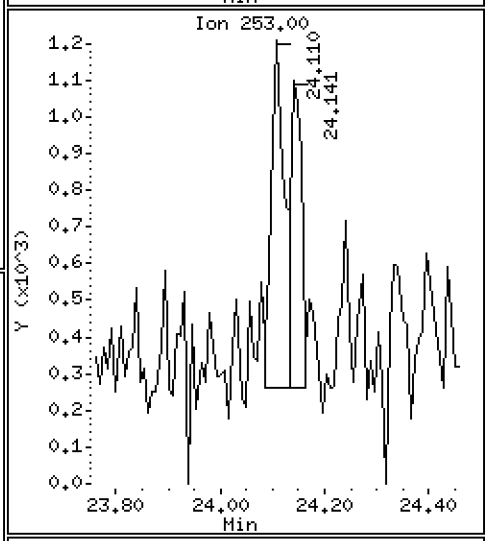


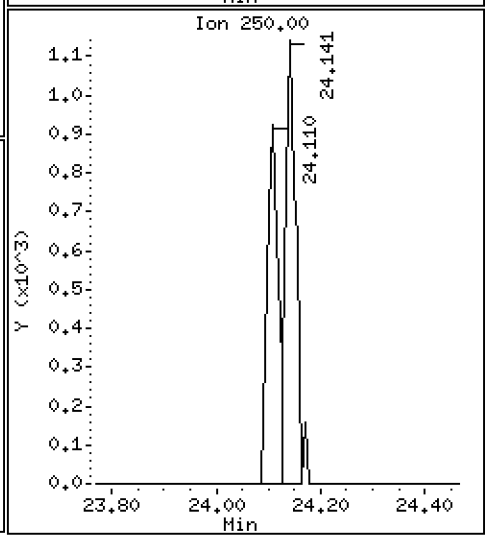












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

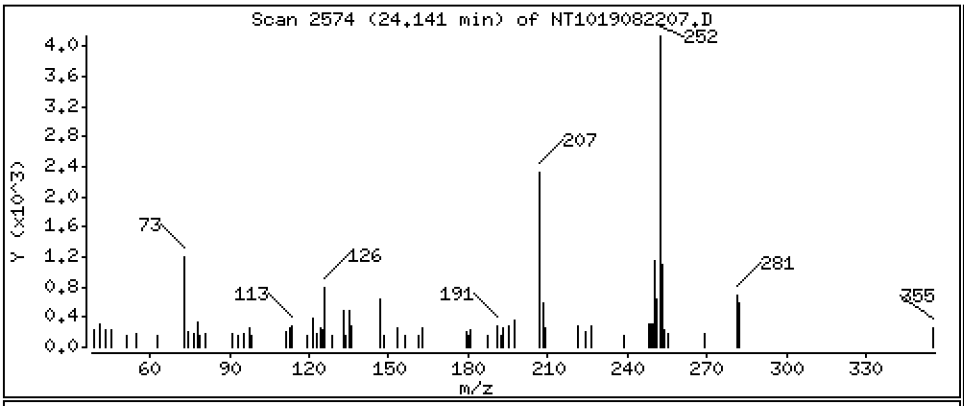
Operator: YZ

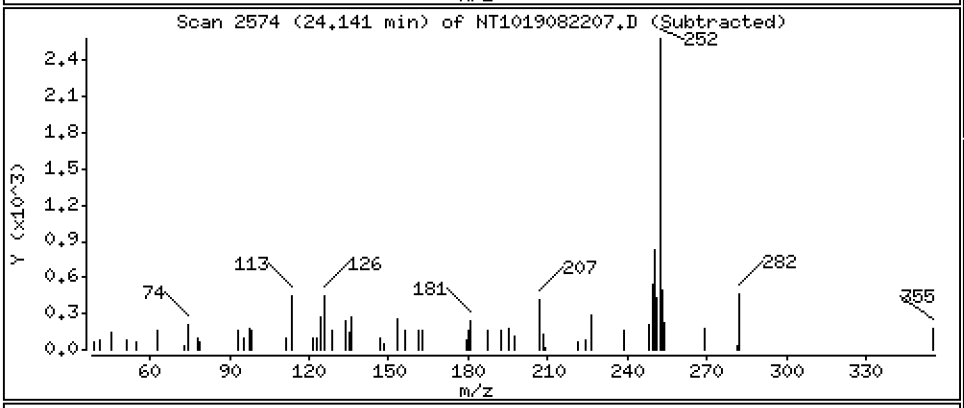
Column phase: ZB-5msi

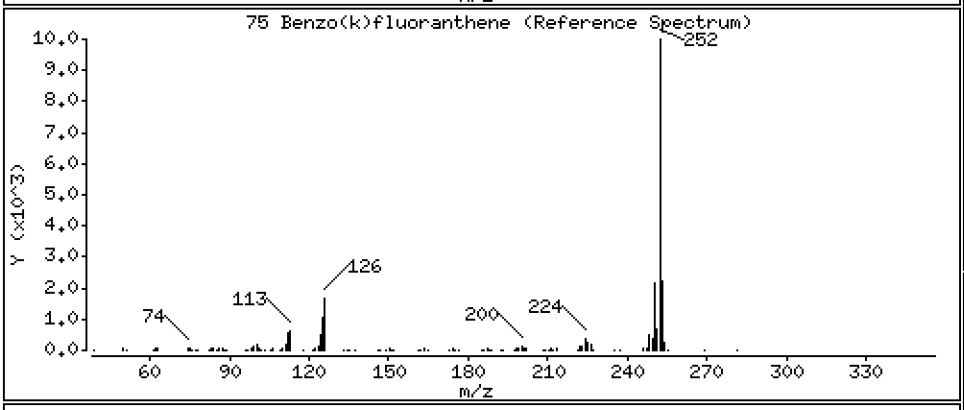
Column diameter: 0.25

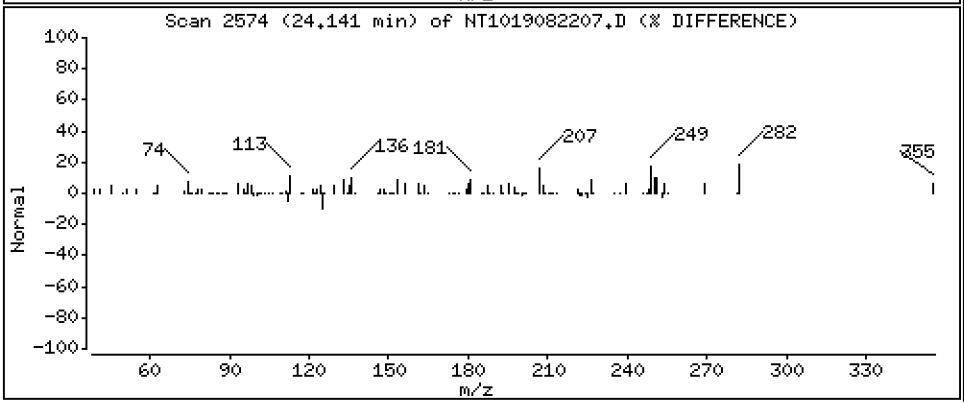
75 Benzo(k)fluoranthene

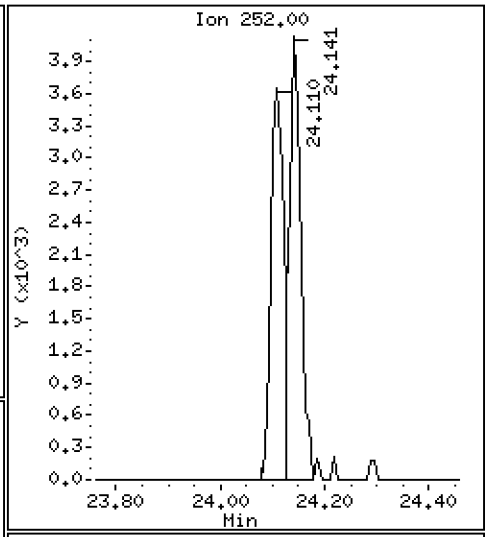
Concentration: 0.2329 ug/mL

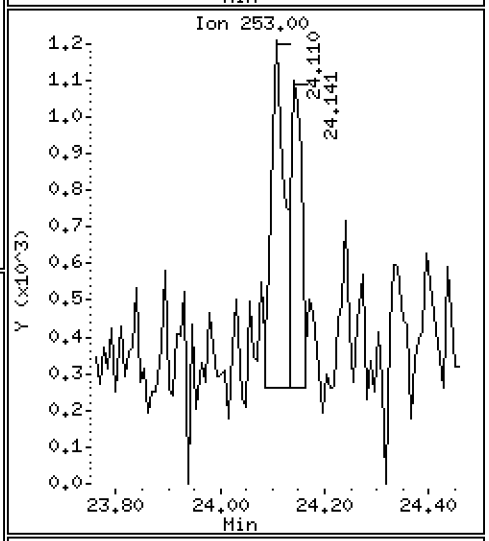


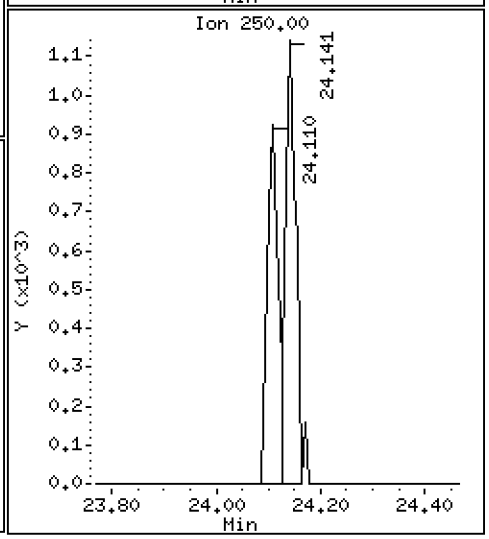












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

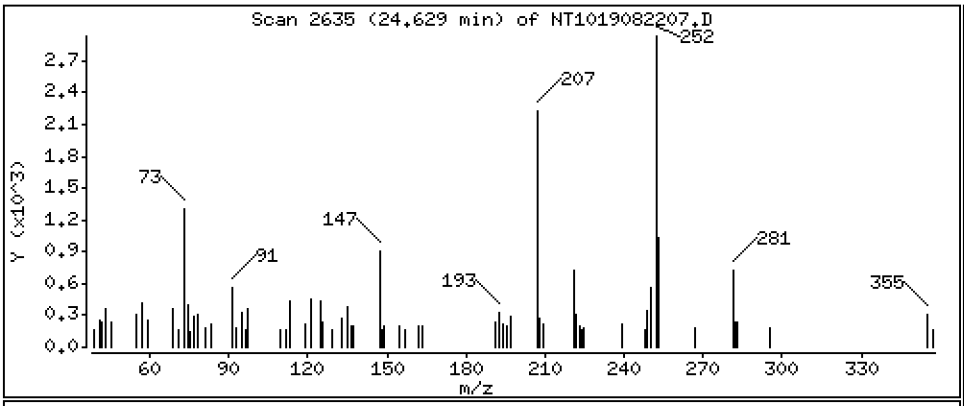
Operator: YZ

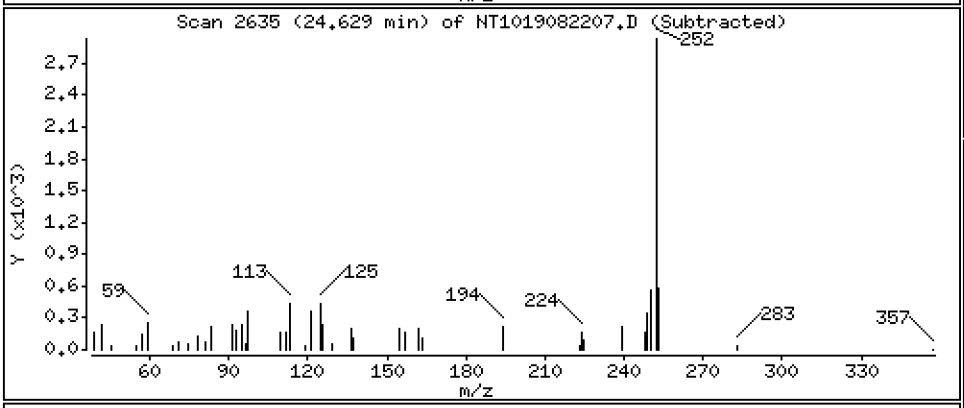
Column phase: ZB-5msi

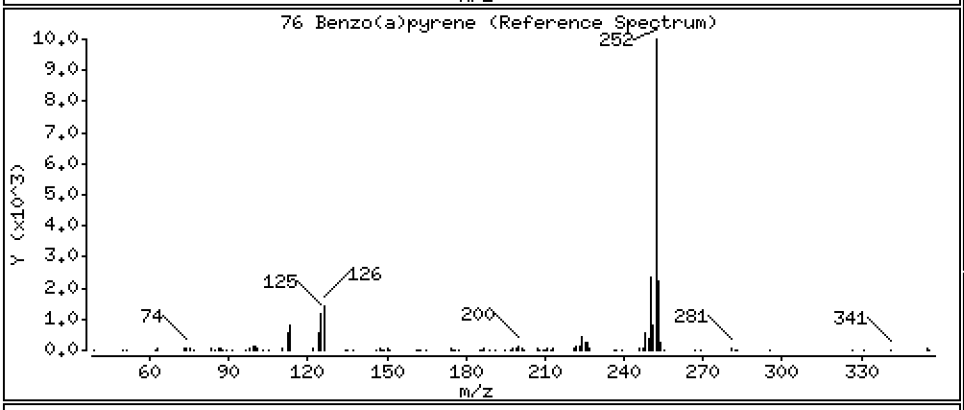
Column diameter: 0.25

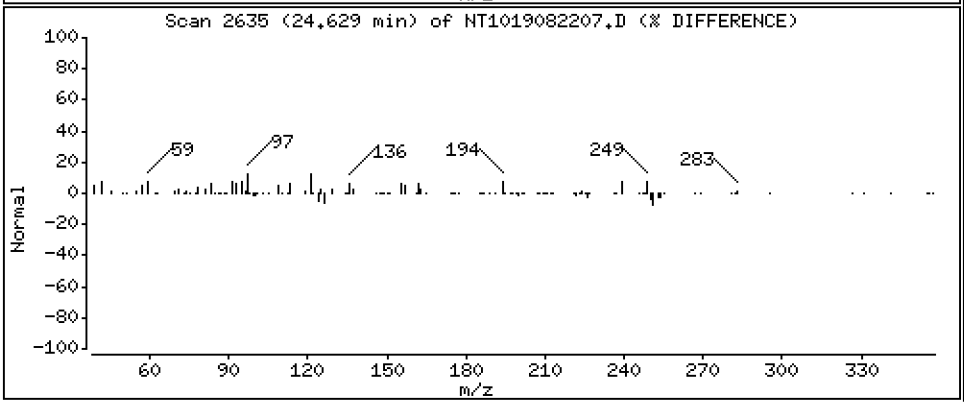
76 Benzo(a)pyrene

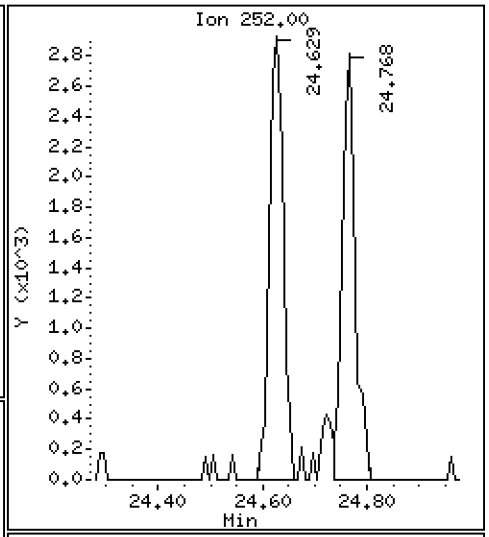
Concentration: 0.1926 ug/mL

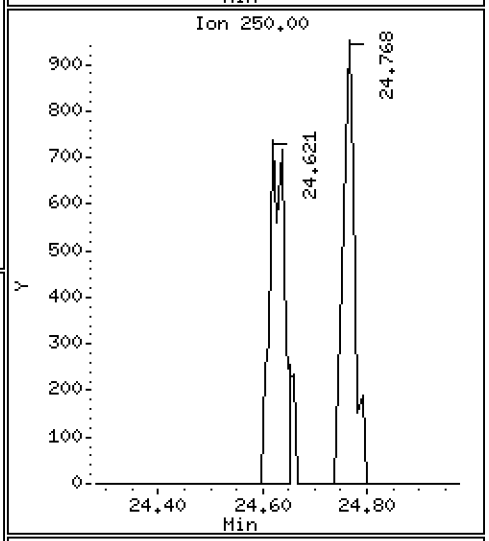


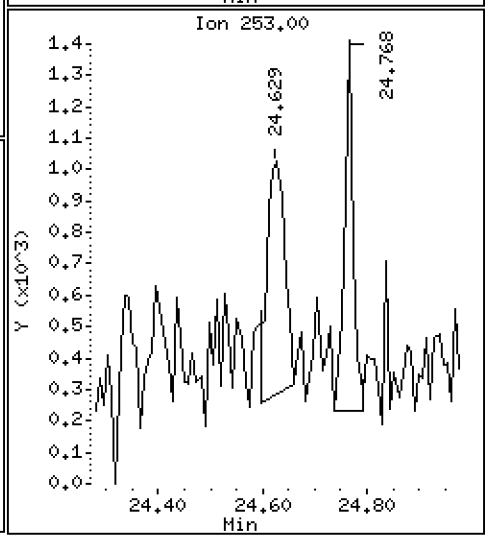












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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

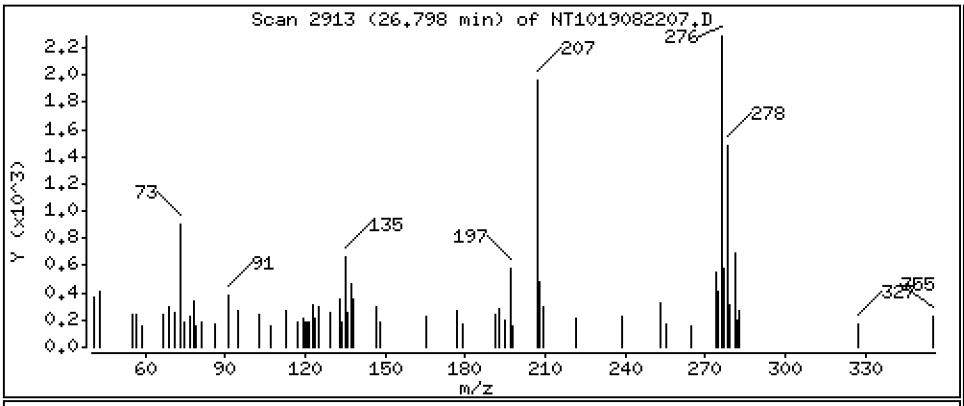
Operator: YZ

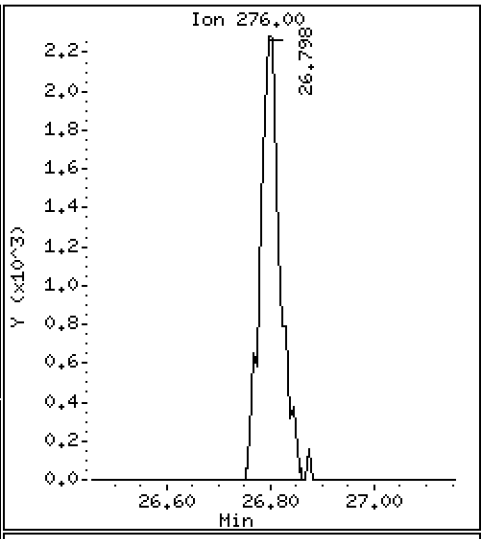
Column phase: ZB-5msi

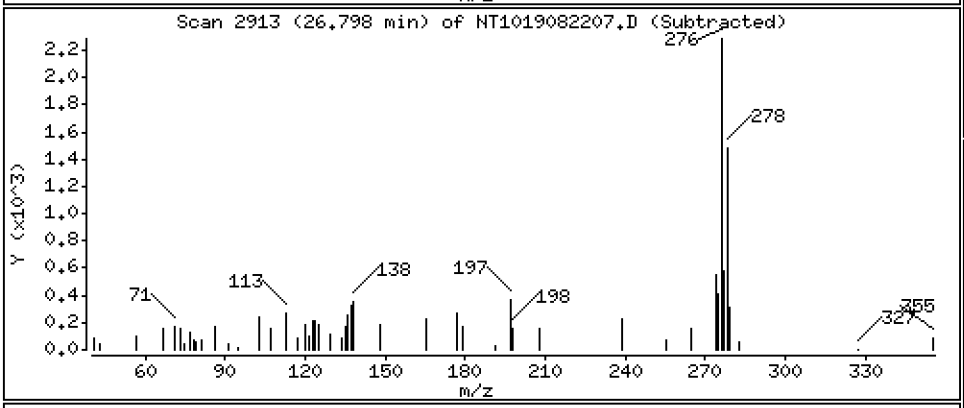
Column diameter: 0.25

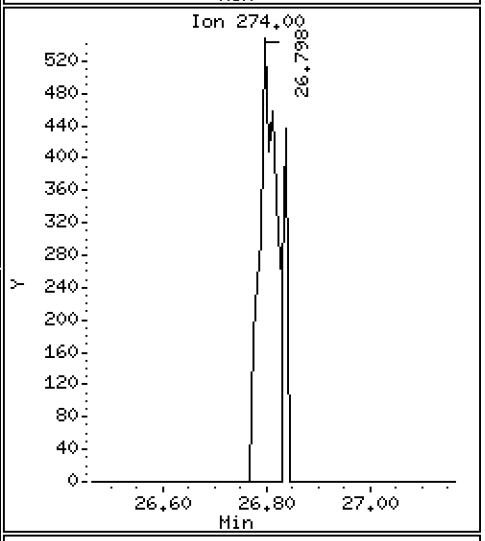
78 Indeno(1,2,3-cd)pyrene

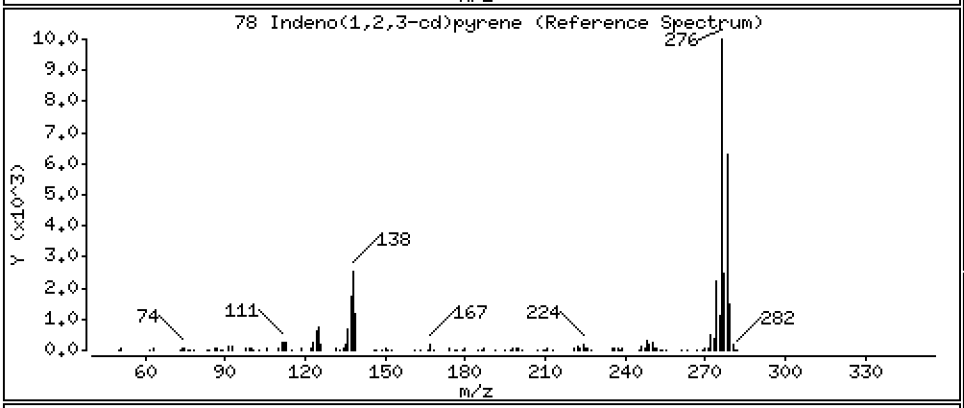
Concentration: 0.1867 ug/mL

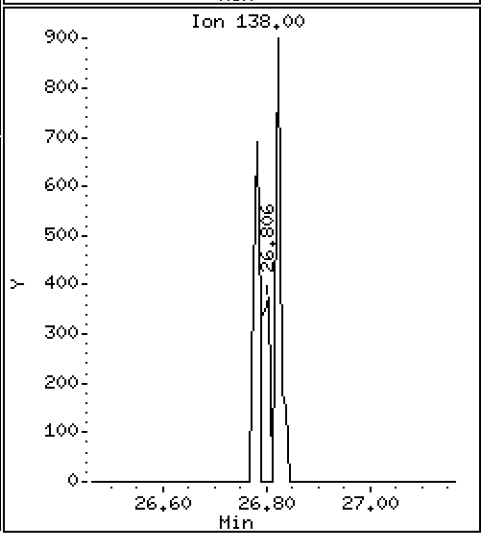


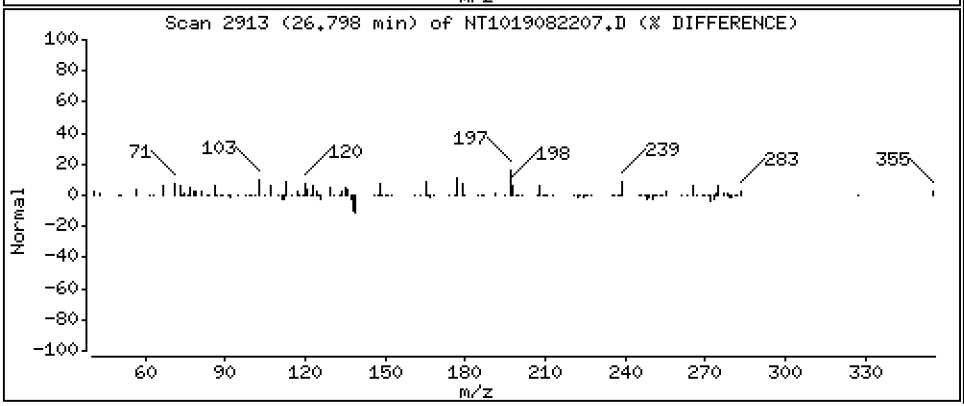












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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

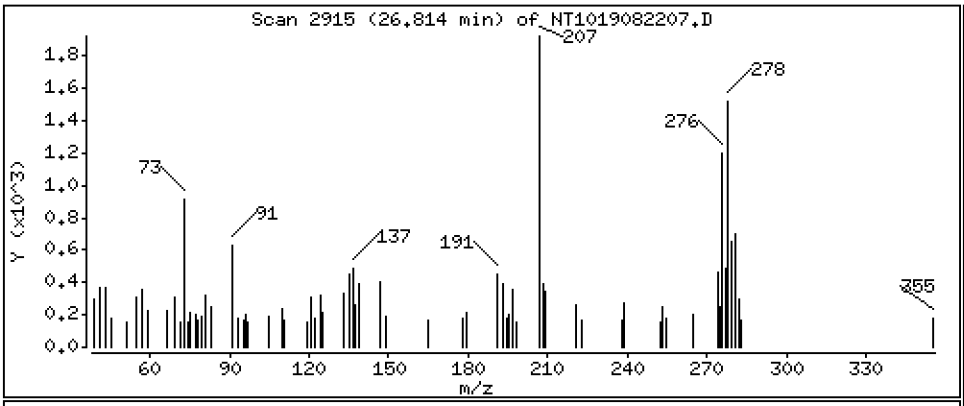
Operator: YZ

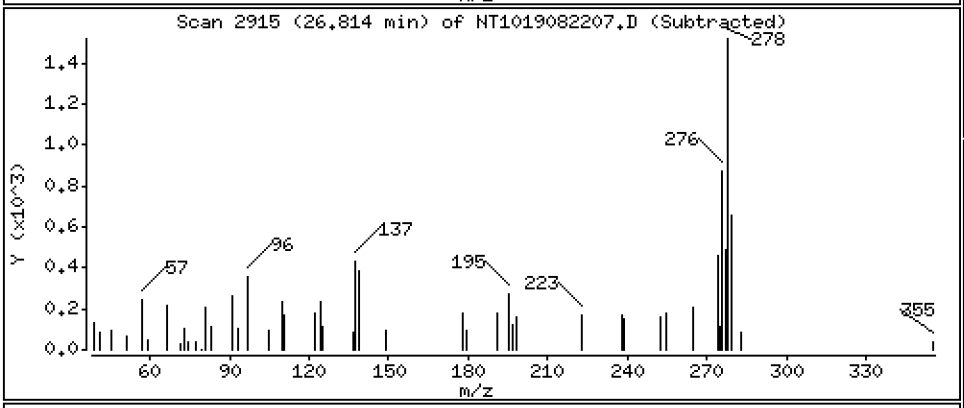
Column phase: ZB-5msi

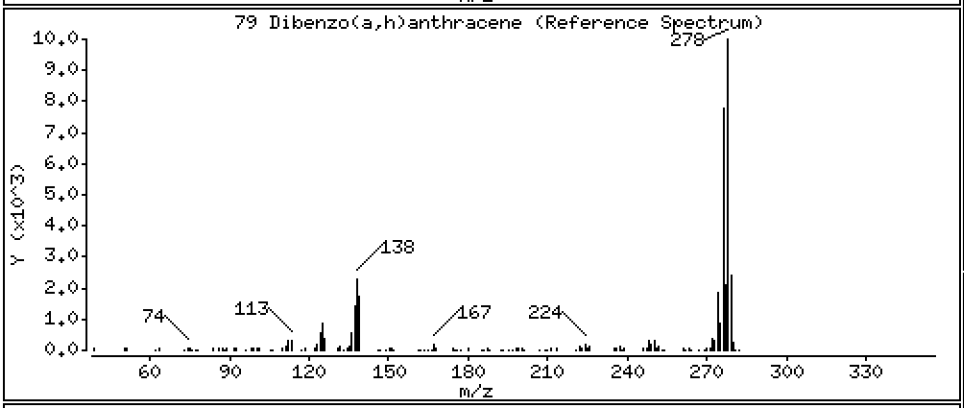
Column diameter: 0.25

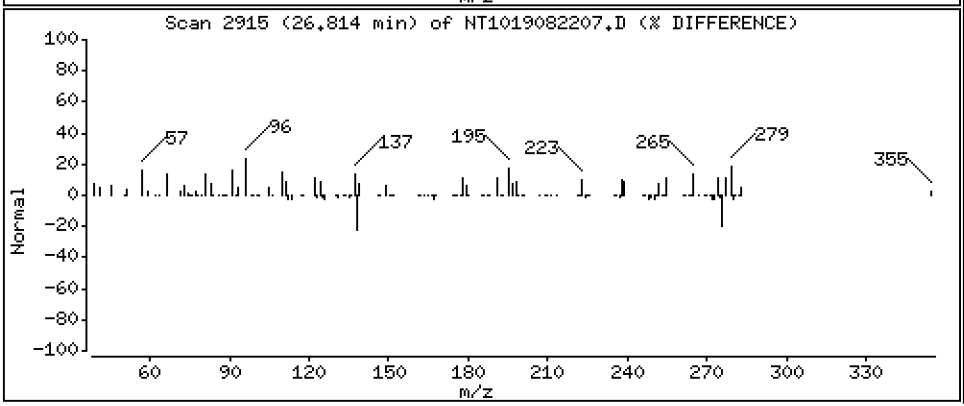
79 Dibenzo(a,h)anthracene

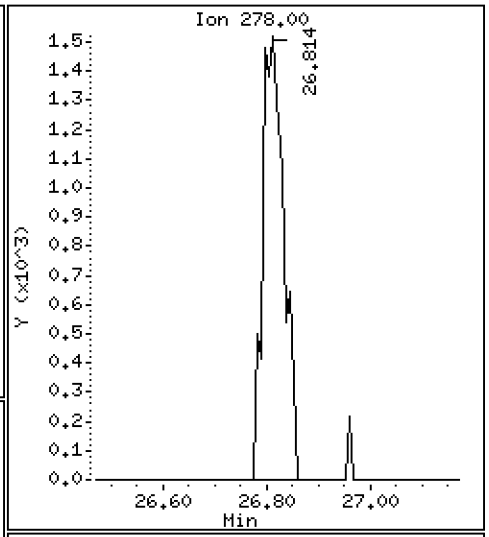
Concentration: 0.1625 ug/mL

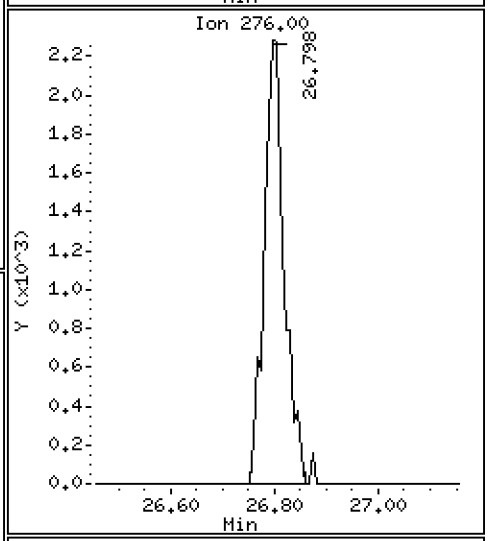


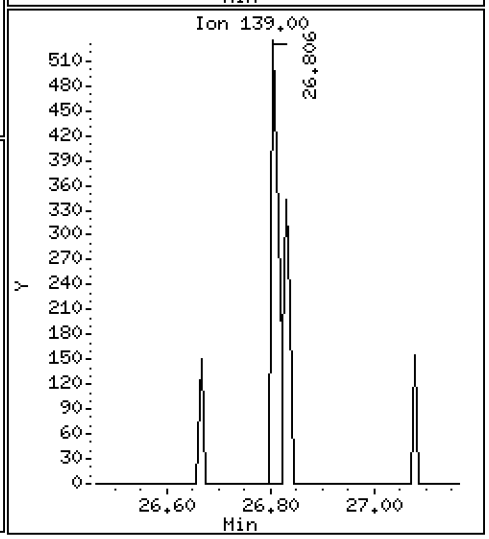












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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

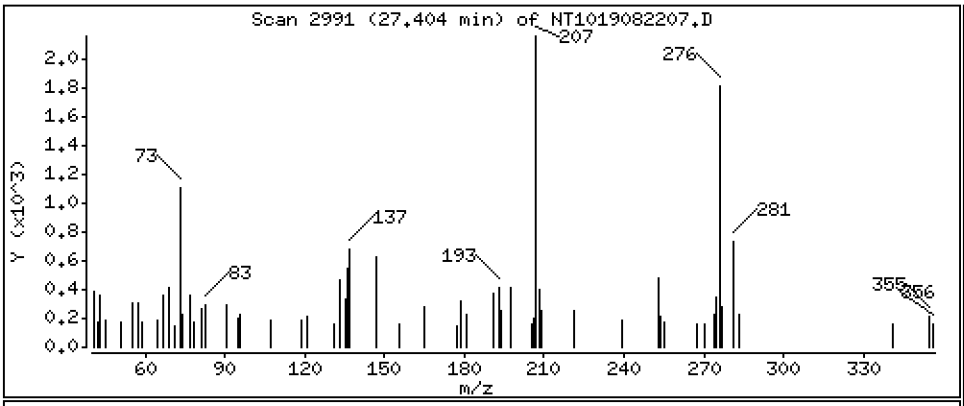
Operator: YZ

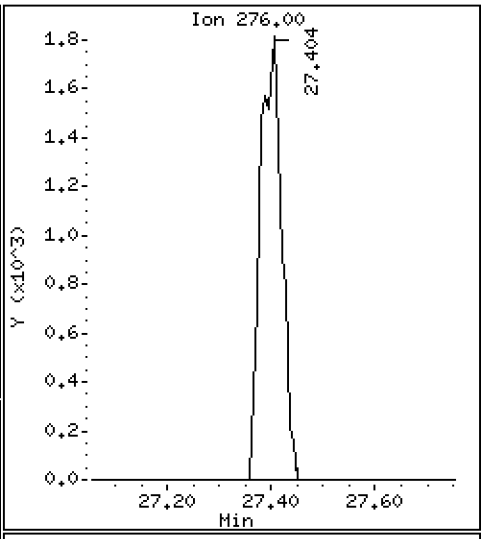
Column phase: ZB-5msi

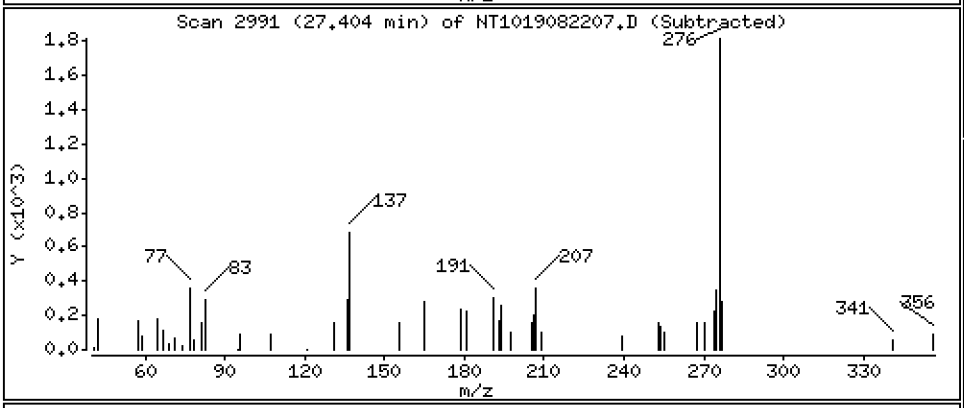
Column diameter: 0.25

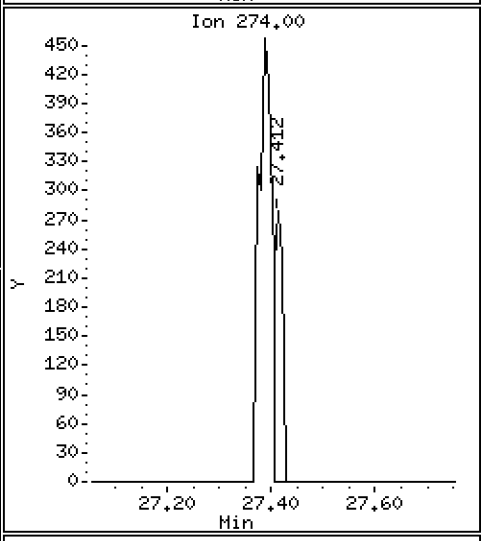
80 Benzo(g,h,i)perylene

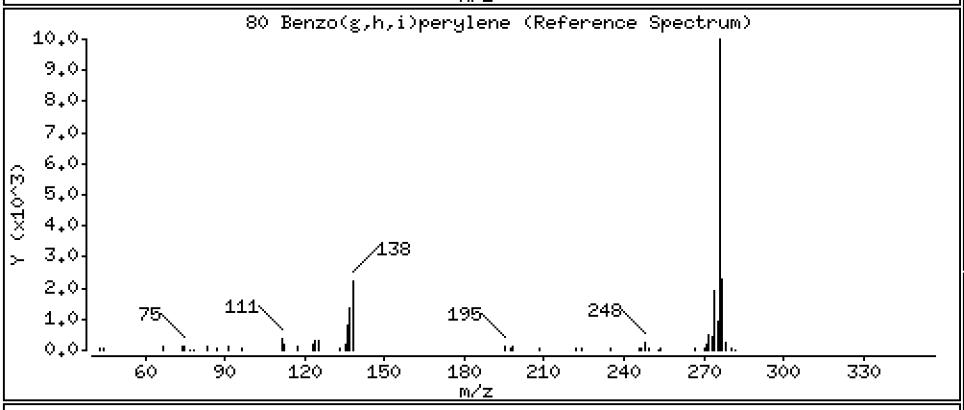
Concentration: 0.1864 ug/mL

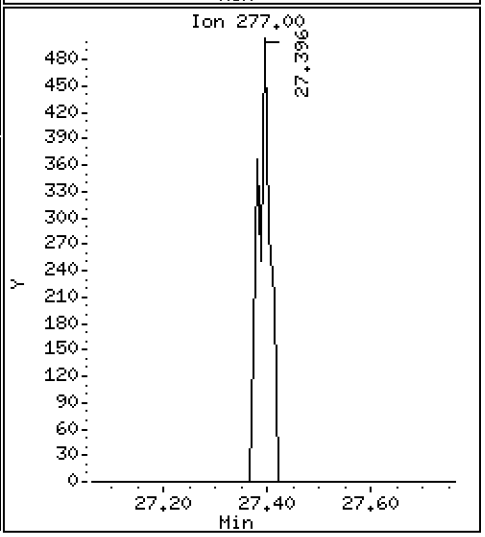


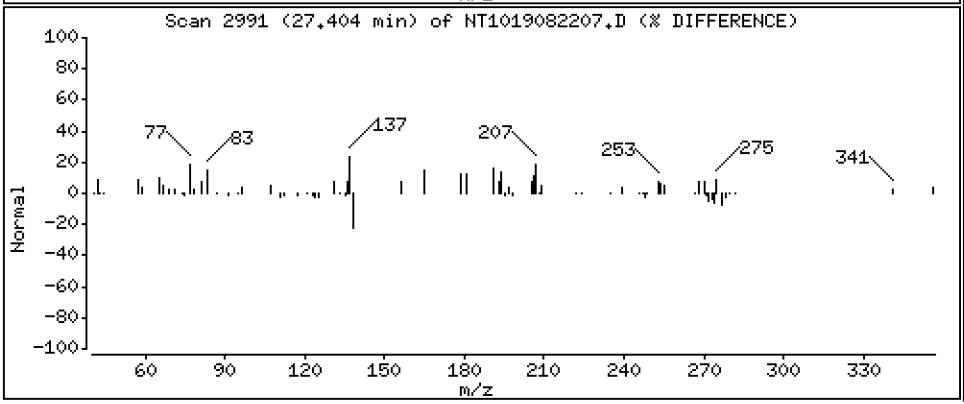












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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

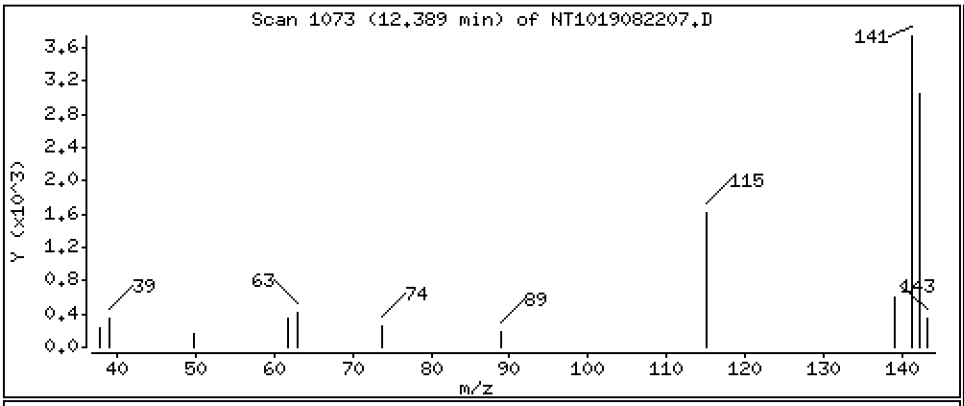
Operator: YZ

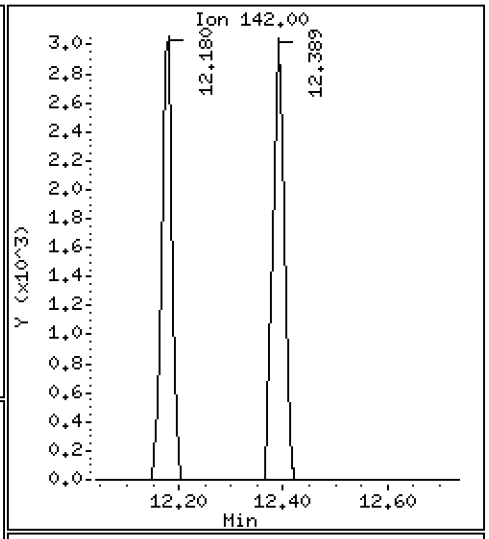
Column phase: ZB-5msi

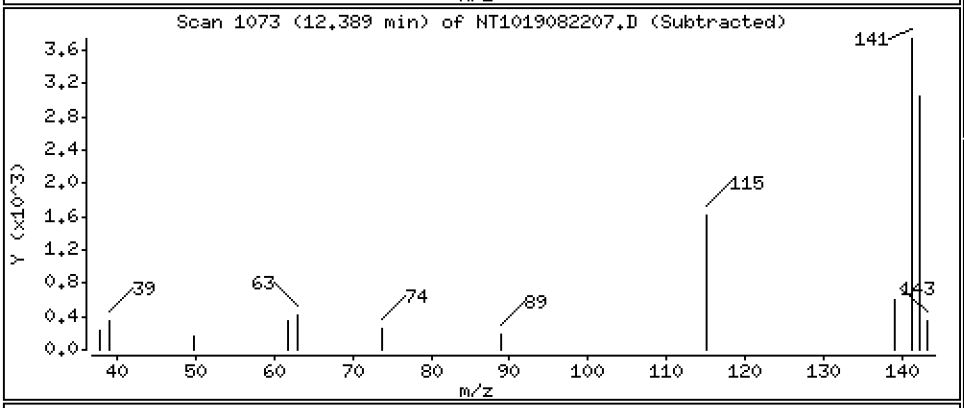
Column diameter: 0.25

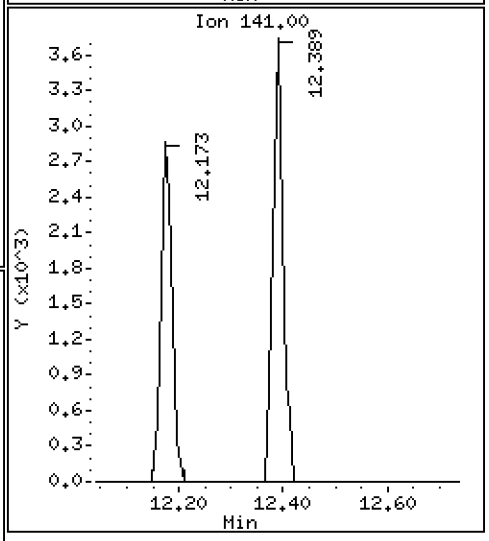
105 1-methylnaphthalene

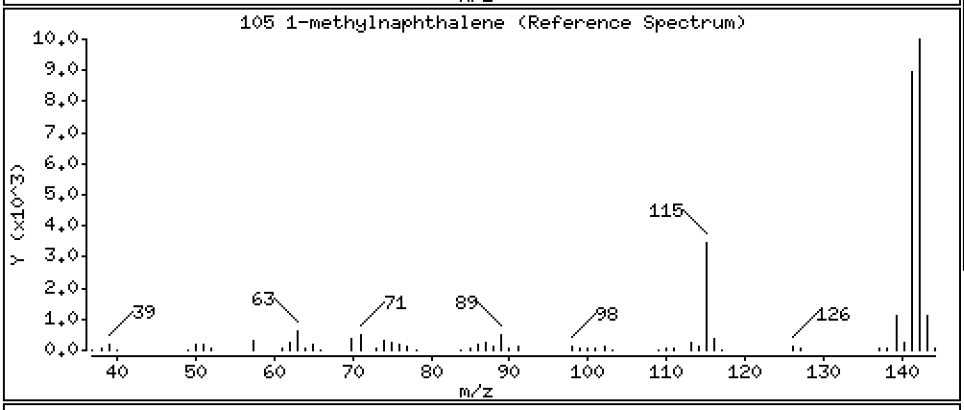
Concentration: 0.1512 ug/mL

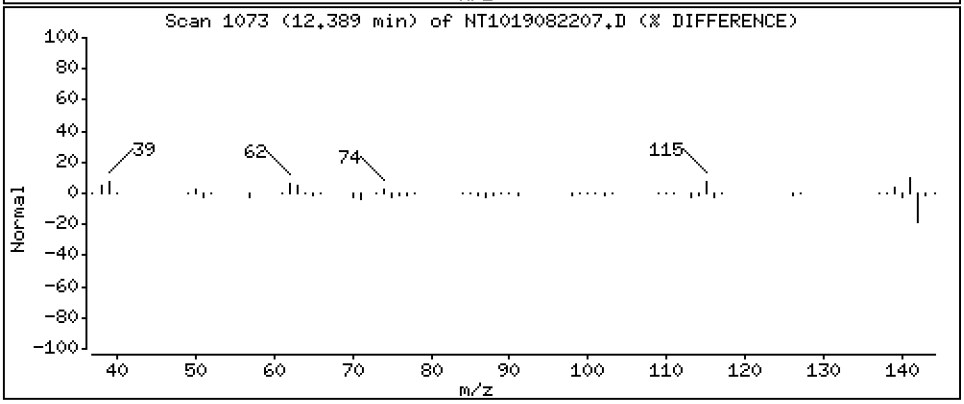












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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

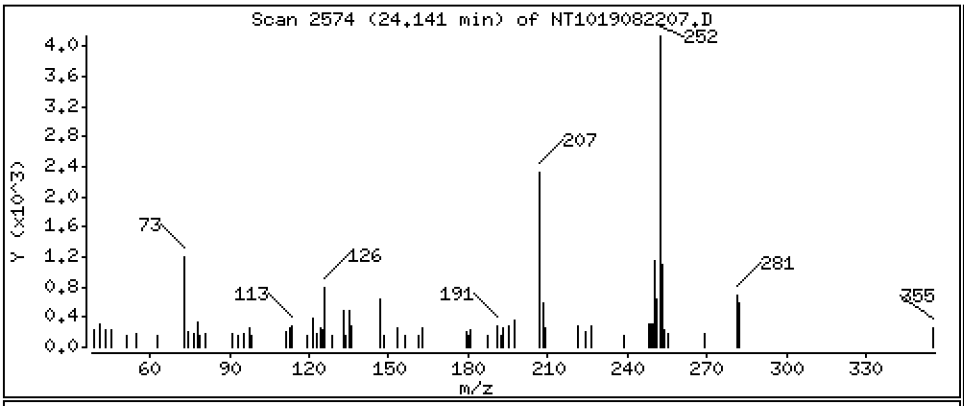
Operator: YZ

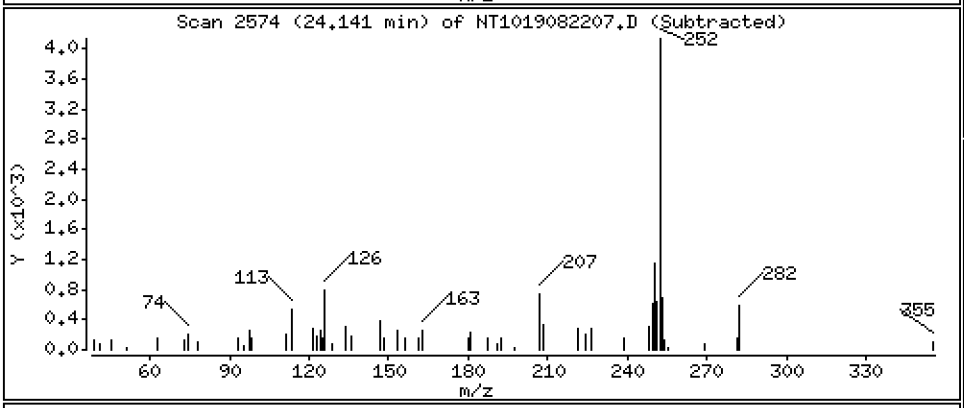
Column phase: ZB-5msi

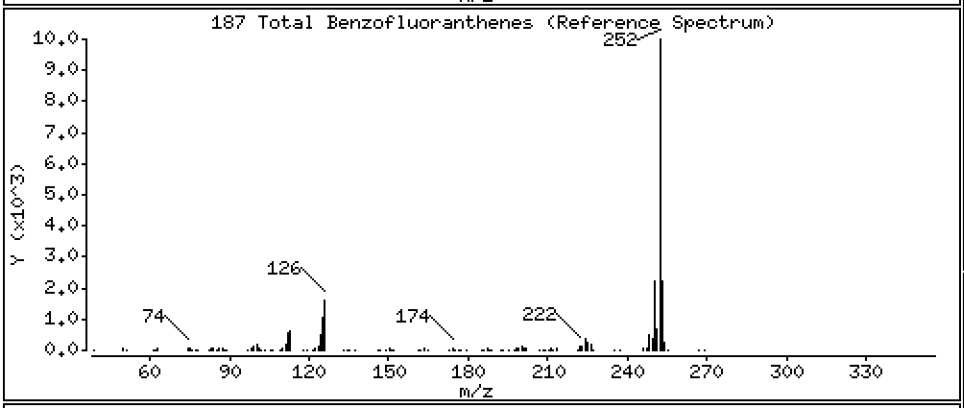
Column diameter: 0.25

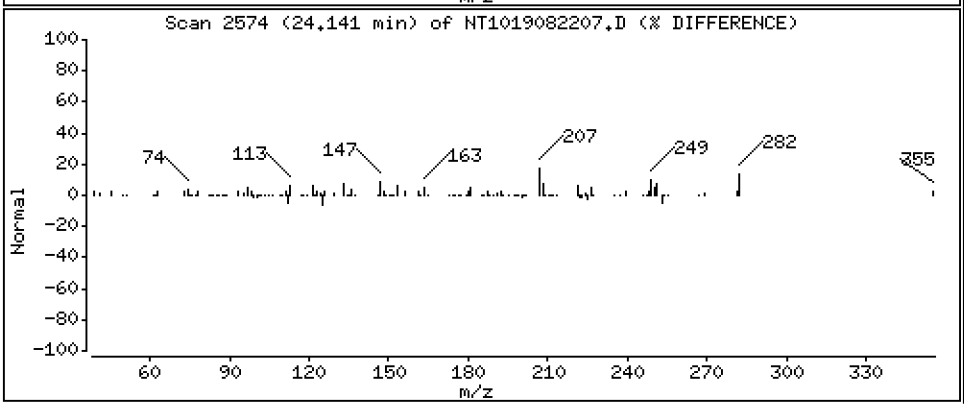
187 Total Benzofluoranthenes

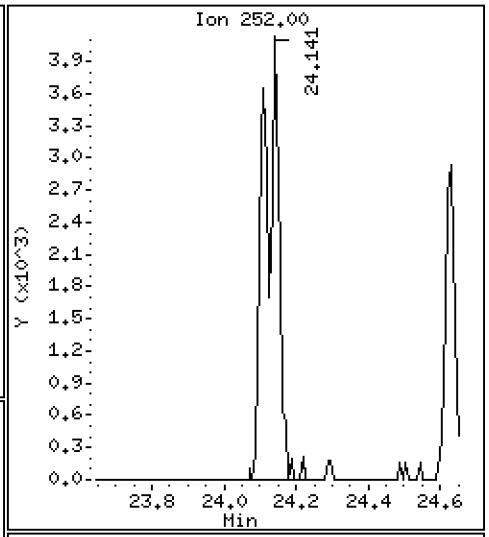
Concentration: 0.4300 ug/mL

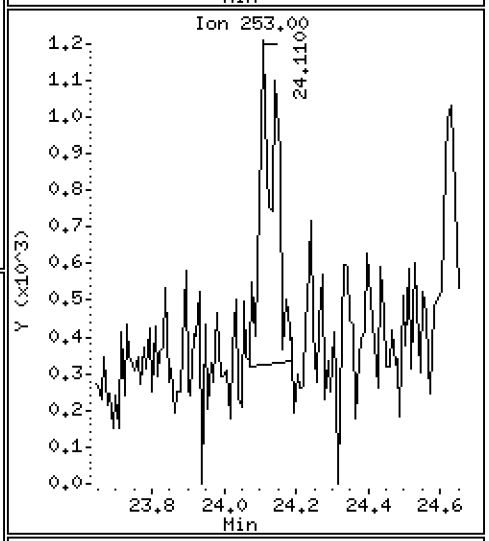


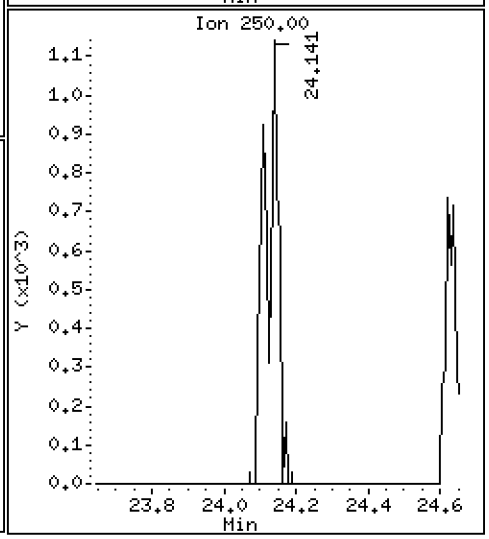












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

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Lab Smp Id: SHH0325-LCV1
Inj Date : 22-AUG-2019 17:29
Operator : YZ Inst ID: nt10.i
Smp Info : SHH0325-LCV1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 11:16 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.180	6.173	(0.742)	2132	0.18483	0.1848
$	2 Phenol-d5	99	7.757	7.749	(0.931)	2368	0.18317	0.1832
	3 Phenol	94	7.772	7.772	(0.933)	1619	0.13471	0.1347
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.958)	3422	0.24589	0.2459
*	8 1,4-Dichlorobenzene-d4	152	8.329	8.329	(1.000)	41079	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.678	8.671	(1.042)	1620	0.17026	0.1703
	11 Benzyl alcohol	108	8.616	8.608	(1.034)	938	0.11792	0.1179
$	18 Nitrobenzene-d5	82	9.400	9.408	(0.874)	1481	0.12846	0.1285
	24 Benzoic acid	105	10.270	10.381	(0.955)	872	0.10513	0.1051
*	27 Naphthalene-d8	136	10.757	10.765	(1.000)	147412	4.00000	
	28 Naphthalene	128	10.795	10.803	(1.004)	5837	0.17226	0.1723
	32 2-Methylnaphthalene	142	12.180	12.172	(1.132)	4386	0.15260	0.1526
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	4917	0.17086	0.1709
	39 Dimethylphthalate	163	13.859	13.867	(0.969)	5485	0.19618	0.1962
	40 Acenaphthylene	152	13.999	13.999	(0.978)	6370	0.17563	0.1756
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	75240	4.00000	
	44 Acenaphthene	153	14.370	14.378	(1.004)	3994	0.17526	0.1753
	46 Dibenzofuran	168	14.702	14.703	(1.028)	5921	0.15809	0.1581
	50 Diethylphthalate	149	15.298	15.306	(1.069)	5134	0.19071	0.1907
	49 Fluorene	166	15.390	15.398	(1.076)	4761	0.18587	0.1859
	54 N-Nitrosodiphenylamine	169	15.661	15.661	(0.906)	3659	0.18698	0.1870
$	55 2,4,6-Tribromophenol	330	15.923	15.931	(1.113)	882	0.15503	0.1550
*	59 Phenanthrene-d10	188	17.291	17.291	(1.000)	142562	4.00000	
	60 Phenanthrene	178	17.337	17.345	(1.003)	6035	0.17330	0.1733
	61 Anthracene	178	17.430	17.430	(1.008)	6247	0.17667	0.1767
	63 Di-n-butylphthalate	149	18.621	18.629	(1.077)	8127	0.16869	0.1687
	64 Fluoranthene	202	19.743	19.751	(0.882)	7681	0.19453	0.1945
	65 Pyrene	202	20.176	20.169	(0.901)	7560	0.18336	0.1834
$	66 Terphenyl-d14	244	20.502	20.502	(0.916)	4628	0.16551	0.1655
	67 Butylbenzylphthalate	149	21.462	21.462	(0.959)	4005	0.20852	0.2085
	68 Benzo(a)anthracene	228	22.360	22.352	(0.999)	7824	0.20871	0.2087
*	69 Chrysene-d12	240	22.383	22.383	(1.000)	129207	4.00000	
	71 Chrysene	228	22.429	22.430	(1.002)	6347	0.19134	0.1913

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.507	22.515	(0.958)	5737	0.25180	0.2518
* 134	Di-n-octylphthalate-d4	153	23.490	23.490	(1.000)	259042	4.00000	
73	Di-n-octylphthalate	149	23.498	23.498	(1.000)	9721	0.20285	0.2028
74	Benzo(b)fluoranthene	252	24.109	24.110	(0.975)	5938	0.19822	0.1982
75	Benzo(k)fluoranthene	252	24.140	24.110	(0.977)	7019	0.23291	0.2329(H)
76	Benzo(a)pyrene	252	24.628	24.628	(0.996)	5178	0.19260	0.1926
* 77	Perylene-d12	264	24.721	24.721	(1.000)	104410	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.798	26.806	(1.084)	6031	0.18670	0.1867
79	Dibenzo(a,h)anthracene	278	26.813	26.821	(1.085)	4273	0.16247	0.1625
80	Benzo(g,h,i)perylene	276	27.403	27.404	(1.109)	5071	0.18638	0.1864(M)
105	1-methylnaphthalene	142	12.389	12.389	(1.152)	4370	0.15124	0.1512
187	Total Benzofluoranthenes	252	24.140	24.148	(0.977)	12356	0.43002	0.4300

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082207.D
Lab Smp Id: SHH0325-LCV1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 16:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	41079	25.47
27 Naphthalene-d8	117487	58744	234974	147412	25.47
42 Acenaphthene-d10	61859	30930	123718	75240	21.63
59 Phenanthrene-d10	113574	56787	227148	142562	25.52
69 Chrysene-d12	105788	52894	211576	129207	22.14
134 Di-n-octylphthala	252823	126412	505646	259042	2.46
77 Perylene-d12	113992	56996	227984	104410	-8.41

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.33	-0.00
27 Naphthalene-d8	10.77	10.27	11.27	10.76	-0.07
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	-0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.29	-0.00
69 Chrysene-d12	22.38	21.88	22.88	22.38	-0.00
134 Di-n-octylphthala	23.49	22.99	23.99	23.49	-0.00
77 Perylene-d12	24.72	24.22	25.22	24.72	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082207.D

Lab ID: SHH0325-LCV1
nt10.i, 20190822.b\ABN.m,   22-AUG-2019 17:29

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.955	0.964	-0.0096	Benzoic acid

RRT check based on Ccal File: NT1019082206.D

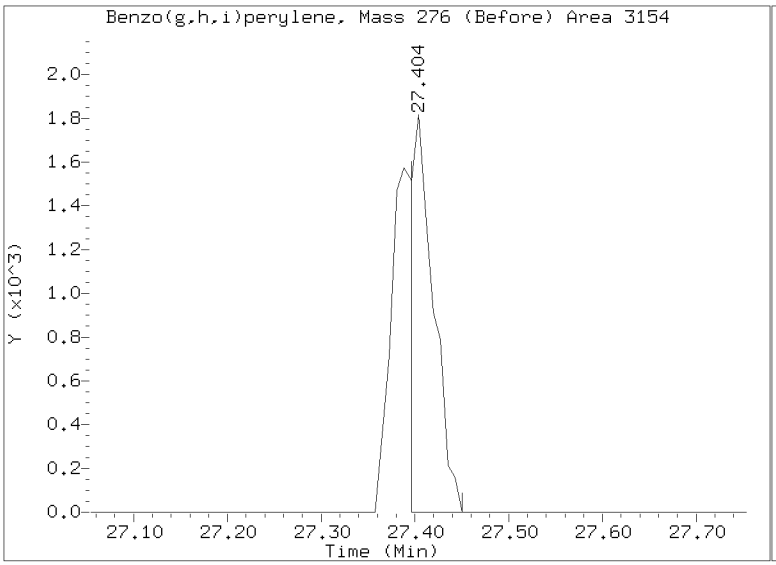
On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

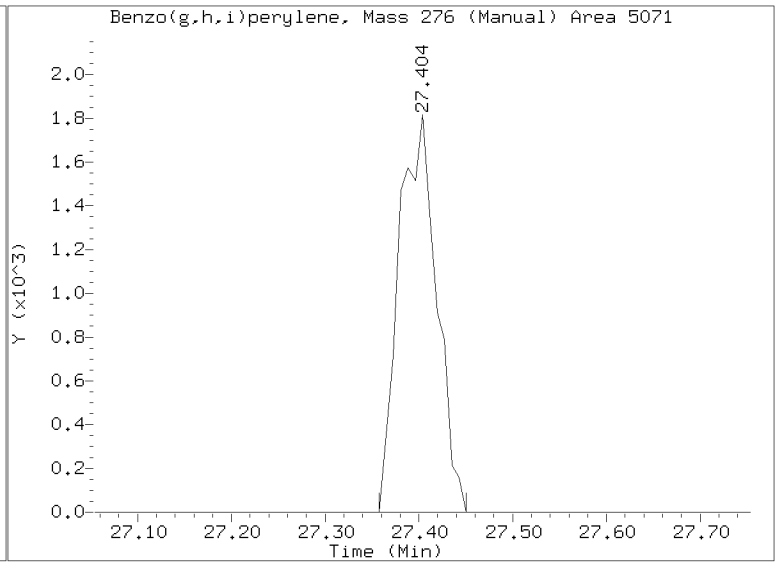
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190822.b/NT1019082207.D
Injection Date: 22-AUG-2019 17:29
Lab ID:SHH0325-LCV1 Client ID:
Report Date: 08/23/2019 11:16





LOW-CONCENTRATION CALIBRATION VERIFICATION

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CG00040
Laboratory ID: SHH0325-LCV2
Sequence: SHH0325
Standard ID: H004494

ANALYTE	EXPECTED (ug/mL)	FOUND (ug/mL)	% DRIFT	QC LIMIT
Phenol	0.50000	0.4	-14.6	50.00
Benzyl Alcohol	0.50000	0.3	-35.4	50.00
Benzoic acid	2.0000	0.7	-66.2 *	50.00
N-Nitrosodiphenylamine	0.50000	0.6	24.0	50.00
Phenanthrene	0.50000	0.5	-2.1	50.00
Fluoranthene	0.50000	0.5	3.4	50.00
Pyrene	0.50000	0.5	7.6	50.00
Butylbenzylphthalate	0.50000	0.6	16.6	50.00
Benzo(a)anthracene	0.50000	0.5	9.8	50.00
Chrysene	0.50000	0.5	1.3	50.00
bis(2-Ethylhexyl)phthalate	0.50000	0.6	24.7	50.00
Di-n-Octylphthalate	0.50000	0.5	-0.8	50.00
Benzofluoranthenes, Total	1.0000	1.1	10.4	50.00
Benzo(a)pyrene	0.50000	0.5	-1.7	50.00
Indeno(1,2,3-cd)pyrene	0.50000	0.5	1.0	50.00
Dibenzo(a,h)anthracene	0.50000	0.5	-0.4	50.00
Benzo(g,h,i)perylene	0.50000	0.5	-5.4	50.00
2-Fluorophenol	0.75000	0.564	-24.8	50.00
Phenol-d5	0.75000	0.530	-29.3	50.00
2-Chlorophenol-d4	0.75000	0.753	0.3	50.00
1,2-Dichlorobenzene-d4	0.50000	0.547	9.5	50.00
Nitrobenzene-d5	0.50000	0.443	-11.5	50.00
2-Fluorobiphenyl	0.50000	0.537	7.5	50.00
2,4,6-Tribromophenol	0.75000	0.446	-40.6	50.00
p-Terphenyl-d14	0.50000	0.533	6.7	50.00

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Page 1

Date : 22-AUG-2019 18:06

Client ID:

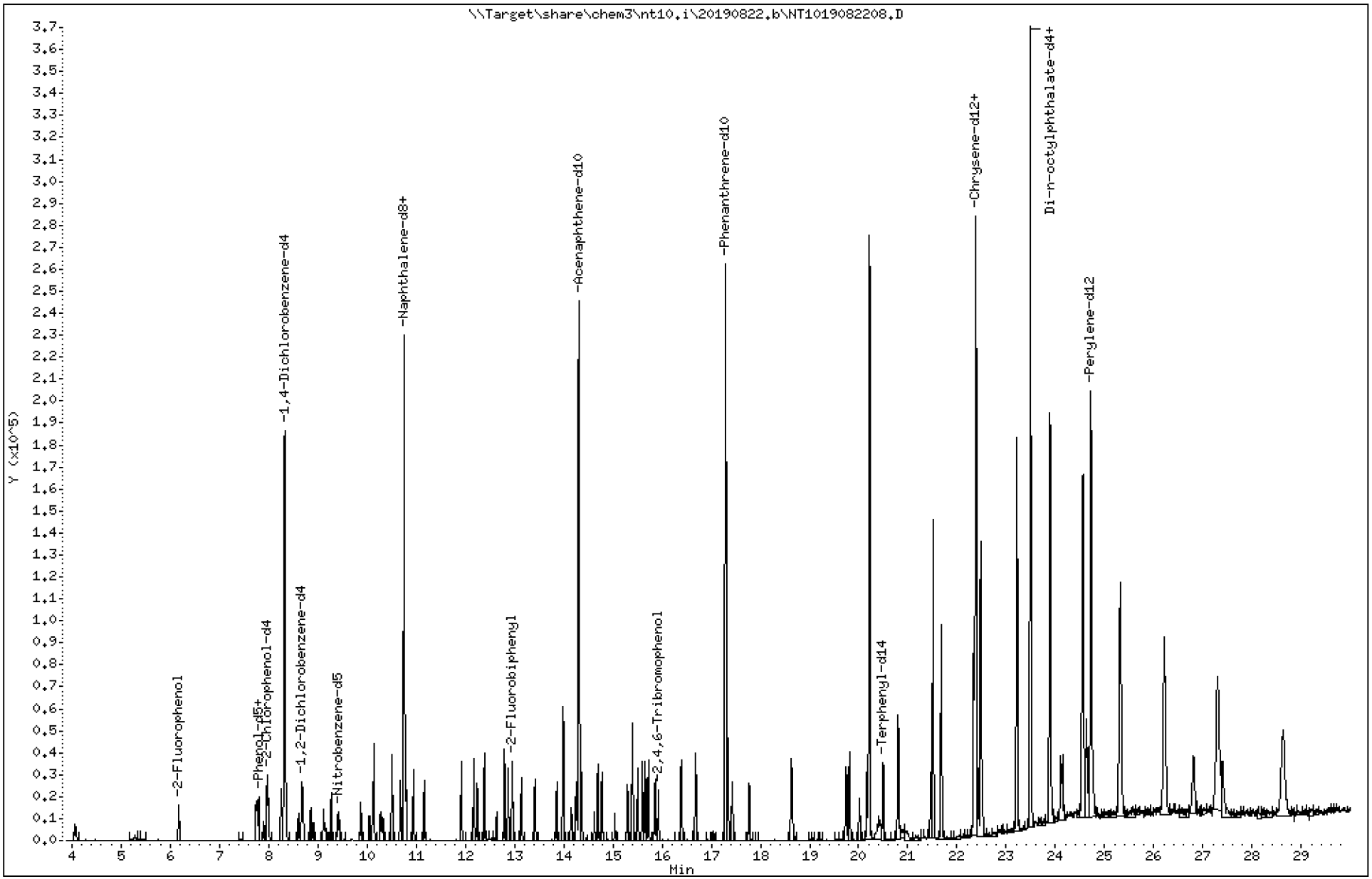
Instrument: nt10.i

Sample Info: SHH0325-LCV2

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

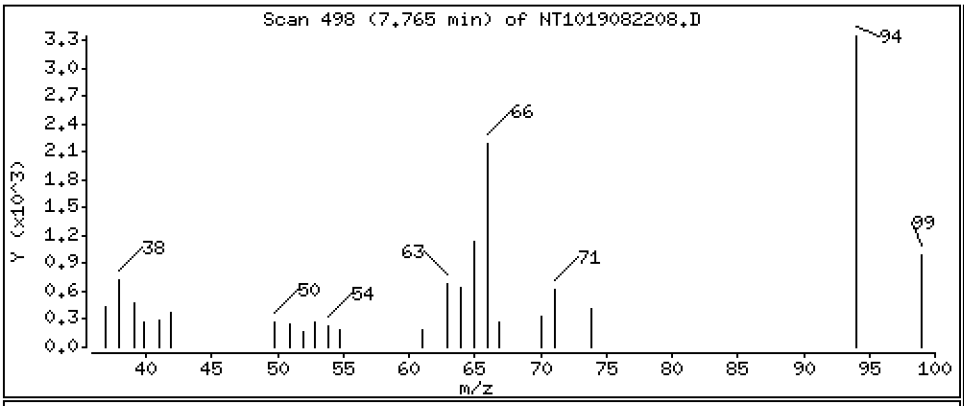
Operator: YZ

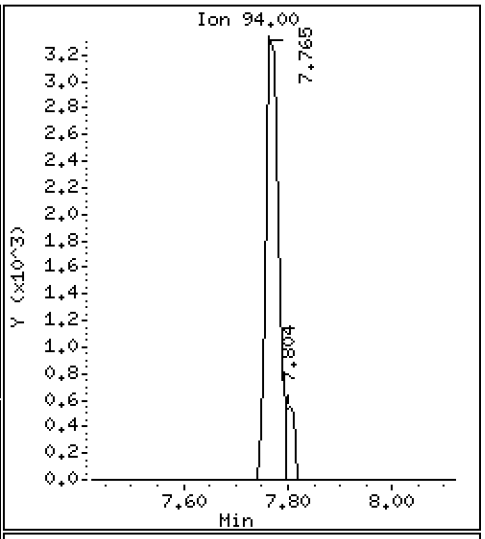
Column phase: ZB-5msi

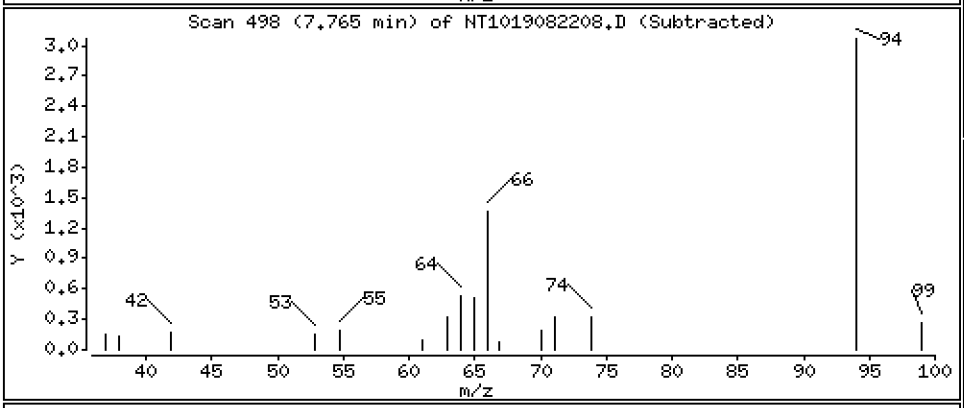
Column diameter: 0.25

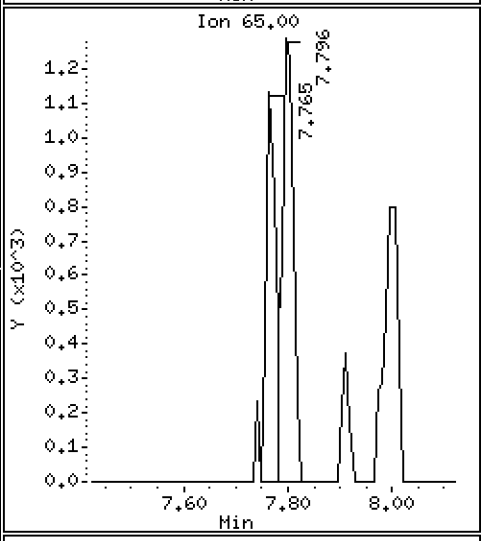
3 Phenol

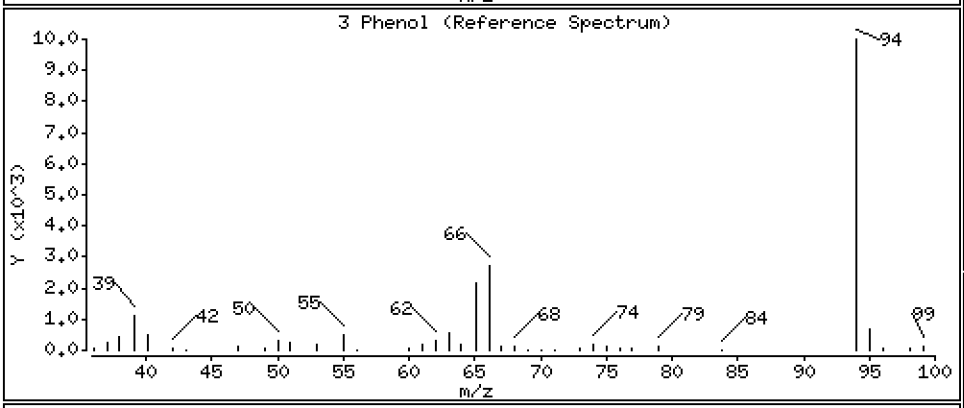
Concentration: 0.4269 ug/mL

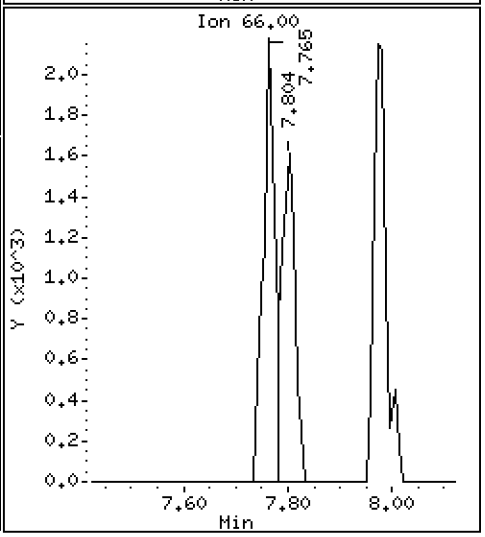


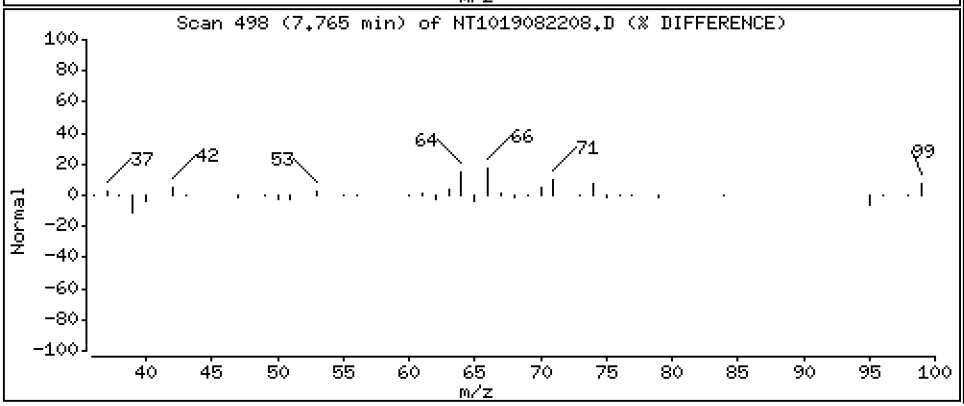












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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

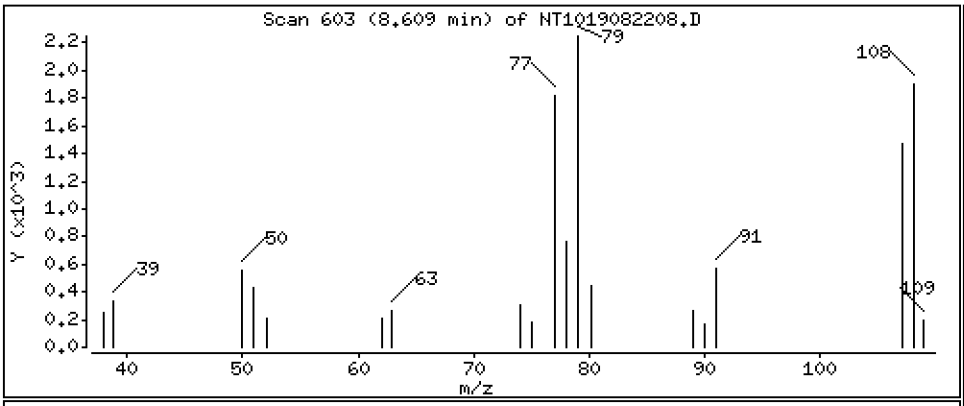
Operator: YZ

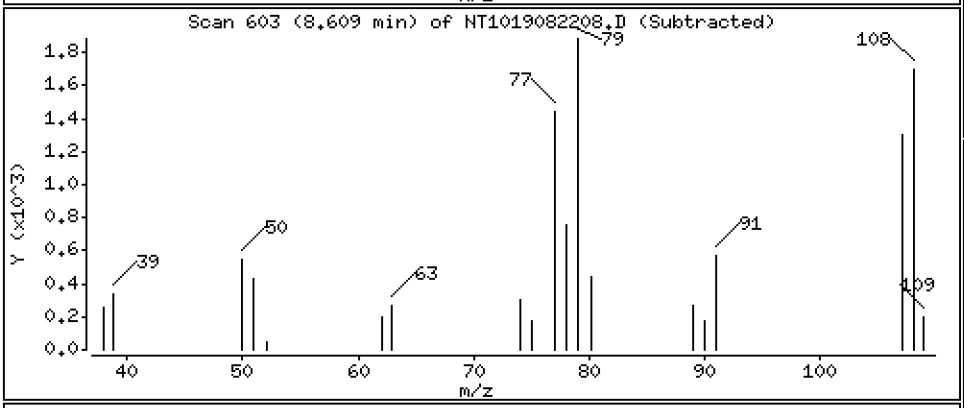
Column phase: ZB-5msi

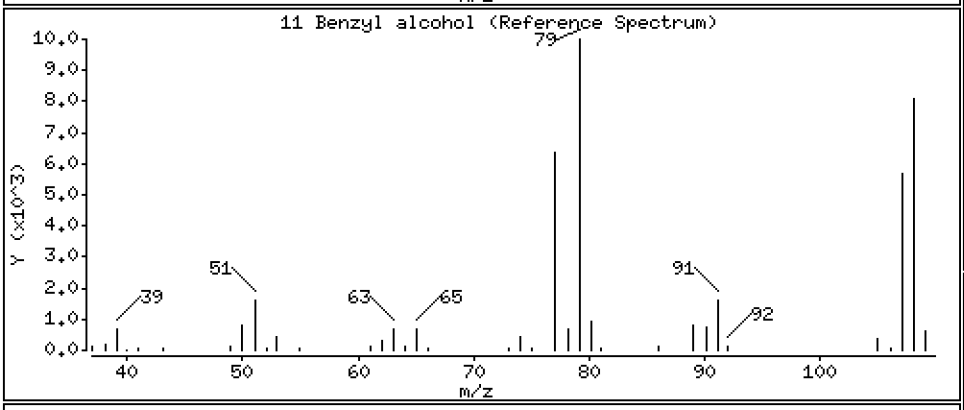
Column diameter: 0.25

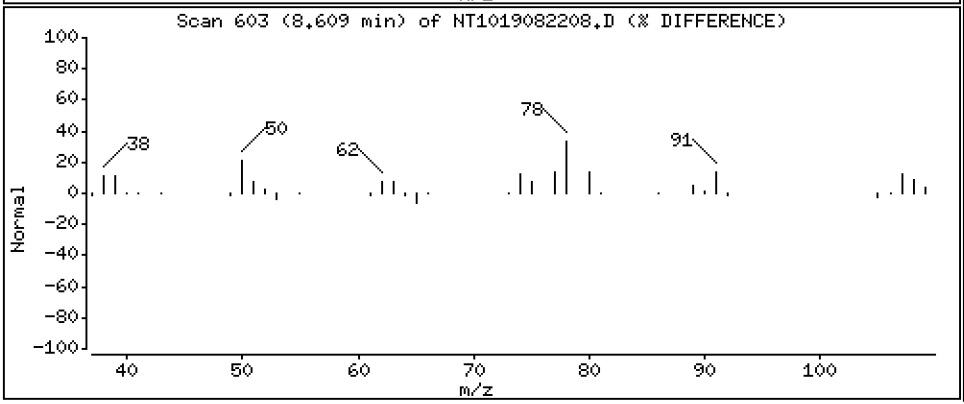
11 Benzyl alcohol

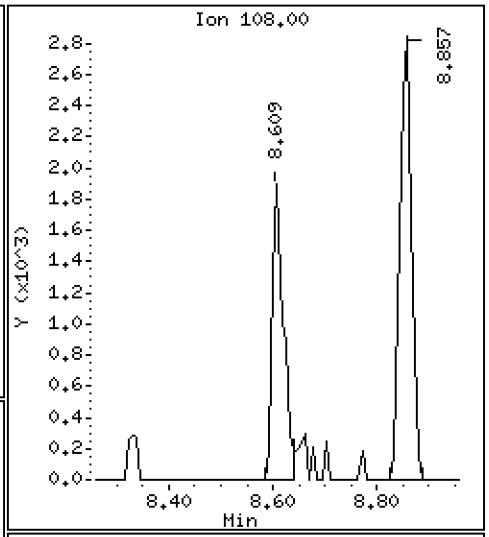
Concentration: 0.3230 ug/mL

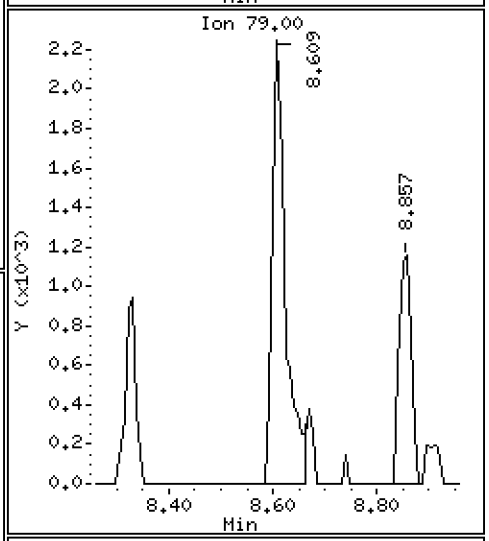


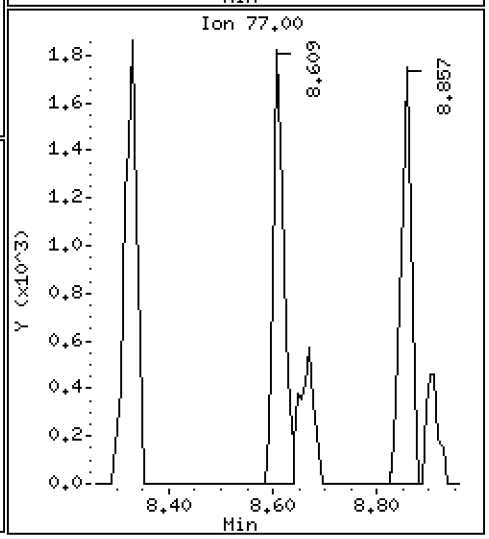












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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

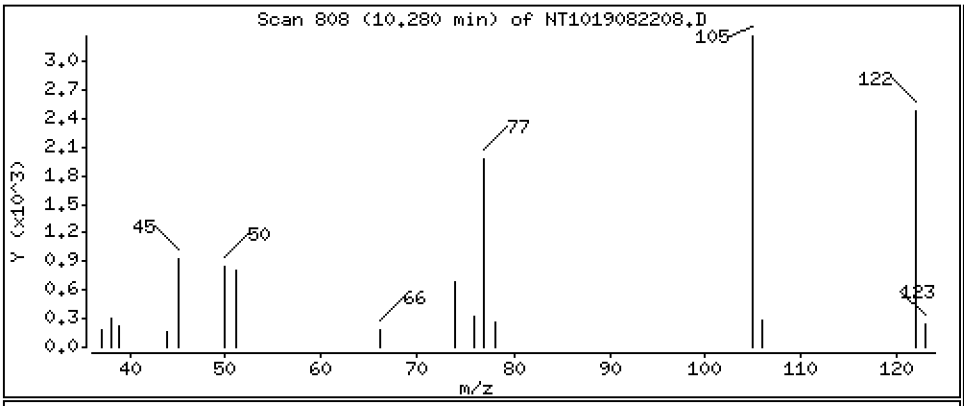
Operator: YZ

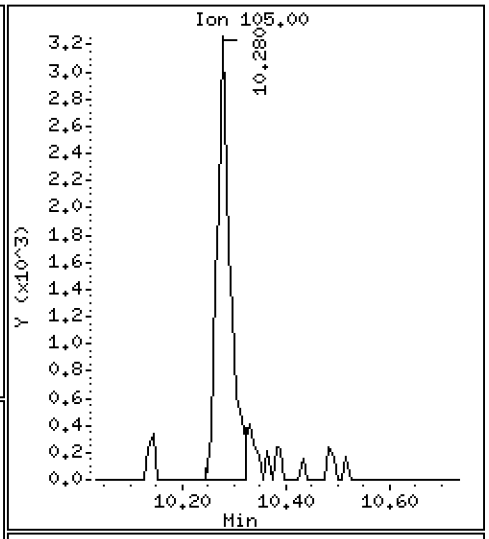
Column phase: ZB-5msi

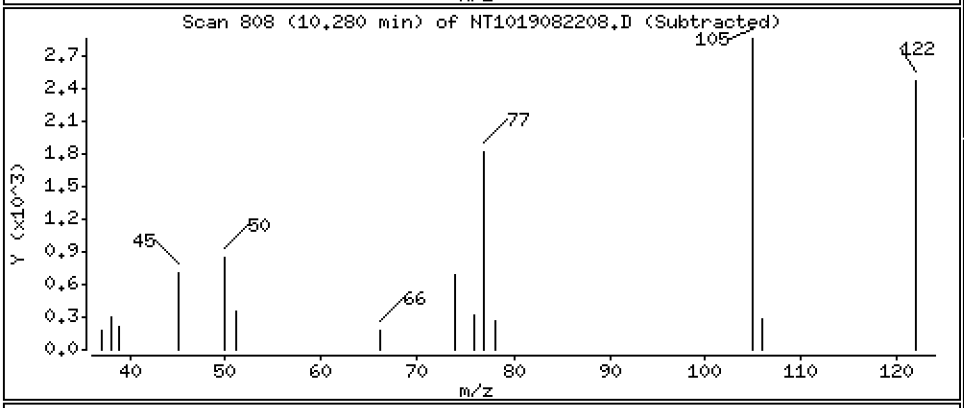
Column diameter: 0.25

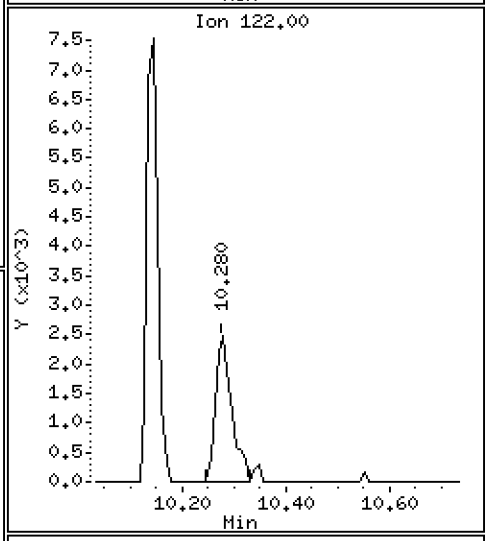
24 Benzoic acid

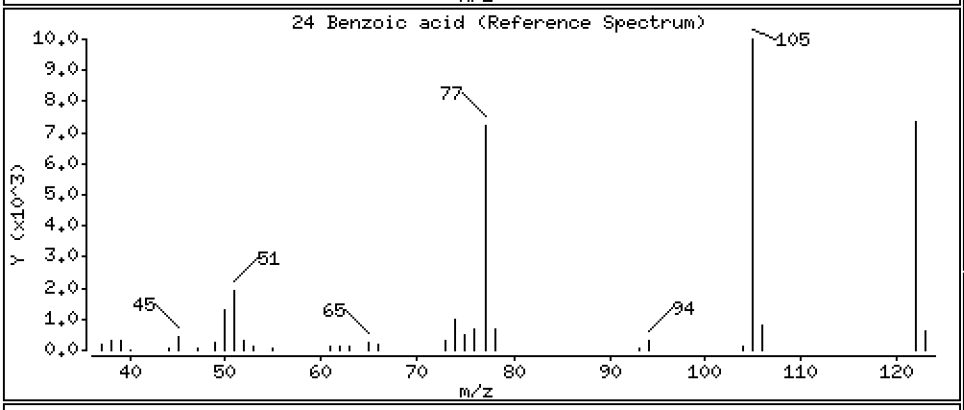
Concentration: 0.6765 ug/mL

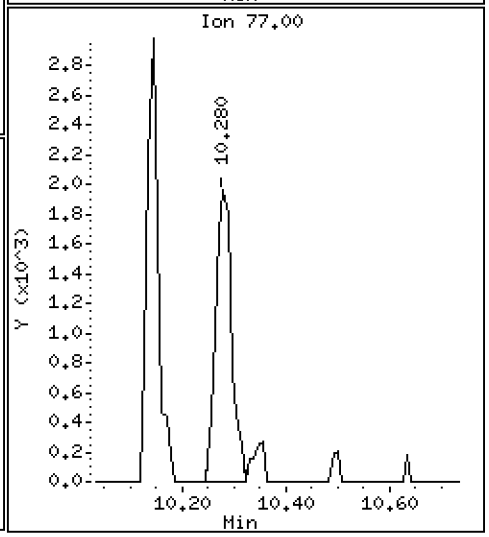


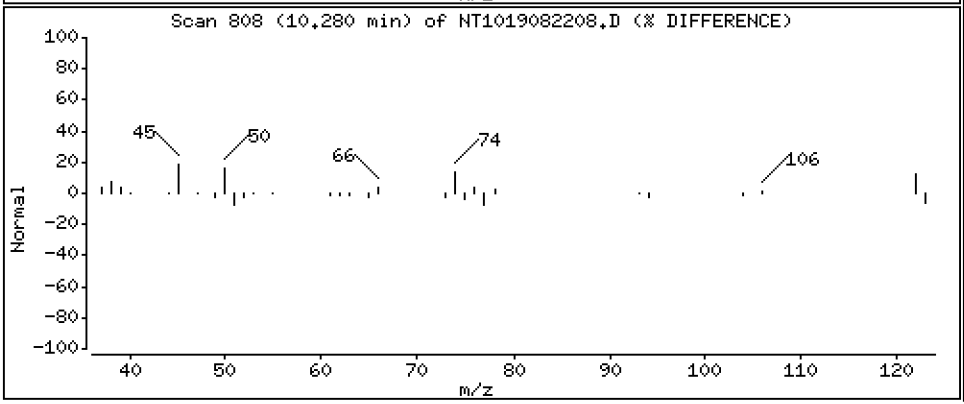












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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

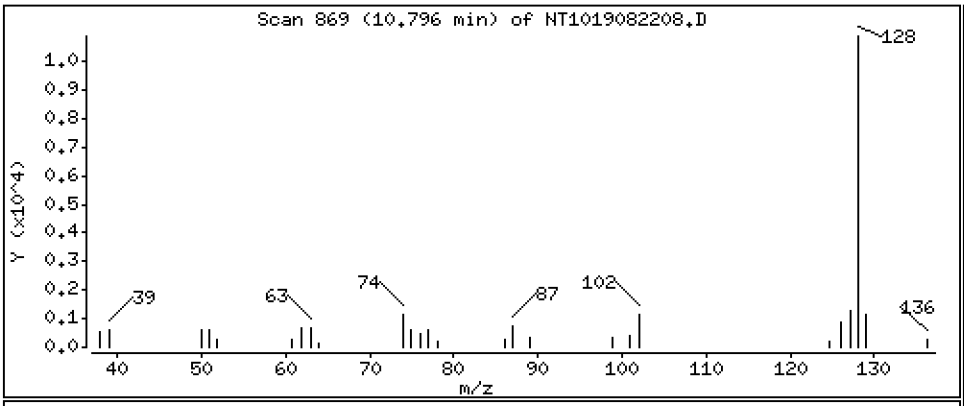
Operator: YZ

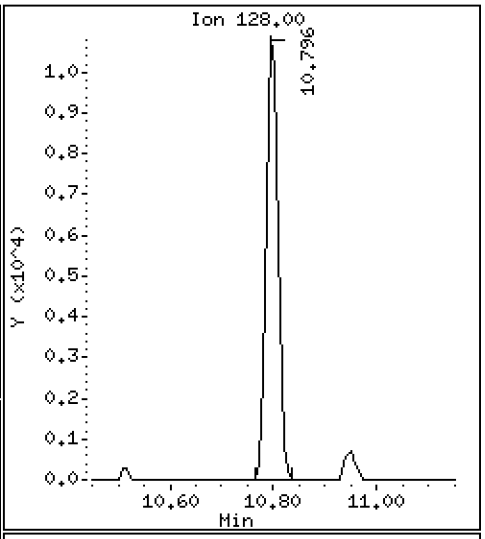
Column phase: ZB-5msi

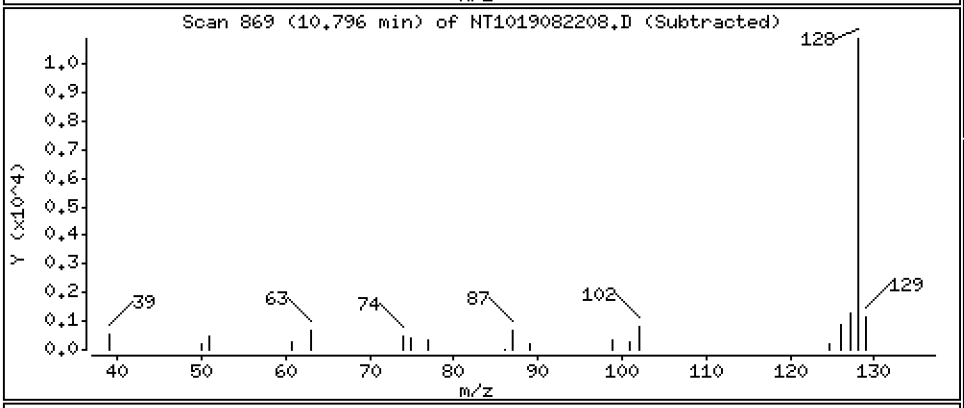
Column diameter: 0.25

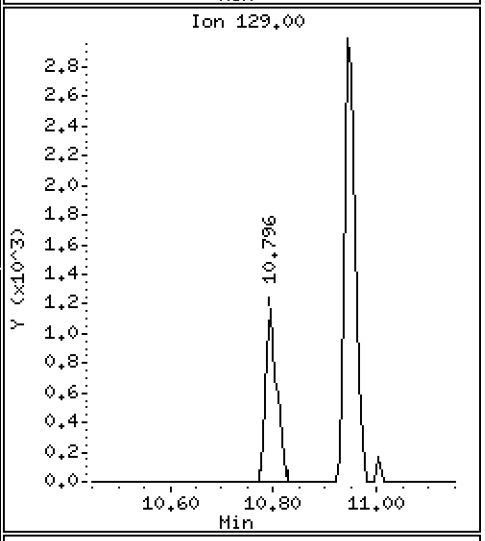
28 Naphthalene

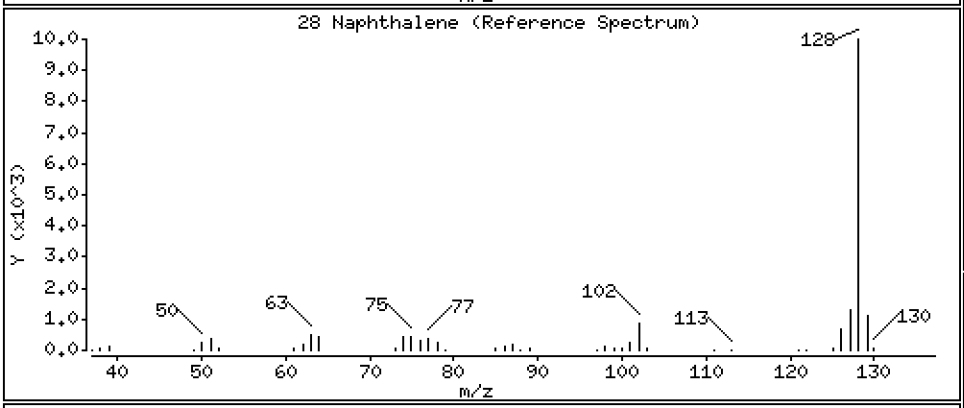
Concentration: 0.4988 ug/mL

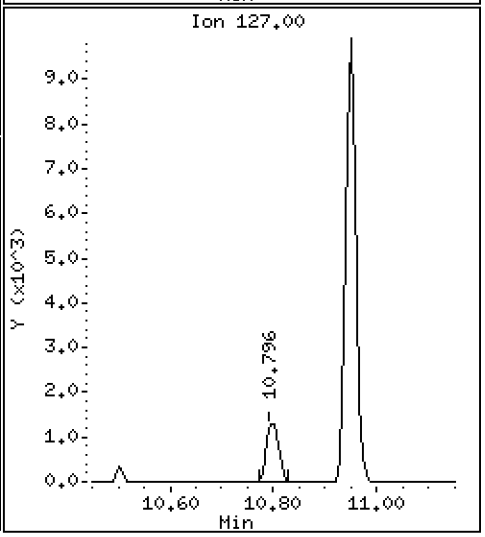


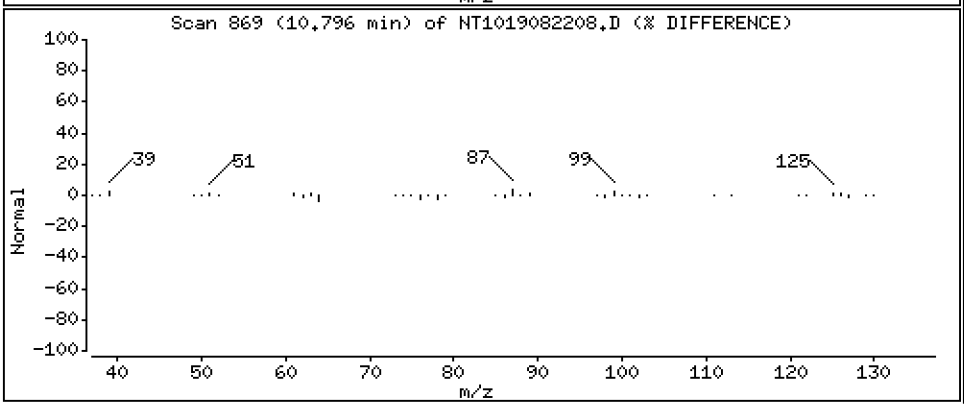












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

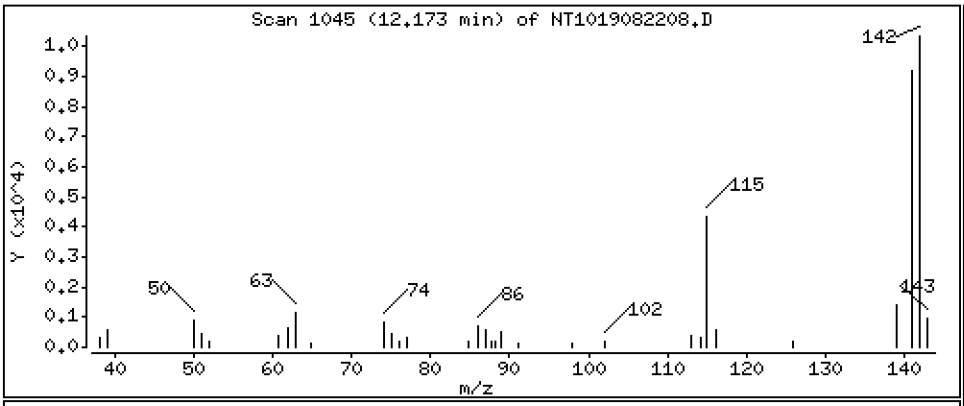
Operator: YZ

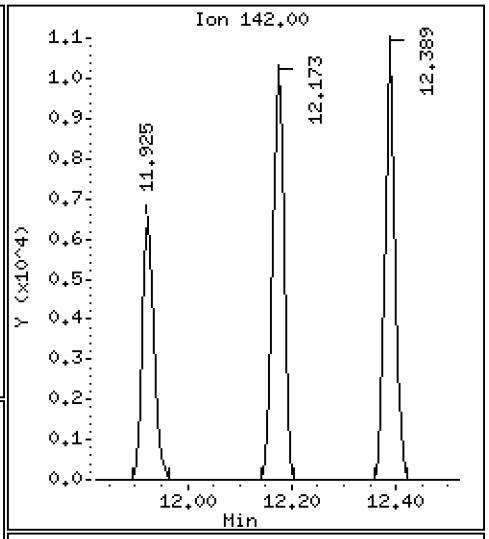
Column phase: ZB-5msi

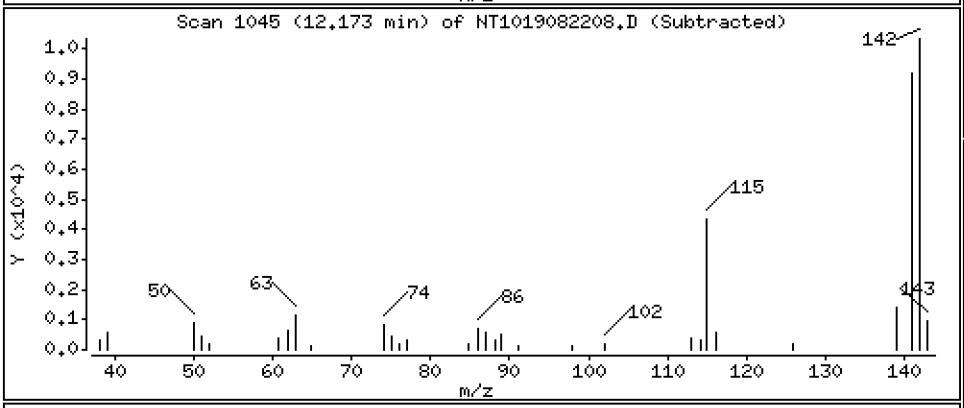
Column diameter: 0.25

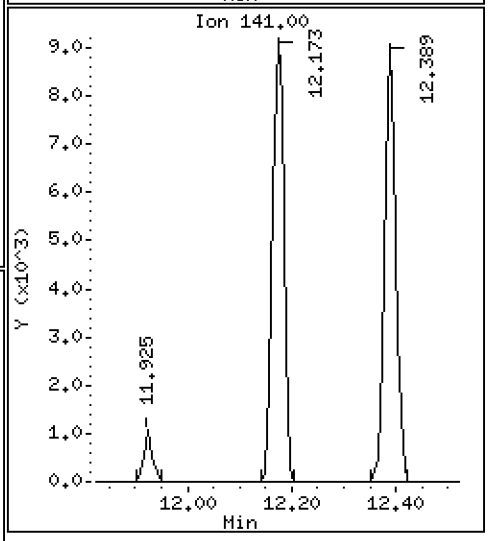
32 2-Methylnaphthalene

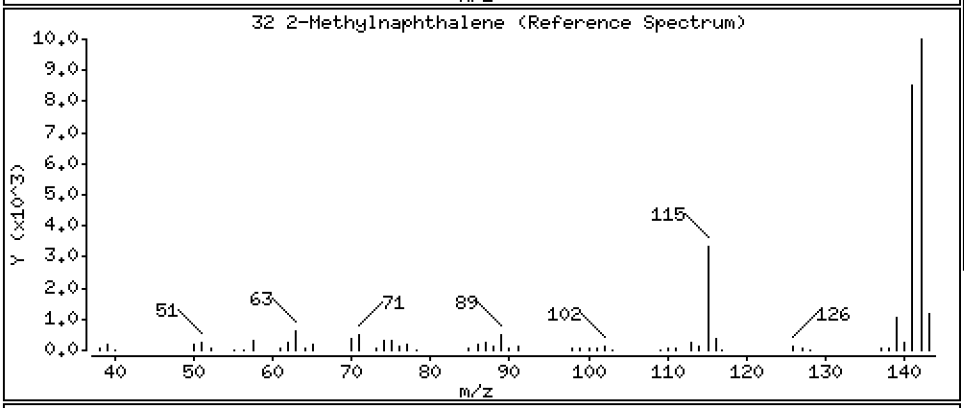
Concentration: 0.4905 ug/mL

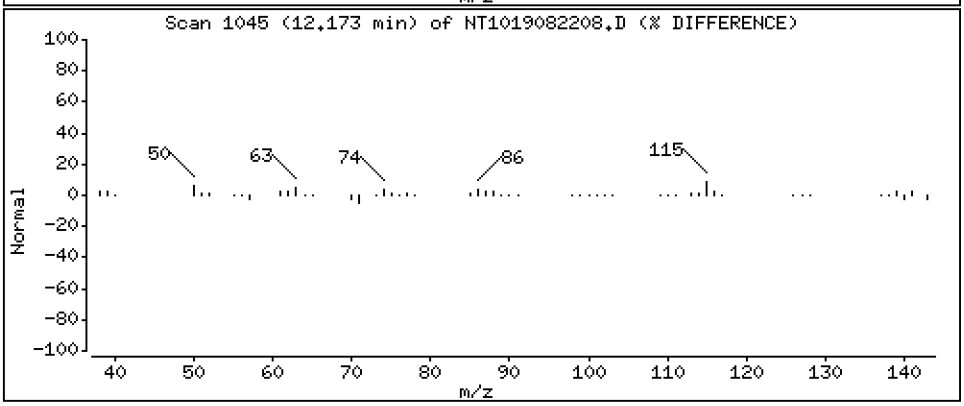












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

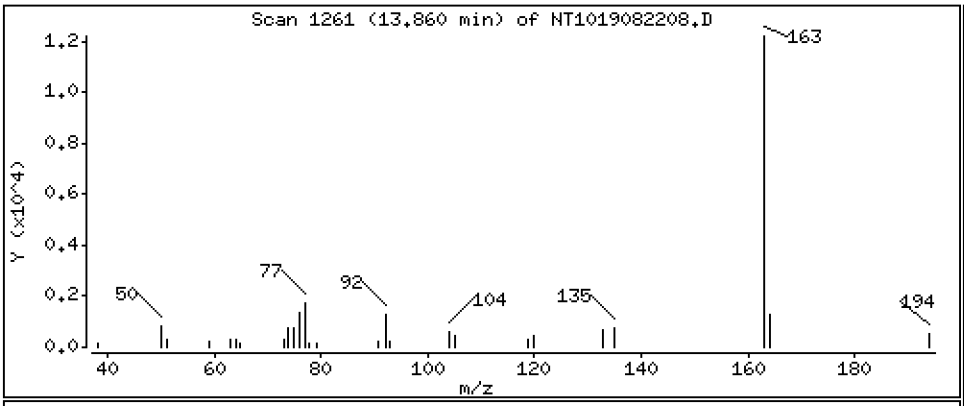
Operator: YZ

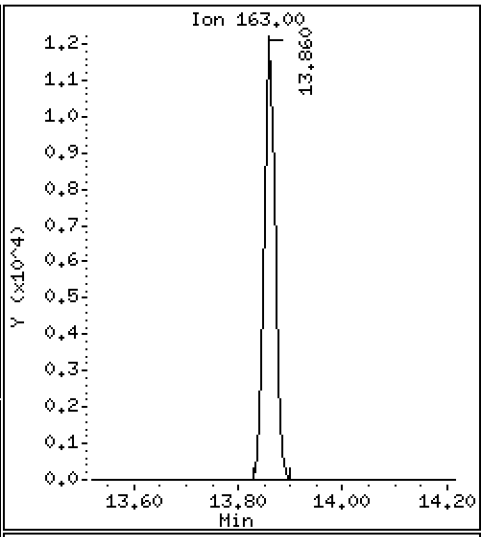
Column phase: ZB-5msi

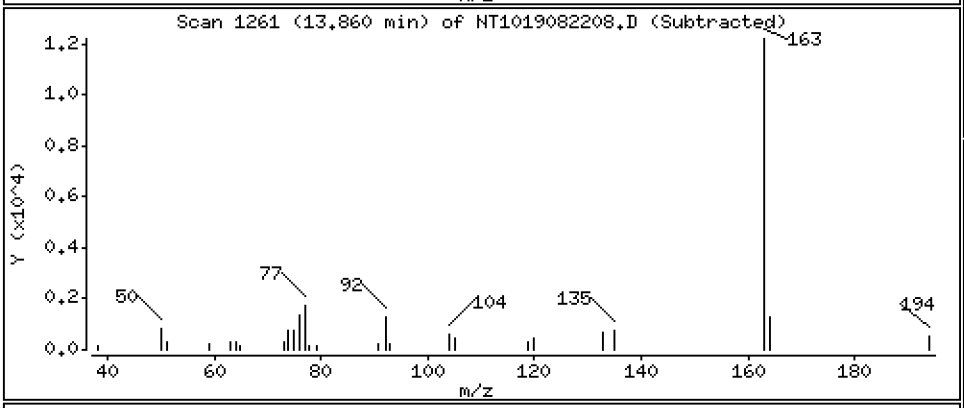
Column diameter: 0.25

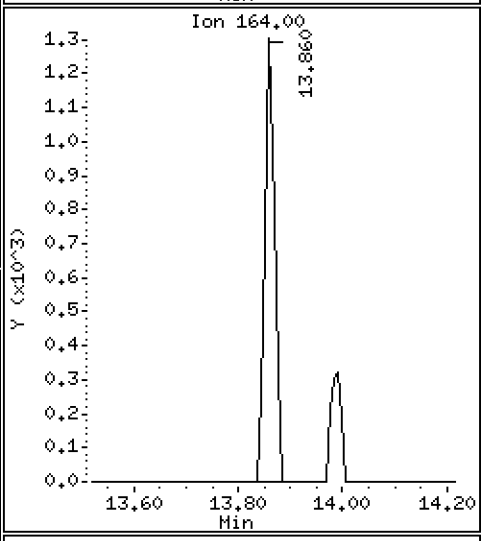
39 Dimethylphthalate

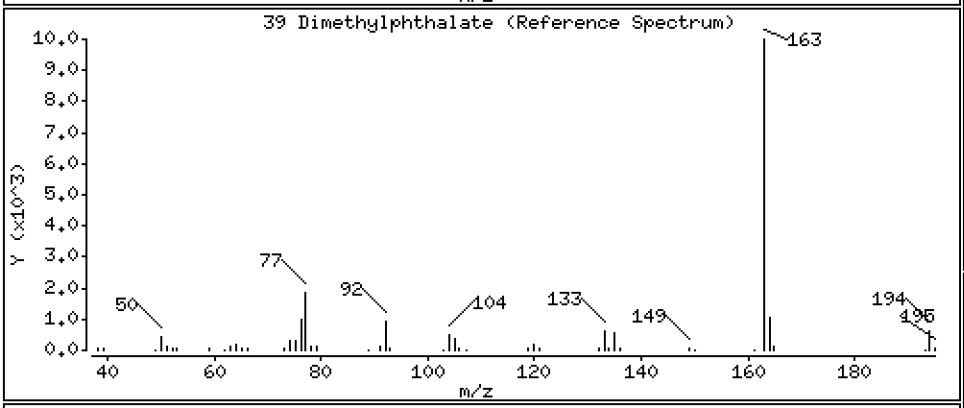
Concentration: 0.5538 ug/mL

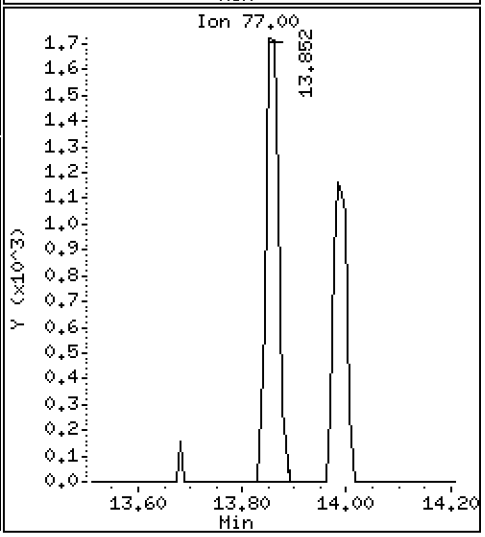


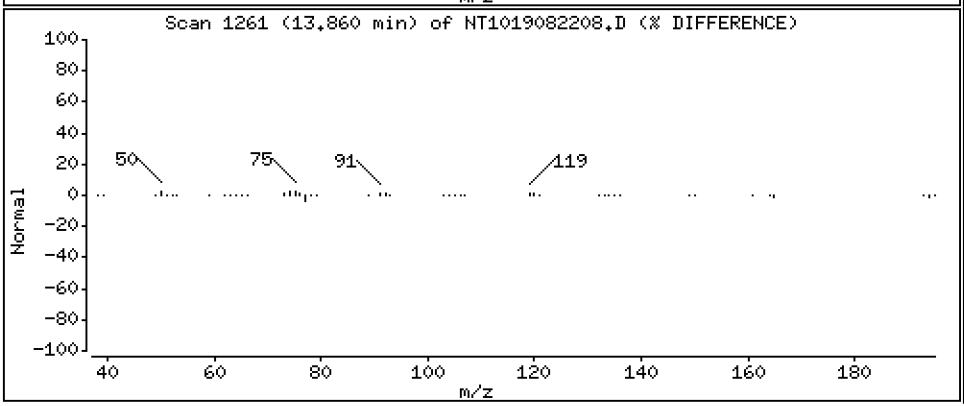












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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

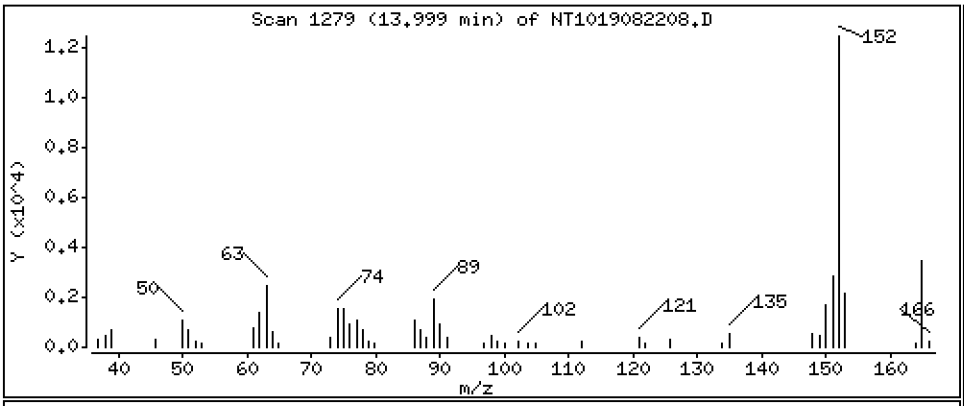
Operator: YZ

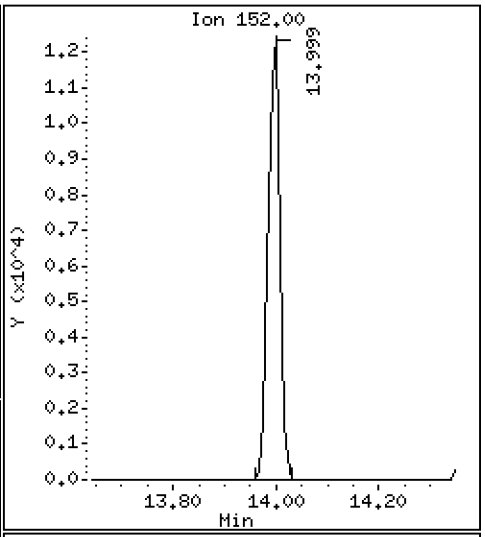
Column phase: ZB-5msi

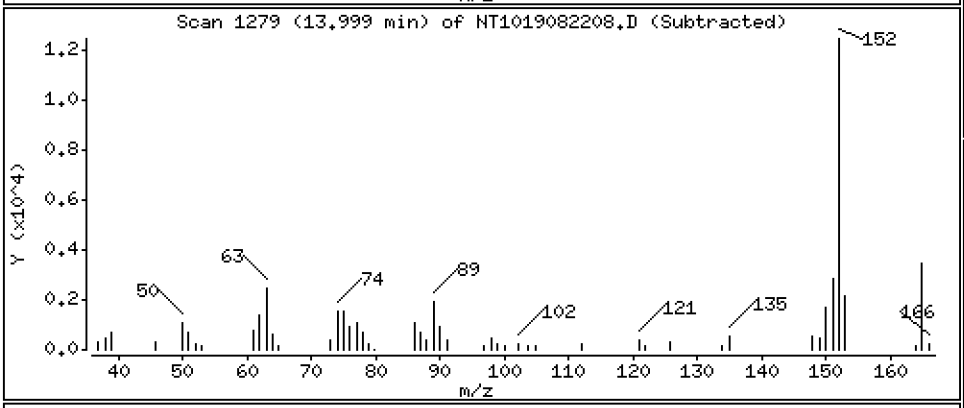
Column diameter: 0.25

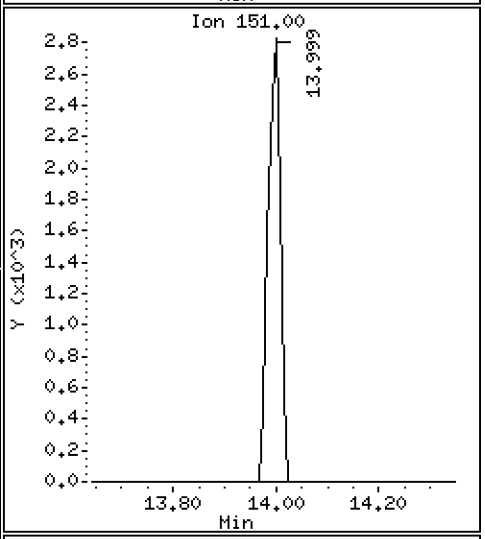
40 Acenaphthylene

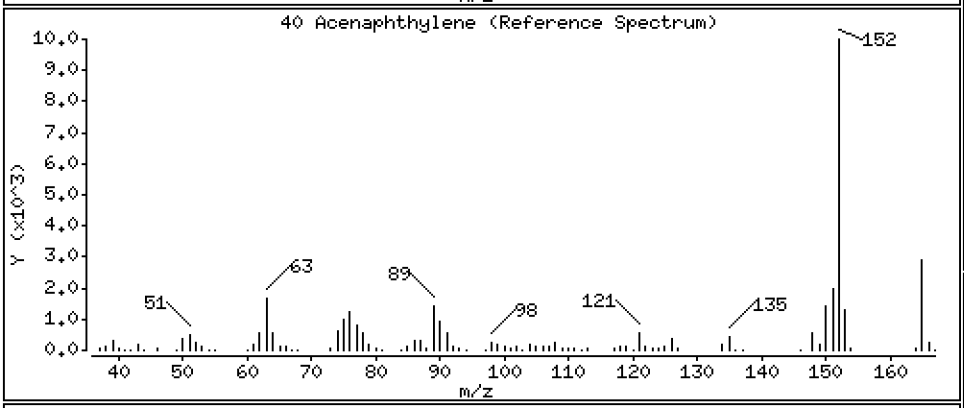
Concentration: 0.4848 ug/mL

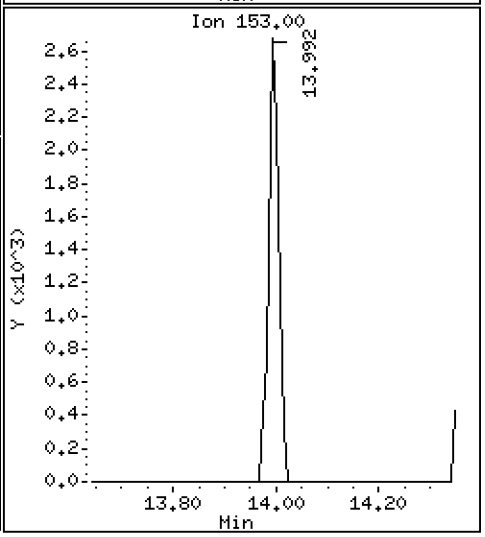


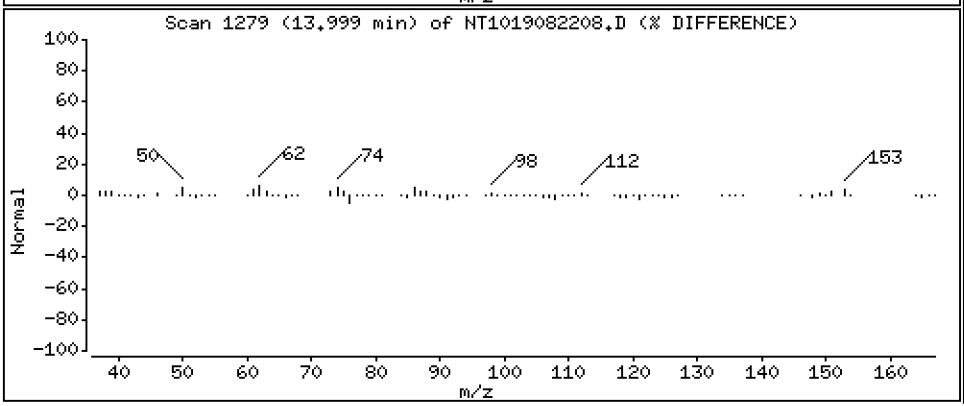












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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

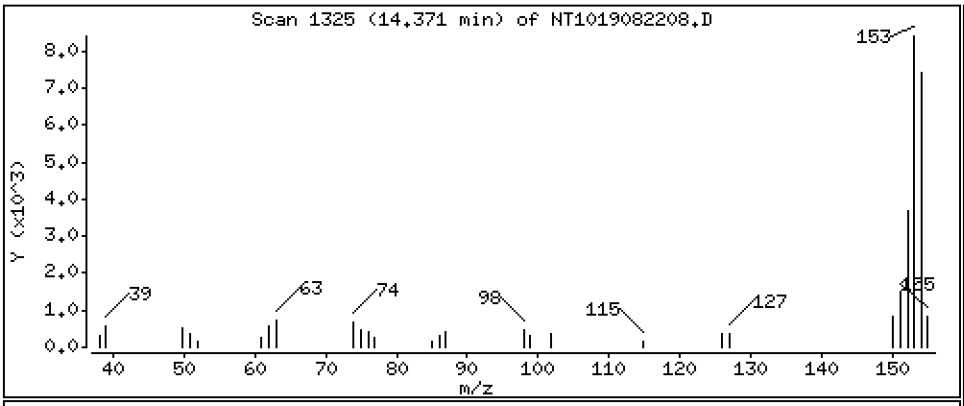
Operator: YZ

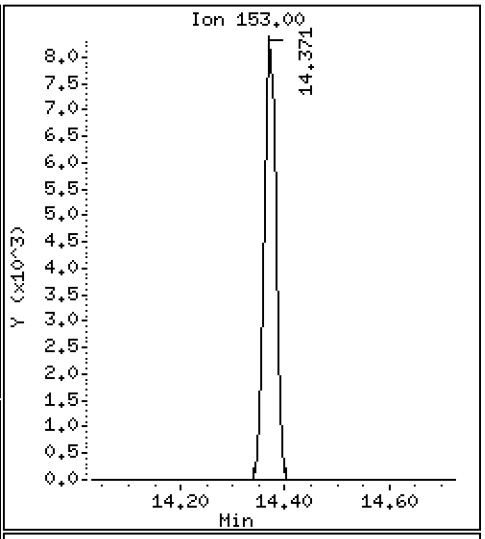
Column phase: ZB-5msi

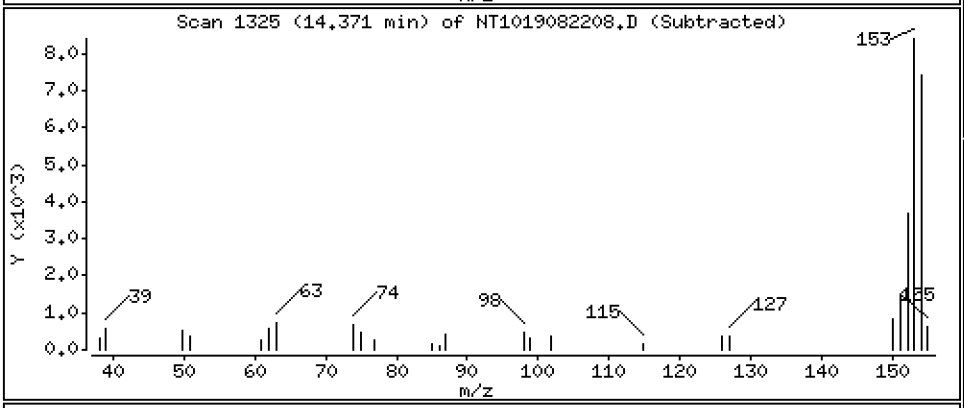
Column diameter: 0.25

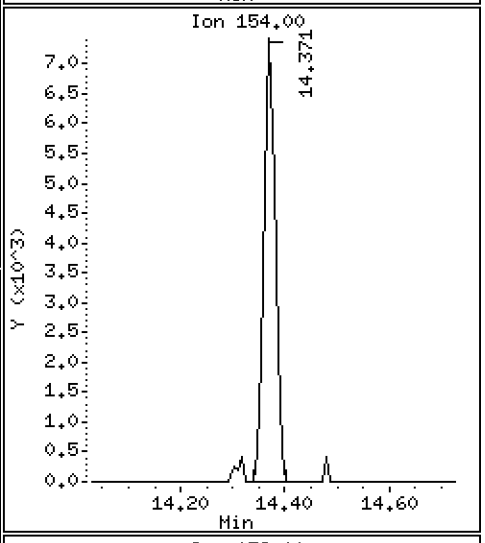
44 Acenaphthene

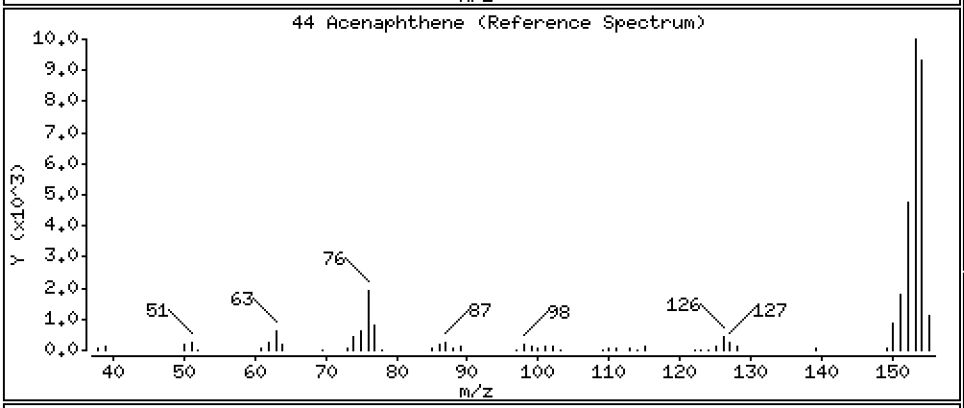
Concentration: 0.5017 ug/mL

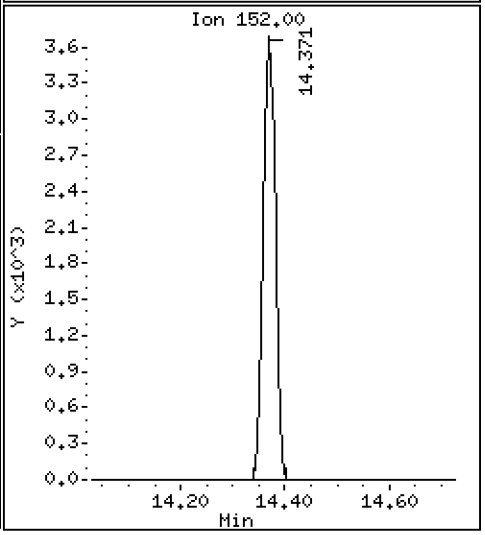


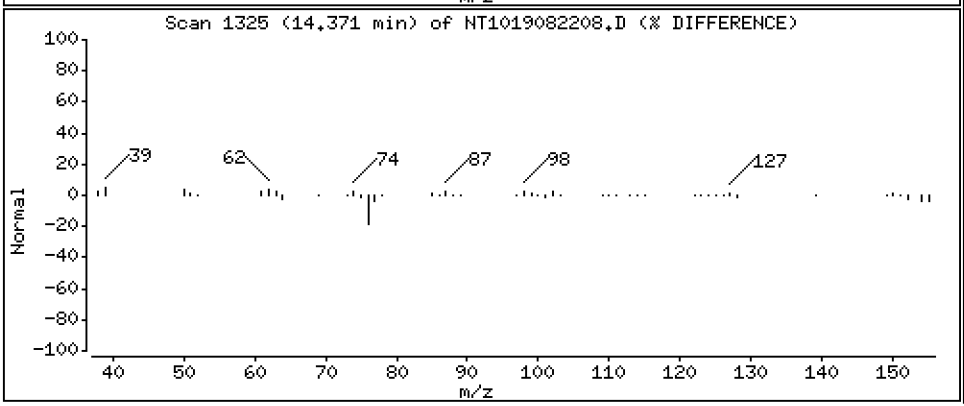












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

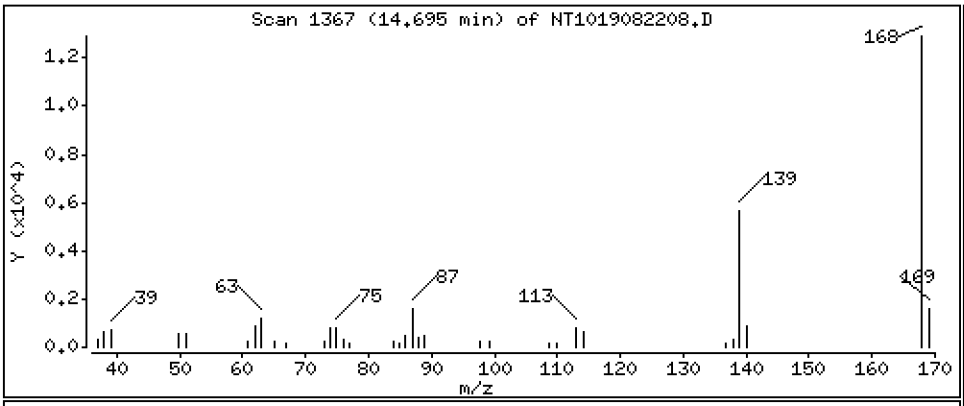
Operator: YZ

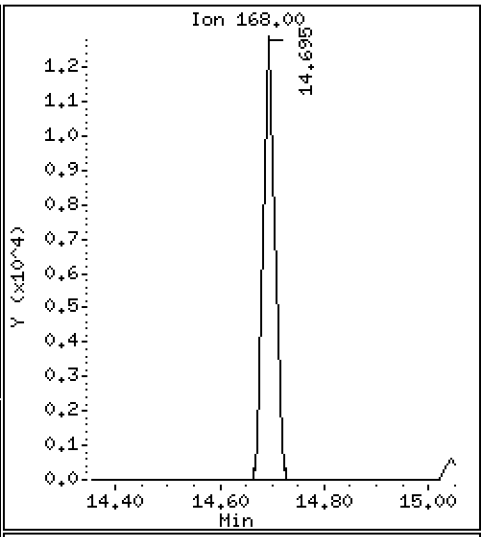
Column phase: ZB-5msi

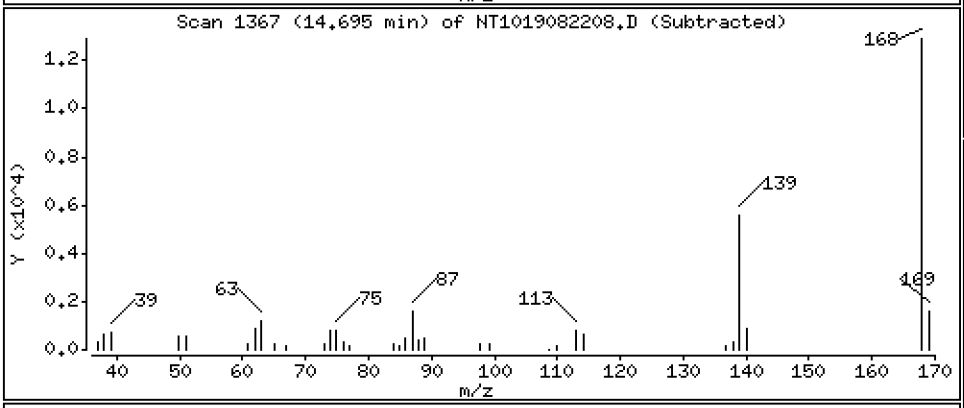
Column diameter: 0.25

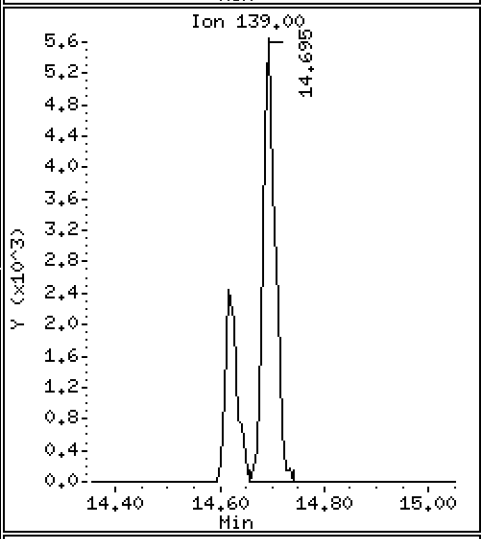
46 Dibenzofuran

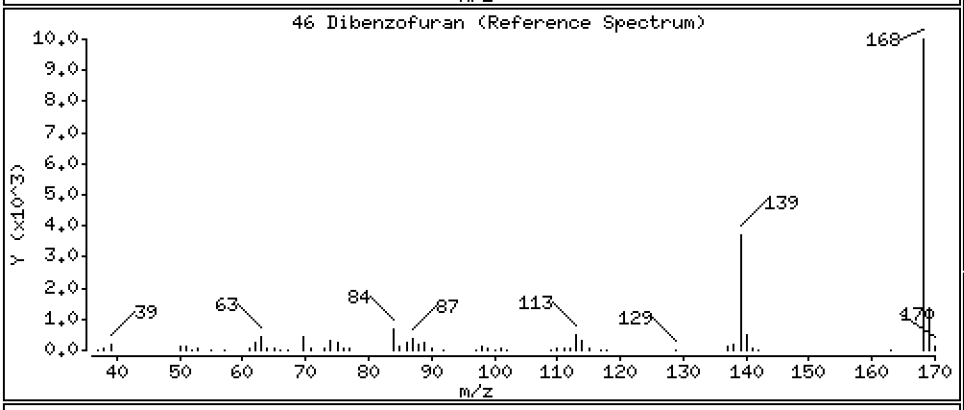
Concentration: 0.4936 ug/mL

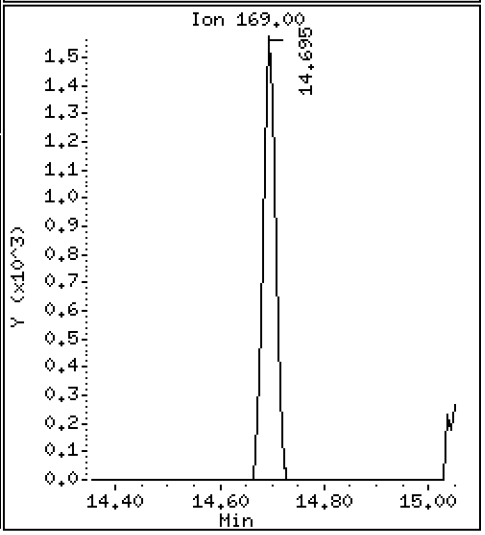


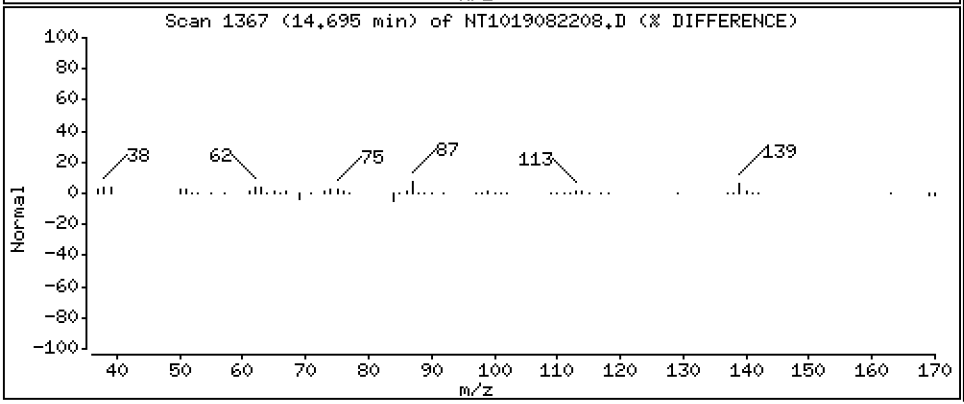












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

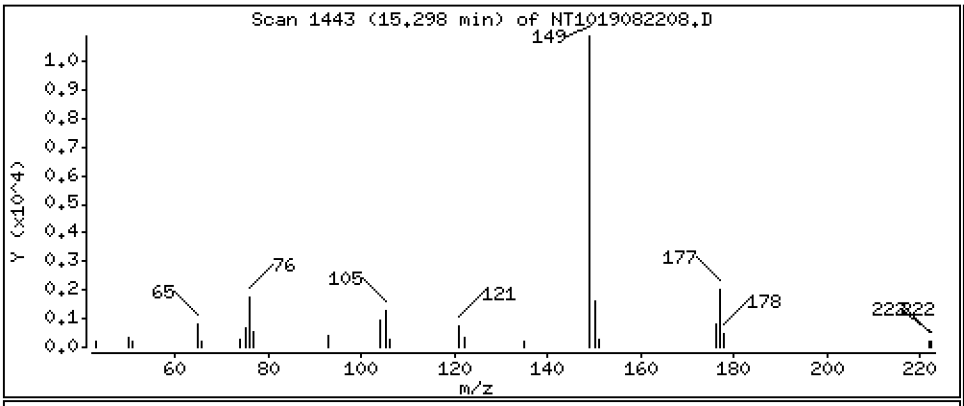
Operator: YZ

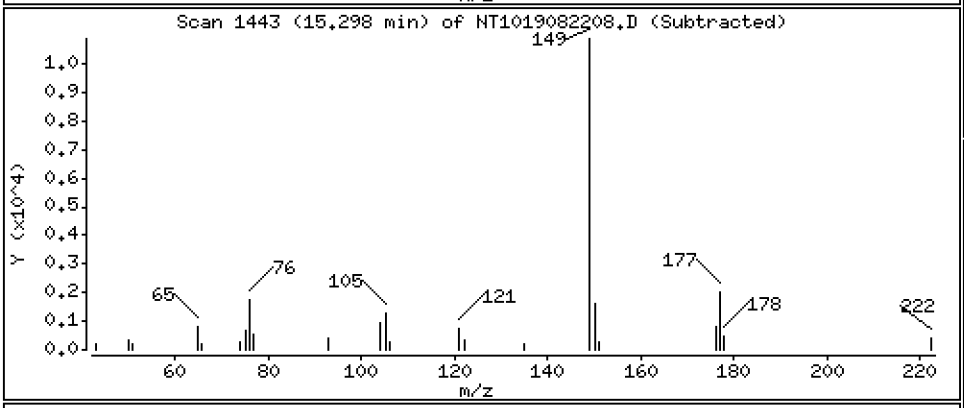
Column phase: ZB-5msi

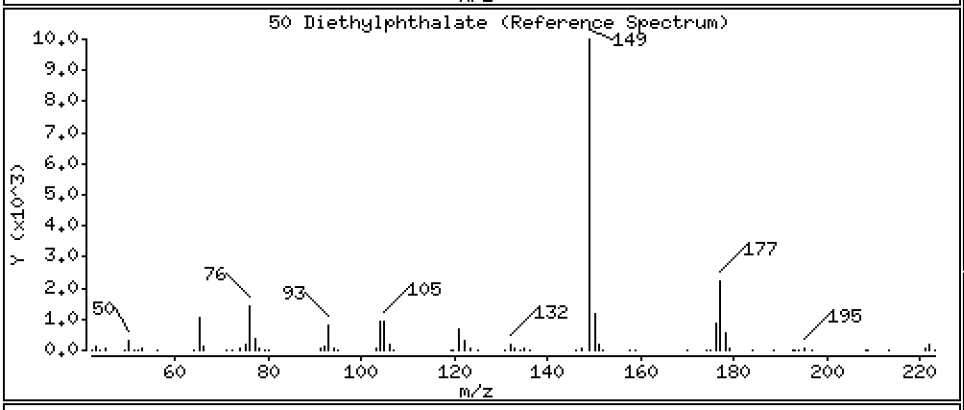
Column diameter: 0.25

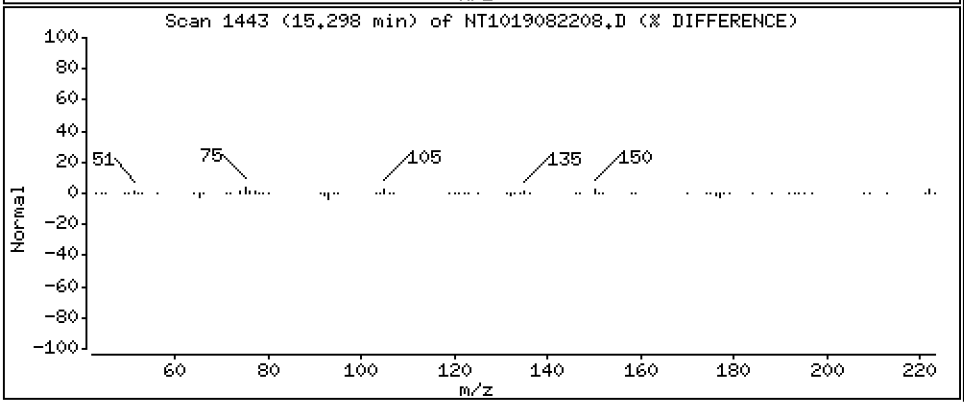
50 Diethylphthalate

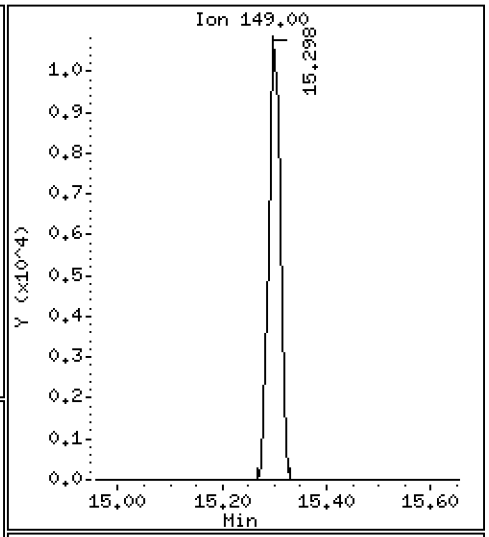
Concentration: 0.5436 ug/mL

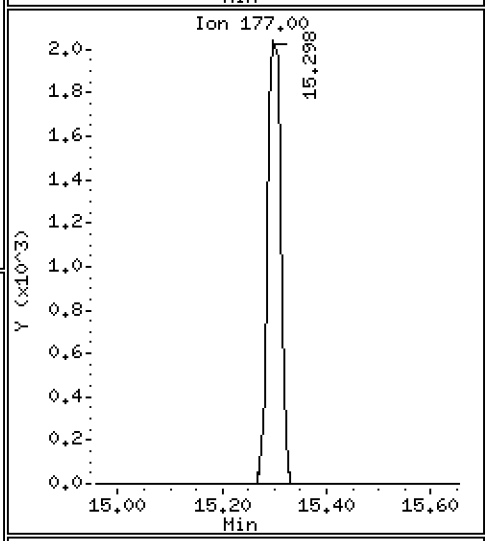


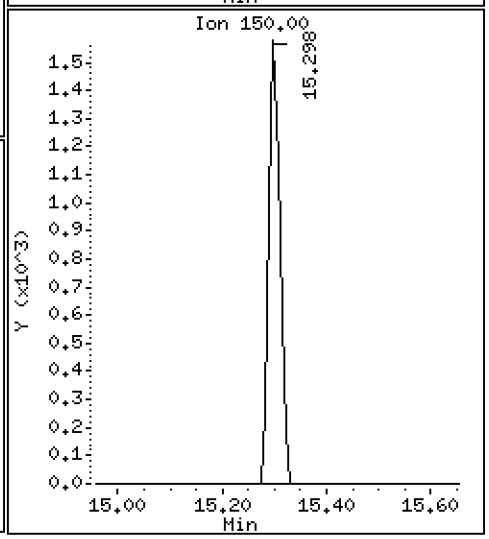












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

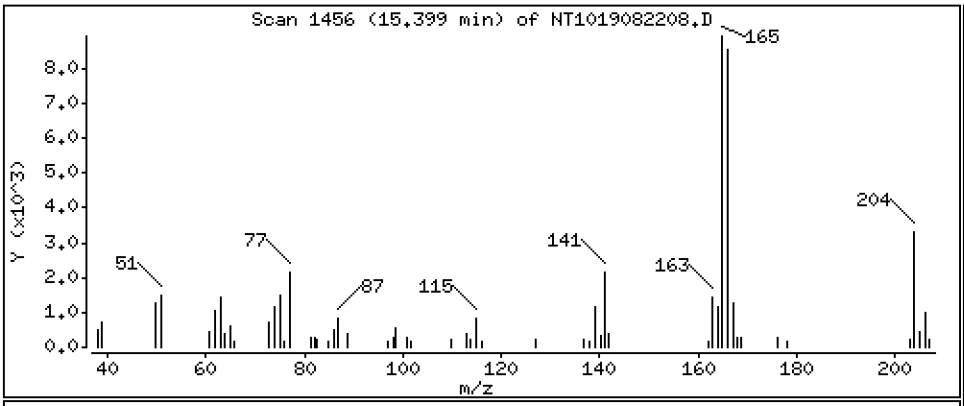
Operator: YZ

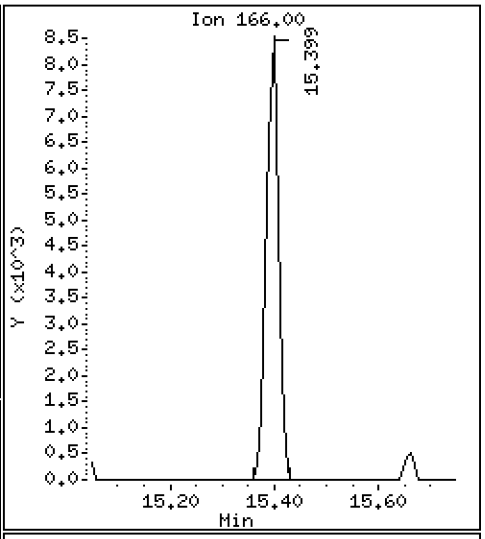
Column phase: ZB-5msi

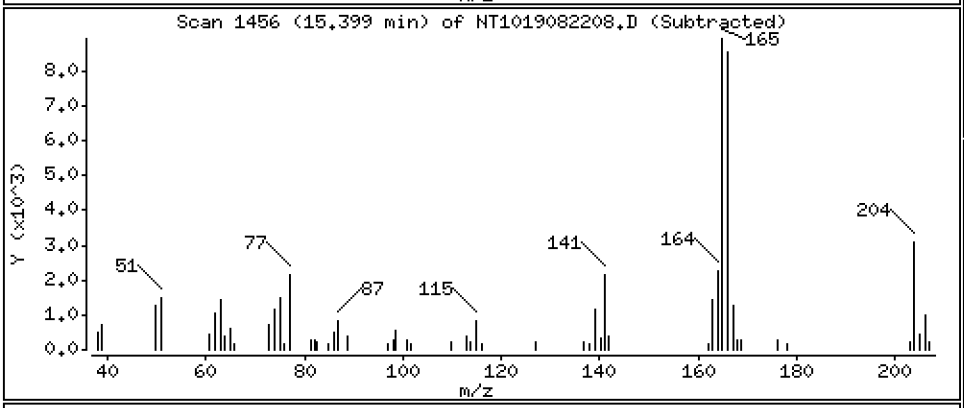
Column diameter: 0.25

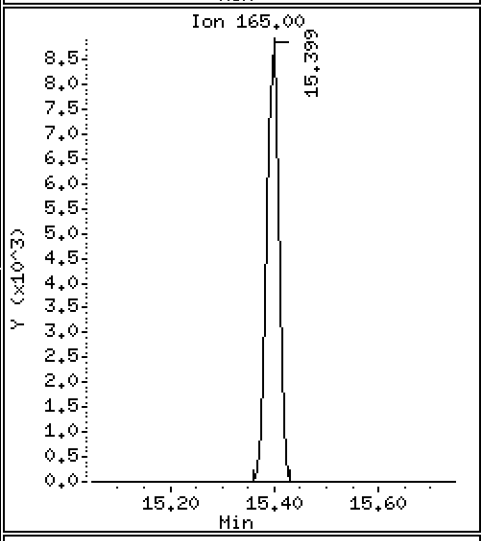
49 Fluorene

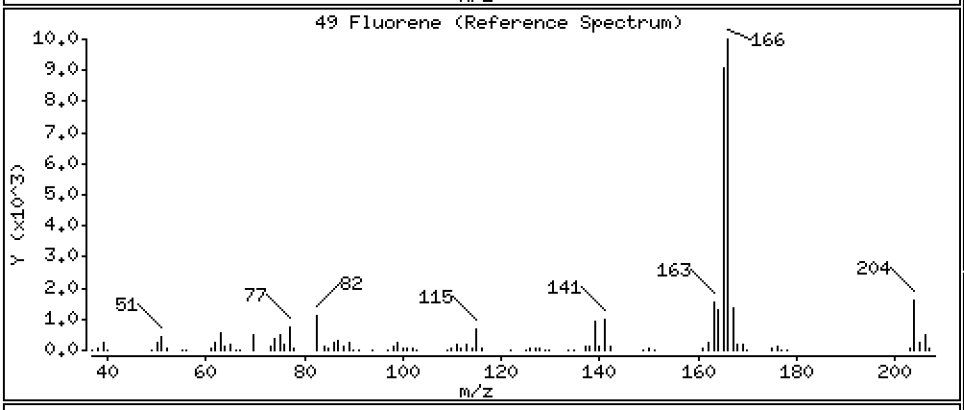
Concentration: 0.4803 ug/mL

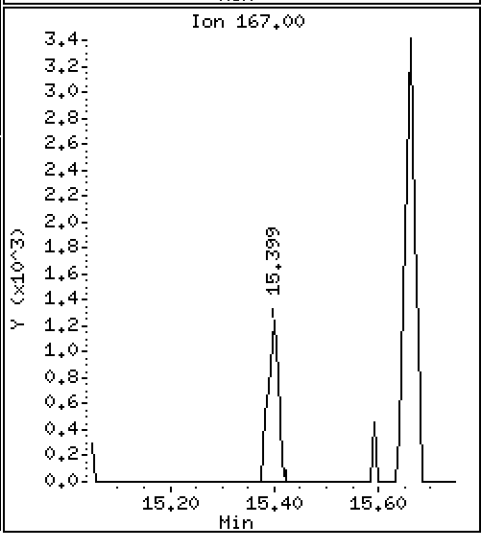


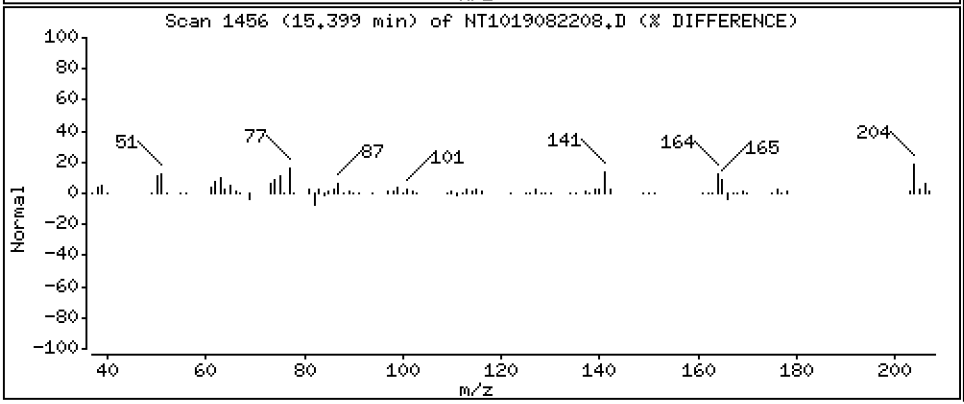












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

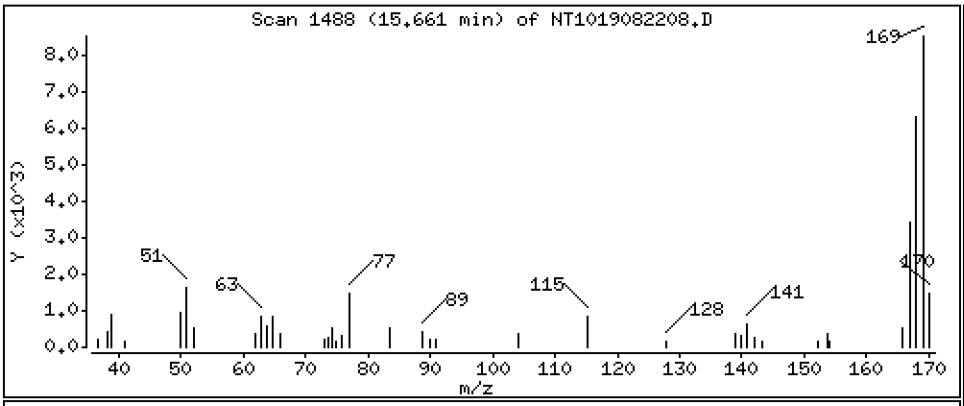
Operator: YZ

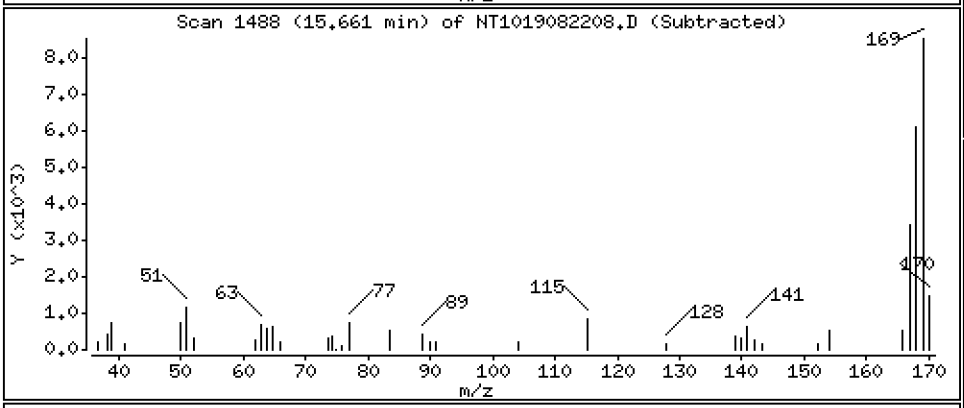
Column phase: ZB-5msi

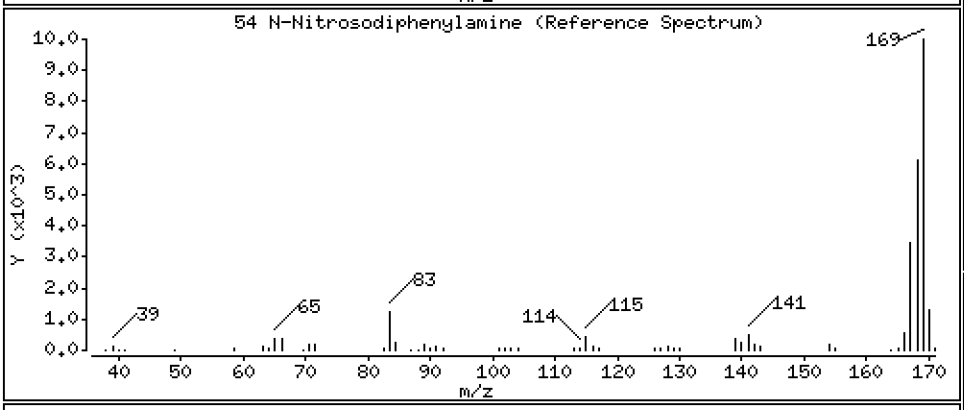
Column diameter: 0.25

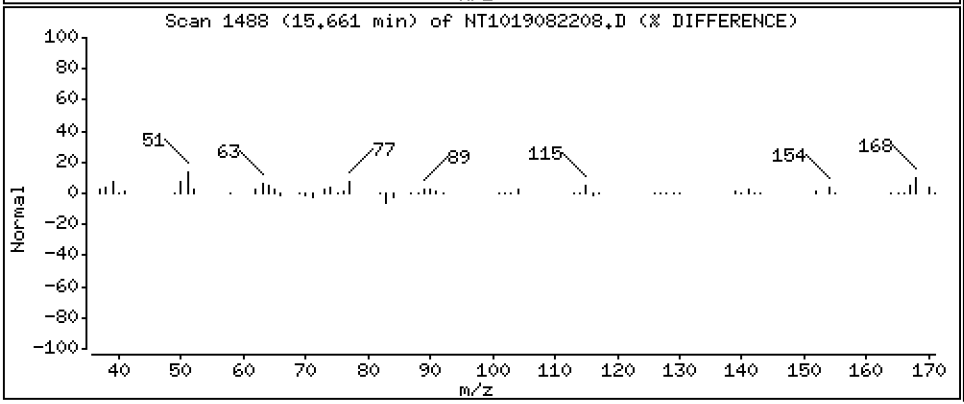
54 N-Nitrosodiphenylamine

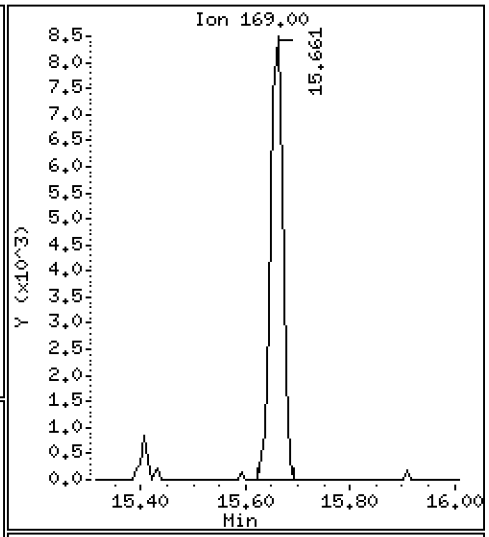
Concentration: 0.6201 ug/mL

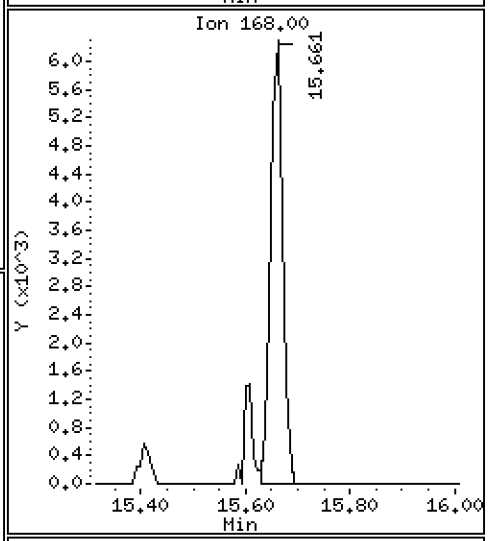


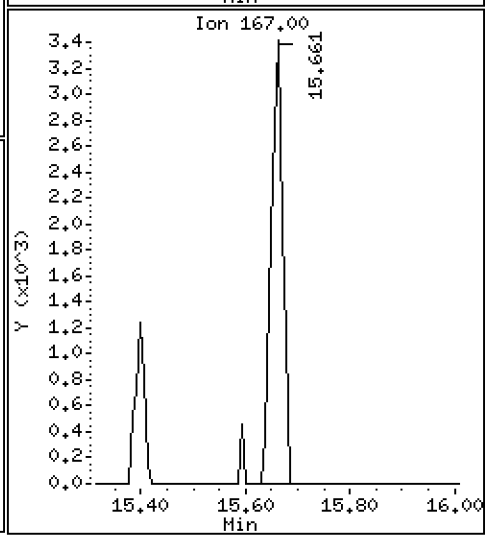












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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

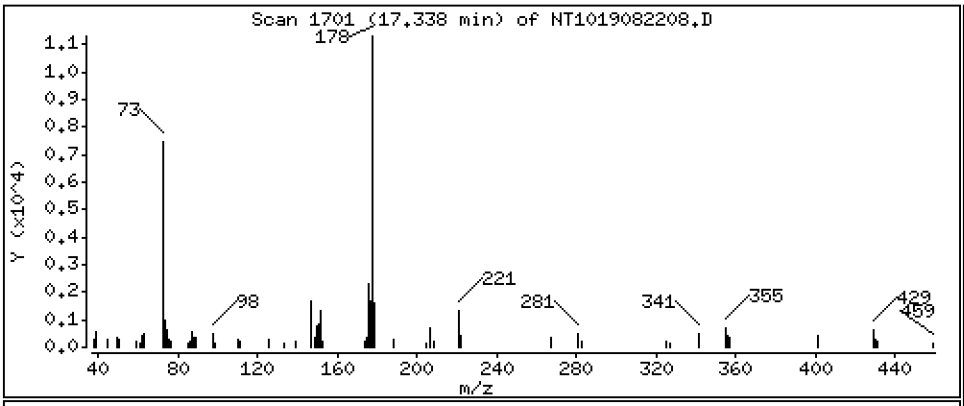
Operator: YZ

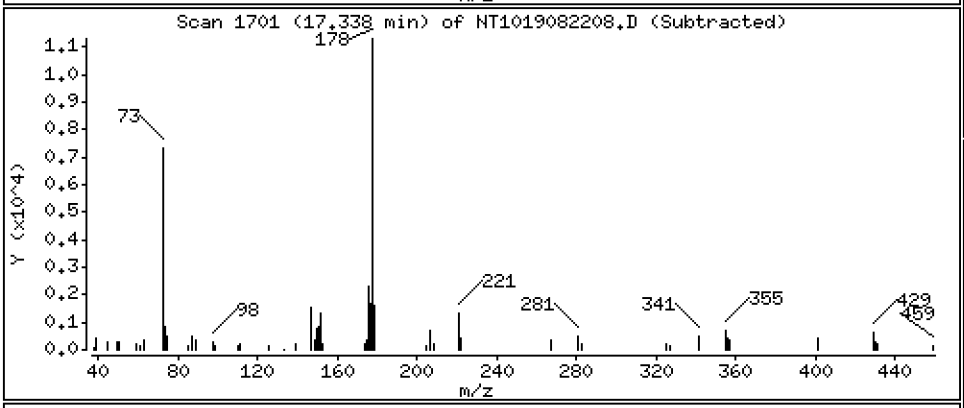
Column phase: ZB-5msi

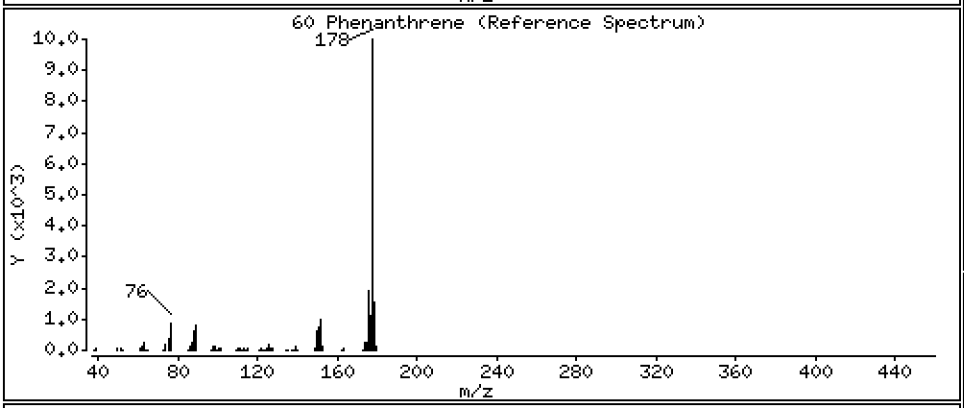
Column diameter: 0.25

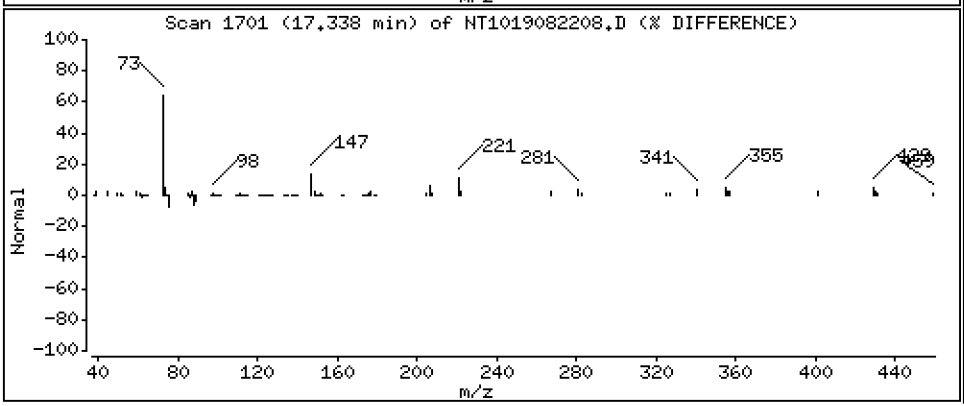
60 Phenanthrene

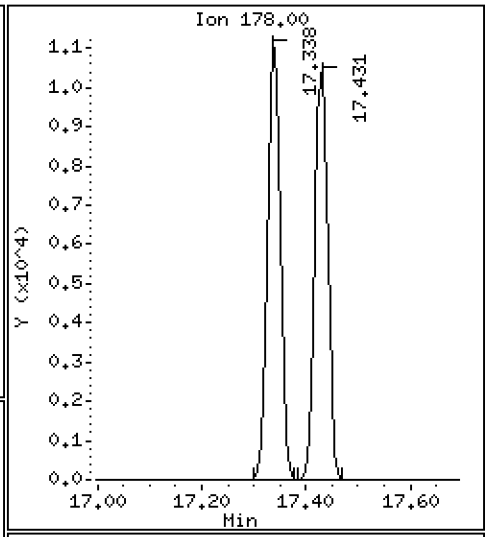
Concentration: 0.4895 ug/mL

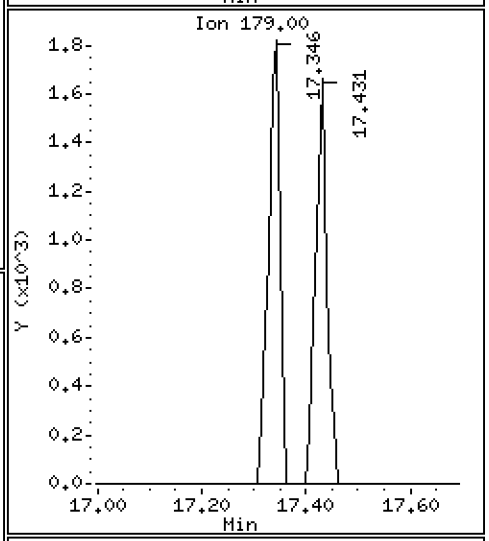


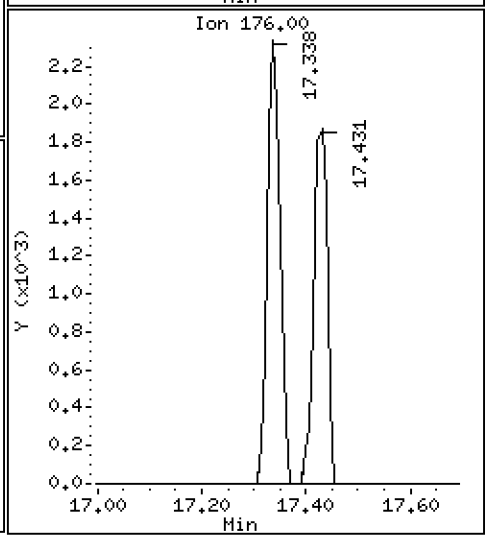












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

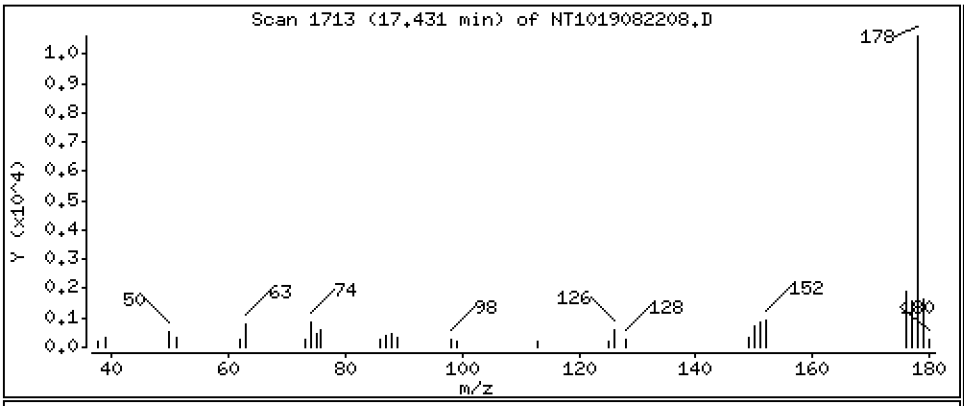
Operator: YZ

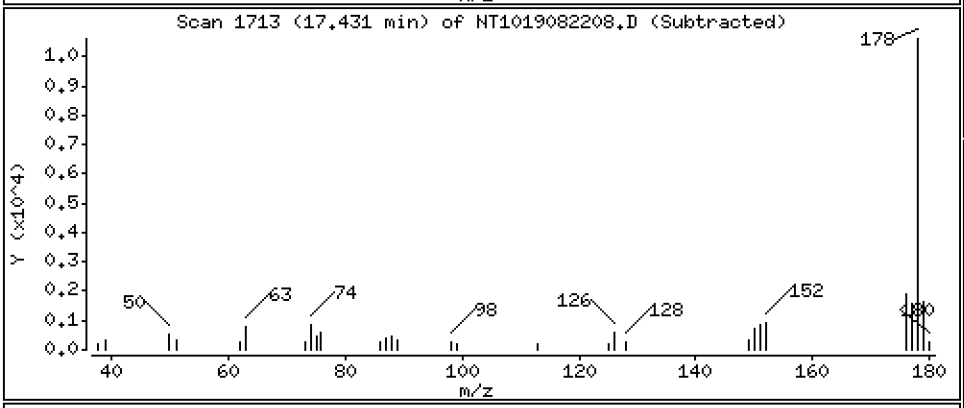
Column phase: ZB-5msi

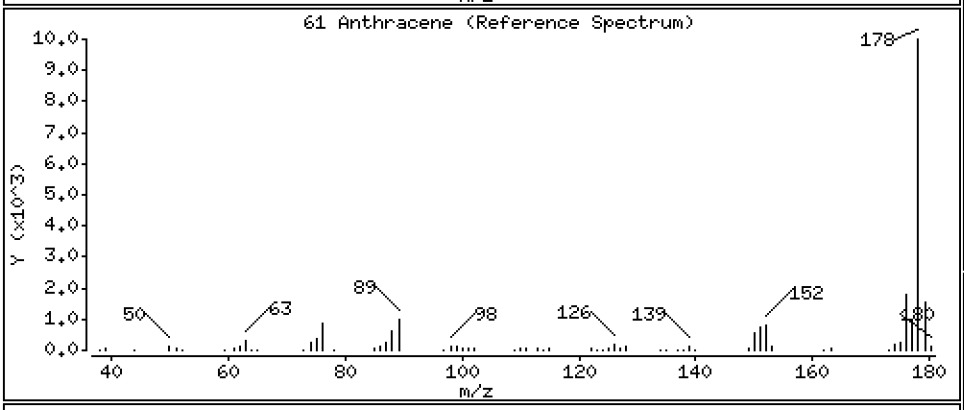
Column diameter: 0.25

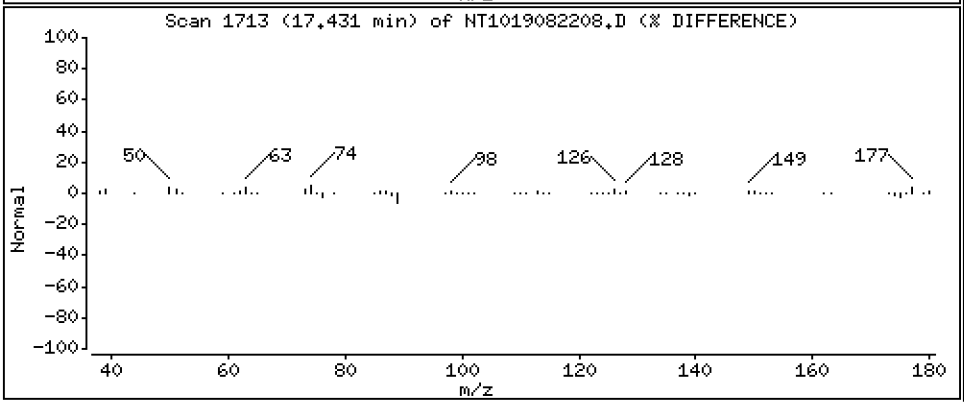
61 Anthracene

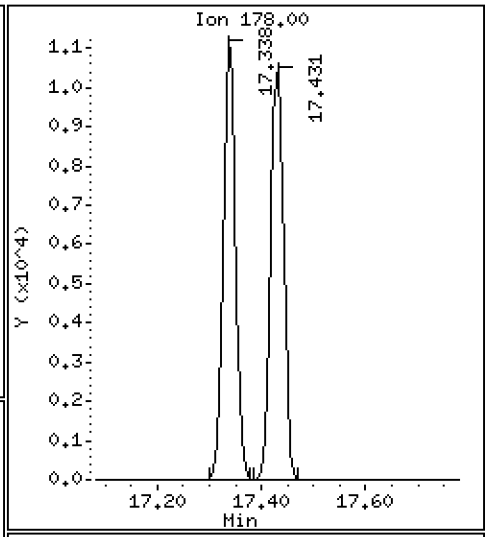
Concentration: 0.4535 ug/mL

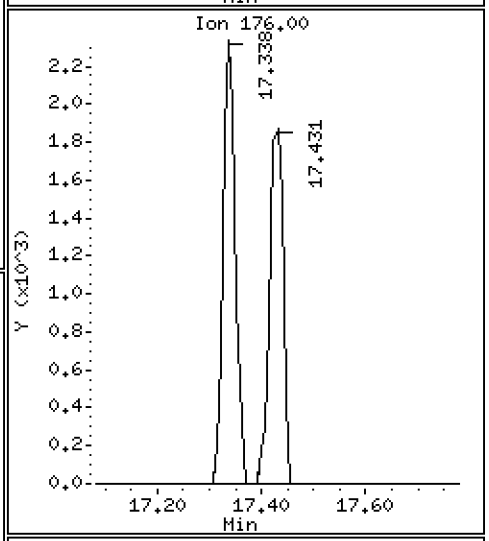


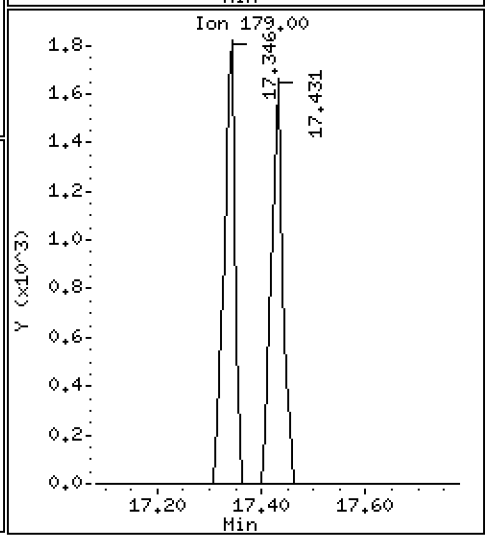












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

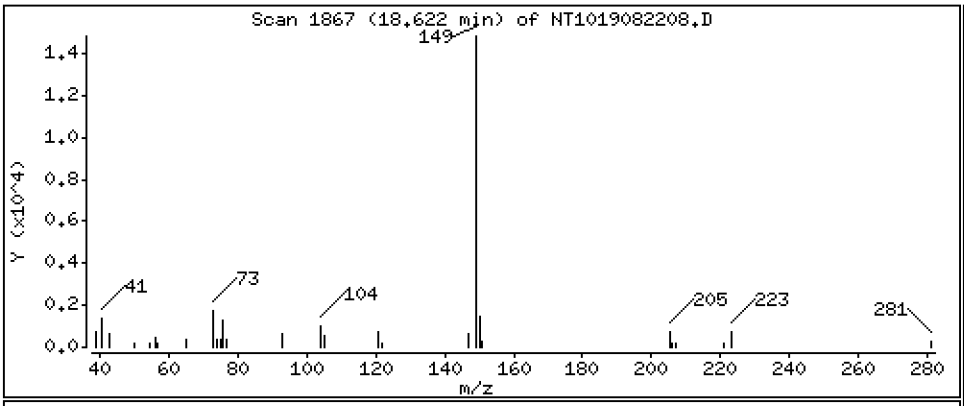
Operator: YZ

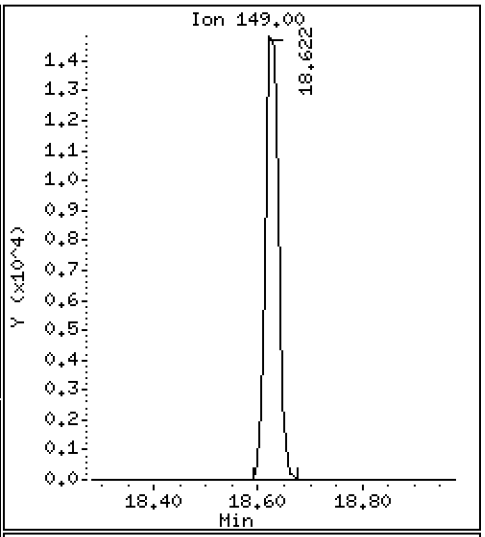
Column phase: ZB-5msi

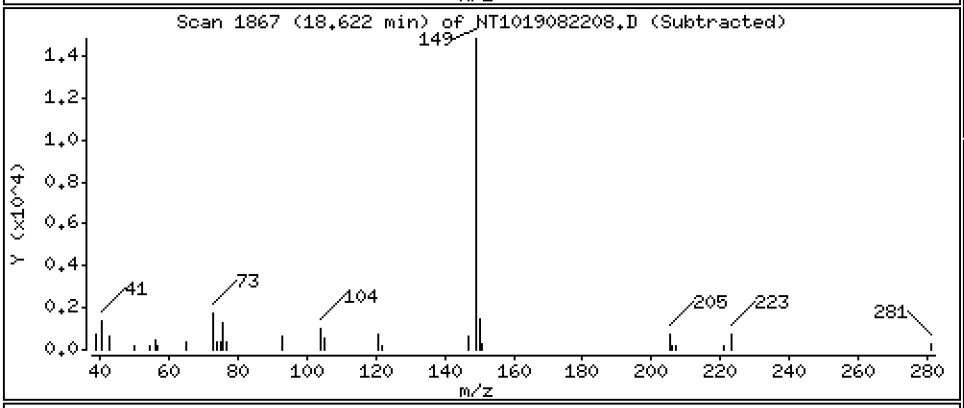
Column diameter: 0.25

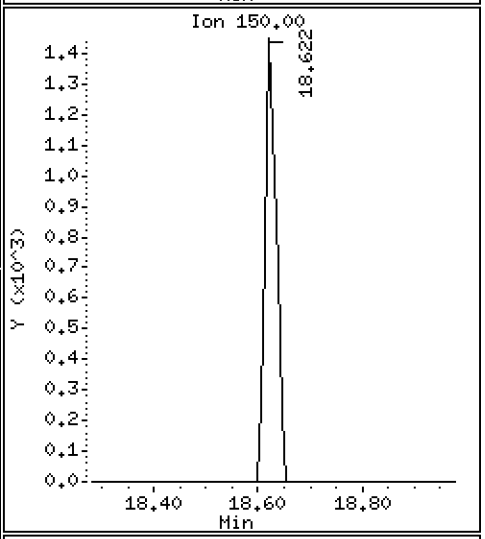
63 Di-n-butylphthalate

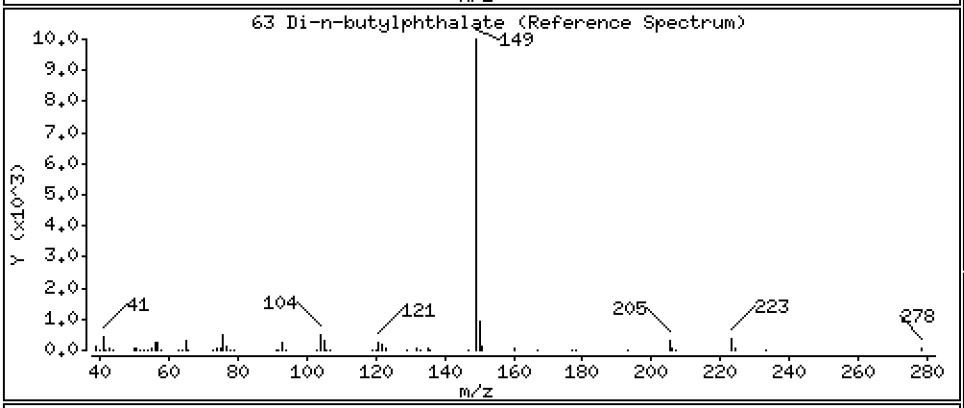
Concentration: 0.4693 ug/mL

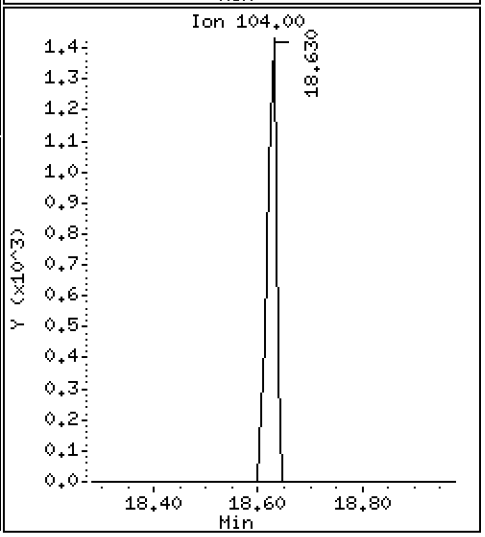


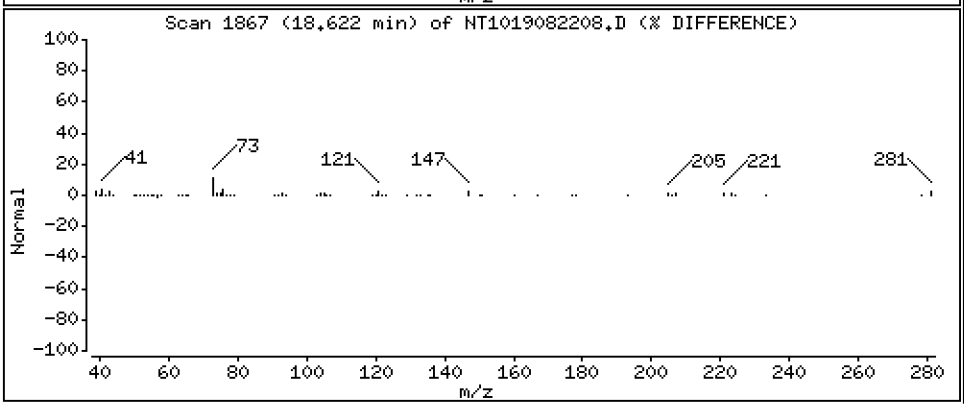












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

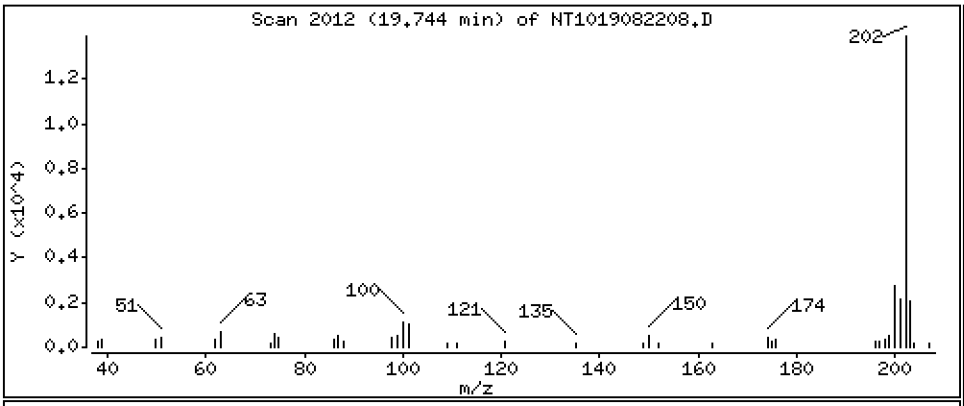
Operator: YZ

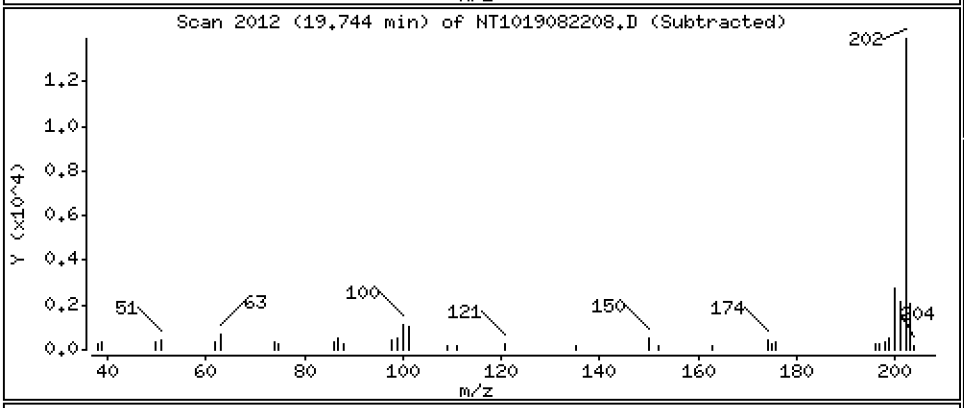
Column phase: ZB-5msi

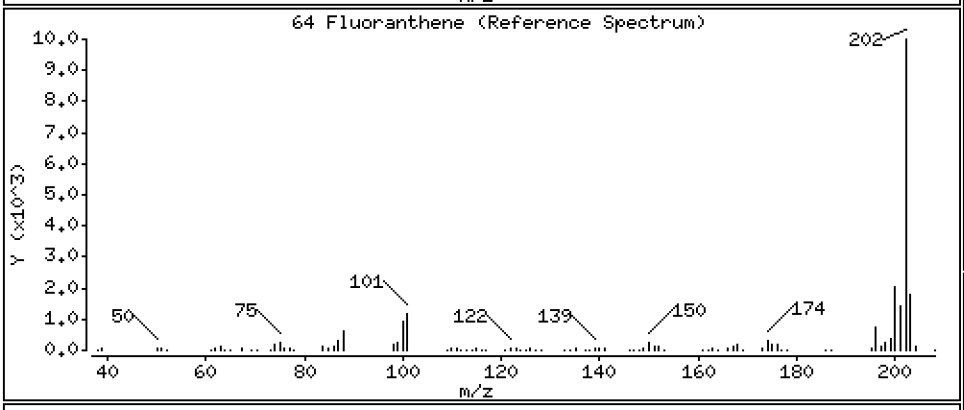
Column diameter: 0.25

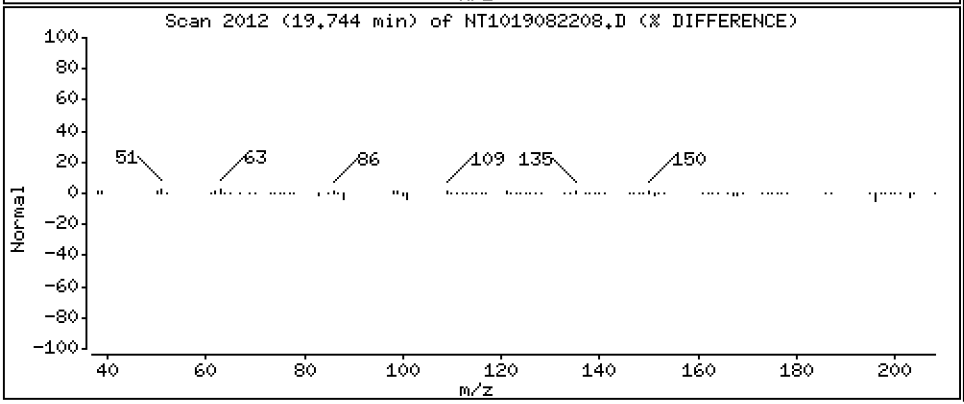
64 Fluoranthene

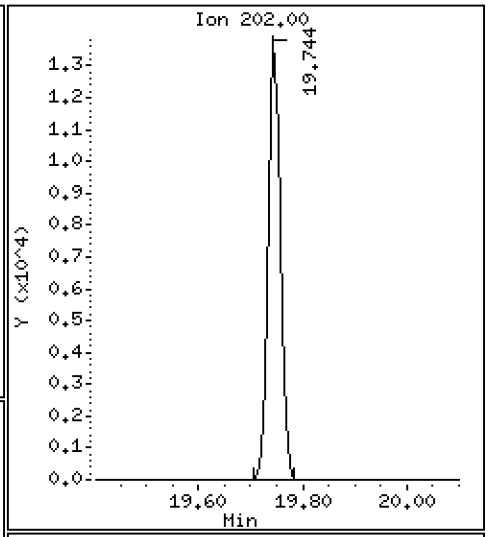
Concentration: 0.5169 ug/mL

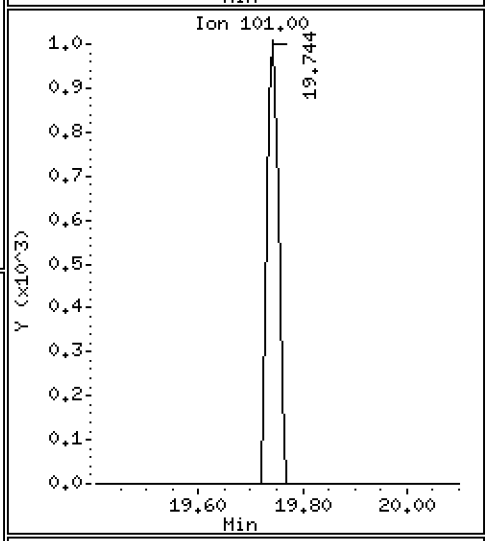


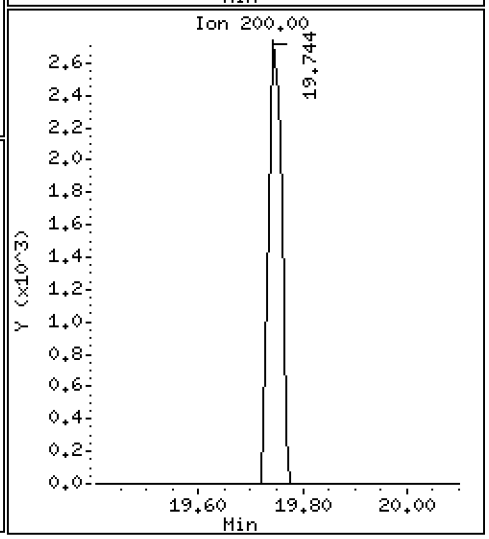












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

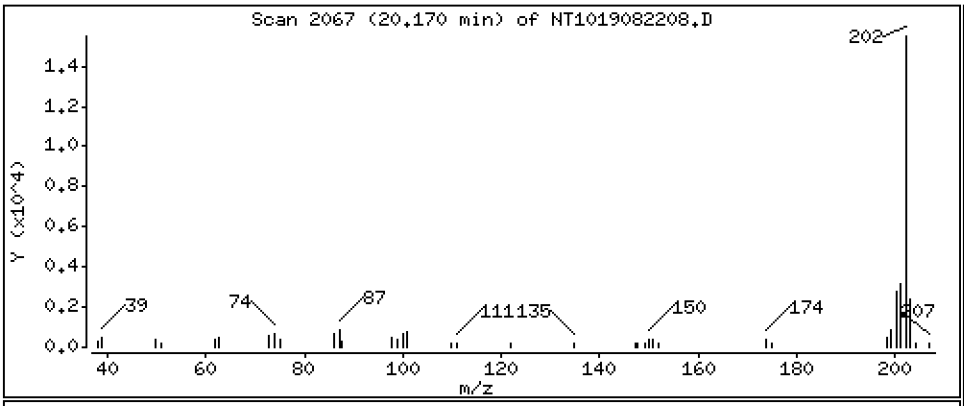
Operator: YZ

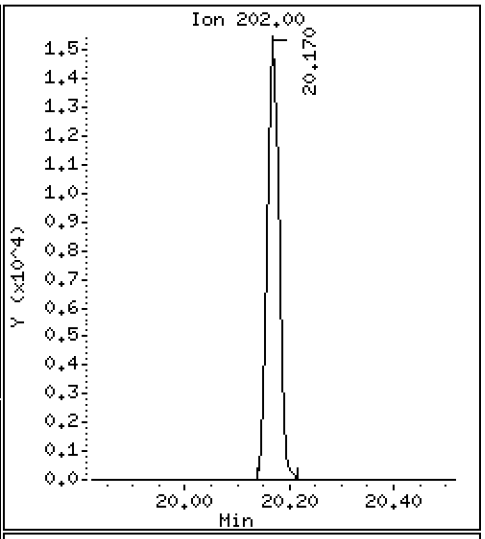
Column phase: ZB-5msi

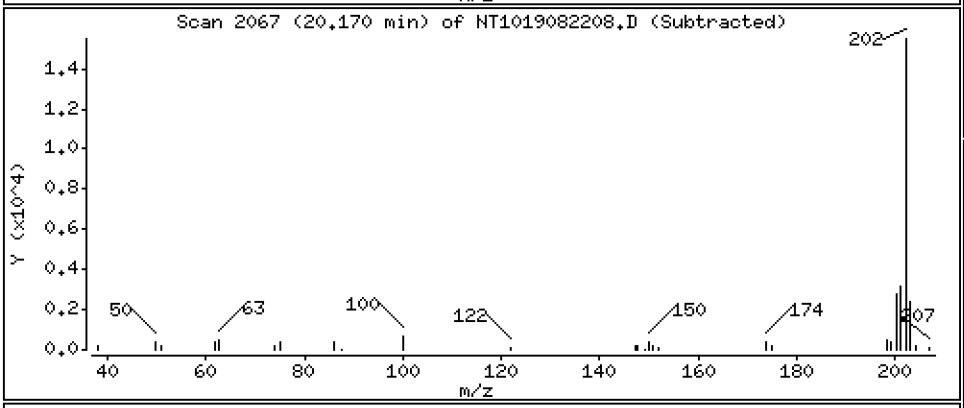
Column diameter: 0.25

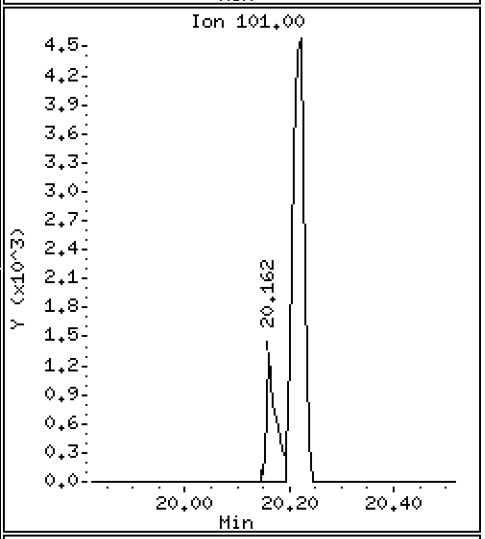
65 Pyrene

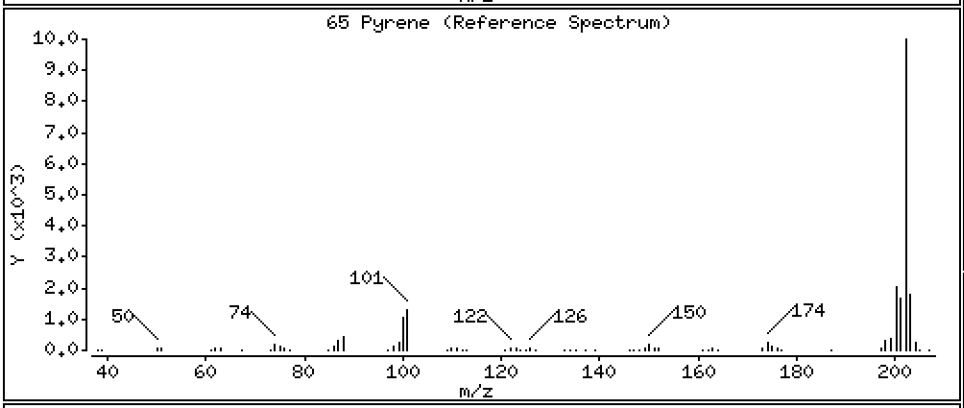
Concentration: 0.5381 ug/mL

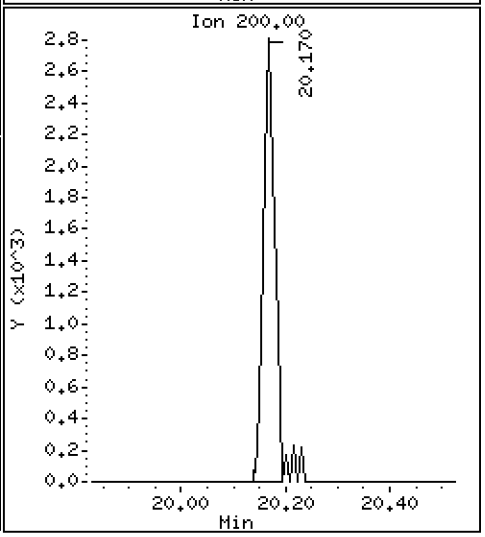


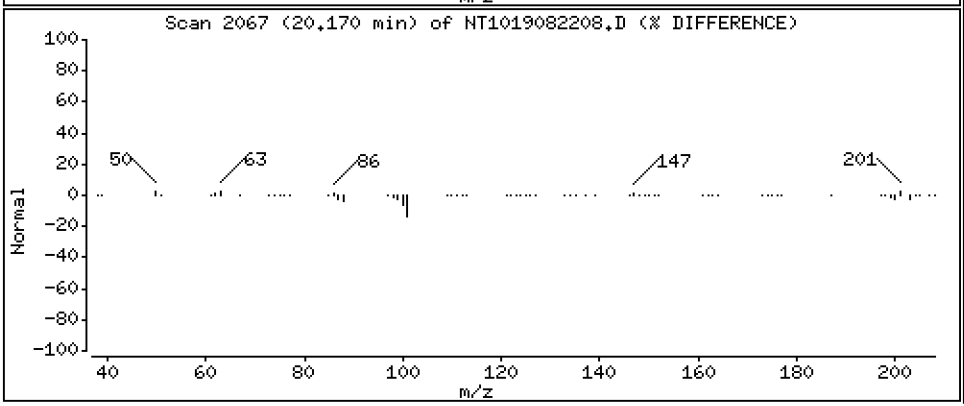












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

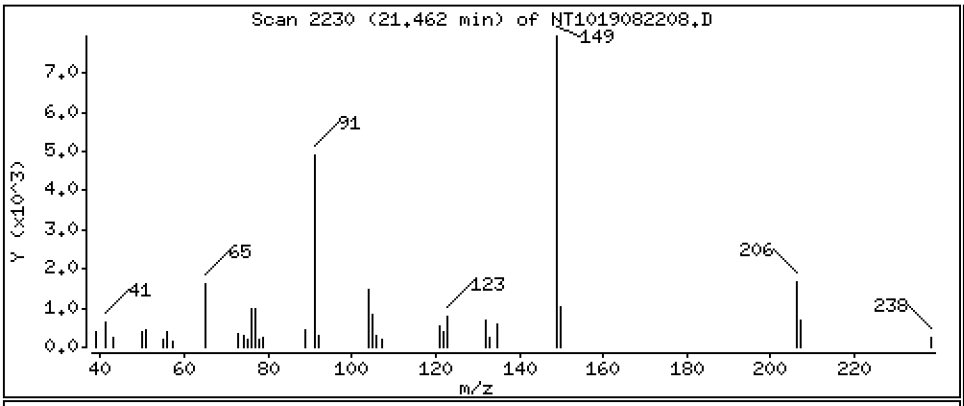
Operator: YZ

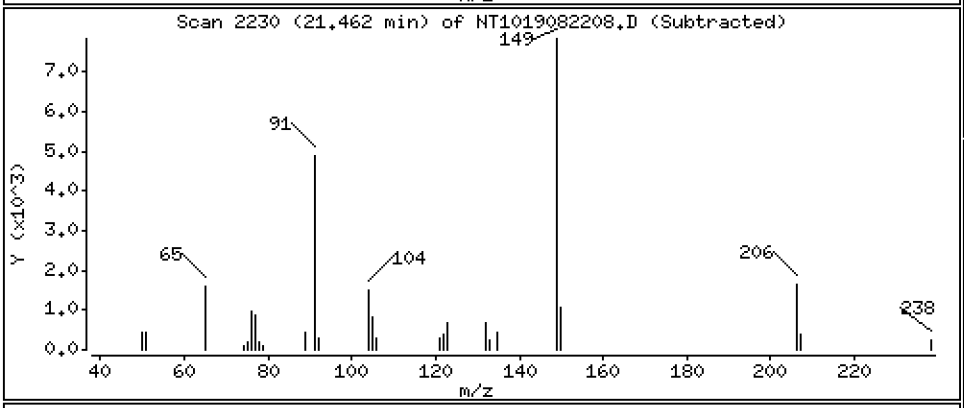
Column phase: ZB-5msi

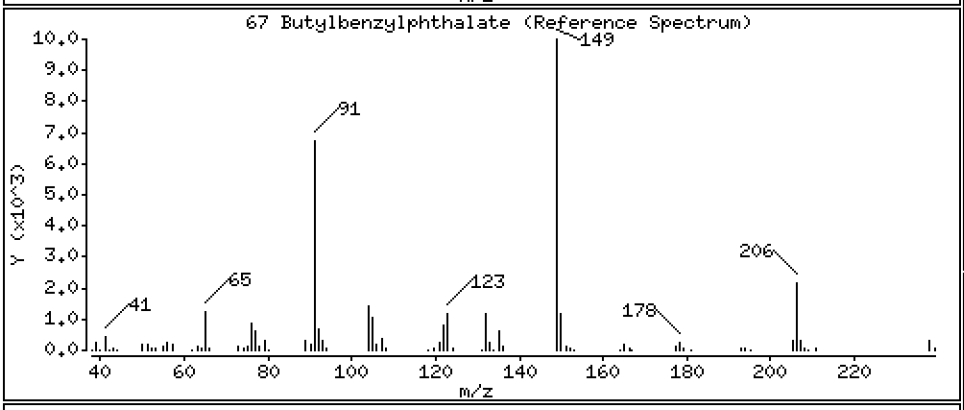
Column diameter: 0.25

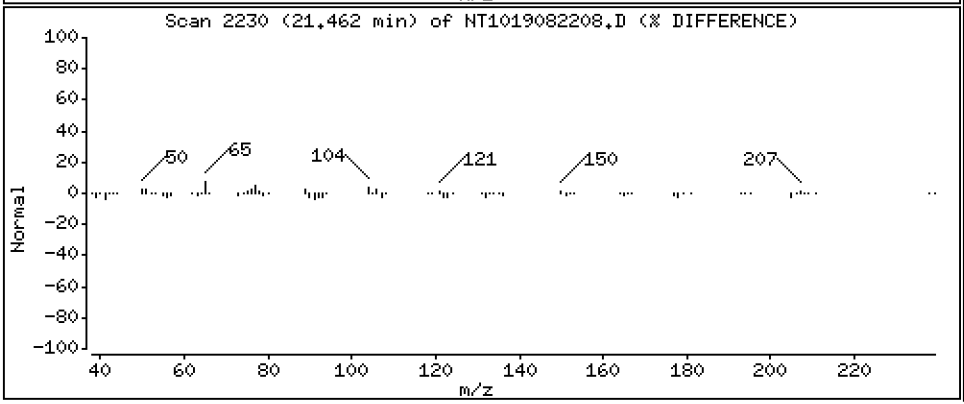
67 Butylbenzylphthalate

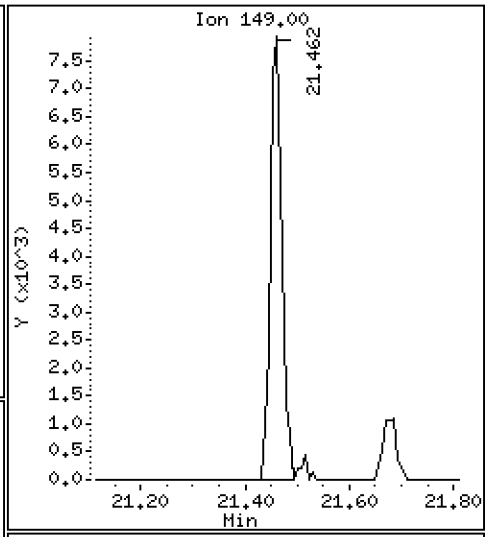
Concentration: 0.5831 ug/mL

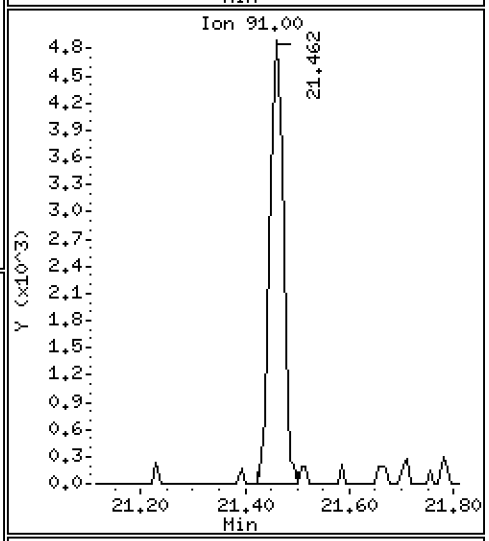


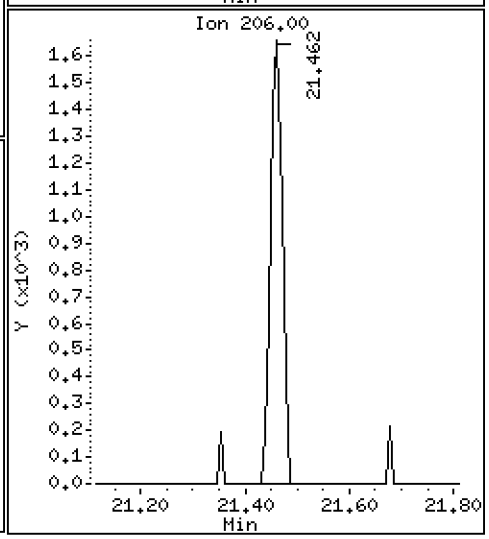












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

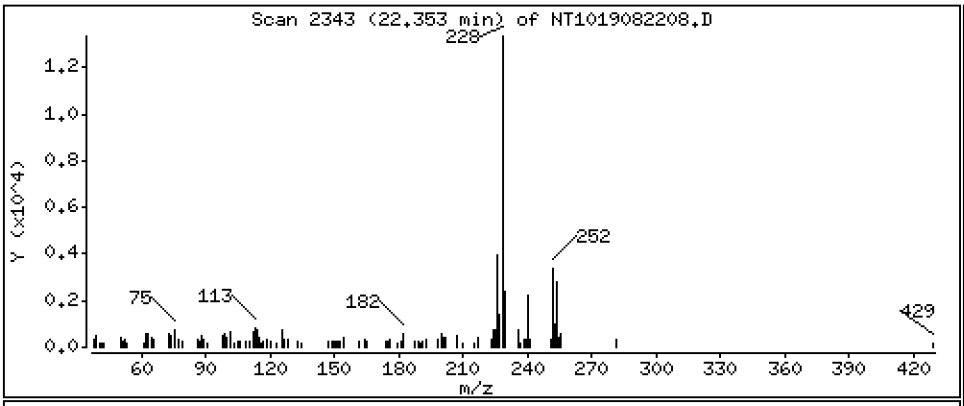
Operator: YZ

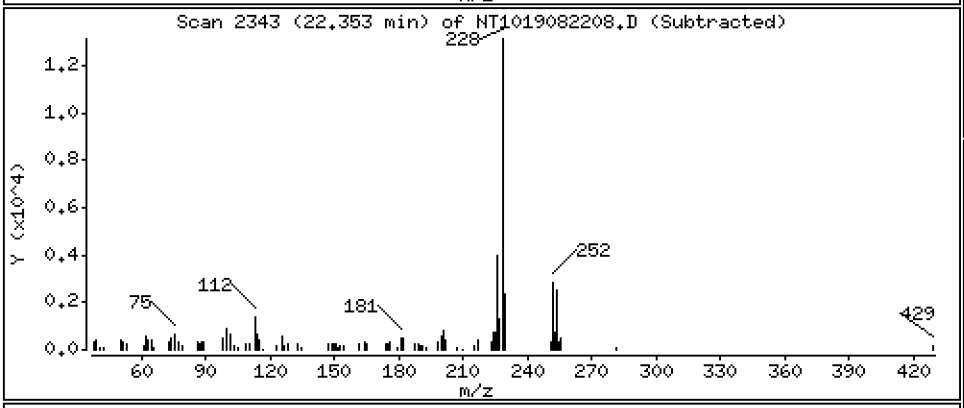
Column phase: ZB-5msi

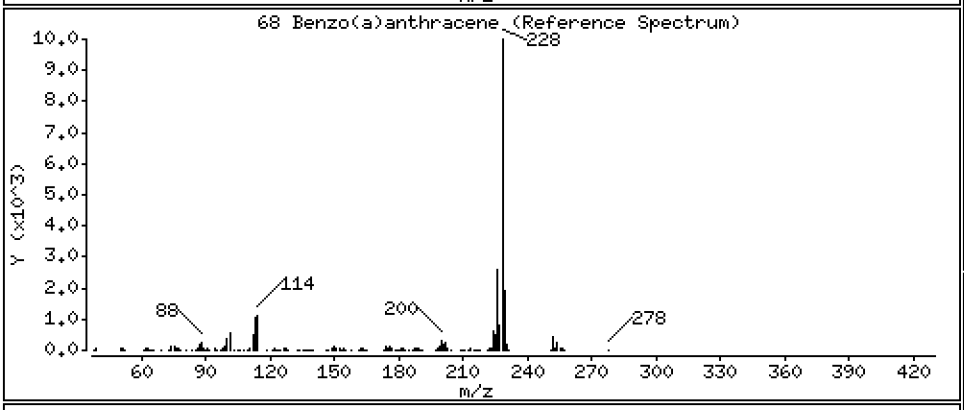
Column diameter: 0.25

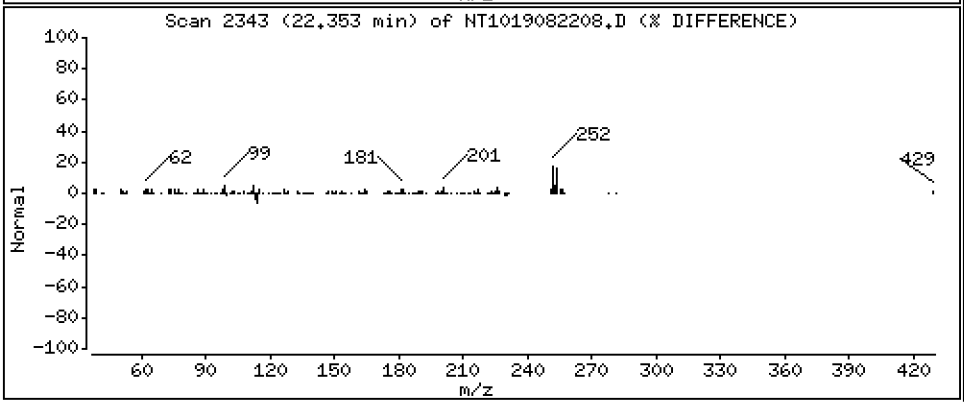
68 Benzo(a)anthracene

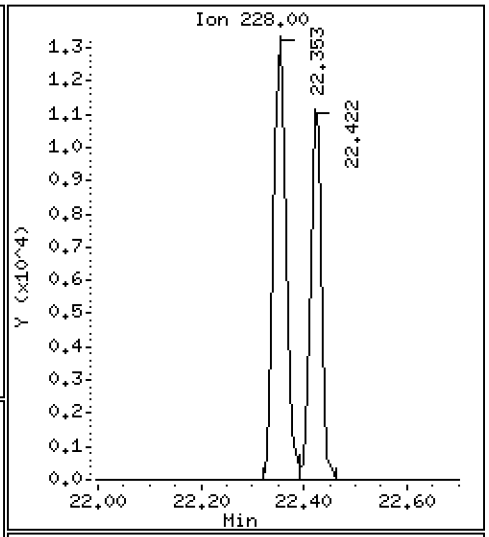
Concentration: 0.5489 ug/mL

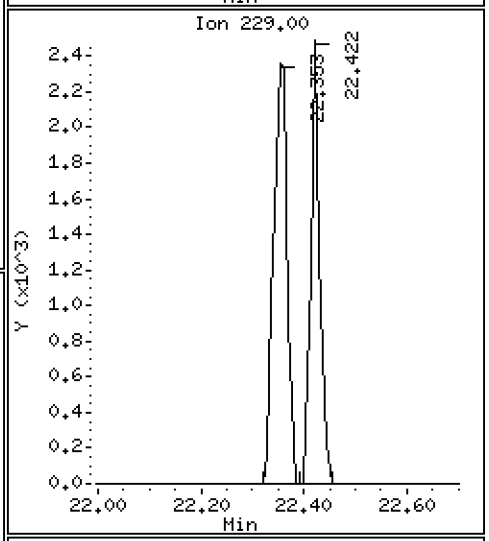


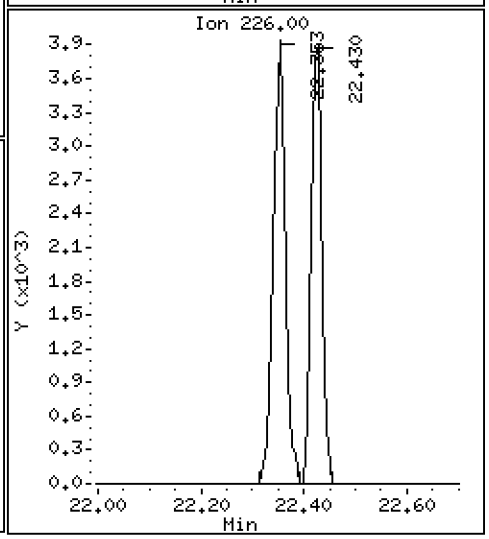












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

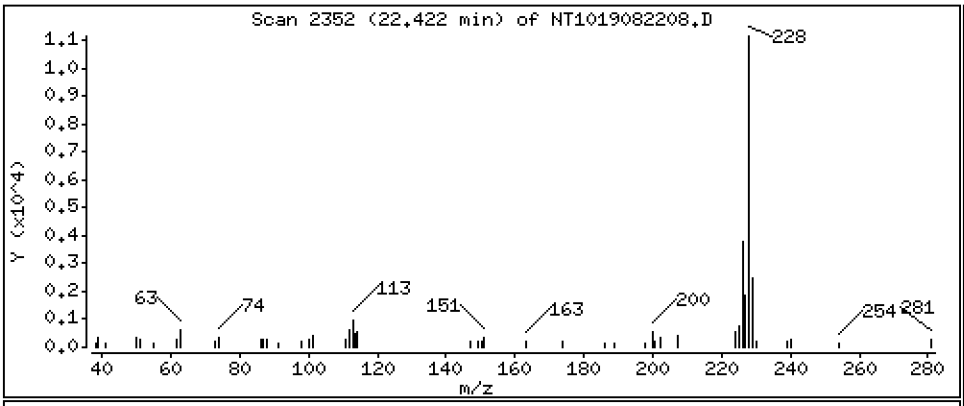
Operator: YZ

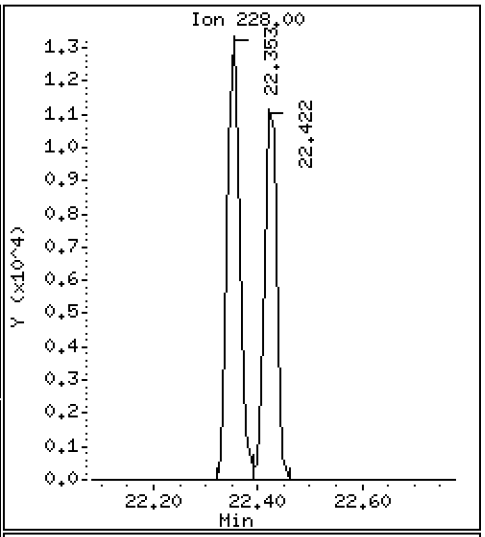
Column phase: ZB-5msi

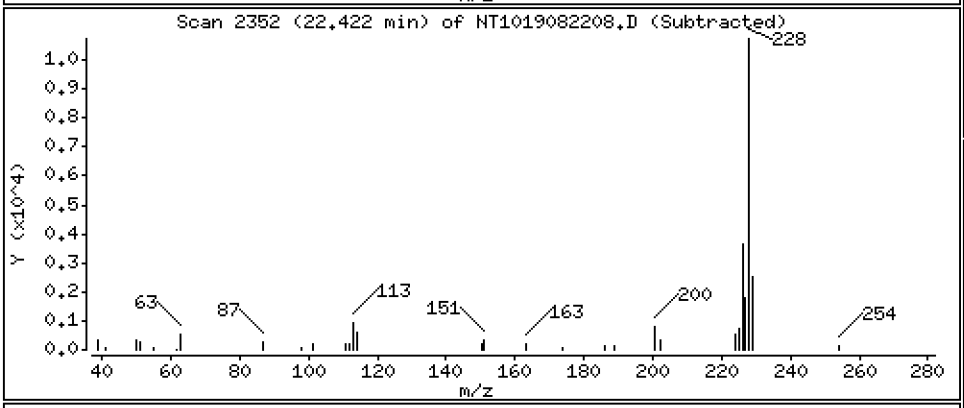
Column diameter: 0.25

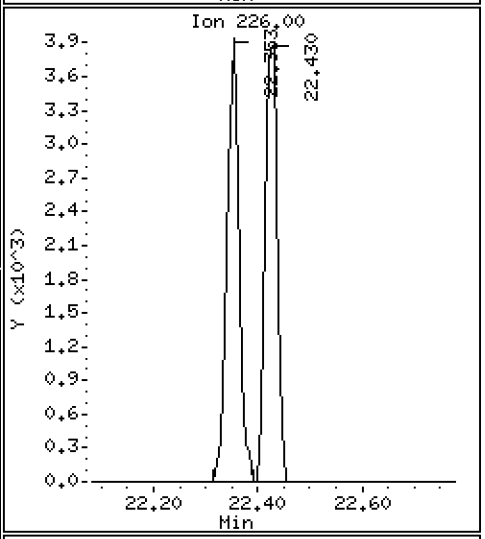
71 Chrysene

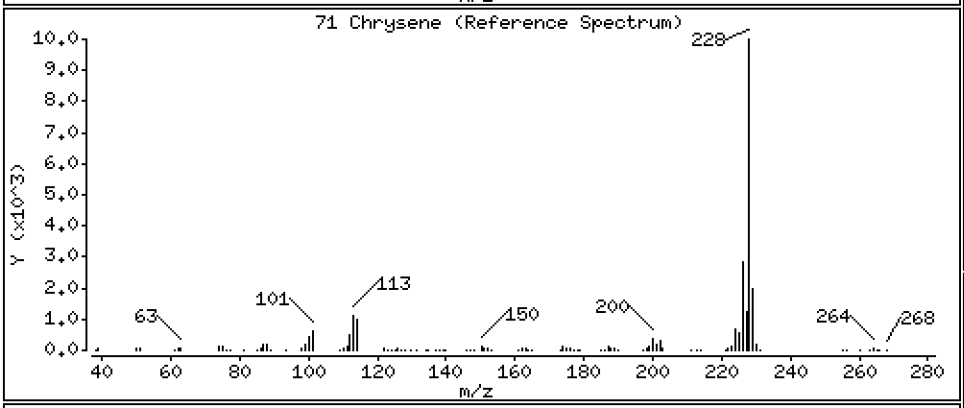
Concentration: 0.5063 ug/mL

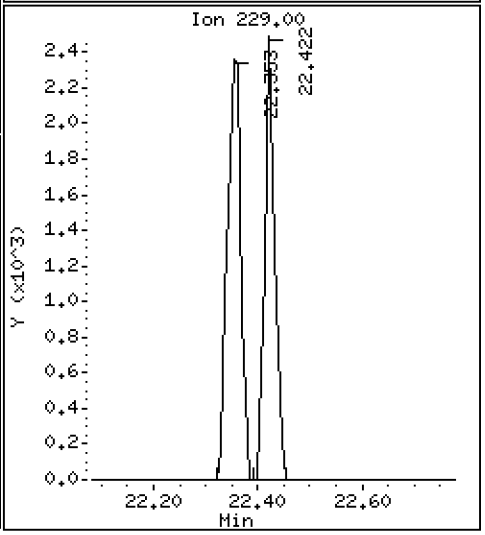


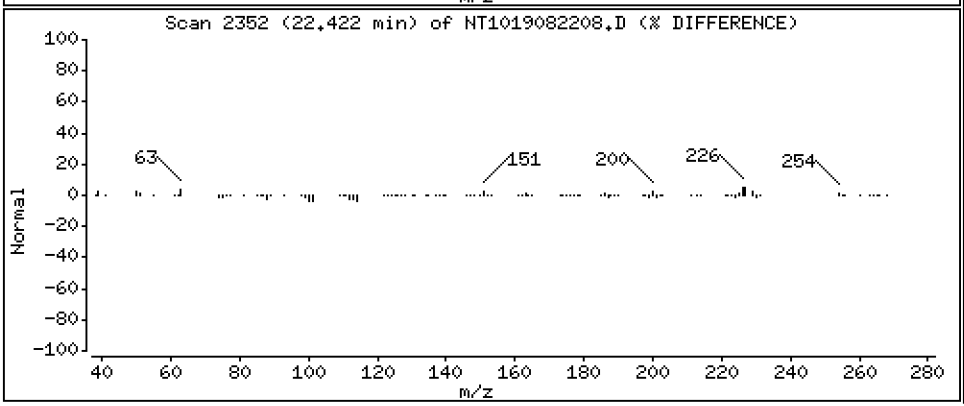












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

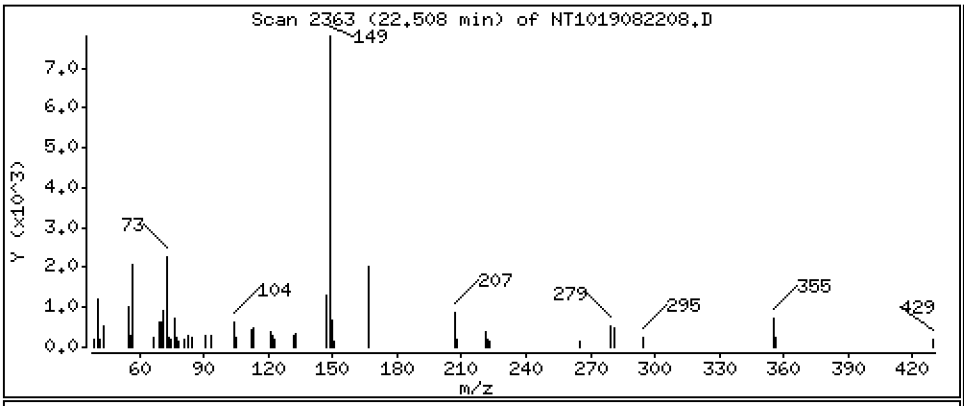
Operator: YZ

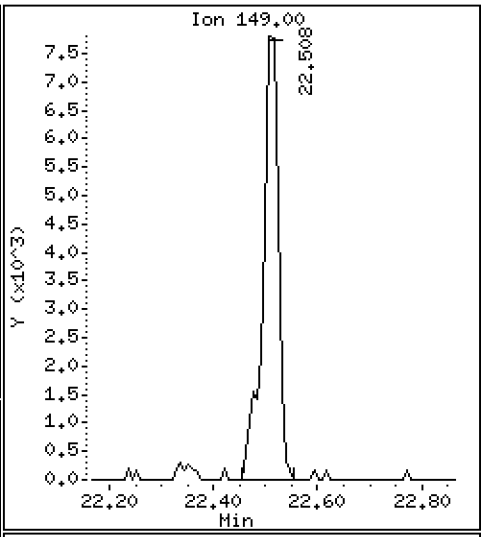
Column phase: ZB-5msi

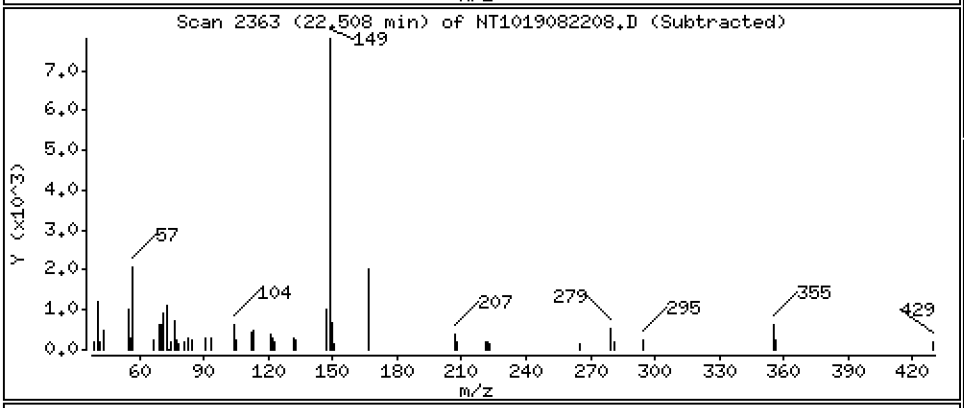
Column diameter: 0.25

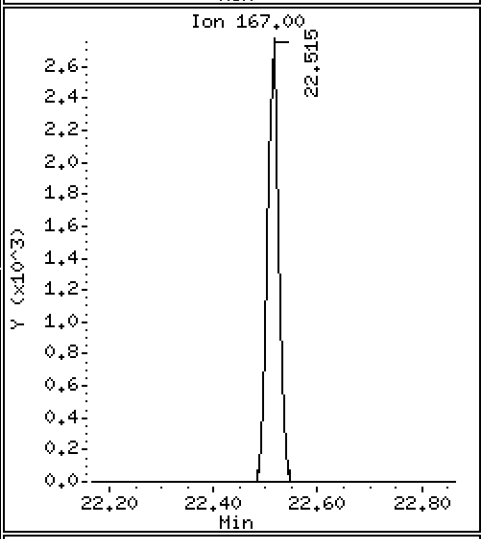
72 bis(2-Ethylhexyl)phthalate

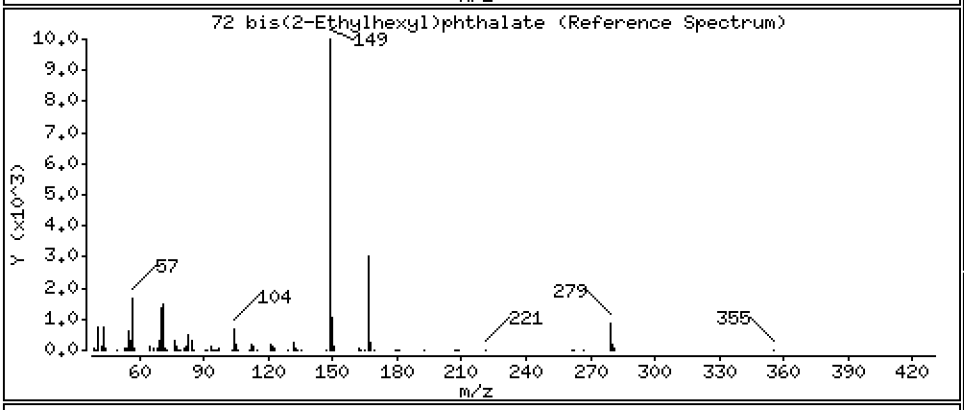
Concentration: 0.6237 ug/mL

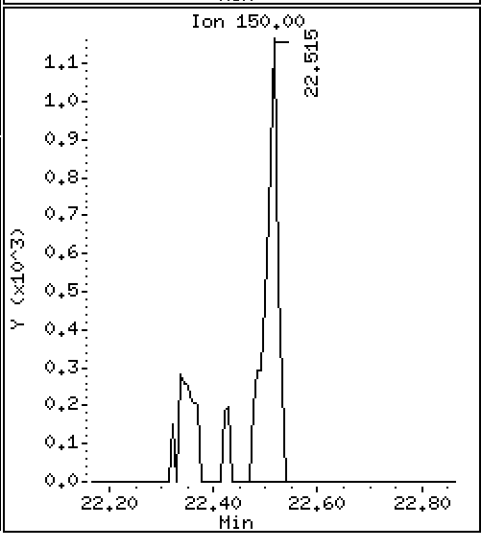


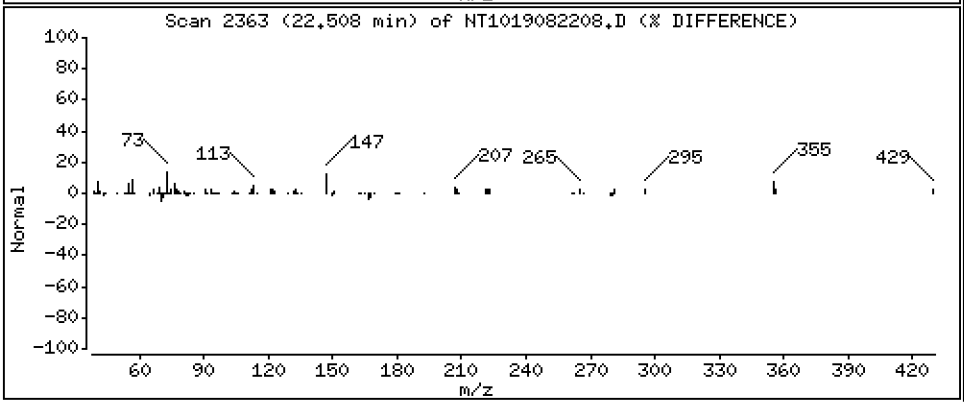












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

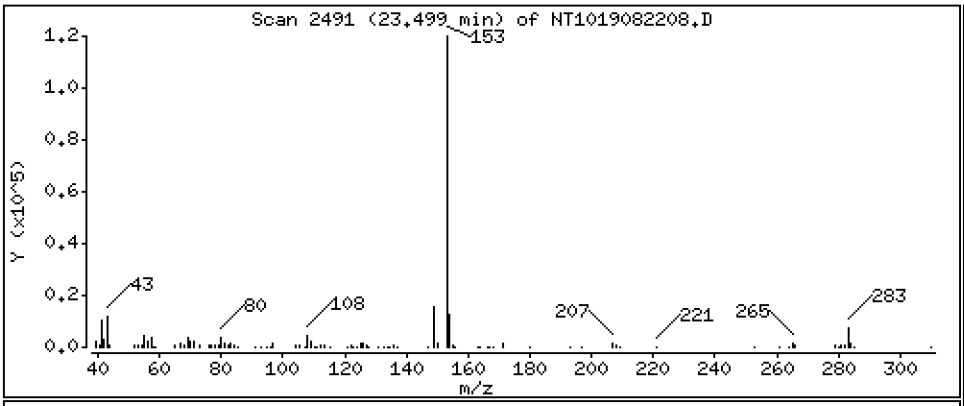
Operator: YZ

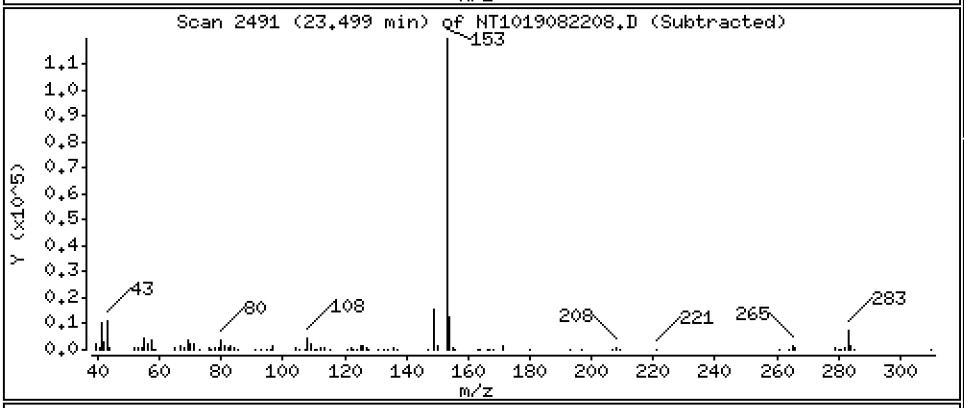
Column phase: ZB-5msi

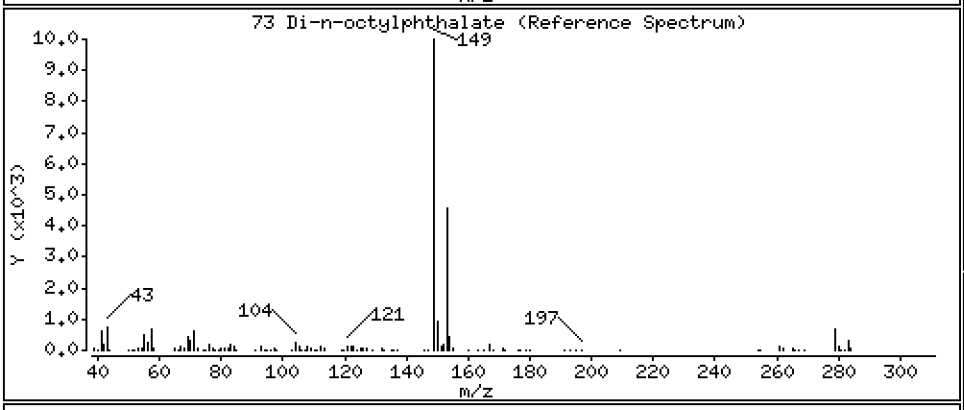
Column diameter: 0.25

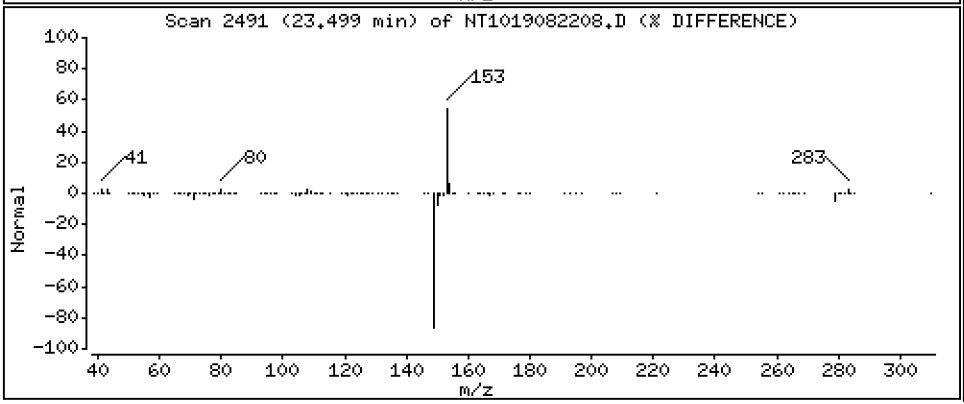
73 Di-n-octylphthalate

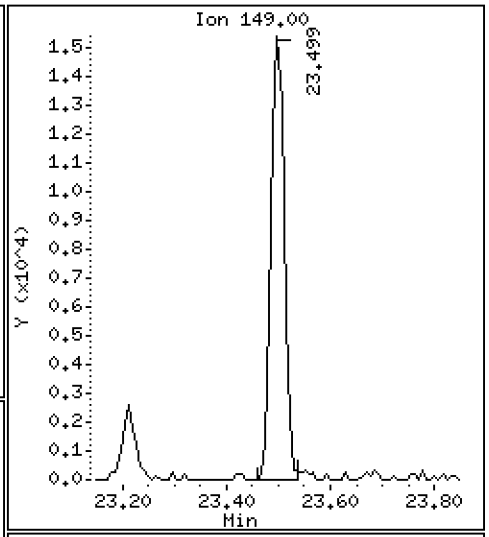
Concentration: 0.4962 ug/mL

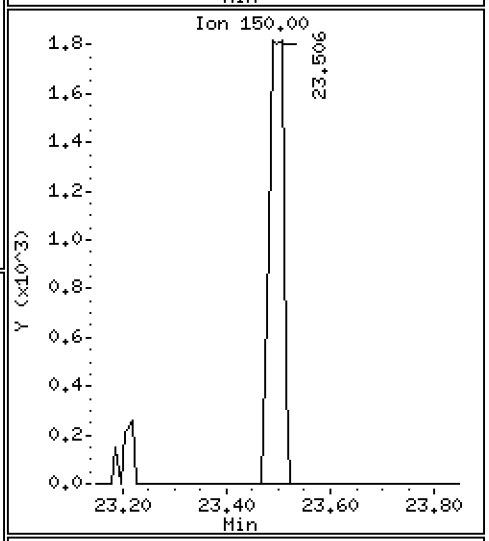


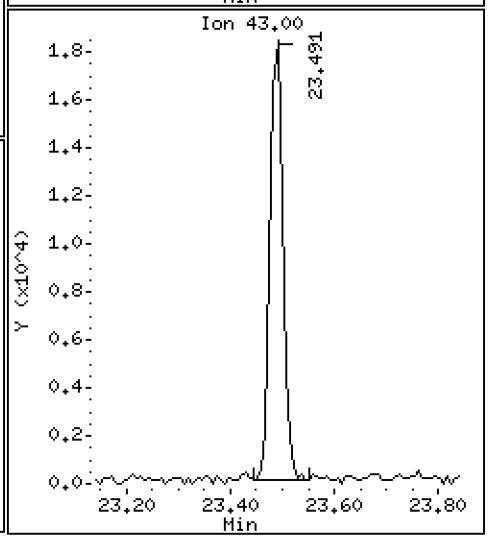












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

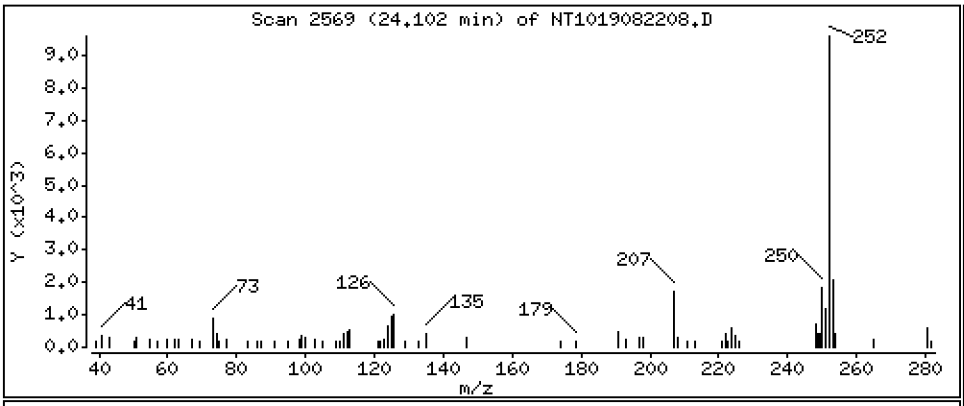
Operator: YZ

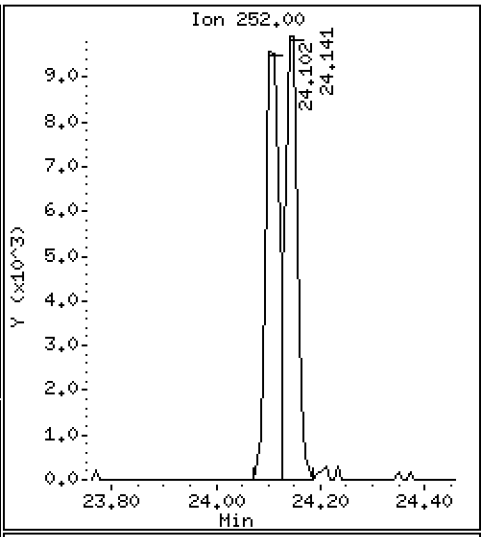
Column phase: ZB-5msi

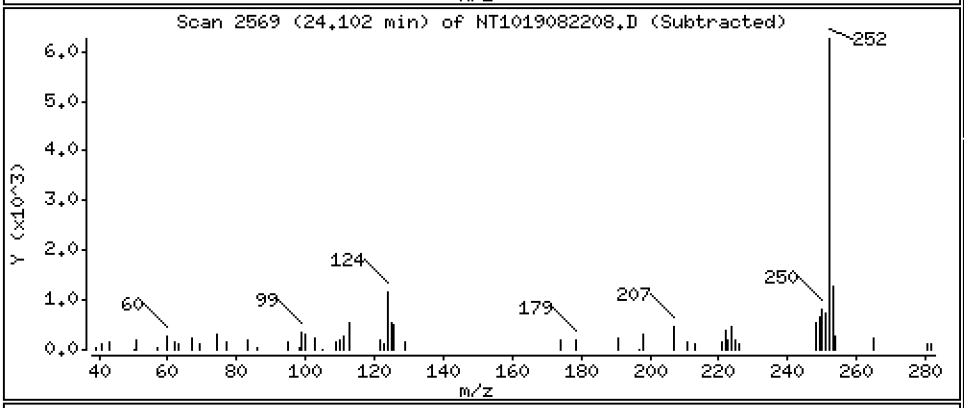
Column diameter: 0.25

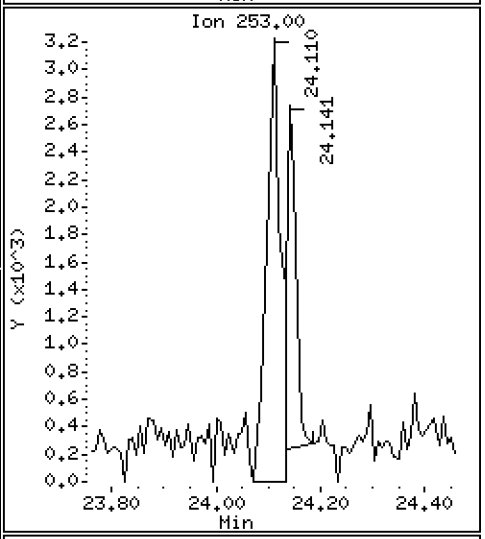
74 Benzo(b)fluoranthene

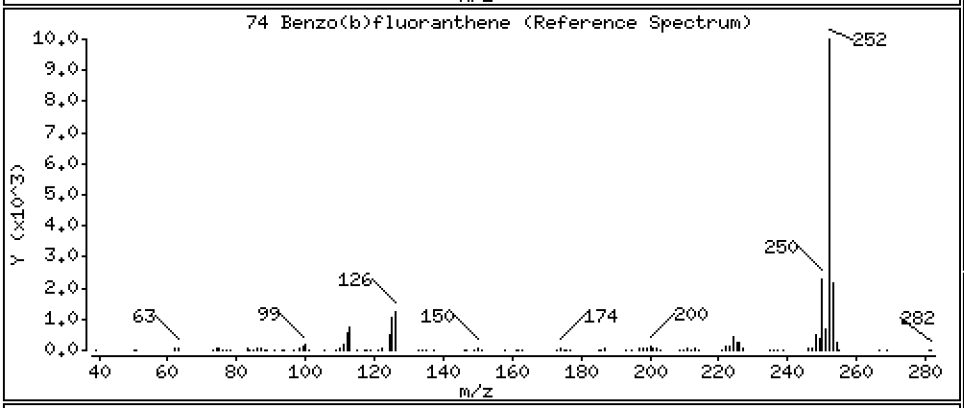
Concentration: 0.5424 ug/mL

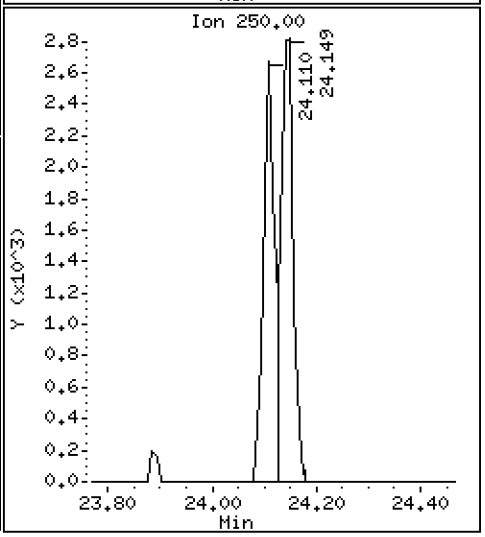


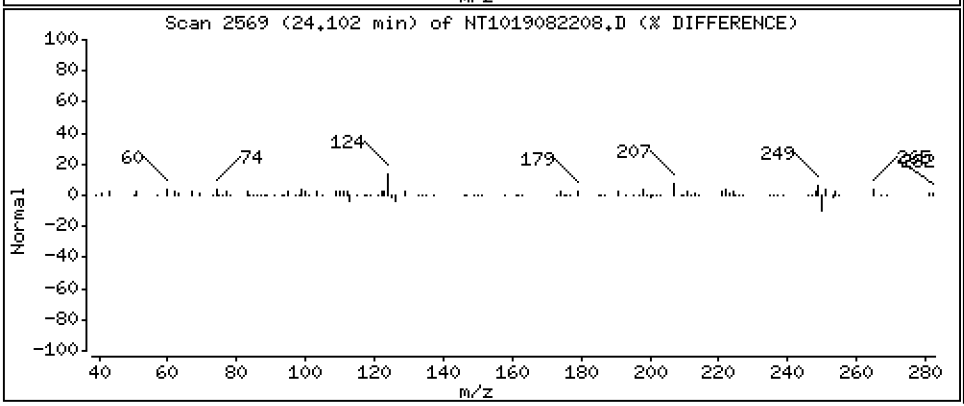












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

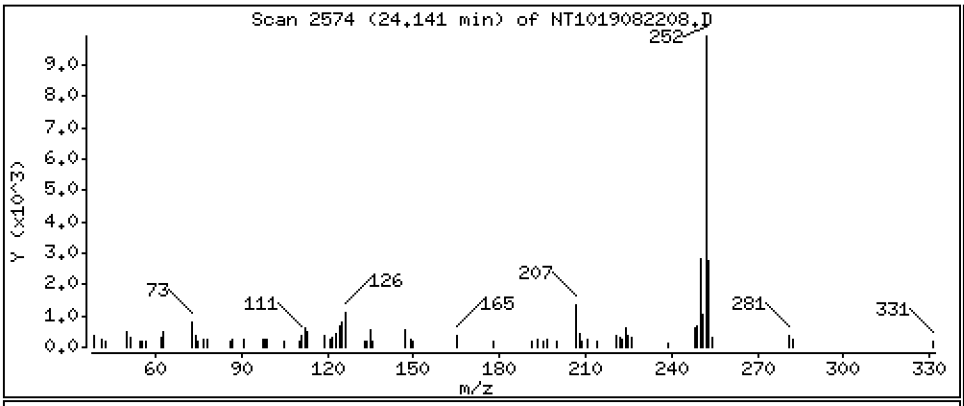
Operator: YZ

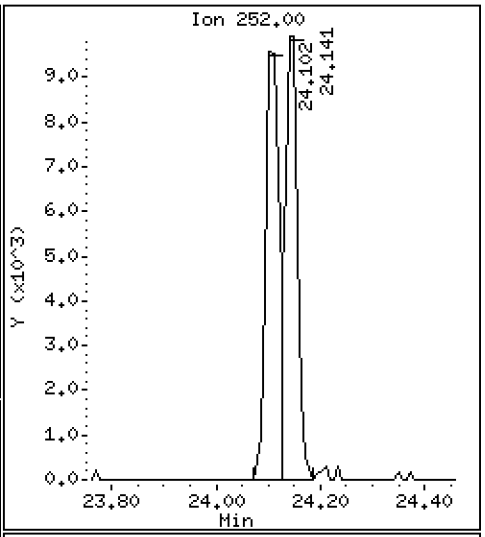
Column phase: ZB-5msi

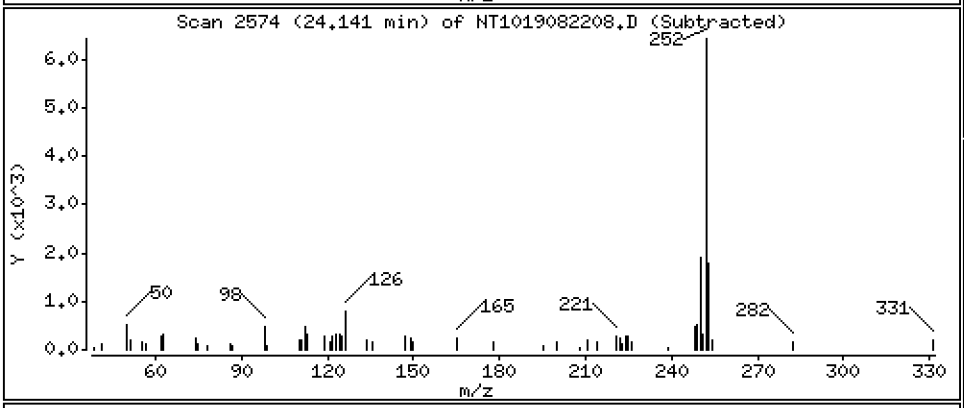
Column diameter: 0.25

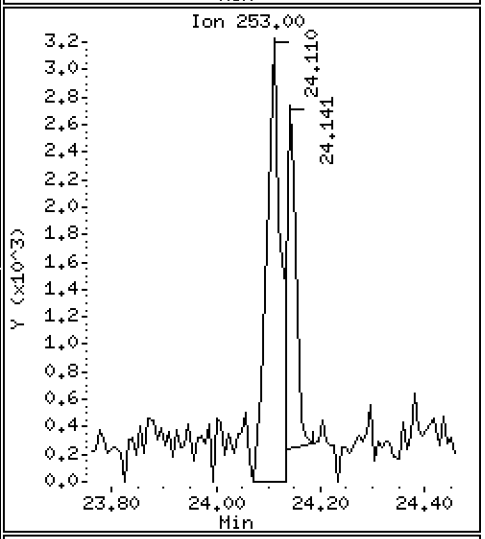
75 Benzo(k)fluoranthene

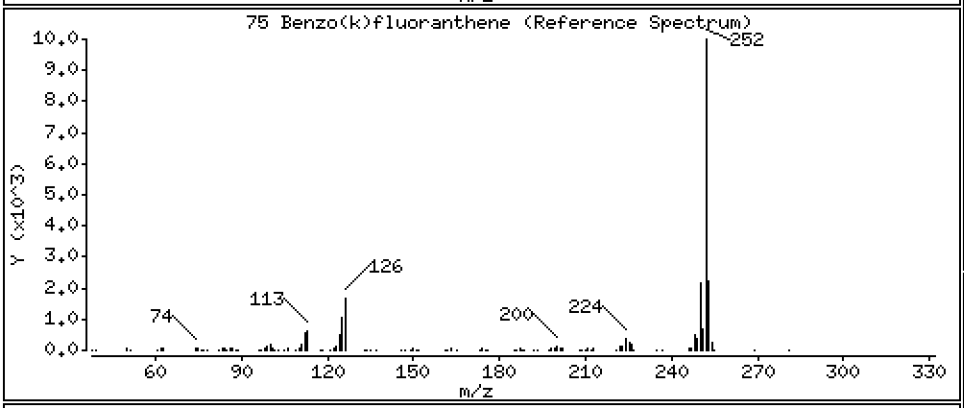
Concentration: 0.5816 ug/mL

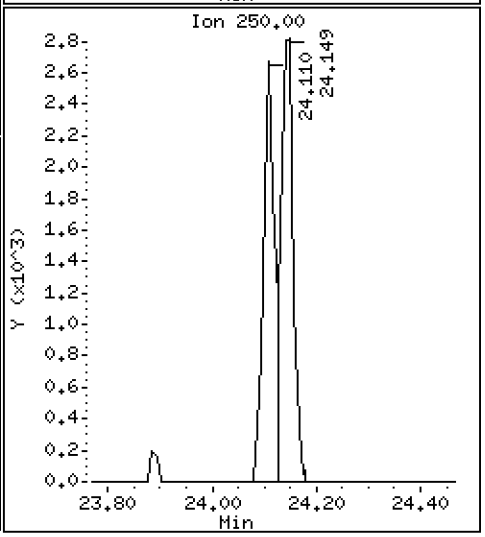


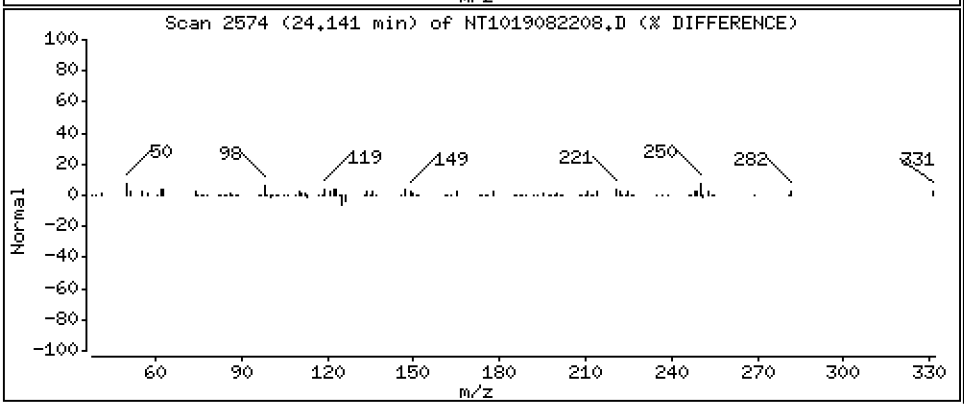












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

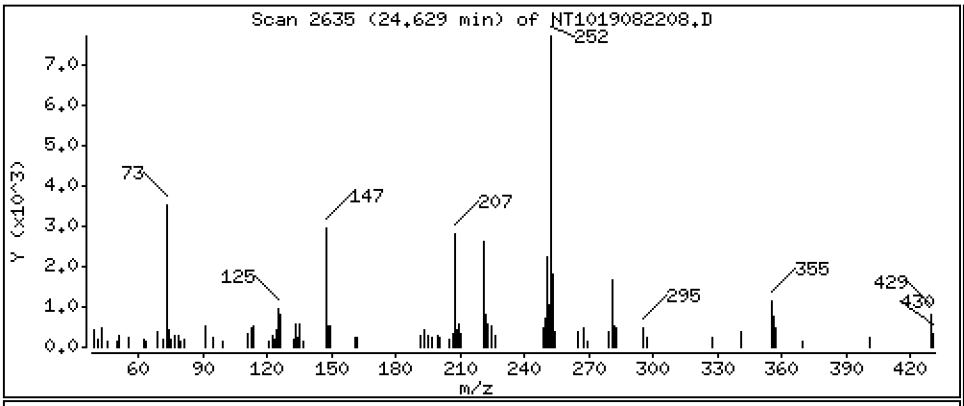
Operator: YZ

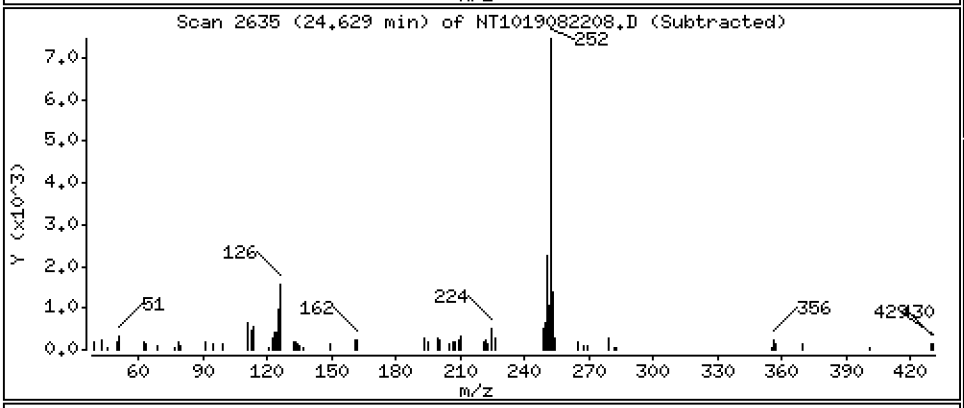
Column phase: ZB-5msi

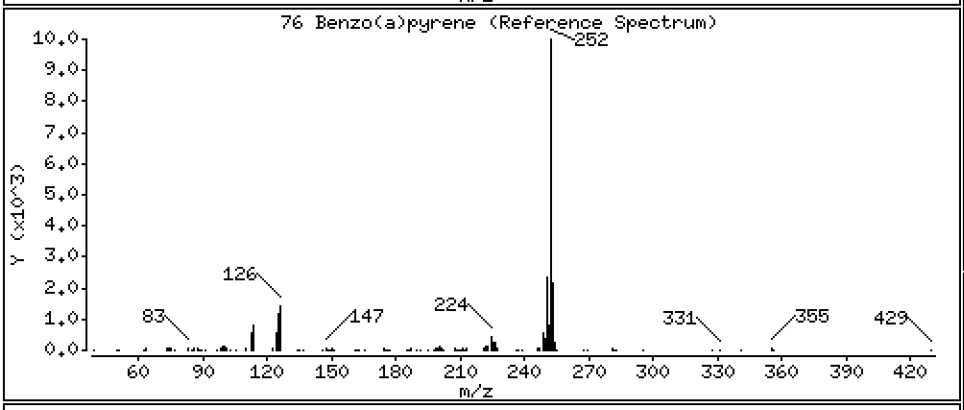
Column diameter: 0.25

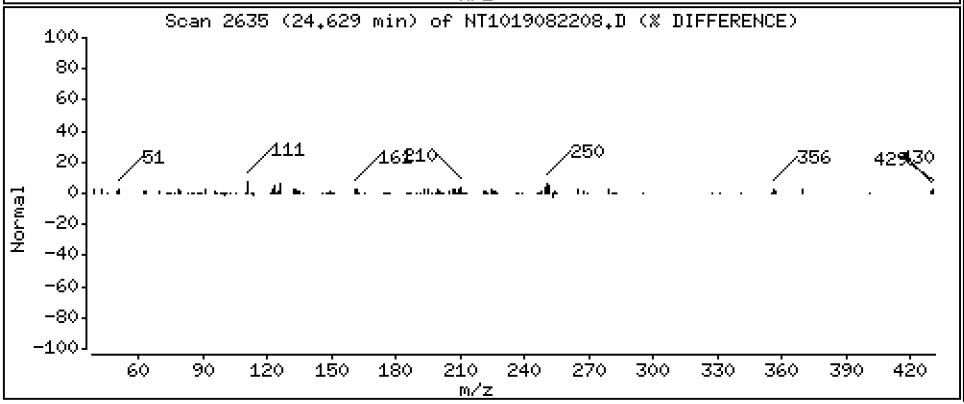
76 Benzo(a)pyrene

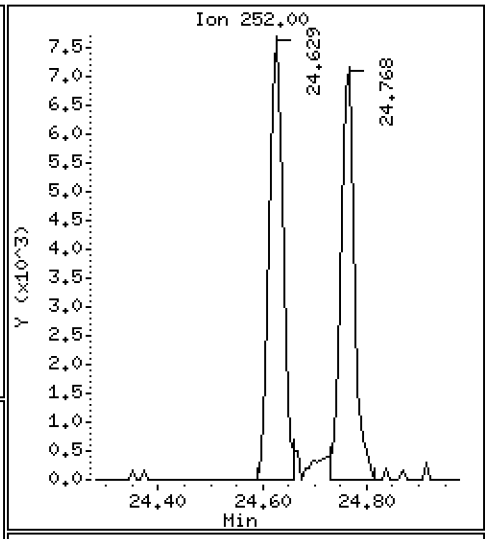
Concentration: 0.4914 ug/mL

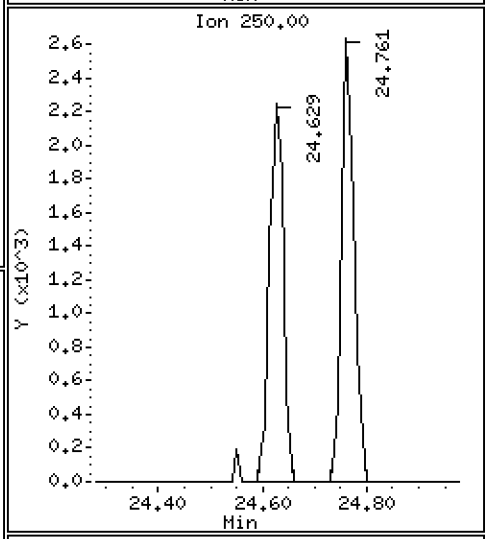


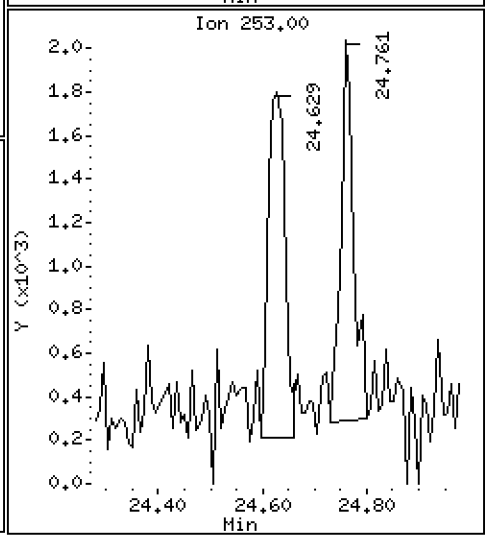












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

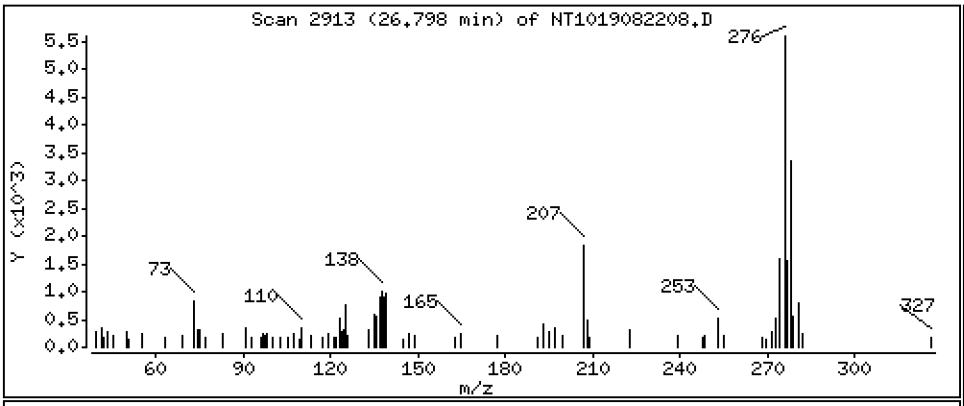
Operator: YZ

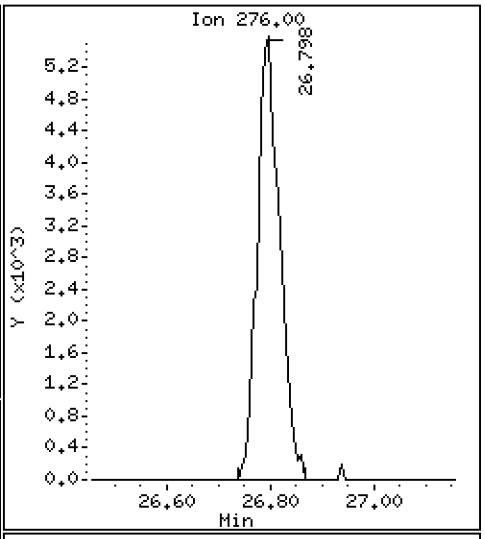
Column phase: ZB-5msi

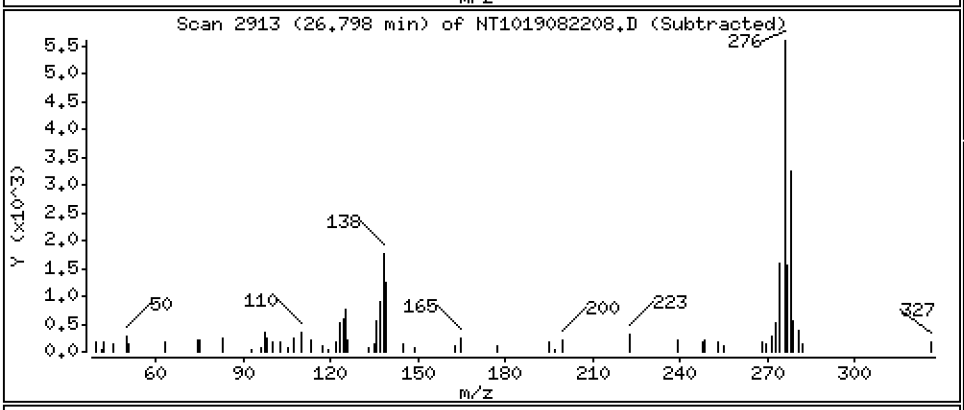
Column diameter: 0.25

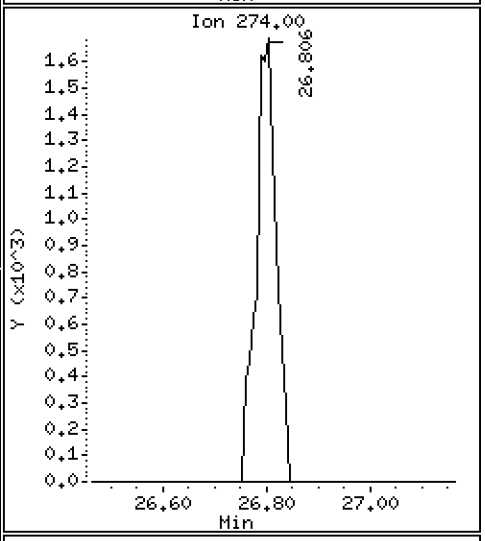
78 Indeno(1,2,3-cd)pyrene

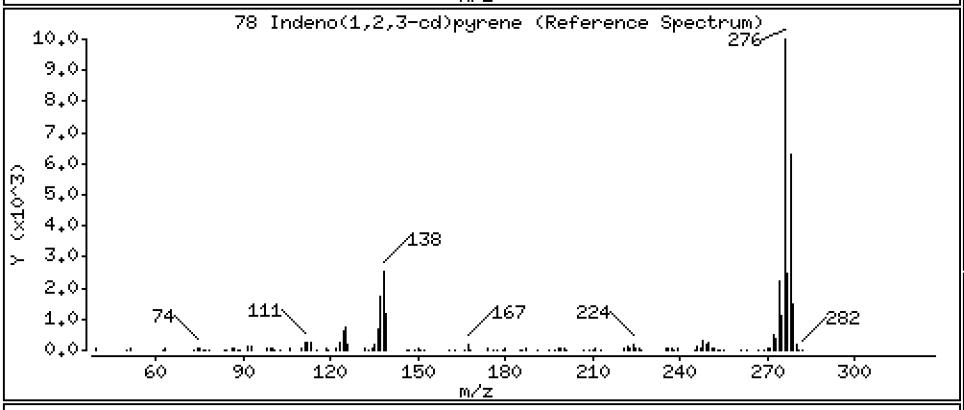
Concentration: 0.5049 ug/mL

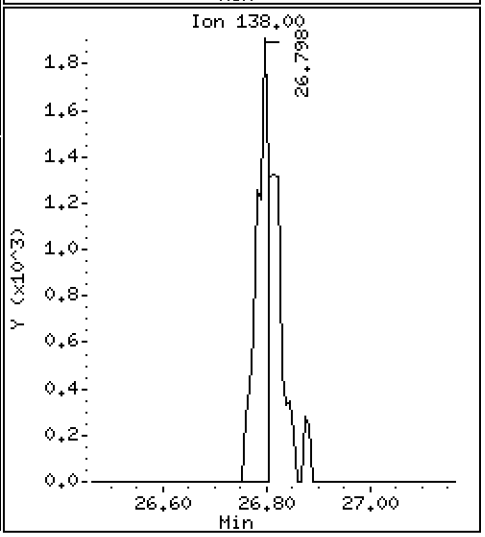


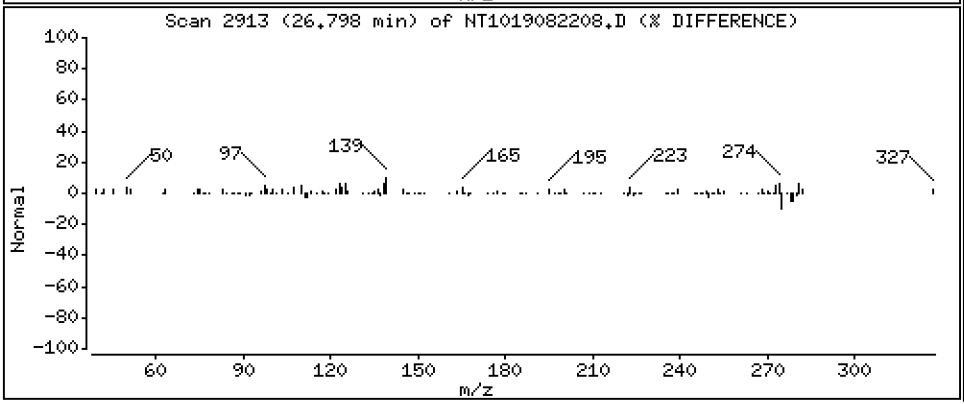












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

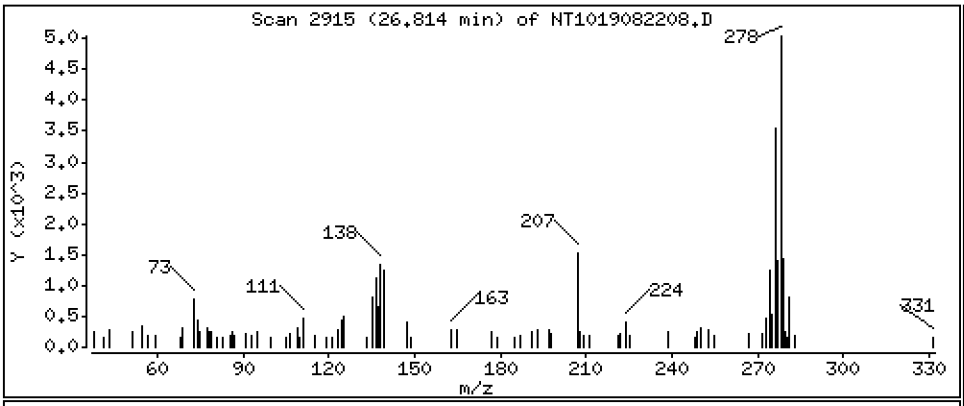
Operator: YZ

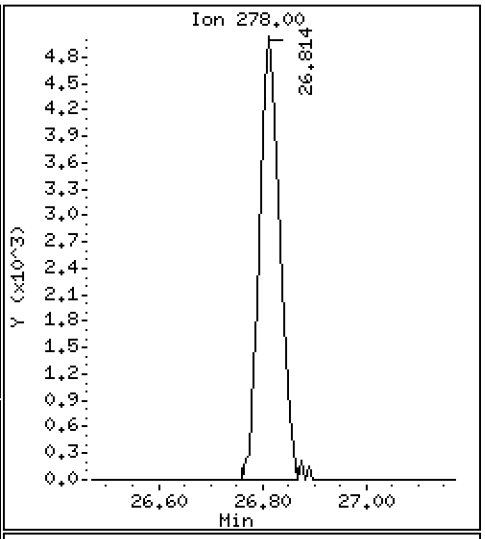
Column phase: ZB-5msi

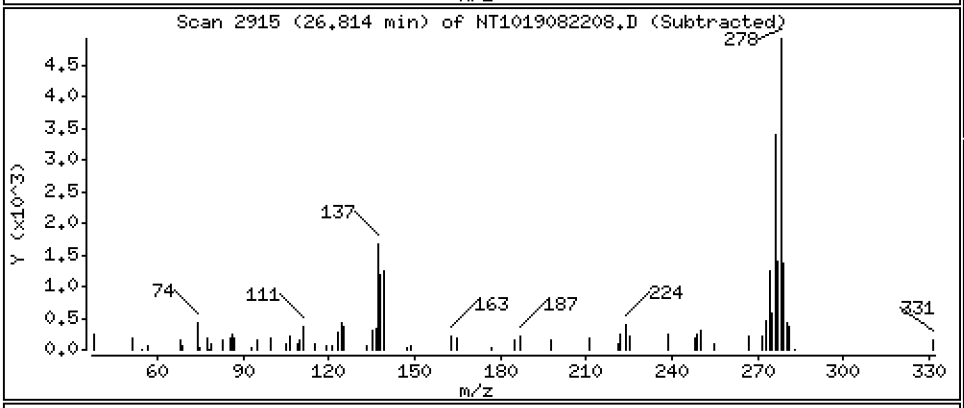
Column diameter: 0.25

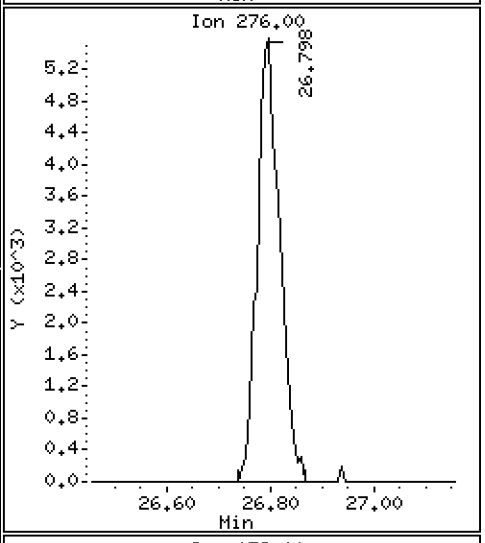
79 Dibenzo(a,h)anthracene

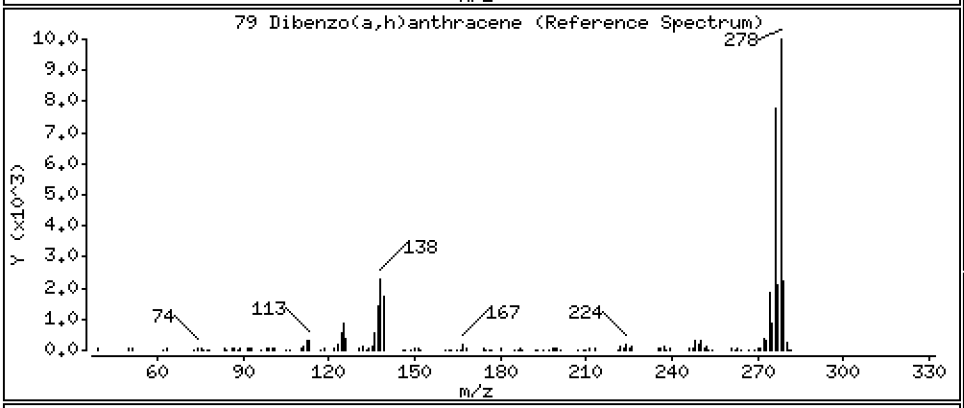
Concentration: 0.4982 ug/mL

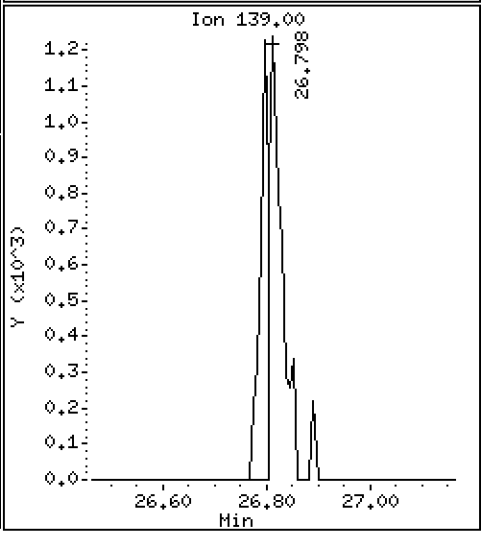


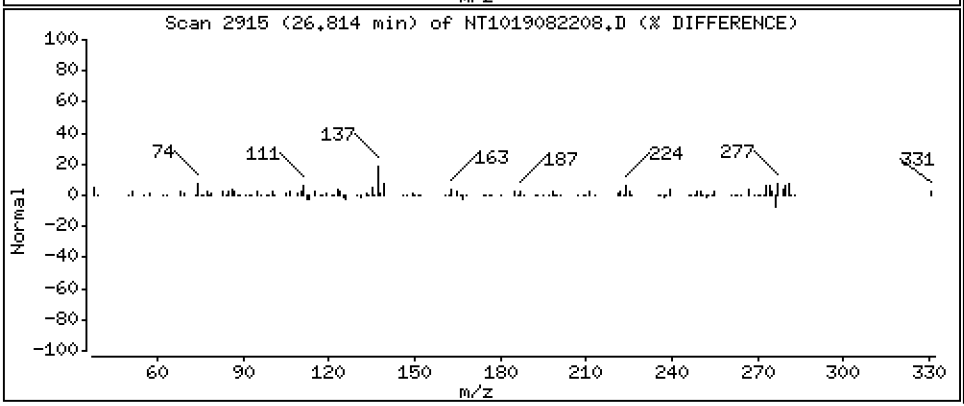












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

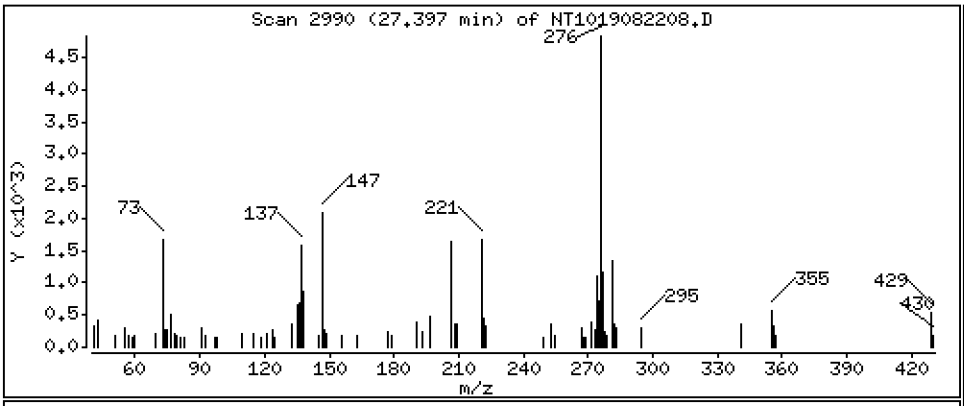
Operator: YZ

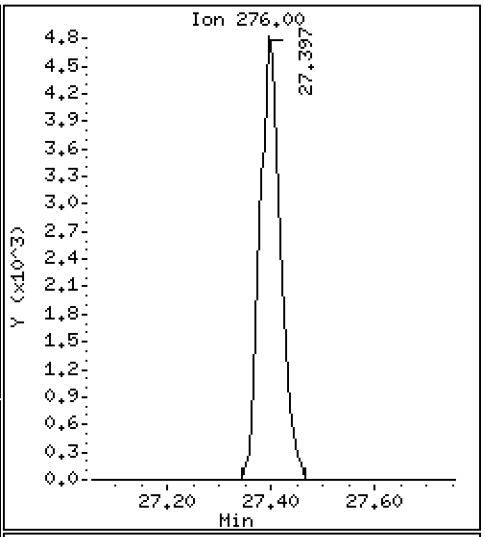
Column phase: ZB-5msi

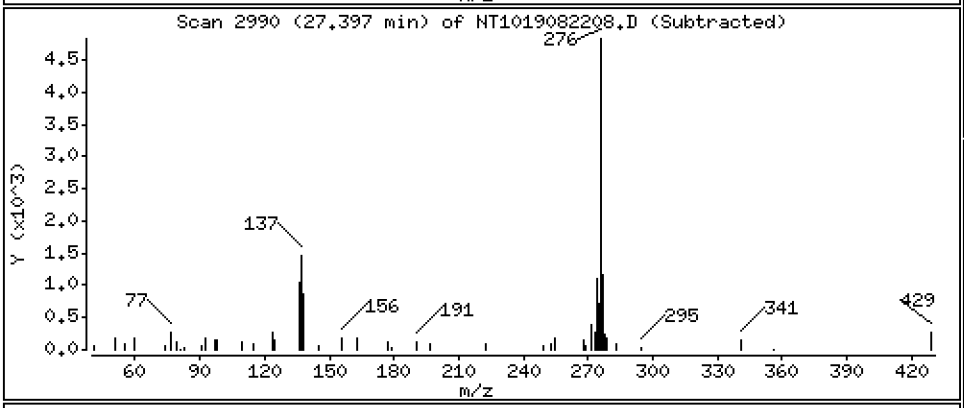
Column diameter: 0.25

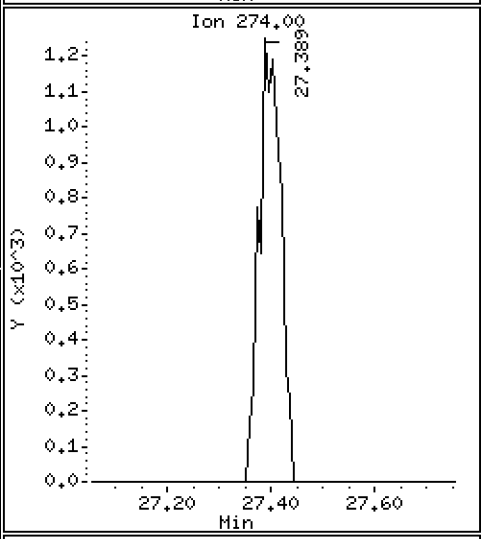
80 Benzo(g,h,i)perylene

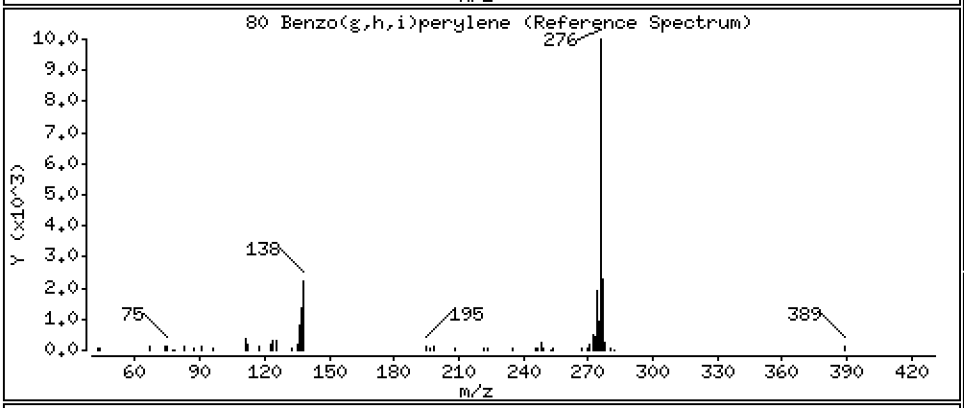
Concentration: 0.4732 ug/mL

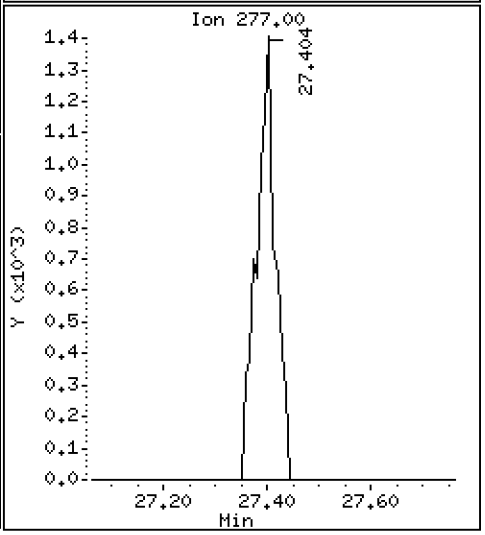


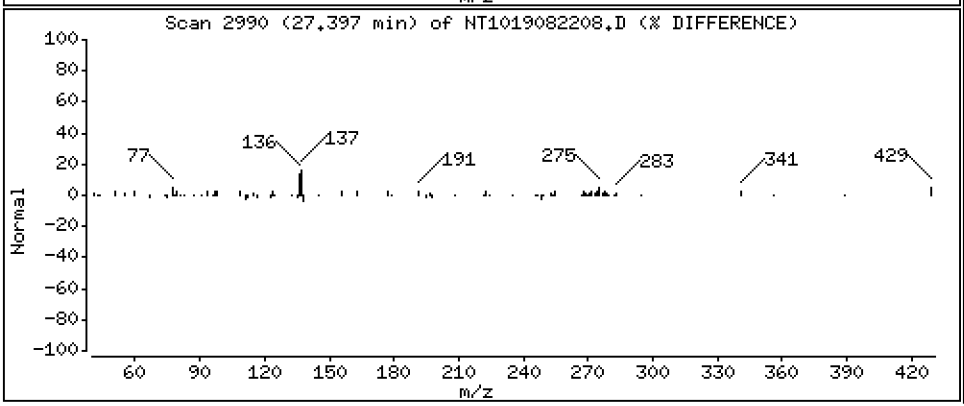












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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

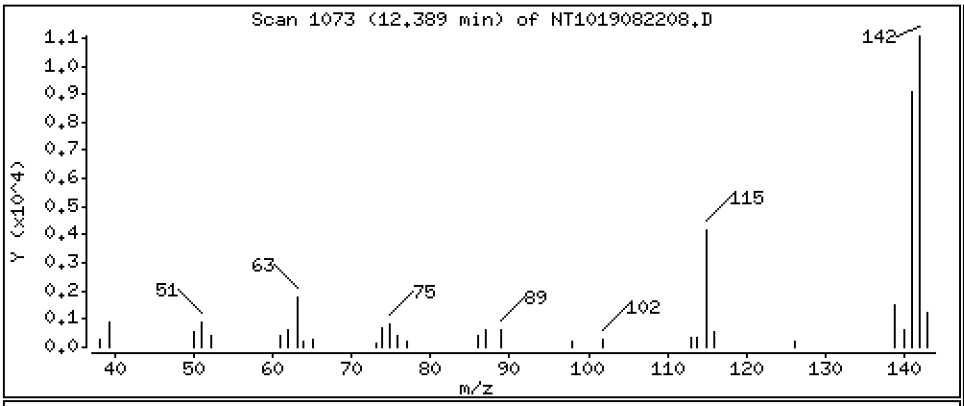
Operator: YZ

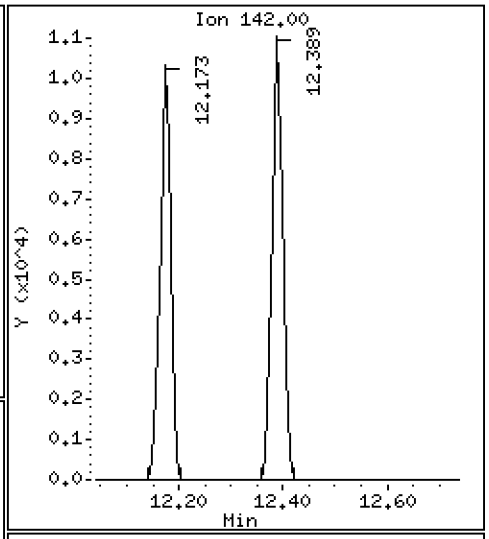
Column phase: ZB-5msi

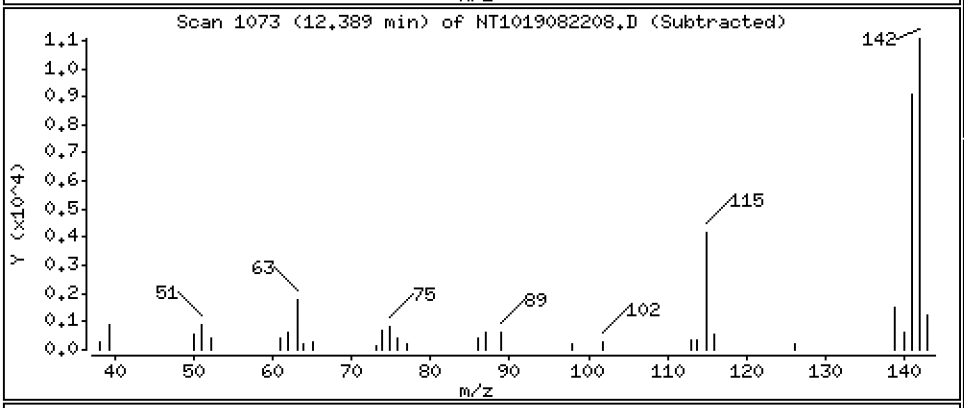
Column diameter: 0.25

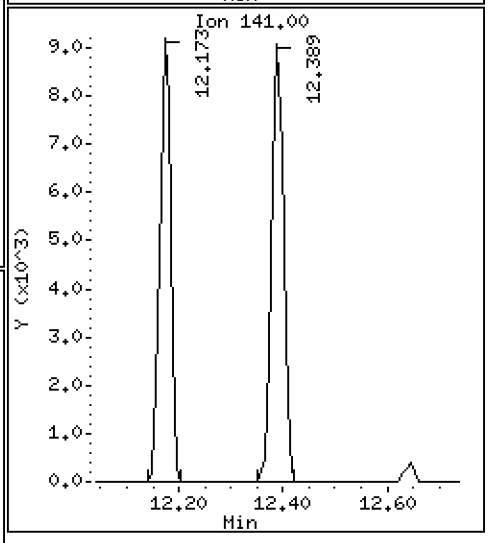
105 1-methylnaphthalene

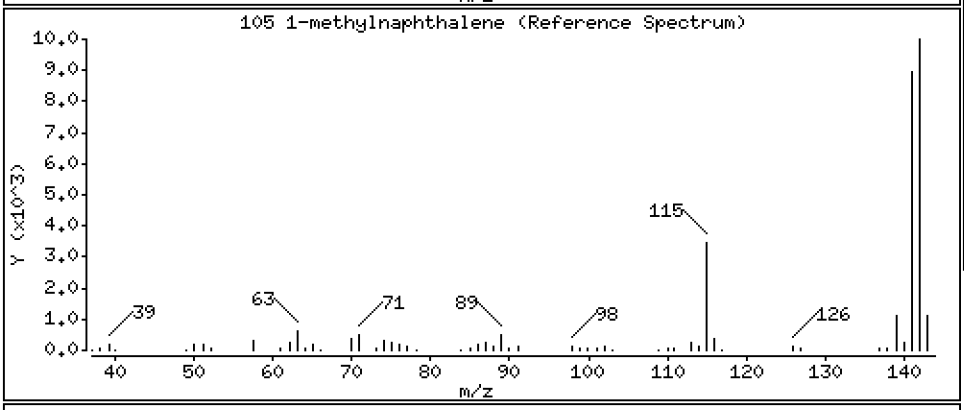
Concentration: 0.4965 ug/mL

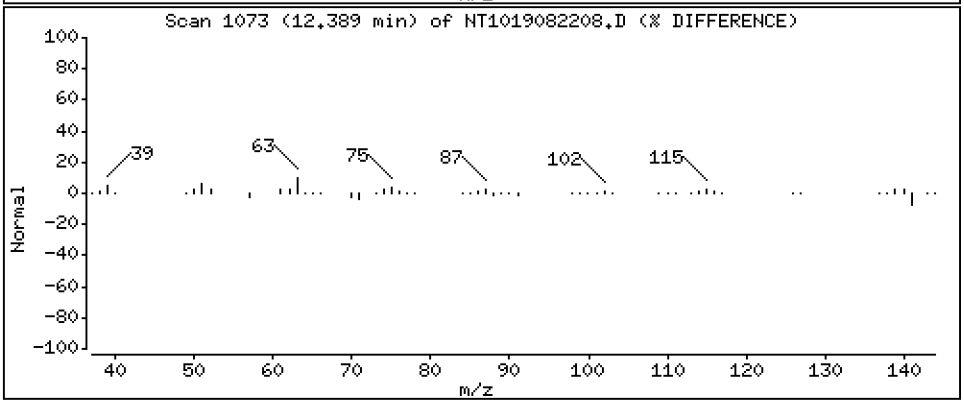












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

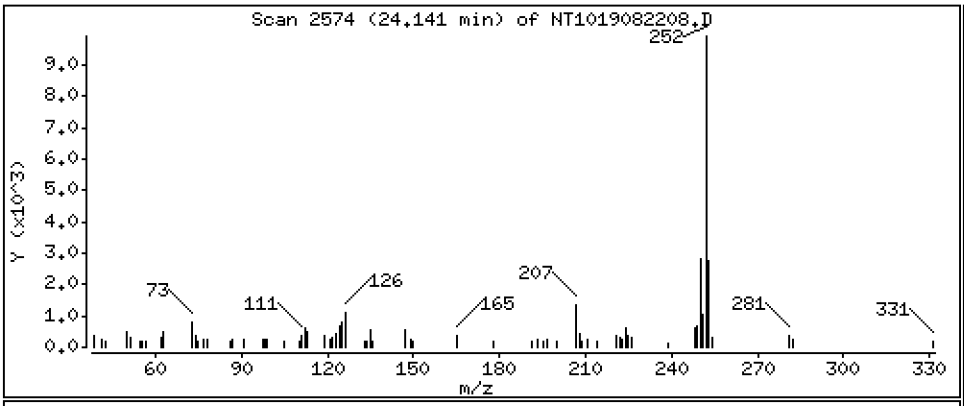
Operator: YZ

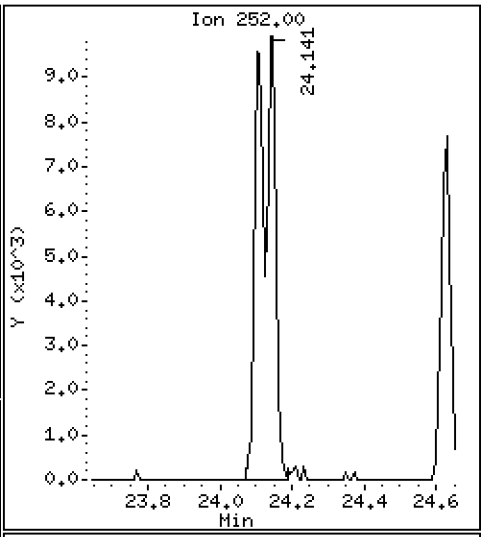
Column phase: ZB-5msi

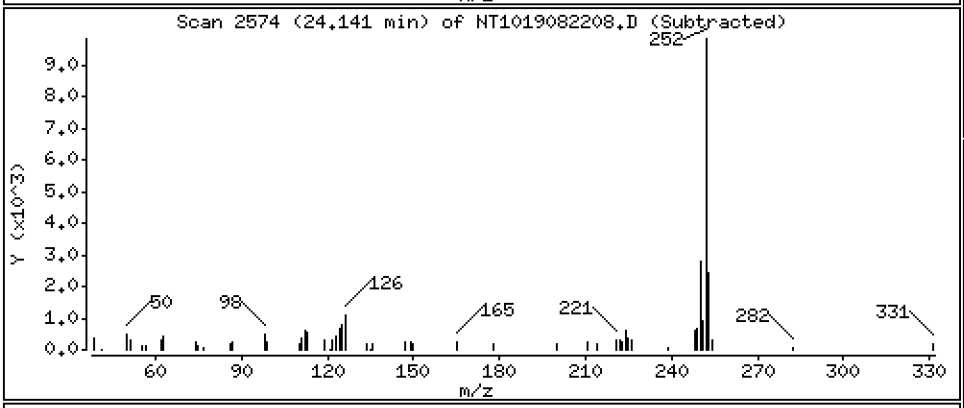
Column diameter: 0.25

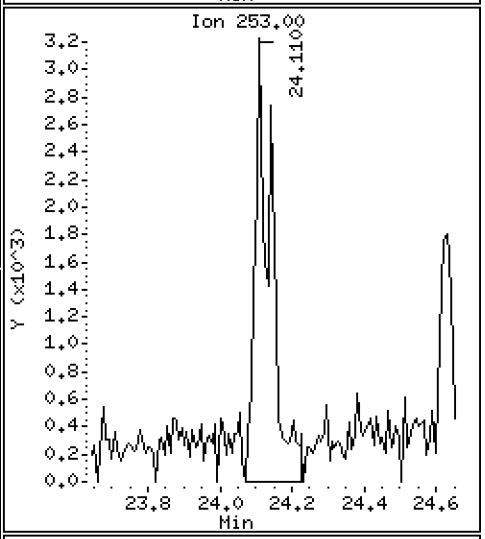
187 Total Benzofluoranthenes

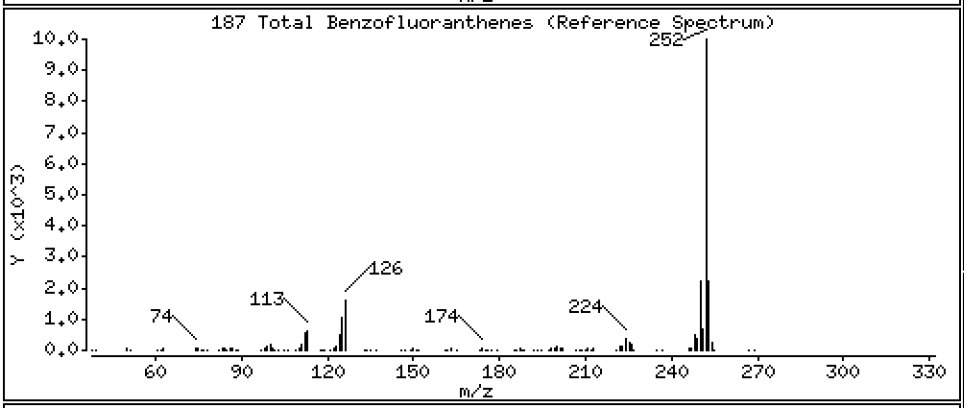
Concentration: 1.104 ug/mL

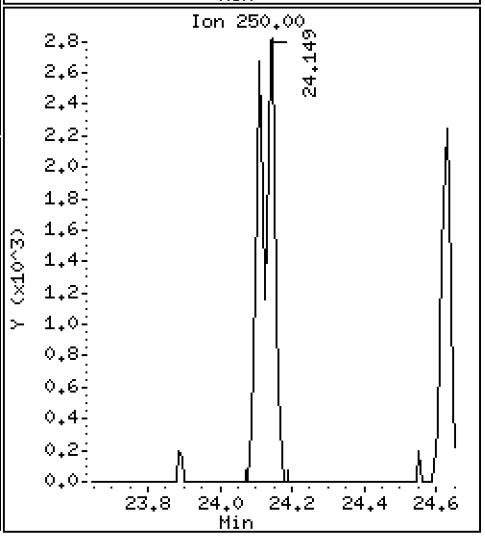


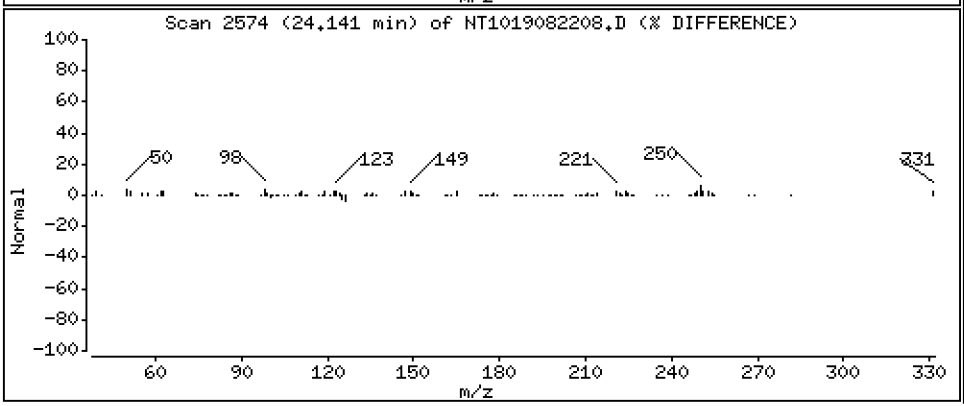












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D
Lab Smp Id: SHH0325-LCV2
Inj Date : 22-AUG-2019 18:06
Operator : YZ Inst ID: nt10.i
Smp Info : SHH0325-LCV2
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 11:16 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.173	6.173	(0.742)	6804	0.56363	0.5636
$	2 Phenol-d5	99	7.741	7.749	(0.930)	7174	0.53027	0.5303
	3 Phenol	94	7.765	7.772	(0.933)	5370	0.42694	0.4269
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.959)	10961	0.75261	0.7526
*	8 1,4-Dichlorobenzene-d4	152	8.321	8.329	(1.000)	42990	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.671	8.671	(1.042)	5450	0.54734	0.5473
	11 Benzyl alcohol	108	8.608	8.608	(1.034)	2689	0.32302	0.3230
$	18 Nitrobenzene-d5	82	9.400	9.408	(0.874)	5258	0.44269	0.4427
	24 Benzoic acid	105	10.279	10.381	(0.956)	5784	0.67652	0.6765
*	27 Naphthalene-d8	136	10.757	10.765	(1.000)	151864	4.00000	
	28 Naphthalene	128	10.795	10.803	(1.004)	17411	0.49878	0.4988
	32 2-Methylnaphthalene	142	12.172	12.172	(1.132)	14522	0.49046	0.4905
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	16457	0.53737	0.5374
	39 Dimethylphthalate	163	13.859	13.867	(0.969)	16478	0.55382	0.5538
	40 Acenaphthylene	152	13.999	13.999	(0.978)	18710	0.48477	0.4848
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	80067	4.00000	
	44 Acenaphthene	153	14.370	14.378	(1.004)	12166	0.50166	0.5017
	46 Dibenzofuran	168	14.695	14.703	(1.027)	19675	0.49364	0.4936
	50 Diethylphthalate	149	15.298	15.306	(1.069)	15574	0.54363	0.5436
	49 Fluorene	166	15.398	15.398	(1.076)	13093	0.48035	0.4803
	54 N-Nitrosodiphenylamine	169	15.661	15.661	(0.906)	13138	0.62009	0.6201
$	55 2,4,6-Tribromophenol	330	15.931	15.931	(1.113)	2699	0.44581	0.4458
*	59 Phenanthrene-d10	188	17.291	17.291	(1.000)	154350	4.00000	
	60 Phenanthrene	178	17.337	17.345	(1.003)	18456	0.48951	0.4895
	61 Anthracene	178	17.430	17.430	(1.008)	17361	0.45350	0.4535
	63 Di-n-butylphthalate	149	18.622	18.629	(1.077)	24479	0.46930	0.4693
	64 Fluoranthene	202	19.744	19.751	(0.882)	20901	0.51686	0.5169
	65 Pyrene	202	20.169	20.169	(0.901)	22722	0.53808	0.5381
$	66 Terphenyl-d14	244	20.494	20.502	(0.916)	15275	0.53338	0.5334
	67 Butylbenzylphthalate	149	21.462	21.462	(0.959)	11470	0.58311	0.5831
	68 Benzo(a)anthracene	228	22.352	22.352	(0.999)	21074	0.54889	0.5489
*	69 Chrysene-d12	240	22.383	22.383	(1.000)	132329	4.00000	
	71 Chrysene	228	22.422	22.430	(1.002)	17202	0.50633	0.5063

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.507	22.515	(0.958)	15621	0.62373	0.6237
* 134	Di-n-octylphthalate-d4	153	23.490	23.490	(1.000)	284744	4.00000	
73	Di-n-octylphthalate	149	23.498	23.498	(1.000)	26139	0.49621	0.4962
74	Benzo(b)fluoranthene	252	24.102	24.110	(0.975)	16806	0.54244	0.5424
75	Benzo(k)fluoranthene	252	24.141	24.110	(0.977)	18128	0.58161	0.5816(H)
76	Benzo(a)pyrene	252	24.628	24.628	(0.996)	13663	0.49137	0.4914
* 77	Perylene-d12	264	24.721	24.721	(1.000)	107987	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.798	26.806	(1.084)	16870	0.50494	0.5049
79	Dibenzo(a,h)anthracene	278	26.813	26.821	(1.085)	13551	0.49819	0.4982
80	Benzo(g,h,i)perylene	276	27.396	27.404	(1.108)	13316	0.47321	0.4732
105	1-methylnaphthalene	142	12.389	12.389	(1.152)	14778	0.49646	0.4965
187	Total Benzofluoranthenes	252	24.141	24.148	(0.977)	32816	1.10424	1.104

QC Flag Legend

H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082208.D
Lab Smp Id: SHH0325-LCV2
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 16:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	42990	31.31
27 Naphthalene-d8	117487	58744	234974	151864	29.26
42 Acenaphthene-d10	61859	30930	123718	80067	29.43
59 Phenanthrene-d10	113574	56787	227148	154350	35.90
69 Chrysene-d12	105788	52894	211576	132329	25.09
134 Di-n-octylphthala	252823	126412	505646	284744	12.63
77 Perylene-d12	113992	56996	227984	107987	-5.27

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.32	-0.09
27 Naphthalene-d8	10.77	10.27	11.27	10.76	-0.07
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.29	0.00
69 Chrysene-d12	22.38	21.88	22.88	22.38	0.00
134 Di-n-octylphthala	23.49	22.99	23.99	23.49	0.00
77 Perylene-d12	24.72	24.22	25.22	24.72	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082208.D

Lab ID: SHH0325-LCV2
nt10.i, 20190822.b\ABN.m,   22-AUG-2019 18:06

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.956	0.964	-0.0088	Benzoic acid

RRT check based on Ccal File: NT1019082206.D

On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	NT10	Calibration:	CG00040
Lab File ID:	NT1019071504A.D	Calibration Date:	07/16/19 11:00
Sequence:	SHG0206	Injection Date:	07/15/19
Lab Sample ID:	SHG0206-ICV1	Injection Time:	15:33
Sequence Name:	Initial Cal Check		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Phenol	A	5.0000	5.6	1.1702980	1.3108040		12.0	20
Benzyl Alcohol	A	5.0000	5.5	0.7745535	0.8515104		9.9	20
Benzoic acid	A	20.000	21.8	0.2148759	0.2502319		8.8	20
N-Nitrosodiphenylamine	A	5.0000	4.9	0.5490690	0.5422509		-1.2	20
Phenanthrene	A	5.0000	4.9	0.9770762	0.9533027		-2.4	20
Fluoranthene	A	5.0000	5.1	1.2223680	1.2539570		2.6	20
Pyrene	A	5.0000	5.1	1.2764440	1.3122700		2.8	20
Butylbenzylphthalate	A	5.0000	5.5	0.5945946	0.6505766		9.4	20
Benzo(a)anthracene	A	5.0000	5.1	1.1605520	1.1758910		1.3	20
Chrysene	A	5.0000	4.9	1.0269450	1.0063980		-2.0	20
bis(2-Ethylhexyl)phthalate	A	5.0000	5.1	0.3518184	0.3623246		3.0	20
Di-n-Octylphthalate	A	5.0000	4.8	0.7399924	0.7115872		-3.8	20
Benzofluoranthenes, Total	A	10.000	10.1	1.1008070	1.1165100		1.4	20
Benzo(a)pyrene	A	5.0000	5.1	1.0299780	1.0493230		1.9	20
Indeno(1,2,3-cd)pyrene	A	5.0000	5.1	1.2375640	1.2590430		1.7	20
Dibenzo(a,h)anthracene	A	5.0000	5.0	1.0075500	1.0081830		0.06	20
Benzo(g,h,i)perylene	A	5.0000	5.1	1.0423270	1.0661590		2.3	20
2-Fluorophenol	A	7.5000	8.27	1.1232200	1.2382050		10.2	20
Phenol-d5	A	7.5000	8.45	1.2588120	1.4189480		12.7	20
2-Chlorophenol-d4	A	7.5000	7.74	1.3551050	1.3981290		3.2	20
1,2-Dichlorobenzene-d4	A	5.0000	4.89	0.9264682	0.9065396		-2.2	20
Nitrobenzene-d5	A	5.0000	5.41	0.3128427	0.3385430		8.2	20
2-Fluorobiphenyl	A	5.0000	4.95	1.5299660	1.5158600		-0.9	20
2,4,6-Tribromophenol	A	7.5000	8.09	0.3024571	0.3264111		7.9	20
p-Terphenyl-d14	A	5.0000	5.37	0.8656707	0.9288766		7.3	20
1,4-Dichlorobenzene-d4	A	4.0000	4.0	7648.7140	1.0000		0.0	
Naphthalene-d8	A	4.0000	4.0	27485.0400	1.0000		0.0	
Acenaphthene-d10	A	4.0000	4.0	14040.1100	1.0000		0.0	
Phenanthrene-d10	A	4.0000	4.0	25876.7100	1.0000		0.0	
Chrysene-d12	A	4.0000	4.0	24429.5700	1.0000		0.0	
Di-n-Octylphthalate-d4	A	4.0000	4.0	55526.7100	1.0000		0.0	

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	NT10	Calibration:	CG00040
Lab File ID:	NT1019071504A.D	Calibration Date:	07/16/19 11:00
Sequence:	SHG0206	Injection Date:	07/15/19
Lab Sample ID:	SHG0206-ICV1	Injection Time:	15:33
Sequence Name:	Initial Cal Check		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Perylene-d12	A	4.0000	4.0	25800.0700	1.0000		0.0	

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071504A.D

Date : 15-JUL-2019 15:33

Client ID:

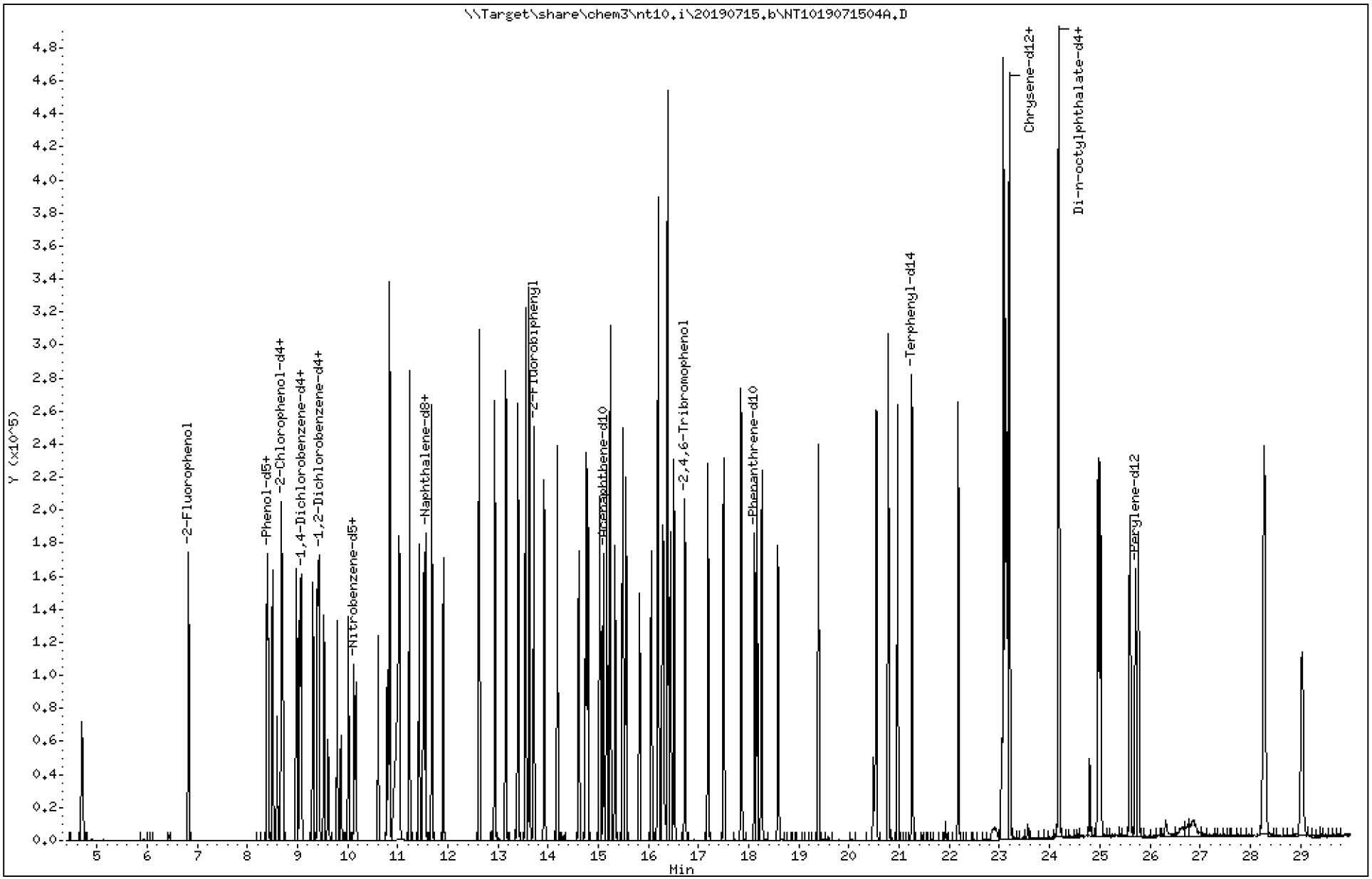
Instrument: nt10.i

Sample Info: SHG0206-ICV1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190715.b\NT1019071504A.D
Lab Smp Id: SHG0206-ICV1
Inj Date : 15-JUL-2019 15:33
Operator : YZ Inst ID: nt10.i
Smp Info : SHG0206-ICV1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Meth Date : 17-Jul-2019 12:31 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 2-Fluorophenol	112	6.827	6.827	(0.755)	76008	7.50000	8.268
$	2 Phenol-d5	99	8.395	8.395	(0.928)	87103	7.50000	8.454
	3 Phenol	94	8.419	8.419	(0.931)	53643	5.00000	5.600
$	5 2-Chlorophenol-d4	132	8.681	8.681	(0.960)	85825	7.50000	7.738
	4 Bis(2-Chloroethyl)ether	93	8.596	8.596	(0.950)	42626	5.00000	5.492
	6 2-Chlorophenol	128	8.704	8.704	(0.962)	57129	5.00000	5.346
	7 1,3-Dichlorobenzene	146	8.983	8.983	(0.993)	62411	5.00000	5.124
*	8 1,4-Dichlorobenzene-d4	152	9.045	9.045	(1.000)	32739	4.00000	
	9 1,4-Dichlorobenzene	146	9.076	9.076	(1.003)	59547	5.00000	5.077
$	10 1,2-Dichlorobenzene-d4	152	9.402	9.402	(1.039)	37099	5.00000	4.892
	12 1,2-Dichlorobenzene	146	9.425	9.425	(1.042)	56384	5.00000	5.053
	11 Benzyl alcohol	108	9.309	9.309	(1.029)	34847	5.00000	5.497
	14 2,2'-oxybis(1-Chloropropane)	121	9.611	9.611	(1.063)	18160	5.00000	5.386
	13 2-Methylphenol	108	9.526	9.526	(1.053)	38988	5.00000	5.299
	17 Hexachloroethane	117	10.015	10.015	(1.107)	24598	5.00000	5.041
	16 N-Nitroso-di-n-propylamine	70	9.868	9.868	(1.091)	24664	5.00000	5.254
	15 4-Methylphenol	108	9.798	9.798	(1.083)	43462	5.00000	5.573
$	18 Nitrobenzene-d5	82	10.131	10.131	(0.880)	49718	5.00000	5.411
	19 Nitrobenzene	77	10.170	10.170	(0.884)	45472	5.00000	5.156
	20 Isophorone	82	10.605	10.605	(0.922)	80304	5.00000	5.430
	21 2-Nitrophenol	139	10.792	10.792	(0.938)	31240	5.00000	5.347
	22 2,4-Dimethylphenol	107	10.834	10.834	(0.942)	101988	10.0000	10.34
	23 Bis(2-Chloroethoxy)methane	93	11.038	11.038	(0.959)	43546	5.00000	5.136
	24 Benzoic acid	105	11.029	11.029	(0.958)	146995	20.0000	21.76(M)
	25 2,4-Dichlorophenol	162	11.233	11.233	(0.976)	84249	10.0000	10.29
	26 1,2,4-Trichlorobenzene	180	11.422	11.422	(0.993)	46943	5.00000	5.063
*	27 Naphthalene-d8	136	11.507	11.507	(1.000)	117487	4.00000	
	28 Naphthalene	128	11.553	11.553	(1.004)	134041	5.00000	4.963
	29 4-Chloroaniline	127	11.677	11.677	(1.015)	120596	10.0000	10.18
	30 Hexachlorobutadiene	225	11.909	11.909	(1.035)	27641	5.00000	4.859
	31 4-Chloro-3-methylphenol	107	12.628	12.628	(1.097)	91695	10.0000	10.93
	32 2-Methylnaphthalene	142	12.938	12.938	(1.124)	116595	5.00000	5.090
	33 Hexachlorocyclopentadiene	237	13.402	13.402	(0.887)	64583	10.0000	9.980

		QUANT SIG					AMOUNTS	
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
	34 2,4,6-Trichlorophenol	196	13.549	13.549	(0.897)	64543	10.0000	10.14
	35 2,4,5-Trichlorophenol	196	13.619	13.619	(0.902)	68938	10.0000	10.49
$	36 2-Fluorobiphenyl	172	13.712	13.712	(0.908)	117212	5.00000	4.954
	37 2-Chloronaphthalene	162	13.921	13.921	(0.922)	97995	5.00000	4.835
	38 2-Nitroaniline	65	14.184	14.184	(0.939)	48241	10.0000	11.10
	39 Dimethylphthalate	163	14.610	14.610	(0.967)	111223	5.00000	4.838
	40 Acenaphthylene	152	14.788	14.788	(0.979)	147175	5.00000	4.936
	41 2,6-Dinitrotoluene	165	14.749	14.749	(0.976)	51803	10.0000	10.21
*	42 Acenaphthene-d10	164	15.105	15.105	(1.000)	61859	4.00000	
	43 3-Nitroaniline	138	15.027	15.027	(0.995)	60757	10.0000	10.19
	44 Acenaphthene	153	15.167	15.167	(1.004)	92686	5.00000	4.947
	45 2,4-Dinitrophenol	184	15.236	15.236	(1.009)	71256	20.0000	19.94
	46 Dibenzofuran	168	15.491	15.491	(1.026)	154982	5.00000	5.033
	47 4-Nitrophenol	109	15.337	15.337	(1.015)	40472	10.0000	10.64
	48 2,4-Dinitrotoluene	165	15.553	15.553	(1.030)	68444	10.0000	9.915
	50 Diethylphthalate	149	16.063	16.063	(1.063)	113655	5.00000	5.135
	49 Fluorene	166	16.195	16.195	(1.072)	104050	5.00000	4.941
	51 4-Chlorophenyl-phenylether	204	16.187	16.187	(1.072)	52354	5.00000	4.826
	52 4-Nitroaniline	138	16.288	16.288	(1.078)	61256	10.0000	9.144
	53 4,6-Dinitro-2-methylphenol	198	16.380	16.380	(0.904)	122595	20.0000	21.90
	54 N-Nitrosodiphenylamine	169	16.434	16.434	(0.907)	76982	5.00000	4.938
$	55 2,4,6-Tribromophenol	330	16.727	16.727	(1.107)	37859	7.50000	8.094
	56 4-Bromophenyl-phenylether	248	17.190	17.190	(0.949)	45498	5.00000	4.978
	57 Hexachlorobenzene	284	17.499	17.499	(0.966)	48119	5.00000	4.942
	58 Pentachlorophenol	266	17.847	17.847	(0.985)	45487	10.0000	11.08
*	59 Phenanthrene-d10	188	18.118	18.118	(1.000)	113574	4.00000	
	60 Phenanthrene	178	18.164	18.164	(1.003)	135338	5.00000	4.878
	61 Anthracene	178	18.257	18.257	(1.008)	140698	5.00000	4.995
	62 Carbazole	167	18.582	18.582	(1.026)	123665	5.00000	4.665
	63 Di-n-butylphthalate	149	19.387	19.387	(1.070)	199118	5.00000	5.188
	64 Fluoranthene	202	20.547	20.547	(0.888)	165817	5.00000	5.129
	65 Pyrene	202	20.965	20.965	(0.906)	173528	5.00000	5.140
$	66 Terphenyl-d14	244	21.252	21.252	(0.918)	122830	5.00000	5.365
	67 Butylbenzylphthalate	149	22.181	22.181	(0.958)	86029	5.00000	5.471
	68 Benzo(a)anthracene	228	23.118	23.118	(0.999)	155494	5.00000	5.066
*	69 Chrysene-d12	240	23.149	23.149	(1.000)	105788	4.00000	
	70 3,3'-Dichlorobenzidine	252	23.079	23.079	(0.997)	137655	15.0000	12.77
	71 Chrysene	228	23.195	23.195	(1.002)	133081	5.00000	4.900
	72 bis(2-Ethylhexyl)phthalate	149	23.203	23.203	(0.960)	114505	5.00000	5.149
*	134 Di-n-octylphthalate-d4	153	24.178	24.178	(1.000)	252823	4.00000	
	73 Di-n-octylphthalate	149	24.186	24.186	(1.000)	224882	5.00000	4.808
	74 Benzo(b)fluoranthene	252	24.968	24.968	(0.971)	170642	5.00000	5.218
	75 Benzo(k)fluoranthene	252	25.014	25.014	(0.973)	160579	5.00000	4.881
	76 Benzo(a)pyrene	252	25.603	25.603	(0.996)	149518	5.00000	5.094
*	77 Perylene-d12	264	25.711	25.711	(1.000)	113992	4.00000	
	78 Indeno(1,2,3-cd)pyrene	276	28.276	28.276	(1.100)	179401	5.00000	5.087
	79 Dibenzo(a,h)anthracene	278	28.291	28.291	(1.100)	143656	5.00000	5.003
	80 Benzo(g,h,i)perylene	276	29.029	29.029	(1.129)	151917	5.00000	5.114
	90 N-Nitrosodimethylamine	74	4.695	4.695	(0.519)	38560	10.0000	10.86
	91 Aniline	93	8.504	8.504	(0.940)	94605	10.0000	11.16
	93 Benzidine	184	20.780	20.780	(0.898)	170105	10.0000	10.13
	103 Pyridine	79	4.719	4.719	(0.522)	35153	5.00000	5.336
	105 1-methylnaphthalene	142	13.155	13.155	(1.143)	120692	5.00000	5.241
	111 Azobenzene (1,2-DP-Hydrazine)	77	16.511	16.511	(1.093)	120163	5.00000	4.882

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
187	Total Benzofluoranthenes	252	24.968	24.968	(0.971)	318183	10.0000	10.14
99	Perylene	252	25.765	25.765	(1.002)	134325	5.00000	4.975
98	Retene	219	Compound Not Detected.					
120	2,3,4,6-Tetrachlorophenol	232	15.824	15.824	(1.048)	28674	5.00000	5.414

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019071504A.D
Lab Smp Id: SHG0206-ICV1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Misc Info:

Calibration Date: 15-JUL-2019
Calibration Time: 15:33
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	32739	0.00
27 Naphthalene-d8	117487	58744	234974	117487	0.00
42 Acenaphthene-d10	61859	30930	123718	61859	0.00
59 Phenanthrene-d10	113574	56787	227148	113574	0.00
69 Chrysene-d12	105788	52894	211576	105788	0.00
134 Di-n-octylphthala	252823	126412	505646	252823	0.00
77 Perylene-d12	113992	56996	227984	113992	0.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	9.05	8.55	9.55	9.05	0.00
27 Naphthalene-d8	11.51	11.01	12.01	11.51	0.00
42 Acenaphthene-d10	15.11	14.61	15.61	15.11	0.00
59 Phenanthrene-d10	18.12	17.62	18.62	18.12	0.00
69 Chrysene-d12	23.15	22.65	23.65	23.15	0.00
134 Di-n-octylphthala	24.18	23.68	24.68	24.18	0.00
77 Perylene-d12	25.71	25.21	26.21	25.71	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019071504A.D

Lab ID: SHG0206-ICV1
nt10.i, 20190715.b\ABN.m,   15-JUL-2019 15:33

RT	CO-ELUTION COMPOUNDS
NO CO-ELUTIONS	

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
NONE			

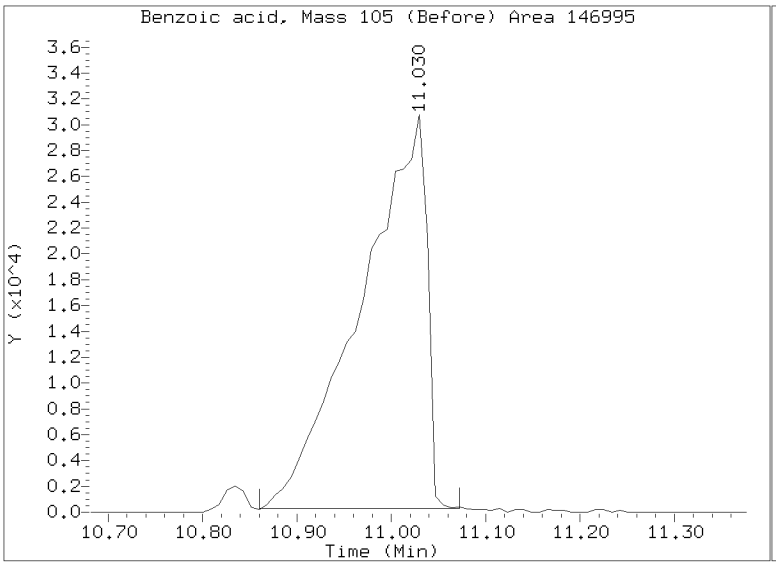
No RRT check. Ccal file.

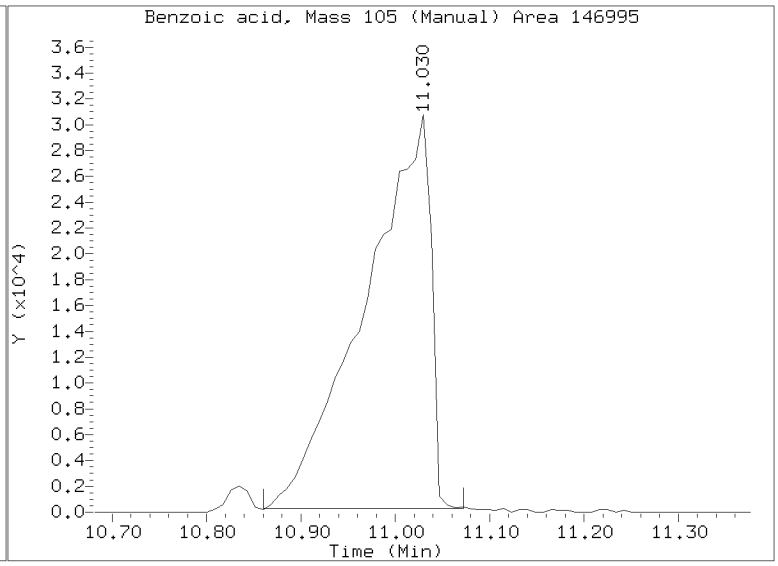
On Column LOD for nt10.i, 20190715.b\ABN.m, PSDDAICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190715.b/NT1019071504A.D
Injection Date: 15-JUL-2019 15:33
Lab ID:SHG0206-ICV1 Client ID:
Report Date: 07/17/2019 12:31





Q-FLAG SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190715.b

Instrument: nt10.i Date: 15-JUL-2019 Method: 20190715.b\ABN.m

INITIAL CAL: 15-JUL-2019

Compound	%RSD or R^2
Retene	ND

ICV CAL: NT1019071504A.D 15-JUL-2019 15:33

Compound	%D
NO Q-FLAGS	

INITIAL CALIBRATION CHECK

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	NT10	Calibration:	CG00040
Lab File ID:	NT1019082105.D	Calibration Date:	07/16/19 11:00
Sequence:	SHH0303	Injection Date:	08/21/19
Lab Sample ID:	SHH0303-ICV1	Injection Time:	12:30
Sequence Name:	Initial Cal Check		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF		
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT	
Phenol	A	5.0000	3.4	1.1702980	0.8049798		-31.2	20	*
Benzyl Alcohol	A	5.0000	3.4	0.7745535	0.5199558		-32.9	20	*
Benzoic acid	A	20.000	12.1	0.2148759	0.1377770		-39.5	20	*
N-Nitrosodiphenylamine	A	5.0000	4.5	0.5490690	0.4946596		-9.9	20	
Phenanthrene	A	5.0000	4.5	0.9770762	0.8744912		-10.5	20	
Fluoranthene	A	5.0000	5.1	1.2223680	1.2359400		1.1	20	
Pyrene	A	5.0000	4.9	1.2764440	1.2404250		-2.8	20	
Butylbenzylphthalate	A	5.0000	5.0	0.5945946	0.5955434		0.2	20	
Benzo(a)anthracene	A	5.0000	5.1	1.1605520	1.1754720		1.3	20	
Chrysene	A	5.0000	4.9	1.0269450	0.9992671		-2.7	20	
bis(2-Ethylhexyl)phthalate	A	5.0000	4.9	0.3518184	0.3426573		-2.6	20	
Di-n-Octylphthalate	A	5.0000	4.6	0.7399924	0.6772941		-8.5	20	
Benzofluoranthenes, Total	A	10.000	10.4	1.1008070	1.1409140		3.6	20	
Benzo(a)pyrene	A	5.0000	5.1	1.0299780	1.0579470		2.7	20	
Indeno(1,2,3-cd)pyrene	A	5.0000	4.2	1.2375640	1.0365040		-16.2	20	
Dibenzo(a,h)anthracene	A	5.0000	4.0	1.0075500	0.8111839		-19.5	20	
Benzo(g,h,i)perylene	A	5.0000	4.1	1.0423270	0.8596031		-17.5	20	
2-Fluorophenol	A	7.5000	5.57	1.1232200	0.8342603		-25.7	20	*
Phenol-d5	A	7.5000	5.37	1.2588120	0.9004964		-28.5	20	*
2-Chlorophenol-d4	A	7.5000	6.46	1.3551050	1.1670830		-13.9	20	
1,2-Dichlorobenzene-d4	A	5.0000	4.29	0.9264682	0.7942974		-14.3	20	
Nitrobenzene-d5	A	5.0000	4.01	0.3128427	0.2505650		-19.9	20	
2-Fluorobiphenyl	A	5.0000	4.35	1.5299660	1.3294210		-13.1	20	
2,4,6-Tribromophenol	A	7.5000	6.10	0.3024571	0.2461705		-18.6	20	
p-Terphenyl-d14	A	5.0000	4.67	0.8656707	0.8090625		-6.5	20	
1,4-Dichlorobenzene-d4	A	4.0000	4.0	7648.7140	1.0000		0.0		
Naphthalene-d8	A	4.0000	4.0	27485.0400	1.0000		0.0		
Acenaphthene-d10	A	4.0000	4.0	14040.1100	1.0000		0.0		
Phenanthrene-d10	A	4.0000	4.0	25876.7100	1.0000		0.0		
Chrysene-d12	A	4.0000	4.0	24429.5700	1.0000		0.0		
Di-n-Octylphthalate-d4	A	4.0000	4.0	55526.7100	1.0000		0.0		

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	NT10	Calibration:	CG00040
Lab File ID:	NT1019082105.D	Calibration Date:	07/16/19 11:00
Sequence:	SHH0303	Injection Date:	08/21/19
Lab Sample ID:	SHH0303-ICV1	Injection Time:	12:30
Sequence Name:	Initial Cal Check		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Perylene-d12	A	4.0000	4.0	25800.0700	1.0000		0.0	

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082105.D

Date : 21-AUG-2019 12:30

Client ID:

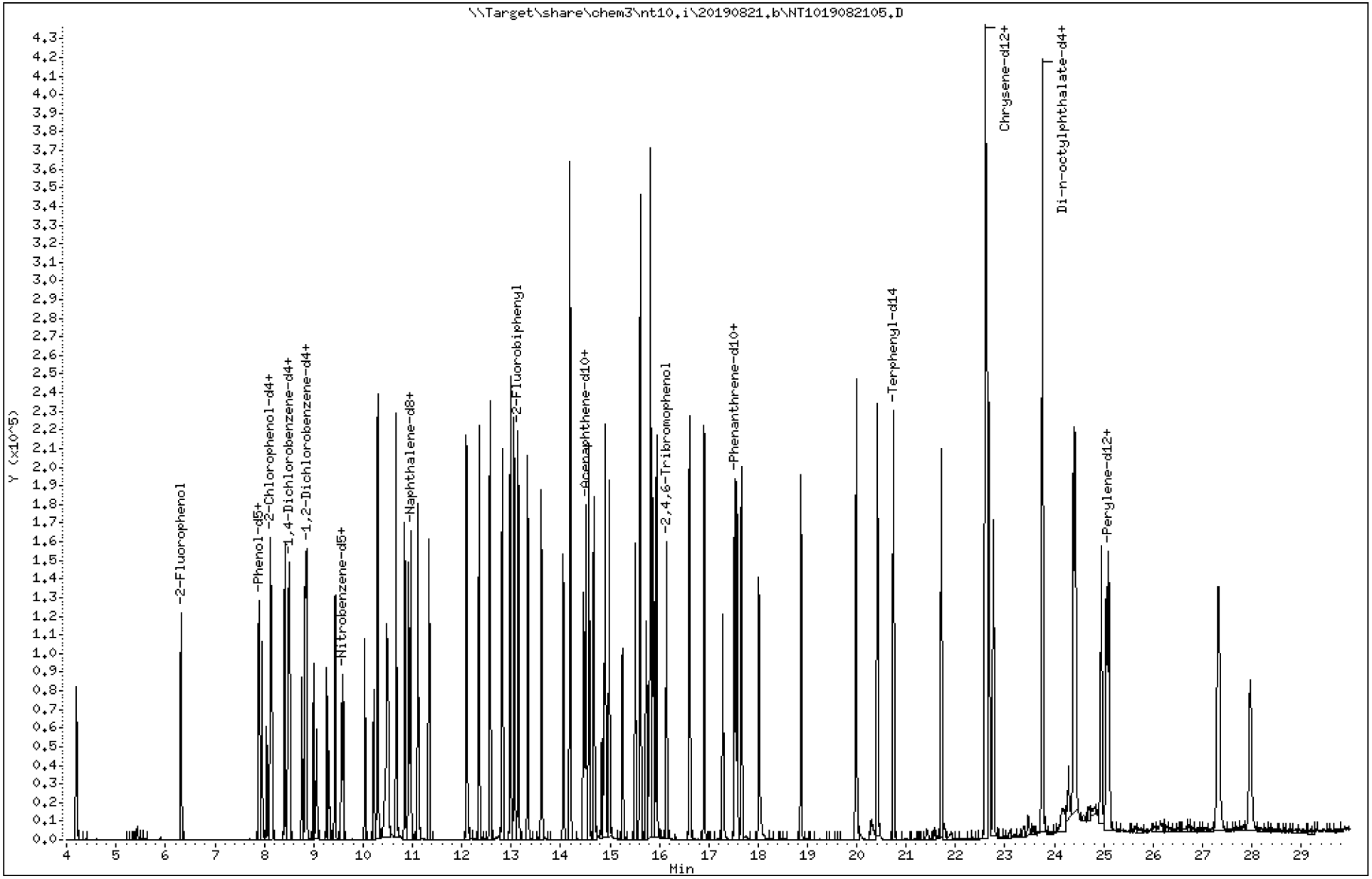
Instrument: nt10.i

Sample Info: SHH0303-ICV1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082105.D
Lab Smp Id: SHH0303-ICV1
Inj Date : 21-AUG-2019 12:30
Operator : YZ Inst ID: nt10.i
Smp Info : SHH0303-ICV1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 2-Fluorophenol	112	6.311	6.311	(0.744)	46741	7.50000	5.571
$	2 Phenol-d5	99	7.888	7.888	(0.930)	50452	7.50000	5.365
	3 Phenol	94	7.911	7.911	(0.933)	30067	5.00000	3.439
$	5 2-Chlorophenol-d4	132	8.127	8.127	(0.958)	65388	7.50000	6.459
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	29881	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.832	8.832	(1.041)	29668	5.00000	4.287
	11 Benzyl alcohol	108	8.762	8.762	(1.033)	19421	5.00000	3.356
$	18 Nitrobenzene-d5	82	9.554	9.554	(0.874)	32347	5.00000	4.005
	24 Benzoic acid	105	10.510	10.510	(0.962)	71146	20.0000	12.10
*	27 Naphthalene-d8	136	10.929	10.929	(1.000)	103277	4.00000	
	28 Naphthalene	128	10.968	10.968	(1.004)	107192	5.00000	4.515
	32 2-Methylnaphthalene	142	12.353	12.353	(1.130)	92312	5.00000	4.584
$	36 2-Fluorobiphenyl	172	13.142	13.142	(0.906)	98093	5.00000	4.345
	39 Dimethylphthalate	163	14.055	14.055	(0.969)	100778	5.00000	4.594
	40 Acenaphthylene	152	14.195	14.195	(0.978)	128762	5.00000	4.525
*	42 Acenaphthene-d10	164	14.512	14.512	(1.000)	59029	4.00000	
	44 Acenaphthene	153	14.574	14.574	(1.004)	81486	5.00000	4.558
	46 Dibenzofuran	168	14.898	14.898	(1.027)	126944	5.00000	4.320
	50 Diethylphthalate	149	15.517	15.517	(1.069)	102268	5.00000	4.842
	49 Fluorene	166	15.610	15.610	(1.076)	92370	5.00000	4.597
	54 N-Nitrosodiphenylamine	169	15.872	15.872	(0.906)	70489	5.00000	4.505
$	55 2,4,6-Tribromophenol	330	16.142	16.142	(1.112)	27246	7.50000	6.104
*	59 Phenanthrene-d10	188	17.525	17.525	(1.000)	114000	4.00000	
	60 Phenanthrene	178	17.572	17.572	(1.003)	124615	5.00000	4.475
	61 Anthracene	178	17.665	17.665	(1.008)	128035	5.00000	4.528
	63 Di-n-butylphthalate	149	18.872	18.872	(1.077)	183222	5.00000	4.756
	64 Fluoranthene	202	19.993	19.993	(0.883)	161474	5.00000	5.056
	65 Pyrene	202	20.411	20.411	(0.902)	162060	5.00000	4.859
$	66 Terphenyl-d14	244	20.744	20.744	(0.917)	105703	5.00000	4.673
	67 Butylbenzylphthalate	149	21.712	21.712	(0.959)	77807	5.00000	5.008
	68 Benzo(a)anthracene	228	22.610	22.610	(0.999)	153574	5.00000	5.064
*	69 Chrysene-d12	240	22.633	22.633	(1.000)	104519	4.00000	
	71 Chrysene	228	22.680	22.680	(1.002)	130553	5.00000	4.865

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.765	22.765	(0.958)	101167	5.00000	4.870
* 134	Di-n-octylphthalate-d4	153	23.756	23.756	(1.000)	236194	4.00000	
73	Di-n-octylphthalate	149	23.763	23.763	(1.000)	199966	5.00000	4.576
74	Benzo(b)fluoranthene	252	24.390	24.390	(0.973)	133567	5.00000	4.850
75	Benzo(k)fluoranthene	252	24.429	24.429	(0.975)	158831	5.00000	5.732
76	Benzo(a)pyrene	252	24.948	24.948	(0.996)	126947	5.00000	5.136
* 77	Perylene-d12	264	25.056	25.056	(1.000)	95995	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	27.303	27.303	(1.090)	124374	5.00000	4.188
79	Dibenzo(a,h)anthracene	278	27.334	27.334	(1.091)	97337	5.00000	4.026(M)
80	Benzo(g,h,i)perylene	276	27.971	27.971	(1.116)	103147	5.00000	4.123
105	1-methylnaphthalene	142	12.569	12.569	(1.150)	94960	5.00000	4.691
187	Total Benzofluoranthenes	252	24.429	24.429	(0.975)	273805	10.0000	10.36

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082105.D
Lab Smp Id: SHH0303-ICV1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	29881	-8.73
27 Naphthalene-d8	117487	58744	234974	103277	-12.09
42 Acenaphthene-d10	61859	30930	123718	59029	-4.57
59 Phenanthrene-d10	113574	56787	227148	114000	0.38
69 Chrysene-d12	105788	52894	211576	104519	-1.20
134 Di-n-octylphthala	252823	126412	505646	236194	-6.58
77 Perylene-d12	113992	56996	227984	95995	-15.79

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.51	0.00
59 Phenanthrene-d10	17.53	17.03	18.03	17.53	0.00
69 Chrysene-d12	22.63	22.13	23.13	22.63	0.00
134 Di-n-octylphthala	23.76	23.26	24.26	23.76	0.00
77 Perylene-d12	25.06	24.56	25.56	25.06	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082105.D

Lab ID: SHH0303-ICV1
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 12:30

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

No RRT check. Ccal file.

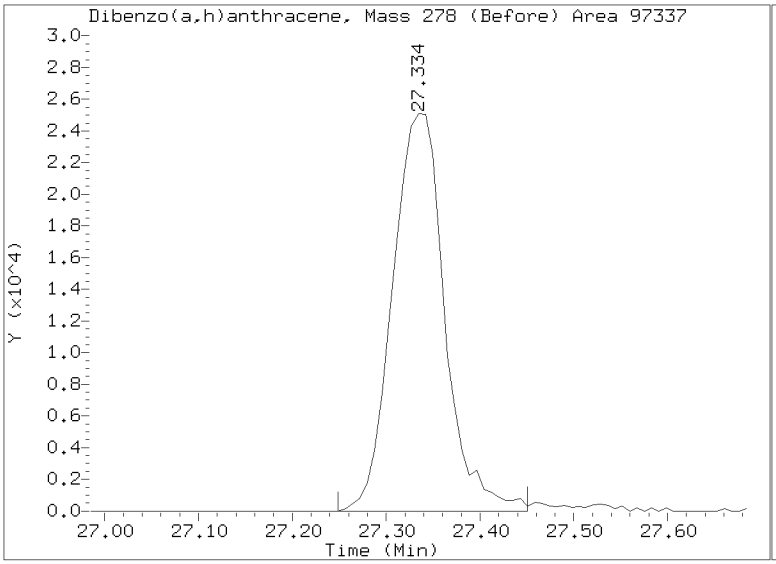
On Column LOD for nt10.i, 20190821.b\ABN.m, pnaphth.sub = 0.1000

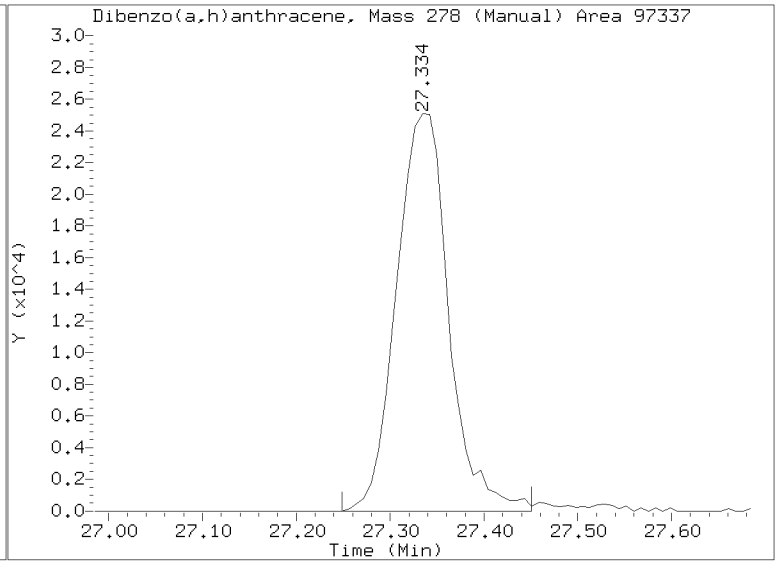
Exception: Phenol 0.5000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082105.D
Injection Date: 21-AUG-2019 12:30
Lab ID:SHH0303-ICV1 Client ID:
Report Date: 08/22/2019 12:41





Q-FLAG SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190821.b

Instrument: nt10.i Date: 21-AUG-2019 Method: 20190821.b\ABN.m

INITIAL CAL: 15-JUL-2019

Compound	%RSD or R^2
NO Q-FLAGS	

ICV CAL: NT1019082105.D 21-AUG-2019 12:30

Compound	%D
Phenol	-31.2
Benzyl alcohol	-32.9
Benzoic acid	-39.5
2-Fluorophenol	-25.7
Phenol-d5	-28.5

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	NT10	Calibration:	CG00040
Lab File ID:	NT1019082206.D	Calibration Date:	07/16/19 11:00
Sequence:	SHH0325	Injection Date:	08/22/19
Lab Sample ID:	SHH0325-ICV1	Injection Time:	16:51
Sequence Name:	Initial Cal Check		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF		
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT	
Phenol	A	5.0000	4.5	1.1702980	1.0526370		-10.1	20	
Benzyl Alcohol	A	5.0000	4.3	0.7745535	0.6629665		-14.4	20	
Benzoic acid	A	20.000	14.9	0.2148759	0.1704538		-25.4	20	*
N-Nitrosodiphenylamine	A	5.0000	4.6	0.5490690	0.5021585		-8.5	20	
Phenanthrene	A	5.0000	4.7	0.9770762	0.9103336		-6.8	20	
Fluoranthene	A	5.0000	5.4	1.2223680	1.3265300		8.5	20	
Pyrene	A	5.0000	5.5	1.2764440	1.4089710		10.4	20	
Butylbenzylphthalate	A	5.0000	5.6	0.5945946	0.6704436		12.8	20	
Benzo(a)anthracene	A	5.0000	5.2	1.1605520	1.2131160		4.5	20	
Chrysene	A	5.0000	5.1	1.0269450	1.0541180		2.6	20	
bis(2-Ethylhexyl)phthalate	A	5.0000	5.3	0.3518184	0.3708806		5.4	20	
Di-n-Octylphthalate	A	5.0000	4.6	0.7399924	0.6845402		-7.5	20	
Benzofluoranthenes, Total	A	10.000	10.5	1.1008070	1.1559520		5.0	20	
Benzo(a)pyrene	A	5.0000	5.2	1.0299780	1.0719340		4.1	20	
Indeno(1,2,3-cd)pyrene	A	5.0000	4.5	1.2375640	1.1029400		-10.9	20	
Dibenzo(a,h)anthracene	A	5.0000	4.1	1.0075500	0.8339033		-17.2	20	
Benzo(g,h,i)perylene	A	5.0000	4.3	1.0423270	0.8954488		-14.1	20	
2-Fluorophenol	A	7.5000	6.03	1.1232200	0.9029938		-19.6	20	
Phenol-d5	A	7.5000	5.74	1.2588120	0.9628702		-23.5	20	*
2-Chlorophenol-d4	A	7.5000	6.97	1.3551050	1.2595870		-7.1	20	
1,2-Dichlorobenzene-d4	A	5.0000	4.63	0.9264682	0.8581748		-7.4	20	
Nitrobenzene-d5	A	5.0000	4.45	0.3128427	0.2781500		-11.1	20	
2-Fluorobiphenyl	A	5.0000	4.60	1.5299660	1.4075400		-8.0	20	
2,4,6-Tribromophenol	A	7.5000	6.11	0.3024571	0.2465349		-18.5	20	
p-Terphenyl-d14	A	5.0000	5.32	0.8656707	0.9218494		6.5	20	
1,4-Dichlorobenzene-d4	A	4.0000	4.0	7648.7140	1.0000		0.0		
Naphthalene-d8	A	4.0000	4.0	27485.0400	1.0000		0.0		
Acenaphthene-d10	A	4.0000	4.0	14040.1100	1.0000		0.0		
Phenanthrene-d10	A	4.0000	4.0	25876.7100	1.0000		0.0		
Chrysene-d12	A	4.0000	4.0	24429.5700	1.0000		0.0		
Di-n-Octylphthalate-d4	A	4.0000	4.0	55526.7100	1.0000		0.0		

* Values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	NT10	Calibration:	CG00040
Lab File ID:	NT1019082206.D	Calibration Date:	07/16/19 11:00
Sequence:	SHH0325	Injection Date:	08/22/19
Lab Sample ID:	SHH0325-ICV1	Injection Time:	16:51
Sequence Name:	Initial Cal Check		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Perylene-d12	A	4.0000	4.0	25800.0700	1.0000		0.0	

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082206.D

Date : 22-AUG-2019 16:51

Client ID:

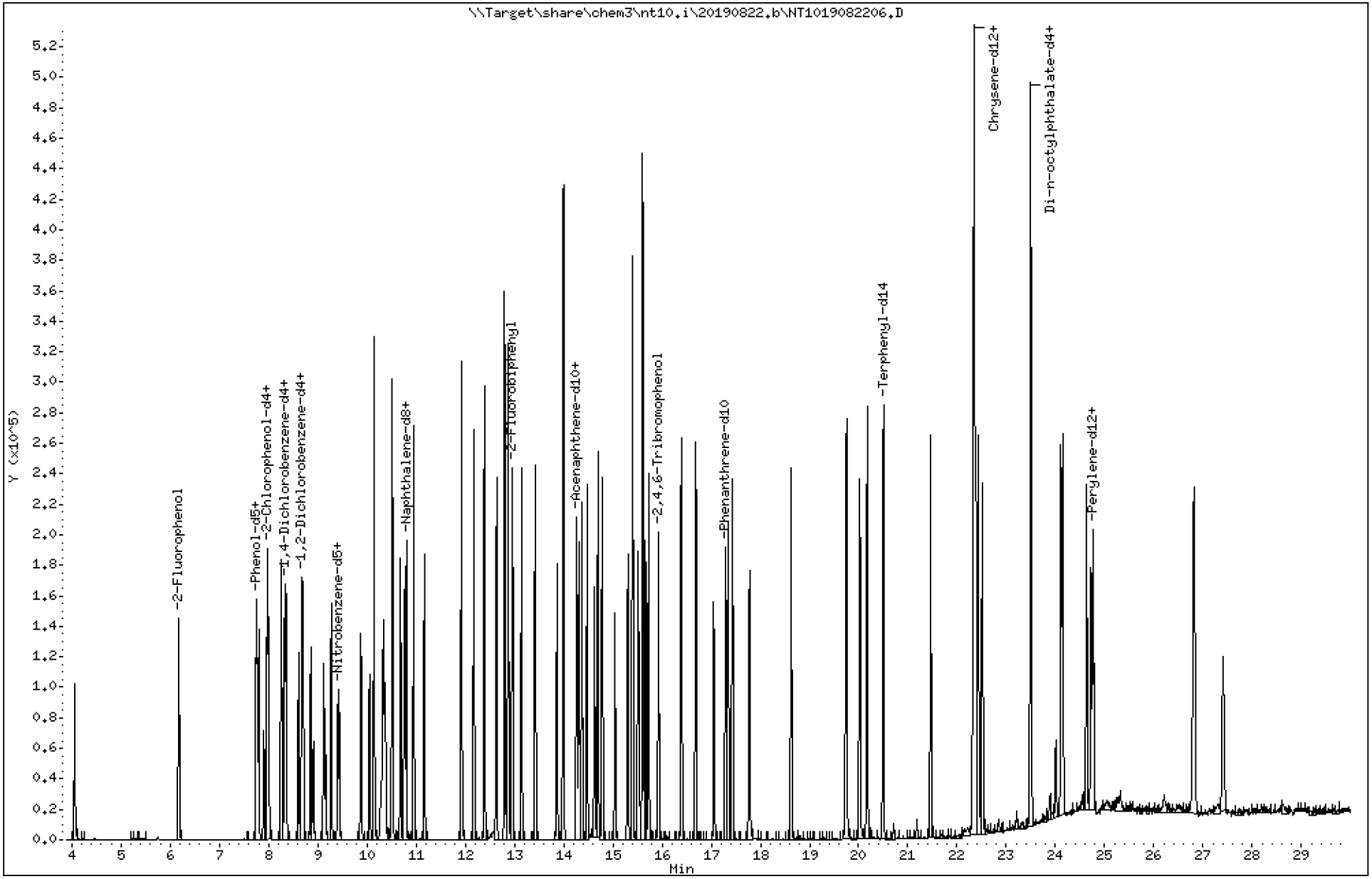
Instrument: nt10.i

Sample Info: SHH0325-ICV1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190822.b\NT1019082206.D
Lab Smp Id: SHH0325-ICV1
Inj Date : 22-AUG-2019 16:51
Operator : YZ Inst ID: nt10.i
Smp Info : SHH0325-ICV1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 12:01 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$	1 2-Fluorophenol	112	6.173	6.173	(0.741)	56252	7.50000	6.029
$	2 Phenol-d5	99	7.749	7.749	(0.930)	59982	7.50000	5.737
	3 Phenol	94	7.772	7.772	(0.933)	43716	5.00000	4.497
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.958)	78466	7.50000	6.971
*	8 1,4-Dichlorobenzene-d4	152	8.329	8.329	(1.000)	33224	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.671	8.671	(1.041)	35640	5.00000	4.631
	11 Benzyl alcohol	108	8.608	8.608	(1.034)	27533	5.00000	4.280(M)
$	18 Nitrobenzene-d5	82	9.408	9.408	(0.874)	40144	5.00000	4.446
	24 Benzoic acid	105	10.381	10.381	(0.964)	98403	20.0000	14.93(M)
*	27 Naphthalene-d8	136	10.765	10.765	(1.000)	115460	4.00000	
	28 Naphthalene	128	10.803	10.803	(1.004)	121992	5.00000	4.597
	32 2-Methylnaphthalene	142	12.172	12.172	(1.131)	117676	5.00000	5.227
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	114989	5.00000	4.600
	39 Dimethylphthalate	163	13.867	13.867	(0.969)	116747	5.00000	4.807
	40 Acenaphthylene	152	13.999	13.999	(0.978)	140827	5.00000	4.470
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	65356	4.00000	
	44 Acenaphthene	153	14.378	14.378	(1.005)	91843	5.00000	4.640
	46 Dibenzofuran	168	14.703	14.703	(1.028)	151554	5.00000	4.658
	50 Diethylphthalate	149	15.306	15.306	(1.070)	115119	5.00000	4.923
	49 Fluorene	166	15.398	15.398	(1.076)	104347	5.00000	4.690
	54 N-Nitrosodiphenylamine	169	15.661	15.661	(0.906)	75492	5.00000	4.573
$	55 2,4,6-Tribromophenol	330	15.931	15.931	(1.113)	30211	7.50000	6.113
*	59 Phenanthrene-d10	188	17.291	17.291	(1.000)	120268	4.00000	
	60 Phenanthrene	178	17.345	17.345	(1.003)	136855	5.00000	4.658
	61 Anthracene	178	17.430	17.430	(1.008)	145362	5.00000	4.873
	63 Di-n-butylphthalate	149	18.629	18.629	(1.077)	208283	5.00000	5.125
	64 Fluoranthene	202	19.751	19.751	(0.882)	173152	5.00000	5.426
	65 Pyrene	202	20.169	20.169	(0.901)	183913	5.00000	5.519
$	66 Terphenyl-d14	244	20.502	20.502	(0.916)	120329	5.00000	5.324
	67 Butylbenzylphthalate	149	21.462	21.462	(0.959)	87513	5.00000	5.638
	68 Benzo(a)anthracene	228	22.352	22.352	(0.999)	158348	5.00000	5.226
*	69 Chrysene-d12	240	22.383	22.383	(1.000)	104424	4.00000	
	71 Chrysene	228	22.430	22.430	(1.002)	137594	5.00000	5.132

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.515	22.515	(0.958)	114438	5.00000	5.271
* 134	Di-n-octylphthalate-d4	153	23.490	23.490	(1.000)	246846	4.00000	
73	Di-n-octylphthalate	149	23.498	23.498	(1.000)	211220	5.00000	4.625
74	Benzo(b)fluoranthene	252	24.110	24.110	(0.975)	156528	5.00000	5.678
75	Benzo(k)fluoranthene	252	24.148	24.148	(0.977)	136029	5.00000	4.905(H)
76	Benzo(a)pyrene	252	24.628	24.628	(0.996)	128746	5.00000	5.204
* 77	Perylene-d12	264	24.721	24.721	(1.000)	96085	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.806	26.806	(1.084)	132470	5.00000	4.456
79	Dibenzo(a,h)anthracene	278	26.821	26.821	(1.085)	100157	5.00000	4.138
80	Benzo(g,h,i)perylene	276	27.404	27.404	(1.109)	107549	5.00000	4.295
105	1-methylnaphthalene	142	12.389	12.389	(1.151)	117437	5.00000	5.189
187	Total Benzofluoranthenes	252	24.148	24.148	(0.977)	277674	10.0000	10.50

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082206.D
Lab Smp Id: SHH0325-ICV1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 15:39
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	33224	1.48
27 Naphthalene-d8	117487	58744	234974	115460	-1.73
42 Acenaphthene-d10	61859	30930	123718	65356	5.65
59 Phenanthrene-d10	113574	56787	227148	120268	5.89
69 Chrysene-d12	105788	52894	211576	104424	-1.29
134 Di-n-octylphthala	252823	126412	505646	246846	-2.36
77 Perylene-d12	113992	56996	227984	96085	-15.71

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.33	0.00
27 Naphthalene-d8	10.77	10.27	11.27	10.77	0.00
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.29	0.00
69 Chrysene-d12	22.38	21.88	22.88	22.38	0.00
134 Di-n-octylphthala	23.49	22.99	23.99	23.49	0.00
77 Perylene-d12	24.72	24.22	25.22	24.72	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082206.D

Lab ID: SHH0325-ICV1
nt10.i, 20190822.b\ABN.m,   22-AUG-2019 16:51

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

No RRT check. Ccal file.

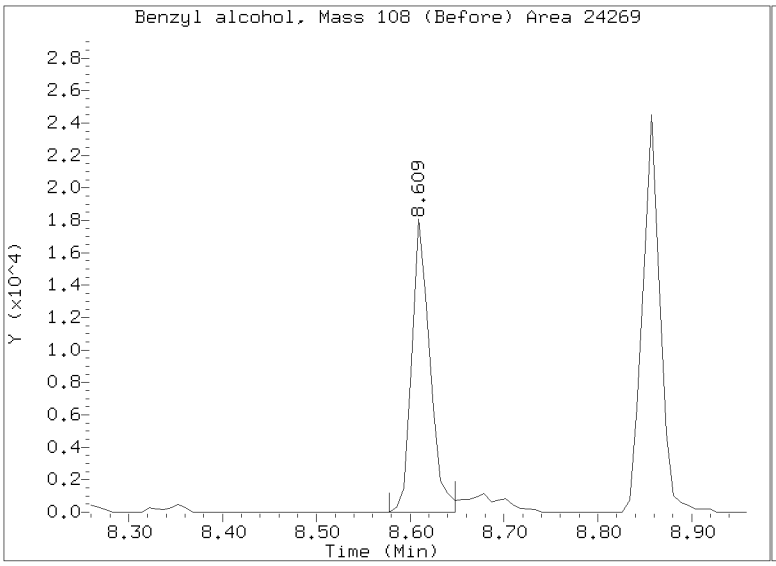
On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

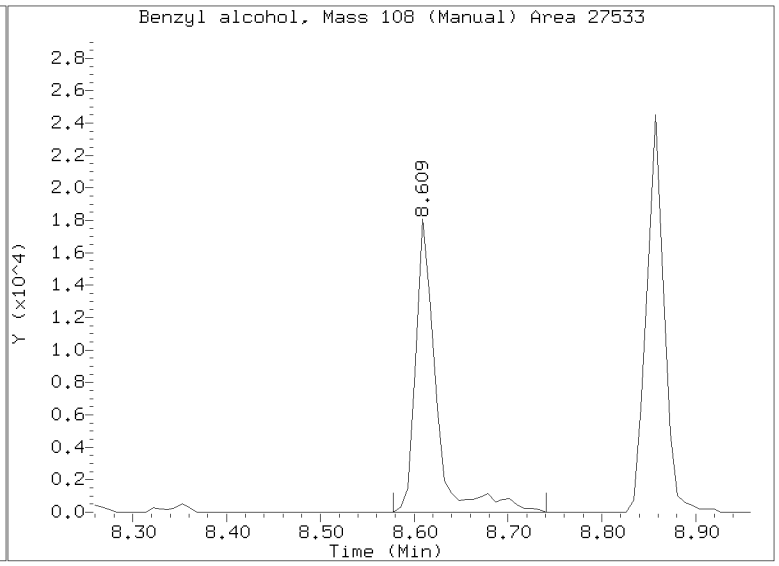
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

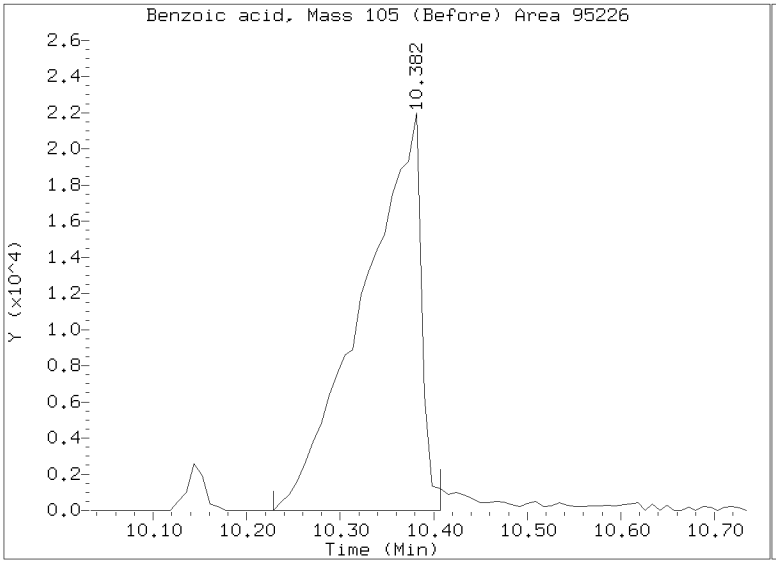
* Only compounds listed in the work order have been verified by the analyst *

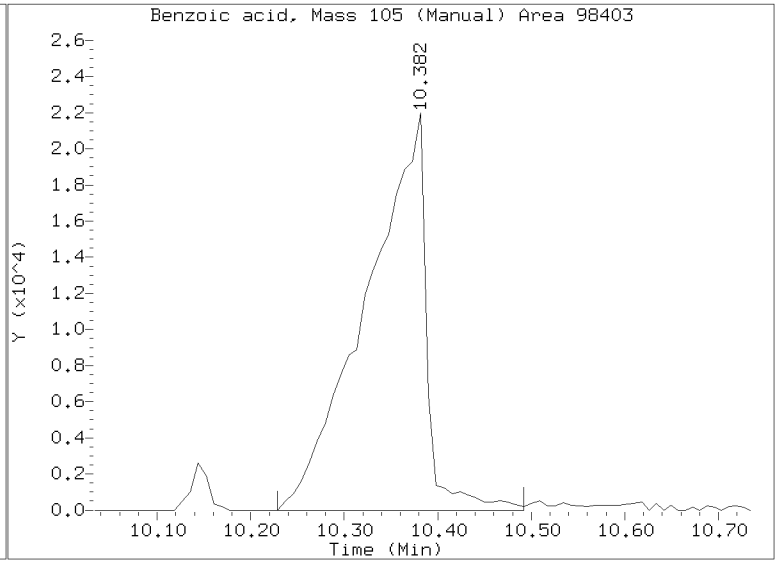
Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190822.b/NT1019082206.D
Injection Date: 22-AUG-2019 16:51
Lab ID:SHH0325-ICV1 Client ID:
Report Date: 08/23/2019 12:01









CONTINUING CALIBRATION CHECK
EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	NT10	Calibration:	CG00040
Lab File ID:	NT1019071520.D	Calibration Date:	07/16/19 11:00
Sequence:	SHG0206	Injection Date:	07/16/19
Lab Sample ID:	SHG0206-CCV1	Injection Time:	01:24
Sequence Name:	ABN 5		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Phenol	A	5.0000	4.4	1.1702980	1.0373330		-11.4	50
Benzyl Alcohol	A	5.0000	4.4	0.7745535	0.6851202		-11.5	50
Benzoic acid	A	20.000	18.1	0.2148759	0.2072146		-9.6	50
N-Nitrosodiphenylamine	A	5.0000	5.0	0.5490690	0.5437773		-1.0	50
Phenanthrene	A	5.0000	4.7	0.9770762	0.9110689		-6.8	50
Fluoranthene	A	5.0000	6.0	1.2223680	1.4583160		19.3	50
Pyrene	A	5.0000	5.7	1.2764440	1.4628440		14.6	50
Butylbenzylphthalate	A	5.0000	6.1	0.5945946	0.7200888		21.1	50
Benzo(a)anthracene	A	5.0000	5.1	1.1605520	1.1922490		2.7	50
Chrysene	A	5.0000	5.3	1.0269450	1.0928750		6.4	50
bis(2-Ethylhexyl)phthalate	A	5.0000	5.7	0.3518184	0.3994699		13.5	50
Di-n-Octylphthalate	A	5.0000	4.8	0.7399924	0.7169094		-3.1	50
Benzofluoranthenes, Total	A	10.000	10.6	1.1008070	1.1679190		6.1	50
Benzo(a)pyrene	A	5.0000	5.2	1.0299780	1.0774280		4.6	50
Indeno(1,2,3-cd)pyrene	A	5.0000	3.7	1.2375640	0.9050917		-26.9	50
Dibenzo(a,h)anthracene	A	5.0000	3.7	1.0075500	0.7448469		-26.1	50
Benzo(g,h,i)perylene	A	5.0000	3.0	1.0423270	0.6292203		-39.6	50
2-Fluorophenol	A	7.5000	6.90	1.1232200	1.0330710		-8.0	50
Phenol-d5	A	7.5000	6.91	1.2588120	1.1604700		-7.8	50
2-Chlorophenol-d4	A	7.5000	7.42	1.3551050	1.3404270		-1.1	50
1,2-Dichlorobenzene-d4	A	5.0000	4.81	0.9264682	0.8919295		-3.7	50
Nitrobenzene-d5	A	5.0000	4.77	0.3128427	0.2984103		-4.6	50
2-Fluorobiphenyl	A	5.0000	5.22	1.5299660	1.5967730		4.4	50
2,4,6-Tribromophenol	A	7.5000	7.50	0.3024571	0.3026130		0.05	50
p-Terphenyl-d14	A	5.0000	5.58	0.8656707	0.9660229		11.6	50

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

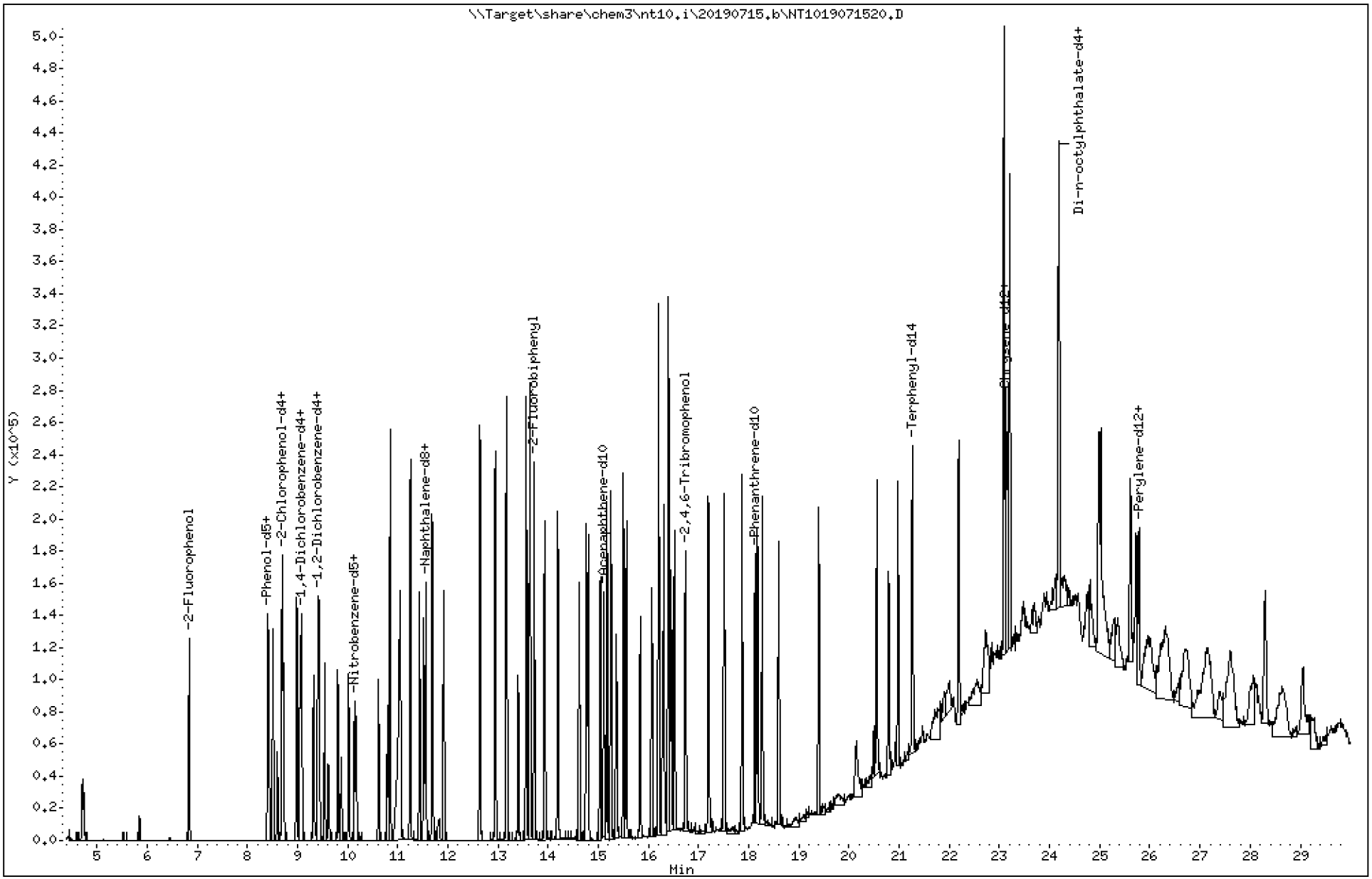
Instrument: nt10.i

Sample Info: SHG0206-CCV1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

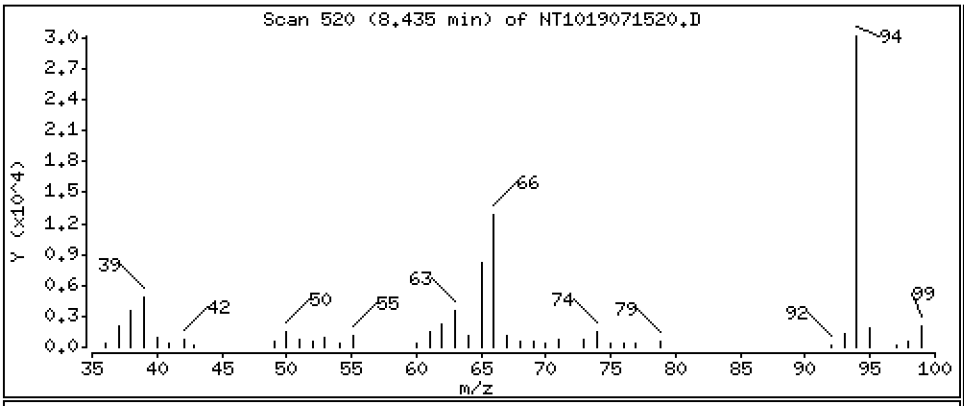
Operator: YZ

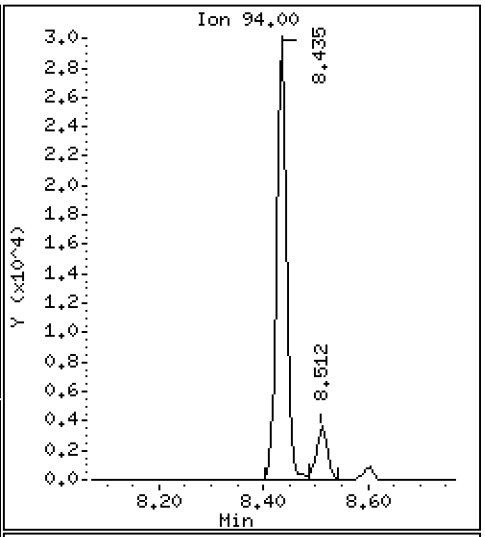
Column phase: ZB-5msi

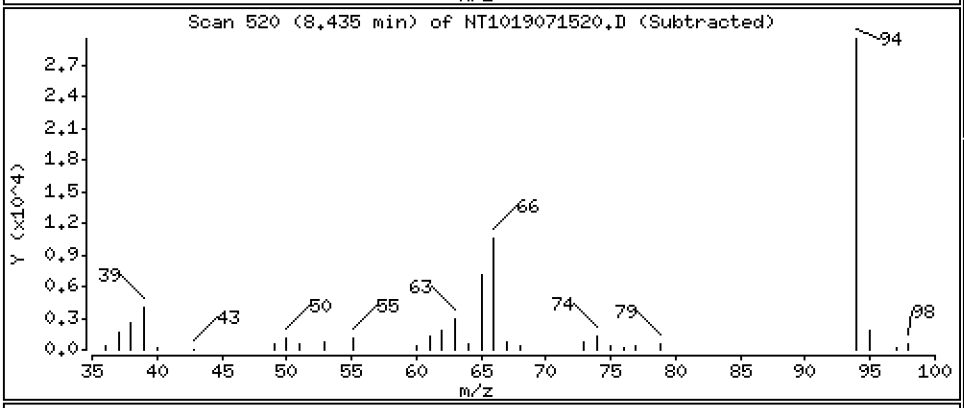
Column diameter: 0.25

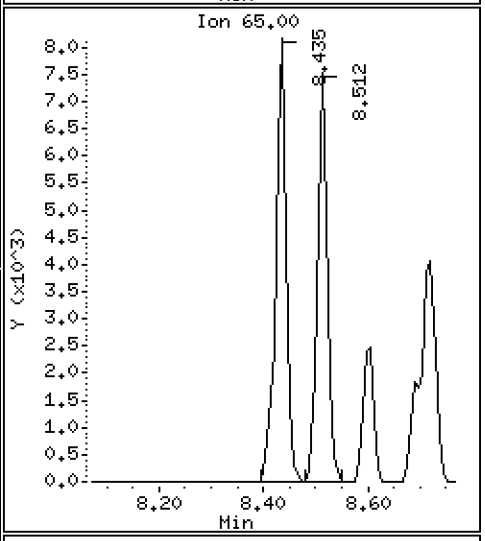
3 Phenol

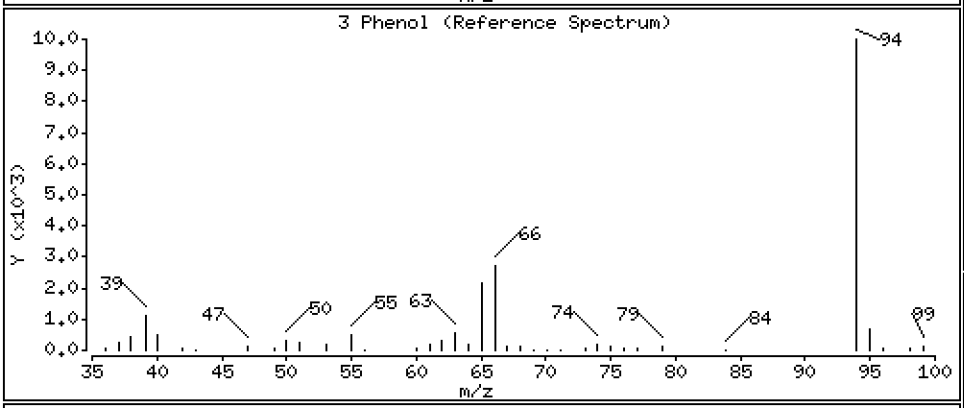
Concentration: 4.432 ug/mL

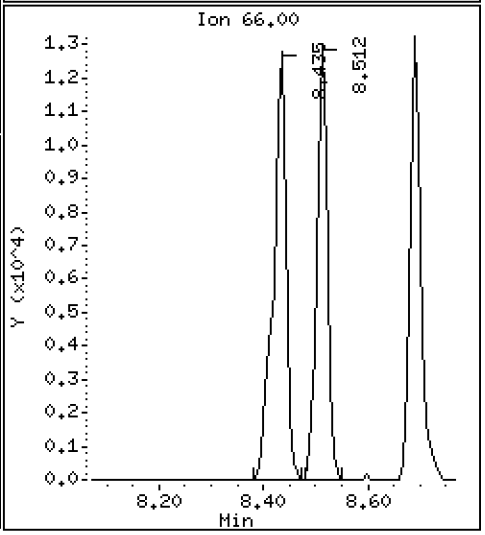


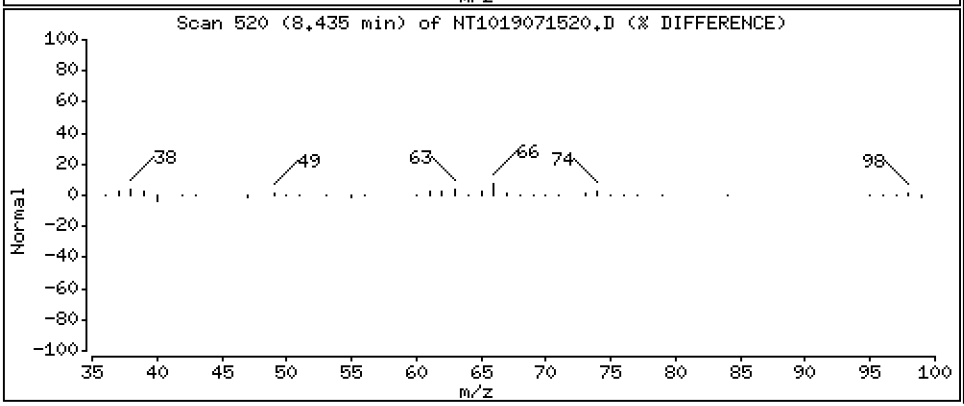












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

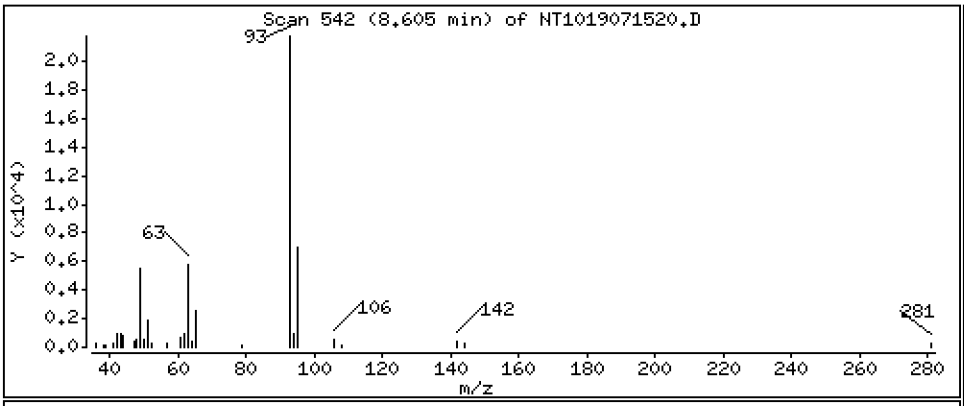
Operator: YZ

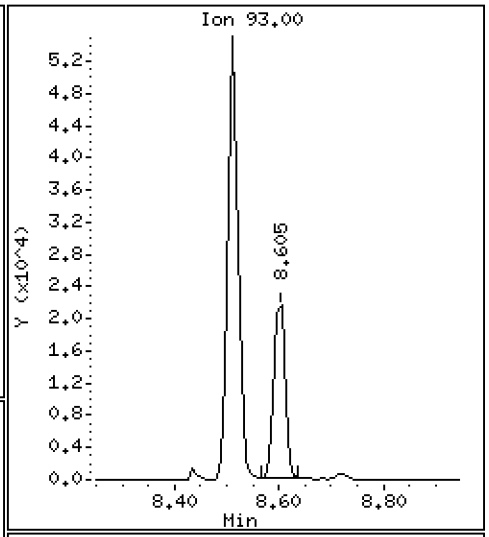
Column phase: ZB-5msi

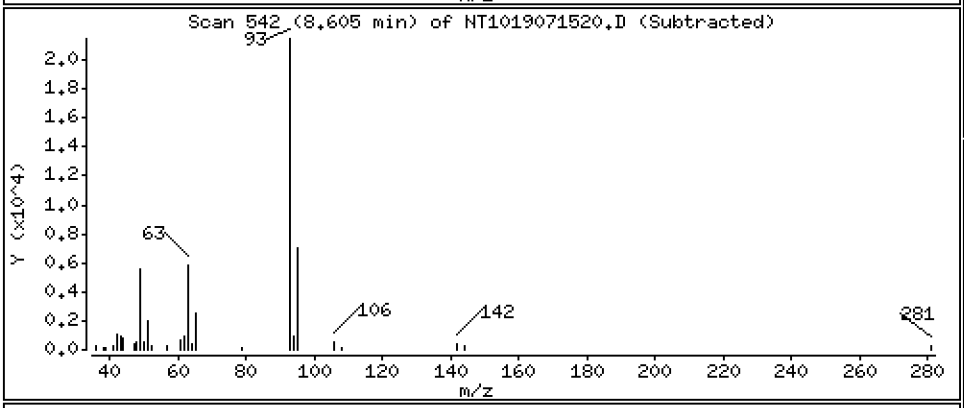
Column diameter: 0.25

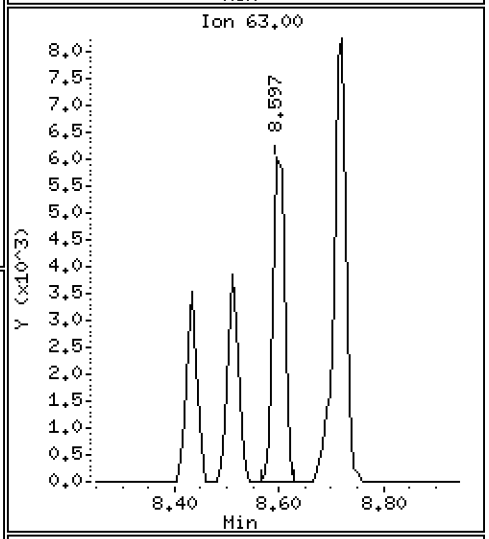
4 Bis(2-Chloroethyl)ether

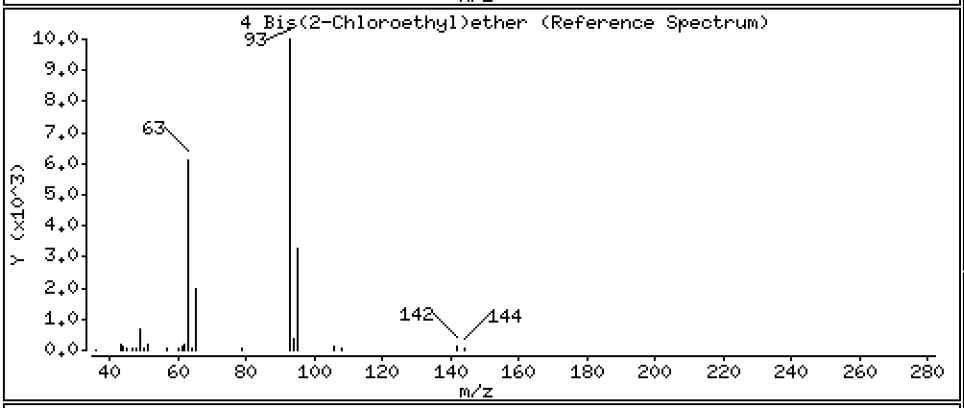
Concentration: 4.129 ug/mL

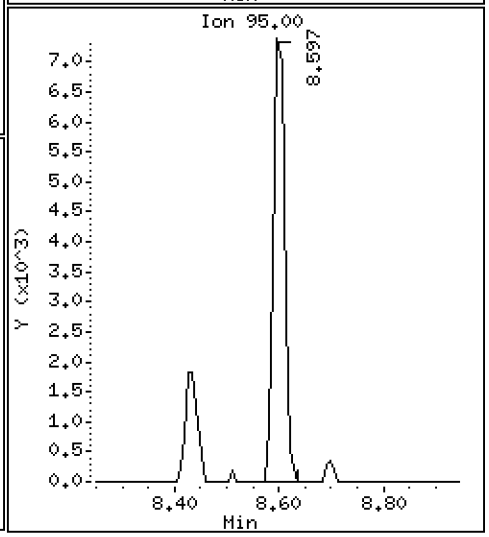


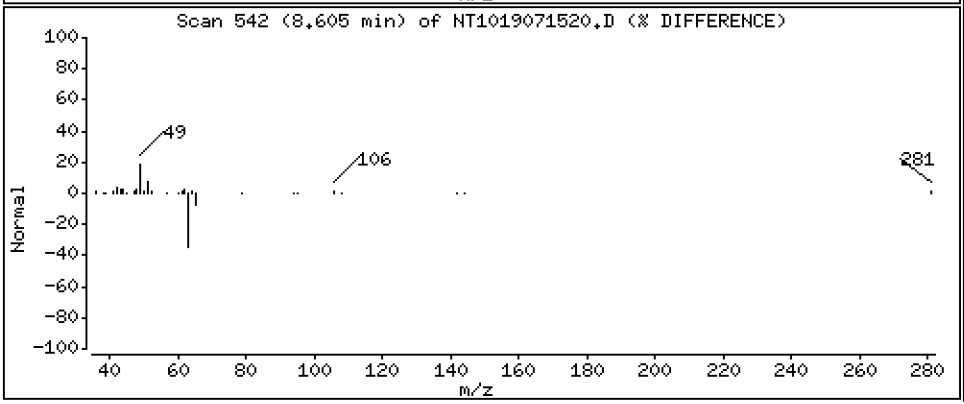












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

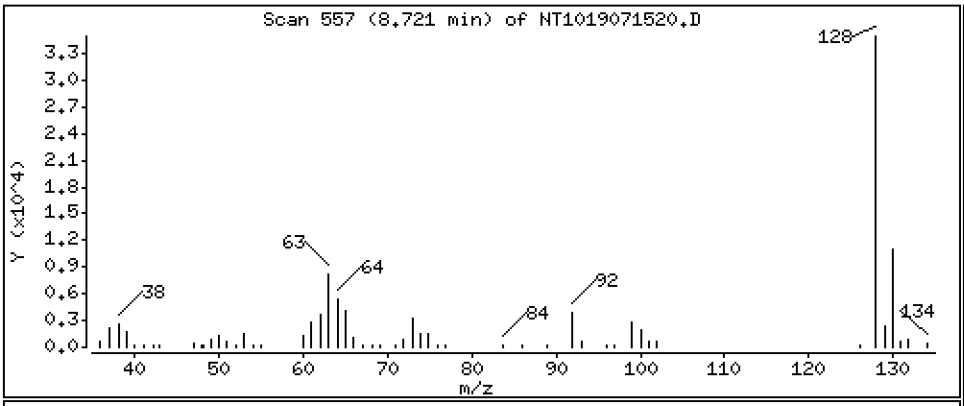
Operator: YZ

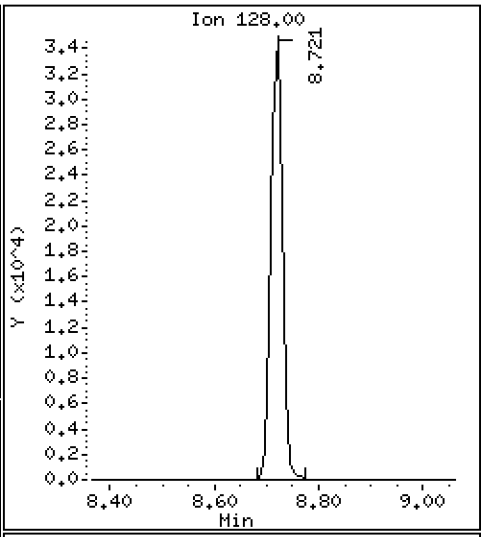
Column phase: ZB-5msi

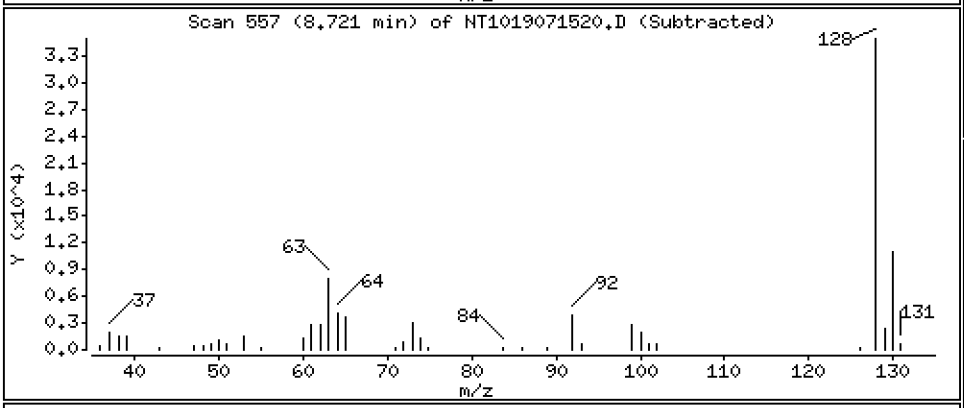
Column diameter: 0.25

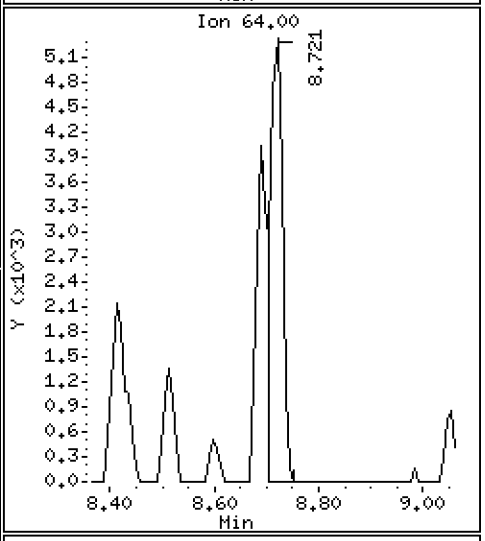
6 2-Chlorophenol

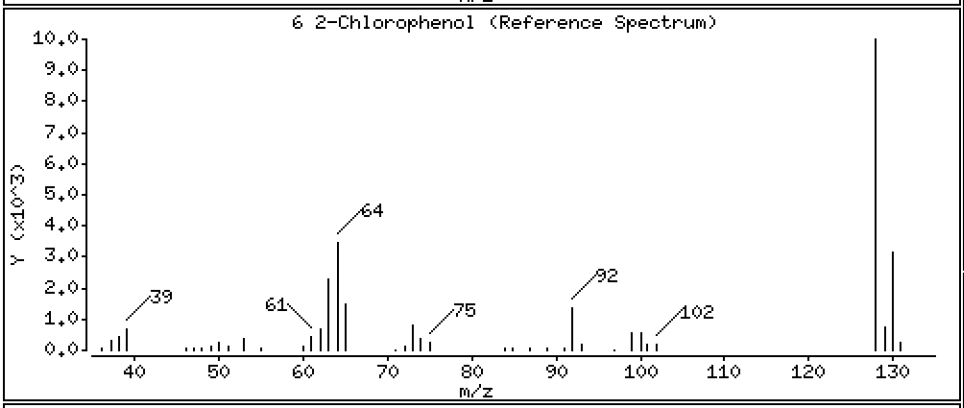
Concentration: 4.939 ug/mL

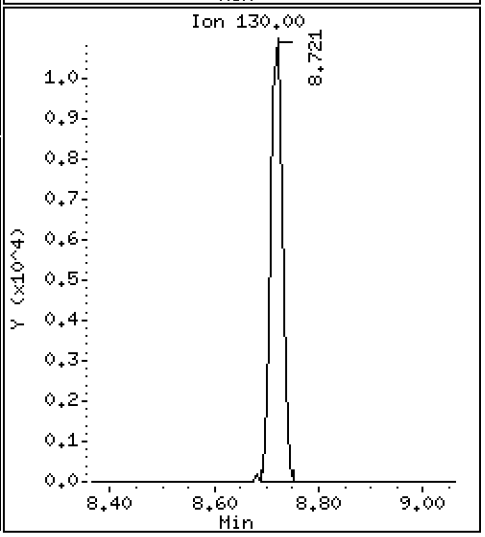


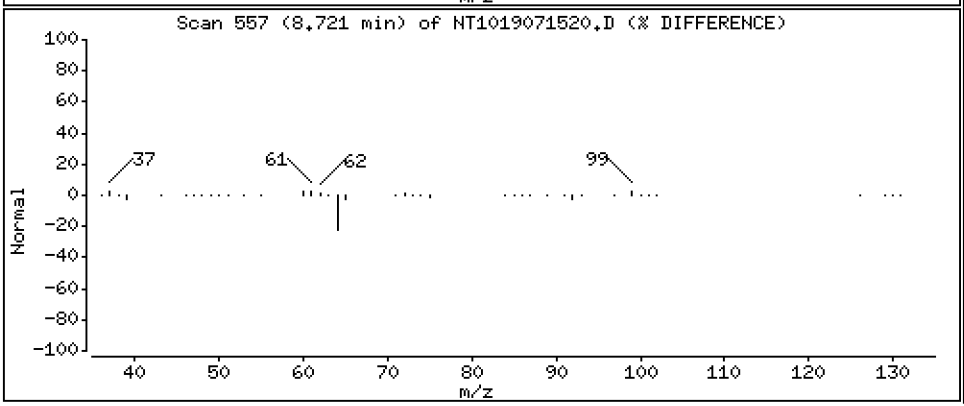












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

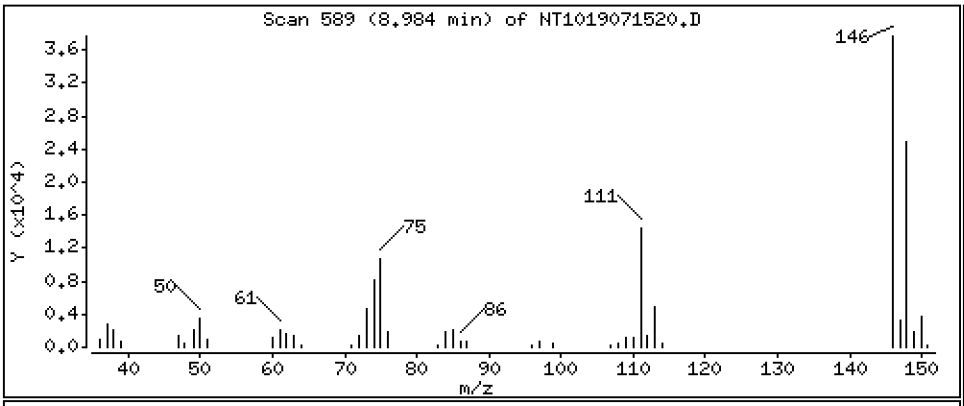
Operator: YZ

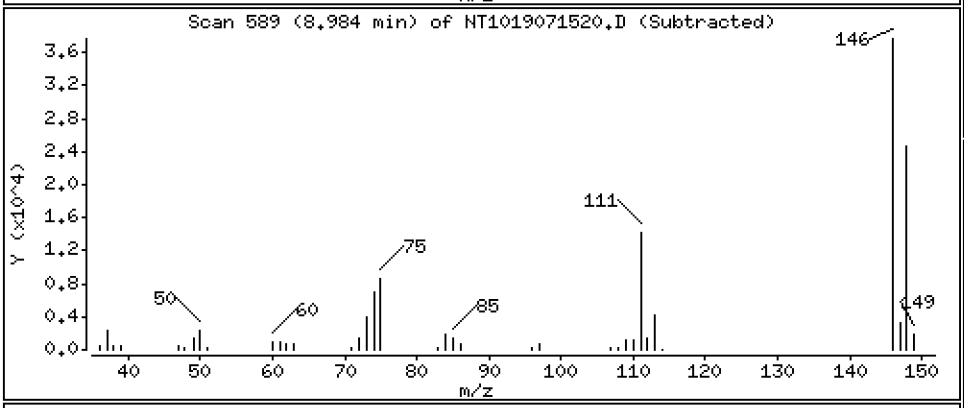
Column phase: ZB-5msi

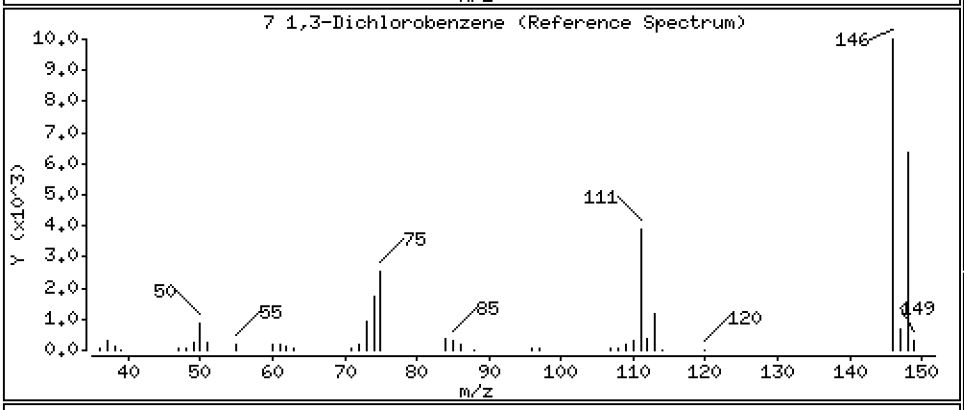
Column diameter: 0.25

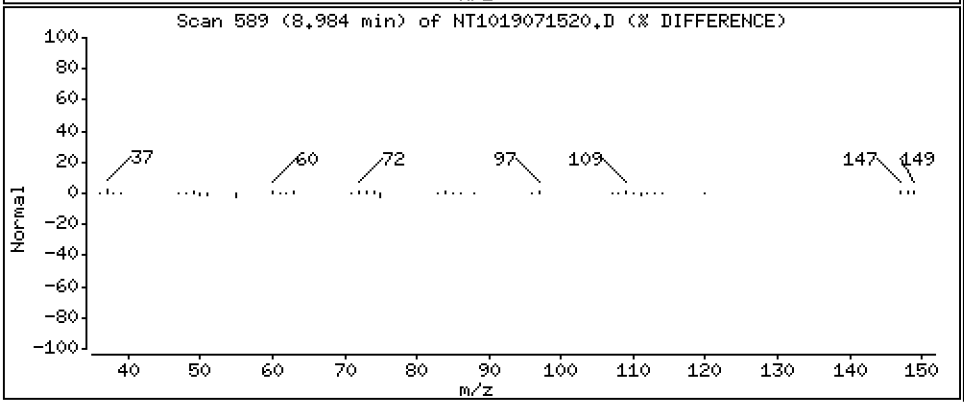
7 1,3-Dichlorobenzene

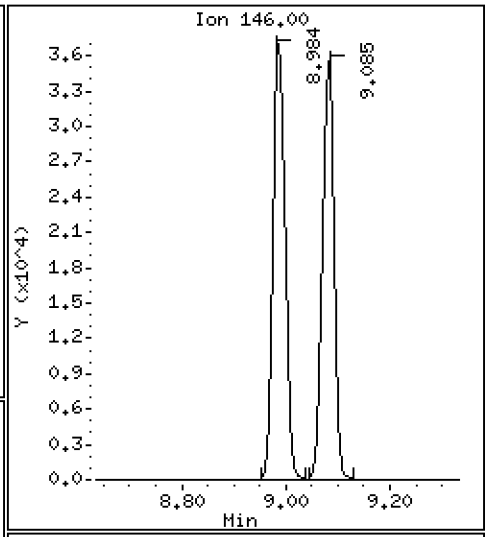
Concentration: 4.950 ug/mL

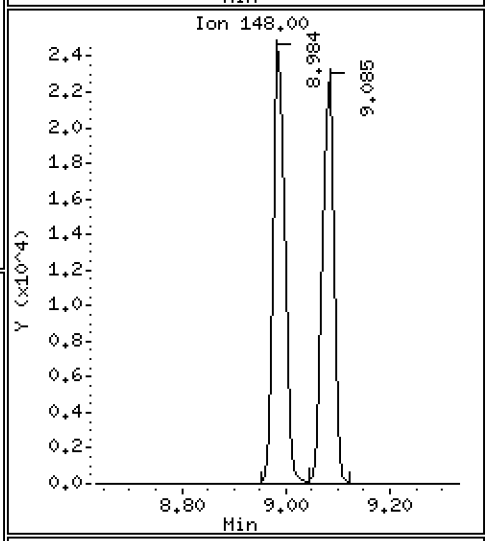


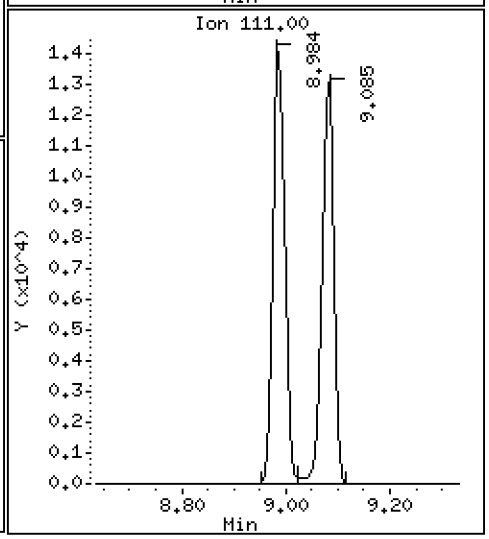












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

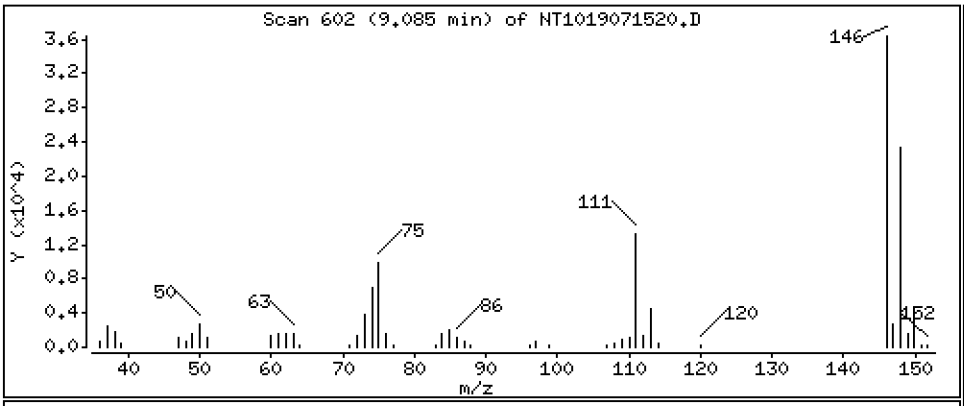
Operator: YZ

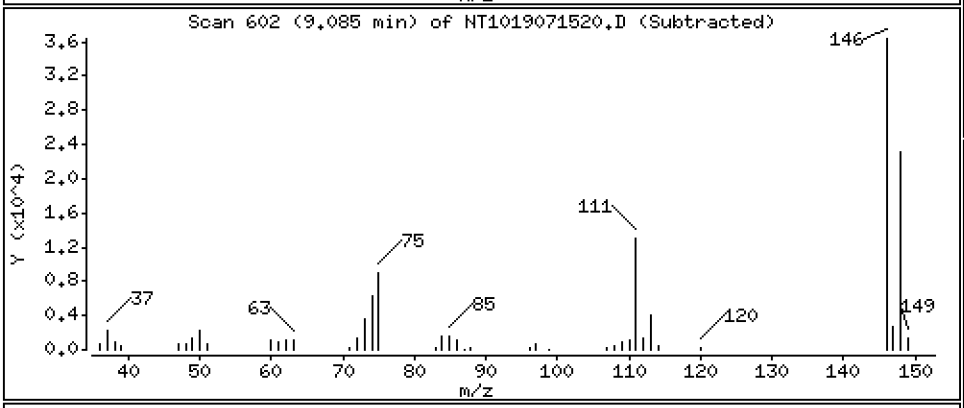
Column phase: ZB-5msi

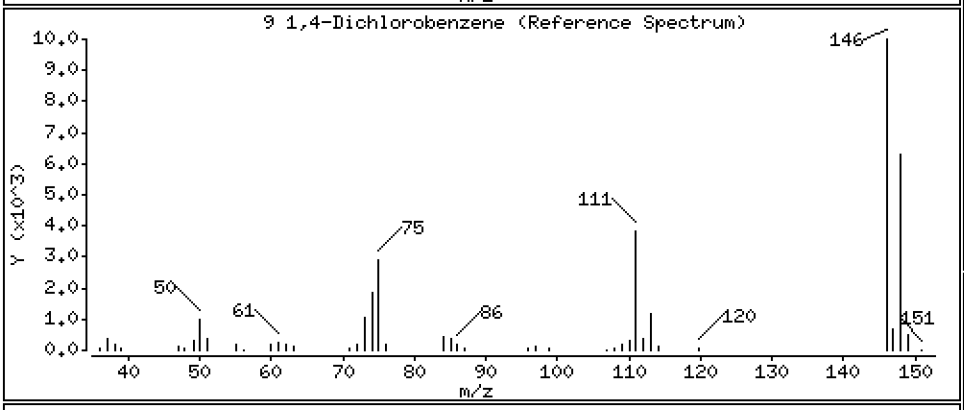
Column diameter: 0.25

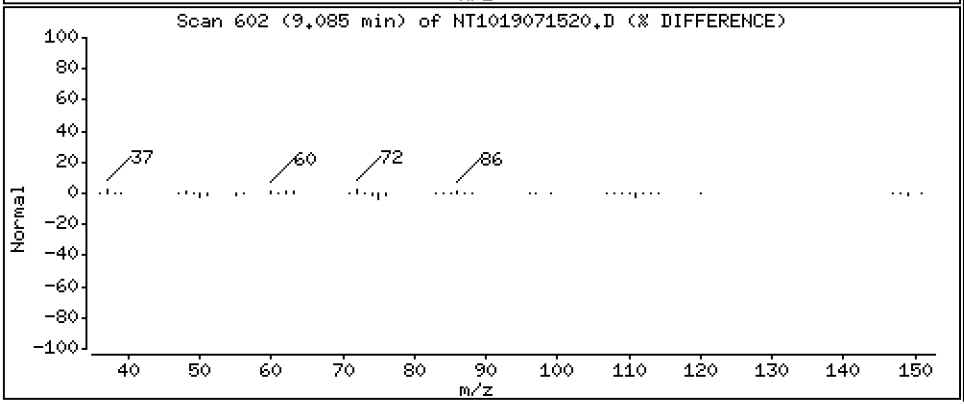
9 1,4-Dichlorobenzene

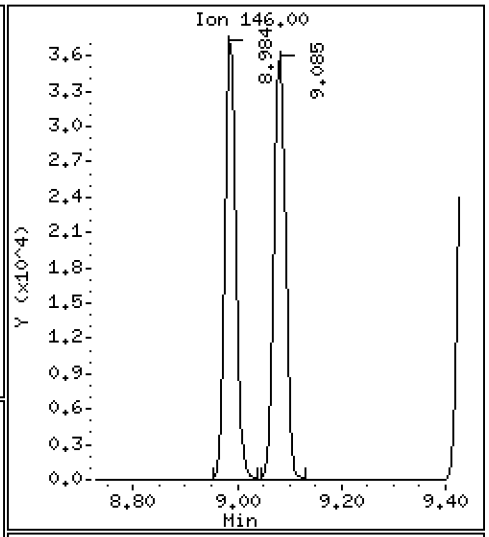
Concentration: 4.776 ug/mL

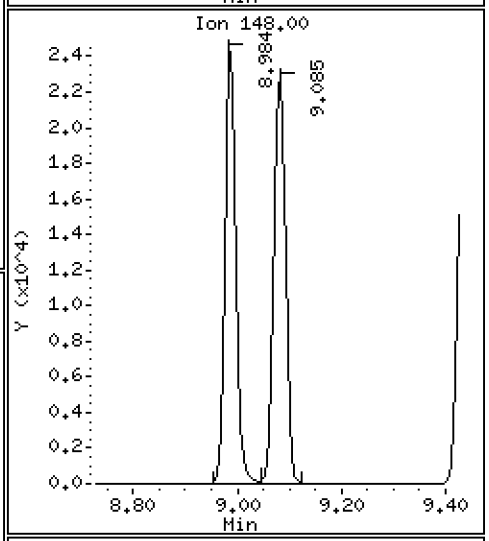


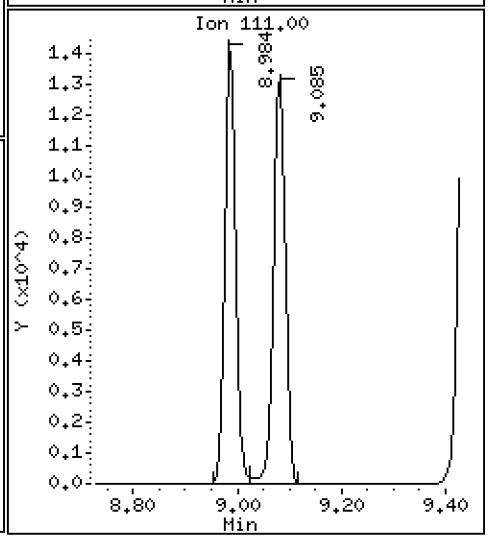












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

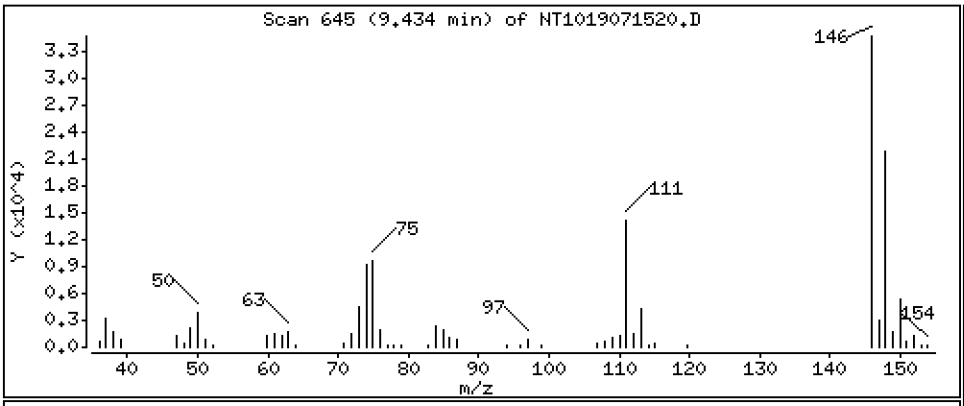
Operator: YZ

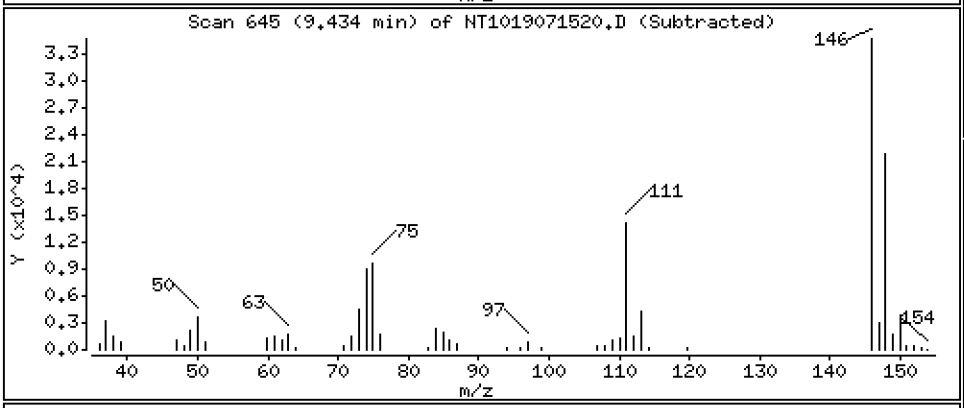
Column phase: ZB-5msi

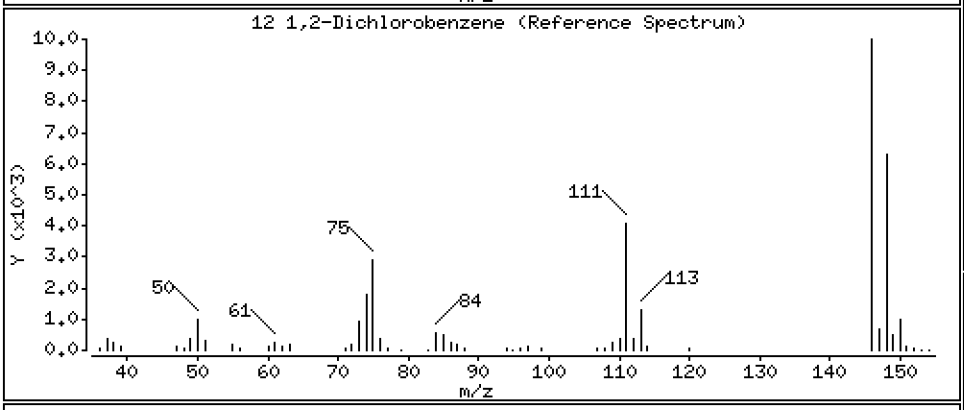
Column diameter: 0.25

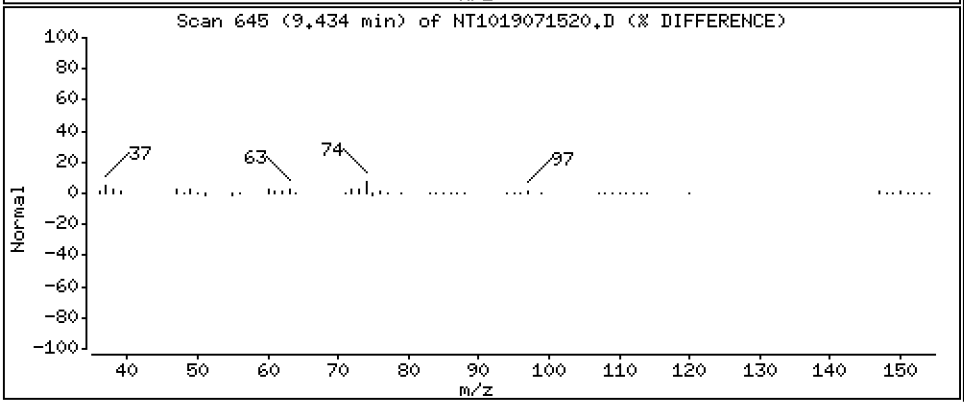
12 1,2-Dichlorobenzene

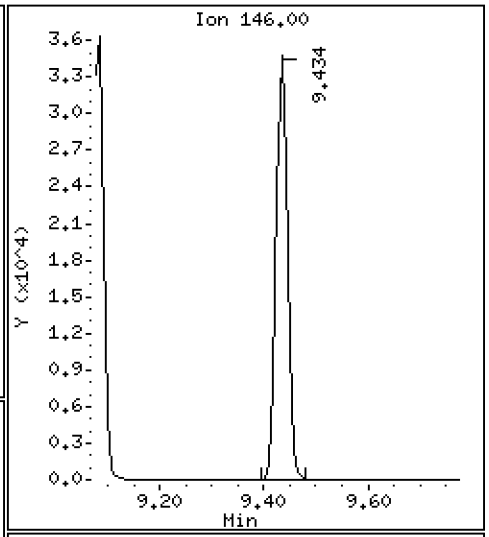
Concentration: 4.718 ug/mL

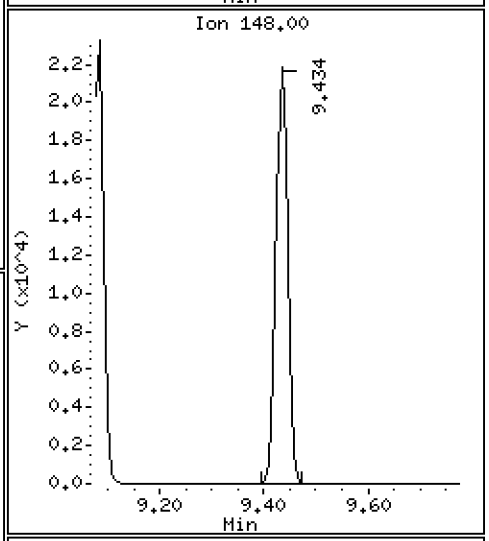


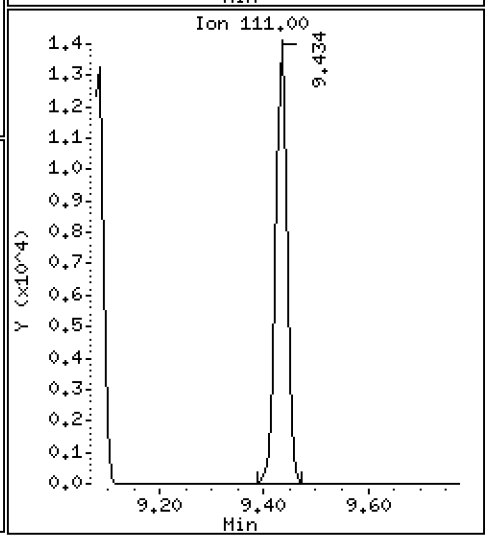












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

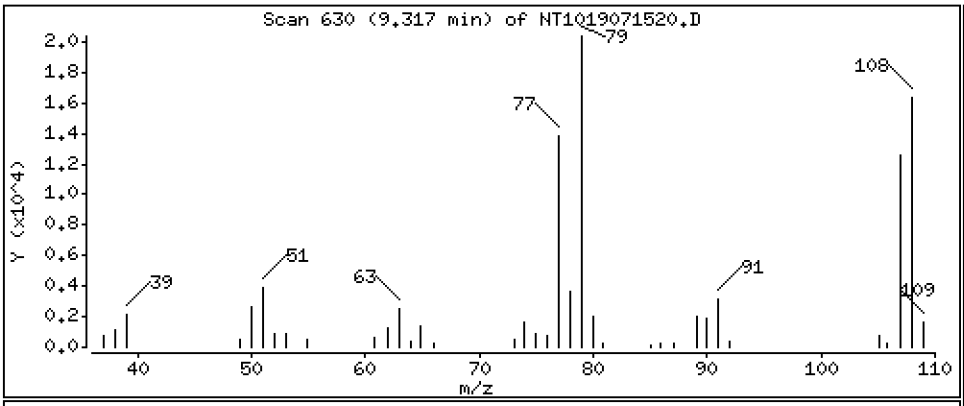
Operator: YZ

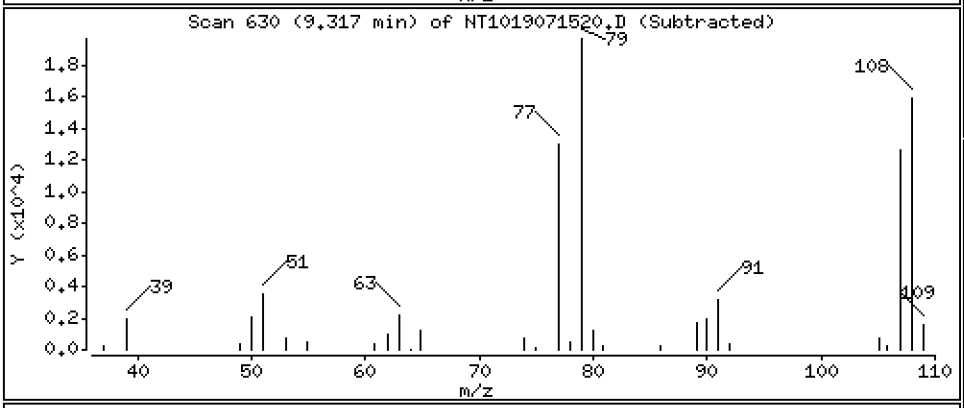
Column phase: ZB-5msi

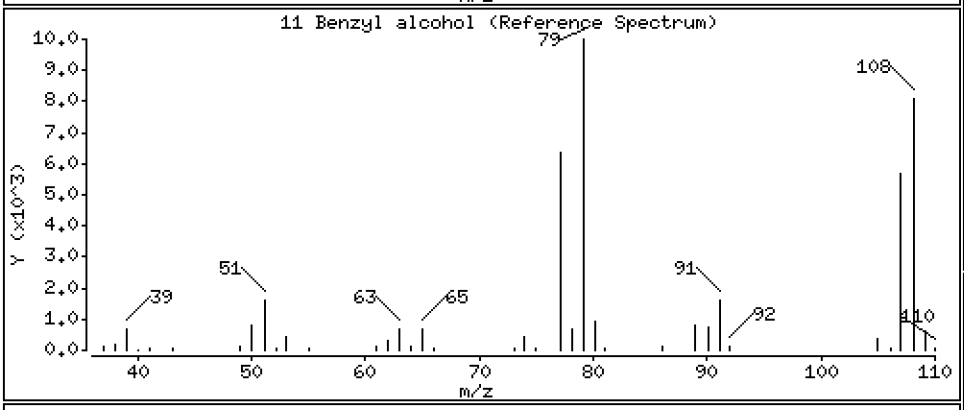
Column diameter: 0.25

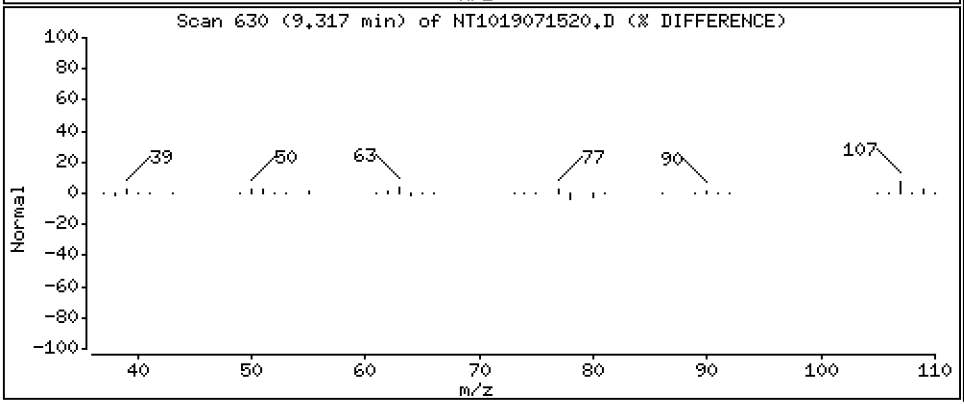
11 Benzyl alcohol

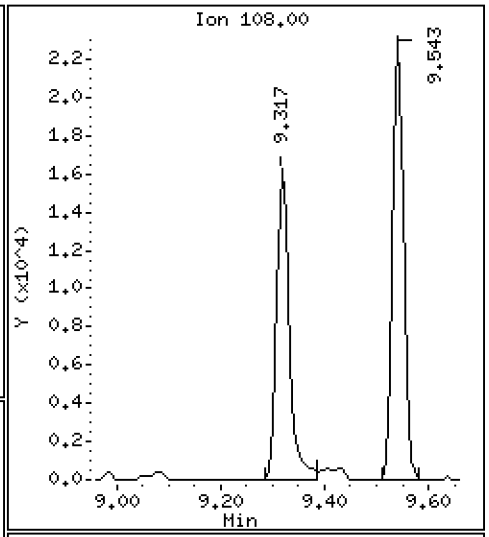
Concentration: 4.423 ug/mL

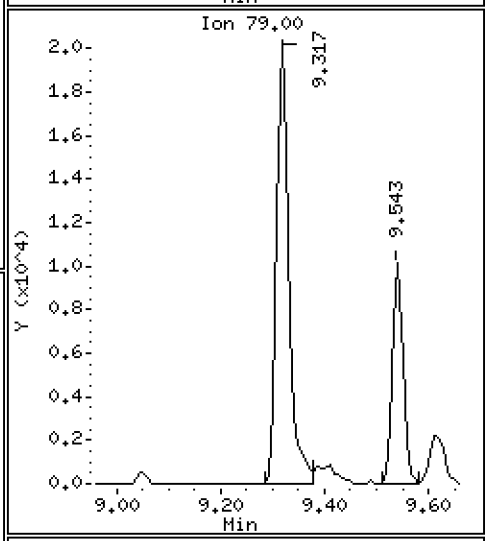


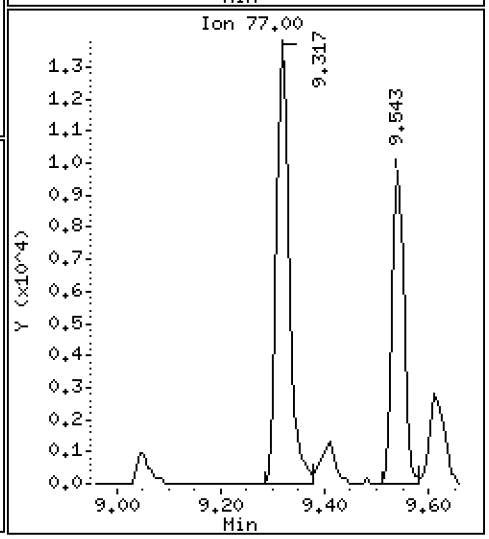












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

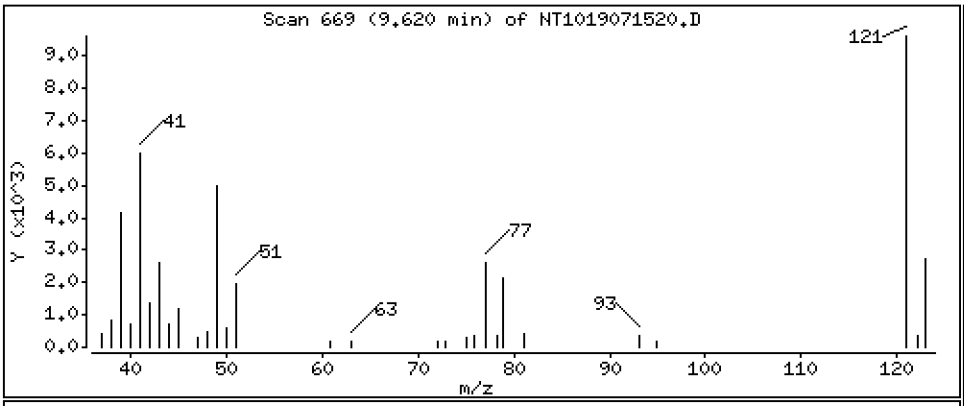
Operator: YZ

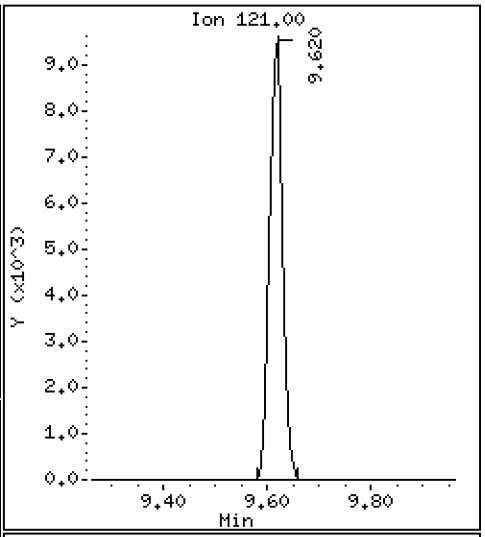
Column phase: ZB-5msi

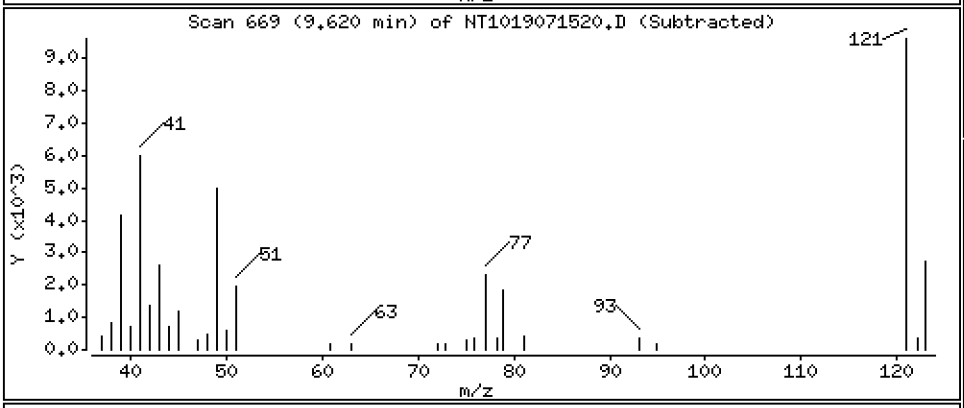
Column diameter: 0.25

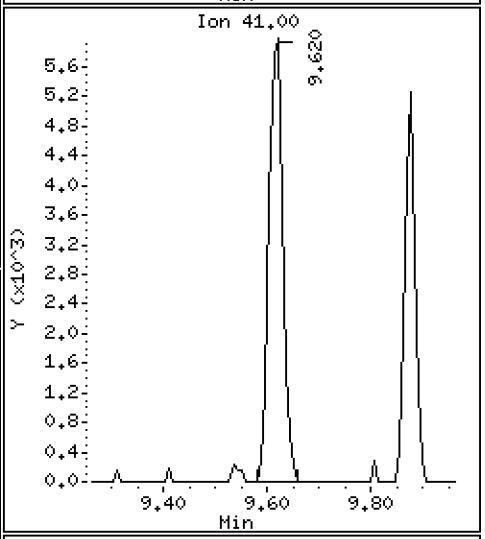
14 2,2'-oxybis(1-Chloropropane)

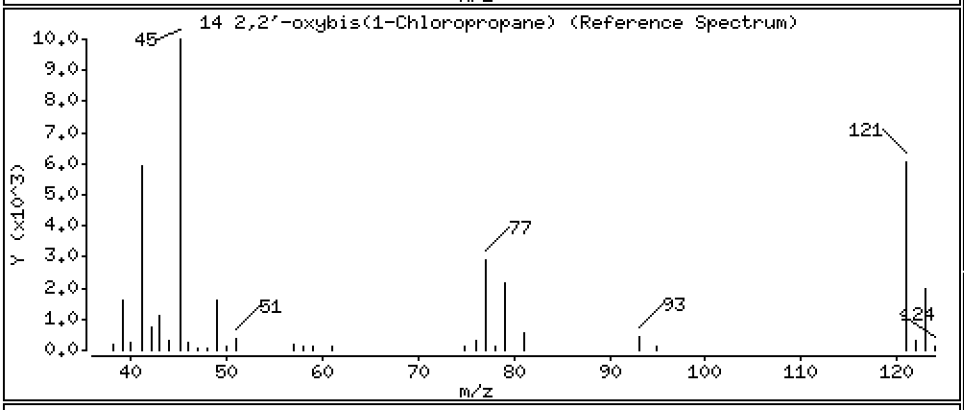
Concentration: 4.994 ug/mL

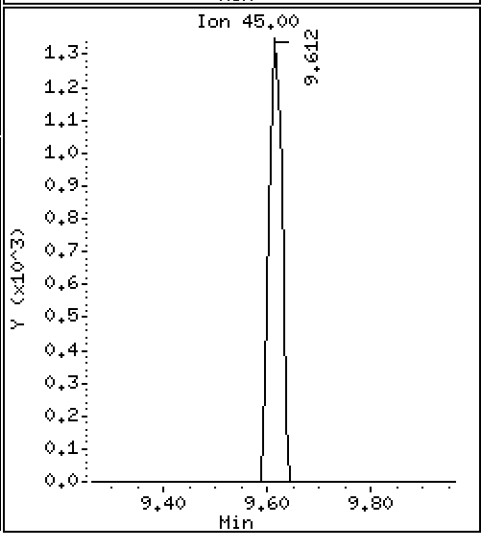


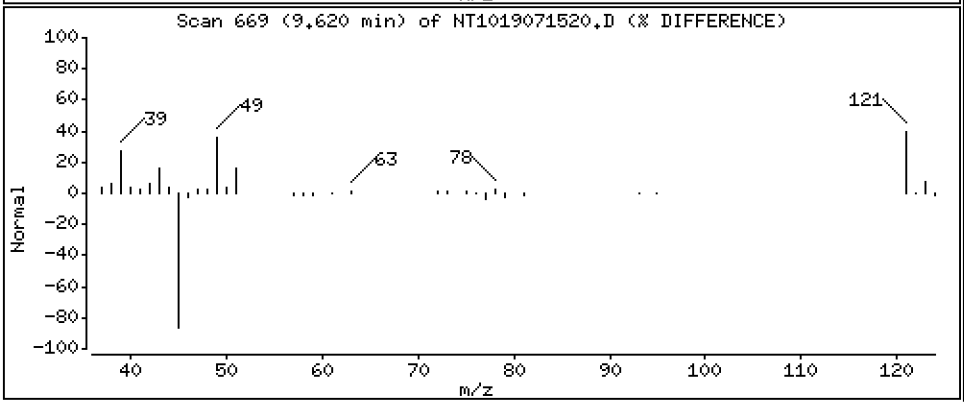












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

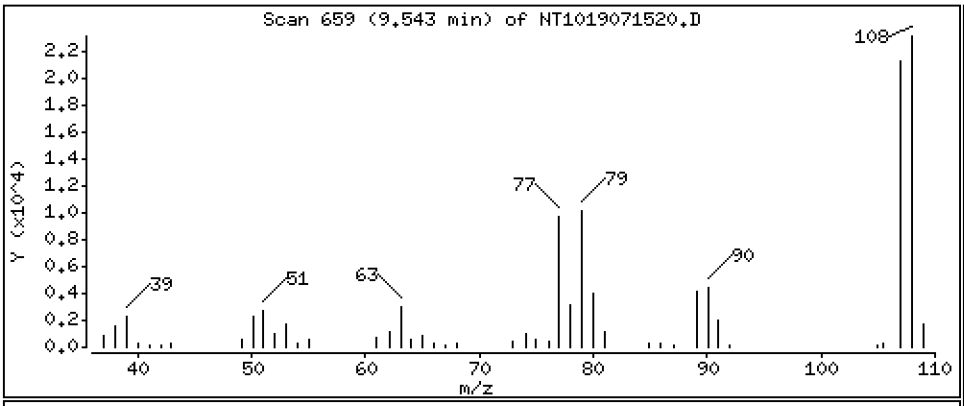
Operator: YZ

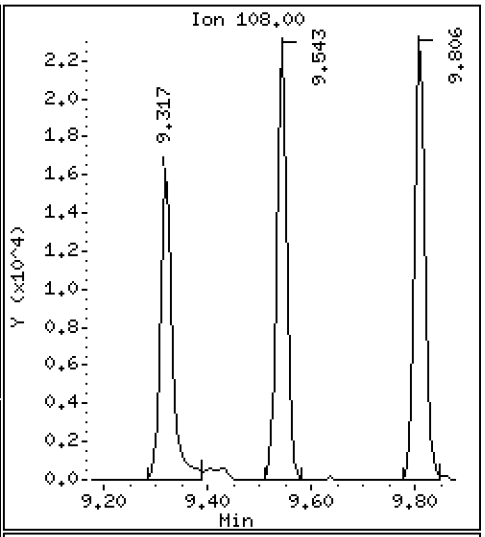
Column phase: ZB-5msi

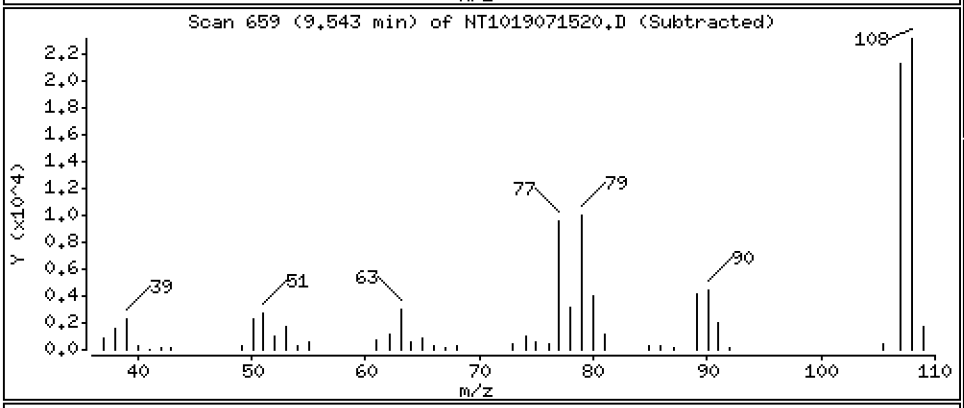
Column diameter: 0.25

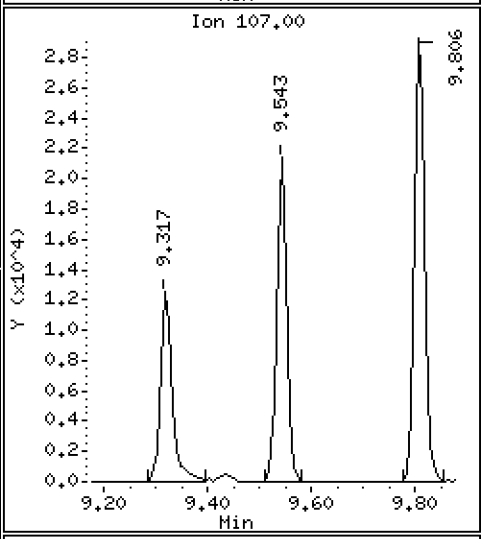
13 2-Methylphenol

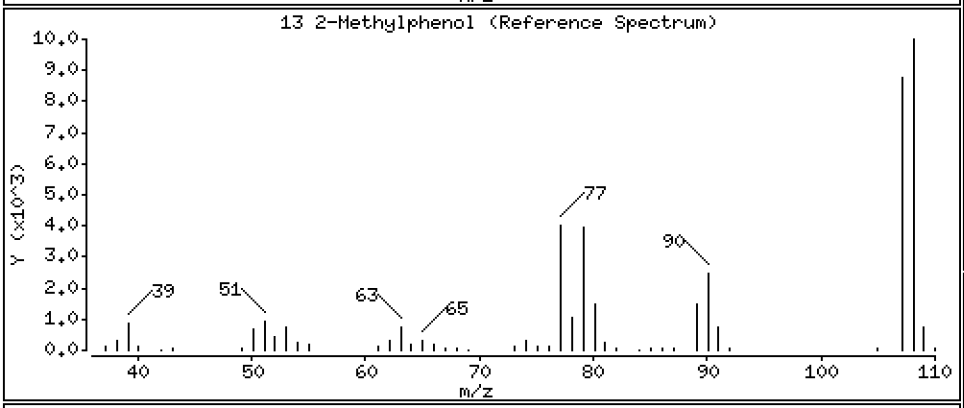
Concentration: 4.534 ug/mL

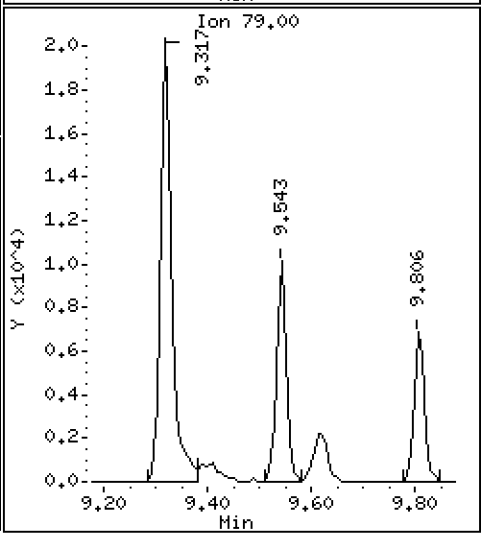


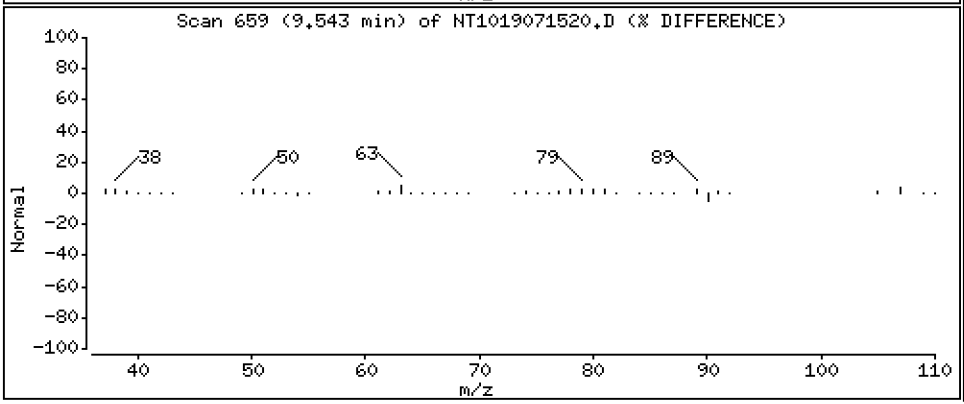












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

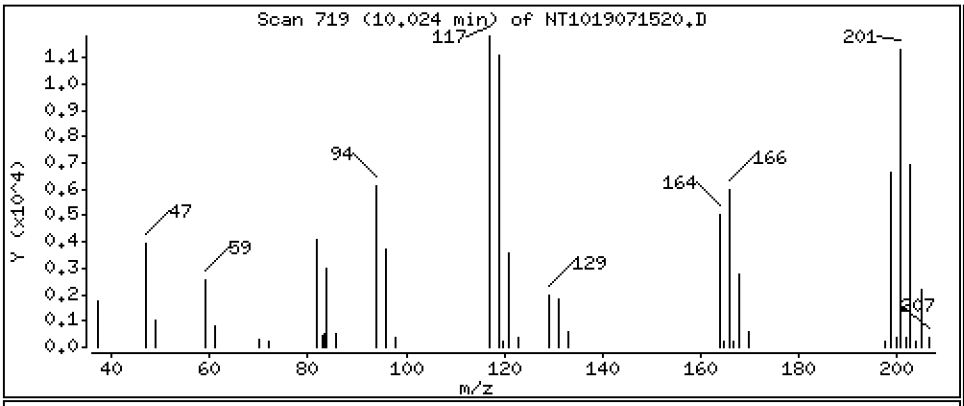
Operator: YZ

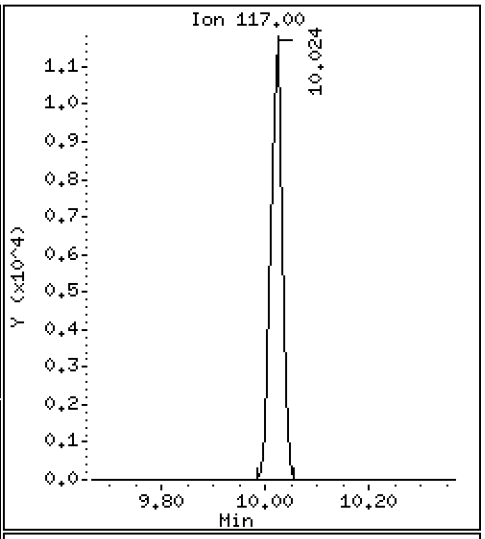
Column phase: ZB-5msi

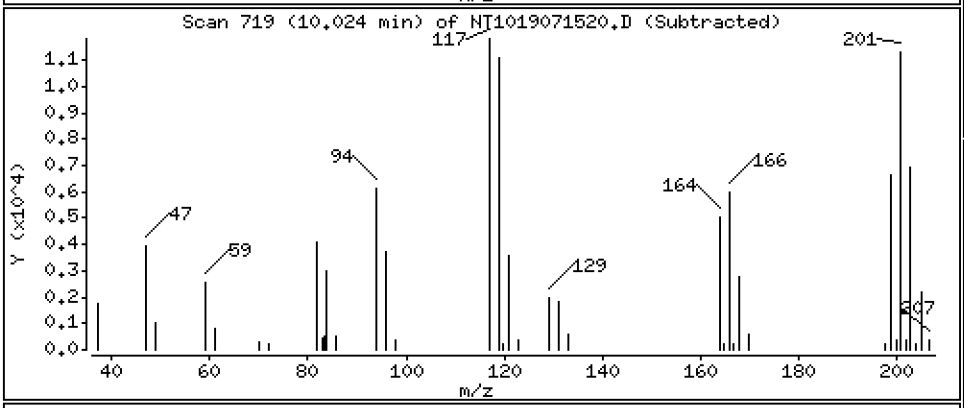
Column diameter: 0.25

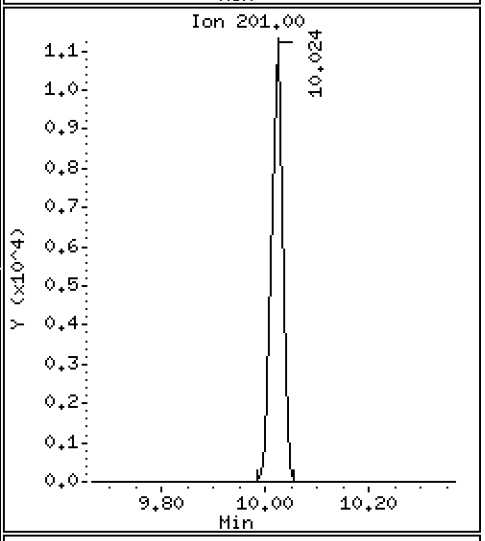
17 Hexachloroethane

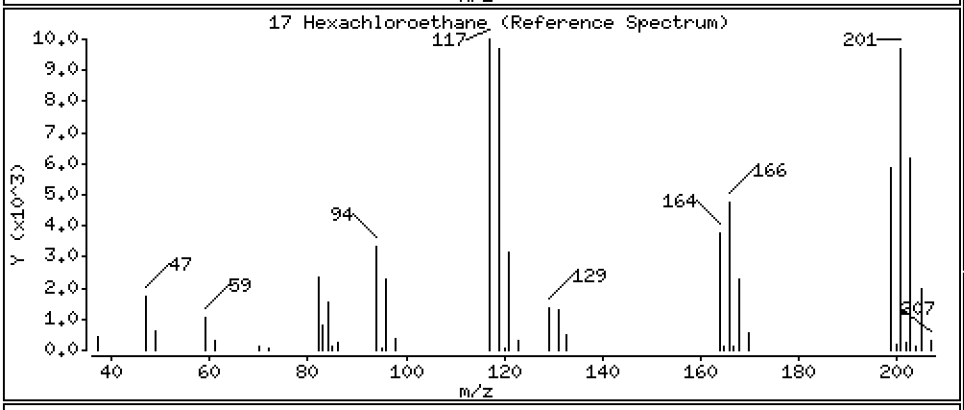
Concentration: 3.738 ug/mL

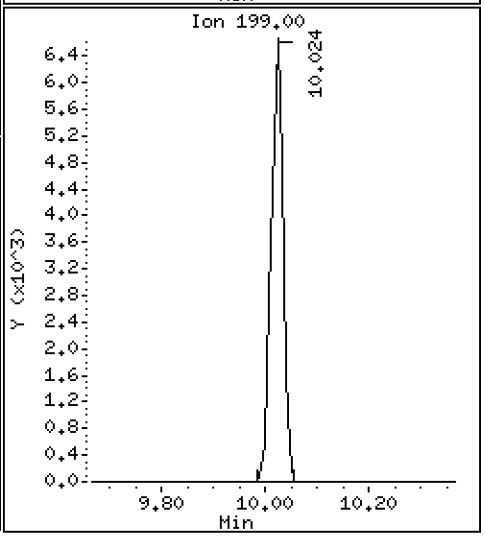


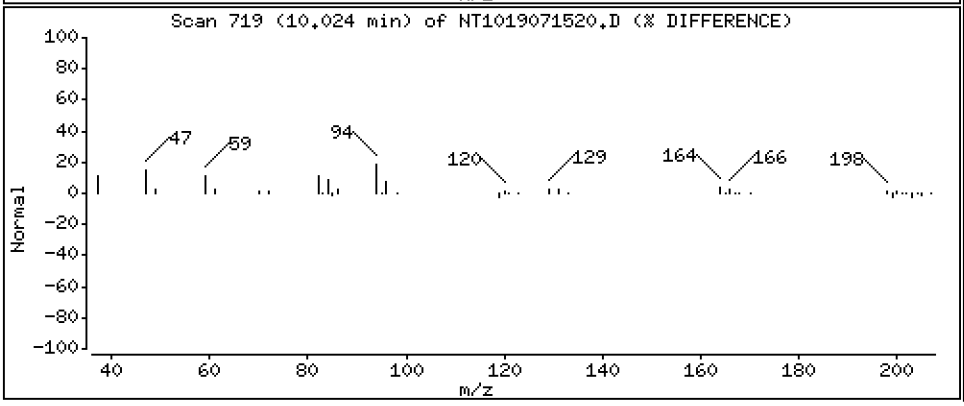












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

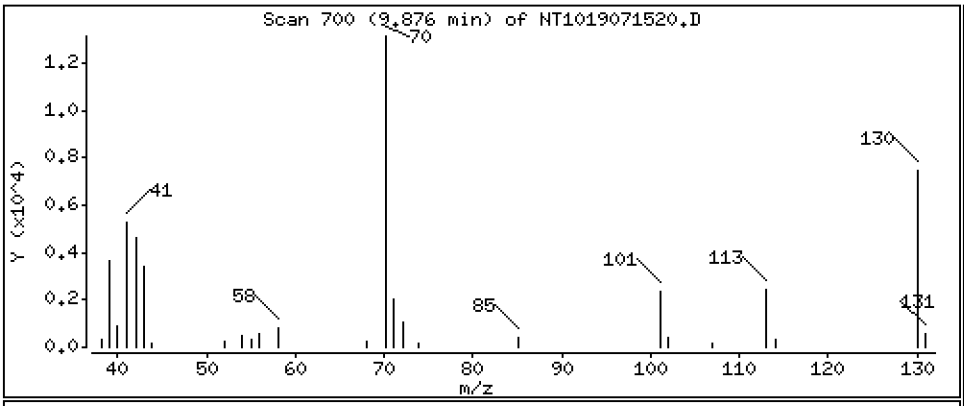
Operator: YZ

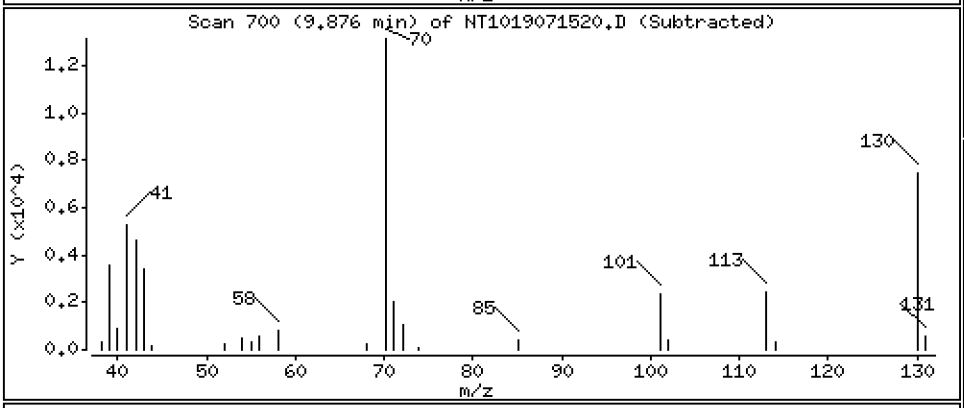
Column phase: ZB-5msi

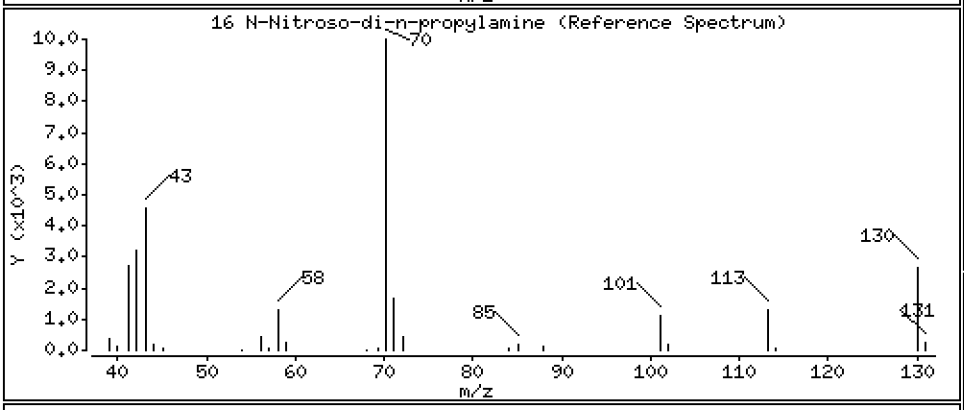
Column diameter: 0.25

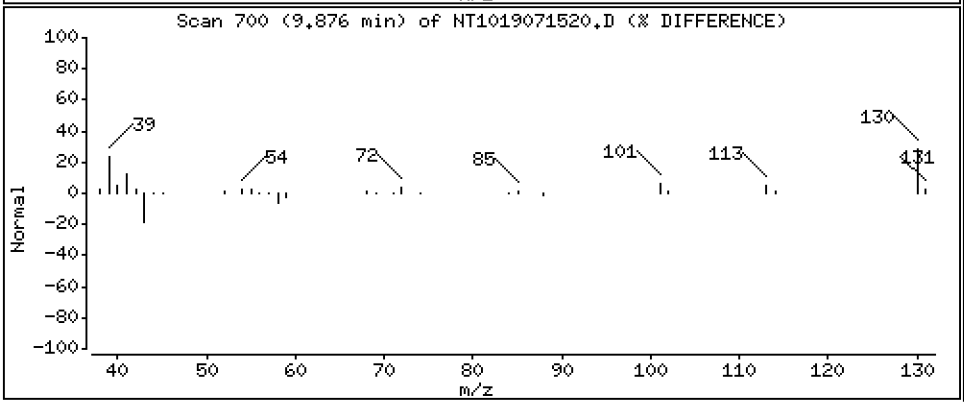
16 N-Nitroso-di-n-propylamine

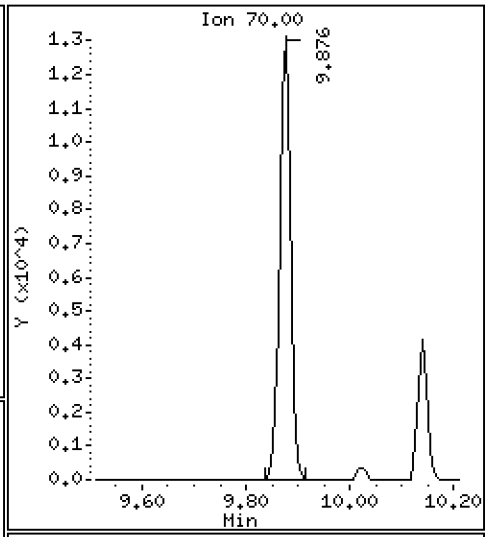
Concentration: 4.373 ug/mL

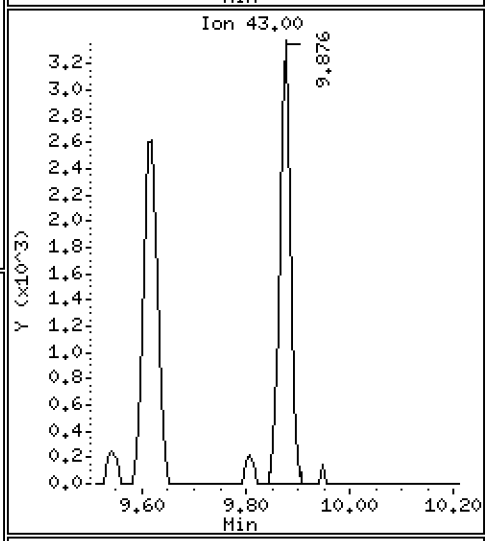


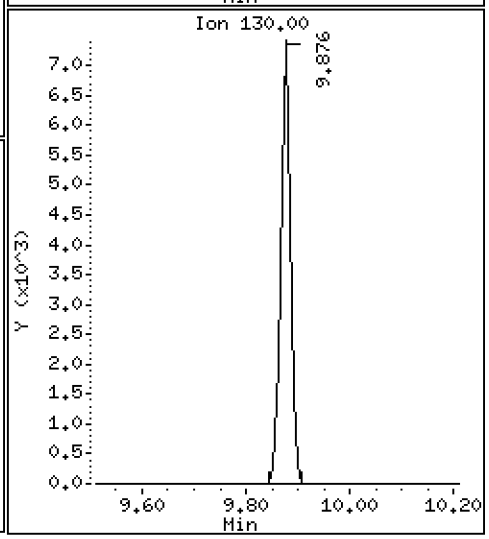












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

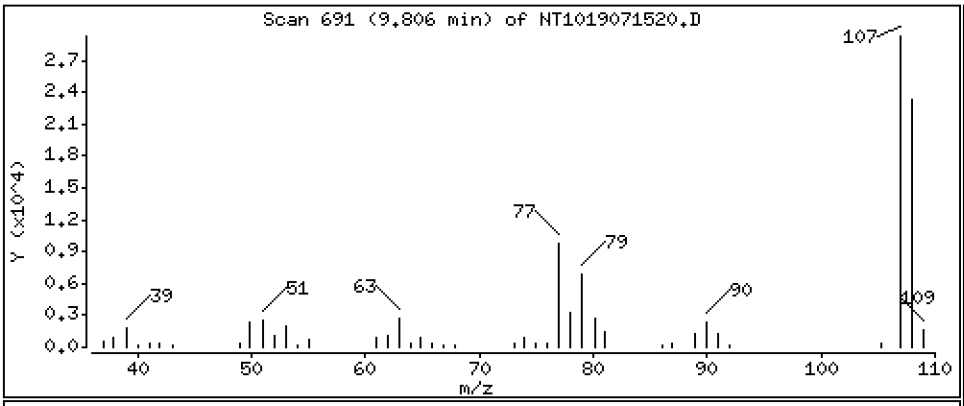
Operator: YZ

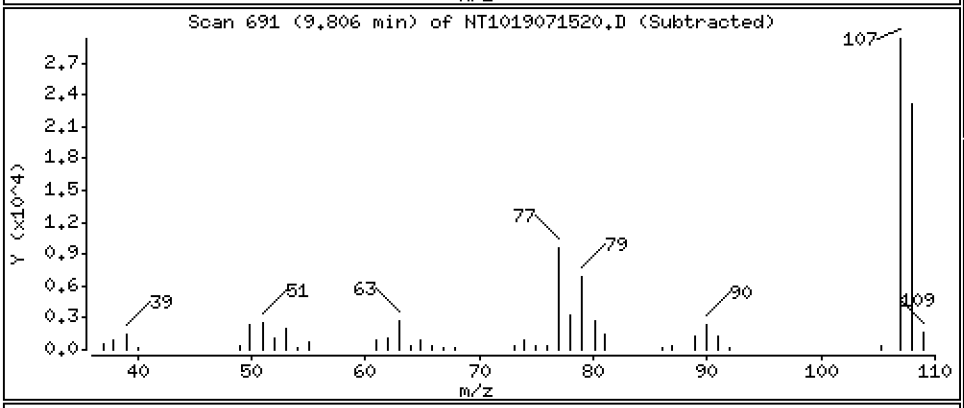
Column phase: ZB-5msi

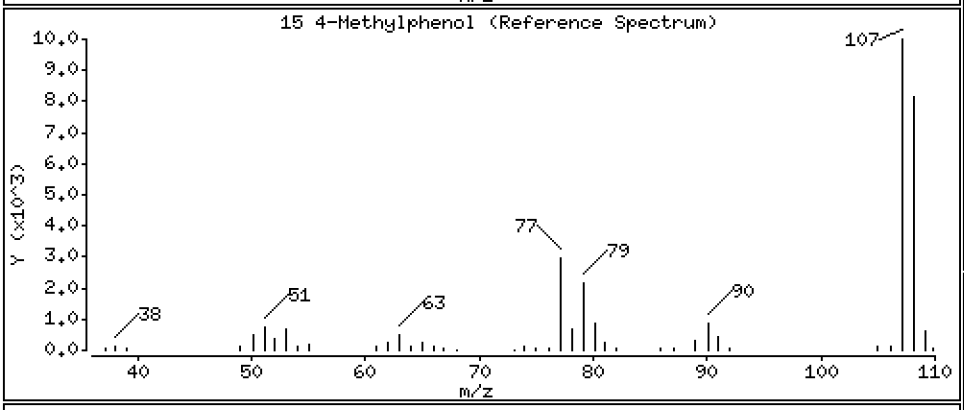
Column diameter: 0.25

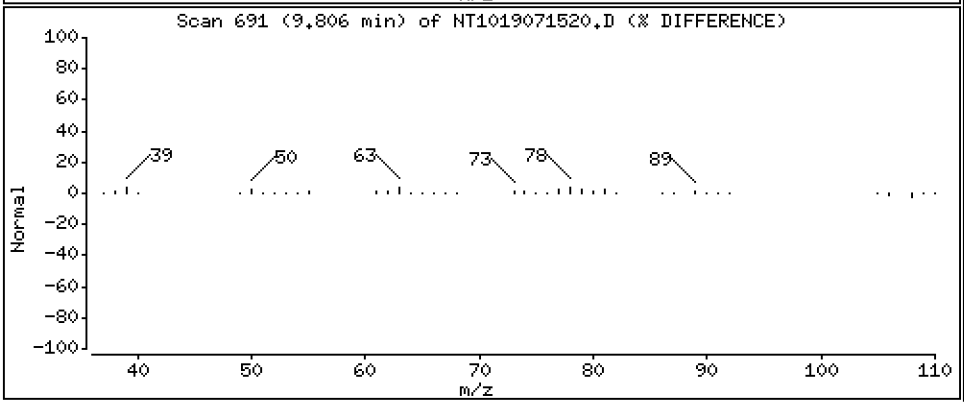
15 4-Methylphenol

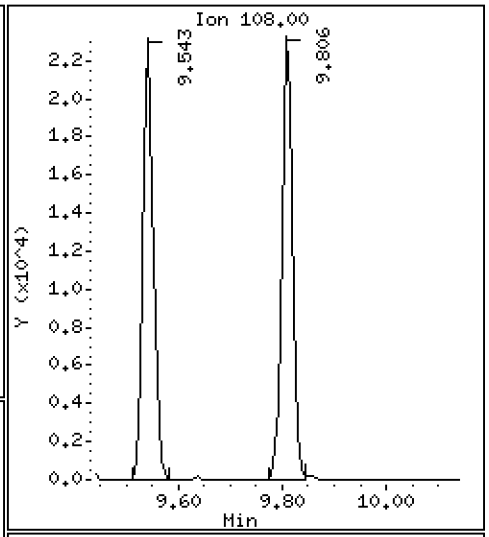
Concentration: 4.584 ug/mL

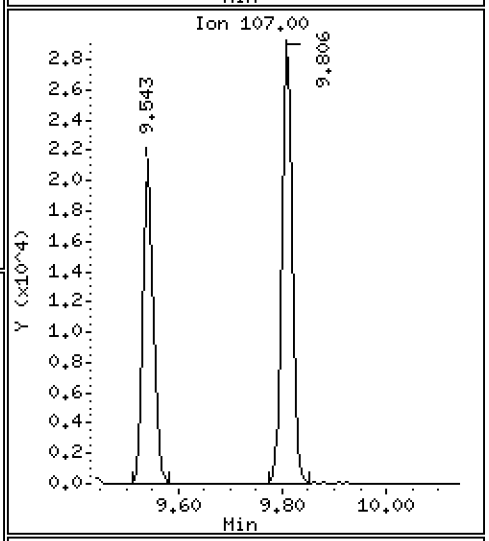


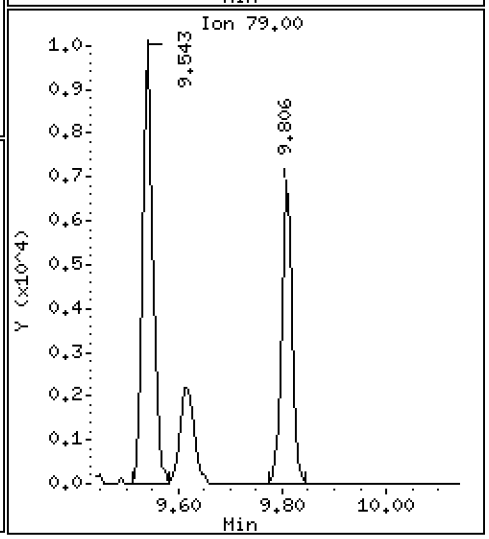












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

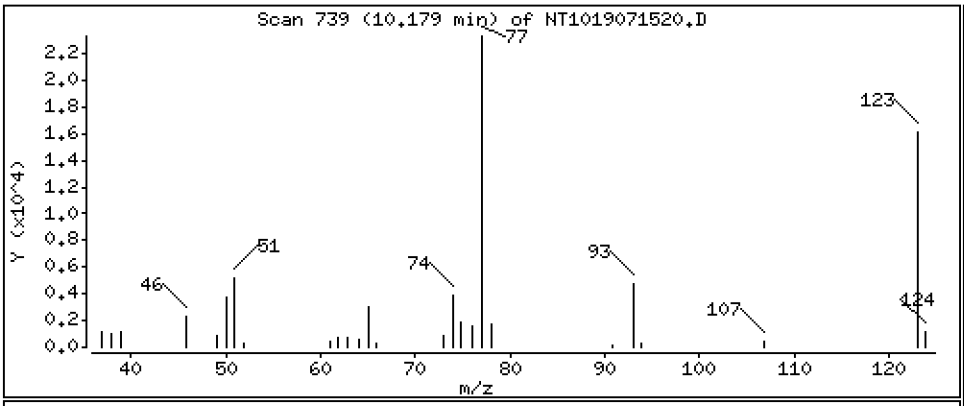
Operator: YZ

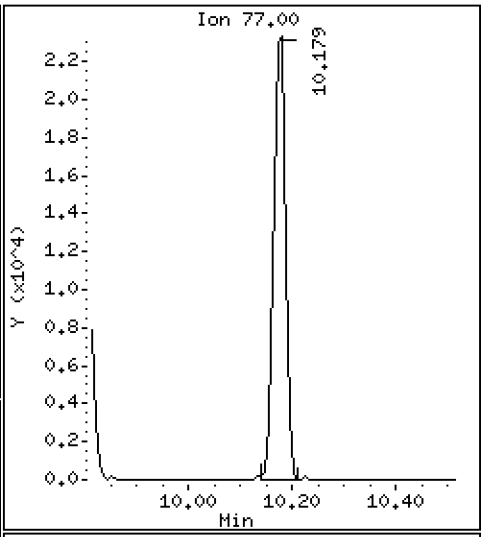
Column phase: ZB-5msi

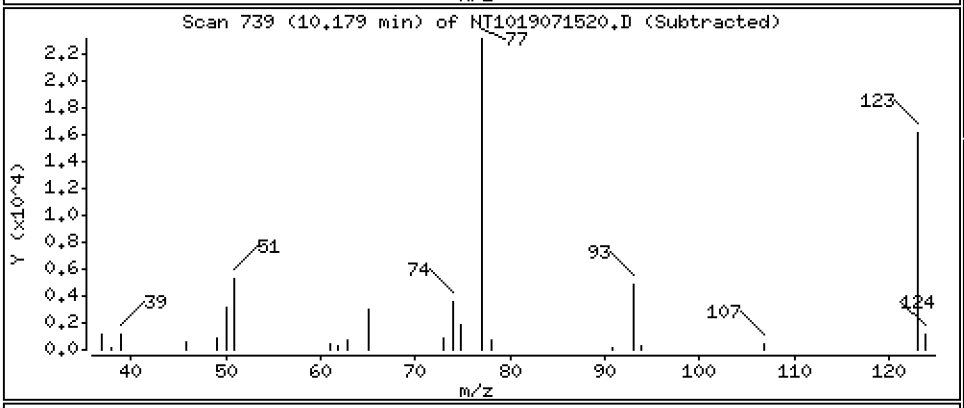
Column diameter: 0.25

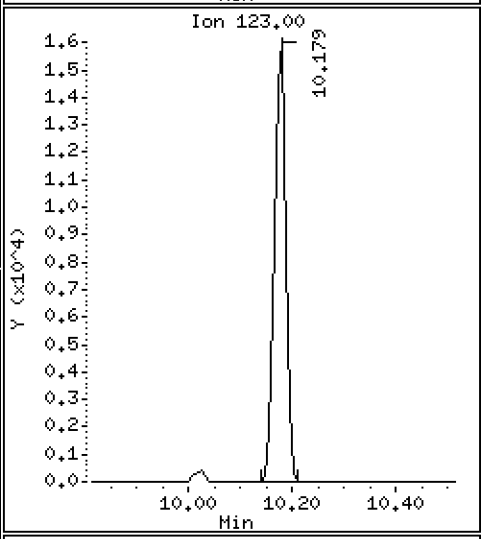
19 Nitrobenzene

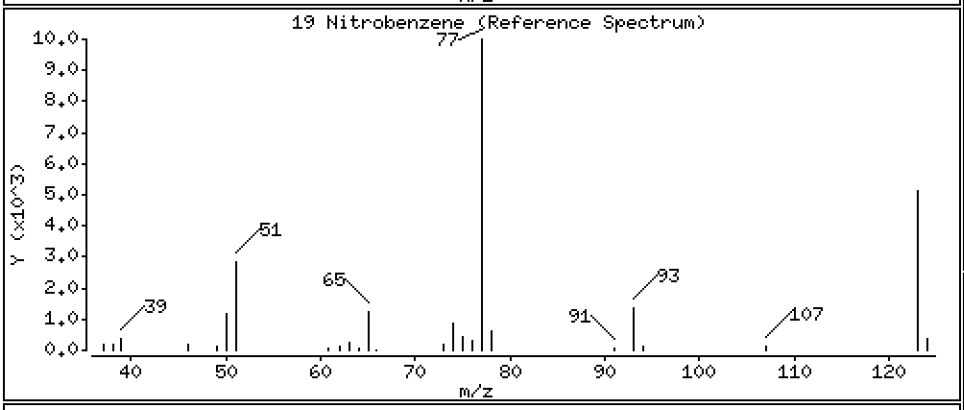
Concentration: 4.488 ug/mL

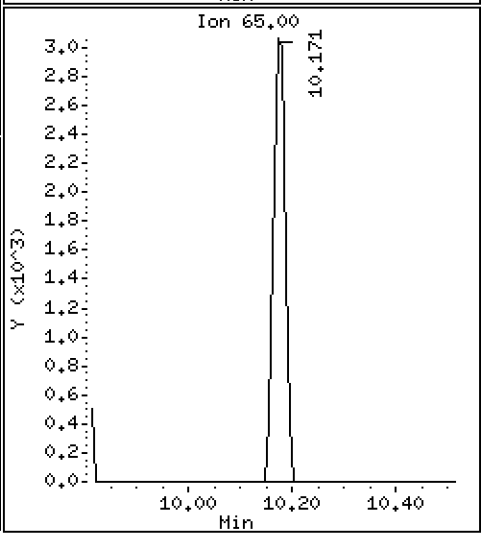


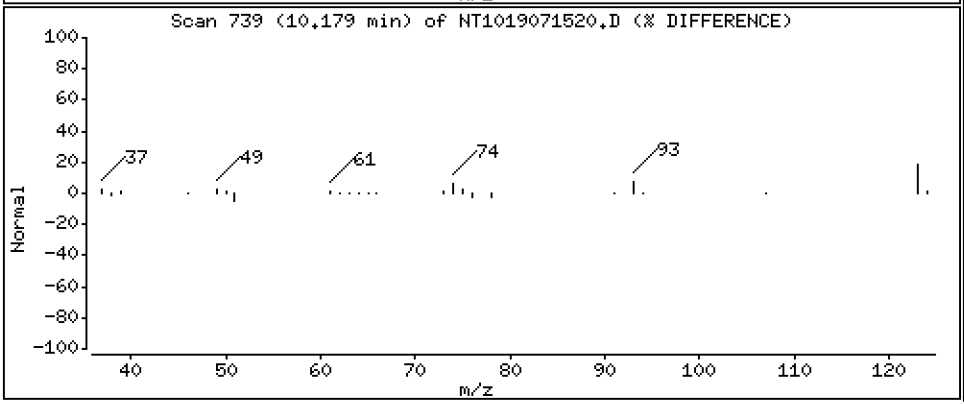












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

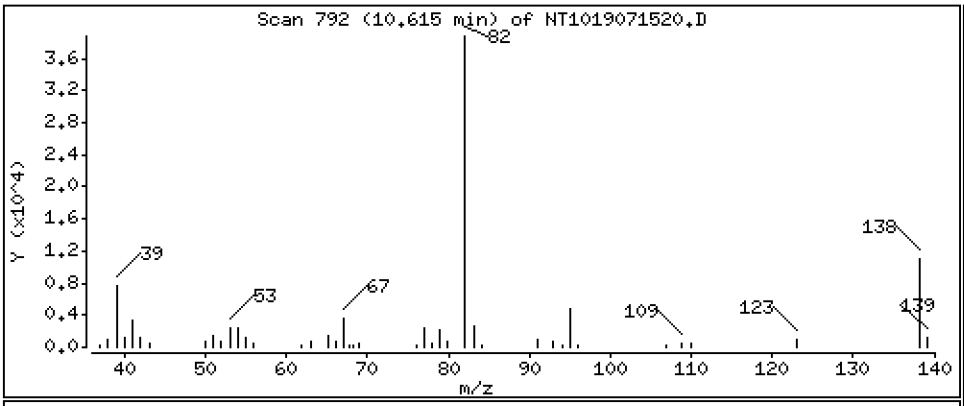
Operator: YZ

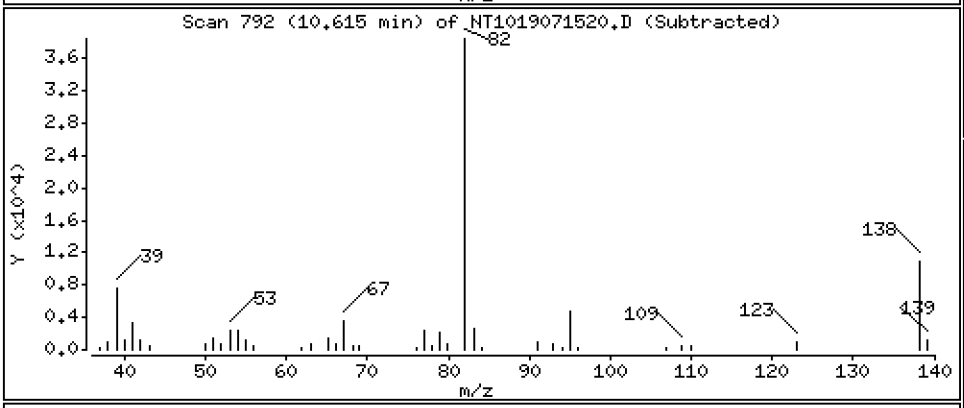
Column phase: ZB-5msi

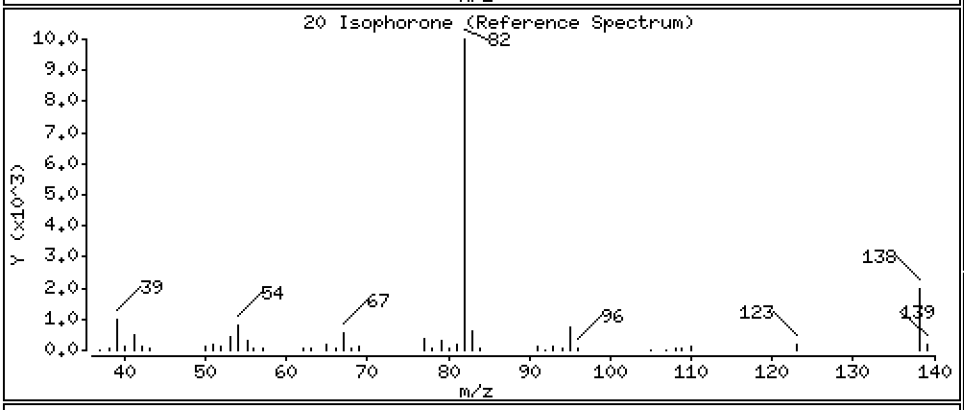
Column diameter: 0.25

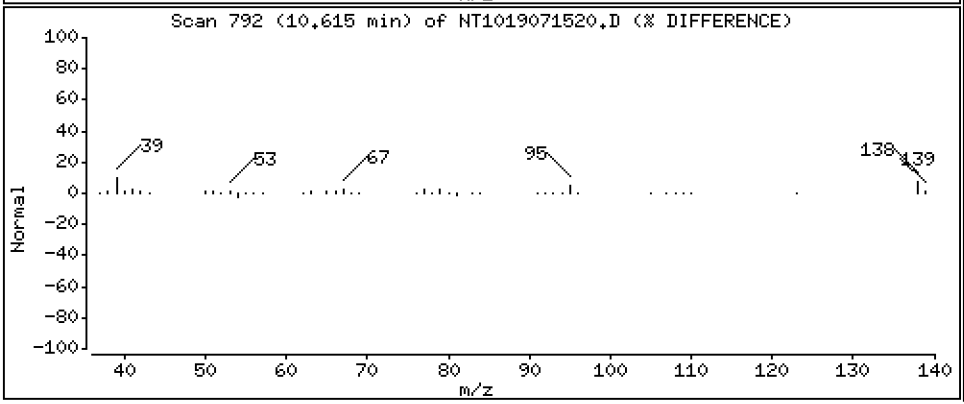
20 Isophorone

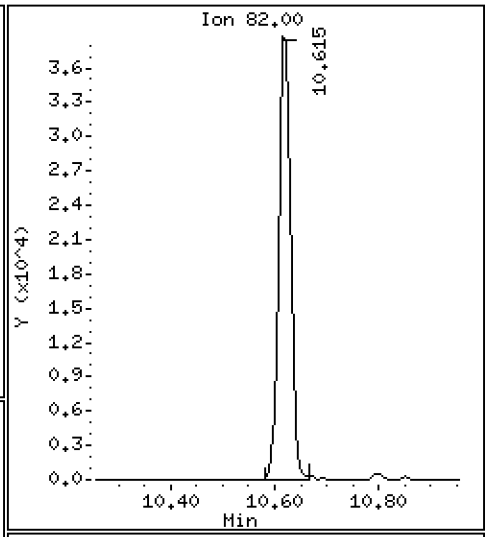
Concentration: 4.794 ug/mL

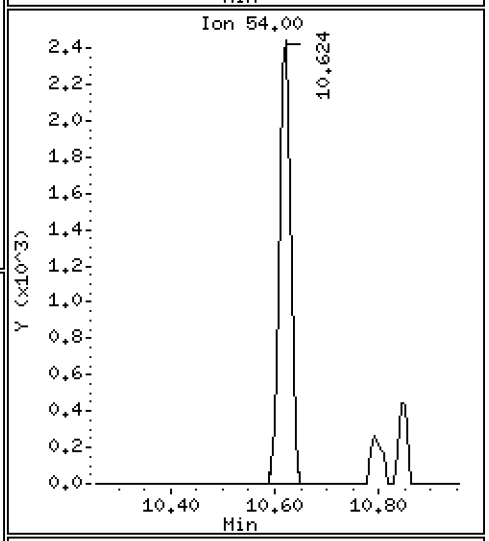


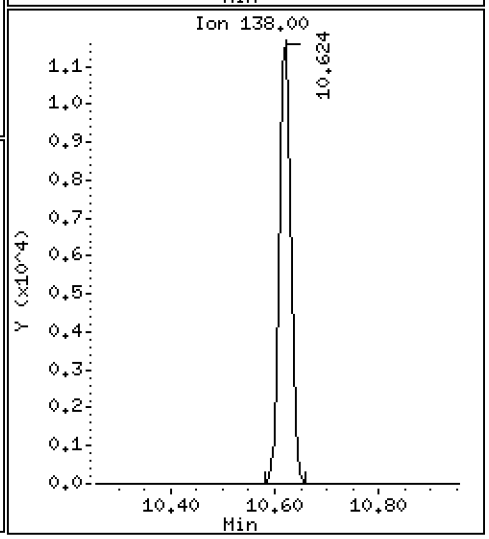












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

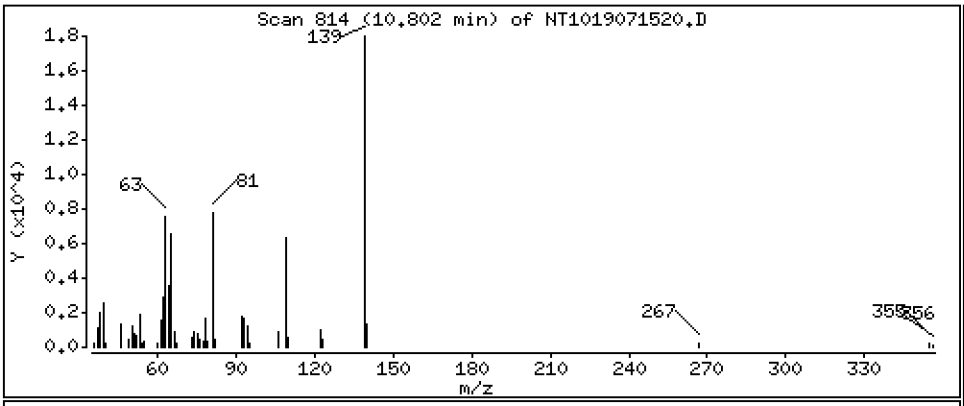
Operator: YZ

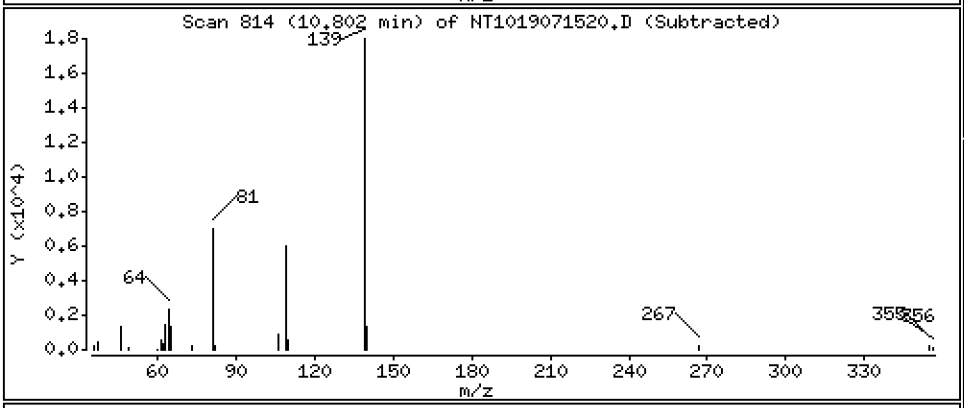
Column phase: ZB-5msi

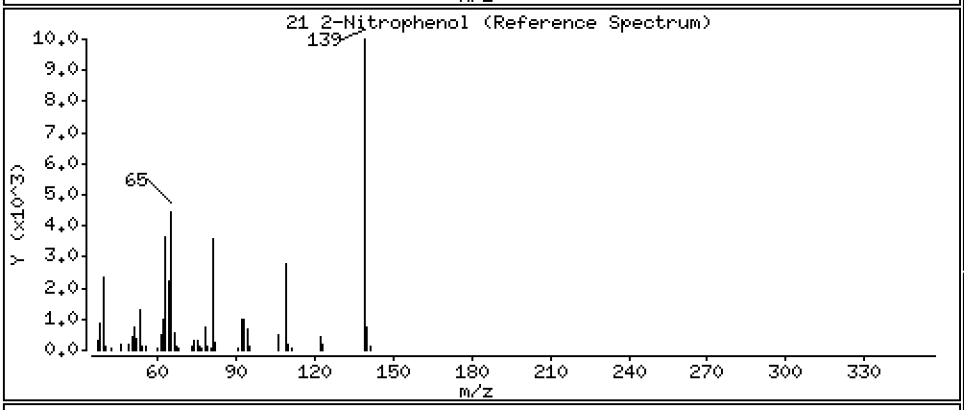
Column diameter: 0.25

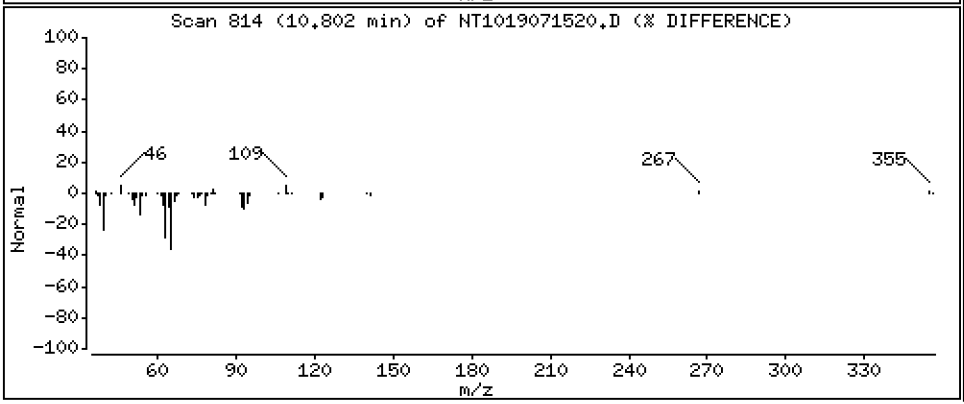
21 2-Nitrophenol

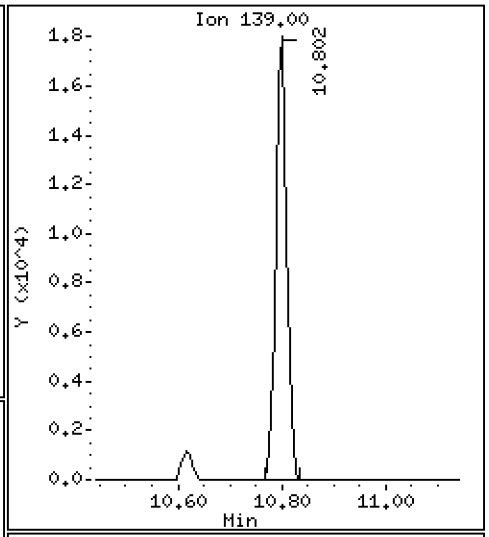
Concentration: 5.271 ug/mL

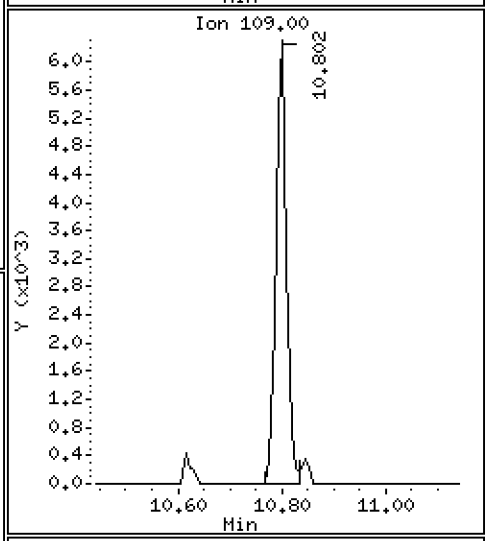


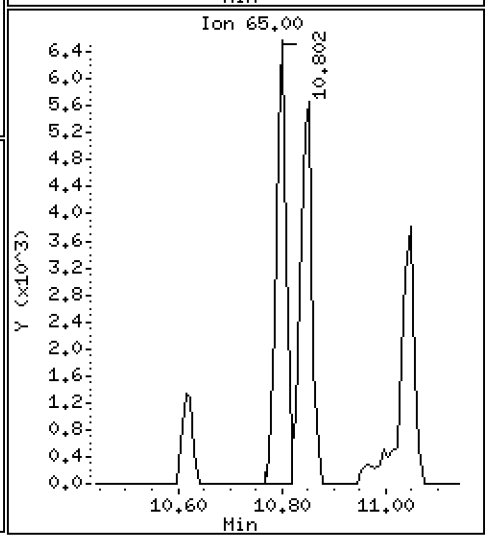












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

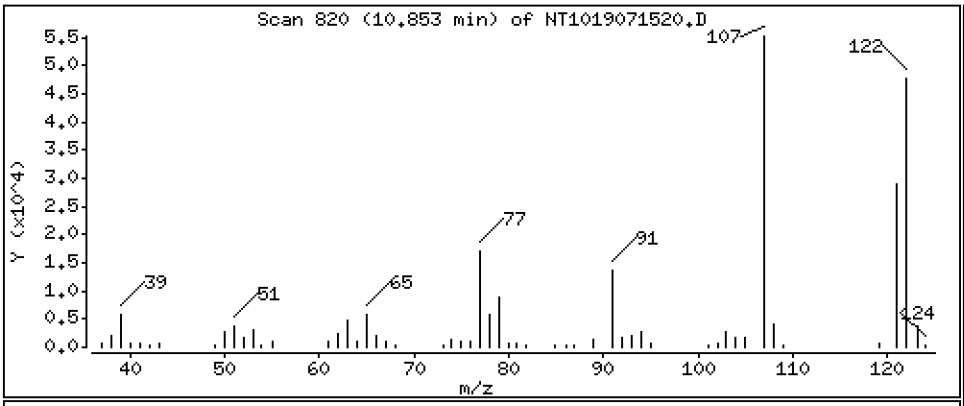
Operator: YZ

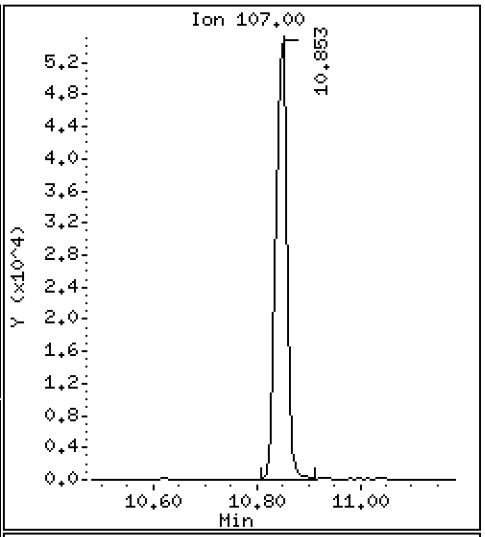
Column phase: ZB-5msi

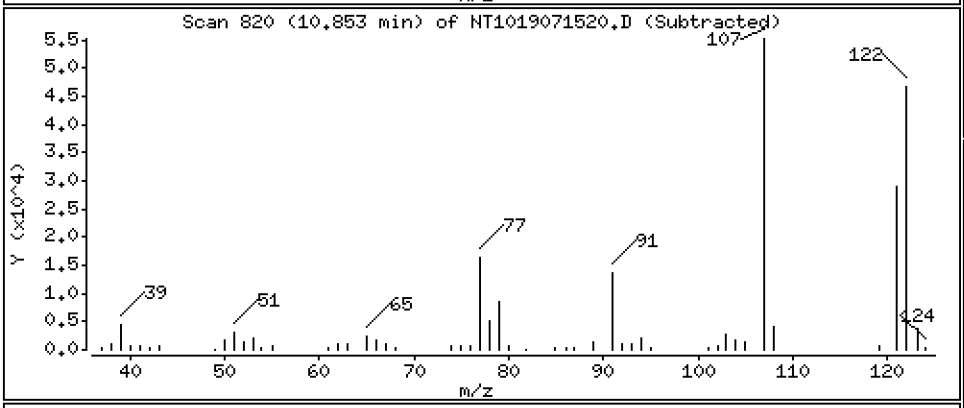
Column diameter: 0.25

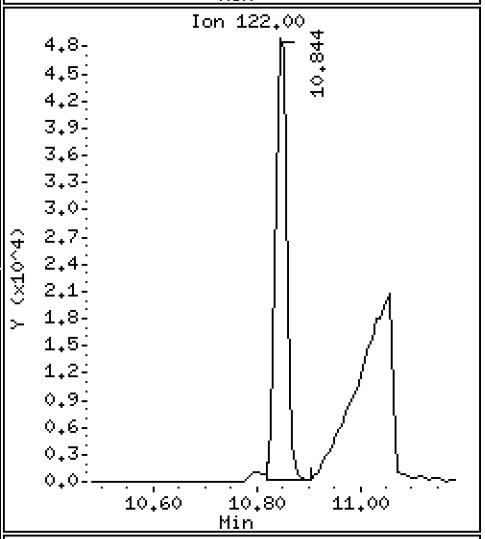
22 2,4-Dimethylphenol

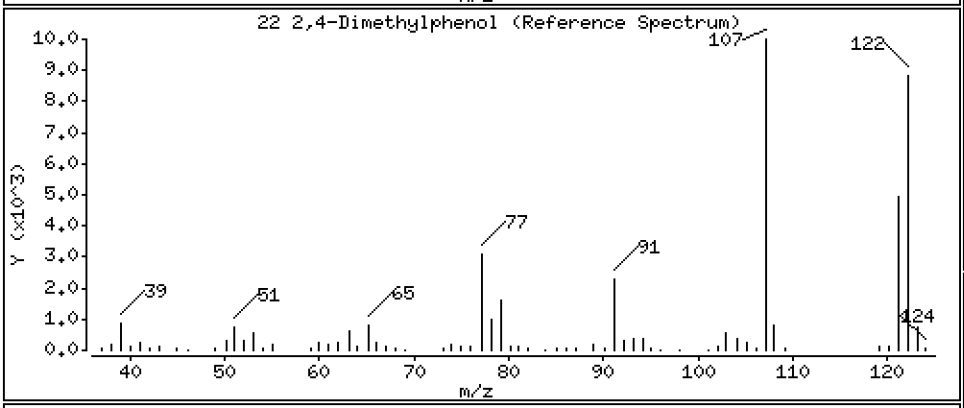
Concentration: 9.525 ug/mL

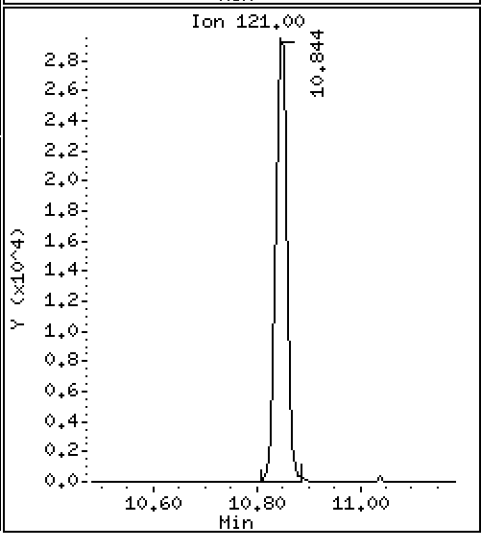


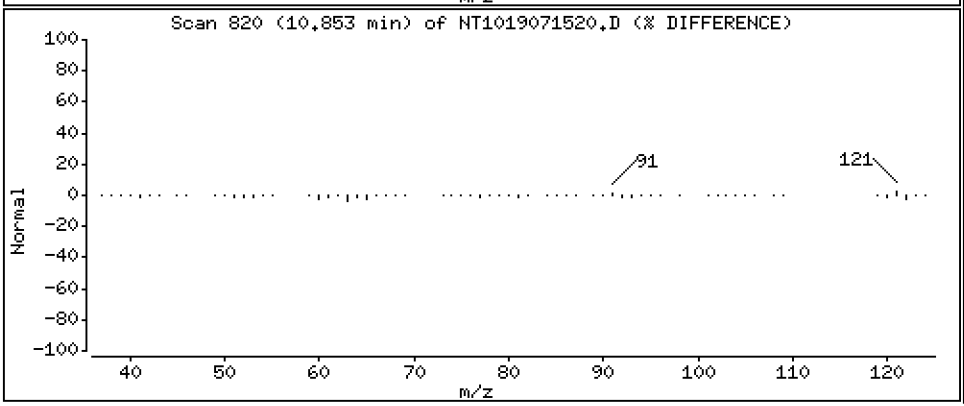












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

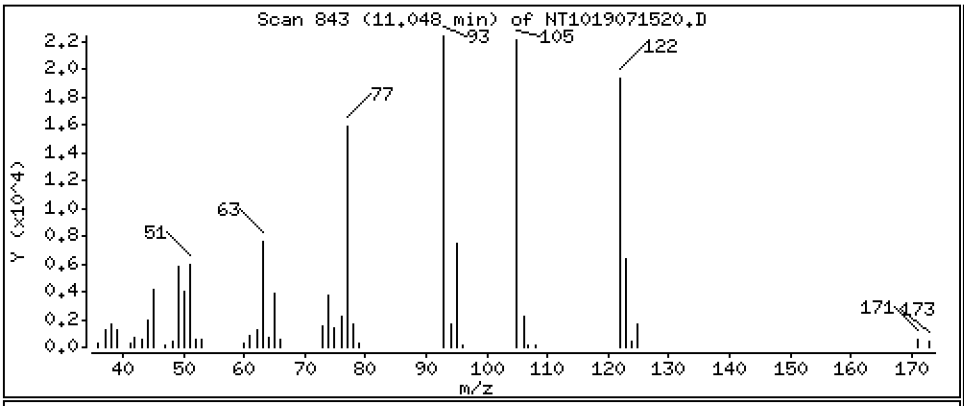
Operator: YZ

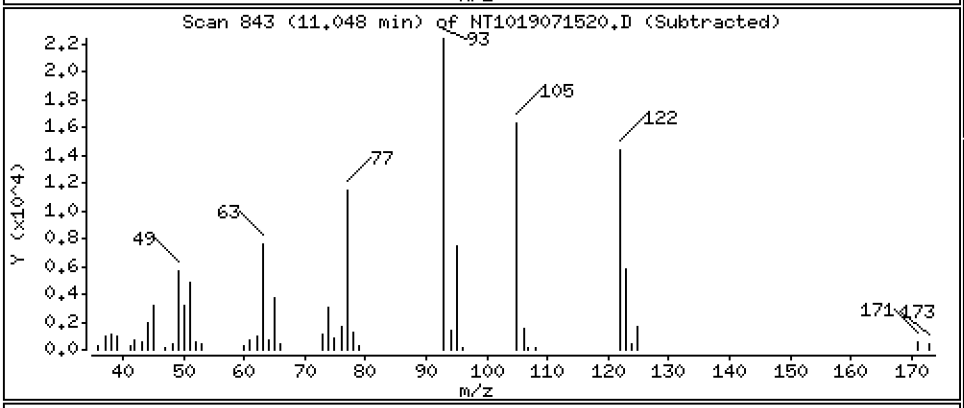
Column phase: ZB-5msi

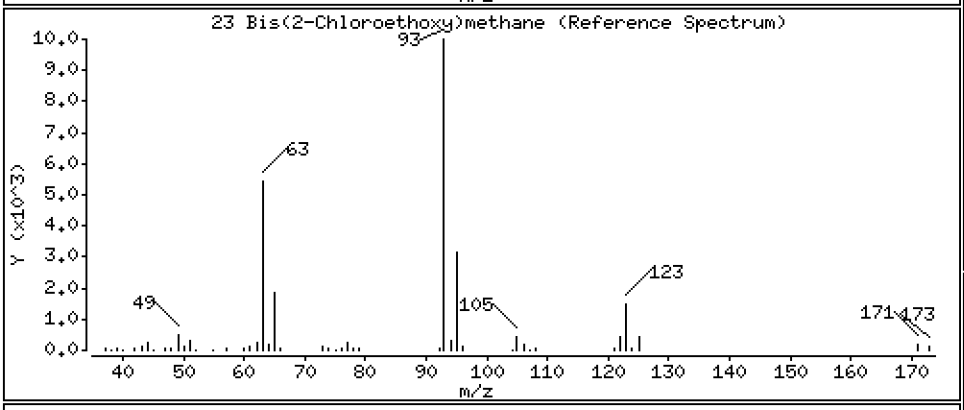
Column diameter: 0.25

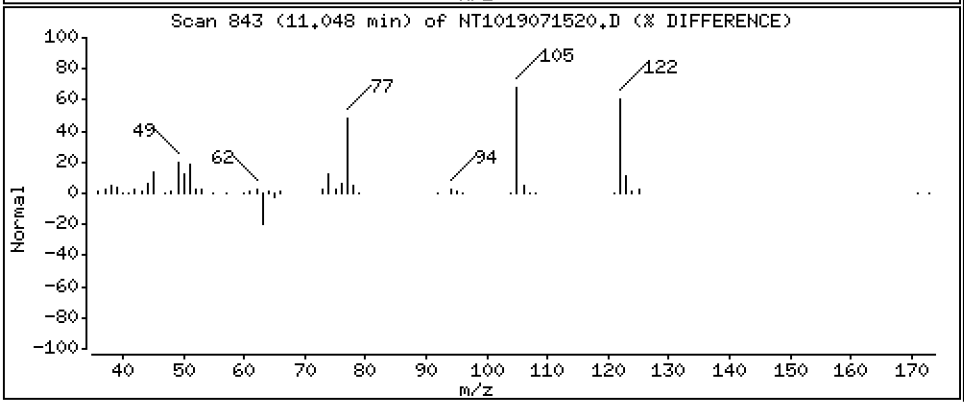
23 Bis(2-Chloroethoxy)methane

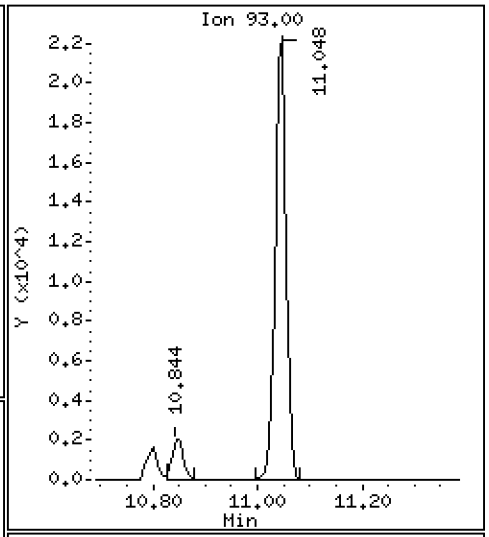
Concentration: 4.494 ug/mL

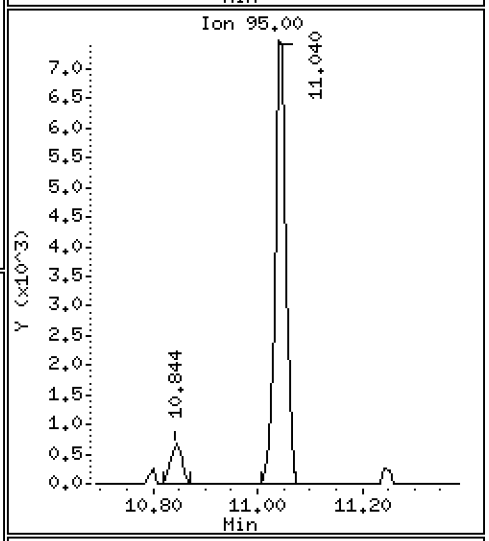


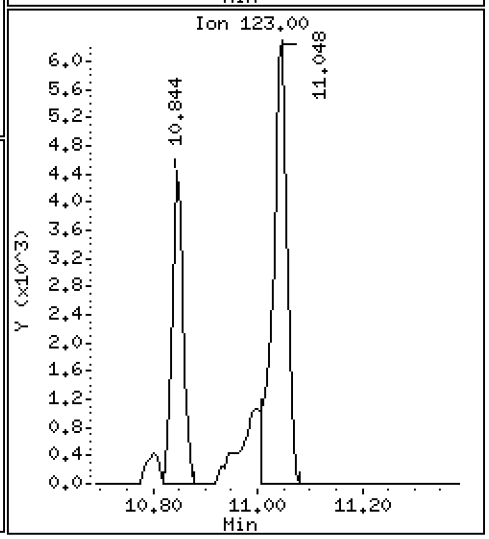












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

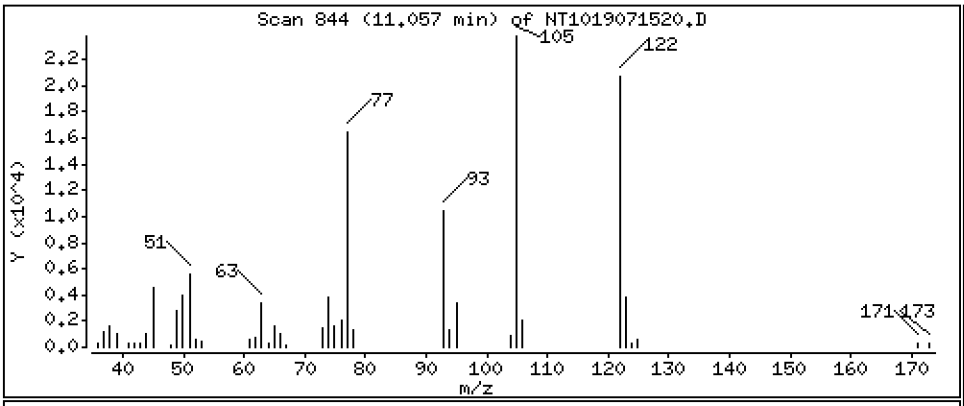
Operator: YZ

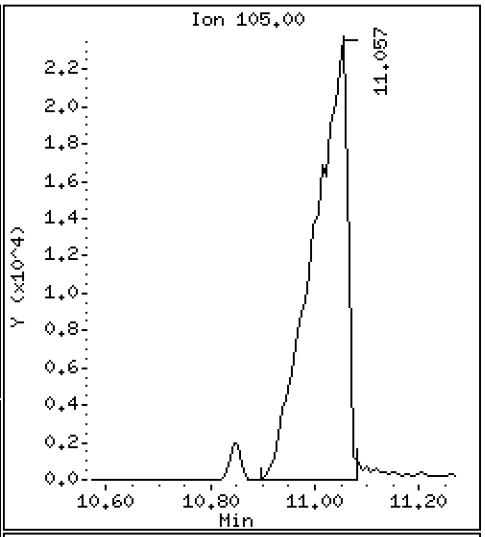
Column phase: ZB-5msi

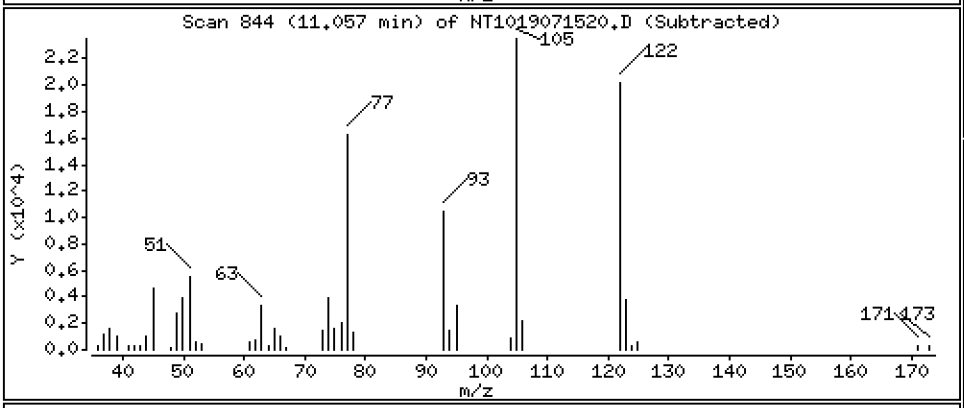
Column diameter: 0.25

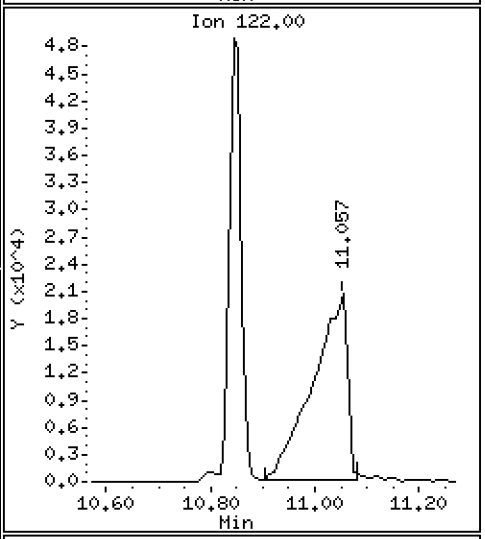
24 Benzoic acid

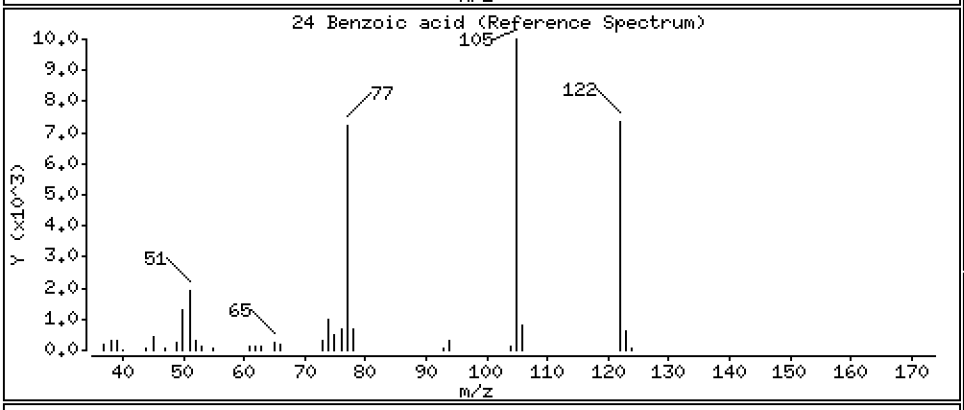
Concentration: 18.09 ug/mL

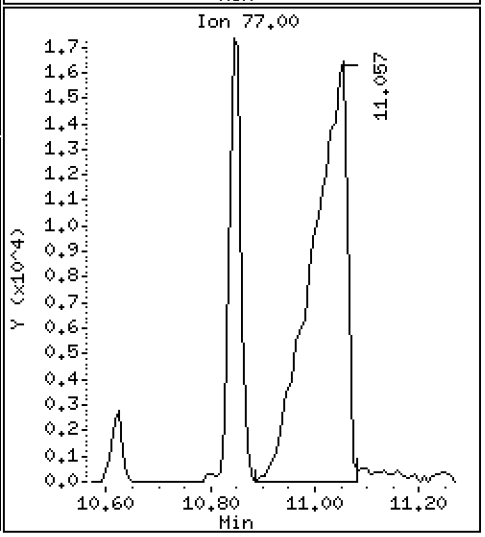


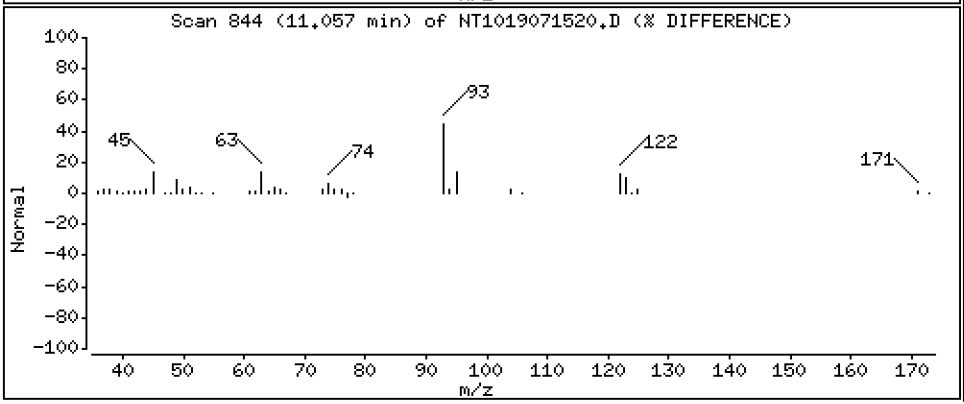












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

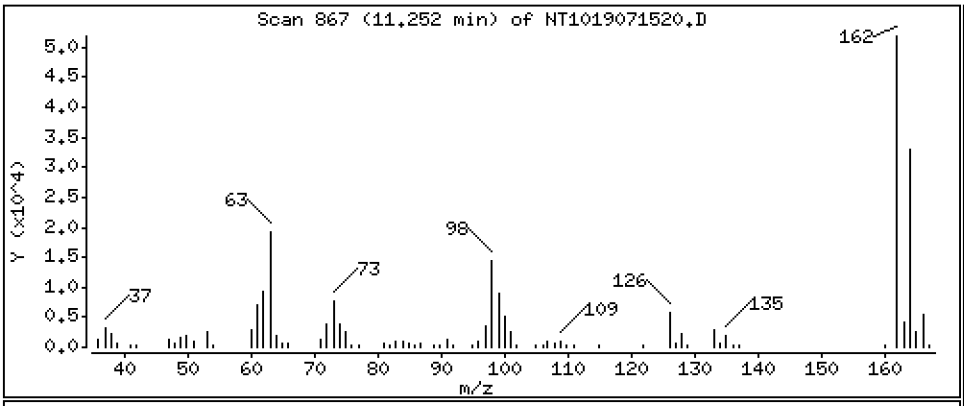
Operator: YZ

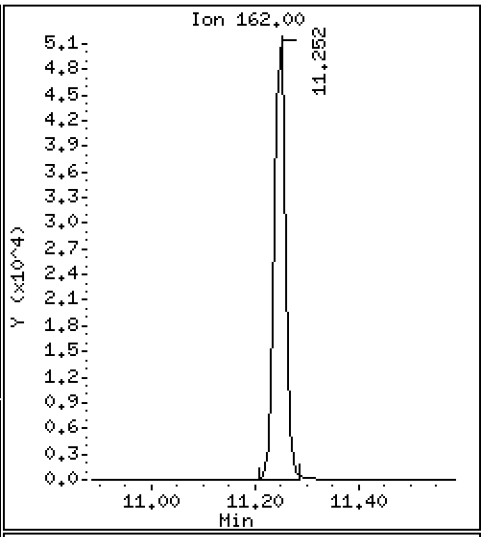
Column phase: ZB-5msi

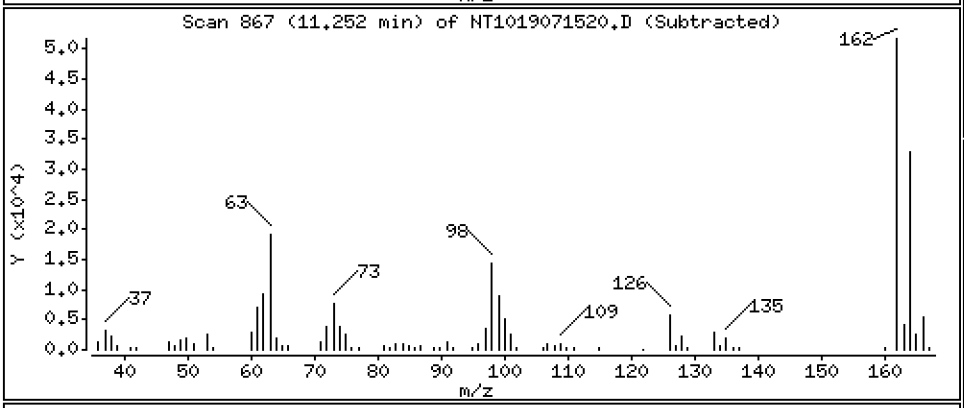
Column diameter: 0.25

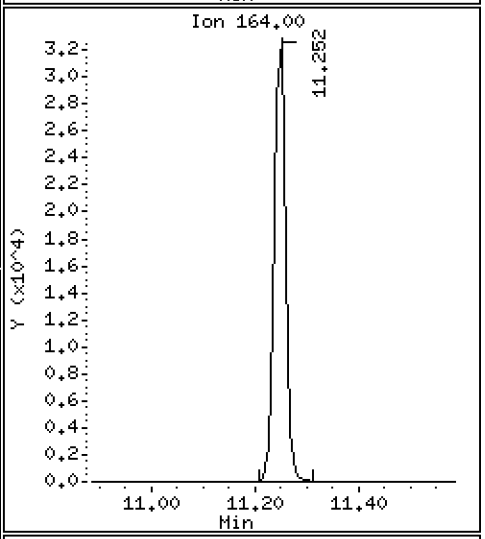
25 2,4-Dichlorophenol

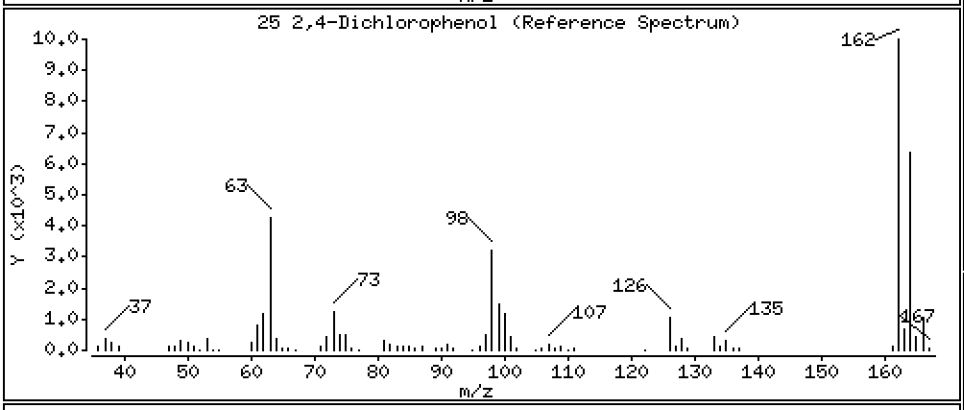
Concentration: 10.45 ug/mL

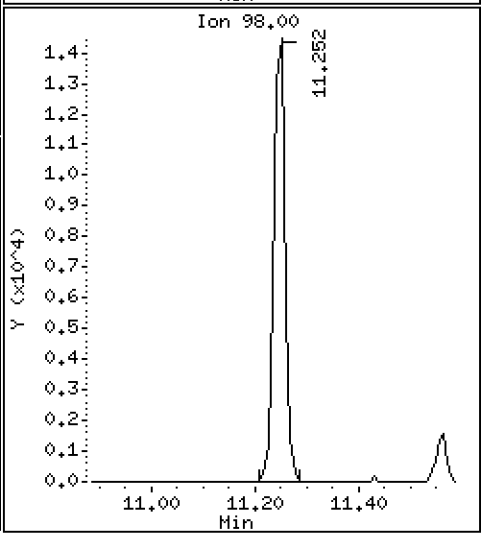


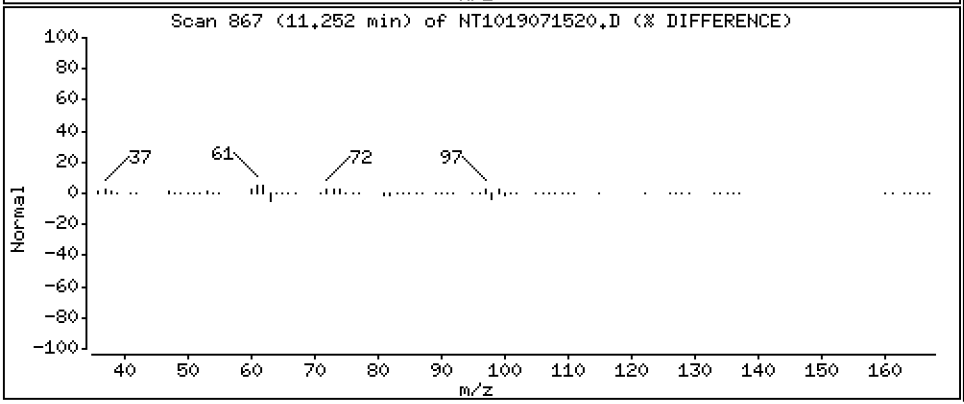












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

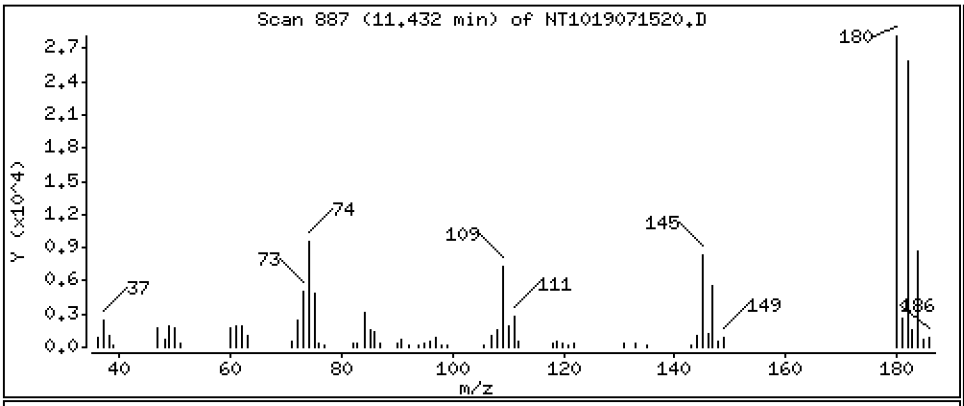
Operator: YZ

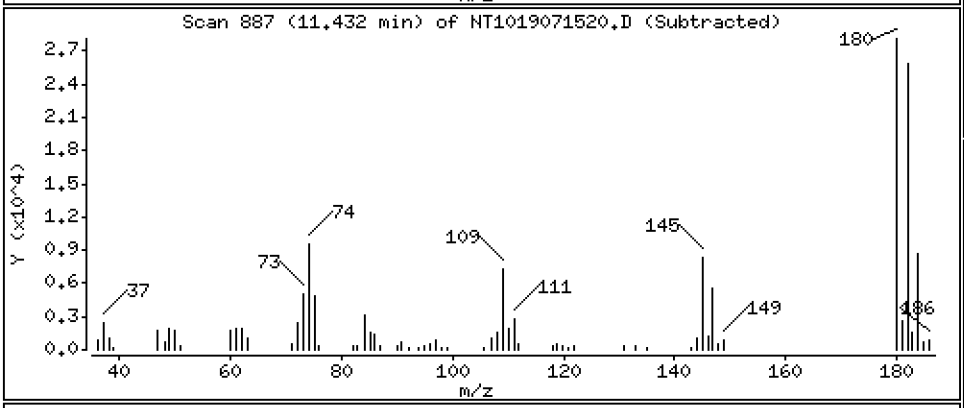
Column phase: ZB-5msi

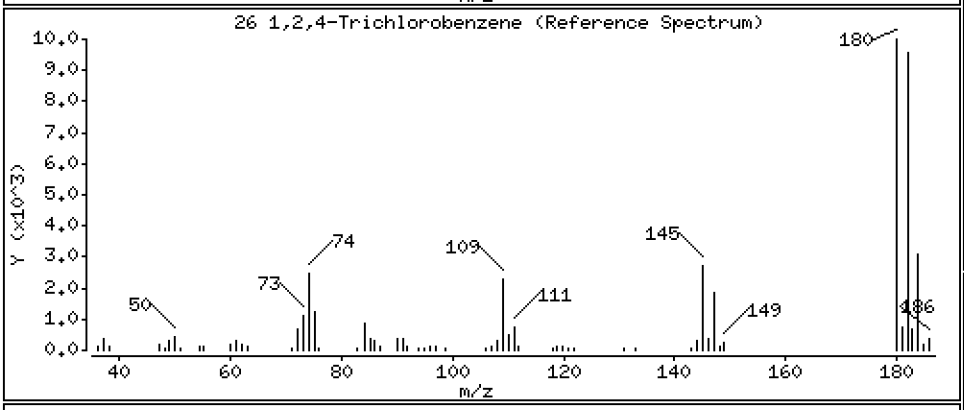
Column diameter: 0.25

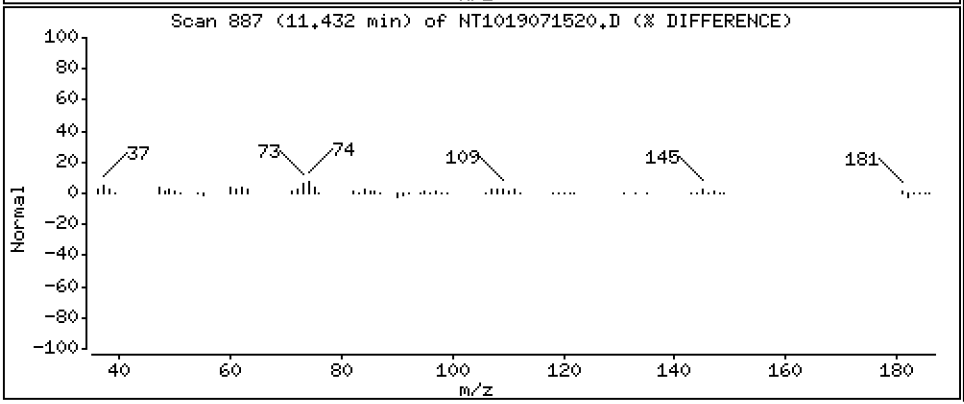
26 1,2,4-Trichlorobenzene

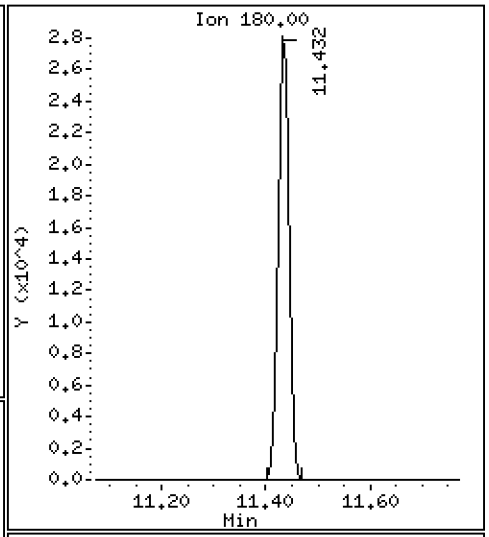
Concentration: 5.185 ug/mL

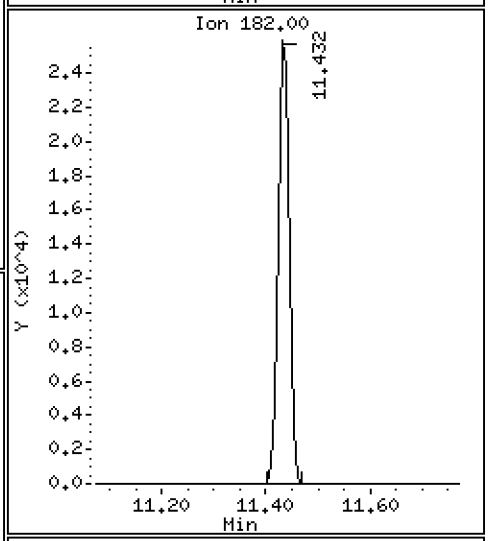


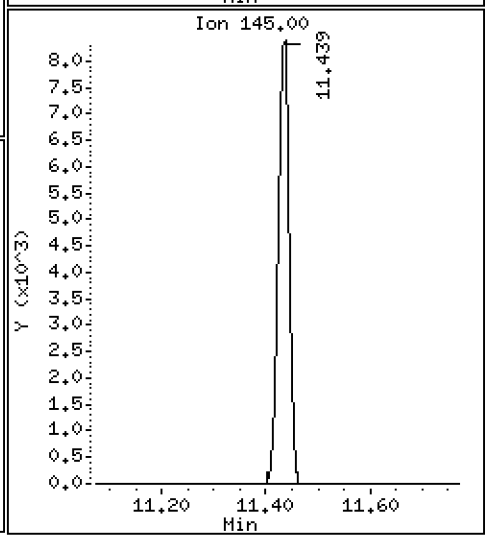












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

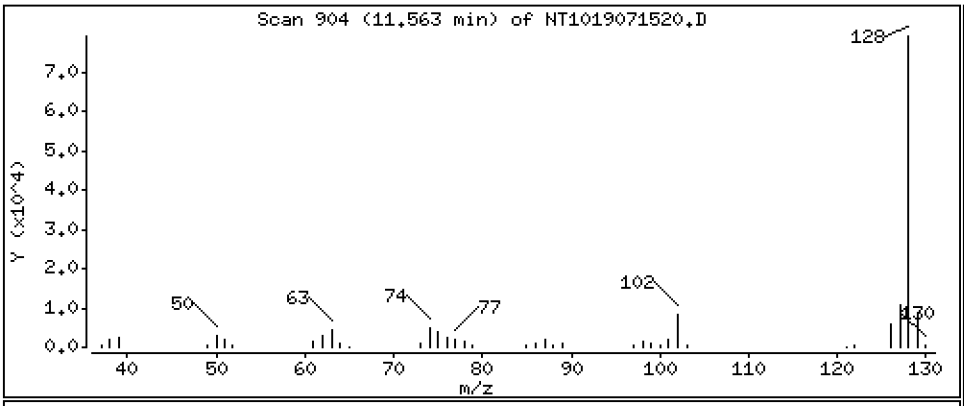
Operator: YZ

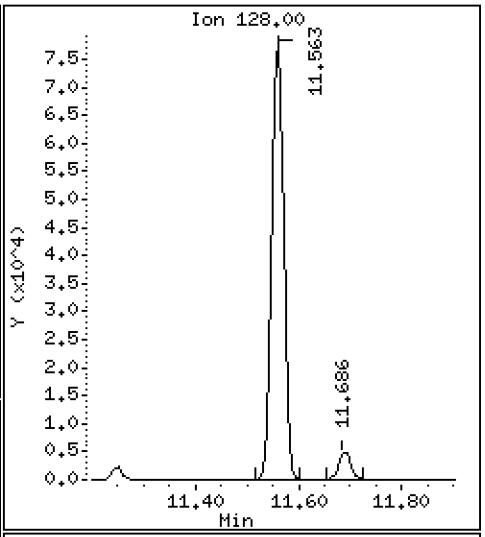
Column phase: ZB-5msi

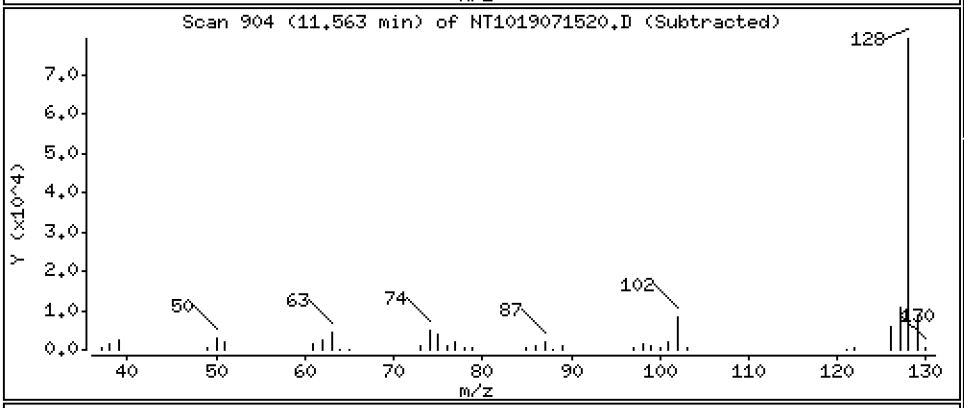
Column diameter: 0.25

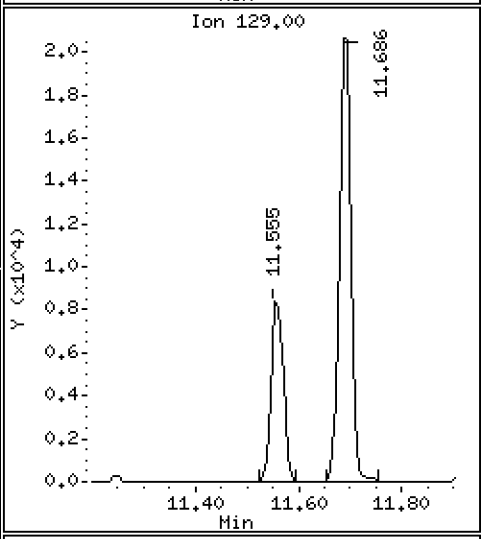
28 Naphthalene

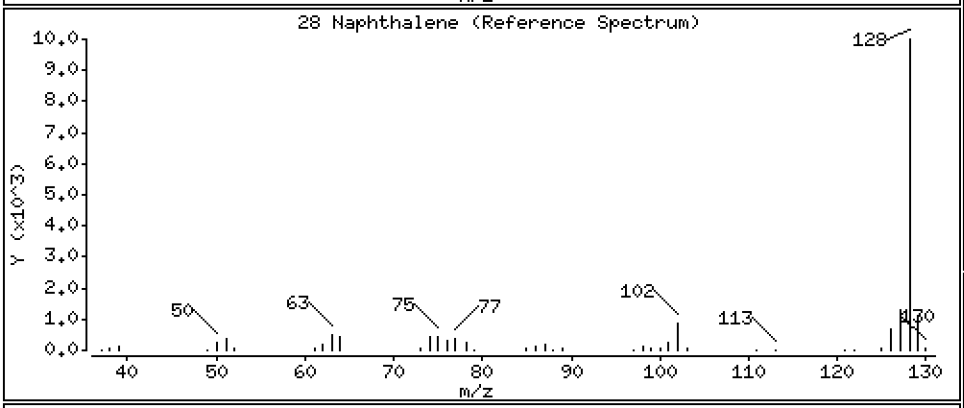
Concentration: 4.872 ug/mL

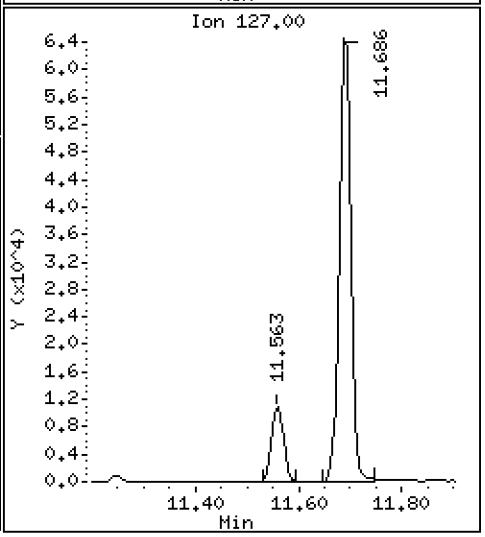


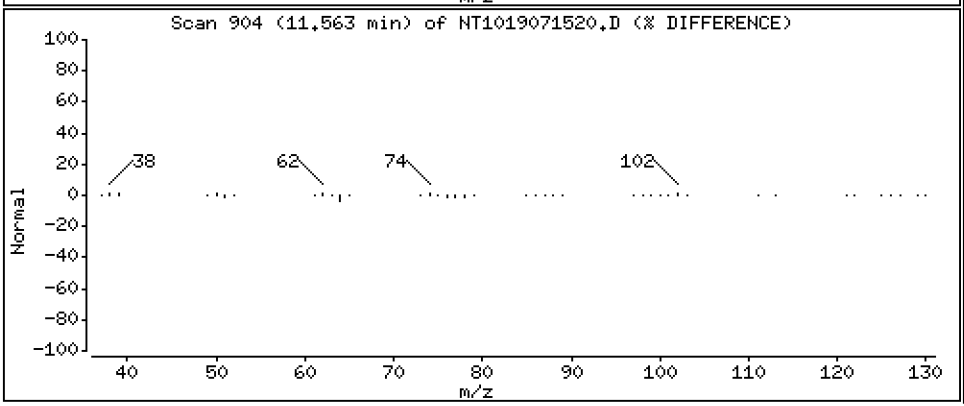












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

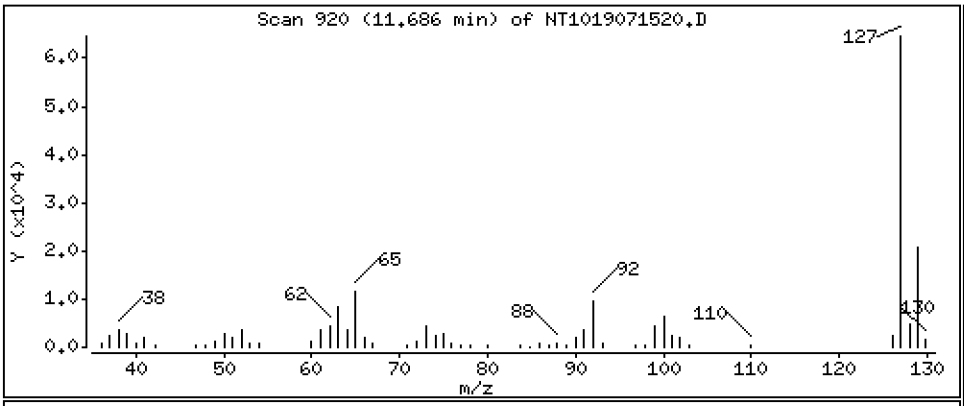
Operator: YZ

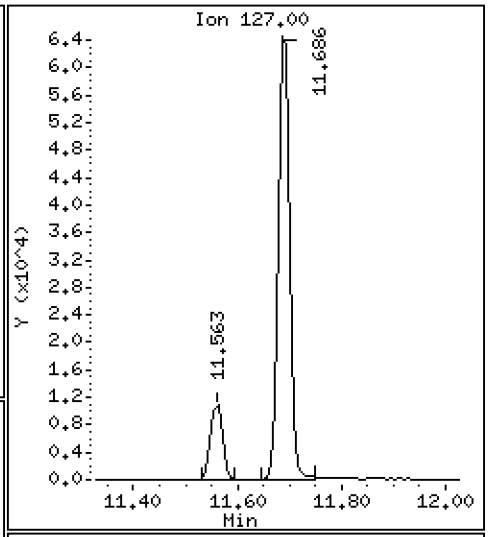
Column phase: ZB-5msi

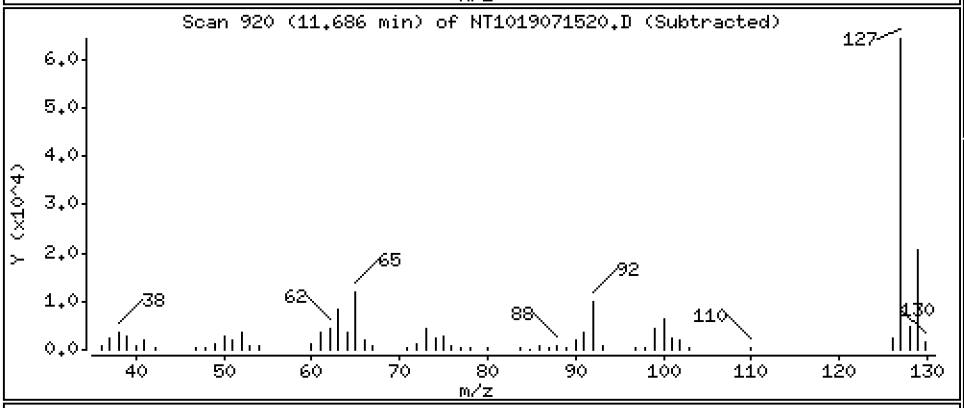
Column diameter: 0.25

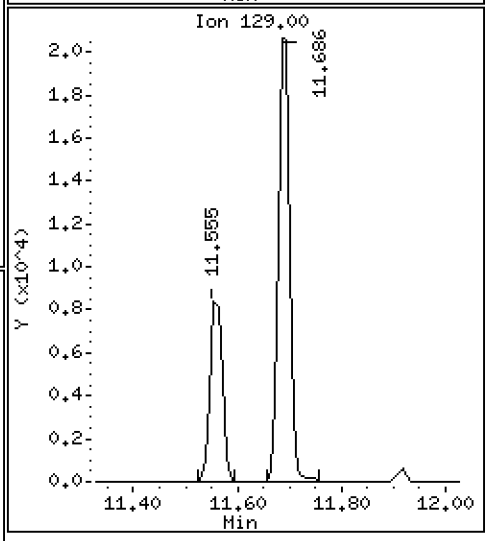
29 4-Chloroaniline

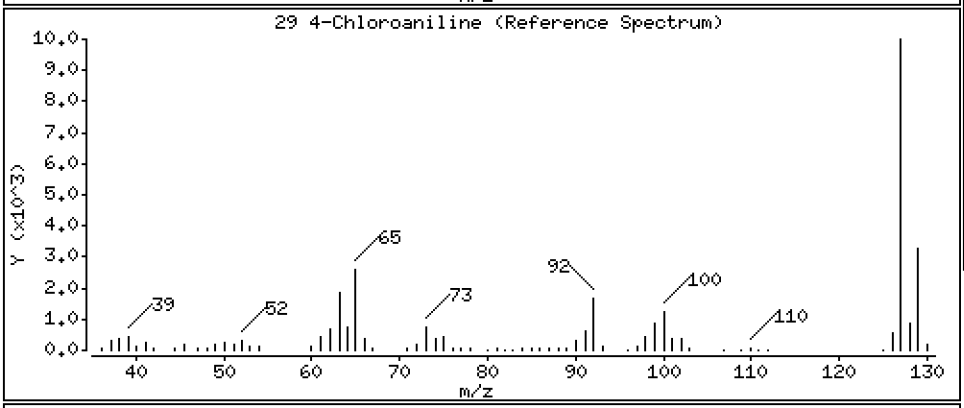
Concentration: 9.757 ug/mL

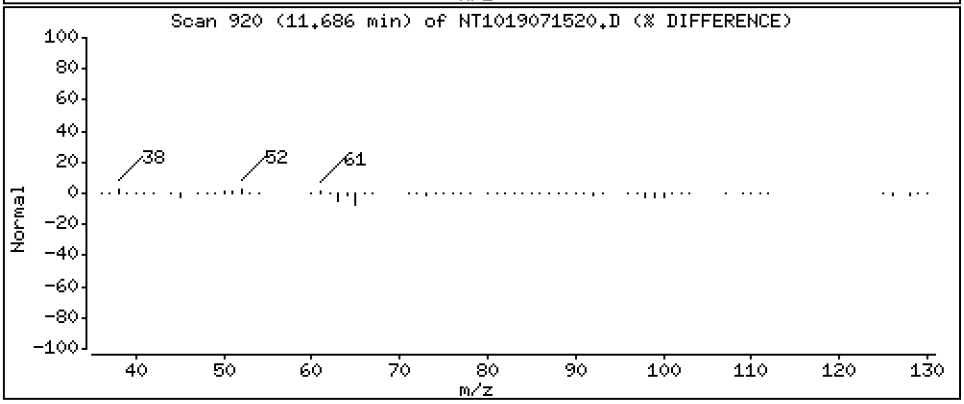












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

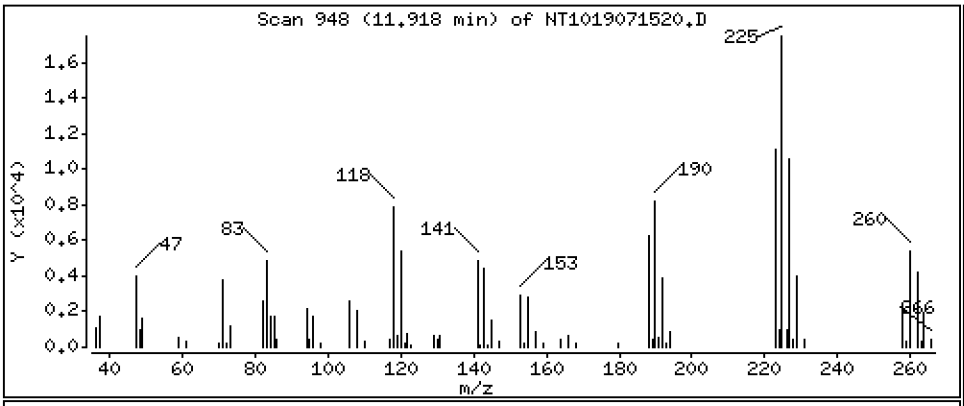
Operator: YZ

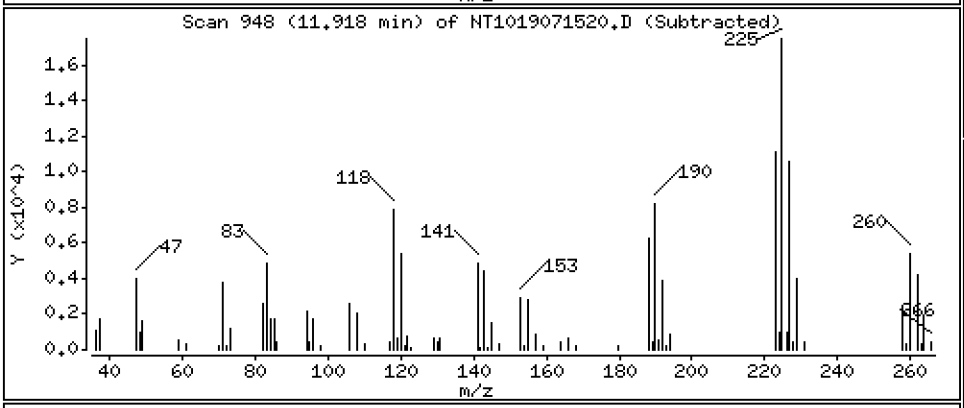
Column phase: ZB-5msi

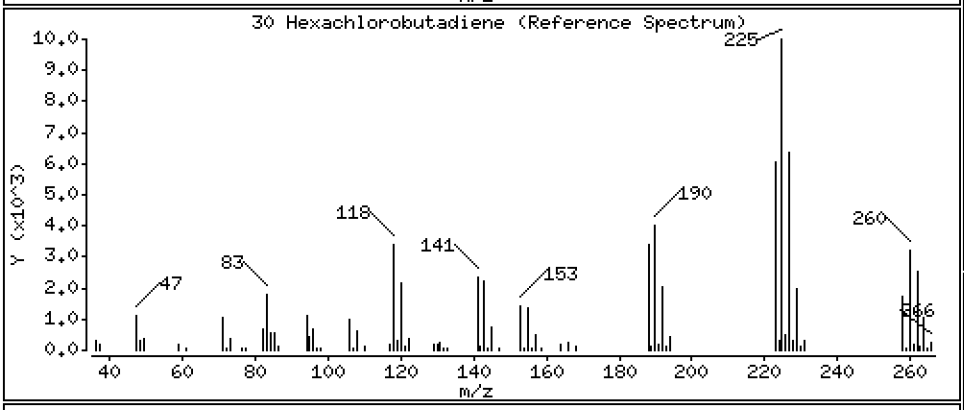
Column diameter: 0.25

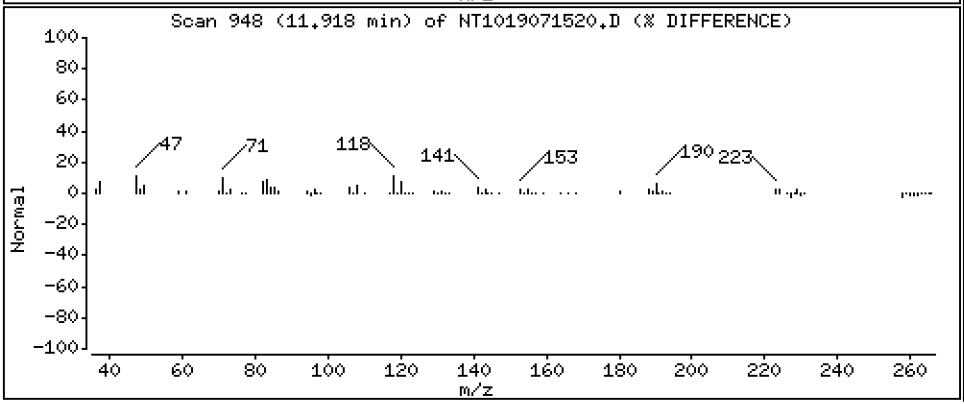
30 Hexachlorobutadiene

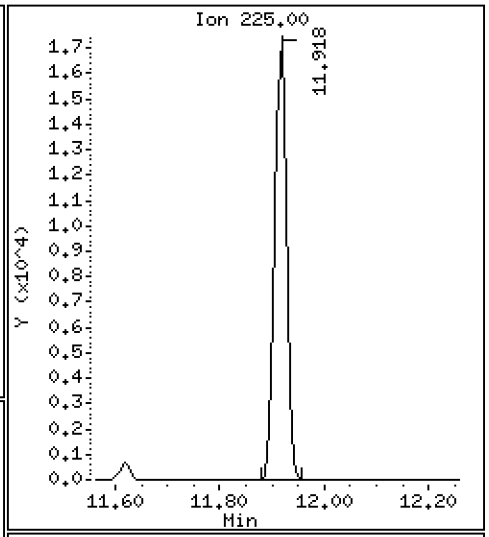
Concentration: 5.056 ug/mL

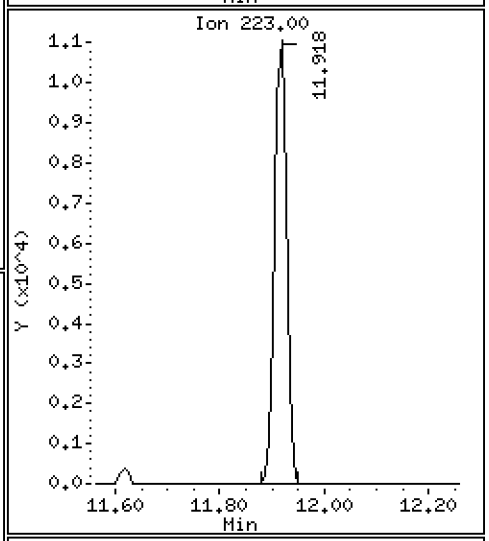


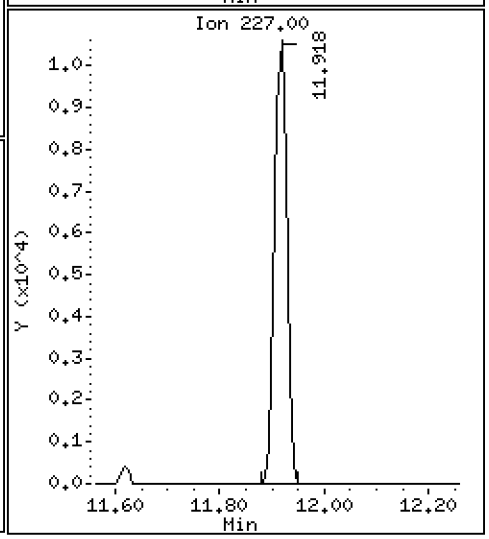












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

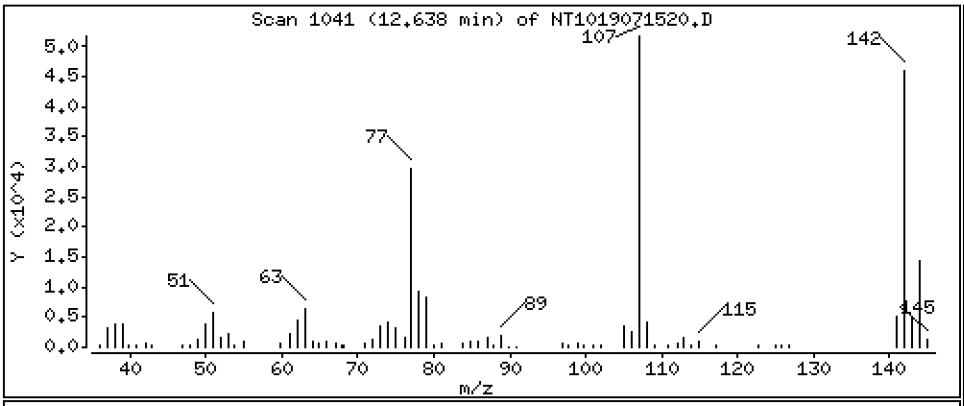
Operator: YZ

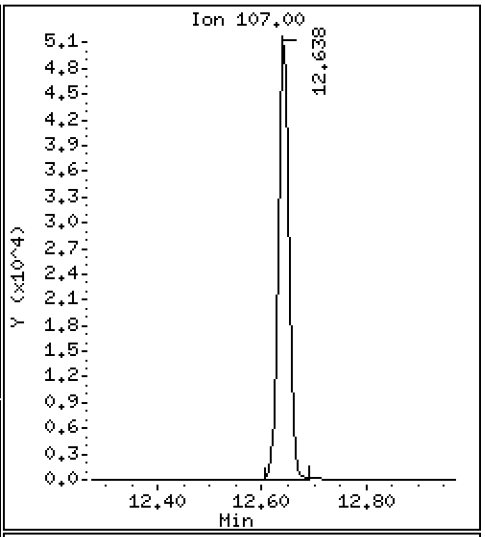
Column phase: ZB-5msi

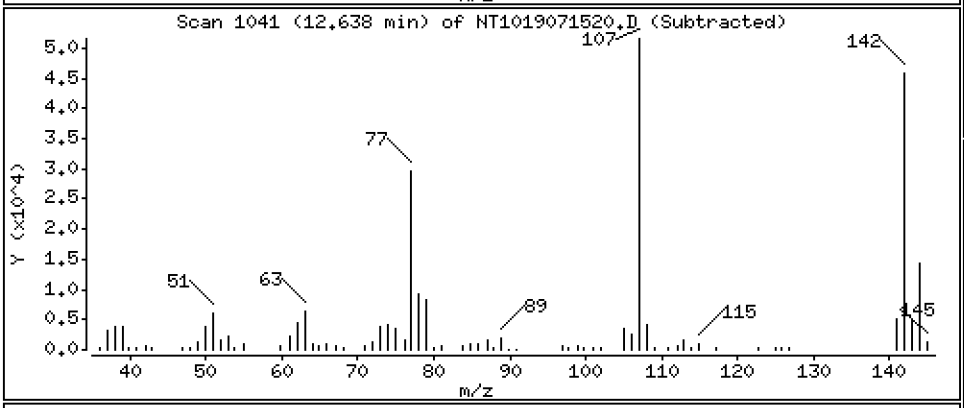
Column diameter: 0.25

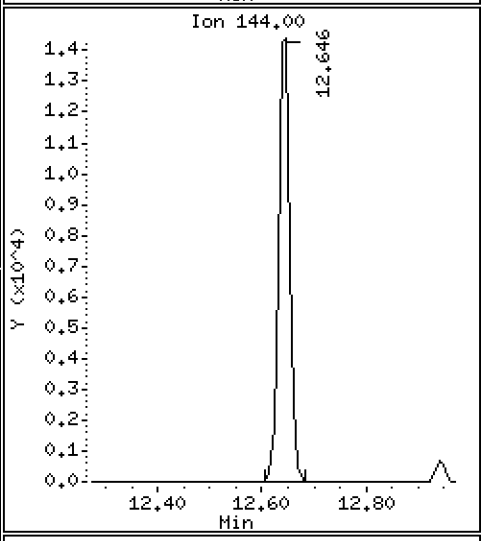
31 4-Chloro-3-methylphenol

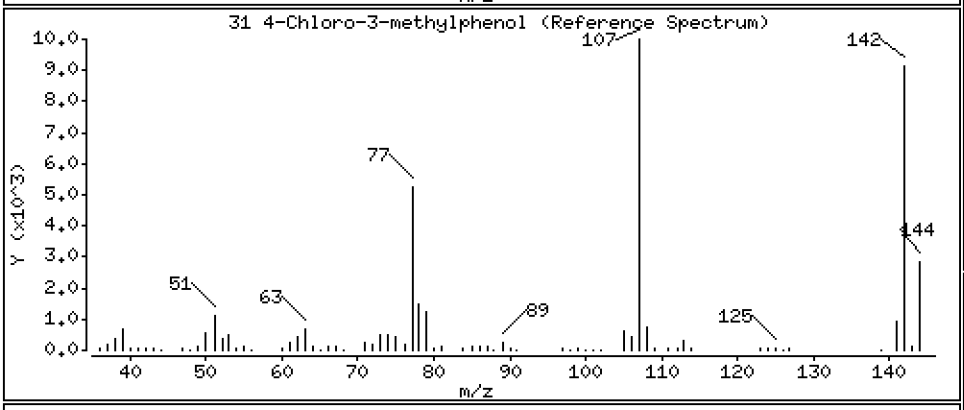
Concentration: 10.11 ug/mL

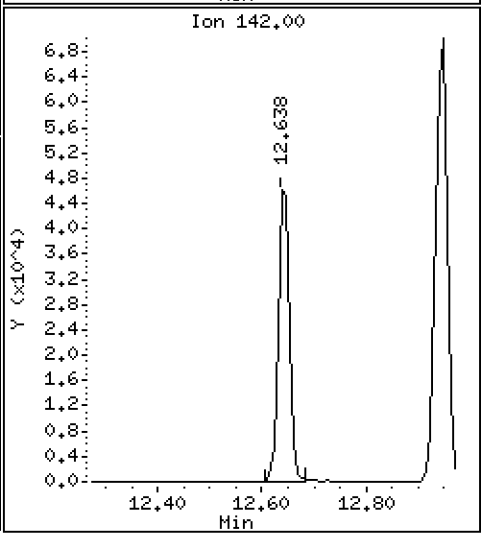


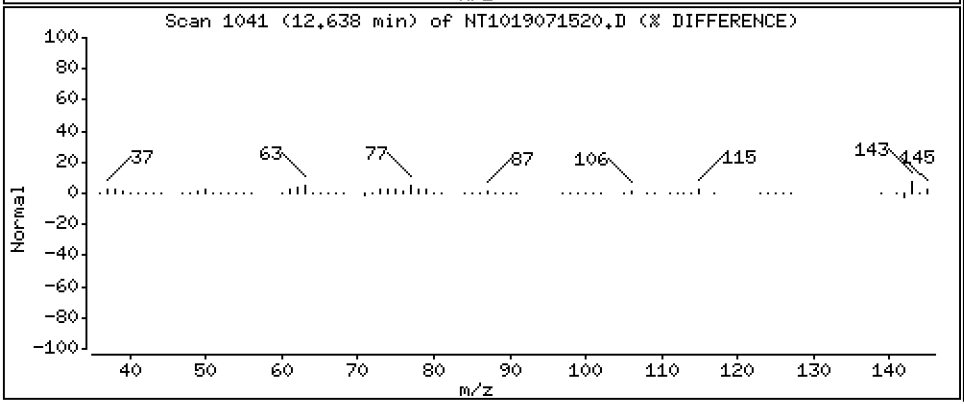












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

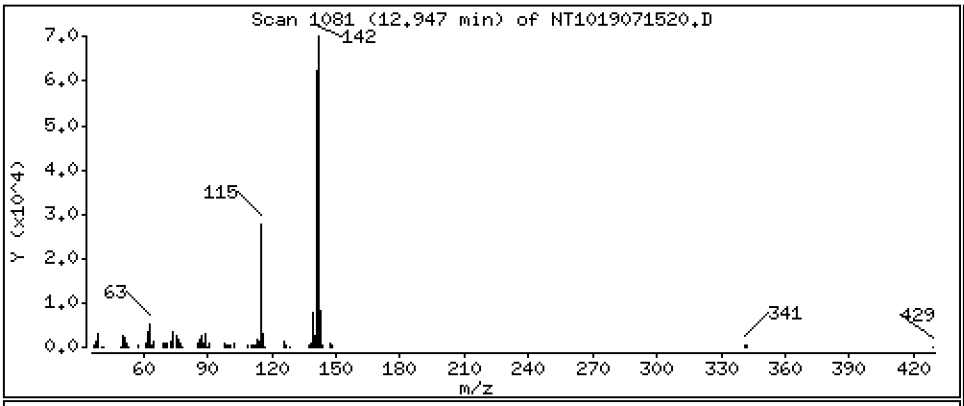
Operator: YZ

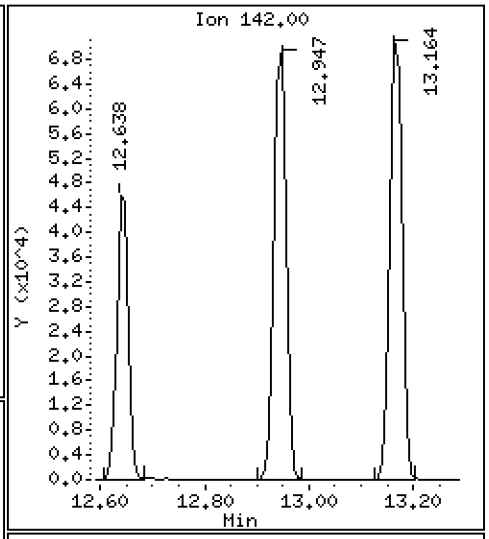
Column phase: ZB-5msi

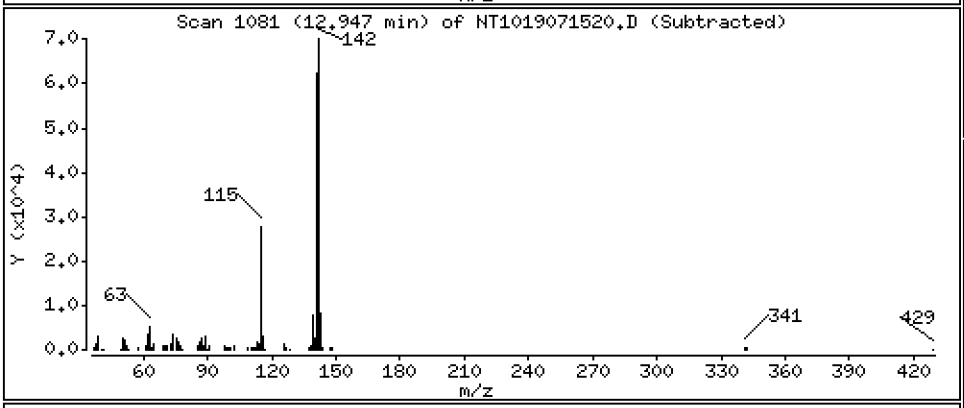
Column diameter: 0.25

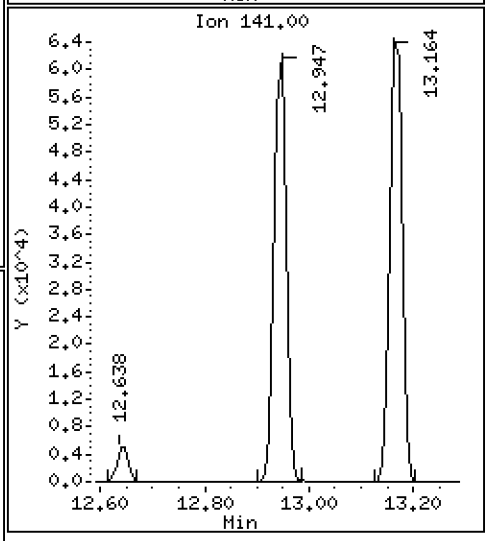
32 2-Methylnaphthalene

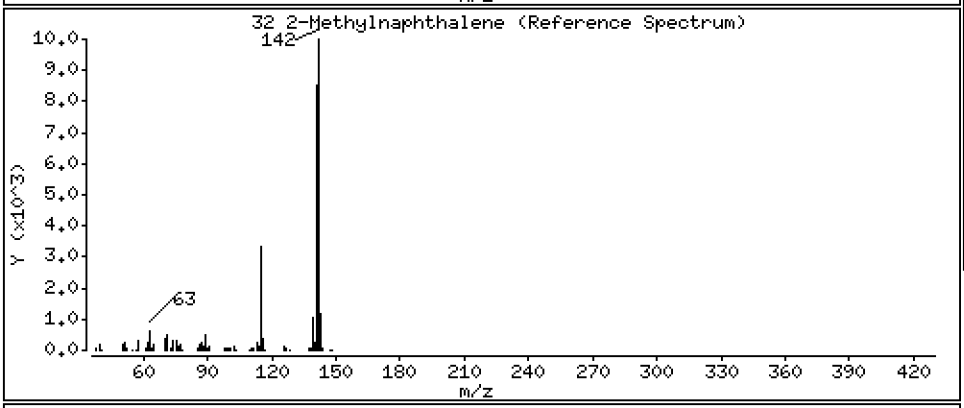
Concentration: 5.203 ug/mL

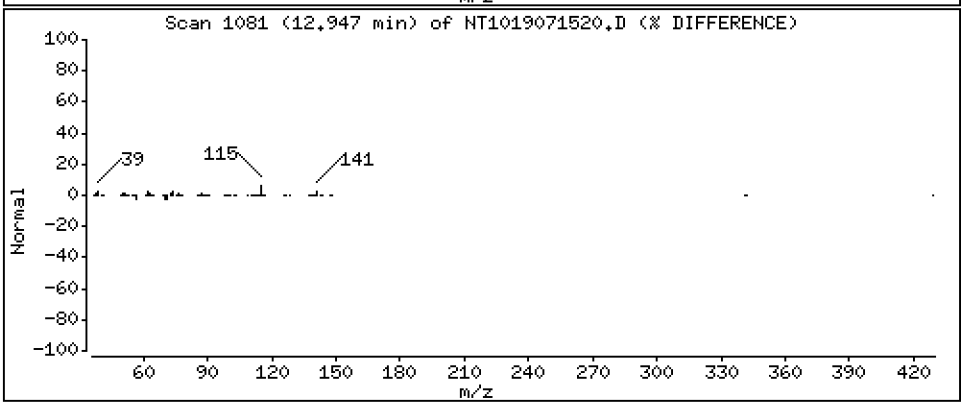












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

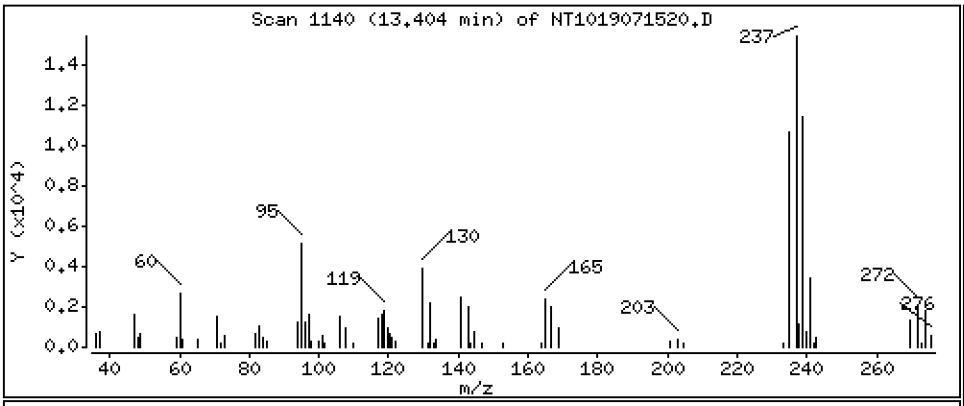
Operator: YZ

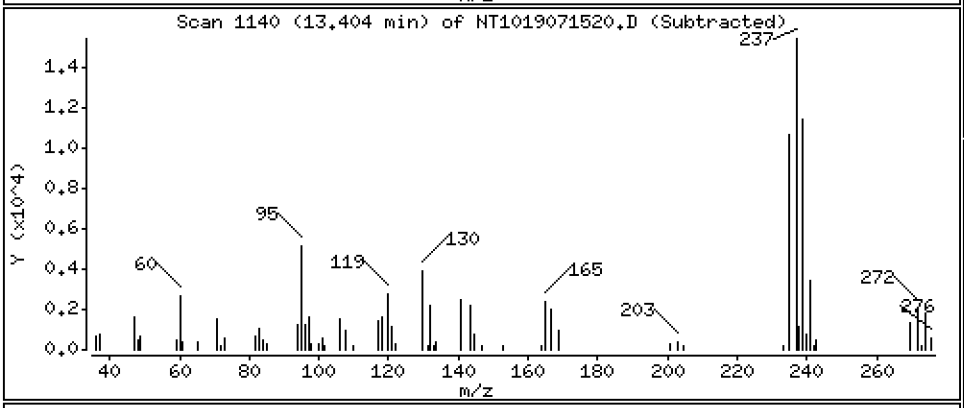
Column phase: ZB-5msi

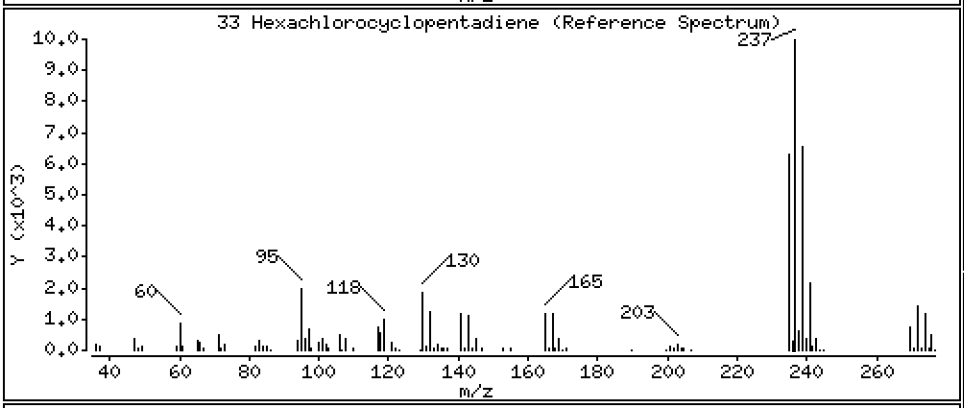
Column diameter: 0.25

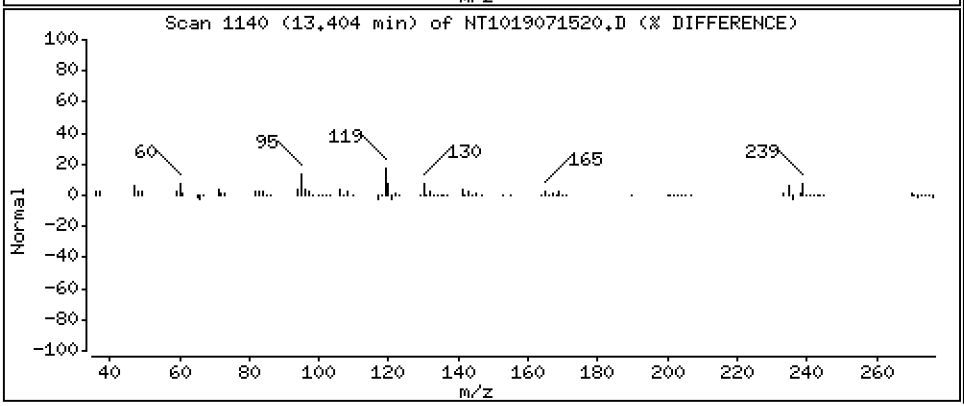
33 Hexachlorocyclopentadiene

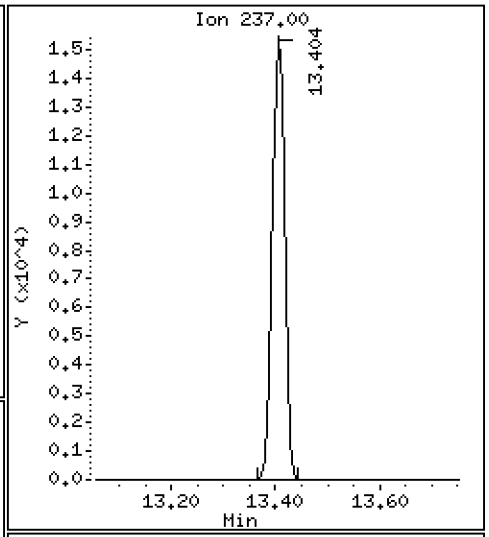
Concentration: 4.197 ug/mL

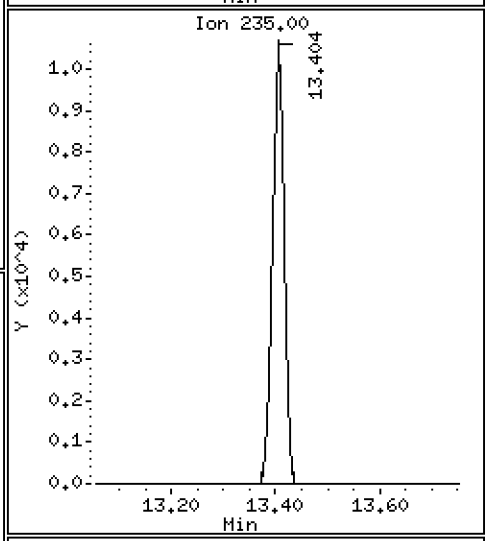


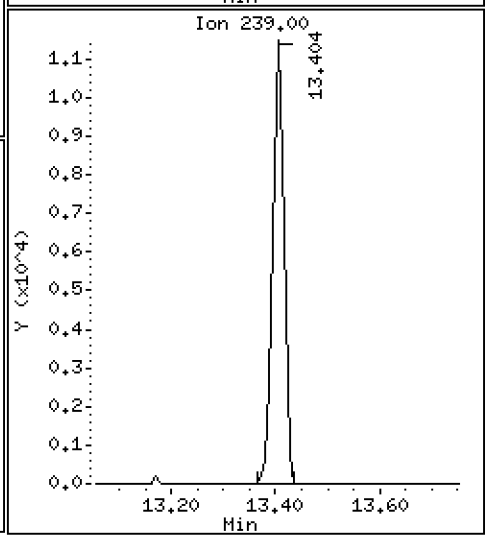












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

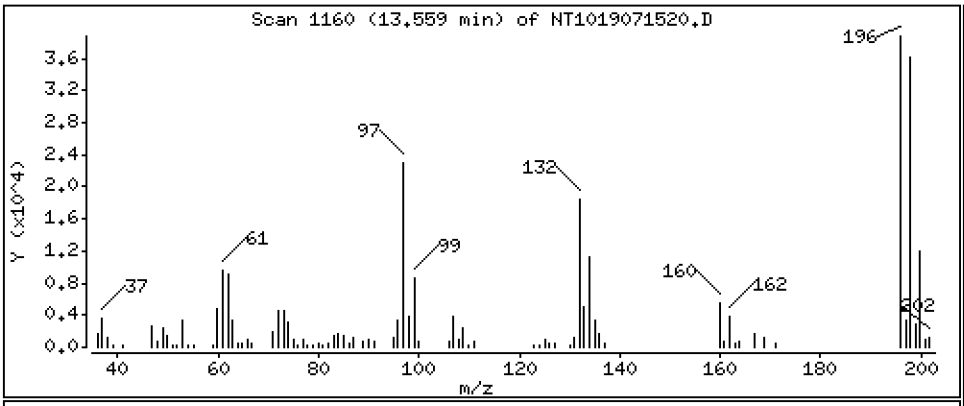
Operator: YZ

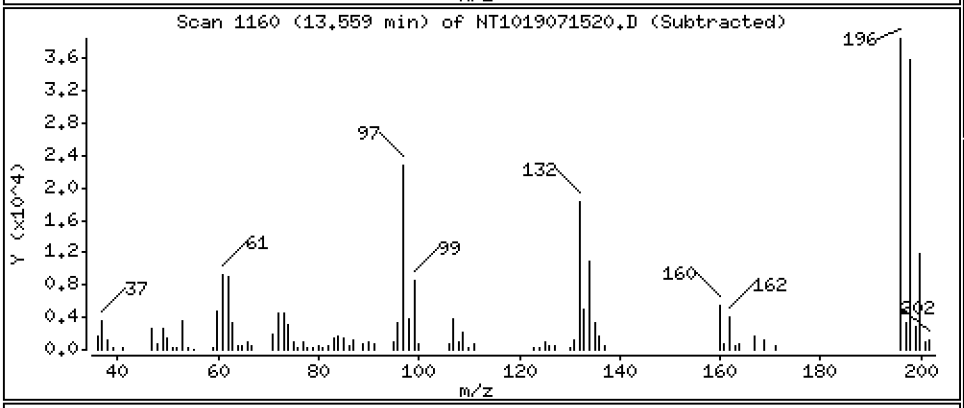
Column phase: ZB-5msi

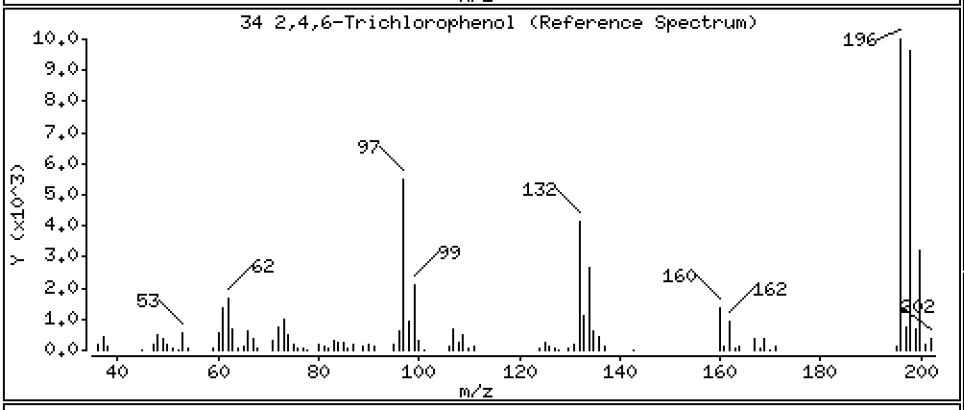
Column diameter: 0.25

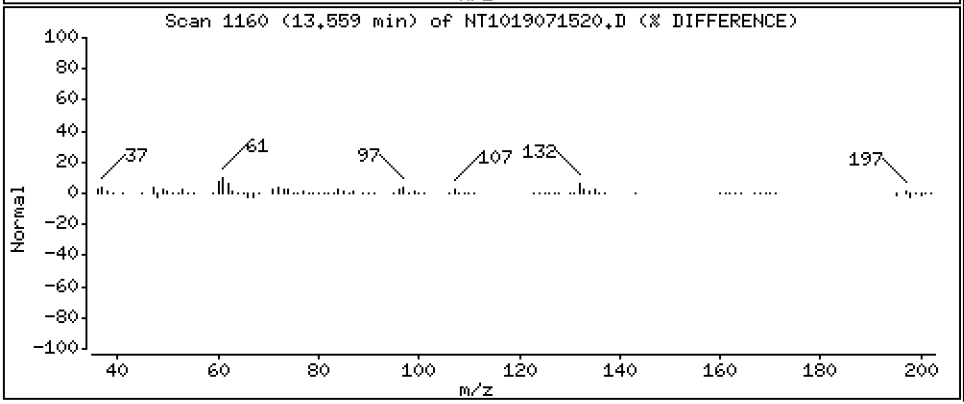
34 2,4,6-Trichlorophenol

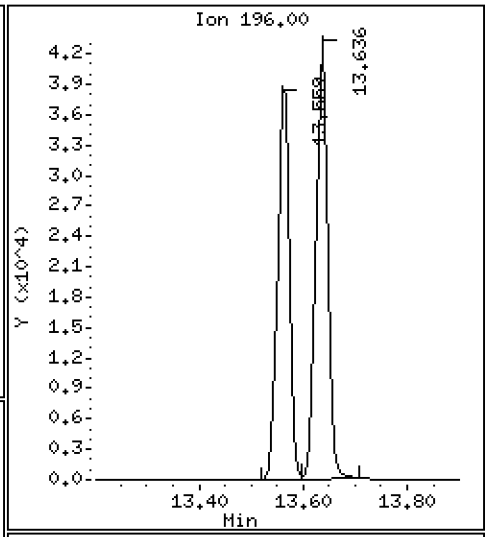
Concentration: 10.82 ug/mL

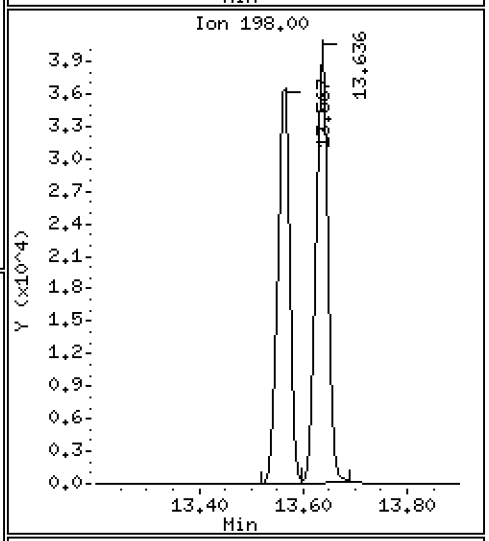


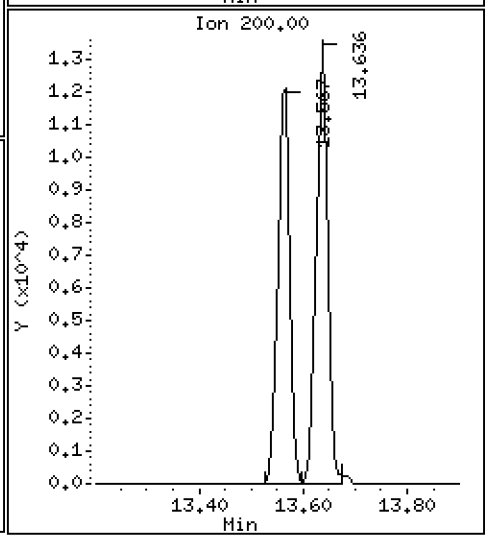












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

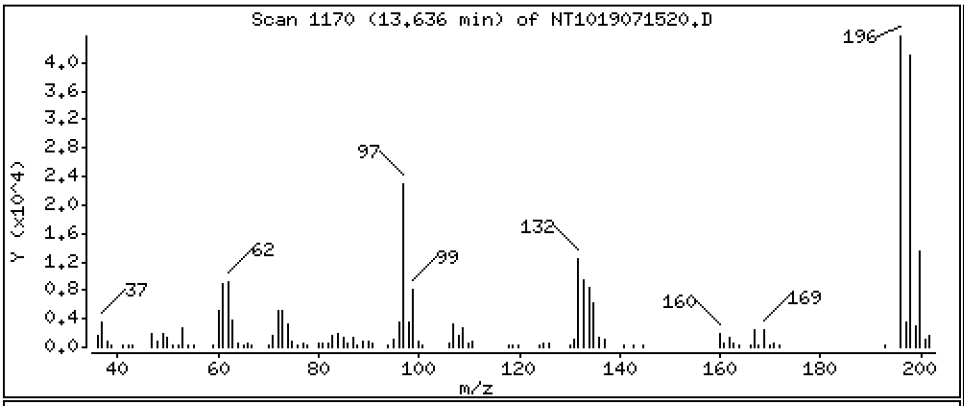
Operator: YZ

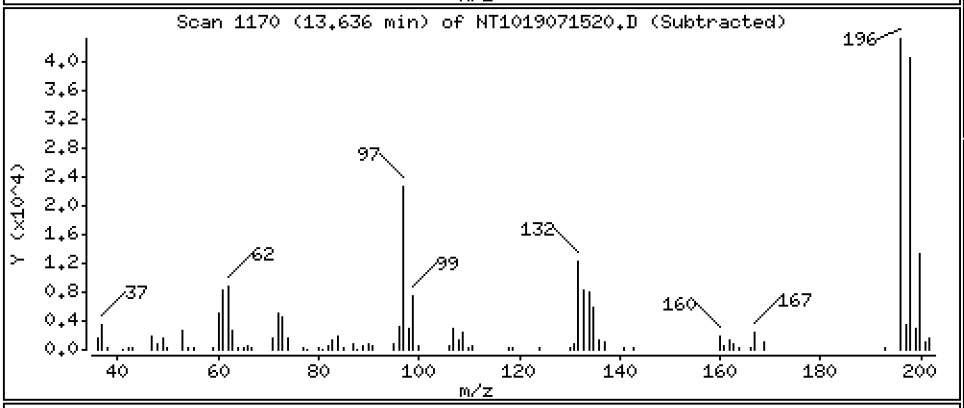
Column phase: ZB-5msi

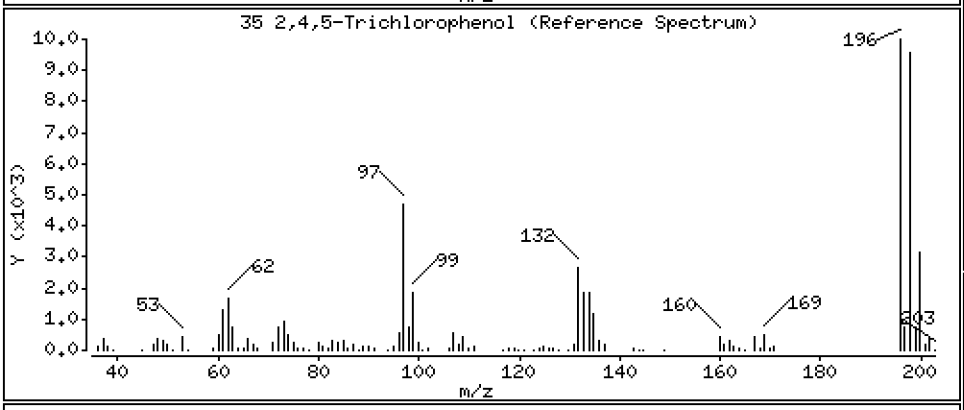
Column diameter: 0.25

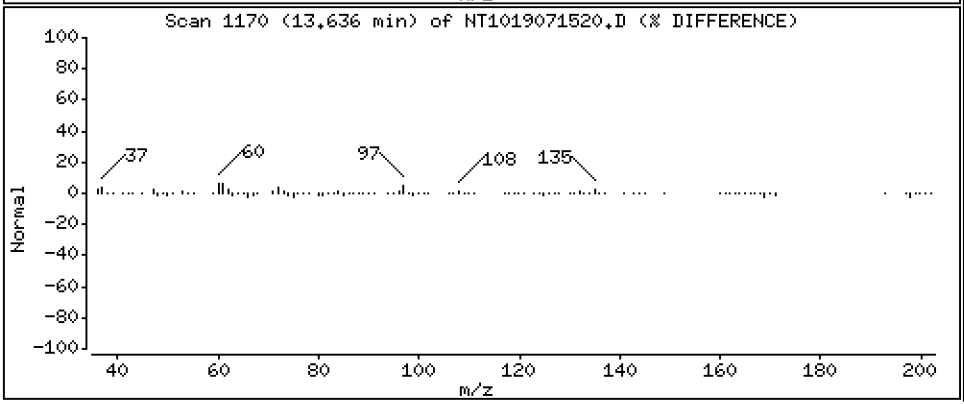
35 2,4,5-Trichlorophenol

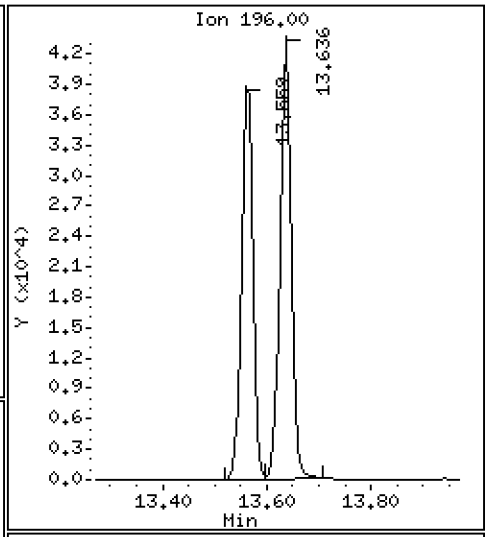
Concentration: 11.14 ug/mL

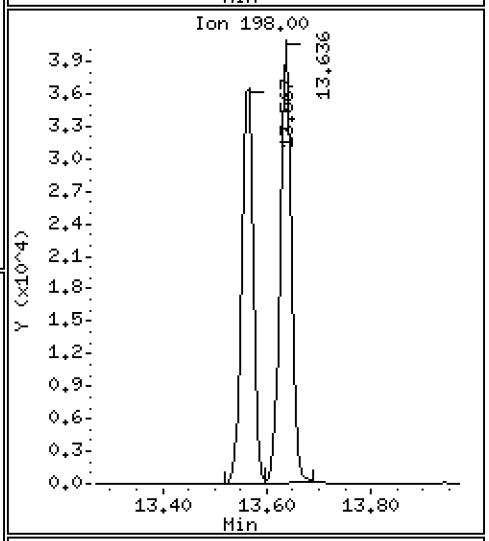


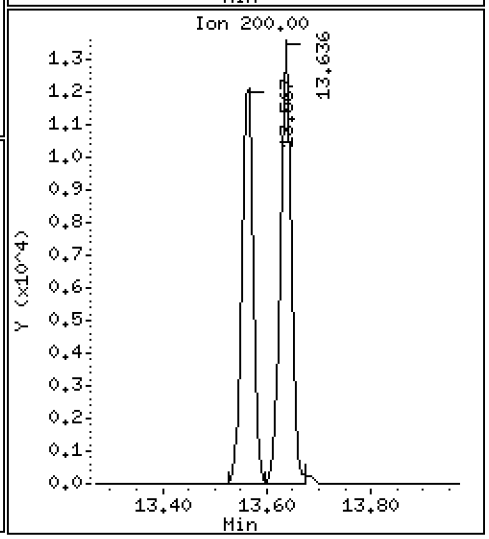












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

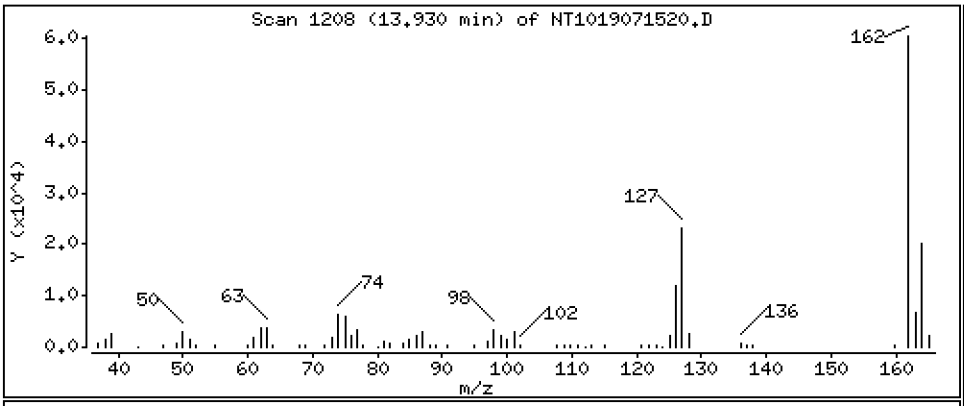
Operator: YZ

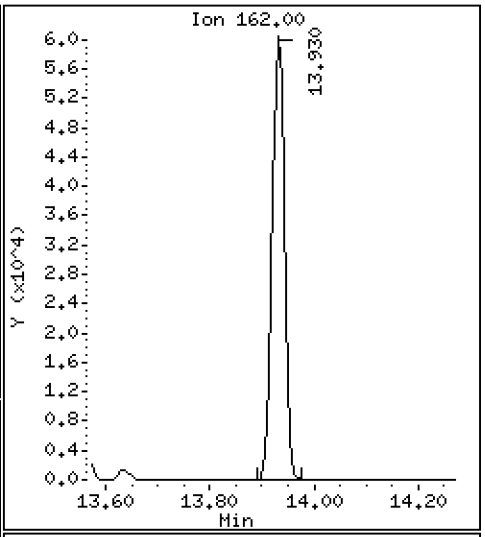
Column phase: ZB-5msi

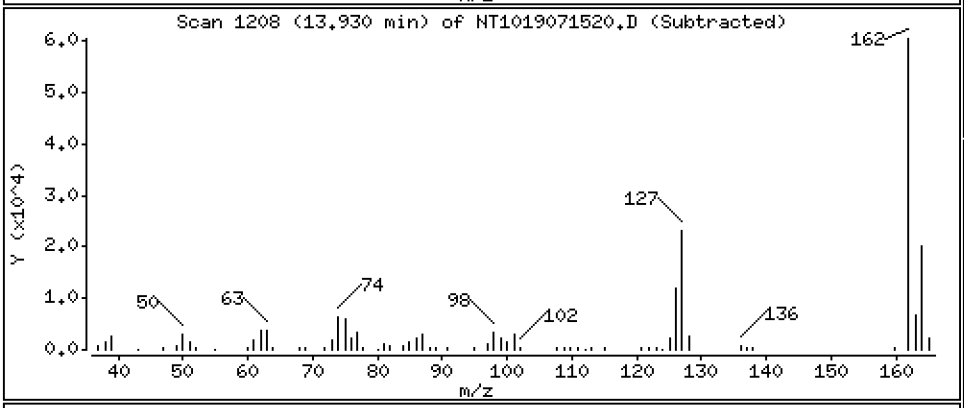
Column diameter: 0.25

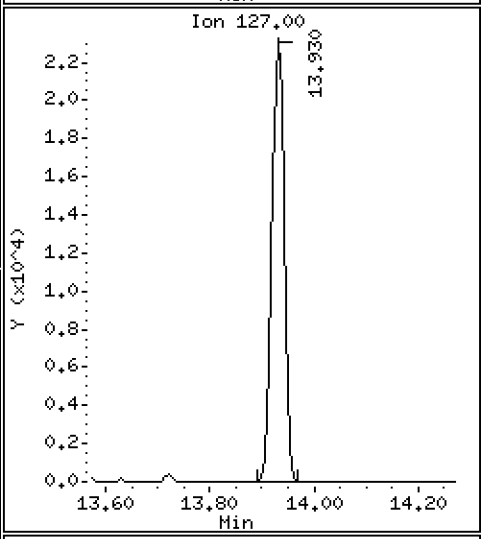
37 2-Chloronaphthalene

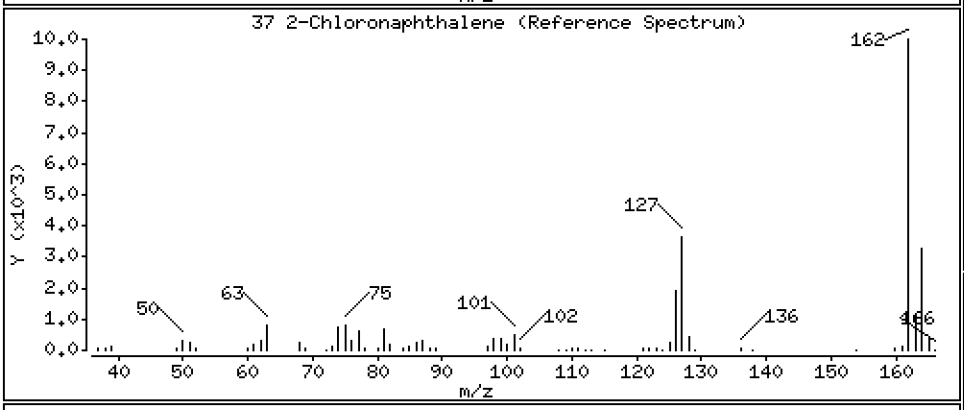
Concentration: 5.182 ug/mL

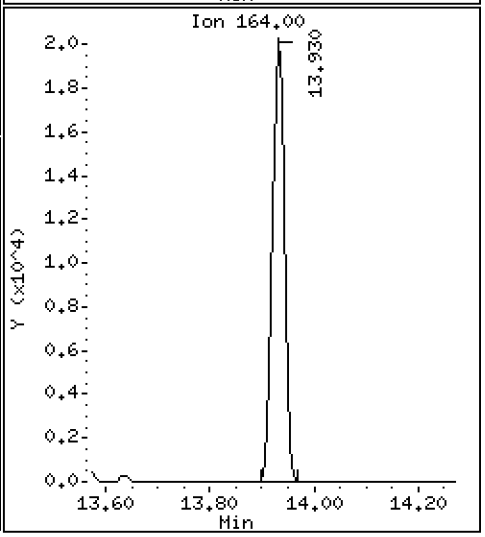


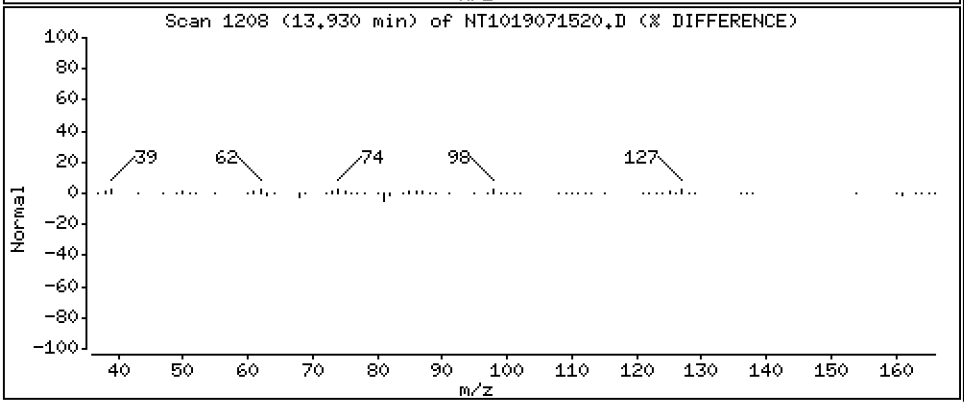












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

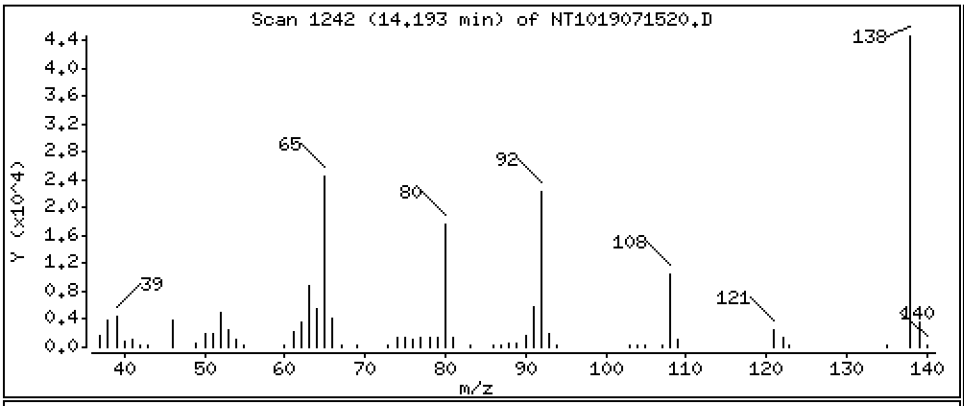
Operator: YZ

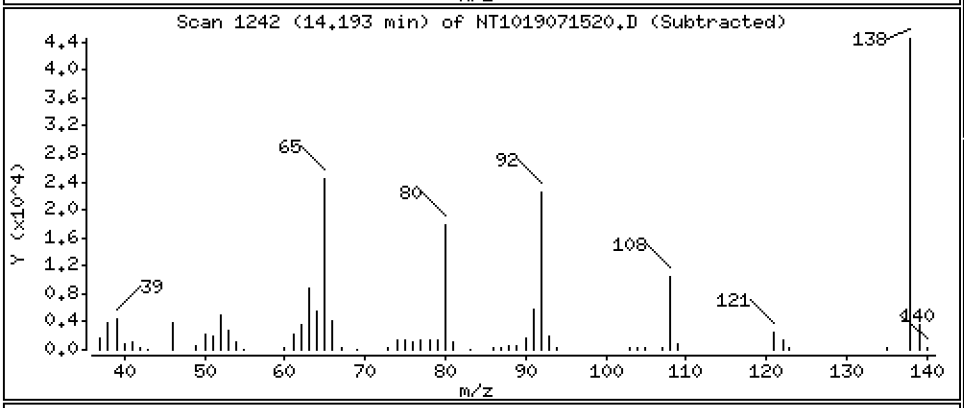
Column phase: ZB-5msi

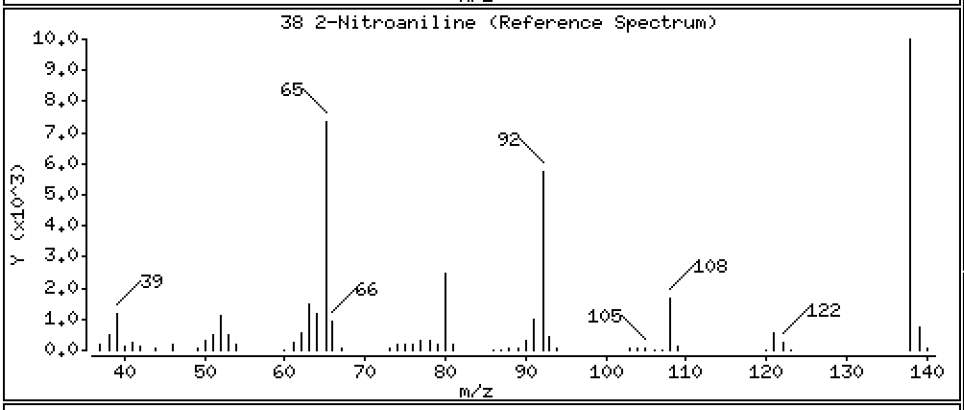
Column diameter: 0.25

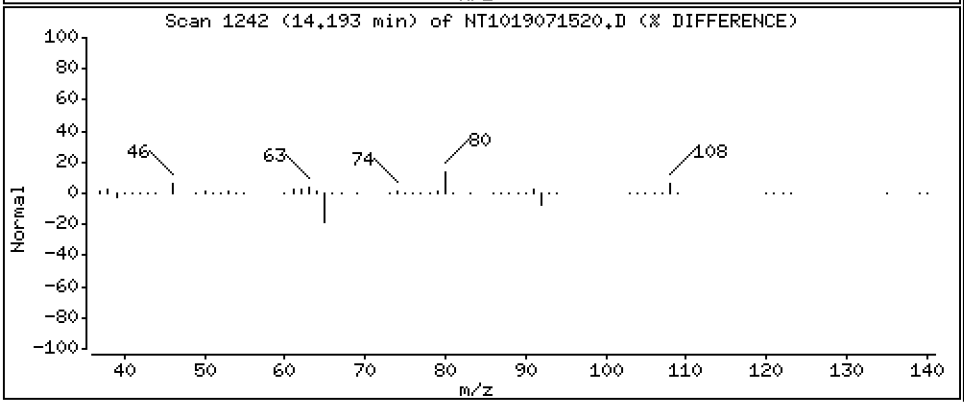
38 2-Nitroaniline

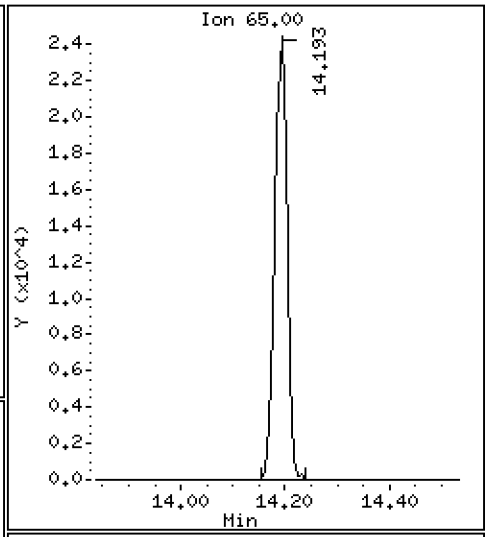
Concentration: 9.786 ug/mL

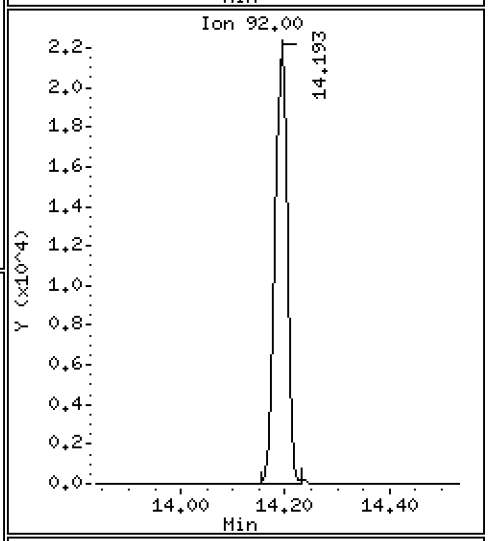


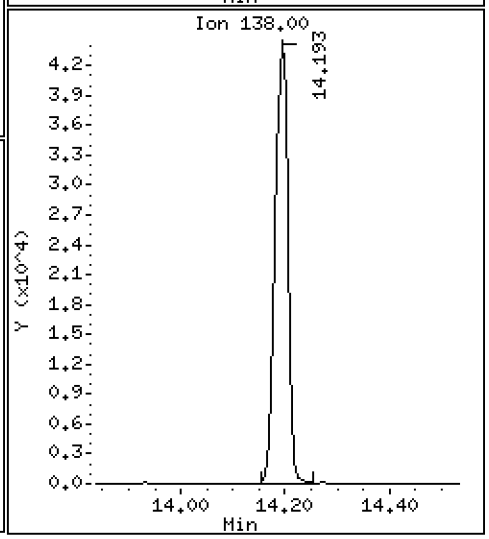












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

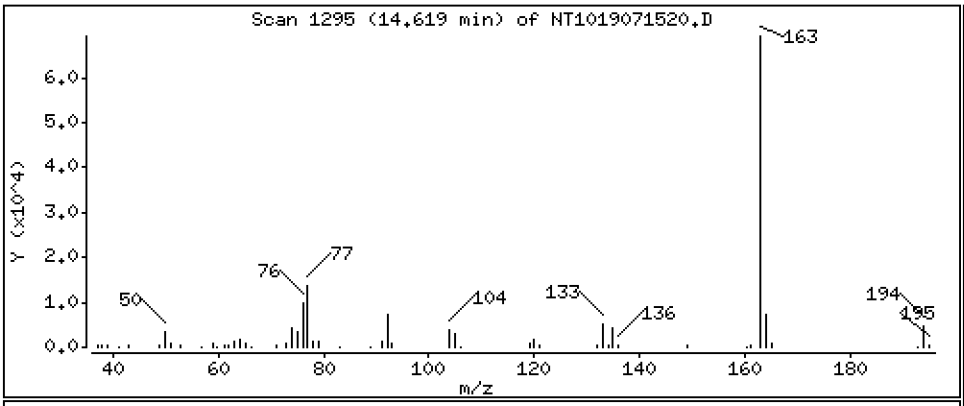
Operator: YZ

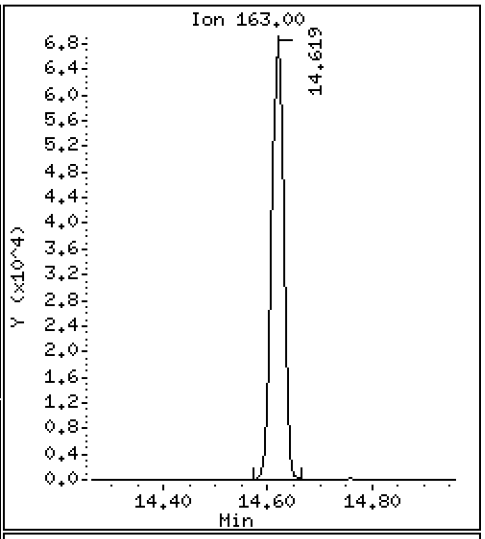
Column phase: ZB-5msi

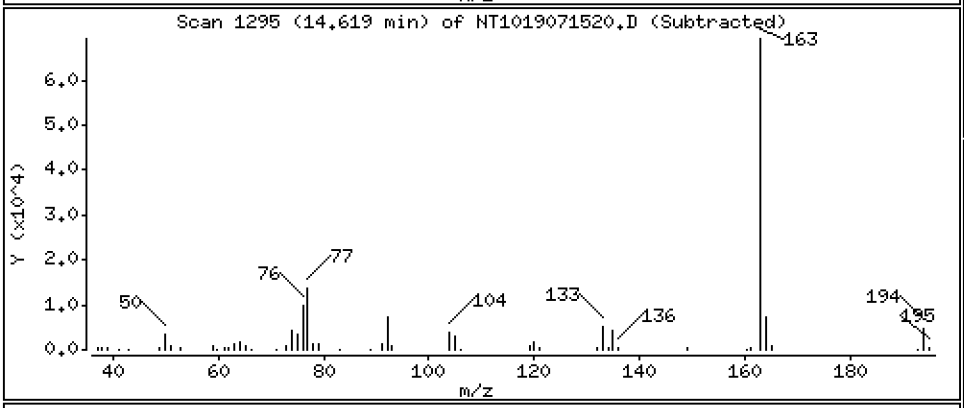
Column diameter: 0.25

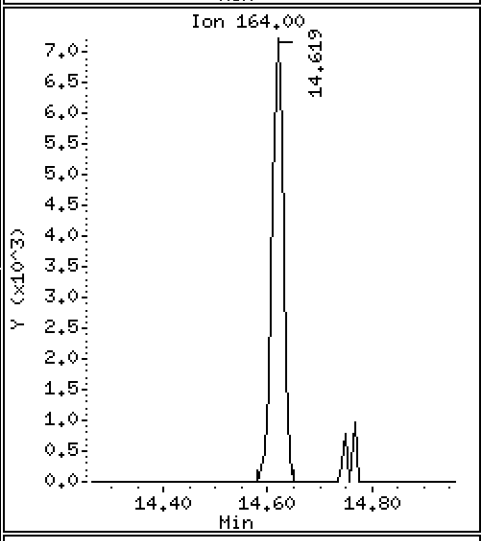
39 Dimethylphthalate

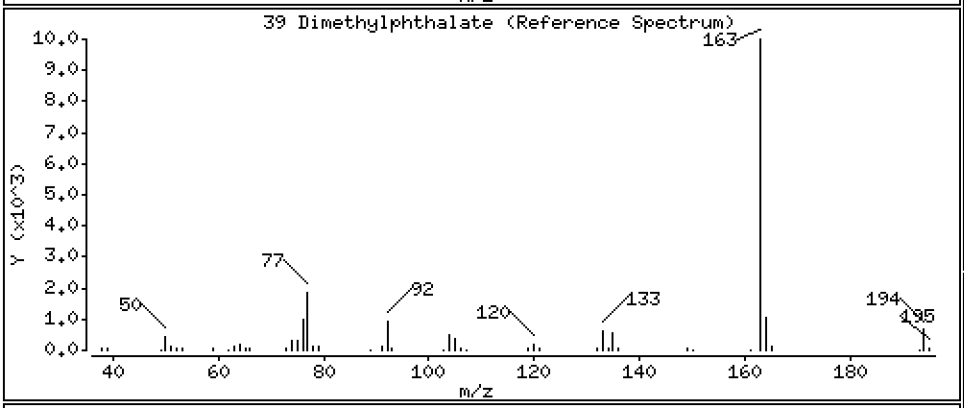
Concentration: 5.106 ug/mL

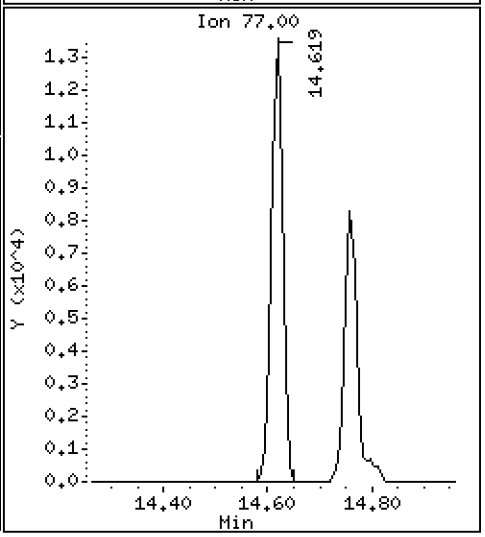


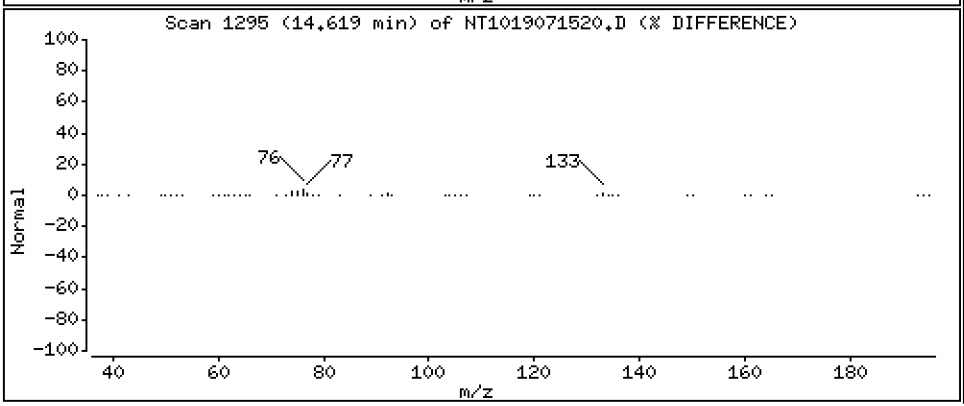












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

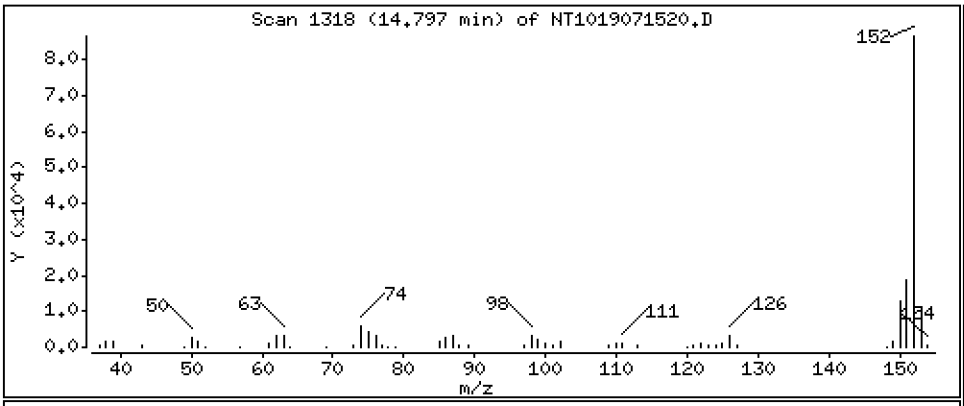
Operator: YZ

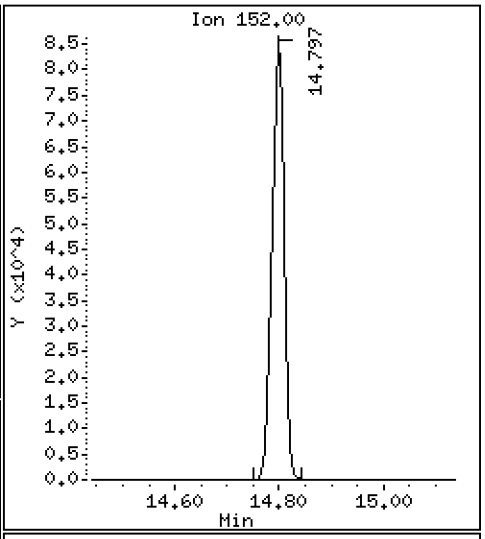
Column phase: ZB-5msi

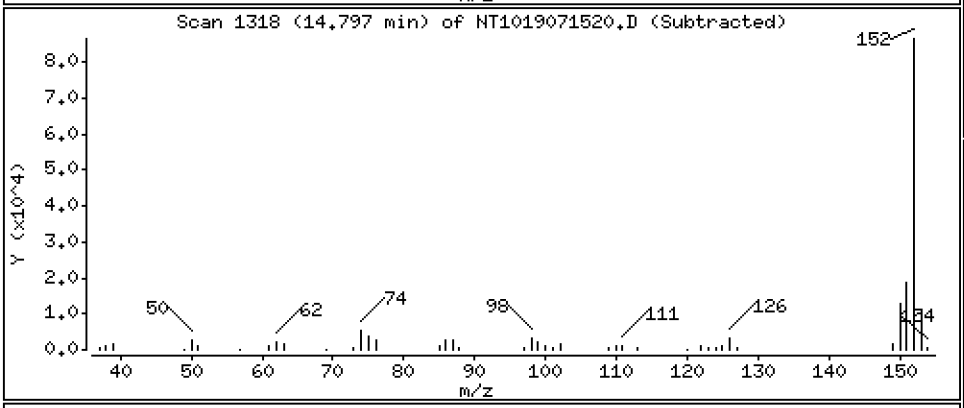
Column diameter: 0.25

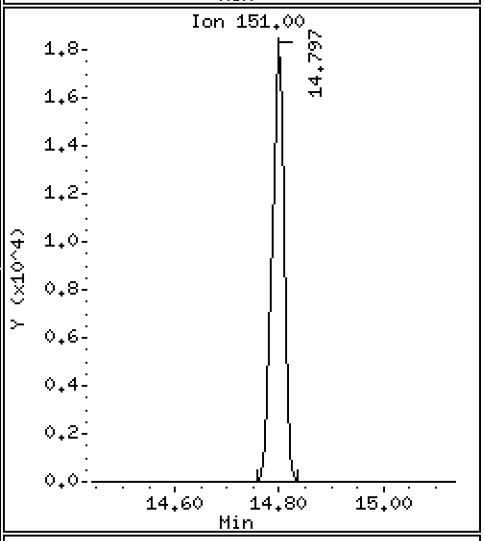
40 Acenaphthylene

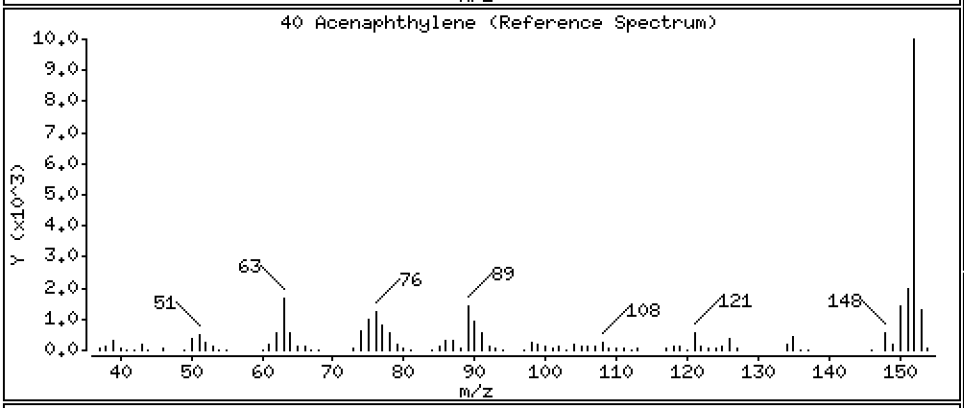
Concentration: 5.089 ug/mL

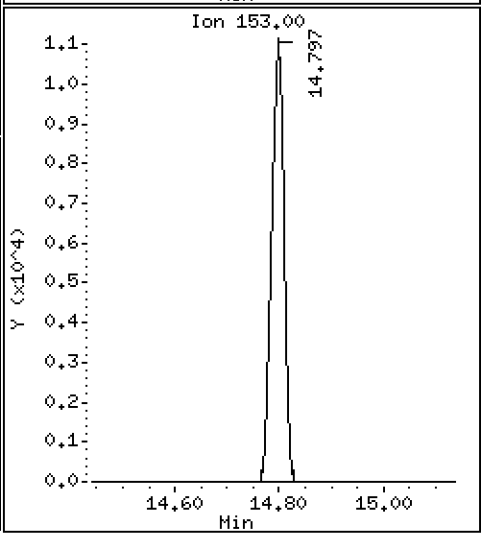


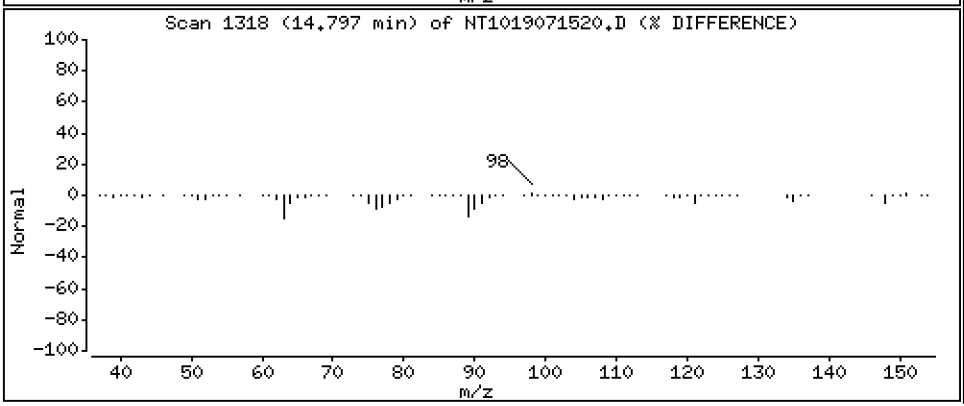












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

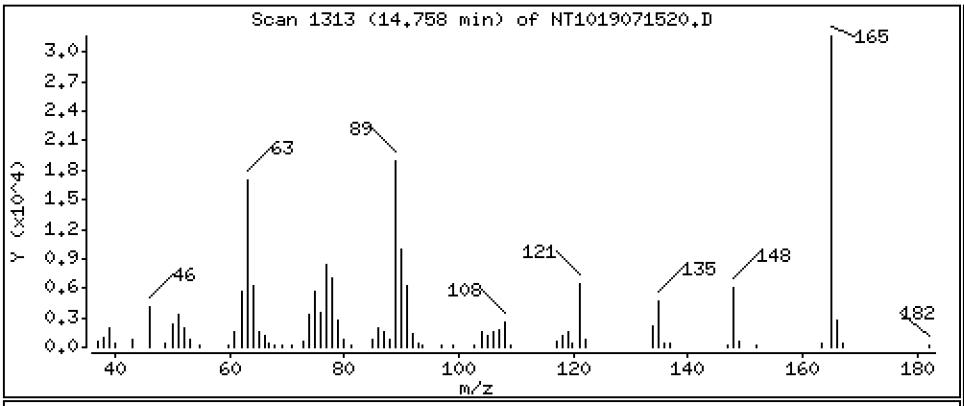
Operator: YZ

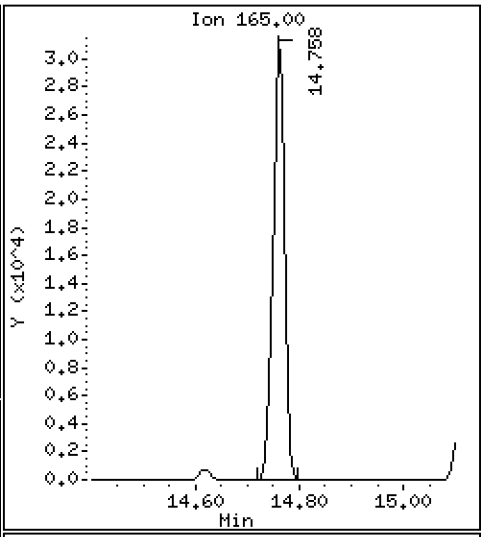
Column phase: ZB-5msi

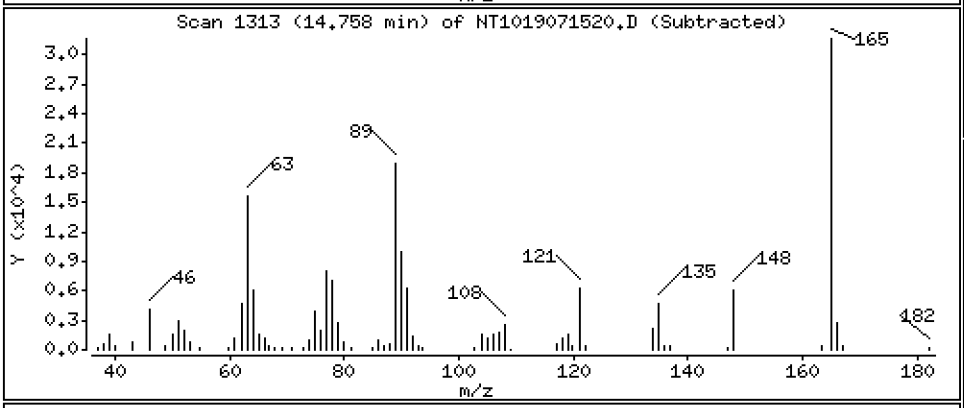
Column diameter: 0.25

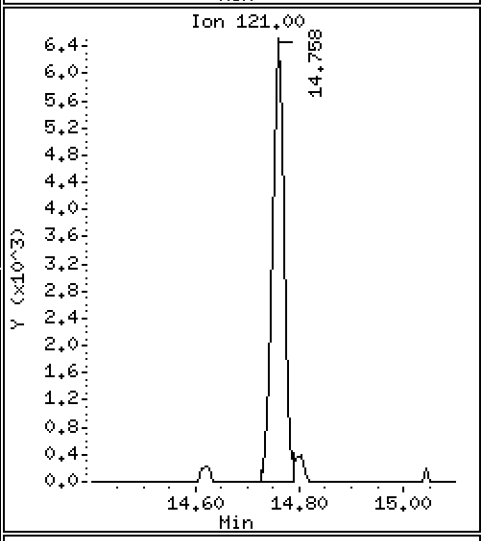
41 2,6-Dinitrotoluene

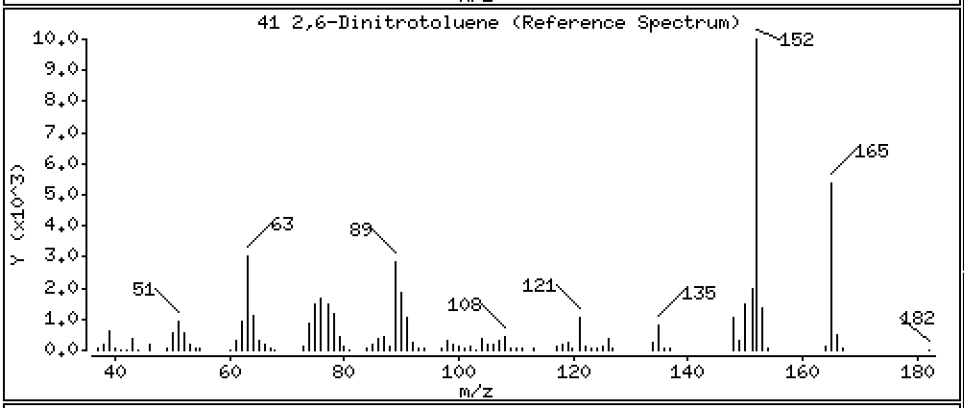
Concentration: 10.48 ug/mL

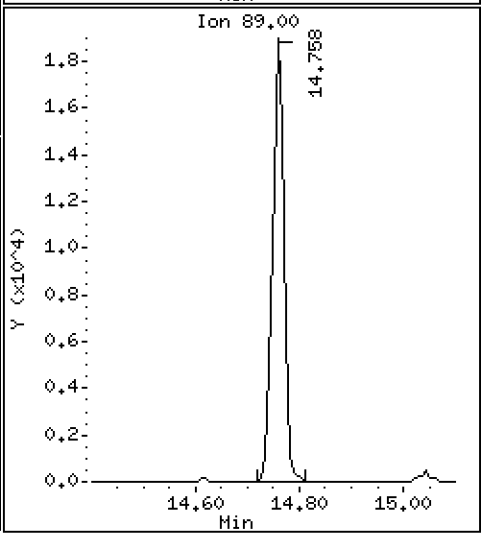


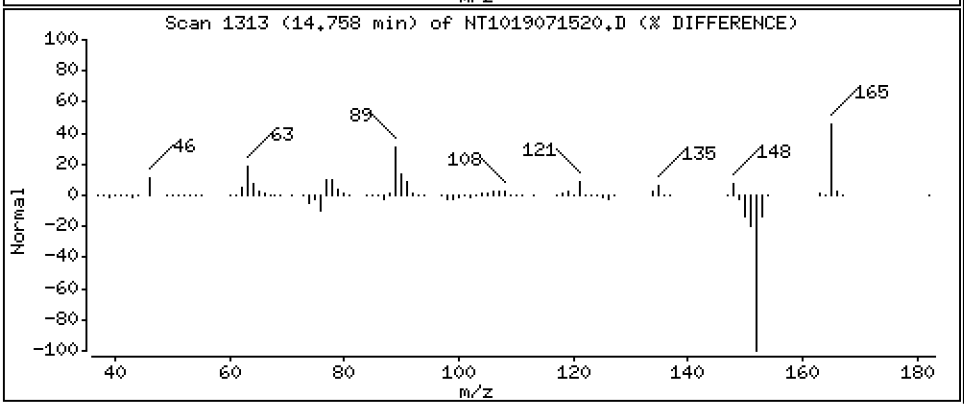












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

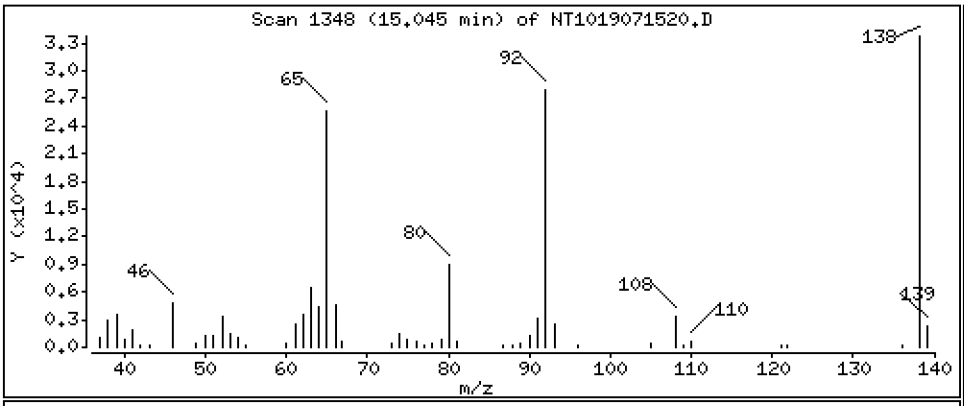
Operator: YZ

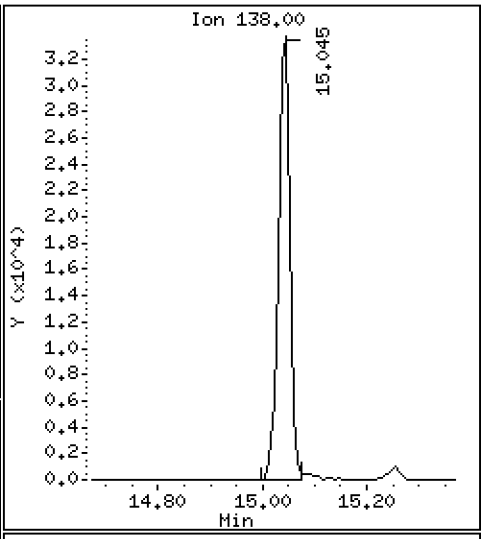
Column phase: ZB-5msi

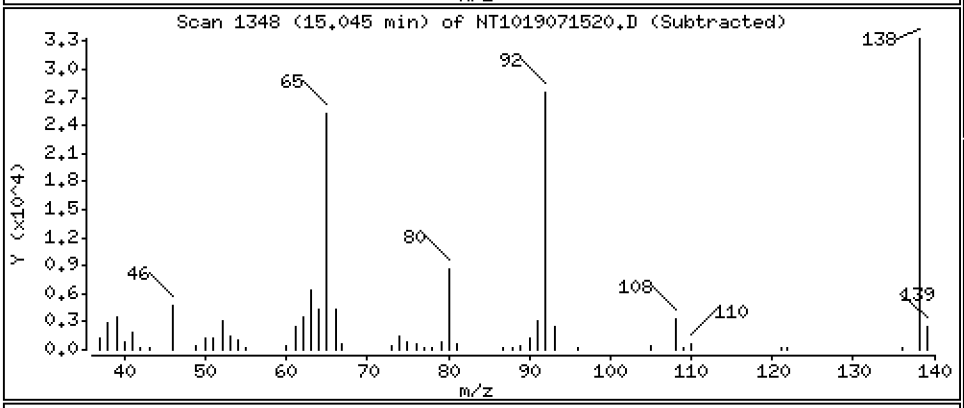
Column diameter: 0.25

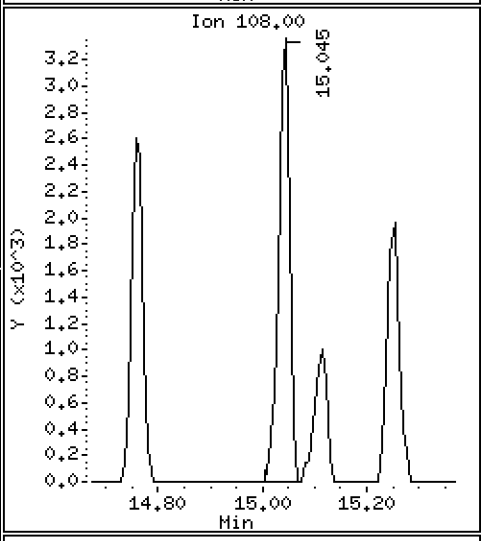
43 3-Nitroaniline

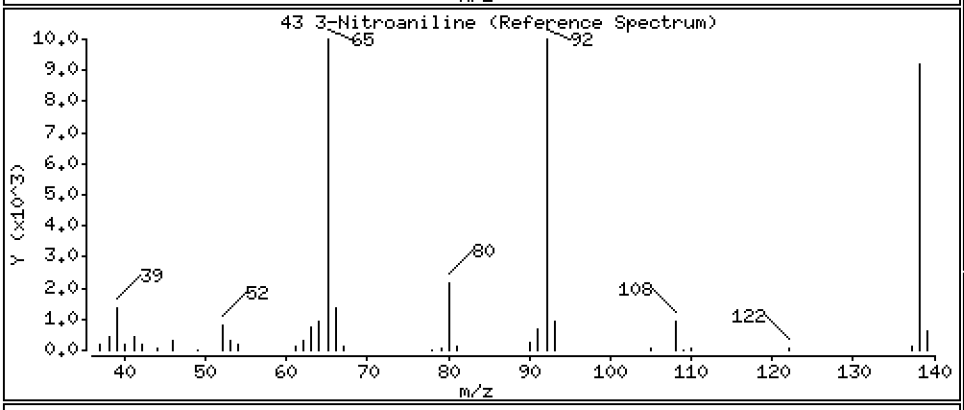
Concentration: 10.01 ug/mL

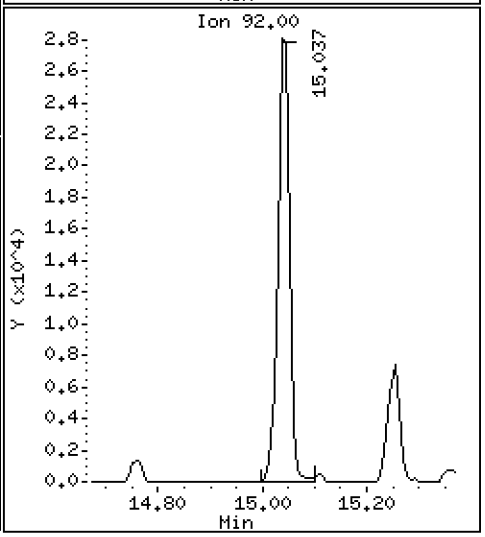


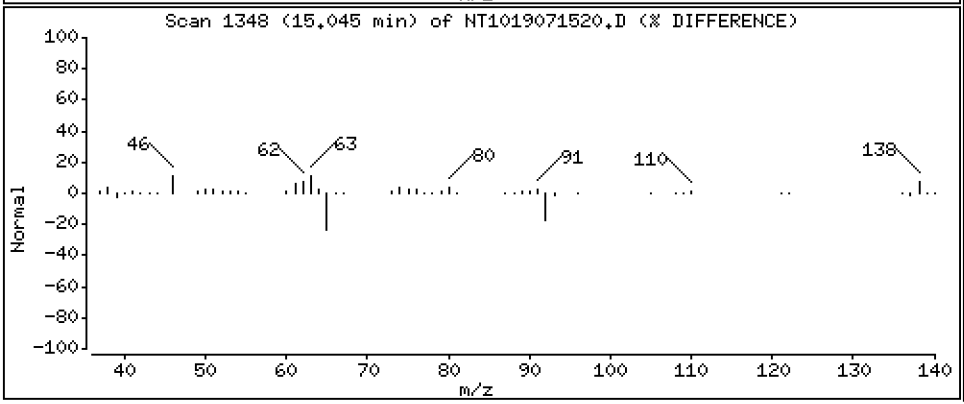












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

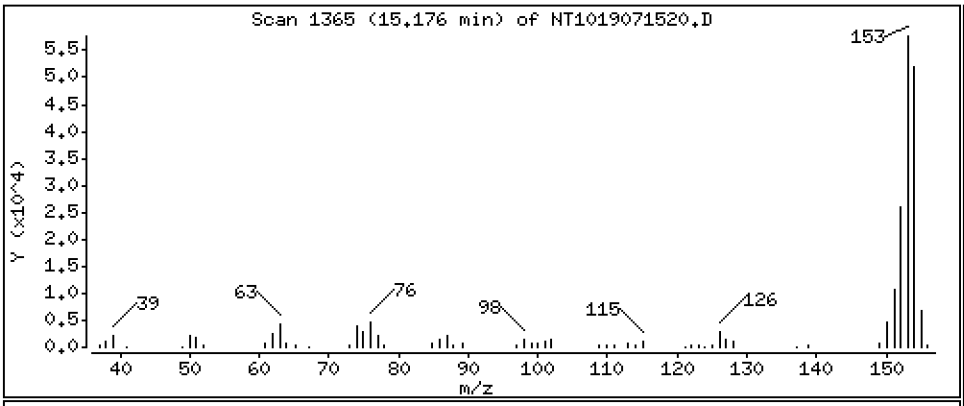
Operator: YZ

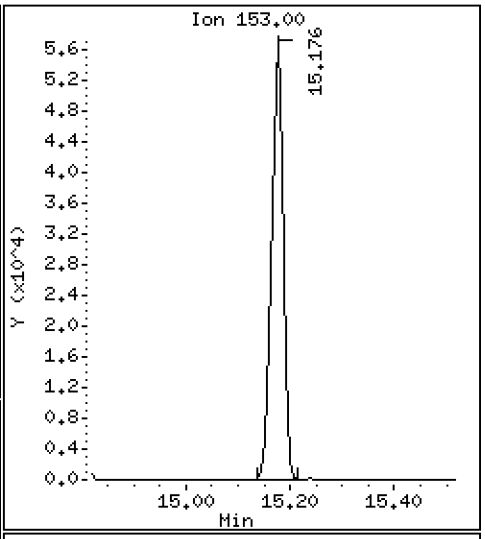
Column phase: ZB-5msi

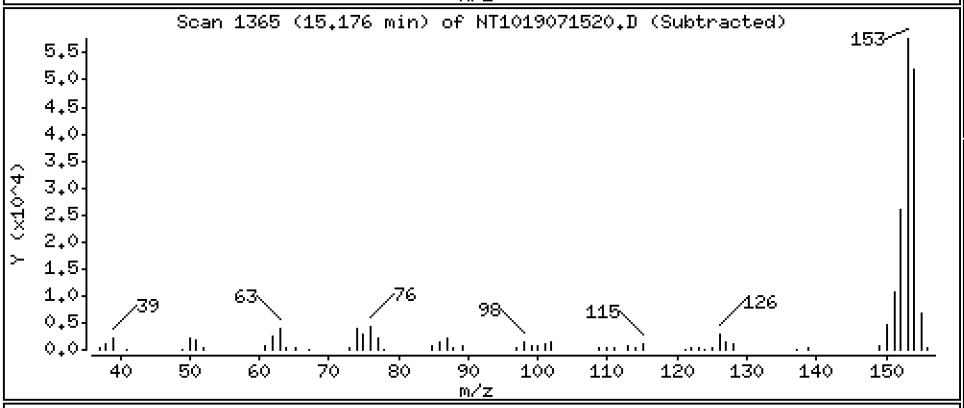
Column diameter: 0.25

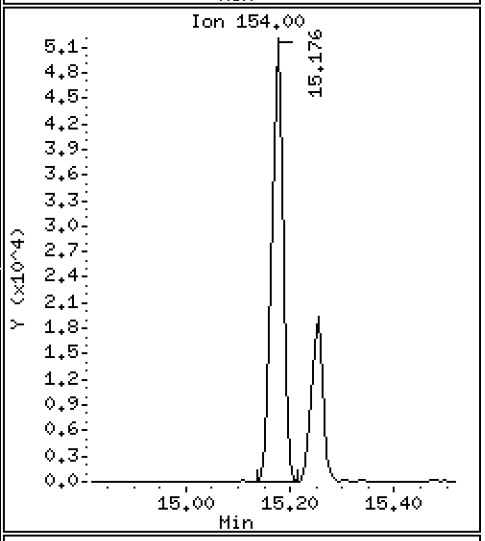
44 Acenaphthene

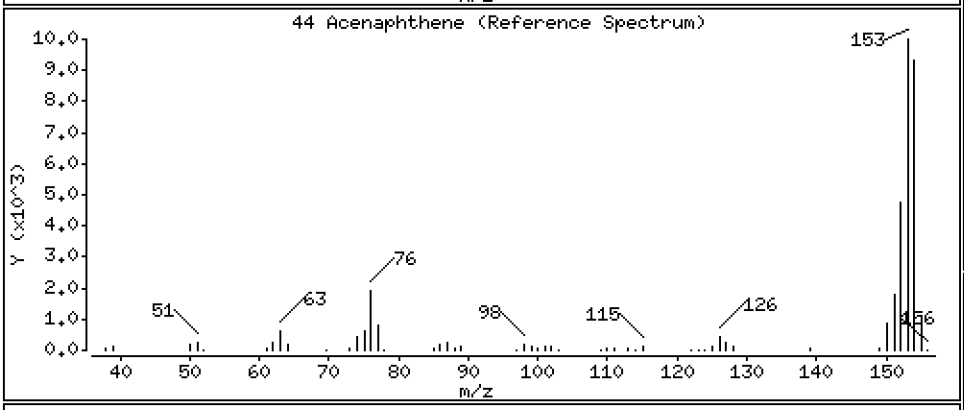
Concentration: 5.106 ug/mL

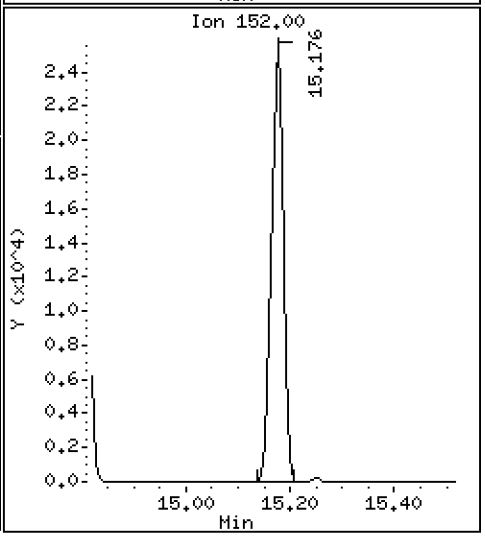


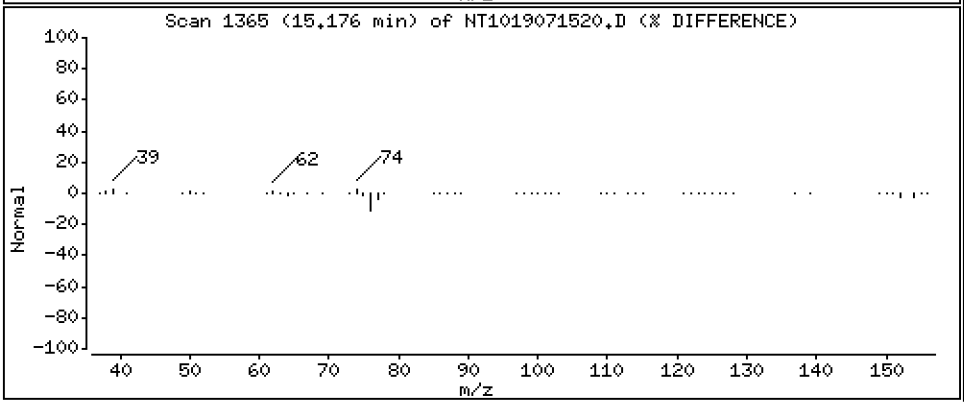












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

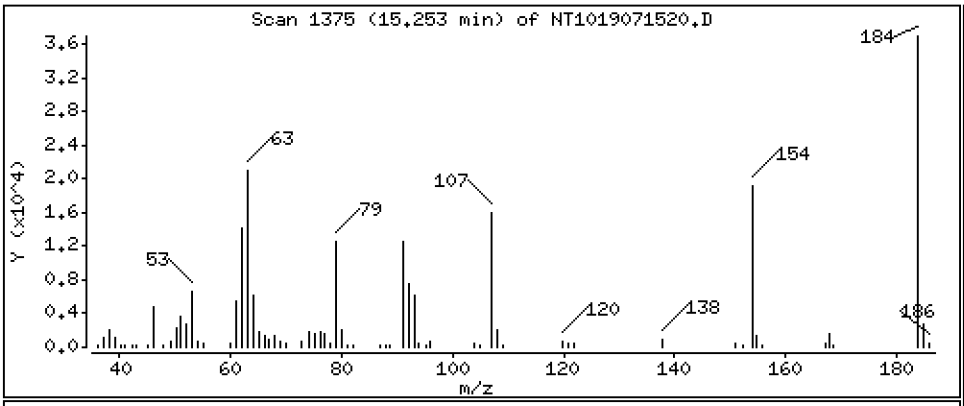
Operator: YZ

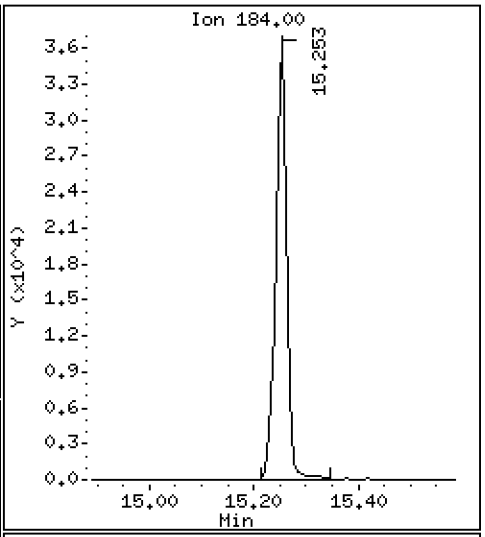
Column phase: ZB-5msi

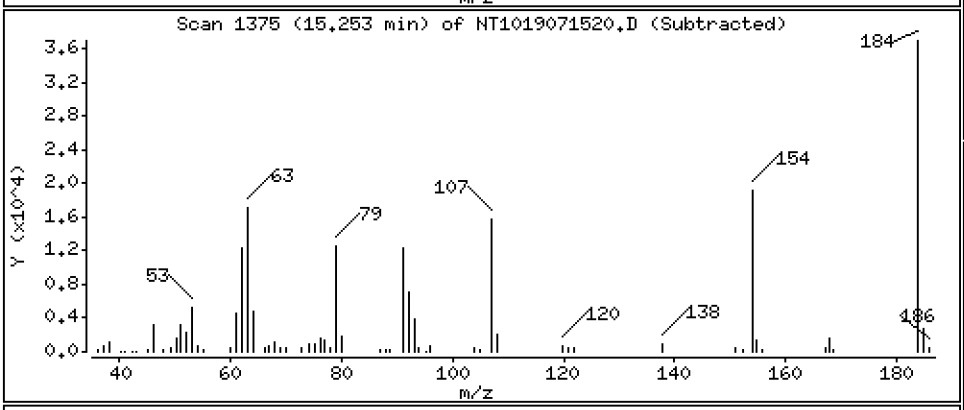
Column diameter: 0.25

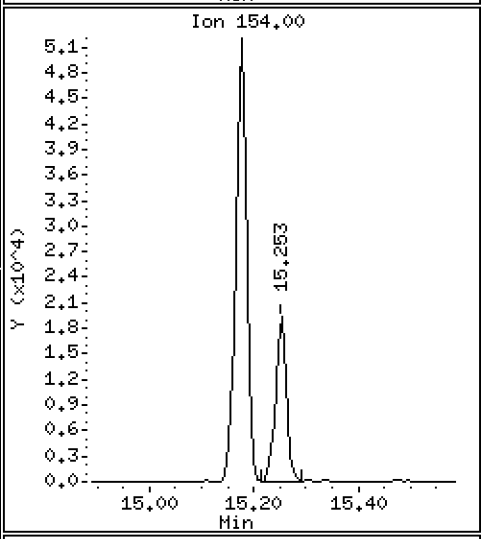
45 2,4-Dinitrophenol

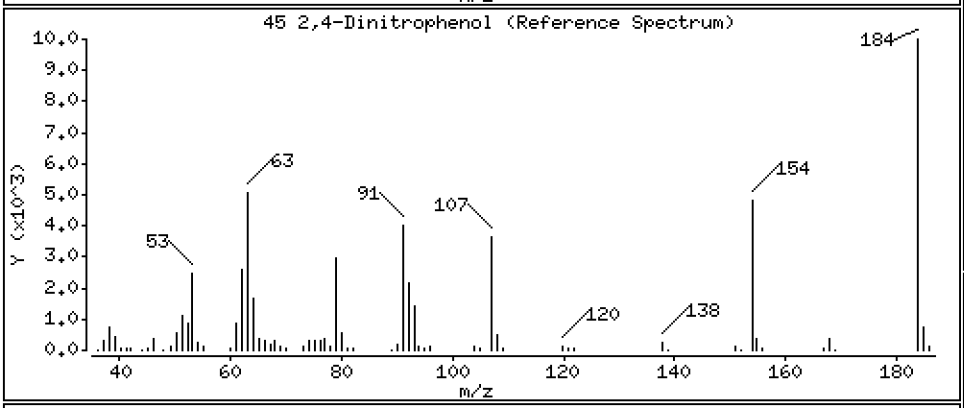
Concentration: 16.87 ug/mL

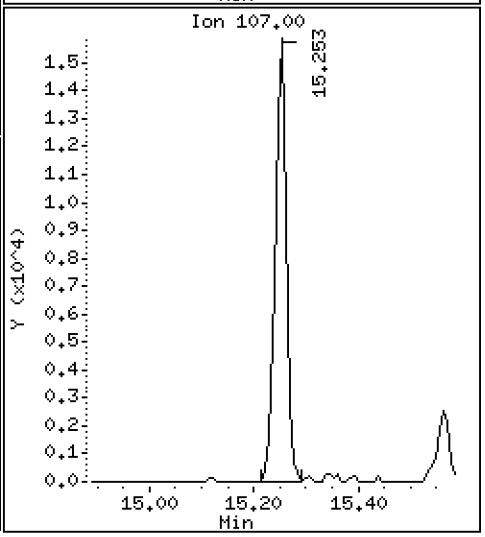


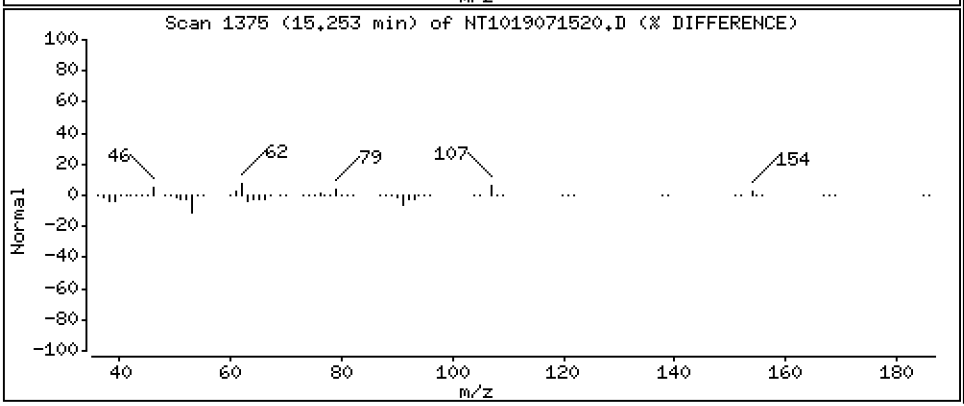












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

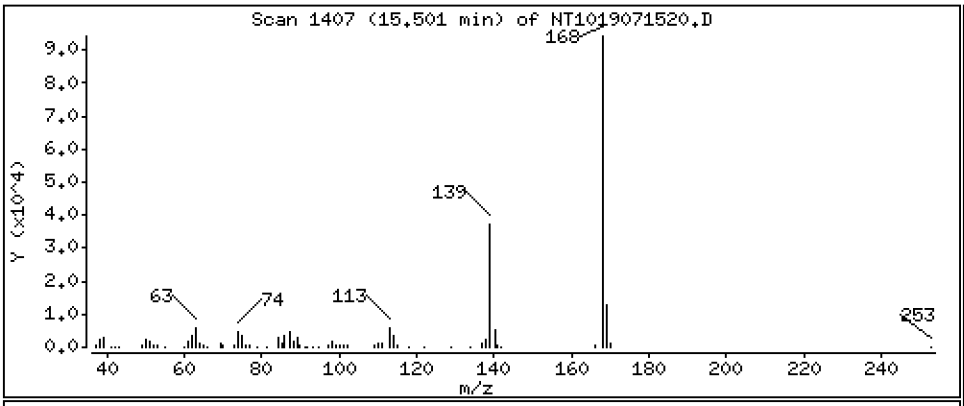
Operator: YZ

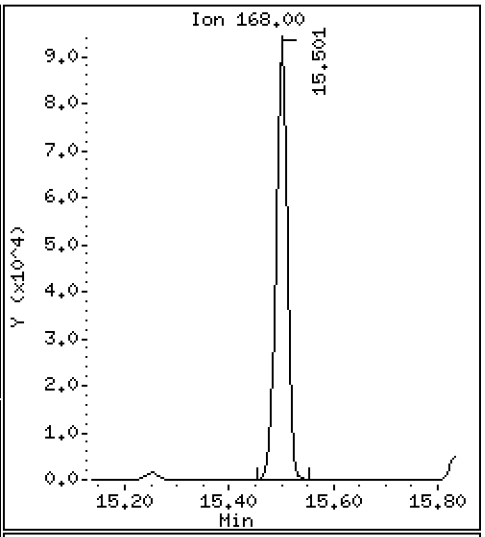
Column phase: ZB-5msi

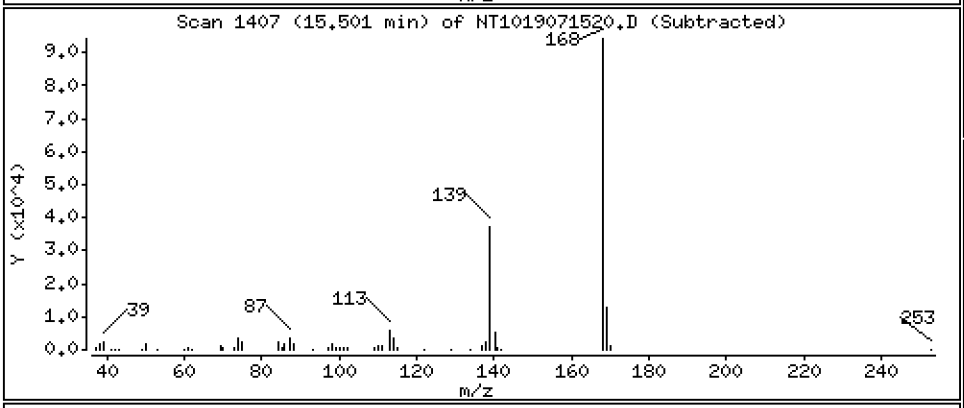
Column diameter: 0.25

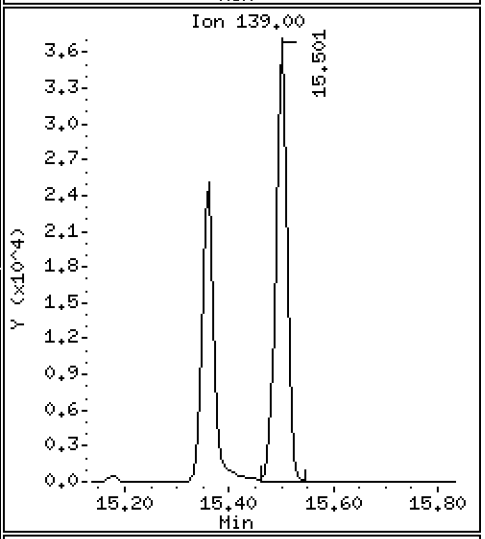
46 Dibenzofuran

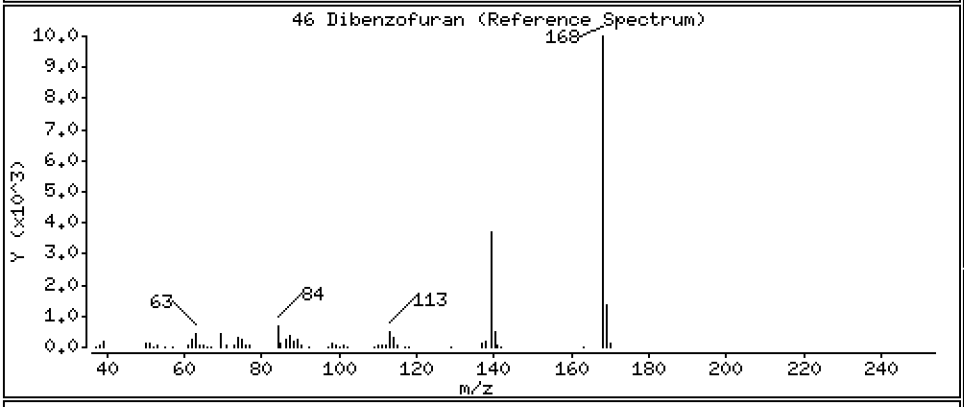
Concentration: 5.166 ug/mL

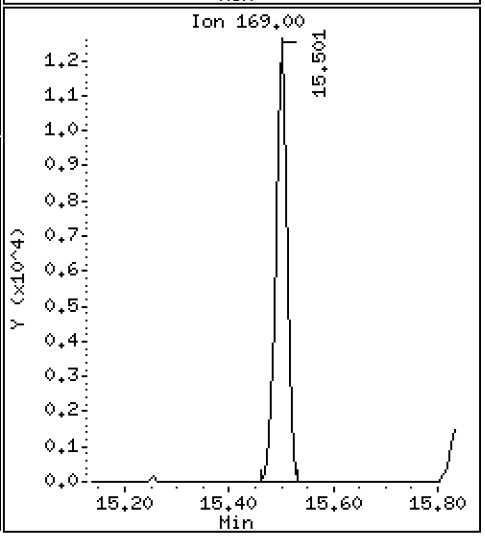


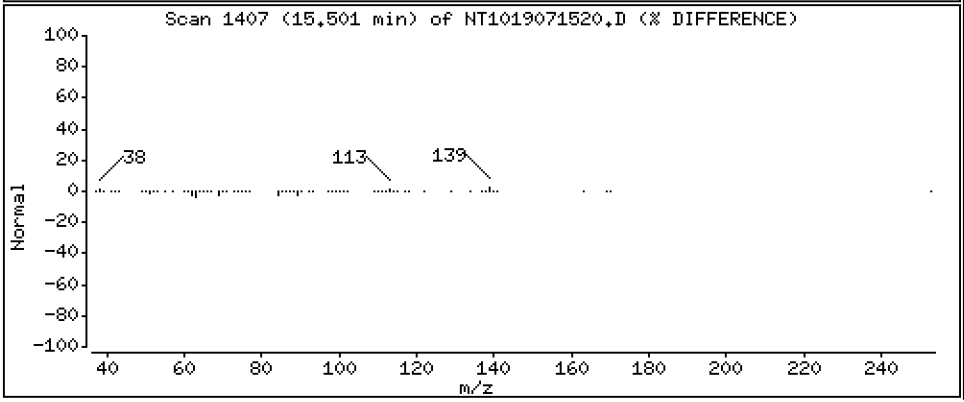












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

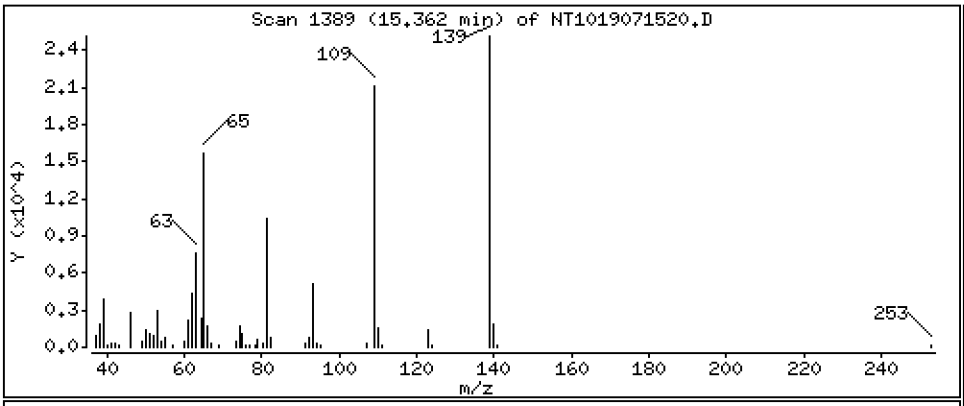
Operator: YZ

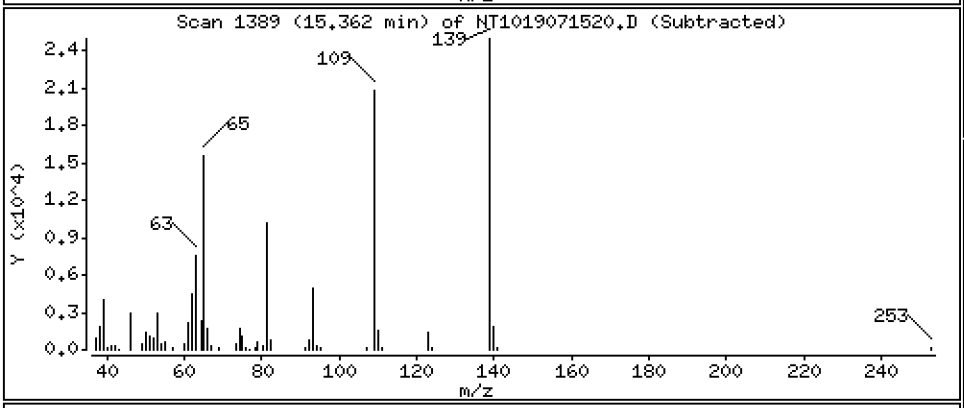
Column phase: ZB-5msi

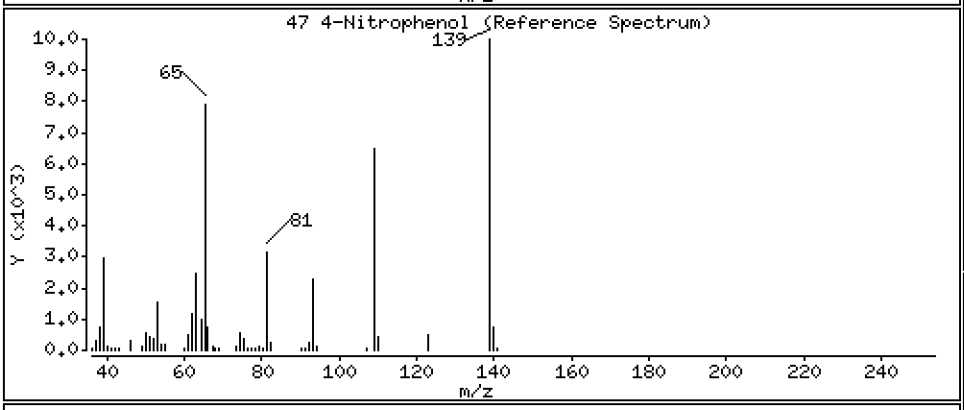
Column diameter: 0.25

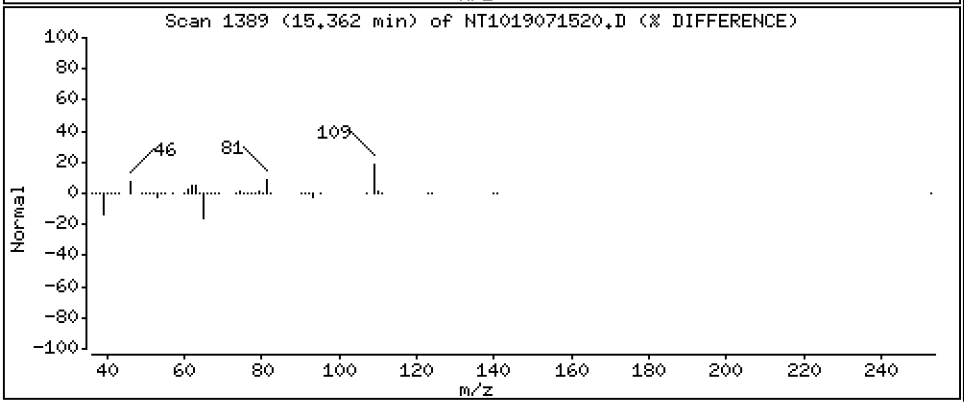
47 4-Nitrophenol

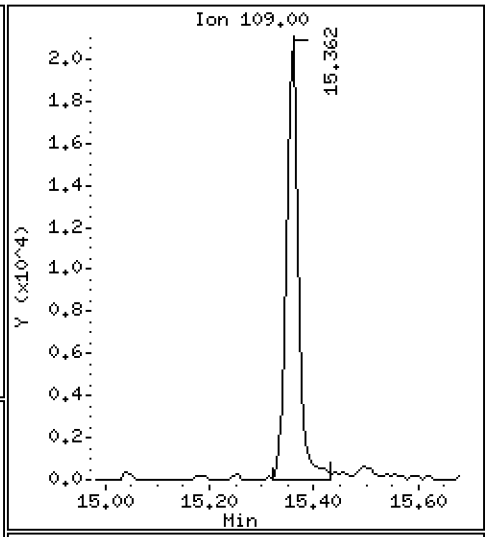
Concentration: 10.21 ug/mL

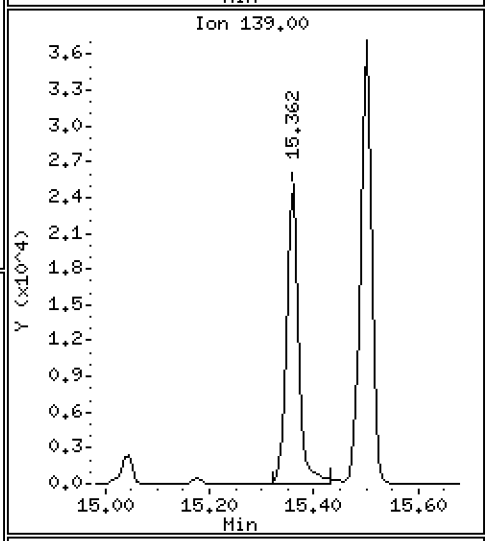


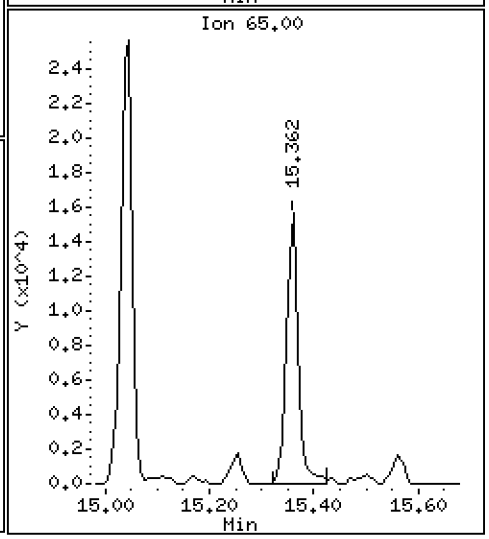












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

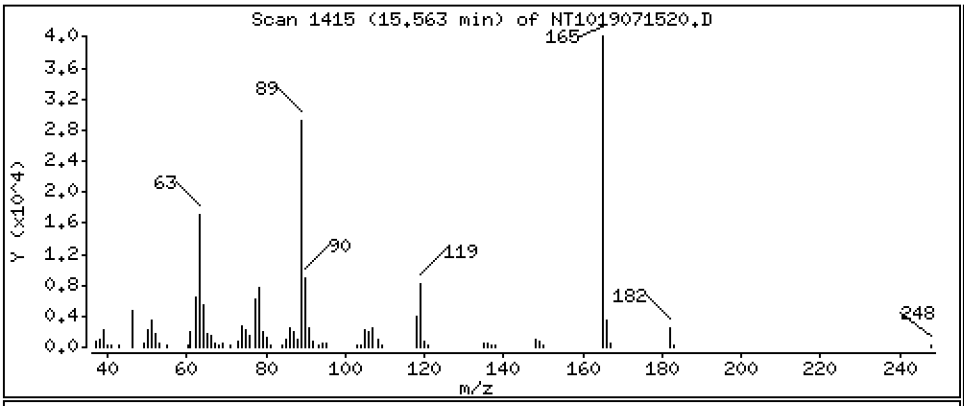
Operator: YZ

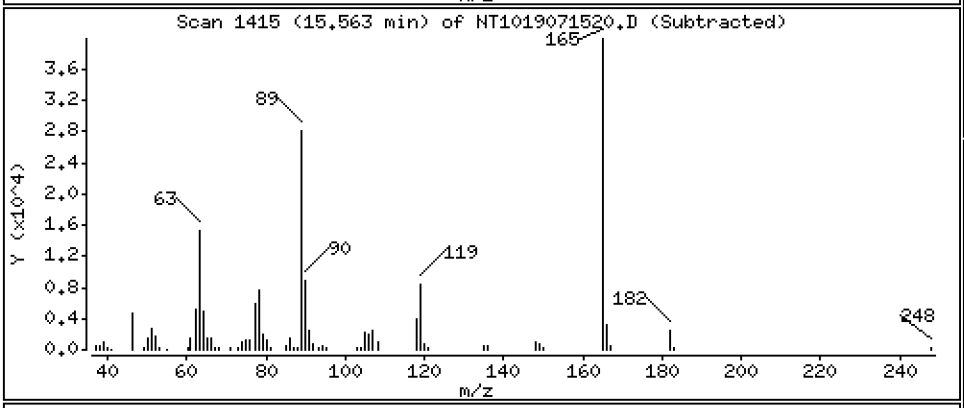
Column phase: ZB-5msi

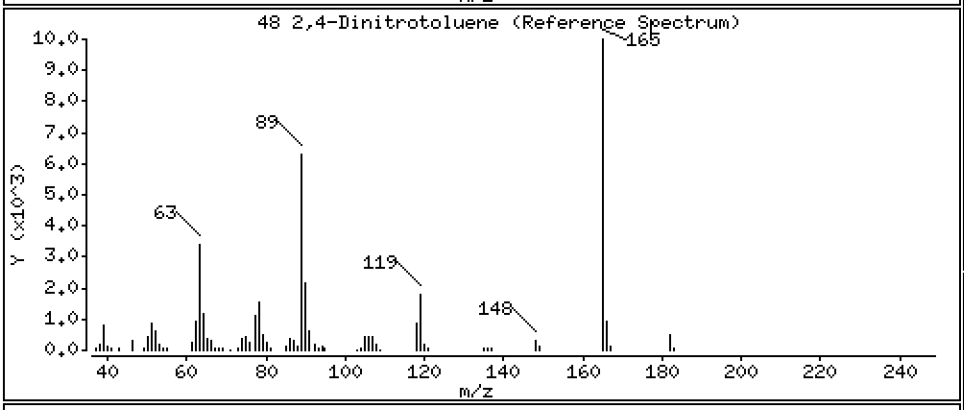
Column diameter: 0.25

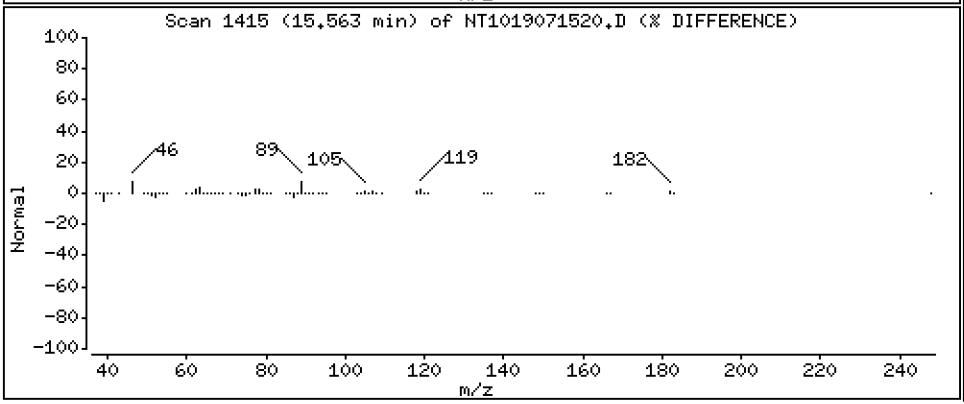
48 2,4-Dinitrotoluene

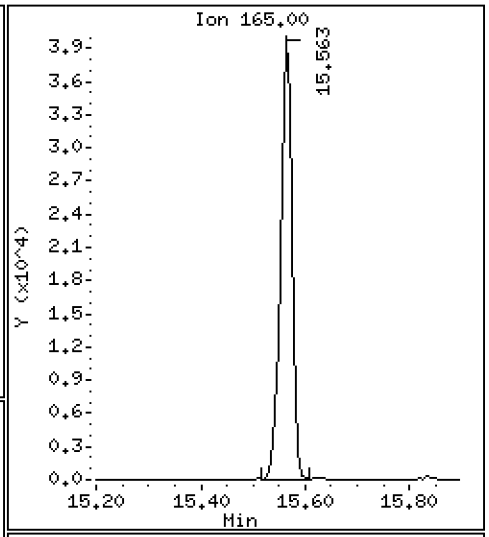
Concentration: 10.10 ug/mL

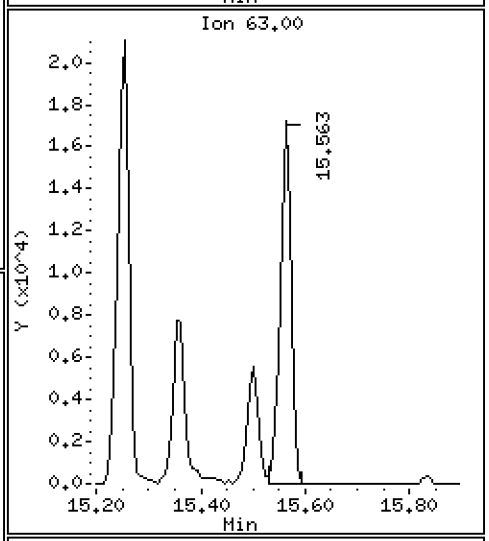


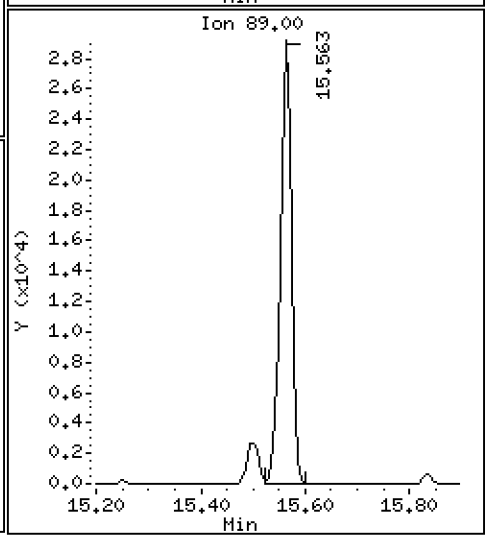












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

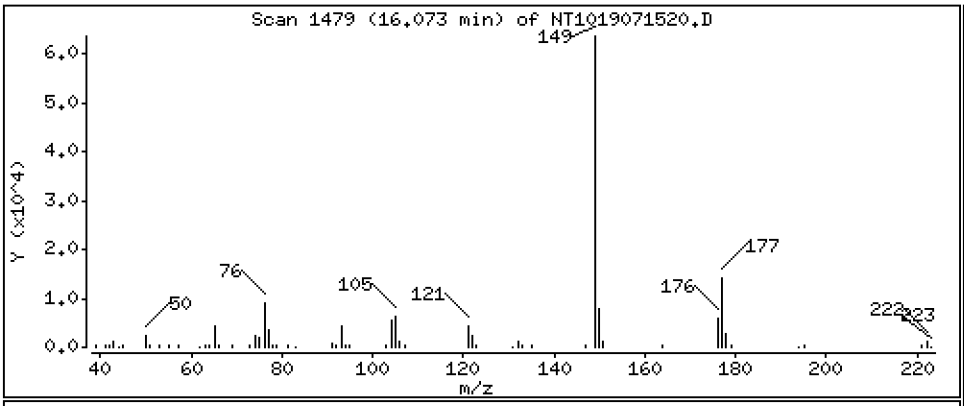
Operator: YZ

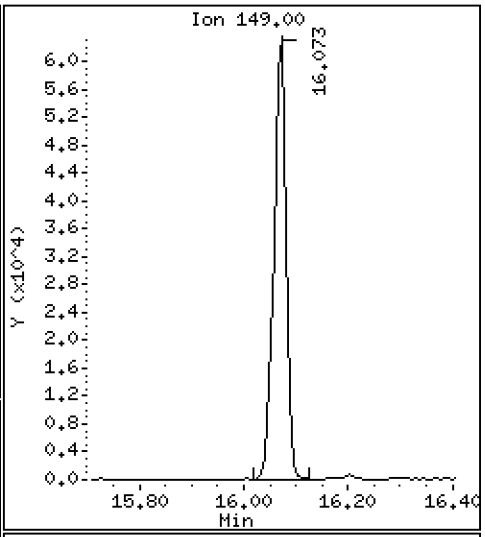
Column phase: ZB-5msi

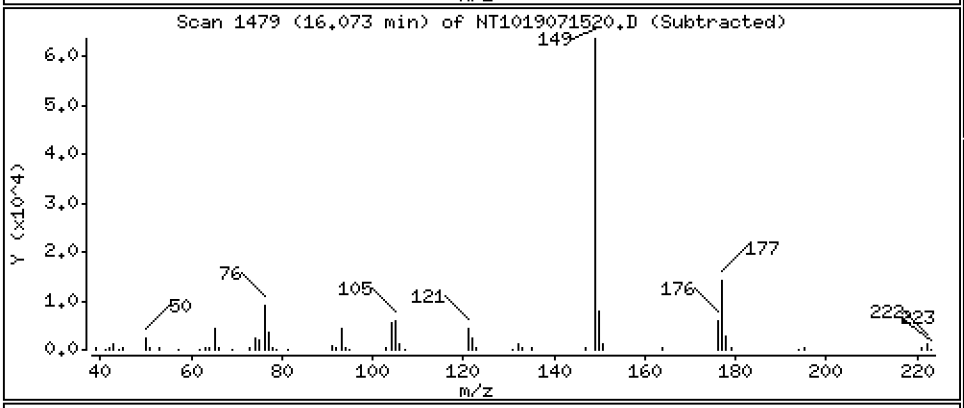
Column diameter: 0.25

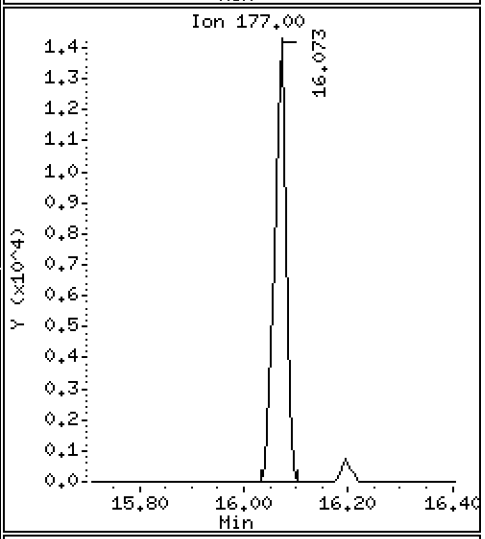
50 Diethylphthalate

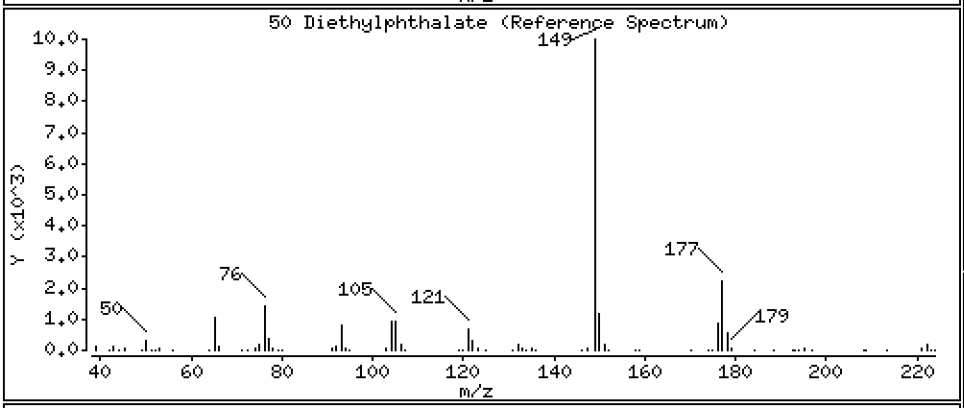
Concentration: 5.224 ug/mL

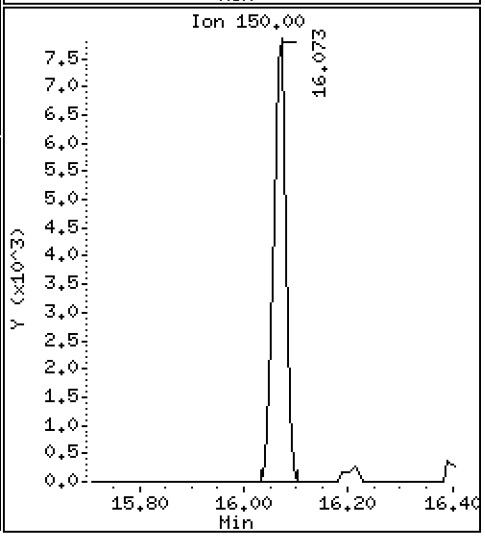


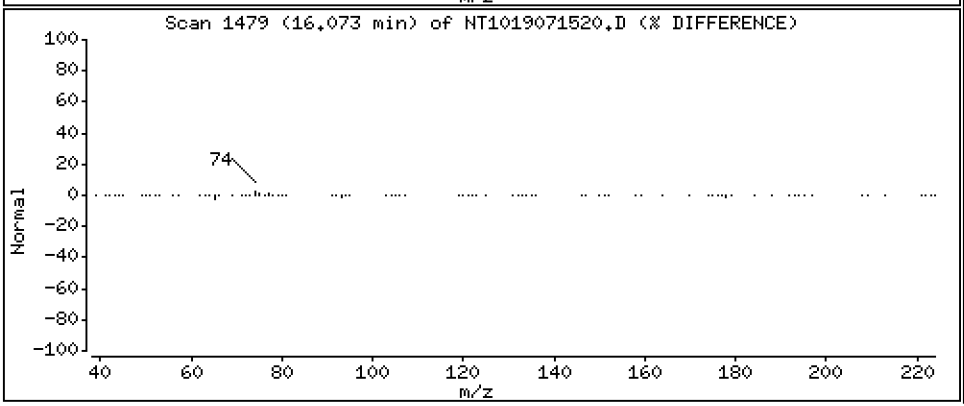












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

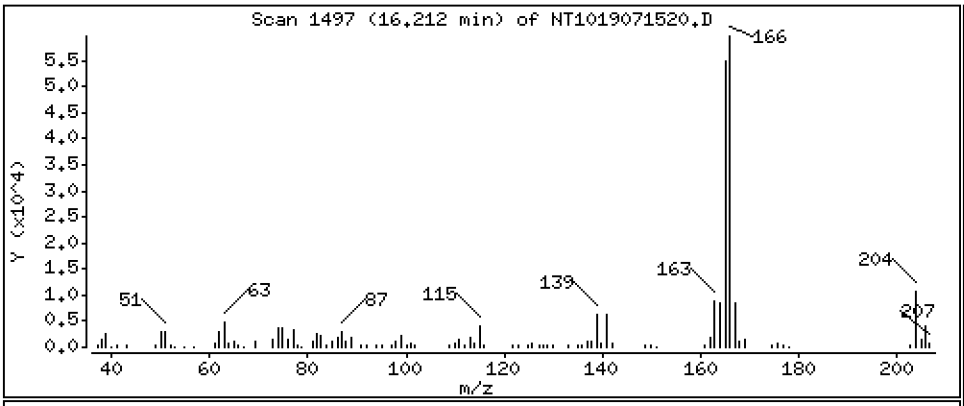
Operator: YZ

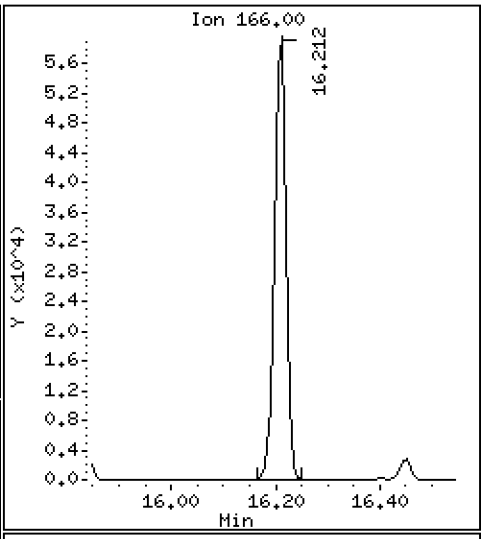
Column phase: ZB-5msi

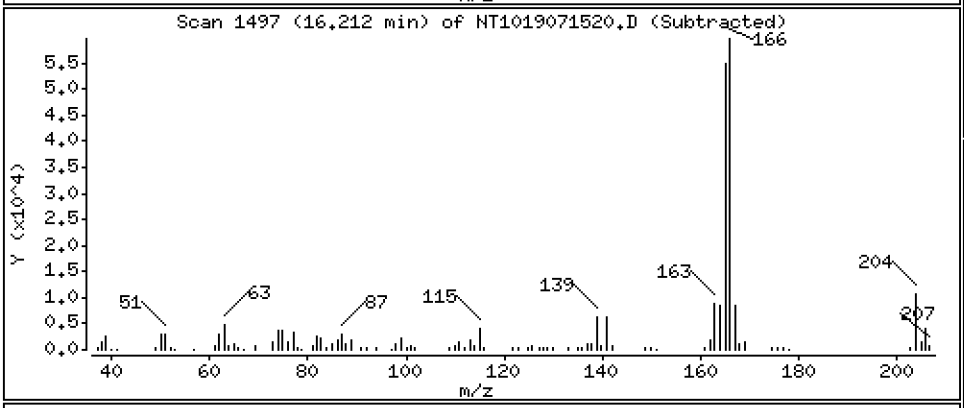
Column diameter: 0.25

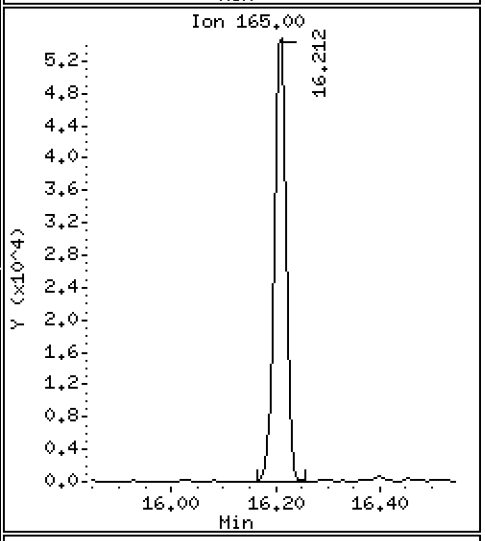
49 Fluorene

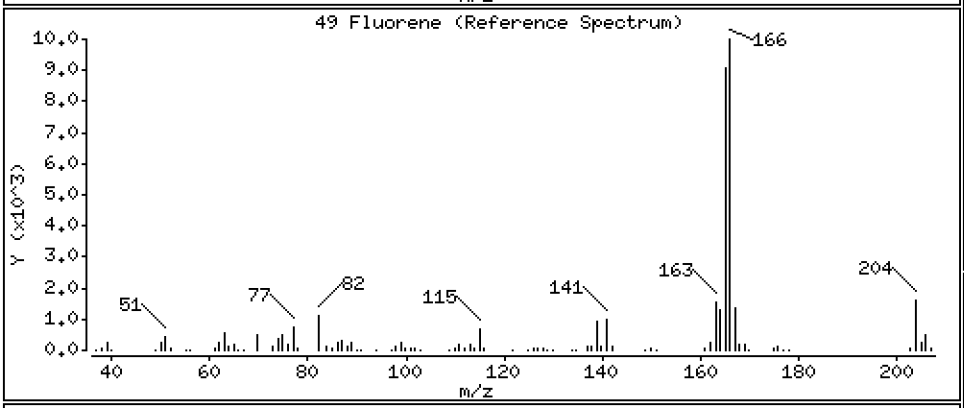
Concentration: 5.034 ug/mL

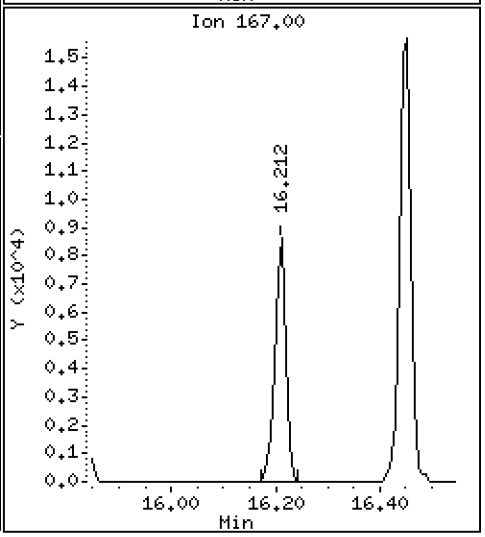


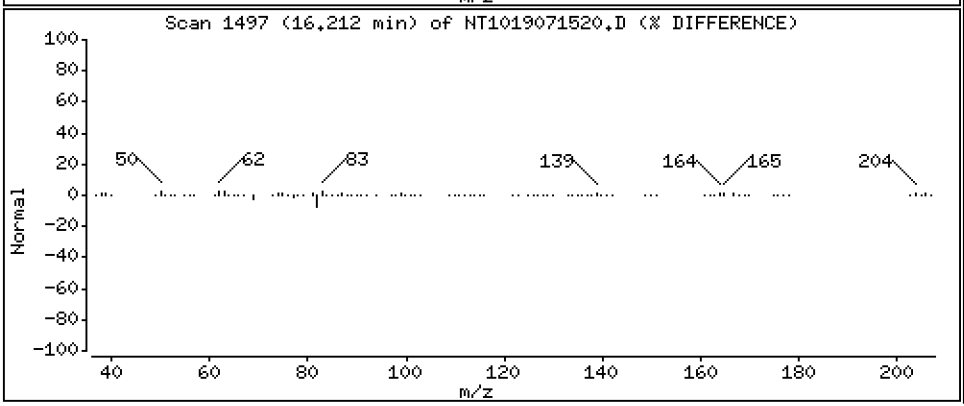












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

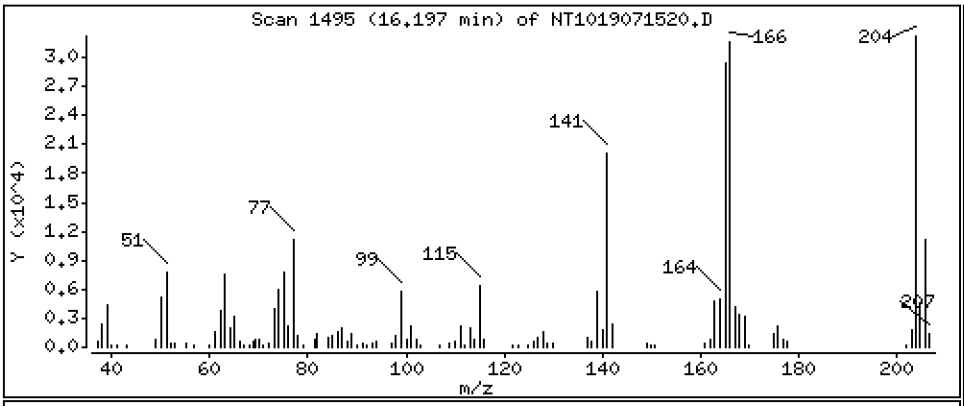
Operator: YZ

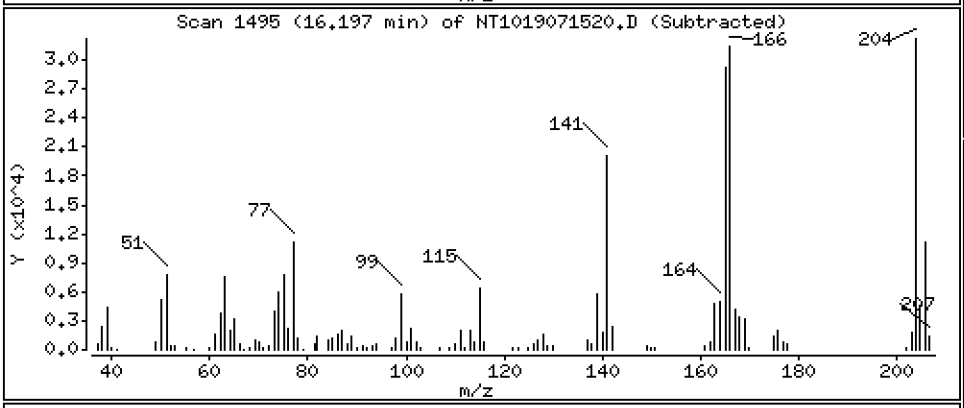
Column phase: ZB-5msi

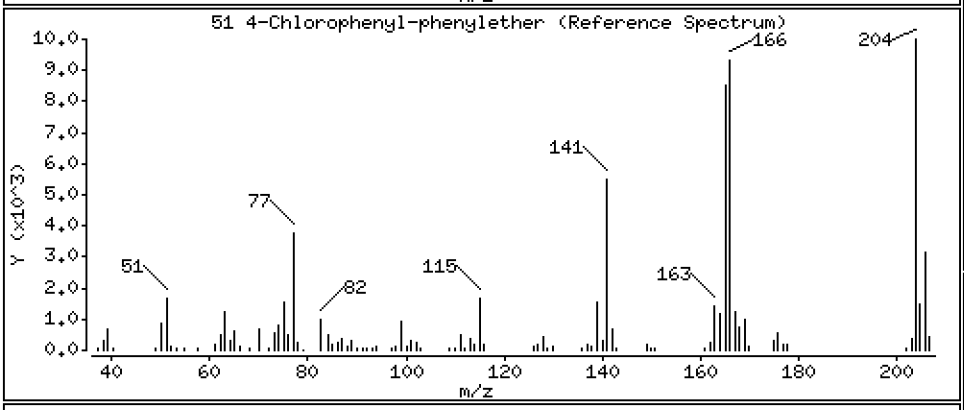
Column diameter: 0.25

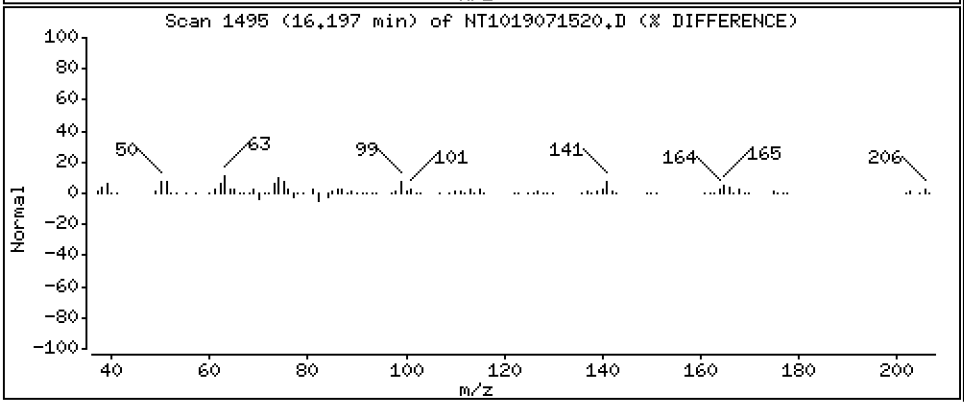
51 4-Chlorophenyl-phenylether

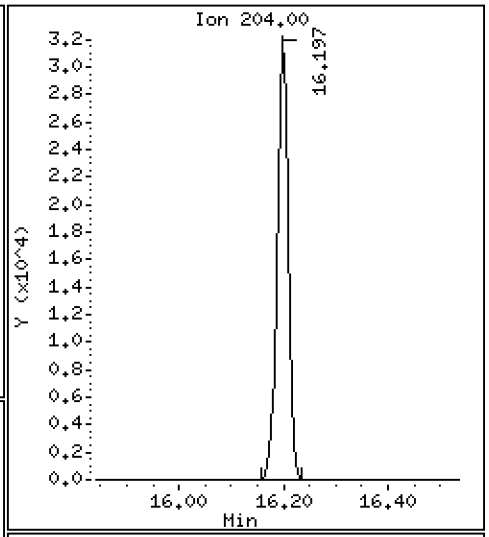
Concentration: 5.017 ug/mL

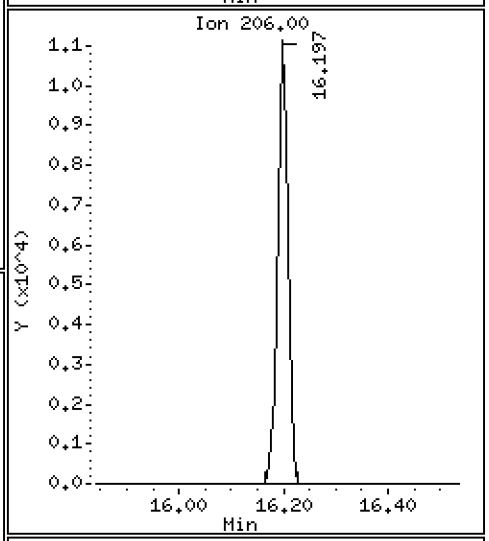


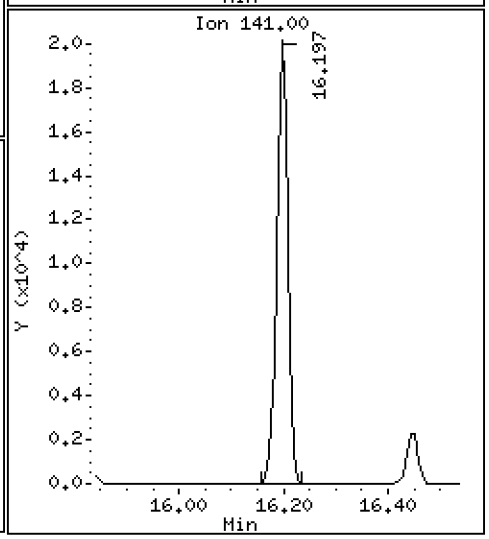












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

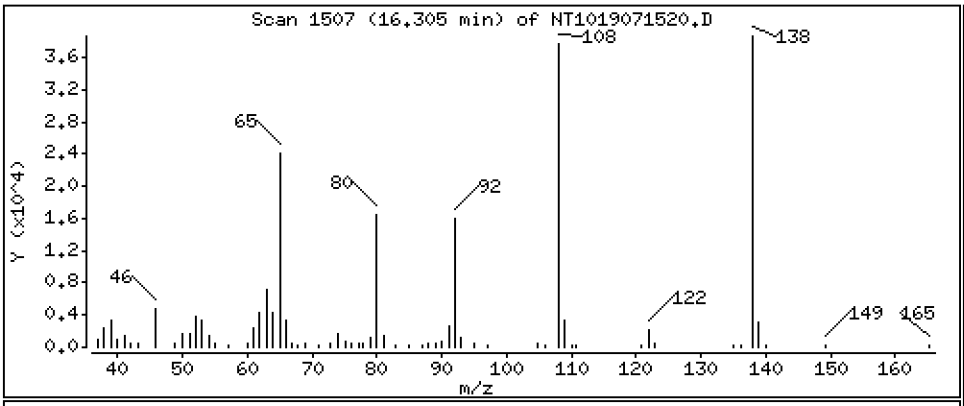
Operator: YZ

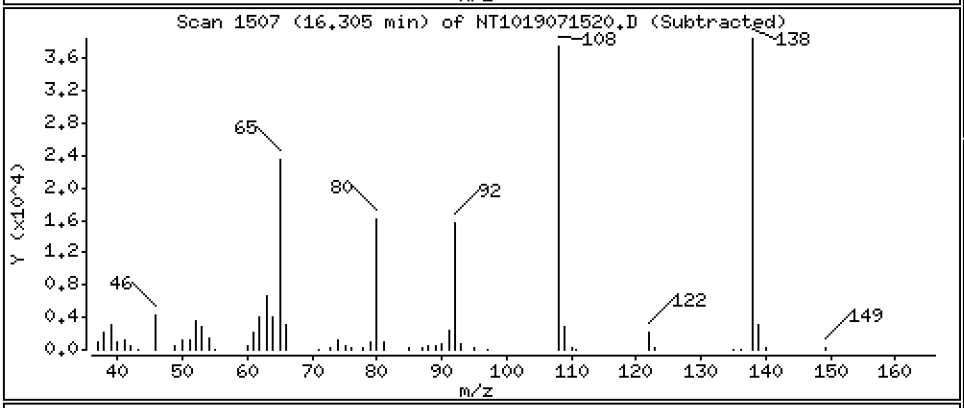
Column phase: ZB-5msi

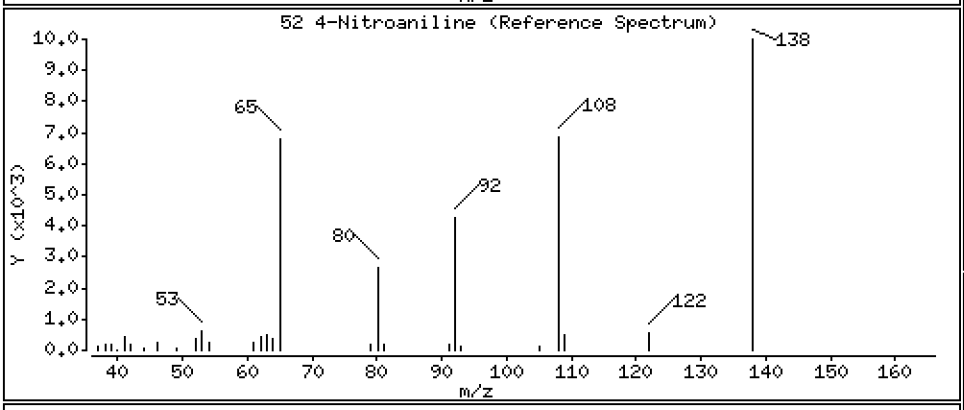
Column diameter: 0.25

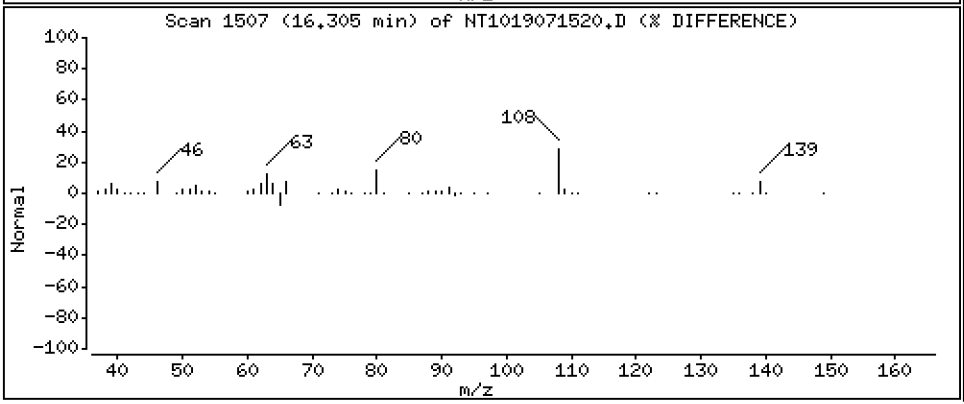
52 4-Nitroaniline

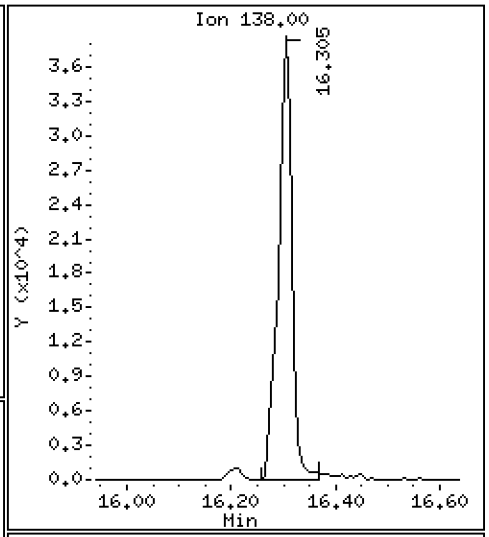
Concentration: 12.21 ug/mL

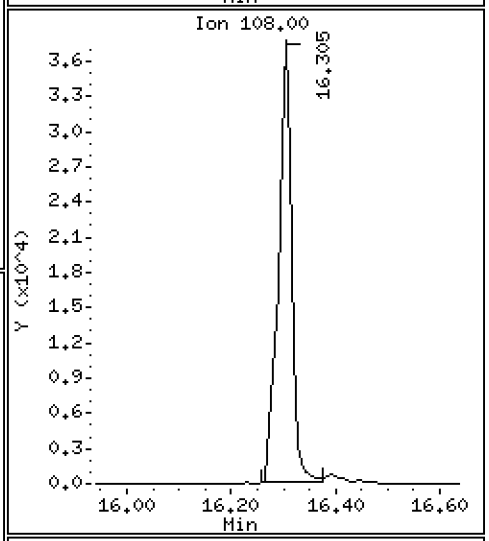


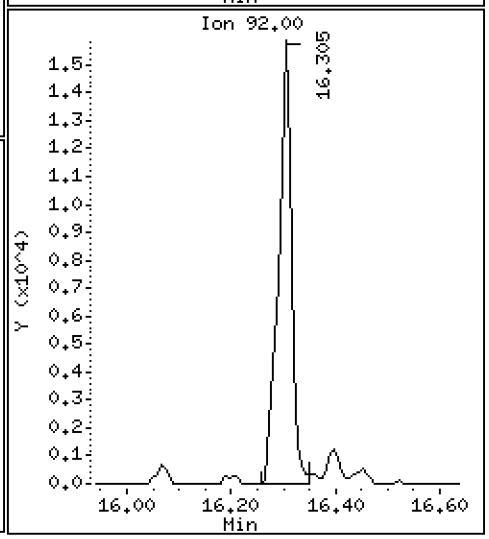












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

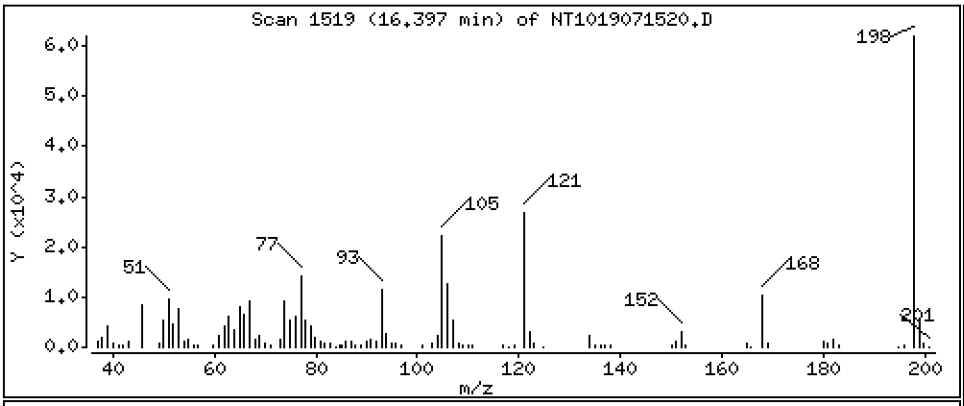
Operator: YZ

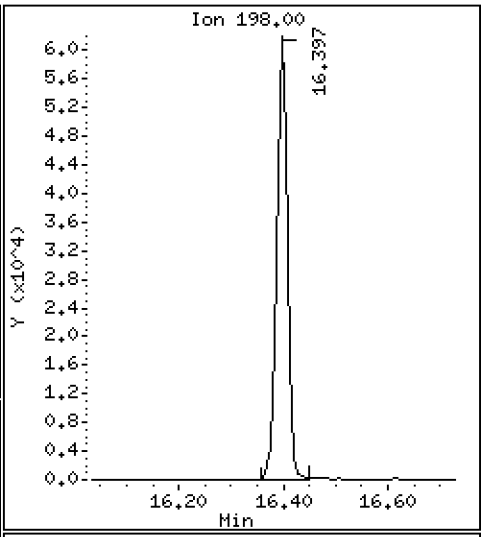
Column phase: ZB-5msi

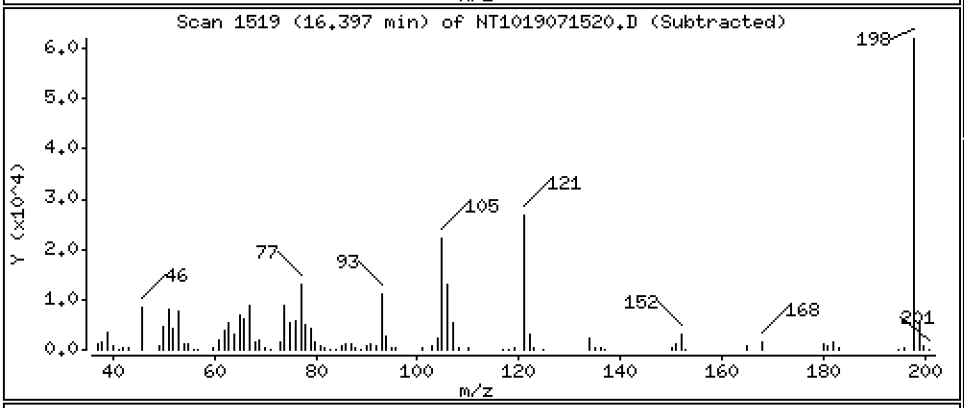
Column diameter: 0.25

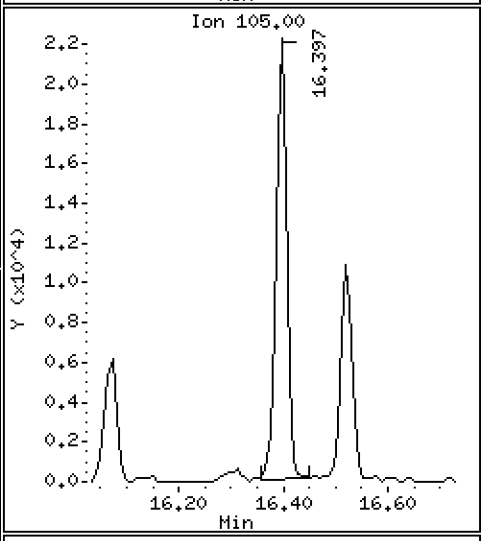
53 4,6-Dinitro-2-methylphenol

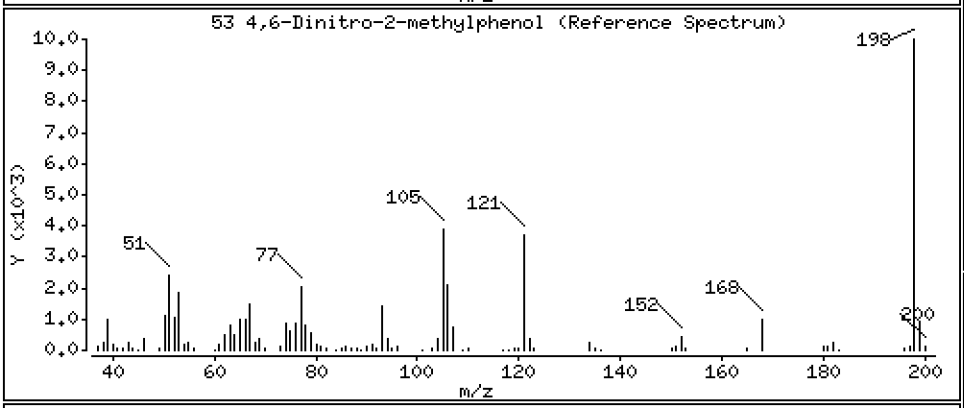
Concentration: 17.95 ug/mL

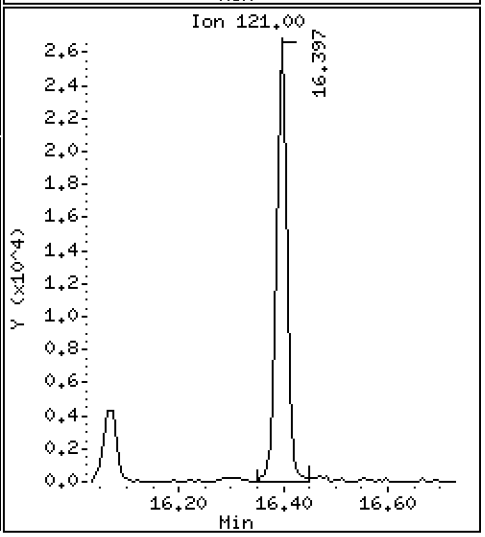


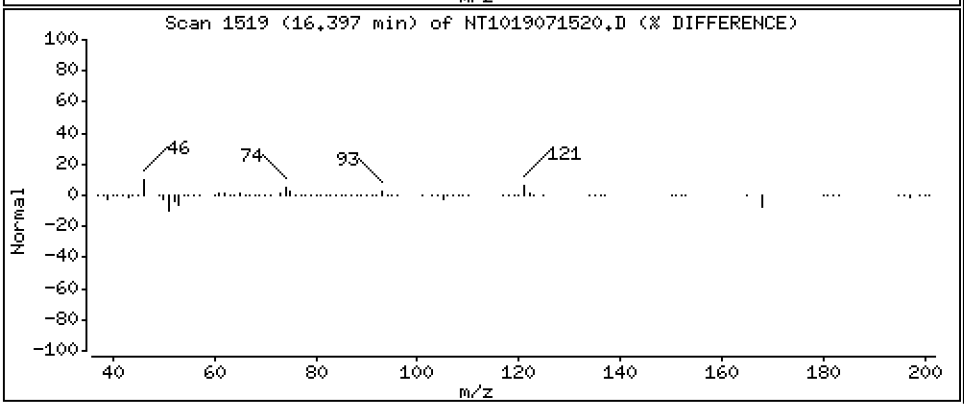












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

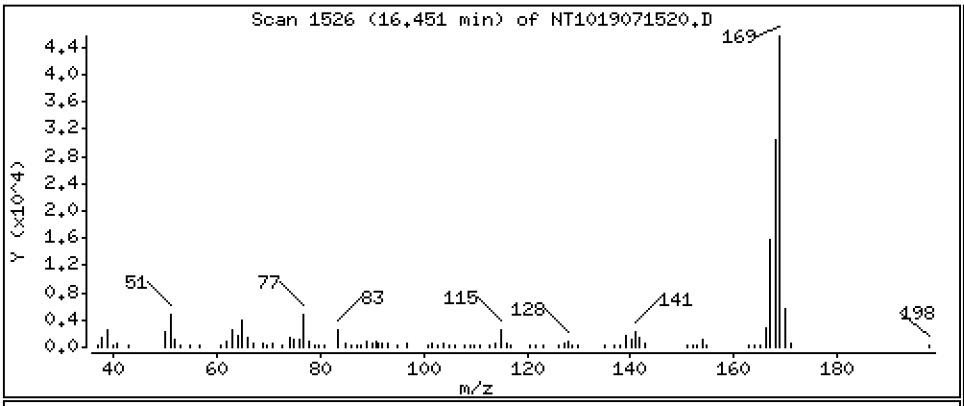
Operator: YZ

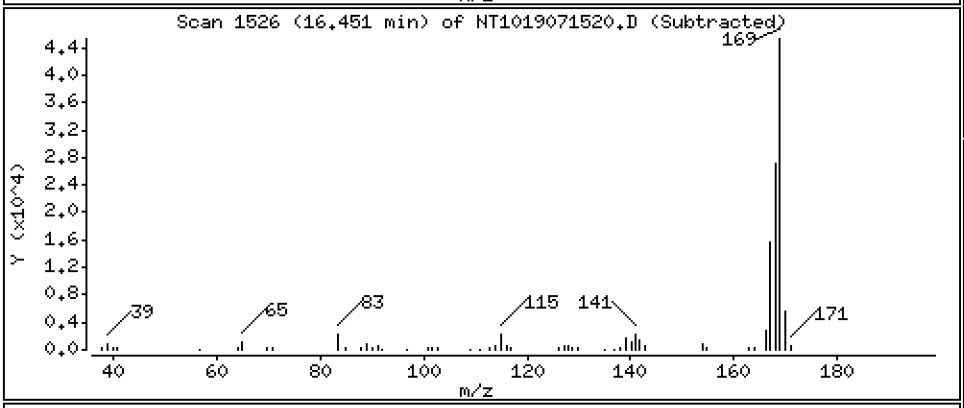
Column phase: ZB-5msi

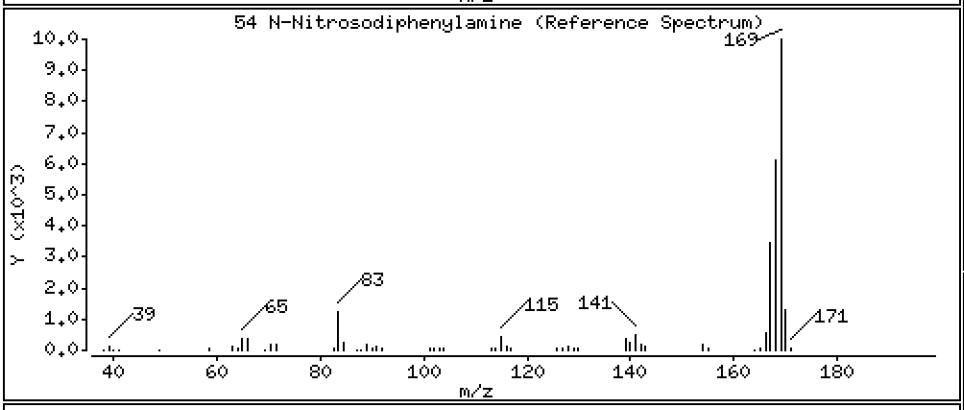
Column diameter: 0.25

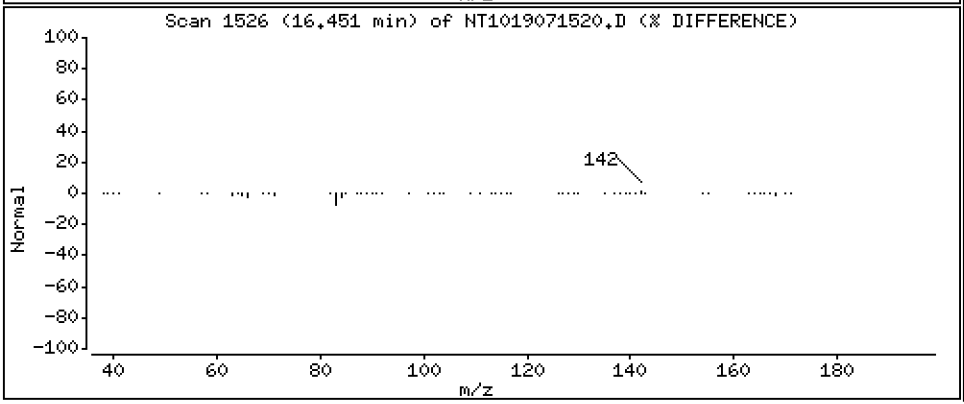
54 N-Nitrosodiphenylamine

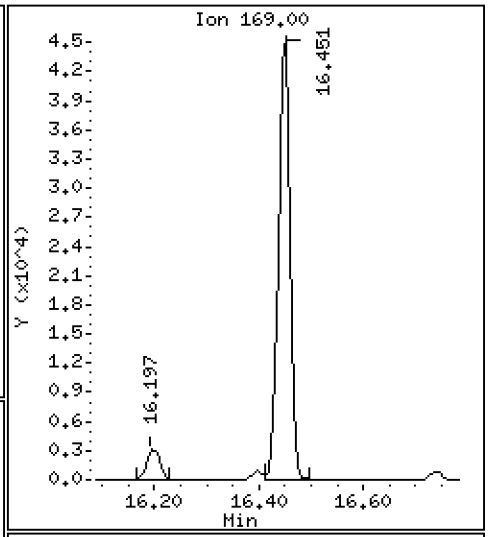
Concentration: 4.952 ug/mL

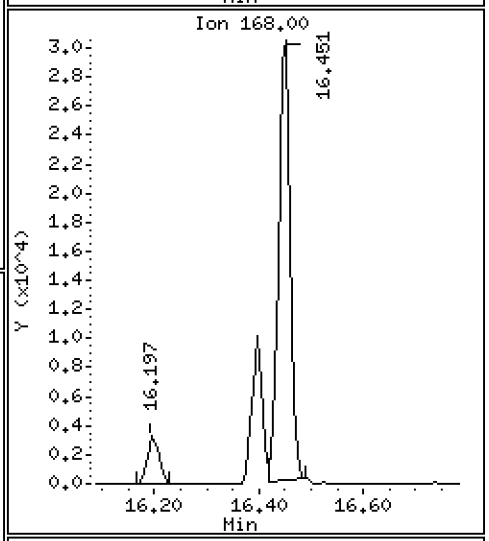


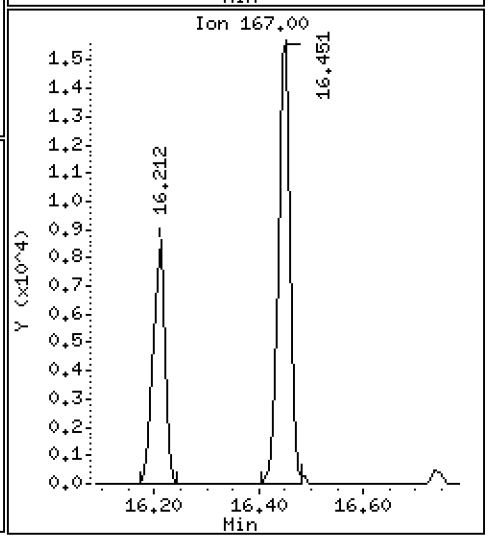












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

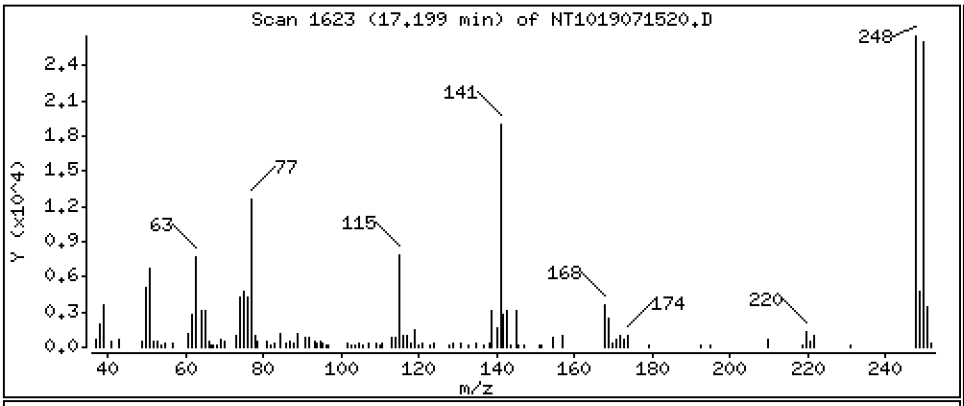
Operator: YZ

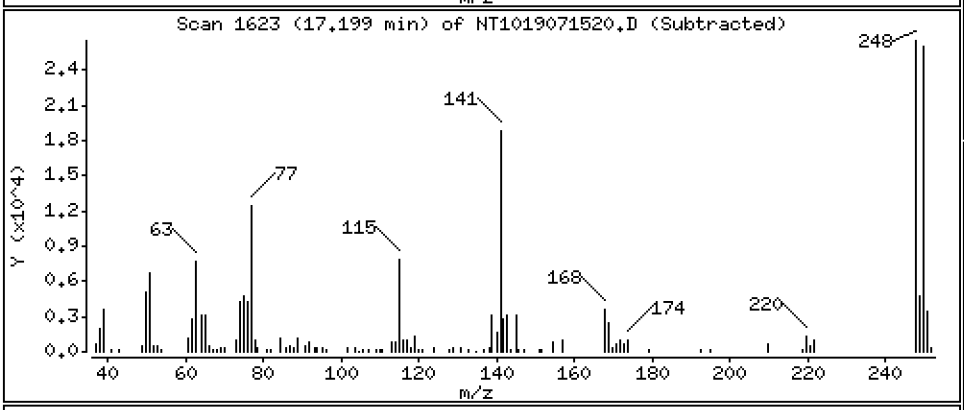
Column phase: ZB-5msi

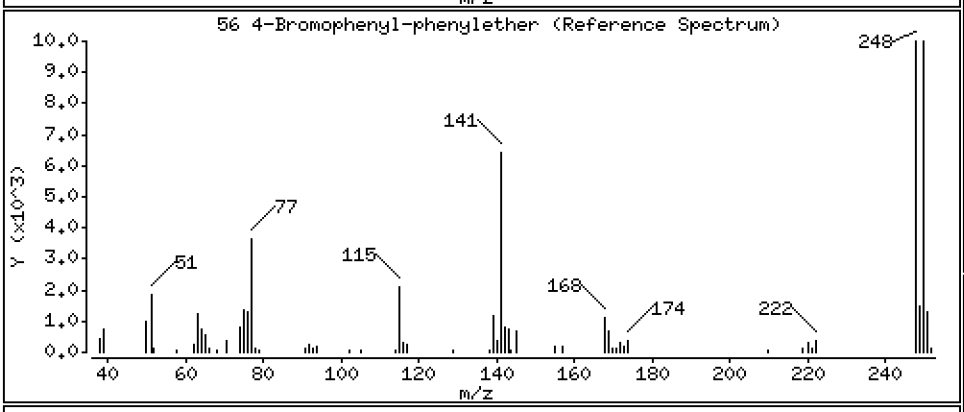
Column diameter: 0.25

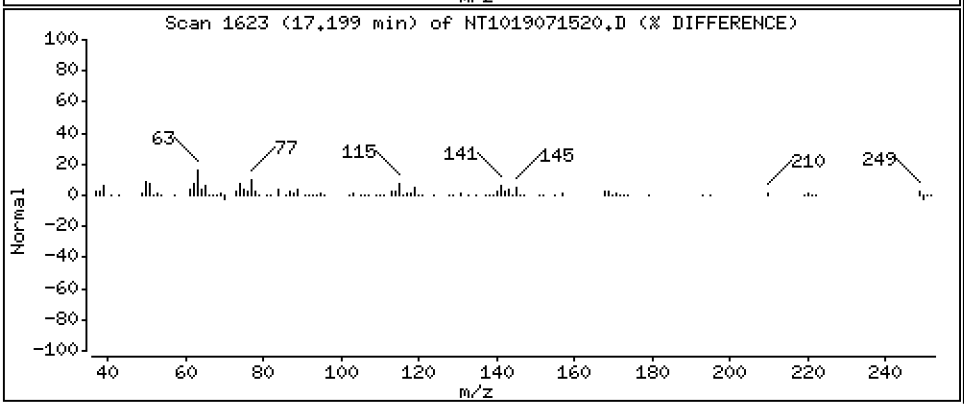
56 4-Bromophenyl-phenylether

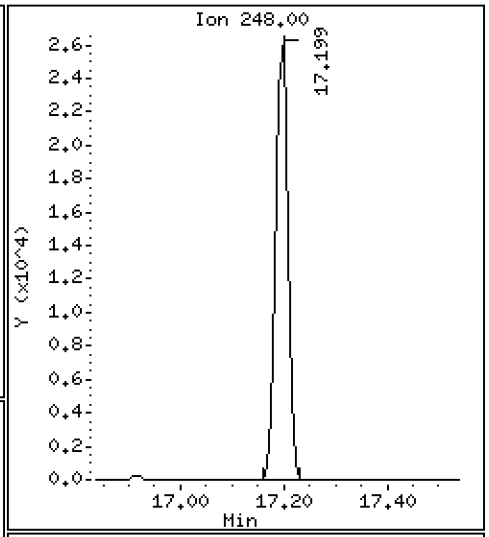
Concentration: 4.809 ug/mL

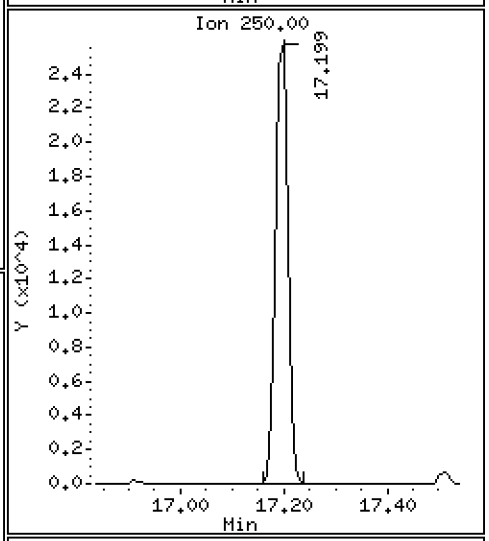


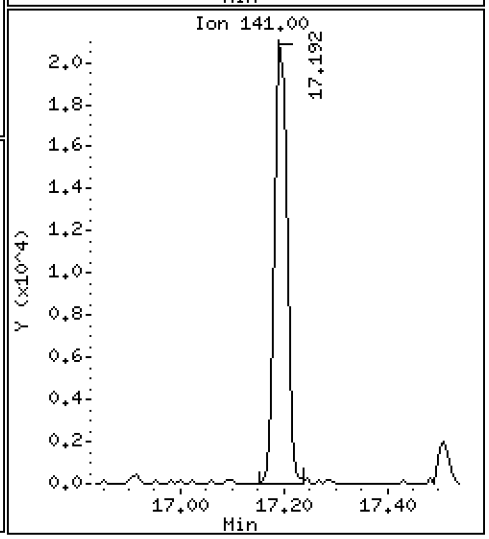












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

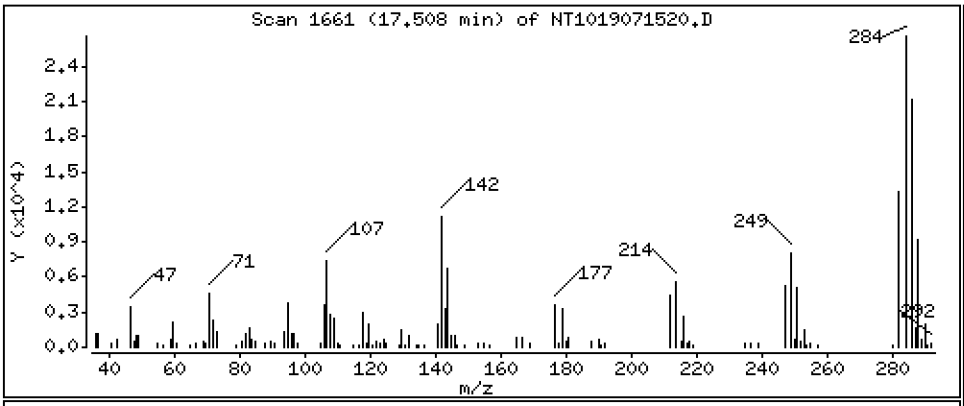
Operator: YZ

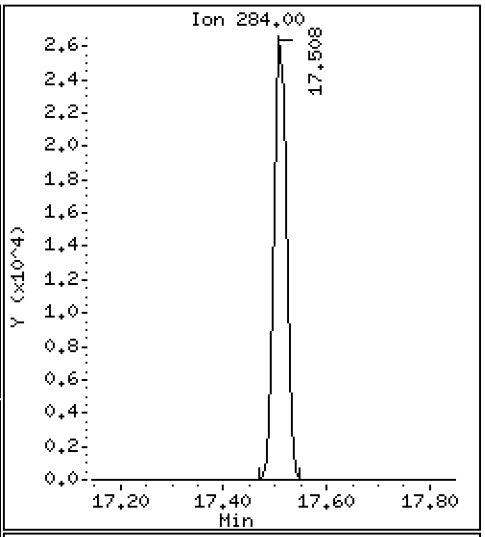
Column phase: ZB-5msi

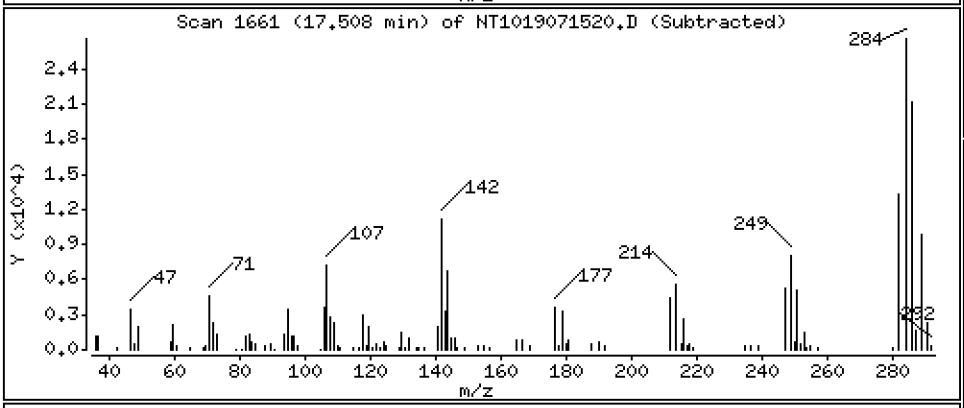
Column diameter: 0.25

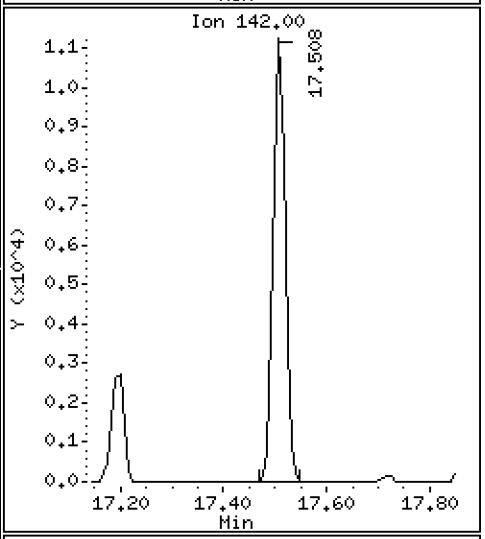
57 Hexachlorobenzene

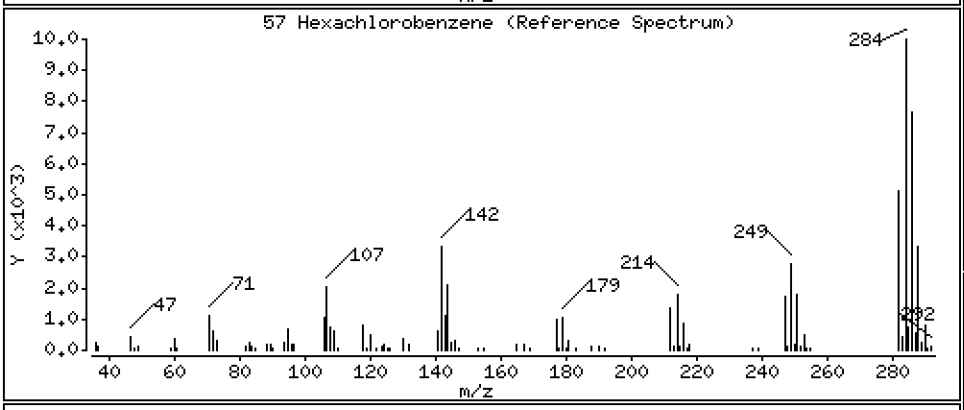
Concentration: 4.675 ug/mL

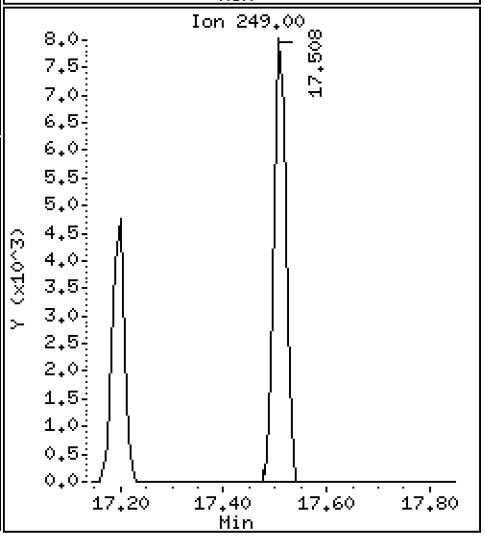


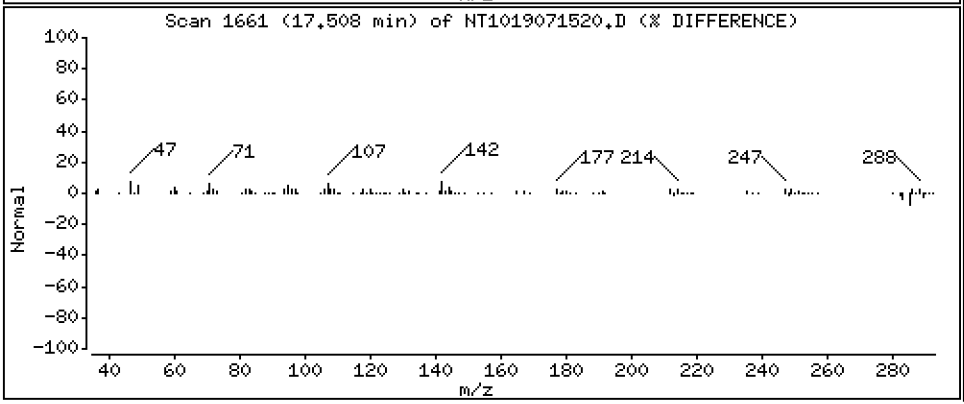












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

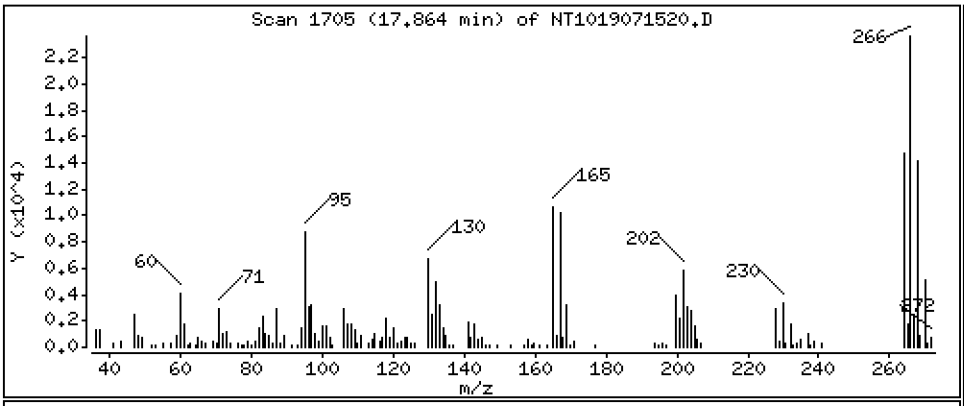
Operator: YZ

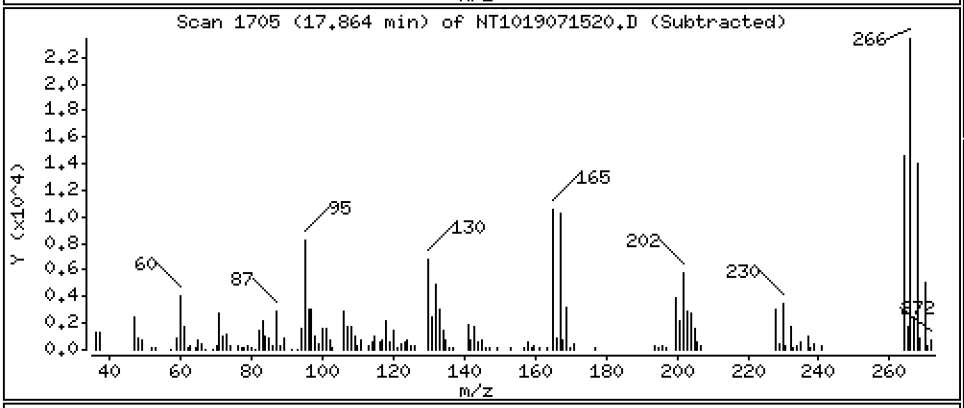
Column phase: ZB-5msi

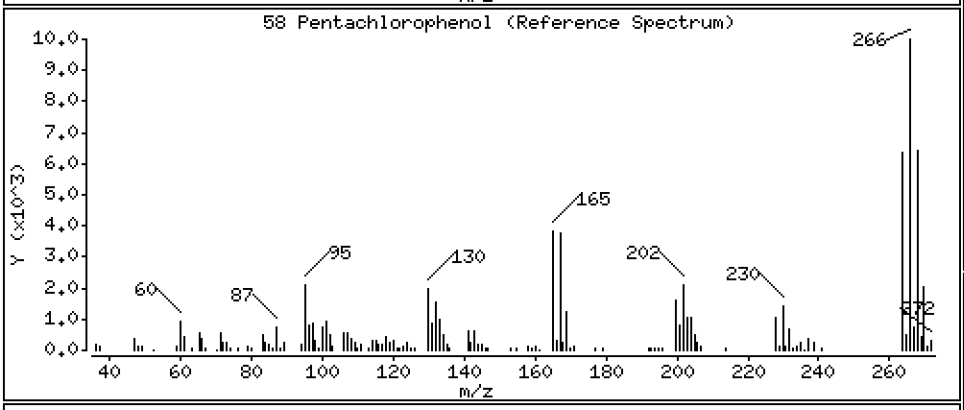
Column diameter: 0.25

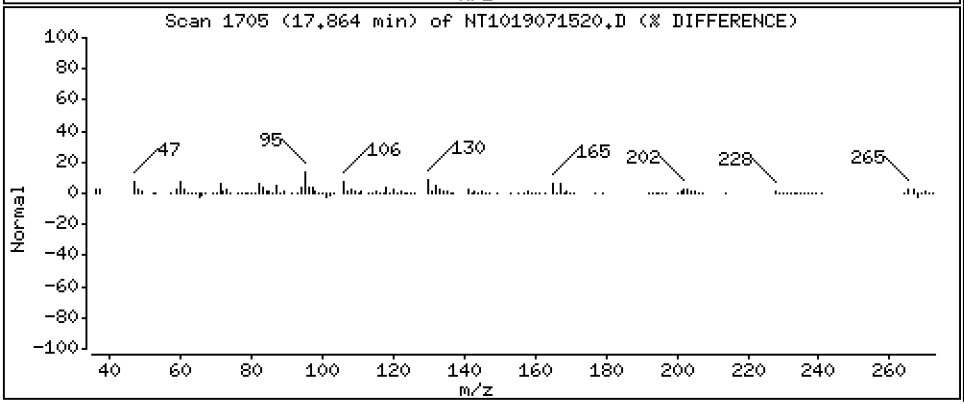
58 Pentachlorophenol

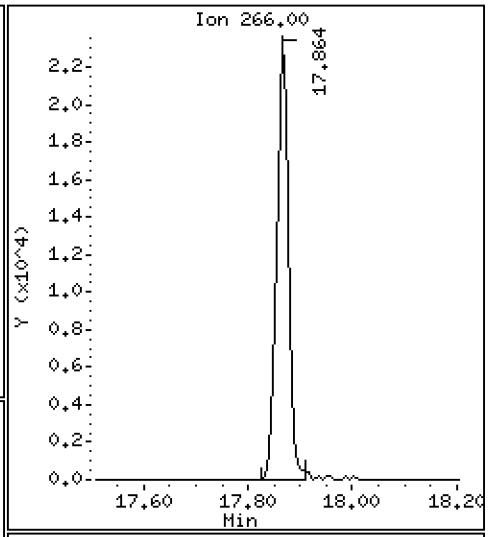
Concentration: 9.711 ug/mL

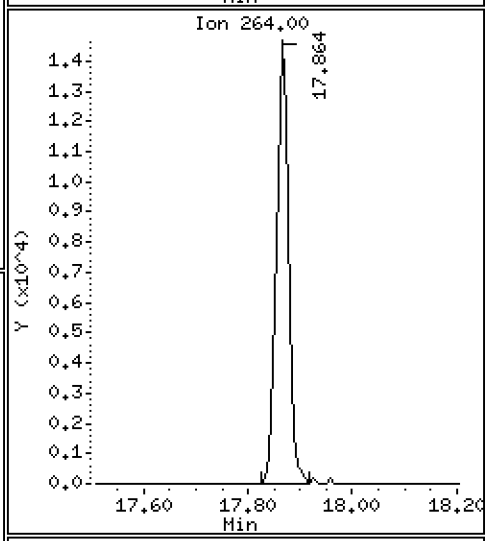


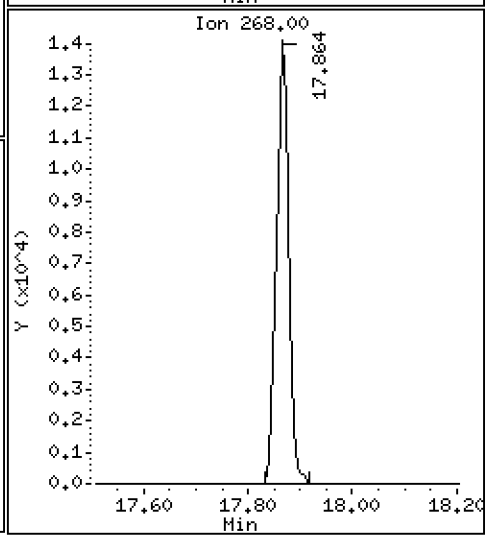












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

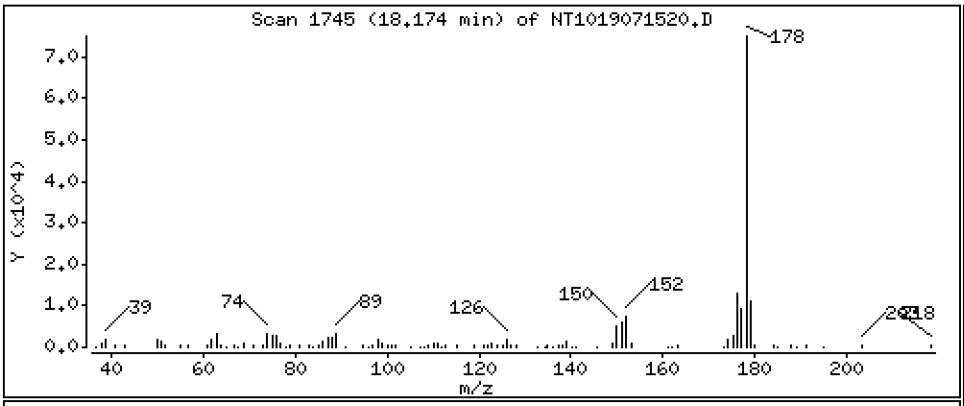
Operator: YZ

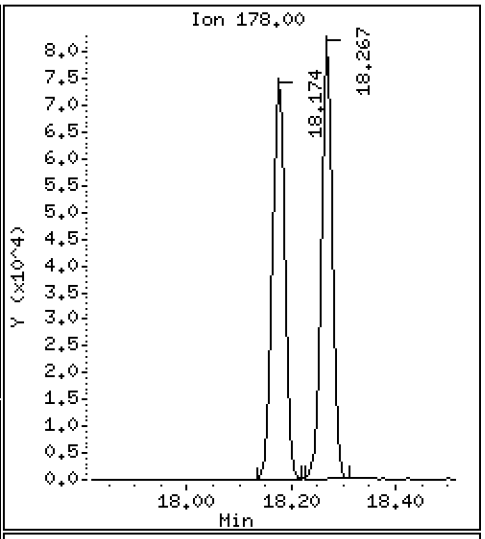
Column phase: ZB-5msi

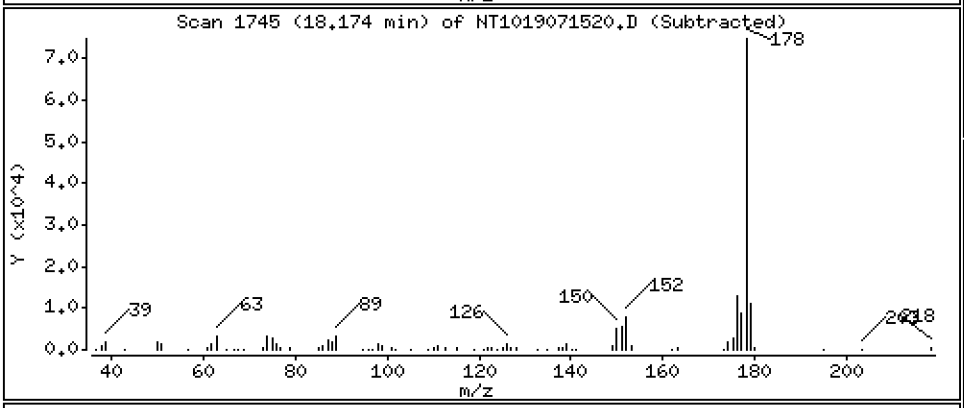
Column diameter: 0.25

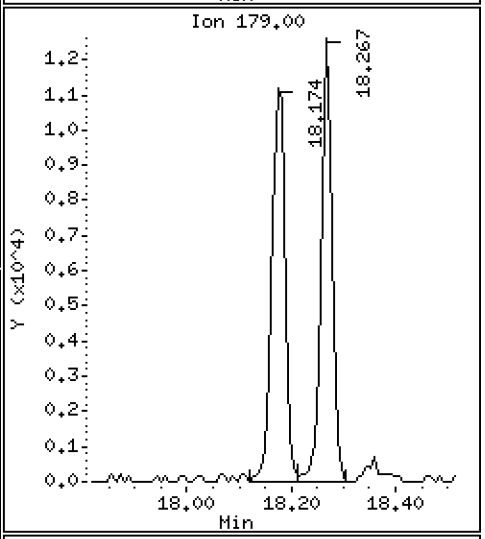
60 Phenanthrene

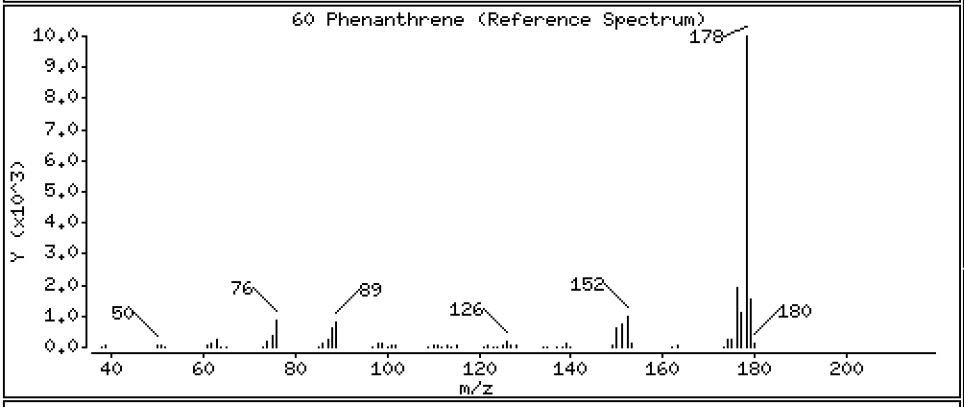
Concentration: 4.662 ug/mL

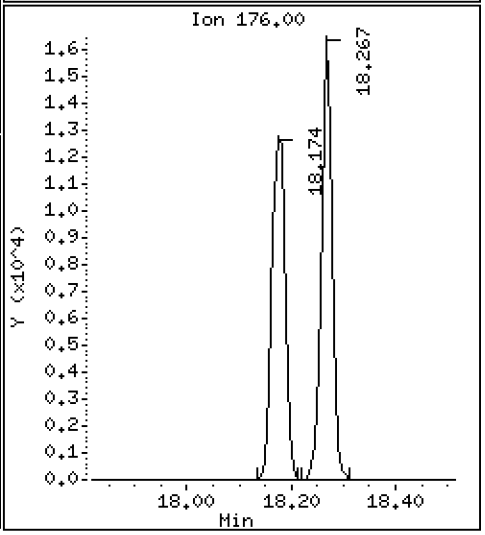


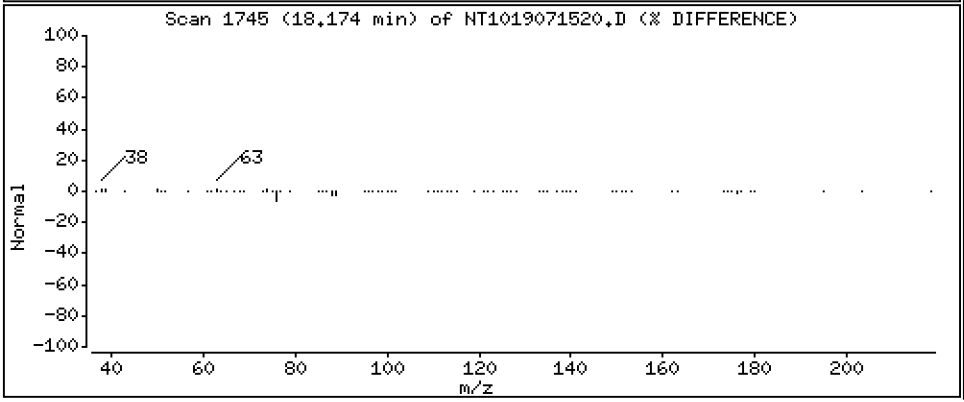












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

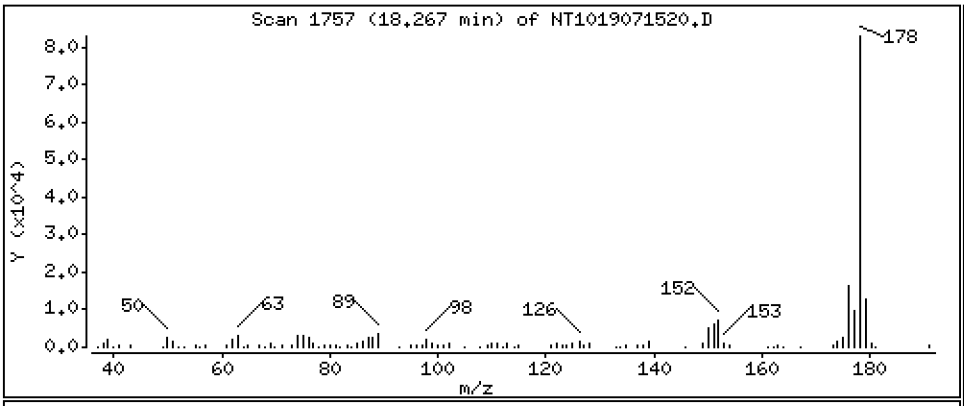
Operator: YZ

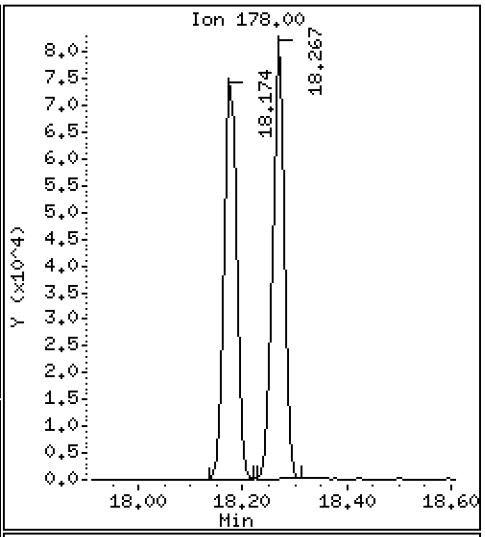
Column phase: ZB-5msi

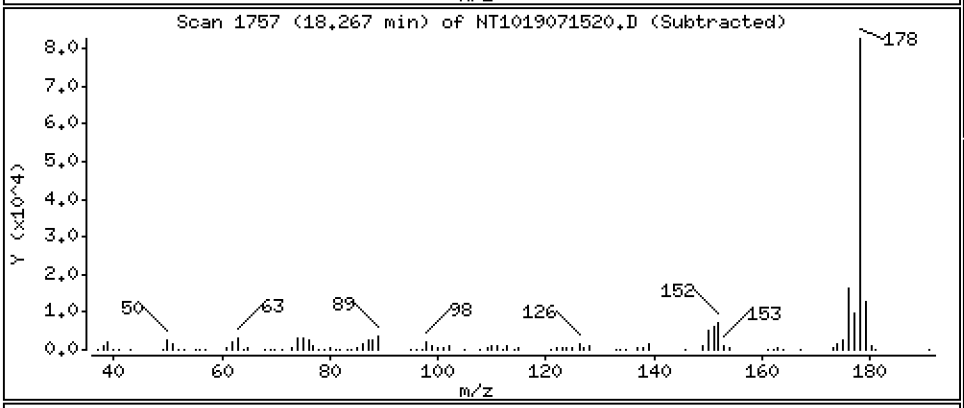
Column diameter: 0.25

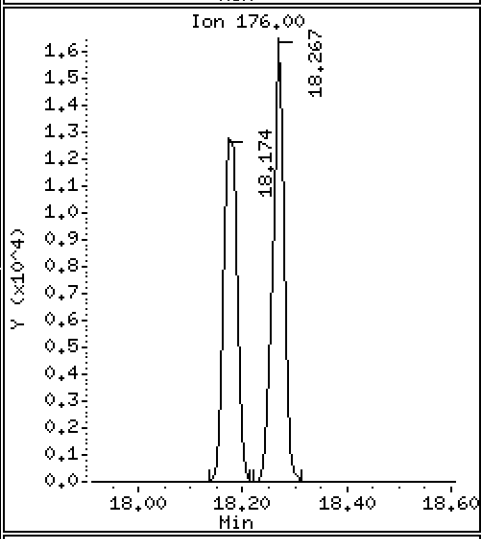
61 Anthracene

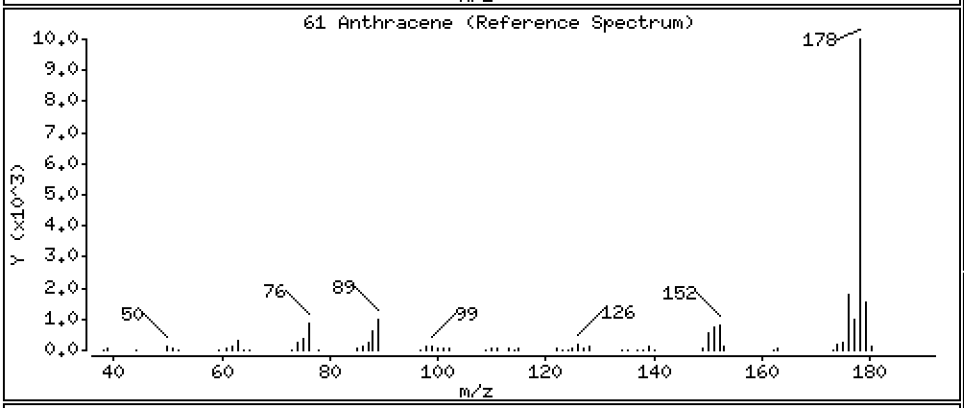
Concentration: 4.848 ug/mL

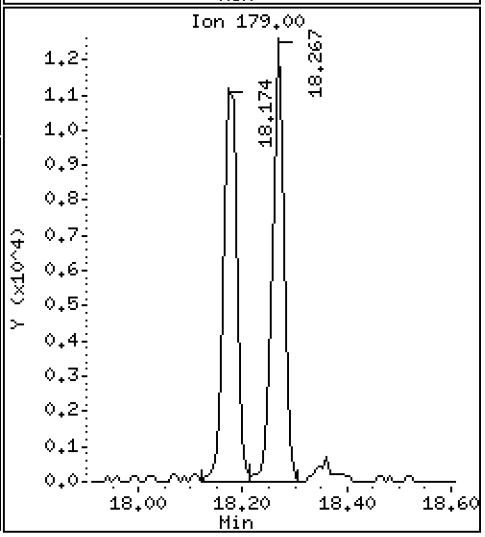


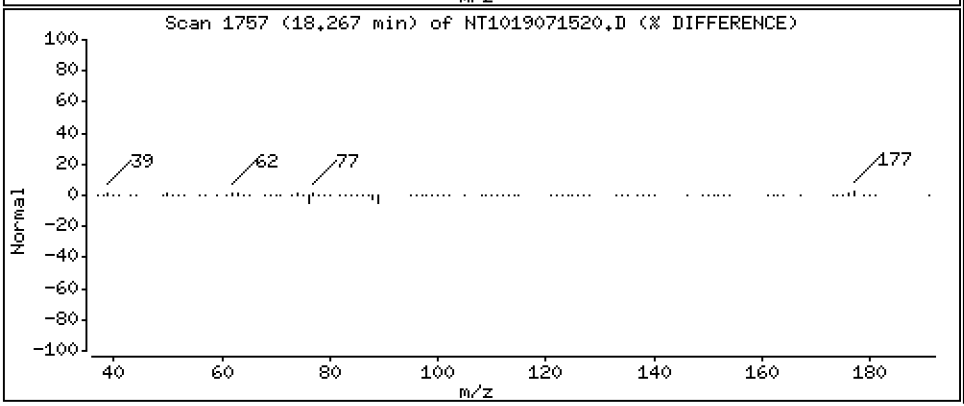












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

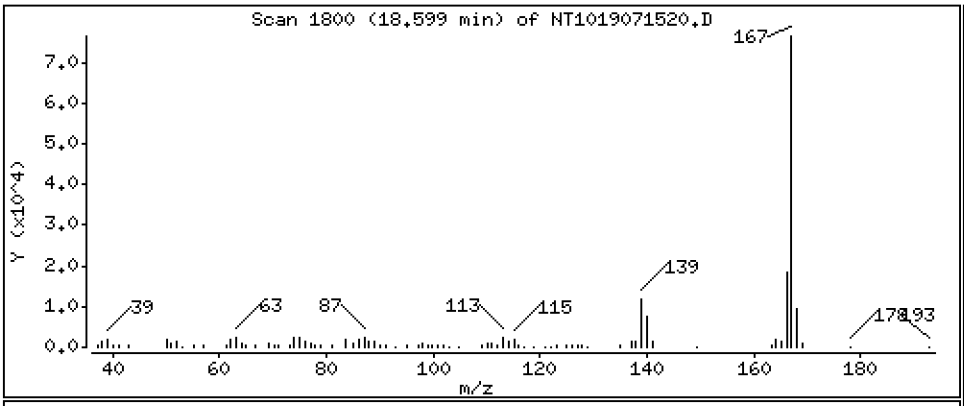
Operator: YZ

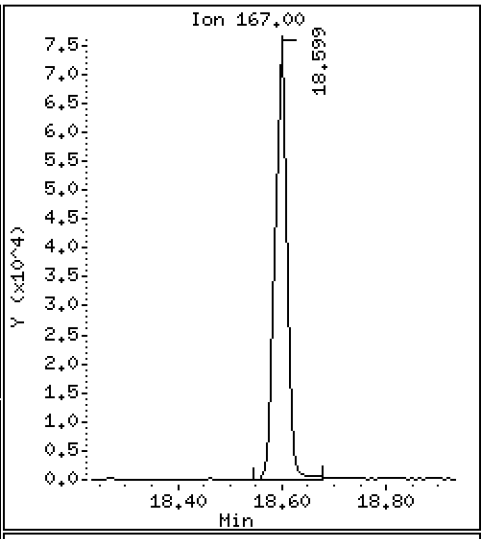
Column phase: ZB-5msi

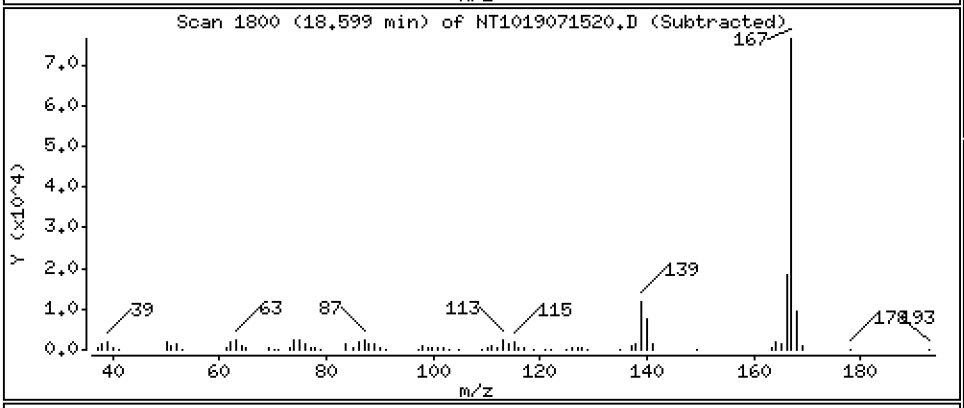
Column diameter: 0.25

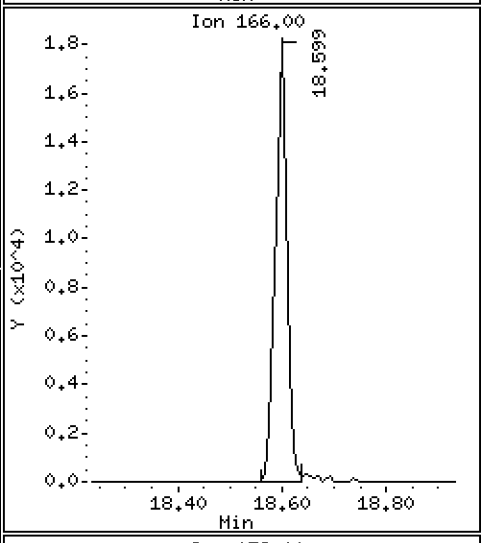
62 Carbazole

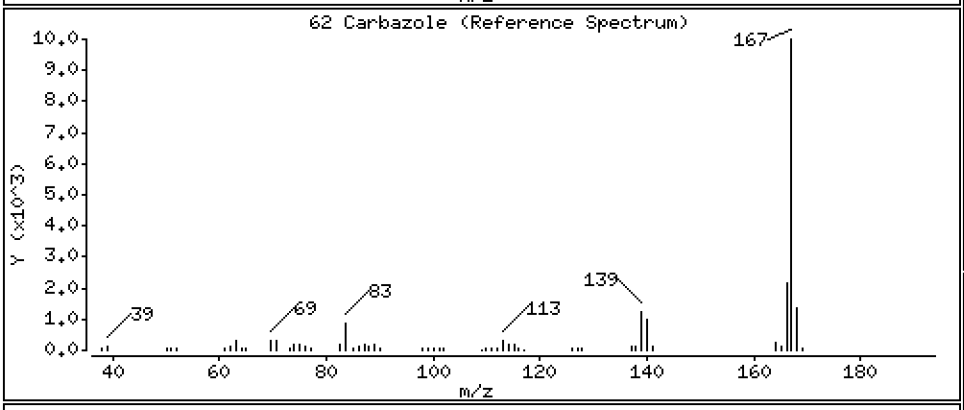
Concentration: 4.830 ug/mL

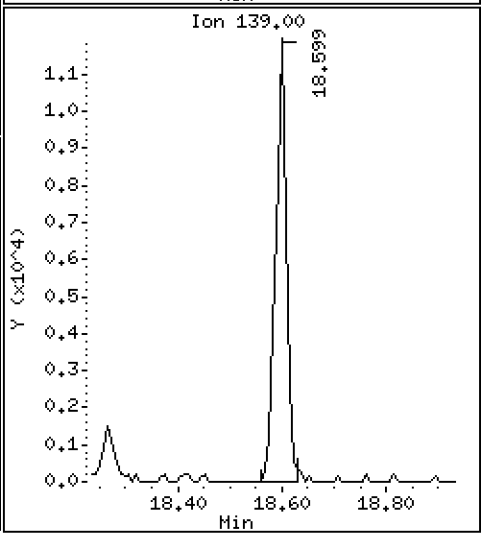


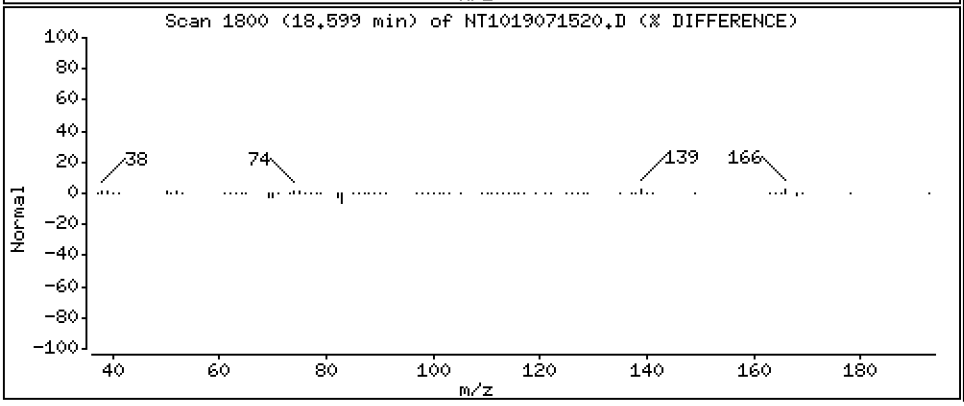












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

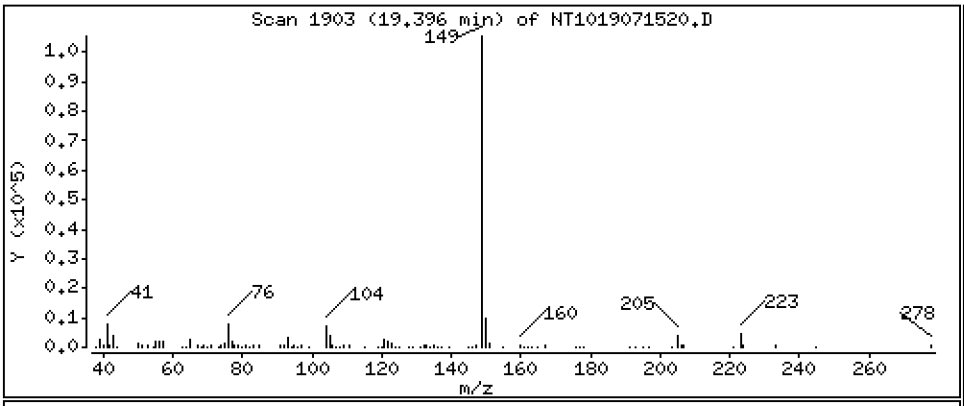
Operator: YZ

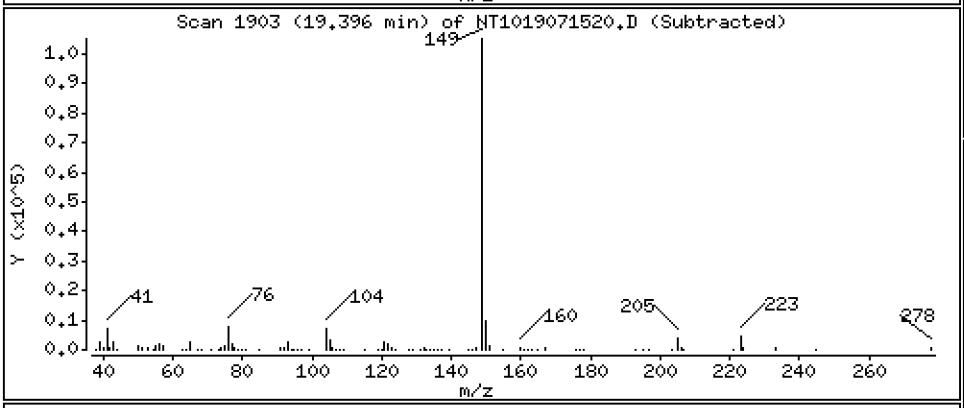
Column phase: ZB-5msi

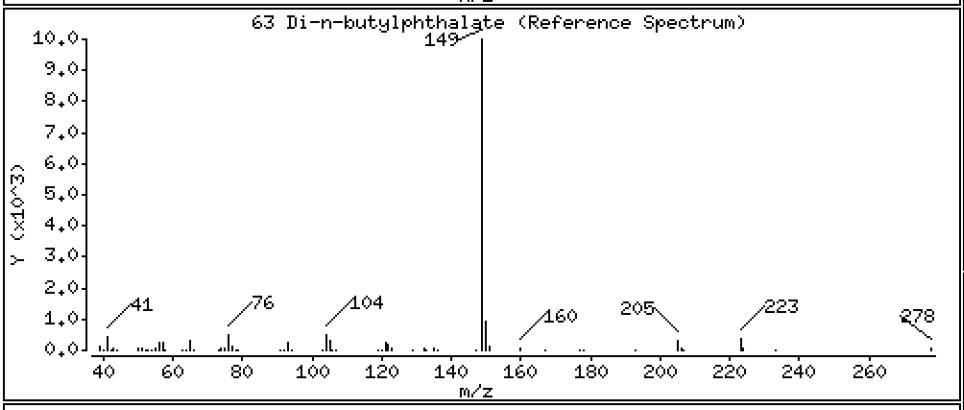
Column diameter: 0.25

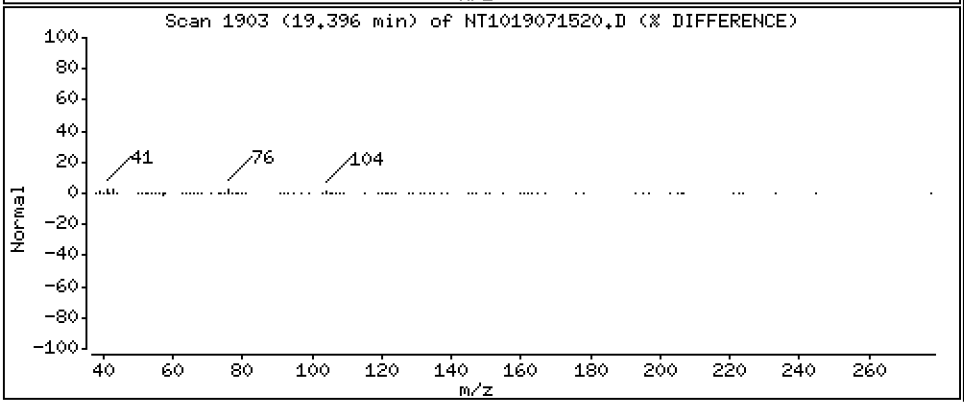
63 Di-n-butylphthalate

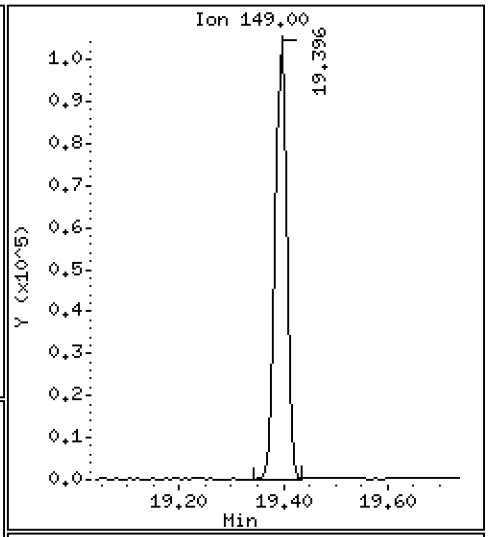
Concentration: 4.306 ug/mL

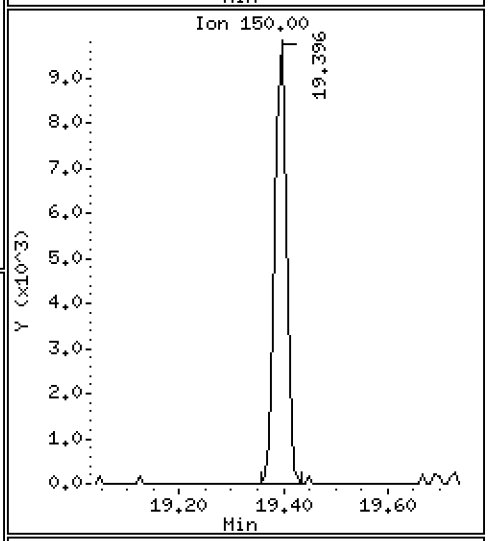


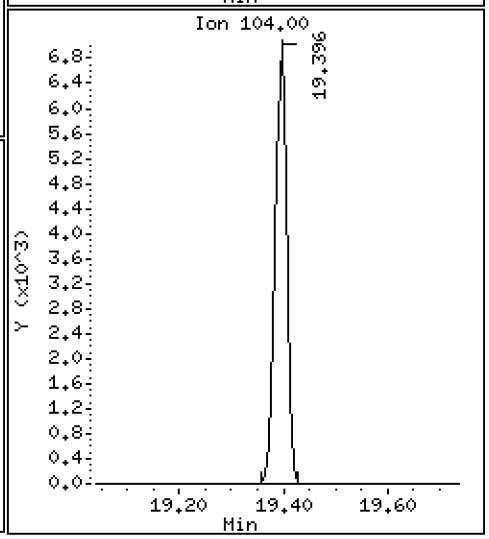












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

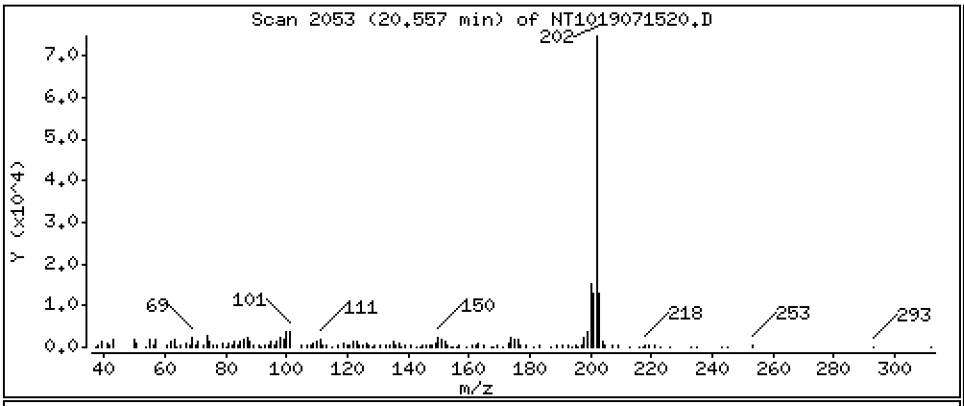
Operator: YZ

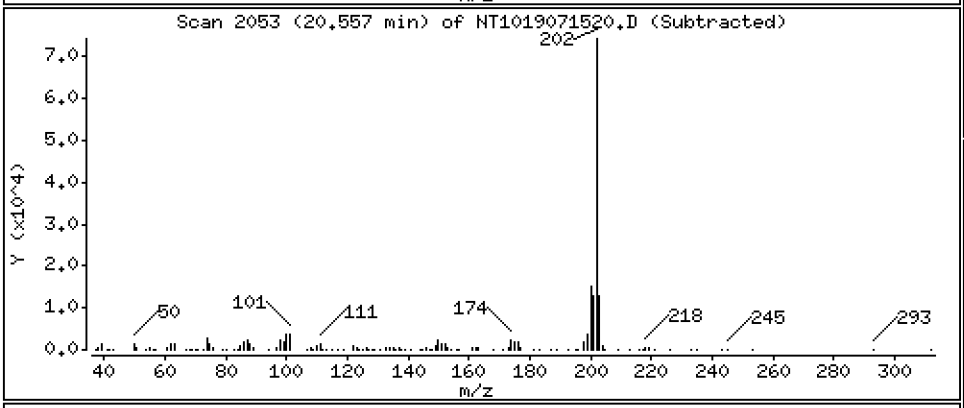
Column phase: ZB-5msi

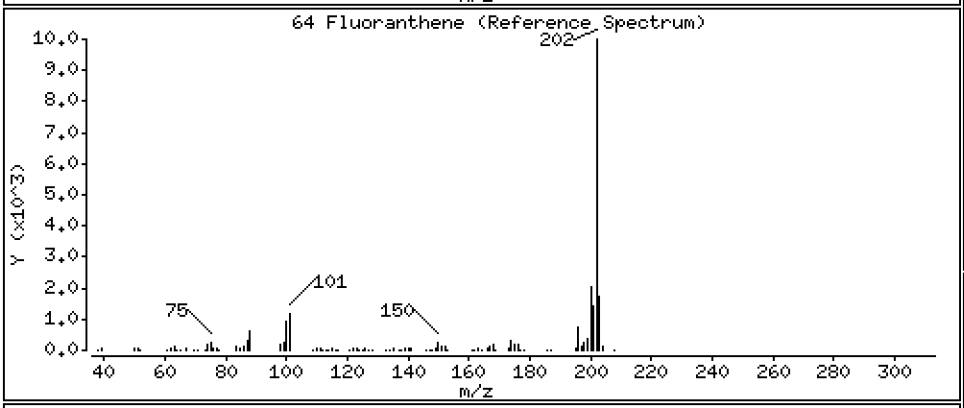
Column diameter: 0.25

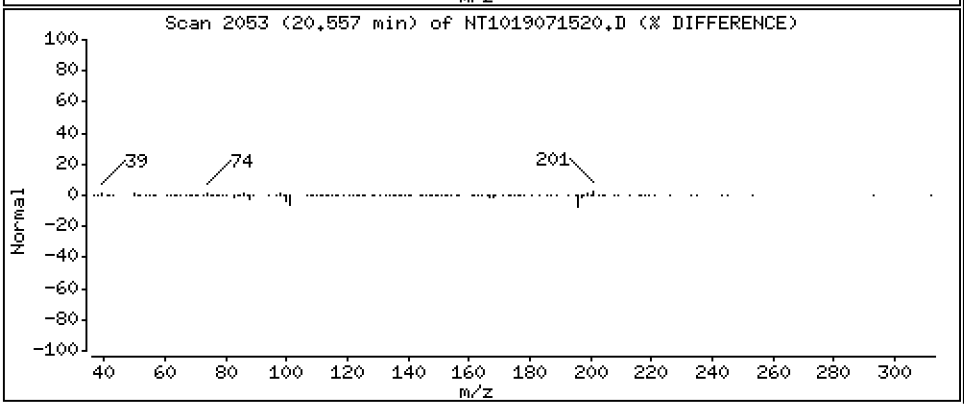
64 Fluoranthene

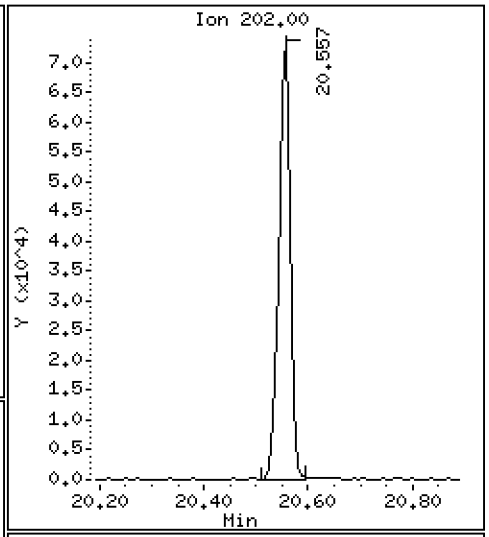
Concentration: 5.965 ug/mL

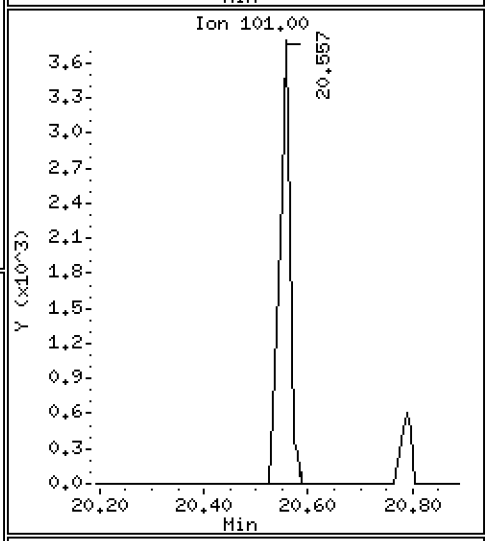


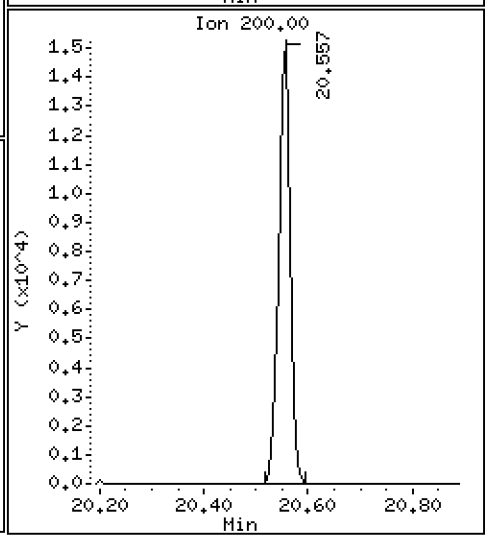












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

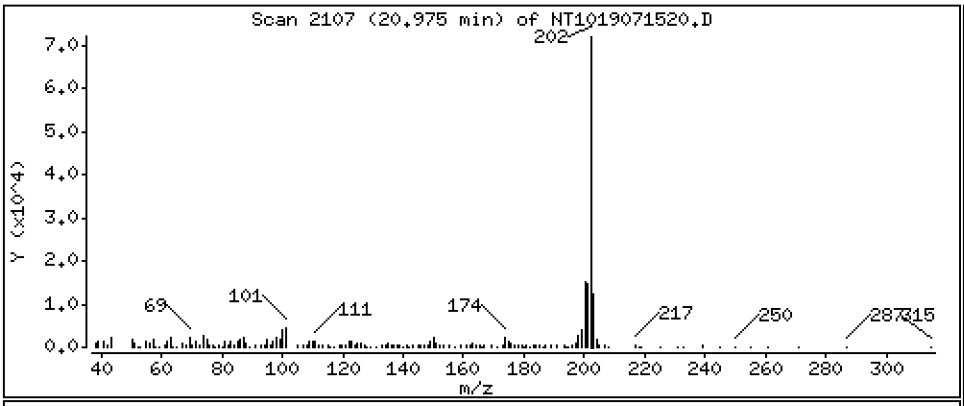
Operator: YZ

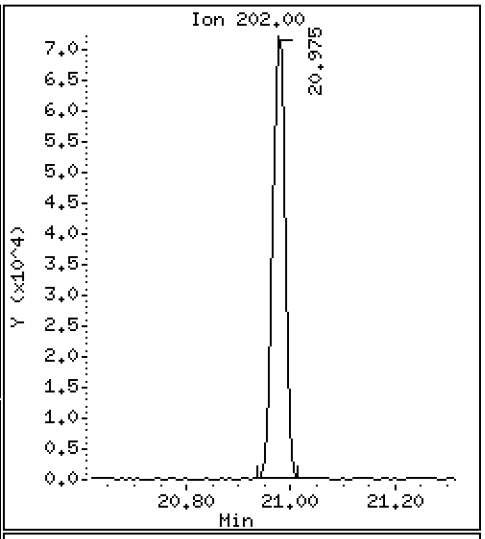
Column phase: ZB-5msi

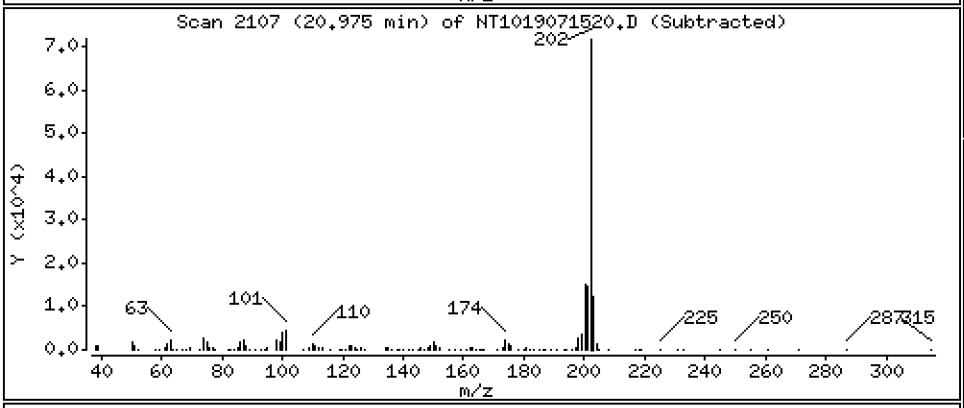
Column diameter: 0.25

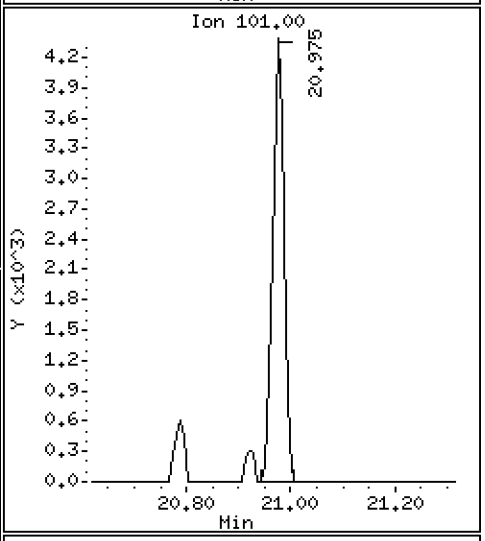
65 Pyrene

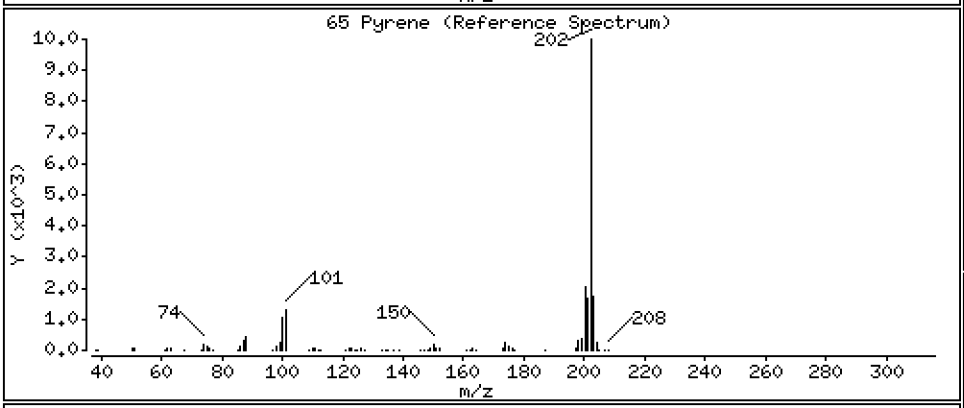
Concentration: 5.730 ug/mL

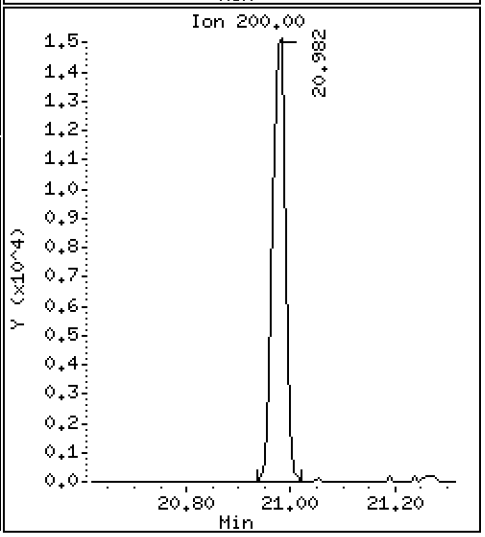


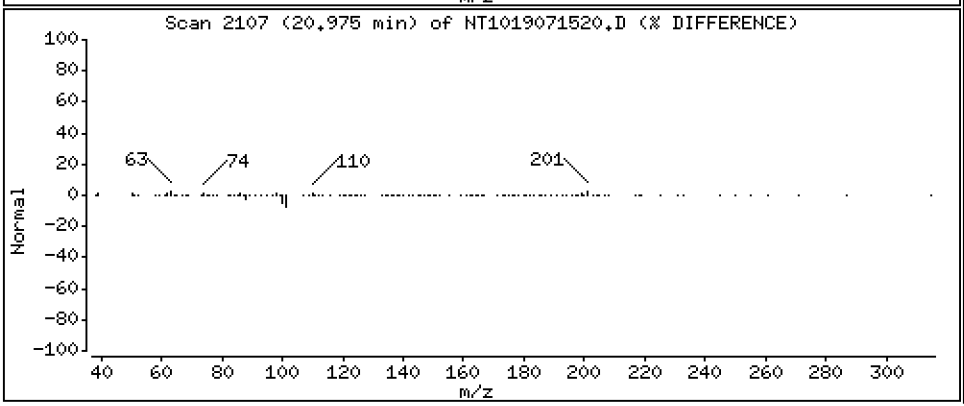












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

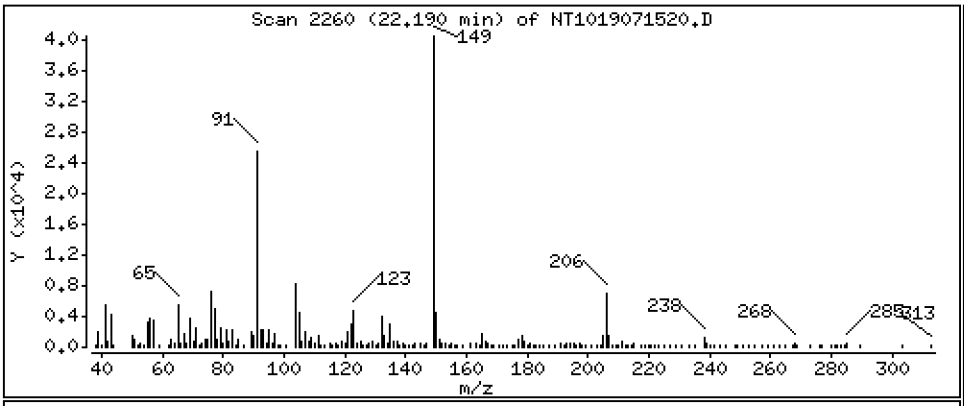
Operator: YZ

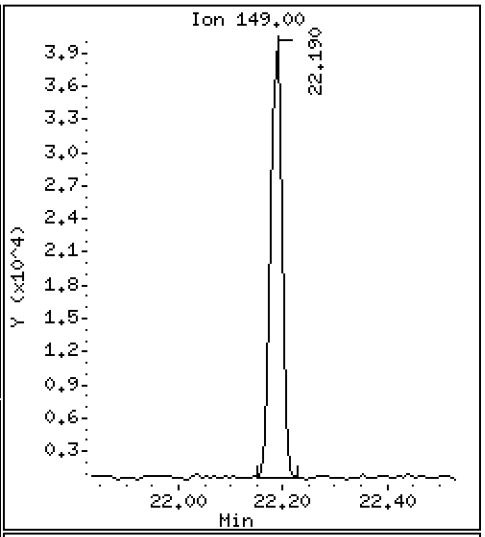
Column phase: ZB-5msi

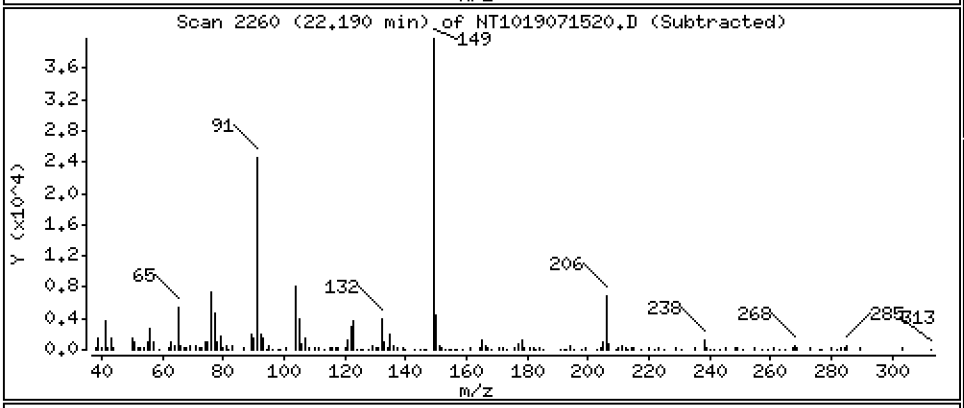
Column diameter: 0.25

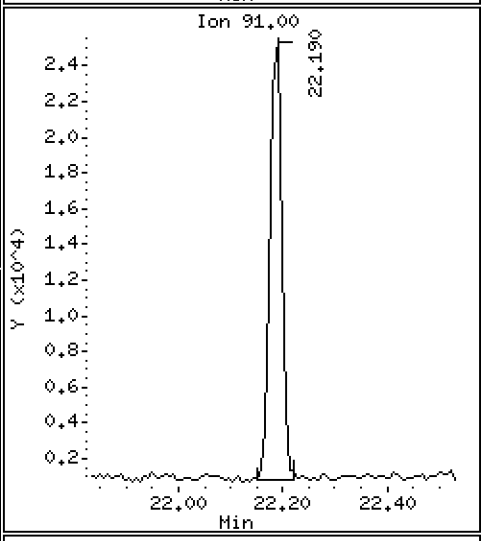
67 Butylbenzylphthalate

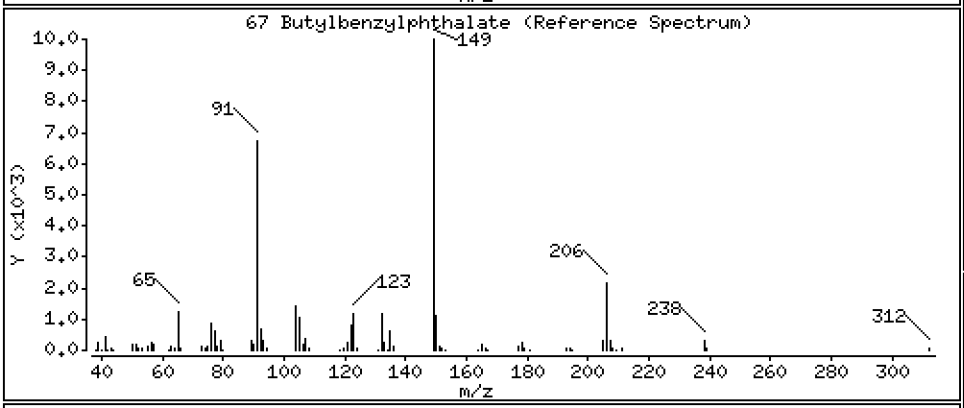
Concentration: 6.055 ug/mL

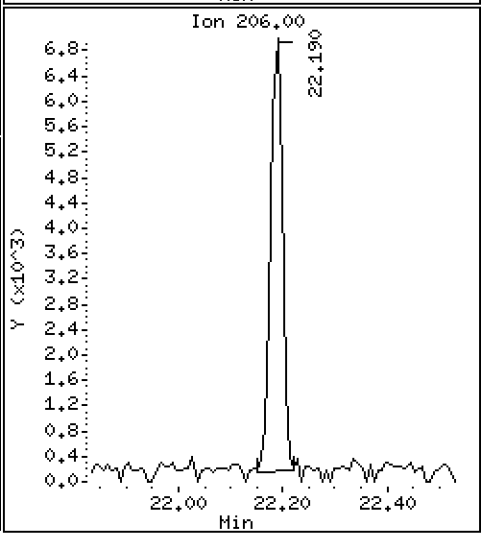


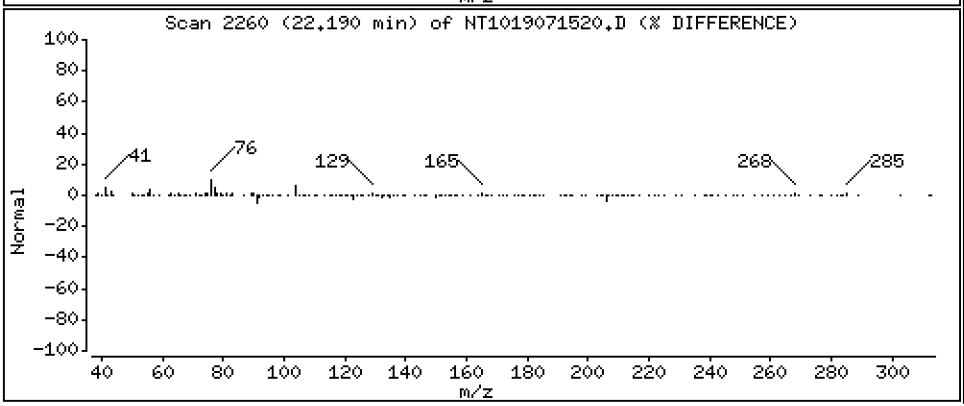












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

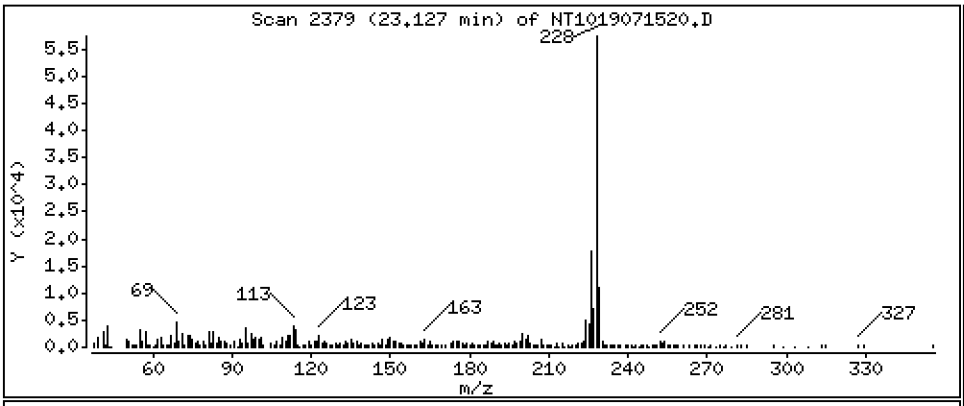
Operator: YZ

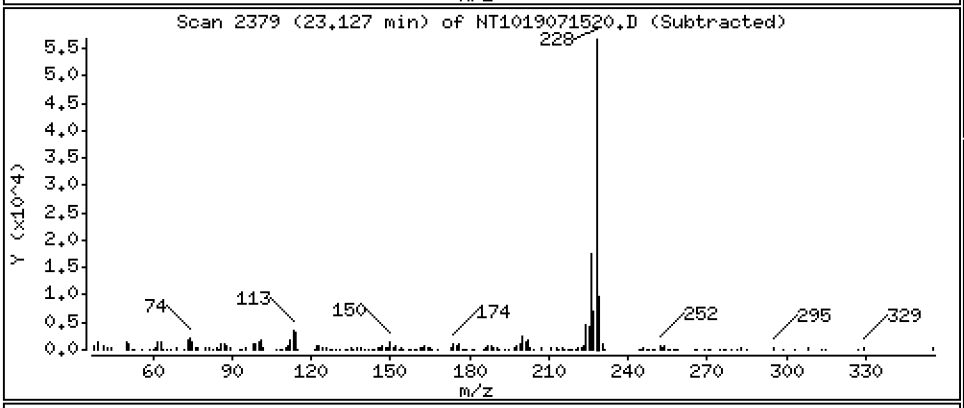
Column phase: ZB-5msi

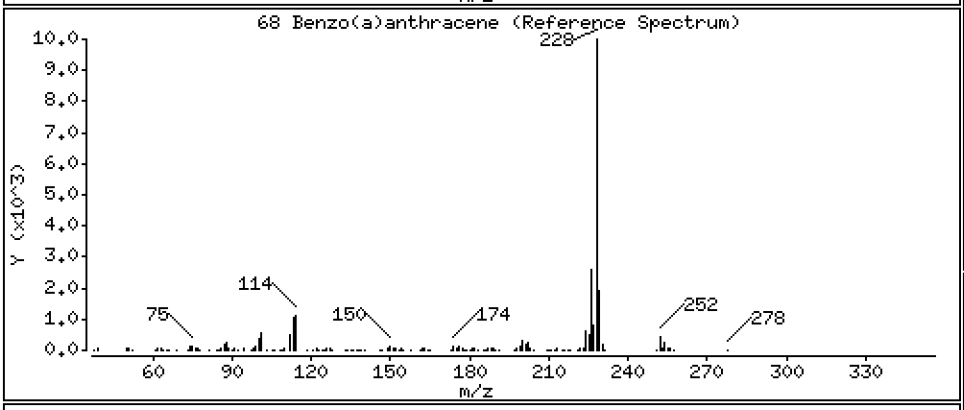
Column diameter: 0.25

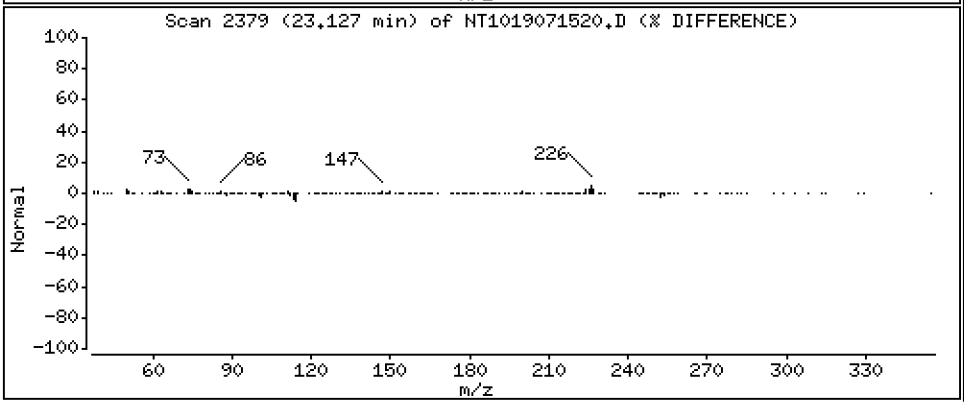
68 Benzo(a)anthracene

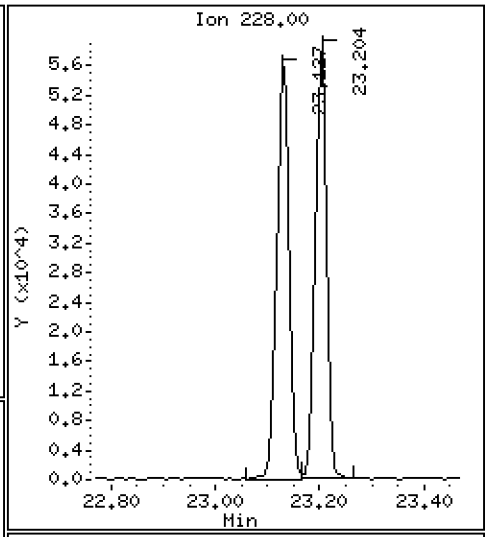
Concentration: 5.137 ug/mL

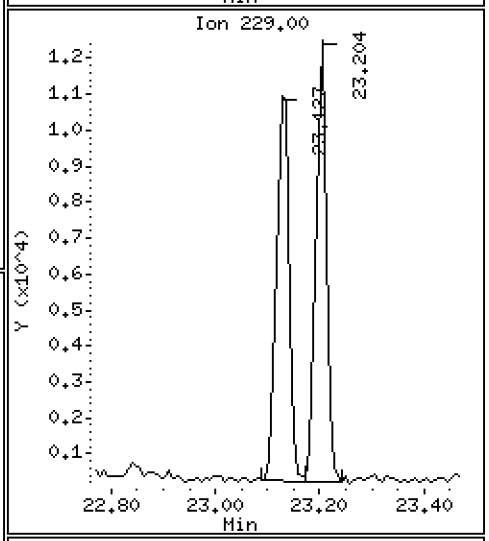


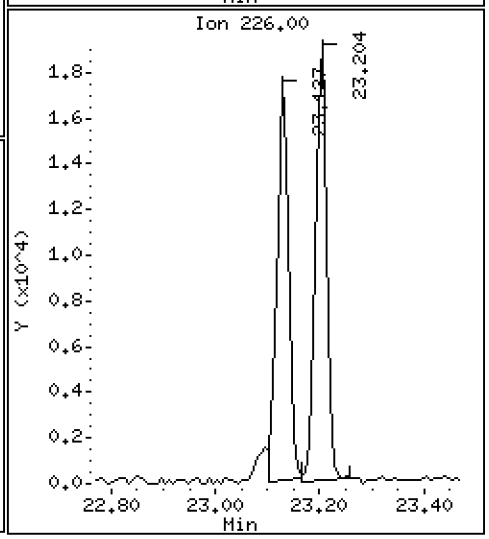












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

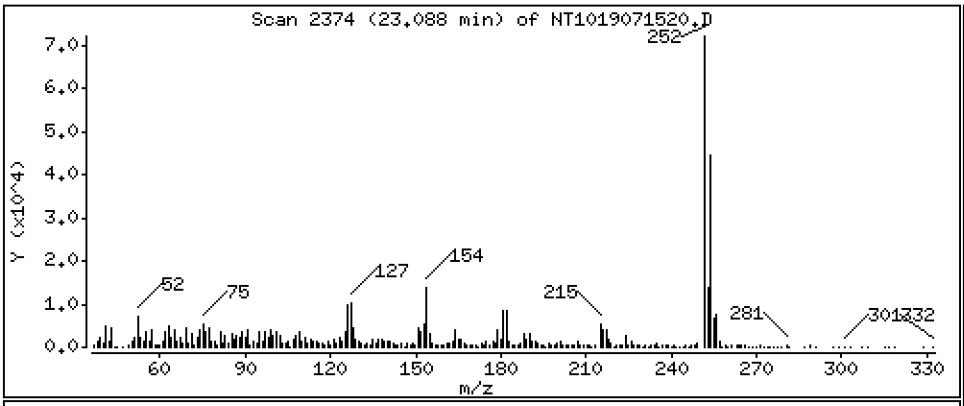
Operator: YZ

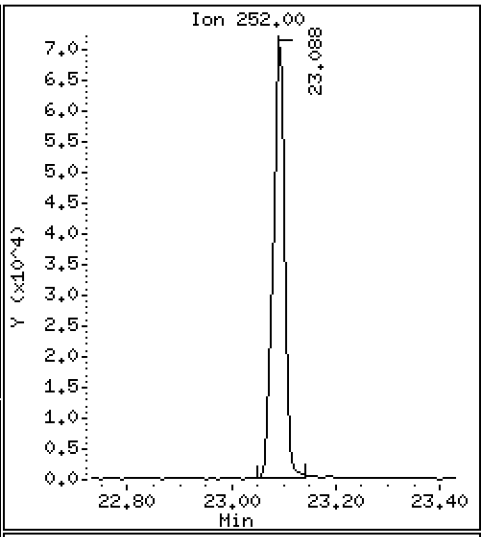
Column phase: ZB-5msi

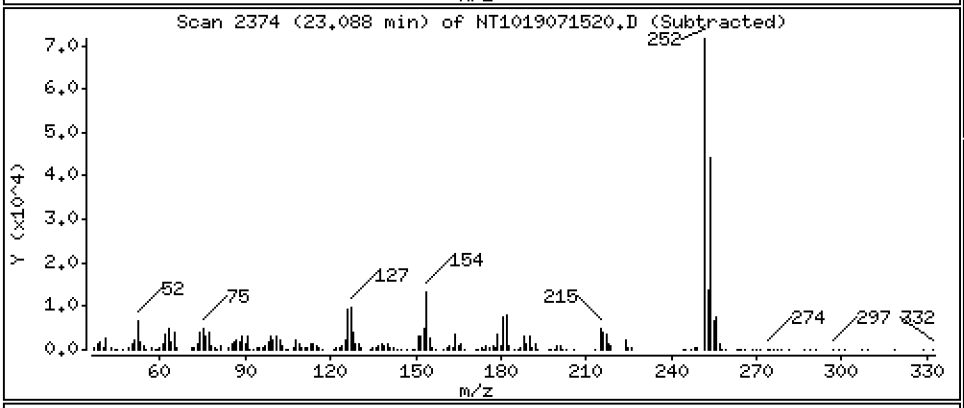
Column diameter: 0.25

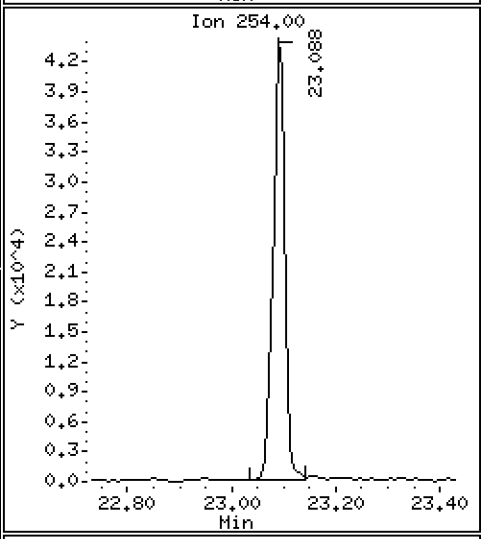
70 3,3'-Dichlorobenzidine

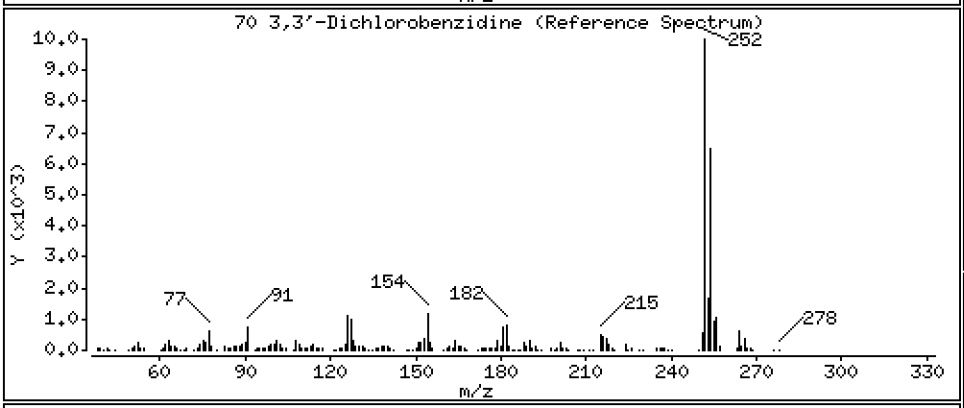
Concentration: 17.17 ug/mL

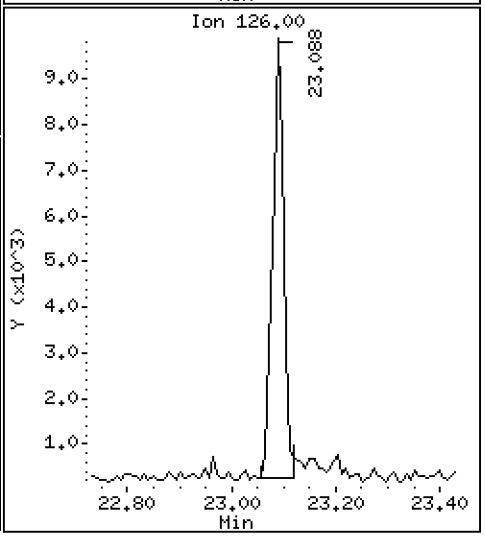


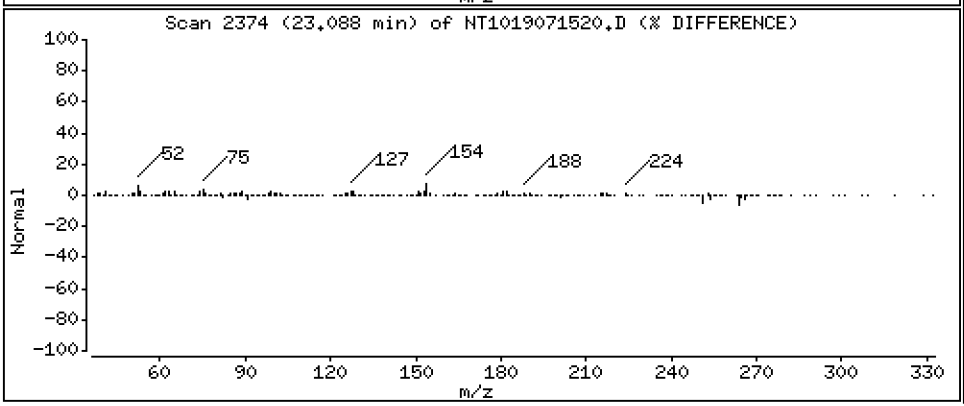












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

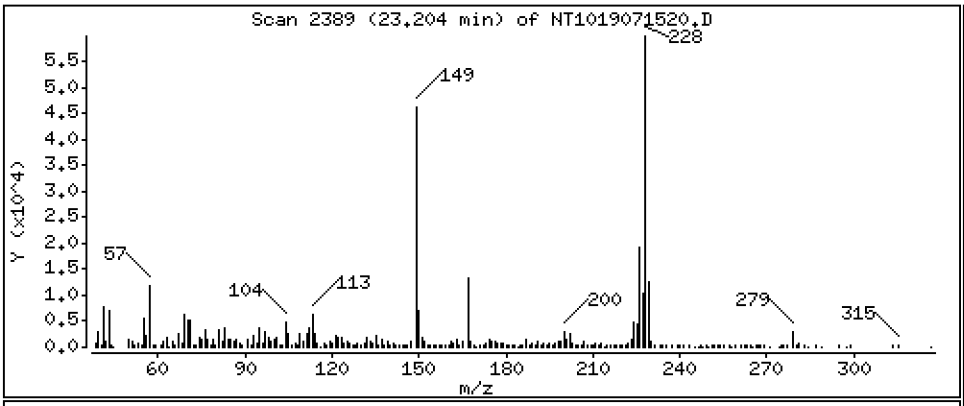
Operator: YZ

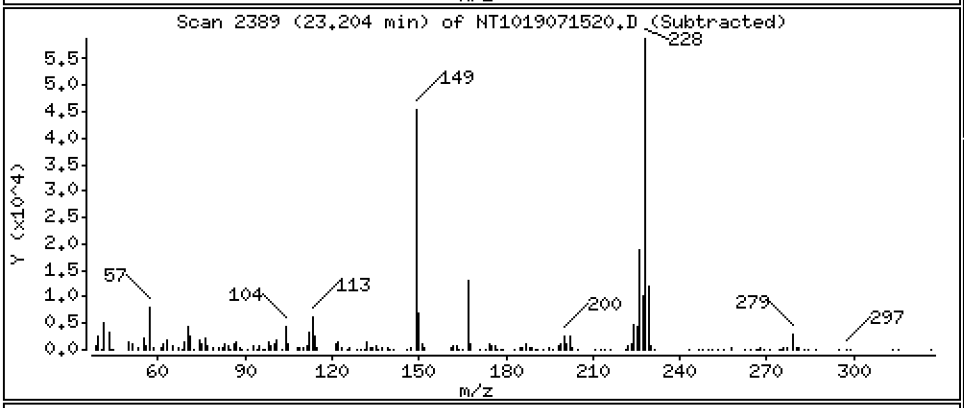
Column phase: ZB-5msi

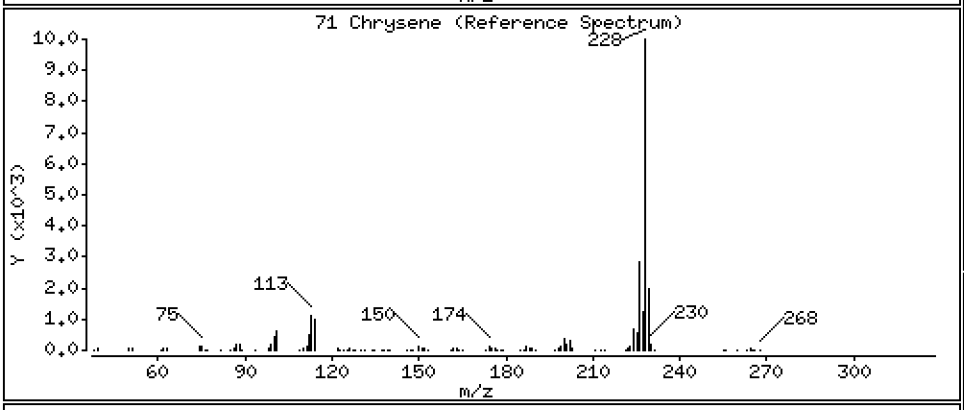
Column diameter: 0.25

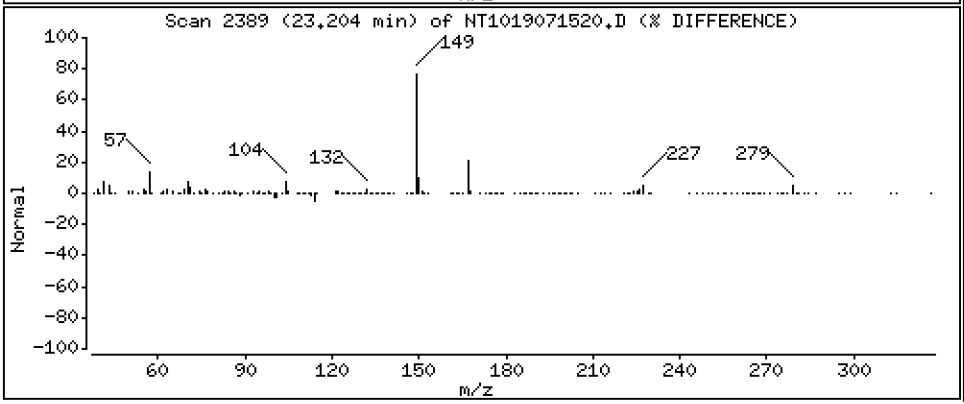
71 Chrysene

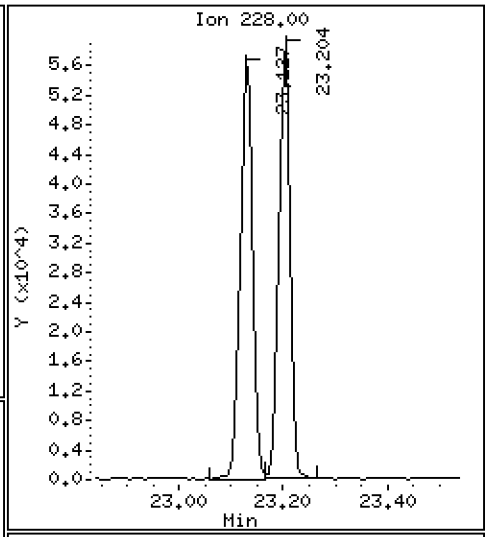
Concentration: 5.321 ug/mL

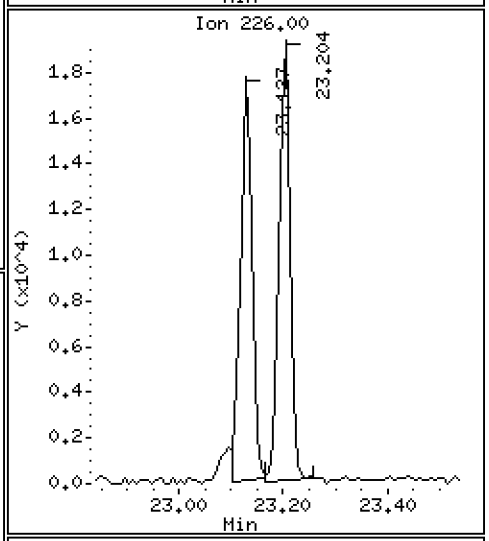


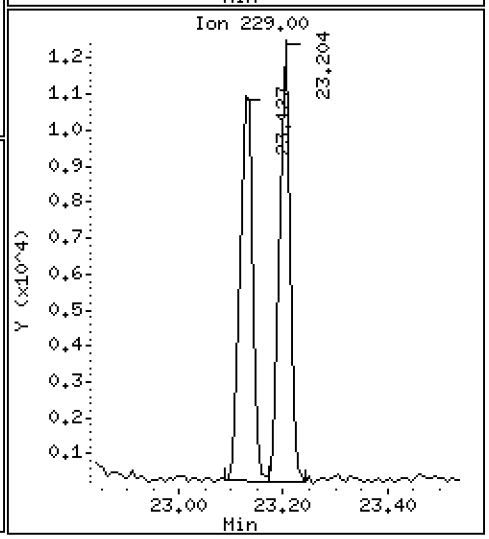












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

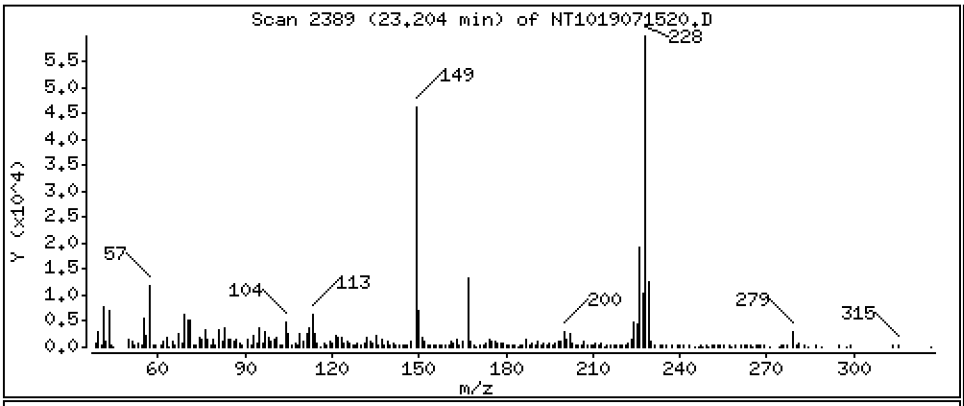
Operator: YZ

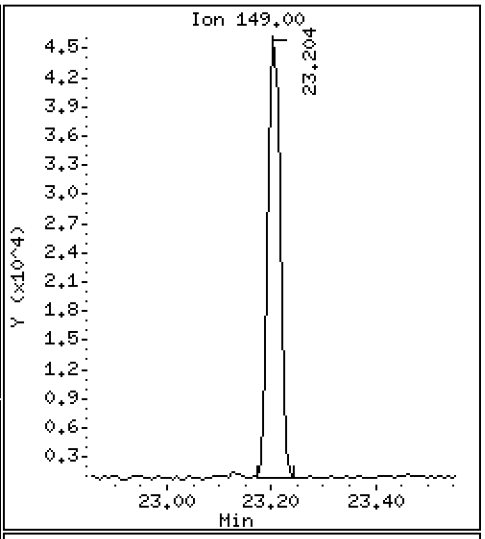
Column phase: ZB-5msi

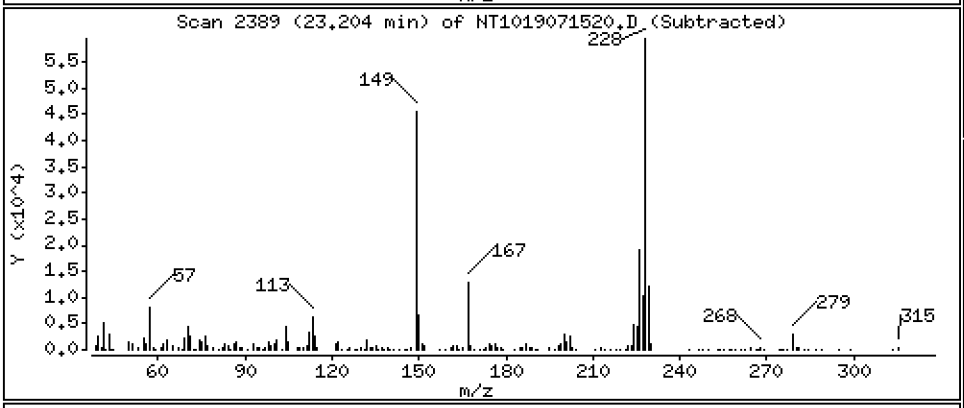
Column diameter: 0.25

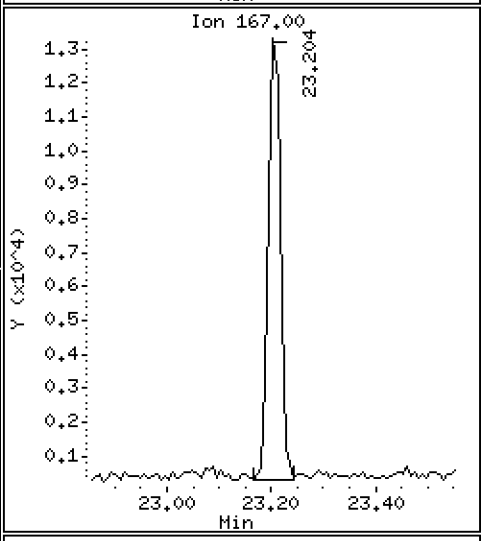
72 bis(2-Ethylhexyl)phthalate

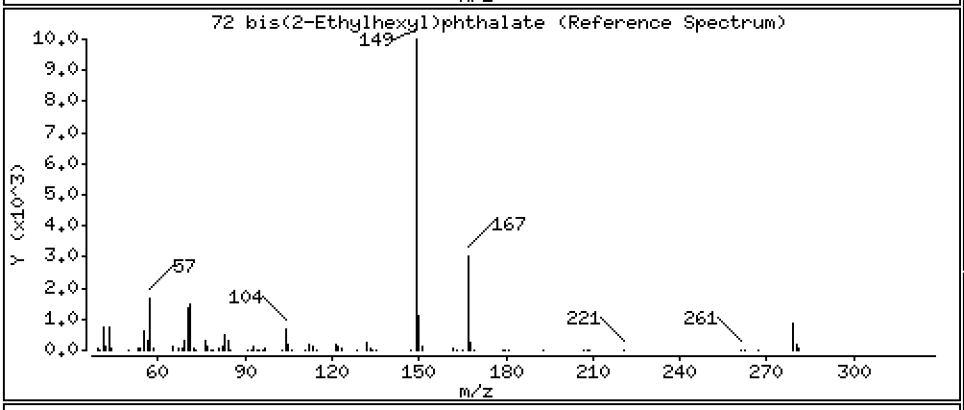
Concentration: 5.677 ug/mL

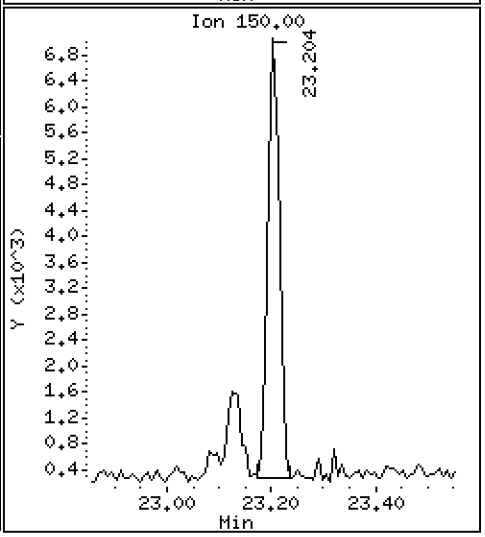


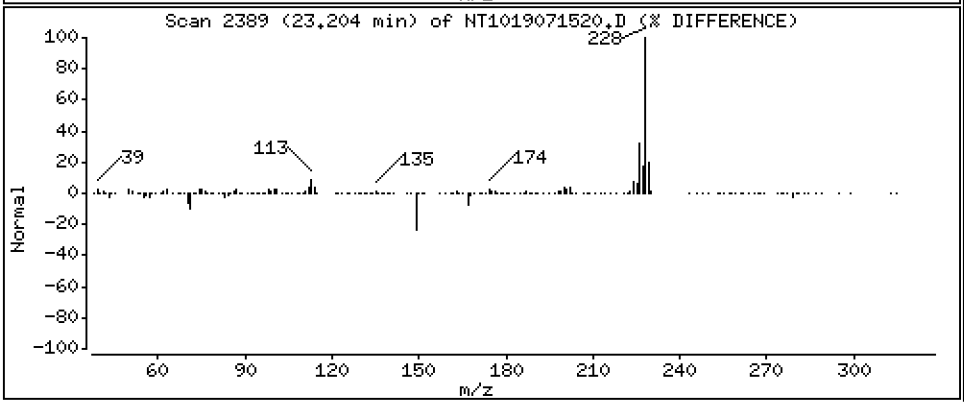












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

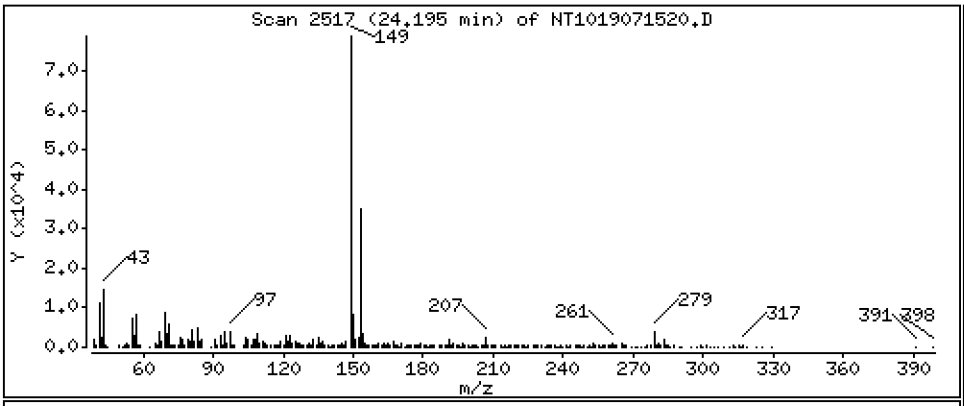
Operator: YZ

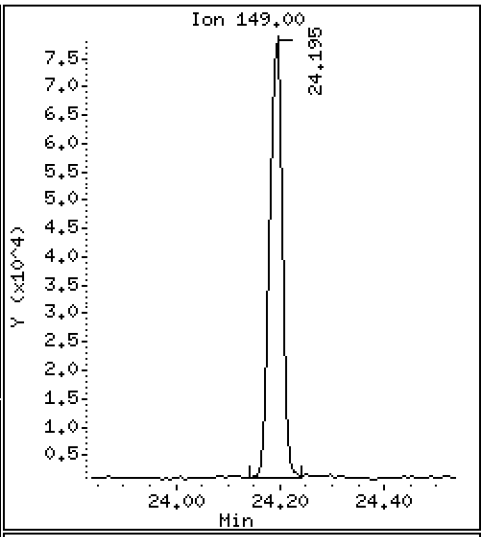
Column phase: ZB-5msi

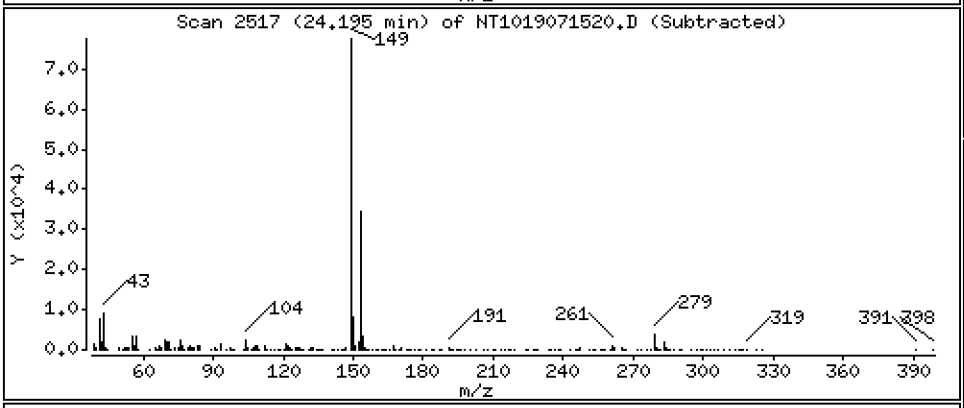
Column diameter: 0.25

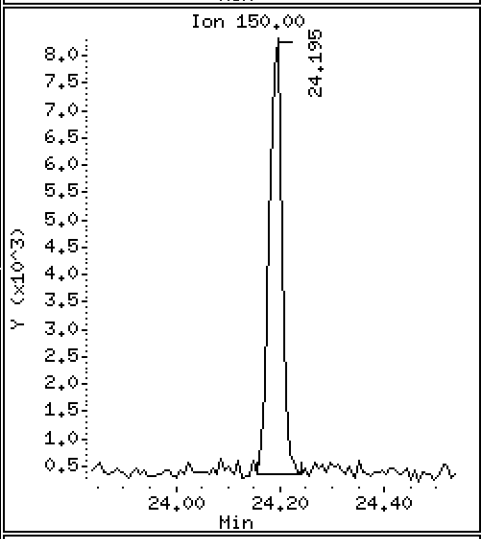
73 Di-n-octylphthalate

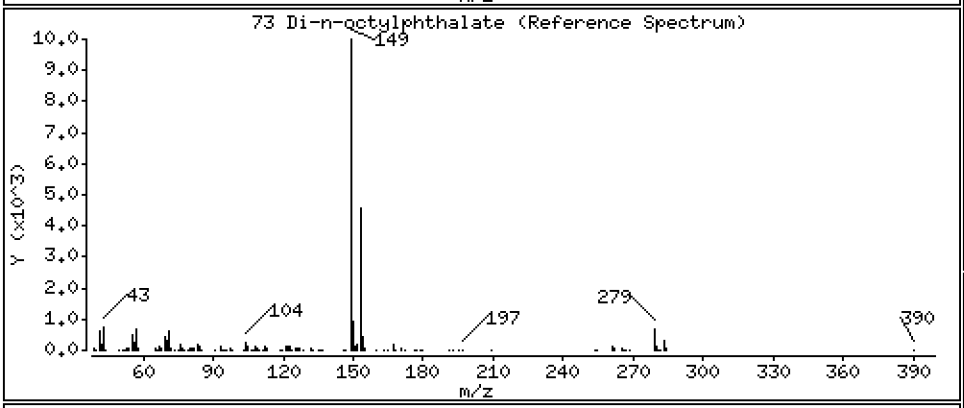
Concentration: 4.844 ug/mL

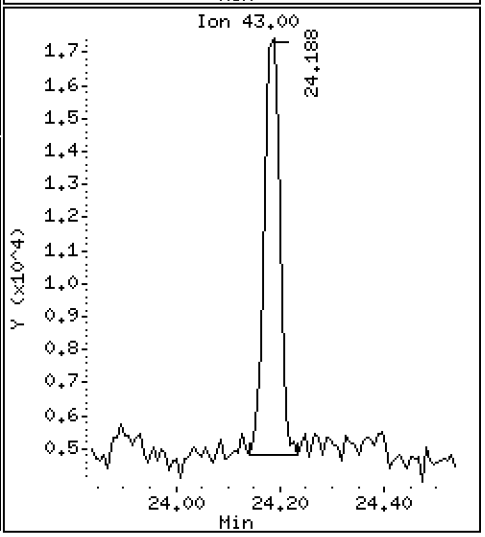


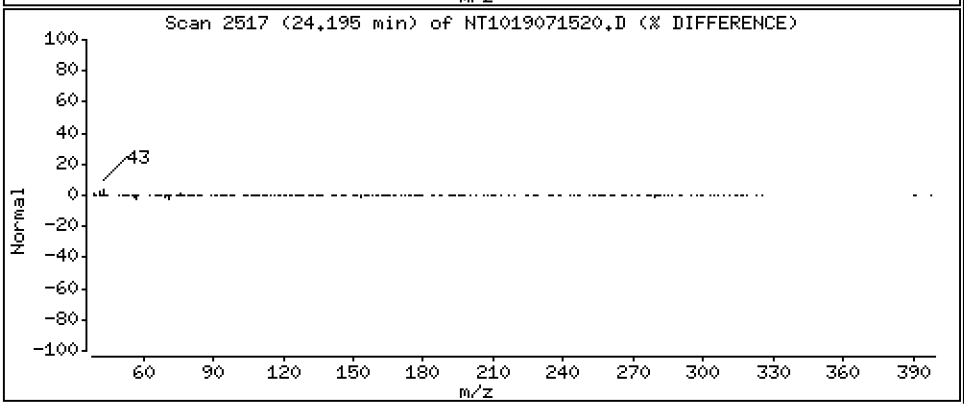












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

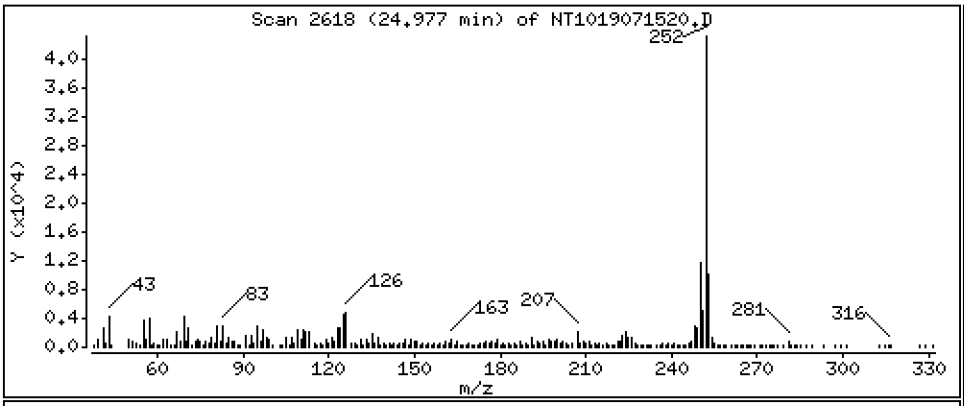
Operator: YZ

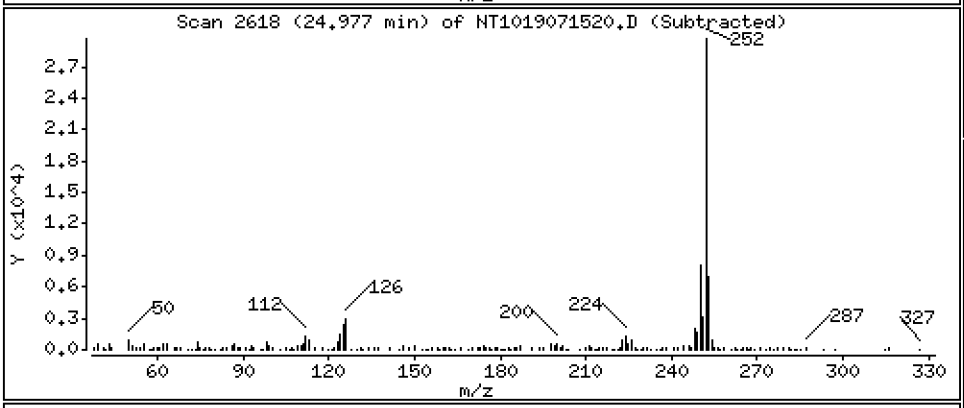
Column phase: ZB-5msi

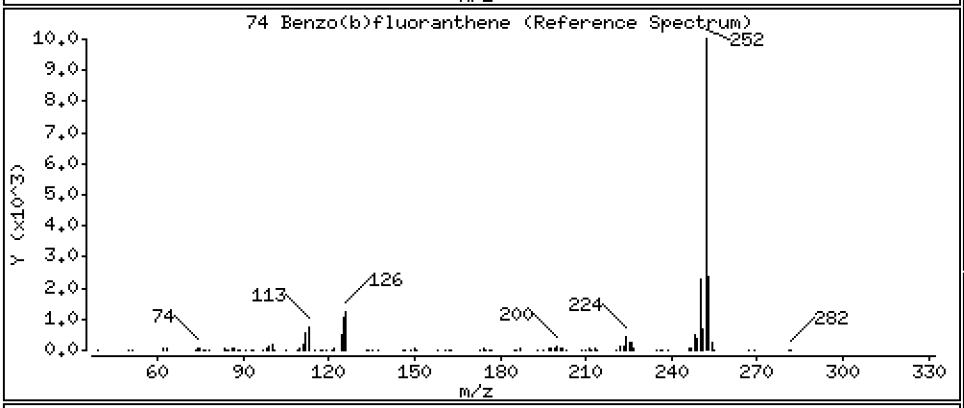
Column diameter: 0.25

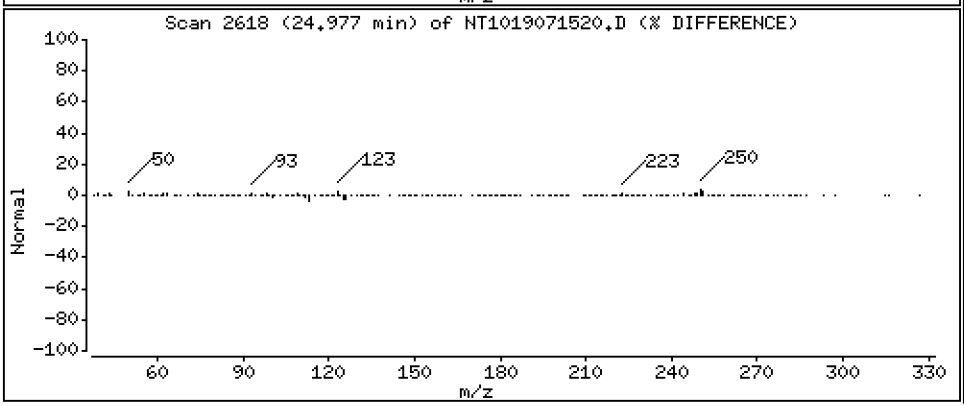
74 Benzo(b)fluoranthene

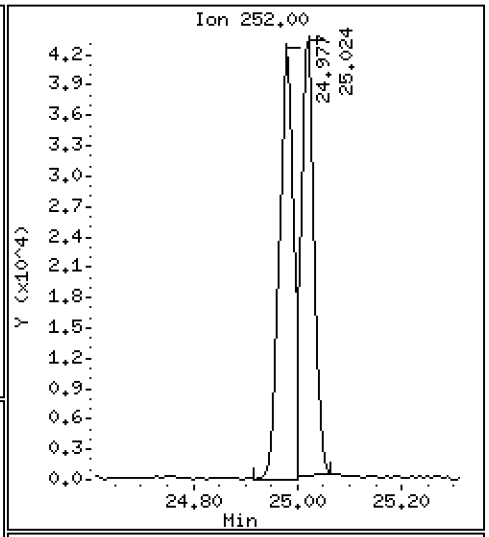
Concentration: 5.433 ug/mL

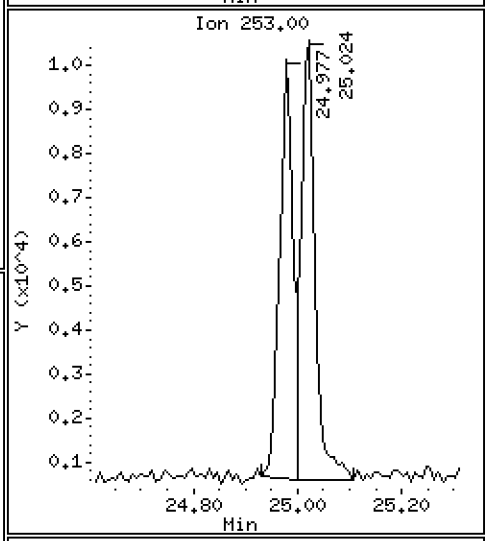


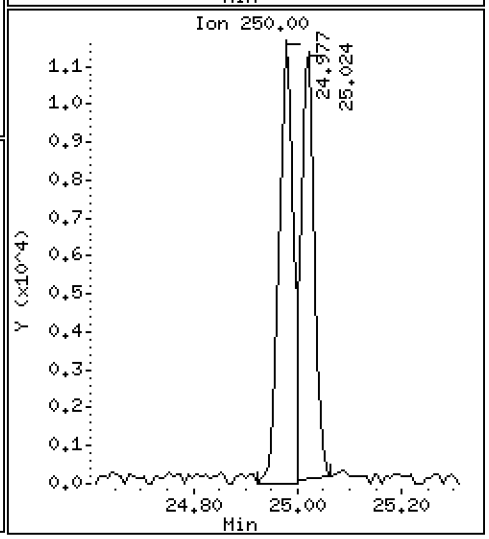












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

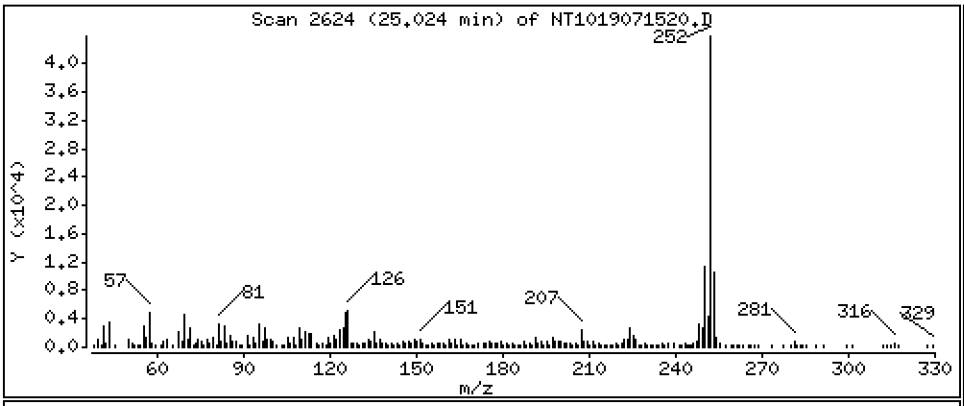
Operator: YZ

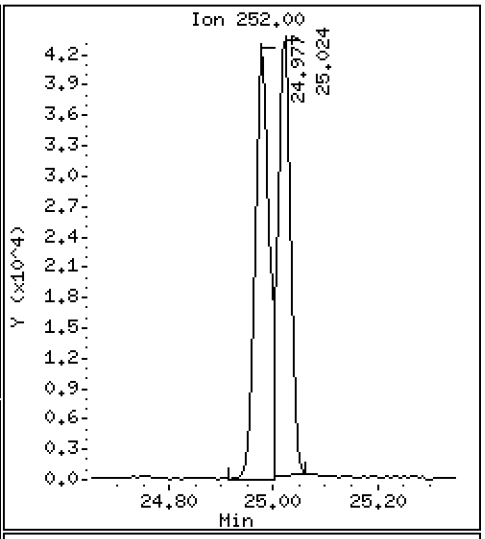
Column phase: ZB-5msi

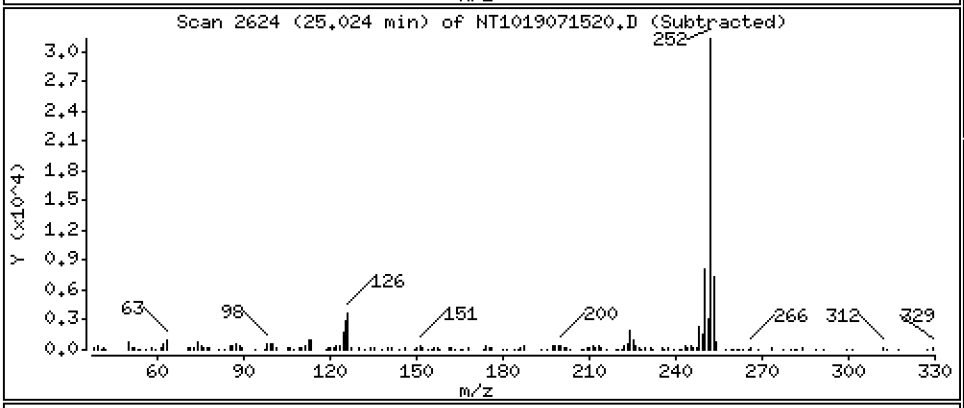
Column diameter: 0.25

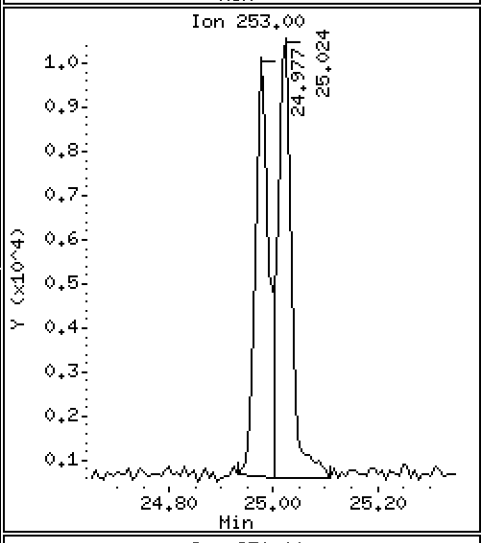
75 Benzo(k)fluoranthene

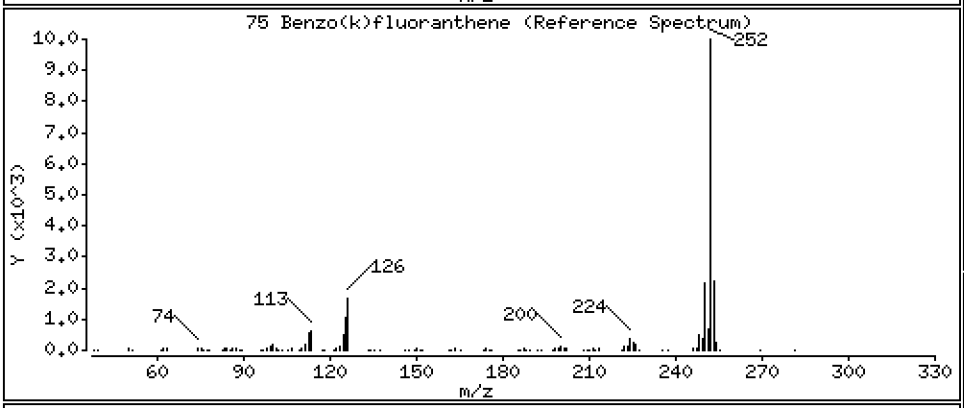
Concentration: 5.177 ug/mL

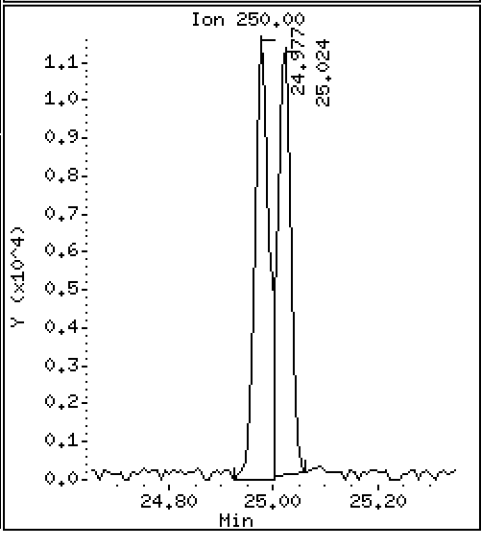


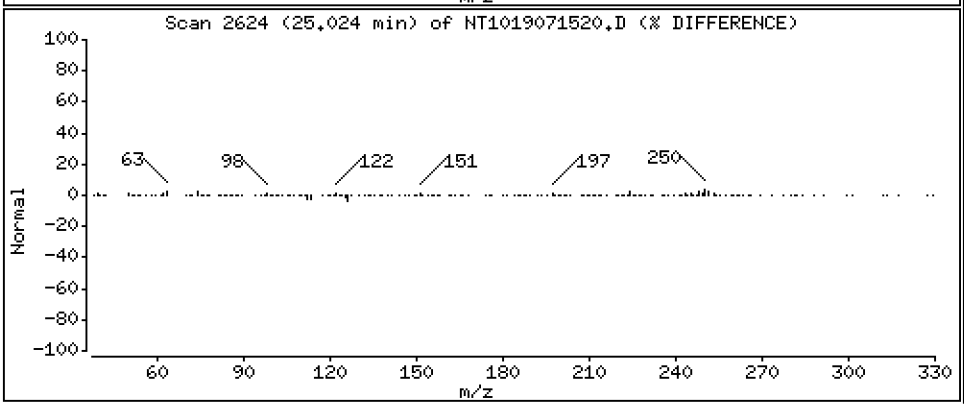












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

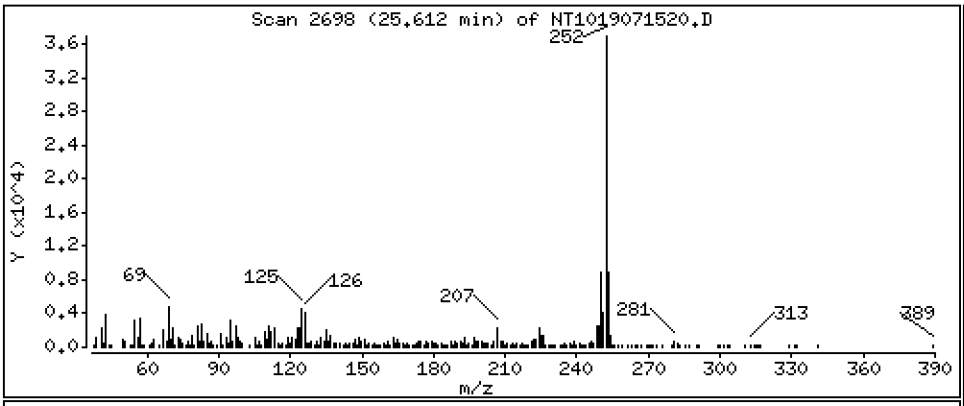
Operator: YZ

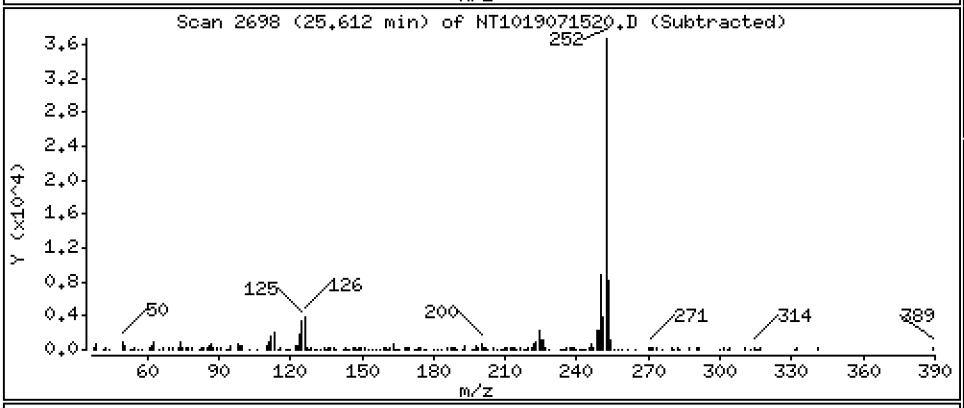
Column phase: ZB-5msi

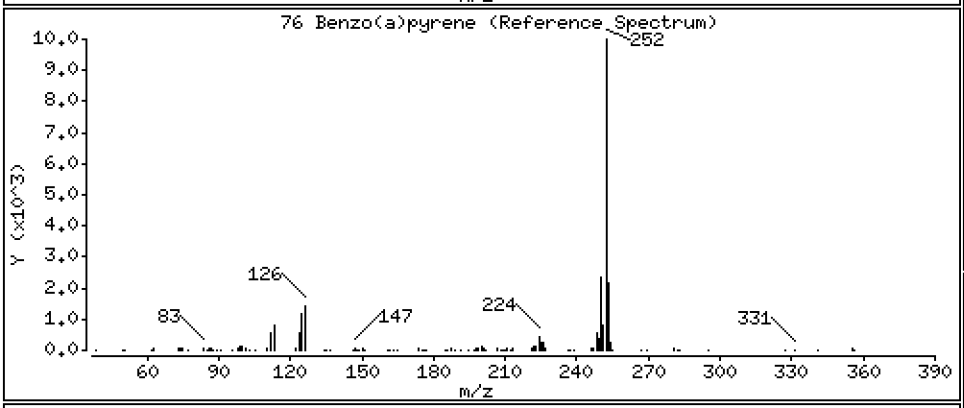
Column diameter: 0.25

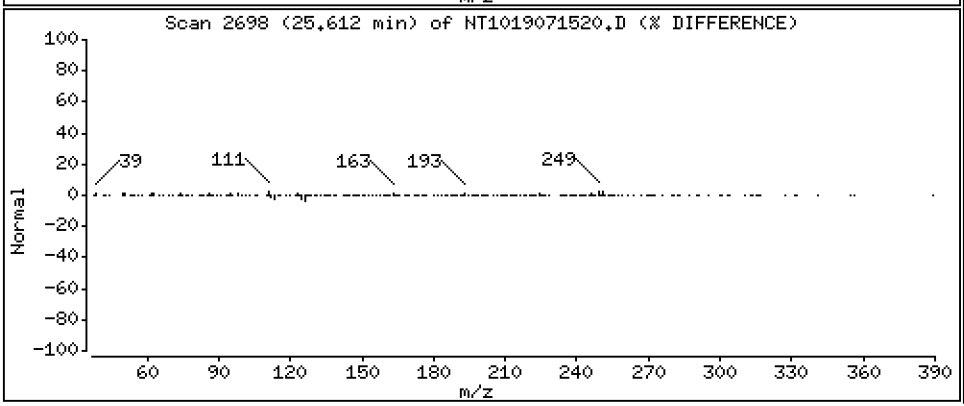
76 Benzo(a)pyrene

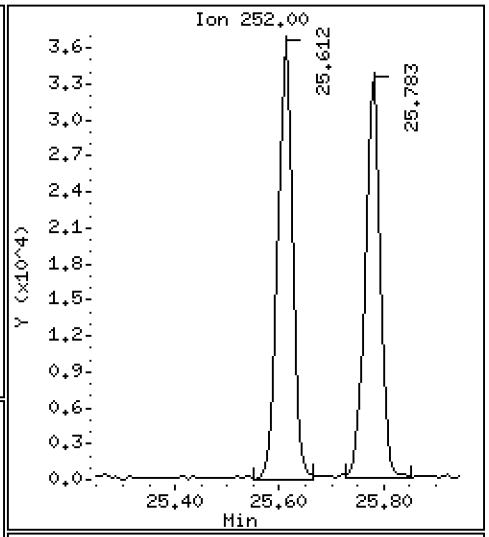
Concentration: 5.230 ug/mL

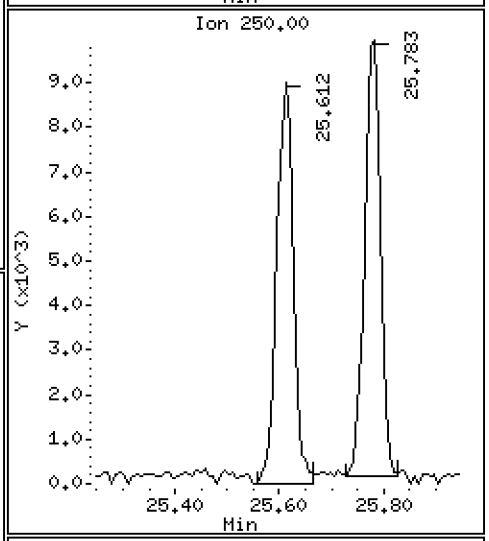


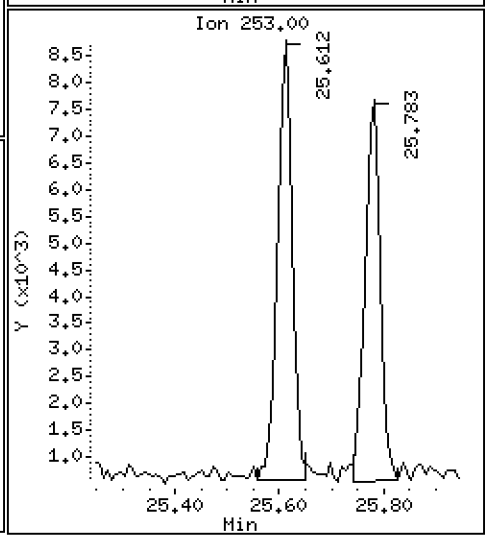












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

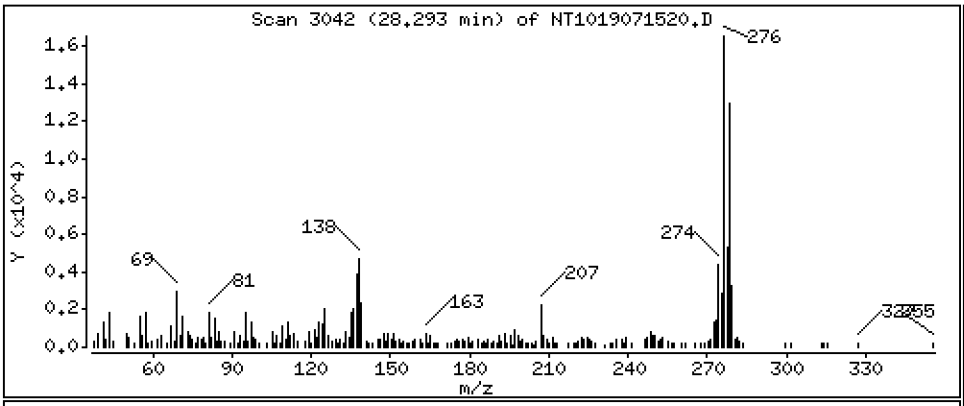
Operator: YZ

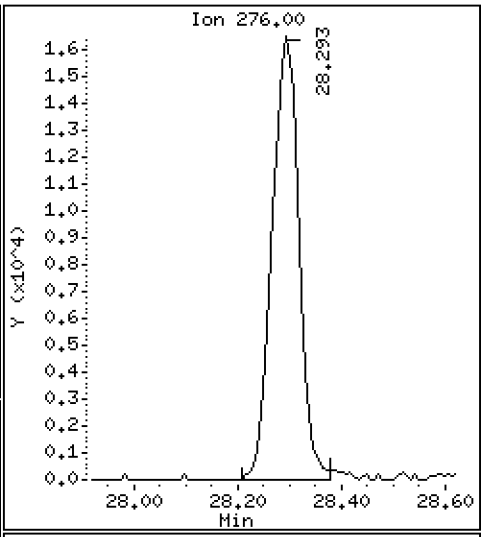
Column phase: ZB-5msi

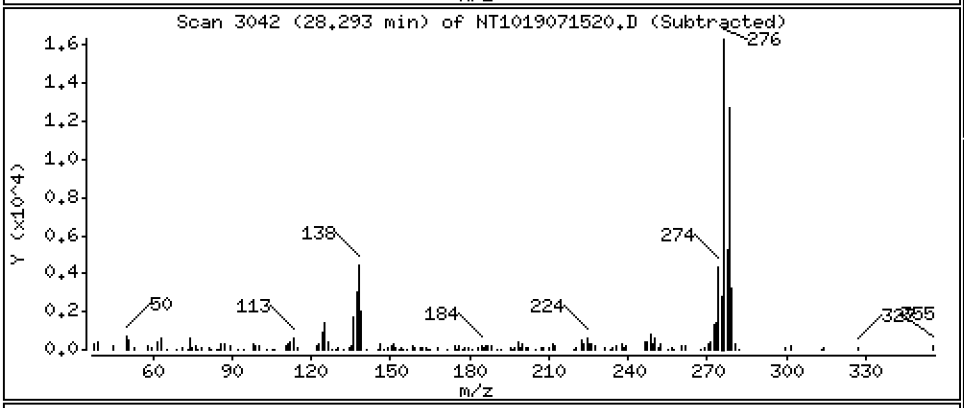
Column diameter: 0.25

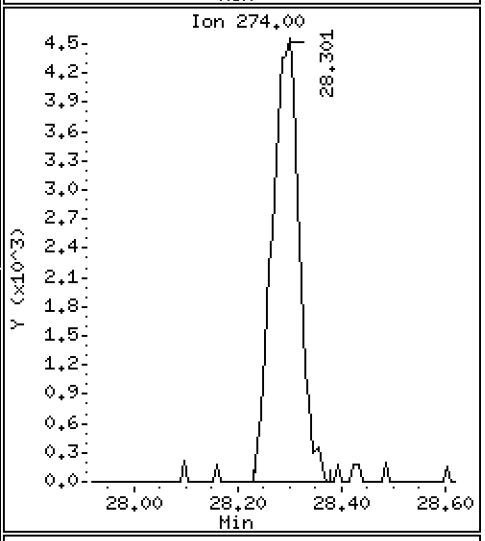
78 Indeno(1,2,3-cd)pyrene

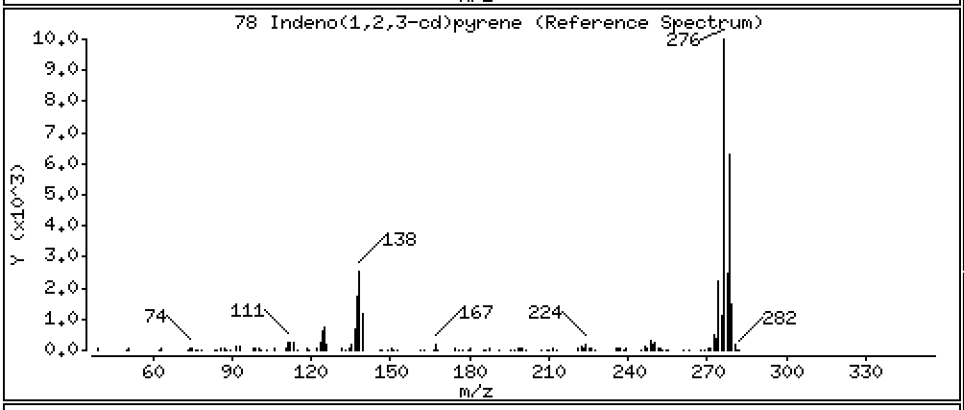
Concentration: 3.657 ug/mL

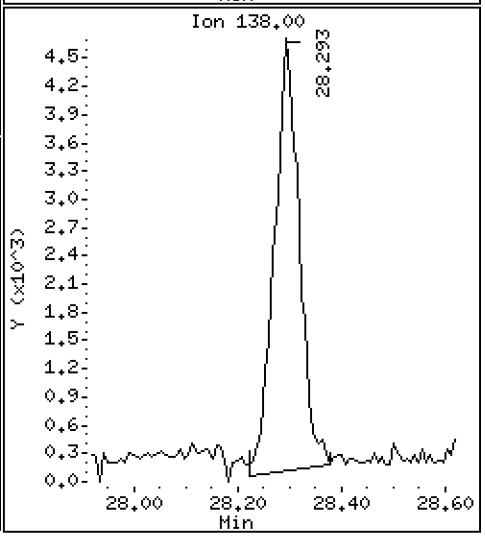


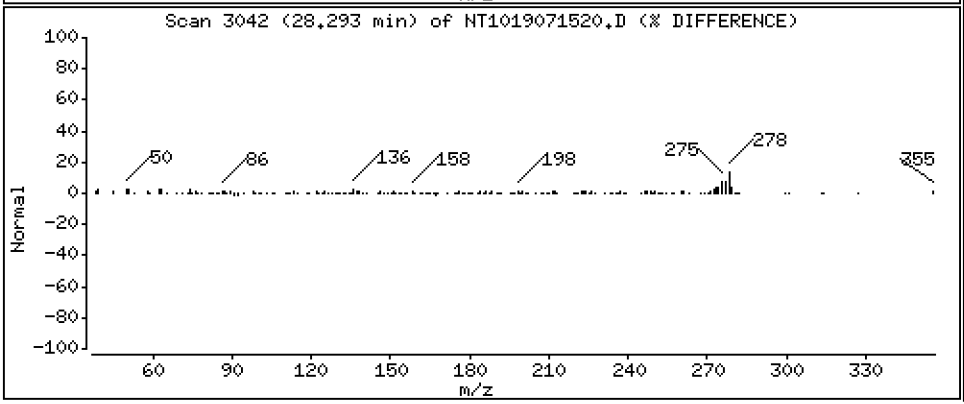












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

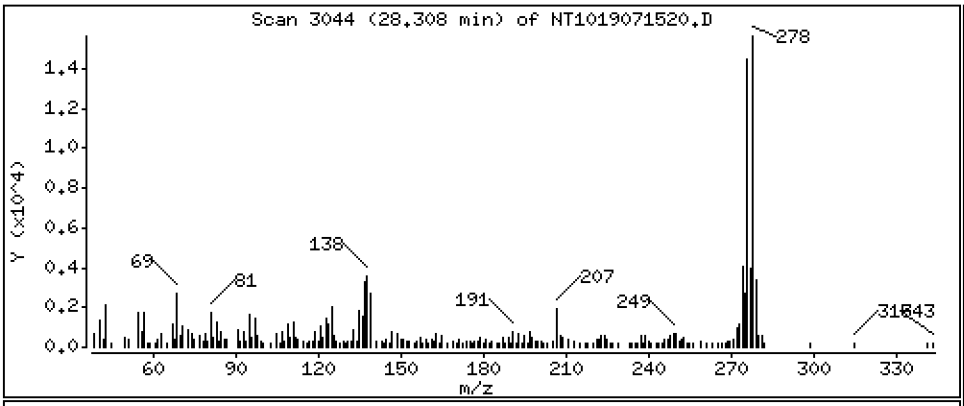
Operator: YZ

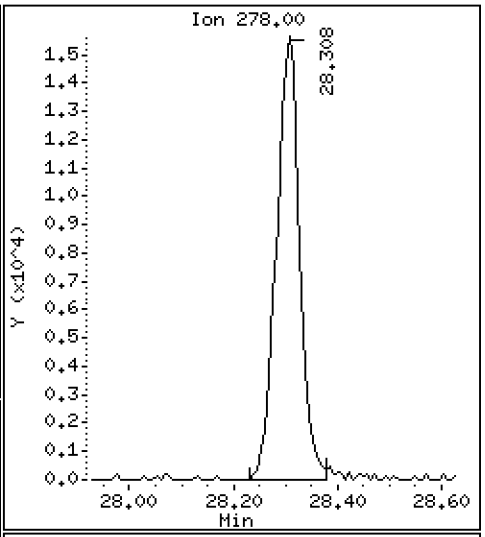
Column phase: ZB-5msi

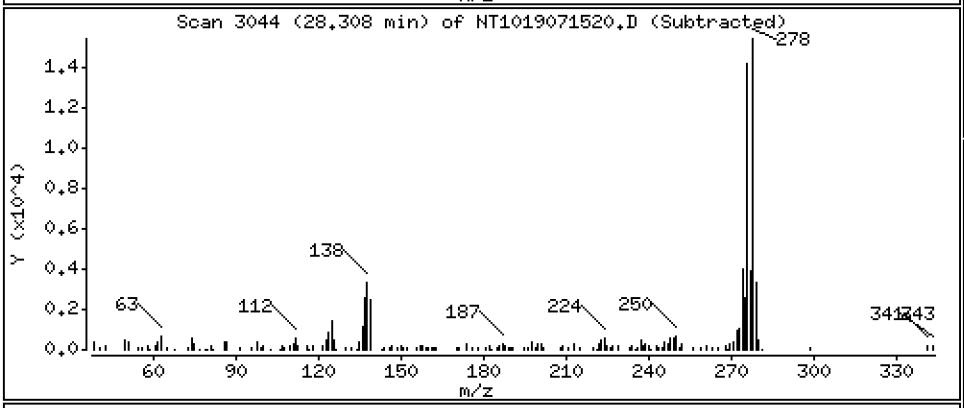
Column diameter: 0.25

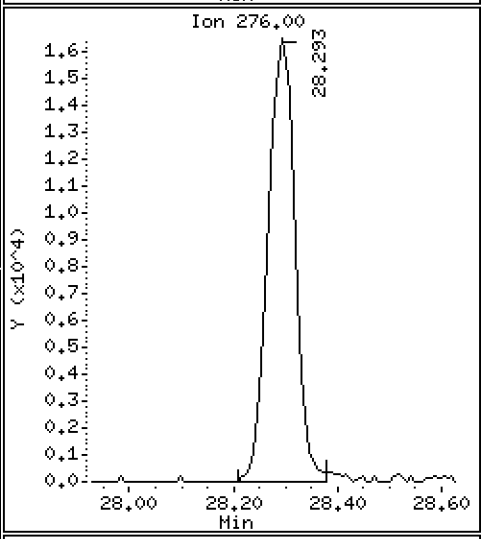
79 Dibenzo(a,h)anthracene

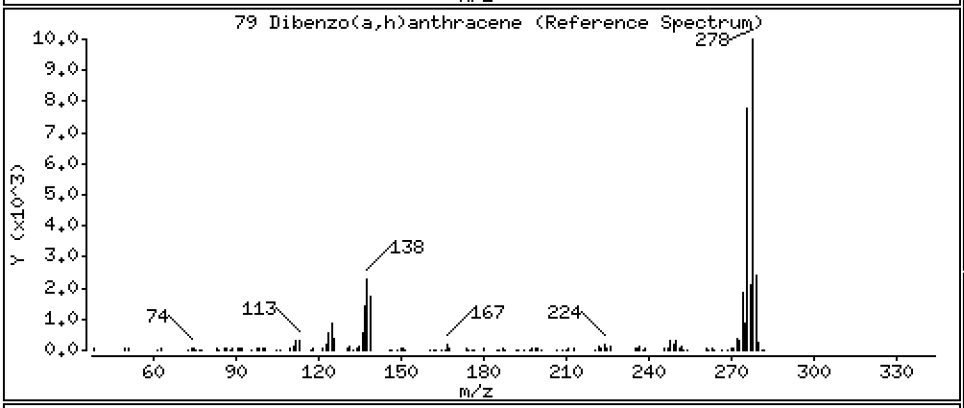
Concentration: 3.696 ug/mL

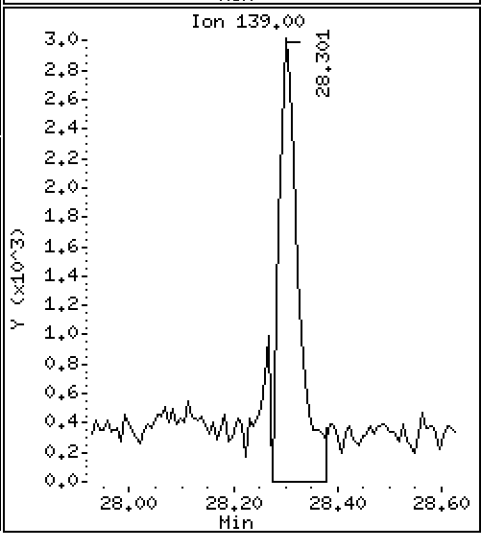


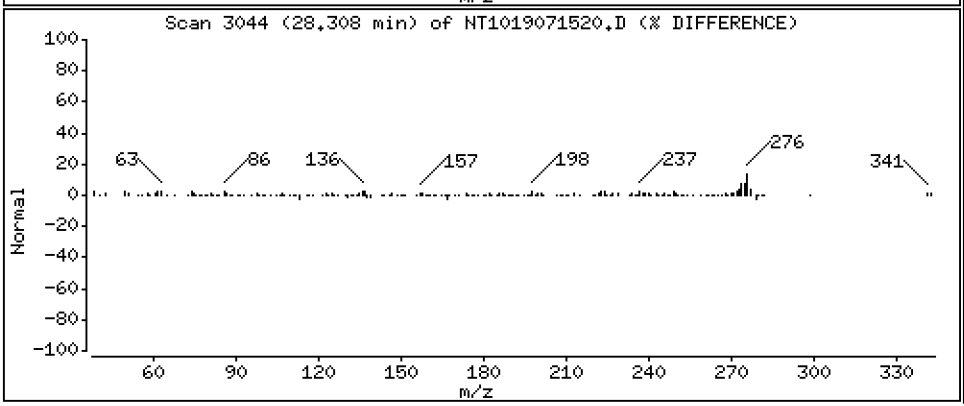












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

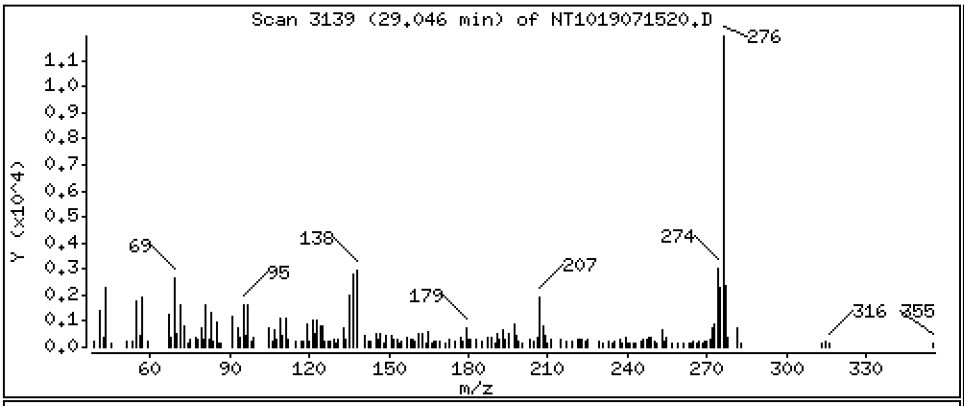
Operator: YZ

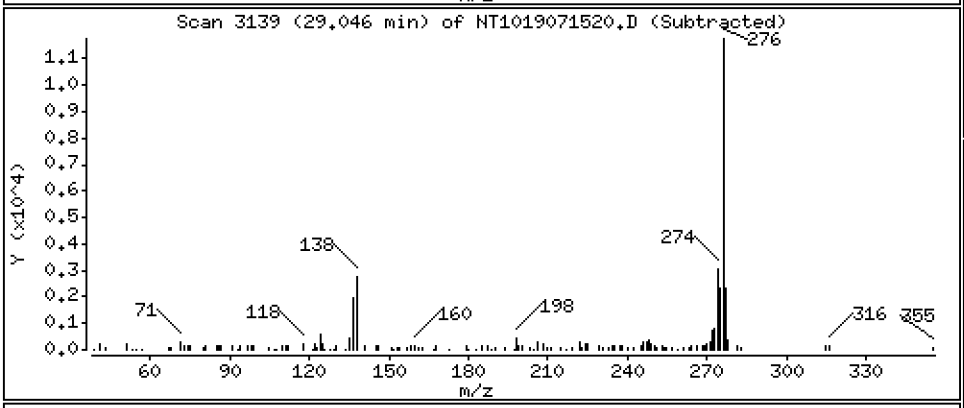
Column phase: ZB-5msi

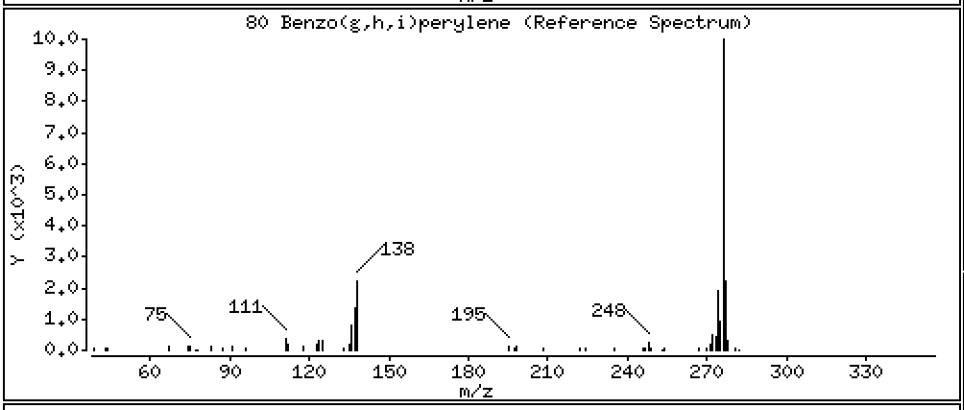
Column diameter: 0.25

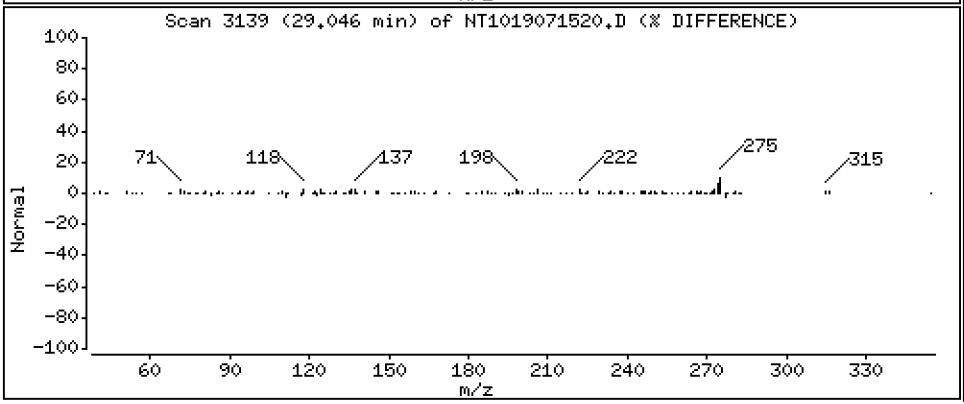
80 Benzo(g,h,i)perylene

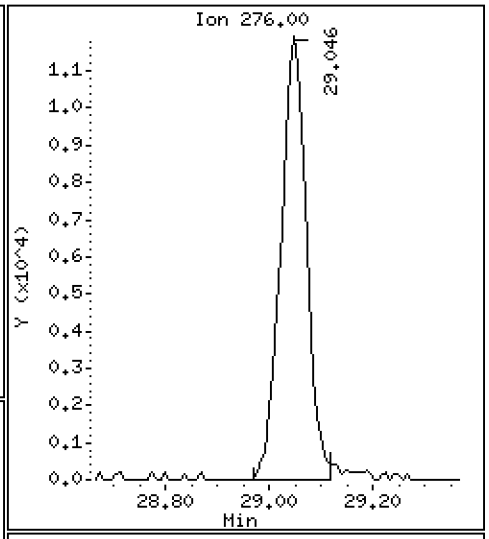
Concentration: 3.018 ug/mL

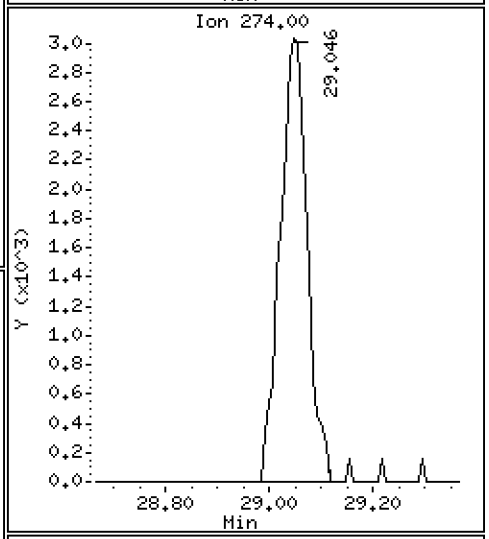


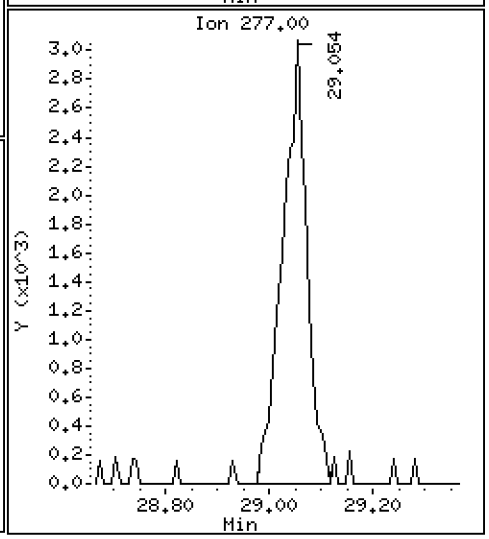












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

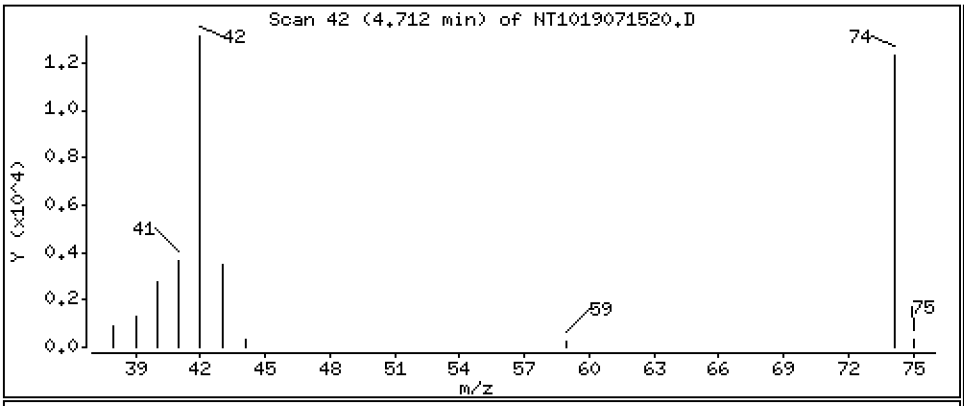
Operator: YZ

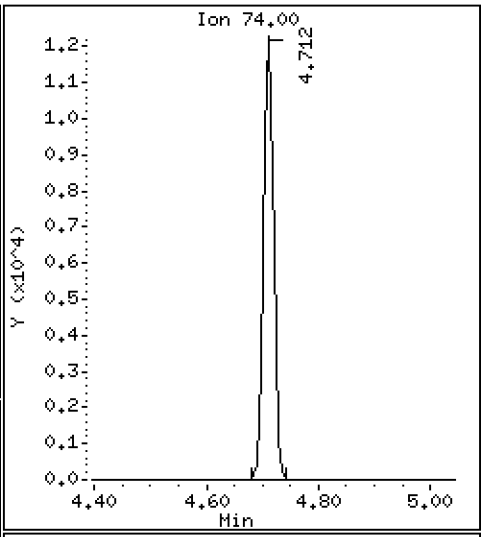
Column phase: ZB-5msi

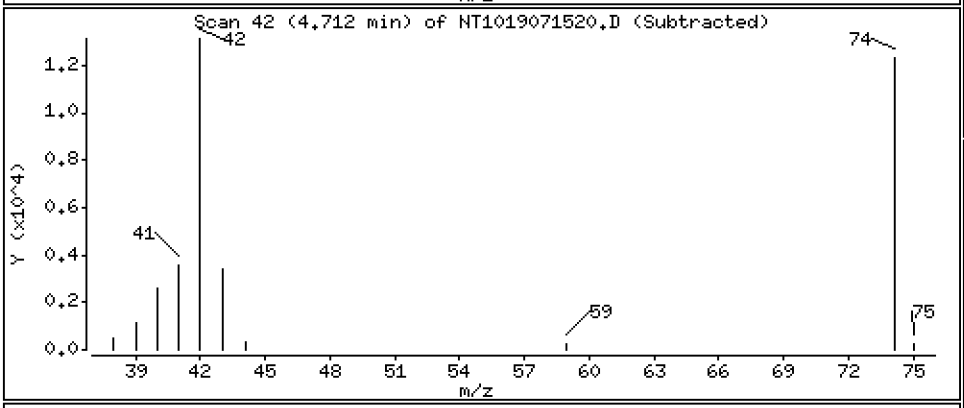
Column diameter: 0.25

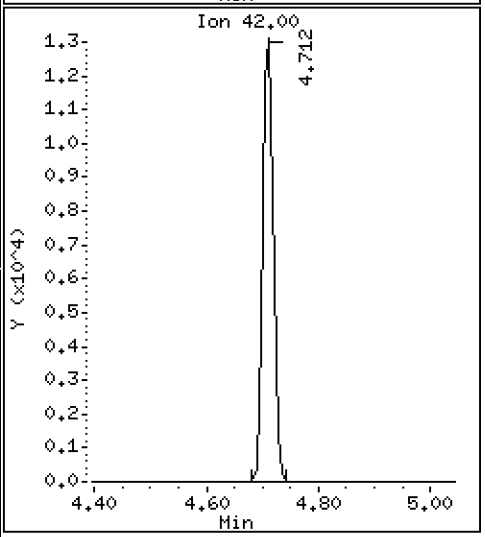
90 N-Nitrosodimethylamine

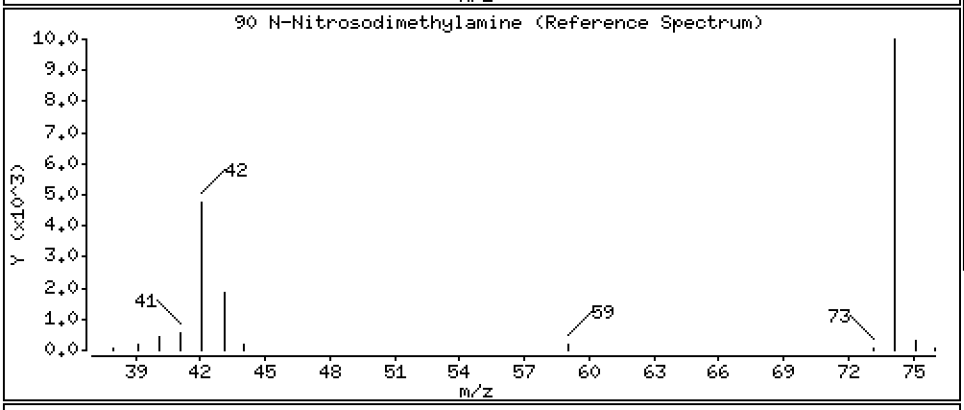
Concentration: 4.536 ug/mL

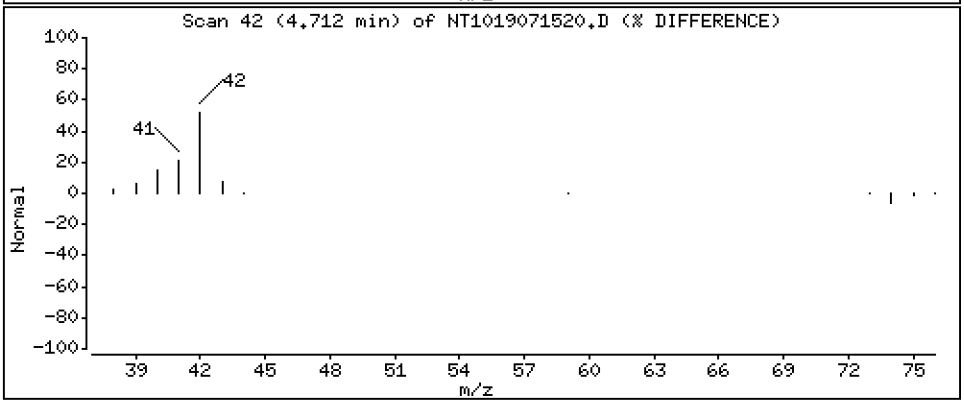












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

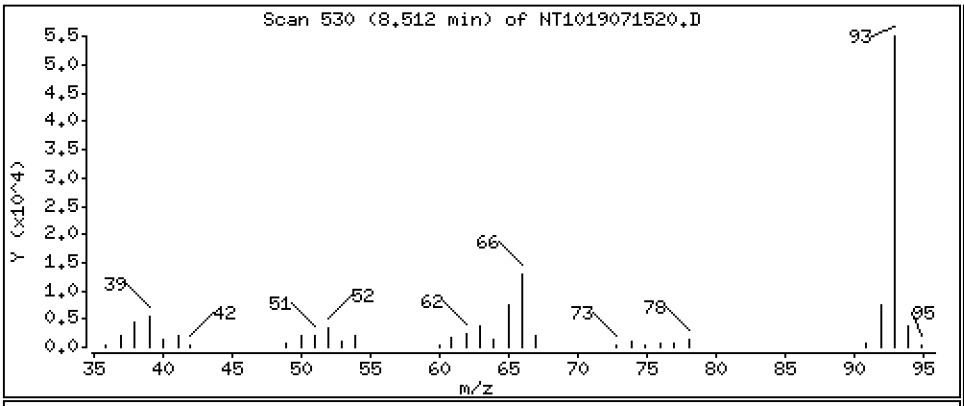
Operator: YZ

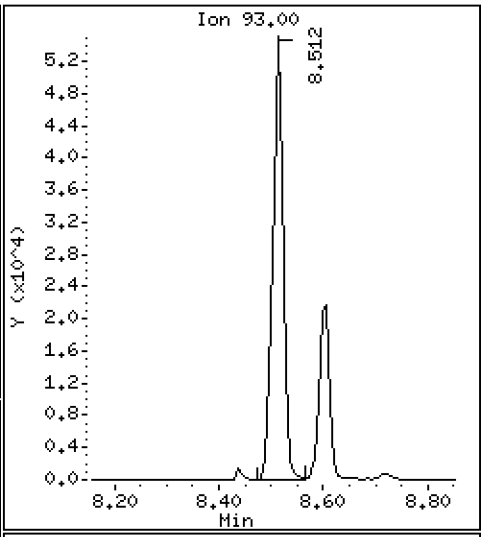
Column phase: ZB-5msi

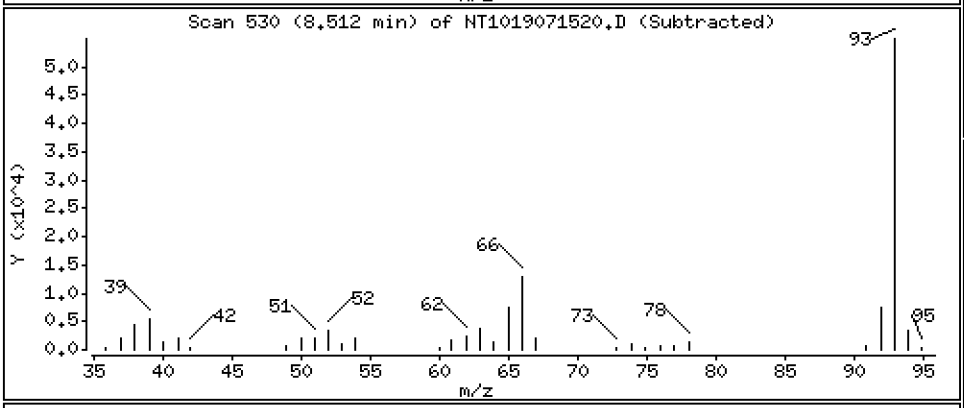
Column diameter: 0.25

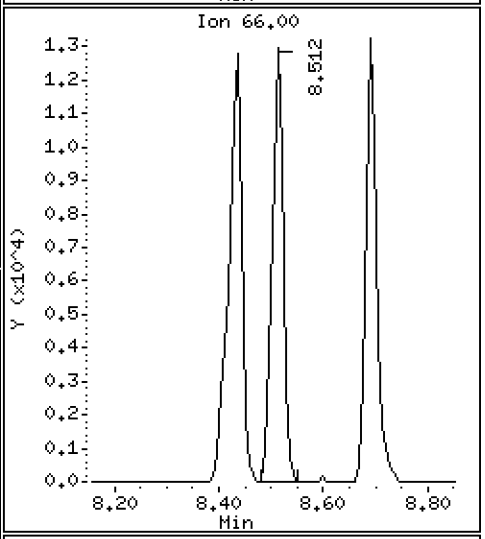
91 Aniline

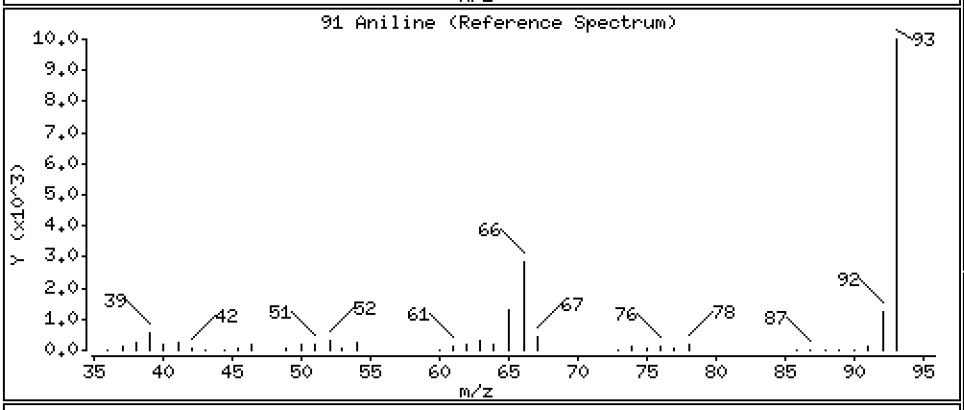
Concentration: 9.278 ug/mL

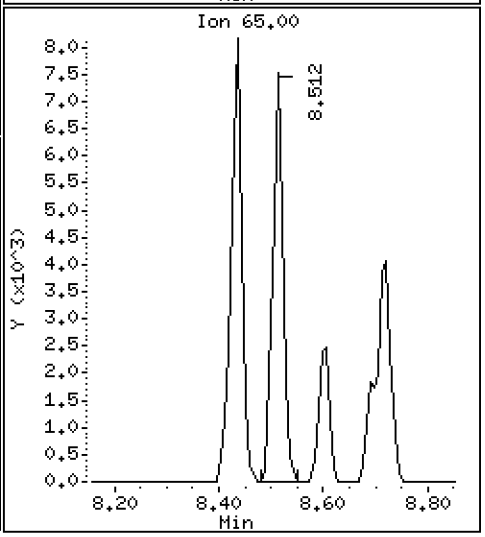


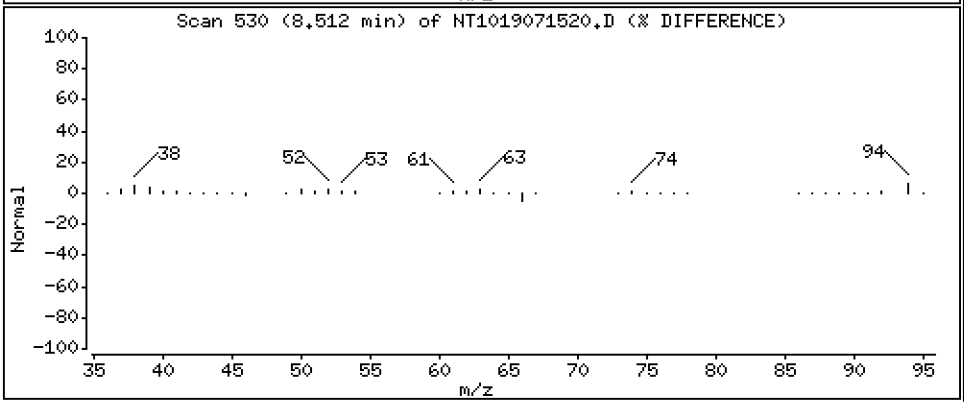












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

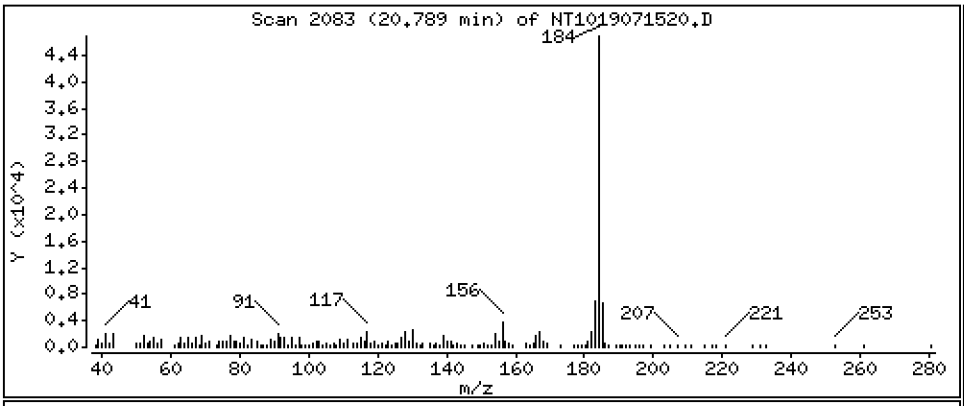
Operator: YZ

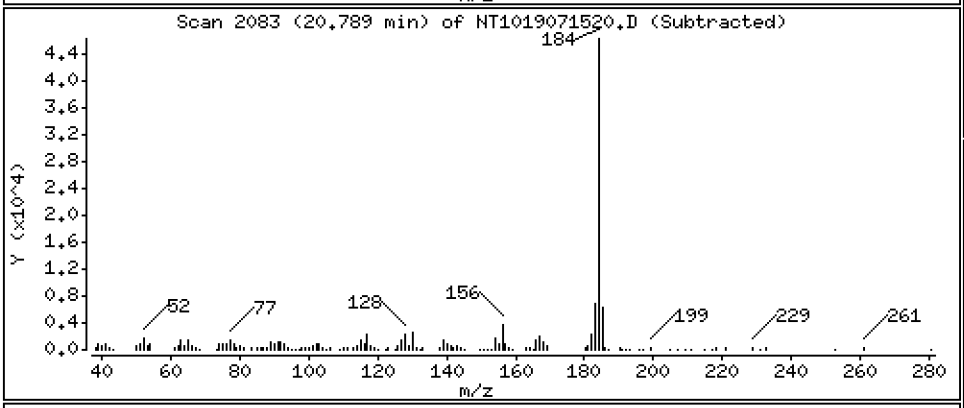
Column phase: ZB-5msi

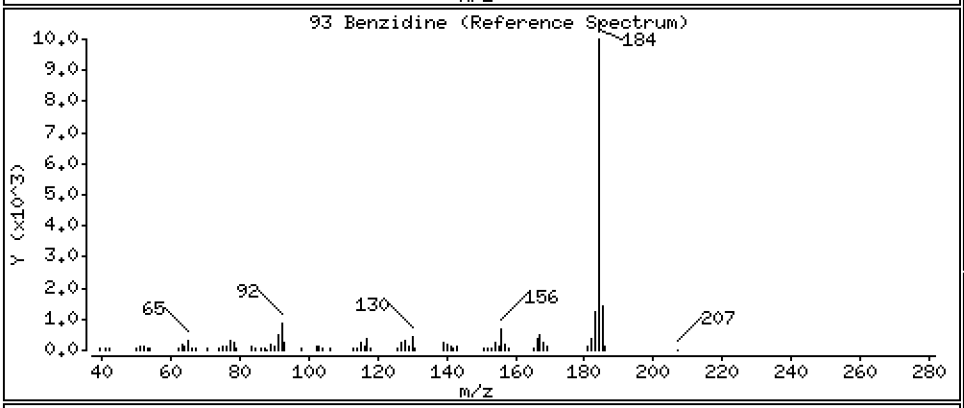
Column diameter: 0.25

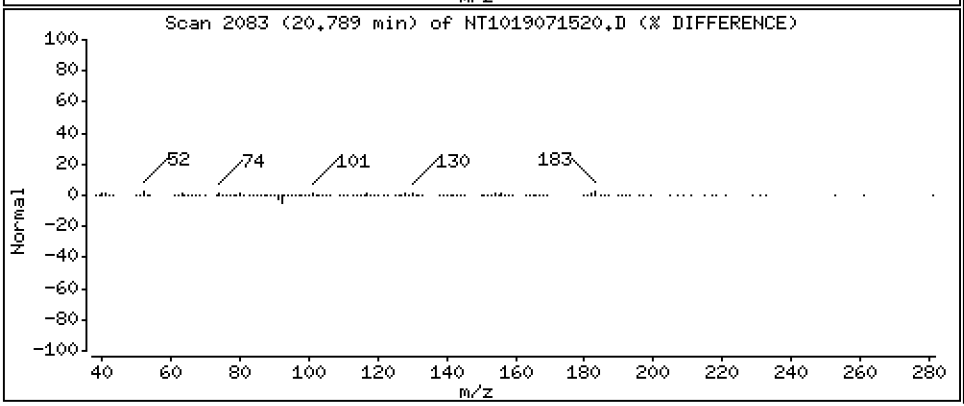
93 Benzidine

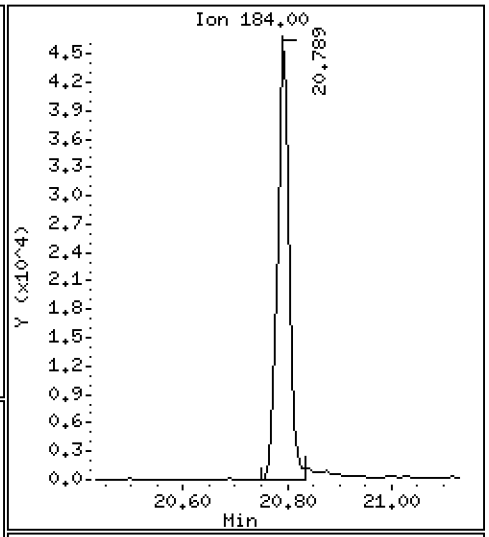
Concentration: 7.554 ug/mL

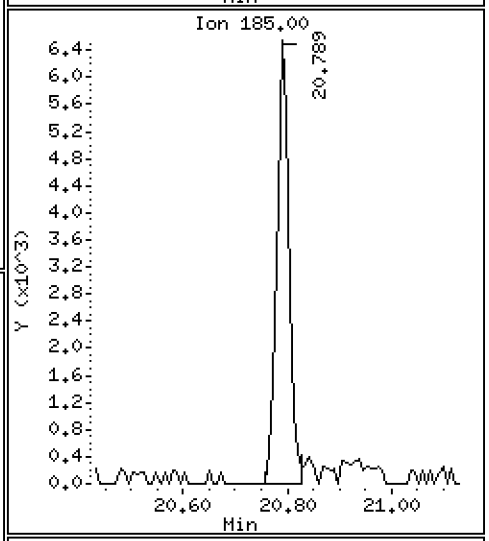


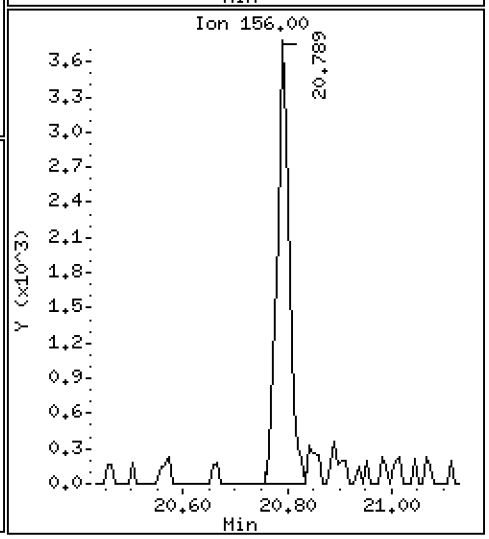












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

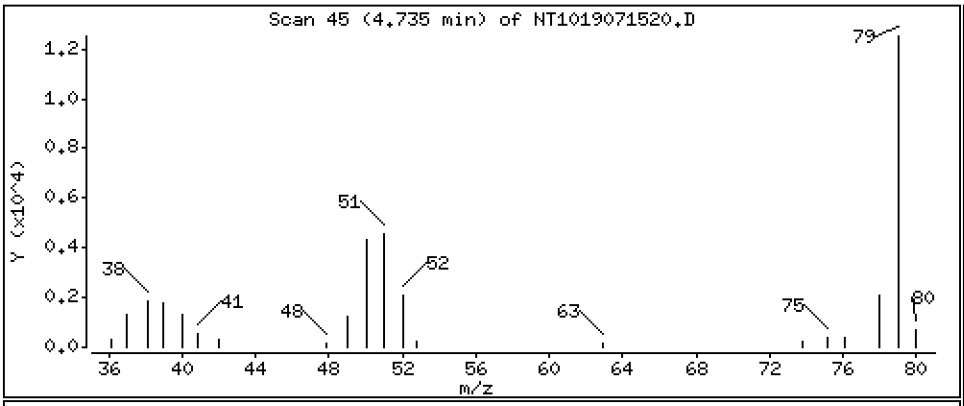
Operator: YZ

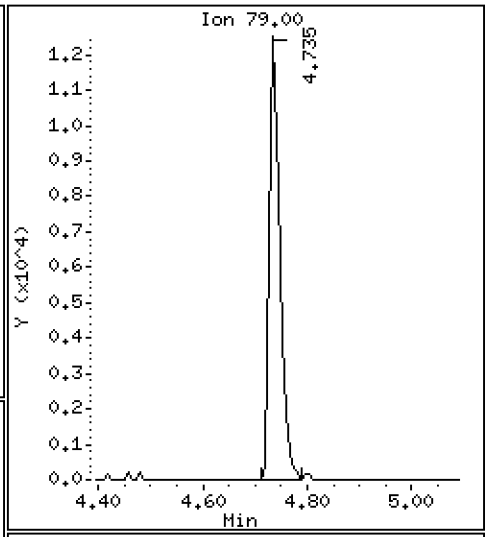
Column phase: ZB-5msi

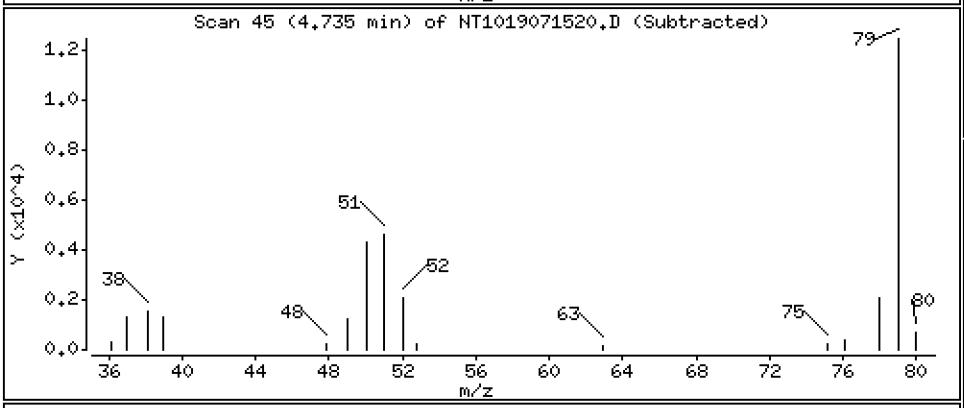
Column diameter: 0.25

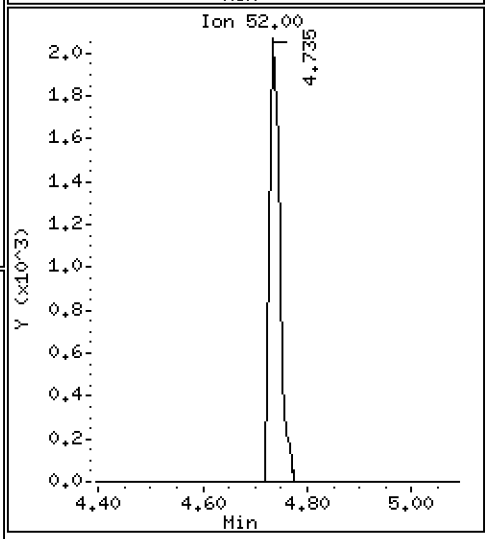
103 Pyridine

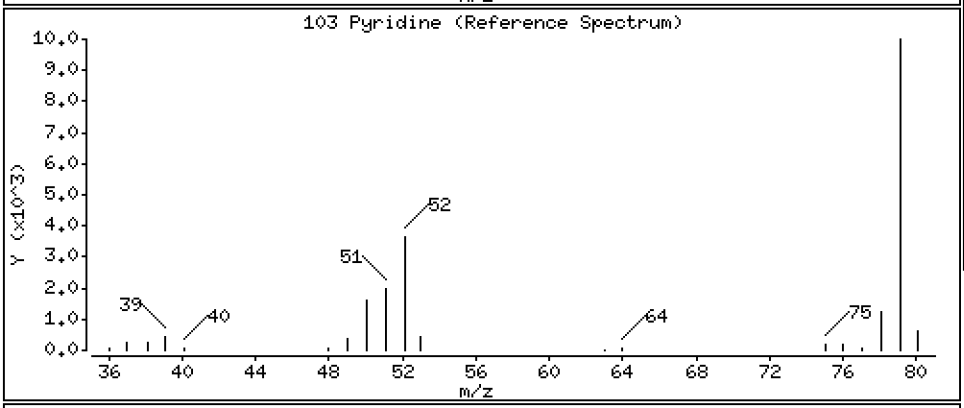
Concentration: 2.586 ug/mL

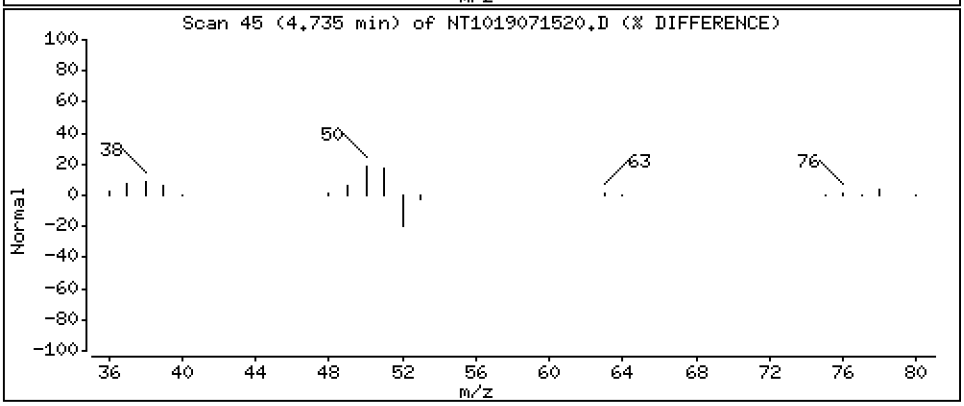












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

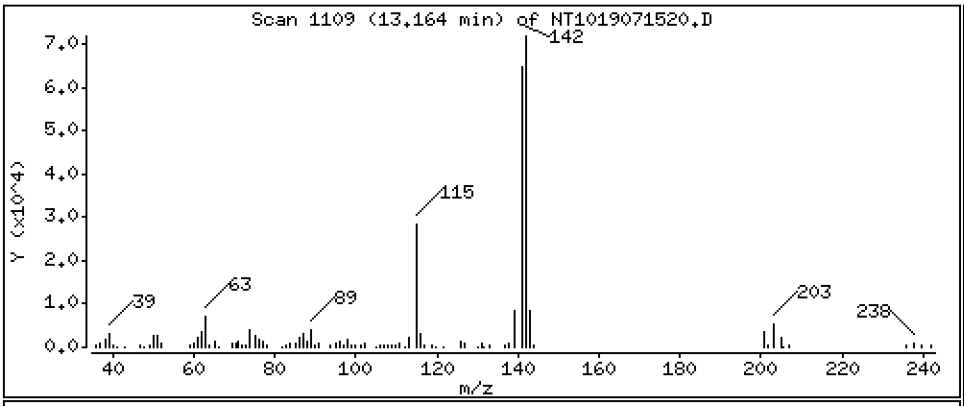
Operator: YZ

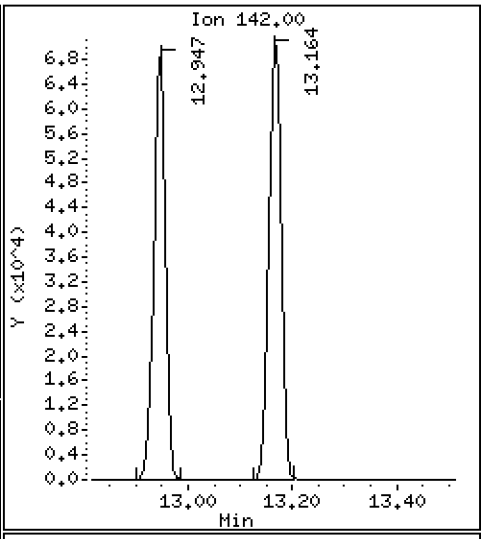
Column phase: ZB-5msi

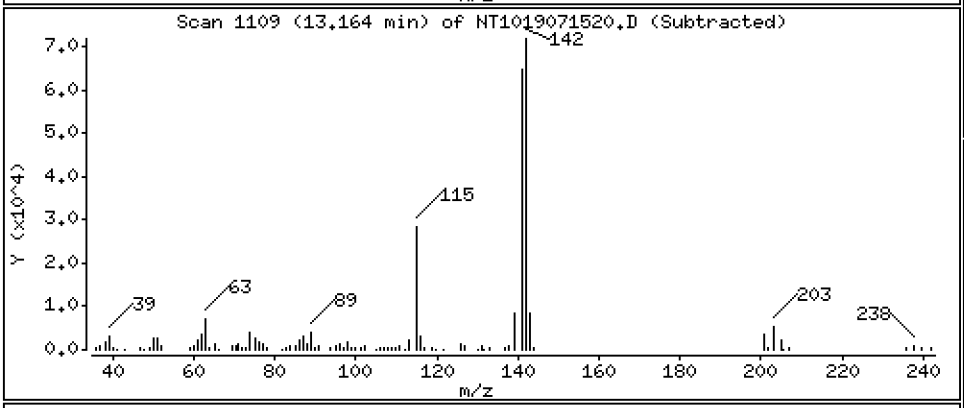
Column diameter: 0.25

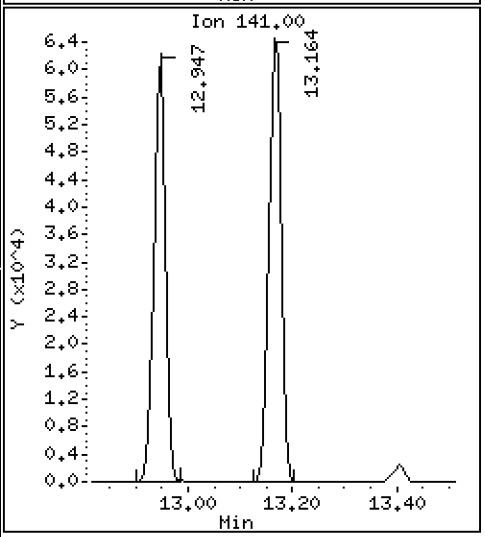
105 1-methylnaphthalene

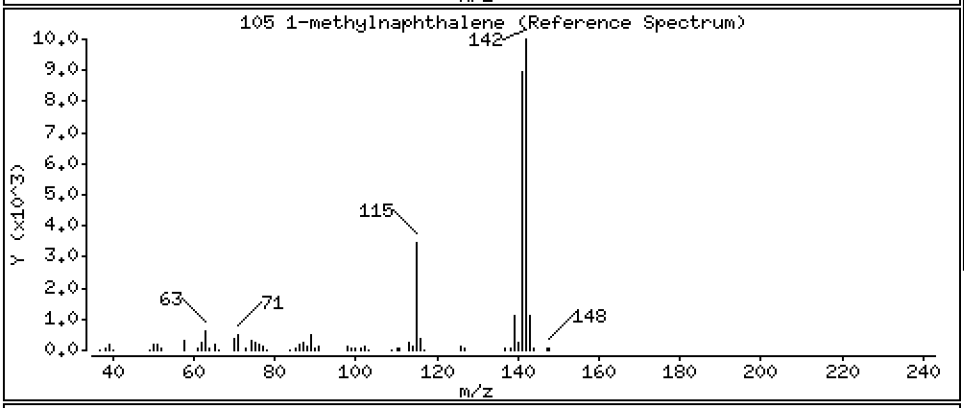
Concentration: 5.356 ug/mL

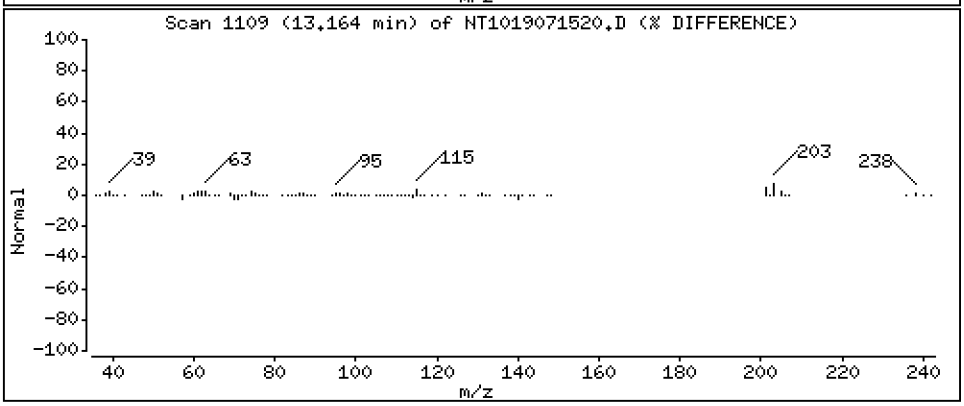












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

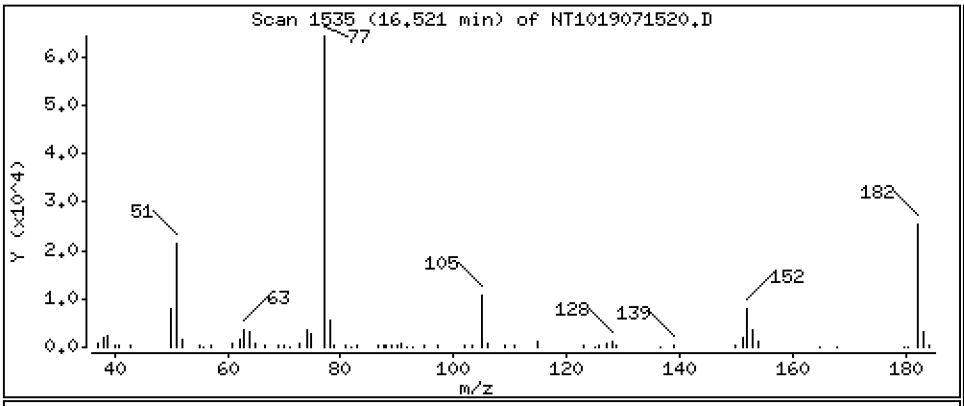
Operator: YZ

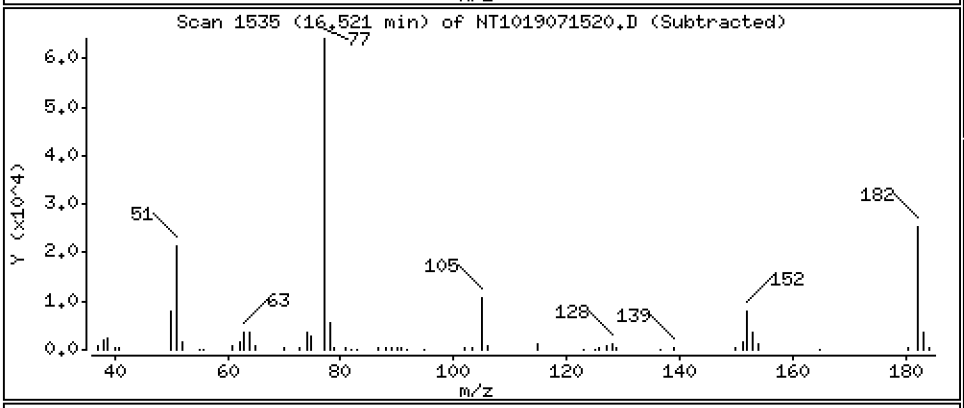
Column phase: ZB-5msi

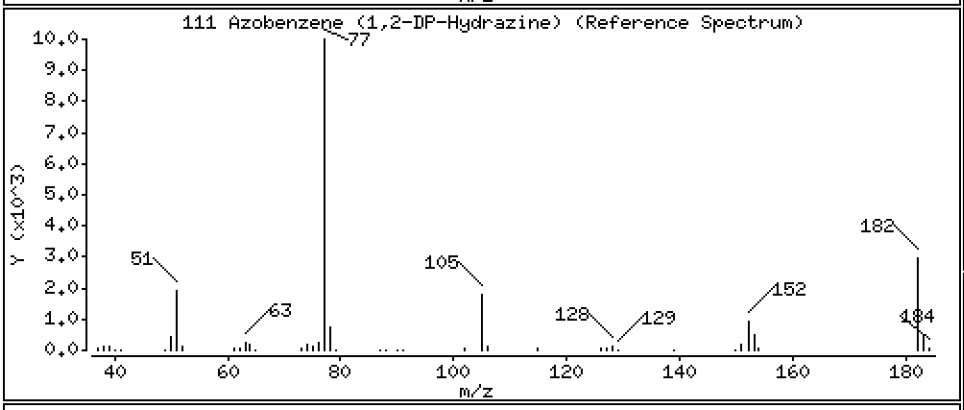
Column diameter: 0.25

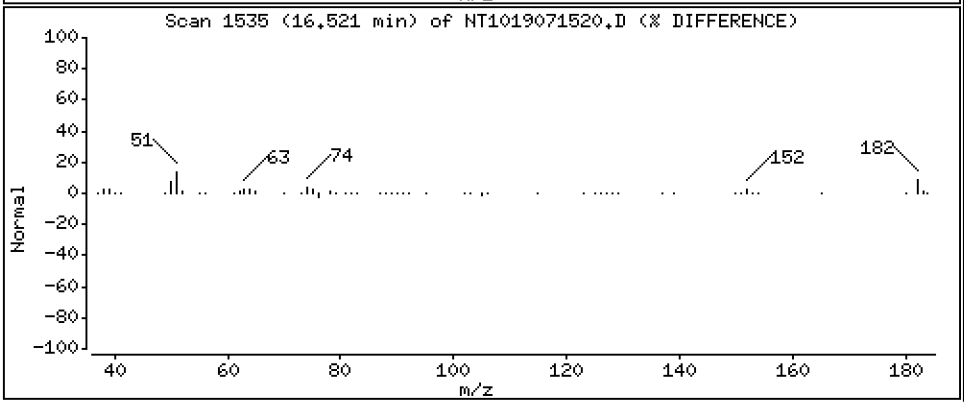
111 Azobenzene (1,2-DP-Hydrazine)

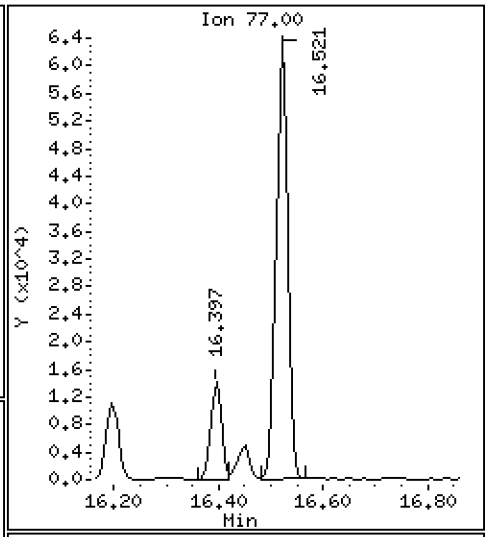
Concentration: 4.339 ug/mL

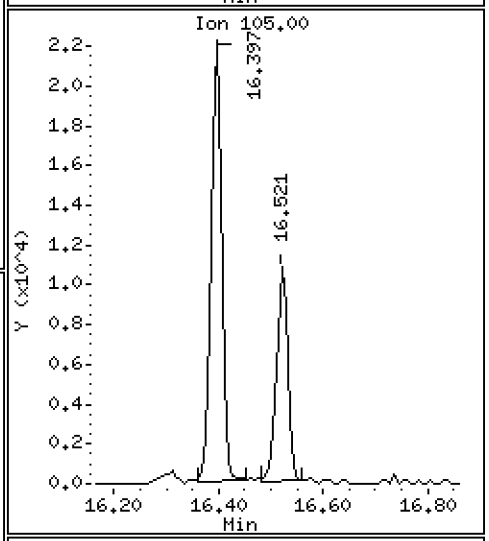


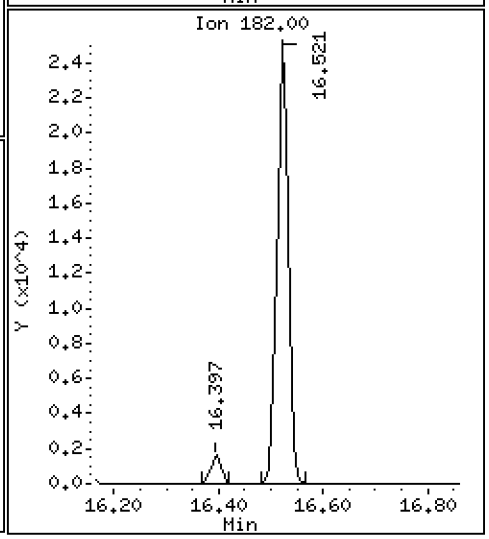












Data File: \\Target\share\chem3\nt10.i\20190715.b\NT1019071520.D

Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

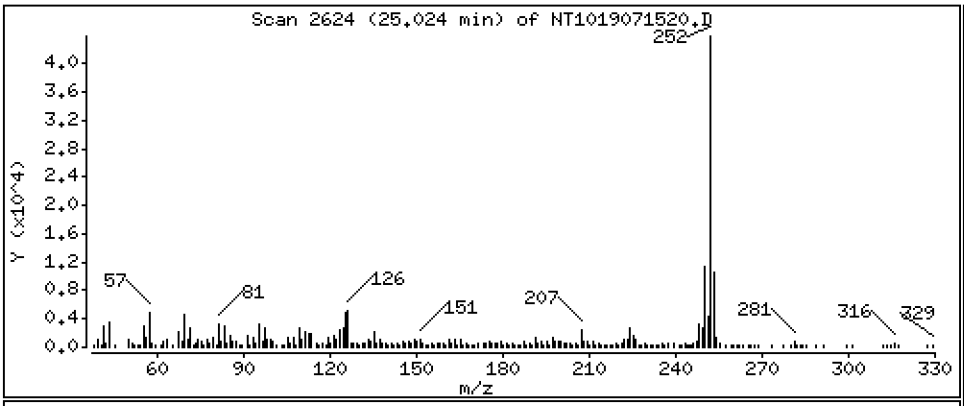
Operator: YZ

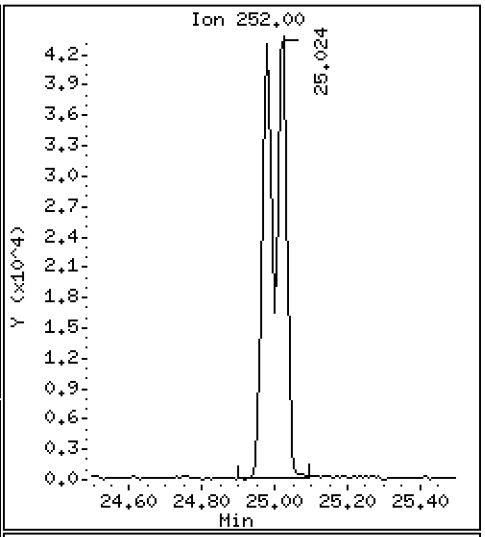
Column phase: ZB-5msi

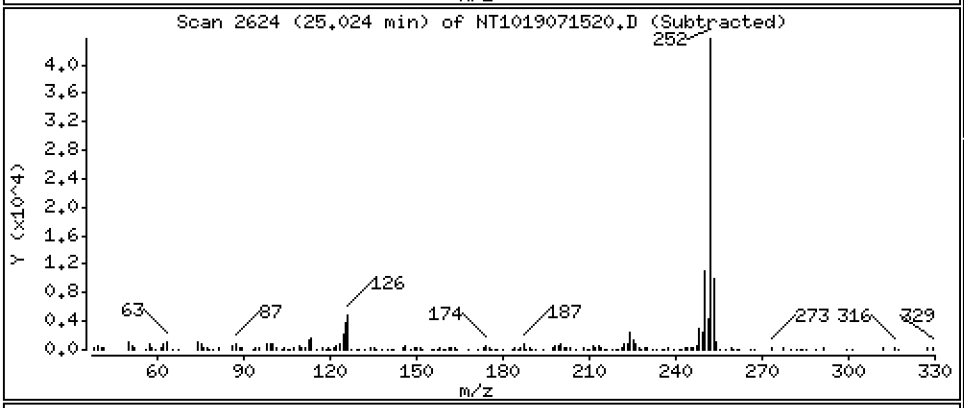
Column diameter: 0.25

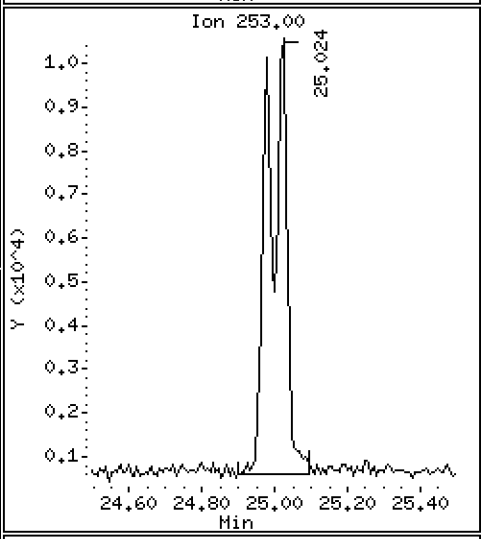
187 Total Benzofluoranthenes

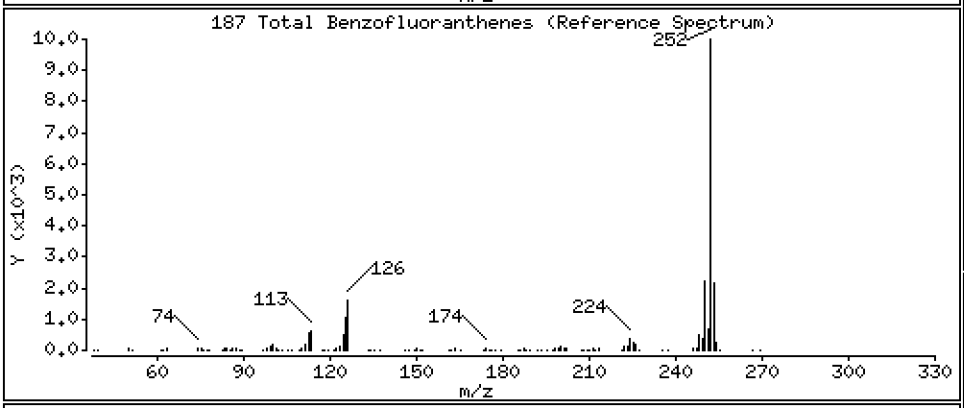
Concentration: 10.61 ug/mL

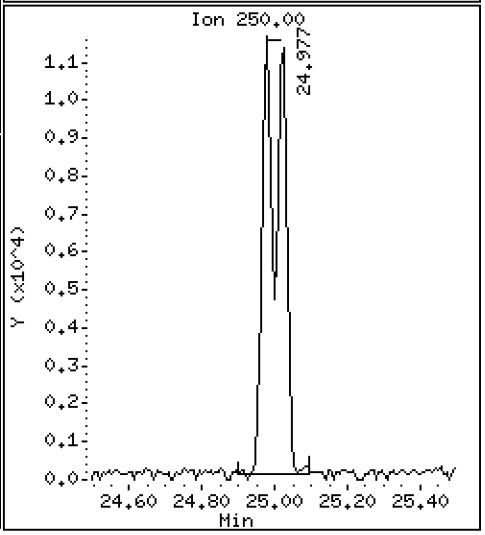


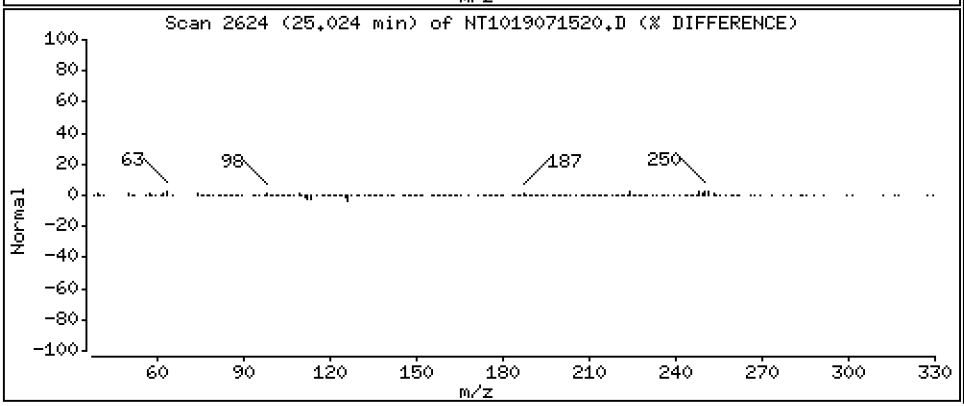












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

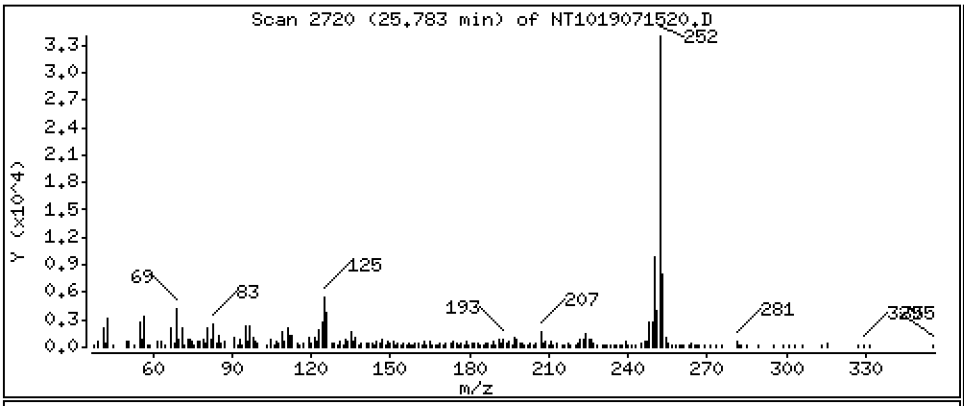
Operator: YZ

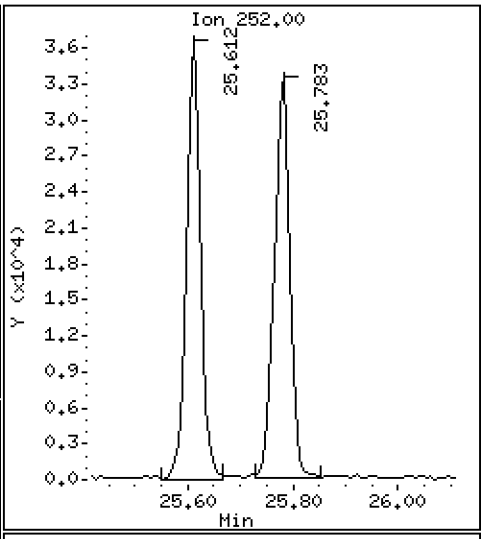
Column phase: ZB-5msi

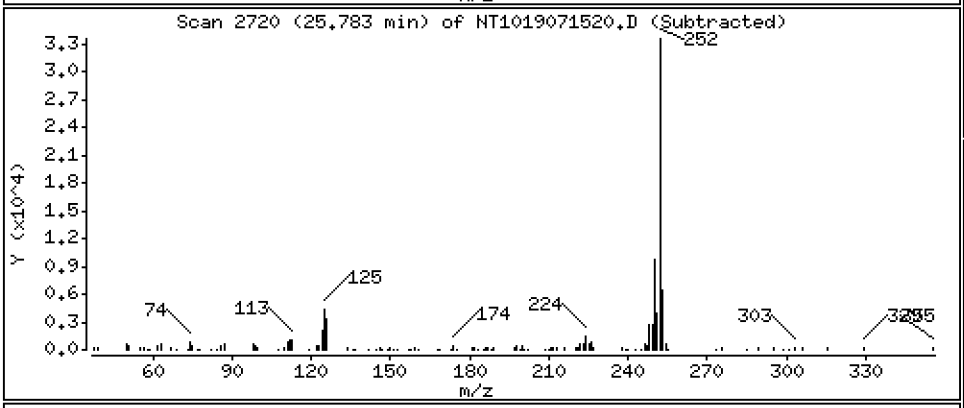
Column diameter: 0.25

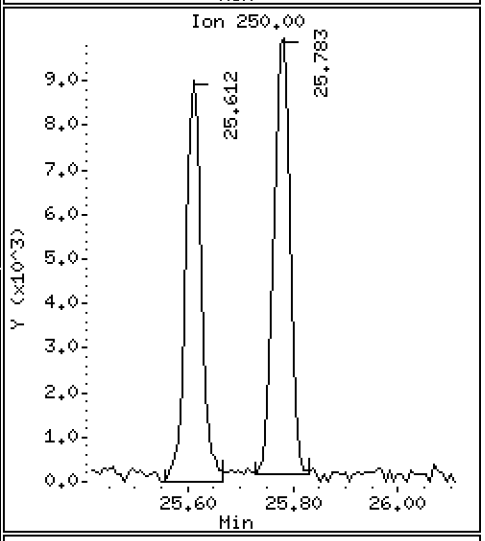
99 Perylene

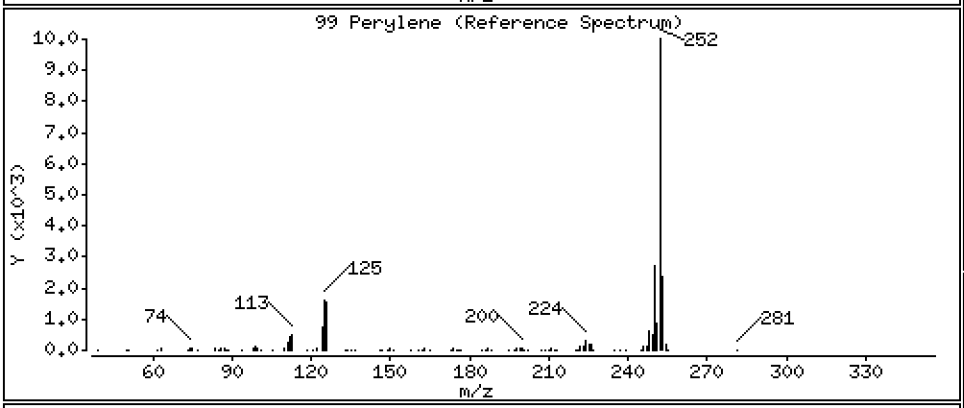
Concentration: 5.481 ug/mL

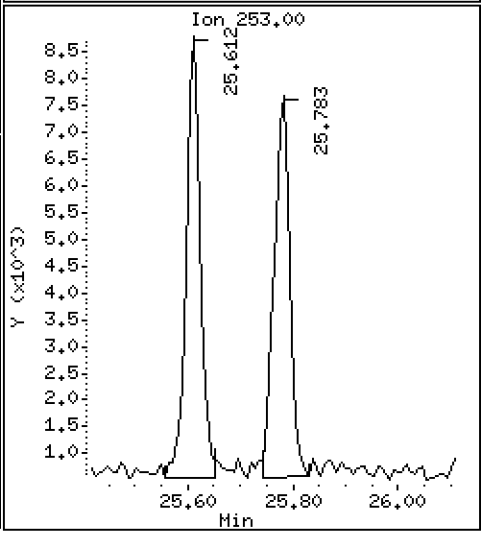


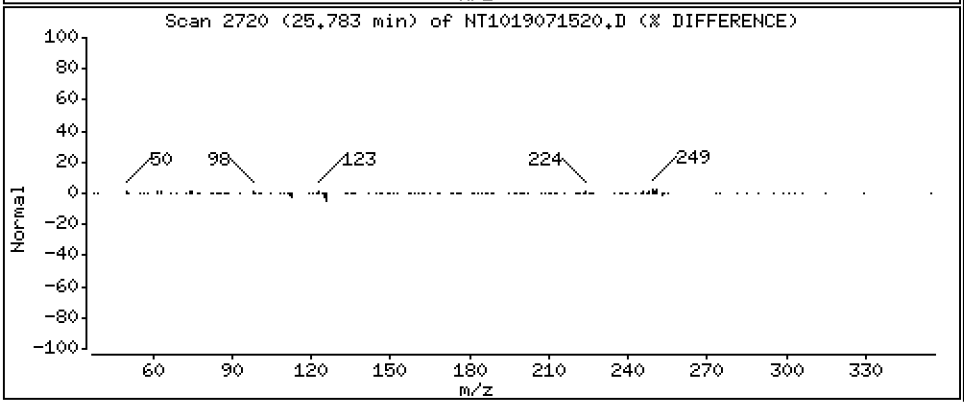












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

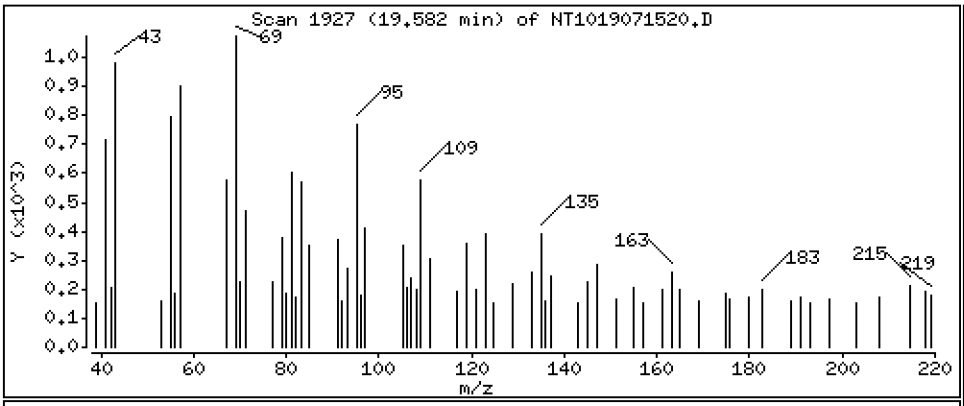
Sample Info: SHG0206-CCV1

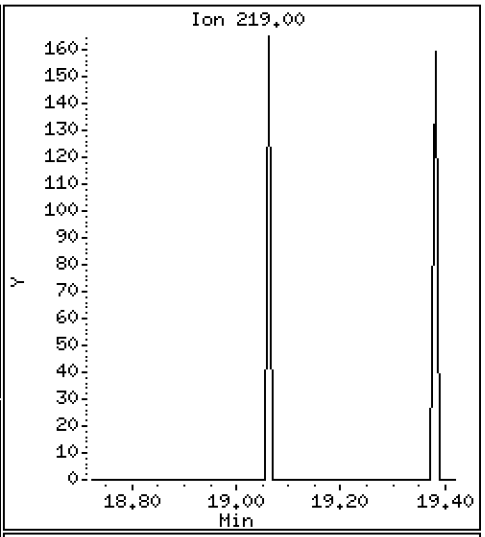
Operator: YZ

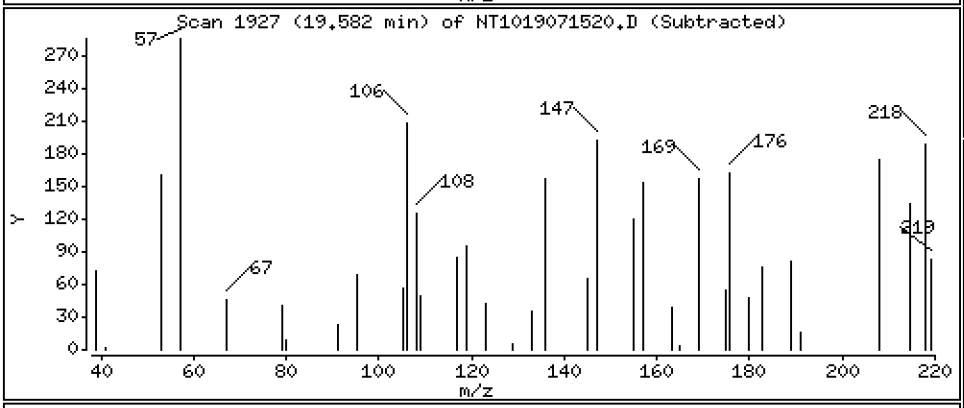
Column phase: ZB-5msi

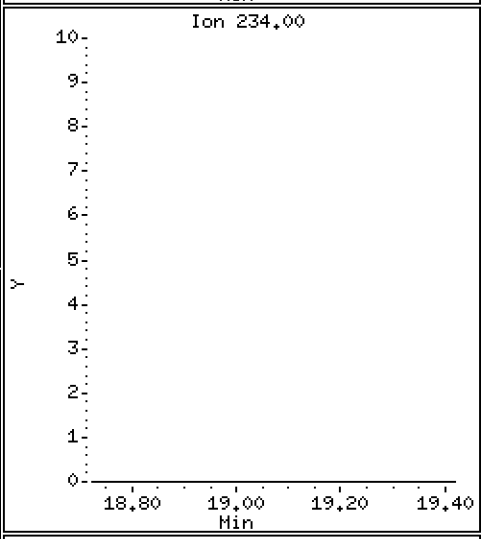
Column diameter: 0.25

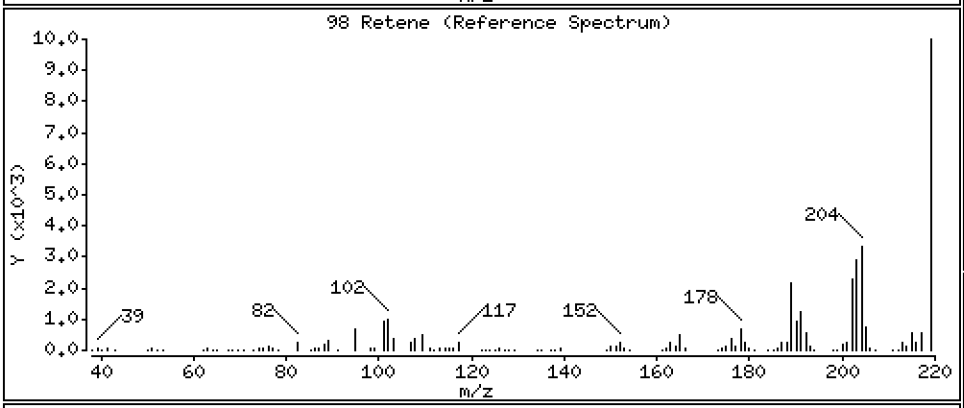
98 Retene

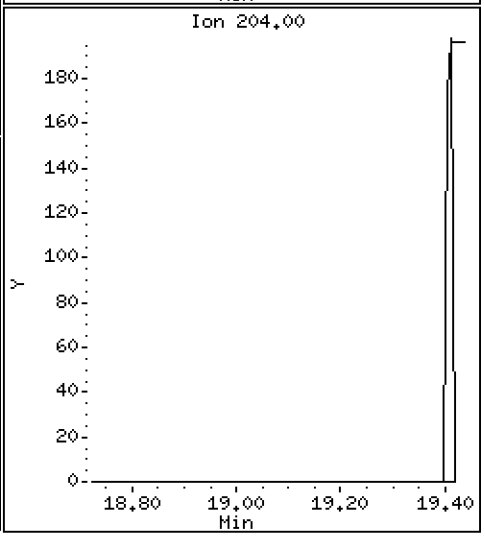


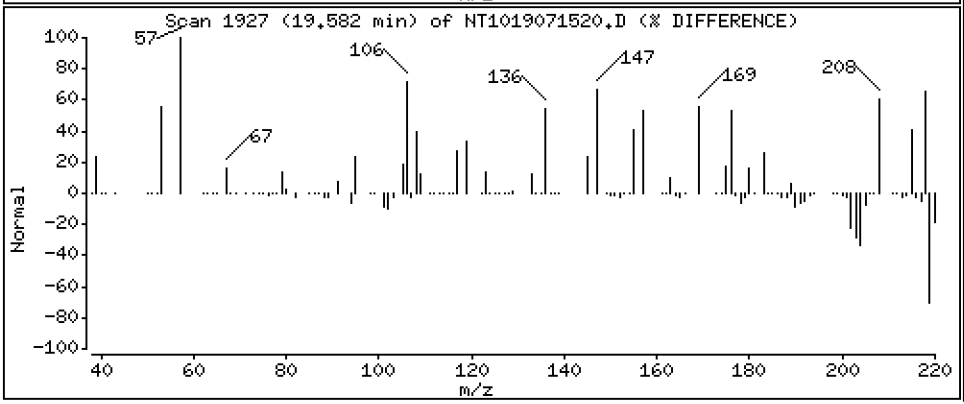












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Date : 16-JUL-2019 01:24

Client ID:

Instrument: nt10.i

Sample Info: SHG0206-CCV1

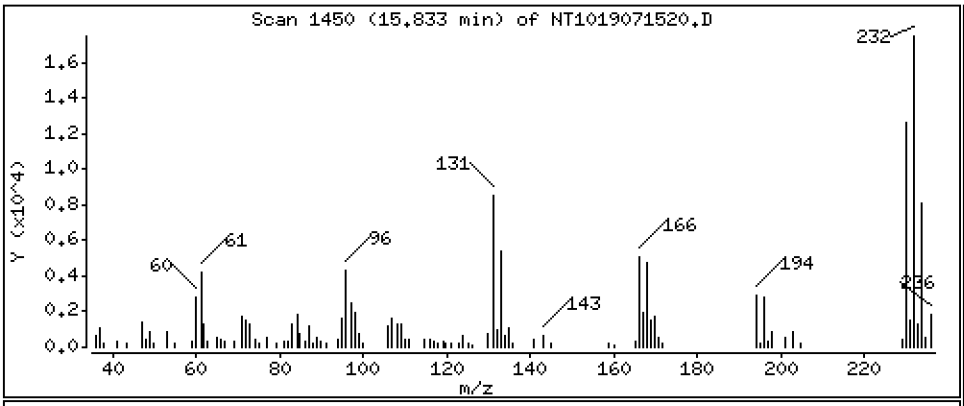
Operator: YZ

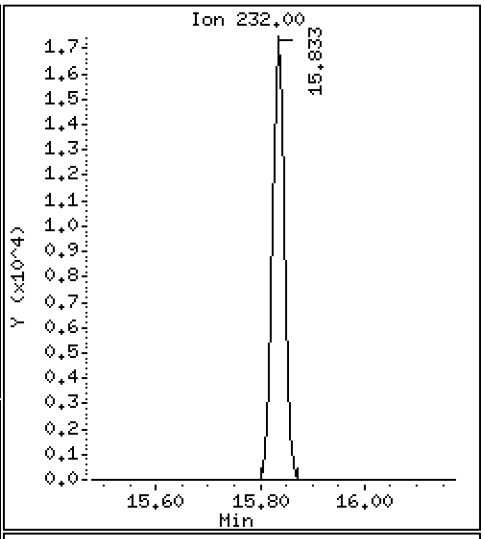
Column phase: ZB-5msi

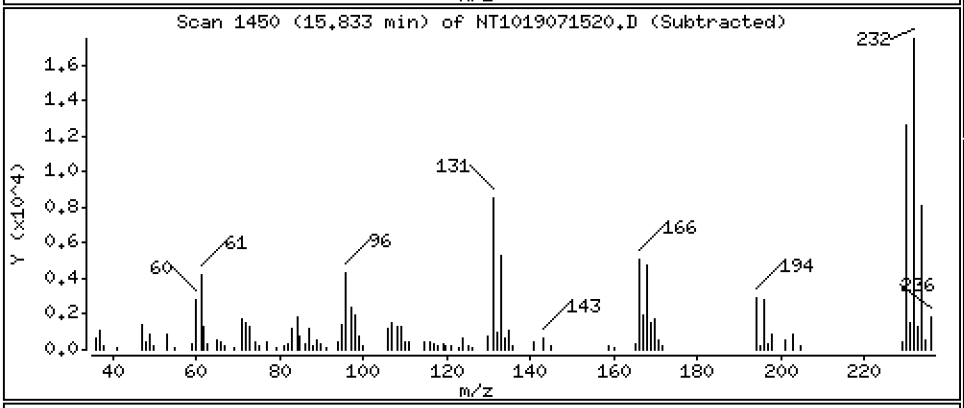
Column diameter: 0.25

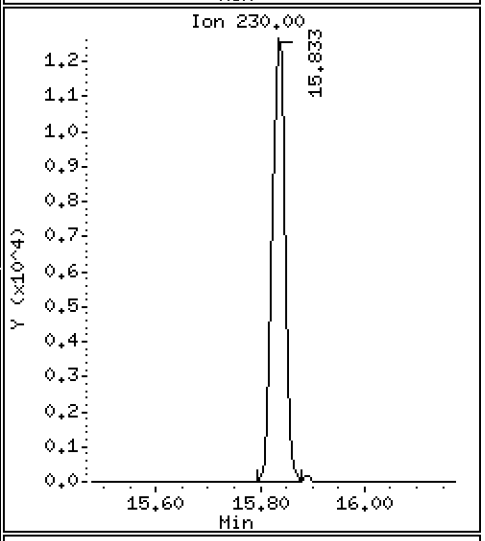
120 2,3,4,6-Tetrachlorophenol

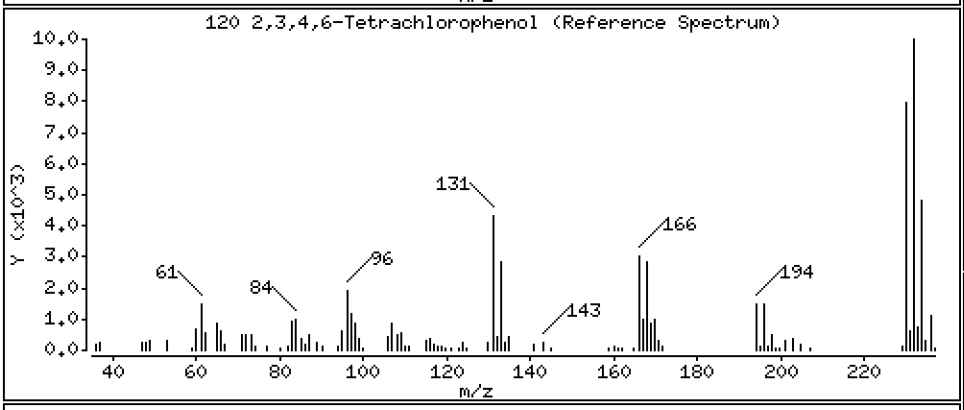
Concentration: 5.557 ug/mL

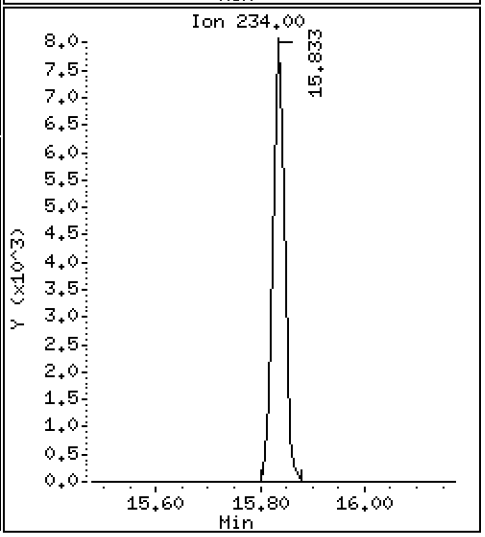


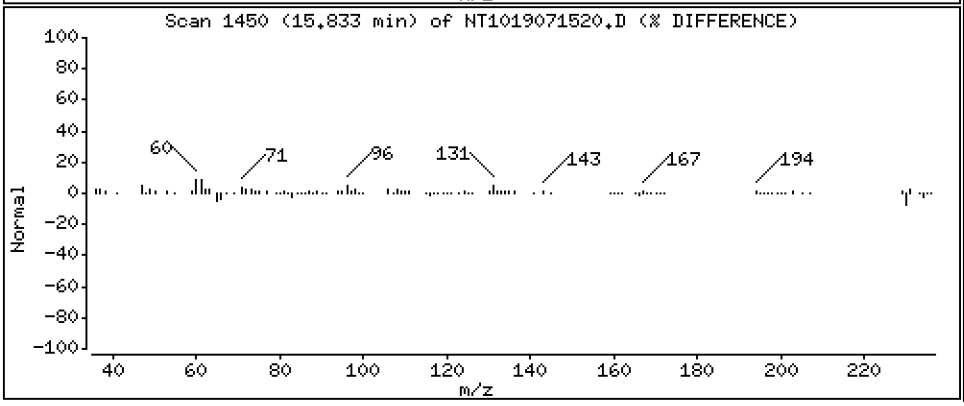












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

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Lab Smp Id: SHG0206-CCV1
Inj Date : 16-JUL-2019 01:24
Operator : YZ Inst ID: nt10.i
Smp Info : SHG0206-CCV1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Meth Date : 16-Jul-2019 11:29 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PSDDAICAL.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.835	6.827	(0.755)	60363	6.89805	6.898
$	2 Phenol-d5	99	8.411	8.396	(0.929)	67807	6.91408	6.914
	3 Phenol	94	8.435	8.419	(0.932)	40408	4.43192	4.432
$	5 2-Chlorophenol-d4	132	8.689	8.682	(0.960)	78322	7.41876	7.419
	4 Bis(2-Chloroethyl)ether	93	8.604	8.597	(0.950)	30508	4.12945	4.129
	6 2-Chlorophenol	128	8.720	8.712	(0.963)	50247	4.93938	4.939
	7 1,3-Dichlorobenzene	146	8.983	8.983	(0.992)	57388	4.95002	4.950
*	8 1,4-Dichlorobenzene-d4	152	9.053	9.045	(1.000)	31163	4.00000	
	9 1,4-Dichlorobenzene	146	9.084	9.076	(1.003)	53315	4.77556	4.776
$	10 1,2-Dichlorobenzene-d4	152	9.410	9.402	(1.039)	34744	4.81360	4.814
	12 1,2-Dichlorobenzene	146	9.433	9.426	(1.042)	50109	4.71790	4.718
	11 Benzyl alcohol	108	9.317	9.309	(1.029)	26688	4.42268	4.423
	14 2,2'-oxybis(1-Chloropropane)	121	9.620	9.612	(1.063)	16026	4.99368	4.994
	13 2-Methylphenol	108	9.542	9.527	(1.054)	31751	4.53357	4.534
	17 Hexachloroethane	117	10.023	10.016	(1.107)	17362	3.73781	3.738
	16 N-Nitroso-di-n-propylamine	70	9.876	9.860	(1.091)	19542	4.37342	4.373
	15 4-Methylphenol	108	9.806	9.790	(1.083)	34026	4.58350	4.584
$	18 Nitrobenzene-d5	82	10.140	10.132	(0.880)	39304	4.76934	4.769
	19 Nitrobenzene	77	10.178	10.163	(0.884)	35497	4.48821	4.488
	20 Isophorone	82	10.615	10.606	(0.922)	63593	4.79416	4.794
	21 2-Nitrophenol	139	10.801	10.792	(0.938)	27622	5.27108	5.271
	22 2,4-Dimethylphenol	107	10.852	10.835	(0.942)	84266	9.52545	9.525
	23 Bis(2-Chloroethoxy)methane	93	11.048	11.038	(0.959)	34176	4.49432	4.494
	24 Benzoic acid	105	11.056	10.920	(0.960)	109170	18.0885	18.09
	25 2,4-Dichlorophenol	162	11.251	11.234	(0.977)	76767	10.4511	10.45
	26 1,2,4-Trichlorobenzene	180	11.431	11.423	(0.993)	43116	5.18494	5.185
*	27 Naphthalene-d8	136	11.516	11.515	(1.000)	105369	4.00000	
	28 Naphthalene	128	11.562	11.554	(1.004)	117989	4.87155	4.872
	29 4-Chloroaniline	127	11.686	11.677	(1.015)	103631	9.75713	9.757
	30 Hexachlorobutadiene	225	11.918	11.909	(1.035)	25794	5.05612	5.056
	31 4-Chloro-3-methylphenol	107	12.637	12.621	(1.097)	76082	10.1111	10.11
	32 2-Methylnaphthalene	142	12.947	12.938	(1.124)	106882	5.20260	5.203
	33 Hexachlorocyclopentadiene	237	13.403	13.403	(0.887)	24270	4.19718	4.197

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
	34	2,4,6-Trichlorophenol	196	13.558	13.550	(0.897)	61535	10.8162	10.82
	35	2,4,5-Trichlorophenol	196	13.636	13.619	(0.902)	65462	11.1443	11.14
$	36	2-Fluorobiphenyl	172	13.721	13.712	(0.908)	110327	5.21833	5.218
	37	2-Chloronaphthalene	162	13.930	13.921	(0.922)	93855	5.18200	5.182
	38	2-Nitroaniline	65	14.193	14.184	(0.939)	38003	9.78563	9.786
	39	Dimethylphthalate	163	14.619	14.610	(0.967)	104870	5.10553	5.106
	40	Acenaphthylene	152	14.797	14.788	(0.979)	135595	5.08900	5.089
	41	2,6-Dinitrotoluene	165	14.758	14.749	(0.976)	47508	10.4783	10.48
*	42	Acenaphthene-d10	164	15.114	15.098	(1.000)	55275	4.00000	
	43	3-Nitroaniline	138	15.044	15.020	(0.995)	53354	10.0126	10.01
	44	Acenaphthene	153	15.176	15.167	(1.004)	85482	5.10576	5.106
	45	2,4-Dinitrophenol	184	15.253	15.237	(1.009)	53633	16.8705	16.87
	46	Dibenzofuran	168	15.500	15.484	(1.026)	142138	5.16569	5.166
	47	4-Nitrophenol	109	15.361	15.329	(1.016)	34709	10.2133	10.21
	48	2,4-Dinitrotoluene	165	15.562	15.546	(1.030)	62280	10.0962	10.10
	50	Diethylphthalate	149	16.072	16.056	(1.063)	103322	5.22424	5.224
	49	Fluorene	166	16.212	16.195	(1.073)	94736	5.03447	5.034
	51	4-Chlorophenyl-phenylether	204	16.196	16.187	(1.072)	48637	5.01703	5.017
	52	4-Nitroaniline	138	16.304	16.288	(1.079)	74377	12.2105	12.21
	53	4,6-Dinitro-2-methylphenol	198	16.397	16.381	(0.905)	91776	17.9514	17.95
	54	N-Nitrosodiphenylamine	169	16.451	16.434	(0.908)	70515	4.95181	4.952
$	55	2,4,6-Tribromophenol	330	16.736	16.728	(1.107)	31363	7.50386	7.504
	56	4-Bromophenyl-phenylether	248	17.199	17.190	(0.949)	40148	4.80939	4.809
	57	Hexachlorobenzene	284	17.508	17.499	(0.966)	41579	4.67508	4.675
	58	Pentachlorophenol	266	17.864	17.856	(0.985)	36428	9.71077	9.711
*	59	Phenanthrene-d10	188	18.127	18.119	(1.000)	103741	4.00000	
	60	Phenanthrene	178	18.173	18.165	(1.003)	118144	4.66222	4.662
	61	Anthracene	178	18.266	18.258	(1.008)	124740	4.84800	4.848
	62	Carbazole	167	18.599	18.583	(1.026)	116948	4.82999	4.830
	63	Di-n-butylphthalate	149	19.396	19.387	(1.070)	150963	4.30613	4.306
	64	Fluoranthene	202	20.556	20.540	(0.888)	113364	5.96513	5.965
	65	Pyrene	202	20.974	20.966	(0.906)	113716	5.73016	5.730
$	66	Terphenyl-d14	244	21.261	21.252	(0.918)	75095	5.57962	5.580
	67	Butylbenzylphthalate	149	22.190	22.181	(0.958)	55977	6.05529	6.055
	68	Benzo(a)anthracene	228	23.127	23.118	(0.999)	92681	5.13656	5.137
*	69	Chrysene-d12	240	23.158	23.149	(1.000)	62189	4.00000	
	70	3,3'-Dichlorobenzidine	252	23.088	23.079	(0.997)	108864	17.1742	17.17
	71	Chrysene	228	23.204	23.188	(1.002)	84956	5.32100	5.321
	72	bis(2-Ethylhexyl)phthalate	149	23.204	23.203	(0.960)	70081	5.67722	5.677
*	134	Di-n-octylphthalate-d4	153	24.179	24.178	(1.000)	140348	4.00000	
	73	Di-n-octylphthalate	149	24.195	24.186	(1.001)	125771	4.84403	4.844
	74	Benzo(b)fluoranthene	252	24.977	24.961	(0.971)	82506	5.43315	5.433
	75	Benzo(k)fluoranthene	252	25.023	24.999	(0.973)	79091	5.17708	5.177
	76	Benzo(a)pyrene	252	25.612	25.595	(0.995)	71284	5.23034	5.230
*	77	Perylene-d12	264	25.728	25.711	(1.000)	52929	4.00000	
	78	Indeno(1,2,3-cd)pyrene	276	28.292	28.268	(1.100)	59882	3.65675	3.657
	79	Dibenzo(a,h)anthracene	278	28.308	28.276	(1.100)	49280	3.69633	3.696
	80	Benzo(g,h,i)perylene	276	29.046	29.014	(1.129)	41630	3.01835	3.018
	90	N-Nitrosodimethylamine	74	4.711	4.696	(0.520)	15335	4.53578	4.536
	91	Aniline	93	8.512	8.504	(0.940)	74895	9.27762	9.278
	93	Benzidine	184	20.789	20.780	(0.898)	72418	7.55433	7.554
	103	Pyridine	79	4.735	4.742	(0.523)	16218	2.58648	2.586
	105	1-methylnaphthalene	142	13.164	13.163	(1.143)	110625	5.35626	5.356
	111	Azobenzene (1,2-DP-Hydrazine)	77	16.520	16.512	(1.093)	95441	4.33932	4.339

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
187	Total Benzofluoranthenes	252	25.023	24.999	(0.973)	154542	10.6097	10.61
99	Perylene	252	25.782	25.758	(1.002)	68720	5.48128	5.481
98	Retene	219	19.582	19.071	(0.846)	157		
120	2,3,4,6-Tetrachlorophenol	232	15.833	15.824	(1.048)	26298	5.55710	5.557

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019071520.D
Lab Smp Id: SHG0206-CCV1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190715.b\ABN.m
Misc Info:

Calibration Date: 15-JUL-2019
Calibration Time: 15:33
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	31163	-4.81
27 Naphthalene-d8	117487	58744	234974	105369	-10.31
42 Acenaphthene-d10	61859	30930	123718	55275	-10.64
59 Phenanthrene-d10	113574	56787	227148	103741	-8.66
69 Chrysene-d12	105788	52894	211576	62189	-41.21
134 Di-n-octylphthala	252823	126412	505646	140348	-44.49
77 Perylene-d12	113992	56996	227984	52929	-53.57 <-

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	9.05	8.55	9.55	9.05	0.09
27 Naphthalene-d8	11.51	11.01	12.01	11.52	0.08
42 Acenaphthene-d10	15.11	14.61	15.61	15.11	0.06
59 Phenanthrene-d10	18.12	17.62	18.62	18.13	0.05
69 Chrysene-d12	23.15	22.65	23.65	23.16	0.04
134 Di-n-octylphthala	24.18	23.68	24.68	24.18	0.01
77 Perylene-d12	25.71	25.21	26.21	25.73	0.07

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019071520.D

Lab ID: SHG0206-CCV1
nt10.i, 20190715.b\ABN.m,   16-JUL-2019 01:24

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.960	0.948	0.0118	Benzoic acid
0.846	0.000	0.8456	Retene

RRT check based on Ccal File: NT1019071512.D

On Column LOD for nt10.i, 20190715.b\ABN.m, PSDDAICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

CONTINUING CALIBRATION CHECK
EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	NT10	Calibration:	CG00040
Lab File ID:	NT1019082129.D	Calibration Date:	07/16/19 11:00
Sequence:	SHH0303	Injection Date:	08/22/19
Lab Sample ID:	SHH0303-CCV1	Injection Time:	02:20
Sequence Name:	ABN 5		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Phenol	A	5.0000	3.5	1.1702980	0.8243348		-29.6	50
Benzyl Alcohol	A	5.0000	3.5	0.7745535	0.5456373		-29.6	50
Benzoic acid	A	20.000	12.9	0.2148759	0.1474468		-35.3	50
N-Nitrosodiphenylamine	A	5.0000	4.6	0.5490690	0.5084932		-7.4	50
Phenanthrene	A	5.0000	4.5	0.9770762	0.8802343		-9.9	50
Fluoranthene	A	5.0000	5.9	1.2223680	1.4363780		17.5	50
Pyrene	A	5.0000	5.9	1.2764440	1.5160360		18.8	50
Butylbenzylphthalate	A	5.0000	5.8	0.5945946	0.6935515		16.6	50
Benzo(a)anthracene	A	5.0000	5.0	1.1605520	1.1674180		0.6	50
Chrysene	A	5.0000	4.7	1.0269450	0.9749945		-5.1	50
bis(2-Ethylhexyl)phthalate	A	5.0000	5.5	0.3518184	0.3903831		11.0	50
Di-n-Octylphthalate	A	5.0000	4.6	0.7399924	0.6789057		-8.3	50
Benzofluoranthenes, Total	A	10.000	11.1	1.1008070	1.2247830		11.3	50
Benzo(a)pyrene	A	5.0000	5.0	1.0299780	1.0266150		-0.3	50
Indeno(1,2,3-cd)pyrene	A	5.0000	3.1	1.2375640	0.7660320		-38.1	50
Dibenzo(a,h)anthracene	A	5.0000	3.2	1.0075500	0.6528099		-35.2	50
Benzo(g,h,i)perylene	A	5.0000	2.5	1.0423270	0.5239496		-49.7	50
2-Fluorophenol	A	7.5000	5.40	1.1232200	0.8082738		-28.0	50
Phenol-d5	A	7.5000	5.05	1.2588120	0.8483707		-32.6	50
2-Chlorophenol-d4	A	7.5000	6.15	1.3551050	1.1117670		-18.0	50
1,2-Dichlorobenzene-d4	A	5.0000	4.28	0.9264682	0.7939547		-14.3	50
Nitrobenzene-d5	A	5.0000	4.23	0.3128427	0.2646841		-15.4	50
2-Fluorobiphenyl	A	5.0000	4.63	1.5299660	1.4171130		-7.4	50
2,4,6-Tribromophenol	A	7.5000	5.99	0.3024571	0.2416464		-20.1	50
p-Terphenyl-d14	A	5.0000	5.27	0.8656707	0.9125049		5.4	50

* Values outside of QC limits

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

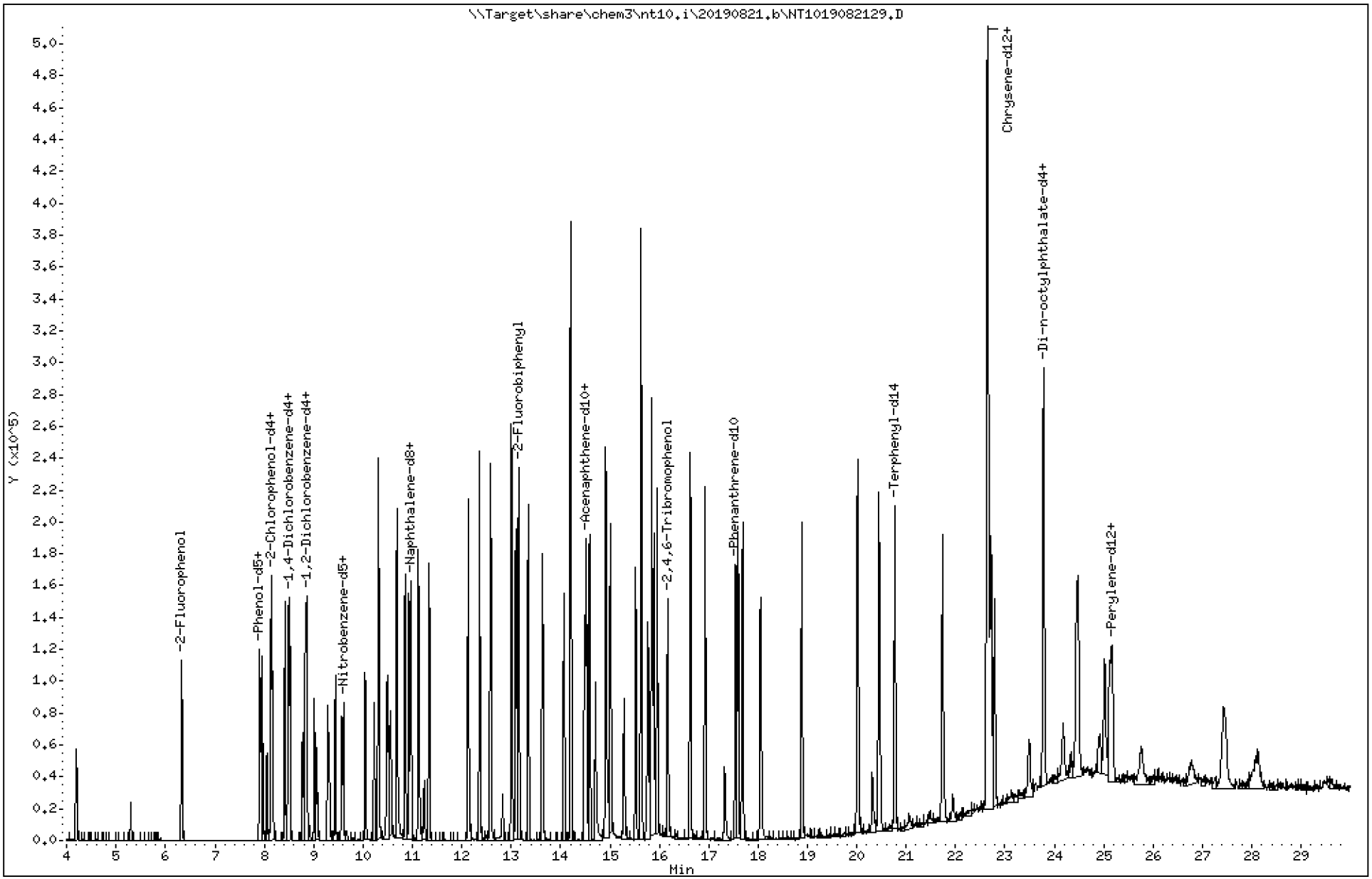
Instrument: nt10.i

Sample Info: SHH0303-CCV1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

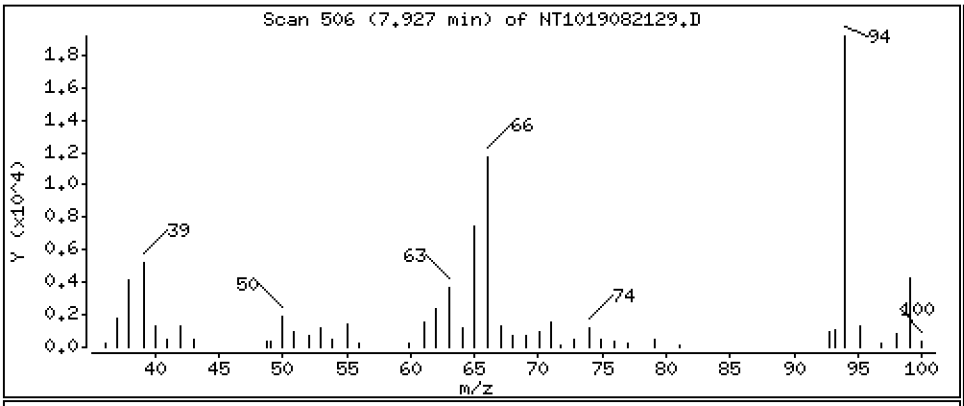
Operator: YZ

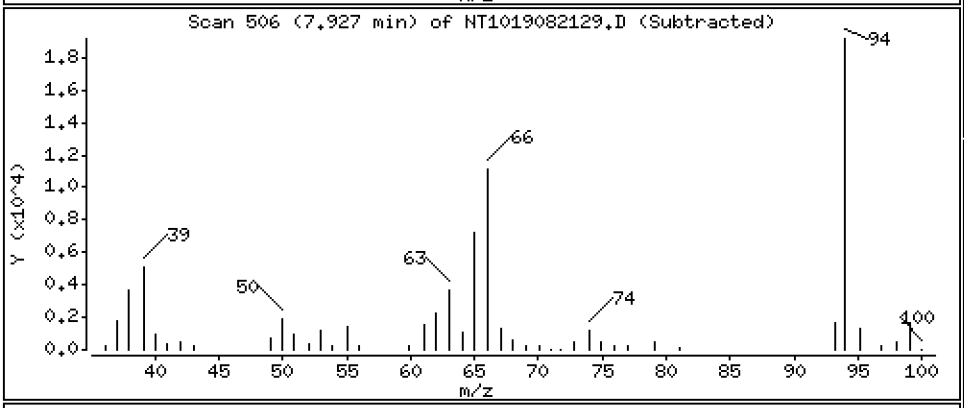
Column phase: ZB-5msi

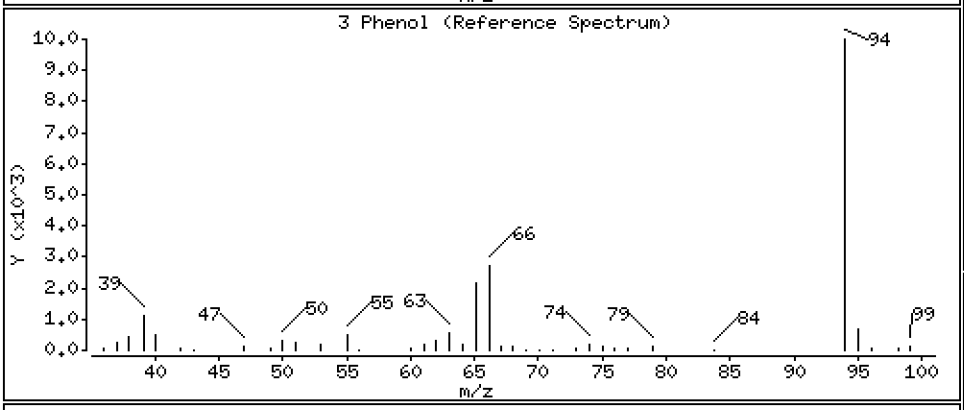
Column diameter: 0.25

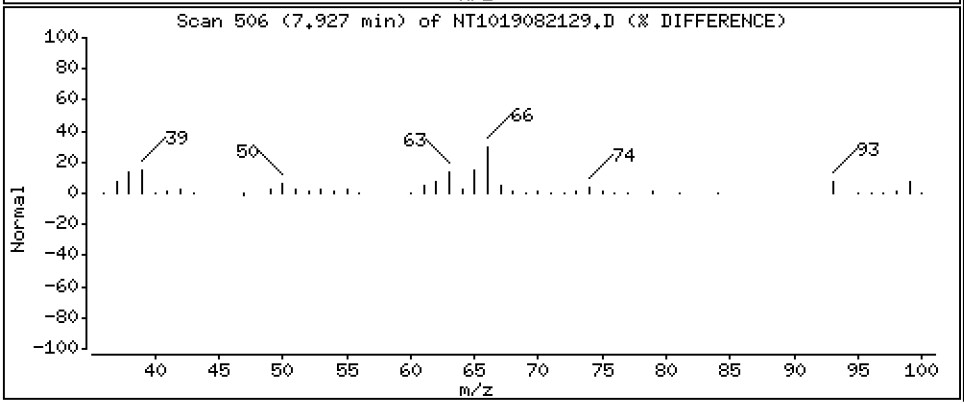
3 Phenol

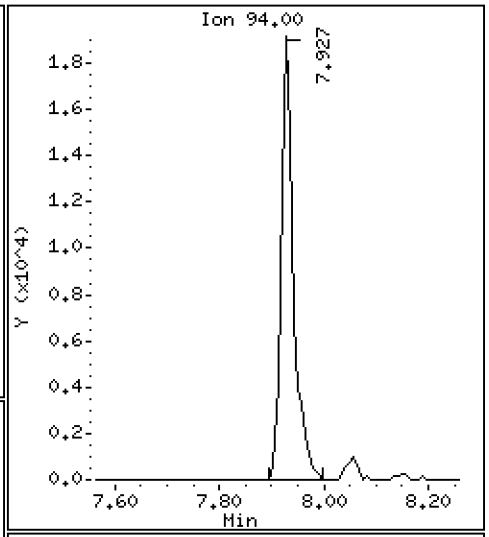
Concentration: 3.522 ug/mL

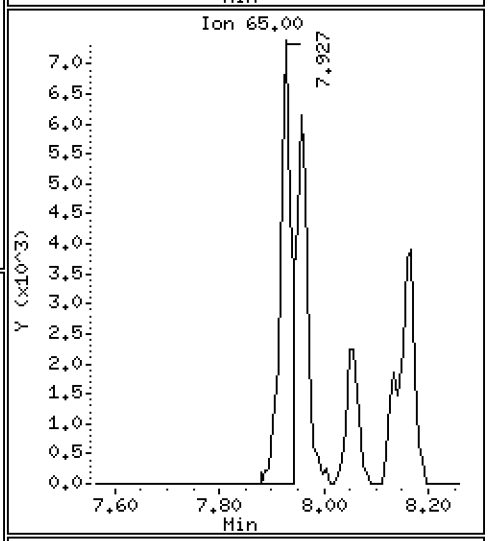


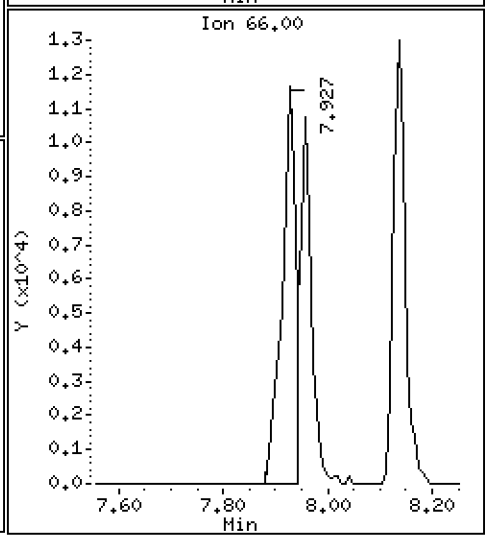












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Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

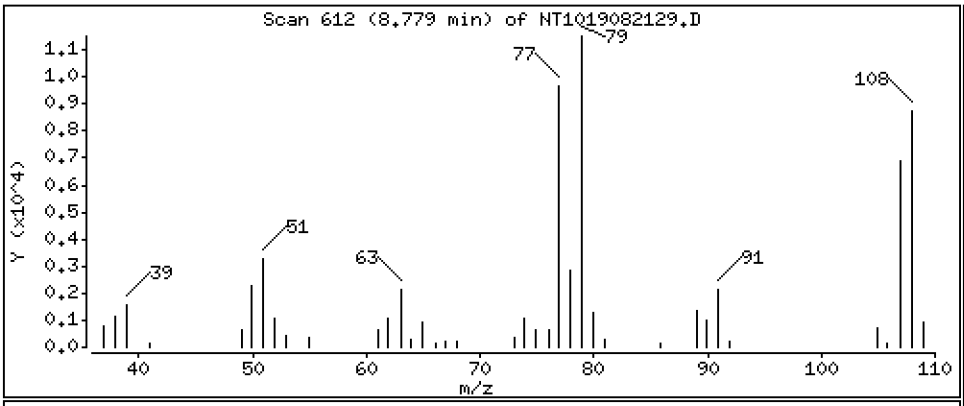
Operator: YZ

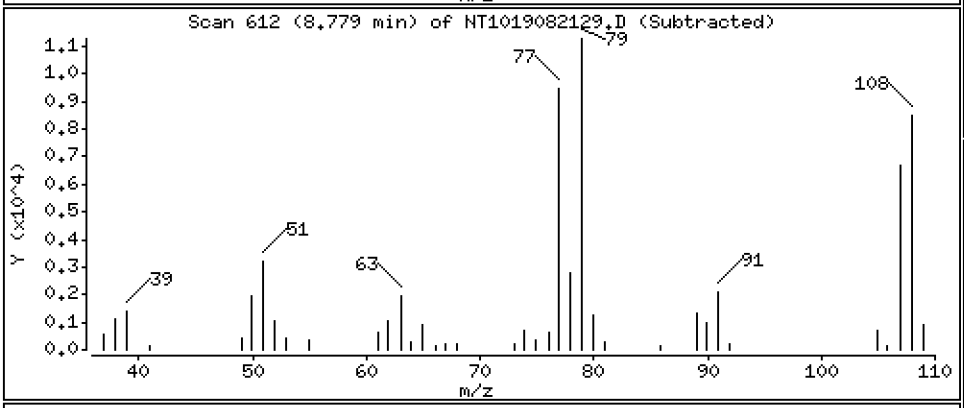
Column phase: ZB-5msi

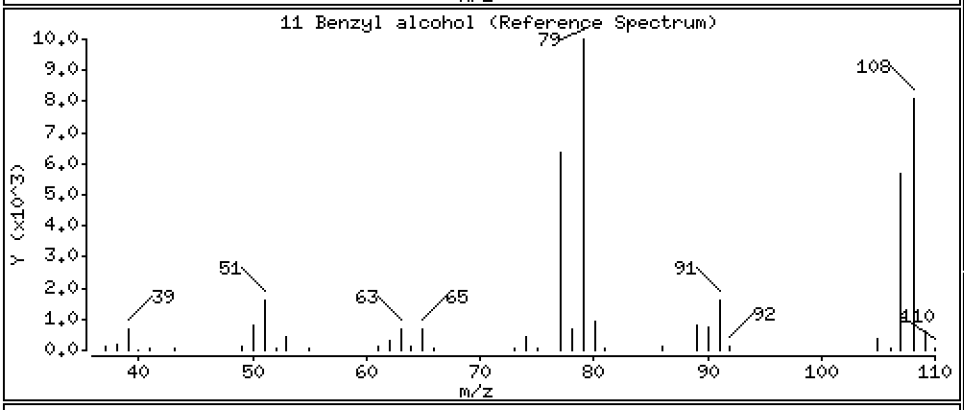
Column diameter: 0.25

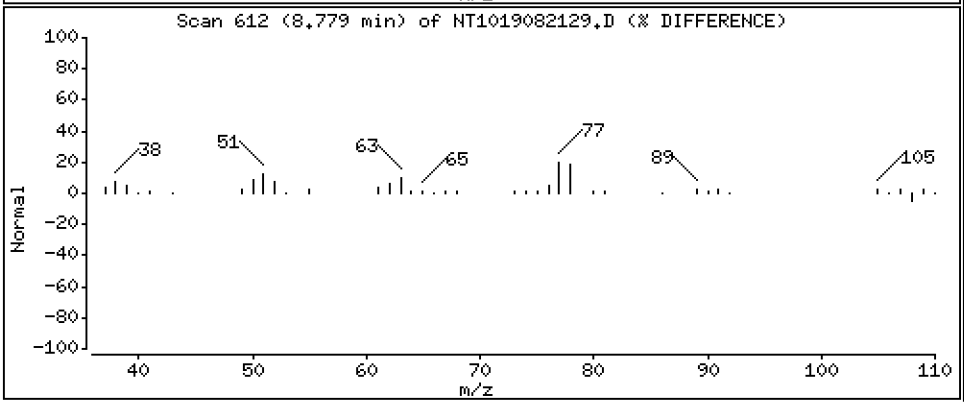
11 Benzyl alcohol

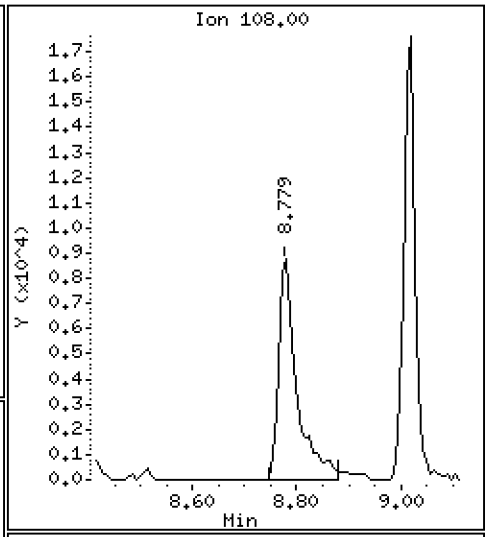
Concentration: 3.522 ug/mL

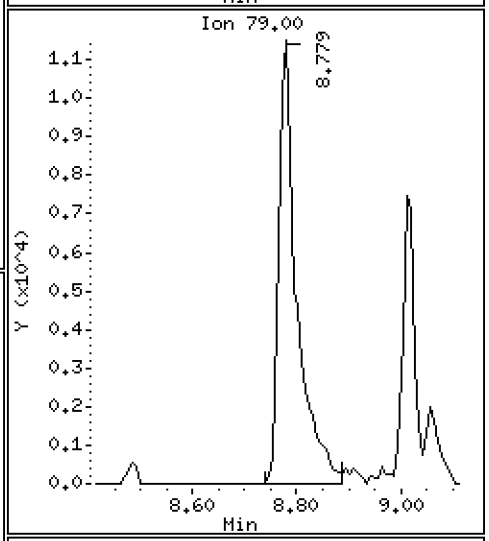


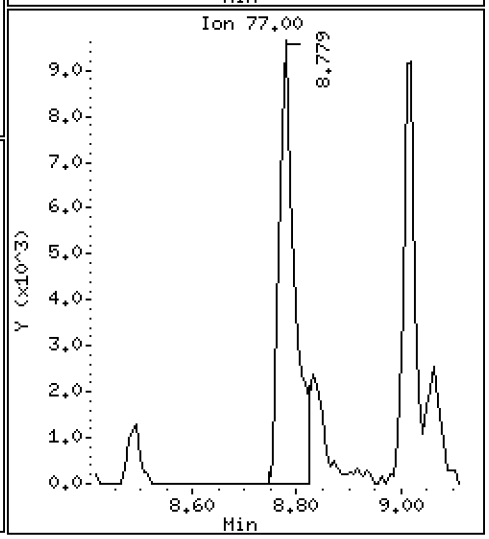












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Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

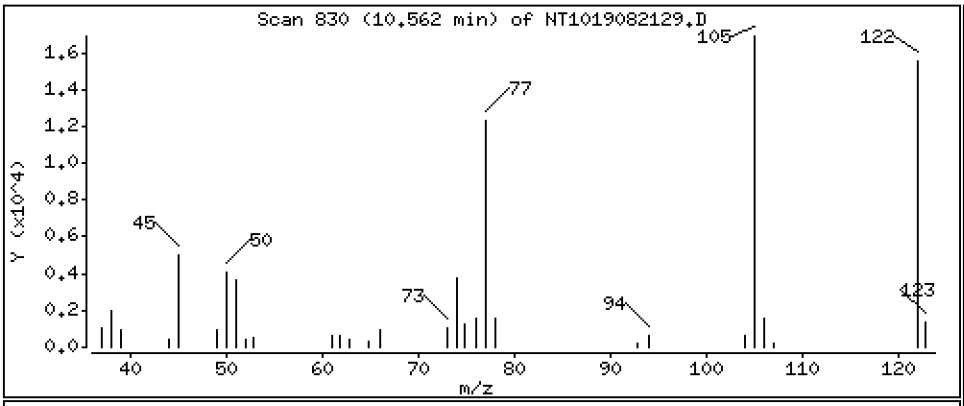
Operator: YZ

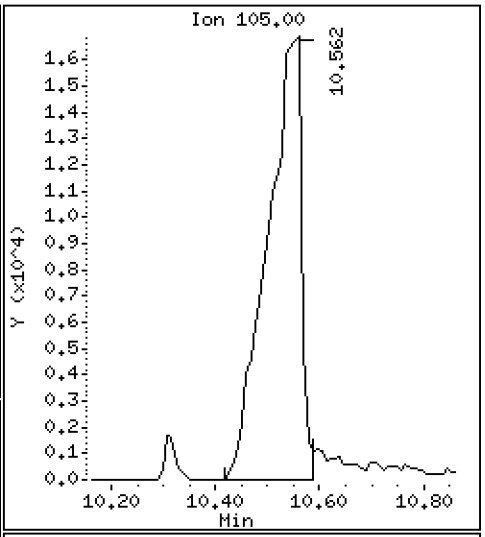
Column phase: ZB-5msi

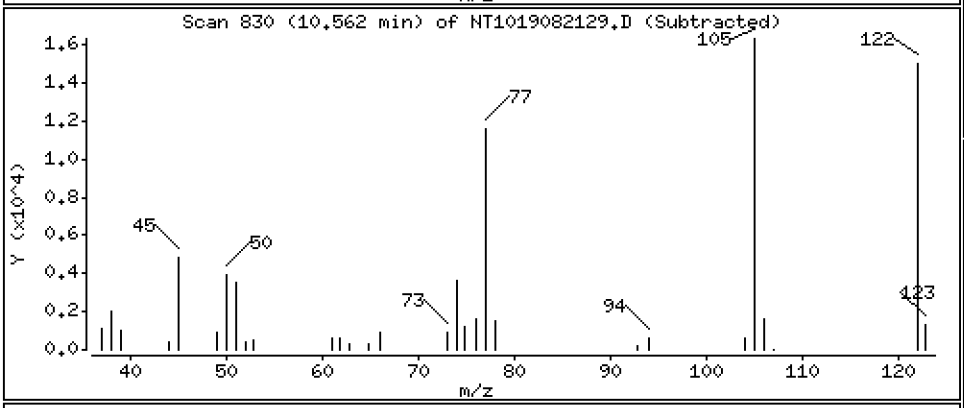
Column diameter: 0.25

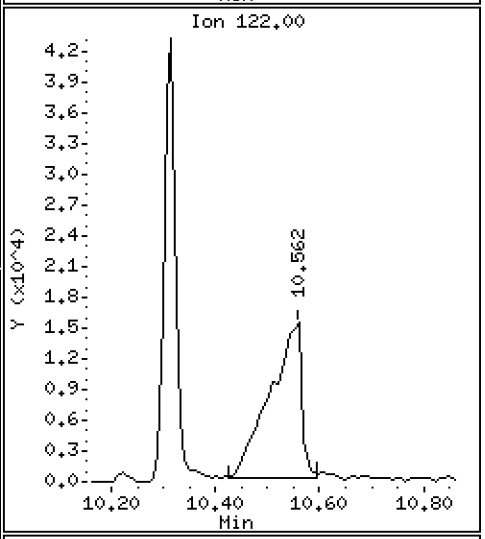
24 Benzoic acid

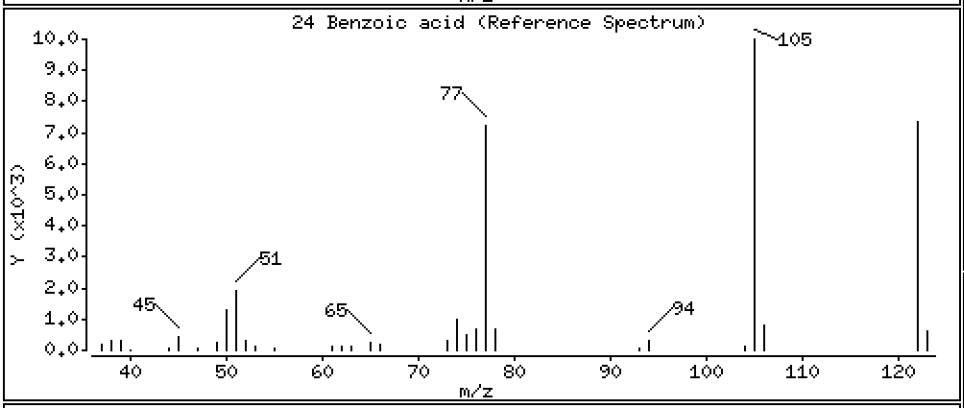
Concentration: 12.94 ug/mL

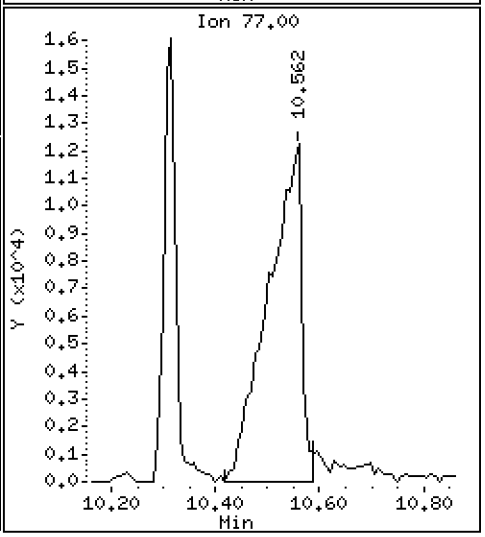


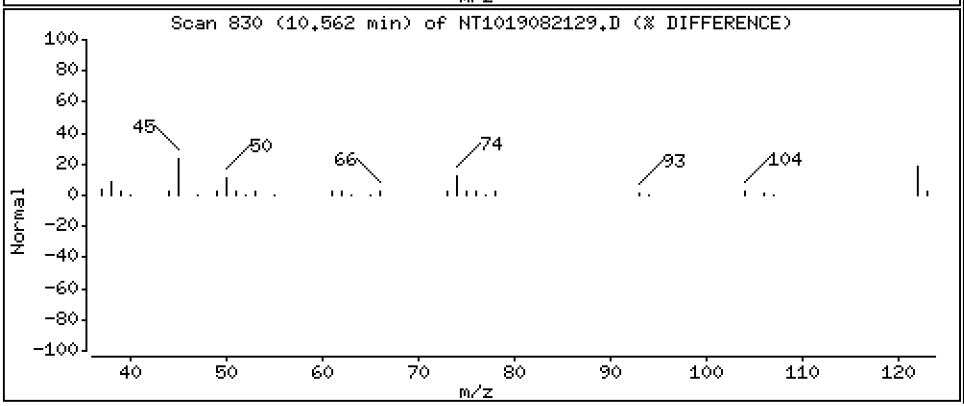












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Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

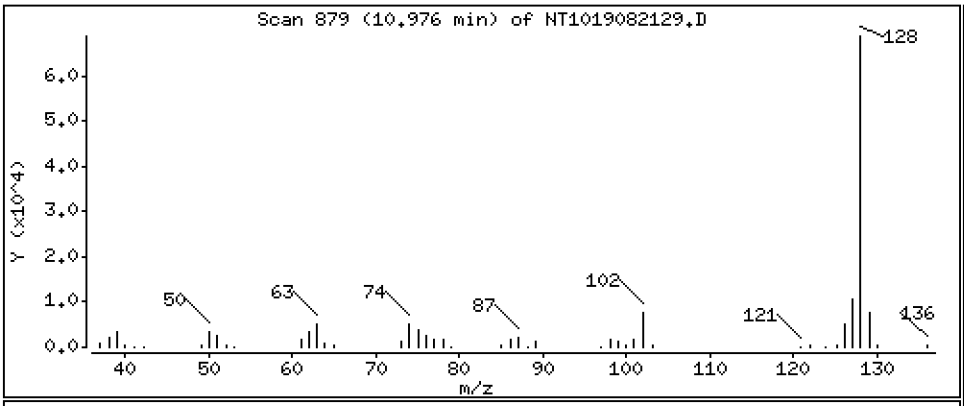
Operator: YZ

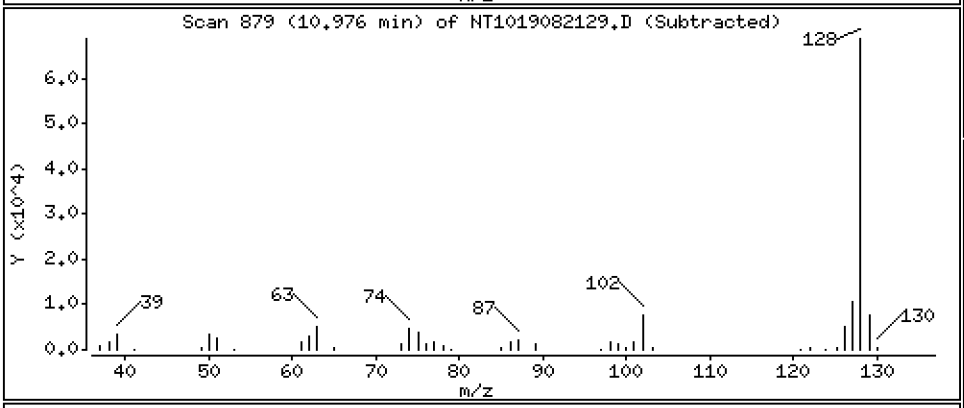
Column phase: ZB-5msi

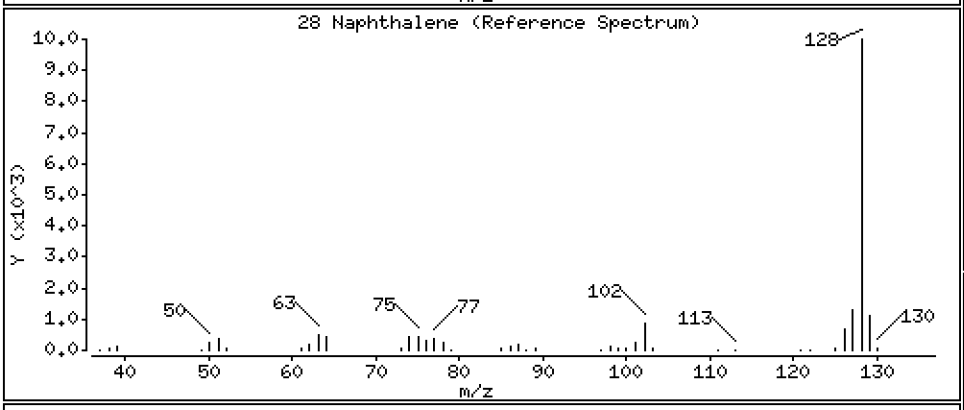
Column diameter: 0.25

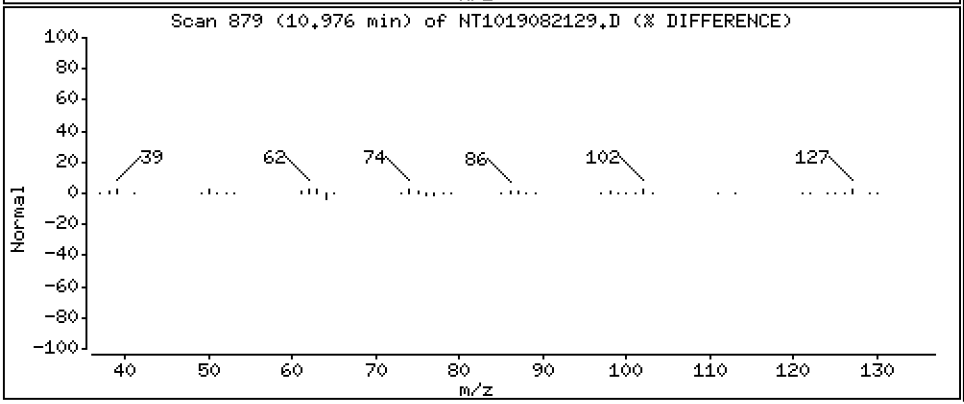
28 Naphthalene

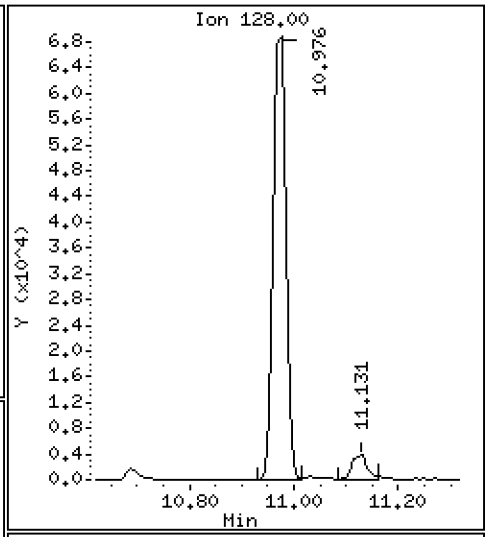
Concentration: 4.531 ug/mL

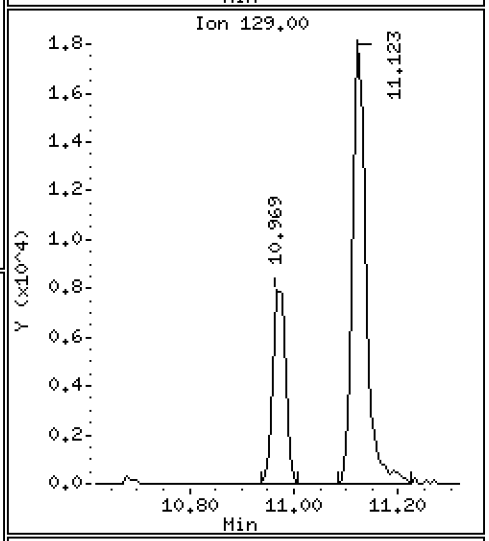


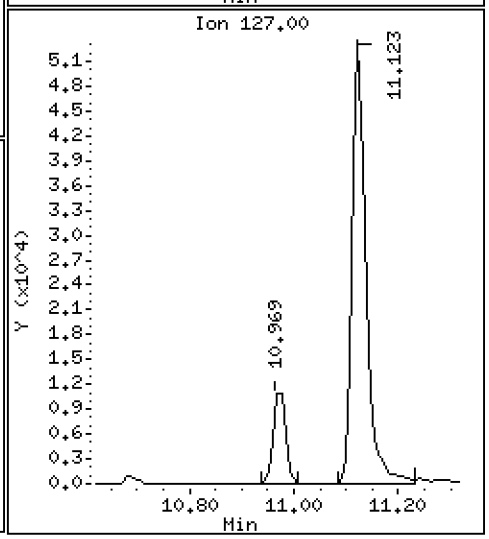












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Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

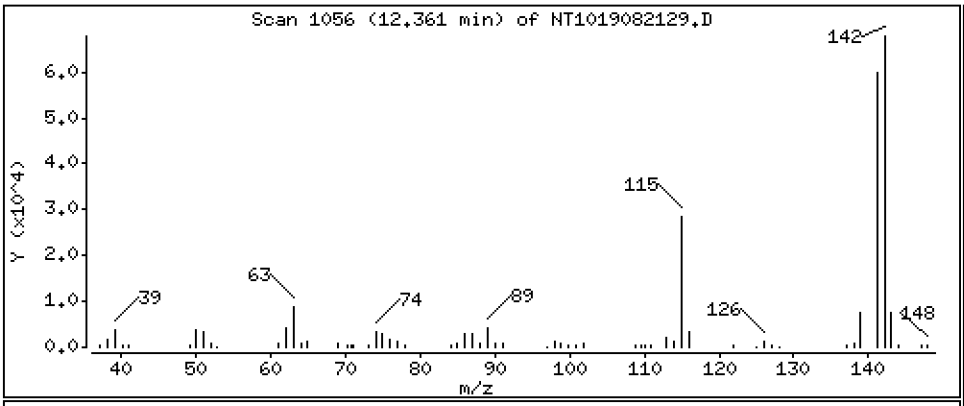
Operator: YZ

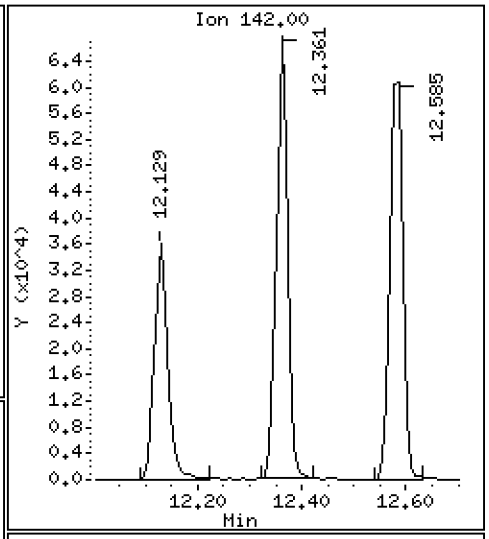
Column phase: ZB-5msi

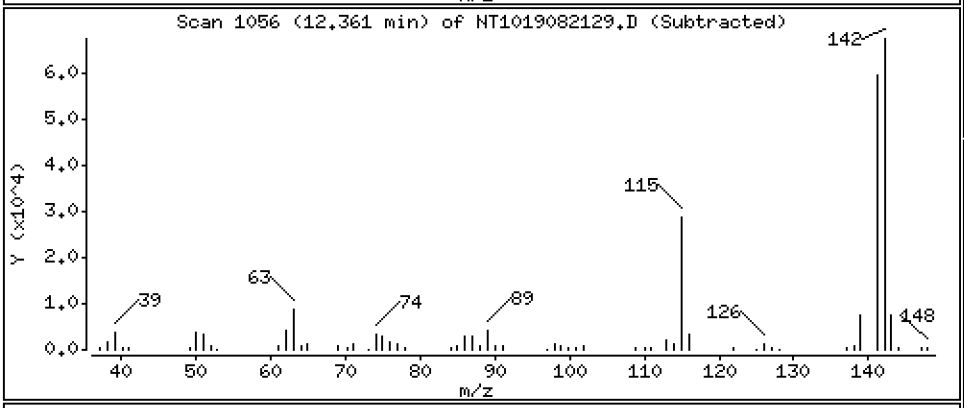
Column diameter: 0.25

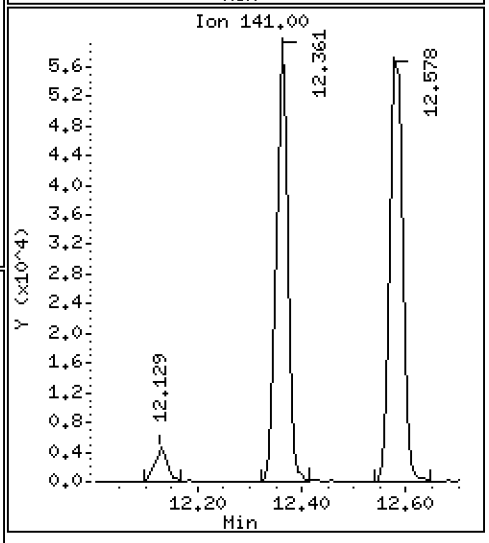
32 2-Methylnaphthalene

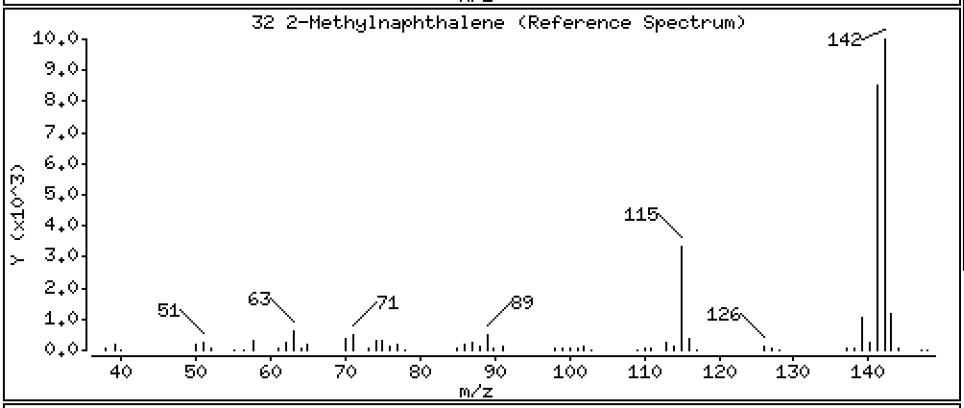
Concentration: 4.860 ug/mL

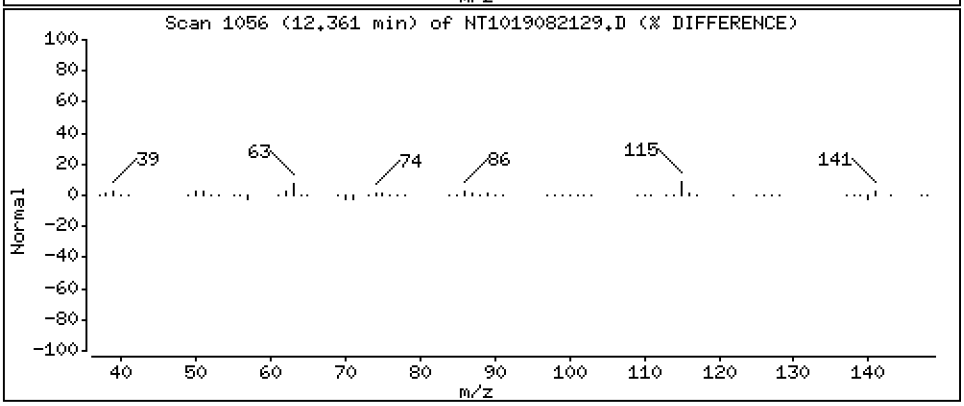












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Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

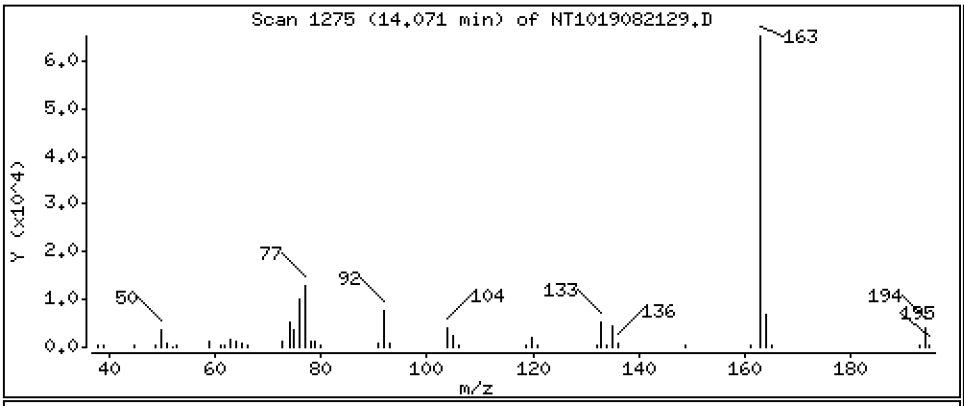
Operator: YZ

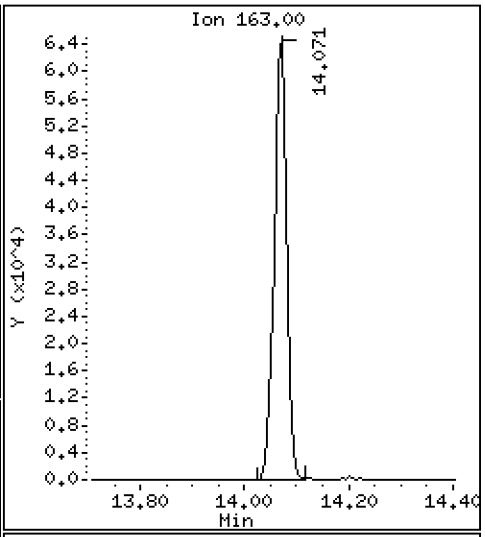
Column phase: ZB-5msi

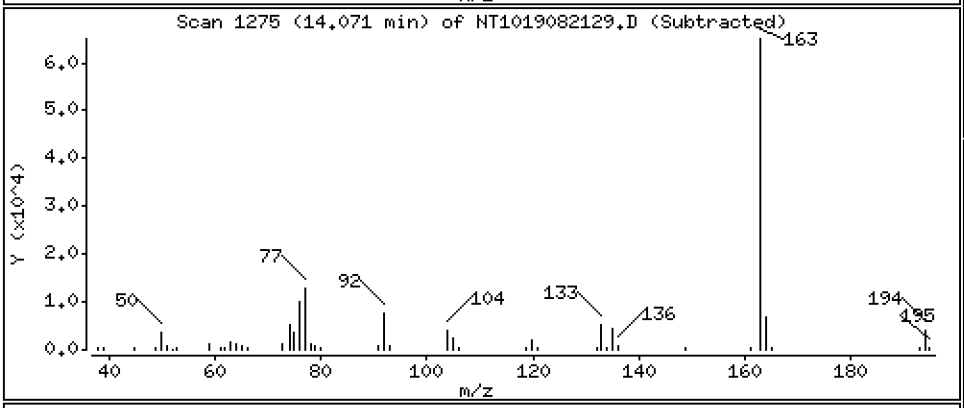
Column diameter: 0.25

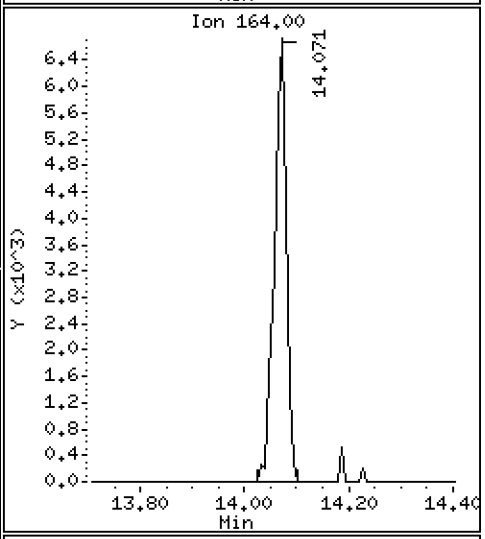
39 Dimethylphthalate

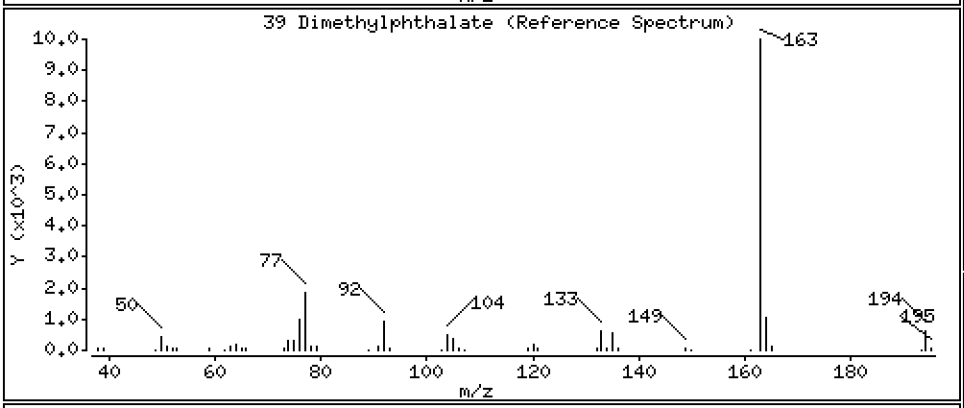
Concentration: 4.957 ug/mL

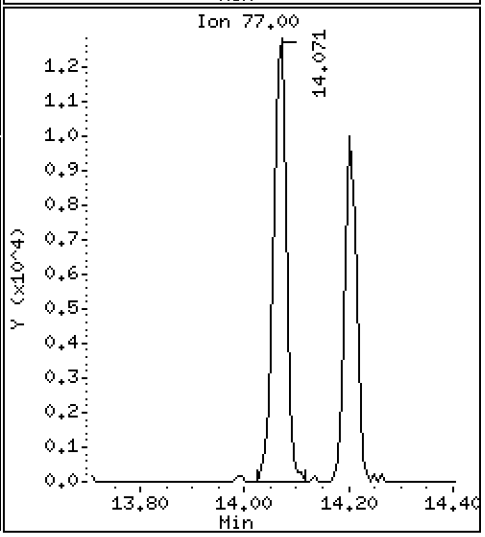


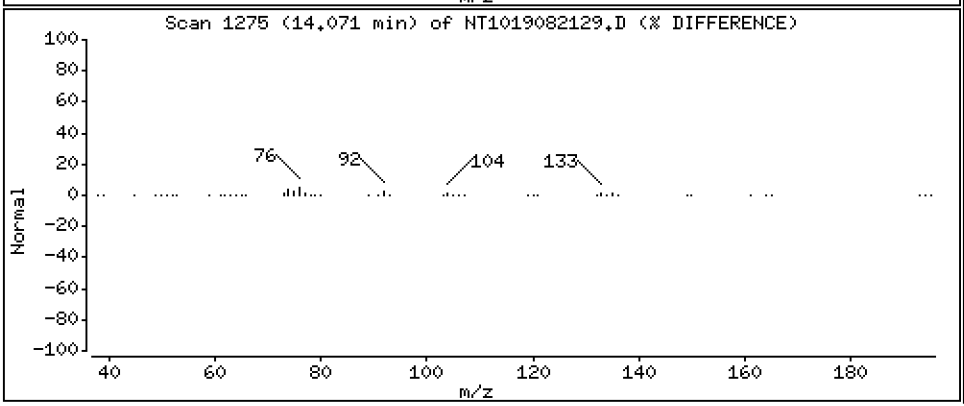












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

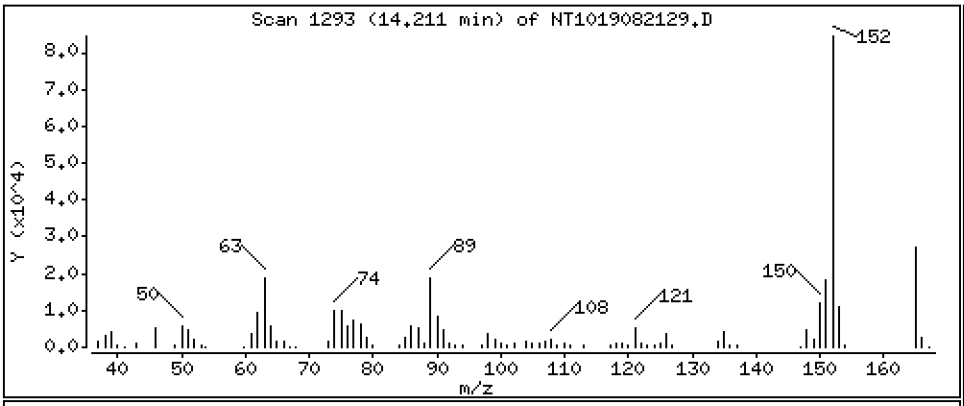
Operator: YZ

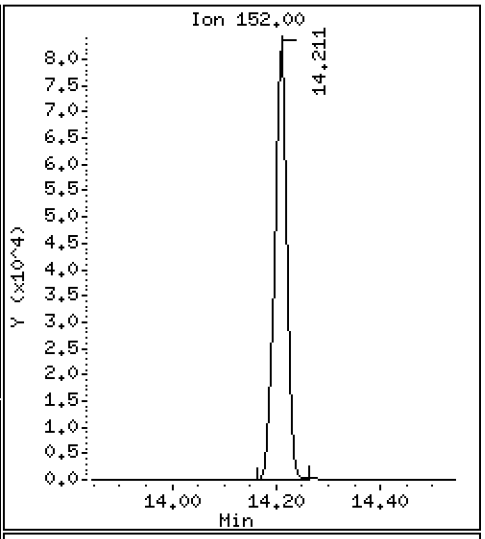
Column phase: ZB-5msi

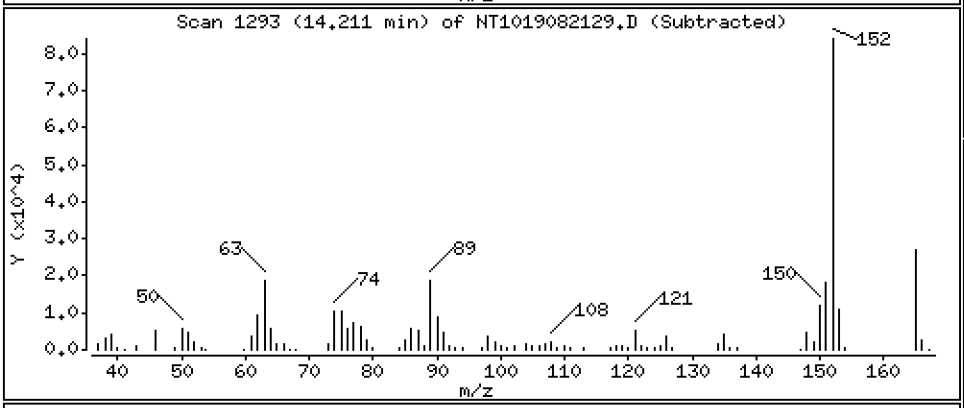
Column diameter: 0.25

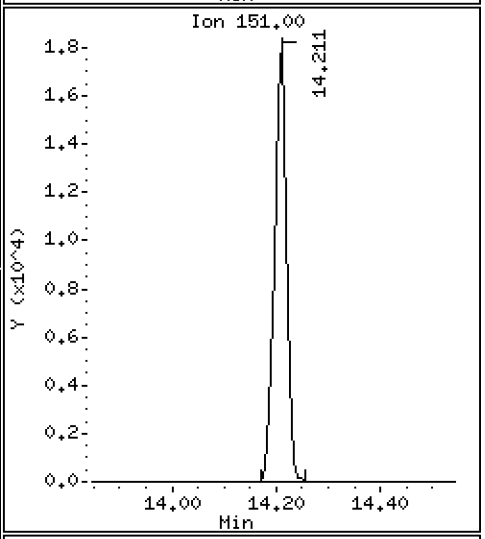
40 Acenaphthylene

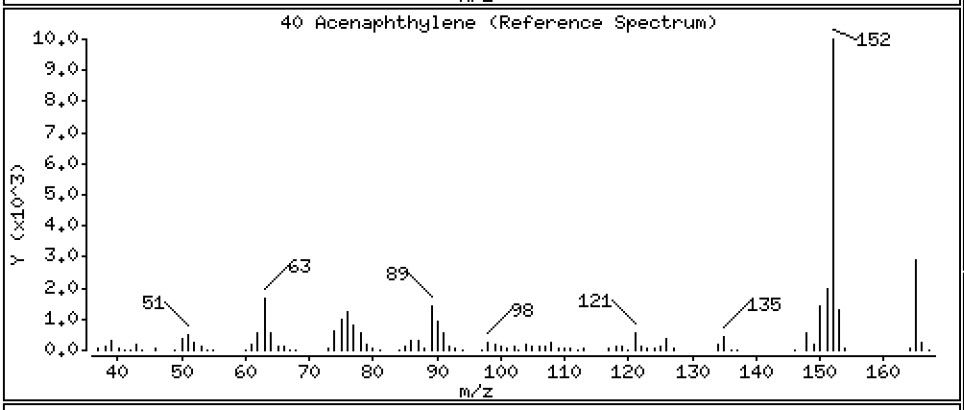
Concentration: 4.789 ug/mL

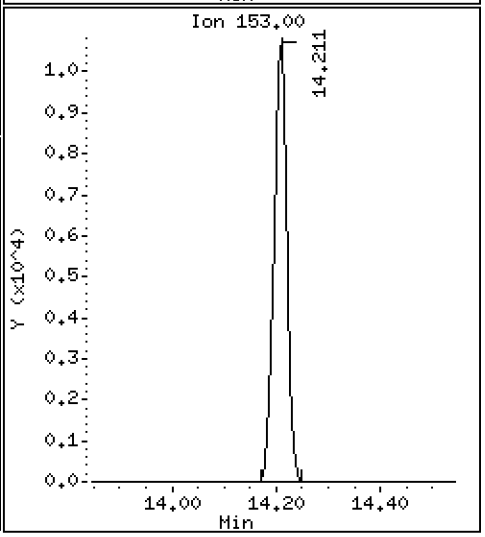


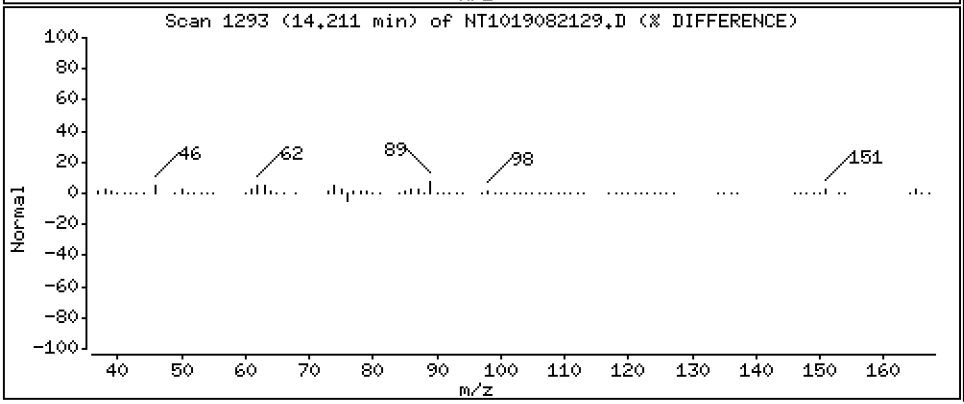












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

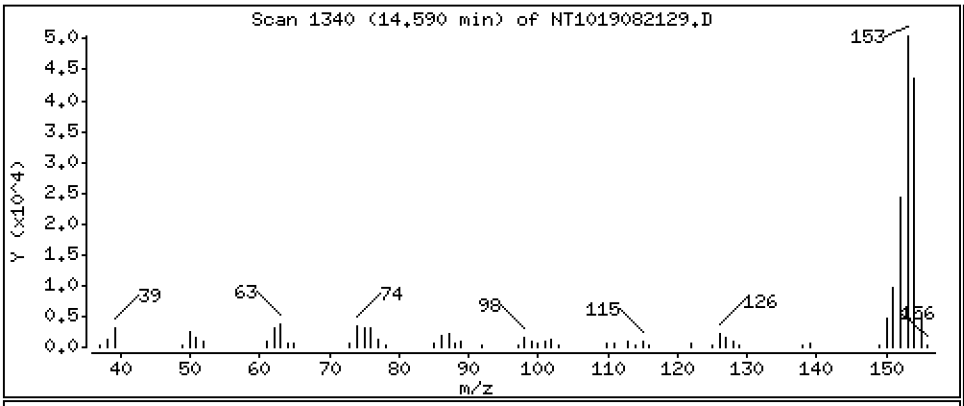
Operator: YZ

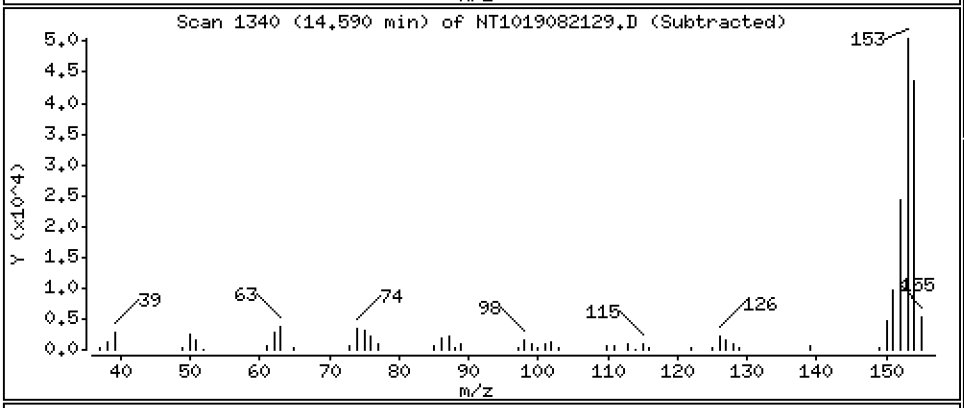
Column phase: ZB-5msi

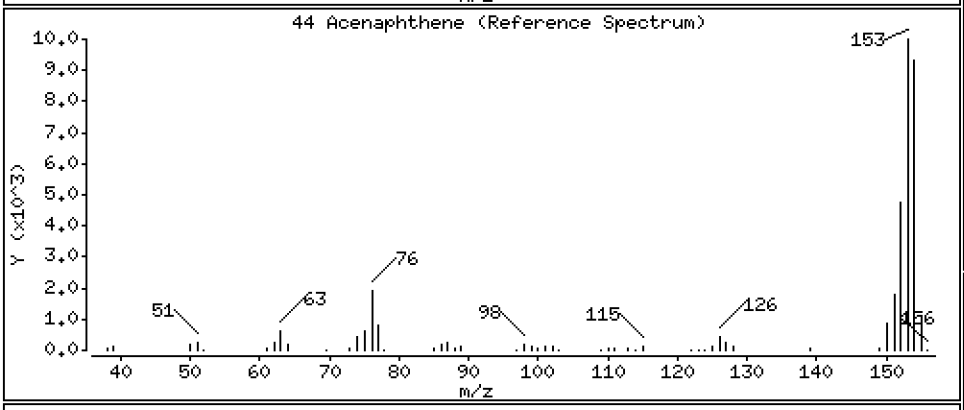
Column diameter: 0.25

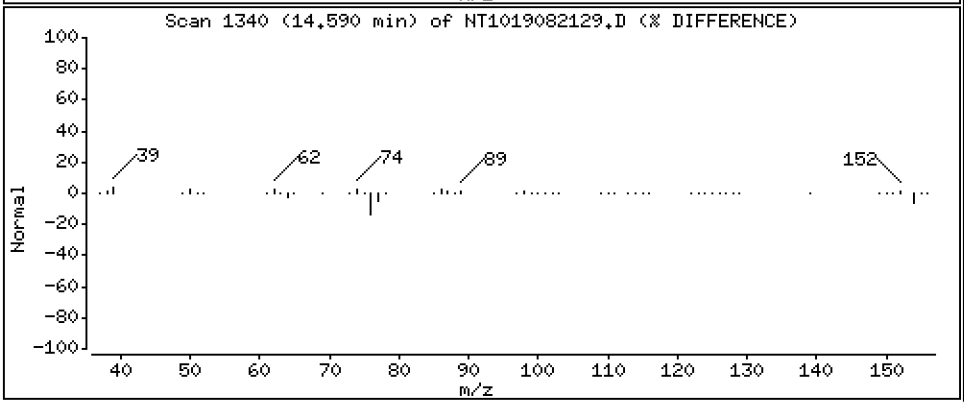
44 Acenaphthene

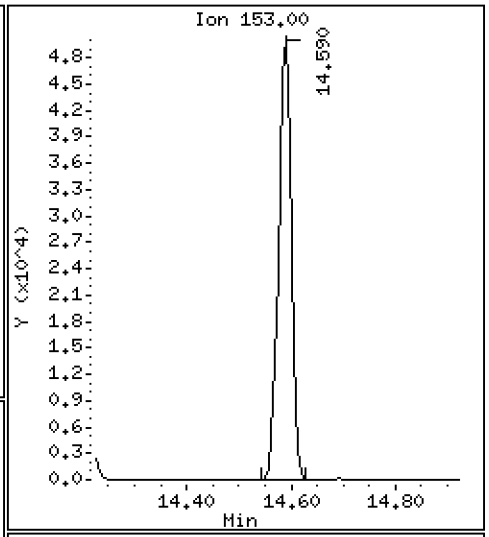
Concentration: 4.856 ug/mL

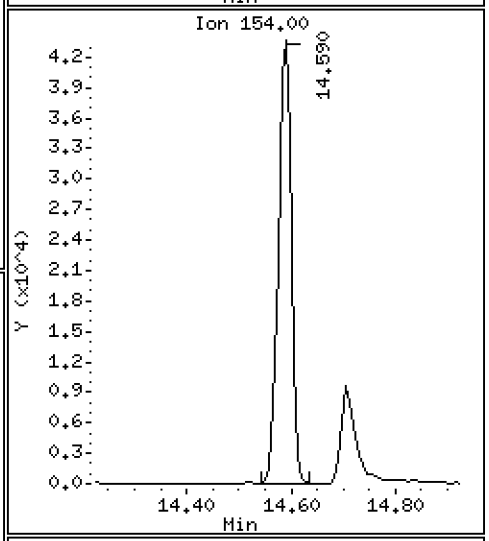


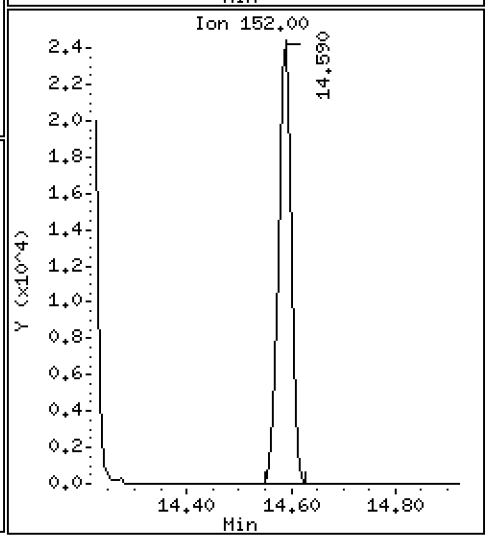












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

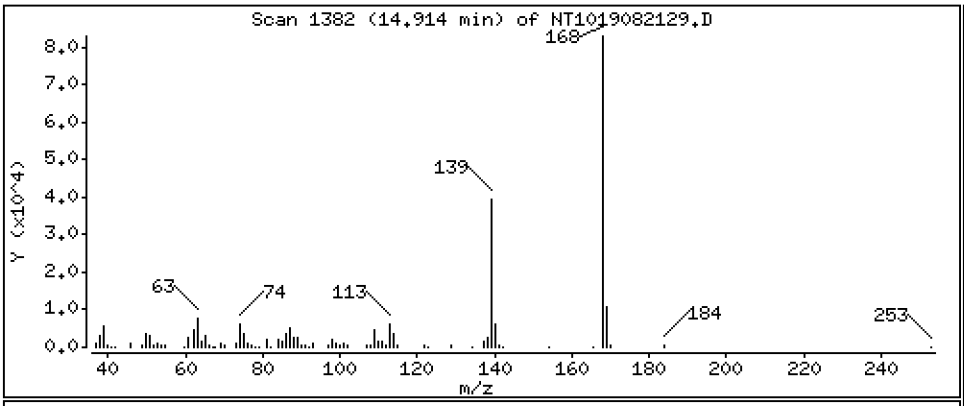
Operator: YZ

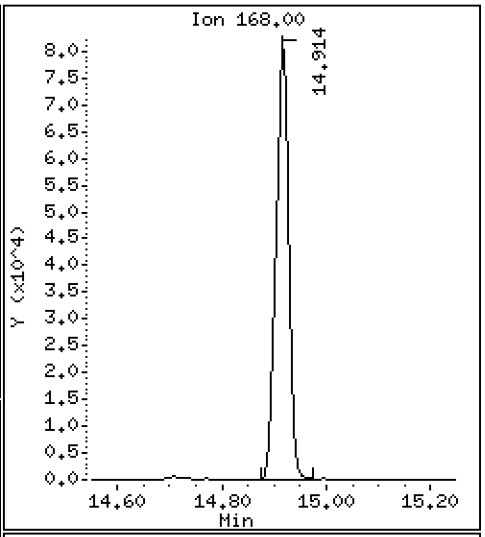
Column phase: ZB-5msi

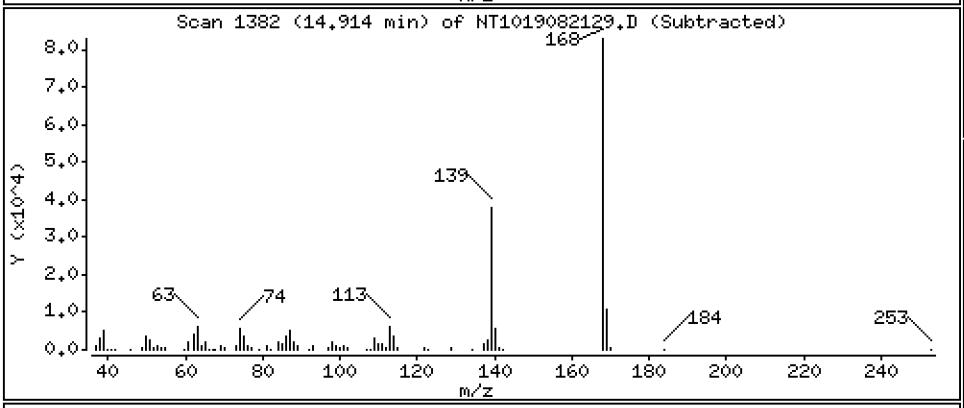
Column diameter: 0.25

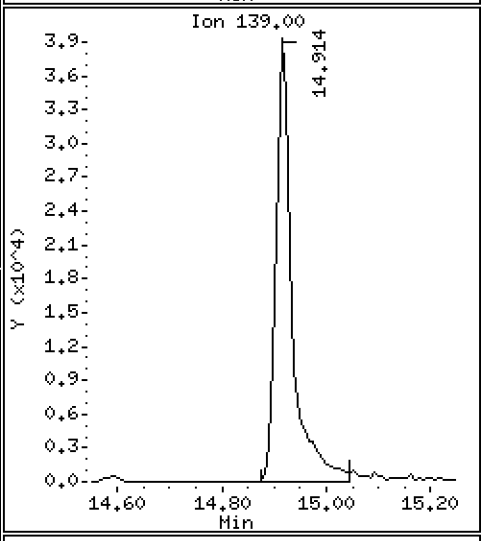
46 Dibenzofuran

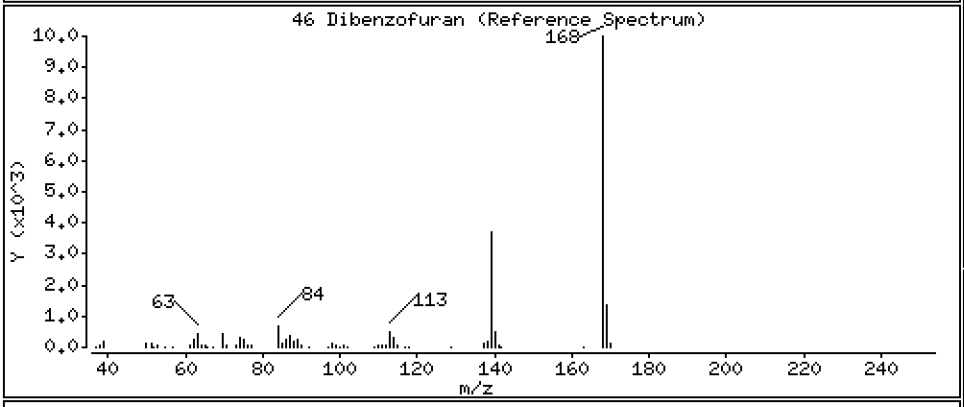
Concentration: 4.642 ug/mL

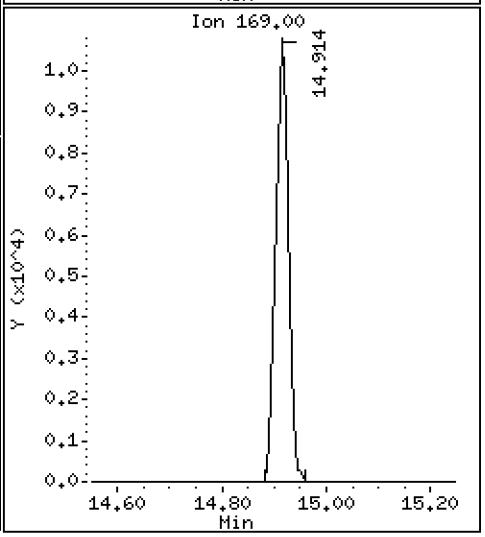


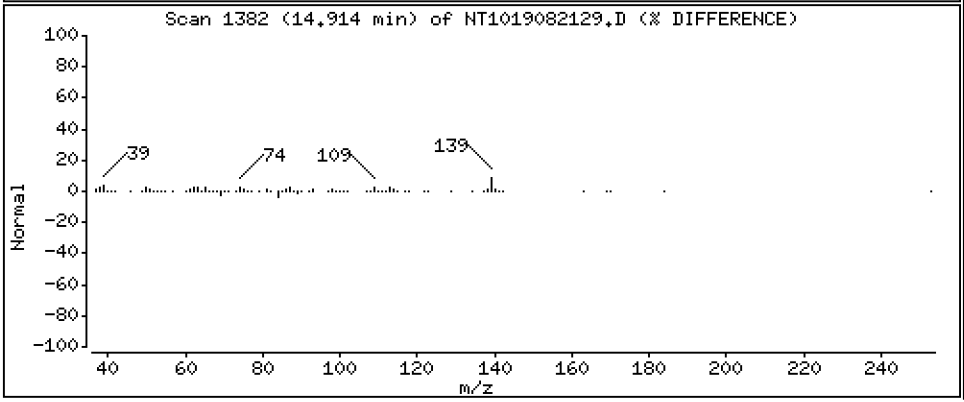












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

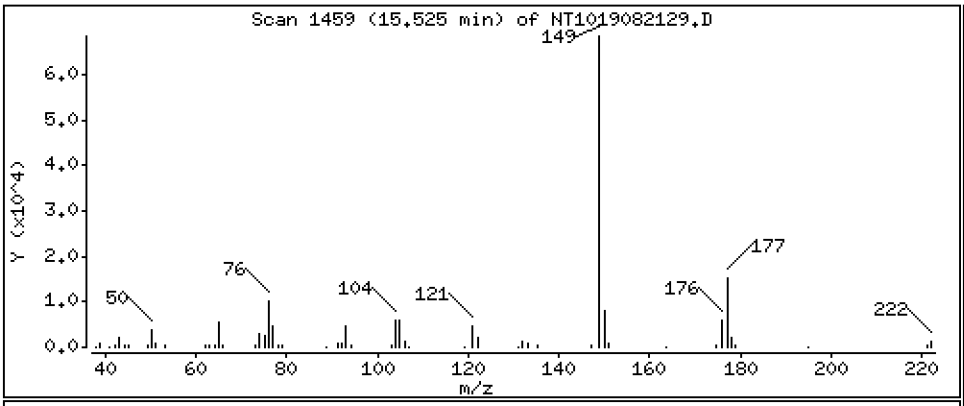
Operator: YZ

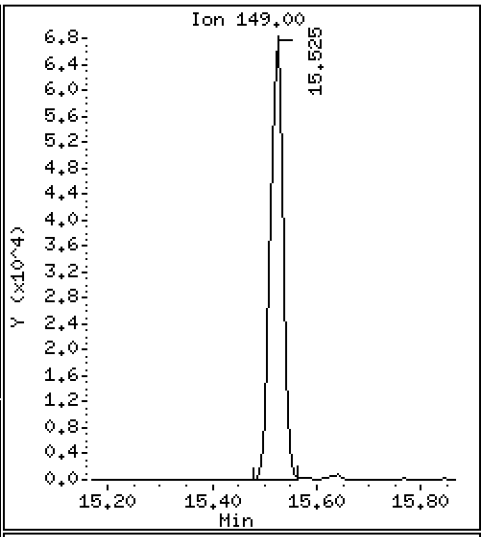
Column phase: ZB-5msi

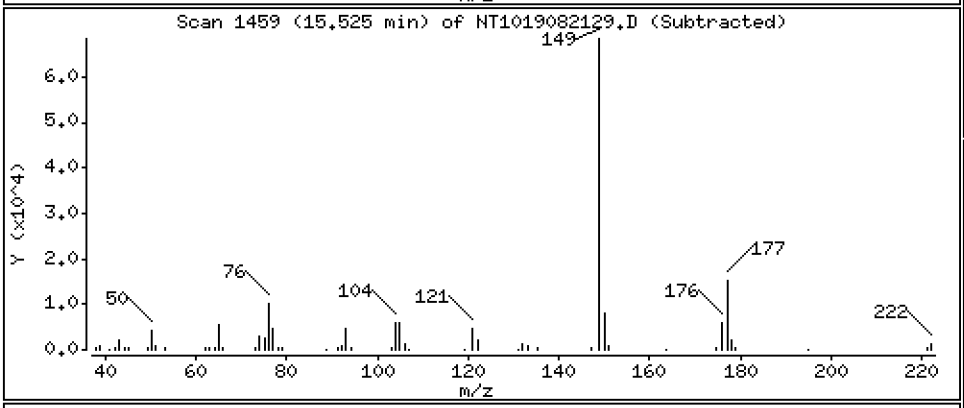
Column diameter: 0.25

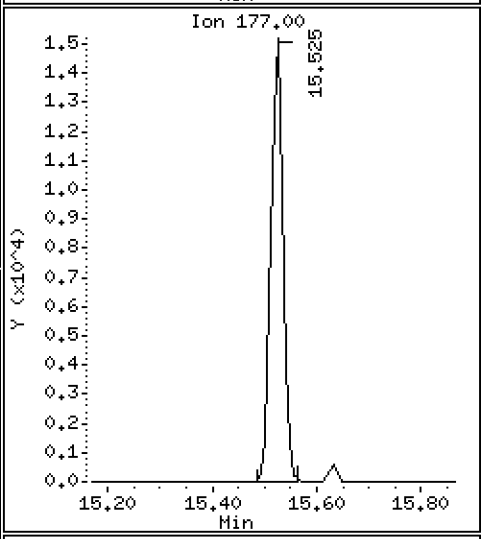
50 Diethylphthalate

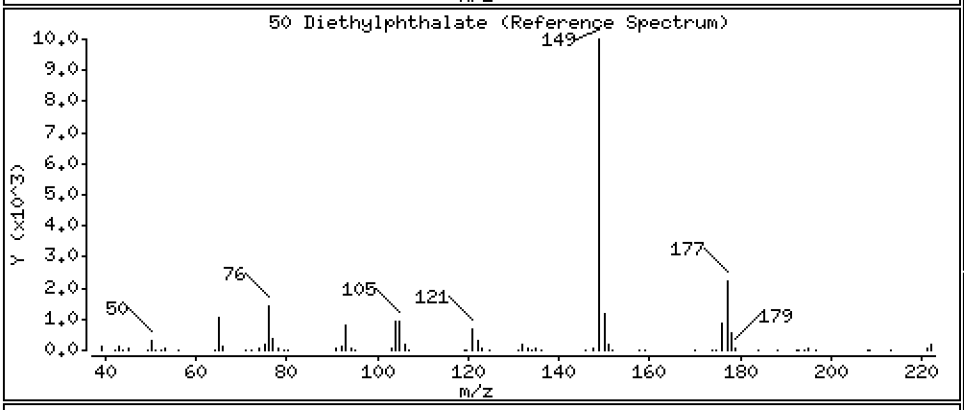
Concentration: 5.358 ug/mL

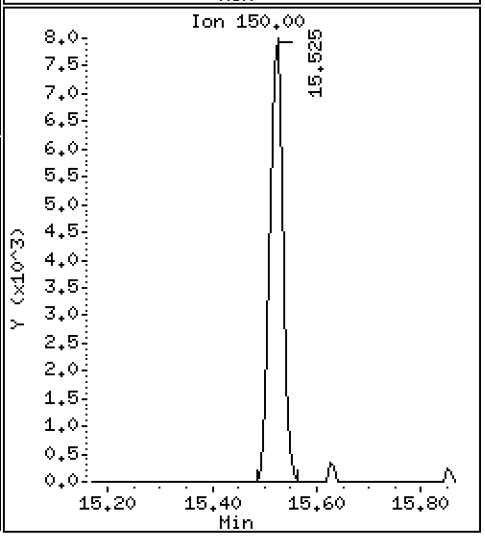


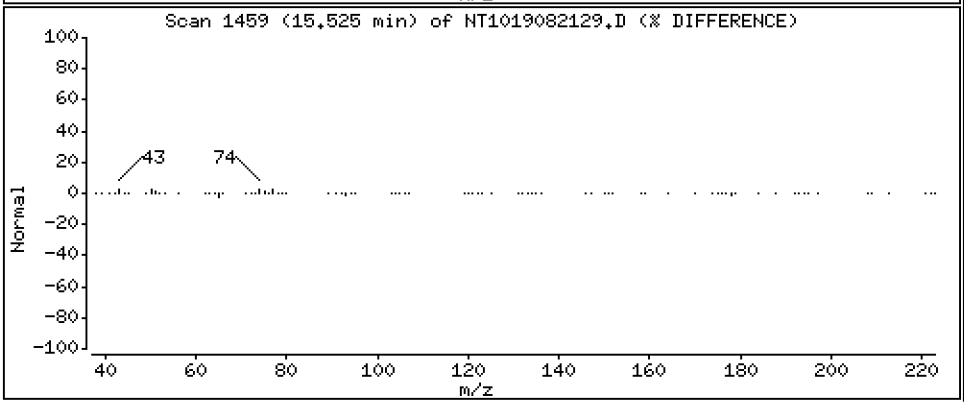












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

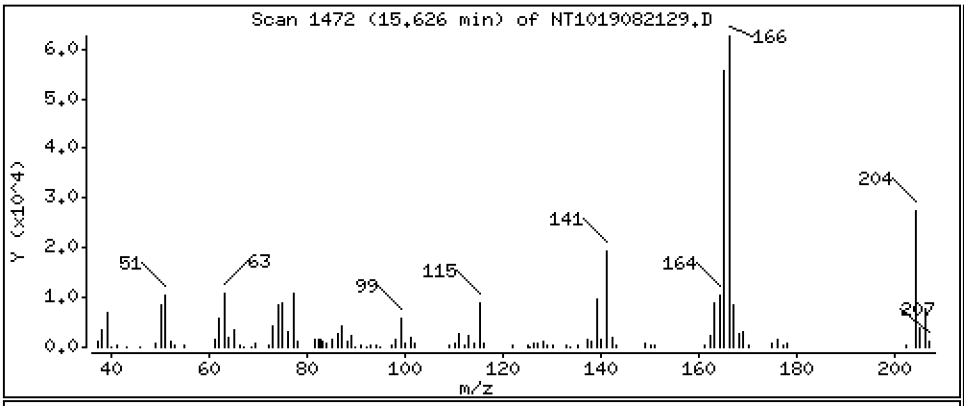
Operator: YZ

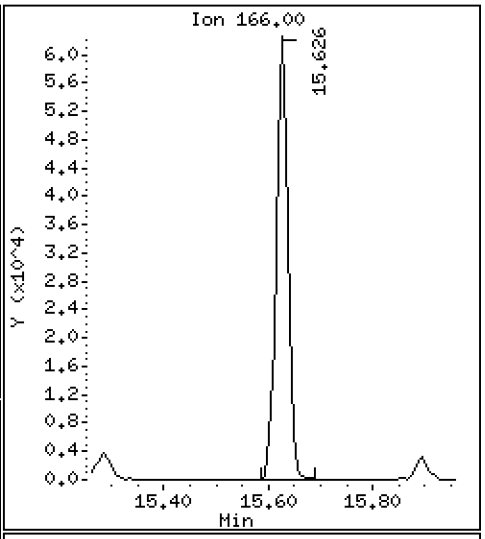
Column phase: ZB-5msi

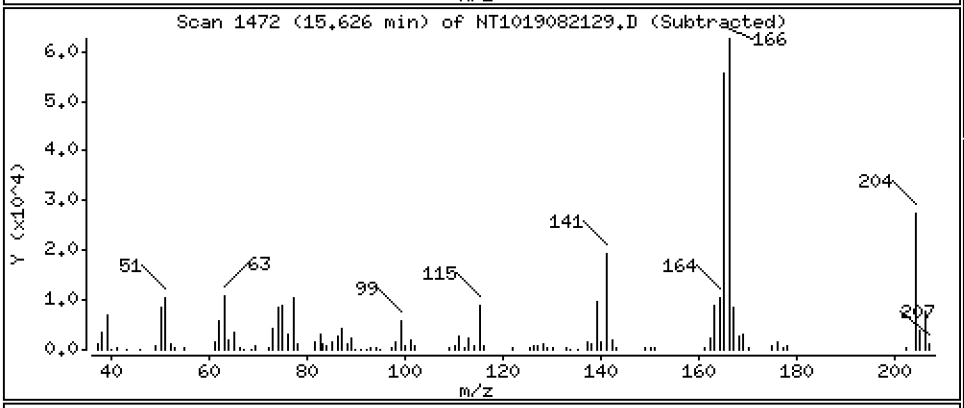
Column diameter: 0.25

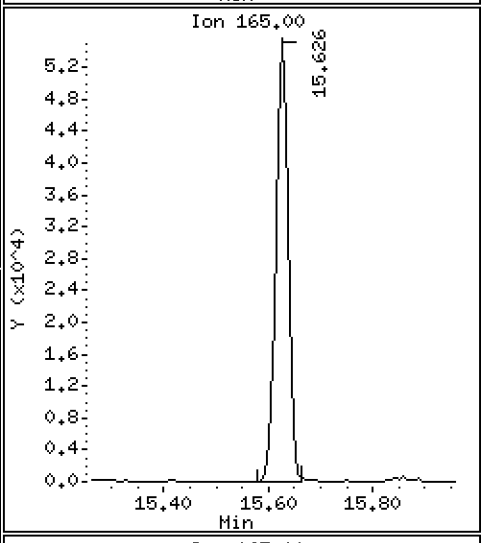
49 Fluorene

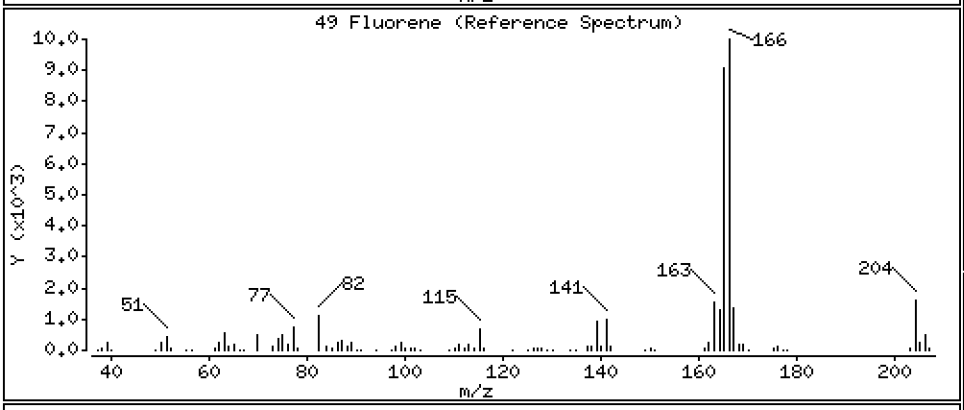
Concentration: 4.977 ug/mL

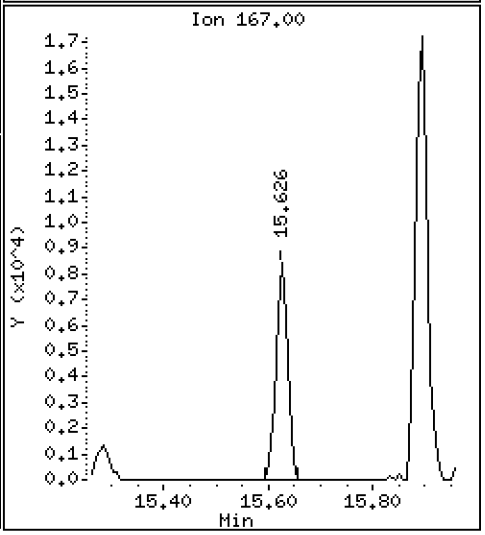


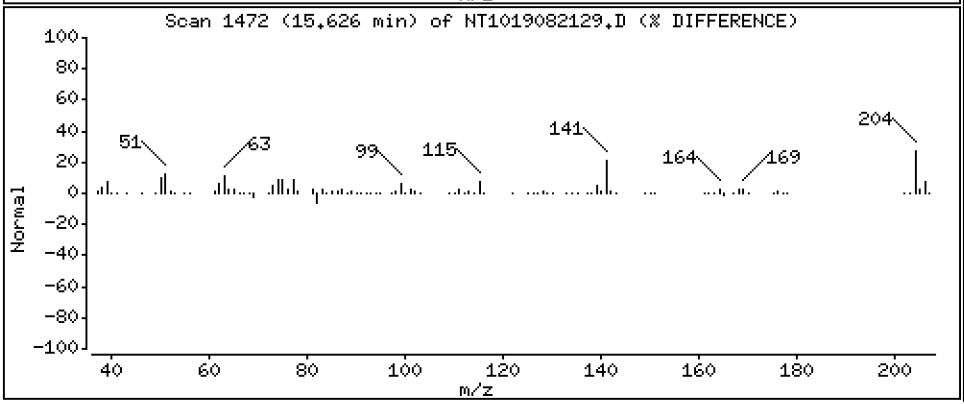












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

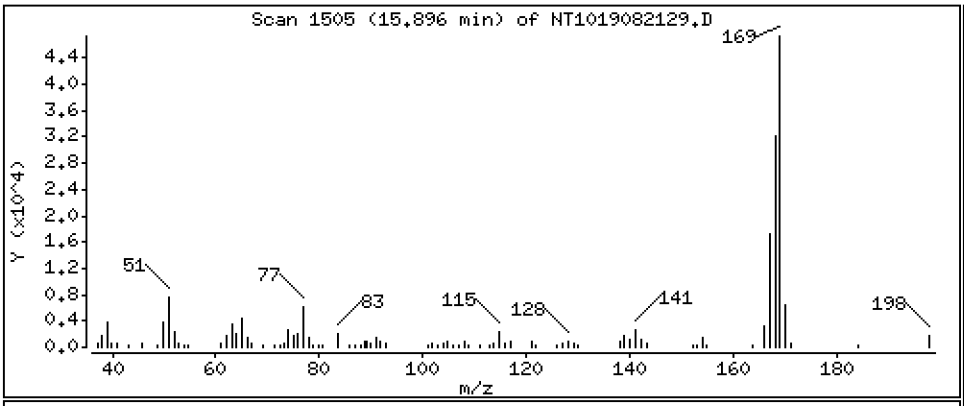
Operator: YZ

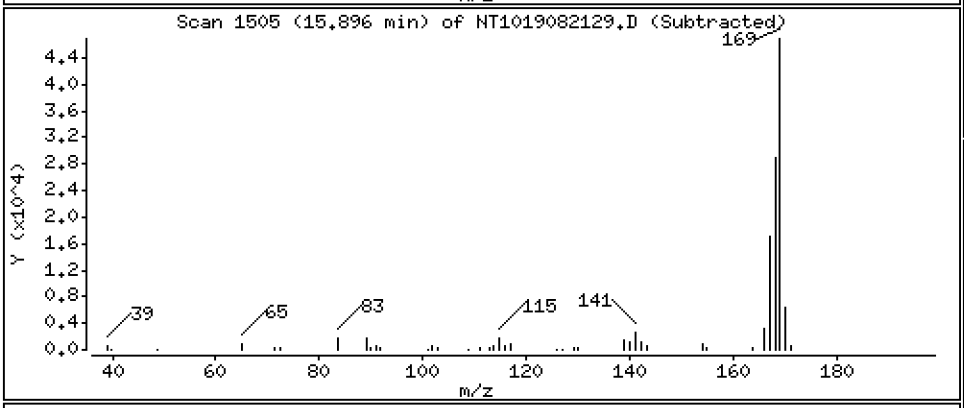
Column phase: ZB-5msi

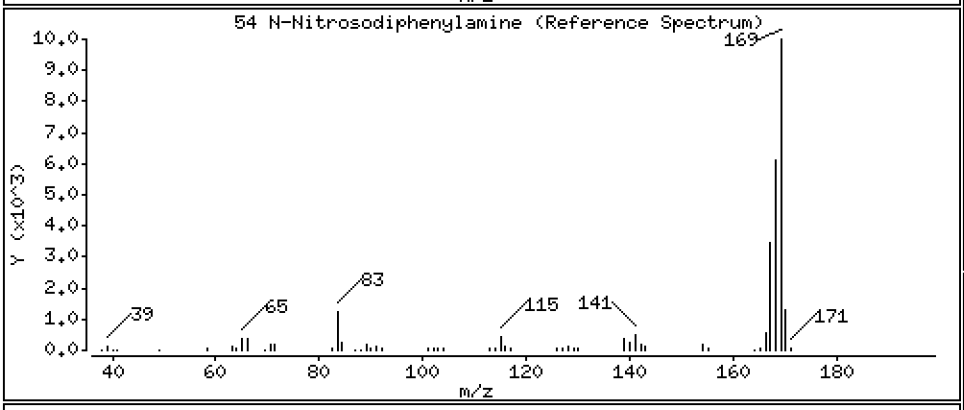
Column diameter: 0.25

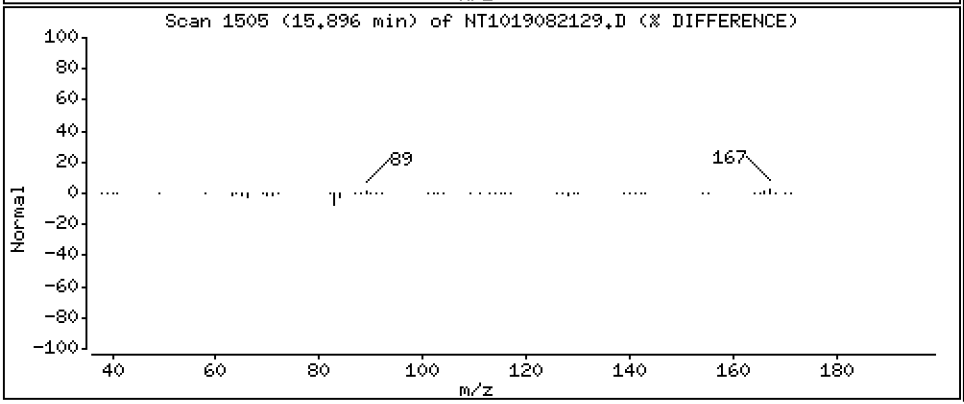
54 N-Nitrosodiphenylamine

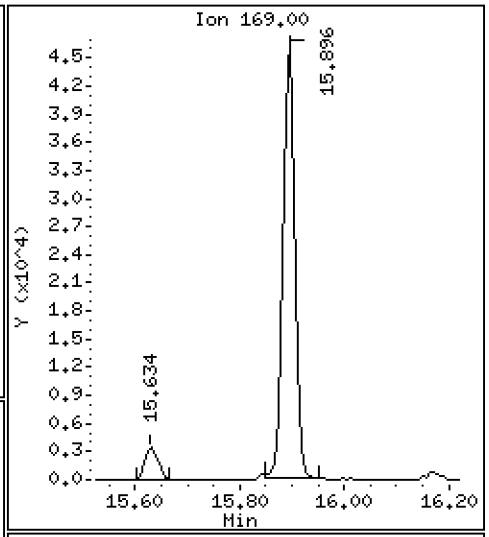
Concentration: 4.631 ug/mL

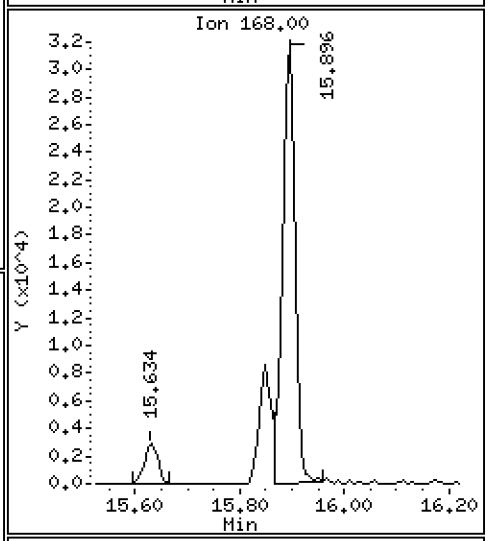


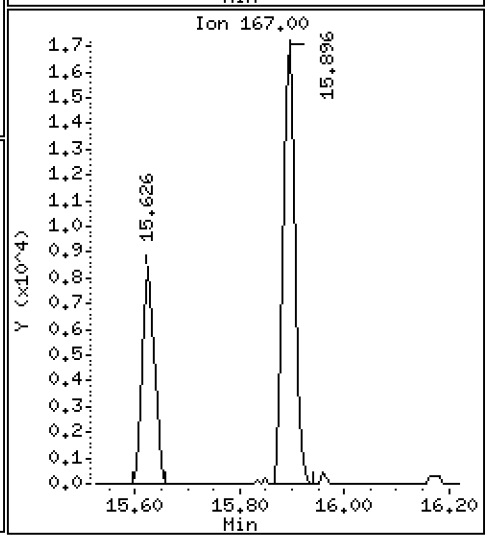












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Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

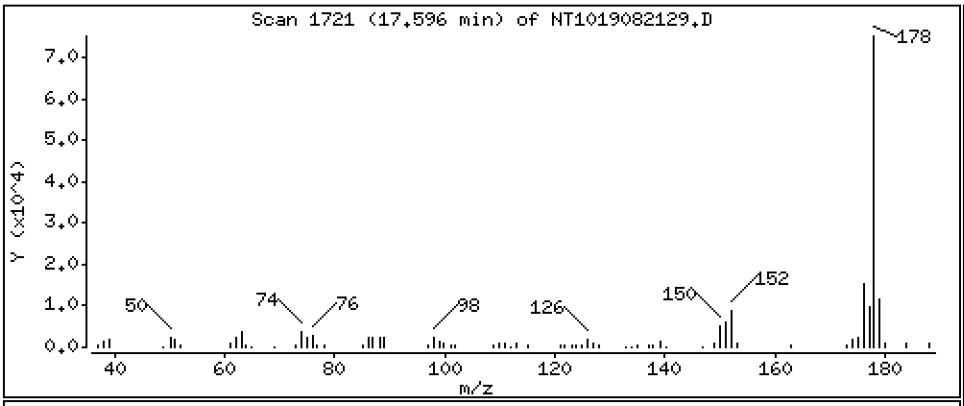
Operator: YZ

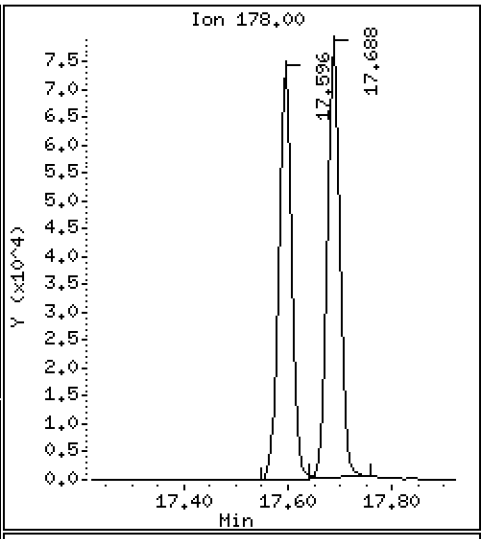
Column phase: ZB-5msi

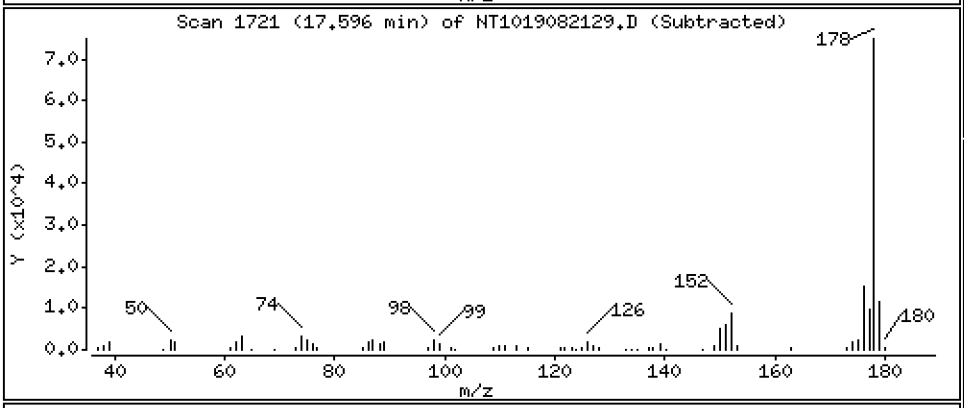
Column diameter: 0.25

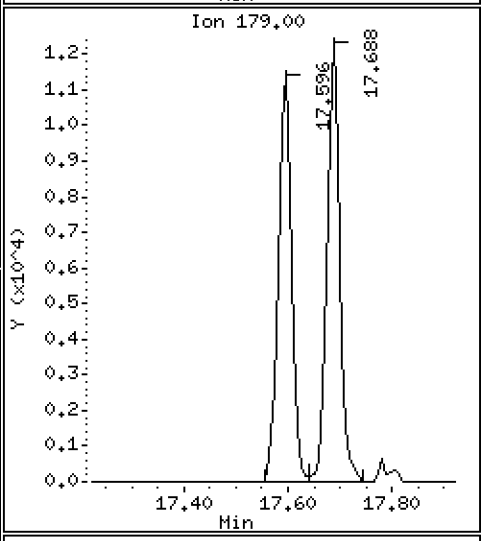
60 Phenanthrene

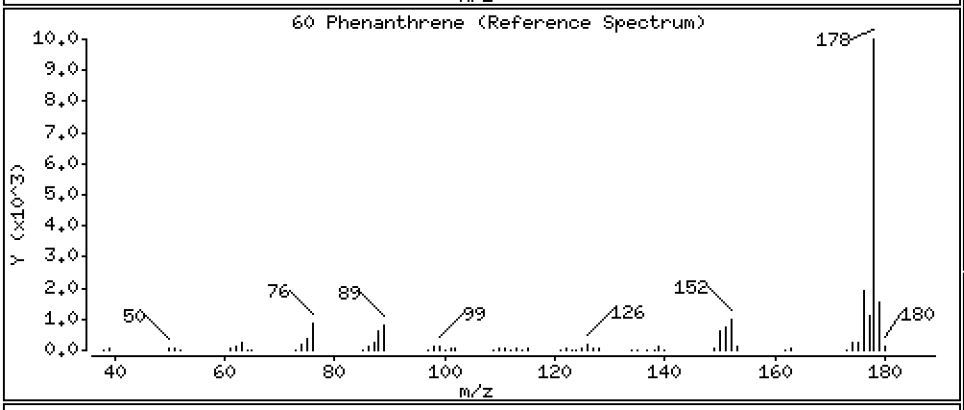
Concentration: 4.504 ug/mL

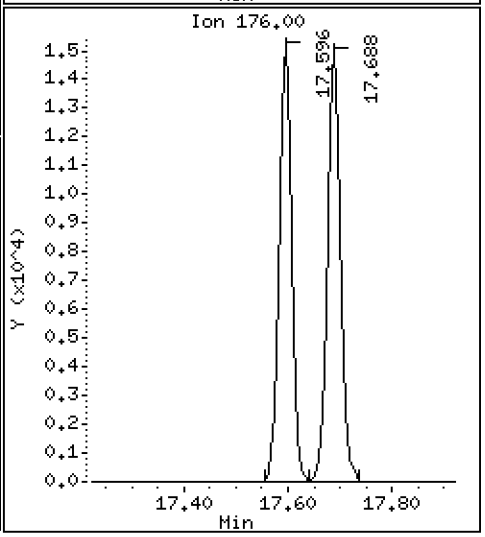


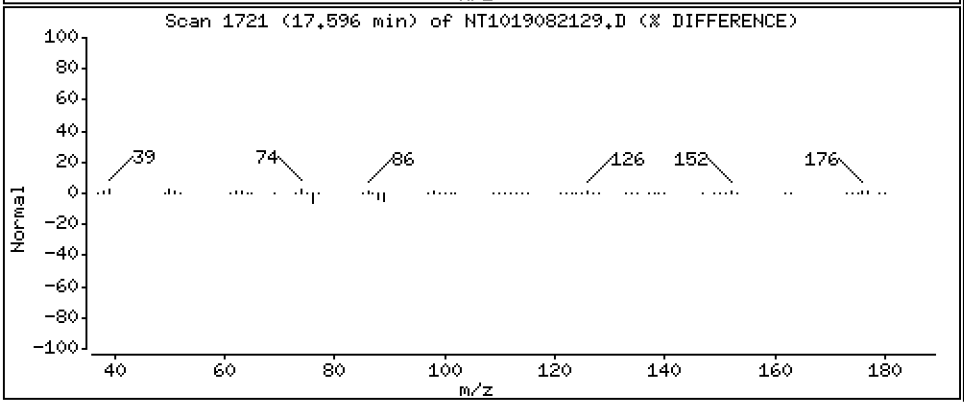












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

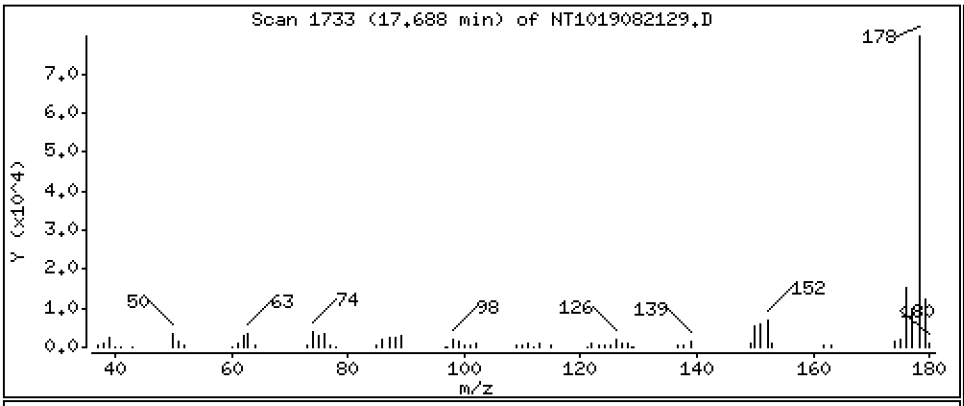
Operator: YZ

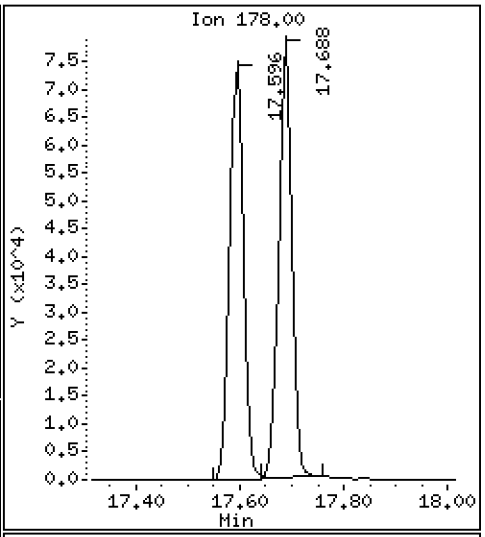
Column phase: ZB-5msi

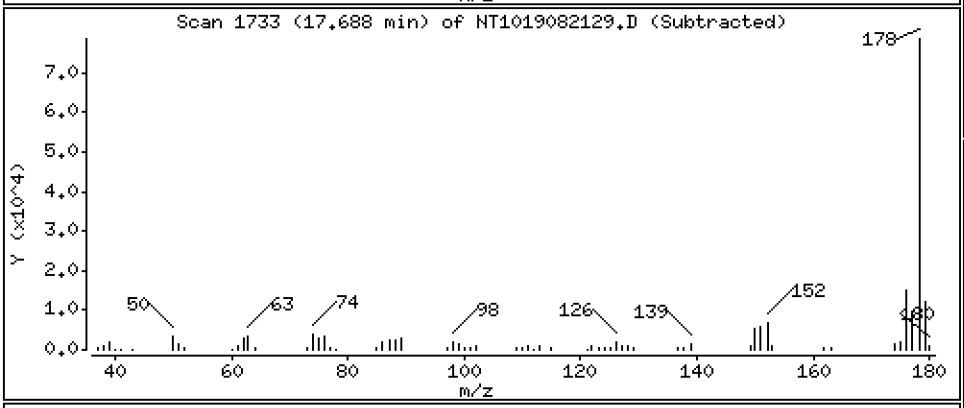
Column diameter: 0.25

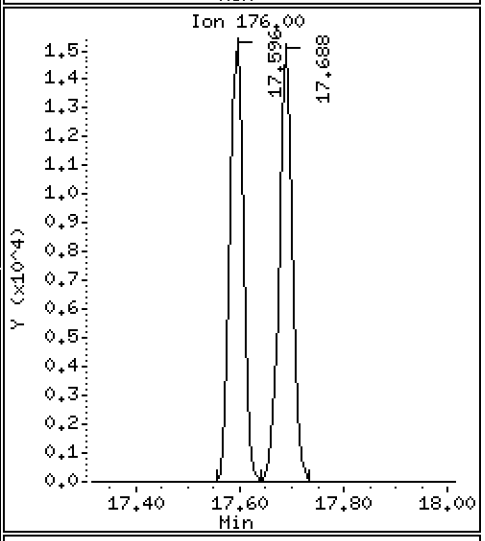
61 Anthracene

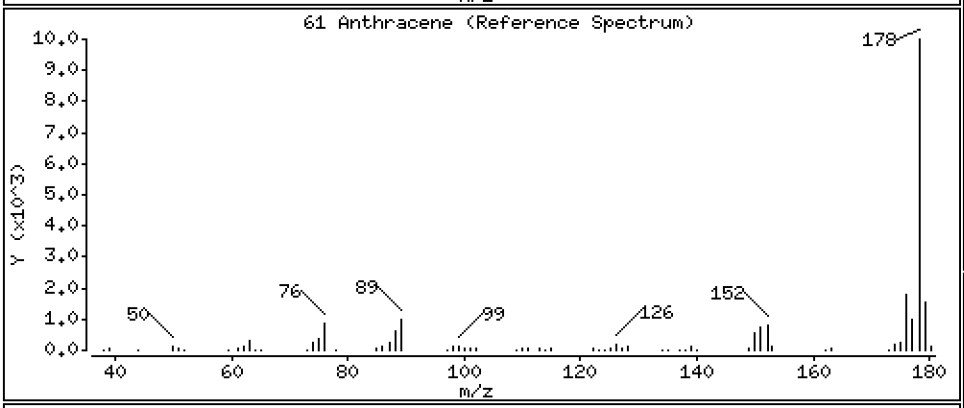
Concentration: 4.648 ug/mL

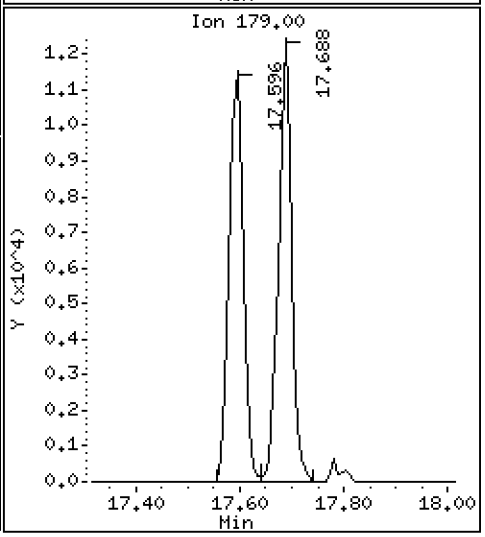


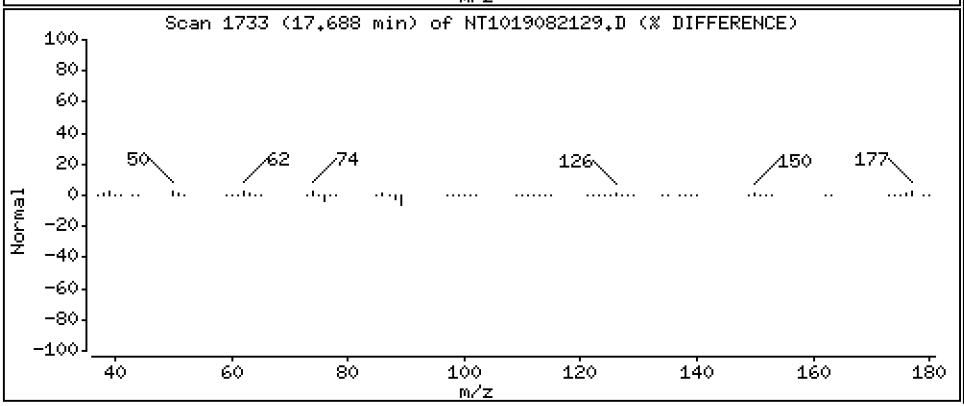












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

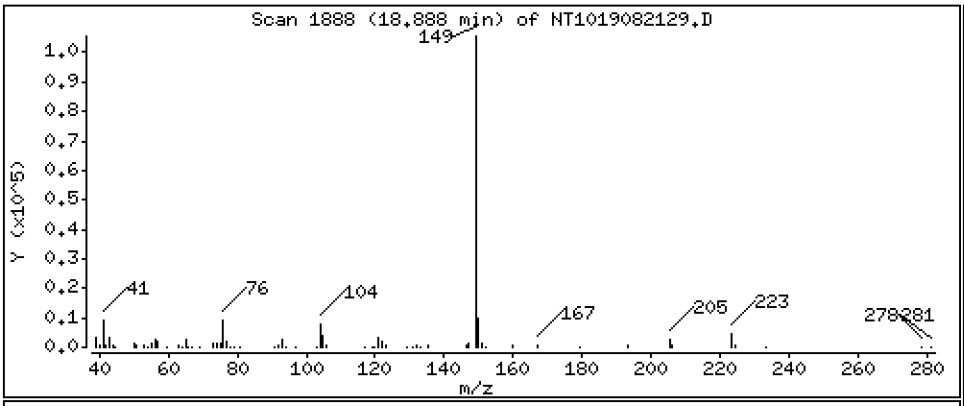
Operator: YZ

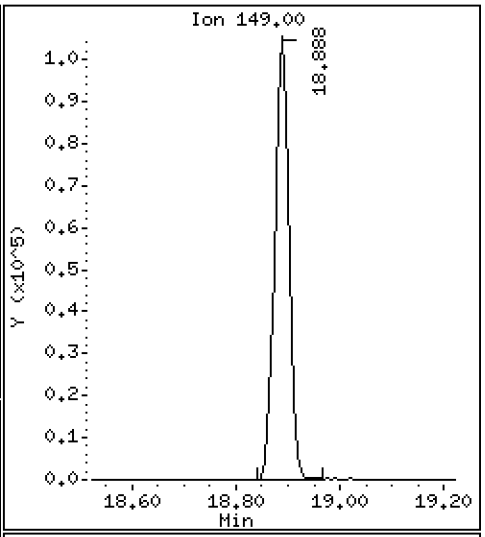
Column phase: ZB-5msi

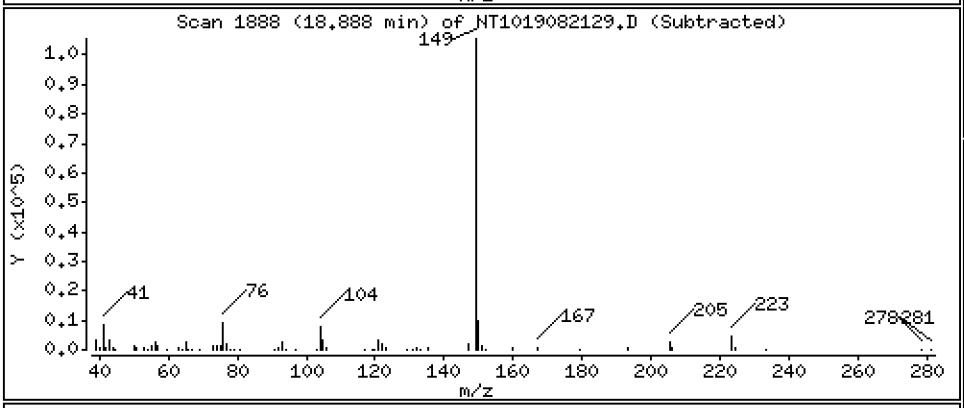
Column diameter: 0.25

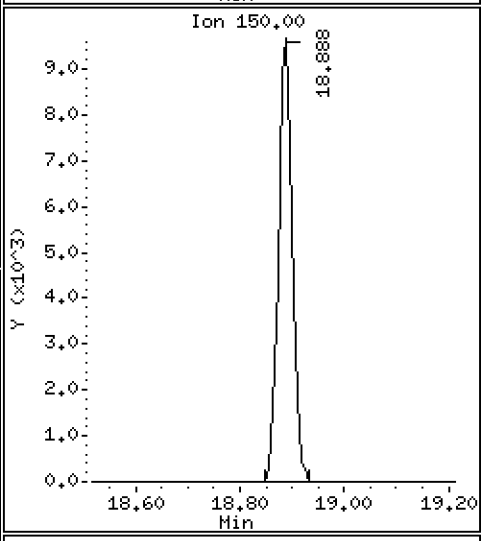
63 Di-n-butylphthalate

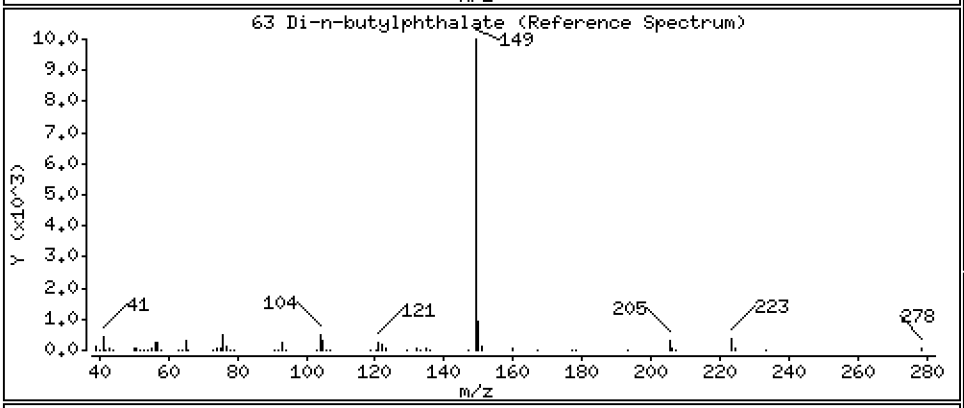
Concentration: 5.016 ug/mL

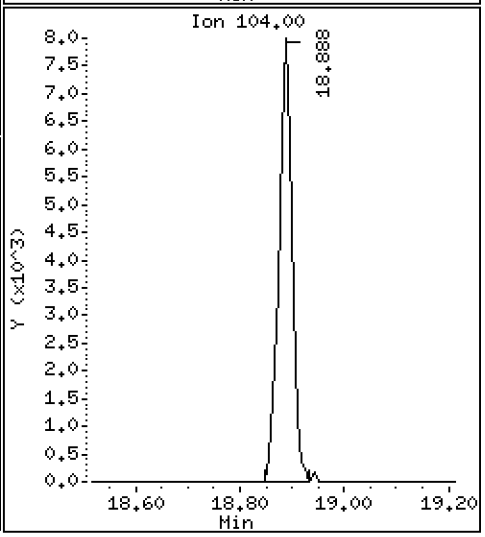


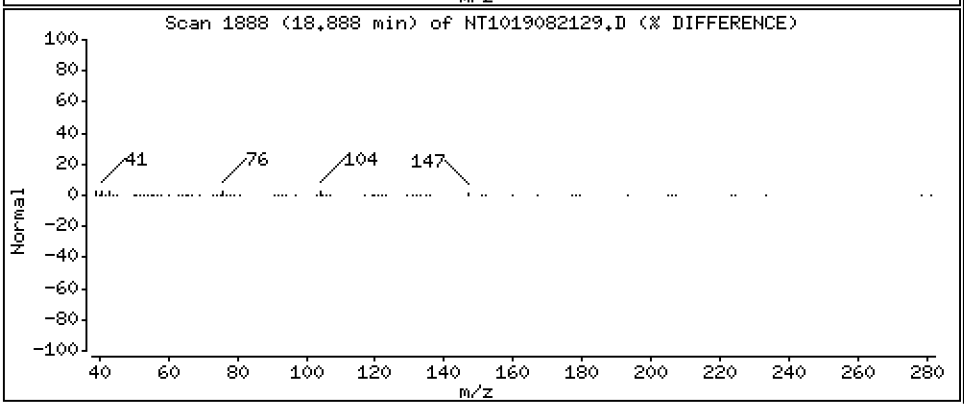












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

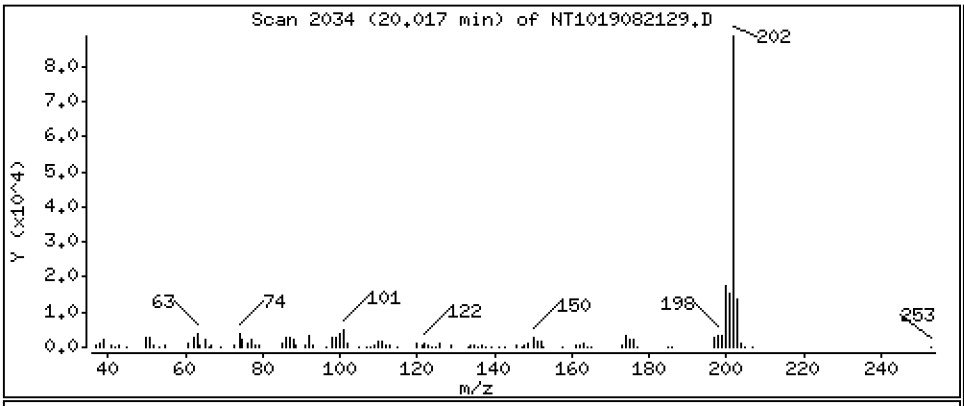
Operator: YZ

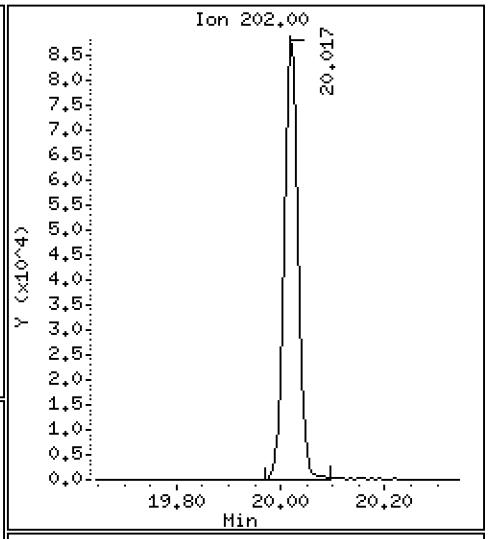
Column phase: ZB-5msi

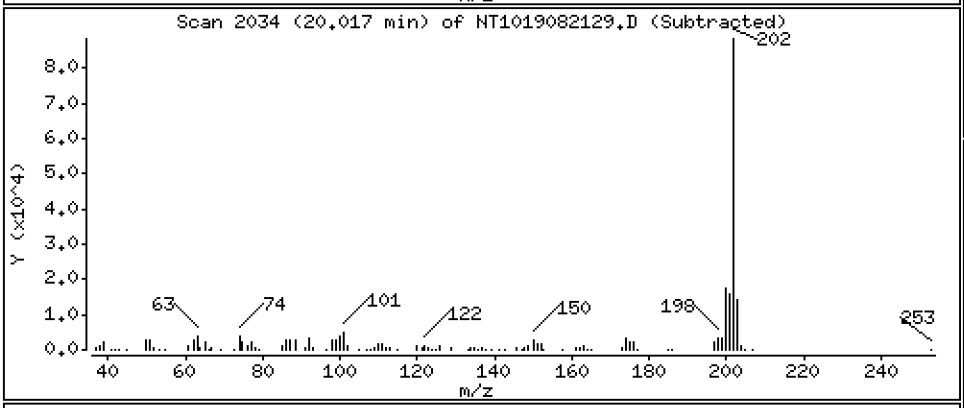
Column diameter: 0.25

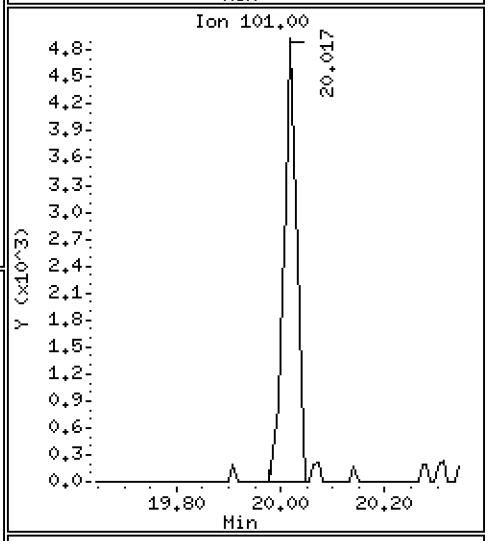
64 Fluoranthene

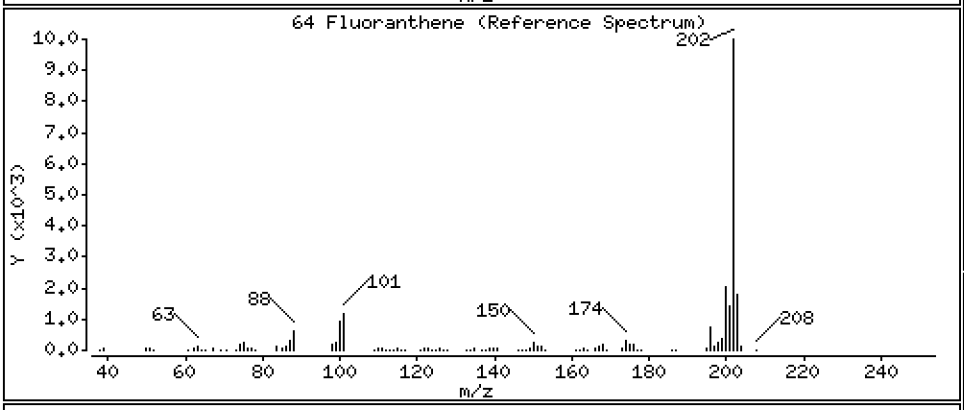
Concentration: 5.875 ug/mL

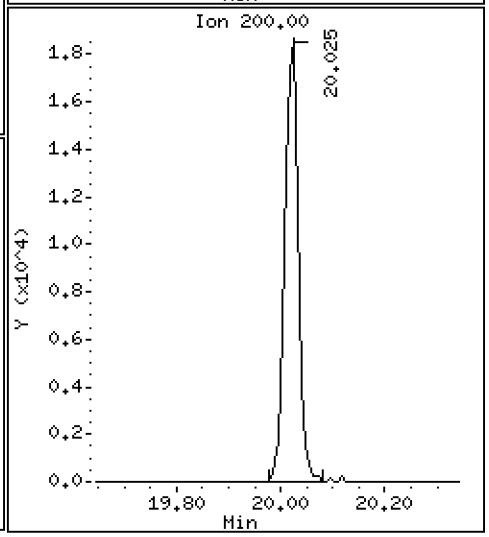


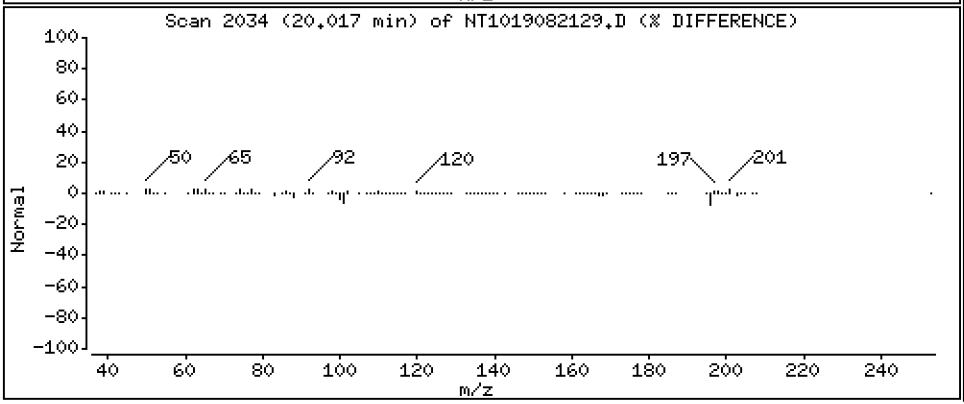












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

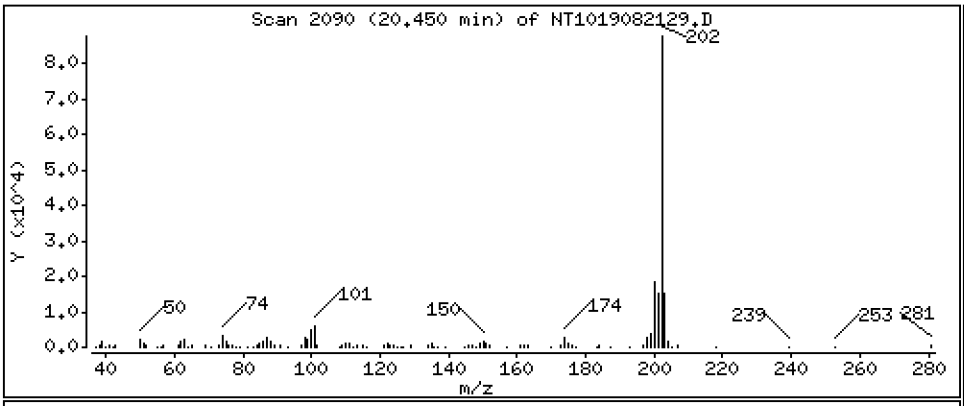
Operator: YZ

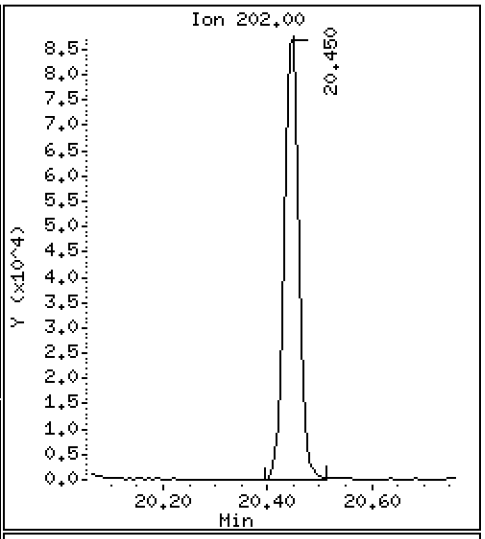
Column phase: ZB-5msi

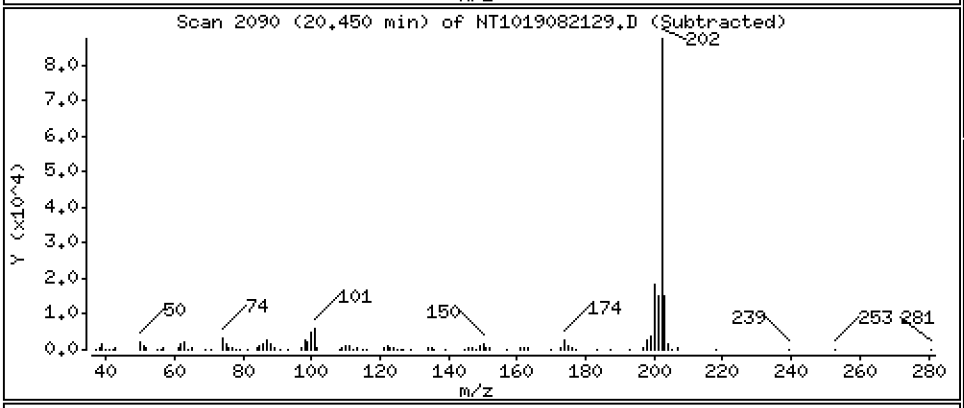
Column diameter: 0.25

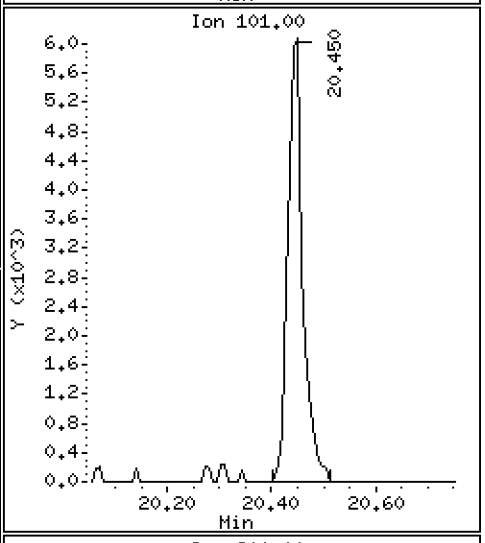
65 Pyrene

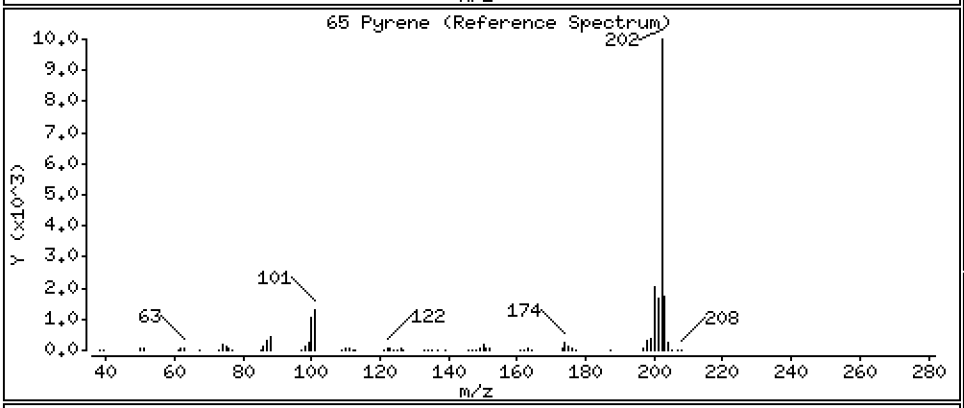
Concentration: 5.939 ug/mL

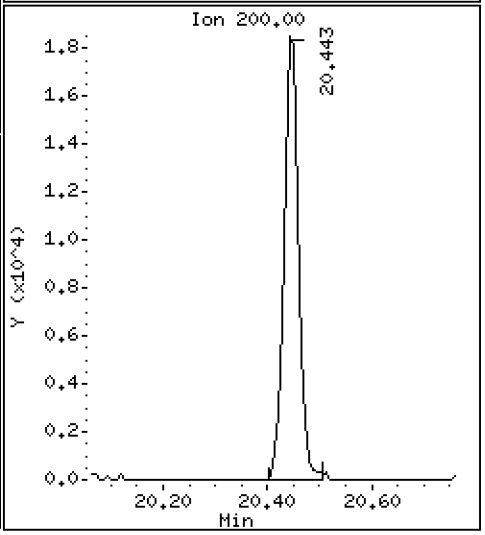


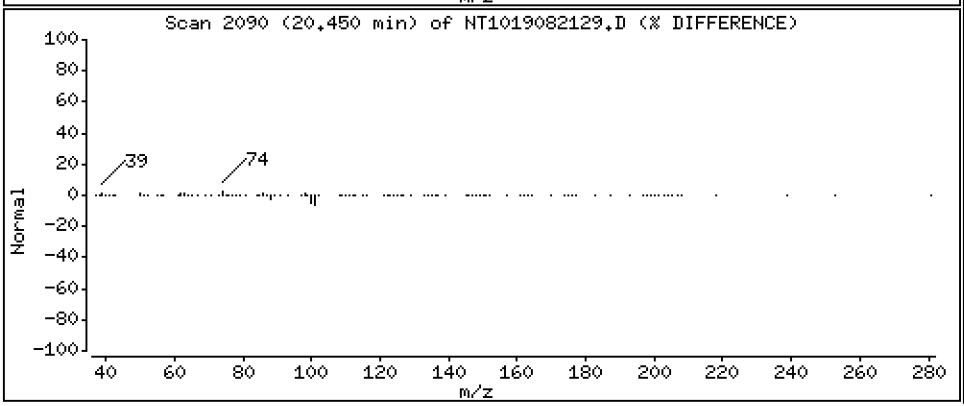












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

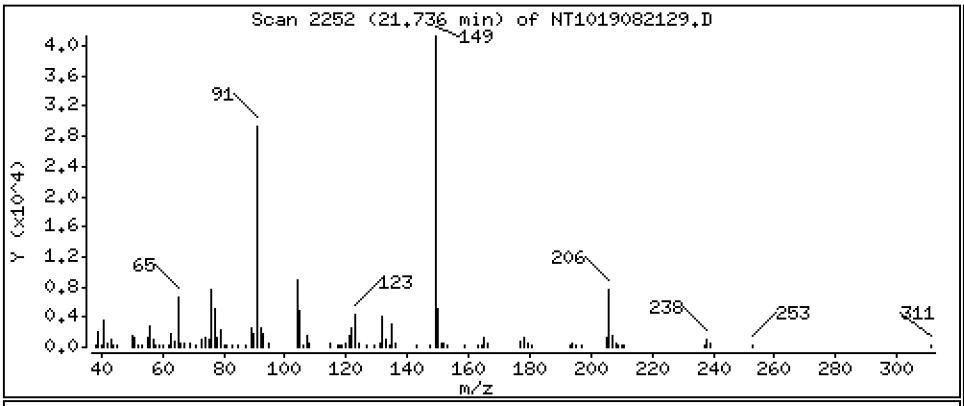
Operator: YZ

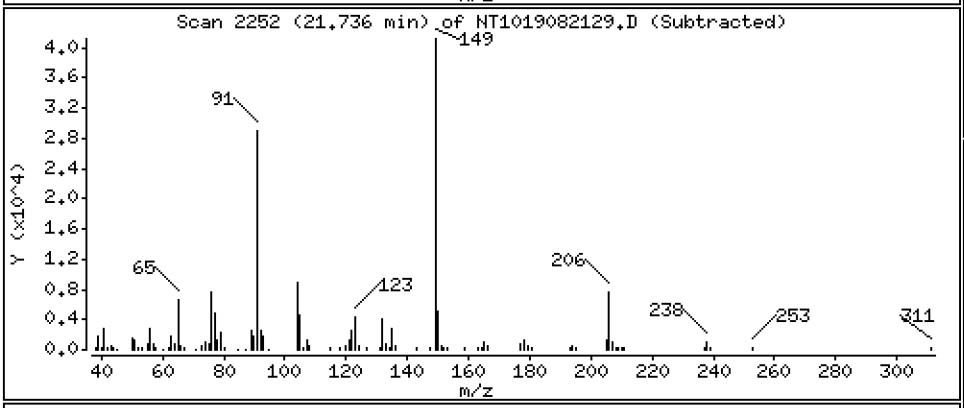
Column phase: ZB-5msi

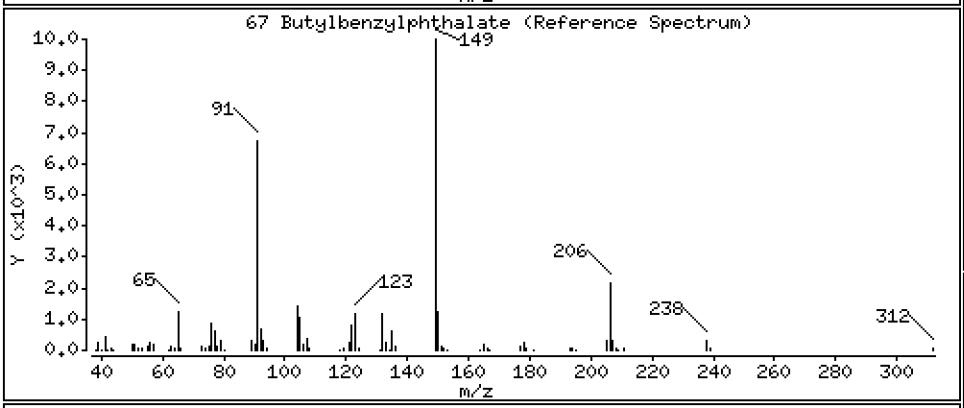
Column diameter: 0.25

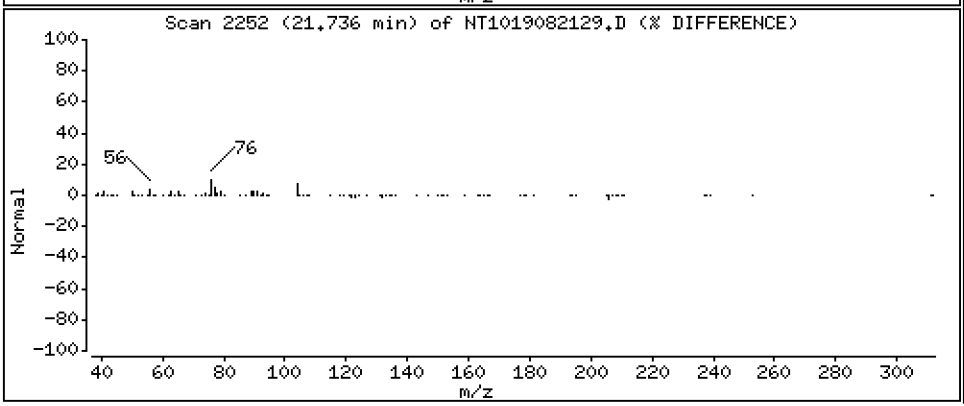
67 Butylbenzylphthalate

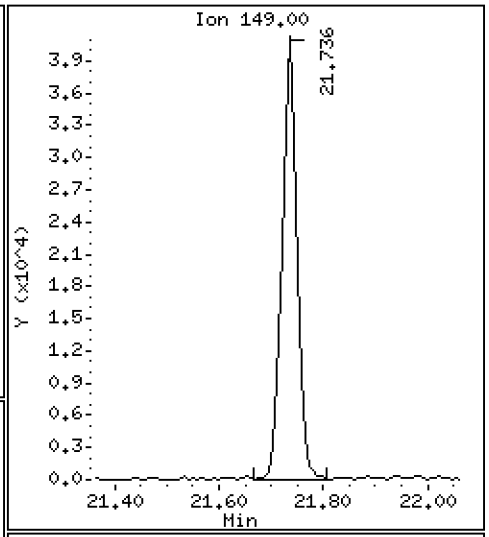
Concentration: 5.832 ug/mL

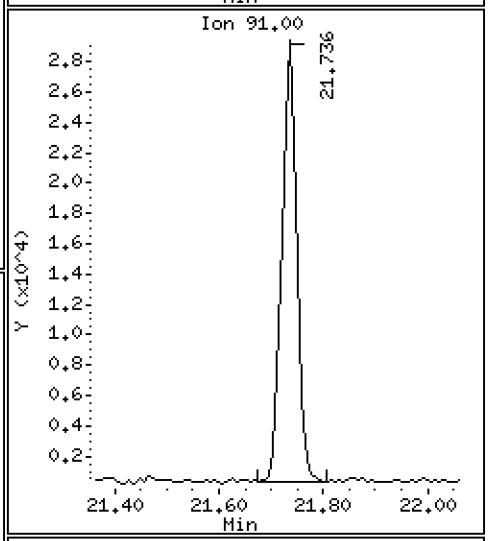


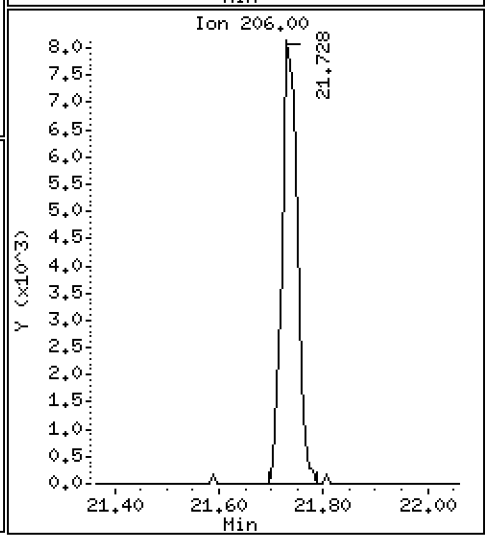












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

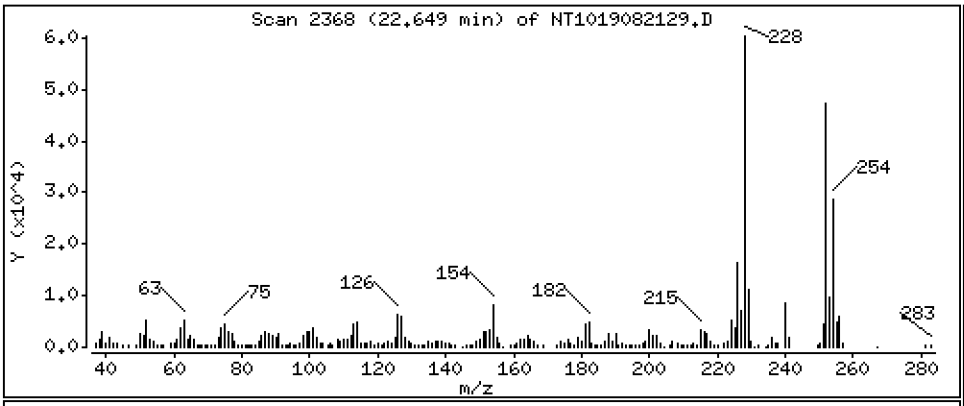
Operator: YZ

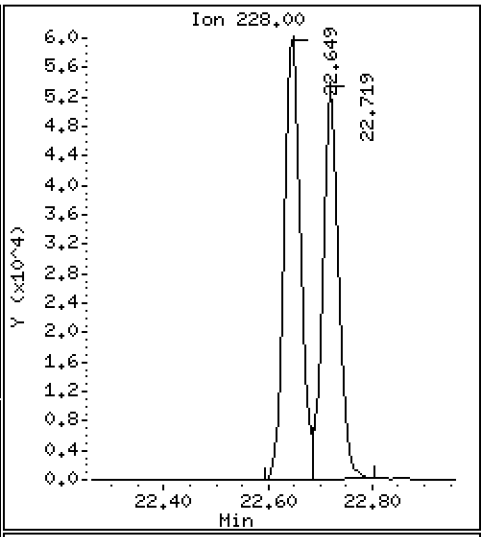
Column phase: ZB-5msi

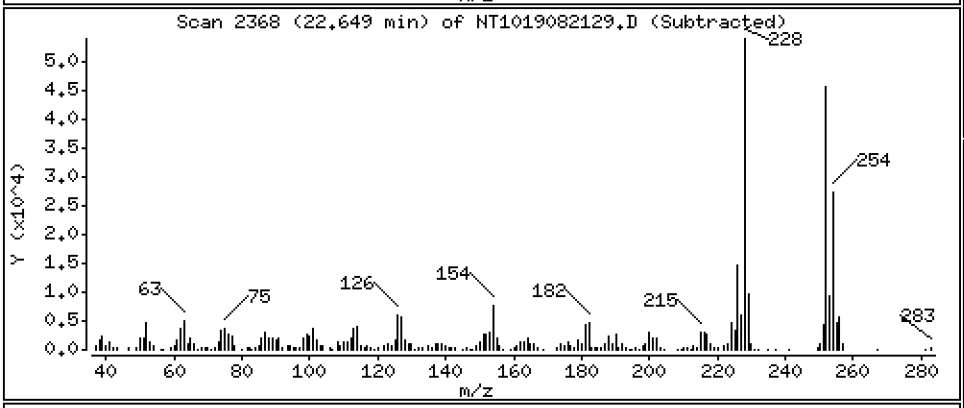
Column diameter: 0.25

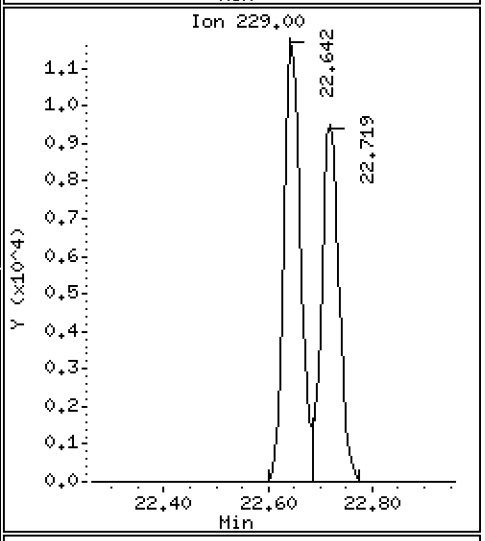
68 Benzo(a)anthracene

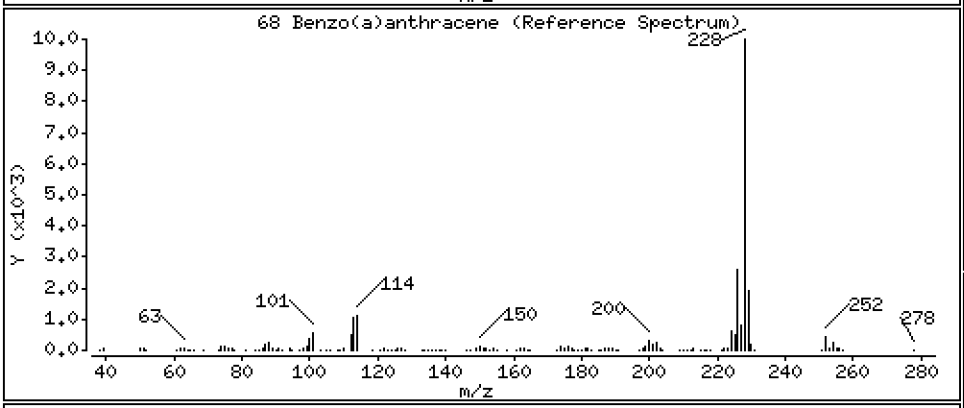
Concentration: 5.030 ug/mL

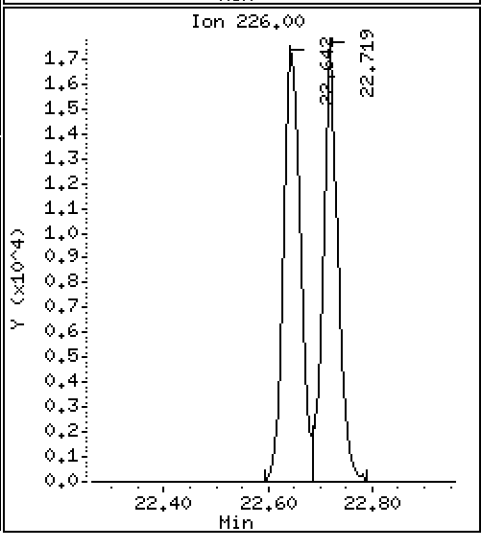


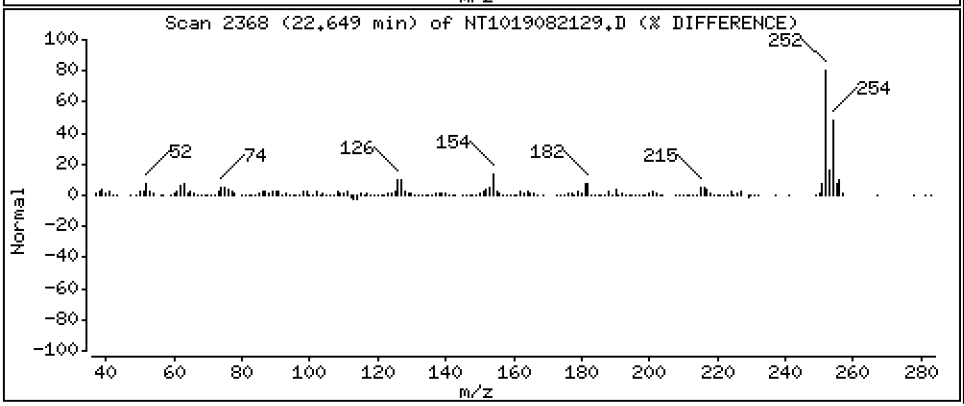












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

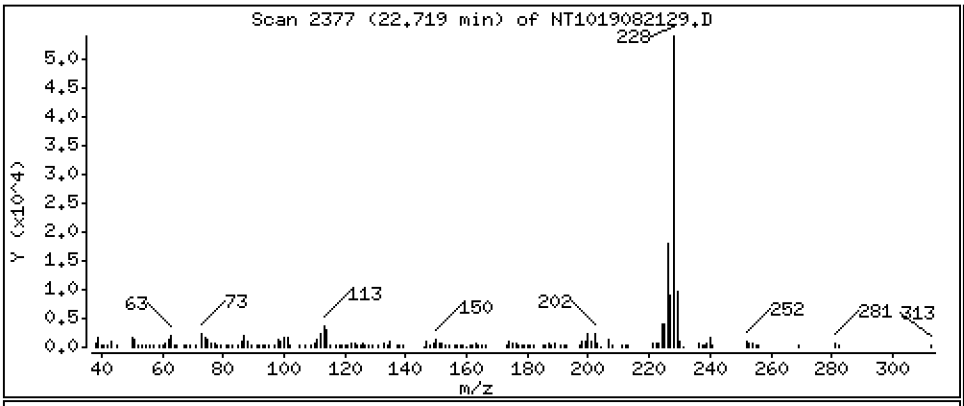
Operator: YZ

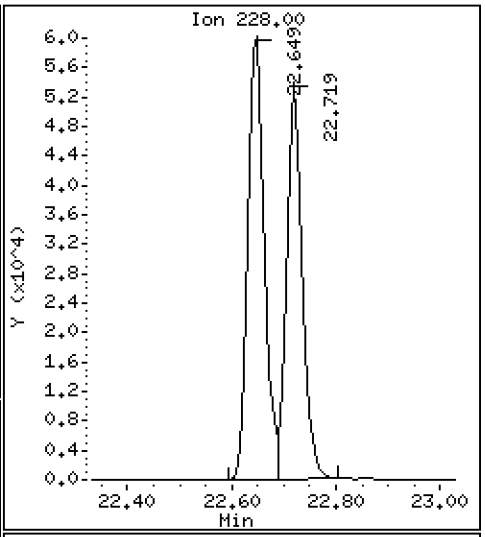
Column phase: ZB-5msi

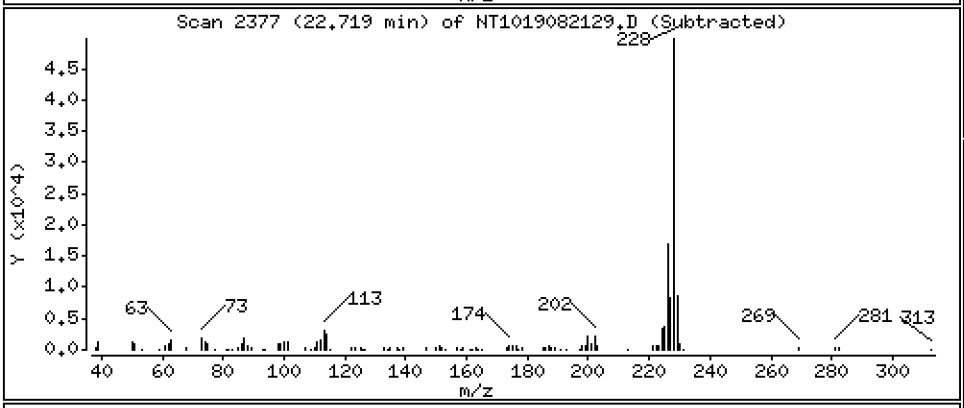
Column diameter: 0.25

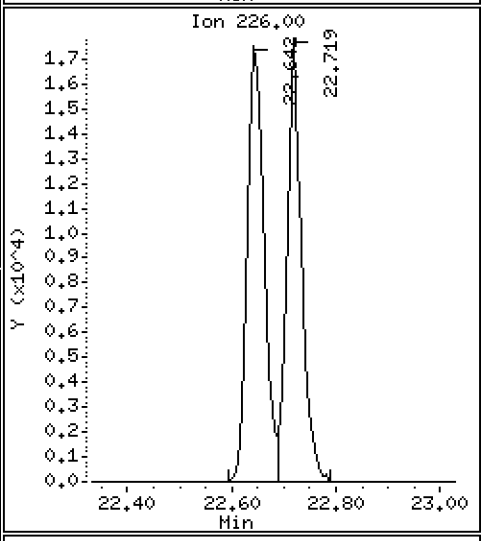
71 Chrysene

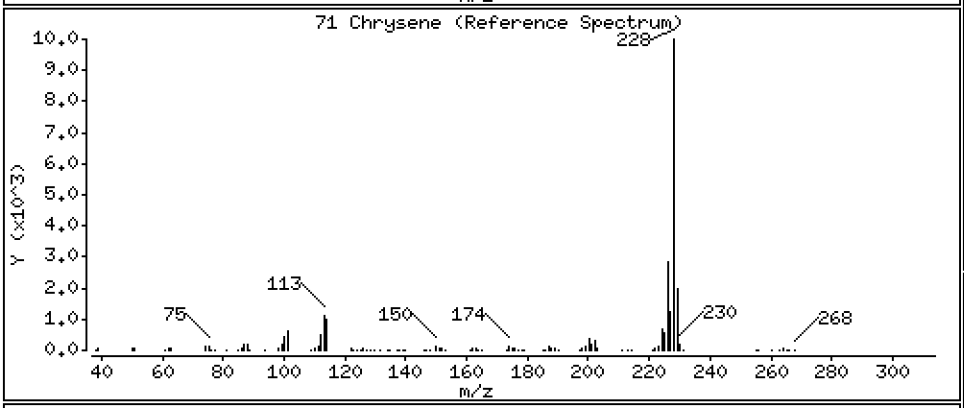
Concentration: 4.747 ug/mL

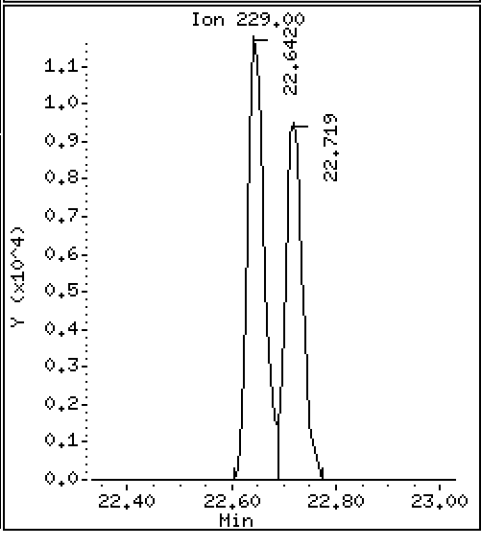


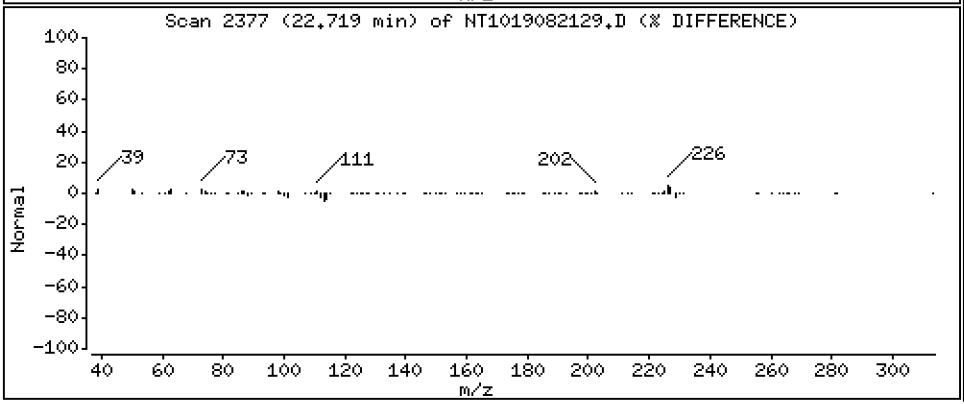












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

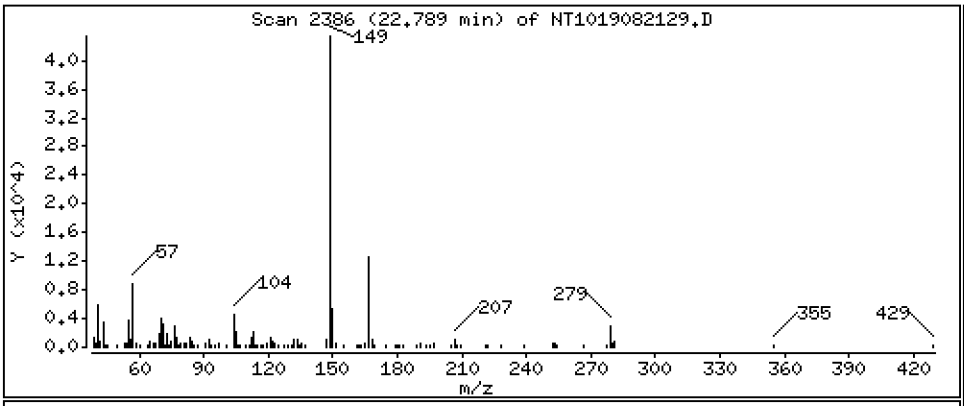
Operator: YZ

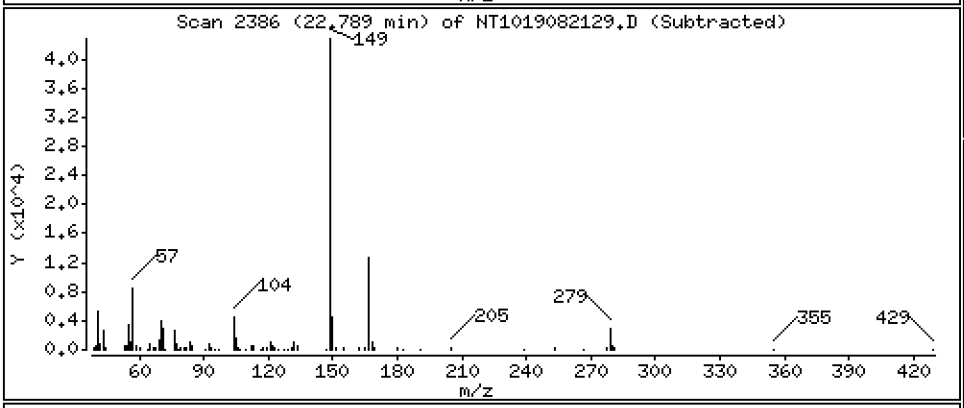
Column phase: ZB-5msi

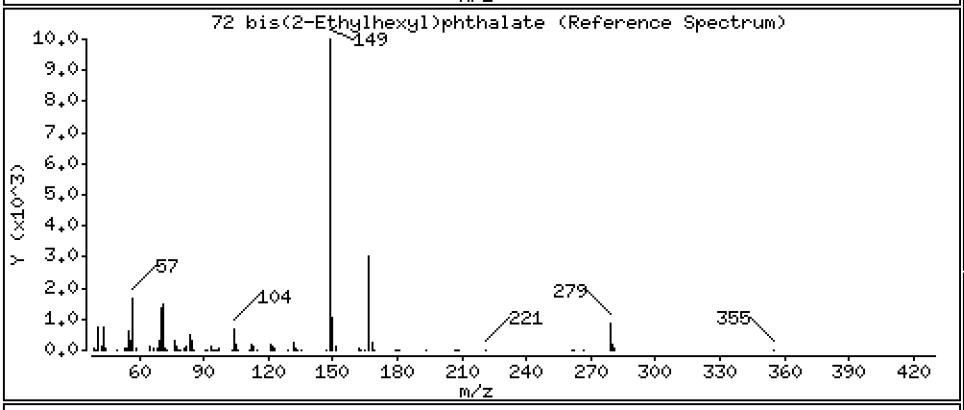
Column diameter: 0.25

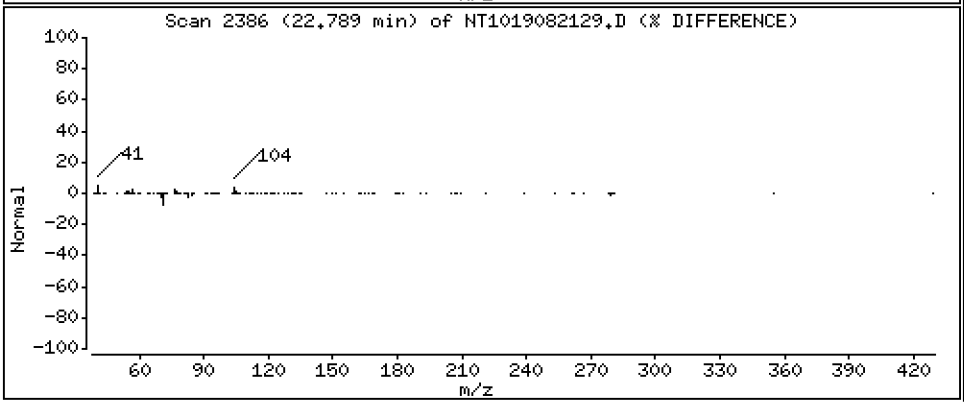
72 bis(2-Ethylhexyl)phthalate

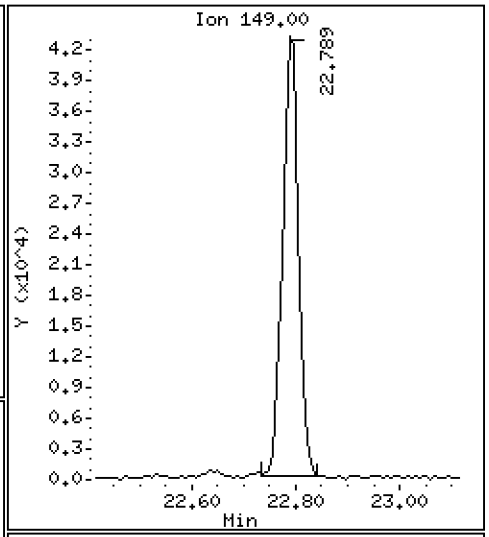
Concentration: 5.548 ug/mL

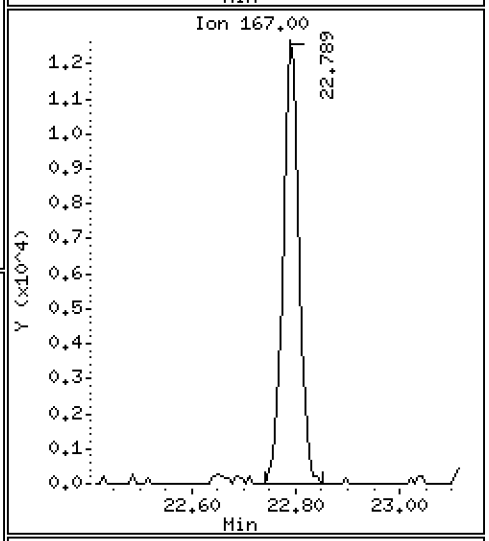


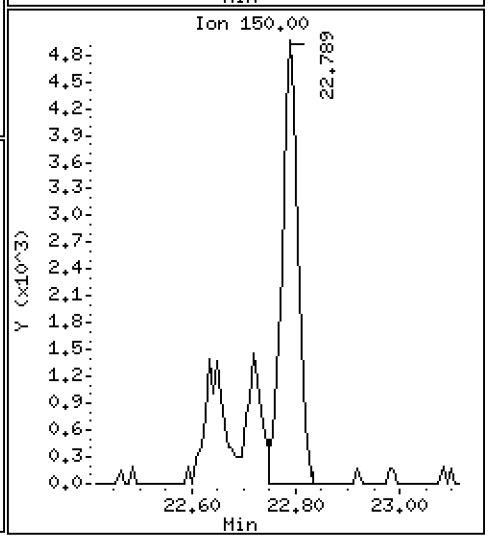












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

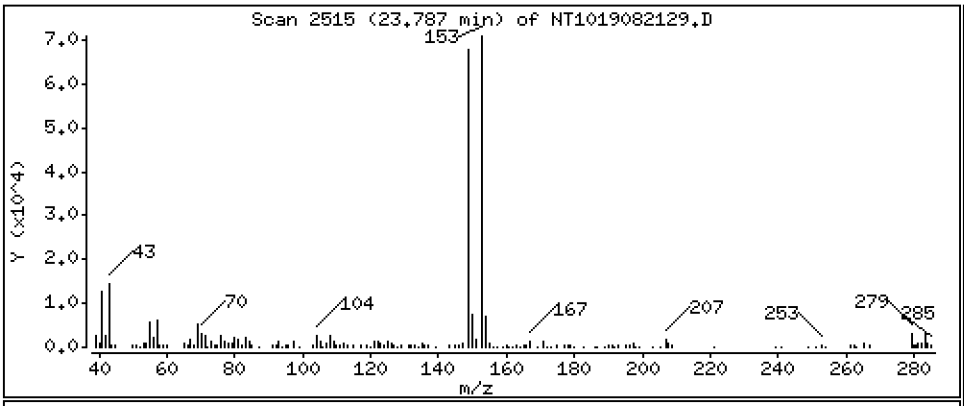
Operator: YZ

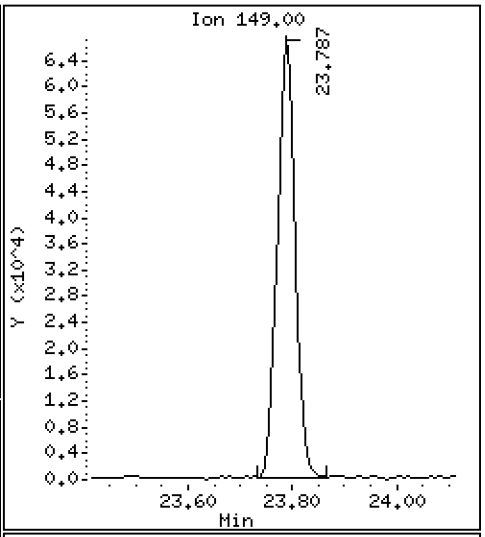
Column phase: ZB-5msi

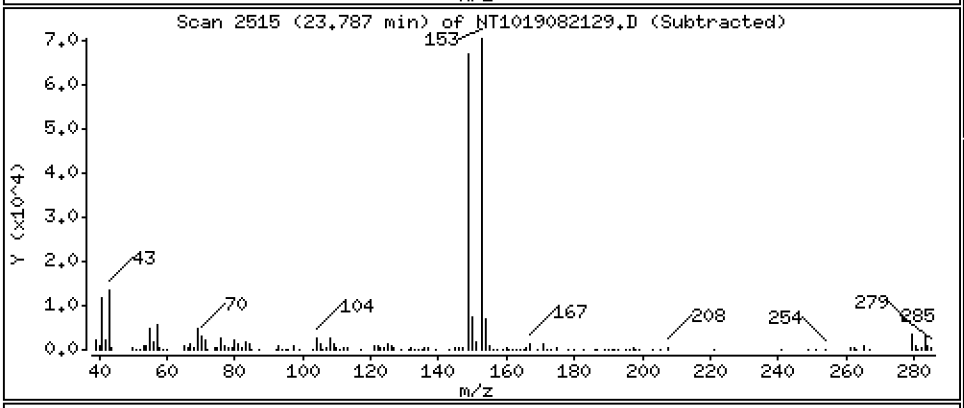
Column diameter: 0.25

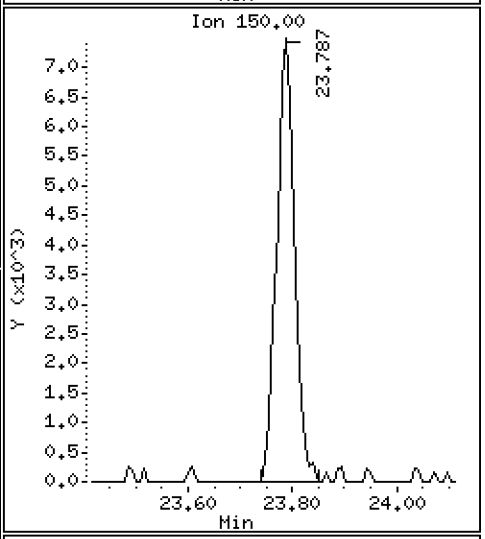
73 Di-n-octylphthalate

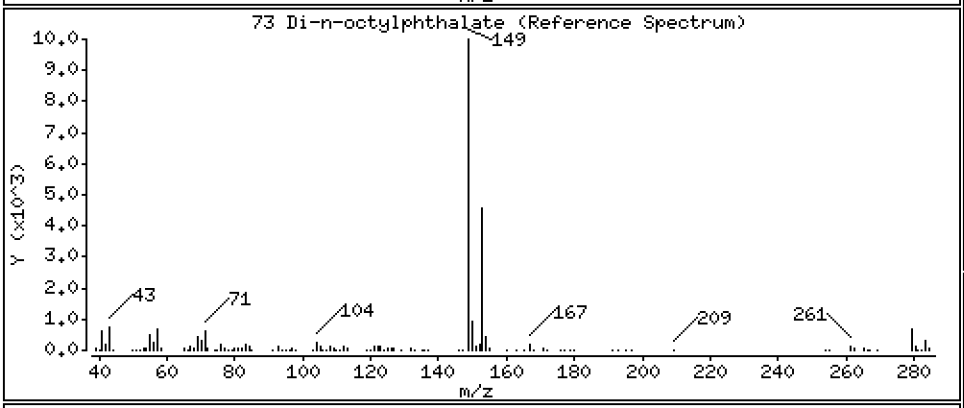
Concentration: 4.587 ug/mL

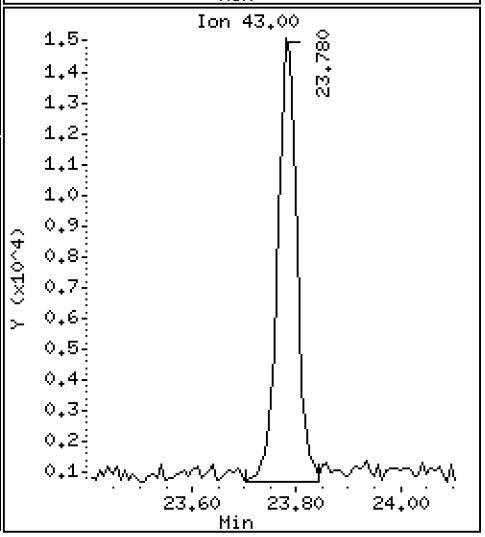


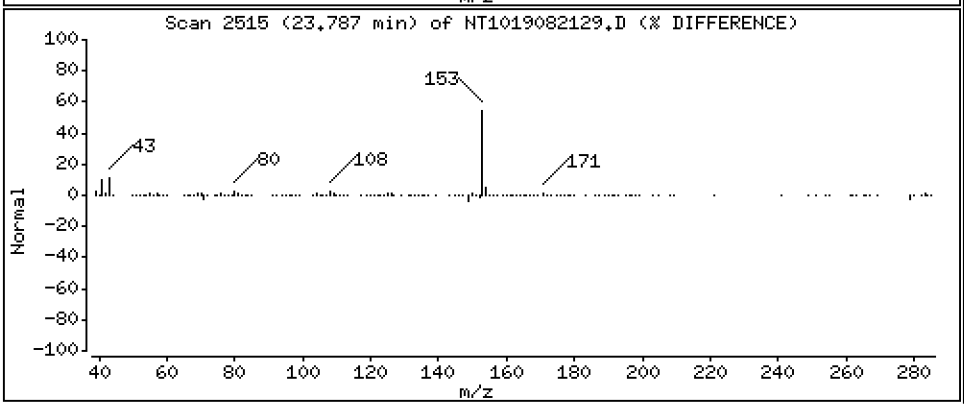












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Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

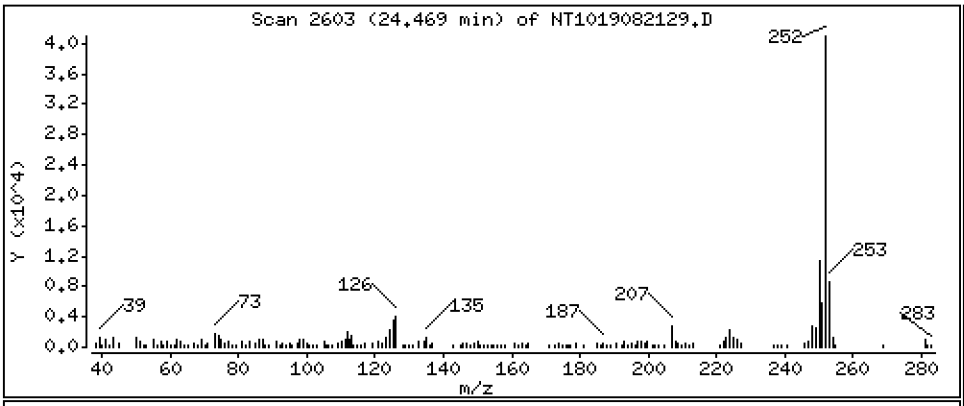
Operator: YZ

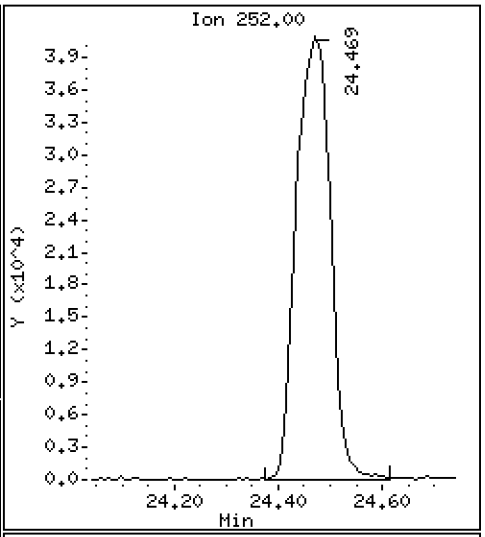
Column phase: ZB-5msi

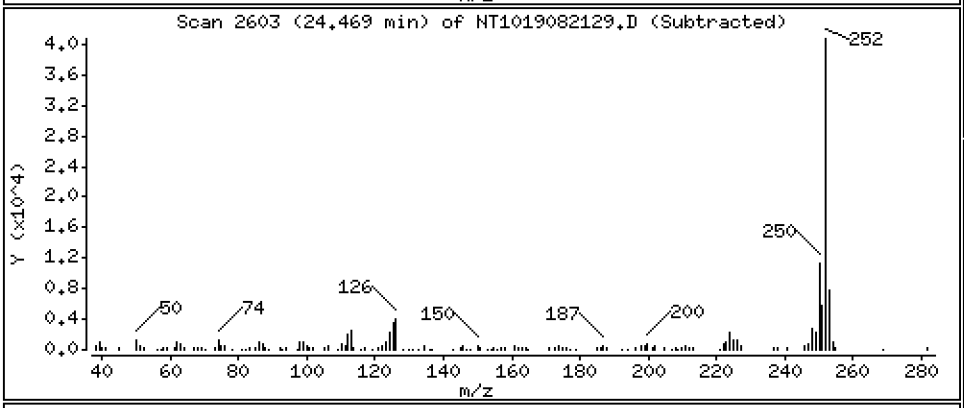
Column diameter: 0.25

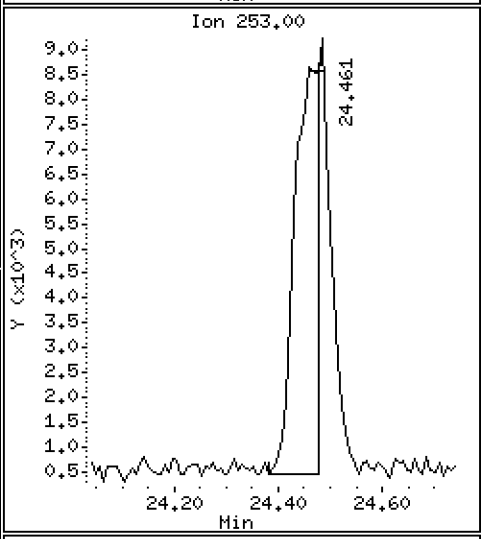
74 Benzo(b)fluoranthene

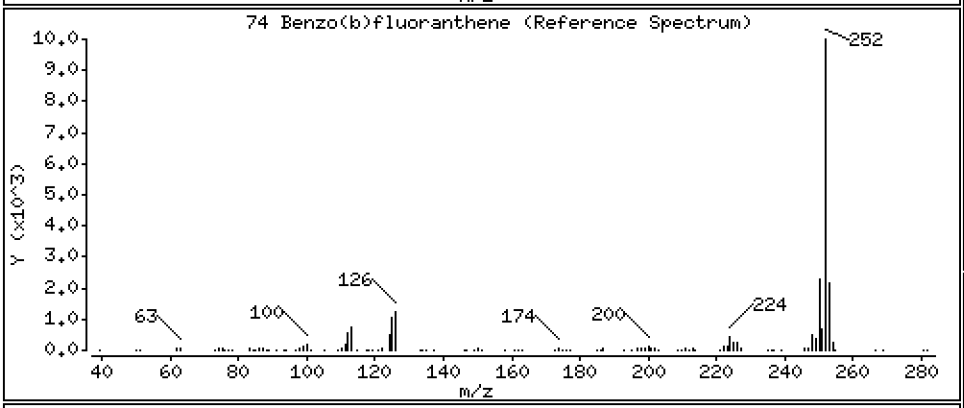
Concentration: 10.71 ug/mL

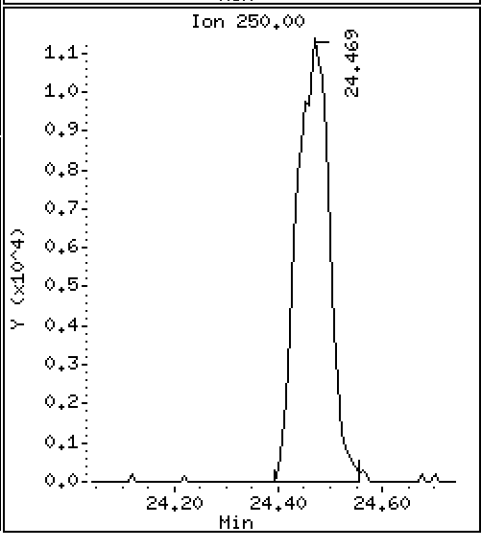


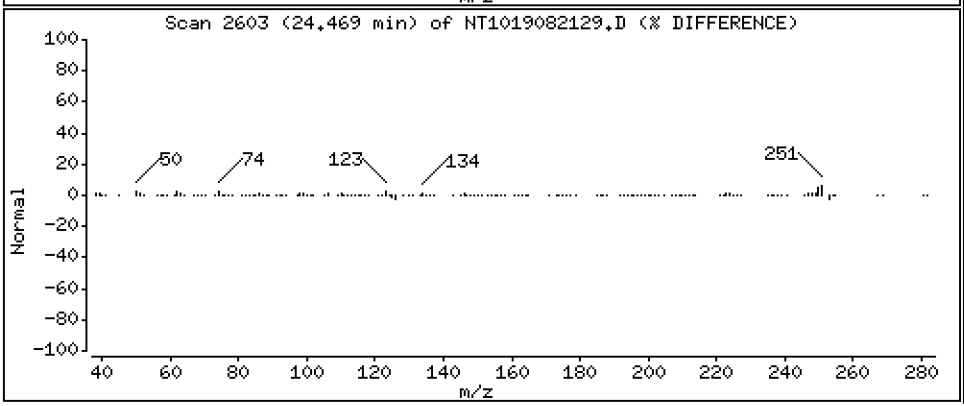












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Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

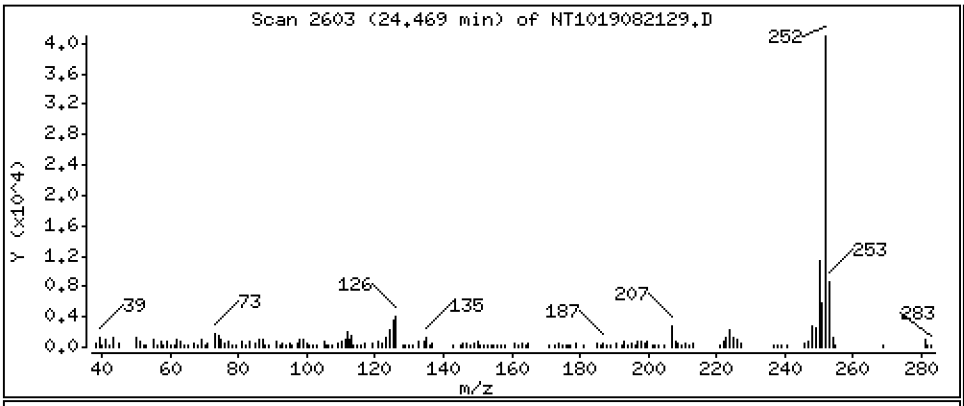
Operator: YZ

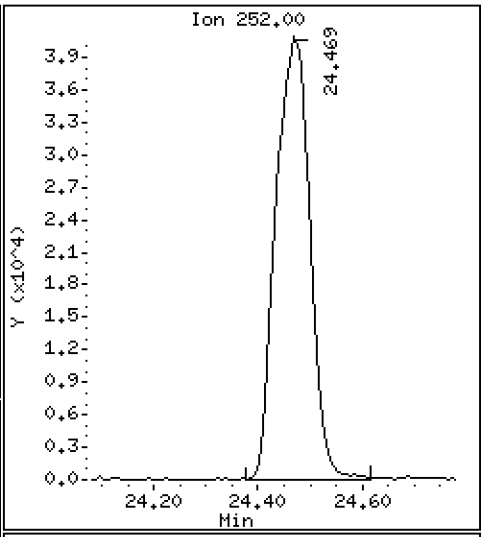
Column phase: ZB-5msi

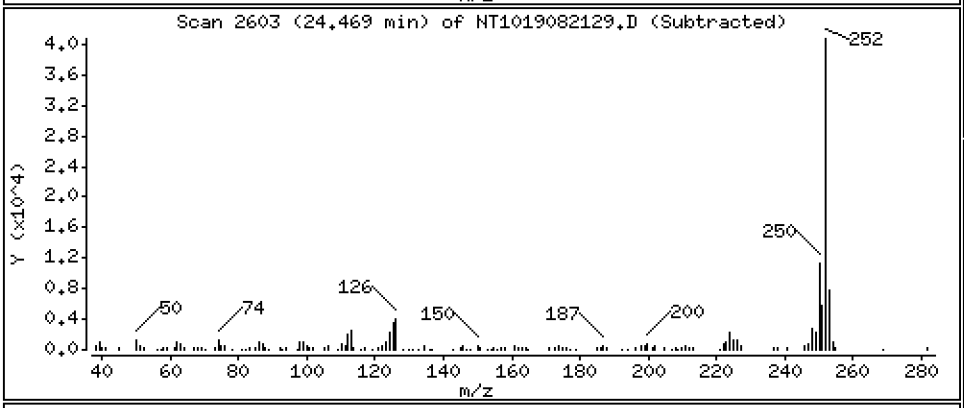
Column diameter: 0.25

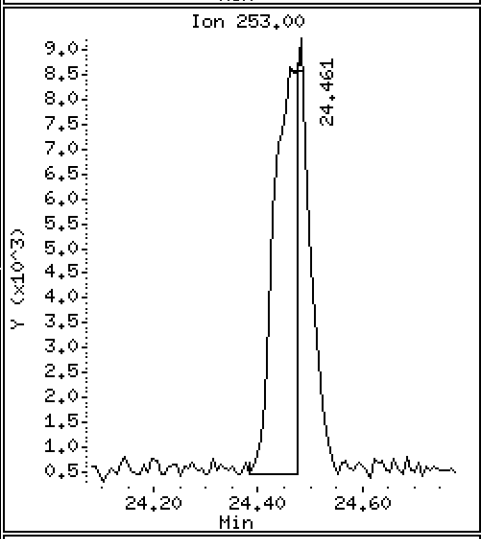
75 Benzo(k)fluoranthene

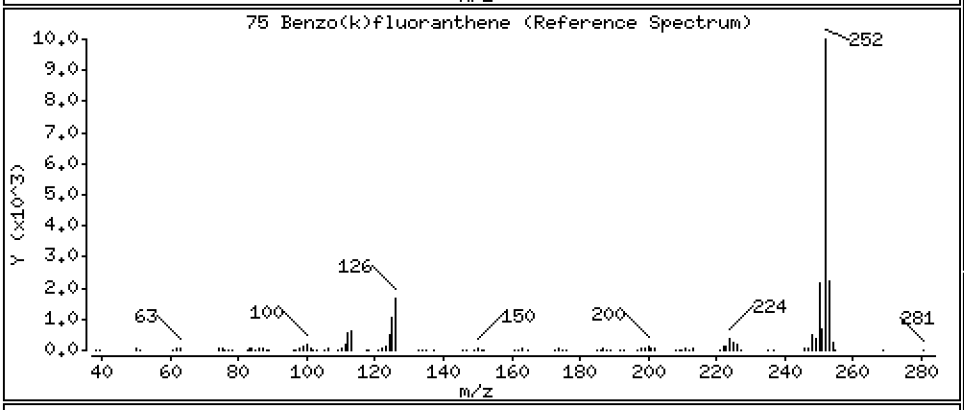
Concentration: 10.64 ug/mL

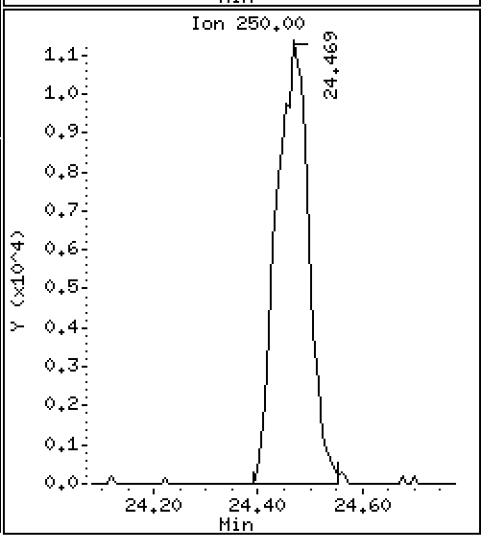


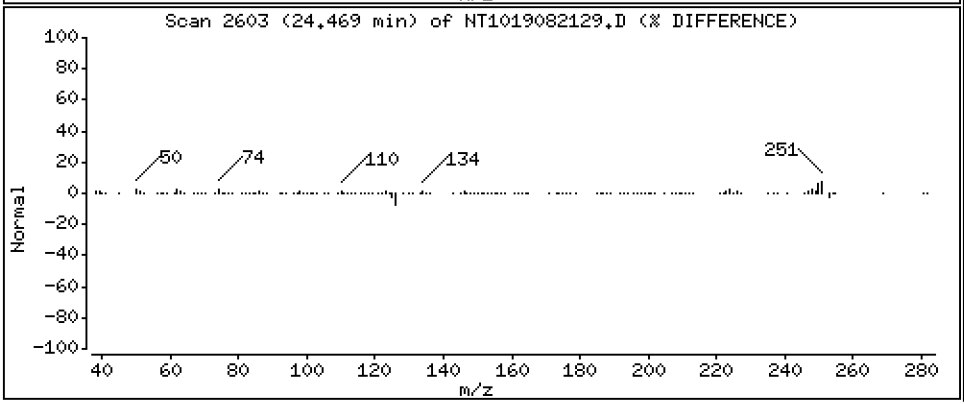












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Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

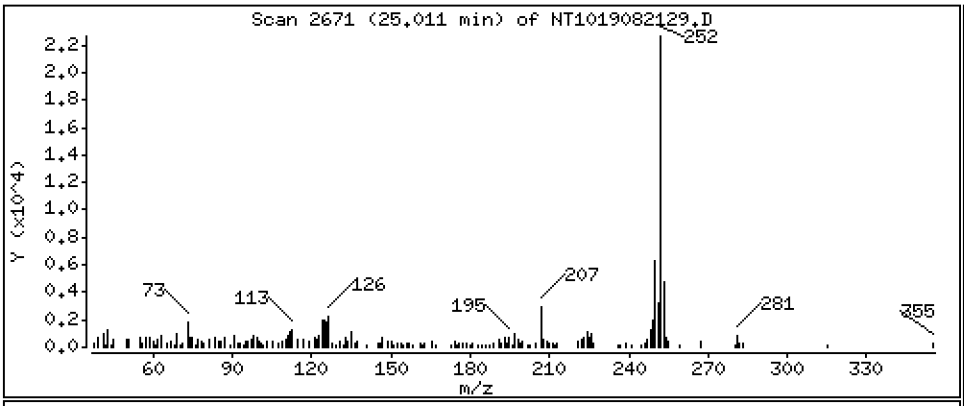
Operator: YZ

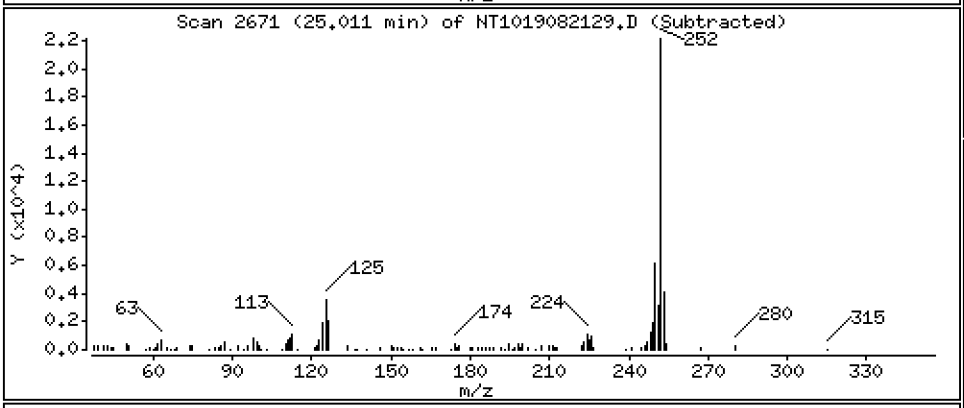
Column phase: ZB-5msi

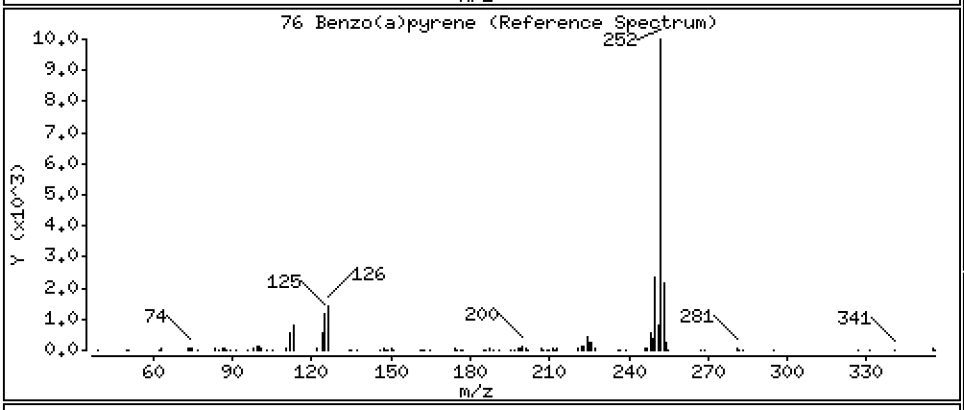
Column diameter: 0.25

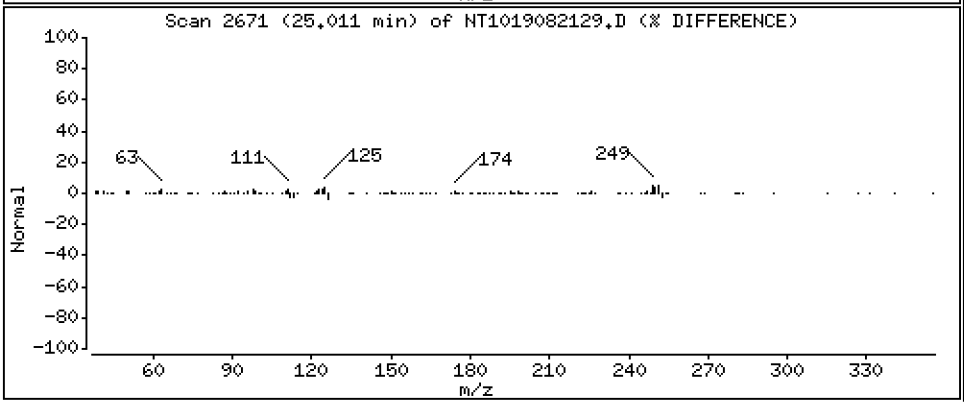
76 Benzo(a)pyrene

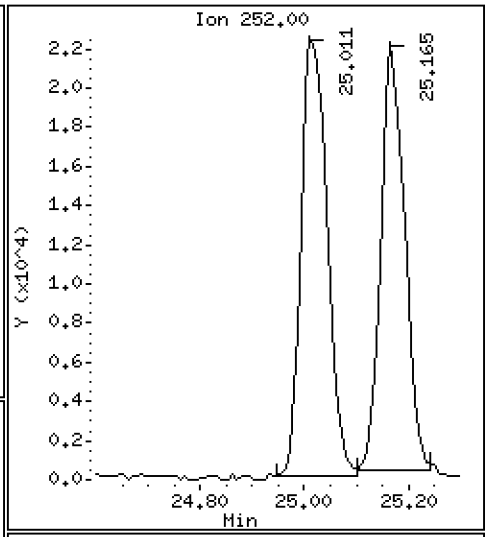
Concentration: 4.984 ug/mL

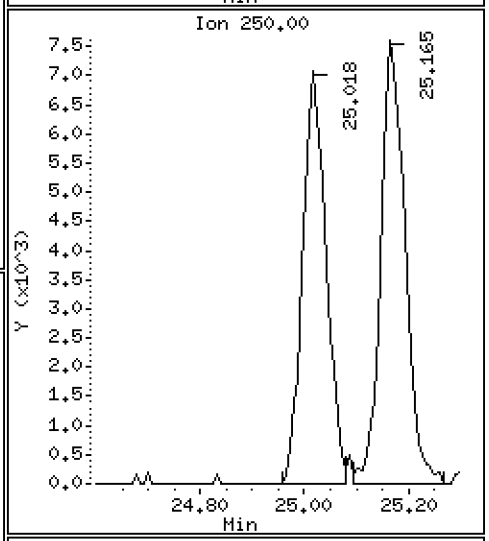


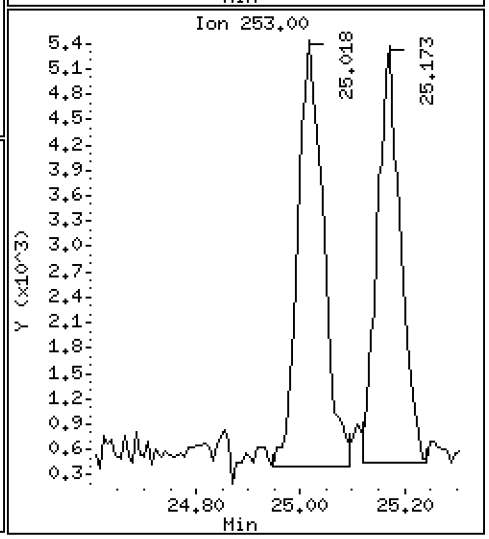












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

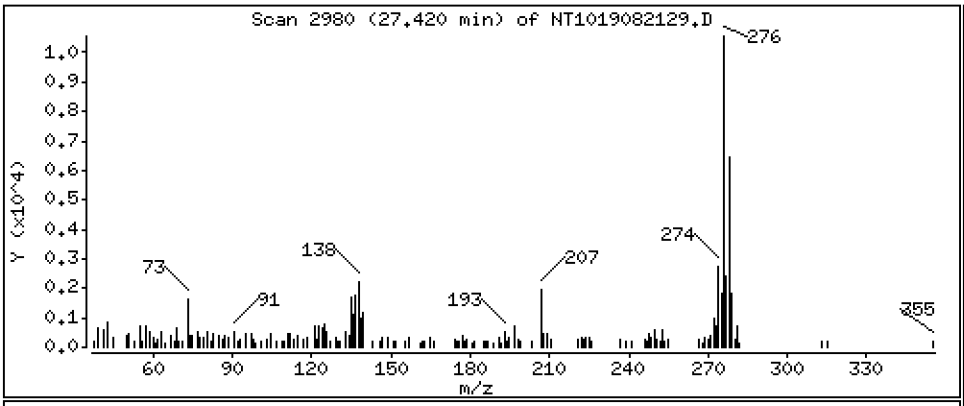
Operator: YZ

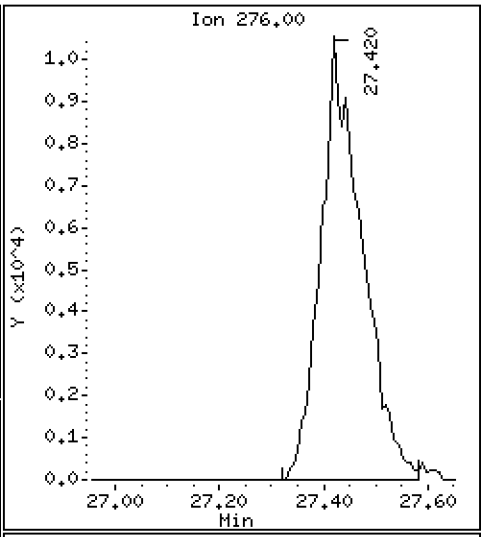
Column phase: ZB-5msi

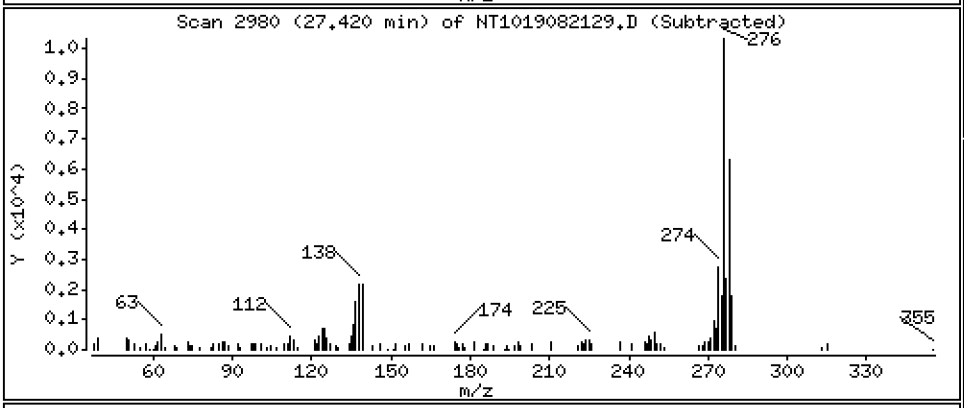
Column diameter: 0.25

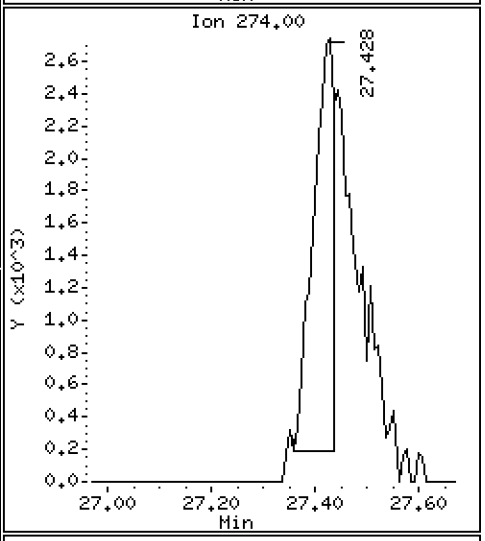
78 Indeno(1,2,3-cd)pyrene

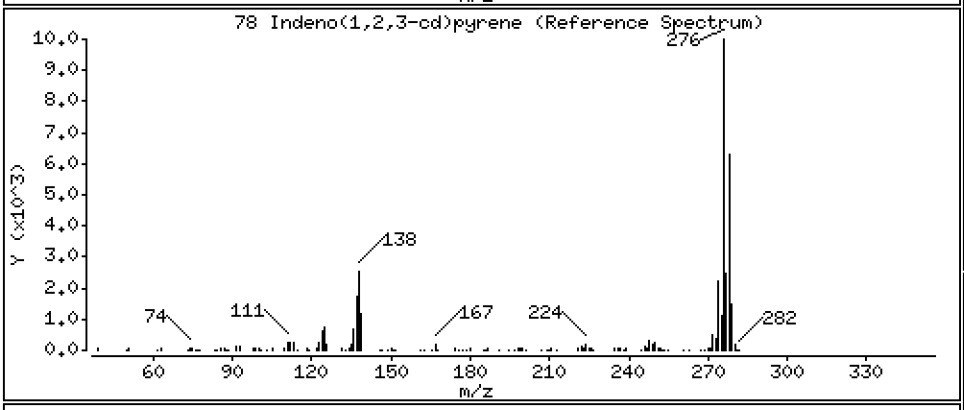
Concentration: 3.095 ug/mL

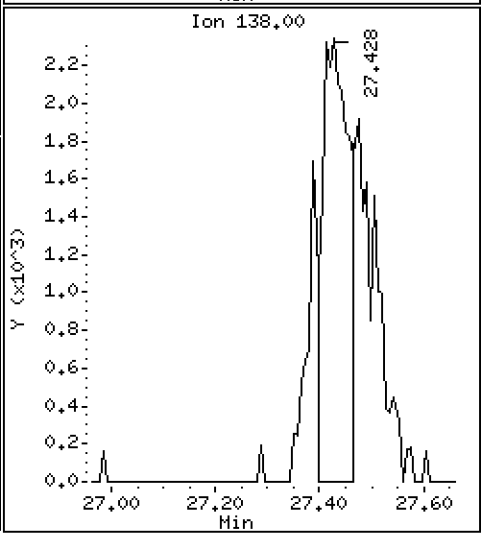


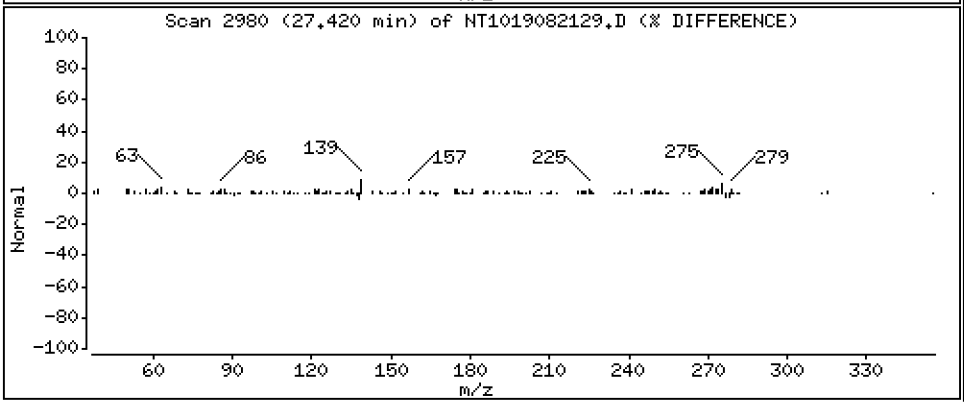












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D

Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

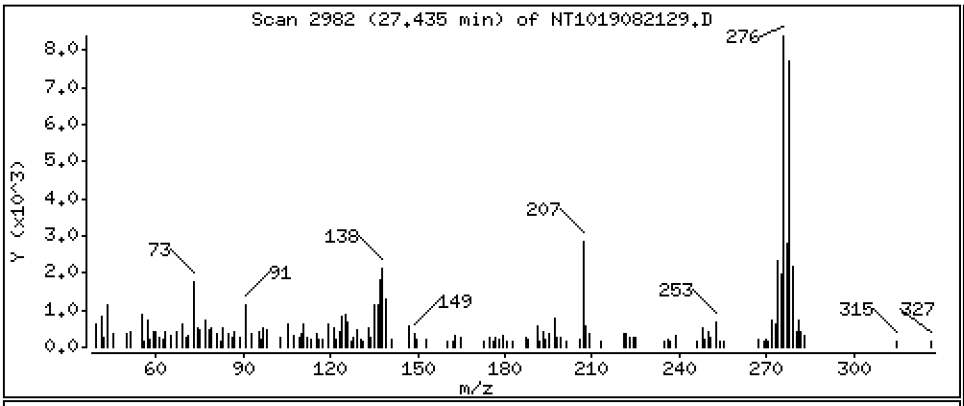
Operator: YZ

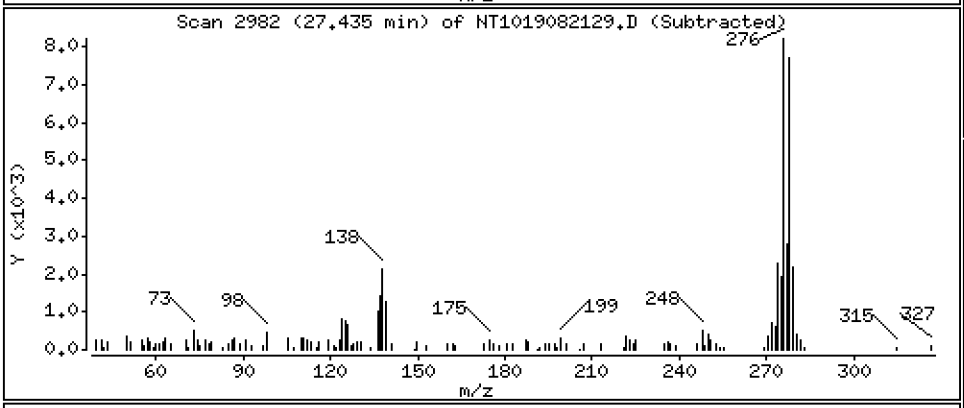
Column phase: ZB-5msi

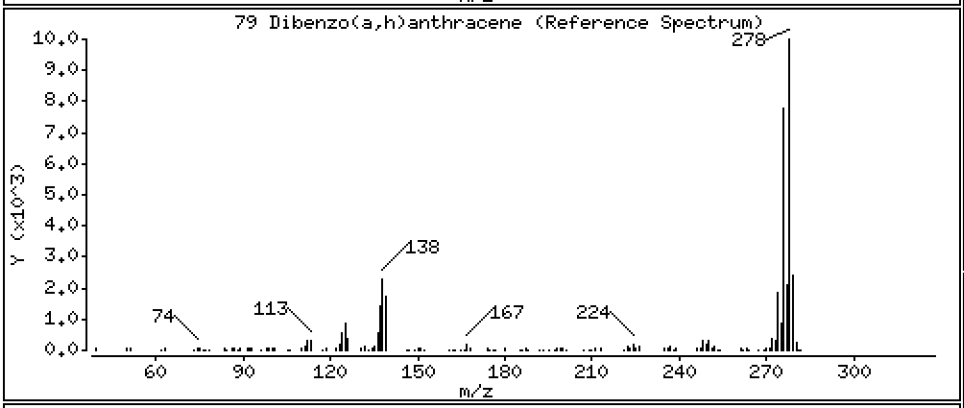
Column diameter: 0.25

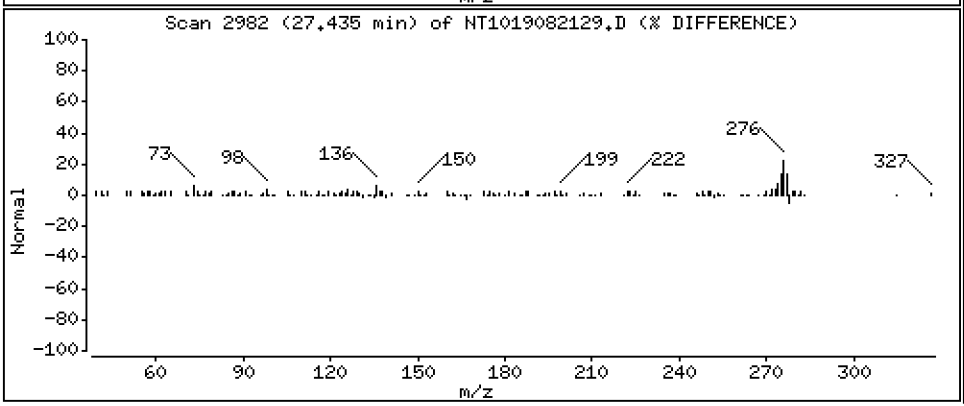
79 Dibenzo(a,h)anthracene

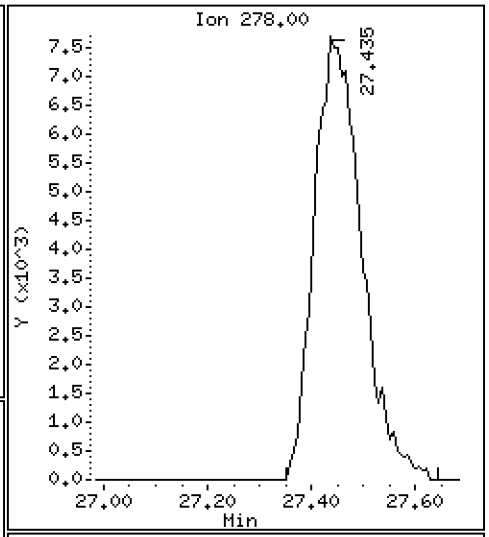
Concentration: 3.240 ug/mL

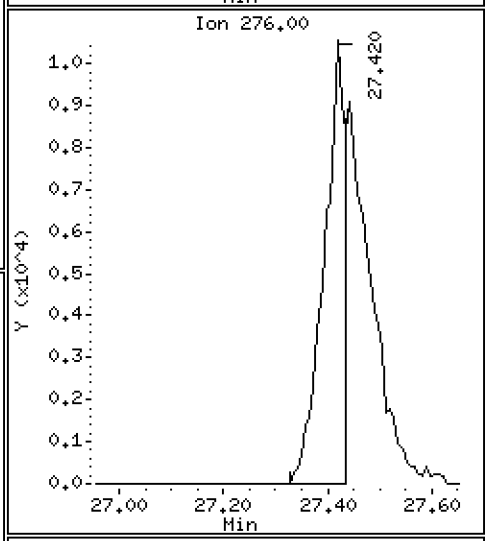


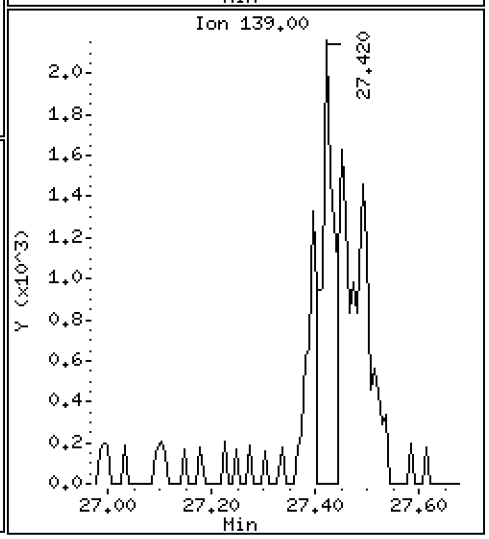












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Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

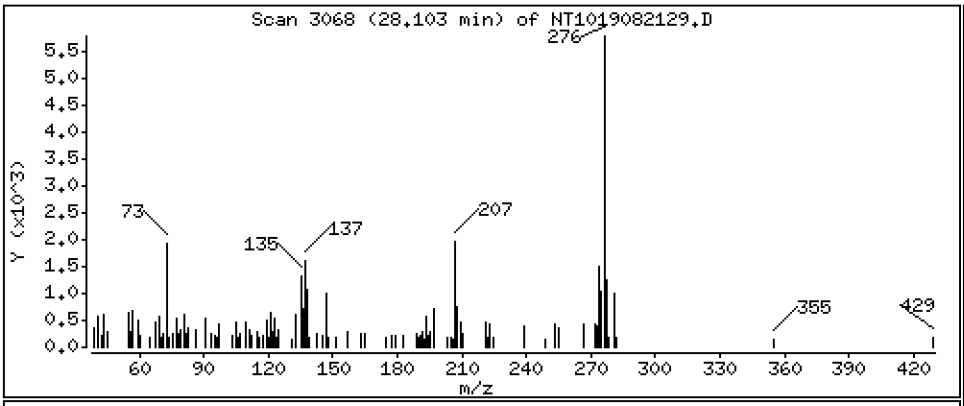
Operator: YZ

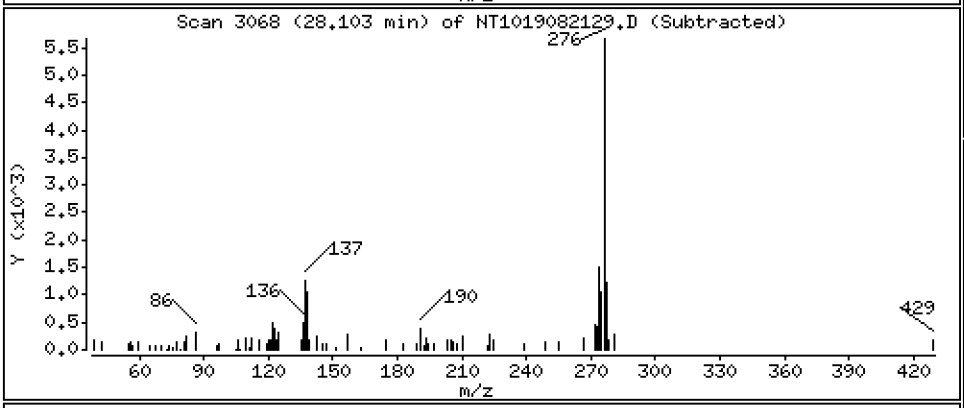
Column phase: ZB-5msi

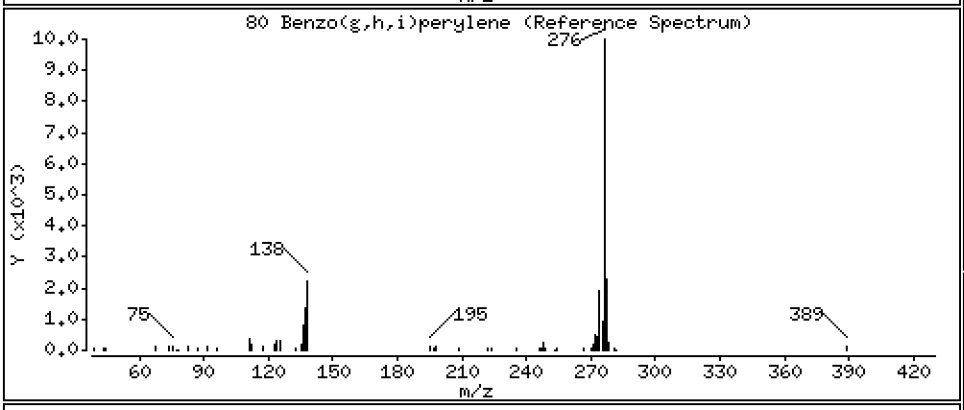
Column diameter: 0.25

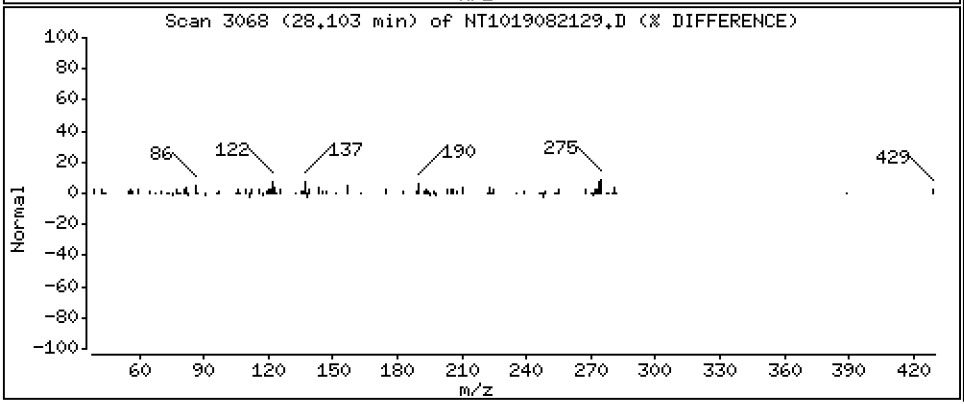
80 Benzo(g,h,i)perylene

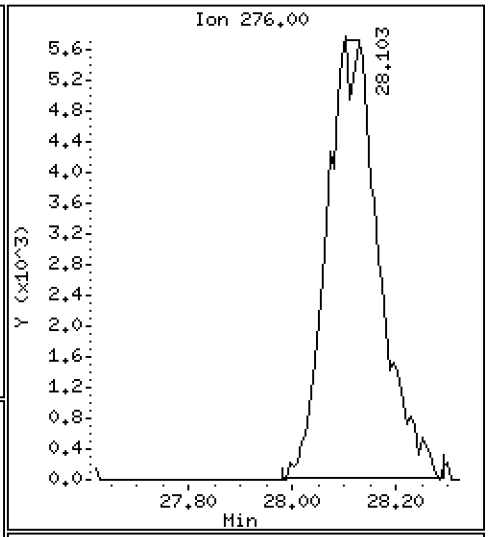
Concentration: 2.513 ug/mL

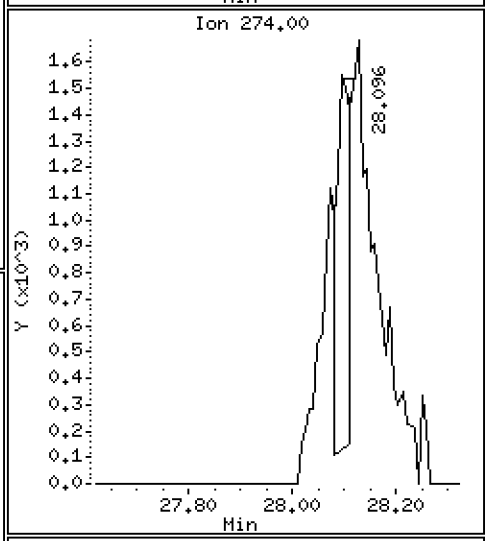


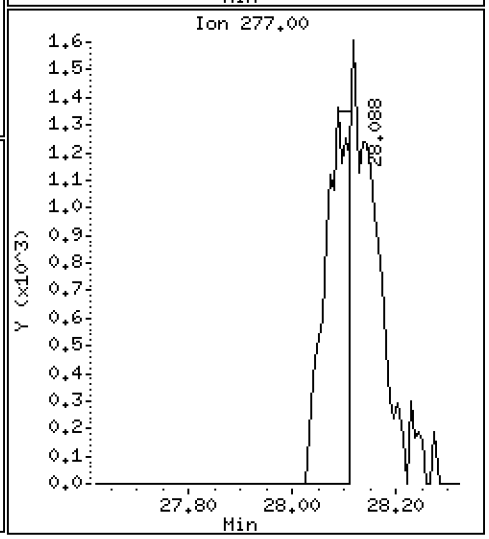












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Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

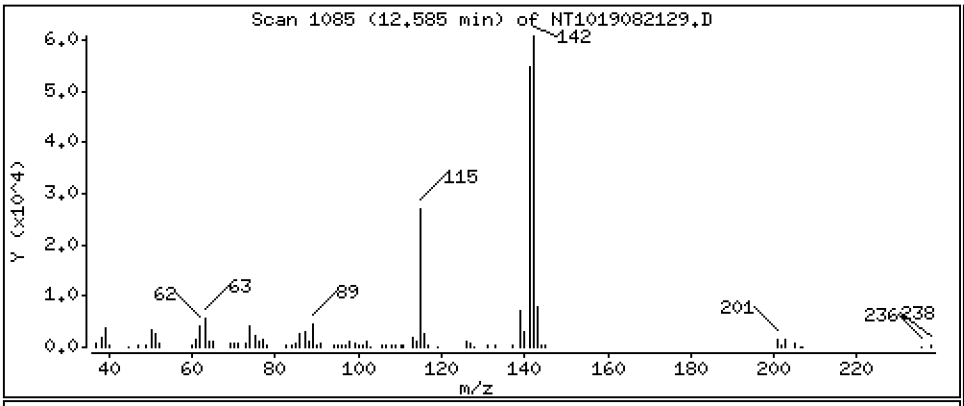
Operator: YZ

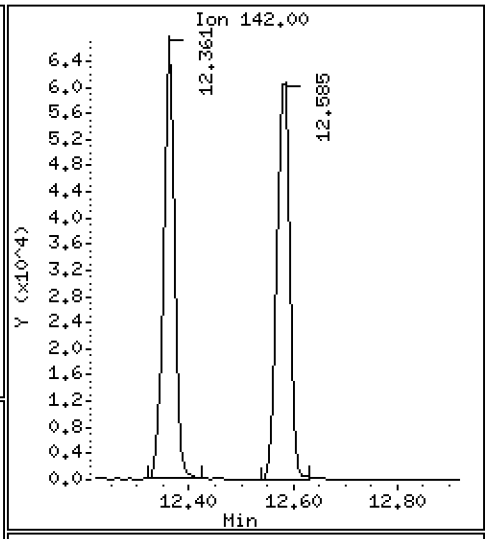
Column phase: ZB-5msi

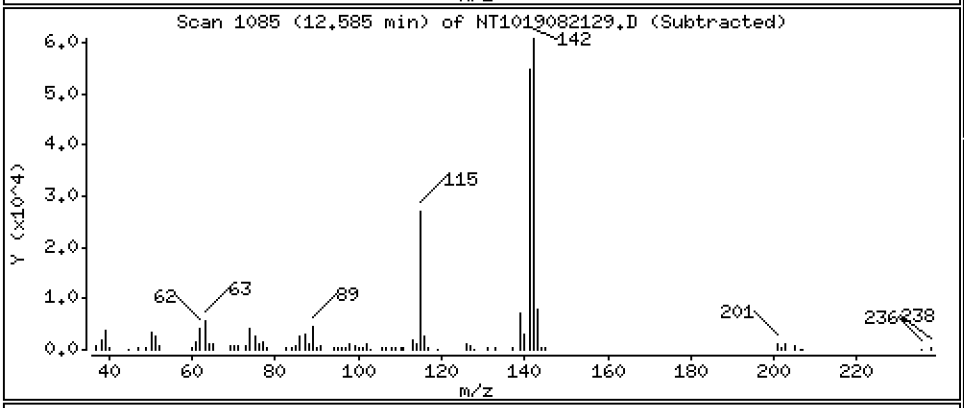
Column diameter: 0.25

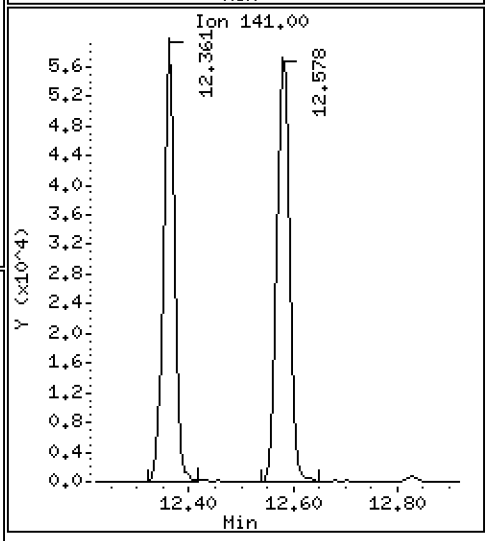
105 1-methylnaphthalene

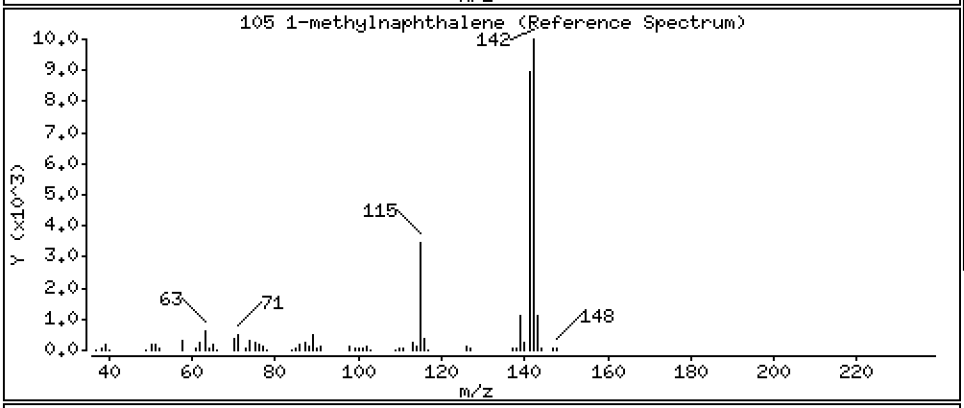
Concentration: 4.858 ug/mL

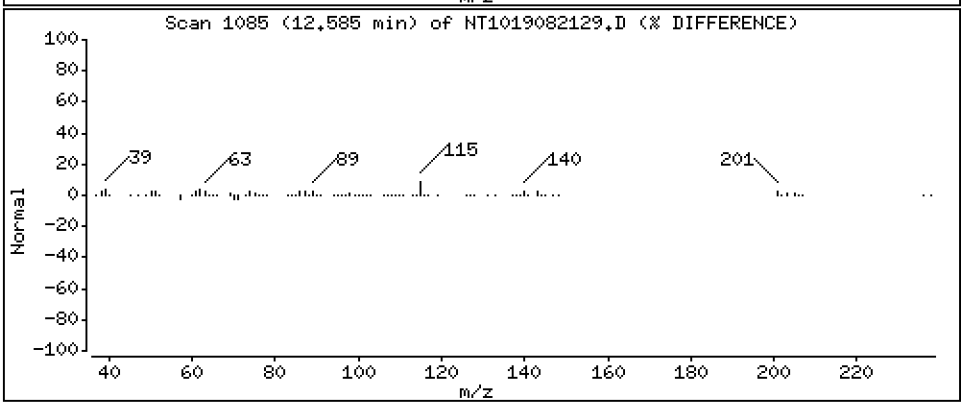












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Date : 22-AUG-2019 02:20

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-CCV1

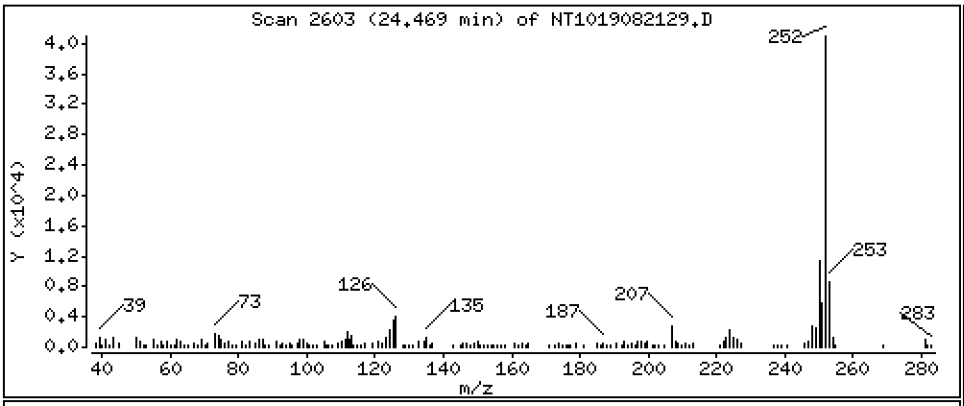
Operator: YZ

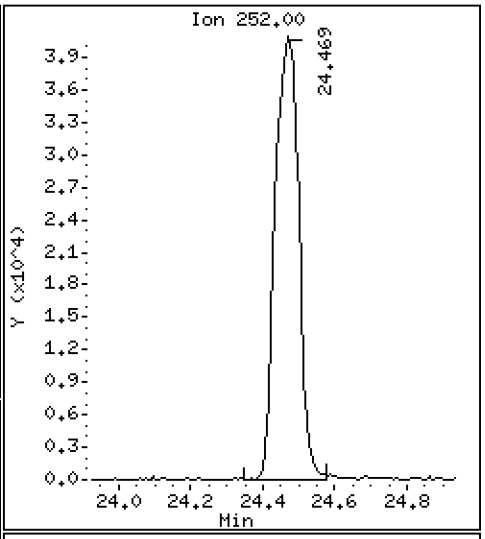
Column phase: ZB-5msi

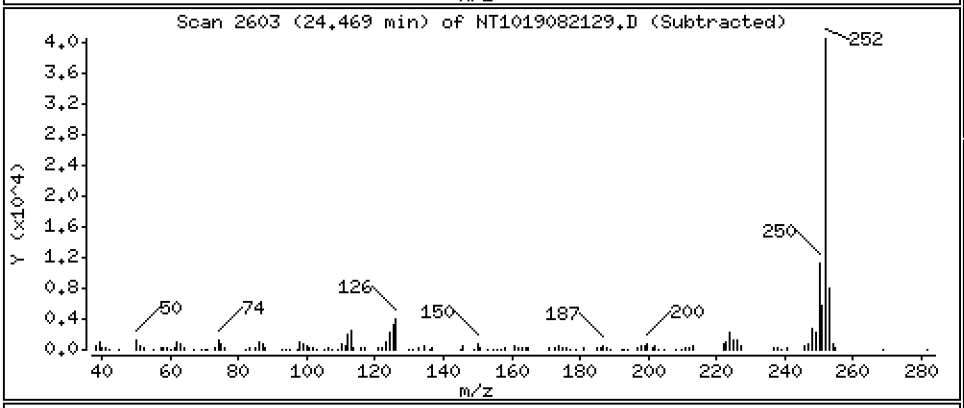
Column diameter: 0.25

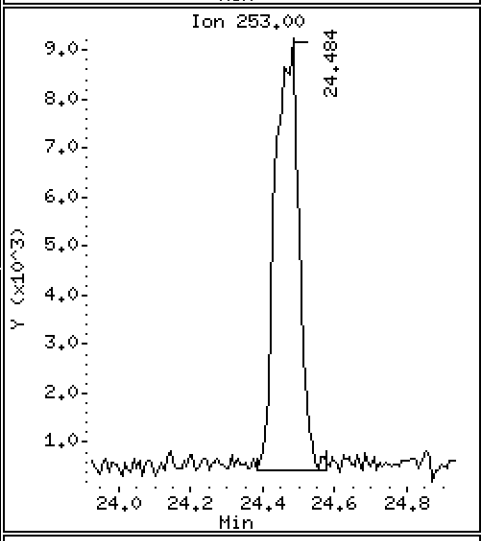
187 Total Benzofluoranthenes

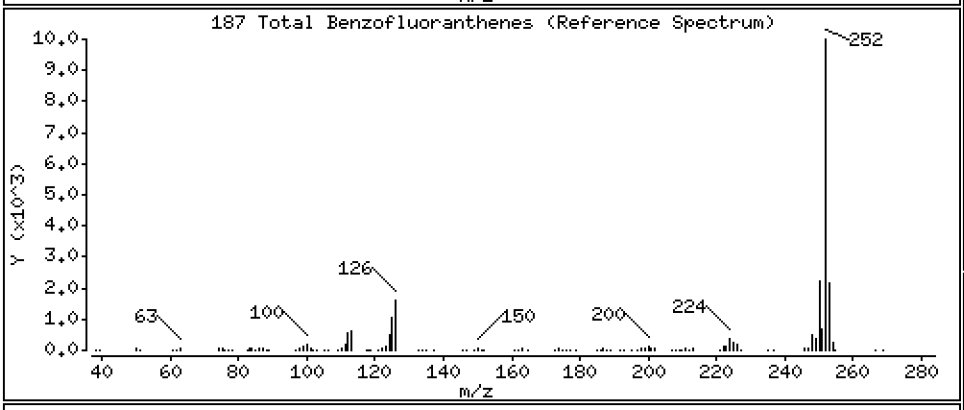
Concentration: 11.13 ug/mL

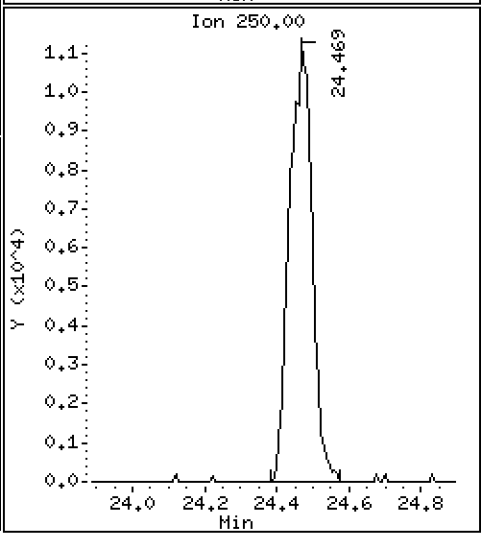


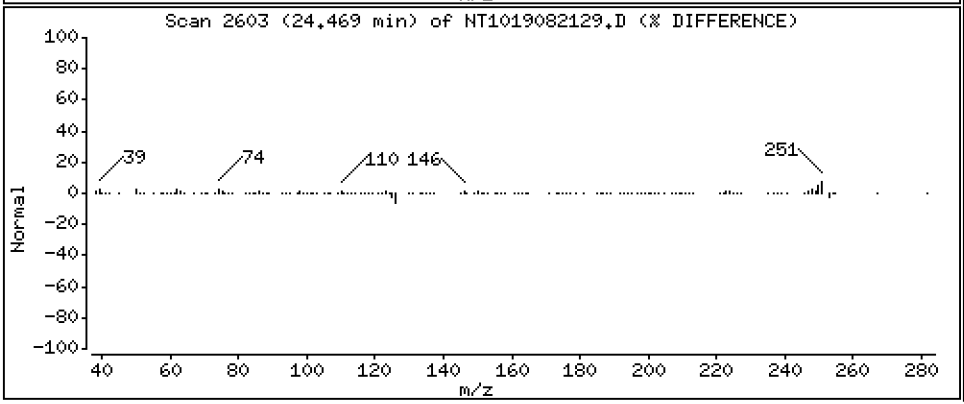












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082129.D
Lab Smp Id: SHH0303-CCV1
Inj Date : 22-AUG-2019 02:20
Operator : YZ Inst ID: nt10.i
Smp Info : SHH0303-CCV1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 12:41 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.327	6.311	(0.746)	47331	5.39703	5.397
$	2 Phenol-d5	99	7.903	7.888	(0.932)	49679	5.05459	5.055
	3 Phenol	94	7.926	7.911	(0.934)	32181	3.52190	3.522
$	5 2-Chlorophenol-d4	132	8.135	8.127	(0.959)	65103	6.15321	6.153
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	31231	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.840	8.832	(1.042)	30995	4.28485	4.285
	11 Benzyl alcohol	108	8.778	8.762	(1.035)	21301	3.52227	3.522(M)
$	18 Nitrobenzene-d5	82	9.570	9.554	(0.876)	34845	4.23031	4.230
	24 Benzoic acid	105	10.561	10.510	(0.966)	77644	12.9382	12.94
*	27 Naphthalene-d8	136	10.930	10.929	(1.000)	105318	4.00000	
	28 Naphthalene	128	10.976	10.968	(1.004)	109687	4.53097	4.531
	32 2-Methylnaphthalene	142	12.361	12.353	(1.131)	99796	4.86003	4.860
$	36 2-Fluorobiphenyl	172	13.150	13.142	(0.906)	104234	4.63119	4.631
	39 Dimethylphthalate	163	14.071	14.055	(0.969)	108381	4.95651	4.957
	40 Acenaphthylene	152	14.210	14.195	(0.979)	135844	4.78920	4.789
*	42 Acenaphthene-d10	164	14.520	14.512	(1.000)	58843	4.00000	
	44 Acenaphthene	153	14.589	14.574	(1.005)	86550	4.85609	4.856
	46 Dibenzofuran	168	14.914	14.898	(1.027)	135984	4.64237	4.642
	50 Diethylphthalate	149	15.525	15.517	(1.069)	112807	5.35797	5.358
	49 Fluorene	166	15.625	15.610	(1.076)	99697	4.97686	4.977
	54 N-Nitrosodiphenylamine	169	15.896	15.872	(0.906)	76178	4.63050	4.631
$	55 2,4,6-Tribromophenol	330	16.173	16.142	(1.114)	26661	5.99208	5.992
*	59 Phenanthrene-d10	188	17.541	17.525	(1.000)	119849	4.00000	
	60 Phenanthrene	178	17.595	17.572	(1.003)	131869	4.50443	4.504
	61 Anthracene	178	17.688	17.665	(1.008)	138168	4.64815	4.648
	63 Di-n-butylphthalate	149	18.887	18.872	(1.077)	203149	5.01588	5.016
	64 Fluoranthene	202	20.017	19.993	(0.883)	170762	5.87539	5.875
	65 Pyrene	202	20.450	20.411	(0.902)	180232	5.93851	5.939
$	66 Terphenyl-d14	244	20.775	20.744	(0.916)	108482	5.27051	5.271
	67 Butylbenzylphthalate	149	21.735	21.712	(0.958)	82452	5.83214	5.832
	68 Benzo(a)anthracene	228	22.649	22.610	(0.999)	138787	5.02958	5.030
*	69 Chrysene-d12	240	22.680	22.633	(1.000)	95107	4.00000	
	71 Chrysene	228	22.718	22.680	(1.002)	115911	4.74706	4.747

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.788	22.765	(0.958)	92107	5.54808	5.548
* 134	Di-n-octylphthalate-d4	153	23.779	23.756	(1.000)	188752	4.00000	
73	Di-n-octylphthalate	149	23.787	23.763	(1.000)	160181	4.58725	4.587
74	Benzo(b)fluoranthene	252	24.468	24.390	(0.974)	187141	10.7056	10.71
75	Benzo(k)fluoranthene	252	24.468	24.429	(0.974)	187141	10.6415	10.64
76	Benzo(a)pyrene	252	25.010	24.948	(0.995)	78187	4.98367	4.984
* 77	Perylene-d12	264	25.126	25.056	(1.000)	60928	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	27.419	27.303	(1.091)	58341	3.09492	3.095(M)
79	Dibenzo(a,h)anthracene	278	27.435	27.334	(1.092)	49718	3.23959	3.240(M)
80	Benzo(g,h,i)perylene	276	28.103	27.971	(1.118)	39904	2.51337	2.513(M)
105	1-methylnaphthalene	142	12.585	12.569	(1.151)	100282	4.85782	4.858
187	Total Benzofluoranthenes	252	24.468	24.429	(0.974)	186559	11.1262	11.13

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082129.D
Lab Smp Id: SHH0303-CCV1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	31231	-4.61
27 Naphthalene-d8	117487	58744	234974	105318	-10.36
42 Acenaphthene-d10	61859	30930	123718	58843	-4.88
59 Phenanthrene-d10	113574	56787	227148	119849	5.53
69 Chrysene-d12	105788	52894	211576	95107	-10.10
134 Di-n-octylphthala	252823	126412	505646	188752	-25.34
77 Perylene-d12	113992	56996	227984	60928	-46.55

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.52	0.05
59 Phenanthrene-d10	17.53	17.03	18.03	17.54	0.09
69 Chrysene-d12	22.63	22.13	23.13	22.68	0.21
134 Di-n-octylphthala	23.76	23.26	24.26	23.78	0.10
77 Perylene-d12	25.06	24.56	25.56	25.13	0.28

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082129.D

Lab ID: SHH0303-CCV1
nt10.i, 20190821.b\ABN.m,   22-AUG-2019 02:20

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT1019082105.D

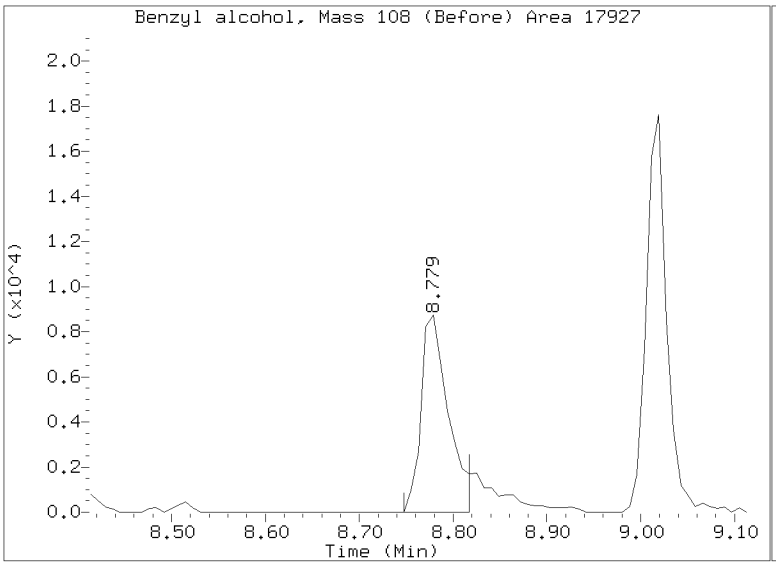
On Column LOD for nt10.i, 20190821.b\ABN.m, pnaphth.sub = 0.1000

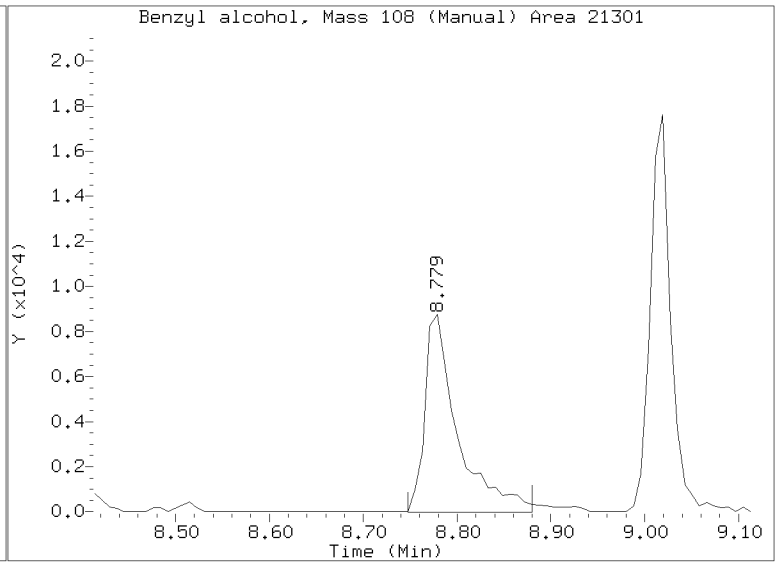
Exception: Phenol 0.5000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

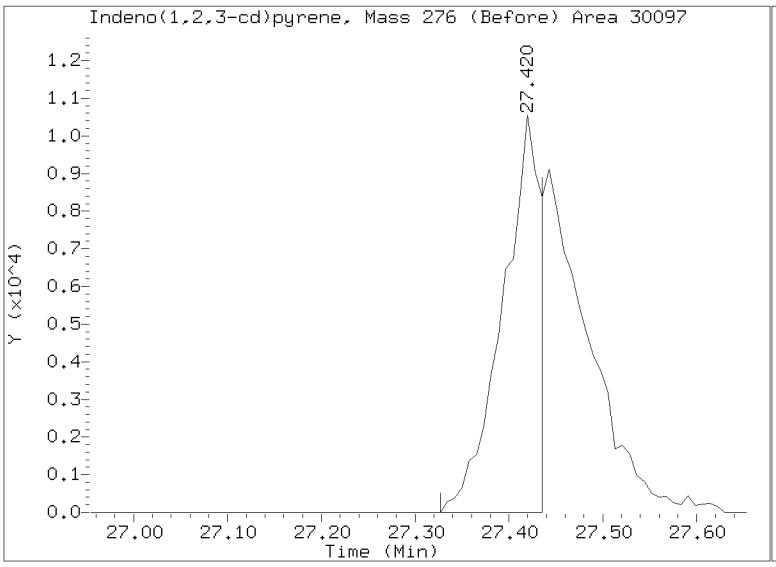
* Only compounds listed in the work order have been verified by the analyst *

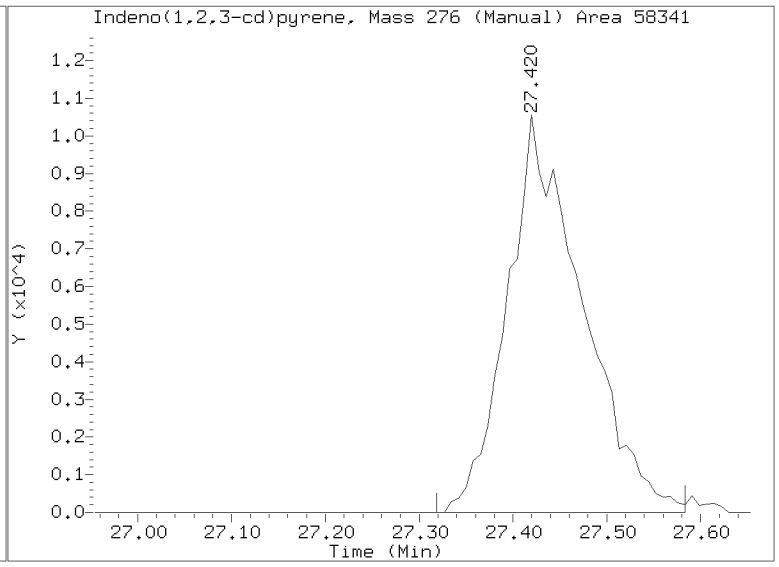
Quant Ion Manual Peak Adjustment Report

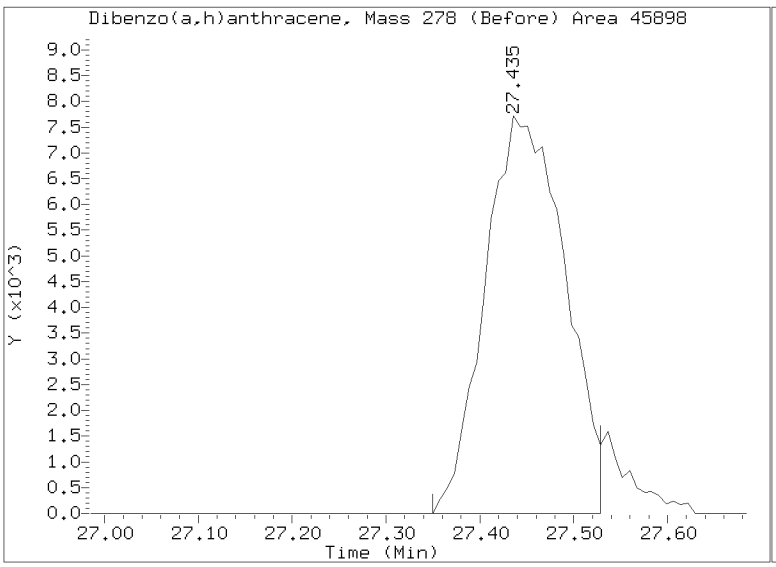
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082129.D
Injection Date: 22-AUG-2019 02:20
Lab ID:SHH0303-CCV1 Client ID:
Report Date: 08/22/2019 12:41

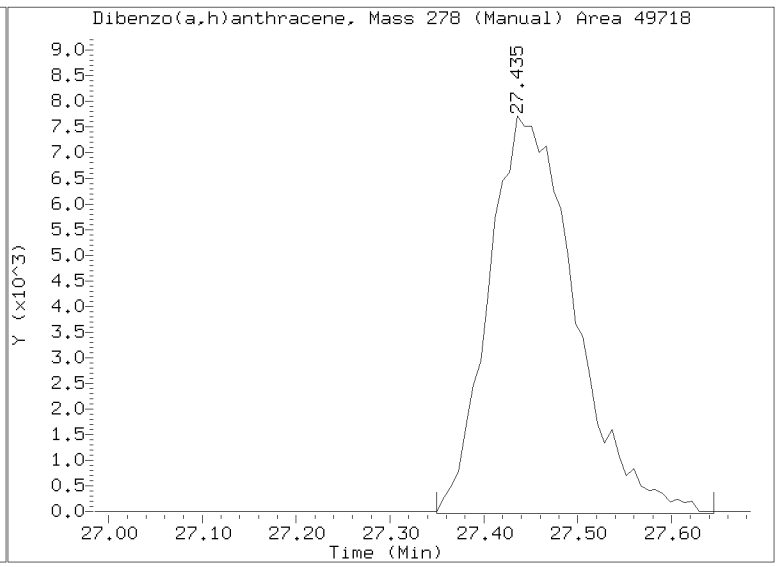






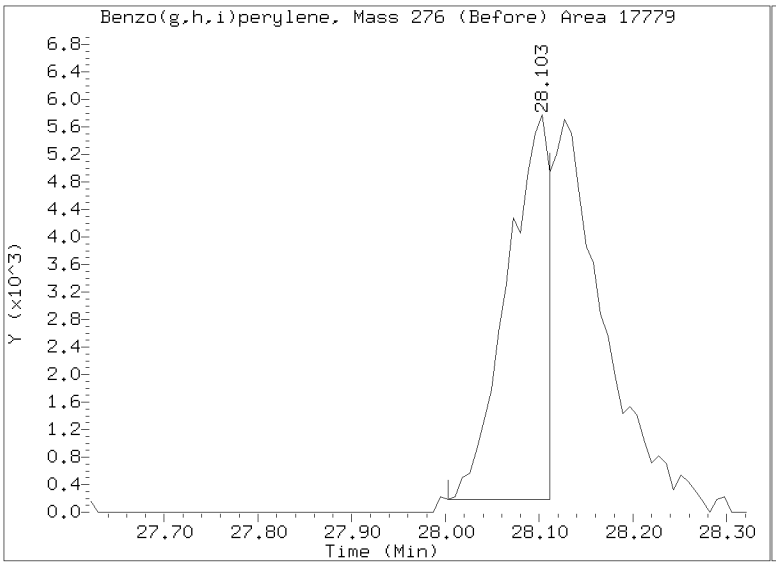


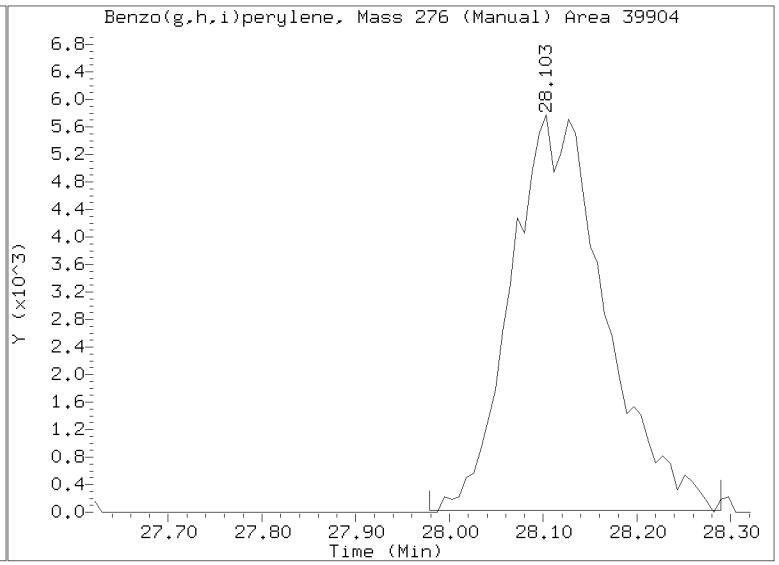


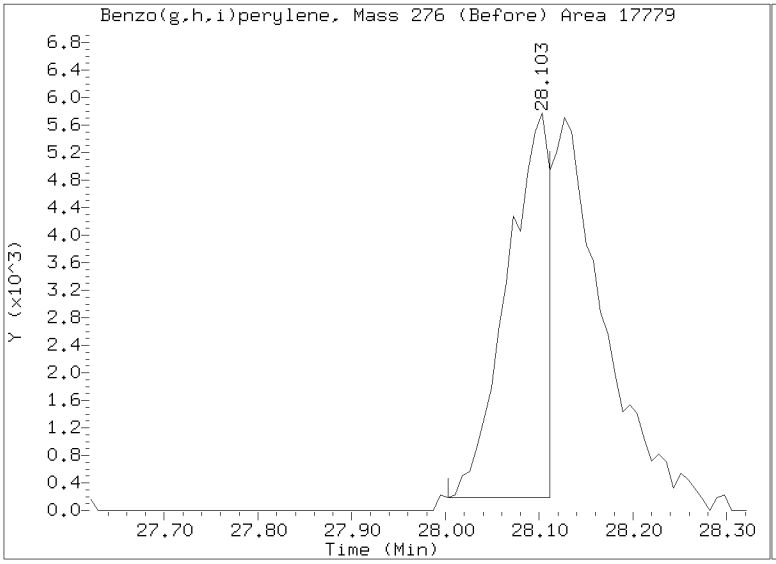


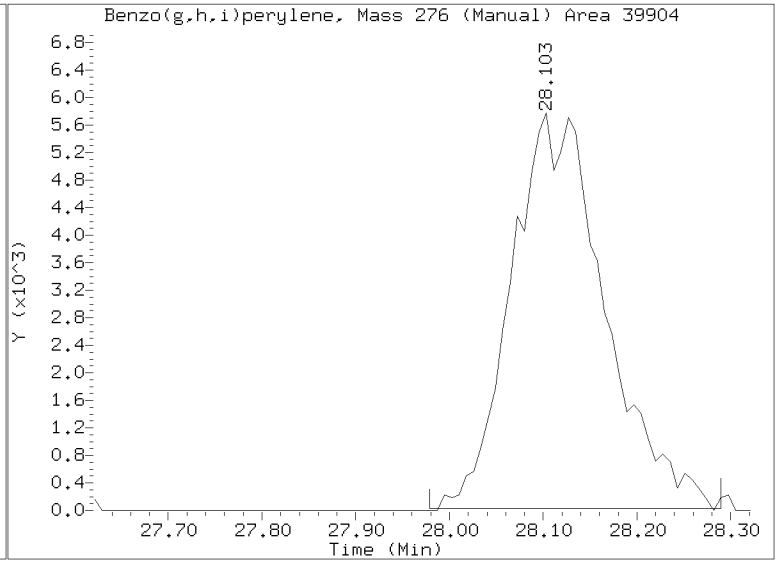
Quant Ion Manual Peak Adjustment Report

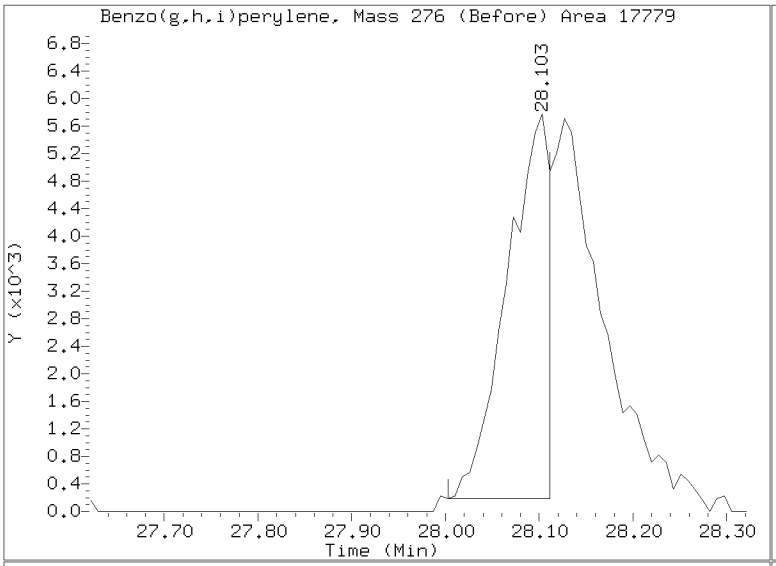
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082129.D
Injection Date: 22-AUG-2019 02:20
Lab ID:SHH0303-CCV1 Client ID:
Report Date: 08/22/2019 12:41

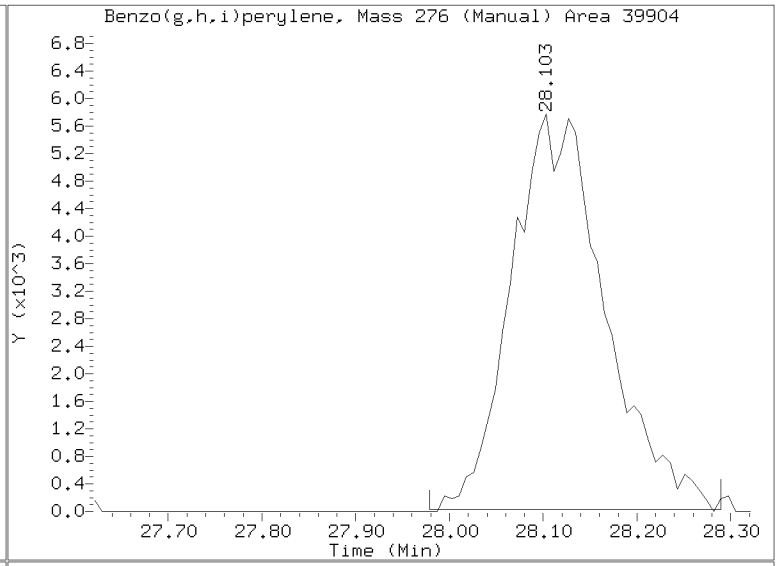


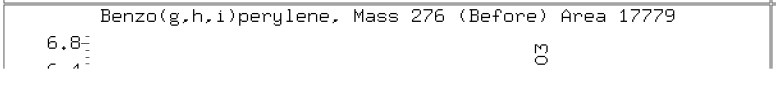


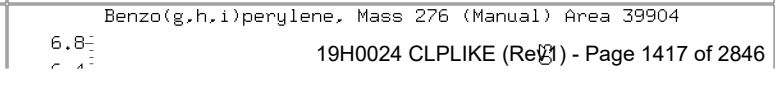












LOW-CONCENTRATION
CONTINUING CALIBRATION CHECK
EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	NT10	Calibration:	CG00040
Lab File ID:	NT1019082106.D	Calibration Date:	07/16/19 11:00
Sequence:	SHH0303	Injection Date:	08/21/19
Lab Sample ID:	SHH0303-LCV1	Injection Time:	13:08
Sequence Name:	ABN 0.2		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Phenol	A	0.20000	0.1	1.1702980	6.3606690		-45.7	50	
Benzyl Alcohol	A	0.20000	0.1	0.7745535	0.4741725		-38.8	50	
Benzoic acid	A	0.80000	0.0	0.2148759				50	*
N-Nitrosodiphenylamine	A	0.20000	0.2	0.5490690	0.5095794		-7.2	50	
Phenanthrene	A	0.20000	0.2	0.9770762	0.8963769		-8.3	50	
Fluoranthene	A	0.20000	0.2	1.2223680	0.9718397		-20.5	50	
Pyrene	A	0.20000	0.2	1.2764440	1.1674510		-8.5	50	
Butylbenzylphthalate	A	0.20000	0.1	0.5945946	0.3492938		-41.3	50	
Benzo(a)anthracene	A	0.20000	0.2	1.1605520	0.9521187		-18.0	50	
Chrysene	A	0.20000	0.2	1.0269450	1.0327800		0.6	50	
bis(2-Ethylhexyl)phthalate	A	0.20000	0.2	0.3518184	0.2771087		-21.2	50	
Di-n-Octylphthalate	A	0.20000	0.2	0.7399924	0.7264327		-1.8	50	
Benzofluoranthenes, Total	A	0.40000	0.4	1.1008070	1.0839060		-1.5	50	
Benzo(a)pyrene	A	0.20000	0.2	1.0299780	0.8974712		-12.9	50	
Indeno(1,2,3-cd)pyrene	A	0.20000	0.1	1.2375640	0.6750608		-45.5	50	
Dibenzo(a,h)anthracene	A	0.20000	0.09	1.0075500	0.4469368		-55.6	50	*
Benzo(g,h,i)perylene	A	0.20000	0.1	1.0423270	0.5946461		-43.0	50	
2-Fluorophenol	A	0.30000	0.154	1.1232200	0.5749628		-48.8	50	
Phenol-d5	A	0.30000	0.137	1.2588120	0.5741992		-54.4	50	*
2-Chlorophenol-d4	A	0.30000	0.210	1.3551050	0.9464361		-30.2	50	
1,2-Dichlorobenzene-d4	A	0.20000	0.182	0.9264682	0.8418280		-9.1	50	
Nitrobenzene-d5	A	0.20000	0.0977	0.3128427	0.1528751		-51.1	50	*
2-Fluorobiphenyl	A	0.20000	0.154	1.5299660	1.1748100		-23.2	50	
2,4,6-Tribromophenol	A	0.30000	0.0344	0.3024571	0.0346284		-88.6	50	*
p-Terphenyl-d14	A	0.20000	0.154	0.8656707	0.6678511		-22.9	50	

* Values outside of QC limits

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

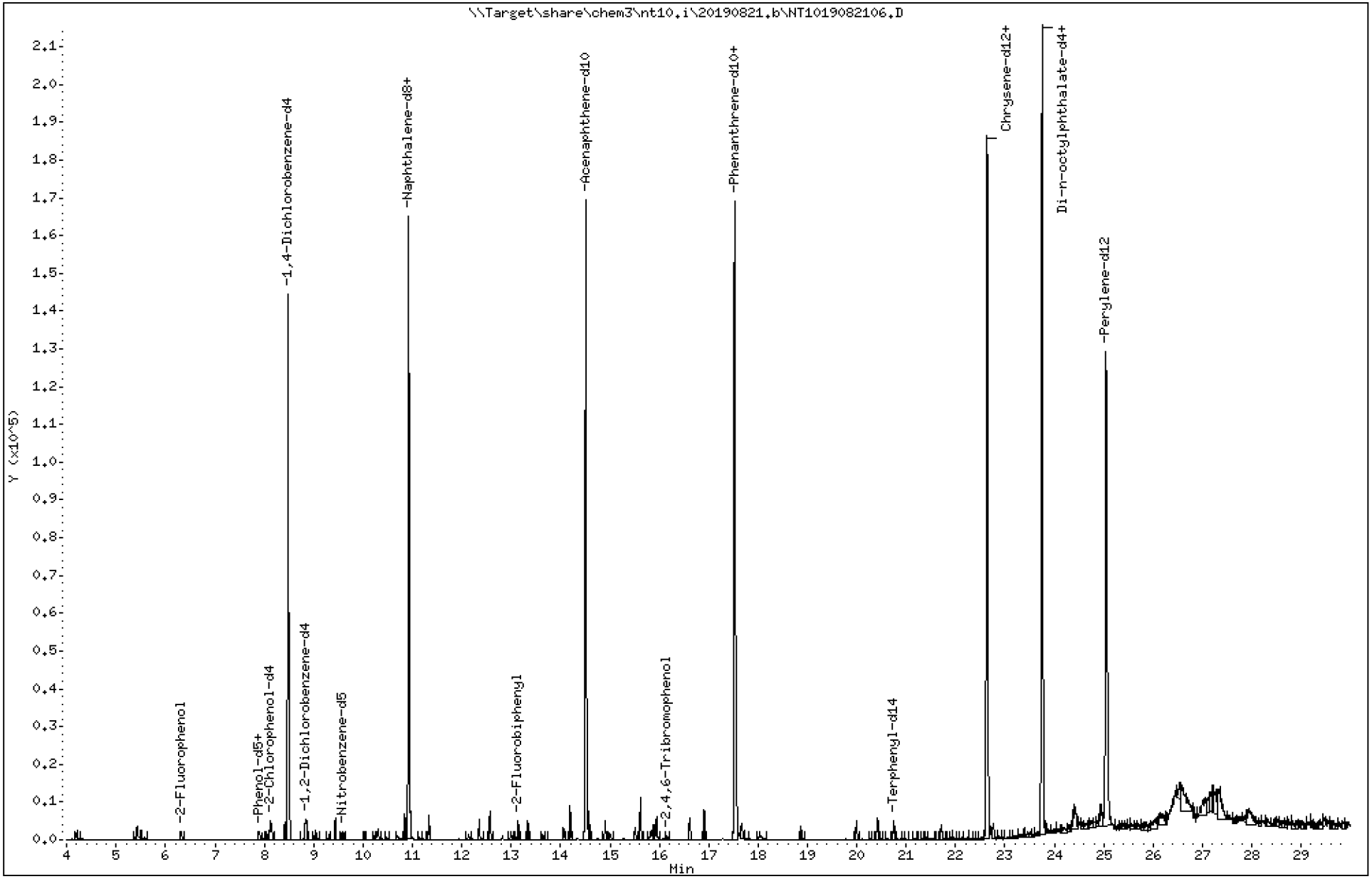
Instrument: nt10.i

Sample Info: SHH0303-LCV1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

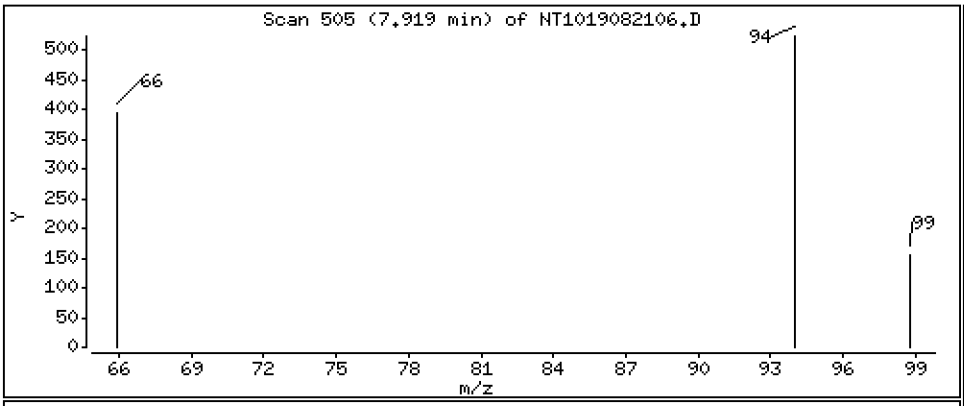
Operator: YZ

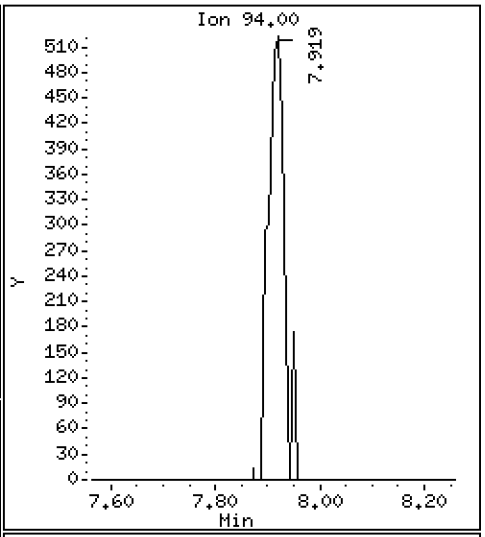
Column phase: ZB-5msi

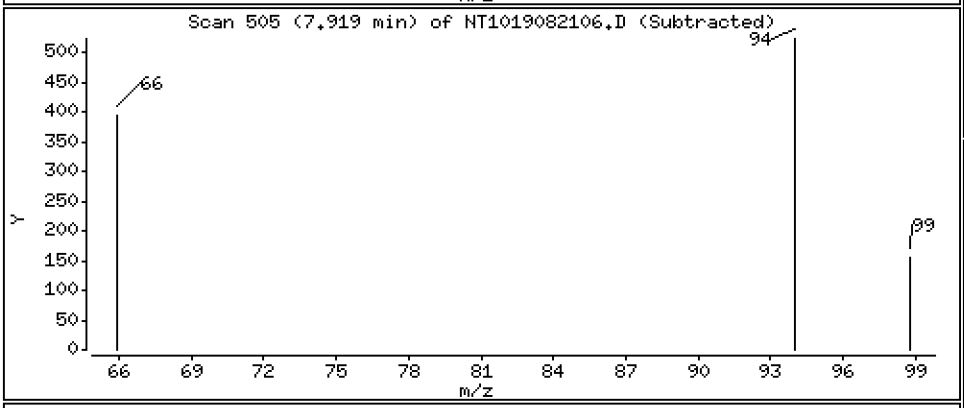
Column diameter: 0.25

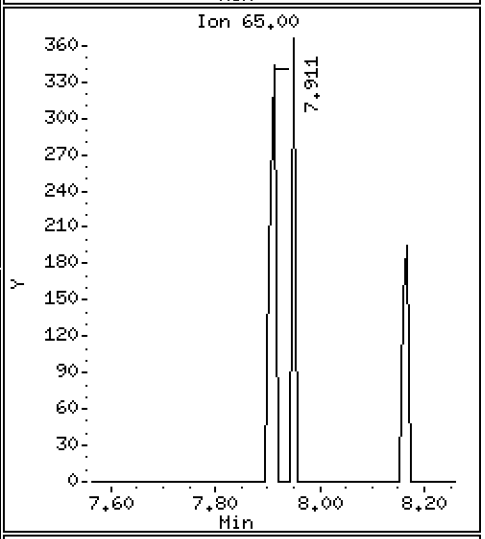
3 Phenol

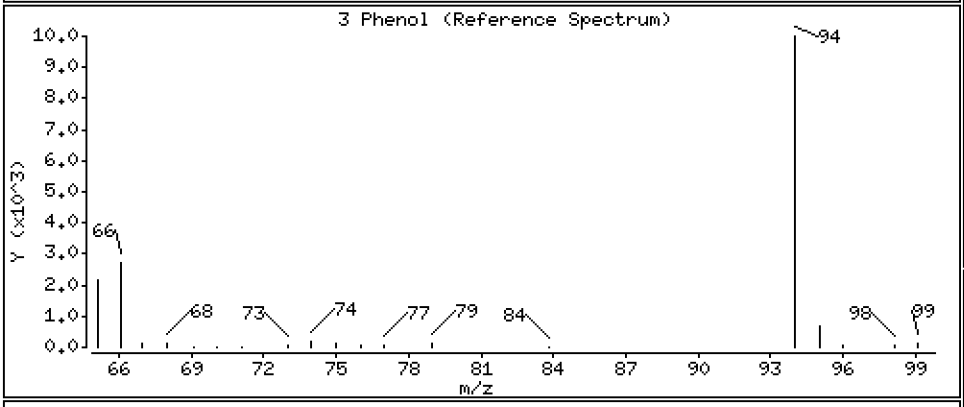
Concentration: 0.1086 ug/mL

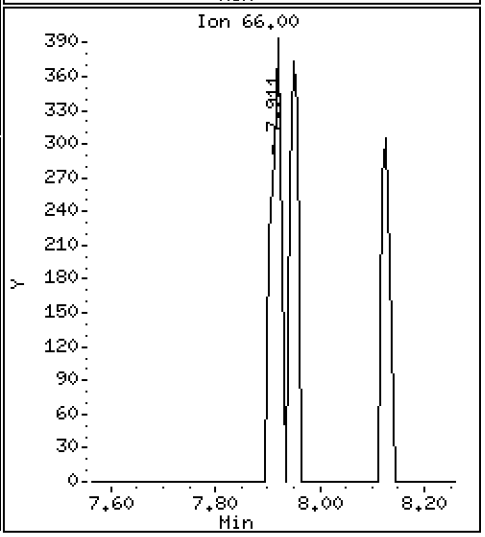


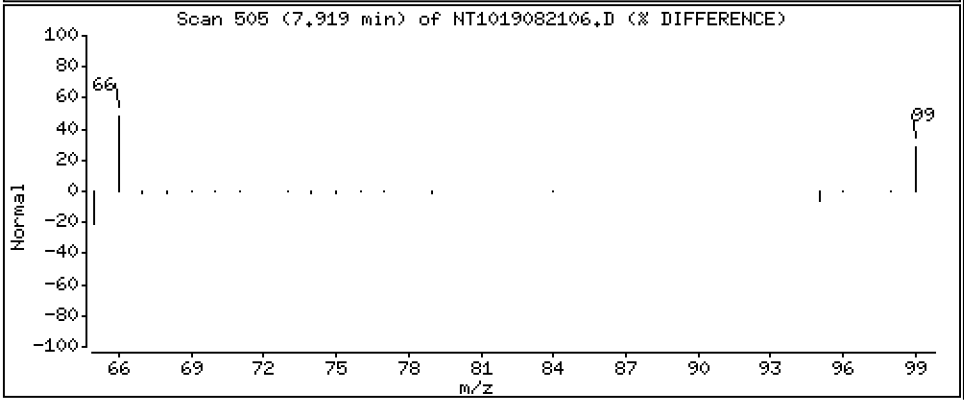












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

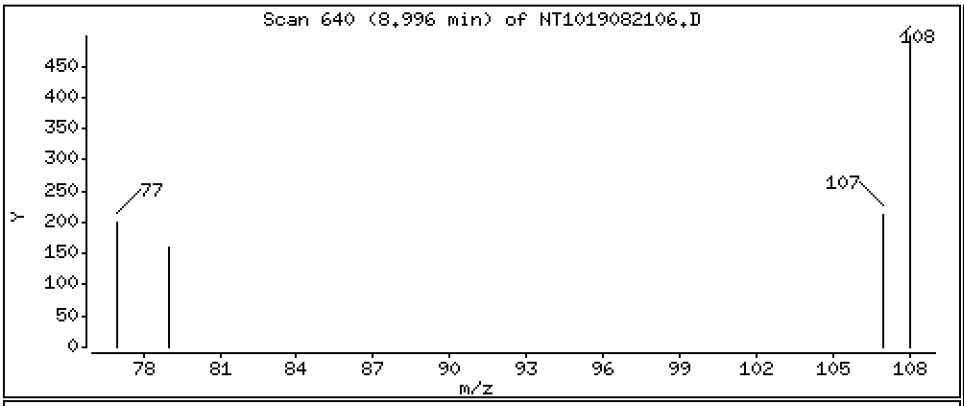
Operator: YZ

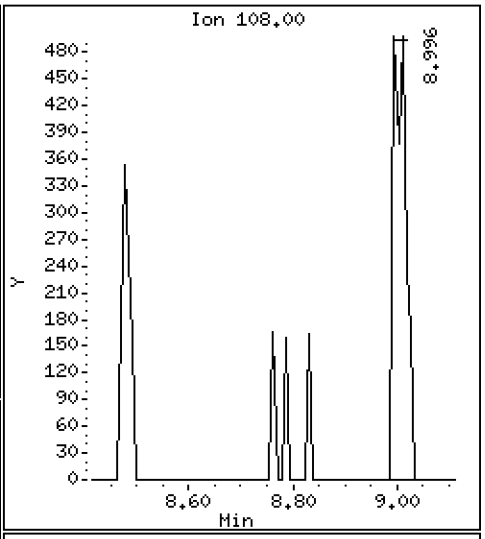
Column phase: ZB-5msi

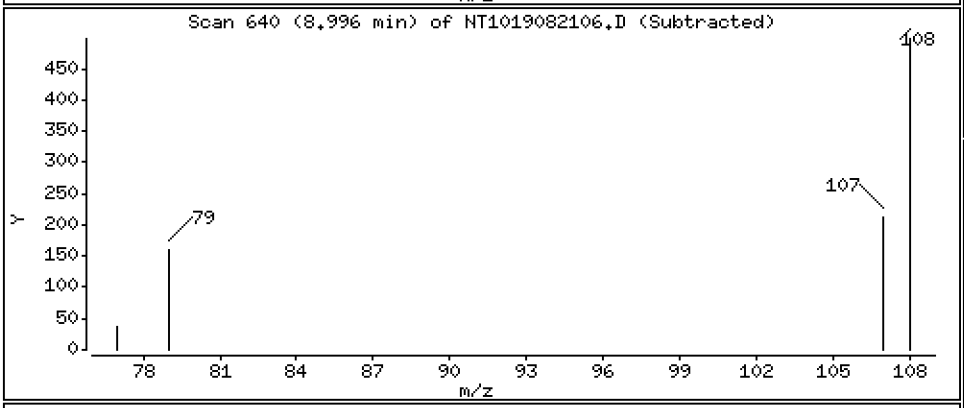
Column diameter: 0.25

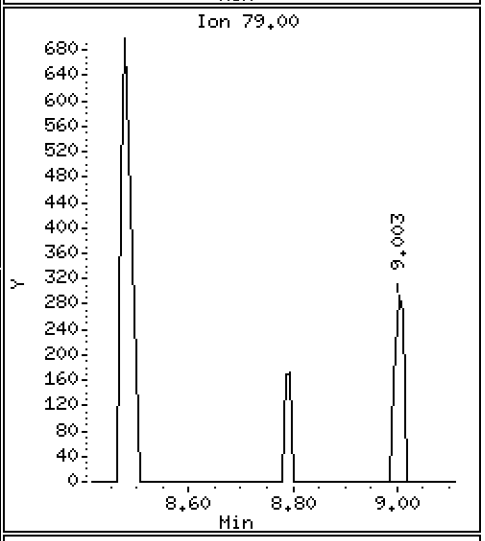
11 Benzyl alcohol

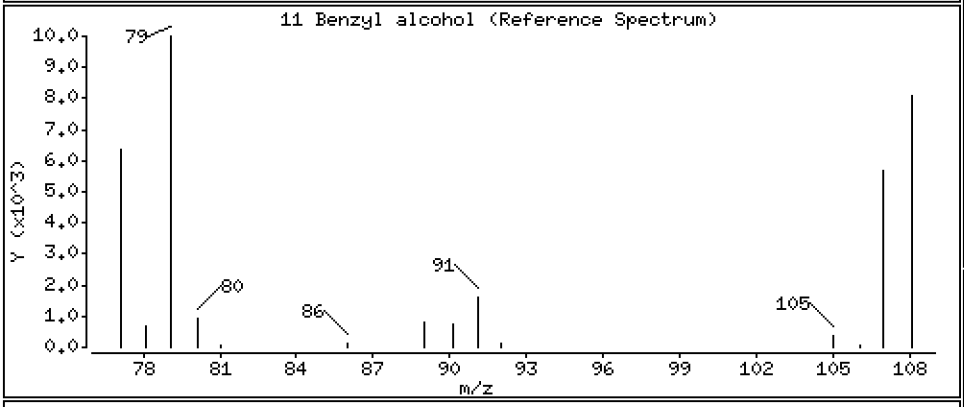
Concentration: 0.1224 ug/mL

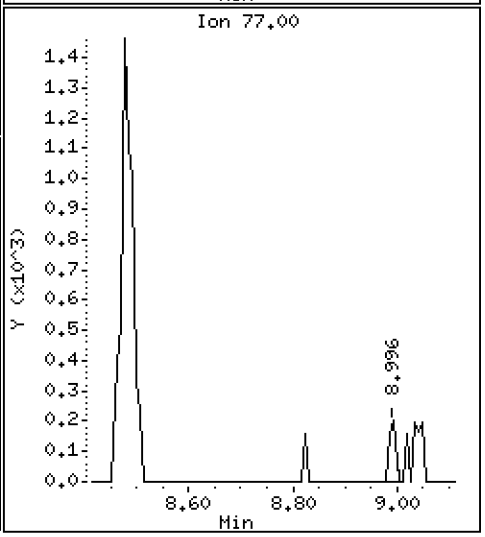


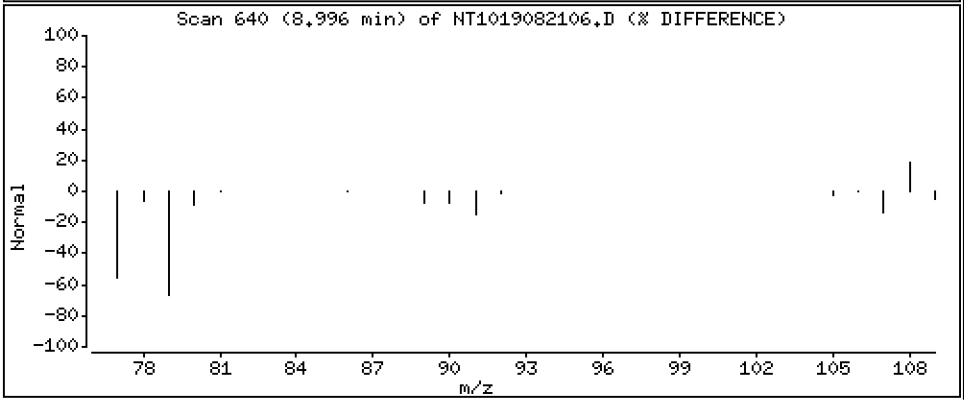












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

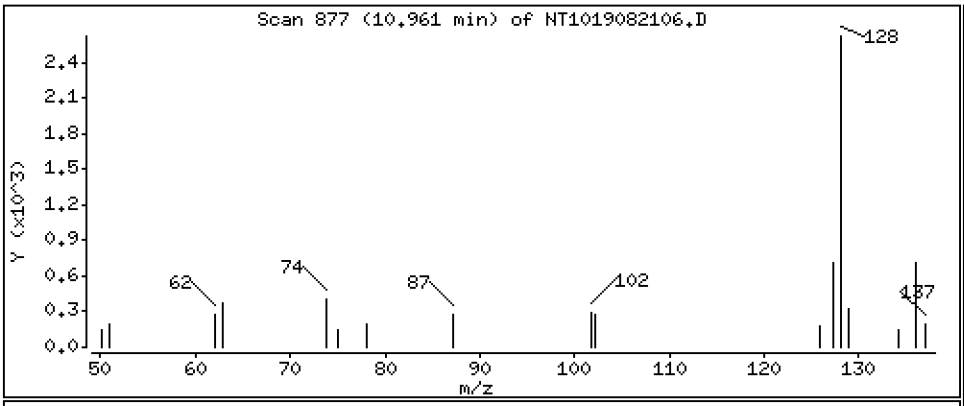
Operator: YZ

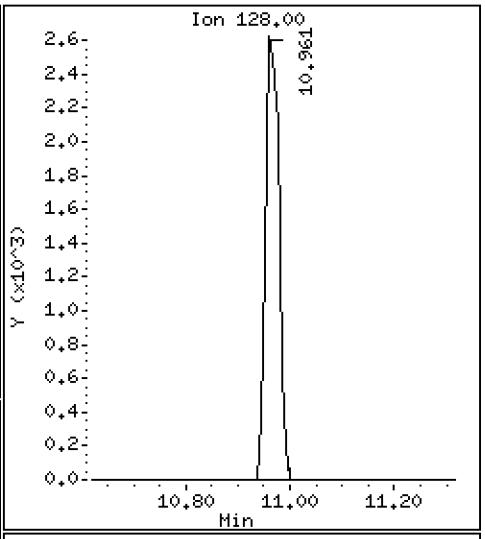
Column phase: ZB-5msi

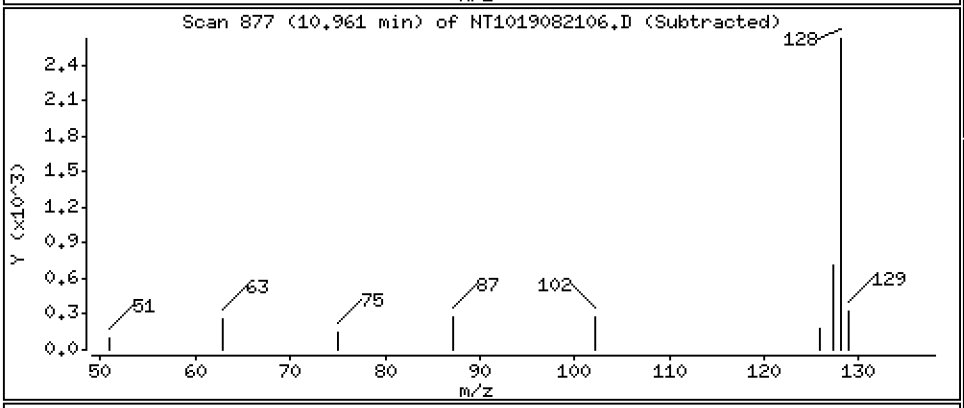
Column diameter: 0.25

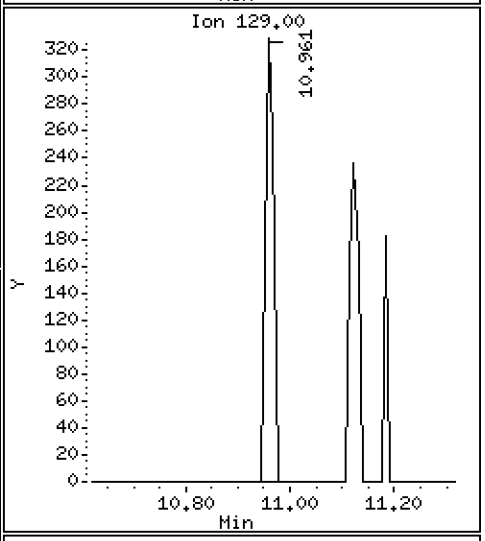
28 Naphthalene

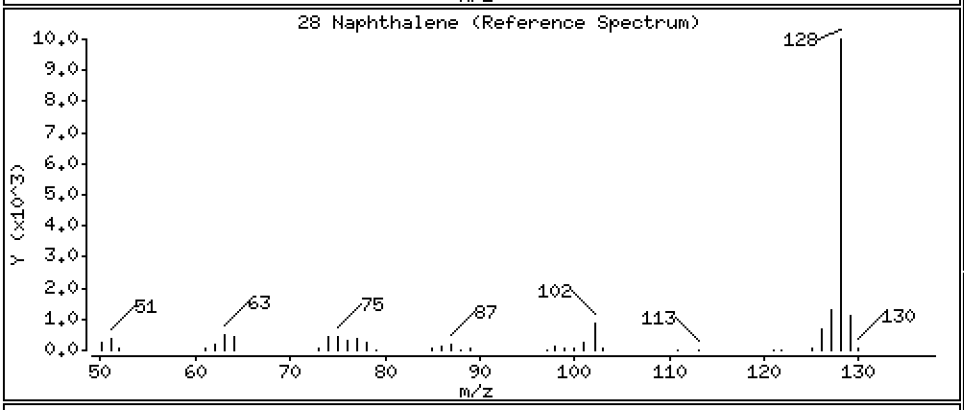
Concentration: 0.1614 ug/mL

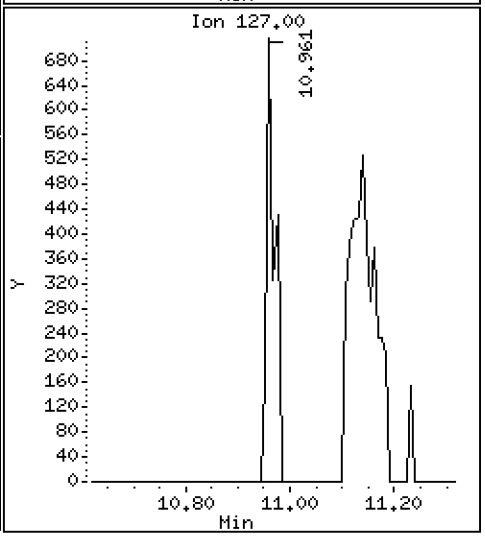


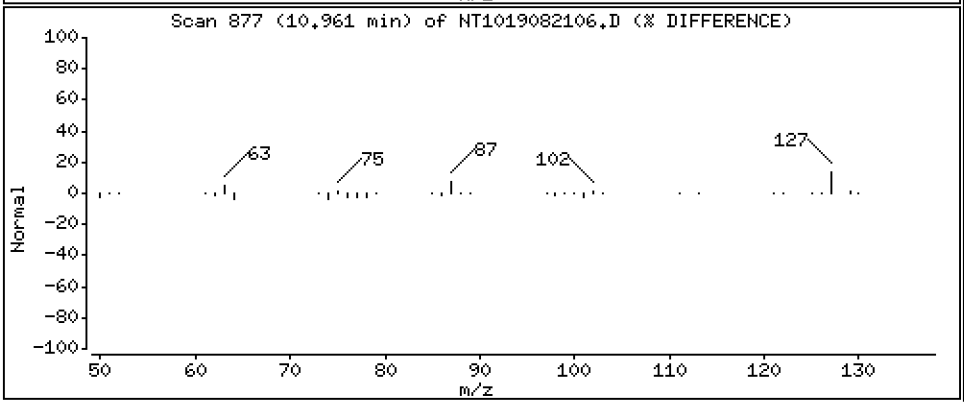












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

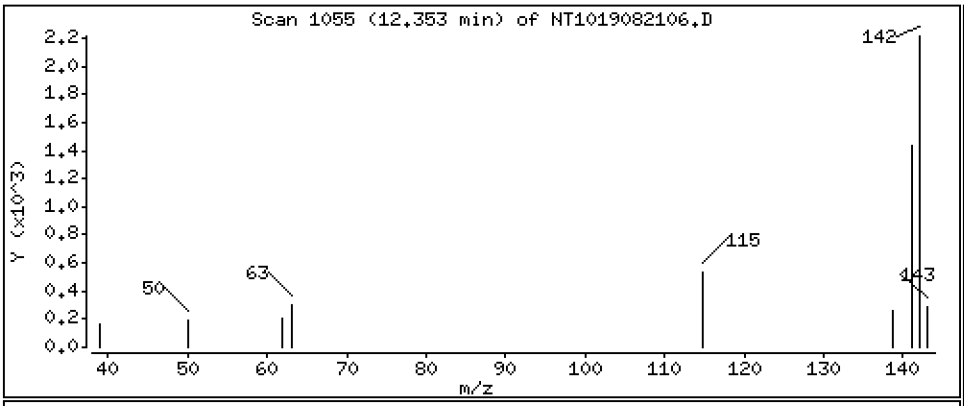
Operator: YZ

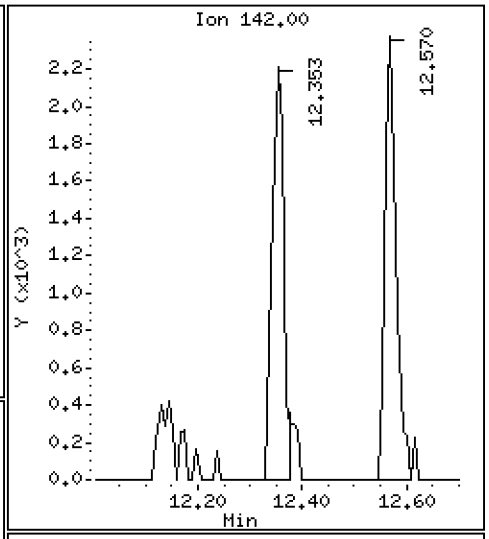
Column phase: ZB-5msi

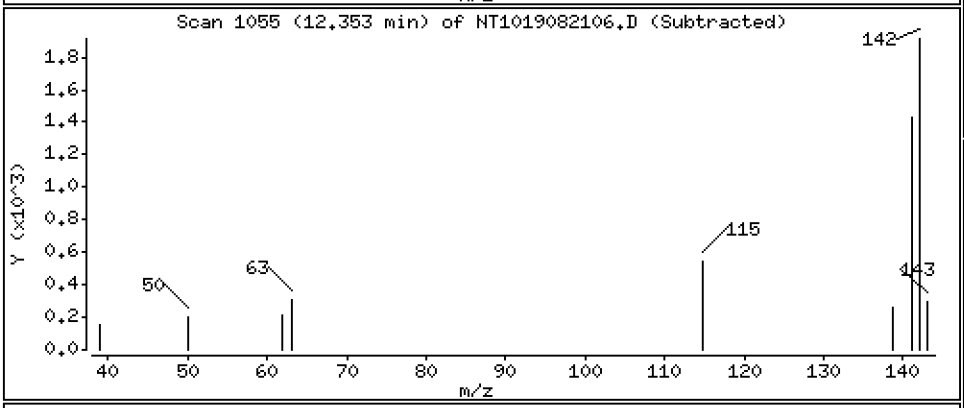
Column diameter: 0.25

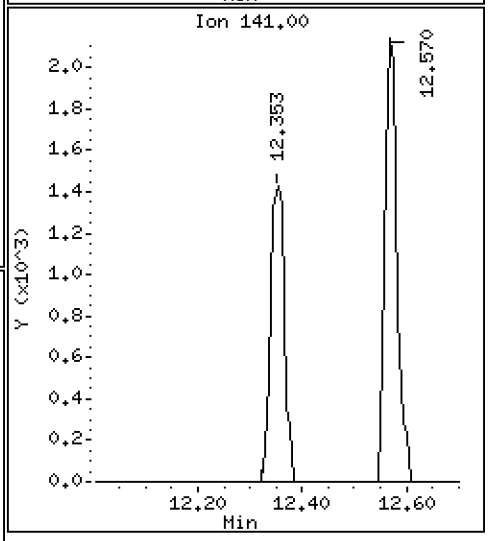
32 2-Methylnaphthalene

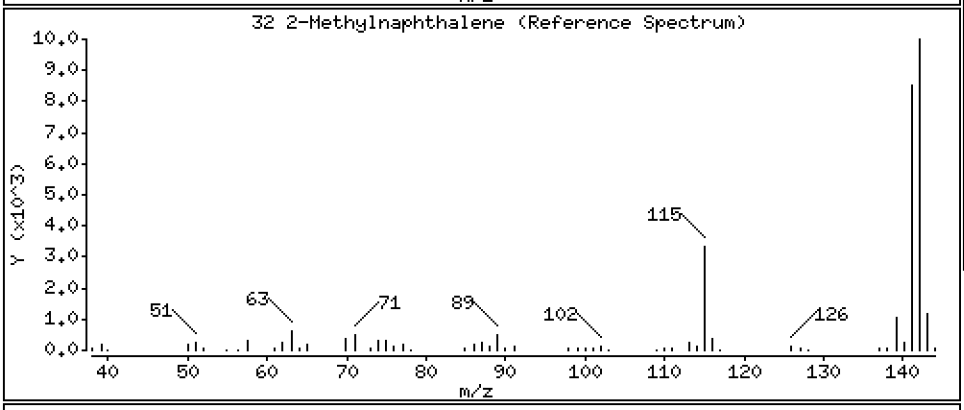
Concentration: 0.1379 ug/mL

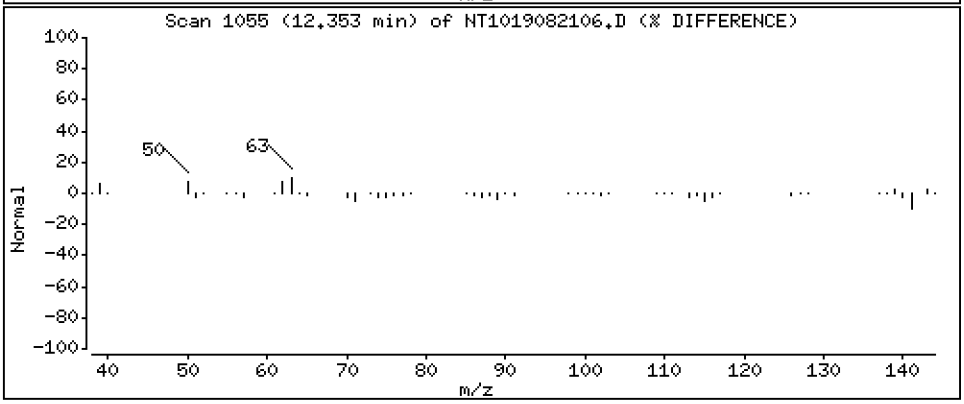












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

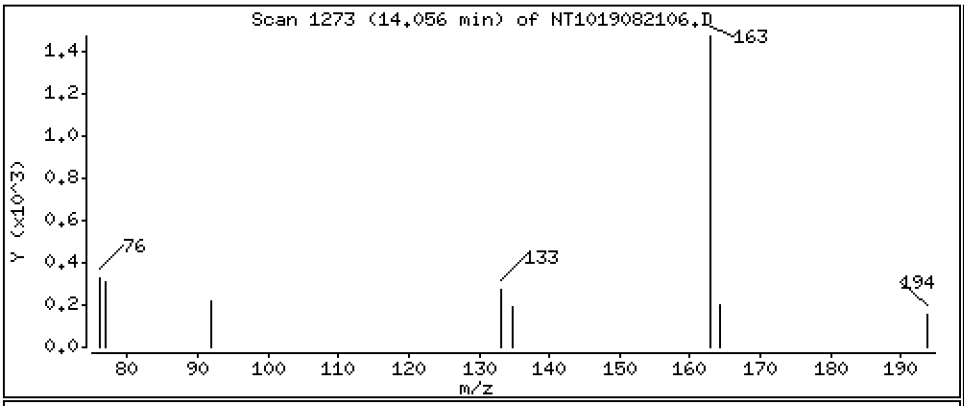
Operator: YZ

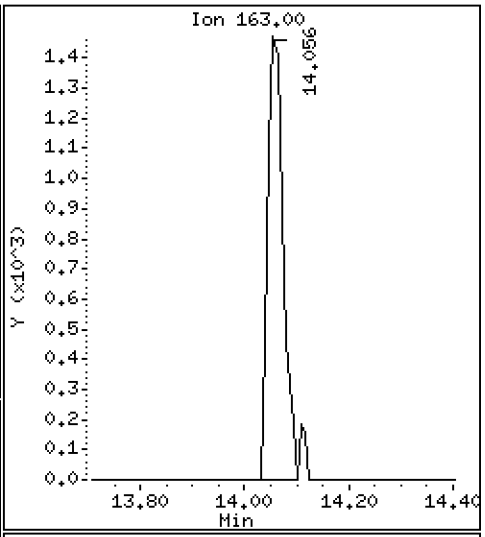
Column phase: ZB-5msi

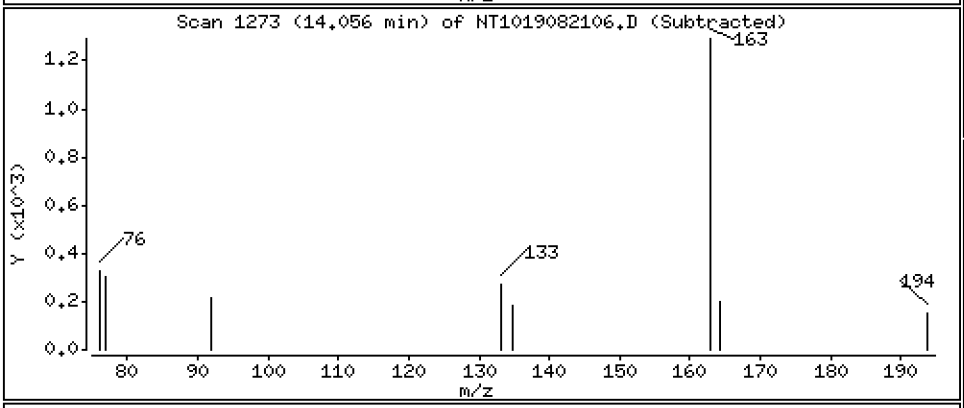
Column diameter: 0.25

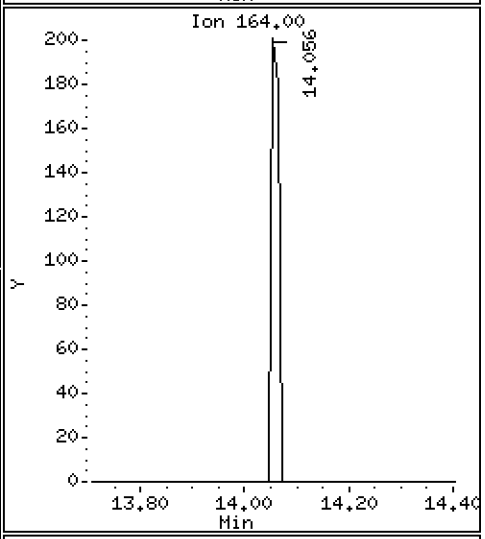
39 Dimethylphthalate

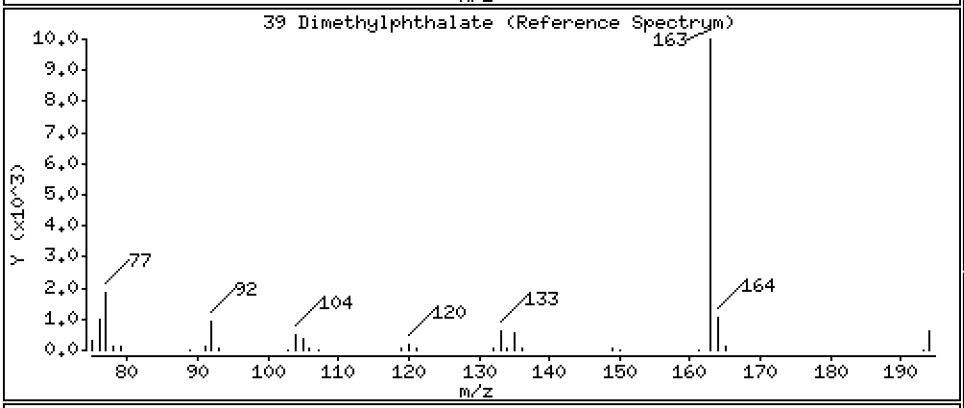
Concentration: 0.1370 ug/mL

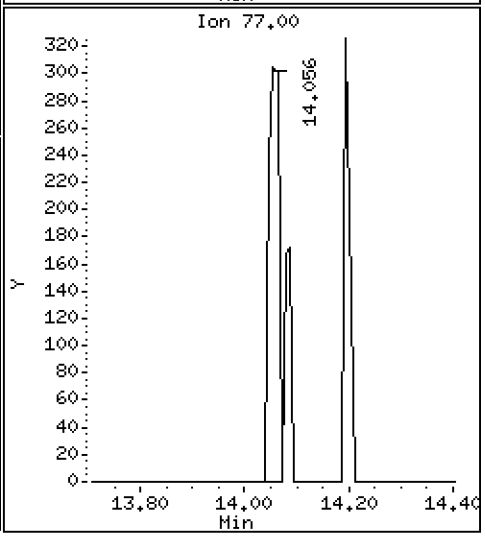


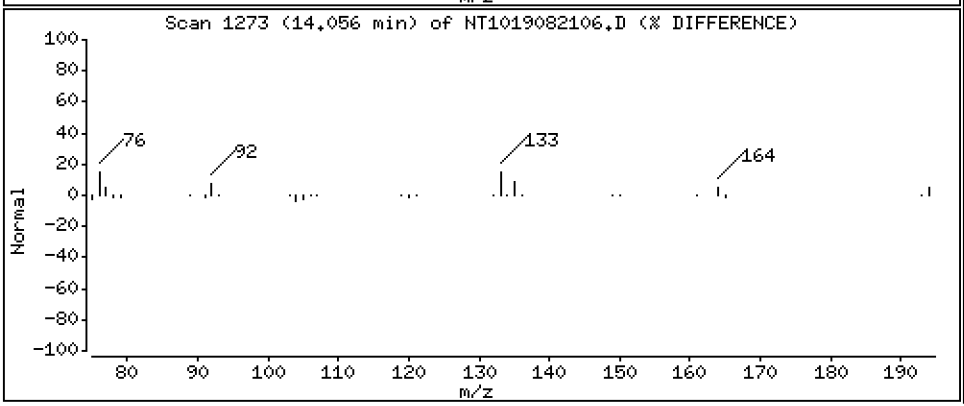












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

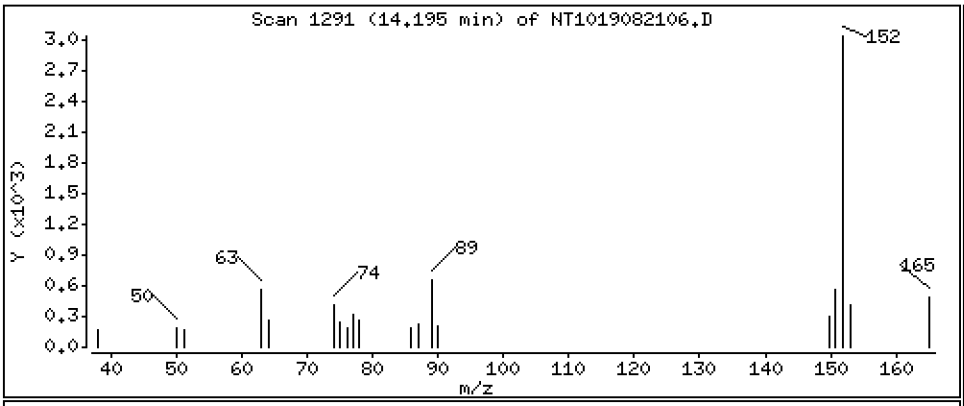
Operator: YZ

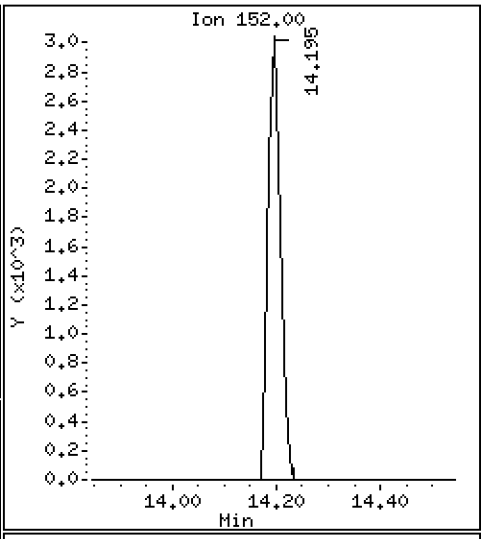
Column phase: ZB-5msi

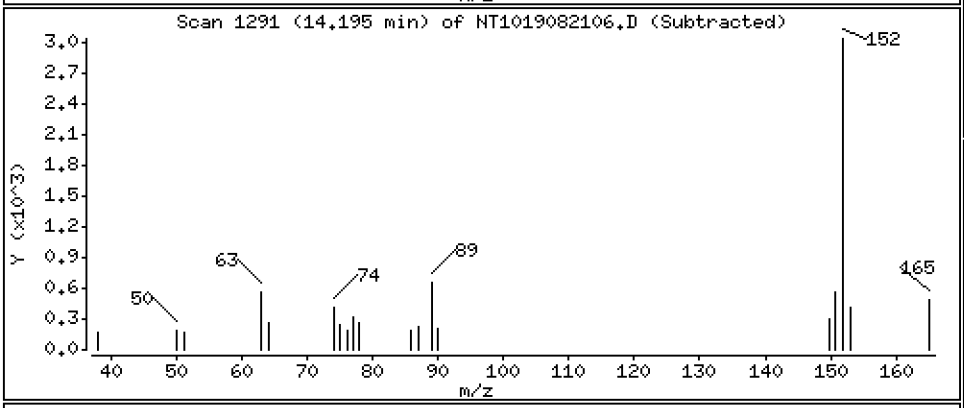
Column diameter: 0.25

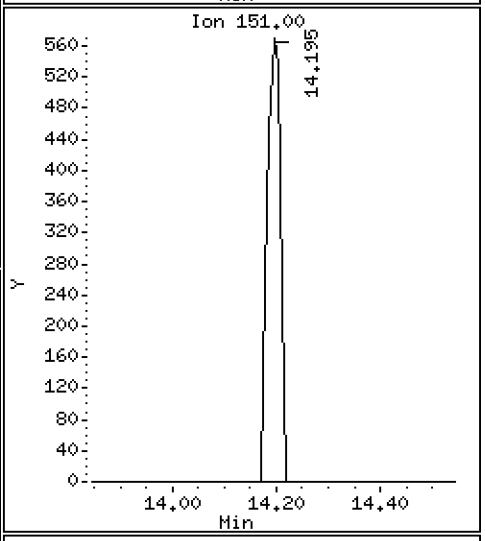
40 Acenaphthylene

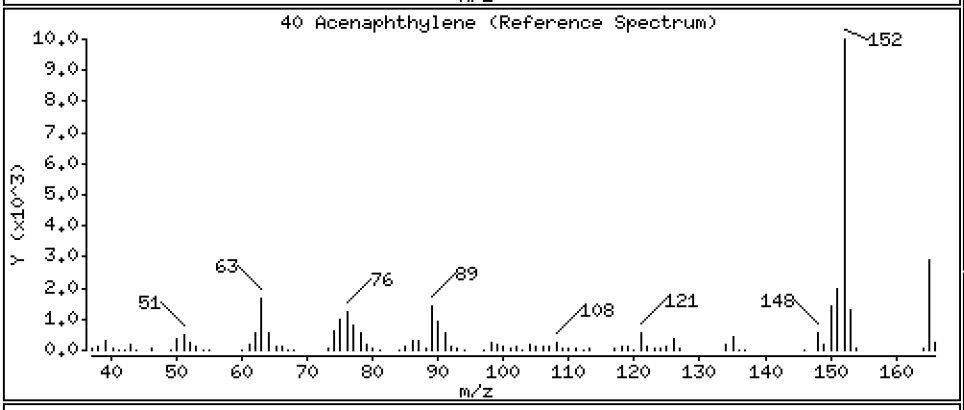
Concentration: 0.1716 ug/mL

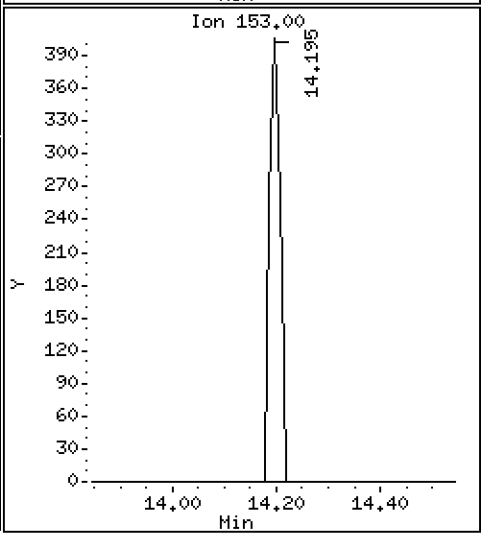


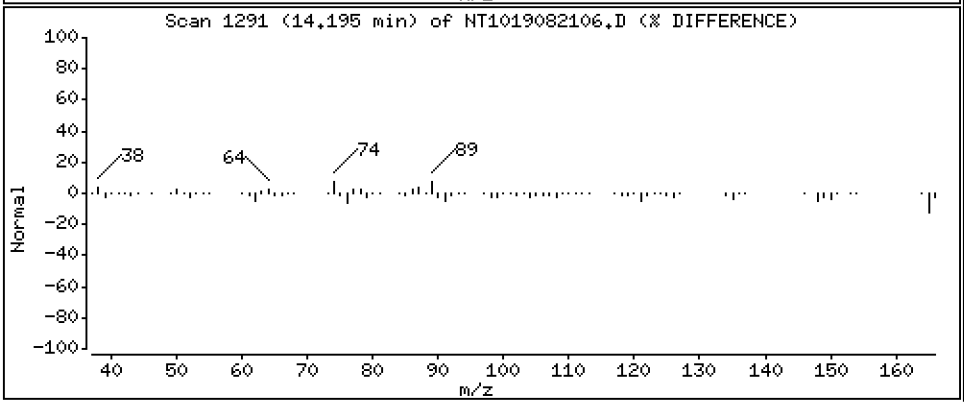












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

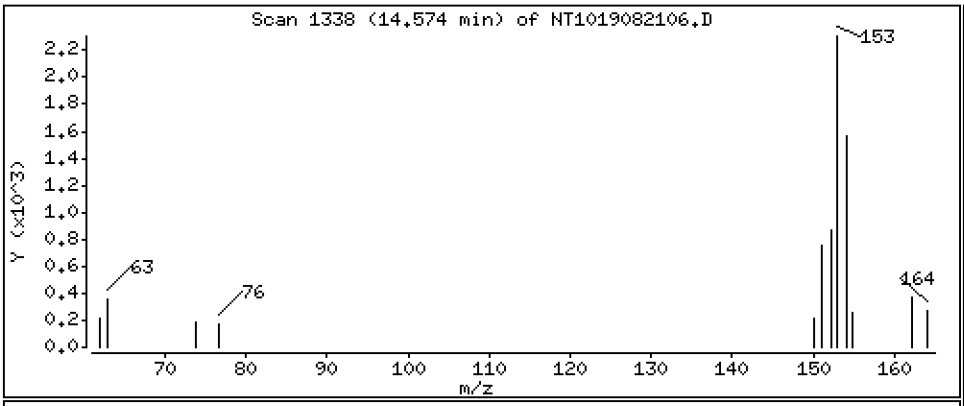
Operator: YZ

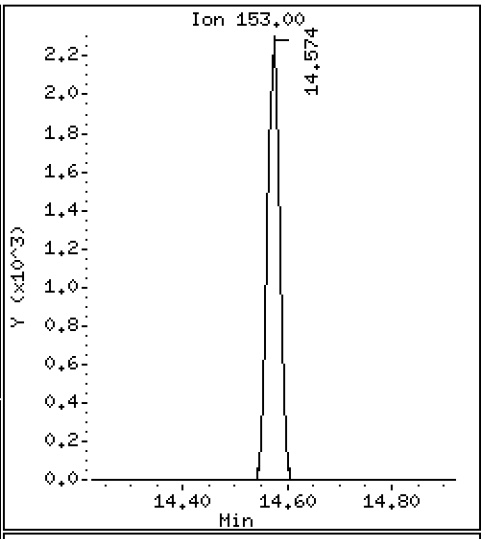
Column phase: ZB-5msi

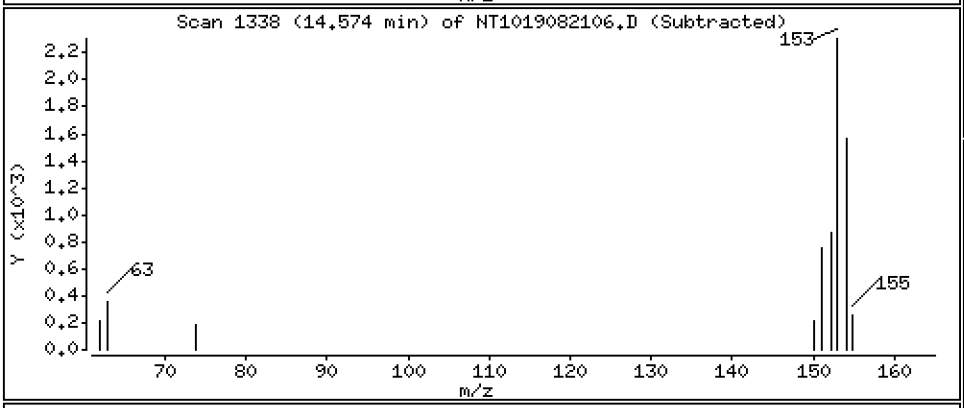
Column diameter: 0.25

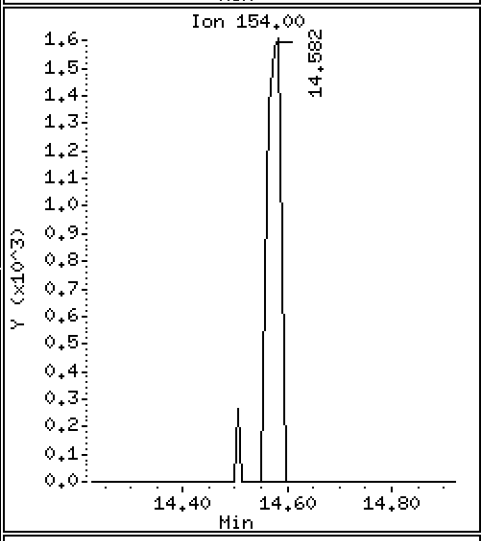
44 Acenaphthene

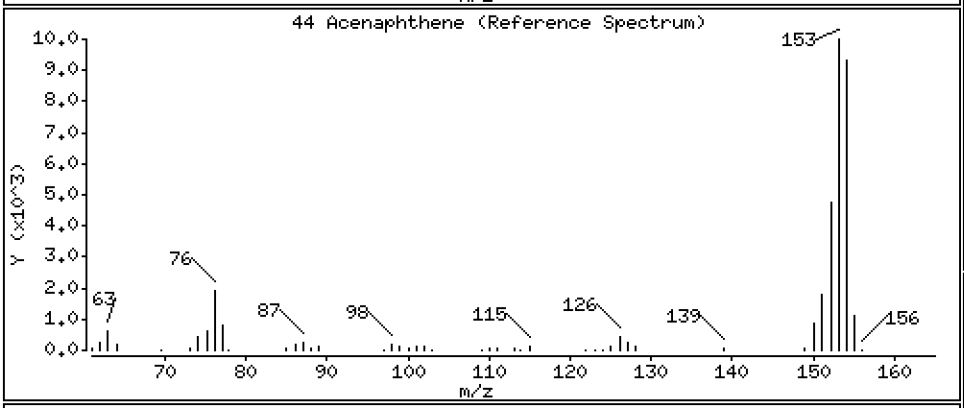
Concentration: 0.2021 ug/mL

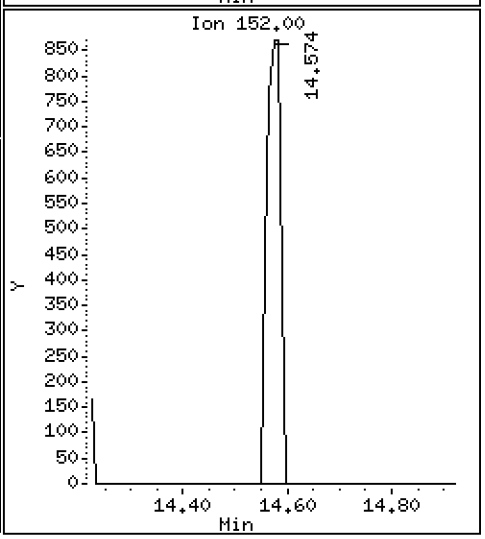


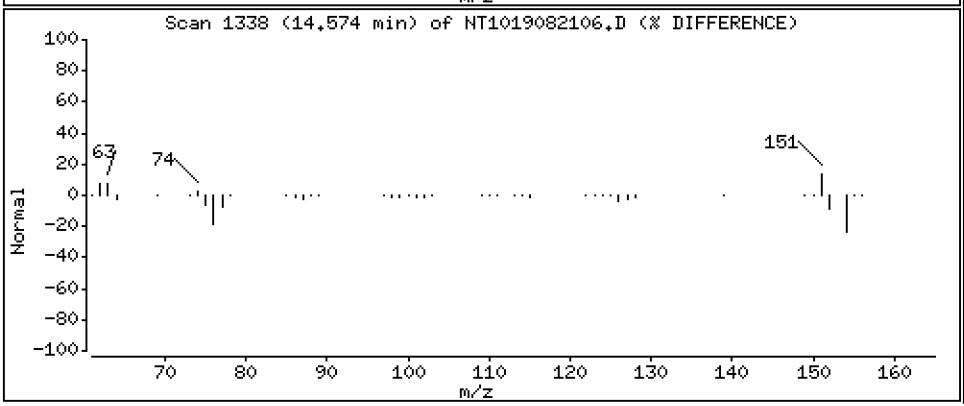












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

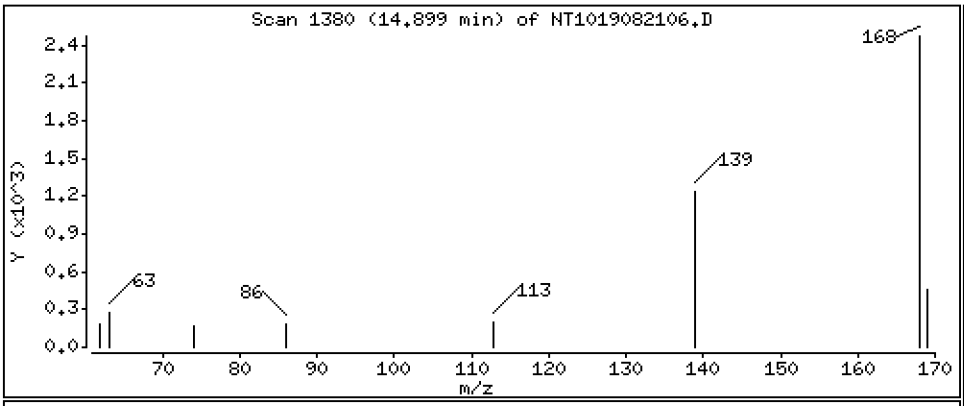
Operator: YZ

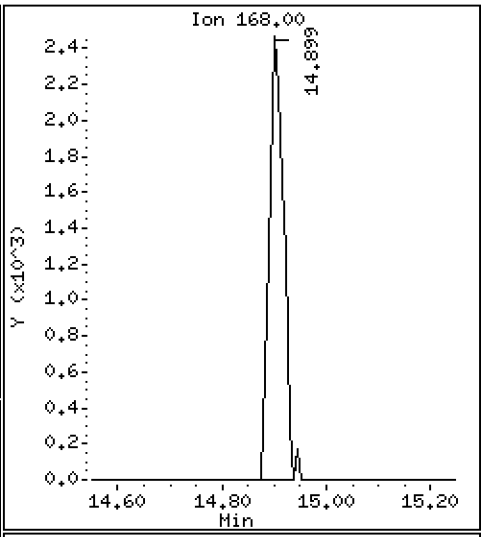
Column phase: ZB-5msi

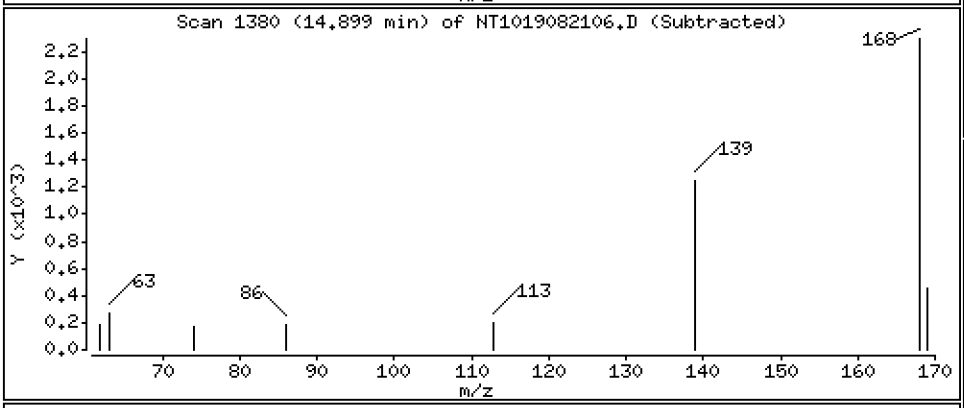
Column diameter: 0.25

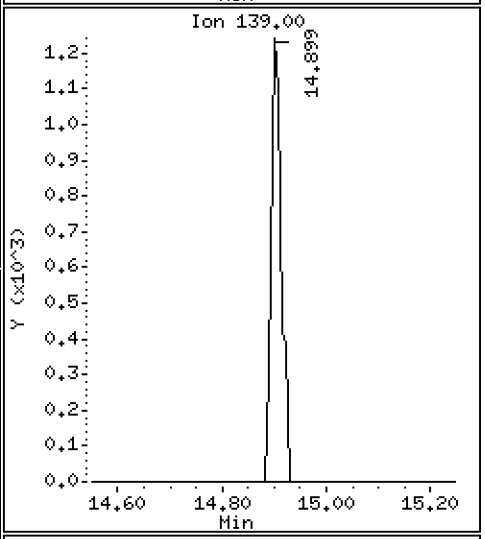
46 Dibenzofuran

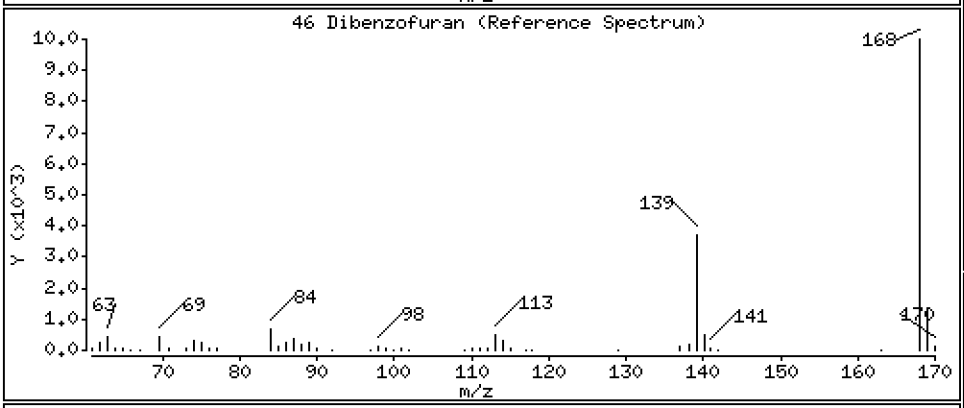
Concentration: 0.1582 ug/mL

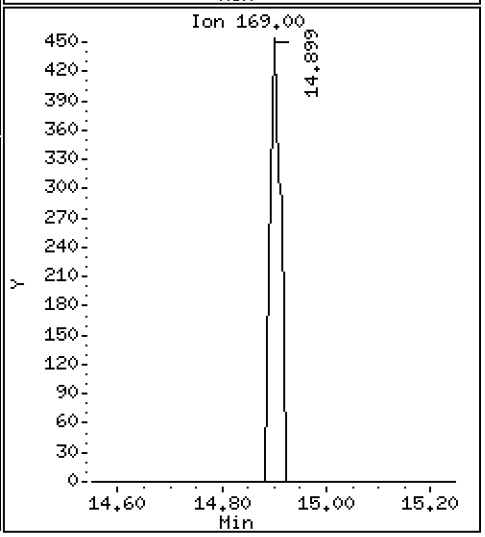


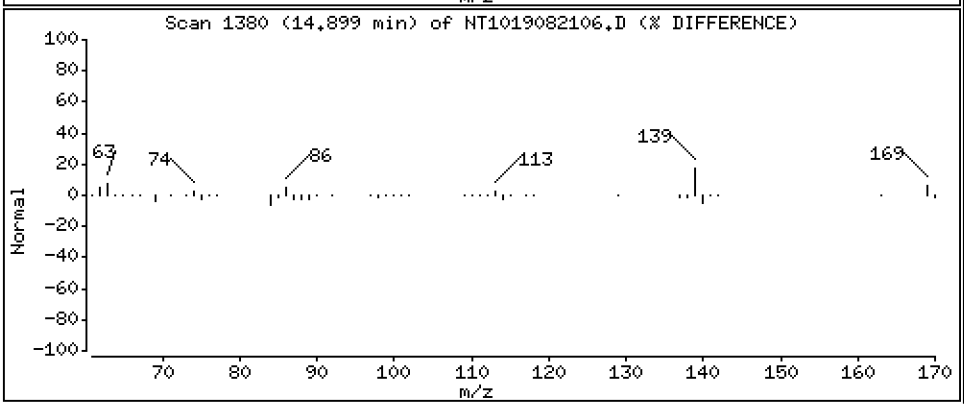












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

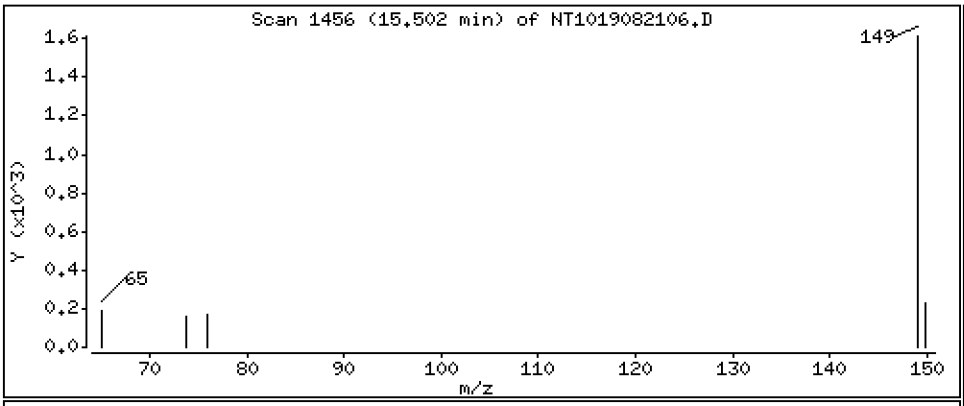
Operator: YZ

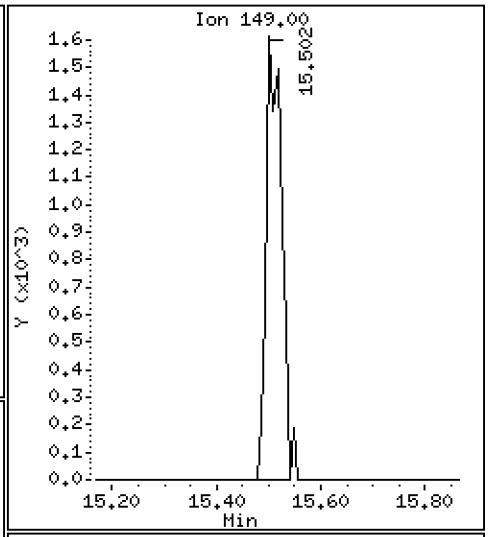
Column phase: ZB-5msi

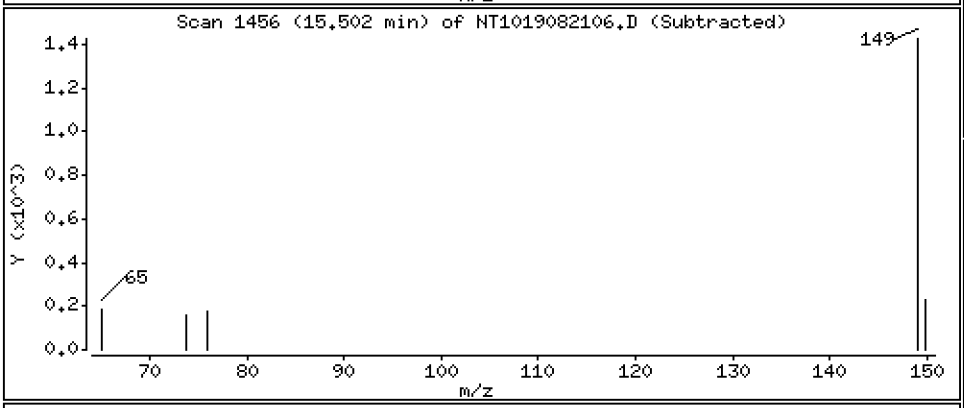
Column diameter: 0.25

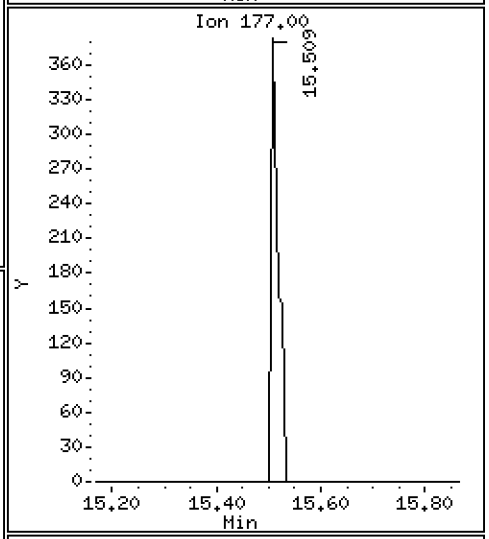
50 Diethylphthalate

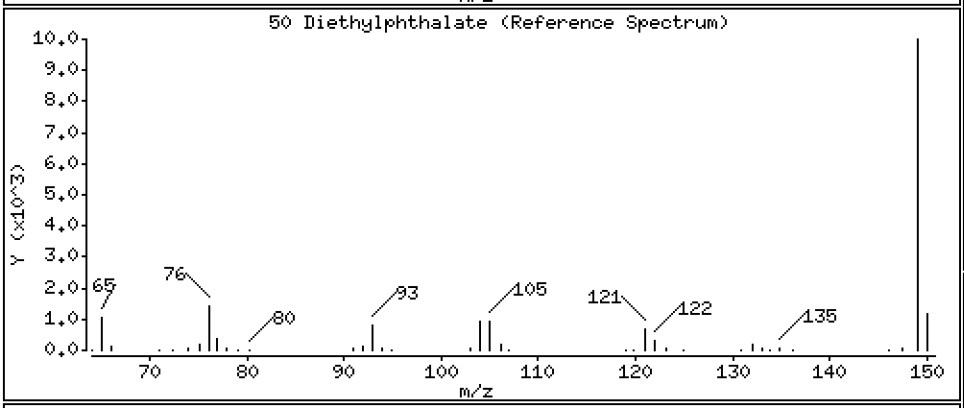
Concentration: 0.1528 ug/mL

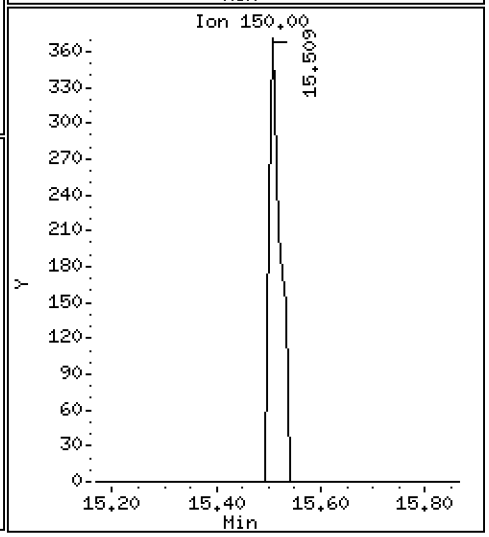


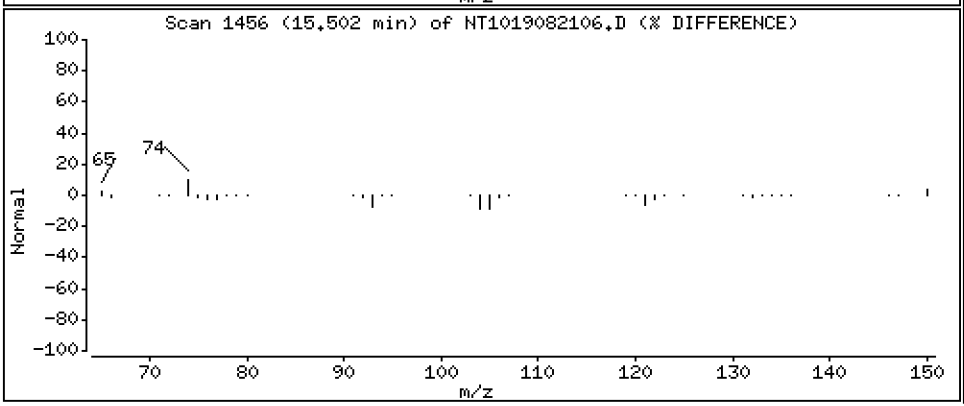












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

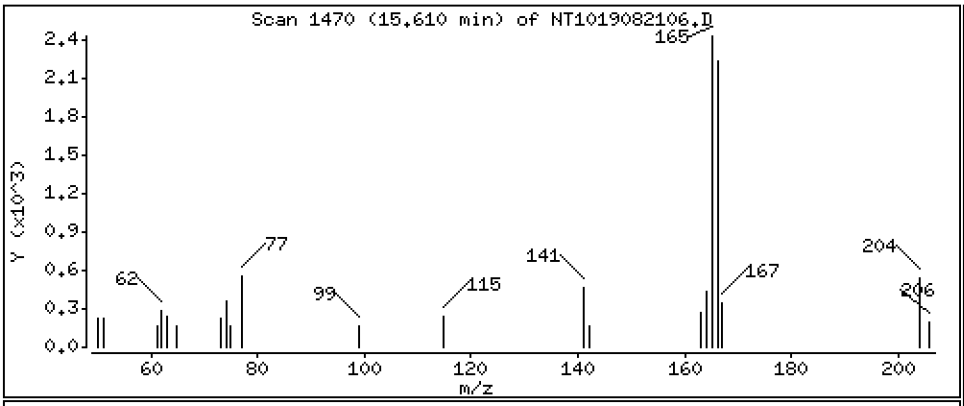
Operator: YZ

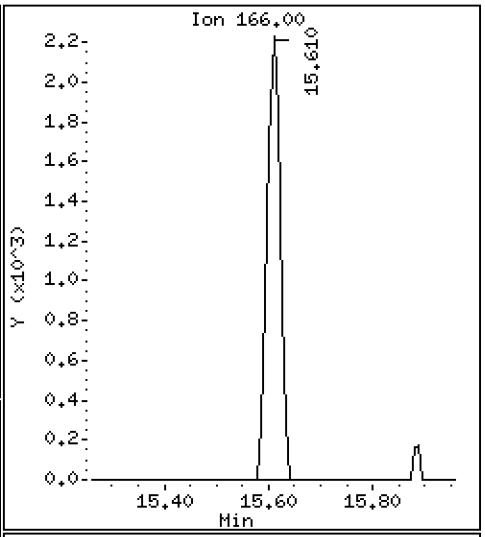
Column phase: ZB-5msi

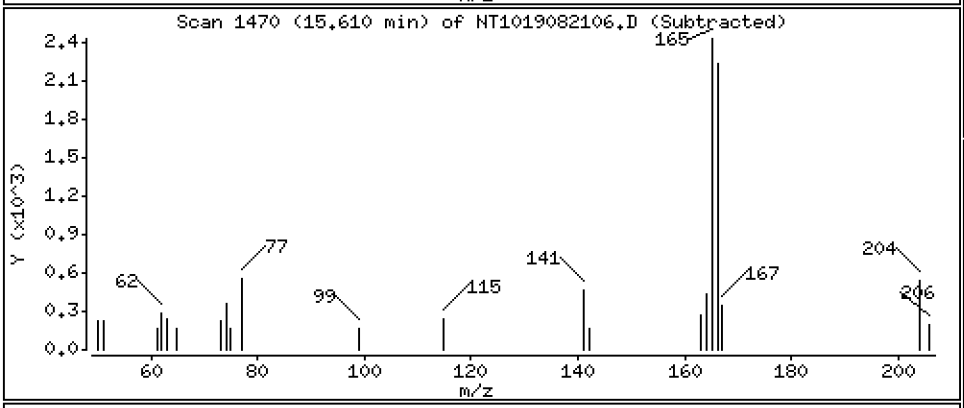
Column diameter: 0.25

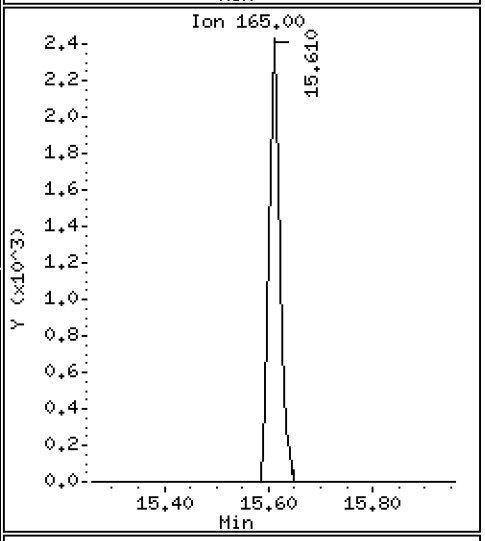
49 Fluorene

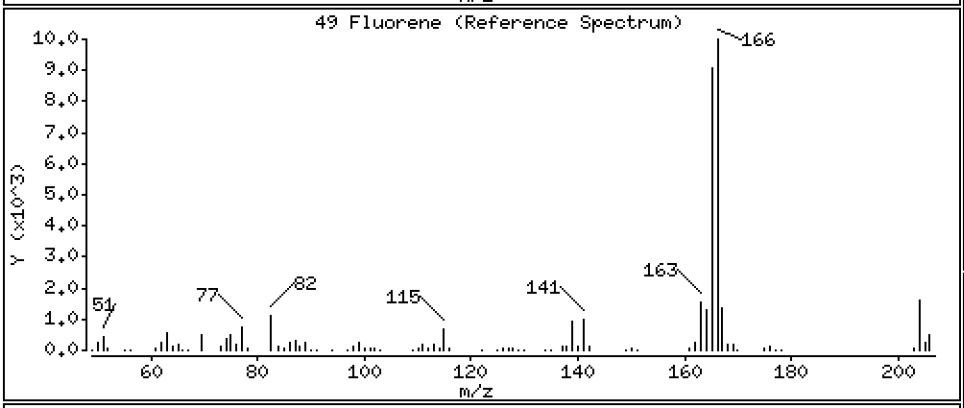
Concentration: 0.1918 ug/mL

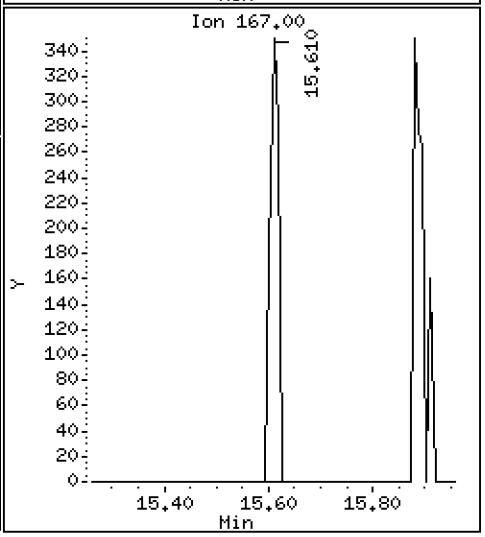


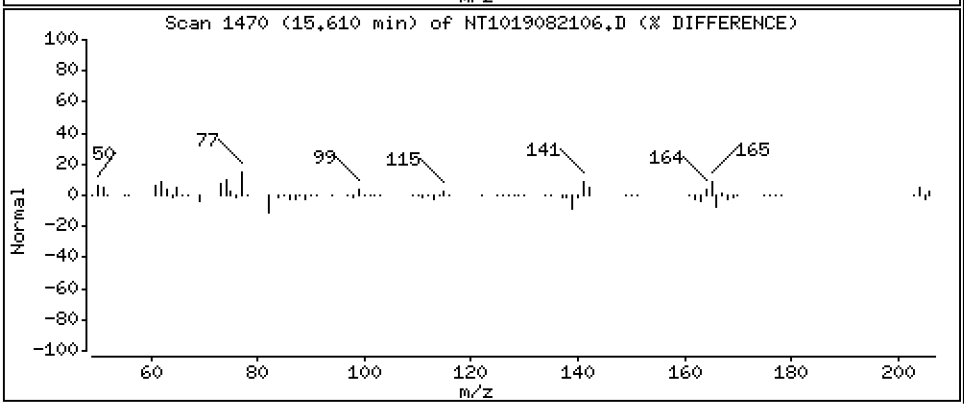












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

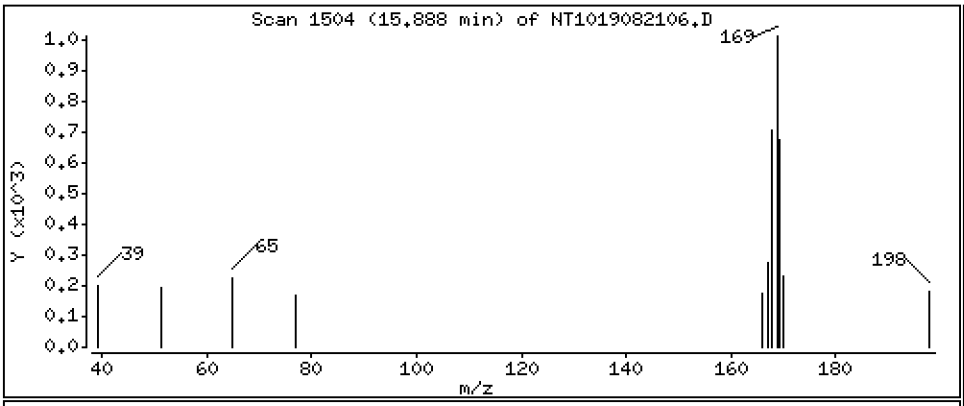
Operator: YZ

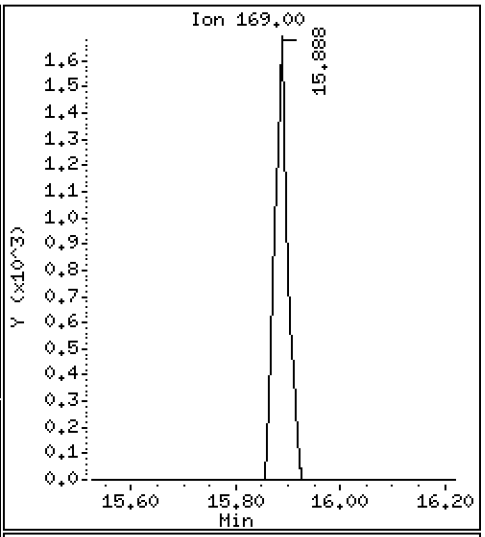
Column phase: ZB-5msi

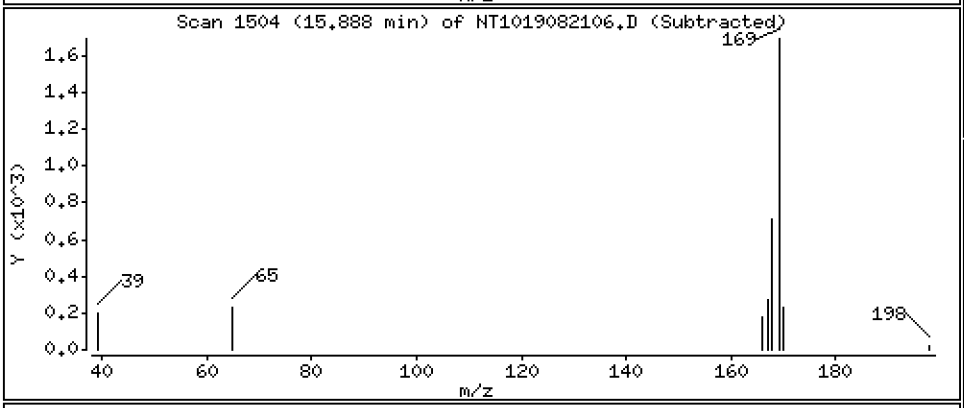
Column diameter: 0.25

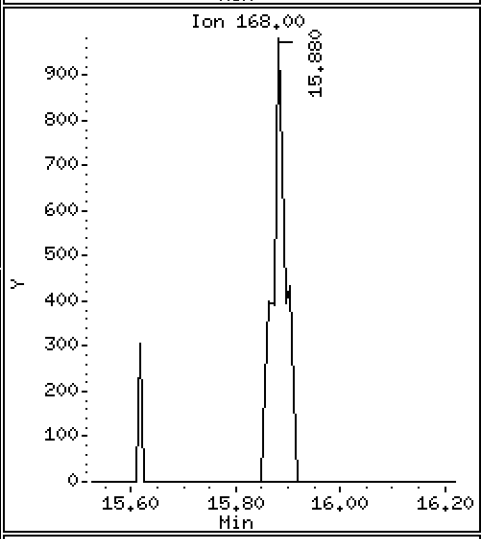
54 N-Nitrosodiphenylamine

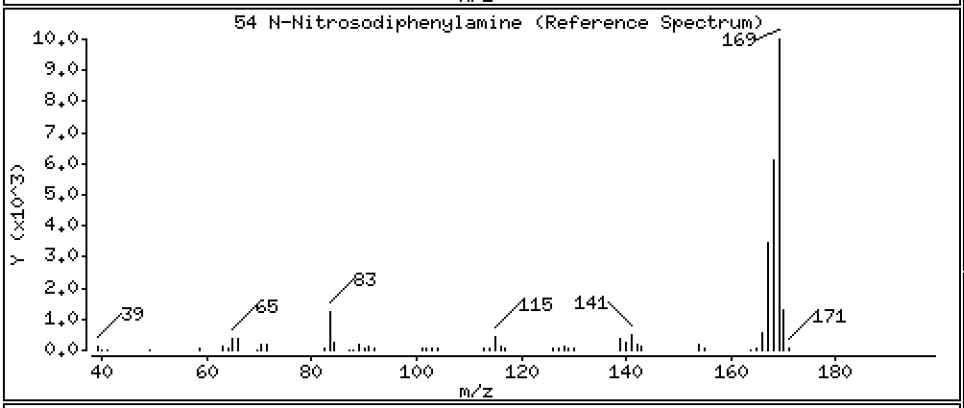
Concentration: 0.1856 ug/mL

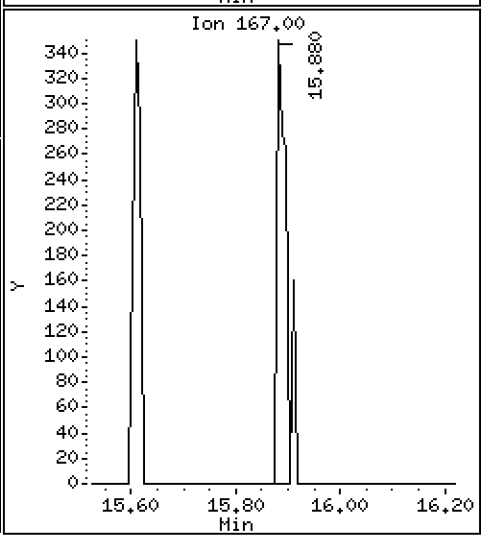


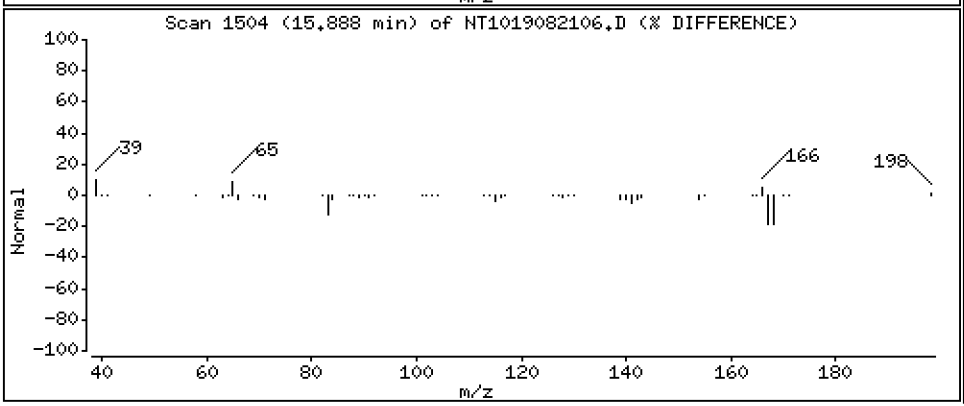












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

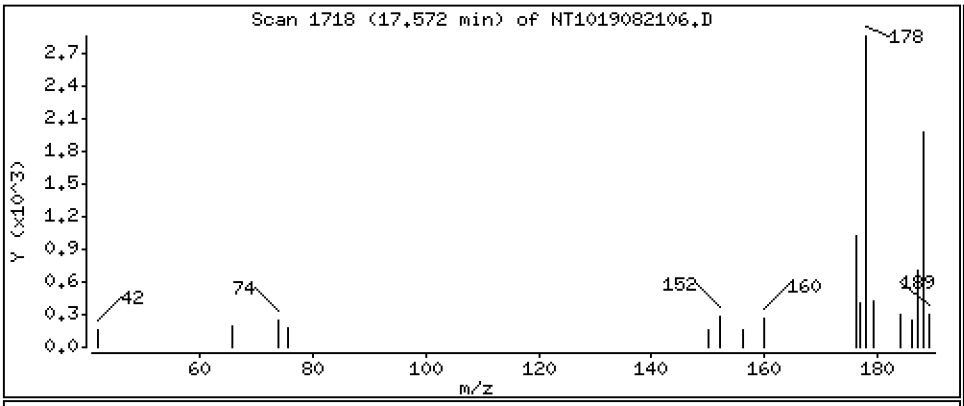
Operator: YZ

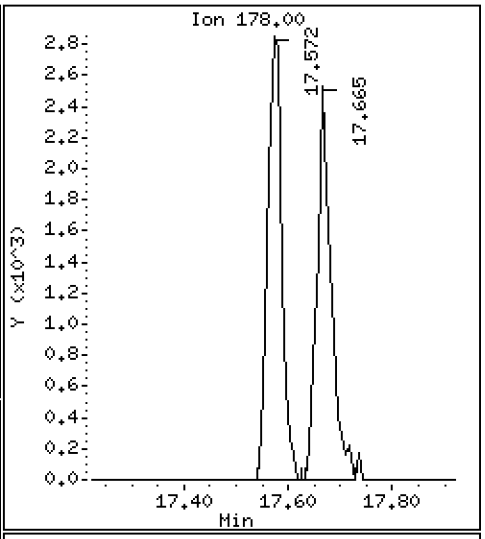
Column phase: ZB-5msi

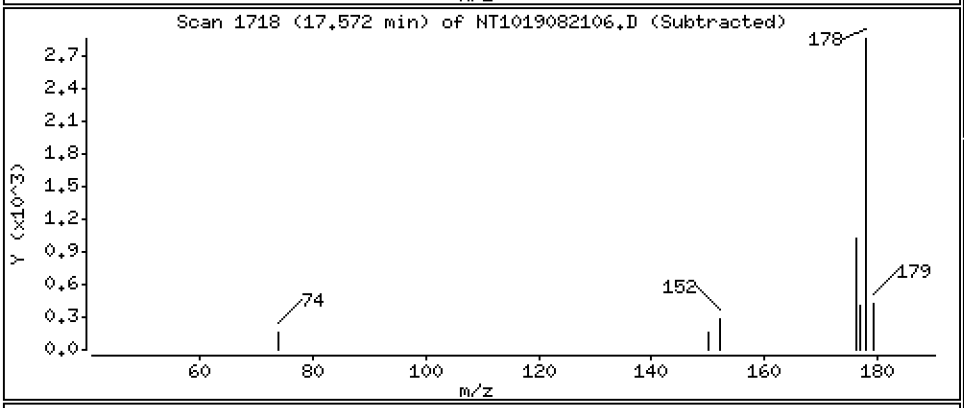
Column diameter: 0.25

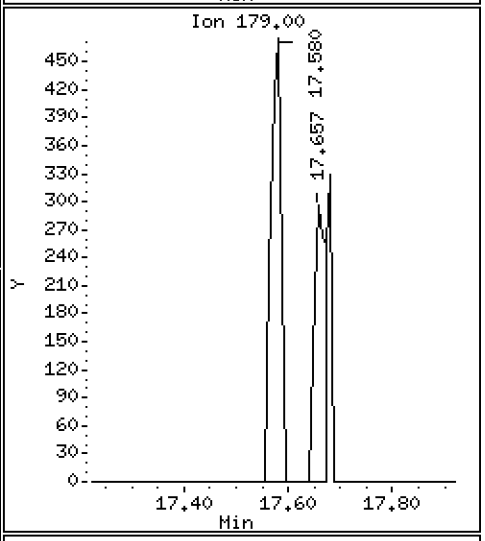
60 Phenanthrene

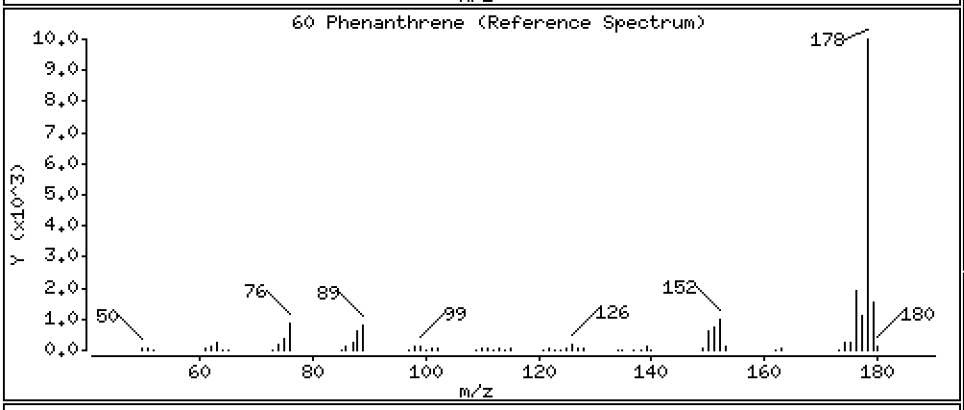
Concentration: 0.1835 ug/mL

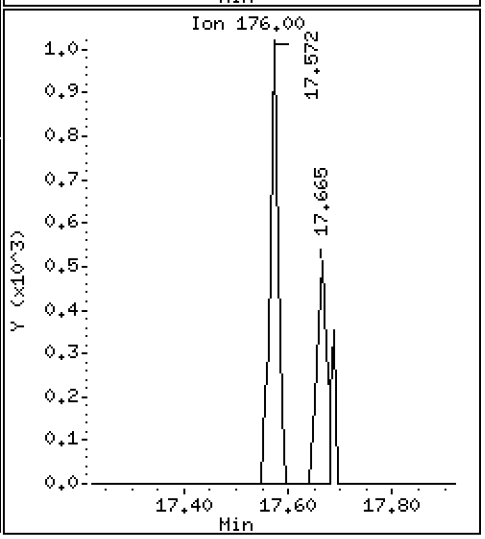


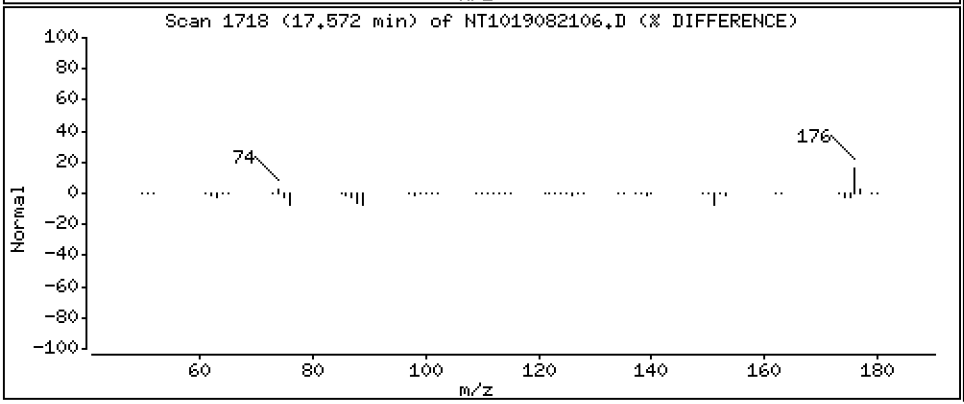












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

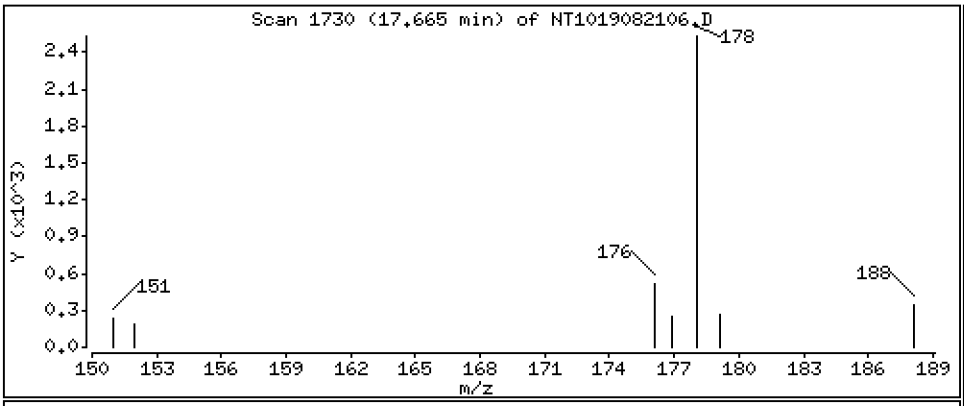
Operator: YZ

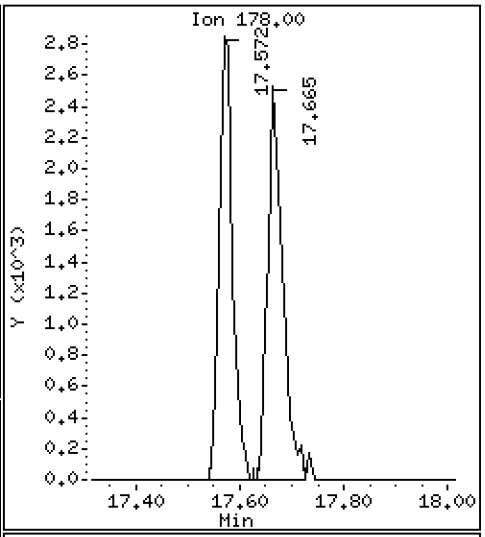
Column phase: ZB-5msi

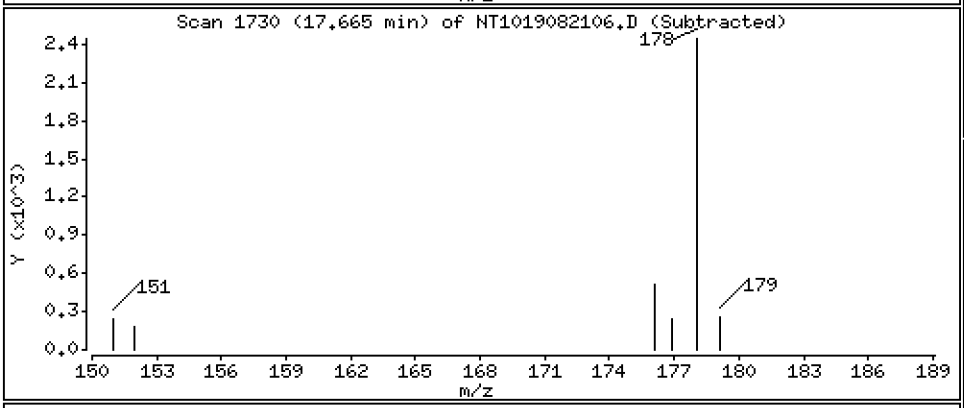
Column diameter: 0.25

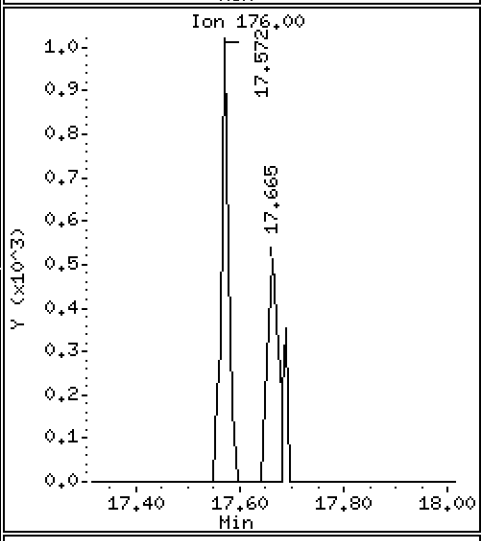
61 Anthracene

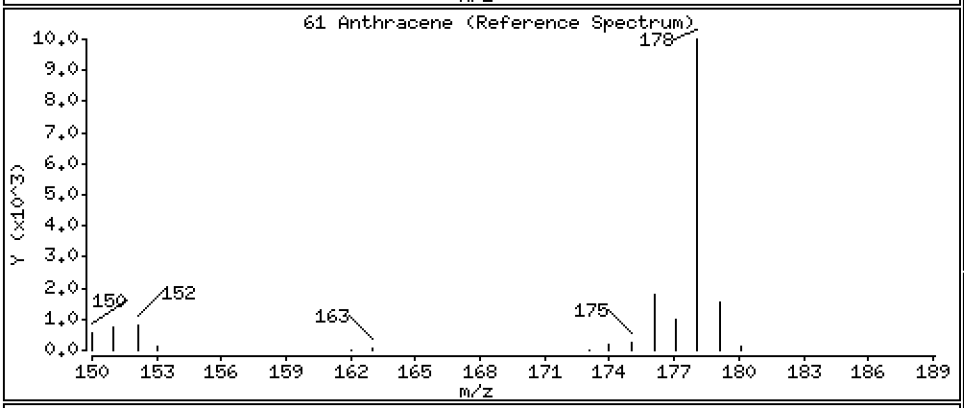
Concentration: 0.1686 ug/mL

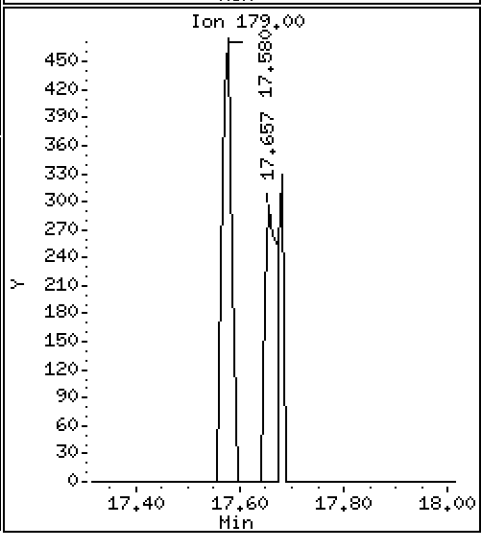


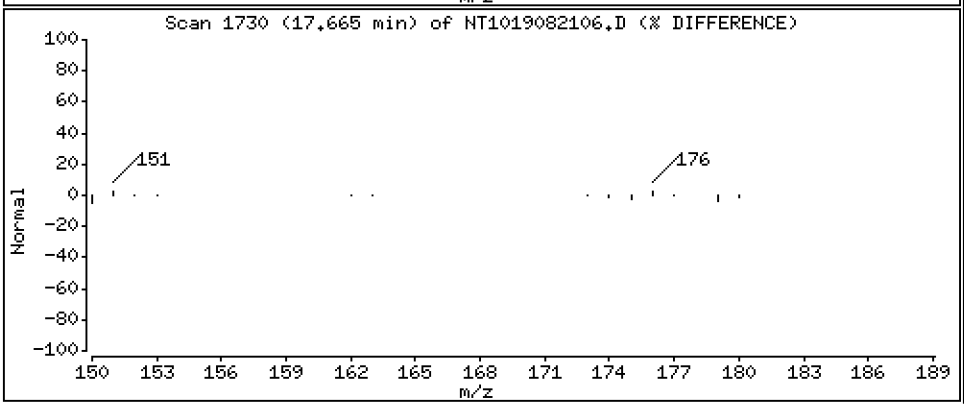












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

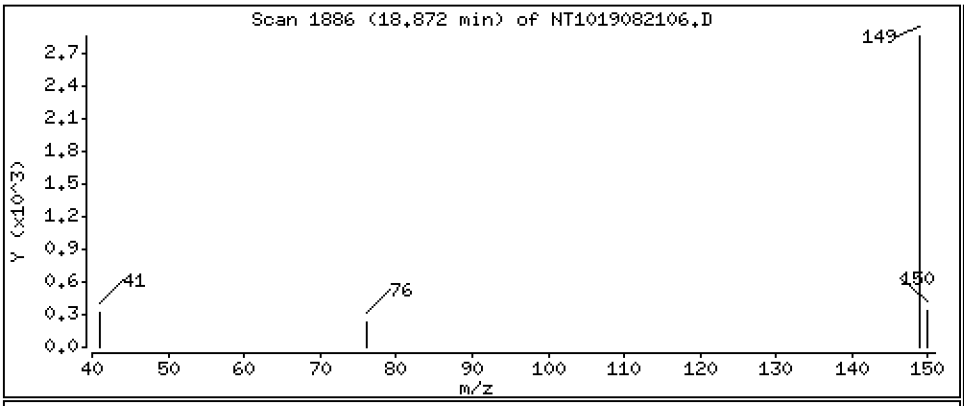
Operator: YZ

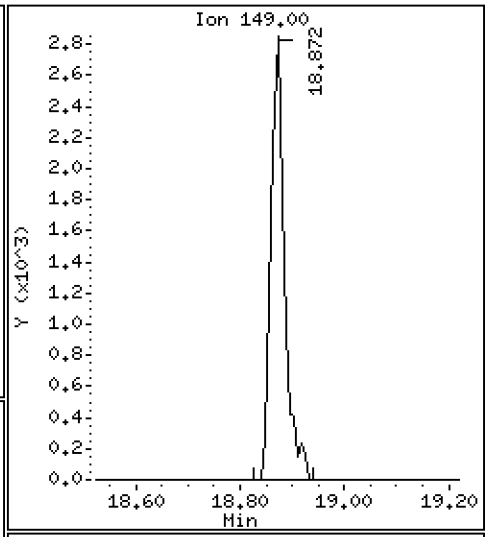
Column phase: ZB-5msi

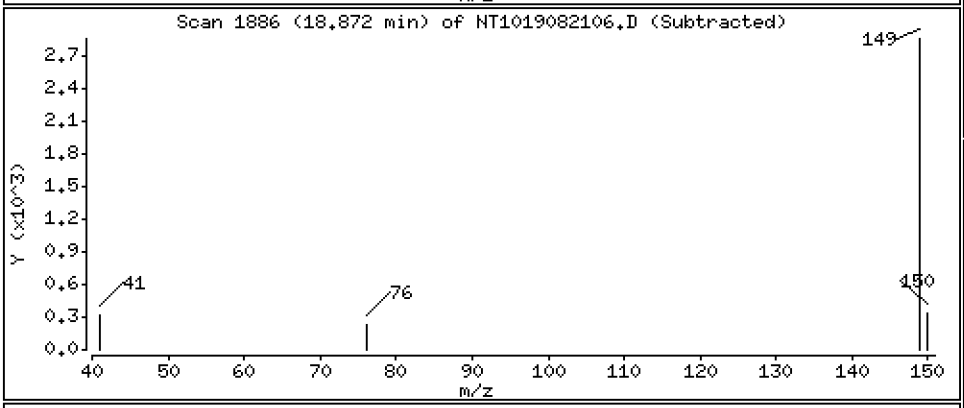
Column diameter: 0.25

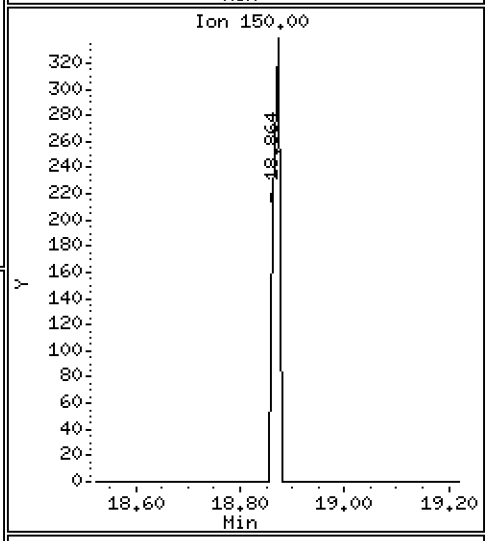
63 Di-n-butylphthalate

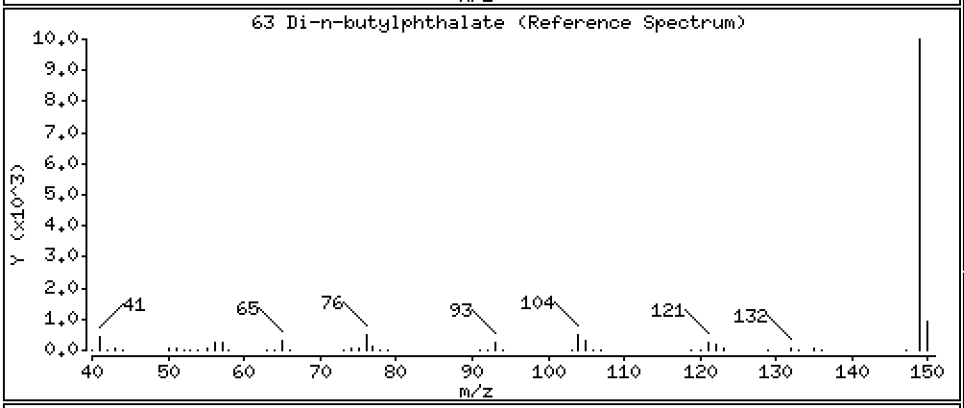
Concentration: 0.1253 ug/mL

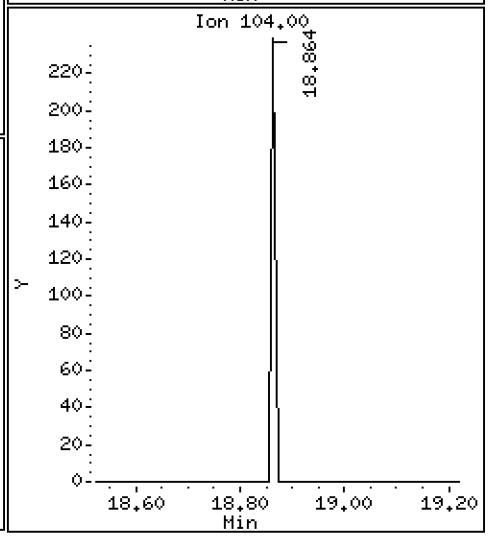


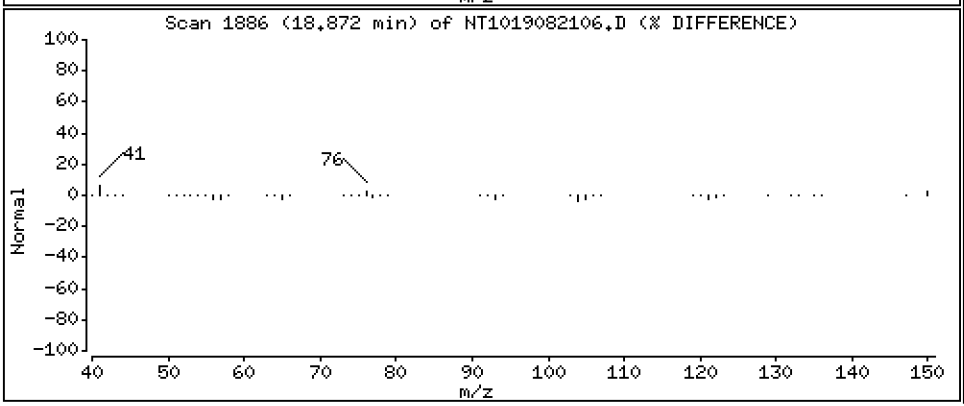












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

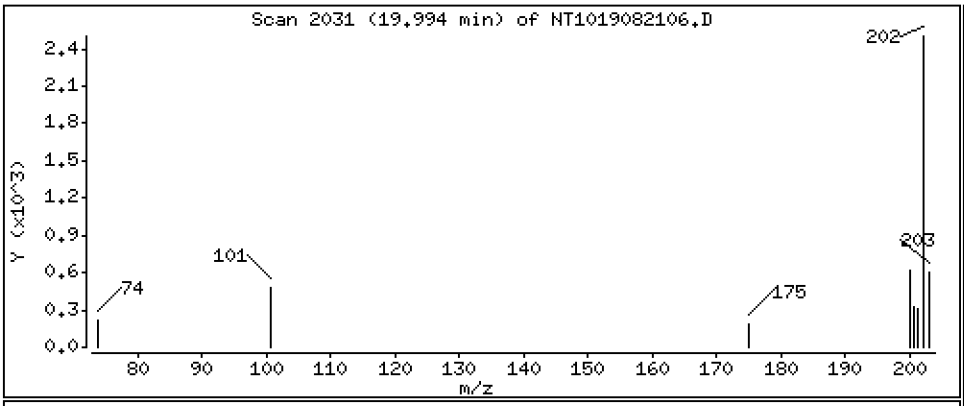
Operator: YZ

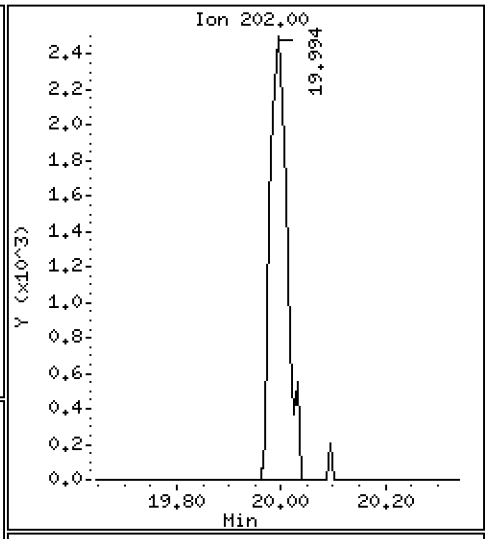
Column phase: ZB-5msi

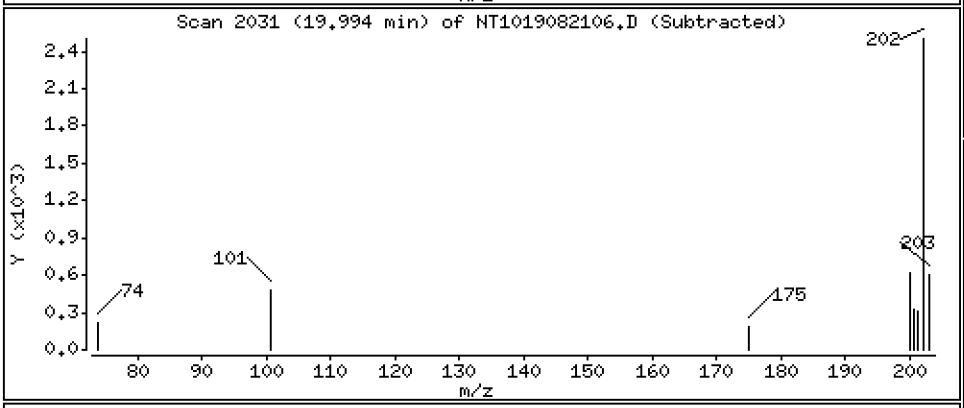
Column diameter: 0.25

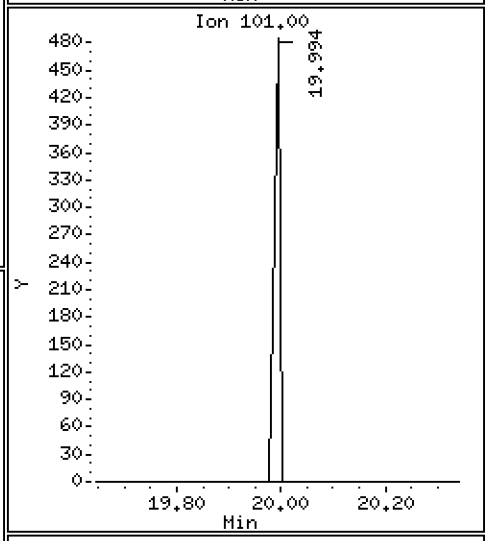
64 Fluoranthene

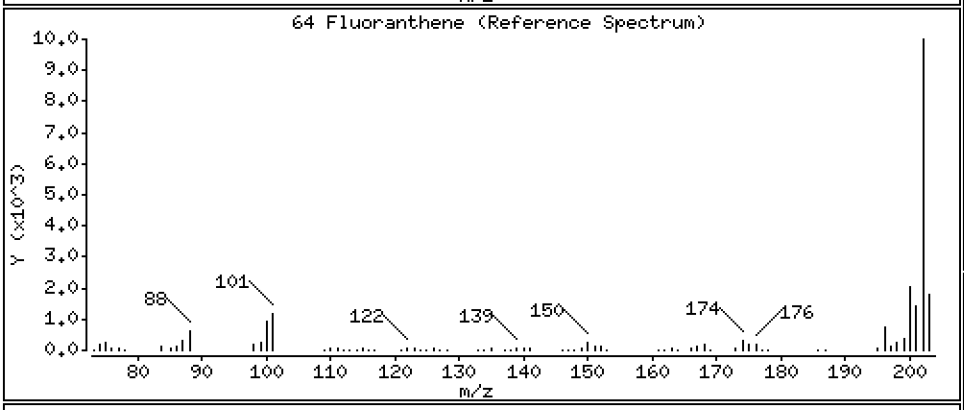
Concentration: 0.1590 ug/mL

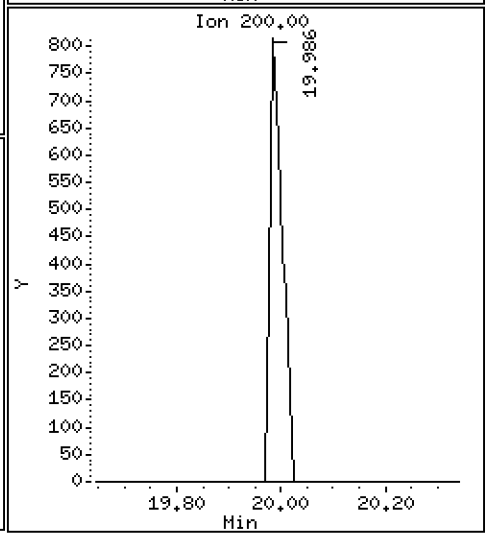


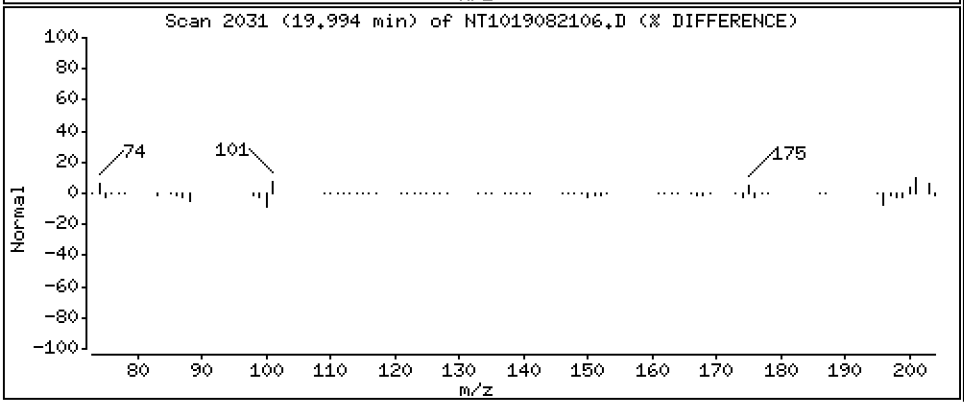












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

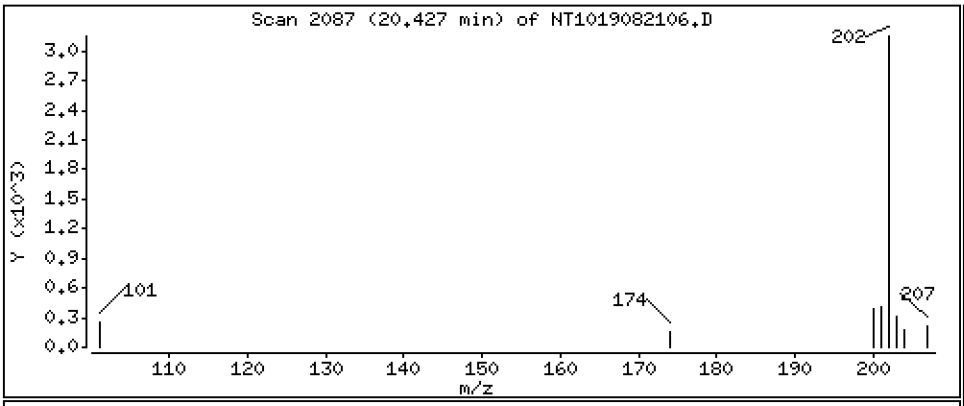
Operator: YZ

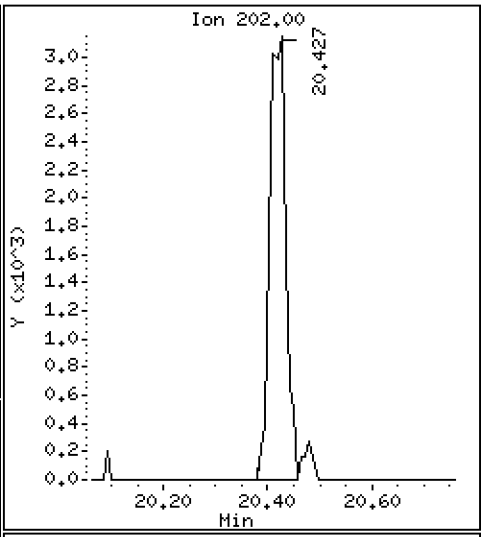
Column phase: ZB-5msi

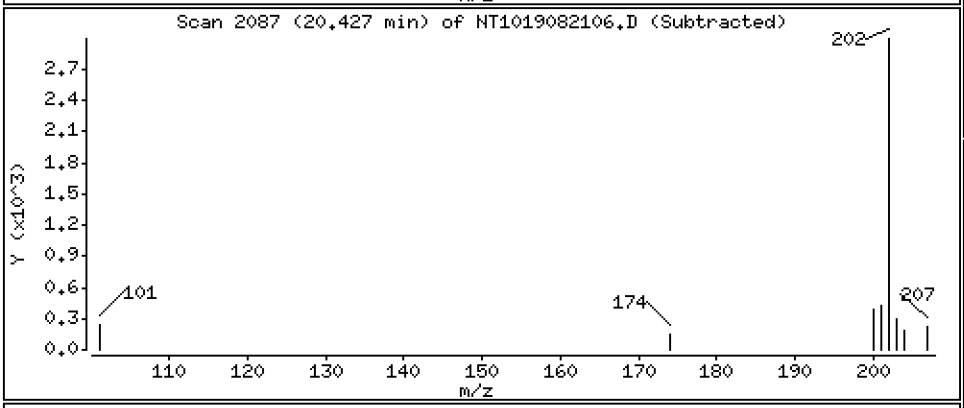
Column diameter: 0.25

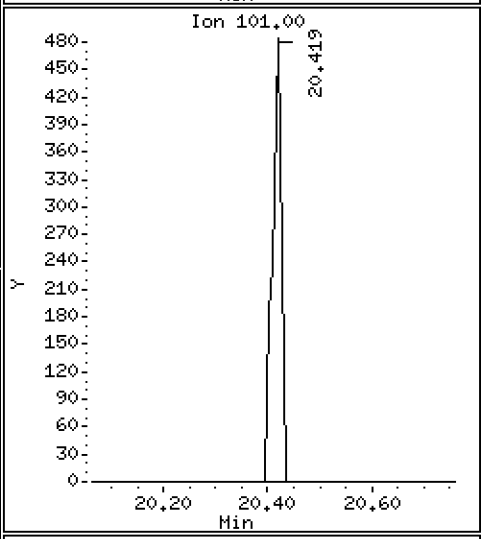
65 Pyrene

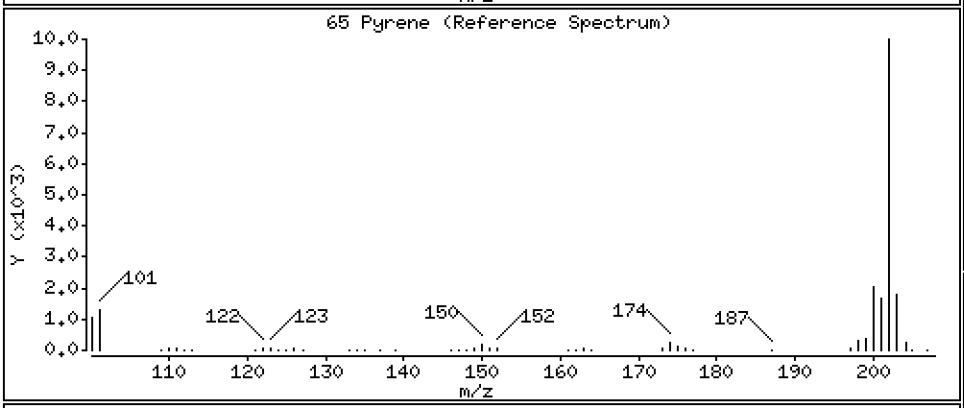
Concentration: 0.1829 ug/mL

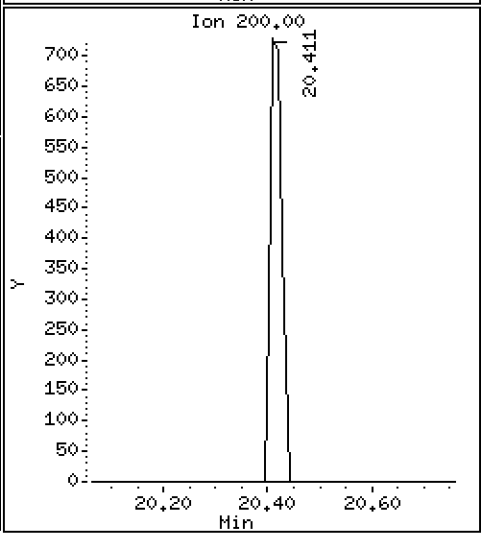


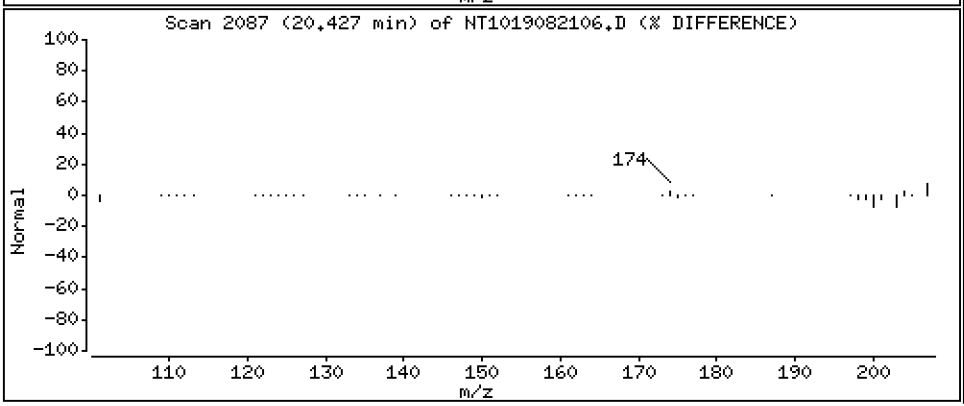












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

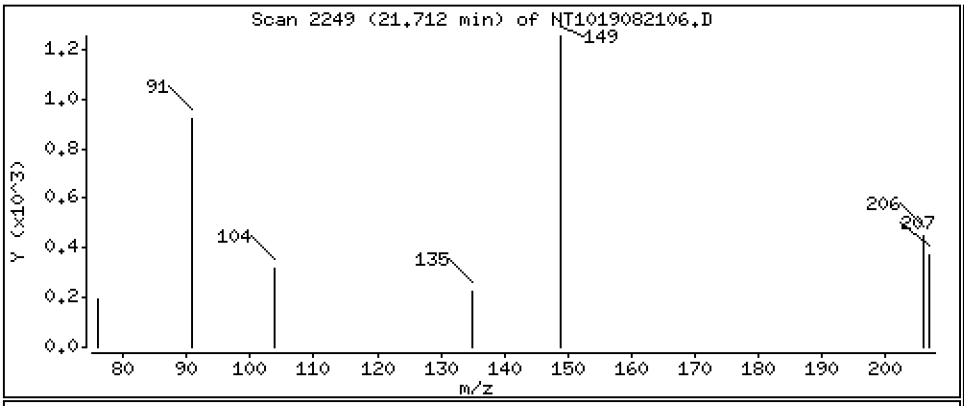
Operator: YZ

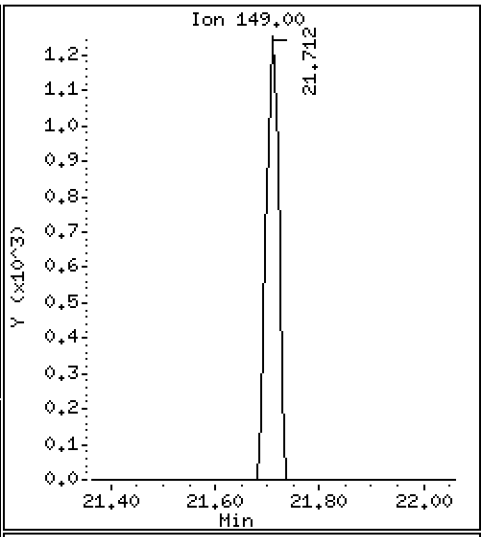
Column phase: ZB-5msi

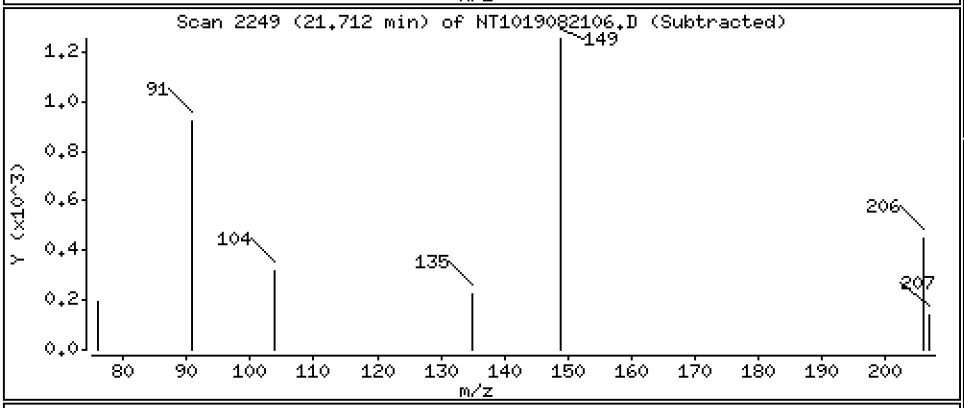
Column diameter: 0.25

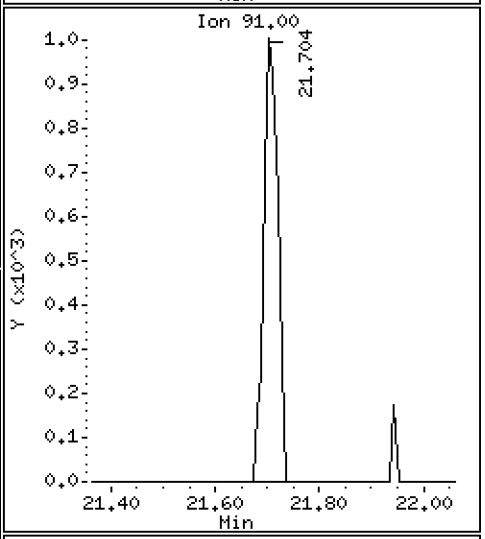
67 Butylbenzylphthalate

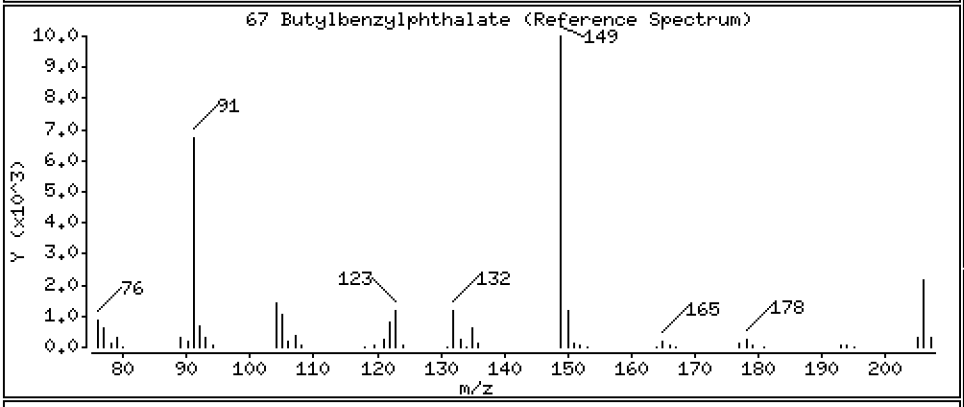
Concentration: 0.1175 ug/mL

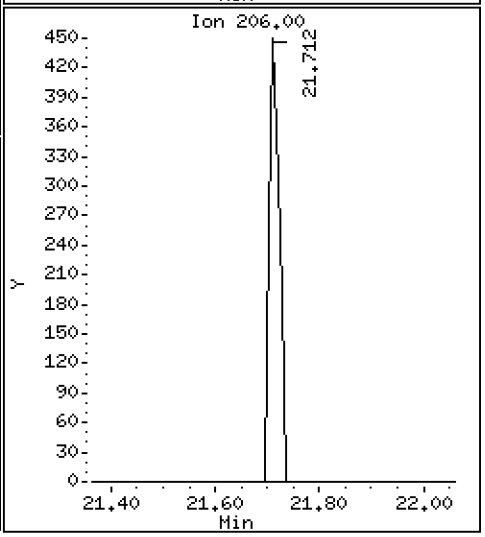


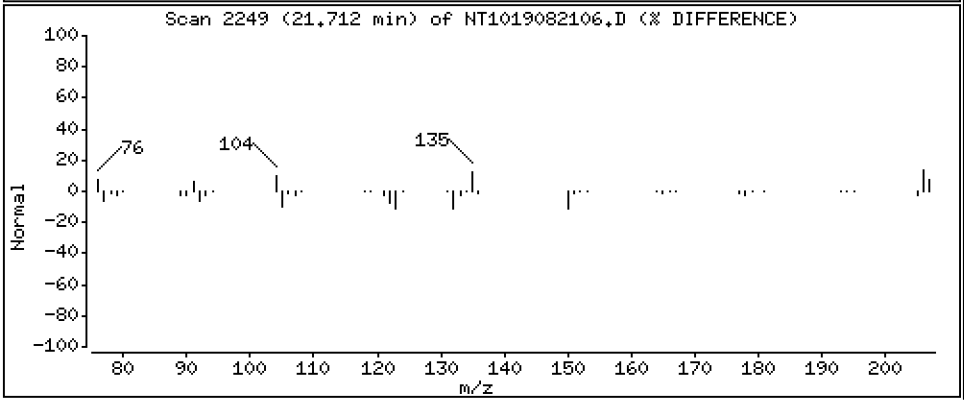












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

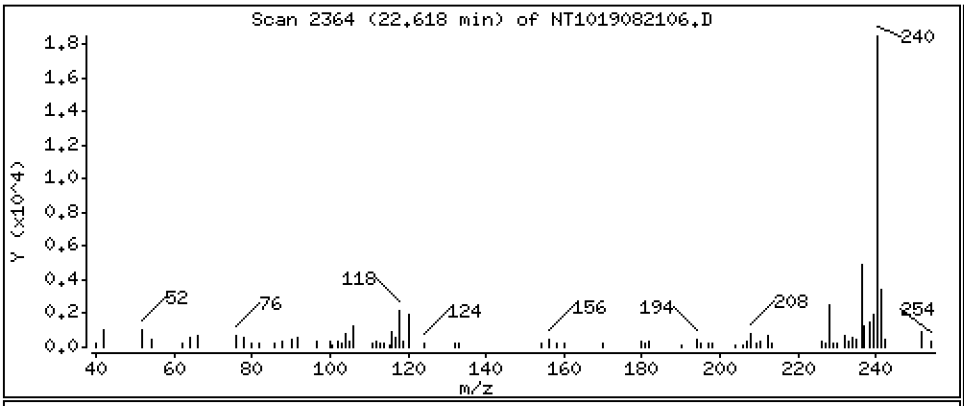
Operator: YZ

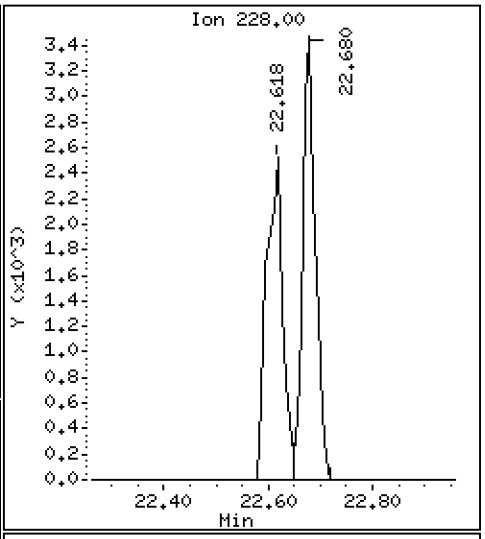
Column phase: ZB-5msi

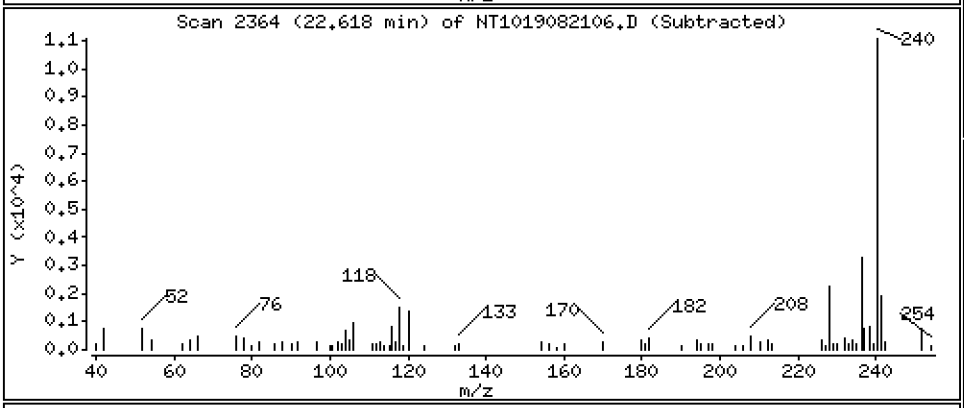
Column diameter: 0.25

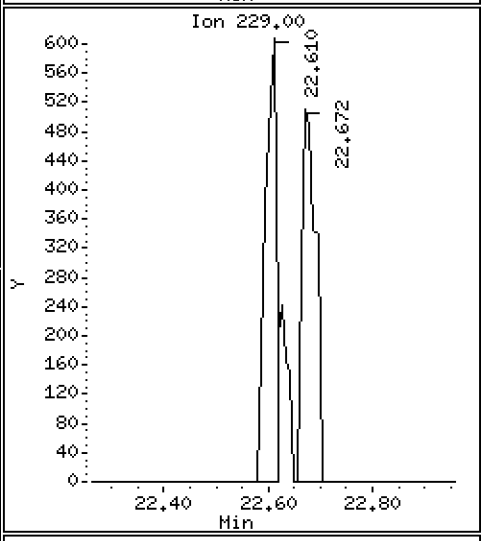
68 Benzo(a)anthracene

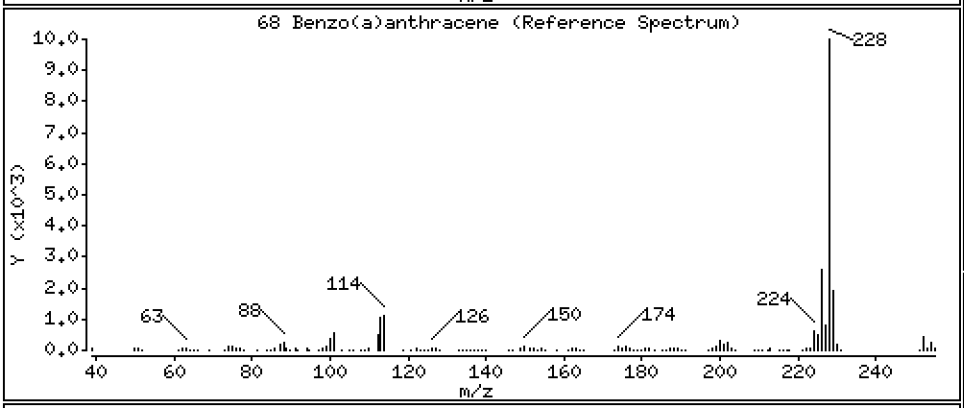
Concentration: 0.1641 ug/mL

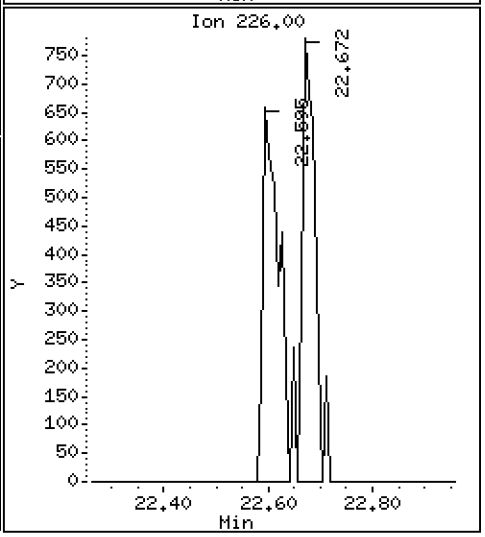


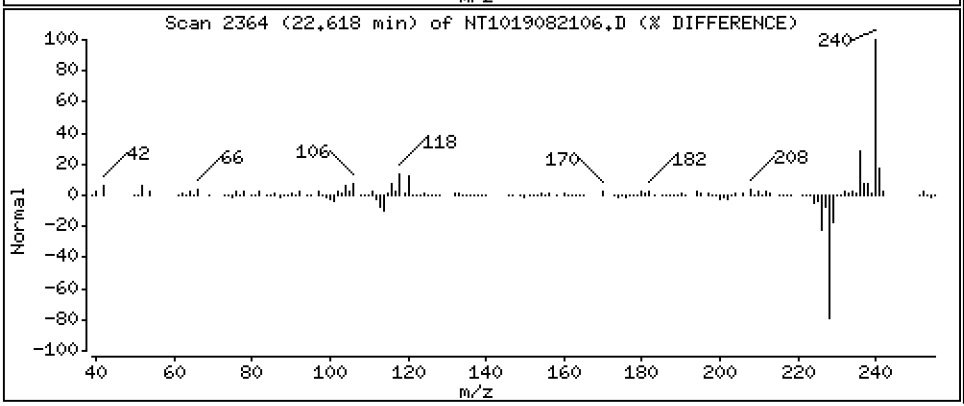












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

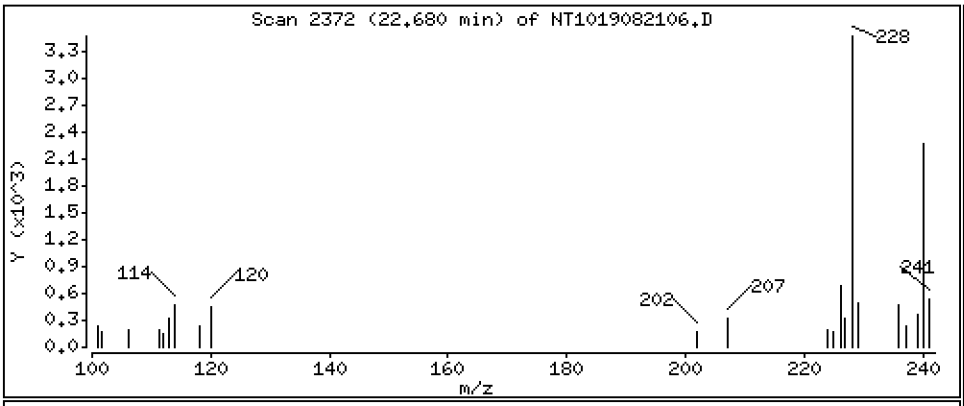
Operator: YZ

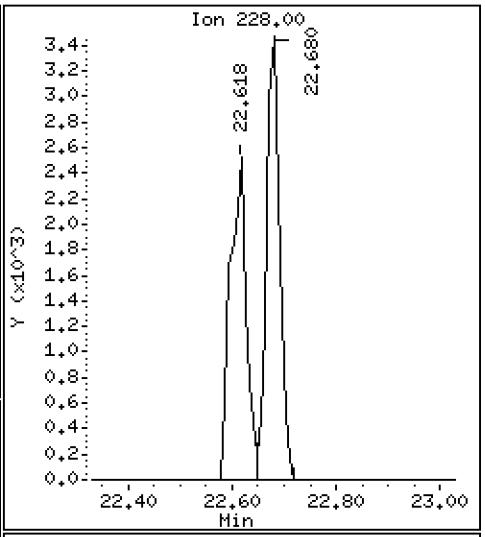
Column phase: ZB-5msi

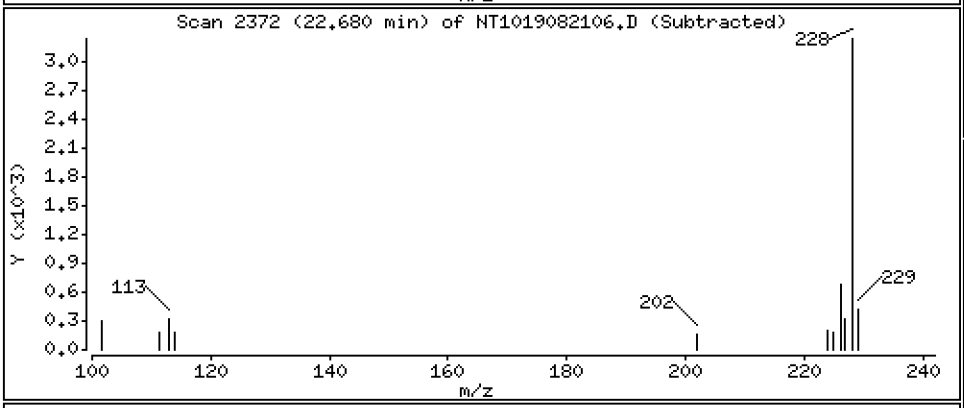
Column diameter: 0.25

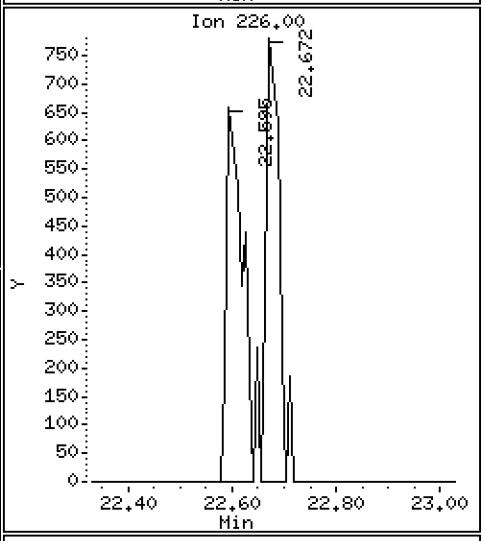
71 Chrysene

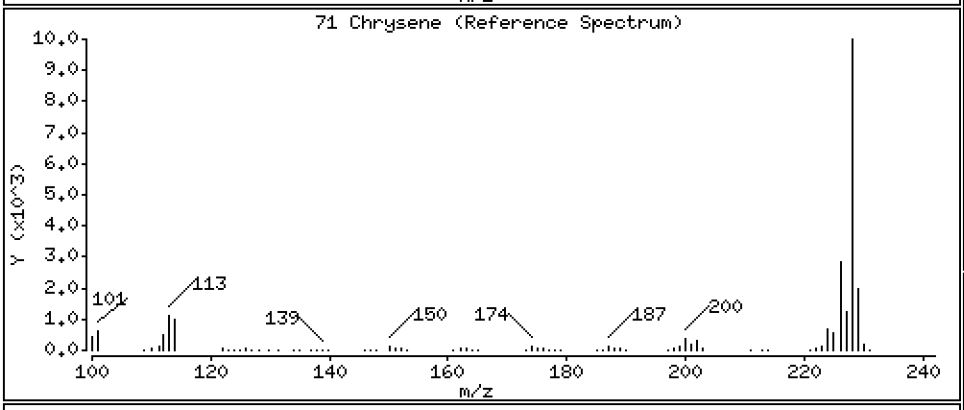
Concentration: 0.2011 ug/mL

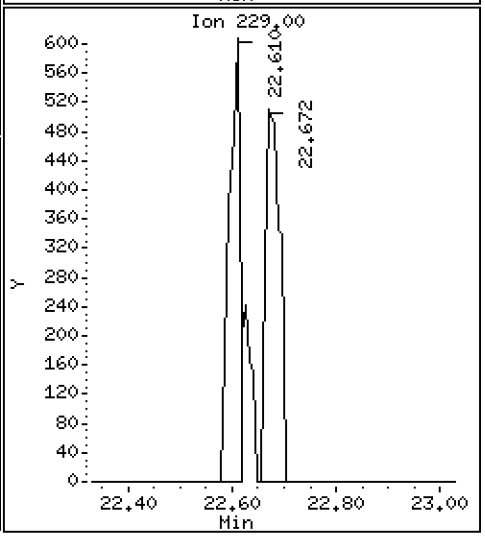


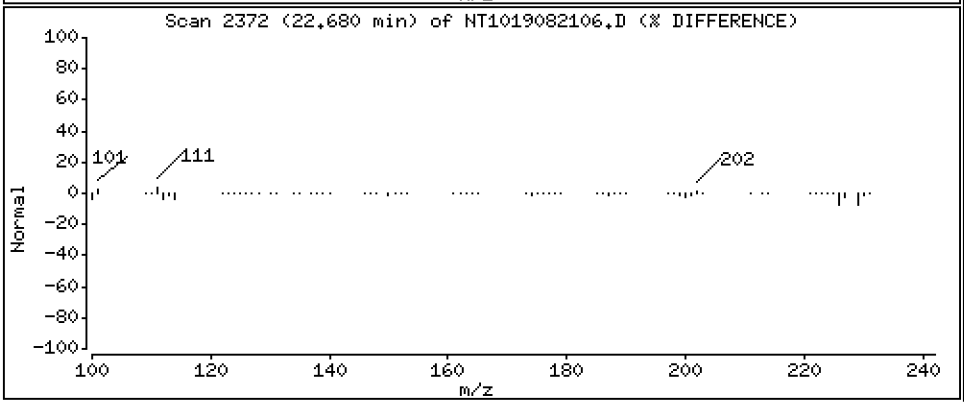












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

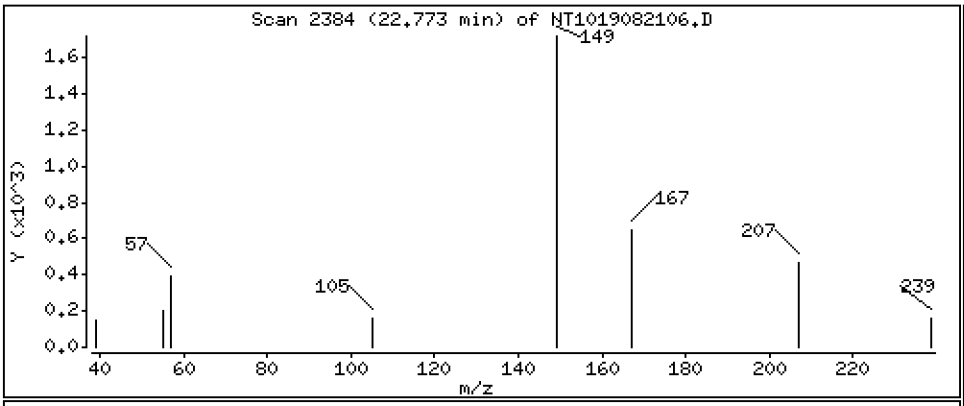
Operator: YZ

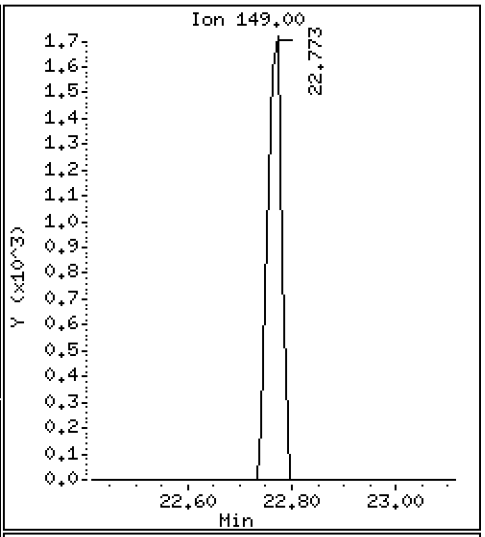
Column phase: ZB-5msi

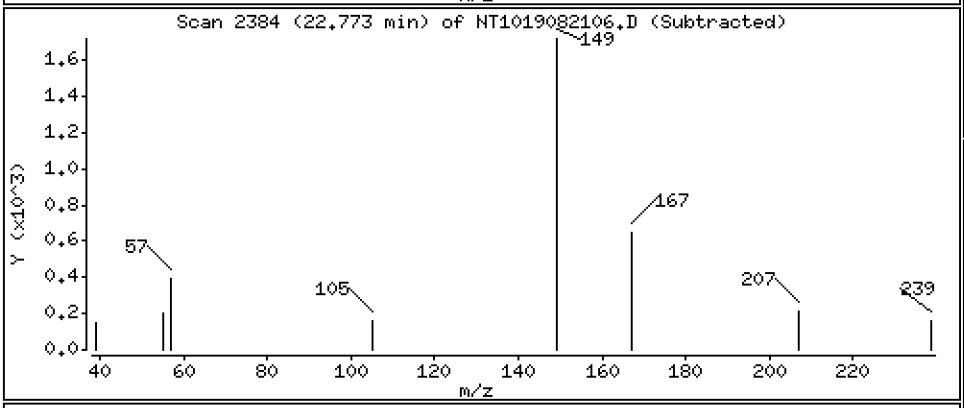
Column diameter: 0.25

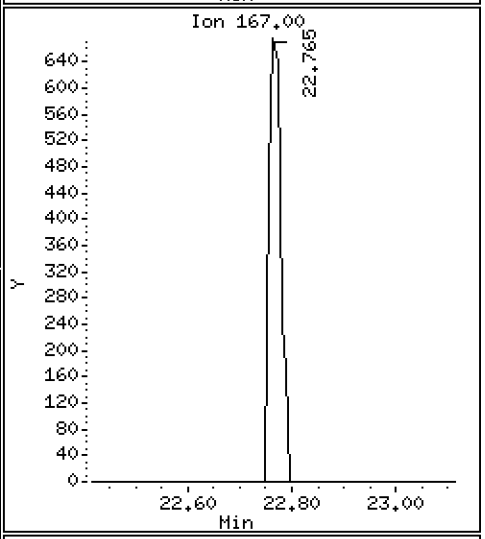
72 bis(2-Ethylhexyl)phthalate

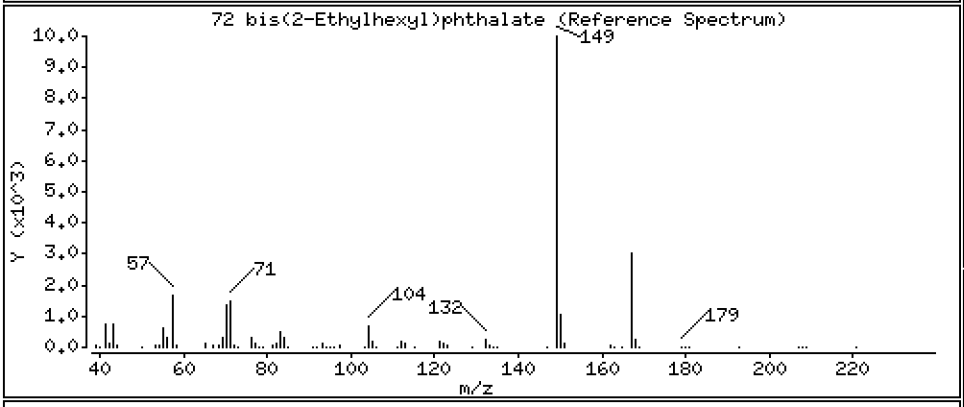
Concentration: 0.1575 ug/mL

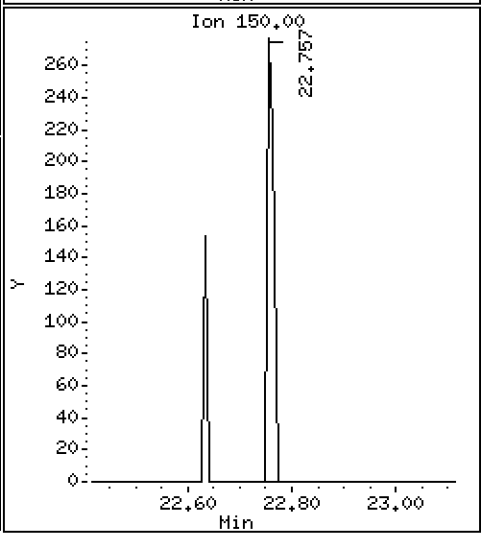


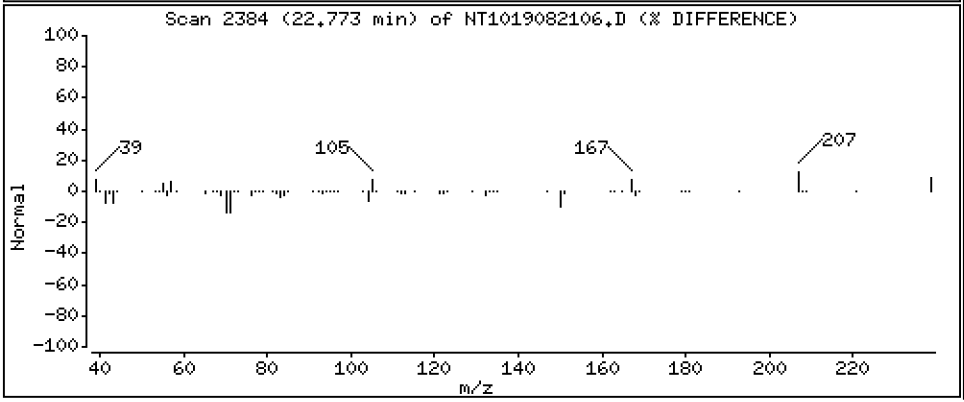












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

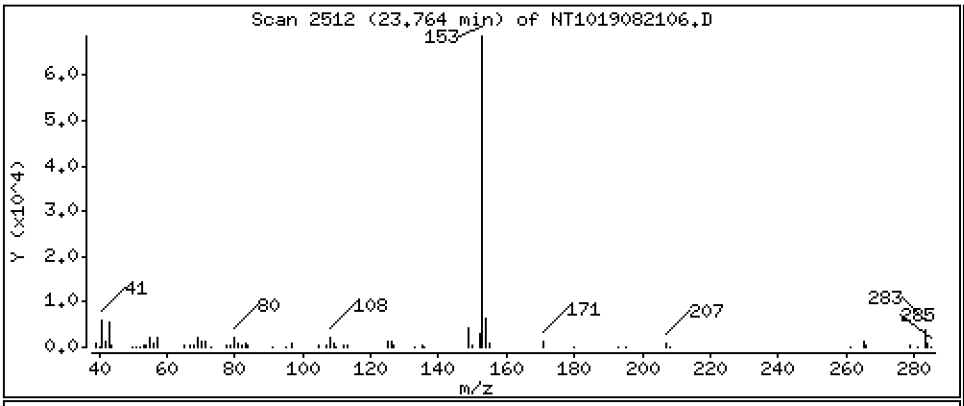
Operator: YZ

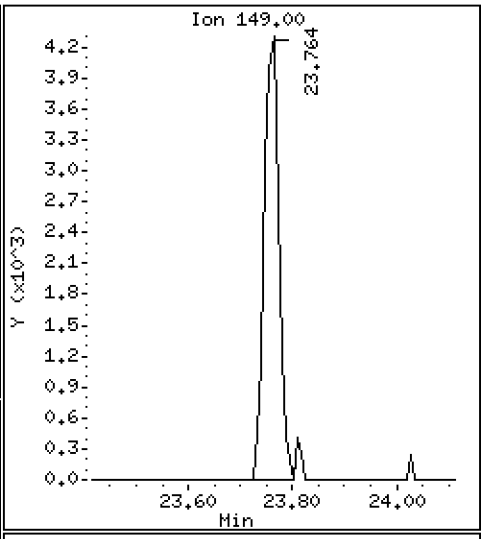
Column phase: ZB-5msi

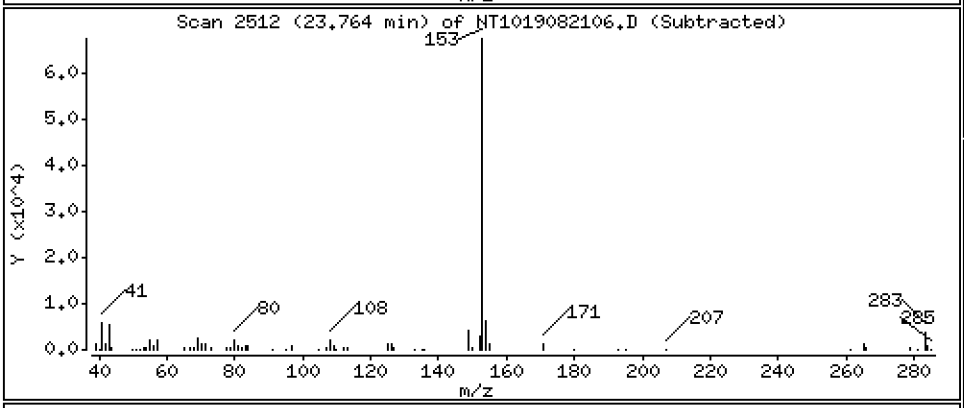
Column diameter: 0.25

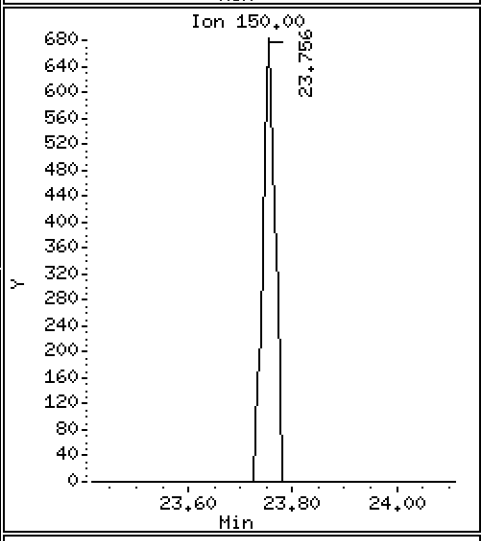
73 Di-n-octylphthalate

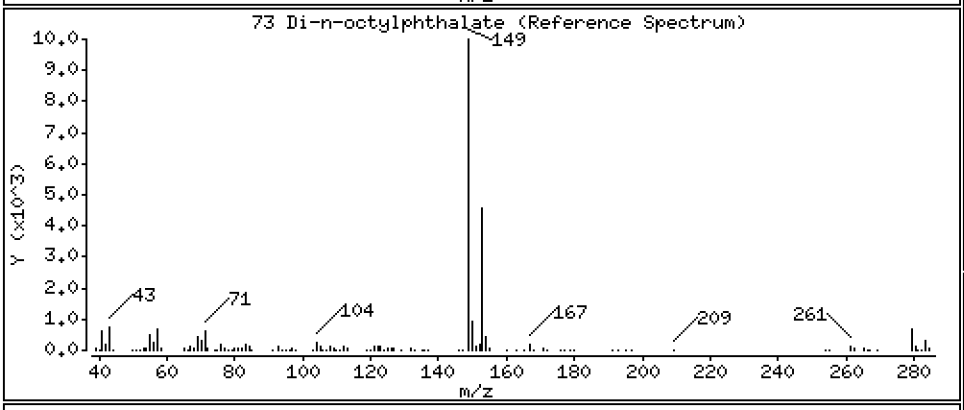
Concentration: 0.1963 ug/mL

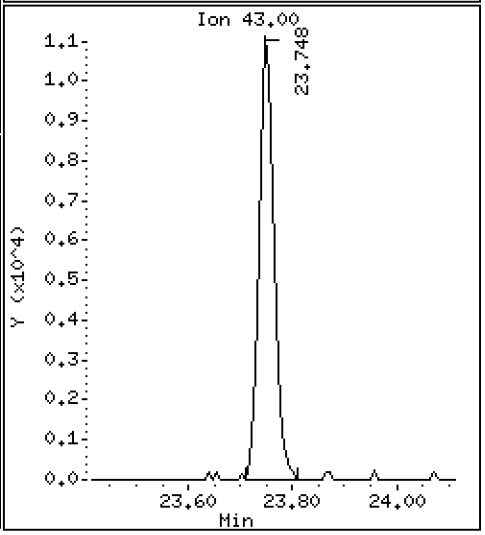


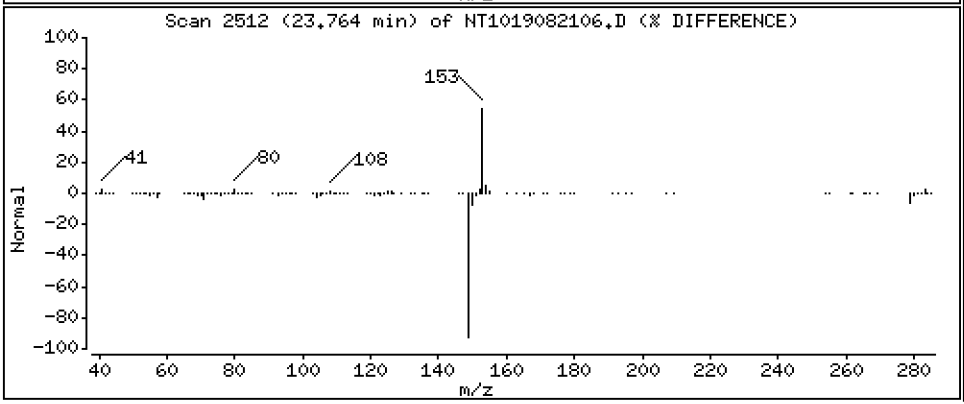












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

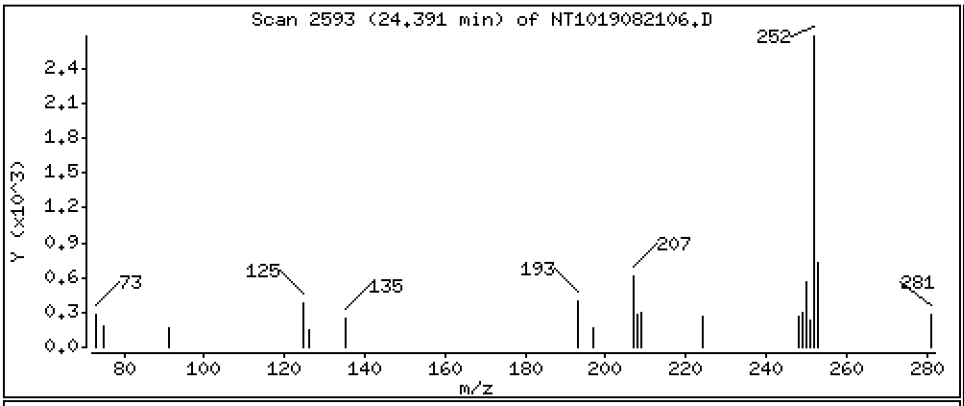
Operator: YZ

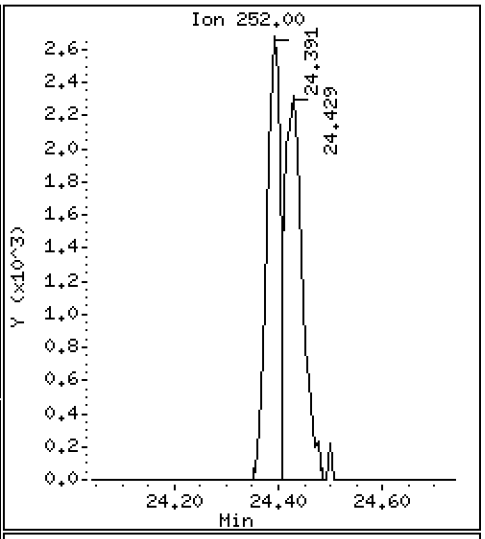
Column phase: ZB-5msi

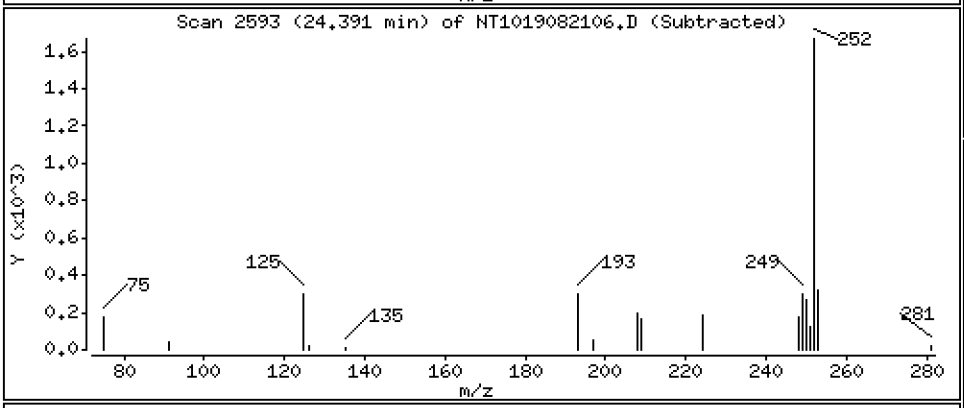
Column diameter: 0.25

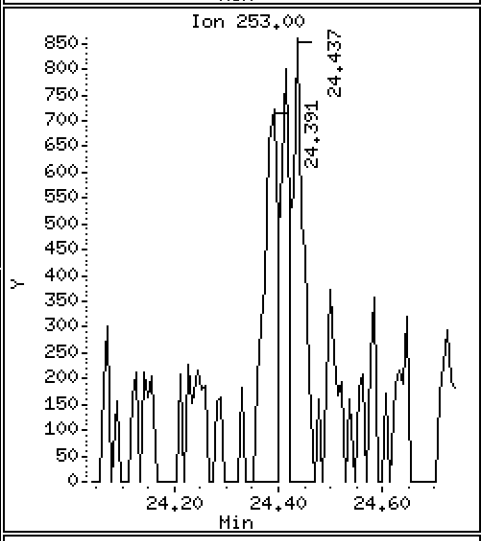
74 Benzo(b)fluoranthene

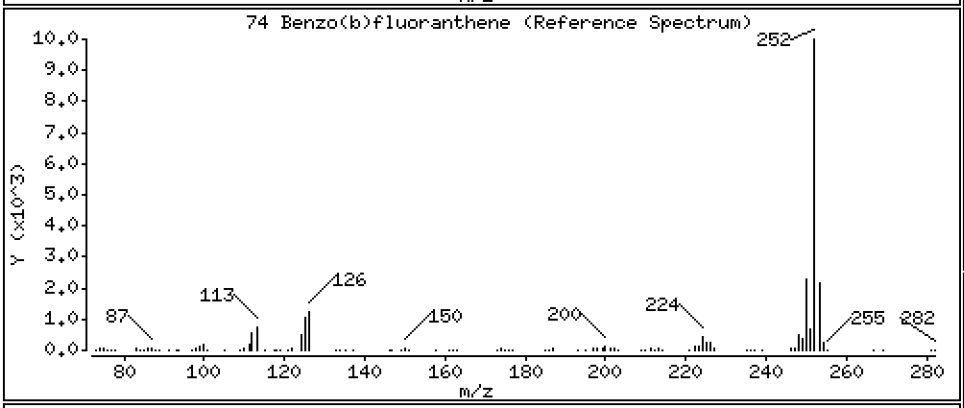
Concentration: 0.1743 ug/mL

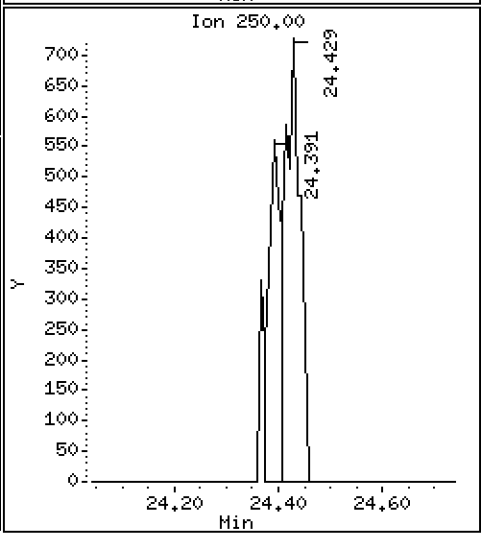


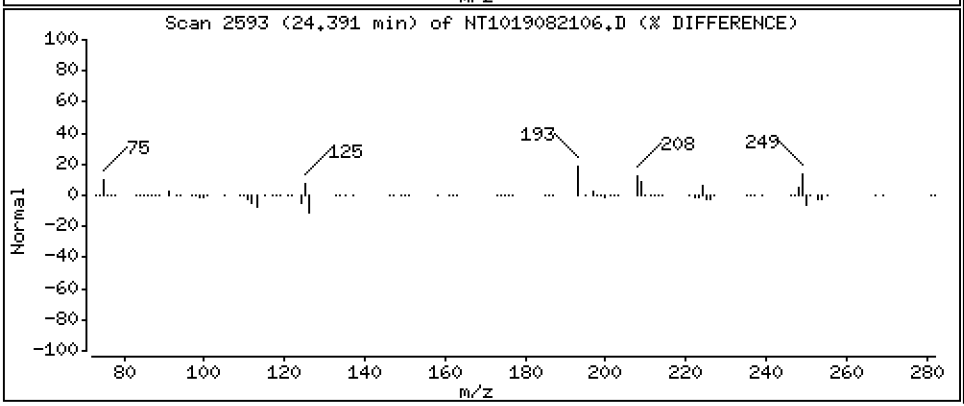












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

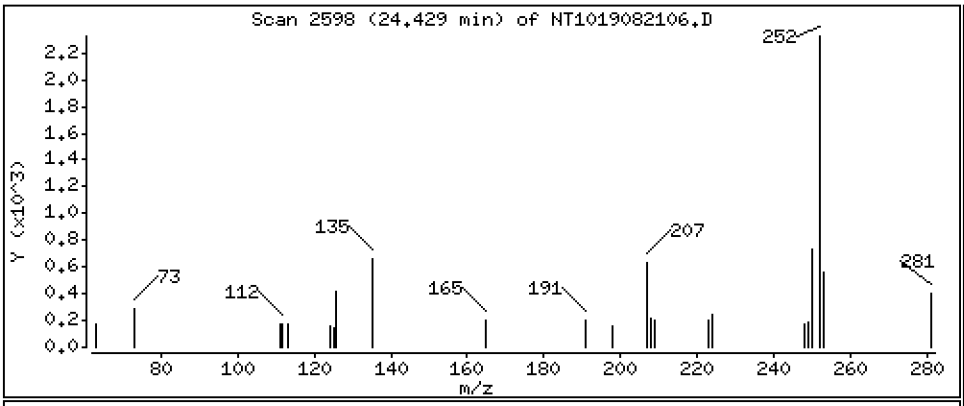
Operator: YZ

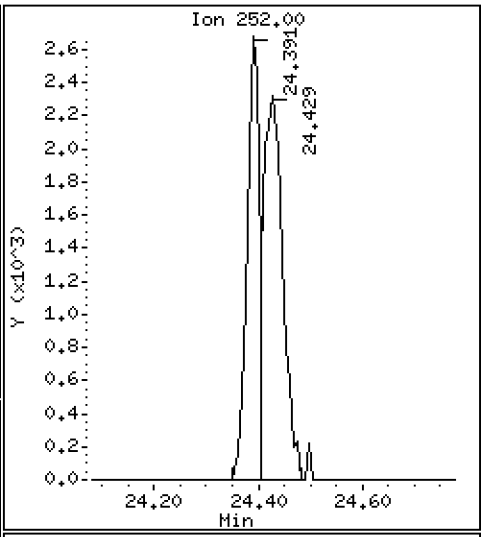
Column phase: ZB-5msi

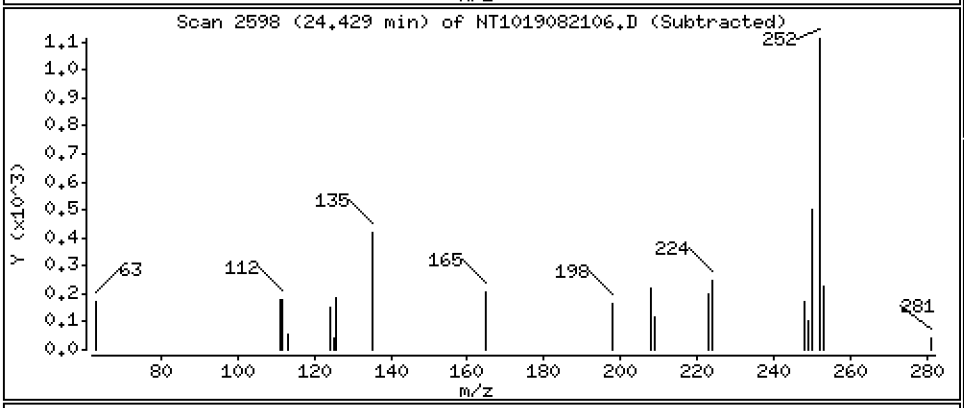
Column diameter: 0.25

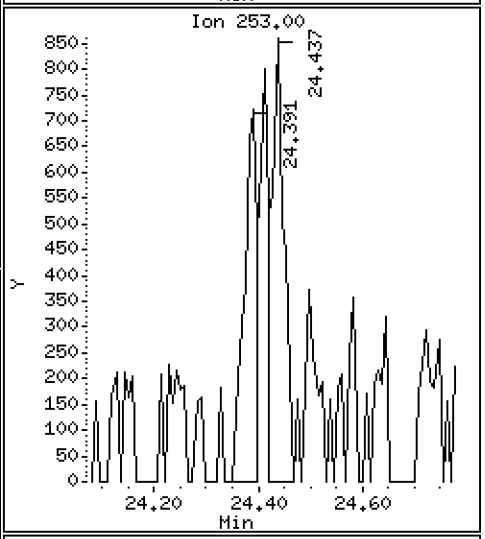
75 Benzo(k)fluoranthene

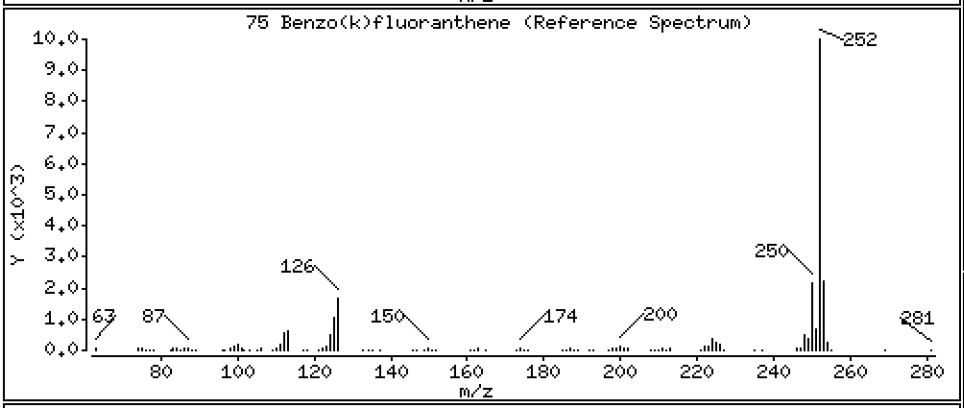
Concentration: 0.2209 ug/mL

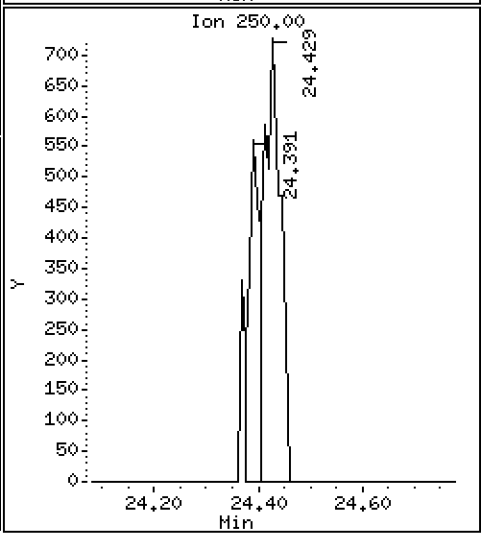


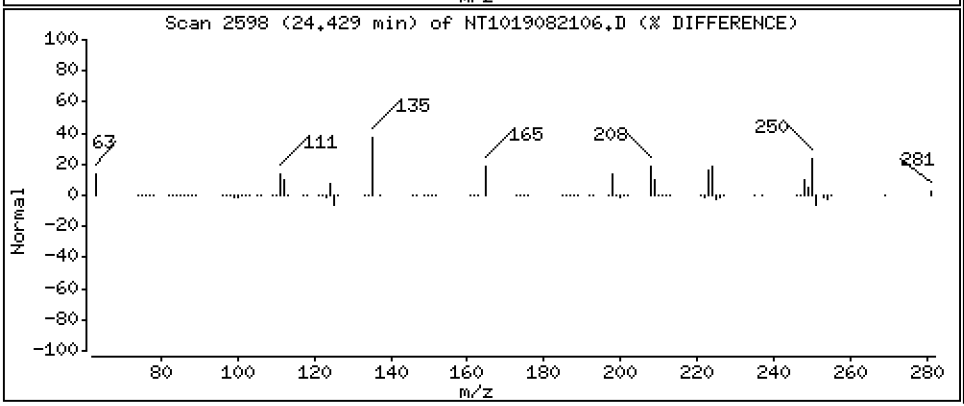












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

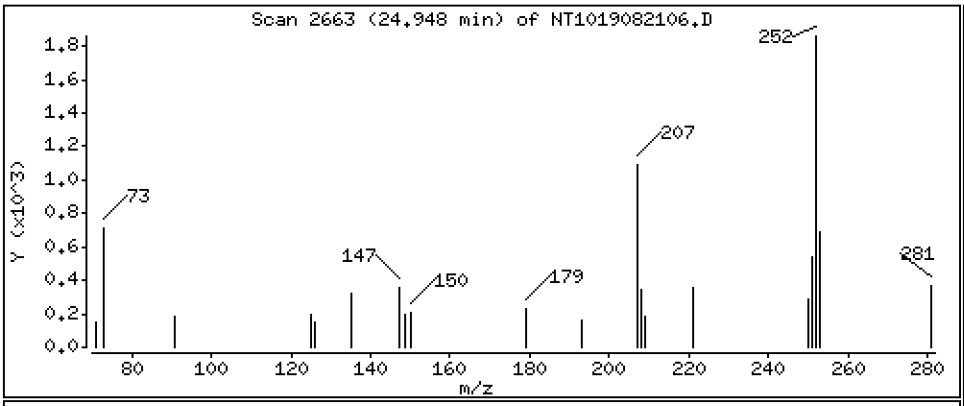
Operator: YZ

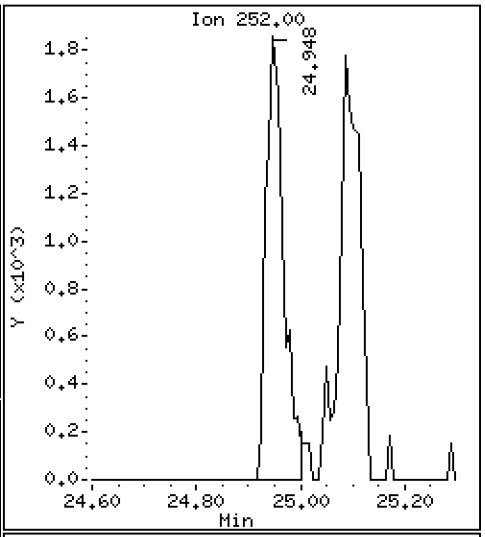
Column phase: ZB-5msi

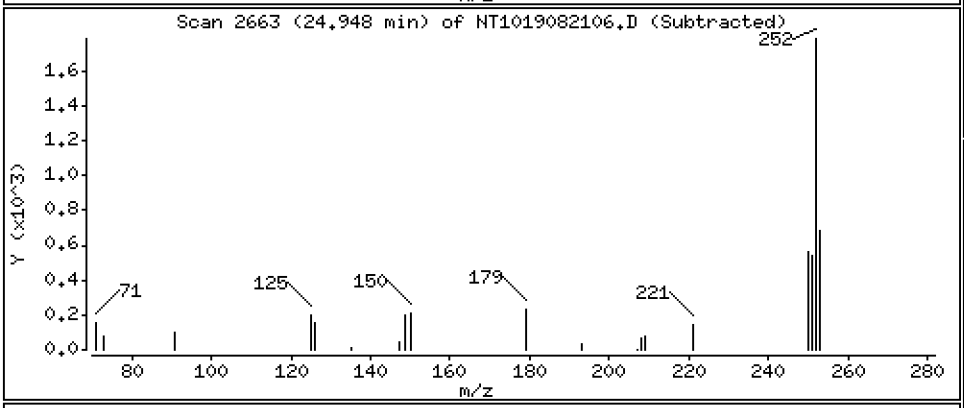
Column diameter: 0.25

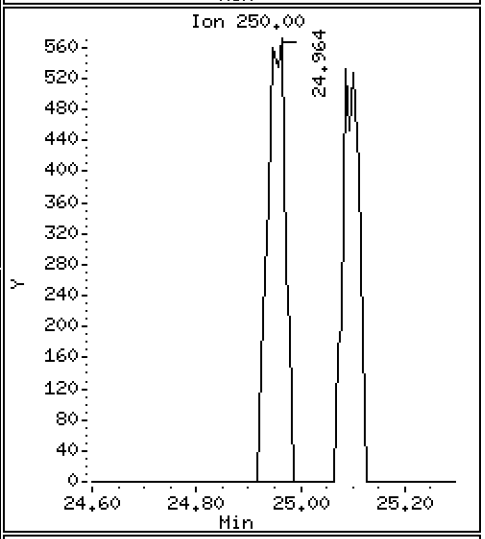
76 Benzo(a)pyrene

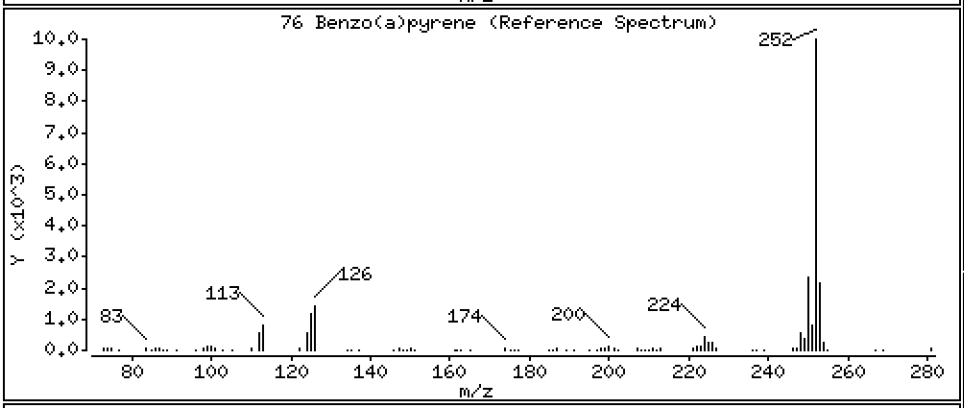
Concentration: 0.1743 ug/mL

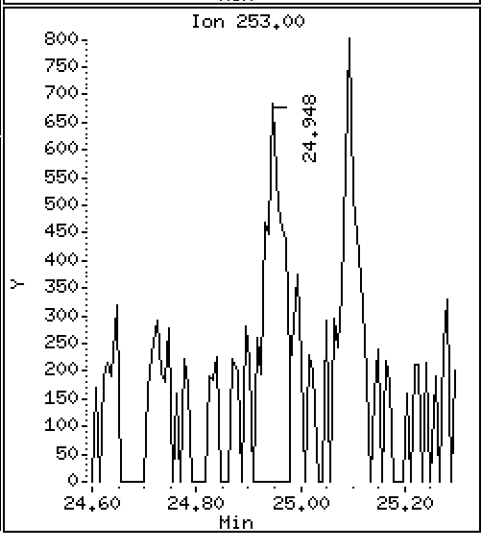


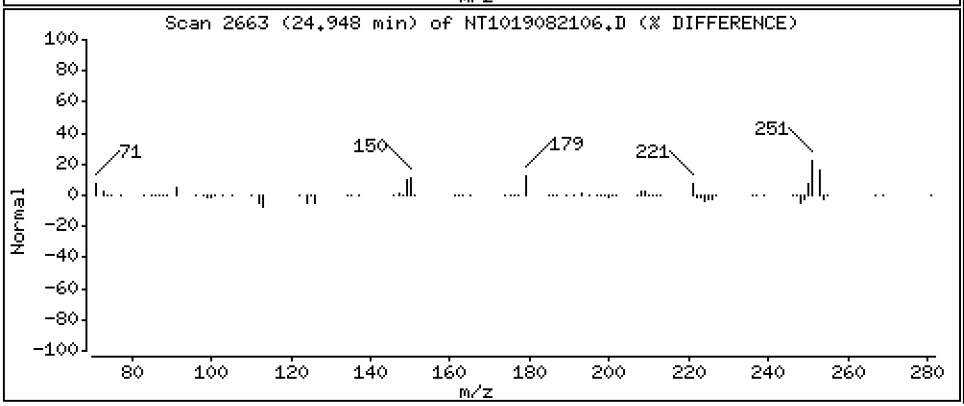












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

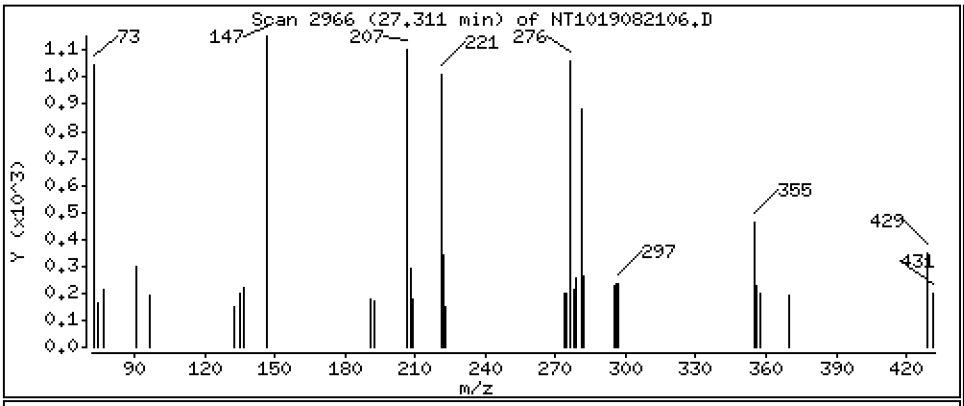
Operator: YZ

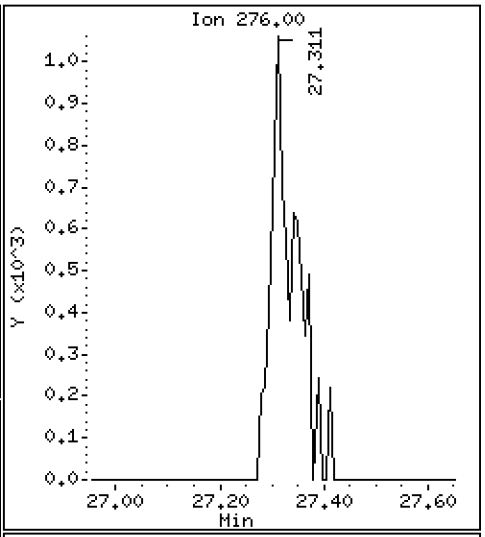
Column phase: ZB-5msi

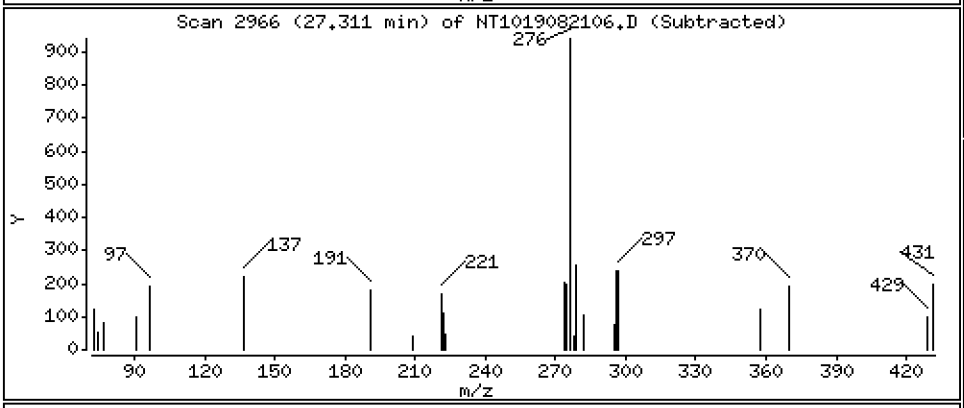
Column diameter: 0.25

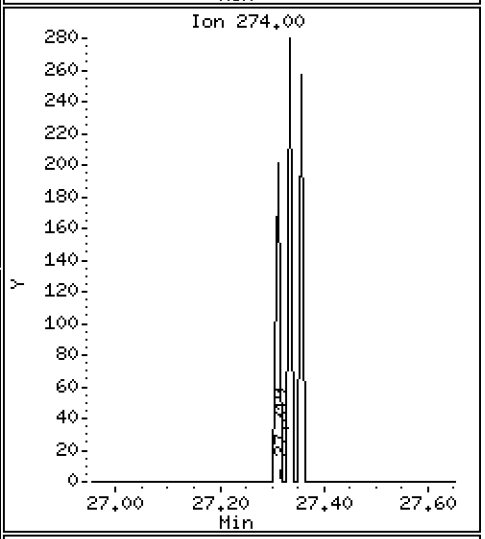
78 Indeno(1,2,3-cd)pyrene

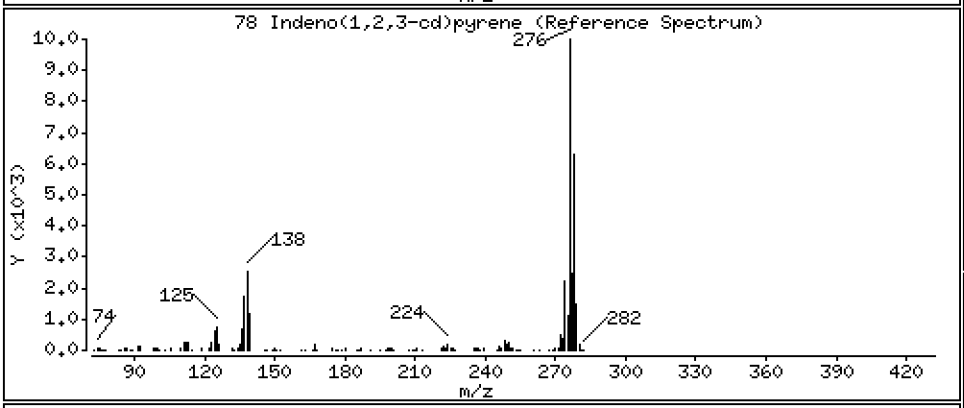
Concentration: 0.1091 ug/mL

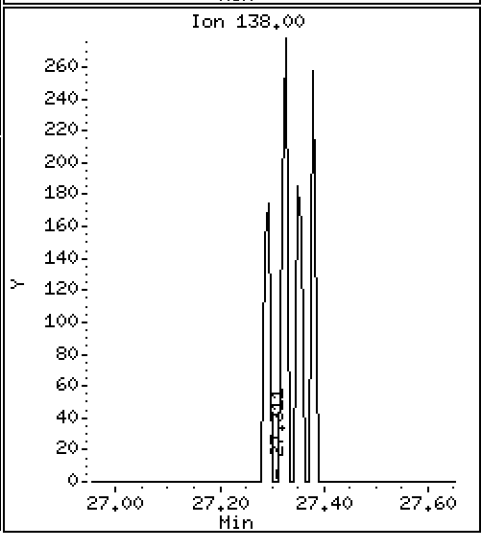


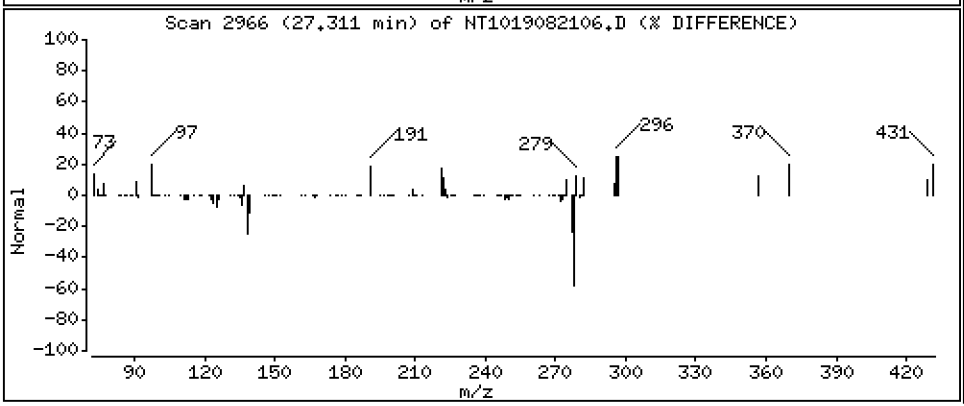












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

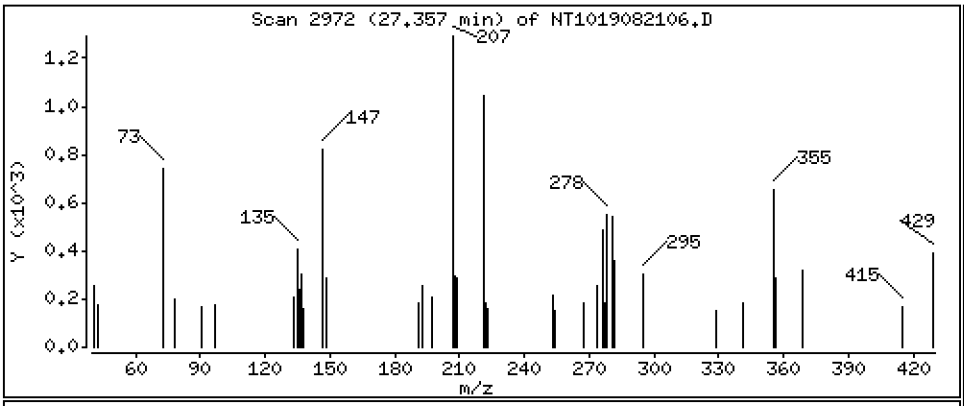
Operator: YZ

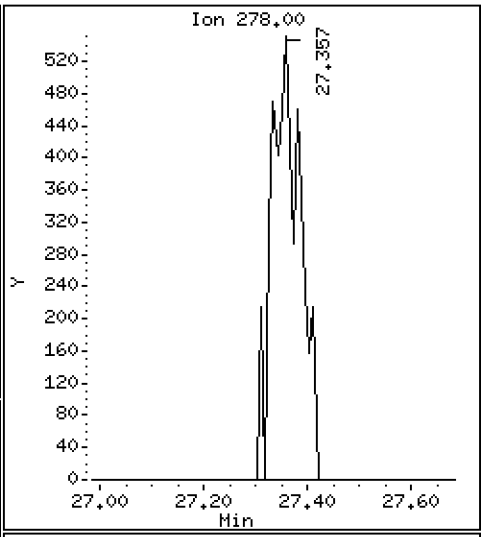
Column phase: ZB-5msi

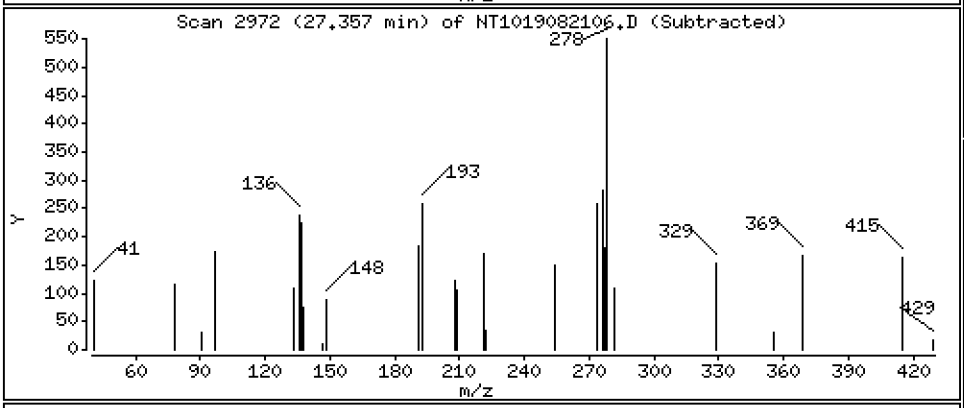
Column diameter: 0.25

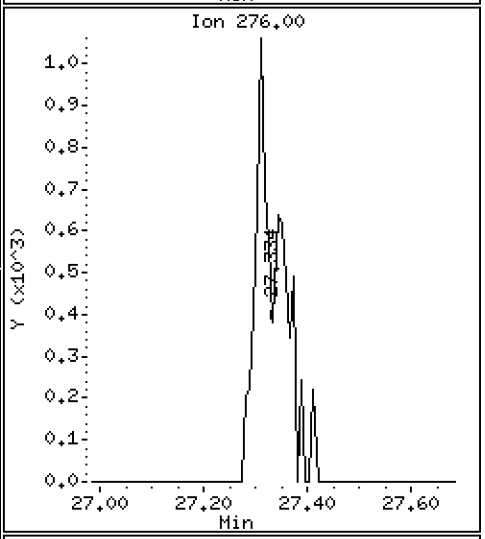
79 Dibenzo(a,h)anthracene

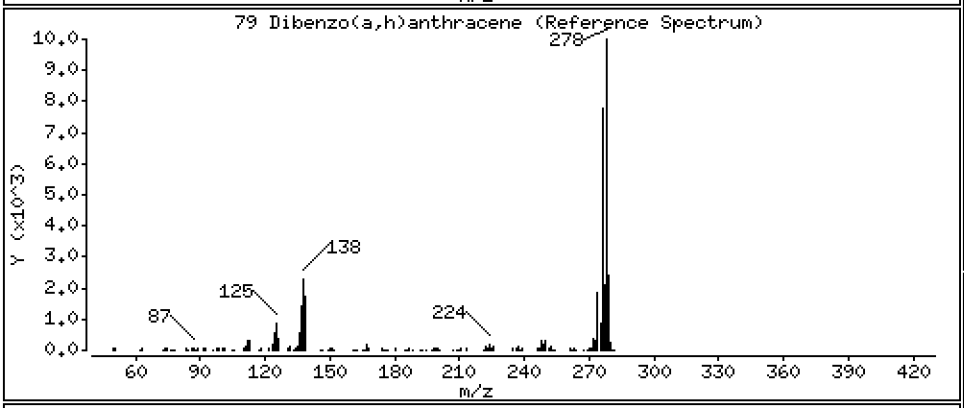
Concentration: 0.08872 ug/mL

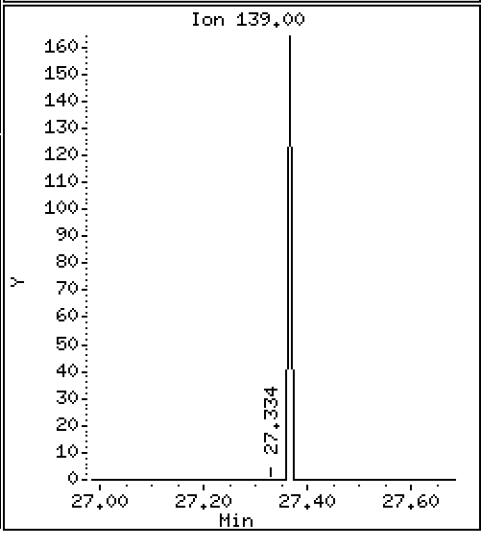


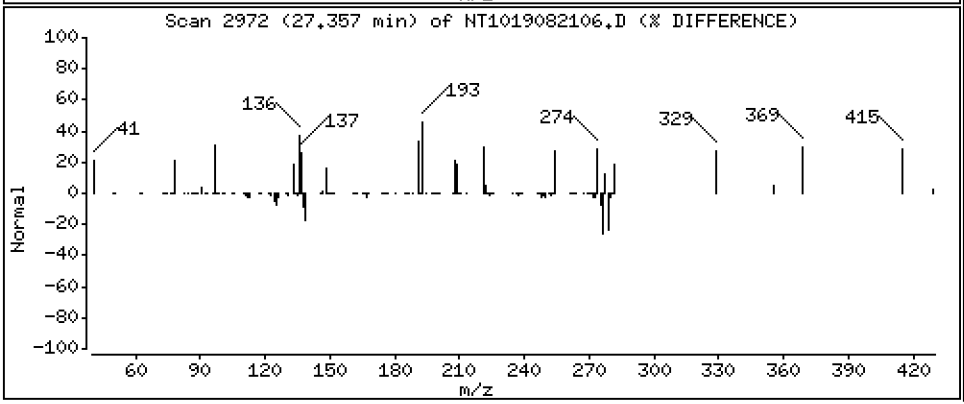












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

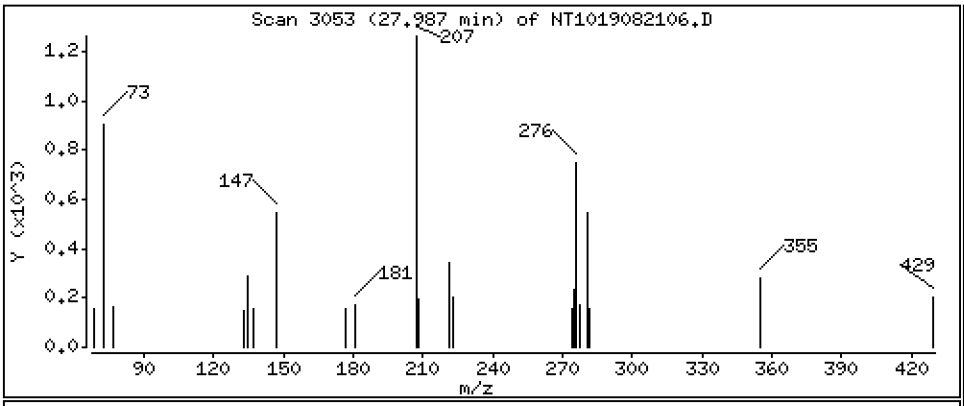
Operator: YZ

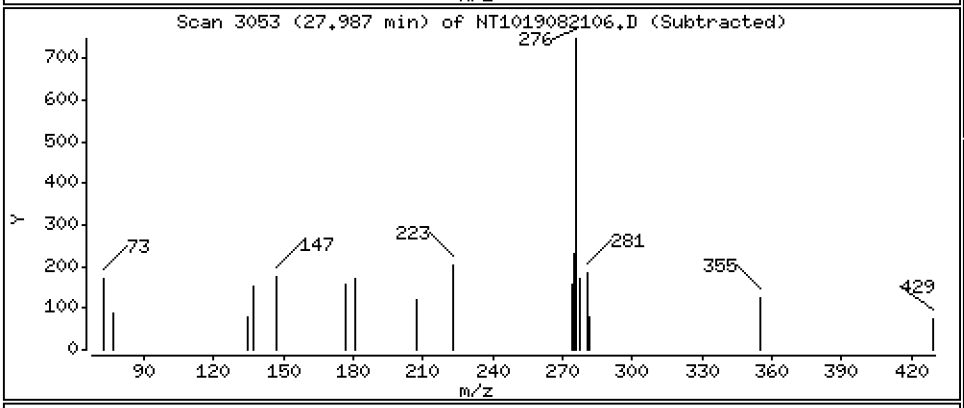
Column phase: ZB-5msi

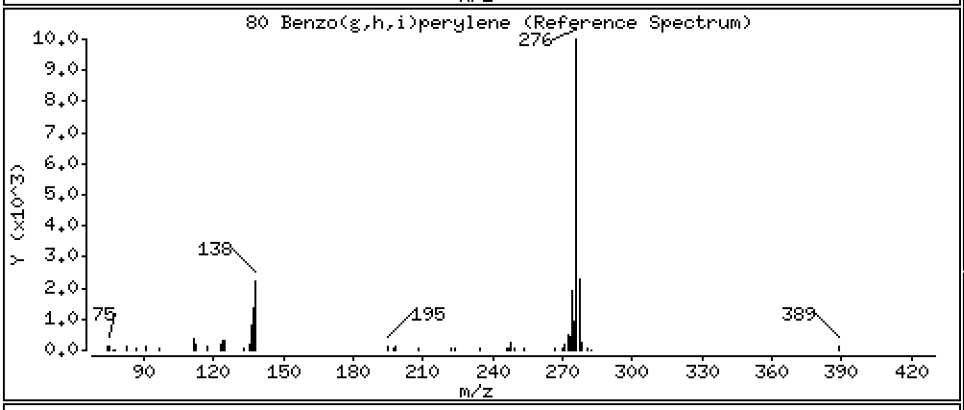
Column diameter: 0.25

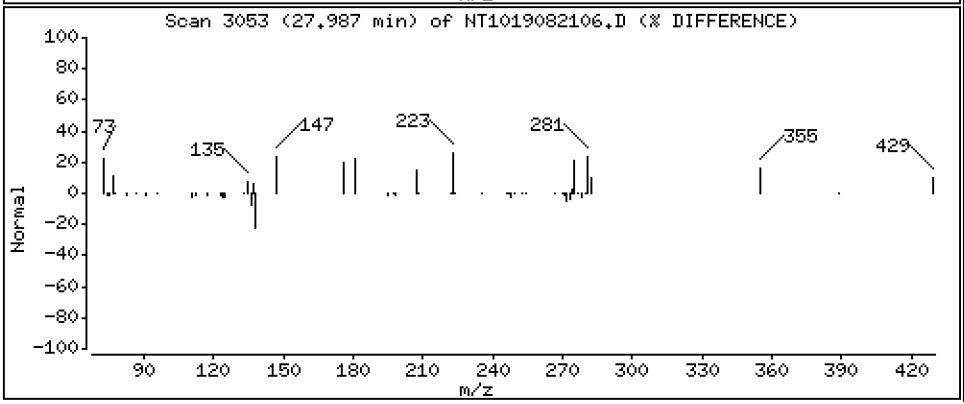
80 Benzo(g,h,i)perylene

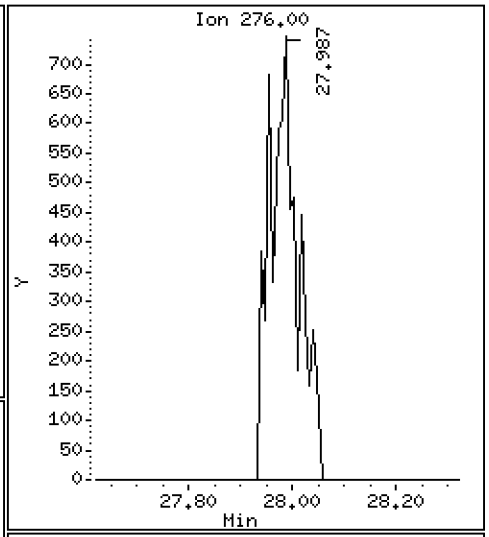
Concentration: 0.1141 ug/mL

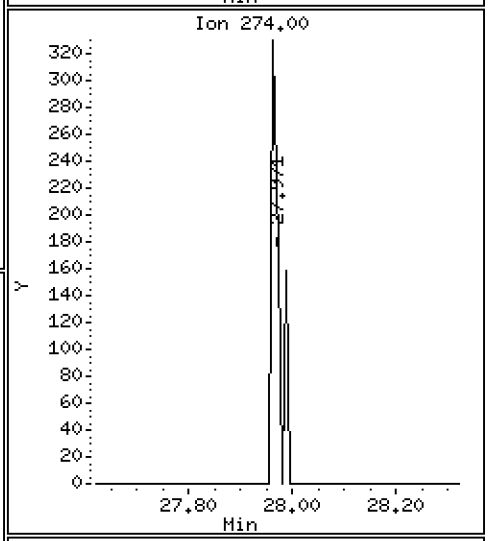


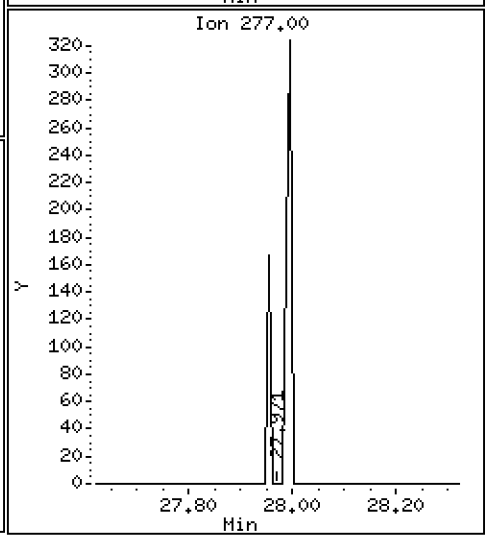












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Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

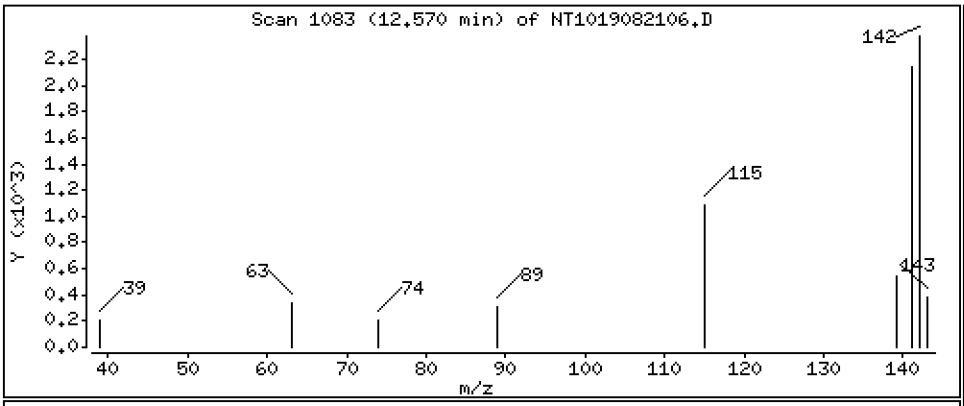
Operator: YZ

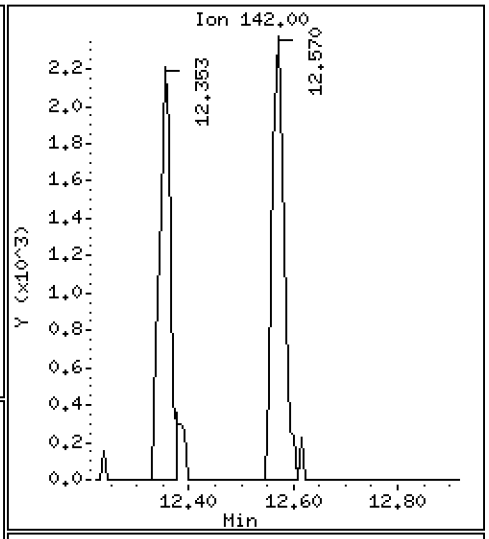
Column phase: ZB-5msi

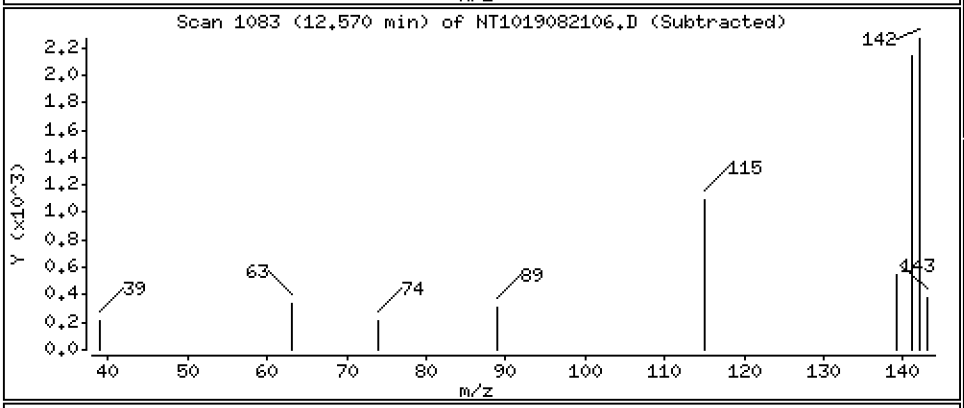
Column diameter: 0.25

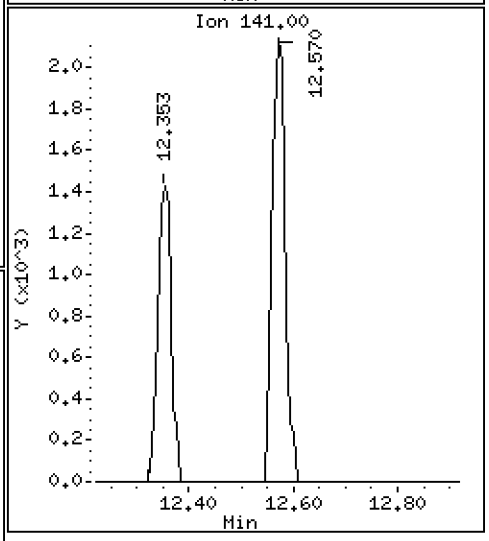
105 1-methylnaphthalene

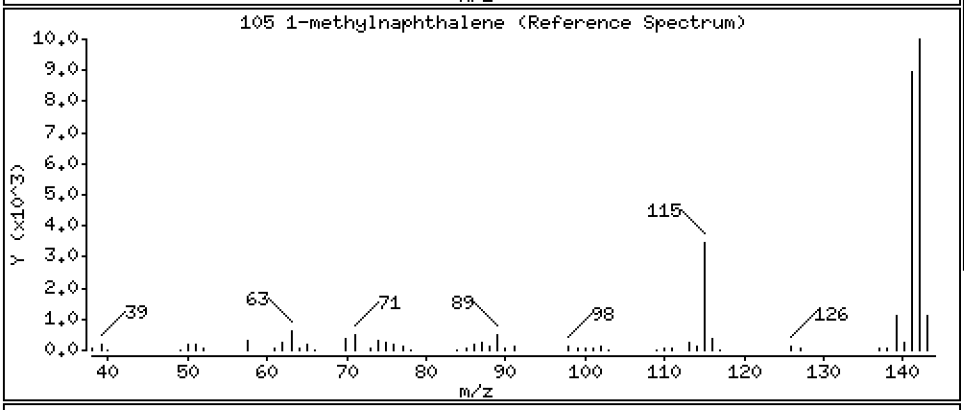
Concentration: 0.1509 ug/mL

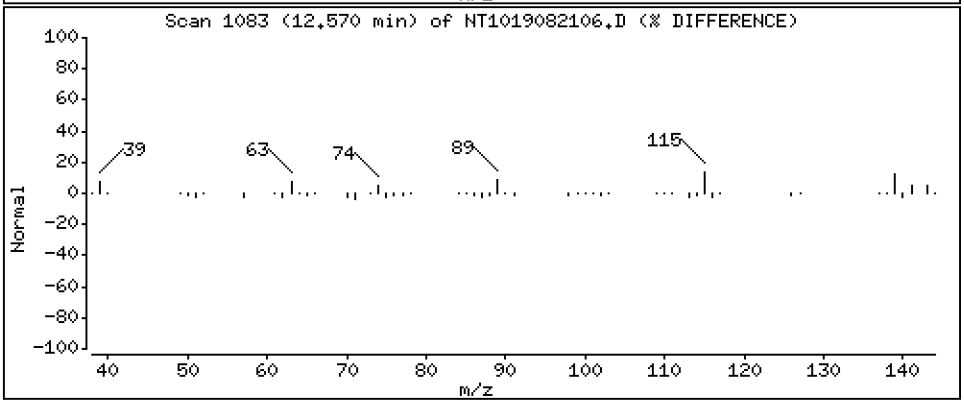












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D

Date : 21-AUG-2019 13:08

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV1

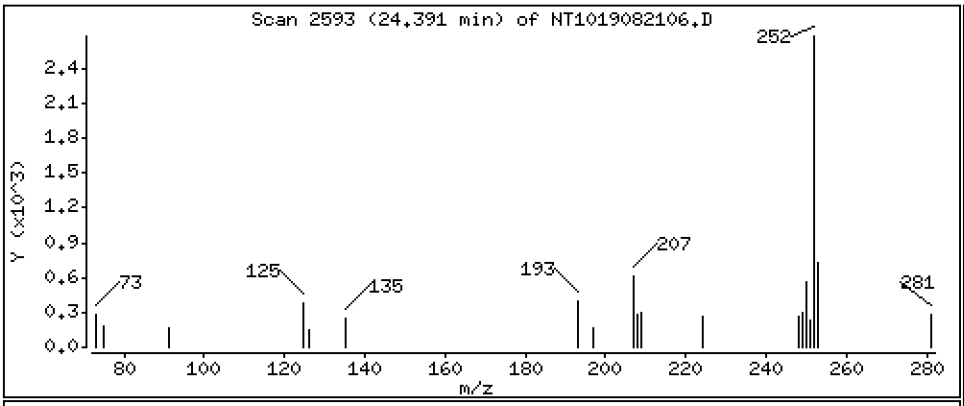
Operator: YZ

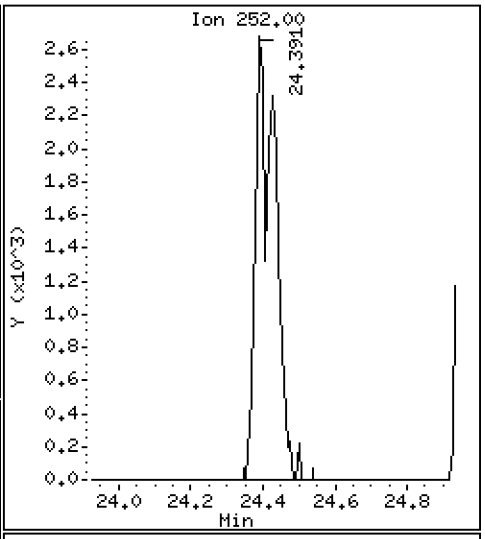
Column phase: ZB-5msi

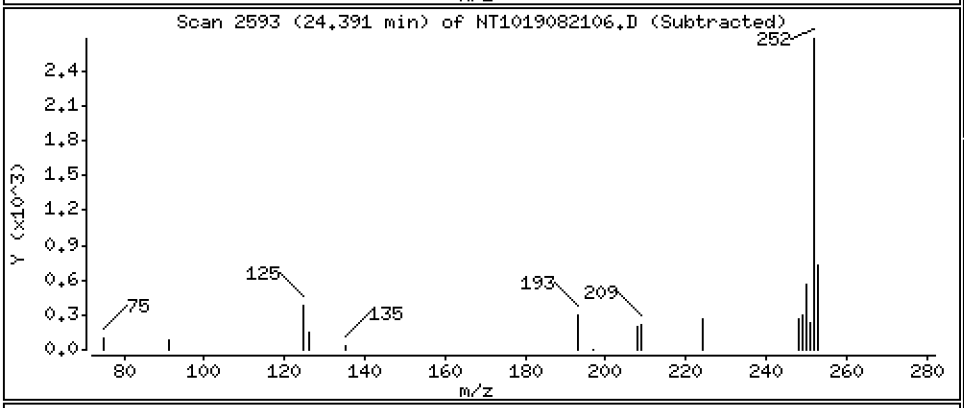
Column diameter: 0.25

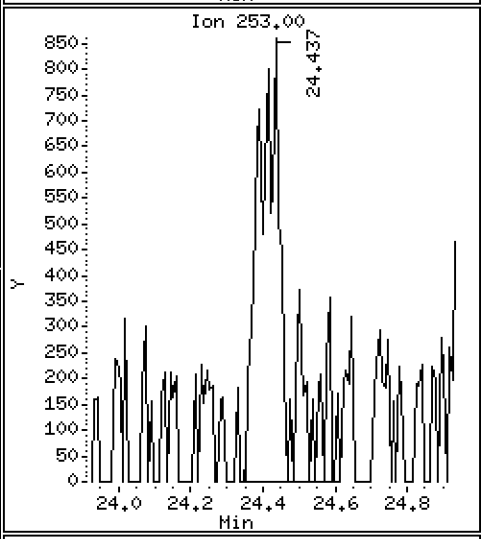
187 Total Benzofluoranthenes

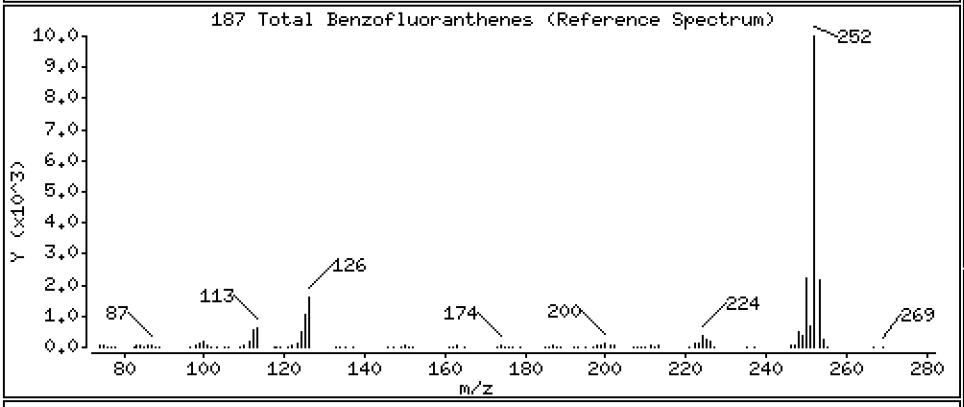
Concentration: 0.3939 ug/mL

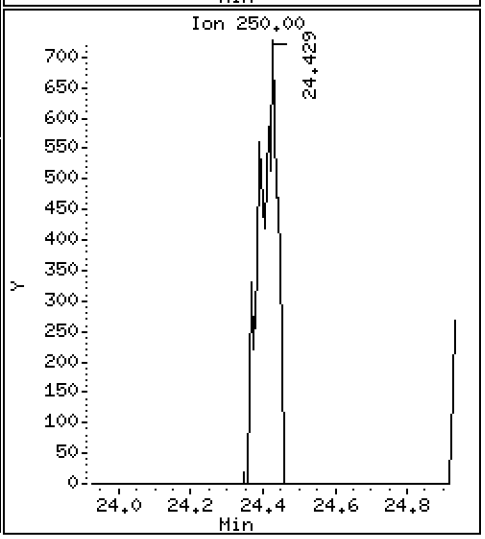


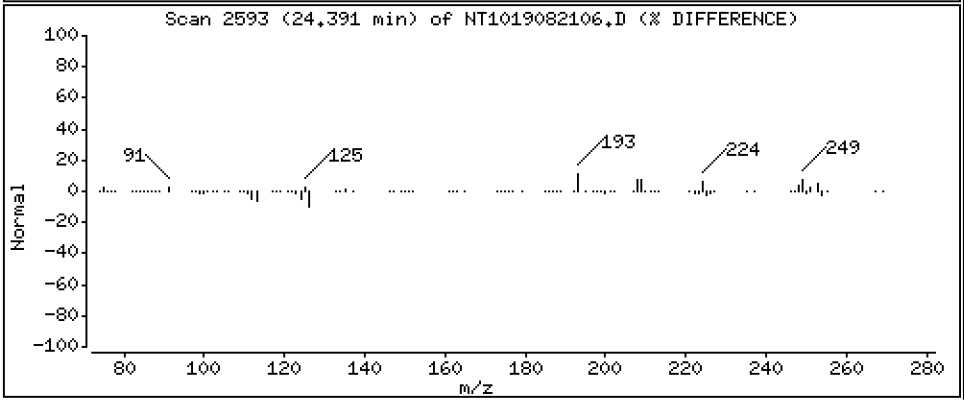












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082106.D
Lab Smp Id: SHH0303-LCV1
Inj Date : 21-AUG-2019 13:08
Operator : YZ Inst ID: nt10.i
Smp Info : SHH0303-LCV1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 13:05 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.319	6.311	(0.745)	1506	0.15357	0.1536
$	2 Phenol-d5	99	7.887	7.888	(0.930)	1504	0.13684	0.1368
	3 Phenol	94	7.918	7.911	(0.933)	1110	0.10863	0.1086(M)
$	5 2-Chlorophenol-d4	132	8.127	8.127	(0.958)	2479	0.20953	0.2095(M)
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	34924	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.832	8.832	(1.041)	1470	0.18173	0.1817
	11 Benzyl alcohol	108	8.995	8.762	(1.060)	828	0.12244	0.1224
$	18 Nitrobenzene-d5	82	9.562	9.554	(0.876)	924	0.09773	0.09773
	24 Benzoic acid	105	Compound Not Detected.					
*	27 Naphthalene-d8	136	10.921	10.929	(1.000)	120883	4.00000	
	28 Naphthalene	128	10.960	10.968	(1.004)	4486	0.16145	0.1614
	32 2-Methylnaphthalene	142	12.352	12.353	(1.131)	3251	0.13794	0.1379
$	36 2-Fluorobiphenyl	172	13.150	13.142	(0.906)	3370	0.15357	0.1536
	39 Dimethylphthalate	163	14.055	14.055	(0.969)	2921	0.13701	0.1370
	40 Acenaphthylene	152	14.194	14.195	(0.978)	4745	0.17158	0.1716
*	42 Acenaphthene-d10	164	14.512	14.512	(1.000)	57371	4.00000	
	44 Acenaphthene	153	14.573	14.574	(1.004)	3512	0.20210	0.2021
	46 Dibenzofuran	168	14.898	14.898	(1.027)	4517	0.15816	0.1582
	50 Diethylphthalate	149	15.501	15.517	(1.068)	3137	0.15282	0.1528
	49 Fluorene	166	15.609	15.610	(1.076)	3746	0.19180	0.1918
	54 N-Nitrosodiphenylamine	169	15.887	15.872	(0.907)	2955	0.18562	0.1856
$	55 2,4,6-Tribromophenol	330	16.157	16.142	(1.113)	149	0.03435	0.03435(M)
*	59 Phenanthrene-d10	188	17.525	17.525	(1.000)	115978	4.00000	
	60 Phenanthrene	178	17.571	17.572	(1.003)	5198	0.18348	0.1835
	61 Anthracene	178	17.664	17.665	(1.008)	4851	0.16864	0.1686
	63 Di-n-butylphthalate	149	18.871	18.872	(1.077)	4910	0.12528	0.1253(M)
	64 Fluoranthene	202	19.993	19.993	(0.883)	5470	0.15901	0.1590
	65 Pyrene	202	20.426	20.411	(0.903)	6571	0.18292	0.1829
$	66 Terphenyl-d14	244	20.751	20.744	(0.917)	3759	0.15430	0.1543
	67 Butylbenzylphthalate	149	21.711	21.712	(0.959)	1966	0.11749	0.1175
	68 Benzo(a)anthracene	228	22.617	22.610	(0.999)	5359	0.16408	0.1641
*	69 Chrysene-d12	240	22.633	22.633	(1.000)	112570	4.00000	
	71 Chrysene	228	22.679	22.680	(1.002)	5813	0.20114	0.2011

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.772	22.765	(0.959)	3083	0.15753	0.1575
* 134	Di-n-octylphthalate-d4	153	23.755	23.756	(1.000)	222512	4.00000	
73	Di-n-octylphthalate	149	23.763	23.763	(1.000)	8082	0.19634	0.1963
74	Benzo(b)fluoranthene	252	24.390	24.390	(0.974)	4726	0.17429	0.1743
75	Benzo(k)fluoranthene	252	24.429	24.429	(0.975)	6026	0.22090	0.2209
76	Benzo(a)pyrene	252	24.948	24.948	(0.996)	4241	0.17427	0.1743
* 77	Perylene-d12	264	25.048	25.056	(1.000)	94510	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	27.310	27.303	(1.090)	3190	0.10910	0.1091(M)
79	Dibenzo(a,h)anthracene	278	27.357	27.334	(1.092)	2112	0.08872	0.08872(M)
80	Benzo(g,h,i)perylene	276	27.986	27.971	(1.117)	2810	0.11410	0.1141(M)
105	1-methylnaphthalene	142	12.569	12.569	(1.151)	3575	0.15088	0.1509
187	Total Benzofluoranthenes	252	24.390	24.429	(0.974)	10244	0.39386	0.3939

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082106.D
Lab Smp Id: SHH0303-LCV1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	34924	6.67
27 Naphthalene-d8	117487	58744	234974	120883	2.89
42 Acenaphthene-d10	61859	30930	123718	57371	-7.26
59 Phenanthrene-d10	113574	56787	227148	115978	2.12
69 Chrysene-d12	105788	52894	211576	112570	6.41
134 Di-n-octylphthala	252823	126412	505646	222512	-11.99
77 Perylene-d12	113992	56996	227984	94510	-17.09

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	-0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.92	-0.07
42 Acenaphthene-d10	14.51	14.01	15.01	14.51	-0.00
59 Phenanthrene-d10	17.53	17.03	18.03	17.53	-0.00
69 Chrysene-d12	22.63	22.13	23.13	22.63	-0.00
134 Di-n-octylphthala	23.76	23.26	24.26	23.76	-0.00
77 Perylene-d12	25.06	24.56	25.56	25.05	-0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082106.D

Lab ID: SHH0303-LCV1
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 13:08

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.060	1.033	0.0275	Benzyl alcohol

RRT check based on Ccal File: NT1019082105.D

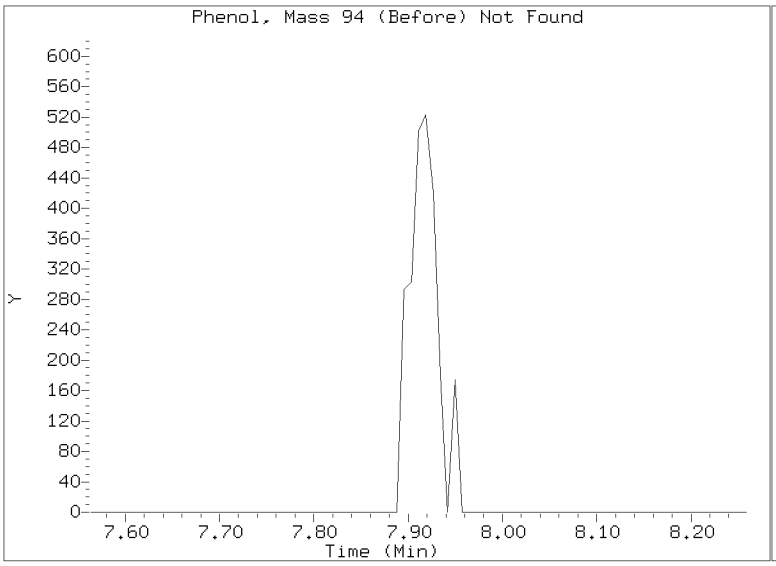
On Column LOD for nt10.i, 20190821.b\ABN.m, pnaphth.sub = 0.1000

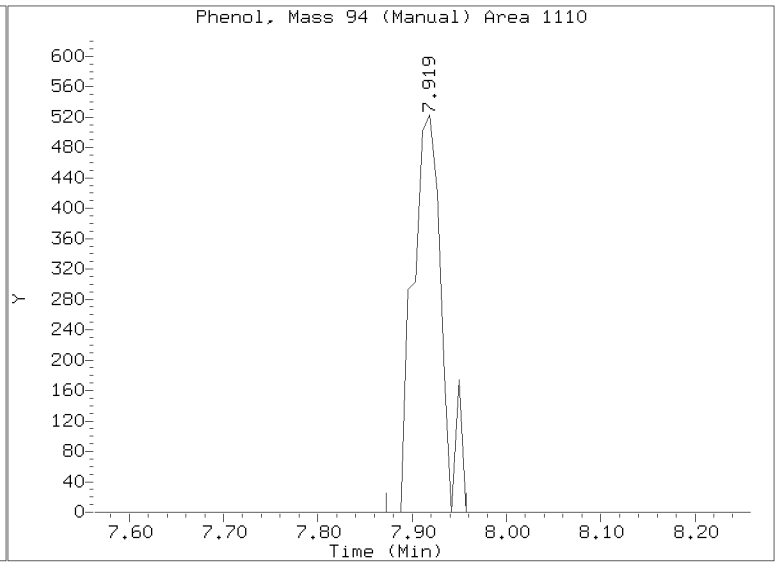
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

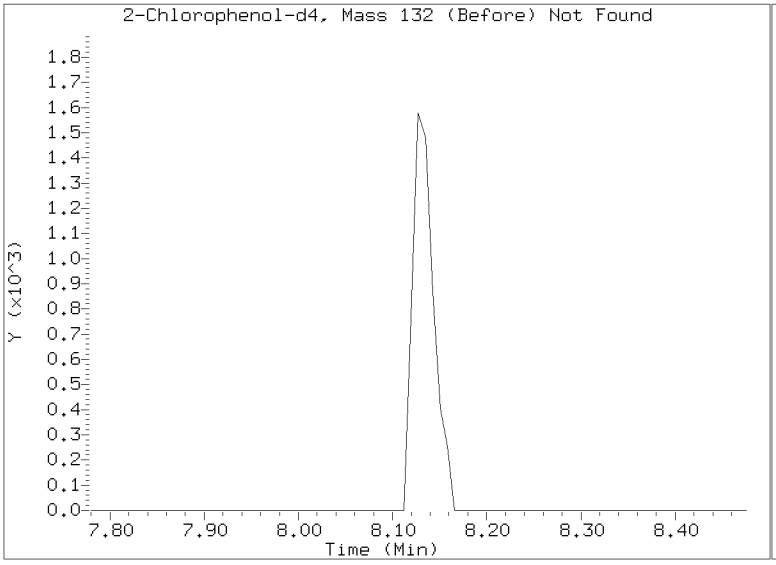
* Only compounds listed in the work order have been verified by the analyst *

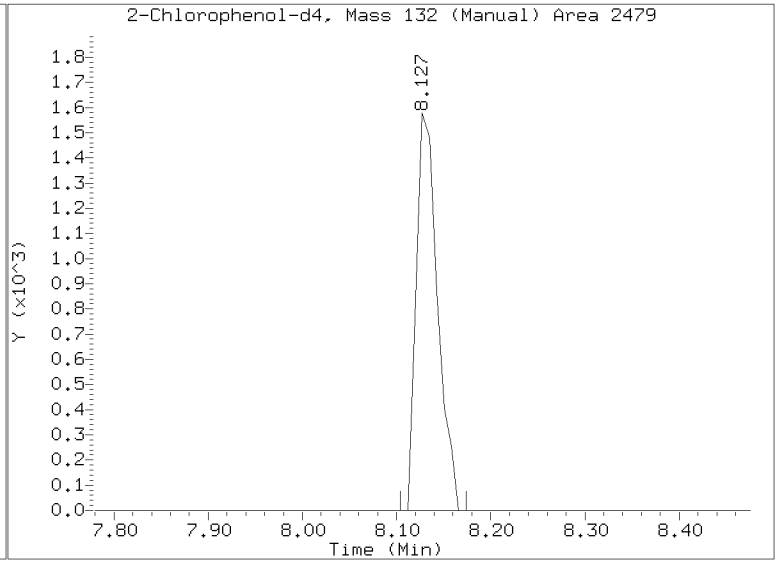
Quant Ion Manual Peak Adjustment Report

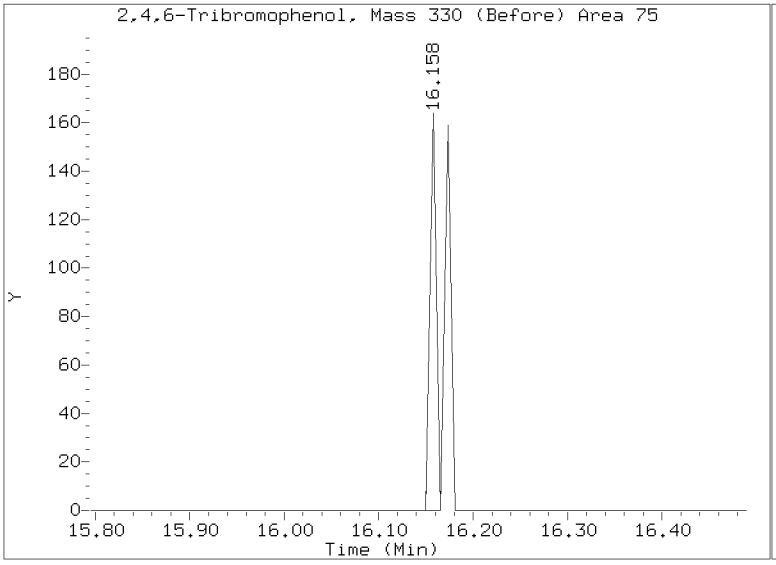
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082106.D
Injection Date: 21-AUG-2019 13:08
Lab ID:SHH0303-LCV1 Client ID:
Report Date: 08/22/2019 13:06

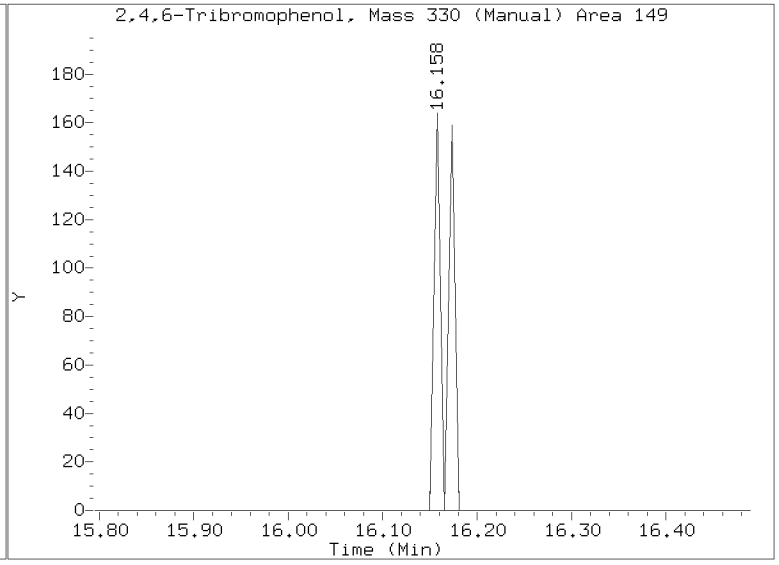












Quant Ion Manual Peak Adjustment Report

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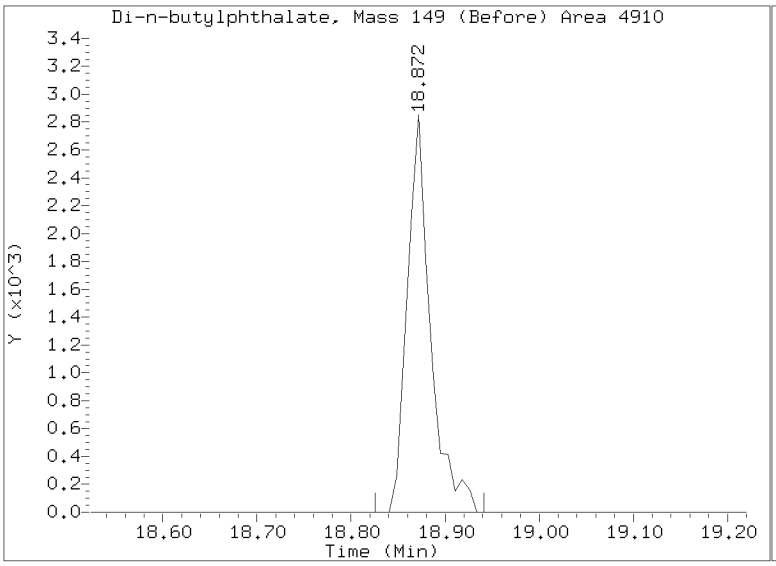
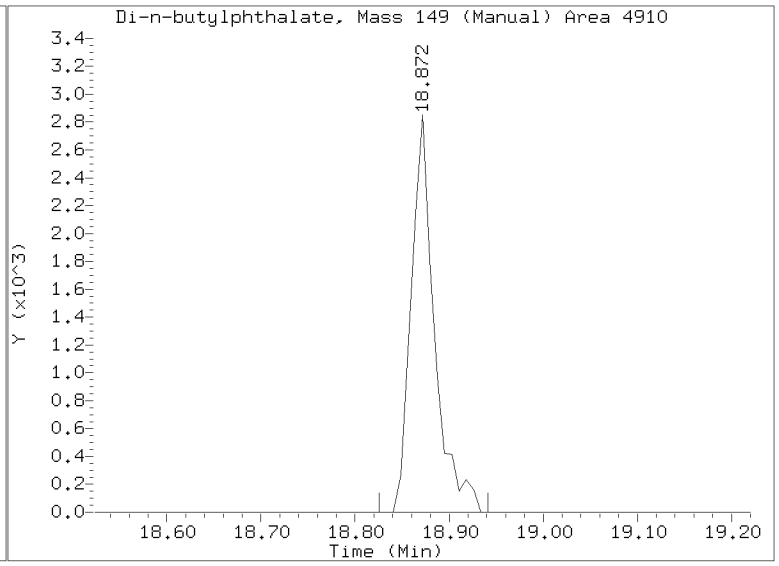
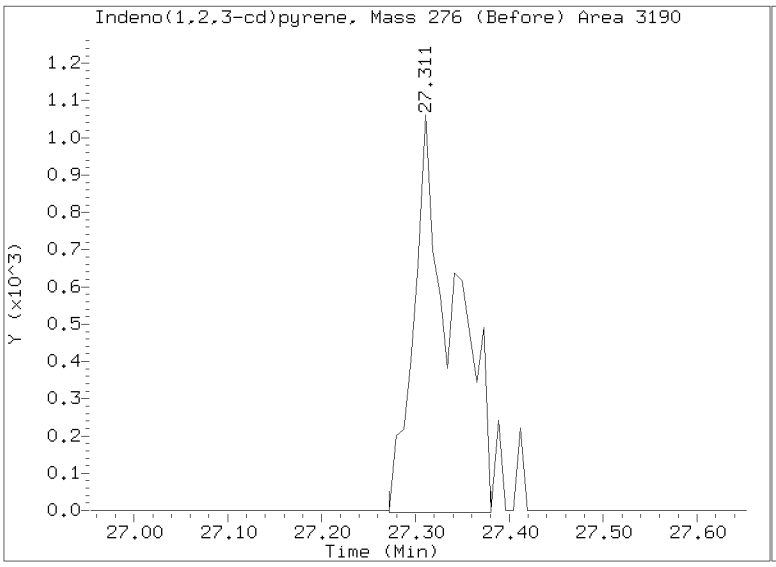
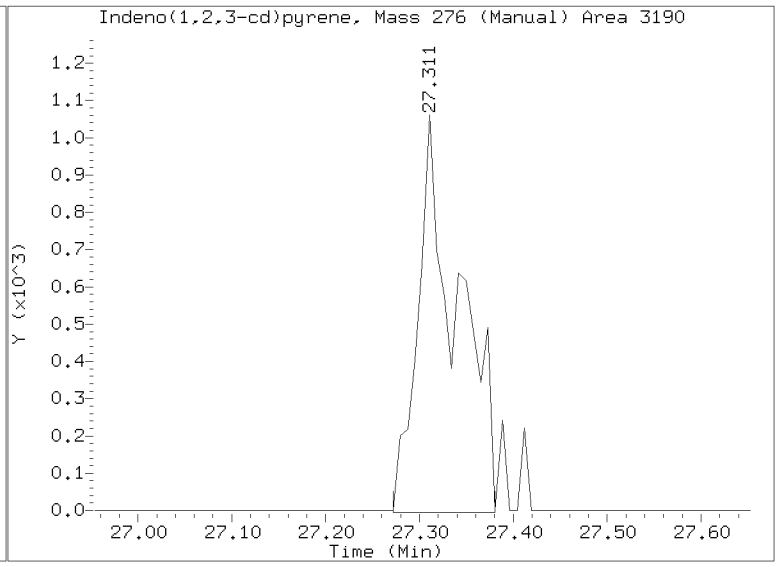
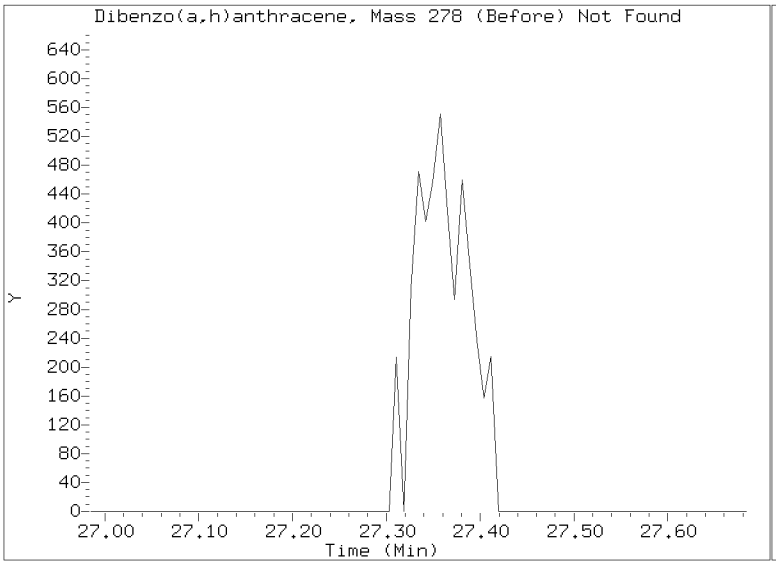
Injection Date: 21-AUG-2019 13:08
Lab ID:SHH0303-LCV1 Client ID:
Report Date: 08/22/2019 13:06

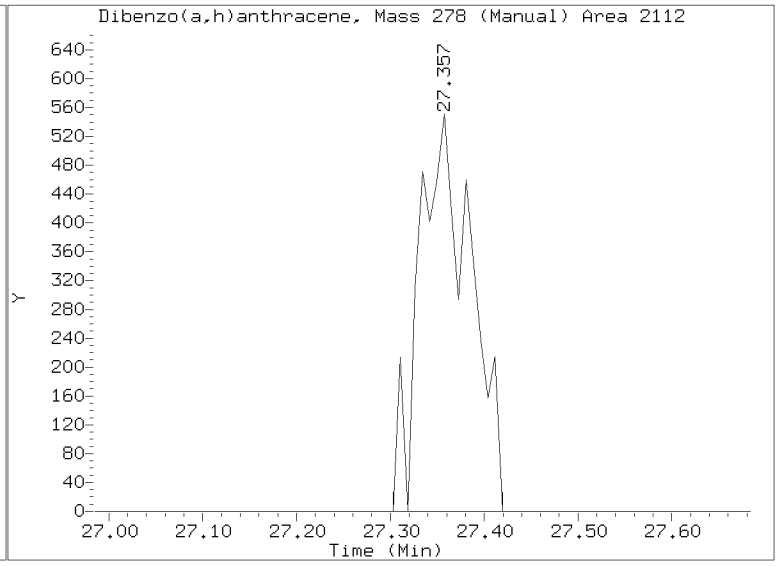






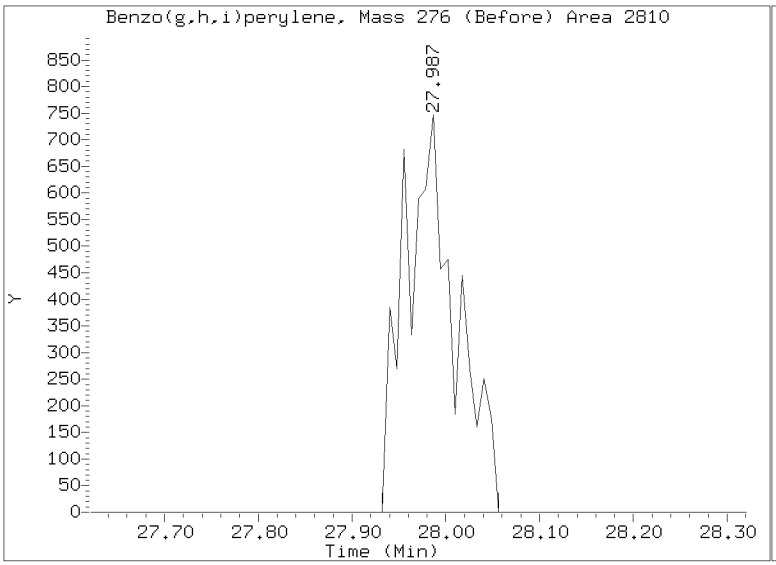


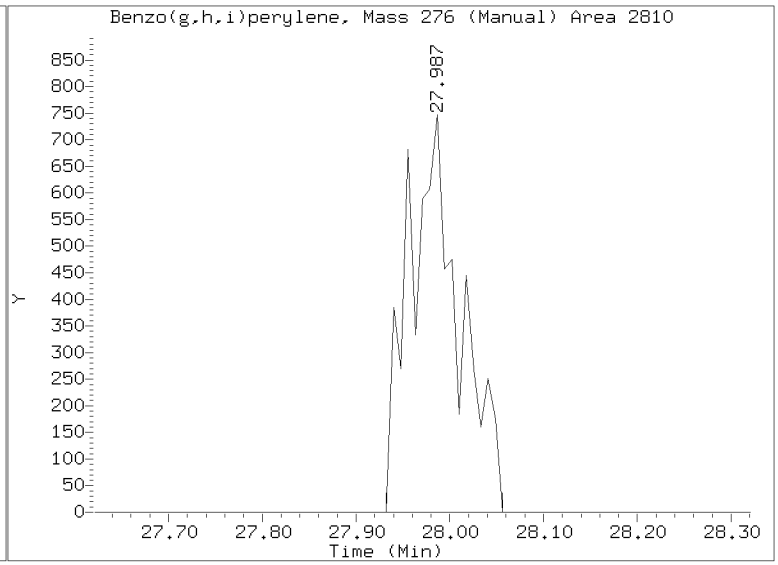




Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082106.D
Injection Date: 21-AUG-2019 13:08
Lab ID:SHH0303-LCV1 Client ID:
Report Date: 08/22/2019 13:06





Analytical Resources, Incorporated
Analytical Chemists and Consultants

LOW-CONCENTRATION CONTINUING CALIBRATION CHECK

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	NT10	Calibration:	CG00040
Lab File ID:	NT1019082107.D	Calibration Date:	07/16/19 11:00
Sequence:	SHH0303	Injection Date:	08/21/19
Lab Sample ID:	SHH0303-LCV2	Injection Time:	13:50
Sequence Name:	ABN 0.5		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Phenol	A	0.50000	0.4	1.1702980	0.9787128		-16.4	50	
Benzyl Alcohol	A	0.50000	0.2	0.7745535	0.3192806		-58.8	50	*
Benzoic acid	A	2.0000	0.4	0.2148759	0.0435789		-80.6	50	*
N-Nitrosodiphenylamine	A	0.50000	0.6	0.5490690	0.6429129		17.1	50	
Phenanthrene	A	0.50000	0.5	0.9770762	0.9456085		-3.2	50	
Fluoranthene	A	0.50000	0.5	1.2223680	1.1020620		-9.8	50	
Pyrene	A	0.50000	0.5	1.2764440	1.2397970		-2.9	50	
Butylbenzylphthalate	A	0.50000	0.4	0.5945946	0.4893568		-17.7	50	
Benzo(a)anthracene	A	0.50000	0.5	1.1605520	1.1226940		-3.3	50	
Chrysene	A	0.50000	0.5	1.0269450	0.9760637		-5.0	50	
bis(2-Ethylhexyl)phthalate	A	0.50000	0.6	0.3518184	0.3935596		11.9	50	
Di-n-Octylphthalate	A	0.50000	0.5	0.7399924	0.7369600		-0.4	50	
Benzofluoranthenes, Total	A	1.0000	1.1	1.1008070	1.1969570		8.7	50	
Benzo(a)pyrene	A	0.50000	0.5	1.0299780	1.0390090		0.9	50	
Indeno(1,2,3-cd)pyrene	A	0.50000	0.4	1.2375640	0.8796642		-28.9	50	
Dibenzo(a,h)anthracene	A	0.50000	0.3	1.0075500	0.6708736		-33.4	50	
Benzo(g,h,i)perylene	A	0.50000	0.4	1.0423270	0.7548524		-27.6	50	
2-Fluorophenol	A	0.75000	0.596	1.1232200	0.8927128		-20.5	50	
Phenol-d5	A	0.75000	0.506	1.2588120	0.8500828		-32.5	50	
2-Chlorophenol-d4	A	0.75000	0.693	1.3551050	1.2519590		-7.6	50	
1,2-Dichlorobenzene-d4	A	0.50000	0.501	0.9264682	0.9291999		0.3	50	
Nitrobenzene-d5	A	0.50000	0.468	0.3128427	0.2926716		-6.4	50	
2-Fluorobiphenyl	A	0.50000	0.506	1.5299660	1.5473620		1.1	50	
2,4,6-Tribromophenol	A	0.75000	0.446	0.3024571	0.1796778		-40.6	50	
p-Terphenyl-d14	A	0.50000	0.551	0.8656707	0.9539177		10.2	50	

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

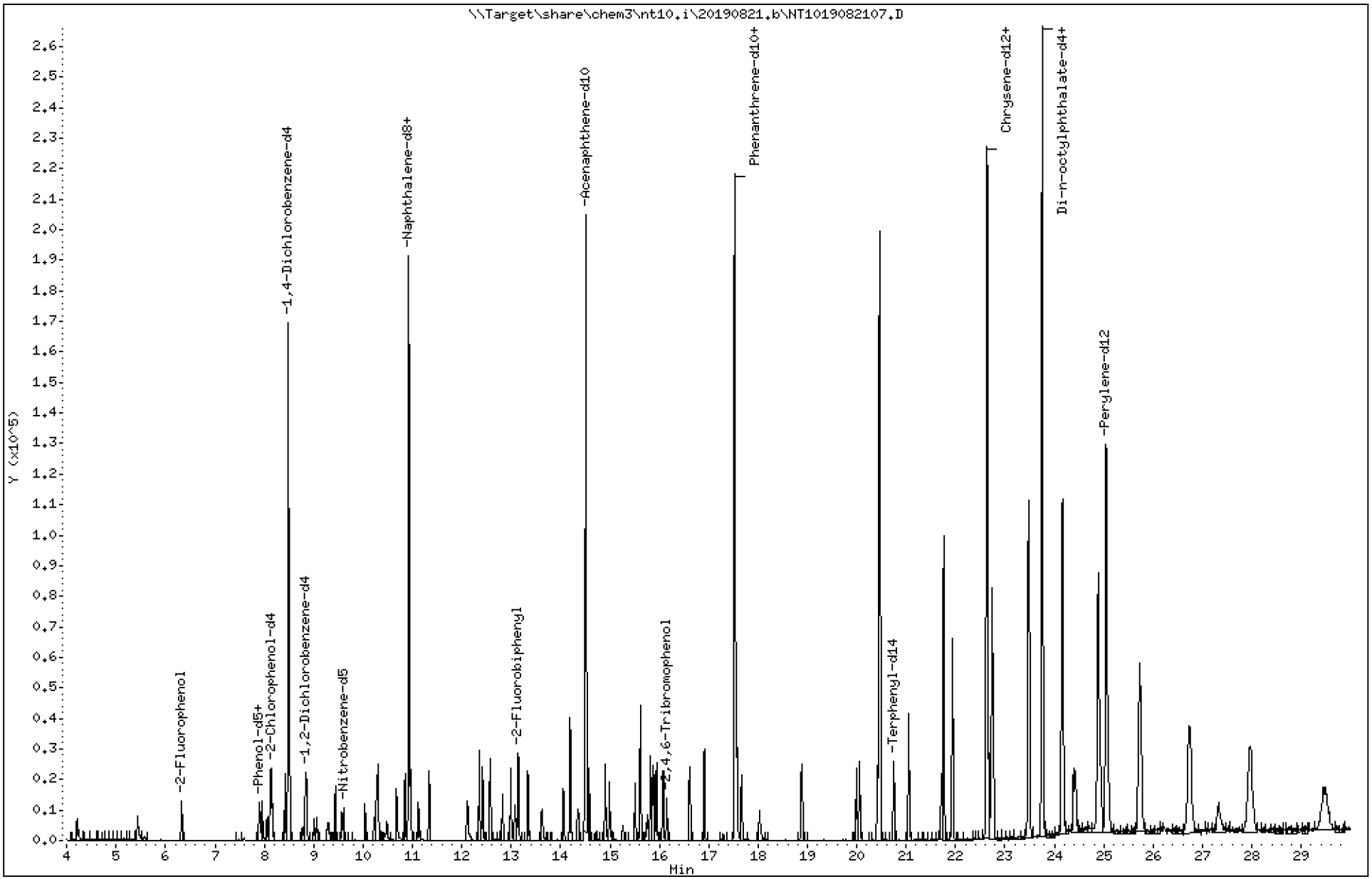
Instrument: nt10.i

Sample Info: SHH0303-LCV2

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

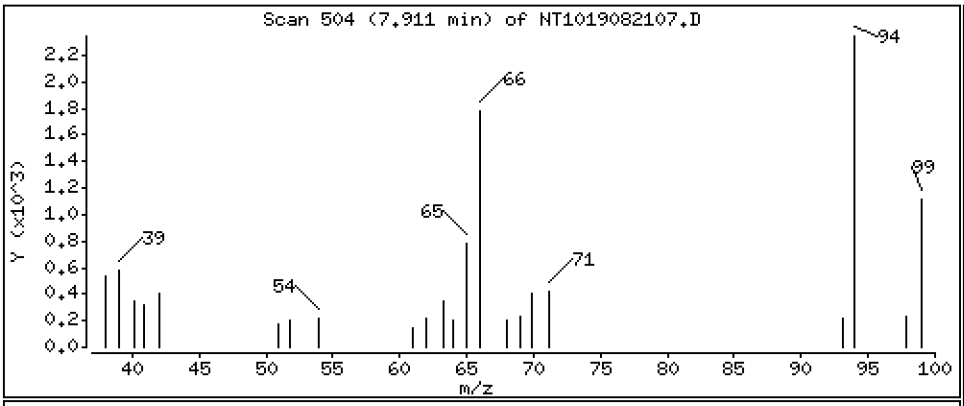
Operator: YZ

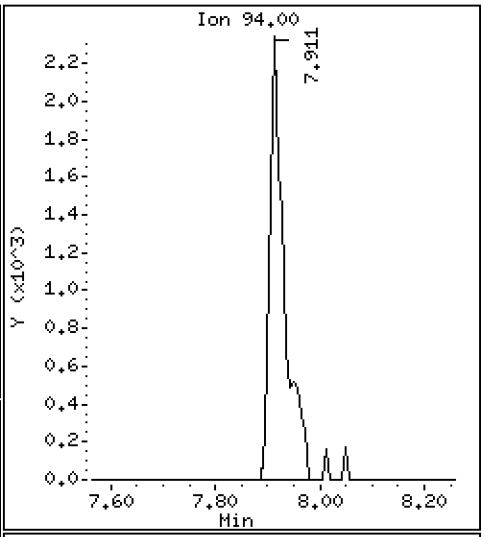
Column phase: ZB-5msi

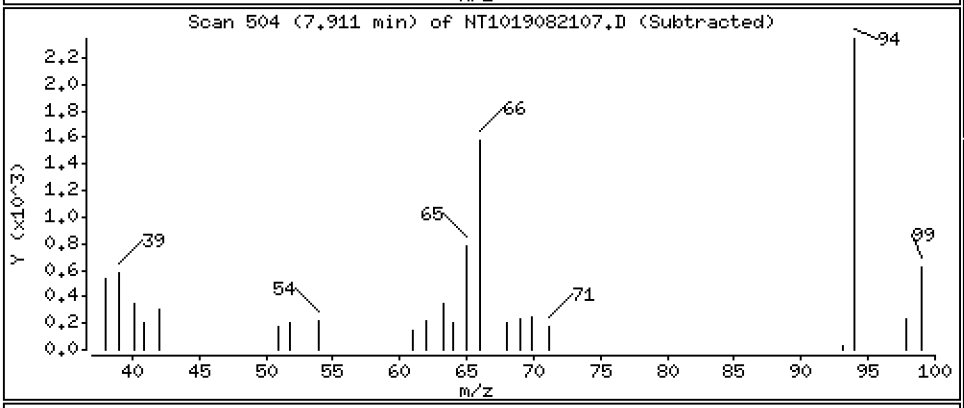
Column diameter: 0.25

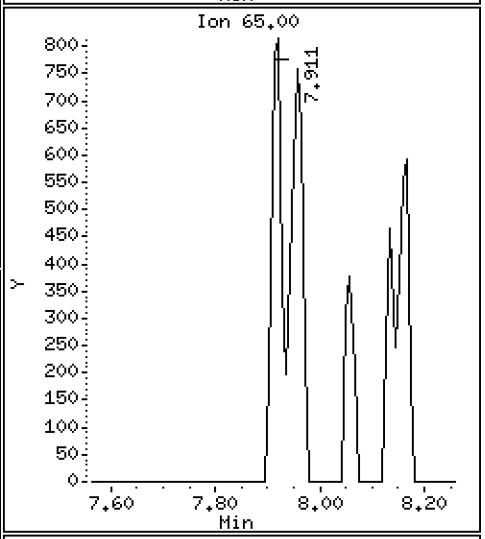
3 Phenol

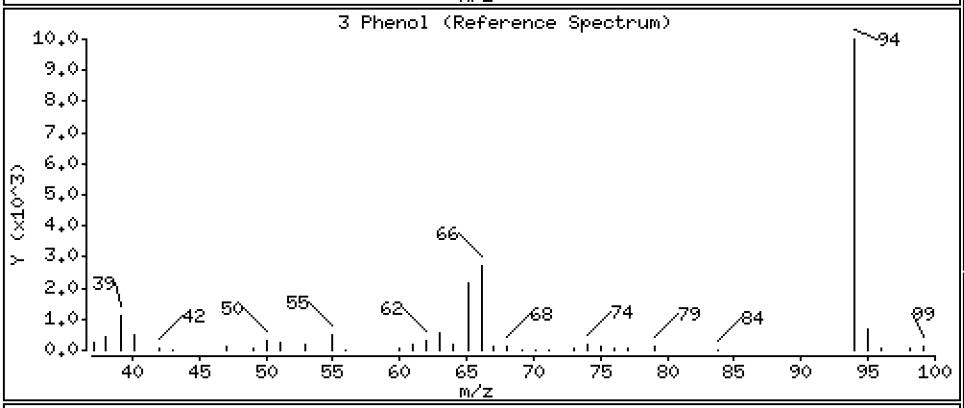
Concentration: 0.4181 ug/mL

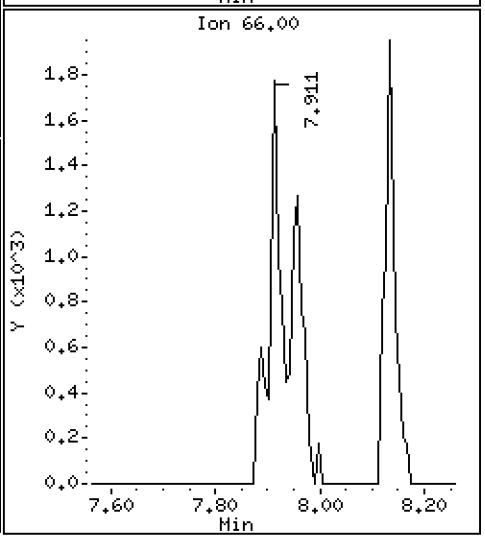


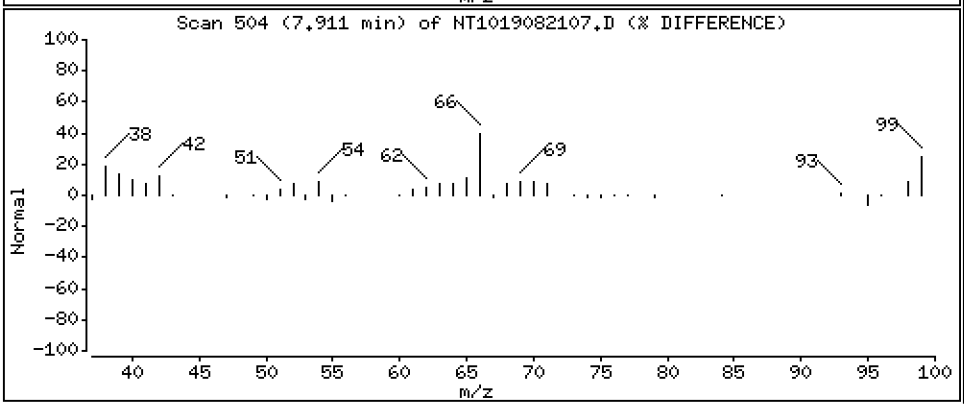












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

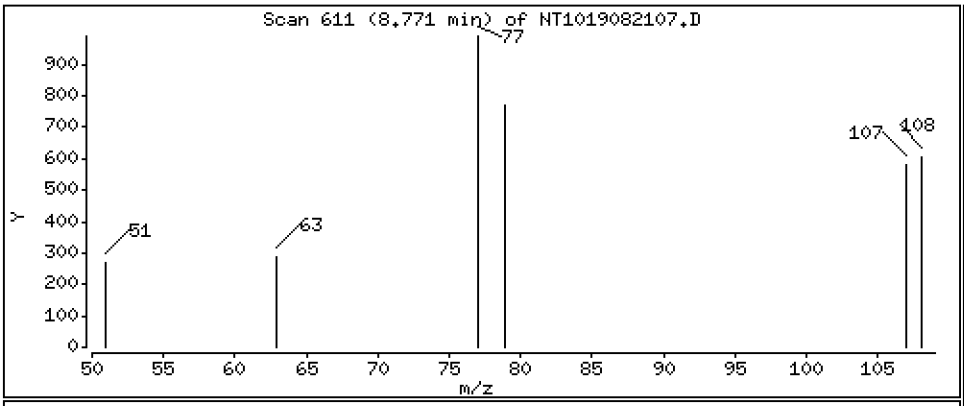
Operator: YZ

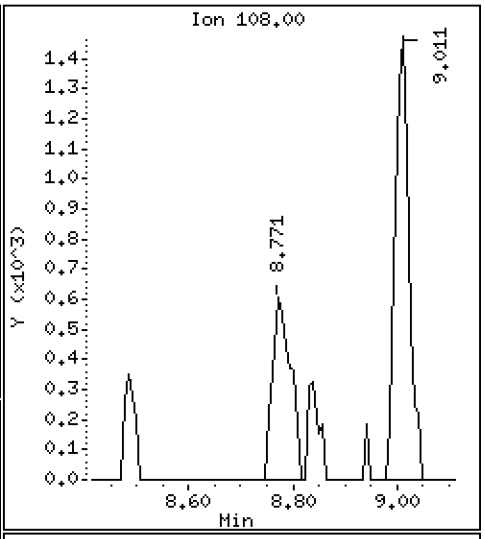
Column phase: ZB-5msi

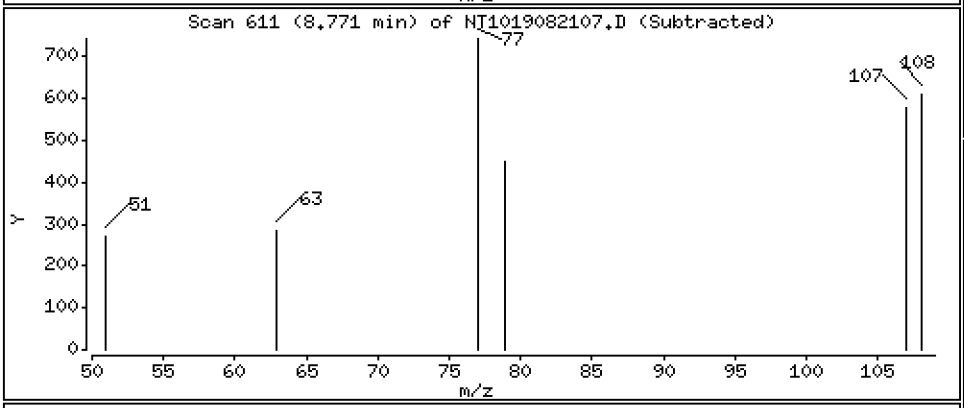
Column diameter: 0.25

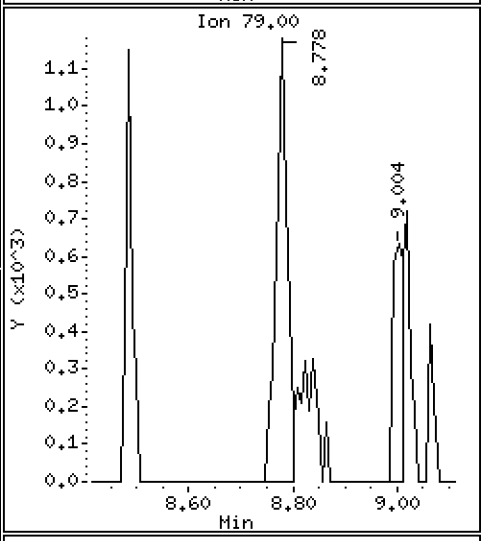
11 Benzyl alcohol

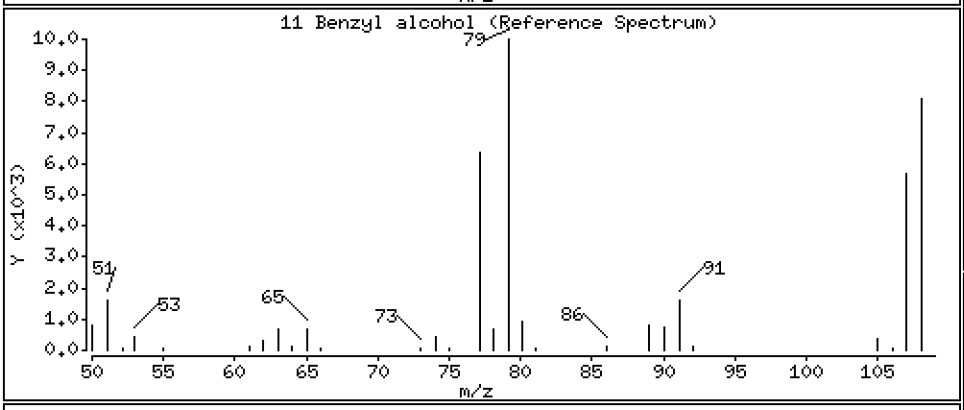
Concentration: 0.2061 ug/mL

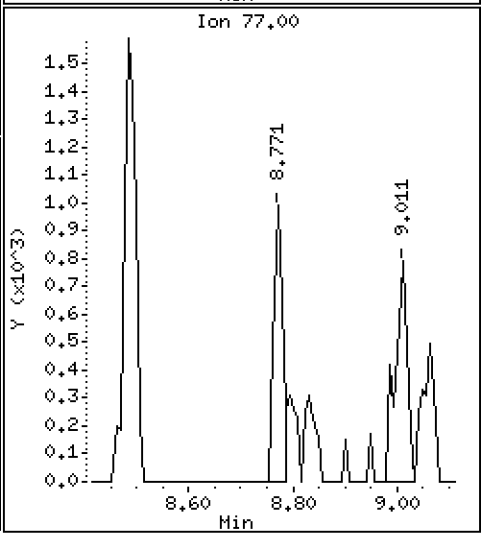


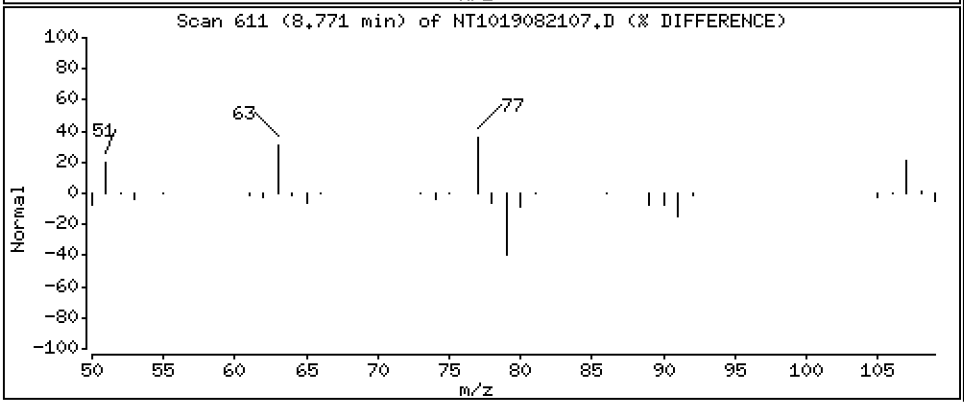












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

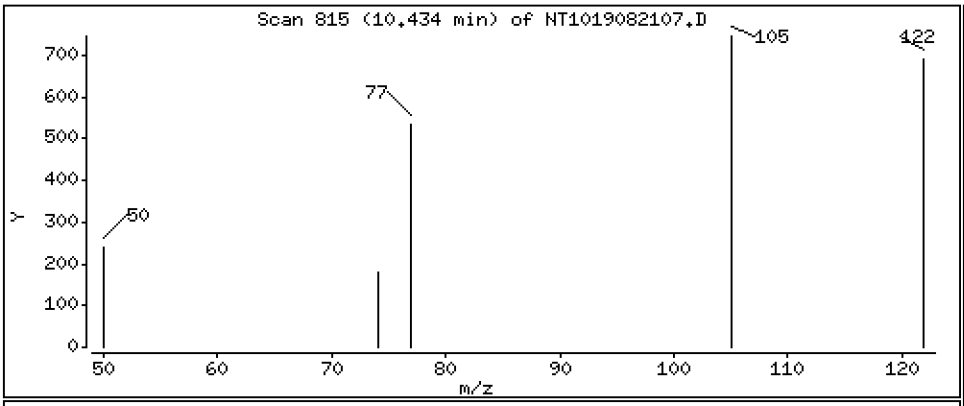
Operator: YZ

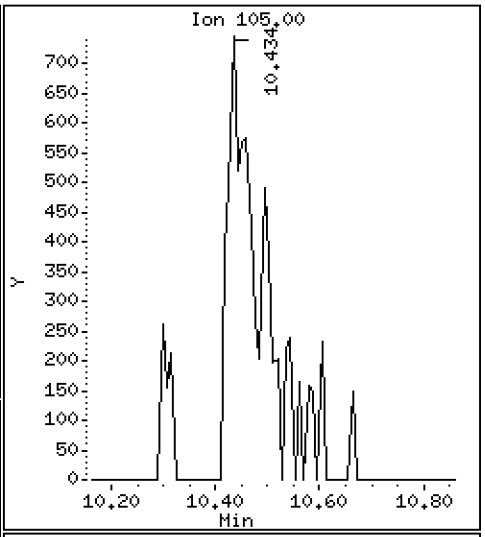
Column phase: ZB-5msi

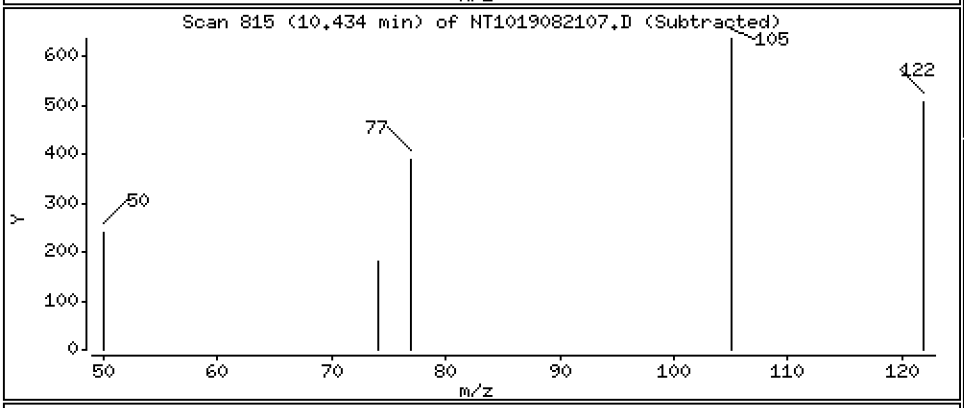
Column diameter: 0.25

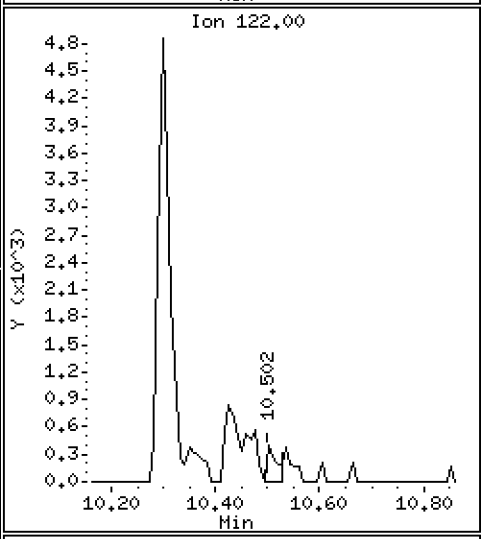
24 Benzoic acid

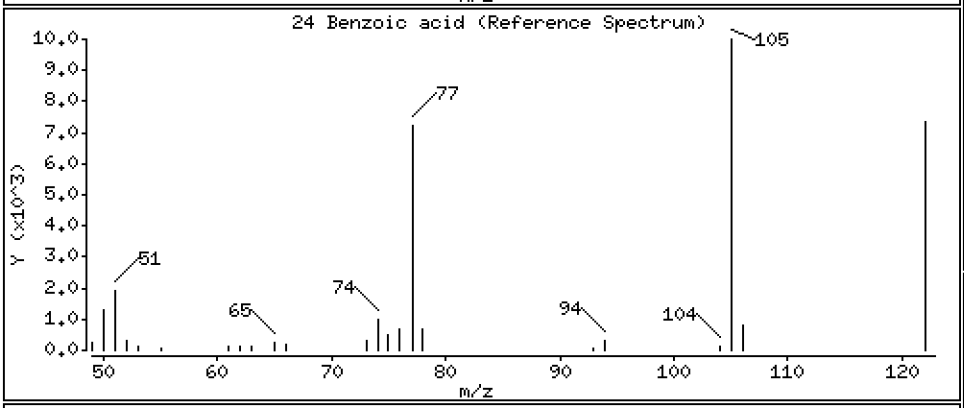
Concentration: 0.3871 ug/mL

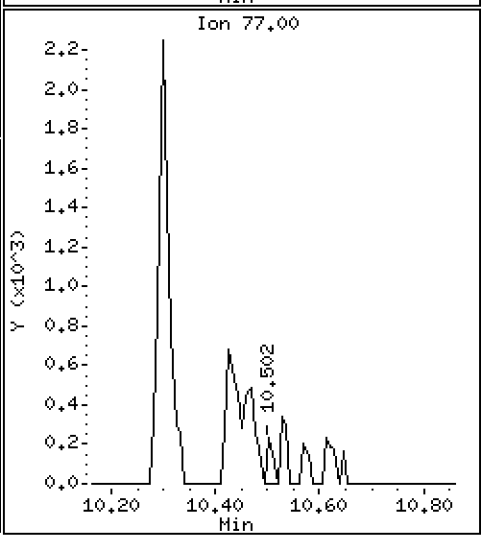


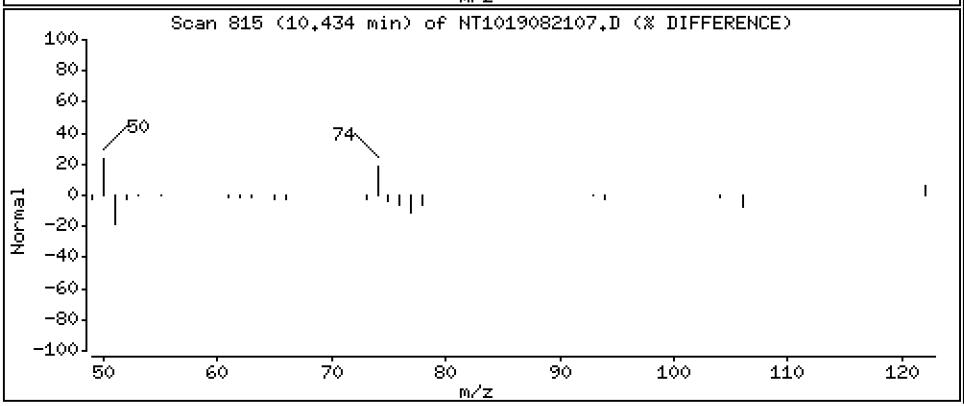












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

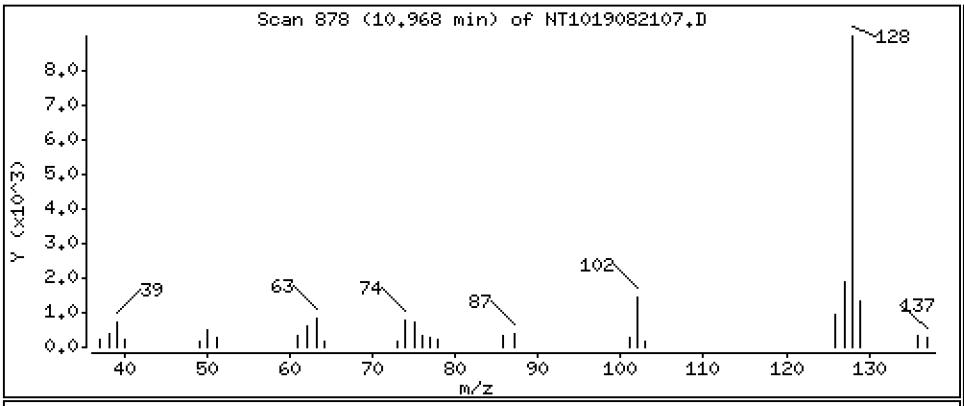
Operator: YZ

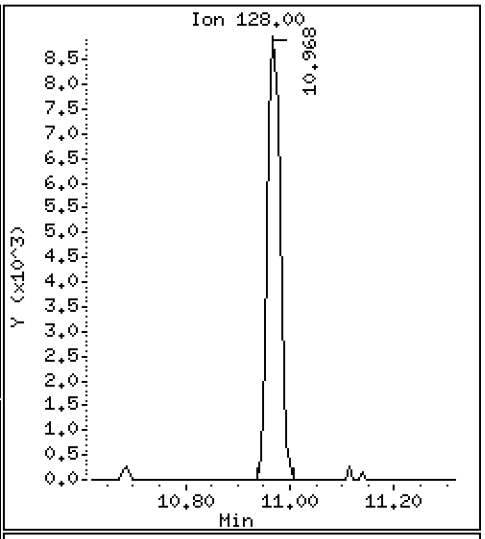
Column phase: ZB-5msi

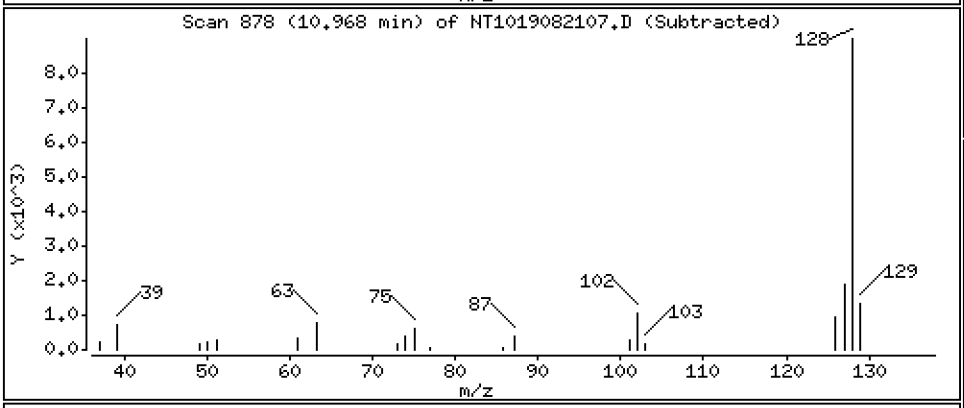
Column diameter: 0.25

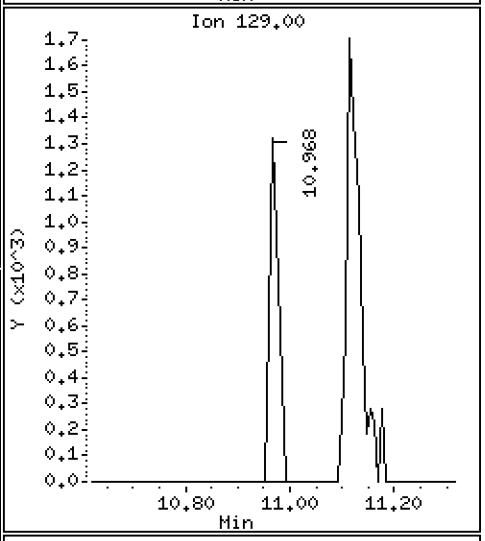
28 Naphthalene

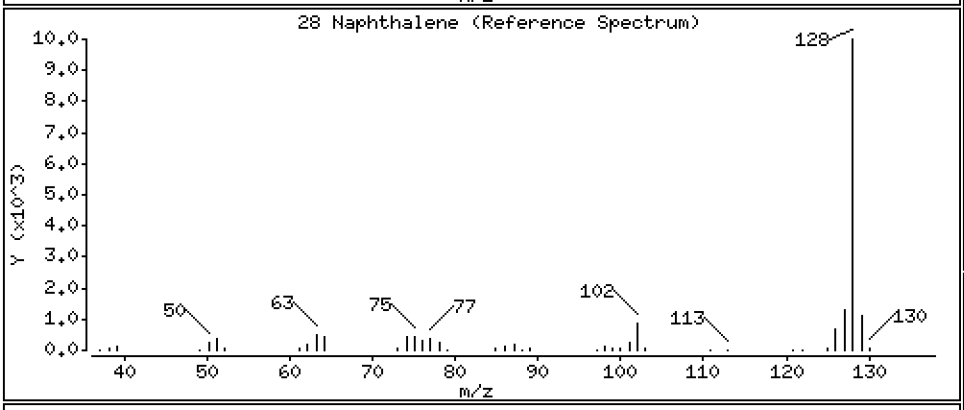
Concentration: 0.4886 ug/mL

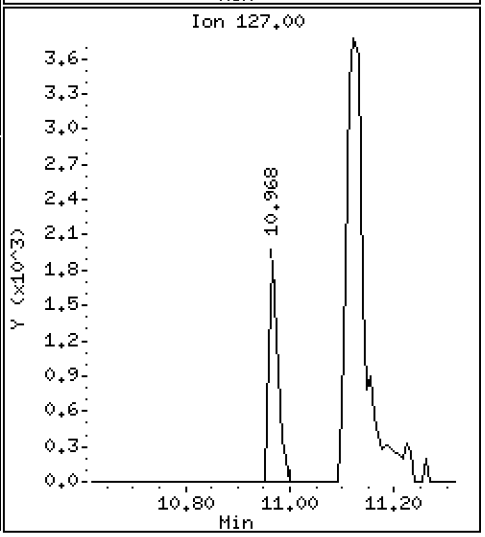


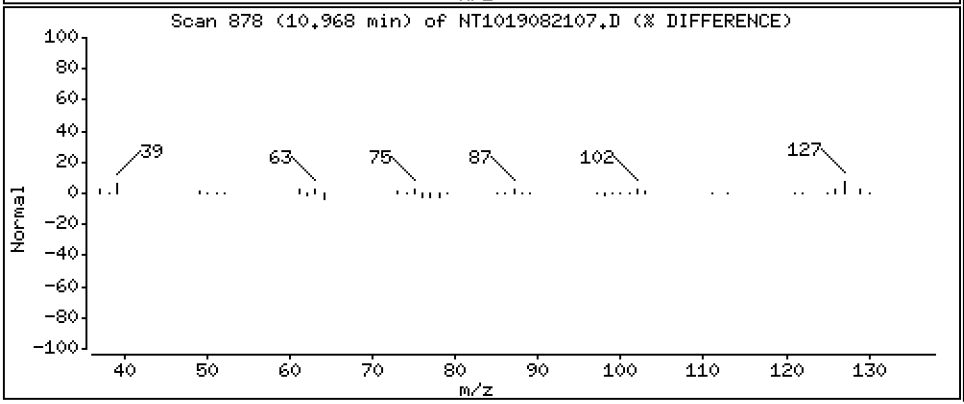












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

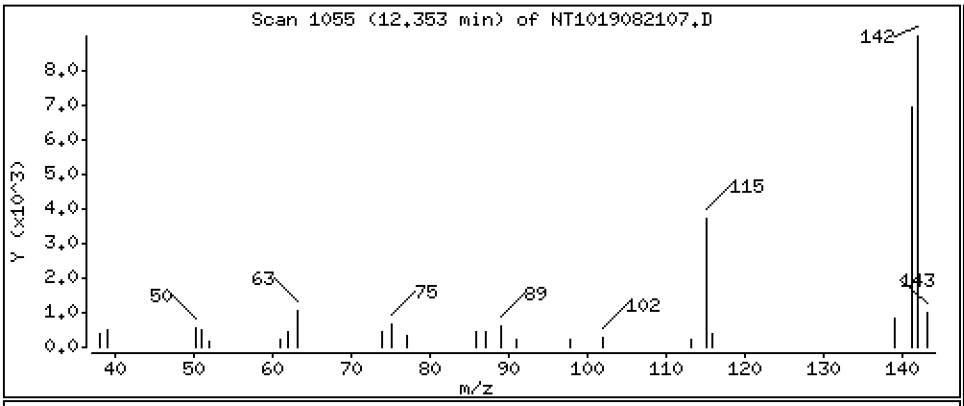
Operator: YZ

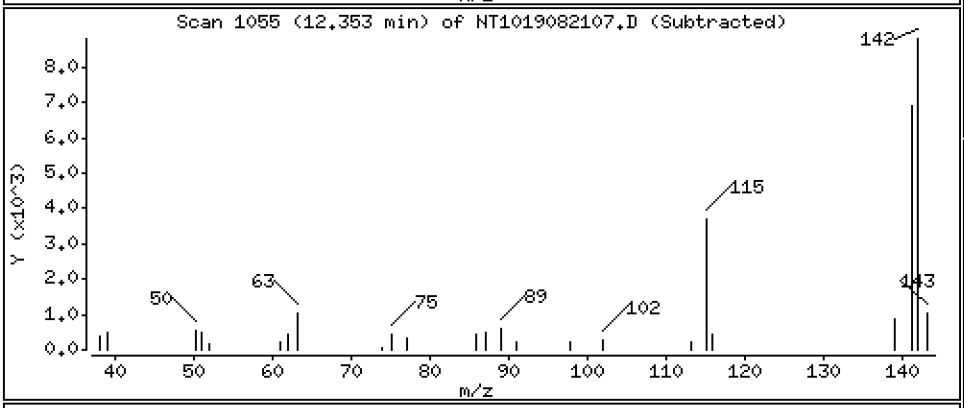
Column phase: ZB-5msi

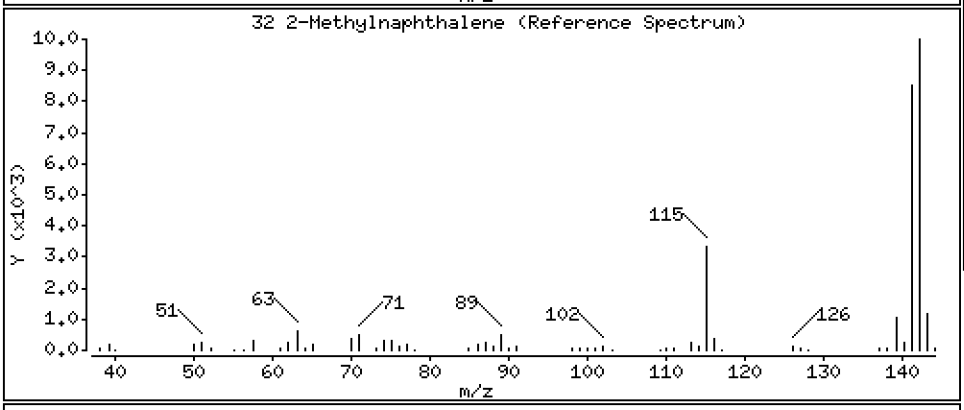
Column diameter: 0.25

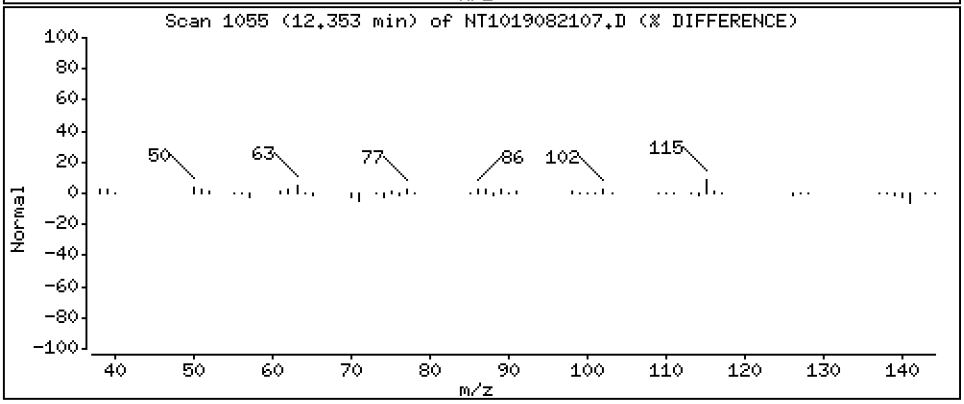
32 2-Methylnaphthalene

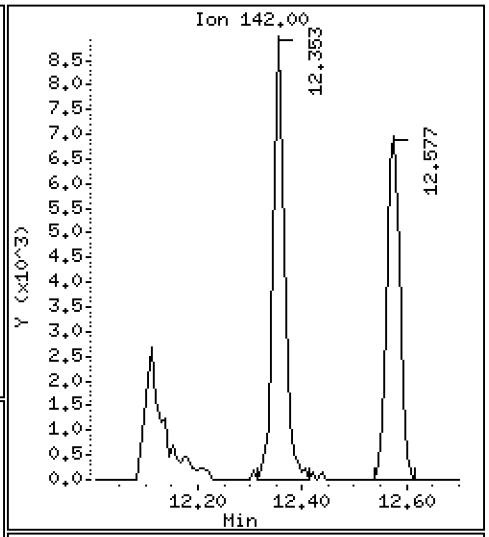
Concentration: 0.5133 ug/mL

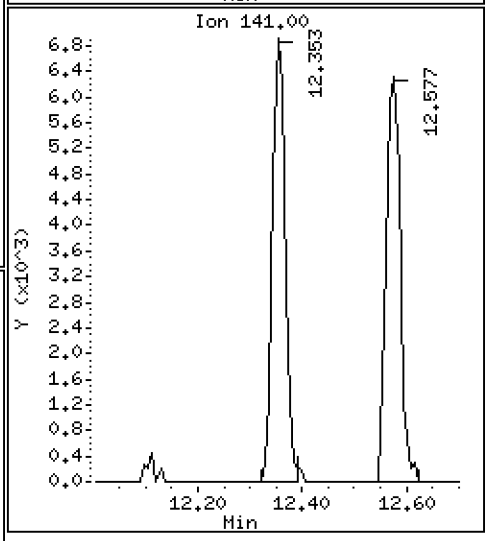












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

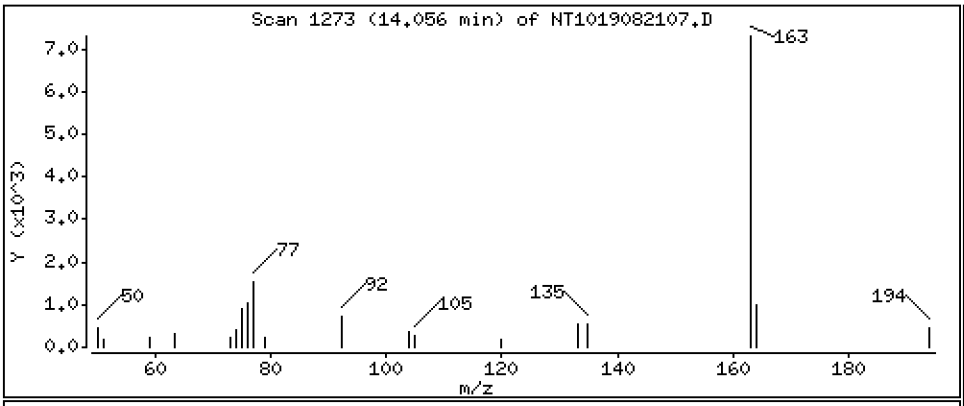
Operator: YZ

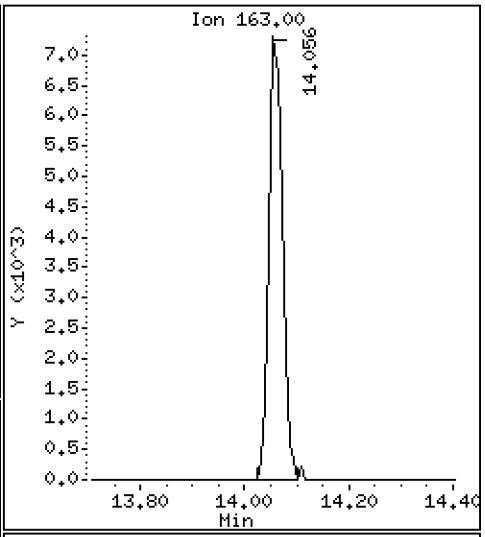
Column phase: ZB-5msi

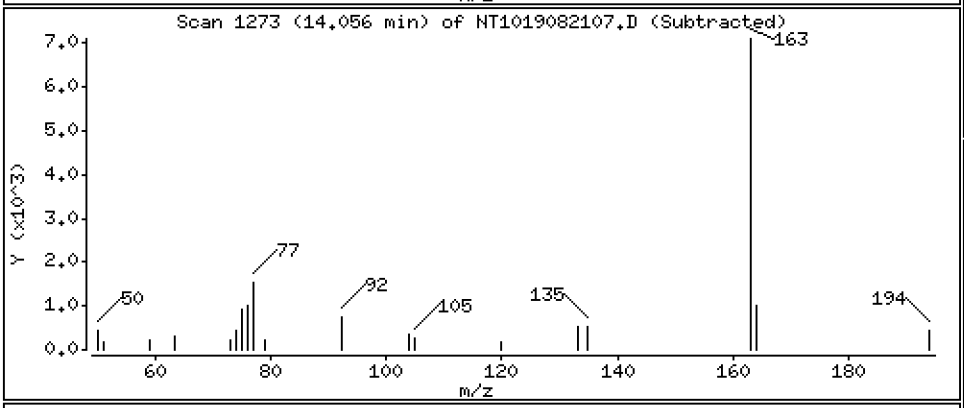
Column diameter: 0.25

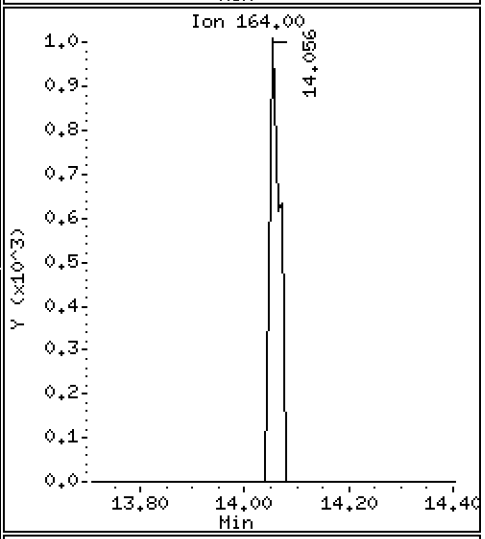
39 Dimethylphthalate

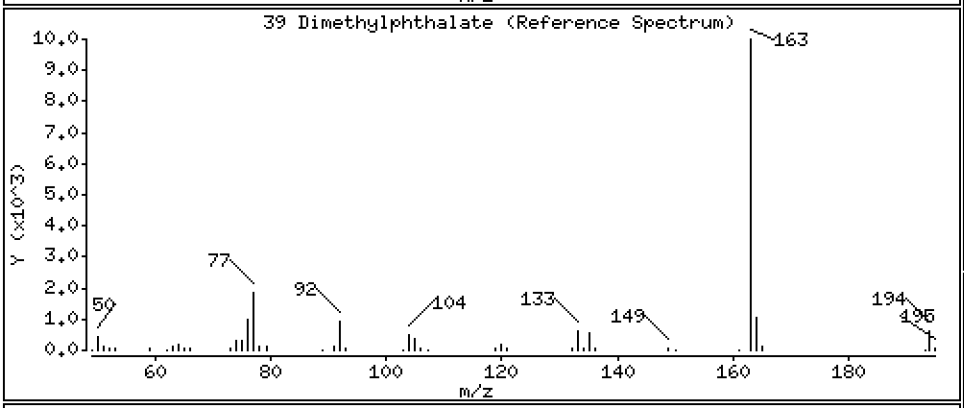
Concentration: 0.5027 ug/mL

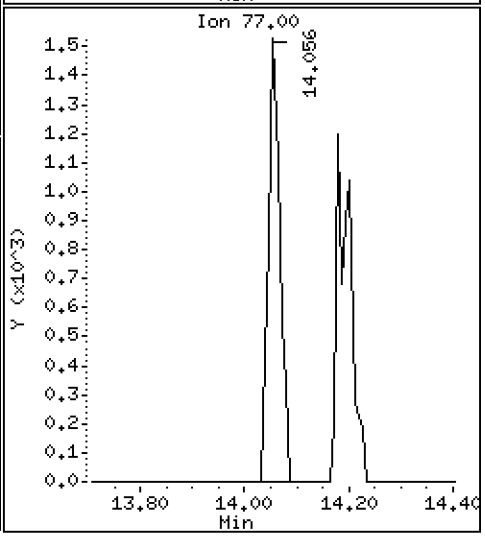


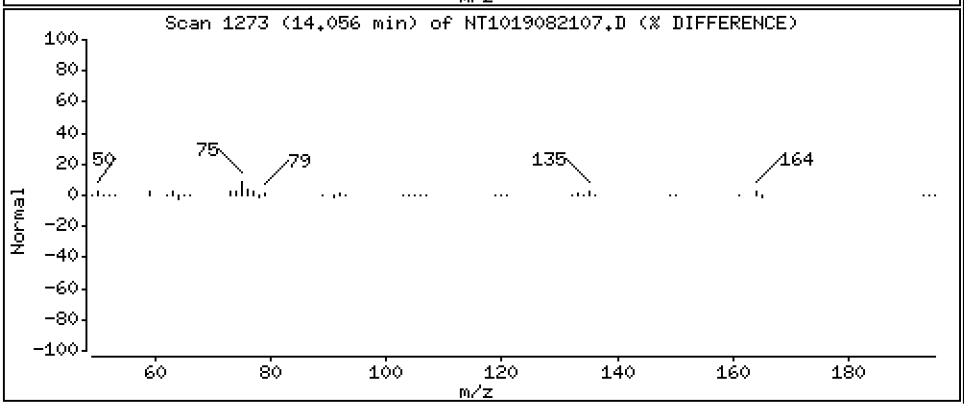












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

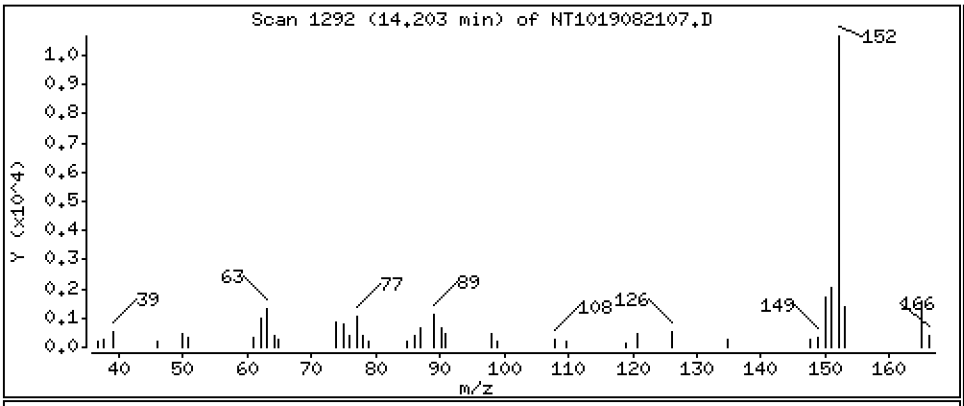
Operator: YZ

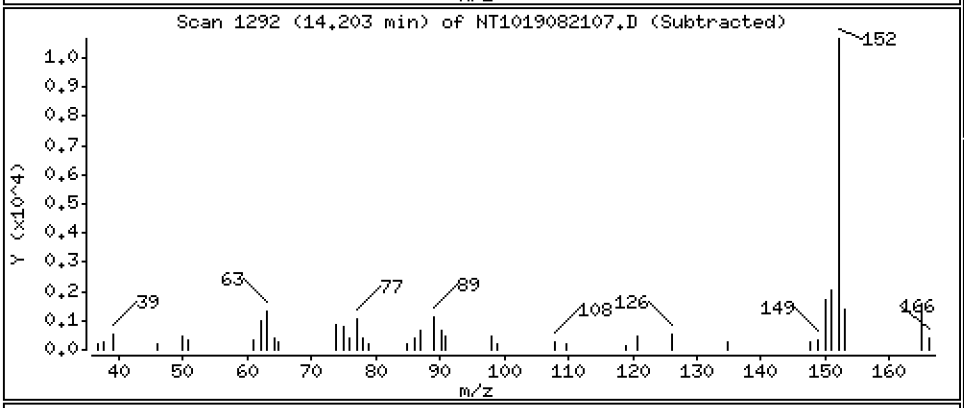
Column phase: ZB-5msi

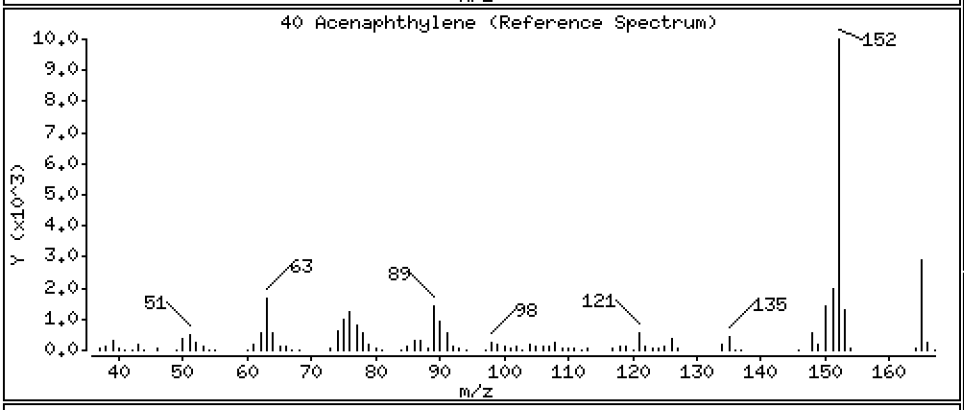
Column diameter: 0.25

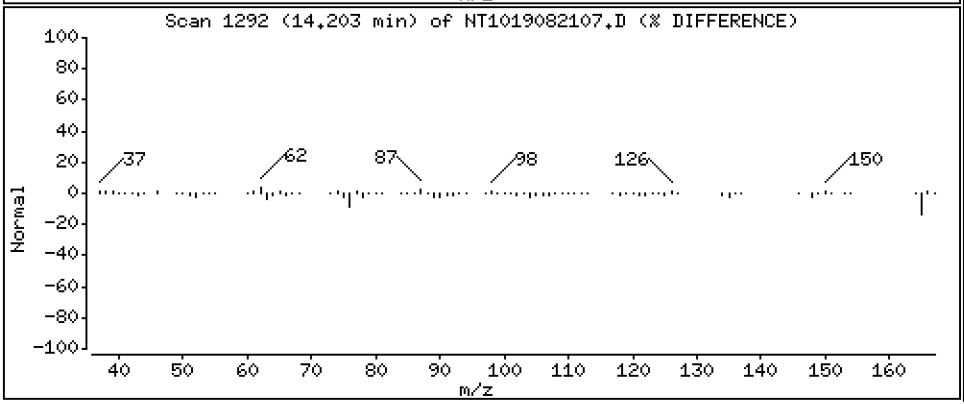
40 Acenaphthylene

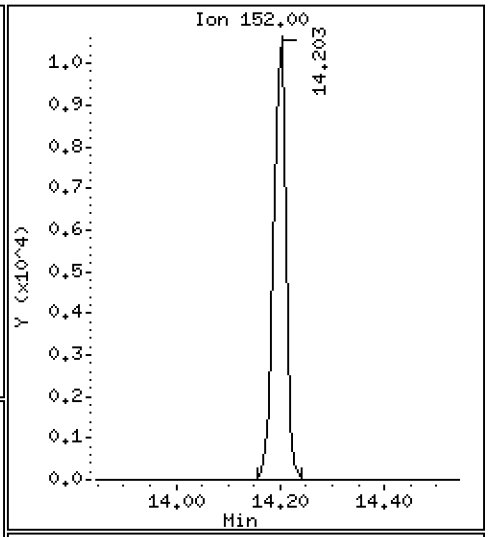
Concentration: 0.5208 ug/mL

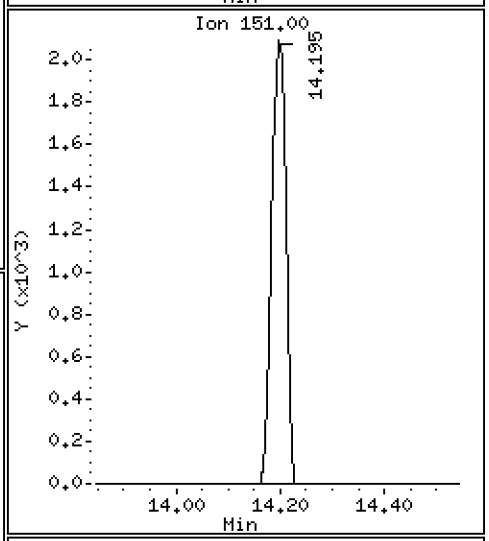


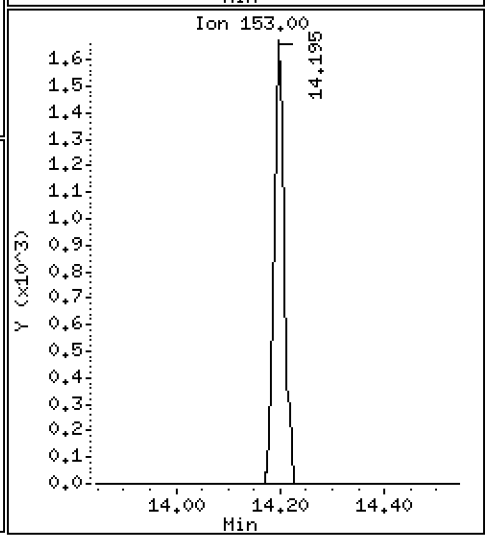












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

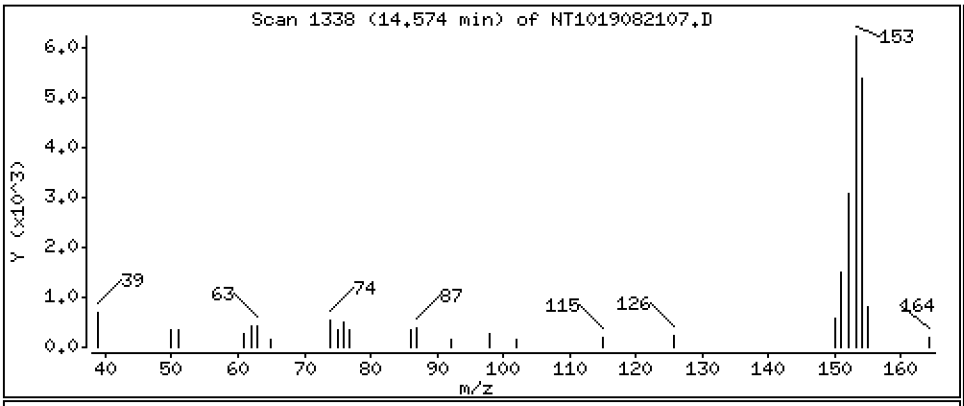
Operator: YZ

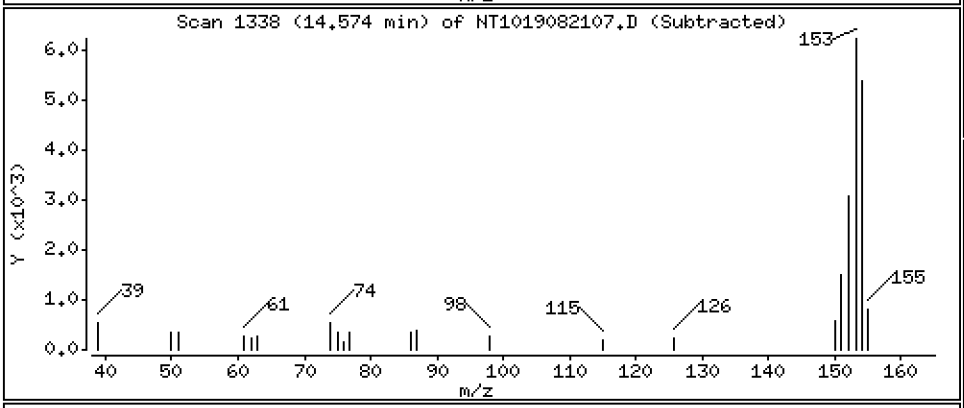
Column phase: ZB-5msi

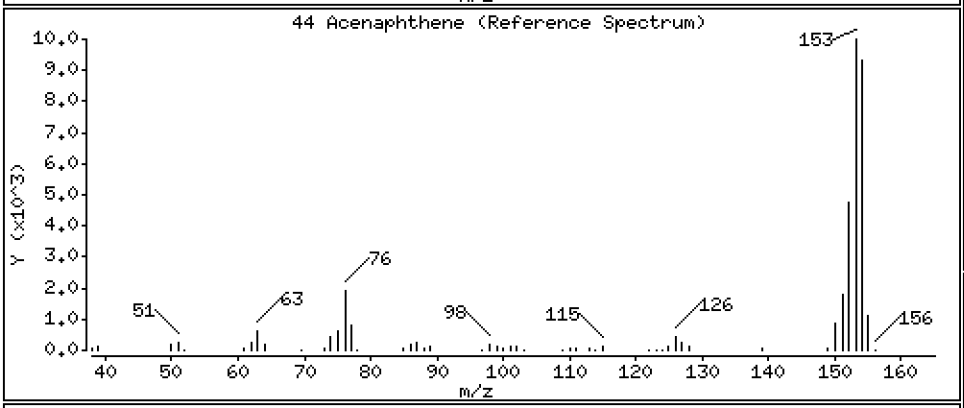
Column diameter: 0.25

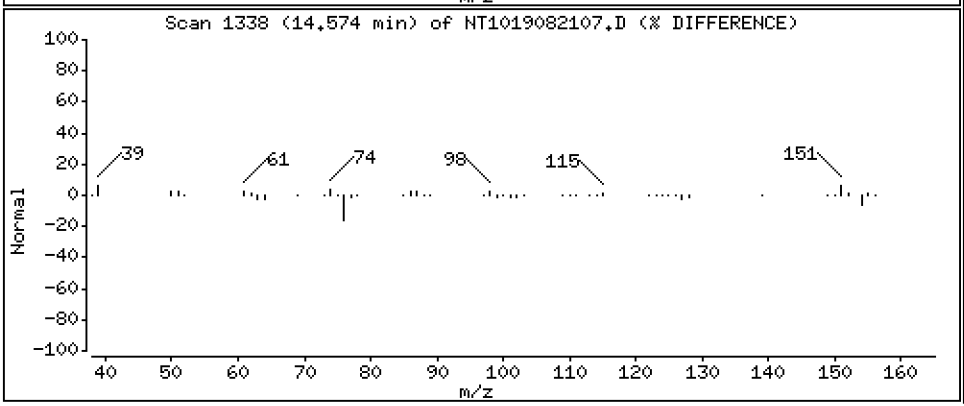
44 Acenaphthene

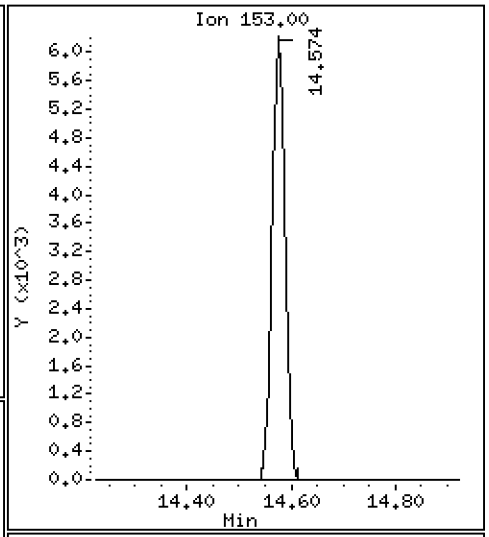
Concentration: 0.4971 ug/mL

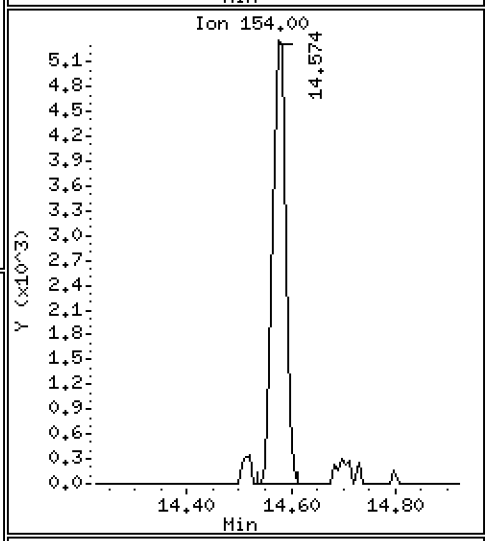


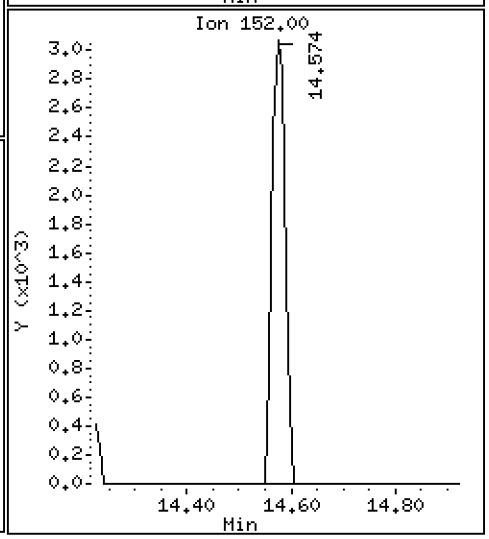












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

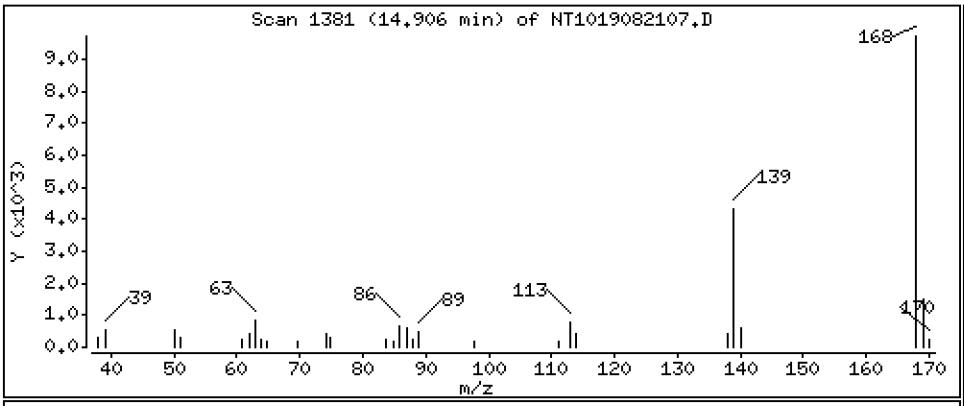
Operator: YZ

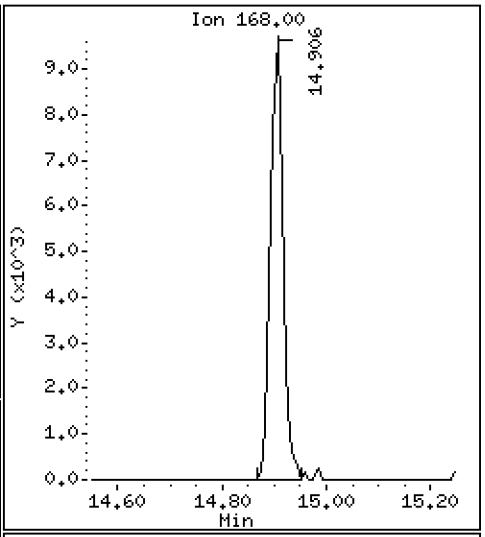
Column phase: ZB-5msi

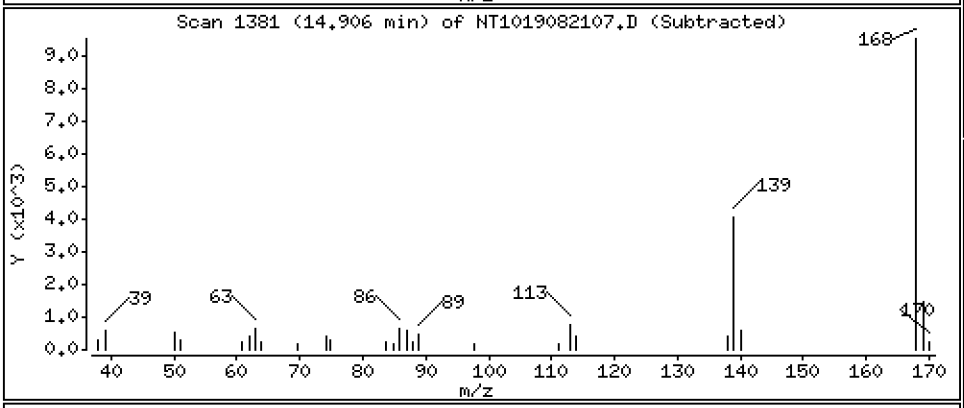
Column diameter: 0.25

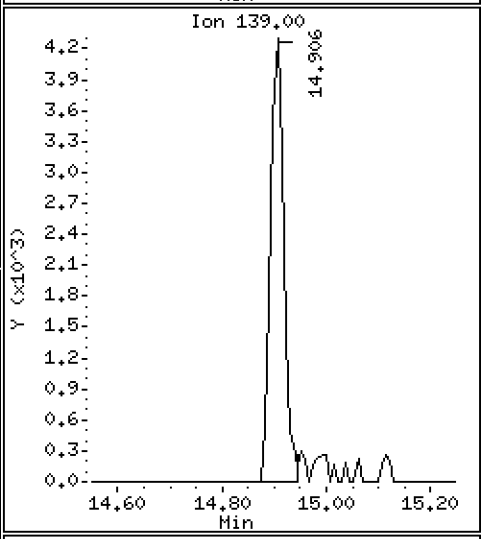
46 Dibenzofuran

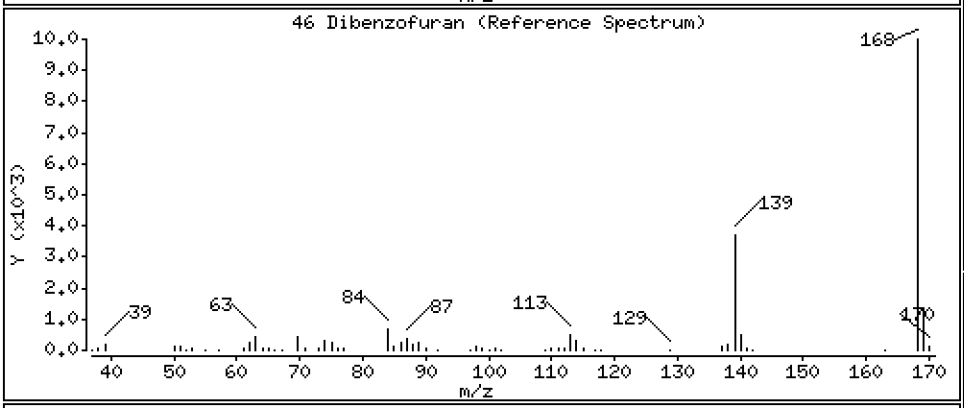
Concentration: 0.4654 ug/mL

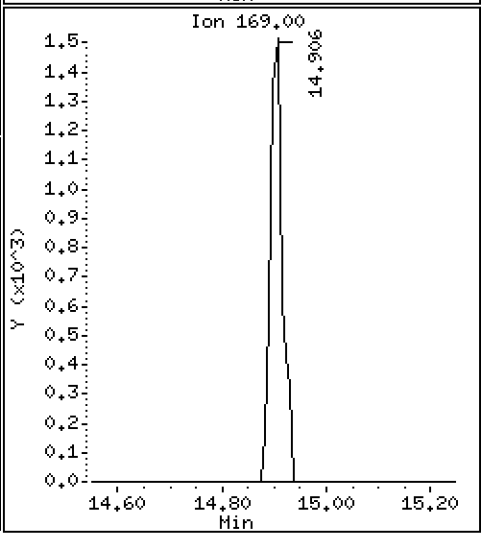


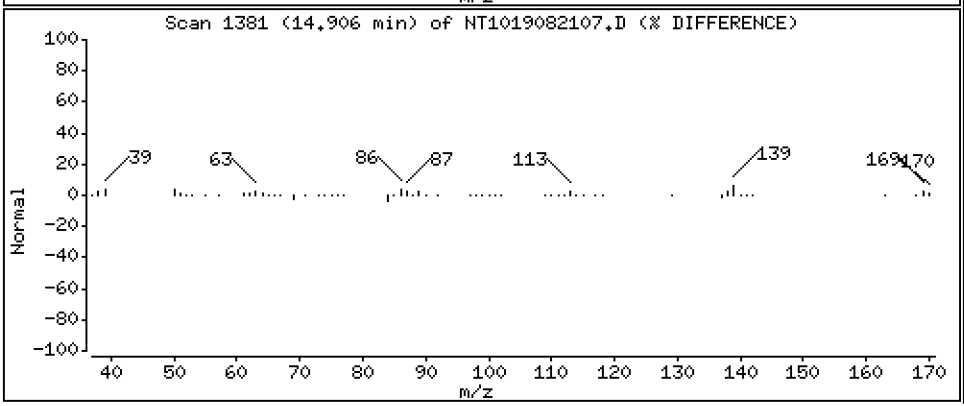












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

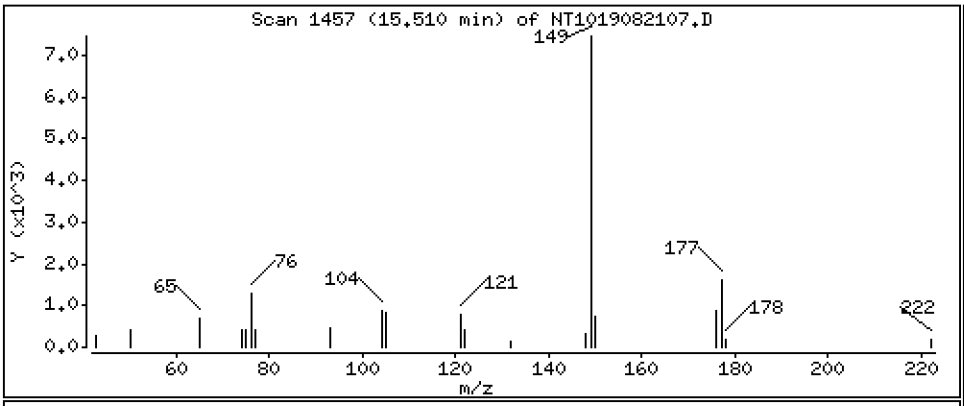
Operator: YZ

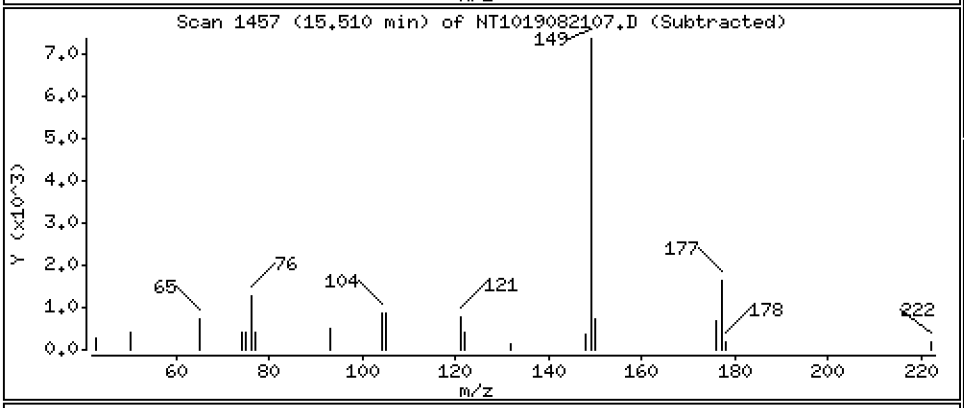
Column phase: ZB-5msi

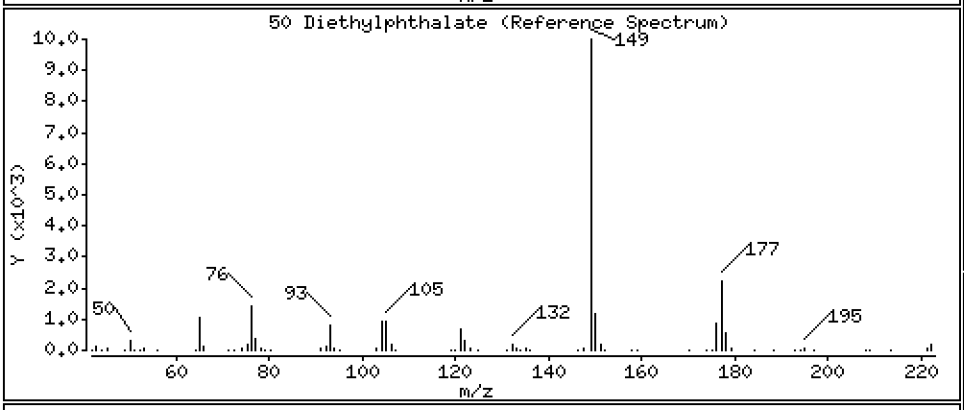
Column diameter: 0.25

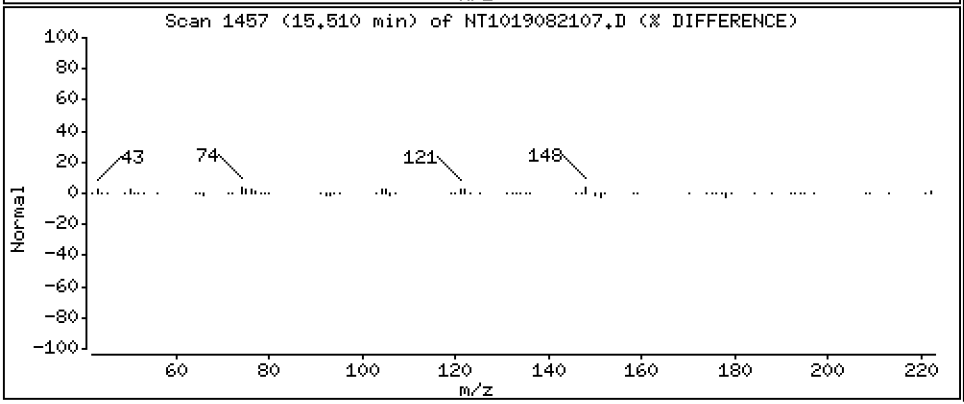
50 Diethylphthalate

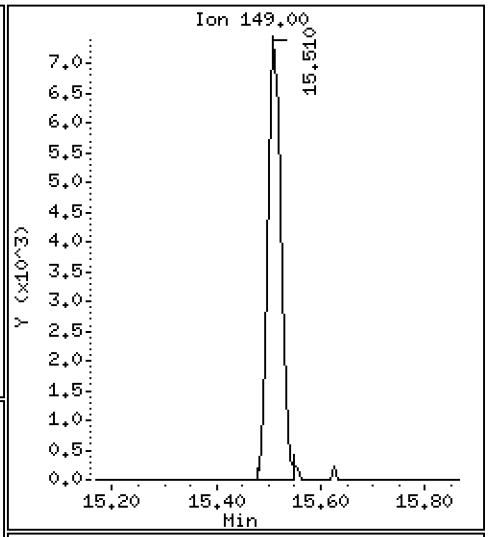
Concentration: 0.5168 ug/mL

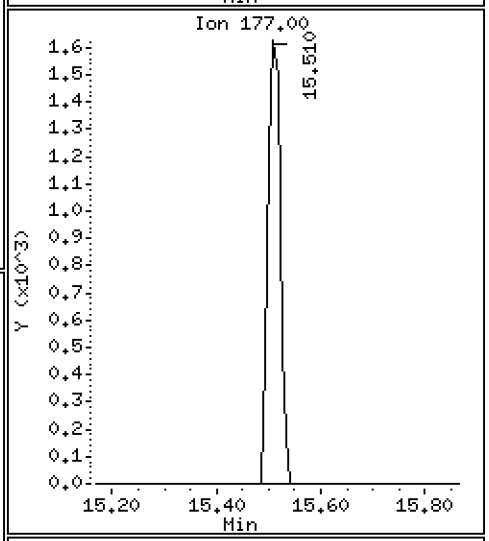


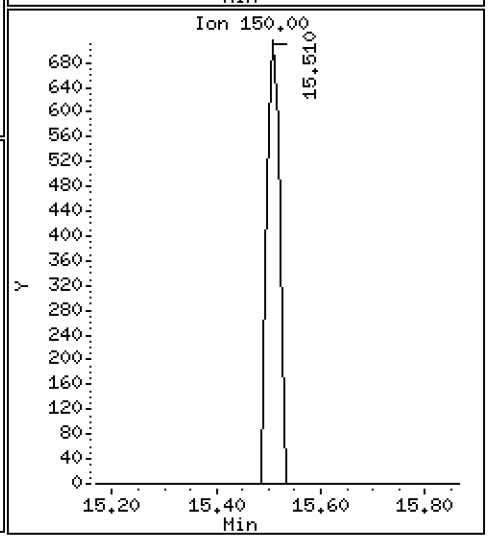












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

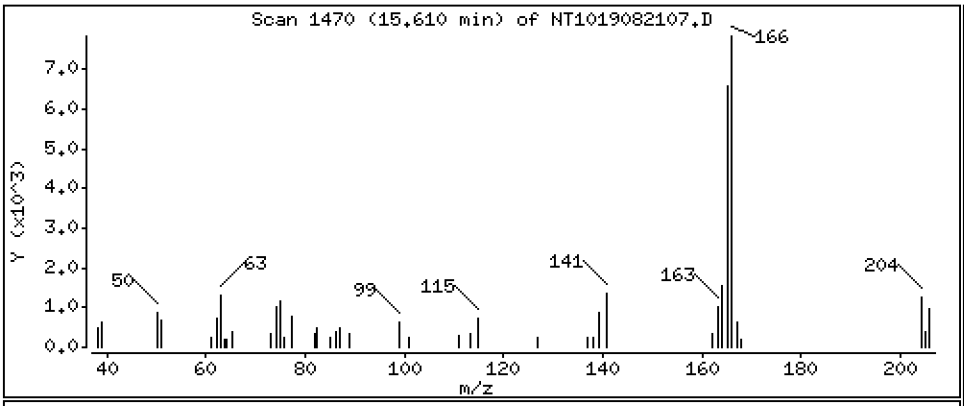
Operator: YZ

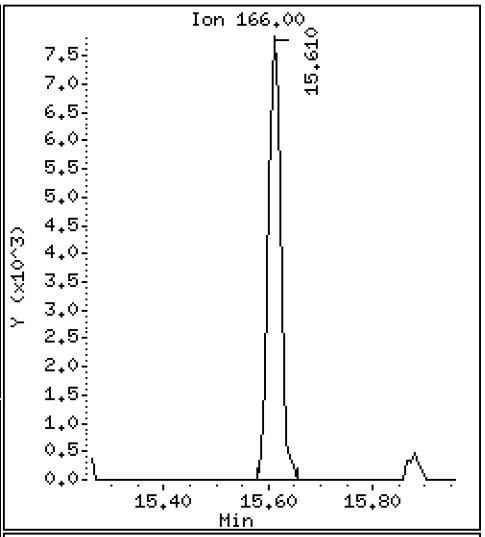
Column phase: ZB-5msi

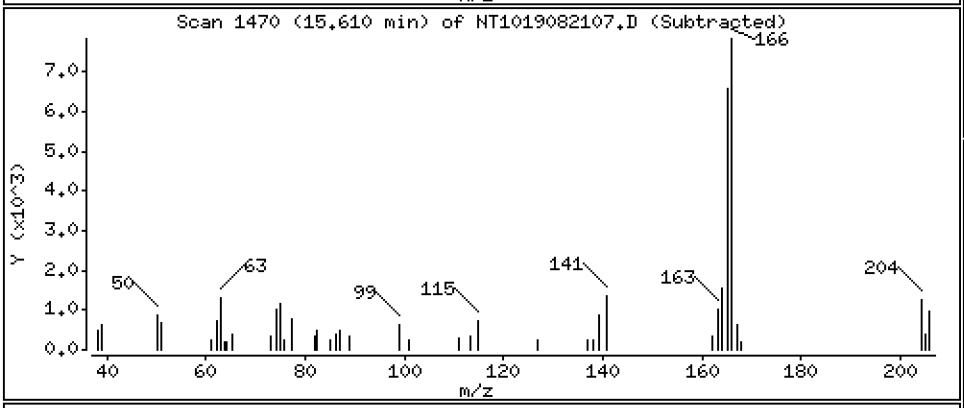
Column diameter: 0.25

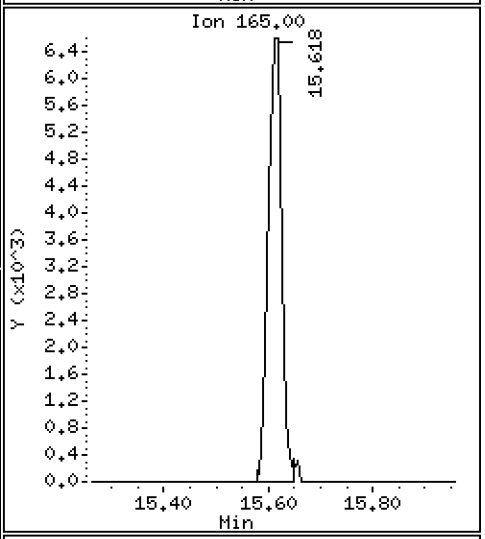
49 Fluorene

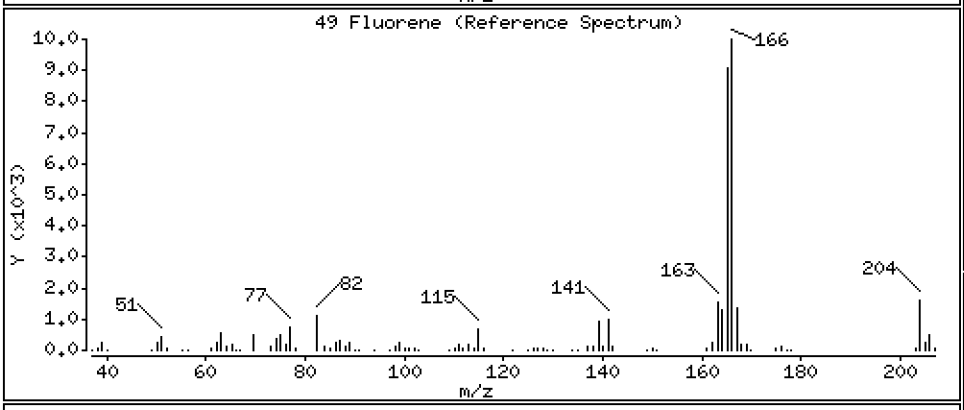
Concentration: 0.5398 ug/mL

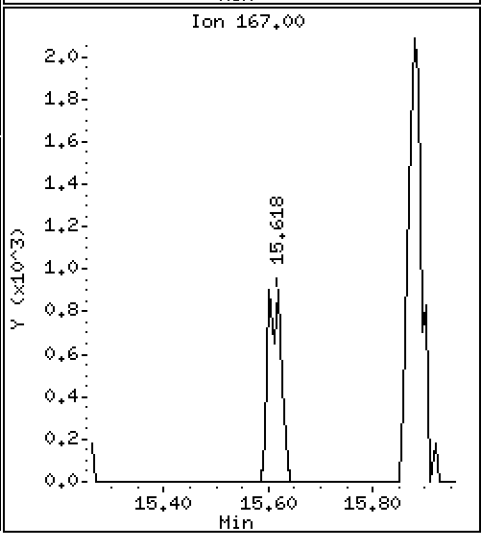


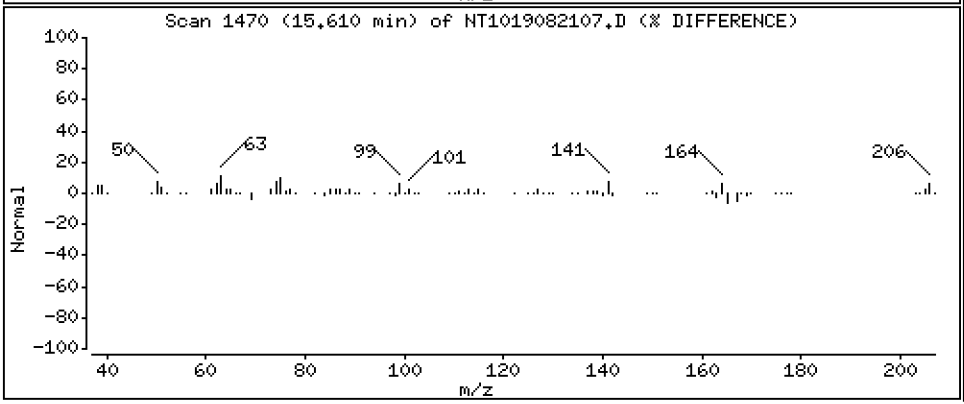












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

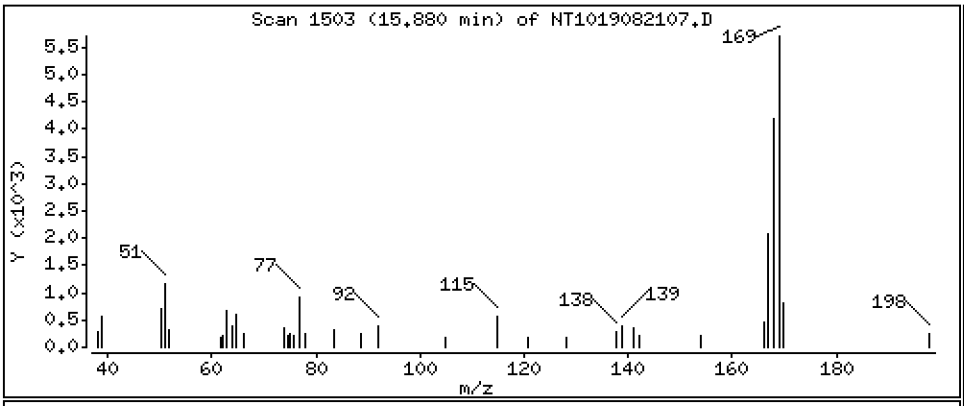
Operator: YZ

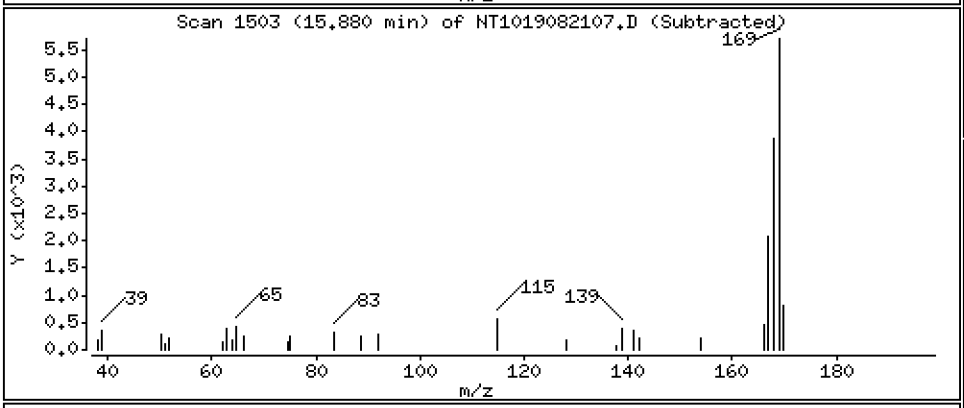
Column phase: ZB-5msi

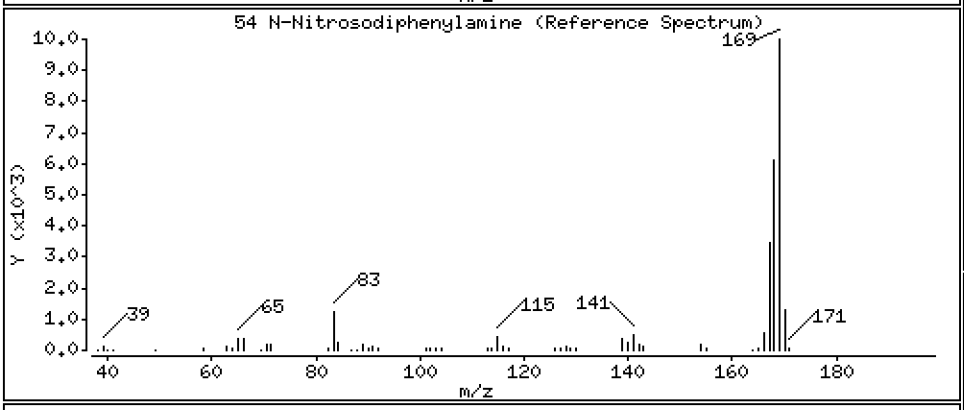
Column diameter: 0.25

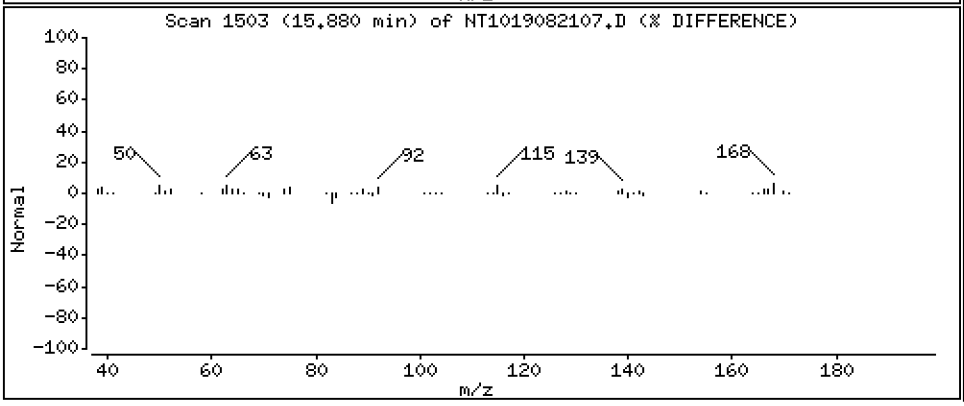
54 N-Nitrosodiphenylamine

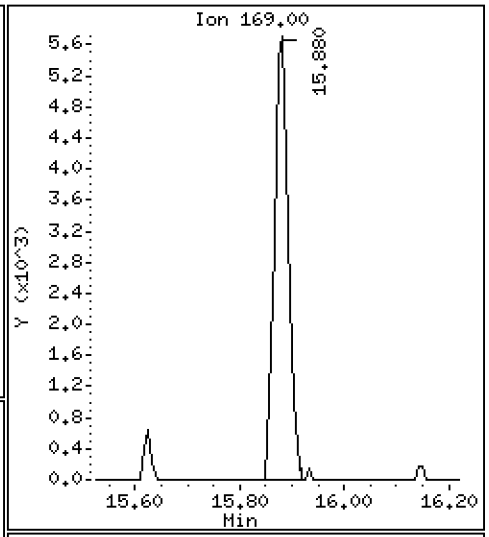
Concentration: 0.5855 ug/mL

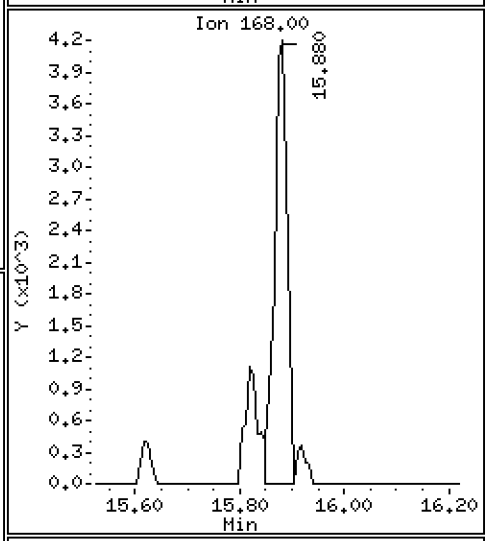


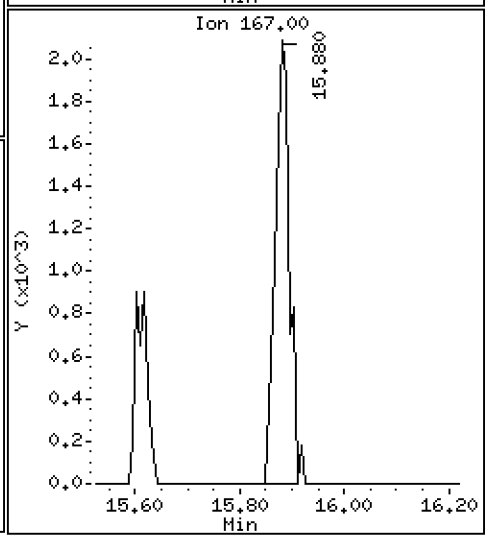












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

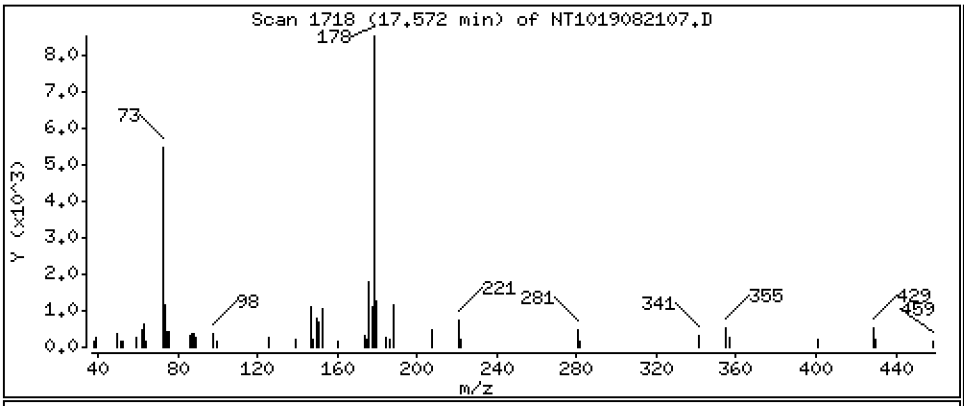
Operator: YZ

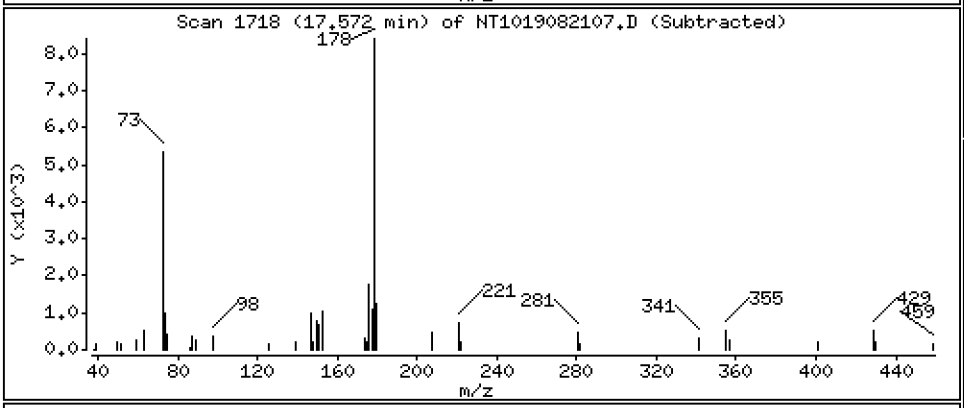
Column phase: ZB-5msi

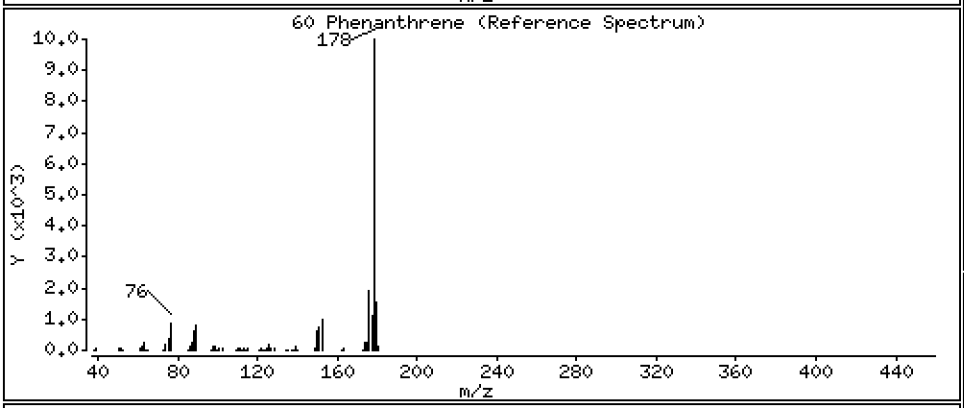
Column diameter: 0.25

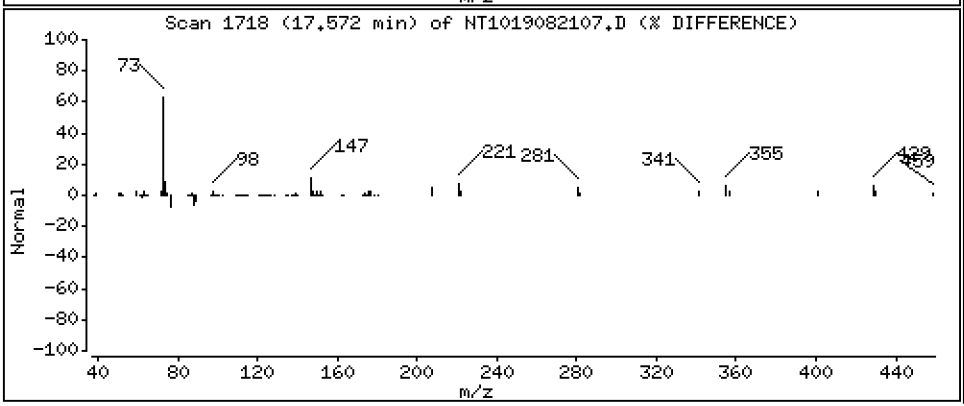
60 Phenanthrene

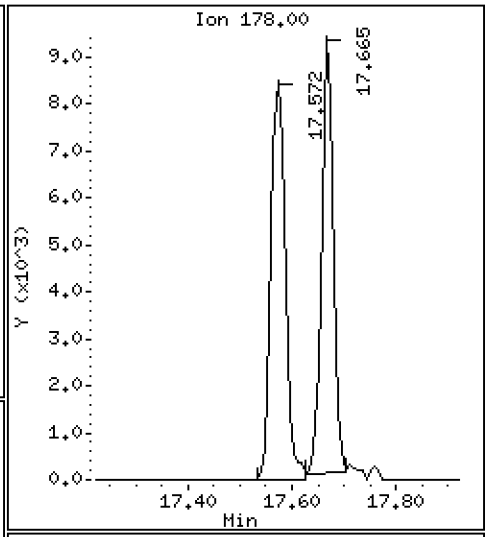
Concentration: 0.4839 ug/mL

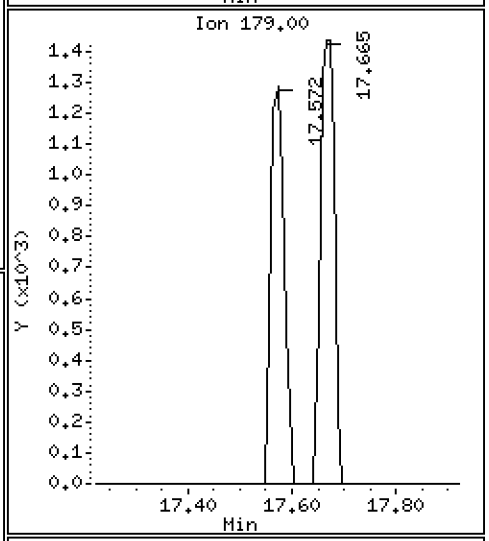


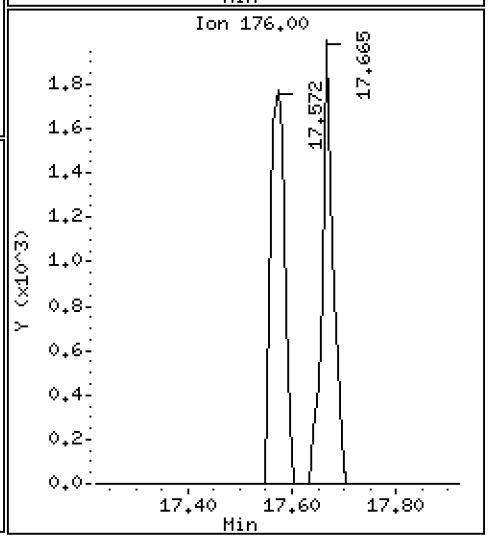












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

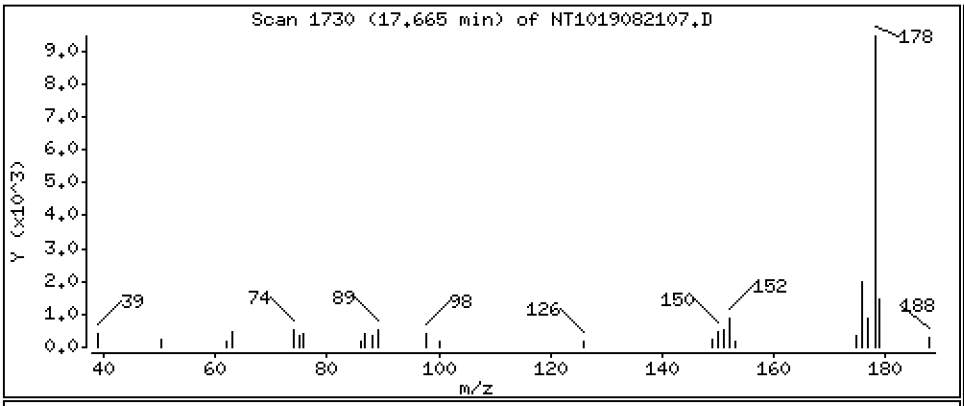
Operator: YZ

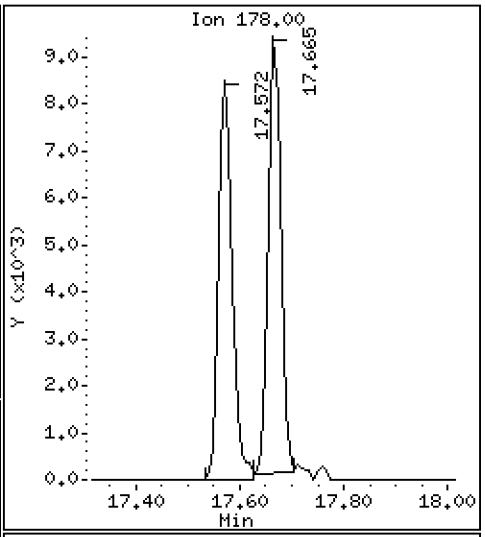
Column phase: ZB-5msi

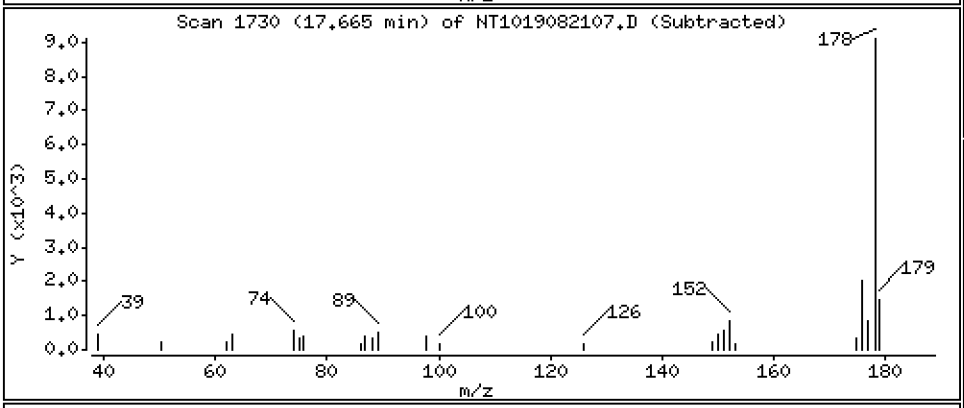
Column diameter: 0.25

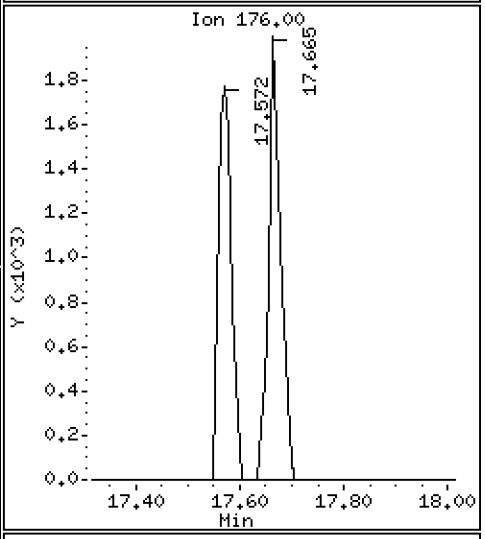
61 Anthracene

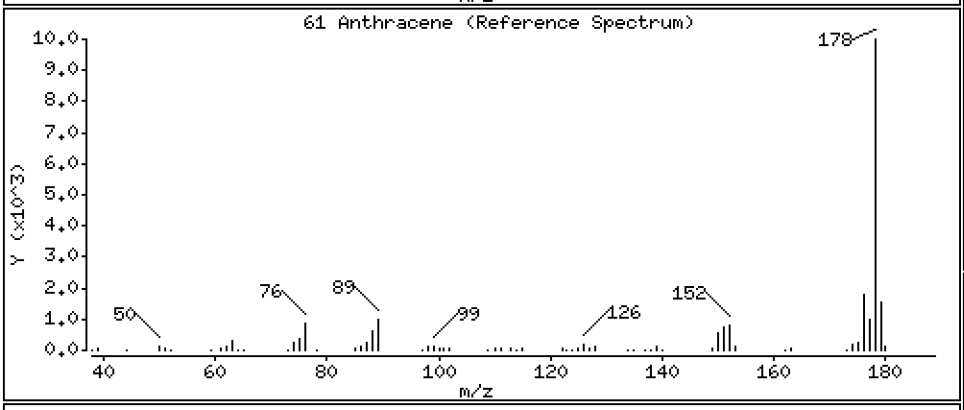
Concentration: 0.4476 ug/mL

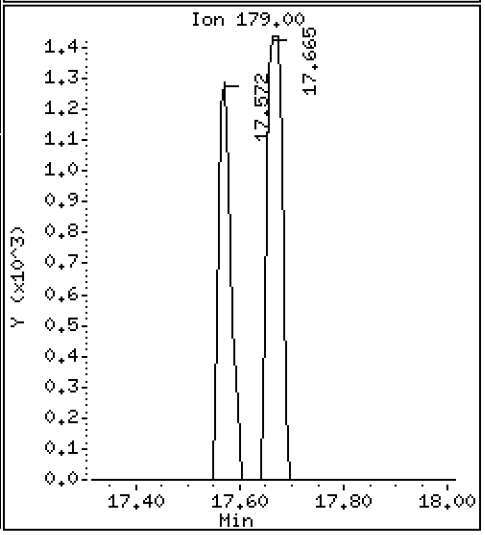


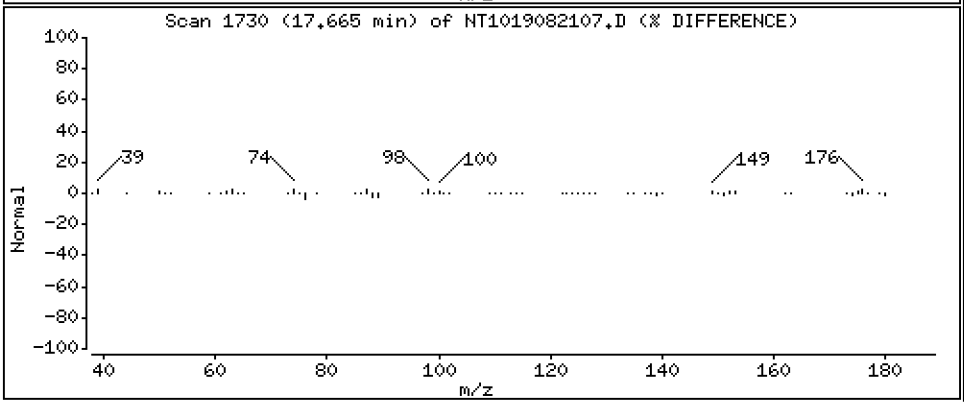












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

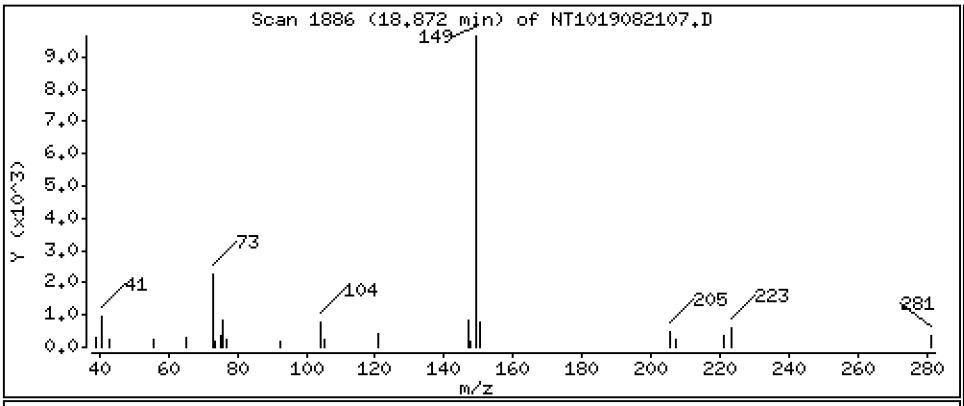
Operator: YZ

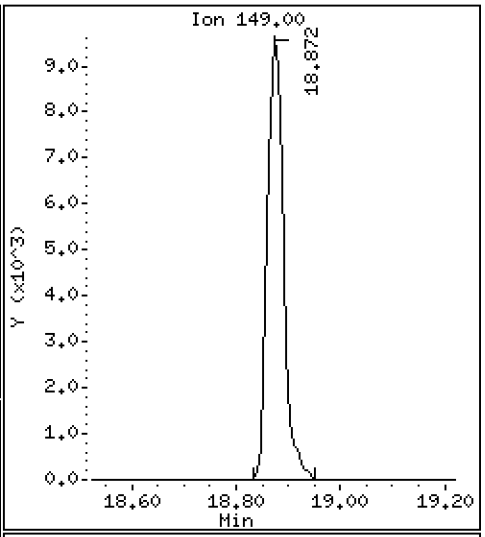
Column phase: ZB-5msi

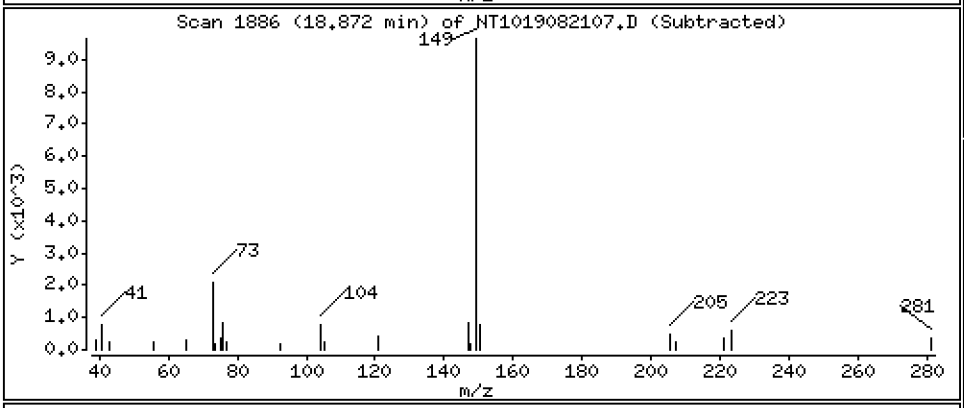
Column diameter: 0.25

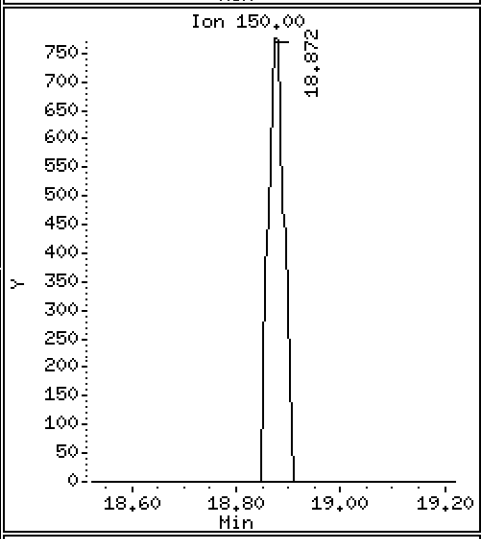
63 Di-n-butylphthalate

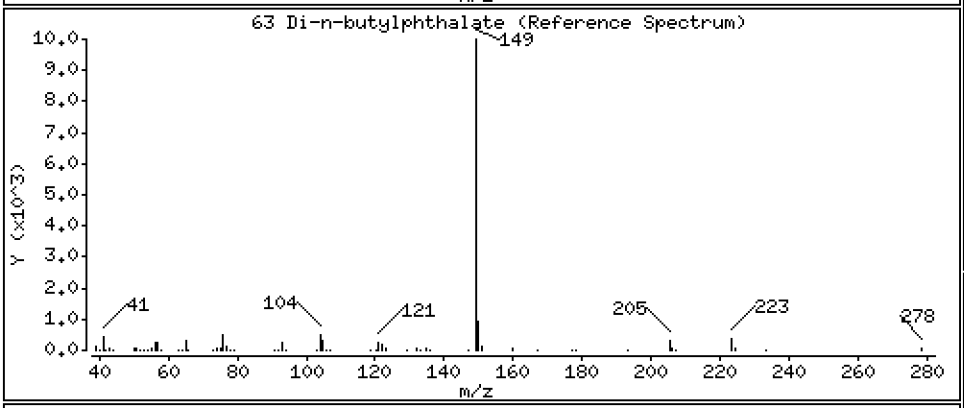
Concentration: 0.4466 ug/mL

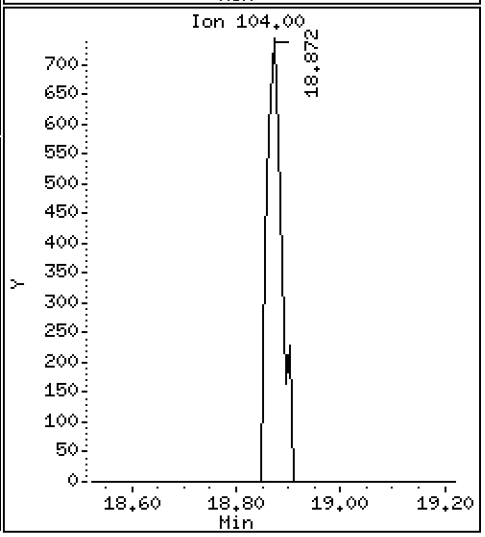


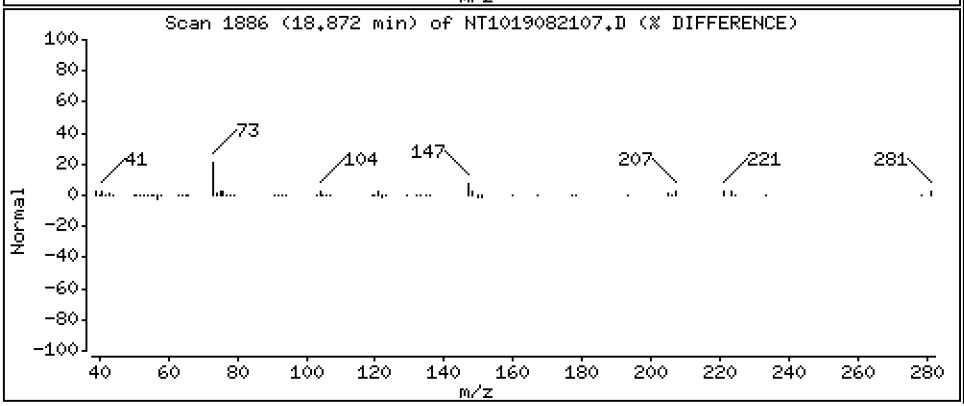












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

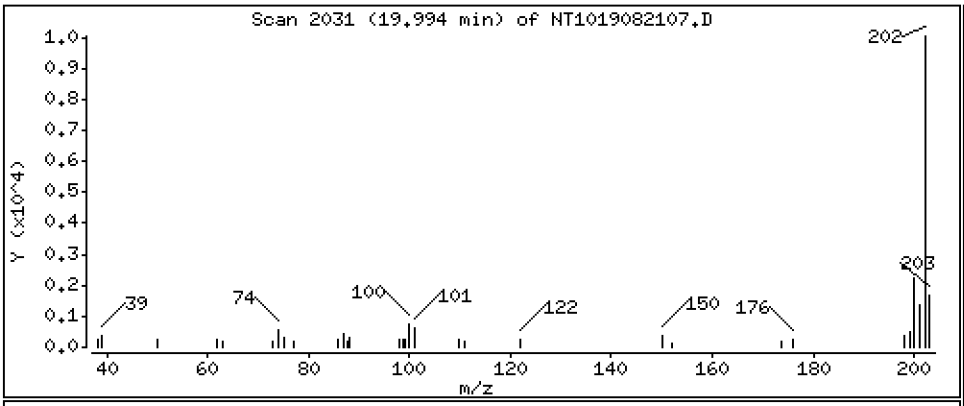
Operator: YZ

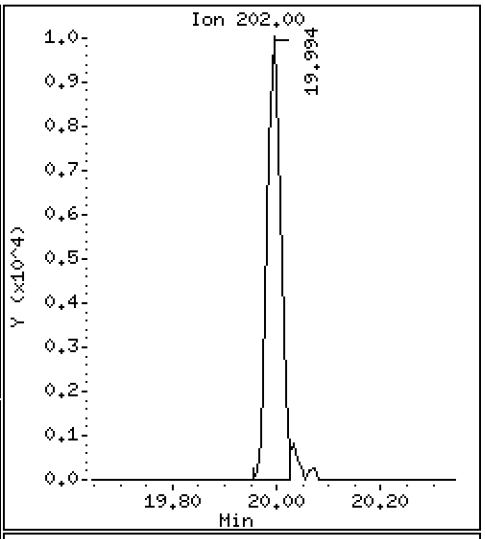
Column phase: ZB-5msi

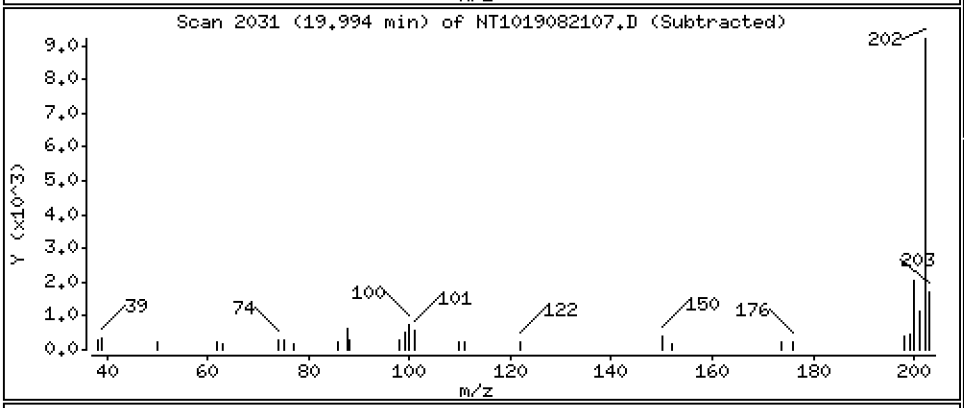
Column diameter: 0.25

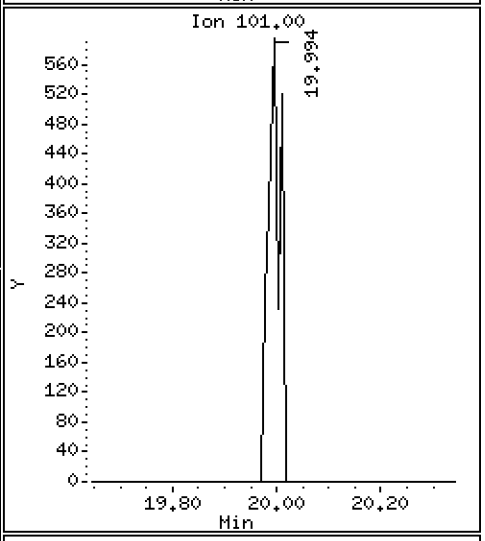
64 Fluoranthene

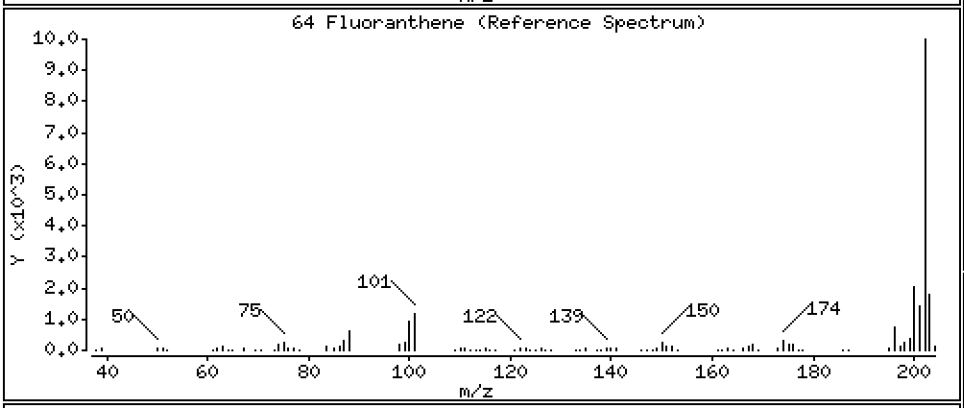
Concentration: 0.4508 ug/mL

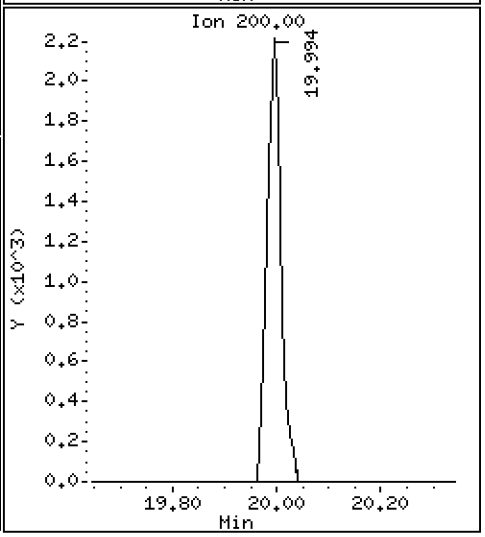


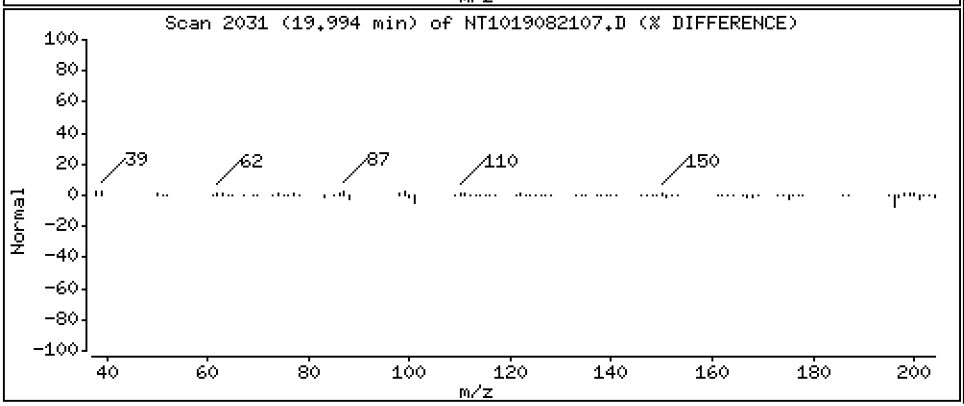












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

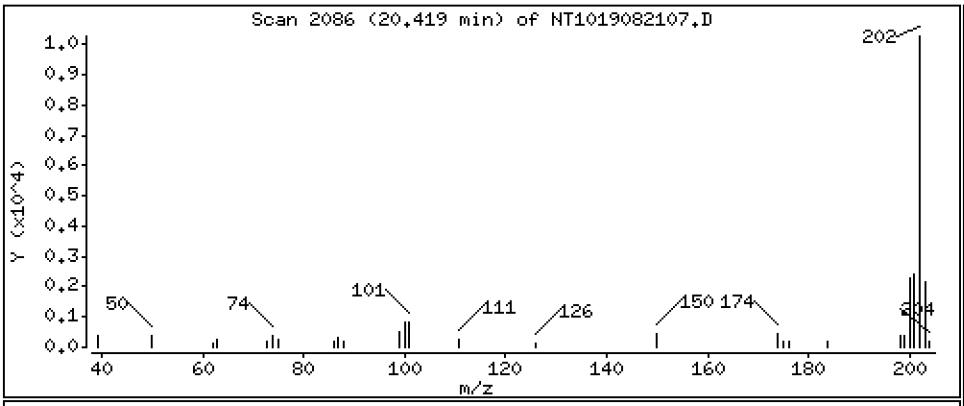
Operator: YZ

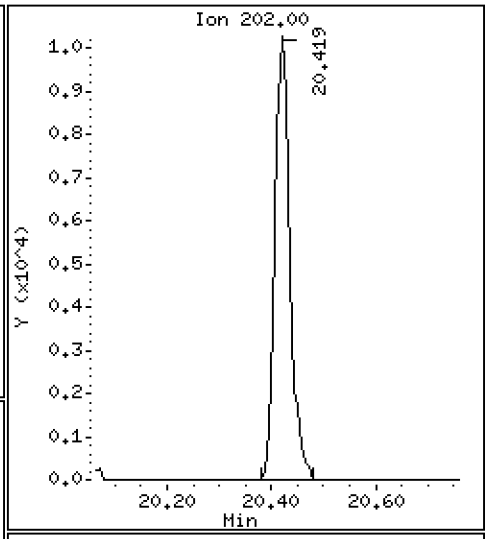
Column phase: ZB-5msi

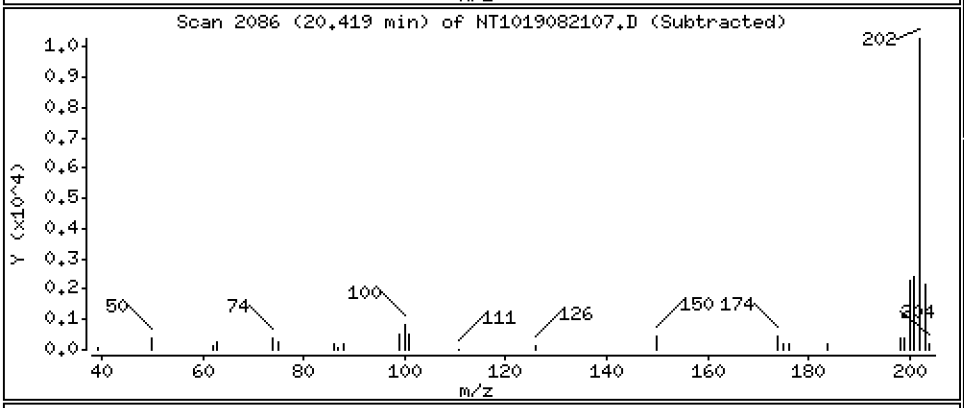
Column diameter: 0.25

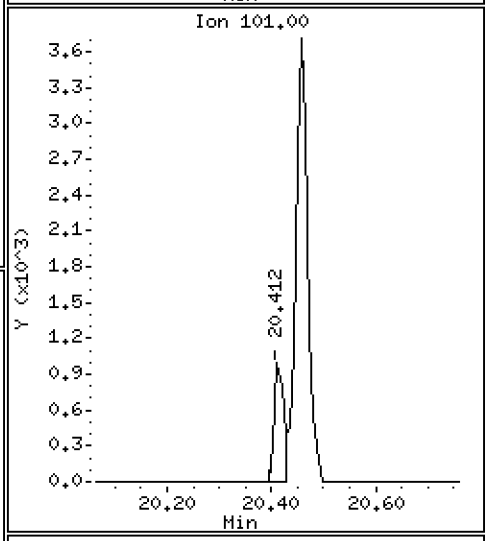
65 Pyrene

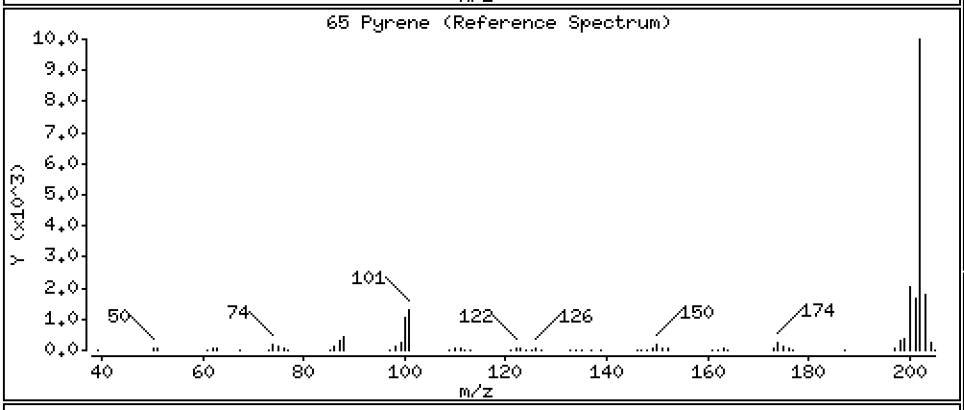
Concentration: 0.4856 ug/mL

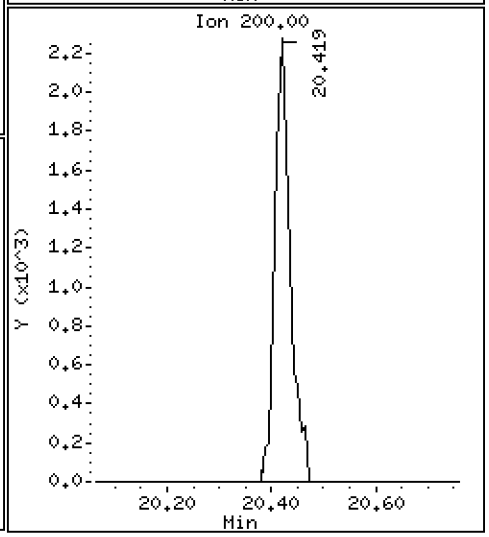


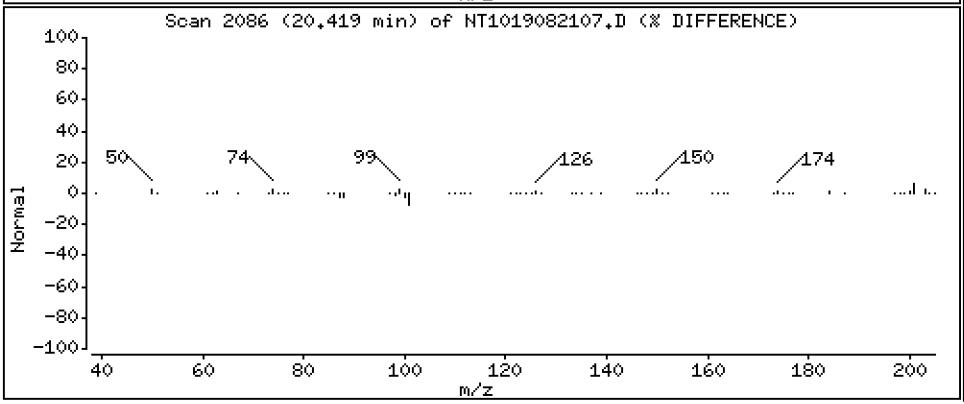












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

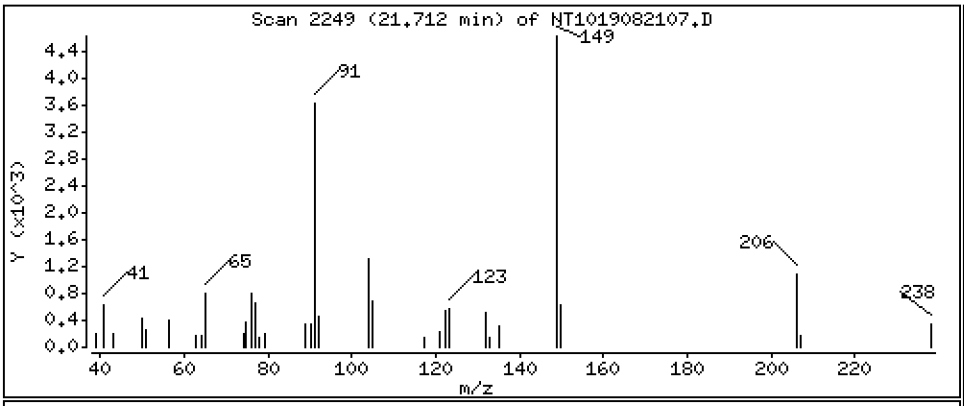
Operator: YZ

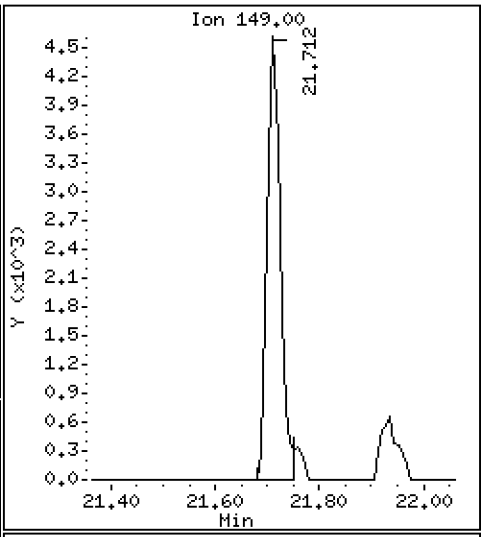
Column phase: ZB-5msi

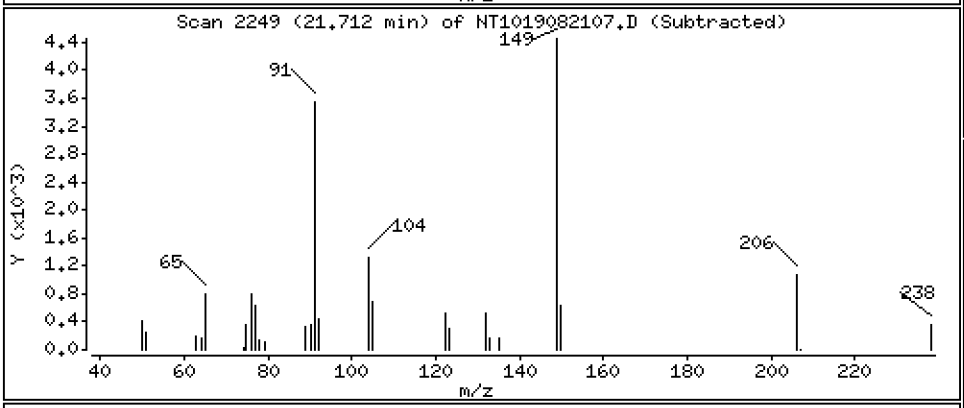
Column diameter: 0.25

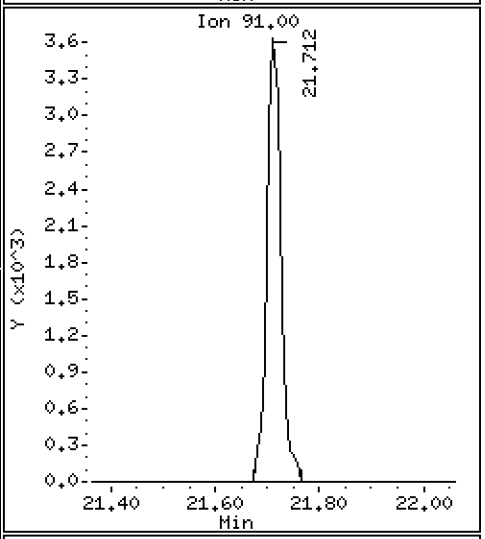
67 Butylbenzylphthalate

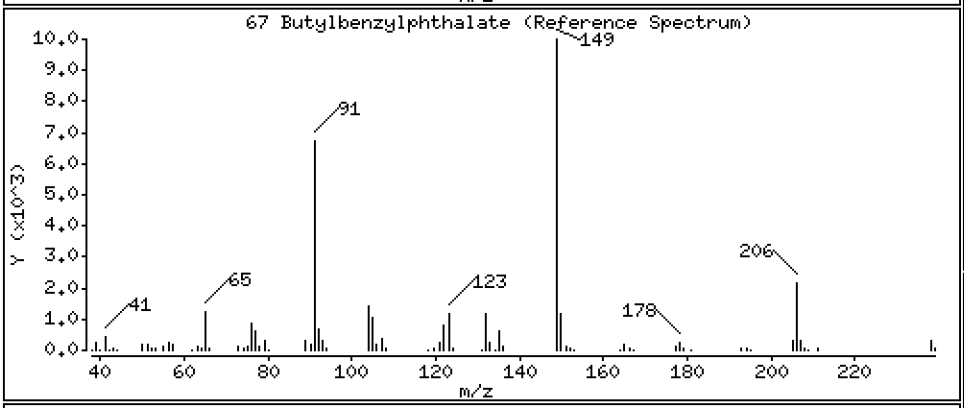
Concentration: 0.4115 ug/mL

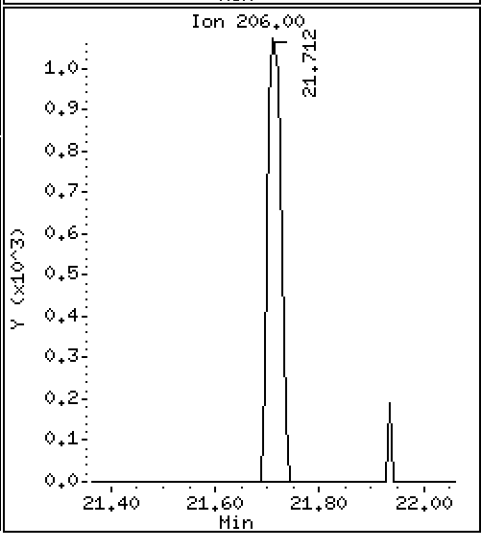


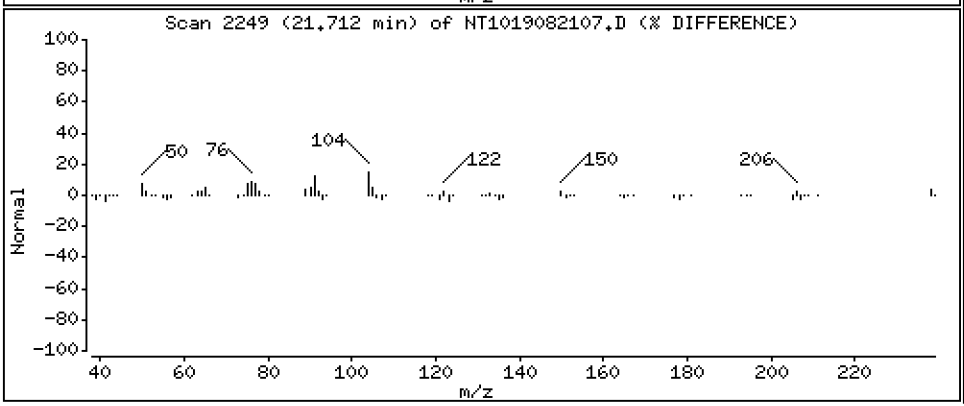












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

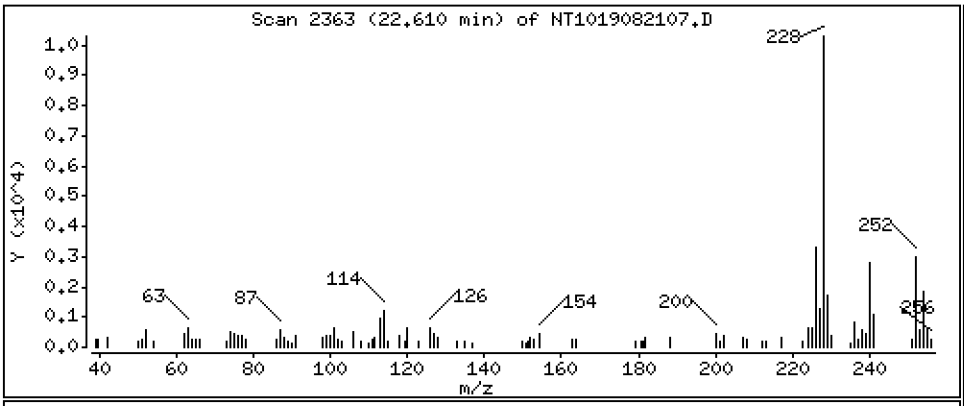
Operator: YZ

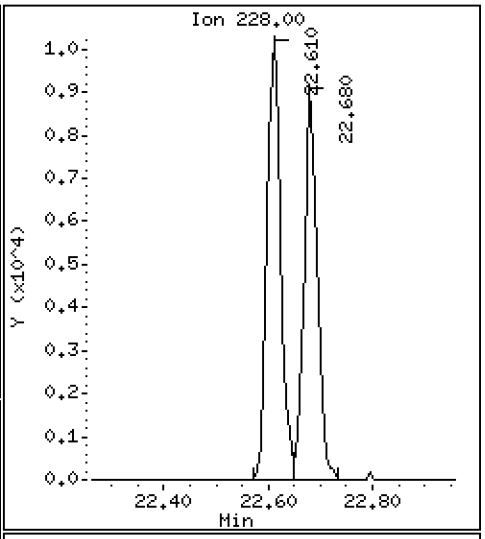
Column phase: ZB-5msi

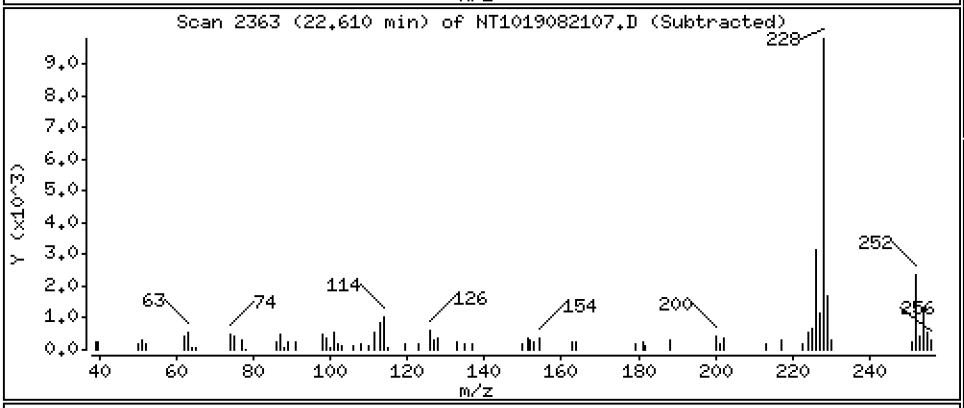
Column diameter: 0.25

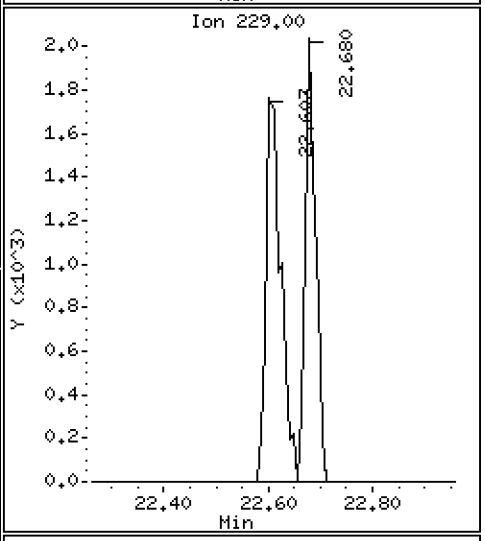
68 Benzo(a)anthracene

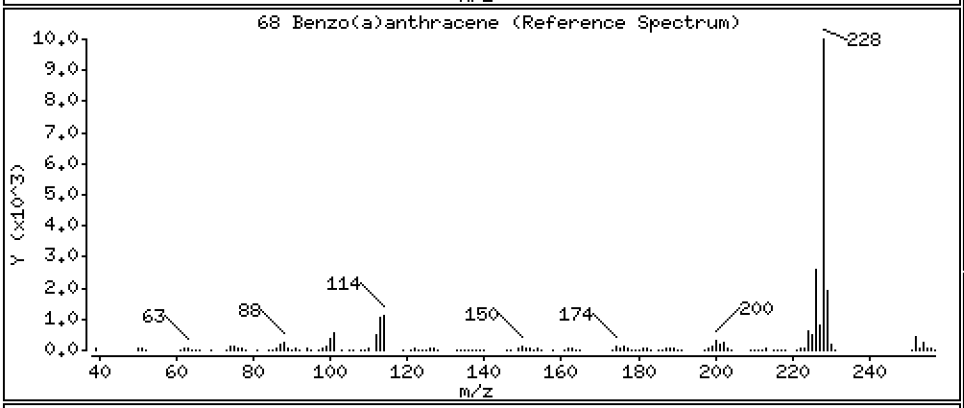
Concentration: 0.4837 ug/mL

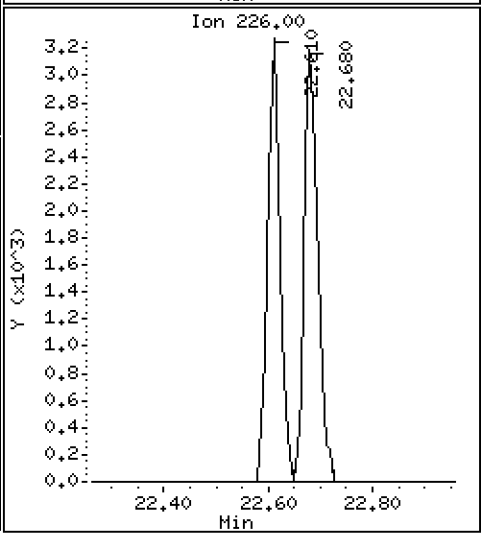


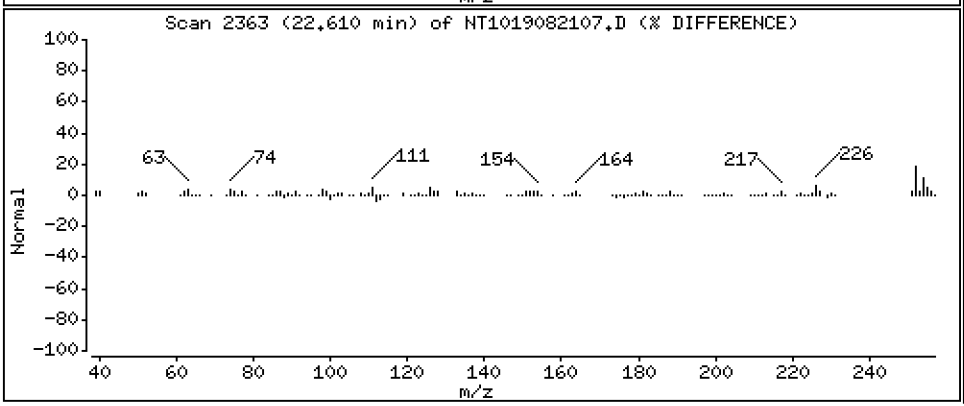












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

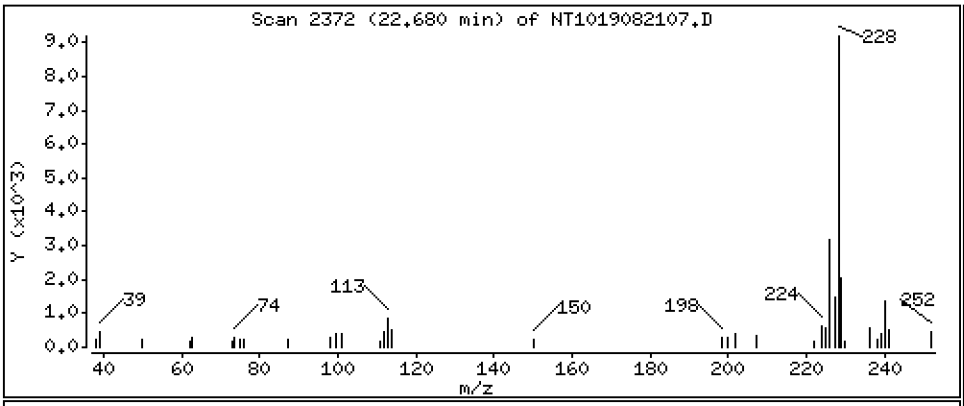
Operator: YZ

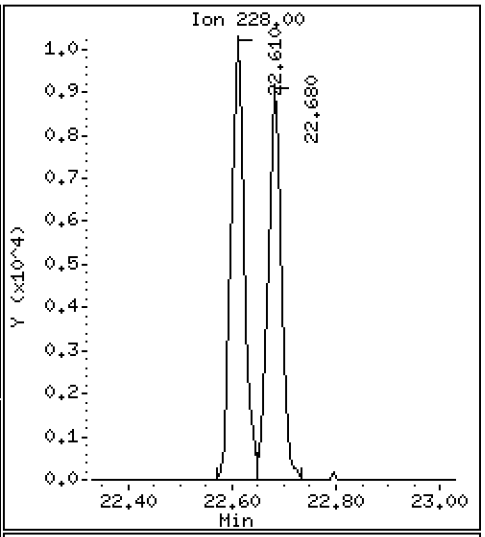
Column phase: ZB-5msi

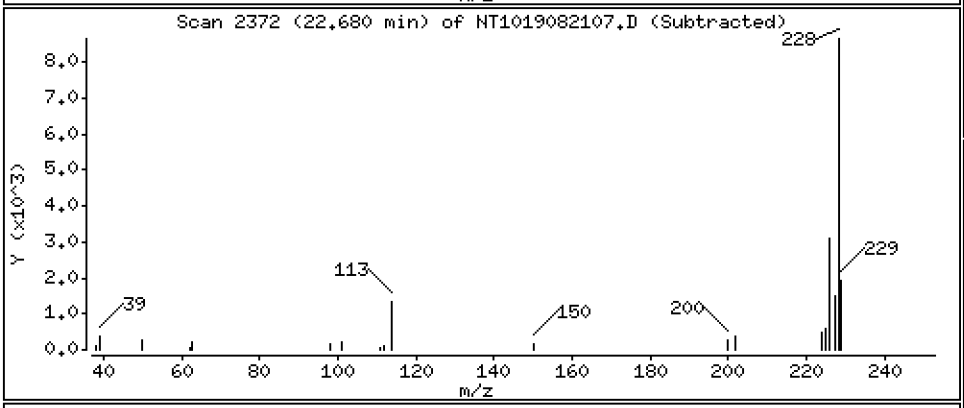
Column diameter: 0.25

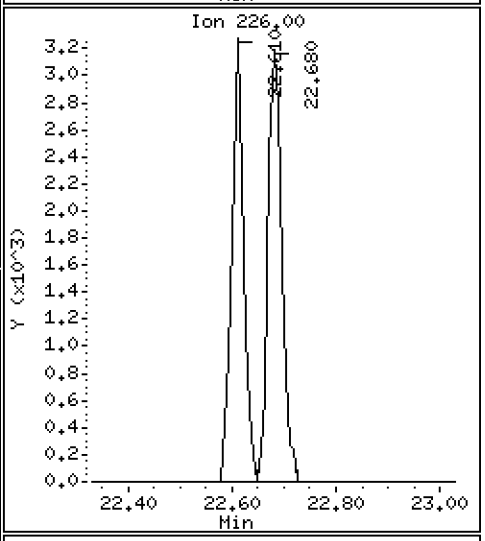
71 Chrysene

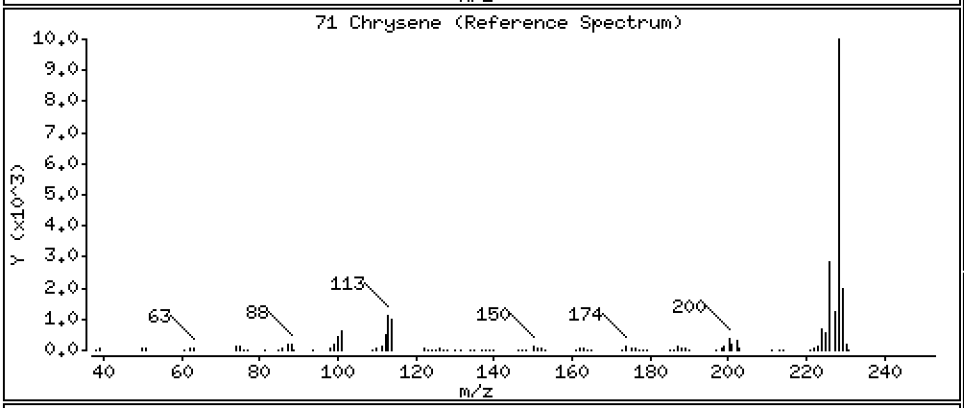
Concentration: 0.4752 ug/mL

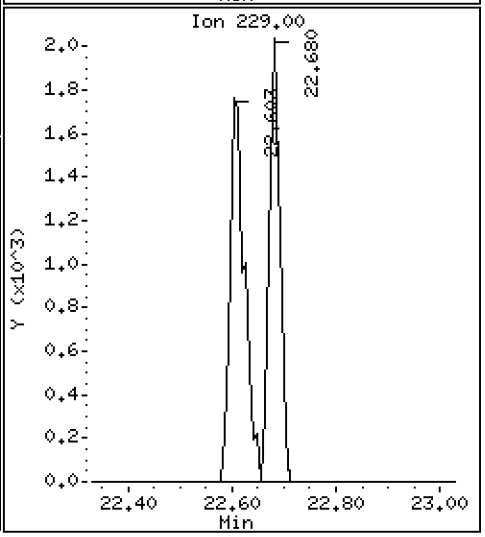


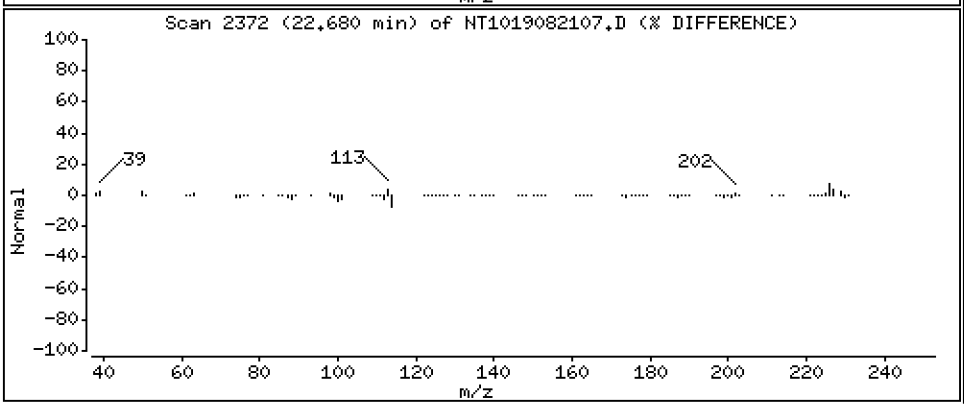












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

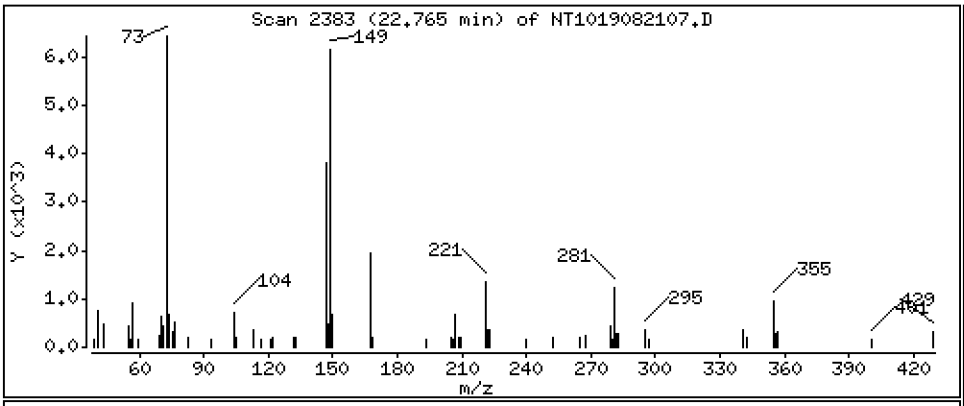
Operator: YZ

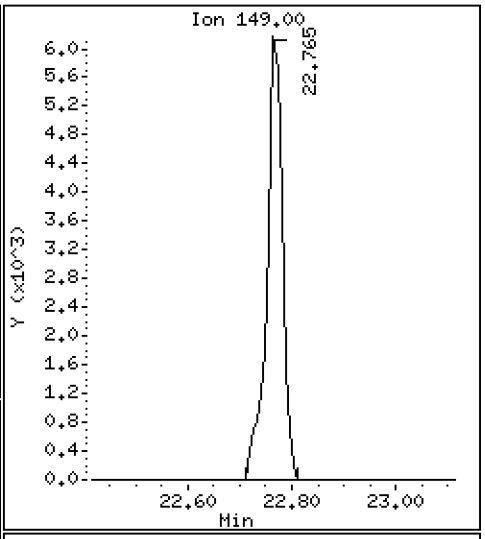
Column phase: ZB-5msi

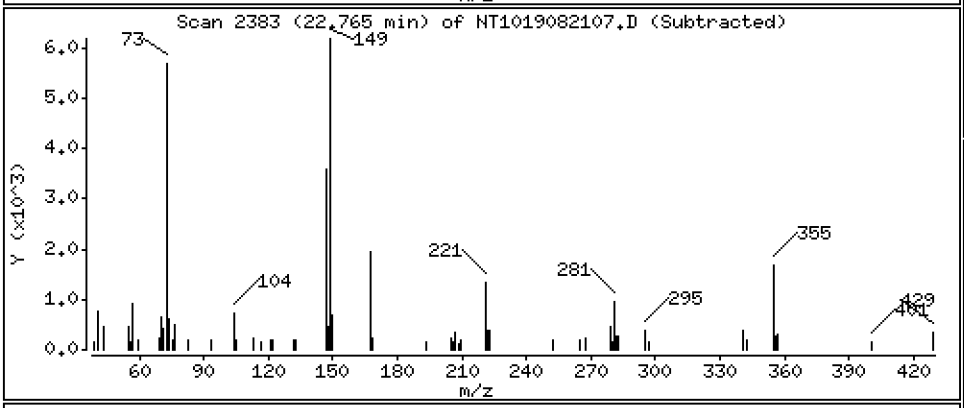
Column diameter: 0.25

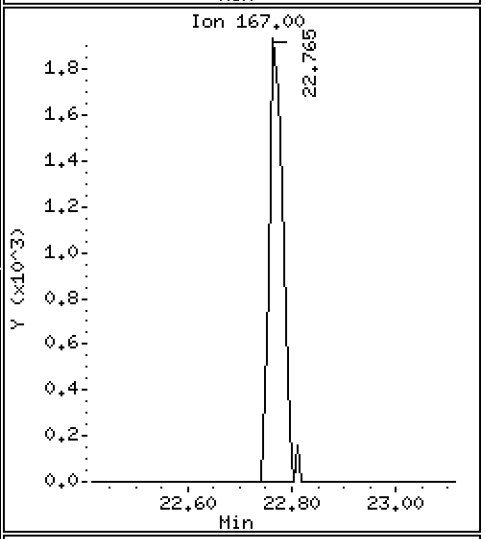
72 bis(2-Ethylhexyl)phthalate

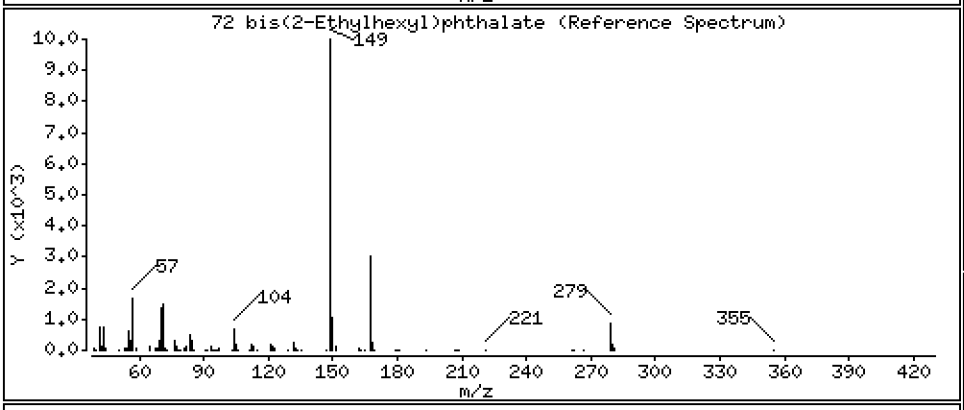
Concentration: 0.5593 ug/mL

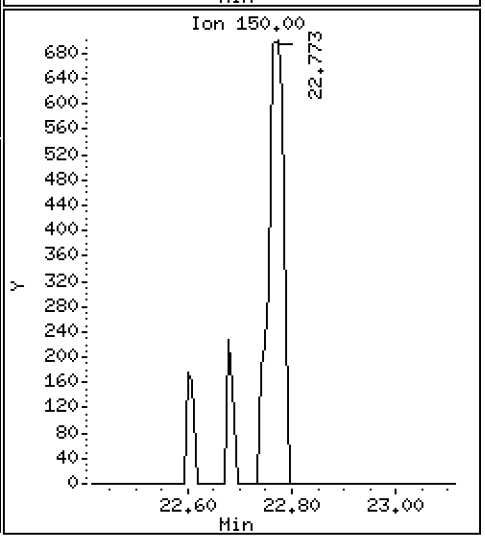


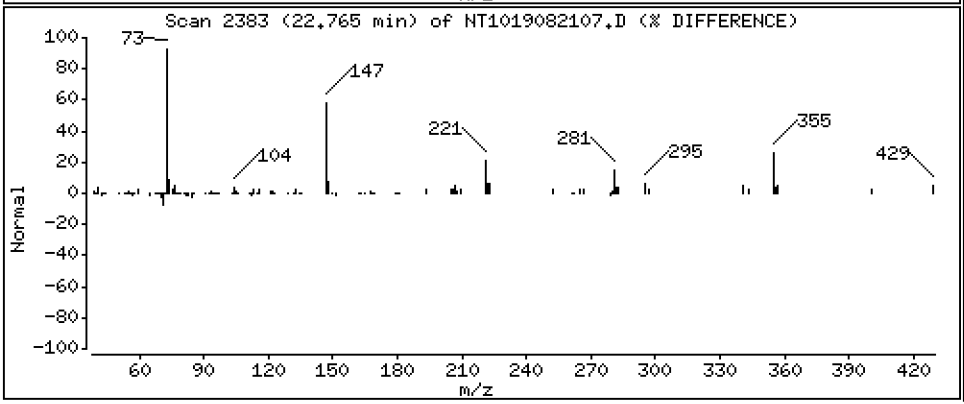












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

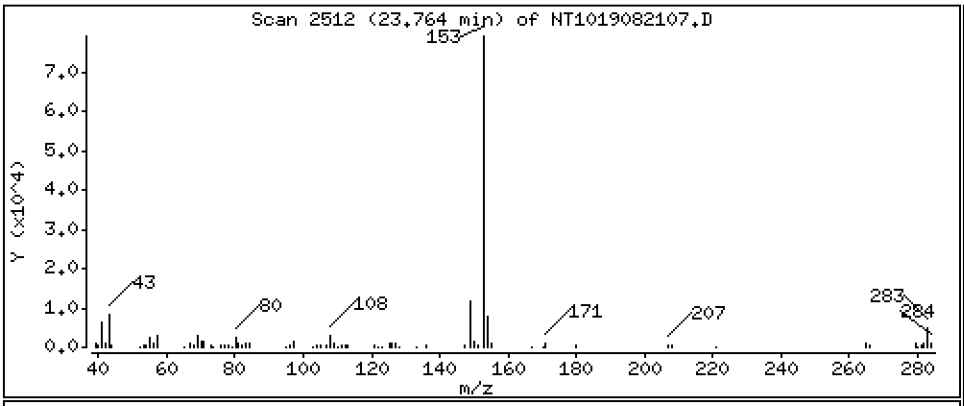
Operator: YZ

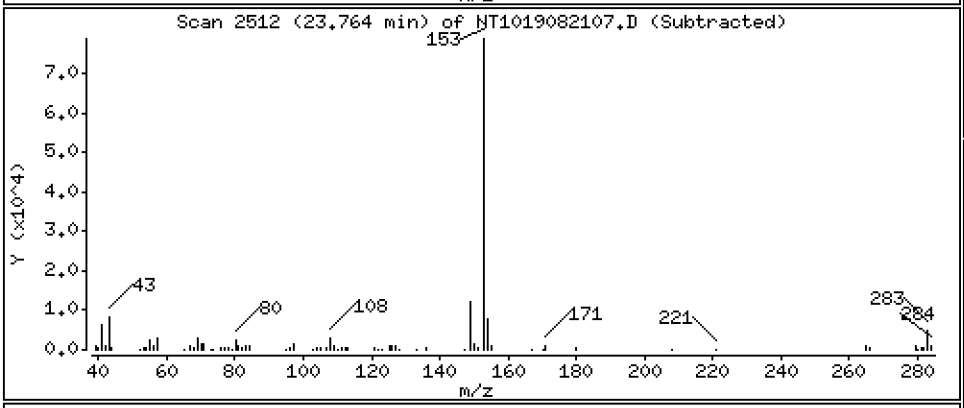
Column phase: ZB-5msi

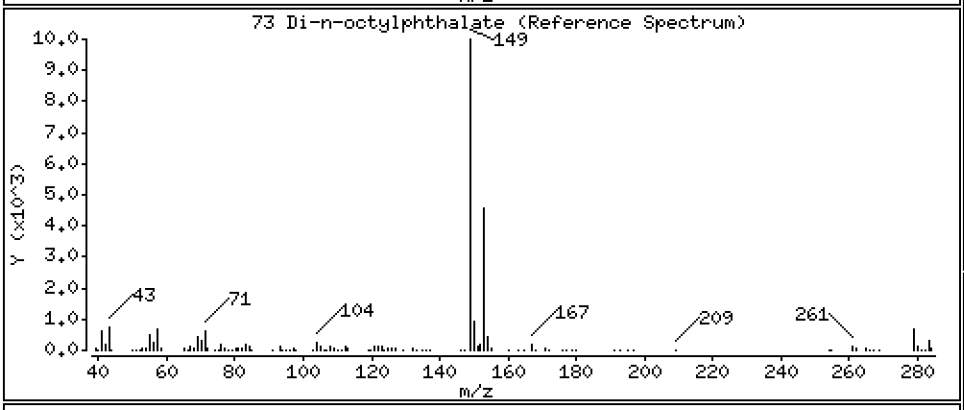
Column diameter: 0.25

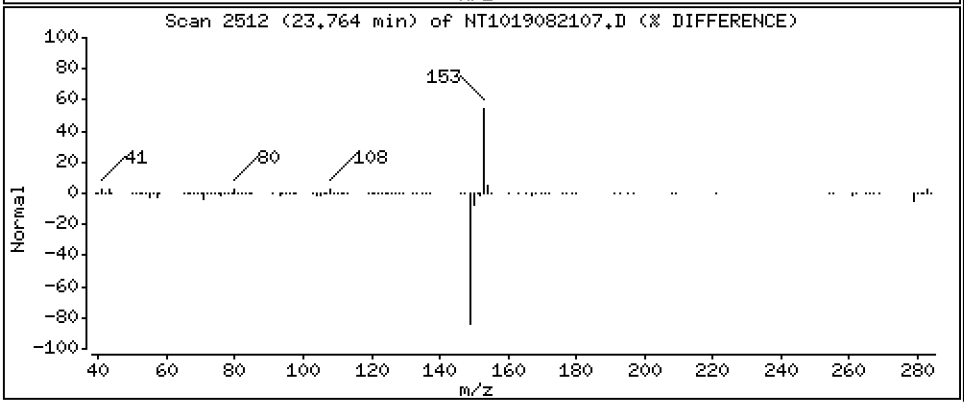
73 Di-n-octylphthalate

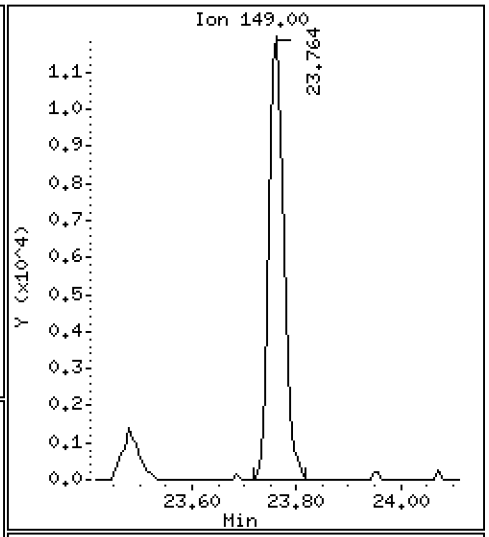
Concentration: 0.4980 ug/mL

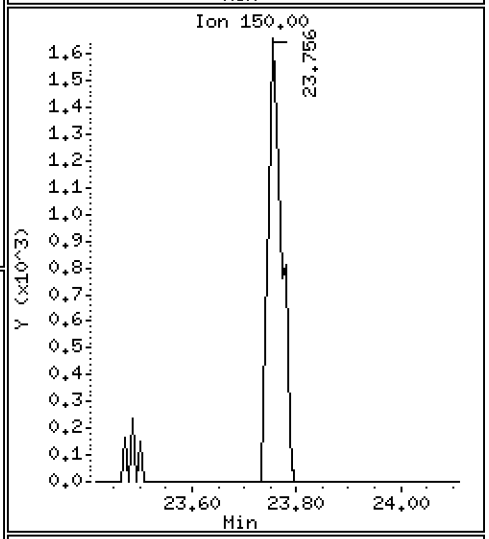


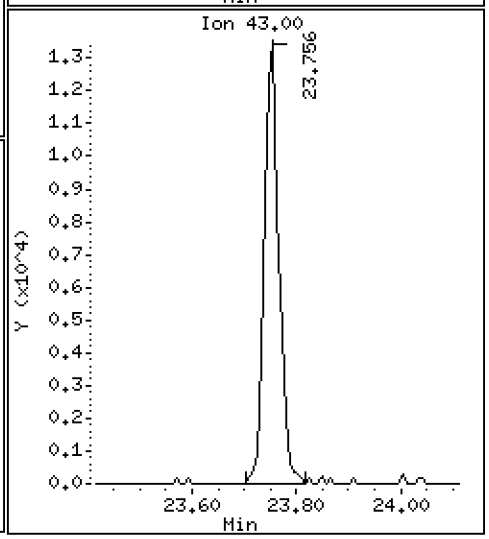












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

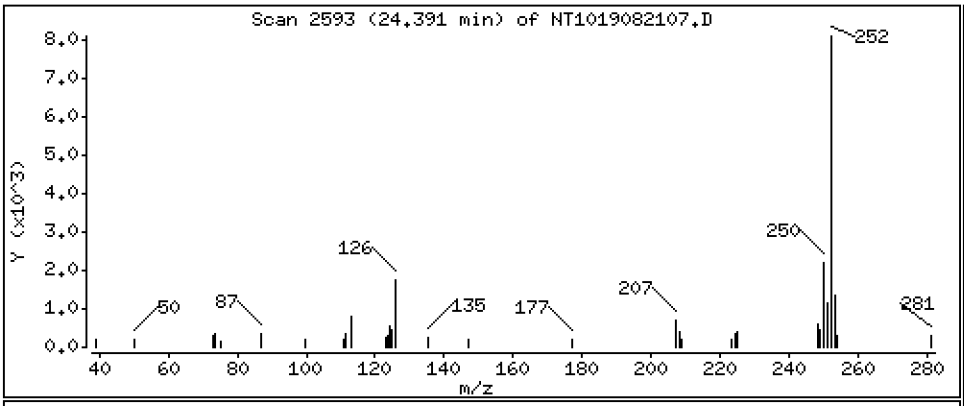
Operator: YZ

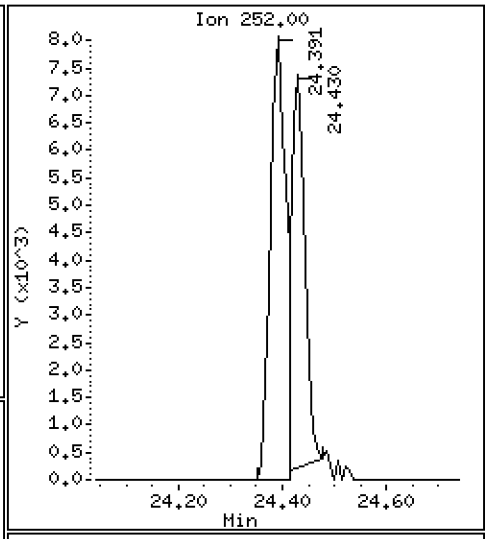
Column phase: ZB-5msi

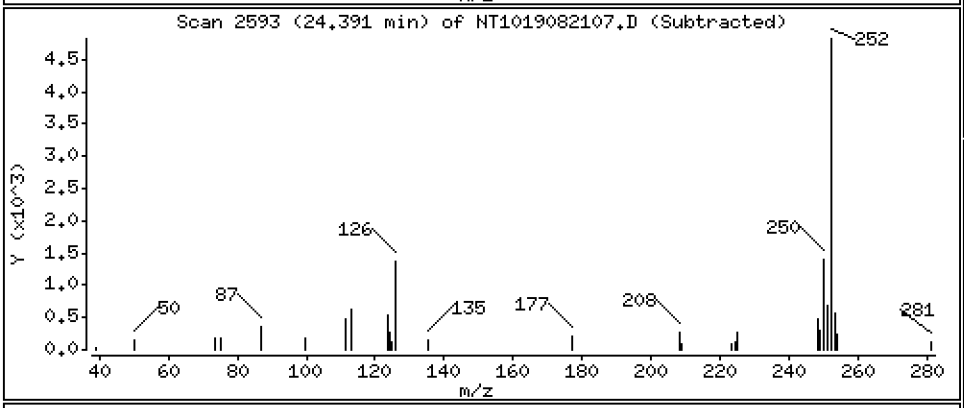
Column diameter: 0.25

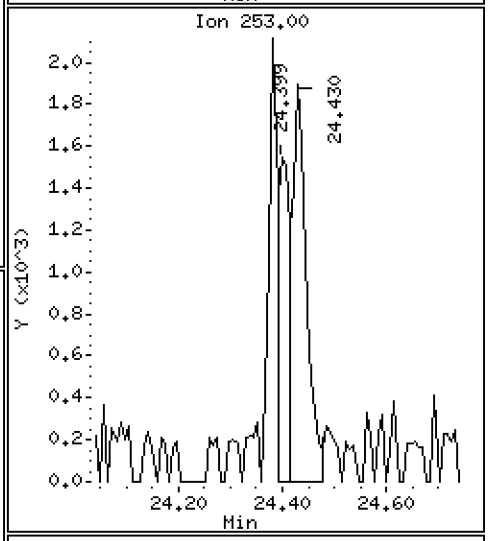
74 Benzo(b)fluoranthene

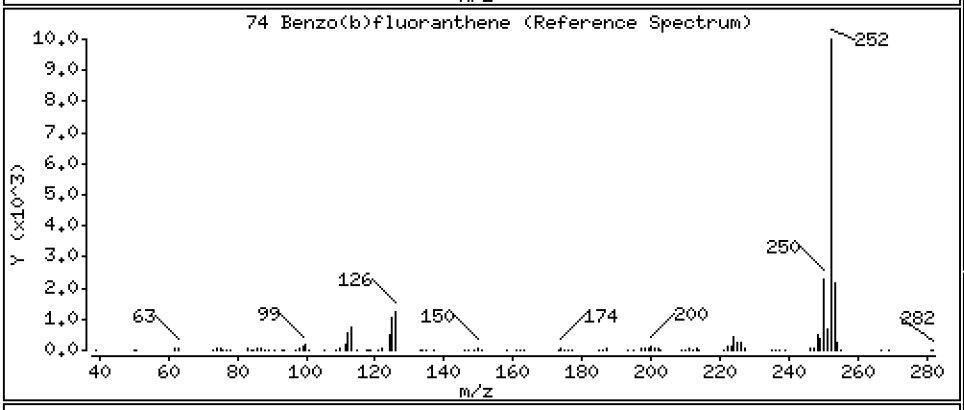
Concentration: 0.5817 ug/mL

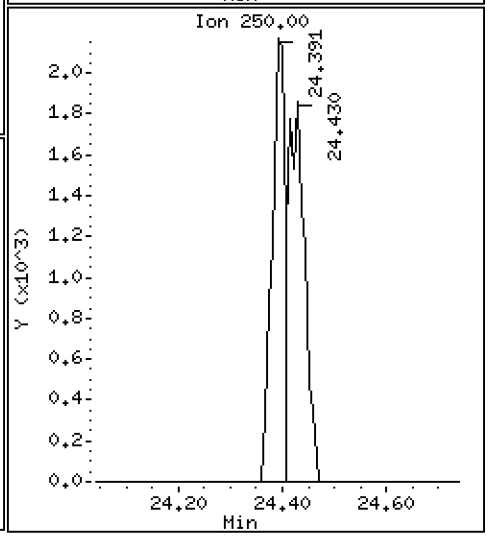


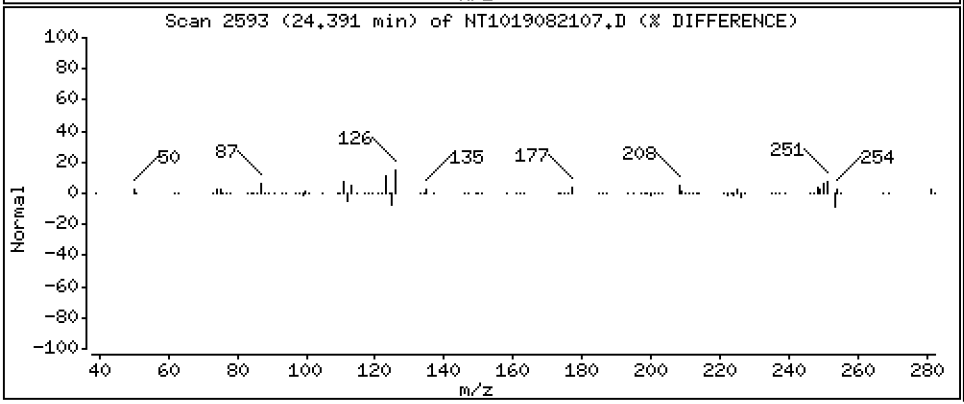












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Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

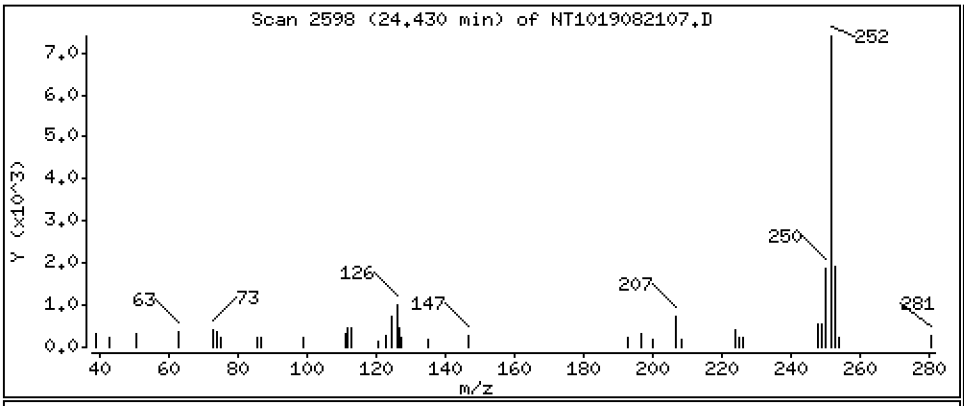
Operator: YZ

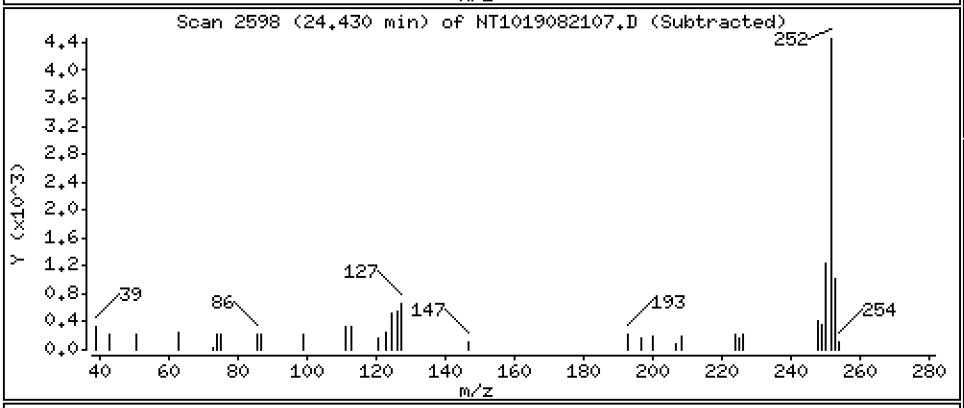
Column phase: ZB-5msi

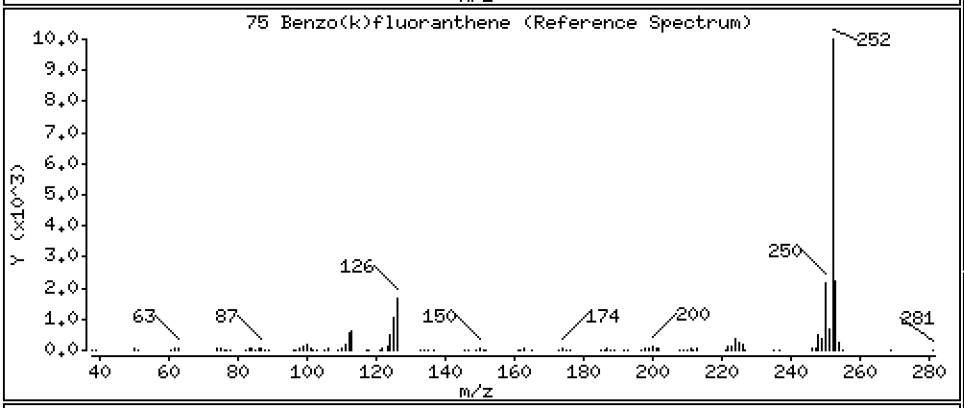
Column diameter: 0.25

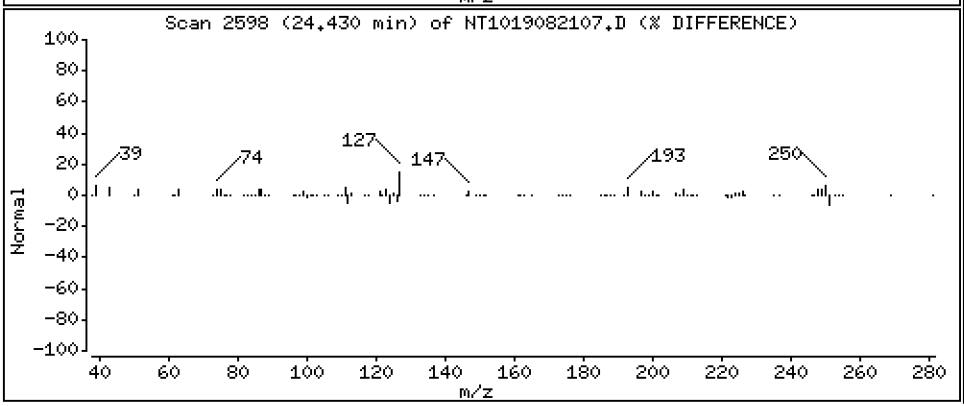
75 Benzo(k)fluoranthene

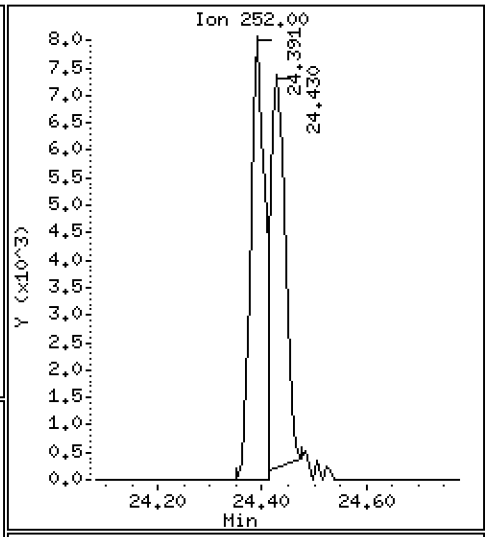
Concentration: 0.4729 ug/mL

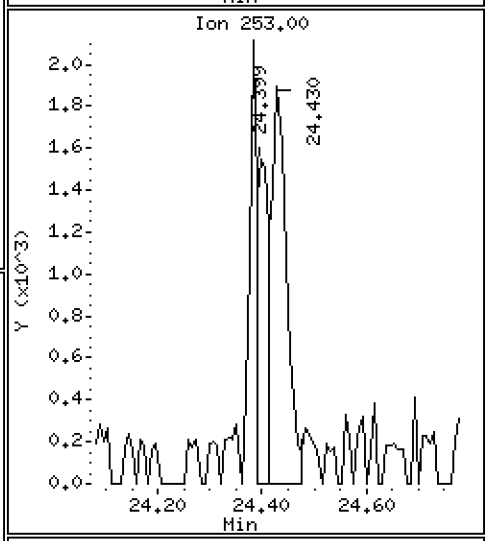


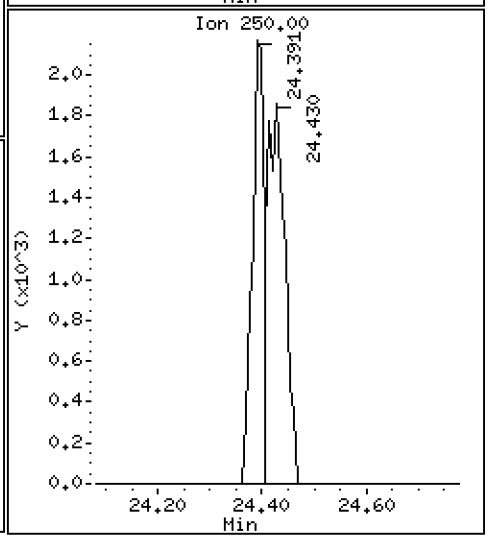












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

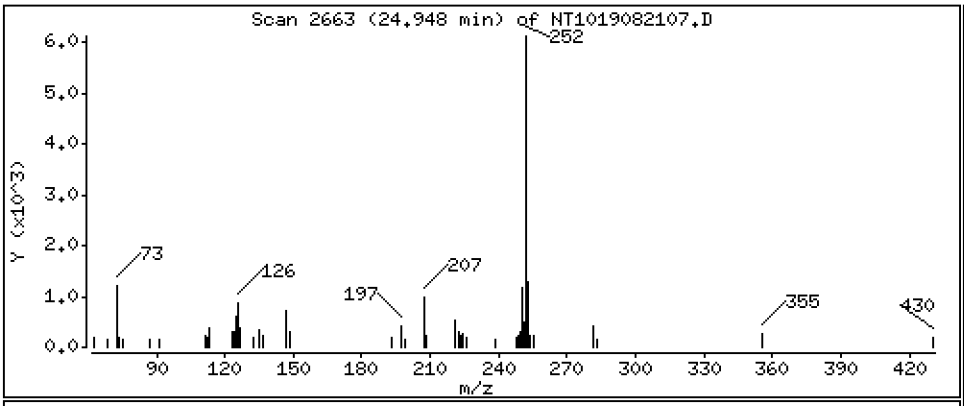
Operator: YZ

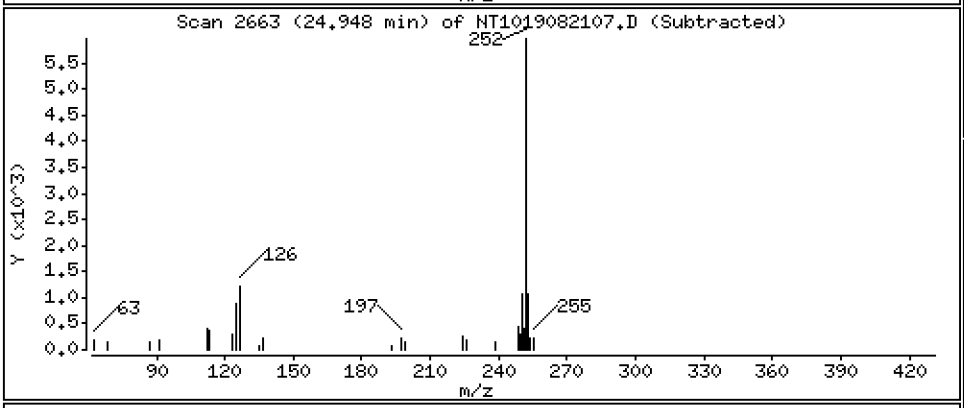
Column phase: ZB-5msi

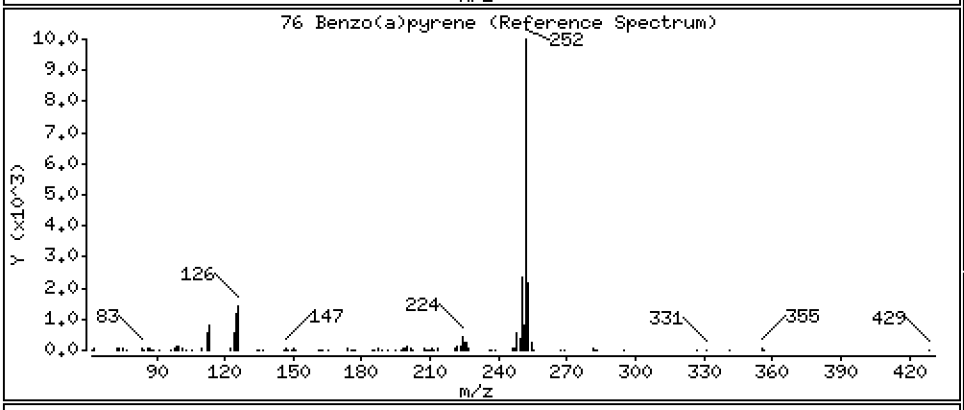
Column diameter: 0.25

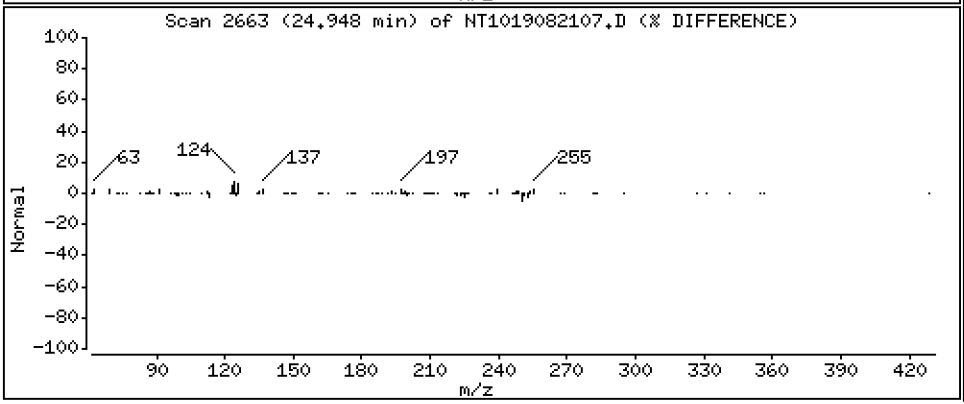
76 Benzo(a)pyrene

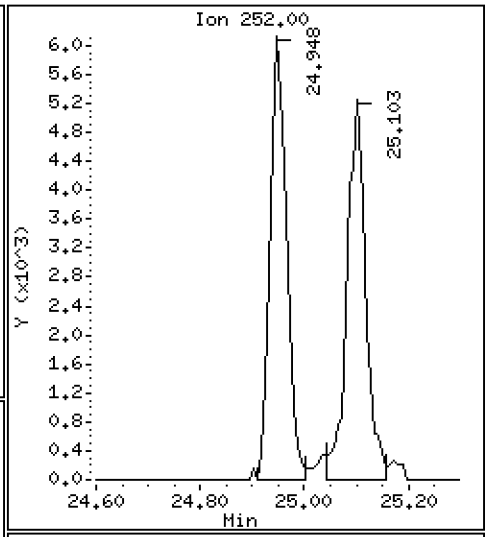
Concentration: 0.5044 ug/mL

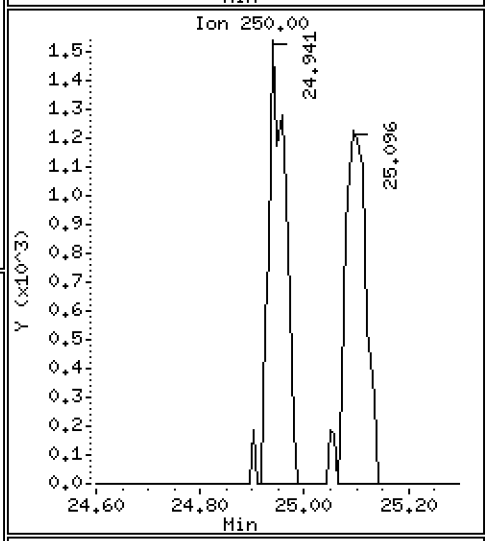


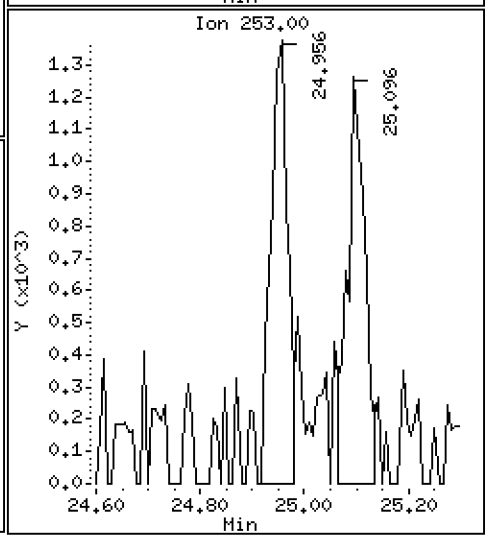












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

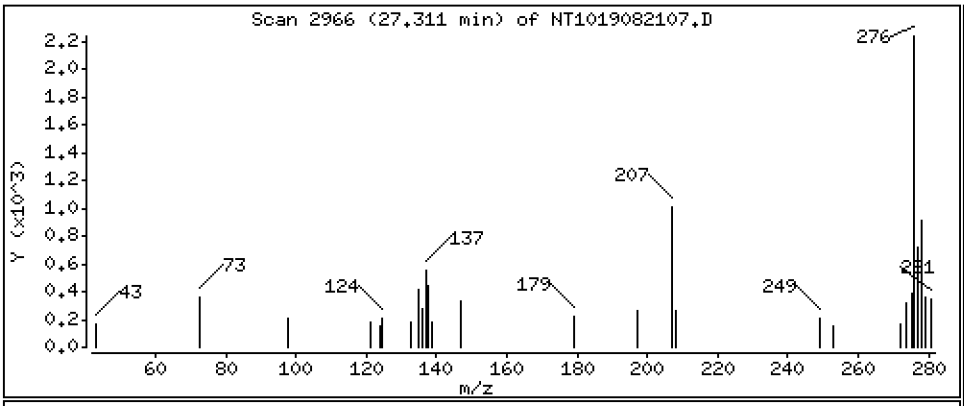
Operator: YZ

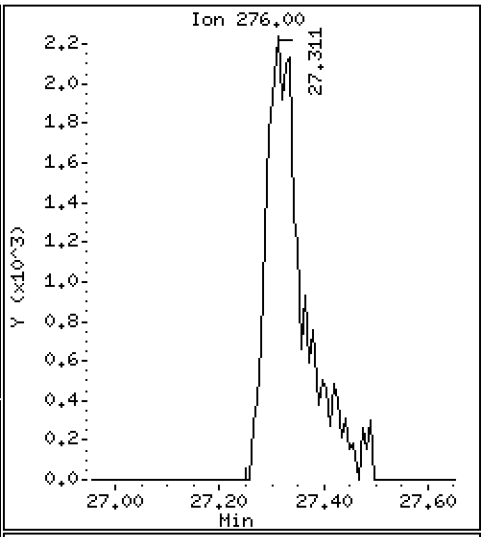
Column phase: ZB-5msi

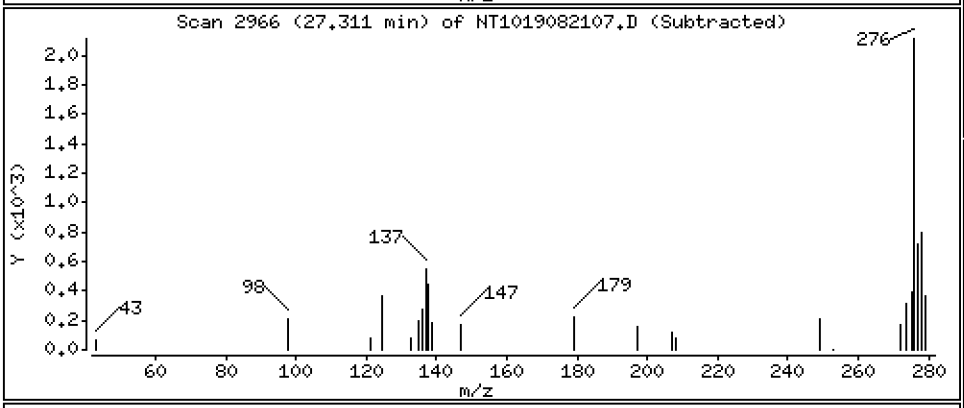
Column diameter: 0.25

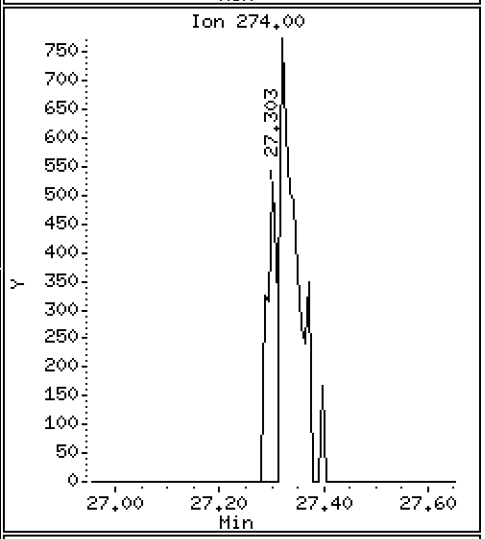
78 Indeno(1,2,3-cd)pyrene

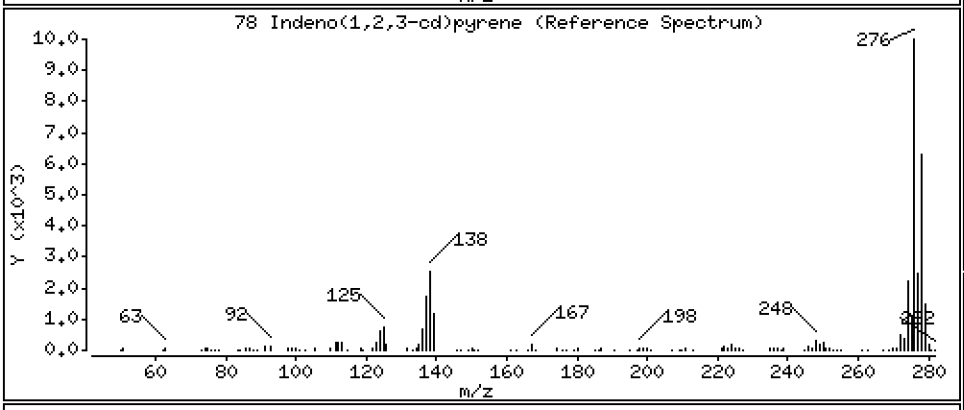
Concentration: 0.3554 ug/mL

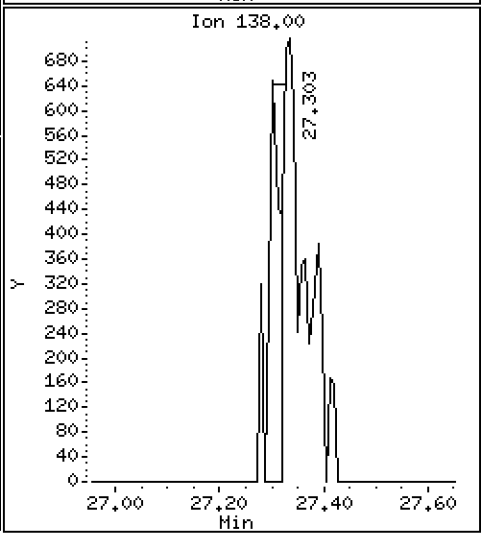


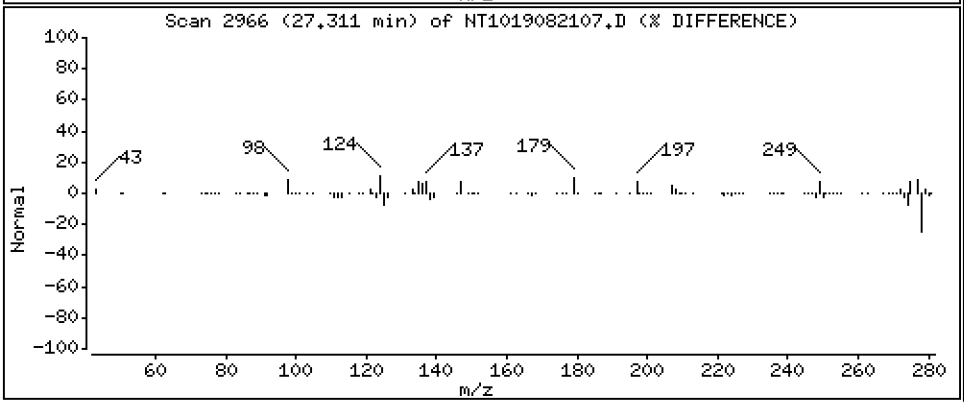












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

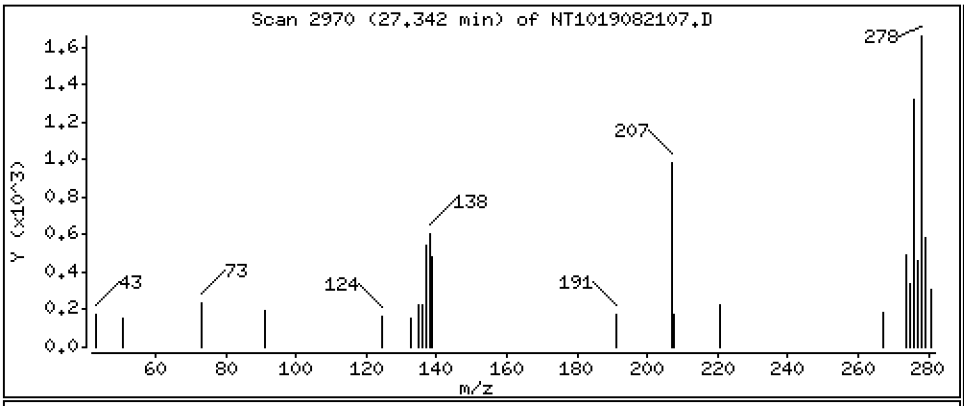
Operator: YZ

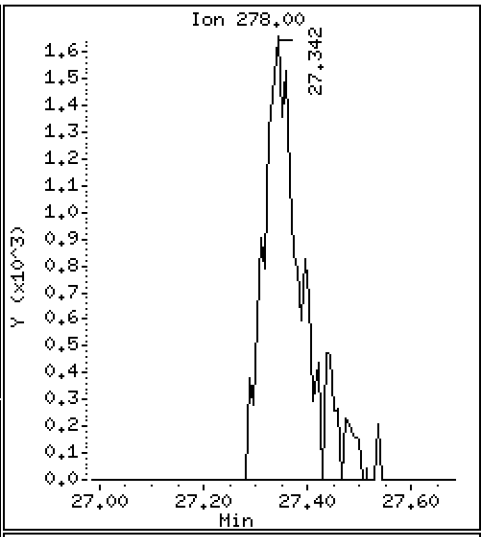
Column phase: ZB-5msi

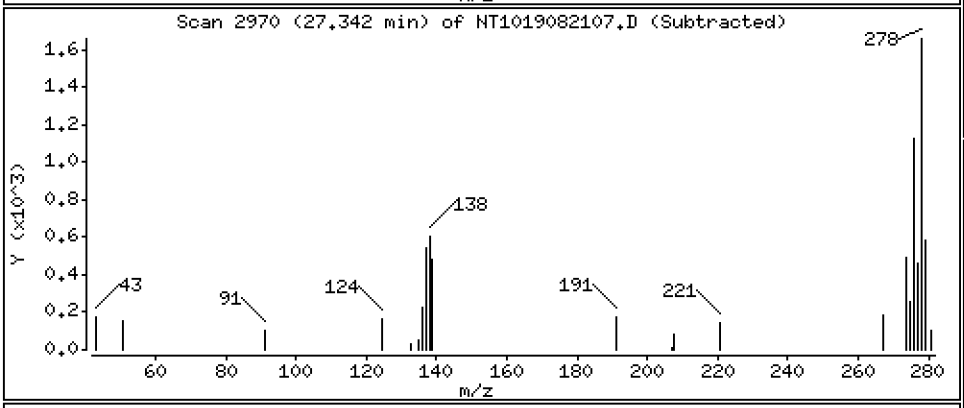
Column diameter: 0.25

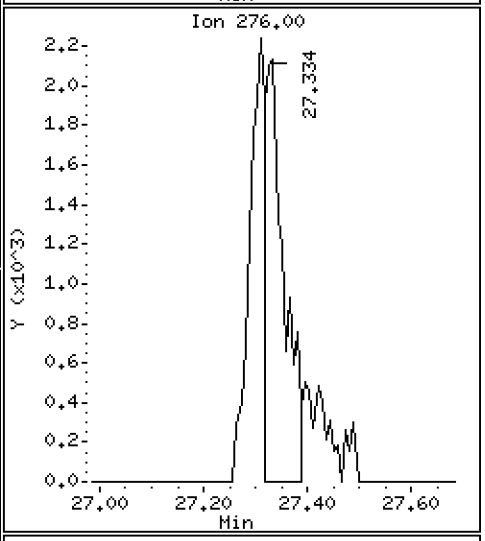
79 Dibenzo(a,h)anthracene

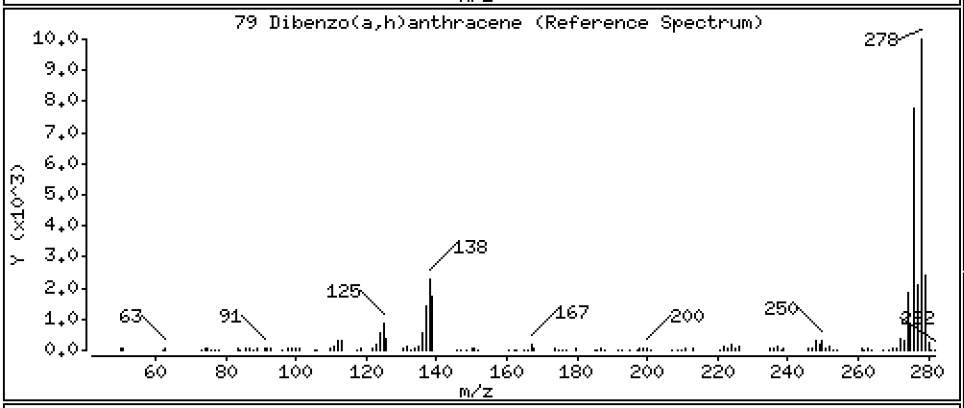
Concentration: 0.3329 ug/mL

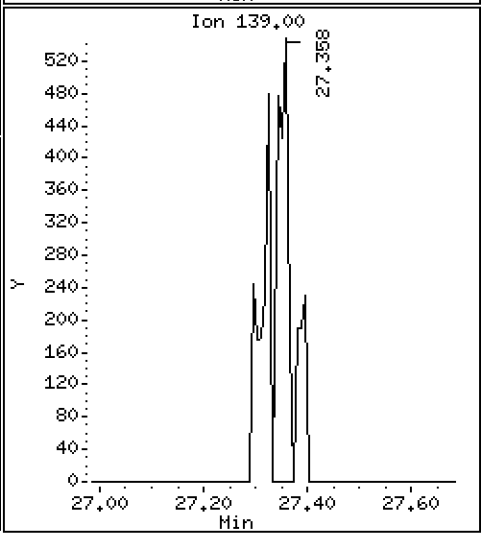


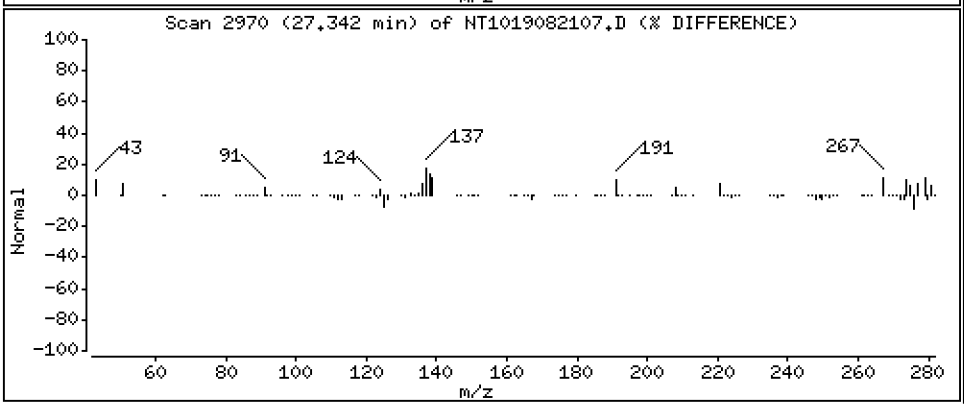












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

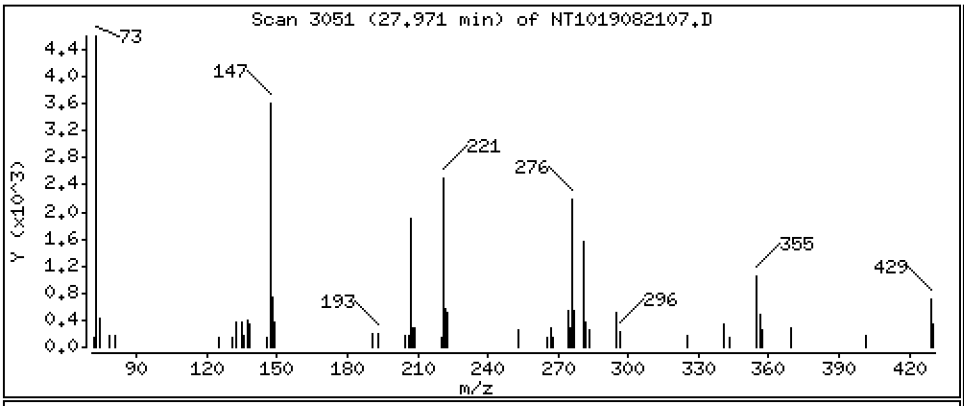
Operator: YZ

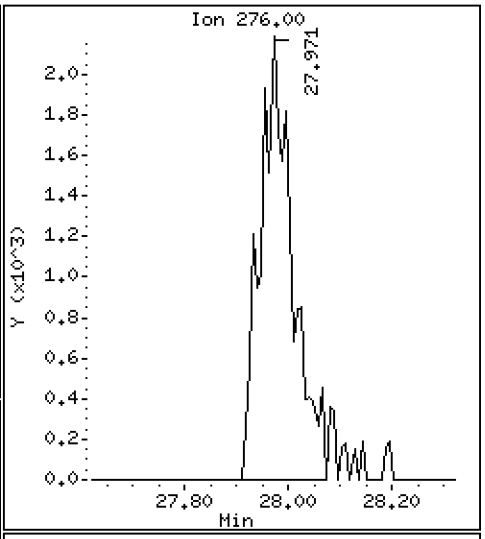
Column phase: ZB-5msi

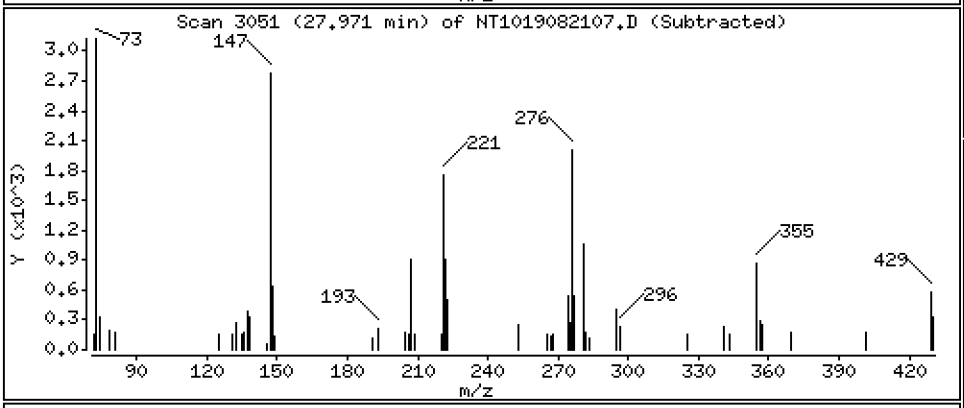
Column diameter: 0.25

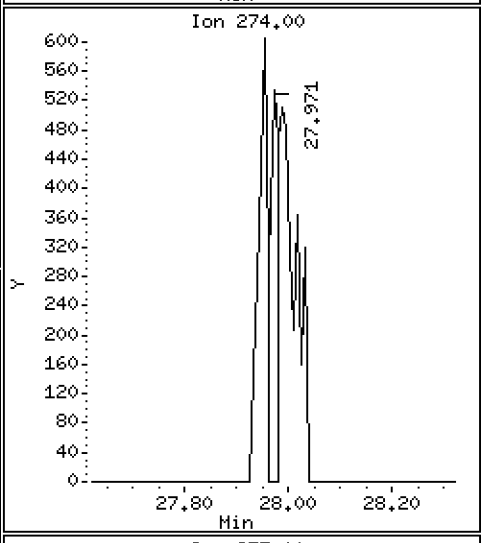
80 Benzo(g,h,i)perylene

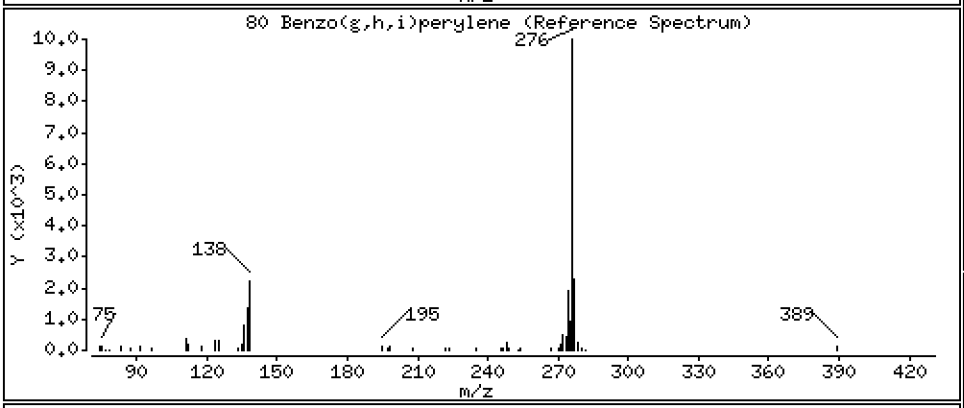
Concentration: 0.3621 ug/mL

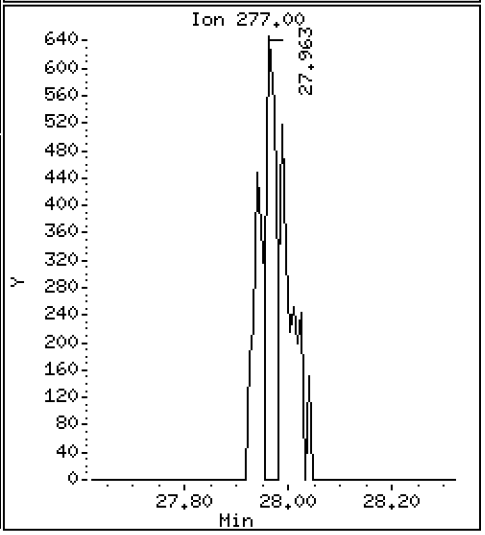


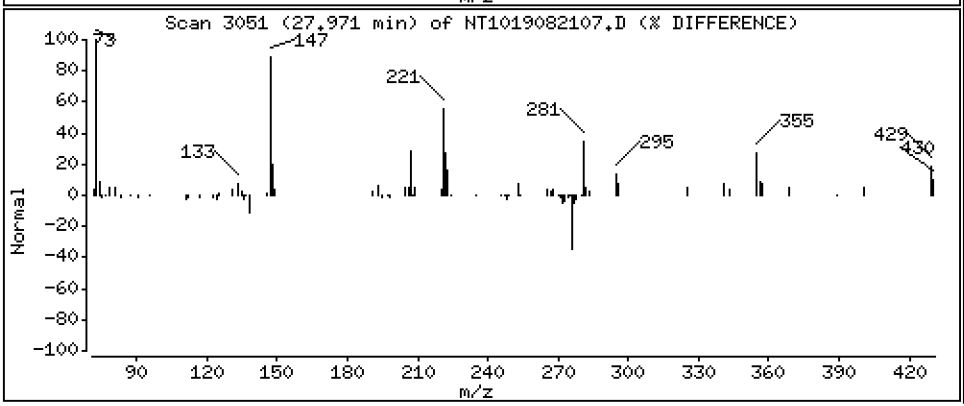












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

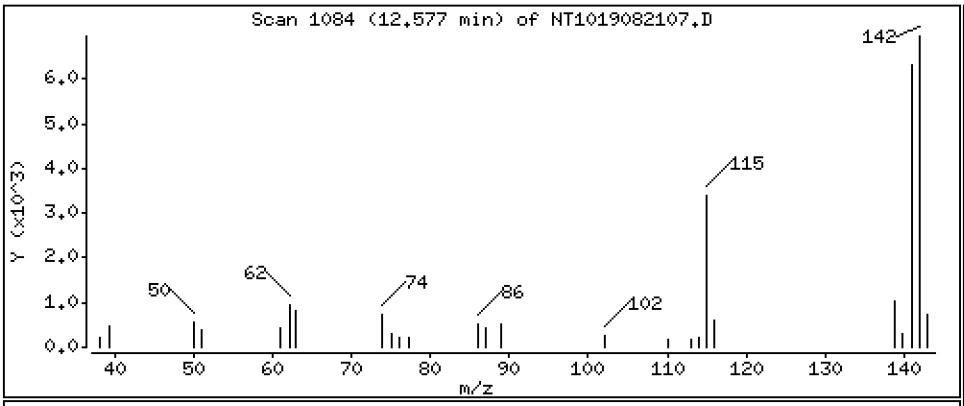
Operator: YZ

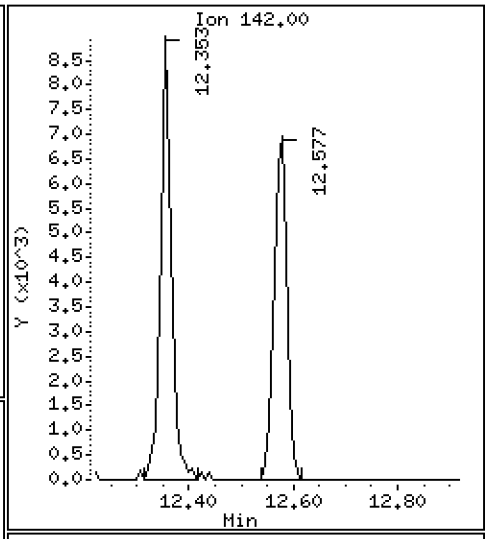
Column phase: ZB-5msi

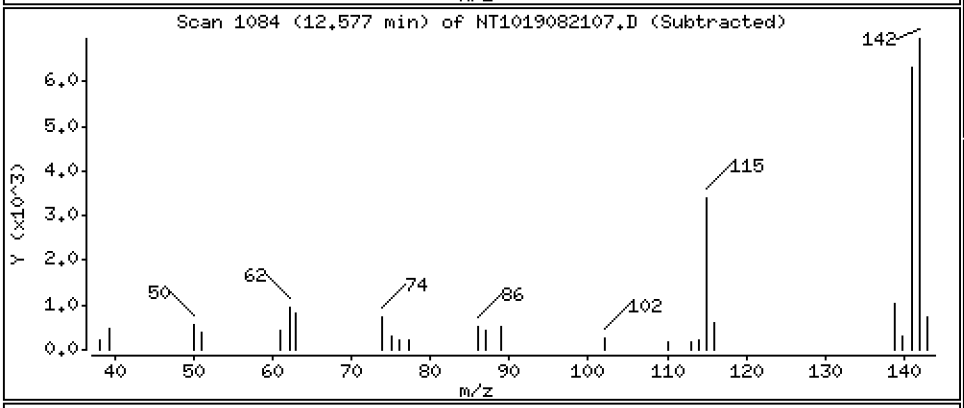
Column diameter: 0.25

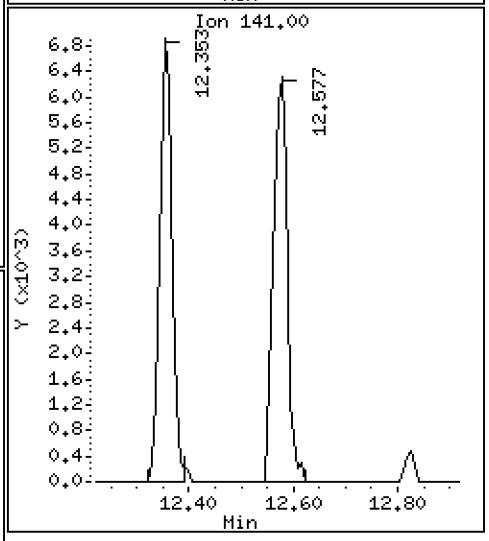
105 1-methylnaphthalene

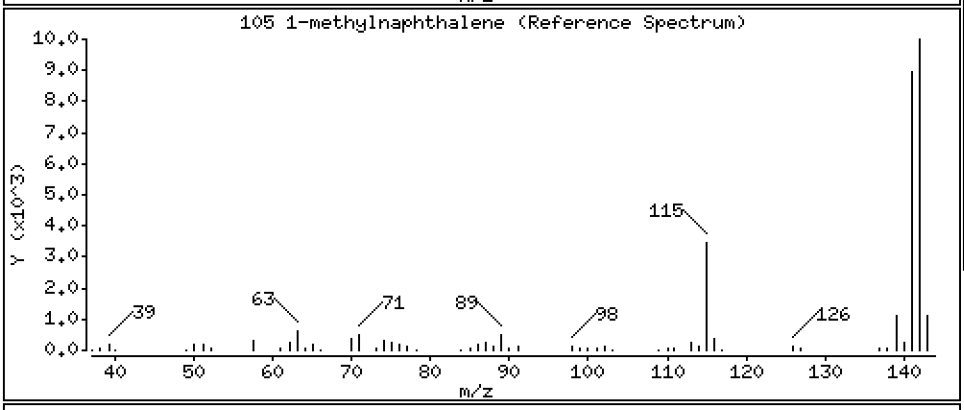
Concentration: 0.4573 ug/mL

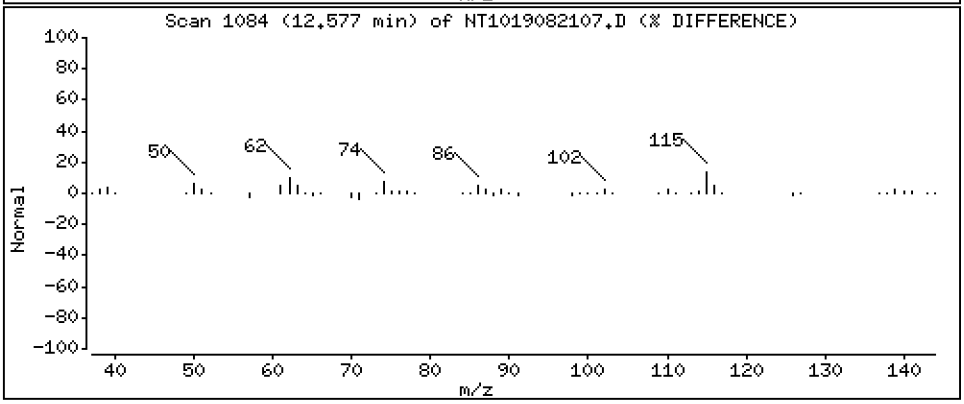












Data File: \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D

Date : 21-AUG-2019 13:50

Client ID:

Instrument: nt10.i

Sample Info: SHH0303-LCV2

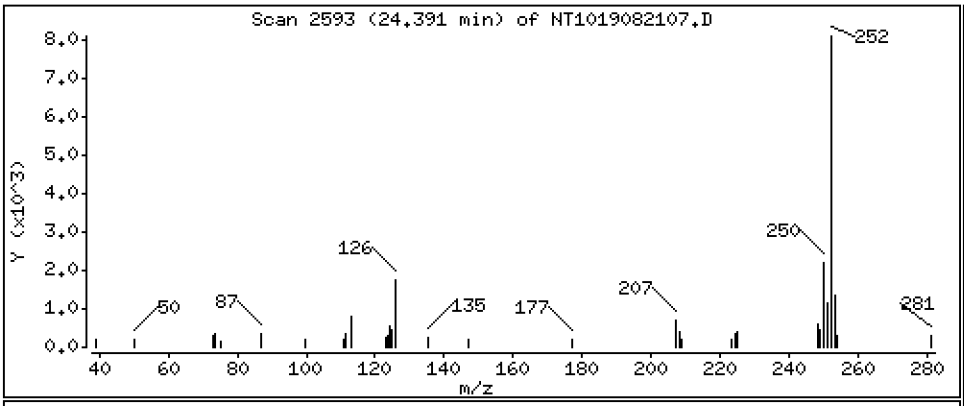
Operator: YZ

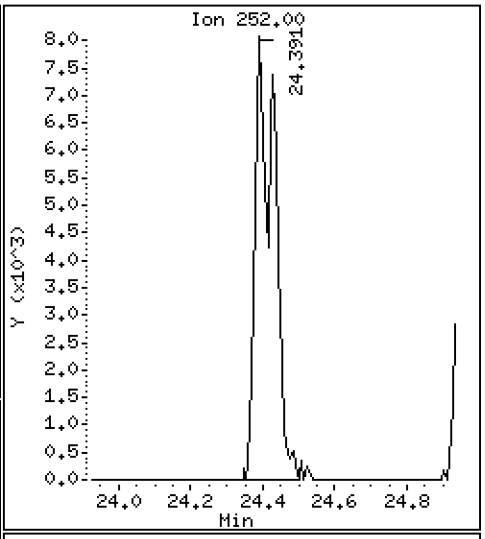
Column phase: ZB-5msi

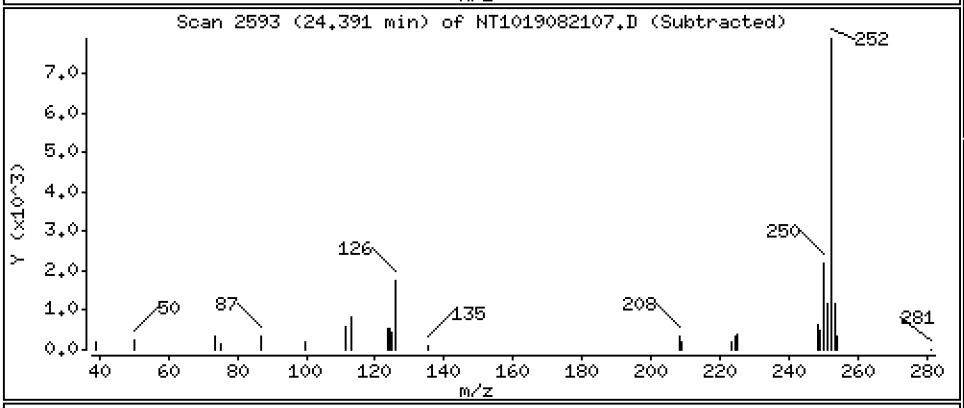
Column diameter: 0.25

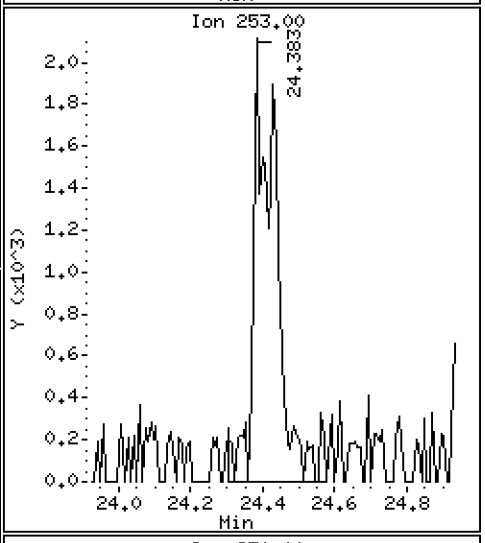
187 Total Benzofluoranthenes

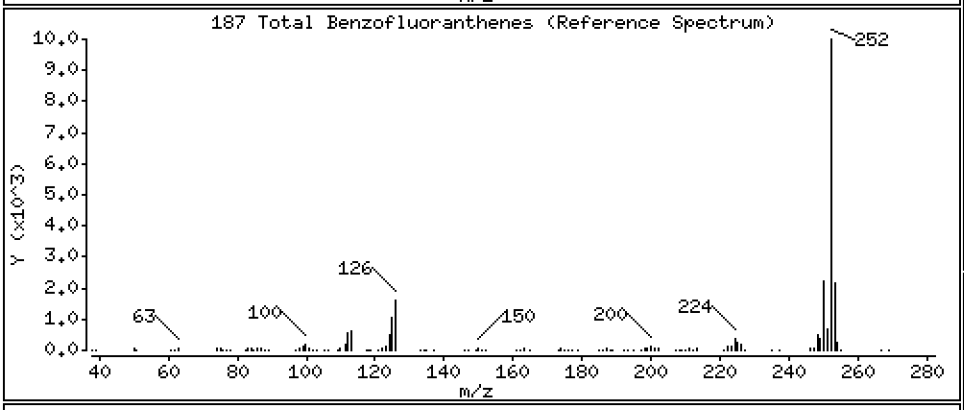
Concentration: 1.087 ug/mL

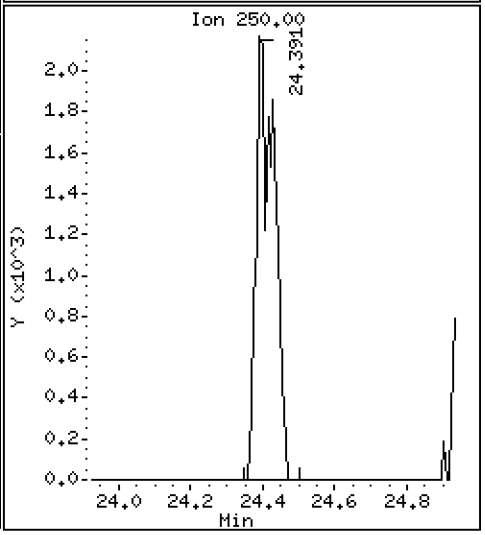


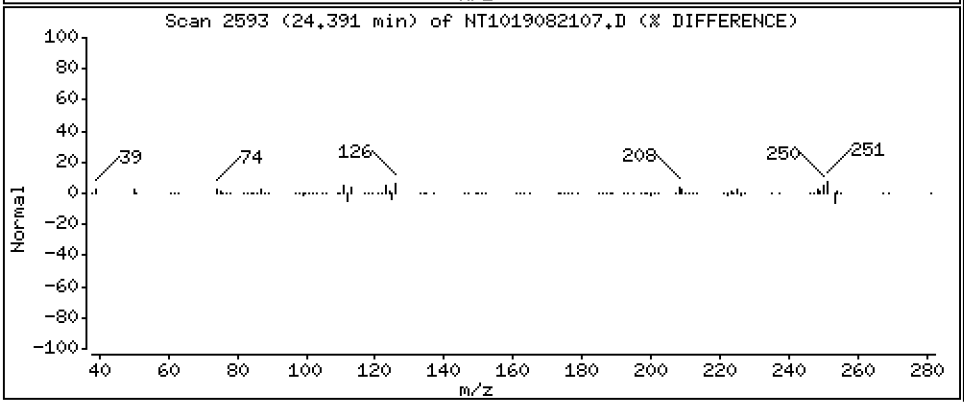












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190821.b\NT1019082107.D
Lab Smp Id: SHH0303-LCV2
Inj Date : 21-AUG-2019 13:50
Operator : YZ Inst ID: nt10.i
Smp Info : SHH0303-LCV2
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Meth Date : 22-Aug-2019 13:05 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.327	6.311	(0.746)	6031	0.59608	0.5961
$	2 Phenol-d5	99	7.895	7.888	(0.931)	5743	0.50648	0.5065
	3 Phenol	94	7.911	7.911	(0.933)	4408	0.41815	0.4181(M)
$	5 2-Chlorophenol-d4	132	8.135	8.127	(0.959)	8458	0.69291	0.6929(M)
*	8 1,4-Dichlorobenzene-d4	152	8.483	8.483	(1.000)	36031	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.840	8.832	(1.042)	4185	0.50147	0.5015
	11 Benzyl alcohol	108	8.770	8.762	(1.034)	1438	0.20611	0.2061
$	18 Nitrobenzene-d5	82	9.570	9.554	(0.876)	4728	0.46776	0.4678
	24 Benzoic acid	105	10.434	10.510	(0.955)	2816	0.38714	0.3871(M)
*	27 Naphthalene-d8	136	10.929	10.929	(1.000)	129237	4.00000	
	28 Naphthalene	128	10.968	10.968	(1.004)	14515	0.48862	0.4886
	32 2-Methylnaphthalene	142	12.353	12.353	(1.130)	12933	0.51326	0.5133
$	36 2-Fluorobiphenyl	172	13.142	13.142	(0.906)	12958	0.50569	0.5057
	39 Dimethylphthalate	163	14.055	14.055	(0.969)	12514	0.50266	0.5027
	40 Acenaphthylene	152	14.202	14.195	(0.979)	16817	0.52075	0.5208
*	42 Acenaphthene-d10	164	14.512	14.512	(1.000)	66994	4.00000	
	44 Acenaphthene	153	14.574	14.574	(1.004)	10087	0.49710	0.4971
	46 Dibenzofuran	168	14.906	14.898	(1.027)	15522	0.46543	0.4654
	50 Diethylphthalate	149	15.509	15.517	(1.069)	12387	0.51676	0.5168
	49 Fluorene	166	15.610	15.610	(1.076)	12311	0.53979	0.5398
	54 N-Nitrosodiphenylamine	169	15.880	15.872	(0.906)	10709	0.58546	0.5855
$	55 2,4,6-Tribromophenol	330	16.150	16.142	(1.113)	2257	0.44555	0.4455
*	59 Phenanthrene-d10	188	17.525	17.525	(1.000)	133256	4.00000	
	60 Phenanthrene	178	17.572	17.572	(1.003)	15751	0.48390	0.4839
	61 Anthracene	178	17.664	17.665	(1.008)	14792	0.44756	0.4476
	63 Di-n-butylphthalate	149	18.871	18.872	(1.077)	20110	0.44657	0.4466
	64 Fluoranthene	202	19.993	19.993	(0.883)	17467	0.45079	0.4508
	65 Pyrene	202	20.419	20.411	(0.902)	19650	0.48564	0.4856
$	66 Terphenyl-d14	244	20.744	20.744	(0.916)	15119	0.55097	0.5510
	67 Butylbenzylphthalate	149	21.712	21.712	(0.959)	7756	0.41150	0.4115
	68 Benzo(a)anthracene	228	22.610	22.610	(0.999)	17794	0.48369	0.4837
*	69 Chrysene-d12	240	22.641	22.633	(1.000)	126795	4.00000	
	71 Chrysene	228	22.680	22.680	(1.002)	15470	0.47523	0.4752

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.765	22.765	(0.959)	12295	0.55932	0.5593
* 134	Di-n-octylphthalate-d4	153	23.748	23.756	(1.000)	249924	4.00000	
73	Di-n-octylphthalate	149	23.763	23.763	(1.001)	23023	0.49795	0.4980
74	Benzo(b)fluoranthene	252	24.390	24.390	(0.974)	16741	0.58169	0.5817
75	Benzo(k)fluoranthene	252	24.429	24.429	(0.975)	13691	0.47287	0.4729
76	Benzo(a)pyrene	252	24.948	24.948	(0.996)	13028	0.50438	0.5044
* 77	Perylene-d12	264	25.049	25.056	(1.000)	100311	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	27.310	27.303	(1.090)	11030	0.35540	0.3554(M)
79	Dibenzo(a,h)anthracene	278	27.342	27.334	(1.092)	8412	0.33292	0.3329(M)
80	Benzo(g,h,i)perylene	276	27.971	27.971	(1.117)	9465	0.36210	0.3621(M)
105	1-methylnaphthalene	142	12.577	12.569	(1.151)	11585	0.45733	0.4573
187	Total Benzofluoranthenes	252	24.390	24.429	(0.974)	30017	1.08735	1.087

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082107.D
Lab Smp Id: SHH0303-LCV2
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190821.b\ABN.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	36031	10.06
27 Naphthalene-d8	117487	58744	234974	129237	10.00
42 Acenaphthene-d10	61859	30930	123718	66994	8.30
59 Phenanthrene-d10	113574	56787	227148	133256	17.33
69 Chrysene-d12	105788	52894	211576	126795	19.86
134 Di-n-octylphthala	252823	126412	505646	249924	-1.15
77 Perylene-d12	113992	56996	227984	100311	-12.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.48	7.98	8.98	8.48	-0.00
27 Naphthalene-d8	10.93	10.43	11.43	10.93	-0.00
42 Acenaphthene-d10	14.51	14.01	15.01	14.51	-0.00
59 Phenanthrene-d10	17.53	17.03	18.03	17.53	-0.00
69 Chrysene-d12	22.63	22.13	23.13	22.64	0.03
134 Di-n-octylphthala	23.76	23.26	24.26	23.75	-0.03
77 Perylene-d12	25.06	24.56	25.56	25.05	-0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082107.D

Lab ID: SHH0303-LCV2
nt10.i, 20190821.b\ABN.m,   21-AUG-2019 13:50

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.955	0.962	-0.0070	Benzoic acid

RRT check based on Ccal File: NT1019082105.D

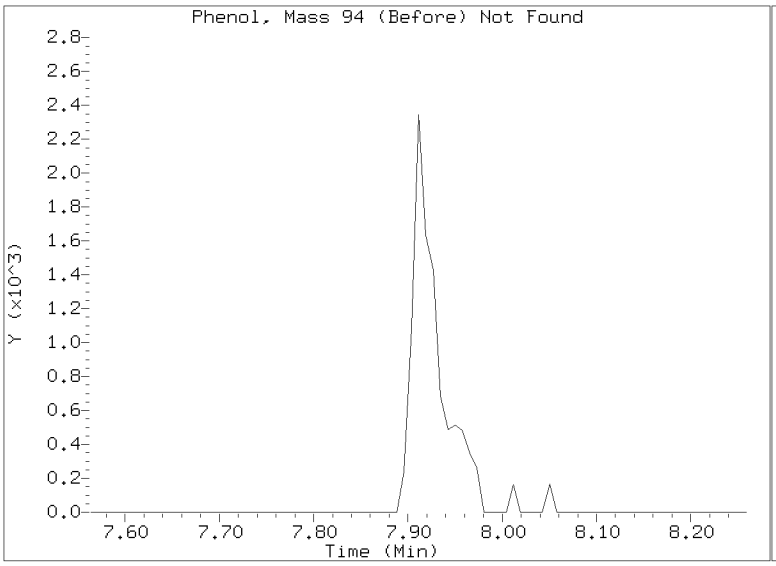
On Column LOD for nt10.i, 20190821.b\ABN.m, pnaphth.sub = 0.1000

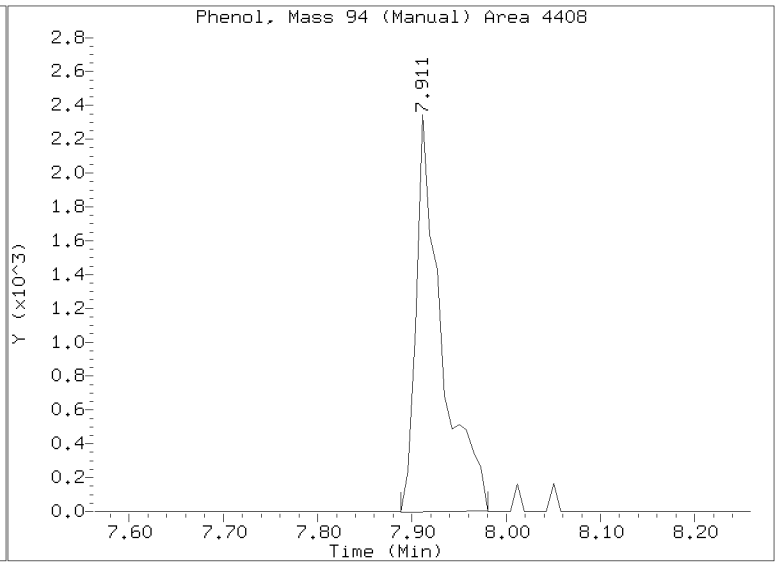
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

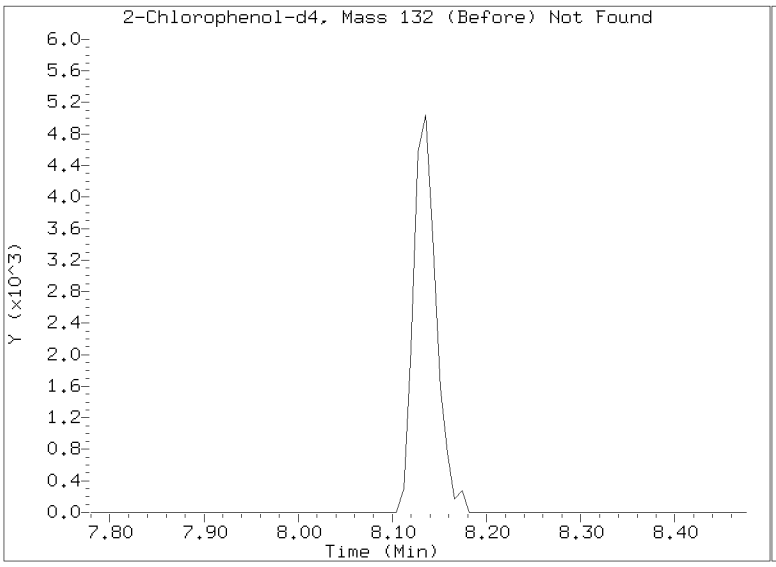
* Only compounds listed in the work order have been verified by the analyst *

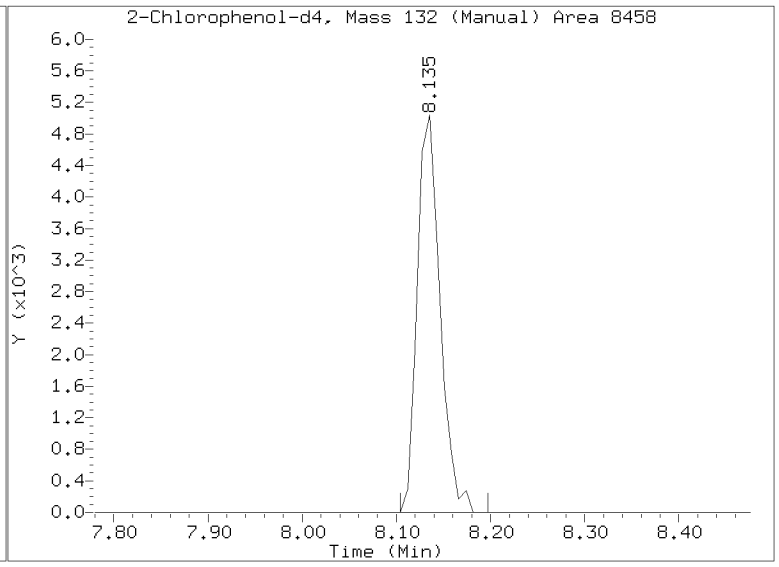
Quant Ion Manual Peak Adjustment Report

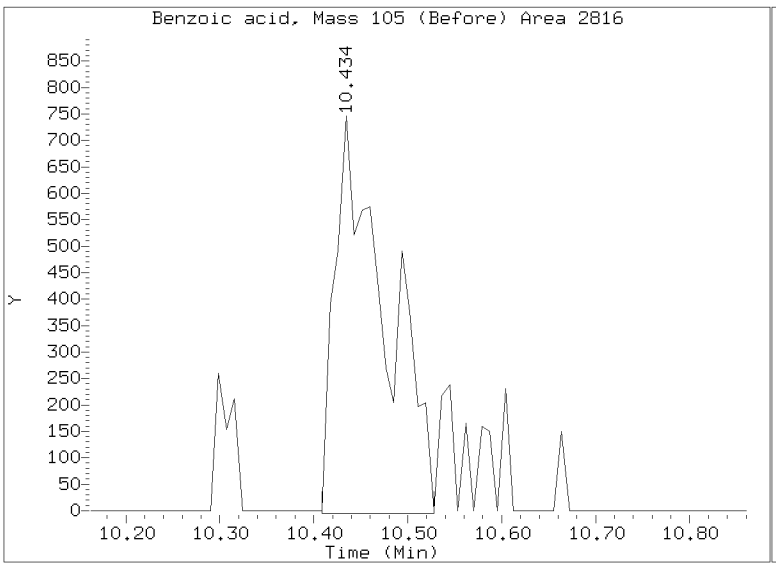
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082107.D
Injection Date: 21-AUG-2019 13:50
Lab ID:SHH0303-LCV2 Client ID:
Report Date: 08/22/2019 13:14

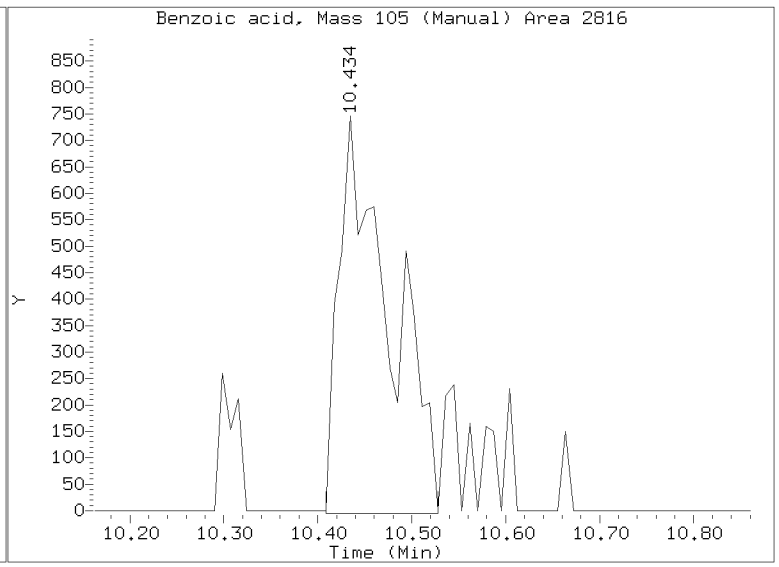






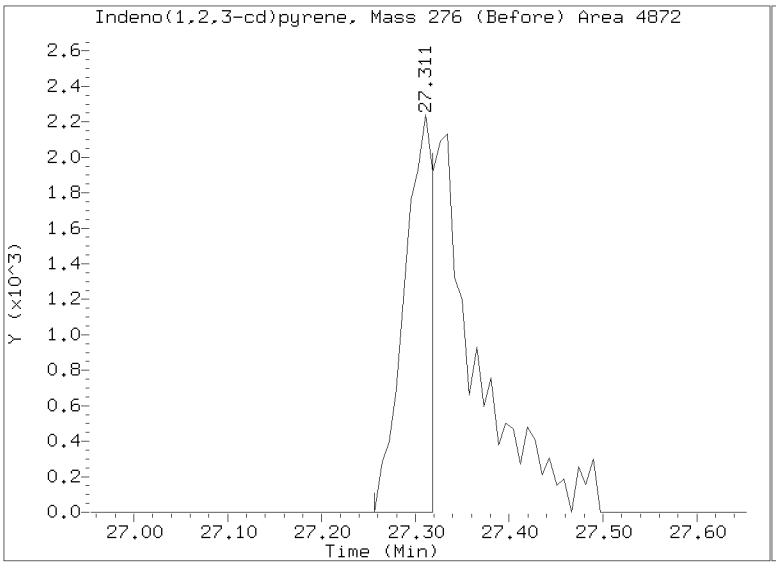


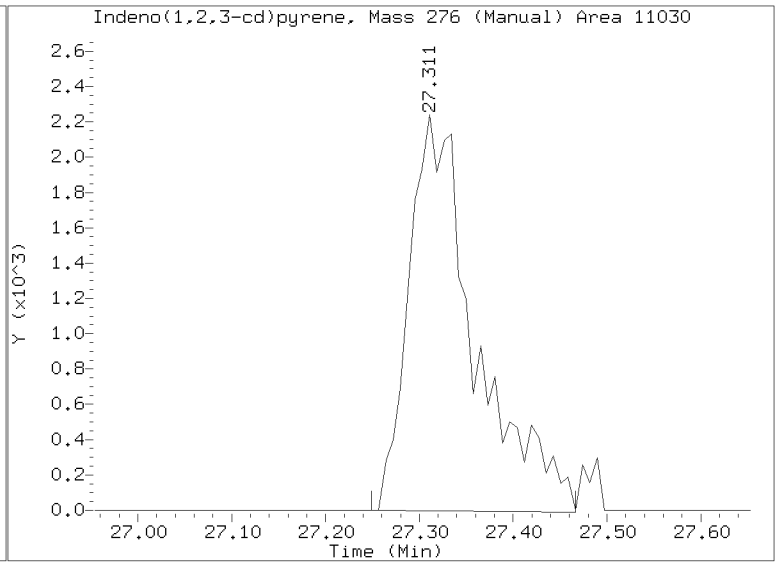


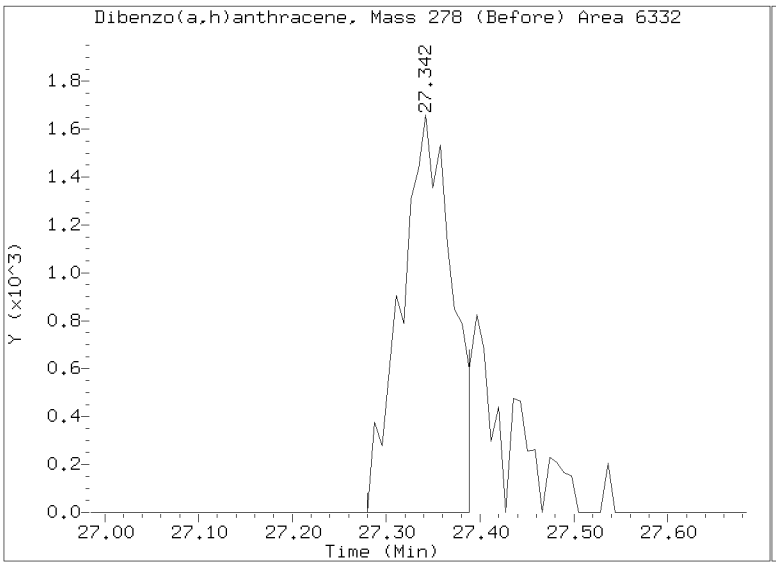


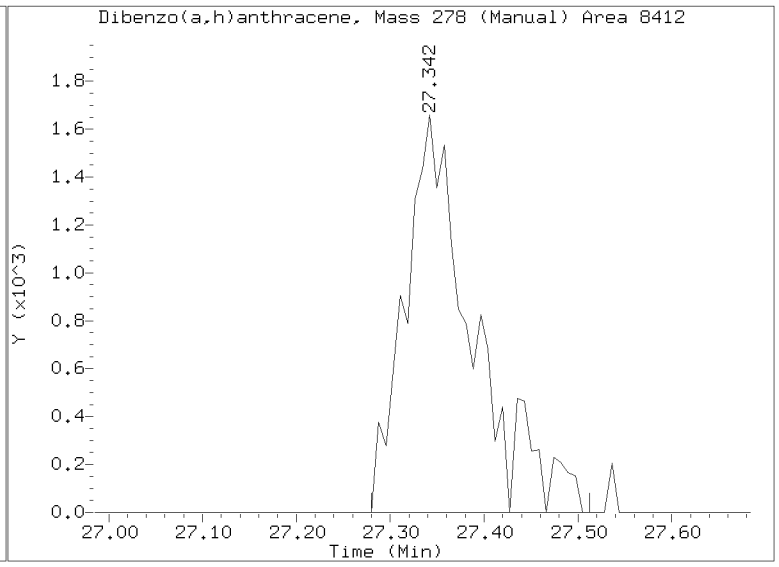
Quant Ion Manual Peak Adjustment Report

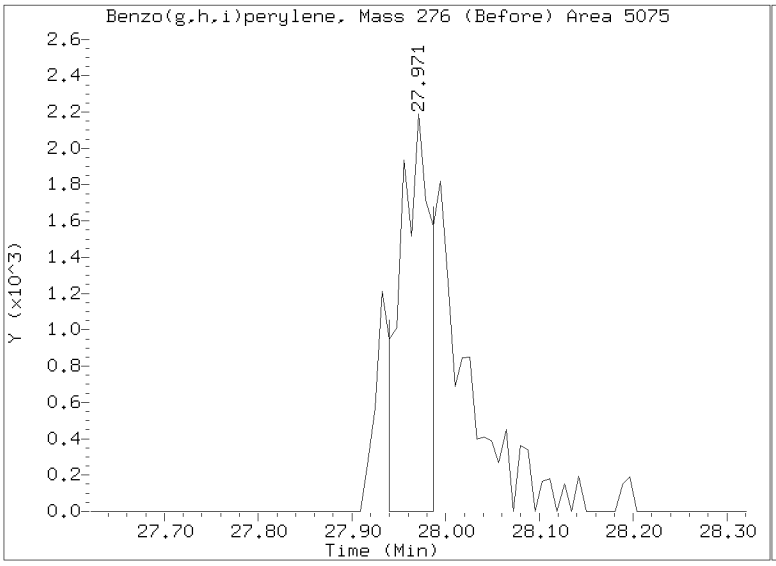
Datafile: //Target/share/chem3/nt10.i/20190821.b/NT1019082107.D
Injection Date: 21-AUG-2019 13:50
Lab ID:SHH0303-LCV2 Client ID:
Report Date: 08/22/2019 13:14

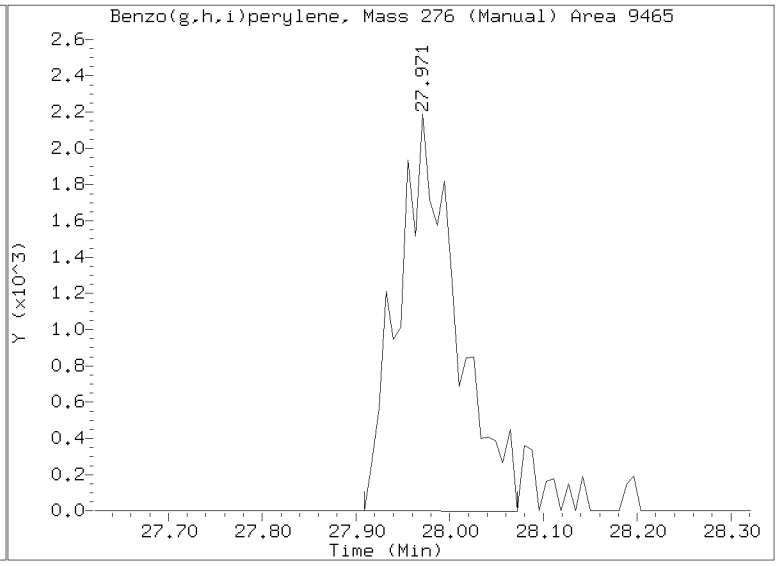












CONTINUING CALIBRATION CHECK
EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	NT10	Calibration:	CG00040
Lab File ID:	NT1019082221.D	Calibration Date:	07/16/19 11:00
Sequence:	SHH0325	Injection Date:	08/23/19
Lab Sample ID:	SHH0325-CCV1	Injection Time:	02:07
Sequence Name:	ABN 5		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Phenol	A	5.0000	4.1	1.1702980	0.9706179		-17.1	50
Benzyl Alcohol	A	5.0000	4.0	0.7745535	0.6202725		-19.9	50
Benzoic acid	A	20.000	14.3	0.2148759	0.1635772		-28.3	50
N-Nitrosodiphenylamine	A	5.0000	4.6	0.5490690	0.5067807		-7.7	50
Phenanthrene	A	5.0000	4.6	0.9770762	0.9031293		-7.6	50
Fluoranthene	A	5.0000	6.4	1.2223680	1.5543820		27.2	50
Pyrene	A	5.0000	6.1	1.2764440	1.5694240		23.0	50
Butylbenzylphthalate	A	5.0000	6.2	0.5945946	0.7313726		23.0	50
Benzo(a)anthracene	A	5.0000	5.3	1.1605520	1.2251400		5.6	50
Chrysene	A	5.0000	4.9	1.0269450	1.0160980		-1.1	50
bis(2-Ethylhexyl)phthalate	A	5.0000	5.7	0.3518184	0.3991109		13.4	50
Di-n-Octylphthalate	A	5.0000	4.6	0.7399924	0.6750254		-8.8	50
Benzofluoranthenes, Total	A	10.000	10.7	1.1008070	1.1750210		6.7	50
Benzo(a)pyrene	A	5.0000	5.2	1.0299780	1.0635080		3.3	50
Indeno(1,2,3-cd)pyrene	A	5.0000	4.4	1.2375640	1.0905960		-11.9	50
Dibenzo(a,h)anthracene	A	5.0000	4.2	1.0075500	0.8449079		-16.1	50
Benzo(g,h,i)perylene	A	5.0000	3.9	1.0423270	0.8201854		-21.3	50
2-Fluorophenol	A	7.5000	5.60	1.1232200	0.8391927		-25.3	50
Phenol-d5	A	7.5000	5.63	1.2588120	0.9453218		-24.9	50
2-Chlorophenol-d4	A	7.5000	6.90	1.3551050	1.2459540		-8.1	50
1,2-Dichlorobenzene-d4	A	5.0000	4.53	0.9264682	0.8398482		-9.3	50
Nitrobenzene-d5	A	5.0000	4.30	0.3128427	0.2689114		-14.0	50
2-Fluorobiphenyl	A	5.0000	4.74	1.5299660	1.4511300		-5.2	50
2,4,6-Tribromophenol	A	7.5000	6.50	0.3024571	0.2619855		-13.4	50
p-Terphenyl-d14	A	5.0000	5.84	0.8656707	1.0106530		16.7	50

* Values outside of QC limits

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D

Date : 23-AUG-2019 02:07

Client ID:

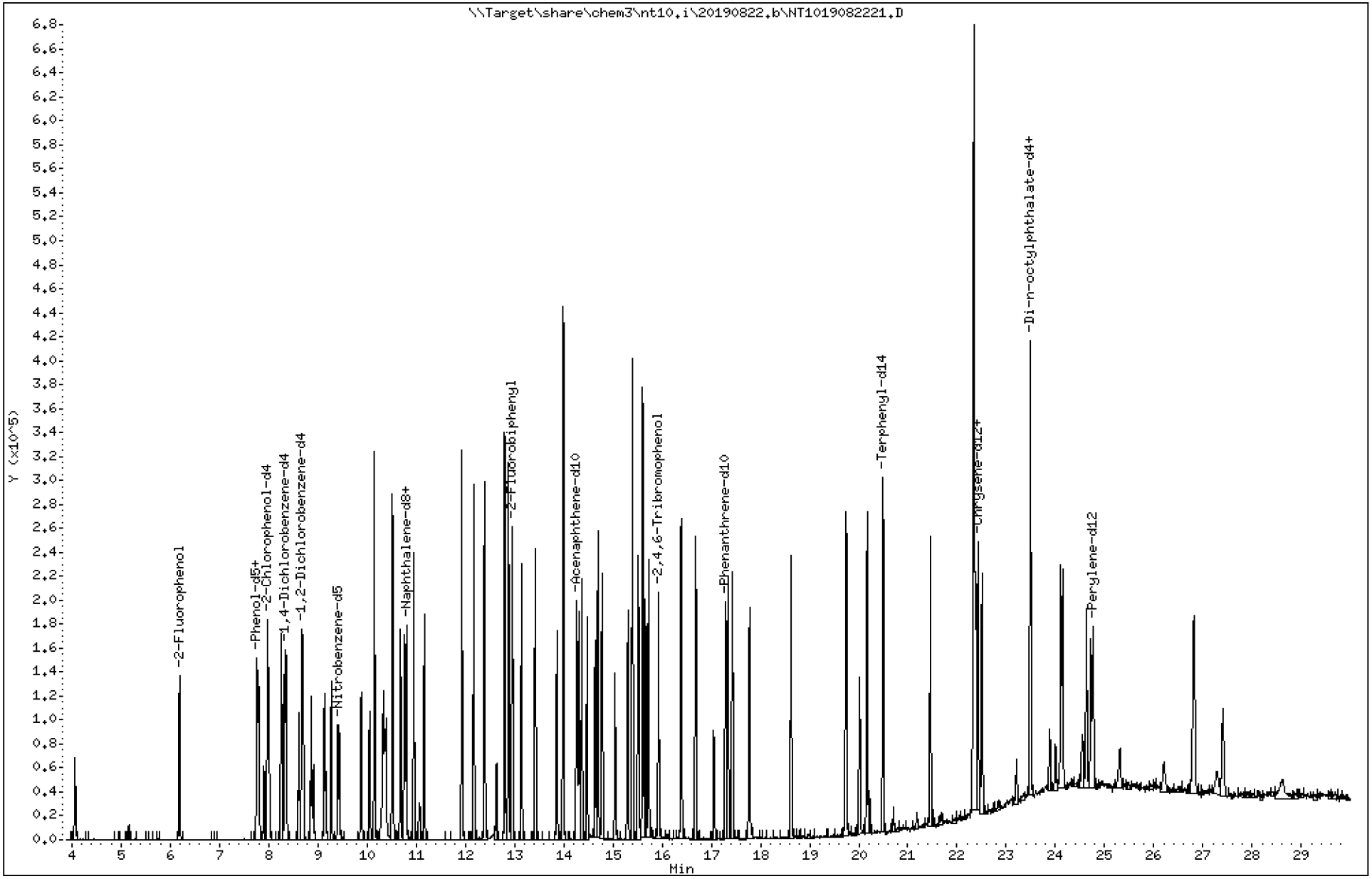
Instrument: nt10.i

Sample Info: SHH0000-CCV1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

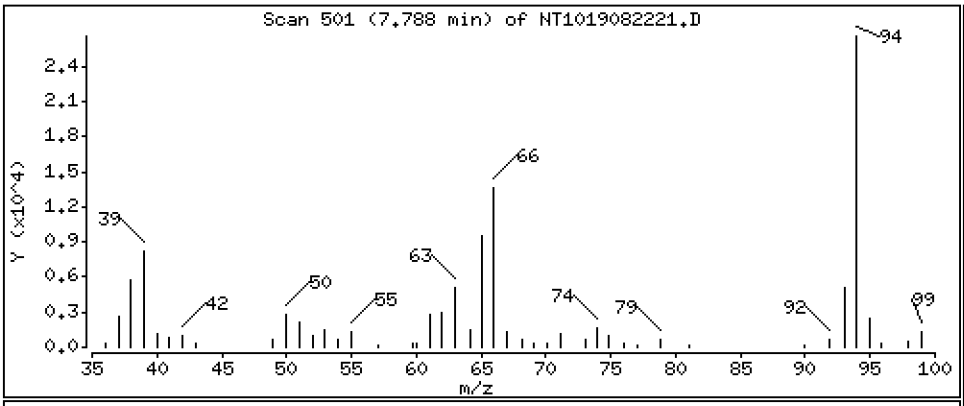
Operator: YZ

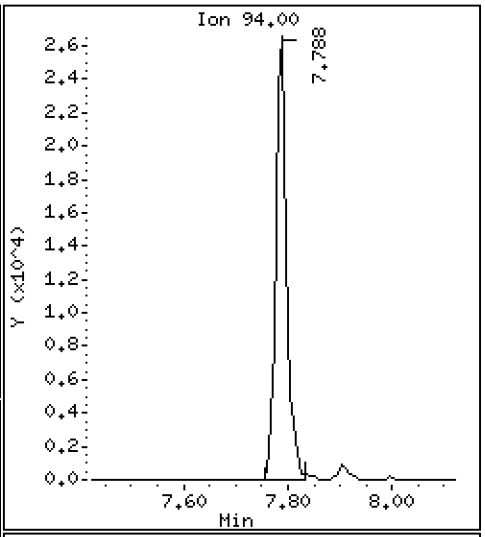
Column phase: ZB-5msi

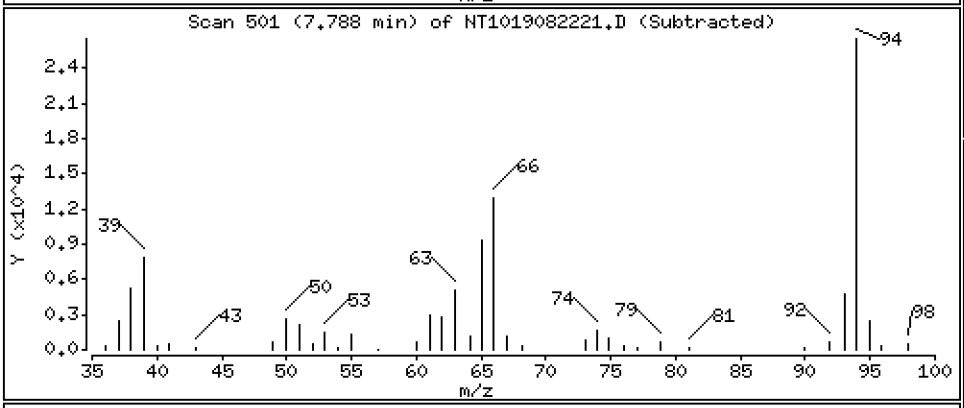
Column diameter: 0.25

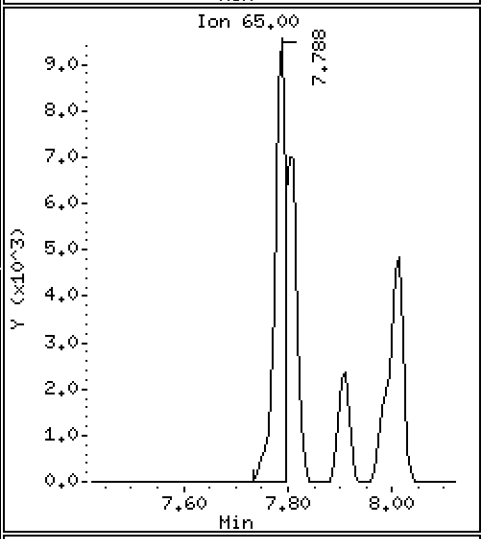
3 Phenol

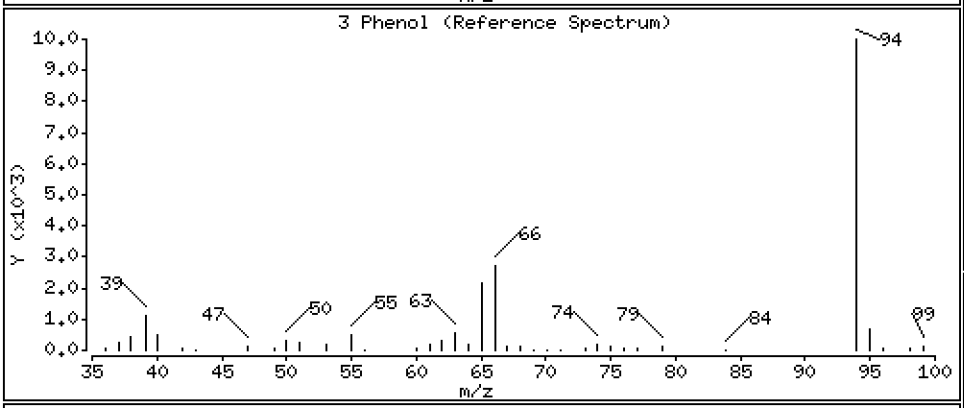
Concentration: 4.147 ug/mL

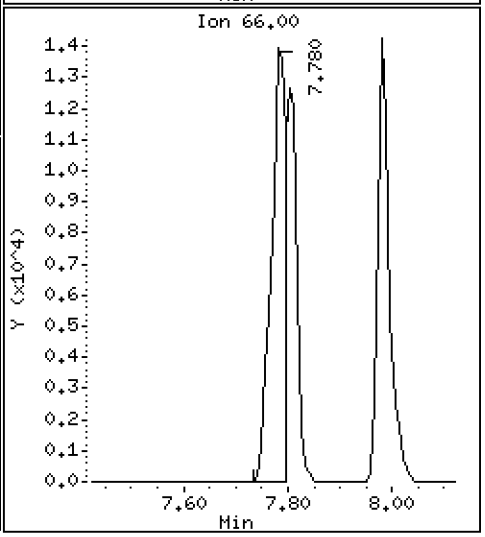


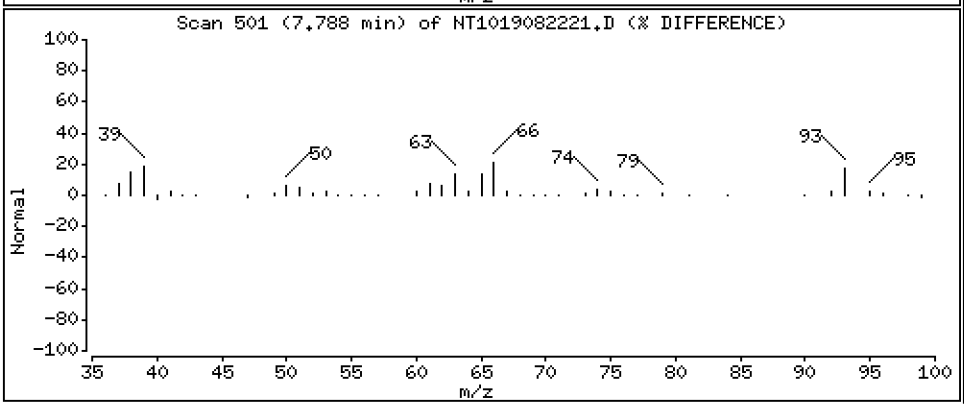












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

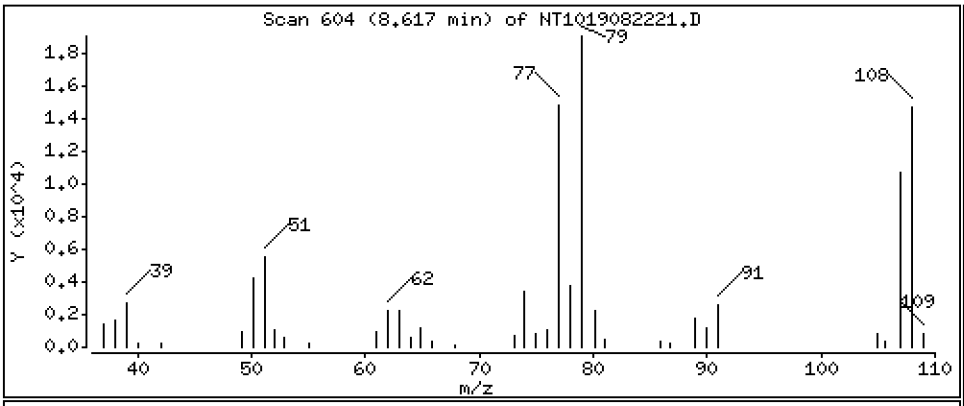
Operator: YZ

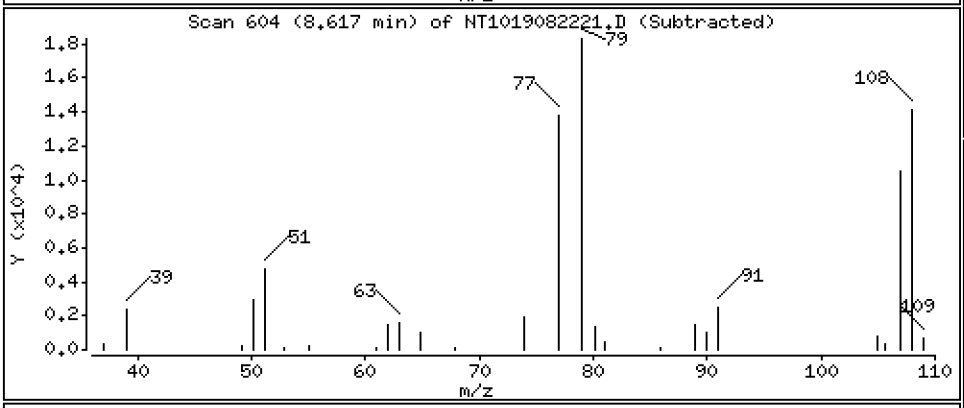
Column phase: ZB-5msi

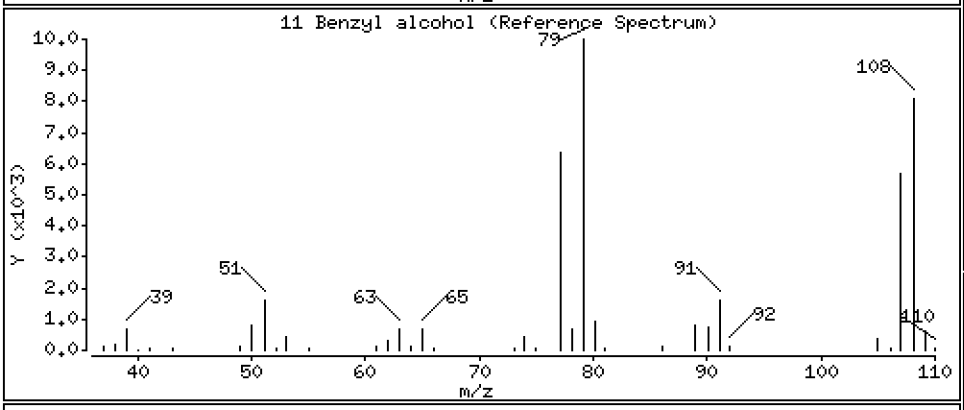
Column diameter: 0.25

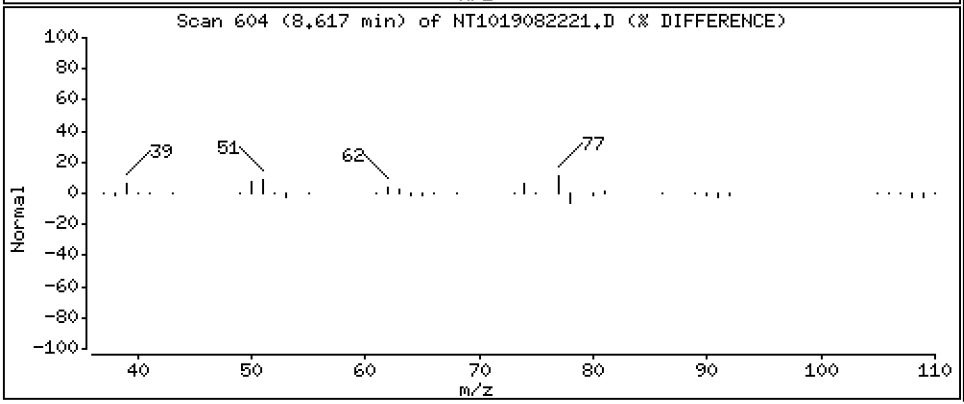
11 Benzyl alcohol

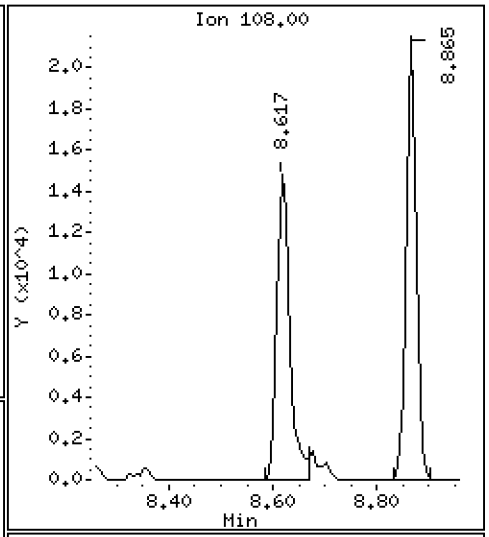
Concentration: 4.004 ug/mL

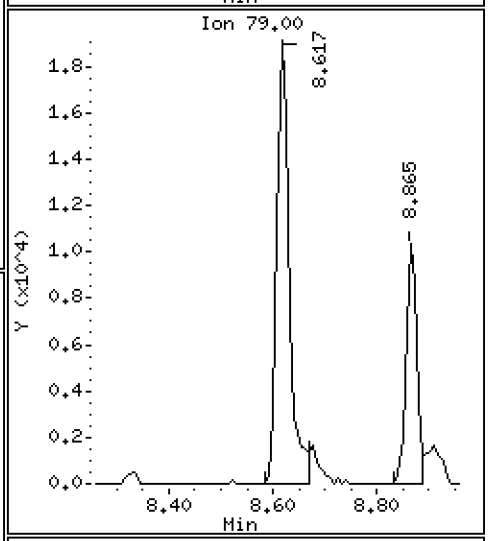


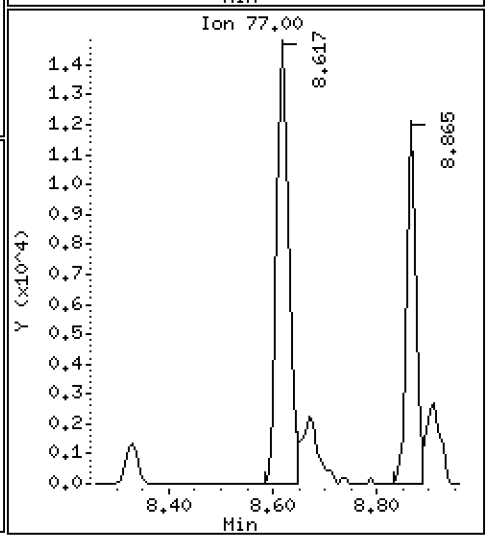












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

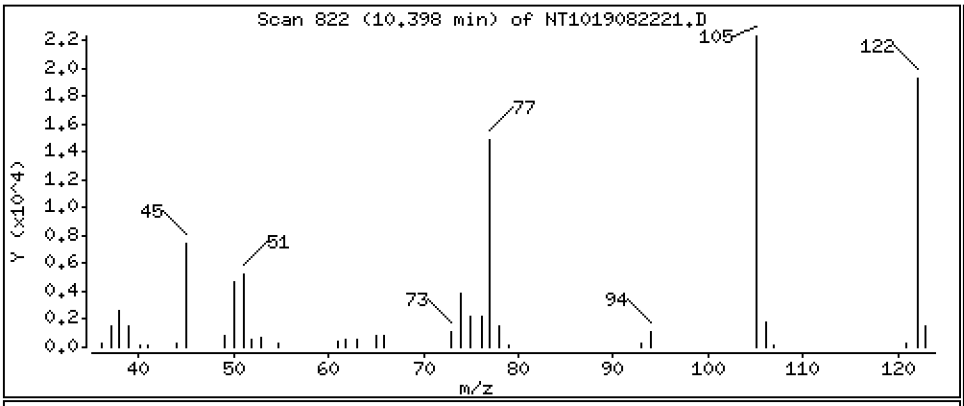
Operator: YZ

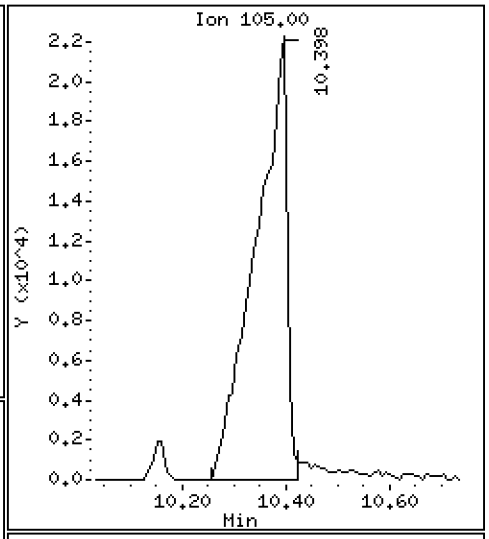
Column phase: ZB-5msi

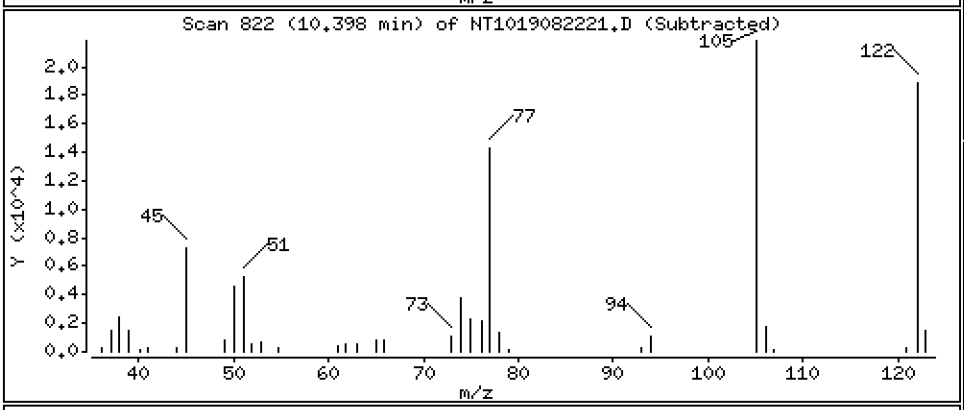
Column diameter: 0.25

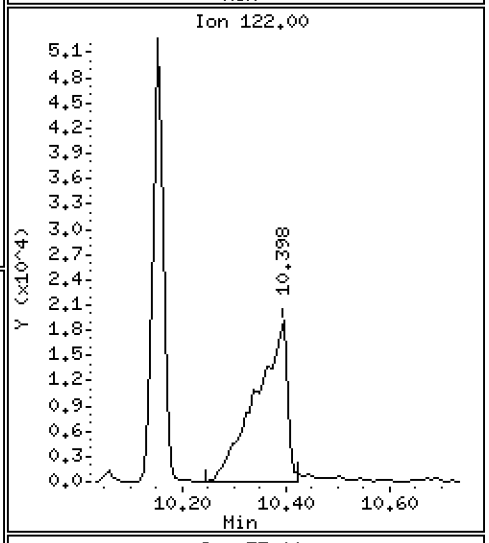
24 Benzoic acid

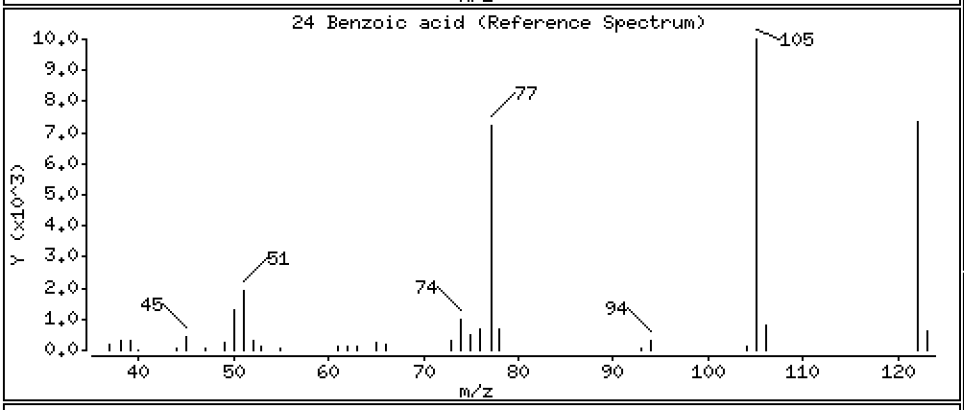
Concentration: 14.33 ug/mL

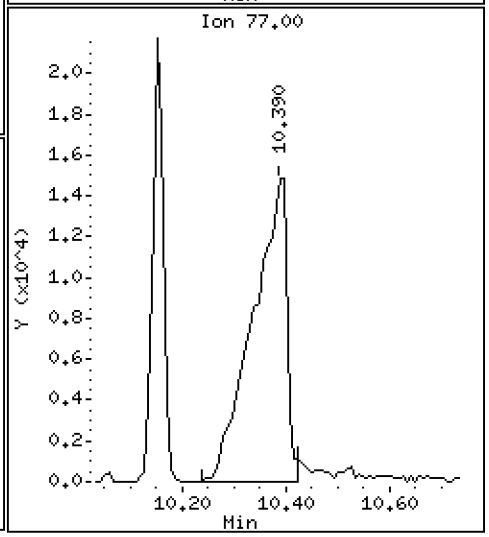


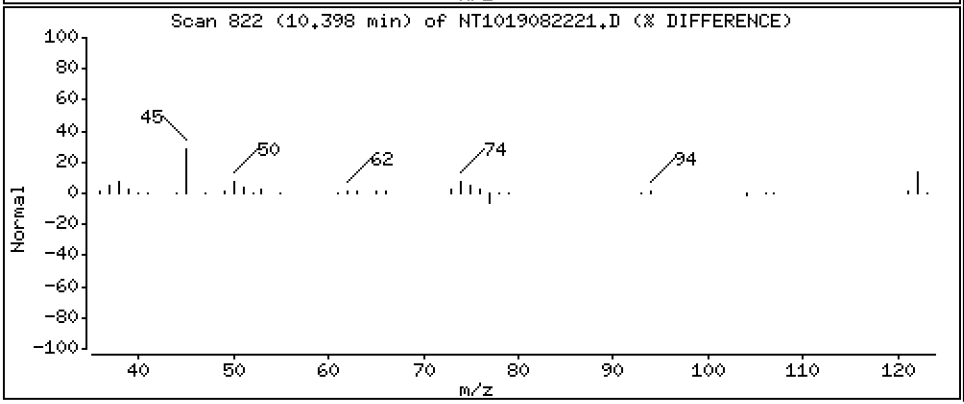












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

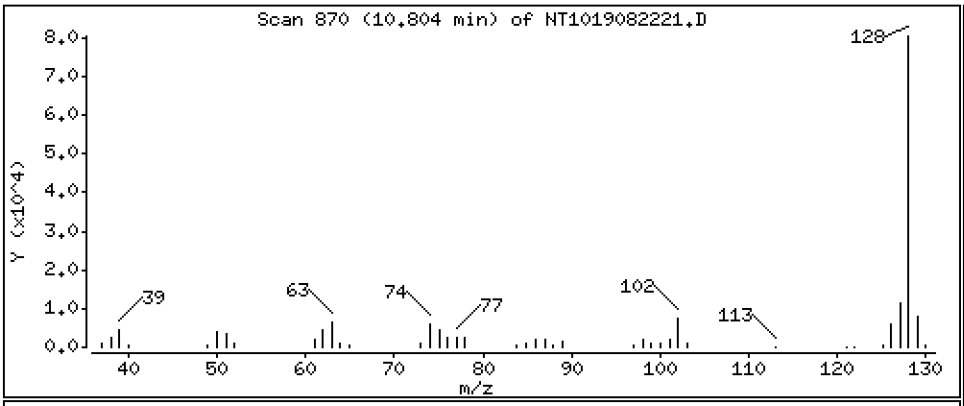
Operator: YZ

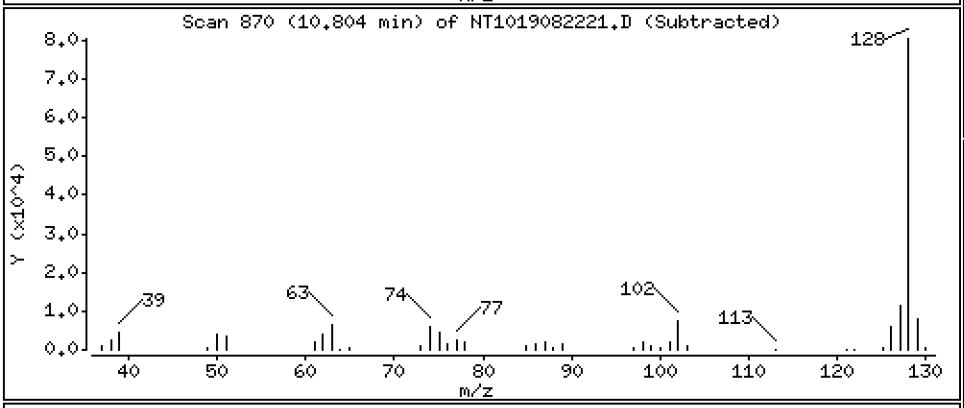
Column phase: ZB-5msi

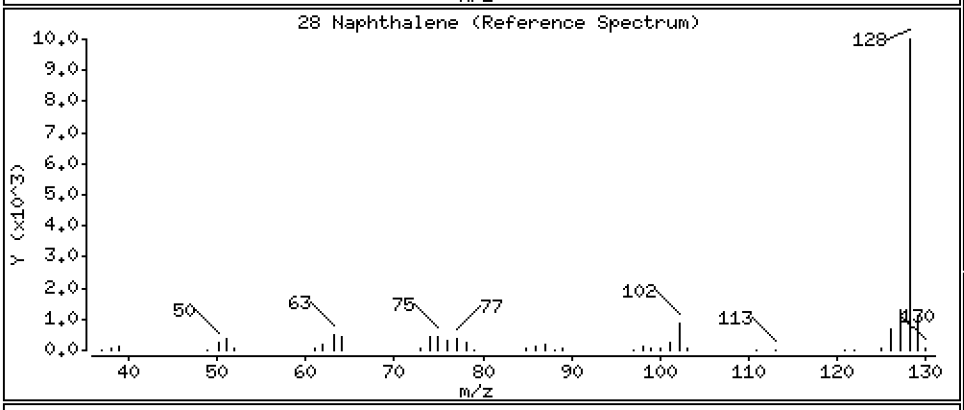
Column diameter: 0.25

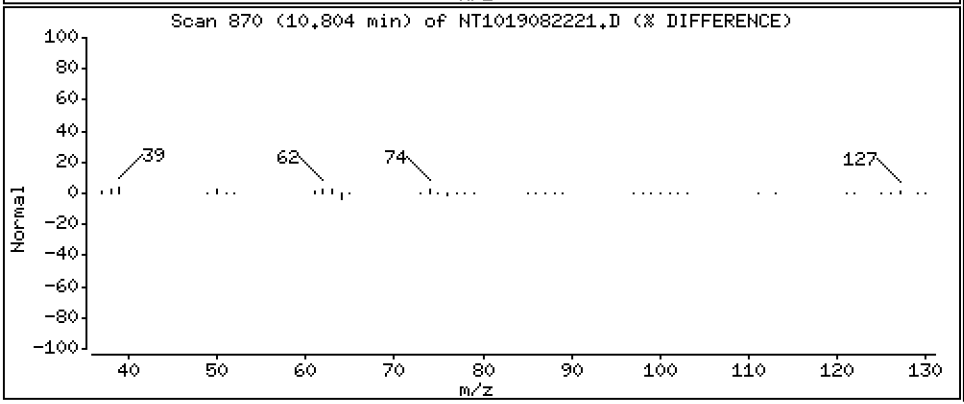
28 Naphthalene

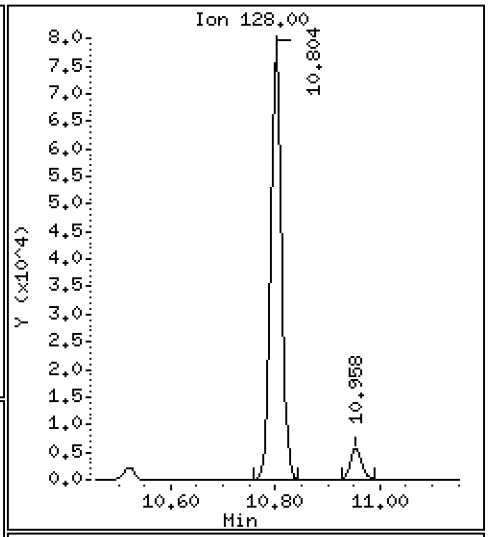
Concentration: 4.432 ug/mL

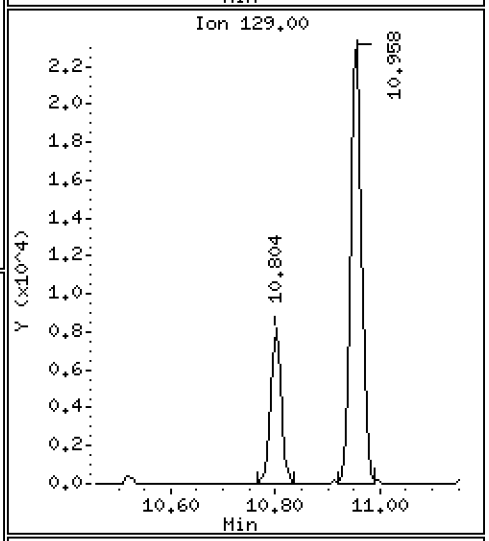


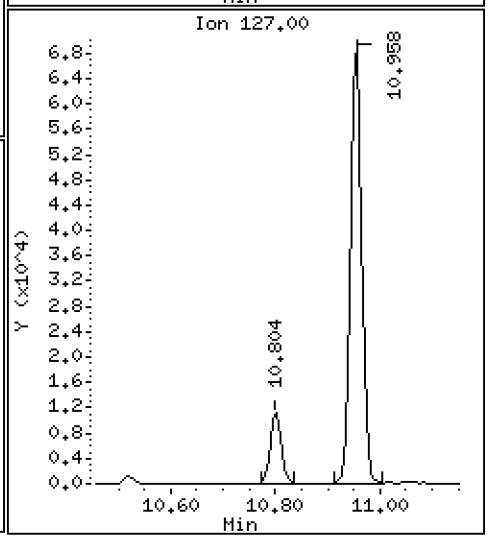












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

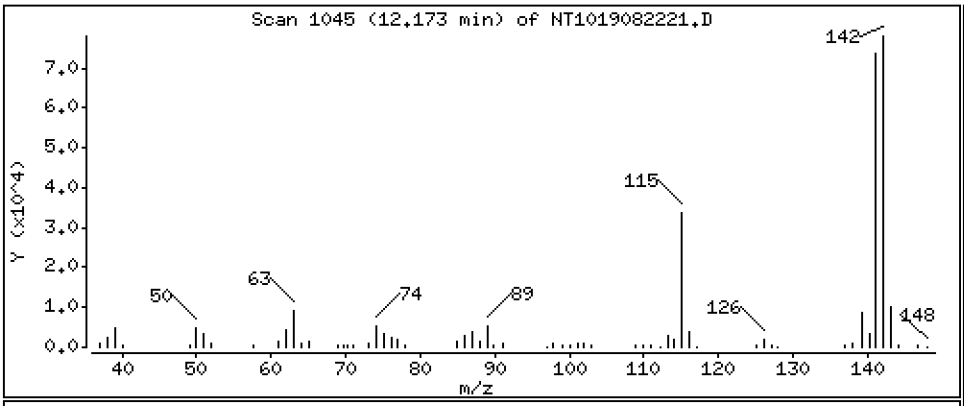
Operator: YZ

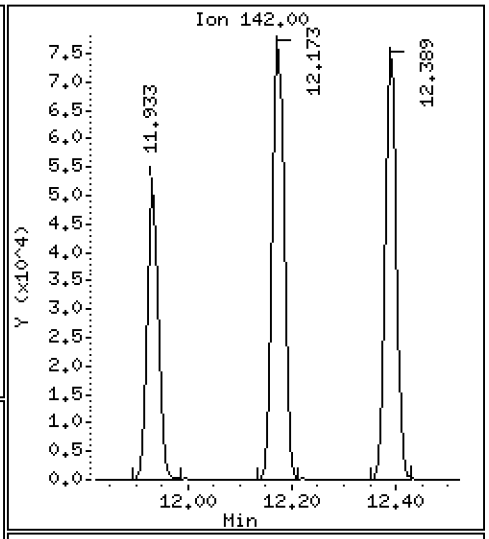
Column phase: ZB-5msi

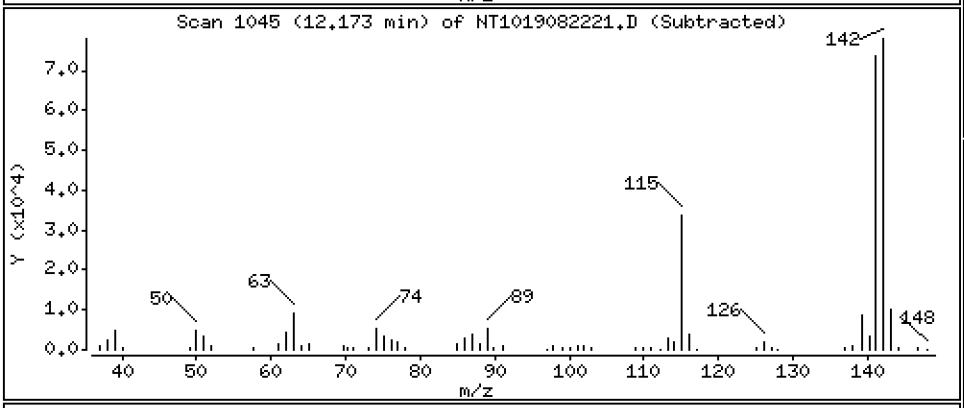
Column diameter: 0.25

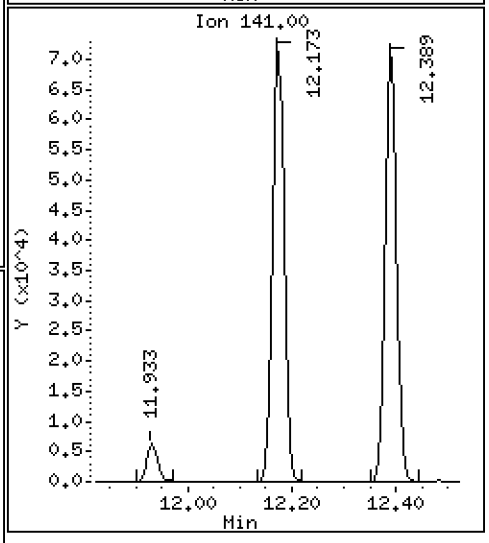
32 2-Methylnaphthalene

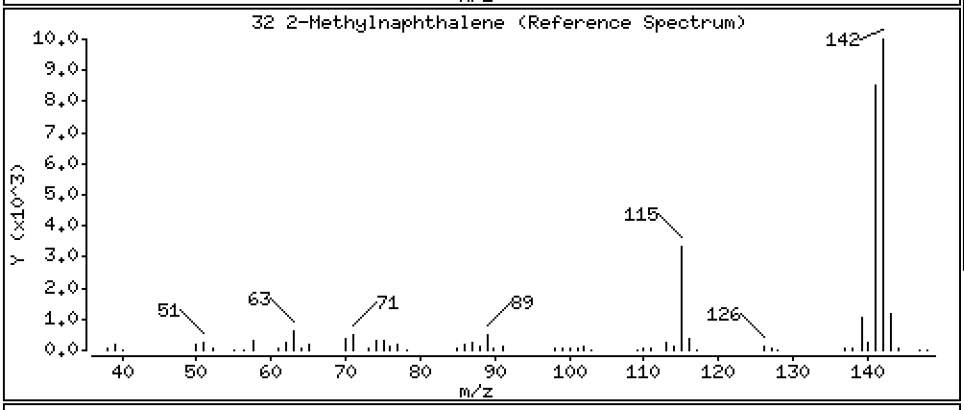
Concentration: 5.185 ug/mL

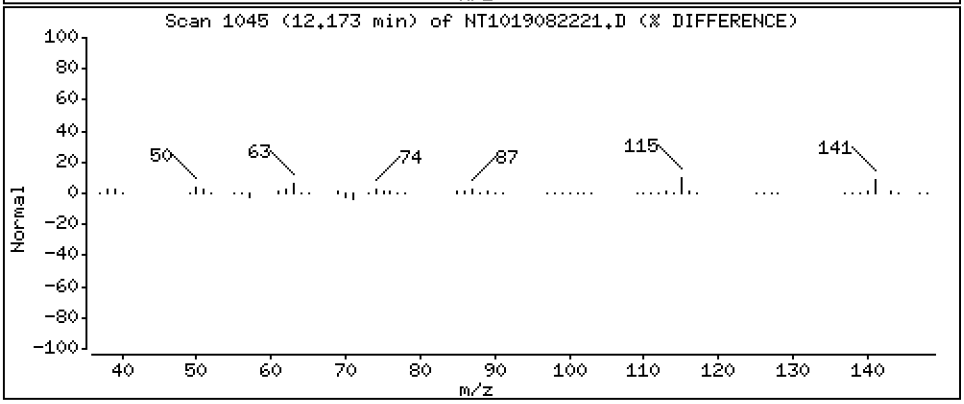












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

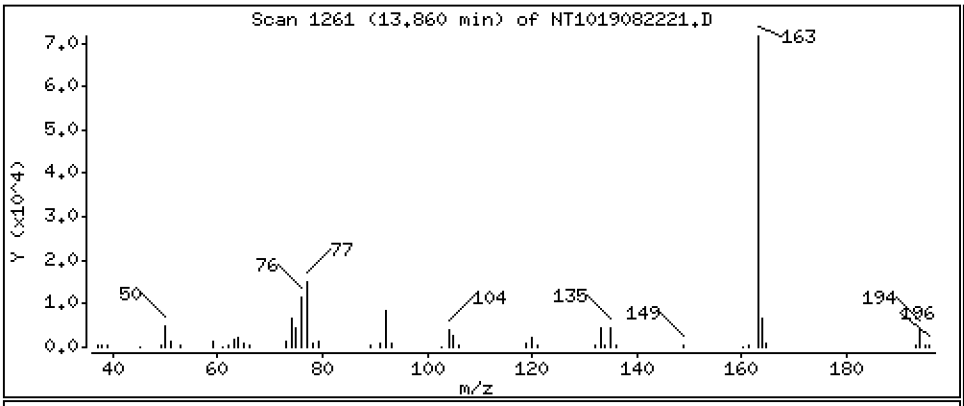
Operator: YZ

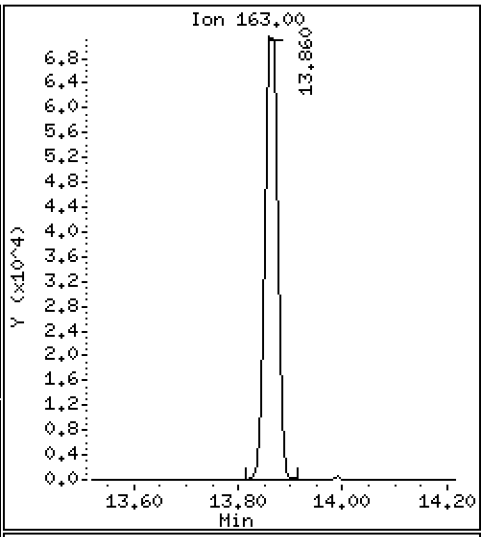
Column phase: ZB-5msi

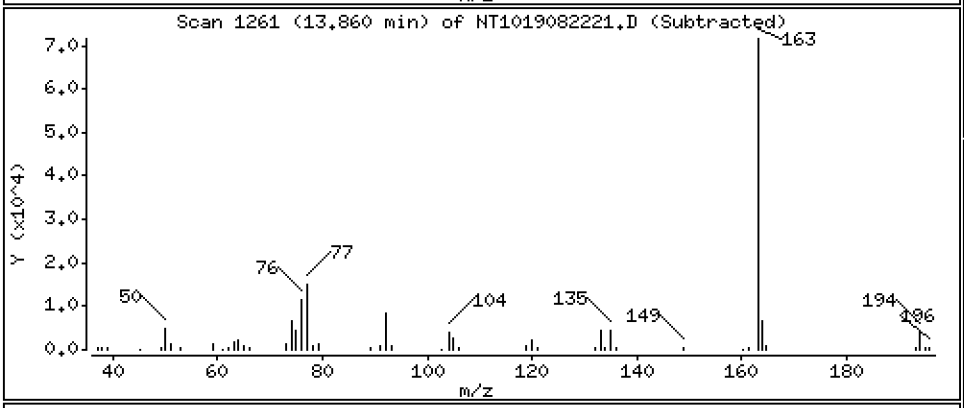
Column diameter: 0.25

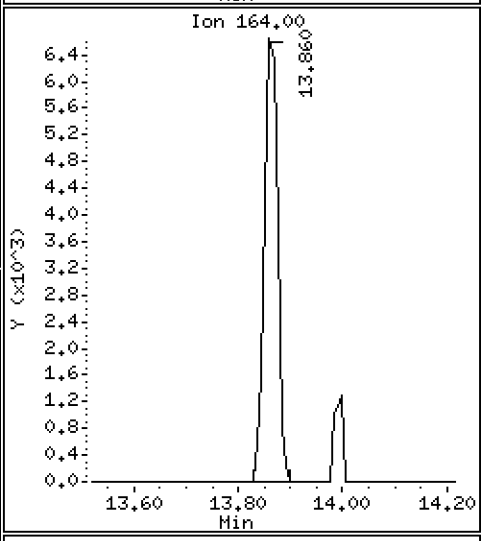
39 Dimethylphthalate

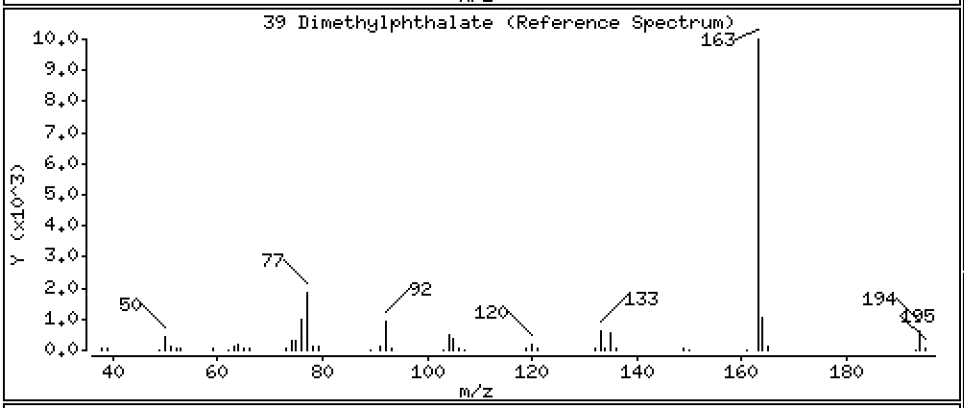
Concentration: 4.935 ug/mL

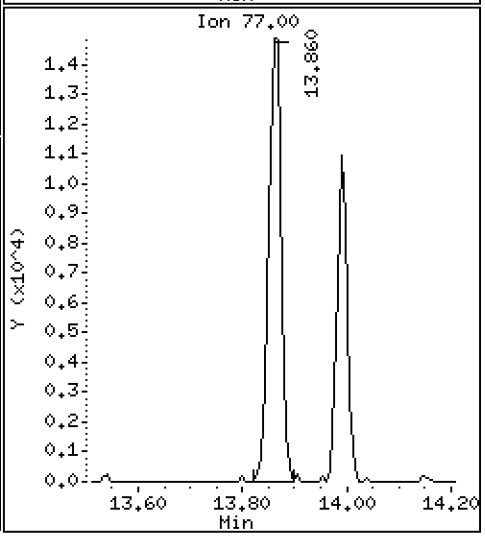


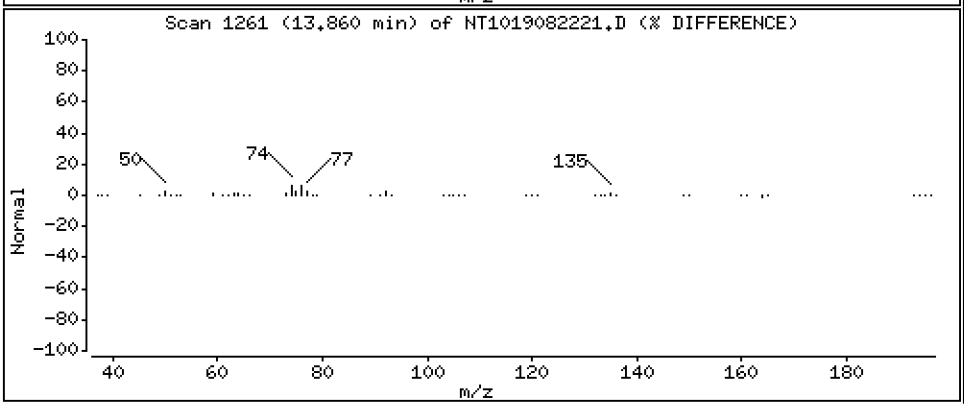












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

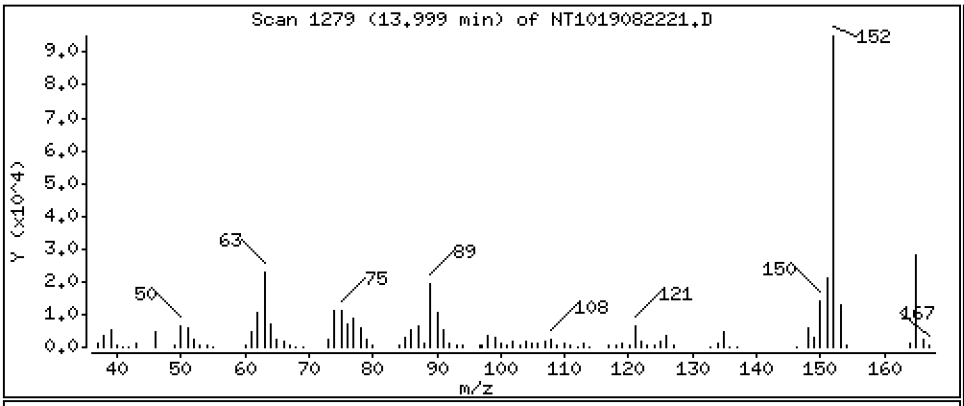
Operator: YZ

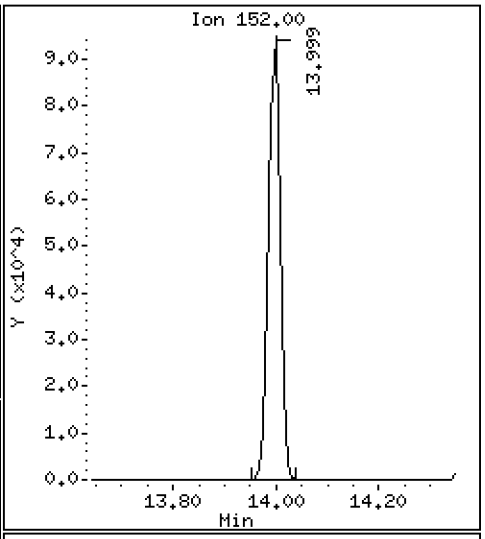
Column phase: ZB-5msi

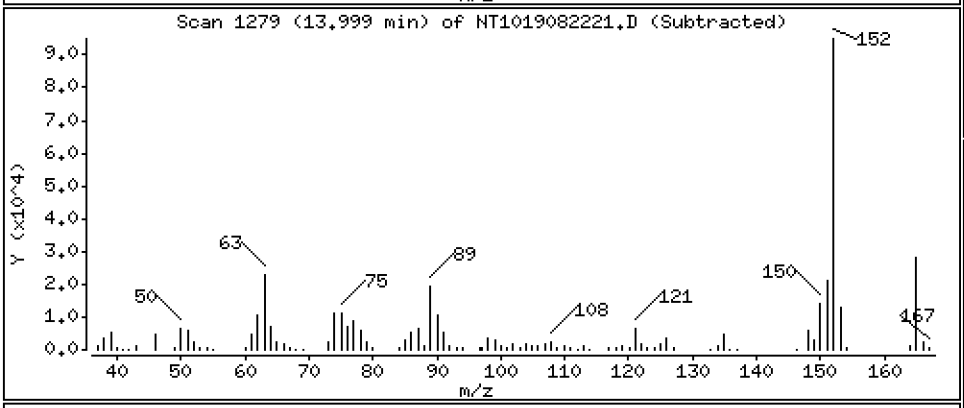
Column diameter: 0.25

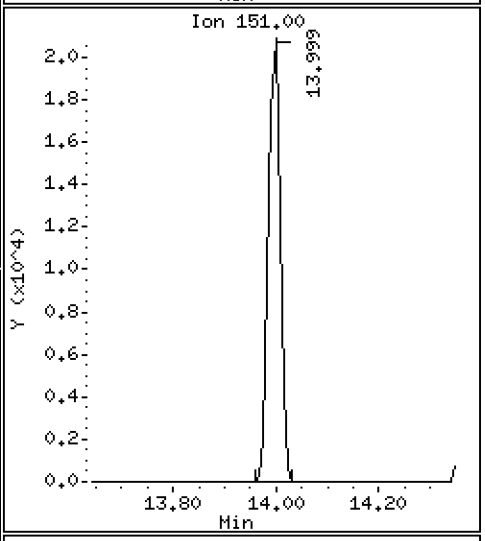
40 Acenaphthylene

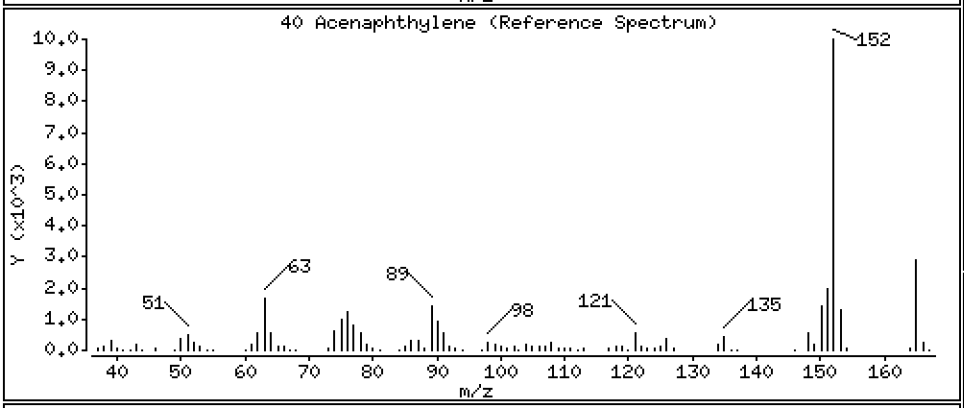
Concentration: 4.670 ug/mL

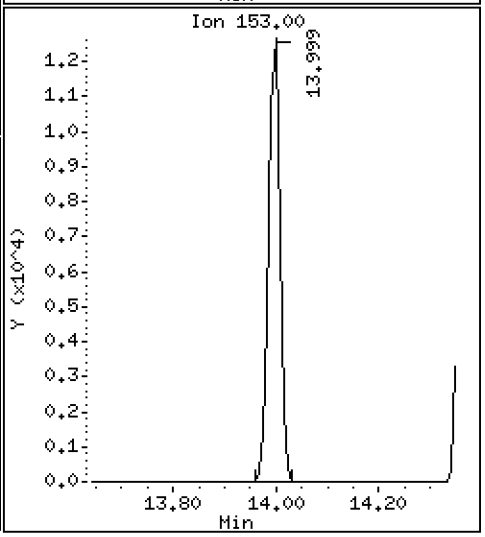


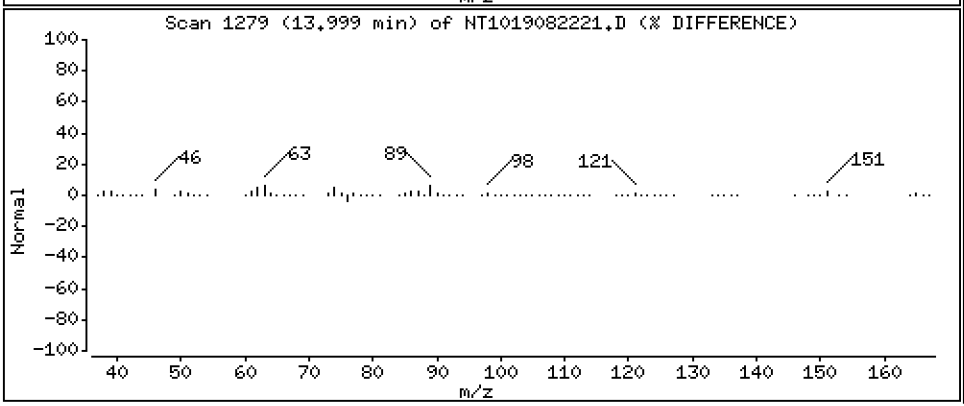












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

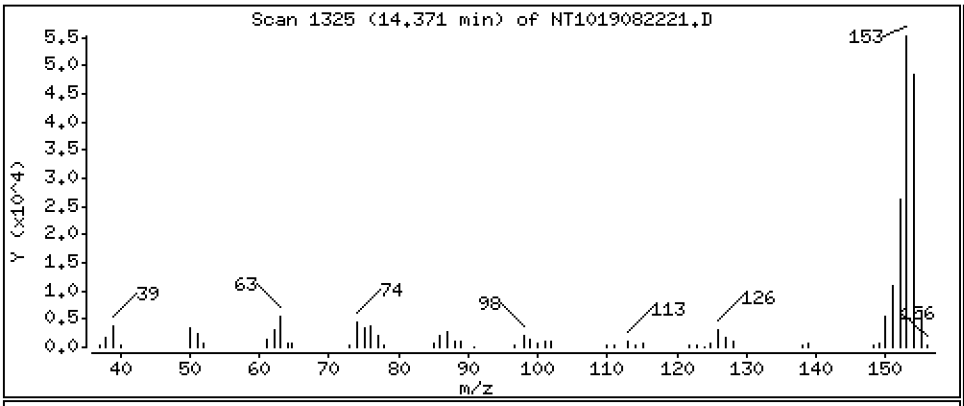
Operator: YZ

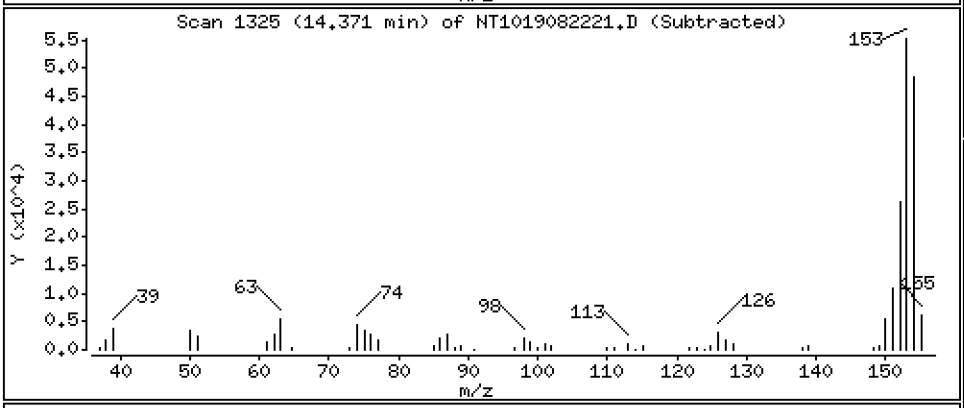
Column phase: ZB-5msi

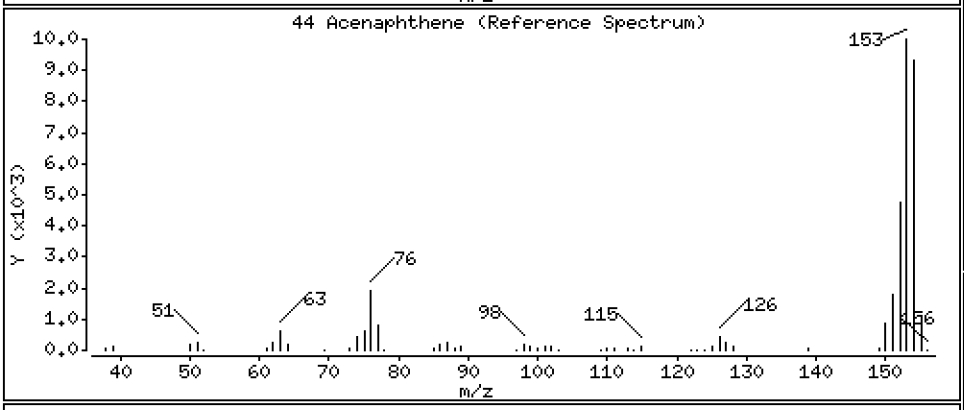
Column diameter: 0.25

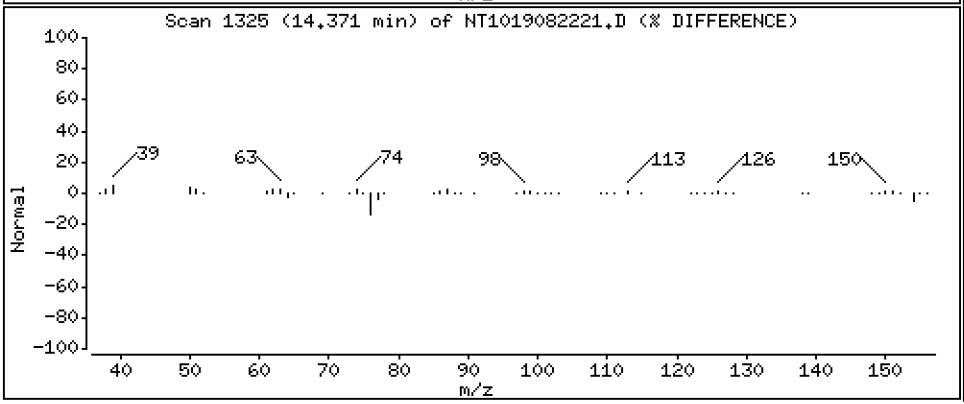
44 Acenaphthene

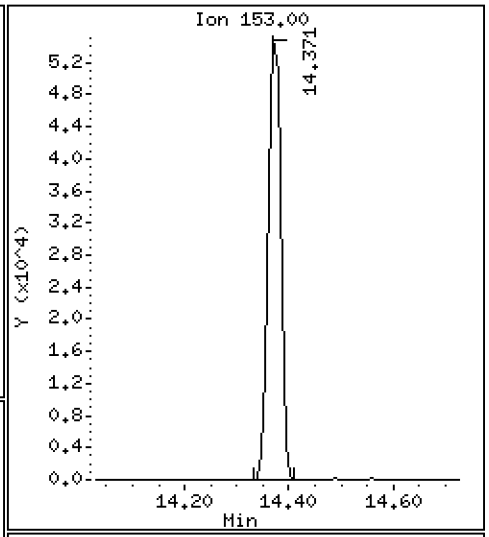
Concentration: 4.620 ug/mL

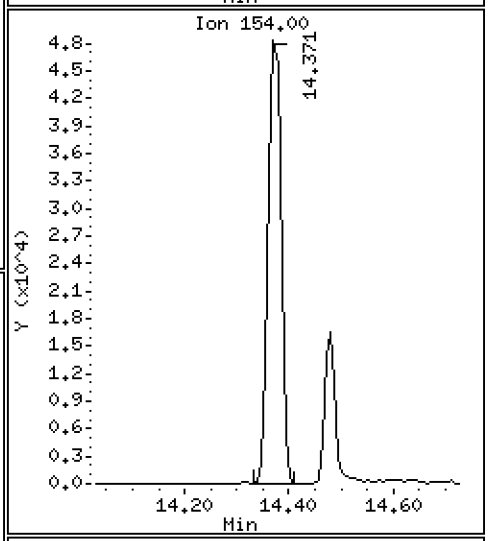


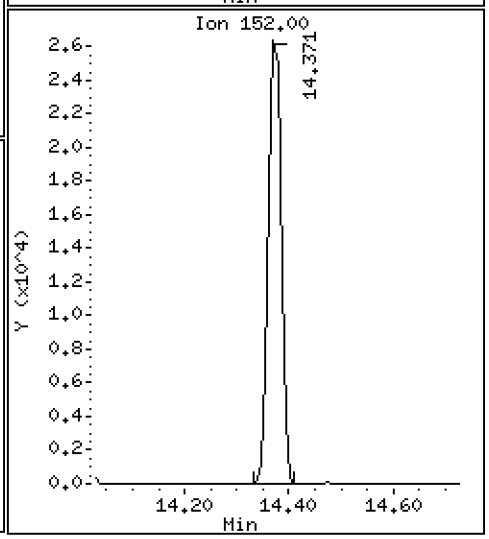












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

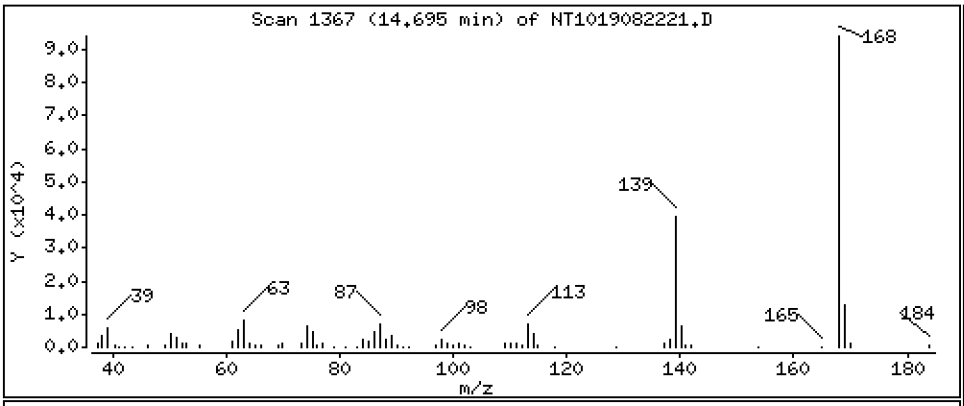
Operator: YZ

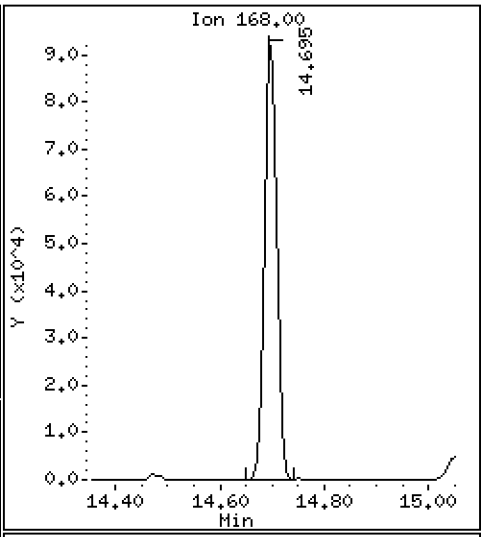
Column phase: ZB-5msi

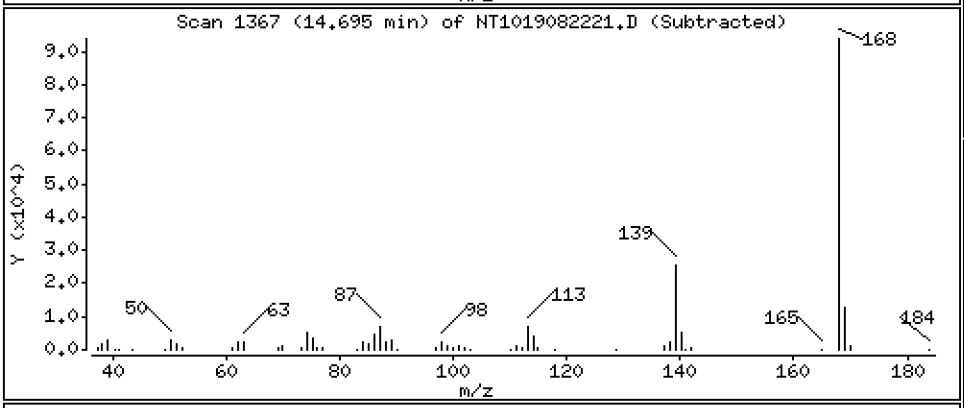
Column diameter: 0.25

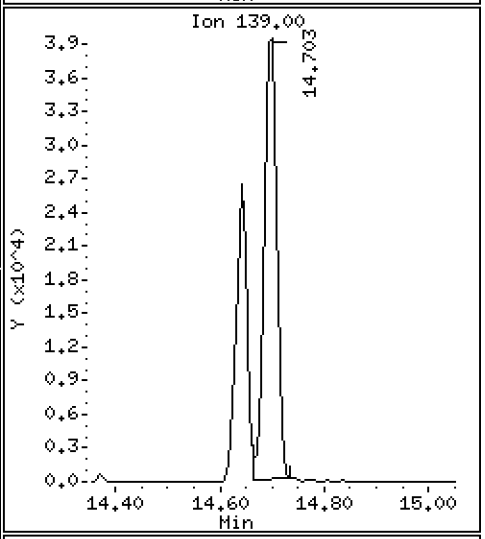
46 Dibenzofuran

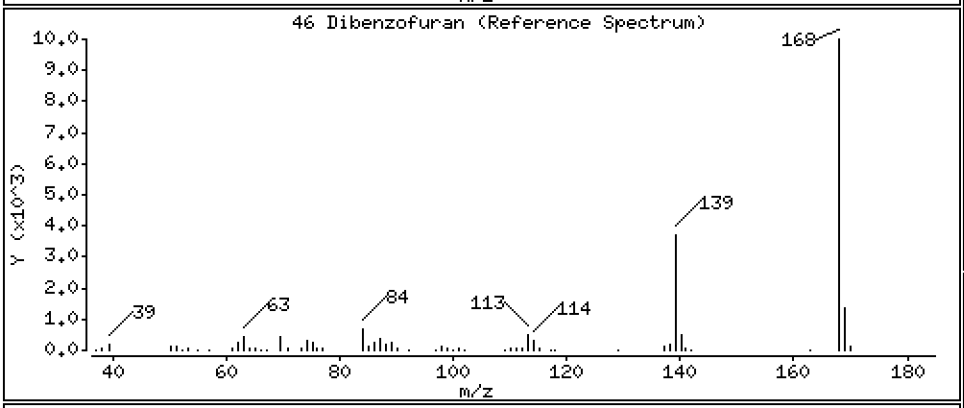
Concentration: 4.679 ug/mL

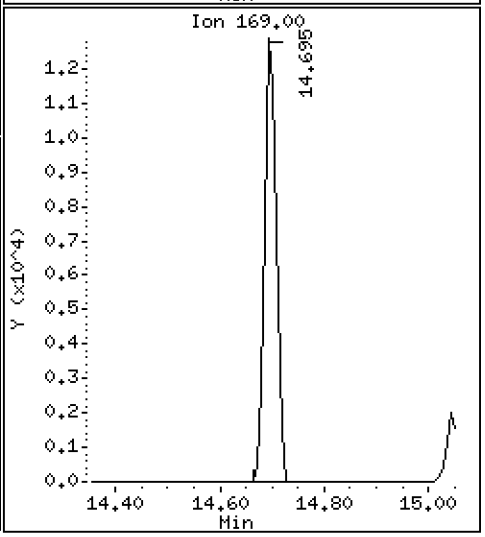


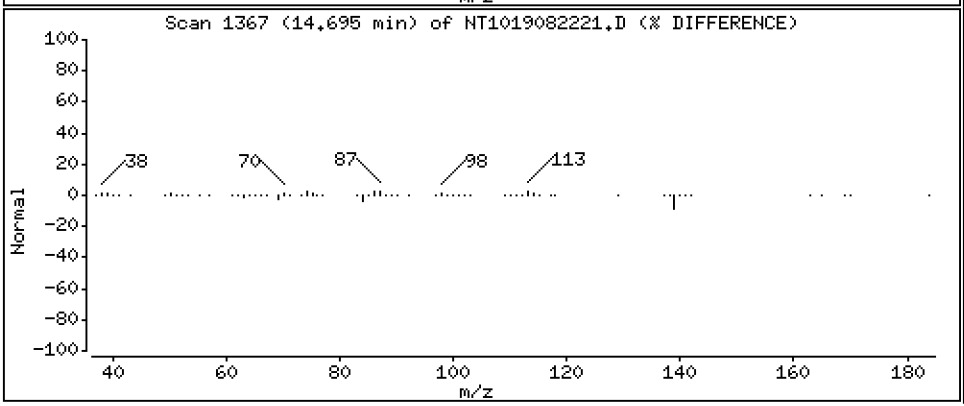












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D

Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

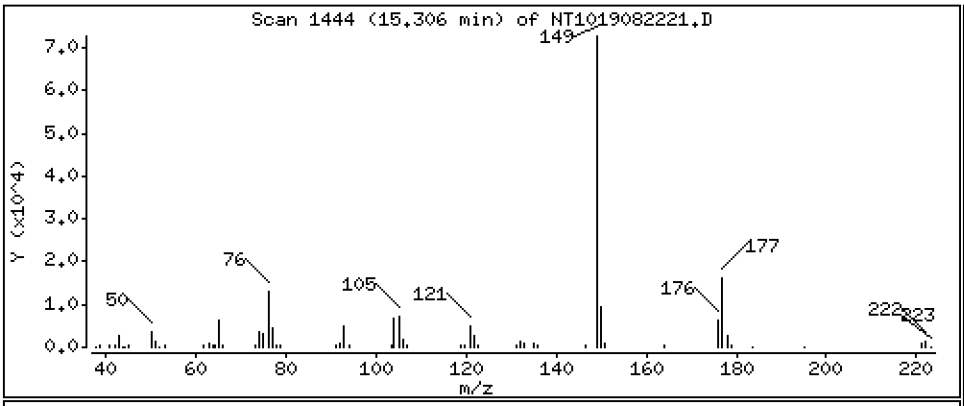
Operator: YZ

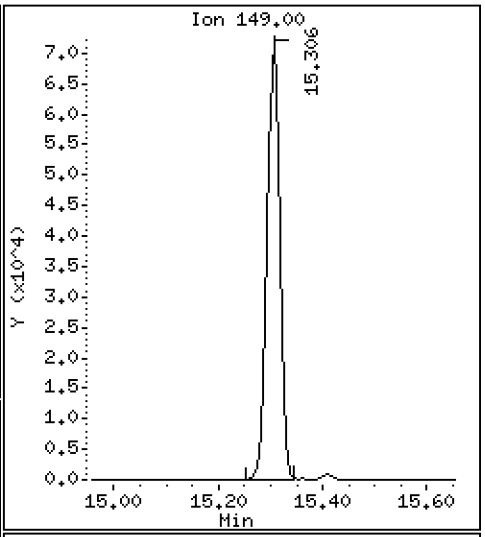
Column phase: ZB-5msi

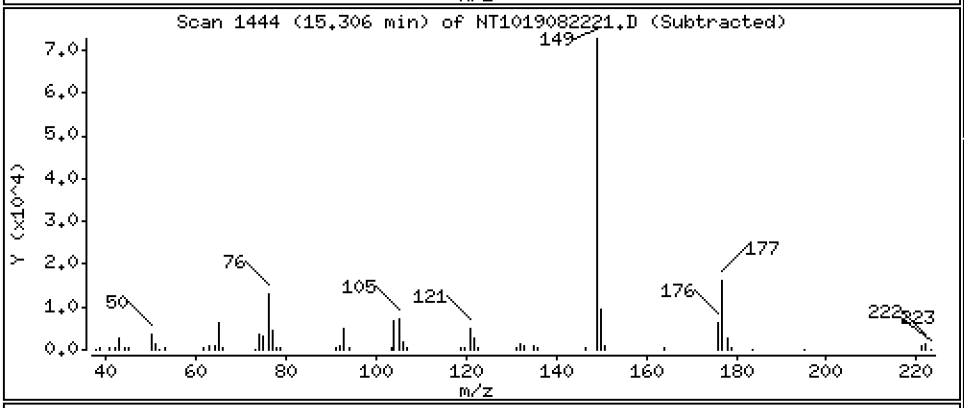
Column diameter: 0.25

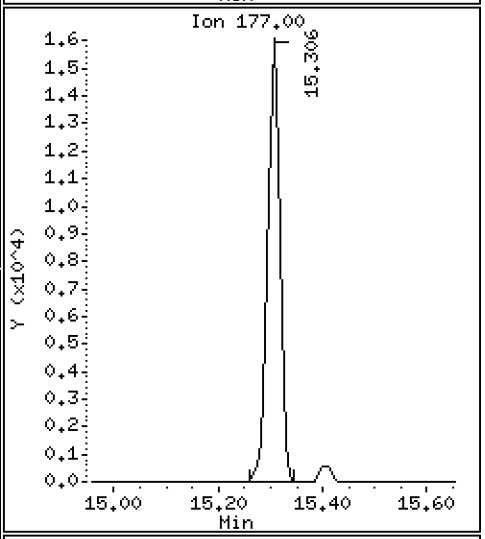
50 Diethylphthalate

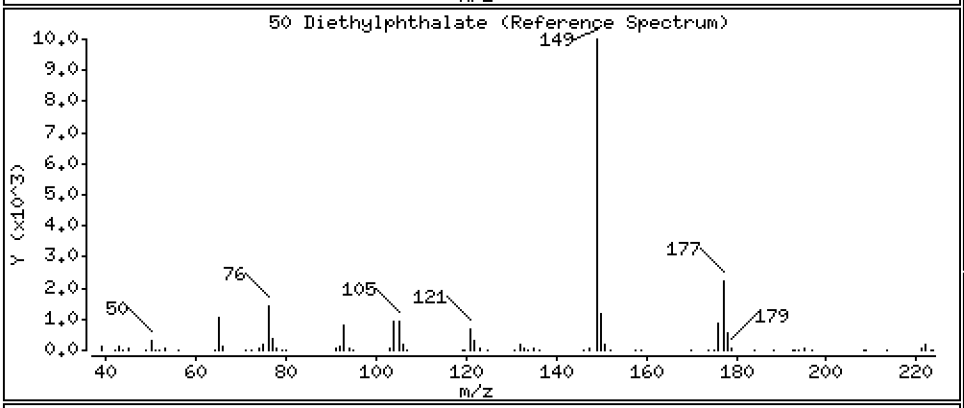
Concentration: 5.171 ug/mL

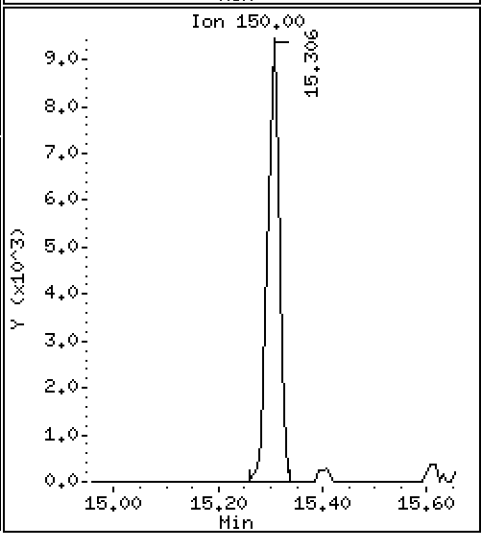


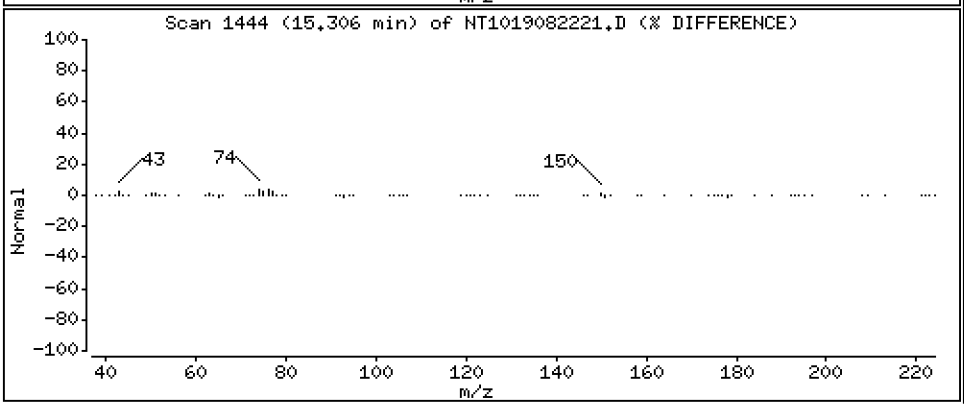












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D

Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

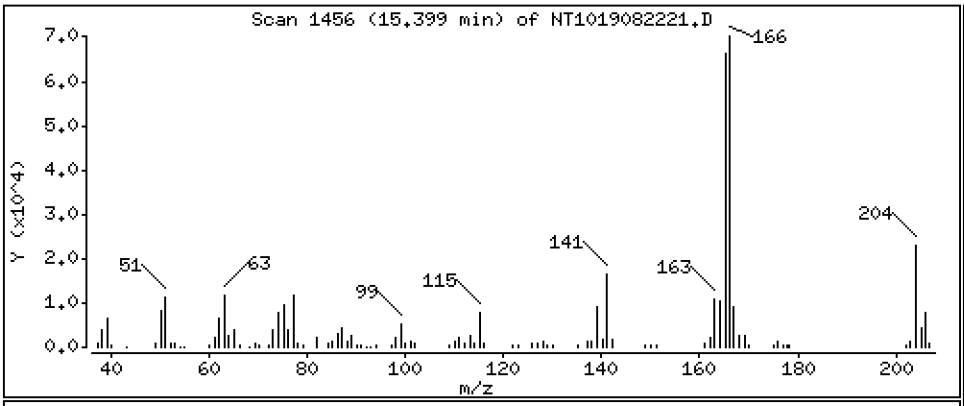
Operator: YZ

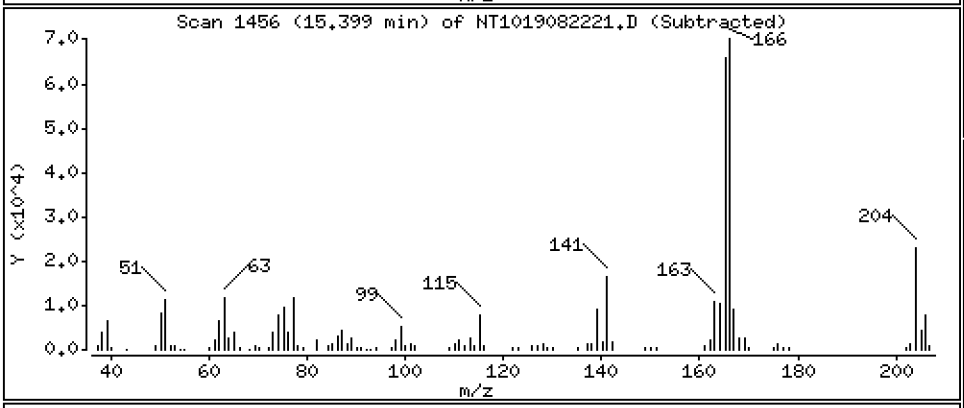
Column phase: ZB-5msi

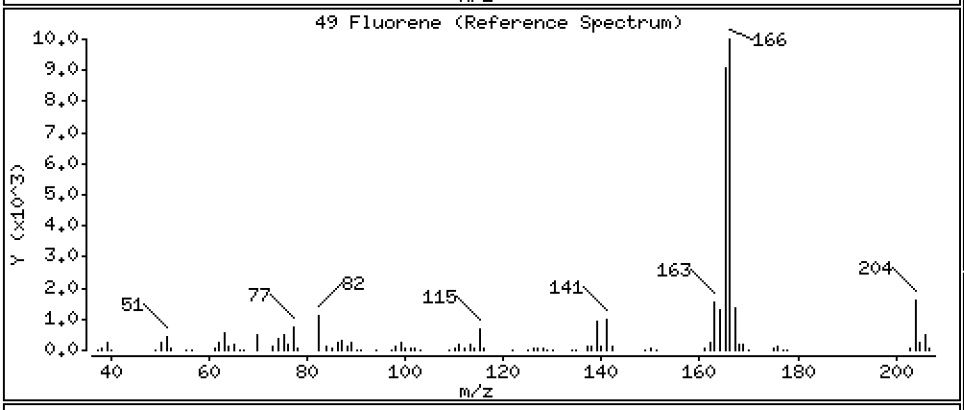
Column diameter: 0.25

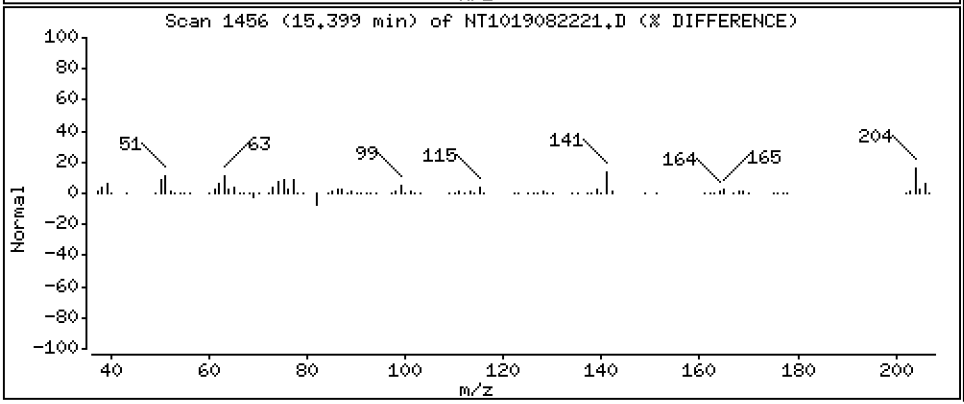
49 Fluorene

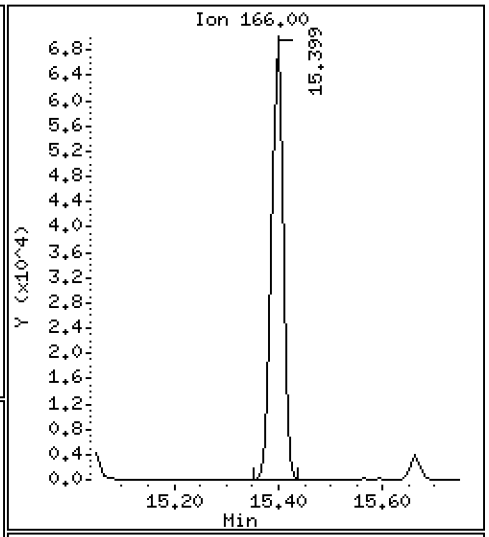
Concentration: 4.797 ug/mL

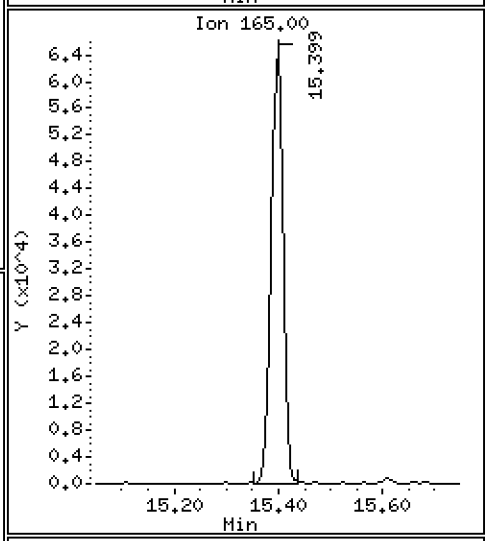


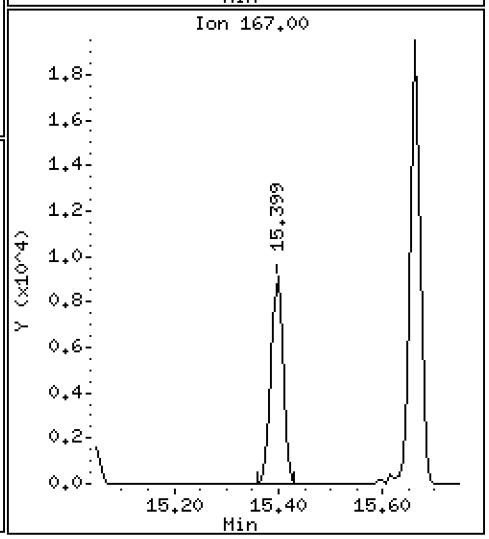












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D

Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

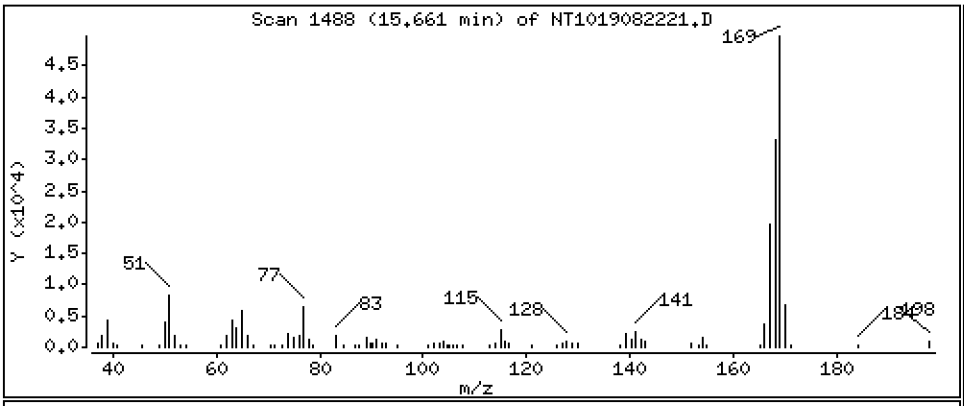
Operator: YZ

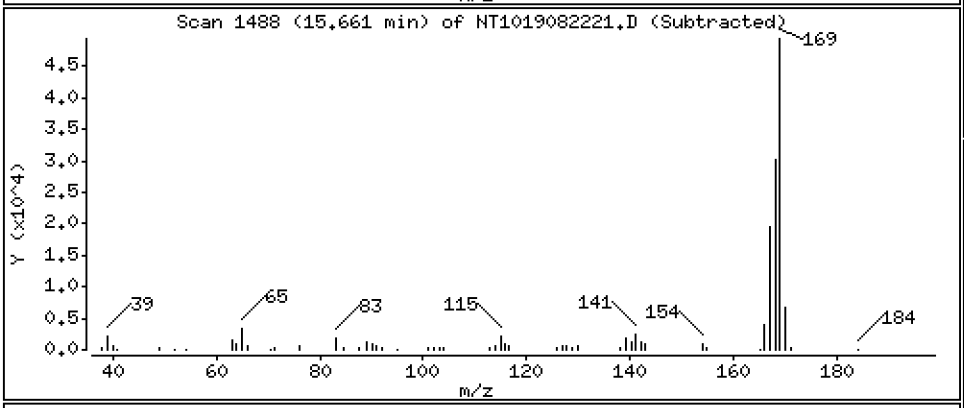
Column phase: ZB-5msi

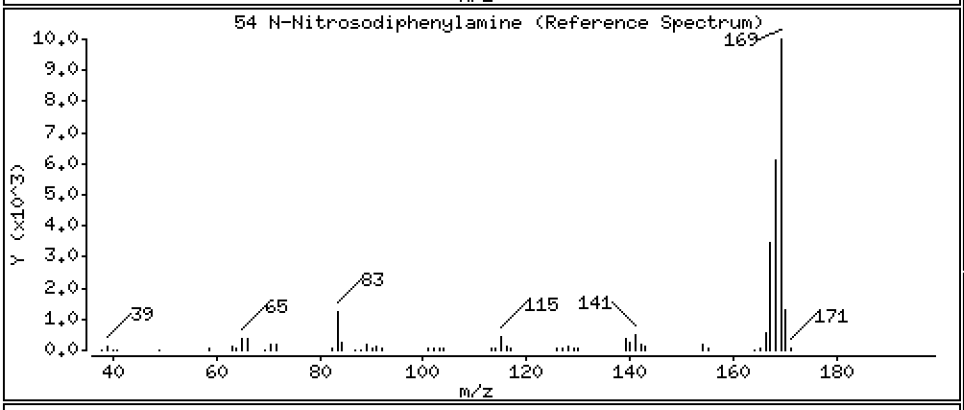
Column diameter: 0.25

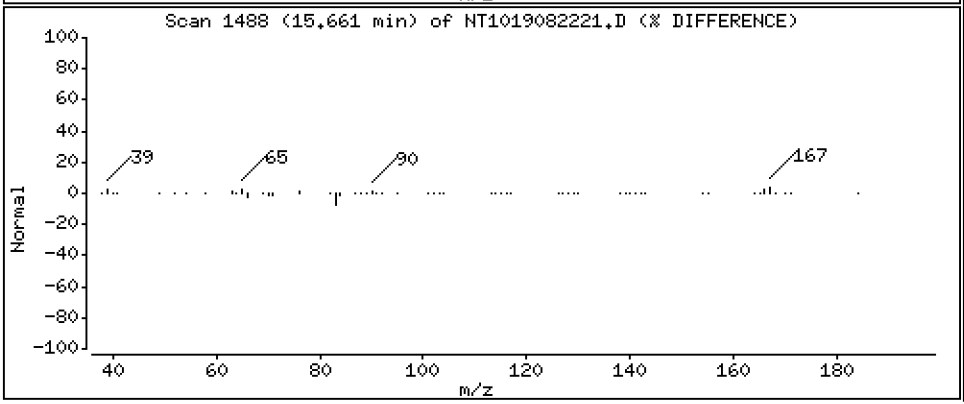
54 N-Nitrosodiphenylamine

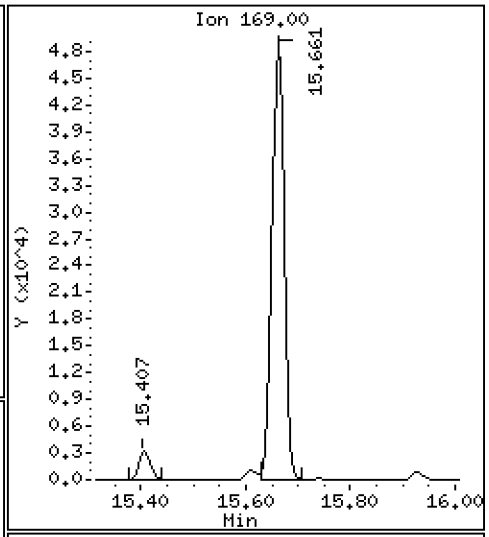
Concentration: 4.615 ug/mL

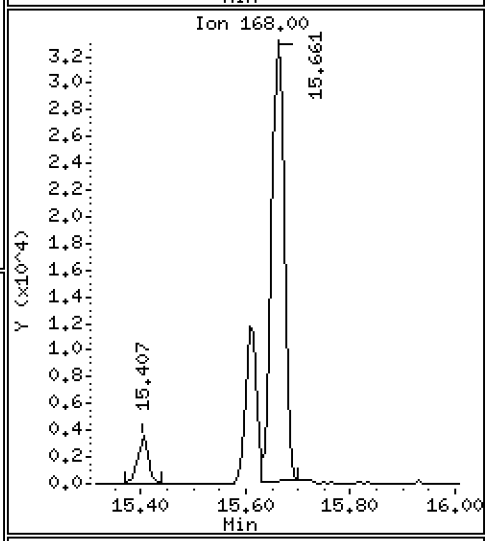


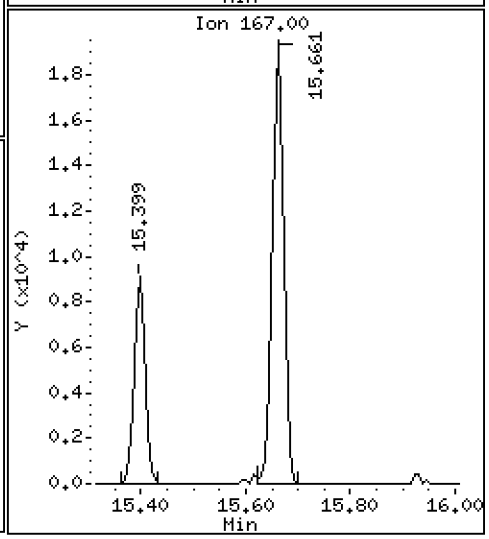












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D

Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

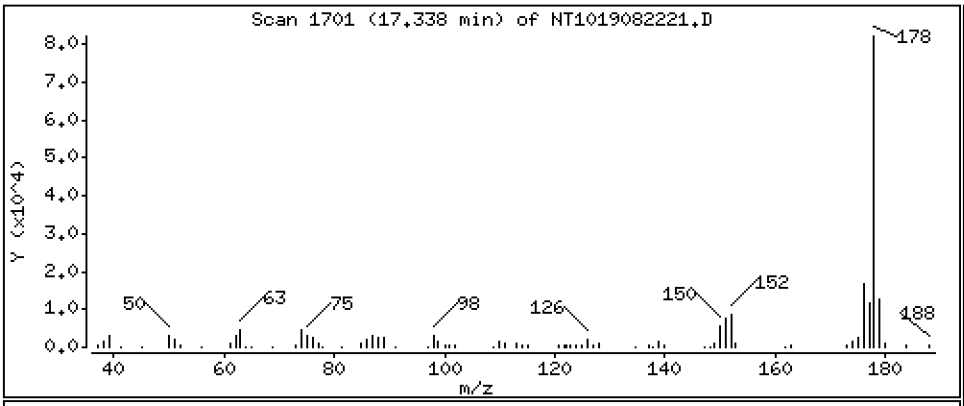
Operator: YZ

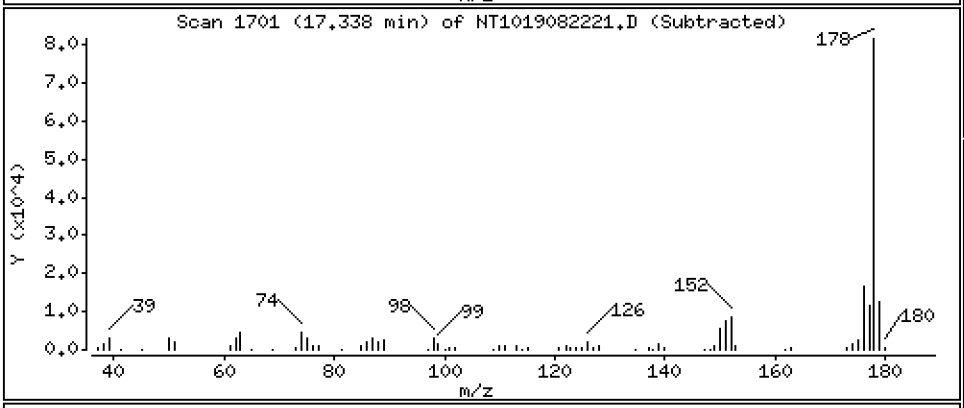
Column phase: ZB-5msi

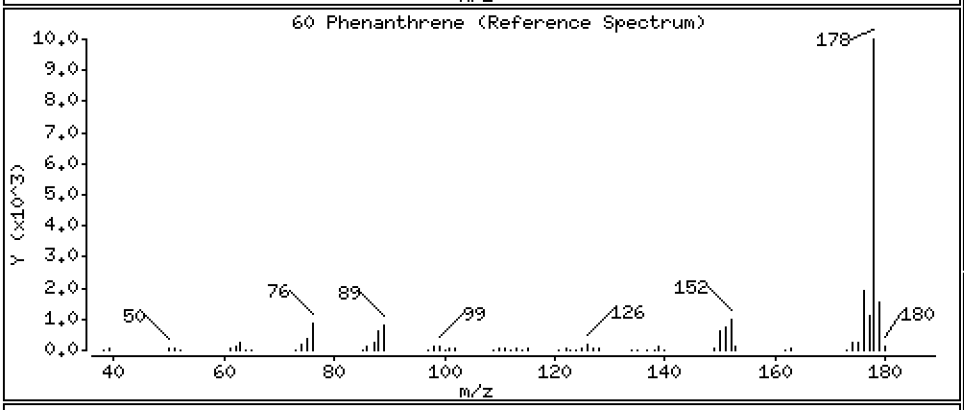
Column diameter: 0.25

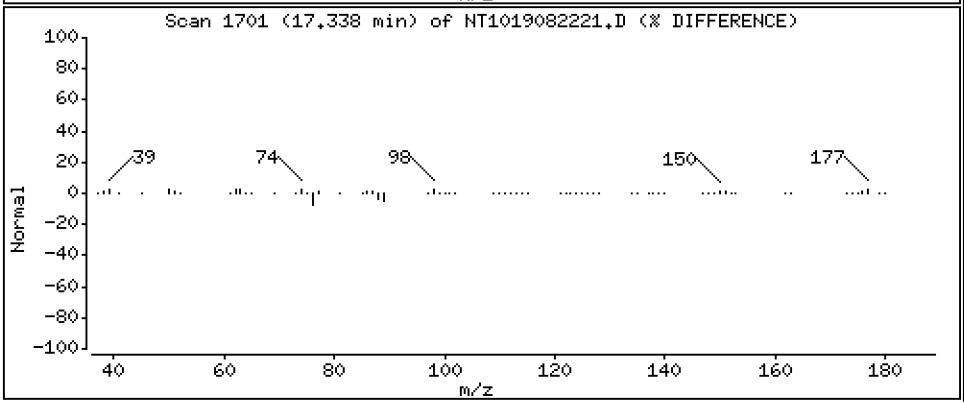
60 Phenanthrene

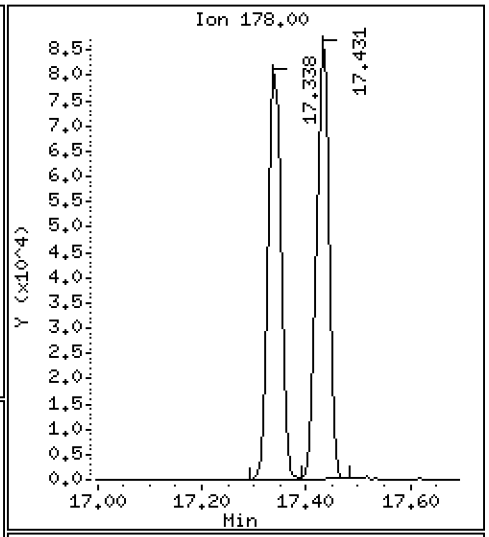
Concentration: 4.622 ug/mL

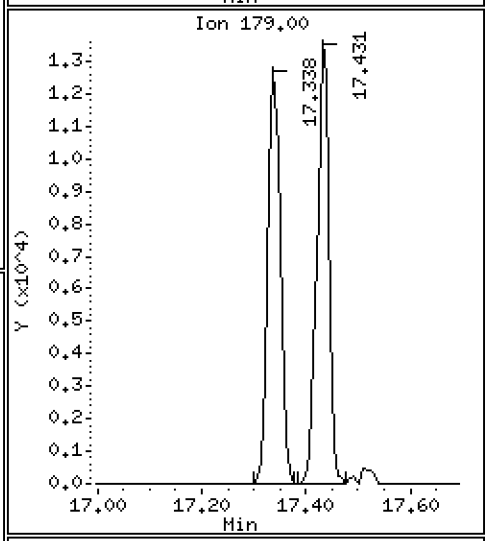


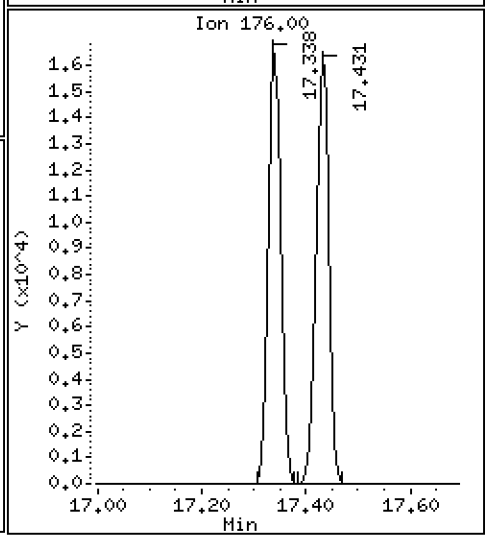












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D

Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

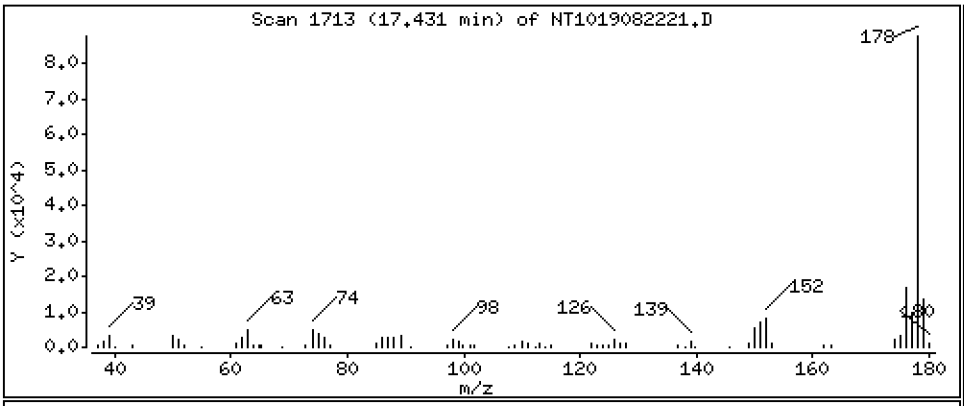
Operator: YZ

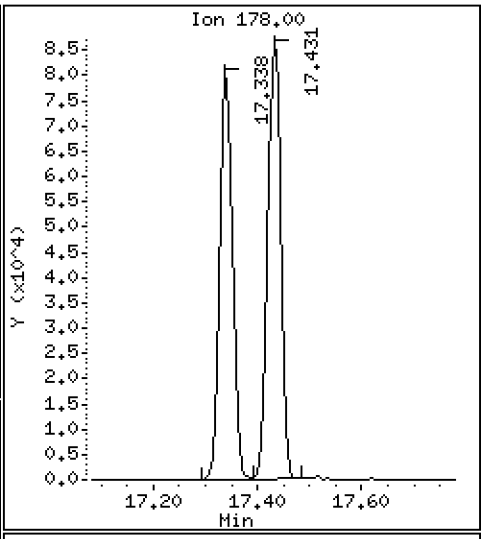
Column phase: ZB-5msi

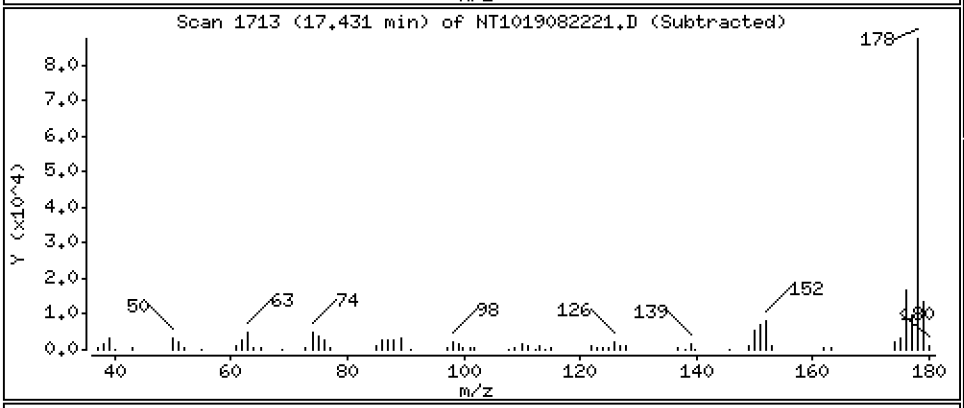
Column diameter: 0.25

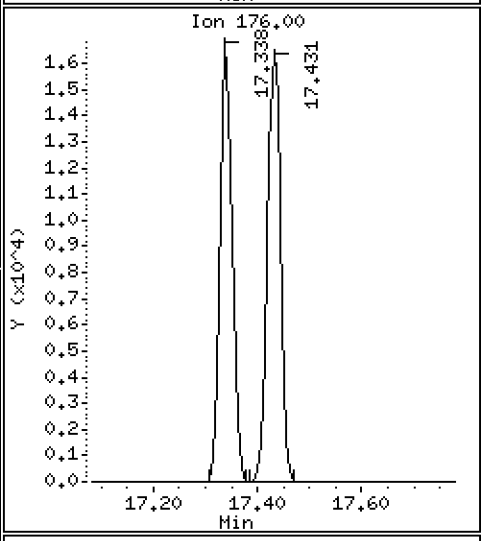
61 Anthracene

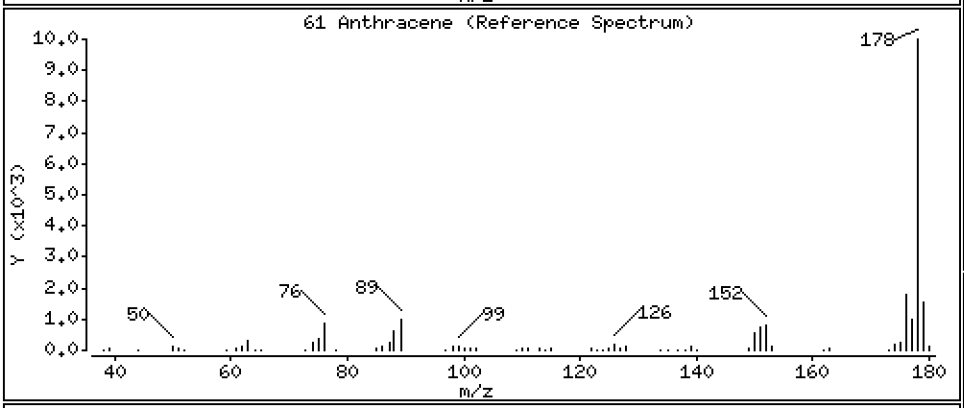
Concentration: 4.894 ug/mL

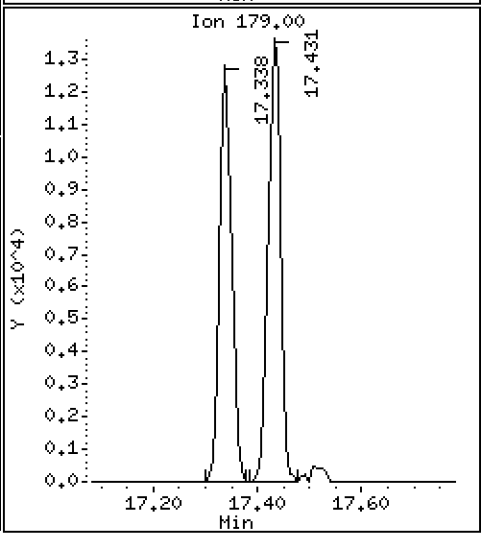


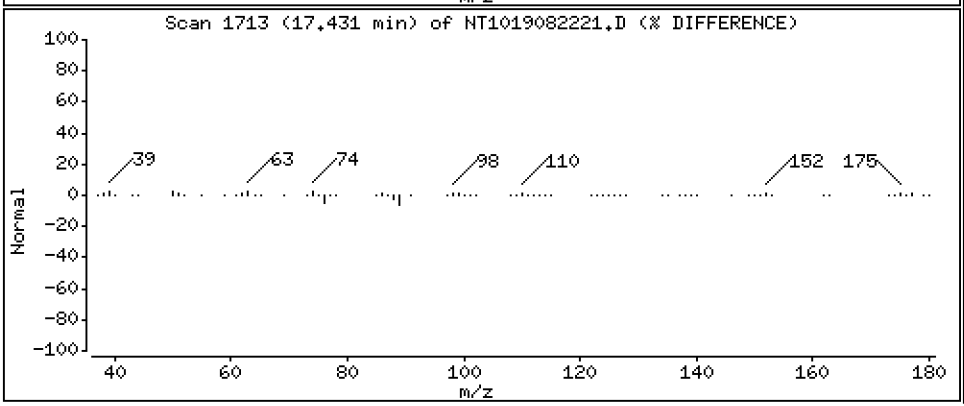












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D

Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

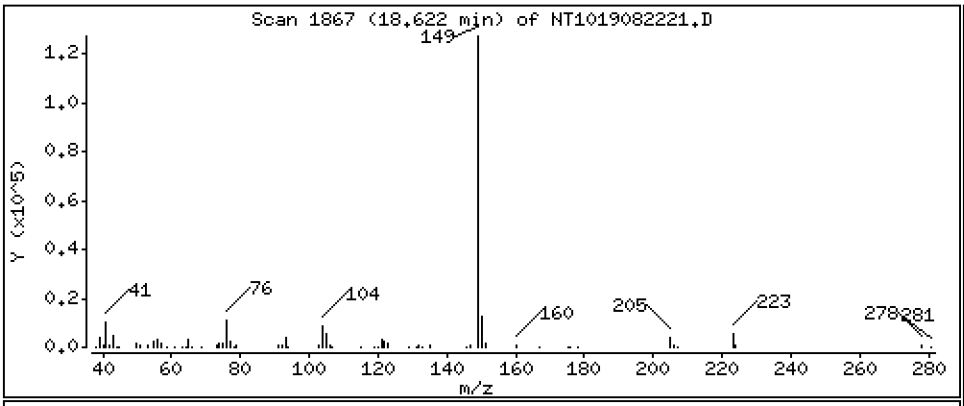
Operator: YZ

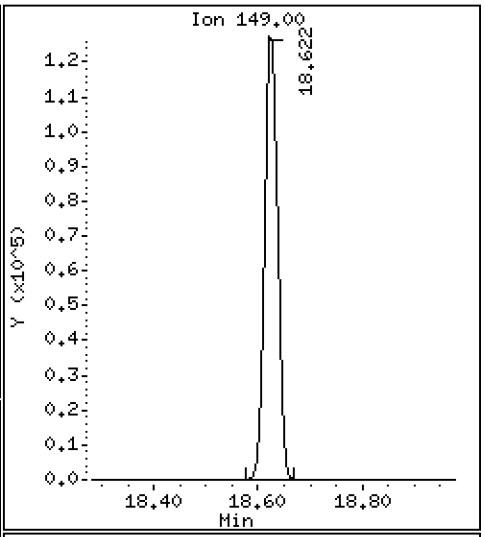
Column phase: ZB-5msi

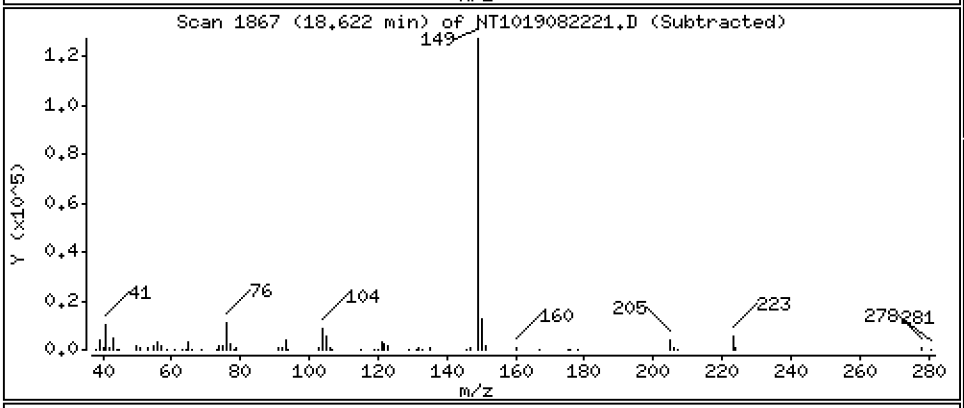
Column diameter: 0.25

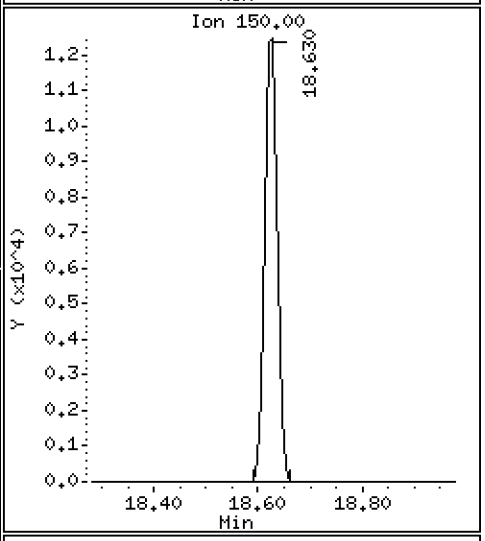
63 Di-n-butylphthalate

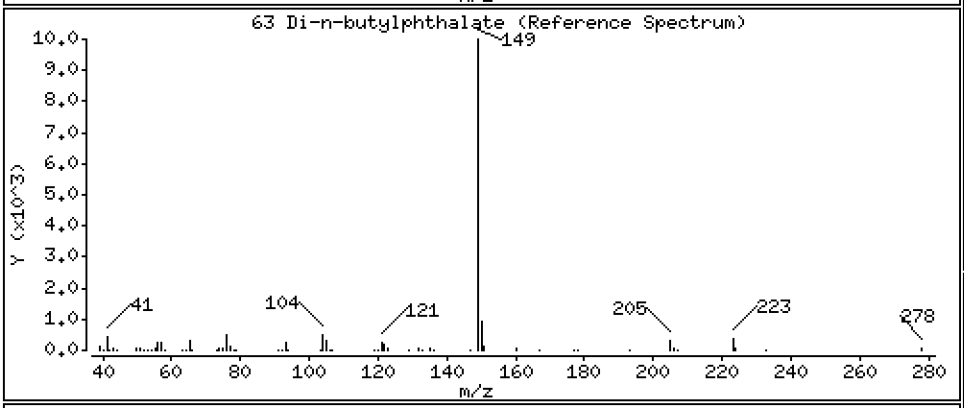
Concentration: 5.279 ug/mL

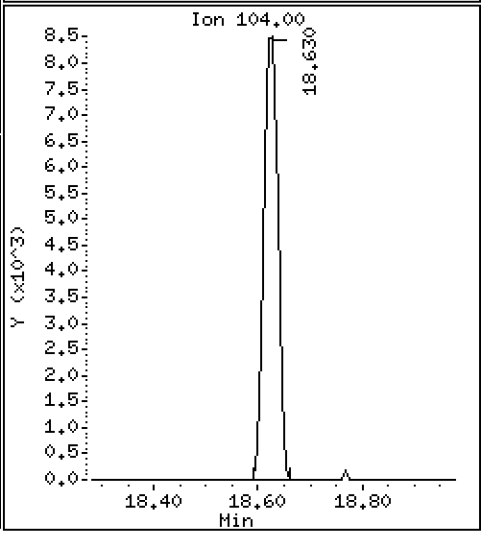


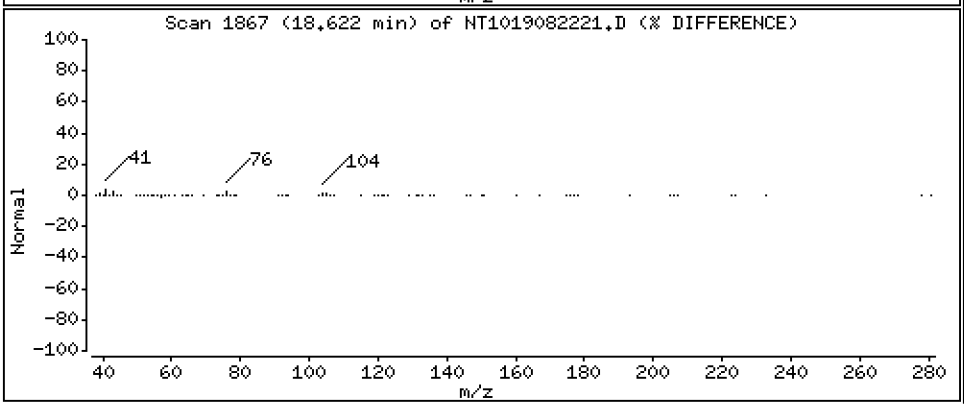












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D

Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

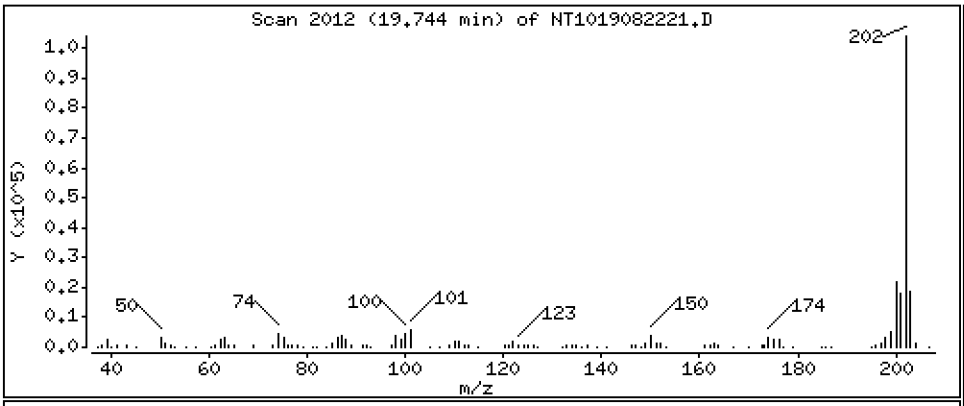
Operator: YZ

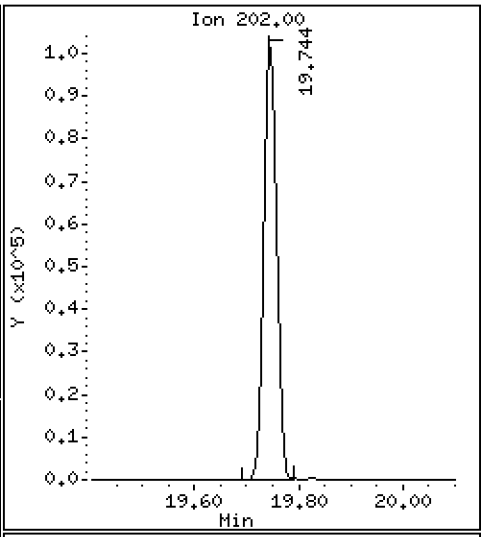
Column phase: ZB-5msi

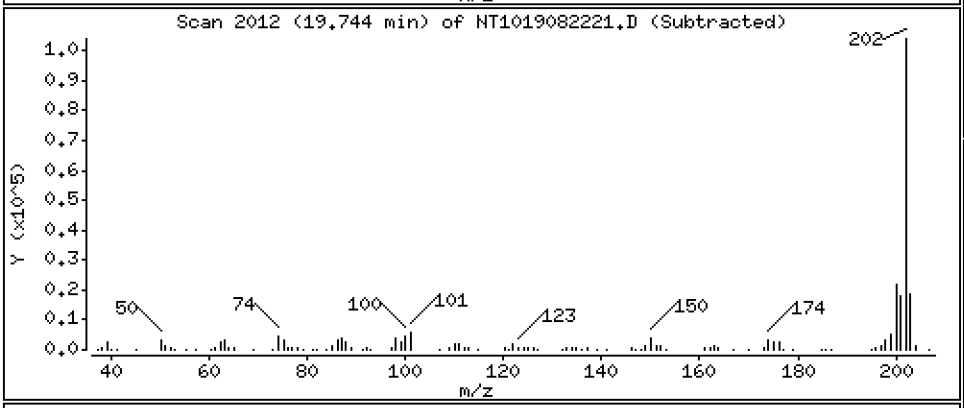
Column diameter: 0.25

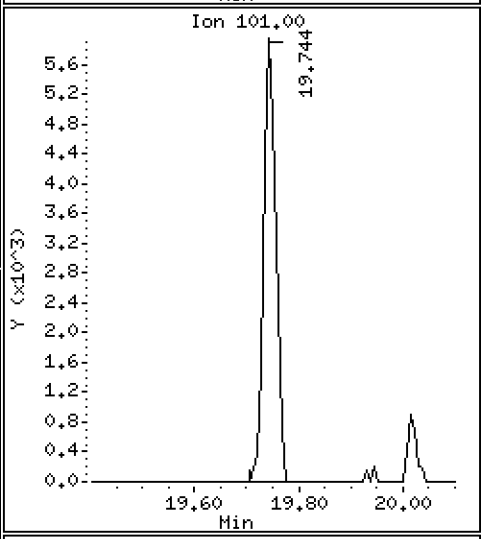
64 Fluoranthene

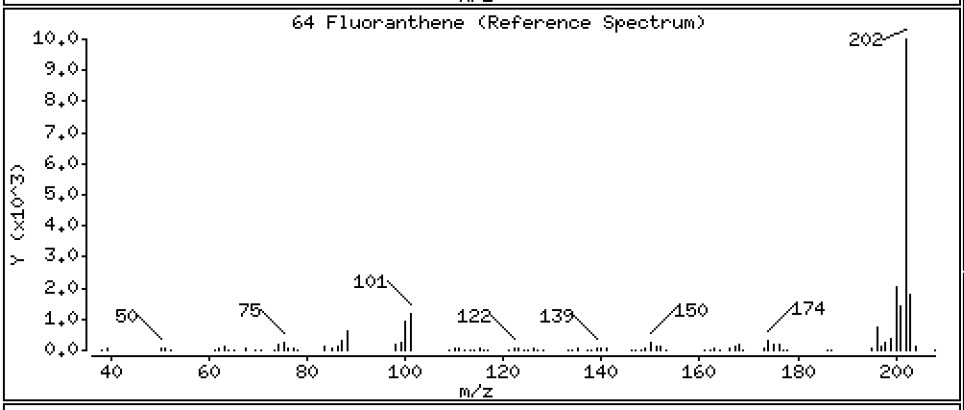
Concentration: 6.358 ug/mL

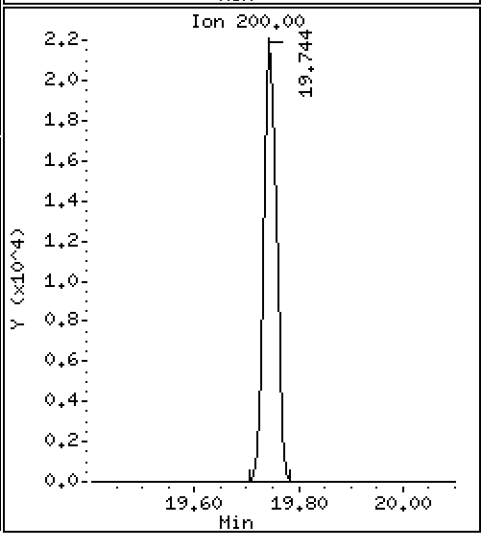


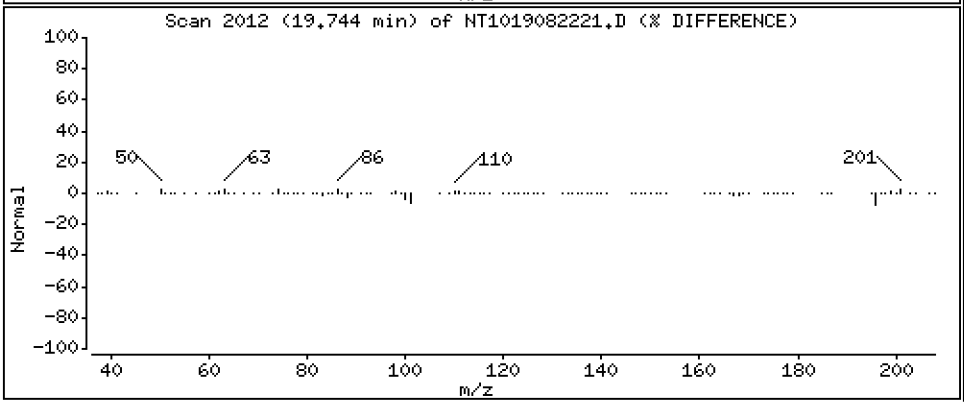












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D

Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

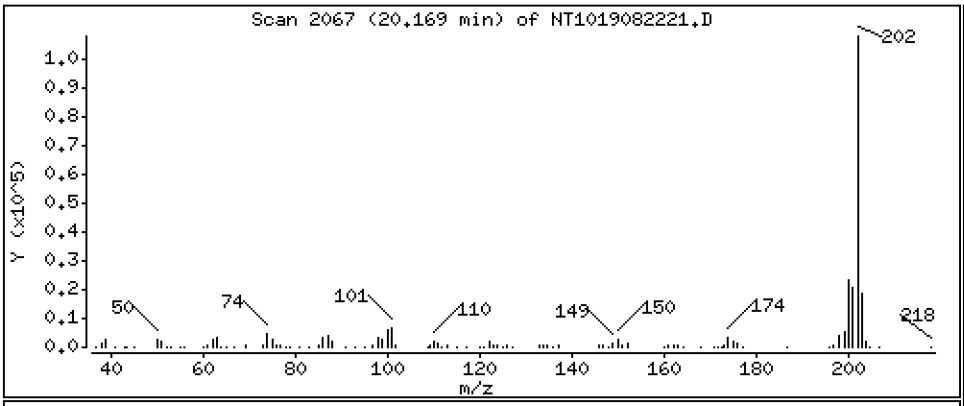
Operator: YZ

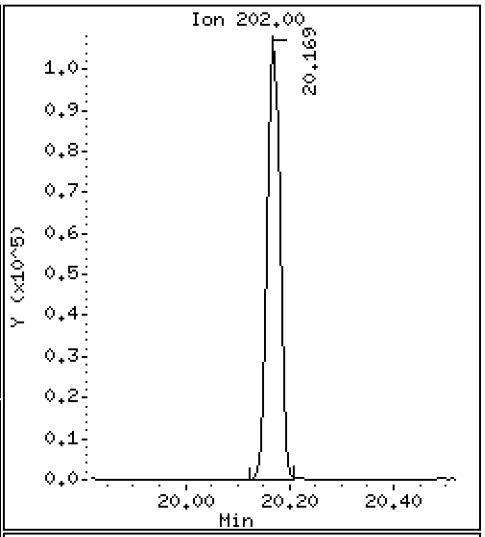
Column phase: ZB-5msi

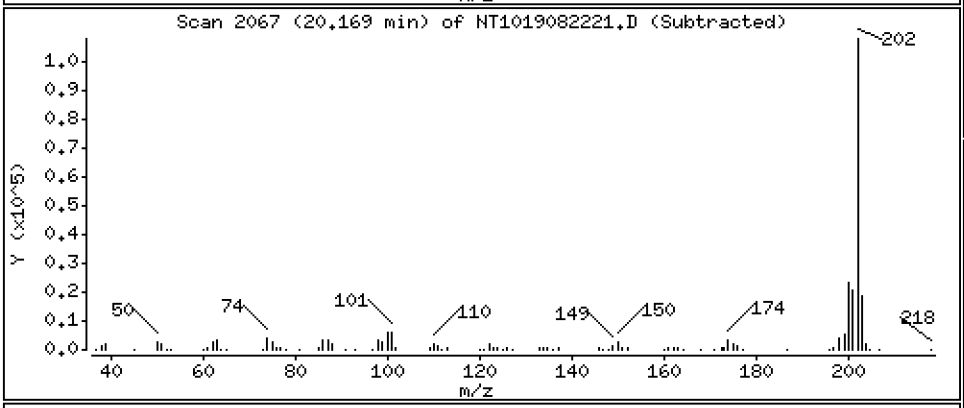
Column diameter: 0.25

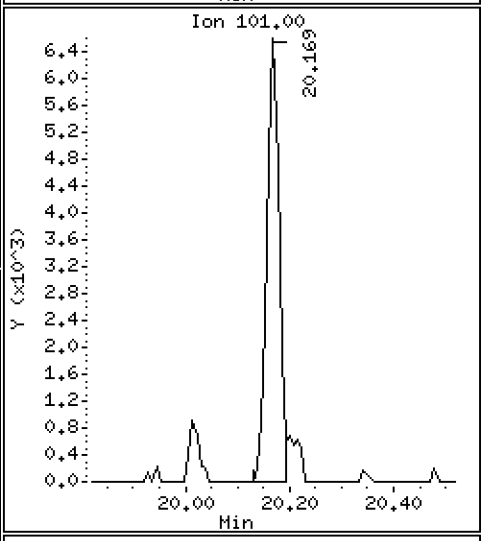
65 Pyrene

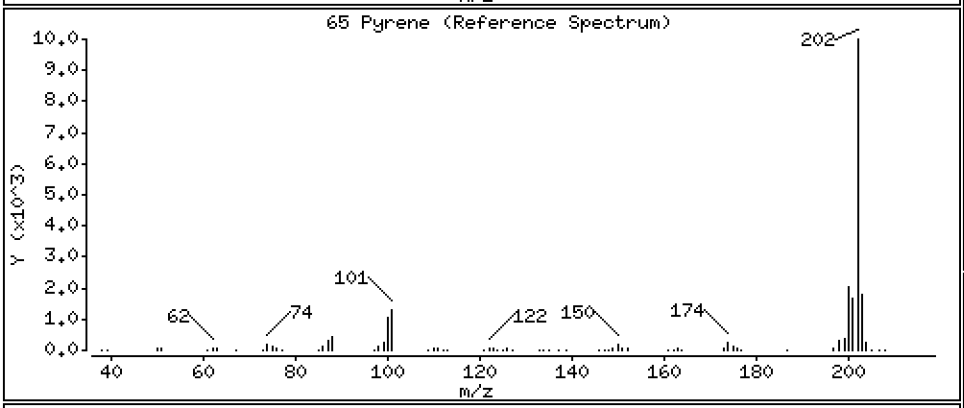
Concentration: 6.148 ug/mL

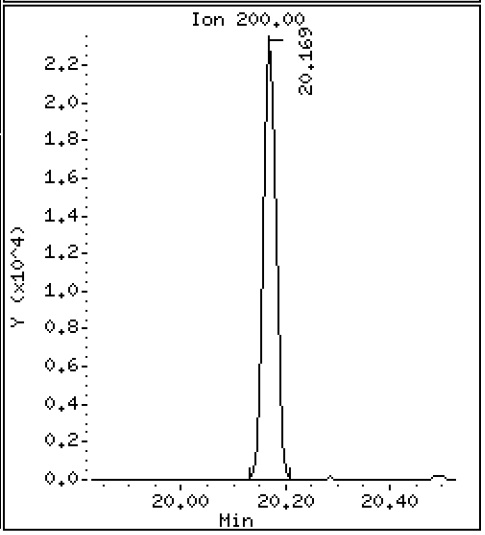


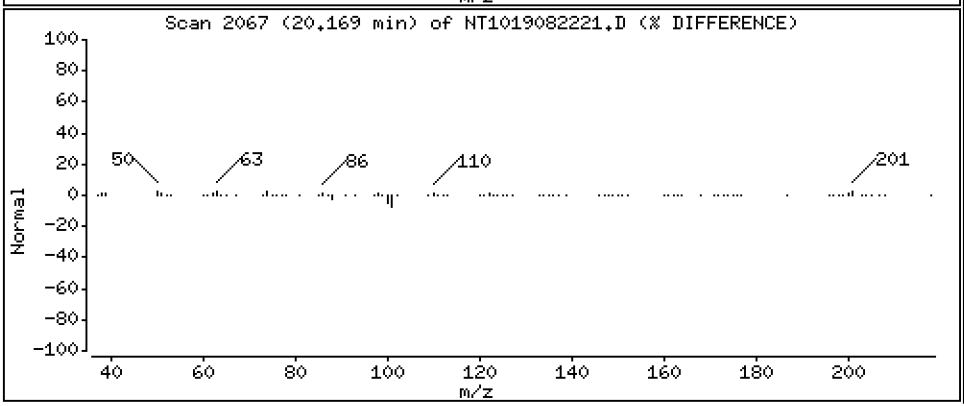












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

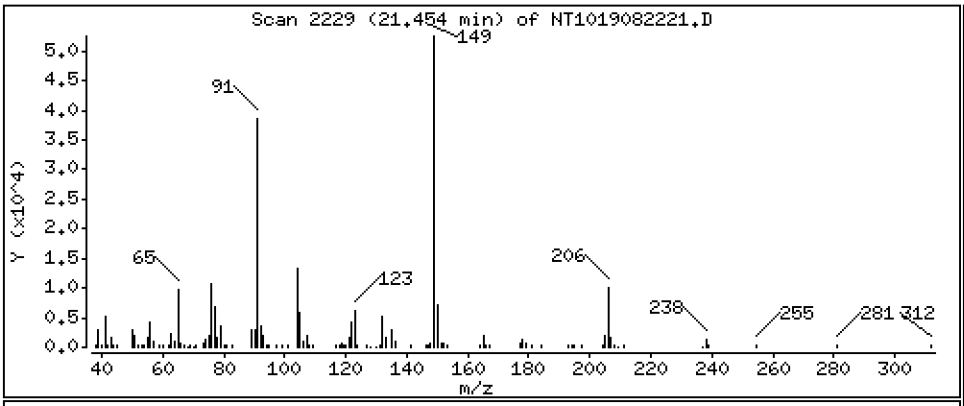
Operator: YZ

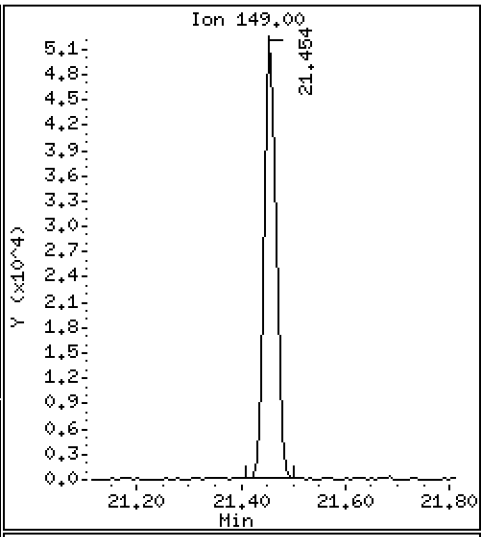
Column phase: ZB-5msi

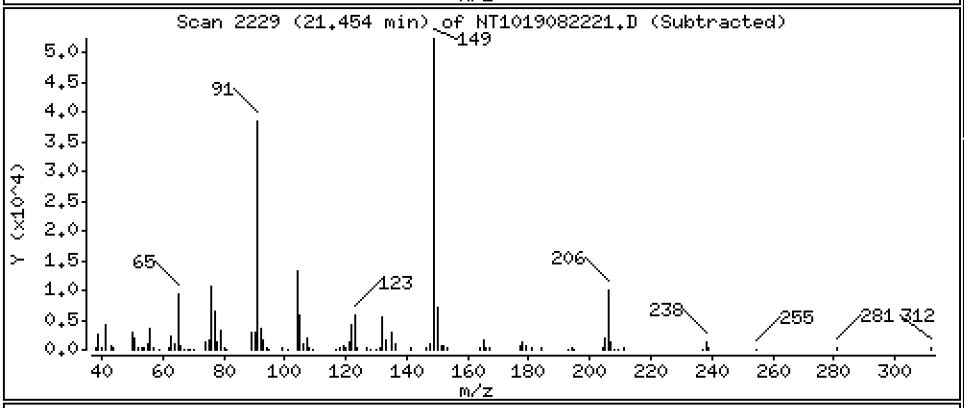
Column diameter: 0.25

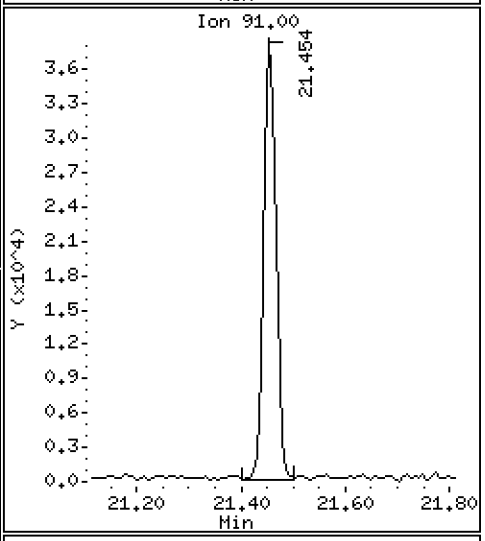
67 Butylbenzylphthalate

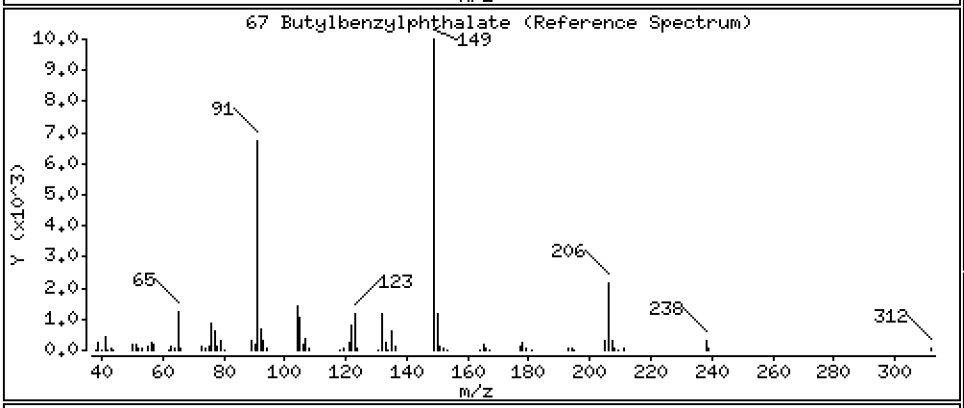
Concentration: 6.150 ug/mL

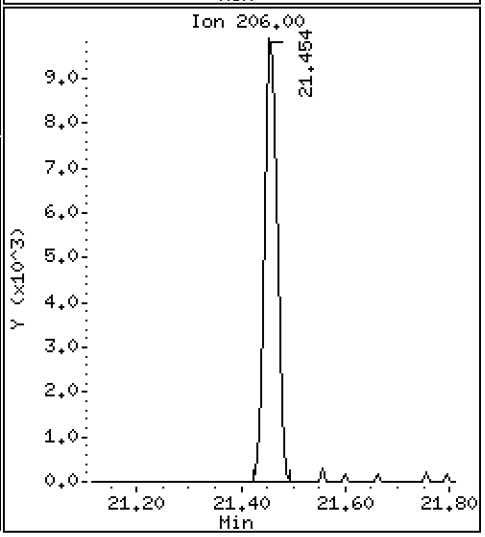


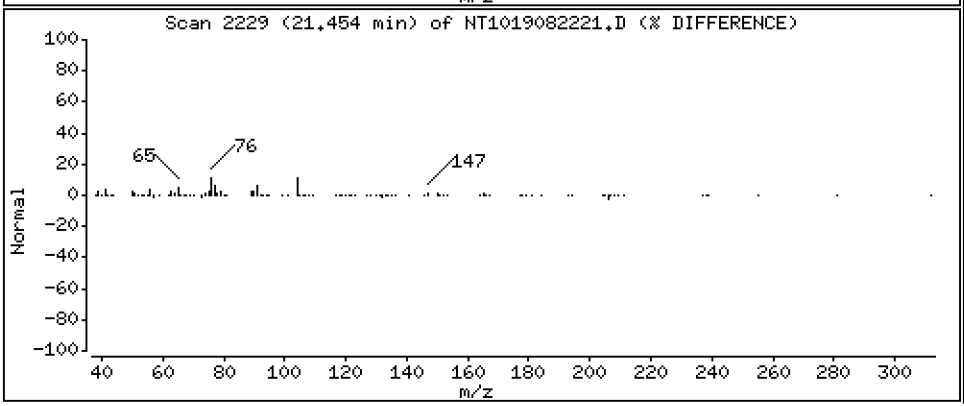












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

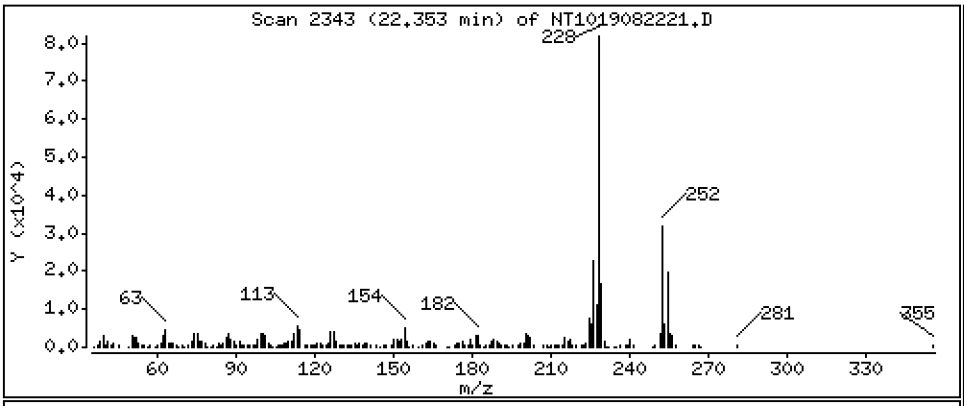
Operator: YZ

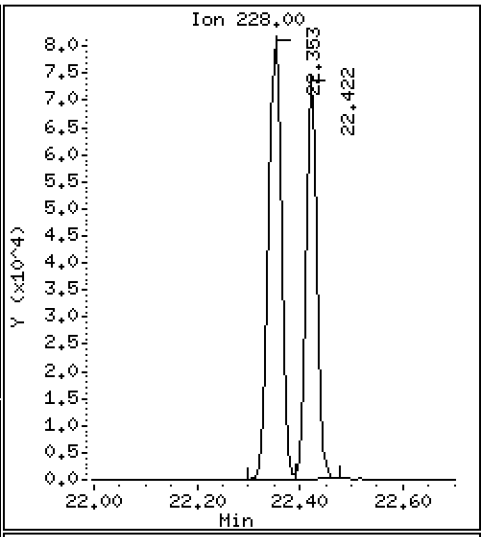
Column phase: ZB-5msi

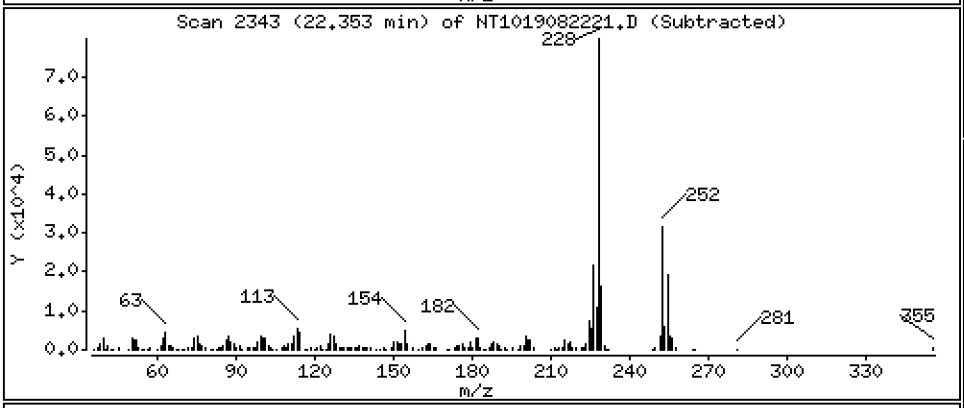
Column diameter: 0.25

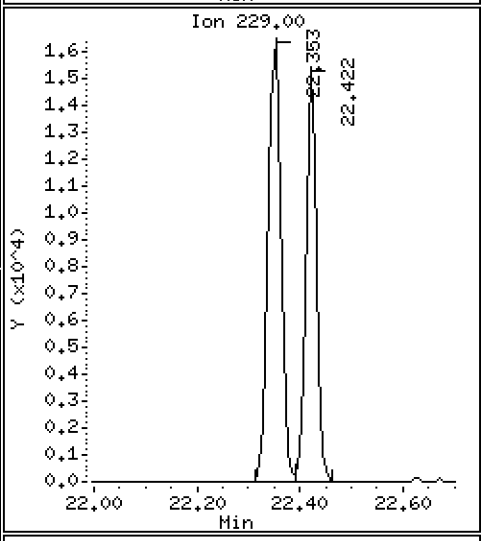
68 Benzo(a)anthracene

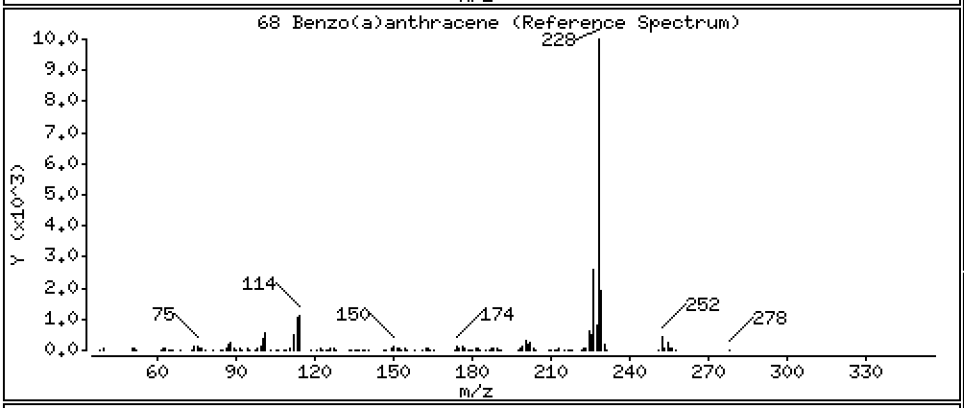
Concentration: 5.278 ug/mL

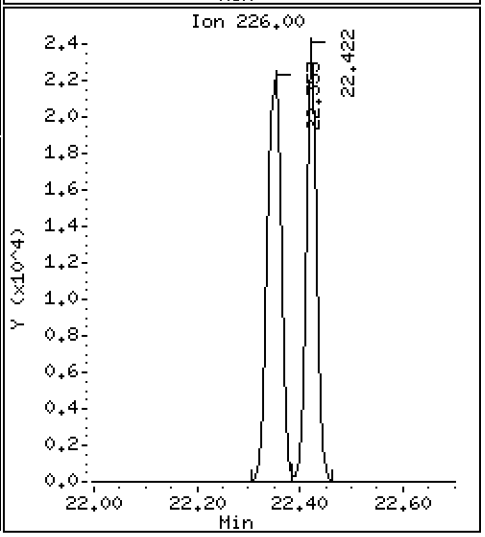


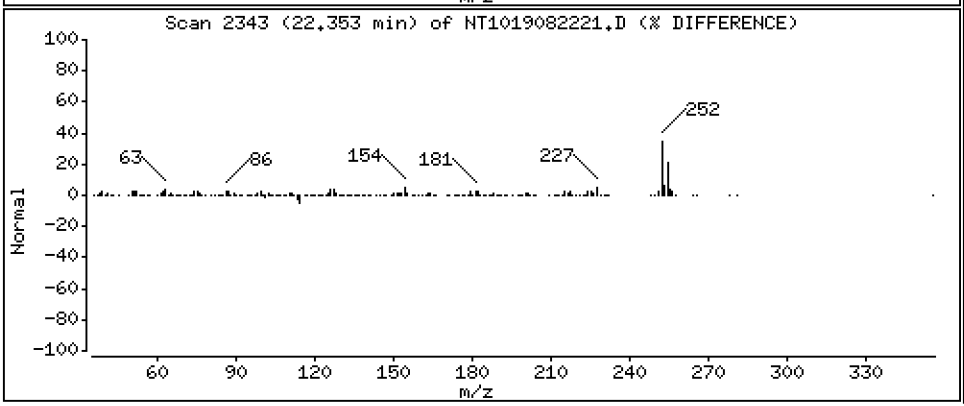












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D

Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

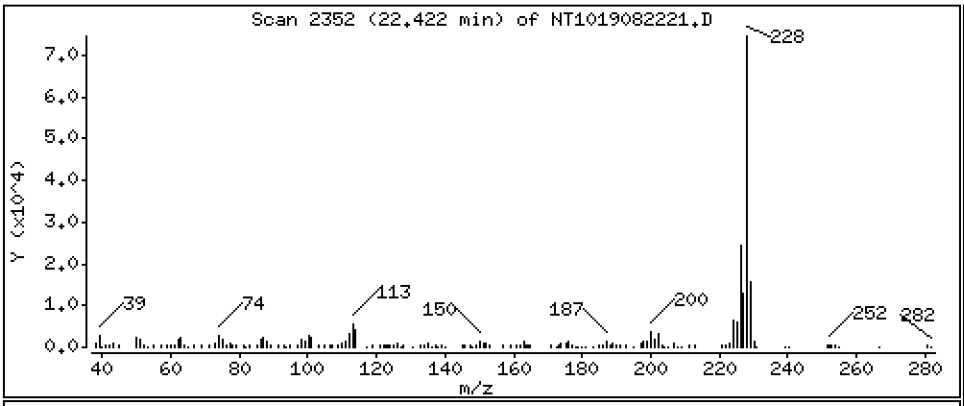
Operator: YZ

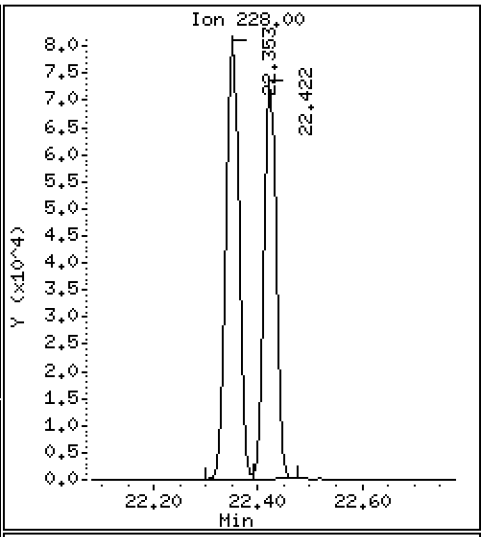
Column phase: ZB-5msi

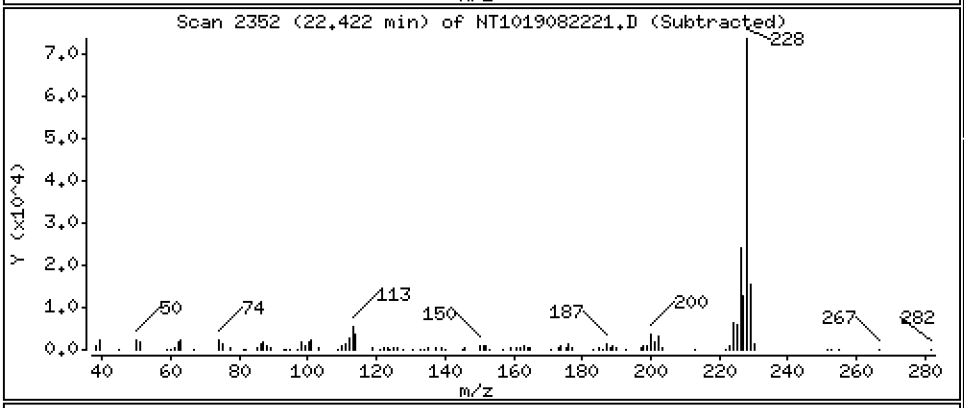
Column diameter: 0.25

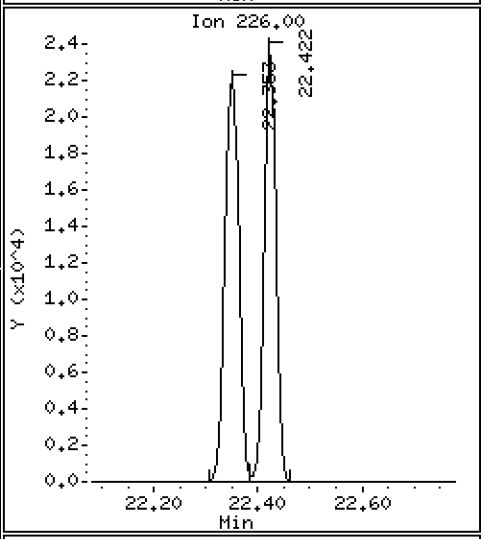
71 Chrysene

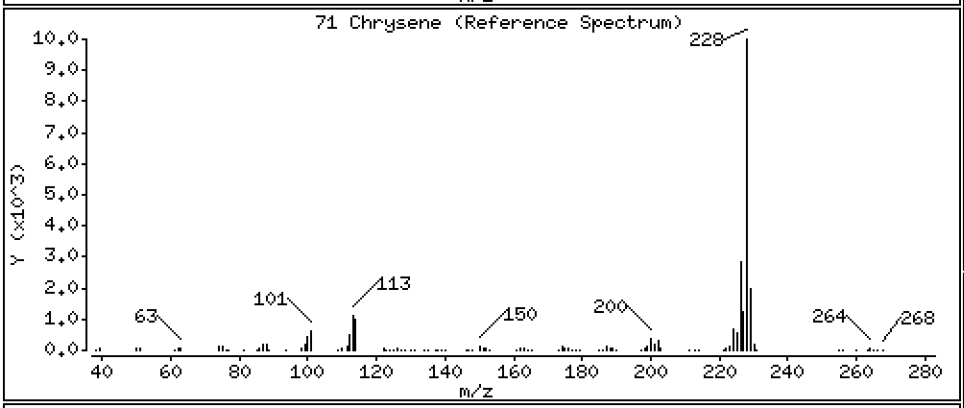
Concentration: 4.947 ug/mL

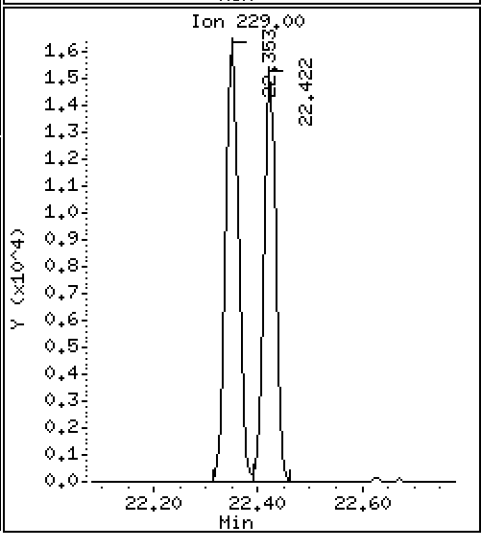


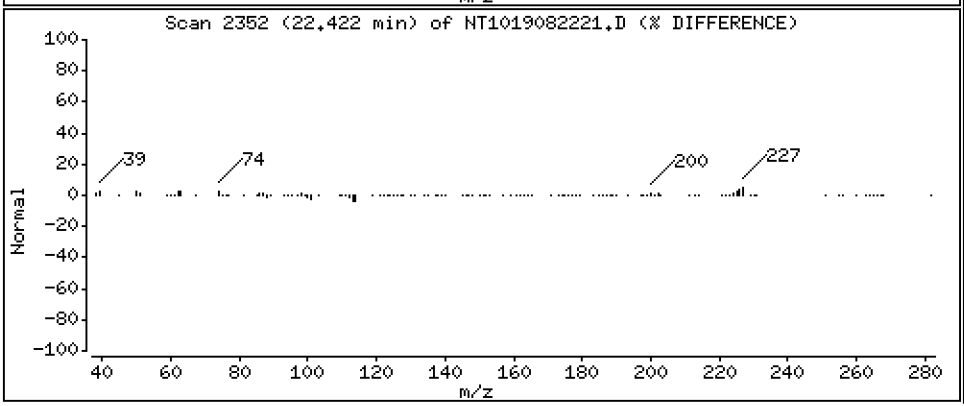












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D

Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

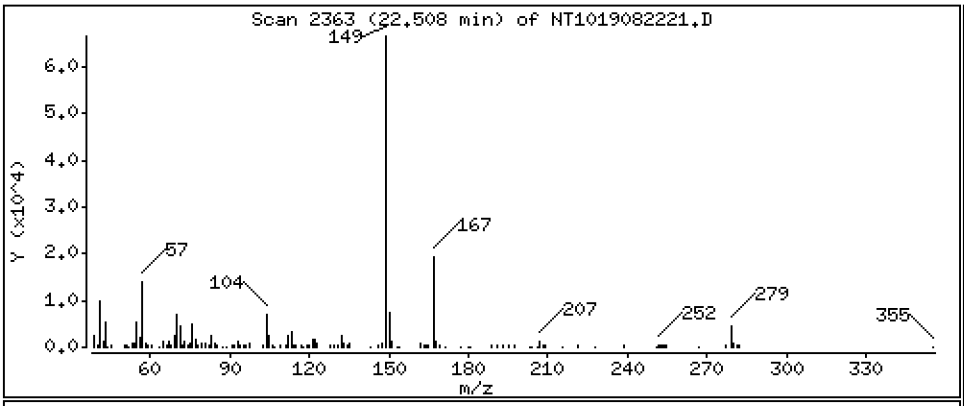
Operator: YZ

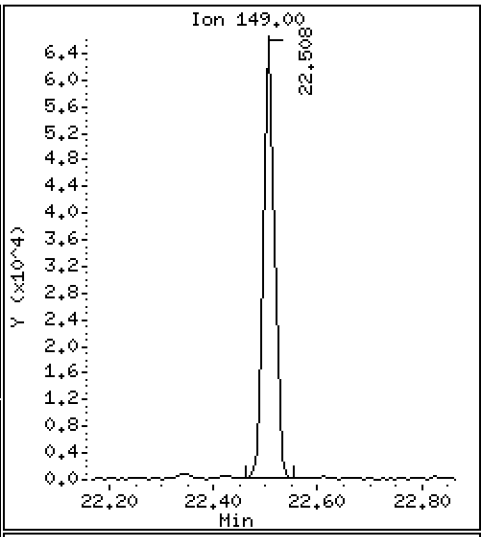
Column phase: ZB-5msi

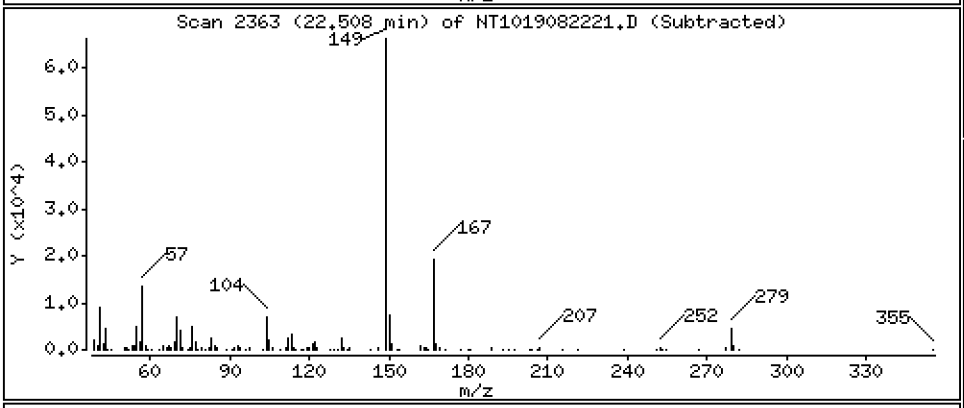
Column diameter: 0.25

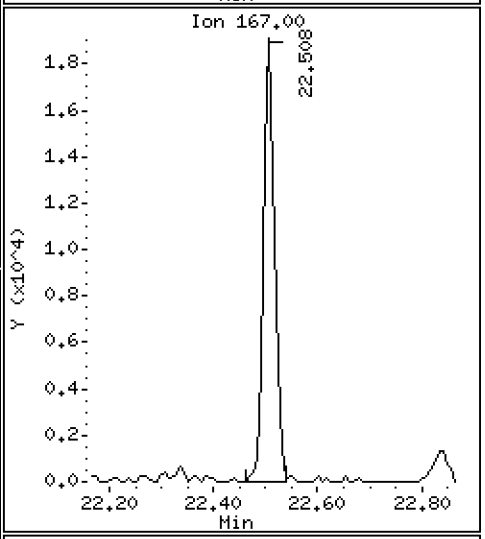
72 bis(2-Ethylhexyl)phthalate

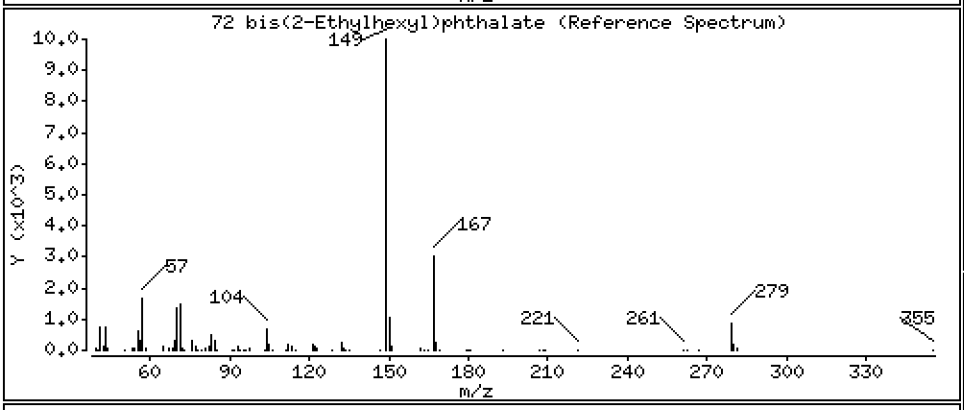
Concentration: 5.672 ug/mL

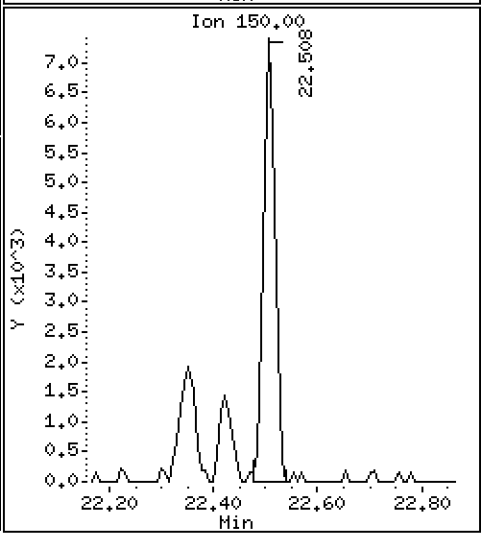


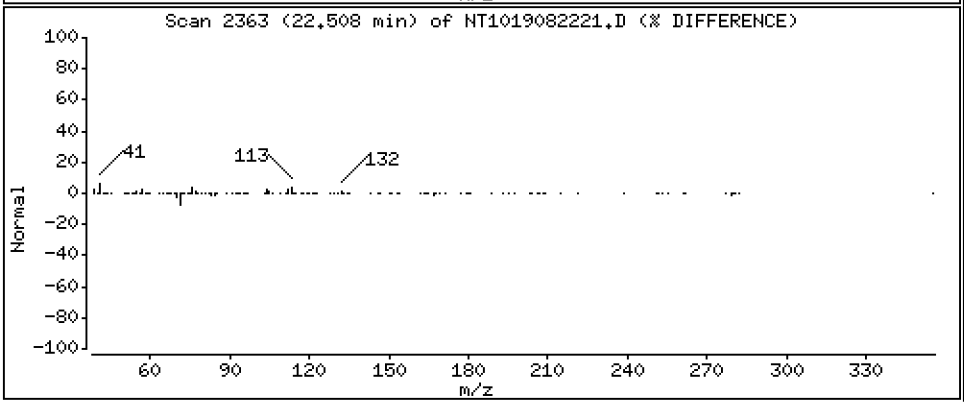












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

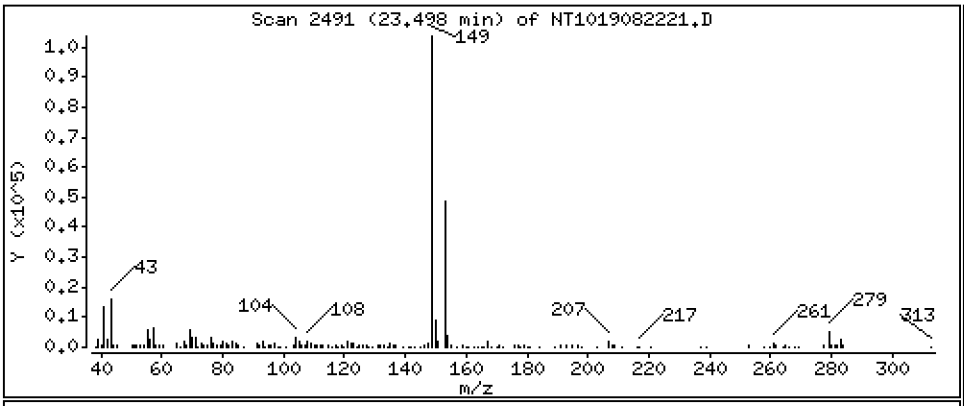
Operator: YZ

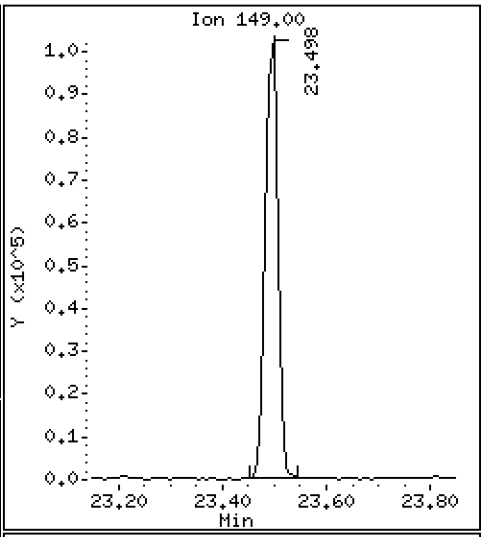
Column phase: ZB-5msi

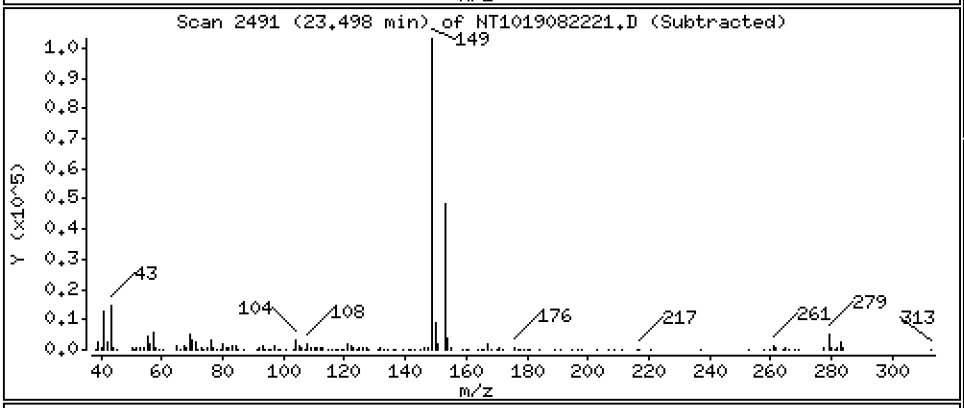
Column diameter: 0.25

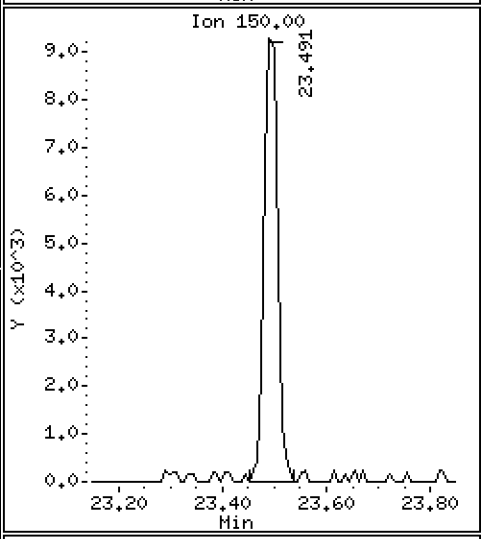
73 Di-n-octylphthalate

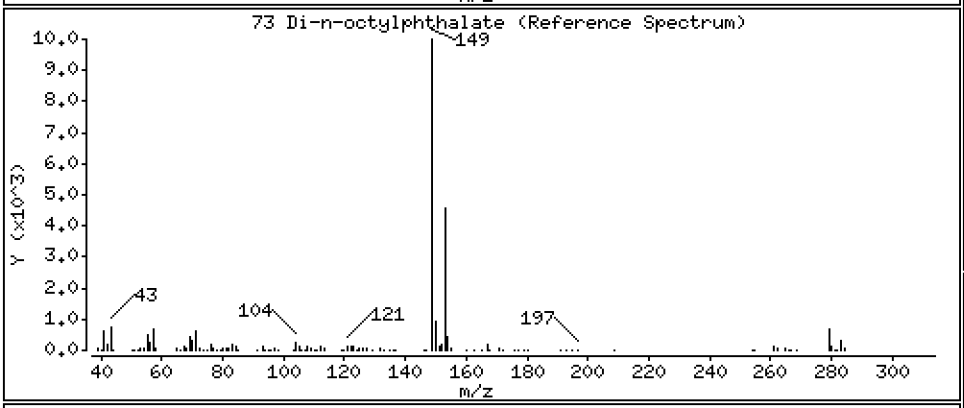
Concentration: 4.561 ug/mL

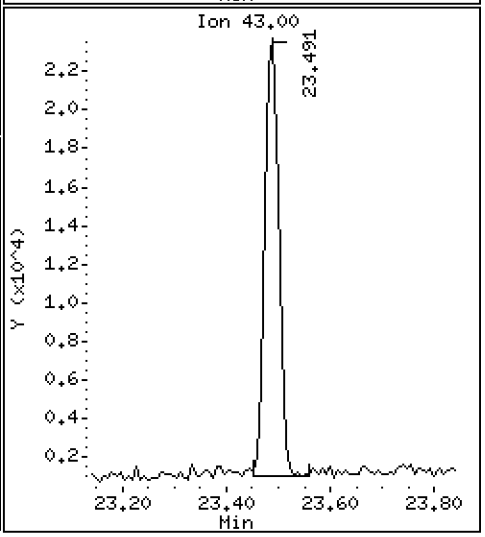


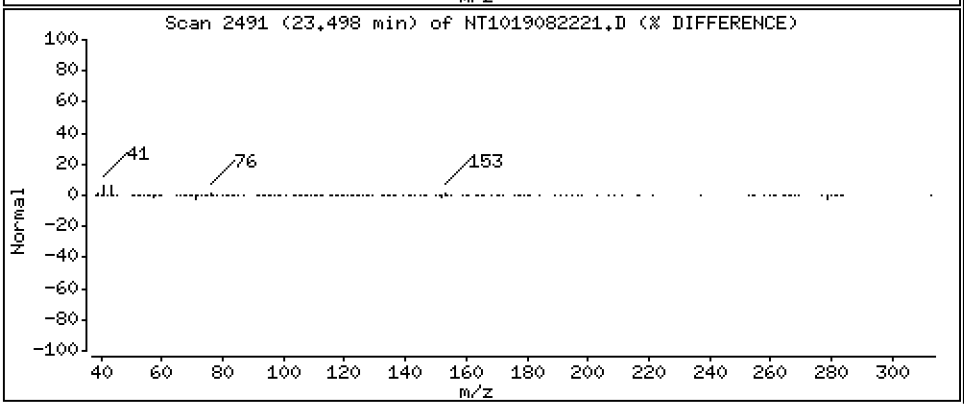












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D

Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

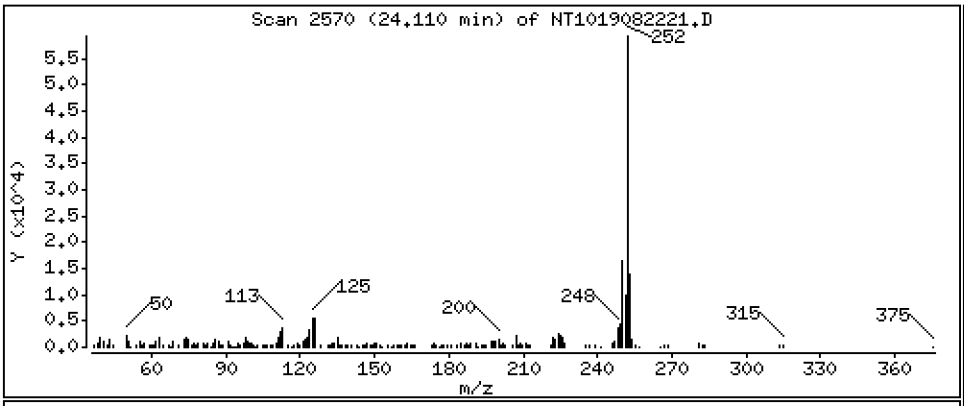
Operator: YZ

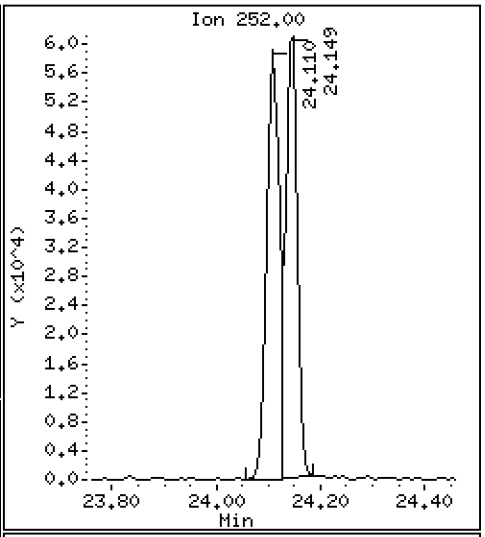
Column phase: ZB-5msi

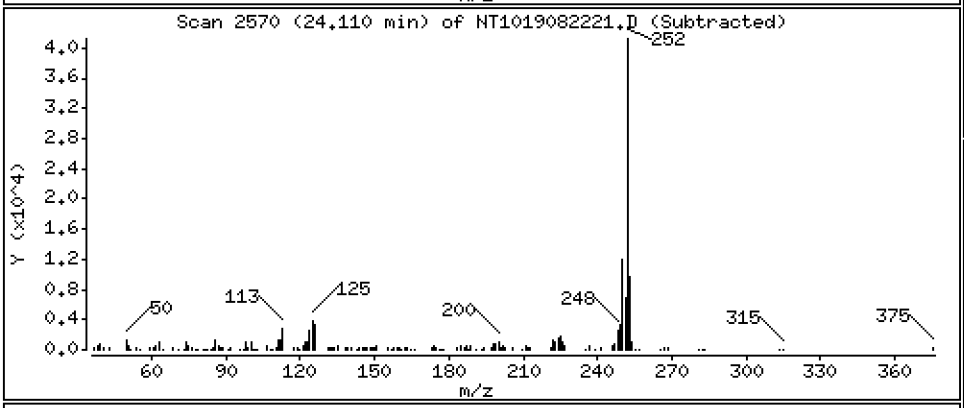
Column diameter: 0.25

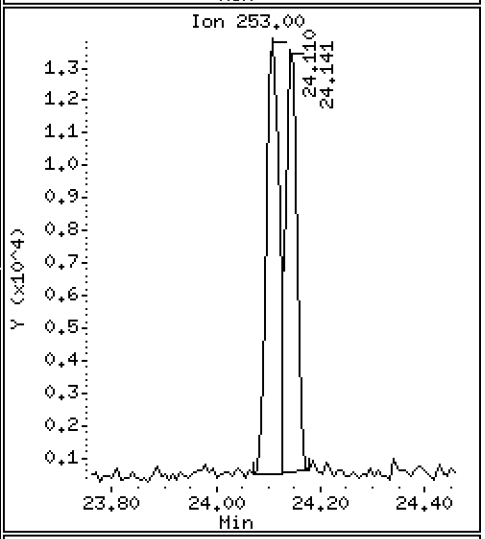
74 Benzo(b)fluoranthene

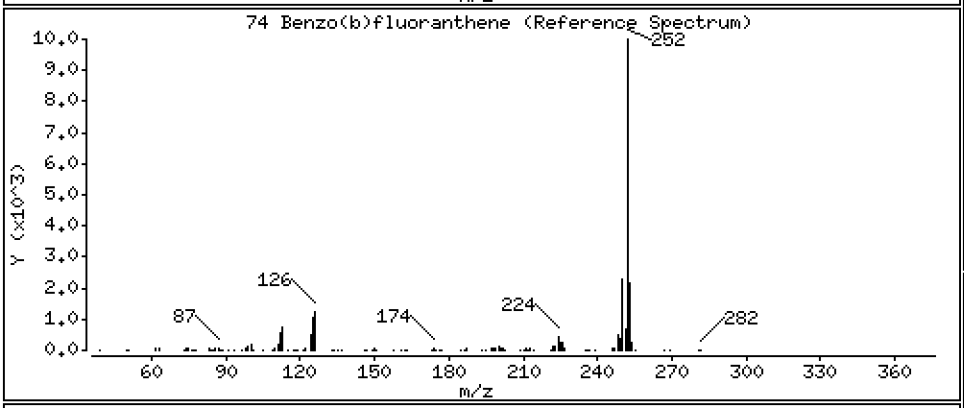
Concentration: 5.156 ug/mL

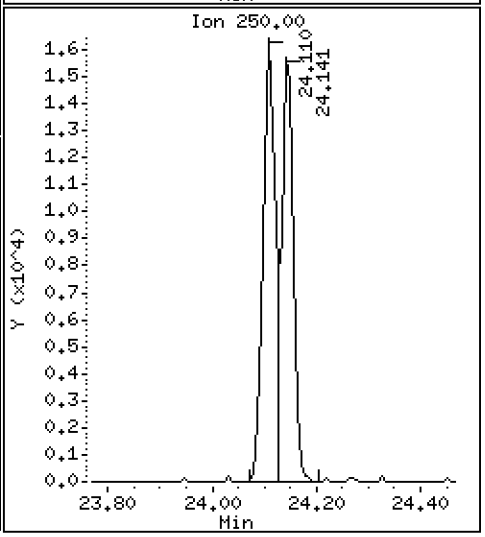


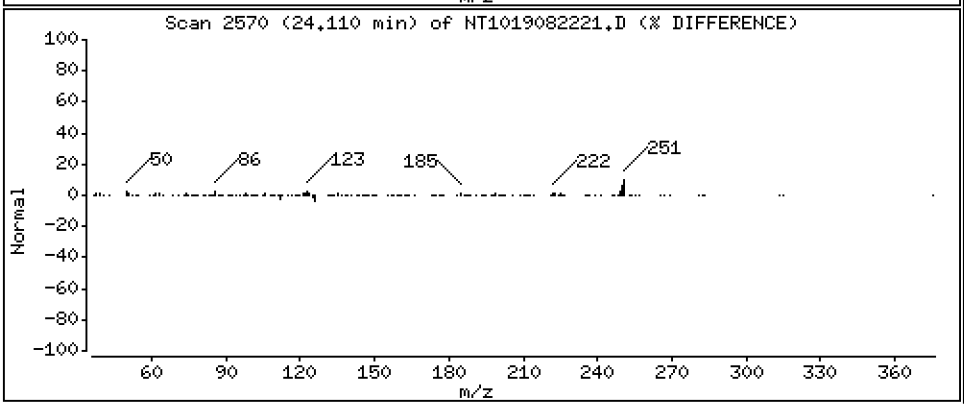












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D

Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

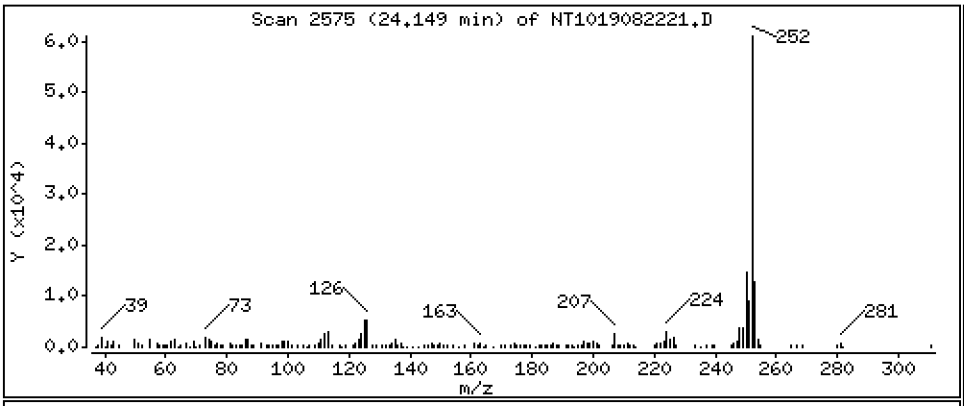
Operator: YZ

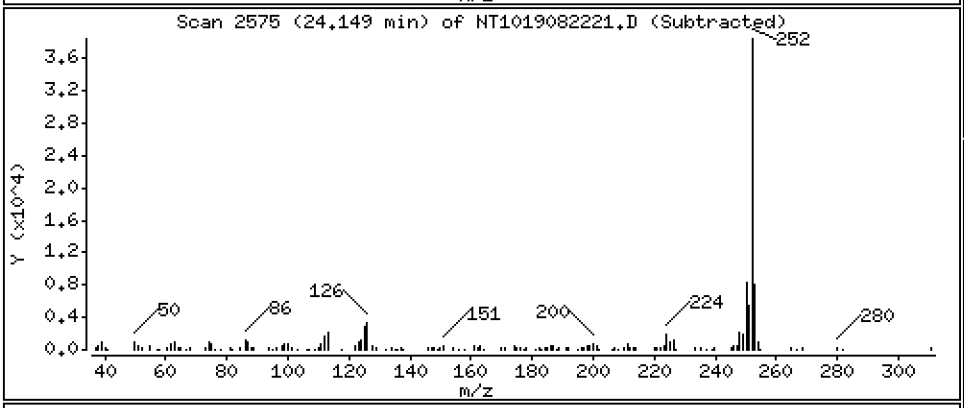
Column phase: ZB-5msi

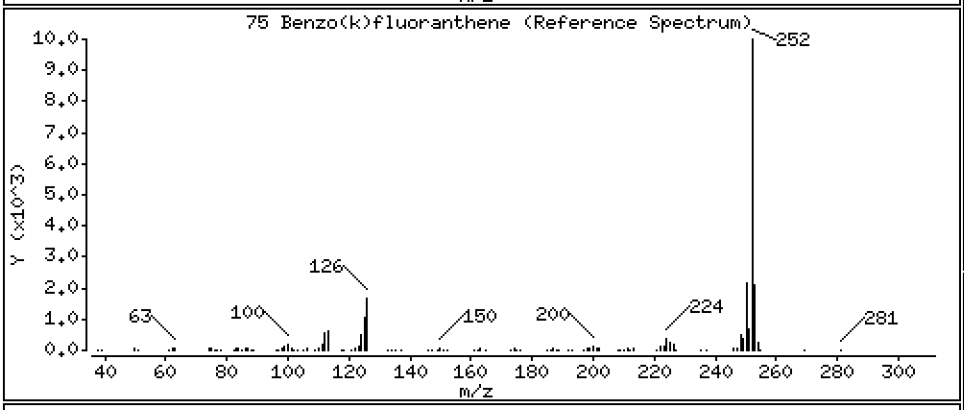
Column diameter: 0.25

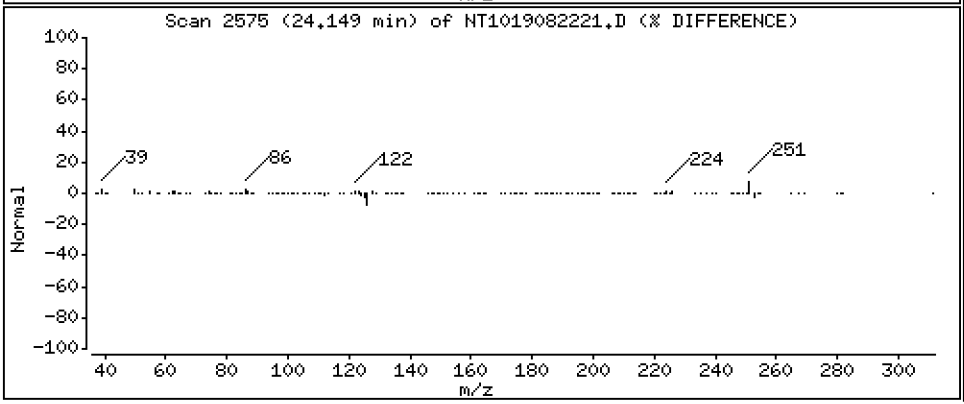
75 Benzo(k)fluoranthene

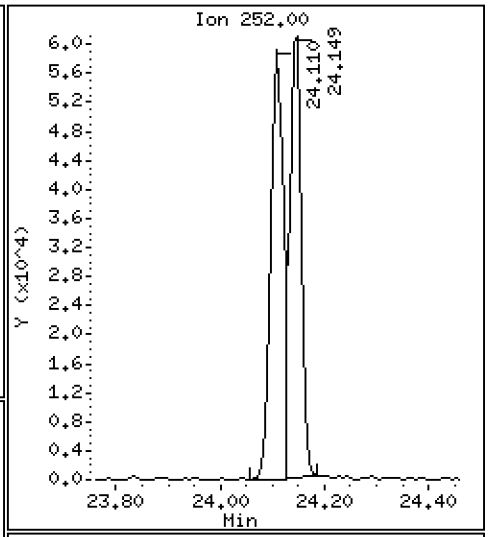
Concentration: 5.580 ug/mL

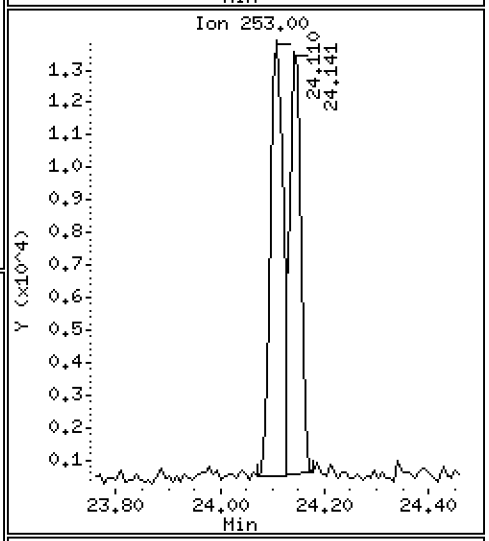


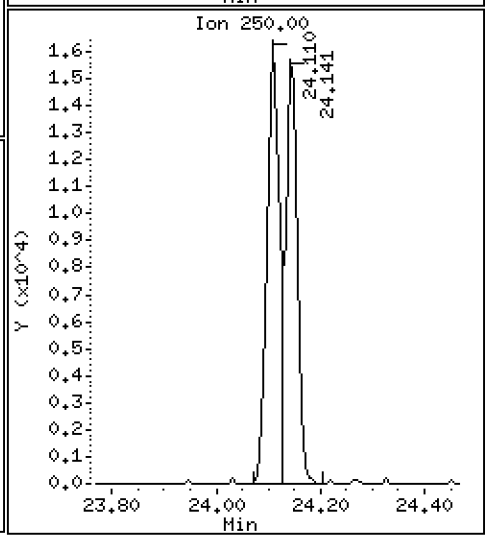












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D

Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

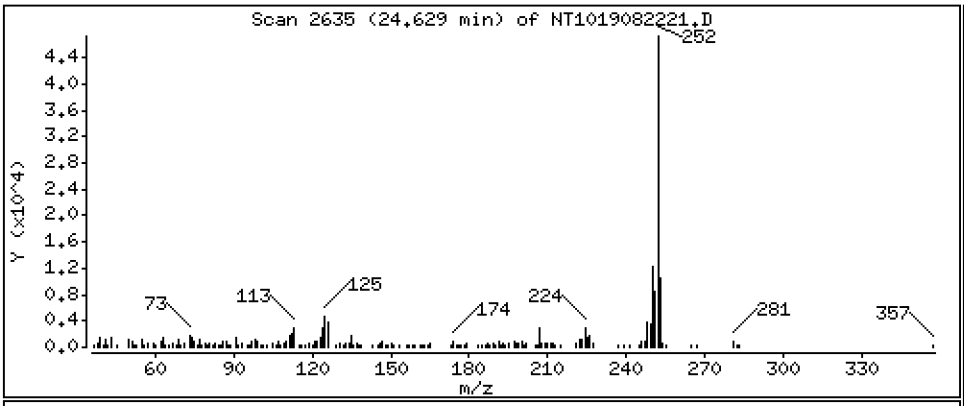
Operator: YZ

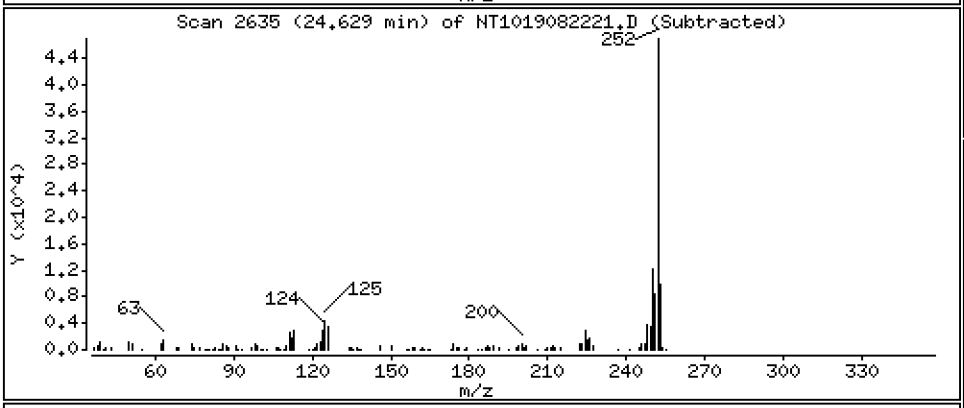
Column phase: ZB-5msi

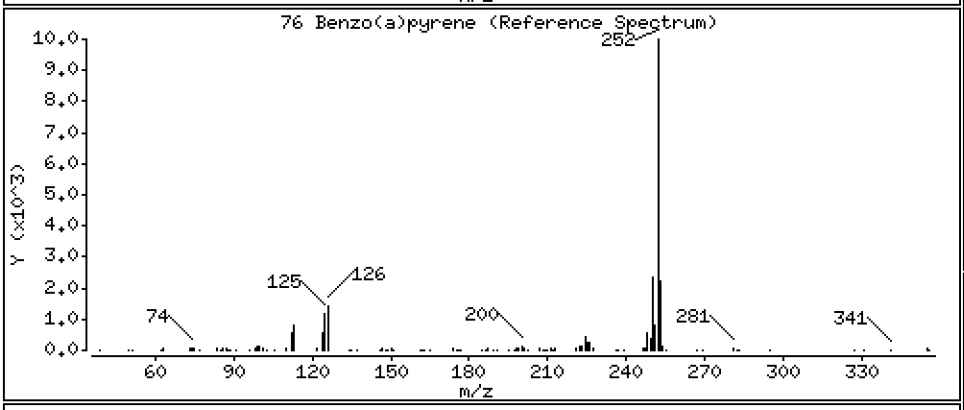
Column diameter: 0.25

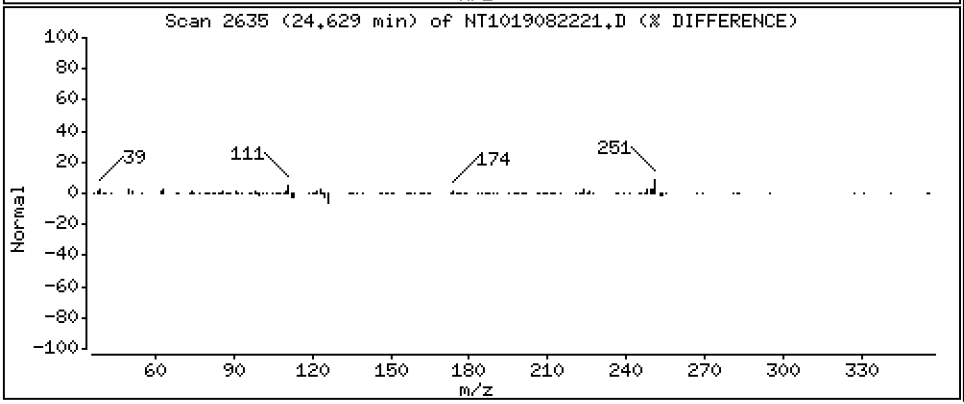
76 Benzo(a)pyrene

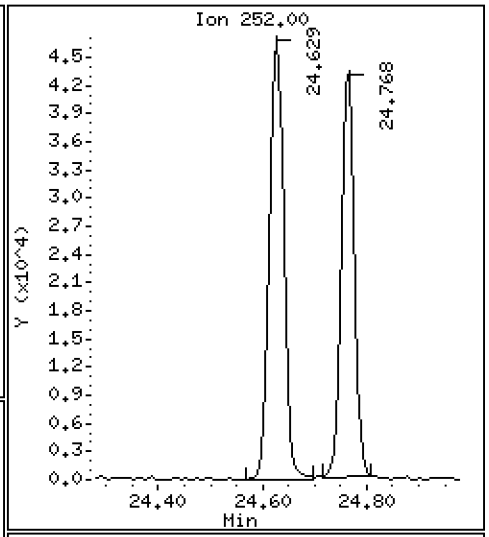
Concentration: 5.163 ug/mL

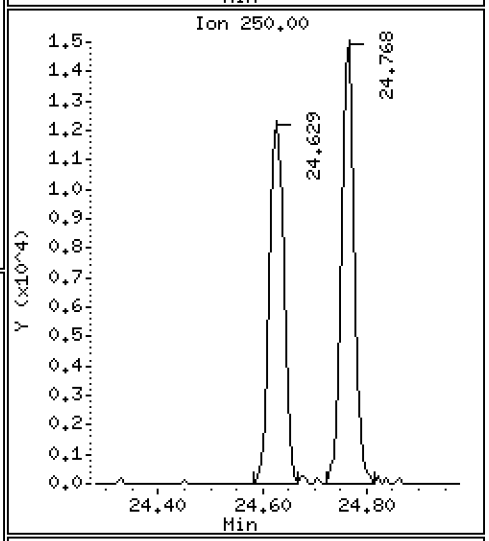


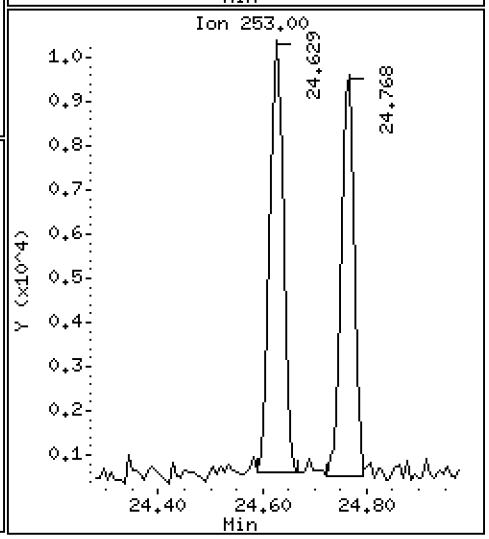












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

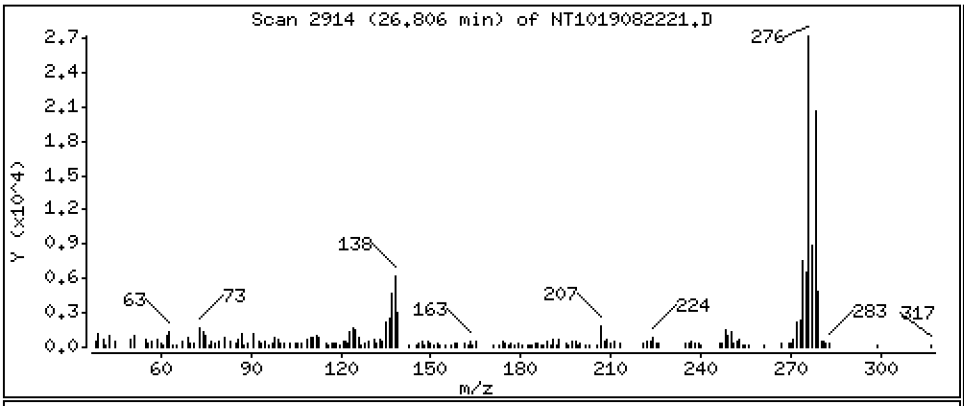
Operator: YZ

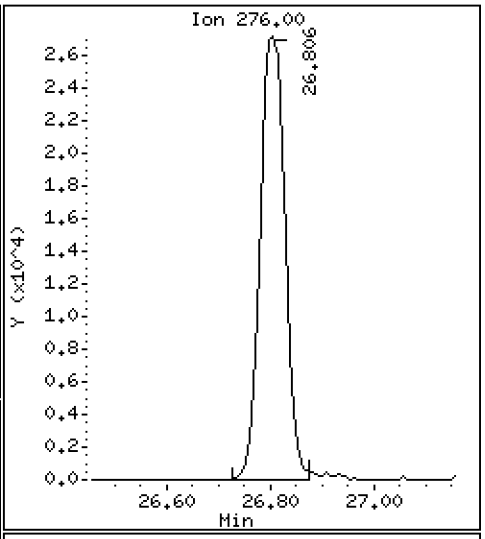
Column phase: ZB-5msi

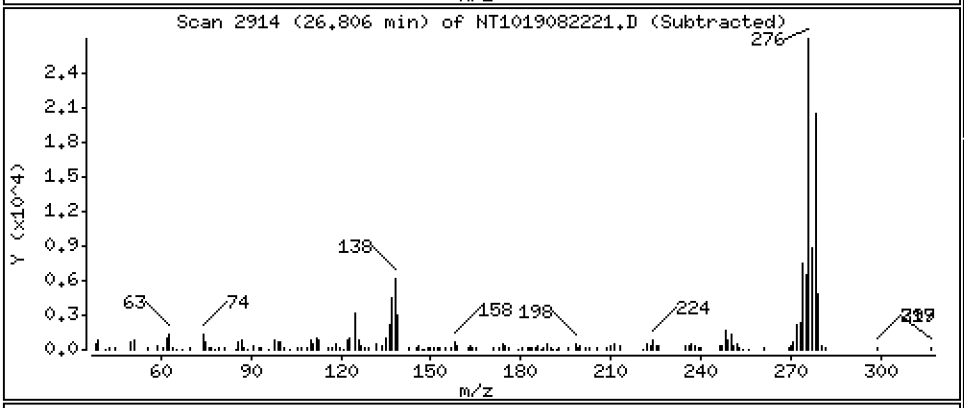
Column diameter: 0.25

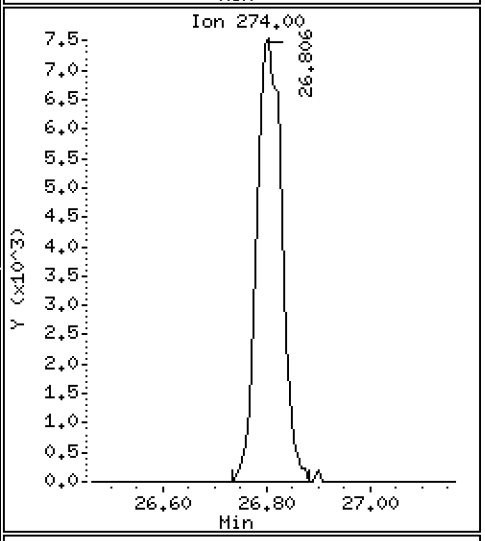
78 Indeno(1,2,3-cd)pyrene

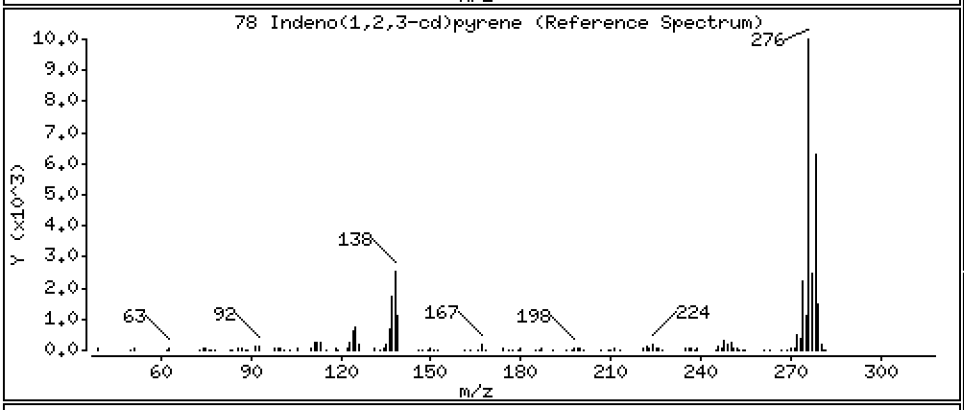
Concentration: 4.406 ug/mL

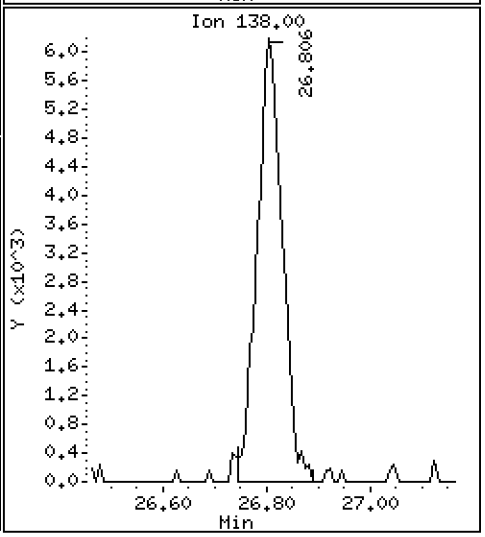


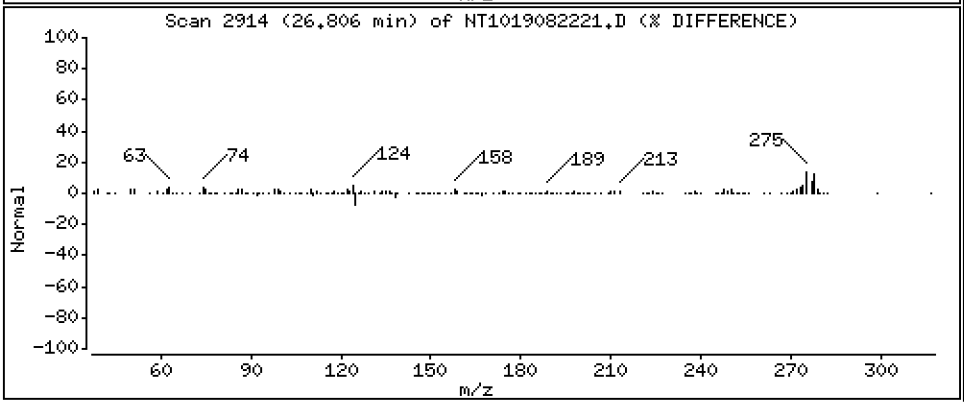












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

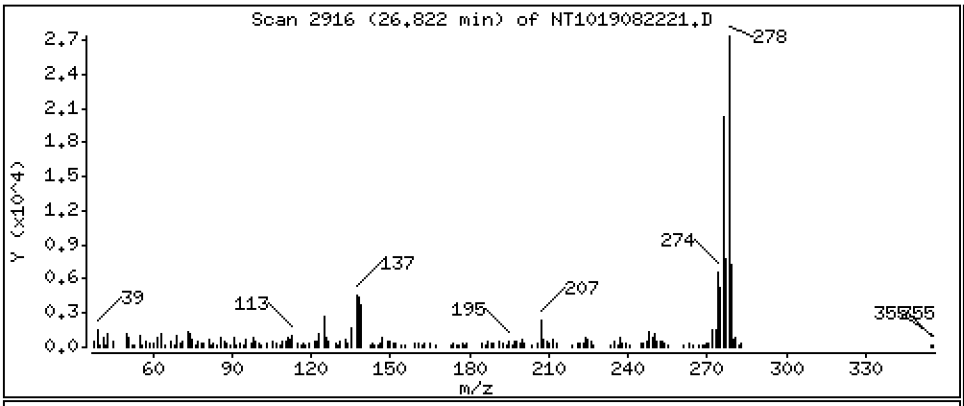
Operator: YZ

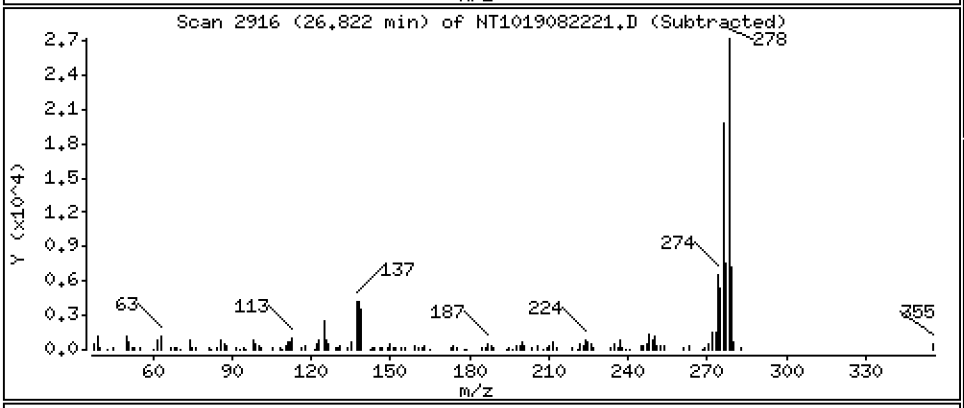
Column phase: ZB-5msi

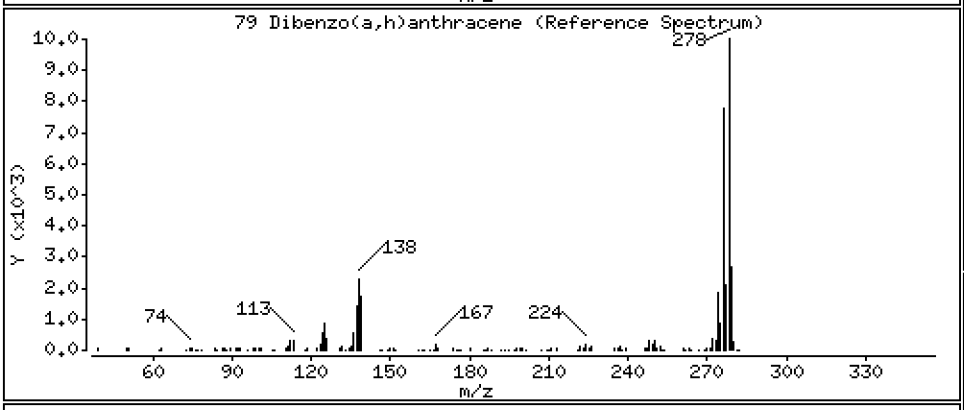
Column diameter: 0.25

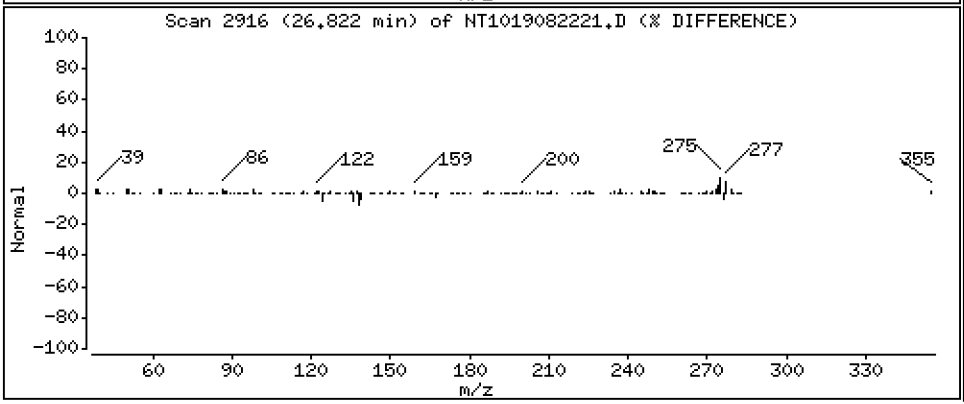
79 Dibenzo(a,h)anthracene

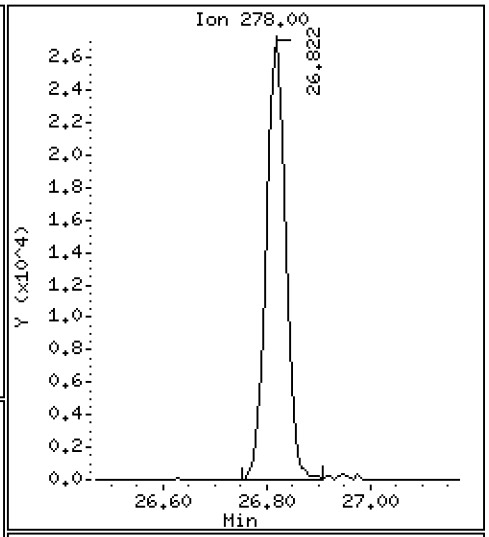
Concentration: 4.193 ug/mL

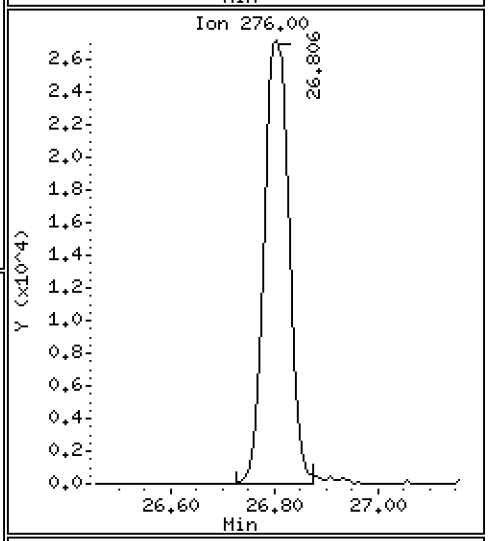


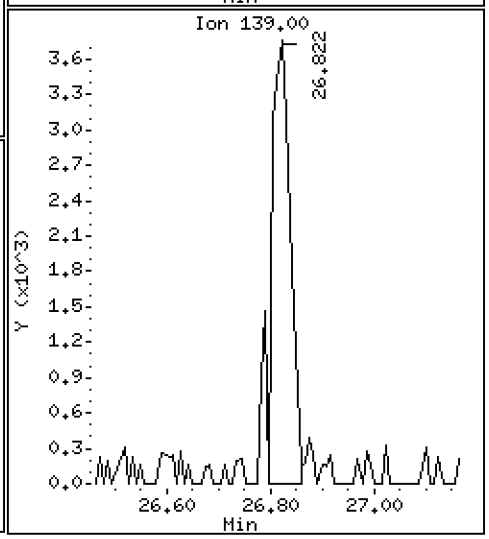












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

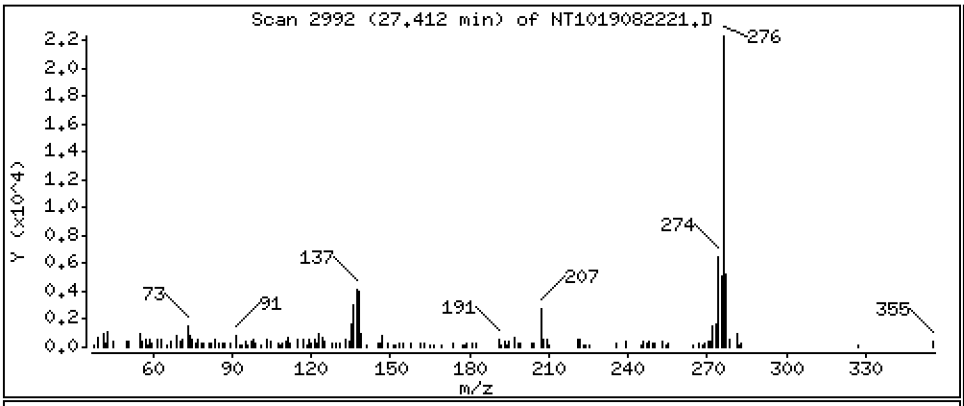
Operator: YZ

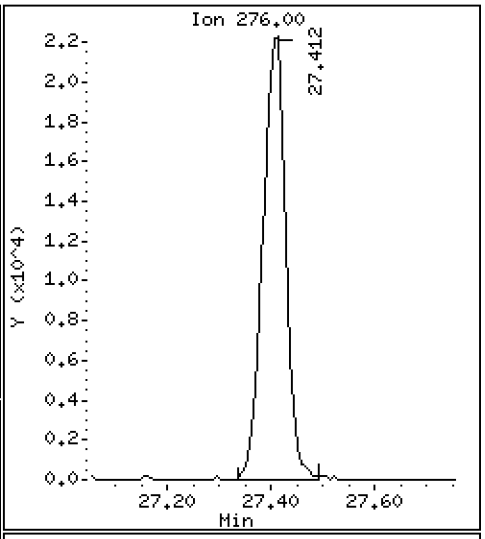
Column phase: ZB-5msi

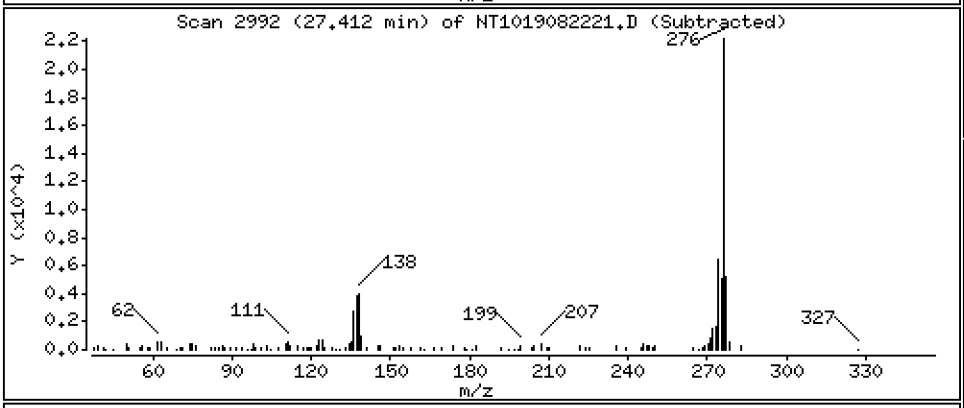
Column diameter: 0.25

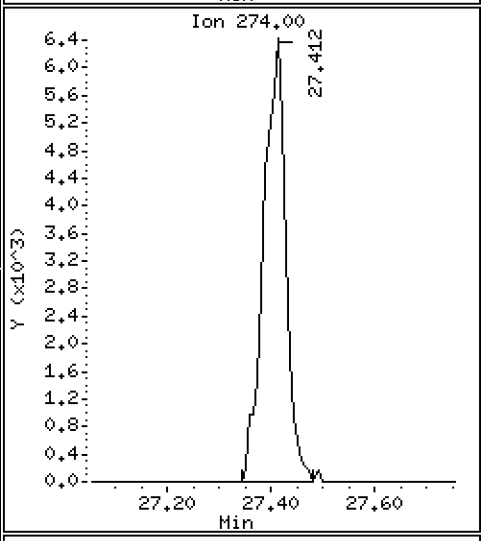
80 Benzo(g,h,i)perylene

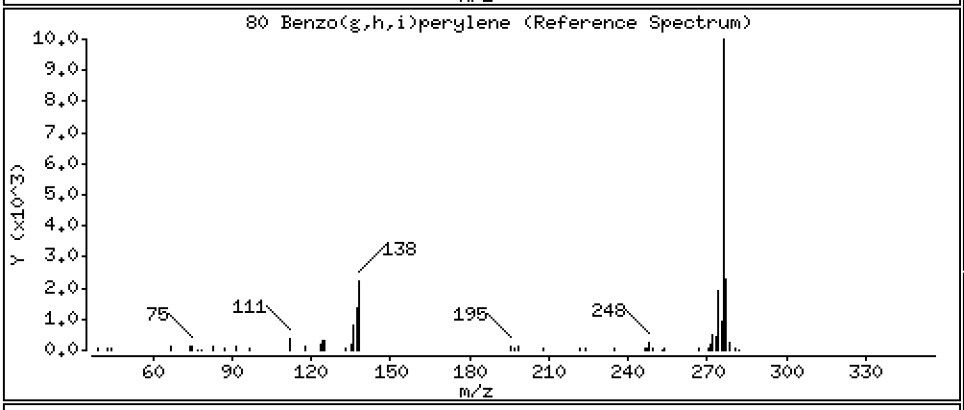
Concentration: 3.934 ug/mL

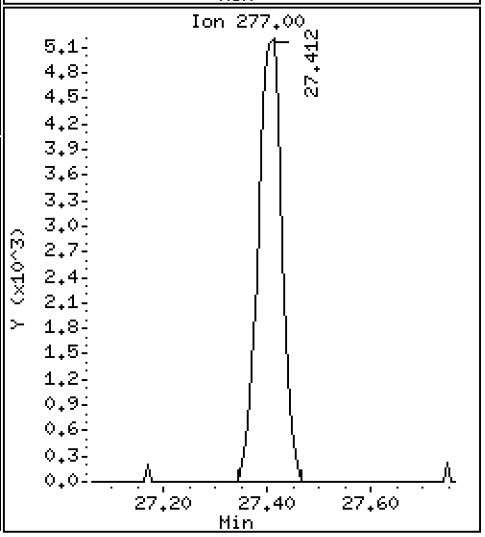


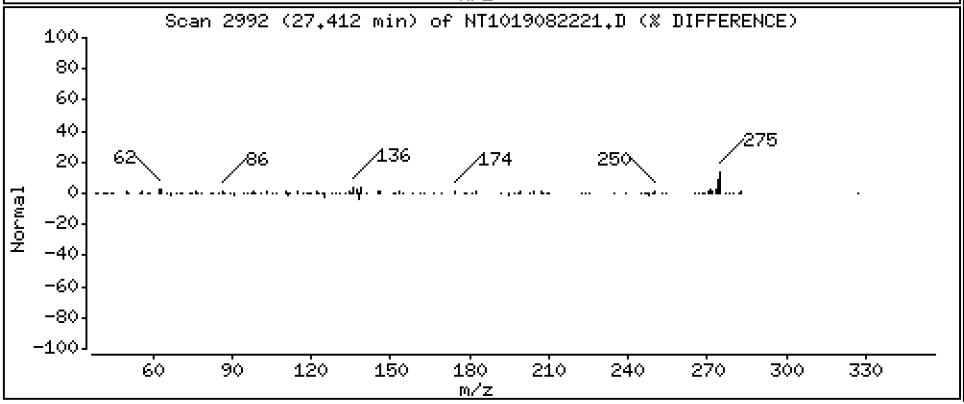












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

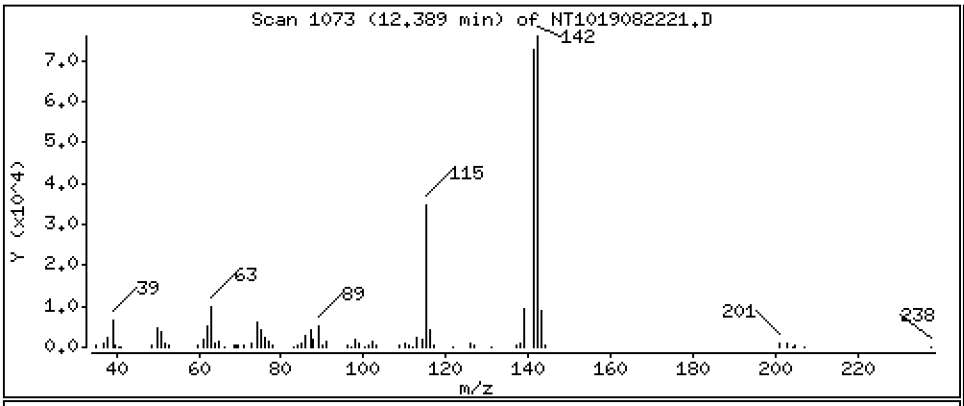
Operator: YZ

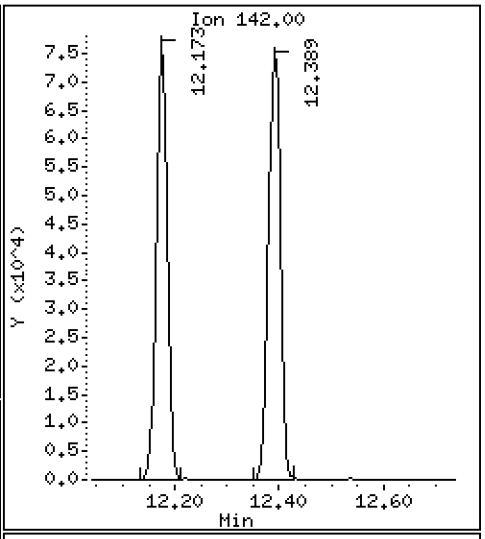
Column phase: ZB-5msi

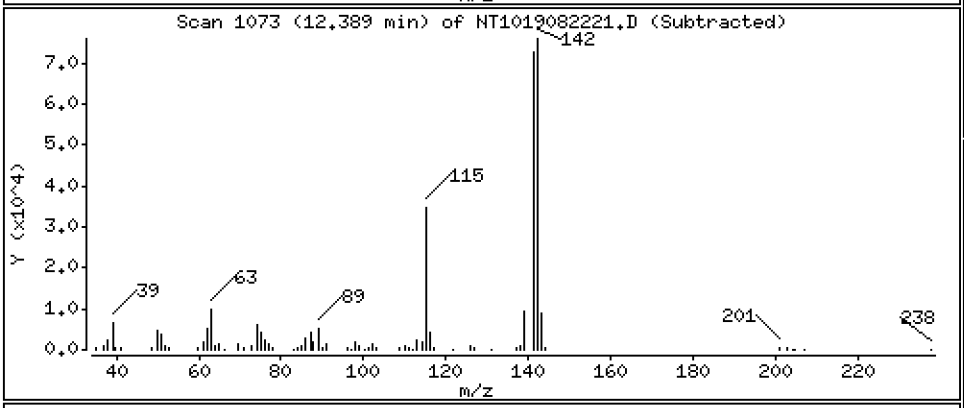
Column diameter: 0.25

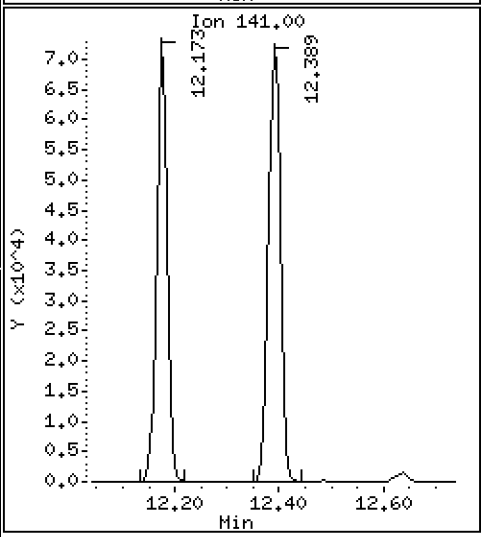
105 1-methylnaphthalene

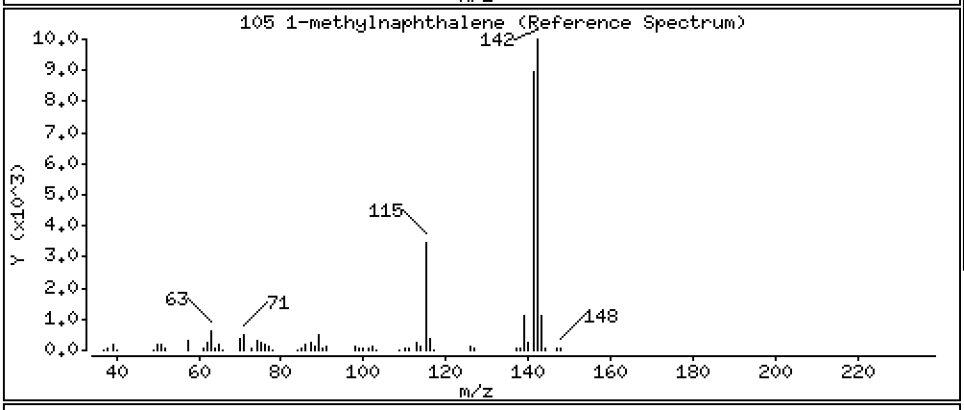
Concentration: 5.078 ug/mL

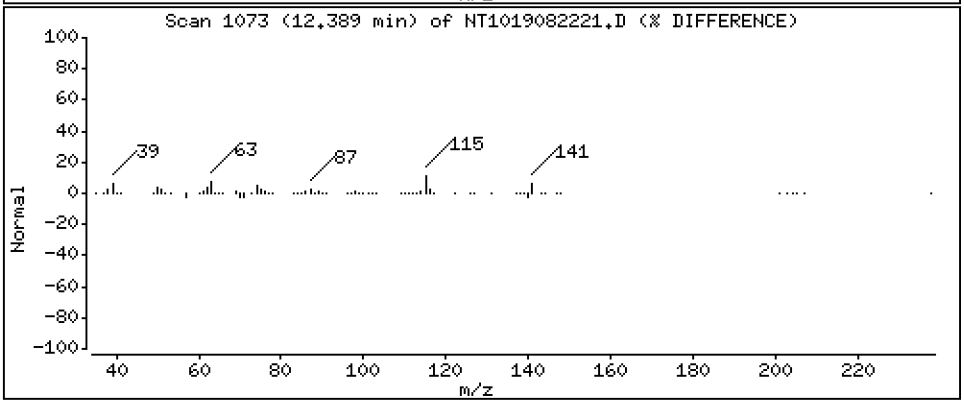












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Date : 23-AUG-2019 02:07

Client ID:

Instrument: nt10.i

Sample Info: SHH0000-CCV1

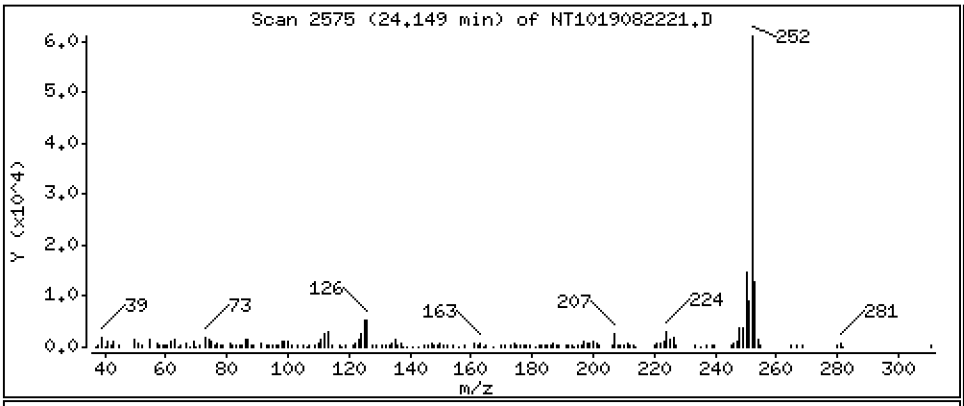
Operator: YZ

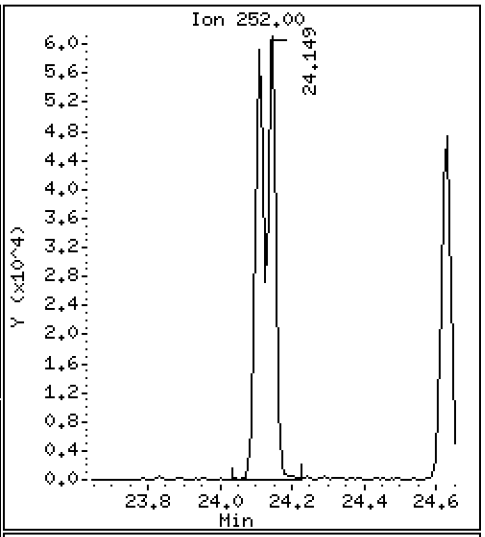
Column phase: ZB-5msi

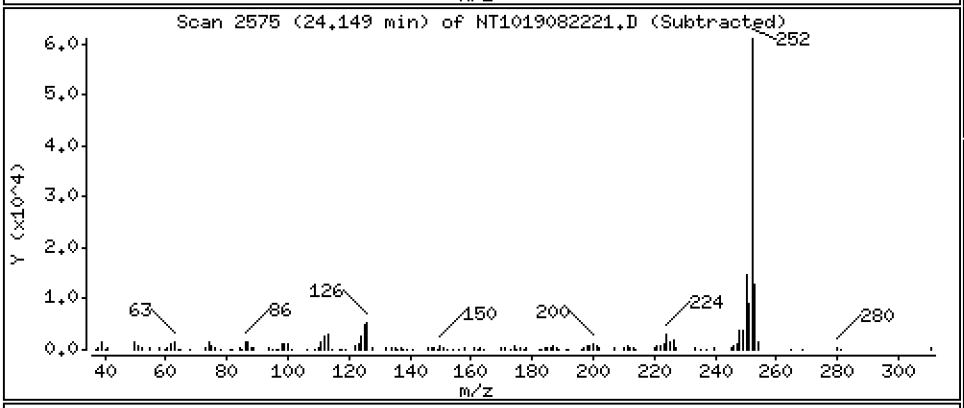
Column diameter: 0.25

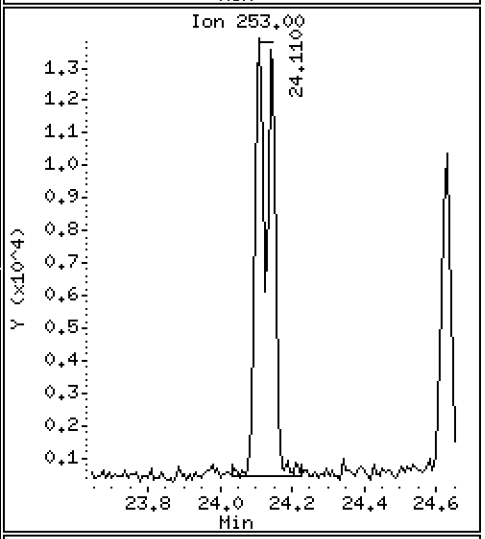
187 Total Benzofluoranthenes

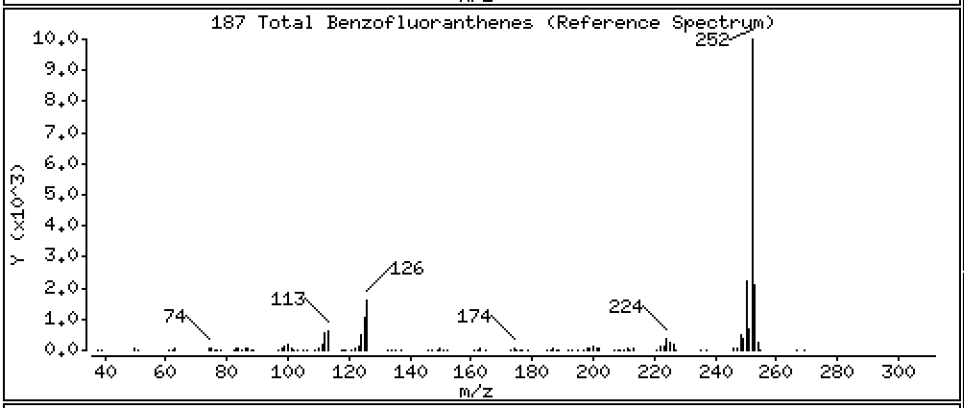
Concentration: 10.67 ug/mL

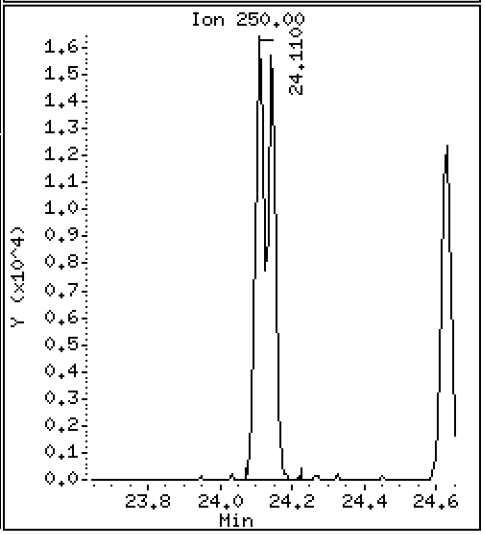


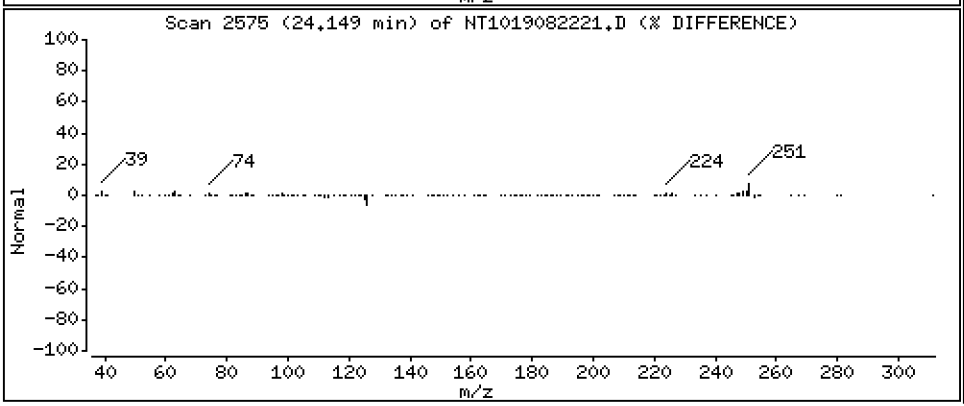












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190822.b\NT1019082221.D
Lab Smp Id: SHH0000-CCV1
Inj Date : 23-AUG-2019 02:07
Operator : YZ Inst ID: nt10.i
Smp Info : SHH0000-CCV1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 11:16 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.188	6.173	(0.743)	50575	5.60348	5.603
$	2 Phenol-d5	99	7.764	7.749	(0.932)	56971	5.63223	5.632
	3 Phenol	94	7.788	7.772	(0.935)	38997	4.14688	4.147
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.958)	75089	6.89589	6.896
*	8 1,4-Dichlorobenzene-d4	152	8.329	8.329	(1.000)	32142	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.678	8.671	(1.042)	33743	4.53253	4.533
	11 Benzyl alcohol	108	8.616	8.608	(1.034)	24921	4.00407	4.004
$	18 Nitrobenzene-d5	82	9.408	9.408	(0.874)	38414	4.29787	4.298
	24 Benzoic acid	105	10.398	10.381	(0.966)	93468	14.3336	14.33
*	27 Naphthalene-d8	136	10.764	10.765	(1.000)	114280	4.00000	
	28 Naphthalene	128	10.803	10.803	(1.004)	116417	4.43185	4.432
	32 2-Methylnaphthalene	142	12.172	12.172	(1.131)	115530	5.18505	5.185
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	113043	4.74236	4.742
	39 Dimethylphthalate	163	13.859	13.867	(0.969)	114296	4.93539	4.935
	40 Acenaphthylene	152	13.999	13.999	(0.978)	140276	4.66953	4.670
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	62320	4.00000	
	44 Acenaphthene	153	14.370	14.378	(1.004)	87199	4.61954	4.620
	46 Dibenzofuran	168	14.695	14.703	(1.027)	145149	4.67879	4.679
	50 Diethylphthalate	149	15.305	15.306	(1.070)	115302	5.17093	5.171
	49 Fluorene	166	15.398	15.398	(1.076)	101774	4.79708	4.797
	54 N-Nitrosodiphenylamine	169	15.661	15.661	(0.906)	75224	4.61491	4.615
$	55 2,4,6-Tribromophenol	330	15.931	15.931	(1.113)	30613	6.49643	6.496
*	59 Phenanthrene-d10	188	17.291	17.291	(1.000)	118748	4.00000	
	60 Phenanthrene	178	17.337	17.345	(1.003)	134056	4.62159	4.622
	61 Anthracene	178	17.430	17.430	(1.008)	144125	4.89350	4.894
	63 Di-n-butylphthalate	149	18.622	18.629	(1.077)	211825	5.27859	5.279
	64 Fluoranthene	202	19.743	19.751	(0.882)	170710	6.35808	6.358
	65 Pyrene	202	20.169	20.169	(0.901)	172362	6.14764	6.148
$	66 Terphenyl-d14	244	20.494	20.502	(0.916)	110995	5.83740	5.837
	67 Butylbenzylphthalate	149	21.454	21.462	(0.958)	80323	6.15018	6.150
	68 Benzo(a)anthracene	228	22.352	22.352	(0.999)	134551	5.27826	5.278
*	69 Chrysene-d12	240	22.383	22.383	(1.000)	87860	4.00000	
	71 Chrysene	228	22.422	22.430	(1.002)	111593	4.94719	4.947

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.507	22.515	(0.958)	96068	5.67212	5.672
* 134	Di-n-octylphthalate-d4	153	23.483	23.490	(1.000)	192564	4.00000	
73	Di-n-octylphthalate	149	23.498	23.498	(1.001)	162482	4.56103	4.561
74	Benzo(b)fluoranthene	252	24.110	24.110	(0.975)	97034	5.15624	5.156
75	Benzo(k)fluoranthene	252	24.148	24.110	(0.977)	105648	5.58035	5.580(H)
76	Benzo(a)pyrene	252	24.628	24.628	(0.996)	87197	5.16277	5.163
* 77	Perylene-d12	264	24.721	24.721	(1.000)	65592	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.806	26.806	(1.084)	89418	4.40622	4.406
79	Dibenzo(a,h)anthracene	278	26.821	26.821	(1.085)	69274	4.19288	4.193
80	Benzo(g,h,i)perylene	276	27.411	27.404	(1.109)	67247	3.93440	3.934
105	1-methylnaphthalene	142	12.389	12.389	(1.151)	113746	5.07794	5.078
187	Total Benzofluoranthenes	252	24.148	24.148	(0.977)	192680	10.6742	10.67

QC Flag Legend

H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082221.D
Lab Smp Id: SHH0000-CCV1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 16:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	32142	-1.82
27 Naphthalene-d8	117487	58744	234974	114280	-2.73
42 Acenaphthene-d10	61859	30930	123718	62320	0.75
59 Phenanthrene-d10	113574	56787	227148	118748	4.56
69 Chrysene-d12	105788	52894	211576	87860	-16.95
134 Di-n-octylphthala	252823	126412	505646	192564	-23.83
77 Perylene-d12	113992	56996	227984	65592	-42.46

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.33	-0.00
27 Naphthalene-d8	10.77	10.27	11.27	10.76	-0.00
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	-0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.29	-0.00
69 Chrysene-d12	22.38	21.88	22.88	22.38	-0.00
134 Di-n-octylphthala	23.49	22.99	23.99	23.48	-0.03
77 Perylene-d12	24.72	24.22	25.22	24.72	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082221.D

Lab ID: SHH0000-CCV1
nt10.i, 20190822.b\ABN.m,   23-AUG-2019 02:07

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT1019082206.D

On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

LOW-CONCENTRATION
CONTINUING CALIBRATION CHECK
EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	NT10	Calibration:	CG00040
Lab File ID:	NT1019082207.D	Calibration Date:	07/16/19 11:00
Sequence:	SHH0325	Injection Date:	08/22/19
Lab Sample ID:	SHH0325-LCV1	Injection Time:	17:29
Sequence Name:	ABN 0.2		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Phenol	A	0.20000	0.1	1.1702980	0.7882373		-32.6	50	
Benzyl Alcohol	A	0.20000	0.1	0.7745535	0.4566810		-41.0	50	
Benzoic acid	A	0.80000	0.1	0.2148759	0.0295770		-86.9	50	*
N-Nitrosodiphenylamine	A	0.20000	0.2	0.5490690	0.5133205		-6.5	50	
Phenanthrene	A	0.20000	0.2	0.9770762	0.8466492		-13.4	50	
Fluoranthene	A	0.20000	0.2	1.2223680	1.1889450		-2.7	50	
Pyrene	A	0.20000	0.2	1.2764440	1.1702150		-8.3	50	
Butylbenzylphthalate	A	0.20000	0.2	0.5945946	0.6199355		4.3	50	
Benzo(a)anthracene	A	0.20000	0.2	1.1605520	1.2110800		4.4	50	
Chrysene	A	0.20000	0.2	1.0269450	0.9824545		-4.3	50	
bis(2-Ethylhexyl)phthalate	A	0.20000	0.3	0.3518184	0.4429398		25.9	50	
Di-n-Octylphthalate	A	0.20000	0.2	0.7399924	0.7505347		1.4	50	
Benzofluoranthenes, Total	A	0.40000	0.4	1.1008070	1.1834120		7.5	50	
Benzo(a)pyrene	A	0.20000	0.2	1.0299780	0.9918590		-3.7	50	
Indeno(1,2,3-cd)pyrene	A	0.20000	0.2	1.2375640	1.1552530		-6.7	50	
Dibenzo(a,h)anthracene	A	0.20000	0.2	1.0075500	0.8185040		-18.8	50	
Benzo(g,h,i)perylene	A	0.20000	0.2	1.0423270	0.9713629		-6.8	50	
2-Fluorophenol	A	0.30000	0.185	1.1232200	0.6920000		-38.4	50	
Phenol-d5	A	0.30000	0.183	1.2588120	0.7686003		-38.9	50	
2-Chlorophenol-d4	A	0.30000	0.246	1.3551050	1.1107050		-18.0	50	
1,2-Dichlorobenzene-d4	A	0.20000	0.170	0.9264682	0.7887242		-14.9	50	
Nitrobenzene-d5	A	0.20000	0.128	0.3128427	0.2009334		-35.8	50	
2-Fluorobiphenyl	A	0.20000	0.171	1.5299660	1.3070180		-14.6	50	
2,4,6-Tribromophenol	A	0.30000	0.155	0.3024571	0.1562998		-48.3	50	
p-Terphenyl-d14	A	0.20000	0.166	0.8656707	0.7163699		-17.2	50	

* Values outside of QC limits

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

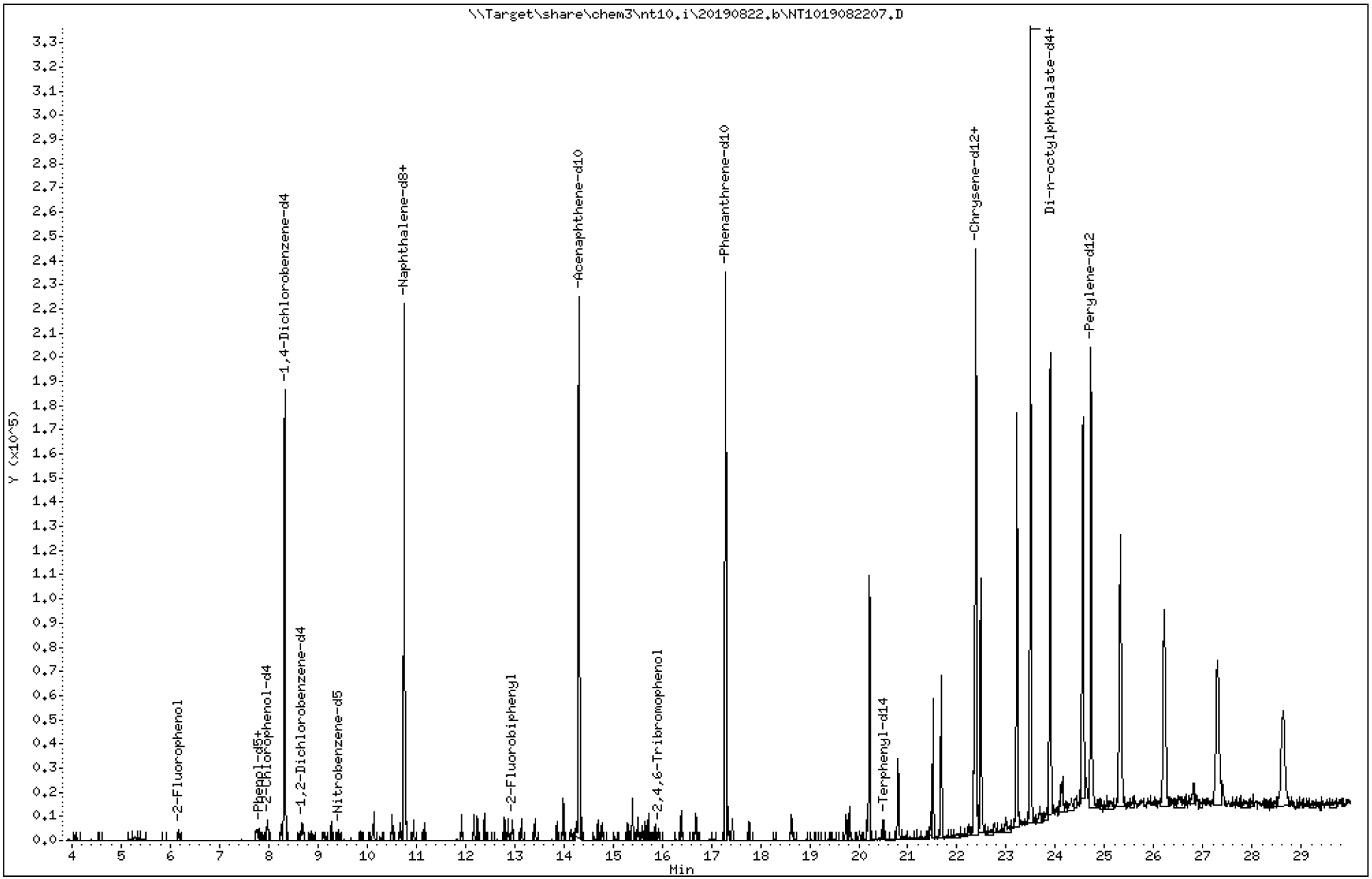
Instrument: nt10.i

Sample Info: SHH0325-LCV1

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

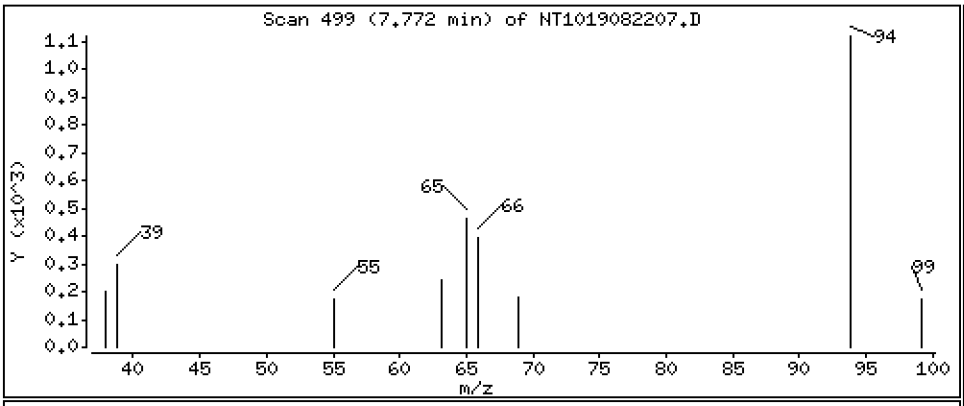
Operator: YZ

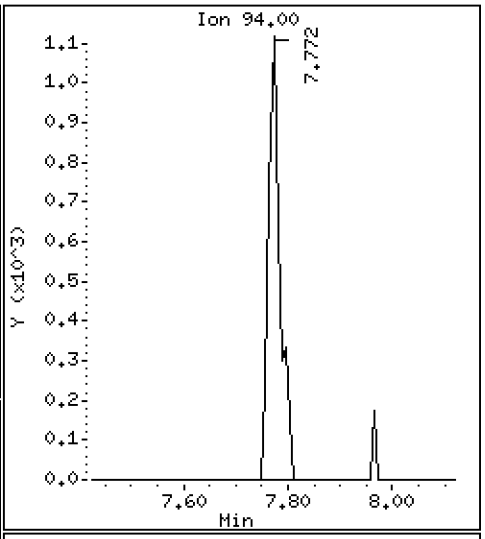
Column phase: ZB-5msi

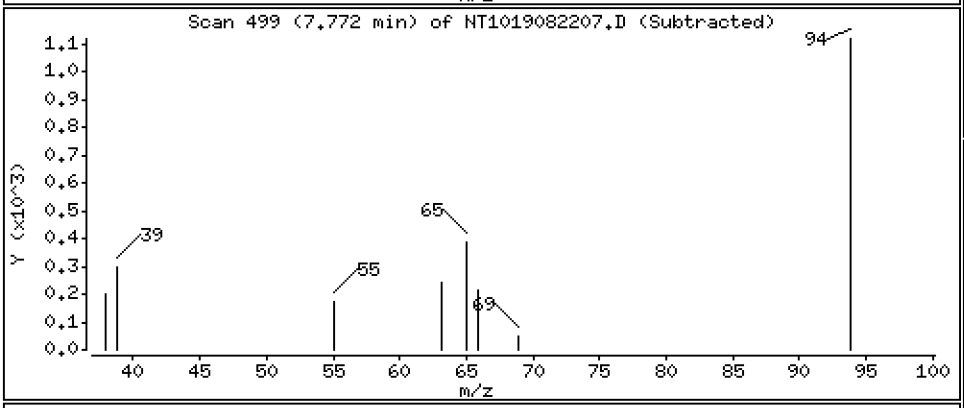
Column diameter: 0.25

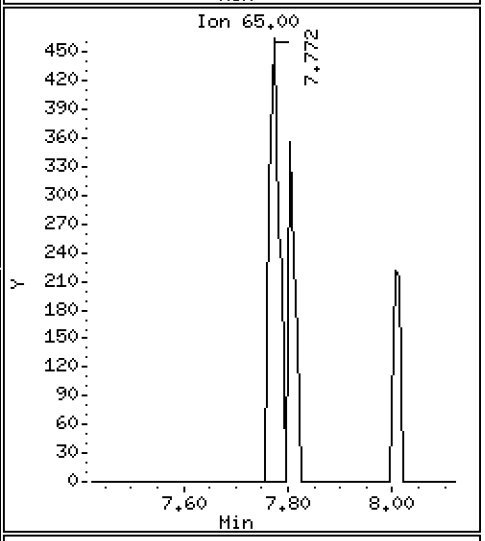
3 Phenol

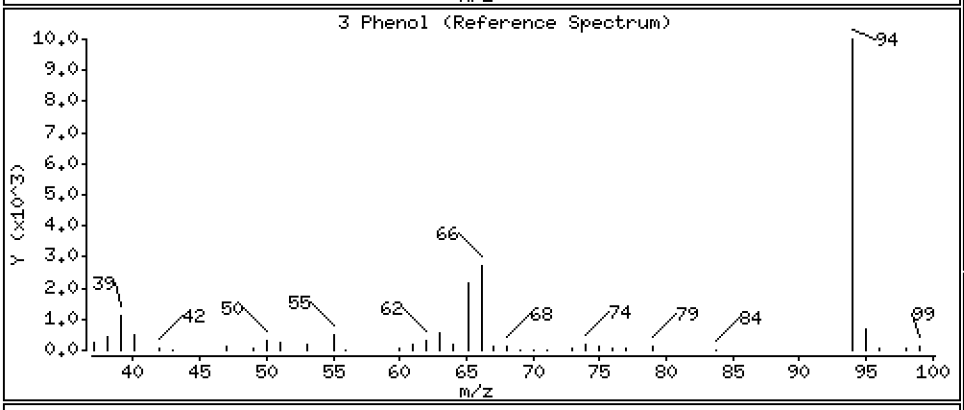
Concentration: 0.1347 ug/mL

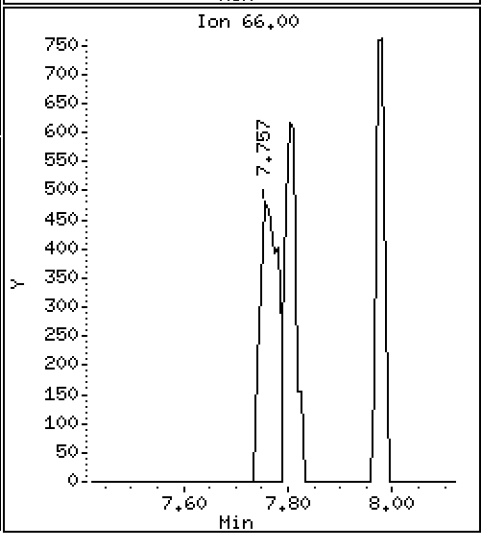


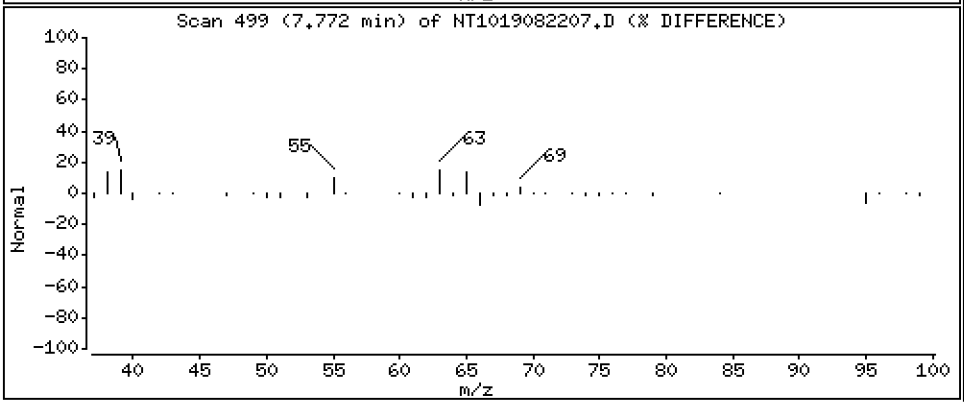












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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

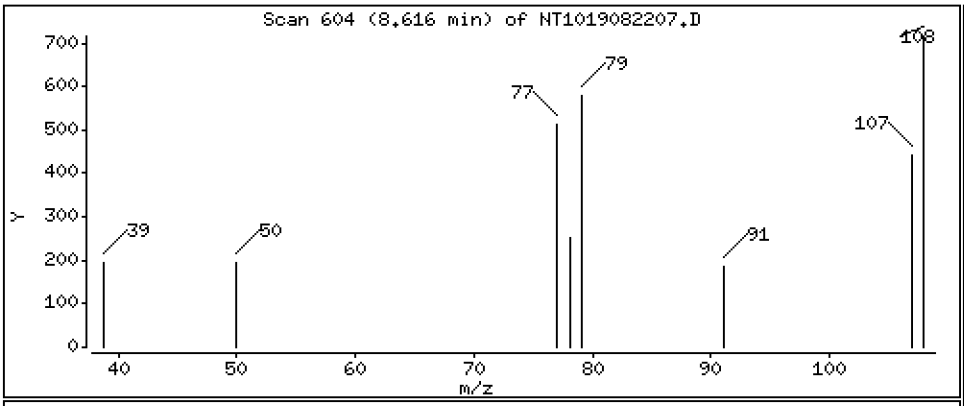
Operator: YZ

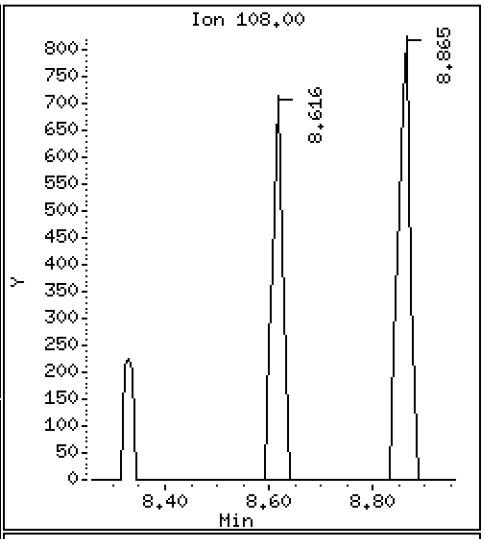
Column phase: ZB-5msi

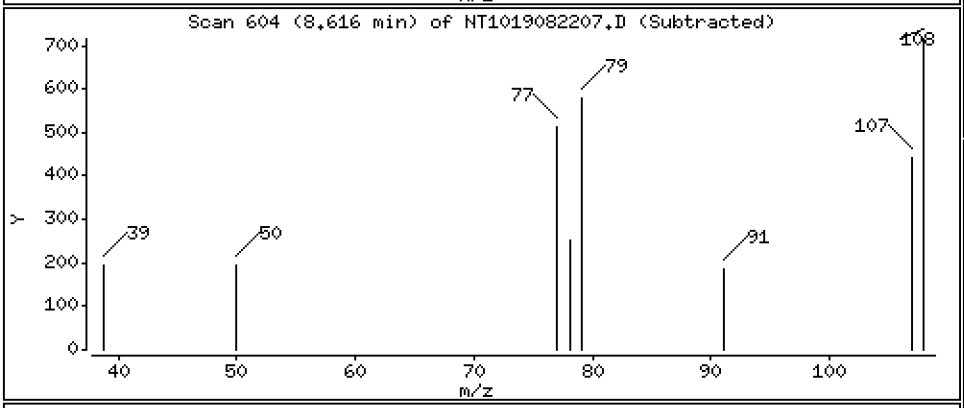
Column diameter: 0.25

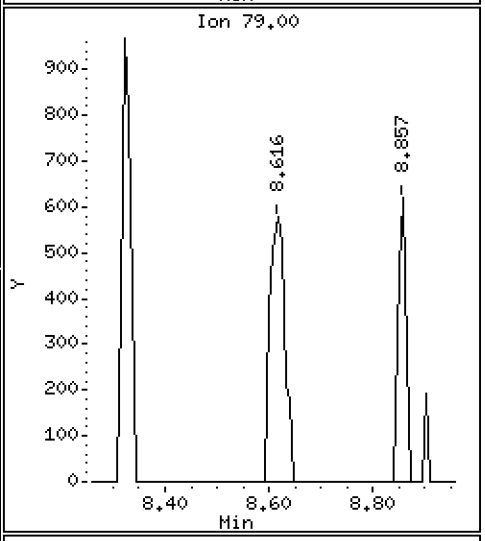
11 Benzyl alcohol

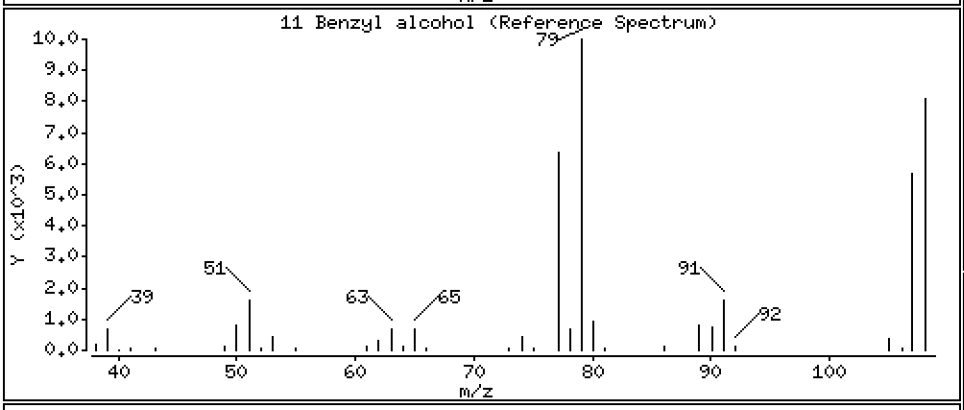
Concentration: 0.1179 ug/mL

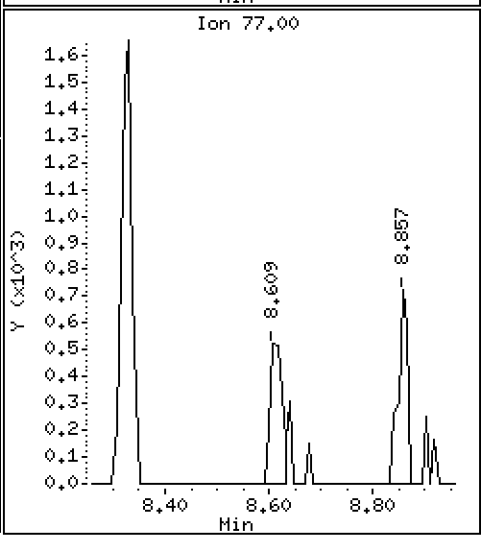


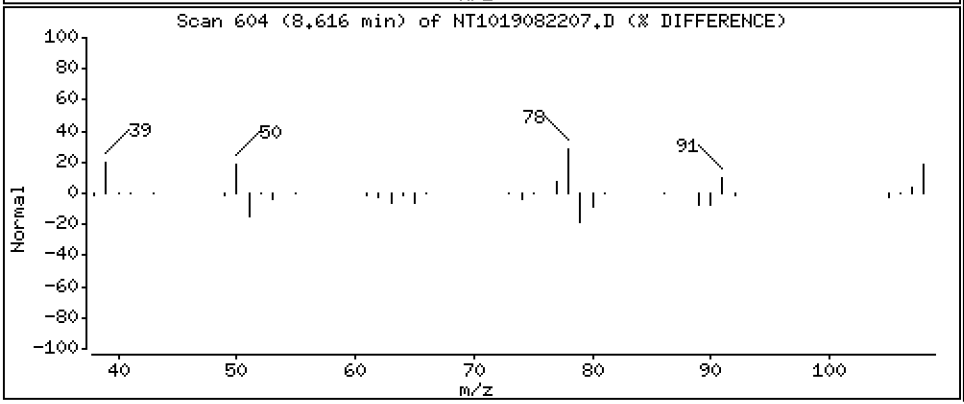












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

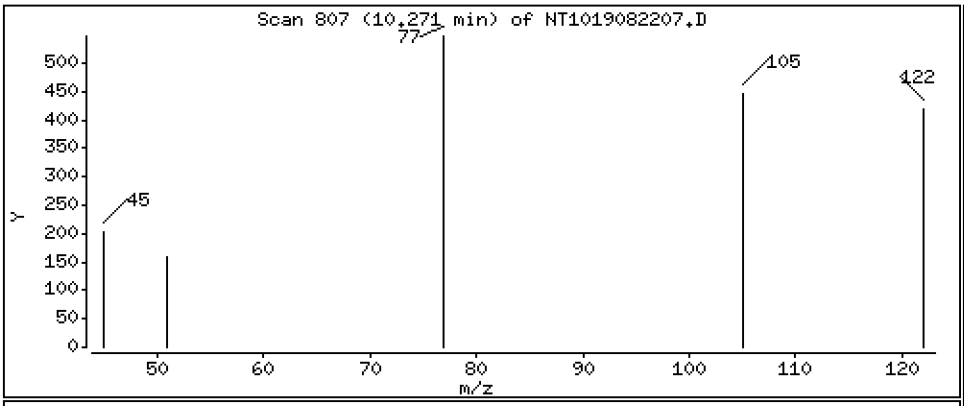
Operator: YZ

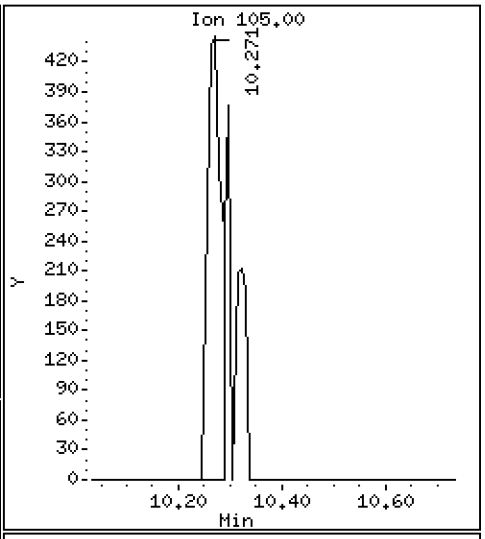
Column phase: ZB-5msi

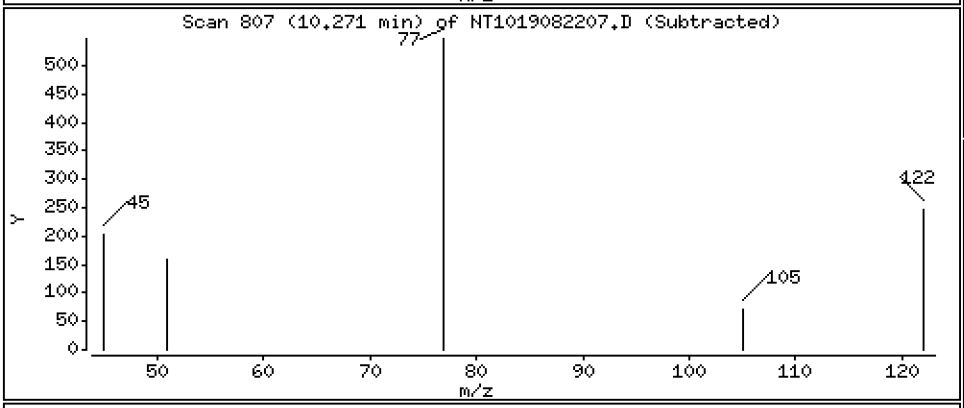
Column diameter: 0.25

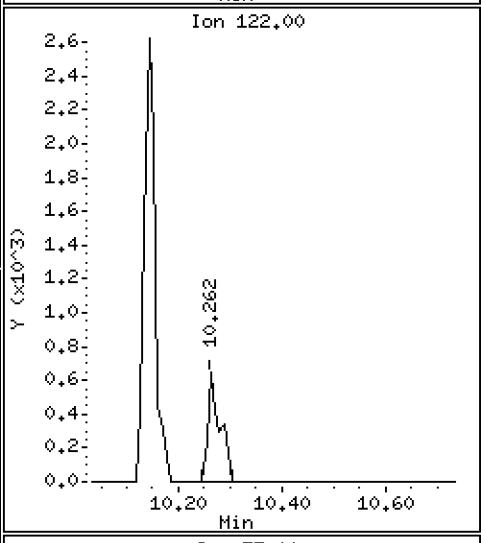
24 Benzoic acid

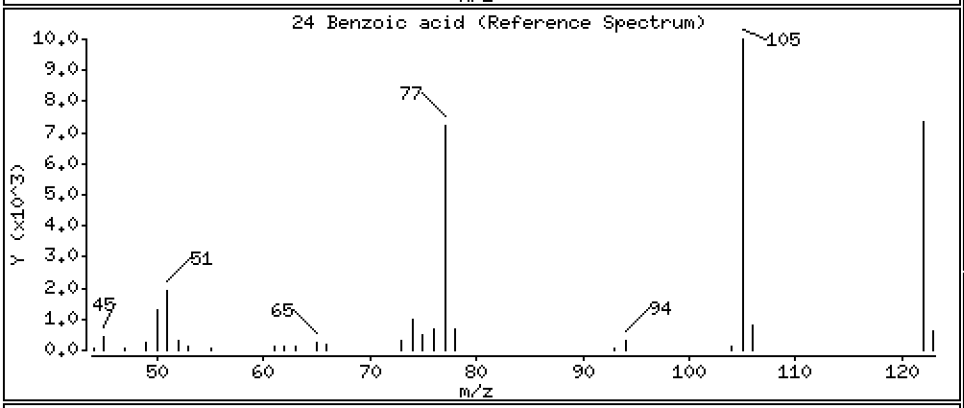
Concentration: 0.1051 ug/mL

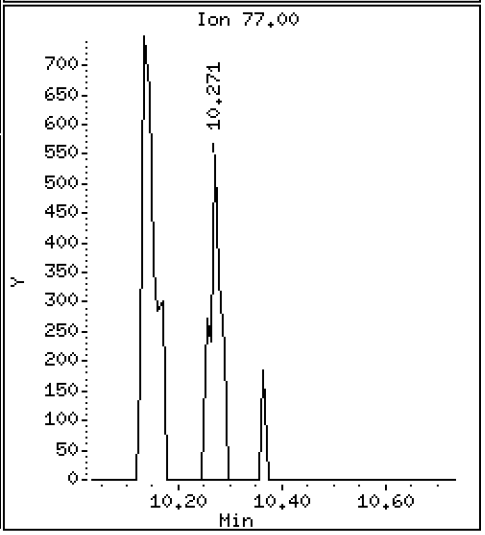


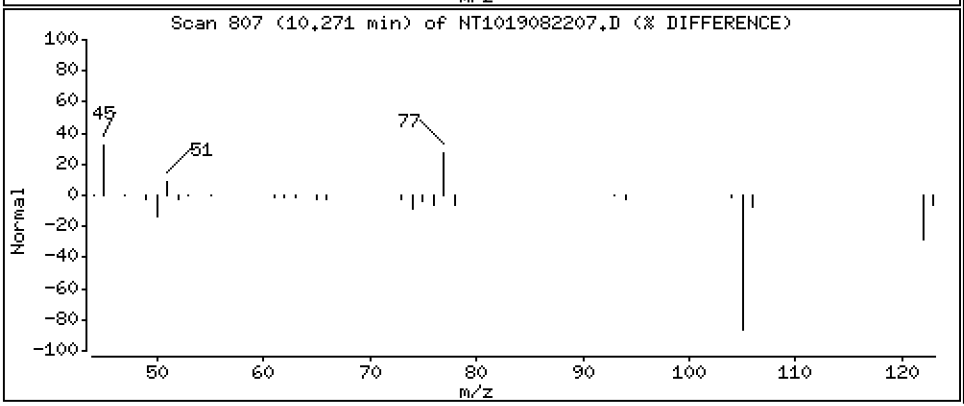












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

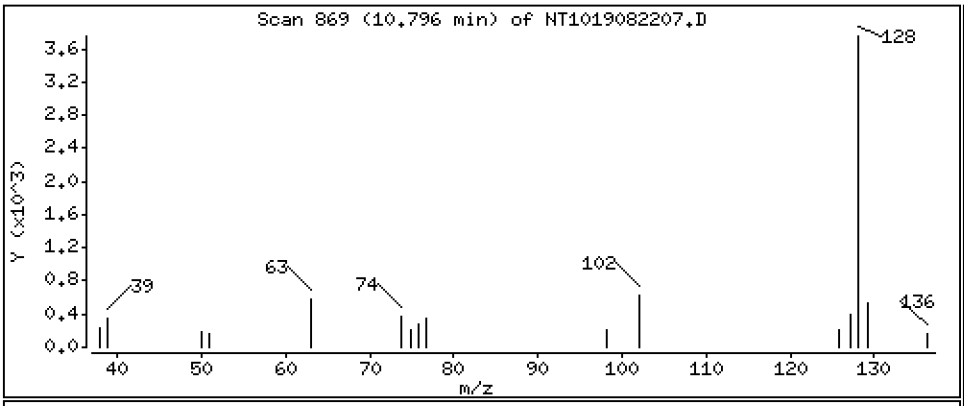
Operator: YZ

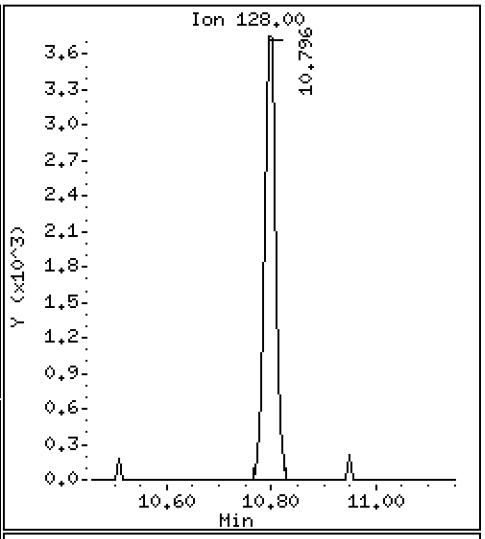
Column phase: ZB-5msi

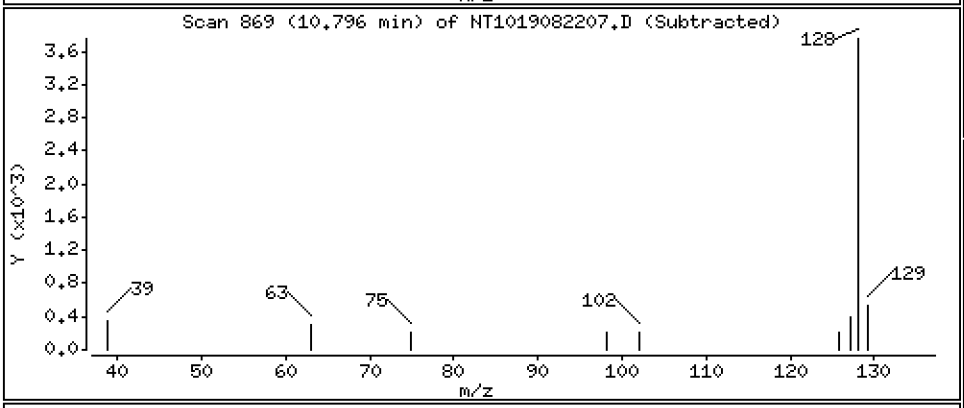
Column diameter: 0.25

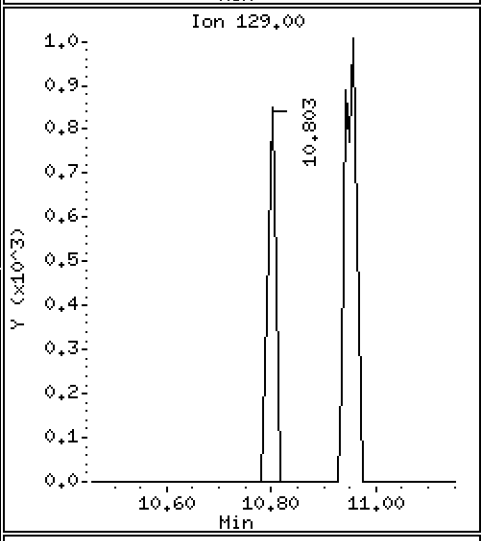
28 Naphthalene

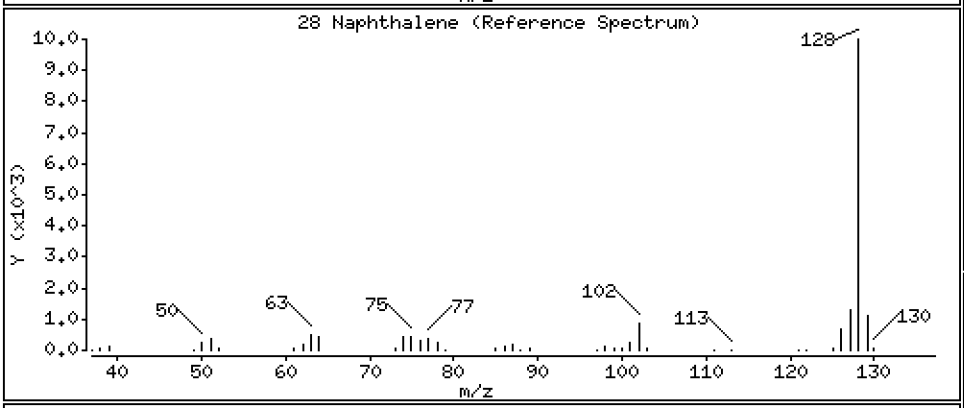
Concentration: 0.1723 ug/mL

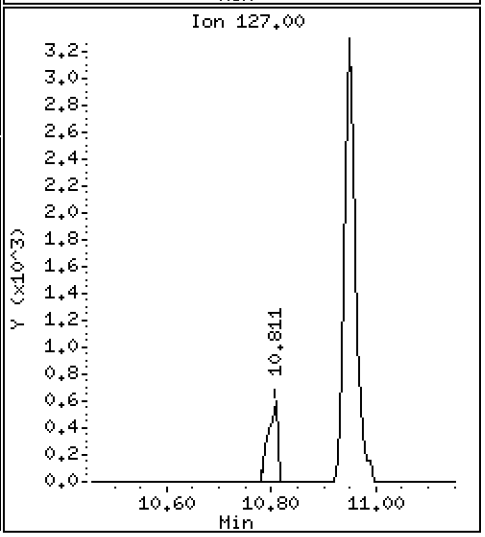


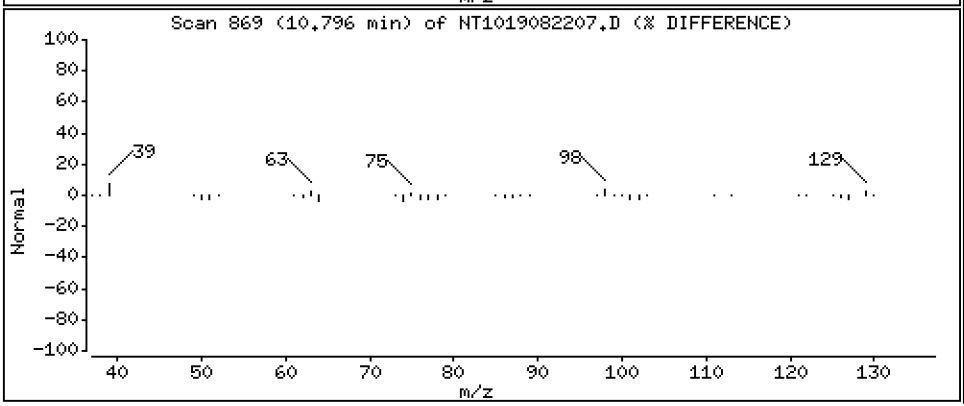












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

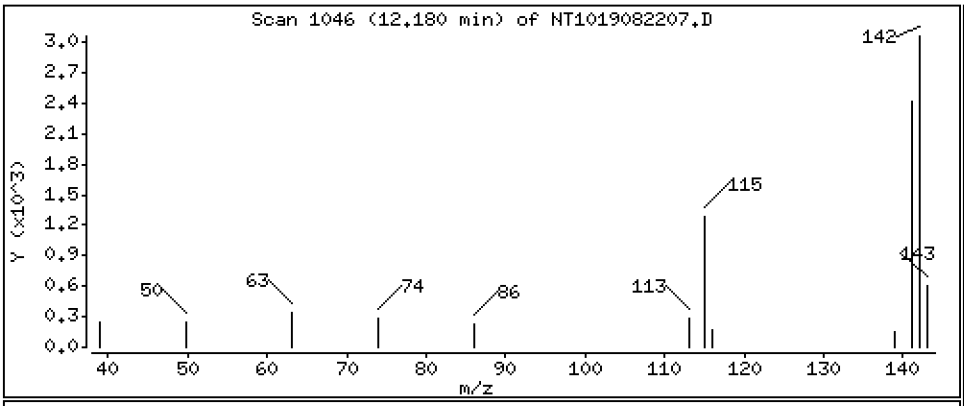
Operator: YZ

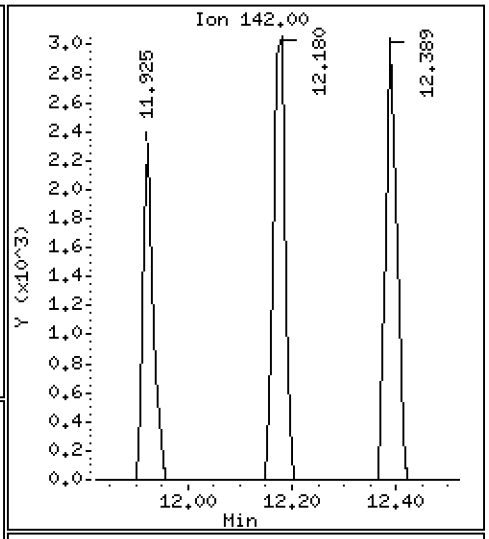
Column phase: ZB-5msi

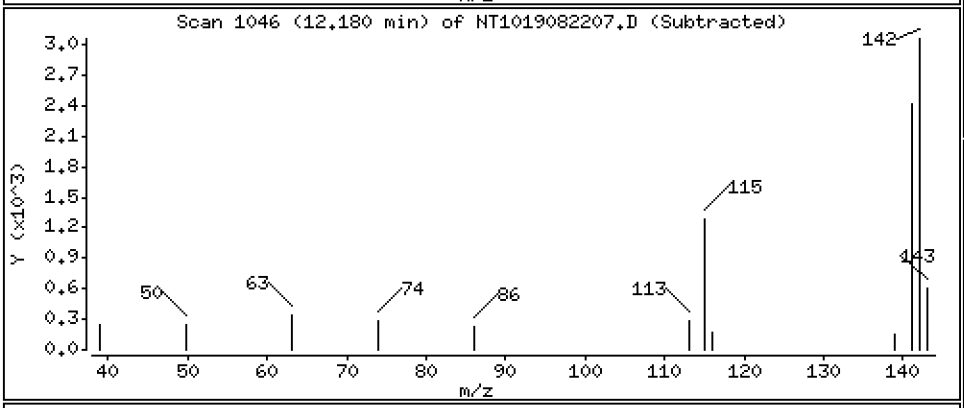
Column diameter: 0.25

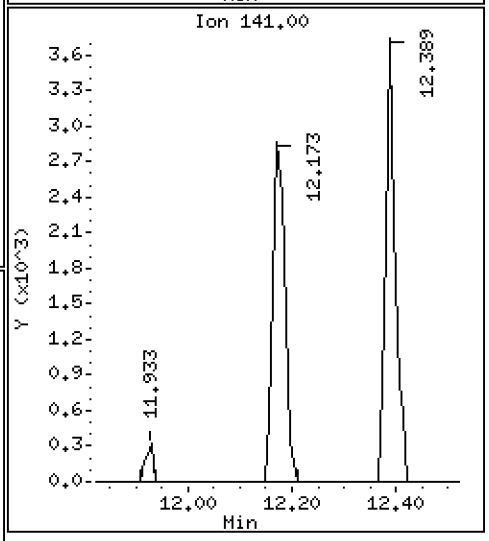
32 2-Methylnaphthalene

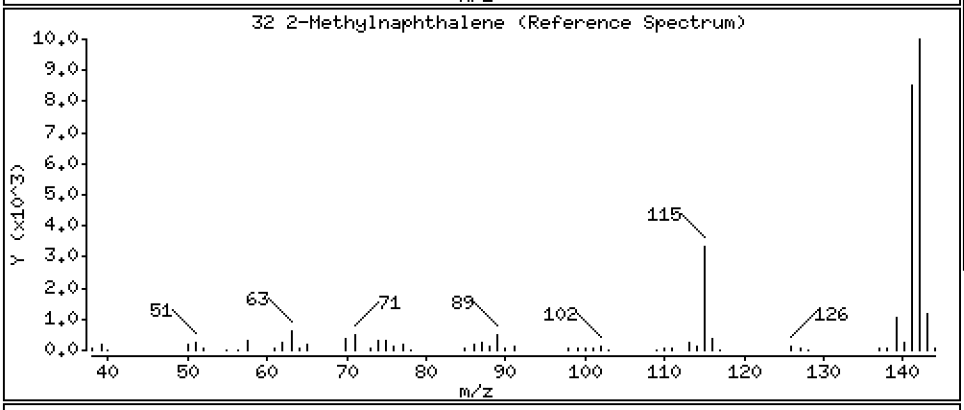
Concentration: 0.1526 ug/mL

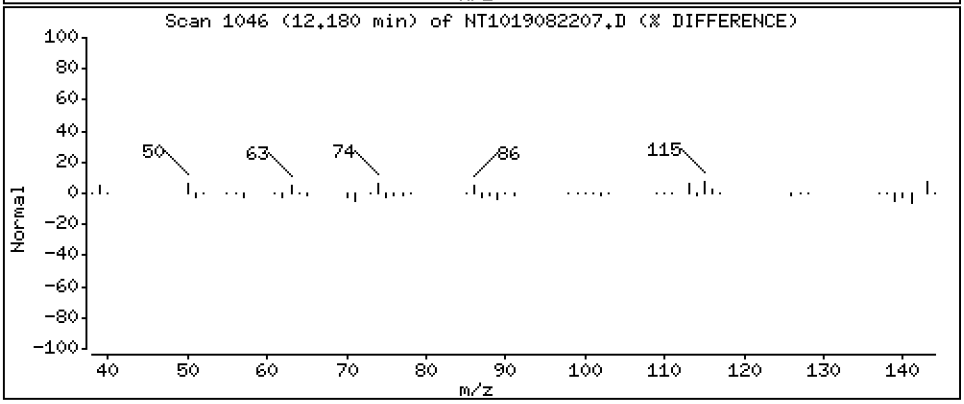












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

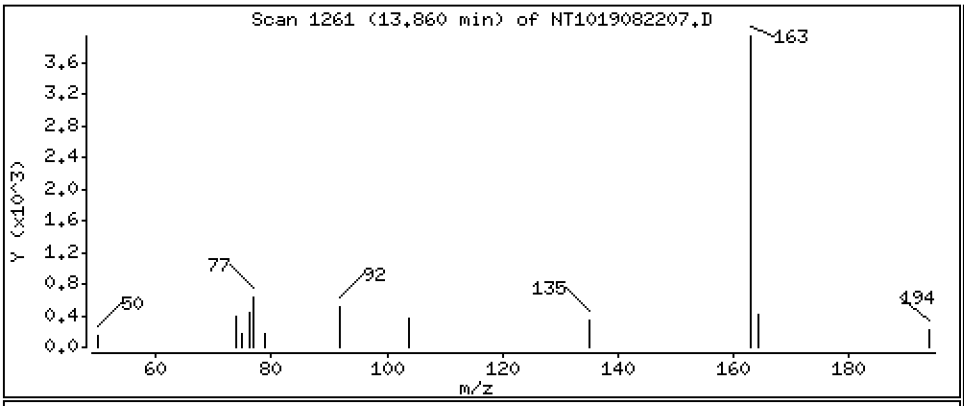
Operator: YZ

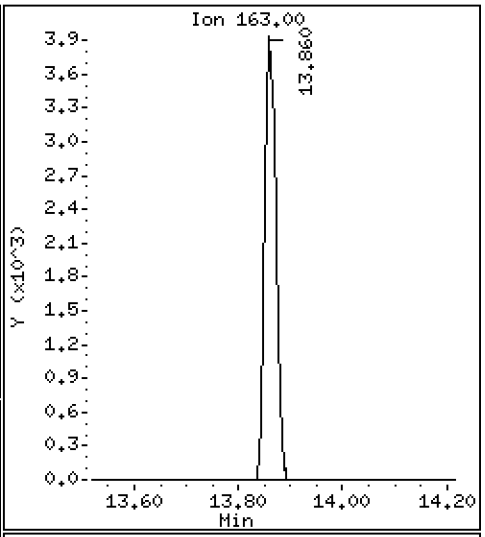
Column phase: ZB-5msi

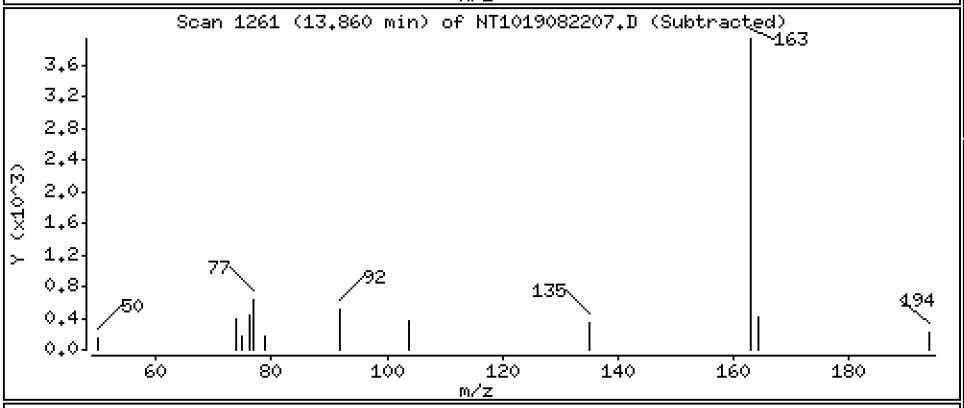
Column diameter: 0.25

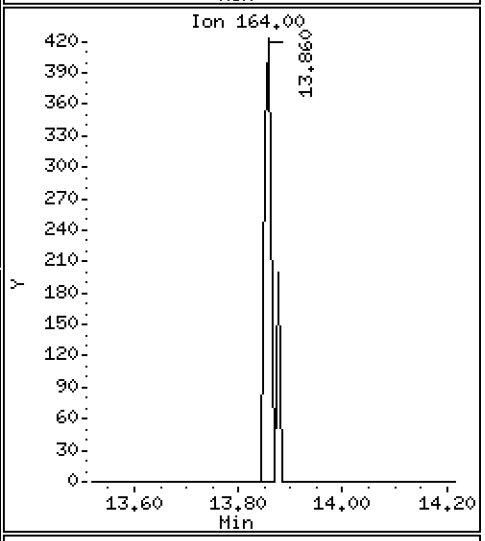
39 Dimethylphthalate

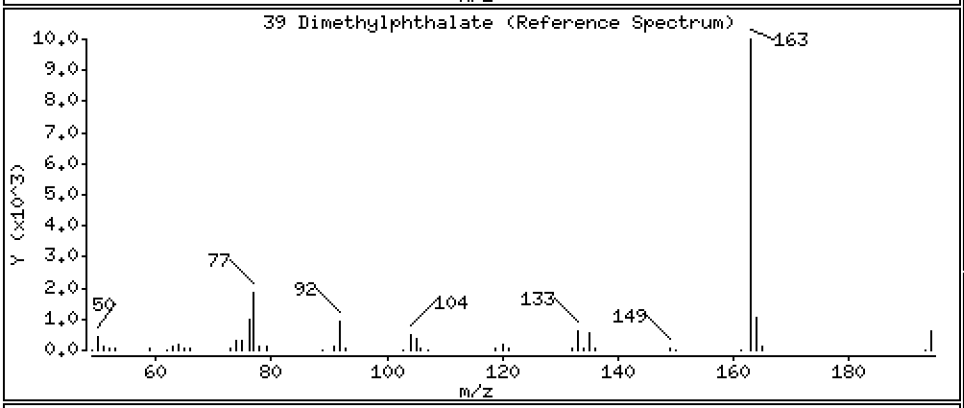
Concentration: 0.1962 ug/mL

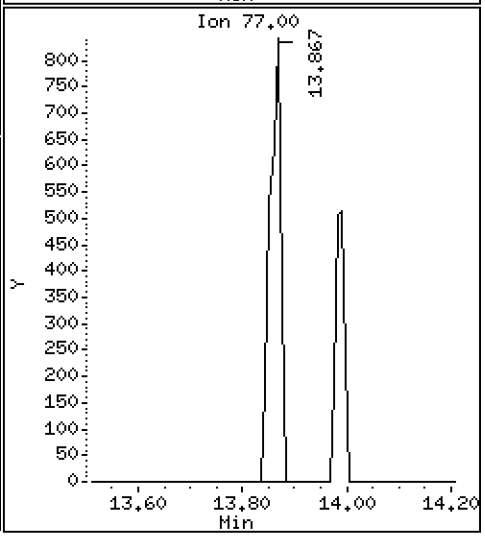


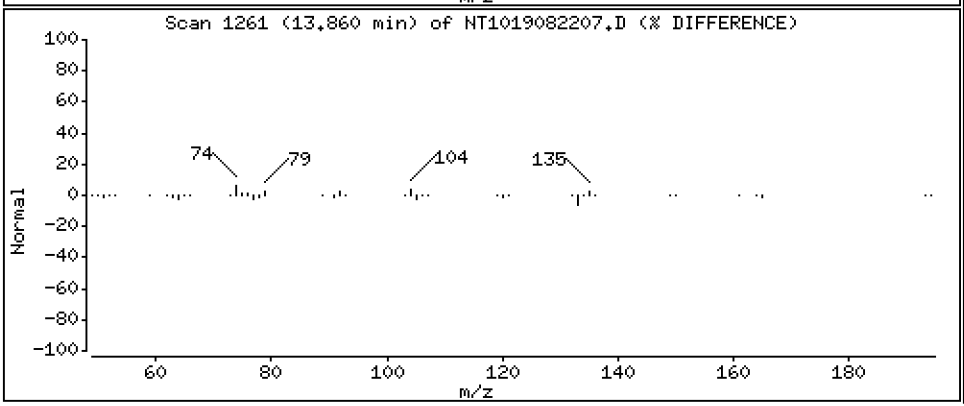












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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

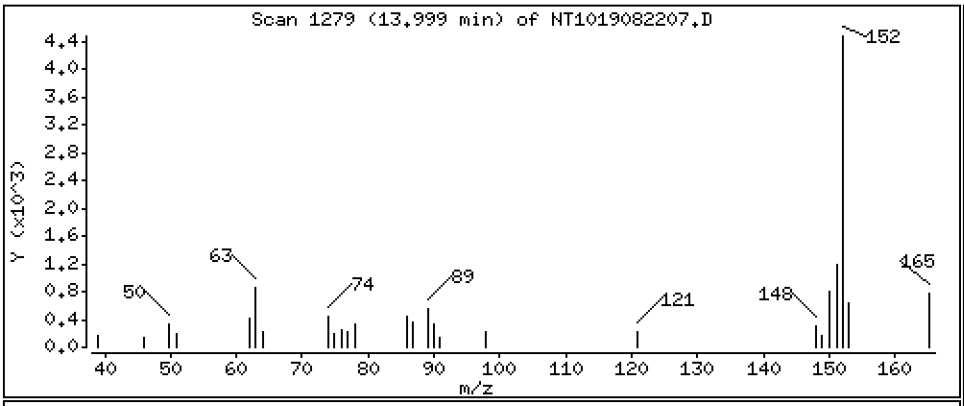
Operator: YZ

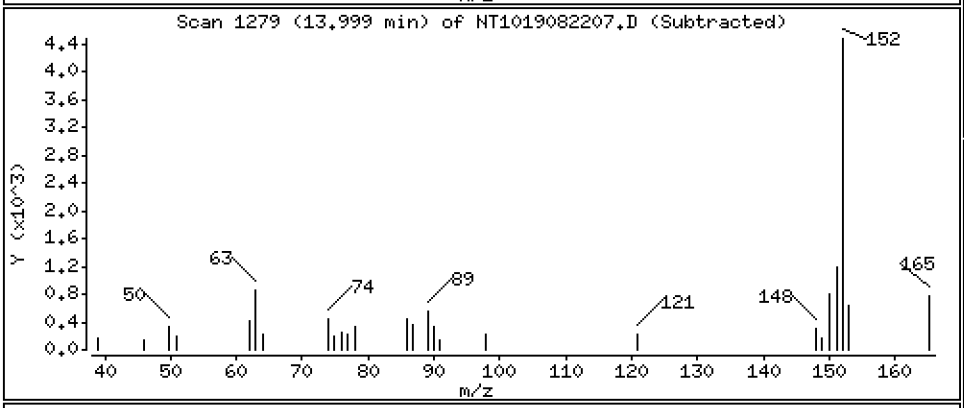
Column phase: ZB-5msi

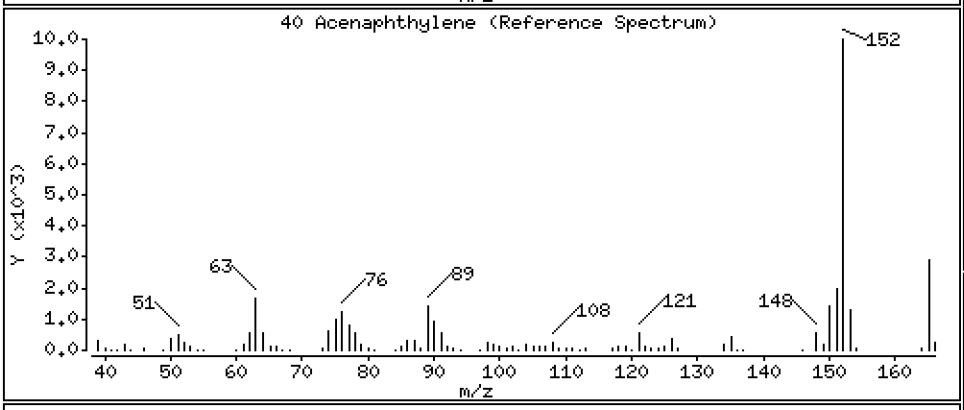
Column diameter: 0.25

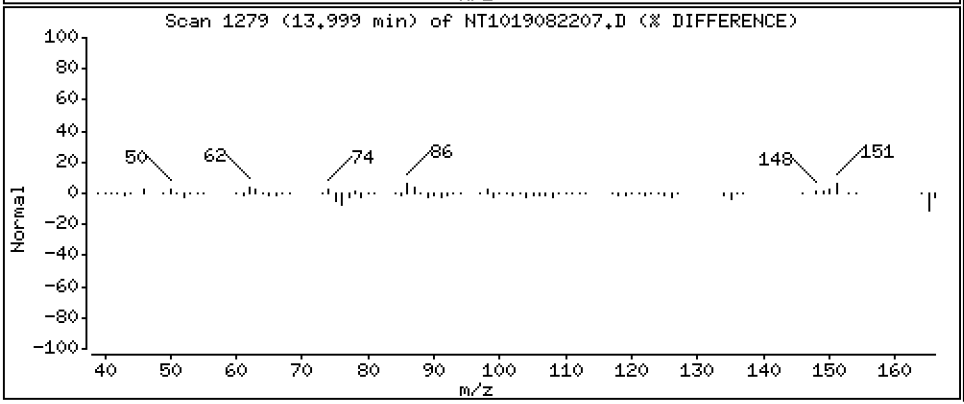
40 Acenaphthylene

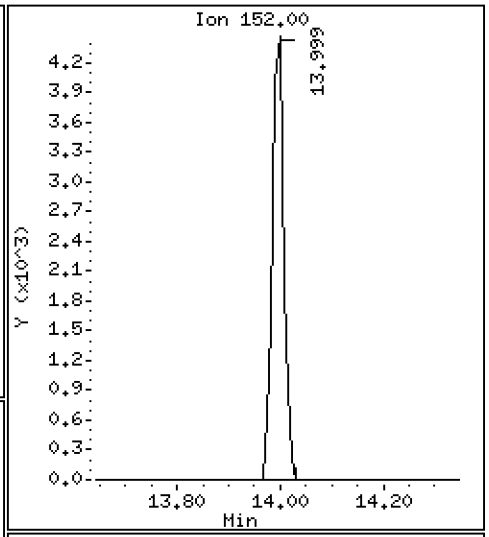
Concentration: 0.1756 ug/mL

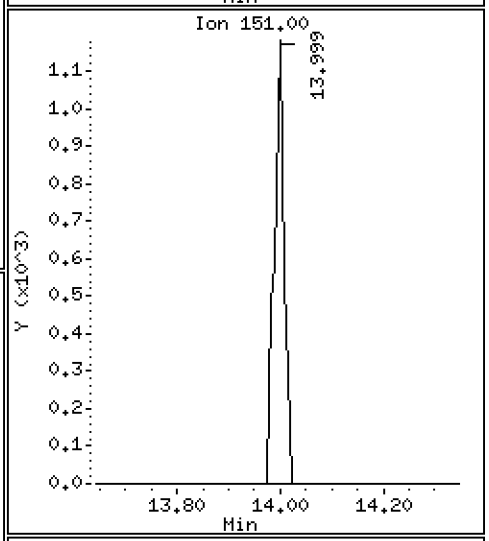


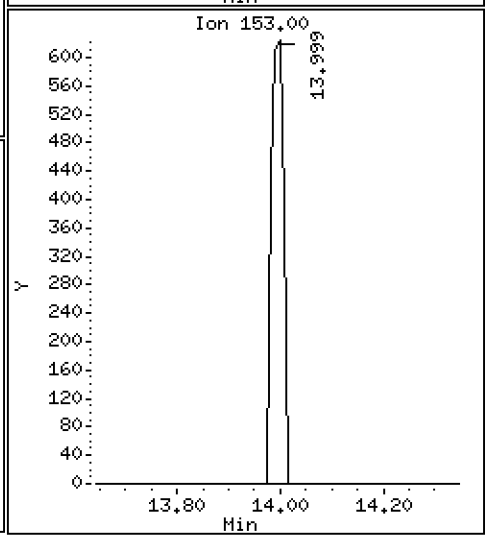












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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

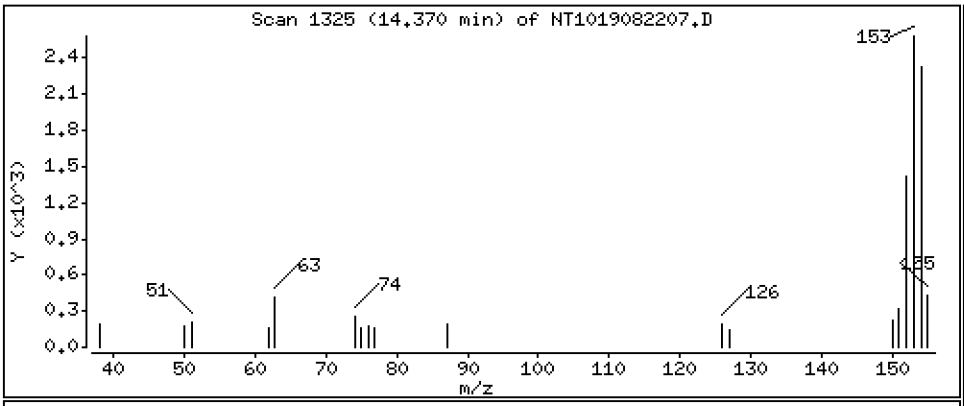
Operator: YZ

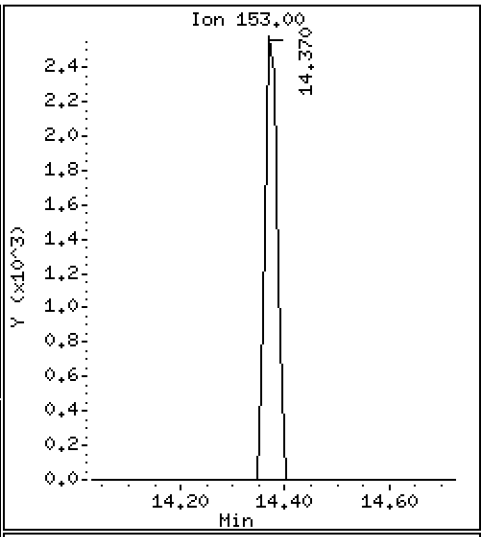
Column phase: ZB-5msi

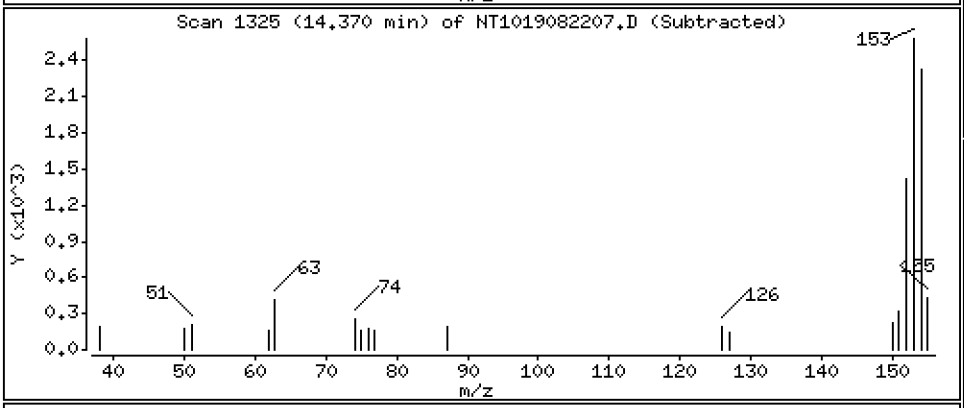
Column diameter: 0.25

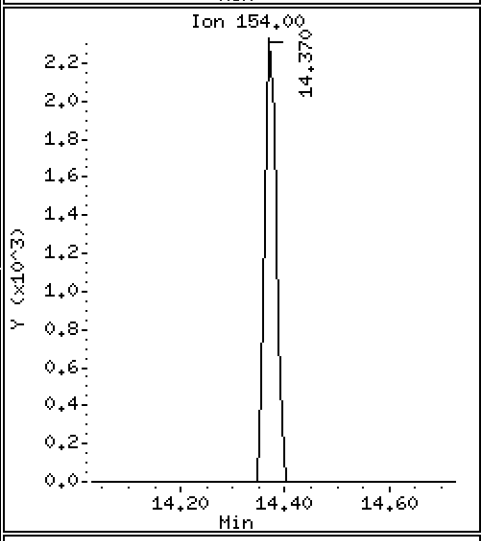
44 Acenaphthene

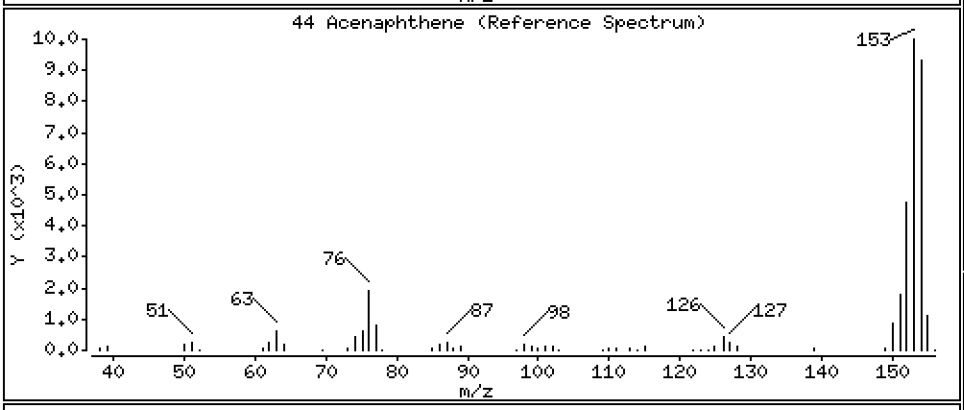
Concentration: 0.1753 ug/mL

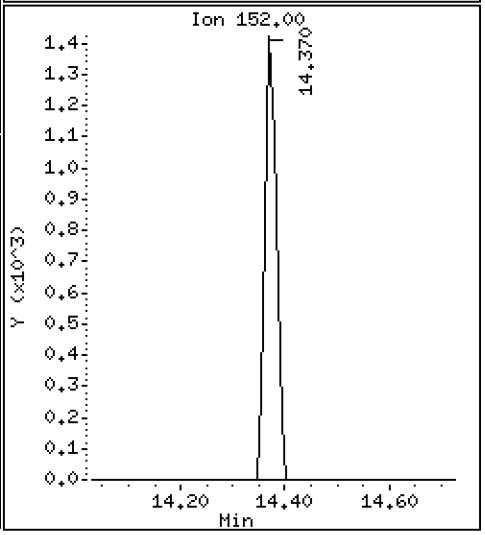


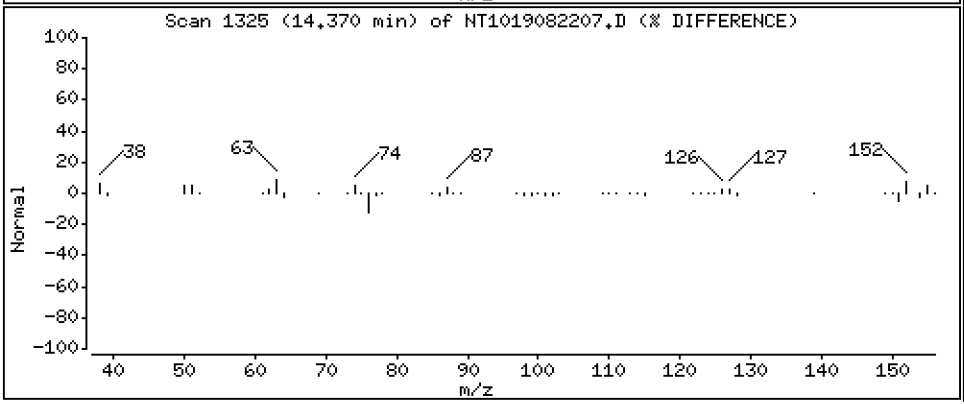












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

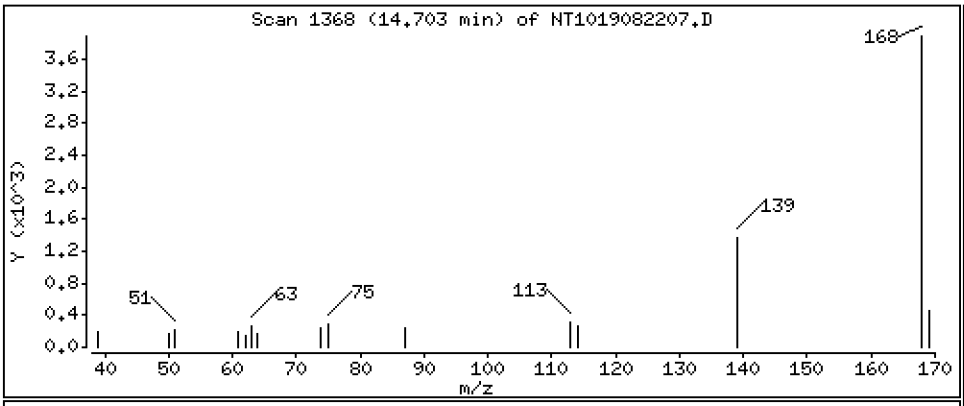
Operator: YZ

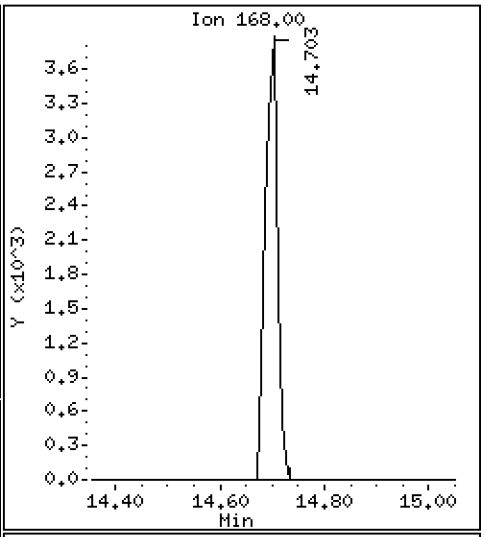
Column phase: ZB-5msi

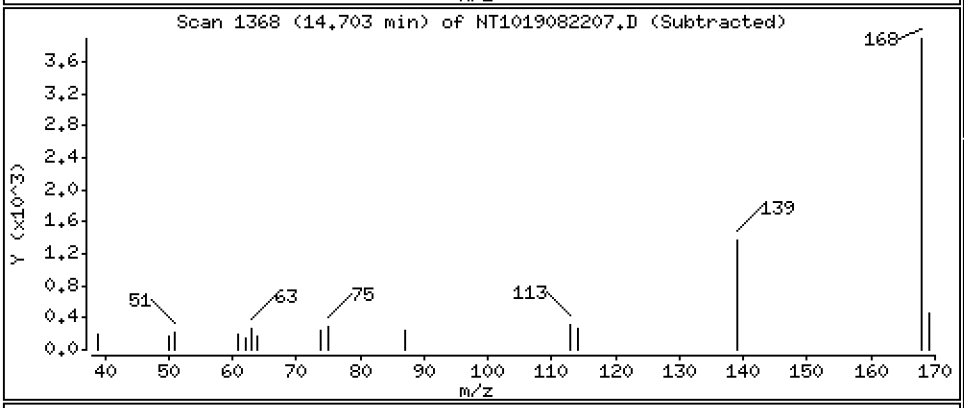
Column diameter: 0.25

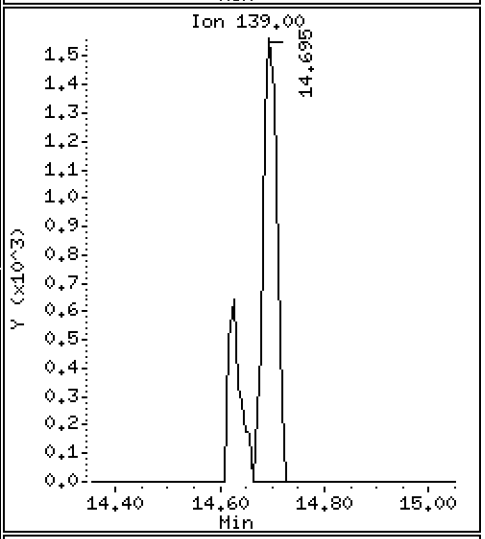
46 Dibenzofuran

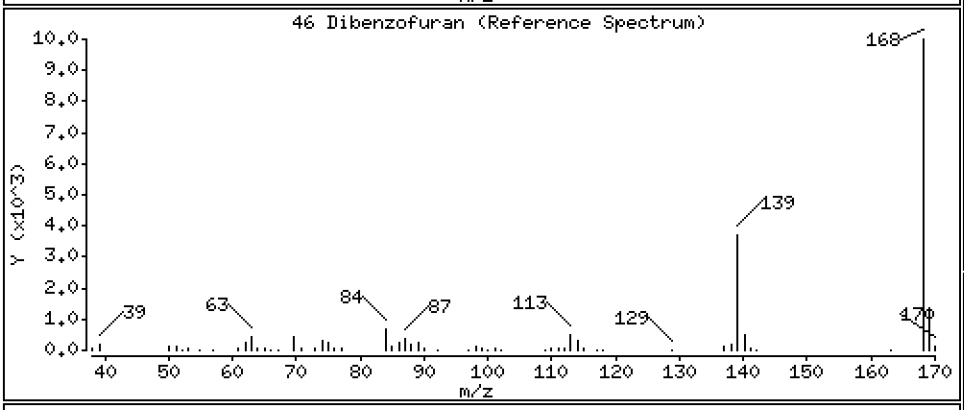
Concentration: 0.1581 ug/mL

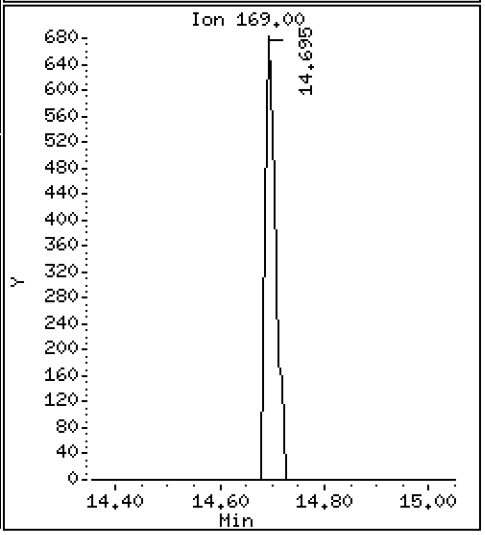


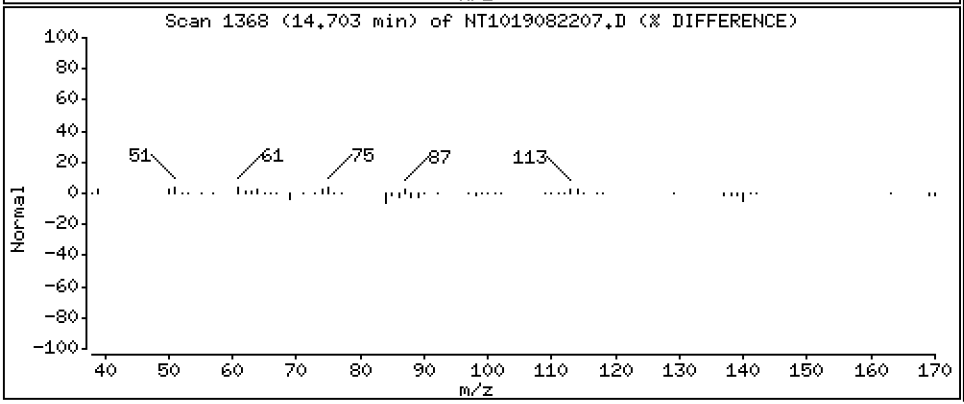












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

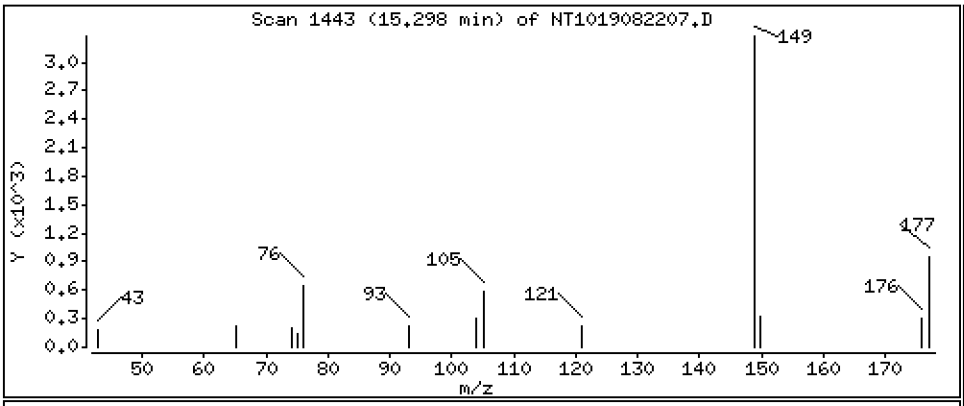
Operator: YZ

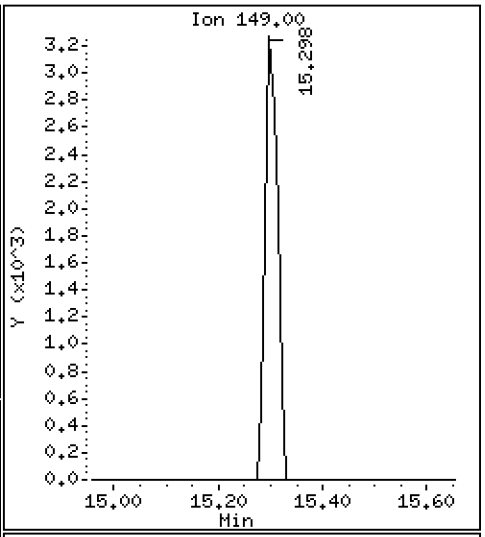
Column phase: ZB-5msi

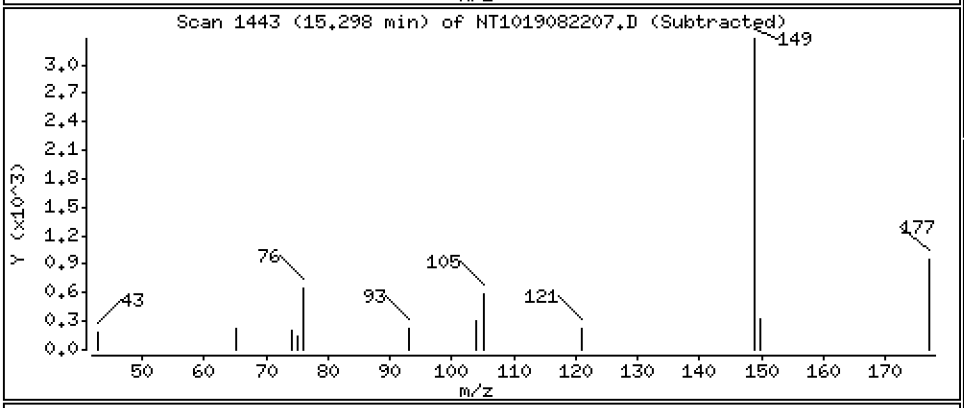
Column diameter: 0.25

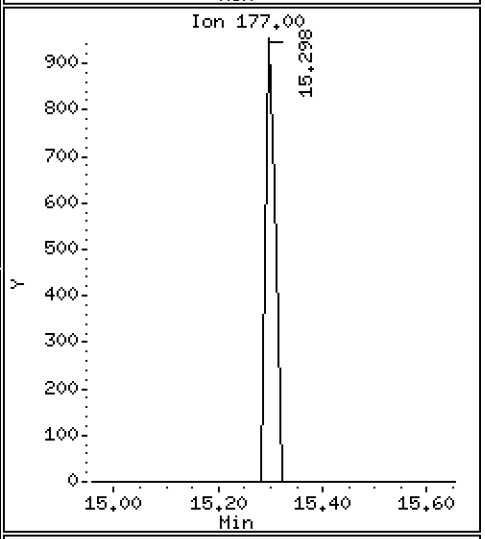
50 Diethylphthalate

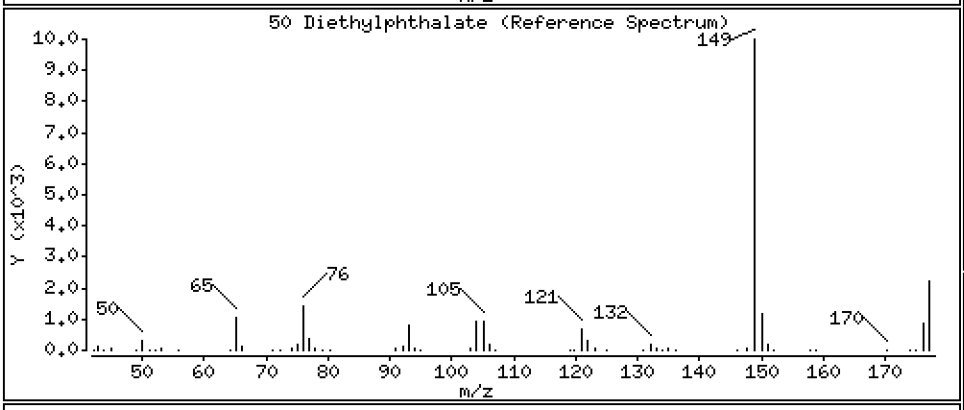
Concentration: 0.1907 ug/mL

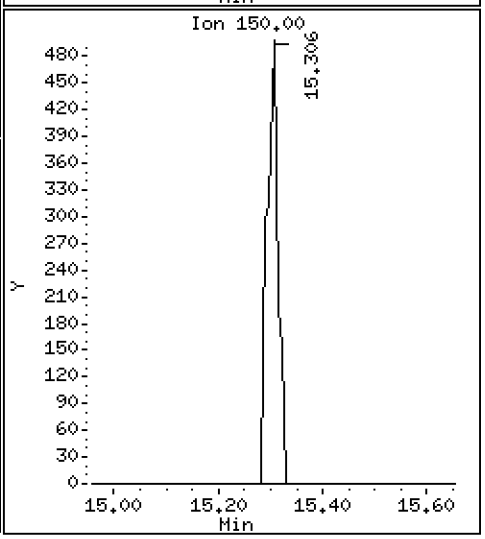


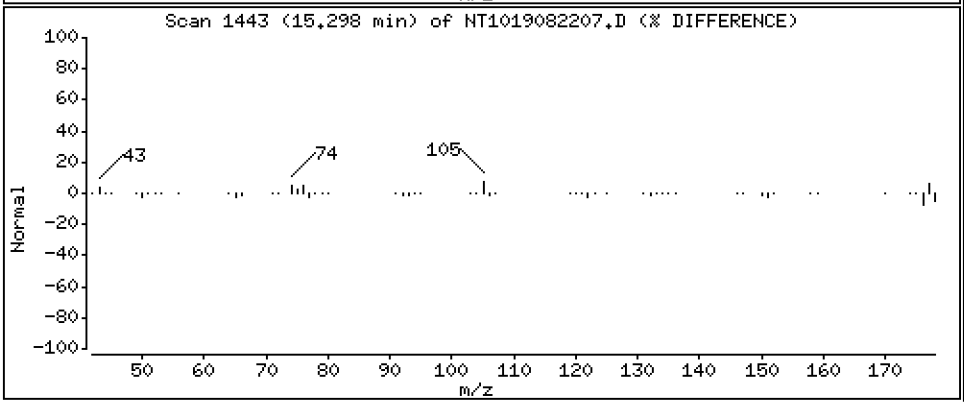












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

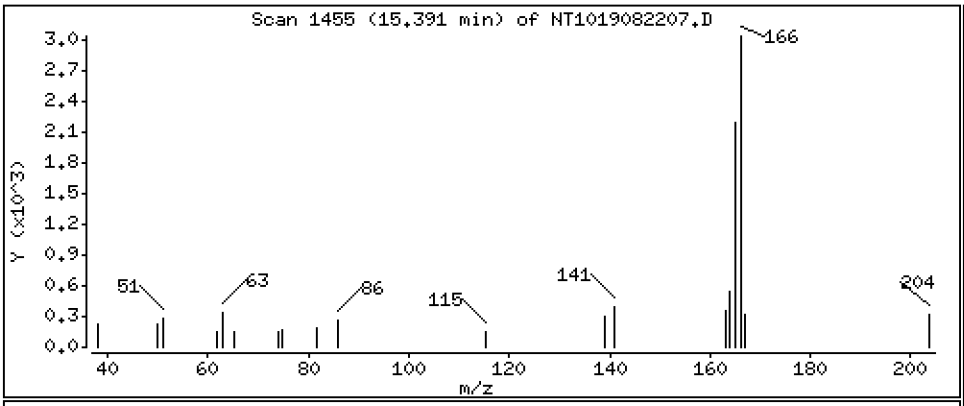
Operator: YZ

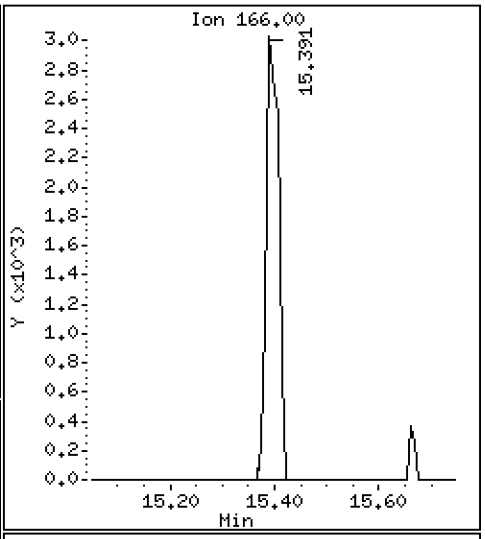
Column phase: ZB-5msi

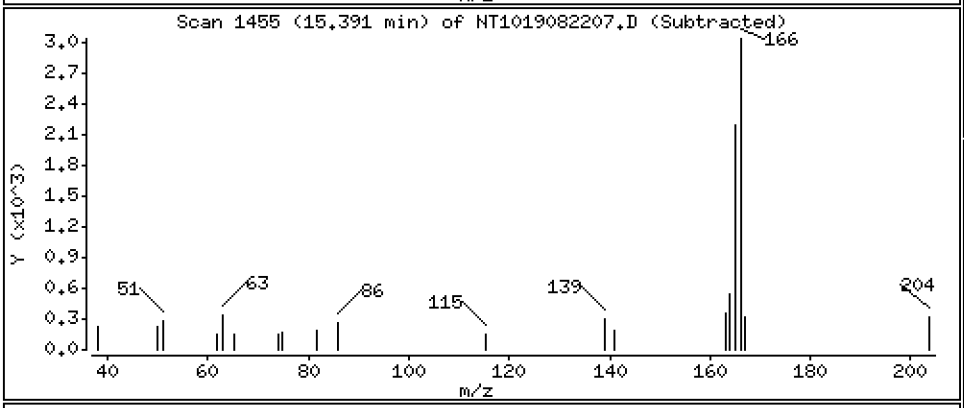
Column diameter: 0.25

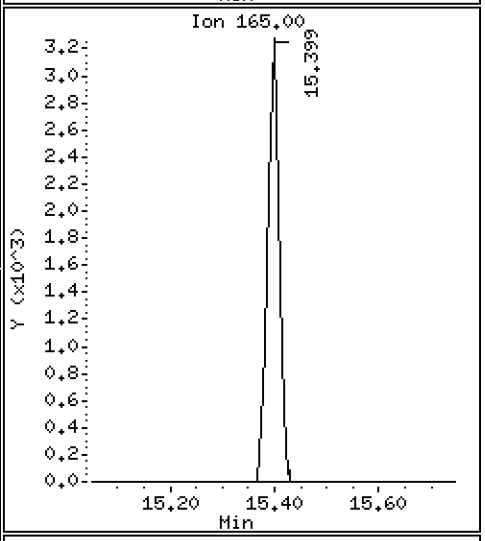
49 Fluorene

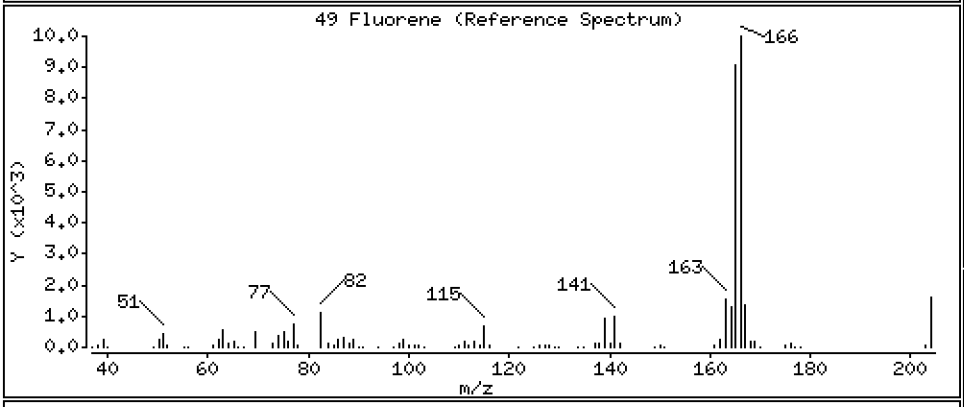
Concentration: 0.1859 ug/mL

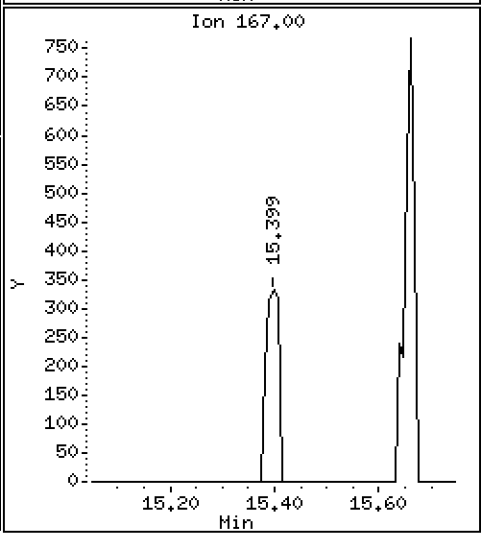


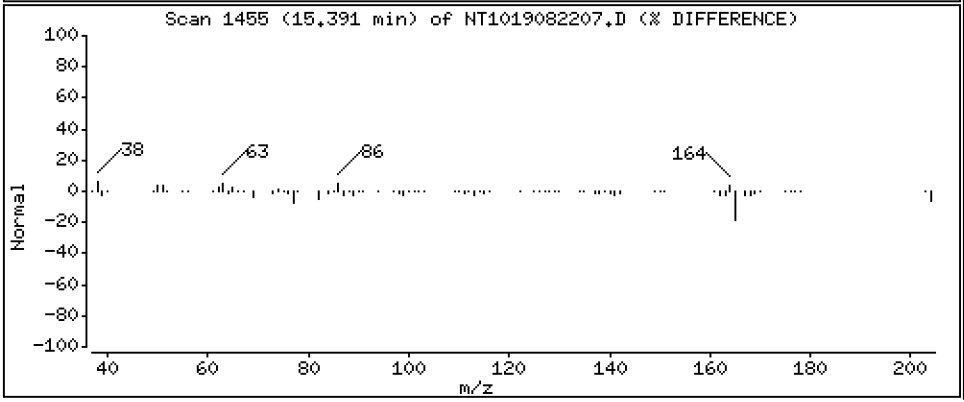












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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

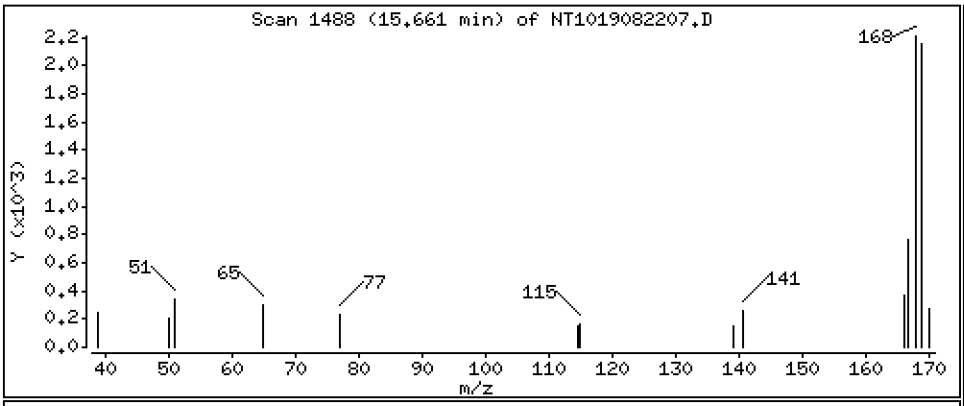
Operator: YZ

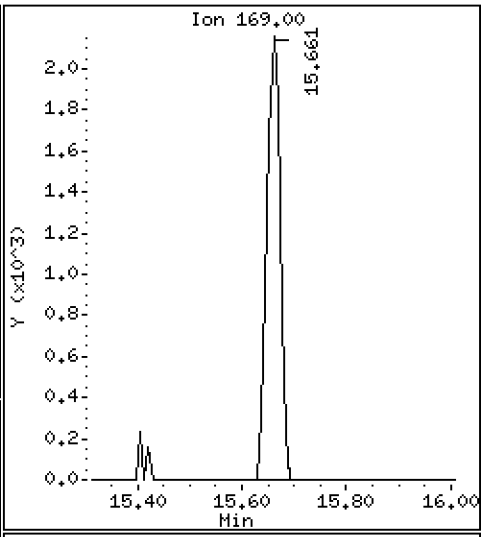
Column phase: ZB-5msi

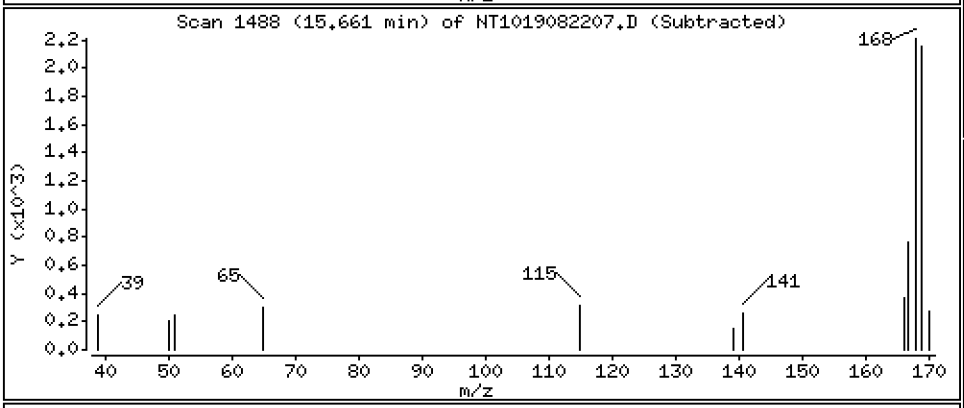
Column diameter: 0.25

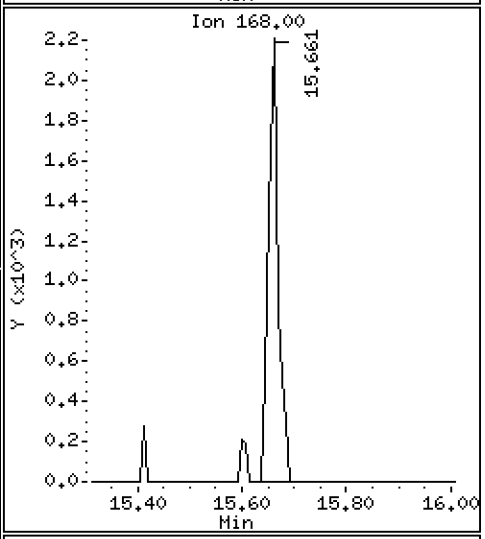
54 N-Nitrosodiphenylamine

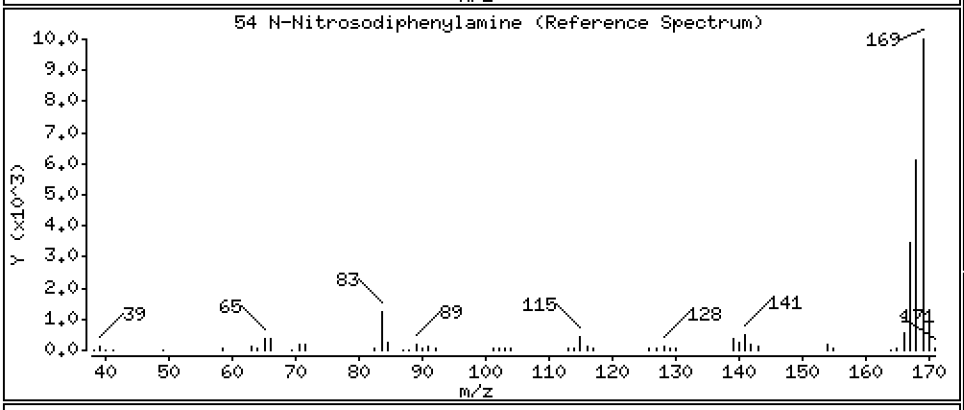
Concentration: 0.1870 ug/mL

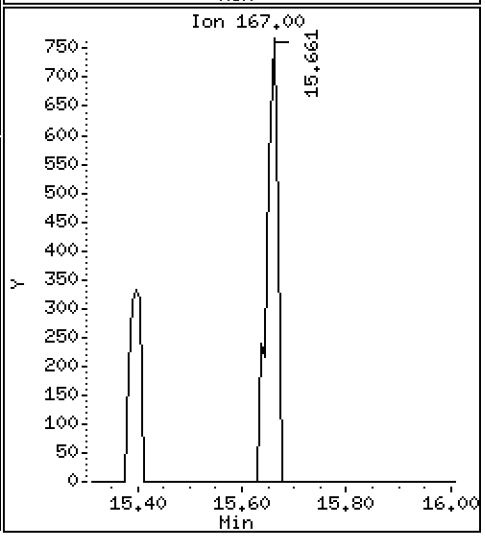


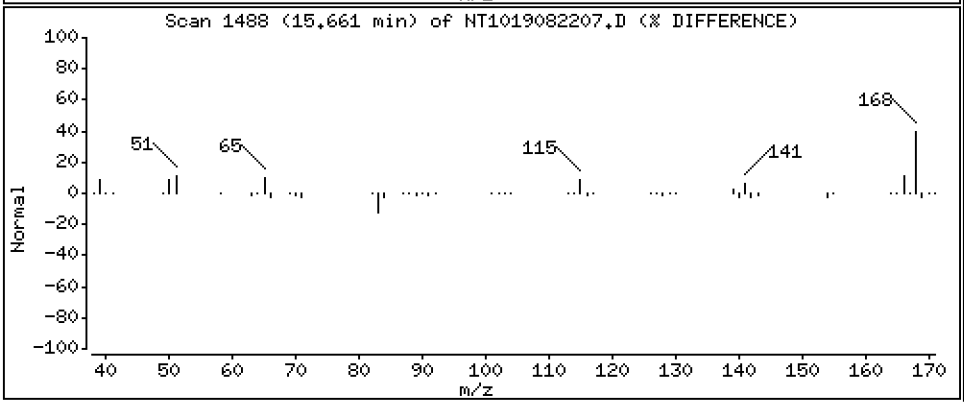












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

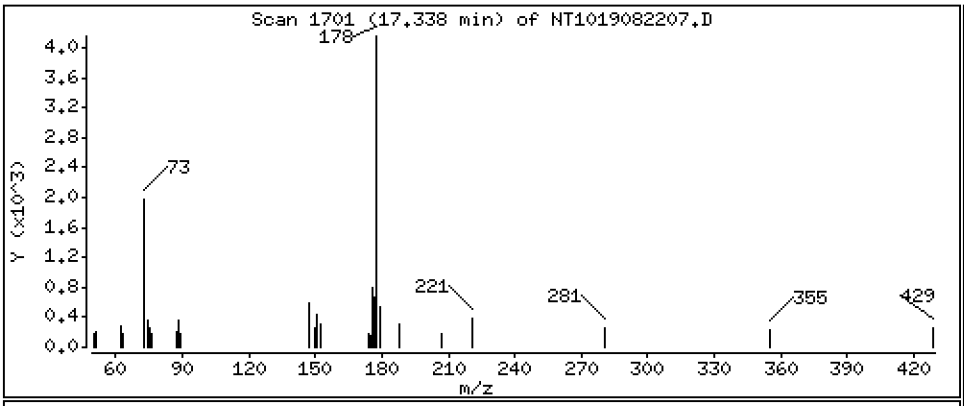
Operator: YZ

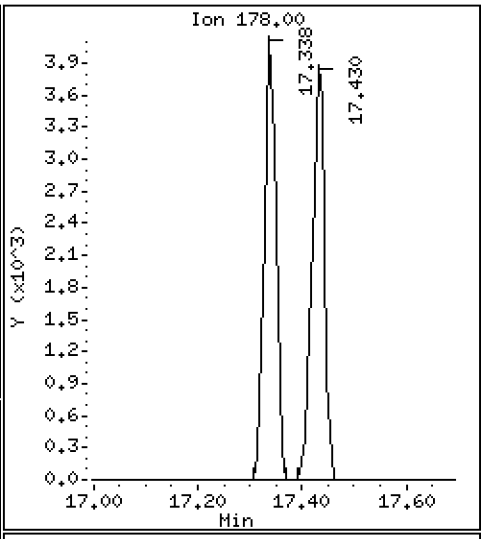
Column phase: ZB-5msi

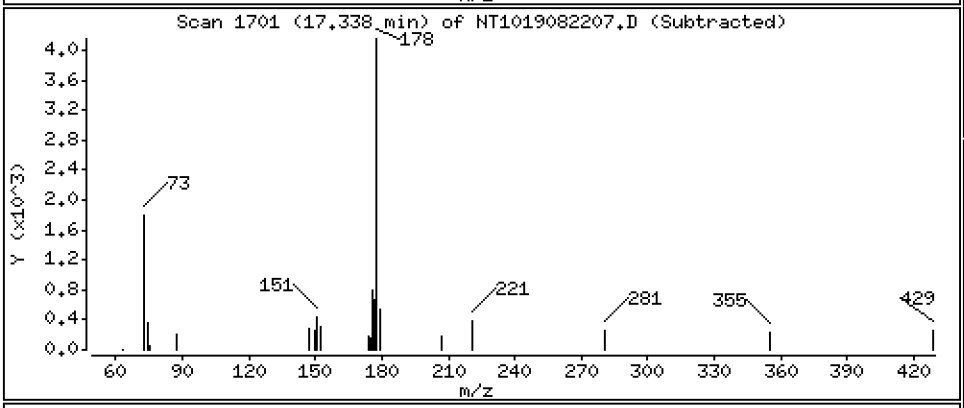
Column diameter: 0.25

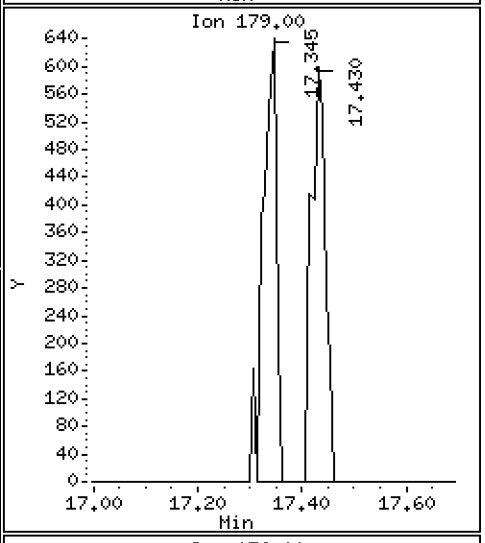
60 Phenanthrene

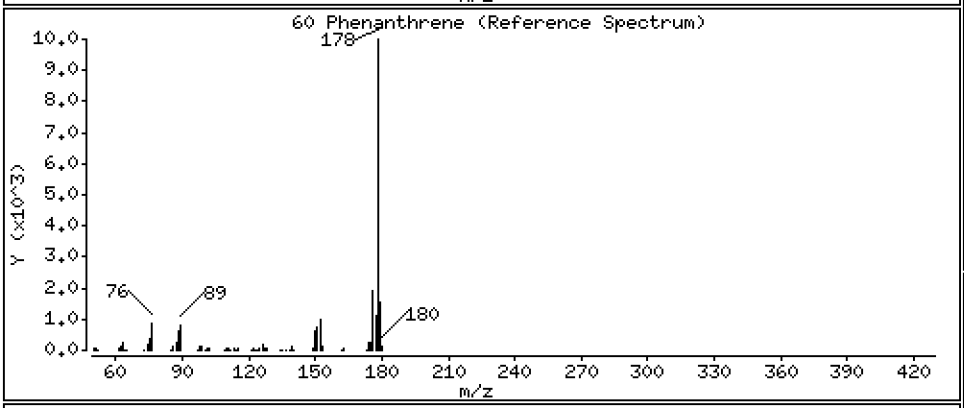
Concentration: 0.1733 ug/mL

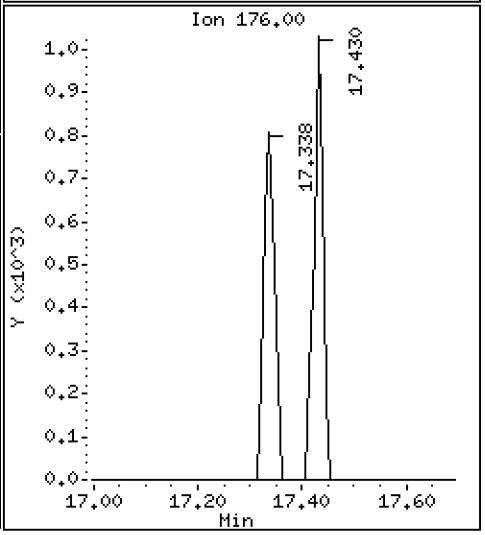


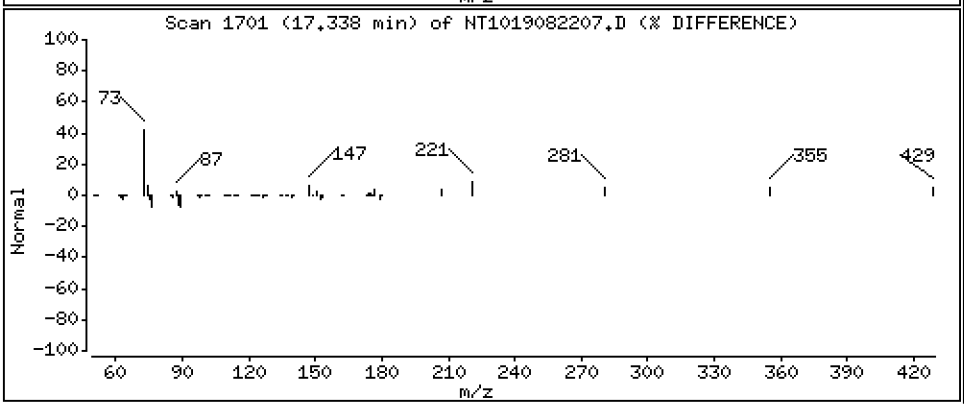












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

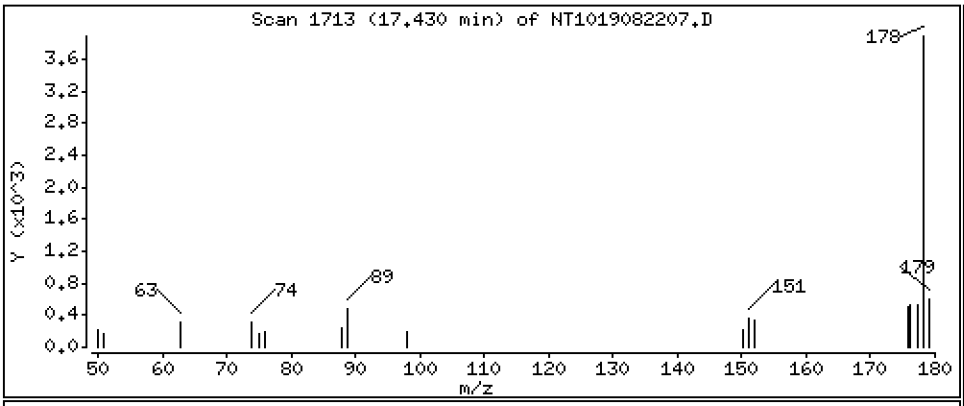
Operator: YZ

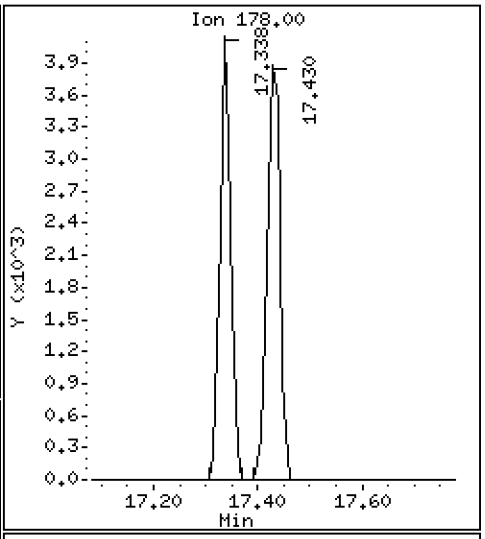
Column phase: ZB-5msi

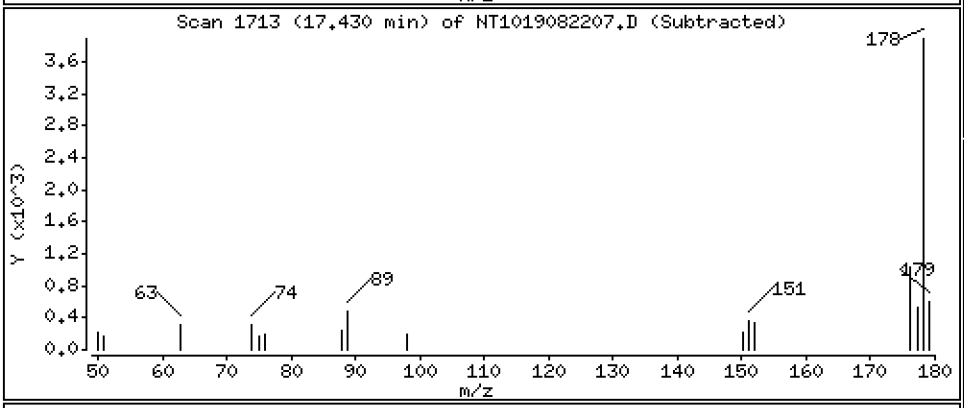
Column diameter: 0.25

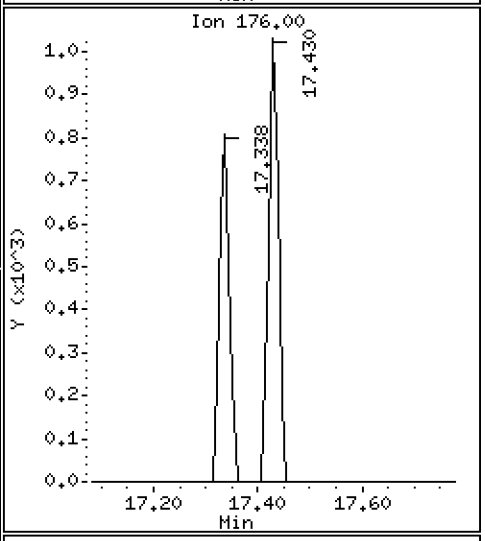
61 Anthracene

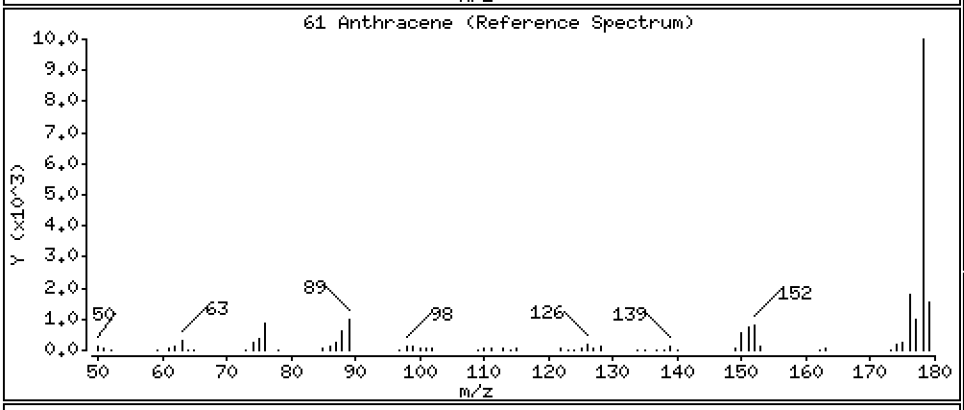
Concentration: 0.1767 ug/mL

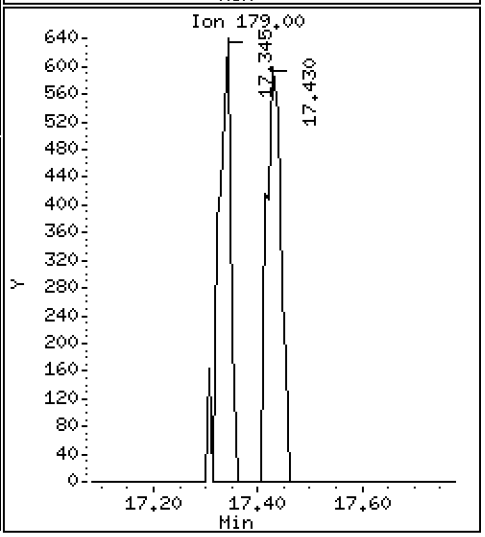


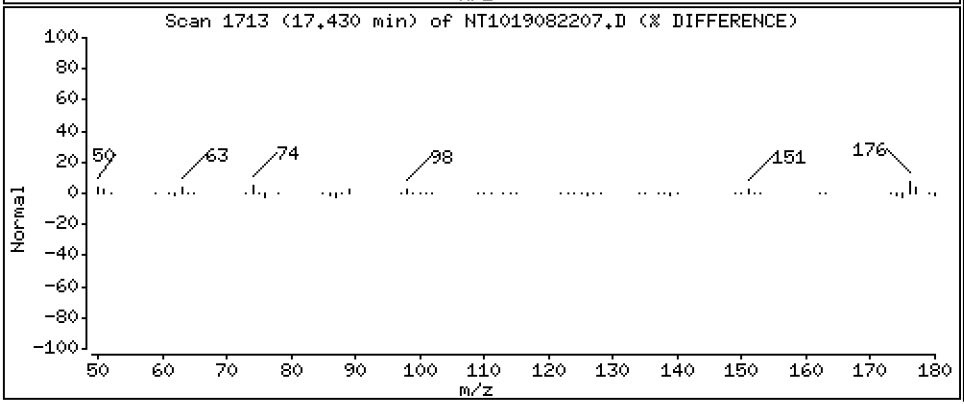












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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

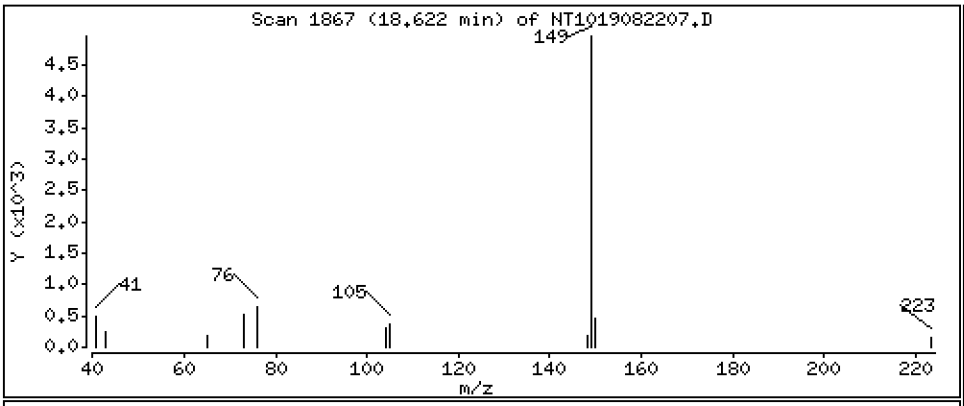
Operator: YZ

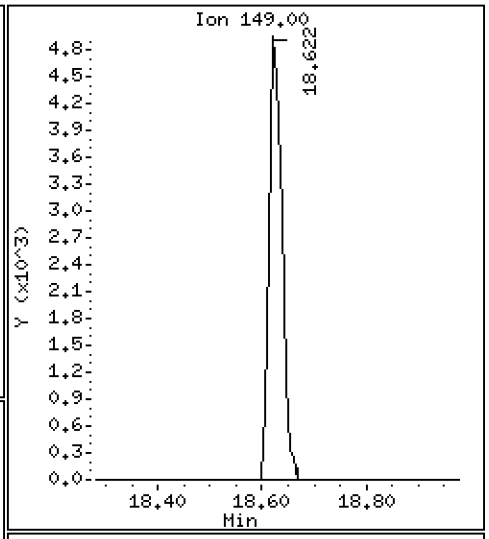
Column phase: ZB-5msi

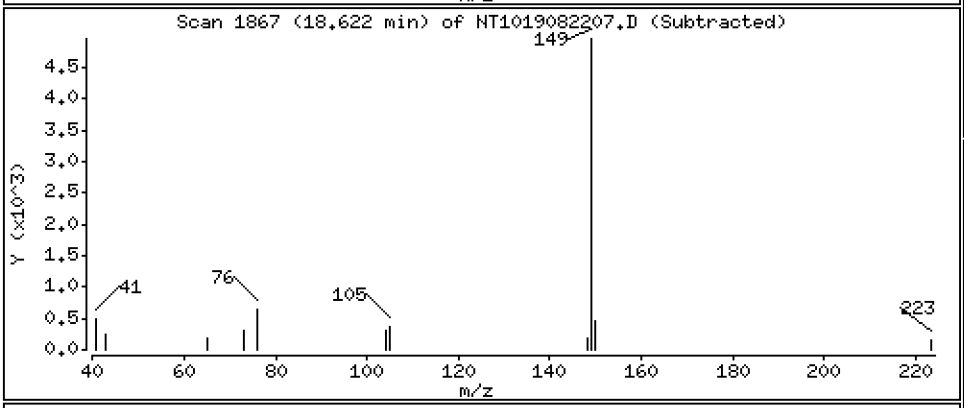
Column diameter: 0.25

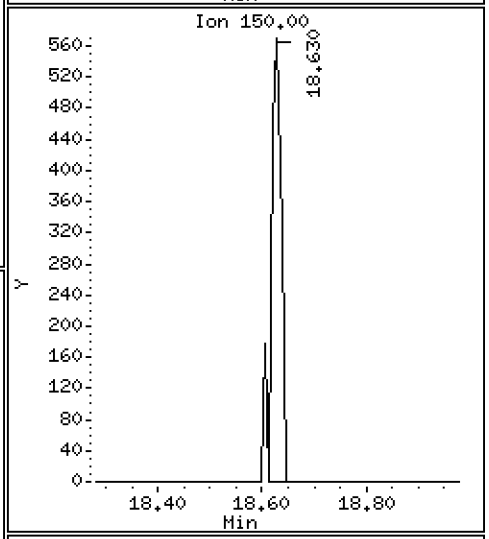
63 Di-n-butylphthalate

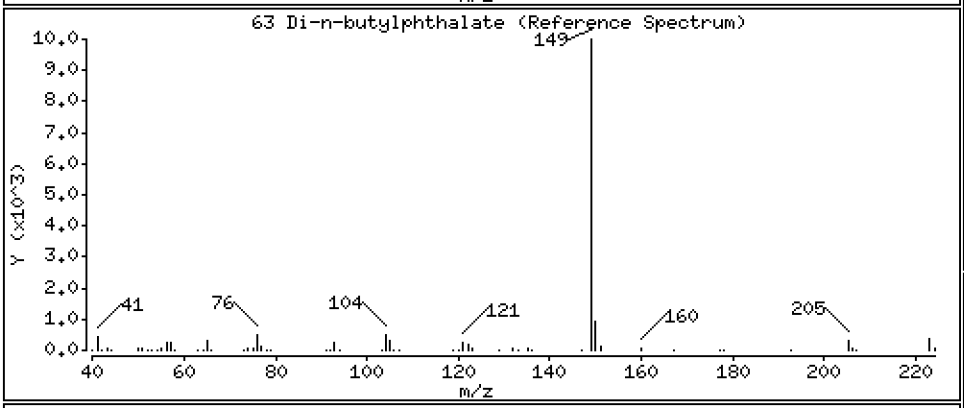
Concentration: 0.1687 ug/mL

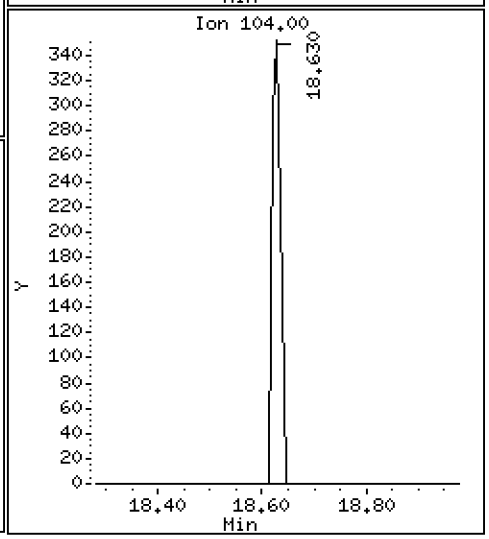


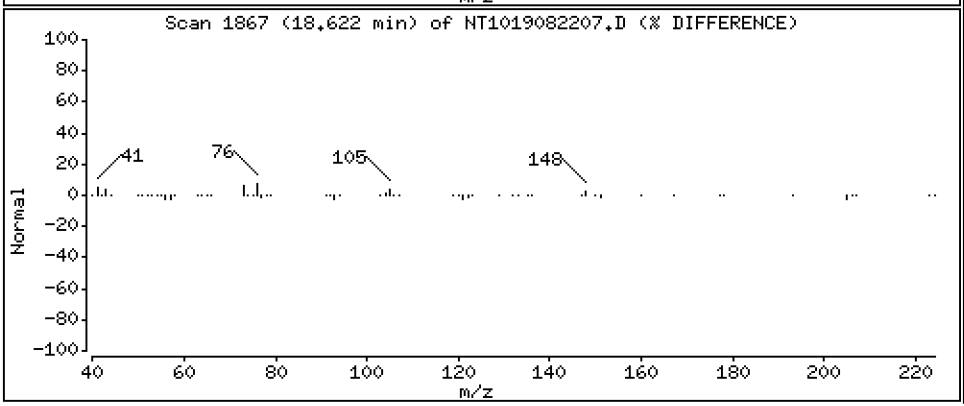












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

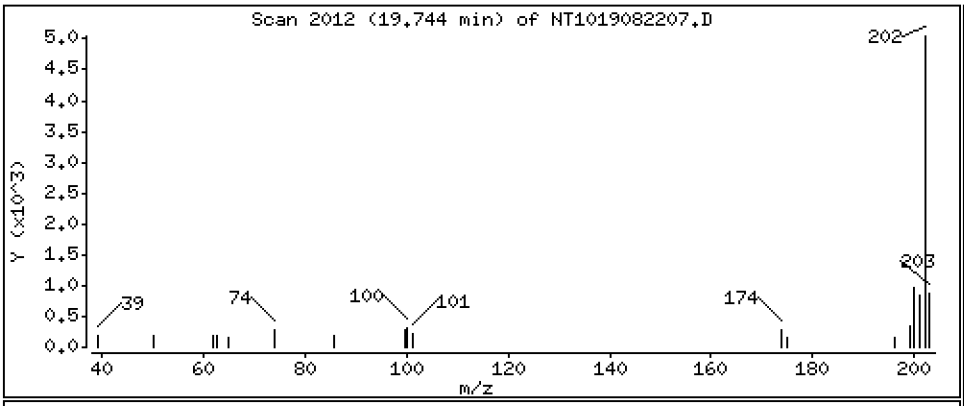
Operator: YZ

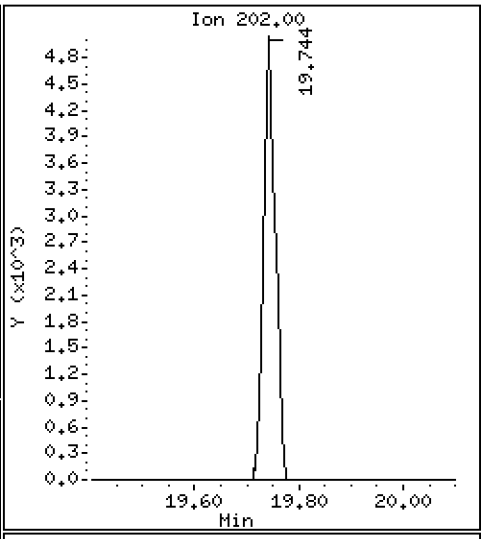
Column phase: ZB-5msi

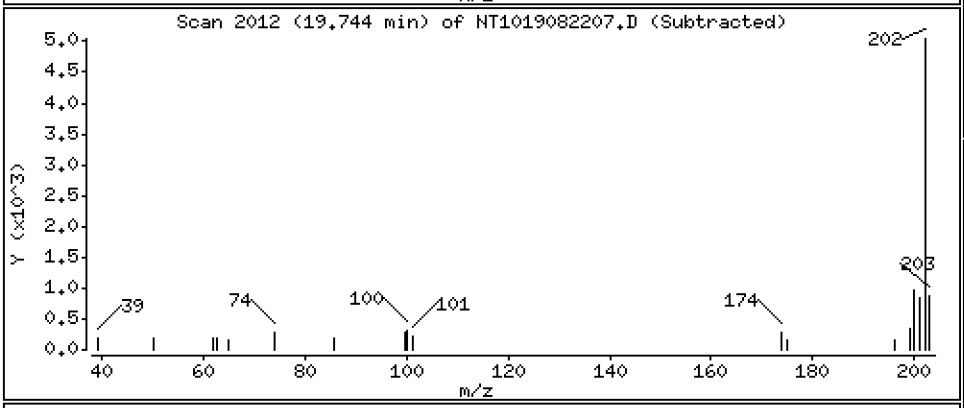
Column diameter: 0.25

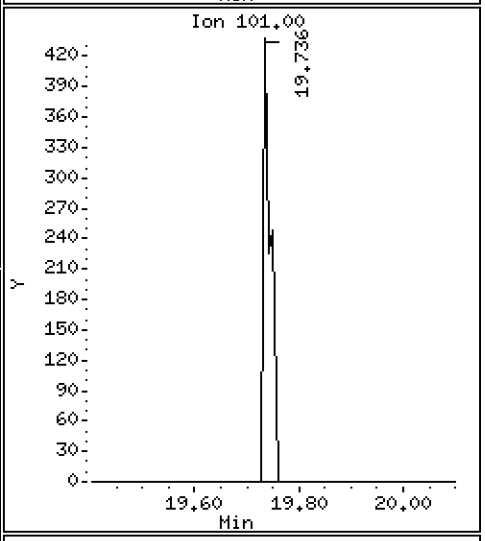
64 Fluoranthene

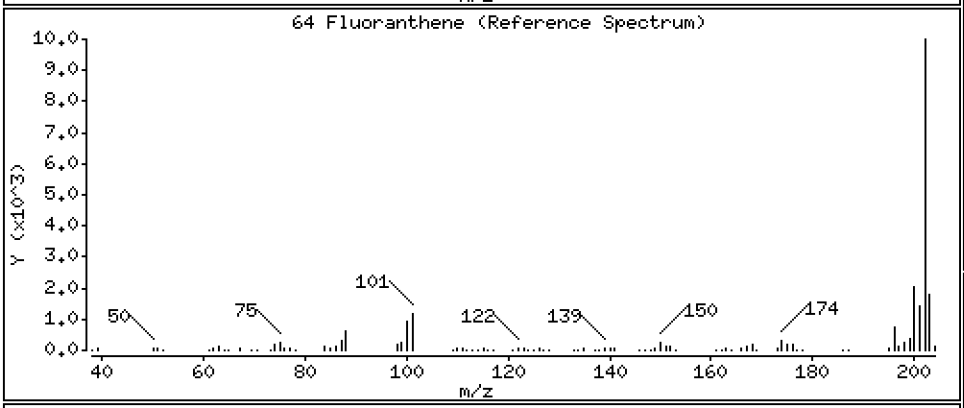
Concentration: 0.1945 ug/mL

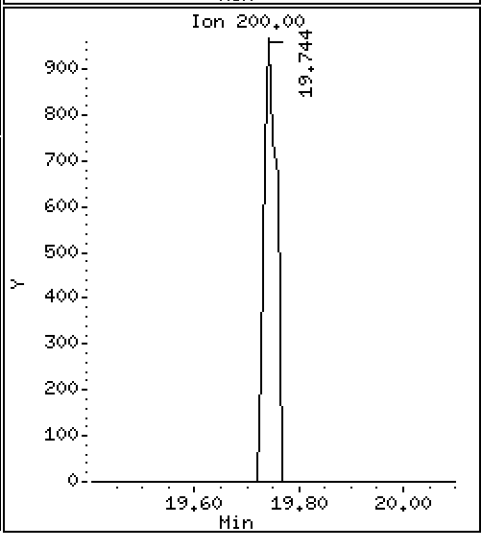


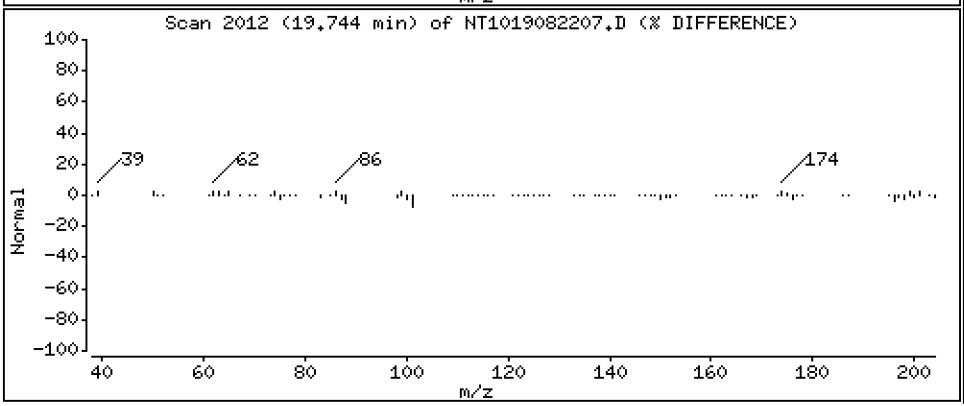












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

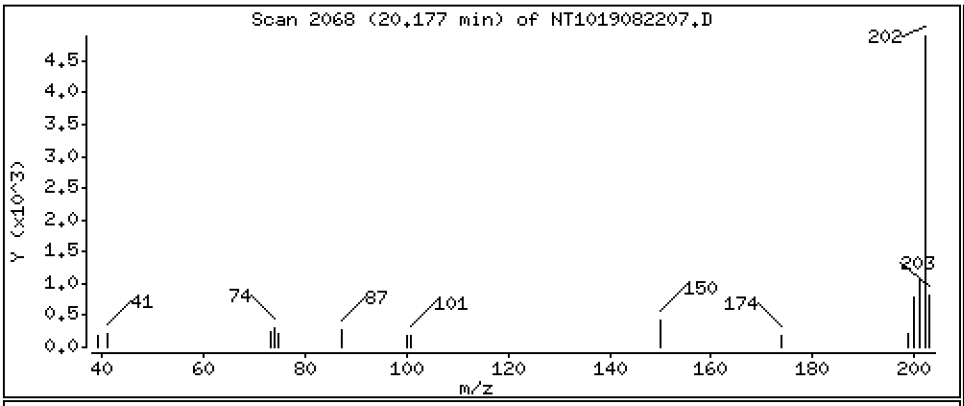
Operator: YZ

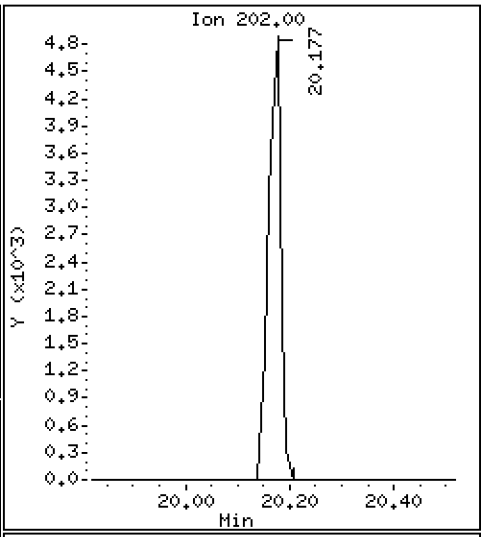
Column phase: ZB-5msi

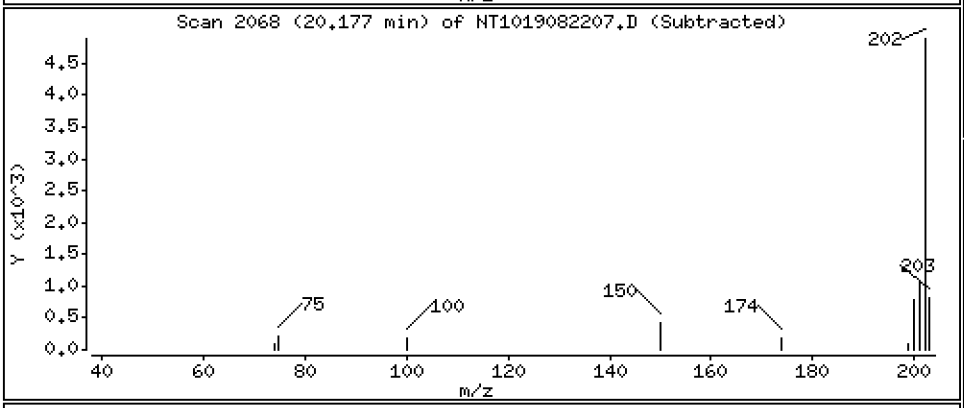
Column diameter: 0.25

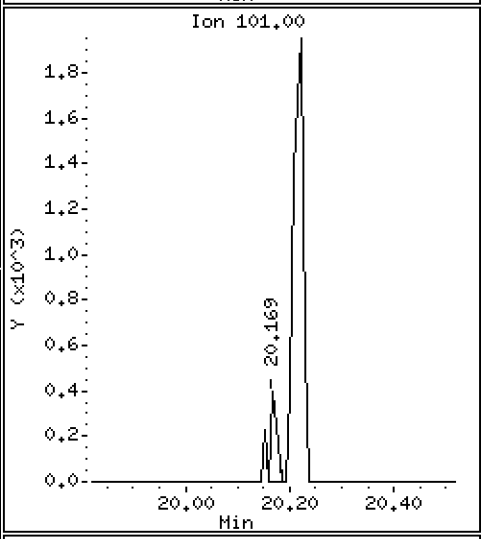
65 Pyrene

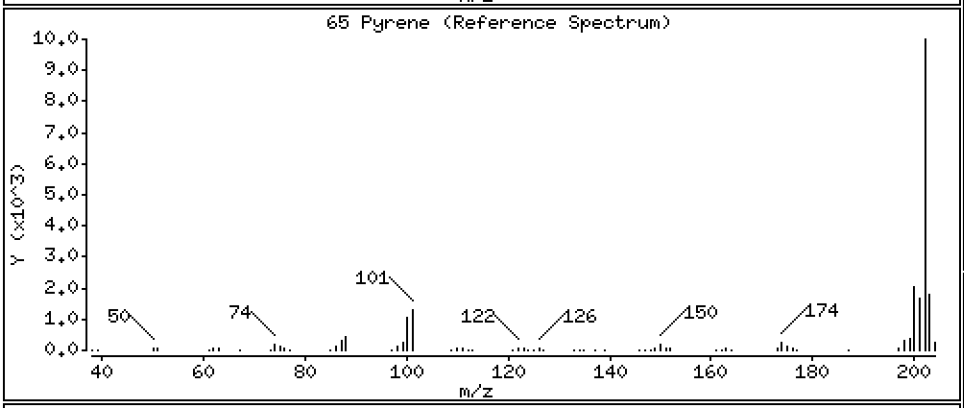
Concentration: 0.1834 ug/mL

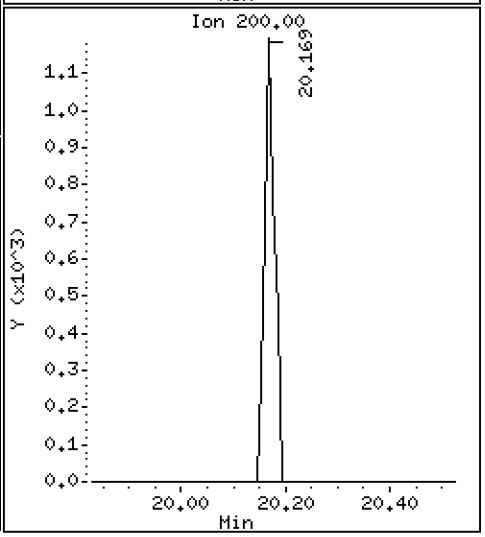


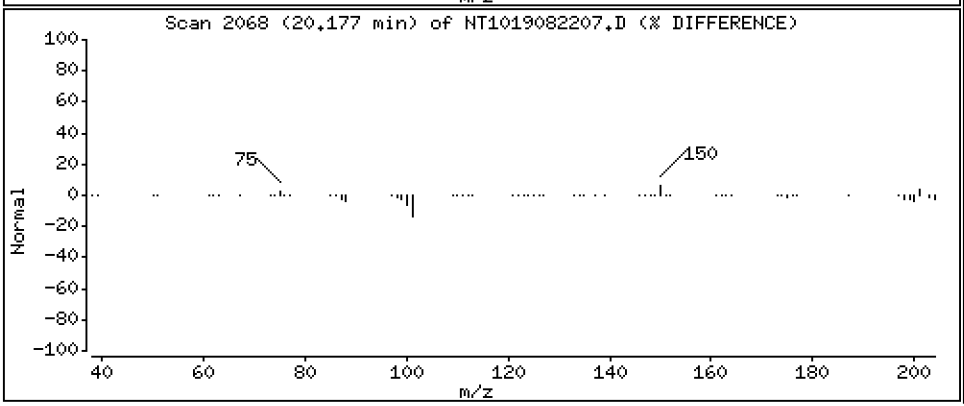












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

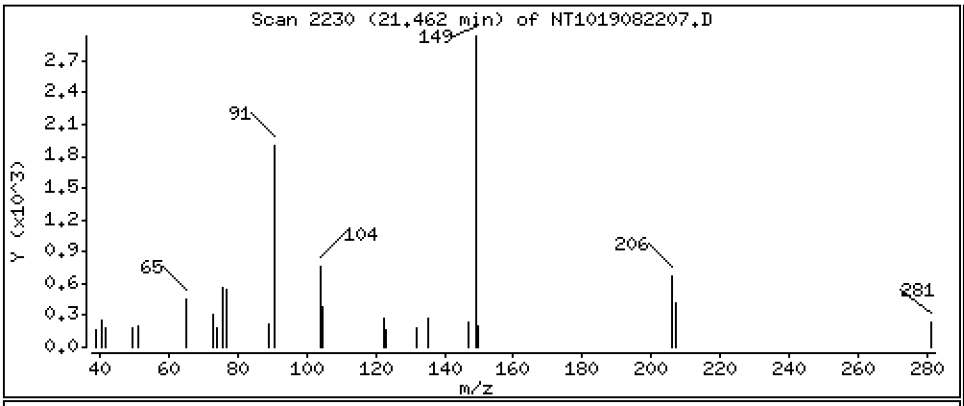
Operator: YZ

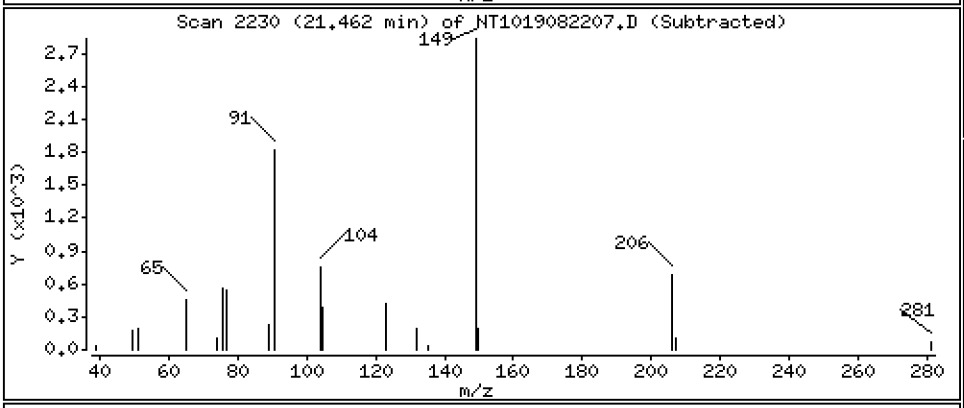
Column phase: ZB-5msi

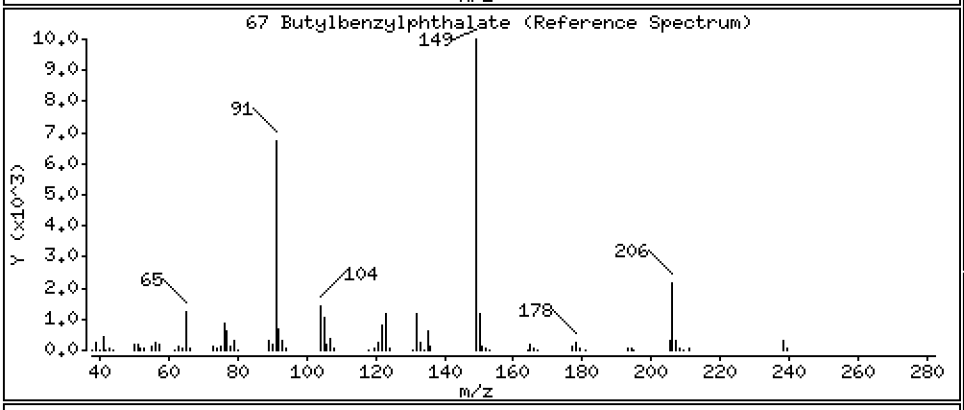
Column diameter: 0.25

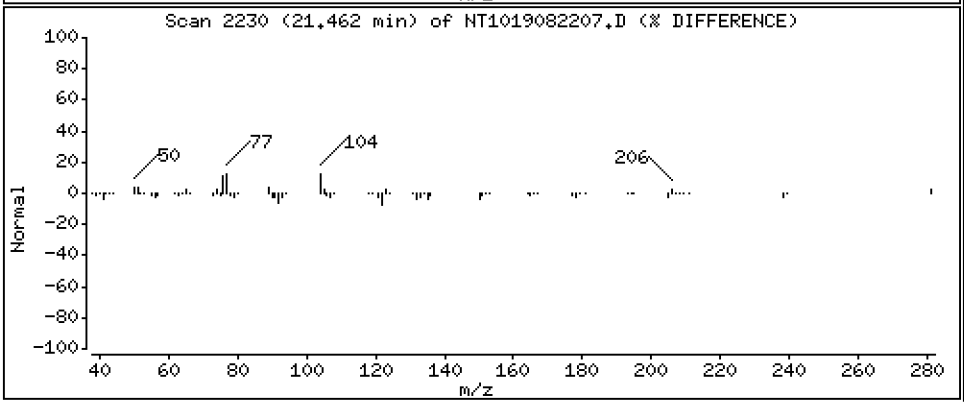
67 Butylbenzylphthalate

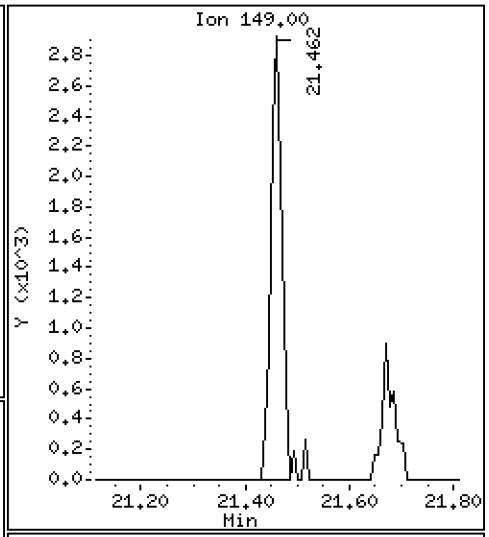
Concentration: 0.2085 ug/mL

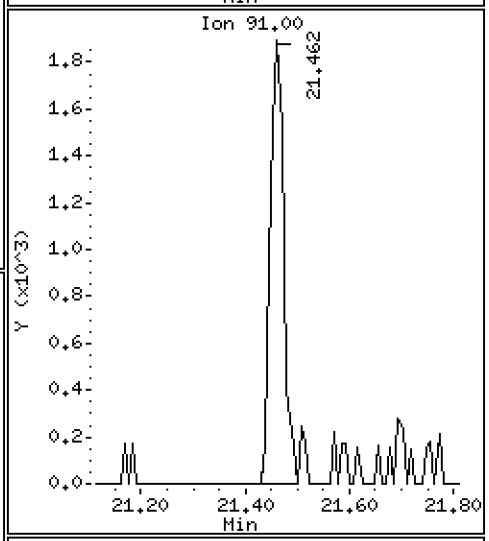


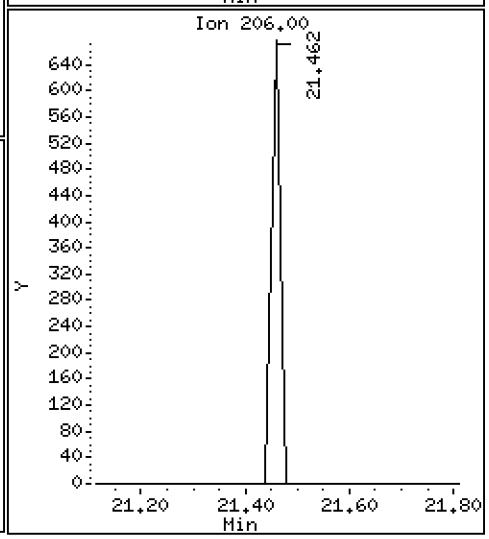












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

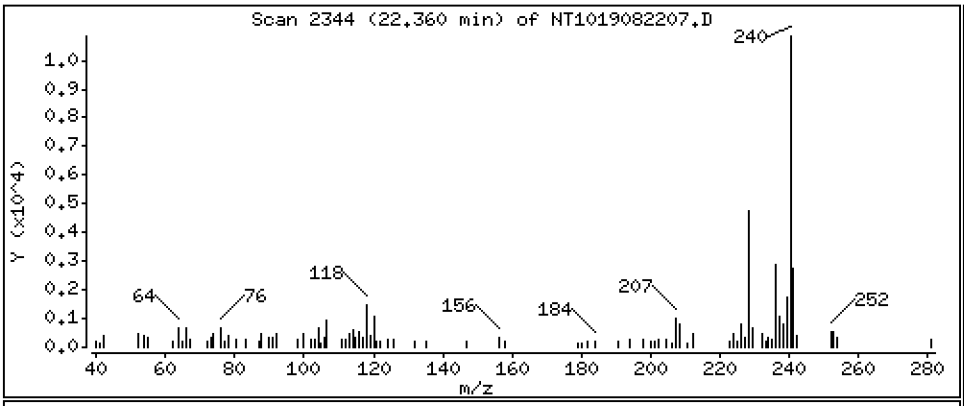
Operator: YZ

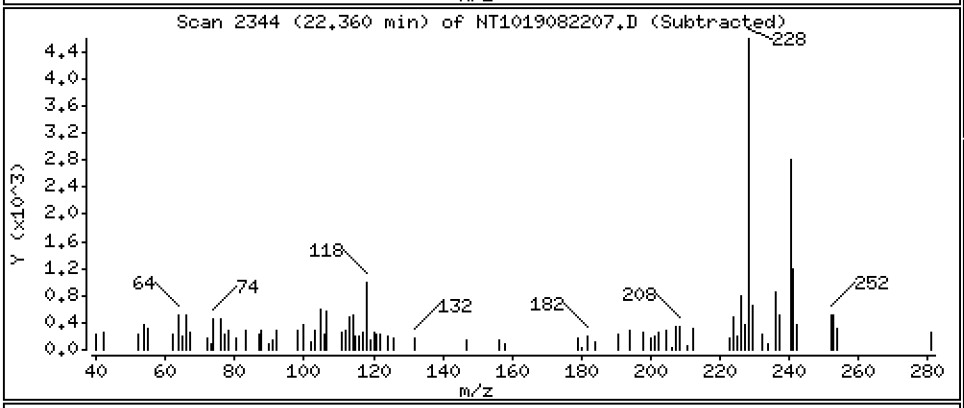
Column phase: ZB-5msi

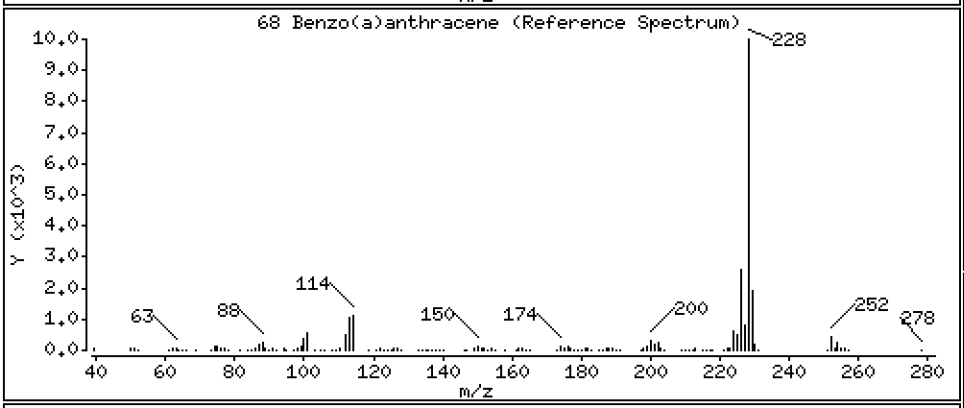
Column diameter: 0.25

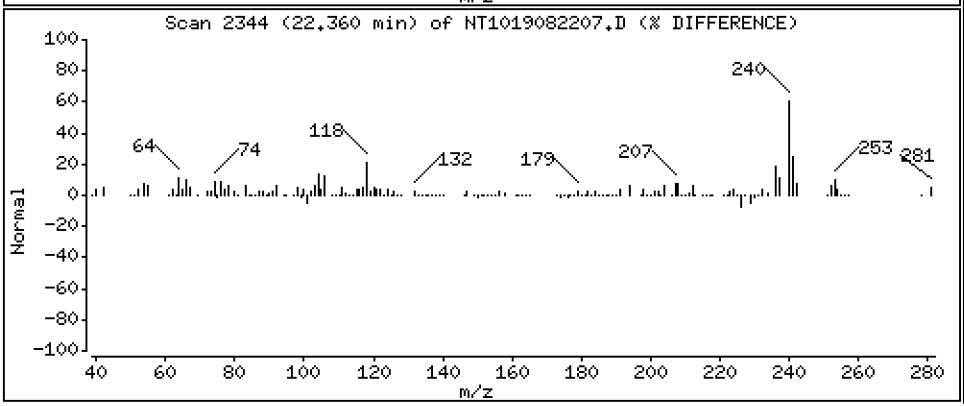
68 Benzo(a)anthracene

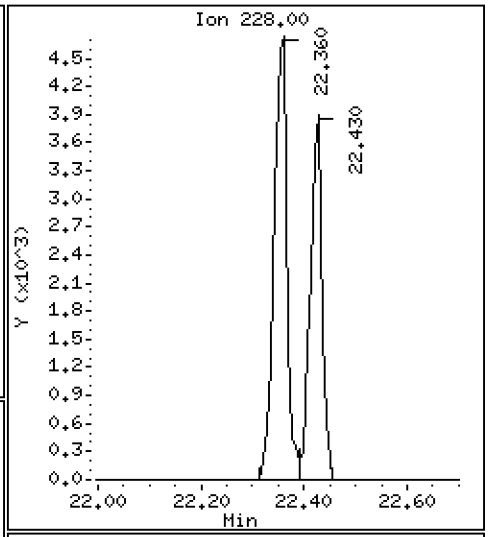
Concentration: 0.2087 ug/mL

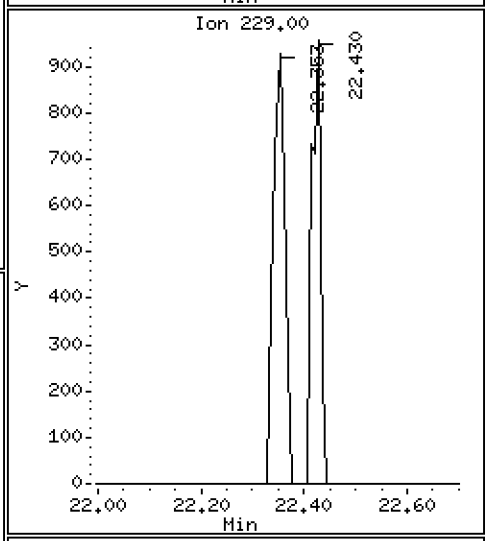


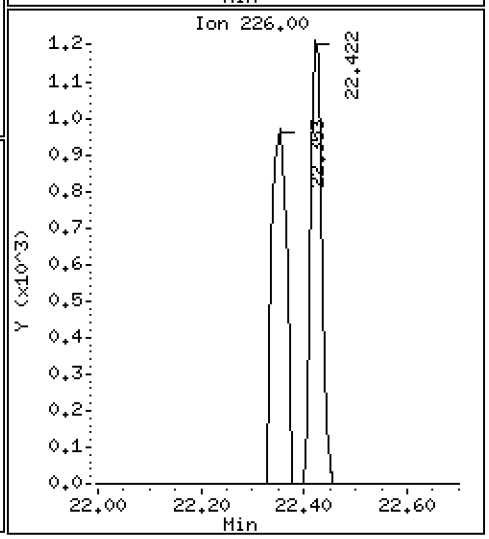












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

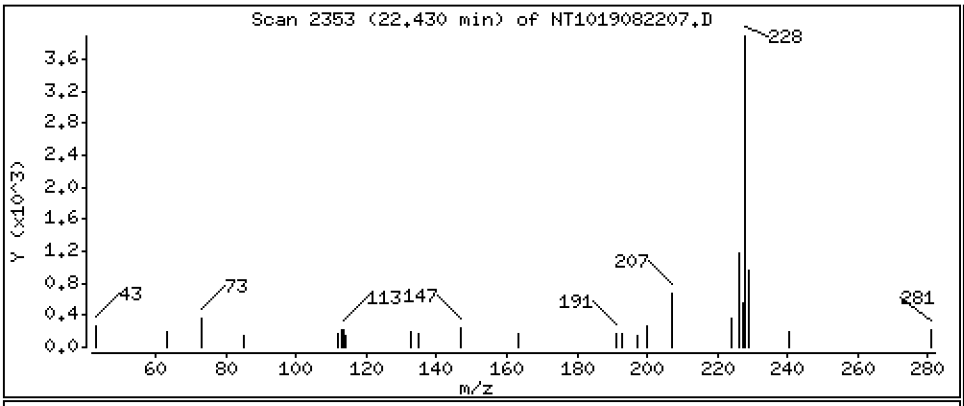
Operator: YZ

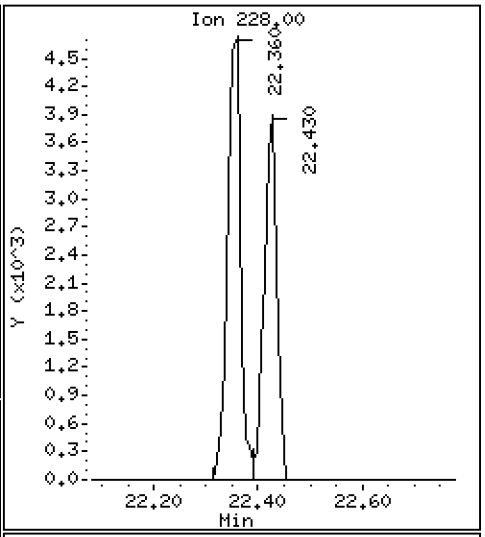
Column phase: ZB-5msi

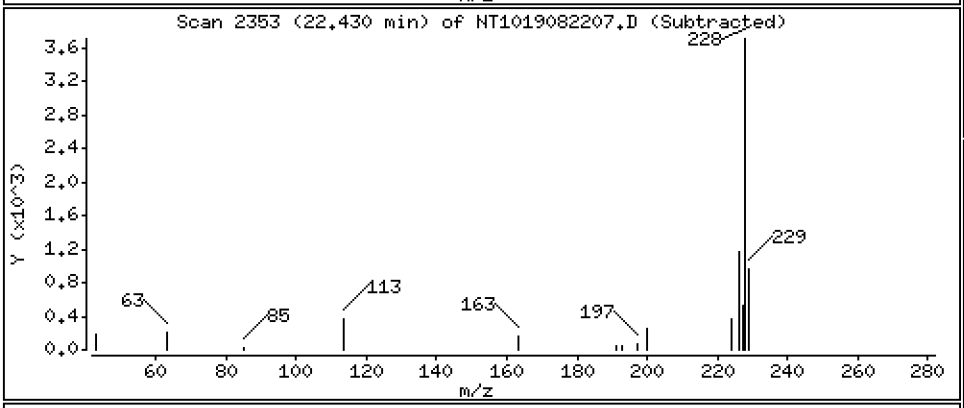
Column diameter: 0.25

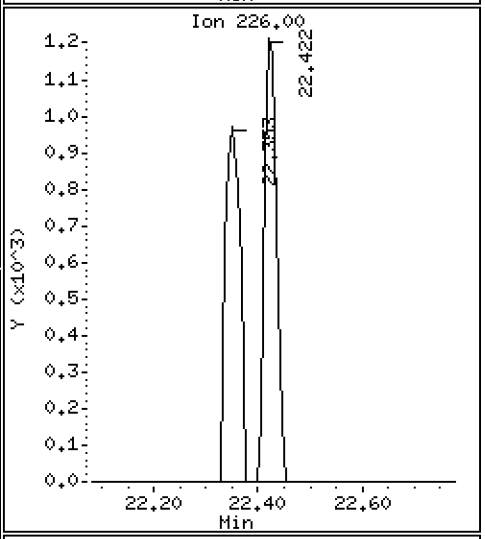
71 Chrysene

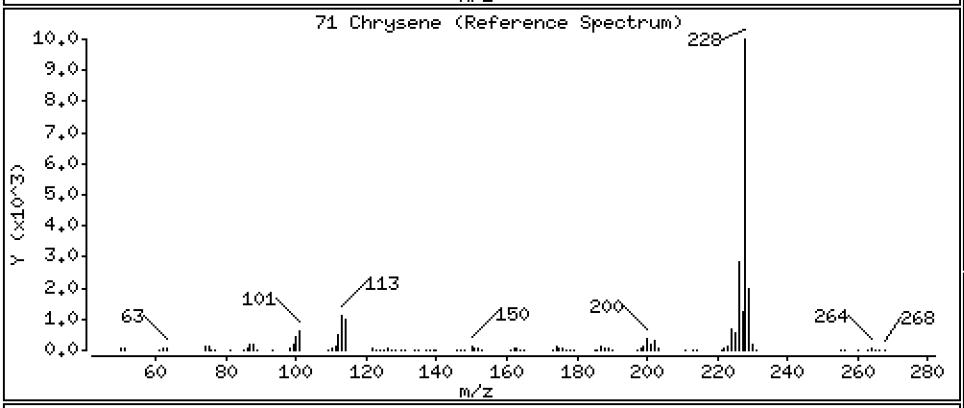
Concentration: 0.1913 ug/mL

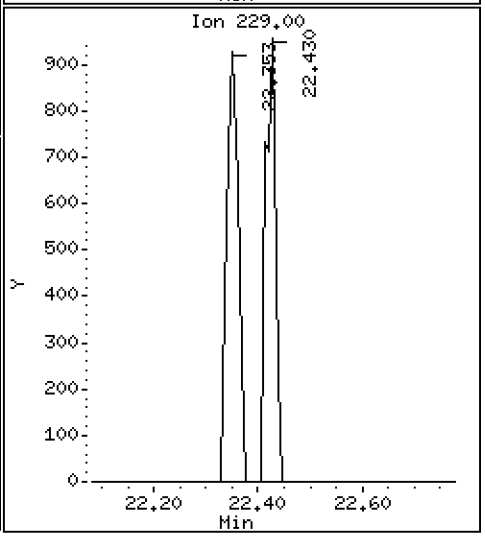


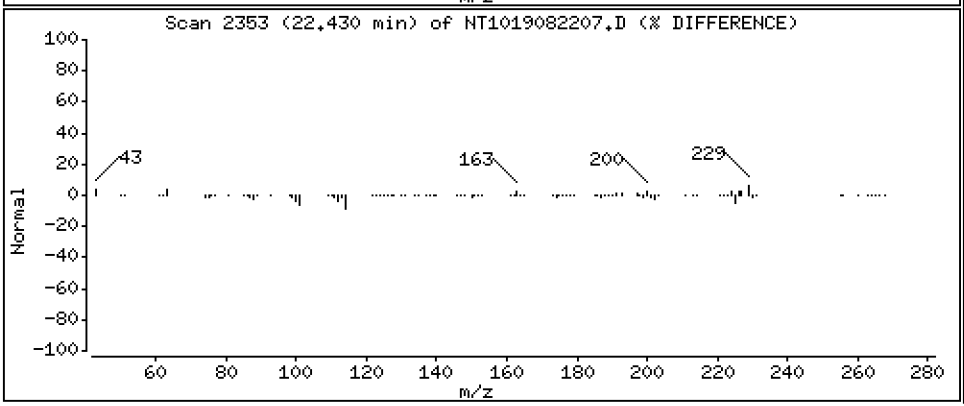












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

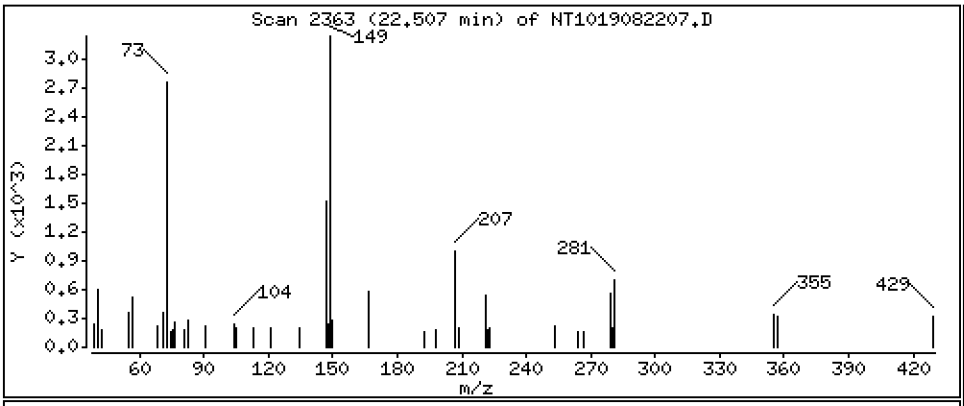
Operator: YZ

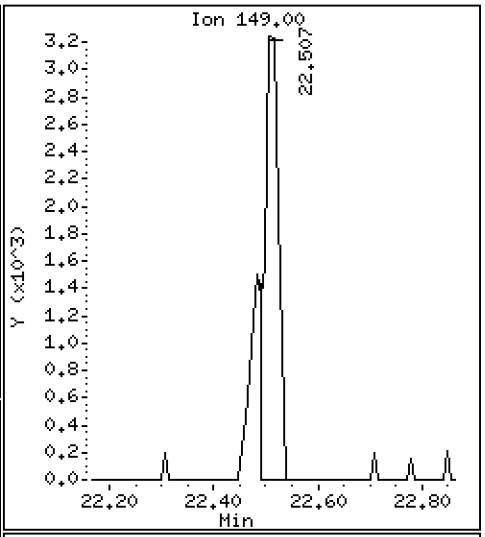
Column phase: ZB-5msi

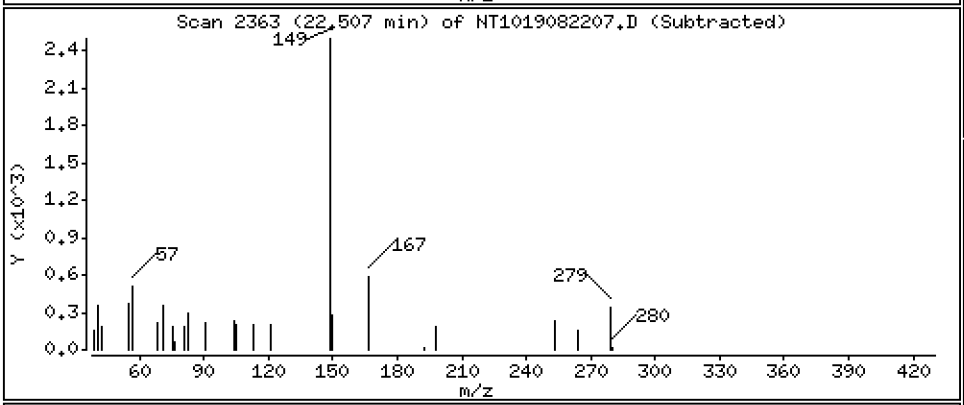
Column diameter: 0.25

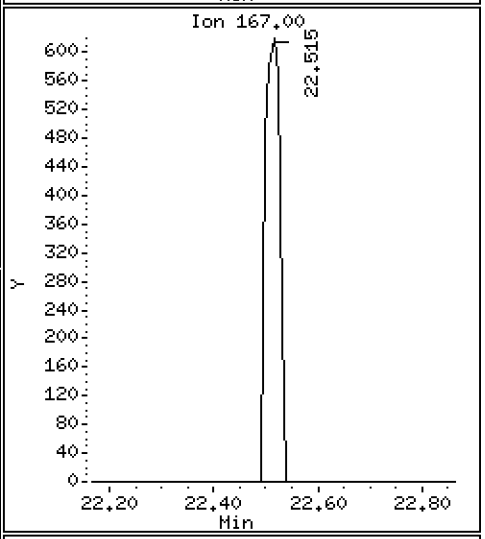
72 bis(2-Ethylhexyl)phthalate

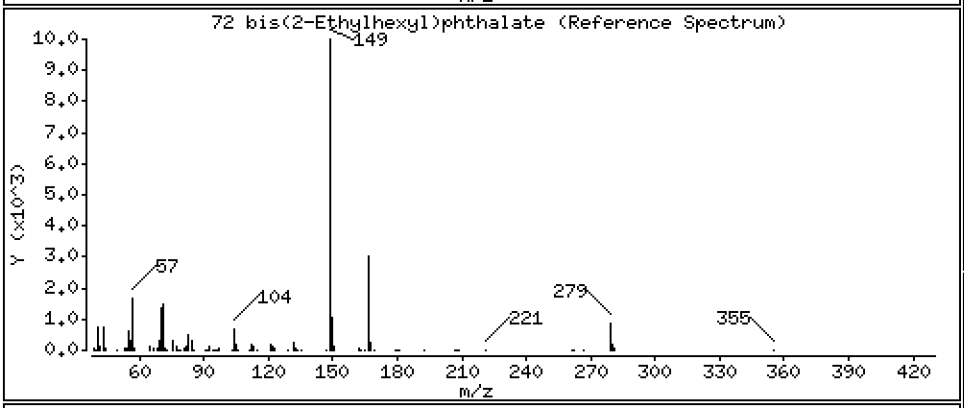
Concentration: 0.2518 ug/mL

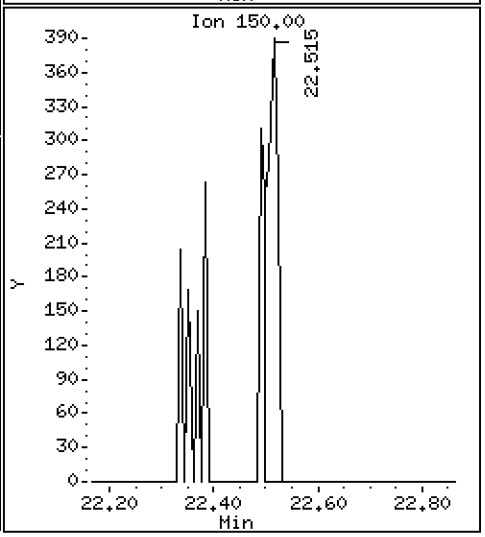


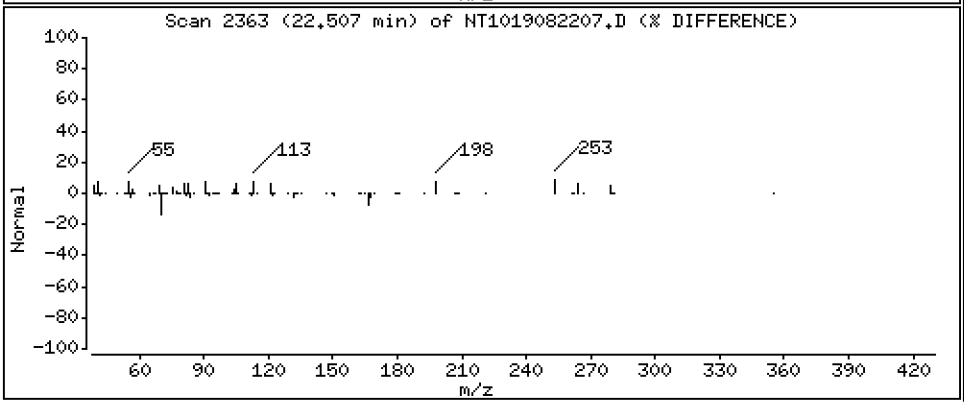












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

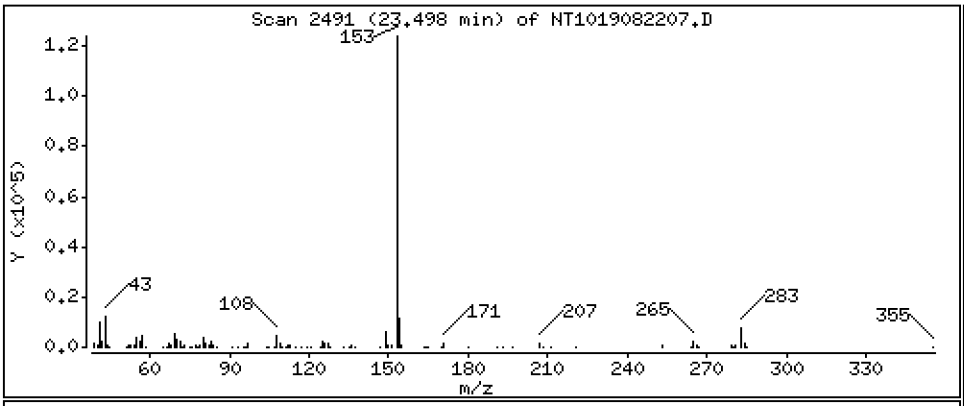
Operator: YZ

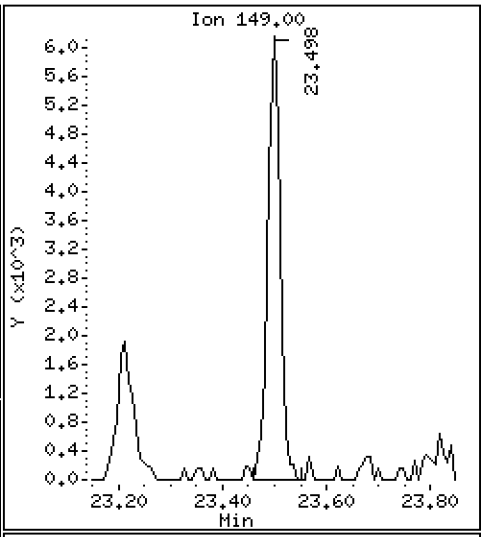
Column phase: ZB-5msi

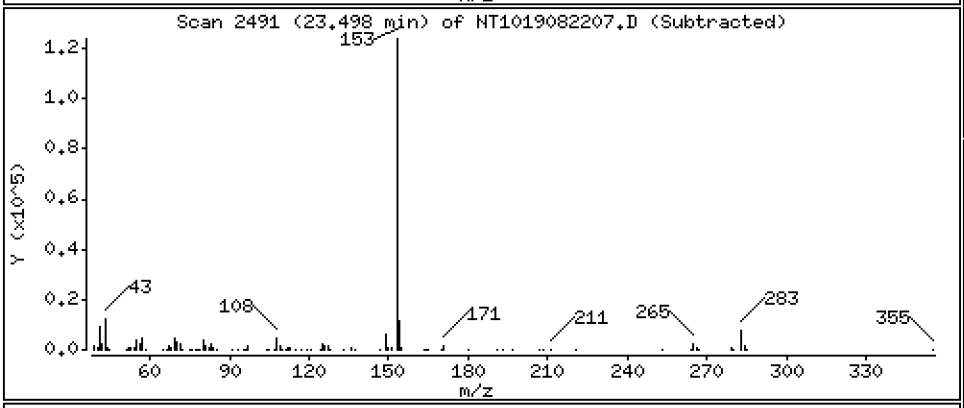
Column diameter: 0.25

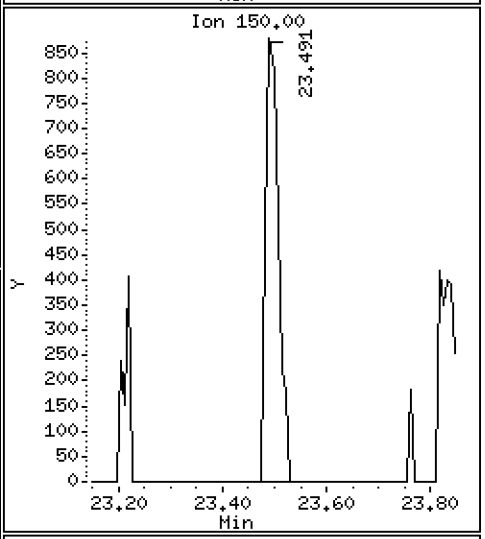
73 Di-n-octylphthalate

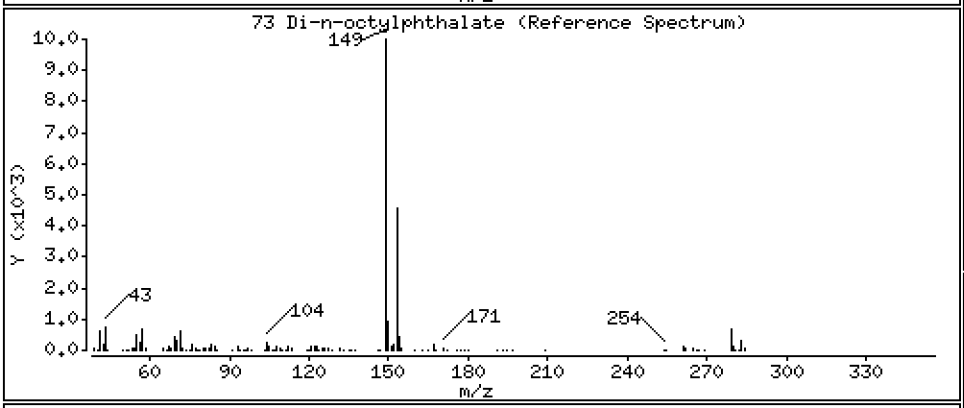
Concentration: 0.2028 ug/mL

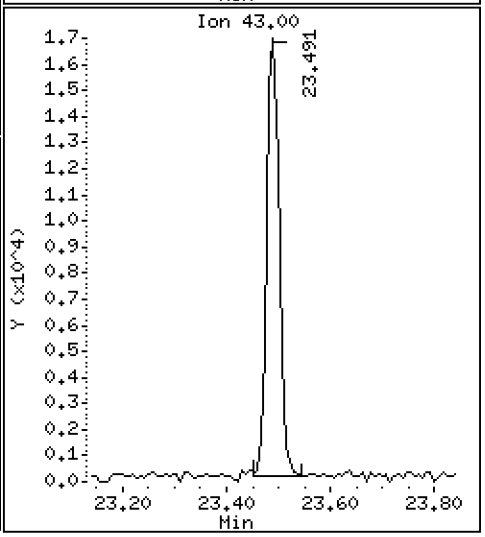


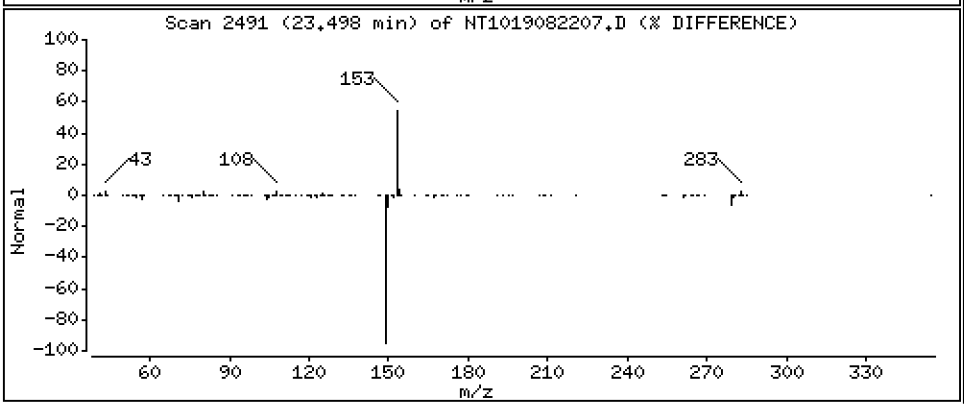












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Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

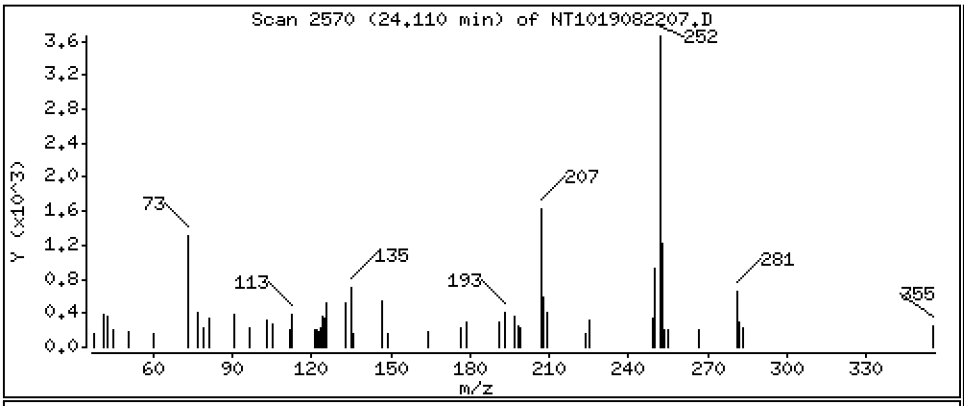
Operator: YZ

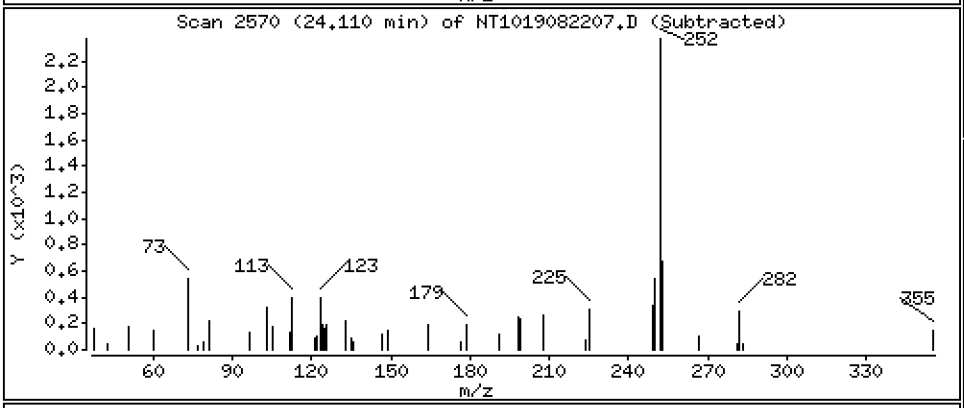
Column phase: ZB-5msi

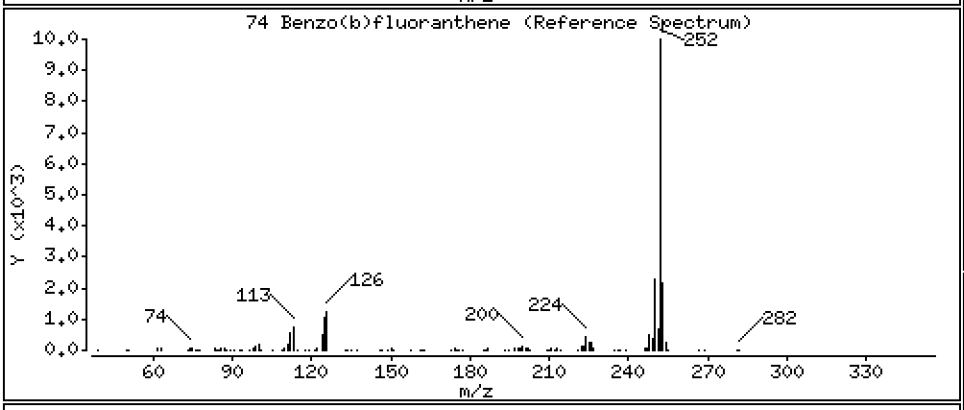
Column diameter: 0.25

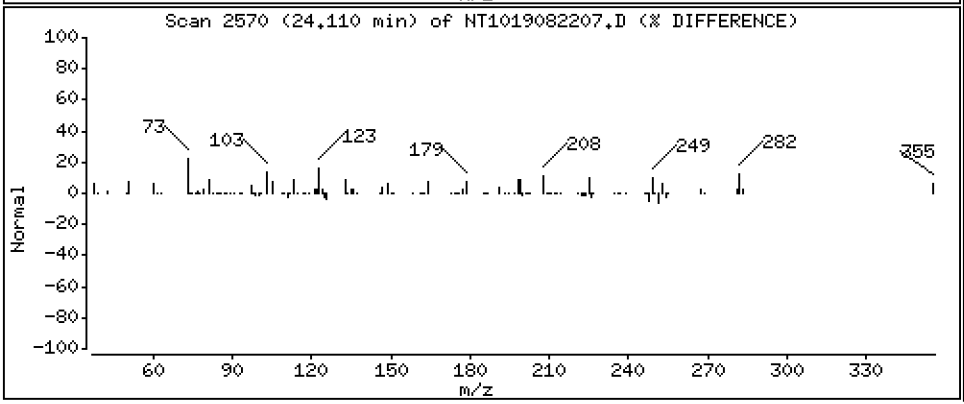
74 Benzo(b)fluoranthene

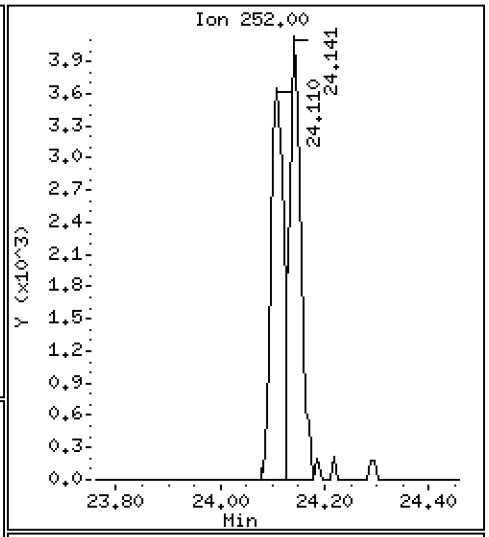
Concentration: 0.1982 ug/mL

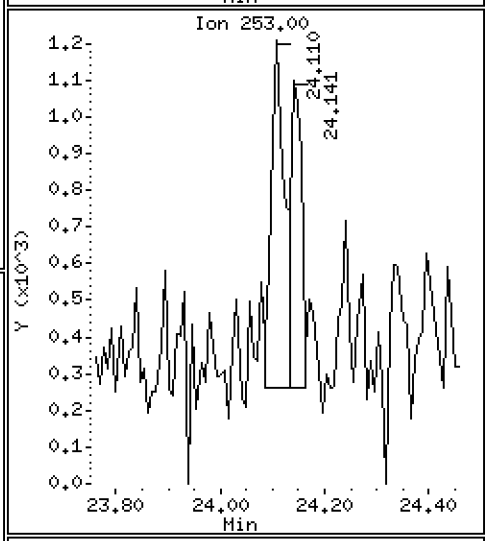


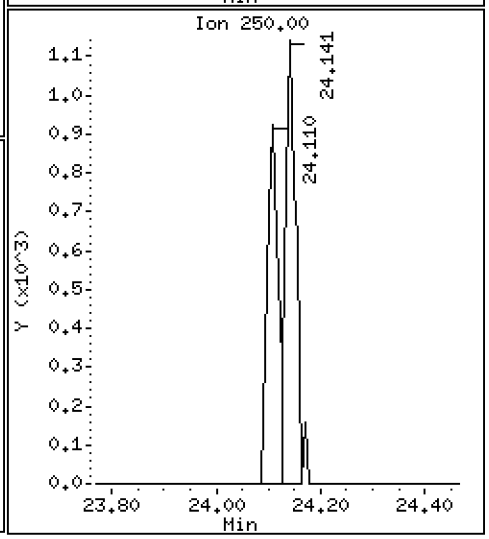












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

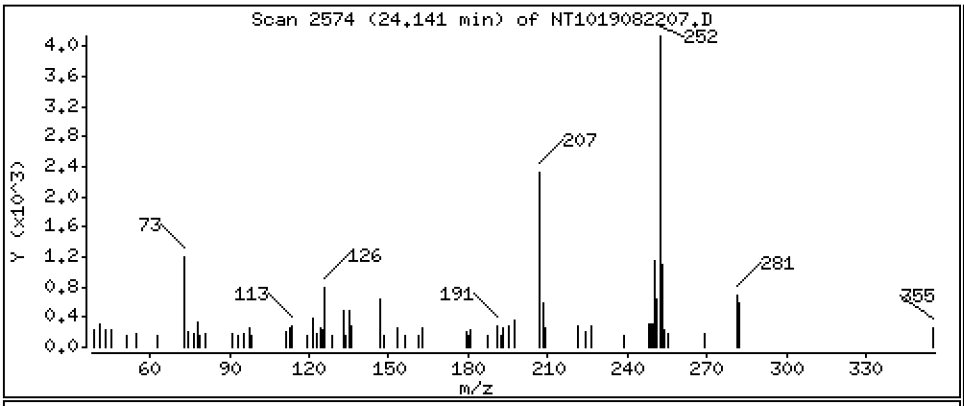
Operator: YZ

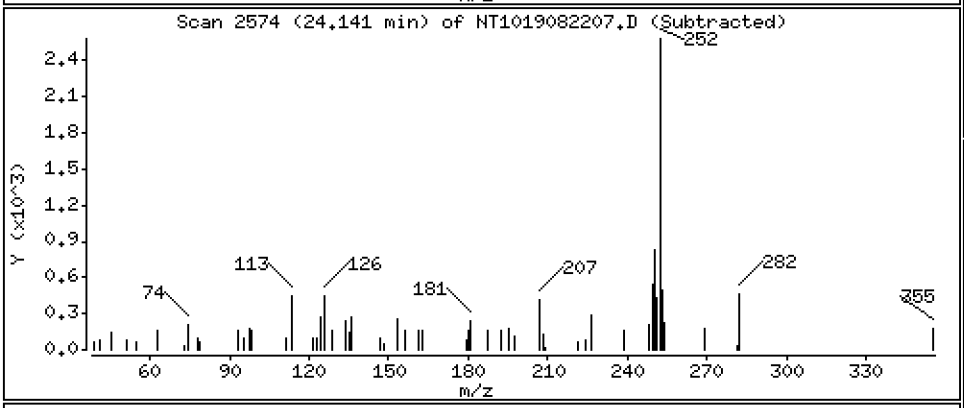
Column phase: ZB-5msi

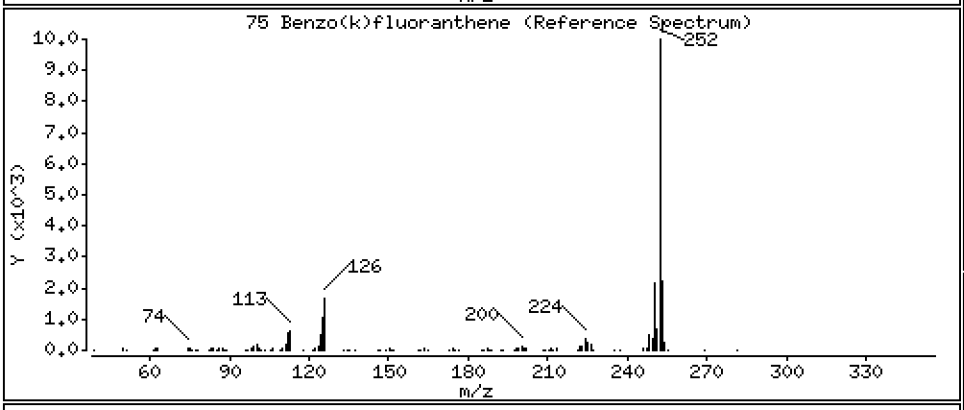
Column diameter: 0.25

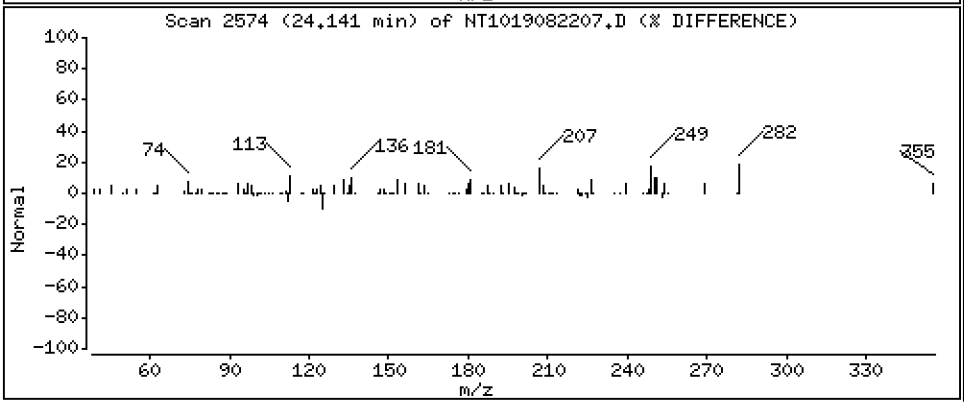
75 Benzo(k)fluoranthene

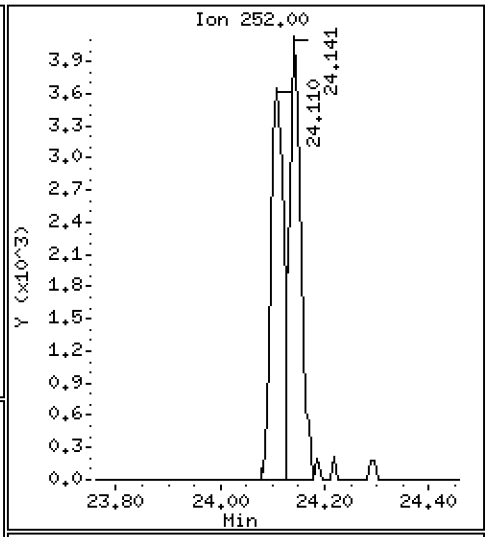
Concentration: 0.2329 ug/mL

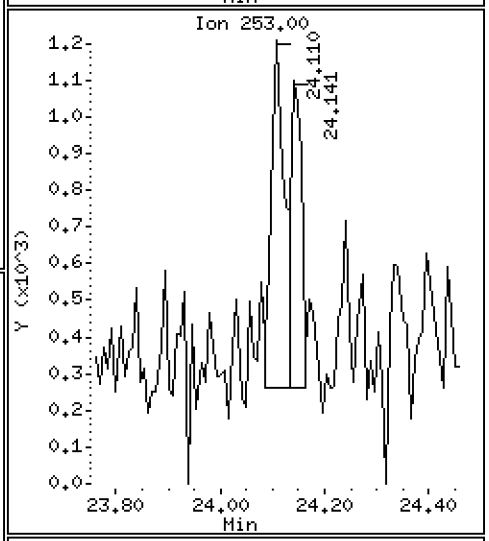


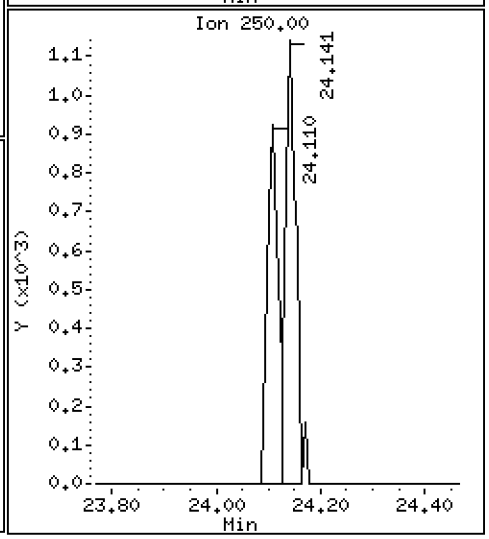












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

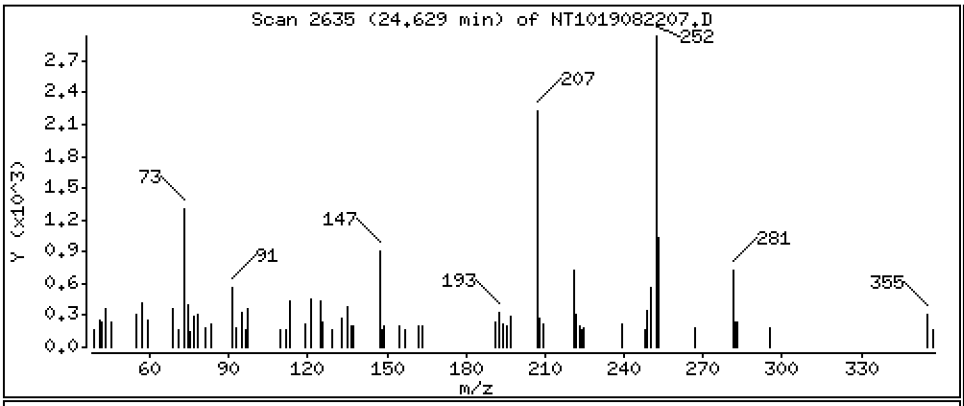
Operator: YZ

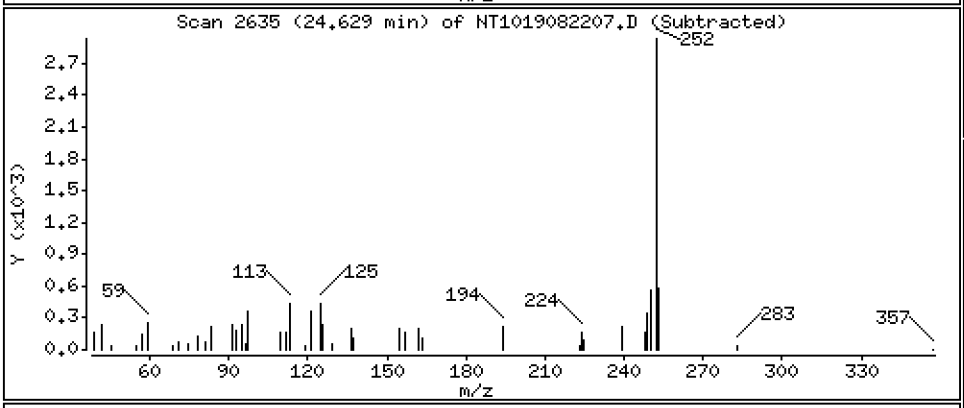
Column phase: ZB-5msi

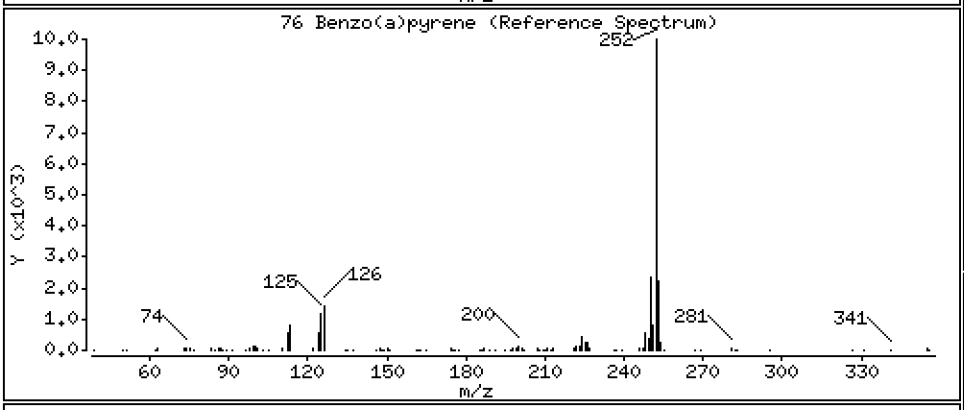
Column diameter: 0.25

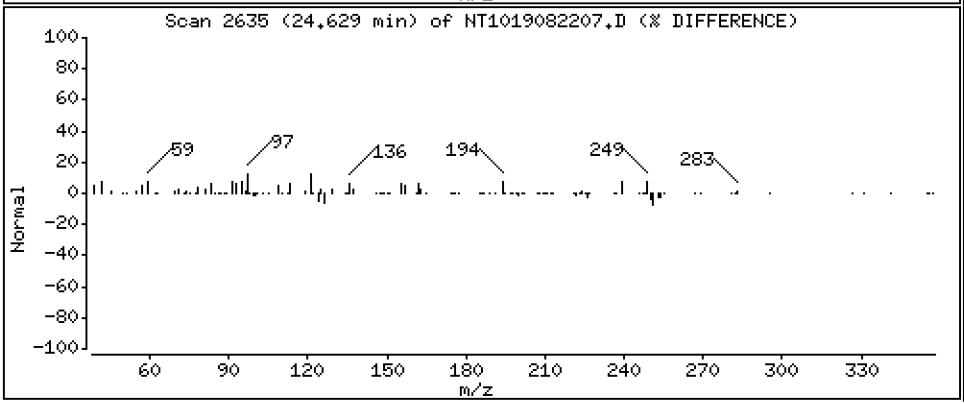
76 Benzo(a)pyrene

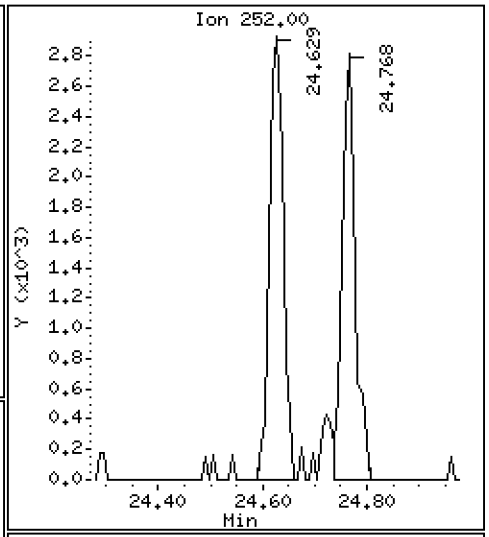
Concentration: 0.1926 ug/mL

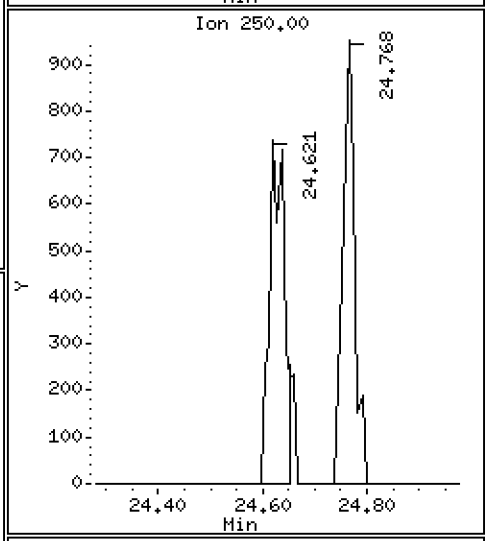


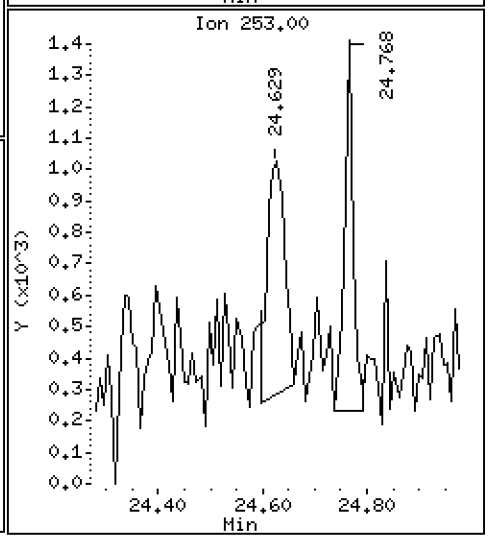












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

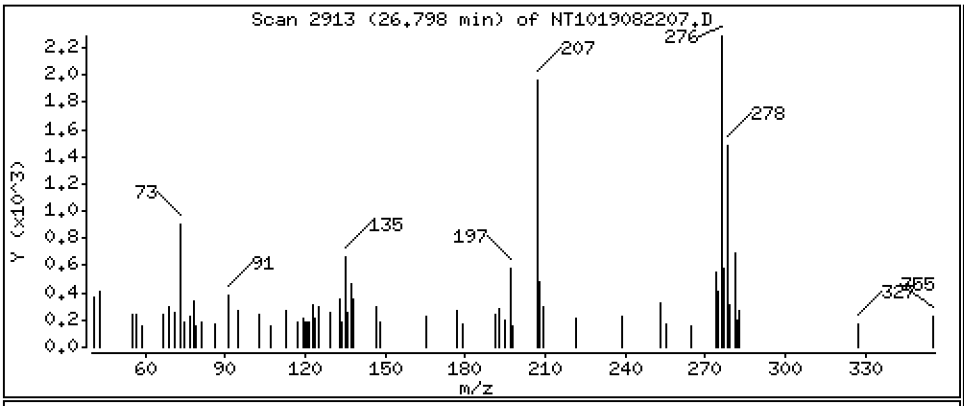
Operator: YZ

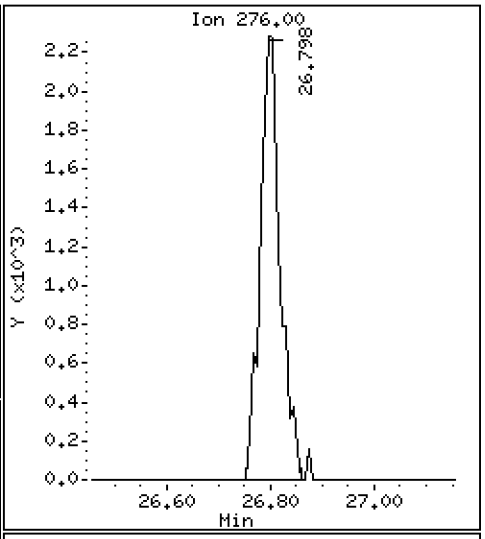
Column phase: ZB-5msi

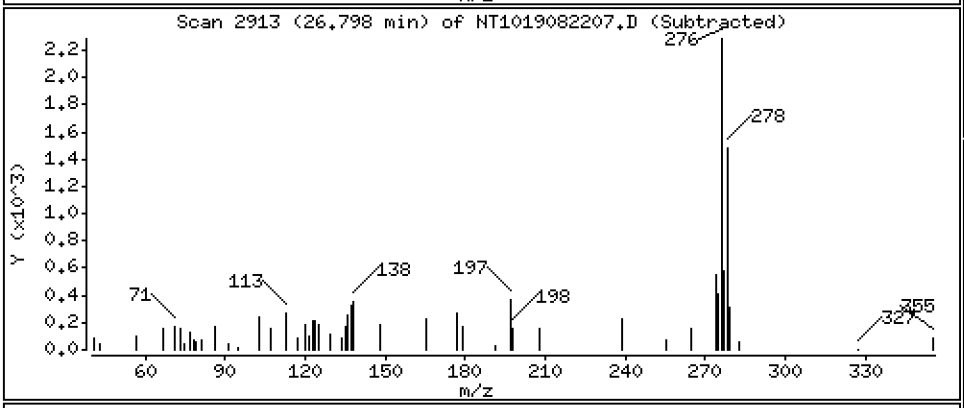
Column diameter: 0.25

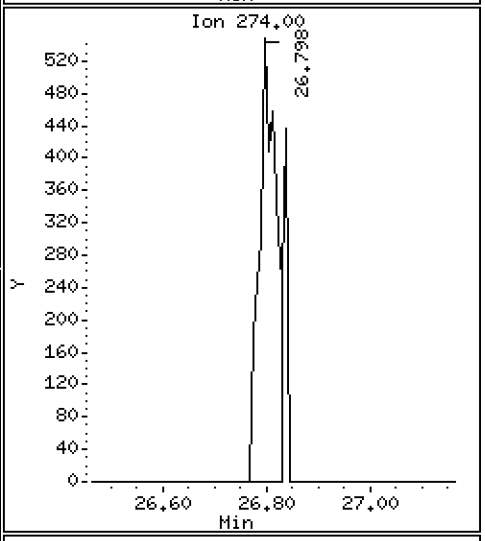
78 Indeno(1,2,3-cd)pyrene

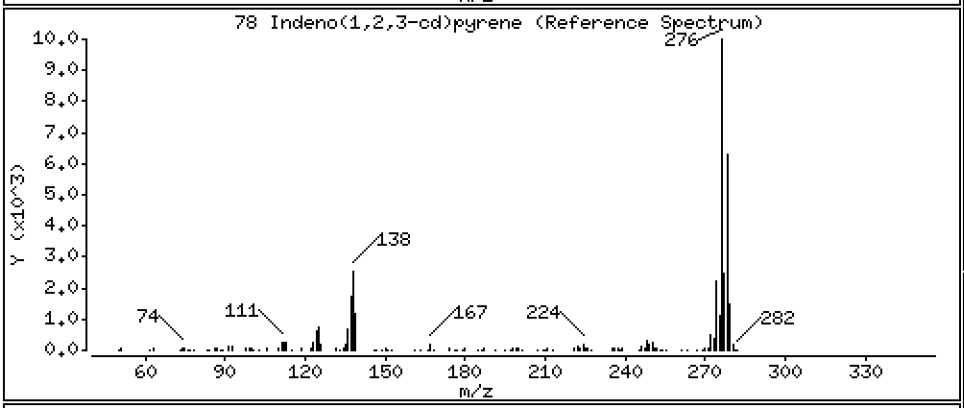
Concentration: 0.1867 ug/mL

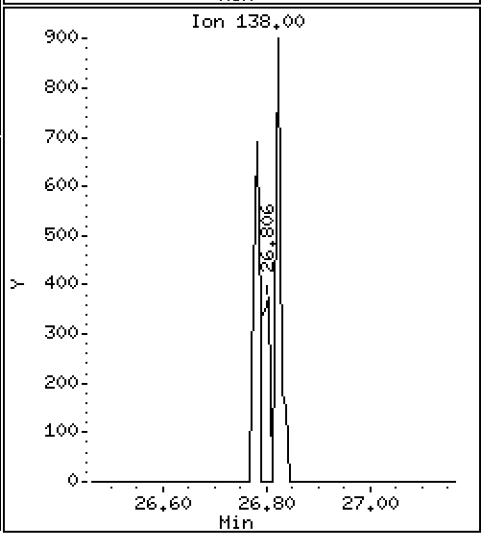


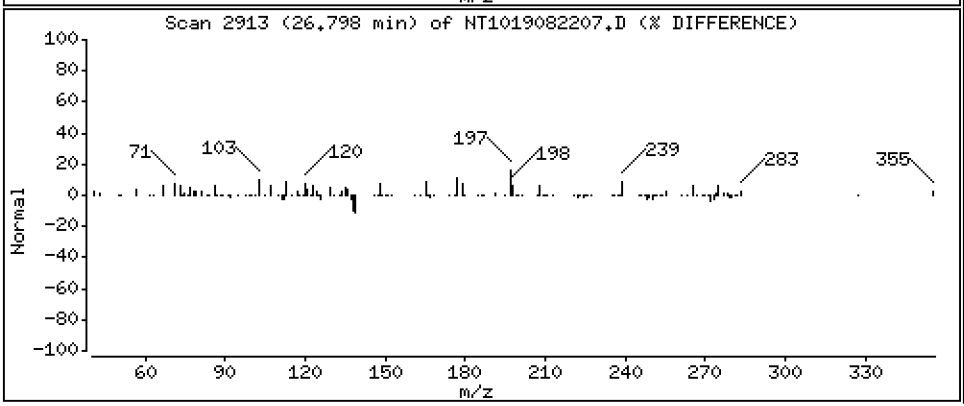












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

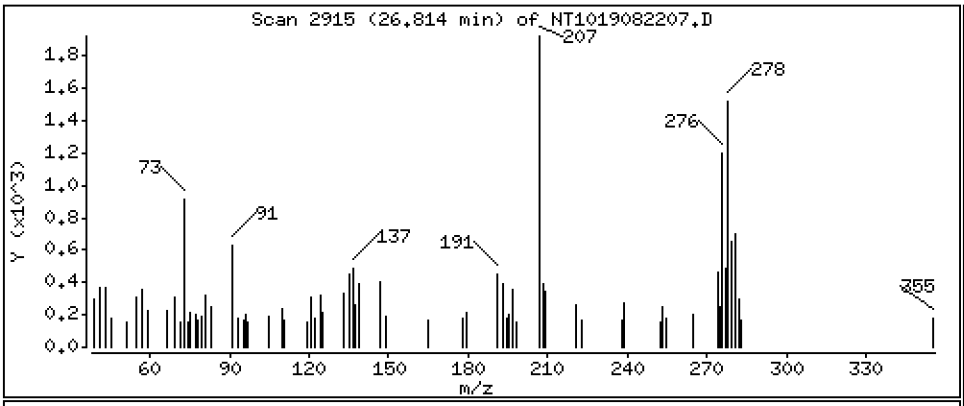
Operator: YZ

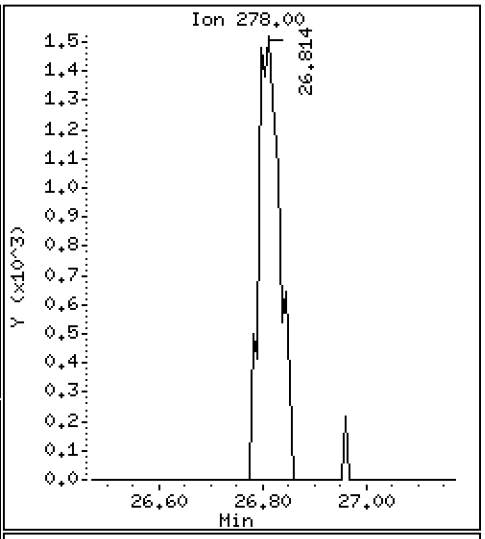
Column phase: ZB-5msi

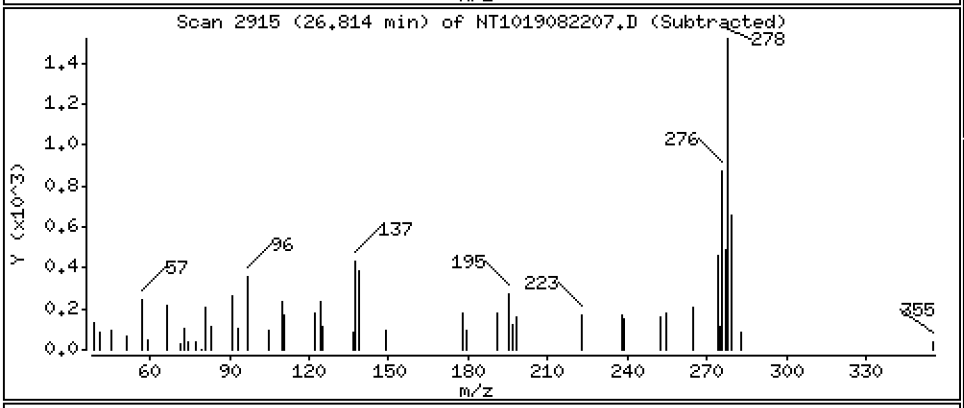
Column diameter: 0.25

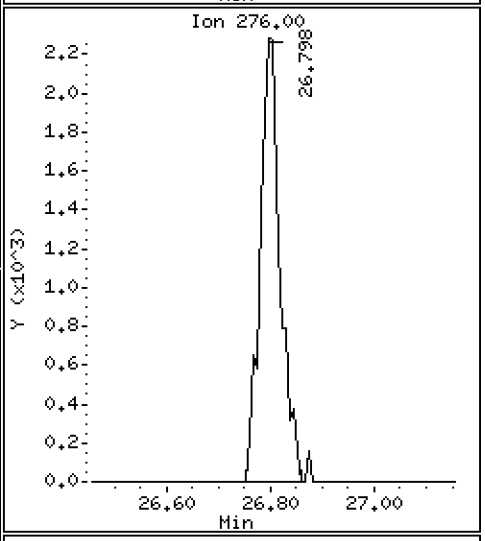
79 Dibenzo(a,h)anthracene

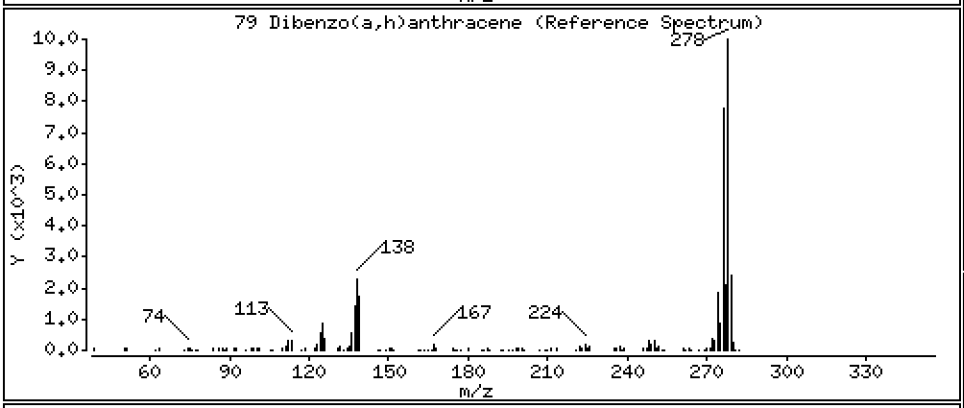
Concentration: 0.1625 ug/mL

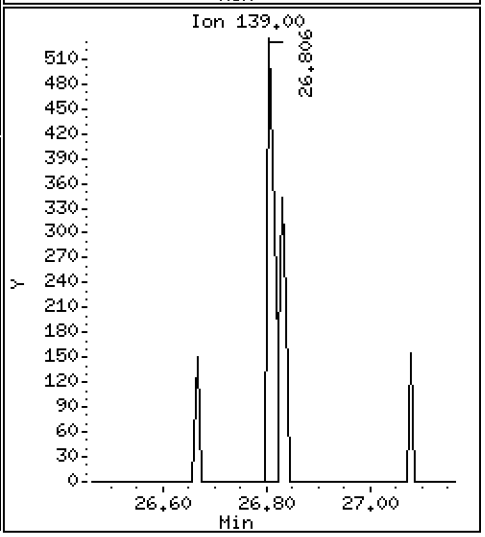


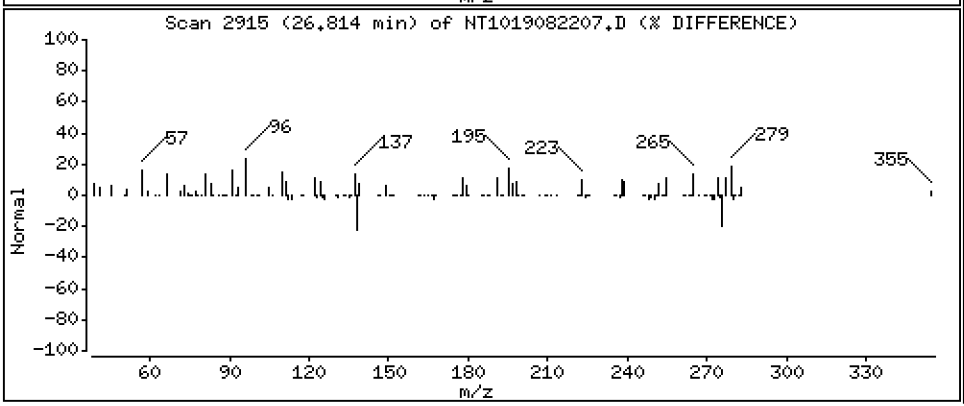












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

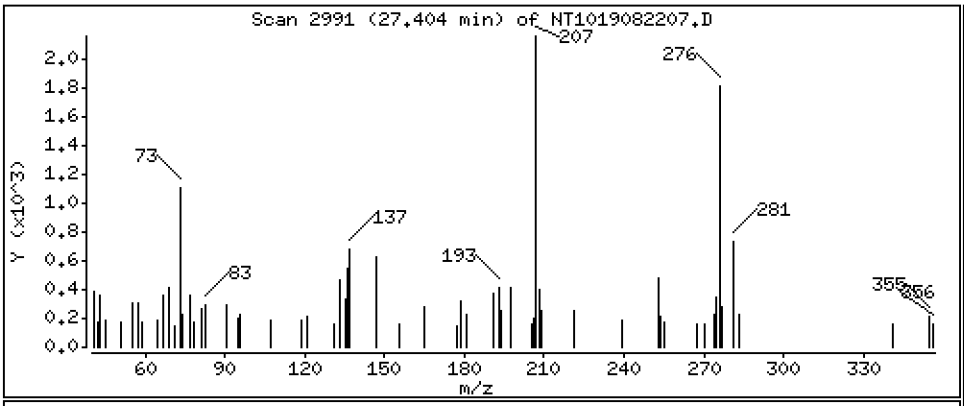
Operator: YZ

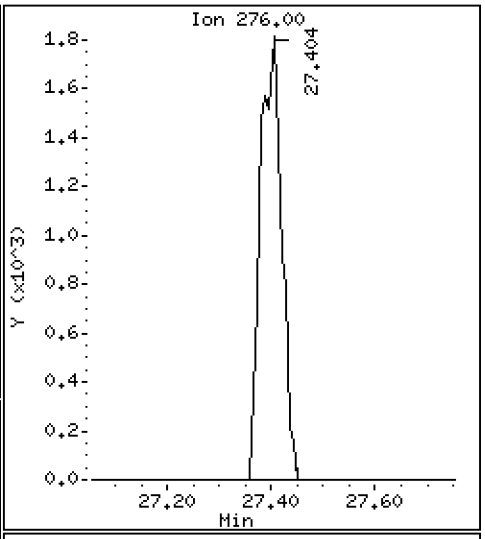
Column phase: ZB-5msi

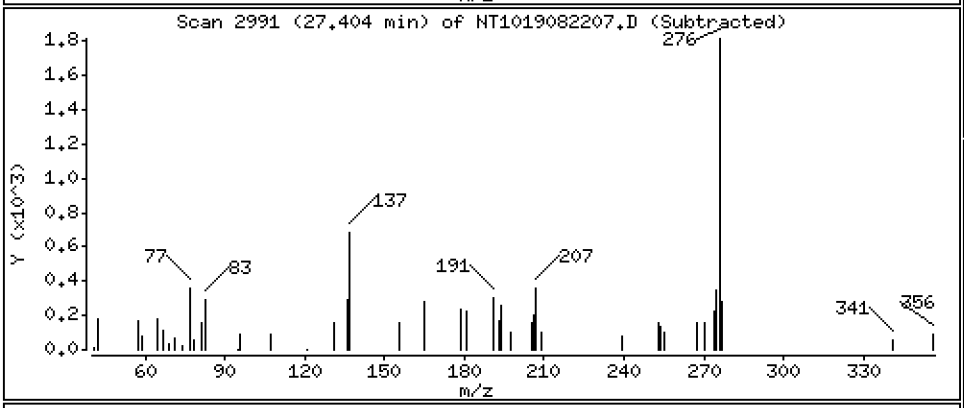
Column diameter: 0.25

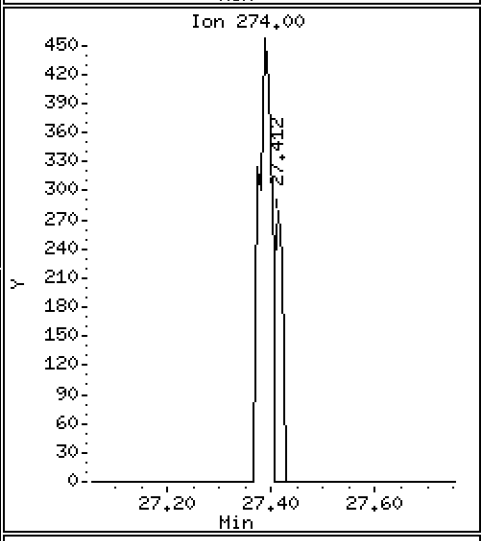
80 Benzo(g,h,i)perylene

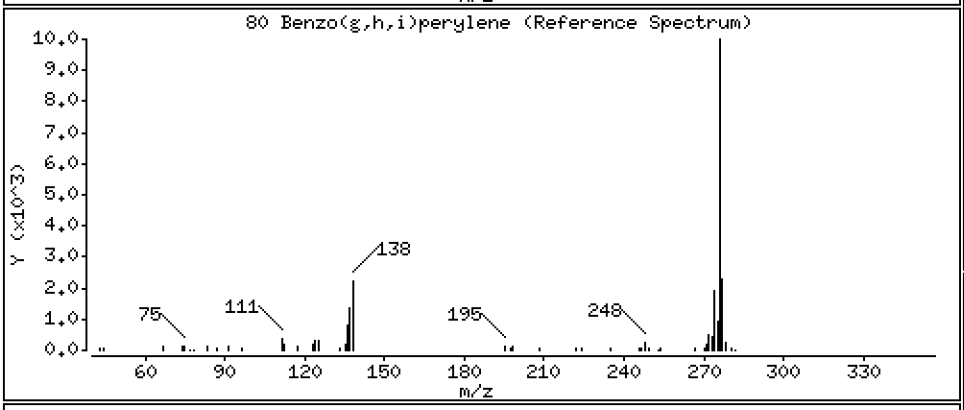
Concentration: 0.1864 ug/mL

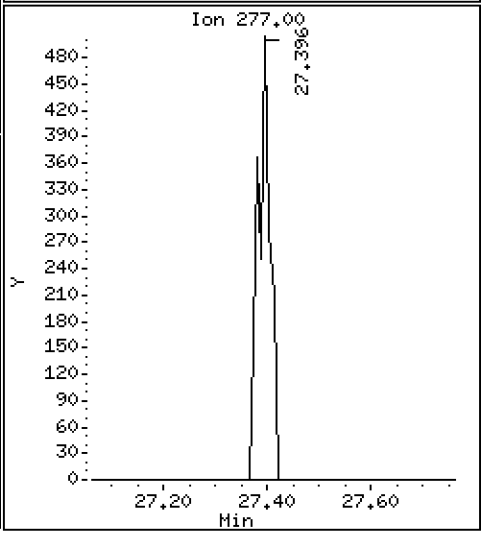


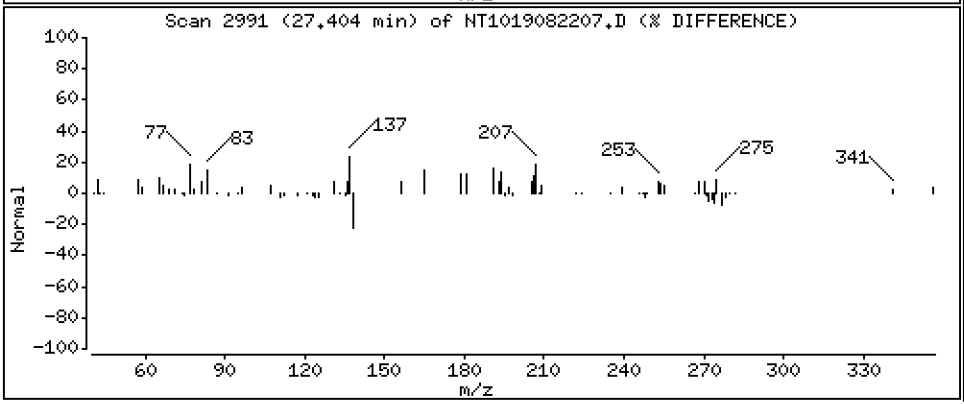












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

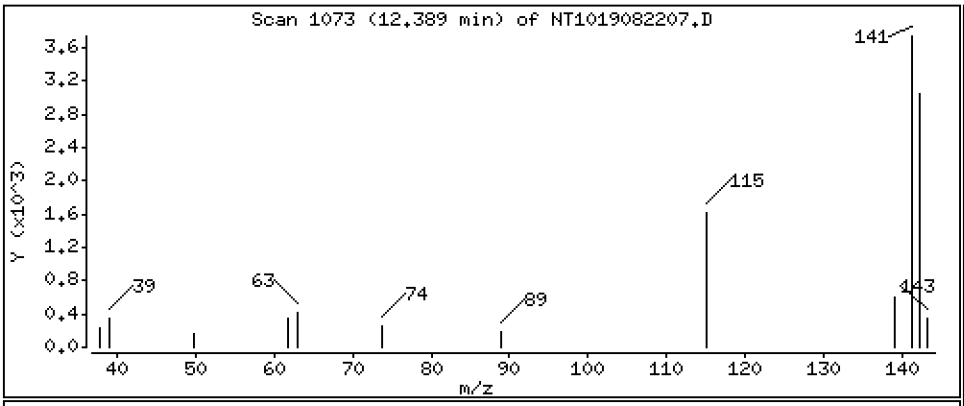
Operator: YZ

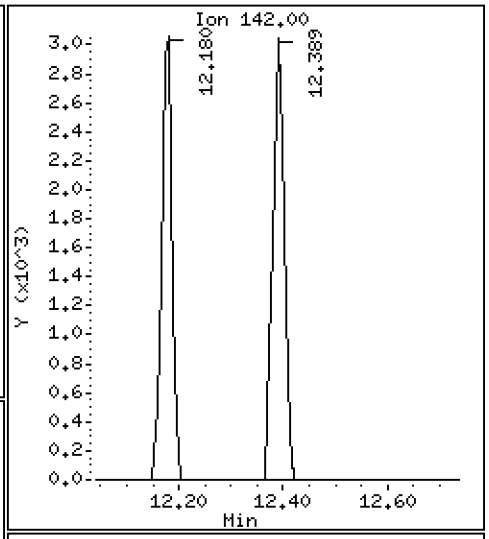
Column phase: ZB-5msi

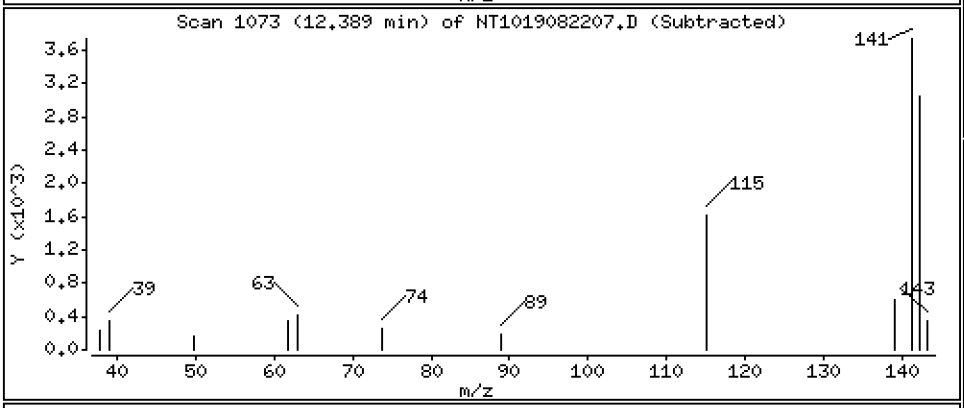
Column diameter: 0.25

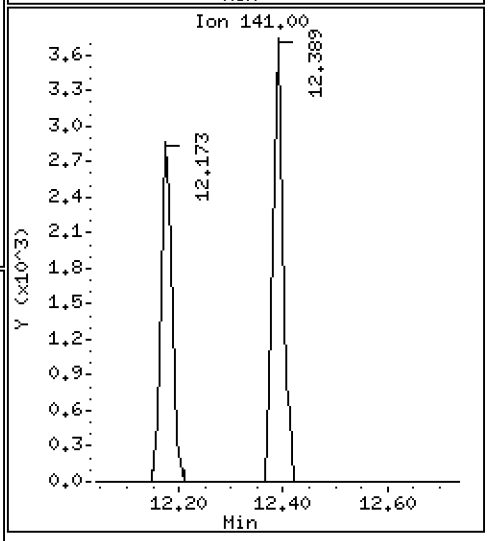
105 1-methylnaphthalene

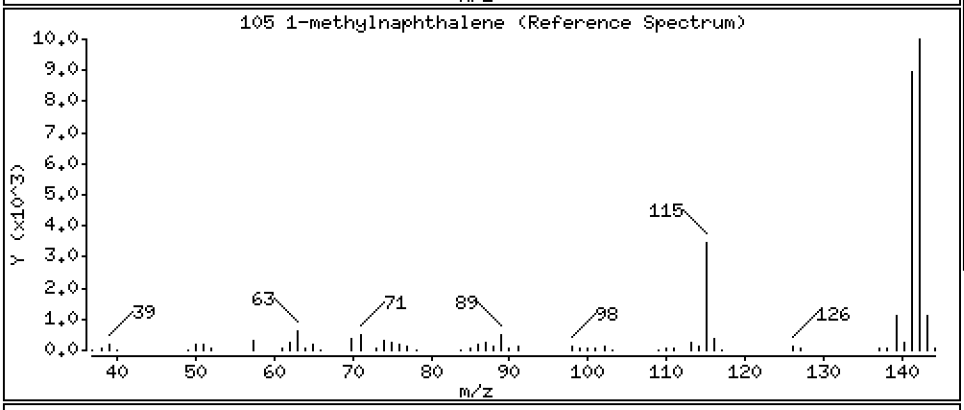
Concentration: 0.1512 ug/mL

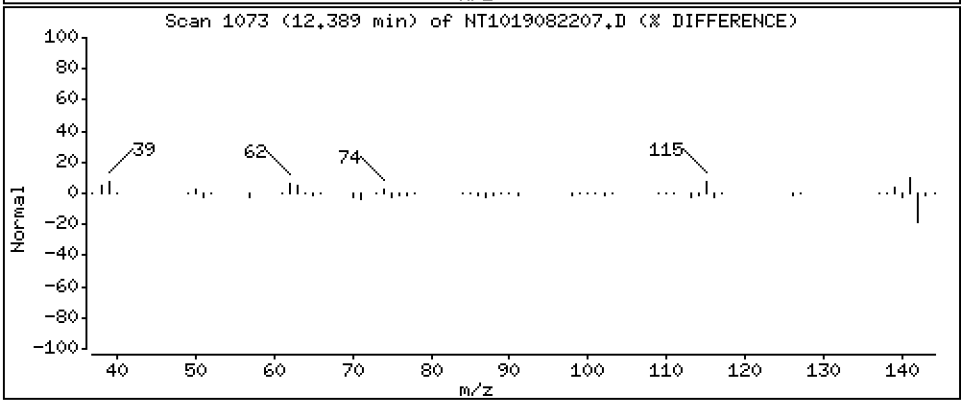












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D

Date : 22-AUG-2019 17:29

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV1

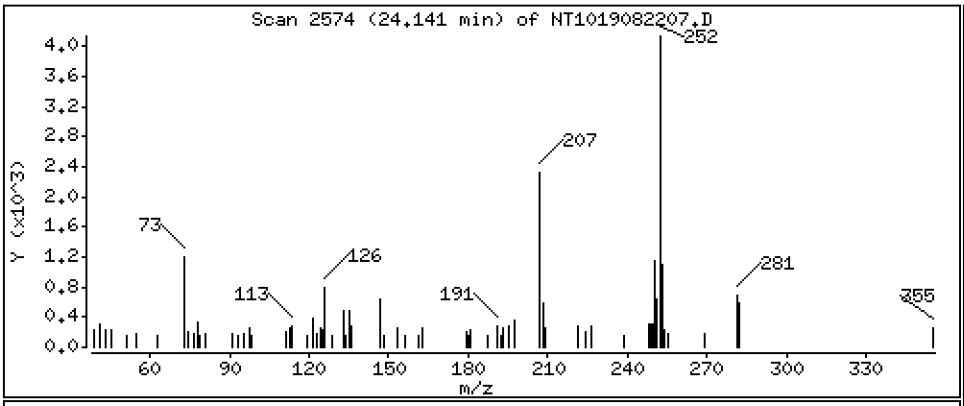
Operator: YZ

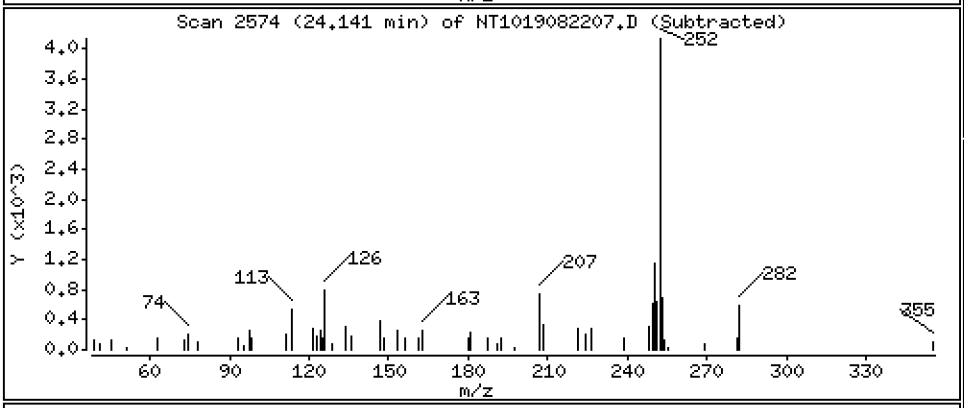
Column phase: ZB-5msi

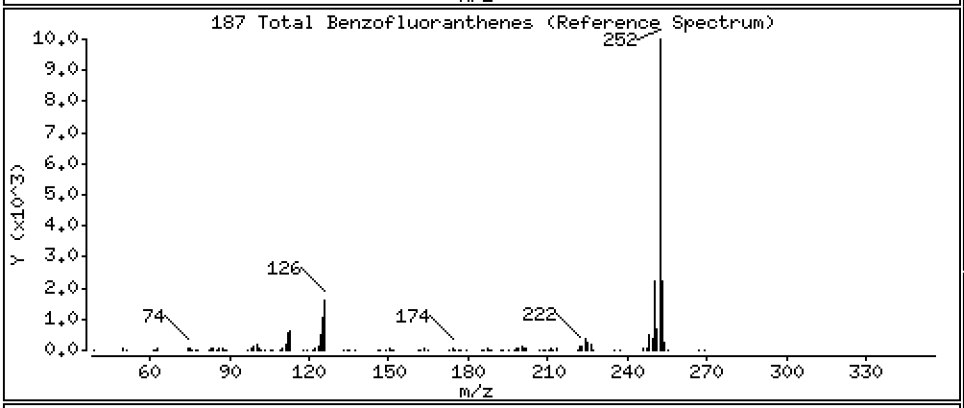
Column diameter: 0.25

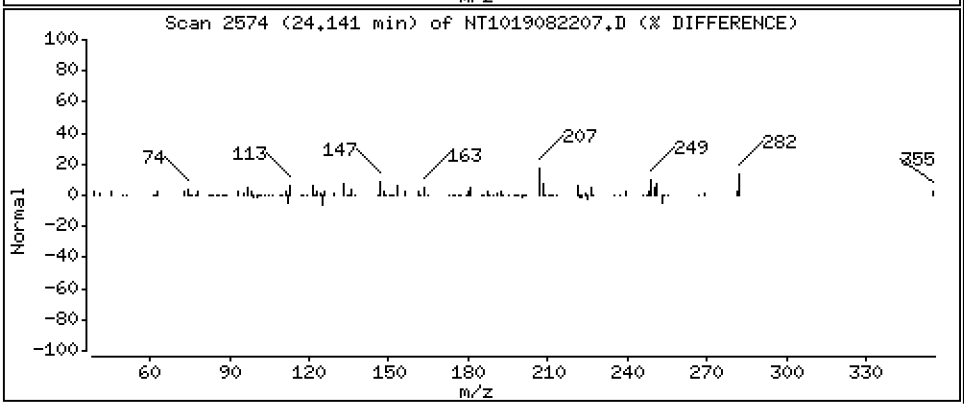
187 Total Benzofluoranthenes

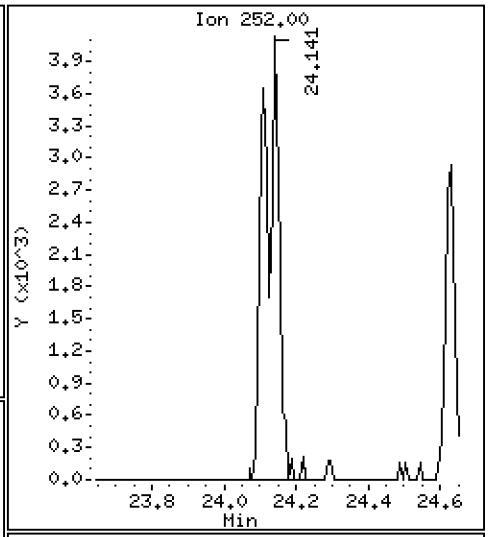
Concentration: 0.4300 ug/mL

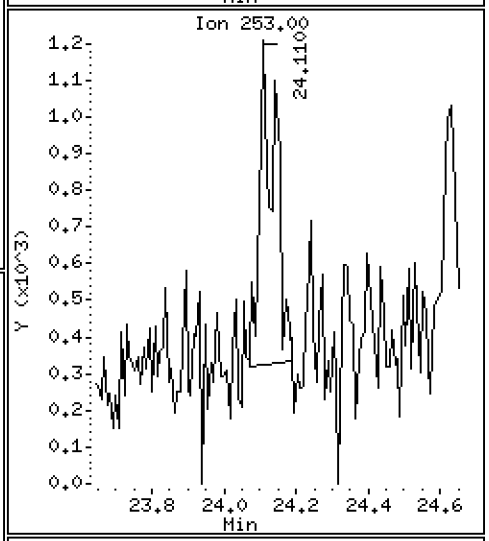


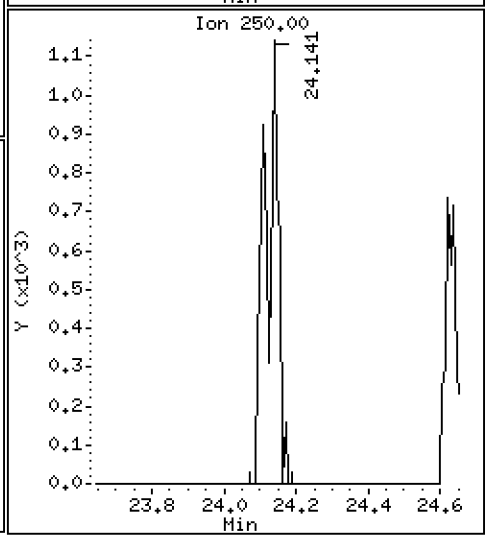












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190822.b\NT1019082207.D
Lab Smp Id: SHH0325-LCV1
Inj Date : 22-AUG-2019 17:29
Operator : YZ Inst ID: nt10.i
Smp Info : SHH0325-LCV1
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 11:16 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.180	6.173	(0.742)	2132	0.18483	0.1848
$	2 Phenol-d5	99	7.757	7.749	(0.931)	2368	0.18317	0.1832
	3 Phenol	94	7.772	7.772	(0.933)	1619	0.13471	0.1347
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.958)	3422	0.24589	0.2459
*	8 1,4-Dichlorobenzene-d4	152	8.329	8.329	(1.000)	41079	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.678	8.671	(1.042)	1620	0.17026	0.1703
	11 Benzyl alcohol	108	8.616	8.608	(1.034)	938	0.11792	0.1179
$	18 Nitrobenzene-d5	82	9.400	9.408	(0.874)	1481	0.12846	0.1285
	24 Benzoic acid	105	10.270	10.381	(0.955)	872	0.10513	0.1051
*	27 Naphthalene-d8	136	10.757	10.765	(1.000)	147412	4.00000	
	28 Naphthalene	128	10.795	10.803	(1.004)	5837	0.17226	0.1723
	32 2-Methylnaphthalene	142	12.180	12.172	(1.132)	4386	0.15260	0.1526
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	4917	0.17086	0.1709
	39 Dimethylphthalate	163	13.859	13.867	(0.969)	5485	0.19618	0.1962
	40 Acenaphthylene	152	13.999	13.999	(0.978)	6370	0.17563	0.1756
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	75240	4.00000	
	44 Acenaphthene	153	14.370	14.378	(1.004)	3994	0.17526	0.1753
	46 Dibenzofuran	168	14.702	14.703	(1.028)	5921	0.15809	0.1581
	50 Diethylphthalate	149	15.298	15.306	(1.069)	5134	0.19071	0.1907
	49 Fluorene	166	15.390	15.398	(1.076)	4761	0.18587	0.1859
	54 N-Nitrosodiphenylamine	169	15.661	15.661	(0.906)	3659	0.18698	0.1870
$	55 2,4,6-Tribromophenol	330	15.923	15.931	(1.113)	882	0.15503	0.1550
*	59 Phenanthrene-d10	188	17.291	17.291	(1.000)	142562	4.00000	
	60 Phenanthrene	178	17.337	17.345	(1.003)	6035	0.17330	0.1733
	61 Anthracene	178	17.430	17.430	(1.008)	6247	0.17667	0.1767
	63 Di-n-butylphthalate	149	18.621	18.629	(1.077)	8127	0.16869	0.1687
	64 Fluoranthene	202	19.743	19.751	(0.882)	7681	0.19453	0.1945
	65 Pyrene	202	20.176	20.169	(0.901)	7560	0.18336	0.1834
$	66 Terphenyl-d14	244	20.502	20.502	(0.916)	4628	0.16551	0.1655
	67 Butylbenzylphthalate	149	21.462	21.462	(0.959)	4005	0.20852	0.2085
	68 Benzo(a)anthracene	228	22.360	22.352	(0.999)	7824	0.20871	0.2087
*	69 Chrysene-d12	240	22.383	22.383	(1.000)	129207	4.00000	
	71 Chrysene	228	22.429	22.430	(1.002)	6347	0.19134	0.1913

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.507	22.515	(0.958)	5737	0.25180	0.2518
* 134	Di-n-octylphthalate-d4	153	23.490	23.490	(1.000)	259042	4.00000	
73	Di-n-octylphthalate	149	23.498	23.498	(1.000)	9721	0.20285	0.2028
74	Benzo(b)fluoranthene	252	24.109	24.110	(0.975)	5938	0.19822	0.1982
75	Benzo(k)fluoranthene	252	24.140	24.110	(0.977)	7019	0.23291	0.2329(H)
76	Benzo(a)pyrene	252	24.628	24.628	(0.996)	5178	0.19260	0.1926
* 77	Perylene-d12	264	24.721	24.721	(1.000)	104410	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.798	26.806	(1.084)	6031	0.18670	0.1867
79	Dibenzo(a,h)anthracene	278	26.813	26.821	(1.085)	4273	0.16247	0.1625
80	Benzo(g,h,i)perylene	276	27.403	27.404	(1.109)	5071	0.18638	0.1864(M)
105	1-methylnaphthalene	142	12.389	12.389	(1.152)	4370	0.15124	0.1512
187	Total Benzofluoranthenes	252	24.140	24.148	(0.977)	12356	0.43002	0.4300

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082207.D
Lab Smp Id: SHH0325-LCV1
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 16:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	41079	25.47
27 Naphthalene-d8	117487	58744	234974	147412	25.47
42 Acenaphthene-d10	61859	30930	123718	75240	21.63
59 Phenanthrene-d10	113574	56787	227148	142562	25.52
69 Chrysene-d12	105788	52894	211576	129207	22.14
134 Di-n-octylphthala	252823	126412	505646	259042	2.46
77 Perylene-d12	113992	56996	227984	104410	-8.41

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.33	-0.00
27 Naphthalene-d8	10.77	10.27	11.27	10.76	-0.07
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	-0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.29	-0.00
69 Chrysene-d12	22.38	21.88	22.88	22.38	-0.00
134 Di-n-octylphthala	23.49	22.99	23.99	23.49	-0.00
77 Perylene-d12	24.72	24.22	25.22	24.72	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082207.D

Lab ID: SHH0325-LCV1
nt10.i, 20190822.b\ABN.m,   22-AUG-2019 17:29

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.955	0.964	-0.0096	Benzoic acid

RRT check based on Ccal File: NT1019082206.D

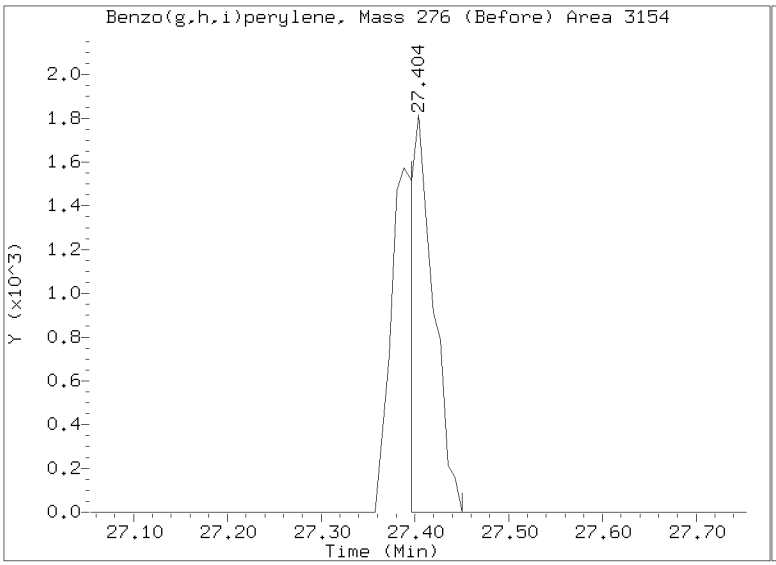
On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

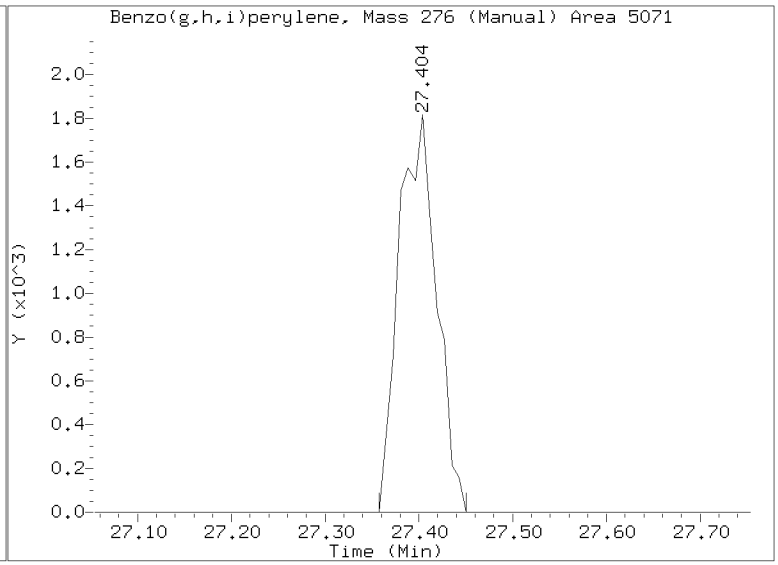
Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //Target/share/chem3/nt10.i/20190822.b/NT1019082207.D
Injection Date: 22-AUG-2019 17:29
Lab ID:SHH0325-LCV1 Client ID:
Report Date: 08/23/2019 11:16





Analytical Resources, Incorporated
Analytical Chemists and Consultants

LOW-CONCENTRATION
CONTINUING CALIBRATION CHECK
EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	NT10	Calibration:	CG00040
Lab File ID:	NT1019082208.D	Calibration Date:	07/16/19 11:00
Sequence:	SHH0325	Injection Date:	08/22/19
Lab Sample ID:	SHH0325-LCV2	Injection Time:	18:06
Sequence Name:	ABN 0.5		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Phenol	A	0.50000	0.4	1.1702980	0.9993022		-14.6	50	
Benzyl Alcohol	A	0.50000	0.3	0.7745535	0.5003954		-35.4	50	
Benzoic acid	A	2.0000	0.7	0.2148759	0.0761734		-66.2	50	*
N-Nitrosodiphenylamine	A	0.50000	0.6	0.5490690	0.6809459		24.0	50	
Phenanthrene	A	0.50000	0.5	0.9770762	0.9565792		-2.1	50	
Fluoranthene	A	0.50000	0.5	1.2223680	1.2635780		3.4	50	
Pyrene	A	0.50000	0.5	1.2764440	1.3736670		7.6	50	
Butylbenzylphthalate	A	0.50000	0.6	0.5945946	0.6934232		16.6	50	
Benzo(a)anthracene	A	0.50000	0.5	1.1605520	1.2740370		9.8	50	
Chrysene	A	0.50000	0.5	1.0269450	1.0399530		1.3	50	
bis(2-Ethylhexyl)phthalate	A	0.50000	0.6	0.3518184	0.4388784		24.7	50	
Di-n-Octylphthalate	A	0.50000	0.5	0.7399924	0.7343860		-0.8	50	
Benzofluoranthenes, Total	A	1.0000	1.1	1.1008070	1.2155540		10.4	50	
Benzo(a)pyrene	A	0.50000	0.5	1.0299780	1.0121960		-1.7	50	
Indeno(1,2,3-cd)pyrene	A	0.50000	0.5	1.2375640	1.2497800		1.0	50	
Dibenzo(a,h)anthracene	A	0.50000	0.5	1.0075500	1.0038990		-0.4	50	
Benzo(g,h,i)perylene	A	0.50000	0.5	1.0423270	0.9864891		-5.4	50	
2-Fluorophenol	A	0.75000	0.564	1.1232200	0.8441033		-24.8	50	
Phenol-d5	A	0.75000	0.530	1.2588120	0.8900054		-29.3	50	
2-Chlorophenol-d4	A	0.75000	0.753	1.3551050	1.3598200		0.3	50	
1,2-Dichlorobenzene-d4	A	0.50000	0.547	0.9264682	1.0141890		9.5	50	
Nitrobenzene-d5	A	0.50000	0.443	0.3128427	0.2769847		-11.5	50	
2-Fluorobiphenyl	A	0.50000	0.537	1.5299660	1.6443230		7.5	50	
2,4,6-Tribromophenol	A	0.75000	0.446	0.3024571	0.1797828		-40.6	50	
p-Terphenyl-d14	A	0.50000	0.533	0.8656707	0.9234559		6.7	50	

* Values outside of QC limits

Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

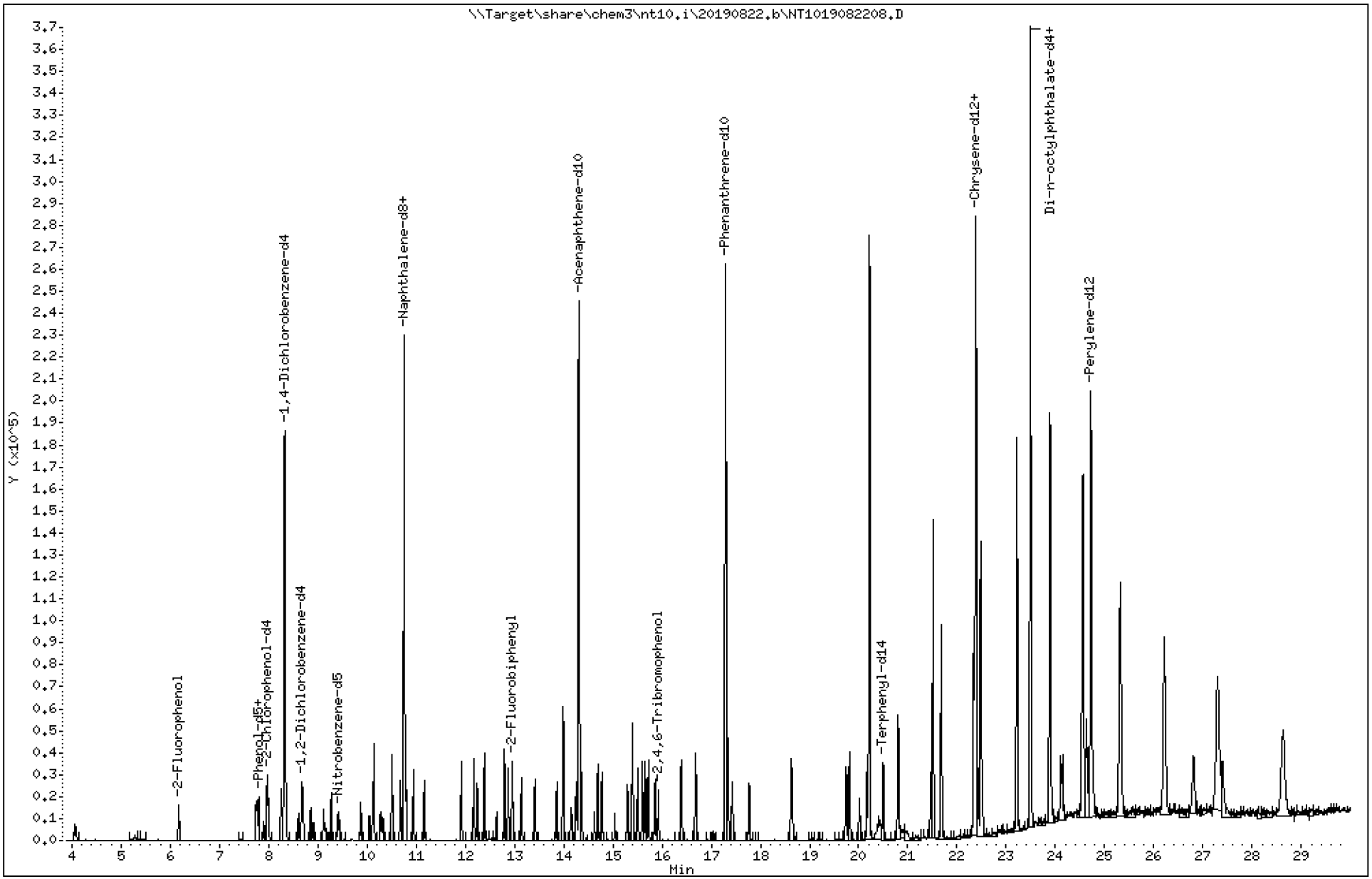
Instrument: nt10.i

Sample Info: SHH0325-LCV2

Operator: YZ

Column phase: ZB-5msi

Column diameter: 0.25



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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

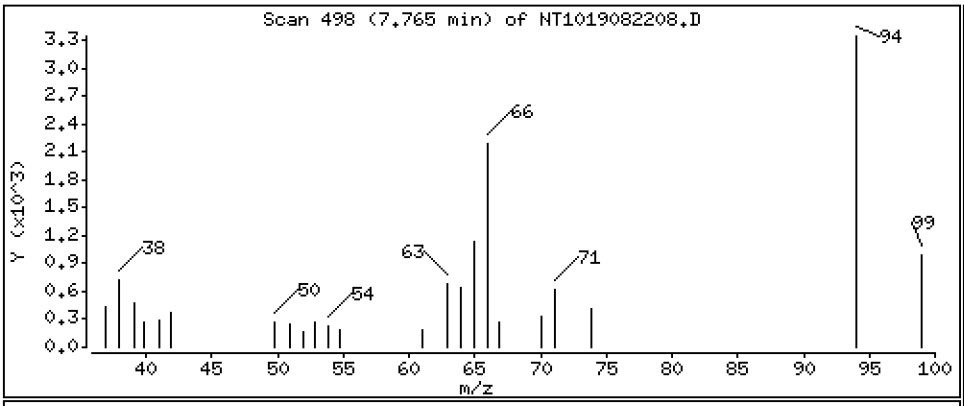
Operator: YZ

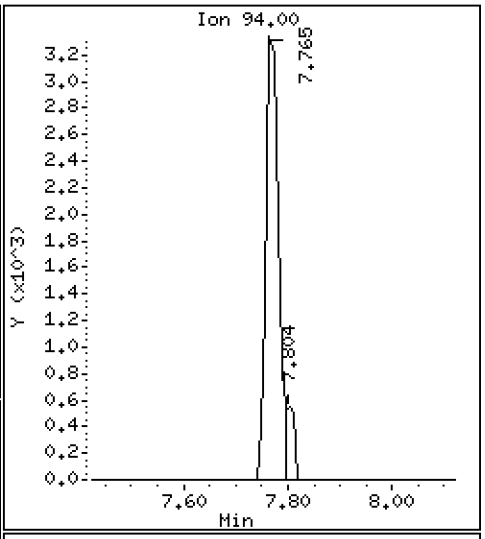
Column phase: ZB-5msi

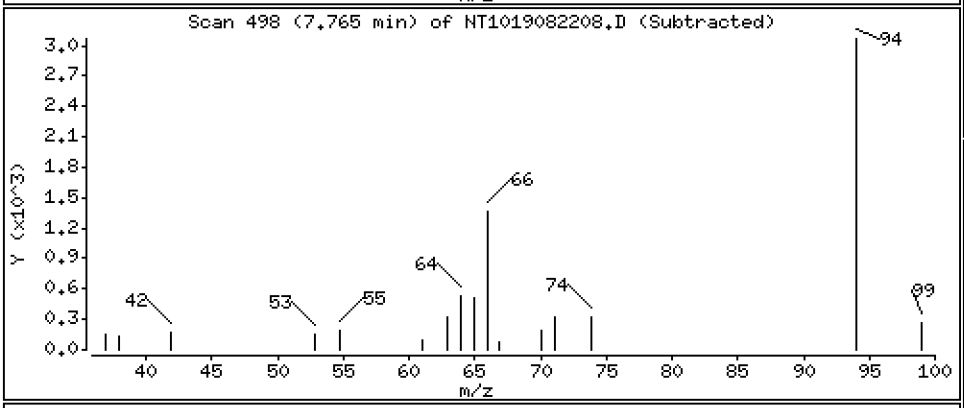
Column diameter: 0.25

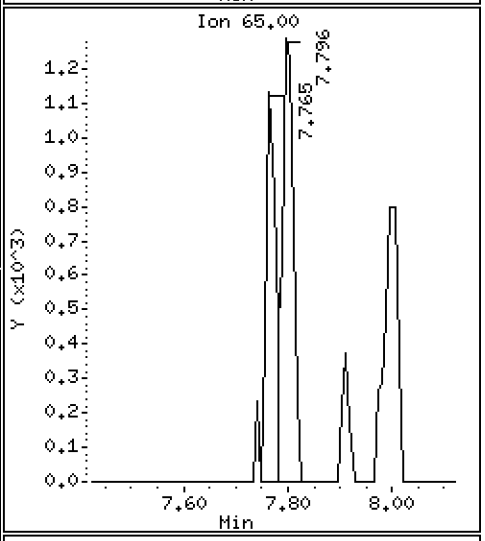
3 Phenol

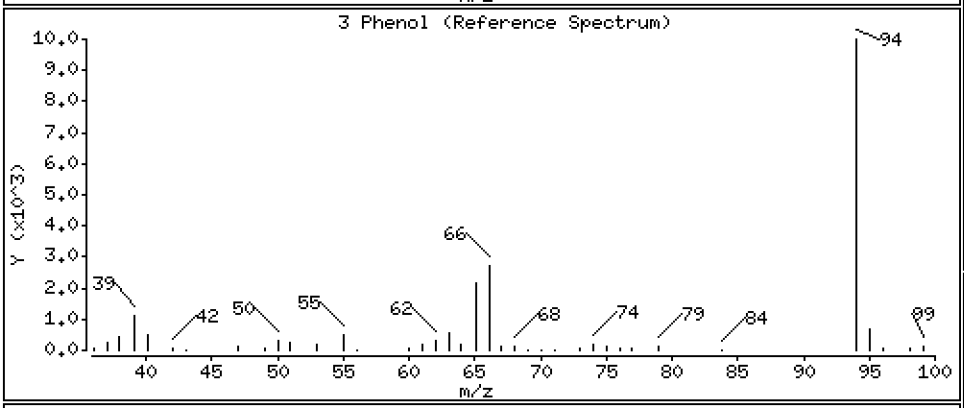
Concentration: 0.4269 ug/mL

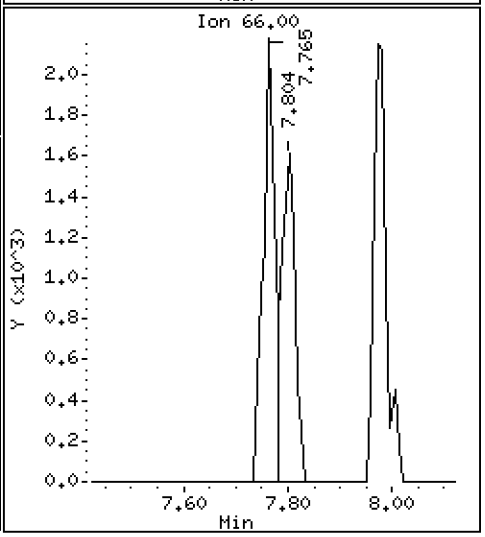


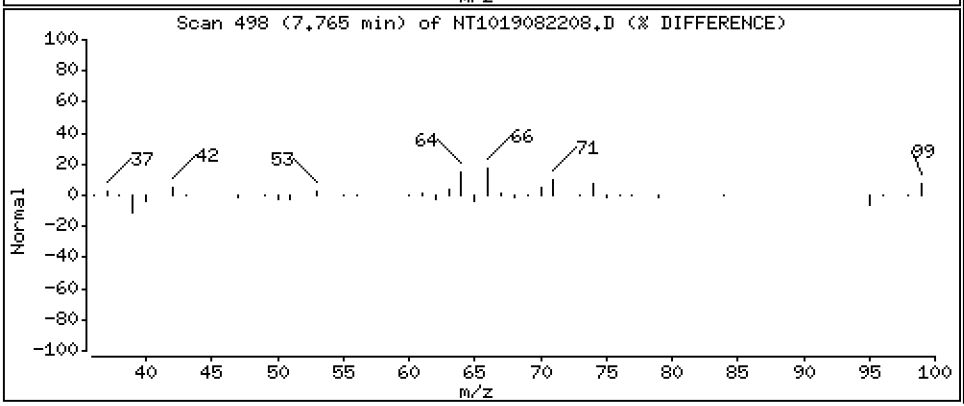












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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

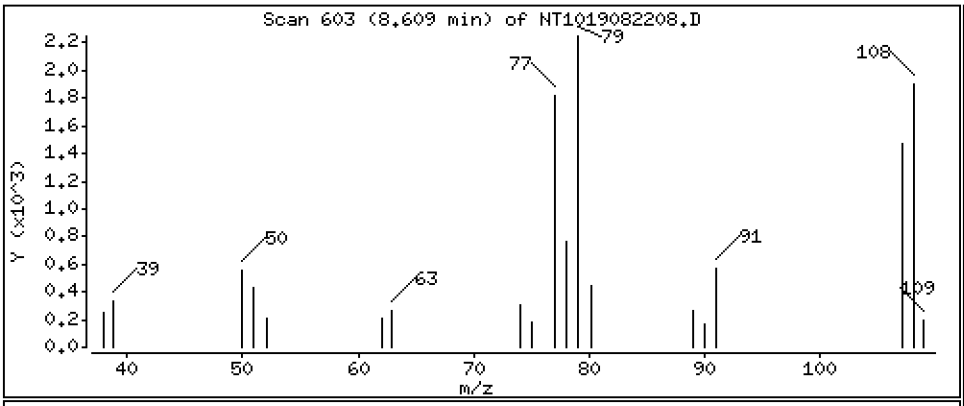
Operator: YZ

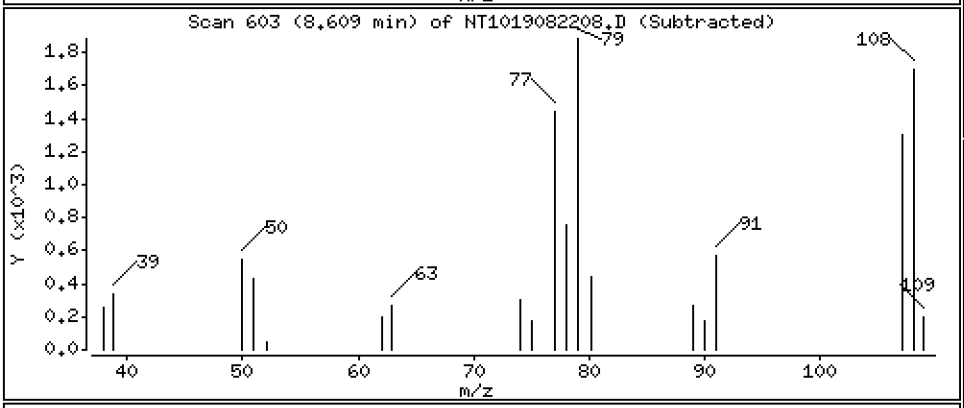
Column phase: ZB-5msi

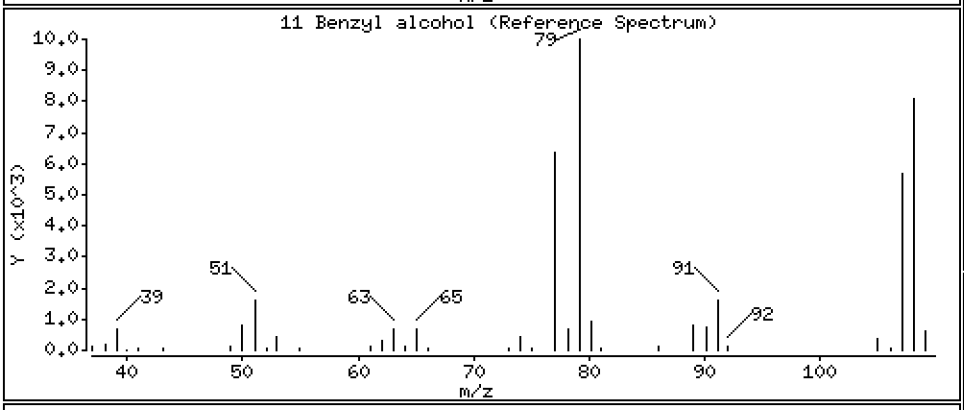
Column diameter: 0.25

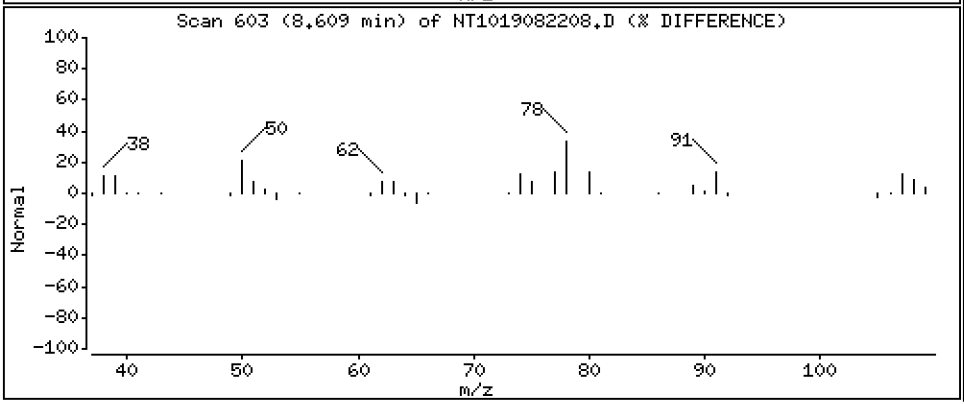
11 Benzyl alcohol

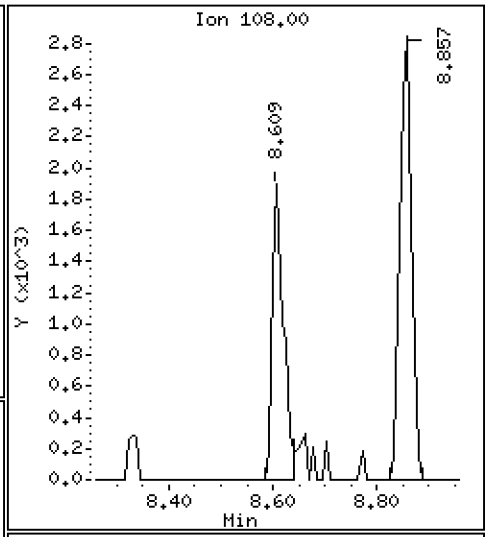
Concentration: 0.3230 ug/mL

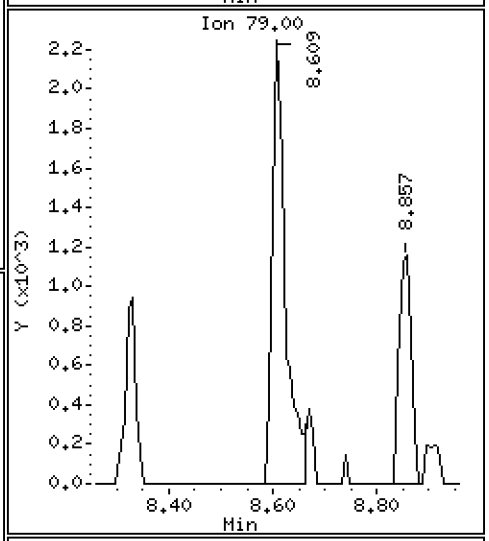


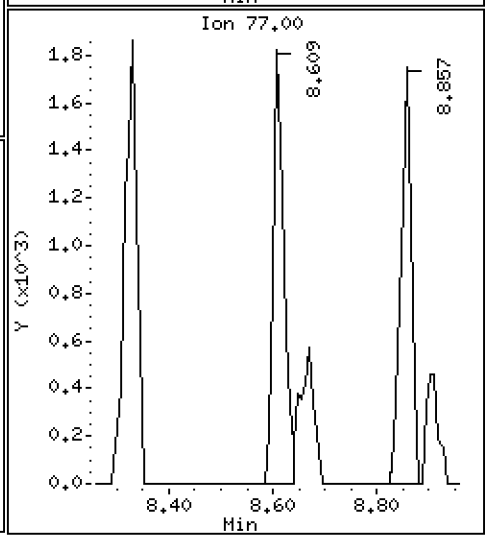












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

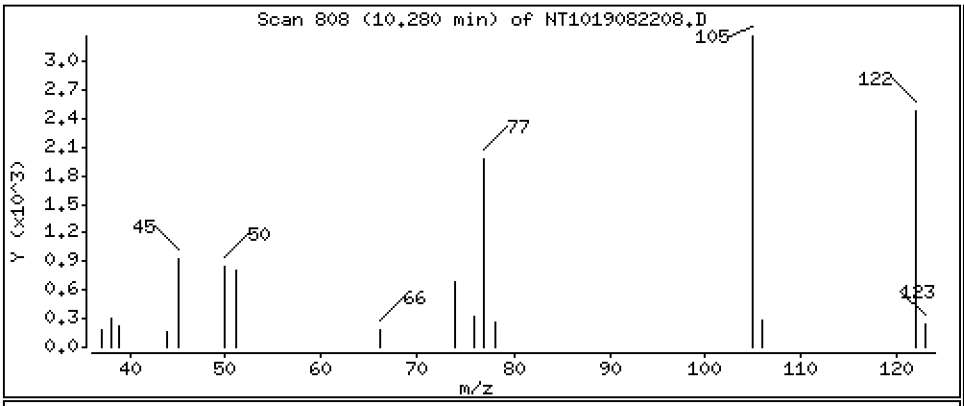
Operator: YZ

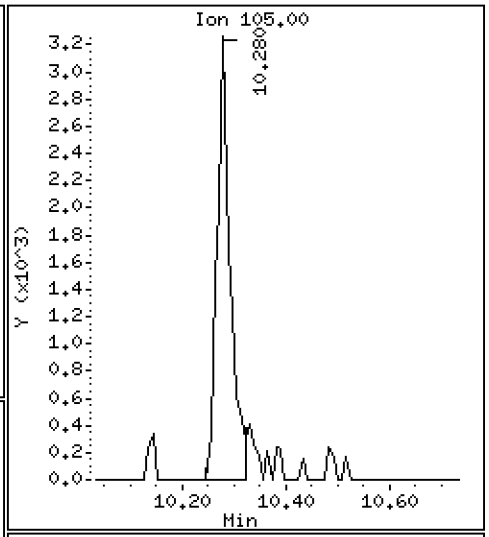
Column phase: ZB-5msi

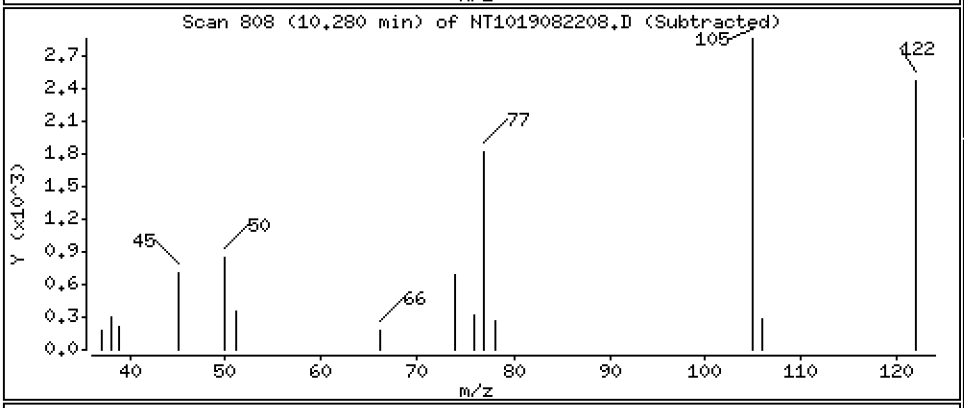
Column diameter: 0.25

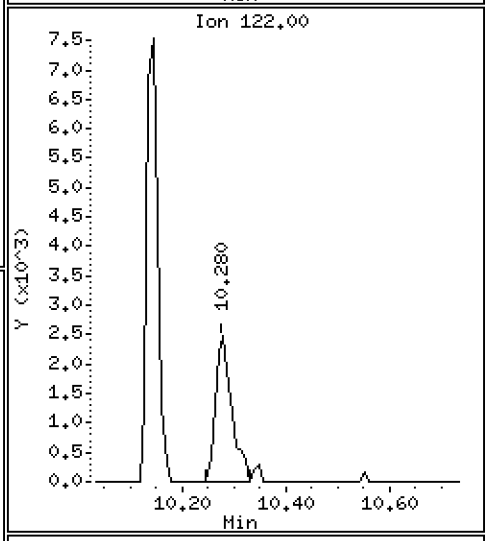
24 Benzoic acid

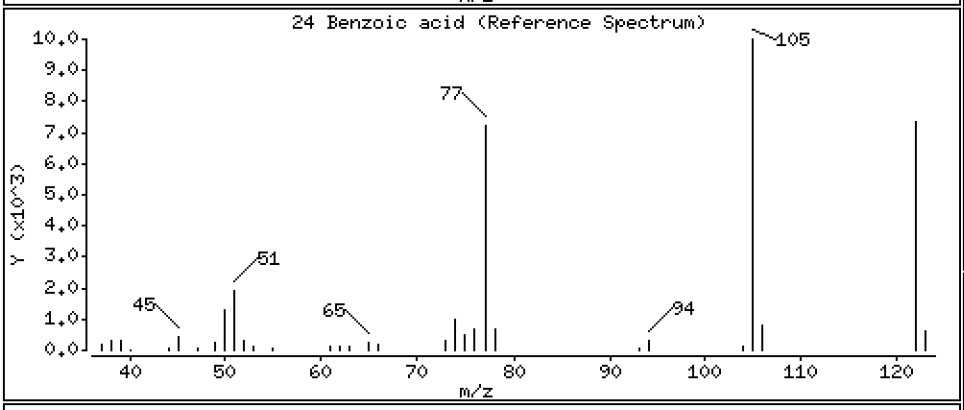
Concentration: 0.6765 ug/mL

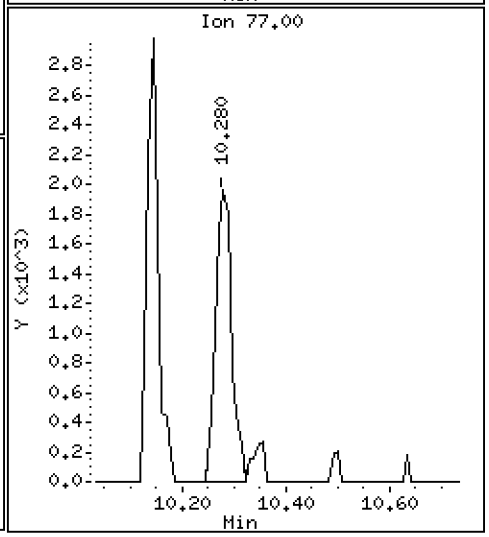


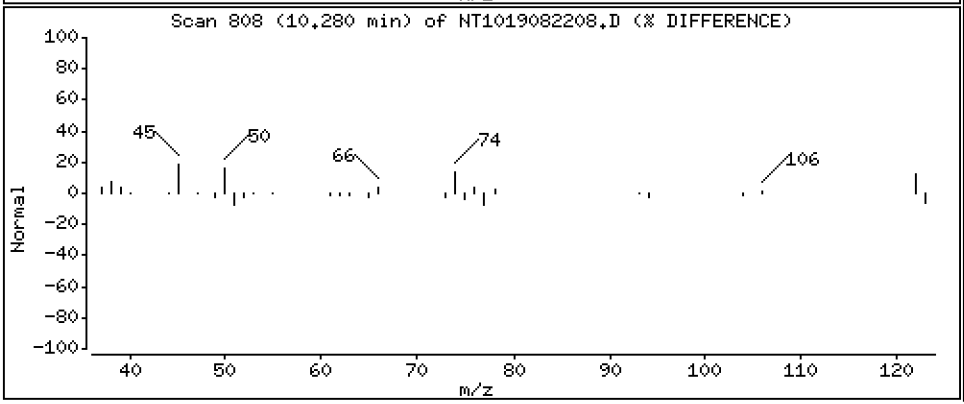












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

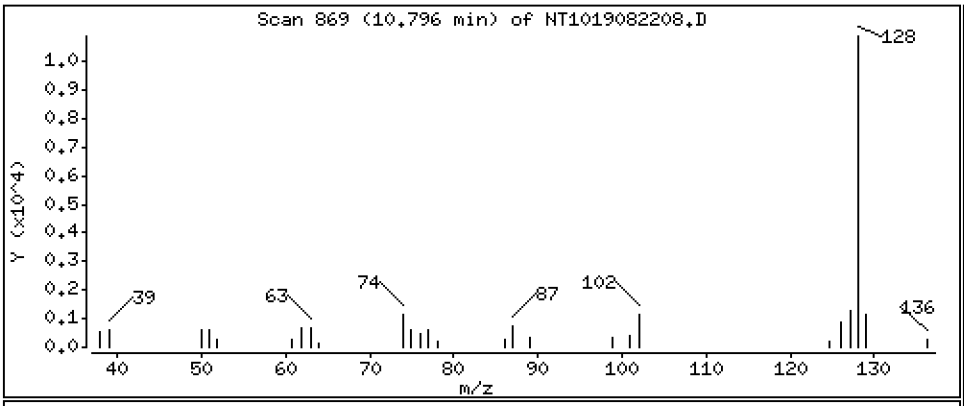
Operator: YZ

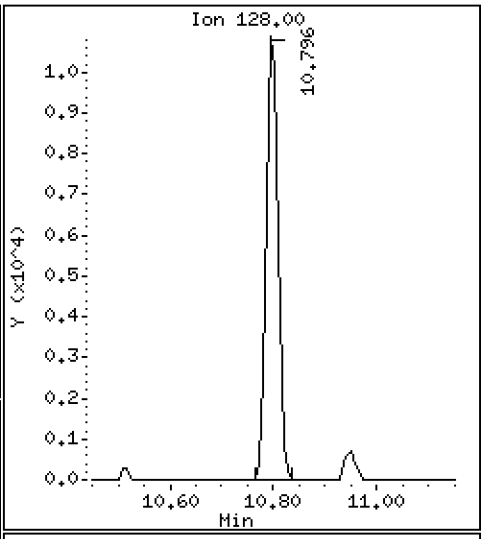
Column phase: ZB-5msi

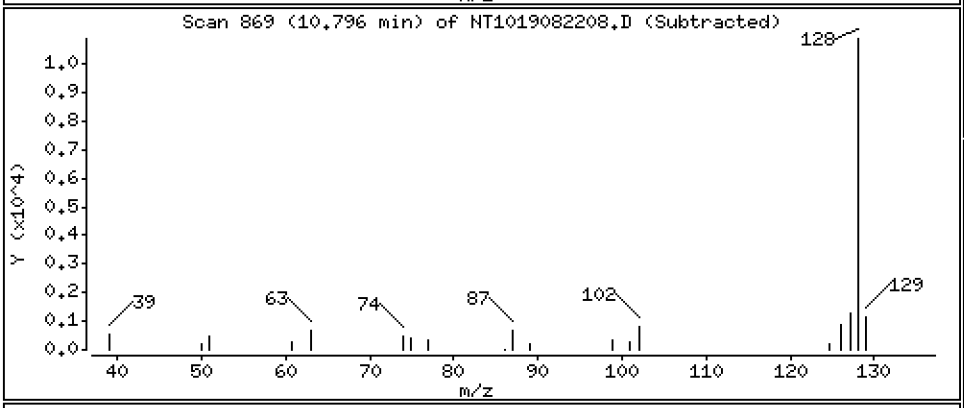
Column diameter: 0.25

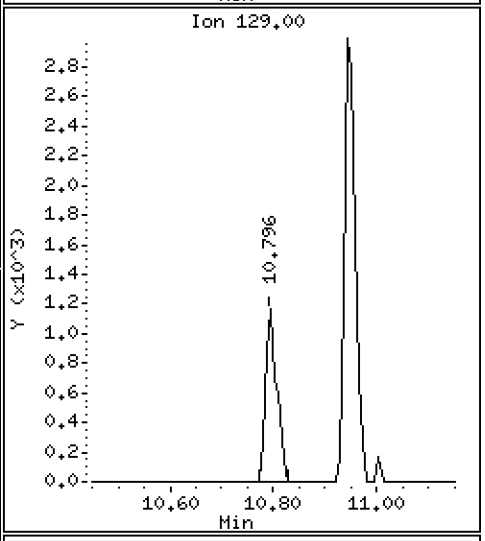
28 Naphthalene

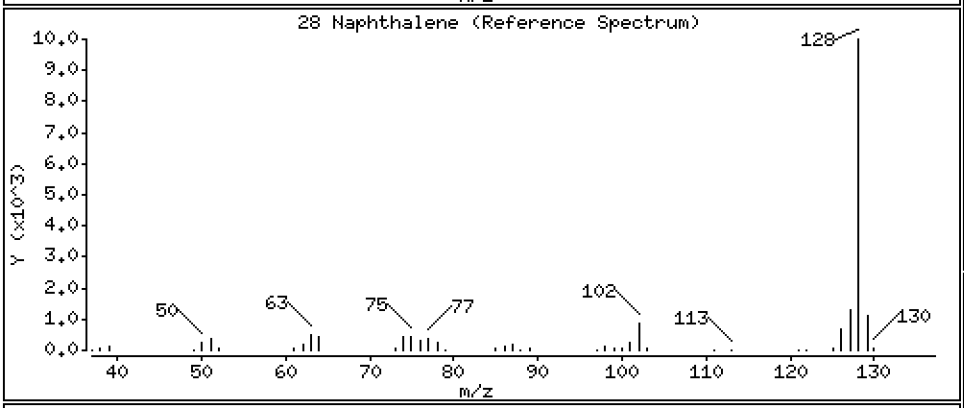
Concentration: 0.4988 ug/mL

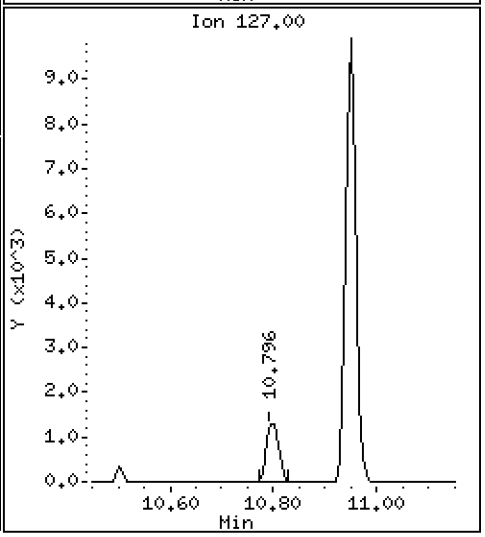


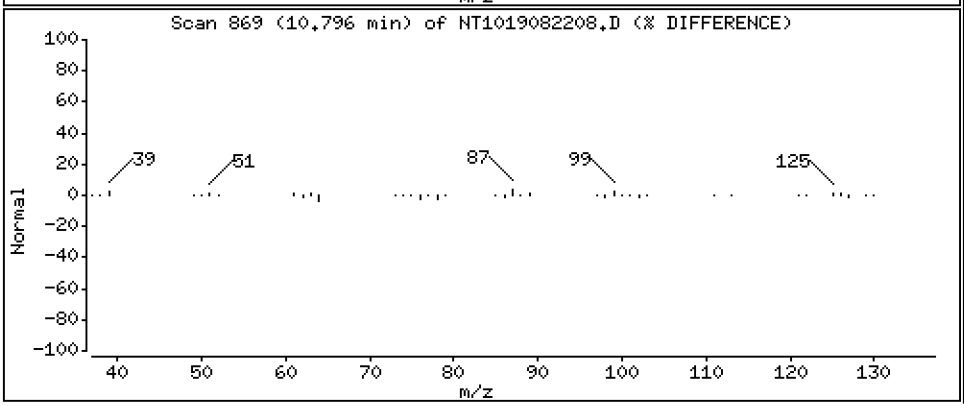












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

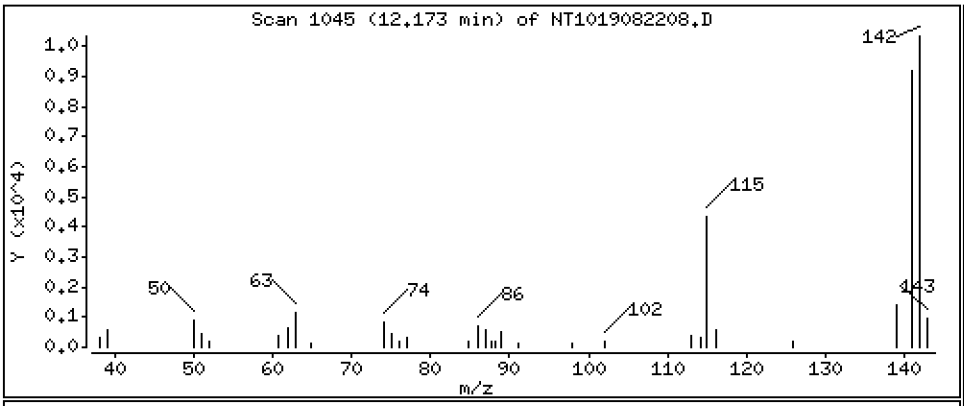
Operator: YZ

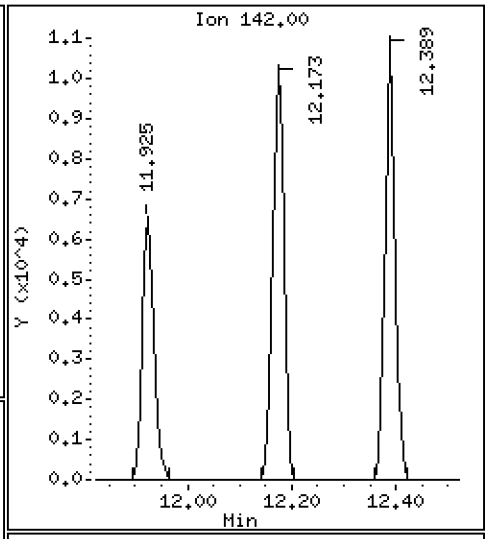
Column phase: ZB-5msi

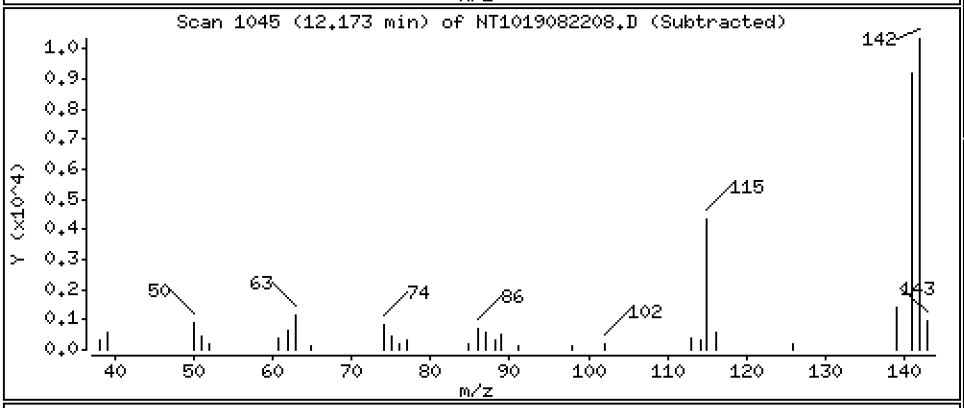
Column diameter: 0.25

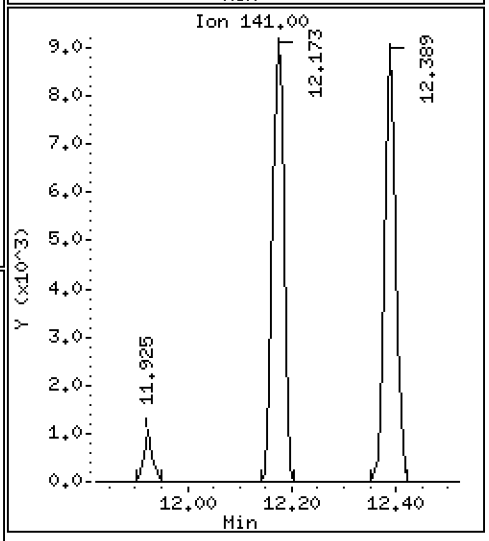
32 2-Methylnaphthalene

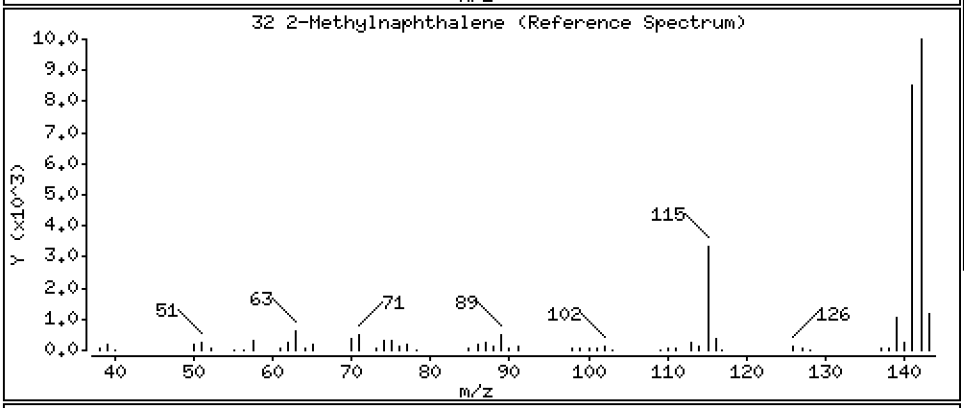
Concentration: 0.4905 ug/mL

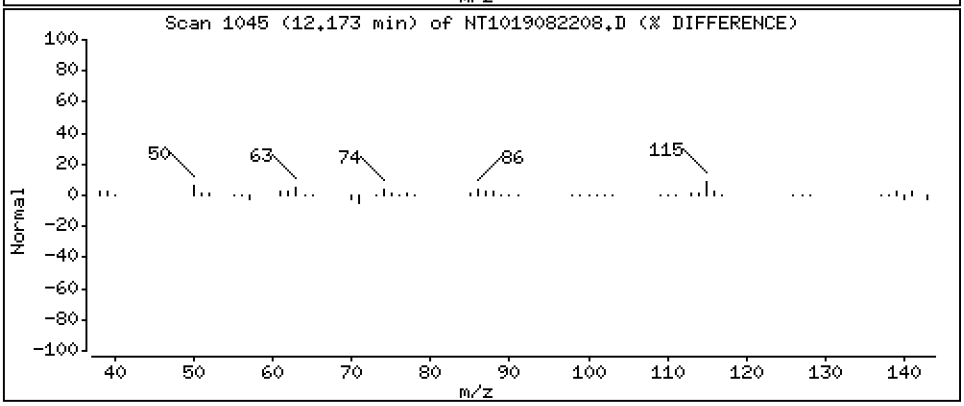












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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

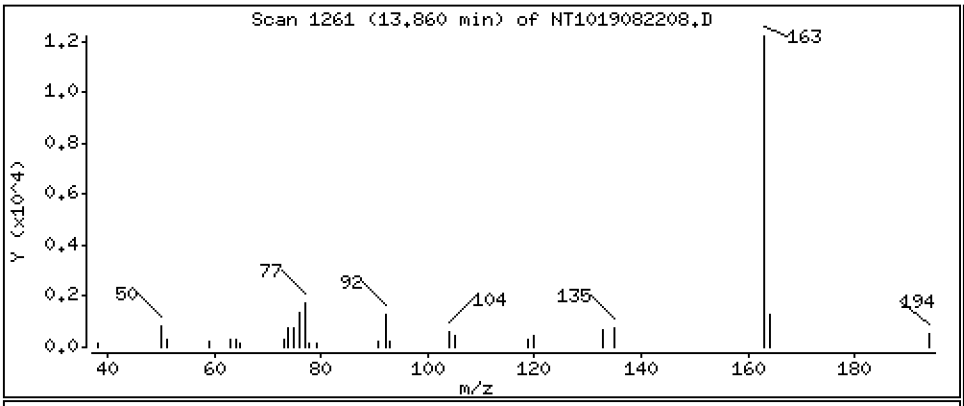
Operator: YZ

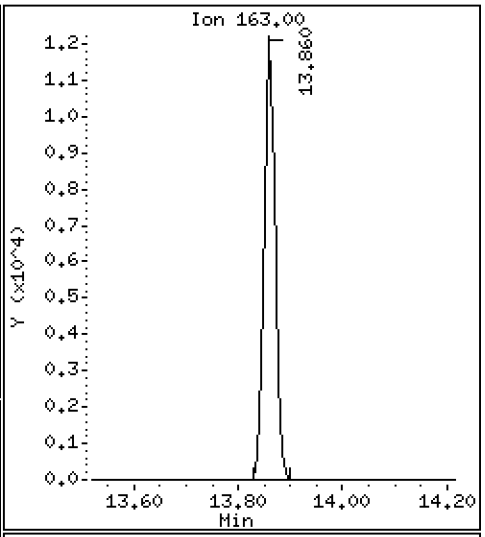
Column phase: ZB-5msi

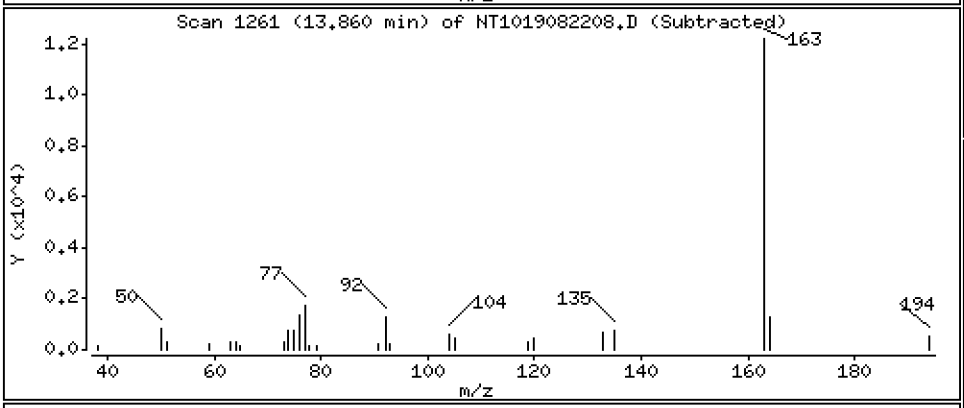
Column diameter: 0.25

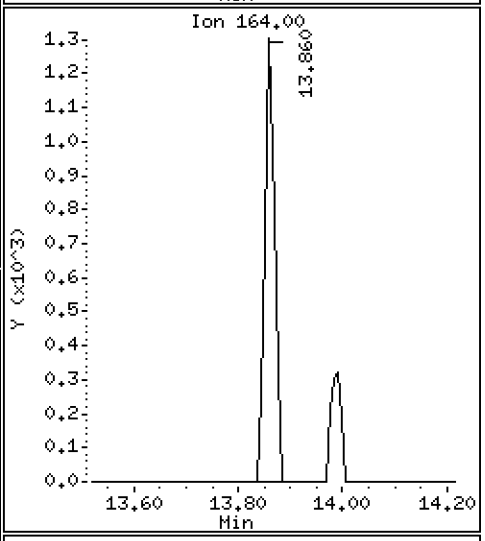
39 Dimethylphthalate

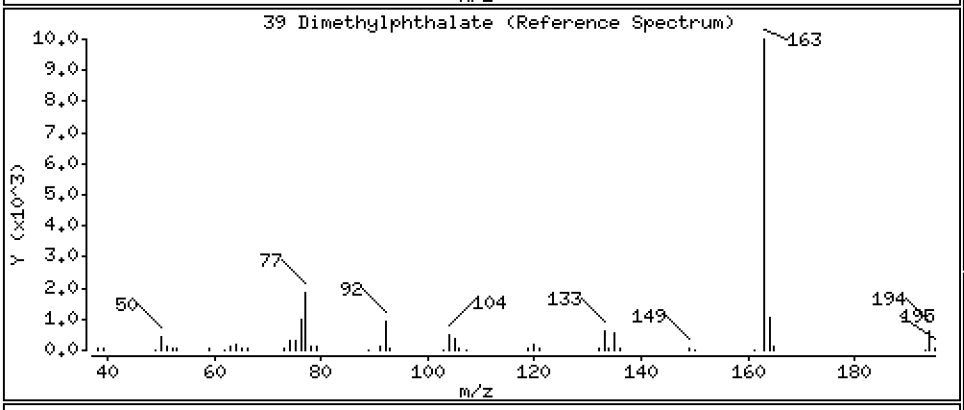
Concentration: 0.5538 ug/mL

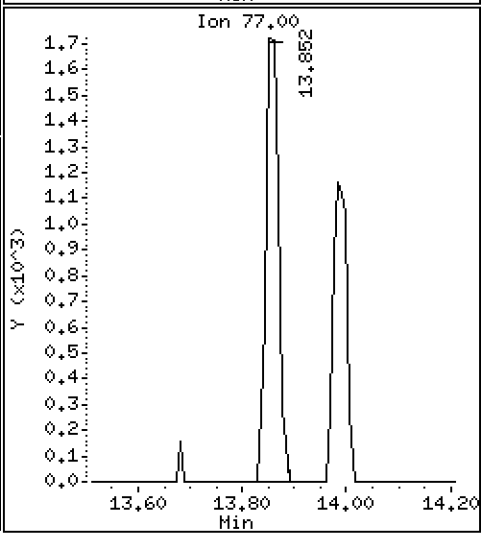


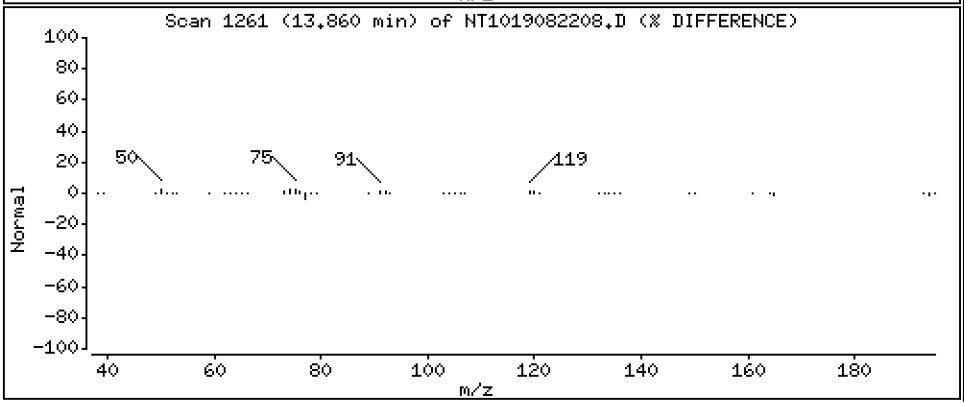












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

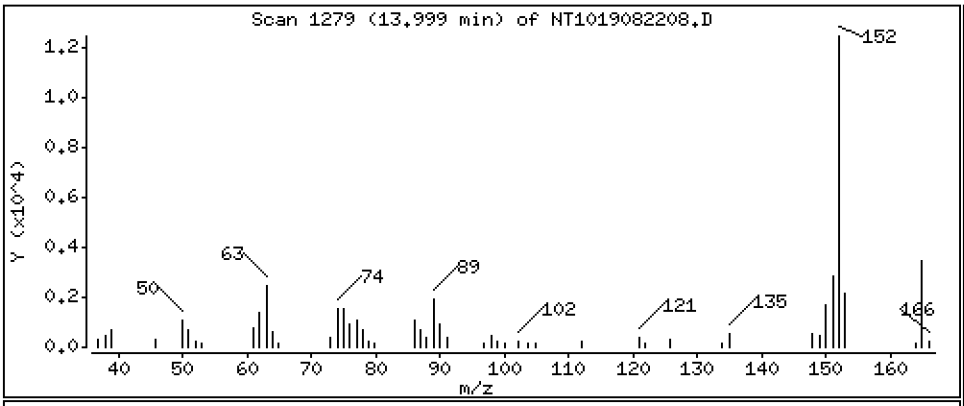
Operator: YZ

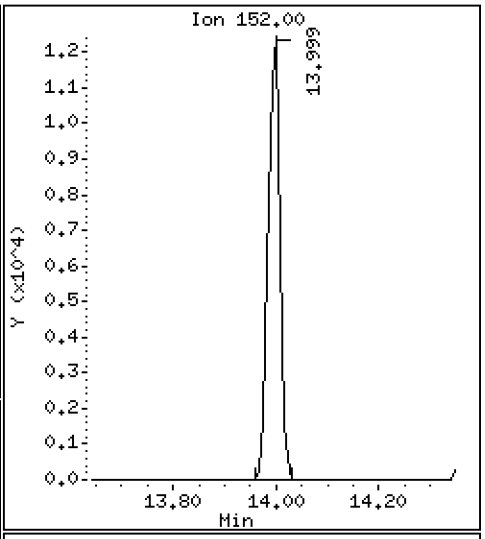
Column phase: ZB-5msi

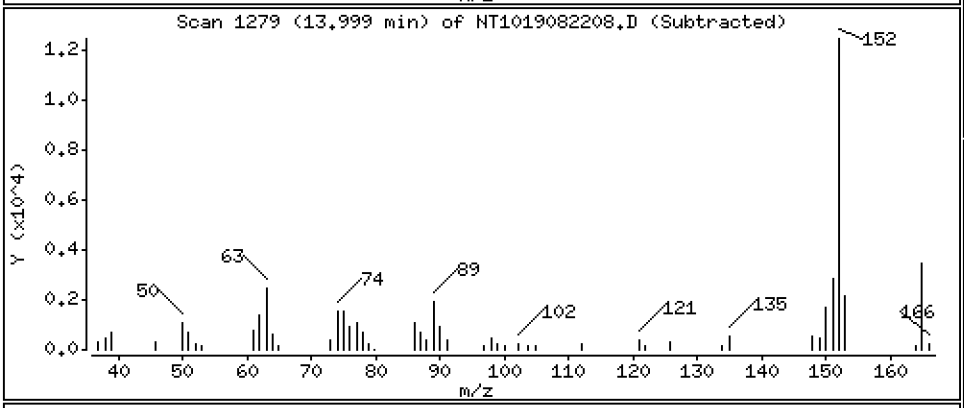
Column diameter: 0.25

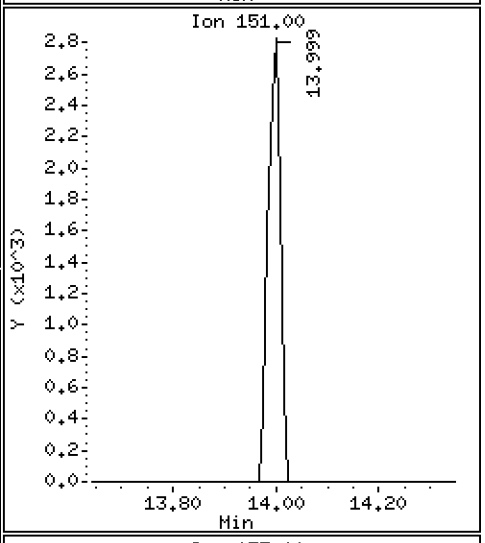
40 Acenaphthylene

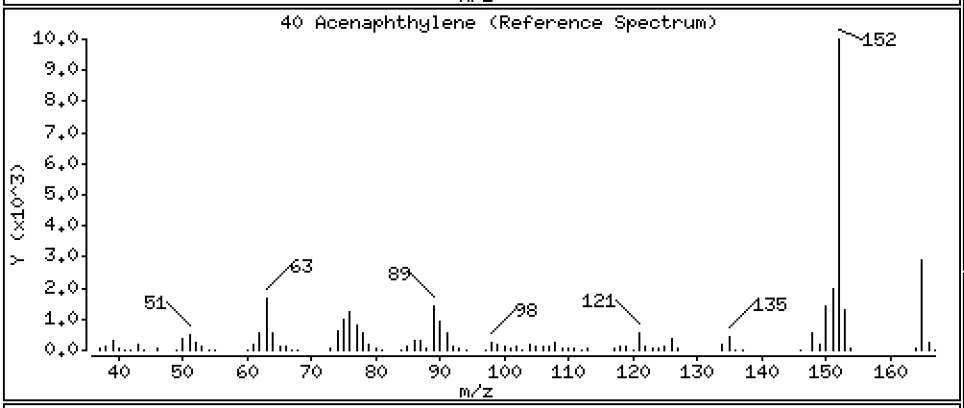
Concentration: 0.4848 ug/mL

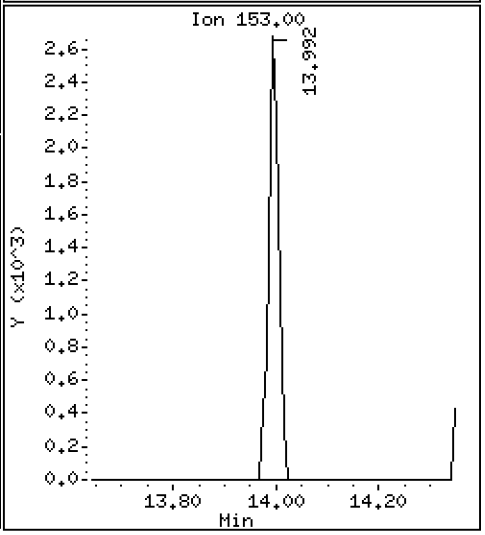


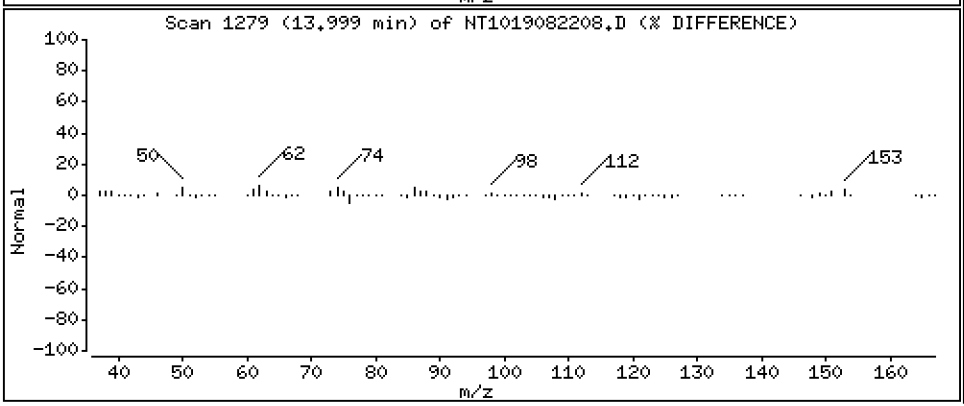












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

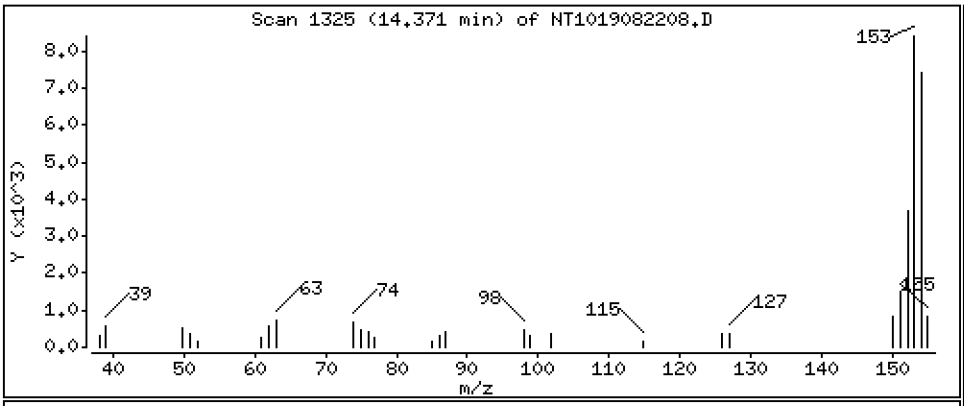
Operator: YZ

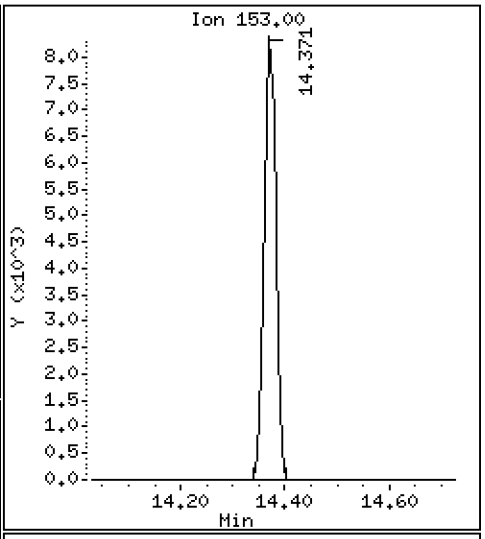
Column phase: ZB-5msi

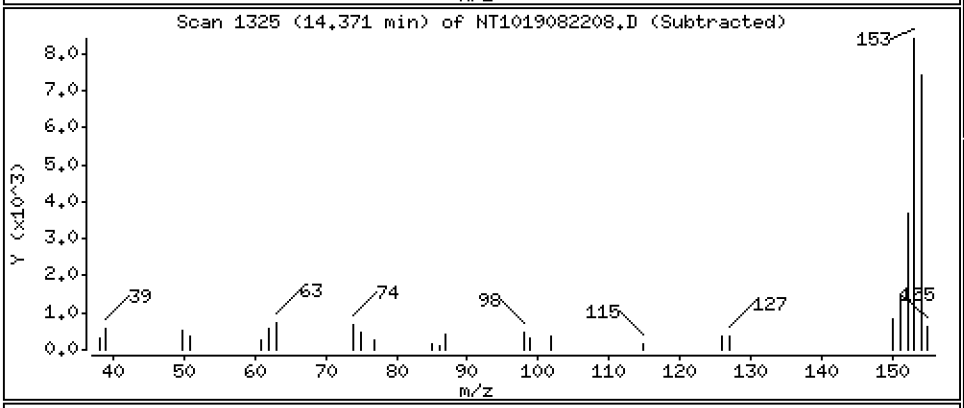
Column diameter: 0.25

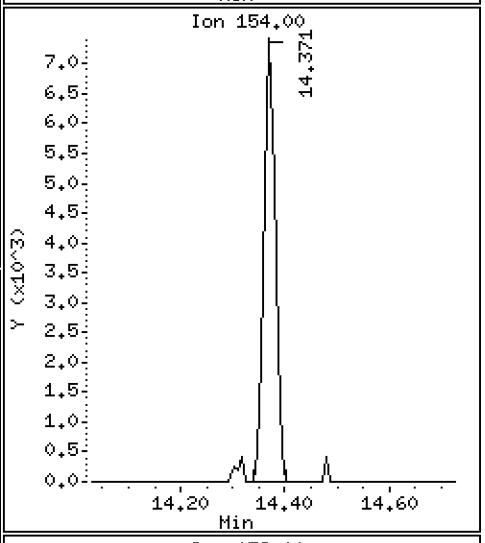
44 Acenaphthene

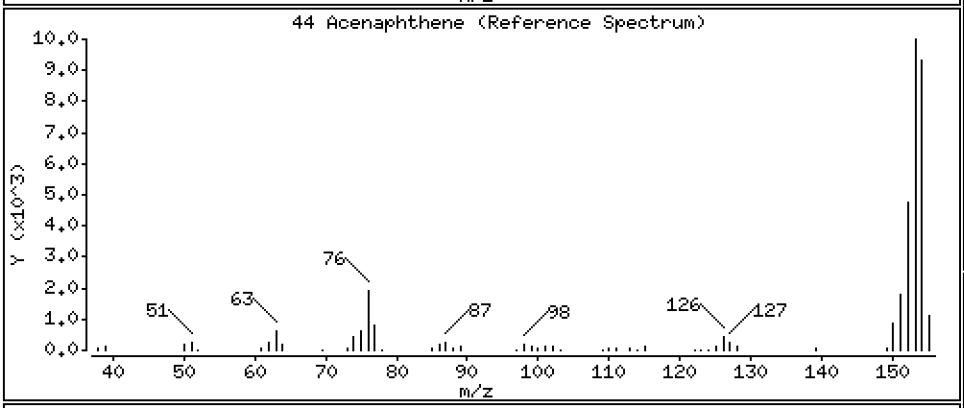
Concentration: 0.5017 ug/mL

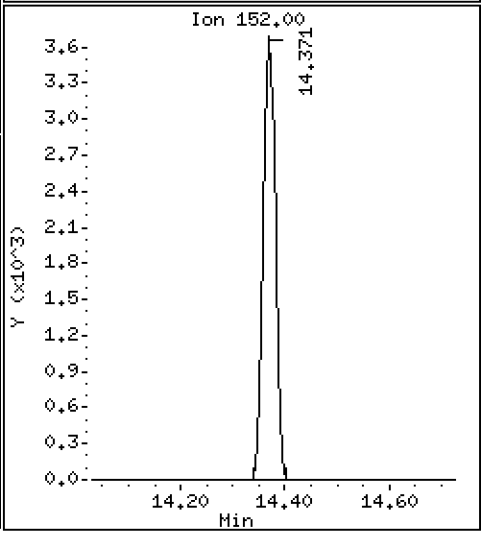


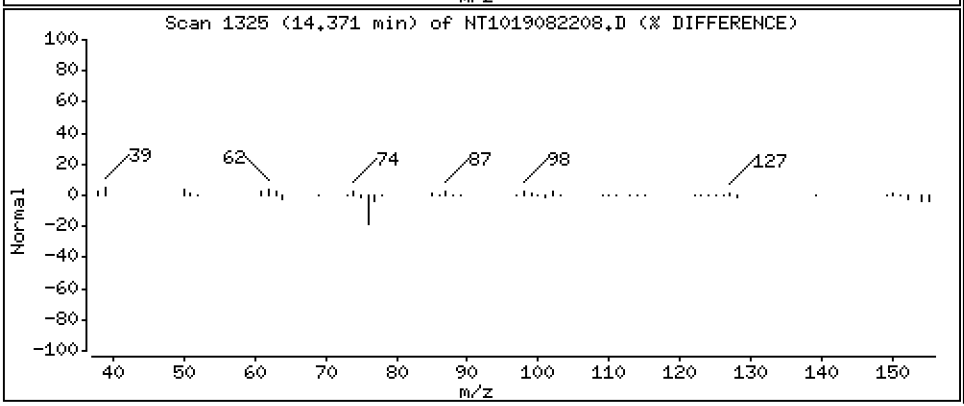












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

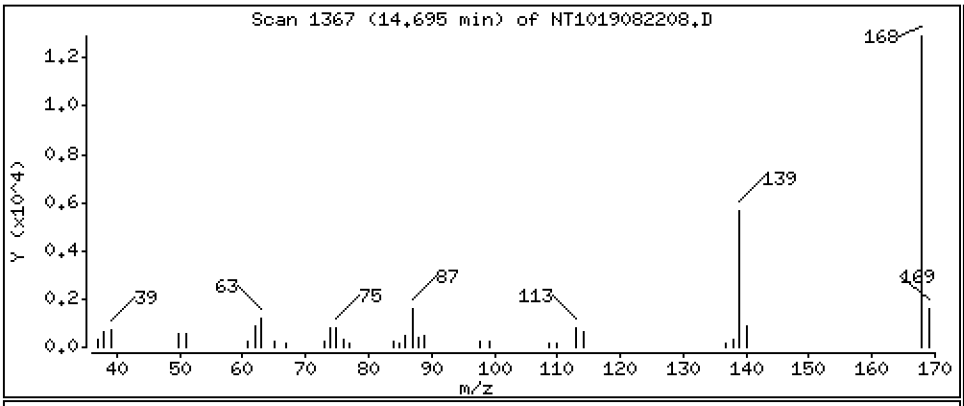
Operator: YZ

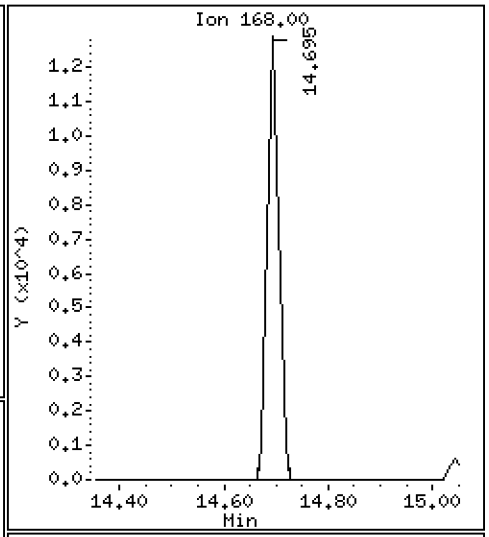
Column phase: ZB-5msi

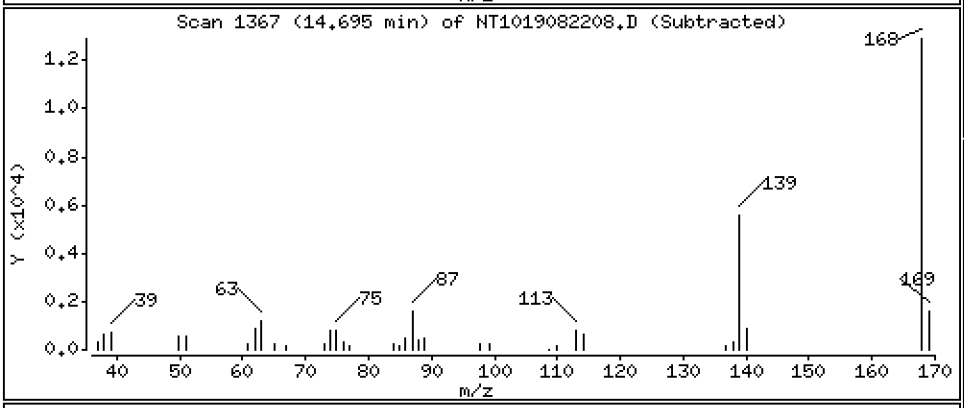
Column diameter: 0.25

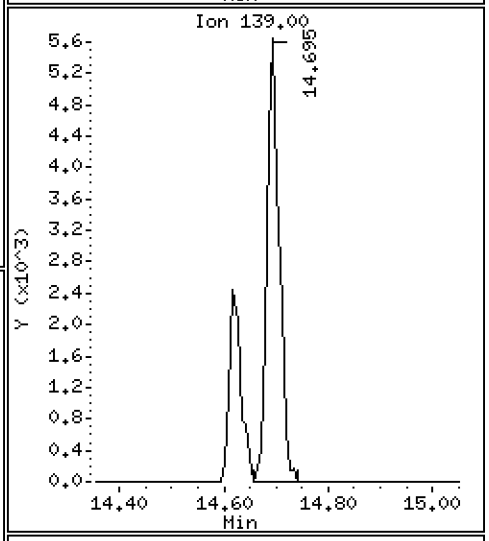
46 Dibenzofuran

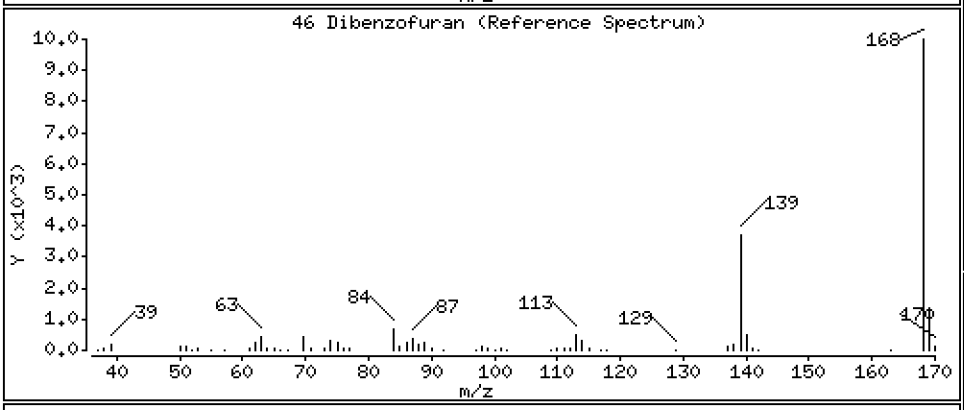
Concentration: 0.4936 ug/mL

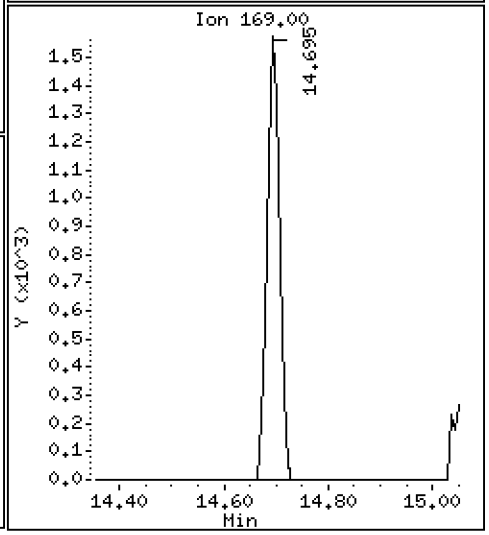


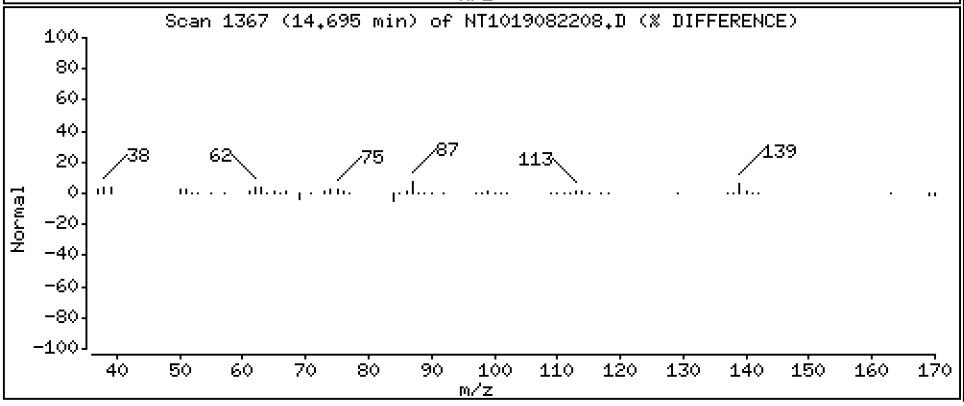












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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

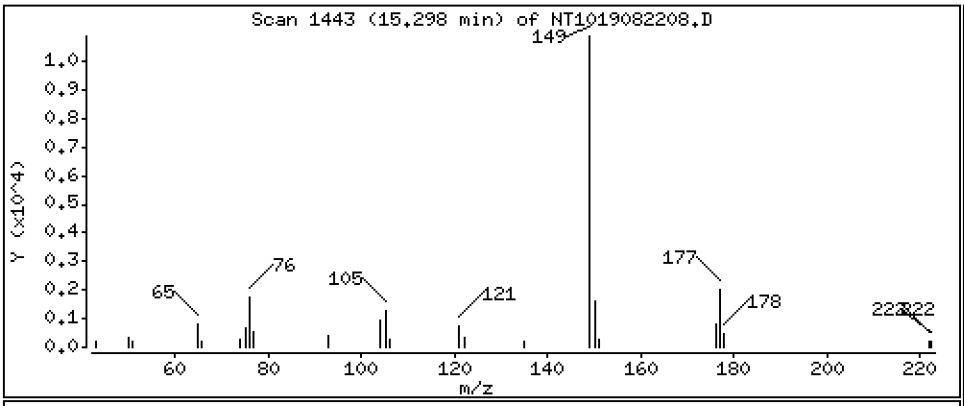
Operator: YZ

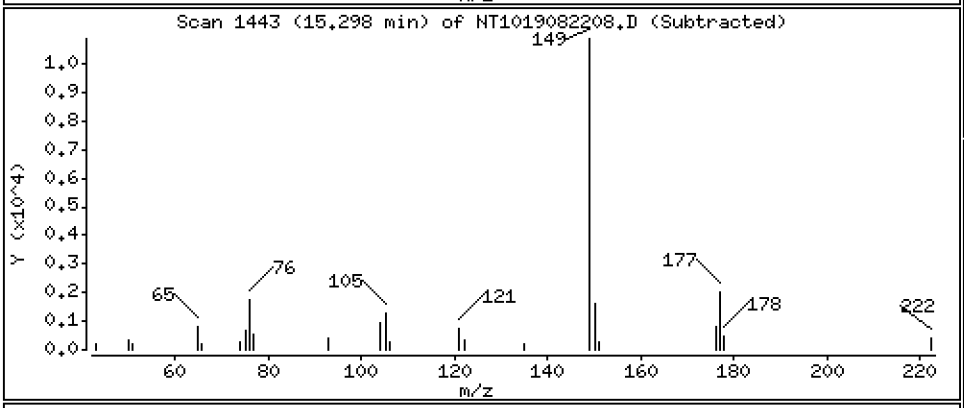
Column phase: ZB-5msi

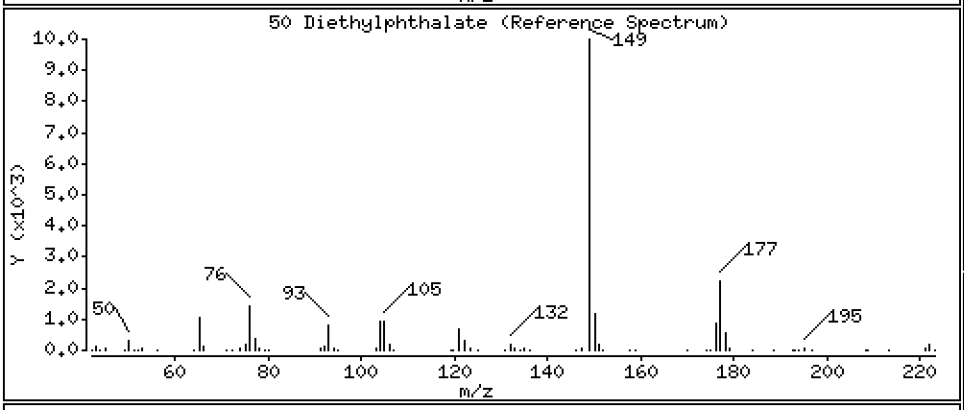
Column diameter: 0.25

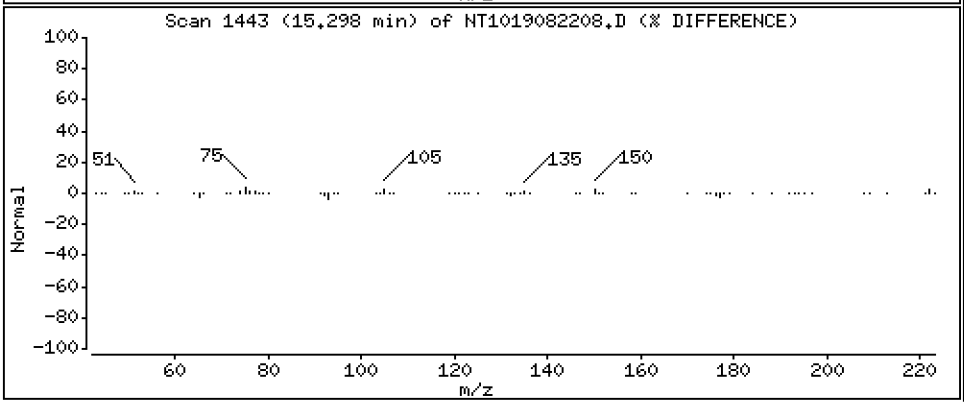
50 Diethylphthalate

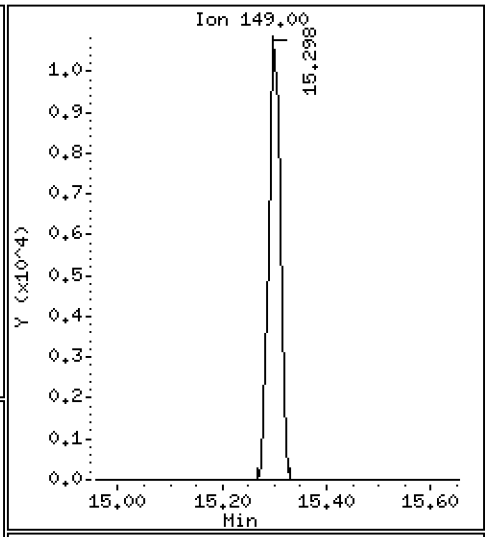
Concentration: 0.5436 ug/mL

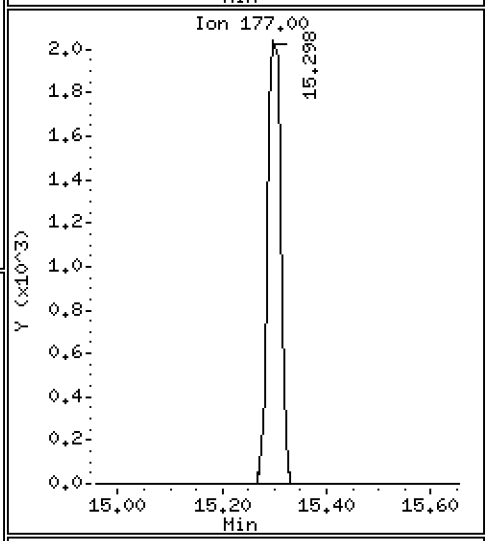


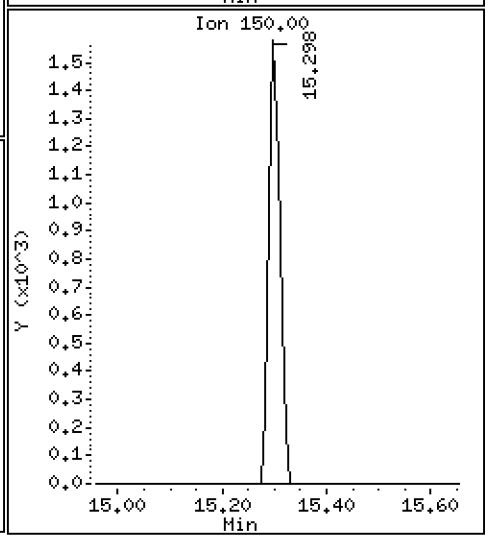












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

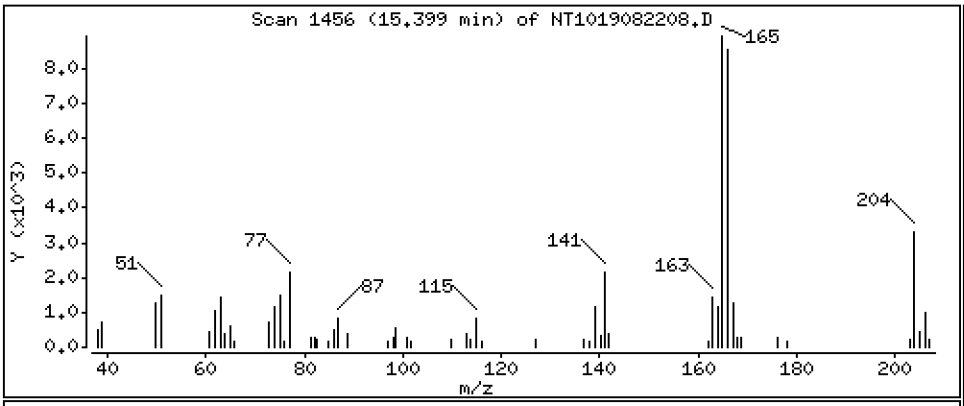
Operator: YZ

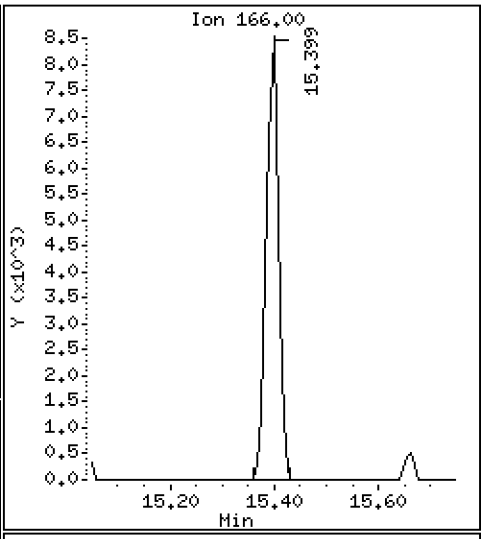
Column phase: ZB-5msi

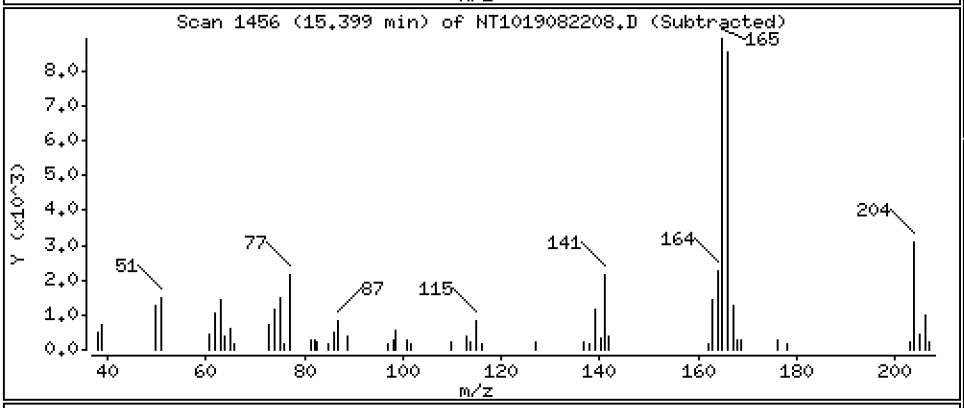
Column diameter: 0.25

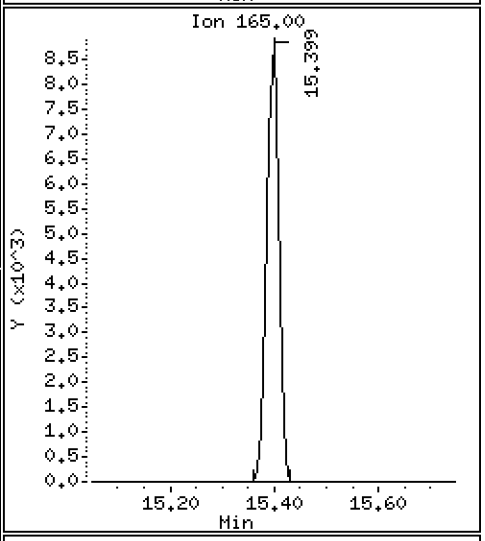
49 Fluorene

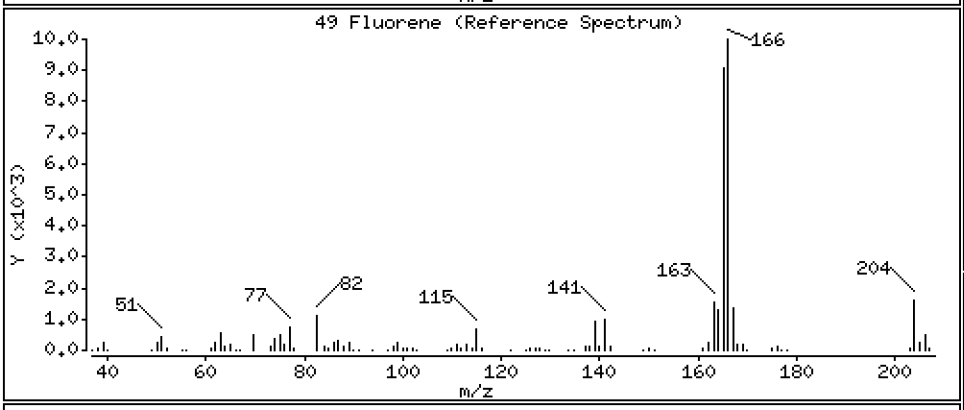
Concentration: 0.4803 ug/mL

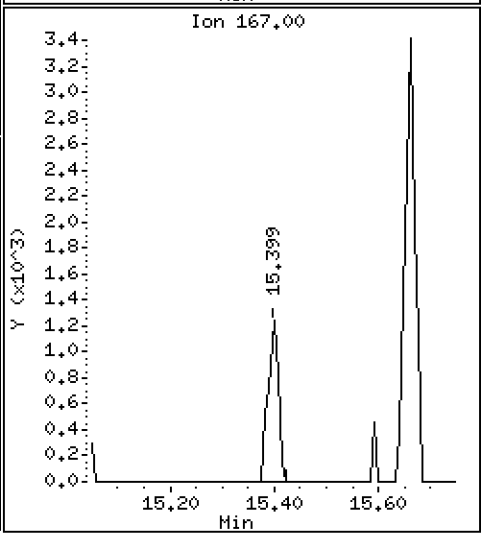


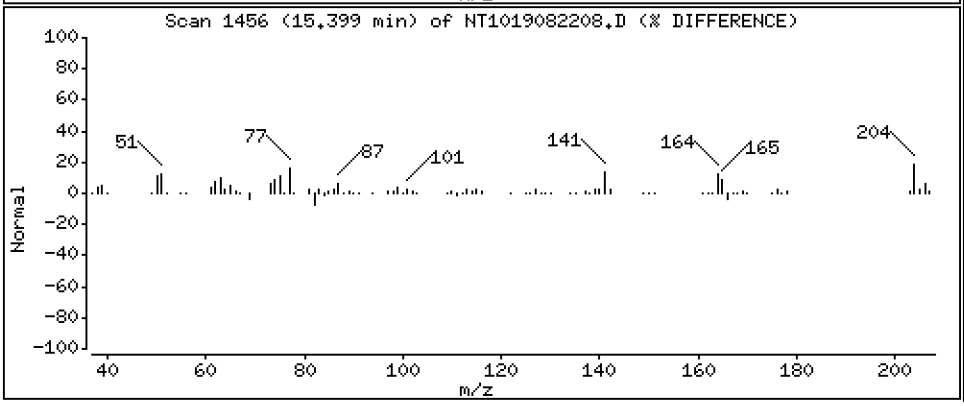












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

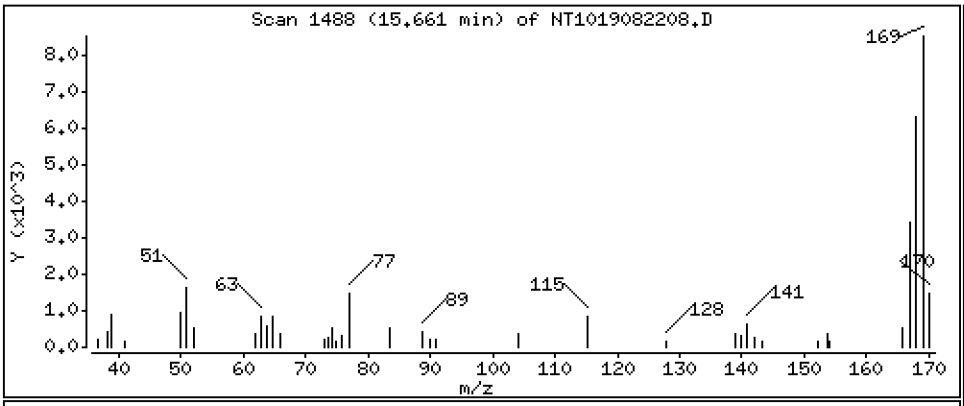
Operator: YZ

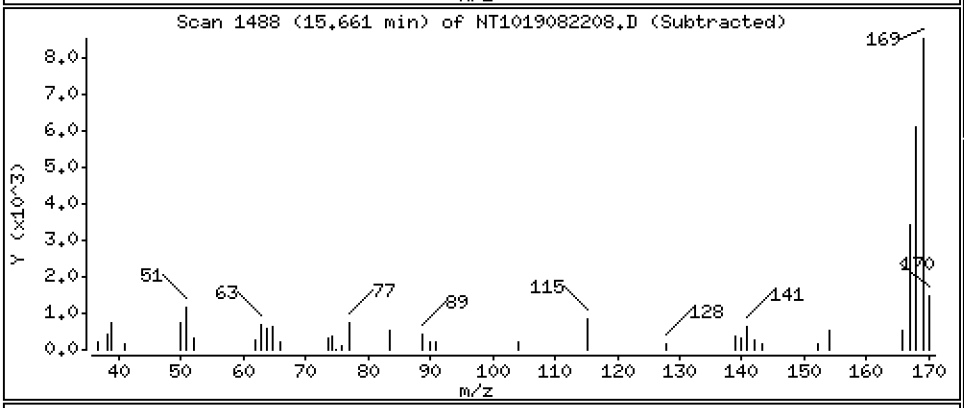
Column phase: ZB-5msi

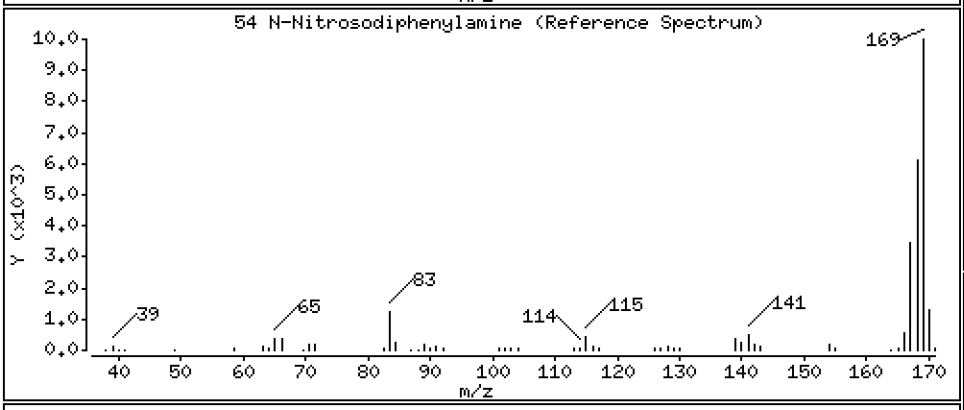
Column diameter: 0.25

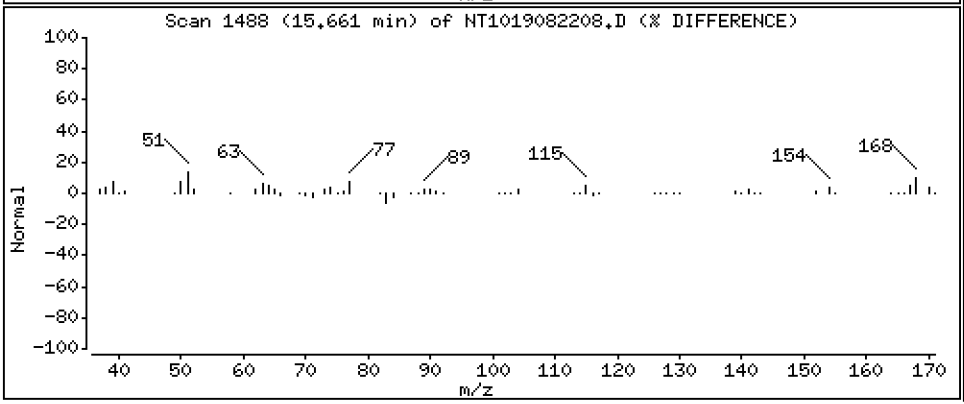
54 N-Nitrosodiphenylamine

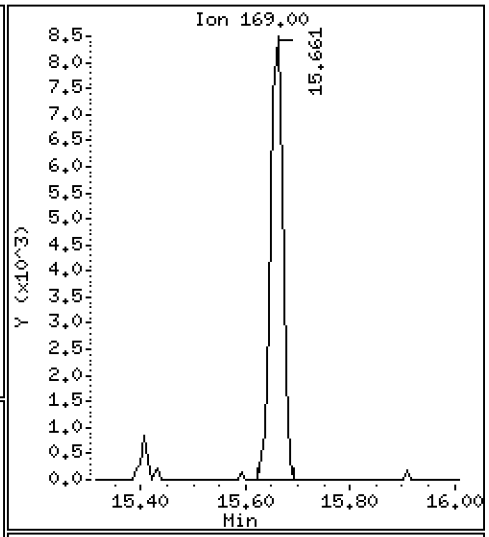
Concentration: 0.6201 ug/mL

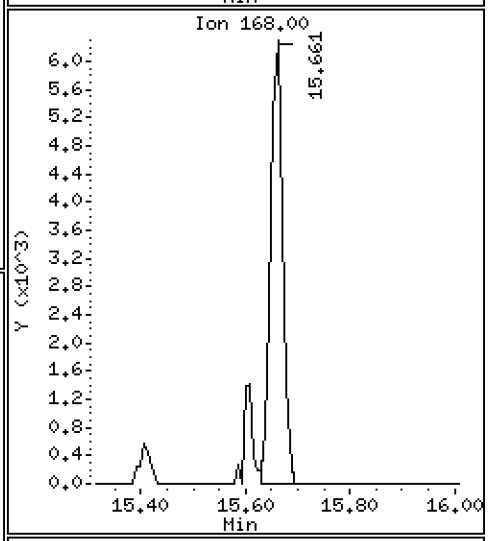


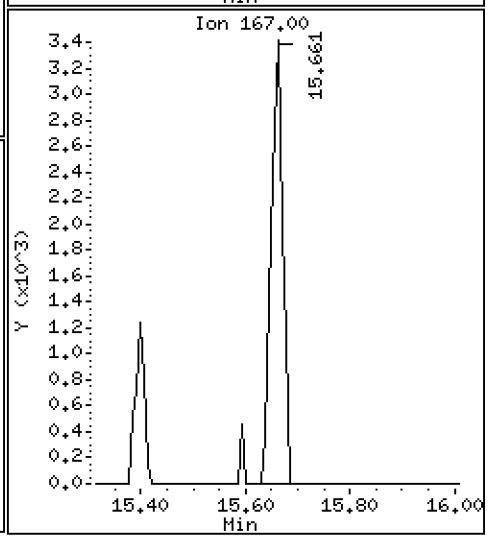












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

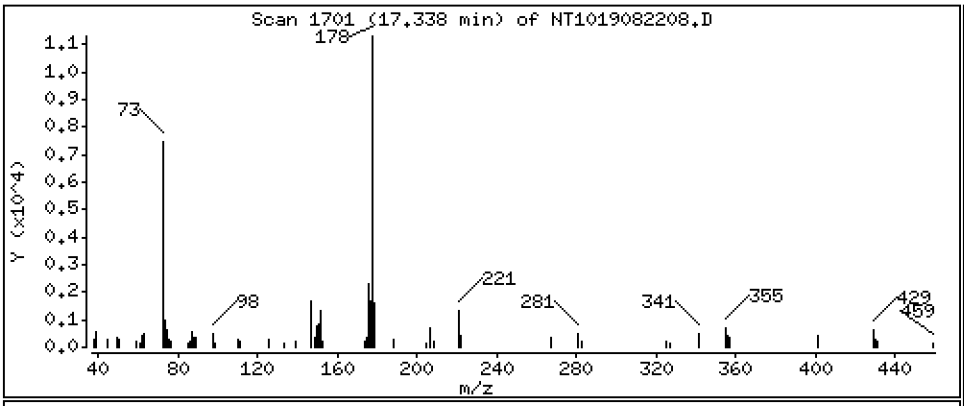
Operator: YZ

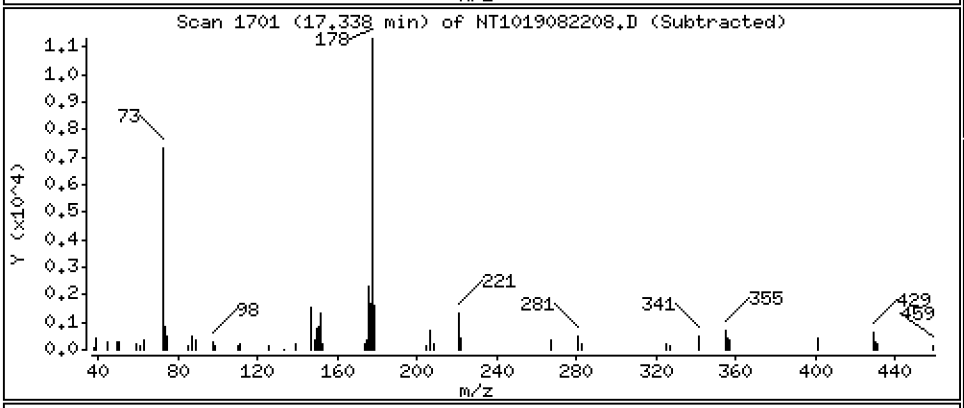
Column phase: ZB-5msi

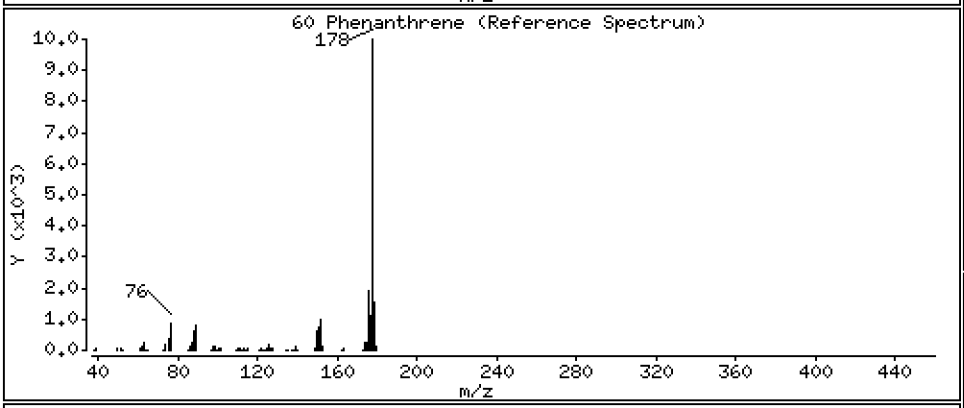
Column diameter: 0.25

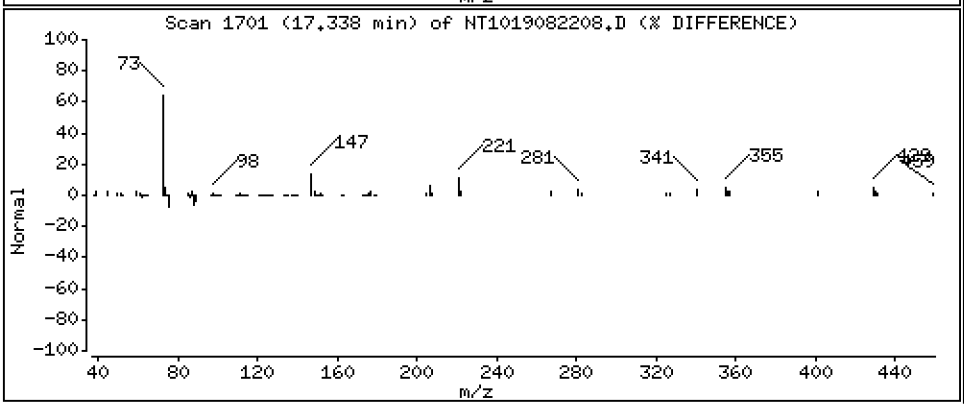
60 Phenanthrene

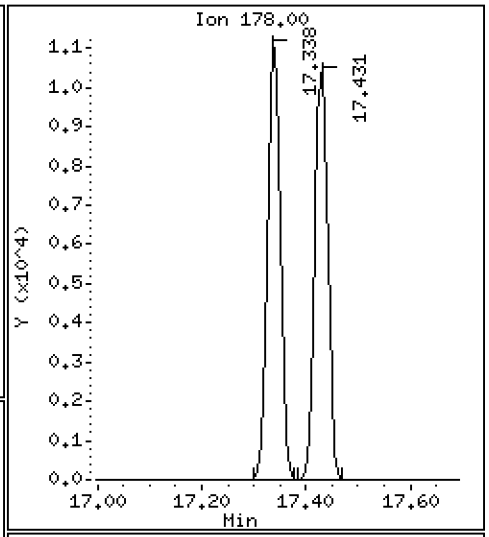
Concentration: 0.4895 ug/mL

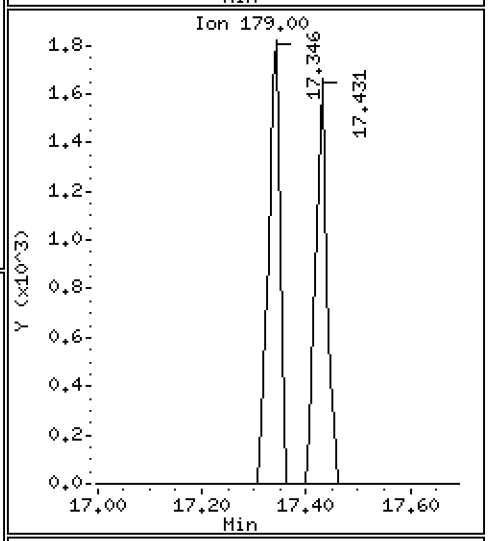


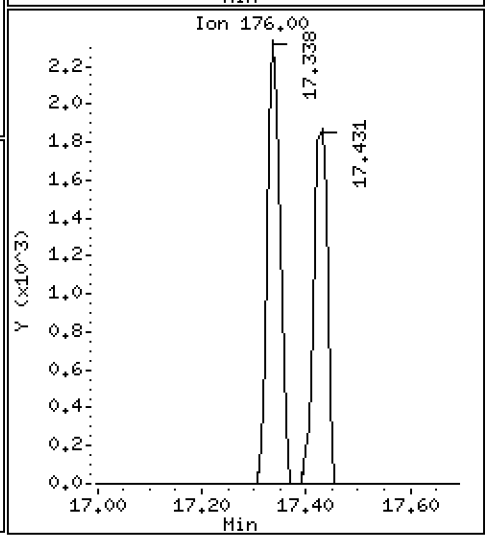












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

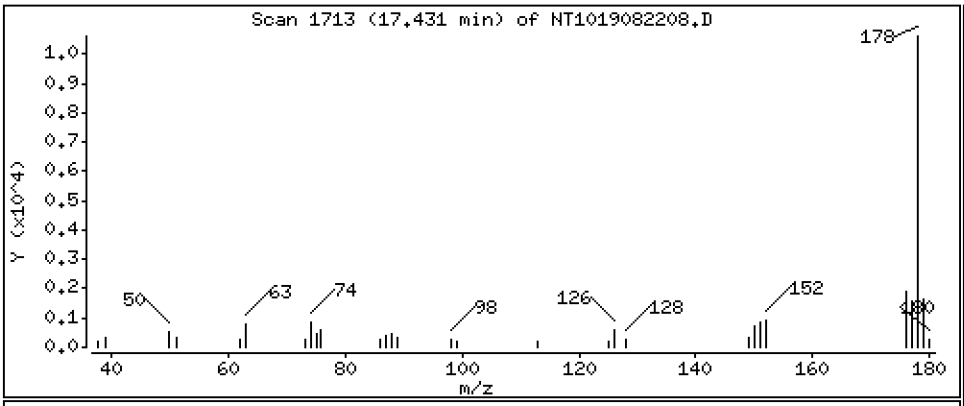
Operator: YZ

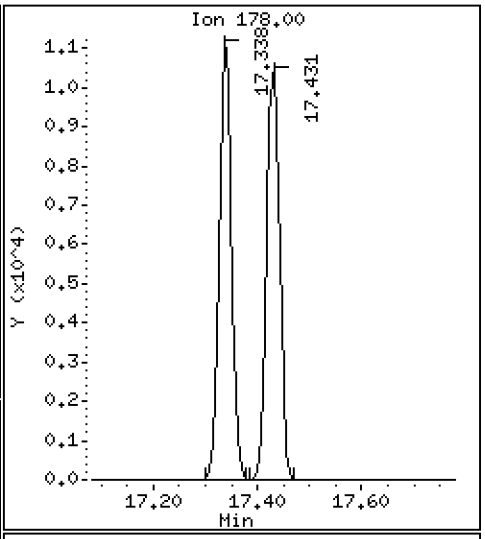
Column phase: ZB-5msi

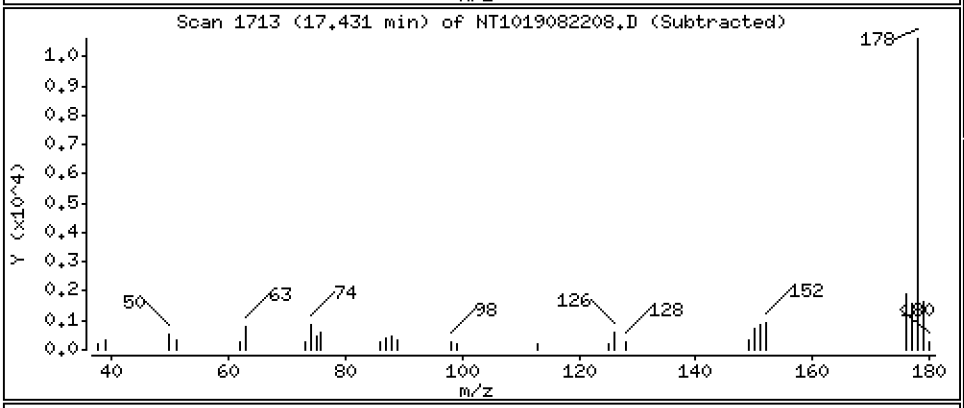
Column diameter: 0.25

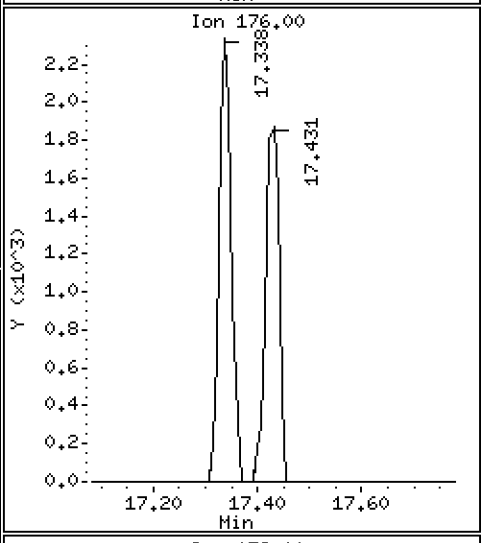
61 Anthracene

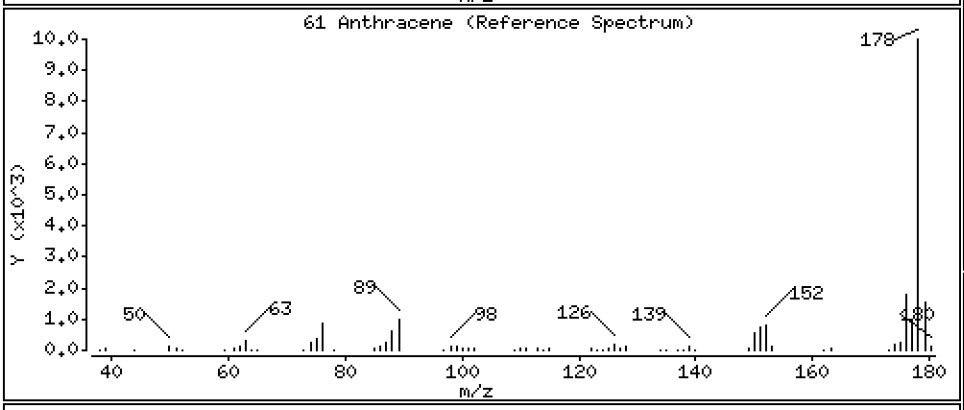
Concentration: 0.4535 ug/mL

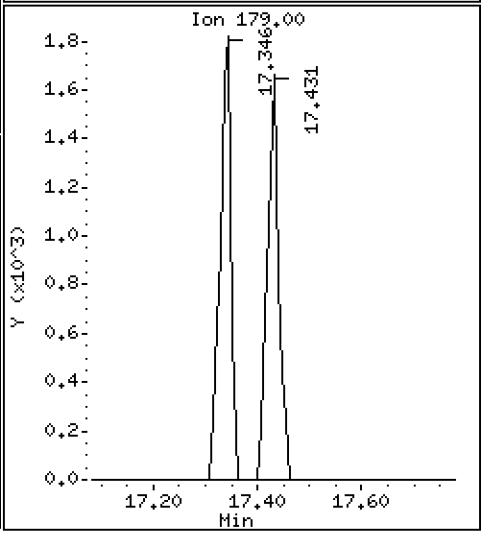


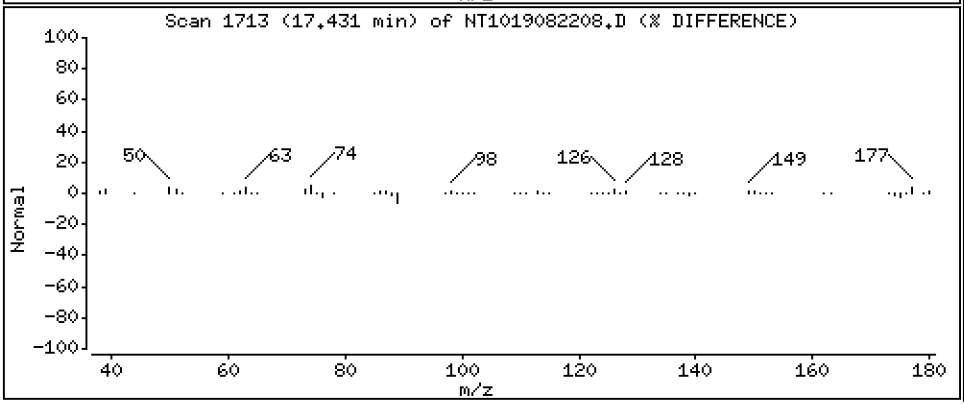












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

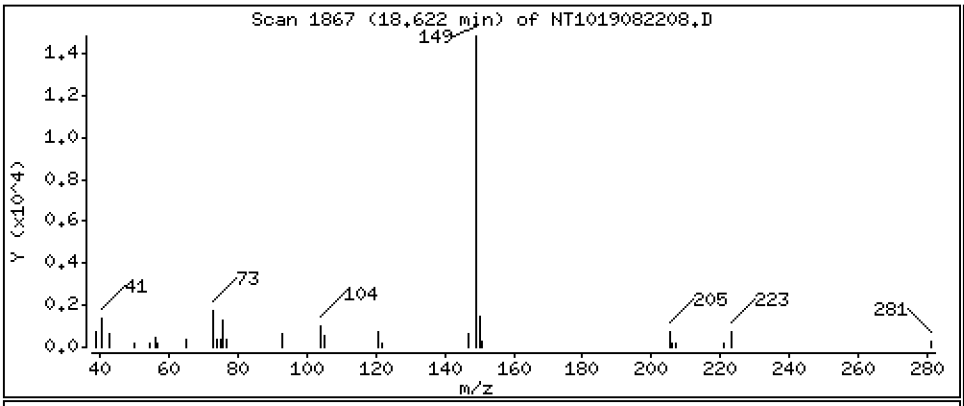
Operator: YZ

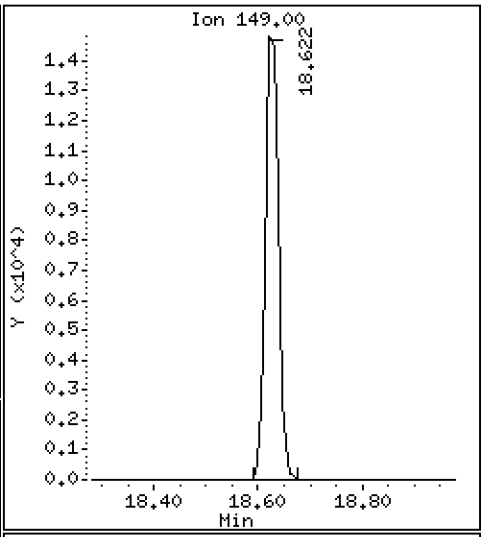
Column phase: ZB-5msi

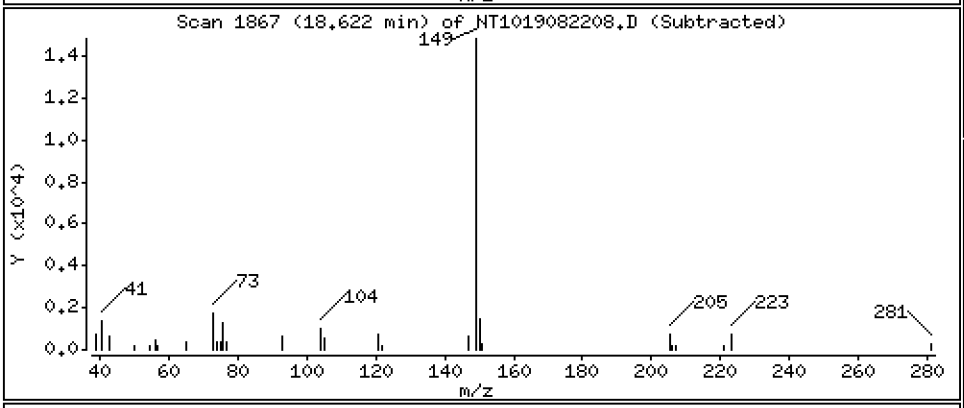
Column diameter: 0.25

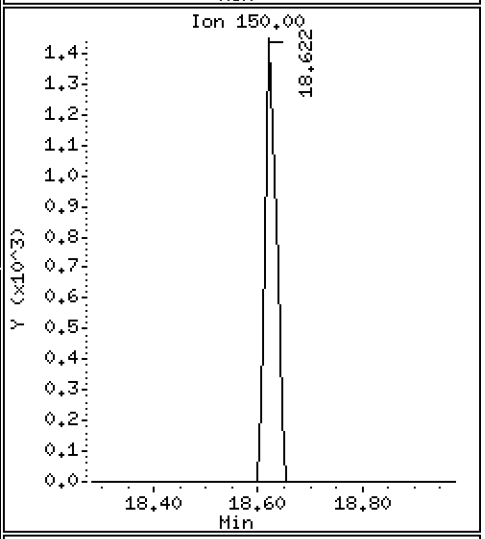
63 Di-n-butylphthalate

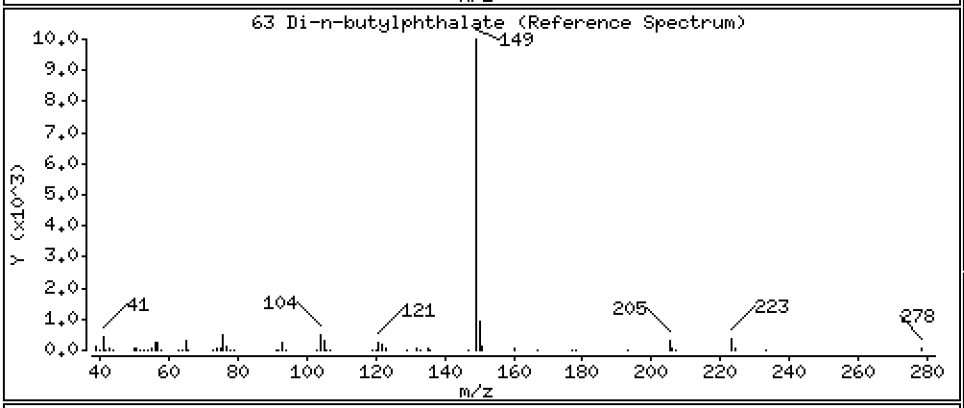
Concentration: 0.4693 ug/mL

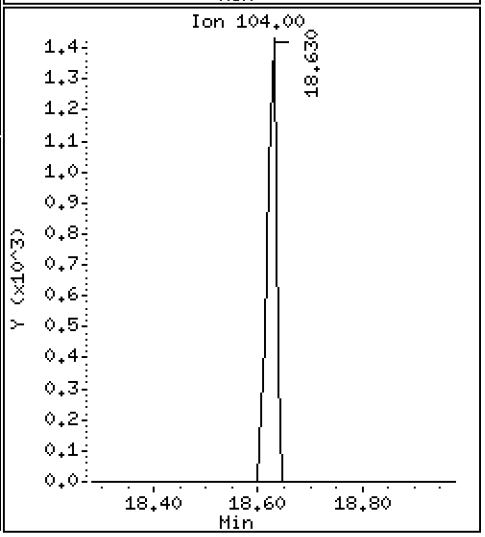


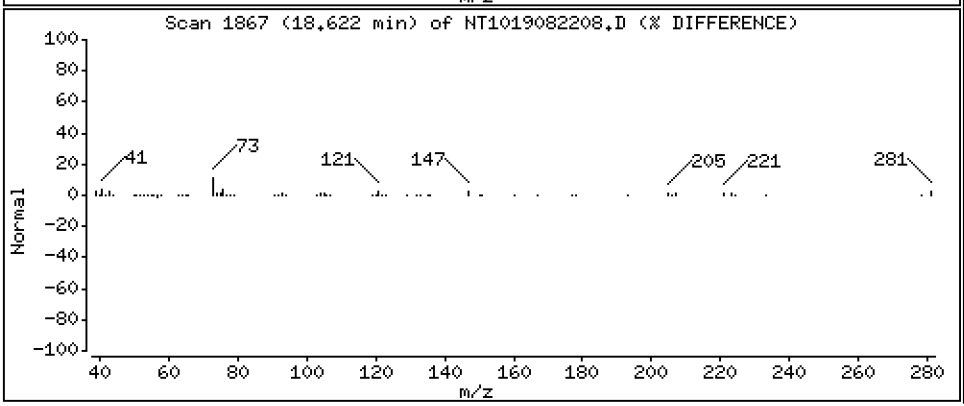












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

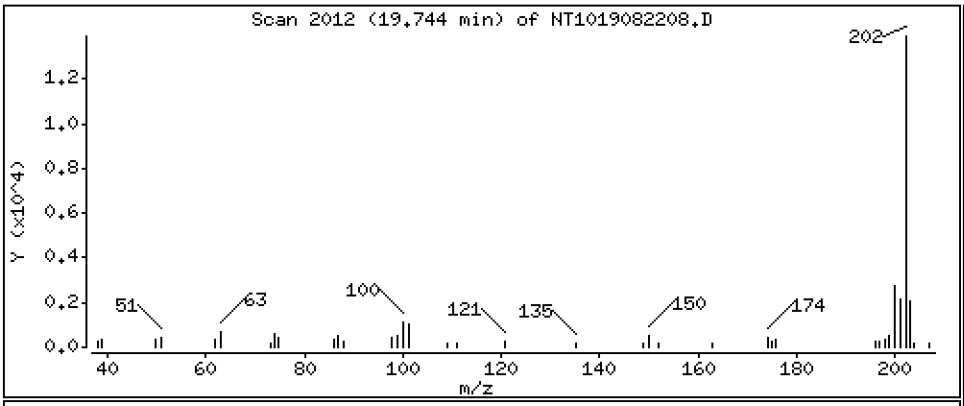
Operator: YZ

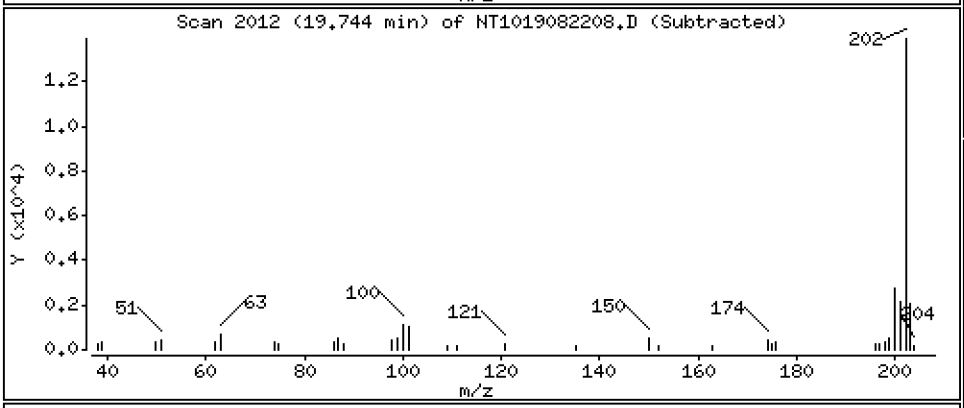
Column phase: ZB-5msi

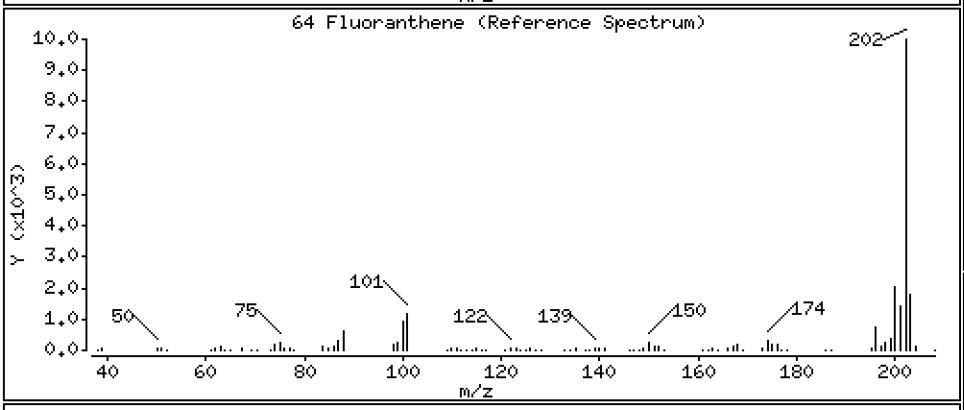
Column diameter: 0.25

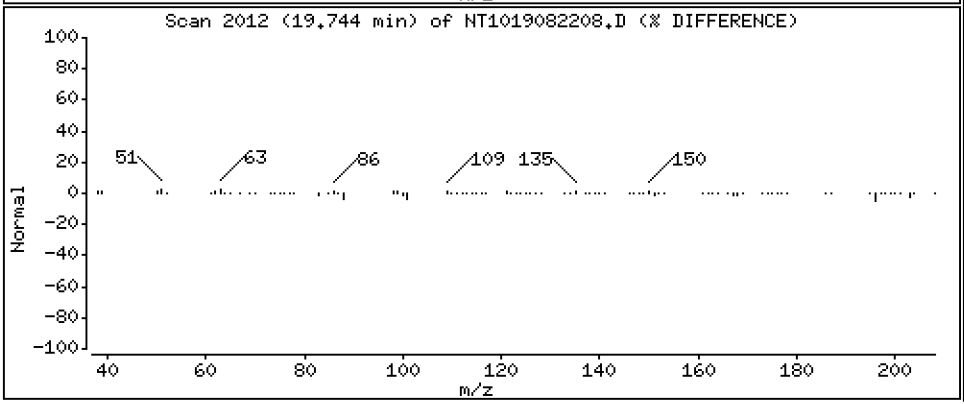
64 Fluoranthene

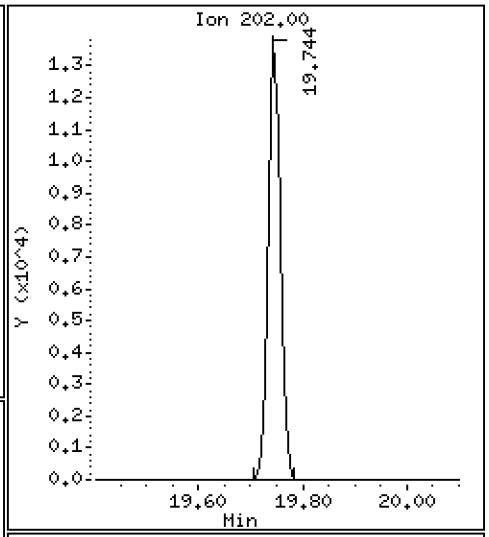
Concentration: 0.5169 ug/mL

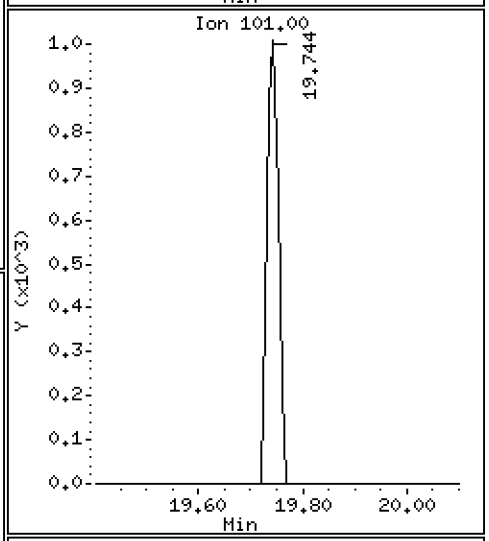


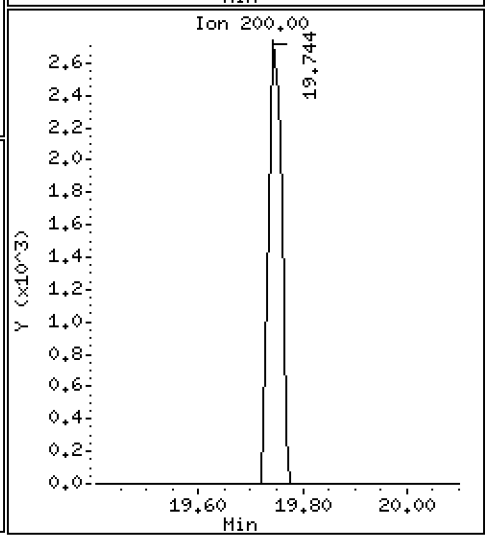












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

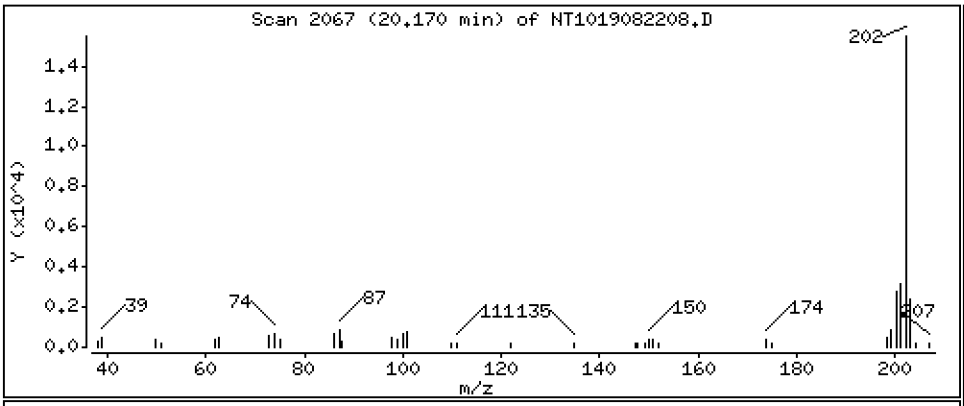
Operator: YZ

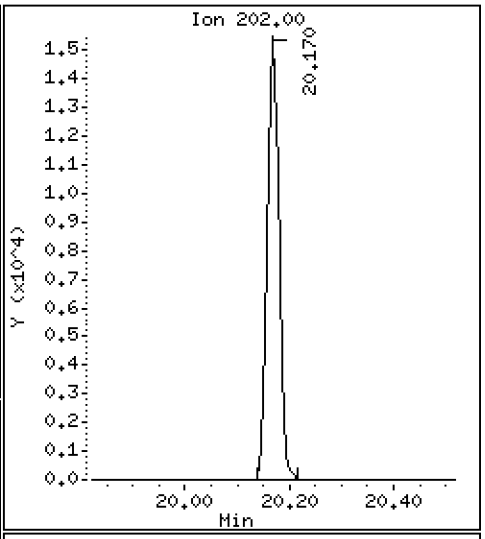
Column phase: ZB-5msi

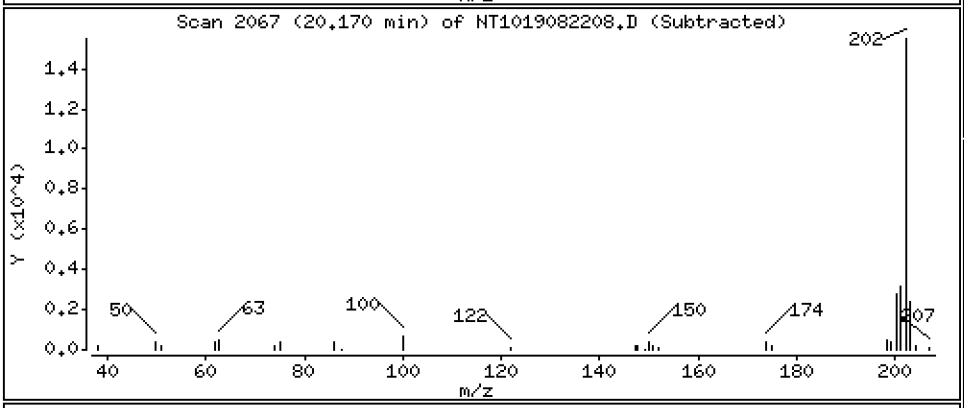
Column diameter: 0.25

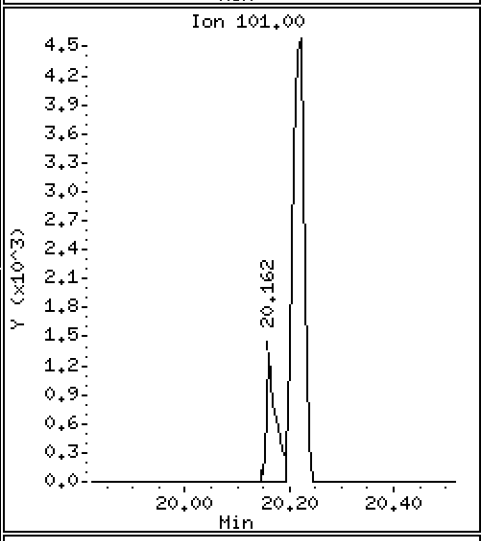
65 Pyrene

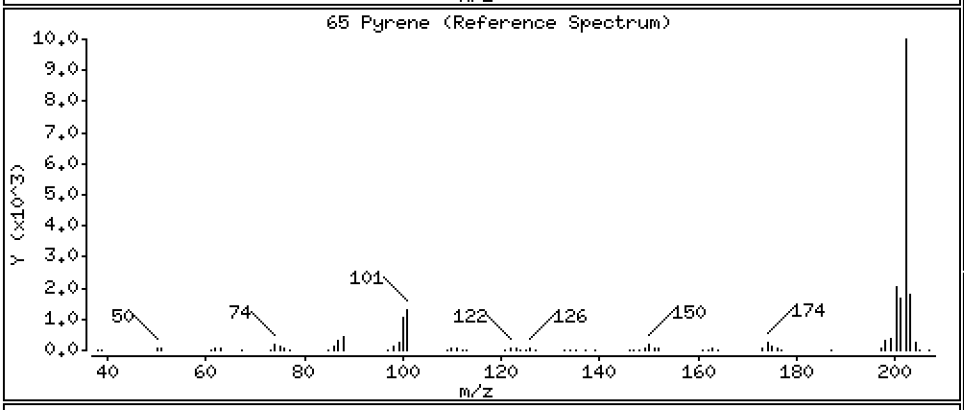
Concentration: 0.5381 ug/mL

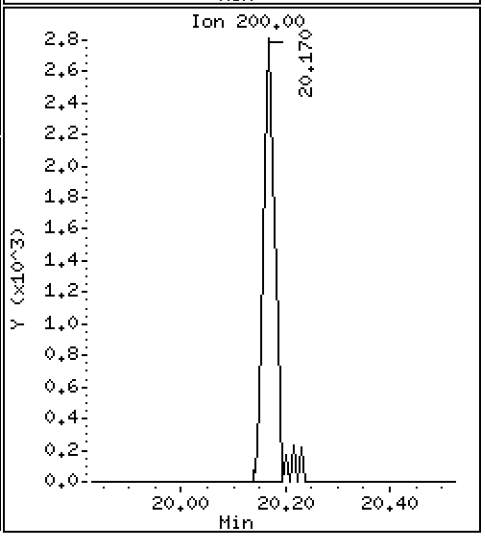


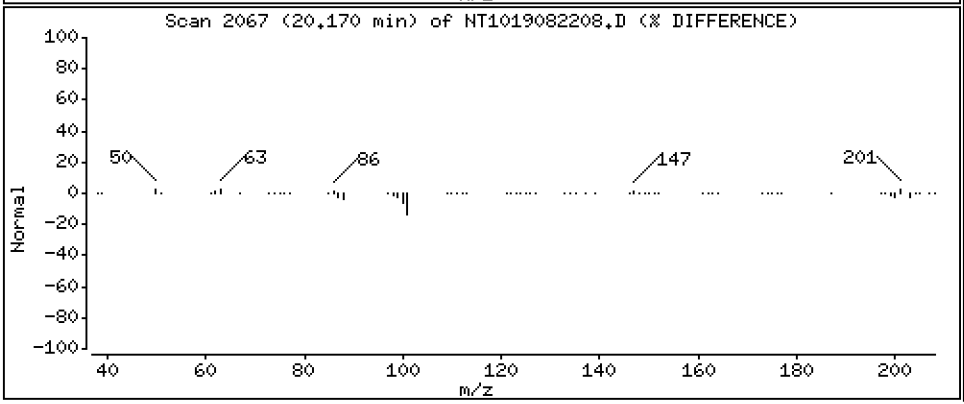












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

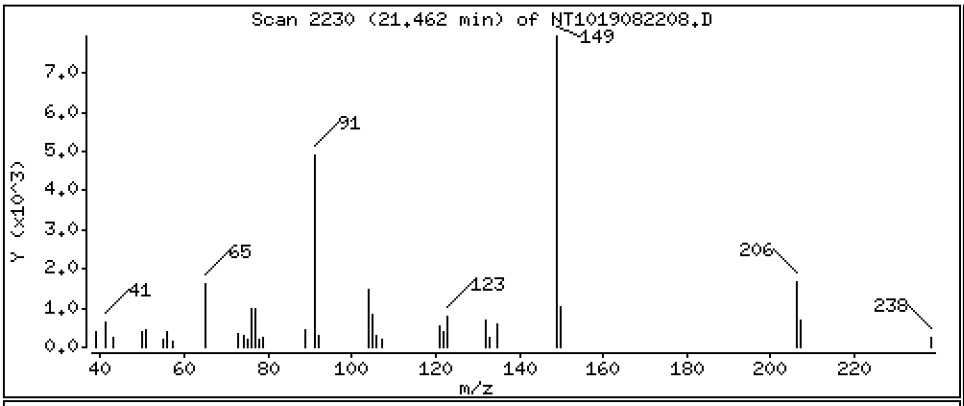
Operator: YZ

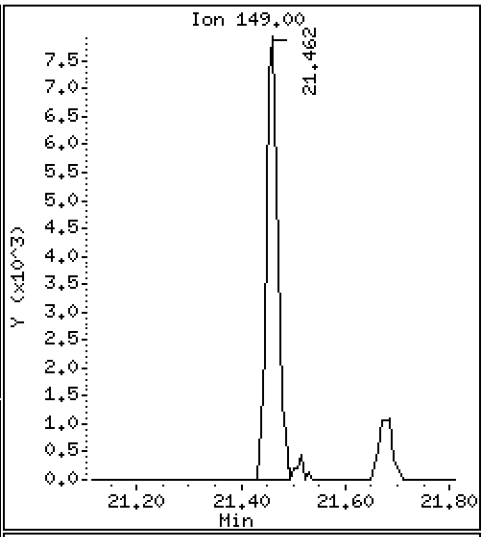
Column phase: ZB-5msi

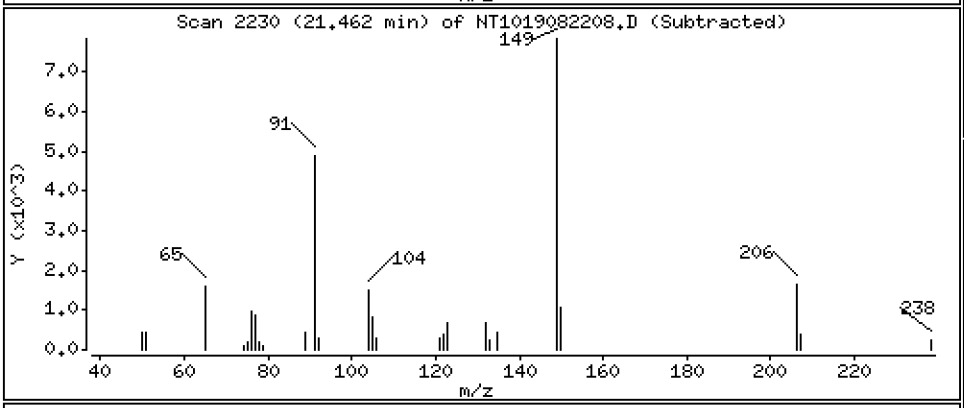
Column diameter: 0.25

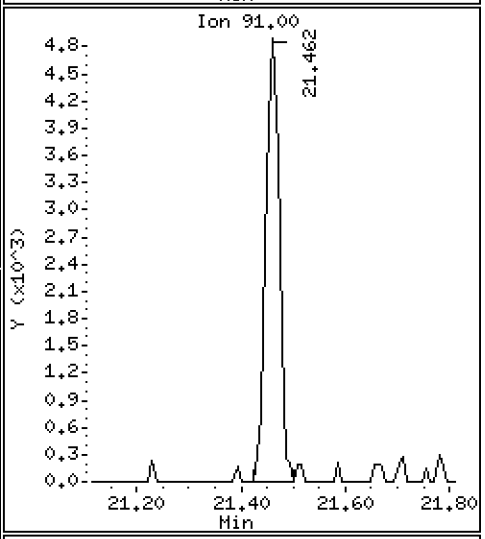
67 Butylbenzylphthalate

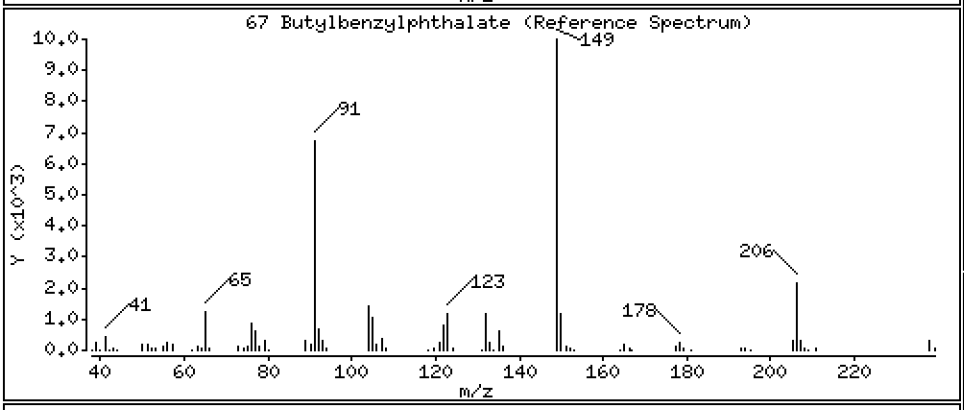
Concentration: 0.5831 ug/mL

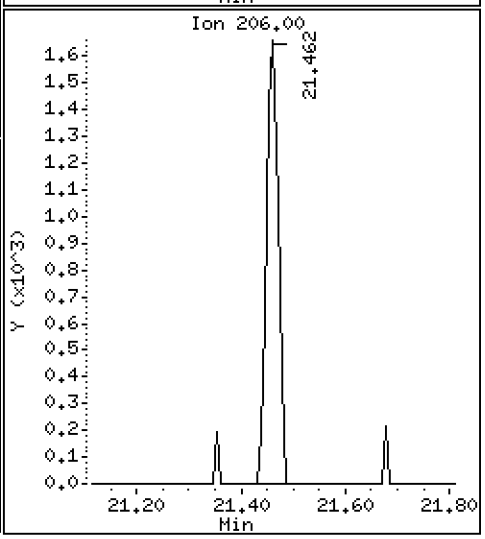


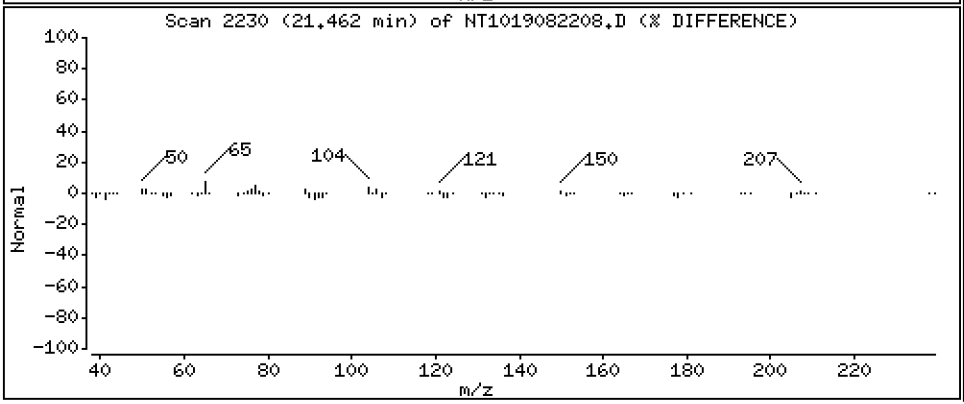












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

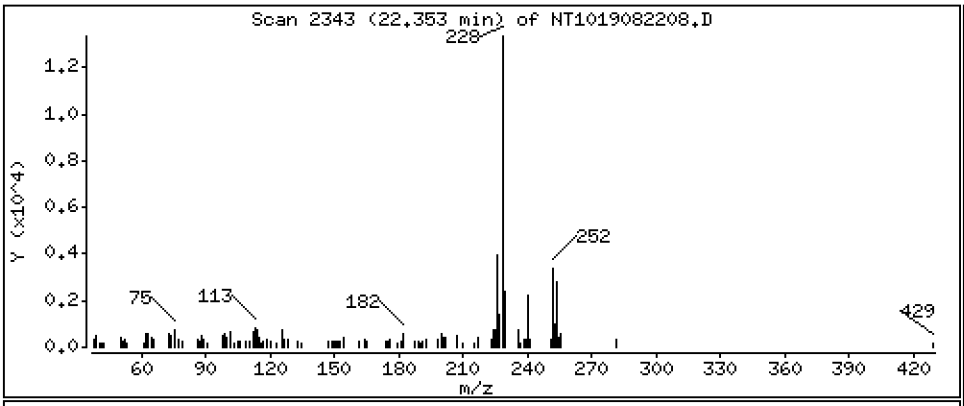
Operator: YZ

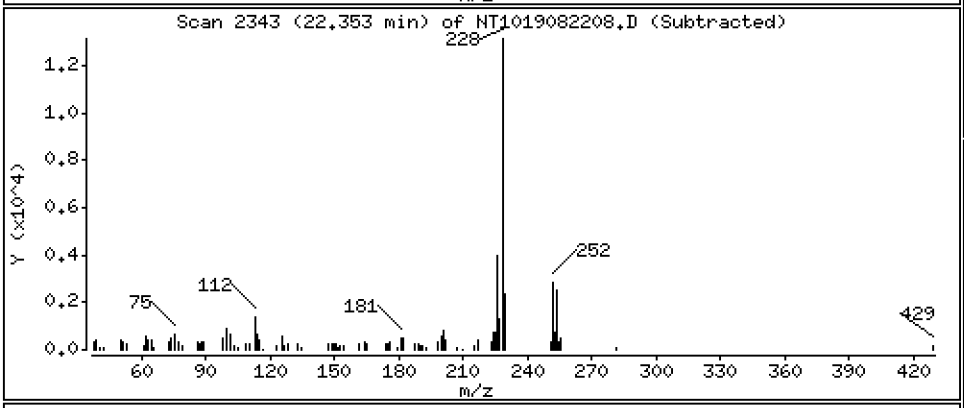
Column phase: ZB-5msi

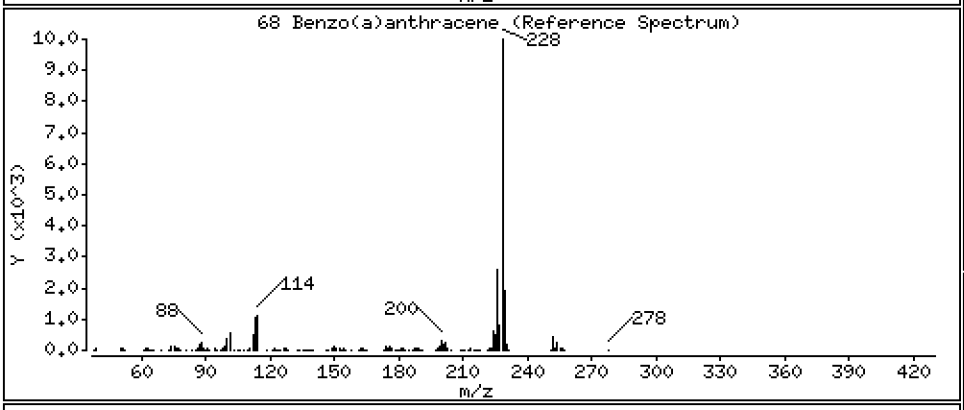
Column diameter: 0.25

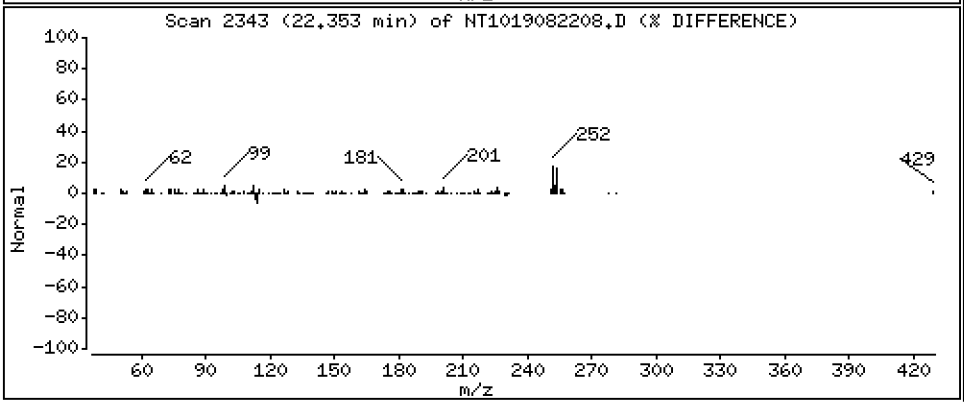
68 Benzo(a)anthracene

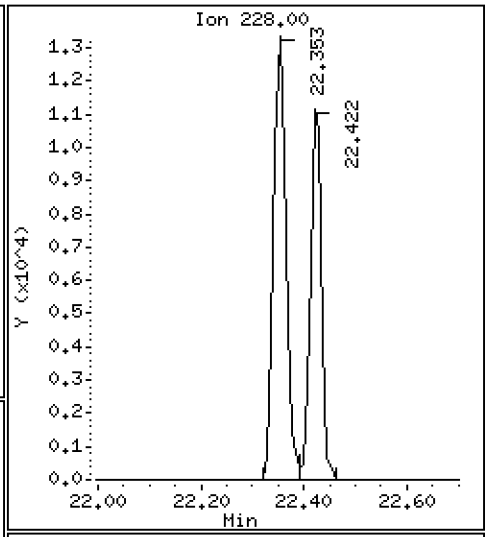
Concentration: 0.5489 ug/mL

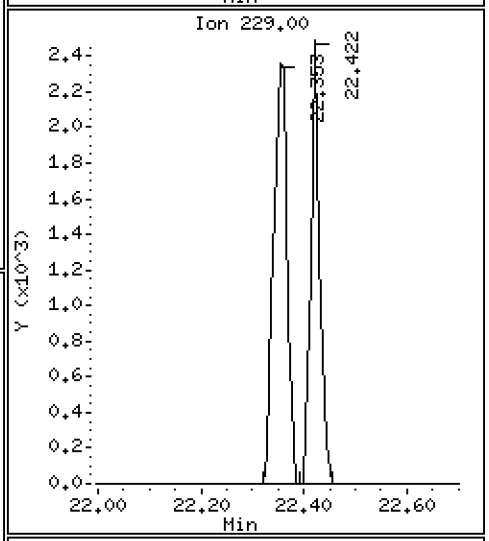


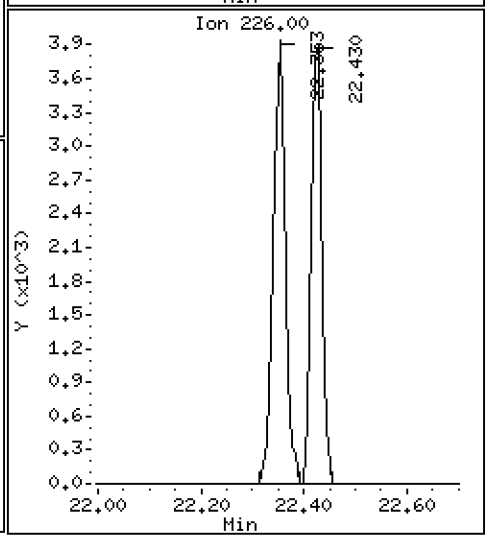












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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

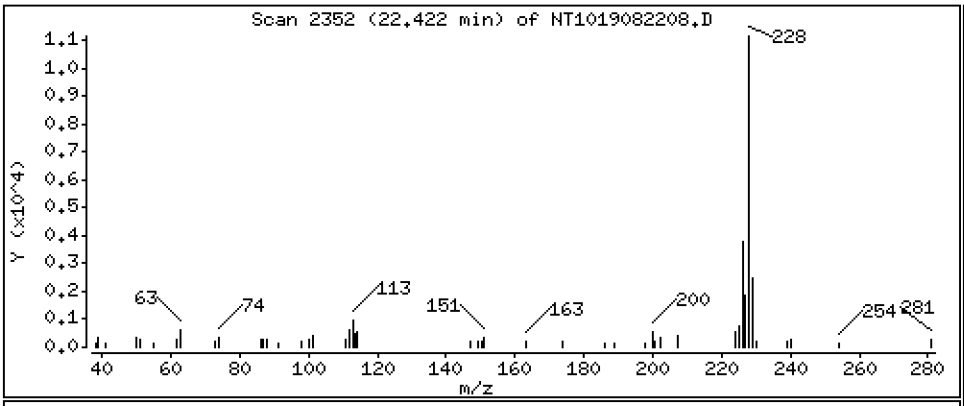
Operator: YZ

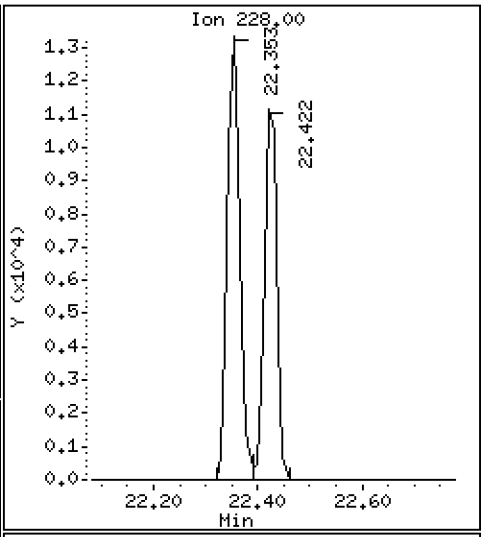
Column phase: ZB-5msi

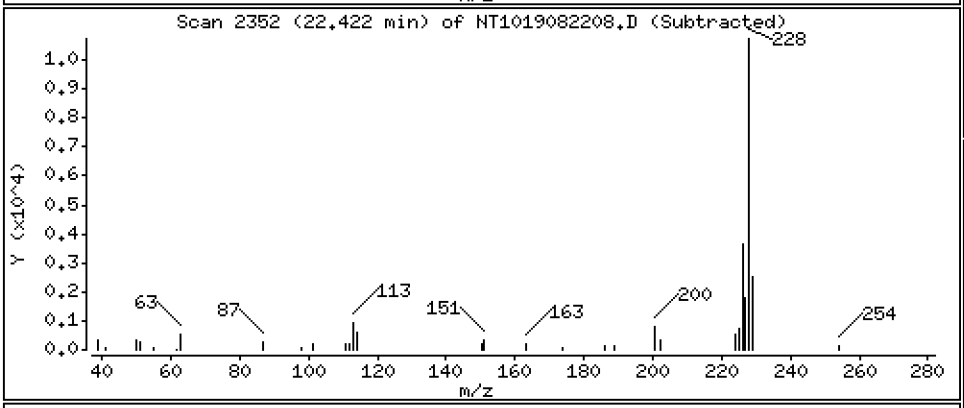
Column diameter: 0.25

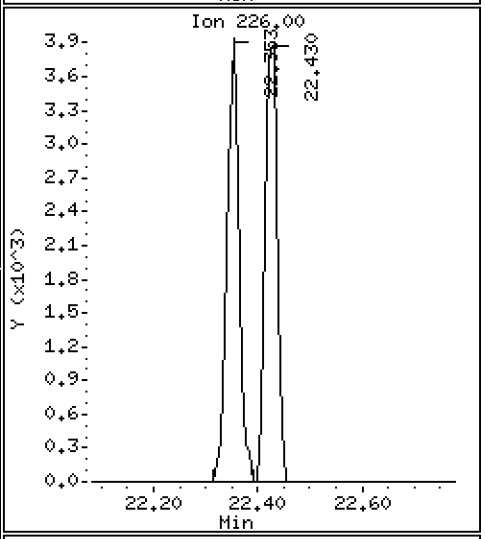
71 Chrysene

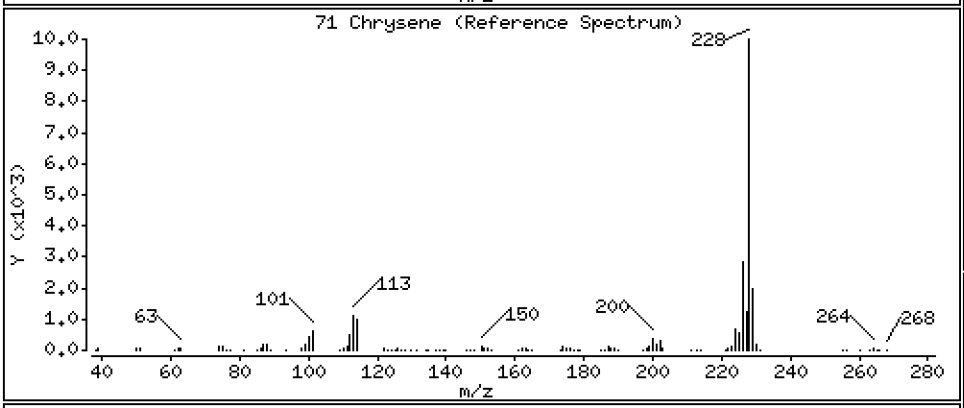
Concentration: 0.5063 ug/mL

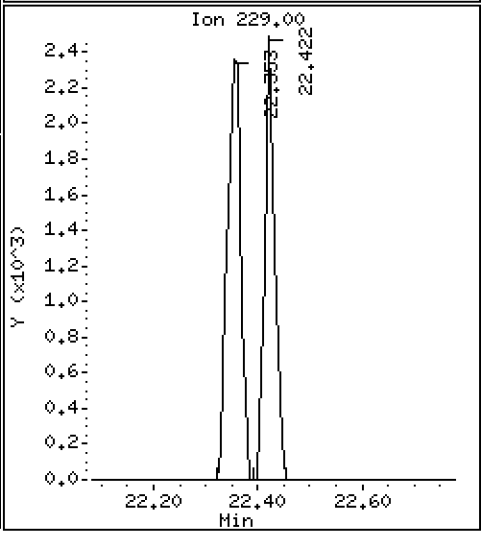


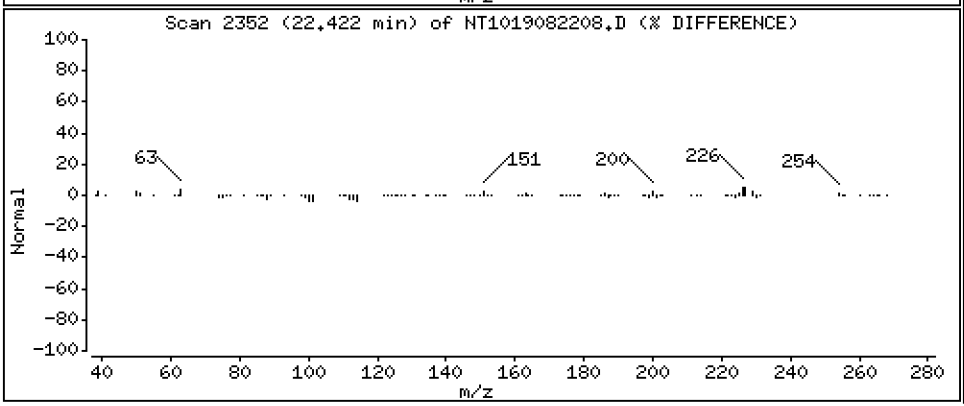












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

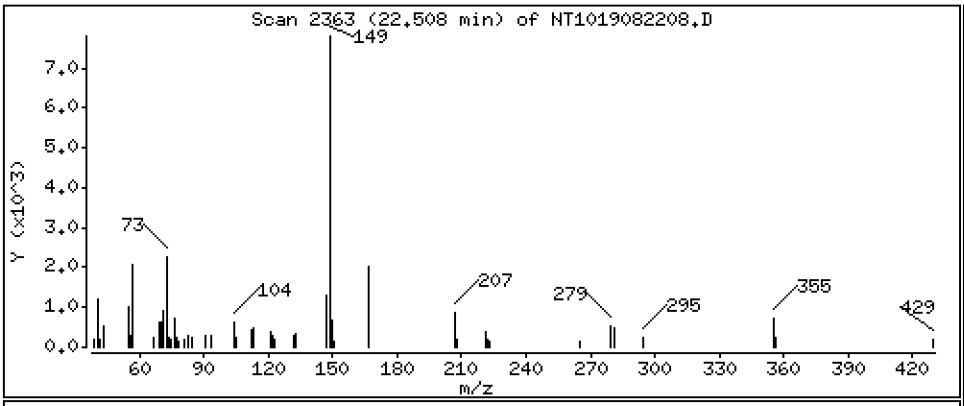
Operator: YZ

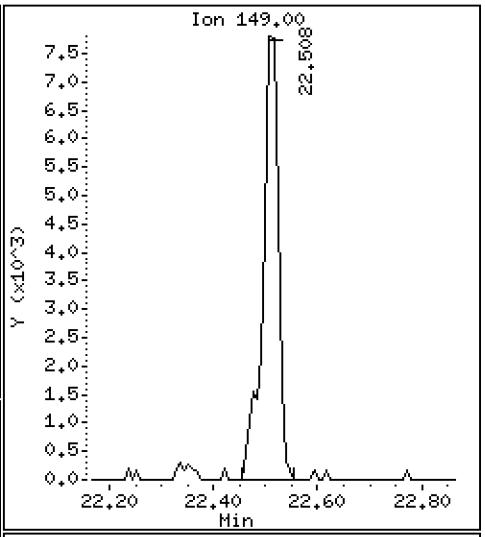
Column phase: ZB-5msi

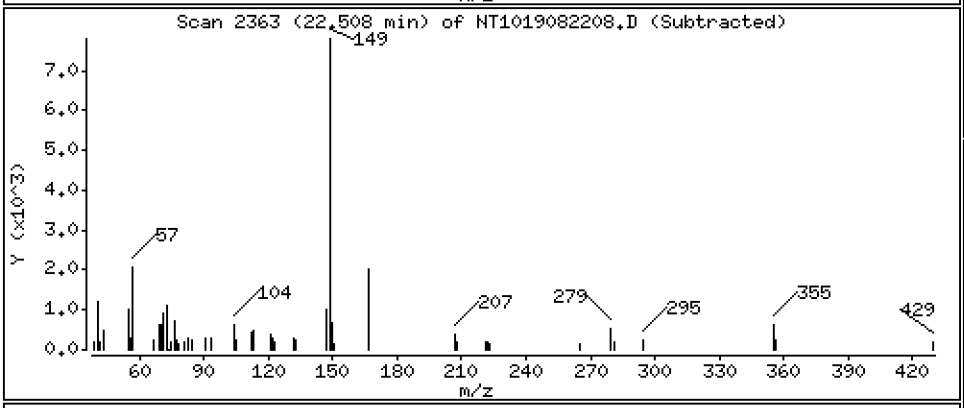
Column diameter: 0.25

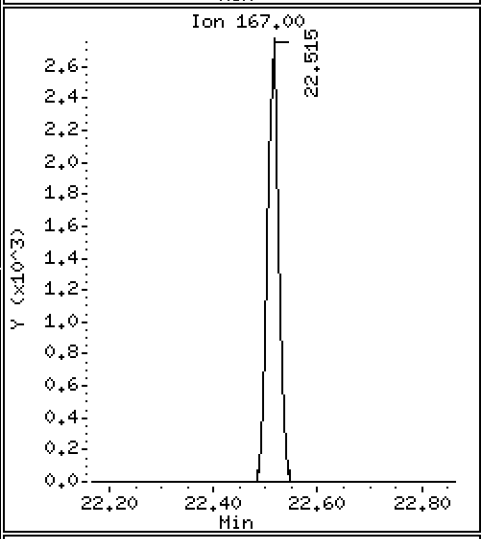
72 bis(2-Ethylhexyl)phthalate

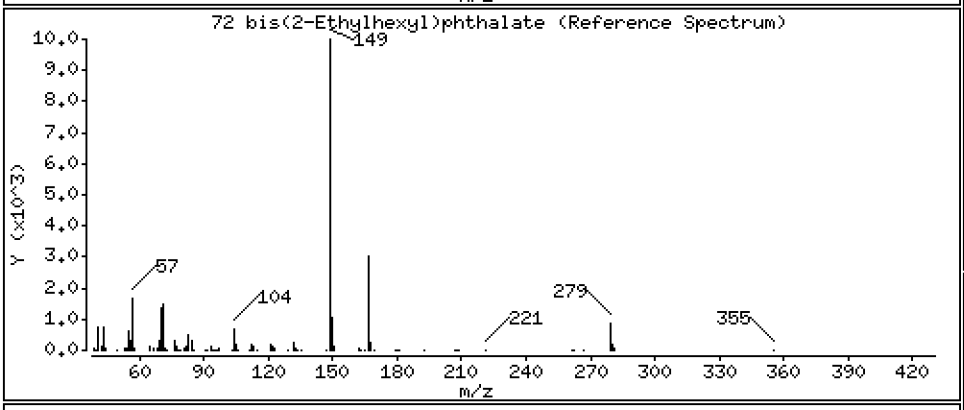
Concentration: 0.6237 ug/mL

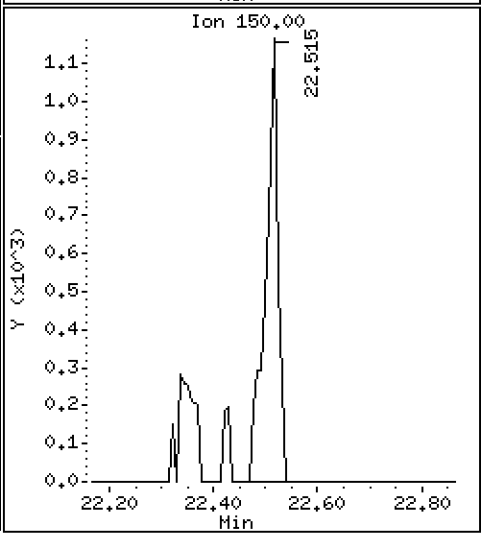


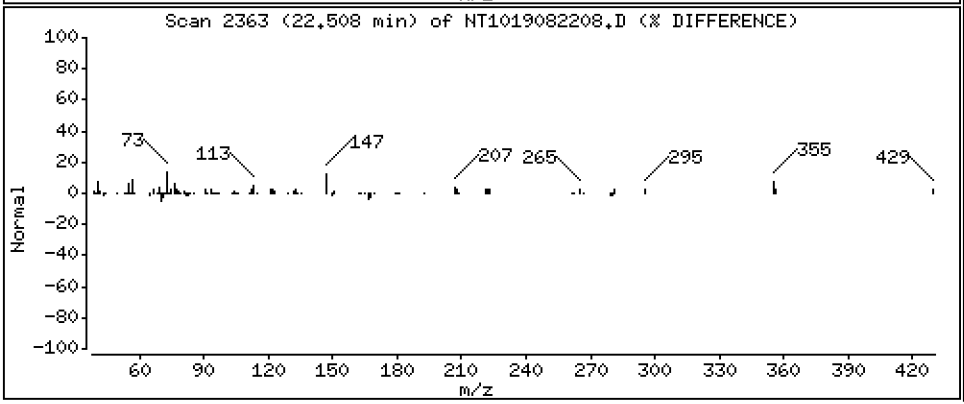












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

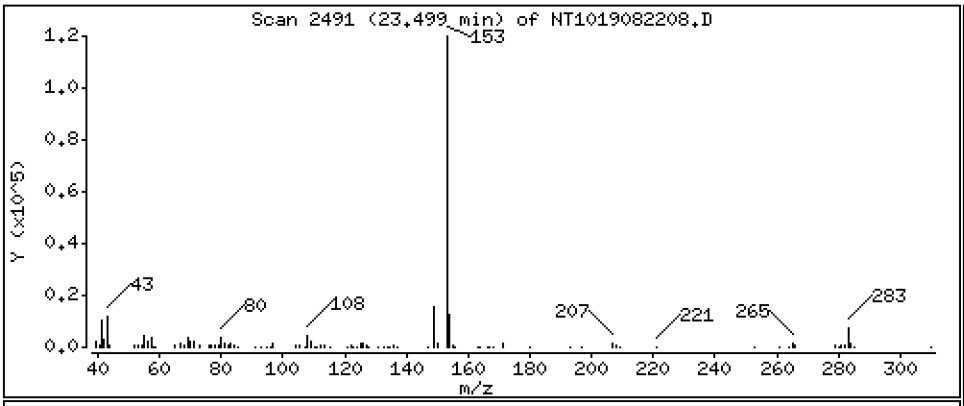
Operator: YZ

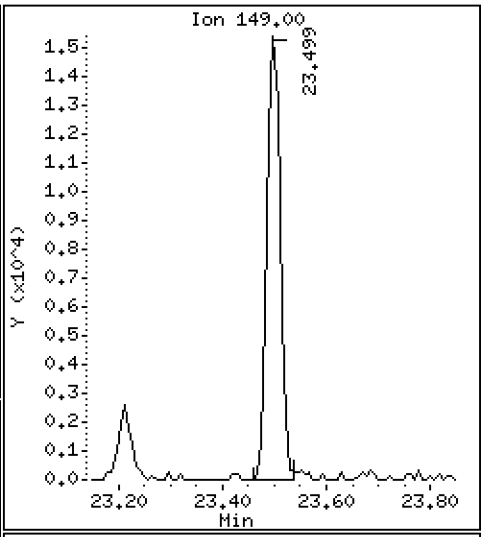
Column phase: ZB-5msi

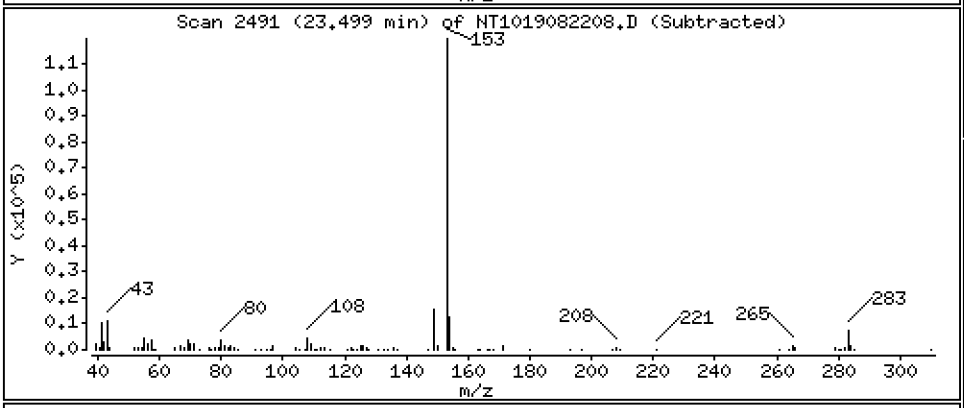
Column diameter: 0.25

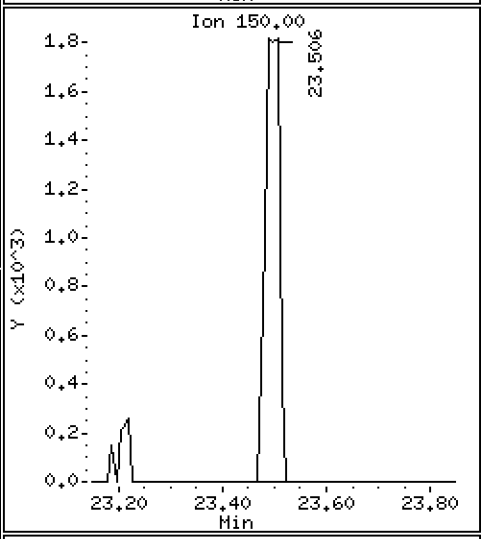
73 Di-n-octylphthalate

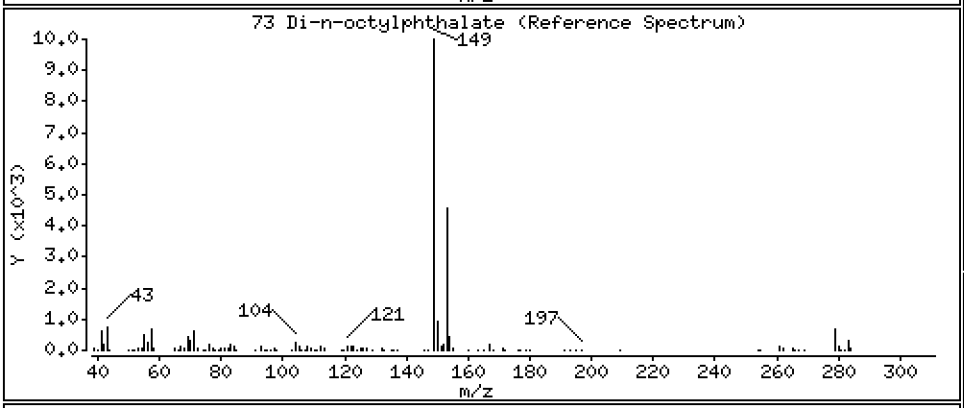
Concentration: 0.4962 ug/mL

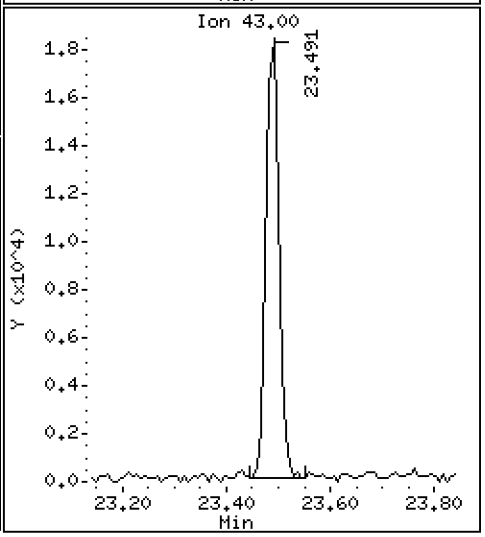


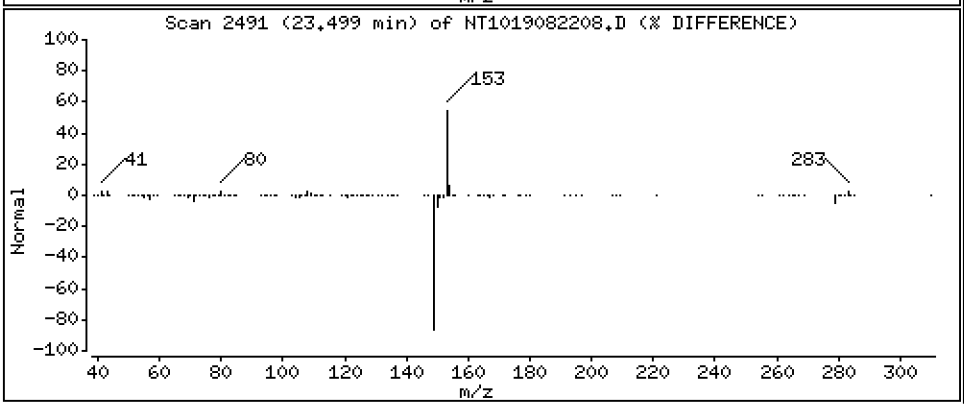












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

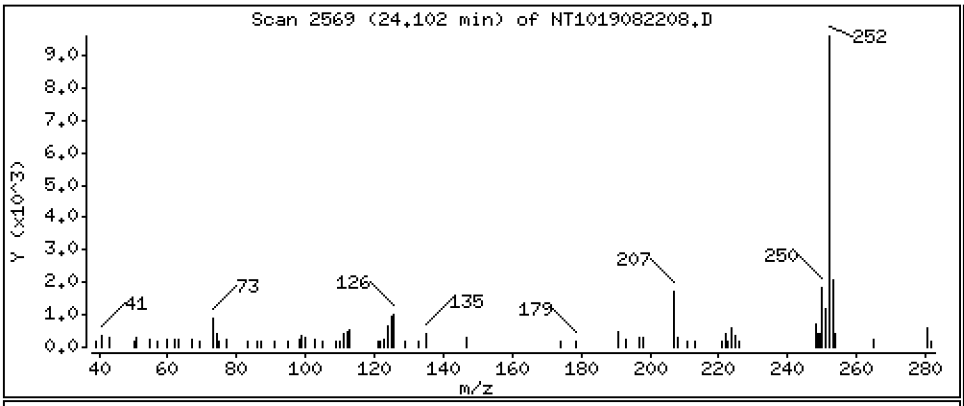
Operator: YZ

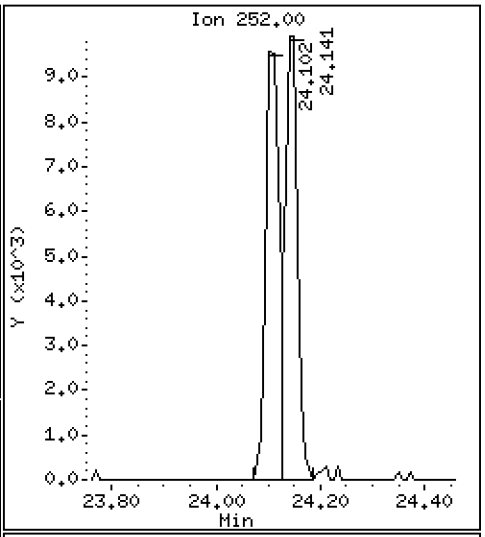
Column phase: ZB-5msi

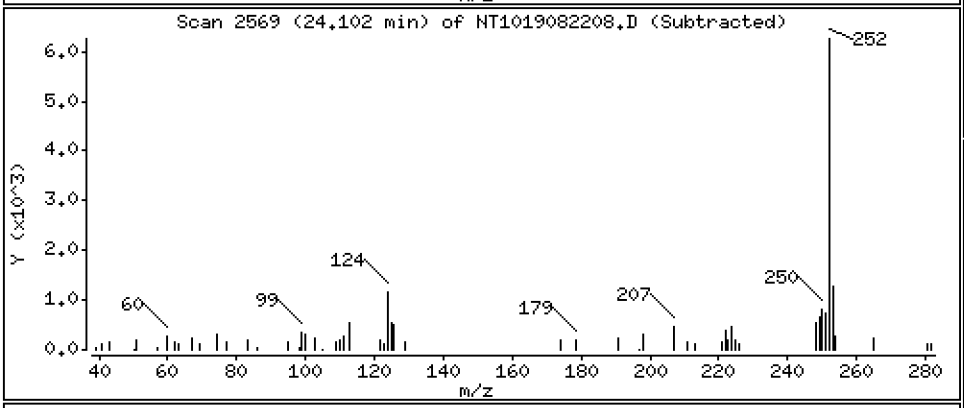
Column diameter: 0.25

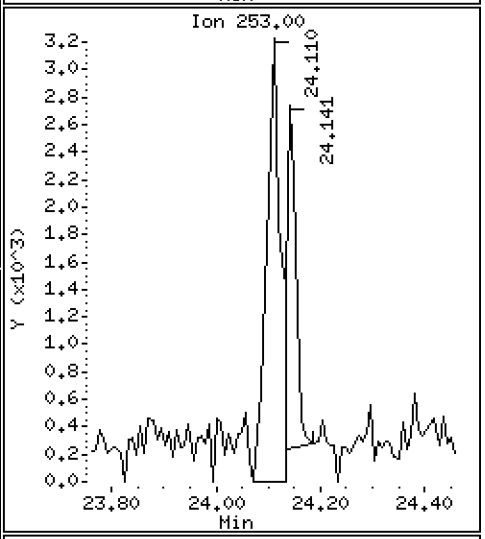
74 Benzo(b)fluoranthene

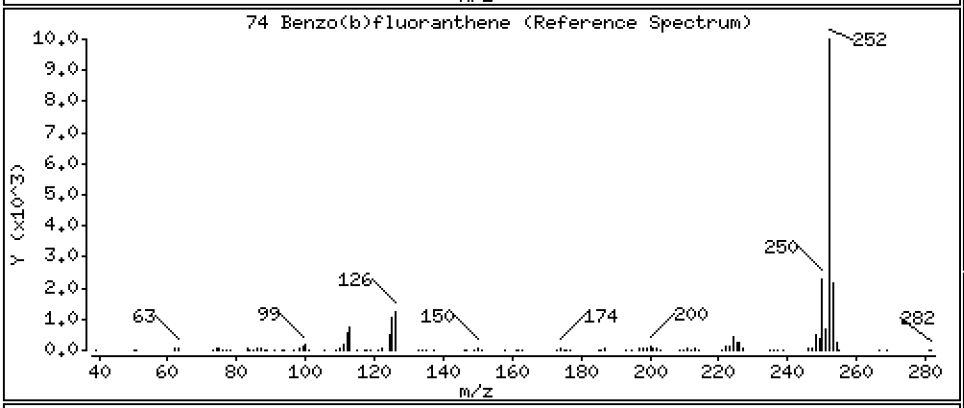
Concentration: 0.5424 ug/mL

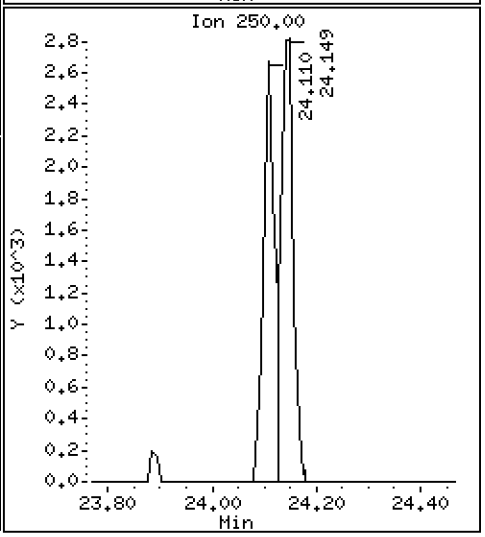


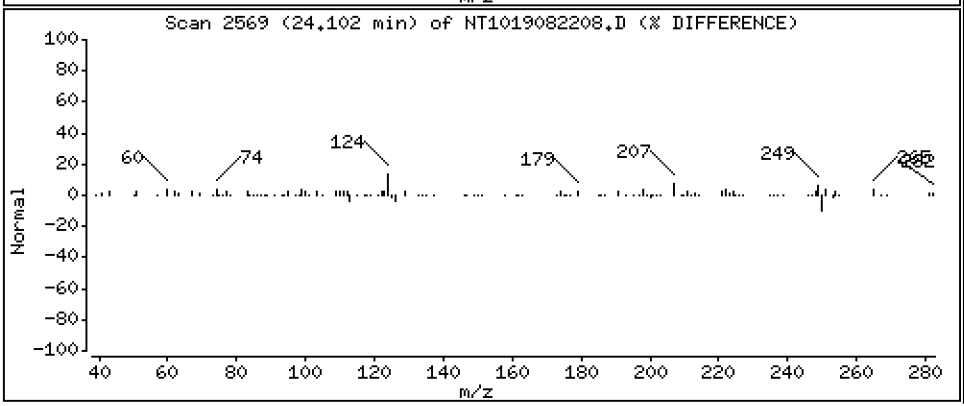












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

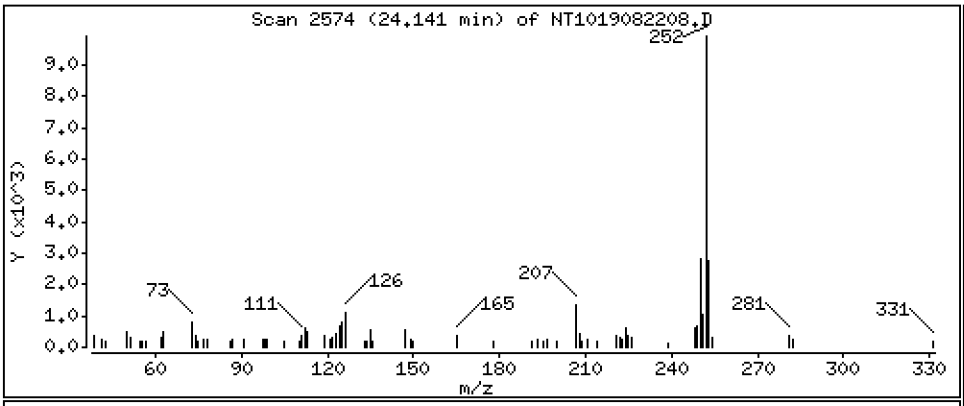
Operator: YZ

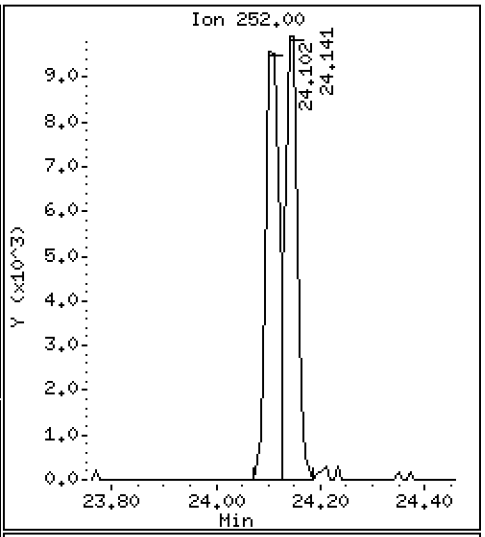
Column phase: ZB-5msi

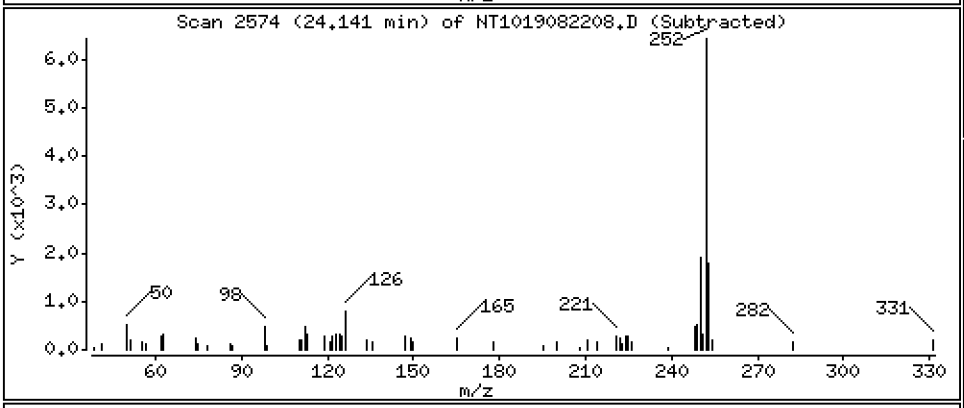
Column diameter: 0.25

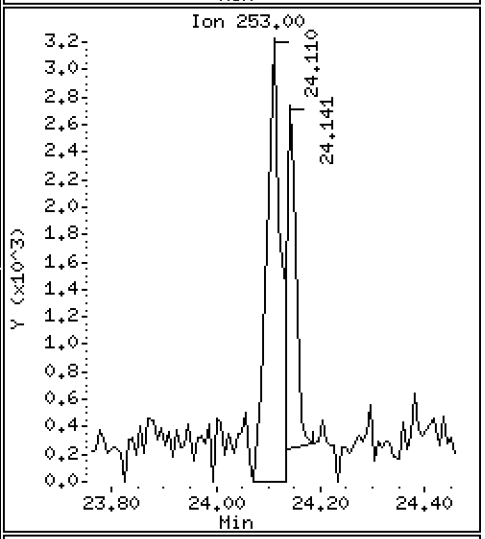
75 Benzo(k)fluoranthene

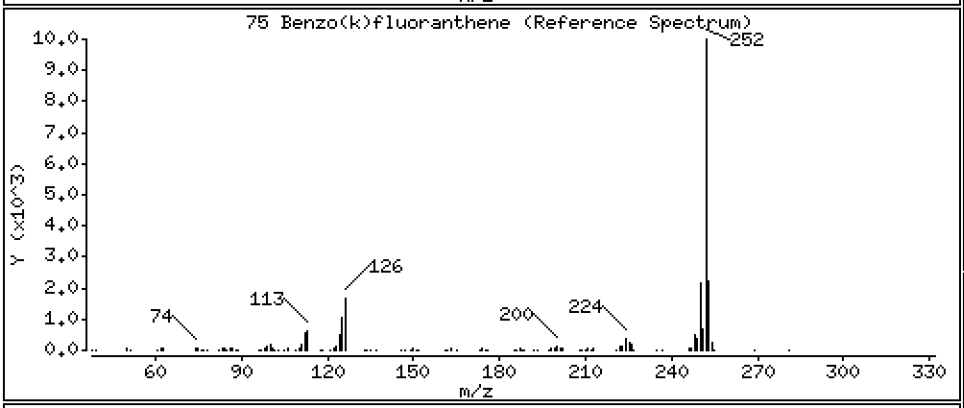
Concentration: 0.5816 ug/mL

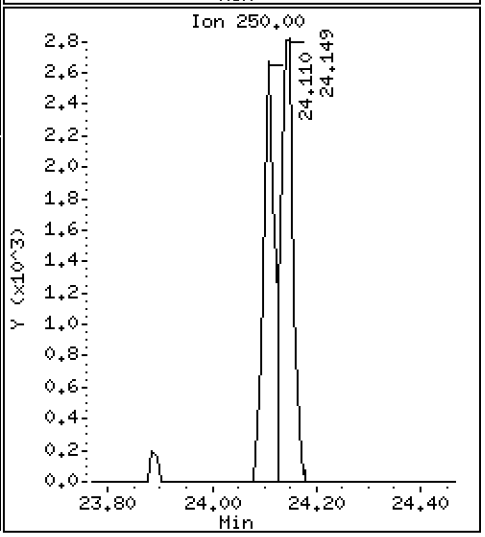


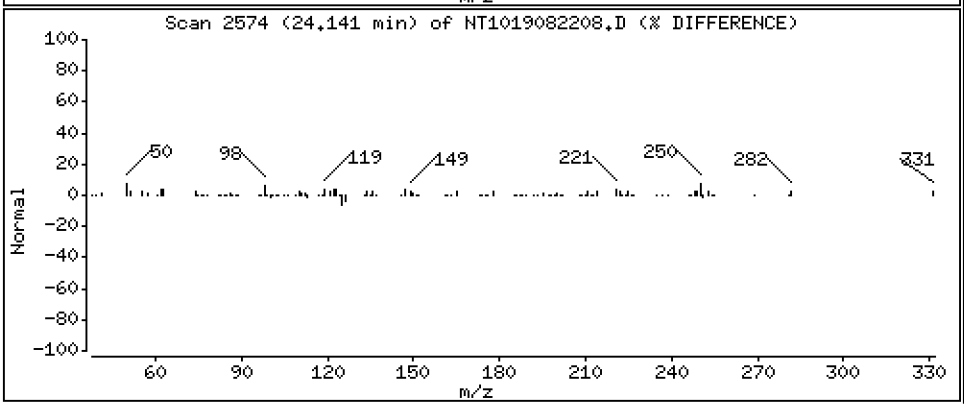












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

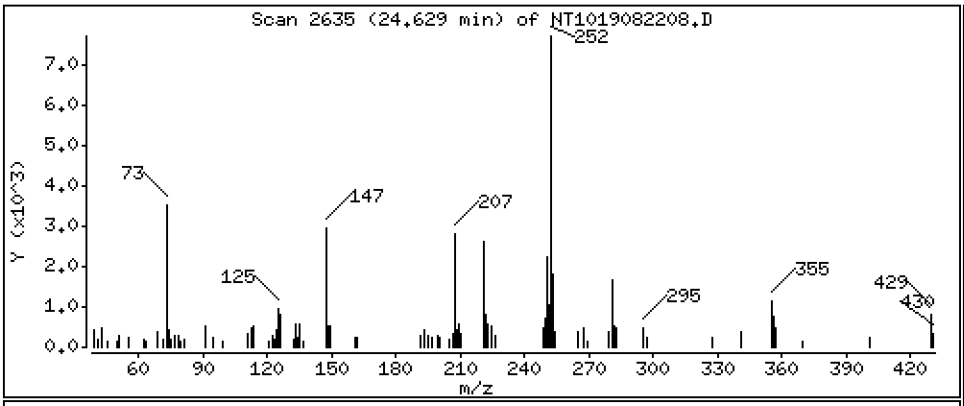
Operator: YZ

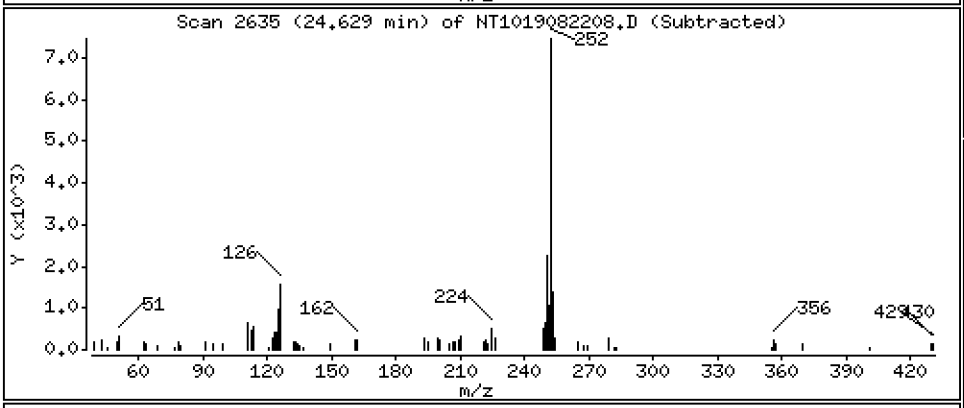
Column phase: ZB-5msi

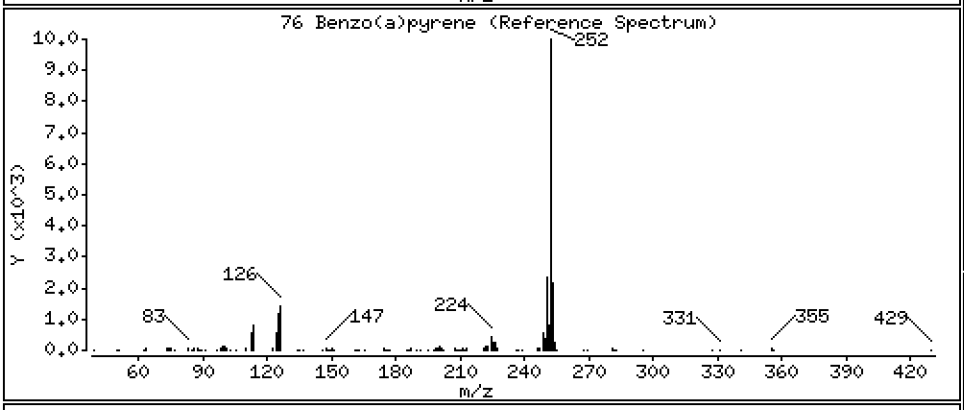
Column diameter: 0.25

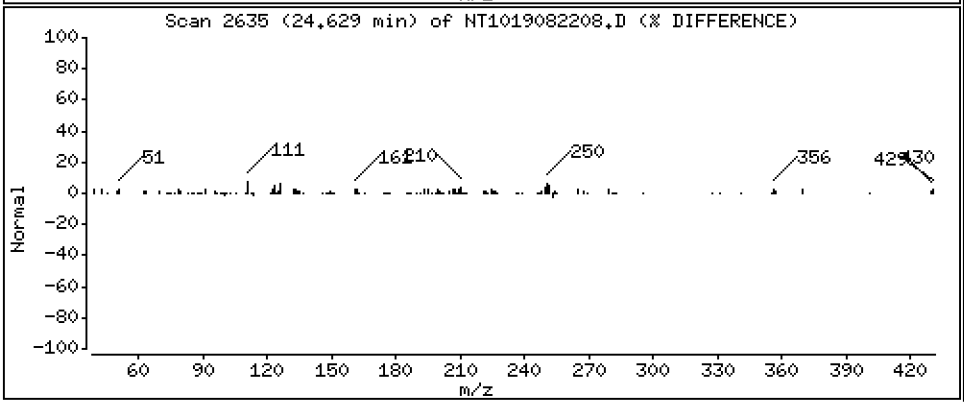
76 Benzo(a)pyrene

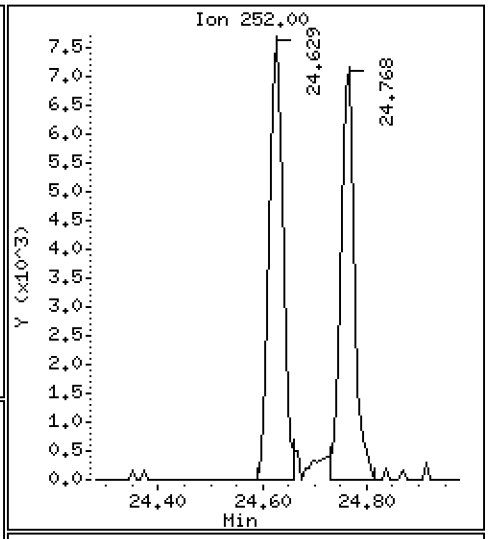
Concentration: 0.4914 ug/mL

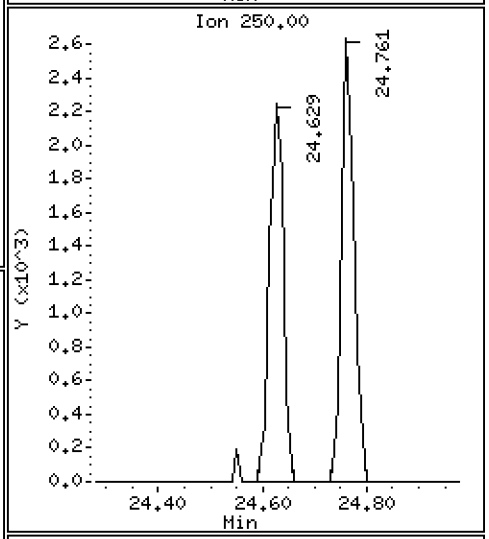


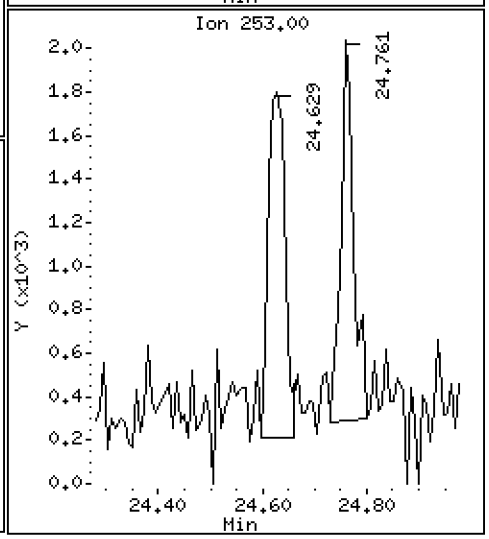












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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

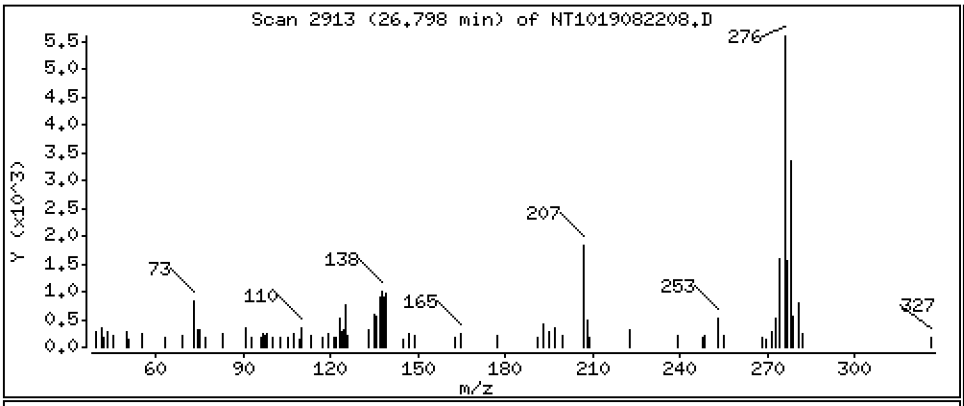
Operator: YZ

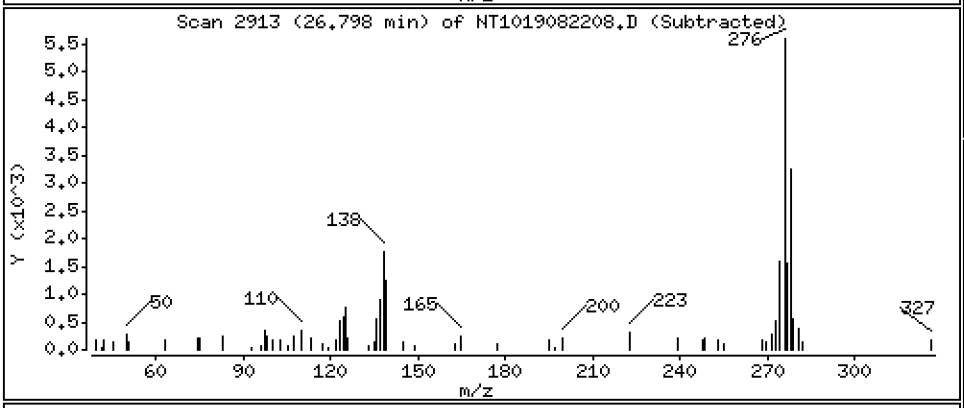
Column phase: ZB-5msi

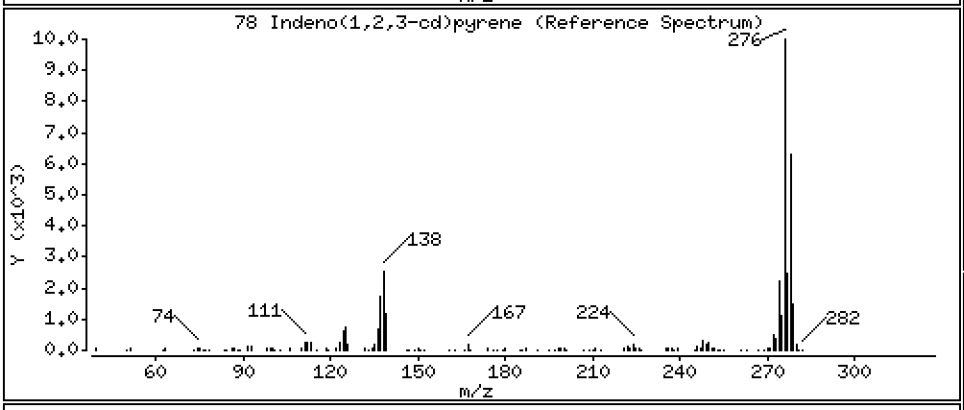
Column diameter: 0.25

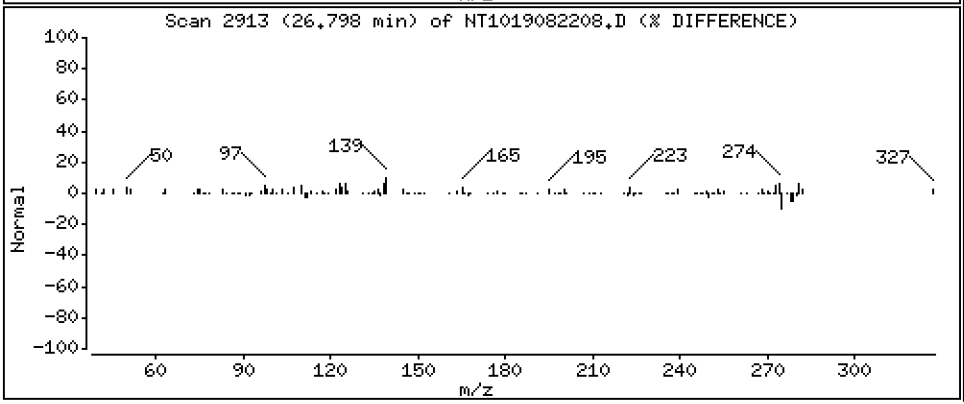
78 Indeno(1,2,3-cd)pyrene

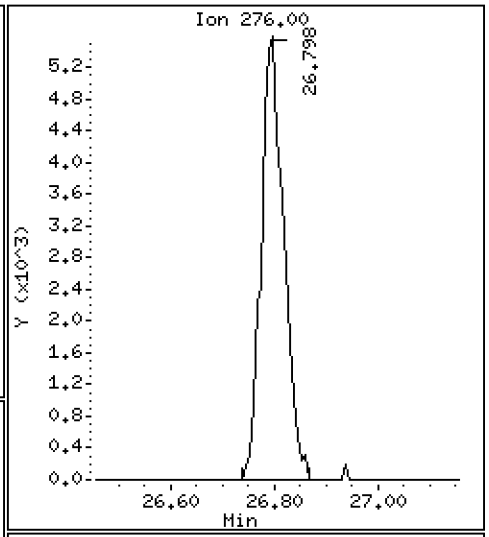
Concentration: 0.5049 ug/mL

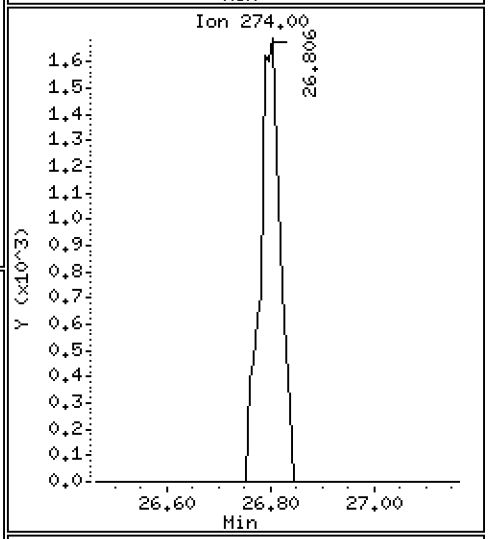


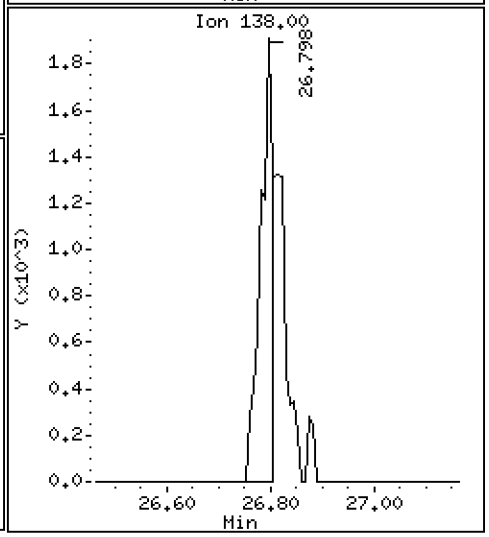












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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

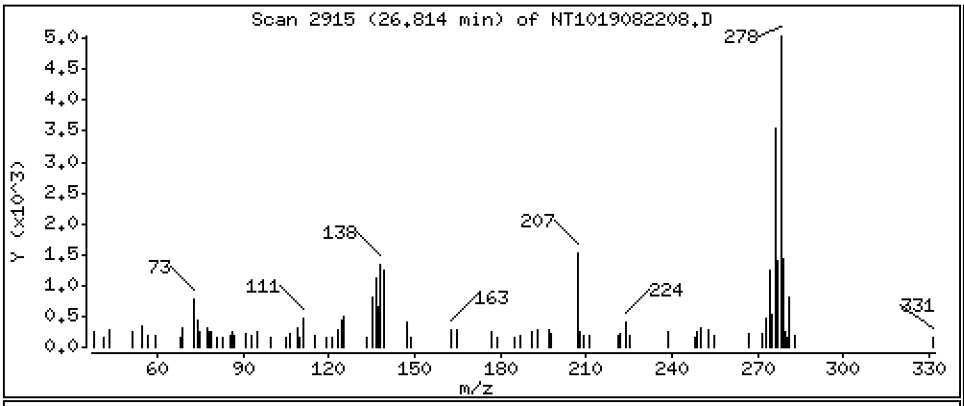
Operator: YZ

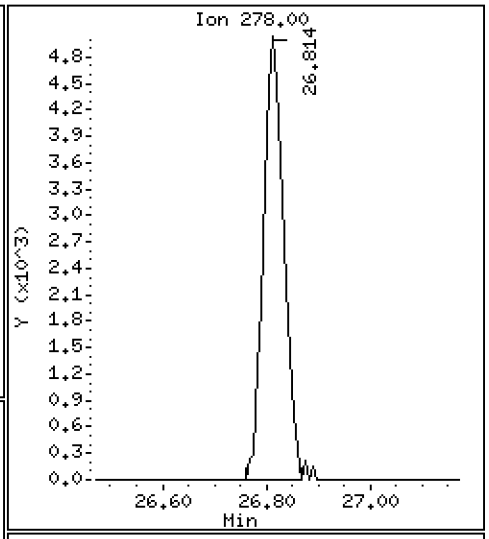
Column phase: ZB-5msi

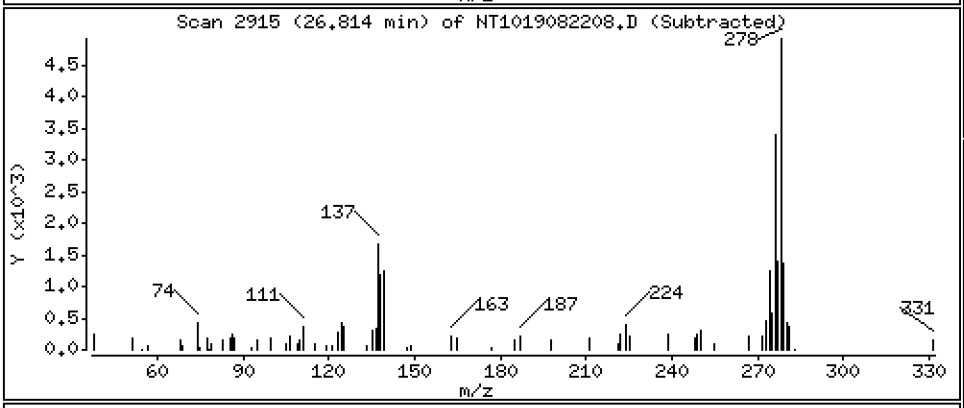
Column diameter: 0.25

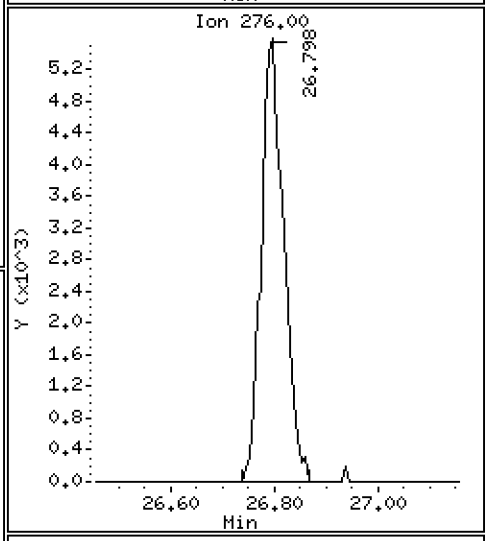
79 Dibenzo(a,h)anthracene

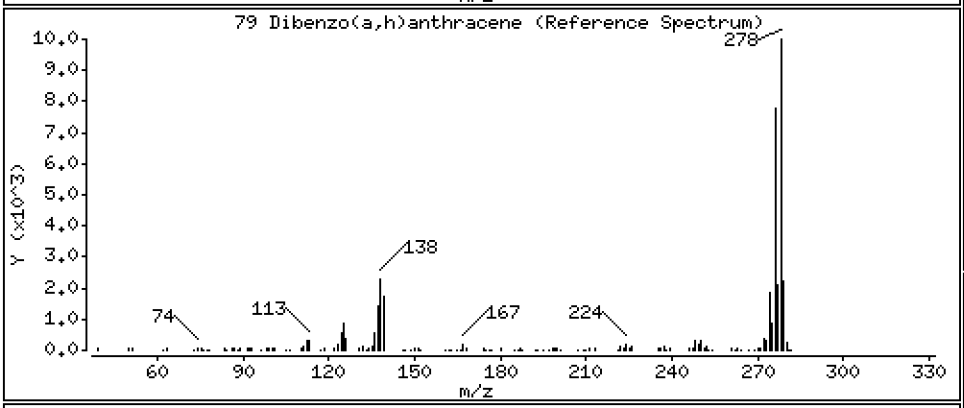
Concentration: 0.4982 ug/mL

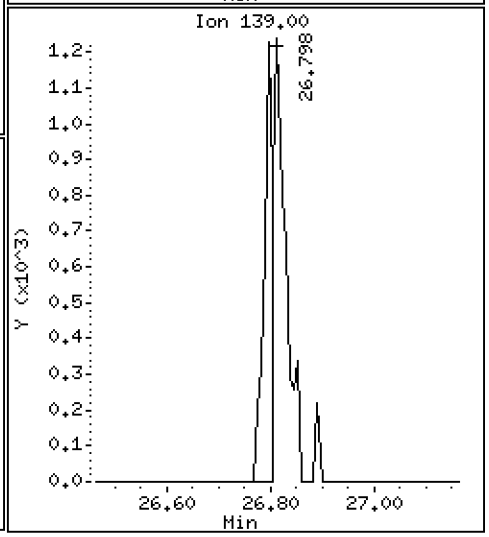


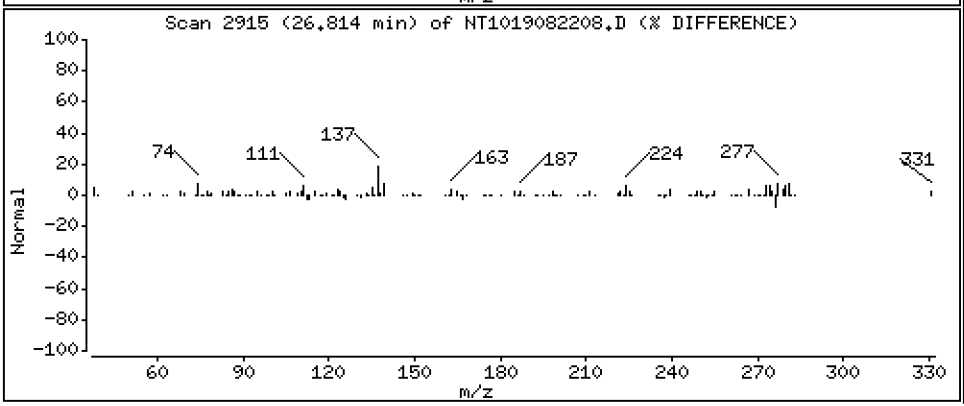












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

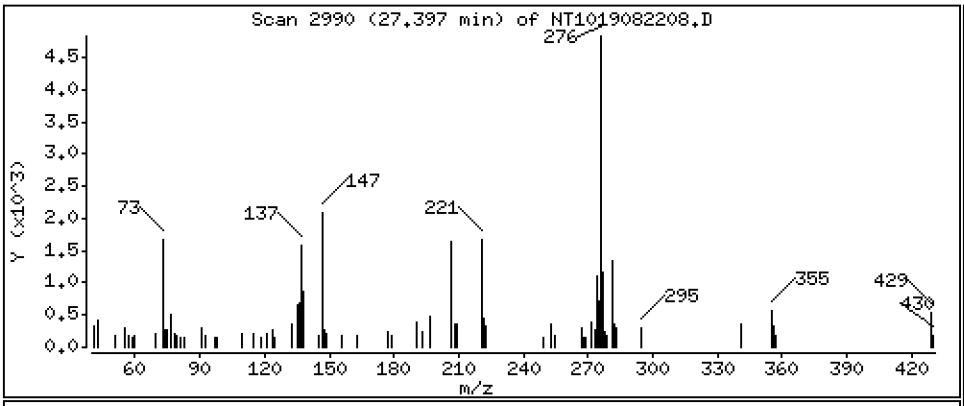
Operator: YZ

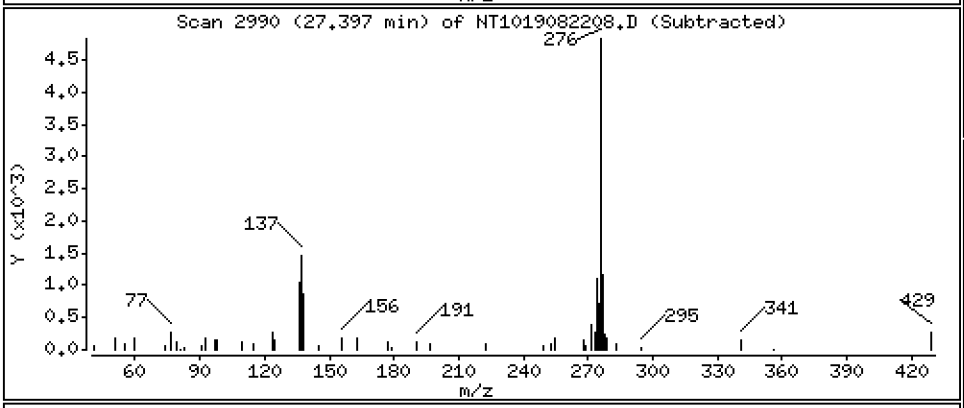
Column phase: ZB-5msi

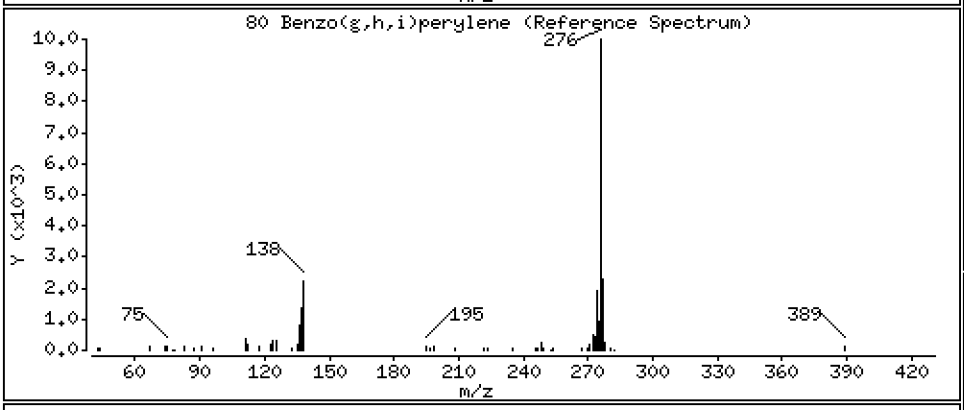
Column diameter: 0.25

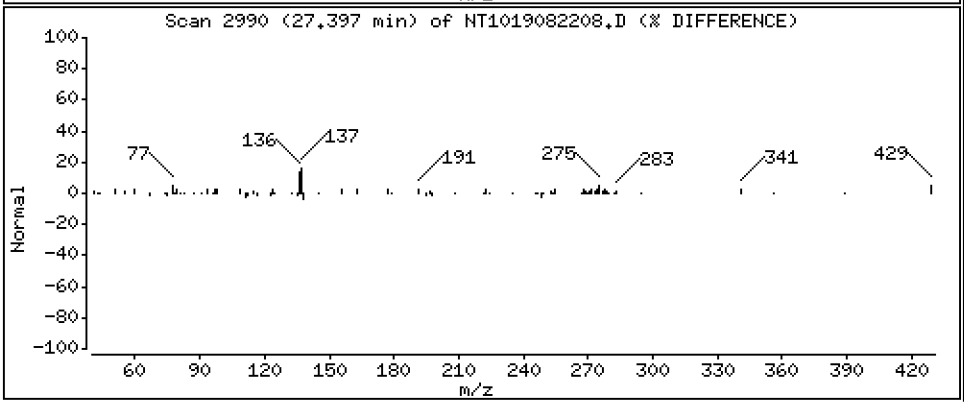
80 Benzo(g,h,i)perylene

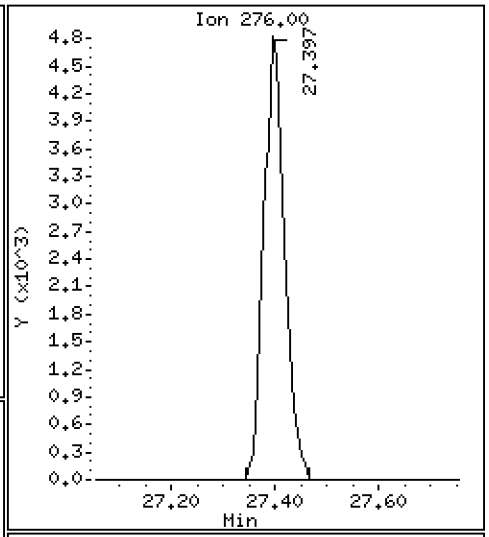
Concentration: 0.4732 ug/mL

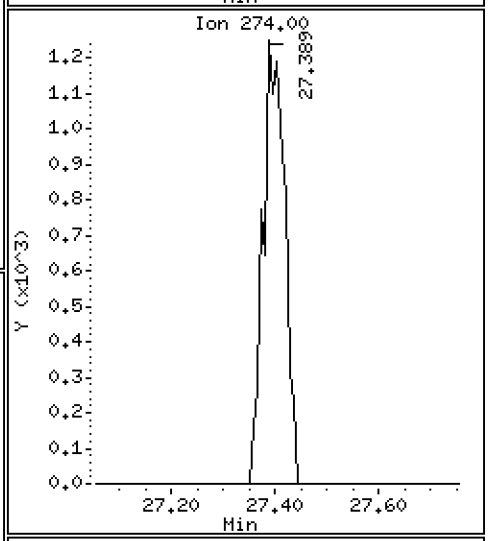


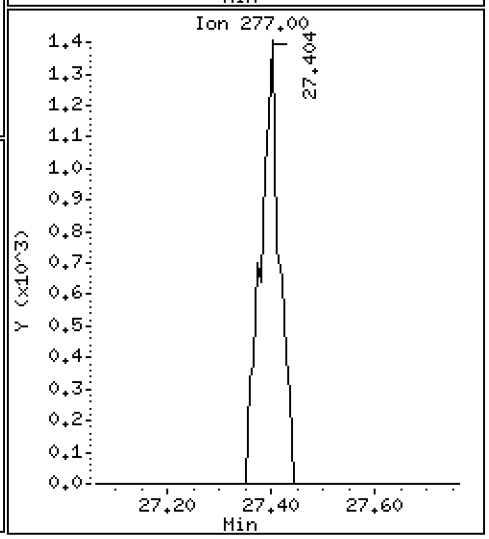












Data File: \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D

Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

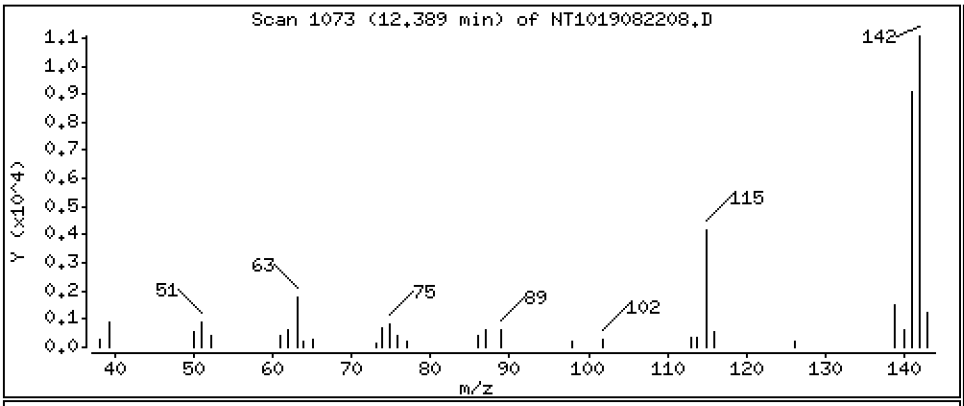
Operator: YZ

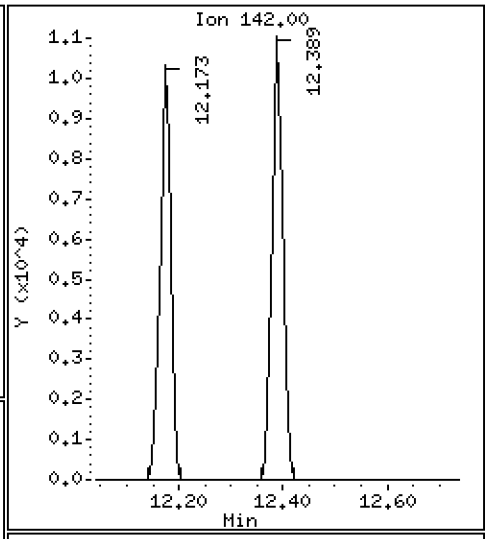
Column phase: ZB-5msi

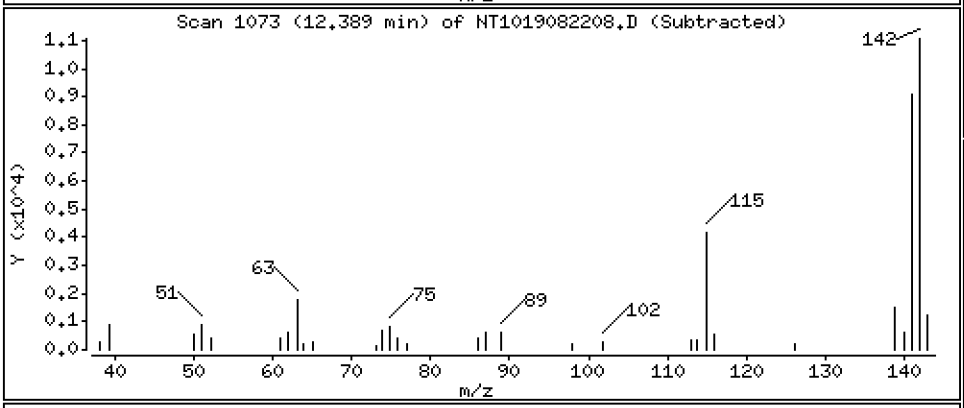
Column diameter: 0.25

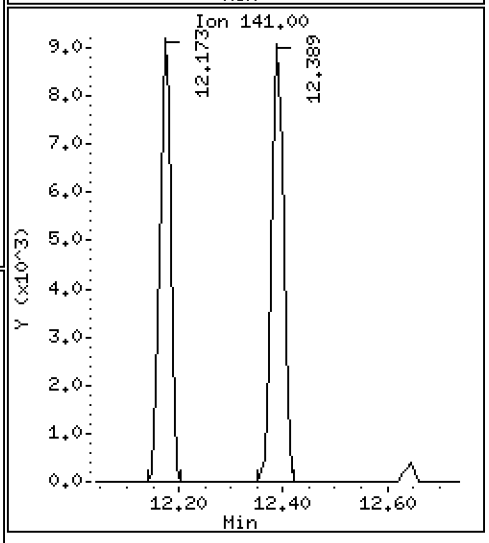
105 1-methylnaphthalene

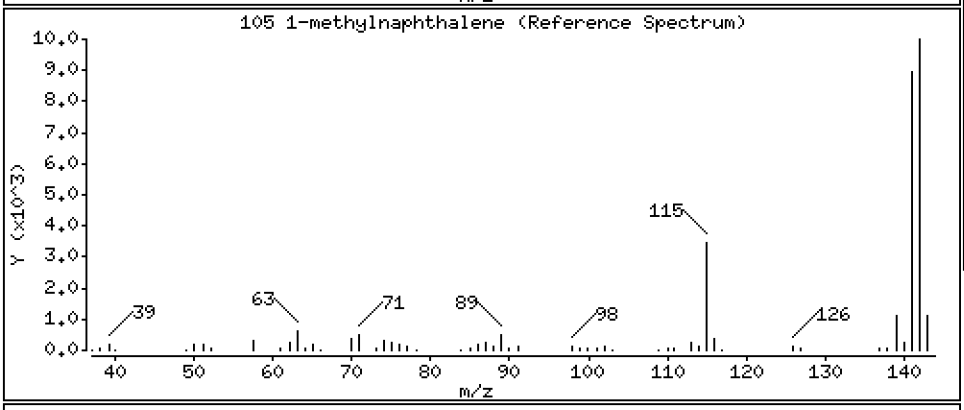
Concentration: 0.4965 ug/mL

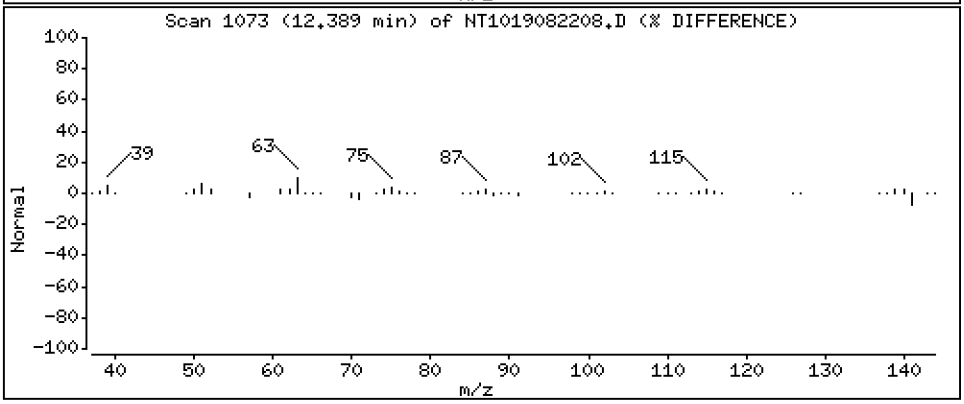












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Date : 22-AUG-2019 18:06

Client ID:

Instrument: nt10.i

Sample Info: SHH0325-LCV2

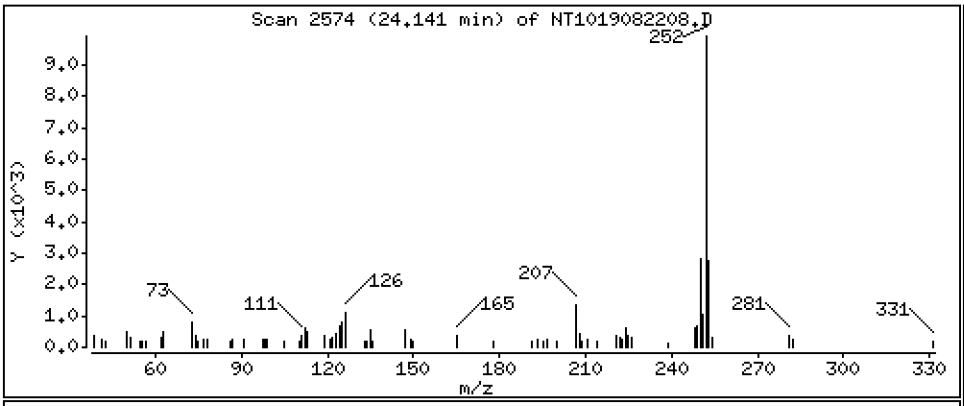
Operator: YZ

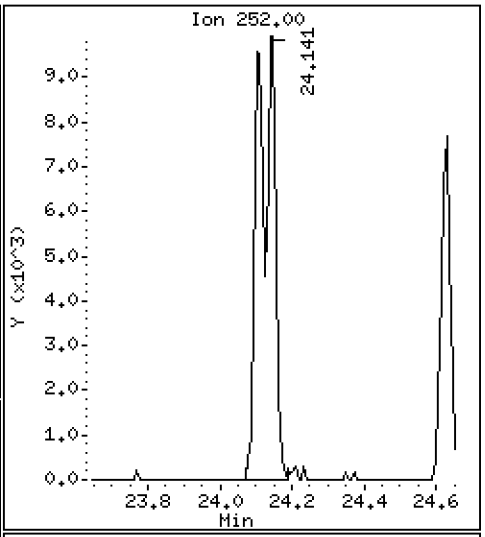
Column phase: ZB-5msi

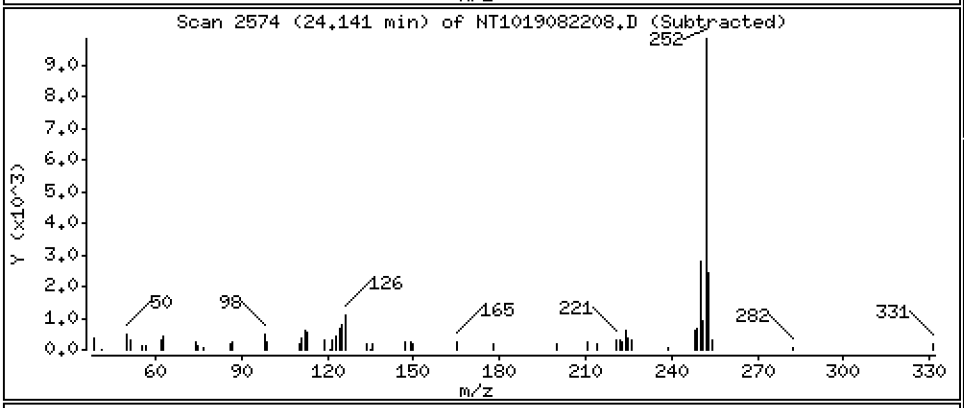
Column diameter: 0.25

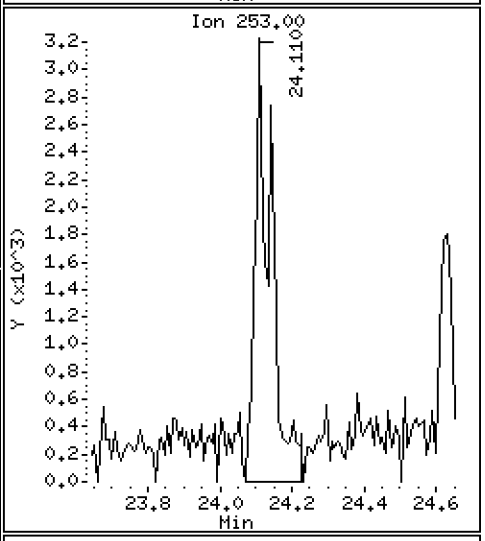
187 Total Benzofluoranthenes

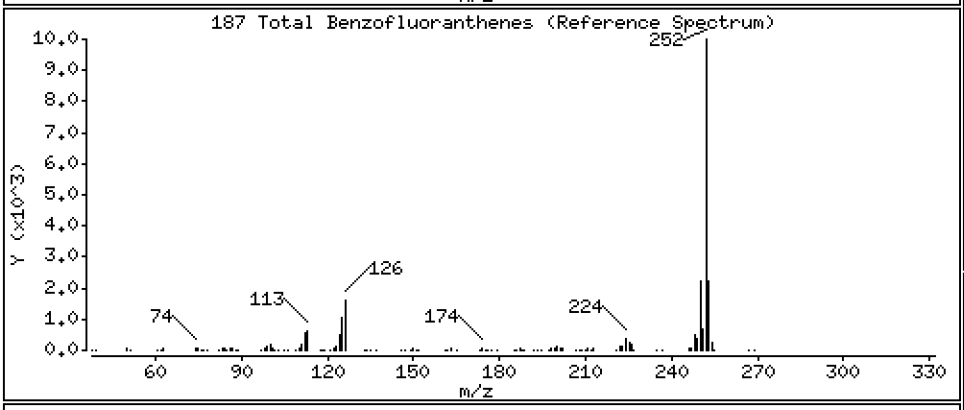
Concentration: 1.104 ug/mL

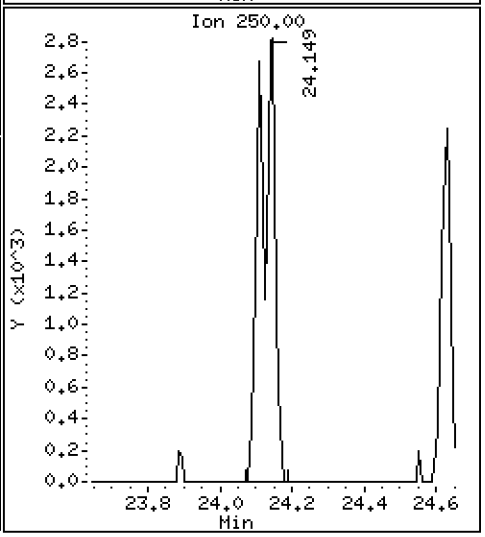


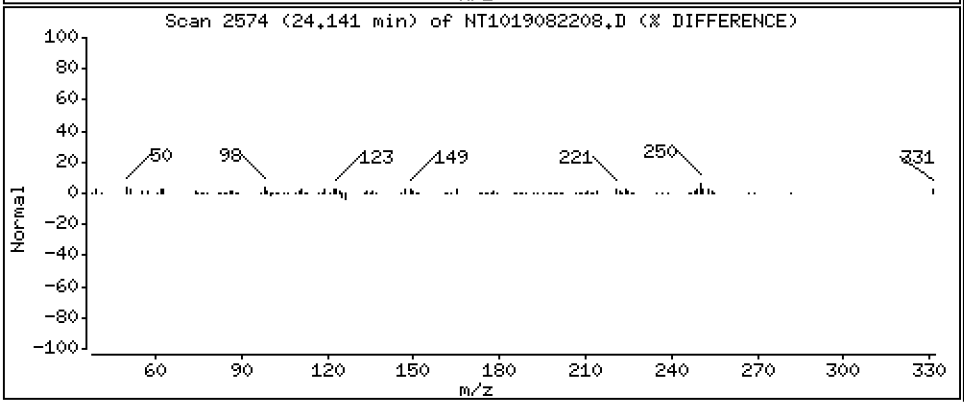












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\Target\share\chem3\nt10.i\20190822.b\NT1019082208.D
Lab Smp Id: SHH0325-LCV2
Inj Date : 22-AUG-2019 18:06
Operator : YZ Inst ID: nt10.i
Smp Info : SHH0325-LCV2
Misc Info :
Comment : 1ul Injection
Method : \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Meth Date : 23-Aug-2019 11:16 yev Quant Type: ISTD
Cal Date : 15-JUL-2019 20:29 Cal File: NT1019071512.D
Als bottle: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnaphth.sub
Target Version: 4.14
Processing Host: ORGDATA03

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
$	1 2-Fluorophenol	112	6.173	6.173	(0.742)	6804	0.56363	0.5636
$	2 Phenol-d5	99	7.741	7.749	(0.930)	7174	0.53027	0.5303
	3 Phenol	94	7.765	7.772	(0.933)	5370	0.42694	0.4269
$	5 2-Chlorophenol-d4	132	7.981	7.981	(0.959)	10961	0.75261	0.7526
*	8 1,4-Dichlorobenzene-d4	152	8.321	8.329	(1.000)	42990	4.00000	
$	10 1,2-Dichlorobenzene-d4	152	8.671	8.671	(1.042)	5450	0.54734	0.5473
	11 Benzyl alcohol	108	8.608	8.608	(1.034)	2689	0.32302	0.3230
$	18 Nitrobenzene-d5	82	9.400	9.408	(0.874)	5258	0.44269	0.4427
	24 Benzoic acid	105	10.279	10.381	(0.956)	5784	0.67652	0.6765
*	27 Naphthalene-d8	136	10.757	10.765	(1.000)	151864	4.00000	
	28 Naphthalene	128	10.795	10.803	(1.004)	17411	0.49878	0.4988
	32 2-Methylnaphthalene	142	12.172	12.172	(1.132)	14522	0.49046	0.4905
$	36 2-Fluorobiphenyl	172	12.954	12.954	(0.905)	16457	0.53737	0.5374
	39 Dimethylphthalate	163	13.859	13.867	(0.969)	16478	0.55382	0.5538
	40 Acenaphthylene	152	13.999	13.999	(0.978)	18710	0.48477	0.4848
*	42 Acenaphthene-d10	164	14.308	14.308	(1.000)	80067	4.00000	
	44 Acenaphthene	153	14.370	14.378	(1.004)	12166	0.50166	0.5017
	46 Dibenzofuran	168	14.695	14.703	(1.027)	19675	0.49364	0.4936
	50 Diethylphthalate	149	15.298	15.306	(1.069)	15574	0.54363	0.5436
	49 Fluorene	166	15.398	15.398	(1.076)	13093	0.48035	0.4803
	54 N-Nitrosodiphenylamine	169	15.661	15.661	(0.906)	13138	0.62009	0.6201
$	55 2,4,6-Tribromophenol	330	15.931	15.931	(1.113)	2699	0.44581	0.4458
*	59 Phenanthrene-d10	188	17.291	17.291	(1.000)	154350	4.00000	
	60 Phenanthrene	178	17.337	17.345	(1.003)	18456	0.48951	0.4895
	61 Anthracene	178	17.430	17.430	(1.008)	17361	0.45350	0.4535
	63 Di-n-butylphthalate	149	18.622	18.629	(1.077)	24479	0.46930	0.4693
	64 Fluoranthene	202	19.744	19.751	(0.882)	20901	0.51686	0.5169
	65 Pyrene	202	20.169	20.169	(0.901)	22722	0.53808	0.5381
$	66 Terphenyl-d14	244	20.494	20.502	(0.916)	15275	0.53338	0.5334
	67 Butylbenzylphthalate	149	21.462	21.462	(0.959)	11470	0.58311	0.5831
	68 Benzo(a)anthracene	228	22.352	22.352	(0.999)	21074	0.54889	0.5489
*	69 Chrysene-d12	240	22.383	22.383	(1.000)	132329	4.00000	
	71 Chrysene	228	22.422	22.430	(1.002)	17202	0.50633	0.5063

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
72	bis(2-Ethylhexyl)phthalate	149	22.507	22.515	(0.958)	15621	0.62373	0.6237
* 134	Di-n-octylphthalate-d4	153	23.490	23.490	(1.000)	284744	4.00000	
73	Di-n-octylphthalate	149	23.498	23.498	(1.000)	26139	0.49621	0.4962
74	Benzo(b)fluoranthene	252	24.102	24.110	(0.975)	16806	0.54244	0.5424
75	Benzo(k)fluoranthene	252	24.141	24.110	(0.977)	18128	0.58161	0.5816(H)
76	Benzo(a)pyrene	252	24.628	24.628	(0.996)	13663	0.49137	0.4914
* 77	Perylene-d12	264	24.721	24.721	(1.000)	107987	4.00000	
78	Indeno(1,2,3-cd)pyrene	276	26.798	26.806	(1.084)	16870	0.50494	0.5049
79	Dibenzo(a,h)anthracene	278	26.813	26.821	(1.085)	13551	0.49819	0.4982
80	Benzo(g,h,i)perylene	276	27.396	27.404	(1.108)	13316	0.47321	0.4732
105	1-methylnaphthalene	142	12.389	12.389	(1.152)	14778	0.49646	0.4965
187	Total Benzofluoranthenes	252	24.141	24.148	(0.977)	32816	1.10424	1.104

QC Flag Legend

H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt10.i
Lab File ID: NT1019082208.D
Lab Smp Id: SHH0325-LCV2
Analysis Type: SV
Quant Type: ISTD
Operator: YZ
Method File: \\Target\share\chem3\nt10.i\20190822.b\ABN.m
Misc Info:

Calibration Date: 22-AUG-2019
Calibration Time: 16:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	32739	16370	65478	42990	31.31
27 Naphthalene-d8	117487	58744	234974	151864	29.26
42 Acenaphthene-d10	61859	30930	123718	80067	29.43
59 Phenanthrene-d10	113574	56787	227148	154350	35.90
69 Chrysene-d12	105788	52894	211576	132329	25.09
134 Di-n-octylphthala	252823	126412	505646	284744	12.63
77 Perylene-d12	113992	56996	227984	107987	-5.27

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
8 1,4-Dichlorobenze	8.33	7.83	8.83	8.32	-0.09
27 Naphthalene-d8	10.77	10.27	11.27	10.76	-0.07
42 Acenaphthene-d10	14.31	13.81	14.81	14.31	0.00
59 Phenanthrene-d10	17.29	16.79	17.79	17.29	0.00
69 Chrysene-d12	22.38	21.88	22.88	22.38	0.00
134 Di-n-octylphthala	23.49	22.99	23.99	23.49	0.00
77 Perylene-d12	24.72	24.22	25.22	24.72	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT1019082208.D

Lab ID: SHH0325-LCV2
nt10.i, 20190822.b\ABN.m,   22-AUG-2019 18:06

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.956	0.964	-0.0088	Benzoic acid

RRT check based on Ccal File: NT1019082206.D

On Column LOD for nt10.i, 20190822.b\ABN.m, pnaphth.sub = 0.1000

Exception: Phenol 0.0000
Exception: Dibenzo(a,h)anthracene 0.0000
Exception: 2-Chlorophenol-d4 (Surr) 0.0000
Exception: 2-Fluorophenol (Surr) 0.0000
Exception: Phenol-d5 (Surr) 0.0000
Exception: 1,2-Dichlorobenzene-d4 (Surr) 0.0000
Exception: Nitrobenzene-d5 (Surr) 0.0000
Exception: 2-Fluorobiphenyl (Surr) 0.0000
Exception: 2,4,6-Tribromophenol (Surr) 0.0000
Exception: Terphenyl-d14 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Sequence:	SHG0206	Instrument:	NT10
		Calibration:	CG00040

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHG0206-TUN1	NT1019071503.D	NA	07/15/19 15:18
ABN 5.0	SHG0206-CAL5	NT1019071504.D	NA	07/15/19 15:33
Initial Cal Check	SHG0206-ICV1	NT1019071504A.D	NA	07/15/19 15:33
ABN 20	SHG0206-CAL7	NT1019071505.D	NA	07/15/19 16:10
ABN 0.2	SHG0206-CAL1	NT1019071506.D	NA	07/15/19 16:47
ABN 1.0	SHG0206-CAL3	NT1019071507.D	NA	07/15/19 17:24
ABN 10	SHG0206-CAL6	NT1019071508.D	NA	07/15/19 18:01
ABN 2.5	SHG0206-CAL4	NT1019071510.D	NA	07/15/19 19:15
ABN 0.5	SHG0206-CAL2	NT1019071512.D	NA	07/15/19 20:29
ZZZZZ	BHG0142-BLK1	NT1019071514.D	Solid	07/15/19 21:43
ZZZZZ	BHG0142-BS1	NT1019071515.D	Solid	07/15/19 22:20
ZZZZZ	19G0054-01	NT1019071516.D	Solid	07/15/19 22:57
ZZZZZ	19G0054-02	NT1019071517.D	Solid	07/15/19 23:34
ZZZZZ	19G0054-03	NT1019071518.D	Solid	07/16/19 00:11
ZZZZZ	19G0054-04	NT1019071519.D	Solid	07/16/19 00:47
ABN 5	SHG0206-CCV1	NT1019071520.D	NA	07/16/19 01:24

Printed: 7/17/2019 10:46:32AM

ANALYSIS SEQUENCE

SHG0206

Instrument: NT10 Element Column ID: g010888
Calibration ID: CG00040 Tune File: 190420
EM Voltage: 1850u

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHG0206-TUN1	MS Tune	QC		1	G009674		
SHG0206-CAL1	ABN 0.2	QC		2	H004929	H002564	
SHG0206-CAL2	ABN 0.5	QC		3	H004928	H002564	
SHG0206-CAL3	ABN 1.0	QC		4	H004927	H002564	
SHG0206-CAL4	ABN 2.5	QC		5	H004926	H002564	
SHG0206-CAL5	ABN 5.0	QC		6	H004385	H002564	
SHG0206-CAL6	ABN 10	QC		7	H004924	H002564	
SHG0206-CAL7	ABN 20	QC		8	H004925	H002564	
SHG0206-ICV1	Initial Cal Check	QC		9	H004385	H002564	
BHG0142-BLK1	Blank	QC		10		H002564	
BHG0142-BS1	LCS	QC		11		H002564	
19G0054-01	MKJ-070319-1	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	B 02	12		H002564	
19G0054-02	MKJ-070319-2	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	B 02	13		H002564	
19G0054-03	MKJ-070319-3	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	B 02	14		H002564	
19G0054-04	MKJ-070319-4	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	B 02	15		H002564	
SHG0206-CCV1	ABN 5	QC		16	H004385	H002564	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190715.b

	Time	Filename	LabID	ClientId	DF																				
1	1430	NT1019071501.D	SHG0000-TUN1		1	|NO ISTDS FOUND||																		
2	1445	NT1019071502.D	SHG0000-CAL5		1	| 9.04	34834	||11.51	122464	||15.10	63299	||18.11	115758	||23.14	106620	||25.71	111204	||24.17	253962	|					
3	1518	NT1019071503.D	SHG0000-TUN1		1	|NO ISTDS FOUND||																			
4	1533	NT1019071504.D	SHG0206-CAL5		1	| 9.05	32739	||11.51	117487	||15.11	61859	||18.12	113574	||23.15	105788	||25.71	113992	||24.18	252823	|					
5	1533	NT1019071504A.D	SHG0206-ICV1		1	| 9.05	32739	||11.51	117487	||15.11	61859	||18.12	113574	||23.15	105788	||25.71	113992	||24.18	252823	|					
6	1610	NT1019071505.D	SHG0206-CAL7		1	| 9.05	29033	||11.52	103134	||15.11	56789	||18.13	103730	||23.16	100532	||25.72	106957	||24.18	252363	|					
7	1647	NT1019071506.D	SHG0206-CAL1		1	| 9.05	35266	||11.51	130759	||15.10	63509	||18.12	117326	||23.15	106685	||25.71	111050	||24.17	231000	|					
8	1724	NT1019071507.D	SHG0206-CAL3		1	| 9.05	31801	||11.51	114271	||15.10	55948	||18.11	102218	||23.14	96559	||25.70	104107	||24.17	214439	|					
9	1801	NT1019071508.D	SHG0206-CAL6		1	| 9.05	27068	||11.52	94978	||15.11	49539	||18.12	90381	||23.15	89163	||25.71	95741	||24.17	209949	|					
10	1838	NT1019071509.D	SHG0000-CAL1		1	| 9.05	31909	||11.51	113674	||15.10	54497	||18.12	101527	||23.14	93925	||25.70	99295	||24.17	199832	|					
11	1915	NT1019071510.D	SHG0206-CAL4		1	| 9.05	29110	||11.52	105111	||15.10	53654	||18.12	99675	||23.15	92708	||25.71	97079	||24.17	203401	|					
12	1952	NT1019071511.D	SHG0000-CAL2		1	| 9.05	28064	||11.51	111702	||15.10	52826	||18.12	99010	||23.14	89695	||25.70	96754	||24.17	188454	|					
13	2029	NT1019071512.D	SHG0206-CAL2		1	| 9.05	29147	||11.52	103841	||15.10	51825	||18.12	97644	||23.15	92593	||25.71	93476	||24.18	190773	|					
14	2106	NT1019071513.D	SHG0000-SCV1		1	| 9.05	27249	||11.52	97217	||15.11	50993	||18.12	92262	||23.15	89152	||25.70	91616	||24.18	192394	|					
15	2143	NT1019071514.D	BHG0142-BLK1		1	| 9.05	27409	||11.51	104918	||15.10	50409	||18.12	97270	||23.14	87170	||25.71	88134	||24.17	184234	|					
16	2220	NT1019071515.D	BHG0142-BS1		1	| 9.05	26984	||11.52	99854	||15.11	49276	||18.12	91689	||23.15	88010	||25.70	89891	||24.17	198872	|					
17	2257	NT1019071516.D	19G0054-01		1	| 9.05	23811	||11.52	92704	||15.11	48486	||18.13	91012	||23.17	57786	||25.76	47354	||24.20	126561	|					
18	2334	NT1019071517.D	19G0054-02		1	| 9.05	26611	||11.52	103214	||15.11	50561	||18.13	94388	||23.17	54959	||25.77	42938	||24.20	123374	|					
19	0011	NT1019071518.D	19G0054-03		1	| 9.05	28950	||11.52	112495	||15.11	55500	||18.13	93593	||23.17	54247	||25.76	44587	||24.20	124846	|					
20	0047	NT1019071519.D	19G0054-04		1	| 9.05	29883	||11.52	114500	||15.11	56378	||18.13	100237	||23.17	56271	||25.77	42258	||24.20	131570	|					

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190715.b

	Time	Filename	LabID	ClientId	DF																
21	0124	NT1019071520.D	SHG0206-CCV1		1	| 9.05	31163	| 11.52	105369	| 15.11	55275	| 18.13	103741	| 23.16	62189	| 25.73	52929	| 24.18	140348	|

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190715.b

ARI Job No.: SHG0 Method: df8270.m Instrument: nt10.i Date: 15-JUL-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1430	NT1019071501.D	SHG0000-TUN1		1	NO MANUAL INTEGRATION
1445	NT1019071502.D	SHG0000-CAL5		1	NO MANUAL INTEGRATION
1518	NT1019071503.D	SHG0000-TUN1		1	NO MANUAL INTEGRATION
1533	NT1019071504.D	SHG0206-CAL5		1	Benzoic acid,
1533	NT1019071504A.D	SHG0206-ICV1		1	Benzoic acid,
1610	NT1019071505.D	SHG0206-CAL7		1	NO MANUAL INTEGRATION
1647	NT1019071506.D	SHG0206-CAL1		1	Nitrobenzene, Isophorone, 3-Nitroaniline, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene, 2,4,6-Tribromophenol,
1724	NT1019071507.D	SHG0206-CAL3		1	3-Nitroaniline, Benzo(g,h,i)perylene,
1801	NT1019071508.D	SHG0206-CAL6		1	Benzoic acid,
1838	NT1019071509.D	SHG0000-CAL1		1	NO MANUAL INTEGRATION
1915	NT1019071510.D	SHG0206-CAL4		1	Indeno(1,2,3-cd)pyrene,
1952	NT1019071511.D	SHG0000-CAL2		1	NO MANUAL INTEGRATION
2029	NT1019071512.D	SHG0206-CAL2		1	NO MANUAL INTEGRATION
2106	NT1019071513.D	SHG0000-SCV1		1	NO MANUAL INTEGRATION
2143	NT1019071514.D	BHG0142-BLK1		1	NO MANUAL INTEGRATION
2220	NT1019071515.D	BHG0142-BS1		1	NO MANUAL INTEGRATION
2257	NT1019071516.D	19G0054-01		1	Diethylphthalate, Carbazole, Chrysene-d12, bis(2-Ethylhexyl)phthalate, Perylene-d12, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene, Di-n-octylphthalate-d4,

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190715.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2334	NT1019071517.D	19G0054-02		1	Total Benzofluoranthenes,
0011	NT1019071518.D	19G0054-03		1	Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Total Benzofluoranthenes,
0047	NT1019071519.D	19G0054-04		1	Fluorene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Total Benzofluoranthenes,
0124	NT1019071520.D	SHG0206-CCV1		1	NO MANUAL INTEGRATION

Security Status Report

Date: 17-Jul-2019 12:11

NT1019071501.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071502.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071503.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071504.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071504A.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071505.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071506.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071507.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071508.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071509.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071510.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071511.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071512.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071513.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071514.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071515.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071516.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071517.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071518.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071519.D	Data Locked	yev, 17-Jul-2019 12:11
NT1019071520.D	Data Locked	yev, 17-Jul-2019 12:11

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Sequence:	SHH0303	Instrument:	NT10
		Calibration:	CG00040

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHH0303-TUN1	NT1019082104.D	NA	08/21/19 12:14
Initial Cal Check	SHH0303-ICV1	NT1019082105.D	NA	08/21/19 12:30
ABN 0.2	SHH0303-LCV1	NT1019082106.D	NA	08/21/19 13:08
ABN 0.5	SHH0303-LCV2	NT1019082107.D	NA	08/21/19 13:50
Blank	BHH0289-BLK1	NT1019082108.D	Solid	08/21/19 14:28
LCS	BHH0289-BS1	NT1019082109.D	Solid	08/21/19 15:06
SL4-SG-WC3-2019	BHH0289-MS1	NT1019082110.D	Solid	08/21/19 15:44
SL4-SG-WC3-2019	BHH0289-MSD1	NT1019082111.D	Solid	08/21/19 16:22
SL4-SG-WC3-2019	19H0024-03	NT1019082112.D	Solid	08/21/19 17:00
SL4-SG-WC7-2019	19H0024-04	NT1019082113.D	Solid	08/21/19 17:38
SL4-SG-WC7-FD-2019	19H0024-05	NT1019082114.D	Solid	08/21/19 18:15
SL4-SG-WC8-2019	19H0024-06	NT1019082115.D	Solid	08/21/19 18:53
SL4-SG-WC4-2019	19H0024-07	NT1019082116.D	Solid	08/21/19 19:31
SL4-SG-WC2-2019	19H0024-08	NT1019082117.D	Solid	08/21/19 20:08
SL4-SG-WC1-2019	19H0024-09	NT1019082118.D	Solid	08/21/19 20:45
SL4-IC-SC2-2019	19H0024-10	NT1019082119.D	Solid	08/21/19 21:23
SL4-IC-SC3-2019	19H0024-11	NT1019082120.D	Solid	08/21/19 22:00
Blank	BHH0299-BLK1	NT1019082121.D	Wipes	08/21/19 22:37
LCS	BHH0299-BS1	NT1019082122.D	Wipes	08/21/19 23:14
SL4-SG-WC3-FW-2019	19H0024-02	NT1019082123.D	Wipes	08/21/19 23:52
ABN 5	SHH0303-CCV1	NT1019082129.D	NA	08/22/19 02:20

Printed: 8/22/2019 12:05:42PM

ANALYSIS SEQUENCE

SHH0303

Instrument: NT10 Element Column ID: g10888
Calibration ID: CG00040 Tune File: 190420u
EM Voltage: 1900u

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHH0303-TUN1	MS Tune	QC		1	G009674		
SHH0303-ICV1	Initial Cal Check	QC		2	H004385	H002564	
SHH0303-LCV1	ABN 0.2	QC		3	H004929	H002564	
SHH0303-LCV2	ABN 0.5	QC		4	H004494	H002564	
BHH0289-BLK1	Blank	QC		5		H002564	
BHH0289-BS1	LCS	QC		6		H002564	
BHH0289-MS1	Matrix Spike	QC		7		H002564	
BHH0289-MSD1	Matrix Spike Dup	QC		8		H002564	
19H0024-03	SL4-SG-WC3-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	9		H002564	
19H0024-04	SL4-SG-WC7-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	10		H002564	
19H0024-05	SL4-SG-WC7-FD-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	11		H002564	
19H0024-06	SL4-SG-WC8-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	12		H002564	
19H0024-07	SL4-SG-WC4-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	13		H002564	
19H0024-08	SL4-SG-WC2-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	B 02	14		H002564	
19H0024-09	SL4-SG-WC1-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	15		H002564	
19H0024-10	SL4-1C-SC2-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	16		H002564	
19H0024-11	SL4-1C-SC3-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	17		H002564	
BHH0299-BLK1	Blank	QC		18		H002564	
BHH0299-BS1	LCS	QC		19		H002564	
19H0024-02	SL4-SG-WC3-FW-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 01	20		H002564	
SHH0303-CCV1	ABN 5	QC		21	H004385	H002564	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190821.b

	Time	Filename	LabID	ClientId	DF																			
1	1214	NT1019082104.D	SHH0303-TUN1		1	|NO ISTDS FOUND||																		
2	1230	NT1019082105.D	SHH0303-ICV1		1	| 8.48	29881	|10.93	103277	|14.51	59029	|17.53	114000	|22.63	104519	|23.76	236194	|25.06	95995	|				
3	1308	NT1019082106.D	SHH0303-LCV1		1	| 8.48	34924	|10.92	120883	|14.51	57371	|17.53	115978	|22.63	112570	|23.76	222512	|25.05	94510	|				
4	1350	NT1019082107.D	SHH0303-LCV2		1	| 8.48	36031	|10.93	129237	|14.51	66994	|17.53	133256	|22.64	126795	|23.75	249924	|25.05	100311	|				
5	1428	NT1019082108.D	BHH0289-BLK1		1	| 8.48	27873	|10.92	102588	|14.51	51057	|17.52	105199	|22.63	95694	|25.05	68765	|23.75	192204	|				
6	1506	NT1019082109.D	BHH0289-BS1		1	| 8.48	26902	|10.92	100385	|14.51	54573	|17.53	108786	|22.64	102195	|25.06	87969	|23.75	228285	|				
7	1544	NT1019082110.D	BHH0289-MS1		1	| 8.48	31308	|10.92	115867	|14.51	58193	|17.53	110631	|22.73	68903	|25.23	29650	|23.86	153180	|				
8	1622	NT1019082111.D	BHH0289-MSD1		1	| 8.48	33112	|10.93	125498	|14.52	64831	|17.53	116667	|22.75	67522	|25.24	58738	|23.85	150984	|				
9	1700	NT1019082112.D	19H0024-03		1	| 8.48	36263	|10.93	136593	|14.51	66561	|17.54	121327	|22.74	66011	|25.25	61374	|23.87	154446	|				
10	1738	NT1019082113.D	19H0024-04		1	| 8.48	33736	|10.93	127121	|14.52	63974	|17.54	111064	|22.71	60502	|25.17	50623	|23.83	133777	|				
11	1815	NT1019082114.D	19H0024-05		1	| 8.48	37870	|10.93	146959	|14.52	73391	|17.54	136057	|22.73	72344	|25.18	56512	|23.83	155860	|				
12	1853	NT1019082115.D	19H0024-06		1	| 8.48	38556	|10.93	143014	|14.52	72452	|17.54	126070	|22.68	65220	|25.13	51573	|23.79	147842	|				
13	1931	NT1019082116.D	19H0024-07		1	| 8.48	34946	|10.93	131458	|14.52	71579	|17.54	134076	|22.70	65346	|25.16	50026	|23.81	144790	|				
14	2008	NT1019082117.D	19H0024-08		3	| 8.48	37766	|10.93	142730	|14.52	70902	|17.54	133409	|22.70	64822	|25.20	53977	|23.83	152210	|				
15	2045	NT1019082118.D	19H0024-09		3	| 8.48	35667	|10.93	131947	|14.52	67090	|17.55	124445	|22.71	60999	|25.24	48671	|23.86	146661	|				
16	2123	NT1019082119.D	19H0024-10		1	| 8.48	35032	|10.94	130603	|14.52	67857	|17.55	126936	|22.70	57777	|25.19	45575	|23.83	135407	|				
17	2200	NT1019082120.D	19H0024-11		1	| 8.48	36700	|10.93	139912	|14.52	68225	|17.55	116825	|22.75	61900	|25.20	45482	|23.84	137529	|				
18	2237	NT1019082121.D	BHH0299-BLK		1	| 8.48	38547	|10.93	135409	|14.52	72133	|17.55	140501	|22.68	67933	|25.13	49083	|23.78	148432	|				
19	2314	NT1019082122.D	BHH0299-BS1		1	| 8.48	34471	|10.93	121782	|14.52	66876	|17.54	129538	|22.67	86440	|25.12	58433	|23.78	180967	|				
20	2352	NT1019082123.D	19H0024-02		1	| 8.48	34665	|10.93	134311	|14.52	68664	|17.55	139333	|22.67	111445	|25.10	70636	|23.77	216586	|				

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190821.b

	Time	Filename	LabID	ClientId	DF													
21	0220	NT1019082129.D	SHH0303-CCV1		1	8.48	31231	10.93	105318	14.52	58843	17.54	119849	22.68	95107	23.78	188752	25.13	60928

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190821.b

ARI Job No.: SHH0 Method: df8270.m Instrument: nt10.i Date: 21-AUG-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1214	NT1019082104.D	SHH0303-TUN1		1	NO MANUAL INTEGRATION
1230	NT1019082105.D	SHH0303-ICV1		1	Dibenzo(a,h)anthracene,
1308	NT1019082106.D	SHH0303-LCV1		1	Phenol, Di-n-butylphthalate, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene, 2-Chlorophenol-d4, 2,4,6-Tribromophenol,
1350	NT1019082107.D	SHH0303-LCV2		1	Phenol, Benzoic acid, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene, 2-Chlorophenol-d4,
1428	NT1019082108.D	BHH0289-BLK1		1	NO MANUAL INTEGRATION
1506	NT1019082109.D	BHH0289-BS1		1	NO MANUAL INTEGRATION
1544	NT1019082110.D	BHH0289-MS1		1	3-Nitroaniline, Chrysene, Di-n-octylphthalate, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene, Perylene,
1622	NT1019082111.D	BHH0289-MSD1		1	3-Nitroaniline, 4-Nitroaniline, Di-n-octylphthalate, Benzo(a)pyrene, Perylene-d12, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene, Perylene,
1700	NT1019082112.D	19H0024-03		1	Benzyl alcohol, Dibenzofuran, Butylbenzylphthalate, Benzo(a)pyrene, Perylene-d12, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene,
1738	NT1019082113.D	19H0024-04		1	Benzoic acid, Butylbenzylphthalate, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene,
1815	NT1019082114.D	19H0024-05		1	Benzoic acid, Chrysene-d12, Di-n-octylphthalate, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene,
1853	NT1019082115.D	19H0024-06		1	Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene, Total Benzofluoranthenes,
1931	NT1019082116.D	19H0024-07		1	Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene, Perylene,
2008	NT1019082117.D	19H0024-08		3	Butylbenzylphthalate, Di-n-octylphthalate, Benzo(a)pyrene, Perylene-d12, Total Benzofluoranthenes,
2045	NT1019082118.D	19H0024-09		3	Di-n-octylphthalate, Benzo(a)pyrene,
2123	NT1019082119.D	19H0024-10		1	Benzo(a)pyrene, Perylene, Total Benzofluoranthenes,
2200	NT1019082120.D	19H0024-11		1	Diethylphthalate, Chrysene, Di-n-octylphthalate, Benzo(a)pyrene, Perylene,

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190821.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2237	NT1019082121.D	BHH0299-BLK		1	NO MANUAL INTEGRATION
2314	NT1019082122.D	BHH0299-BS1		1	Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene,
2352	NT1019082123.D	19H0024-02		1	Perylene-d12,
0220	NT1019082129.D	SHH0303-CCV1		1	Benzyl alcohol, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene,

Security Status Report

Date: 22-Aug-2019 13:46

NT1019082104.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082105.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082106.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082107.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082108.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082109.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082110.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082111.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082112.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082113.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082114.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082115.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082116.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082117.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082118.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082119.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082120.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082121.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082122.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082123.D	Data Locked	yev, 22-Aug-2019 13:46
NT1019082129.D	Data Locked	yev, 22-Aug-2019 13:46

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Sequence:	SHH0325	Instrument:	NT10
		Calibration:	CG00040

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHH0325-TUN1	NT1019082205.D	NA	08/22/19 16:35
Initial Cal Check	SHH0325-ICV1	NT1019082206.D	NA	08/22/19 16:51
ABN 0.2	SHH0325-LCV1	NT1019082207.D	NA	08/22/19 17:29
ABN 0.5	SHH0325-LCV2	NT1019082208.D	NA	08/22/19 18:06
SL4-SG-WC3-2019	19H0024-03RE1	NT1019082209.D	Solid	08/22/19 18:44
SL4-SG-WC7-2019	19H0024-04RE1	NT1019082210.D	Solid	08/22/19 19:21
SL4-SG-WC7-FD-2019	19H0024-05RE1	NT1019082211.D	Solid	08/22/19 19:59
SL4-SG-WC8-2019	19H0024-06RE1	NT1019082212.D	Solid	08/22/19 20:36
SL4-SG-WC4-2019	19H0024-07RE1	NT1019082213.D	Solid	08/22/19 21:13
SL4-SG-WC2-2019	19H0024-08RE1	NT1019082214.D	Solid	08/22/19 21:50
SL4-SG-WC1-2019	19H0024-09RE1	NT1019082215.D	Solid	08/22/19 22:26
SL4-IC-SC2-2019	19H0024-10RE1	NT1019082216.D	Solid	08/22/19 23:03
SL4-IC-SC3-2019	19H0024-11RE1	NT1019082217.D	Solid	08/22/19 23:40
ZZZZZ	BHH0493-BLK1	NT1019082218.D	Water	08/23/19 00:17
ZZZZZ	BHH0493-BS1	NT1019082219.D	Water	08/23/19 00:53
ZZZZZ	19H0139-01	NT1019082220.D	Water	08/23/19 01:30
ABN 5	SHH0325-CCV1	NT1019082221.D	NA	08/23/19 02:07

Printed: 8/23/2019 11:09:23AM

ANALYSIS SEQUENCE

SHH0325

Instrument: NT10 Element Column ID: g10888
Calibration ID: CG00040 Tune File: 190420u
EM Voltage: 1975u

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHH0325-TUN1	MS Tune	QC		1	G009674		
SHH0325-ICV1	Initial Cal Check	QC		2	H004385	H002564	
SHH0325-LCV1	ABN 0.2	QC		3	H004929	H002564	
SHH0325-LCV2	ABN 0.5	QC		4	H004494	H002564	
19H0024-03RE1	SL4-SG-WC3-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	5		H002564	Added 8/22/2019 by YZ
19H0024-04RE1	SL4-SG-WC7-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	6		H002564	Added 8/22/2019 by YZ
19H0024-05RE1	SL4-SG-WC7-FD-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	7		H002564	Added 8/22/2019 by YZ
19H0024-06RE1	SL4-SG-WC8-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	8		H002564	Added 8/22/2019 by YZ
19H0024-07RE1	SL4-SG-WC4-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	9		H002564	Added 8/22/2019 by YZ
19H0024-08RE1	SL4-SG-WC2-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	B 02	10		H002564	Added 8/22/2019 by YZ
19H0024-09RE1	SL4-SG-WC1-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	11		H002564	Added 8/22/2019 by YZ
19H0024-10RE1	SL4-1C-SC2-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	12		H002564	Added 8/22/2019 by YZ
19H0024-11RE1	SL4-1C-SC3-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	C 02	13		H002564	Added 8/22/2019 by YZ
BHH0493-BLK1	Blank	QC		14		H002564	
BHH0493-BS1	LCS	QC		15		H002564	
19H0139-01	SS-08-09-2019	D SV (20-200 ppb) or (0.2-2 ppb Low LVL	B 01	16		H002564	
SHH0325-CCV1	ABN 5	QC		17	H004385	H002564	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190822.b

	Time	Filename	LabID	ClientId	DF																			
1	1635	NT1019082205.D	SHH0325-TUN1		1	|NO ISTDS FOUND||																		
2	1651	NT1019082206.D	SHH0325-ICV1		1	| 8.33	33224	||10.77	115460	||14.31	65356	||17.29	120268	||22.38	104424	||23.49	246846	||24.72	96085	|				
3	1729	NT1019082207.D	SHH0325-LCV1		1	| 8.33	41079	||10.76	147412	||14.31	75240	||17.29	142562	||22.38	129207	||23.49	259042	||24.72	104410	|				
4	1806	NT1019082208.D	SHH0325-LCV2		1	| 8.32	42990	||10.76	151864	||14.31	80067	||17.29	154350	||22.38	132329	||23.49	284744	||24.72	107987	|				
5	1844	NT1019082209.D	19H0024-03RE1		3	| 8.33	47716	||10.76	177856	||14.31	89128	||17.30	175774	||22.39	92508	||23.50	208202	||24.74	73697	|				
6	1921	NT1019082210.D	19H0024-04RE1		3	| 8.33	48001	||10.76	178802	||14.31	90049	||17.30	175008	||22.38	89684	||23.49	199098	||24.73	71450	|				
7	1959	NT1019082211.D	19H0024-05RE1		3	| 8.32	49556	||10.76	184507	||14.31	92568	||17.29	176757	||22.38	91147	||23.49	201851	||24.73	69438	|				
8	2036	NT1019082212.D	19H0024-06RE1		3	| 8.33	47929	||10.76	179858	||14.31	91491	||17.30	173163	||22.38	93668	||23.49	210098	||24.73	71571	|				
9	2113	NT1019082213.D	19H0024-07RE1		3	| 8.33	46723	||10.76	180986	||14.31	92132	||17.29	178757	||22.38	94419	||23.49	209094	||24.73	72332	|				
10	2150	NT1019082214.D	19H0024-08RE1		9	| 8.33	54148	||10.76	199599	||14.31	100710	||17.29	192091	||22.38	98861	||23.49	224713	||24.73	76753	|				
11	2226	NT1019082215.D	19H0024-09RE1		9	| 8.33	50282	||10.77	186968	||14.31	93404	||17.29	176604	||22.38	85915	||23.49	196945	||24.73	68364	|				
12	2303	NT1019082216.D	19H0024-10RE1		3	| 8.33	49266	||10.76	179424	||14.31	92600	||17.29	176143	||22.38	85515	||23.49	186040	||24.73	65472	|				
13	2340	NT1019082217.D	19H0024-11RE1		3	| 8.33	49381	||10.77	184350	||14.31	88538	||17.29	166753	||22.38	85427	||23.49	192079	||24.73	66654	|				
14	0017	NT1019082218.D	BHH0493-BLK1		1	| 8.33	32841	||10.77	126086	||14.31	66822	||17.29	123873	||22.38	69557	||24.72	50741	||23.48	145871	|				
15	0053	NT1019082219.D	BHH0493-BS1		1	| 8.33	30177	||10.76	106285	||14.31	57233	||17.29	109386	||22.38	82602	||24.72	57304	||23.48	172277	|				
16	0130	NT1019082220.D	19H0139-01		1	| 8.33	30033	||10.77	99759	||14.32	69119	||17.30	89894	||22.39	54936	||24.73	47467	||23.49	132998	|				
17	0207	NT1019082221.D	SHH0000-CCV1		1	| 8.33	32142	||10.76	114280	||14.31	62320	||17.29	118748	||22.38	87860	||23.48	192564	||24.72	65592	|				

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\Target\share\chem3\nt10.i\20190822.b

ARI Job No.: SHH0 Method: df8270.m Instrument: nt10.i Date: 22-AUG-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1635	NT1019082205.D	SHH0325-TUN1		1	NO MANUAL INTEGRATION
1651	NT1019082206.D	SHH0325-ICV1		1	Benzyl alcohol, Benzoic acid,
1729	NT1019082207.D	SHH0325-LCV1		1	Benzo(g,h,i)perylene,
1806	NT1019082208.D	SHH0325-LCV2		1	NO MANUAL INTEGRATION
1844	NT1019082209.D	19H0024-03RE1		3	Butylbenzylphthalate,
1921	NT1019082210.D	19H0024-04RE1		3	Benzo(k)fluoranthene, Total Benzofluoranthenes,
1959	NT1019082211.D	19H0024-05RE1		3	Total Benzofluoranthenes,
2036	NT1019082212.D	19H0024-06RE1		3	Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene,
2113	NT1019082213.D	19H0024-07RE1		3	NO MANUAL INTEGRATION
2150	NT1019082214.D	19H0024-08RE1		9	Butylbenzylphthalate, Di-n-octylphthalate, Benzo(k)fluoranthene, Total Benzofluoranthenes,
2226	NT1019082215.D	19H0024-09RE1		9	Butylbenzylphthalate, Di-n-octylphthalate, Benzo(g,h,i)perylene, Total Benzofluoranthenes,
2303	NT1019082216.D	19H0024-10RE1		3	Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Total Benzofluoranthenes,
2340	NT1019082217.D	19H0024-11RE1		3	Di-n-octylphthalate, Benzo(k)fluoranthene,
0017	NT1019082218.D	BHH0493-BLK1		1	NO MANUAL INTEGRATION
0053	NT1019082219.D	BHH0493-BS1		1	NO MANUAL INTEGRATION
0130	NT1019082220.D	19H0139-01		1	Anthracene,
0207	NT1019082221.D	SHH0000-CCV1		1	NO MANUAL INTEGRATION

Security Status Report

Date: 23-Aug-2019 12:06

NT1019082205.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082206.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082207.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082208.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082209.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082210.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082211.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082212.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082213.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082214.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082215.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082216.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082217.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082218.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082219.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082220.D	Data Locked	yev, 23-Aug-2019 12:06
NT1019082221.D	Data Locked	yev, 23-Aug-2019 12:06

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Extract Dilution Bench Sheet

Sequence: SHH0325
Analyst: YZ Date: 08/23/19

Sample ID	Primary Dilution				Secondary Dilution			
	Extract Volume (uL)	Diluent ID	Diluent Volume (uL)	Dilution Factor	Extract Volume (uL)	Diluent ID	Diluent Volume (uL)	Dilution Factor
19H0024-03,04,05,06,07,10	100	MeCl2	200	3X				
19H0024-08,09	100	↓	↓	↓	100	MeCl2	200	9X

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Sequence:	SHG0206	Instrument:	NT10
Calibration:	CG00040	Calibration Date:	07/15/2019

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHG0206-ICV1 (Solid)			Lab File ID: NT1019071504A.D				Analyzed: 07/15/19 15:33	
2-Fluorophenol	7.5000	110	80 - 120	6.827	6.828	-0.0010	N/A	
Phenol-d5	7.5000	113	80 - 120	8.395	8.398857	-0.0039	N/A	
2-Chlorophenol-d4	7.5000	103	80 - 120	8.681	8.682428	-0.0014	N/A	
1,2-Dichlorobenzene-d4	5.0000	97.8	80 - 120	9.402	9.400858	0.0011	N/A	
Nitrobenzene-d5	5.0000	108	80 - 120	10.131	10.13257	-0.0016	N/A	
2-Fluorobiphenyl	5.0000	99.1	80 - 120	13.712	13.71357	-0.0016	N/A	
2,4,6-Tribromophenol	7.5000	108	80 - 120	16.727	16.72883	-0.0018	N/A	
p-Terphenyl-d14	5.0000	107	80 - 120	21.252	21.25343	-0.0014	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0303
Instrument: NT10
Calibration: CG00040
Calibration Date: 07/15/2019

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHH0303-ICV1 (Solid)			Lab File ID: NT1019082105.D			Analyzed: 08/21/19 12:30		
2-Fluorophenol	7.5000	74.3	80 - 120	6.311	6.828	-0.5170	N/A	*
Phenol-d5	7.5000	71.5	80 - 120	7.888	8.398857	-0.5109	N/A	*
2-Chlorophenol-d4	7.5000	86.1	80 - 120	8.127	8.682428	-0.5554	N/A	
1,2-Dichlorobenzene-d4	5.0000	85.7	80 - 120	8.832	9.400858	-0.5689	N/A	
Nitrobenzene-d5	5.0000	80.1	80 - 120	9.554	10.13257	-0.5786	N/A	
2-Fluorobiphenyl	5.0000	86.9	80 - 120	13.142	13.71357	-0.5716	N/A	
2,4,6-Tribromophenol	7.5000	81.4	80 - 120	16.142	16.72883	-0.5868	N/A	
p-Terphenyl-d14	5.0000	93.5	80 - 120	20.744	21.25343	-0.5094	N/A	
SHH0303-LCV1 (Solid)			Lab File ID: NT1019082106.D			Analyzed: 08/21/19 13:08		
2-Fluorophenol	0.30000	51.2	50 - 150	6.319	6.828	-0.5090	N/A	
Phenol-d5	0.30000	45.6	50 - 150	7.887	8.398857	-0.5119	N/A	*
2-Chlorophenol-d4	0.30000	69.8	50 - 150	8.127	8.682428	-0.5554	N/A	
1,2-Dichlorobenzene-d4	0.20000	90.9	50 - 150	8.832	9.400858	-0.5689	N/A	
Nitrobenzene-d5	0.20000	48.9	50 - 150	9.562	10.13257	-0.5706	N/A	*
2-Fluorobiphenyl	0.20000	76.8	50 - 150	13.15	13.71357	-0.5636	N/A	
2,4,6-Tribromophenol	0.30000	11.5	50 - 150	16.157	16.72883	-0.5718	N/A	*
p-Terphenyl-d14	0.20000	77.2	50 - 150	20.751	21.25343	-0.5024	N/A	
SHH0303-LCV2 (Solid)			Lab File ID: NT1019082107.D			Analyzed: 08/21/19 13:50		
2-Fluorophenol	0.75000	79.5	50 - 150	6.327	6.828	-0.5010	N/A	
Phenol-d5	0.75000	67.5	50 - 150	7.895	8.398857	-0.5039	N/A	
2-Chlorophenol-d4	0.75000	92.4	50 - 150	8.135	8.682428	-0.5474	N/A	
1,2-Dichlorobenzene-d4	0.50000	100	50 - 150	8.84	9.400858	-0.5609	N/A	
Nitrobenzene-d5	0.50000	93.6	50 - 150	9.57	10.13257	-0.5626	N/A	
2-Fluorobiphenyl	0.50000	101	50 - 150	13.142	13.71357	-0.5716	N/A	
2,4,6-Tribromophenol	0.75000	59.4	50 - 150	16.15	16.72883	-0.5788	N/A	
p-Terphenyl-d14	0.50000	110	50 - 150	20.744	21.25343	-0.5094	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0303
Instrument: NT10
Calibration: CG00040
Calibration Date: 07/15/2019

Surrogate Compound	Spike Level ug/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
BHH0289-BLK1 (Solid)			Lab File ID: NT1019082108.D			Analyzed: 08/21/19 14:28		
2-Fluorophenol	750.00	66.1	27 - 120	6.319	6.828	-0.5090	N/A	
Phenol-d5	750.00	57.3	29 - 120	7.888	8.398857	-0.5109	N/A	
2-Chlorophenol-d4	750.00	83.4	31 - 120	8.127	8.682428	-0.5554	N/A	
1,2-Dichlorobenzene-d4	500.00	88.7	32 - 120	8.833	9.400858	-0.5679	N/A	
Nitrobenzene-d5	500.00	77.9	30 - 120	9.562	10.13257	-0.5706	N/A	
2-Fluorobiphenyl	500.00	89.0	35 - 120	13.142	13.71357	-0.5716	N/A	
2,4,6-Tribromophenol	750.00	61.0	24 - 134	16.15	16.72883	-0.5788	N/A	
p-Terphenyl-d14	500.00	112	37 - 120	20.736	21.25343	-0.5174	N/A	
BHH0289-BS1 (Solid)			Lab File ID: NT1019082109.D			Analyzed: 08/21/19 15:06		
2-Fluorophenol	750.00	75.8	27 - 120	6.319	6.828	-0.5090	N/A	
Phenol-d5	750.00	69.2	29 - 120	7.888	8.398857	-0.5109	N/A	
2-Chlorophenol-d4	750.00	92.1	31 - 120	8.127	8.682428	-0.5554	N/A	
1,2-Dichlorobenzene-d4	500.00	92.4	32 - 120	8.832	9.400858	-0.5689	N/A	
Nitrobenzene-d5	500.00	81.1	30 - 120	9.562	10.13257	-0.5706	N/A	
2-Fluorobiphenyl	500.00	90.9	35 - 120	13.142	13.71357	-0.5716	N/A	
2,4,6-Tribromophenol	750.00	81.8	24 - 134	16.15	16.72883	-0.5788	N/A	
p-Terphenyl-d14	500.00	107	37 - 120	20.744	21.25343	-0.5094	N/A	
BHH0289-MS1 (Solid)			Lab File ID: NT1019082110.D			Analyzed: 08/21/19 15:44		
2-Fluorophenol	747.70	57.9	27 - 120	6.327	6.828	-0.5010	N/A	
Phenol-d5	747.70	58.4	29 - 120	7.896	8.398857	-0.5029	N/A	
2-Chlorophenol-d4	747.70	75.1	31 - 120	8.127	8.682428	-0.5554	N/A	
1,2-Dichlorobenzene-d4	498.47	70.8	32 - 120	8.832	9.400858	-0.5689	N/A	
Nitrobenzene-d5	498.47	69.2	30 - 120	9.562	10.13257	-0.5706	N/A	
2-Fluorobiphenyl	498.47	91.6	35 - 120	13.142	13.71357	-0.5716	N/A	
2,4,6-Tribromophenol	747.70	82.9	24 - 134	16.15	16.72883	-0.5788	N/A	
p-Terphenyl-d14	498.47	123	37 - 120	20.783	21.25343	-0.4704	N/A	*

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0303
Instrument: NT10
Calibration: CG00040
Calibration Date: 07/15/2019

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
BHH0289-MSD1 (Solid)			Lab File ID: NT1019082111.D			Analyzed: 08/21/19 16:22		
2-Fluorophenol	747.11	61.3	27 - 120	6.327	6.828	-0.5010	N/A	
Phenol-d5	747.11	66.0	29 - 120	7.896	8.398857	-0.5029	N/A	
2-Chlorophenol-d4	747.11	85.2	31 - 120	8.135	8.682428	-0.5474	N/A	
1,2-Dichlorobenzene-d4	498.07	78.0	32 - 120	8.833	9.400858	-0.5679	N/A	
Nitrobenzene-d5	498.07	72.5	30 - 120	9.562	10.13257	-0.5706	N/A	
2-Fluorobiphenyl	498.07	95.3	35 - 120	13.142	13.71357	-0.5716	N/A	
2,4,6-Tribromophenol	747.11	84.6	24 - 134	16.158	16.72883	-0.5708	N/A	
p-Terphenyl-d14	498.07	124	37 - 120	20.783	21.25343	-0.4704	N/A	*
19H0024-03 (Solid)			Lab File ID: NT1019082112.D			Analyzed: 08/21/19 17:00		
2-Fluorophenol	749.48	51.5	27 - 120	6.327	6.828	-0.5010	N/A	
Phenol-d5	749.48	53.9	29 - 120	7.895	8.398857	-0.5039	N/A	
2-Chlorophenol-d4	749.48	71.2	31 - 120	8.135	8.682428	-0.5474	N/A	
1,2-Dichlorobenzene-d4	499.65	71.1	32 - 120	8.832	9.400858	-0.5689	N/A	
Nitrobenzene-d5	499.65	65.3	30 - 120	9.562	10.13257	-0.5706	N/A	
2-Fluorobiphenyl	499.65	89.6	35 - 120	13.142	13.71357	-0.5716	N/A	
2,4,6-Tribromophenol	749.48	77.7	24 - 134	16.158	16.72883	-0.5708	N/A	
p-Terphenyl-d14	499.65	112	37 - 120	20.79	21.25343	-0.4634	N/A	
19H0024-04 (Solid)			Lab File ID: NT1019082113.D			Analyzed: 08/21/19 17:38		
2-Fluorophenol	746.85	55.6	27 - 120	6.334	6.828	-0.4940	N/A	
Phenol-d5	746.85	56.3	29 - 120	7.903	8.398857	-0.4959	N/A	
2-Chlorophenol-d4	746.85	76.6	31 - 120	8.135	8.682428	-0.5474	N/A	
1,2-Dichlorobenzene-d4	497.90	75.1	32 - 120	8.84	9.400858	-0.5609	N/A	
Nitrobenzene-d5	497.90	71.7	30 - 120	9.562	10.13257	-0.5706	N/A	
2-Fluorobiphenyl	497.90	92.8	35 - 120	13.149	13.71357	-0.5646	N/A	
2,4,6-Tribromophenol	746.85	83.4	24 - 134	16.165	16.72883	-0.5638	N/A	
p-Terphenyl-d14	497.90	112	37 - 120	20.782	21.25343	-0.4714	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0303
Instrument: NT10
Calibration: CG00040
Calibration Date: 07/15/2019

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
19H0024-05 (Solid)			Lab File ID: NT1019082114.D			Analyzed: 08/21/19 18:15		
2-Fluorophenol	746.21	53.8	27 - 120	6.334	6.828	-0.4940	N/A	
Phenol-d5	746.21	55.2	29 - 120	7.895	8.398857	-0.5039	N/A	
2-Chlorophenol-d4	746.21	75.2	31 - 120	8.135	8.682428	-0.5474	N/A	
1,2-Dichlorobenzene-d4	497.48	72.4	32 - 120	8.84	9.400858	-0.5609	N/A	
Nitrobenzene-d5	497.48	68.2	30 - 120	9.562	10.13257	-0.5706	N/A	
2-Fluorobiphenyl	497.48	87.2	35 - 120	13.15	13.71357	-0.5636	N/A	
2,4,6-Tribromophenol	746.21	86.7	24 - 134	16.157	16.72883	-0.5718	N/A	
p-Terphenyl-d14	497.48	113	37 - 120	20.79	21.25343	-0.4634	N/A	
19H0024-06 (Solid)			Lab File ID: NT1019082115.D			Analyzed: 08/21/19 18:53		
2-Fluorophenol	743.20	52.9	27 - 120	6.334	6.828	-0.4940	N/A	
Phenol-d5	743.20	51.9	29 - 120	7.903	8.398857	-0.4959	N/A	
2-Chlorophenol-d4	743.20	69.8	31 - 120	8.135	8.682428	-0.5474	N/A	
1,2-Dichlorobenzene-d4	495.47	68.8	32 - 120	8.84	9.400858	-0.5609	N/A	
Nitrobenzene-d5	495.47	64.7	30 - 120	9.562	10.13257	-0.5706	N/A	
2-Fluorobiphenyl	495.47	82.2	35 - 120	13.15	13.71357	-0.5636	N/A	
2,4,6-Tribromophenol	743.20	83.3	24 - 134	16.158	16.72883	-0.5708	N/A	
p-Terphenyl-d14	495.47	109	37 - 120	20.783	21.25343	-0.4704	N/A	
19H0024-07 (Solid)			Lab File ID: NT1019082116.D			Analyzed: 08/21/19 19:31		
2-Fluorophenol	741.67	58.1	27 - 120	6.326	6.828	-0.5020	N/A	
Phenol-d5	741.67	55.7	29 - 120	7.903	8.398857	-0.4959	N/A	
2-Chlorophenol-d4	741.67	74.2	31 - 120	8.134	8.682428	-0.5484	N/A	
1,2-Dichlorobenzene-d4	494.45	75.2	32 - 120	8.832	9.400858	-0.5689	N/A	
Nitrobenzene-d5	494.45	73.4	30 - 120	9.562	10.13257	-0.5706	N/A	
2-Fluorobiphenyl	494.45	81.8	35 - 120	13.149	13.71357	-0.5646	N/A	
2,4,6-Tribromophenol	741.67	83.1	24 - 134	16.165	16.72883	-0.5638	N/A	
p-Terphenyl-d14	494.45	118	37 - 120	20.79	21.25343	-0.4634	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0303
Instrument: NT10
Calibration: CG00040
Calibration Date: 07/15/2019

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
19H0024-08 (Solid)			Lab File ID: NT1019082117.D			Analyzed: 08/21/19 20:08		
2-Fluorophenol	746.57	54.5	27 - 120	6.327	6.828	-0.5010	N/A	
Phenol-d5	746.57	53.7	29 - 120	7.895	8.398857	-0.5039	N/A	
2-Chlorophenol-d4	746.57	70.1	31 - 120	8.135	8.682428	-0.5474	N/A	
1,2-Dichlorobenzene-d4	497.71	68.8	32 - 120	8.832	9.400858	-0.5689	N/A	
Nitrobenzene-d5	497.71	66.8	30 - 120	9.562	10.13257	-0.5706	N/A	
2-Fluorobiphenyl	497.71	90.1	35 - 120	13.15	13.71357	-0.5636	N/A	
2,4,6-Tribromophenol	746.57	91.2	24 - 134	16.165	16.72883	-0.5638	N/A	
p-Terphenyl-d14	497.71	125	37 - 120	20.783	21.25343	-0.4704	N/A	*
19H0024-09 (Solid)			Lab File ID: NT1019082118.D			Analyzed: 08/21/19 20:45		
2-Fluorophenol	745.00	48.9	27 - 120	6.327	6.828	-0.5010	N/A	
Phenol-d5	745.00	48.9	29 - 120	7.903	8.398857	-0.4959	N/A	
2-Chlorophenol-d4	745.00	65.3	31 - 120	8.135	8.682428	-0.5474	N/A	
1,2-Dichlorobenzene-d4	496.67	66.0	32 - 120	8.832	9.400858	-0.5689	N/A	
Nitrobenzene-d5	496.67	62.2	30 - 120	9.562	10.13257	-0.5706	N/A	
2-Fluorobiphenyl	496.67	82.2	35 - 120	13.15	13.71357	-0.5636	N/A	
2,4,6-Tribromophenol	745.00	70.2	24 - 134	16.165	16.72883	-0.5638	N/A	
p-Terphenyl-d14	496.67	100	37 - 120	20.79	21.25343	-0.4634	N/A	
19H0024-10 (Solid)			Lab File ID: NT1019082119.D			Analyzed: 08/21/19 21:23		
2-Fluorophenol	740.32	49.2	27 - 120	6.335	6.828	-0.4930	N/A	
Phenol-d5	740.32	46.2	29 - 120	7.903	8.398857	-0.4959	N/A	
2-Chlorophenol-d4	740.32	66.5	31 - 120	8.135	8.682428	-0.5474	N/A	
1,2-Dichlorobenzene-d4	493.55	64.4	32 - 120	8.84	9.400858	-0.5609	N/A	
Nitrobenzene-d5	493.55	61.2	30 - 120	9.562	10.13257	-0.5706	N/A	
2-Fluorobiphenyl	493.55	78.8	35 - 120	13.15	13.71357	-0.5636	N/A	
2,4,6-Tribromophenol	740.32	76.3	24 - 134	16.173	16.72883	-0.5558	N/A	
p-Terphenyl-d14	493.55	105	37 - 120	20.783	21.25343	-0.4704	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0303
Instrument: NT10
Calibration: CG00040
Calibration Date: 07/15/2019

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
19H0024-11 (Solid)			Lab File ID: NT1019082120.D			Analyzed: 08/21/19 22:00		
2-Fluorophenol	743.90	55.7	27 - 120	6.334	6.828	-0.4940	N/A	
Phenol-d5	743.90	57.0	29 - 120	7.903	8.398857	-0.4959	N/A	
2-Chlorophenol-d4	743.90	77.4	31 - 120	8.135	8.682428	-0.5474	N/A	
1,2-Dichlorobenzene-d4	495.93	75.6	32 - 120	8.84	9.400858	-0.5609	N/A	
Nitrobenzene-d5	495.93	68.7	30 - 120	9.562	10.13257	-0.5706	N/A	
2-Fluorobiphenyl	495.93	89.8	35 - 120	13.15	13.71357	-0.5636	N/A	
2,4,6-Tribromophenol	743.90	73.2	24 - 134	16.173	16.72883	-0.5558	N/A	
p-Terphenyl-d14	495.93	119	37 - 120	20.814	21.25343	-0.4394	N/A	
BHH0299-BLK1 (Wipes)			Lab File ID: NT1019082121.D			Analyzed: 08/21/19 22:37		
2-Fluorophenol	7.5000	55.5	27 - 120	6.334	6.828	-0.4940	N/A	
Phenol-d5	7.5000	50.7	29 - 120	7.903	8.398857	-0.4959	N/A	
2-Chlorophenol-d4	7.5000	71.1	31 - 120	8.135	8.682428	-0.5474	N/A	
1,2-Dichlorobenzene-d4	5.0000	75.5	32 - 120	8.84	9.400858	-0.5609	N/A	
Nitrobenzene-d5	5.0000	72.8	30 - 120	9.57	10.13257	-0.5626	N/A	
2-Fluorobiphenyl	5.0000	78.0	35 - 120	13.157	13.71357	-0.5566	N/A	
2,4,6-Tribromophenol	7.5000	77.7	24 - 134	16.18	16.72883	-0.5488	N/A	
p-Terphenyl-d14	5.0000	111	37 - 120	20.775	21.25343	-0.4784	N/A	
BHH0299-BS1 (Wipes)			Lab File ID: NT1019082122.D			Analyzed: 08/21/19 23:14		
2-Fluorophenol	7.5000	46.3	27 - 120	6.327	6.828	-0.5010	N/A	
Phenol-d5	7.5000	44.3	29 - 120	7.895	8.398857	-0.5039	N/A	
2-Chlorophenol-d4	7.5000	56.8	31 - 120	8.135	8.682428	-0.5474	N/A	
1,2-Dichlorobenzene-d4	5.0000	54.6	32 - 120	8.832	9.400858	-0.5689	N/A	
Nitrobenzene-d5	5.0000	55.2	30 - 120	9.57	10.13257	-0.5626	N/A	
2-Fluorobiphenyl	5.0000	59.2	35 - 120	13.15	13.71357	-0.5636	N/A	
2,4,6-Tribromophenol	7.5000	59.8	24 - 134	16.165	16.72883	-0.5638	N/A	
p-Terphenyl-d14	5.0000	93.9	37 - 120	20.767	21.25343	-0.4864	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Sequence:	SHH0303	Instrument:	NT10
Calibration:	CG00040	Calibration Date:	07/15/2019

Surrogate Compound	Spike Level ug/Wipe	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
19H0024-02 (Wipes)			Lab File ID: NT1019082123.D				Analyzed: 08/21/19 23:52	
2-Fluorophenol	7.5000	57.6	27 - 120	6.335	6.828	-0.4930	N/A	
Phenol-d5	7.5000	59.0	29 - 120	7.903	8.398857	-0.4959	N/A	
2-Chlorophenol-d4	7.5000	79.0	31 - 120	8.135	8.682428	-0.5474	N/A	
1,2-Dichlorobenzene-d4	5.0000	82.2	32 - 120	8.84	9.400858	-0.5609	N/A	
Nitrobenzene-d5	5.0000	72.6	30 - 120	9.562	10.13257	-0.5706	N/A	
2-Fluorobiphenyl	5.0000	84.9	35 - 120	13.15	13.71357	-0.5636	N/A	
2,4,6-Tribromophenol	7.5000	83.5	24 - 134	16.173	16.72883	-0.5558	N/A	
p-Terphenyl-d14	5.0000	107	37 - 120	20.767	21.25343	-0.4864	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0325
Instrument: NT10
Calibration: CG00040
Calibration Date: 07/15/2019

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHH0325-ICV1 (Solid)			Lab File ID: NT1019082206.D			Analyzed: 08/22/19 16:51		
2-Fluorophenol	7.5000	80.4	80 - 120	6.173	6.828	-0.6550	N/A	
Phenol-d5	7.5000	76.5	80 - 120	7.749	8.398857	-0.6499	N/A	*
2-Chlorophenol-d4	7.5000	92.9	80 - 120	7.981	8.682428	-0.7014	N/A	
1,2-Dichlorobenzene-d4	5.0000	92.6	80 - 120	8.671	9.400858	-0.7299	N/A	
Nitrobenzene-d5	5.0000	88.9	80 - 120	9.408	10.13257	-0.7246	N/A	
2-Fluorobiphenyl	5.0000	92.0	80 - 120	12.954	13.71357	-0.7596	N/A	
2,4,6-Tribromophenol	7.5000	81.5	80 - 120	15.931	16.72883	-0.7978	N/A	
p-Terphenyl-d14	5.0000	106	80 - 120	20.502	21.25343	-0.7514	N/A	
SHH0325-LCV1 (Solid)			Lab File ID: NT1019082207.D			Analyzed: 08/22/19 17:29		
2-Fluorophenol	0.30000	61.6	50 - 150	6.18	6.828	-0.6480	N/A	
Phenol-d5	0.30000	61.1	50 - 150	7.757	8.398857	-0.6419	N/A	
2-Chlorophenol-d4	0.30000	82.0	50 - 150	7.981	8.682428	-0.7014	N/A	
1,2-Dichlorobenzene-d4	0.20000	85.1	50 - 150	8.678	9.400858	-0.7229	N/A	
Nitrobenzene-d5	0.20000	64.2	50 - 150	9.4	10.13257	-0.7326	N/A	
2-Fluorobiphenyl	0.20000	85.4	50 - 150	12.954	13.71357	-0.7596	N/A	
2,4,6-Tribromophenol	0.30000	51.7	50 - 150	15.923	16.72883	-0.8058	N/A	
p-Terphenyl-d14	0.20000	82.8	50 - 150	20.502	21.25343	-0.7514	N/A	
SHH0325-LCV2 (Solid)			Lab File ID: NT1019082208.D			Analyzed: 08/22/19 18:06		
2-Fluorophenol	0.75000	75.2	50 - 150	6.173	6.828	-0.6550	N/A	
Phenol-d5	0.75000	70.7	50 - 150	7.741	8.398857	-0.6579	N/A	
2-Chlorophenol-d4	0.75000	100	50 - 150	7.981	8.682428	-0.7014	N/A	
1,2-Dichlorobenzene-d4	0.50000	109	50 - 150	8.671	9.400858	-0.7299	N/A	
Nitrobenzene-d5	0.50000	88.5	50 - 150	9.4	10.13257	-0.7326	N/A	
2-Fluorobiphenyl	0.50000	107	50 - 150	12.954	13.71357	-0.7596	N/A	
2,4,6-Tribromophenol	0.75000	59.4	50 - 150	15.931	16.72883	-0.7978	N/A	
p-Terphenyl-d14	0.50000	107	50 - 150	20.494	21.25343	-0.7594	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0325
Instrument: NT10
Calibration: CG00040
Calibration Date: 07/15/2019

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
19H0024-03RE1 (Solid)			Lab File ID: NT1019082209.D			Analyzed: 08/22/19 18:44		
2-Fluorophenol	749.48	40.9	27 - 120	6.188	6.828	-0.6400	N/A	
Phenol-d5	749.48	40.7	29 - 120	7.749	8.398857	-0.6499	N/A	
2-Chlorophenol-d4	749.48	54.3	31 - 120	7.981	8.682428	-0.7014	N/A	
1,2-Dichlorobenzene-d4	499.65	51.6	32 - 120	8.678	9.400858	-0.7229	N/A	
Nitrobenzene-d5	499.65	53.6	30 - 120	9.4	10.13257	-0.7326	N/A	
2-Fluorobiphenyl	499.65	64.3	35 - 120	12.954	13.71357	-0.7596	N/A	
2,4,6-Tribromophenol	749.48	59.8	24 - 134	15.931	16.72883	-0.7978	N/A	
p-Terphenyl-d14	499.65	89.1	37 - 120	20.502	21.25343	-0.7514	N/A	
19H0024-04RE1 (Solid)			Lab File ID: NT1019082210.D			Analyzed: 08/22/19 19:21		
2-Fluorophenol	746.85	40.1	27 - 120	6.188	6.828	-0.6400	N/A	
Phenol-d5	746.85	44.1	29 - 120	7.749	8.398857	-0.6499	N/A	
2-Chlorophenol-d4	746.85	56.2	31 - 120	7.981	8.682428	-0.7014	N/A	
1,2-Dichlorobenzene-d4	497.90	56.1	32 - 120	8.678	9.400858	-0.7229	N/A	
Nitrobenzene-d5	497.90	52.1	30 - 120	9.4	10.13257	-0.7326	N/A	
2-Fluorobiphenyl	497.90	64.7	35 - 120	12.954	13.71357	-0.7596	N/A	
2,4,6-Tribromophenol	746.85	49.7	24 - 134	15.923	16.72883	-0.8058	N/A	
p-Terphenyl-d14	497.90	89.7	37 - 120	20.502	21.25343	-0.7514	N/A	
19H0024-05RE1 (Solid)			Lab File ID: NT1019082211.D			Analyzed: 08/22/19 19:59		
2-Fluorophenol	746.21	41.2	27 - 120	6.188	6.828	-0.6400	N/A	
Phenol-d5	746.21	44.0	29 - 120	7.749	8.398857	-0.6499	N/A	
2-Chlorophenol-d4	746.21	55.9	31 - 120	7.981	8.682428	-0.7014	N/A	
1,2-Dichlorobenzene-d4	497.48	52.9	32 - 120	8.67	9.400858	-0.7309	N/A	
Nitrobenzene-d5	497.48	52.4	30 - 120	9.4	10.13257	-0.7326	N/A	
2-Fluorobiphenyl	497.48	66.8	35 - 120	12.954	13.71357	-0.7596	N/A	
2,4,6-Tribromophenol	746.21	45.7	24 - 134	15.923	16.72883	-0.8058	N/A	
p-Terphenyl-d14	497.48	99.7	37 - 120	20.502	21.25343	-0.7514	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0325
Instrument: NT10
Calibration: CG00040
Calibration Date: 07/15/2019

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
19H0024-06RE1 (Solid)			Lab File ID: NT1019082212.D			Analyzed: 08/22/19 20:36		
2-Fluorophenol	743.20	38.9	27 - 120	6.18	6.828	-0.6480	N/A	
Phenol-d5	743.20	40.9	29 - 120	7.749	8.398857	-0.6499	N/A	
2-Chlorophenol-d4	743.20	58.5	31 - 120	7.981	8.682428	-0.7014	N/A	
1,2-Dichlorobenzene-d4	495.47	53.4	32 - 120	8.678	9.400858	-0.7229	N/A	
Nitrobenzene-d5	495.47	48.9	30 - 120	9.4	10.13257	-0.7326	N/A	
2-Fluorobiphenyl	495.47	61.5	35 - 120	12.954	13.71357	-0.7596	N/A	
2,4,6-Tribromophenol	743.20	63.3	24 - 134	15.931	16.72883	-0.7978	N/A	
p-Terphenyl-d14	495.47	87.8	37 - 120	20.502	21.25343	-0.7514	N/A	
19H0024-07RE1 (Solid)			Lab File ID: NT1019082213.D			Analyzed: 08/22/19 21:13		
2-Fluorophenol	741.67	44.9	27 - 120	6.188	6.828	-0.6400	N/A	
Phenol-d5	741.67	42.5	29 - 120	7.749	8.398857	-0.6499	N/A	
2-Chlorophenol-d4	741.67	57.9	31 - 120	7.981	8.682428	-0.7014	N/A	
1,2-Dichlorobenzene-d4	494.45	52.3	32 - 120	8.678	9.400858	-0.7229	N/A	
Nitrobenzene-d5	494.45	48.7	30 - 120	9.4	10.13257	-0.7326	N/A	
2-Fluorobiphenyl	494.45	60.4	35 - 120	12.954	13.71357	-0.7596	N/A	
2,4,6-Tribromophenol	741.67	59.4	24 - 134	15.923	16.72883	-0.8058	N/A	
p-Terphenyl-d14	494.45	91.1	37 - 120	20.494	21.25343	-0.7594	N/A	
19H0024-08RE1 (Solid)			Lab File ID: NT1019082214.D			Analyzed: 08/22/19 21:50		
2-Fluorophenol	746.57	39.5	27 - 120	6.188	6.828	-0.6400	N/A	
Phenol-d5	746.57	41.1	29 - 120	7.749	8.398857	-0.6499	N/A	
2-Chlorophenol-d4	746.57	52.8	31 - 120	7.981	8.682428	-0.7014	N/A	
1,2-Dichlorobenzene-d4	497.71	49.6	32 - 120	8.678	9.400858	-0.7229	N/A	
Nitrobenzene-d5	497.71	53.9	30 - 120	9.4	10.13257	-0.7326	N/A	
2-Fluorobiphenyl	497.71	65.4	35 - 120	12.954	13.71357	-0.7596	N/A	
2,4,6-Tribromophenol	746.57	55.1	24 - 134	15.923	16.72883	-0.8058	N/A	
p-Terphenyl-d14	497.71	97.2	37 - 120	20.494	21.25343	-0.7594	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0325
Instrument: NT10
Calibration: CG00040
Calibration Date: 07/15/2019

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
19H0024-09RE1 (Solid)			Lab File ID: NT1019082215.D			Analyzed: 08/22/19 22:26		
2-Fluorophenol	745.00	35.4	27 - 120	6.18	6.828	-0.6480	N/A	
Phenol-d5	745.00	40.3	29 - 120	7.757	8.398857	-0.6419	N/A	
2-Chlorophenol-d4	745.00	46.3	31 - 120	7.981	8.682428	-0.7014	N/A	
1,2-Dichlorobenzene-d4	496.67	41.8	32 - 120	8.678	9.400858	-0.7229	N/A	
Nitrobenzene-d5	496.67	43.4	30 - 120	9.4	10.13257	-0.7326	N/A	
2-Fluorobiphenyl	496.67	56.1	35 - 120	12.954	13.71357	-0.7596	N/A	
2,4,6-Tribromophenol	745.00	36.8	24 - 134	15.923	16.72883	-0.8058	N/A	
p-Terphenyl-d14	496.67	92.1	37 - 120	20.502	21.25343	-0.7514	N/A	
19H0024-10RE1 (Solid)			Lab File ID: NT1019082216.D			Analyzed: 08/22/19 23:03		
2-Fluorophenol	740.32	35.7	27 - 120	6.188	6.828	-0.6400	N/A	
Phenol-d5	740.32	38.9	29 - 120	7.757	8.398857	-0.6419	N/A	
2-Chlorophenol-d4	740.32	51.0	31 - 120	7.981	8.682428	-0.7014	N/A	
1,2-Dichlorobenzene-d4	493.55	47.7	32 - 120	8.678	9.400858	-0.7229	N/A	
Nitrobenzene-d5	493.55	50.0	30 - 120	9.4	10.13257	-0.7326	N/A	
2-Fluorobiphenyl	493.55	58.6	35 - 120	12.954	13.71357	-0.7596	N/A	
2,4,6-Tribromophenol	740.32	55.2	24 - 134	15.923	16.72883	-0.8058	N/A	
p-Terphenyl-d14	493.55	94.4	37 - 120	20.502	21.25343	-0.7514	N/A	
19H0024-11RE1 (Solid)			Lab File ID: NT1019082217.D			Analyzed: 08/22/19 23:40		
2-Fluorophenol	743.90	42.3	27 - 120	6.188	6.828	-0.6400	N/A	
Phenol-d5	743.90	39.7	29 - 120	7.757	8.398857	-0.6419	N/A	
2-Chlorophenol-d4	743.90	53.9	31 - 120	7.981	8.682428	-0.7014	N/A	
1,2-Dichlorobenzene-d4	495.93	50.8	32 - 120	8.678	9.400858	-0.7229	N/A	
Nitrobenzene-d5	495.93	51.4	30 - 120	9.408	10.13257	-0.7246	N/A	
2-Fluorobiphenyl	495.93	63.0	35 - 120	12.954	13.71357	-0.7596	N/A	
2,4,6-Tribromophenol	743.90	58.5	24 - 134	15.923	16.72883	-0.8058	N/A	
p-Terphenyl-d14	495.93	89.6	37 - 120	20.502	21.25343	-0.7514	N/A	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHG0206
Instrument: NT10
Calibration: CG00040

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SHG0206-ICV1)		(Solid)	Lab File ID: NT1019071504A.D				Analyzed: 07/15/19 15:33		
1,4-Dichlorobenzene-d4	32739	9.045	32739	9.045	100	50 - 200	0.000	+/-0.50	
Naphthalene-d8	117487	11.507	117487	11.507	100	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	61859	15.105	61859	15.105	100	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	113574	18.118	113574	18.118	100	50 - 200	0.000	+/-0.50	
Chrysene-d12	105788	23.149	105788	23.149	100	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	252823	24.178	252823	24.178	100	50 - 200	0.000	+/-0.50	
Perylene-d12	113992	25.711	113992	25.711	100	50 - 200	0.000	+/-0.50	
Calibration Check (SHG0206-CCV1)		(Solid)	Lab File ID: NT1019071520.D				Analyzed: 07/16/19 01:24		
1,4-Dichlorobenzene-d4	31163	9.053	32739	9.045	95	50 - 200	0.008	+/-0.50	
Naphthalene-d8	105369	11.516	117487	11.507	90	50 - 200	0.009	+/-0.50	
Acenaphthene-d10	55275	15.114	61859	15.105	89	50 - 200	0.009	+/-0.50	
Phenanthrene-d10	103741	18.127	113574	18.118	91	50 - 200	0.009	+/-0.50	
Chrysene-d12	62189	23.158	105788	23.149	59	50 - 200	0.009	+/-0.50	
Di-n-Octylphthalate-d4	140348	24.179	252823	24.178	56	50 - 200	0.001	+/-0.50	
Perylene-d12	52929	25.728	113992	25.711	46	50 - 200	0.017	+/-0.50	*

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0303
Instrument: NT10
Calibration: CG00040

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SHH0303-ICV1)		(Solid)	Lab File ID: NT1019082105.D				Analyzed: 08/21/19 12:30		
1,4-Dichlorobenzene-d4	29881	8.483	29881	8.483	100	50 - 200	0.000	+/-0.50	
Naphthalene-d8	103277	10.929	103277	10.929	100	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	59029	14.512	59029	14.512	100	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	114000	17.525	114000	17.525	100	50 - 200	0.000	+/-0.50	
Chrysene-d12	104519	22.633	104519	22.633	100	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	236194	23.756	236194	23.756	100	50 - 200	0.000	+/-0.50	
Perylene-d12	95995	25.056	95995	25.056	100	50 - 200	0.000	+/-0.50	
Low Cal Check (SHH0303-LCV1)		(Solid)	Lab File ID: NT1019082106.D				Analyzed: 08/21/19 13:08		
1,4-Dichlorobenzene-d4	34924	8.483	29881	8.483	117	50 - 200	0.000	+/-0.50	
Naphthalene-d8	120883	10.921	103277	10.929	117	50 - 200	-0.008	+/-0.50	
Acenaphthene-d10	57371	14.512	59029	14.512	97	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	115978	17.525	114000	17.525	102	50 - 200	0.000	+/-0.50	
Chrysene-d12	112570	22.633	104519	22.633	108	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	222512	23.755	236194	23.756	94	50 - 200	-0.001	+/-0.50	
Perylene-d12	94510	25.048	95995	25.056	98	50 - 200	-0.008	+/-0.50	
Low Cal Check (SHH0303-LCV2)		(Solid)	Lab File ID: NT1019082107.D				Analyzed: 08/21/19 13:50		
1,4-Dichlorobenzene-d4	36031	8.483	29881	8.483	121	50 - 200	0.000	+/-0.50	
Naphthalene-d8	129237	10.929	103277	10.929	125	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	66994	14.512	59029	14.512	113	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	133256	17.525	114000	17.525	117	50 - 200	0.000	+/-0.50	
Chrysene-d12	126795	22.641	104519	22.633	121	50 - 200	0.008	+/-0.50	
Di-n-Octylphthalate-d4	249924	23.748	236194	23.756	106	50 - 200	-0.008	+/-0.50	
Perylene-d12	100311	25.049	95995	25.056	104	50 - 200	-0.007	+/-0.50	
Blank (BHH0289-BLK1)		(Solid)	Lab File ID: NT1019082108.D				Analyzed: 08/21/19 14:28		
1,4-Dichlorobenzene-d4	27873	8.483	29881	8.483	93	50 - 200	0.000	+/-0.50	
Naphthalene-d8	102588	10.922	103277	10.929	99	50 - 200	-0.007	+/-0.50	
Acenaphthene-d10	51057	14.512	59029	14.512	86	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	105199	17.518	114000	17.525	92	50 - 200	-0.007	+/-0.50	
Chrysene-d12	95694	22.633	104519	22.633	92	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	192204	23.748	236194	23.756	81	50 - 200	-0.008	+/-0.50	
Perylene-d12	68765	25.049	95995	25.056	72	50 - 200	-0.007	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0303
Instrument: NT10
Calibration: CG00040

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (BHH0289-BS1)		(Solid)	Lab File ID: NT1019082109.D				Analyzed: 08/21/19 15:06		
1,4-Dichlorobenzene-d4	26902	8.483	29881	8.483	90	50 - 200	0.000	+/-0.50	
Naphthalene-d8	100385	10.922	103277	10.929	97	50 - 200	-0.007	+/-0.50	
Acenaphthene-d10	54573	14.512	59029	14.512	92	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	108786	17.525	114000	17.525	95	50 - 200	0.000	+/-0.50	
Chrysene-d12	102195	22.641	104519	22.633	98	50 - 200	0.008	+/-0.50	
Di-n-Octylphthalate-d4	228285	23.748	236194	23.756	97	50 - 200	-0.008	+/-0.50	
Perylene-d12	87969	25.056	95995	25.056	92	50 - 200	0.000	+/-0.50	
Matrix Spike (BHH0289-MS1)		(Solid)	Lab File ID: NT1019082110.D				Analyzed: 08/21/19 15:44		
1,4-Dichlorobenzene-d4	31308	8.483	29881	8.483	105	50 - 200	0.000	+/-0.50	
Naphthalene-d8	115867	10.922	103277	10.929	112	50 - 200	-0.007	+/-0.50	
Acenaphthene-d10	58193	14.512	59029	14.512	99	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	110631	17.525	114000	17.525	97	50 - 200	0.000	+/-0.50	
Chrysene-d12	68903	22.734	104519	22.633	66	50 - 200	0.101	+/-0.50	
Di-n-Octylphthalate-d4	153180	23.856	236194	23.756	65	50 - 200	0.100	+/-0.50	
Perylene-d12	29650	25.227	95995	25.056	31	50 - 200	0.171	+/-0.50	*
Matrix Spike Dup (BHH0289-MSD1)		(Solid)	Lab File ID: NT1019082111.D				Analyzed: 08/21/19 16:22		
1,4-Dichlorobenzene-d4	33112	8.483	29881	8.483	111	50 - 200	0.000	+/-0.50	
Naphthalene-d8	125498	10.93	103277	10.929	122	50 - 200	0.001	+/-0.50	
Acenaphthene-d10	64831	14.52	59029	14.512	110	50 - 200	0.008	+/-0.50	
Phenanthrene-d10	116667	17.533	114000	17.525	102	50 - 200	0.008	+/-0.50	
Chrysene-d12	67522	22.749	104519	22.633	65	50 - 200	0.116	+/-0.50	
Di-n-Octylphthalate-d4	150984	23.849	236194	23.756	64	50 - 200	0.093	+/-0.50	
Perylene-d12	58738	25.235	95995	25.056	61	50 - 200	0.179	+/-0.50	
SL4-SG-WC3-2019 (19H0024-03)		(Solid)	Lab File ID: NT1019082112.D				Analyzed: 08/21/19 17:00		
1,4-Dichlorobenzene-d4	36263	8.483	29881	8.483	121	50 - 200	0.000	+/-0.50	
Naphthalene-d8	136593	10.929	103277	10.929	132	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	66561	14.512	59029	14.512	113	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	121327	17.541	114000	17.525	106	50 - 200	0.016	+/-0.50	
Chrysene-d12	66011	22.742	104519	22.633	63	50 - 200	0.109	+/-0.50	
Di-n-Octylphthalate-d4	154446	23.872	236194	23.756	65	50 - 200	0.116	+/-0.50	
Perylene-d12	61374	25.25	95995	25.056	64	50 - 200	0.194	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0303
Instrument: NT10
Calibration: CG00040

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SL4-SG-WC7-2019 (19H0024-04)		(Solid)	Lab File ID: NT1019082113.D				Analyzed: 08/21/19 17:38		
1,4-Dichlorobenzene-d4	33736	8.483	29881	8.483	113	50 - 200	0.000	+/-0.50	
Naphthalene-d8	127121	10.929	103277	10.929	123	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	63974	14.519	59029	14.512	108	50 - 200	0.007	+/-0.50	
Phenanthrene-d10	111064	17.54	114000	17.525	97	50 - 200	0.015	+/-0.50	
Chrysene-d12	60502	22.71	104519	22.633	58	50 - 200	0.077	+/-0.50	
Di-n-Octylphthalate-d4	133777	23.825	236194	23.756	57	50 - 200	0.069	+/-0.50	
Perylene-d12	50623	25.172	95995	25.056	53	50 - 200	0.116	+/-0.50	
SL4-SG-WC7-FD-2019 (19H0024-05)		(Solid)	Lab File ID: NT1019082114.D				Analyzed: 08/21/19 18:15		
1,4-Dichlorobenzene-d4	37870	8.483	29881	8.483	127	50 - 200	0.000	+/-0.50	
Naphthalene-d8	146959	10.929	103277	10.929	142	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	73391	14.519	59029	14.512	124	50 - 200	0.007	+/-0.50	
Phenanthrene-d10	136057	17.541	114000	17.525	119	50 - 200	0.016	+/-0.50	
Chrysene-d12	72344	22.726	104519	22.633	69	50 - 200	0.093	+/-0.50	
Di-n-Octylphthalate-d4	155860	23.825	236194	23.756	66	50 - 200	0.069	+/-0.50	
Perylene-d12	56512	25.18	95995	25.056	59	50 - 200	0.124	+/-0.50	
SL4-SG-WC8-2019 (19H0024-06)		(Solid)	Lab File ID: NT1019082115.D				Analyzed: 08/21/19 18:53		
1,4-Dichlorobenzene-d4	38556	8.483	29881	8.483	129	50 - 200	0.000	+/-0.50	
Naphthalene-d8	143014	10.929	103277	10.929	138	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	72452	14.52	59029	14.512	123	50 - 200	0.008	+/-0.50	
Phenanthrene-d10	126070	17.541	114000	17.525	111	50 - 200	0.016	+/-0.50	
Chrysene-d12	65220	22.68	104519	22.633	62	50 - 200	0.047	+/-0.50	
Di-n-Octylphthalate-d4	147842	23.794	236194	23.756	63	50 - 200	0.038	+/-0.50	
Perylene-d12	51573	25.126	95995	25.056	54	50 - 200	0.070	+/-0.50	
SL4-SG-WC4-2019 (19H0024-07)		(Solid)	Lab File ID: NT1019082116.D				Analyzed: 08/21/19 19:31		
1,4-Dichlorobenzene-d4	34946	8.483	29881	8.483	117	50 - 200	0.000	+/-0.50	
Naphthalene-d8	131458	10.929	103277	10.929	127	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	71579	14.519	59029	14.512	121	50 - 200	0.007	+/-0.50	
Phenanthrene-d10	134076	17.54	114000	17.525	118	50 - 200	0.015	+/-0.50	
Chrysene-d12	65346	22.695	104519	22.633	63	50 - 200	0.062	+/-0.50	
Di-n-Octylphthalate-d4	144790	23.809	236194	23.756	61	50 - 200	0.053	+/-0.50	
Perylene-d12	50026	25.157	95995	25.056	52	50 - 200	0.101	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0303
Instrument: NT10
Calibration: CG00040

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SL4-SG-WC2-2019 (19H0024-08)		(Solid)	Lab File ID: NT1019082117.D				Analyzed: 08/21/19 20:08		
1,4-Dichlorobenzene-d4	37766	8.483	29881	8.483	126	50 - 200	0.000	+/-0.50	
Naphthalene-d8	142730	10.929	103277	10.929	138	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	70902	14.52	59029	14.512	120	50 - 200	0.008	+/-0.50	
Phenanthrene-d10	133409	17.541	114000	17.525	117	50 - 200	0.016	+/-0.50	
Chrysene-d12	64822	22.695	104519	22.633	62	50 - 200	0.062	+/-0.50	
Di-n-Octylphthalate-d4	152210	23.833	236194	23.756	64	50 - 200	0.077	+/-0.50	
Perylene-d12	53977	25.196	95995	25.056	56	50 - 200	0.140	+/-0.50	
SL4-SG-WC1-2019 (19H0024-09)		(Solid)	Lab File ID: NT1019082118.D				Analyzed: 08/21/19 20:45		
1,4-Dichlorobenzene-d4	35667	8.483	29881	8.483	119	50 - 200	0.000	+/-0.50	
Naphthalene-d8	131947	10.929	103277	10.929	128	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	67090	14.52	59029	14.512	114	50 - 200	0.008	+/-0.50	
Phenanthrene-d10	124445	17.549	114000	17.525	109	50 - 200	0.024	+/-0.50	
Chrysene-d12	60999	22.711	104519	22.633	58	50 - 200	0.078	+/-0.50	
Di-n-Octylphthalate-d4	146661	23.864	236194	23.756	62	50 - 200	0.108	+/-0.50	
Perylene-d12	48671	25.235	95995	25.056	51	50 - 200	0.179	+/-0.50	
SL4-IC-SC2-2019 (19H0024-10)		(Solid)	Lab File ID: NT1019082119.D				Analyzed: 08/21/19 21:23		
1,4-Dichlorobenzene-d4	35032	8.483	29881	8.483	117	50 - 200	0.000	+/-0.50	
Naphthalene-d8	130603	10.937	103277	10.929	126	50 - 200	0.008	+/-0.50	
Acenaphthene-d10	67857	14.52	59029	14.512	115	50 - 200	0.008	+/-0.50	
Phenanthrene-d10	126936	17.549	114000	17.525	111	50 - 200	0.024	+/-0.50	
Chrysene-d12	57777	22.695	104519	22.633	55	50 - 200	0.062	+/-0.50	
Di-n-Octylphthalate-d4	135407	23.825	236194	23.756	57	50 - 200	0.069	+/-0.50	
Perylene-d12	45575	25.188	95995	25.056	47	50 - 200	0.132	+/-0.50	*
SL4-IC-SC3-2019 (19H0024-11)		(Solid)	Lab File ID: NT1019082120.D				Analyzed: 08/21/19 22:00		
1,4-Dichlorobenzene-d4	36700	8.483	29881	8.483	123	50 - 200	0.000	+/-0.50	
Naphthalene-d8	139912	10.929	103277	10.929	135	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	68225	14.52	59029	14.512	116	50 - 200	0.008	+/-0.50	
Phenanthrene-d10	116825	17.549	114000	17.525	102	50 - 200	0.024	+/-0.50	
Chrysene-d12	61900	22.749	104519	22.633	59	50 - 200	0.116	+/-0.50	
Di-n-Octylphthalate-d4	137529	23.841	236194	23.756	58	50 - 200	0.085	+/-0.50	
Perylene-d12	45482	25.196	95995	25.056	47	50 - 200	0.140	+/-0.50	*

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0303
Instrument: NT10
Calibration: CG00040

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (BHH0299-BLK1)		(Wipes)	Lab File ID: NT1019082121.D				Analyzed: 08/21/19 22:37		
1,4-Dichlorobenzene-d4	38547	8.483	29881	8.483	129	50 - 200	0.000	+/-0.50	
Naphthalene-d8	135409	10.929	103277	10.929	131	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	72133	14.519	59029	14.512	122	50 - 200	0.007	+/-0.50	
Phenanthrene-d10	140501	17.548	114000	17.525	123	50 - 200	0.023	+/-0.50	
Chrysene-d12	67933	22.679	104519	22.633	65	50 - 200	0.046	+/-0.50	
Di-n-Octylphthalate-d4	148432	23.779	236194	23.756	63	50 - 200	0.023	+/-0.50	
Perylene-d12	49083	25.126	95995	25.056	51	50 - 200	0.070	+/-0.50	
LCS (BHH0299-BS1)		(Wipes)	Lab File ID: NT1019082122.D				Analyzed: 08/21/19 23:14		
1,4-Dichlorobenzene-d4	34471	8.483	29881	8.483	115	50 - 200	0.000	+/-0.50	
Naphthalene-d8	121782	10.929	103277	10.929	118	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	66876	14.519	59029	14.512	113	50 - 200	0.007	+/-0.50	
Phenanthrene-d10	129538	17.541	114000	17.525	114	50 - 200	0.016	+/-0.50	
Chrysene-d12	86440	22.672	104519	22.633	83	50 - 200	0.039	+/-0.50	
Di-n-Octylphthalate-d4	180967	23.779	236194	23.756	77	50 - 200	0.023	+/-0.50	
Perylene-d12	58433	25.118	95995	25.056	61	50 - 200	0.062	+/-0.50	
SL4-SG-WC3-FW-2019 (19H0024-02)		(Wipes)	Lab File ID: NT1019082123.D				Analyzed: 08/21/19 23:52		
1,4-Dichlorobenzene-d4	34665	8.483	29881	8.483	116	50 - 200	0.000	+/-0.50	
Naphthalene-d8	134311	10.929	103277	10.929	130	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	68664	14.52	59029	14.512	116	50 - 200	0.008	+/-0.50	
Phenanthrene-d10	139333	17.549	114000	17.525	122	50 - 200	0.024	+/-0.50	
Chrysene-d12	111445	22.672	104519	22.633	107	50 - 200	0.039	+/-0.50	
Di-n-Octylphthalate-d4	216586	23.771	236194	23.756	92	50 - 200	0.015	+/-0.50	
Perylene-d12	70636	25.103	95995	25.056	74	50 - 200	0.047	+/-0.50	
Calibration Check (SHH0303-CCV1)		(Solid)	Lab File ID: NT1019082129.D				Analyzed: 08/22/19 02:20		
1,4-Dichlorobenzene-d4	31231	8.483	29881	8.483	105	50 - 200	0.000	+/-0.50	
Naphthalene-d8	105318	10.93	103277	10.929	102	50 - 200	0.001	+/-0.50	
Acenaphthene-d10	58843	14.52	59029	14.512	100	50 - 200	0.008	+/-0.50	
Phenanthrene-d10	119849	17.541	114000	17.525	105	50 - 200	0.016	+/-0.50	
Chrysene-d12	95107	22.68	104519	22.633	91	50 - 200	0.047	+/-0.50	
Di-n-Octylphthalate-d4	188752	23.779	236194	23.756	80	50 - 200	0.023	+/-0.50	
Perylene-d12	60928	25.126	95995	25.056	63	50 - 200	0.070	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0325
Instrument: NT10
Calibration: CG00040

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SHH0325-ICV1)		(Solid)	Lab File ID: NT1019082206.D				Analyzed: 08/22/19 16:51		
1,4-Dichlorobenzene-d4	33224	8.329	33224	8.329	100	50 - 200	0.000	+/-0.50	
Naphthalene-d8	115460	10.765	115460	10.765	100	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	65356	14.308	65356	14.308	100	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	120268	17.291	120268	17.291	100	50 - 200	0.000	+/-0.50	
Chrysene-d12	104424	22.383	104424	22.383	100	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	246846	23.49	246846	23.49	100	50 - 200	0.000	+/-0.50	
Perylene-d12	96085	24.721	96085	24.721	100	50 - 200	0.000	+/-0.50	
Low Cal Check (SHH0325-LCV1)		(Solid)	Lab File ID: NT1019082207.D				Analyzed: 08/22/19 17:29		
1,4-Dichlorobenzene-d4	41079	8.329	33224	8.329	124	50 - 200	0.000	+/-0.50	
Naphthalene-d8	147412	10.757	115460	10.765	128	50 - 200	-0.008	+/-0.50	
Acenaphthene-d10	75240	14.308	65356	14.308	115	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	142562	17.291	120268	17.291	119	50 - 200	0.000	+/-0.50	
Chrysene-d12	129207	22.383	104424	22.383	124	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	259042	23.49	246846	23.49	105	50 - 200	0.000	+/-0.50	
Perylene-d12	104410	24.721	96085	24.721	109	50 - 200	0.000	+/-0.50	
Low Cal Check (SHH0325-LCV2)		(Solid)	Lab File ID: NT1019082208.D				Analyzed: 08/22/19 18:06		
1,4-Dichlorobenzene-d4	42990	8.321	33224	8.329	129	50 - 200	-0.008	+/-0.50	
Naphthalene-d8	151864	10.757	115460	10.765	132	50 - 200	-0.008	+/-0.50	
Acenaphthene-d10	80067	14.308	65356	14.308	123	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	154350	17.291	120268	17.291	128	50 - 200	0.000	+/-0.50	
Chrysene-d12	132329	22.383	104424	22.383	127	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	284744	23.49	246846	23.49	115	50 - 200	0.000	+/-0.50	
Perylene-d12	107987	24.721	96085	24.721	112	50 - 200	0.000	+/-0.50	
SL4-SG-WC3-2019 (19H0024-03RE1)		(Solid)	Lab File ID: NT1019082209.D				Analyzed: 08/22/19 18:44		
1,4-Dichlorobenzene-d4	47716	8.329	33224	8.329	144	50 - 200	0.000	+/-0.50	
Naphthalene-d8	177856	10.764	115460	10.765	154	50 - 200	-0.001	+/-0.50	
Acenaphthene-d10	89128	14.308	65356	14.308	136	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	175774	17.298	120268	17.291	146	50 - 200	0.007	+/-0.50	
Chrysene-d12	92508	22.391	104424	22.383	89	50 - 200	0.008	+/-0.50	
Di-n-Octylphthalate-d4	208202	23.498	246846	23.49	84	50 - 200	0.008	+/-0.50	
Perylene-d12	73697	24.737	96085	24.721	77	50 - 200	0.016	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0325
Instrument: NT10
Calibration: CG00040

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SL4-SG-WC7-2019 (19H0024-04RE1)		(Solid)		Lab File ID: NT1019082210.D				Analyzed: 08/22/19 19:21	
1,4-Dichlorobenzene-d4	48001	8.329	33224	8.329	144	50 - 200	0.000	+/-0.50	
Naphthalene-d8	178802	10.764	115460	10.765	155	50 - 200	-0.001	+/-0.50	
Acenaphthene-d10	90049	14.308	65356	14.308	138	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	175008	17.298	120268	17.291	146	50 - 200	0.007	+/-0.50	
Chrysene-d12	89684	22.383	104424	22.383	86	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	199098	23.49	246846	23.49	81	50 - 200	0.000	+/-0.50	
Perylene-d12	71450	24.729	96085	24.721	74	50 - 200	0.008	+/-0.50	
SL4-SG-WC7-FD-2019 (19H0024-05RE1)		(Solid)		Lab File ID: NT1019082211.D				Analyzed: 08/22/19 19:59	
1,4-Dichlorobenzene-d4	49556	8.321	33224	8.329	149	50 - 200	-0.008	+/-0.50	
Naphthalene-d8	184507	10.757	115460	10.765	160	50 - 200	-0.008	+/-0.50	
Acenaphthene-d10	92568	14.308	65356	14.308	142	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	176757	17.291	120268	17.291	147	50 - 200	0.000	+/-0.50	
Chrysene-d12	91147	22.383	104424	22.383	87	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	201851	23.49	246846	23.49	82	50 - 200	0.000	+/-0.50	
Perylene-d12	69438	24.729	96085	24.721	72	50 - 200	0.008	+/-0.50	
SL4-SG-WC8-2019 (19H0024-06RE1)		(Solid)		Lab File ID: NT1019082212.D				Analyzed: 08/22/19 20:36	
1,4-Dichlorobenzene-d4	47929	8.329	33224	8.329	144	50 - 200	0.000	+/-0.50	
Naphthalene-d8	179858	10.764	115460	10.765	156	50 - 200	-0.001	+/-0.50	
Acenaphthene-d10	91491	14.308	65356	14.308	140	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	173163	17.299	120268	17.291	144	50 - 200	0.008	+/-0.50	
Chrysene-d12	93668	22.383	104424	22.383	90	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	210098	23.49	246846	23.49	85	50 - 200	0.000	+/-0.50	
Perylene-d12	71571	24.729	96085	24.721	74	50 - 200	0.008	+/-0.50	
SL4-SG-WC4-2019 (19H0024-07RE1)		(Solid)		Lab File ID: NT1019082213.D				Analyzed: 08/22/19 21:13	
1,4-Dichlorobenzene-d4	46723	8.329	33224	8.329	141	50 - 200	0.000	+/-0.50	
Naphthalene-d8	180986	10.764	115460	10.765	157	50 - 200	-0.001	+/-0.50	
Acenaphthene-d10	92132	14.308	65356	14.308	141	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	178757	17.291	120268	17.291	149	50 - 200	0.000	+/-0.50	
Chrysene-d12	94419	22.383	104424	22.383	90	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	209094	23.49	246846	23.49	85	50 - 200	0.000	+/-0.50	
Perylene-d12	72332	24.729	96085	24.721	75	50 - 200	0.008	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0325
Instrument: NT10
Calibration: CG00040

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SL4-SG-WC2-2019 (19H0024-08RE1)		(Solid)		Lab File ID: NT1019082214.D				Analyzed: 08/22/19 21:50	
1,4-Dichlorobenzene-d4	54148	8.329	33224	8.329	163	50 - 200	0.000	+/-0.50	
Naphthalene-d8	199599	10.757	115460	10.765	173	50 - 200	-0.008	+/-0.50	
Acenaphthene-d10	100710	14.308	65356	14.308	154	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	192091	17.291	120268	17.291	160	50 - 200	0.000	+/-0.50	
Chrysene-d12	98861	22.383	104424	22.383	95	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	224713	23.49	246846	23.49	91	50 - 200	0.000	+/-0.50	
Perylene-d12	76753	24.729	96085	24.721	80	50 - 200	0.008	+/-0.50	
SL4-SG-WC1-2019 (19H0024-09RE1)		(Solid)		Lab File ID: NT1019082215.D				Analyzed: 08/22/19 22:26	
1,4-Dichlorobenzene-d4	50282	8.329	33224	8.329	151	50 - 200	0.000	+/-0.50	
Naphthalene-d8	186968	10.765	115460	10.765	162	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	93404	14.308	65356	14.308	143	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	176604	17.291	120268	17.291	147	50 - 200	0.000	+/-0.50	
Chrysene-d12	85915	22.383	104424	22.383	82	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	196945	23.49	246846	23.49	80	50 - 200	0.000	+/-0.50	
Perylene-d12	68364	24.729	96085	24.721	71	50 - 200	0.008	+/-0.50	
SL4-IC-SC2-2019 (19H0024-10RE1)		(Solid)		Lab File ID: NT1019082216.D				Analyzed: 08/22/19 23:03	
1,4-Dichlorobenzene-d4	49266	8.329	33224	8.329	148	50 - 200	0.000	+/-0.50	
Naphthalene-d8	179424	10.757	115460	10.765	155	50 - 200	-0.008	+/-0.50	
Acenaphthene-d10	92600	14.308	65356	14.308	142	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	176143	17.291	120268	17.291	146	50 - 200	0.000	+/-0.50	
Chrysene-d12	85515	22.383	104424	22.383	82	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	186040	23.49	246846	23.49	75	50 - 200	0.000	+/-0.50	
Perylene-d12	65472	24.729	96085	24.721	68	50 - 200	0.008	+/-0.50	
SL4-IC-SC3-2019 (19H0024-11RE1)		(Solid)		Lab File ID: NT1019082217.D				Analyzed: 08/22/19 23:40	
1,4-Dichlorobenzene-d4	49381	8.329	33224	8.329	149	50 - 200	0.000	+/-0.50	
Naphthalene-d8	184350	10.765	115460	10.765	160	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	88538	14.308	65356	14.308	135	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	166753	17.291	120268	17.291	139	50 - 200	0.000	+/-0.50	
Chrysene-d12	85427	22.383	104424	22.383	82	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	192079	23.49	246846	23.49	78	50 - 200	0.000	+/-0.50	
Perylene-d12	66654	24.729	96085	24.721	69	50 - 200	0.008	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0325
Instrument: NT10
Calibration: CG00040

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (SHH0325-CCV1)		(Solid)		Lab File ID: NT1019082221.D				Analyzed: 08/23/19 02:07	
1,4-Dichlorobenzene-d4	32142	8.329	33224	8.329	97	50 - 200	0.000	+/-0.50	
Naphthalene-d8	114280	10.764	115460	10.765	99	50 - 200	-0.001	+/-0.50	
Acenaphthene-d10	62320	14.308	65356	14.308	95	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	118748	17.291	120268	17.291	99	50 - 200	0.000	+/-0.50	
Chrysene-d12	87860	22.383	104424	22.383	84	50 - 200	0.000	+/-0.50	
Di-n-Octylphthalate-d4	192564	23.483	246846	23.49	78	50 - 200	-0.007	+/-0.50	
Perylene-d12	65592	24.721	96085	24.721	68	50 - 200	0.000	+/-0.50	

HOLDING TIME SUMMARY

Analysis: EPA 8270D

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
SL4-SG-WC3-FW-2019 19H0024-02	08/01/19 07:30	08/01/19 13:05	08/13/19 11:20	12	14	08/21/19 23:52	9	40	
SL4-SG-WC3-2019 19H0024-03	08/01/19 08:16	08/01/19 13:05	08/13/19 12:40	12	14	08/21/19 17:00	8	40	
SL4-SG-WC3-2019 19H0024-03RE1	08/01/19 08:16	08/01/19 13:05	08/13/19 12:40	12	14	08/22/19 18:44	9	40	
SL4-SG-WC7-2019 19H0024-04	08/01/19 08:39	08/01/19 13:05	08/13/19 12:40	12	14	08/21/19 17:38	8	40	
SL4-SG-WC7-2019 19H0024-04RE1	08/01/19 08:39	08/01/19 13:05	08/13/19 12:40	12	14	08/22/19 19:21	9	40	
SL4-SG-WC7-FD-2019 19H0024-05	08/01/19 08:39	08/01/19 13:05	08/13/19 12:40	12	14	08/21/19 18:15	8	40	
SL4-SG-WC7-FD-2019 19H0024-05RE1	08/01/19 08:39	08/01/19 13:05	08/13/19 12:40	12	14	08/22/19 19:59	9	40	
SL4-SG-WC8-2019 19H0024-06	08/01/19 09:08	08/01/19 13:05	08/13/19 12:40	12	14	08/21/19 18:53	8	40	
SL4-SG-WC8-2019 19H0024-06RE1	08/01/19 09:08	08/01/19 13:05	08/13/19 12:40	12	14	08/22/19 20:36	9	40	
SL4-SG-WC4-2019 19H0024-07	08/01/19 10:08	08/01/19 13:05	08/13/19 12:40	12	14	08/21/19 19:31	8	40	
SL4-SG-WC4-2019 19H0024-07RE1	08/01/19 10:08	08/01/19 13:05	08/13/19 12:40	12	14	08/22/19 21:13	9	40	
SL4-SG-WC2-2019 19H0024-08	08/01/19 10:30	08/01/19 13:05	08/13/19 12:40	12	14	08/21/19 20:08	8	40	
SL4-SG-WC2-2019 19H0024-08RE1	08/01/19 10:30	08/01/19 13:05	08/13/19 12:40	12	14	08/22/19 21:50	9	40	
SL4-SG-WC1-2019 19H0024-09	08/01/19 10:43	08/01/19 13:05	08/13/19 12:40	12	14	08/21/19 20:45	8	40	
SL4-SG-WC1-2019 19H0024-09RE1	08/01/19 10:43	08/01/19 13:05	08/13/19 12:40	12	14	08/22/19 22:26	9	40	
SL4-IC-SC2-2019 19H0024-10	08/01/19 11:45	08/01/19 13:05	08/13/19 12:40	12	14	08/21/19 21:23	8	40	
SL4-IC-SC2-2019 19H0024-10RE1	08/01/19 11:45	08/01/19 13:05	08/13/19 12:40	12	14	08/22/19 23:03	9	40	
SL4-IC-SC3-2019 19H0024-11	08/01/19 12:10	08/01/19 13:05	08/13/19 12:40	12	14	08/21/19 22:00	8	40	
SL4-IC-SC3-2019 19H0024-11RE1	08/01/19 12:10	08/01/19 13:05	08/13/19 12:40	12	14	08/22/19 23:40	9	40	
Matrix Spike BHH0289-MS1	08/01/19 08:16	08/01/19 13:05	08/13/19 12:40	12	14	08/21/19 15:44	8	40	
Matrix Spike Dup BHH0289-MSD1	08/01/19 08:16	08/01/19 13:05	08/13/19 12:40	12	14	08/21/19 16:22	8	40	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 8270D

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix: Solid Instrument: NT10

Analyte	MDL	RL	Units
Phenol	8.2	20.0	ug/kg
Benzyl Alcohol	14.9	20.0	ug/kg
Benzoic acid	59.1	200	ug/kg
N-Nitrosodiphenylamine	9.6	20.0	ug/kg
Phenanthrene	4.7	20.0	ug/kg
Fluoranthene	4.5	20.0	ug/kg
Pyrene	5.6	20.0	ug/kg
Butylbenzylphthalate	8.1	20.0	ug/kg
Benzo(a)anthracene	5.2	20.0	ug/kg
Chrysene	5.2	20.0	ug/kg
bis(2-Ethylhexyl)phthalate	28.8	50.0	ug/kg
Di-n-Octylphthalate	8.7	20.0	ug/kg
Benzofluoranthenes, Total	10.2	40.0	ug/kg
Benzo(a)pyrene	6.5	20.0	ug/kg
Indeno(1,2,3-cd)pyrene	6.0	20.0	ug/kg
Dibenzo(a,h)anthracene	6.2	20.0	ug/kg
Benzo(g,h,i)perylene	5.8	20.0	ug/kg

METHOD DETECTION AND REPORTING LIMITS

EPA 8270D

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix: Wipes Instrument: NT10

Analyte	MDL	RL	Units
Phenol		0.2	ug/Wipe
Benzyl Alcohol		0.2	ug/Wipe
Benzoic acid		2.0	ug/Wipe
N-Nitrosodiphenylamine		0.2	ug/Wipe
Phenanthrene		0.2	ug/Wipe
Fluoranthene		0.2	ug/Wipe
Pyrene		0.2	ug/Wipe
Butylbenzylphthalate		0.2	ug/Wipe
Benzo(a)anthracene		0.2	ug/Wipe
Chrysene		0.2	ug/Wipe
bis(2-Ethylhexyl)phthalate		0.5	ug/Wipe
Di-n-Octylphthalate		0.2	ug/Wipe
Benzofluoranthenes, Total		0.4	ug/Wipe
Benzo(a)pyrene		0.2	ug/Wipe
Indeno(1,2,3-cd)pyrene		0.2	ug/Wipe
Dibenzo(a,h)anthracene		0.2	ug/Wipe
Benzo(g,h,i)perylene		0.2	ug/Wipe

Analytical Resources, Incorporated

Analytical Standard Record
Analytical Resources, Inc.
Standard ID: B001941

Printed: 9/25/2013 1:45:31PM

Description:	SVOC 2,4-Dinitrophenol	Expires:	31-Dec-29
Standard Type:	Calibration Stan	Prepared:	25-Sep-13
Solvent:	NA	Prepared By:	Jianqing Zhou
Final Volume (mls):	1	Department:	Organics
Vials:	1	Last Edit:	25-Sep-13 13:45 by JZ
Vendor:	SIGMA	Lot #:	65H5021
Vendor Catalog #:			

Comments

Neat, Purity @ 90-95%. (ARI#: 0466)

Analyte	CAS Number	Concentration	Units
2,4-Dinitrophenol	51-28-5	1000000	ug/mL

Reviewed By Date

Appendix 20.1

ALTERNATE CERTIFICATE OF ANALYSIS

The manufacturer of the below chemical was unable to provide a Certificate of Analysis at the time of request by ARI.

Date Requested from Manufacturer:_____

Chemical: 2.4-Dinitrophenol

Manufacturer: Sigma

Product #: _____

Lot #: 65H 5021

Purity: 90~95%

Analyst: [signature]

Analytical Resources, Incorporated

Analytical Standard Record
Analytical Resources, Inc.
Standard ID: B001945

Printed: 9/25/2013 3:23:22PM

Description:	SVOC Benzoic Acid	Expires:	31-Dec-29
Standard Type:	Calibration Stan	Prepared:	31-Dec-12
Solvent:	NA	Prepared By:	Jianqing Zhou
Final Volume (mls):	1	Department:	Organics
Vials:	1	Last Edit:	25-Sep-13 15:23 by JZ
Vendor:	ACROS Organics	Lot #:	A0224339
Vendor Catalog #:			

Comments

Neat, Purity @ 98%.

Analyte	CAS Number	Concentration	Units
Benzoic acid	65-85-0	1000000	ug/mL

Reviewed By Date

Appendix 20.1

ALTERNATE CERTIFICATE OF ANALYSIS

The manufacturer of the below chemical was unable to provide a Certificate of Analysis at the time of request by ARI.

Date Requested from Manufacturer:_____

Chemical: Benzoic Acid

Manufacturer: Acros Organics

Product #: _____

Lot #: A0224339

Purity: 98%

Analyst: _____

Analytical Resources, Incorporated

Analytical Standard Record
Analytical Resources, Inc.
Standard ID: B001948

Printed: 9/25/2013 3:37:51PM

Description:	SVOC 4,6-Dinitro-2-Methylphenol	Expires:	31-Dec-29
Standard Type:	Calibration Stan	Prepared:	25-Sep-13
Solvent:	NA	Prepared By:	Jianqing Zhou
Final Volume (mls):	1	Department:	Organics
Vials:	1	Last Edit:	25-Sep-13 15:37 by JZ
Vendor:	Chem Service	Lot #:	179-31A
Vendor Catalog #:			

Comments

Neat, Purity @ 99%. (ARI#: 009A)

Analyte	CAS Number	Concentration	Units
4,6-Dinitro-2-methylphenol	534-52-1	1000000	ug/mL

Reviewed By Date

Appendix 20.1

ALTERNATE CERTIFICATE OF ANALYSIS

The manufacturer of the below chemical was unable to provide a Certificate of Analysis at the time of request by ARI.

Date Requested from Manufacturer: _____

Chemical: 4,6-Dinitro-2-Methylphenol

Manufacturer: Chem Service

Product #: _____

Lot #: 179-31A

Purity: 99%

Analyst: KB

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Product Name: DI-N-OCTYL PHTHALATE
(Isotopic Label & Enrichment Specification) (RING-D4, 98%)

Lot Number: PR-14719

Catalog Number: DLM-1630-0

Product Information

Chemical Purity Specification: ≥ 98%

MW*: 394.58
** For isotopically labeled compounds, MW listed is for the fully enriched product.*

Labeled CAS Number: 93952-13-7

Unlabeled CAS Number: 117-84-0

Chemical Formula: C6D4-1,2-(CO2(CH2)7CH3)2

Storage: Store at room temperature away from light and moisture.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

The retest date for this chemical has been designated based on CIL's experience in working with chemical standards for over 30 years, and includes review of actual analytical results and relevant literature references. The retest date is valid only for unopened vials or ampoules that have been stored as recommended.

Approved by: Jeffrey O Neill

Jeffrey O'Neill, Quality Review

Quality Control Tests and Results

1H NMR for Chemical Purity	Pass
GC/MS for Chemical Purity	99.8%
GC/MS for Isotopic Enrichment	99.1%

Additional Testing Information:

Retest/Review Date: 01/17/23

Certificate of Analysis

Phenova Certified Reference Materials are sold by Phenomenex.
411 Madrid Ave , Torrance CA 90501 USA ▪ Tel 310-212-0555 ▪ Fax 310-328-7768 ▪ info@phenomenex.com
Access your MSDS and digital C of A at **www.phenomenex.com/mysupport Re-order at www.phenomenex.com/standards**

Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.: AL0-101291
Description: GC/MS Tuning Mix
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Methylene chloride

Lot Number: CL10999
Certification Date: May 9, 2014
Expiration Date: December 31, 2023
Revision Date: June 19, 2015

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty (%)
Benzidine	92-87-5	1000	± 4.575%
Decafluorotriphenylphosphine (DFTPP)	5074-71-5	1000	± 2.420%
4,4'-DDT	50-29-3	1000	± 2.772%
Pentachlorophenol	87-86-5	1000	± 2.616%

005754
Recd.
10/21/16

ACCREDITED
Reference Material Producer
Certificate No 2427 02

phenova
Certified Reference Materials

Manufactured by Phenova, Inc.
Phenova s testing and calibration results are internationally recognized through the ILAC MRA Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory

ilac-MRA ACCREDITED
Chemical Testing Laboratory
Certificate No 2427 03

IL111106i3 us

Certificate of Analysis

Phenova Certified Reference Materials are sold by Phenomenex.
411 Madrid Ave., Torrance, CA 90501 USA ▪ Tel 310-212-0555 ▪ Fax 310-328-7768 ▪ info@phenomenex.com
Access your MSDS and digital C of A at **www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards**

1. Quality Document This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35 [2]

2 Quality Standards. Phenova is accredited by A2LA to ISO Guide 34[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials This ensures that our manufacturing processes have been accredited to and meet strict international standards

3. Intended Use The product is manufactured for use in the calibration and calibration verification of chromatographic instrumentation performed in routine laboratory analysis

4. Instruction: Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved Dilute as required, use only class A glassware and diluents compatible with all certified analytes in the mixture.

5. Hazardous Situation. The product is intended for use by experienced professional personnel. A Material Safety Data Sheet (MSDS) is available at www phenomenex.com/mysupport

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7 Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials The purity of this material was verified using an ISO/IEC Guide 17025 methodology

9 Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS) The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO Guide 34. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC Guide 17025 methodology.

11. Values Obtained During Product Testing. This product is subjected to verification, homogeneity and stability testing using an ISO/IEC Guide 17025 chromatographic methodology All values obtained during testing meet criteria in accordance with ISO Guide 34

12 Period of Validity. The Certified Values and their uncertainties are guaranteed until the expiration date This product will be monitored during the period of validity and customers notified of any significant changes in stability

References:

[1] ISO Guide 31:2000(E) – Reference Materials – Contents of Certificates and Labels
[2] ISO Guide 35:2006(E) – Reference Material – General and Statistical Principles for Certification
[3] ISO Guide 34 2009(E) – General Requirements for the Competence of Reference Material Producers
[4] ISO/IEC Guide 17025 2005(E) – General Requirements for the Competence of Testing and Calibration Laboratories
[5] ISO/IEC Guide 98-3 2008(E) – Uncertainty of Measurement – Part 3 Guide to Expression of Uncertainty in Measurement (GUM 1995)

ACCREDITED
Reference Material Producer
Certificate No 2427.02

Manufactured by Phenova, Inc.
Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ACCREDITED
Chemical Testing Laboratory
Certificate No 2427.03

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31206 **Lot No.:** A0134523

Description : SV Internal Standard Mix 2mg/ml

SV Internal Standard Mix 2mg/ml 2000 µg/ml, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2023 **Storage:** 10°C or colder

Handling: Sonication required. Mix is photosensitive.

G002461
Reed 3/21/19

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	1,4-Dichlorobenzene-d4	2,001.4 µg/mL	+/- 11.6363 µg/mL	Gravimetric
	CAS # 3855-82-1 (Lot PR-18488)		+/- 90.1443 µg/mL	Unstressed
	Purity 99%		+/- 100.0262 µg/mL	Stressed
2	Naphthalene-d8	2,003.9 µg/mL	+/- 11.6508 µg/mL	Gravimetric
	CAS # 1146-65-2 (Lot M-1452)		+/- 90.2569 µg/mL	Unstressed
	Purity 99%		+/- 100.1511 µg/mL	Stressed
3	Acenaphthene-d10	2,005.7 µg/mL	+/- 11.6613 µg/mL	Gravimetric
	CAS # 15067-26-2 (Lot PR-25444)		+/- 90.3379 µg/mL	Unstressed
	Purity 99%		+/- 100.2411 µg/mL	Stressed
4	Phenanthrene-d10	2,018.9 µg/mL	+/- 11.7381 µg/mL	Gravimetric
	CAS # 1517-22-2 (Lot PR-23065)		+/- 90.9325 µg/mL	Unstressed
	Purity 99%		+/- 100.9008 µg/mL	Stressed
5	Chrysene-d12	2,013.3 µg/mL	+/- 11.7055 µg/mL	Gravimetric
	CAS # 1719-03-5 (Lot PR-27952)		+/- 90.6802 µg/mL	Unstressed
	Purity 99%		+/- 100.6209 µg/mL	Stressed
6	Perylene-d12	2,012.6 µg/mL	+/- 11.7014 µg/mL	Gravimetric
	CAS # 1520-96-3 (Lot PR-24113)		+/- 90.6487 µg/mL	Unstressed
	Purity 99%		+/- 100.5859 µg/mL	Stressed

Certificate of Analysis

SS TCL PAH MIX,1X1ML,2000UG/ML,MECL:BENZENE, 50:50

Certified Reference Material

Product ID 4S8905
Lot LRAB7863
Expiration Date February 2021
Storage Conditions Refrigerate
Solvent/Matrix METHYLENE CHLORIDE:BENZENE (50:50)

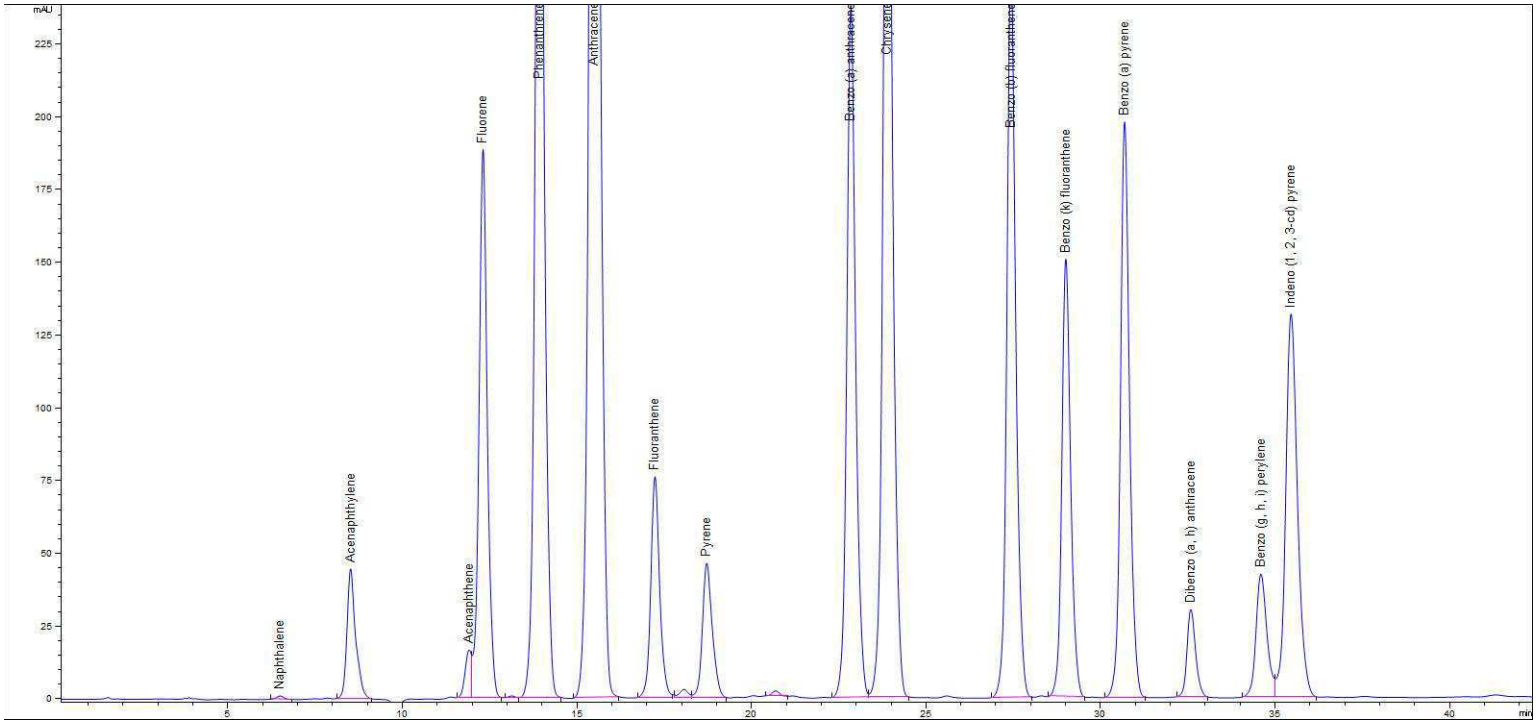
Analyte	*Units*	*Certified Value* [1,4]	*Raw Material Purity,%*	*Elution order*	*Raw Material Lot*	*CAS*
NAPHTHALENE, SS	µg/ml	2000 ± 60	100	1	MKBX4141V	91-20-3
ACENAPHTHYLENE, SS	µg/ml	2000 ± 60	96.2	2	LC12204	208-96-8
ACENAPHTHENE, SS	µg/ml	2000 ± 60	99.9	3	MKCC8329	83-32-9
FLUORENE, SS	µg/ml	2000 ± 60	99	4	01106CN	86-73-7
PHENANTHRENE, SS	µg/ml	2000 ± 60	98.7	5	LB46705	85-01-8
ANTHRACENE, SS	µg/ml	2000 ± 60	99.4	6	LB43311	120-12-7
FLUORANTHENE, SS	µg/ml	2000 ± 60	98.3	7	12301LZ	206-44-0
PYRENE, SS	µg/ml	2000 ± 60	98.3	8	09519HR	129-00-0
BENZO (A) ANTHRACENE, SS	µg/ml	2000 ± 60	99.9	9	LC04263	56-55-3
CHRYSENE, SS	µg/ml	2000 ± 60	99.3	10	LC06232	218-01-9
BENZO (B) FLUORANTHENE, SS	µg/ml	2000 ± 60	99.9	11	LC19281	205-99-2
BENZO (K) FLUORANTHENE, SS	µg/ml	2000 ± 60	99.2	12	BCBS8580V	207-08-9
BENZO (A) PYRENE, SS	µg/ml	2000 ± 60	99	13	SLBS0038V	50-32-8
DIBENZO (A,H) ANTHRACENE, SS	µg/ml	2000 ± 60	99.9	14	LC17257	53-70-3
BENZO (G,H,I) PERYLENE, SS	µg/ml	2000 ± 60	96.3	15	LB95652	191-24-2
INDENO (1,2,3-CD) PYRENE, SS	µg/ml	2000 ± 60	99.5	16	ER08210702	193-39-5

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

SIGMA-ALDRICH®
2931 Soldier Springs Rd. Laramie, Wyoming 82070 USA
307-742-5452
rtctechgroup@sial.com www.sigma-aldrich.com

Lot **LRAB7863**
Expiration Date February 2021
Storage Conditions Refrigerate
Solvent/Matrix METHYLENE CHLORIDE:BENZENE (50:50)



Additional Information:

Column: Supelcosil-LC-PAH 25.0 cm x 4.6 mm x 5.0 um
Injection vol: 5.0 uL
Detector: UV-254 nm
Mobile Phases: A=DI Water B= ACN
Gradient: time (min) %B
0 60%
5 60%
30 100%
45 100%
46 60%
Post –run: 8.0 min

Certificate of Analysis

SS TCL PAH MIX,1X1ML,2000UG/ML,MECL:BENZENE, 50:50

Certified Reference Material

Product ID 4S8905
Lot LRAB7863
Expiration Date February 2021
Storage Conditions Refrigerate
Solvent/Matrix METHYLENE CHLORIDE:BENZENE (50:50)

1 Certified value - based on the robust mean of round robin, interlaboratory study and analytically verified by RTC with associated uncertainties from the preparation and analytical procedures.
2 The standard deviation is the robust statistical standard deviation from the round robin interlaboratory study.
3 Acceptance limits are based on Interlaboratory Study Results. These ranges are recommendations only.
4 Ucrm - Uncertainty values in this document are expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k, which is obtained from a *t*-distribution and degrees of freedom. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long term stability, and short term stability (transport). The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies. The mathematical representation of the Ucrm calculation is as follows:

$$u_{CRM} = \sqrt{u_{char}^2 + u_{\text{hom}\ ogeneity}^2 + u_{stability}^2}$$

5 ***k***: Coverage factor derived from a t-distribution table, based on the degrees of freedom of the data set. **Confidence interval = 95%**

Traceability: The standard was manufactured under an ISO/IEC 17025:2005 certified quality system. The balance used to weigh raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All dilutions were preformed gravimetrically. Additionally, individual analytes are traceable to NIST SRMs where available and specified above.

Homogeneity: Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared using a one-way analysis of variance approach as described by TNI EL-V3-2009 Appendix A.2. See Instructions for minimum sub-sample size.

Expiration is at end of month given on certificate and label.

THIS PRODUCT WAS DESIGNED, PRODUCED AND VERIFIED FOR ACCURACY AND STABILITY IN ACCORDANCE WITH ISO/IEC 17025:2005 (ANAB Cert AT-1467) and ISO GUIDE 34:2009 (ANAB Cert AR-1470).

MSDS reports for components comprising greater than 1.0% of the solution or 0.1% for components known to be carcinogens are available upon request.

Robert O'Brien - QC Supervisor

Mark Pooler - QA Supervisor

Certification Date April 08, 2018
Version 31047-482018

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

SIGMA-ALDRICH®
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ULTRA SCIENTIFIC
Analytical Solutions

6 00316

Certificate of Analysis

Toxic Substances Mixture #2

Product Number US-104N **Page:** 1 of 1

Lot Number: CR-0659 **Lot Issue Date:** 20-Feb-2017 **Expiration Date:** 31-Mar-2020

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
aniline	000062-53-3	RM01326	2010 ± 10 µg/mL
benzyl alcohol	000100-51-6	RM10547	2009 ± 10 µg/mL
4-chloroaniline	000106-47-8	RM01886	1999 ± 10 µg/mL
dibenzofuran	000132-64-9	RM02077	2000 ± 10 µg/mL
2-methylnaphthalene	000091-57-6	RM01258	1994 ± 10 µg/mL
2-nitroaniline	000088-74-4	RM02402	2005 ± 10 µg/mL
3-nitroaniline	000099-09-2	RM00427	2008 ± 10 µg/mL
4-nitroaniline	000100-01-6	RM02425	2009 ± 10 µg/mL

Matrix: methylene chloride (dichloromethane)

Storage: Store at Room Temperature (15° to 30°C).

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards

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ISO 9001
Registered
TUV USA Inc.

John Russo
President

Monica Bourgeois
Director of QA/RA

TraceCERT®
Traceable Certified Reference Materials

SUPELCO
Solutions within.™
595 North Harrison Road · Bellefonte, PA
16823-0048 USA · Phone(814)359-3441

Certificate of Analysis

Description: TCL Benzidines Mix, 1x1ml, 2000µg/ml each in methanol

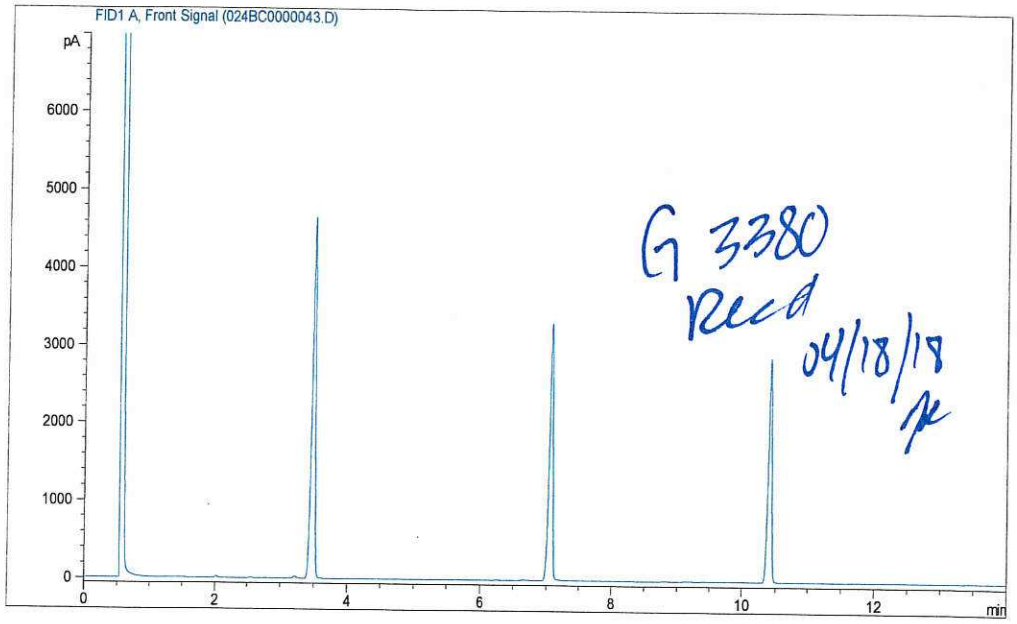
Part Number: 48906

Lot Number: XA26144V

Expiration Date: April 2020

Storage: Refrigerate

Analytical Method Parameters:
Column: SPB-5 30m x 0.53mm, 1.5µm df
200°C (4 min) to 300°C at 10°C/min
Detector: FID, 310°C
Injection Volume: 1 µL



Elution	Analyte	Lot Number	CAS Number	Chromatographic Purity %	Certified Gravimetric Conc. µg/ml	Ucrm µg/ml	Analytical Conc. µg/ml
	Internal Standard	N/A	N/A	N/A	N/A	N/A	N/A
2.	Benzidine	LB83682	92-87-5	99.9	1998.0	±120	1882.5
3.	3,3'-Dichlorobenzidine	LC24307	91-94-1	99.9	1997.2	±120	1996.6

ANAB ACCREDITED TESTING LABORATORY
Cert# AT-1607

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER
Cert# AR-1606

Produced in double accredited laboratory fulfilling
ISO/IEC 17025 and
ISO Guide 34

SIGMA-ALDRICH®

Notes:

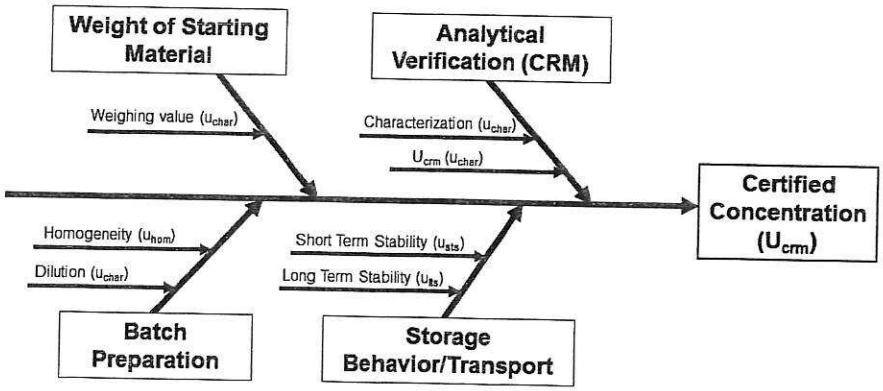
• NIST traceable weights are used to verify balance calibration with the preparation of each lot. Concentration of analyte in solution is µg/ml.

• Certified value is the gravimetric concentration weighed at room temperature and verified analytically by comparison to an independent Certified Reference Material. Uncertainty of the gravimetric concentration in this document is expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k = 2. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long-term stability and short-term stability. The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies.

• Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared by Single Factor Analysis of Variance (ANOVA). The uncertainty due to homogeneity was derived from the ANOVA. Heterogeneity was not detected under the conditions of the ANOVA.

• Product intended for laboratory use only. Supelco warrants that its products conform to the information contained in this publication. Purchaser must determine the suitability of the product for its particular use. Please see the latest catalog or order invoice and packing slip for additional terms and conditions of sale.

Cause-Effect Diagram for Uncertainty Contributions



$$U_{crm} = k\sqrt{u_{char}^2 + u_{hom}^2 + u_{sts}^2 + u_{lts}^2}$$

Test Date: April 13, 2017
Form: 48906

Duane Funk
QC Manager

ANAB ACCREDITED TESTING LABORATORY Cert# AT-1607

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER Cert# AR-1606

Produced in double accredited laboratory fulfulling ISO/IEC 17025 and ISO Guide 34

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Certificate of Analysis

Certified Reference Material

TCL BASE/NEUTRALS MIX 1,1X1ML,2000UG/ML,DICHLOROMETHANE

Product ID 48900-U
Lot LRAB7215
Expiration Date December 2020
Storage Conditions REFRIGERATE
Solvent/Matrix METHLYENE CHLORIDE

Analyte	*Units*	*Certified Value* [1,4]	*k* [5]	*Raw Material Purity*	*Elution Order*	*CAS*
N-NITROSODIMETHYLAMINE	µg/mL	2006 ± 80.0	2.00	99.9%	1	65-75-9
BIS (2-CHLOROETHYL) ETHER	µg/mL	2005 ± 73.3	2.00	99.8%	2	11-44-4
BIS (2-CHLOROISOPROPYL) ETHER	µg/mL	2002 ± 56.7	2.00	98.9%	3	108-60-1
N-NITROSODI-N-PROPYLAMINE	µg/mL	2003 ± 46.7	2.00	99.9%	4	621-64-7
BIS (2-CHLOROETHOXY) METHANE	µg/mL	2009 ± 43.3	2.00	98.7%	5	111-91-1
Internal Standard	µg/mL	±	2.00		6	
DIMETHYL PHTHALATE	µg/mL	2003 ± 36.7	2.00	99.9%	7	131-11-3
DIETHYL PHTHALATE	µg/mL	2001 ± 46.7	2.00	99.9%	8	84-66-2
4-CHLOROPHENYLPHENYL ETHER	µg/mL	2003 ± 40.0	2.00	99.0%	9	7005-72-3
N-NITROSODIPHENYLAMINE	µg/mL	1997 ± 53.3	2.00	96.3%	10	86-30-6
4-BROMOPHENYLPHENYL ETHER	µg/mL	2000 ± 46.7	2.00	98.5%	11	101-55-3
DI-N-BUTYL PHTHALATE	µg/mL	1999 ± 60.0	2.00	99.5%	12	84-74-2
BENZYL BUTYL PHTHALATE	µg/mL	2001 ± 83.3	2.00	98.4%	13	85-68-7
BIS (2-ETHYLHEXYL) PHTHALATE	µg/mL	2002 ± 90.0	2.00	99.7%	14	117-81-7
DI-N-OCTYL PHTHALATE	µg/mL	1999 ± 107	2.00	99.6%	15	117-84-0

G 003811

11/28/18

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SIGMA-ALDRICH
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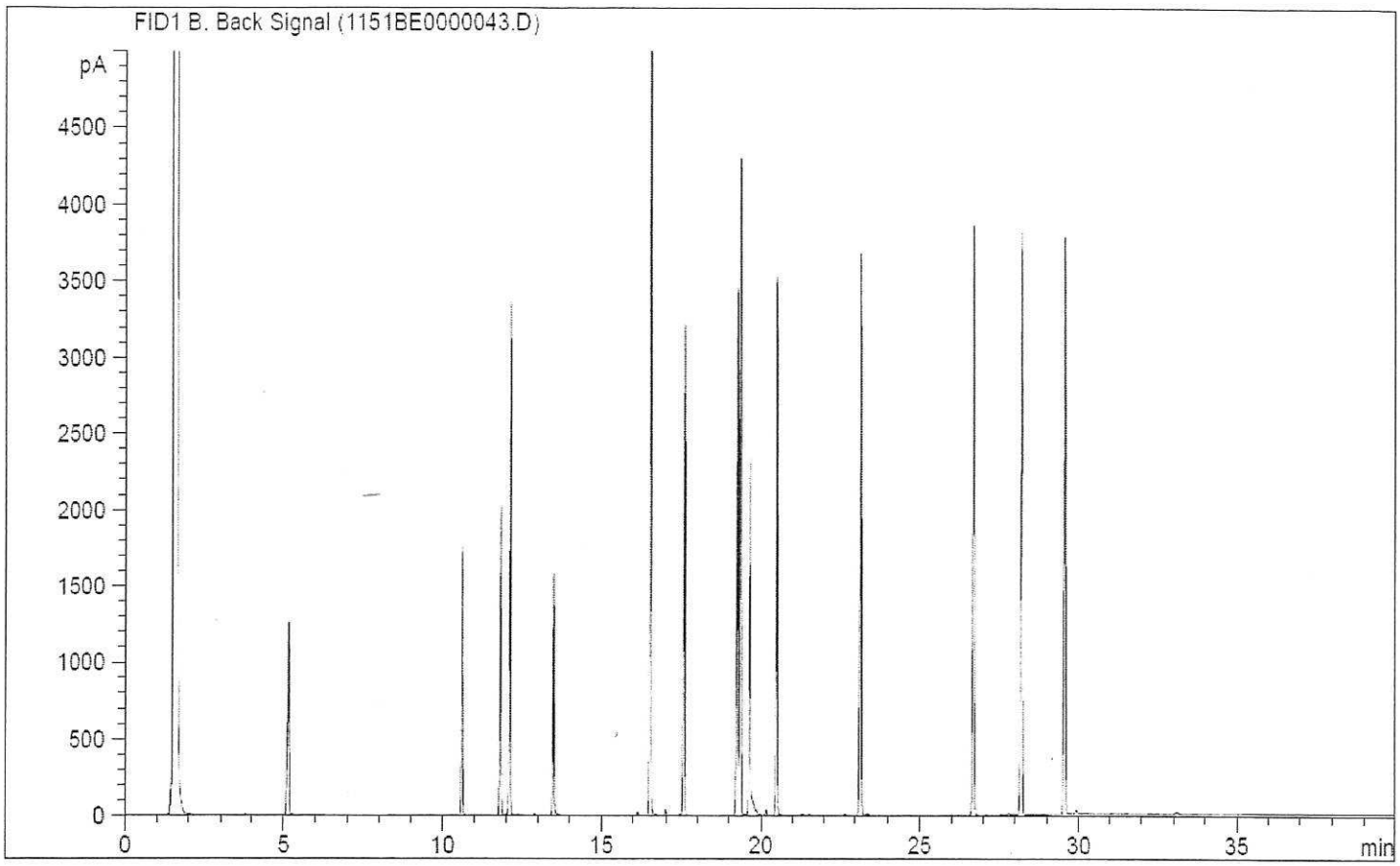
rtctechgroup@sial.com www.sigma-aldrich.com

Lot LRAB7215
Expiration Date December 2020
Storage Conditions REFRIGERATE
Solvent/Matrix METHLYENE CHLORIDE



Analytical Method Parameters:

Column: SPB-5 30m x 0.53mm x 1.5ìm df
40°C for 4 min to 300°C (10 min) at 10°C/min
Detector: FID, 310°C
Injection Volume: 1 ul

Certificate of Analysis

TCL BASE/NEUTRALS MIX 1,1X1ML,2000UG/ML,DICHLOROMETHANE

Certified Reference Material

Product ID 48900-U
Lot LRAB7215
Expiration Date December 2020
Storage Conditions REFRIGERATE
Solvent/Matrix METHLYENE CHLORIDE

1 Certified value - based on the robust mean of round robin, interlaboratory study and analytically verified by RTC with associated uncertainties from the preparation and analytical procedures.
2 The standard deviation is the robust statistical standard deviation from the round robin interlaboratory study.
3 Acceptance limits are based on Interlaboratory Study Results. These ranges are recommendations only.
4 Ucrm - Uncertainty values in this document are expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k, which is obtained from a *t*-distribution and degrees of freedom. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long term stability, and short term stability (transport). The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies. The mathematical representation of the Ucrm calculation is as follows:

$$u_{CRM} = \sqrt{u^2_{char} + u^2_{homogeneity} + u^2_{stability}}$$

5 ***k***: Coverage factor derived from a t-distribution table, based on the degrees of freedom of the data set. **Confidence interval = 95%**

Traceability: The standard was manufactured under an ISO/IEC 17025:2005 certified quality system. The balance used to weigh raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All dilutions were preformed gravimetrically. Additionally, individual analytes are traceable to NIST SRMs where available and specified above.

Homogeneity: Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared using a one-way analysis of variance approach as described by TNI EL-V3-2009 Appendix A.2. See Instructions for minimum sub-sample size.

THIS PRODUCT WAS DESIGNED, PRODUCED AND VERIFIED FOR ACCURACY AND STABILITY IN ACCORDANCE WITH ISO/IEC 17025:2005 (ANAB Cert AT-1467) and ISO GUIDE 34:2009 (ANAB Cert AR-1470).

Robert O'Brien - QC Supervisor

Mark Pooler - QA Supervisor

Certification Date January 11, 2018
Version 30323-1112018

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ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

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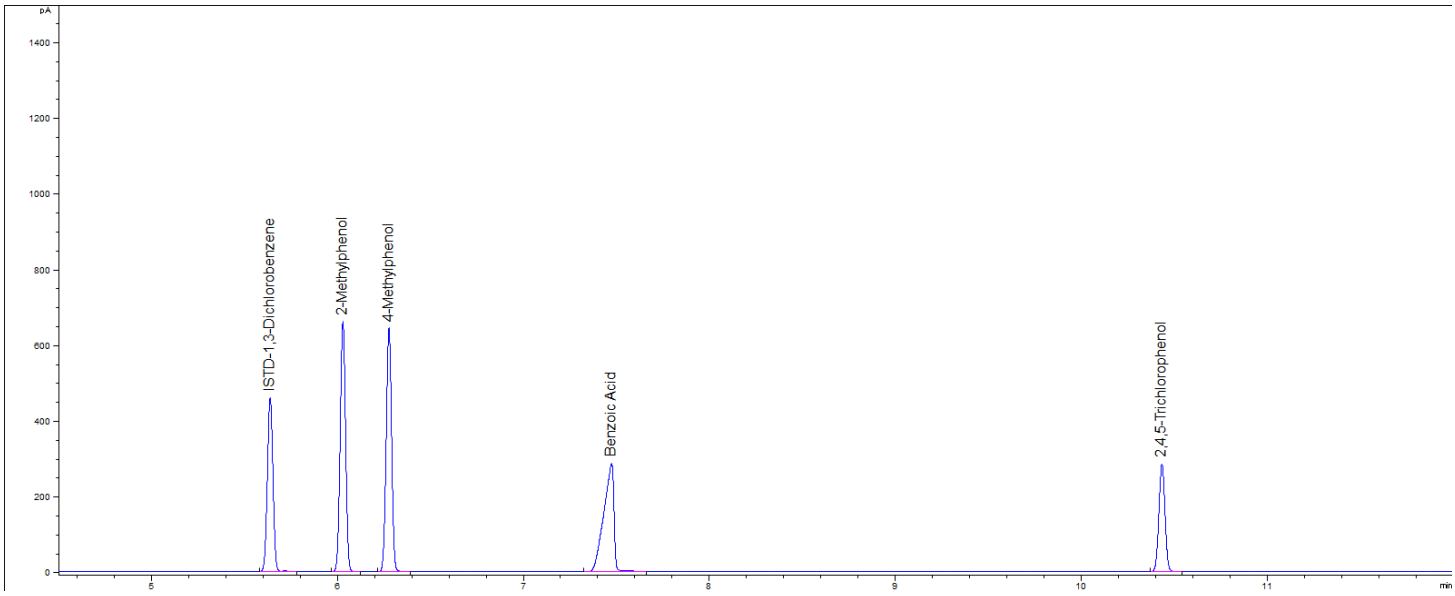
Certificate of Analysis

TCL HAZARDOUS SUBSTANCES MIX

Certified Reference Material

Product ID 48907
Lot **LRAB8940**
Expiration Date May 2021
Storage Conditions Refrigerate
Solvent/Matrix DICHLOROMETHANE

Analyte	*Units*	*Certified Value* [1,4]	*Raw Material Purity,%*	*Elution order*	*Raw Material Lot*	*CAS*
2-METHYLPHENOL	µg/ml	1994 ± 21	99.9	2	LB91878	95-48-7
4-METHYLPHENOL	µg/ml	1993 ± 21	99.9	3	LB32518	106-44-5
BENZOIC ACID	µg/ml	1993 ± 19	99.9	4	LC16514	65-85-0
2,4,5-TRICHLOROPHENOL	µg/ml	1992 ± 11	98.4	5	09513JI	95-95-4



Additional Information:

Analytical Method Parameters:

Column: Equity-5, 30 m x 0.53 mm x 1.5 µm df
80°C to 190°C (5 min) at 10°C/min
Detector: FID, 310°C
Injection Volume: 1 µl

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ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

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Lot	**LRAB8940**
Expiration Date	May 2021
Storage Conditions	Refrigerate
Solvent/Matrix	DICHLOROMETHANE

1 **Metrological traceability:** Traceable to the SI and higher order standards from NIST through an unbroken chain of comparisons. The balance used to weigh raw materials is accurate to +/-0.0001 g and calibrated regularly using mass standards traceable to NIST. All dilutions were performed gravimetrically. Additionally, individual analytes are traceable to NIST SRMs where available and specified above.
2 The standard deviation is the robust statistical standard deviation from the round robin interlaboratory study.
3 Acceptance limits are based on Interlaboratory Study Results. These ranges are recommendations only.
4 Ucrm - Uncertainty values in this document are expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k, which is obtained from a *t*-distribution and degrees of freedom. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long term stability, and short term stability (transport). The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies. The mathematical representation of the Ucrm calculation is as follows:

$$u_{CRM} = \sqrt{u_{char}^2 + u_{\text{hom}\ ogeneity}^2 + u_{stability}^2}$$

5 ***k*:** Coverage factor derived from a t-distribution table, based on the degrees of freedom of the data set. **Confidence interval = 95%**

Traceability: The standard was manufactured under an ISO/IEC 17025:2005 certified quality system. The balance used to weigh raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All dilutions were preformed gravimetrically. Additionally, individual analytes are traceable to NIST SRMs where available and specified above.

Homogeneity: Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared using a one-way analysis of variance approach as described by TNI EL-V3-2009 Appendix A.2. See Instructions for minimum sub-sample size.

Expiration is at end of month given on certificate and label.

THIS PRODUCT WAS DESIGNED, PRODUCED AND VERIFIED FOR ACCURACY AND STABILITY IN ACCORDANCE WITH ISO/IEC 17025:2005 (ANAB Cert AT-1467) and ISO GUIDE 34:2009 (ANAB Cert AR-1470).

MSDS reports for components comprising greater than 1.0% of the solution or 0.1% for components known to be carcinogens are available upon request.

Robert O'Brien - QC Supervisor

Mark Pooler - QA Supervisor

Certification Date	June 18, 2018
Version	-6182018

Certificate of Analysis

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Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.: AL0-101246
Description: Benzoic Acid
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Methylene Chloride

Lot Number: CL12311
Certification Date: March 21, 2018
Expiration Date: February 29, 2028

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Benzoic acid	65-85-0	2000	± 3.656%

G6247

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Reference Material Producer
Certificate No. 2427.02

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Certified Reference Materials

Manufactured by Phenova, Inc.
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Chemical Testing Laboratory
Certificate No. 2427.03

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO Guide 34[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in the calibration and calibration verification of chromatographic instrumentation performed in routine laboratory analysis.

4. Instruction: Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all certified analytes in the mixture.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Material Safety Data Sheet (MSDS) is available at www.phenomenex.com/mysupport.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term sfability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO Guide 34. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO Guide 34.

12. Period of Validity: The Certified Values and their uncertainties are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31:2000(E) – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35:2006(E) – Reference Material – General and Statistical Principles for Certification.
[3] ISO Guide 34:2009(E) – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025:2005(E) – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certificate No. 2427.02

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Certificate No. 2427.03

Certificate of Analysis

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Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.: AL0-101244
Description: Benzidines Standard
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Methylene Chloride

Lot Number: CL12263
Certification Date: February 28, 2018
Expiration Date: February 29, 2028

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Benzidine	92-87-5	2000	± 1.792%
3,3'-Dichlorobenzidine	91-94-1	2000	± 0.340%

~~G 6248~~ 07/10/18

G 6248
Rick. 07/10/18

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Access your MSDS and digital C of A at www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards

1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO Guide 34[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in the calibration and calibration verification of chromatographic instrumentation performed in routine laboratory analysis.

4. Instruction: Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all certified analytes in the mixture.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Material Safety Data Sheet (MSDS) is available at www.phenomenex.com/mysupport.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

   $$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

   Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO Guide 34. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO Guide 34.

12. Period of Validity: The Certified Values and their uncertainties are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31:2000(E) – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35:2006(E) – Reference Material – General and Statistical Principles for Certification.
[3] ISO Guide 34:2009(E) – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025:2005(E) – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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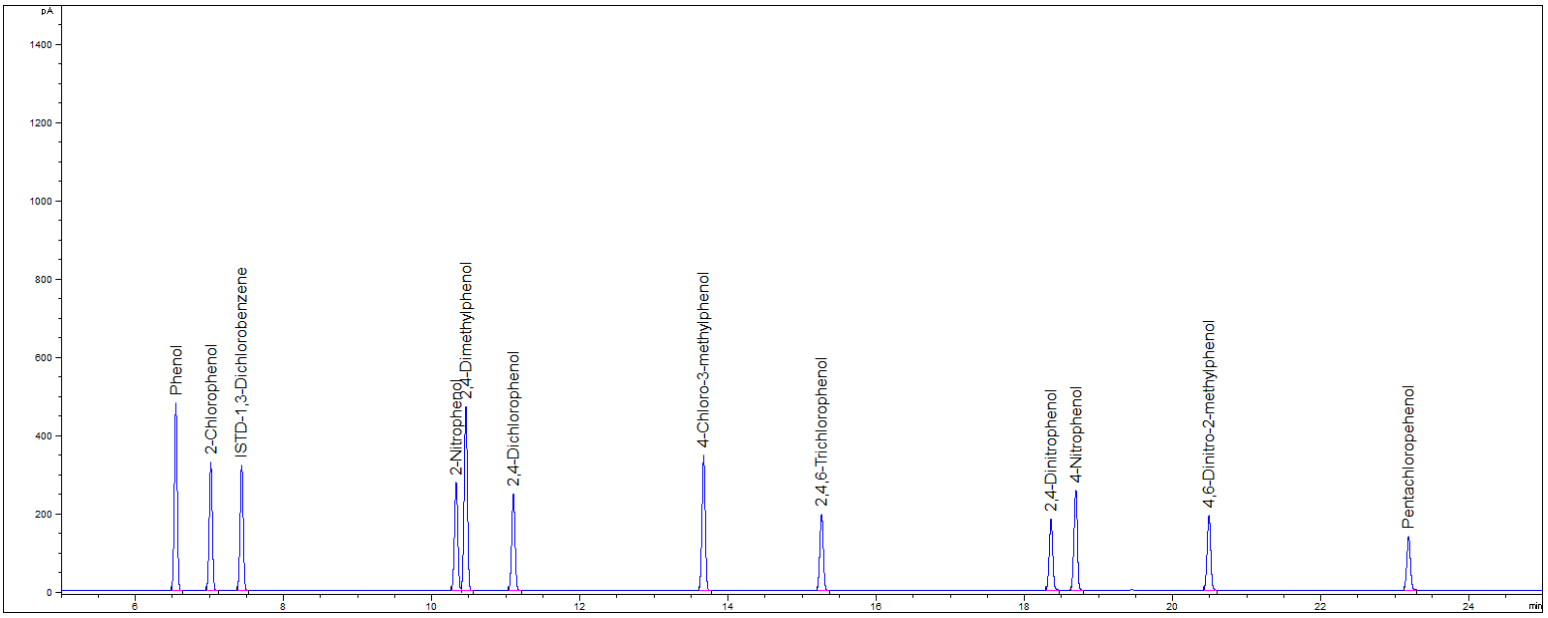
Certificate of Analysis

TCL PHENOLS MIX,1X1ML,2000UG/ML,DICHLOROMETHANE

Certified Reference Material

Product ID 48904
Lot **LRAB9259**
Expiration Date June 2021
MFG Date June 2018
Storage Conditions Refrigerate
Solvent/Matrix DICHLOROMETHANE

Analyte	*Units*	*Certified Value* [1,4]	*Analytical Value*	*Raw Material Purity,%*	*Raw Material lot*	*Elution order*	*CAS*
PHENOL	µg/ml	2000 ± 103	2082	99.9	LB57703	1	108-95-2
2-CHLOROPHENOL	µg/ml	2000 ± 95	2097	99.6	LB83266	2	95-57-8
2-NITROPHENOL	µg/ml	1999 ± 123	2088	99.8	LB44736	4	88-75-5
2,4-DIMETHYLPHENOL	µg/ml	2000 ± 125	2088	99.9	LB88935	5	105-67-9
2,4-DICHLOROPHENOL	µg/ml	2000 ± 122	2081	99.9	LB83402	6	120-83-2
4-CHLORO-3-METHYLPHENOL	µg/ml	2000 ± 137	2072	99.9	05020DU	7	59-50-7
2,4,6-TRICHLOROPHENOL	µg/ml	2000 ± 138	2093	99.5	04212PS	8	88-06-2
2,4-DINITROPHENOL	µg/ml	2000 ± 137	2089	99.9	LB92092	9	51-28-5
4-NITROPHENOL	µg/ml	2000 ± 133	2074	99.9	12202PZ	10	100-02-7
2-METHYL-4,6-DINITROPHENOL	µg/ml	2000 ± 137	2121	98.25	LC18338	11	534-52-1
PENTACHLOROPHENOL	µg/ml	2000 ± 133	2130	97.9	MKCD2150	12	87-86-5



Additional Information:

Analytical Method Parameters:

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Lot	**LRAB9259**
Expiration Date	June 2021
MFG Date	June 2018
Storage Conditions	Refrigerate
Solvent/Matrix	DICHLOROMETHANE

Column: SPB-5, 30 m x 0.53 mm x 1.5 µm df
80°C (2 min) to 260°C (5 min) at 6°C/min
Detector: FID, 310°C
Injection Volume: 1 µL

1 Certified value - based on the gravimetric preparation and analytically verified by RTC with associated uncertainties from the preparation and analytical procedures.

4 Ucrm - Uncertainty values in this document are expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k, which is obtained from a *t*-distribution and degrees of freedom. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long term stability, and short term stability (transport). The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies. The mathematical representation of the Ucrm calculation is as follows:

$$u_{CRM} = \sqrt{u_{char}^2 + u_{\text{hom}\ ogeneity}^2 + u_{stability}^2}$$

Traceability: The standard was manufactured under an ISO/IEC 17025:2005 certified quality system. The balance used to weigh raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All dilutions were preformed gravimetrically. Additionally, individual analytes are traceable to NIST SRMs where available and specified above.

Homogeneity: Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared using a one-way analysis of variance approach as described by TNI EL-V3-2009 Appendix A.2. See Instructions for minimum sub-sample size.

Expiration is at end of month given on certificate and label.

THIS PRODUCT WAS DESIGNED, PRODUCED AND VERIFIED FOR ACCURACY AND STABILITY IN ACCORDANCE WITH ISO/IEC 17025:2005 (ANAB Cert AT-1467) and ISO GUIDE 34:2009 (ANAB Cert AR-1470).

MSDS reports for components comprising greater than 1.0% of the solution or 0.1% for components known to be carcinogens are available upon request.

Robert O'Brien - QC Supervisor

Mark Pooler - QA Supervisor

Certification Date	November 20, 2018
Version	-11202018

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31493 **Lot No.:** A0137224

Description : CLP 04.1 BNA Surrogate Mix

CLP 04.1 BNA Surrogate Mix 1000-1500 µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : January 31, 2022 **Storage:** 10°C or colder

Handling: Sonicate prior to use.

H000324

1/9/19

CERTIFIED VALUES

Elution Order	Compound		Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2-Fluorophenol		1,512.0 µg/mL	+/- 8.9808	µg/mL	Gravimetric
	CAS # 367-12-4	(Lot STBF3761V)		+/- 44.1635	µg/mL	Unstressed
	Purity 99%			+/- 53.5758	µg/mL	Stressed
2	Phenol-d6		1,510.0 µg/mL	+/- 8.9689	µg/mL	Gravimetric
	CAS # 13127-88-3	(Lot PR-27801)		+/- 44.1050	µg/mL	Unstressed
	Purity 99%			+/- 53.5049	µg/mL	Stressed
3	2-Chlorophenol-d4		1,506.0 µg/mL	+/- 8.9452	µg/mL	Gravimetric
	CAS # 93951-73-6	(Lot PR-28977)		+/- 43.9882	µg/mL	Unstressed
	Purity 99%			+/- 53.3632	µg/mL	Stressed
4	1,2-Dichlorobenzene-d4		1,005.5 µg/mL	+/- 5.9722	µg/mL	Gravimetric
	CAS # 2199-69-1	(Lot PR-26357)		+/- 29.3687	µg/mL	Unstressed
	Purity 98%			+/- 35.6279	µg/mL	Stressed
5	Nitrobenzene-d5		1,002.0 µg/mL	+/- 5.9516	µg/mL	Gravimetric
	CAS # 4165-60-0	(Lot PR-25462)		+/- 29.2671	µg/mL	Unstressed
	Purity 99%			+/- 35.5046	µg/mL	Stressed
6	2-Fluorobiphenyl		1,008.0 µg/mL	+/- 5.9872	µg/mL	Gravimetric
	CAS # 321-60-8	(Lot Z20C043)		+/- 29.4423	µg/mL	Unstressed
	Purity 99%			+/- 35.7172	µg/mL	Stressed
7	2,4,6-Tribromophenol		1,502.0 µg/mL	+/- 8.9214	µg/mL	Gravimetric
	CAS # 118-79-6	(Lot 29699MJV)		+/- 43.8714	µg/mL	Unstressed
	Purity 99%			+/- 53.2214	µg/mL	Stressed

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Certificate of Composition

12 Comp. at Varied Concentrations in Dichloromethane

Reference Material

Product ID 22523051
Lot **LRAC2108**
Expiration Date February 2021
Storage Conditions Refrigerate
Solvent/Matrix Dichloromethane

Analyte	*Assigned Value* [1]	*Units*	*Raw Material Purity, %*	*Raw Material Lot No.*	CAS
3,3-DICHLOROBENZIDINE	800 ± 24.0	µg/mL	77.00%	20180901	91-94-1
2,4-DINITROTOLUENE	800 ± 24.0	µg/mL	97.80%	LB46632	121-14-2
2,6-DINITROTOLUENE	800 ± 24.0	µg/mL	99.20%	11231AN	606-20-2
HEXACHLOROCYCLOPENTADIENE	800 ± 24.0	µg/mL	96.00%	LB95525	77-47-4
N-NITROSODIMETHYLAMINE	800 ± 24.0	µg/mL	97.00%	1-BKS-111-5	62-75-9
PERYLENE	200 ± 5.99	µg/mL	99.90%	LB81263	198-55-0
ANILINE	800 ± 24.0	µg/mL	99.90%	LA41596	62-53-3
4-CHLOROANILINE	800 ± 24.0	µg/mL	99.90%	LC09711	106-47-8
2-NITROANILINE	801 ± 24.0	µg/mL	99.90%	07411KN	88-74-4
3-NITROANILINE	800 ± 24.0	µg/mL	100.00%	MKBX1283V	99-09-2
4-NITROANILINE	799 ± 24.0	µg/mL	99.90%	LC11400	100-01-6
PYRIDINE (LOW WATER)	813 ± 24.4	µg/mL	99.98%	MKBT4054V	110-86-1

2/28/19 H001989

1 Assigned value - the gravimetrically prepared value. Uncertainty is based on gravimetric preparation.

Traceability: The standard was manufactured under an ISO/IEC 17025:2017 certified quality system. The balance used to weigh raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All dilutions were preformed gravimetrically.

MSDS reports for components comprising greater than 1.0% of the solution or 0.1% for components known to be carcinogens are available upon request.

Robert O'Brien - Program Manager

Mark Pooler - QA Supervisor

Certification Date February 27, 2019
Version -2272019

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

MilliporeSigma
2931 Soldier Springs Rd. Laramie, Wyoming 82070 USA
800-325-3010
www.sigma-aldrich.com

Certificate of Composition

Reference Material

10 Comp. at Varied Concentrations in Dichloromethane

Product ID 22523046
Lot **LRAC2105**
Expiration Date February 2021
Storage Conditions Refrigerate
Solvent/Matrix Dichloromethane

Analyte	*Assigned Value* [1]	*Units*	*Raw Material Purity, %*	*Raw Material Lot No.*	CAS
2,4-DIMETHYLPHENOL	800 ± 24.0	µg/mL	99.90%	LB88935	105-67-9
2,4-DICHLOROPHENOL	801 ± 24.0	µg/mL	99.90%	LB83402	120-83-2
2,4,5-TRICHLOROPHENOL	800 ± 24.0	µg/mL	98.40%	09513JI	95-95-4
2,4-DINITROPHENOL	1800 ± 54.0	µg/mL	99.90%	LB92092	51-28-5
2,4,6-TRICHLOROPHENOL	800 ± 24.0	µg/mL	99.50%	04212PS	88-06-2
4-CHLORO-3-METHYLPHENOL	800 ± 24.0	µg/mL	99.90%	05020DU	59-50-7
4-NITROPHENOL	800 ± 24.0	µg/mL	99.90%	JS00028	100-02-7
2-METHYL-4,6-DINITROPHENOL	1800 ± 54.0	µg/mL	99.90%	LB99844	534-52-1
PENTACHLOROPHENOL	800 ± 24.0	µg/mL	97.90%	MKCD2150	87-86-5
BENZOIC ACID	1800 ± 54.0	µg/mL	99.90%	LC16514	65-85-0

2/28/19 H001990

1 Assigned value - the gravimetrically prepared value. Uncertainty is based on gravimetric preparation.

Traceability: The standard was manufactured under an ISO/IEC 17025:2017 certified quality system. The balance used to weigh raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All dilutions were preformed gravimetrically.

MSDS reports for components comprising greater than 1.0% of the solution or 0.1% for components known to be carcinogens are available upon request.

Robert O'Brien - Program Manager

Mark Pooler - QA Supervisor

Certification Date February 27, 2019
Version -2272019

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

MilliPORE SiGMA
2931 Soldier Springs Rd. Laramie, Wyoming 82070 USA
800-325-3010
www.sigma-aldrich.com

RESTEK®
110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31493 **Lot No.:** A0141995

Description : CLP 04.1 BNA Surrogate Mix

CLP 04.1 BNA Surrogate Mix 1000-1500 µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : July 31, 2022 **Storage:** 10°C or colder

Handling: Sonicate prior to use.

C E R T I F I E D V A L U E S

Elution Order	Compound		Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2-Fluorophenol		1,506.0 µg/mL	+/- 8.9452	µg/mL	Gravimetric
	CAS # 367-12-4	(Lot STBF3761V)		+/- 43.9882	µg/mL	Unstressed
	Purity 99%			+/- 53.3632	µg/mL	Stressed
2	Phenol-d6		1,506.0 µg/mL	+/- 8.9452	µg/mL	Gravimetric
	CAS # 13127-88-3	(Lot I-22545)		+/- 43.9882	µg/mL	Unstressed
	Purity 99%			+/- 53.3632	µg/mL	Stressed
3	2-Chlorophenol-d4		1,500.0 µg/mL	+/- 8.9095	µg/mL	Gravimetric
	CAS # 93951-73-6	(Lot PR-28977)		+/- 43.8130	µg/mL	Unstressed
	Purity 99%			+/- 53.1506	µg/mL	Stressed
4	1,2-Dichlorobenzene-d4		1,001.6 µg/mL	+/- 5.9490	µg/mL	Gravimetric
	CAS # 2199-69-1	(Lot PR-26357)		+/- 29.2542	µg/mL	Unstressed
	Purity 98%			+/- 35.4890	µg/mL	Stressed
5	Nitrobenzene-d5		1,004.0 µg/mL	+/- 5.9635	µg/mL	Gravimetric
	CAS # 4165-60-0	(Lot PR-29603)		+/- 29.3255	µg/mL	Unstressed
	Purity 99%			+/- 35.5754	µg/mL	Stressed
6	2-Fluorobiphenyl		1,002.0 µg/mL	+/- 5.9516	µg/mL	Gravimetric
	CAS # 321-60-8	(Lot Z20C043)		+/- 29.2671	µg/mL	Unstressed
	Purity 99%			+/- 35.5046	µg/mL	Stressed
7	2,4,6-Tribromophenol		1,502.0 µg/mL	+/- 8.9214	µg/mL	Gravimetric
	CAS # 118-79-6	(Lot 29699MJV)		+/- 43.8714	µg/mL	Unstressed
	Purity 99%			+/- 53.2214	µg/mL	Stressed

8	p-Terphenyl-d14		1,000.0	µg/mL	+/-	5.9397	µg/mL	Gravimetric
	CAS # 1718-51-0	(Lot PR-21037)			+/-	29.2086	µg/mL	Unstressed
	Purity 99%				+/-	35.4337	µg/mL	Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Tech Tips:
Due to the limited solubility of p-terphenyl-d14 in methanol, we do not recommend that this mixture be diluted in methanol.

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

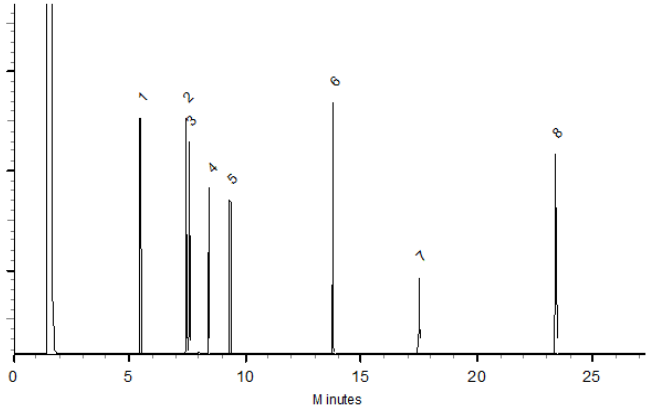
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
40°C (hold 2 min.) to 330°C
@ 10°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Rebecca Sawyer

Date Mixed: 01-Oct-2018 **Balance:** 1128360905

Justine Albertson - Operations Tech-ARM QC

Date Passed: 03-Oct-2018

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

H004354
TCL B/N MIX2-2000ug/ml
Solvent / Lot: DCM
Prep: 5/2/2019 by YZ
Exp: 4/30/2020
Location:

TraceCERT
Traceable Certified Reference Mate

SUPELCO
Solutions within.
North Harrison Road · Bellefonte, PA
523-0048 USA · Phone(814)359-3441

Certificate of Analysis

Description: TCL Base/Neutrals Mix 2, 1x1ml, 2000µg/ml each in methylene chloride

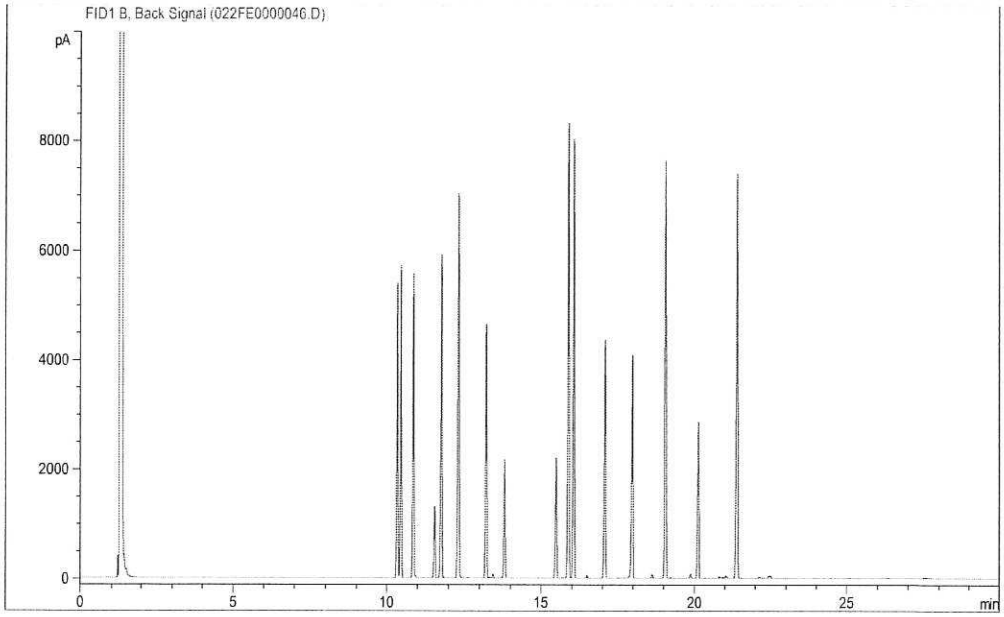
Part Number: 48120-U

Lot Number: XA26297V

Expiration Date: April 2020

Storage: Refrigerate

Analytical Method Parameters:
Column: SPB-5; 30m x 0.53mm, 1.5µm df
40 °C (4 min) to 250 °C (5 min) at 10 °C/min
Detector: FID, 310 °C
Injection Volume: 1 µL



Elution	Analyte	Lot Number	CAS Number	Chromatographic Purity %	Certified Gravimetric Conc. µg/mL	Ucrm µg/mL	Analytical Conc. µg/mL
1.	1,3-Dichlorobenzene	LC17654	541-73-1	99.9	1996.0	±130	1976.2
2.	1,4-Dichlorobenzene	LB90630	106-46-7	99.9	2000.0	±120	1969.8
3.	1,2-Dichlorobenzene	LB58923	95-50-1	99.4	1991.0	±110	1983.1
4.	Hexachloroethane	LB29072	67-72-1	99.4	1986.0	±97	1973.0
5.	Nitrobenzene	LB47070	98-95-3	99.9	1999.0	±73	1967.7
6.	Isophorone	LC14006	78-59-1	99.5	1993.0	±64	1965.5
7.	1,2,4-Trichlorobenzene	LB48083	120-82-1	99.4	1988.0	±70	1960.6
8.	Hexachlorobutadiene	LC19488	87-68-3	96.6	1997.7	±70	1968.5
9.	Hexachlorocyclopentadiene	LB95525	77-47-4	96.0	2000.6	±61	1962.5
	Internal Standard	N/A	N/A	N/A	N/A	N/A	N/A
11.	2-Chloronaphthalene	LC11403	91-58-7	99.9	1996.0	±51	1957.4
12.	2,6-Dinitrotoluene	LB79891	606-20-2	99.9	1996.0	±63	1962.5
13.	2,4-Dinitrotoluene	LB46632	121-14-2	97.8	2001.0	±72	1936.6
14.	Azobenzene	LB91797	103-33-3	99.9	2001.0	±70	1957.2
15.	Hexachlorobenzene	LB99528	118-74-1	99.2	1987.0	±83	1955.9

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
Cert# AT-1607

ANAB ACCREDITED ISO/IEC 17034 REFERENCE MATERIAL PRODUCER
Cert# AR-1606

Produced in double accredited laboratory fulfulling
ISO/IEC 17025 and
ISO Guide 34

SIGMA-ALDRICH®

Elution	Analyte	Lot Number	CAS Number	Chromatographic Purity %	Certified Gravimetric Conc. µg/mL	Ucrm µg/mL	Analytical Conc. µg/mL
16.	Carbazole	LC13236	86-74-8	98.1	1963.0	±120	1957.0

Cert# AT-1607 Cert# AR-1606

Produced in double accredited laboratory fulfulling ISO/IEC 17025 and ISO Guide 34

SIGMA-ALDRICH®

Certificate of Analysis

Produced by Phenova
6390 Joyce Drive STE 100, Golden, CO 80403 USA ▪ Tel: 303-940-0033 ▪ Fax: 303-940-0043 ▪ info@phenova.com
Access your Safety Data Sheets and digital Certificates at **www.phenova.com/documents.**

H005609

Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101444
Description: 8270 Calibration Standard
Storage: -18 °C
Provided As: 1 mL in 2 mL Ampoule in MeCl2/Methanol (97:3)

Lot Number: CL13394
Certification Date: May 2, 2019
Expiration Date: June 30, 2020

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Acenaphthene	83-32-9	1000	± 2.584%
Acenaphthylene	208-96-8	1000	± 2.289%
Anthracene	120-12-7	1000	± 2.205%
Azobenzene	103-33-3	1000	± 2.126%
Benzo(a)anthracene	56-55-3	1000	± 2.958%
Benzo(a)pyrene	50-32-8	1000	± 3.621%
Benzo(b)fluoranthene	205-99-2	1000	± 3.318%
Benzo(k)fluoranthene	207-08-9	1000	± 3.227%
Benzo(g,h,i)perylene	191-24-2	1000	± 3.305%
Benzyl alcohol	100-51-6	1000	± 3.118%
Benzyl butyl phthalate	85-68-7	1000	± 2.590%
bis(2-Chloroethoxy)methane	111-91-1	1000	± 3.005%
bis(2-Chloroethyl) ether	111-44-4	1000	± 3.299%
bis(2-Chloroisopropyl) ether	108-60-1	1000	± 3.425%
bis(2-Ethylhexyl) adipate	103-23-1	1000	± 2.557%
bis(2-Ethylhexyl) phthalate	117-81-7	1000	± 2.903%
4-Bromophenyl phenyl ether	101-55-3	1000	± 2.128%
Carbazole	86-74-8	1000	± 2.533%

Produced by Phenova
6390 Joyce Drive STE 100, Golden, CO 80403 USA ▪ Tel: 303-940-0033 ▪ Fax: 303-940-0043 ▪ info@phenova.com
Access your Safety Data Sheets and digital Certificates at **www.phenova.com/documents.**

Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101444
Description: 8270 Calibration Standard
Storage: -18 °C
Provided As: 1 mL in 2 mL Ampoule in MeCl2/Methanol (97:3)

Lot Number: CL13394
Certification Date: May 2, 2019
Expiration Date: June 30, 2020

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
2,6-Dinitrotoluene	606-20-2	1000	± 2.378%
Di-n-octyl phthalate	117-84-0	1000	± 3.011%
Fluoranthene	206-44-0	1000	± 2.510%
Fluorene	86-73-7	1000	± 2.582%
Hexachlorobenzene	118-74-1	1000	± 2.779%
Hexachlorobutadiene	87-68-3	1000	± 3.516%
Hexachlorocyclopentadiene	77-47-4	1000	± 3.292%
Hexachloroethane	67-72-1	1000	± 3.715%
Indeno(1,2,3-cd)pyrene	193-39-5	1000	± 3.237%
Isophorone	78-59-1	1000	± 2.751%
2-Methyl-4,6-dinitrophenol	534-52-1	1000	± 1.600%
1-Methylnaphthalene	90-12-0	1000	± 2.912%
2-Methylnaphthalene	91-57-6	1000	± 3.058%
2-Methylphenol	95-48-7	1000	± 3.300%
3-Methylphenol	108-39-4	500	± 2.827%
4-Methylphenol	106-44-5	500	± 2.827%
Naphthalene	91-20-3	1000	± 2.981%
2-Nitroaniline	88-74-4	1000	± 2.299%
3-Nitroaniline	99-09-2	1000	± 2.415%
4-Nitroaniline	100-01-6	1000	± 0.432%
Nitrobenzene	98-95-3	1000	± 3.327%

Produced by Phenova
6390 Joyce Drive STE 100, Golden, CO 80403 USA ▪ Tel: 303-940-0033 ▪ Fax: 303-940-0043 ▪ info@phenova.com
Access your Safety Data Sheets and digital Certificates at **www.phenova.com/documents.**

1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

Dual Column

SL4-SG-WC3-FW-2019

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Wipes	Laboratory ID:	19H0024-02 B	File ID:	19081007ECD7.D
Sampled:	08/01/19 07:30	Prepared:	08/07/19 11:00	Analyzed:	08/10/19 17:13
% Solids:		Preparation:	EPA 3580A (Shake Out)	Initial/Final:	1 Wipe Wet / 10 mL
Batch:	BHH0159	Sequence:	SHH0183	Calibration:	CG00087
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/Wipe)	MDL	RL	Q
12674-11-2	Aroclor 1016	1	1	0.20	0.06	0.20	U
11104-28-2	Aroclor 1221	1	1	0.20	0.06	0.20	U
11141-16-5	Aroclor 1232	1	1	0.20	0.06	0.20	U
53469-21-9	Aroclor 1242	1	1	0.20	0.06	0.20	U
12672-29-6	Aroclor 1248	1	1	0.20	0.06	0.20	U
11097-69-1	Aroclor 1254	1	1	0.20	0.06	0.20	U
11096-82-5	Aroclor 1260	1	1	0.20	0.12	0.20	U
37324-23-5	Aroclor 1262	1	1	0.20	0.12	0.20	U
11100-14-4	Aroclor 1268	1	1	0.20	0.12	0.20	U

SURROGATES	Col #	ADDED (ug/Wipe)	CONC (ug/Wipe)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*0.40000*	*0.422*	*105*	*30 - 160*	
Tetrachlorometaxylene	*1*	*0.40000*	*0.422*	*105*	*30 - 160*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190810.b/19081007ECD7.D
Data file 2: /20190810.b/20190810.b/19081007ECD7.D
Method: \\target\share\chem4\ecd7.i\20190810.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 19H0024-02
Client ID:
Injection Date: 10-AUG-2019 17:13
Report Date: 08/14/2019 10:28
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.301	-0.002	230528	5.057	-0.002	759691	42.2	40.3	4.6	Tetrachloro-m-xylene
13.615	0.001	243418	13.715	-0.000	1108327	42.2	42.2	0.2	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	105.5	100.8
Decachlorobiphenyl	105.4	105.6

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	426362	-1.4
Hexabromobiphenyl	517563	509520	-1.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1511181	0.9
Hexabromobiphenyl	1404015	1395640	-0.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	6.773	0.005	440	0.6
Aroclor-1016	2	---			0.0	2	7.387	-0.004	967	0.6
Aroclor-1016	3	---			0.0	3	7.588	-0.004	465	0.7
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: 0.6				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	5.762	-0.009	9593	39.0
Aroclor-1221	3	---			0.0	3	6.101	-0.016	2361	5.9
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	6.773	-0.021	440	1.3
Aroclor-1232	3	---			0.0	3	7.387	-0.026	967	1.4
Aroclor-1232	4	---			0.0	4	8.675	-0.070	4996	21.4
	Col1Ave: <3 Quant Peaks					Col2Ave: 8.0				
Aroclor-1242	1	---			0.0	1	6.773	-0.020	440	0.7
Aroclor-1242	2	---			0.0	2	7.387	-0.026	967	0.7
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	8.854	0.037	414	1.0
	Col1Ave: <3 Quant Peaks					Col2Ave: 0.8				
Aroclor-1248	1	---			0.0	1	7.387	-0.001	967	1.1
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	8.854	0.055	414	0.6
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	9.511	-0.035	6518	9.6
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	10.472	0.003	120	0.1
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	10.853	0.051	2975	3.2
Aroclor-1260	2	---			0.0	2	11.242	0.000	187	0.2
Aroclor-1260	3	---			0.0	3	11.516	-0.003	875	0.4
Aroclor-1260	4	---			0.0	4	12.084	0.051	812	1.1
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: 1.2				
Aroclor-1262	1	---			0.0	1	10.853	0.039	2975	2.3
Aroclor-1262	2	---			0.0	2	11.242	-0.012	187	0.2
Aroclor-1262	3	---			0.0	3	11.516	-0.013	875	0.3
Aroclor-1262	4	---			0.0	4	12.084	0.040	812	0.7
	Col1Ave: <3 Quant Peaks					Col2Ave: 0.9				
Aroclor-1268	1	---			0.0	1	12.084	0.038	812	0.3
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	12.495	-0.006	1673	0.6
Aroclor-1268	4	---			0.0	4	13.303	-0.017	762	0.1
	Col1Ave: <3 Quant Peaks					Col2Ave: 0.3				

Total PCB Area Col1 (5.403 - 13.514) = 32874 Col1 Total PCB = 0.0 ppm*

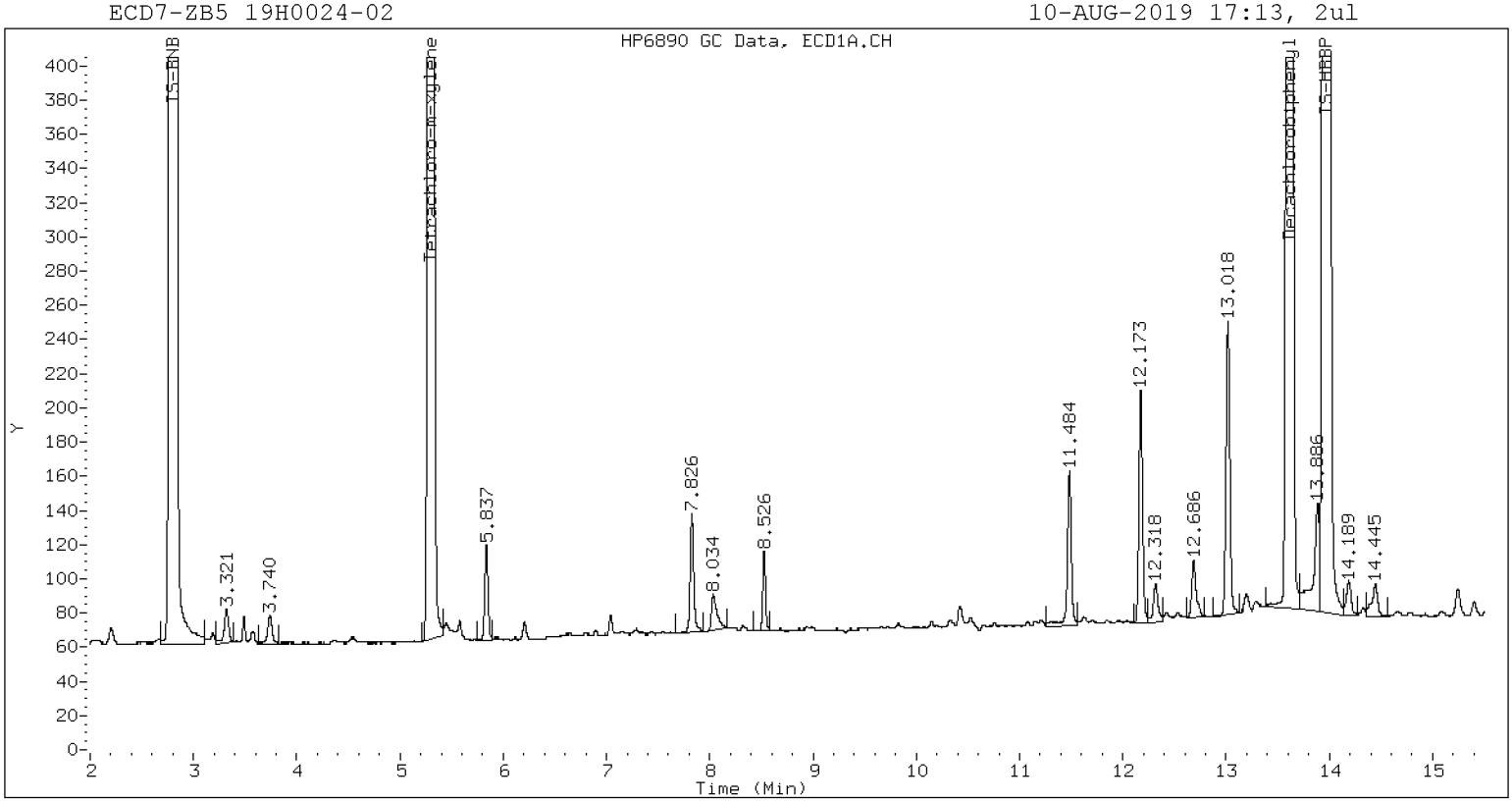
Total PCB Area Col2 (5.403 - 13.514) = 120150 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

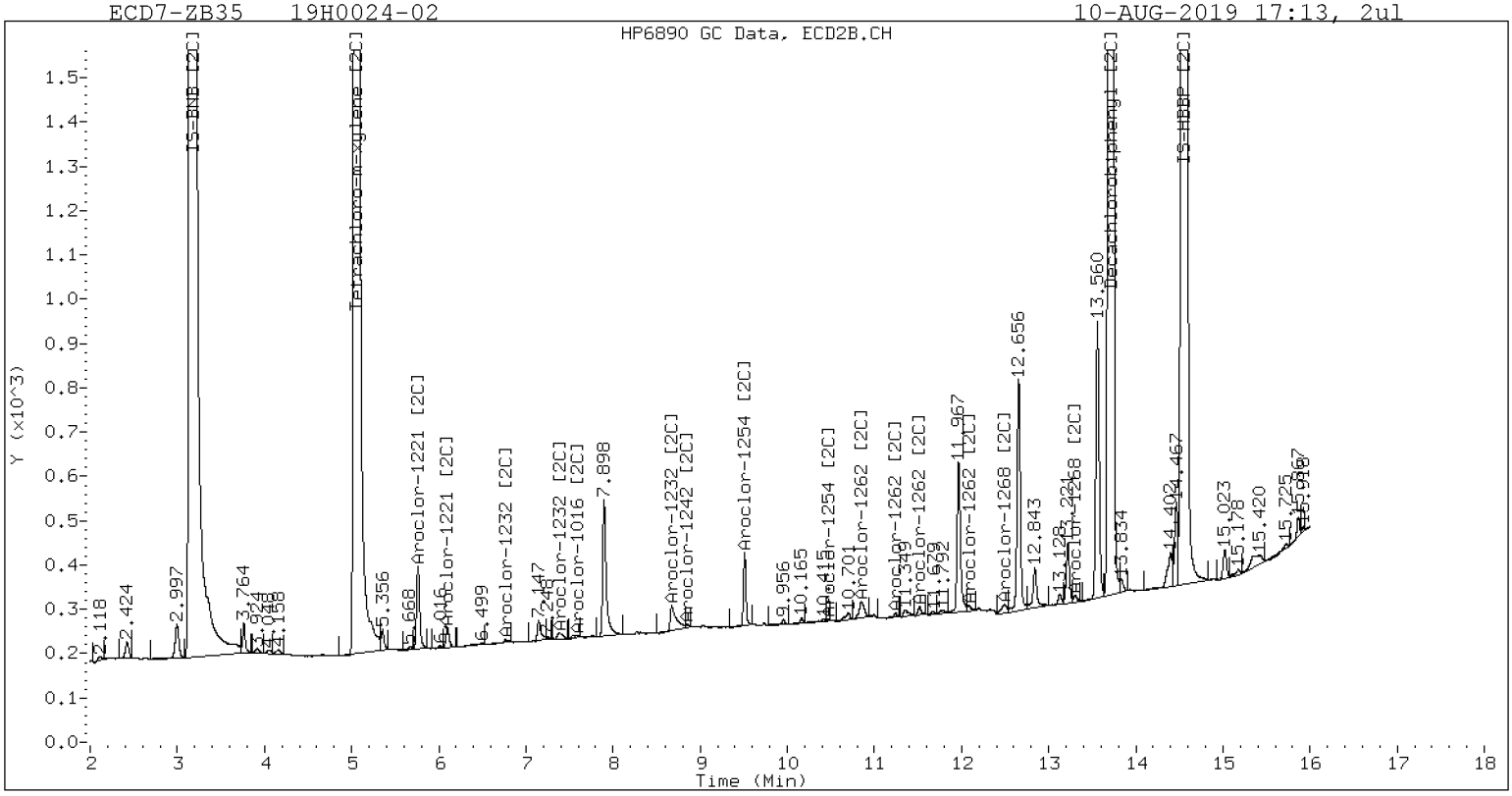
PCB Dual Column Chromatograms

ECD7-ZB5 19H0024-02 10-AUG-2019 17:13, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 19H0024-02 10-AUG-2019 17:13, 2ul



ZB-35 Manual Integration: NO

Dual Column

SL4-SG-WC3-2019

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-03 C	File ID:	19081412ECD7.D
Sampled:	08/01/19 08:16	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 18:34
% Solids:	39.71	Preparation:	EPA 3546 (Microwave)	Initial/Final:	31.53 g Wet / 2.5 mL
Batch:	BHH0288	Sequence:	SHH0216	Calibration:	CG00087
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	RL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	2	1	36.4	1.6	4.0	
11097-69-1	Aroclor 1254	2	1	72.1	1.6	4.0	
11096-82-5	Aroclor 1260	2	1	37.6	0.6	4.0	
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9869*			*40 - 126*	*NRS*
Tetrachlorometaxylene	*1*	*7.9869*	*5.50*	*68.9*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9869*	*5.85*	*73.2*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9869*	*5.28*	*66.2*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081412ECD7.D
Data file 2: /20190814.b/20190814.b/19081412ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 19H0024-03
Client ID:
Injection Date: 14-AUG-2019 18:34
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col RT	ZB5 Shift	ZB5 Response	ZB35 Col RT	ZB35 Shift	ZB35 Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.308	-0.004	137576	5.062	-0.006	426530	27.5	26.5	4.0	Tetrachloro-m-xylene
13.610	-0.006	88535	13.710	-0.005	646378	33.3	29.3	13.0	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1		Col2
Tetrachloro-m-xylene	68.9		66.2
Decachlorobiphenyl	~~83.~~4	nrs	73.2

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D	
Bromo-Nitrobenzene	432392	389675	-9.9	
Hexabromobiphenyl	517563	234348	-54.7 <-	fails low due to oily matrix

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1292234	-13.7
Hexabromobiphenyl	1404015	1174133	-16.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	ZB5 Col Area	Amount	Peak#	RT	Shift	ZB35 Col Area	Amount
Aroclor-1016	1	6.903	-0.006	15083	123.0	1	6.774	0.000	41015	65.1
Aroclor-1016	2	7.297	-0.003	33360	76.8	2	7.394	-0.002	127553	91.4
Aroclor-1016	3	7.451	0.006	23460	141.9	3	7.592	-0.004	15575	28.0
Aroclor-1016	4	8.243	-0.014	24595	182.0	4	7.761	-0.005	16706	47.9
	Total Col1Ave (4 peaks):			130.9		Total Col2Ave (4 peaks):			58.1	RPD = 77*
	Corrected Ave (3 peaks):			113.9		Corrected Ave (3 peaks):			47.0	RPD = 83*
Aroclor-1221	1	4.204	0.033	3311	113.3	1	4.317	0.022	11312	117.3
Aroclor-1221	2	5.678	-0.022	1036	21.6	2	5.760	-0.011	13168	62.7
Aroclor-1221	3	5.954	-0.018	3198	26.9	3	6.118	0.002	29613	86.5
	Total Col1Ave (3 peaks):			53.9		Total Col2Ave (3 peaks):			88.8	RPD = 49*
	Corrected Ave: < 3 Peaks					Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.204	0.033	3311	188.0	1	4.317	0.021	11312	194.9
Aroclor-1232	2	6.903	-0.017	15083	305.6	2	6.774	-0.019	41015	140.0
Aroclor-1232	3	7.297	-0.010	33360	193.0	3	7.394	-0.019	127553	216.3
Aroclor-1232	4	7.451	0.004	23460	357.8	4	8.723	0.022	112560	563.8
	Total Col1Ave (4 peaks):			261.1		Total Col2Ave (4 peaks):			278.8	RPD = 7
	Corrected Ave (3 peaks):			228.9		Corrected Ave (3 peaks):			183.7	RPD = 22
Aroclor-1242	1	6.903	-0.006	15083	148.4	1	6.774	0.000	41015	80.1
Aroclor-1242	2	7.297	-0.001	33360	91.0	2	7.394	-0.001	127553	113.1
Aroclor-1242	3	8.616	-0.006	27131	223.7	3	7.761	-0.005	16706	57.4
Aroclor-1242	4	8.906	-0.005	39702	308.5	4	8.794	-0.007	111482	309.4
	Total Col1Ave (4 peaks):			192.9		Total Col2Ave (4 peaks):			140.0	RPD = 32
	Corrected Ave (3 peaks):			154.3		Corrected Ave (3 peaks):			83.5	RPD = 60*
Aroclor-1248	1	8.078	-0.004	30856	170.1	1	7.394	0.002	127553	174.1
Aroclor-1248	2	8.616	-0.005	27131	120.2	2	8.271	-0.005	97693	177.4
Aroclor-1248	3	8.906	-0.003	39702	187.7	3	8.794	-0.007	111482	196.1
Aroclor-1248	4	9.491	-0.007	133290	991.9	4	9.125	-0.013	243503	336.5
	Total Col1Ave (4 peaks):			367.5		Total Col2Ave (4 peaks):			221.0	RPD = 50*
	Corrected Ave (3 peaks):			159.3		Corrected Ave (3 peaks):			182.5	RPD = 14
Aroclor-1254	1	8.988	-0.004	94448	280.9	1	9.034	-0.003	310147	424.2
Aroclor-1254	2	9.064	-0.004	46183	429.0	2	9.125	-0.003	243503	650.8
Aroclor-1254	3	9.360	-0.002	68711	320.0	3	9.539	-0.007	158804	274.8
Aroclor-1254	4	9.491	-0.005	133290	321.6	4	9.689	-0.005	427119	361.6
Aroclor-1254	5	10.196	-0.008	71177	256.6	5	10.462	-0.007	284695	383.0
	Total Col1Ave (5 peaks):			321.6		Total Col2Ave (5 peaks):			418.9	RPD = 26
	Corrected Ave (4 peaks):			294.8		Corrected Ave (4 peaks):			360.9	RPD = 20
Aroclor-1260	1	10.752	-0.009	34024	269.6	1	10.795	-0.007	146766	189.4
Aroclor-1260	2	11.068	-0.010	28881	236.0	2	11.228	-0.014	248610	322.4
Aroclor-1260	3	11.442	-0.006	105474	348.5	3	11.513	-0.006	384838	190.1
Aroclor-1260	4	11.840	-0.008	45865	321.9	4	12.027	-0.007	118059	185.7
Aroclor-1260	5	11.957	-0.008	20846	301.3	NS	---			----
	Total Col1Ave (5 peaks):			295.5		Total Col2Ave (4 peaks):			221.9	RPD = 28
	Corrected Ave (4 peaks):			282.2		Corrected Ave (3 peaks):			188.4	RPD = 40
Aroclor-1262	1	11.068	-0.014	28881	189.0	1	10.795	-0.018	146766	134.9
Aroclor-1262	2	11.442	-0.009	105474	287.6	2	11.228	-0.026	248610	272.0
Aroclor-1262	3	11.840	-0.011	45865	405.9	3	11.513	-0.016	384838	179.1
Aroclor-1262	4	11.957	-0.011	20846	148.4	4	12.027	-0.017	118059	114.9
	Total Col1Ave (4 peaks):			257.7		Total Col2Ave (4 peaks):			175.2	RPD = 38
	Corrected Ave (3 peaks):			208.3		Corrected Ave (3 peaks):			143.0	RPD = 37
Aroclor-1268	1	11.957	-0.011	20846	50.0	1	12.027	-0.019	118059	43.4
Aroclor-1268	2	12.030	-0.009	24755	64.0	2	12.081	-0.029	258022	95.8
Aroclor-1268	3	12.430	0.004	11456	35.7	3	12.486	-0.015	23046	9.6
Aroclor-1268	4	13.204	-0.007	11211	11.8	4	13.303	-0.017	55676	6.3
	Total Col1Ave (4 peaks):			40.4		Total Col2Ave (4 peaks):			38.8	RPD = 4

Corrected Ave (3 peaks): 32.5 Corrected Ave (3 peaks): 19.8 RPD = 49*

Total PCB Area Col1 (5.413 - 13.516) = 2395224 Col1 Total PCB = 0.7 ppm*

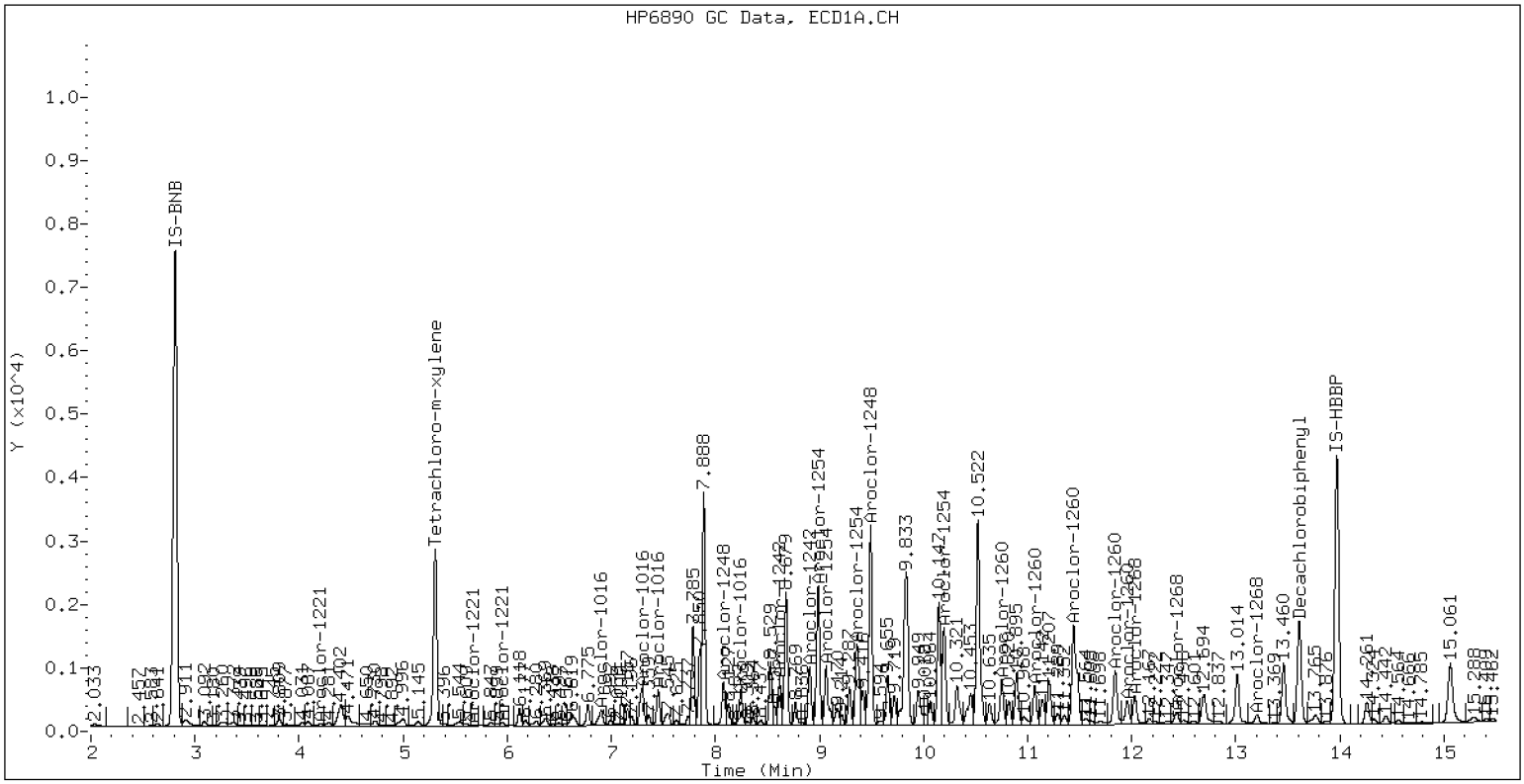
Total PCB Area Col2 (5.413 - 13.516) = 9109054 Col2 Total PCB = 0.9 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

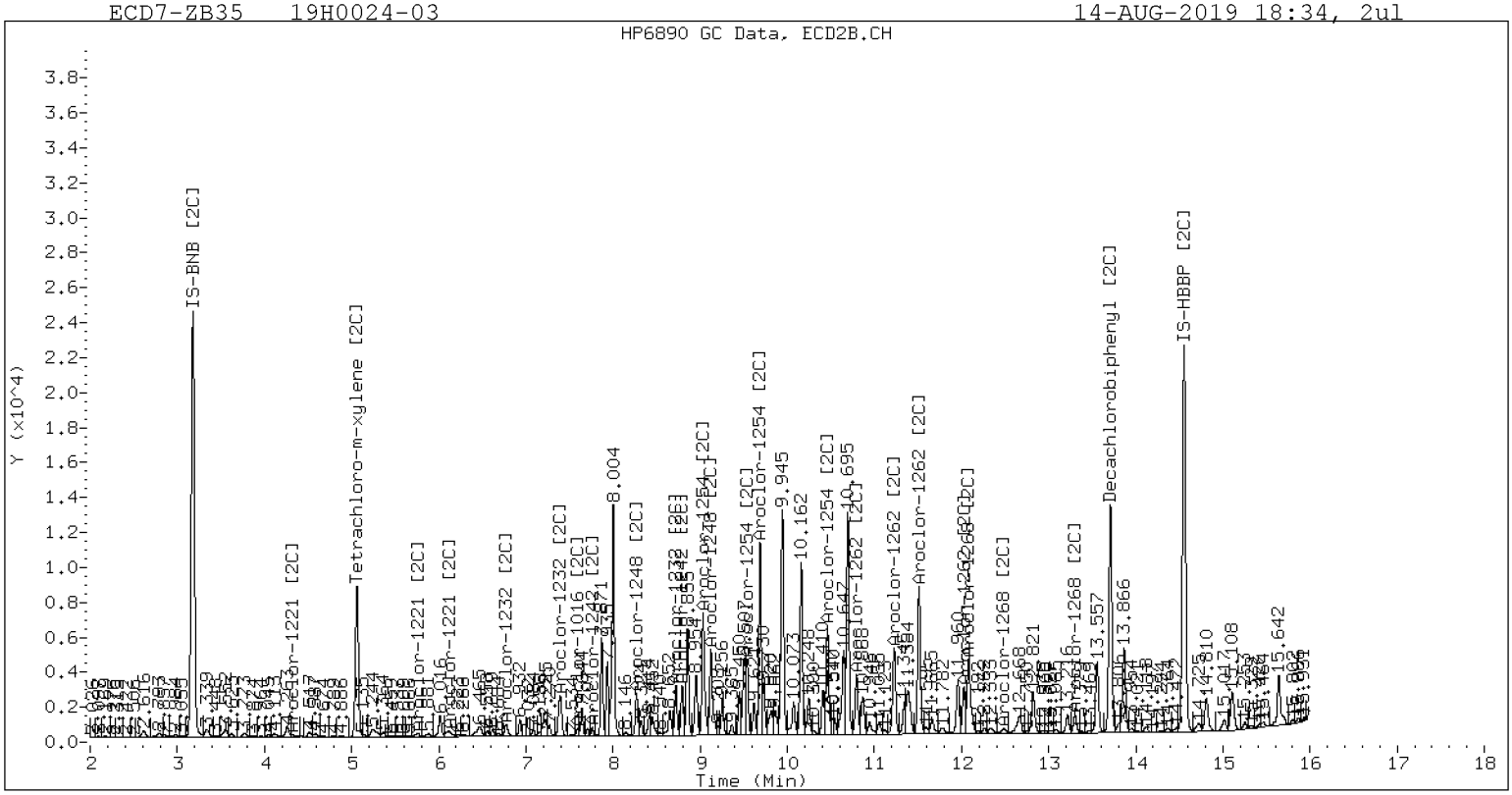
PCB Dual Column Chromatograms

ECD7-ZB5 19H0024-03 14-AUG-2019 18:34, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 19H0024-03 14-AUG-2019 18:34, 2ul



ZB-35 Manual Integration: NO

Dual Column

SL4-SG-WC7-2019

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-04 C	File ID:	19081415ECD7.D
Sampled:	08/01/19 08:39	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 19:39
% Solids:	41.60	Preparation:	EPA 3546 (Microwave)	Initial/Final:	30.08 g Wet / 2.5 mL
Batch:	BHH0288	Sequence:	SHH0216	Calibration:	CG00087
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	RL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	2	1	36.0	1.6	4.0	
11097-69-1	Aroclor 1254	2	1	55.9	1.6	4.0	
11096-82-5	Aroclor 1260	2	1	45.0	0.6	4.0	
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9915*			*40 - 126*	*NRS*
Tetrachlorometaxylene	*1*	*7.9915*	*5.99*	*75.0*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9915*	*5.67*	*70.9*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9915*	*5.84*	*73.1*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081415ECD7.D
Data file 2: /20190814.b/20190814.b/19081415ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 19H0024-04
Client ID:
Injection Date: 14-AUG-2019 19:39
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col RT	ZB5 Shift	ZB5 Response	ZB35 Col RT	ZB35 Shift	ZB35 Response	ZB5 on col	ZB35 on col	RPD	Compound/Flag
5.308	-0.005	133067	5.062	-0.006	467355	30.0	29.2	2.5	Tetrachloro-m-xylene
13.608	-0.008	83498	13.708	-0.007	574776	33.9	28.4	17.8	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	75.0	73.1
Decachlorobiphenyl	84.8 nrs	70.9

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D	
Bromo-Nitrobenzene	432392	346231	-19.9	
Hexabromobiphenyl	517563	217260	-58.0 <-	fails low due to oily matrix

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1281136	-14.4
Hexabromobiphenyl	1404015	1077531	-23.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.902	-0.007	10195	93.6	1	6.772	-0.002	31418	50.3
Aroclor-1016	2	7.296	-0.003	38020	98.5	2	7.392	-0.004	144414	104.4
Aroclor-1016	3	7.444	-0.001	11291	76.8	3	7.592	-0.004	21868	39.7
Aroclor-1016	4	8.249	-0.007	19607	163.3	4	7.761	-0.005	21362	61.7
Total Col1Ave (4 peaks):		108.1				Total Col2Ave (4 peaks):			64.1	RPD = 51*
Corrected Ave (3 peaks):		89.6				Corrected Ave (3 peaks):			50.6	RPD = 56*
Aroclor-1221	1	4.205	0.034	1122	43.2	1	4.262	-0.033	31048	324.7
Aroclor-1221	2	---			0.0	2	5.760	-0.011	13517	64.9
Aroclor-1221	3	5.953	-0.019	3441	32.6	3	6.093	-0.024	30329	89.3
Col1Ave: <3 Quant Peaks						Col2Ave: 159.6				
Aroclor-1232	1	4.205	0.034	1122	71.7	1	4.262	-0.034	31048	539.7
Aroclor-1232	2	6.902	-0.018	10195	232.5	2	6.772	-0.021	31418	108.2
Aroclor-1232	3	7.296	-0.011	38020	247.5	3	7.392	-0.021	144414	247.0
Aroclor-1232	4	7.444	-0.011	11291	193.8	4	8.724	-0.021	114492	578.5
Total Col1Ave (4 peaks):		186.4				Total Col2Ave (4 peaks):			368.3	RPD = 66*
Corrected Ave (3 peaks):		166.0				Corrected Ave (3 peaks):			298.3	RPD = 57*
Aroclor-1242	1	6.902	-0.007	10195	112.9	1	6.772	-0.002	31418	61.9
Aroclor-1242	2	7.296	-0.001	38020	116.7	2	7.392	-0.004	144414	129.1
Aroclor-1242	3	8.617	-0.005	27514	255.3	3	7.761	-0.005	21362	74.0
Aroclor-1242	4	8.907	-0.005	33945	296.8	4	8.795	-0.007	111120	311.1
Total Col1Ave (4 peaks):		195.4				Total Col2Ave (4 peaks):			144.0	RPD = 30
Corrected Ave (3 peaks):		161.6				Corrected Ave (3 peaks):			88.3	RPD = 59*
Aroclor-1248	1	8.079	-0.003	23046	143.0	1	7.392	-0.000	144414	198.8
Aroclor-1248	2	8.617	-0.004	27514	137.2	2	8.272	-0.003	78651	144.0
Aroclor-1248	3	8.907	-0.002	33945	180.6	3	8.795	-0.007	111120	197.2
Aroclor-1248	4	9.492	-0.006	99367	332.2	4	9.127	-0.011	200255	279.1
Total Col1Ave (4 peaks):		323.3				Total Col2Ave (4 peaks):			204.8	RPD = 45*
Corrected Ave (3 peaks):		153.6				Corrected Ave (3 peaks):			180.0	RPD = 16
Aroclor-1254	1	8.989	-0.003	69974	234.2	1	9.034	-0.003	224322	309.5
Aroclor-1254	2	9.064	-0.003	32350	338.2	2	9.127	-0.001	200255	539.9
Aroclor-1254	3	9.363	0.001	58309	305.6	3	9.541	-0.005	127623	222.8
Aroclor-1254	4	9.492	-0.004	99367	269.8	4	9.689	-0.005	309561	264.4
Aroclor-1254	5	10.197	-0.007	57515	233.3	5	10.462	-0.006	237494	322.2
Total Col1Ave (5 peaks):		276.2				Total Col2Ave (5 peaks):			331.8	RPD = 18
Corrected Ave (4 peaks):		260.8				Corrected Ave (4 peaks):			279.7	RPD = 7
Aroclor-1260	1	10.752	-0.008	32407	277.0	1	10.794	-0.008	147386	207.2
Aroclor-1260	2	11.068	-0.010	25898	228.3	2	11.229	-0.013	205347	290.2
Aroclor-1260	3	11.440	-0.008	83035	296.0	3	11.511	-0.008	371426	199.9
Aroclor-1260	4	11.839	-0.009	40435	306.1	4	12.026	-0.007	118263	202.8
Aroclor-1260	5	11.957	-0.008	19445	303.2	NS	---			----
Total Col1Ave (5 peaks):		282.1				Total Col2Ave (4 peaks):			225.0	RPD = 23
Corrected Ave (4 peaks):		276.1				Corrected Ave (3 peaks):			203.3	RPD = 30
Aroclor-1262	1	11.068	-0.013	25898	182.8	1	10.794	-0.019	147386	147.6
Aroclor-1262	2	11.440	-0.011	83035	244.2	2	11.229	-0.025	205347	244.8
Aroclor-1262	3	11.839	-0.012	40435	386.0	3	11.511	-0.018	371426	188.3
Aroclor-1262	4	11.957	-0.011	19445	149.3	4	12.026	-0.018	118263	125.4
Total Col1Ave (4 peaks):		240.6				Total Col2Ave (4 peaks):			176.5	RPD = 31
Corrected Ave (3 peaks):		192.1				Corrected Ave (3 peaks):			153.8	RPD = 22
Aroclor-1268	1	11.957	-0.011	19445	50.3	1	12.026	-0.019	118263	47.4
Aroclor-1268	2	12.029	-0.010	22061	61.5	2	12.080	-0.030	256469	103.8
Aroclor-1268	3	12.429	0.003	10297	34.6	3	12.485	-0.016	17106	7.8
Aroclor-1268	4	13.200	0.010	9659	11.8	4	13.300	0.020	47125	5.9
Total Col1Ave (4 peaks):		39.4				Total Col2Ave (4 peaks):			41.2	RPD = 5
Corrected Ave (3 peaks):		32.0				Corrected Ave (3 peaks):			20.3	RPD = 44*

Total PCB Area Col1 (5.413 - 13.516) = 1722828 Col1 Total PCB = 0.6 ppm*

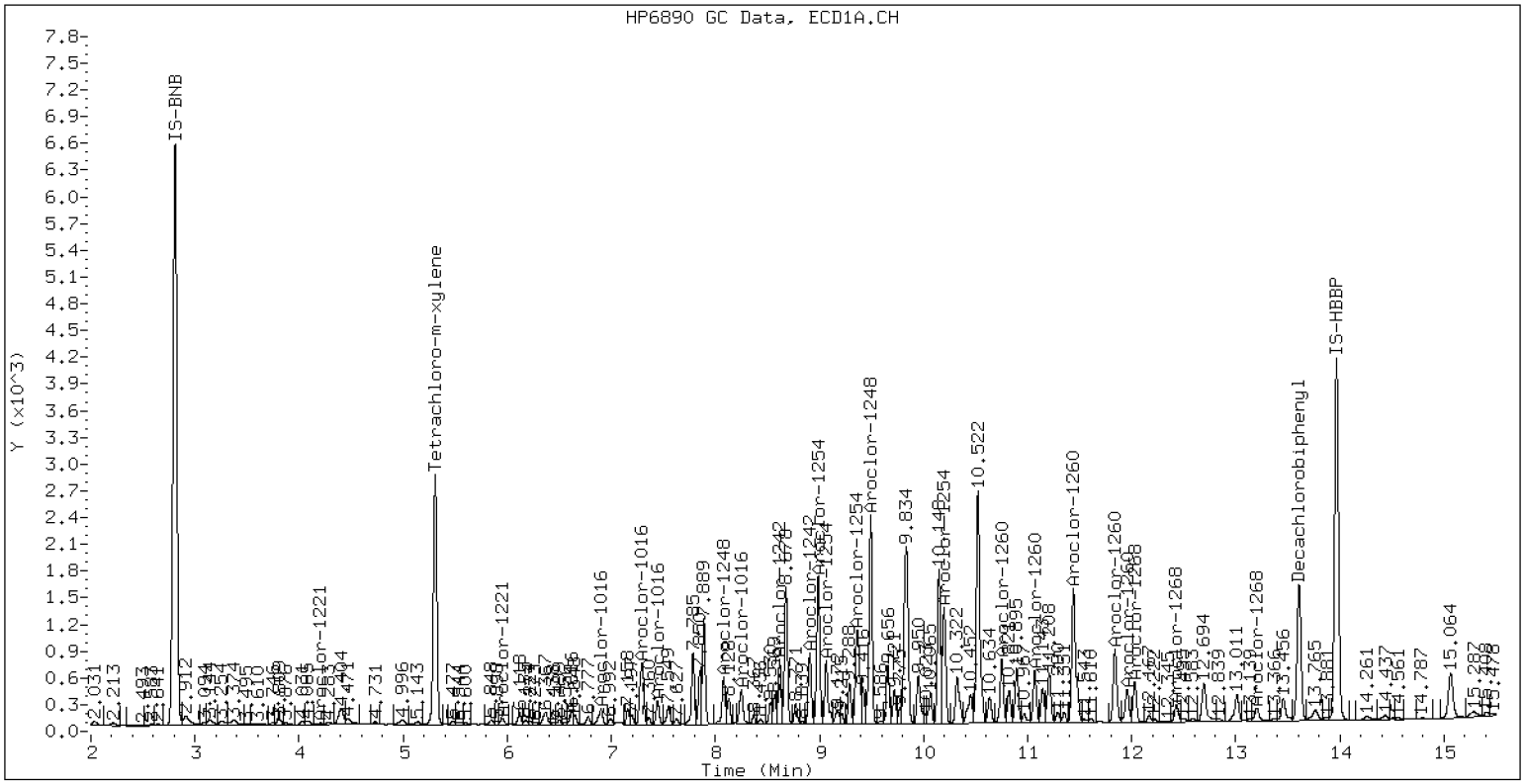
Total PCB Area Col2 (5.413 - 13.516) = 7110526 Col2 Total PCB = 0.7 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

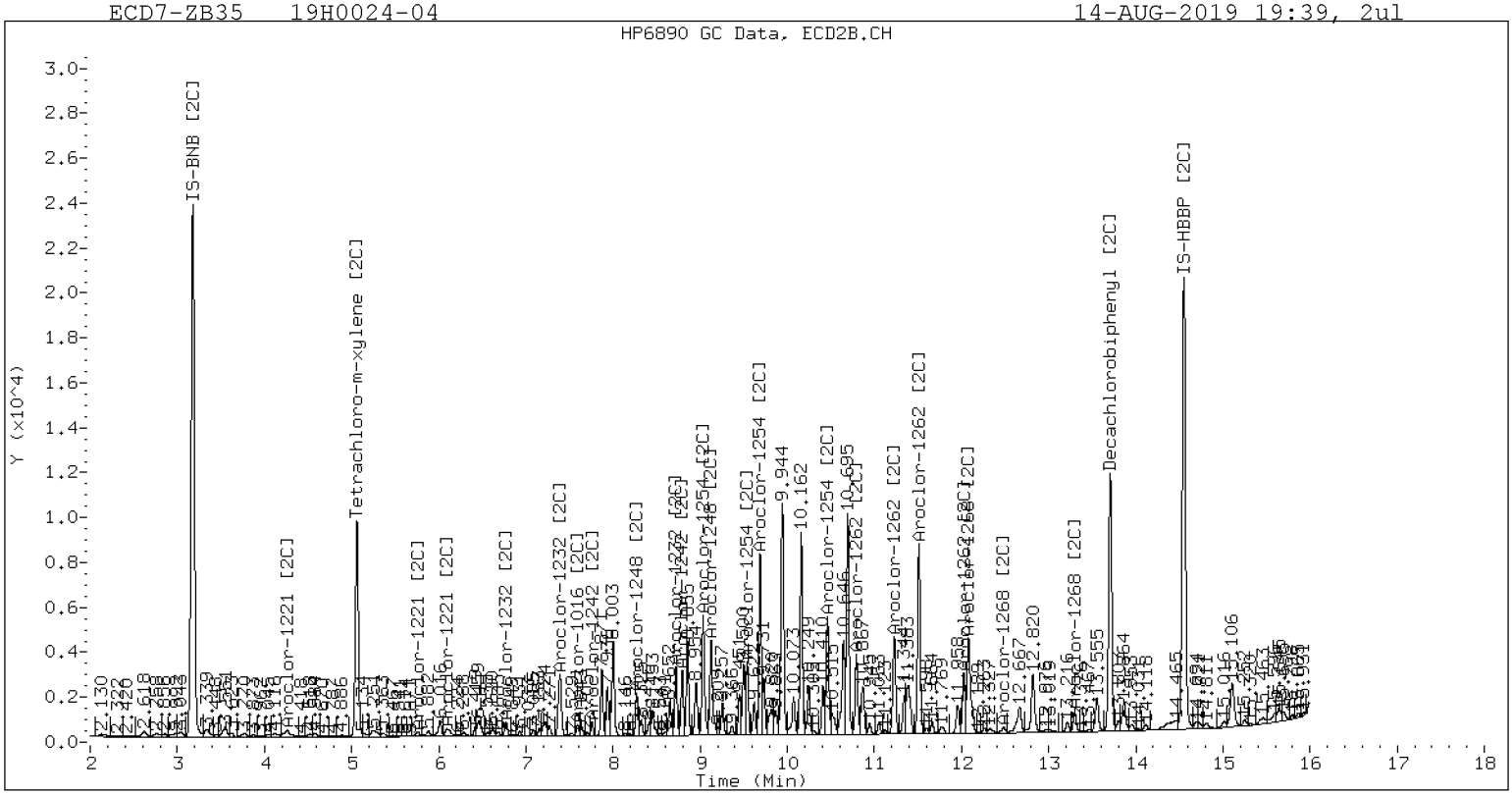
PCB Dual Column Chromatograms

ECD7-ZB5 19H0024-04 14-AUG-2019 19:39, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 19H0024-04 14-AUG-2019 19:39, 2ul



ZB-35 Manual Integration: NO

Dual Column

SL4-SG-WC7-FD-2019

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-05 C	File ID:	19081416ECD7.D
Sampled:	08/01/19 08:39	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 20:00
% Solids:	40.84	Preparation:	EPA 3546 (Microwave)	Initial/Final:	30.64 g Wet / 2.5 mL
Batch:	BHH0288	Sequence:	SHH0216	Calibration:	CG00087
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	RL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	2	1	35.0	1.6	4.0	
11097-69-1	Aroclor 1254	1	1	54.4	1.6	4.0	
11096-82-5	Aroclor 1260	2	1	36.3	0.6	4.0	
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9914*			*40 - 126*	*NRS*
Tetrachlorometaxylene	*1*	*7.9914*	*5.90*	*73.9*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9914*	*5.63*	*70.4*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9914*	*5.65*	*70.7*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081416ECD7.D
Data file 2: /20190814.b/20190814.b/19081416ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 19H0024-05
Client ID:
Injection Date: 14-AUG-2019 20:00
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.308	-0.005	135393	5.061	-0.007	468822	29.6	28.3	4.4	Tetrachloro-m-xylene
13.608	-0.008	86729	13.710	-0.005	605672	33.2	28.2	16.5	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	73.9	70.7
Decachlorobiphenyl	~~83~~0 nrs	70.4

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D	
Bromo-Nitrobenzene	432392	357383	-17.3	
Hexabromobiphenyl	517563	230486	-55.5 <-	fails low due to oily matrix

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1328521	-11.3
Hexabromobiphenyl	1404015	1143961	-18.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	ZB5 Col Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.901	-0.007	12968	115.3	1	6.771	-0.003	31920	49.3
Aroclor-1016	2	7.296	-0.003	38822	97.5	2	7.392	-0.004	144801	101.0
Aroclor-1016	3	7.444	-0.001	12318	81.2	3	7.591	-0.005	21316	37.3
Aroclor-1016	4	8.249	-0.007	19965	161.1	4	7.760	-0.006	21284	59.3
	Total Col1Ave (4 peaks):			113.8		Total Col2Ave (4 peaks):			61.7	RPD = 59*
	Corrected Ave (3 peaks):			98.0		Corrected Ave (3 peaks):			48.6	RPD = 67*
Aroclor-1221	1	4.200	0.030	1980	73.9	1	4.313	0.019	4351	43.9
Aroclor-1221	2	5.679	-0.022	1899	43.3	2	5.759	-0.012	16382	75.8
Aroclor-1221	3	5.952	-0.020	4140	37.9	3	6.092	-0.025	32213	91.5
	Total Col1Ave (3 peaks):			51.7		Total Col2Ave (3 peaks):			70.4	RPD = 31
	Corrected Ave: < 3 Peaks					Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.200	0.029	1980	122.6	1	4.313	0.018	4351	72.9
Aroclor-1232	2	6.901	-0.018	12968	286.5	2	6.771	-0.022	31920	106.0
Aroclor-1232	3	7.296	-0.011	38822	244.9	3	7.392	-0.021	144801	238.9
Aroclor-1232	4	7.444	-0.011	12318	204.8	4	8.723	-0.022	113193	551.5
	Total Col1Ave (4 peaks):			214.7		Total Col2Ave (4 peaks):			242.3	RPD = 12
	Corrected Ave (3 peaks):			190.8		Corrected Ave (3 peaks):			139.2	RPD = 31
Aroclor-1242	1	6.901	-0.008	12968	139.1	1	6.771	-0.003	31920	60.6
Aroclor-1242	2	7.296	-0.001	38822	115.5	2	7.392	-0.004	144801	124.9
Aroclor-1242	3	8.617	-0.006	27869	250.5	3	7.760	-0.006	21284	71.1
Aroclor-1242	4	8.906	-0.005	35050	296.9	4	8.795	-0.007	112913	304.8
	Total Col1Ave (4 peaks):			200.5		Total Col2Ave (4 peaks):			140.3	RPD = 35
	Corrected Ave (3 peaks):			168.4		Corrected Ave (3 peaks):			85.5	RPD = 65*
Aroclor-1248	1	8.079	-0.004	22422	134.8	1	7.392	-0.000	144801	192.2
Aroclor-1248	2	8.617	-0.004	27869	134.6	2	8.271	-0.004	79779	140.9
Aroclor-1248	3	8.906	-0.003	35050	180.7	3	8.795	-0.007	112913	193.2
Aroclor-1248	4	9.493	-0.005	101234	321.4	4	9.125	-0.013	206041	277.0
	Total Col1Ave (4 peaks):			317.9		Total Col2Ave (4 peaks):			200.8	RPD = 45*
	Corrected Ave (3 peaks):			150.0		Corrected Ave (3 peaks):			175.4	RPD = 16
Aroclor-1254	1	8.989	-0.002	70490	228.6	1	9.033	-0.004	228505	304.0
Aroclor-1254	2	9.065	-0.003	33344	337.7	2	9.125	-0.002	206041	535.6
Aroclor-1254	3	9.362	0.001	59284	301.0	3	9.540	-0.006	127799	215.1
Aroclor-1254	4	9.493	-0.003	101234	266.3	4	9.689	-0.005	314470	259.0
Aroclor-1254	5	10.198	-0.006	57656	226.6	5	10.461	-0.007	236440	309.4
	Total Col1Ave (5 peaks):			272.1		Total Col2Ave (5 peaks):			324.6	RPD = 18
	Corrected Ave (4 peaks):			255.6		Corrected Ave (4 peaks):			271.9	RPD = 6
Aroclor-1260	1	10.753	-0.008	30652	247.0	1	10.794	-0.008	137445	182.0
Aroclor-1260	2	11.068	-0.009	24394	202.7	2	11.228	-0.014	203869	271.4
Aroclor-1260	3	11.440	-0.007	81916	275.2	3	11.512	-0.007	355103	180.1
Aroclor-1260	4	11.839	-0.008	39446	281.5	4	12.025	-0.008	113146	182.7
Aroclor-1260	5	11.956	-0.009	18798	276.3	NS	---			----
	Total Col1Ave (5 peaks):			256.5		Total Col2Ave (4 peaks):			204.1	RPD = 23
	Corrected Ave (4 peaks):			250.3		Corrected Ave (3 peaks):			181.6	RPD = 32
Aroclor-1262	1	11.068	-0.013	24394	162.3	1	10.794	-0.019	137445	129.7
Aroclor-1262	2	11.440	-0.010	81916	227.1	2	11.228	-0.026	203869	228.9
Aroclor-1262	3	11.839	-0.011	39446	354.9	3	11.512	-0.018	355103	169.6
Aroclor-1262	4	11.956	-0.012	18798	136.1	4	12.025	-0.018	113146	113.0
	Total Col1Ave (4 peaks):			220.1		Total Col2Ave (4 peaks):			160.3	RPD = 31
	Corrected Ave (3 peaks):			175.2		Corrected Ave (3 peaks):			137.4	RPD = 24
Aroclor-1268	1	11.956	-0.012	18798	45.8	1	12.025	-0.020	113146	42.7
Aroclor-1268	2	12.029	-0.010	21273	55.9	2	12.081	-0.029	246973	94.2
Aroclor-1268	3	12.429	0.003	9909	31.4	3	12.483	-0.018	16129	6.9
Aroclor-1268	4	13.202	-0.009	9447	10.1	4	13.300	-0.020	49395	5.8
	Total Col1Ave (4 peaks):			35.8		Total Col2Ave (4 peaks):			37.4	RPD = 4

Corrected Ave (3 peaks): 29.1 Corrected Ave (3 peaks): 18.5 RPD = 45*

Total PCB Area Col1 (5.413 - 13.516) = 1760968 Col1 Total PCB = 0.6 ppm*

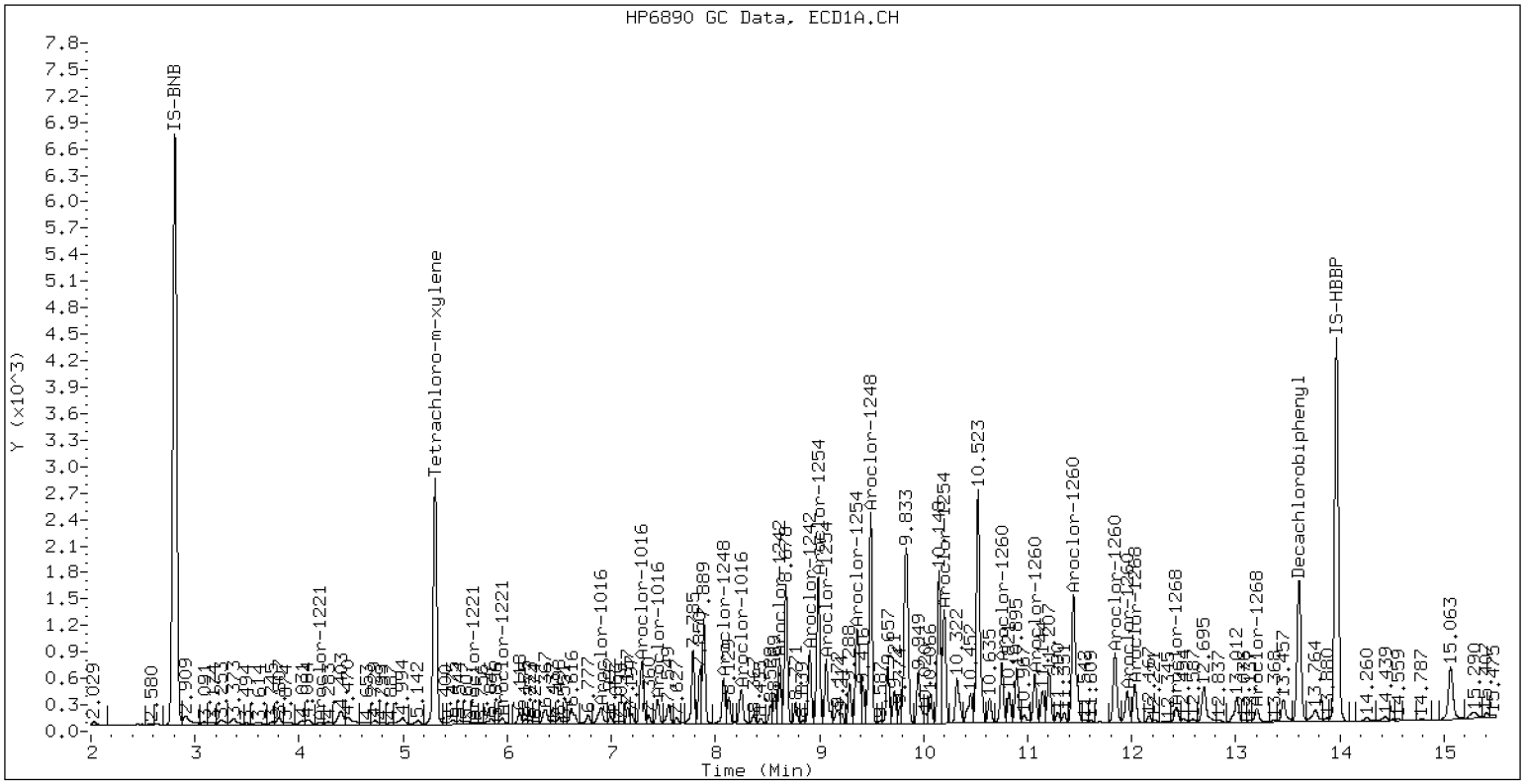
Total PCB Area Col2 (5.413 - 13.516) = 7113056 Col2 Total PCB = 0.7 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

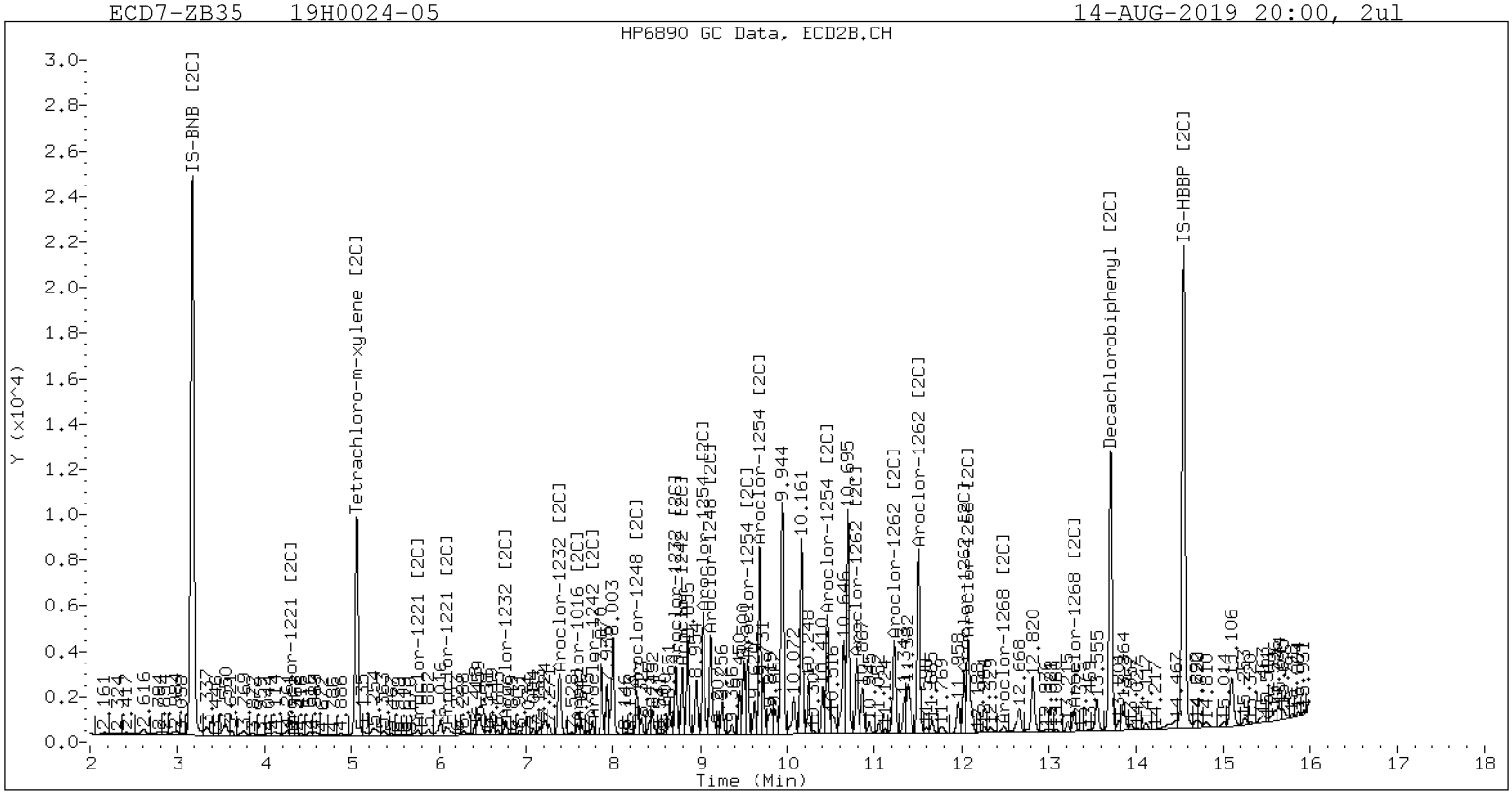
PCB Dual Column Chromatograms

ECD7-ZB5 19H0024-05 14-AUG-2019 20:00, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 19H0024-05 14-AUG-2019 20:00, 2ul



ZB-35 Manual Integration: NO

Dual Column

SL4-SG-WC8-2019

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-06 C	File ID:	19081417ECD7.D
Sampled:	08/01/19 09:08	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 20:22
% Solids:	56.63	Preparation:	EPA 3546 (Microwave)	Initial/Final:	22.08 g Wet / 2.5 mL
Batch:	BHH0288	Sequence:	SHH0216	Calibration:	CG00087
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	RL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	2	1	11.1	1.6	4.0	
11097-69-1	Aroclor 1254	1	1	17.4	1.6	4.0	
11096-82-5	Aroclor 1260	2	1	14.7	0.6	4.0	
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9975*			*40 - 126*	*NRS*
Tetrachlorometaxylene	*1*	*7.9975*	*6.58*	*82.3*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9975*	*5.70*	*71.3*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9975*	*5.93*	*74.1*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081417ECD7.D
Data file 2: /20190814.b/20190814.b/19081417ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 19H0024-06
Client ID:
Injection Date: 14-AUG-2019 20:22
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.306	-0.007	154391	5.060	-0.008	532885	32.9	29.6	10.5	Tetrachloro-m-xylene
13.609	-0.007	88495	13.710	-0.005	581903	32.6	28.5	13.4	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	82.3	74.1
Decachlorobiphenyl	81.5	71.3

nrs

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D	
Bromo-Nitrobenzene	432392	365906	-15.4	
Hexabromobiphenyl	517563	239622	-53.7	<-

fails low due to oily matrix

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1441446	-3.7
Hexabromobiphenyl	1404015	1085719	-22.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	ZB5 Col Area	Amount	Peak#	RT	Shift	ZB35 Col Area	Amount
Aroclor-1016	1	6.897	-0.012	3842	33.4	1	6.773	-0.001	15495	22.1
Aroclor-1016	2	7.296	-0.003	11149	27.3	2	7.391	-0.005	47931	30.8
Aroclor-1016	3	7.445	-0.000	3841	24.7	3	7.590	-0.006	5454	8.8
Aroclor-1016	4	8.250	-0.007	6391	50.4	4	7.762	-0.004	8791	22.6
Total Col1Ave (4 peaks):					34.0	Total Col2Ave (4 peaks):				21.1 RPD = 47*
Corrected Ave (3 peaks):					28.5	Corrected Ave (3 peaks):				17.8 RPD = 46*
Aroclor-1221	1	4.196	0.026	2266	82.6	1	4.310	0.016	3731	34.7
Aroclor-1221	2	5.604	-0.097	2547	56.7	2	5.764	-0.007	16070	68.5
Aroclor-1221	3	5.897	-0.075	1509	13.5	3	6.096	-0.021	23322	61.1
Total Col1Ave (3 peaks):					50.9	Total Col2Ave (3 peaks):				54.8 RPD = 7
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.196	0.025	2266	137.0	1	4.310	0.015	3731	57.6
Aroclor-1232	2	6.897	-0.023	3842	82.9	2	6.773	-0.021	15495	47.4
Aroclor-1232	3	7.296	-0.011	11149	68.7	3	7.391	-0.022	47931	72.9
Aroclor-1232	4	7.445	-0.010	3841	62.4	4	8.725	-0.020	38258	171.8
Total Col1Ave (4 peaks):					87.7	Total Col2Ave (4 peaks):				87.4 RPD = 0
Corrected Ave (3 peaks):					71.3	Corrected Ave (3 peaks):				59.3 RPD = 18
Aroclor-1242	1	6.897	-0.012	3842	40.2	1	6.773	-0.002	15495	27.1
Aroclor-1242	2	7.296	-0.002	11149	32.4	2	7.391	-0.005	47931	38.1
Aroclor-1242	3	8.617	-0.005	8307	72.9	3	7.762	-0.004	8791	27.1
Aroclor-1242	4	8.908	-0.003	10790	89.3	4	8.797	-0.005	40105	99.8
Total Col1Ave (4 peaks):					58.7	Total Col2Ave (4 peaks):				48.0 RPD = 20
Corrected Ave (3 peaks):					48.5	Corrected Ave (3 peaks):				30.8 RPD = 45*
Aroclor-1248	1	8.080	-0.002	6771	39.8	1	7.391	-0.001	47931	58.6
Aroclor-1248	2	8.617	-0.004	8307	39.2	2	8.272	-0.003	26975	43.9
Aroclor-1248	3	8.908	-0.001	10790	54.3	3	8.797	-0.005	40105	63.2
Aroclor-1248	4	9.494	-0.004	32967	261.3	4	9.127	-0.011	76923	95.3
Total Col1Ave (4 peaks):					98.6	Total Col2Ave (4 peaks):				65.3 RPD = 41*
Corrected Ave (3 peaks):					44.4	Corrected Ave (3 peaks):				55.3 RPD = 22
Aroclor-1254	1	8.990	-0.001	22854	72.4	1	9.034	-0.003	76524	93.8
Aroclor-1254	2	9.066	-0.002	12070	119.4	2	9.127	-0.000	76923	184.3
Aroclor-1254	3	9.363	0.001	17368	86.1	3	9.542	-0.004	40410	62.7
Aroclor-1254	4	9.494	-0.002	32967	84.7	4	9.690	-0.004	104585	79.4
Aroclor-1254	5	10.198	-0.006	18636	71.5	5	10.463	-0.005	78959	95.2
Total Col1Ave (5 peaks):					86.8	Total Col2Ave (5 peaks):				103.1 RPD = 17
Corrected Ave (4 peaks):					78.7	Corrected Ave (4 peaks):				82.8 RPD = 5
Aroclor-1260	1	10.752	-0.008	11517	89.3	1	10.795	-0.007	50462	70.4
Aroclor-1260	2	11.069	-0.009	9212	73.6	2	11.230	-0.012	67552	94.7
Aroclor-1260	3	11.440	-0.008	30437	98.4	3	11.511	-0.008	118363	63.2
Aroclor-1260	4	11.839	-0.008	13296	91.3	4	12.026	-0.008	38734	65.9
Aroclor-1260	5	11.956	-0.009	6547	92.5	NS	---			----
Total Col1Ave (5 peaks):					89.0	Total Col2Ave (4 peaks):				73.6 RPD = 19
Corrected Ave (4 peaks):					86.7	Corrected Ave (3 peaks):				66.5 RPD = 26
Aroclor-1262	1	11.069	-0.013	9212	59.0	1	10.795	-0.018	50462	50.2
Aroclor-1262	2	11.440	-0.011	30437	81.2	2	11.230	-0.024	67552	79.9
Aroclor-1262	3	11.839	-0.011	13296	115.1	3	11.511	-0.018	118363	59.6
Aroclor-1262	4	11.956	-0.012	6547	45.6	4	12.026	-0.018	38734	40.8
Total Col1Ave (4 peaks):					75.2	Total Col2Ave (4 peaks):				57.6 RPD = 26
Corrected Ave (3 peaks):					61.9	Corrected Ave (3 peaks):				50.2 RPD = 21
Aroclor-1268	1	11.956	-0.012	6547	15.4	1	12.026	-0.020	38734	15.4
Aroclor-1268	2	12.029	-0.010	7898	20.0	2	12.082	-0.028	84110	33.8
Aroclor-1268	3	12.429	0.004	3886	11.8	3	12.489	-0.012	10368	4.7
Aroclor-1268	4	13.203	-0.008	5379	5.5	4	13.300	-0.020	17810	2.2
Total Col1Ave (4 peaks):					13.2	Total Col2Ave (4 peaks):				14.0 RPD = 6

Corrected Ave (3 peaks): 10.9 Corrected Ave (3 peaks): 7.4 RPD = 38

Total PCB Area Col1 (5.413 - 13.516) = 638385 Col1 Total PCB = 0.2 ppm*

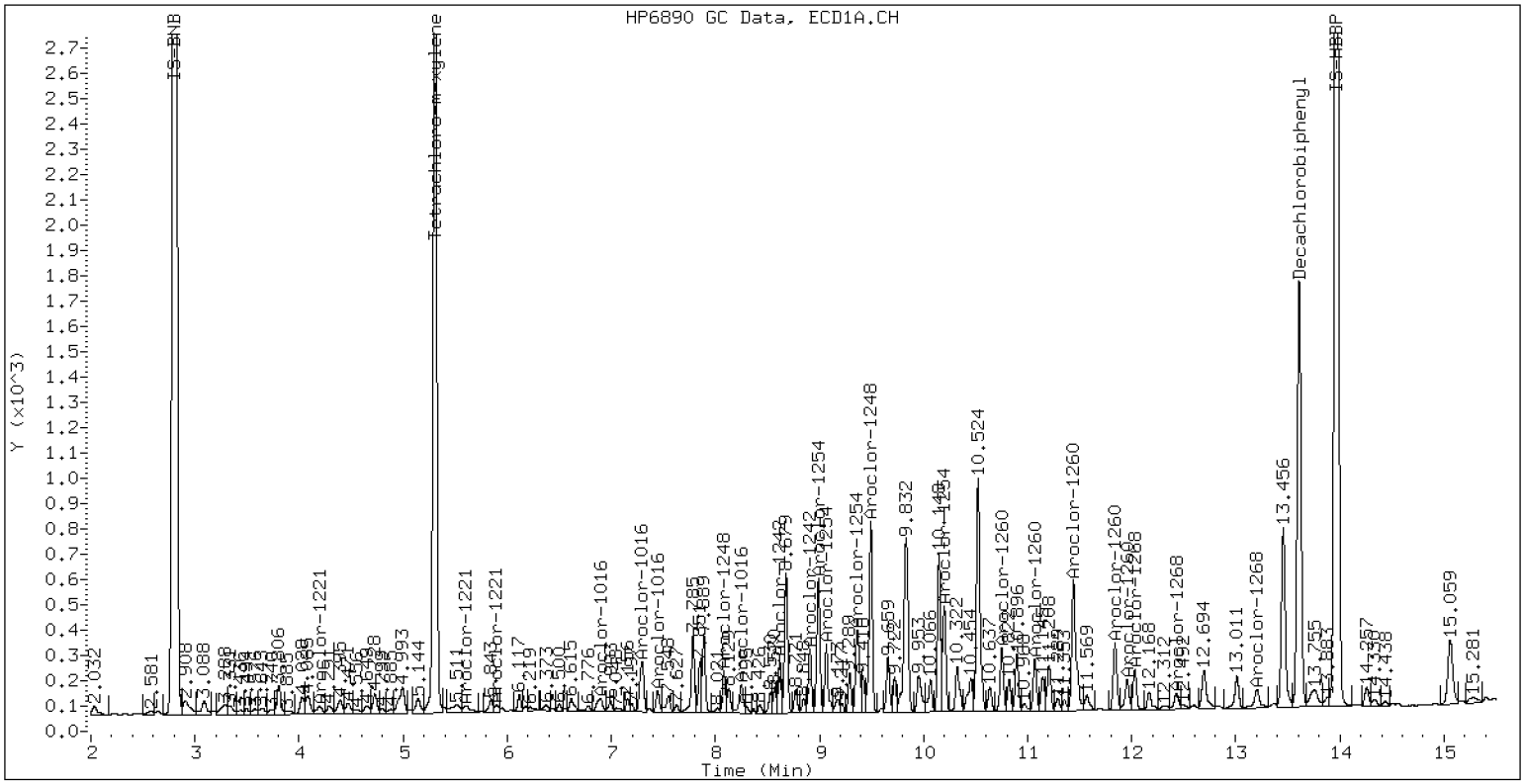
Total PCB Area Col2 (5.413 - 13.516) = 2689779 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

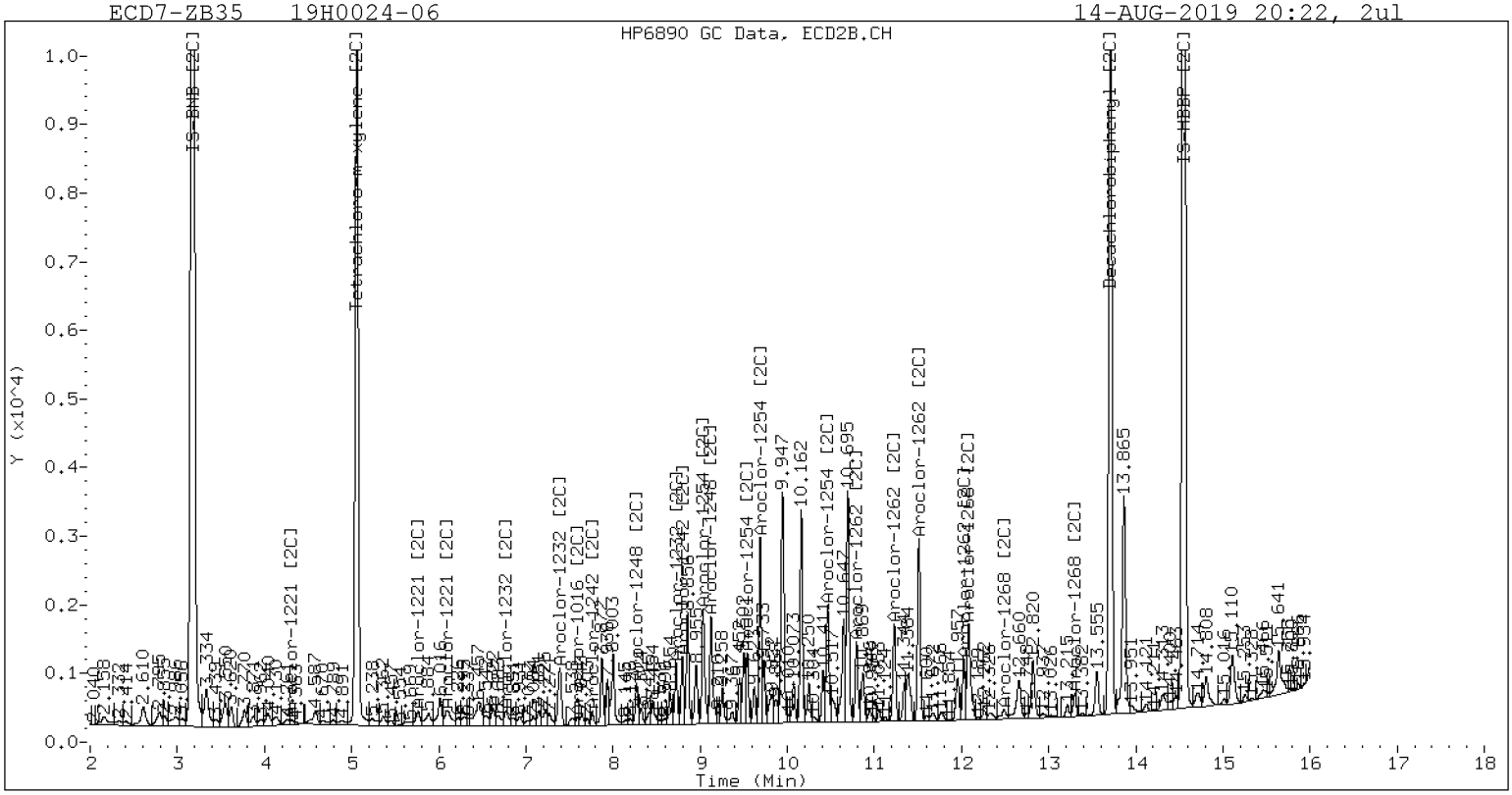
PCB Dual Column Chromatograms

ECD7-ZB5 19H0024-06 14-AUG-2019 20:22, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 19H0024-06 14-AUG-2019 20:22, 2ul



ZB-35 Manual Integration: NO

Dual Column

SL4-SG-WC4-2019

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-07 C	File ID:	19081418ECD7.D
Sampled:	08/01/19 10:08	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 20:43
% Solids:	71.82	Preparation:	EPA 3546 (Microwave)	Initial/Final:	17.45 g Wet / 2.5 mL
Batch:	BHH0288	Sequence:	SHH0216	Calibration:	CG00087
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	RL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	2	1	11.8	1.6	4.0	
11097-69-1	Aroclor 1254	2	1	24.7	1.6	4.0	
11096-82-5	Aroclor 1260	2	1	14.6	0.6	4.0	
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9792*			*40 - 126*	*NRS*
Tetrachlorometaxylene	*1*	*7.9792*	*6.35*	*79.5*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9792*	*5.54*	*69.5*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9792*	*5.81*	*72.8*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081418ECD7.D
Data file 2: /20190814.b/20190814.b/19081418ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 19H0024-07
Client ID:
Injection Date: 14-AUG-2019 20:43
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.310	-0.003	149687	5.064	-0.004	522568	31.8	29.1	8.8	Tetrachloro-m-xylene
13.608	-0.008	90306	13.710	-0.005	614620	31.7	27.8	13.1	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	79.5	72.8
Decachlorobiphenyl	~~79.~~2 nrs	69.5

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D	
Bromo-Nitrobenzene	432392	367083	-15.1	
Hexabromobiphenyl	517563	251601	-51.4	<- fails low due to oily matrix

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1438330	-3.9
Hexabromobiphenyl	1404015	1176154	-16.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	ZB5 Col Area	Amount	Peak#	RT	Shift	ZB35 Col Area	Amount	
Aroclor-1016	1	6.904	-0.005	4668	40.4	1	6.780	0.006	17089	24.4	
Aroclor-1016	2	7.298	-0.001	7918	19.4	2	7.393	-0.002	36401	23.4	
Aroclor-1016	3	7.454	0.009	8939	57.4	3	7.594	-0.002	2035	3.3	
Aroclor-1016	4	8.243	-0.013	9640	75.7	4	7.764	-0.002	5625	14.5	
	Total Col1Ave (4 peaks):				48.2	Total Col2Ave (4 peaks):				16.4	RPD = 98*
	Corrected Ave (3 peaks):				39.0	Corrected Ave (3 peaks):				13.7	RPD = 96*
Aroclor-1221	1	4.167	-0.004	4401	159.9	1	4.316	0.021	9314	86.8	
Aroclor-1221	2	5.614	-0.086	1485	32.9	2	5.767	-0.004	14710	62.9	
Aroclor-1221	3	5.900	-0.072	2149	19.2	3	6.116	-0.001	18275	48.0	
	Total Col1Ave (3 peaks):				70.7	Total Col2Ave (3 peaks):				65.9	RPD = 7
	Corrected Ave: < 3 Peaks					Corrected Ave: < 3 Peaks					
Aroclor-1232	1	4.167	-0.004	4401	265.3	1	4.316	0.020	9314	144.2	
Aroclor-1232	2	6.904	-0.016	4668	100.4	2	6.780	-0.013	17089	52.4	
Aroclor-1232	3	7.298	-0.009	7918	48.6	3	7.393	-0.019	36401	55.5	
Aroclor-1232	4	7.454	-0.001	8939	144.7	4	8.724	-0.021	30302	136.4	
	Total Col1Ave (4 peaks):				139.8	Total Col2Ave (4 peaks):				97.1	RPD = 36
	Corrected Ave (3 peaks):				97.9	Corrected Ave (3 peaks):				81.4	RPD = 18
Aroclor-1242	1	6.904	-0.005	4668	48.7	1	6.780	0.006	17089	30.0	
Aroclor-1242	2	7.298	0.001	7918	22.9	2	7.393	-0.002	36401	29.0	
Aroclor-1242	3	8.619	-0.004	6048	52.9	3	7.764	-0.002	5625	17.4	
Aroclor-1242	4	8.909	-0.002	14323	118.1	4	8.795	-0.007	39341	98.1	
	Total Col1Ave (4 peaks):				60.7	Total Col2Ave (4 peaks):				43.6	RPD = 33
	Corrected Ave (3 peaks):				41.5	Corrected Ave (3 peaks):				25.4	RPD = 48*
Aroclor-1248	1	8.081	-0.002	11722	68.6	1	7.393	0.002	36401	44.6	
Aroclor-1248	2	8.619	-0.002	6048	28.4	2	8.272	-0.003	43241	70.5	
Aroclor-1248	3	8.909	0.000	14323	71.9	3	8.795	-0.007	39341	62.2	
Aroclor-1248	4	9.493	-0.005	57583	454.9	4	9.125	-0.013	97185	120.7	
	Total Col1Ave (4 peaks):				156.0	Total Col2Ave (4 peaks):				74.5	RPD = 71*
	Corrected Ave (3 peaks):				56.3	Corrected Ave (3 peaks):				59.1	RPD = 5
Aroclor-1254	1	8.990	-0.002	36073	113.9	1	9.035	-0.002	114796	141.1	
Aroclor-1254	2	9.066	-0.001	19341	190.7	2	9.125	-0.003	97185	233.4	
Aroclor-1254	3	9.361	-0.001	20983	103.7	3	9.542	-0.004	58367	90.7	
Aroclor-1254	4	9.493	-0.002	57583	147.5	4	9.690	-0.004	183910	139.9	
Aroclor-1254	5	10.196	-0.008	24528	93.9	5	10.464	-0.005	102935	124.4	
	Total Col1Ave (5 peaks):				129.9	Total Col2Ave (5 peaks):				145.9	RPD = 12
	Corrected Ave (4 peaks):				114.7	Corrected Ave (4 peaks):				124.0	RPD = 8
Aroclor-1260	1	10.753	-0.008	13231	97.7	1	10.794	-0.008	59022	76.0	
Aroclor-1260	2	11.069	-0.009	10898	82.9	2	11.228	-0.014	91295	118.2	
Aroclor-1260	3	11.441	-0.007	40131	123.5	3	11.511	-0.008	147882	72.9	
Aroclor-1260	4	11.839	-0.009	16642	108.8	4	12.026	-0.008	44660	70.1	
Aroclor-1260	5	11.957	-0.008	6916	93.1	NS	---			----	
	Total Col1Ave (5 peaks):				101.2	Total Col2Ave (4 peaks):				84.3	RPD = 18
	Corrected Ave (4 peaks):				95.6	Corrected Ave (3 peaks):				73.0	RPD = 27
Aroclor-1262	1	11.069	-0.012	10898	66.4	1	10.794	-0.019	59022	54.2	
Aroclor-1262	2	11.441	-0.010	40131	101.9	2	11.228	-0.026	91295	99.7	
Aroclor-1262	3	11.839	-0.012	16642	137.2	3	11.511	-0.019	147882	68.7	
Aroclor-1262	4	11.957	-0.011	6916	45.9	4	12.026	-0.018	44660	43.4	
	Total Col1Ave (4 peaks):				87.8	Total Col2Ave (4 peaks):				66.5	RPD = 28
	Corrected Ave (3 peaks):				71.4	Corrected Ave (3 peaks):				55.4	RPD = 25
Aroclor-1268	1	11.957	-0.011	6916	15.4	1	12.026	-0.020	44660	16.4	
Aroclor-1268	2	12.029	-0.010	8426	20.3	2	12.080	-0.030	98010	36.3	
Aroclor-1268	3	12.430	0.004	3927	11.4	3	12.485	-0.016	5714	2.4	
Aroclor-1268	4	13.202	-0.008	4574	4.5	4	13.301	-0.019	16874	1.9	
	Total Col1Ave (4 peaks):				12.9	Total Col2Ave (4 peaks):				14.3	RPD = 10

Corrected Ave (3 peaks): 10.4 Corrected Ave (3 peaks): 6.9 RPD = 41*

Total PCB Area Col1 (5.413 - 13.516) = 881921 Col1 Total PCB = 0.3 ppm*

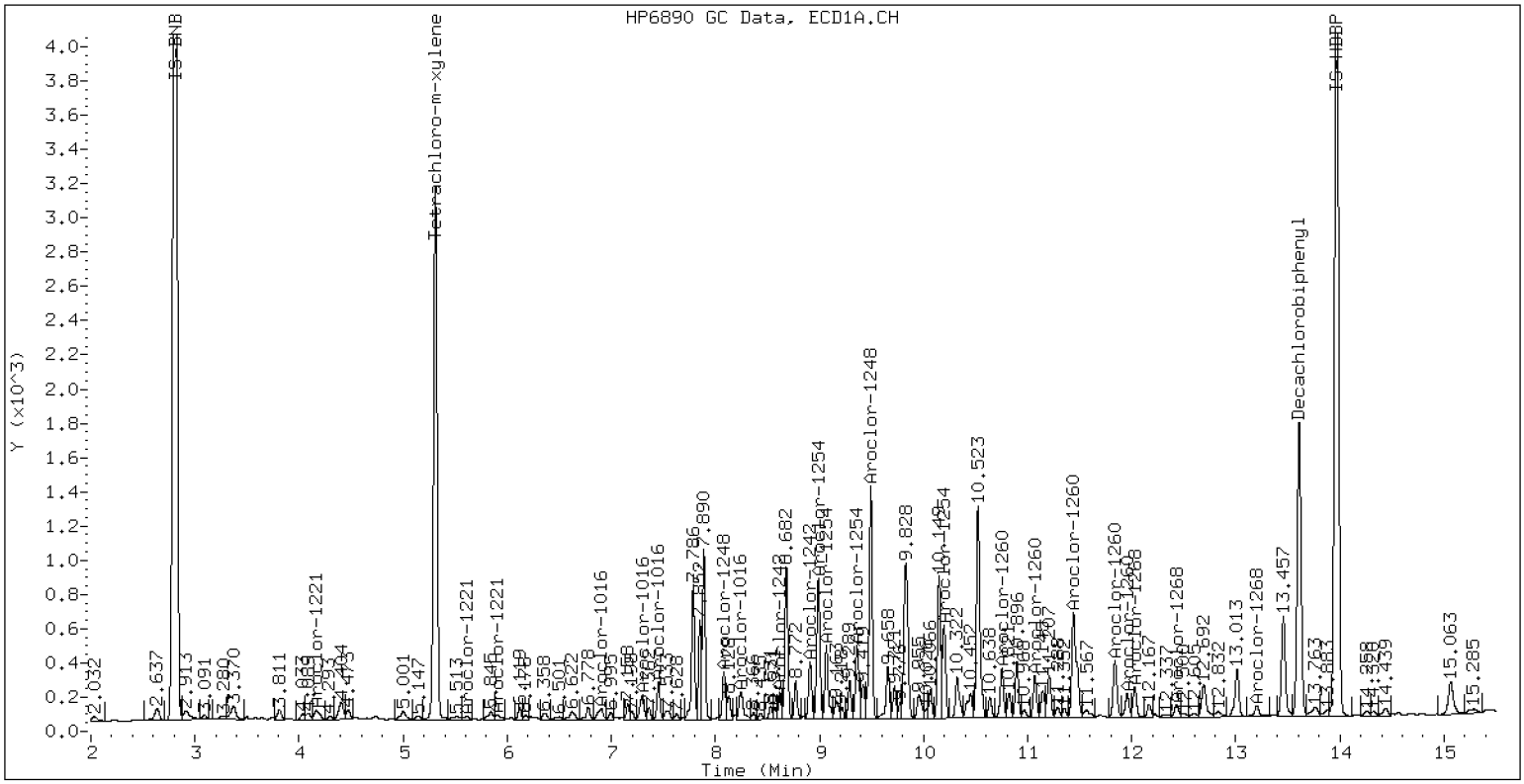
Total PCB Area Col2 (5.413 - 13.516) = 3589188 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

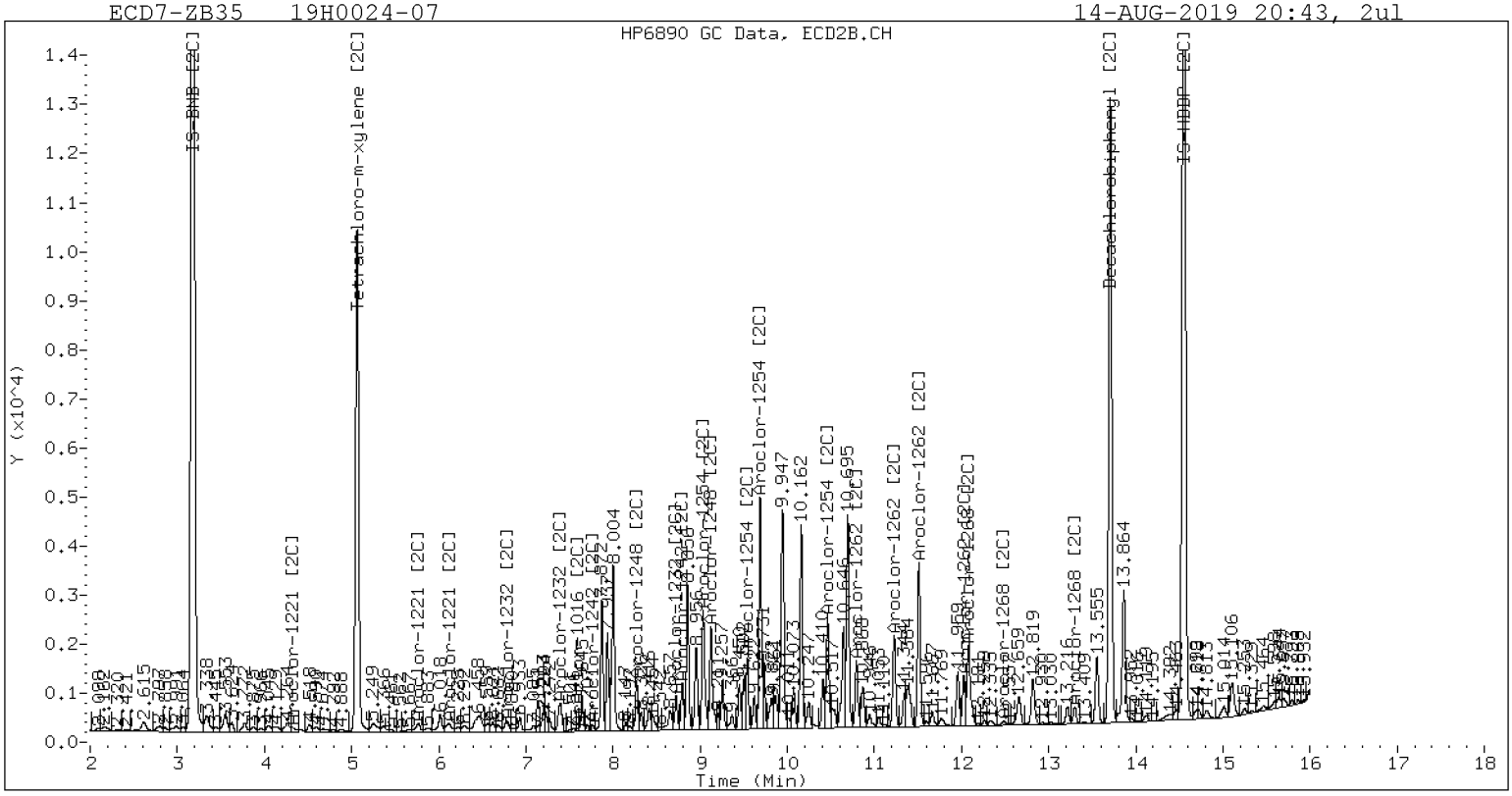
PCB Dual Column Chromatograms

ECD7-ZB5 19H0024-07 14-AUG-2019 20:43, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 19H0024-07 14-AUG-2019 20:43, 2ul



ZB-35 Manual Integration: NO

Dual Column

SL4-SG-WC2-2019

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-08 B	File ID:	19081419ECD7.D
Sampled:	08/01/19 10:30	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 21:05
% Solids:	44.53	Preparation:	EPA 3546 (Microwave)	Initial/Final:	28.18 g Wet / 2.5 mL
Batch:	BHH0288	Sequence:	SHH0216	Calibration:	CG00087
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	RL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	43.1	1.6	4.0	
11097-69-1	Aroclor 1254	2	1	97.5	1.6	4.0	
11096-82-5	Aroclor 1260	2	1	49.1	0.6	4.0	
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9690*			*40 - 126*	*NRS*
Tetrachlorometaxylene	*1*	*7.9690*	*6.07*	*76.2*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9690*	*5.70*	*71.5*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9690*	*5.68*	*71.2*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081419ECD7.D
Data file 2: /20190814.b/20190814.b/19081419ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 19H0024-08
Client ID:
Injection Date: 14-AUG-2019 21:05
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.315	0.002	97038	5.069	0.001	317848	30.5	28.5	6.8	Tetrachloro-m-xylene
13.610	-0.006	60571	13.710	-0.005	413329	33.2	28.6	14.8	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	76.2	71.2
Decachlorobiphenyl	~~82.~~9 nrs	71.5

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D	
Bromo-Nitrobenzene	432392	248282	-42.6	
Hexabromobiphenyl	517563	161151	-68.9 <-	fails low due to oily matrix

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	894572	-40.3
Hexabromobiphenyl	1404015	768557	-45.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	ZB5 Col Area	Amount	Peak#	RT	Shift	ZB35 Col Area	Amount
Aroclor-1016	1	6.905	-0.003	14157	181.2	1	6.772	-0.002	43669	100.2
Aroclor-1016	2	7.298	-0.002	18766	67.8	2	7.396	0.000	81580	84.5
Aroclor-1016	3	7.455	0.010	50278	477.2	3	7.645	0.049	174041	452.4
Aroclor-1016	4	8.238	-0.019	27224	316.2	4	7.766	-0.000	12411	51.4
Total Col1Ave (4 peaks):					260.6	Total Col2Ave (4 peaks):				172.1 RPD = 41*
Corrected Ave (3 peaks):					100.4	Corrected Ave (3 peaks):				79.7 RPD = 82*
Aroclor-1221	1	4.208	0.038	2985	160.3	1	4.271	-0.024	24296	363.9
Aroclor-1221	2	---			0.0	2	5.767	-0.004	8644	59.4
Aroclor-1221	3	5.957	-0.015	1361	18.0	3	6.124	0.007	22808	96.2
Col1Ave: <3 Quant Peaks						Col2Ave: 173.2				
Aroclor-1232	1	4.208	0.037	2985	266.0	1	4.271	-0.025	24296	604.8
Aroclor-1232	2	6.905	-0.014	14157	450.1	2	6.772	-0.021	43669	215.3
Aroclor-1232	3	7.298	-0.009	18766	170.4	3	7.396	-0.017	81580	199.8
Aroclor-1232	4	7.455	0.000	50278	1203.5	4	8.724	-0.021	71970	520.8
Total Col1Ave (4 peaks):					522.5	Total Col2Ave (4 peaks):				385.2 RPD = 30
Corrected Ave (3 peaks):					295.5	Corrected Ave (3 peaks):				312.0 RPD = 5
Aroclor-1242	1	6.905	-0.004	14157	218.6	1	6.772	-0.002	43669	123.1
Aroclor-1242	2	7.298	0.000	18766	80.3	2	7.396	0.001	81580	104.5
Aroclor-1242	3	8.618	-0.005	16352	211.6	3	7.766	-0.000	12411	61.6
Aroclor-1242	4	8.906	-0.005	36422	444.2	4	8.794	-0.008	73349	294.1
Total Col1Ave (4 peaks):					238.7	Total Col2Ave (4 peaks):				145.8 RPD = 48*
Corrected Ave (3 peaks):					170.2	Corrected Ave (3 peaks):				96.4 RPD = 55*
Aroclor-1248	1	8.080	-0.002	30681	265.5	1	7.396	0.004	81580	160.8
Aroclor-1248	2	8.618	-0.003	16352	113.7	2	8.272	-0.003	102433	268.7
Aroclor-1248	3	8.906	-0.003	36422	270.3	3	8.794	-0.007	73349	186.4
Aroclor-1248	4	9.493	-0.005	110973	1296.1	4	9.125	-0.013	153144	305.7
Total Col1Ave (4 peaks):					486.4	Total Col2Ave (4 peaks):				230.4 RPD = 71*
Corrected Ave (3 peaks):					216.5	Corrected Ave (3 peaks):				205.3 RPD = 5
Aroclor-1254	1	8.988	-0.003	79034	368.9	1	9.036	-0.001	284953	563.0
Aroclor-1254	2	9.065	-0.002	27737	404.4	2	9.125	-0.003	153144	591.3
Aroclor-1254	3	9.366	0.005	62565	457.3	3	9.542	-0.004	128007	320.0
Aroclor-1254	4	9.493	-0.003	110973	420.3	4	9.690	-0.004	372358	455.4
Aroclor-1254	5	10.197	-0.007	65418	370.1	5	10.462	-0.006	266244	517.3
Total Col1Ave (5 peaks):					404.2	Total Col2Ave (5 peaks):				489.4 RPD = 19
Corrected Ave (4 peaks):					390.9	Corrected Ave (4 peaks):				464.0 RPD = 17
Aroclor-1260	1	10.753	-0.008	27346	315.2	1	10.795	-0.007	117989	232.6
Aroclor-1260	2	11.069	-0.009	24953	296.5	2	11.228	-0.014	243416	482.3
Aroclor-1260	3	11.443	-0.005	101527	487.9	3	11.512	-0.007	353364	266.7
Aroclor-1260	4	11.840	-0.007	45176	461.0	4	12.026	-0.007	99699	239.6
Aroclor-1260	5	11.958	-0.006	16919	355.6	NS	---			----
Total Col1Ave (5 peaks):					383.2	Total Col2Ave (4 peaks):				305.3 RPD = 23
Corrected Ave (4 peaks):					357.1	Corrected Ave (3 peaks):				246.3 RPD = 37
Aroclor-1262	1	11.069	-0.012	24953	237.4	1	10.795	-0.018	117989	165.7
Aroclor-1262	2	11.443	-0.008	101527	402.6	2	11.228	-0.026	243416	406.8
Aroclor-1262	3	11.840	-0.010	45176	581.4	3	11.512	-0.017	353364	251.2
Aroclor-1262	4	11.958	-0.009	16919	175.1	4	12.026	-0.018	99699	148.2
Total Col1Ave (4 peaks):					349.1	Total Col2Ave (4 peaks):				243.0 RPD = 36
Corrected Ave (3 peaks):					271.7	Corrected Ave (3 peaks):				188.4 RPD = 36
Aroclor-1268	1	11.958	-0.010	16919	59.0	1	12.026	-0.019	99699	56.0
Aroclor-1268	2	12.031	-0.008	19634	73.8	2	12.081	-0.030	234932	133.3
Aroclor-1268	3	12.431	0.005	9150	41.4	3	12.486	-0.014	15946	10.2
Aroclor-1268	4	13.203	-0.007	6666	10.2	4	13.303	-0.017	36883	6.4
Total Col1Ave (4 peaks):					46.1	Total Col2Ave (4 peaks):				51.5 RPD = 11
Corrected Ave (3 peaks):					36.9	Corrected Ave (3 peaks):				24.2 RPD = 42*

Total PCB Area Col1 (5.413 - 13.516) = 2264959 Col1 Total PCB = 1.1 ppm*

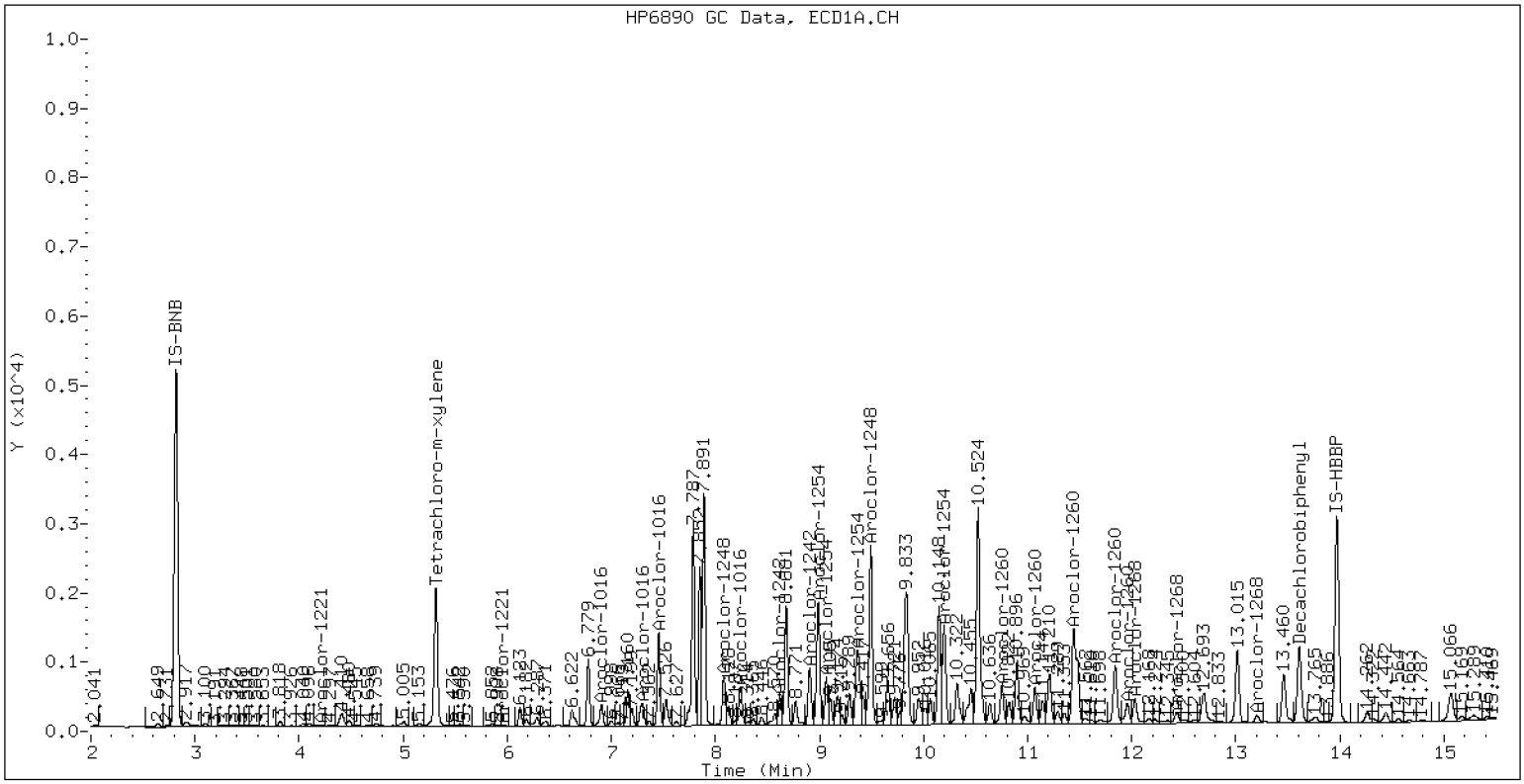
Total PCB Area Col2 (5.413 - 13.516) = 8772037 Col2 Total PCB = 1.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

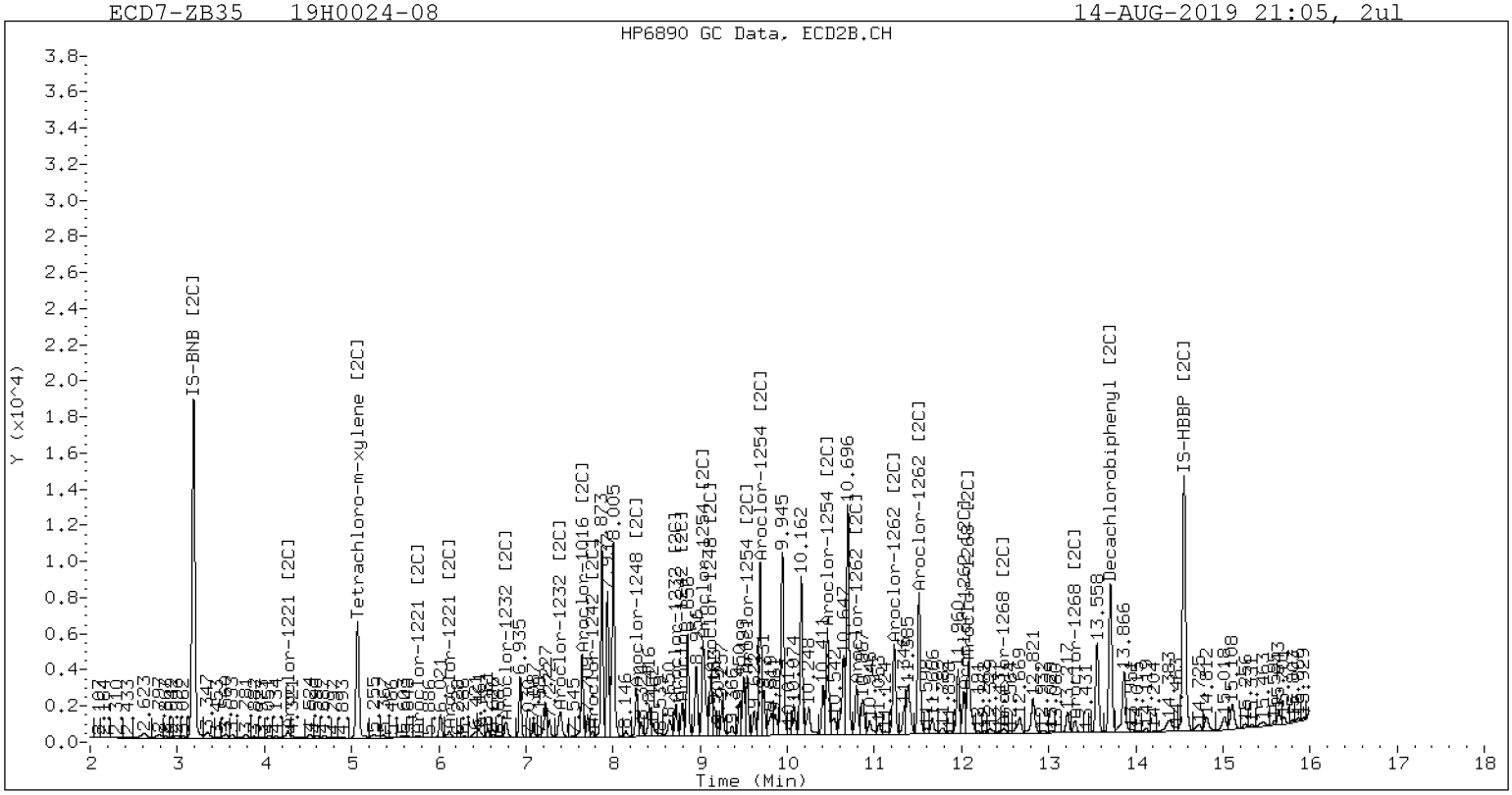
PCB Dual Column Chromatograms

ECD7-ZB5 19H0024-08 14-AUG-2019 21:05, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 19H0024-08 14-AUG-2019 21:05, 2ul



ZB-35 Manual Integration: NO

Dual Column

SL4-SG-WC1-2019

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-09 C	File ID:	19081420ECD7.D
Sampled:	08/01/19 10:43	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 21:26
% Solids:	40.99	Preparation:	EPA 3546 (Microwave)	Initial/Final:	30.56 g Wet / 2.5 mL
Batch:	BHH0288	Sequence:	SHH0216	Calibration:	CG00087
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	RL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	2	1	43.5	1.6	4.0	
11097-69-1	Aroclor 1254	2	1	92.1	1.6	4.0	
11096-82-5	Aroclor 1260	2	1	52.2	0.6	4.0	
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9830*			*40 - 126*	*NRS*
Tetrachlorometaxylene	*1*	*7.9830*	*5.08*	*63.7*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9830*	*5.07*	*63.5*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9830*	*4.79*	*60.1*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081420ECD7.D
Data file 2: /20190814.b/20190814.b/19081420ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 19H0024-09
Client ID:
Injection Date: 14-AUG-2019 21:26
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.315	0.002	84226	5.069	0.001	274406	25.5	24.0	5.8	Tetrachloro-m-xylene
13.614	-0.002	54416	13.714	-0.001	373955	29.7	25.4	15.7	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	63.7	60.1
Decachlorobiphenyl	~~74.~~3 nrs	63.5

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D	
Bromo-Nitrobenzene	432392	258008	-40.3	
Hexabromobiphenyl	517563	161591	-68.8	<- fails low due to oily matrix

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	915806	-38.8
Hexabromobiphenyl	1404015	782893	-44.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.886	-0.023	22270	274.3	1	6.777	0.003	43577	97.7
Aroclor-1016	2	7.299	0.000	23440	81.5	2	7.398	0.003	99004	100.2
Aroclor-1016	3	7.453	0.008	20811	190.1	3	7.598	0.002	23005	58.4
Aroclor-1016	4	8.247	-0.010	22112	247.1	4	7.762	-0.004	14271	57.7
	Total Col1Ave (4 peaks):				198.2	Total Col2Ave (4 peaks):				78.5 RPD = 87*
	Corrected Ave (3 peaks):				172.9	Corrected Ave (3 peaks):				71.3 RPD = 83*
Aroclor-1221	1	4.214	0.044	6939	358.7	1	4.269	-0.025	68991	1009.4
Aroclor-1221	2	5.683	-0.018	1310	41.3	2	5.757	-0.014	17906	120.2
Aroclor-1221	3	5.959	-0.013	2573	32.7	3	6.125	0.008	29052	119.7
	Total Col1Ave (3 peaks):				144.2	Total Col2Ave (3 peaks):				416.4 RPD = 97*
	Corrected Ave: < 3 Peaks					Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.214	0.043	6939	595.1	1	4.269	-0.026	68991	1677.7
Aroclor-1232	2	6.886	-0.034	22270	681.4	2	6.777	-0.017	43577	209.8
Aroclor-1232	3	7.299	-0.008	23440	204.8	3	7.398	-0.014	99004	236.9
Aroclor-1232	4	7.453	-0.002	20811	479.4	4	8.724	-0.021	97357	688.1
	Total Col1Ave (4 peaks):				490.2	Total Col2Ave (4 peaks):				703.1 RPD = 36
	Corrected Ave (3 peaks):				426.4	Corrected Ave (3 peaks):				378.3 RPD = 12
Aroclor-1242	1	6.886	-0.023	22270	330.9	1	6.777	0.003	43577	120.0
Aroclor-1242	2	7.299	0.002	23440	96.6	2	7.398	0.003	99004	123.8
Aroclor-1242	3	8.618	-0.004	18108	225.4	3	7.762	-0.004	14271	69.1
Aroclor-1242	4	8.905	-0.006	34263	402.1	4	8.795	-0.007	82280	322.3
	Total Col1Ave (4 peaks):				263.7	Total Col2Ave (4 peaks):				138.8 RPD = 50*
	Corrected Ave (3 peaks):				217.6	Corrected Ave (3 peaks):				104.3 RPD = 70*
Aroclor-1248	1	8.080	-0.002	26053	216.9	1	7.398	0.006	99004	190.7
Aroclor-1248	2	8.618	-0.003	18108	121.2	2	8.272	-0.004	76860	196.9
Aroclor-1248	3	8.905	-0.004	34263	244.7	3	8.795	-0.006	82280	204.2
Aroclor-1248	4	9.494	-0.004	101311	1138.6	4	9.126	-0.012	143517	279.8
	Total Col1Ave (4 peaks):				430.4	Total Col2Ave (4 peaks):				217.9 RPD = 66*
	Corrected Ave (3 peaks):				194.3	Corrected Ave (3 peaks):				197.3 RPD = 2
Aroclor-1254	1	8.989	-0.002	66556	298.9	1	9.037	-0.000	273630	528.1
Aroclor-1254	2	9.066	-0.001	23087	323.9	2	9.126	-0.001	143517	541.2
Aroclor-1254	3	9.368	0.006	59401	417.8	3	9.519	-0.027	1735872	4238.8
Aroclor-1254	4	9.494	-0.002	101311	369.2	4	9.691	-0.003	304174	363.4
Aroclor-1254	5	10.198	-0.006	51983	283.0	5	10.463	-0.005	217295	412.4
	Total Col1Ave (5 peaks):				338.4	Total Col2Ave (5 peaks):				1216.8 RPD = 113*
	Corrected Ave (4 peaks):				318.8	Corrected Ave (4 peaks):				461.3 RPD = 37
Aroclor-1260	1	10.755	-0.005	32005	367.8	1	10.797	-0.005	133697	258.8
Aroclor-1260	2	11.071	-0.006	26563	314.8	2	11.232	-0.010	215956	420.1
Aroclor-1260	3	11.446	-0.001	68703	329.3	3	11.516	-0.003	369010	273.4
Aroclor-1260	4	11.843	-0.004	41415	421.5	4	12.030	-0.003	107103	252.7
Aroclor-1260	5	11.961	-0.004	17641	369.8	NS	---			----
	Total Col1Ave (5 peaks):				360.6	Total Col2Ave (4 peaks):				301.2 RPD = 18
	Corrected Ave (4 peaks):				345.4	Corrected Ave (3 peaks):				261.6 RPD = 28
Aroclor-1262	1	11.071	-0.010	26563	252.1	1	10.797	-0.016	133697	184.3
Aroclor-1262	2	11.446	-0.004	68703	271.7	2	11.232	-0.022	215956	354.3
Aroclor-1262	3	11.843	-0.007	41415	531.5	3	11.516	-0.013	369010	257.5
Aroclor-1262	4	11.961	-0.007	17641	182.1	4	12.030	-0.014	107103	156.3
	Total Col1Ave (4 peaks):				309.3	Total Col2Ave (4 peaks):				238.1 RPD = 26
	Corrected Ave (3 peaks):				235.3	Corrected Ave (3 peaks):				199.4 RPD = 17
Aroclor-1268	1	11.961	-0.008	17641	61.3	1	12.030	-0.015	107103	59.1
Aroclor-1268	2	12.034	-0.005	19189	72.0	2	12.085	-0.025	237277	132.2
Aroclor-1268	3	12.435	0.010	8650	39.1	3	12.487	-0.013	19220	12.0
Aroclor-1268	4	13.209	-0.002	5322	8.1	4	13.307	-0.013	38563	6.6
	Total Col1Ave (4 peaks):				45.1	Total Col2Ave (4 peaks):				52.5 RPD = 15

Corrected Ave (3 peaks): 36.2 Corrected Ave (3 peaks): 25.9 RPD = 33

Total PCB Area Col1 (5.413 - 13.516) = 2731155 Col1 Total PCB = 1.2 ppm*

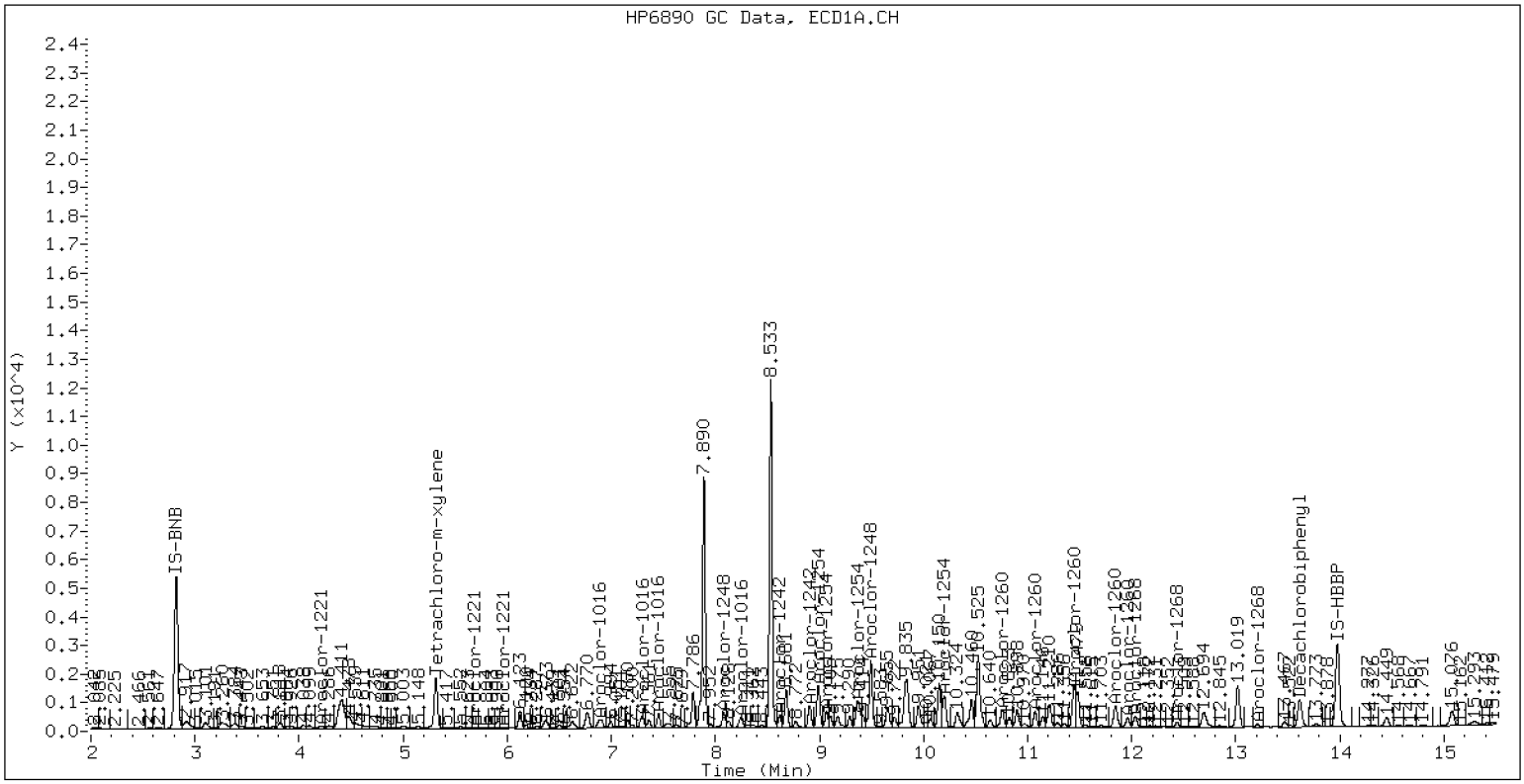
Total PCB Area Col2 (5.413 - 13.516) = 10856672 Col2 Total PCB = 1.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

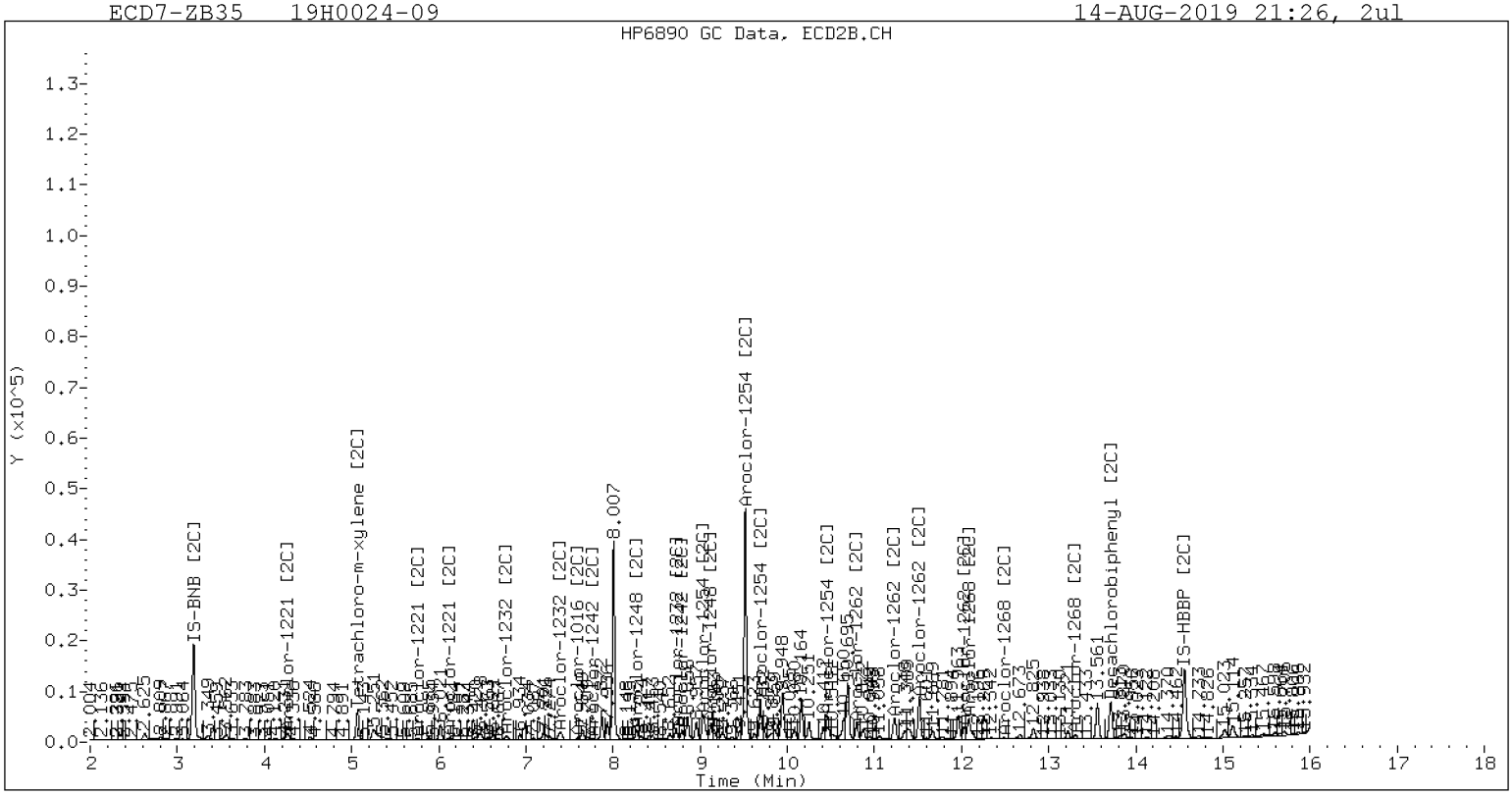
PCB Dual Column Chromatograms

ECD7-ZB5 19H0024-09 14-AUG-2019 21:26, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 19H0024-09 14-AUG-2019 21:26, 2ul



ZB-35 Manual Integration: NO

Dual Column

SL4-IC-SC2-2019

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-10 C	File ID:	19081421ECD7.D
Sampled:	08/01/19 11:45	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 21:48
% Solids:	82.03	Preparation:	EPA 3546 (Microwave)	Initial/Final:	15.28 g Wet / 2.5 mL
Batch:	BHH0288	Sequence:	SHH0216	Calibration:	CG00087
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	RL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	8.3	1.6	4.0	
11097-69-1	Aroclor 1254	2	1	14.3	1.6	4.0	
11096-82-5	Aroclor 1260	2	1	11.8	0.6	4.0	
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9782*			*40 - 126*	*NRS*
Tetrachlorometaxylene	*1*	*7.9782*	*6.35*	*79.6*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9782*	*5.41*	*67.8*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9782*	*6.09*	*76.3*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081421ECD7.D
Data file 2: /20190814.b/20190814.b/19081421ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 19H0024-10
Client ID:
Injection Date: 14-AUG-2019 21:48
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.309	-0.003	99427	5.064	-0.005	359987	31.8	30.5	4.2	Tetrachloro-m-xylene
13.609	-0.007	55216	13.708	-0.007	362093	32.9	27.1	19.2	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1		Col2
Tetrachloro-m-xylene	79.6		76.3
Decachlorobiphenyl	82.2	nrs	67.8

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D	
Bromo-Nitrobenzene	432392	243722	-43.6	
Hexabromobiphenyl	517563	148182	-71.4	<- fails low due to oily matrix

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	945564	-36.8
Hexabromobiphenyl	1404015	709758	-49.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.904	-0.005	2955	38.5	1	6.776	0.002	11539	25.0
Aroclor-1016	2	7.298	-0.001	3705	13.6	2	7.400	0.005	20934	20.5
Aroclor-1016	3	7.454	0.009	5235	50.6	3	7.549	-0.047	2963	7.3
Aroclor-1016	4	8.245	-0.011	4984	59.0	4	7.763	-0.003	2571	10.1
	Total Col1Ave (4 peaks):				40.4	Total Col2Ave (4 peaks):				15.7 RPD = 88*
	Corrected Ave (3 peaks):				34.3	Corrected Ave (3 peaks):				12.6 RPD = 92*
Aroclor-1221	1	4.196	0.026	1020	55.8	1	4.265	-0.029	19372	274.5
Aroclor-1221	2	5.617	-0.084	3325	111.1	2	5.763	-0.008	12284	79.9
Aroclor-1221	3	5.904	-0.068	1222	16.4	3	6.122	0.005	19335	77.2
	Total Col1Ave (3 peaks):				61.1	Total Col2Ave (3 peaks):				143.8 RPD = 81*
	Corrected Ave: < 3 Peaks					Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.196	0.025	1020	92.6	1	4.265	-0.030	19372	456.2
Aroclor-1232	2	6.904	-0.016	2955	95.7	2	6.776	-0.017	11539	53.8
Aroclor-1232	3	7.298	-0.009	3705	34.3	3	7.400	-0.012	20934	48.5
Aroclor-1232	4	7.454	-0.001	5235	127.7	4	8.724	-0.021	16534	113.2
	Total Col1Ave (4 peaks):				87.6	Total Col2Ave (4 peaks):				167.9 RPD = 63*
	Corrected Ave (3 peaks):				74.2	Corrected Ave (3 peaks):				71.8 RPD = 3
Aroclor-1242	1	6.904	-0.005	2955	46.5	1	6.776	0.002	11539	30.8
Aroclor-1242	2	7.298	0.001	3705	16.2	2	7.400	0.005	20934	25.4
Aroclor-1242	3	8.618	-0.004	2826	37.2	3	7.763	-0.003	2571	12.1
Aroclor-1242	4	8.906	-0.005	6265	77.8	4	8.795	-0.007	14433	54.7
	Total Col1Ave (4 peaks):				44.4	Total Col2Ave (4 peaks):				30.7 RPD = 36
	Corrected Ave (3 peaks):				33.3	Corrected Ave (3 peaks):				22.7 RPD = 38
Aroclor-1248	1	8.079	-0.004	6483	57.1	1	7.400	0.008	20934	39.0
Aroclor-1248	2	8.618	-0.003	2826	20.0	2	8.271	-0.004	14857	36.9
Aroclor-1248	3	8.906	-0.003	6265	47.4	3	8.795	-0.007	14433	34.7
Aroclor-1248	4	9.493	-0.005	18308	217.8	4	9.126	-0.012	26570	50.2
	Total Col1Ave (4 peaks):				85.6	Total Col2Ave (4 peaks):				40.2 RPD = 72*
	Corrected Ave (3 peaks):				41.5	Corrected Ave (3 peaks):				36.9 RPD = 12
Aroclor-1254	1	8.988	-0.003	12484	59.4	1	9.035	-0.002	48329	90.3
Aroclor-1254	2	9.066	-0.002	4339	64.4	2	9.126	-0.002	26570	97.1
Aroclor-1254	3	9.365	0.004	9486	70.6	3	9.539	-0.007	17363	41.1
Aroclor-1254	4	9.493	-0.003	18308	70.6	4	9.689	-0.005	53040	61.4
Aroclor-1254	5	10.196	-0.008	8423	48.5	5	10.462	-0.006	37468	68.9
	Total Col1Ave (5 peaks):				62.7	Total Col2Ave (5 peaks):				71.7 RPD = 13
	Corrected Ave (4 peaks):				60.7	Corrected Ave (4 peaks):				65.4 RPD = 7
Aroclor-1260	1	10.752	-0.008	5475	68.6	1	10.795	-0.007	25959	55.4
Aroclor-1260	2	11.069	-0.009	4970	64.2	2	11.230	-0.012	37293	80.0
Aroclor-1260	3	11.476	0.028	26820	140.2	3	11.512	-0.007	63101	51.6
Aroclor-1260	4	11.839	-0.008	7488	83.1	4	12.026	-0.008	19093	49.7
Aroclor-1260	5	11.957	-0.008	3247	74.2	NS	---			----
	Total Col1Ave (5 peaks):				86.1	Total Col2Ave (4 peaks):				59.2 RPD = 37
	Corrected Ave (4 peaks):				72.5	Corrected Ave (3 peaks):				52.2 RPD = 33
Aroclor-1262	1	11.069	-0.012	4970	51.4	1	10.795	-0.019	25959	39.5
Aroclor-1262	2	11.476	0.025	26820	115.7	2	11.230	-0.024	37293	67.5
Aroclor-1262	3	11.839	-0.011	7488	104.8	3	11.512	-0.018	63101	48.6
Aroclor-1262	4	11.957	-0.011	3247	36.6	4	12.026	-0.018	19093	30.7
	Total Col1Ave (4 peaks):				77.1	Total Col2Ave (4 peaks):				46.6 RPD = 49*
	Corrected Ave (3 peaks):				64.3	Corrected Ave (3 peaks):				39.6 RPD = 48*
Aroclor-1268	1	11.957	-0.011	3247	12.3	1	12.026	-0.020	19093	11.6
Aroclor-1268	2	12.029	-0.010	6676	27.3	2	12.080	-0.030	41177	25.3
Aroclor-1268	3	12.430	0.004	2021	10.0	3	12.491	-0.009	6814	4.7
Aroclor-1268	4	13.203	-0.007	2297	3.8	4	13.301	-0.019	6629	1.2
	Total Col1Ave (4 peaks):				13.3	Total Col2Ave (4 peaks):				10.7 RPD = 22

Corrected Ave (3 peaks): 8.7 Corrected Ave (3 peaks): 5.9 RPD = 39

Total PCB Area Col1 (5.413 - 13.516) = 453715 Col1 Total PCB = 0.2 ppm*

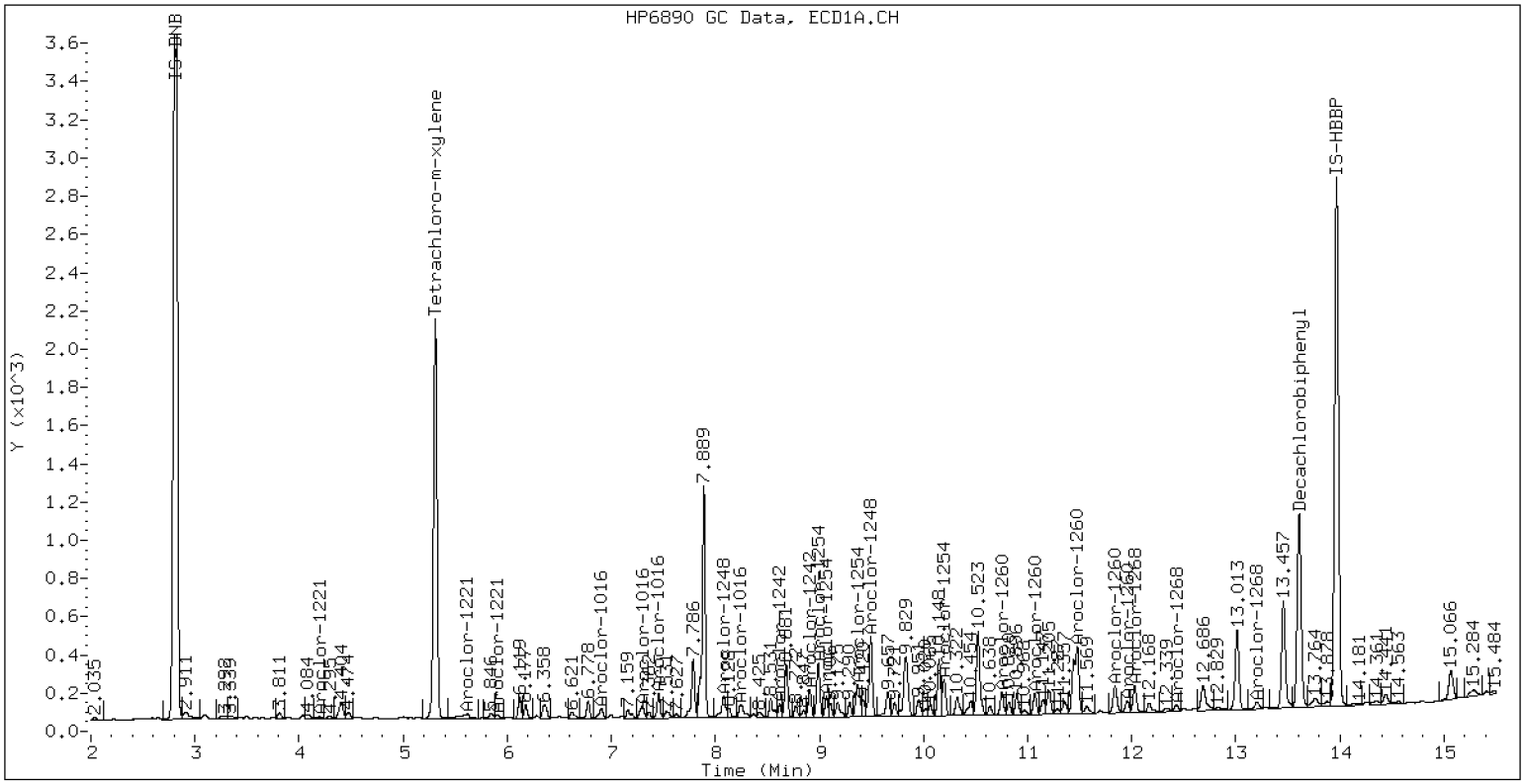
Total PCB Area Col2 (5.413 - 13.516) = 1774100 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

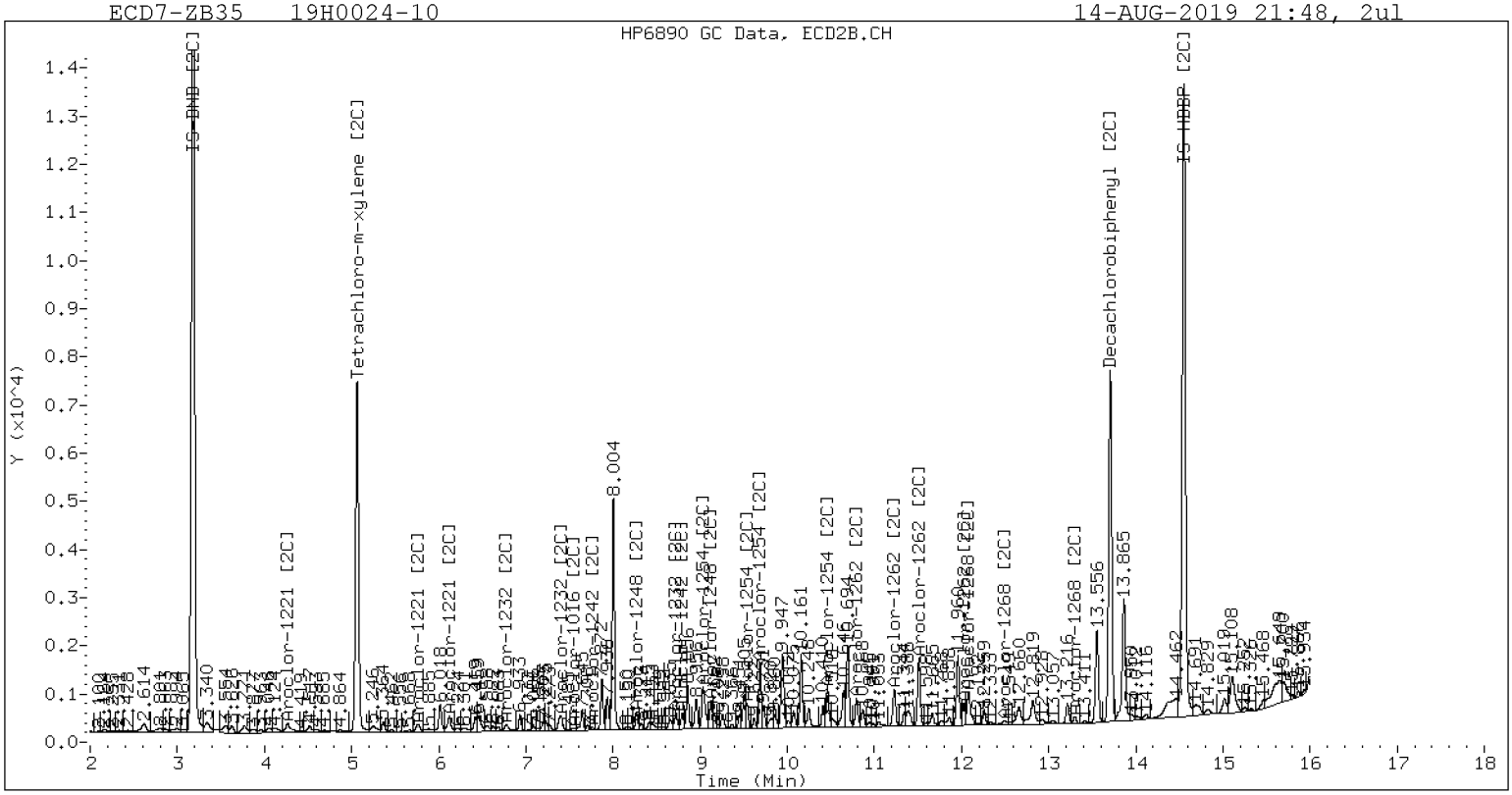
PCB Dual Column Chromatograms

ECD7-ZB5 19H0024-10 14-AUG-2019 21:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 19H0024-10 14-AUG-2019 21:48, 2ul



ZB-35 Manual Integration: NO

Dual Column

SL4-IC-SC3-2019

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-11 C	File ID:	19081422ECD7.D
Sampled:	08/01/19 12:10	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 22:09
% Solids:	65.51	Preparation:	EPA 3546 (Microwave)	Initial/Final:	19.1 g Wet / 2.5 mL
Batch:	BHH0288	Sequence:	SHH0216	Calibration:	CG00087
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	RL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	8.8	1.6	4.0	
11097-69-1	Aroclor 1254	2	1	22.1	1.6	4.0	
11096-82-5	Aroclor 1260	2	1	17.3	0.6	4.0	
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9921*			*40 - 126*	*NRS*
Tetrachlorometaxylene	*1*	*7.9921*	*6.17*	*77.2*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9921*	*5.71*	*71.4*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9921*	*5.89*	*73.7*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081422ECD7.D
Data file 2: /20190814.b/20190814.b/19081422ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 19H0024-11
Client ID:
Injection Date: 14-AUG-2019 22:09
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.314	0.001	98826	5.068	-0.000	339605	30.9	29.5	4.7	Tetrachloro-m-xylene
13.609	-0.008	58554	13.708	-0.007	390272	32.7	28.6	13.4	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	77.2	73.7
Decachlorobiphenyl	~~81~~.7 nrs	71.4

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D	
Bromo-Nitrobenzene	432392	249622	-42.3	
Hexabromobiphenyl	517563	158176	-69.4 <-	fails low due to oily matrix

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	923726	-38.3
Hexabromobiphenyl	1404015	726383	-48.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	ZB5 Col Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.883	-0.026	10573	134.6	1	6.782	0.008	12392	27.5
Aroclor-1016	2	7.298	-0.001	5766	20.7	2	7.389	-0.006	24042	24.1
Aroclor-1016	3	7.456	0.011	3699	34.9	3	7.549	-0.047	2105	5.3
Aroclor-1016	4	8.249	-0.007	5907	68.2	4	7.764	-0.002	2918	11.7
Total Col1Ave (4 peaks):					64.6	Total Col2Ave (4 peaks):				17.2 RPD = 116*
Corrected Ave (3 peaks):					41.3	Corrected Ave (3 peaks):				13.7 RPD = 100*
Aroclor-1221	1	4.211	0.040	4926	263.2	1	4.269	-0.025	12478	181.0
Aroclor-1221	2	5.682	-0.019	1152	37.6	2	5.763	-0.008	18907	125.8
Aroclor-1221	3	5.901	-0.071	4350	57.1	3	6.121	0.004	18287	74.7
Total Col1Ave (3 peaks):					119.3	Total Col2Ave (3 peaks):				127.2 RPD = 6
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.211	0.040	4926	436.6	1	4.269	-0.026	12478	300.8
Aroclor-1232	2	6.883	-0.037	10573	334.4	2	6.782	-0.011	12392	59.2
Aroclor-1232	3	7.298	-0.009	5766	52.1	3	7.389	-0.023	24042	57.0
Aroclor-1232	4	7.456	0.001	3699	88.1	4	8.724	-0.021	21869	153.2
Total Col1Ave (4 peaks):					227.8	Total Col2Ave (4 peaks):				142.6 RPD = 46*
Corrected Ave (3 peaks):					158.2	Corrected Ave (3 peaks):				89.8 RPD = 55*
Aroclor-1242	1	6.883	-0.026	10573	162.4	1	6.782	0.008	12392	33.8
Aroclor-1242	2	7.298	0.001	5766	24.6	2	7.389	-0.006	24042	29.8
Aroclor-1242	3	8.618	-0.005	4788	61.6	3	7.764	-0.001	2918	14.0
Aroclor-1242	4	8.909	-0.002	7191	87.2	4	8.796	-0.006	16766	65.1
Total Col1Ave (4 peaks):					83.9	Total Col2Ave (4 peaks):				35.7 RPD = 81*
Corrected Ave (3 peaks):					57.8	Corrected Ave (3 peaks):				25.9 RPD = 76*
Aroclor-1248	1	8.082	-0.000	5382	46.3	1	7.389	-0.002	24042	45.9
Aroclor-1248	2	8.618	-0.003	4788	33.1	2	8.272	-0.004	16058	40.8
Aroclor-1248	3	8.909	0.000	7191	53.1	3	8.796	-0.006	16766	41.3
Aroclor-1248	4	9.494	-0.005	29866	346.9	4	9.125	-0.013	48014	92.8
Total Col1Ave (4 peaks):					119.9	Total Col2Ave (4 peaks):				55.2 RPD = 74*
Corrected Ave (3 peaks):					44.2	Corrected Ave (3 peaks):				42.7 RPD = 3
Aroclor-1254	1	8.989	-0.002	19329	89.7	1	9.035	-0.002	62022	118.7
Aroclor-1254	2	9.066	-0.001	7515	109.0	2	9.125	-0.003	48014	179.5
Aroclor-1254	3	9.361	-0.001	13255	96.4	3	9.542	-0.004	34687	84.0
Aroclor-1254	4	9.494	-0.002	29866	112.5	4	9.690	-0.004	94053	111.4
Aroclor-1254	5	10.196	-0.008	16188	91.1	5	10.464	-0.004	67779	127.5
Total Col1Ave (5 peaks):					99.7	Total Col2Ave (5 peaks):				124.2 RPD = 22
Corrected Ave (4 peaks):					96.5	Corrected Ave (4 peaks):				110.4 RPD = 13
Aroclor-1260	1	10.753	-0.008	9934	116.6	1	10.795	-0.007	42301	88.2
Aroclor-1260	2	11.068	-0.010	9503	115.0	2	11.229	-0.013	67017	140.5
Aroclor-1260	3	11.441	-0.007	28993	141.9	3	11.512	-0.008	111224	88.8
Aroclor-1260	4	11.840	-0.008	12763	132.7	4	12.026	-0.008	32818	83.5
Aroclor-1260	5	11.956	-0.009	5841	125.1	NS	---			----
Total Col1Ave (5 peaks):					126.3	Total Col2Ave (4 peaks):				100.3 RPD = 23
Corrected Ave (4 peaks):					122.4	Corrected Ave (3 peaks):				86.8 RPD = 34
Aroclor-1262	1	11.068	-0.013	9503	92.1	1	10.795	-0.019	42301	62.9
Aroclor-1262	2	11.441	-0.010	28993	117.1	2	11.229	-0.025	67017	118.5
Aroclor-1262	3	11.840	-0.011	12763	167.3	3	11.512	-0.018	111224	83.6
Aroclor-1262	4	11.956	-0.011	5841	61.6	4	12.026	-0.018	32818	51.6
Total Col1Ave (4 peaks):					109.5	Total Col2Ave (4 peaks):				79.2 RPD = 32
Corrected Ave (3 peaks):					90.3	Corrected Ave (3 peaks):				66.0 RPD = 31
Aroclor-1268	1	11.956	-0.012	5841	20.8	1	12.026	-0.020	32818	19.5
Aroclor-1268	2	12.029	-0.010	8105	31.1	2	12.081	-0.029	72073	43.3
Aroclor-1268	3	12.431	0.005	2849	13.1	3	12.486	-0.015	6502	4.4
Aroclor-1268	4	13.204	-0.006	4037	6.3	4	13.301	-0.019	11070	2.0
Total Col1Ave (4 peaks):					17.8	Total Col2Ave (4 peaks):				17.3 RPD = 3

Corrected Ave (3 peaks): 13.4 Corrected Ave (3 peaks): 8.6 RPD = 43*

Total PCB Area Col1 (5.413 - 13.516) = 637216 Col1 Total PCB = 0.3 ppm*

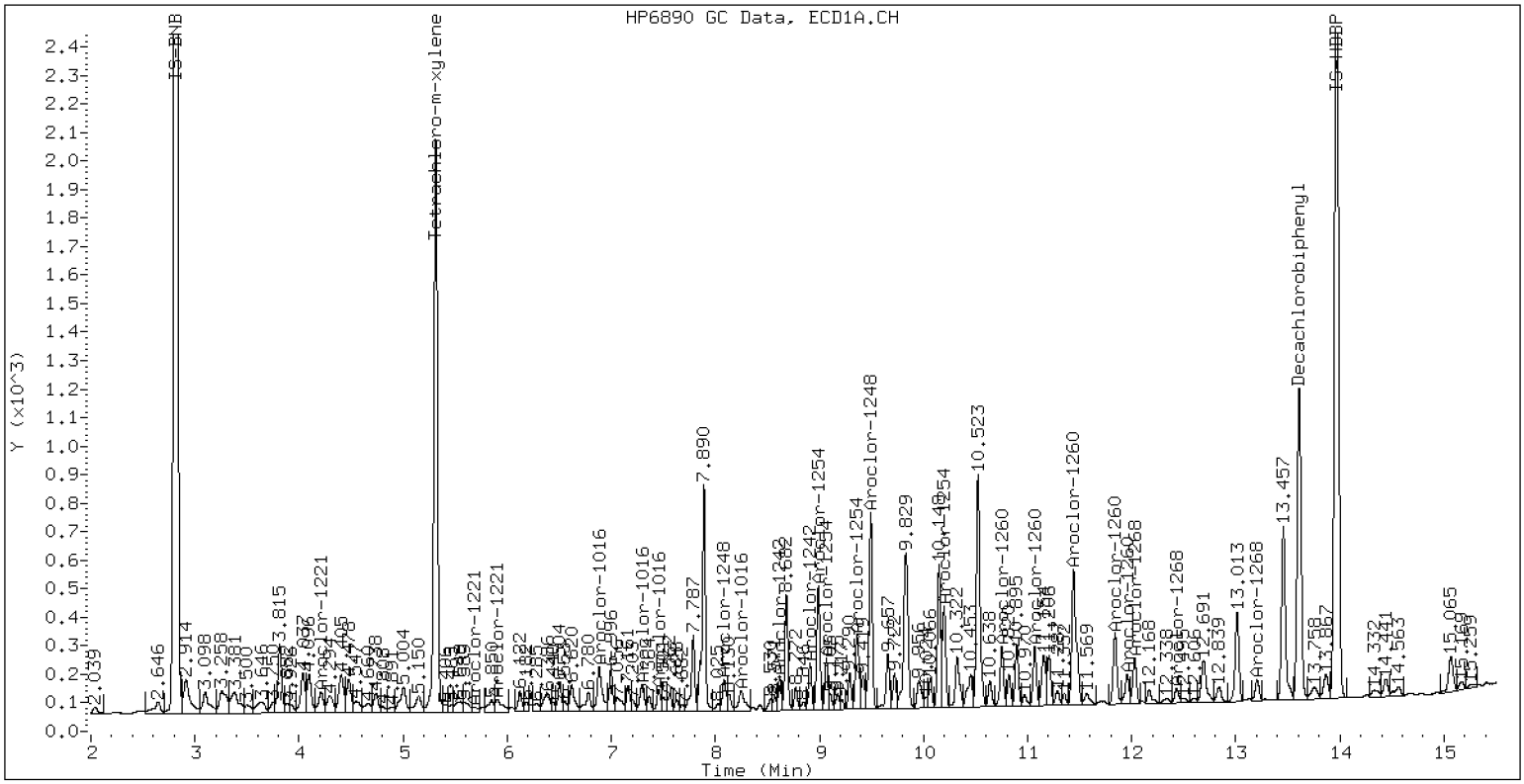
Total PCB Area Col2 (5.413 - 13.516) = 2403982 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

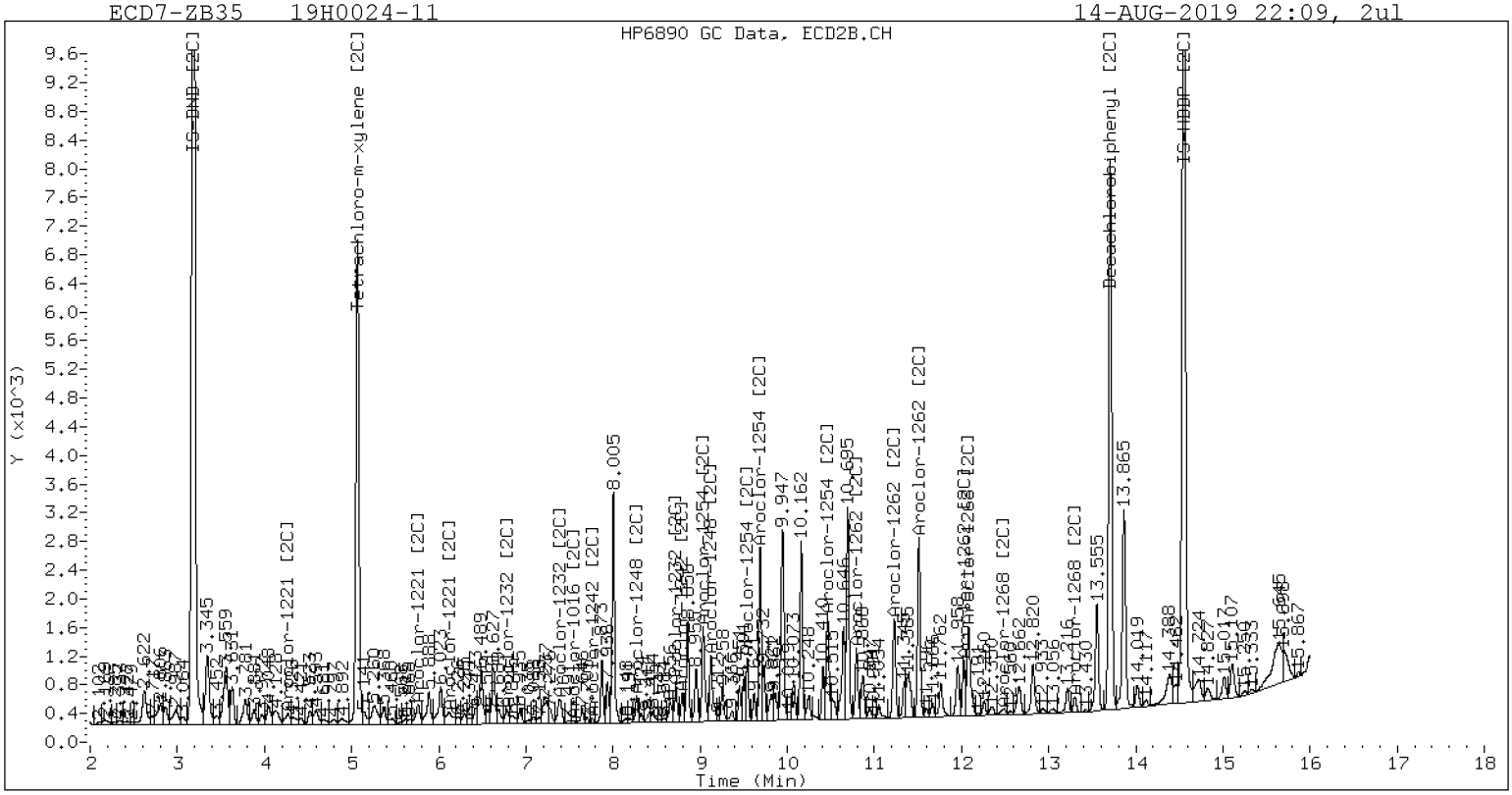
PCB Dual Column Chromatograms

ECD7-ZB5 19H0024-11 14-AUG-2019 22:09, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 19H0024-11 14-AUG-2019 22:09, 2ul



ZB-35 Manual Integration: NO

PREPARATION BATCH SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Batch: BHH0159 Batch Matrix: Wipes Preparation: EPA 3580A (Shake Out)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC3-FW-2019	19H0024-02	19081007ECD7.D	08/07/19 11:00	
Blank	BHH0159-BLK1	19081005ECD7.D	08/07/19 11:00	
LCS	BHH0159-BS1	19081006ECD7.D	08/07/19 11:00	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHH0159

Prepared using: EPA 3580A (Shake Out)

8082A PCB Wipes in Wipes

Matrix: Wipes **Date Prepared:** 08/07/19 **Balance ID:** _____ **Set Up By:** RcsM 08/06/19

The following standards may be missing from this batch!

Designator	Description
QLS 5	QLS Spike

Analysis: 8082A PCB Wipes

Lab Number & Container	Initial (Wipe) Actual	Bring Hexane to 50 mL	Filter Split (1:5) 10 mL	(REQ) Acid C/U	(REQ) Pre-SPE Screen	(opt) Sulfur C/U Y / N	(opt) Silica Gel Clean (1:2) Y / N	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
19H0024-02 B	(1.00) 1.00	50 mL	10 mL (1:5)	2mL	0.5mL	2mL Y / N	1mL Y / N	10	1.0	

Batch QC

Lab Number	Initial (Wipe) Actual	Bring Hexane to 50 mL	Filter Split (1:5) 10 mL	(REQ) Acid C/U	(REQ) Pre-SPE Screen	(opt) Sulfur C/U Y / N	(opt) Silica Gel Clean (1:2) Y / N	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BHH0159-BLK1	(1.00) 1.00	50 mL	10 mL (1:5)	2mL	0.5mL	2mL Y / N	1mL Y / N	10	1.0	
BHH0159-BS1	(1.00) 1.00	50 mL	10 mL (1:5)	2mL	0.5mL	2mL Y / N	1mL Y / N	10	1.0	
~~BHH0159-MS1~~	~~(1.00)~~	~~50 mL~~	~~10 mL (1:5)~~	~~2mL~~	~~0.5mL~~	~~2mL Y / N~~	~~1mL Y / N~~	~~10~~	~~1.0~~	~~Use 19H0024-02~~
~~BHH0159-MSD1~~	(1.00)	~~50 mL~~	~~10 mL (1:5)~~	~~2mL~~	~~0.5mL~~	2mL Y / N	1mL Y / N	10	1.0	~~Use 19H0024-02~~

Rve 08/07/19

Rve 08/07/19 Client ID verified By Date

SP 8/10/19 Preparation Reviewed By Date

08/07/19 11:44 Extraction Date and Time

Printed: 8/6/2019 4:38:03PM

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHH0159

Prepared using: EPA 3580A (Shake Out)

8082A PCB Wipes in Wipes

Prep Steps

TurboVap Pre Cleanups (2 mL)

1 2 3

SP 8/10/19

Analyst/Date

TurboVap Post Cleanups

1 2 3

Analyst/Date

Vialing

SP 8/10/19

Analyst/Date

Post Screen

Y / N

Analyst/Date

Reagents Used

Station/Reagent	Standard ID
Shake Out Analyst: ME Date: 8/07/19	
Hexane	HHH3054
Vialing Analyst: SP Date: 8/10/19	
Hexane	HHH3054
Concentrated Sulfuric Acid	HHH0609
Tetrabutylammonium hydrogensulfate (TBAS)	N/A
Sodium Sulfite	N/A
Silica Gel (SPE) Darts	N/A

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate 2µg/mL	N H004633 Exp: 10/12/2019	200µL	CT	
Spike 20µg/mL	1 H001893 Exp: 11/30/2019	250µL	CT	

(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards.

If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator inthe Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: PCB Extraction Batch BHH0159

Total Solids Batch: _____ Work Order(s): 19H0024

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☒ Other (Details)= Wipe = 02.	MJe 08/07/19
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☒ Share Samples Y / N	MJe 08/07/19
☒ Multiple Jars Y / N 02 x 2.	MJe 08/07/19
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

```
==========================================================================
Injection Date  : 8/10/2019 9:21:08 AM          Seq. Line :   1
Sample Name     : DCM Rinse                      Location : Vial 1
Acq. Operator   : SP                                Inj :   1
                                                Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\1\SEQUENCE\081019.S
Method          : C:\HPCHEM\1\METHODS\FSCREEN.M
Last changed    : 2/15/2019 11:29:39 AM by JGR
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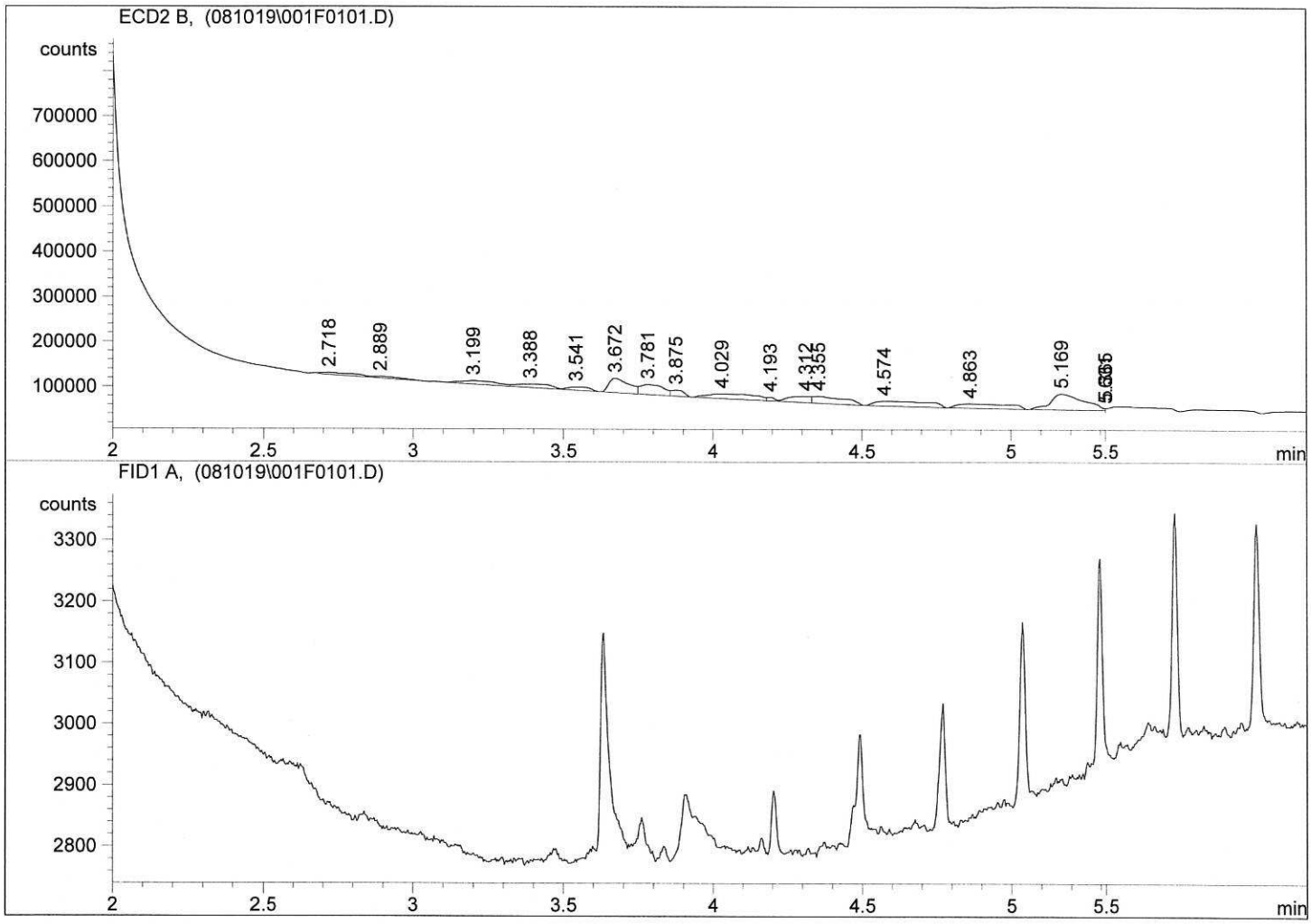
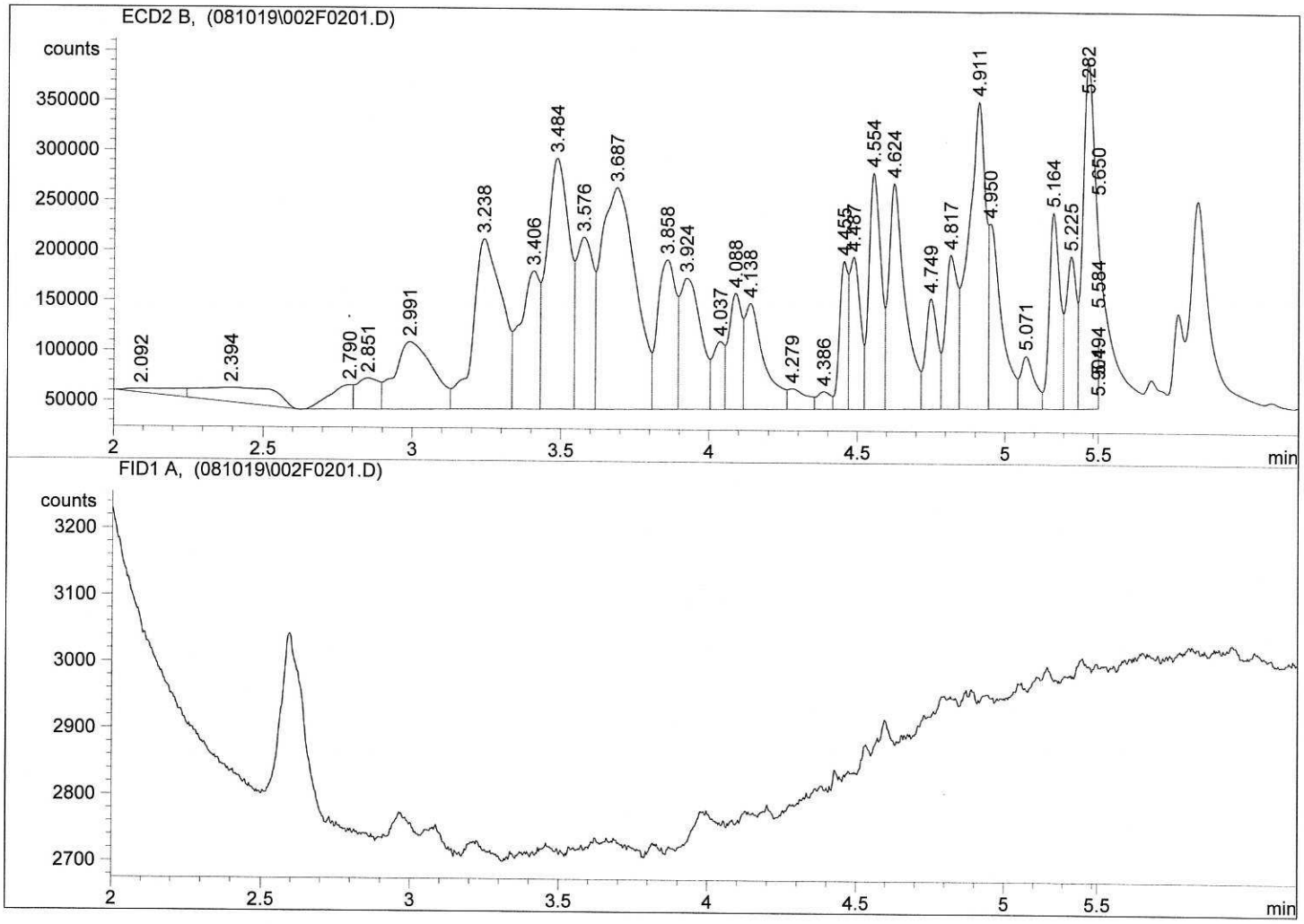


*** End of Report ***

Data File C:\HPCHEM\1\DATA\081019\002F0201.D Sample Name: AR 1660 1PPM

Injection Date	: 8/10/2019 9:29:37 AM	Seq. Line :	2
Sample Name	: AR 1660 1PPM	Location :	Vial 2
Acq. Operator	: SP	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\081019.S		
Method	: C:\HPCHEM\1\METHODS\FSCREEN.M		
Last changed	: 2/15/2019 11:29:39 AM by JGR		



*** End of Report ***

```
==========================================================================
Injection Date  : 8/10/2019 9:38:14 AM          Seq. Line :   3
Sample Name     : 19H0024-02 PRE                 Location : Vial 3
Acq. Operator   : SP                                 Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\1\SEQUENCE\081019.S
Method          : C:\HPCHEM\1\METHODS\FSCREEN.M
Last changed    : 2/15/2019 11:29:39 AM by JGR
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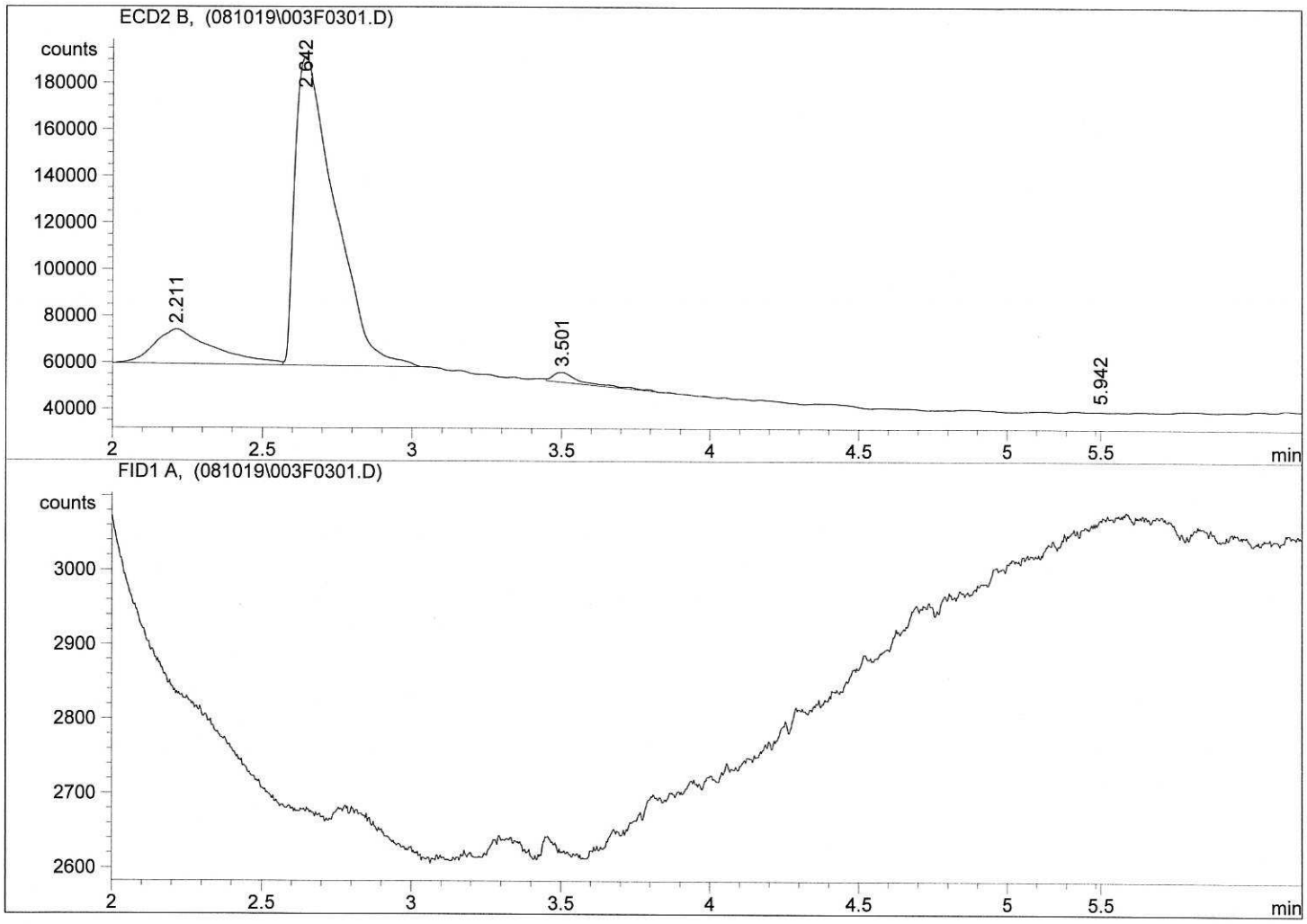


*** End of Report ***

ORGANICS PREPARATION BENCH SHEET

Batch: BHH0159

Prepared using: EPA 3580A (Shake Out)

8082A PCB Wipes in Wipes

Prep Instructions	
SPECIAL INSTRUCTIONS: 1. Bring each wipe to 50mL with Hexane. 2. Surr/Spk. 3. Shake for a minimum of 2 minutes. 4. Filter 10mL (1:5) into Turbo tubes. 5. TurboVap to 2mL for Clean-ups. 6. Clean-ups Required. 7. Pre-SPE Screen. (Pipette approximately 0.5mL into amber vial for screen). (Note: Determination of optional Sulfur & SPE clean is based on the Pre-SPE Screen. 8. Split 1:2 (if Silica Clean). 9. TurboVap (if Silica Clean). 10. Vial 1mL in Hexane. 11. Post Screen (Y) N.	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Batch: BHH0288 Batch Matrix: Solid Preparation: EPA 3546 (Microwave)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC3-2019	19H0024-03	19081412ECD7.D	08/13/19 15:35	
SL4-SG-WC7-2019	19H0024-04	19081415ECD7.D	08/13/19 15:35	
SL4-SG-WC7-FD-2019	19H0024-05	19081416ECD7.D	08/13/19 15:35	
SL4-SG-WC8-2019	19H0024-06	19081417ECD7.D	08/13/19 15:35	
SL4-SG-WC4-2019	19H0024-07	19081418ECD7.D	08/13/19 15:35	
SL4-SG-WC2-2019	19H0024-08	19081419ECD7.D	08/13/19 15:35	
SL4-SG-WC1-2019	19H0024-09	19081420ECD7.D	08/13/19 15:35	
SL4-IC-SC2-2019	19H0024-10	19081421ECD7.D	08/13/19 15:35	
SL4-IC-SC3-2019	19H0024-11	19081422ECD7.D	08/13/19 15:35	
Blank	BHH0288-BLK1	19081410ECD7.D	08/13/19 15:35	
LCS	BHH0288-BS1	19081411ECD7.D	08/13/19 15:35	
SL4-SG-WC3-2019	BHH0288-MS1	19081413ECD7.D	08/13/19 15:35	
SL4-SG-WC3-2019	BHH0288-MSD1	19081414ECD7.D	08/13/19 15:35	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHH0288

Prepared using: EPA 3546 (Microwave)

8082A PCB Solid 4 in Solid

Matrix: Solid **Date Prepared:** 08/13/19 **Balance ID:** B1464626l4 **Set Up By:** RcsM 08/13/19

The following standards may be missing from this batch!

Designator	Description
QLS 5	QLS Spike

Analysis: 8082A PCB Solid 4

Lab Number & Container	% Solids	Initial (g) Target Dry: 12.5 (Wet) Actual	(REQ) Acid C/U (5mL)	(REQ) Sulfur C/U (5mL) 1 2 3	(REQ) Silica Gel C/U (2:5)	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
19H0024-03 C	39.7	(31.48) 31.53	5mL	5mL	2mL	2.5	1.0	
19H0024-04 C	41.6	(30.05) 30.08	5mL	5mL	2mL	2.5	1.0	
19H0024-05 C	40.8	(30.61) 30.64	5mL	5mL	2mL	2.5	1.0	
19H0024-06 C	56.6	(22.07) 22.08	5mL	5mL	2mL	2.5	1.0	
19H0024-07 C	71.8	(17.41) 17.45	5mL	5mL	2mL	2.5	1.0	
19H0024-08 B	44.5	(28.07) 28.18	5mL	5mL	2mL	2.5	1.0	
19H0024-09 C	41.0	(30.50) 30.56	5mL	5mL	2mL	2.5	1.0	
19H0024-10 C	82.0	(15.24) 15.28	5mL	5mL	2mL	2.5	1.0	
19H0024-11 C	65.5	(19.08) 19.14	5mL	5mL	2mL	2.5	1.0	

Batch QC

Lab Number	% Solids	Initial (g) Target Dry: 12.5 (Wet) Actual	(REQ) Acid C/U (5mL)	(REQ) Sulfur C/U (5mL) 1 2 3	(REQ) Silica Gel C/U (2:5)	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BHH0288-BLK1	100.0	(12.50) 12.56	5mL	5mL	2mL	2.5	1.0	(10g Actual Wt.)
BHH0288-BS1	100.0	(12.50) 12.56	5mL	5mL	2mL	2.5	1.0	(10g Actual Wt.)
BHH0288-MS1		()31.48 31.51	5mL	5mL	2mL	2.5	1.0	Use 19H0024-03
BHH0288-MSD1		()31.48 31.52	5mL	5mL	2mL	2.5	1.0	Use 19H0024-03

YP 08/13/19 — Client ID verified By — Date

BH 8/14/19 — Preparation Reviewed By — Date

08/13/19 15:35 — Extraction Date and Time

Printed: 8/13/2019 9:11:15AM

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHH0288

Prepared using: EPA 3546 (Microwave)

8082A PCB Solid 4 in Solid

Prep Steps

Microwave

1 (2) 3

08/13/19
CT **Analyst/Date**

KD
100°C
Hexane Exchange
(2 X 20 mL)

1 2 3 (4) (5) 6

BH 8/14/19
Analyst/Date

TurboVap
Pre Cleanups

1 2 3 (4) 5

BH 8/14/19
Analyst/Date

TurboVap
Post Cleanups

1 2 (3) 4 5

BH 8/14/19
Analyst/Date

Vialing

BH 8/14/19
Analyst/Date

Reagents Used

Station/Reagent	Standard ID
Microwave Analyst: CT Date: 08/13/19	
Anhydrous Sodium Sulfate	HDD2319
Neutral Glass Wool	HDD4584
1:1 Hexane/Acetone	HDD6347
80:20 Hexane/Acetone	HDD6423
Hexane	HDD6343
KD Analyst: BH Date: 8/14/19	
Hexane	HDD6343
Anhydrous Sodium Sulfate	N/A
Vialing Analyst: BH Date: 8/14/19	
Hexane	HDD6343
Concentrated Sulfuric Acid	HDD6609
Tetrabutylammonium hydrogensulfate (TBAS)	HDD7555
Sodium Sulfite	HDD3217
Silica Gel (SPE) Darts	HDD3425

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate 2µg/mL	N ~~H004633~~ Exp: 10/12/2019 HDD7719 ~~H003203~~ 8/13/19	50µL	CT	
Spike 20µg/mL	1 H001893 Exp: 11/30/2019	63µL	CT	

(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards.

If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator inthe Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).

ORGANICS PREPARATION BENCH SHEET

Batch: BHH0288

Prepared using: EPA 3546 (Microwave)

8082A PCB Solid 4 in Solid

Prep Instructions	
SPECIAL INSTRUCTIONS: 1. Weigh soil/sed into beakers-lightly dry with sodium sulfate. 2. Transfer to microwave vessel(s). Note: (do not fill vessels more than 2/3rd full. Some samples may require two vessels). 3. Add 1:1 Hexane/Acetone until the solvent layer is 3 inches above the soil layer after homogenization. 4. Add surr/spike. 5. Microwave on appropriate power setting determined by # of samples. 6. After microwave-Re-homogenize while hot then cool vessels in R-05 15 minutes. Re-homogenize while cool. 7. Decant 1:1 Hex/Ace into Erlenmeyer flask with sodium sulfate in bottom and funnel with neutral glasswool plug. 8. Rinse with Hexane. 9. Add 8:2 Hexane/Acetone to the vessel 3 inches above the soil layer after homogenization. Microwave a 2nd time. 10. Let cool and decant solvent then empty the soil into the funnel and rinse with Hexane. 11. KD on 100° bath. 12. Exchange (2 X with 20mL) Hexane. 13. TurboVap. 14. Clean-ups. 15. TurboVap. 16. Vial with Hexane. A. Need Total Solids Y (N) B. Archive/Freeze (Y) N	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

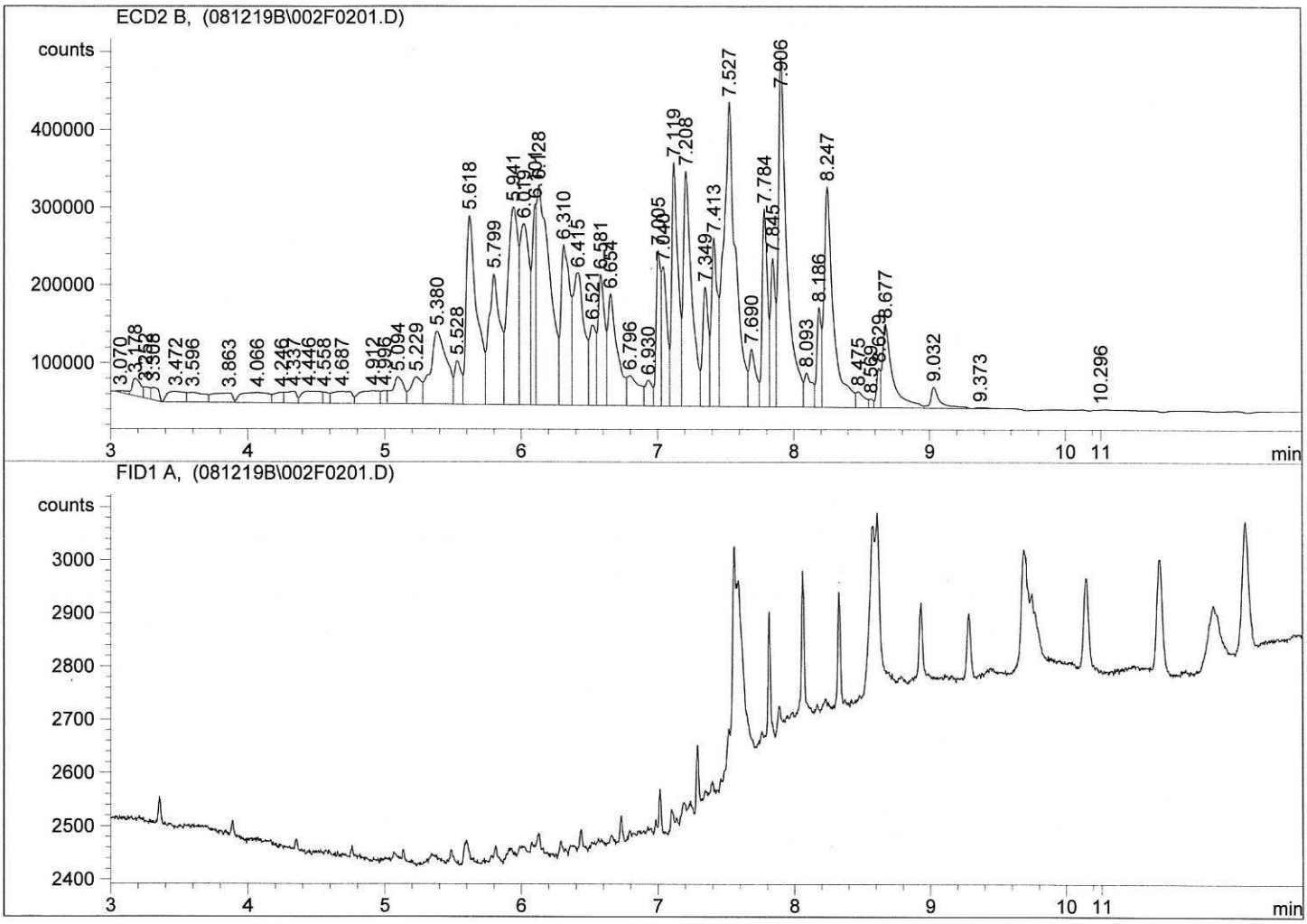
Extraction Parameter: PCB. Extraction Batch BHHΦ288

Total Solids Batch: _____ Work Order(s): 19HΦΦ24

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)=Φ3,Φ4,Φ5,Φ6,1Φ,	YE Φ8/12/19
☒ Standing Water Decanted (Not shared)=Φ3,Φ4,Φ5.Φ6,Φ8,	YE Φ8/12/19
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☒ Rocks (%+size)? 40.0% =Φ6,Φ7. 30.0% =Φ8,	YE Φ8/12/19
☐ Organics (Leaves/sticks/grass)=	
☒ Oily, obvious fuel/sulfur odors= sulfur odor 11	YE Φ8/12/19
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☒ Other (Details)= unknown odor =Φ9.	YE Φ8/12/19 3/17/19
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☒ Share Samples Y / N	YE Φ8/12/19
☒ Multiple Jars Y / N Φ3x2.	YE Φ8/12/19
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

Data File C:\HPCHEM\1\DATA\081219B\002F0201.D Sample Name: AR1660 1PPM

Injection Date	: 8/12/2019 5:11:37 PM	Seq. Line	: 2
Sample Name	: AR1660 1PPM	Location	: Vial 2
Acq. Operator	: YL	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\081219B.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 5/22/2019 5:40:20 PM by DDM		



*** End of Report ***

```
==================================================================
Injection Date  : 8/12/2019 5:27:30 PM          Seq. Line :   3
Sample Name     : PNA STD 10PPM                  Location : Vial 3
Acq. Operator   : YL                                 Inj :   1
                                                Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\1\SEQUENCE\081219B.S
Method          : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed    : 5/22/2019 5:40:20 PM by DDM
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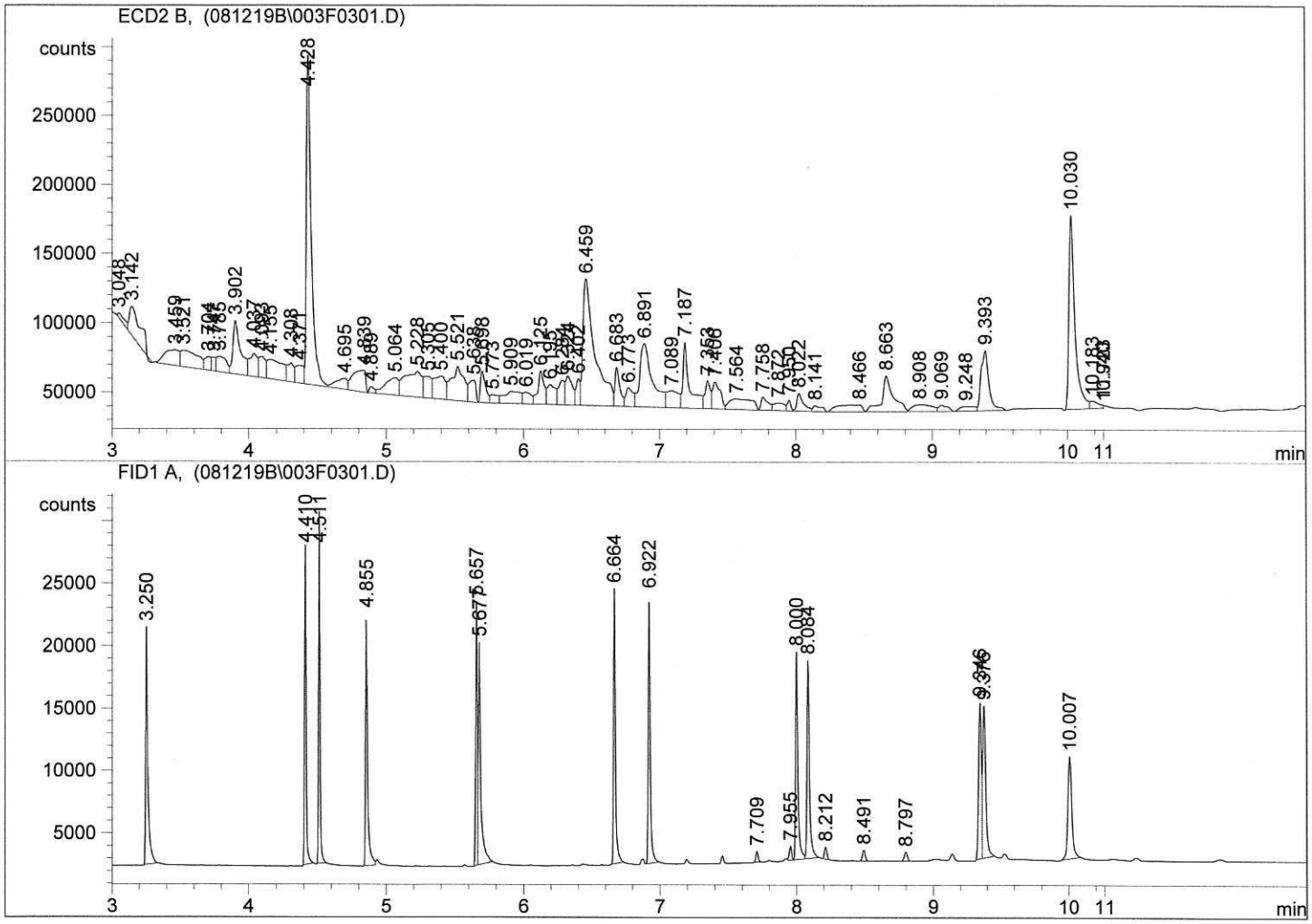

*** End of Report ***

```
==========================================================================
Injection Date  : 8/12/2019 5:43:31 PM          Seq. Line :   4
Sample Name     : 19H0024 03                     Location : Vial 4
Acq. Operator   : YL                                 Inj :   1
                                                Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\1\SEQUENCE\081219B.S
Method          : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed    : 5/22/2019 5:40:20 PM by DDM
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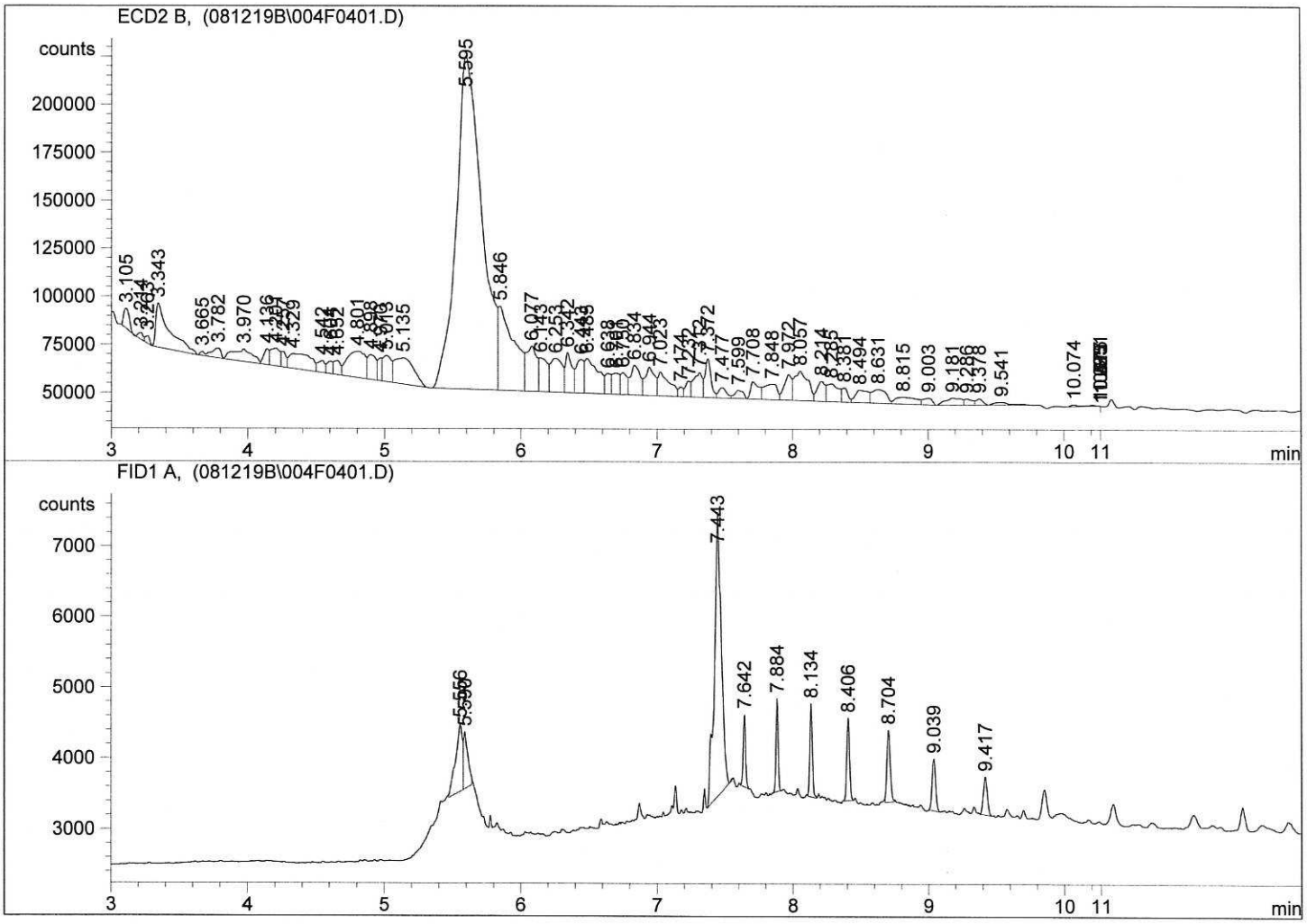
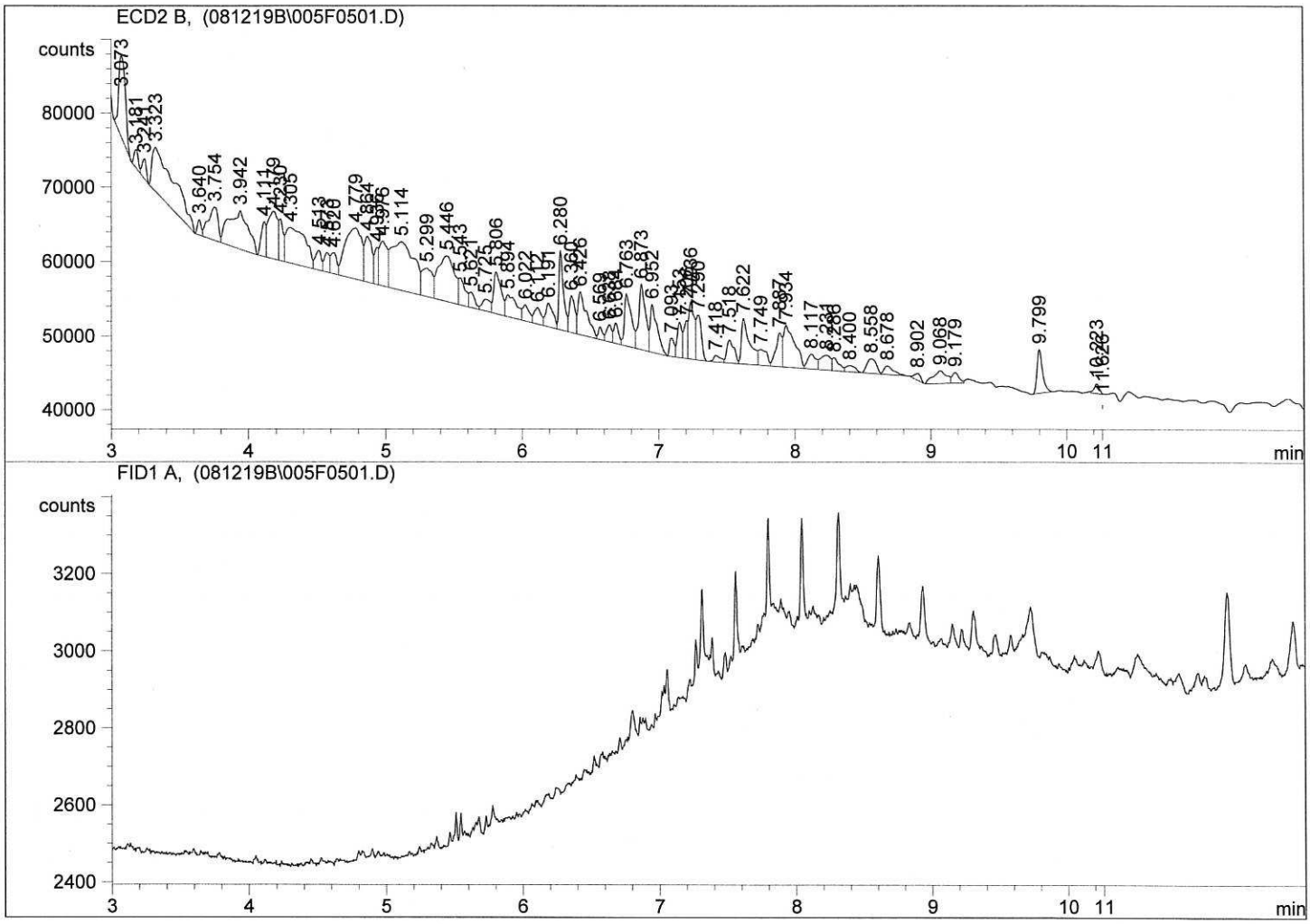


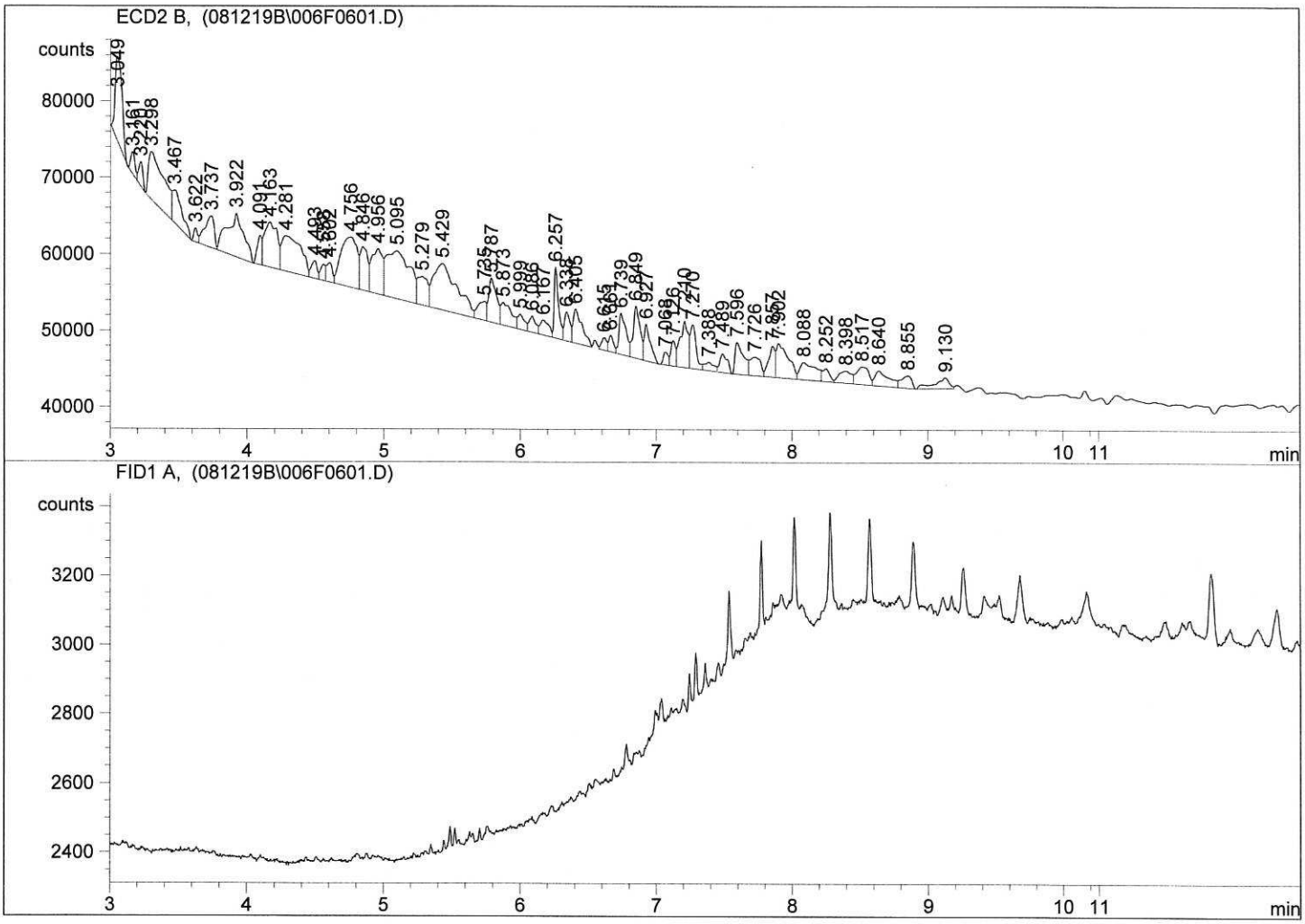
*** End of Report ***

Injection Date	: 8/12/2019 5:59:29 PM	Seq. Line	: 5
Sample Name	: 19H0024 04	Location	: Vial 5
Acq. Operator	: YL	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\081219B.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 5/22/2019 5:40:20 PM by DDM		



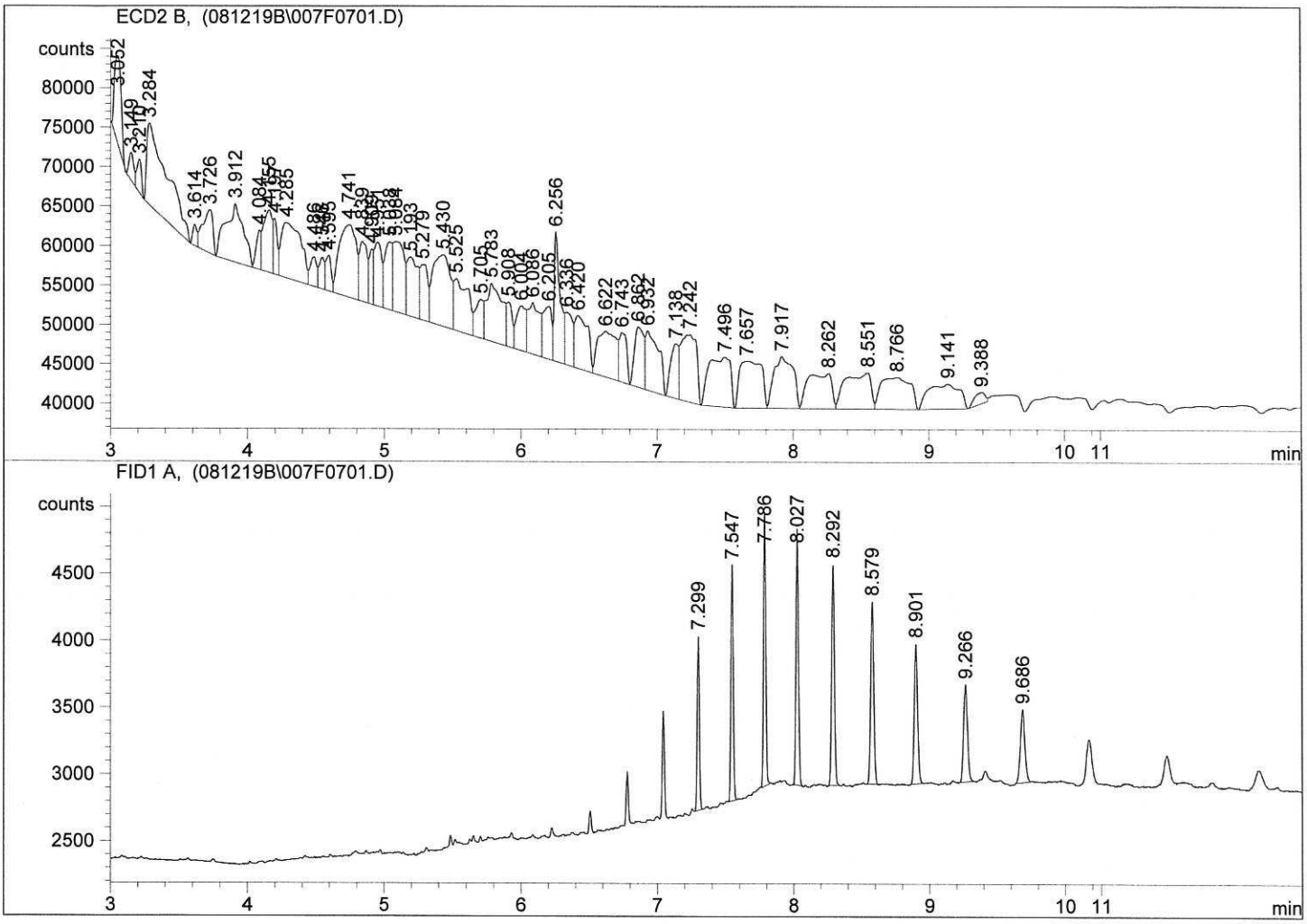
*** End of Report ***

```
==========================================================================
Injection Date  : 8/12/2019 6:15:29 PM          Seq. Line :   6
Sample Name     : 19H0024 05                     Location : Vial 6
Acq. Operator   : YL                                 Inj :   1
                                                Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\1\SEQUENCE\081219B.S
Method          : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed    : 5/22/2019 5:40:20 PM by DDM
==========================================================================
```



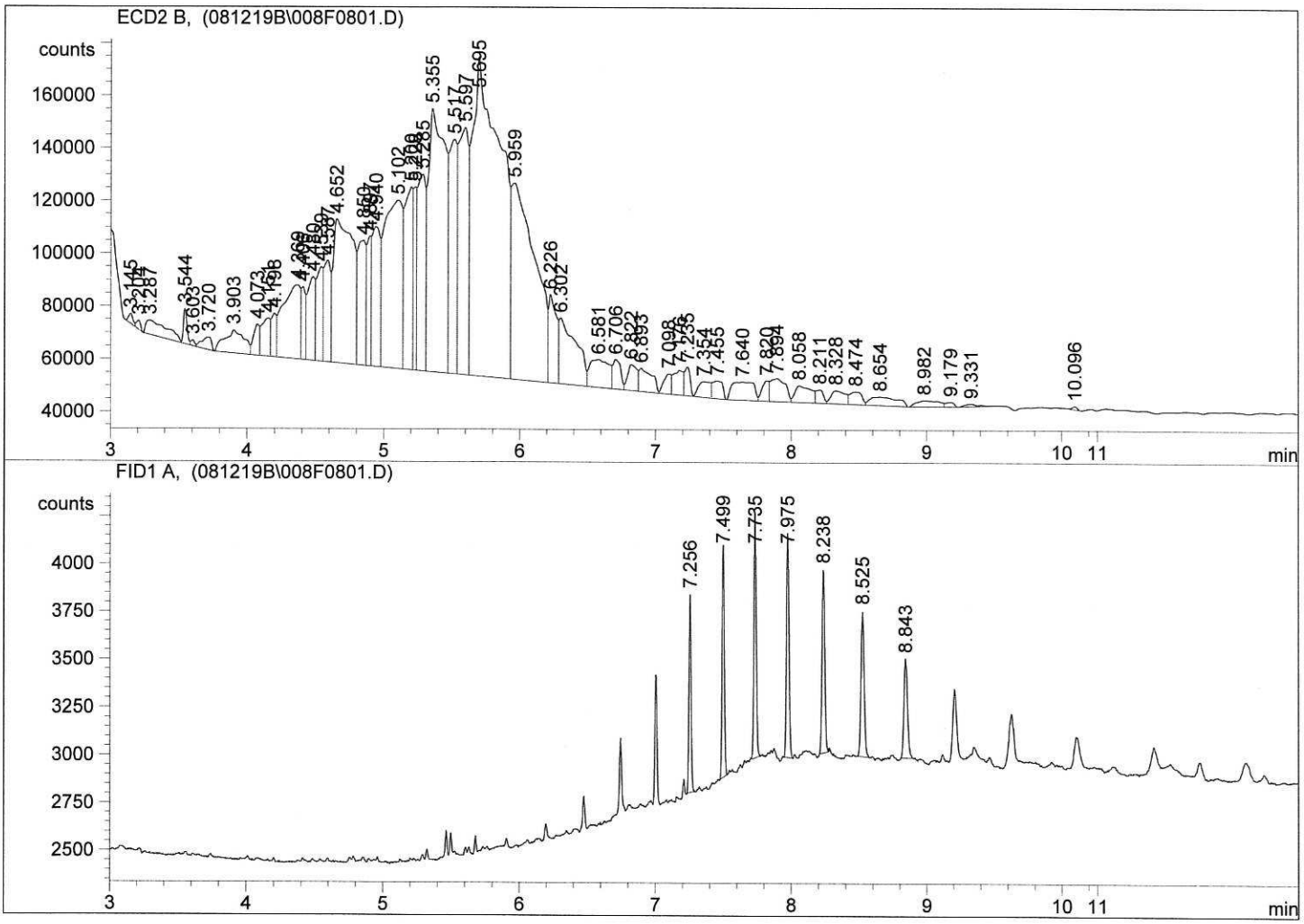
*** End of Report ***

```
==========================================================================
Injection Date  : 8/12/2019 6:31:24 PM          Seq. Line :   7
Sample Name     : 19H0024 06                     Location : Vial 7
Acq. Operator   : YL                                 Inj :   1
                                                Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\1\SEQUENCE\081219B.S
Method          : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed    : 5/22/2019 5:40:20 PM by DDM
==========================================================================
```



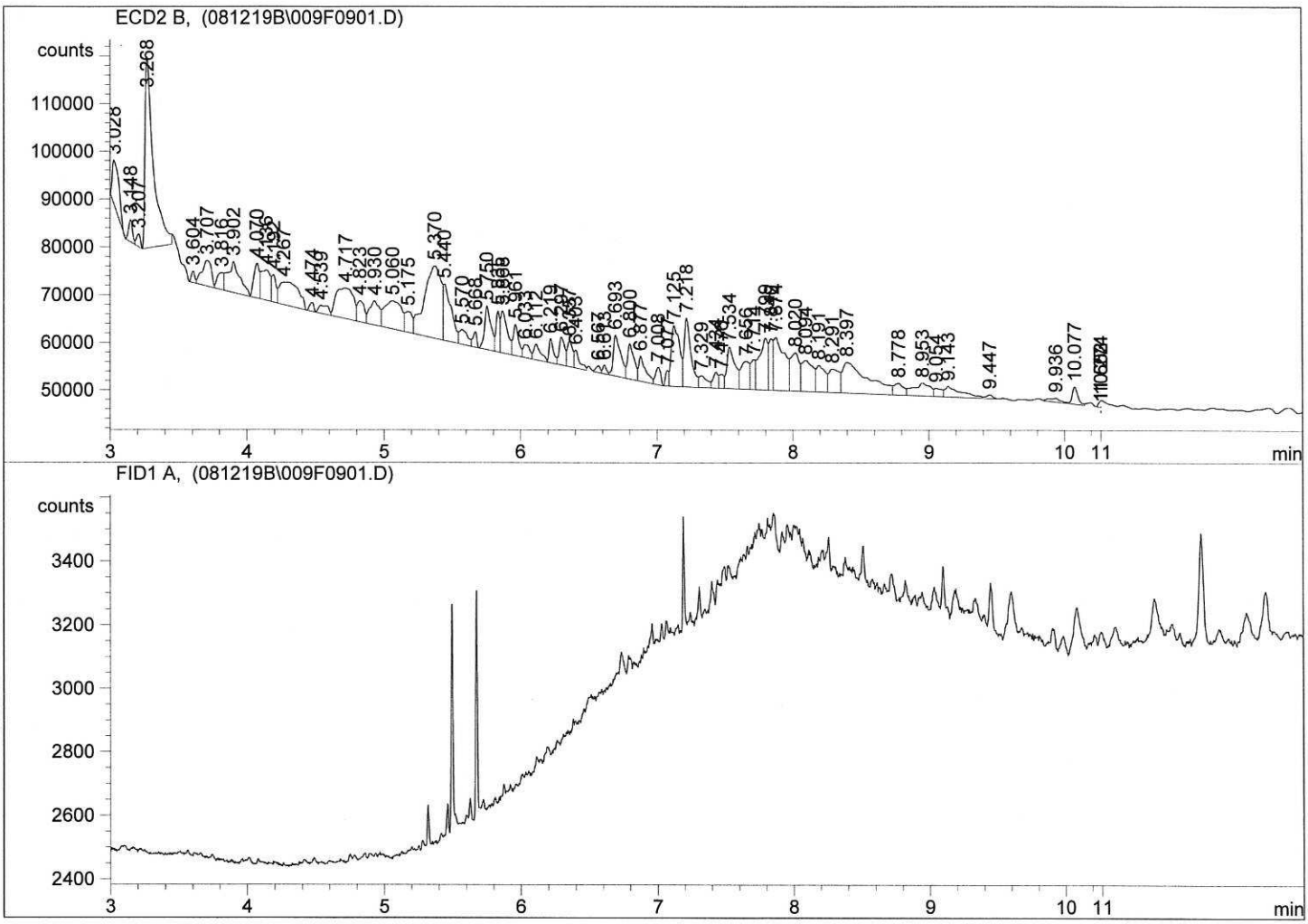
*** End of Report ***

```
==========================================================================
Injection Date  : 8/12/2019 6:47:20 PM          Seq. Line :   8
Sample Name     : 19H0024 07                     Location : Vial 8
Acq. Operator   : YL                                 Inj :   1
                                                 Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\1\SEQUENCE\081219B.S
Method          : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed    : 5/22/2019 5:40:20 PM by DDM
==========================================================================
```



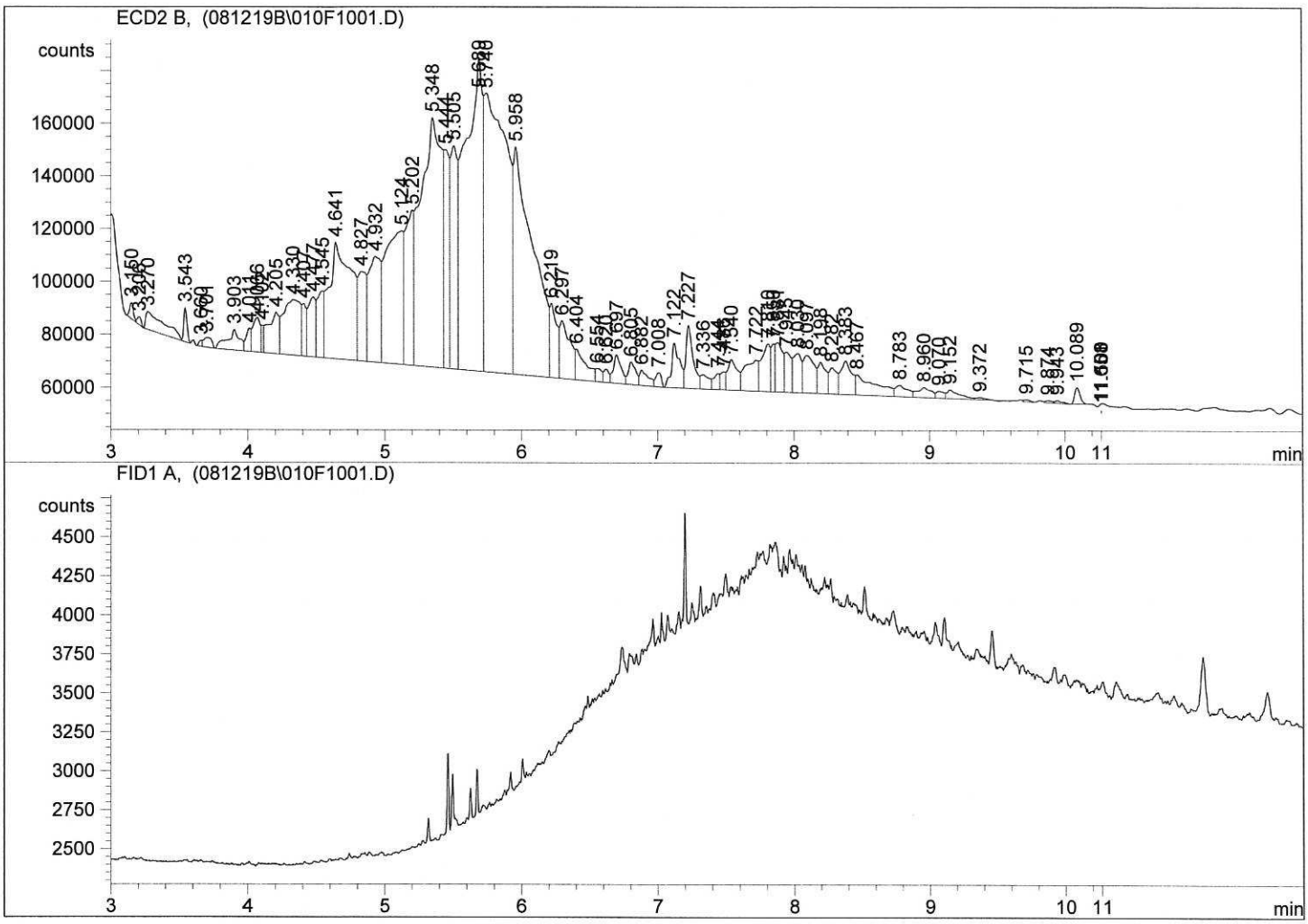
*** End of Report ***

```
==========================================================================
Injection Date  : 8/12/2019 7:03:20 PM          Seq. Line :   9
Sample Name     : 19H0024 08                     Location : Vial 9
Acq. Operator   : YL                                Inj :   1
                                                Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\1\SEQUENCE\081219B.S
Method          : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed    : 5/22/2019 5:40:20 PM by DDM
==========================================================================
```



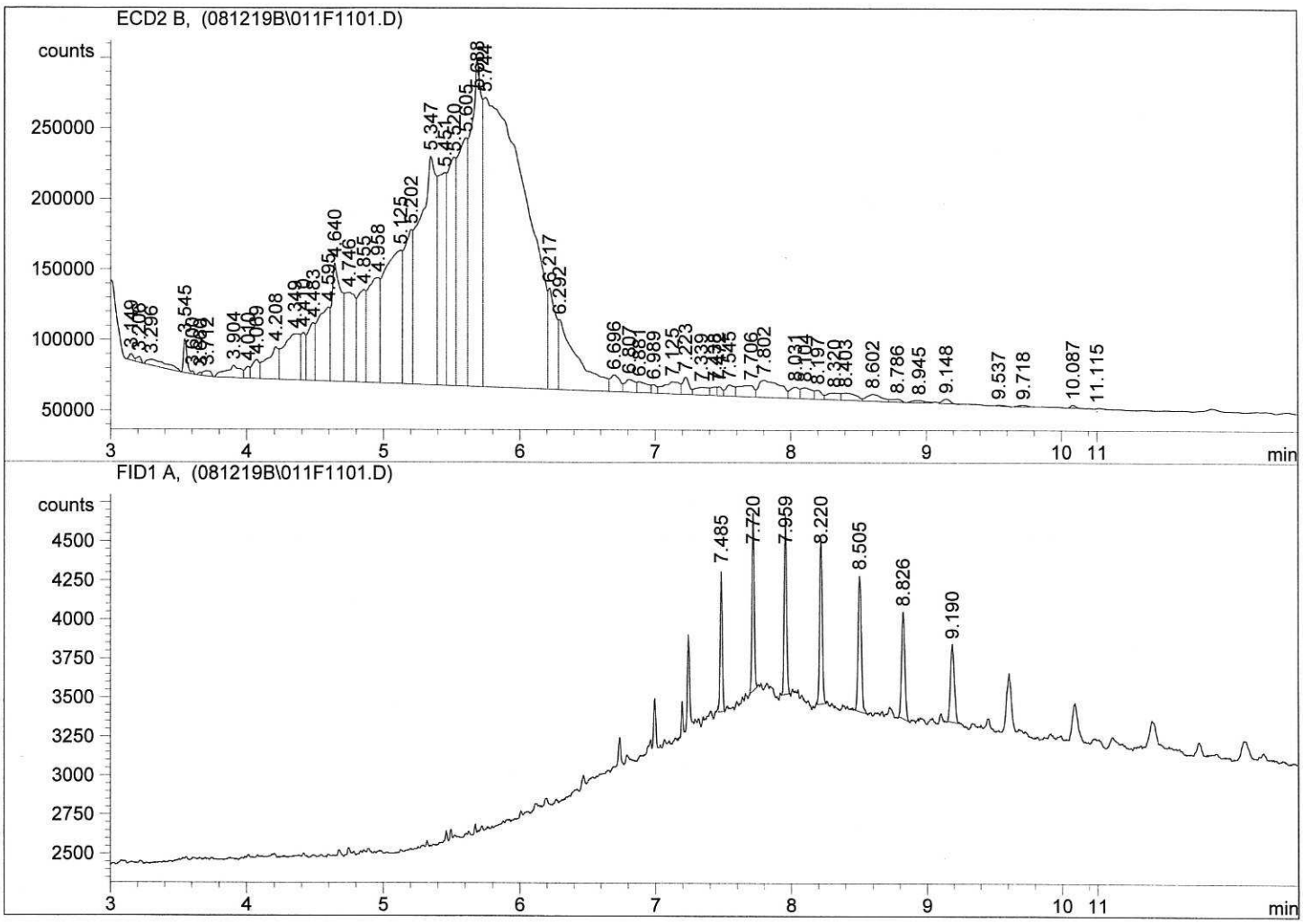
*** End of Report ***

```
==========================================================================
Injection Date  : 8/12/2019 7:19:17 PM          Seq. Line :  10
Sample Name     : 19H0024 09                     Location : Vial 10
Acq. Operator   : YL                                Inj :   1
                                                Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\1\SEQUENCE\081219B.S
Method          : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed    : 5/22/2019 5:40:20 PM by DDM
==========================================================================
```



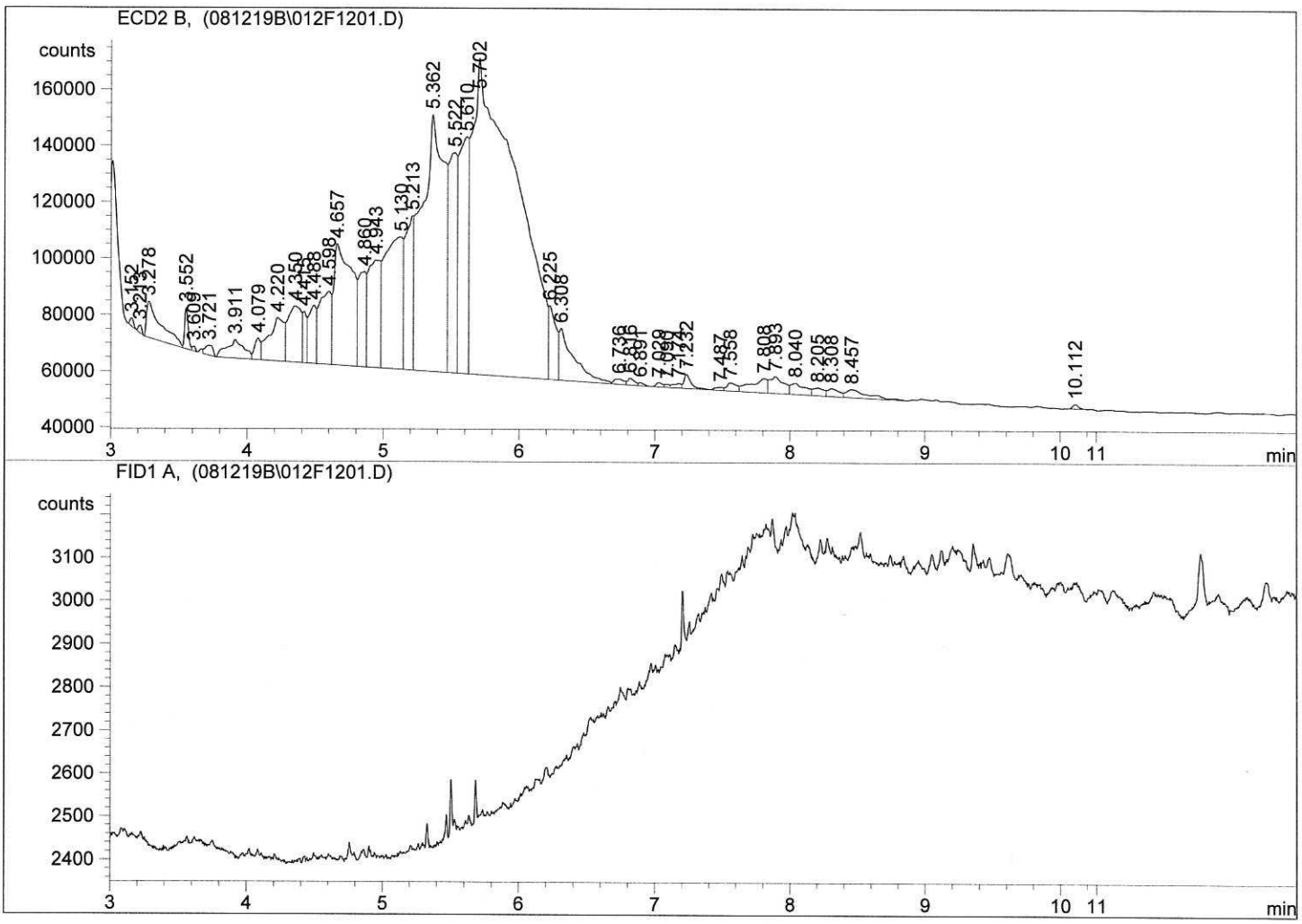
*** End of Report ***

```
==========================================================================
Injection Date  : 8/12/2019 7:35:16 PM          Seq. Line :  11
Sample Name     : 19H0024 10                     Location : Vial 11
Acq. Operator   : YL                                Inj :   1
                                                Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\1\SEQUENCE\081219B.S
Method          : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed    : 5/22/2019 5:40:20 PM by DDM
==========================================================================
```



*** End of Report ***

```
==========================================================================
Injection Date  : 8/12/2019 7:51:13 PM          Seq. Line :  12
Sample Name     : 19H0024 11                     Location : Vial 12
Acq. Operator   : YL                                 Inj :   1
                                                Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\1\SEQUENCE\081219B.S
Method          : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed    : 5/22/2019 5:40:20 PM by DDM
==========================================================================
```



*** End of Report ***

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Cleanup Batch:	CHH0080	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665A Sulfuric Acid Cleanup	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC3-FW-2019	19H0024-02	19081007ECD7.D	08/10/2019	
Blank	BHH0159-BLK1	19081005ECD7.D	08/10/2019	
LCS	BHH0159-BS1	19081006ECD7.D	08/10/2019	

Analytical Resources, Incorporated
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CLEANUP BENCH SHEET

CHH0080

Matrix: Wipes **Cleanup using: Organics - EPA 3665A Sulfuric Acid Cleanup** **Printed: 8/10/2019 9:07:24AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
19H0024-02	B	SL4-SG-WC3-FW-2019	B 01	10	10	8082A PCB Wipes	8/10/2019	SDP	
BHH0159-BLK1	-	Blank	-	10	10	-	8/10/2019	SDP	
BHH0159-BS1	-	LCS	-	10	10	-	8/10/2019	SDP	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Cleanup Batch:	CHH0111	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665A Sulfuric Acid Cleanup	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC1-2019	19H0024-09	19081420ECD7.D	08/14/2019	
Blank	BHH0288-BLK1	19081410ECD7.D	08/14/2019	
LCS	BHH0288-BS1	19081411ECD7.D	08/14/2019	
Matrix Spike	BHH0288-MS1	19081413ECD7.D	08/14/2019	
Matrix Spike Dup	BHH0288-MSD1	19081414ECD7.D	08/14/2019	
SL4-SG-WC8-2019	19H0024-06	19081417ECD7.D	08/14/2019	
SL4-IC-SC3-2019	19H0024-11	19081422ECD7.D	08/14/2019	
SL4-SG-WC7-FD-2019	19H0024-05	19081416ECD7.D	08/14/2019	
SL4-SG-WC2-2019	19H0024-08	19081419ECD7.D	08/14/2019	
SL4-SG-WC3-2019	19H0024-03	19081412ECD7.D	08/14/2019	
SL4-SG-WC4-2019	19H0024-07	19081418ECD7.D	08/14/2019	
SL4-SG-WC7-2019	19H0024-04	19081415ECD7.D	08/14/2019	
SL4-IC-SC2-2019	19H0024-10	19081421ECD7.D	08/14/2019	

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CLEANUP BENCH SHEET

CHH0111

Matrix: Solid **Cleanup using: Organics - EPA 3665A Sulfuric Acid Cleanup** **Printed: 8/14/2019 12:31:09PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
19H0024-11	C	SL4-1C-SC3-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-10	C	SL4-1C-SC2-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-09	C	SL4-SG-WC1-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-06	C	SL4-SG-WC8-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-07	C	SL4-SG-WC4-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-08	B	SL4-SG-WC2-2019	B 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-03	C	SL4-SG-WC3-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-04	C	SL4-SG-WC7-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-05	C	SL4-SG-WC7-FD-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
BHH0288-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	8/14/2019	BH	
BHH0288-MS1	-	Matrix Spike	-	2.5	2.5	-	8/14/2019	BH	
BHH0288-BS1	-	LCS	-	2.5	2.5	-	8/14/2019	BH	
BHH0288-BLK1	-	Blank	-	2.5	2.5	-	8/14/2019	BH	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Cleanup Batch:	CHH0112	Cleanup Type:	Sulfur
Cleanup Method:	EPA 3660B Sulfur Cleanup	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
Matrix Spike Dup	BHH0288-MSD1	19081414ECD7.D	08/14/2019	
Matrix Spike	BHH0288-MS1	19081413ECD7.D	08/14/2019	
SL4-SG-WC8-2019	19H0024-06	19081417ECD7.D	08/14/2019	
SL4-SG-WC7-FD-2019	19H0024-05	19081416ECD7.D	08/14/2019	
SL4-SG-WC7-2019	19H0024-04	19081415ECD7.D	08/14/2019	
SL4-SG-WC4-2019	19H0024-07	19081418ECD7.D	08/14/2019	
SL4-SG-WC3-2019	19H0024-03	19081412ECD7.D	08/14/2019	
SL4-SG-WC2-2019	19H0024-08	19081419ECD7.D	08/14/2019	
SL4-IC-SC3-2019	19H0024-11	19081422ECD7.D	08/14/2019	
LCS	BHH0288-BS1	19081411ECD7.D	08/14/2019	
Blank	BHH0288-BLK1	19081410ECD7.D	08/14/2019	
SL4-IC-SC2-2019	19H0024-10	19081421ECD7.D	08/14/2019	
SL4-SG-WC1-2019	19H0024-09	19081420ECD7.D	08/14/2019	

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CLEANUP BENCH SHEET

CHH0112

Matrix: Solid **Cleanup using: Organics - EPA 3660B Sulfur Cleanup** **Printed: 8/14/2019 12:31:52PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
19H0024-03	C	SL4-SG-WC3-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-11	C	SL4-1C-SC3-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-09	C	SL4-SG-WC1-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-07	C	SL4-SG-WC4-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-08	B	SL4-SG-WC2-2019	B 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-10	C	SL4-1C-SC2-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-04	C	SL4-SG-WC7-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-05	C	SL4-SG-WC7-FD-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-06	C	SL4-SG-WC8-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
BHH0288-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	8/14/2019	BH	
BHH0288-MS1	-	Matrix Spike	-	2.5	2.5	-	8/14/2019	BH	
BHH0288-BS1	-	LCS	-	2.5	2.5	-	8/14/2019	BH	
BHH0288-BLK1	-	Blank	-	2.5	2.5	-	8/14/2019	BH	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Cleanup Batch:	CHH0113	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC8-2019	19H0024-06	19081417ECD7.D	08/14/2019	
SL4-IC-SC2-2019	19H0024-10	19081421ECD7.D	08/14/2019	
SL4-SG-WC1-2019	19H0024-09	19081420ECD7.D	08/14/2019	
SL4-SG-WC2-2019	19H0024-08	19081419ECD7.D	08/14/2019	
SL4-SG-WC3-2019	19H0024-03	19081412ECD7.D	08/14/2019	
SL4-SG-WC4-2019	19H0024-07	19081418ECD7.D	08/14/2019	
SL4-SG-WC7-FD-2019	19H0024-05	19081416ECD7.D	08/14/2019	
SL4-IC-SC3-2019	19H0024-11	19081422ECD7.D	08/14/2019	
Matrix Spike Dup	BHH0288-MSD1	19081414ECD7.D	08/14/2019	
Matrix Spike	BHH0288-MS1	19081413ECD7.D	08/14/2019	
LCS	BHH0288-BS1	19081411ECD7.D	08/14/2019	
Blank	BHH0288-BLK1	19081410ECD7.D	08/14/2019	
SL4-SG-WC7-2019	19H0024-04	19081415ECD7.D	08/14/2019	

Analytical Resources, Incorporated
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CLEANUP BENCH SHEET

CHH0113

Matrix: Solid **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup** **Printed: 8/14/2019 12:32:36PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
19H0024-11	C	SL4-1C-SC3-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-10	C	SL4-1C-SC2-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-09	C	SL4-SG-WC1-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-06	C	SL4-SG-WC8-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-07	C	SL4-SG-WC4-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-08	B	SL4-SG-WC2-2019	B 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-03	C	SL4-SG-WC3-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-04	C	SL4-SG-WC7-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
19H0024-05	C	SL4-SG-WC7-FD-2019	C 01	2.5	2.5	8082A PCB Solid 4	8/14/2019	BH	
BHH0288-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	8/14/2019	BH	
BHH0288-MS1	-	Matrix Spike	-	2.5	2.5	-	8/14/2019	BH	
BHH0288-BS1	-	LCS	-	2.5	2.5	-	8/14/2019	BH	
BHH0288-BLK1	-	Blank	-	2.5	2.5	-	8/14/2019	BH	

Form I

METHOD BLANK DATA SHEET

EPA 8082A

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC			Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Wipes	Laboratory ID:	BHH0159-BLK1	File ID:	19081005ECD7.D
Sampled:	N/A	Prepared:	08/07/19 11:00	Analyzed:	08/10/19 16:30
Solids:		Preparation:	EPA 3580A (Shake Out)	Initial/Final:	1 Wipe / 10 mL
Batch:	BHH0159	Sequence:	SHH0183	Calibration:	CG00087
Instrument:	ECD7	Column:	ZB5	Cleanups:	Sulfuric Acid

CAS NO.	COMPOUND	DILUTION	CONC. (ug/Wipe)	Q	DL	RL
12674-11-2	Aroclor 1016	1	0.20	U	0.06	0.20
11104-28-2	Aroclor 1221	1	0.20	U	0.06	0.20
11141-16-5	Aroclor 1232	1	0.20	U	0.06	0.20
53469-21-9	Aroclor 1242	1	0.20	U	0.06	0.20
12672-29-6	Aroclor 1248	1	0.20	U	0.06	0.20
11097-69-1	Aroclor 1254	1	0.20	U	0.06	0.20
11096-82-5	Aroclor 1260	1	0.20	U	0.12	0.20
37324-23-5	Aroclor 1262	1	0.20	U	0.12	0.20
11100-14-4	Aroclor 1268	1	0.20	U	0.12	0.20

SURROGATES	ADDED (ug/Wipe)	CONC (ug/Wipe)	% REC	QC LIMITS	Q
Decachlorobiphenyl	0.40000	0.388	97.0	30 - 160	
Tetrachlorometaxylene	0.40000	0.408	102	30 - 160	
Decachlorobiphenyl [2C]	0.40000	0.401	100	30 - 160	
Tetrachlorometaxylene [2C]	0.40000	0.377	94.1	30 - 160	

[2C] indicates second-column analyte, present if quantification on any batch samples used second column data.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190810.b/19081005ECD7.D
Data file 2: /20190810.b/20190810.b/19081005ECD7.D
Method: \\target\share\chem4\ecd7.i\20190810.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BHH0159-BLK1
Client ID:
Injection Date: 10-AUG-2019 16:30
Report Date: 08/14/2019 10:28
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.309	0.006	244560	5.046	-0.013	816095	40.8	37.7	8.0	Tetrachloro-m-xylene
13.622	0.008	223650	13.716	0.000	1012205	38.8	40.1	3.2	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	101.9	94.1
Decachlorobiphenyl	97.0	100.2

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	467943	8.2
Hexabromobiphenyl	517563	508687	-1.7

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1737733	16.1
Hexabromobiphenyl	1404015	1343741	-4.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	6.753	-0.016	180	0.2
Aroclor-1016	2	---			0.0	2	7.367	-0.023	38430	20.5
Aroclor-1016	3	---			0.0	3	7.537	-0.055	2465	3.3
Aroclor-1016	4	---			0.0	4	7.706	-0.056	769	1.6
		Col1Ave: <3 Quant Peaks					Col2Ave:	6.4		
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	5.753	-0.018	9729	34.4
Aroclor-1221	3	---			0.0	3	6.093	-0.024	2649	5.8
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	6.753	-0.041	180	0.5
Aroclor-1232	3	---			0.0	3	7.367	-0.046	38430	48.5
Aroclor-1232	4	---			0.0	4	8.672	-0.073	17850	66.5
		Col1Ave: <3 Quant Peaks					Col2Ave:	38.5		
Aroclor-1242	1	---			0.0	1	6.753	-0.041	180	0.3
Aroclor-1242	2	---			0.0	2	7.367	-0.045	38430	25.3
Aroclor-1242	3	---			0.0	3	7.706	-0.077	769	2.0
Aroclor-1242	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave:	9.2		
Aroclor-1248	1	8.042	-0.036	3454	15.9	1	---			0.0
Aroclor-1248	2	8.533	-0.084	6557	24.2	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1254	1	9.081	0.090	1105	2.7	1	9.023	-0.014	277	0.3
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	9.509	-0.037	23224	29.9
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	10.187	-0.017	6092	18.3	5	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1260	1	10.663	-0.095	1655	6.0	1	10.835	0.034	5830	6.6
Aroclor-1260	2	11.012	-0.063	5385	20.3	2	11.337	0.096	5600	6.3
Aroclor-1260	3	11.491	0.046	2385	3.6	3	11.569	0.050	5078	2.2
Aroclor-1260	4	11.920	0.074	1817	5.9	4	11.991	-0.042	6032	8.3
Aroclor-1260	5	---			0.0	NS	---			----
		Total Col1Ave (4 peaks):			9.0		Total Col2Ave (4 peaks):		5.9	RPD = 42*
		Corrected Ave (3 peaks):			5.2		Corrected Ave (3 peaks):		5.0	RPD = 3
Aroclor-1262	1	11.012	-0.070	5385	16.2	1	10.835	0.022	5830	4.7
Aroclor-1262	2	11.491	0.040	2385	3.0	2	11.337	0.084	5600	5.4
Aroclor-1262	3	11.920	0.069	1817	7.4	3	11.569	0.040	5078	2.1
Aroclor-1262	4	---			0.0	4	11.991	-0.053	6032	5.1
		Total Col1Ave (3 peaks):			8.9		Total Col2Ave (4 peaks):		4.3	RPD = 69*
		Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):		4.0	
Aroclor-1268	1	11.920	-0.048	1817	2.0	1	11.991	-0.055	6032	1.9
Aroclor-1268	2	12.044	0.006	1367	1.6	2	12.120	0.010	5104	1.7
Aroclor-1268	3	12.437	0.012	2302	3.3	3	12.495	-0.006	7633	2.8
Aroclor-1268	4	13.294	0.084	1537	0.7	4	13.307	-0.013	3717	0.4
		Total Col1Ave (4 peaks):			1.9		Total Col2Ave (4 peaks):		1.7	RPD = 13
		Corrected Ave (3 peaks):			1.5		Corrected Ave (3 peaks):		1.3	RPD = 10

Total PCB Area Col1 (5.403 - 13.514) = 77417 Col1 Total PCB = 0.0 ppm*

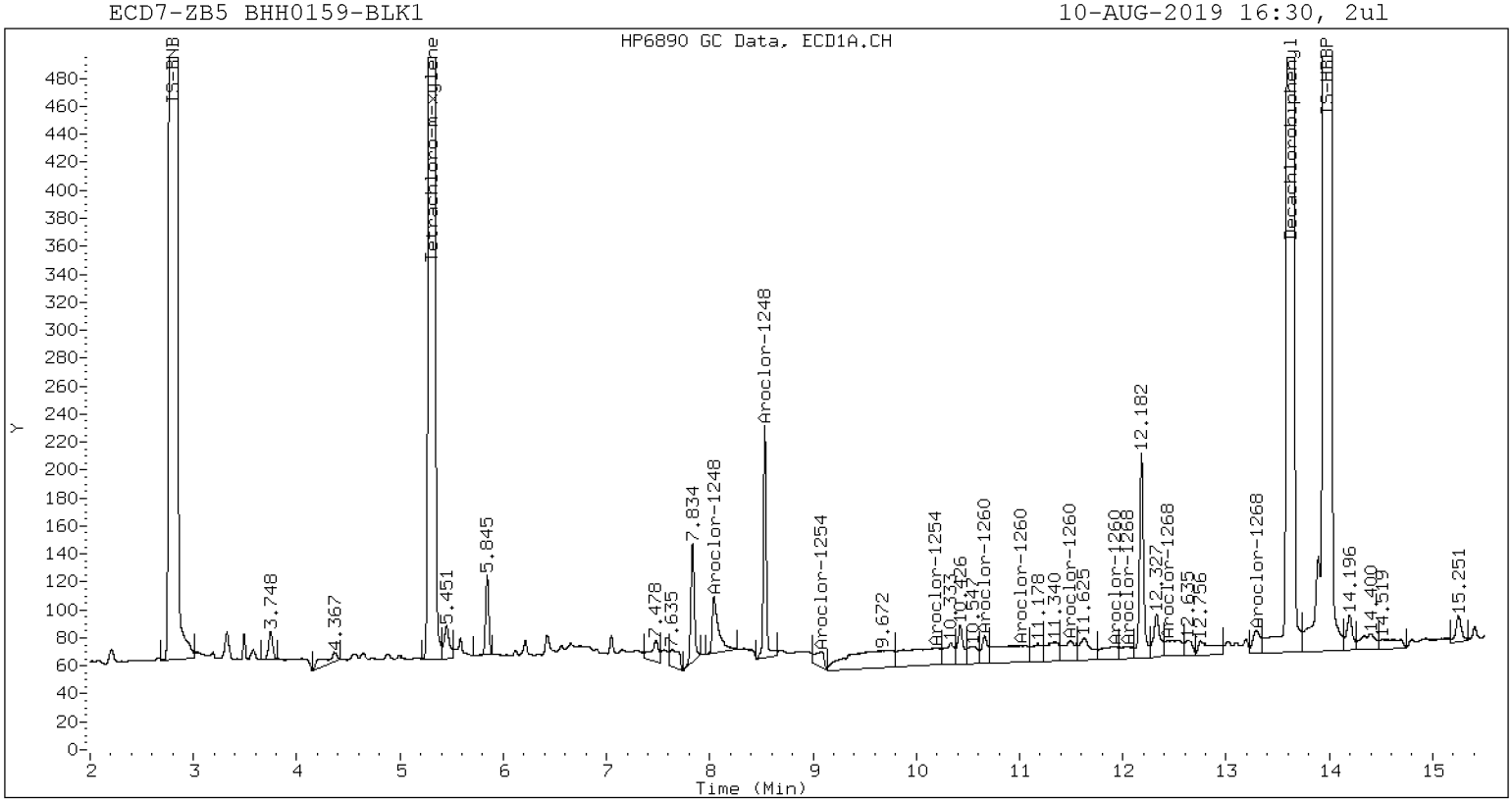
Total PCB Area Col2 (5.403 - 13.514) = 240557 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

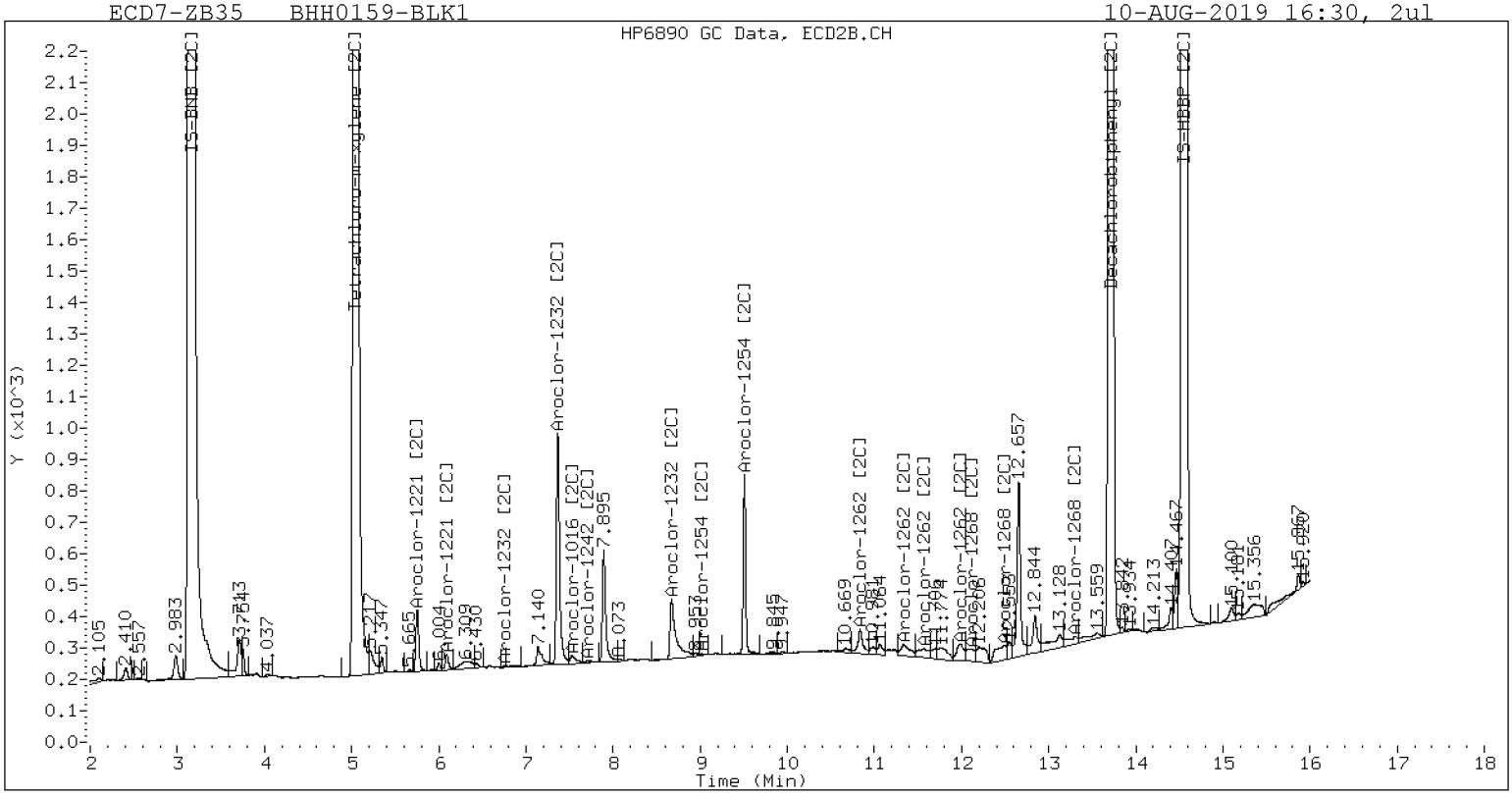
PCB Dual Column Chromatograms

ECD7-ZB5 BHH0159-BLK1 10-AUG-2019 16:30, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BHH0159-BLK1 10-AUG-2019 16:30, 2ul



ZB-35 Manual Integration: NO

Form I

METHOD BLANK DATA SHEET

EPA 8082A

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC			Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Laboratory ID:	BHH0288-BLK1	File ID:	19081410ECD7.D
Sampled:	N/A	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 17:51
Solids:		Preparation:	EPA 3546 (Microwave)	Initial/Final:	12.5 g / 2.5 mL
Batch:	BHH0288	Sequence:	SHH0216	Calibration:	CG00087
Instrument:	ECD7	Column:	ZB5	Cleanups:	Silica Gel, Sulfur, Sulfuric Acid

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg wet)	Q	DL	RL
12674-11-2	Aroclor 1016	1	4.0	U	1.6	4.0
11104-28-2	Aroclor 1221	1	4.0	U	1.6	4.0
11141-16-5	Aroclor 1232	1	4.0	U	1.6	4.0
53469-21-9	Aroclor 1242	1	4.0	U	1.6	4.0
12672-29-6	Aroclor 1248	1	4.0	U	1.6	4.0
11097-69-1	Aroclor 1254	1	4.0	U	1.6	4.0
11096-82-5	Aroclor 1260	1	4.0	U	0.6	4.0
37324-23-5	Aroclor 1262	1	4.0	U	0.6	4.0
11100-14-4	Aroclor 1268	1	4.0	U	0.6	4.0

SURROGATES	ADDED (ug/kg wet)	CONC (ug/kg wet)	% REC	QC LIMITS	Q
Decachlorobiphenyl	8.0000	7.29	91.1	40 - 126	
Tetrachlorometaxylene	8.0000	6.60	82.5	44 - 120	
Decachlorobiphenyl [2C]	8.0000	6.66	83.3	40 - 126	
Tetrachlorometaxylene [2C]	8.0000	5.96	74.5	44 - 120	

[2C] indicates second-column analyte, present if quantification on any batch samples used second column data.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081410ECD7.D
Data file 2: /20190814.b/20190814.b/19081410ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BHH0288-BLK1
Client ID:
Injection Date: 14-AUG-2019 17:51
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.310	-0.003	162932	5.065	-0.003	545811	33.0	29.8	10.2	Tetrachloro-m-xylene
13.615	-0.001	195753	13.715	0.001	1013183	36.4	33.3	8.9	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	82.5	74.5
Decachlorobiphenyl	91.1	83.3

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	385396	-10.9
Hexabromobiphenyl	517563	474257	-8.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1469126	-1.9
Hexabromobiphenyl	1404015	1617271	15.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.971	0.062	1596	13.2	1	6.848	0.074	4936	6.9
Aroclor-1016	2	7.271	-0.028	1025	2.4	2	7.380	-0.015	7467	4.7
Aroclor-1016	3	---			0.0	3	7.551	-0.045	5965	9.4
Aroclor-1016	4	8.299	0.042	2197	16.4	4	7.792	0.026	1539	3.9
	Total Col1Ave (3 peaks):				10.7	Total Col2Ave (4 peaks):				6.2 RPD = 52*
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				5.2
Aroclor-1221	1	---			0.0	1	4.356	0.062	4954	45.2
Aroclor-1221	2	---			0.0	2	5.772	0.001	14818	62.0
Aroclor-1221	3	---			0.0	3	6.103	-0.014	11373	29.2
	Col1Ave: <3 Quant Peaks					Col2Ave:				45.5
Aroclor-1232	1	---			0.0	1	4.356	0.061	4954	75.1
Aroclor-1232	2	6.971	0.051	1596	32.7	2	6.848	0.055	4936	14.8
Aroclor-1232	3	7.271	-0.036	1025	6.0	3	7.380	-0.032	7467	11.1
Aroclor-1232	4	7.550	0.095	2107	32.5	4	8.702	-0.043	10467	46.1
	Total Col1Ave (3 peaks):				23.7	Total Col2Ave (4 peaks):				36.8 RPD = 43*
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				24.0
Aroclor-1242	1	6.971	0.061	1596	15.9	1	6.848	0.074	4936	8.5
Aroclor-1242	2	7.271	-0.027	1025	2.8	2	7.380	-0.015	7467	5.8
Aroclor-1242	3	8.526	-0.097	1362	11.4	3	7.792	0.026	1539	4.6
Aroclor-1242	4	8.983	0.072	1324	10.4	4	8.852	0.050	1450	3.5
	Total Col1Ave (4 peaks):				10.1	Total Col2Ave (4 peaks):				5.6 RPD = 57*
	Corrected Ave (3 peaks):				8.2	Corrected Ave (3 peaks):				4.7 RPD = 55*
Aroclor-1248	1	8.094	0.012	1119	6.2	1	7.380	-0.011	7467	9.0
Aroclor-1248	2	8.526	-0.095	1362	6.1	2	8.207	-0.068	8239	13.2
Aroclor-1248	3	8.983	0.074	1324	6.3	3	8.852	0.050	1450	2.2
Aroclor-1248	4	---			0.0	4	9.078	-0.060	304	0.4
	Total Col1Ave (3 peaks):				6.2	Total Col2Ave (4 peaks):				6.2 RPD = 1
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				3.9
Aroclor-1254	1	---			0.0	1	9.040	0.003	449	0.5
Aroclor-1254	2	---			0.0	2	9.078	-0.050	304	0.7
Aroclor-1254	3	---			0.0	3	9.514	-0.032	8794	13.4
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	10.469	0.000	1099	1.3
	Col1Ave: <3 Quant Peaks					Col2Ave:				4.0
Aroclor-1260	1	---			0.0	1	10.845	0.043	6286	5.9
Aroclor-1260	2	---			0.0	2	11.235	-0.007	353	0.3
Aroclor-1260	3	---			0.0	3	11.519	-0.000	654	0.2
Aroclor-1260	4	---			0.0	4	12.095	0.062	473	0.5
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave:				1.7
Aroclor-1262	1	---			0.0	1	10.845	0.032	6286	4.2
Aroclor-1262	2	---			0.0	2	11.235	-0.019	353	0.3
Aroclor-1262	3	---			0.0	3	11.519	-0.011	654	0.2
Aroclor-1262	4	---			0.0	4	12.095	0.051	473	0.3
	Col1Ave: <3 Quant Peaks					Col2Ave:				1.3
Aroclor-1268	1	---			0.0	1	12.095	0.050	473	0.1
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	12.495	-0.005	1456	0.4
Aroclor-1268	4	---			0.0	4	13.305	-0.015	793	0.1
	Col1Ave: <3 Quant Peaks					Col2Ave:				0.2

Total PCB Area Col1 (5.413 - 13.516) = 45677 Col1 Total PCB = 0.0 ppm*

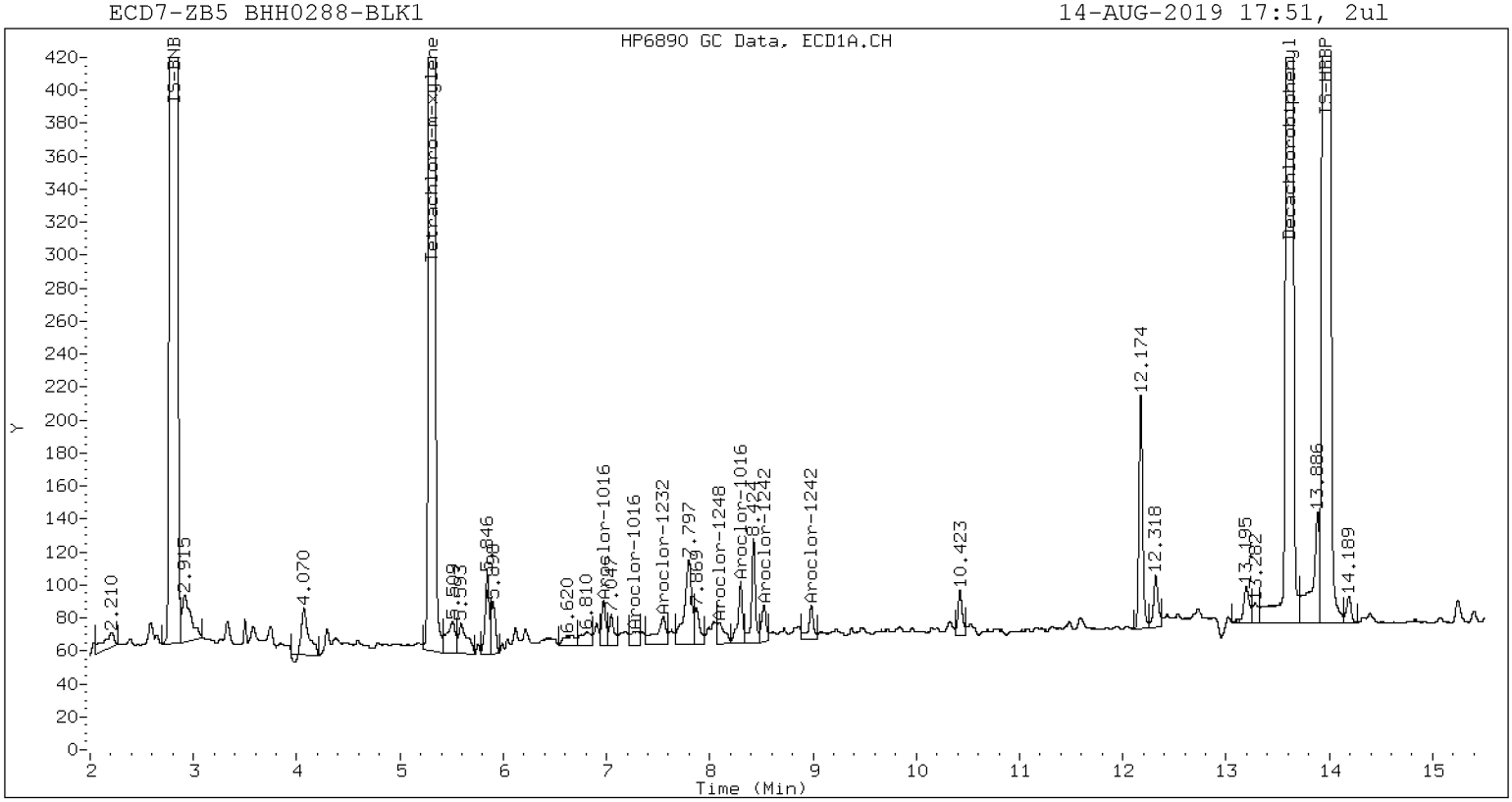
Total PCB Area Col2 (5.413 - 13.516) = 276431 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

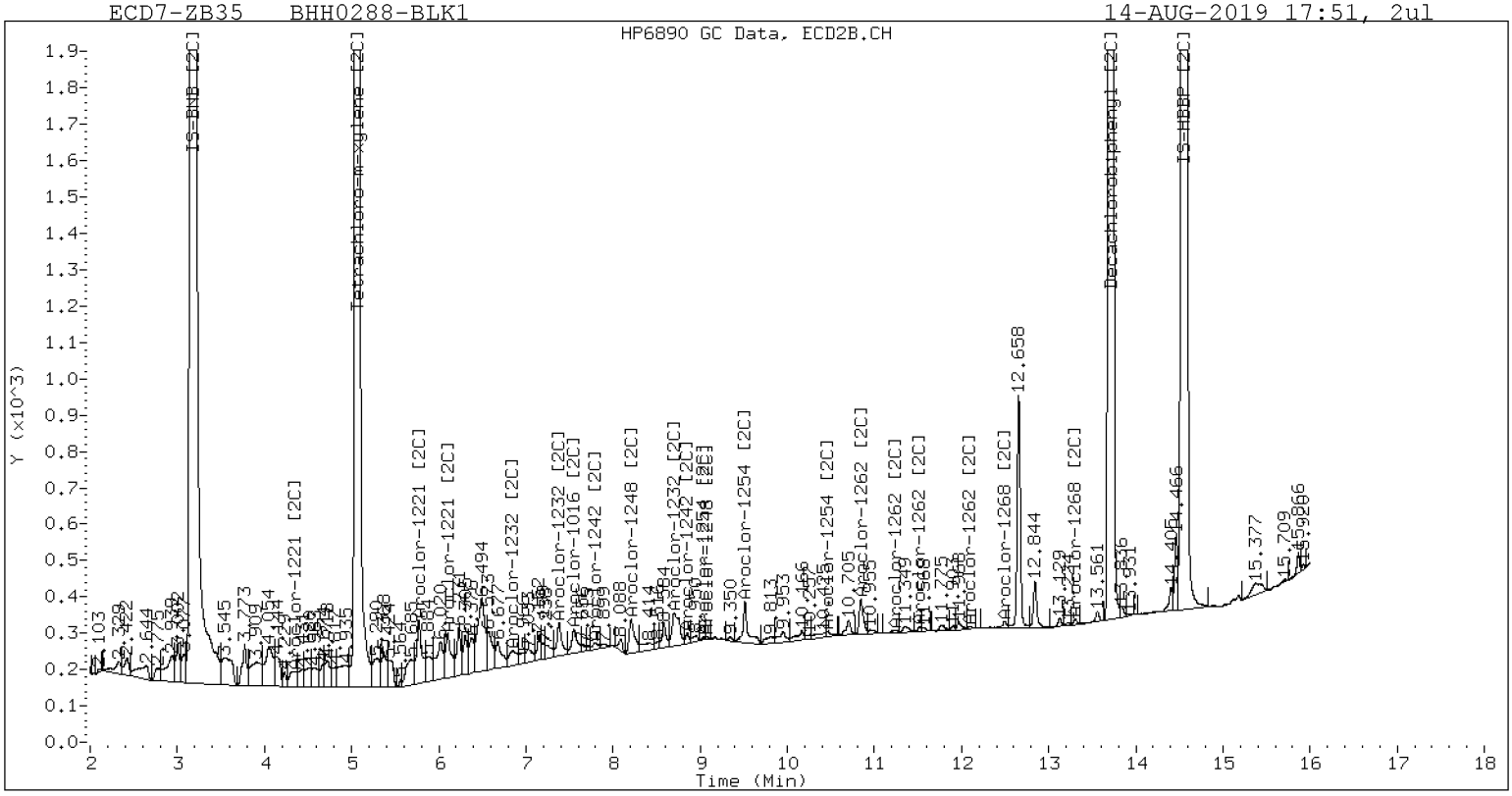
PCB Dual Column Chromatograms

ECD7-ZB5 BHH0288-BLK1 14-AUG-2019 17:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BHH0288-BLK1 14-AUG-2019 17:51, 2ul



ZB-35 Manual Integration: NO

LCS / LCS DUPLICATE RECOVERY

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Wipes	Analyzed:	08/10/19 16:52
Batch:	BHH0159	Laboratory ID:	BHH0159-BS1
Preparation:	EPA 3580A (Shake Out)	Sequence Name:	LCS
Initial/Final:	1 Wipe / 10 mL		

COMPOUND	SPIKE ADDED (ug/Wipe)	LCS CONCENTRATION (ug/Wipe)	Q	LCS % REC. #	QC LIMITS REC.
Aroclor 1016	5.00	4.76		95.2	30 - 160
Aroclor 1260	5.00	4.69		93.8	30 - 160

* Indicates values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190810.b/19081006ECD7.D
Data file 2: /20190810.b/20190810.b/19081006ECD7.D
Method: \\target\share\chem4\ecd7.i\20190810.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BHH0159-BS1
Client ID:
Injection Date: 10-AUG-2019 16:52
Report Date: 08/14/2019 10:28
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.301	-0.002	164265	5.056	-0.003	535888	41.7	39.2	6.2	Tetrachloro-m-xylene
13.616	0.002	165559	13.713	-0.002	735336	41.9	43.5	3.8	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	104.2	97.9
Decachlorobiphenyl	104.7	108.8

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	307366	-28.9
Hexabromobiphenyl	517563	348902	-32.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1096884	-26.7
Hexabromobiphenyl	1404015	898710	-36.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	6.900	-0.000	44898	464.1	1	6.765	-0.003	228263	427.1
Aroclor-1016	2	7.291	-0.001	165870	484.3	2	7.388	-0.002	540951	456.9
Aroclor-1016	3	7.438	-0.000	62052	475.7	3	7.589	-0.003	209525	444.1
Aroclor-1016	4	8.250	-0.001	51123	479.6	4	7.759	-0.003	136101	459.5
Total Col1Ave (4 peaks):					475.9	Total Col2Ave (4 peaks):				446.9 RPD = 6
Corrected Ave (3 peaks):					473.1	Corrected Ave (3 peaks):				442.7 RPD = 7
Aroclor-1221	1	---			0.0	1	4.259	-0.035	1018	12.4
Aroclor-1221	2	5.673	-0.028	4839	128.2	2	5.741	-0.030	25044	140.4
Aroclor-1221	3	5.947	-0.025	28965	308.7	3	6.086	-0.031	103868	357.4
Col1Ave: <3 Quant Peaks						Col2Ave: 170.1				
Aroclor-1232	1	---			0.0	1	4.259	-0.037	1018	20.7
Aroclor-1232	2	6.900	-0.020	44898	1153.2	2	6.765	-0.028	228263	917.8
Aroclor-1232	3	7.291	-0.016	165870	1216.5	3	7.388	-0.024	540951	1080.7
Aroclor-1232	4	7.438	-0.017	62052	1199.8	4	8.723	-0.021	30531	180.2
Total Col1Ave (3 peaks):					1189.8	Total Col2Ave (4 peaks):				549.8 RPD = 74*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				372.9
Aroclor-1242	1	6.900	-0.020	44898	559.9	1	6.765	-0.028	228263	524.9
Aroclor-1242	2	7.291	-0.016	165870	573.7	2	7.388	-0.024	540951	565.0
Aroclor-1242	3	8.617	-0.014	7887	82.4	3	7.759	-0.024	136101	550.5
Aroclor-1242	4	8.911	-0.007	7454	73.4	4	8.795	-0.021	20248	66.2
Total Col1Ave (4 peaks):					322.4	Total Col2Ave (4 peaks):				426.7 RPD = 28
Corrected Ave (3 peaks):					238.6	Corrected Ave (3 peaks):				380.6 RPD = 46*
Aroclor-1248	1	8.078	0.000	47797	334.1	1	7.388	0.001	540951	869.8
Aroclor-1248	2	8.617	-0.001	7887	44.3	2	8.270	-0.002	162713	348.1
Aroclor-1248	3	8.911	0.005	7454	44.7	3	8.795	-0.003	20248	42.0
Aroclor-1248	4	9.492	-0.003	38716	365.3	4	9.132	-0.004	11953	19.5
Total Col1Ave (4 peaks):					197.1	Total Col2Ave (4 peaks):				319.8 RPD = 47*
Corrected Ave (3 peaks):					141.0	Corrected Ave (3 peaks):				136.5 RPD = 3
Aroclor-1254	1	8.991	-0.001	40312	152.0	1	9.033	-0.005	120580	194.3
Aroclor-1254	2	9.064	-0.003	1311	15.4	2	9.132	0.003	11953	37.6
Aroclor-1254	3	9.358	-0.002	7863	46.4	3	9.542	-0.004	38189	77.9
Aroclor-1254	4	9.492	-0.004	38716	118.4	4	9.691	-0.004	59967	59.8
Aroclor-1254	5	10.194	-0.010	40568	185.4	5	10.472	0.003	117748	186.6
Total Col1Ave (5 peaks):					103.5	Total Col2Ave (5 peaks):				111.2 RPD = 7
Corrected Ave (4 peaks):					83.1	Corrected Ave (4 peaks):				90.5 RPD = 9
Aroclor-1260	1	10.758	-0.000	85219	453.6	1	10.799	-0.002	270585	456.2
Aroclor-1260	2	11.074	-0.001	87665	481.1	2	11.239	-0.002	287316	486.8
Aroclor-1260	3	11.445	0.000	219821	487.9	3	11.516	-0.002	709492	457.9
Aroclor-1260	4	11.845	-0.001	111342	524.8	4	12.031	-0.002	207191	425.9
Aroclor-1260	5	11.963	0.001	40962	397.7	NS	---			----
Total Col1Ave (5 peaks):					469.0	Total Col2Ave (4 peaks):				456.7 RPD = 3
Corrected Ave (4 peaks):					455.1	Corrected Ave (3 peaks):				446.7 RPD = 2
Aroclor-1262	1	11.074	-0.007	87665	385.3	1	10.799	-0.014	270585	325.0
Aroclor-1262	2	11.445	-0.005	219821	402.6	2	11.239	-0.014	287316	410.7
Aroclor-1262	3	11.845	-0.005	111342	661.8	3	11.516	-0.013	709492	431.3
Aroclor-1262	4	11.963	-0.004	40962	195.9	4	12.031	-0.013	207191	263.4
Total Col1Ave (4 peaks):					411.4	Total Col2Ave (4 peaks):				357.6 RPD = 14
Corrected Ave (3 peaks):					327.9	Corrected Ave (3 peaks):				333.0 RPD = 2
Aroclor-1268	1	11.963	-0.005	40962	66.0	1	12.031	-0.015	207191	99.5
Aroclor-1268	2	12.036	-0.003	48205	83.7	2	12.086	-0.024	450986	218.9
Aroclor-1268	3	12.436	0.011	21657	45.3	3	12.489	-0.011	14026	7.7
Aroclor-1268	4	13.206	-0.005	11688	8.3	4	13.304	-0.016	59010	8.8
Total Col1Ave (4 peaks):					50.8	Total Col2Ave (4 peaks):				83.7 RPD = 49*
Corrected Ave (3 peaks):					39.9	Corrected Ave (3 peaks):				38.7 RPD = 3

Total PCB Area Col1 (5.403 - 13.514) = 2430415 Col1 Total PCB = 0.9 ppm*

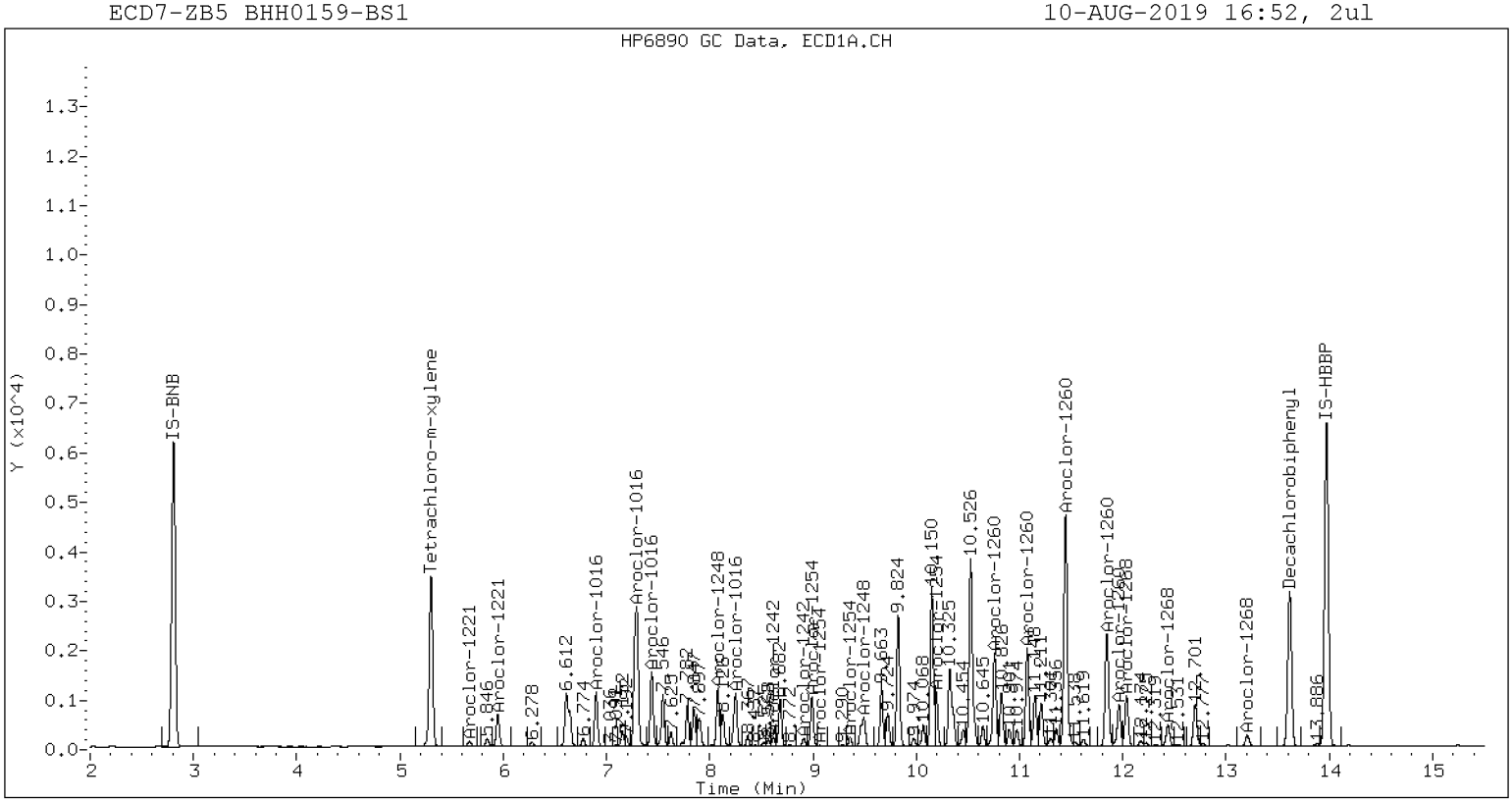
Total PCB Area Col2 (5.403 - 13.514) = 7792065 Col2 Total PCB = 0.9 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

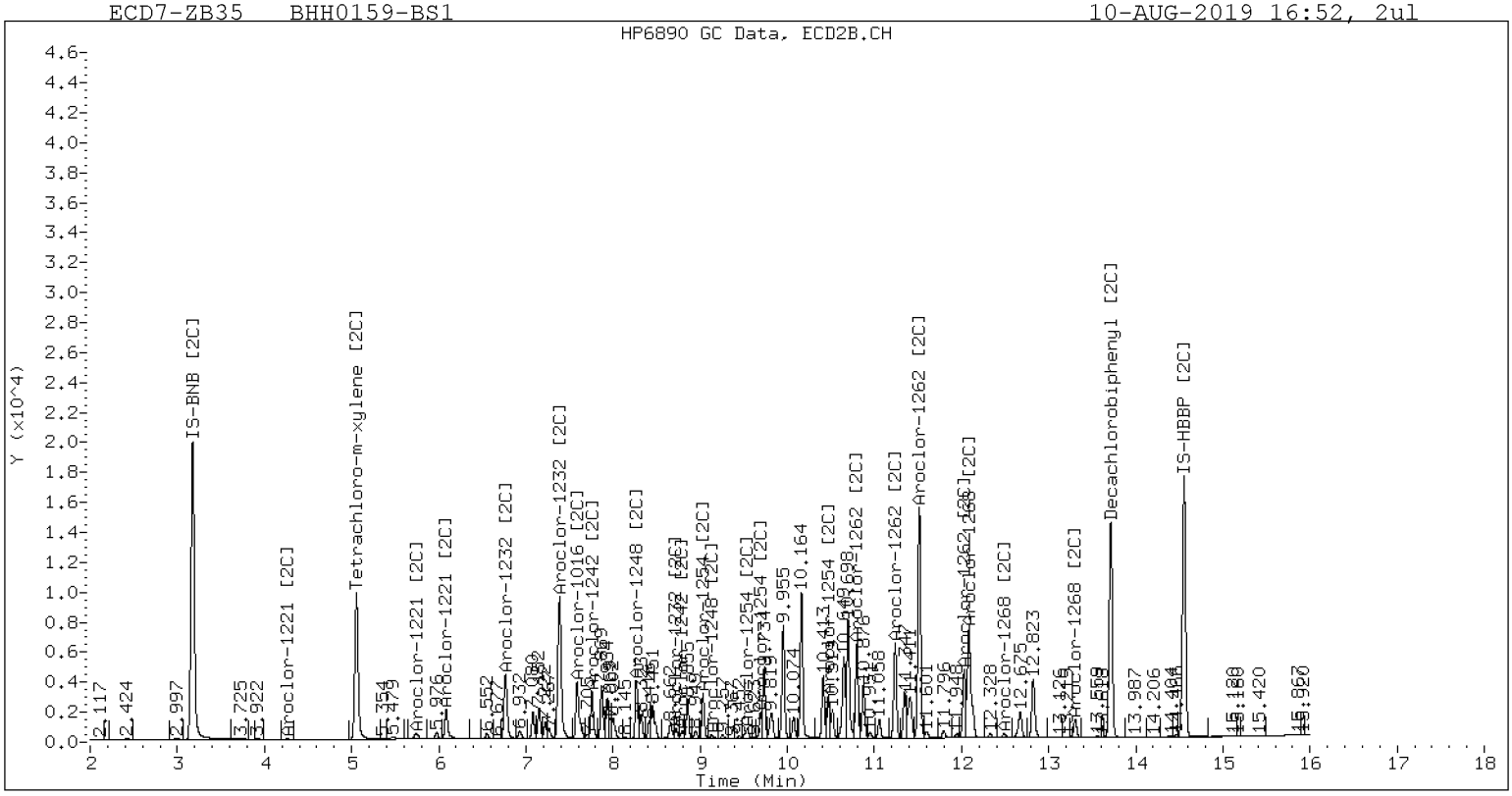
PCB Dual Column Chromatograms

ECD7-ZB5 BHH0159-BS1 10-AUG-2019 16:52, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BHH0159-BS1 10-AUG-2019 16:52, 2ul



ZB-35 Manual Integration: NO

LCS / LCS DUPLICATE RECOVERY

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/14/19 18:12
Batch:	BHH0288	Laboratory ID:	BHH0288-BS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	LCS
Initial/Final:	12.5 g / 2.5 mL		

COMPOUND	SPIKE ADDED (ug/kg wet)	LCS CONCENTRATION (ug/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Aroclor 1016	101	89.2		88.5	56 - 120
Aroclor 1260	101	75.2		74.6	58 - 120

* Indicates values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081411ECD7.D
Data file 2: /20190814.b/20190814.b/19081411ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BHH0288-BS1
Client ID:
Injection Date: 14-AUG-2019 18:12
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.310	-0.002	167595	5.066	-0.003	550648	33.6	29.6	12.4	Tetrachloro-m-xylene
13.615	-0.001	192574	13.715	0.001	991557	35.9	32.3	10.8	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	83.9	74.1
Decachlorobiphenyl	89.8	80.7

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	389576	-9.9
Hexabromobiphenyl	517563	473096	-8.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1489993	-0.5
Hexabromobiphenyl	1404015	1634720	16.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	6.906	-0.003	53406	435.6	1	6.773	-0.002	296126	407.9
Aroclor-1016	2	7.295	-0.004	193186	445.0	2	7.395	-0.001	691020	429.7
Aroclor-1016	3	7.443	-0.002	73093	442.1	3	7.595	-0.001	281806	439.8
Aroclor-1016	4	8.255	-0.002	62262	460.8	4	7.765	-0.001	183801	456.8
Total Col1Ave (4 peaks):		445.9				Total Col2Ave (4 peaks):		433.5	RPD = 3	
Corrected Ave (3 peaks):		440.9				Corrected Ave (3 peaks):		425.8	RPD = 3	
Aroclor-1221	1	4.149	-0.022	1172	40.1	1	4.232	-0.062	1733	15.6
Aroclor-1221	2	5.681	-0.019	6334	132.4	2	5.746	-0.025	41776	172.4
Aroclor-1221	3	5.954	-0.018	25997	218.6	3	6.094	-0.023	121217	307.0
Total Col1Ave (3 peaks):		130.4				Total Col2Ave (3 peaks):		165.0	RPD = 23	
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.149	-0.022	1172	66.6	1	4.232	-0.063	1733	25.9
Aroclor-1232	2	6.906	-0.014	53406	1082.2	2	6.773	-0.021	296126	876.5
Aroclor-1232	3	7.295	-0.012	193186	1117.8	3	7.395	-0.018	691020	1016.3
Aroclor-1232	4	7.443	-0.012	73093	1115.1	4	8.729	-0.016	47212	205.1
Total Col1Ave (4 peaks):		845.4				Total Col2Ave (4 peaks):		531.0	RPD = 46*	
Corrected Ave (3 peaks):		754.6				Corrected Ave (3 peaks):		369.2	RPD = 69*	
Aroclor-1242	1	6.906	-0.003	53406	525.5	1	6.773	-0.002	296126	501.3
Aroclor-1242	2	7.295	-0.002	193186	527.1	2	7.395	-0.000	691020	531.3
Aroclor-1242	3	8.621	-0.002	9302	76.7	3	7.765	-0.001	183801	547.3
Aroclor-1242	4	8.915	0.004	8728	67.8	4	8.800	-0.002	30573	73.6
Total Col1Ave (4 peaks):		299.3				Total Col2Ave (4 peaks):		413.4	RPD = 32	
Corrected Ave (3 peaks):		223.3				Corrected Ave (3 peaks):		368.7	RPD = 49*	
Aroclor-1248	1	8.083	-0.000	57374	316.4	1	7.395	0.003	691020	818.0
Aroclor-1248	2	8.621	-0.000	9302	41.2	2	8.275	0.000	220356	347.0
Aroclor-1248	3	8.915	0.006	8728	41.3	3	8.800	-0.001	30573	46.6
Aroclor-1248	4	9.494	-0.004	48780	363.1	4	9.136	-0.002	23279	27.9
Total Col1Ave (4 peaks):		190.5				Total Col2Ave (4 peaks):		309.9	RPD = 48*	
Corrected Ave (3 peaks):		133.0				Corrected Ave (3 peaks):		140.5	RPD = 6	
Aroclor-1254	1	8.994	0.003	50133	149.1	1	9.038	0.001	172527	204.7
Aroclor-1254	2	9.069	0.001	1362	12.7	2	9.136	0.008	23279	54.0
Aroclor-1254	3	9.362	0.001	9824	45.8	3	9.546	0.000	51414	77.2
Aroclor-1254	4	9.494	-0.002	48780	117.7	4	9.694	-0.000	76576	56.2
Aroclor-1254	5	10.152	-0.052	212091	764.7	5	10.474	0.005	172570	201.3
Total Col1Ave (5 peaks):		218.0				Total Col2Ave (5 peaks):		118.7	RPD = 59*	
Corrected Ave (4 peaks):		81.3				Corrected Ave (4 peaks):		97.2	RPD = 18	
Aroclor-1260	1	10.759	-0.002	104289	409.4	1	10.802	-0.001	388217	359.8
Aroclor-1260	2	11.076	-0.002	108776	440.3	2	11.242	-0.000	433784	404.1
Aroclor-1260	3	11.446	-0.001	262408	429.5	3	11.519	0.000	1096714	389.2
Aroclor-1260	4	11.846	-0.001	139074	483.5	4	12.033	-0.001	311050	351.5
Aroclor-1260	5	11.963	-0.001	51802	370.9	NS	---			----
Total Col1Ave (5 peaks):		426.7				Total Col2Ave (4 peaks):		376.1	RPD = 13	
Corrected Ave (4 peaks):		412.5				Corrected Ave (3 peaks):		366.8	RPD = 12	
Aroclor-1262	1	11.076	-0.006	108776	352.6	1	10.802	-0.012	388217	256.3
Aroclor-1262	2	11.446	-0.004	262408	354.4	2	11.242	-0.012	433784	340.9
Aroclor-1262	3	11.846	-0.005	139074	609.6	3	11.519	-0.010	1096714	366.5
Aroclor-1262	4	11.963	-0.004	51802	182.7	4	12.033	-0.011	311050	217.4
Total Col1Ave (4 peaks):		374.8				Total Col2Ave (4 peaks):		295.3	RPD = 24	
Corrected Ave (3 peaks):		296.6				Corrected Ave (3 peaks):		271.5	RPD = 9	
Aroclor-1268	1	11.963	-0.005	51802	61.5	1	12.033	-0.013	311050	82.1
Aroclor-1268	2	12.037	-0.002	61287	78.5	2	12.087	-0.023	675283	180.2
Aroclor-1268	3	12.437	0.011	28343	43.7	3	12.490	-0.011	24463	7.3
Aroclor-1268	4	13.206	-0.004	18037	9.4	4	13.305	-0.015	85052	7.0
Total Col1Ave (4 peaks):		48.3				Total Col2Ave (4 peaks):		69.2	RPD = 36	

Corrected Ave (3 peaks): 38.2 Corrected Ave (3 peaks): 32.1 RPD = 17

Total PCB Area Col1 (5.413 - 13.516) = 2979529 Col1 Total PCB = 0.9 ppm*

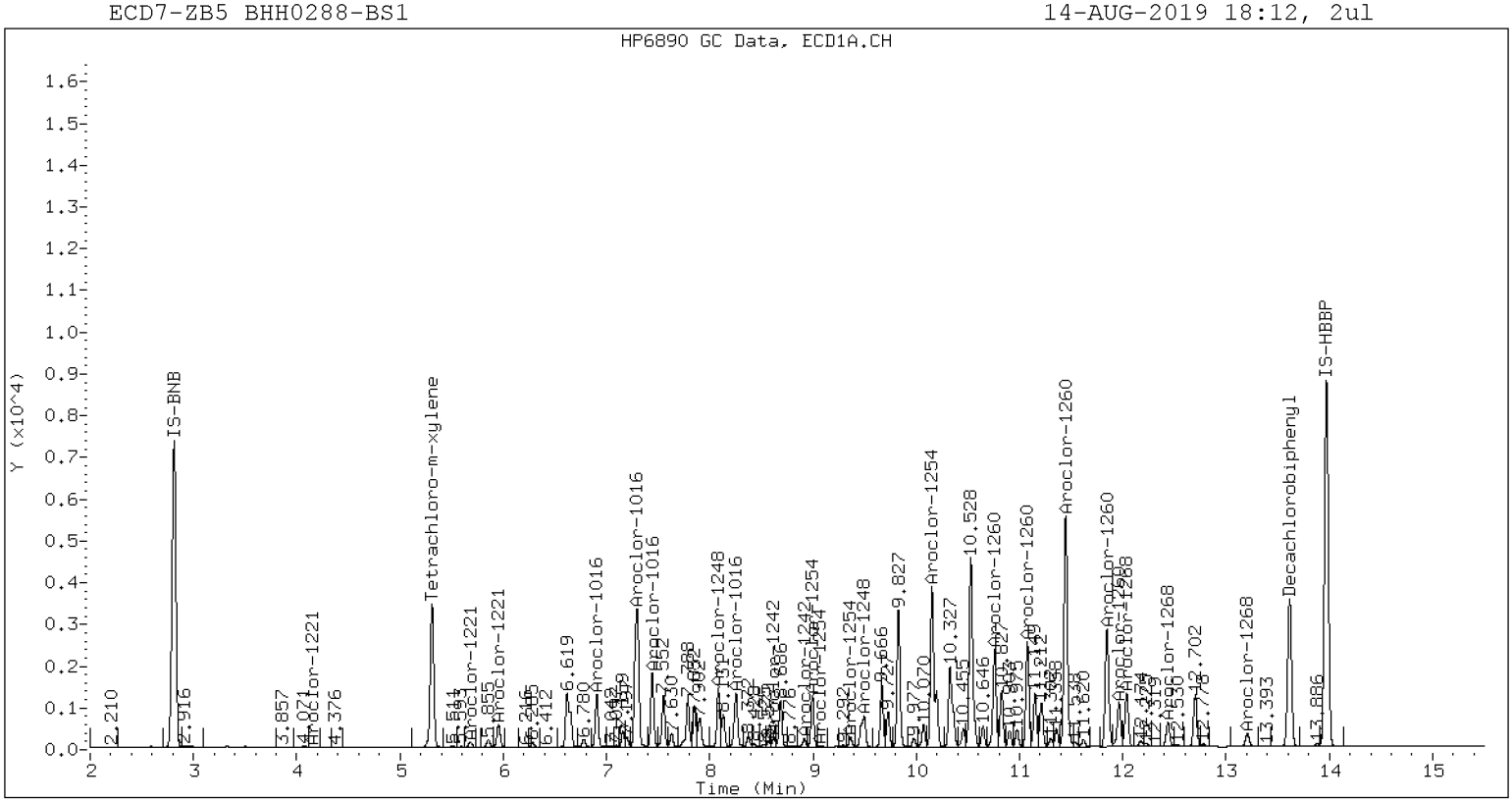
Total PCB Area Col2 (5.413 - 13.516) = 11241107 Col2 Total PCB = 1.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

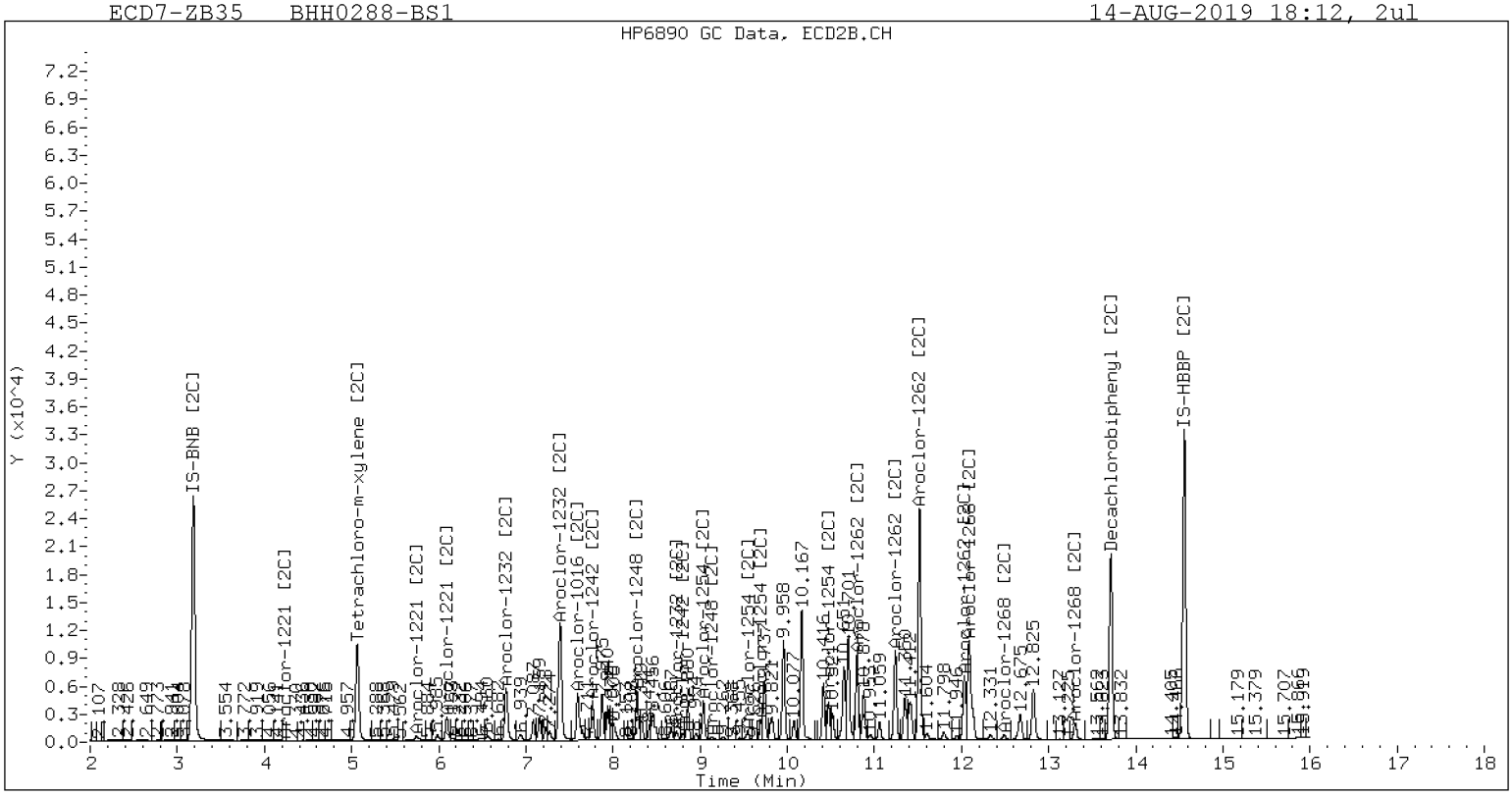
PCB Dual Column Chromatograms

ECD7-ZB5 BHH0288-BS1 14-AUG-2019 18:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BHH0288-BS1 14-AUG-2019 18:12, 2ul



ZB-35 Manual Integration: NO

MS / MS DUPLICATE RECOVERY
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/14/19 18:56
Batch:	BHH0288	Laboratory ID:	BHH0288-MS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	Matrix Spike
Initial/Final:	31.51 g / 2.5 mL	Source Sample:	SL4-SG-WC3-2019

COMPOUND	SPIKE ADDED (ug/kg dry)	SAMPLE CONCENTRATION (ug/kg dry)	Q	MS CONCENTRATION (ug/kg dry)	Q	MS % REC. #	QC LIMITS REC.
Aroclor 1016	101	ND	U	80.9		80.1	56 - 120
Aroclor 1260 [2C]	101	37.6		105		66.9	58 - 120

* Values outside of QC limits

[2C] indicates second-column analyte, present if quantification on any batch samples used second column data.

MS / MS DUPLICATE RECOVERY
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/14/19 19:17
Batch:	BHH0288	Laboratory ID:	BHH0288-MSD1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	Matrix Spike Dup
Initial/Final:	31.52 g / 2.5 mL	Source Sample:	SL4-SG-WC3-2019

COMPOUND	SPIKE ADDED (ug/kg dry)	MSD CONCENTRATION (ug/kg dry)	Q	MSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor 1016	101	83.9		83.1	3.63	30	56 - 120
Aroclor 1260 [2C]	101	107		69.1	2.05	30	58 - 120

* Values outside of QC limits

[2C] indicates second-column analyte, present if quantification on any batch samples used second column data.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081413ECD7.D
Data file 2: /20190814.b/20190814.b/19081413ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BHH0288-MS1
Client ID:
Injection Date: 14-AUG-2019 18:56
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.313	-0.000	130702	5.067	-0.001	413890	29.1	26.9	7.8	Tetrachloro-m-xylene
13.610	-0.006	80707	13.711	-0.004	563209	33.2	28.1	16.9	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	72.6	67.2
Decachlorobiphenyl	~~83.~~1 nrs	70.1

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D	
Bromo-Nitrobenzene	432392	350982	-18.8	
Hexabromobiphenyl	517563	214272	-58.6	<- fails low due to oily matrix

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1234313	-17.6
Hexabromobiphenyl	1404015	1067753	-24.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.906	-0.003	44807	405.6	1	6.773	-0.001	216627	360.2
Aroclor-1016	2	7.297	-0.002	145548	372.1	2	7.391	-0.004	524153	393.4
Aroclor-1016	3	7.445	-0.000	61449	412.6	3	7.592	-0.004	129805	244.5
Aroclor-1016	4	8.250	-0.007	52300	429.6	4	7.761	-0.005	104710	314.1
	Total Col1Ave (4 peaks):				405.0		Total Col2Ave (4 peaks):			328.1 RPD = 21
	Corrected Ave (3 peaks):				396.8		Corrected Ave (3 peaks):			306.3 RPD = 26
Aroclor-1221	1	4.209	0.038	3417	129.8	1	4.320	0.025	13332	144.7
Aroclor-1221	2	5.683	-0.018	4874	113.1	2	5.748	-0.023	23621	117.7
Aroclor-1221	3	5.956	-0.016	25858	241.3	3	6.094	-0.023	106622	326.0
	Total Col1Ave (3 peaks):				161.4		Total Col2Ave (3 peaks):			196.1 RPD = 19
	Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks			
Aroclor-1232	1	4.209	0.038	3417	215.4	1	4.320	0.024	13332	240.5
Aroclor-1232	2	6.906	-0.014	44807	1007.8	2	6.773	-0.021	216627	774.0
Aroclor-1232	3	7.297	-0.010	145548	934.8	3	7.391	-0.021	524153	930.6
Aroclor-1232	4	7.445	-0.010	61449	1040.5	4	8.724	-0.021	119515	626.8
	Total Col1Ave (4 peaks):				799.6		Total Col2Ave (4 peaks):			643.0 RPD = 22
	Corrected Ave (3 peaks):				719.3		Corrected Ave (3 peaks):			547.1 RPD = 27
Aroclor-1242	1	6.906	-0.003	44807	489.3	1	6.773	-0.002	216627	442.7
Aroclor-1242	2	7.297	-0.000	145548	440.8	2	7.391	-0.004	524153	486.5
Aroclor-1242	3	8.618	-0.005	28298	259.0	3	7.761	-0.004	104710	376.4
Aroclor-1242	4	8.908	-0.003	39365	339.6	4	8.795	-0.007	114432	332.5
	Total Col1Ave (4 peaks):				382.2		Total Col2Ave (4 peaks):			409.5 RPD = 7
	Corrected Ave (3 peaks):				346.5		Corrected Ave (3 peaks):			383.9 RPD = 10
Aroclor-1248	1	8.080	-0.003	55668	340.7	1	7.391	-0.000	524153	749.0
Aroclor-1248	2	8.618	-0.003	28298	139.2	2	8.272	-0.003	206749	393.0
Aroclor-1248	3	8.908	-0.001	39365	206.6	3	8.795	-0.006	114432	210.7
Aroclor-1248	4	9.493	-0.005	142051	1173.6	4	9.126	-0.012	228110	330.0
	Total Col1Ave (4 peaks):				465.0		Total Col2Ave (4 peaks):			420.7 RPD = 10
	Corrected Ave (3 peaks):				228.9		Corrected Ave (3 peaks):			311.3 RPD = 31
Aroclor-1254	1	8.989	-0.002	108228	357.3	1	9.035	-0.002	363089	520.0
Aroclor-1254	2	9.065	-0.002	41068	423.5	2	9.126	-0.002	228110	638.3
Aroclor-1254	3	9.361	-0.001	66046	341.5	3	9.542	-0.005	166158	301.0
Aroclor-1254	4	9.493	-0.003	142051	380.5	4	9.690	-0.004	437240	387.6
Aroclor-1254	5	10.195	-0.009	82555	330.4	5	10.464	-0.004	346965	488.6
	Total Col1Ave (5 peaks):				366.7		Total Col2Ave (5 peaks):			467.1 RPD = 24
	Corrected Ave (4 peaks):				352.4		Corrected Ave (4 peaks):			424.3 RPD = 19
Aroclor-1260	1	10.754	-0.007	72332	626.9	1	10.796	-0.006	334757	475.0
Aroclor-1260	2	11.069	-0.008	68301	610.4	2	11.233	-0.009	450996	643.2
Aroclor-1260	3	11.442	-0.006	222739	805.0	3	11.515	-0.004	968565	526.2
Aroclor-1260	4	11.841	-0.007	97597	749.1	4	12.027	-0.006	264630	457.8
Aroclor-1260	5	11.958	-0.007	38068	601.8	NS	---			----
	Total Col1Ave (5 peaks):				678.6		Total Col2Ave (4 peaks):			525.6 RPD = 25
	Corrected Ave (4 peaks):				647.1		Corrected Ave (3 peaks):			486.4 RPD = 28
Aroclor-1262	1	11.069	-0.012	68301	488.8	1	10.796	-0.017	334757	338.4
Aroclor-1262	2	11.442	-0.009	222739	664.3	2	11.233	-0.021	450996	542.5
Aroclor-1262	3	11.841	-0.010	97597	944.6	3	11.515	-0.015	968565	495.5
Aroclor-1262	4	11.958	-0.010	38068	296.4	4	12.027	-0.017	264630	283.2
	Total Col1Ave (4 peaks):				598.5		Total Col2Ave (4 peaks):			414.9 RPD = 36
	Corrected Ave (3 peaks):				483.2		Corrected Ave (3 peaks):			372.4 RPD = 26
Aroclor-1268	1	11.958	-0.011	38068	99.8	1	12.027	-0.018	264630	107.0
Aroclor-1268	2	12.031	-0.008	45019	127.3	2	12.083	-0.028	584676	238.8
Aroclor-1268	3	12.432	0.007	20619	70.2	3	12.486	-0.014	31411	14.4
Aroclor-1268	4	13.203	-0.007	14951	17.2	4	13.303	-0.017	86695	10.9
	Total Col1Ave (4 peaks):				78.7		Total Col2Ave (4 peaks):			92.8 RPD = 16

Corrected Ave (3 peaks): 62.4 Corrected Ave (3 peaks): 44.1 RPD = 34

Total PCB Area Col1 (5.413 - 13.516) = 3491700 Col1 Total PCB = 1.2 ppm*

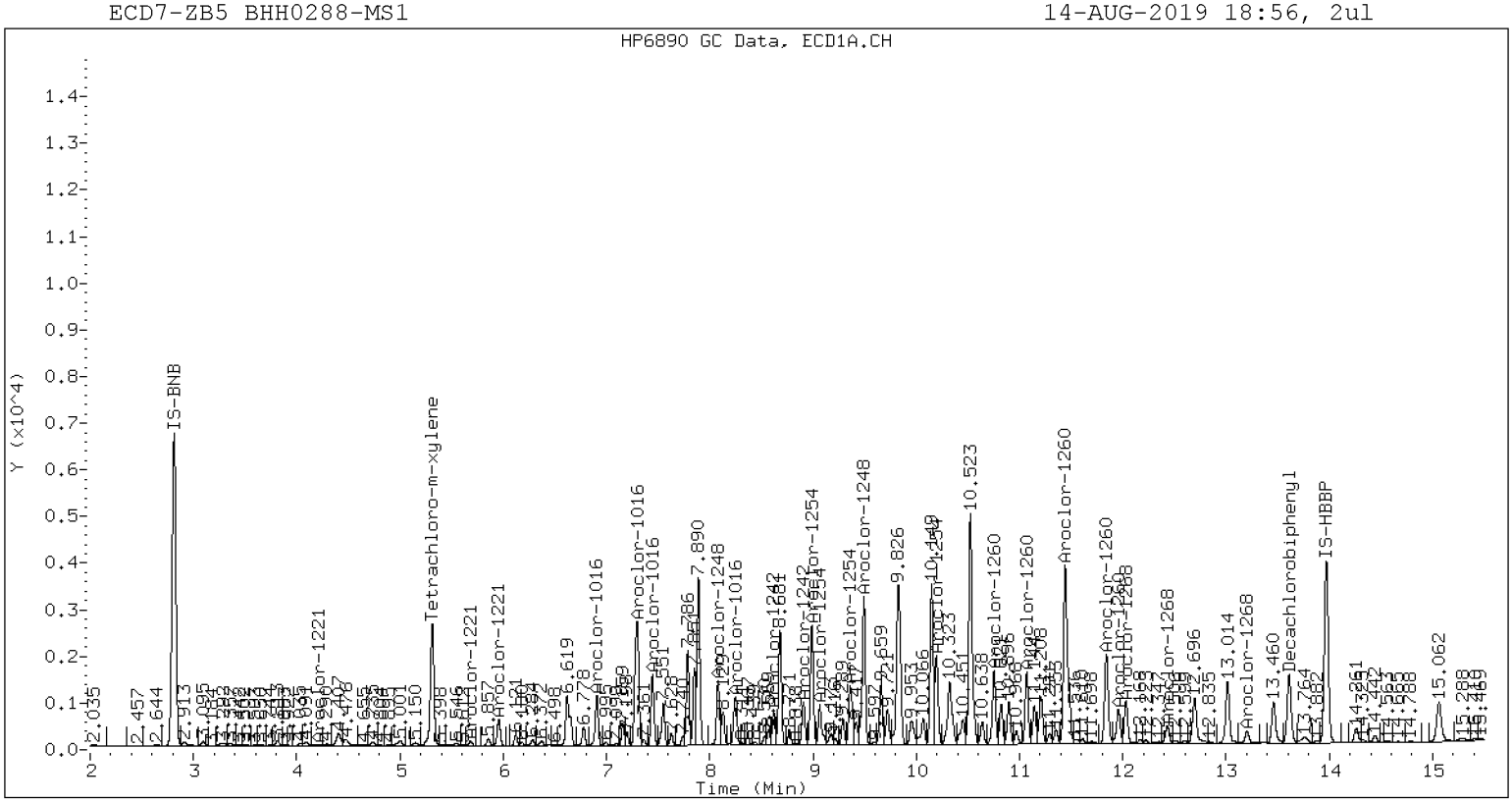
Total PCB Area Col2 (5.413 - 13.516) = 14183374 Col2 Total PCB = 1.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

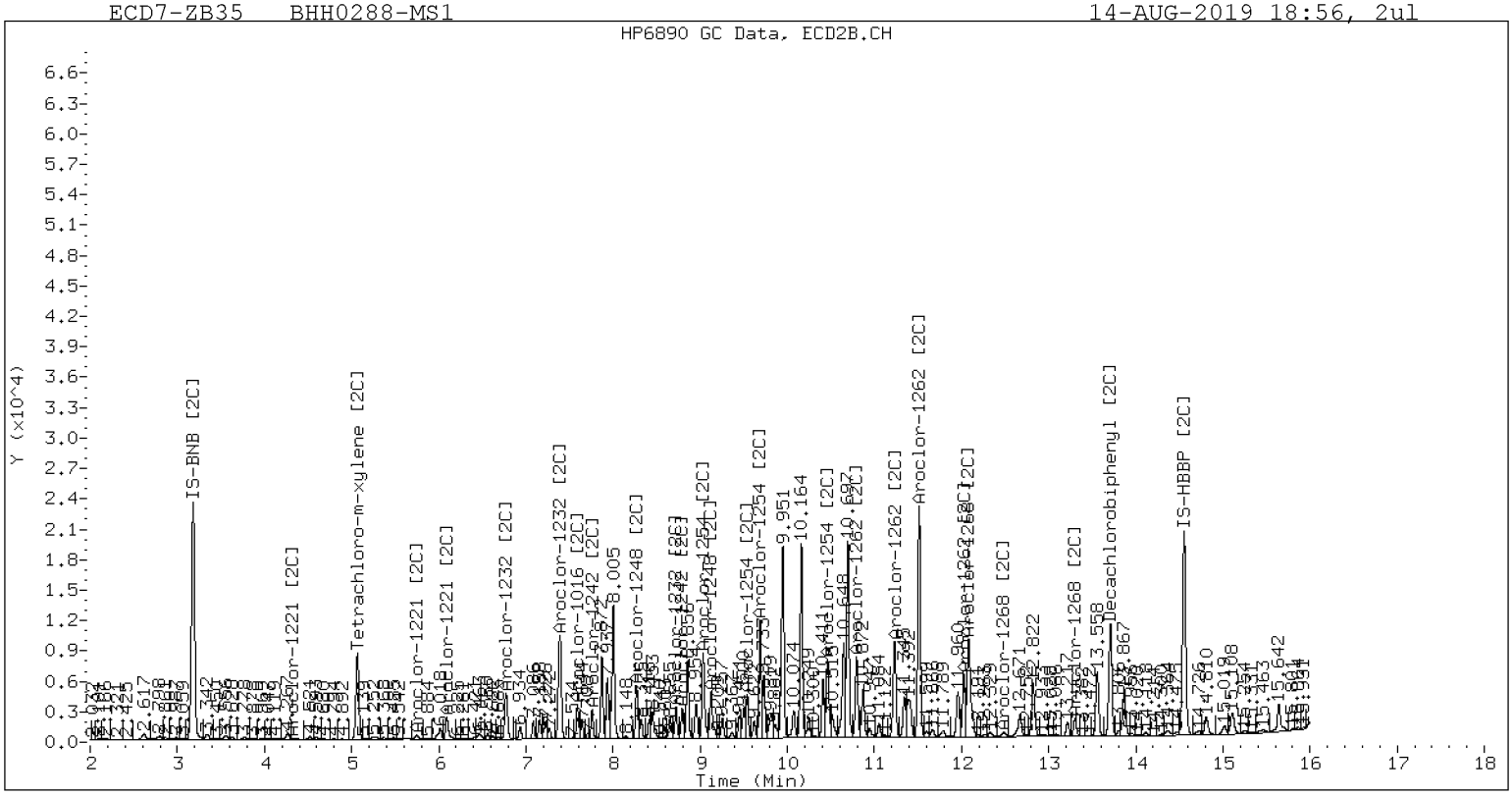
PCB Dual Column Chromatograms

ECD7-ZB5 BHH0288-MS1 14-AUG-2019 18:56, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BHH0288-MS1 14-AUG-2019 18:56, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081414ECD7.D
Data file 2: /20190814.b/20190814.b/19081414ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BHH0288-MSD1
Client ID:
Injection Date: 14-AUG-2019 19:17
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.313	-0.000	134845	5.067	-0.001	434004	29.9	27.8	7.3	Tetrachloro-m-xylene
13.611	-0.005	82506	13.711	-0.004	581855	33.8	28.7	16.4	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	74.8	69.5
Decachlorobiphenyl	~~84.5~~ nrs	71.7

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D	
Bromo-Nitrobenzene	432392	351801	-18.6	
Hexabromobiphenyl	517563	215455	-58.4	<- fails low due to oily matrix

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1251908	-16.4
Hexabromobiphenyl	1404015	1079048	-23.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.906	-0.002	46745	422.2	1	6.773	-0.002	228958	375.4
Aroclor-1016	2	7.297	-0.002	150324	383.5	2	7.392	-0.004	550280	407.2
Aroclor-1016	3	7.445	0.000	63902	428.0	3	7.593	-0.003	135784	252.2
Aroclor-1016	4	8.250	-0.006	54515	446.8	4	7.762	-0.004	109478	323.8
Total Col1Ave (4 peaks):		420.1				Total Col2Ave (4 peaks):			339.7	RPD = 21
Corrected Ave (3 peaks):		411.2				Corrected Ave (3 peaks):			317.1	RPD = 26
Aroclor-1221	1	4.209	0.039	3691	139.9	1	4.266	-0.028	53987	577.8
Aroclor-1221	2	5.683	-0.017	4963	114.9	2	5.748	-0.023	25174	123.6
Aroclor-1221	3	5.957	-0.016	26260	244.5	3	6.094	-0.023	110829	334.1
Total Col1Ave (3 peaks):		166.4				Total Col2Ave (3 peaks):			345.2	RPD = 70*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.209	0.038	3691	232.1	1	4.266	-0.030	53987	960.4
Aroclor-1232	2	6.906	-0.013	46745	1049.0	2	6.773	-0.021	228958	806.6
Aroclor-1232	3	7.297	-0.010	150324	963.2	3	7.392	-0.020	550280	963.2
Aroclor-1232	4	7.445	-0.010	63902	1079.5	4	8.724	-0.021	127302	658.2
Total Col1Ave (4 peaks):		831.0				Total Col2Ave (4 peaks):			847.1	RPD = 2
Corrected Ave (3 peaks):		748.1				Corrected Ave (3 peaks):			808.4	RPD = 8
Aroclor-1242	1	6.906	-0.003	46745	509.3	1	6.773	-0.002	228958	461.3
Aroclor-1242	2	7.297	-0.000	150324	454.2	2	7.392	-0.003	550280	503.5
Aroclor-1242	3	8.618	-0.004	29701	271.2	3	7.762	-0.004	109478	388.0
Aroclor-1242	4	8.908	-0.003	40343	347.2	4	8.796	-0.006	121423	347.9
Total Col1Ave (4 peaks):		395.5				Total Col2Ave (4 peaks):			425.2	RPD = 7
Corrected Ave (3 peaks):		357.5				Corrected Ave (3 peaks):			399.1	RPD = 11
Aroclor-1248	1	8.081	-0.002	60605	370.1	1	7.392	0.000	550280	775.2
Aroclor-1248	2	8.618	-0.002	29701	145.8	2	8.272	-0.003	217174	407.0
Aroclor-1248	3	8.908	-0.001	40343	211.3	3	8.796	-0.006	121423	220.5
Aroclor-1248	4	9.494	-0.004	146190	1205.0	4	9.127	-0.011	238754	340.6
Total Col1Ave (4 peaks):		483.0				Total Col2Ave (4 peaks):			435.8	RPD = 10
Corrected Ave (3 peaks):		242.4				Corrected Ave (3 peaks):			322.7	RPD = 28
Aroclor-1254	1	8.990	-0.002	110728	364.7	1	9.035	-0.002	375099	529.6
Aroclor-1254	2	9.065	-0.002	42452	436.8	2	9.127	-0.001	238754	658.7
Aroclor-1254	3	9.362	0.000	68376	352.7	3	9.540	-0.006	161785	289.0
Aroclor-1254	4	9.494	-0.002	146190	390.7	4	9.691	-0.003	452642	395.6
Aroclor-1254	5	10.195	-0.009	85567	341.7	5	10.465	-0.004	356045	494.4
Total Col1Ave (5 peaks):		377.3				Total Col2Ave (5 peaks):			473.5	RPD = 23
Corrected Ave (4 peaks):		362.5				Corrected Ave (4 peaks):			427.1	RPD = 16
Aroclor-1260	1	10.754	-0.007	75013	646.6	1	10.796	-0.006	345634	485.3
Aroclor-1260	2	11.070	-0.008	70044	622.5	2	11.233	-0.009	453600	640.2
Aroclor-1260	3	11.442	-0.005	218549	785.5	3	11.515	-0.004	1009000	542.4
Aroclor-1260	4	11.841	-0.007	99749	761.4	4	12.028	-0.006	279537	478.6
Aroclor-1260	5	11.958	-0.006	39202	616.3	NS	---			----
Total Col1Ave (5 peaks):		686.5				Total Col2Ave (4 peaks):			536.6	RPD = 25
Corrected Ave (4 peaks):		661.7				Corrected Ave (3 peaks):			502.1	RPD = 27
Aroclor-1262	1	11.070	-0.011	70044	498.5	1	10.796	-0.017	345634	345.7
Aroclor-1262	2	11.442	-0.008	218549	648.2	2	11.233	-0.020	453600	540.0
Aroclor-1262	3	11.841	-0.010	99749	960.1	3	11.515	-0.014	1009000	510.8
Aroclor-1262	4	11.958	-0.009	39202	303.5	4	12.028	-0.016	279537	296.0
Total Col1Ave (4 peaks):		602.6				Total Col2Ave (4 peaks):			423.1	RPD = 35
Corrected Ave (3 peaks):		483.4				Corrected Ave (3 peaks):			384.2	RPD = 23
Aroclor-1268	1	11.958	-0.010	39202	102.2	1	12.028	-0.018	279537	111.8
Aroclor-1268	2	12.032	-0.007	45782	128.8	2	12.083	-0.028	610338	246.7
Aroclor-1268	3	12.432	0.006	20957	71.0	3	12.486	-0.014	29031	13.2
Aroclor-1268	4	13.204	-0.006	15316	17.6	4	13.304	-0.016	93035	11.5
Total Col1Ave (4 peaks):		79.9				Total Col2Ave (4 peaks):			95.8	RPD = 18

Corrected Ave (3 peaks): 63.6 Corrected Ave (3 peaks): 45.5 RPD = 33

Total PCB Area Col1 (5.413 - 13.516) = 3585045 Col1 Total PCB = 1.2 ppm*

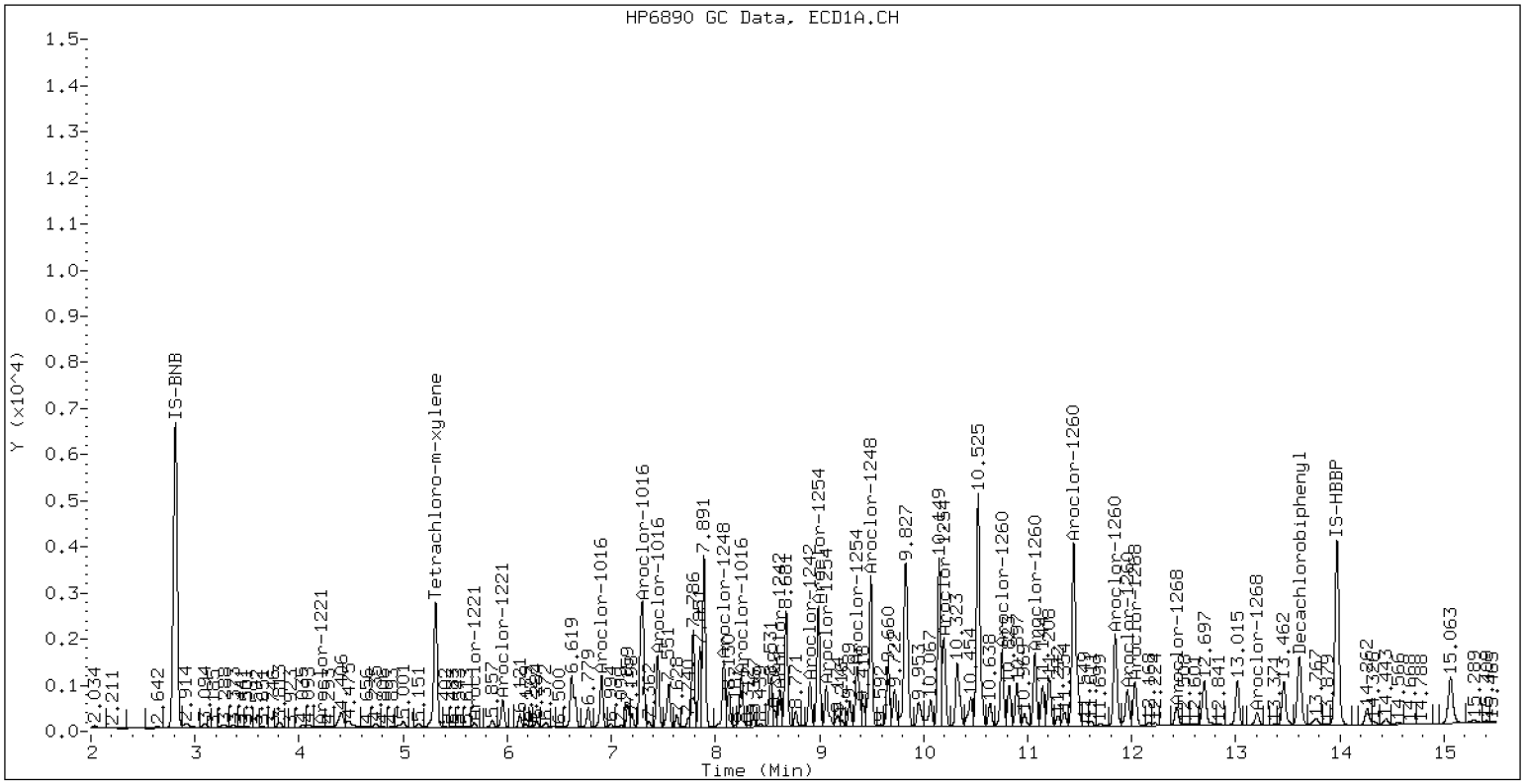
Total PCB Area Col2 (5.413 - 13.516) = 14674259 Col2 Total PCB = 1.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

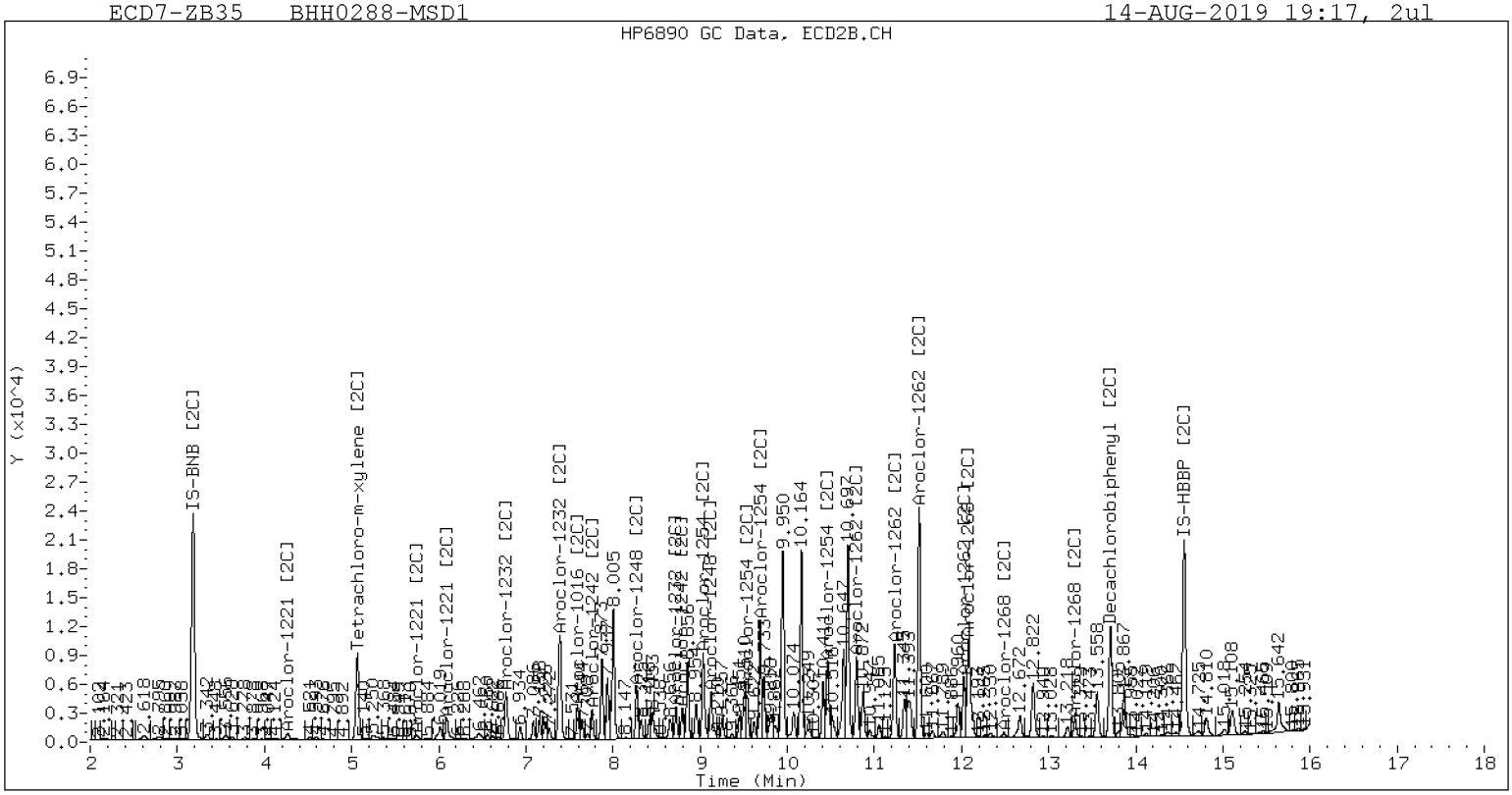
PCB Dual Column Chromatograms

ECD7-ZB5 BHH0288-MSD1 14-AUG-2019 19:17, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BHH0288-MSD1 14-AUG-2019 19:17, 2ul



ZB-35 Manual Integration: NO

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CG00087	Instrument:	ECD7
Calibration Date:	07/30/2019 0:00	Column (1):	ZB5

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Aroclor 1016	250	4.598549E-02	20	4.319634E-02	50	4.392262E-02	1000	4.182242E-02	100	4.453442E-02	500	4.457058E-02
Aroclor 1260	250	5.495602E-02	20	4.514164E-02	50	5.238678E-02	1000	5.299151E-02	100	5.255172E-02	500	5.447379E-02
Decachlorobiphenyl	40	0.8972318	3.2	1.002889	8	0.9380916	160	0.8309445	16	0.897613	80	0.8712326
Tetrachlorometaxylene	40	1.093795	3.2	0.9156638	8	0.9945953	160	1.040443	16	1.03642	80	1.071923
Aroclor 1016	250	4.598549E-02	20	4.319634E-02	50	4.392262E-02	1000	4.182242E-02	100	4.453442E-02	500	4.457058E-02
Aroclor 1260	250	5.495602E-02	20	4.514164E-02	50	5.238678E-02	1000	5.299151E-02	100	5.255172E-02	500	5.447379E-02
Decachlorobiphenyl	40	0.8972318	3.2	1.002889	8	0.9380916	160	0.8309445	16	0.897613	80	0.8712326
Tetrachlorometaxylene	40	1.093795	3.2	0.9156638	8	0.9945953	160	1.040443	16	1.03642	80	1.071923

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CG00087	Instrument:	ECD7
Calibration Date:	07/30/2019 0:00	Column (1):	ZB5

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF
Aroclor 1232									250	1.567479E-02		
Aroclor 1242	250	3.686384E-02										
Aroclor 1248			250	3.864662E-02								
Aroclor 1254					250	5.545119E-02						
Aroclor 1262							250	0.0659727				
Aroclor 1268									250	0.1769627		
Aroclor 1232									250	1.567479E-02		
Aroclor 1242	250	3.686384E-02										
Aroclor 1248			250	3.864662E-02								
Aroclor 1254					250	5.545119E-02						
Aroclor 1262							250	0.0659727				
Aroclor 1268									250	0.1769627		

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CG00087	Instrument:	ECD7
Calibration Date:	07/30/2019 0:00	Column (1):	ZB5

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor 1016	4.400531E-02	3.2			RSD (20)	
Aroclor 1232		0.0			RSD (20)	
Aroclor 1242		0.0			RSD (20)	
Aroclor 1248		0.0			RSD (20)	
Aroclor 1254		0.0			RSD (20)	
Aroclor 1260	5.208358E-02	6.8			RSD (20)	
Aroclor 1262		0.0			RSD (20)	
Aroclor 1268		0.0			RSD (20)	
Decachlorobiphenyl	0.9063338	6.5			RSD (20)	
Tetrachlorometaxylene	1.025473	6.2			RSD (20)	
Aroclor 1016	4.400531E-02	3.2			RSD (20)	
Aroclor 1232		0.0			RSD (20)	
Aroclor 1242		0.0			RSD (20)	
Aroclor 1248		0.0			RSD (20)	
Aroclor 1254		0.0			RSD (20)	
Aroclor 1260	5.208358E-02	6.8			RSD (20)	
Aroclor 1262		0.0			RSD (20)	
Aroclor 1268		0.0			RSD (20)	
Decachlorobiphenyl	0.9063338	6.5			RSD (20)	
Tetrachlorometaxylene	1.025473	6.2			RSD (20)	

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CG00087	Instrument:	ECD7
Calibration Date:	07/30/2019 0:00	Column (2):	ZB35

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Aroclor 1016 [2C]	250	4.427085E-02	20	5.003489E-02	50	4.838384E-02	1000	3.968476E-02	100	4.688527E-02	500	4.274291E-02
Aroclor 1260 [2C]	250	6.932115E-02	20	7.546127E-02	50	7.291099E-02	1000	7.412618E-02	100	7.007764E-02	500	6.793416E-02
Decachlorobiphenyl [2C]	40	1.470682	3.2	1.475198	8	1.443859	160	1.611147	16	1.427098	80	1.596519
Tetrachlorometaxylene [2C]	40	0.9725834	3.2	0.9555261	8	0.990221	160	1.111019	16	0.9762982	80	0.9814701
Aroclor 1016 [2C]	250	4.427085E-02	20	5.003489E-02	50	4.838384E-02	1000	3.968476E-02	100	4.688527E-02	500	4.274291E-02
Aroclor 1260 [2C]	250	6.932115E-02	20	7.546127E-02	50	7.291099E-02	1000	7.412618E-02	100	7.007764E-02	500	6.793416E-02
Decachlorobiphenyl [2C]	40	1.470682	3.2	1.475198	8	1.443859	160	1.611147	16	1.427098	80	1.596519
Tetrachlorometaxylene [2C]	40	0.9725834	3.2	0.9555261	8	0.990221	160	1.111019	16	0.9762982	80	0.9814701

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CG00087	Instrument:	ECD7
Calibration Date:	07/30/2019 0:00	Column (2):	ZB35

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF
Aroclor 1232 [2C]									250	1.764929E-02		
Aroclor 1242 [2C]	250	3.547102E-02										
Aroclor 1248 [2C]			250	3.986162E-02								
Aroclor 1254 [2C]					250	4.466678E-02						
Aroclor 1262 [2C]							250	8.821536E-02				
Aroclor 1268 [2C]									250	0.2824428		
Aroclor 1232 [2C]									250	1.764929E-02		
Aroclor 1242 [2C]	250	3.547102E-02										
Aroclor 1248 [2C]			250	3.986162E-02								
Aroclor 1254 [2C]					250	4.466678E-02						
Aroclor 1262 [2C]							250	8.821536E-02				
Aroclor 1268 [2C]									250	0.2824428		

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CG00087	Instrument:	ECD7
Calibration Date:	07/30/2019 0:00	Column (2):	ZB35

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor 1016 [2C]	4.533375E-02	8.5			RSD (20)	
Aroclor 1232 [2C]		0.0			RSD (20)	
Aroclor 1242 [2C]		0.0			RSD (20)	
Aroclor 1248 [2C]		0.0			RSD (20)	
Aroclor 1254 [2C]		0.0			RSD (20)	
Aroclor 1260 [2C]	7.163856E-02	4.1			RSD (20)	
Aroclor 1262 [2C]		0.0			RSD (20)	
Aroclor 1268 [2C]		0.0			RSD (20)	
Decachlorobiphenyl [2C]	1.504084	5.3			RSD (20)	
Tetrachlorometaxylene [2C]	0.997853	5.7			RSD (20)	
Aroclor 1016 [2C]	4.533375E-02	8.5			RSD (20)	
Aroclor 1232 [2C]		0.0			RSD (20)	
Aroclor 1242 [2C]		0.0			RSD (20)	
Aroclor 1248 [2C]		0.0			RSD (20)	
Aroclor 1254 [2C]		0.0			RSD (20)	
Aroclor 1260 [2C]	7.163856E-02	4.1			RSD (20)	
Aroclor 1262 [2C]		0.0			RSD (20)	
Aroclor 1268 [2C]		0.0			RSD (20)	
Decachlorobiphenyl [2C]	1.504084	5.3			RSD (20)	
Tetrachlorometaxylene [2C]	0.997853	5.7			RSD (20)	

Printed: 7/31/2019 3:27:15PM

ANALYSIS SEQUENCE

SHG0411

Instrument: ECD7 Element Column ID: G2294/G2295
Calibration ID: CG00087

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHG0411-CAL1	0.25PPM AR1660	QC		1	G010781	H001058	
SHG0411-CAL2	0.02PPM AR1660	QC		2	G010784	H001058	
SHG0411-CAL3	0.05PPM AR1660	QC		3	G010783	H001058	
SHG0411-CAL4	1.0PPM AR1660	QC		4	G010124	H001058	
SHG0411-CAL5	0.1PPM AR1660	QC		5	G010782	H001058	
SHG0411-CAL6	0.5PPM AR1660	QC		6	G010780	H001058	
SHG0411-CAL7	0.25PPM AR1242	QC		7	G010125	H001058	
SHG0411-CAL8	0.25PPM AR1248	QC		8	G010126	H001058	
SHG0411-CAL9	0.25PPM AR1254	QC		9	G010127	H001058	
SHG0411-CALA	0.25PPM AR2162	QC		10	H006284	H001058	
SHG0411-CALB	0.25PPM AR3268	QC		11	G010129	H001058	
SHG0411-SCV1	AR1660SCV1	QC		12	H004289	H001058	
SHG0411-SCV2	AR1242SCV2	QC		13	H004290	H001058	
SHG0411-SCV3	AR1248SCV3	QC		14	H004291	H001058	
SHG0411-SCV4	AR1254SCV4	QC		15	H004292	H001058	
SHG0411-SCV5	AR2162SCV5	QC		16	H004293	H001058	
SHG0411-SCV6	AR3268SCV6	QC		17	H004294	H001058	

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190730.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	30-JUL-2019 13:16	19073001ECD7.D	1	DDTS	
2	30-JUL-2019 13:37	19073002ECD7.D	1	AR1254ICV1	
3	30-JUL-2019 13:58	19073003ECD7.D	1	AR1660ICV2	
4	30-JUL-2019 16:17	19073004ECD7.D	1	RINSE	
5	30-JUL-2019 16:38	19073005ECD7.D	1	RINSE	
6	30-JUL-2019 16:59	19073006ECD7.D	1	IB	
7	30-JUL-2019 17:20	19073007ECD7.D	1	0.25PPMAR1660	
8	30-JUL-2019 17:41	19073008ECD7.D	1	0.02PPMAR1660	
9	30-JUL-2019 18:01	19073009ECD7.D	1	0.05PPMAR1660	
10	30-JUL-2019 18:22	19073010ECD7.D	1	1PPMAR1660	
11	30-JUL-2019 18:43	19073011ECD7.D	1	0.1PPMAR1660	
12	30-JUL-2019 19:04	19073012ECD7.D	1	0.5PPMAR1660	
13	30-JUL-2019 19:25	19073013ECD7.D	1	AR1242	
14	30-JUL-2019 19:46	19073014ECD7.D	1	AR1248	
15	30-JUL-2019 20:07	19073015ECD7.D	1	AR1254	
16	30-JUL-2019 20:28	19073016ECD7.D	1	AR2162	
17	30-JUL-2019 20:48	19073017ECD7.D	1	AR3268	
18	30-JUL-2019 21:09	19073018ECD7.D	1	AR1660SCV1	
19	30-JUL-2019 21:30	19073019ECD7.D	1	AR1242SCV2	
20	30-JUL-2019 21:51	19073020ECD7.D	1	AR1248SCV3	
21	30-JUL-2019 22:12	19073021ECD7.D	1	AR1254SCV4	
22	30-JUL-2019 22:33	19073022ECD7.D	1	AR2162SCV5	
23	30-JUL-2019 22:54	19073023ECD7.D	1	AR3268SCV6	
24	30-JUL-2019 23:15	19073024ECD7.D	1	0.1PPMDDTS	
25	30-JUL-2019 23:35	19073025ECD7.D	1	DDT BD	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190730.b

ARI Job No.: DDTS Method: PCB.m Instrument: ecd7.i Date: 30-JUL-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1316	19073001ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1337	19073002ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1358	19073003ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1617	19073004ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1638	19073005ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1659	19073006ECD7.D	IB		1	NO MANUAL INTEGRATION
1720	19073007ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1741	19073008ECD7.D	0.02PPMAR1660		1	Aroclor-1260,
1801	19073009ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1822	19073010ECD7.D	1PPMAR1660		1	NO MANUAL INTEGRATION
1843	19073011ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1904	19073012ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1925	19073013ECD7.D	AR1242		1	NO MANUAL INTEGRATION
1946	19073014ECD7.D	AR1248		1	NO MANUAL INTEGRATION
2007	19073015ECD7.D	AR1254		1	NO MANUAL INTEGRATION
2028	19073016ECD7.D	AR2162		1	NO MANUAL INTEGRATION
2048	19073017ECD7.D	AR3268		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190730.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2109	19073018ECD7.D	AR1660SCV1		1	NO MANUAL INTEGRATION
2130	19073019ECD7.D	AR1242SCV2		1	NO MANUAL INTEGRATION
2151	19073020ECD7.D	AR1248SCV3		1	NO MANUAL INTEGRATION
2212	19073021ECD7.D	AR1254SCV4		1	NO MANUAL INTEGRATION
2233	19073022ECD7.D	AR2162SCV5		1	NO MANUAL INTEGRATION
2254	19073023ECD7.D	AR3268SCV6		1	NO MANUAL INTEGRATION
2315	19073024ECD7.D	0.1PPMDDTS		1	NO MANUAL INTEGRATION
2335	19073025ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1316	19073001ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1337	19073002ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1358	19073003ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1617	19073004ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1638	19073005ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1659	19073006ECD7.D	IB		1	NO MANUAL INTEGRATION
1720	19073007ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1741	19073008ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1801	19073009ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1822	19073010ECD7.D	1PPMAR1660		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190730.b\20190730.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1843	19073011ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1904	19073012ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1925	19073013ECD7.D	AR1242		1	NO MANUAL INTEGRATION
1946	19073014ECD7.D	AR1248		1	NO MANUAL INTEGRATION
2007	19073015ECD7.D	AR1254		1	NO MANUAL INTEGRATION
2028	19073016ECD7.D	AR2162		1	NO MANUAL INTEGRATION
2048	19073017ECD7.D	AR3268		1	NO MANUAL INTEGRATION
2109	19073018ECD7.D	AR1660SCV1		1	NO MANUAL INTEGRATION
2130	19073019ECD7.D	AR1242SCV2		1	NO MANUAL INTEGRATION
2151	19073020ECD7.D	AR1248SCV3		1	NO MANUAL INTEGRATION
2212	19073021ECD7.D	AR1254SCV4		1	NO MANUAL INTEGRATION
2233	19073022ECD7.D	AR2162SCV5		1	NO MANUAL INTEGRATION
2254	19073023ECD7.D	AR3268SCV6		1	NO MANUAL INTEGRATION
2315	19073024ECD7.D	0.1PPMDDTS		1	NO MANUAL INTEGRATION
2335	19073025ECD7.D	DDT BD		1	NO MANUAL INTEGRATION

Security Status Report

Date: 31-Jul-2019 13:51

19073001ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073002ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073003ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073004ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073005ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073006ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073007ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073008ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073009ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073010ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073011ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073012ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073013ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073014ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073015ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073016ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073017ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073018ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073019ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073020ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073021ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073022ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073023ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073024ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073025ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-JUL-2019 17:20
End Cal Date : 30-JUL-2019 23:15
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Last Edit : 31-Jul-2019 13:09 jrains
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\20190730.b\19073008ECD7.D
Level 2: \\target\share\chem4\ecd7.i\20190730.b\19073009ECD7.D
Level 3: \\target\share\chem4\ecd7.i\20190730.b\19073011ECD7.D
Level 4: \\target\share\chem4\ecd7.i\20190730.b\19073007ECD7.D
Level 5: \\target\share\chem4\ecd7.i\20190730.b\19073012ECD7.D
Level 6: \\target\share\chem4\ecd7.i\20190730.b\19073010ECD7.D
Level 7: \\target\share\chem4\ecd7.i\20190730.b\19073017ECD7.D
Level 8: \\target\share\chem4\ecd7.i\20190730.b\19073024ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	RRF	% RSD
2 Aroclor-1221(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00600	+++++	0.00600	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.00983	+++++	0.00983	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02442	+++++	0.02442	0.000
3 Aroclor-1242(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.02087	+++++	0.02087	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.07526	+++++	0.07526	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02490	+++++	0.02490	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.02642	+++++	0.02642	0.000
4 Aroclor-1232(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00362	+++++	0.00362	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-JUL-2019 17:20
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Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Last Edit : 31-Jul-2019 13:09 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.01013	+++++							0.01013	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.03549	+++++							0.03549	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.01346	+++++							0.01346	0.000
7 Aroclor-1016(1)	0.02604	0.02591	0.02559	0.02588	0.02476	0.02289				
	+++++	+++++							0.02518	4.816
(2)	0.08519	0.08875	0.09092	0.09432	0.09099	0.08471				
	+++++	+++++							0.08915	4.159
(3)	0.03414	0.03411	0.03424	0.03510	0.03414	0.03197				
	+++++	+++++							0.03395	3.061
(4)	0.02742	0.02692	0.02739	0.02864	0.02840	0.02771				
	+++++	+++++							0.02775	2.363
6 Aroclor-1248(1)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.03724	+++++							0.03724	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.04634	+++++							0.04634	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.04342	+++++							0.04342	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.02759	+++++							0.02759	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-JUL-2019 17:20
End Cal Date : 30-JUL-2019 23:15
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Last Edit : 31-Jul-2019 13:09 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	RRF	% RSD
8 Aroclor-1254(1)	*****	*****	*****	*****	*****	*****				
	0.06904	*****							0.06904	0.000
(2)	*****	*****	*****	*****	*****	*****				
	0.02210	*****							0.02210	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.04408	*****							0.04408	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.08509	*****							0.08509	0.000
(5)	*****	*****	*****	*****	*****	*****				
	0.05695	*****							0.05695	0.000
9 Aroclor-1260(1)	0.04119	0.04228	0.04283	0.04452	0.04454	0.04309				
	*****	*****							0.04307	3.018
(2)	0.03927	0.04049	0.04130	0.04335	0.04370	0.04255				
	*****	*****							0.04178	4.138
(3)	0.07821	0.10979	0.10708	0.11213	0.10811	0.10451				
	*****	*****							0.10330	12.154
(4)	0.04467	0.04641	0.04811	0.05069	0.05150	0.05048				
	*****	*****							0.04864	5.578
(5)	0.02237	0.02296	0.02343	0.02409	0.02453	0.02433				
	*****	*****							0.02362	3.589
10 Aroclor-1262(1)	*****	*****	*****	*****	*****	*****				
	0.05217	*****							0.05217	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-JUL-2019 17:20
End Cal Date : 30-JUL-2019 23:15
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Last Edit : 31-Jul-2019 13:09 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.12519	+++++							0.12519	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.03858	+++++							0.03858	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.04795	+++++							0.04795	0.000
11 Aroclor-1268(1)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.14237	+++++							0.14237	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.13202	+++++							0.13202	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.10960	+++++							0.10960	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.32387	+++++							0.32387	0.000
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	751							751	0.000
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	755							755	0.000
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	907							907	0.000
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	1358							1358	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-JUL-2019 17:20
End Cal Date : 30-JUL-2019 23:15
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Last Edit : 31-Jul-2019 13:09 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1159	1159	0.000
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1234	1234	0.000
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 1 Tetrachloro-m-xylene	0.91566	0.99460	1.03642	1.09379	1.07192	1.04044	+++++	+++++	1.02547	6.195
$ 13 Decachlorobiphenyl	1.00289	0.93809	0.89761	0.89723	0.87123	0.83094	+++++	+++++	0.90633	6.510

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-JUL-2019 17:20
End Cal Date : 30-JUL-2019 23:15
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\20190730.b\PCB.m\PCB2.m
Last Edit : 31-Jul-2019 07:35 jrains
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\20190730.b\20190730.b\19073008.D
Level 2: \\target\share\chem4\ecd7.i\20190730.b\20190730.b\19073009.D
Level 3: \\target\share\chem4\ecd7.i\20190730.b\20190730.b\19073011.D
Level 4: \\target\share\chem4\ecd7.i\20190730.b\20190730.b\19073007.D
Level 5: \\target\share\chem4\ecd7.i\20190730.b\20190730.b\19073012.D
Level 6: \\target\share\chem4\ecd7.i\20190730.b\20190730.b\19073010.D
Level 7: \\target\share\chem4\ecd7.i\20190730.b\20190730.b\19073017.D
Level 8: \\target\share\chem4\ecd7.i\20190730.b\20190730.b\19073024.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	RRF	% RSD
1 Aroclor-1221 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00597	+++++	0.00597	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01301	+++++	0.01301	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02120	+++++	0.02120	0.000
4 Aroclor-1232 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00359	+++++	0.00359	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01814	+++++	0.01814	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.03651	+++++	0.03651	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.01236	+++++	0.01236	0.000
3 Aroclor-1242 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.03171	+++++	0.03171	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-JUL-2019 17:20
End Cal Date : 30-JUL-2019 23:15
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\20190730.b\PCB.m\PCB2.m
Last Edit : 31-Jul-2019 07:35 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.06984	+++++							0.06984	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.01803	+++++							0.01803	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.02230	+++++							0.02230	0.000
6 Aroclor-1248 [2C] (1)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.04536	+++++							0.04536	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.03410	+++++							0.03410	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.03519	+++++							0.03519	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.04480	+++++							0.04480	0.000
7 Aroclor-1016 [2C] (1)	0.04491	0.04337	0.04106	0.03798	0.03527	0.03127				
	+++++	+++++							0.03898	13.225
(2)	0.09391	0.09101	0.08859	0.08414	0.08237	0.07807				
	+++++	+++++							0.08635	6.818
(3)	0.03856	0.03674	0.03552	0.03356	0.03230	0.02975				
	+++++	+++++							0.03441	9.257
(4)	0.02276	0.02242	0.02237	0.02140	0.02102	0.01965				
	+++++	+++++							0.02160	5.395

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-JUL-2019 17:20
End Cal Date : 30-JUL-2019 23:15
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\20190730.b\PCB.m\PCB2.m
Last Edit : 31-Jul-2019 07:35 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
8 Aroclor-1254 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.04526	+++++	0.04526	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.02316	+++++	0.02316	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.03577	+++++	0.03577	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.07312	+++++	0.07312	0.000
(5)	+++++	+++++	+++++	+++++	+++++	+++++	0.04602	+++++	0.04602	0.000
10 Aroclor-1262 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.07412	+++++	0.07412	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.06228	+++++	0.06228	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.14644	+++++	0.14644	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.07002	+++++	0.07002	0.000
9 Aroclor-1260 [2C](1)	0.05644	0.05523	0.05369	0.05222	0.04968	0.04953	+++++	+++++	0.05280	5.402
(2)	0.05565	0.05500	0.05320	0.05209	0.04969	0.04956	+++++	+++++	0.05253	4.915

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-JUL-2019 17:20
End Cal Date : 30-JUL-2019 23:15
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\20190730.b\PCB.m\PCB2.m
Last Edit : 31-Jul-2019 07:35 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(3)	0.13747	0.13788	0.13108	0.13144	0.13202	0.15760	+++++	+++++	0.13792	7.330
(4)	0.05228	0.04354	0.04233	0.04153	0.04034	0.03981	+++++	+++++	0.04331	10.613
11 Aroclor-1268 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.18532	+++++	0.18532	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.18342	+++++	0.18342	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.16314	+++++	0.16314	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.59790	+++++	0.59790	0.000
41 2,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1451	1451	0.000
42 2,4-DDD [2C]	+++++	+++++	+++++	+++++	+++++	+++++	+++++	746	746	0.000
44 4,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	+++++	735	735	0.000
45 4,4-DDD/2,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1031	1031	0.000
46 4,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1231	1231	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 30-JUL-2019 17:20
End Cal Date : 30-JUL-2019 23:15
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\20190730.b\PCB.m\PCB2.m
Last Edit : 31-Jul-2019 07:35 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 2 Tetrachloro-m-xylene [2C]	0.95553	0.99022	0.97630	0.97258	0.98147	1.11102	+++++	+++++	0.99785	5.674
$ 13 Decachlorobiphenyl [2C]	1.47520	1.44386	1.42710	1.47068	1.59652	1.61115	+++++	+++++	1.50408	5.278

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\20190730.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	19073007ECD7	19073008ECD7	19073009ECD7	19073010ECD7	19073011ECD7	19073012ECD7
INJ.DATE:	30-JUL-2019	30-JUL-2019	30-JUL-2019	30-JUL-2019	30-JUL-2019	30-JUL-2019
INJ.TIME:	17:20	17:41	18:01	18:22	18:43	19:04

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 41 IS-BNB	2.829	2.831	2.830	2.832	2.831	2.831	2.831	2.731-2.931	2.831	0.001
$ 1 Tetrachloro-m-xylene	5.328	5.329	5.330	5.332	5.330	5.331	5.330	5.230-5.430	5.330	0.001
2 Aroclor-1221	+++++	+++++	+++++	+++++	+++++	+++++	4.171	4.071-4.271	+++++	+++++
3 Aroclor-1242	+++++	+++++	+++++	+++++	+++++	+++++	6.919	6.819-7.019	+++++	+++++
4 Aroclor-1232	+++++	+++++	+++++	+++++	+++++	+++++	4.171	4.071-4.271	+++++	+++++
7 Aroclor-1016	6.918	6.919	6.920	6.920	6.920	6.919	6.919	6.819-7.019	6.919	0.001
6 Aroclor-1248	+++++	+++++	+++++	+++++	+++++	+++++	8.093	7.993-8.193	+++++	+++++
8 Aroclor-1254	+++++	+++++	+++++	+++++	+++++	+++++	9.001	8.901-9.101	+++++	+++++
9 Aroclor-1260	10.764	10.766	10.765	10.765	10.765	10.765	10.765	10.665-10.865	10.765	0.000
10 Aroclor-1262	+++++	+++++	+++++	+++++	+++++	+++++	11.081	10.981-11.181	+++++	+++++
11 Aroclor-1268	+++++	+++++	+++++	+++++	+++++	+++++	11.968	11.868-12.068	+++++	+++++
$ 13 Decachlorobiphenyl	13.618	13.619	13.618	13.619	13.617	13.619	13.618	13.518-13.718	13.618	0.001
* 12 IS-HBBP	13.975	13.976	13.975	13.975	13.975	13.975	13.975	13.875-14.075	13.975	0.000
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	8.969	8.919-9.019	+++++	+++++
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	9.514	9.464-9.564	+++++	+++++
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.018	9.968-10.068	+++++	+++++
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.394	9.294-9.494	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\20190730.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	9.963	9.863-10.063	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.476	10.376-10.576	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.842	1.742-1.942	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	6.708	6.608-6.808	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\20190730.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\20190730.b\20190730.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	19073007ECD7	19073008ECD7	19073009ECD7	19073010ECD7	19073011ECD7	19073012ECD7
INJ.DATE:	30-JUL-2019	30-JUL-2019	30-JUL-2019	30-JUL-2019	30-JUL-2019	30-JUL-2019
INJ.TIME:	17:20	17:41	18:01	18:22	18:43	19:04

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 40 IS-BNB [2C]	3.208	3.209	3.210	3.211	3.210	3.211	3.209	3.109-3.309	3.210	0.001
$ 2 Tetrachloro-m-xylene [	5.093	5.092	5.094	5.101	5.094	5.096	5.095	4.995-5.195	5.095	0.003
1 Aroclor-1221 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.294	4.194-4.394	+++++	+++++
4 Aroclor-1232 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.296	4.196-4.396	+++++	+++++
3 Aroclor-1242 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	6.793	6.693-6.893	+++++	+++++
6 Aroclor-1248 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	7.410	7.310-7.510	+++++	+++++
7 Aroclor-1016 [2C]	6.792	6.793	6.794	6.794	6.793	6.794	6.794	6.694-6.894	6.793	0.001
8 Aroclor-1254 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.052	8.952-9.152	+++++	+++++
10 Aroclor-1262 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.813	10.713-10.913	+++++	+++++
9 Aroclor-1260 [2C]	10.814	10.815	10.815	10.815	10.814	10.814	10.814	10.714-10.914	10.814	0.001
11 Aroclor-1268 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	12.045	11.945-12.145	+++++	+++++
$ 13 Decachlorobiphenyl [2C	13.723	13.721	13.722	13.746	13.722	13.726	13.726	13.626-13.826	13.727	0.010
* 12 IS-HBBP [2C]	14.566	14.566	14.566	14.566	14.566	14.566	14.567	14.467-14.667	14.566	0.000
41 2,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.525	9.475-9.575	+++++	+++++
42 2,4-DDD [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.137	9.087-9.187	+++++	+++++
44 4,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.808	9.708-9.908	+++++	+++++
45 4,4-DDD/2,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.271	10.171-10.371	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\20190730.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\20190730.b\20190730.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
46 4,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.704	10.604-10.804	+++++	+++++
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.703	1.603-1.803	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	7.178	7.078-7.278	+++++	+++++

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073006ECD7.D
Data file 2: /20190730.b/20190730.b/19073006ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: IB
Client ID:
Injection Date: 30-JUL-2019 16:59
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.326	-0.005	236860	5.091	-0.004	736338	42.2	39.0	7.7	Tetrachloro-m-xylene
13.618	-0.001	233772	13.724	-0.002	1014076	39.7	38.7	2.5	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	105.4	97.6
Decachlorobiphenyl	99.2	96.7

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	438138	1.3
Hexabromobiphenyl	517563	520187	0.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1512311	1.0
Hexabromobiphenyl	1404015	1394684	-0.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	5.792	0.021	9366	38.1
Aroclor-1221	3	---			0.0	3	6.128	0.011	1988	5.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	9.197	0.053	1532	3.5
Aroclor-1254	3	---			0.0	3	9.532	-0.029	1018	1.5
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	10.421	-0.060	995	1.1
	Col1Ave: <3 Quant Peaks					Col2Ave:		2.0		
Aroclor-1260	1	---			0.0	1	10.889	0.075	1999	2.2
Aroclor-1260	2	---			0.0	2	11.272	0.019	126	0.1
Aroclor-1260	3	---			0.0	3	11.588	0.057	673	0.3
Aroclor-1260	4	---			0.0	4	11.984	-0.059	6602	8.7
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave:		2.8		
Aroclor-1262	1	---			0.0	1	10.889	0.075	1999	1.5
Aroclor-1262	2	---			0.0	2	11.272	0.018	126	0.1
Aroclor-1262	3	---			0.0	3	11.588	0.059	673	0.3
Aroclor-1262	4	---			0.0	4	11.984	-0.059	6602	5.4
	Col1Ave: <3 Quant Peaks					Col2Ave:		1.8		
Aroclor-1268	1	---			0.0	1	11.984	-0.061	6602	2.0
Aroclor-1268	2	---			0.0	2	12.131	0.021	450	0.1
Aroclor-1268	3	---			0.0	3	12.503	0.003	1182	0.4
Aroclor-1268	4	---			0.0	4	13.315	-0.005	1517	0.1
	Col1Ave: <3 Quant Peaks					Col2Ave:		0.7		

Total PCB Area Col1 (5.430 - 13.518) = 23656 Col1 Total PCB = 0.0 ppm*

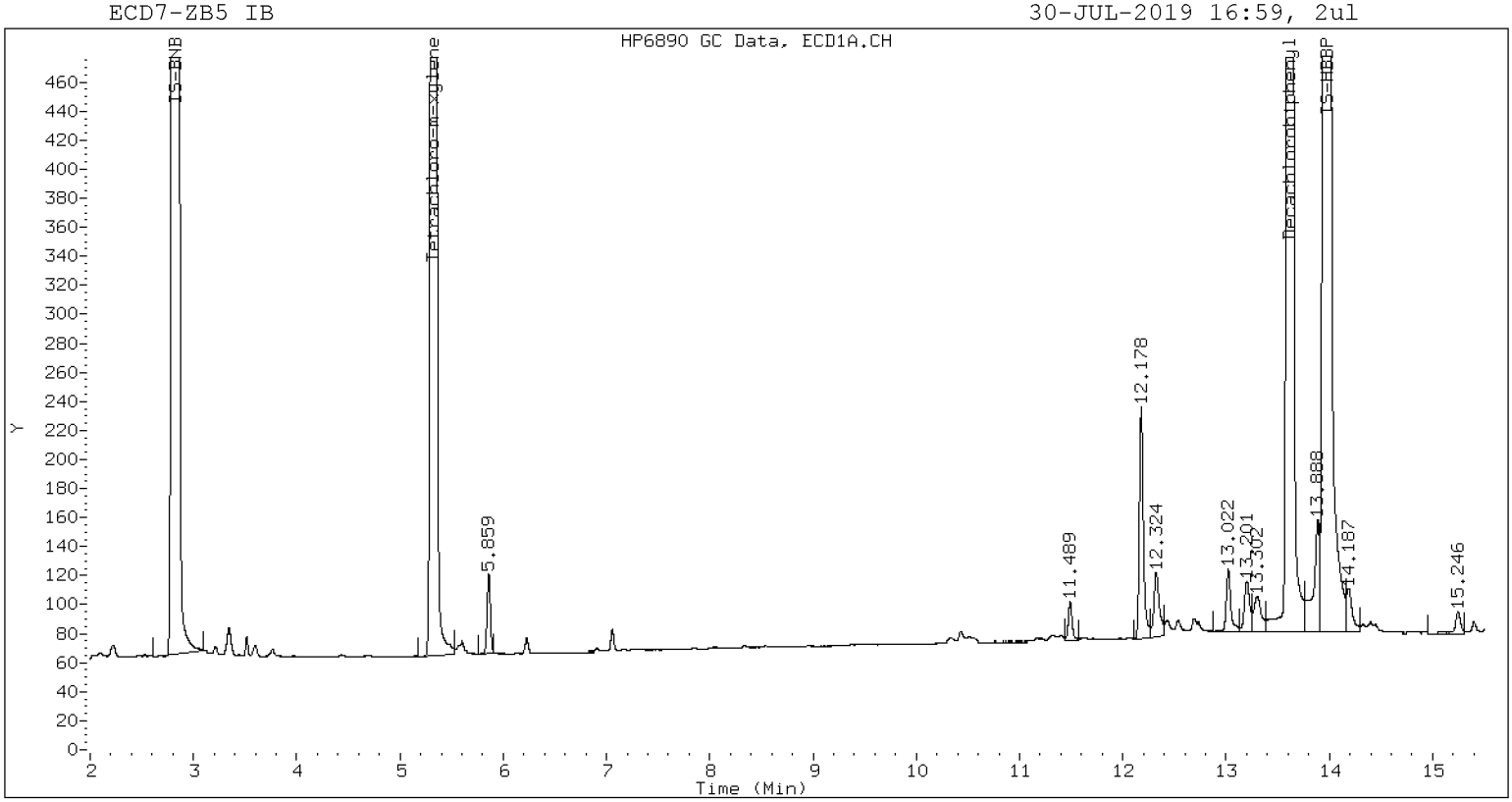
Total PCB Area Col2 (5.430 - 13.518) = 87859 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

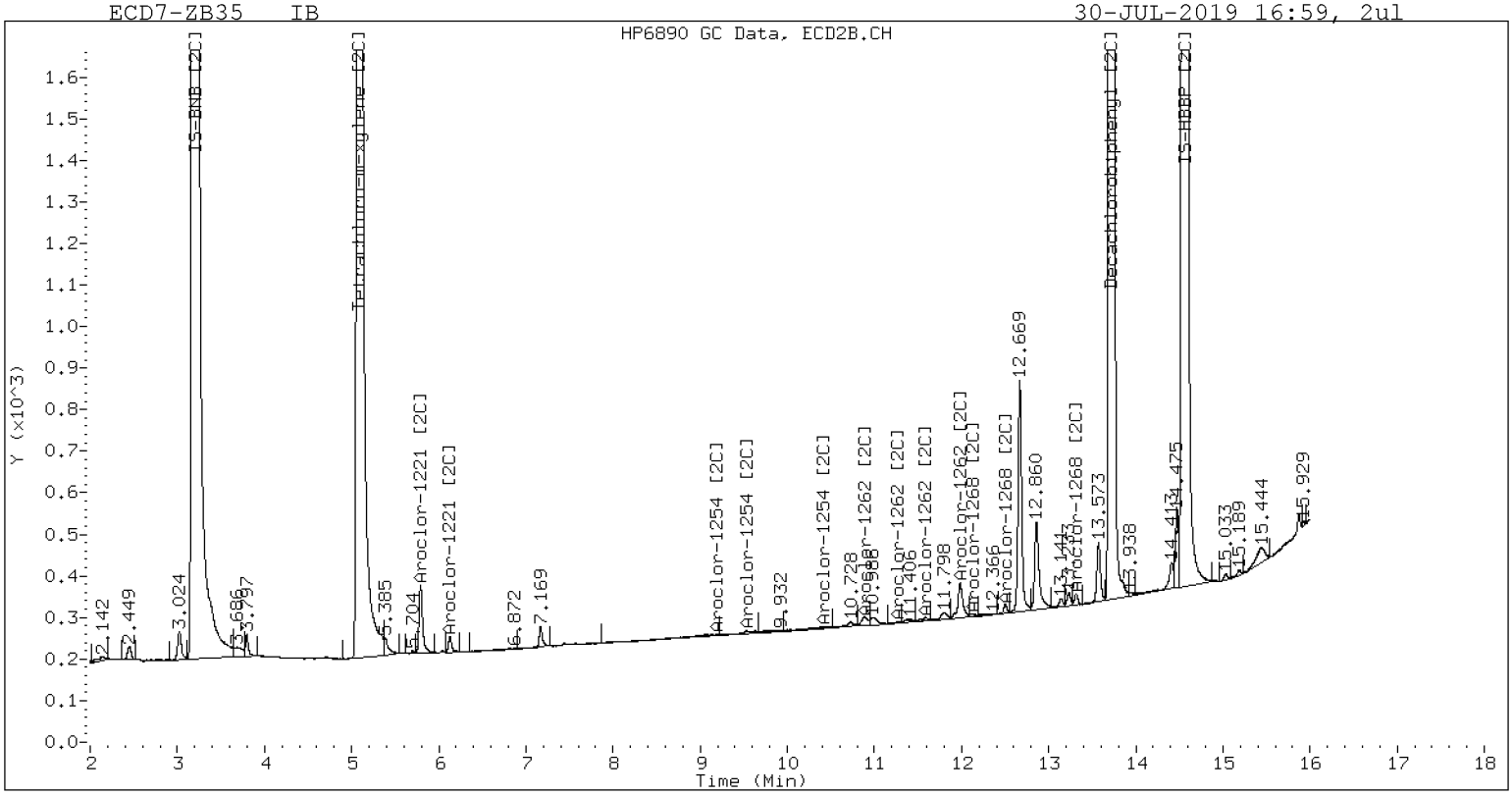
PCB Dual Column Chromatograms

ECD7-ZB5 IB 30-JUL-2019 16:59, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 IB 30-JUL-2019 16:59, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073007ECD7.D
Data file 2: /20190730.b/20190730.b/19073007ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1660
Client ID:
Injection Date: 30-JUL-2019 17:20
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.328	-0.002	236474	5.093	-0.002	728126	42.7	39.0	9.0	Tetrachloro-m-xylene
13.618	-0.001	232187	13.723	-0.002	1032430	39.6	39.1	1.2	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	106.7	97.5
Decachlorobiphenyl	99.0	97.8

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	432392	0.0
Hexabromobiphenyl	517563	517563	0.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1497303	0.0
Hexabromobiphenyl	1404015	1404015	0.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.918	-0.001	34973	257.0	1	6.792	-0.002	177702	243.6
Aroclor-1016	2	7.306	-0.002	127448	264.5	2	7.411	-0.002	393719	243.6
Aroclor-1016	3	7.454	-0.001	47423	258.4	3	7.612	-0.001	157041	243.9
Aroclor-1016	4	8.263	-0.002	38703	258.1	4	7.781	-0.001	100124	247.6
Total Col1Ave (4 peaks):					259.5	Total Col2Ave (4 peaks):				244.7 RPD = 6
Corrected Ave (3 peaks):					257.8	Corrected Ave (3 peaks):				243.7 RPD = 6
CalAmt %D:					3.8	CalAmt %D:				-2.1
Aroclor-1260	1	10.764	-0.001	72000	258.4	1	10.814	0.000	229110	247.2
Aroclor-1260	2	11.081	-0.001	70121	259.4	2	11.254	0.001	228557	247.9
Aroclor-1260	3	11.451	-0.001	181359	271.4	3	11.531	-0.000	576704	238.3
Aroclor-1260	4	11.850	-0.000	81982	260.5	4	12.044	0.000	182228	239.8
Aroclor-1260	5	11.967	-0.001	38963	255.0	NS	---			----
Total Col1Ave (5 peaks):					260.9	Total Col2Ave (4 peaks):				243.3 RPD = 7
Corrected Ave (4 peaks):					258.3	Corrected Ave (3 peaks):				241.8 RPD = 7
CalAmt %D:					4.4	CalAmt %D:				-2.7

Total PCB Area Col1 (5.430 - 13.518) = 1862347 Col1 Total PCB = 0.5 ppm*

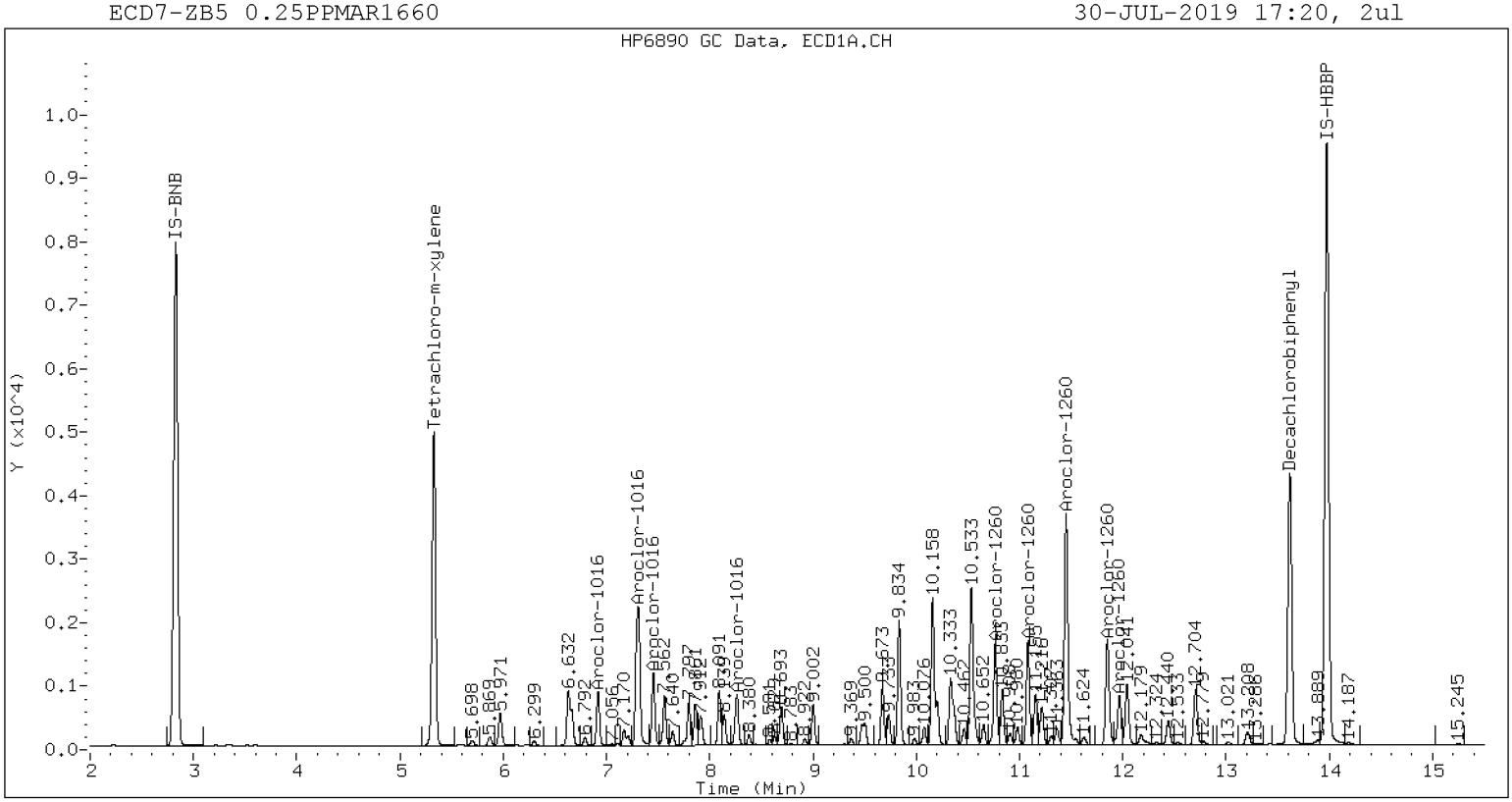
Total PCB Area Col2 (5.430 - 13.518) = 5912637 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

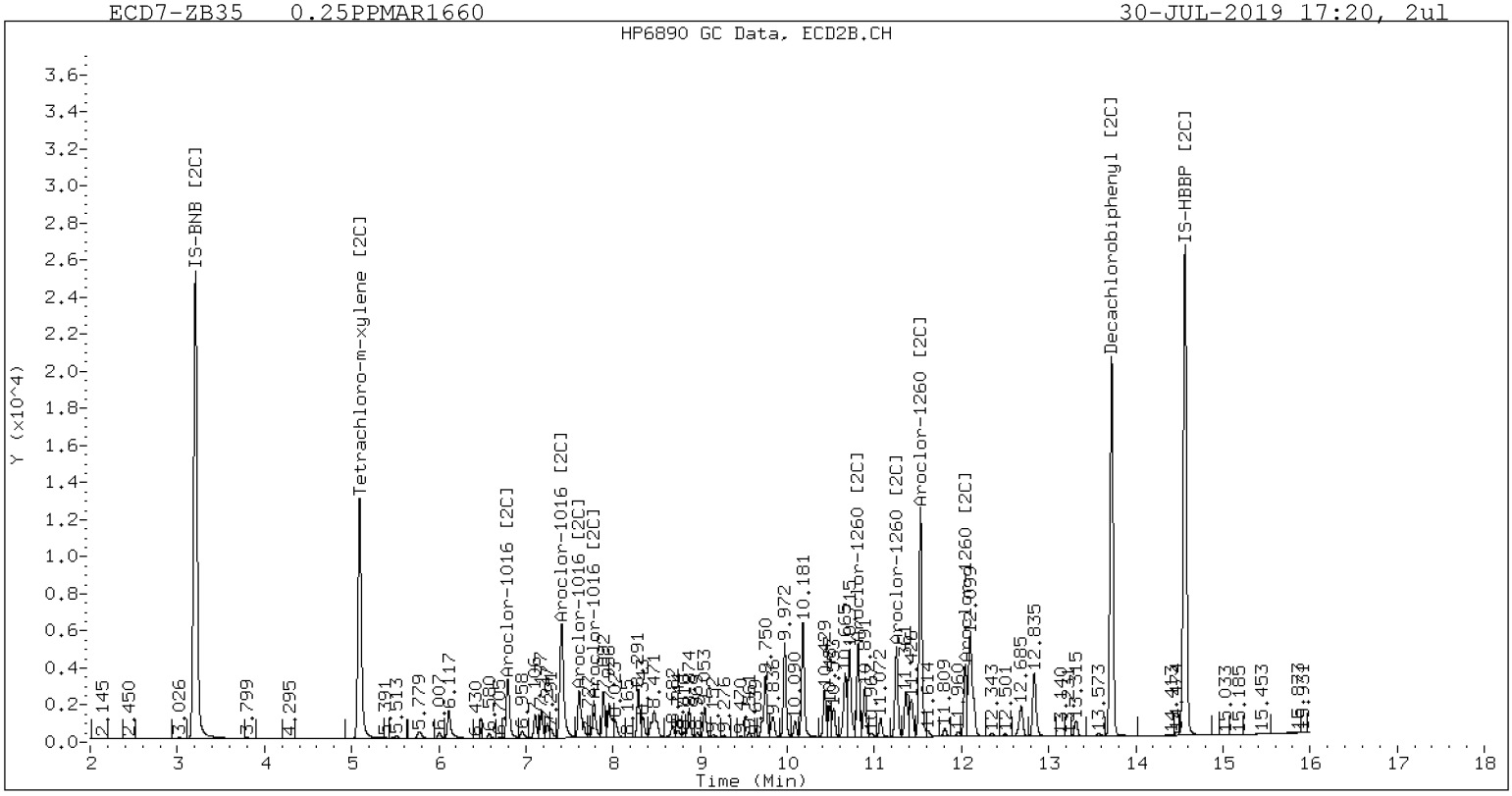
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1660 30-JUL-2019 17:20, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1660 30-JUL-2019 17:20, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073008ECD7.D
Data file 2: /20190730.b/20190730.b/19073008ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.02PPMAR1660
Client ID:
Injection Date: 30-JUL-2019 17:41
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.329	-0.001	15833	5.092	-0.002	56847	2.9	3.1	7.0	Tetrachloro-m-xylene
13.619	0.000	20811	13.721	-0.004	83785	3.5	3.1	12.0	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	7.1	7.7
Decachlorobiphenyl	8.9	7.8

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	432282	-0.0
Hexabromobiphenyl	517563	518776	0.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1487322	-0.7
Hexabromobiphenyl	1404015	1419894	1.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.919	-0.000	2814	20.7	1	6.793	-0.000	16698	23.0
Aroclor-1016	2	7.307	-0.001	9207	19.1	2	7.413	-0.000	34920	21.8
Aroclor-1016	3	7.455	0.000	3689	20.1	3	7.614	0.001	14337	22.4
Aroclor-1016	4	8.264	-0.000	2963	19.8	4	7.783	0.001	8463	21.1
Total Col1Ave (4 peaks):					19.9	Total Col2Ave (4 peaks):				22.1 RPD = 10
Corrected Ave (3 peaks):					19.7	Corrected Ave (3 peaks):				21.7 RPD = 10
CalAmt %D:					-0.4	CalAmt %D:				10.4
Aroclor-1260	1	10.766	0.000	5342	19.1	1	10.815	0.002	20035	21.4
Aroclor-1260	2	11.082	0.000	5093	18.8	2	11.254	0.001	19756	21.2
Aroclor-1260	3	11.463	0.011	10144	15.1	3	11.531	-0.000	48799	19.9
Aroclor-1260	4	11.851	0.001	5793	18.4	4	12.039	-0.005	18557	24.1
Aroclor-1260	5	11.968	0.000	2901	18.9	NS	---			----
Total Col1Ave (5 peaks):					18.1	Total Col2Ave (4 peaks):				21.7 RPD = 18
Corrected Ave (4 peaks):					17.8	Corrected Ave (3 peaks):				20.8 RPD = 16
CalAmt %D:					-9.6	CalAmt %D:				8.3

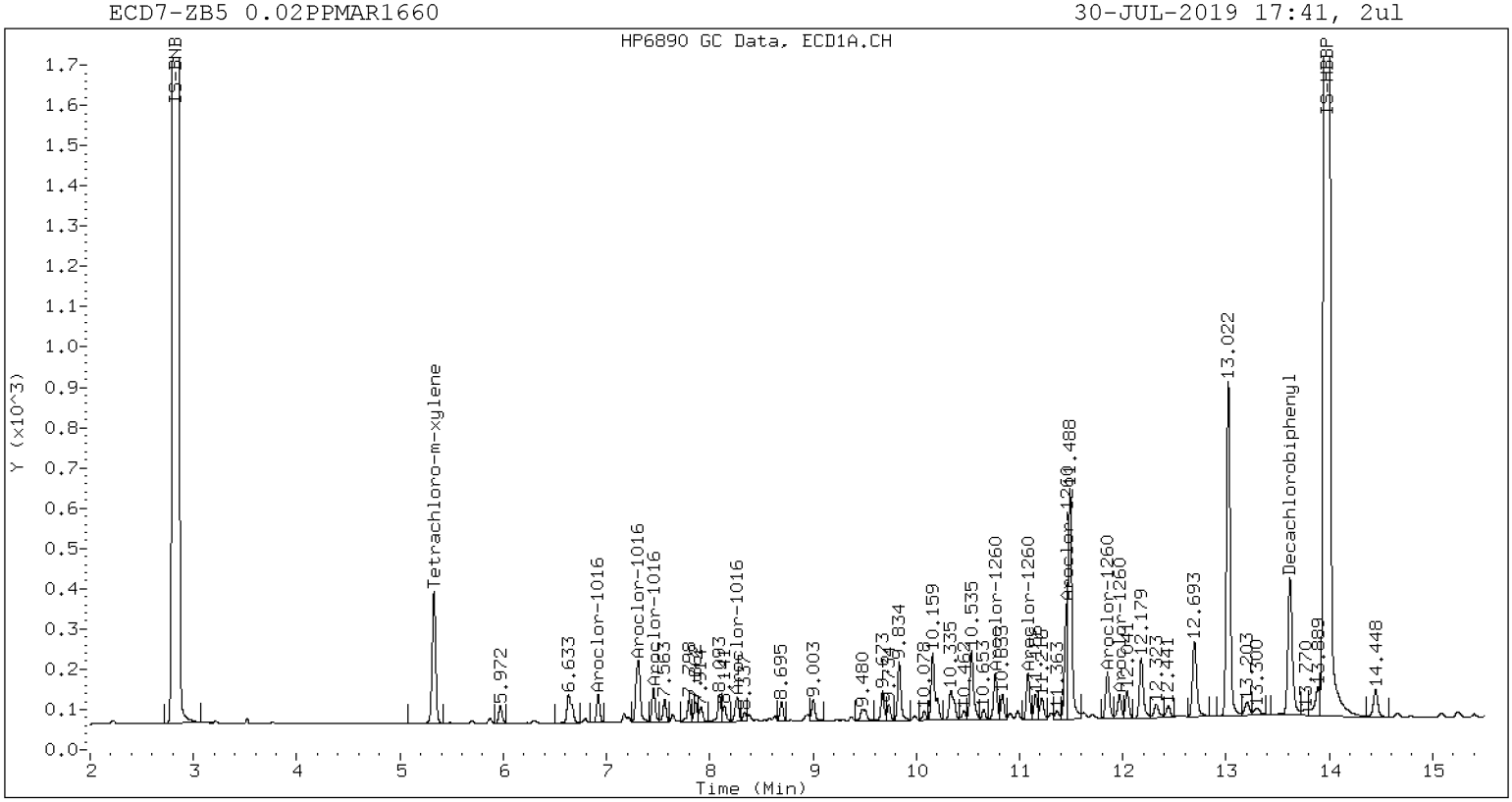
Total PCB Area Col1 (5.430 - 13.518) = 223357 Col1 Total PCB = 0.1 ppm*

Total PCB Area Col2 (5.430 - 13.518) = 679918 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

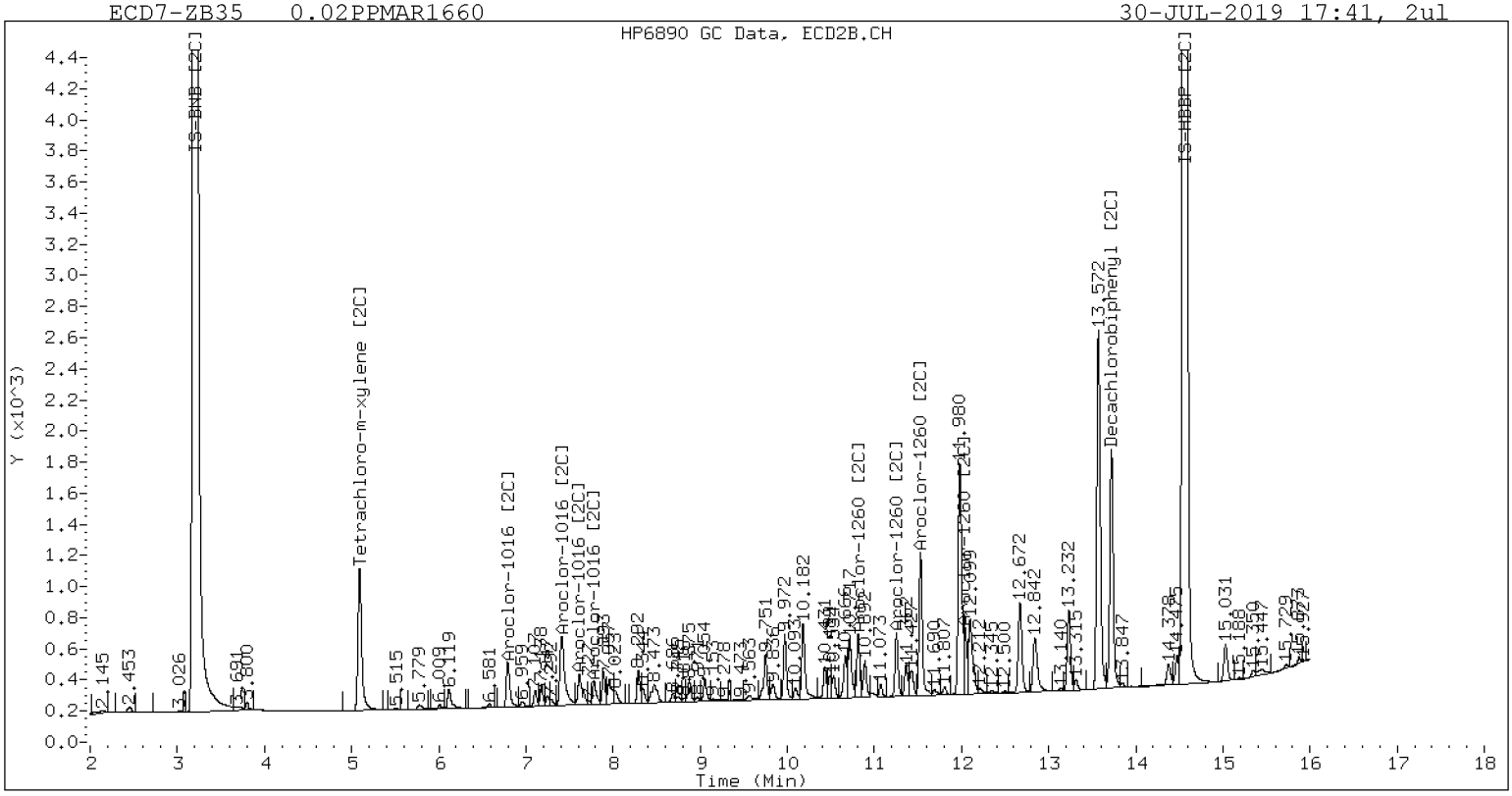
PCB Dual Column Chromatograms

ECD7-ZB5 0.02PPMAR1660 30-JUL-2019 17:41, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 0.02PPMAR1660 30-JUL-2019 17:41, 2ul

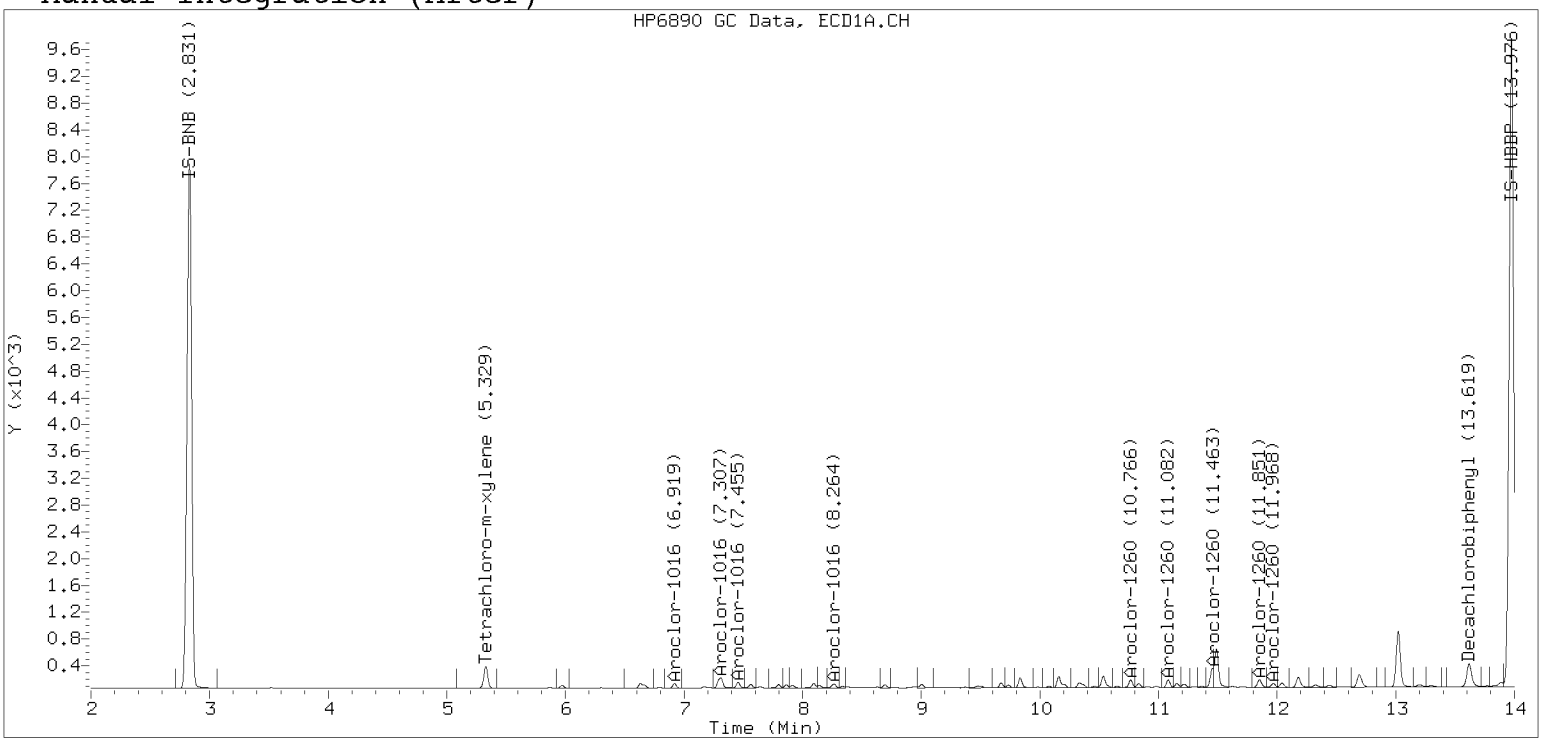


ZB-35 Manual Integration: NO

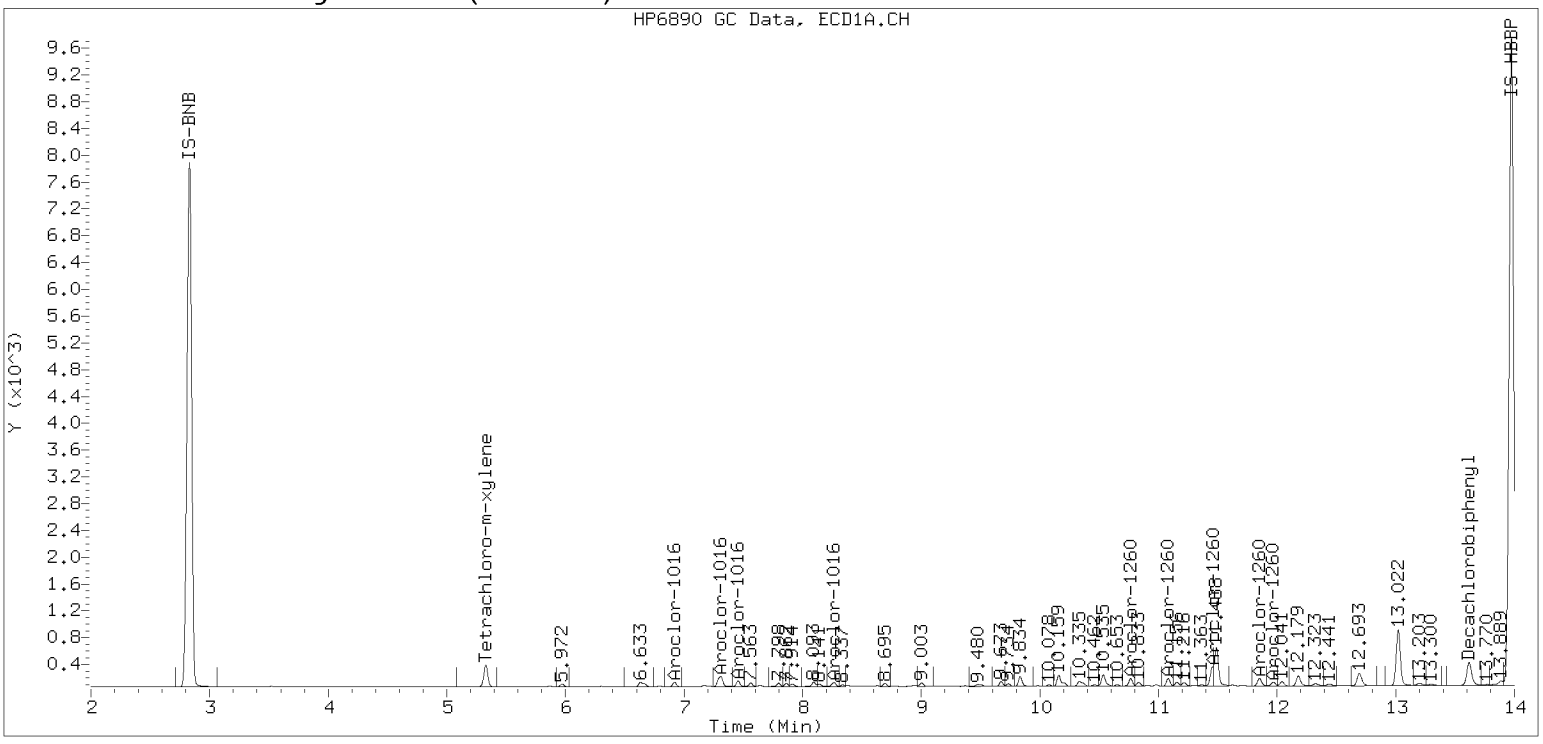
Manual Peak Adjustment, ZB-5

Datafile: ecd7.i/20190730.b/19073008ECD7.D Injection Date: 30-JUL-2019 17:4

Manual Integration (After)



Processed Integration (Before)



Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073009ECD7.D
Data file 2: /20190730.b/20190730.b/19073009ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.05PPMAR1660
Client ID:
Injection Date: 30-JUL-2019 18:01
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	-0.000	43025	5.094	-0.001	147354	7.8	7.9	2.3	Tetrachloro-m-xylene
13.618	-0.000	48612	13.722	-0.004	205481	8.3	7.7	7.5	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	19.4	19.8
Decachlorobiphenyl	20.7	19.2

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	432588	0.0
Hexabromobiphenyl	517563	518201	0.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1488092	-0.6
Hexabromobiphenyl	1404015	1423138	1.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.920	0.000	7004	51.4	1	6.794	0.000	40332	55.6
Aroclor-1016	2	7.307	-0.001	23996	49.8	2	7.414	-0.000	84649	52.7
Aroclor-1016	3	7.456	0.001	9223	50.2	3	7.613	0.000	34168	53.4
Aroclor-1016	4	8.265	-0.000	7278	48.5	4	7.784	0.001	20850	51.9
Total Col1Ave (4 peaks):					50.0	Total Col2Ave (4 peaks):				53.4 RPD = 7
Corrected Ave (3 peaks):					49.5	Corrected Ave (3 peaks):				52.7 RPD = 6
CalAmt %D:					-0.0	CalAmt %D:				6.8
Aroclor-1260	1	10.765	-0.001	13695	49.1	1	10.815	0.002	49122	52.3
Aroclor-1260	2	11.082	-0.000	13115	48.5	2	11.254	0.001	48916	52.3
Aroclor-1260	3	11.450	-0.001	35558	53.1	3	11.530	-0.001	122642	50.0
Aroclor-1260	4	11.851	0.001	15031	47.7	4	12.044	0.000	38726	50.3
Aroclor-1260	5	11.968	0.000	7435	48.6	NS	---			----
Total Col1Ave (5 peaks):					49.4	Total Col2Ave (4 peaks):				51.2 RPD = 4
Corrected Ave (4 peaks):					48.5	Corrected Ave (3 peaks):				50.9 RPD = 5
CalAmt %D:					-1.2	CalAmt %D:				2.4

Total PCB Area Col1 (5.430 - 13.518) = 371748 Col1 Total PCB = 0.1 ppm*

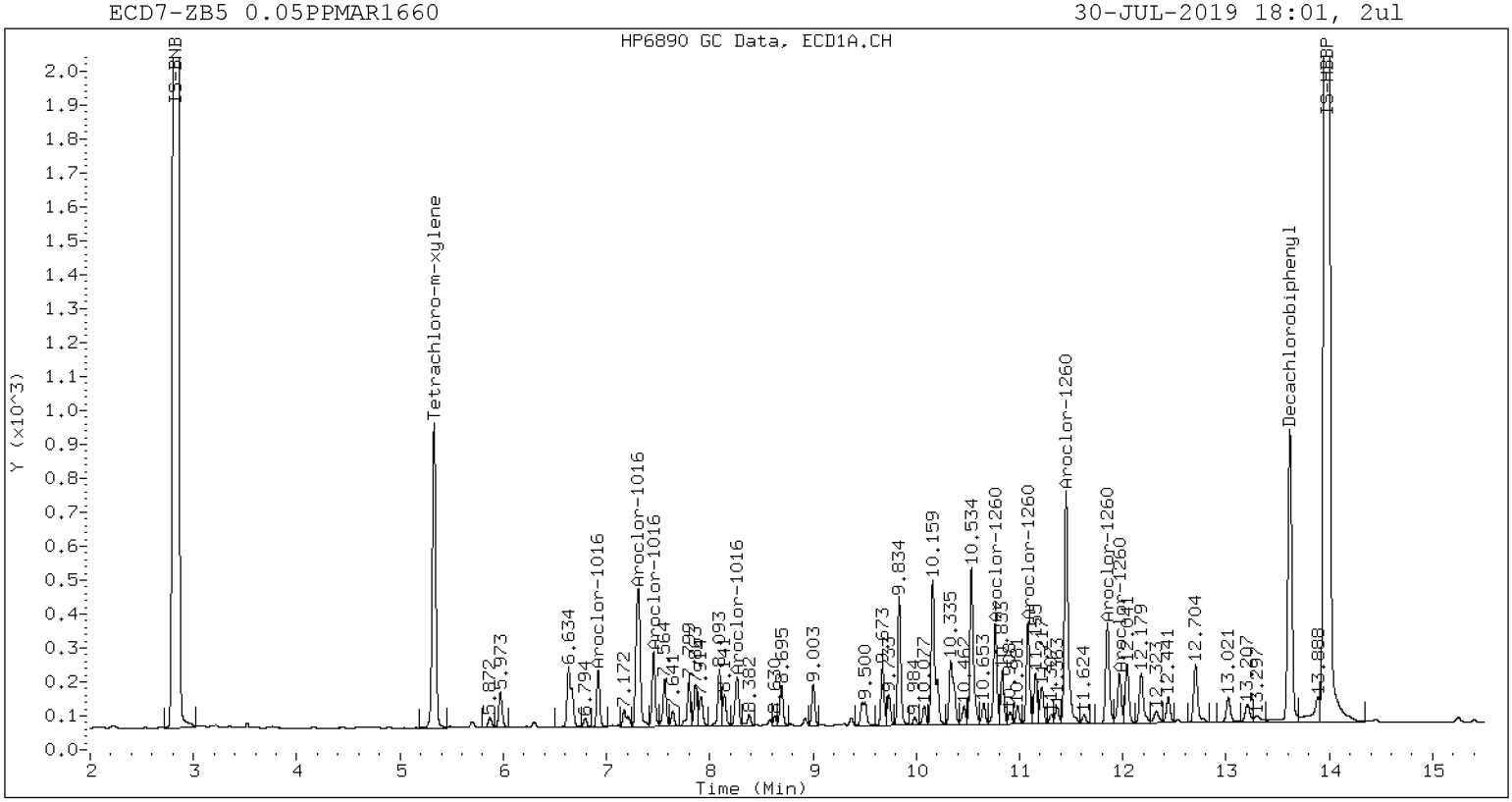
Total PCB Area Col2 (5.430 - 13.518) = 1308556 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

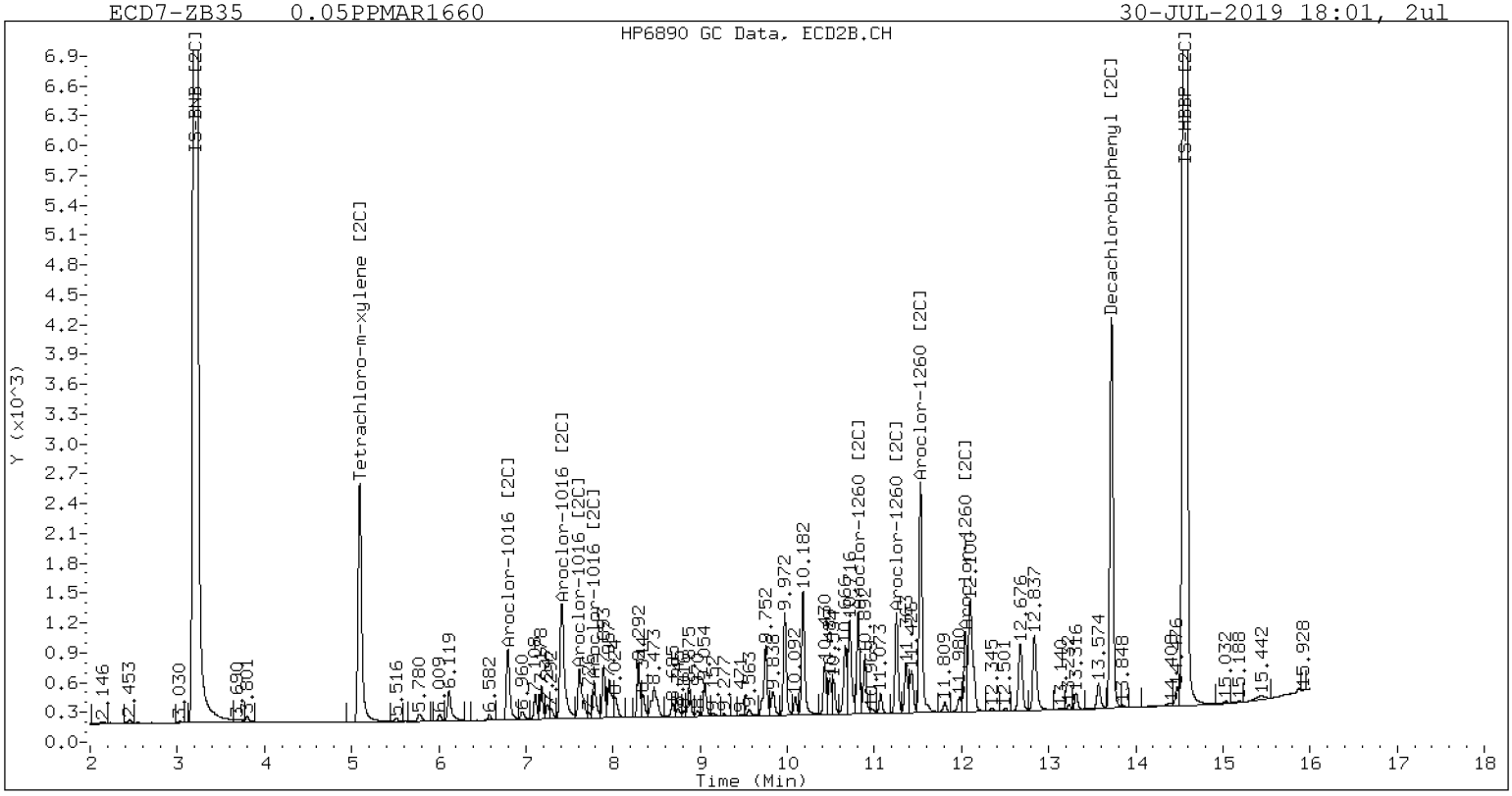
PCB Dual Column Chromatograms

ECD7-ZB5 0.05PPMAR1660 30-JUL-2019 18:01, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.05PPMAR1660 30-JUL-2019 18:01, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073010ECD7.D
Data file 2: /20190730.b/20190730.b/19073010ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 1PPMAR1660
Client ID:
Injection Date: 30-JUL-2019 18:22
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.332	0.002	912273	5.101	0.006	3325535	162.3	178.1	9.3	Tetrachloro-m-xylene
13.619	0.000	857204	13.746	0.021	4684568	146.7	171.4	15.5	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	405.8	445.4
Decachlorobiphenyl	366.7	428.5

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	438406	1.4
Hexabromobiphenyl	517563	515801	-0.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1496615	-0.0
Hexabromobiphenyl	1404015	1453799	3.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.920	0.000	125438	909.1	1	6.794	-0.000	585026	802.4
Aroclor-1016	2	7.309	0.000	464230	950.2	2	7.413	-0.001	1460442	904.1
Aroclor-1016	3	7.456	0.001	175221	941.8	3	7.613	0.000	556585	864.7
Aroclor-1016	4	8.264	-0.000	151871	998.8	4	7.782	-0.000	367587	909.5
	Total Col1Ave (4 peaks):				950.0	Total Col2Ave (4 peaks):				870.2 RPD = 9
	Corrected Ave (3 peaks):				933.7	Corrected Ave (3 peaks):				857.0 RPD = 9
	CalAmt %D:				-5.0	CalAmt %D:				-13.0
Aroclor-1260	1	10.765	-0.000	277815	1000.3	1	10.815	0.001	900125	938.1
Aroclor-1260	2	11.082	0.000	274347	1018.5	2	11.254	0.001	900677	943.4
Aroclor-1260	3	11.452	0.000	673807	1011.6	3	11.536	0.005	2863958	1142.7
Aroclor-1260	4	11.850	0.000	325483	1037.8	4	12.044	0.001	723467	919.3
Aroclor-1260	5	11.968	0.000	156865	1030.1	NS	---			----
	Total Col1Ave (5 peaks):				1019.7	Total Col2Ave (4 peaks):				985.9 RPD = 3
	Corrected Ave (4 peaks):				1015.2	Corrected Ave (3 peaks):				933.6 RPD = 8
	CalAmt %D:				2.0	CalAmt %D:				-1.4

Total PCB Area Col1 (5.430 - 13.518) = 7173426 Col1 Total PCB = 1.9 ppm*

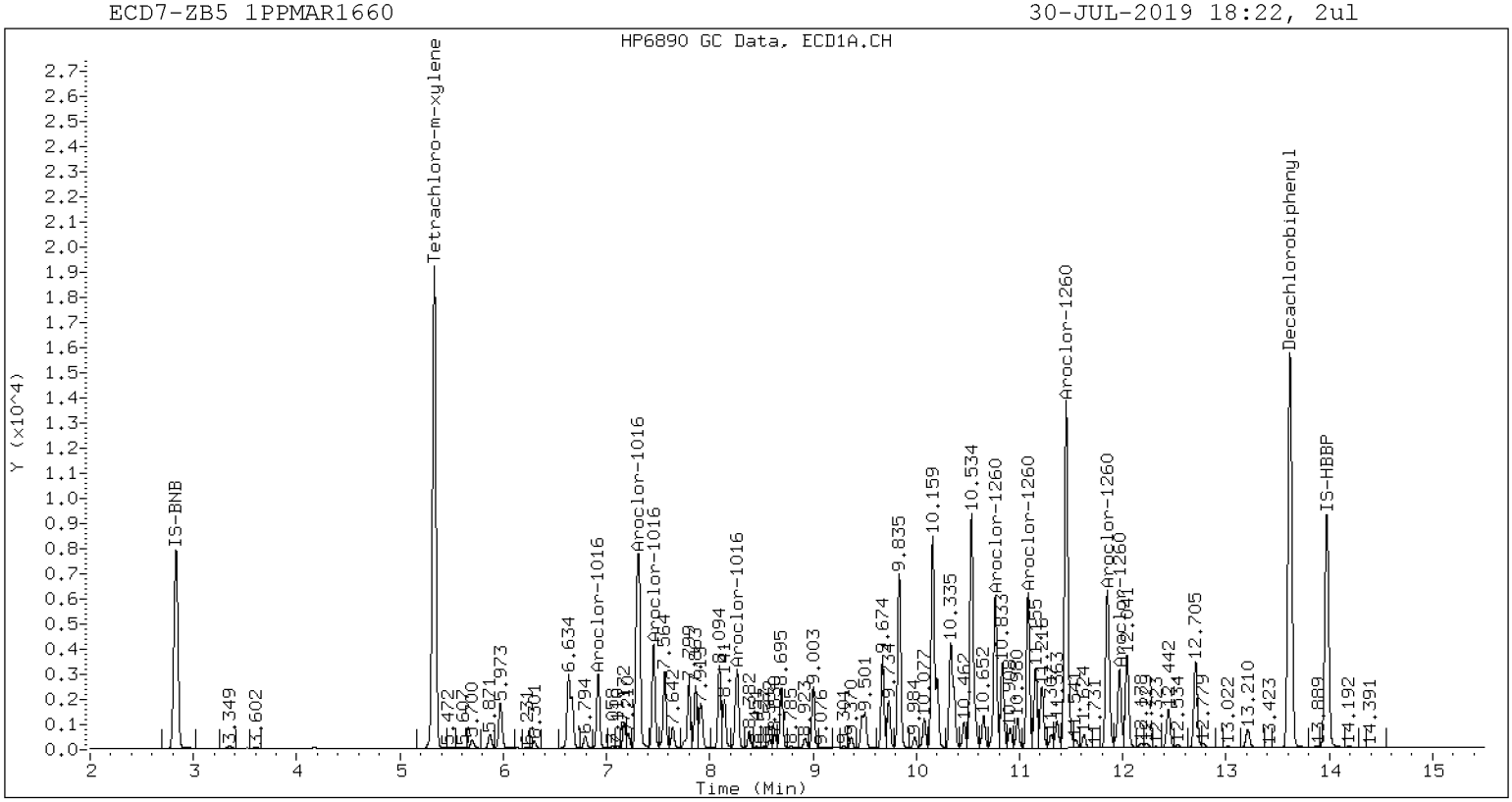
Total PCB Area Col2 (5.430 - 13.518) = 22764704 Col2 Total PCB = 1.9 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

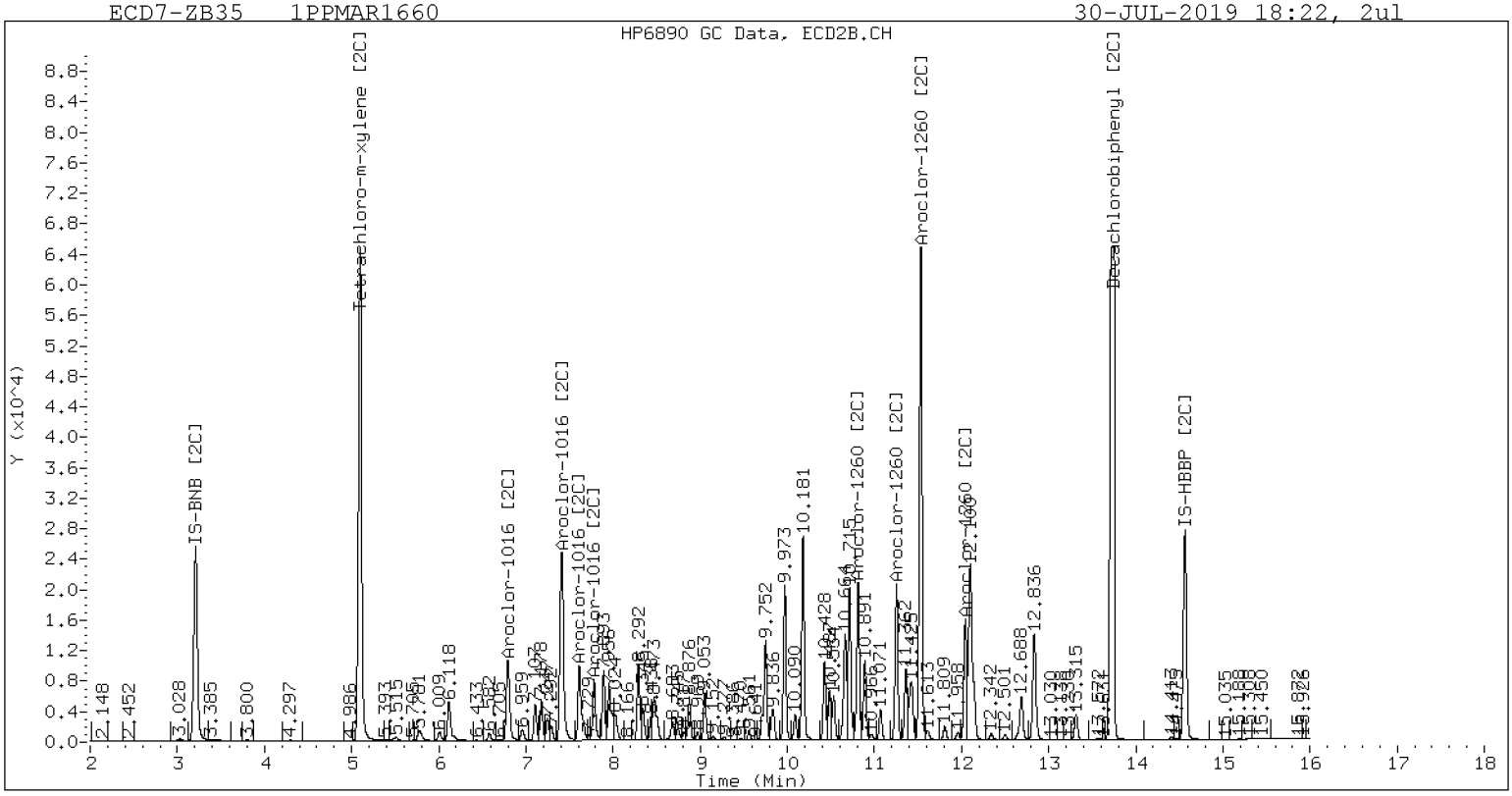
PCB Dual Column Chromatograms

ECD7-ZB5 1PPMAR1660 30-JUL-2019 18:22, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 1PPMAR1660 30-JUL-2019 18:22, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073011ECD7.D
Data file 2: /20190730.b/20190730.b/19073011ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.1PPMAR1660
Client ID:
Injection Date: 30-JUL-2019 18:43
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	-0.000	91383	5.094	-0.001	299400	16.2	15.7	3.2	Tetrachloro-m-xylene
13.617	-0.001	94470	13.722	-0.003	418139	15.8	15.2	4.3	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	40.4	39.1
Decachlorobiphenyl	39.6	38.0

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	440859	2.0
Hexabromobiphenyl	517563	526229	1.7

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1533343	2.4
Hexabromobiphenyl	1404015	1464998	4.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.920	0.000	14104	101.7	1	6.793	-0.000	78693	105.3
Aroclor-1016	2	7.309	0.001	50102	102.0	2	7.413	-0.001	169792	102.6
Aroclor-1016	3	7.455	-0.000	18869	100.9	3	7.614	0.001	68089	103.3
Aroclor-1016	4	8.264	-0.000	15092	98.7	4	7.783	0.001	42882	103.6
	Total Col1Ave (4 peaks):				100.8	Total Col2Ave (4 peaks):				103.7 RPD = 3
	Corrected Ave (3 peaks):				100.4	Corrected Ave (3 peaks):				103.1 RPD = 3
		CalAmt %D:			0.8		CalAmt %D:			3.7
Aroclor-1260	1	10.765	-0.000	28176	99.4	1	10.814	0.001	98327	101.7
Aroclor-1260	2	11.082	0.000	27167	98.9	2	11.254	0.001	97428	101.3
Aroclor-1260	3	11.451	-0.000	70434	103.7	3	11.530	-0.001	240046	95.0
Aroclor-1260	4	11.851	0.000	31648	98.9	4	12.044	0.001	77517	97.7
Aroclor-1260	5	11.968	0.000	15414	99.2	NS	---			----
	Total Col1Ave (5 peaks):				100.0	Total Col2Ave (4 peaks):				98.9 RPD = 1
	Corrected Ave (4 peaks):				99.1	Corrected Ave (3 peaks):				98.0 RPD = 1
		CalAmt %D:			0.0		CalAmt %D:			-1.1

Total PCB Area Col1 (5.430 - 13.518) = 744208 Col1 Total PCB = 0.2 ppm*

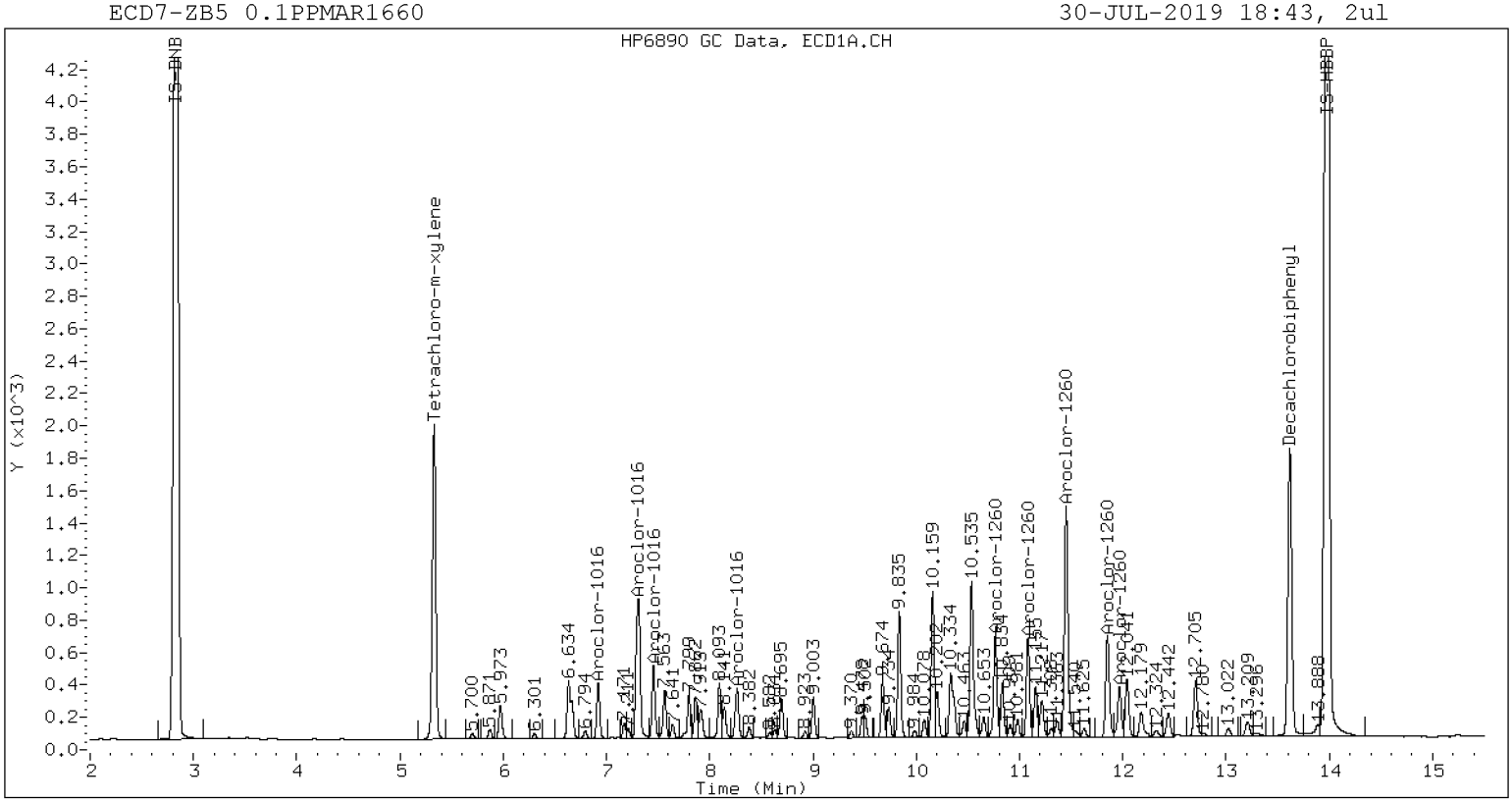
Total PCB Area Col2 (5.430 - 13.518) = 2562975 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

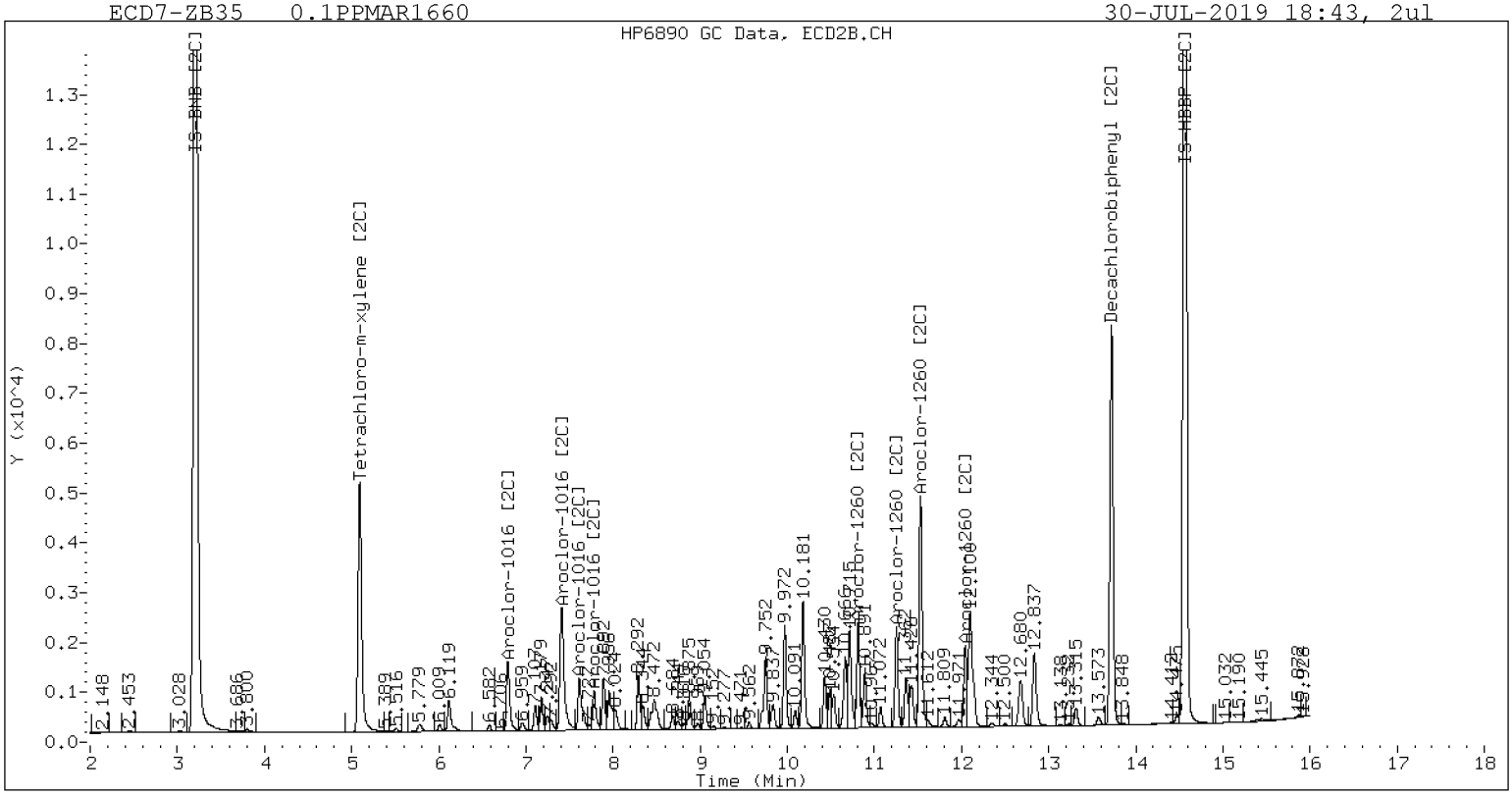
PCB Dual Column Chromatograms

ECD7-ZB5 0.1PPMAR1660 30-JUL-2019 18:43, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.1PPMAR1660 30-JUL-2019 18:43, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073012ECD7.D
Data file 2: /20190730.b/20190730.b/19073012ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.5PPMAR1660
Client ID:
Injection Date: 30-JUL-2019 19:04
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.331	0.001	467215	5.096	0.001	1466390	83.6	78.7	6.1	Tetrachloro-m-xylene
13.619	0.000	450659	13.726	0.000	2342937	76.9	84.9	9.9	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	209.1	196.7
Decachlorobiphenyl	192.3	212.3

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	435866	0.8
Hexabromobiphenyl	517563	517266	-0.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1494075	-0.2
Hexabromobiphenyl	1404015	1467528	4.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.919	0.000	67444	491.7	1	6.794	0.000	329369	452.5
Aroclor-1016	2	7.308	0.000	247874	510.3	2	7.414	0.000	769184	477.0
Aroclor-1016	3	7.455	0.000	92995	502.8	3	7.613	0.000	301646	469.4
Aroclor-1016	4	8.265	0.000	77357	511.7	4	7.783	0.000	196329	486.6
Total Col1Ave (4 peaks):					504.1	Total Col2Ave (4 peaks):				471.4 RPD = 7
Corrected Ave (3 peaks):					501.6	Corrected Ave (3 peaks):				466.3 RPD = 7
CalAmt %D:					0.8	CalAmt %D:				-5.7
Aroclor-1260	1	10.765	0.000	143978	517.0	1	10.814	0.000	455700	470.5
Aroclor-1260	2	11.082	0.000	141273	523.0	2	11.253	0.000	455788	473.0
Aroclor-1260	3	11.451	0.000	349497	523.2	3	11.531	0.000	1210867	478.6
Aroclor-1260	4	11.850	0.000	166497	529.4	4	12.043	0.000	370027	465.8
Aroclor-1260	5	11.968	0.000	79300	519.3	NS	---			----
Total Col1Ave (5 peaks):					522.4	Total Col2Ave (4 peaks):				472.0 RPD = 10
Corrected Ave (4 peaks):					520.6	Corrected Ave (3 peaks):				469.8 RPD = 10
CalAmt %D:					4.5	CalAmt %D:				-5.6

Total PCB Area Col1 (5.430 - 13.518) = 3698429 Col1 Total PCB = 1.0 ppm*

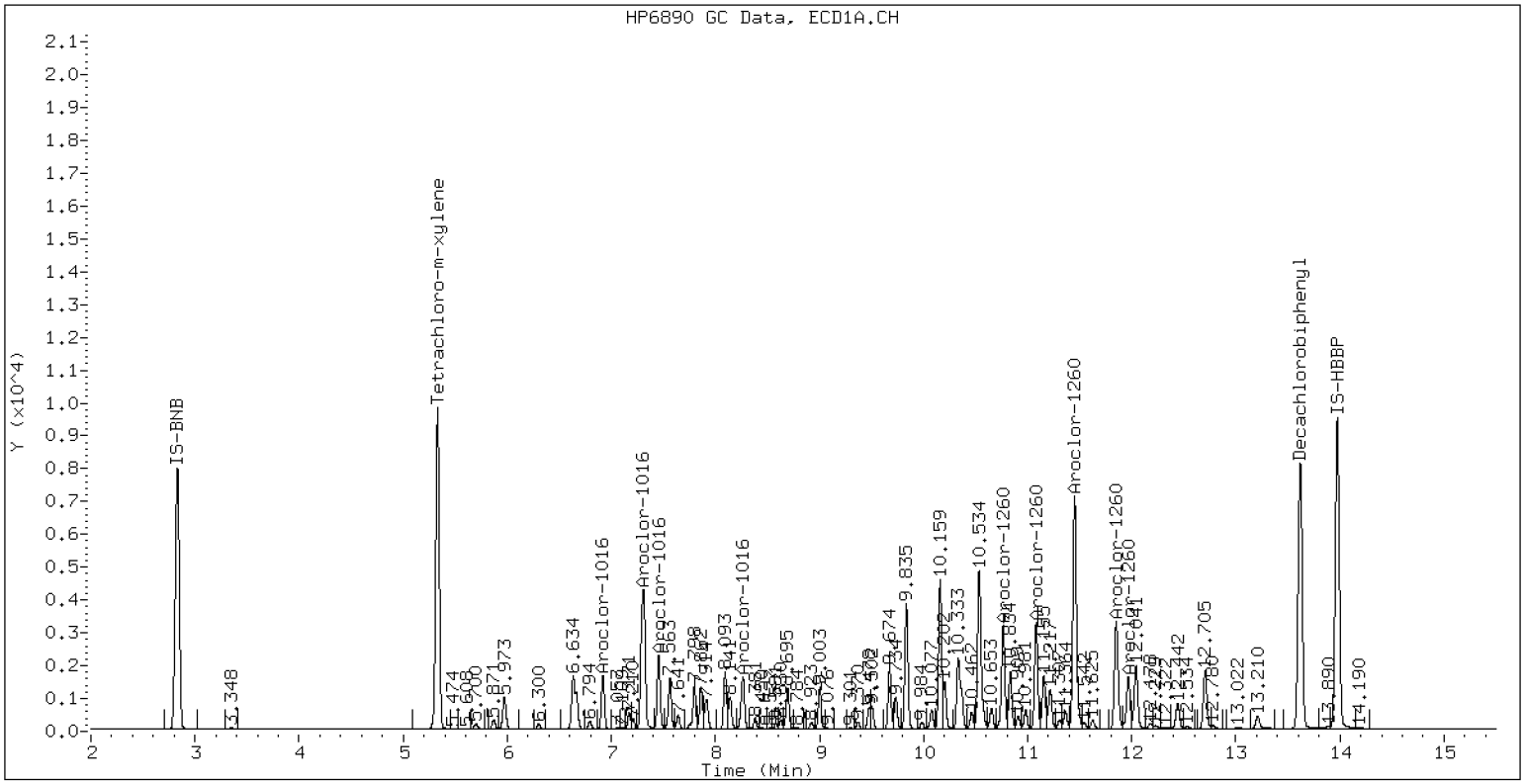
Total PCB Area Col2 (5.430 - 13.518) = 11671241 Col2 Total PCB = 1.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

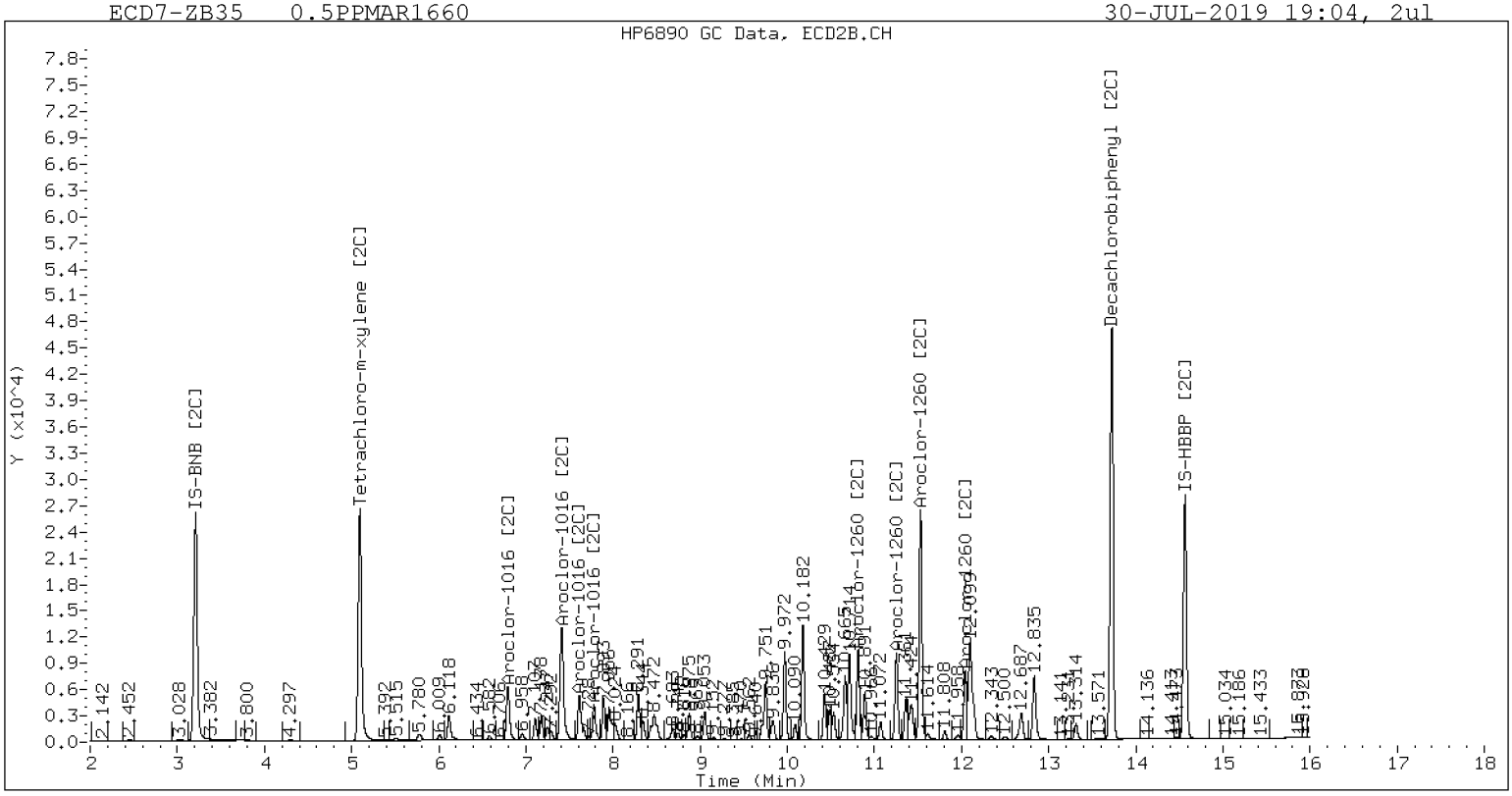
PCB Dual Column Chromatograms

ECD7-ZB5 0.5PPMAR1660 30-JUL-2019 19:04, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.5PPMAR1660 30-JUL-2019 19:04, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073013ECD7.D
Data file 2: /20190730.b/20190730.b/19073013ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242
Client ID:
Injection Date: 30-JUL-2019 19:25
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	-0.000	236652	5.095	-0.000	737768	42.9	39.7	7.7	Tetrachloro-m-xylene
13.617	-0.001	227819	13.724	-0.002	1027932	39.8	37.9	4.9	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	107.3	99.3
Decachlorobiphenyl	99.5	94.7

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	429978	-0.6
Hexabromobiphenyl	517563	505226	-2.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1488422	-0.6
Hexabromobiphenyl	1404015	1442954	2.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	6.919	0.000	28044	250.0	1	6.793	0.000	147511	250.0
Aroclor-1242	2	7.307	0.000	101122	250.0	2	7.412	0.000	324826	250.0
Aroclor-1242	3	8.630	0.000	33464	250.0	3	7.783	0.000	83868	250.0
Aroclor-1242	4	8.918	0.000	35503	250.0	4	8.817	0.000	103743	250.0

Total Col1Ave (4 peaks): 250.0 Total Col2Ave (4 peaks): 250.0 RPD = 0

Corrected Ave (3 peaks): 250.0 Corrected Ave (3 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.430 - 13.518) = 707410 Col1 Total PCB = 0.2 ppm*

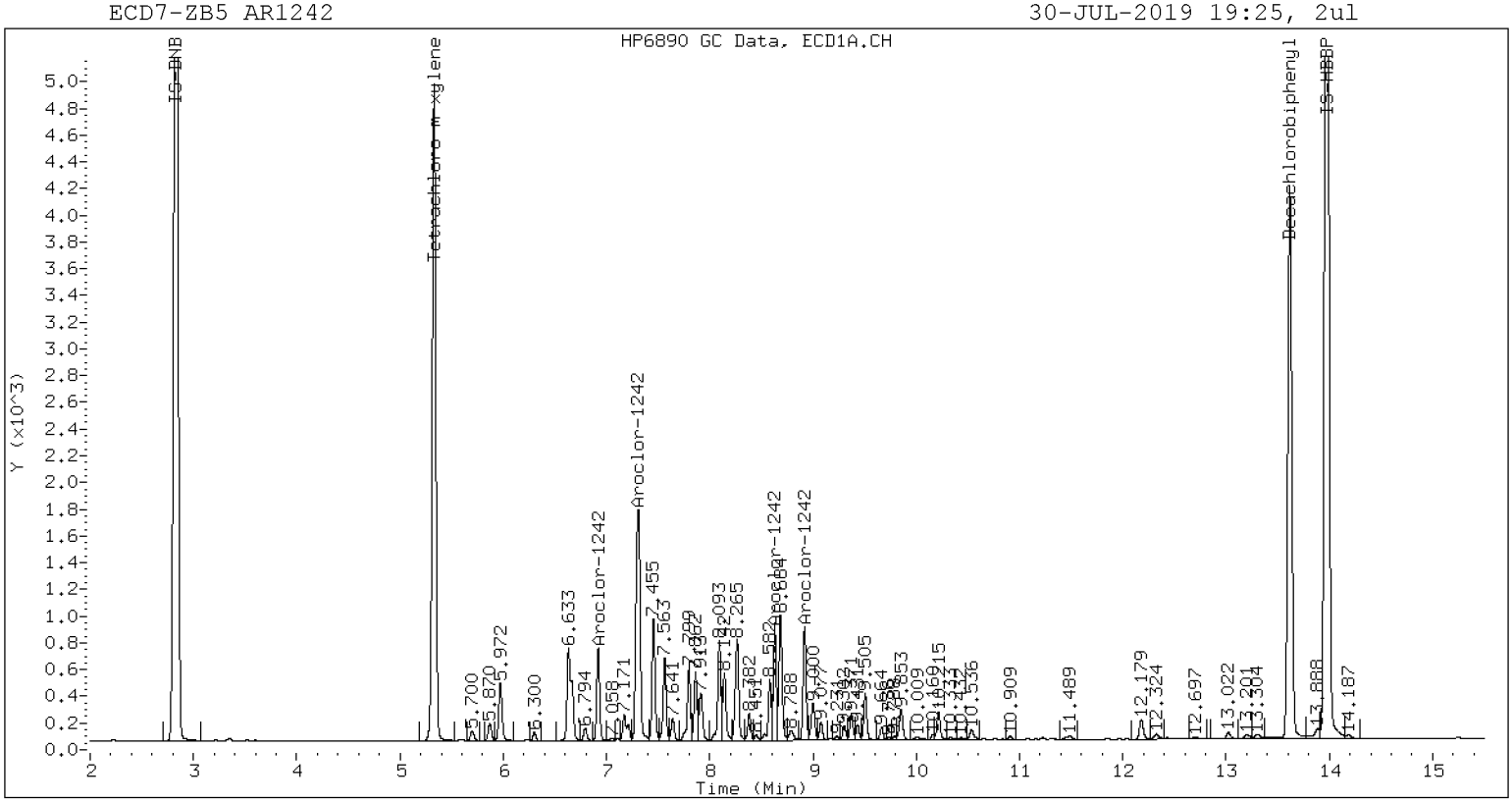
Total PCB Area Col2 (5.430 - 13.518) = 2369915 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

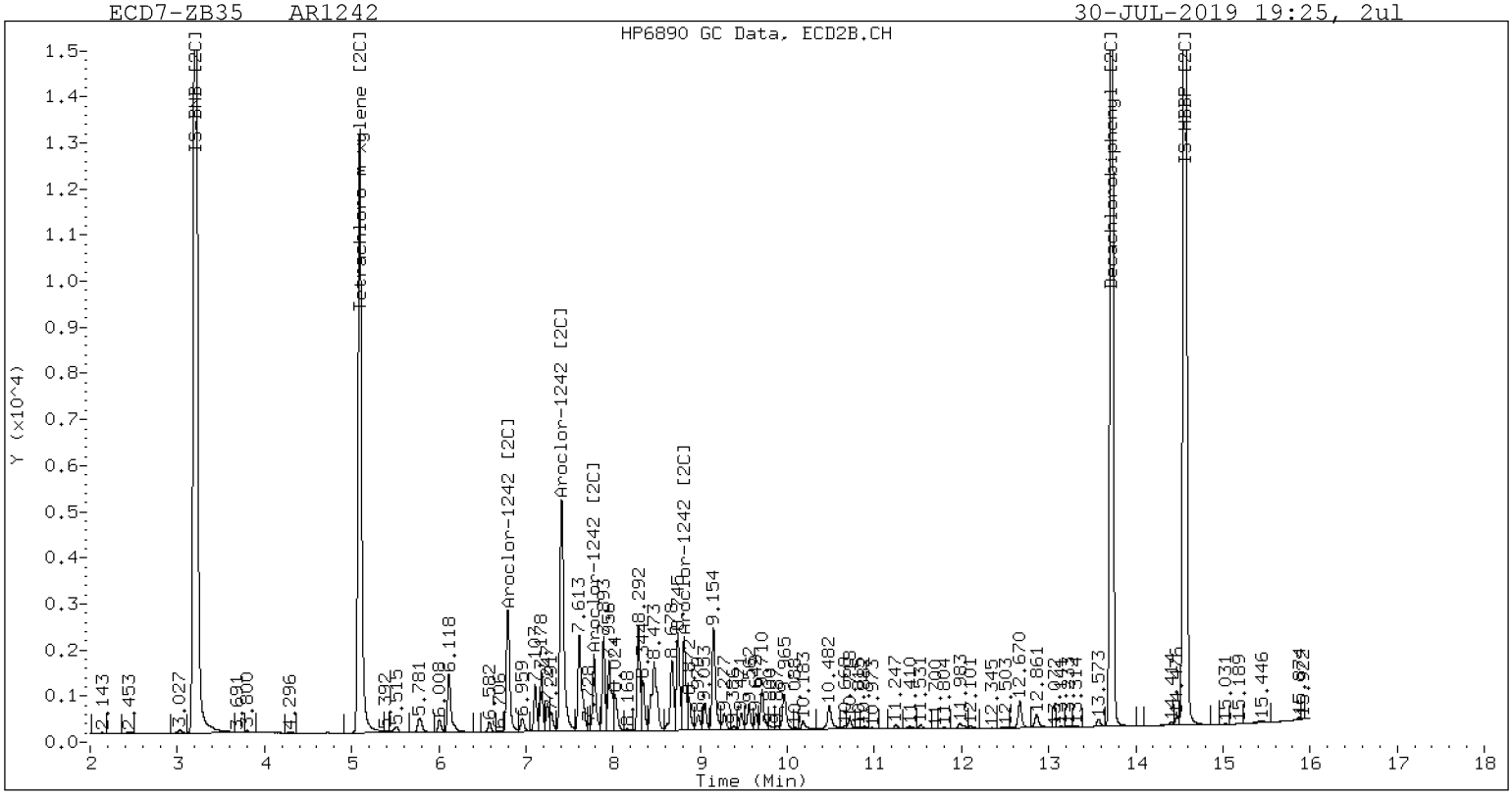
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242 30-JUL-2019 19:25, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242 30-JUL-2019 19:25, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073014ECD7.D
Data file 2: /20190730.b/20190730.b/19073014ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248
Client ID:
Injection Date: 30-JUL-2019 19:46
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	-0.001	235918	5.095	0.000	740405	42.1	39.3	6.7	Tetrachloro-m-xylene
13.618	-0.001	227243	13.723	-0.003	1041609	38.8	38.0	2.2	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	105.2	98.4
Decachlorobiphenyl	97.1	95.0

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	437540	1.2
Hexabromobiphenyl	517563	516343	-0.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1508631	0.8
Hexabromobiphenyl	1404015	1457890	3.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1248	1	8.093	0.000	50919	250.0	1	7.410	0.000	213843	250.0
Aroclor-1248	2	8.630	0.000	63356	250.0	2	8.292	0.000	160742	250.0
Aroclor-1248	3	8.918	0.000	59371	250.0	3	8.816	0.000	165919	250.0
Aroclor-1248	4	9.505	0.000	37722	250.0	4	9.153	0.000	211202	250.0

Total Col1Ave (4 peaks): 250.0 Total Col2Ave (4 peaks): 250.0 RPD = 0

Corrected Ave (3 peaks): 250.0 Corrected Ave (3 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.430 - 13.518) = 894606 Col1 Total PCB = 0.2 ppm*

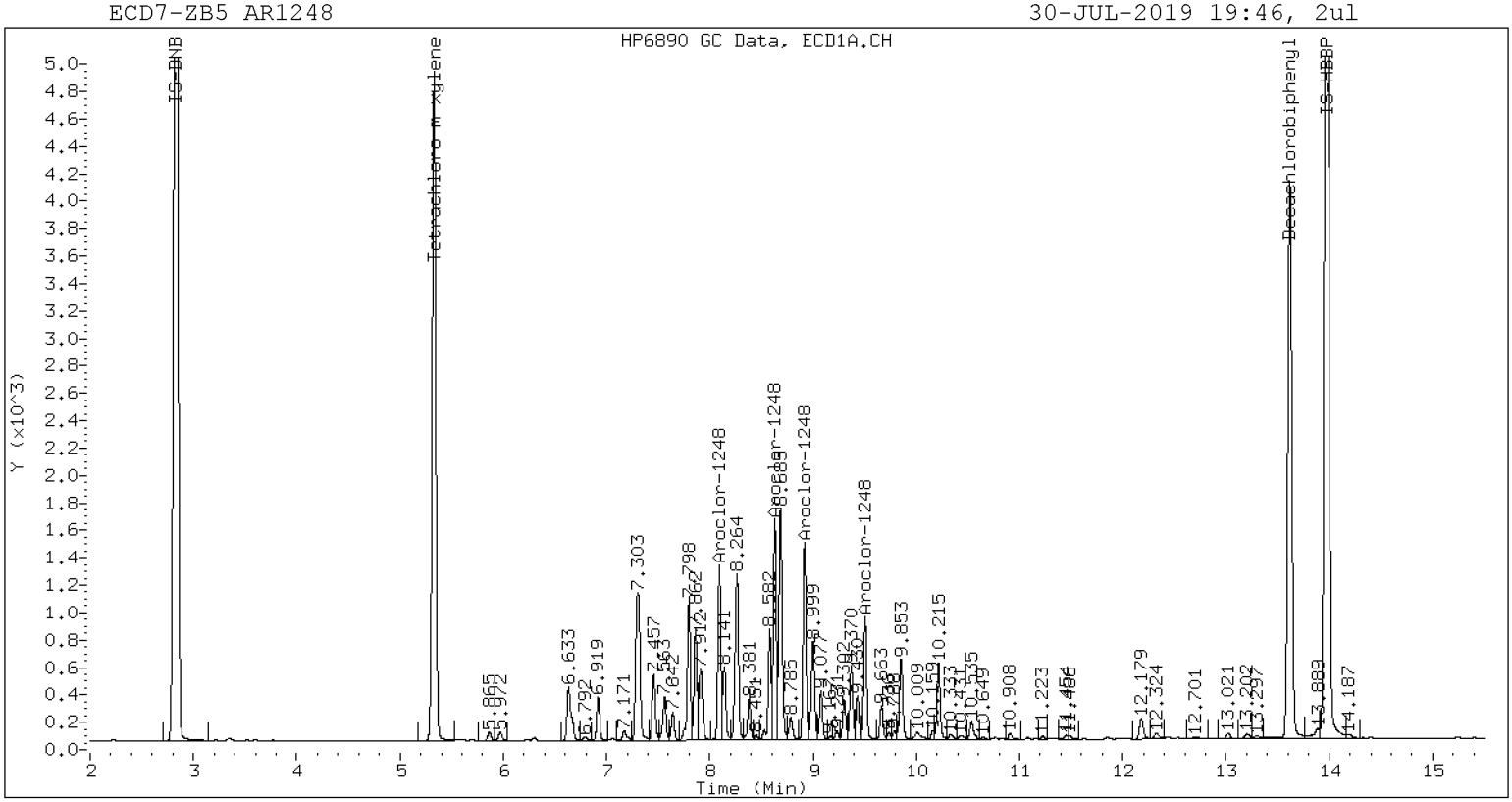
Total PCB Area Col2 (5.430 - 13.518) = 2839300 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

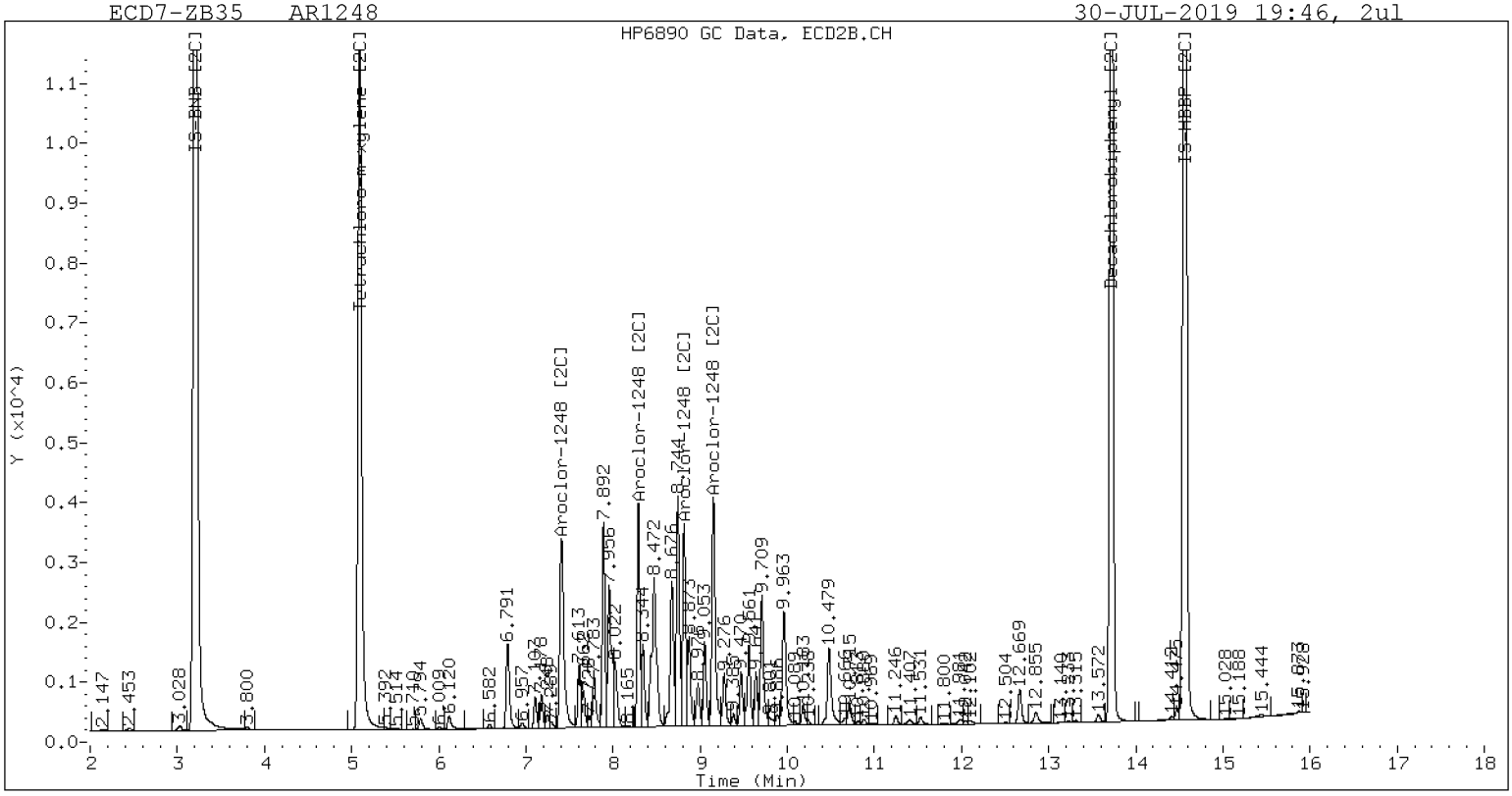
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248 30-JUL-2019 19:46, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248 30-JUL-2019 19:46, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073015ECD7.D
Data file 2: /20190730.b/20190730.b/19073015ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254
Client ID:
Injection Date: 30-JUL-2019 20:07
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.329	-0.001	232739	5.094	-0.000	729650	41.4	38.6	7.0	Tetrachloro-m-xylene
13.618	-0.001	218647	13.723	-0.003	1018027	37.0	36.5	1.1	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	103.4	96.4
Decachlorobiphenyl	92.4	91.4

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	439026	1.5
Hexabromobiphenyl	517563	522160	0.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1517070	1.3
Hexabromobiphenyl	1404015	1481506	5.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.001	0.000	94713	250.0	1	9.052	0.000	214565	250.0
Aroclor-1254	2	9.077	0.000	30322	250.0	2	9.143	0.000	109812	250.0
Aroclor-1254	3	9.369	0.000	60480	250.0	3	9.560	0.000	169597	250.0
Aroclor-1254	4	9.505	0.000	116733	250.0	4	9.708	0.000	346631	250.0
Aroclor-1254	5	10.210	0.000	78135	250.0	5	10.481	0.000	218186	250.0

Total Col1Ave (5 peaks): 250.0 Total Col2Ave (5 peaks): 250.0 RPD = 0

Corrected Ave (4 peaks): 250.0 Corrected Ave (4 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.430 - 13.518) = 1147011 Col1 Total PCB = 0.3 ppm*

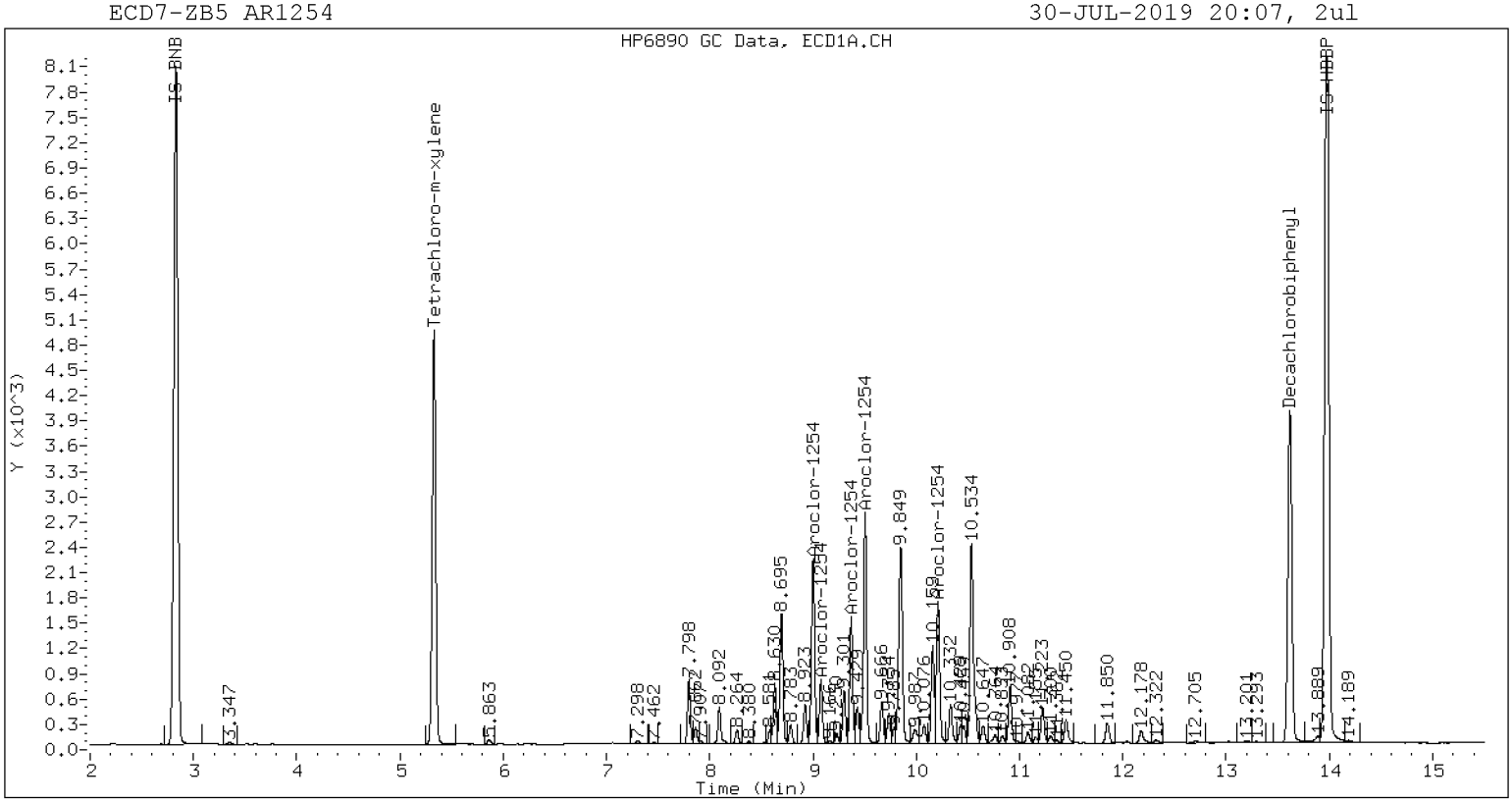
Total PCB Area Col2 (5.430 - 13.518) = 3515062 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

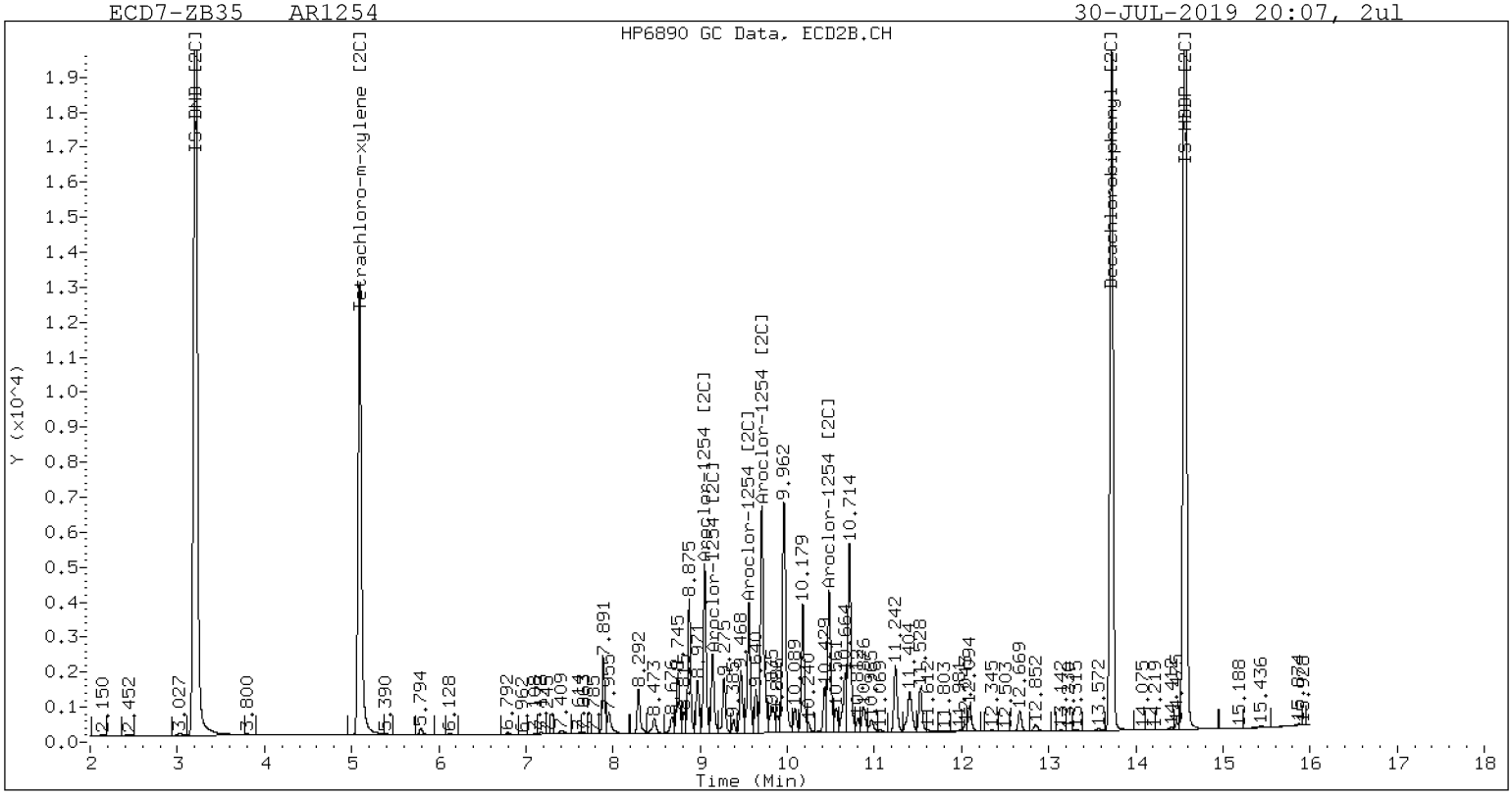
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254 30-JUL-2019 20:07, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254 30-JUL-2019 20:07, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073016ECD7.D
Data file 2: /20190730.b/20190730.b/19073016ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: AR2162.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162
Client ID:
Injection Date: 30-JUL-2019 20:28
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	-0.001	239680	5.093	-0.001	737925	42.6	41.2	3.3	Tetrachloro-m-xylene
13.617	-0.001	215624	13.724	-0.002	1005155	36.1	36.0	0.3	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	106.5	103.0
Decachlorobiphenyl	90.2	89.9

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	439095	1.6
Hexabromobiphenyl	517563	527456	1.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1436593	-4.1
Hexabromobiphenyl	1404015	1486467	5.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	ZB5 Col Area	Amount	Peak#	RT	Shift	ZB35 Col Area	Amount
Aroclor-1221	1	4.171	0.000	8231	250.0	1	4.294	0.000	26805	250.0
Aroclor-1221	2	5.701	0.000	13483	250.0	2	5.771	0.000	58412	250.0
Aroclor-1221	3	5.972	0.000	33512	250.0	3	6.117	0.000	95164	250.0
Total Col1Ave (3 peaks):					250.0	Total Col2Ave (3 peaks):				250.0 RPD = 0
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1262	1	11.081	0.000	85993	250.0	1	10.813	0.000	344291	250.0
Aroclor-1262	2	11.451	0.000	206349	250.0	2	11.254	0.000	289309	250.0
Aroclor-1262	3	11.851	0.000	63586	250.0	3	11.529	0.000	680260	250.0
Aroclor-1262	4	11.967	0.000	79043	250.0	4	12.044	0.000	325255	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.430 - 13.518) = 1442386 Col1 Total PCB = 0.4 ppm*

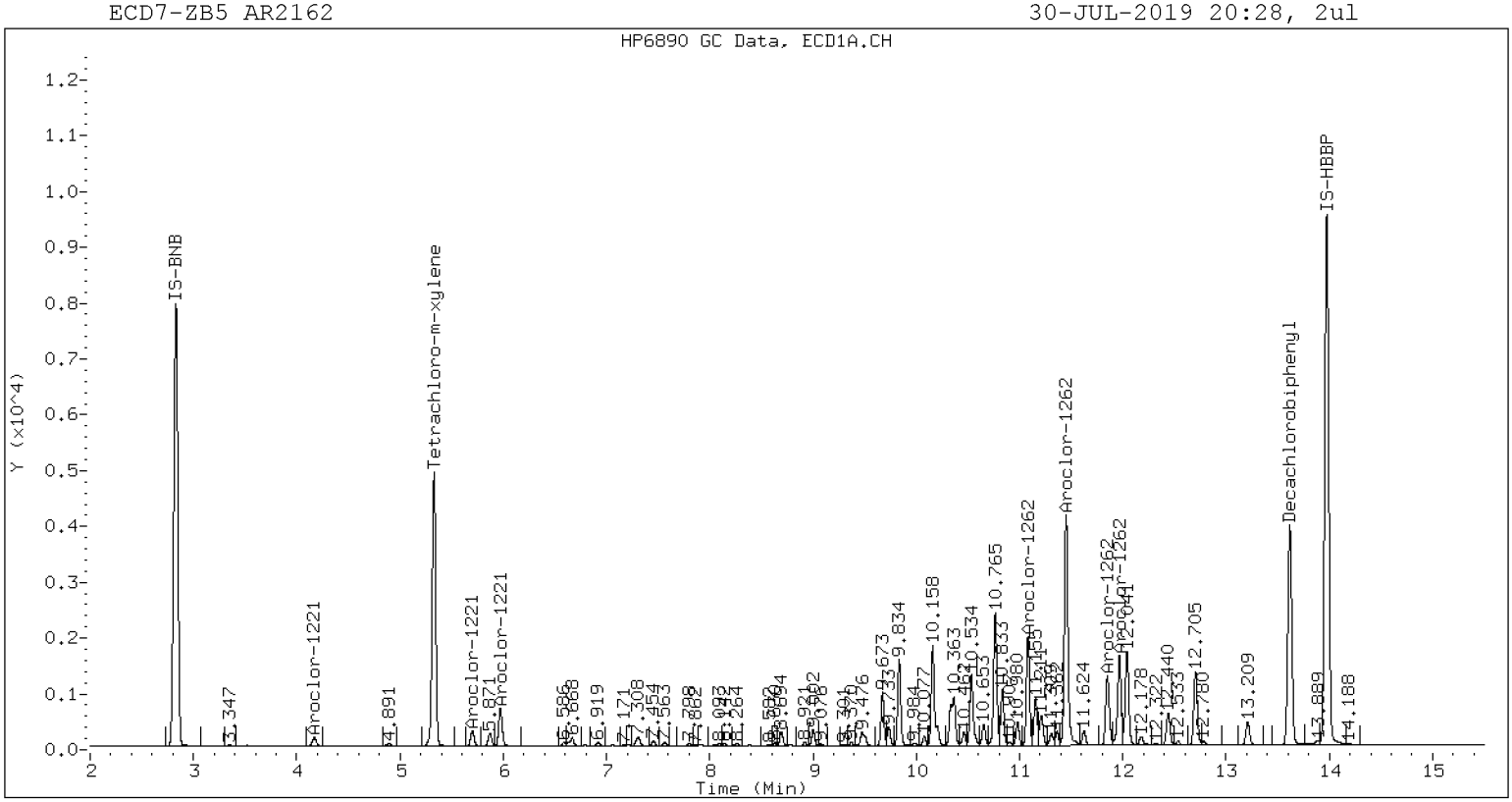
Total PCB Area Col2 (5.430 - 13.518) = 4894468 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

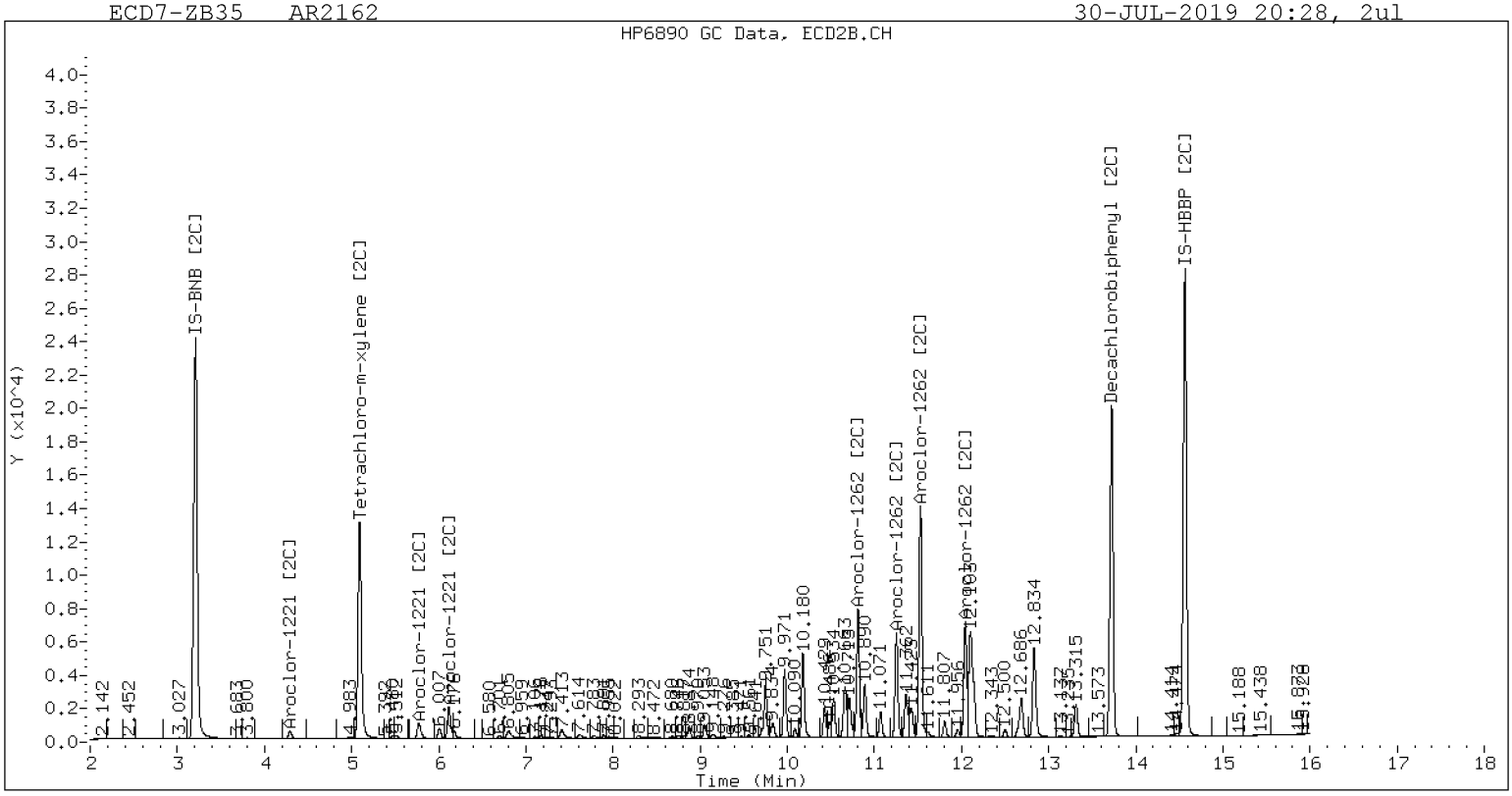
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162 30-JUL-2019 20:28, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162 30-JUL-2019 20:28, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073017ECD7.D
Data file 2: /20190730.b/20190730.b/19073017ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: AR3268.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268
Client ID:
Injection Date: 30-JUL-2019 20:48
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	0.000	232613	5.095	0.000	722111	41.4	39.5	4.5	Tetrachloro-m-xylene
13.618	0.000	325758	13.726	0.000	1651088	55.6	59.3	6.5	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	103.4	98.9
Decachlorobiphenyl	139.0	148.3

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	438554	1.4
Hexabromobiphenyl	517563	517210	-0.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1464109	-2.2
Hexabromobiphenyl	1404015	1479984	5.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1232	1	4.171	0.000	4955	250.0	1	4.296	0.000	16436	250.0
Aroclor-1232	2	6.919	0.000	13888	250.0	2	6.794	0.000	82997	250.0
Aroclor-1232	3	7.307	0.000	48637	250.0	3	7.412	0.000	167027	250.0
Aroclor-1232	4	7.455	0.000	18448	250.0	4	8.745	0.000	56546	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0
Aroclor-1268	1	11.968	0.000	230107	250.0	1	12.045	0.000	857085	250.0
Aroclor-1268	2	12.039	0.000	213376	250.0	2	12.110	0.000	848319	250.0
Aroclor-1268	3	12.426	0.000	177143	250.0	3	12.501	0.000	754495	250.0
Aroclor-1268	4	13.210	0.000	523460	250.0	4	13.320	0.000	2765238	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.430 - 13.518) = 1799358 Col1 Total PCB = 0.5 ppm*

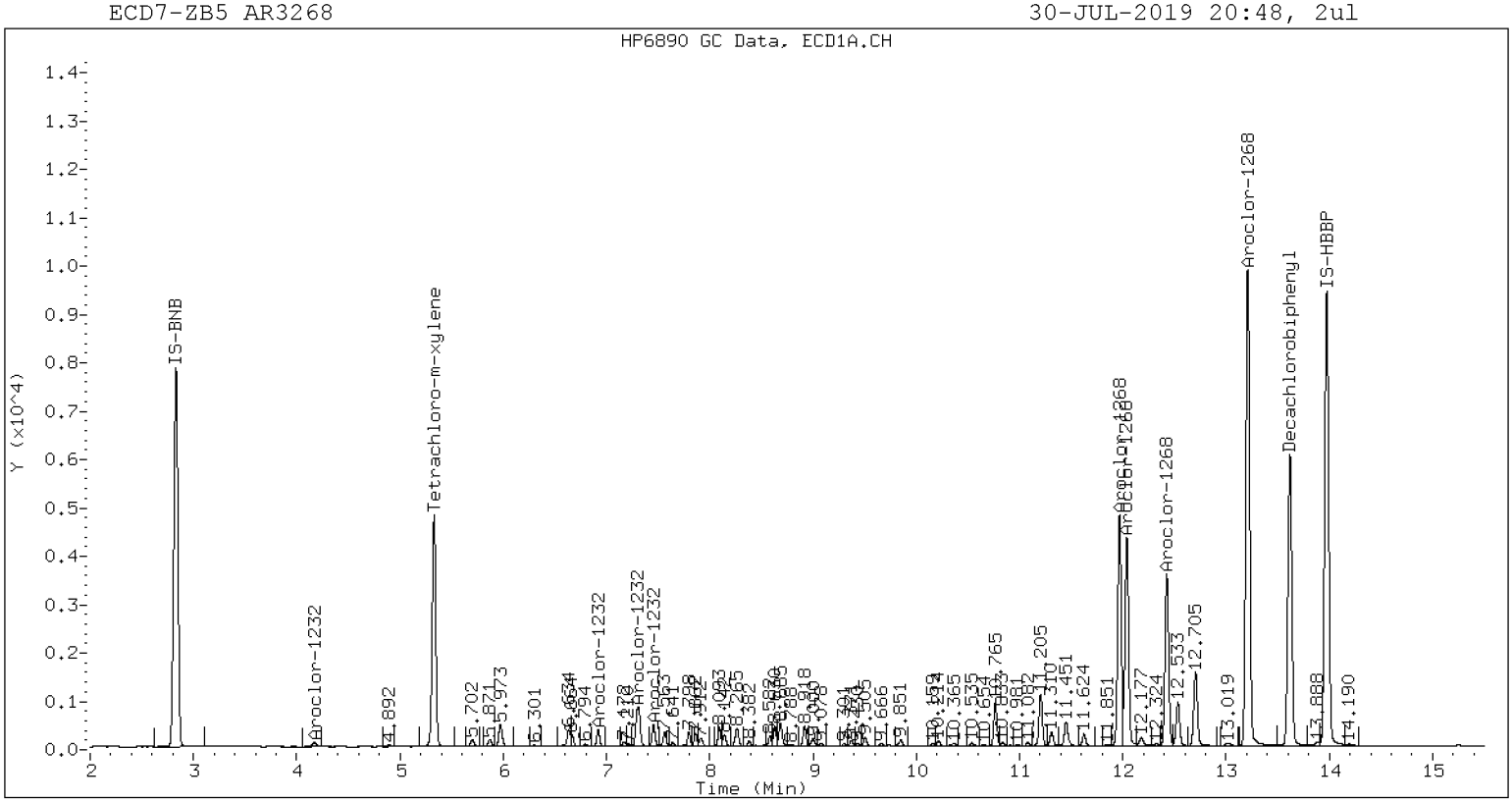
Total PCB Area Col2 (5.430 - 13.518) = 7676745 Col2 Total PCB = 0.7 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

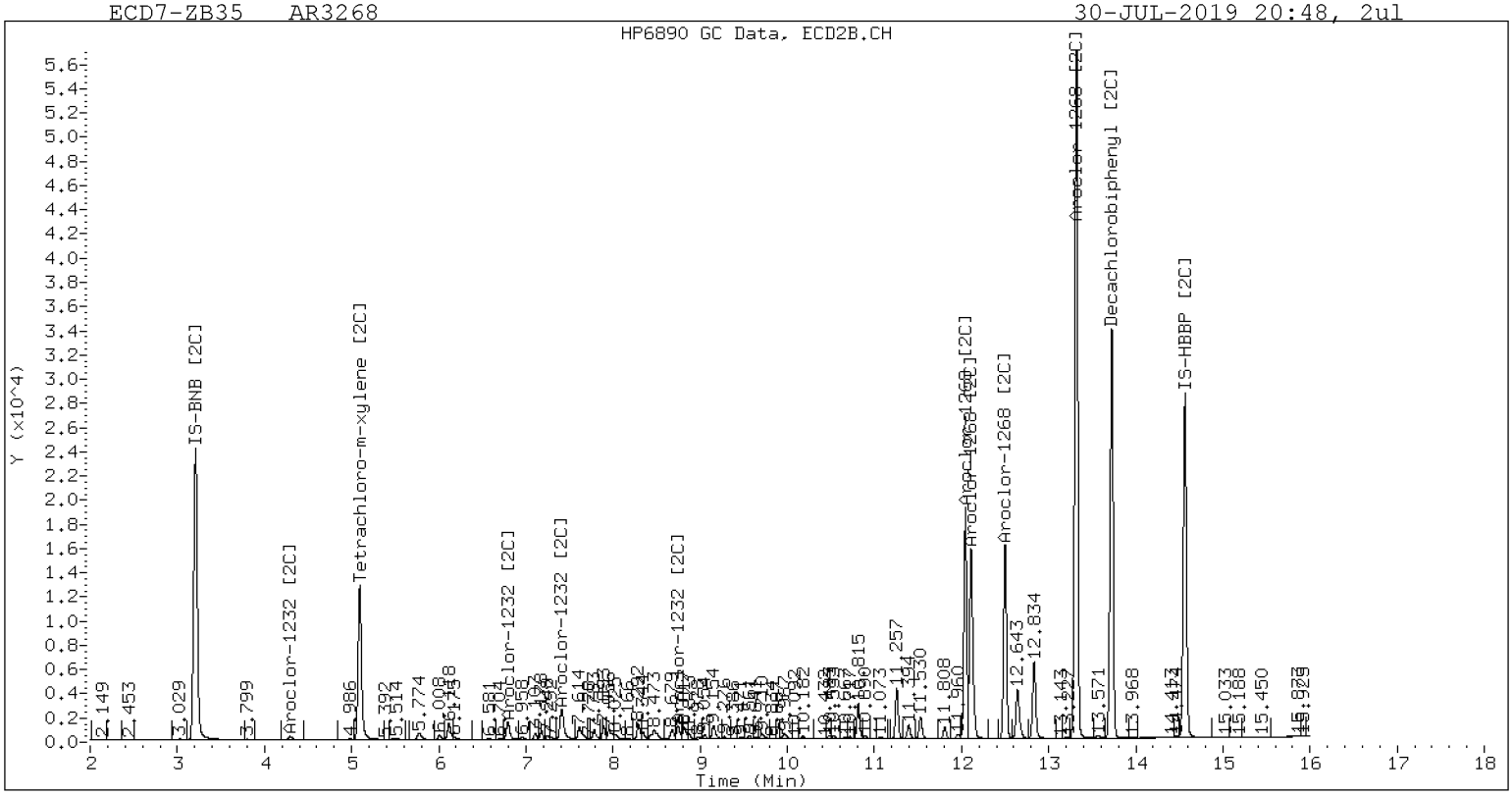
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268 30-JUL-2019 20:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268 30-JUL-2019 20:48, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073018ECD7.D
Data file 2: /20190730.b/20190730.b/19073018ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV1
Client ID:
Injection Date: 30-JUL-2019 21:09
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	-0.001	235101	5.094	-0.000	736036	41.6	39.0	6.4	Tetrachloro-m-xylene
13.619	0.000	213581	13.723	-0.002	1007819	35.7	35.5	0.7	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	103.9	97.4
Decachlorobiphenyl	89.3	88.7

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	441179	2.0
Hexabromobiphenyl	517563	527747	2.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1513984	1.1
Hexabromobiphenyl	1404015	1510538	7.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.920	0.000	35770	257.6	1	6.794	-0.000	187662	254.4
Aroclor-1016	2	7.308	-0.001	129331	263.1	2	7.413	-0.001	414015	253.4
Aroclor-1016	3	7.455	0.000	48521	259.2	3	7.613	0.000	165885	254.8
Aroclor-1016	4	8.265	0.000	44576	291.3	4	7.783	0.000	106287	260.0
Total Col1Ave (4 peaks):					267.8	Total Col2Ave (4 peaks):				255.6 RPD = 5
Corrected Ave (3 peaks):					259.9	Corrected Ave (3 peaks):				254.2 RPD = 2
Aroclor-1221	1	---			0.0	1	4.297	0.003	1104	9.8
Aroclor-1221	2	5.699	-0.001	4477	82.6	2	5.778	0.007	27797	112.9
Aroclor-1221	3	5.972	0.000	25236	187.4	3	6.118	0.001	94564	235.7
Col1Ave: <3 Quant Peaks						Col2Ave: 119.5				
Aroclor-1232	1	---			0.0	1	4.297	0.001	1104	16.2
Aroclor-1232	2	6.920	0.000	35770	640.1	2	6.794	0.000	187662	546.6
Aroclor-1232	3	7.308	0.001	129331	660.8	3	7.413	0.000	414015	599.3
Aroclor-1232	4	7.455	0.000	48521	653.6	4	8.744	-0.001	25286	108.1
Total Col1Ave (3 peaks):					651.5	Total Col2Ave (4 peaks):				317.6 RPD = 69*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				223.7
Aroclor-1242	1	6.920	0.000	35770	310.8	1	6.794	0.001	187662	312.7
Aroclor-1242	2	7.308	0.000	129331	311.6	2	7.413	0.000	414015	313.3
Aroclor-1242	3	8.630	0.000	6749	49.1	3	7.783	-0.000	106287	311.5
Aroclor-1242	4	8.923	0.005	3560	24.4	4	8.816	-0.001	15448	36.6
Total Col1Ave (4 peaks):					174.0	Total Col2Ave (4 peaks):				243.5 RPD = 33
Corrected Ave (3 peaks):					128.1	Corrected Ave (3 peaks):				220.3 RPD = 53*
Aroclor-1248	1	8.093	0.000	35841	174.5	1	7.413	0.003	414015	482.3
Aroclor-1248	2	8.630	0.000	6749	26.4	2	8.292	-0.000	127770	198.0
Aroclor-1248	3	8.923	0.005	3560	14.9	3	8.816	0.000	15448	23.2
Aroclor-1248	4	9.477	-0.028	23531	154.7	4	9.152	-0.000	7580	8.9
Total Col1Ave (4 peaks):					92.6	Total Col2Ave (4 peaks):				178.1 RPD = 63*
Corrected Ave (3 peaks):					65.3	Corrected Ave (3 peaks):				76.7 RPD = 16
Aroclor-1254	1	9.003	0.002	24012	63.1	1	9.053	0.001	74156	86.6
Aroclor-1254	2	---			0.0	2	9.152	0.009	7580	17.3
Aroclor-1254	3	9.370	0.001	3187	13.1	3	9.562	0.002	11938	17.6
Aroclor-1254	4	9.477	-0.028	23531	50.1	4	9.751	0.043	186431	134.7
Aroclor-1254	5	10.202	-0.008	25577	81.4	5	10.487	0.006	78936	90.6
Total Col1Ave (4 peaks):					51.9	Total Col2Ave (5 peaks):				69.4 RPD = 29
Corrected Ave (3 peaks):					42.1	Corrected Ave (4 peaks):				53.0 RPD = 23
Aroclor-1260	1	10.765	-0.000	77734	273.6	1	10.813	-0.001	256003	256.8
Aroclor-1260	2	11.081	-0.000	77297	280.5	2	11.253	-0.001	254899	257.0
Aroclor-1260	3	11.452	0.000	194745	285.8	3	11.529	-0.001	660332	253.6
Aroclor-1260	4	11.851	0.000	91429	284.9	4	12.043	-0.000	198053	242.2
Aroclor-1260	5	11.968	0.000	39673	254.6	NS	---			----
Total Col1Ave (5 peaks):					275.9	Total Col2Ave (4 peaks):				252.4 RPD = 9
Corrected Ave (4 peaks):					273.4	Corrected Ave (3 peaks):				250.9 RPD = 9
Aroclor-1262	1	11.081	0.000	77297	224.6	1	10.813	-0.000	256003	182.9
Aroclor-1262	2	11.452	0.001	194745	235.8	2	11.253	-0.001	254899	216.8
Aroclor-1262	3	11.851	-0.000	91429	359.3	3	11.529	0.000	660332	238.8
Aroclor-1262	4	11.968	0.000	39673	125.4	4	12.043	-0.000	198053	149.8
Total Col1Ave (4 peaks):					236.3	Total Col2Ave (4 peaks):				197.1 RPD = 18
Corrected Ave (3 peaks):					195.3	Corrected Ave (3 peaks):				183.2 RPD = 6
Aroclor-1268	1	11.968	-0.000	39673	42.2	1	12.043	-0.002	198053	56.6
Aroclor-1268	2	12.041	0.002	48044	55.2	2	12.099	-0.011	428430	123.7
Aroclor-1268	3	12.442	0.016	19965	27.6	3	12.500	-0.000	6941	2.3
Aroclor-1268	4	13.209	-0.002	9889	4.6	4	13.315	-0.005	39575	3.5
Total Col1Ave (4 peaks):					32.4	Total Col2Ave (4 peaks):				46.5 RPD = 36
Corrected Ave (3 peaks):					24.8	Corrected Ave (3 peaks):				20.8 RPD = 18

Total PCB Area Col1 (5.430 - 13.518) = 1962968 Col1 Total PCB = 0.5 ppm*

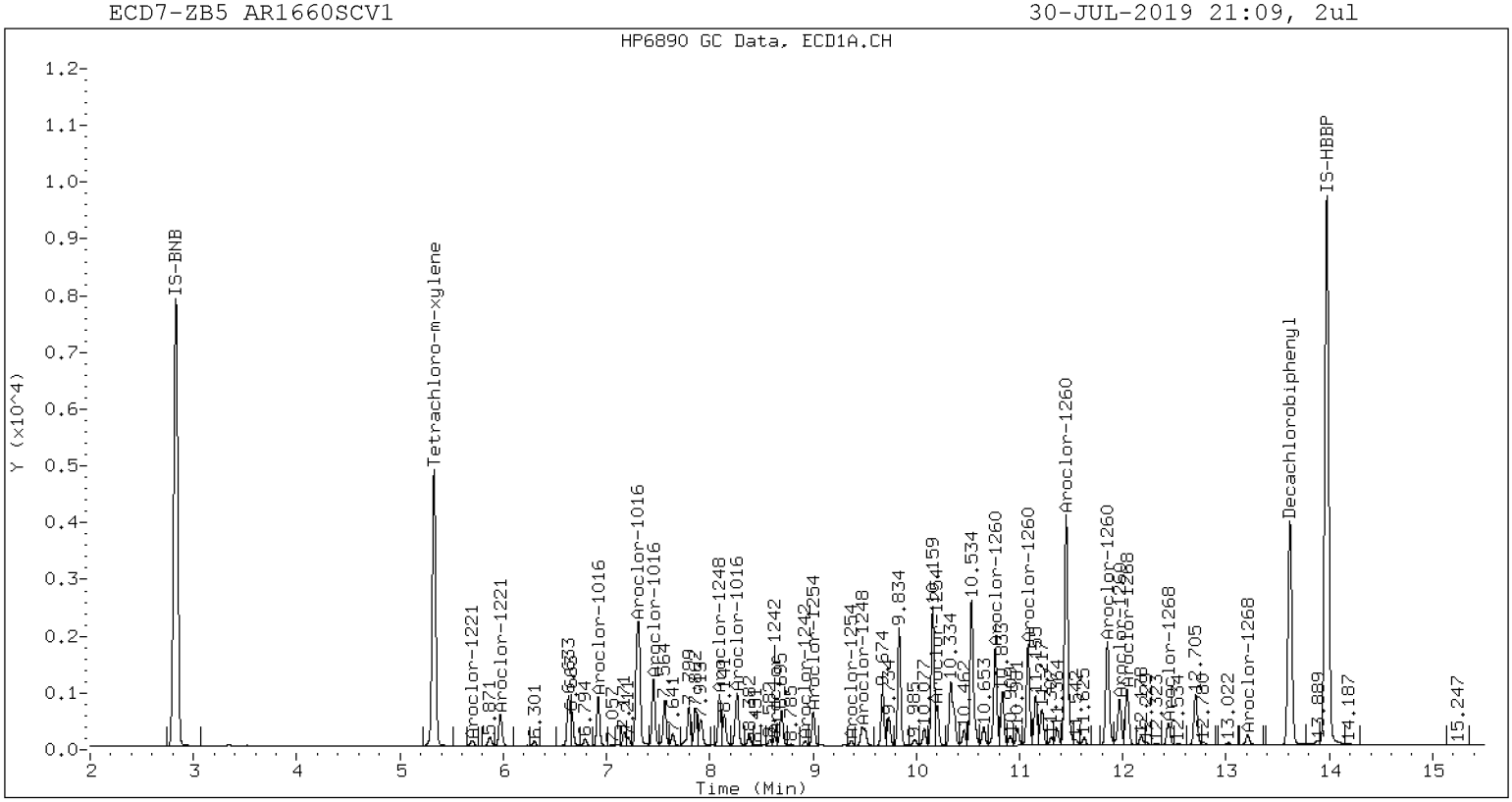
Total PCB Area Col2 (5.430 - 13.518) = 6481631 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

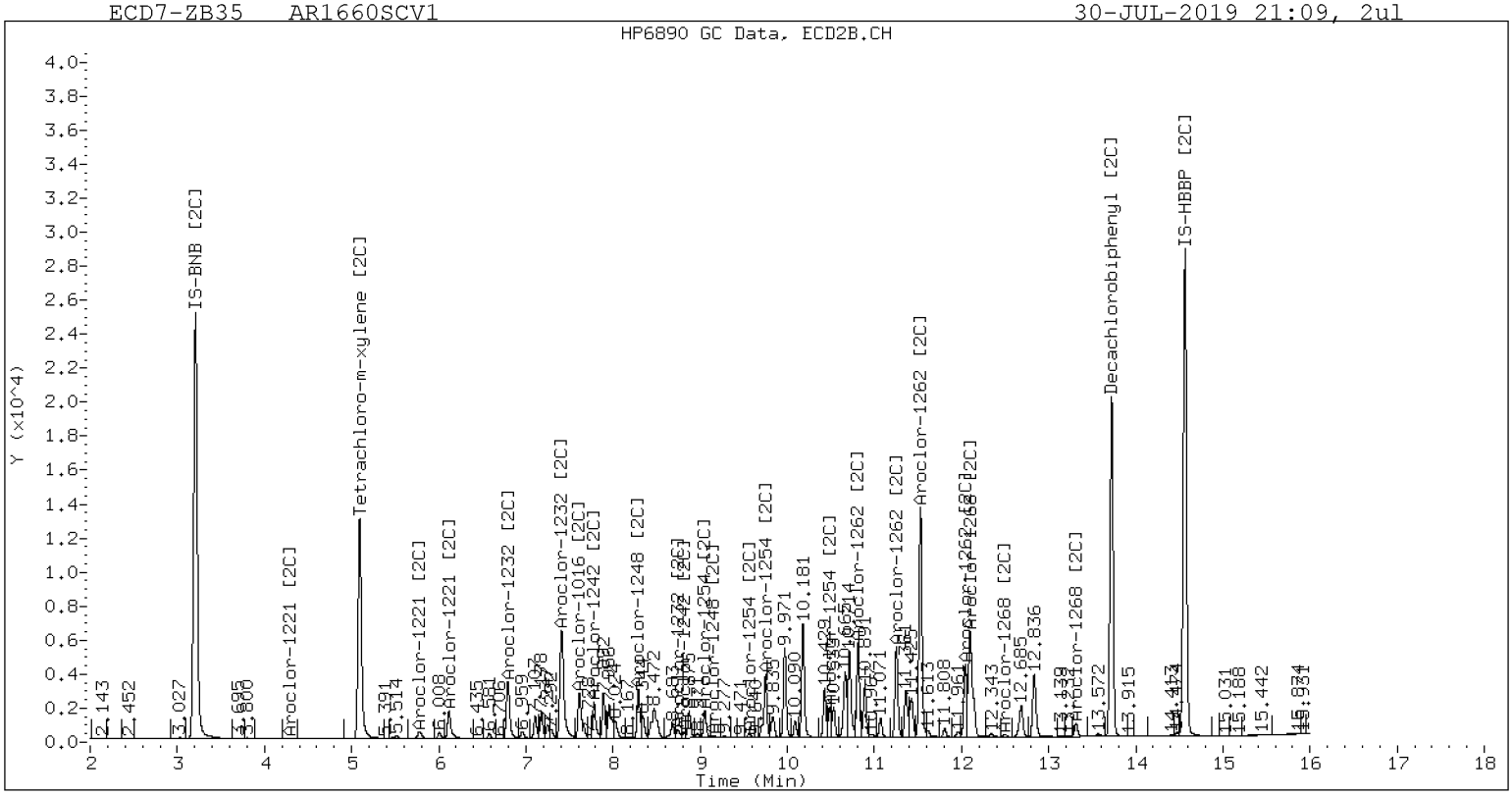
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV1 30-JUL-2019 21:09, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV1 30-JUL-2019 21:09, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073019ECD7.D
Data file 2: /20190730.b/20190730.b/19073019ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV2
Client ID:
Injection Date: 30-JUL-2019 21:30
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	-0.000	232388	5.095	0.000	728678	40.8	38.4	6.2	Tetrachloro-m-xylene
13.618	-0.000	219831	13.723	-0.002	1009744	35.9	33.7	6.5	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	102.0	95.9
Decachlorobiphenyl	89.8	84.2

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	444229	2.7
Hexabromobiphenyl	517563	540153	4.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1522513	1.7
Hexabromobiphenyl	1404015	1594760	13.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.920	0.000	27874	199.4	1	6.793	-0.001	148074	199.6
Aroclor-1016	2	7.307	-0.001	99348	200.7	2	7.413	-0.001	323406	196.8
Aroclor-1016	3	7.455	0.000	37513	199.0	3	7.613	0.000	130447	199.2
Aroclor-1016	4	8.265	-0.000	35997	233.6	4	7.783	0.000	83687	203.5
Total Col1Ave (4 peaks): 208.2						Total Col2Ave (4 peaks): 199.8			RPD = 4	
Corrected Ave (3 peaks): 199.7						Corrected Ave (3 peaks): 198.5			RPD = 1	
Aroclor-1221	1	---			0.0	1	4.297	0.003	819	7.2
Aroclor-1221	2	5.700	-0.001	3743	68.6	2	5.782	0.011	23068	93.2
Aroclor-1221	3	5.973	0.000	19766	145.8	3	6.118	0.001	73420	182.0
Col1Ave: <3 Quant Peaks						Col2Ave: 94.1				
Aroclor-1232	1	---			0.0	1	4.297	0.001	819	12.0
Aroclor-1232	2	6.920	0.000	27874	495.4	2	6.793	-0.000	148074	428.9
Aroclor-1232	3	7.307	0.000	99348	504.1	3	7.413	0.001	323406	465.5
Aroclor-1232	4	7.455	0.000	37513	501.9	4	8.744	-0.001	102386	435.3
Total Col1Ave (3 peaks): 500.5						Total Col2Ave (4 peaks): 335.4			RPD = 39	
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks): 292.1				
Aroclor-1242	1	6.920	0.000	27874	240.5	1	6.793	0.000	148074	245.3
Aroclor-1242	2	7.307	0.000	99348	237.7	2	7.413	0.001	323406	243.3
Aroclor-1242	3	8.630	0.000	32365	234.0	3	7.783	-0.000	83687	243.9
Aroclor-1242	4	8.918	0.000	34003	231.8	4	8.816	-0.000	98757	232.7
Total Col1Ave (4 peaks): 236.0						Total Col2Ave (4 peaks): 241.3			RPD = 2	
Corrected Ave (3 peaks): 234.5						Corrected Ave (3 peaks): 240.0			RPD = 2	
Aroclor-1248	1	8.094	0.001	29542	142.9	1	7.413	0.003	323406	374.6
Aroclor-1248	2	8.630	0.000	32365	125.8	2	8.292	-0.000	105818	163.1
Aroclor-1248	3	8.918	0.000	34003	141.0	3	8.816	0.001	98757	147.4
Aroclor-1248	4	9.505	0.000	17552	114.6	4	9.153	0.001	124308	145.8
Total Col1Ave (4 peaks): 131.1						Total Col2Ave (4 peaks): 207.7			RPD = 45*	
Corrected Ave (3 peaks): 127.1						Corrected Ave (3 peaks): 152.1			RPD = 18	
Aroclor-1254	1	9.000	-0.001	15890	41.5	1	9.054	0.002	36517	42.4
Aroclor-1254	2	9.078	0.001	6721	54.8	2	9.153	0.010	124308	282.0
Aroclor-1254	3	9.371	0.001	10146	41.4	3	9.561	0.001	34294	50.4
Aroclor-1254	4	9.505	0.001	17552	37.1	4	9.710	0.002	57960	41.7
Aroclor-1254	5	10.215	0.004	11090	35.1	5	10.483	0.002	45583	52.0
Total Col1Ave (5 peaks): 42.0						Total Col2Ave (5 peaks): 93.7			RPD = 76*	
Corrected Ave (4 peaks): 38.8						Corrected Ave (4 peaks): 46.6			RPD = 18	
Aroclor-1260	1	---			0.0	1	10.815	0.001	1710	1.6
Aroclor-1260	2	---			0.0	2	11.245	-0.008	7466	7.1
Aroclor-1260	3	---			0.0	3	11.531	-0.000	5126	1.9
Aroclor-1260	4	---			0.0	4	12.095	0.051	4858	5.6
Aroclor-1260	5	---			0.0	NS	---			----
Col1Ave: <3 Quant Peaks						Col2Ave: 4.1				
Aroclor-1262	1	---			0.0	1	10.815	0.001	1710	1.2
Aroclor-1262	2	---			0.0	2	11.245	-0.008	7466	6.0
Aroclor-1262	3	---			0.0	3	11.531	0.001	5126	1.8
Aroclor-1262	4	---			0.0	4	12.095	0.051	4858	3.5
Col1Ave: <3 Quant Peaks						Col2Ave: 3.1				
Aroclor-1268	1	---			0.0	1	12.095	0.049	4858	1.3
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	12.505	0.004	687	0.2
Aroclor-1268	4	---			0.0	4	13.315	-0.005	1416	0.1
Col1Ave: <3 Quant Peaks						Col2Ave: 0.5				

Total PCB Area Col1 (5.430 - 13.518) = 781862 Col1 Total PCB = 0.2 ppm*

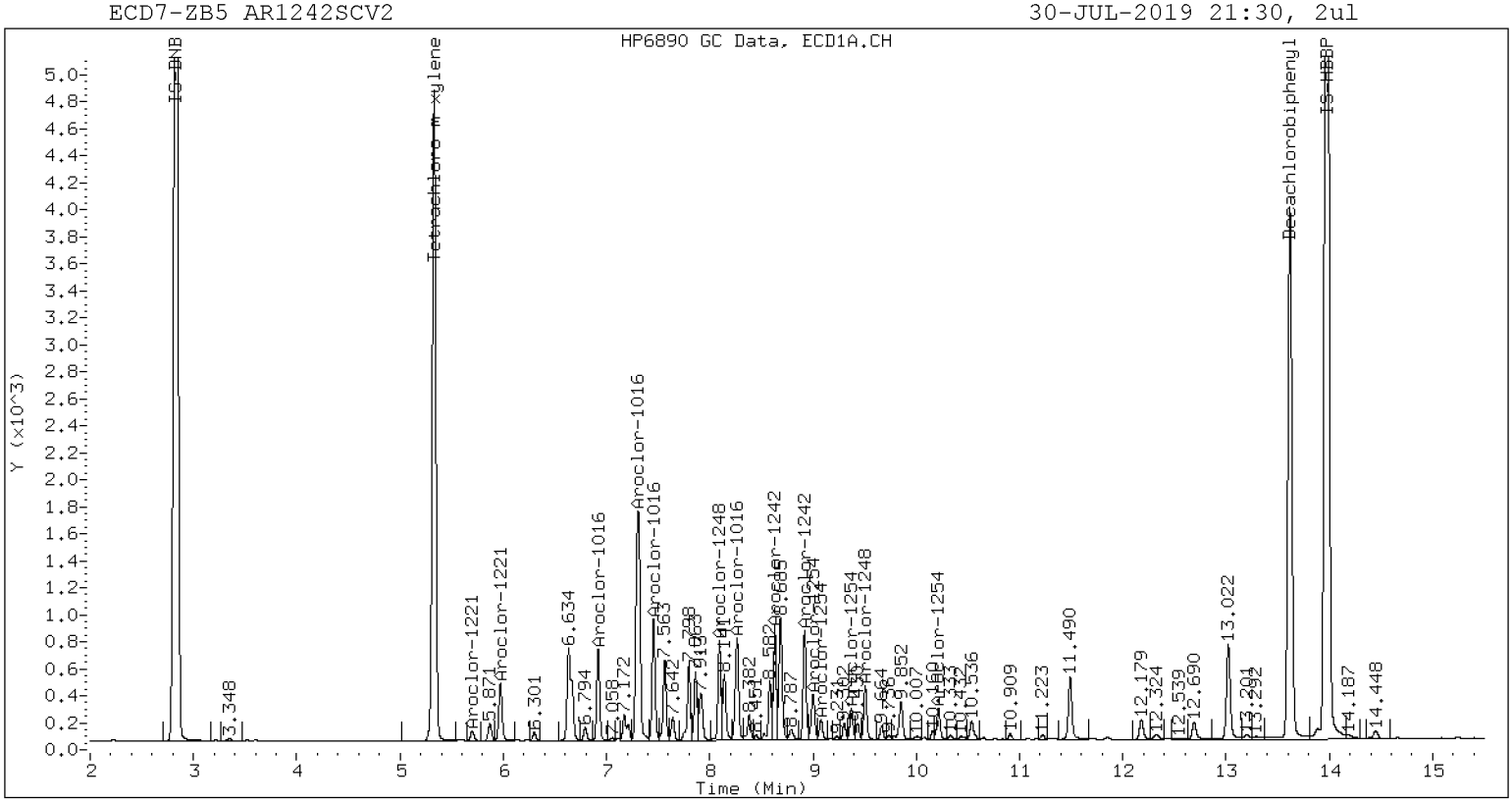
Total PCB Area Col2 (5.430 - 13.518) = 2550020 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

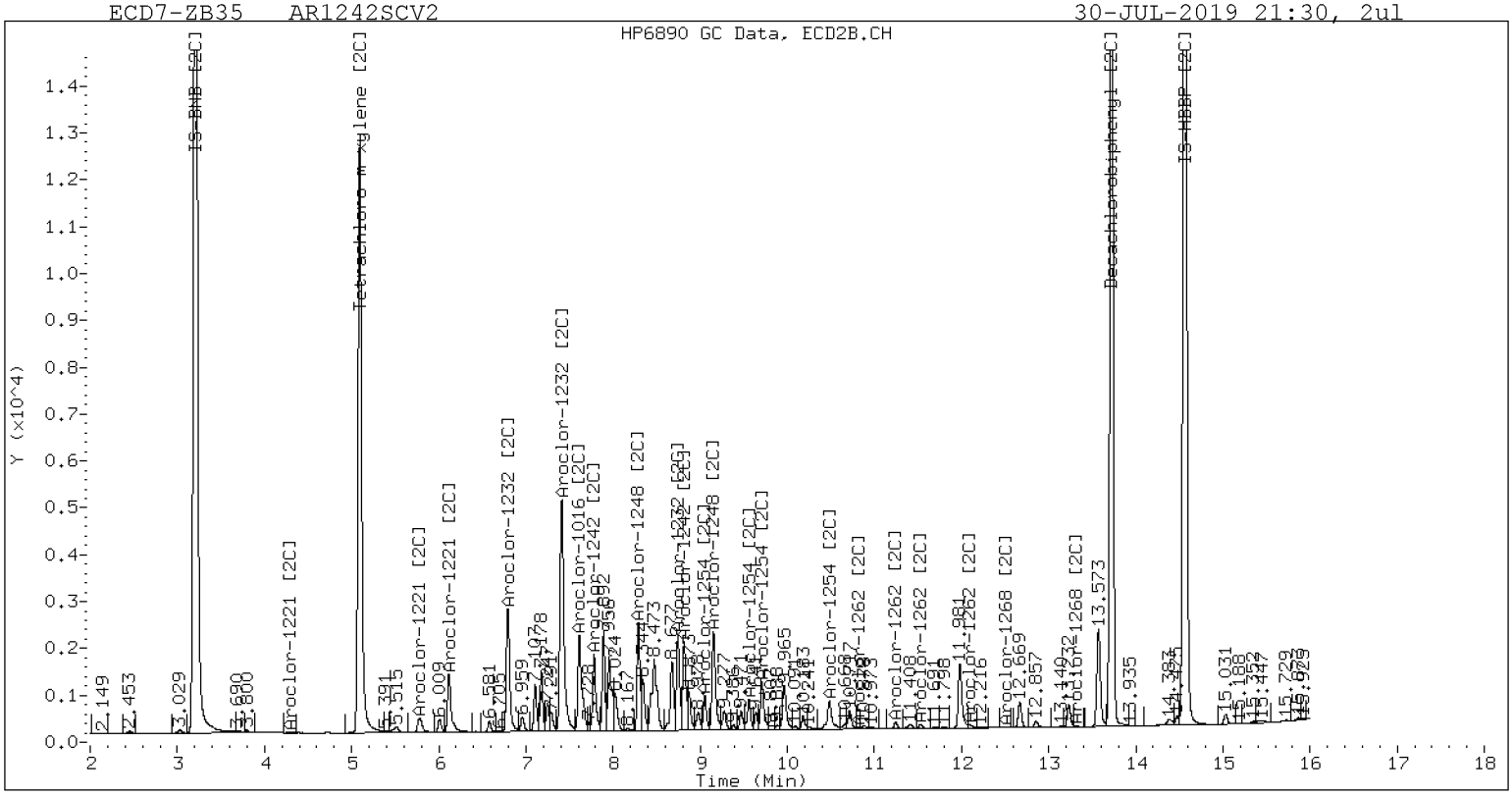
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV2 30-JUL-2019 21:30, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV2 30-JUL-2019 21:30, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073020ECD7.D
Data file 2: /20190730.b/20190730.b/19073020ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV3
Client ID:
Injection Date: 30-JUL-2019 21:51
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.328	-0.003	310261	5.091	-0.004	962331	41.6	36.3	13.7	Tetrachloro-m-xylene
13.618	-0.000	286973	13.725	-0.001	1352956	35.5	32.2	9.7	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	104.1	90.7
Decachlorobiphenyl	88.7	80.5

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	581426	34.5
Hexabromobiphenyl	517563	714222	38.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	2126264	42.0
Hexabromobiphenyl	1404015	2236045	59.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.917	-0.003	18561	101.4	1	6.788	-0.005	107276	103.6
Aroclor-1016	2	7.301	-0.007	90315	139.4	2	7.407	-0.006	297619	129.7
Aroclor-1016	3	7.454	-0.001	30286	122.7	3	7.610	-0.003	70430	77.0
Aroclor-1016	4	8.262	-0.003	76621	380.0	4	7.780	-0.003	64865	113.0
Total Col1Ave (4 peaks):					185.9	Total Col2Ave (4 peaks):				105.8 RPD = 55*
Corrected Ave (3 peaks):					121.2	Corrected Ave (3 peaks):				97.8 RPD = 21
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	5.790	0.019	15430	44.6
Aroclor-1221	3	---			0.0	3	6.116	-0.001	23498	41.7
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	6.917	-0.003	18561	252.0	2	6.788	-0.005	107276	222.5
Aroclor-1232	3	7.301	-0.006	90315	350.2	3	7.407	-0.005	297619	306.7
Aroclor-1232	4	7.454	-0.001	30286	309.6	4	8.742	-0.002	249723	760.2
Total Col1Ave (3 peaks):					303.9	Total Col2Ave (3 peaks):				429.8 RPD = 34
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1242	1	6.917	-0.002	18561	122.4	1	6.788	-0.005	107276	127.3
Aroclor-1242	2	7.301	-0.006	90315	165.1	2	7.407	-0.005	297619	160.3
Aroclor-1242	3	8.628	-0.002	84017	464.2	3	7.780	-0.003	64865	135.4
Aroclor-1242	4	8.916	-0.002	78873	410.7	4	8.815	-0.002	220198	371.5
Total Col1Ave (4 peaks):					290.6	Total Col2Ave (4 peaks):				198.6 RPD = 38
Corrected Ave (3 peaks):					232.7	Corrected Ave (3 peaks):				141.0 RPD = 49*
Aroclor-1248	1	8.091	-0.002	68219	252.1	1	7.407	-0.002	297619	246.9
Aroclor-1248	2	8.628	-0.002	84017	249.5	2	8.290	-0.002	218568	241.2
Aroclor-1248	3	8.916	-0.002	78873	249.9	3	8.815	-0.001	220198	235.4
Aroclor-1248	4	9.504	-0.001	50751	253.1	4	9.150	-0.002	283953	238.5
Total Col1Ave (4 peaks):					251.1	Total Col2Ave (4 peaks):				240.5 RPD = 4
Corrected Ave (3 peaks):					250.5	Corrected Ave (3 peaks):				238.4 RPD = 5
Aroclor-1254	1	8.998	-0.003	44873	89.4	1	9.052	-0.000	90363	75.1
Aroclor-1254	2	9.075	-0.001	20008	124.6	2	9.150	0.007	283953	461.2
Aroclor-1254	3	9.369	-0.000	30038	93.8	3	9.559	-0.001	93163	98.0
Aroclor-1254	4	9.504	-0.001	50751	82.1	4	9.707	-0.000	154189	79.3
Aroclor-1254	5	10.214	0.004	33446	80.8	5	10.479	-0.002	117725	96.2
Total Col1Ave (5 peaks):					94.1	Total Col2Ave (5 peaks):				162.0 RPD = 53*
Corrected Ave (4 peaks):					86.5	Corrected Ave (4 peaks):				87.2 RPD = 1
Aroclor-1260	1	10.764	-0.001	1605	4.2	1	10.815	0.001	6341	4.3
Aroclor-1260	2	11.082	-0.000	1180	3.2	2	11.246	-0.007	12941	8.8
Aroclor-1260	3	11.489	0.038	34908	37.8	3	11.529	-0.001	12538	3.3
Aroclor-1260	4	11.851	0.001	1153	2.7	4	12.101	0.057	9652	8.0
Aroclor-1260	5	12.041	0.074	1017	4.8	NS	---			----
Total Col1Ave (5 peaks):					10.5	Total Col2Ave (4 peaks):				6.1 RPD = 54*
Corrected Ave (4 peaks):					3.7	Corrected Ave (3 peaks):				5.2 RPD = 33
Aroclor-1262	1	11.082	0.000	1180	2.5	1	10.815	0.001	6341	3.1
Aroclor-1262	2	11.489	0.038	34908	31.2	2	11.246	-0.007	12941	7.4
Aroclor-1262	3	11.851	0.001	1153	3.3	3	11.529	0.000	12538	3.1
Aroclor-1262	4	12.041	0.074	1017	2.4	4	12.101	0.057	9652	4.9
Total Col1Ave (4 peaks):					9.9	Total Col2Ave (4 peaks):				4.6 RPD = 72*
Corrected Ave (3 peaks):					2.8	Corrected Ave (3 peaks):				3.7 RPD = 29
Aroclor-1268	1	12.041	0.073	1017	0.8	1	12.101	0.055	9652	1.9
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	12.504	0.003	1131	0.2
Aroclor-1268	4	13.203	-0.008	2261	0.8	4	13.314	-0.006	3402	0.2
Col1Ave: <3 Quant Peaks						Col2Ave: 0.8				

Total PCB Area Col1 (5.430 - 13.518) = 1295240 Col1 Total PCB = 0.3 ppm*

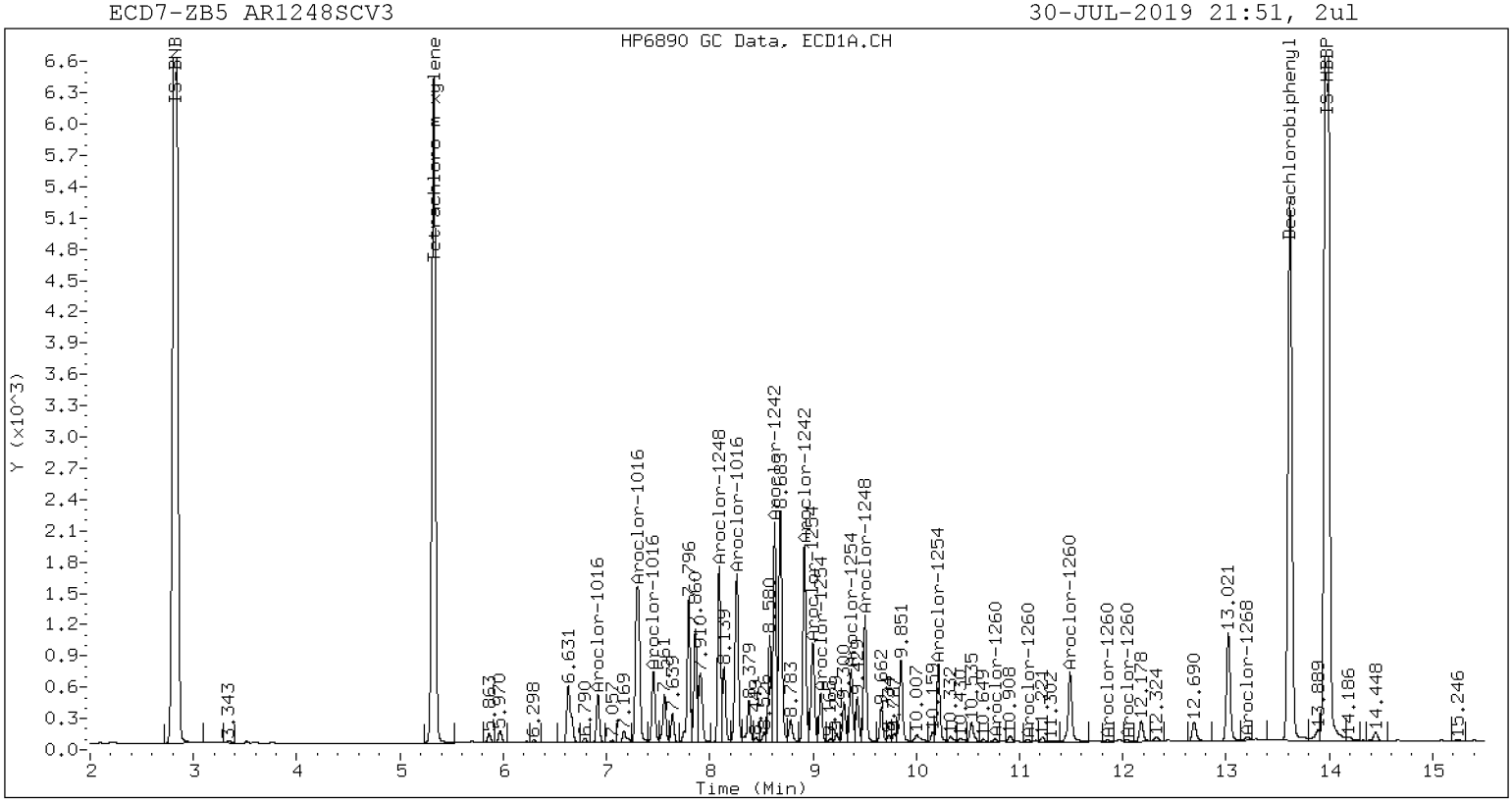
Total PCB Area Col2 (5.430 - 13.518) = 4048989 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

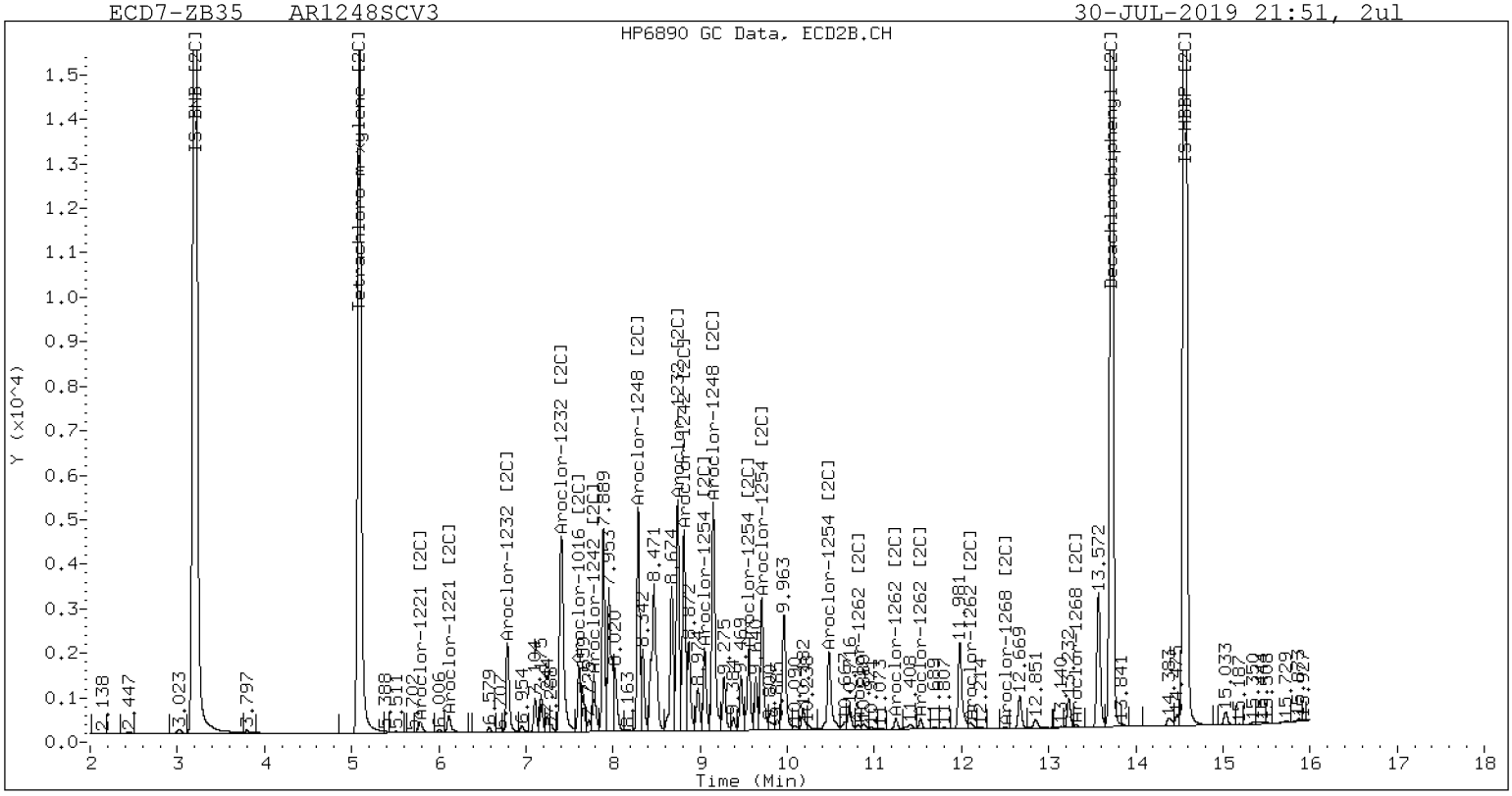
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV3 30-JUL-2019 21:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248SCV3 30-JUL-2019 21:51, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073021ECD7.D
Data file 2: /20190730.b/20190730.b/19073021ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV4
Client ID:
Injection Date: 30-JUL-2019 22:12
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.329	-0.002	307128	5.092	-0.002	952200	41.4	36.0	14.0	Tetrachloro-m-xylene
13.618	-0.000	286282	13.724	-0.001	1380889	35.8	33.2	7.6	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	103.6	90.0
Decachlorobiphenyl	89.6	83.1

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	578235	33.7
Hexabromobiphenyl	517563	704892	36.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	2119499	41.6
Hexabromobiphenyl	1404015	2210243	57.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	6.792	-0.002	3478	3.4
Aroclor-1016	2	7.296	-0.013	2404	3.7	2	7.407	-0.006	10108	4.4
Aroclor-1016	3	7.461	0.006	1291	5.3	3	7.612	-0.001	2009	2.2
Aroclor-1016	4	8.263	-0.002	9803	48.9	4	7.782	-0.000	1586	2.8
	Total Col1Ave (3 peaks):				19.3	Total Col2Ave (4 peaks):				3.2 RPD = 143*
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				2.8
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	5.794	0.023	12429	36.1
Aroclor-1221	3	---			0.0	3	6.126	0.009	3699	6.6
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	6.792	-0.002	3478	7.2
Aroclor-1232	3	7.296	-0.011	2404	9.4	3	7.407	-0.005	10108	10.5
Aroclor-1232	4	7.461	0.006	1291	13.3	4	8.744	-0.000	121318	370.5
	Col1Ave: <3 Quant Peaks					Col2Ave: 129.4				
Aroclor-1242	1	---			0.0	1	6.792	-0.001	3478	4.1
Aroclor-1242	2	7.296	-0.011	2404	4.4	2	7.407	-0.005	10108	5.5
Aroclor-1242	3	8.629	-0.001	38507	213.9	3	7.782	-0.001	1586	3.3
Aroclor-1242	4	8.923	0.005	25899	135.6	4	8.814	-0.003	37851	64.1
	Total Col1Ave (3 peaks):				118.0	Total Col2Ave (4 peaks):				19.2 RPD = 144*
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				4.3
Aroclor-1248	1	8.091	-0.002	24489	91.0	1	7.407	-0.002	10108	8.4
Aroclor-1248	2	8.629	-0.001	38507	115.0	2	8.291	-0.001	82563	91.4
Aroclor-1248	3	8.923	0.005	25899	82.5	3	8.814	-0.002	37851	40.6
Aroclor-1248	4	9.505	-0.000	157103	787.8	4	9.142	-0.010	151804	127.9
	Total Col1Ave (4 peaks):				269.1	Total Col2Ave (4 peaks):				67.1 RPD = 120*
	Corrected Ave (3 peaks):				96.2	Corrected Ave (3 peaks):				46.8 RPD = 69*
Aroclor-1254	1	9.001	0.000	127688	255.9	1	9.052	0.000	291286	242.9
Aroclor-1254	2	9.076	-0.001	41976	262.8	2	9.142	-0.001	151804	247.4
Aroclor-1254	3	9.370	0.000	82308	258.3	3	9.561	0.000	240064	253.3
Aroclor-1254	4	9.505	0.000	157103	255.5	4	9.709	0.001	473852	244.6
Aroclor-1254	5	10.211	0.000	107682	261.6	5	10.481	0.000	300337	246.3
	Total Col1Ave (5 peaks):				258.8	Total Col2Ave (5 peaks):				246.9 RPD = 5
	Corrected Ave (4 peaks):				257.8	Corrected Ave (4 peaks):				245.3 RPD = 5
Aroclor-1260	1	10.763	-0.002	7194	19.0	1	10.813	-0.001	23299	16.0
Aroclor-1260	2	11.082	-0.000	7683	20.9	2	11.243	-0.011	135379	93.3
Aroclor-1260	3	11.451	-0.000	17479	19.2	3	11.529	-0.002	86102	22.6
Aroclor-1260	4	11.850	0.000	16133	37.6	4	12.045	0.001	10376	8.7
Aroclor-1260	5	---			0.0	NS	---			----
	Total Col1Ave (4 peaks):				24.2	Total Col2Ave (4 peaks):				35.1 RPD = 37
	Corrected Ave (3 peaks):				19.7	Corrected Ave (3 peaks):				15.7 RPD = 22
Aroclor-1262	1	11.082	0.000	7683	16.7	1	10.813	-0.001	23299	11.4
Aroclor-1262	2	11.451	0.000	17479	15.8	2	11.243	-0.011	135379	78.7
Aroclor-1262	3	11.850	-0.000	16133	47.5	3	11.529	-0.000	86102	21.3
Aroclor-1262	4	---			0.0	4	12.045	0.001	10376	5.4
	Total Col1Ave (3 peaks):				26.7	Total Col2Ave (4 peaks):				29.2 RPD = 9
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				12.7
Aroclor-1268	1	---			0.0	1	12.045	-0.001	10376	2.0
Aroclor-1268	2	---			0.0	2	12.095	-0.015	56027	11.1
Aroclor-1268	3	---			0.0	3	12.503	0.002	947	0.2
Aroclor-1268	4	---			0.0	4	13.315	-0.005	1689	0.1
	Col1Ave: <3 Quant Peaks					Col2Ave: 3.3				

Total PCB Area Col1 (5.430 - 13.518) = 1551903 Col1 Total PCB = 0.3 ppm*

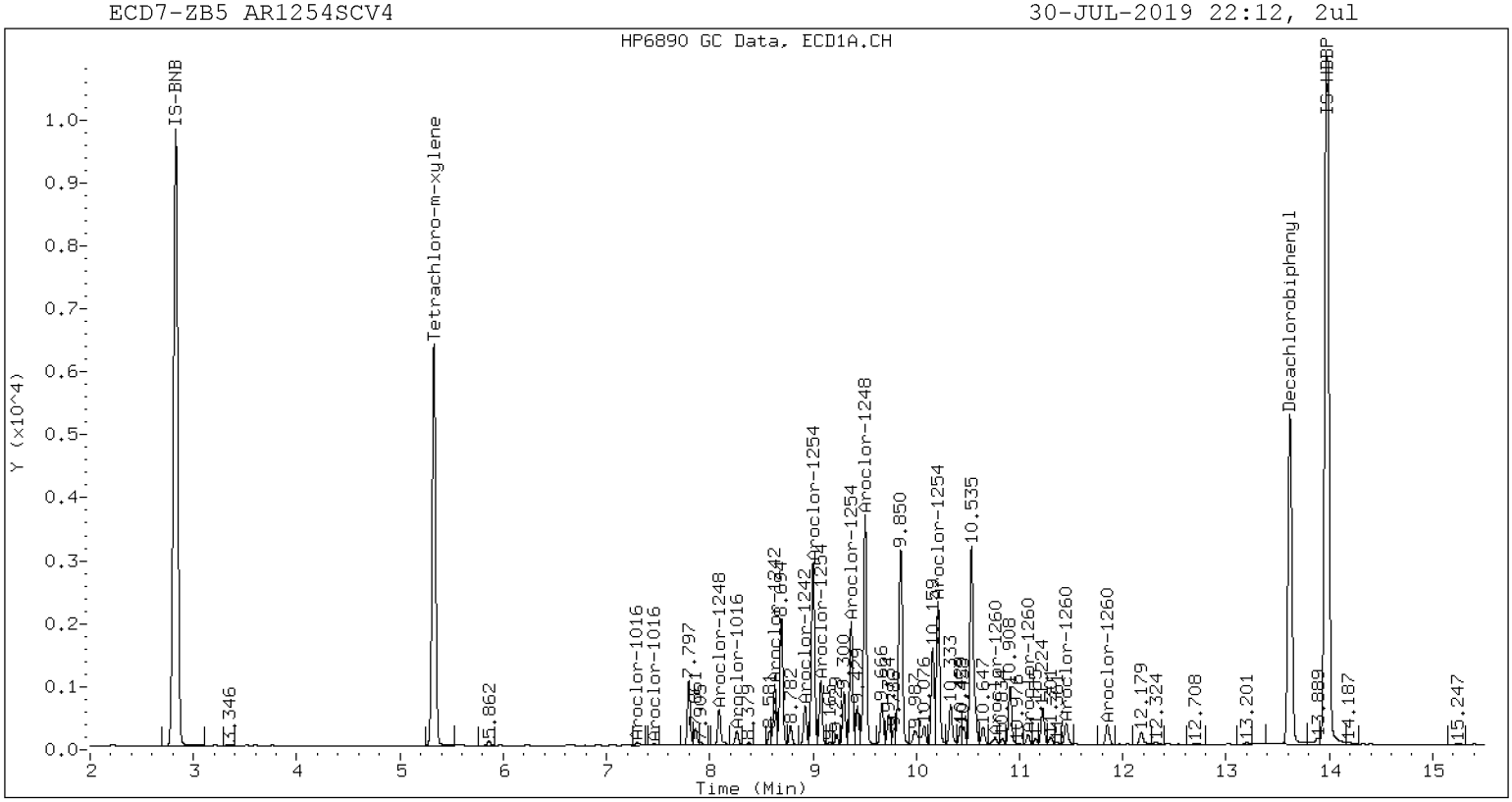
Total PCB Area Col2 (5.430 - 13.518) = 4805354 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

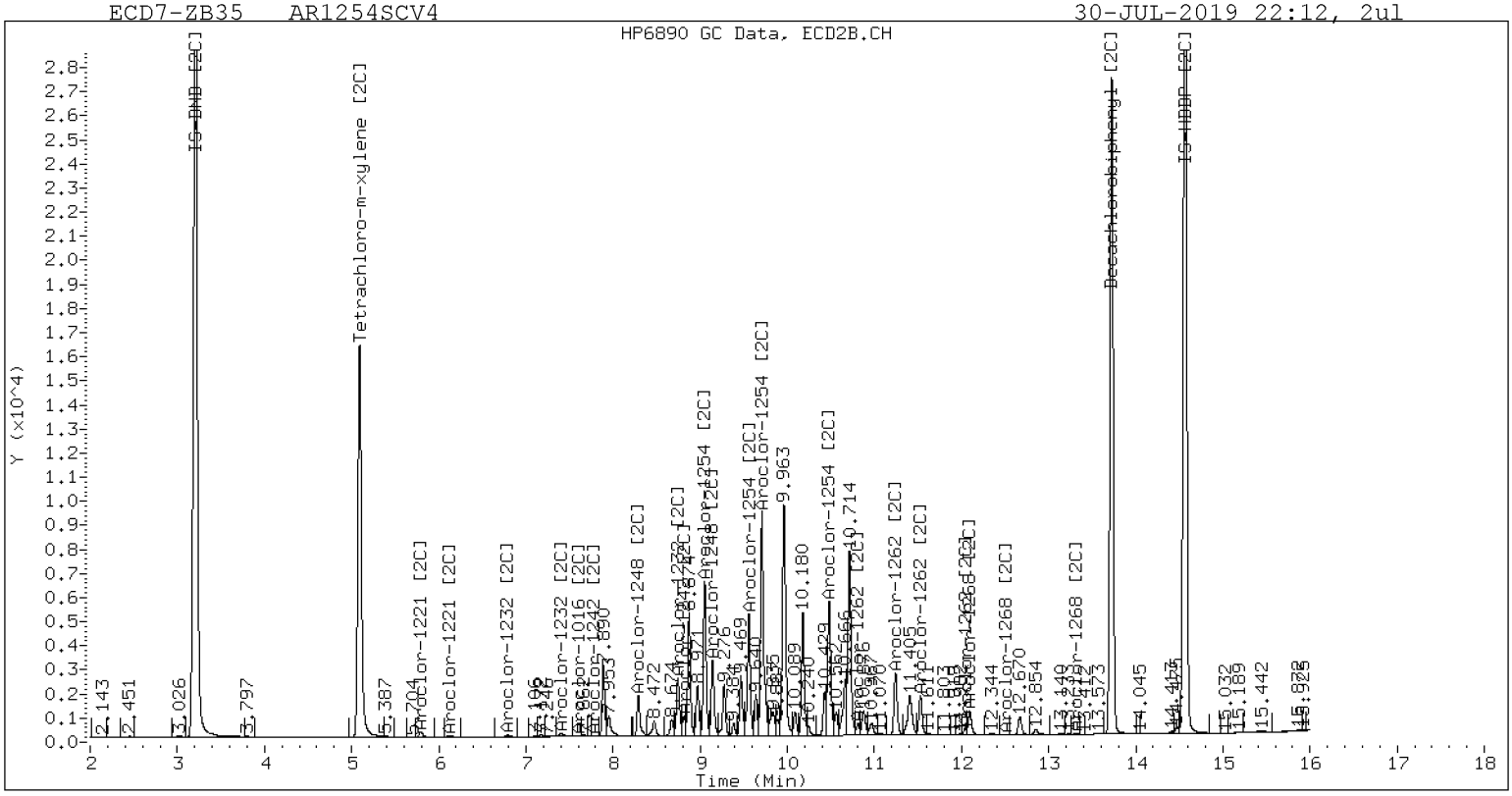
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV4 30-JUL-2019 22:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV4 30-JUL-2019 22:12, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073022ECD7.D
Data file 2: /20190730.b/20190730.b/19073022ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV5
Client ID:
Injection Date: 30-JUL-2019 22:33
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	0.000	235950	5.094	-0.000	729608	42.0	40.7	3.2	Tetrachloro-m-xylene
13.618	-0.001	210891	13.723	-0.003	1014350	35.5	35.3	0.5	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	104.9	101.6
Decachlorobiphenyl	88.7	88.3

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	438711	1.5
Hexabromobiphenyl	517563	524678	1.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1438957	-3.9
Hexabromobiphenyl	1404015	1528087	8.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.919	-0.000	3235	23.4	1	6.806	0.012	36922	52.7
Aroclor-1016	2	7.310	0.002	9519	19.5	2	7.414	0.001	37647	24.2
Aroclor-1016	3	7.455	-0.000	4301	23.1	3	7.615	0.002	18209	29.4
Aroclor-1016	4	8.265	-0.000	1859	12.2	4	7.784	0.001	10348	26.6
Total Col1Ave (4 peaks):					19.6	Total Col2Ave (4 peaks):				33.2 RPD = 52*
Corrected Ave (3 peaks):					18.3	Corrected Ave (3 peaks):				26.8 RPD = 38
Aroclor-1221	1	4.171	0.001	8740	265.7	1	4.295	0.001	28365	264.1
Aroclor-1221	2	5.702	0.001	14298	265.3	2	5.772	0.001	61601	263.2
Aroclor-1221	3	5.973	0.001	34985	261.2	3	6.118	0.001	101043	265.0
Total Col1Ave (3 peaks):					264.1	Total Col2Ave (3 peaks):				264.1 RPD = 0
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.171	0.000	8740	440.8	1	4.295	-0.000	28365	439.0
Aroclor-1232	2	6.919	-0.000	3235	58.2	2	6.806	0.013	36922	113.2
Aroclor-1232	3	7.310	0.003	9519	48.9	3	7.414	0.002	37647	57.3
Aroclor-1232	4	7.455	-0.000	4301	58.3	4	8.747	0.002	8918	40.1
Total Col1Ave (4 peaks):					151.5	Total Col2Ave (4 peaks):				162.4 RPD = 7
Corrected Ave (3 peaks):					55.1	Corrected Ave (3 peaks):				70.2 RPD = 24
Aroclor-1242	1	6.919	-0.000	3235	28.3	1	6.806	0.013	36922	64.7
Aroclor-1242	2	7.310	0.003	9519	23.1	2	7.414	0.002	37647	30.0
Aroclor-1242	3	8.631	0.001	2425	17.8	3	7.784	0.001	10348	31.9
Aroclor-1242	4	8.922	0.003	2664	18.4	4	8.818	0.001	5408	13.5
Total Col1Ave (4 peaks):					21.9	Total Col2Ave (4 peaks):				35.0 RPD = 46*
Corrected Ave (3 peaks):					19.7	Corrected Ave (3 peaks):				25.1 RPD = 24
Aroclor-1248	1	8.093	-0.000	2113	10.3	1	7.414	0.005	37647	46.1
Aroclor-1248	2	8.631	0.001	2425	9.5	2	8.293	0.001	12538	20.4
Aroclor-1248	3	8.922	0.003	2664	11.2	3	8.818	0.002	5408	8.5
Aroclor-1248	4	9.476	-0.029	16889	111.6	4	9.150	-0.003	11984	14.9
Total Col1Ave (4 peaks):					35.7	Total Col2Ave (4 peaks):				22.5 RPD = 45*
Corrected Ave (3 peaks):					10.4	Corrected Ave (3 peaks):				14.6 RPD = 34
Aroclor-1254	1	9.003	0.002	12539	33.1	1	9.054	0.002	39347	48.3
Aroclor-1254	2	9.078	0.001	1449	12.0	2	9.150	0.006	11984	28.8
Aroclor-1254	3	9.370	0.001	2805	11.6	3	9.562	0.002	10151	15.8
Aroclor-1254	4	9.476	-0.028	16889	36.2	4	9.751	0.043	167577	127.4
Aroclor-1254	5	10.159	-0.052	92192	295.2	5	10.487	0.007	39785	48.1
Total Col1Ave (5 peaks):					77.6	Total Col2Ave (5 peaks):				53.7 RPD = 36
Corrected Ave (4 peaks):					23.2	Corrected Ave (4 peaks):				35.2 RPD = 41*
Aroclor-1260	1	10.766	0.000	111900	396.1	1	10.814	0.000	369658	366.5
Aroclor-1260	2	11.082	0.000	92018	335.8	2	11.254	0.001	314522	313.4
Aroclor-1260	3	11.451	-0.001	218222	322.1	3	11.530	-0.001	724517	275.0
Aroclor-1260	4	11.851	0.001	66364	208.0	4	12.044	0.001	361184	436.6
Aroclor-1260	5	11.968	0.001	85150	549.7	NS	---			----
Total Col1Ave (5 peaks):					362.4	Total Col2Ave (4 peaks):				347.9 RPD = 4
Corrected Ave (4 peaks):					315.5	Corrected Ave (3 peaks):				318.3 RPD = 1
Aroclor-1262	1	11.082	0.001	92018	268.9	1	10.814	0.000	369658	261.1
Aroclor-1262	2	11.451	-0.000	218222	265.8	2	11.254	0.001	314522	264.4
Aroclor-1262	3	11.851	0.001	66364	262.3	3	11.530	0.000	724517	259.0
Aroclor-1262	4	11.968	0.001	85150	270.7	4	12.044	0.000	361184	270.1
Total Col1Ave (4 peaks):					266.9	Total Col2Ave (4 peaks):				263.6 RPD = 1
Corrected Ave (3 peaks):					265.7	Corrected Ave (3 peaks):				261.5 RPD = 2
Aroclor-1268	1	11.968	0.000	85150	91.2	1	12.044	-0.001	361184	102.0
Aroclor-1268	2	12.041	0.002	87828	101.4	2	12.105	-0.005	510203	145.6
Aroclor-1268	3	12.441	0.016	31694	44.1	3	12.501	0.000	23416	7.5
Aroclor-1268	4	13.210	-0.000	24400	11.5	4	13.316	-0.004	109200	9.6
Total Col1Ave (4 peaks):					62.1	Total Col2Ave (4 peaks):				66.2 RPD = 6

Corrected Ave (3 peaks): 48.9 Corrected Ave (3 peaks): 39.7 RPD = 21

Total PCB Area Col1 (5.430 - 13.518) = 1523229 Col1 Total PCB = 0.4 ppm*

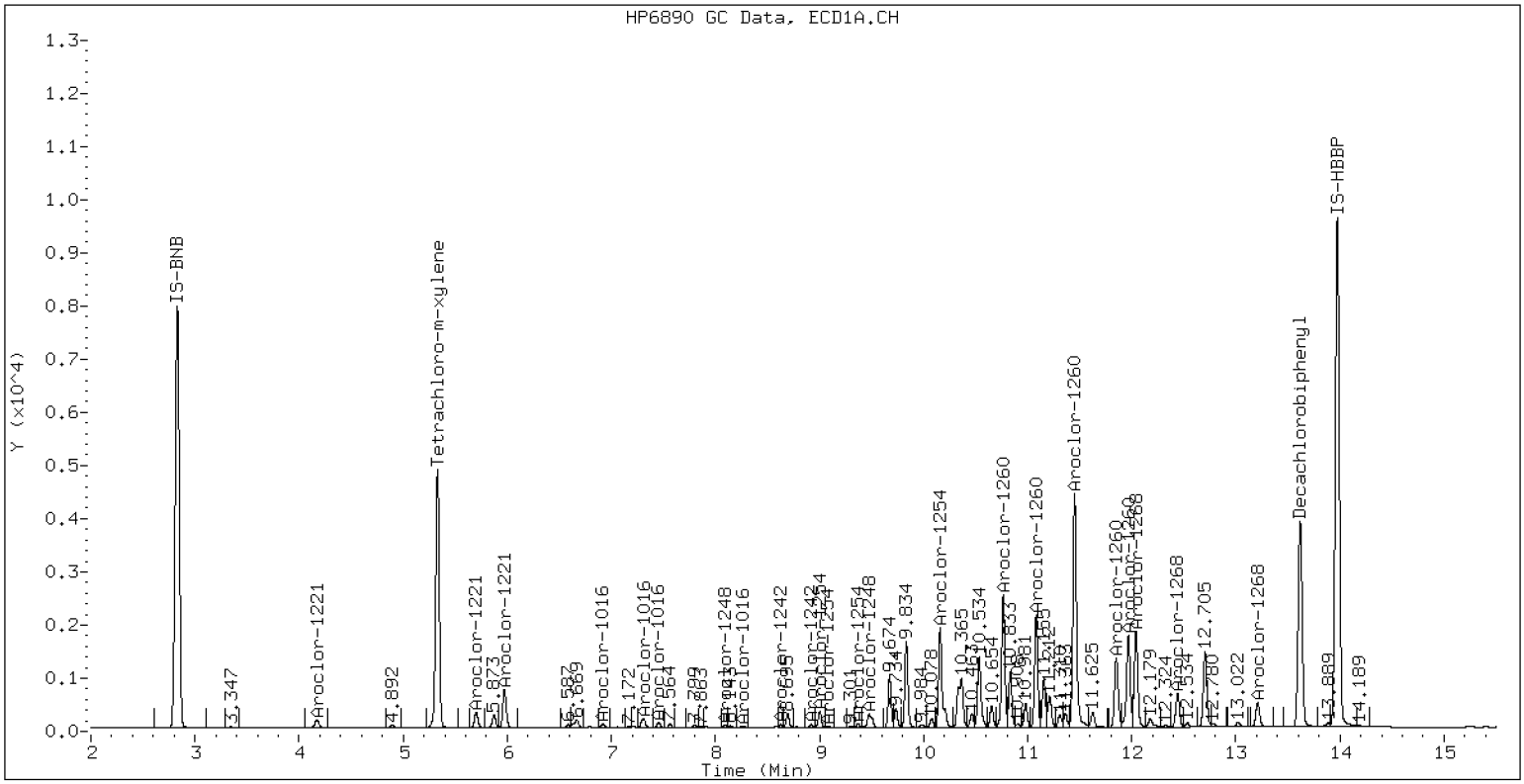
Total PCB Area Col2 (5.430 - 13.518) = 5281252 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

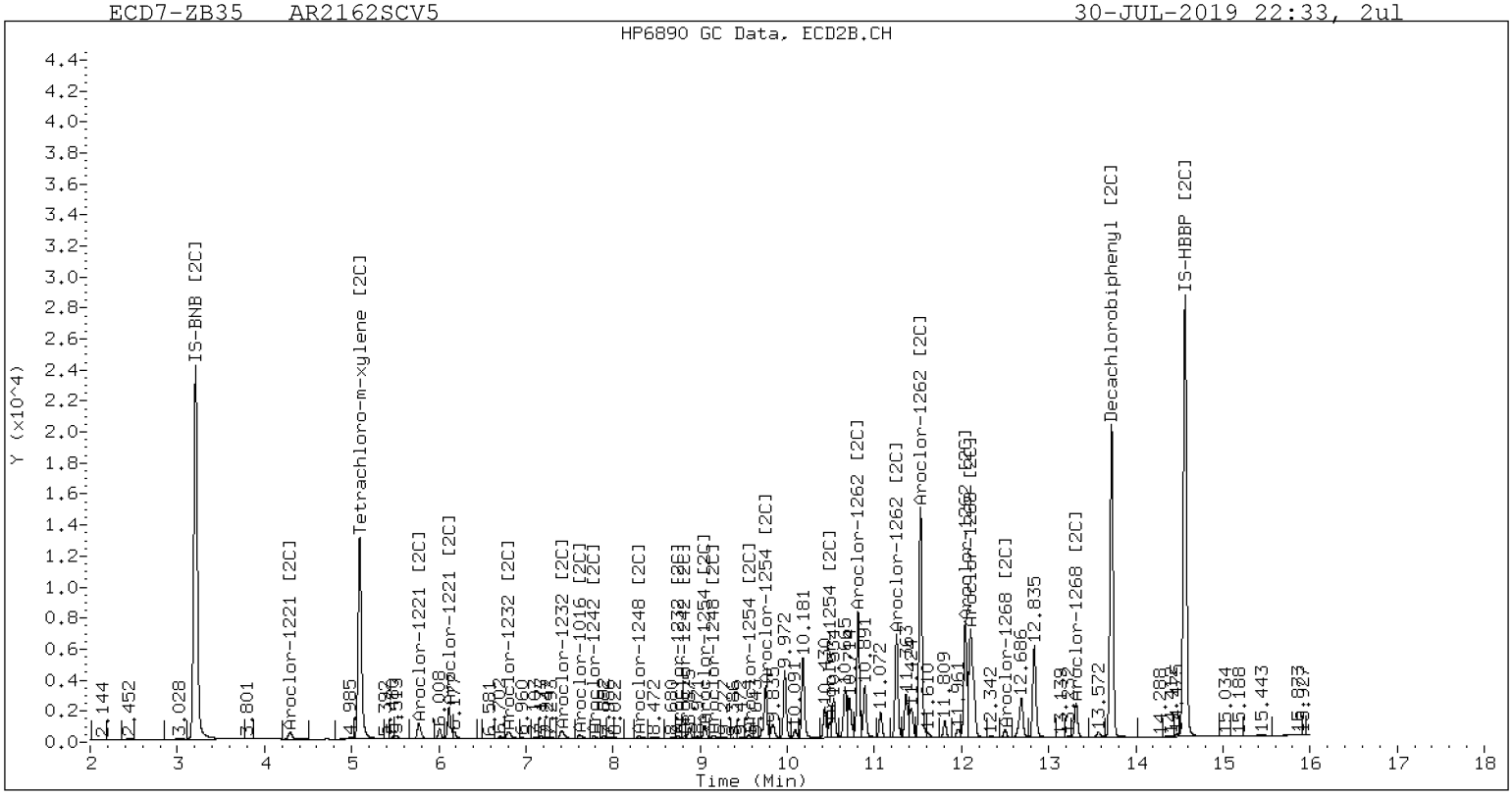
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV5 30-JUL-2019 22:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV5 30-JUL-2019 22:33, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073023ECD7.D
Data file 2: /20190730.b/20190730.b/19073023ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV6
Client ID:
Injection Date: 30-JUL-2019 22:54
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.329	-0.001	231801	5.093	-0.001	719293	40.0	38.0	4.9	Tetrachloro-m-xylene
13.618	-0.000	296657	13.725	-0.000	1438798	48.6	46.6	4.2	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	99.9	95.1
Decachlorobiphenyl	121.5	116.5

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	452459	4.6
Hexabromobiphenyl	517563	538642	4.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1516016	1.2
Hexabromobiphenyl	1404015	1641829	16.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.919	-0.000	16254	114.1	1	6.793	-0.001	97809	132.4
Aroclor-1016	2	7.307	-0.001	56547	112.2	2	7.412	-0.002	194376	118.8
Aroclor-1016	3	7.454	-0.001	21489	111.9	3	7.613	0.000	78747	120.8
Aroclor-1016	4	8.263	-0.001	18471	117.7	4	7.782	-0.000	50904	124.3
Total Col1Ave (4 peaks):					114.0	Total Col2Ave (4 peaks):				124.1 RPD = 8
Corrected Ave (3 peaks):					112.7	Corrected Ave (3 peaks):				121.3 RPD = 7
Aroclor-1221	1	4.170	-0.000	5150	151.8	1	4.294	-0.000	17679	156.2
Aroclor-1221	2	5.700	-0.000	8668	156.0	2	5.772	0.001	41388	167.9
Aroclor-1221	3	5.972	-0.000	27580	199.7	3	6.117	-0.000	101640	253.0
Total Col1Ave (3 peaks):					169.1	Total Col2Ave (3 peaks):				192.4 RPD = 13
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.170	-0.001	5150	251.9	1	4.294	-0.002	17679	259.7
Aroclor-1232	2	6.919	-0.000	16254	283.6	2	6.793	-0.001	97809	284.5
Aroclor-1232	3	7.307	0.000	56547	281.7	3	7.412	-0.000	194376	281.0
Aroclor-1232	4	7.454	-0.001	21489	282.3	4	8.745	-0.000	55515	237.0
Total Col1Ave (4 peaks):					274.9	Total Col2Ave (4 peaks):				265.6 RPD = 3
Corrected Ave (3 peaks):					271.9	Corrected Ave (3 peaks):				259.2 RPD = 5
Aroclor-1242	1	6.919	-0.000	16254	137.7	1	6.793	-0.000	97809	162.7
Aroclor-1242	2	7.307	0.000	56547	132.9	2	7.412	-0.000	194376	146.9
Aroclor-1242	3	8.630	-0.000	16533	117.4	3	7.782	-0.001	50904	149.0
Aroclor-1242	4	8.917	-0.001	17384	116.3	4	8.818	0.001	56165	132.9
Total Col1Ave (4 peaks):					126.1	Total Col2Ave (4 peaks):				147.9 RPD = 16
Corrected Ave (3 peaks):					122.2	Corrected Ave (3 peaks):				142.9 RPD = 16
Aroclor-1248	1	8.093	0.000	15388	73.1	1	7.412	0.002	194376	226.1
Aroclor-1248	2	8.630	-0.000	16533	63.1	2	8.292	-0.001	58258	90.2
Aroclor-1248	3	8.917	-0.001	17384	70.8	3	8.818	0.002	56165	84.2
Aroclor-1248	4	9.505	0.000	6267	40.2	4	9.154	0.001	65334	77.0
Total Col1Ave (4 peaks):					61.8	Total Col2Ave (4 peaks):				119.4 RPD = 64*
Corrected Ave (3 peaks):					58.0	Corrected Ave (3 peaks):				83.8 RPD = 36
Aroclor-1254	1	9.000	-0.001	5754	14.7	1	9.053	0.001	13283	15.5
Aroclor-1254	2	9.077	0.000	2484	19.9	2	9.154	0.011	65334	148.8
Aroclor-1254	3	9.371	0.001	3465	13.9	3	9.562	0.002	11779	17.4
Aroclor-1254	4	9.505	0.001	6267	13.0	4	9.710	0.003	23397	16.9
Aroclor-1254	5	10.214	0.004	3574	11.1	5	10.484	0.003	8837	10.1
Total Col1Ave (5 peaks):					14.5	Total Col2Ave (5 peaks):				41.7 RPD = 97*
Corrected Ave (4 peaks):					13.2	Corrected Ave (4 peaks):				15.0 RPD = 13
Aroclor-1260	1	10.765	0.000	56927	196.3	1	10.815	0.001	195198	180.1
Aroclor-1260	2	11.082	0.000	4949	17.6	2	11.258	0.004	236225	219.1
Aroclor-1260	3	11.451	0.000	44847	64.5	3	11.529	-0.002	131397	46.4
Aroclor-1260	4	11.853	0.003	1408	4.3	4	12.045	0.001	974022	1095.9
Aroclor-1260	5	11.968	0.001	257533	1619.5	NS	---			----
Total Col1Ave (5 peaks):					380.4	Total Col2Ave (4 peaks):				385.4 RPD = 1
Corrected Ave (4 peaks):					70.7	Corrected Ave (3 peaks):				148.6 RPD = 71*
Aroclor-1262	1	11.082	0.001	4949	14.1	1	10.815	0.001	195198	128.3
Aroclor-1262	2	11.451	0.001	44847	53.2	2	11.258	0.004	236225	184.8
Aroclor-1262	3	11.853	0.003	1408	5.4	3	11.529	-0.001	131397	43.7
Aroclor-1262	4	11.968	0.001	257533	797.6	4	12.045	0.001	974022	677.8
Total Col1Ave (4 peaks):					217.6	Total Col2Ave (4 peaks):				258.7 RPD = 17
Corrected Ave (3 peaks):					24.2	Corrected Ave (3 peaks):				119.0 RPD = 132*
Aroclor-1268	1	11.968	0.000	257533	268.7	1	12.045	-0.001	974022	256.1
Aroclor-1268	2	12.039	0.000	263447	296.4	2	12.111	0.001	1089347	289.4
Aroclor-1268	3	12.427	0.002	178082	241.3	3	12.502	0.001	761562	227.5
Aroclor-1268	4	13.211	0.000	491485	225.4	4	13.321	0.001	2603537	212.2
Total Col1Ave (4 peaks):					257.9	Total Col2Ave (4 peaks):				246.3 RPD = 5

Corrected Ave (3 peaks): 245.1 Corrected Ave (3 peaks): 231.9 RPD = 6

Total PCB Area Col1 (5.430 - 13.518) = 1971485 Col1 Total PCB = 0.5 ppm*

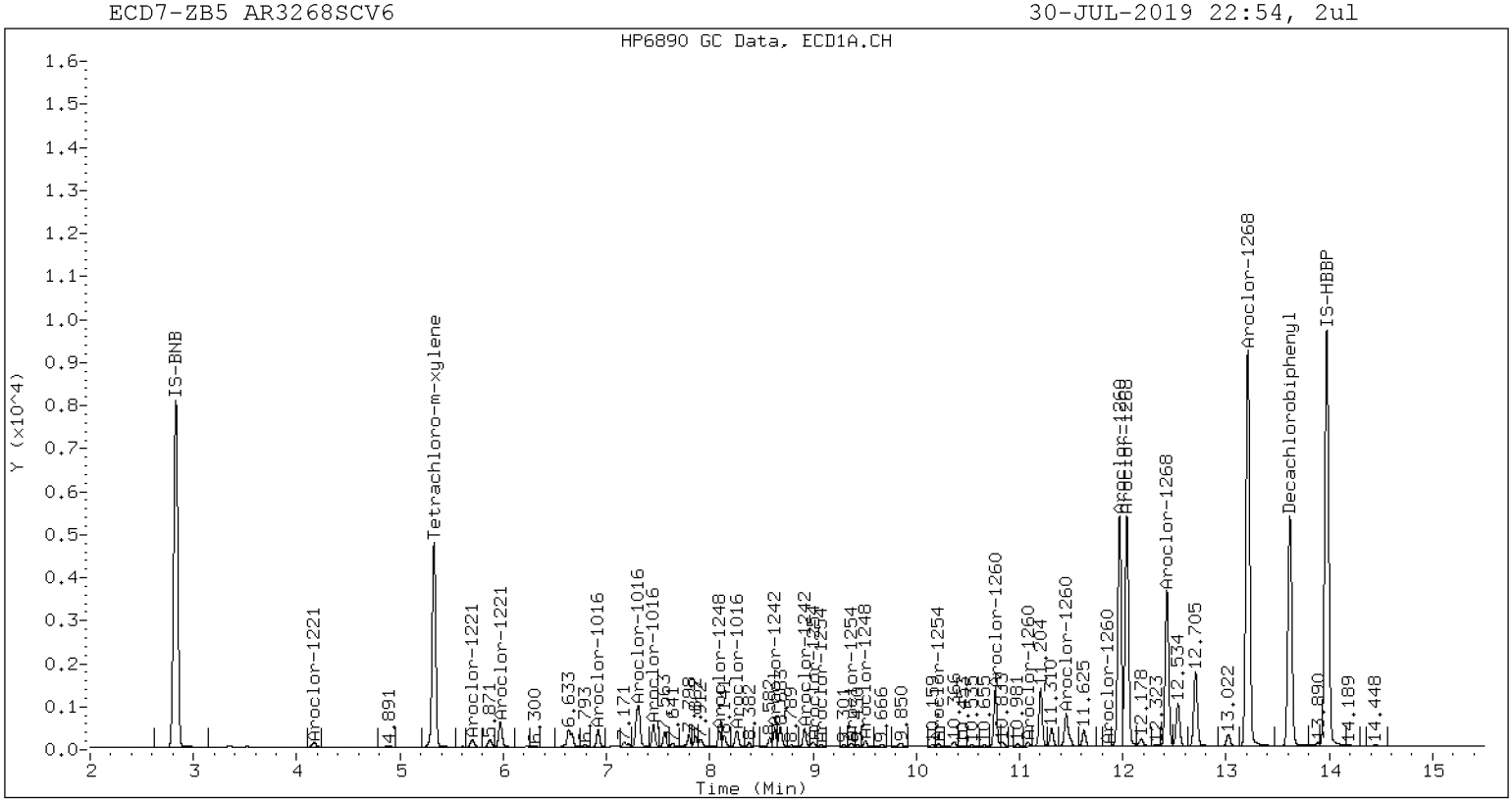
Total PCB Area Col2 (5.430 - 13.518) = 8252950 Col2 Total PCB = 0.7 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

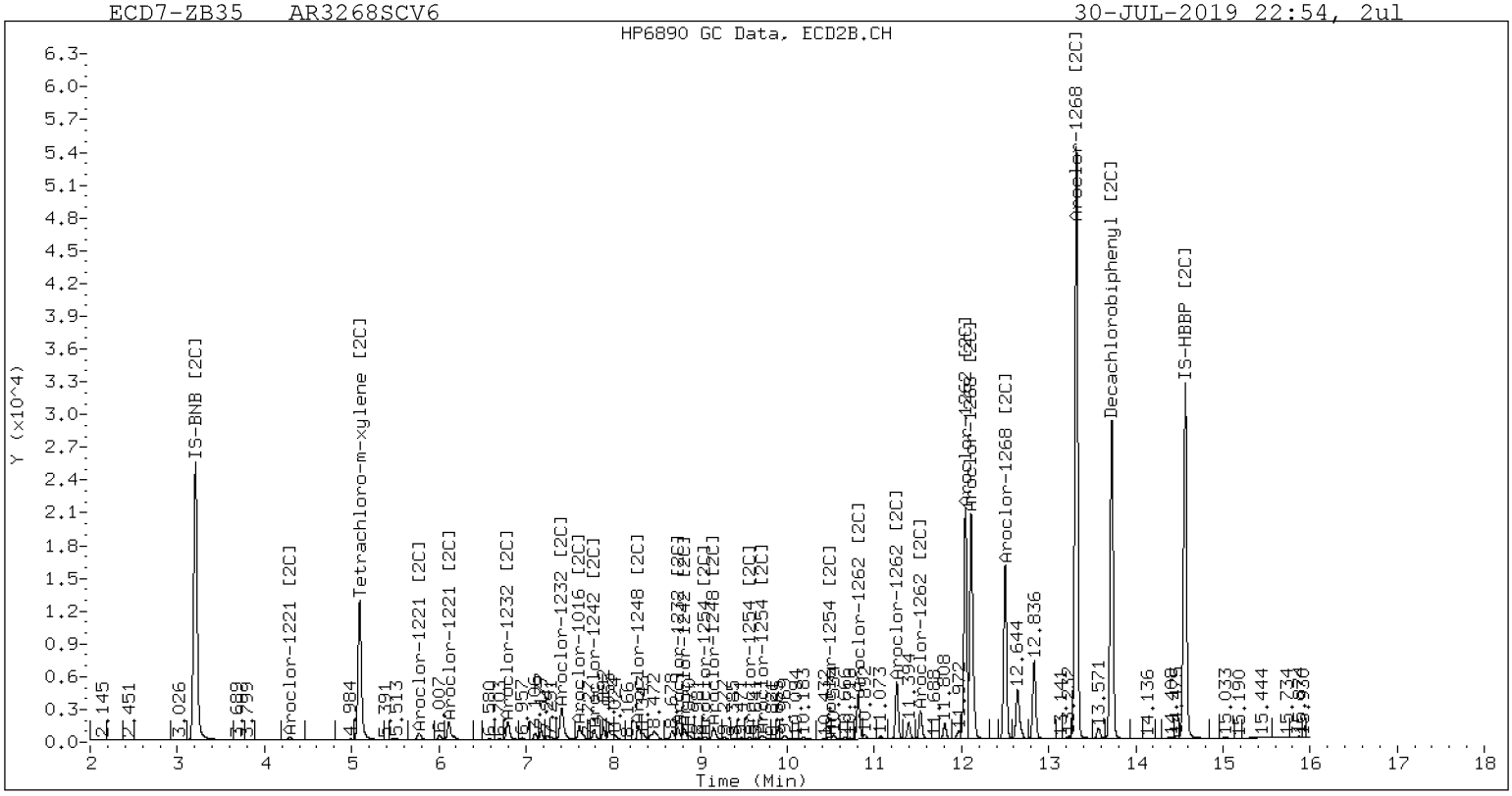
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV6 30-JUL-2019 22:54, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV6 30-JUL-2019 22:54, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /20190730.b/19073024ECD7.D ARI ID: 0.1PPMDDTS

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
8.969	0.000	415964	9.525	0.000	2743370	0.100	0.100	0.0	2,4-DDE
10.018	0.000	502622	10.271	0.000	3896523	0.100	0.200#	66.7*	2,4-DDT
9.394	0.000	752357	9.808	0.000	1389347	0.100	0.100	0.0	4,4-DDE
9.963	0.000	641762	10.271	0.000	3896523	0.100	0.200#	66.7*	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /20190730.b/19073025ECD7.D ARI ID: DDT BD

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
8.968	-0.002	3512	9.535	0.011	11423	0.001	0.000	68.4*	2,4-DDE
0.000	-10.018	0	10.280	0.009	60506	0.000	0.003#	----	2,4-DDT
9.398	0.004	5099	9.808	0.000	875	0.001	0.000	166.2*	4,4-DDE
9.967	0.005	10627	10.280	0.009	60506	0.002	0.003#	60.3*	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CG00087
Laboratory ID: SHG0411-SCV1
Sequence: SHG0411
Sequence Name: AR1660SCV1
Standard ID: H004289

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1016	250.00	268	7.1	20.00
Aroclor 1016	250.00	268	7.1	20.00
Aroclor 1016 [2C]	250.00	256	2.3	20.00
Aroclor 1016 [2C]	250.00	256	2.3	20.00
Aroclor 1260	250.00	276	10.3	20.00
Aroclor 1260	250.00	276	10.3	20.00
Aroclor 1260 [2C]	250.00	252	1.0	20.00
Aroclor 1260 [2C]	250.00	252	1.0	20.00
Decachlorobiphenyl	40.000	35.7	-10.7	20.00
Decachlorobiphenyl	40.000	35.7	-10.7	20.00
Tetrachlorometaxylene	40.000	41.6	3.9	20.00
Tetrachlorometaxylene	40.000	41.6	3.9	20.00
Decachlorobiphenyl [2C]	40.000	35.5	-11.3	20.00
Decachlorobiphenyl [2C]	40.000	35.5	-11.3	20.00
Tetrachlorometaxylene [2C]	40.000	39.0	-2.6	20.00
Tetrachlorometaxylene [2C]	40.000	39.0	-2.6	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073018ECD7.D
Data file 2: /20190730.b/20190730.b/19073018ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV1
Client ID:
Injection Date: 30-JUL-2019 21:09
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	-0.001	235101	5.094	-0.000	736036	41.6	39.0	6.4	Tetrachloro-m-xylene
13.619	0.000	213581	13.723	-0.002	1007819	35.7	35.5	0.7	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	103.9	97.4
Decachlorobiphenyl	89.3	88.7

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	441179	2.0
Hexabromobiphenyl	517563	527747	2.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1513984	1.1
Hexabromobiphenyl	1404015	1510538	7.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.920	0.000	35770	257.6	1	6.794	-0.000	187662	254.4
Aroclor-1016	2	7.308	-0.001	129331	263.1	2	7.413	-0.001	414015	253.4
Aroclor-1016	3	7.455	0.000	48521	259.2	3	7.613	0.000	165885	254.8
Aroclor-1016	4	8.265	0.000	44576	291.3	4	7.783	0.000	106287	260.0
Total Col1Ave (4 peaks):					267.8	Total Col2Ave (4 peaks):				255.6 RPD = 5
Corrected Ave (3 peaks):					259.9	Corrected Ave (3 peaks):				254.2 RPD = 2
Aroclor-1221	1	---			0.0	1	4.297	0.003	1104	9.8
Aroclor-1221	2	5.699	-0.001	4477	82.6	2	5.778	0.007	27797	112.9
Aroclor-1221	3	5.972	0.000	25236	187.4	3	6.118	0.001	94564	235.7
Col1Ave: <3 Quant Peaks						Col2Ave: 119.5				
Aroclor-1232	1	---			0.0	1	4.297	0.001	1104	16.2
Aroclor-1232	2	6.920	0.000	35770	640.1	2	6.794	0.000	187662	546.6
Aroclor-1232	3	7.308	0.001	129331	660.8	3	7.413	0.000	414015	599.3
Aroclor-1232	4	7.455	0.000	48521	653.6	4	8.744	-0.001	25286	108.1
Total Col1Ave (3 peaks):					651.5	Total Col2Ave (4 peaks):				317.6 RPD = 69*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				223.7
Aroclor-1242	1	6.920	0.000	35770	310.8	1	6.794	0.001	187662	312.7
Aroclor-1242	2	7.308	0.000	129331	311.6	2	7.413	0.000	414015	313.3
Aroclor-1242	3	8.630	0.000	6749	49.1	3	7.783	-0.000	106287	311.5
Aroclor-1242	4	8.923	0.005	3560	24.4	4	8.816	-0.001	15448	36.6
Total Col1Ave (4 peaks):					174.0	Total Col2Ave (4 peaks):				243.5 RPD = 33
Corrected Ave (3 peaks):					128.1	Corrected Ave (3 peaks):				220.3 RPD = 53*
Aroclor-1248	1	8.093	0.000	35841	174.5	1	7.413	0.003	414015	482.3
Aroclor-1248	2	8.630	0.000	6749	26.4	2	8.292	-0.000	127770	198.0
Aroclor-1248	3	8.923	0.005	3560	14.9	3	8.816	0.000	15448	23.2
Aroclor-1248	4	9.477	-0.028	23531	154.7	4	9.152	-0.000	7580	8.9
Total Col1Ave (4 peaks):					92.6	Total Col2Ave (4 peaks):				178.1 RPD = 63*
Corrected Ave (3 peaks):					65.3	Corrected Ave (3 peaks):				76.7 RPD = 16
Aroclor-1254	1	9.003	0.002	24012	63.1	1	9.053	0.001	74156	86.6
Aroclor-1254	2	---			0.0	2	9.152	0.009	7580	17.3
Aroclor-1254	3	9.370	0.001	3187	13.1	3	9.562	0.002	11938	17.6
Aroclor-1254	4	9.477	-0.028	23531	50.1	4	9.751	0.043	186431	134.7
Aroclor-1254	5	10.202	-0.008	25577	81.4	5	10.487	0.006	78936	90.6
Total Col1Ave (4 peaks):					51.9	Total Col2Ave (5 peaks):				69.4 RPD = 29
Corrected Ave (3 peaks):					42.1	Corrected Ave (4 peaks):				53.0 RPD = 23
Aroclor-1260	1	10.765	-0.000	77734	273.6	1	10.813	-0.001	256003	256.8
Aroclor-1260	2	11.081	-0.000	77297	280.5	2	11.253	-0.001	254899	257.0
Aroclor-1260	3	11.452	0.000	194745	285.8	3	11.529	-0.001	660332	253.6
Aroclor-1260	4	11.851	0.000	91429	284.9	4	12.043	-0.000	198053	242.2
Aroclor-1260	5	11.968	0.000	39673	254.6	NS	---			----
Total Col1Ave (5 peaks):					275.9	Total Col2Ave (4 peaks):				252.4 RPD = 9
Corrected Ave (4 peaks):					273.4	Corrected Ave (3 peaks):				250.9 RPD = 9
Aroclor-1262	1	11.081	0.000	77297	224.6	1	10.813	-0.000	256003	182.9
Aroclor-1262	2	11.452	0.001	194745	235.8	2	11.253	-0.001	254899	216.8
Aroclor-1262	3	11.851	-0.000	91429	359.3	3	11.529	0.000	660332	238.8
Aroclor-1262	4	11.968	0.000	39673	125.4	4	12.043	-0.000	198053	149.8
Total Col1Ave (4 peaks):					236.3	Total Col2Ave (4 peaks):				197.1 RPD = 18
Corrected Ave (3 peaks):					195.3	Corrected Ave (3 peaks):				183.2 RPD = 6
Aroclor-1268	1	11.968	-0.000	39673	42.2	1	12.043	-0.002	198053	56.6
Aroclor-1268	2	12.041	0.002	48044	55.2	2	12.099	-0.011	428430	123.7
Aroclor-1268	3	12.442	0.016	19965	27.6	3	12.500	-0.000	6941	2.3
Aroclor-1268	4	13.209	-0.002	9889	4.6	4	13.315	-0.005	39575	3.5
Total Col1Ave (4 peaks):					32.4	Total Col2Ave (4 peaks):				46.5 RPD = 36
Corrected Ave (3 peaks):					24.8	Corrected Ave (3 peaks):				20.8 RPD = 18

Total PCB Area Col1 (5.430 - 13.518) = 1962968 Col1 Total PCB = 0.5 ppm*

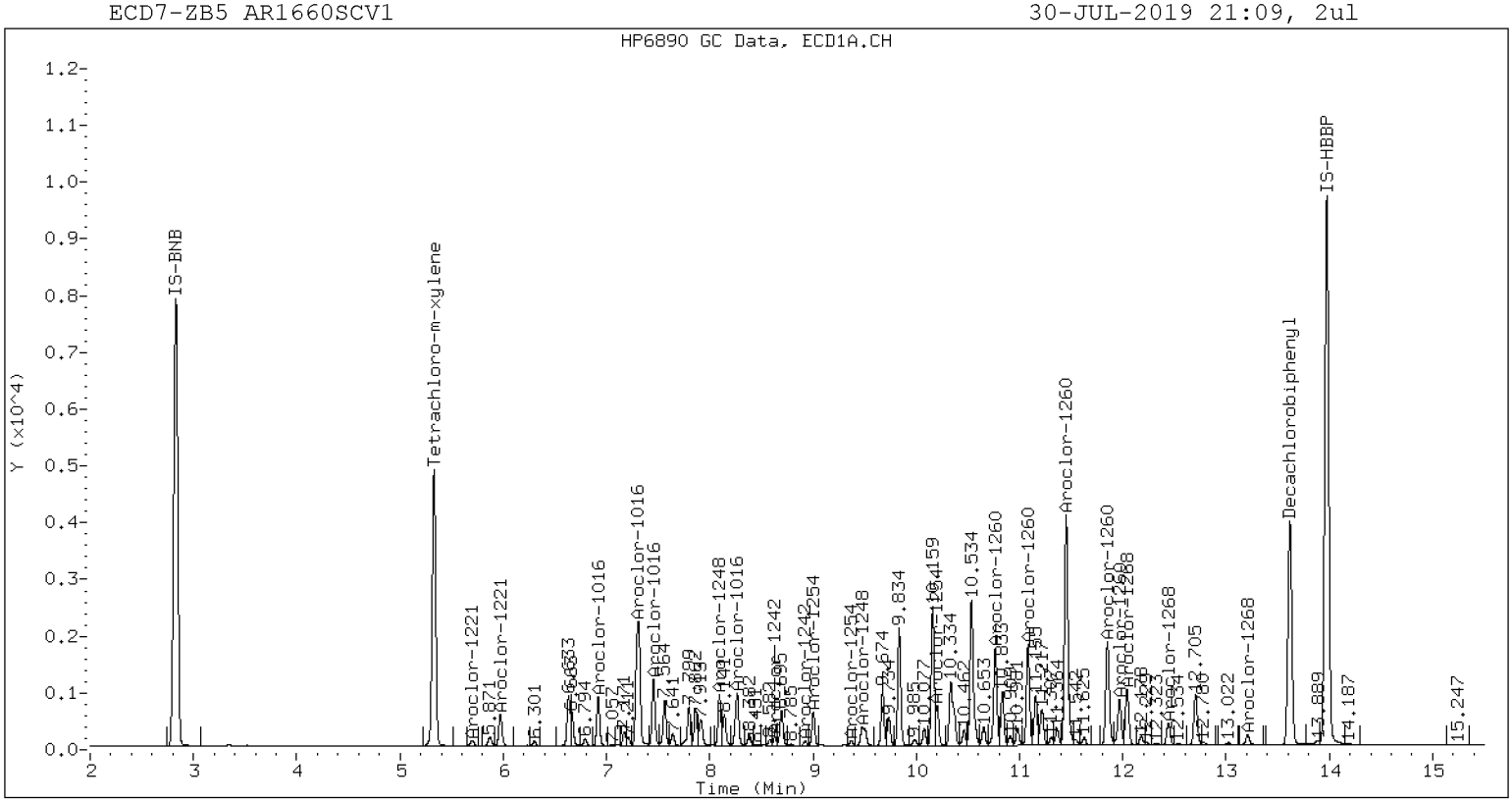
Total PCB Area Col2 (5.430 - 13.518) = 6481631 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

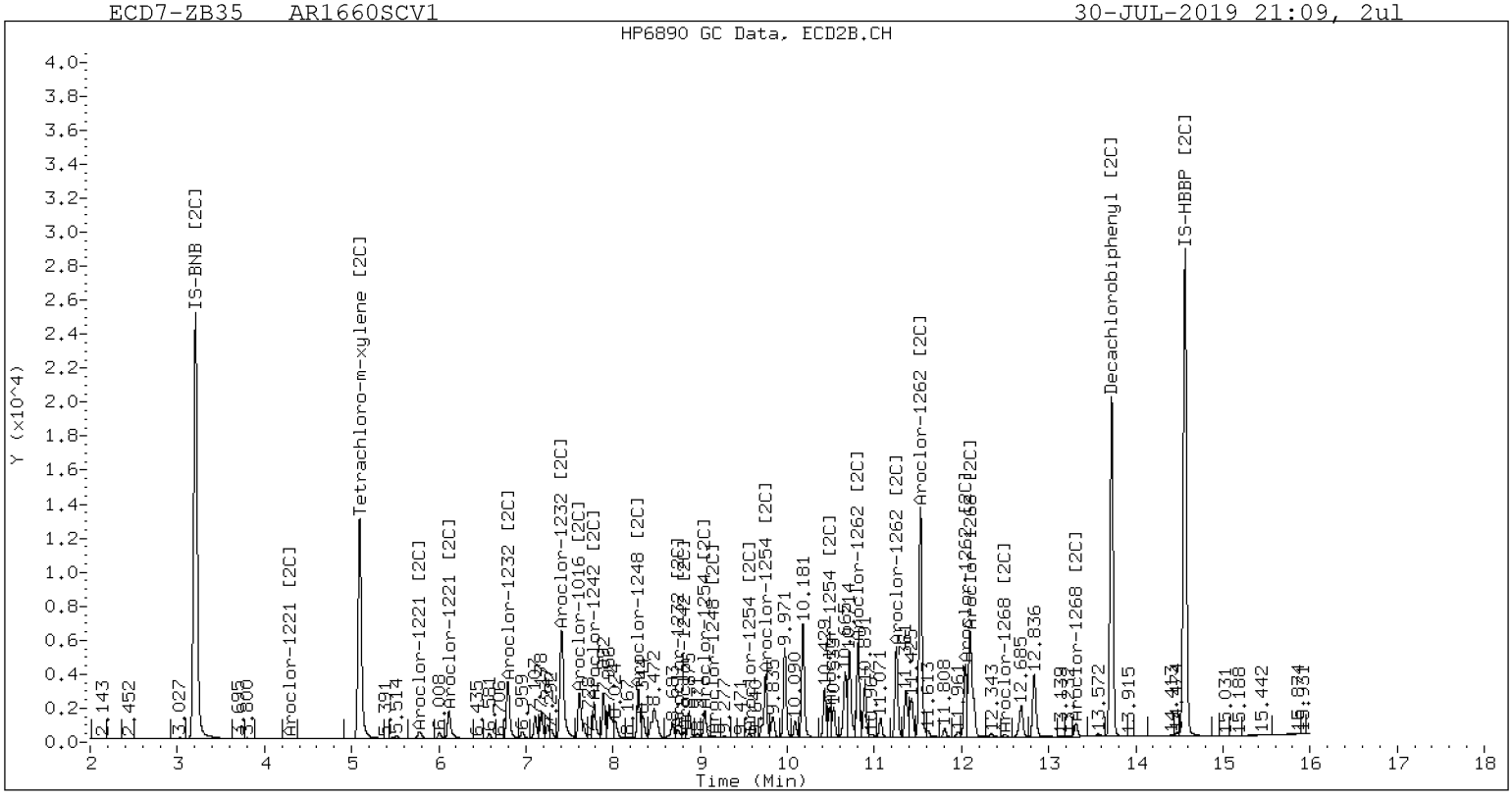
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV1 30-JUL-2019 21:09, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV1 30-JUL-2019 21:09, 2ul



ZB-35 Manual Integration: NO

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CG00087
Laboratory ID: SHG0411-SCV2
Sequence: SHG0411
Sequence Name: AR1242SCV2
Standard ID: H004290

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1242	250.00	236	-5.6	20.00
Aroclor 1242	250.00	236	-5.6	20.00
Aroclor 1242 [2C]	250.00	241	-3.5	20.00
Aroclor 1242 [2C]	250.00	241	-3.5	20.00
Decachlorobiphenyl	40.000	35.9	-10.2	20.00
Decachlorobiphenyl	40.000	35.9	-10.2	20.00
Tetrachlorometaxylene	40.000	40.8	2.0	20.00
Tetrachlorometaxylene	40.000	40.8	2.0	20.00
Decachlorobiphenyl [2C]	40.000	33.7	-15.8	20.00
Decachlorobiphenyl [2C]	40.000	33.7	-15.8	20.00
Tetrachlorometaxylene [2C]	40.000	38.4	-4.1	20.00
Tetrachlorometaxylene [2C]	40.000	38.4	-4.1	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073019ECD7.D
Data file 2: /20190730.b/20190730.b/19073019ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV2
Client ID:
Injection Date: 30-JUL-2019 21:30
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	-0.000	232388	5.095	0.000	728678	40.8	38.4	6.2	Tetrachloro-m-xylene
13.618	-0.000	219831	13.723	-0.002	1009744	35.9	33.7	6.5	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	102.0	95.9
Decachlorobiphenyl	89.8	84.2

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	444229	2.7
Hexabromobiphenyl	517563	540153	4.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1522513	1.7
Hexabromobiphenyl	1404015	1594760	13.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.920	0.000	27874	199.4	1	6.793	-0.001	148074	199.6
Aroclor-1016	2	7.307	-0.001	99348	200.7	2	7.413	-0.001	323406	196.8
Aroclor-1016	3	7.455	0.000	37513	199.0	3	7.613	0.000	130447	199.2
Aroclor-1016	4	8.265	-0.000	35997	233.6	4	7.783	0.000	83687	203.5
Total Col1Ave (4 peaks):		208.2				Total Col2Ave (4 peaks):			199.8	RPD = 4
Corrected Ave (3 peaks):		199.7				Corrected Ave (3 peaks):			198.5	RPD = 1
Aroclor-1221	1	---			0.0	1	4.297	0.003	819	7.2
Aroclor-1221	2	5.700	-0.001	3743	68.6	2	5.782	0.011	23068	93.2
Aroclor-1221	3	5.973	0.000	19766	145.8	3	6.118	0.001	73420	182.0
Col1Ave: <3 Quant Peaks						Col2Ave:		94.1		
Aroclor-1232	1	---			0.0	1	4.297	0.001	819	12.0
Aroclor-1232	2	6.920	0.000	27874	495.4	2	6.793	-0.000	148074	428.9
Aroclor-1232	3	7.307	0.000	99348	504.1	3	7.413	0.001	323406	465.5
Aroclor-1232	4	7.455	0.000	37513	501.9	4	8.744	-0.001	102386	435.3
Total Col1Ave (3 peaks):		500.5				Total Col2Ave (4 peaks):			335.4	RPD = 39
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):			292.1	
Aroclor-1242	1	6.920	0.000	27874	240.5	1	6.793	0.000	148074	245.3
Aroclor-1242	2	7.307	0.000	99348	237.7	2	7.413	0.001	323406	243.3
Aroclor-1242	3	8.630	0.000	32365	234.0	3	7.783	-0.000	83687	243.9
Aroclor-1242	4	8.918	0.000	34003	231.8	4	8.816	-0.000	98757	232.7
Total Col1Ave (4 peaks):		236.0				Total Col2Ave (4 peaks):			241.3	RPD = 2
Corrected Ave (3 peaks):		234.5				Corrected Ave (3 peaks):			240.0	RPD = 2
Aroclor-1248	1	8.094	0.001	29542	142.9	1	7.413	0.003	323406	374.6
Aroclor-1248	2	8.630	0.000	32365	125.8	2	8.292	-0.000	105818	163.1
Aroclor-1248	3	8.918	0.000	34003	141.0	3	8.816	0.001	98757	147.4
Aroclor-1248	4	9.505	0.000	17552	114.6	4	9.153	0.001	124308	145.8
Total Col1Ave (4 peaks):		131.1				Total Col2Ave (4 peaks):			207.7	RPD = 45*
Corrected Ave (3 peaks):		127.1				Corrected Ave (3 peaks):			152.1	RPD = 18
Aroclor-1254	1	9.000	-0.001	15890	41.5	1	9.054	0.002	36517	42.4
Aroclor-1254	2	9.078	0.001	6721	54.8	2	9.153	0.010	124308	282.0
Aroclor-1254	3	9.371	0.001	10146	41.4	3	9.561	0.001	34294	50.4
Aroclor-1254	4	9.505	0.001	17552	37.1	4	9.710	0.002	57960	41.7
Aroclor-1254	5	10.215	0.004	11090	35.1	5	10.483	0.002	45583	52.0
Total Col1Ave (5 peaks):		42.0				Total Col2Ave (5 peaks):			93.7	RPD = 76*
Corrected Ave (4 peaks):		38.8				Corrected Ave (4 peaks):			46.6	RPD = 18
Aroclor-1260	1	---			0.0	1	10.815	0.001	1710	1.6
Aroclor-1260	2	---			0.0	2	11.245	-0.008	7466	7.1
Aroclor-1260	3	---			0.0	3	11.531	-0.000	5126	1.9
Aroclor-1260	4	---			0.0	4	12.095	0.051	4858	5.6
Aroclor-1260	5	---			0.0	NS	---			----
Col1Ave: <3 Quant Peaks						Col2Ave:		4.1		
Aroclor-1262	1	---			0.0	1	10.815	0.001	1710	1.2
Aroclor-1262	2	---			0.0	2	11.245	-0.008	7466	6.0
Aroclor-1262	3	---			0.0	3	11.531	0.001	5126	1.8
Aroclor-1262	4	---			0.0	4	12.095	0.051	4858	3.5
Col1Ave: <3 Quant Peaks						Col2Ave:		3.1		
Aroclor-1268	1	---			0.0	1	12.095	0.049	4858	1.3
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	12.505	0.004	687	0.2
Aroclor-1268	4	---			0.0	4	13.315	-0.005	1416	0.1
Col1Ave: <3 Quant Peaks						Col2Ave:		0.5		

Total PCB Area Col1 (5.430 - 13.518) = 781862 Col1 Total PCB = 0.2 ppm*

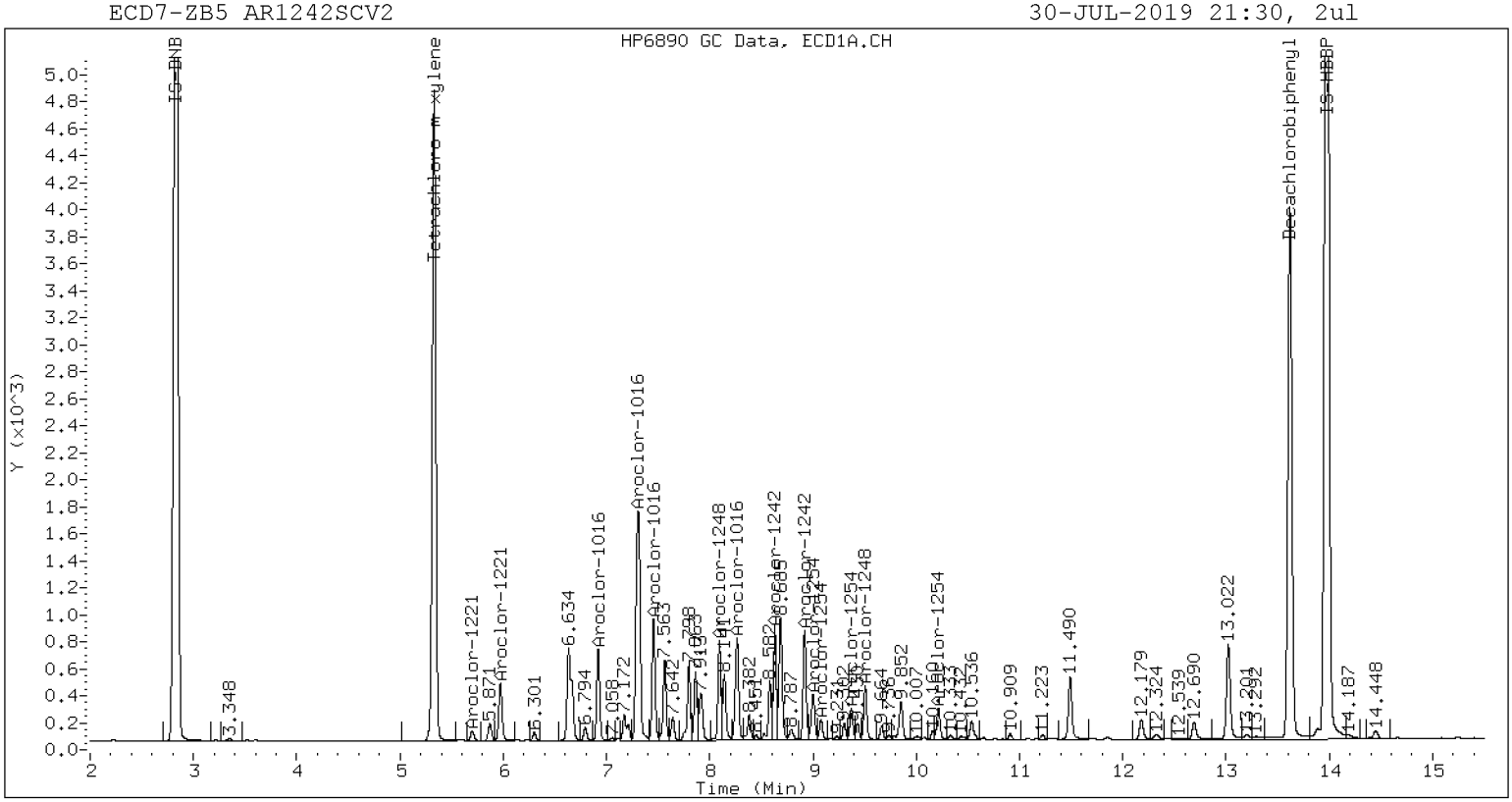
Total PCB Area Col2 (5.430 - 13.518) = 2550020 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

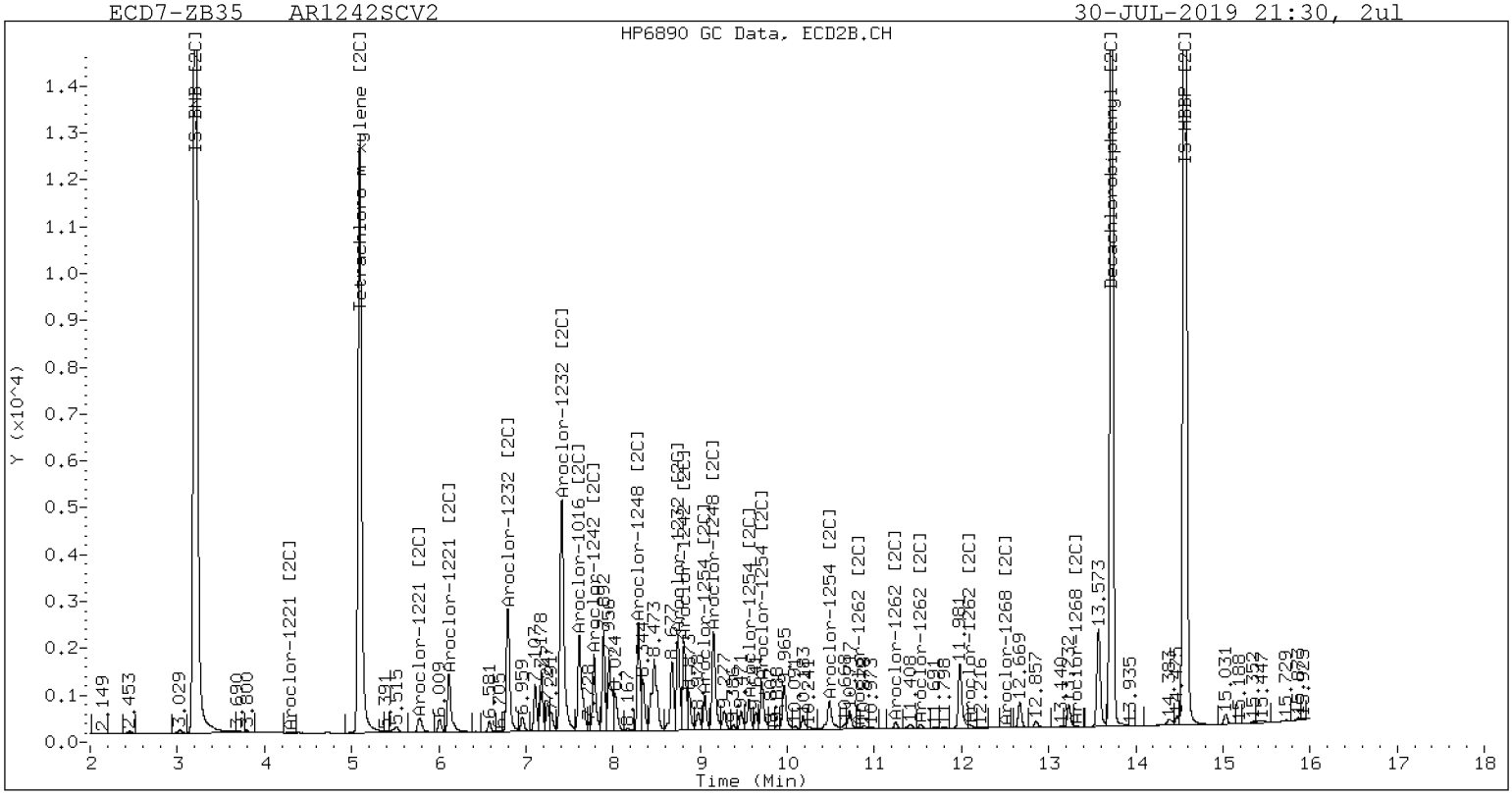
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV2 30-JUL-2019 21:30, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV2 30-JUL-2019 21:30, 2ul



ZB-35 Manual Integration: NO

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CG00087
Laboratory ID: SHG0411-SCV3
Sequence: SHG0411
Sequence Name: AR1248SCV3
Standard ID: H004291

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1248	250.00	251	0.5	20.00
Aroclor 1248	250.00	251	0.5	20.00
Aroclor 1248 [2C]	250.00	240	-3.8	20.00
Aroclor 1248 [2C]	250.00	240	-3.8	20.00
Decachlorobiphenyl	40.000	35.5	-11.3	20.00
Decachlorobiphenyl	40.000	35.5	-11.3	20.00
Tetrachlorometaxylene	40.000	41.6	4.1	20.00
Tetrachlorometaxylene	40.000	41.6	4.1	20.00
Decachlorobiphenyl [2C]	40.000	32.2	-19.5	20.00
Decachlorobiphenyl [2C]	40.000	32.2	-19.5	20.00
Tetrachlorometaxylene [2C]	40.000	36.3	-9.3	20.00
Tetrachlorometaxylene [2C]	40.000	36.3	-9.3	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073020ECD7.D
Data file 2: /20190730.b/20190730.b/19073020ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV3
Client ID:
Injection Date: 30-JUL-2019 21:51
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.328	-0.003	310261	5.091	-0.004	962331	41.6	36.3	13.7	Tetrachloro-m-xylene
13.618	-0.000	286973	13.725	-0.001	1352956	35.5	32.2	9.7	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	104.1	90.7
Decachlorobiphenyl	88.7	80.5

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	581426	34.5
Hexabromobiphenyl	517563	714222	38.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	2126264	42.0
Hexabromobiphenyl	1404015	2236045	59.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.917	-0.003	18561	101.4	1	6.788	-0.005	107276	103.6
Aroclor-1016	2	7.301	-0.007	90315	139.4	2	7.407	-0.006	297619	129.7
Aroclor-1016	3	7.454	-0.001	30286	122.7	3	7.610	-0.003	70430	77.0
Aroclor-1016	4	8.262	-0.003	76621	380.0	4	7.780	-0.003	64865	113.0
Total Col1Ave (4 peaks):					185.9	Total Col2Ave (4 peaks):				105.8 RPD = 55*
Corrected Ave (3 peaks):					121.2	Corrected Ave (3 peaks):				97.8 RPD = 21
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	5.790	0.019	15430	44.6
Aroclor-1221	3	---			0.0	3	6.116	-0.001	23498	41.7
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	6.917	-0.003	18561	252.0	2	6.788	-0.005	107276	222.5
Aroclor-1232	3	7.301	-0.006	90315	350.2	3	7.407	-0.005	297619	306.7
Aroclor-1232	4	7.454	-0.001	30286	309.6	4	8.742	-0.002	249723	760.2
Total Col1Ave (3 peaks):					303.9	Total Col2Ave (3 peaks):				429.8 RPD = 34
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1242	1	6.917	-0.002	18561	122.4	1	6.788	-0.005	107276	127.3
Aroclor-1242	2	7.301	-0.006	90315	165.1	2	7.407	-0.005	297619	160.3
Aroclor-1242	3	8.628	-0.002	84017	464.2	3	7.780	-0.003	64865	135.4
Aroclor-1242	4	8.916	-0.002	78873	410.7	4	8.815	-0.002	220198	371.5
Total Col1Ave (4 peaks):					290.6	Total Col2Ave (4 peaks):				198.6 RPD = 38
Corrected Ave (3 peaks):					232.7	Corrected Ave (3 peaks):				141.0 RPD = 49*
Aroclor-1248	1	8.091	-0.002	68219	252.1	1	7.407	-0.002	297619	246.9
Aroclor-1248	2	8.628	-0.002	84017	249.5	2	8.290	-0.002	218568	241.2
Aroclor-1248	3	8.916	-0.002	78873	249.9	3	8.815	-0.001	220198	235.4
Aroclor-1248	4	9.504	-0.001	50751	253.1	4	9.150	-0.002	283953	238.5
Total Col1Ave (4 peaks):					251.1	Total Col2Ave (4 peaks):				240.5 RPD = 4
Corrected Ave (3 peaks):					250.5	Corrected Ave (3 peaks):				238.4 RPD = 5
Aroclor-1254	1	8.998	-0.003	44873	89.4	1	9.052	-0.000	90363	75.1
Aroclor-1254	2	9.075	-0.001	20008	124.6	2	9.150	0.007	283953	461.2
Aroclor-1254	3	9.369	-0.000	30038	93.8	3	9.559	-0.001	93163	98.0
Aroclor-1254	4	9.504	-0.001	50751	82.1	4	9.707	-0.000	154189	79.3
Aroclor-1254	5	10.214	0.004	33446	80.8	5	10.479	-0.002	117725	96.2
Total Col1Ave (5 peaks):					94.1	Total Col2Ave (5 peaks):				162.0 RPD = 53*
Corrected Ave (4 peaks):					86.5	Corrected Ave (4 peaks):				87.2 RPD = 1
Aroclor-1260	1	10.764	-0.001	1605	4.2	1	10.815	0.001	6341	4.3
Aroclor-1260	2	11.082	-0.000	1180	3.2	2	11.246	-0.007	12941	8.8
Aroclor-1260	3	11.489	0.038	34908	37.8	3	11.529	-0.001	12538	3.3
Aroclor-1260	4	11.851	0.001	1153	2.7	4	12.101	0.057	9652	8.0
Aroclor-1260	5	12.041	0.074	1017	4.8	NS	---			----
Total Col1Ave (5 peaks):					10.5	Total Col2Ave (4 peaks):				6.1 RPD = 54*
Corrected Ave (4 peaks):					3.7	Corrected Ave (3 peaks):				5.2 RPD = 33
Aroclor-1262	1	11.082	0.000	1180	2.5	1	10.815	0.001	6341	3.1
Aroclor-1262	2	11.489	0.038	34908	31.2	2	11.246	-0.007	12941	7.4
Aroclor-1262	3	11.851	0.001	1153	3.3	3	11.529	0.000	12538	3.1
Aroclor-1262	4	12.041	0.074	1017	2.4	4	12.101	0.057	9652	4.9
Total Col1Ave (4 peaks):					9.9	Total Col2Ave (4 peaks):				4.6 RPD = 72*
Corrected Ave (3 peaks):					2.8	Corrected Ave (3 peaks):				3.7 RPD = 29
Aroclor-1268	1	12.041	0.073	1017	0.8	1	12.101	0.055	9652	1.9
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	12.504	0.003	1131	0.2
Aroclor-1268	4	13.203	-0.008	2261	0.8	4	13.314	-0.006	3402	0.2
Col1Ave: <3 Quant Peaks						Col2Ave: 0.8				

Total PCB Area Col1 (5.430 - 13.518) = 1295240 Col1 Total PCB = 0.3 ppm*

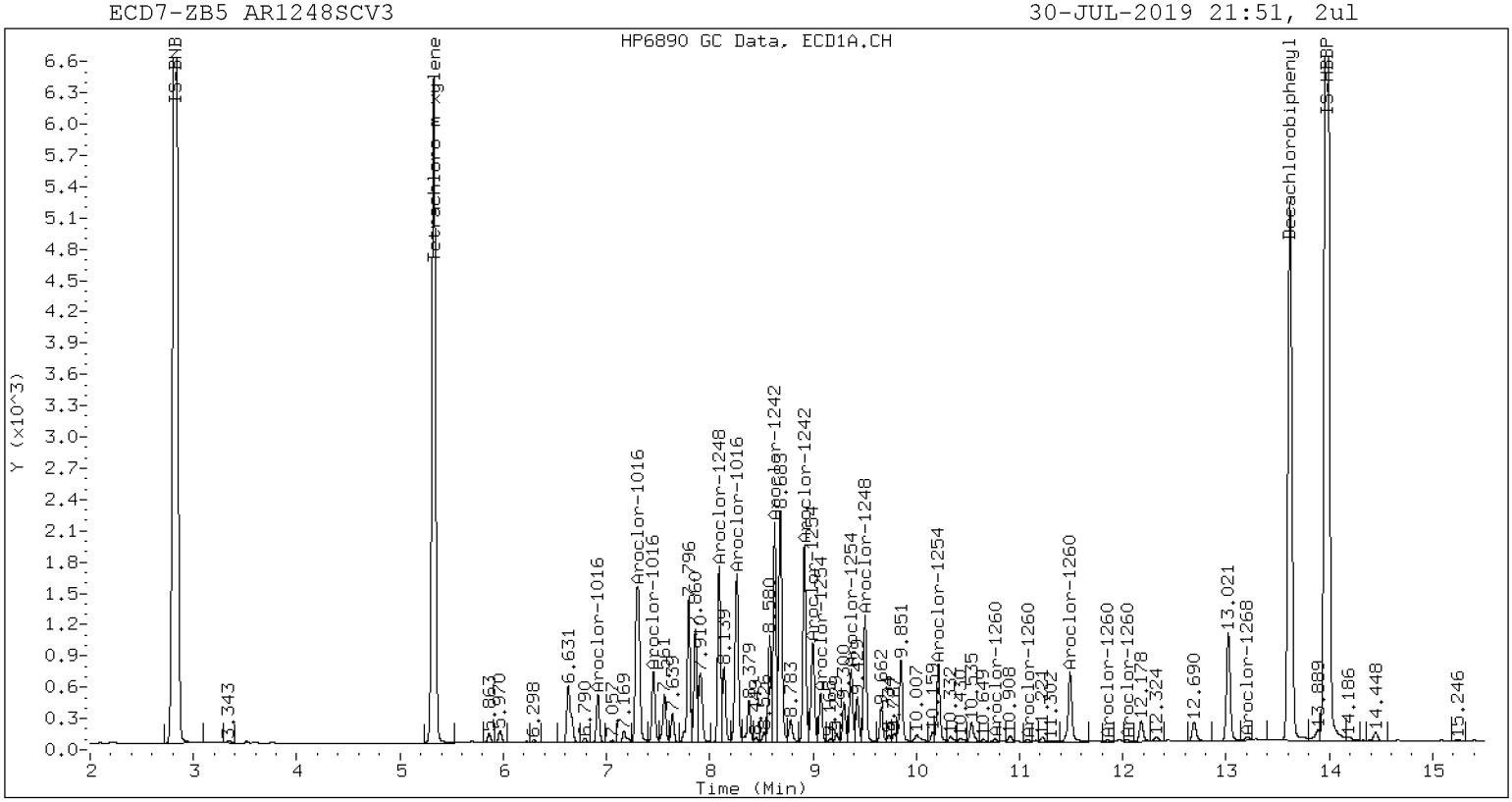
Total PCB Area Col2 (5.430 - 13.518) = 4048989 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

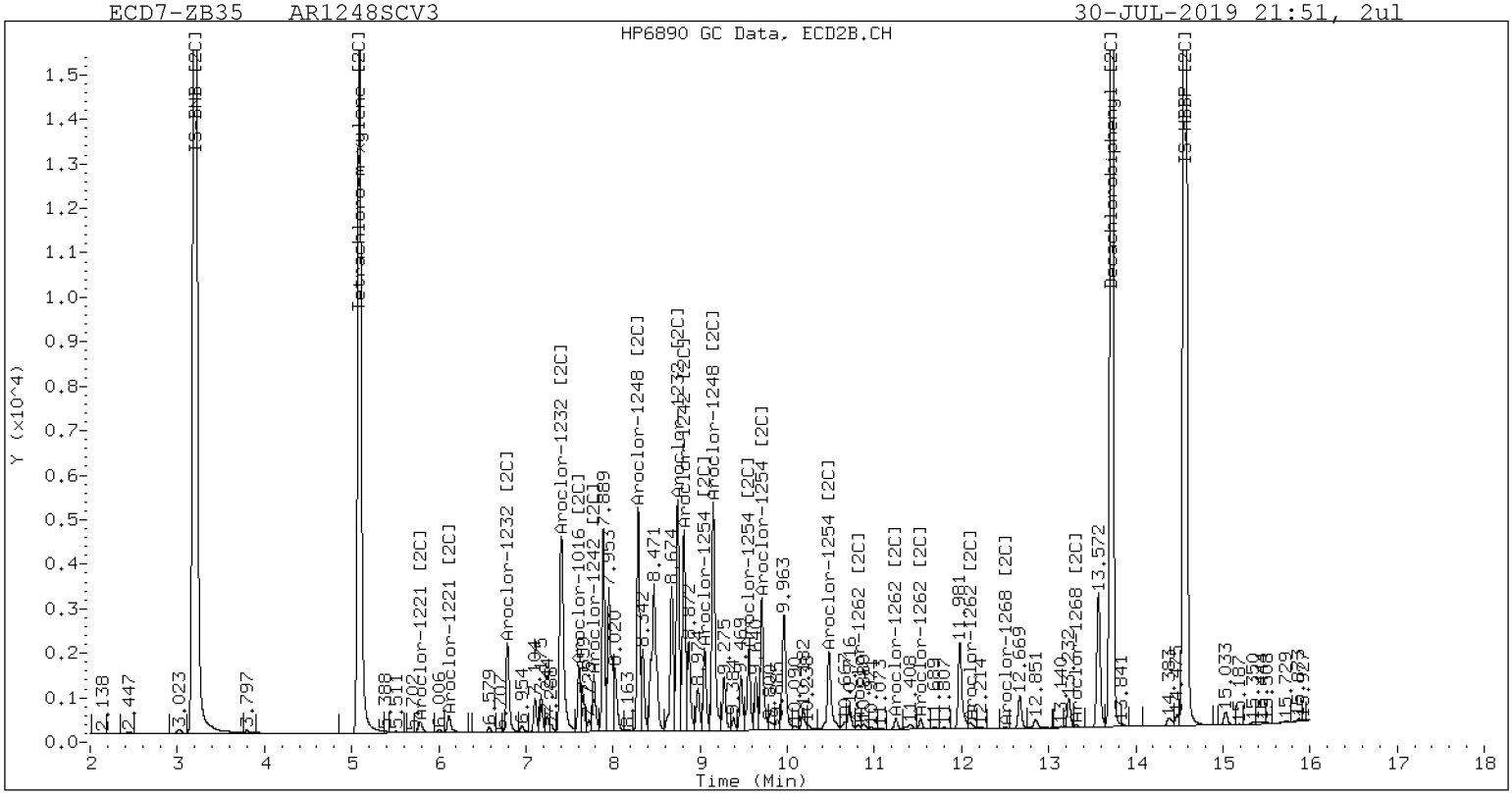
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV3 30-JUL-2019 21:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248SCV3 30-JUL-2019 21:51, 2ul



ZB-35 Manual Integration: NO

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CG00087
Laboratory ID: SHG0411-SCV4
Sequence: SHG0411
Sequence Name: AR1254SCV4
Standard ID: H004292

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1254	250.00	259	3.5	20.00
Aroclor 1254	250.00	259	3.5	
Aroclor 1254 [2C]	250.00	247	-1.2	20.00
Aroclor 1254 [2C]	250.00	247	-1.2	20.00
Decachlorobiphenyl	40.000	35.8	-10.4	20.00
Decachlorobiphenyl	40.000	35.8	-10.4	20.00
Tetrachlorometaxylene	40.000	41.4	3.6	20.00
Tetrachlorometaxylene	40.000	41.4	3.6	20.00
Decachlorobiphenyl [2C]	40.000	33.2	-16.9	20.00
Decachlorobiphenyl [2C]	40.000	33.2	-16.9	20.00
Tetrachlorometaxylene [2C]	40.000	36.0	-10.0	20.00
Tetrachlorometaxylene [2C]	40.000	36.0	-10.0	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073021ECD7.D
Data file 2: /20190730.b/20190730.b/19073021ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV4
Client ID:
Injection Date: 30-JUL-2019 22:12
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.329	-0.002	307128	5.092	-0.002	952200	41.4	36.0	14.0	Tetrachloro-m-xylene
13.618	-0.000	286282	13.724	-0.001	1380889	35.8	33.2	7.6	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	103.6	90.0
Decachlorobiphenyl	89.6	83.1

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	578235	33.7
Hexabromobiphenyl	517563	704892	36.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	2119499	41.6
Hexabromobiphenyl	1404015	2210243	57.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	6.792	-0.002	3478	3.4
Aroclor-1016	2	7.296	-0.013	2404	3.7	2	7.407	-0.006	10108	4.4
Aroclor-1016	3	7.461	0.006	1291	5.3	3	7.612	-0.001	2009	2.2
Aroclor-1016	4	8.263	-0.002	9803	48.9	4	7.782	-0.000	1586	2.8
	Total Col1Ave (3 peaks):				19.3	Total Col2Ave (4 peaks):				3.2 RPD = 143*
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				2.8
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	5.794	0.023	12429	36.1
Aroclor-1221	3	---			0.0	3	6.126	0.009	3699	6.6
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	6.792	-0.002	3478	7.2
Aroclor-1232	3	7.296	-0.011	2404	9.4	3	7.407	-0.005	10108	10.5
Aroclor-1232	4	7.461	0.006	1291	13.3	4	8.744	-0.000	121318	370.5
	Col1Ave: <3 Quant Peaks					Col2Ave: 129.4				
Aroclor-1242	1	---			0.0	1	6.792	-0.001	3478	4.1
Aroclor-1242	2	7.296	-0.011	2404	4.4	2	7.407	-0.005	10108	5.5
Aroclor-1242	3	8.629	-0.001	38507	213.9	3	7.782	-0.001	1586	3.3
Aroclor-1242	4	8.923	0.005	25899	135.6	4	8.814	-0.003	37851	64.1
	Total Col1Ave (3 peaks):				118.0	Total Col2Ave (4 peaks):				19.2 RPD = 144*
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				4.3
Aroclor-1248	1	8.091	-0.002	24489	91.0	1	7.407	-0.002	10108	8.4
Aroclor-1248	2	8.629	-0.001	38507	115.0	2	8.291	-0.001	82563	91.4
Aroclor-1248	3	8.923	0.005	25899	82.5	3	8.814	-0.002	37851	40.6
Aroclor-1248	4	9.505	-0.000	157103	787.8	4	9.142	-0.010	151804	127.9
	Total Col1Ave (4 peaks):				269.1	Total Col2Ave (4 peaks):				67.1 RPD = 120*
	Corrected Ave (3 peaks):				96.2	Corrected Ave (3 peaks):				46.8 RPD = 69*
Aroclor-1254	1	9.001	0.000	127688	255.9	1	9.052	0.000	291286	242.9
Aroclor-1254	2	9.076	-0.001	41976	262.8	2	9.142	-0.001	151804	247.4
Aroclor-1254	3	9.370	0.000	82308	258.3	3	9.561	0.000	240064	253.3
Aroclor-1254	4	9.505	0.000	157103	255.5	4	9.709	0.001	473852	244.6
Aroclor-1254	5	10.211	0.000	107682	261.6	5	10.481	0.000	300337	246.3
	Total Col1Ave (5 peaks):				258.8	Total Col2Ave (5 peaks):				246.9 RPD = 5
	Corrected Ave (4 peaks):				257.8	Corrected Ave (4 peaks):				245.3 RPD = 5
Aroclor-1260	1	10.763	-0.002	7194	19.0	1	10.813	-0.001	23299	16.0
Aroclor-1260	2	11.082	-0.000	7683	20.9	2	11.243	-0.011	135379	93.3
Aroclor-1260	3	11.451	-0.000	17479	19.2	3	11.529	-0.002	86102	22.6
Aroclor-1260	4	11.850	0.000	16133	37.6	4	12.045	0.001	10376	8.7
Aroclor-1260	5	---			0.0	NS	---			----
	Total Col1Ave (4 peaks):				24.2	Total Col2Ave (4 peaks):				35.1 RPD = 37
	Corrected Ave (3 peaks):				19.7	Corrected Ave (3 peaks):				15.7 RPD = 22
Aroclor-1262	1	11.082	0.000	7683	16.7	1	10.813	-0.001	23299	11.4
Aroclor-1262	2	11.451	0.000	17479	15.8	2	11.243	-0.011	135379	78.7
Aroclor-1262	3	11.850	-0.000	16133	47.5	3	11.529	-0.000	86102	21.3
Aroclor-1262	4	---			0.0	4	12.045	0.001	10376	5.4
	Total Col1Ave (3 peaks):				26.7	Total Col2Ave (4 peaks):				29.2 RPD = 9
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				12.7
Aroclor-1268	1	---			0.0	1	12.045	-0.001	10376	2.0
Aroclor-1268	2	---			0.0	2	12.095	-0.015	56027	11.1
Aroclor-1268	3	---			0.0	3	12.503	0.002	947	0.2
Aroclor-1268	4	---			0.0	4	13.315	-0.005	1689	0.1
	Col1Ave: <3 Quant Peaks					Col2Ave: 3.3				

Total PCB Area Col1 (5.430 - 13.518) = 1551903 Col1 Total PCB = 0.3 ppm*

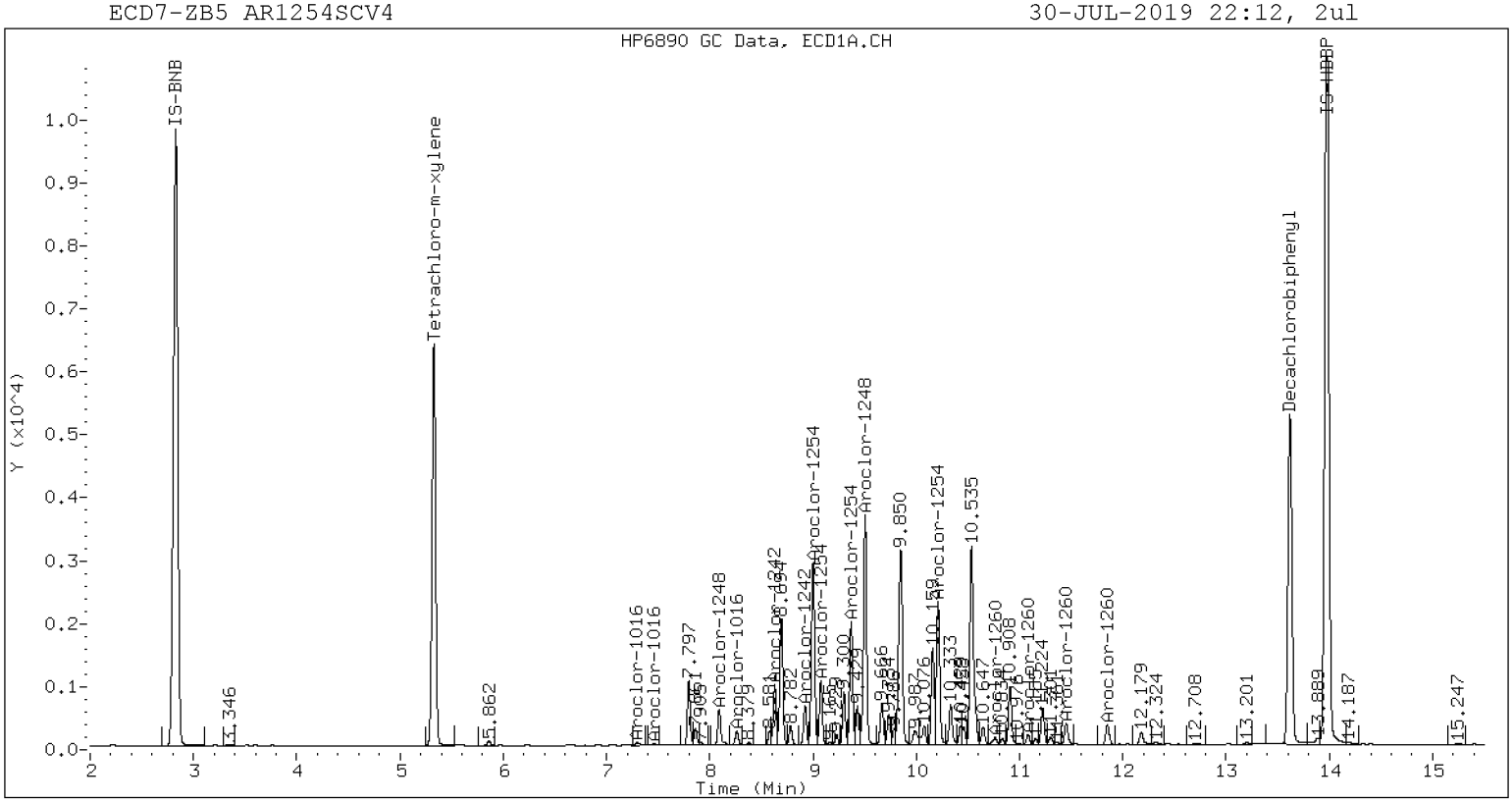
Total PCB Area Col2 (5.430 - 13.518) = 4805354 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

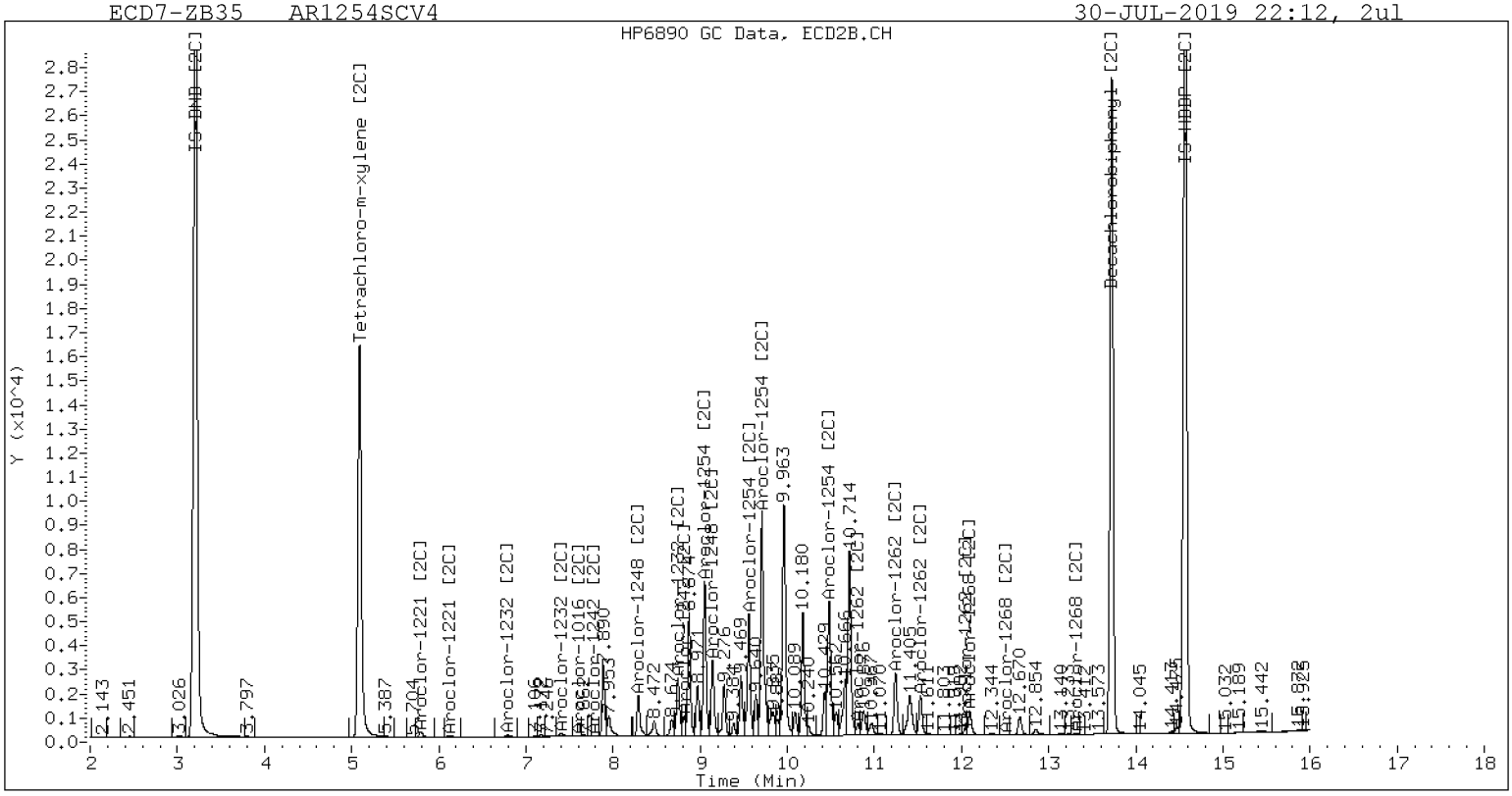
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV4 30-JUL-2019 22:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV4 30-JUL-2019 22:12, 2ul



ZB-35 Manual Integration: NO

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CG00087
Laboratory ID: SHG0411-SCV5
Sequence: SHG0411
Sequence Name: AR2162SCV5
Standard ID: H004293

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1221	250.00	264	5.6	20.00
Aroclor 1221	250.00	264	5.6	20.00
Aroclor 1221 [2C]	250.00	264	5.6	20.00
Aroclor 1221 [2C]	250.00	264	5.6	20.00
Aroclor 1262	250.00	267	6.8	20.00
Aroclor 1262	250.00	267	6.8	20.00
Aroclor 1262 [2C]	250.00	264	5.5	20.00
Aroclor 1262 [2C]	250.00	264	5.5	20.00
Decachlorobiphenyl	40.000	35.5	-11.3	20.00
Decachlorobiphenyl	40.000	35.5	-11.3	20.00
Tetrachlorometaxylene	40.000	42.0	4.9	20.00
Tetrachlorometaxylene	40.000	42.0	4.9	20.00
Decachlorobiphenyl [2C]	40.000	35.3	-11.7	20.00
Decachlorobiphenyl [2C]	40.000	35.3	-11.7	20.00
Tetrachlorometaxylene [2C]	40.000	40.7	1.6	20.00
Tetrachlorometaxylene [2C]	40.000	40.7	1.6	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073022ECD7.D
Data file 2: /20190730.b/20190730.b/19073022ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV5
Client ID:
Injection Date: 30-JUL-2019 22:33
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	0.000	235950	5.094	-0.000	729608	42.0	40.7	3.2	Tetrachloro-m-xylene
13.618	-0.001	210891	13.723	-0.003	1014350	35.5	35.3	0.5	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	104.9	101.6
Decachlorobiphenyl	88.7	88.3

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	438711	1.5
Hexabromobiphenyl	517563	524678	1.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1438957	-3.9
Hexabromobiphenyl	1404015	1528087	8.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.919	-0.000	3235	23.4	1	6.806	0.012	36922	52.7
Aroclor-1016	2	7.310	0.002	9519	19.5	2	7.414	0.001	37647	24.2
Aroclor-1016	3	7.455	-0.000	4301	23.1	3	7.615	0.002	18209	29.4
Aroclor-1016	4	8.265	-0.000	1859	12.2	4	7.784	0.001	10348	26.6
Total Col1Ave (4 peaks):					19.6	Total Col2Ave (4 peaks):				33.2 RPD = 52*
Corrected Ave (3 peaks):					18.3	Corrected Ave (3 peaks):				26.8 RPD = 38
Aroclor-1221	1	4.171	0.001	8740	265.7	1	4.295	0.001	28365	264.1
Aroclor-1221	2	5.702	0.001	14298	265.3	2	5.772	0.001	61601	263.2
Aroclor-1221	3	5.973	0.001	34985	261.2	3	6.118	0.001	101043	265.0
Total Col1Ave (3 peaks):					264.1	Total Col2Ave (3 peaks):				264.1 RPD = 0
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.171	0.000	8740	440.8	1	4.295	-0.000	28365	439.0
Aroclor-1232	2	6.919	-0.000	3235	58.2	2	6.806	0.013	36922	113.2
Aroclor-1232	3	7.310	0.003	9519	48.9	3	7.414	0.002	37647	57.3
Aroclor-1232	4	7.455	-0.000	4301	58.3	4	8.747	0.002	8918	40.1
Total Col1Ave (4 peaks):					151.5	Total Col2Ave (4 peaks):				162.4 RPD = 7
Corrected Ave (3 peaks):					55.1	Corrected Ave (3 peaks):				70.2 RPD = 24
Aroclor-1242	1	6.919	-0.000	3235	28.3	1	6.806	0.013	36922	64.7
Aroclor-1242	2	7.310	0.003	9519	23.1	2	7.414	0.002	37647	30.0
Aroclor-1242	3	8.631	0.001	2425	17.8	3	7.784	0.001	10348	31.9
Aroclor-1242	4	8.922	0.003	2664	18.4	4	8.818	0.001	5408	13.5
Total Col1Ave (4 peaks):					21.9	Total Col2Ave (4 peaks):				35.0 RPD = 46*
Corrected Ave (3 peaks):					19.7	Corrected Ave (3 peaks):				25.1 RPD = 24
Aroclor-1248	1	8.093	-0.000	2113	10.3	1	7.414	0.005	37647	46.1
Aroclor-1248	2	8.631	0.001	2425	9.5	2	8.293	0.001	12538	20.4
Aroclor-1248	3	8.922	0.003	2664	11.2	3	8.818	0.002	5408	8.5
Aroclor-1248	4	9.476	-0.029	16889	111.6	4	9.150	-0.003	11984	14.9
Total Col1Ave (4 peaks):					35.7	Total Col2Ave (4 peaks):				22.5 RPD = 45*
Corrected Ave (3 peaks):					10.4	Corrected Ave (3 peaks):				14.6 RPD = 34
Aroclor-1254	1	9.003	0.002	12539	33.1	1	9.054	0.002	39347	48.3
Aroclor-1254	2	9.078	0.001	1449	12.0	2	9.150	0.006	11984	28.8
Aroclor-1254	3	9.370	0.001	2805	11.6	3	9.562	0.002	10151	15.8
Aroclor-1254	4	9.476	-0.028	16889	36.2	4	9.751	0.043	167577	127.4
Aroclor-1254	5	10.159	-0.052	92192	295.2	5	10.487	0.007	39785	48.1
Total Col1Ave (5 peaks):					77.6	Total Col2Ave (5 peaks):				53.7 RPD = 36
Corrected Ave (4 peaks):					23.2	Corrected Ave (4 peaks):				35.2 RPD = 41*
Aroclor-1260	1	10.766	0.000	111900	396.1	1	10.814	0.000	369658	366.5
Aroclor-1260	2	11.082	0.000	92018	335.8	2	11.254	0.001	314522	313.4
Aroclor-1260	3	11.451	-0.001	218222	322.1	3	11.530	-0.001	724517	275.0
Aroclor-1260	4	11.851	0.001	66364	208.0	4	12.044	0.001	361184	436.6
Aroclor-1260	5	11.968	0.001	85150	549.7	NS	---			----
Total Col1Ave (5 peaks):					362.4	Total Col2Ave (4 peaks):				347.9 RPD = 4
Corrected Ave (4 peaks):					315.5	Corrected Ave (3 peaks):				318.3 RPD = 1
Aroclor-1262	1	11.082	0.001	92018	268.9	1	10.814	0.000	369658	261.1
Aroclor-1262	2	11.451	-0.000	218222	265.8	2	11.254	0.001	314522	264.4
Aroclor-1262	3	11.851	0.001	66364	262.3	3	11.530	0.000	724517	259.0
Aroclor-1262	4	11.968	0.001	85150	270.7	4	12.044	0.000	361184	270.1
Total Col1Ave (4 peaks):					266.9	Total Col2Ave (4 peaks):				263.6 RPD = 1
Corrected Ave (3 peaks):					265.7	Corrected Ave (3 peaks):				261.5 RPD = 2
Aroclor-1268	1	11.968	0.000	85150	91.2	1	12.044	-0.001	361184	102.0
Aroclor-1268	2	12.041	0.002	87828	101.4	2	12.105	-0.005	510203	145.6
Aroclor-1268	3	12.441	0.016	31694	44.1	3	12.501	0.000	23416	7.5
Aroclor-1268	4	13.210	-0.000	24400	11.5	4	13.316	-0.004	109200	9.6
Total Col1Ave (4 peaks):					62.1	Total Col2Ave (4 peaks):				66.2 RPD = 6

Corrected Ave (3 peaks): 48.9 Corrected Ave (3 peaks): 39.7 RPD = 21

Total PCB Area Col1 (5.430 - 13.518) = 1523229 Col1 Total PCB = 0.4 ppm*

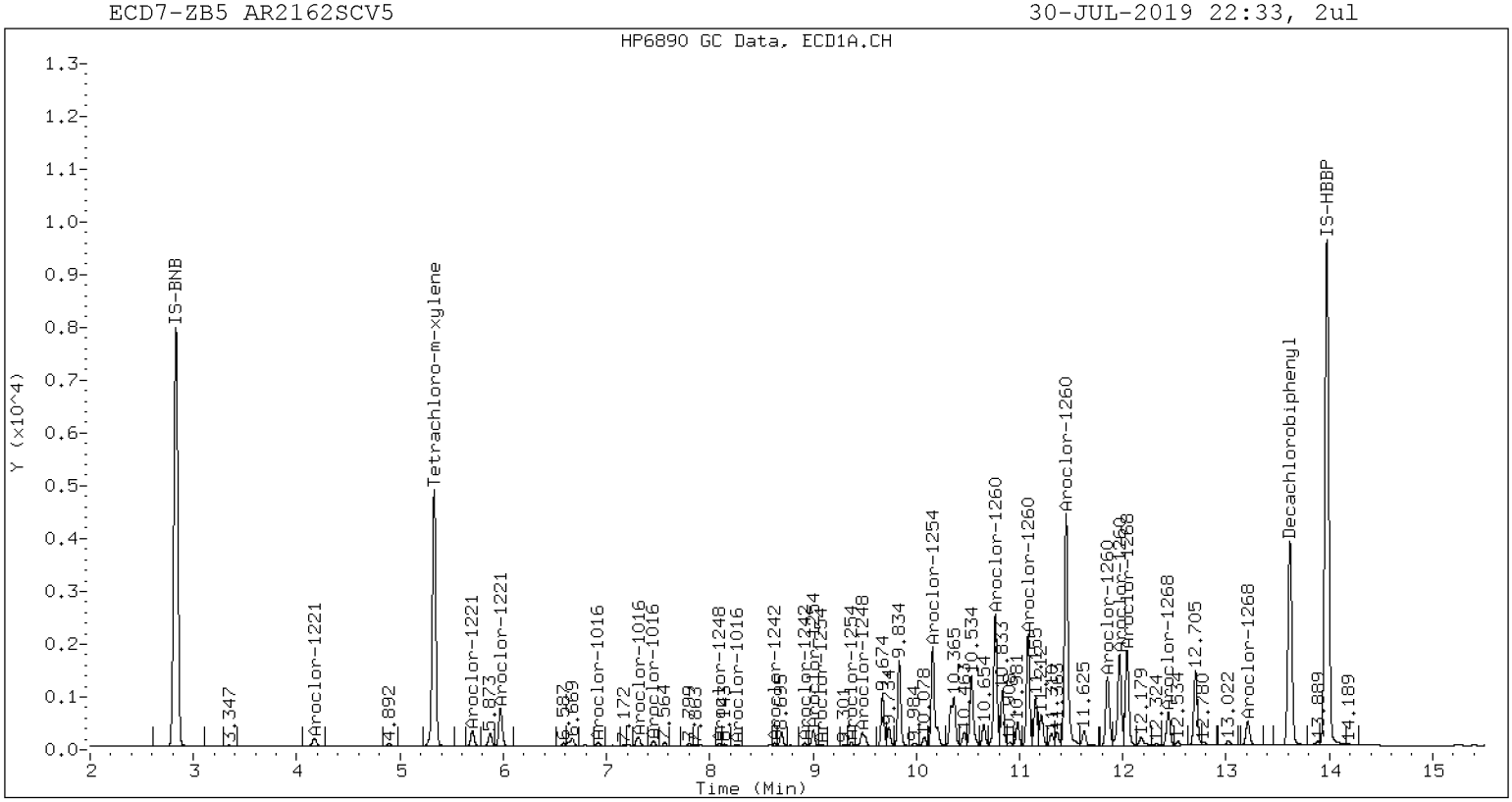
Total PCB Area Col2 (5.430 - 13.518) = 5281252 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

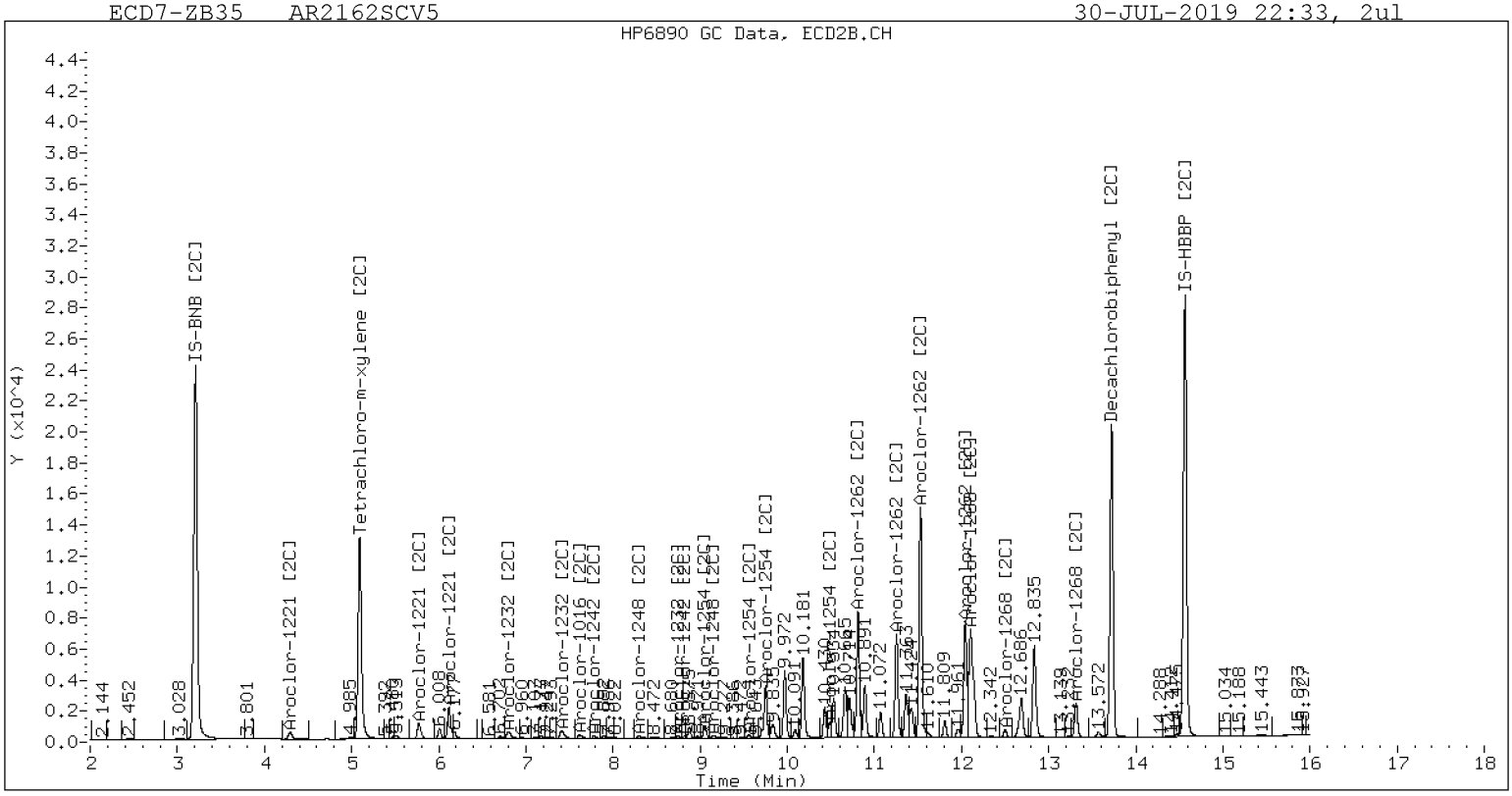
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV5 30-JUL-2019 22:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV5 30-JUL-2019 22:33, 2ul



ZB-35 Manual Integration: NO

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CG00087
Laboratory ID: SHG0411-SCV6
Sequence: SHG0411
Sequence Name: AR3268SCV6
Standard ID: H004294

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1232	250.00	275	9.9	20.00
Aroclor 1232	250.00	275	9.9	20.00
Aroclor 1232 [2C]	250.00	266	6.2	20.00
Aroclor 1232 [2C]	250.00	266	6.2	20.00
Aroclor 1268	250.00	258	3.2	20.00
Aroclor 1268	250.00	258	3.2	20.00
Aroclor 1268 [2C]	250.00	246	-1.5	20.00
Aroclor 1268 [2C]	250.00	246	-1.5	20.00
Decachlorobiphenyl	40.000	48.6	21.5	20.00
Decachlorobiphenyl	40.000	48.6	21.5	20.00
Tetrachlorometaxylene	40.000	40.0	-0.08	20.00
Tetrachlorometaxylene	40.000	40.0	-0.08	20.00
Decachlorobiphenyl [2C]	40.000	46.6	16.5	20.00
Decachlorobiphenyl [2C]	40.000	46.6	16.5	20.00
Tetrachlorometaxylene [2C]	40.000	38.0	-4.9	20.00
Tetrachlorometaxylene [2C]	40.000	38.0	-4.9	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073023ECD7.D
Data file 2: /20190730.b/20190730.b/19073023ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV6
Client ID:
Injection Date: 30-JUL-2019 22:54
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.329	-0.001	231801	5.093	-0.001	719293	40.0	38.0	4.9	Tetrachloro-m-xylene
13.618	-0.000	296657	13.725	-0.000	1438798	48.6	46.6	4.2	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	99.9	95.1
Decachlorobiphenyl	121.5	116.5

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	452459	4.6
Hexabromobiphenyl	517563	538642	4.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1516016	1.2
Hexabromobiphenyl	1404015	1641829	16.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.919	-0.000	16254	114.1	1	6.793	-0.001	97809	132.4
Aroclor-1016	2	7.307	-0.001	56547	112.2	2	7.412	-0.002	194376	118.8
Aroclor-1016	3	7.454	-0.001	21489	111.9	3	7.613	0.000	78747	120.8
Aroclor-1016	4	8.263	-0.001	18471	117.7	4	7.782	-0.000	50904	124.3
Total Col1Ave (4 peaks):					114.0	Total Col2Ave (4 peaks):				124.1 RPD = 8
Corrected Ave (3 peaks):					112.7	Corrected Ave (3 peaks):				121.3 RPD = 7
Aroclor-1221	1	4.170	-0.000	5150	151.8	1	4.294	-0.000	17679	156.2
Aroclor-1221	2	5.700	-0.000	8668	156.0	2	5.772	0.001	41388	167.9
Aroclor-1221	3	5.972	-0.000	27580	199.7	3	6.117	-0.000	101640	253.0
Total Col1Ave (3 peaks):					169.1	Total Col2Ave (3 peaks):				192.4 RPD = 13
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.170	-0.001	5150	251.9	1	4.294	-0.002	17679	259.7
Aroclor-1232	2	6.919	-0.000	16254	283.6	2	6.793	-0.001	97809	284.5
Aroclor-1232	3	7.307	0.000	56547	281.7	3	7.412	-0.000	194376	281.0
Aroclor-1232	4	7.454	-0.001	21489	282.3	4	8.745	-0.000	55515	237.0
Total Col1Ave (4 peaks):					274.9	Total Col2Ave (4 peaks):				265.6 RPD = 3
Corrected Ave (3 peaks):					271.9	Corrected Ave (3 peaks):				259.2 RPD = 5
Aroclor-1242	1	6.919	-0.000	16254	137.7	1	6.793	-0.000	97809	162.7
Aroclor-1242	2	7.307	0.000	56547	132.9	2	7.412	-0.000	194376	146.9
Aroclor-1242	3	8.630	-0.000	16533	117.4	3	7.782	-0.001	50904	149.0
Aroclor-1242	4	8.917	-0.001	17384	116.3	4	8.818	0.001	56165	132.9
Total Col1Ave (4 peaks):					126.1	Total Col2Ave (4 peaks):				147.9 RPD = 16
Corrected Ave (3 peaks):					122.2	Corrected Ave (3 peaks):				142.9 RPD = 16
Aroclor-1248	1	8.093	0.000	15388	73.1	1	7.412	0.002	194376	226.1
Aroclor-1248	2	8.630	-0.000	16533	63.1	2	8.292	-0.001	58258	90.2
Aroclor-1248	3	8.917	-0.001	17384	70.8	3	8.818	0.002	56165	84.2
Aroclor-1248	4	9.505	0.000	6267	40.2	4	9.154	0.001	65334	77.0
Total Col1Ave (4 peaks):					61.8	Total Col2Ave (4 peaks):				119.4 RPD = 64*
Corrected Ave (3 peaks):					58.0	Corrected Ave (3 peaks):				83.8 RPD = 36
Aroclor-1254	1	9.000	-0.001	5754	14.7	1	9.053	0.001	13283	15.5
Aroclor-1254	2	9.077	0.000	2484	19.9	2	9.154	0.011	65334	148.8
Aroclor-1254	3	9.371	0.001	3465	13.9	3	9.562	0.002	11779	17.4
Aroclor-1254	4	9.505	0.001	6267	13.0	4	9.710	0.003	23397	16.9
Aroclor-1254	5	10.214	0.004	3574	11.1	5	10.484	0.003	8837	10.1
Total Col1Ave (5 peaks):					14.5	Total Col2Ave (5 peaks):				41.7 RPD = 97*
Corrected Ave (4 peaks):					13.2	Corrected Ave (4 peaks):				15.0 RPD = 13
Aroclor-1260	1	10.765	0.000	56927	196.3	1	10.815	0.001	195198	180.1
Aroclor-1260	2	11.082	0.000	4949	17.6	2	11.258	0.004	236225	219.1
Aroclor-1260	3	11.451	0.000	44847	64.5	3	11.529	-0.002	131397	46.4
Aroclor-1260	4	11.853	0.003	1408	4.3	4	12.045	0.001	974022	1095.9
Aroclor-1260	5	11.968	0.001	257533	1619.5	NS	---			----
Total Col1Ave (5 peaks):					380.4	Total Col2Ave (4 peaks):				385.4 RPD = 1
Corrected Ave (4 peaks):					70.7	Corrected Ave (3 peaks):				148.6 RPD = 71*
Aroclor-1262	1	11.082	0.001	4949	14.1	1	10.815	0.001	195198	128.3
Aroclor-1262	2	11.451	0.001	44847	53.2	2	11.258	0.004	236225	184.8
Aroclor-1262	3	11.853	0.003	1408	5.4	3	11.529	-0.001	131397	43.7
Aroclor-1262	4	11.968	0.001	257533	797.6	4	12.045	0.001	974022	677.8
Total Col1Ave (4 peaks):					217.6	Total Col2Ave (4 peaks):				258.7 RPD = 17
Corrected Ave (3 peaks):					24.2	Corrected Ave (3 peaks):				119.0 RPD = 132*
Aroclor-1268	1	11.968	0.000	257533	268.7	1	12.045	-0.001	974022	256.1
Aroclor-1268	2	12.039	0.000	263447	296.4	2	12.111	0.001	1089347	289.4
Aroclor-1268	3	12.427	0.002	178082	241.3	3	12.502	0.001	761562	227.5
Aroclor-1268	4	13.211	0.000	491485	225.4	4	13.321	0.001	2603537	212.2
Total Col1Ave (4 peaks):					257.9	Total Col2Ave (4 peaks):				246.3 RPD = 5

Corrected Ave (3 peaks): 245.1 Corrected Ave (3 peaks): 231.9 RPD = 6

Total PCB Area Col1 (5.430 - 13.518) = 1971485 Col1 Total PCB = 0.5 ppm*

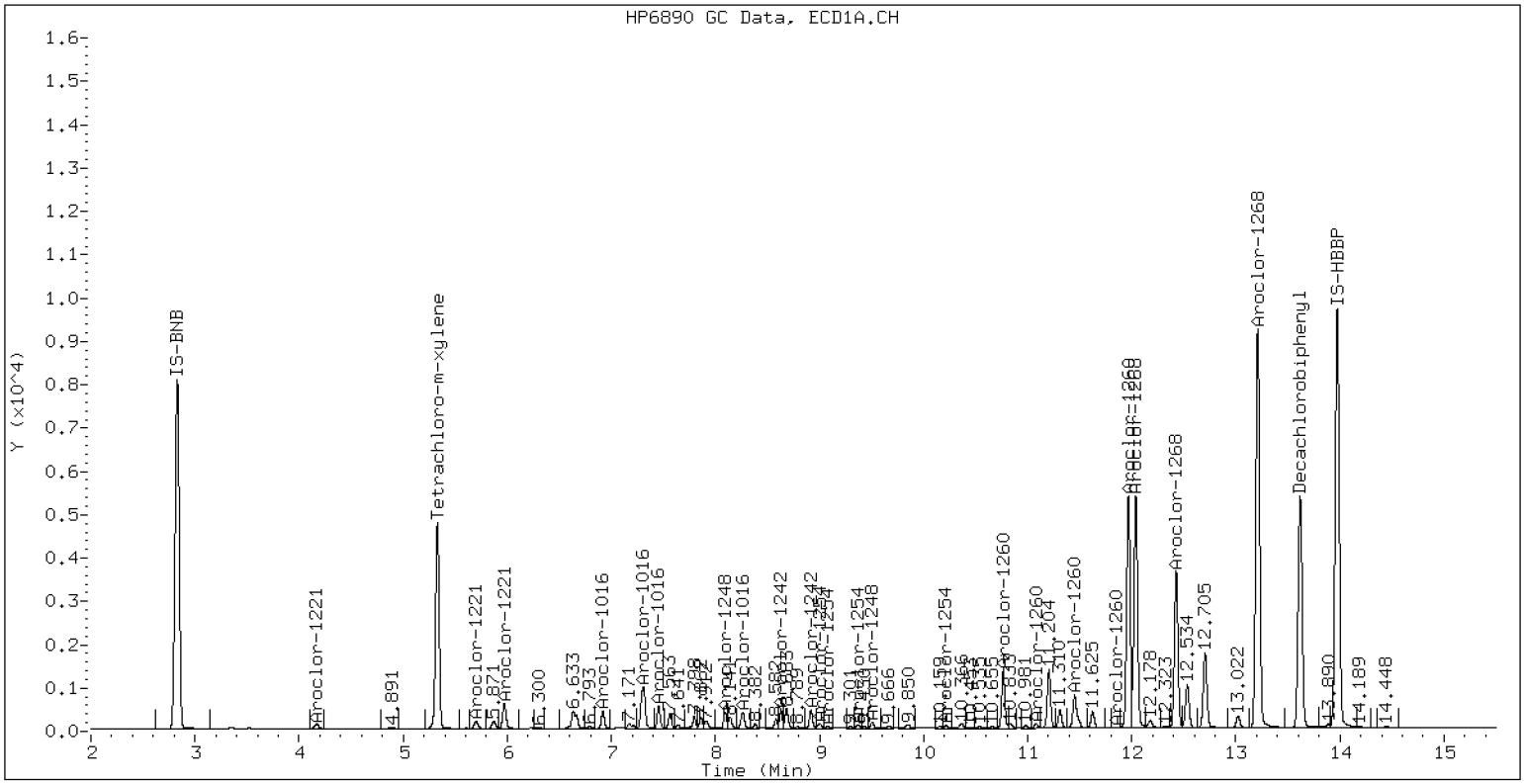
Total PCB Area Col2 (5.430 - 13.518) = 8252950 Col2 Total PCB = 0.7 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

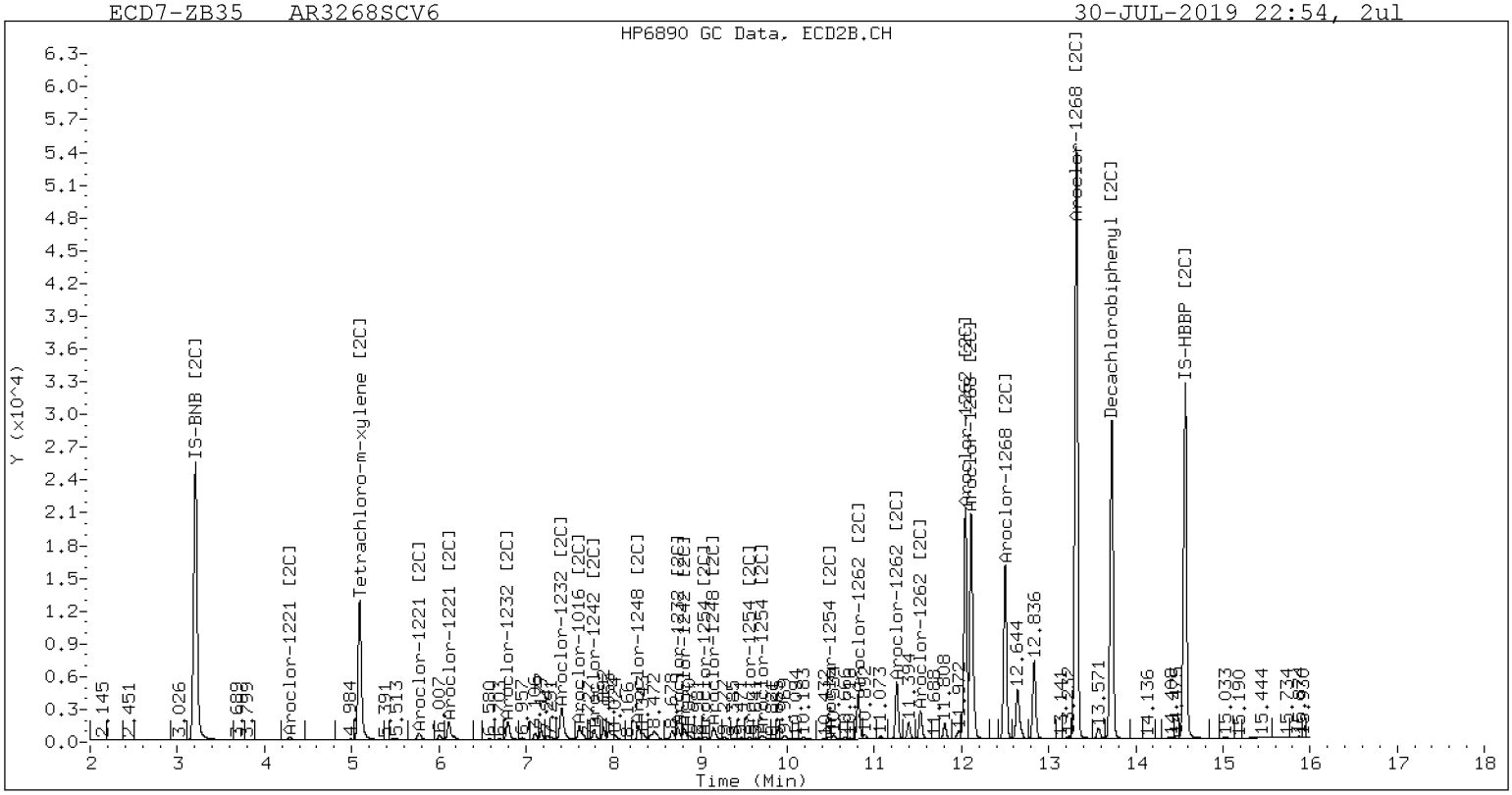
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV6 30-JUL-2019 22:54, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV6 30-JUL-2019 22:54, 2ul



ZB-35 Manual Integration: NO

INITIAL CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19081003ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHH0183	Injection Date:	08/10/19
Lab Sample ID:	SHH0183-ICV1	Injection Time:	12:51
Sequence Name:	AR1254ICV1		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Aroclor 1254	A	250.00	252	0.0554512	0.0559358		0.7	20
Aroclor 1254 [2C]	A	250.00	270	0.0446668	0.0483285		8.1	20
Decachlorobiphenyl	A	40.000	37.6	0.9063338	0.8523934		-6.0	20
Tetrachlorometaxylene	A	40.000	41.0	1.0254730	1.0515180		2.5	20
Decachlorobiphenyl [2C]	A	40.000	37.3	1.5040840	1.4034190		-6.8	20
Tetrachlorometaxylene [2C]	A	40.000	39.6	0.9978530	0.9881748		-1.0	20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190810.b/19081003ECD7.D
Data file 2: /20190810.b/20190810.b/19081003ECD7.D
Method: \\target\share\chem4\ecd7.i\20190810.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254ICV1
Client ID:
Injection Date: 10-AUG-2019 12:51
Report Date: 08/14/2019 10:28
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.306	0.003	160265	5.063	0.004	554829	41.0	39.6	3.5	Tetrachloro-m-xylene
13.615	0.001	158549	13.714	-0.001	764113	37.6	37.3	0.8	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	102.5	99.0
Decachlorobiphenyl	94.0	93.3

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	304826	-29.5
Hexabromobiphenyl	517563	372009	-28.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1122937	-25.0
Hexabromobiphenyl	1404015	1088931	-22.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1254	1	8.992	0.000	66717	253.6	1	9.038	0.000	172263	271.2
Aroclor-1254	2	9.067	0.000	20952	248.8	2	9.129	0.000	87277	268.4
Aroclor-1254	3	9.361	0.000	42308	251.9	3	9.546	0.000	138222	275.3
Aroclor-1254	4	9.496	0.000	81721	252.1	4	9.695	0.000	277464	270.4
Aroclor-1254	5	10.203	0.000	54719	252.2	5	10.469	0.000	172740	267.4
Total Col1Ave (5 peaks):					251.7	Total Col2Ave (5 peaks):				270.5 RPD = 7
Corrected Ave (4 peaks):					251.2	Corrected Ave (4 peaks):				269.3 RPD = 7
CalAmt %D:					0.7	CalAmt %D:				8.2

Total PCB Area Col1 (5.403 - 13.514) = 802290 Col1 Total PCB = 0.3 ppm*

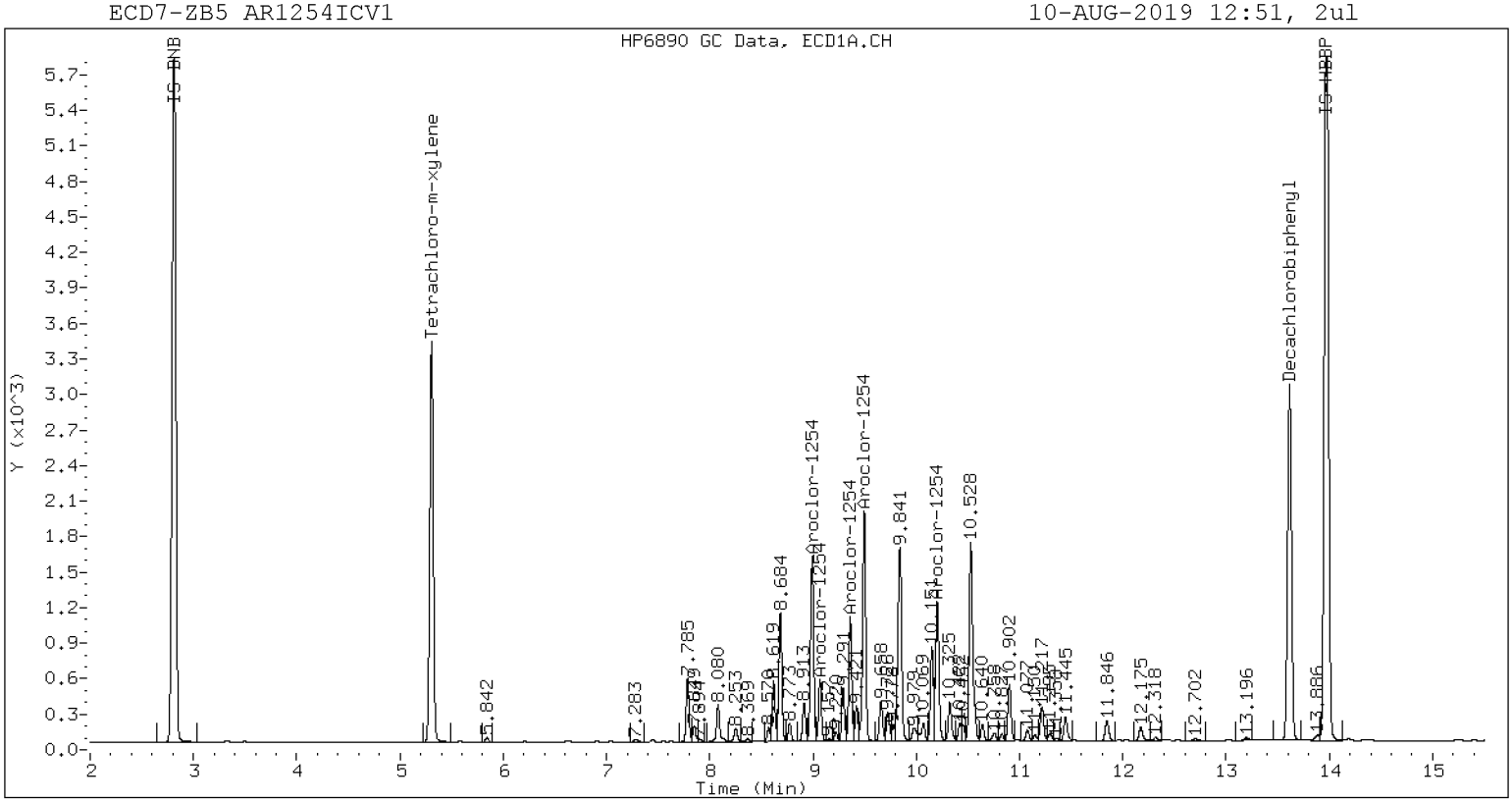
Total PCB Area Col2 (5.403 - 13.514) = 2812426 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

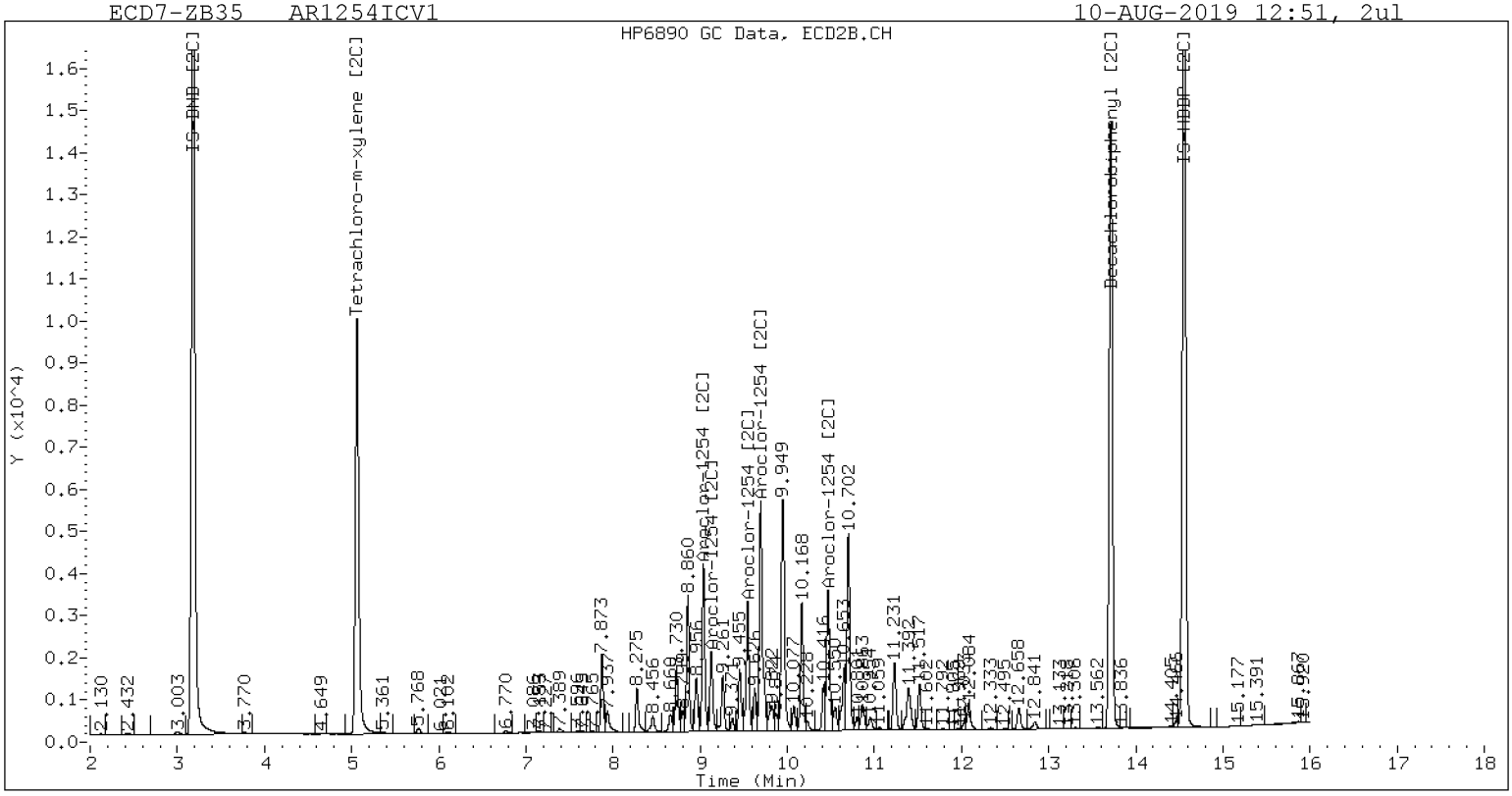
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254ICV1 10-AUG-2019 12:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254ICV1 10-AUG-2019 12:51, 2ul



ZB-35 Manual Integration: NO

INITIAL CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19081004ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHH0183	Injection Date:	08/10/19
Lab Sample ID:	SHH0183-ICV2	Injection Time:	13:12
Sequence Name:	AR1660ICV2		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Aroclor 1016	A	250.00	254	0.0440053	0.0450037		1.6	20
Aroclor 1016 [2C]	A	250.00	261	0.0453338	0.0470559		4.2	20
Aroclor 1260	A	250.00	250	0.0520836	0.0524037		-0.08	20
Aroclor 1260 [2C]	A	250.00	248	0.0716386	0.0704316		-0.7	20
Decachlorobiphenyl	A	40.000	39.3	0.9063338	0.8908749		-1.8	20
Tetrachlorometaxylene	A	40.000	41.2	1.0254730	1.0568280		3.0	20
Decachlorobiphenyl [2C]	A	40.000	38.8	1.5040840	1.4589240		-3.0	20
Tetrachlorometaxylene [2C]	A	40.000	39.3	0.9978530	0.9809386		-1.8	20

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190810.b/19081004ECD7.D
Data file 2: /20190810.b/20190810.b/19081004ECD7.D
Method: \\target\share\chem4\ecd7.i\20190810.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660ICV2
Client ID:
Injection Date: 10-AUG-2019 13:12
Report Date: 08/14/2019 10:28
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.306	0.003	160260	5.063	0.004	548379	41.2	39.3	4.7	Tetrachloro-m-xylene
13.615	0.001	166370	13.715	-0.000	813204	39.3	38.8	1.3	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	103.1	98.3
Decachlorobiphenyl	98.3	97.0

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	303285	-29.9
Hexabromobiphenyl	517563	373498	-27.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1118070	-25.3
Hexabromobiphenyl	1404015	1114800	-20.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.903	0.004	24061	252.1	1	6.771	0.003	139974	257.0
Aroclor-1016	2	7.292	0.001	87458	258.8	2	7.393	0.003	312513	259.0
Aroclor-1016	3	7.440	0.002	32584	253.2	3	7.594	0.002	124850	259.6
Aroclor-1016	4	8.252	0.002	26509	252.0	4	7.763	0.002	80311	266.0
Total Col1Ave (4 peaks):					254.0	Total Col2Ave (4 peaks):				260.4 RPD = 2
Corrected Ave (3 peaks):					252.4	Corrected Ave (3 peaks):				258.5 RPD = 2
CalAmt %D:					1.6	CalAmt %D:				4.2
Aroclor-1260	1	10.758	0.000	49926	248.3	1	10.801	0.000	185269	251.8
Aroclor-1260	2	11.075	-0.000	48890	250.7	2	11.242	-0.000	185985	254.1
Aroclor-1260	3	11.445	-0.000	122923	254.9	3	11.519	-0.000	460883	239.8
Aroclor-1260	4	11.846	0.000	57318	252.4	4	12.034	0.001	149327	247.5
Aroclor-1260	5	11.963	0.000	26766	242.7	NS	---			----
Total Col1Ave (5 peaks):					249.8	Total Col2Ave (4 peaks):				248.3 RPD = 1
Corrected Ave (4 peaks):					248.5	Corrected Ave (3 peaks):				246.4 RPD = 1
CalAmt %D:					-0.1	CalAmt %D:				-0.7

Total PCB Area Col1 (5.403 - 13.514) = 1286305 Col1 Total PCB = 0.5 ppm*

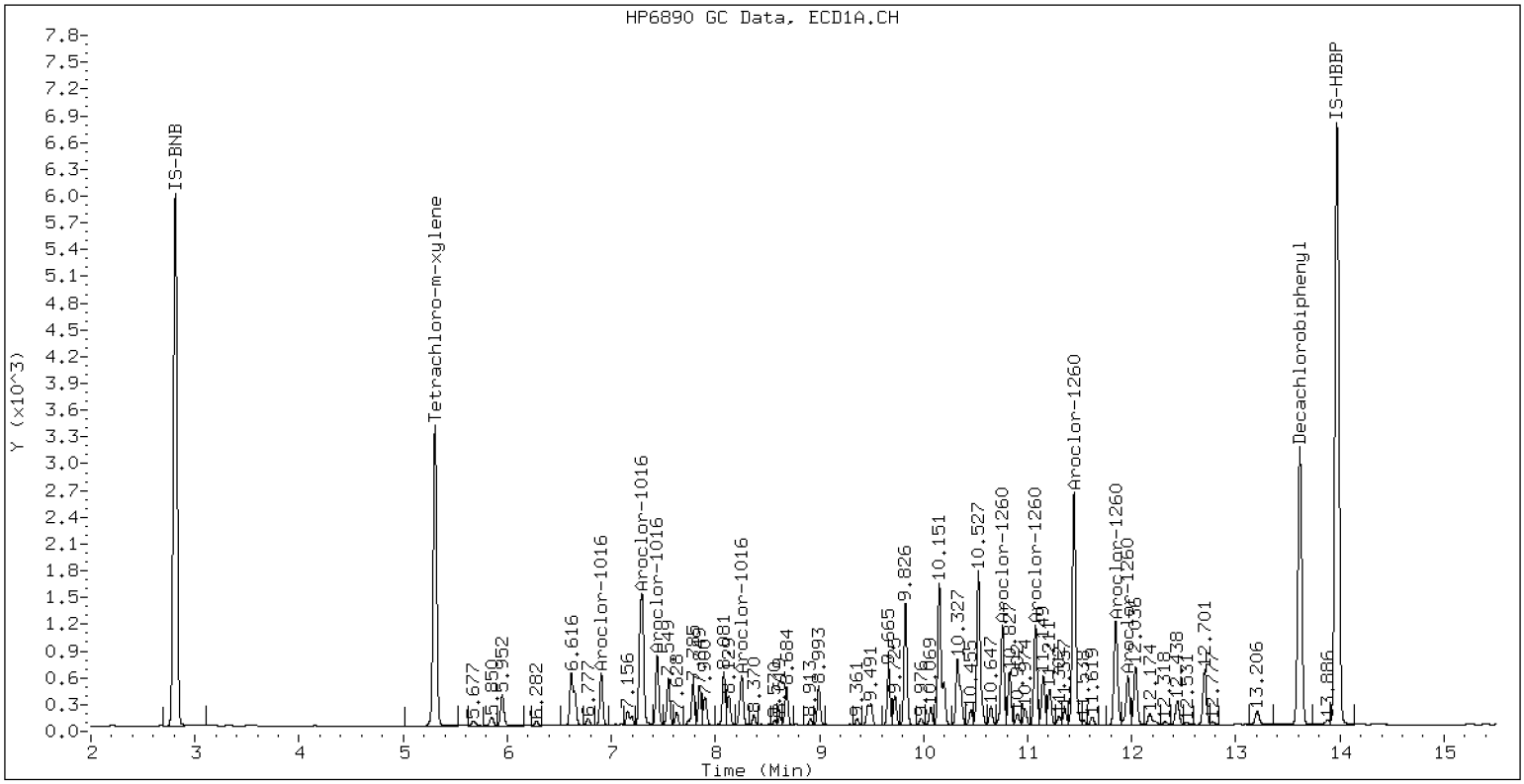
Total PCB Area Col2 (5.403 - 13.514) = 4768465 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

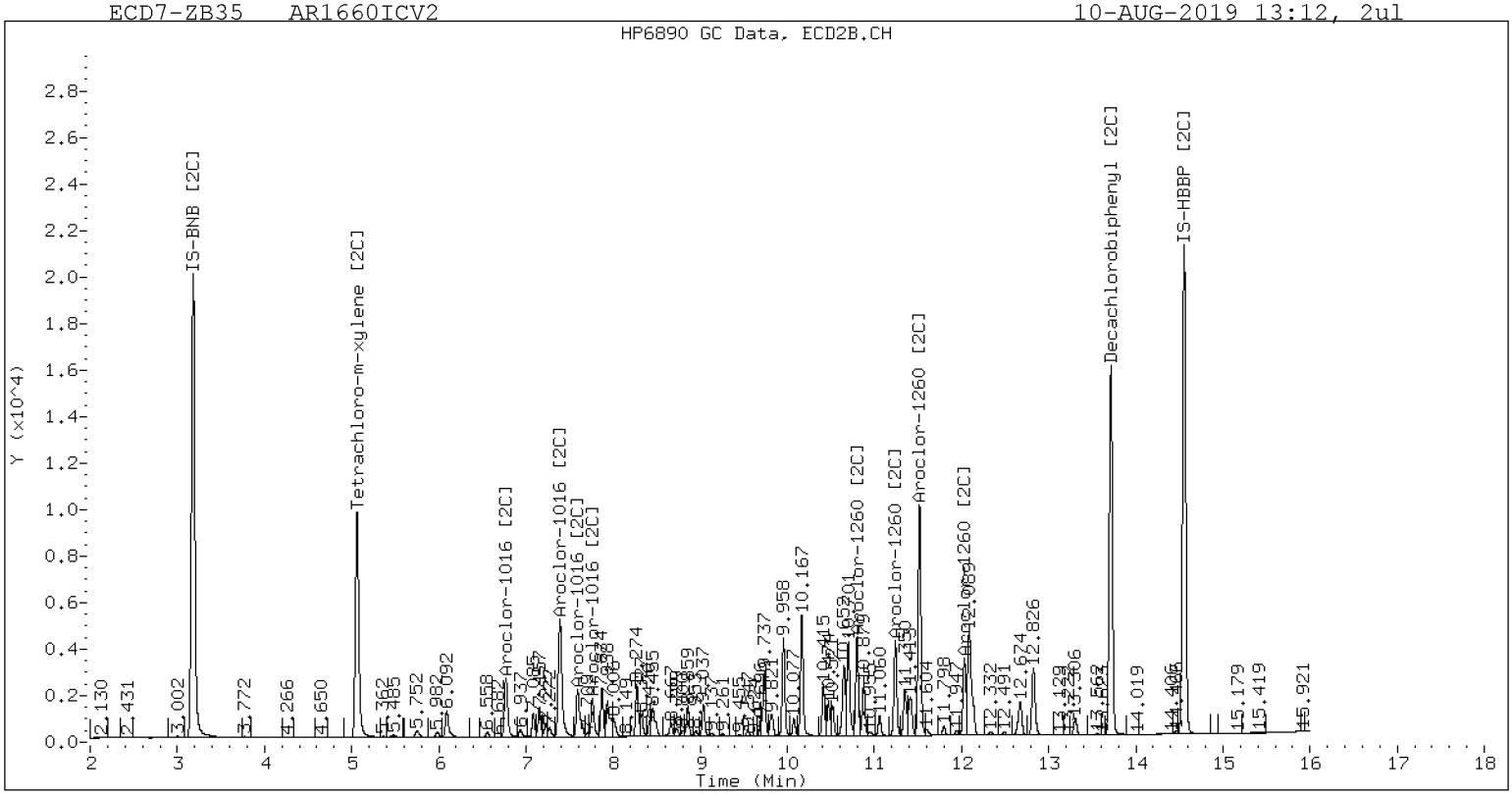
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660ICV2 10-AUG-2019 13:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660ICV2 10-AUG-2019 13:12, 2ul



ZB-35 Manual Integration: NO

INITIAL CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19081403ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHH0216	Injection Date:	08/14/19
Lab Sample ID:	SHH0216-ICV1	Injection Time:	15:00
Sequence Name:	AR1254ICV1		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Aroclor 1254	A	250.00	256	0.0554512	0.0569900		2.3	20
Aroclor 1254 [2C]	A	250.00	263	0.0446668	0.0460030		5.3	20
Decachlorobiphenyl	A	40.000	38.8	0.9063338	0.8781313		-3.0	20
Tetrachlorometaxylene	A	40.000	42.4	1.0254730	1.0880170		6.0	20
Decachlorobiphenyl [2C]	A	40.000	36.6	1.5040840	1.3767850		-8.5	20
Tetrachlorometaxylene [2C]	A	40.000	40.1	0.9978530	1.0012050		0.3	20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081403ECD7.D
Data file 2: /20190814.b/20190814.b/19081403ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254ICV1
Client ID:
Injection Date: 14-AUG-2019 15:00
Report Date: 08/15/2019 15:59
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.302	-0.011	196670	5.057	-0.011	646263	42.4	40.1	5.6	Tetrachloro-m-xylene
13.616	0.000	183439	13.716	0.001	848698	38.8	36.6	5.7	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	106.1	100.3
Decachlorobiphenyl	96.9	91.5

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	361520	-16.4
Hexabromobiphenyl	517563	417794	-19.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1290971	-13.8
Hexabromobiphenyl	1404015	1232869	-12.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1254	1	8.991	0.000	81438	261.0	1	9.037	0.000	199172	272.7
Aroclor-1254	2	9.068	0.000	25656	256.9	2	9.128	0.000	100689	269.4
Aroclor-1254	3	9.362	0.000	48226	242.1	3	9.546	0.000	161138	279.1
Aroclor-1254	4	9.496	0.000	99648	259.2	4	9.694	0.000	268753	227.8
Aroclor-1254	5	10.204	0.000	66954	260.2	5	10.468	0.000	198194	266.9

Total Col1Ave (5 peaks): 255.9 Total Col2Ave (5 peaks): 263.2 RPD = 3

Corrected Ave (4 peaks): 254.6 Corrected Ave (4 peaks): 259.2 RPD = 2

CalAmt %D: 2.3 CalAmt %D: 5.3

Total PCB Area Col1 (5.413 - 13.516) = 1004603 Col1 Total PCB = 0.3 ppm*

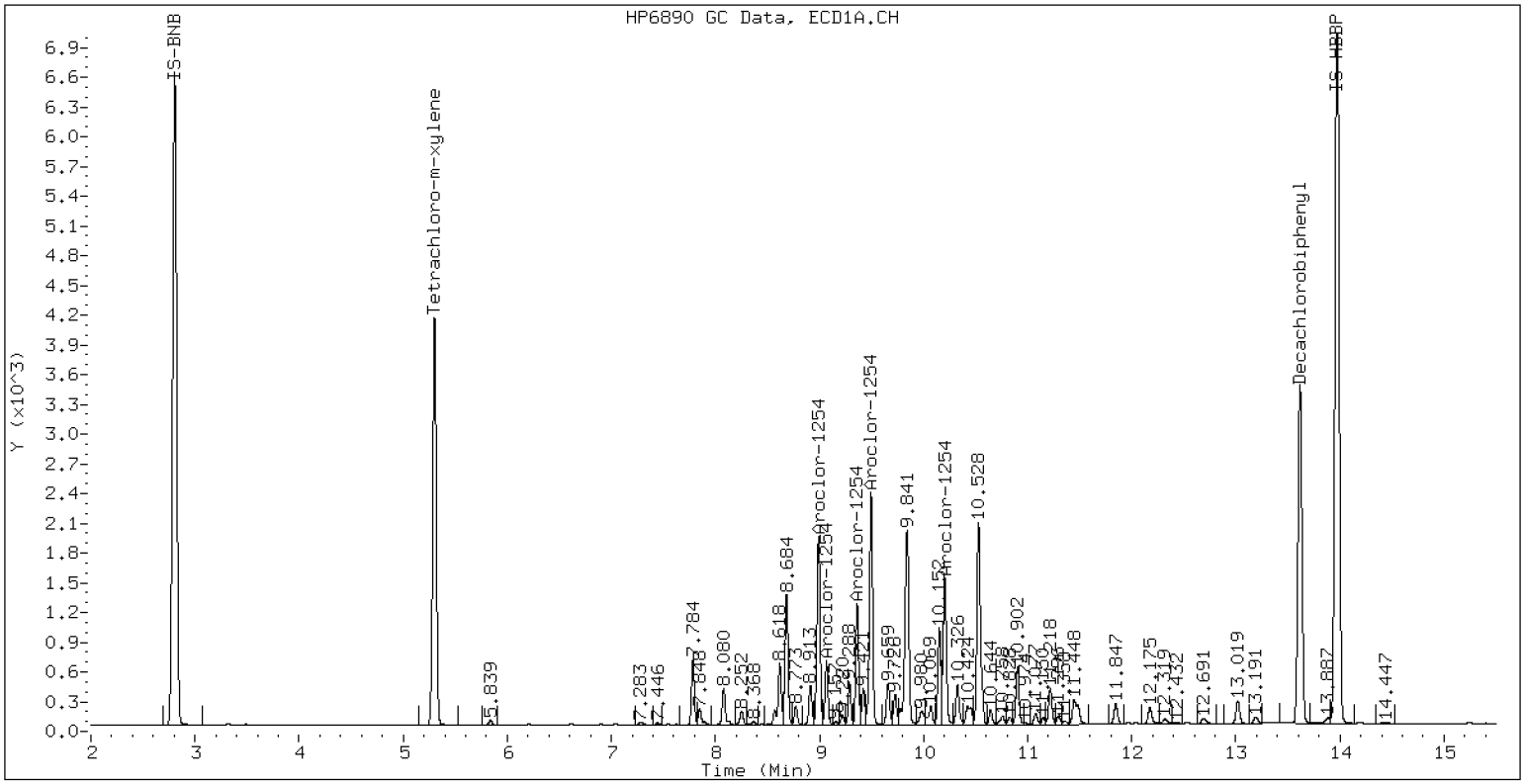
Total PCB Area Col2 (5.413 - 13.516) = 3184653 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

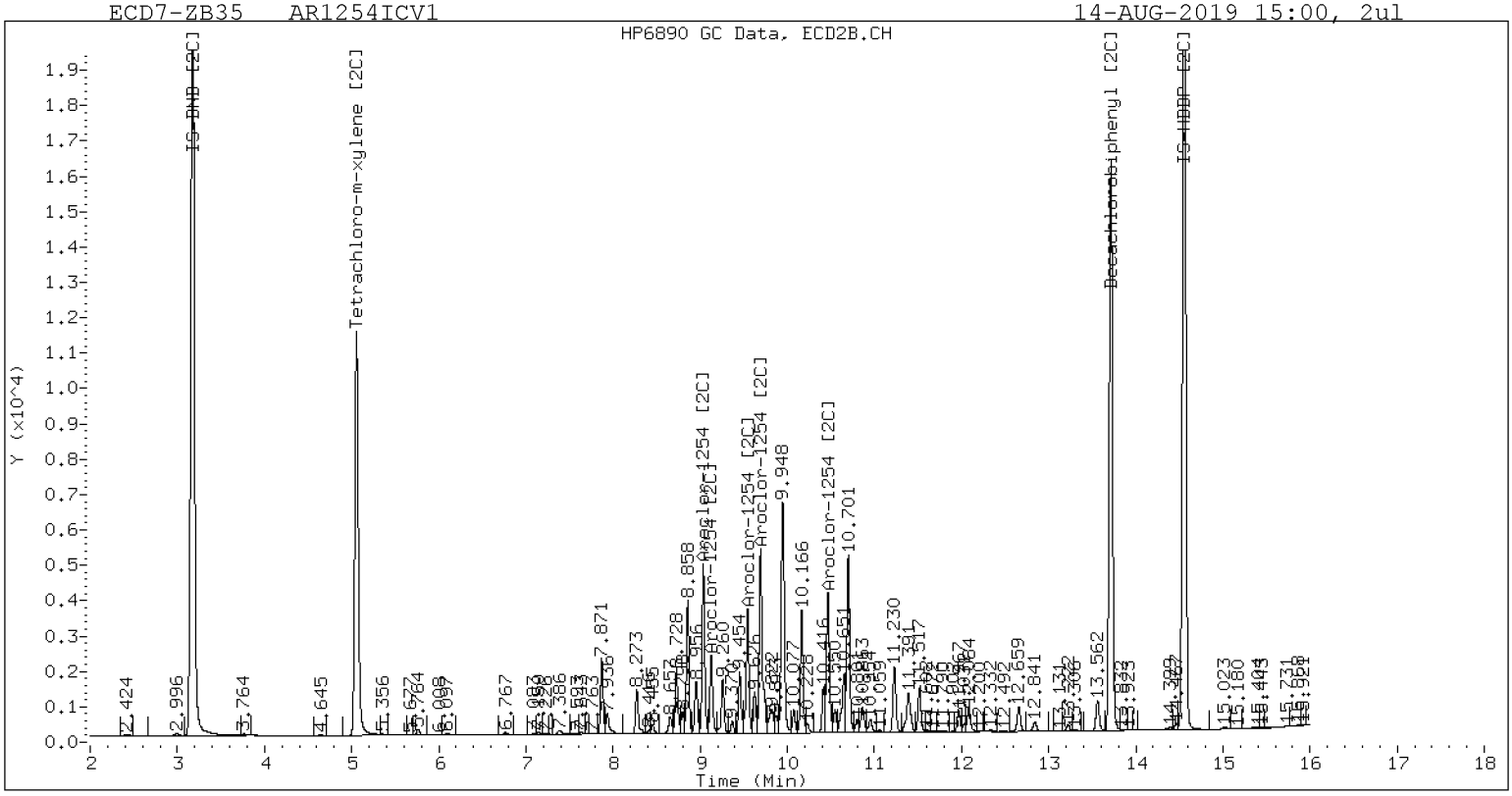
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254ICV1 14-AUG-2019 15:00, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254ICV1 14-AUG-2019 15:00, 2ul



ZB-35 Manual Integration: NO

INITIAL CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19081404ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHH0216	Injection Date:	08/14/19
Lab Sample ID:	SHH0216-ICV2	Injection Time:	15:22
Sequence Name:	AR1660ICV2		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Aroclor 1016	A	250.00	257	0.0440053	0.0455912		2.6	20
Aroclor 1016 [2C]	A	250.00	258	0.0453338	0.0464540		3.0	20
Aroclor 1260	A	250.00	262	0.0520836	0.0549879		4.9	20
Aroclor 1260 [2C]	A	250.00	233	0.0716386	0.0665504		-6.8	20
Decachlorobiphenyl	A	40.000	40.0	0.9063338	0.9076259		0.0	20
Tetrachlorometaxylene	A	40.000	42.0	1.0254730	1.0774260		5.0	20
Decachlorobiphenyl [2C]	A	40.000	37.3	1.5040840	1.4027250		-6.8	20
Tetrachlorometaxylene [2C]	A	40.000	39.8	0.9978530	0.9932890		-0.5	20

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081404ECD7.D
Data file 2: /20190814.b/20190814.b/19081404ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660ICV2
Client ID:
Injection Date: 14-AUG-2019 15:22
Report Date: 08/15/2019 15:59
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.305	-0.007	214974	5.062	-0.006	716508	42.0	39.8	5.4	Tetrachloro-m-xylene
13.616	0.000	208675	13.717	0.002	1001926	40.1	37.3	7.1	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	105.1	99.5
Decachlorobiphenyl	100.1	93.3

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	399051	-7.7
Hexabromobiphenyl	517563	459826	-11.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1442698	-3.6
Hexabromobiphenyl	1404015	1428542	1.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.904	-0.005	31584	251.5	1	6.771	-0.003	177851	253.0
Aroclor-1016	2	7.293	-0.006	116892	262.9	2	7.392	-0.003	397259	255.1
Aroclor-1016	3	7.442	-0.003	43583	257.4	3	7.593	-0.003	159427	256.9
Aroclor-1016	4	8.253	-0.003	35356	255.5	4	7.764	-0.002	103202	264.9
Total Col1Ave (4 peaks):					256.8	Total Col2Ave (4 peaks):				257.5 RPD = 0
Corrected Ave (3 peaks):					254.8	Corrected Ave (3 peaks):				255.0 RPD = 0
CalAmt %D:					2.7	CalAmt %D:				3.0
Aroclor-1260	1	10.760	-0.001	66353	268.0	1	10.803	0.000	218053	231.3
Aroclor-1260	2	11.077	-0.001	64409	268.2	2	11.242	0.000	228761	243.9
Aroclor-1260	3	11.447	-0.001	160209	269.8	3	11.520	0.001	566158	229.9
Aroclor-1260	4	11.847	-0.000	69254	247.7	4	12.034	0.000	175404	226.8
Aroclor-1260	5	11.964	-0.001	34851	256.7	NS	---			----
Total Col1Ave (5 peaks):					262.1	Total Col2Ave (4 peaks):				233.0 RPD = 12
Corrected Ave (4 peaks):					260.2	Corrected Ave (3 peaks):				229.3 RPD = 13
CalAmt %D:					4.8	CalAmt %D:				-6.8

Total PCB Area Col1 (5.413 - 13.516) = 1709428 Col1 Total PCB = 0.5 ppm*

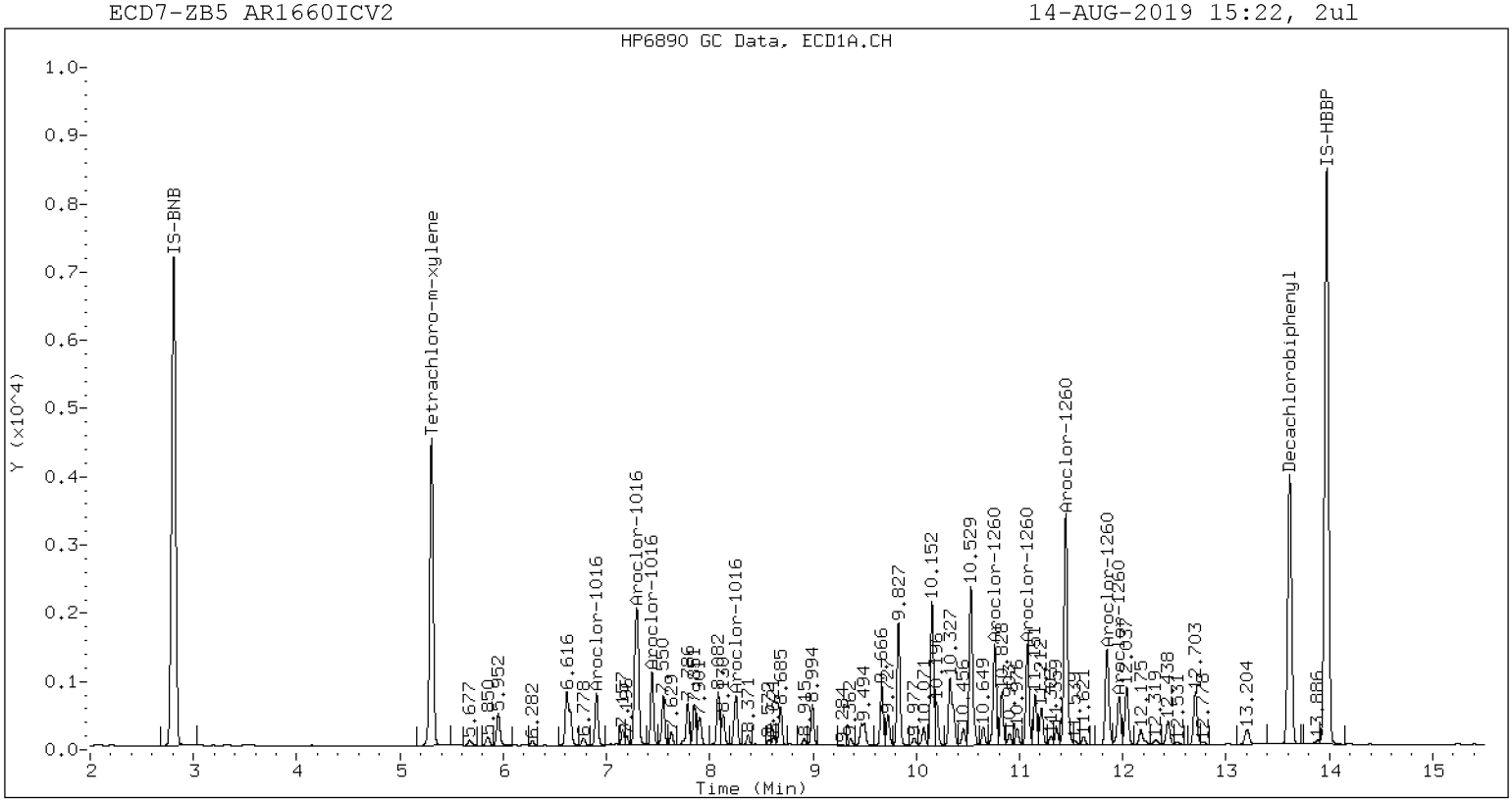
Total PCB Area Col2 (5.413 - 13.516) = 5790916 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

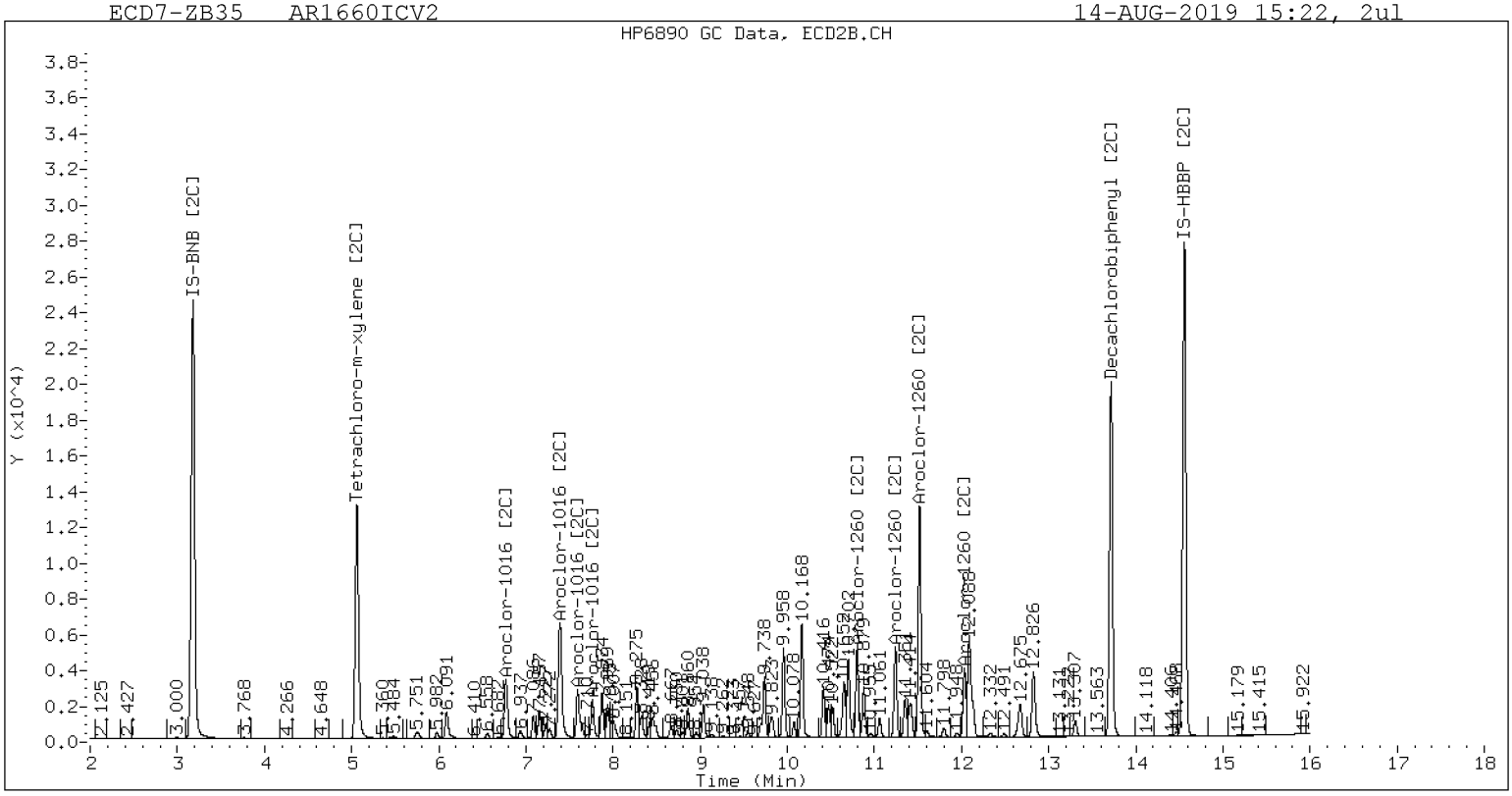
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660ICV2 14-AUG-2019 15:22, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660ICV2 14-AUG-2019 15:22, 2ul



ZB-35 Manual Integration: NO

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19073018ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHG0411	Injection Date:	07/30/19
Lab Sample ID:	SHG0411-SCV1	Injection Time:	21:09
Sequence Name:	AR1660SCV1		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1016	A	250.00	268	0.0440053	0.0468196		7.1	20
Aroclor 1016	A	250.00	268	0.0440053	0.0468196		7.1	20
Aroclor 1016 [2C]	A	250.00	256	0.0453338	0.0461748		2.3	20
Aroclor 1016 [2C]	A	250.00	256	0.0453338	0.0461748		2.3	20
Aroclor 1260	A	250.00	276	0.0520836	0.0583162		10.3	20
Aroclor 1260	A	250.00	276	0.0520836	0.0583162		10.3	20
Aroclor 1260 [2C]	A	250.00	252	0.0716386	0.0725192		1.0	20
Aroclor 1260 [2C]	A	250.00	252	0.0716386	0.0725192		1.0	20
Decachlorobiphenyl	A	40.000	35.7	0.9063338	0.8094068		-10.7	20
Decachlorobiphenyl	A	40.000	35.7	0.9063338	0.8094068		-10.7	20
Tetrachlorometaxylene	A	40.000	41.6	1.0254730	1.0657850		3.9	20
Tetrachlorometaxylene	A	40.000	41.6	1.0254730	1.0657850		3.9	20
Decachlorobiphenyl [2C]	A	40.000	35.5	1.5040840	1.3343840		-11.3	20
Decachlorobiphenyl [2C]	A	40.000	35.5	1.5040840	1.3343840		-11.3	20
Tetrachlorometaxylene [2C]	A	40.000	39.0	0.9978530	0.9723167		-2.6	20
Tetrachlorometaxylene [2C]	A	40.000	39.0	0.9978530	0.9723167		-2.6	20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073018ECD7.D
Data file 2: /20190730.b/20190730.b/19073018ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV1
Client ID:
Injection Date: 30-JUL-2019 21:09
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	-0.001	235101	5.094	-0.000	736036	41.6	39.0	6.4	Tetrachloro-m-xylene
13.619	0.000	213581	13.723	-0.002	1007819	35.7	35.5	0.7	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	103.9	97.4
Decachlorobiphenyl	89.3	88.7

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	441179	2.0
Hexabromobiphenyl	517563	527747	2.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1513984	1.1
Hexabromobiphenyl	1404015	1510538	7.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.920	0.000	35770	257.6	1	6.794	-0.000	187662	254.4
Aroclor-1016	2	7.308	-0.001	129331	263.1	2	7.413	-0.001	414015	253.4
Aroclor-1016	3	7.455	0.000	48521	259.2	3	7.613	0.000	165885	254.8
Aroclor-1016	4	8.265	0.000	44576	291.3	4	7.783	0.000	106287	260.0
Total Col1Ave (4 peaks):					267.8	Total Col2Ave (4 peaks):				255.6 RPD = 5
Corrected Ave (3 peaks):					259.9	Corrected Ave (3 peaks):				254.2 RPD = 2
Aroclor-1221	1	---			0.0	1	4.297	0.003	1104	9.8
Aroclor-1221	2	5.699	-0.001	4477	82.6	2	5.778	0.007	27797	112.9
Aroclor-1221	3	5.972	0.000	25236	187.4	3	6.118	0.001	94564	235.7
Col1Ave: <3 Quant Peaks						Col2Ave: 119.5				
Aroclor-1232	1	---			0.0	1	4.297	0.001	1104	16.2
Aroclor-1232	2	6.920	0.000	35770	640.1	2	6.794	0.000	187662	546.6
Aroclor-1232	3	7.308	0.001	129331	660.8	3	7.413	0.000	414015	599.3
Aroclor-1232	4	7.455	0.000	48521	653.6	4	8.744	-0.001	25286	108.1
Total Col1Ave (3 peaks):					651.5	Total Col2Ave (4 peaks):				317.6 RPD = 69*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				223.7
Aroclor-1242	1	6.920	0.000	35770	310.8	1	6.794	0.001	187662	312.7
Aroclor-1242	2	7.308	0.000	129331	311.6	2	7.413	0.000	414015	313.3
Aroclor-1242	3	8.630	0.000	6749	49.1	3	7.783	-0.000	106287	311.5
Aroclor-1242	4	8.923	0.005	3560	24.4	4	8.816	-0.001	15448	36.6
Total Col1Ave (4 peaks):					174.0	Total Col2Ave (4 peaks):				243.5 RPD = 33
Corrected Ave (3 peaks):					128.1	Corrected Ave (3 peaks):				220.3 RPD = 53*
Aroclor-1248	1	8.093	0.000	35841	174.5	1	7.413	0.003	414015	482.3
Aroclor-1248	2	8.630	0.000	6749	26.4	2	8.292	-0.000	127770	198.0
Aroclor-1248	3	8.923	0.005	3560	14.9	3	8.816	0.000	15448	23.2
Aroclor-1248	4	9.477	-0.028	23531	154.7	4	9.152	-0.000	7580	8.9
Total Col1Ave (4 peaks):					92.6	Total Col2Ave (4 peaks):				178.1 RPD = 63*
Corrected Ave (3 peaks):					65.3	Corrected Ave (3 peaks):				76.7 RPD = 16
Aroclor-1254	1	9.003	0.002	24012	63.1	1	9.053	0.001	74156	86.6
Aroclor-1254	2	---			0.0	2	9.152	0.009	7580	17.3
Aroclor-1254	3	9.370	0.001	3187	13.1	3	9.562	0.002	11938	17.6
Aroclor-1254	4	9.477	-0.028	23531	50.1	4	9.751	0.043	186431	134.7
Aroclor-1254	5	10.202	-0.008	25577	81.4	5	10.487	0.006	78936	90.6
Total Col1Ave (4 peaks):					51.9	Total Col2Ave (5 peaks):				69.4 RPD = 29
Corrected Ave (3 peaks):					42.1	Corrected Ave (4 peaks):				53.0 RPD = 23
Aroclor-1260	1	10.765	-0.000	77734	273.6	1	10.813	-0.001	256003	256.8
Aroclor-1260	2	11.081	-0.000	77297	280.5	2	11.253	-0.001	254899	257.0
Aroclor-1260	3	11.452	0.000	194745	285.8	3	11.529	-0.001	660332	253.6
Aroclor-1260	4	11.851	0.000	91429	284.9	4	12.043	-0.000	198053	242.2
Aroclor-1260	5	11.968	0.000	39673	254.6	NS	---			----
Total Col1Ave (5 peaks):					275.9	Total Col2Ave (4 peaks):				252.4 RPD = 9
Corrected Ave (4 peaks):					273.4	Corrected Ave (3 peaks):				250.9 RPD = 9
Aroclor-1262	1	11.081	0.000	77297	224.6	1	10.813	-0.000	256003	182.9
Aroclor-1262	2	11.452	0.001	194745	235.8	2	11.253	-0.001	254899	216.8
Aroclor-1262	3	11.851	-0.000	91429	359.3	3	11.529	0.000	660332	238.8
Aroclor-1262	4	11.968	0.000	39673	125.4	4	12.043	-0.000	198053	149.8
Total Col1Ave (4 peaks):					236.3	Total Col2Ave (4 peaks):				197.1 RPD = 18
Corrected Ave (3 peaks):					195.3	Corrected Ave (3 peaks):				183.2 RPD = 6
Aroclor-1268	1	11.968	-0.000	39673	42.2	1	12.043	-0.002	198053	56.6
Aroclor-1268	2	12.041	0.002	48044	55.2	2	12.099	-0.011	428430	123.7
Aroclor-1268	3	12.442	0.016	19965	27.6	3	12.500	-0.000	6941	2.3
Aroclor-1268	4	13.209	-0.002	9889	4.6	4	13.315	-0.005	39575	3.5
Total Col1Ave (4 peaks):					32.4	Total Col2Ave (4 peaks):				46.5 RPD = 36
Corrected Ave (3 peaks):					24.8	Corrected Ave (3 peaks):				20.8 RPD = 18

Total PCB Area Col1 (5.430 - 13.518) = 1962968 Col1 Total PCB = 0.5 ppm*

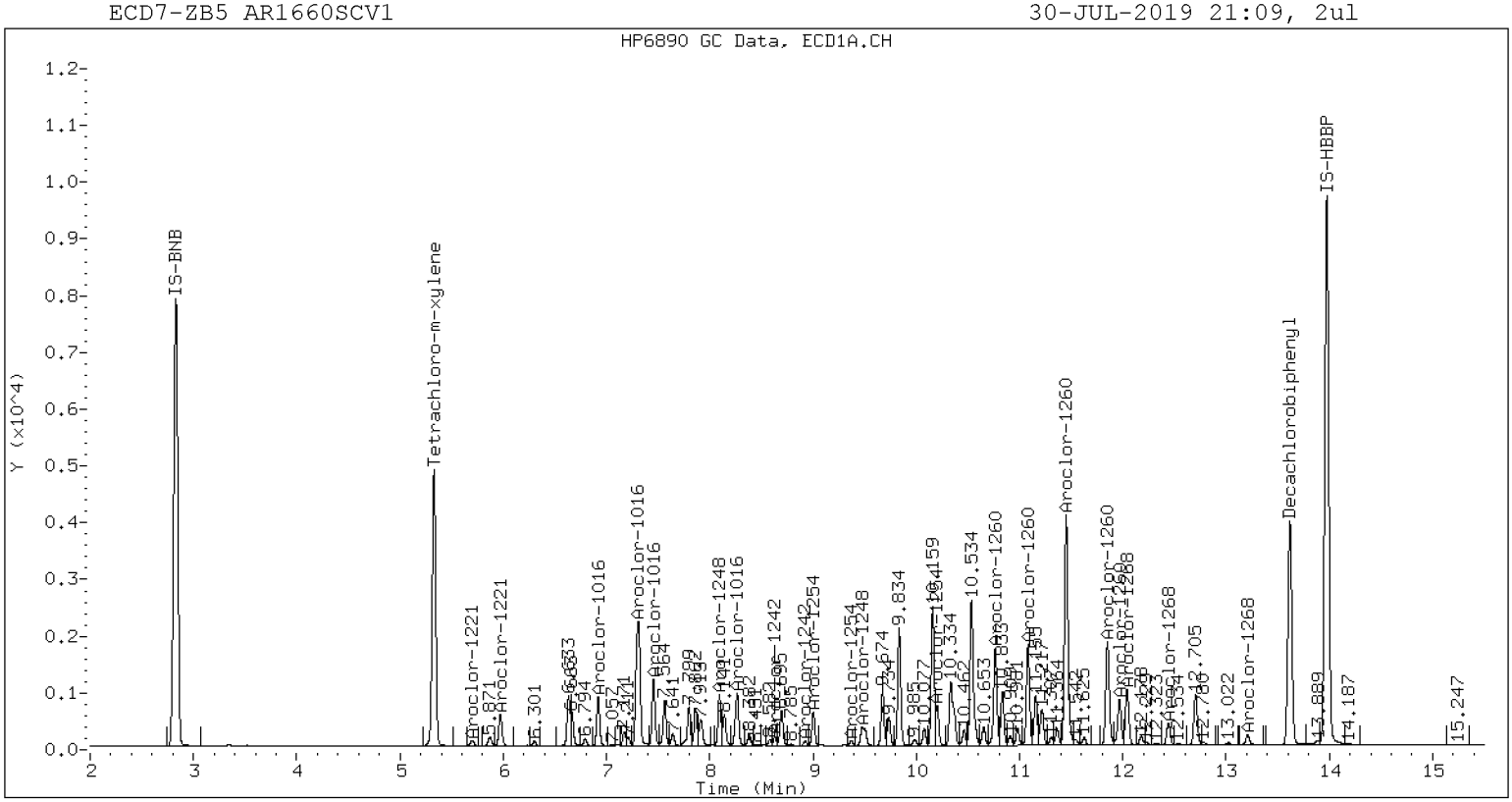
Total PCB Area Col2 (5.430 - 13.518) = 6481631 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

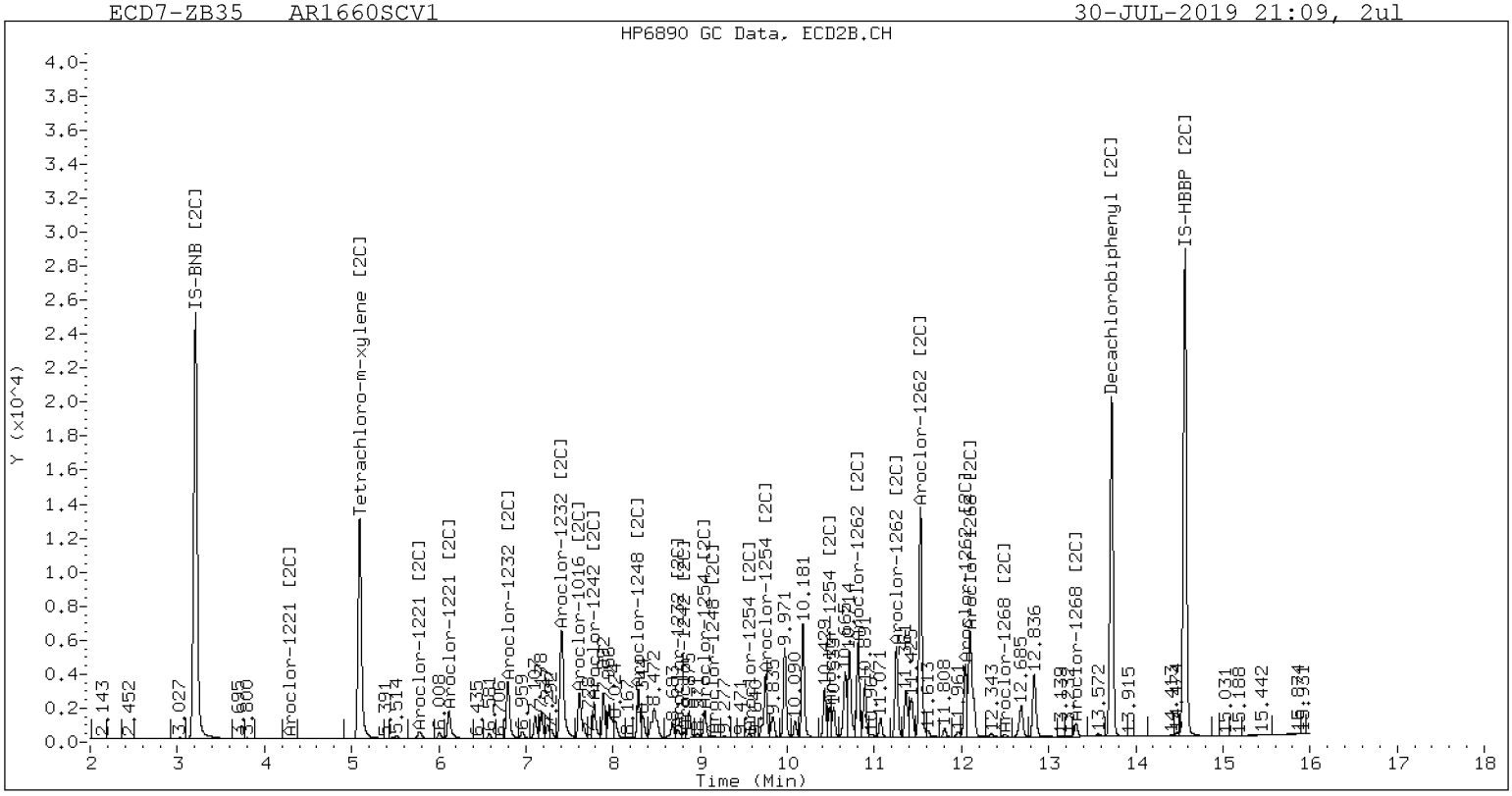
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV1 30-JUL-2019 21:09, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV1 30-JUL-2019 21:09, 2ul



ZB-35 Manual Integration: NO

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19073019ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHG0411	Injection Date:	07/30/19
Lab Sample ID:	SHG0411-SCV2	Injection Time:	21:30
Sequence Name:	AR1242SCV2		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1242	A	250.00	236	0.0368638	0.0348631		-5.6	20
Aroclor 1242	A	250.00	236	0.0368638	0.0348631		-5.6	20
Aroclor 1242 [2C]	A	250.00	241	0.0354710	0.0343603		-3.5	20
Aroclor 1242 [2C]	A	250.00	241	0.0354710	0.0343603		-3.5	20
Decachlorobiphenyl	A	40.000	35.9	0.9063338	0.8139583		-10.2	20
Decachlorobiphenyl	A	40.000	35.9	0.9063338	0.8139583		-10.2	20
Tetrachlorometaxylene	A	40.000	40.8	1.0254730	1.0462530		2.0	20
Tetrachlorometaxylene	A	40.000	40.8	1.0254730	1.0462530		2.0	20
Decachlorobiphenyl [2C]	A	40.000	33.7	1.5040840	1.2663270		-15.8	20
Decachlorobiphenyl [2C]	A	40.000	33.7	1.5040840	1.2663270		-15.8	20
Tetrachlorometaxylene [2C]	A	40.000	38.4	0.9978530	0.9572043		-4.1	20
Tetrachlorometaxylene [2C]	A	40.000	38.4	0.9978530	0.9572043		-4.1	20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073019ECD7.D
Data file 2: /20190730.b/20190730.b/19073019ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV2
Client ID:
Injection Date: 30-JUL-2019 21:30
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	-0.000	232388	5.095	0.000	728678	40.8	38.4	6.2	Tetrachloro-m-xylene
13.618	-0.000	219831	13.723	-0.002	1009744	35.9	33.7	6.5	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	102.0	95.9
Decachlorobiphenyl	89.8	84.2

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	444229	2.7
Hexabromobiphenyl	517563	540153	4.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1522513	1.7
Hexabromobiphenyl	1404015	1594760	13.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.920	0.000	27874	199.4	1	6.793	-0.001	148074	199.6
Aroclor-1016	2	7.307	-0.001	99348	200.7	2	7.413	-0.001	323406	196.8
Aroclor-1016	3	7.455	0.000	37513	199.0	3	7.613	0.000	130447	199.2
Aroclor-1016	4	8.265	-0.000	35997	233.6	4	7.783	0.000	83687	203.5
Total Col1Ave (4 peaks): 208.2						Total Col2Ave (4 peaks): 199.8			RPD = 4	
Corrected Ave (3 peaks): 199.7						Corrected Ave (3 peaks): 198.5			RPD = 1	
Aroclor-1221	1	---			0.0	1	4.297	0.003	819	7.2
Aroclor-1221	2	5.700	-0.001	3743	68.6	2	5.782	0.011	23068	93.2
Aroclor-1221	3	5.973	0.000	19766	145.8	3	6.118	0.001	73420	182.0
Col1Ave: <3 Quant Peaks						Col2Ave: 94.1				
Aroclor-1232	1	---			0.0	1	4.297	0.001	819	12.0
Aroclor-1232	2	6.920	0.000	27874	495.4	2	6.793	-0.000	148074	428.9
Aroclor-1232	3	7.307	0.000	99348	504.1	3	7.413	0.001	323406	465.5
Aroclor-1232	4	7.455	0.000	37513	501.9	4	8.744	-0.001	102386	435.3
Total Col1Ave (3 peaks): 500.5						Total Col2Ave (4 peaks): 335.4			RPD = 39	
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks): 292.1				
Aroclor-1242	1	6.920	0.000	27874	240.5	1	6.793	0.000	148074	245.3
Aroclor-1242	2	7.307	0.000	99348	237.7	2	7.413	0.001	323406	243.3
Aroclor-1242	3	8.630	0.000	32365	234.0	3	7.783	-0.000	83687	243.9
Aroclor-1242	4	8.918	0.000	34003	231.8	4	8.816	-0.000	98757	232.7
Total Col1Ave (4 peaks): 236.0						Total Col2Ave (4 peaks): 241.3			RPD = 2	
Corrected Ave (3 peaks): 234.5						Corrected Ave (3 peaks): 240.0			RPD = 2	
Aroclor-1248	1	8.094	0.001	29542	142.9	1	7.413	0.003	323406	374.6
Aroclor-1248	2	8.630	0.000	32365	125.8	2	8.292	-0.000	105818	163.1
Aroclor-1248	3	8.918	0.000	34003	141.0	3	8.816	0.001	98757	147.4
Aroclor-1248	4	9.505	0.000	17552	114.6	4	9.153	0.001	124308	145.8
Total Col1Ave (4 peaks): 131.1						Total Col2Ave (4 peaks): 207.7			RPD = 45*	
Corrected Ave (3 peaks): 127.1						Corrected Ave (3 peaks): 152.1			RPD = 18	
Aroclor-1254	1	9.000	-0.001	15890	41.5	1	9.054	0.002	36517	42.4
Aroclor-1254	2	9.078	0.001	6721	54.8	2	9.153	0.010	124308	282.0
Aroclor-1254	3	9.371	0.001	10146	41.4	3	9.561	0.001	34294	50.4
Aroclor-1254	4	9.505	0.001	17552	37.1	4	9.710	0.002	57960	41.7
Aroclor-1254	5	10.215	0.004	11090	35.1	5	10.483	0.002	45583	52.0
Total Col1Ave (5 peaks): 42.0						Total Col2Ave (5 peaks): 93.7			RPD = 76*	
Corrected Ave (4 peaks): 38.8						Corrected Ave (4 peaks): 46.6			RPD = 18	
Aroclor-1260	1	---			0.0	1	10.815	0.001	1710	1.6
Aroclor-1260	2	---			0.0	2	11.245	-0.008	7466	7.1
Aroclor-1260	3	---			0.0	3	11.531	-0.000	5126	1.9
Aroclor-1260	4	---			0.0	4	12.095	0.051	4858	5.6
Aroclor-1260	5	---			0.0	NS	---			----
Col1Ave: <3 Quant Peaks						Col2Ave: 4.1				
Aroclor-1262	1	---			0.0	1	10.815	0.001	1710	1.2
Aroclor-1262	2	---			0.0	2	11.245	-0.008	7466	6.0
Aroclor-1262	3	---			0.0	3	11.531	0.001	5126	1.8
Aroclor-1262	4	---			0.0	4	12.095	0.051	4858	3.5
Col1Ave: <3 Quant Peaks						Col2Ave: 3.1				
Aroclor-1268	1	---			0.0	1	12.095	0.049	4858	1.3
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	12.505	0.004	687	0.2
Aroclor-1268	4	---			0.0	4	13.315	-0.005	1416	0.1
Col1Ave: <3 Quant Peaks						Col2Ave: 0.5				

Total PCB Area Col1 (5.430 - 13.518) = 781862 Col1 Total PCB = 0.2 ppm*

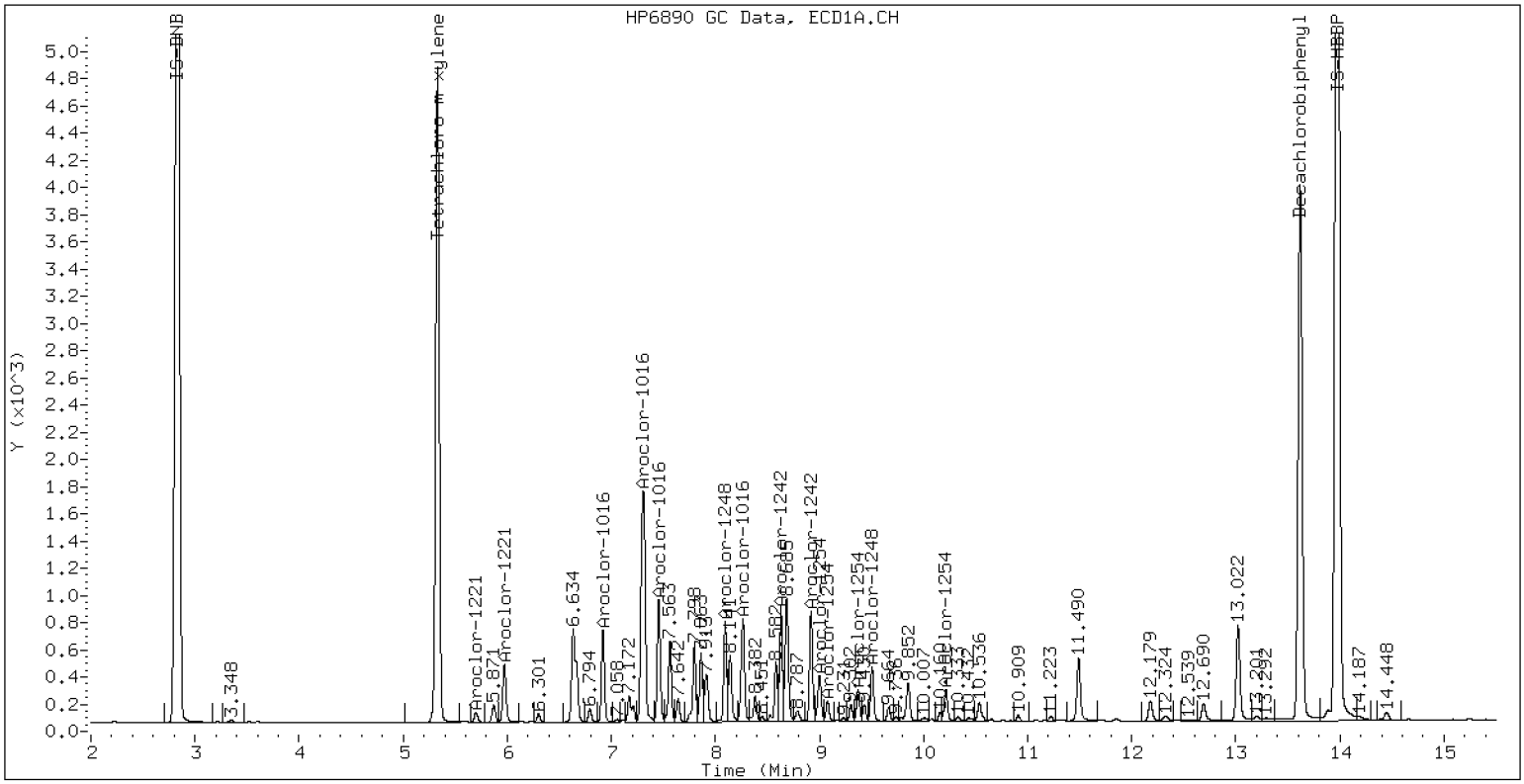
Total PCB Area Col2 (5.430 - 13.518) = 2550020 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

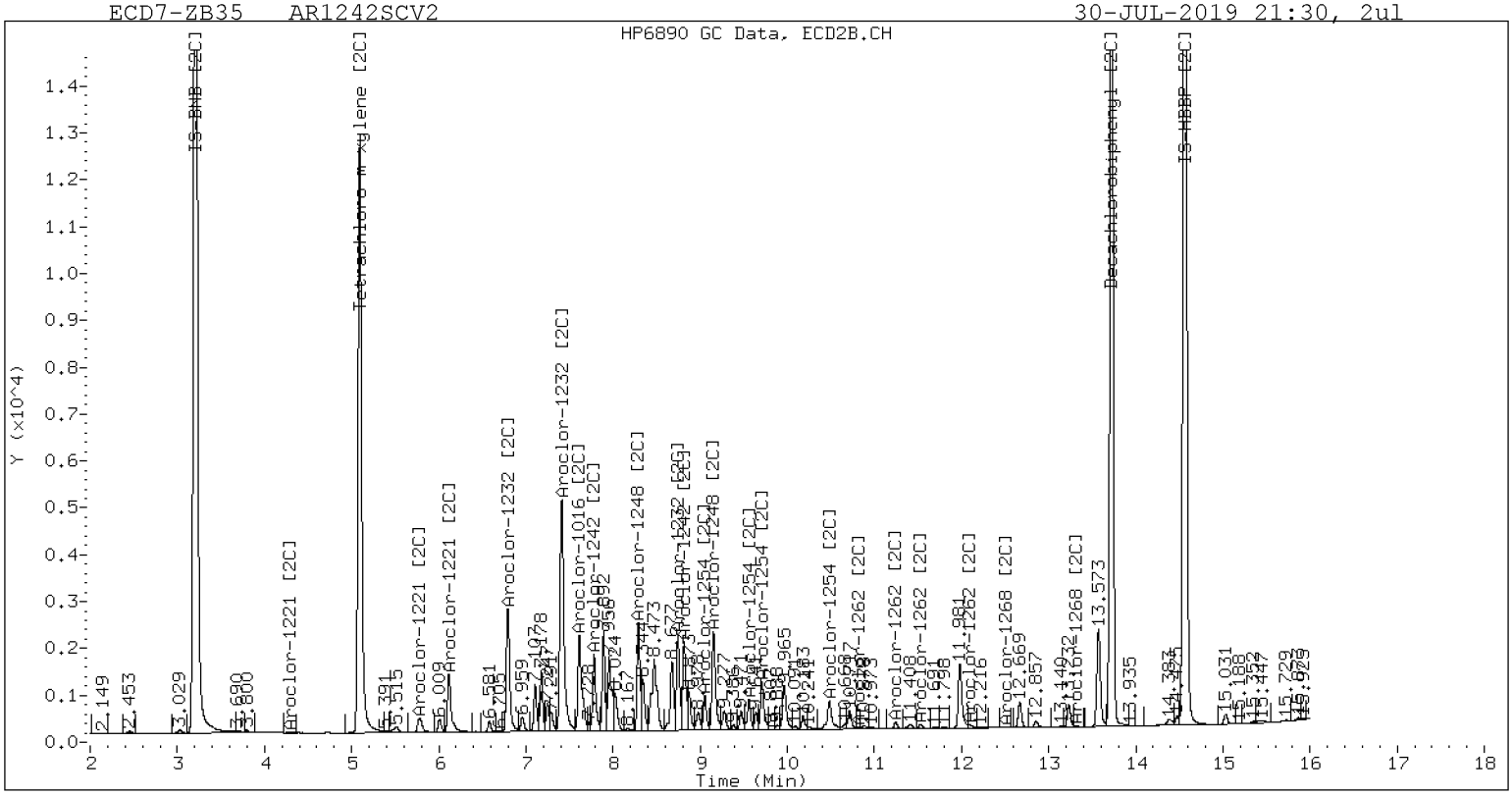
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV2 30-JUL-2019 21:30, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV2 30-JUL-2019 21:30, 2ul



ZB-35 Manual Integration: NO

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19073020ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHG0411	Injection Date:	07/30/19
Lab Sample ID:	SHG0411-SCV3	Injection Time:	21:51
Sequence Name:	AR1248SCV3		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1248	A	250.00	251	0.0386466	0.0387819		0.5	20
Aroclor 1248	A	250.00	251	0.0386466	0.0387819		0.5	20
Aroclor 1248 [2C]	A	250.00	240	0.0398616	0.0383899		-3.8	20
Aroclor 1248 [2C]	A	250.00	240	0.0398616	0.0383899		-3.8	20
Decachlorobiphenyl	A	40.000	35.5	0.9063338	0.8035961		-11.3	20
Decachlorobiphenyl	A	40.000	35.5	0.9063338	0.8035961		-11.3	20
Tetrachlorometaxylene	A	40.000	41.6	1.0254730	1.0672420		4.1	20
Tetrachlorometaxylene	A	40.000	41.6	1.0254730	1.0672420		4.1	20
Decachlorobiphenyl [2C]	A	40.000	32.2	1.5040840	1.2101330		-19.5	20
Decachlorobiphenyl [2C]	A	40.000	32.2	1.5040840	1.2101330		-19.5	20
Tetrachlorometaxylene [2C]	A	40.000	36.3	0.9978530	0.9051849		-9.3	20
Tetrachlorometaxylene [2C]	A	40.000	36.3	0.9978530	0.9051849		-9.3	20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073020ECD7.D
Data file 2: /20190730.b/20190730.b/19073020ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV3
Client ID:
Injection Date: 30-JUL-2019 21:51
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.328	-0.003	310261	5.091	-0.004	962331	41.6	36.3	13.7	Tetrachloro-m-xylene
13.618	-0.000	286973	13.725	-0.001	1352956	35.5	32.2	9.7	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	104.1	90.7
Decachlorobiphenyl	88.7	80.5

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	581426	34.5
Hexabromobiphenyl	517563	714222	38.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	2126264	42.0
Hexabromobiphenyl	1404015	2236045	59.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.917	-0.003	18561	101.4	1	6.788	-0.005	107276	103.6
Aroclor-1016	2	7.301	-0.007	90315	139.4	2	7.407	-0.006	297619	129.7
Aroclor-1016	3	7.454	-0.001	30286	122.7	3	7.610	-0.003	70430	77.0
Aroclor-1016	4	8.262	-0.003	76621	380.0	4	7.780	-0.003	64865	113.0
Total Col1Ave (4 peaks):					185.9	Total Col2Ave (4 peaks):				105.8 RPD = 55*
Corrected Ave (3 peaks):					121.2	Corrected Ave (3 peaks):				97.8 RPD = 21
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	5.790	0.019	15430	44.6
Aroclor-1221	3	---			0.0	3	6.116	-0.001	23498	41.7
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	6.917	-0.003	18561	252.0	2	6.788	-0.005	107276	222.5
Aroclor-1232	3	7.301	-0.006	90315	350.2	3	7.407	-0.005	297619	306.7
Aroclor-1232	4	7.454	-0.001	30286	309.6	4	8.742	-0.002	249723	760.2
Total Col1Ave (3 peaks):					303.9	Total Col2Ave (3 peaks):				429.8 RPD = 34
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1242	1	6.917	-0.002	18561	122.4	1	6.788	-0.005	107276	127.3
Aroclor-1242	2	7.301	-0.006	90315	165.1	2	7.407	-0.005	297619	160.3
Aroclor-1242	3	8.628	-0.002	84017	464.2	3	7.780	-0.003	64865	135.4
Aroclor-1242	4	8.916	-0.002	78873	410.7	4	8.815	-0.002	220198	371.5
Total Col1Ave (4 peaks):					290.6	Total Col2Ave (4 peaks):				198.6 RPD = 38
Corrected Ave (3 peaks):					232.7	Corrected Ave (3 peaks):				141.0 RPD = 49*
Aroclor-1248	1	8.091	-0.002	68219	252.1	1	7.407	-0.002	297619	246.9
Aroclor-1248	2	8.628	-0.002	84017	249.5	2	8.290	-0.002	218568	241.2
Aroclor-1248	3	8.916	-0.002	78873	249.9	3	8.815	-0.001	220198	235.4
Aroclor-1248	4	9.504	-0.001	50751	253.1	4	9.150	-0.002	283953	238.5
Total Col1Ave (4 peaks):					251.1	Total Col2Ave (4 peaks):				240.5 RPD = 4
Corrected Ave (3 peaks):					250.5	Corrected Ave (3 peaks):				238.4 RPD = 5
Aroclor-1254	1	8.998	-0.003	44873	89.4	1	9.052	-0.000	90363	75.1
Aroclor-1254	2	9.075	-0.001	20008	124.6	2	9.150	0.007	283953	461.2
Aroclor-1254	3	9.369	-0.000	30038	93.8	3	9.559	-0.001	93163	98.0
Aroclor-1254	4	9.504	-0.001	50751	82.1	4	9.707	-0.000	154189	79.3
Aroclor-1254	5	10.214	0.004	33446	80.8	5	10.479	-0.002	117725	96.2
Total Col1Ave (5 peaks):					94.1	Total Col2Ave (5 peaks):				162.0 RPD = 53*
Corrected Ave (4 peaks):					86.5	Corrected Ave (4 peaks):				87.2 RPD = 1
Aroclor-1260	1	10.764	-0.001	1605	4.2	1	10.815	0.001	6341	4.3
Aroclor-1260	2	11.082	-0.000	1180	3.2	2	11.246	-0.007	12941	8.8
Aroclor-1260	3	11.489	0.038	34908	37.8	3	11.529	-0.001	12538	3.3
Aroclor-1260	4	11.851	0.001	1153	2.7	4	12.101	0.057	9652	8.0
Aroclor-1260	5	12.041	0.074	1017	4.8	NS	---			----
Total Col1Ave (5 peaks):					10.5	Total Col2Ave (4 peaks):				6.1 RPD = 54*
Corrected Ave (4 peaks):					3.7	Corrected Ave (3 peaks):				5.2 RPD = 33
Aroclor-1262	1	11.082	0.000	1180	2.5	1	10.815	0.001	6341	3.1
Aroclor-1262	2	11.489	0.038	34908	31.2	2	11.246	-0.007	12941	7.4
Aroclor-1262	3	11.851	0.001	1153	3.3	3	11.529	0.000	12538	3.1
Aroclor-1262	4	12.041	0.074	1017	2.4	4	12.101	0.057	9652	4.9
Total Col1Ave (4 peaks):					9.9	Total Col2Ave (4 peaks):				4.6 RPD = 72*
Corrected Ave (3 peaks):					2.8	Corrected Ave (3 peaks):				3.7 RPD = 29
Aroclor-1268	1	12.041	0.073	1017	0.8	1	12.101	0.055	9652	1.9
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	12.504	0.003	1131	0.2
Aroclor-1268	4	13.203	-0.008	2261	0.8	4	13.314	-0.006	3402	0.2
Col1Ave: <3 Quant Peaks						Col2Ave: 0.8				

Total PCB Area Col1 (5.430 - 13.518) = 1295240 Col1 Total PCB = 0.3 ppm*

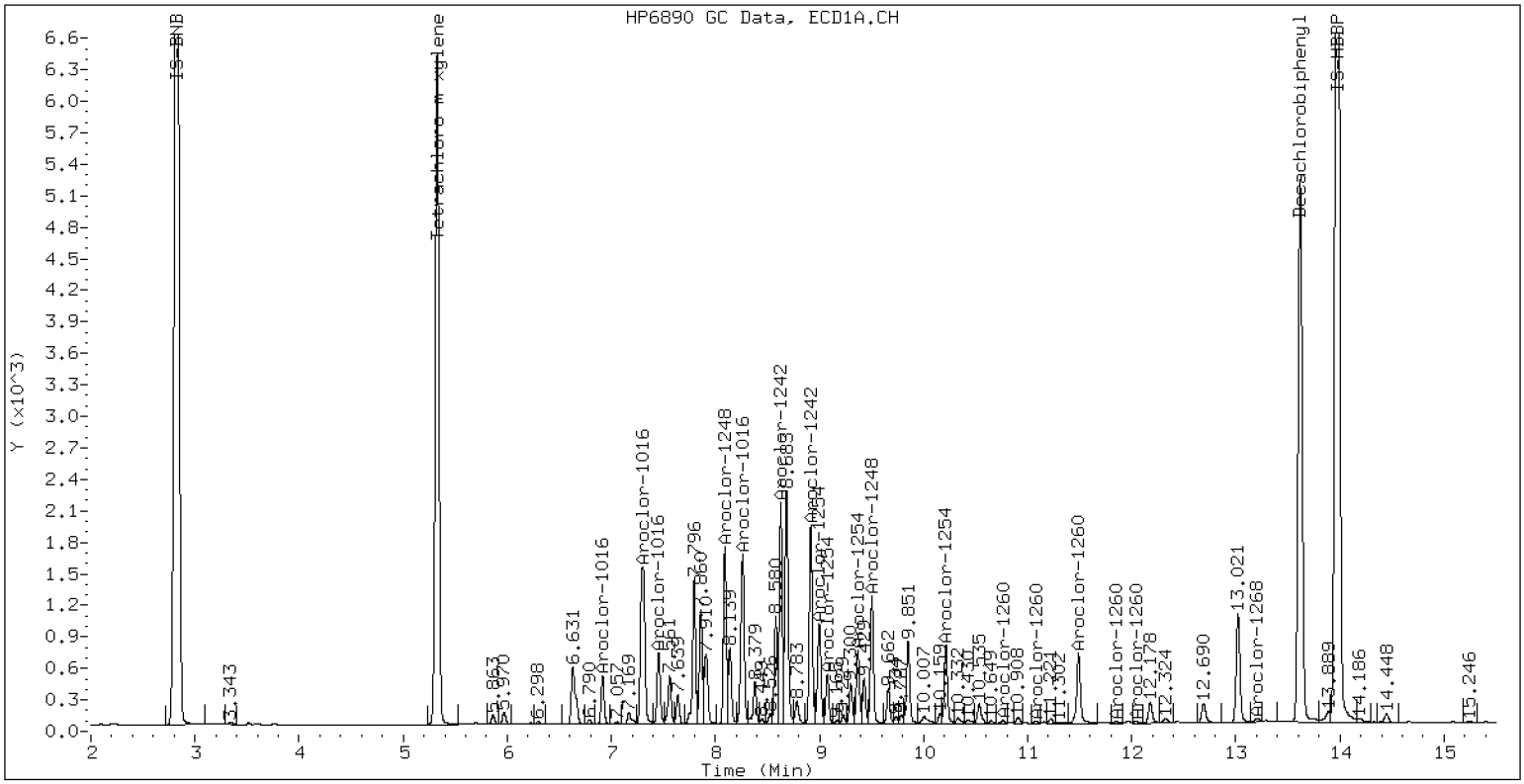
Total PCB Area Col2 (5.430 - 13.518) = 4048989 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

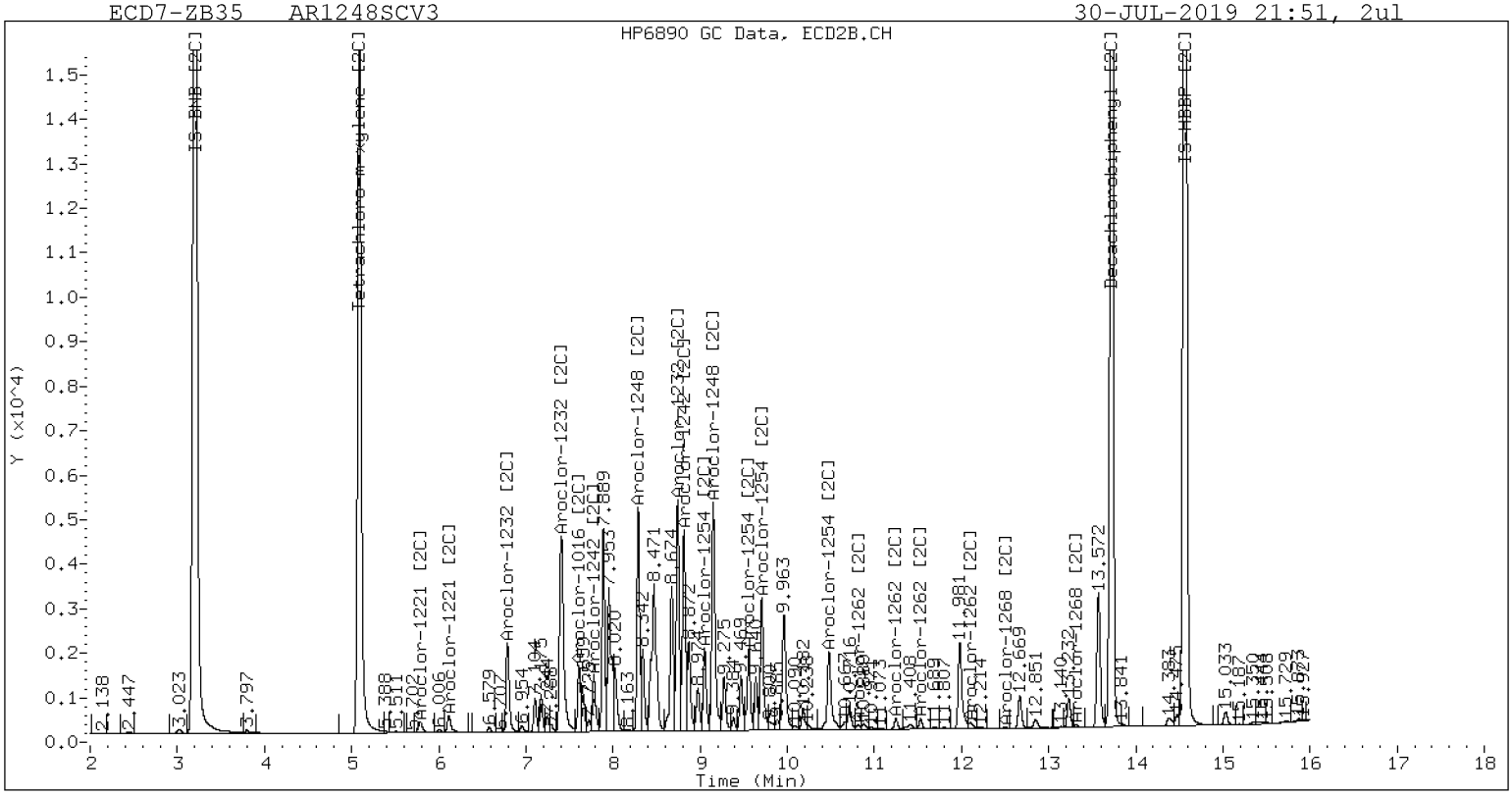
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV3 30-JUL-2019 21:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248SCV3 30-JUL-2019 21:51, 2ul



ZB-35 Manual Integration: NO

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19073021ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHG0411	Injection Date:	07/30/19
Lab Sample ID:	SHG0411-SCV4	Injection Time:	22:12
Sequence Name:	AR1254SCV4		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1254	A	250.00	259	0.0554512	0.0571955		3.5	20
Aroclor 1254	A	250.00	259	0.0554512	0.0571955		3.5	
Aroclor 1254 [2C]	A	250.00	247	0.0446668	0.0440057		-1.2	20
Aroclor 1254 [2C]	A	250.00	247	0.0446668	0.0440057		-1.2	20
Decachlorobiphenyl	A	40.000	35.8	0.9063338	0.8122720		-10.4	20
Decachlorobiphenyl	A	40.000	35.8	0.9063338	0.8122720		-10.4	20
Tetrachlorometaxylene	A	40.000	41.4	1.0254730	1.0622950		3.6	20
Tetrachlorometaxylene	A	40.000	41.4	1.0254730	1.0622950		3.6	20
Decachlorobiphenyl [2C]	A	40.000	33.2	1.5040840	1.2495360		-16.9	20
Decachlorobiphenyl [2C]	A	40.000	33.2	1.5040840	1.2495360		-16.9	20
Tetrachlorometaxylene [2C]	A	40.000	36.0	0.9978530	0.8985142		-10.0	20
Tetrachlorometaxylene [2C]	A	40.000	36.0	0.9978530	0.8985142		-10.0	20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073021ECD7.D
Data file 2: /20190730.b/20190730.b/19073021ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV4
Client ID:
Injection Date: 30-JUL-2019 22:12
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.329	-0.002	307128	5.092	-0.002	952200	41.4	36.0	14.0	Tetrachloro-m-xylene
13.618	-0.000	286282	13.724	-0.001	1380889	35.8	33.2	7.6	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	103.6	90.0
Decachlorobiphenyl	89.6	83.1

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	578235	33.7
Hexabromobiphenyl	517563	704892	36.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	2119499	41.6
Hexabromobiphenyl	1404015	2210243	57.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	6.792	-0.002	3478	3.4
Aroclor-1016	2	7.296	-0.013	2404	3.7	2	7.407	-0.006	10108	4.4
Aroclor-1016	3	7.461	0.006	1291	5.3	3	7.612	-0.001	2009	2.2
Aroclor-1016	4	8.263	-0.002	9803	48.9	4	7.782	-0.000	1586	2.8
		Total Col1Ave (3 peaks):			19.3		Total Col2Ave (4 peaks):			3.2 RPD = 143*
		Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):			2.8
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	5.794	0.023	12429	36.1
Aroclor-1221	3	---			0.0	3	6.126	0.009	3699	6.6
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	6.792	-0.002	3478	7.2
Aroclor-1232	3	7.296	-0.011	2404	9.4	3	7.407	-0.005	10108	10.5
Aroclor-1232	4	7.461	0.006	1291	13.3	4	8.744	-0.000	121318	370.5
		Col1Ave: <3 Quant Peaks					Col2Ave:			129.4
Aroclor-1242	1	---			0.0	1	6.792	-0.001	3478	4.1
Aroclor-1242	2	7.296	-0.011	2404	4.4	2	7.407	-0.005	10108	5.5
Aroclor-1242	3	8.629	-0.001	38507	213.9	3	7.782	-0.001	1586	3.3
Aroclor-1242	4	8.923	0.005	25899	135.6	4	8.814	-0.003	37851	64.1
		Total Col1Ave (3 peaks):			118.0		Total Col2Ave (4 peaks):			19.2 RPD = 144*
		Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):			4.3
Aroclor-1248	1	8.091	-0.002	24489	91.0	1	7.407	-0.002	10108	8.4
Aroclor-1248	2	8.629	-0.001	38507	115.0	2	8.291	-0.001	82563	91.4
Aroclor-1248	3	8.923	0.005	25899	82.5	3	8.814	-0.002	37851	40.6
Aroclor-1248	4	9.505	-0.000	157103	787.8	4	9.142	-0.010	151804	127.9
		Total Col1Ave (4 peaks):			269.1		Total Col2Ave (4 peaks):			67.1 RPD = 120*
		Corrected Ave (3 peaks):			96.2		Corrected Ave (3 peaks):			46.8 RPD = 69*
Aroclor-1254	1	9.001	0.000	127688	255.9	1	9.052	0.000	291286	242.9
Aroclor-1254	2	9.076	-0.001	41976	262.8	2	9.142	-0.001	151804	247.4
Aroclor-1254	3	9.370	0.000	82308	258.3	3	9.561	0.000	240064	253.3
Aroclor-1254	4	9.505	0.000	157103	255.5	4	9.709	0.001	473852	244.6
Aroclor-1254	5	10.211	0.000	107682	261.6	5	10.481	0.000	300337	246.3
		Total Col1Ave (5 peaks):			258.8		Total Col2Ave (5 peaks):			246.9 RPD = 5
		Corrected Ave (4 peaks):			257.8		Corrected Ave (4 peaks):			245.3 RPD = 5
Aroclor-1260	1	10.763	-0.002	7194	19.0	1	10.813	-0.001	23299	16.0
Aroclor-1260	2	11.082	-0.000	7683	20.9	2	11.243	-0.011	135379	93.3
Aroclor-1260	3	11.451	-0.000	17479	19.2	3	11.529	-0.002	86102	22.6
Aroclor-1260	4	11.850	0.000	16133	37.6	4	12.045	0.001	10376	8.7
Aroclor-1260	5	---			0.0	NS	---			----
		Total Col1Ave (4 peaks):			24.2		Total Col2Ave (4 peaks):			35.1 RPD = 37
		Corrected Ave (3 peaks):			19.7		Corrected Ave (3 peaks):			15.7 RPD = 22
Aroclor-1262	1	11.082	0.000	7683	16.7	1	10.813	-0.001	23299	11.4
Aroclor-1262	2	11.451	0.000	17479	15.8	2	11.243	-0.011	135379	78.7
Aroclor-1262	3	11.850	-0.000	16133	47.5	3	11.529	-0.000	86102	21.3
Aroclor-1262	4	---			0.0	4	12.045	0.001	10376	5.4
		Total Col1Ave (3 peaks):			26.7		Total Col2Ave (4 peaks):			29.2 RPD = 9
		Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):			12.7
Aroclor-1268	1	---			0.0	1	12.045	-0.001	10376	2.0
Aroclor-1268	2	---			0.0	2	12.095	-0.015	56027	11.1
Aroclor-1268	3	---			0.0	3	12.503	0.002	947	0.2
Aroclor-1268	4	---			0.0	4	13.315	-0.005	1689	0.1
		Col1Ave: <3 Quant Peaks					Col2Ave:			3.3

Total PCB Area Col1 (5.430 - 13.518) = 1551903 Col1 Total PCB = 0.3 ppm*

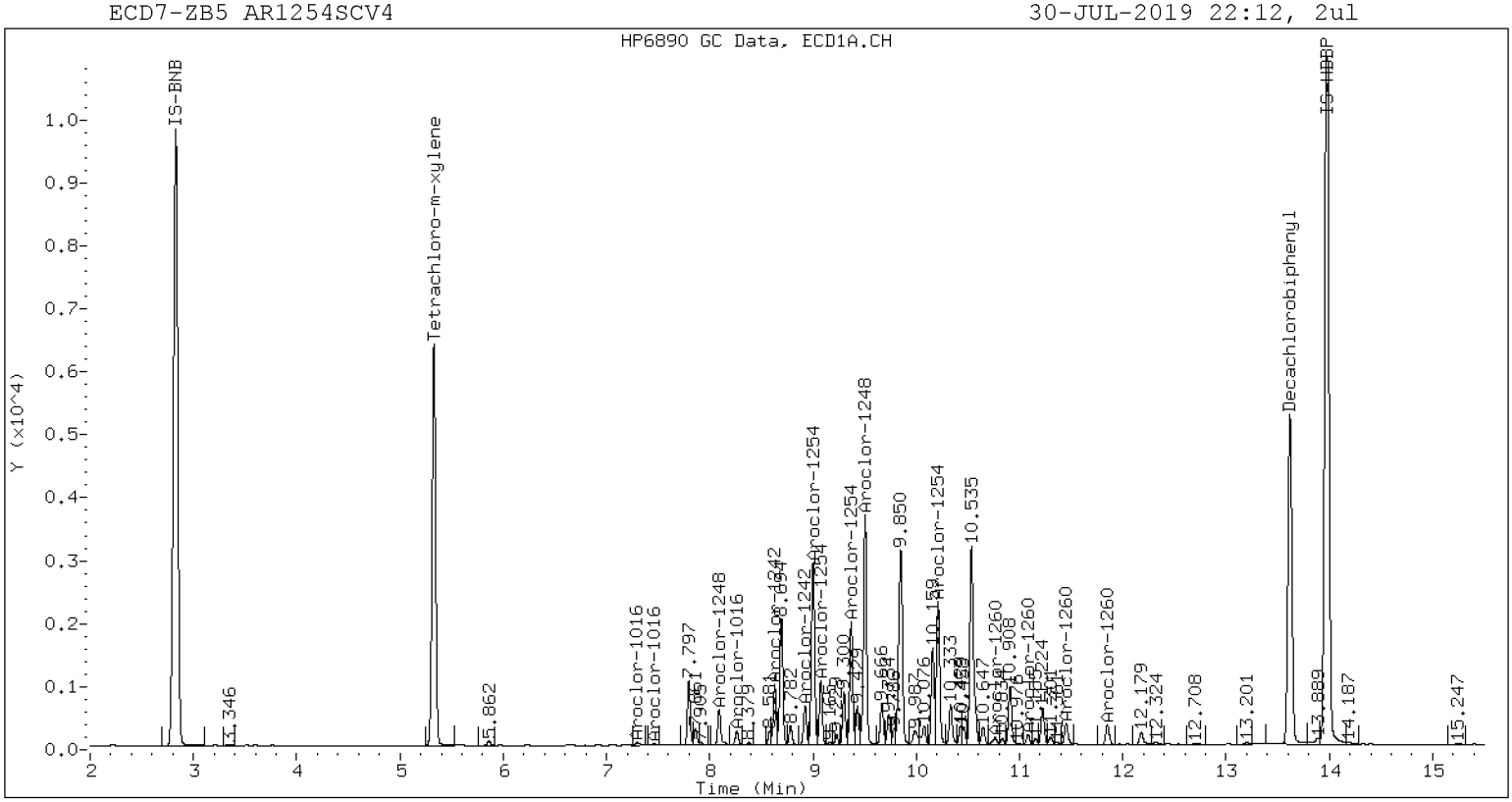
Total PCB Area Col2 (5.430 - 13.518) = 4805354 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

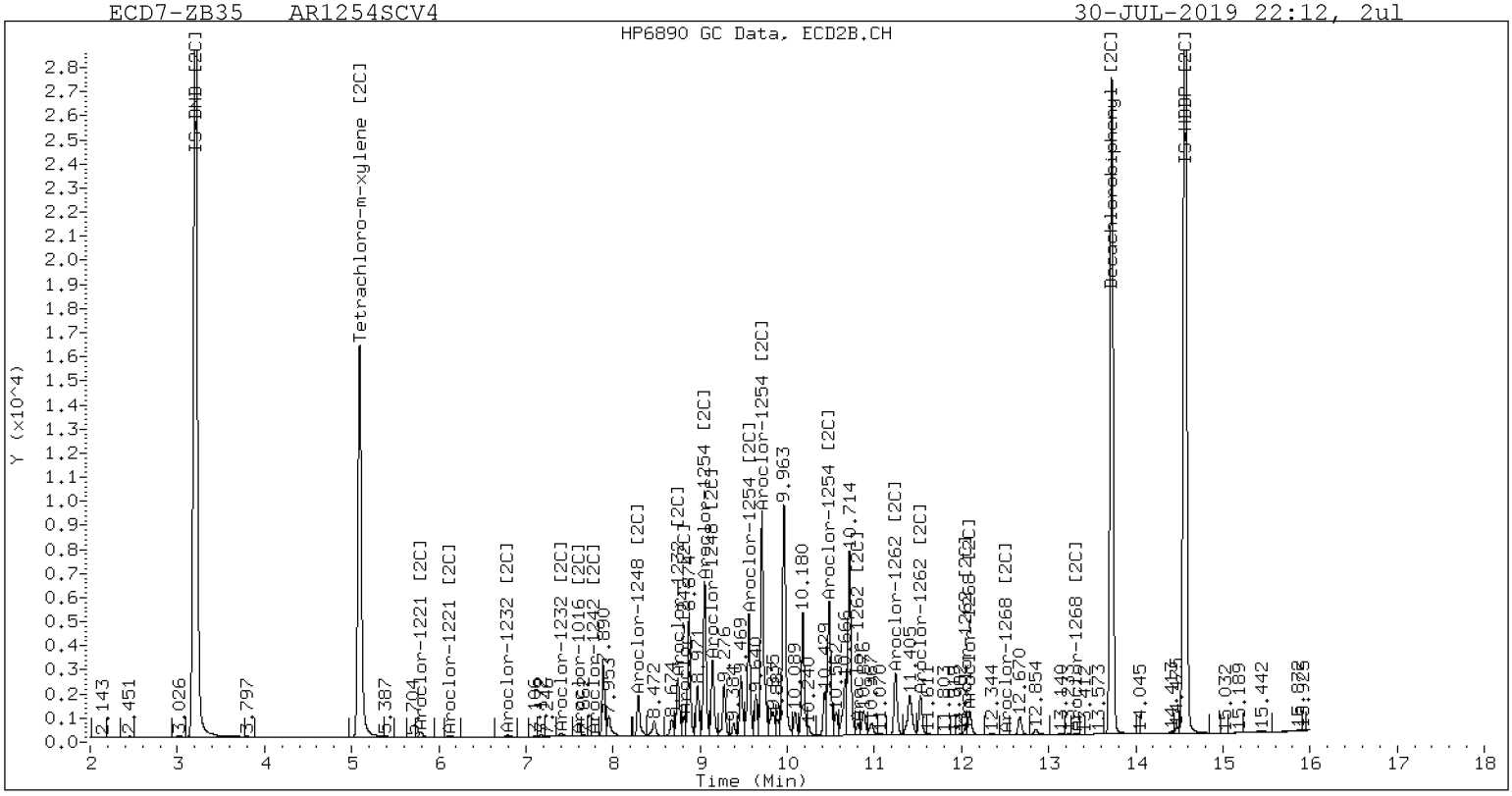
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV4 30-JUL-2019 22:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV4 30-JUL-2019 22:12, 2ul



ZB-35 Manual Integration: NO

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19073022ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHG0411	Injection Date:	07/30/19
Lab Sample ID:	SHG0411-SCV5	Injection Time:	22:33
Sequence Name:	AR2162SCV5		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1262	A	250.00	267	0.0659727	0.0704057		6.8	20
Aroclor 1262	A	250.00	267	0.0659727	0.0704057		6.8	20
Aroclor 1262 [2C]	A	250.00	264	0.0882154	0.0926587		5.5	20
Aroclor 1262 [2C]	A	250.00	264	0.0882154	0.0926587		5.5	20
Decachlorobiphenyl	A	40.000	35.5	0.9063338	0.8038873		-11.3	20
Decachlorobiphenyl	A	40.000	35.5	0.9063338	0.8038873		-11.3	20
Tetrachlorometaxylene	A	40.000	42.0	1.0254730	1.0756510		4.9	20
Tetrachlorometaxylene	A	40.000	42.0	1.0254730	1.0756510		4.9	20
Decachlorobiphenyl [2C]	A	40.000	35.3	1.5040840	1.3276080		-11.7	20
Decachlorobiphenyl [2C]	A	40.000	35.3	1.5040840	1.3276080		-11.7	20
Tetrachlorometaxylene [2C]	A	40.000	40.7	0.9978530	1.0140790		1.6	20
Tetrachlorometaxylene [2C]	A	40.000	40.7	0.9978530	1.0140790		1.6	20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073022ECD7.D
Data file 2: /20190730.b/20190730.b/19073022ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV5
Client ID:
Injection Date: 30-JUL-2019 22:33
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.330	0.000	235950	5.094	-0.000	729608	42.0	40.7	3.2	Tetrachloro-m-xylene
13.618	-0.001	210891	13.723	-0.003	1014350	35.5	35.3	0.5	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	104.9	101.6
Decachlorobiphenyl	88.7	88.3

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	438711	1.5
Hexabromobiphenyl	517563	524678	1.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1438957	-3.9
Hexabromobiphenyl	1404015	1528087	8.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.919	-0.000	3235	23.4	1	6.806	0.012	36922	52.7
Aroclor-1016	2	7.310	0.002	9519	19.5	2	7.414	0.001	37647	24.2
Aroclor-1016	3	7.455	-0.000	4301	23.1	3	7.615	0.002	18209	29.4
Aroclor-1016	4	8.265	-0.000	1859	12.2	4	7.784	0.001	10348	26.6
Total Col1Ave (4 peaks):					19.6	Total Col2Ave (4 peaks):				33.2 RPD = 52*
Corrected Ave (3 peaks):					18.3	Corrected Ave (3 peaks):				26.8 RPD = 38
Aroclor-1221	1	4.171	0.001	8740	265.7	1	4.295	0.001	28365	264.1
Aroclor-1221	2	5.702	0.001	14298	265.3	2	5.772	0.001	61601	263.2
Aroclor-1221	3	5.973	0.001	34985	261.2	3	6.118	0.001	101043	265.0
Total Col1Ave (3 peaks):					264.1	Total Col2Ave (3 peaks):				264.1 RPD = 0
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.171	0.000	8740	440.8	1	4.295	-0.000	28365	439.0
Aroclor-1232	2	6.919	-0.000	3235	58.2	2	6.806	0.013	36922	113.2
Aroclor-1232	3	7.310	0.003	9519	48.9	3	7.414	0.002	37647	57.3
Aroclor-1232	4	7.455	-0.000	4301	58.3	4	8.747	0.002	8918	40.1
Total Col1Ave (4 peaks):					151.5	Total Col2Ave (4 peaks):				162.4 RPD = 7
Corrected Ave (3 peaks):					55.1	Corrected Ave (3 peaks):				70.2 RPD = 24
Aroclor-1242	1	6.919	-0.000	3235	28.3	1	6.806	0.013	36922	64.7
Aroclor-1242	2	7.310	0.003	9519	23.1	2	7.414	0.002	37647	30.0
Aroclor-1242	3	8.631	0.001	2425	17.8	3	7.784	0.001	10348	31.9
Aroclor-1242	4	8.922	0.003	2664	18.4	4	8.818	0.001	5408	13.5
Total Col1Ave (4 peaks):					21.9	Total Col2Ave (4 peaks):				35.0 RPD = 46*
Corrected Ave (3 peaks):					19.7	Corrected Ave (3 peaks):				25.1 RPD = 24
Aroclor-1248	1	8.093	-0.000	2113	10.3	1	7.414	0.005	37647	46.1
Aroclor-1248	2	8.631	0.001	2425	9.5	2	8.293	0.001	12538	20.4
Aroclor-1248	3	8.922	0.003	2664	11.2	3	8.818	0.002	5408	8.5
Aroclor-1248	4	9.476	-0.029	16889	111.6	4	9.150	-0.003	11984	14.9
Total Col1Ave (4 peaks):					35.7	Total Col2Ave (4 peaks):				22.5 RPD = 45*
Corrected Ave (3 peaks):					10.4	Corrected Ave (3 peaks):				14.6 RPD = 34
Aroclor-1254	1	9.003	0.002	12539	33.1	1	9.054	0.002	39347	48.3
Aroclor-1254	2	9.078	0.001	1449	12.0	2	9.150	0.006	11984	28.8
Aroclor-1254	3	9.370	0.001	2805	11.6	3	9.562	0.002	10151	15.8
Aroclor-1254	4	9.476	-0.028	16889	36.2	4	9.751	0.043	167577	127.4
Aroclor-1254	5	10.159	-0.052	92192	295.2	5	10.487	0.007	39785	48.1
Total Col1Ave (5 peaks):					77.6	Total Col2Ave (5 peaks):				53.7 RPD = 36
Corrected Ave (4 peaks):					23.2	Corrected Ave (4 peaks):				35.2 RPD = 41*
Aroclor-1260	1	10.766	0.000	111900	396.1	1	10.814	0.000	369658	366.5
Aroclor-1260	2	11.082	0.000	92018	335.8	2	11.254	0.001	314522	313.4
Aroclor-1260	3	11.451	-0.001	218222	322.1	3	11.530	-0.001	724517	275.0
Aroclor-1260	4	11.851	0.001	66364	208.0	4	12.044	0.001	361184	436.6
Aroclor-1260	5	11.968	0.001	85150	549.7	NS	---			----
Total Col1Ave (5 peaks):					362.4	Total Col2Ave (4 peaks):				347.9 RPD = 4
Corrected Ave (4 peaks):					315.5	Corrected Ave (3 peaks):				318.3 RPD = 1
Aroclor-1262	1	11.082	0.001	92018	268.9	1	10.814	0.000	369658	261.1
Aroclor-1262	2	11.451	-0.000	218222	265.8	2	11.254	0.001	314522	264.4
Aroclor-1262	3	11.851	0.001	66364	262.3	3	11.530	0.000	724517	259.0
Aroclor-1262	4	11.968	0.001	85150	270.7	4	12.044	0.000	361184	270.1
Total Col1Ave (4 peaks):					266.9	Total Col2Ave (4 peaks):				263.6 RPD = 1
Corrected Ave (3 peaks):					265.7	Corrected Ave (3 peaks):				261.5 RPD = 2
Aroclor-1268	1	11.968	0.000	85150	91.2	1	12.044	-0.001	361184	102.0
Aroclor-1268	2	12.041	0.002	87828	101.4	2	12.105	-0.005	510203	145.6
Aroclor-1268	3	12.441	0.016	31694	44.1	3	12.501	0.000	23416	7.5
Aroclor-1268	4	13.210	-0.000	24400	11.5	4	13.316	-0.004	109200	9.6
Total Col1Ave (4 peaks):					62.1	Total Col2Ave (4 peaks):				66.2 RPD = 6

Corrected Ave (3 peaks): 48.9 Corrected Ave (3 peaks): 39.7 RPD = 21

Total PCB Area Col1 (5.430 - 13.518) = 1523229 Col1 Total PCB = 0.4 ppm*

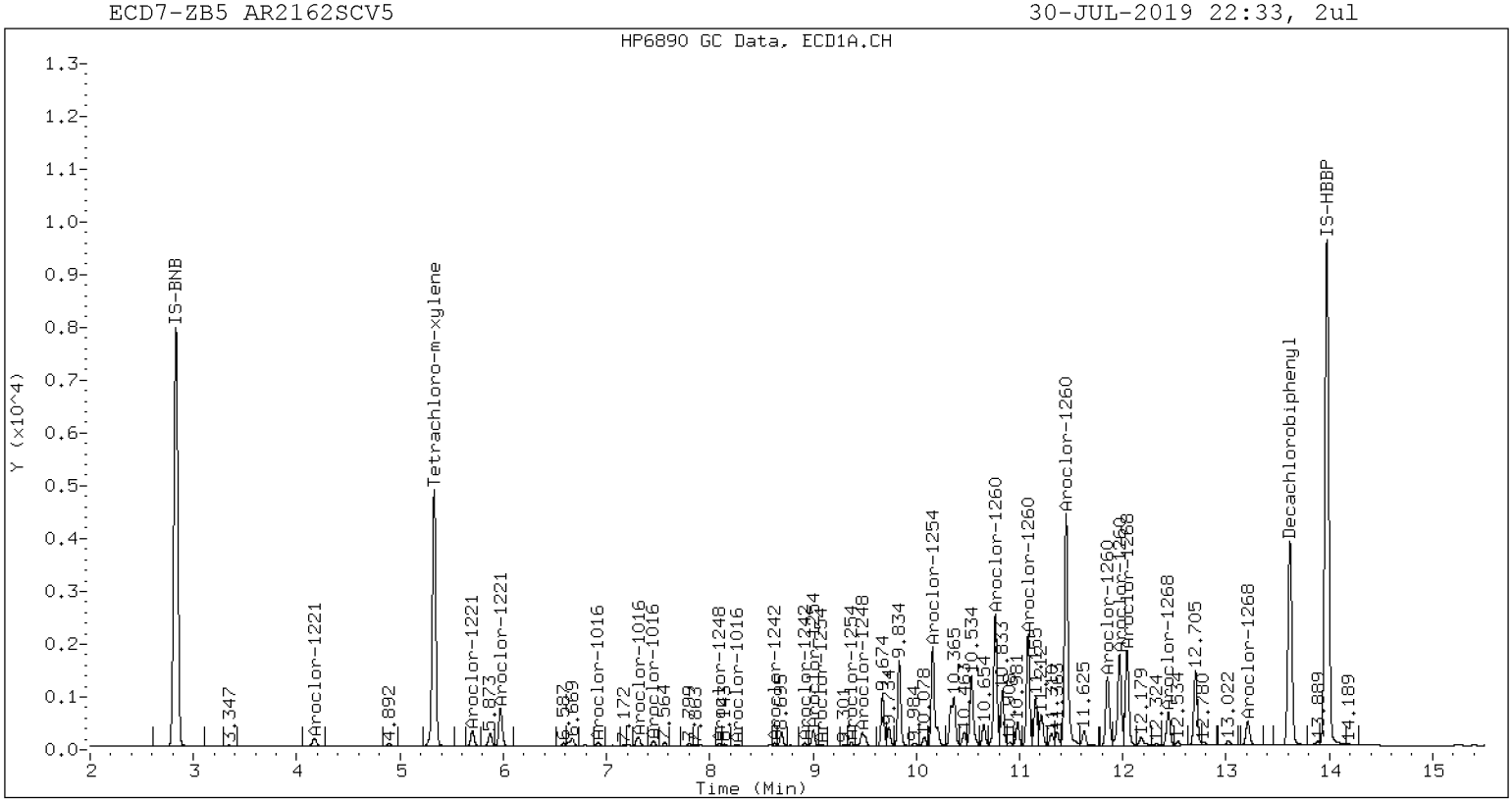
Total PCB Area Col2 (5.430 - 13.518) = 5281252 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

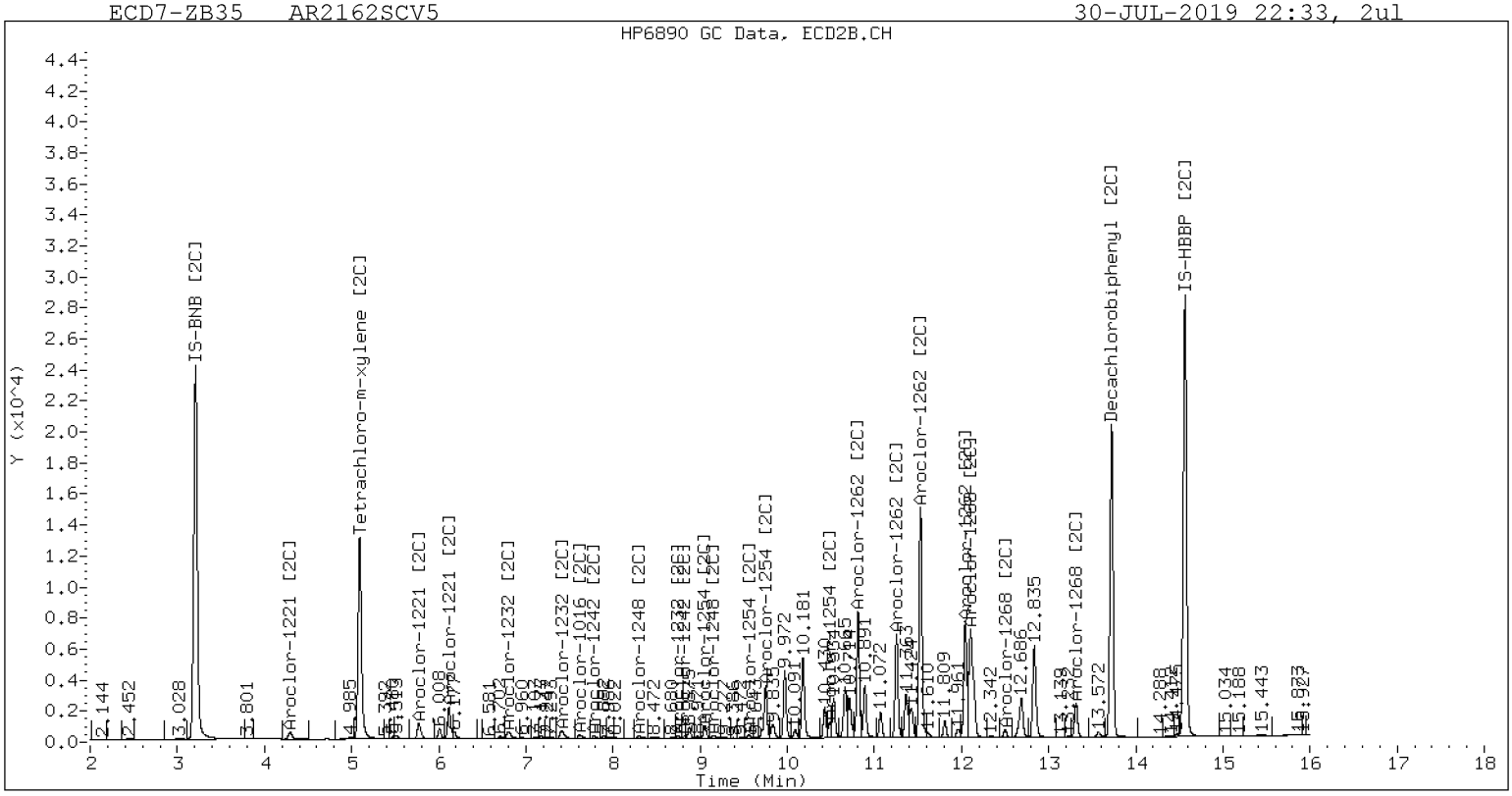
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV5 30-JUL-2019 22:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV5 30-JUL-2019 22:33, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19073023ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHG0411	Injection Date:	07/30/19
Lab Sample ID:	SHG0411-SCV6	Injection Time:	22:54
Sequence Name:	AR3268SCV6		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1232	A	250.00	275	0.0156748	0.0175822		9.9	20
Aroclor 1232	A	250.00	275	0.0156748	0.0175822		9.9	20
Aroclor 1232 [2C]	A	250.00	266	0.0176493	0.0192810		6.2	20
Aroclor 1232 [2C]	A	250.00	266	0.0176493	0.0192810		6.2	20
Aroclor 1268	A	250.00	258	0.1769627	0.1768220		3.2	20
Aroclor 1268	A	250.00	258	0.1769627	0.1768220		3.2	20
Aroclor 1268 [2C]	A	250.00	246	0.2824428	0.2645083		-1.5	20
Aroclor 1268 [2C]	A	250.00	246	0.2824428	0.2645083		-1.5	20
Decachlorobiphenyl	A	40.000	48.6	0.9063338	1.1015000		21.5	20
Decachlorobiphenyl	A	40.000	48.6	0.9063338	1.1015000		21.5	20
Tetrachlorometaxylene	A	40.000	40.0	1.0254730	1.0246280		-0.08	20
Tetrachlorometaxylene	A	40.000	40.0	1.0254730	1.0246280		-0.08	20
Decachlorobiphenyl [2C]	A	40.000	46.6	1.5040840	1.7526770		16.5	20
Decachlorobiphenyl [2C]	A	40.000	46.6	1.5040840	1.7526770		16.5	20
Tetrachlorometaxylene [2C]	A	40.000	38.0	0.9978530	0.9489253		-4.9	20
Tetrachlorometaxylene [2C]	A	40.000	38.0	0.9978530	0.9489253		-4.9	20

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190730.b/19073023ECD7.D
Data file 2: /20190730.b/20190730.b/19073023ECD7.D
Method: \\target\share\chem4\ecd7.i\20190730.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV6
Client ID:
Injection Date: 30-JUL-2019 22:54
Report Date: 07/31/2019 13:14
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.329	-0.001	231801	5.093	-0.001	719293	40.0	38.0	4.9	Tetrachloro-m-xylene
13.618	-0.000	296657	13.725	-0.000	1438798	48.6	46.6	4.2	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	99.9	95.1
Decachlorobiphenyl	121.5	116.5

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	452459	4.6
Hexabromobiphenyl	517563	538642	4.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1516016	1.2
Hexabromobiphenyl	1404015	1641829	16.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.919	-0.000	16254	114.1	1	6.793	-0.001	97809	132.4
Aroclor-1016	2	7.307	-0.001	56547	112.2	2	7.412	-0.002	194376	118.8
Aroclor-1016	3	7.454	-0.001	21489	111.9	3	7.613	0.000	78747	120.8
Aroclor-1016	4	8.263	-0.001	18471	117.7	4	7.782	-0.000	50904	124.3
Total Col1Ave (4 peaks):					114.0	Total Col2Ave (4 peaks):				124.1 RPD = 8
Corrected Ave (3 peaks):					112.7	Corrected Ave (3 peaks):				121.3 RPD = 7
Aroclor-1221	1	4.170	-0.000	5150	151.8	1	4.294	-0.000	17679	156.2
Aroclor-1221	2	5.700	-0.000	8668	156.0	2	5.772	0.001	41388	167.9
Aroclor-1221	3	5.972	-0.000	27580	199.7	3	6.117	-0.000	101640	253.0
Total Col1Ave (3 peaks):					169.1	Total Col2Ave (3 peaks):				192.4 RPD = 13
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.170	-0.001	5150	251.9	1	4.294	-0.002	17679	259.7
Aroclor-1232	2	6.919	-0.000	16254	283.6	2	6.793	-0.001	97809	284.5
Aroclor-1232	3	7.307	0.000	56547	281.7	3	7.412	-0.000	194376	281.0
Aroclor-1232	4	7.454	-0.001	21489	282.3	4	8.745	-0.000	55515	237.0
Total Col1Ave (4 peaks):					274.9	Total Col2Ave (4 peaks):				265.6 RPD = 3
Corrected Ave (3 peaks):					271.9	Corrected Ave (3 peaks):				259.2 RPD = 5
Aroclor-1242	1	6.919	-0.000	16254	137.7	1	6.793	-0.000	97809	162.7
Aroclor-1242	2	7.307	0.000	56547	132.9	2	7.412	-0.000	194376	146.9
Aroclor-1242	3	8.630	-0.000	16533	117.4	3	7.782	-0.001	50904	149.0
Aroclor-1242	4	8.917	-0.001	17384	116.3	4	8.818	0.001	56165	132.9
Total Col1Ave (4 peaks):					126.1	Total Col2Ave (4 peaks):				147.9 RPD = 16
Corrected Ave (3 peaks):					122.2	Corrected Ave (3 peaks):				142.9 RPD = 16
Aroclor-1248	1	8.093	0.000	15388	73.1	1	7.412	0.002	194376	226.1
Aroclor-1248	2	8.630	-0.000	16533	63.1	2	8.292	-0.001	58258	90.2
Aroclor-1248	3	8.917	-0.001	17384	70.8	3	8.818	0.002	56165	84.2
Aroclor-1248	4	9.505	0.000	6267	40.2	4	9.154	0.001	65334	77.0
Total Col1Ave (4 peaks):					61.8	Total Col2Ave (4 peaks):				119.4 RPD = 64*
Corrected Ave (3 peaks):					58.0	Corrected Ave (3 peaks):				83.8 RPD = 36
Aroclor-1254	1	9.000	-0.001	5754	14.7	1	9.053	0.001	13283	15.5
Aroclor-1254	2	9.077	0.000	2484	19.9	2	9.154	0.011	65334	148.8
Aroclor-1254	3	9.371	0.001	3465	13.9	3	9.562	0.002	11779	17.4
Aroclor-1254	4	9.505	0.001	6267	13.0	4	9.710	0.003	23397	16.9
Aroclor-1254	5	10.214	0.004	3574	11.1	5	10.484	0.003	8837	10.1
Total Col1Ave (5 peaks):					14.5	Total Col2Ave (5 peaks):				41.7 RPD = 97*
Corrected Ave (4 peaks):					13.2	Corrected Ave (4 peaks):				15.0 RPD = 13
Aroclor-1260	1	10.765	0.000	56927	196.3	1	10.815	0.001	195198	180.1
Aroclor-1260	2	11.082	0.000	4949	17.6	2	11.258	0.004	236225	219.1
Aroclor-1260	3	11.451	0.000	44847	64.5	3	11.529	-0.002	131397	46.4
Aroclor-1260	4	11.853	0.003	1408	4.3	4	12.045	0.001	974022	1095.9
Aroclor-1260	5	11.968	0.001	257533	1619.5	NS	---			----
Total Col1Ave (5 peaks):					380.4	Total Col2Ave (4 peaks):				385.4 RPD = 1
Corrected Ave (4 peaks):					70.7	Corrected Ave (3 peaks):				148.6 RPD = 71*
Aroclor-1262	1	11.082	0.001	4949	14.1	1	10.815	0.001	195198	128.3
Aroclor-1262	2	11.451	0.001	44847	53.2	2	11.258	0.004	236225	184.8
Aroclor-1262	3	11.853	0.003	1408	5.4	3	11.529	-0.001	131397	43.7
Aroclor-1262	4	11.968	0.001	257533	797.6	4	12.045	0.001	974022	677.8
Total Col1Ave (4 peaks):					217.6	Total Col2Ave (4 peaks):				258.7 RPD = 17
Corrected Ave (3 peaks):					24.2	Corrected Ave (3 peaks):				119.0 RPD = 132*
Aroclor-1268	1	11.968	0.000	257533	268.7	1	12.045	-0.001	974022	256.1
Aroclor-1268	2	12.039	0.000	263447	296.4	2	12.111	0.001	1089347	289.4
Aroclor-1268	3	12.427	0.002	178082	241.3	3	12.502	0.001	761562	227.5
Aroclor-1268	4	13.211	0.000	491485	225.4	4	13.321	0.001	2603537	212.2
Total Col1Ave (4 peaks):					257.9	Total Col2Ave (4 peaks):				246.3 RPD = 5

Corrected Ave (3 peaks): 245.1 Corrected Ave (3 peaks): 231.9 RPD = 6

Total PCB Area Col1 (5.430 - 13.518) = 1971485 Col1 Total PCB = 0.5 ppm*

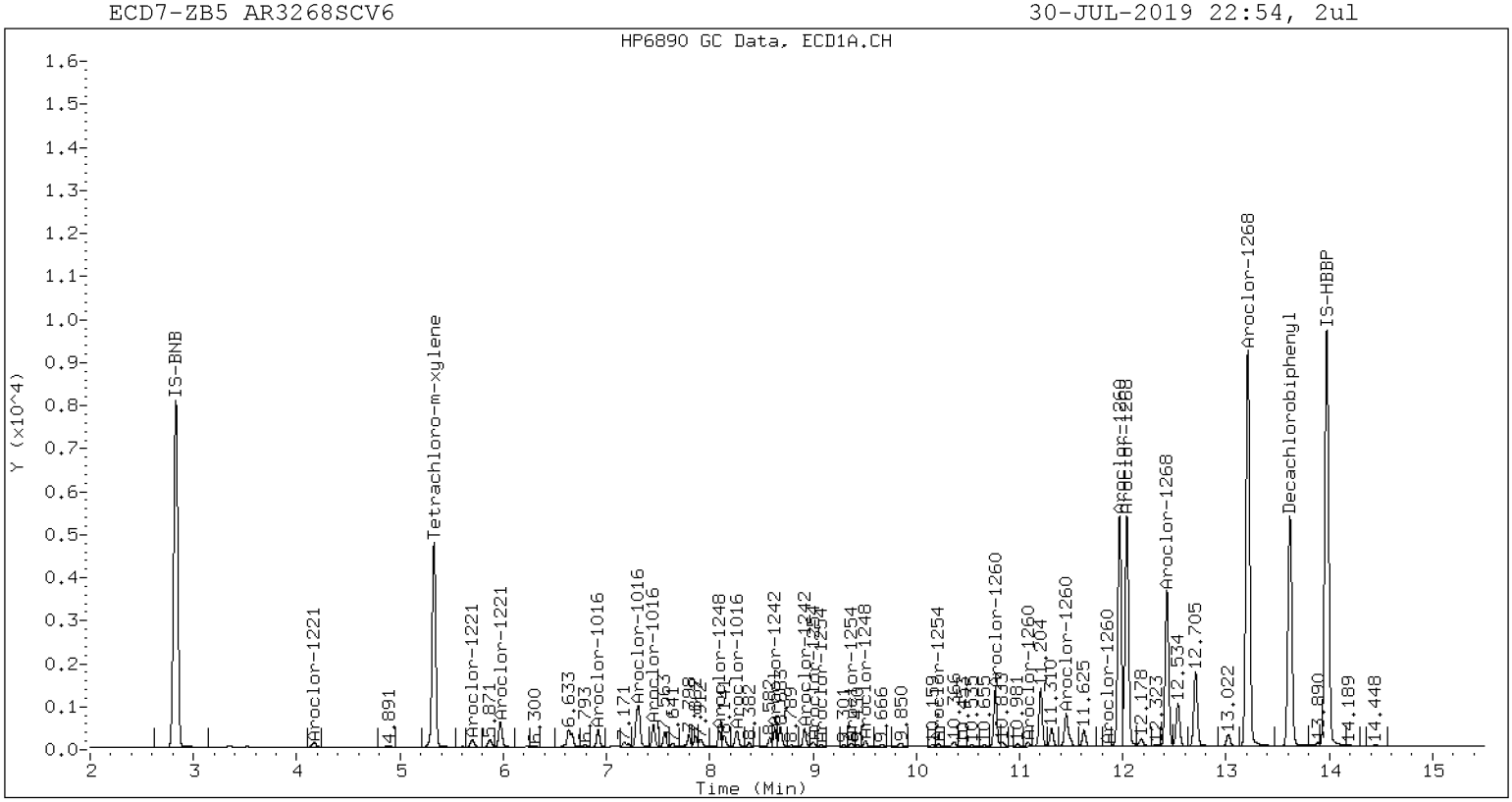
Total PCB Area Col2 (5.430 - 13.518) = 8252950 Col2 Total PCB = 0.7 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

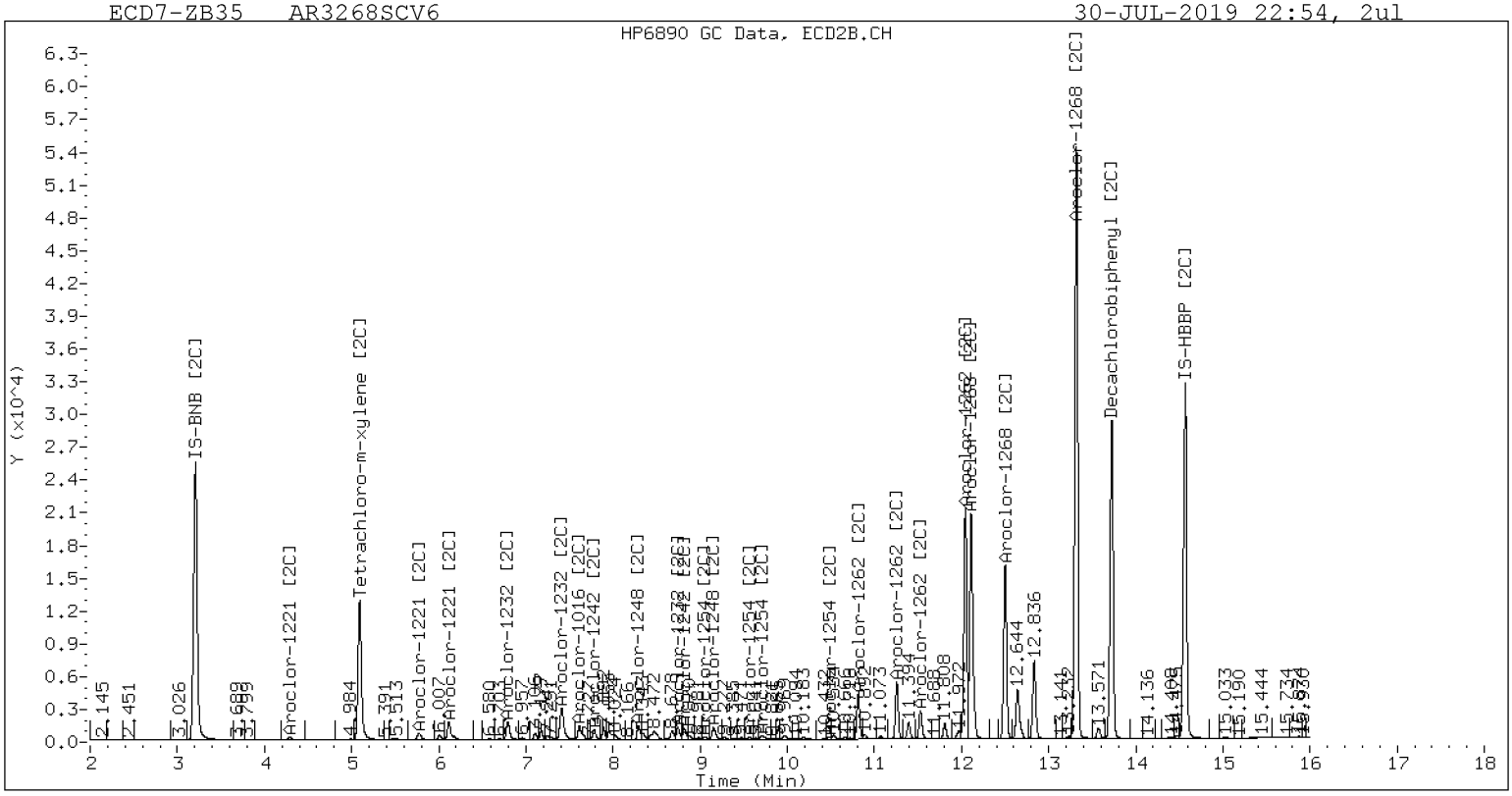
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV6 30-JUL-2019 22:54, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV6 30-JUL-2019 22:54, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19081008ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHH0183	Injection Date:	08/10/19
Lab Sample ID:	SHH0183-CCV1	Injection Time:	17:35
Sequence Name:	AR1248CCV1		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1248	A	250.00	269	0.0386466	0.0415205		7.6	20
Aroclor 1248 [2C]	A	250.00	270	0.0398616	0.0430347		8.0	20
Decachlorobiphenyl	A	40.000	39.6	0.9063338	0.8975928		-1.0	20
Tetrachlorometaxylene	A	40.000	43.0	1.0254730	1.1016790		7.5	20
Decachlorobiphenyl [2C]	A	40.000	38.7	1.5040840	1.4556300		-3.3	20
Tetrachlorometaxylene [2C]	A	40.000	40.6	0.9978530	1.0125980		1.5	20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190810.b/19081008ECD7.D
Data file 2: /20190810.b/20190810.b/19081008ECD7.D
Method: \\target\share\chem4\ecd7.i\20190810.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248CCV1
Client ID:
Injection Date: 10-AUG-2019 17:35
Report Date: 08/14/2019 10:28
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.302	-0.001	194736	5.058	-0.001	647029	43.0	40.6	5.7	Tetrachloro-m-xylene
13.614	0.000	187070	13.715	0.000	865588	39.6	38.7	2.3	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	107.4	101.5
Decachlorobiphenyl	99.0	96.8

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	353526	-18.2
Hexabromobiphenyl	517563	416826	-19.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1277958	-14.6
Hexabromobiphenyl	1404015	1189297	-15.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1248	1	8.078	0.000	46983	285.5	1	7.388	0.000	193804	267.5
Aroclor-1248	2	8.617	0.000	53529	261.4	2	8.272	0.000	148164	272.0
Aroclor-1248	3	8.906	0.000	50397	262.6	3	8.798	0.000	152401	271.1
Aroclor-1248	4	9.495	0.000	32573	267.2	4	9.136	0.000	193087	269.8
Total Col1Ave (4 peaks):					269.2	Total Col2Ave (4 peaks):				270.1 RPD = 0
Corrected Ave (3 peaks):					263.7	Corrected Ave (3 peaks):				269.5 RPD = 2
CalAmt %D:					7.7	CalAmt %D:				8.0

Total PCB Area Col1 (5.403 - 13.514) = 771671 Col1 Total PCB = 0.3 ppm*

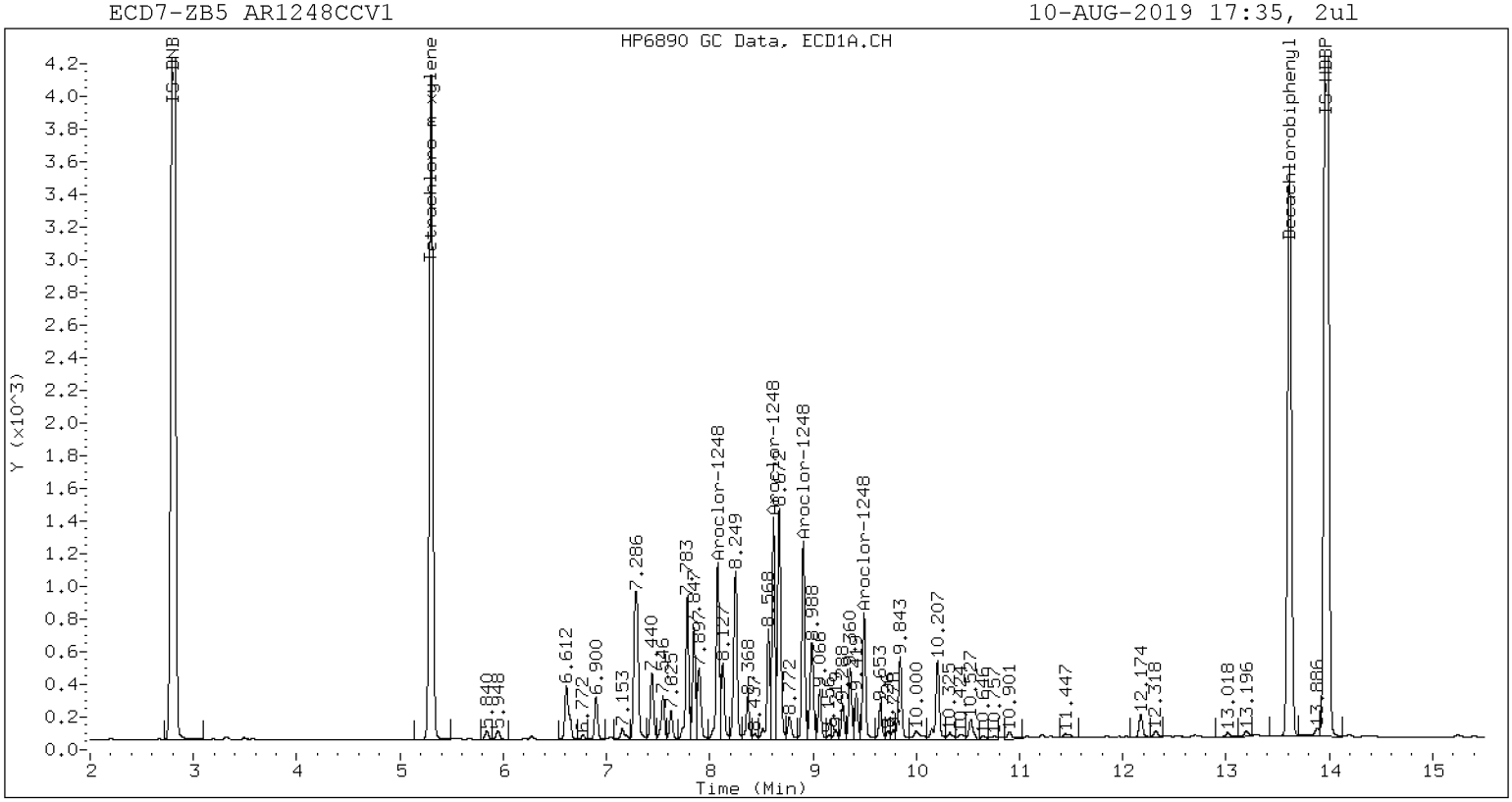
Total PCB Area Col2 (5.403 - 13.514) = 2581172 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

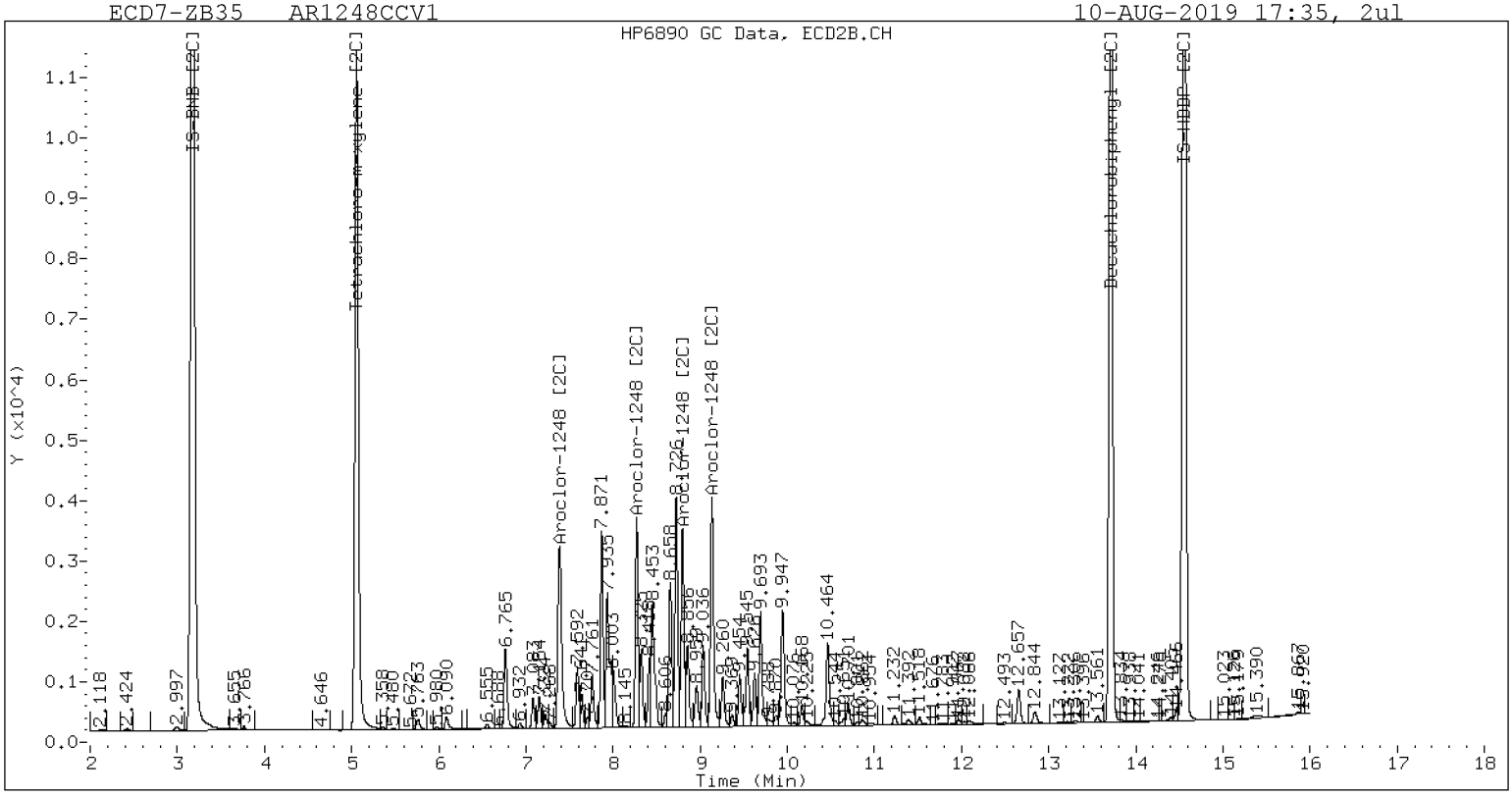
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248CCV1 10-AUG-2019 17:35, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248CCV1 10-AUG-2019 17:35, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19081009ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHH0183	Injection Date:	08/10/19
Lab Sample ID:	SHH0183-CCV2	Injection Time:	17:56
Sequence Name:	AR1660CCV2		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1016	A	250.00	256	0.0440053	0.0454059		2.5	20
Aroclor 1016 [2C]	A	250.00	253	0.0453338	0.0457357		1.3	20
Aroclor 1260	A	250.00	254	0.0520836	0.0533242		1.7	20
Aroclor 1260 [2C]	A	250.00	221	0.0716386	0.0630727		-11.5	20
Decachlorobiphenyl	A	40.000	39.0	0.9063338	0.8833107		-2.5	20
Tetrachlorometaxylene	A	40.000	41.7	1.0254730	1.0682150		4.3	20
Decachlorobiphenyl [2C]	A	40.000	35.3	1.5040840	1.3279290		-11.8	20
Tetrachlorometaxylene [2C]	A	40.000	39.3	0.9978530	0.9811835		-1.8	20

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190810.b/19081009ECD7.D
Data file 2: /20190810.b/20190810.b/19081009ECD7.D
Method: \\target\share\chem4\ecd7.i\20190810.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV2
Client ID:
Injection Date: 10-AUG-2019 17:56
Report Date: 08/14/2019 10:28
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.303	0.000	233365	5.059	0.000	777140	41.7	39.3	5.8	Tetrachloro-m-xylene
13.614	0.000	230276	13.715	0.000	1091295	39.0	35.3	9.9	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	104.2	98.3
Decachlorobiphenyl	97.5	88.3

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	436925	1.0
Hexabromobiphenyl	517563	521393	0.7

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1584087	5.8
Hexabromobiphenyl	1404015	1643605	17.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.900	0.000	34547	251.2	1	6.768	0.000	191763	248.5
Aroclor-1016	2	7.291	0.000	127131	261.1	2	7.390	0.000	429675	251.3
Aroclor-1016	3	7.438	0.000	47374	255.5	3	7.591	0.000	172488	253.2
Aroclor-1016	4	8.251	0.000	38935	256.9	4	7.762	0.000	111690	261.1
	Total Col1Ave (4 peaks):				256.2	Total Col2Ave (4 peaks):				253.5 RPD = 1
	Corrected Ave (3 peaks):				254.6	Corrected Ave (3 peaks):				251.0 RPD = 1
			CalAmt %D:		2.5			CalAmt %D:		1.4
Aroclor-1260	1	10.758	0.000	71871	256.0	1	10.801	0.000	238209	219.6
Aroclor-1260	2	11.075	0.000	70342	258.3	2	11.242	0.000	250590	232.2
Aroclor-1260	3	11.445	0.000	176074	261.5	3	11.519	0.000	614528	216.9
Aroclor-1260	4	11.846	0.000	77716	245.1	4	12.033	0.000	192505	216.4
Aroclor-1260	5	11.963	0.000	38417	249.6	NS	---			----
	Total Col1Ave (5 peaks):				254.1	Total Col2Ave (4 peaks):				221.3 RPD = 14
	Corrected Ave (4 peaks):				252.3	Corrected Ave (3 peaks):				217.6 RPD = 15
			CalAmt %D:		1.6			CalAmt %D:		-11.5

Total PCB Area Col1 (5.403 - 13.514) = 1848389 Col1 Total PCB = 0.5 ppm*

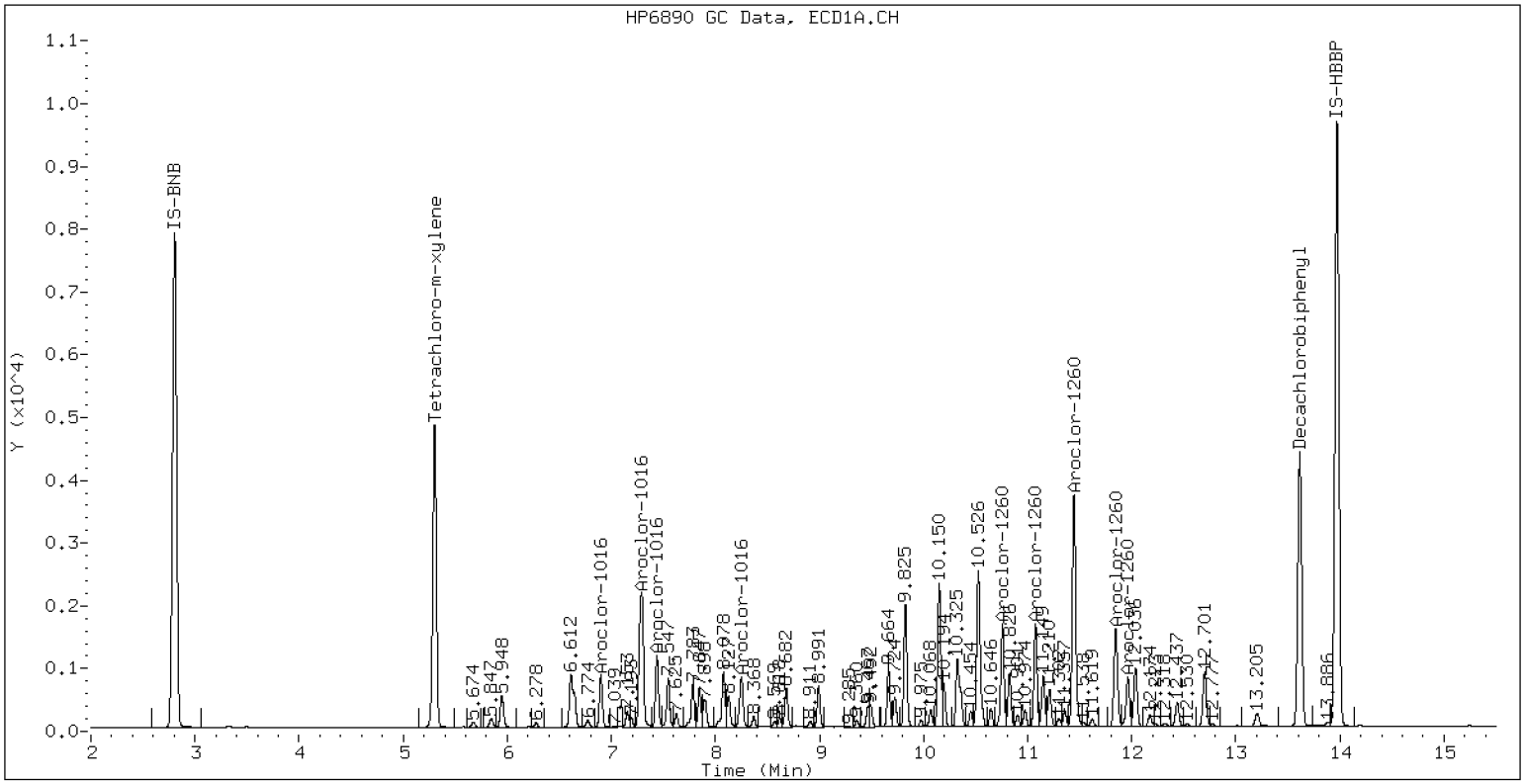
Total PCB Area Col2 (5.403 - 13.514) = 6354287 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

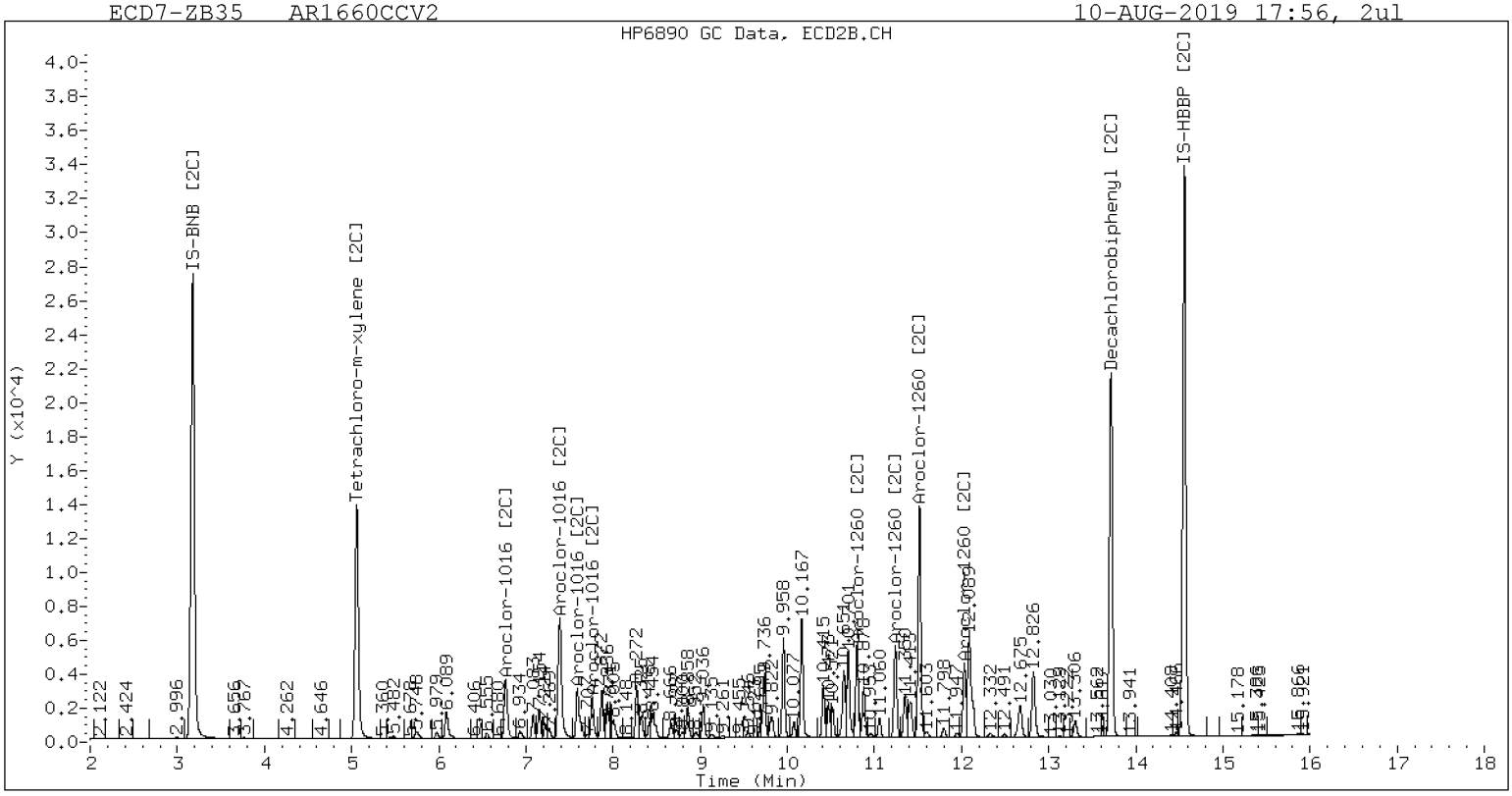
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV2 10-AUG-2019 17:56, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV2 10-AUG-2019 17:56, 2ul



ZB-35 Manual Integration: NO

CONTINUING CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19081408ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHH0216	Injection Date:	08/14/19
Lab Sample ID:	SHH0216-CCV1	Injection Time:	17:08
Sequence Name:	AR1248CCV1		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1248	A	250.00	267	0.0386466	0.0411311		6.8	20
Aroclor 1248 [2C]	A	250.00	277	0.0398616	0.0441994		10.9	20
Decachlorobiphenyl	A	40.000	40.8	0.9063338	0.9253672		2.0	20
Tetrachlorometaxylene	A	40.000	43.0	1.0254730	1.1024030		7.5	20
Decachlorobiphenyl [2C]	A	40.000	38.6	1.5040840	1.4509550		-3.5	20
Tetrachlorometaxylene [2C]	A	40.000	40.7	0.9978530	1.0160670		1.8	20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081408ECD7.D
Data file 2: /20190814.b/20190814.b/19081408ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248CCV1
Client ID:
Injection Date: 14-AUG-2019 17:08
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.309	-0.004	179296	5.065	-0.003	613029	43.0	40.7	5.4	Tetrachloro-m-xylene
13.616	-0.000	170535	13.716	0.001	835419	40.8	38.6	5.7	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	107.5	101.8
Decachlorobiphenyl	102.1	96.5

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	325282	-24.8
Hexabromobiphenyl	517563	368578	-28.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1206670	-19.4
Hexabromobiphenyl	1404015	1151544	-18.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1248	1	8.083	0.000	40072	264.6	1	7.392	0.000	187676	274.3
Aroclor-1248	2	8.621	0.000	49565	263.1	2	8.275	0.000	144446	280.9
Aroclor-1248	3	8.909	0.000	46742	264.7	3	8.802	0.000	145778	274.6
Aroclor-1248	4	9.498	0.000	30861	275.1	4	9.138	0.000	188776	279.4
Total Col1Ave (4 peaks):					266.9	Total Col2Ave (4 peaks):				277.3 RPD = 4
Corrected Ave (3 peaks):					264.2	Corrected Ave (3 peaks):				276.1 RPD = 4
CalAmt %D:					6.8	CalAmt %D:				10.9

Total PCB Area Col1 (5.413 - 13.516) = 736153 Col1 Total PCB = 0.3 ppm*

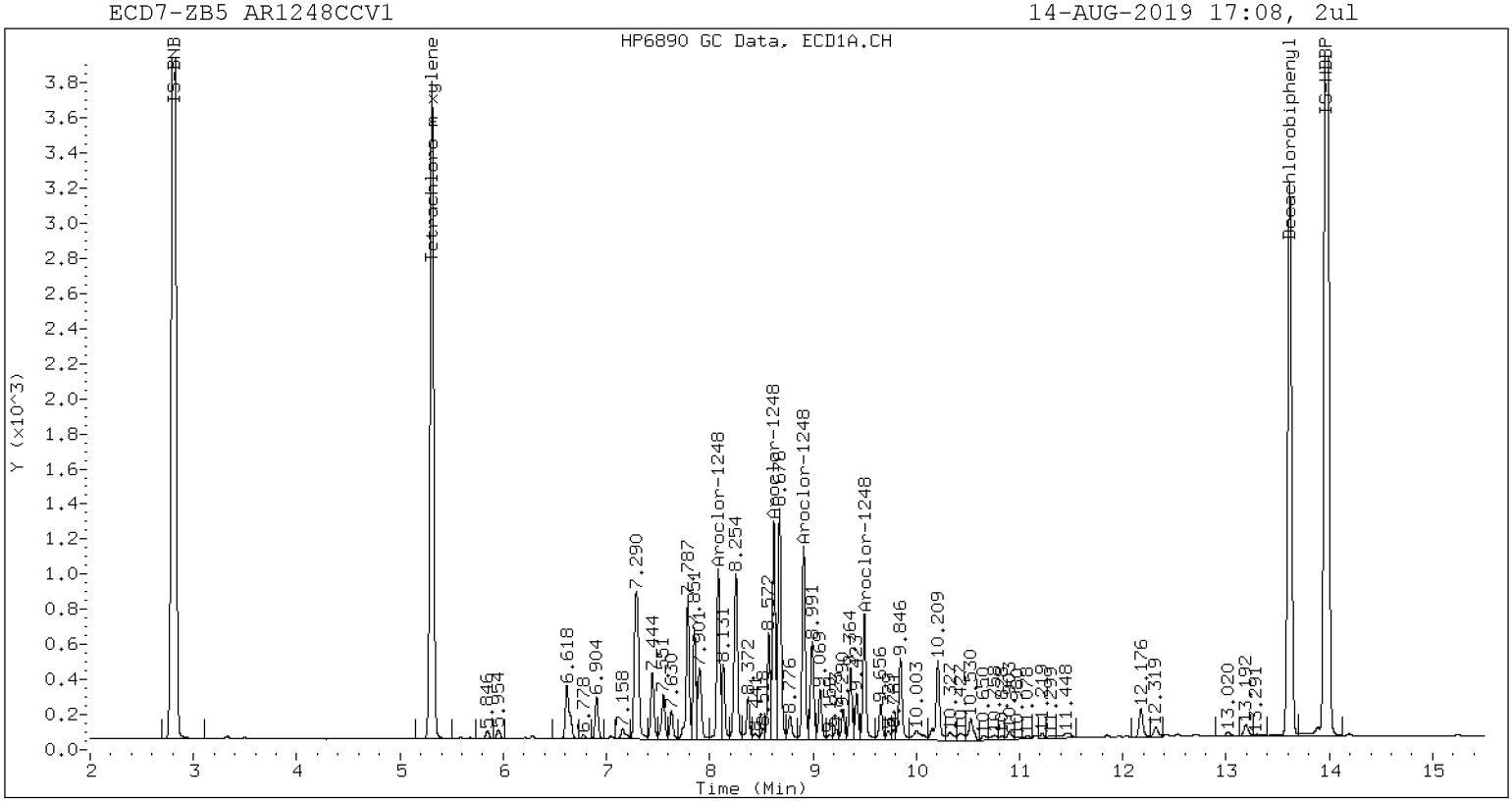
Total PCB Area Col2 (5.413 - 13.516) = 2462789 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

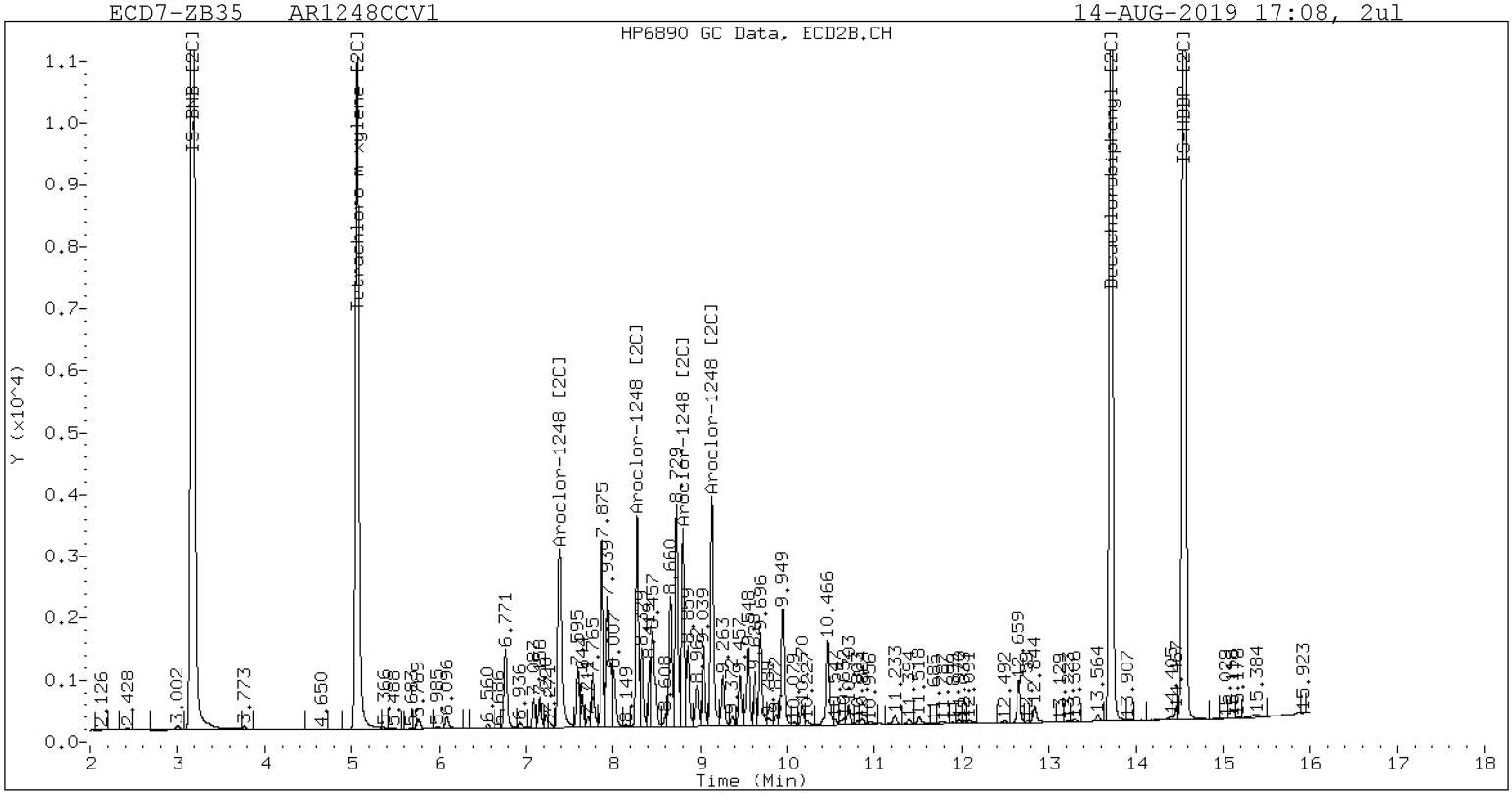
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248CCV1 14-AUG-2019 17:08, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248CCV1 14-AUG-2019 17:08, 2ul



ZB-35 Manual Integration: NO

CONTINUING CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19081409ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHH0216	Injection Date:	08/14/19
Lab Sample ID:	SHH0216-CCV2	Injection Time:	17:29
Sequence Name:	AR1660CCV2		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1016	A	250.00	257	0.0440053	0.0455439		2.7	20
Aroclor 1016 [2C]	A	250.00	263	0.0453338	0.0473006		5.0	20
Aroclor 1260	A	250.00	263	0.0520836	0.0551055		5.0	20
Aroclor 1260 [2C]	A	250.00	228	0.0716386	0.0653087		-8.7	20
Decachlorobiphenyl	A	40.000	40.8	0.9063338	0.9240204		2.0	20
Tetrachlorometaxylene	A	40.000	41.8	1.0254730	1.0726480		4.5	20
Decachlorobiphenyl [2C]	A	40.000	36.7	1.5040840	1.3812220		-8.3	20
Tetrachlorometaxylene [2C]	A	40.000	40.0	0.9978530	0.9987634		0.0	20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081409ECD7.D
Data file 2: /20190814.b/20190814.b/19081409ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV2
Client ID:
Injection Date: 14-AUG-2019 17:29
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.311	-0.001	214307	5.068	-0.000	730552	41.8	40.0	4.4	Tetrachloro-m-xylene
13.617	0.001	211998	13.717	0.003	1039093	40.8	36.7	10.4	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	104.6	100.1
Decachlorobiphenyl	102.0	91.8

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	399585	-7.6
Hexabromobiphenyl	517563	458860	-11.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1462913	-2.3
Hexabromobiphenyl	1404015	1504600	7.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	6.907	-0.002	31683	251.9	1	6.774	0.000	183245	257.1
Aroclor-1016	2	7.297	-0.002	116741	262.2	2	7.395	-0.000	409761	259.5
Aroclor-1016	3	7.444	-0.001	43615	257.2	3	7.597	0.001	165242	262.6
Aroclor-1016	4	8.255	-0.001	35444	255.8	4	7.766	0.000	106710	270.1
Total Col1Ave (4 peaks):					256.8	Total Col2Ave (4 peaks):				262.3 RPD = 2
Corrected Ave (3 peaks):					255.0	Corrected Ave (3 peaks):				259.7 RPD = 2
CalAmt %D:					2.7	CalAmt %D:				4.9
Aroclor-1260	1	10.761	0.000	66020	267.2	1	10.803	0.001	224540	226.1
Aroclor-1260	2	11.078	-0.000	64250	268.1	2	11.243	0.001	236573	239.4
Aroclor-1260	3	11.447	-0.000	160281	270.5	3	11.521	0.002	586465	226.1
Aroclor-1260	4	11.848	0.001	69483	249.0	4	12.035	0.001	180715	221.9
Aroclor-1260	5	11.965	0.001	35055	258.8	NS	---			----
Total Col1Ave (5 peaks):					262.7	Total Col2Ave (4 peaks):				228.4 RPD = 14
Corrected Ave (4 peaks):					260.8	Corrected Ave (3 peaks):				224.7 RPD = 15
CalAmt %D:					5.1	CalAmt %D:				-8.6

Total PCB Area Col1 (5.413 - 13.516) = 1698015 Col1 Total PCB = 0.5 ppm*

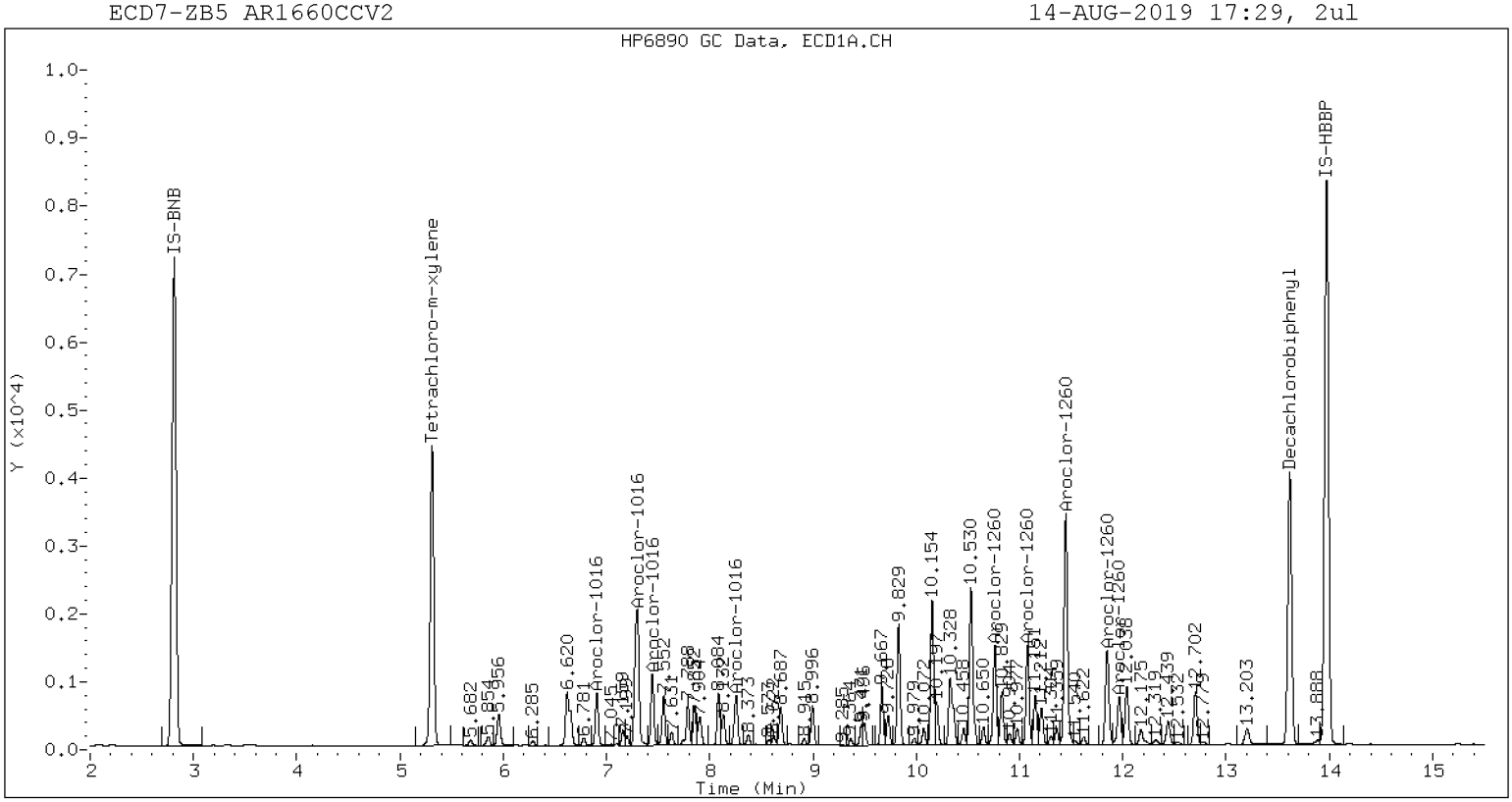
Total PCB Area Col2 (5.413 - 13.516) = 5989188 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

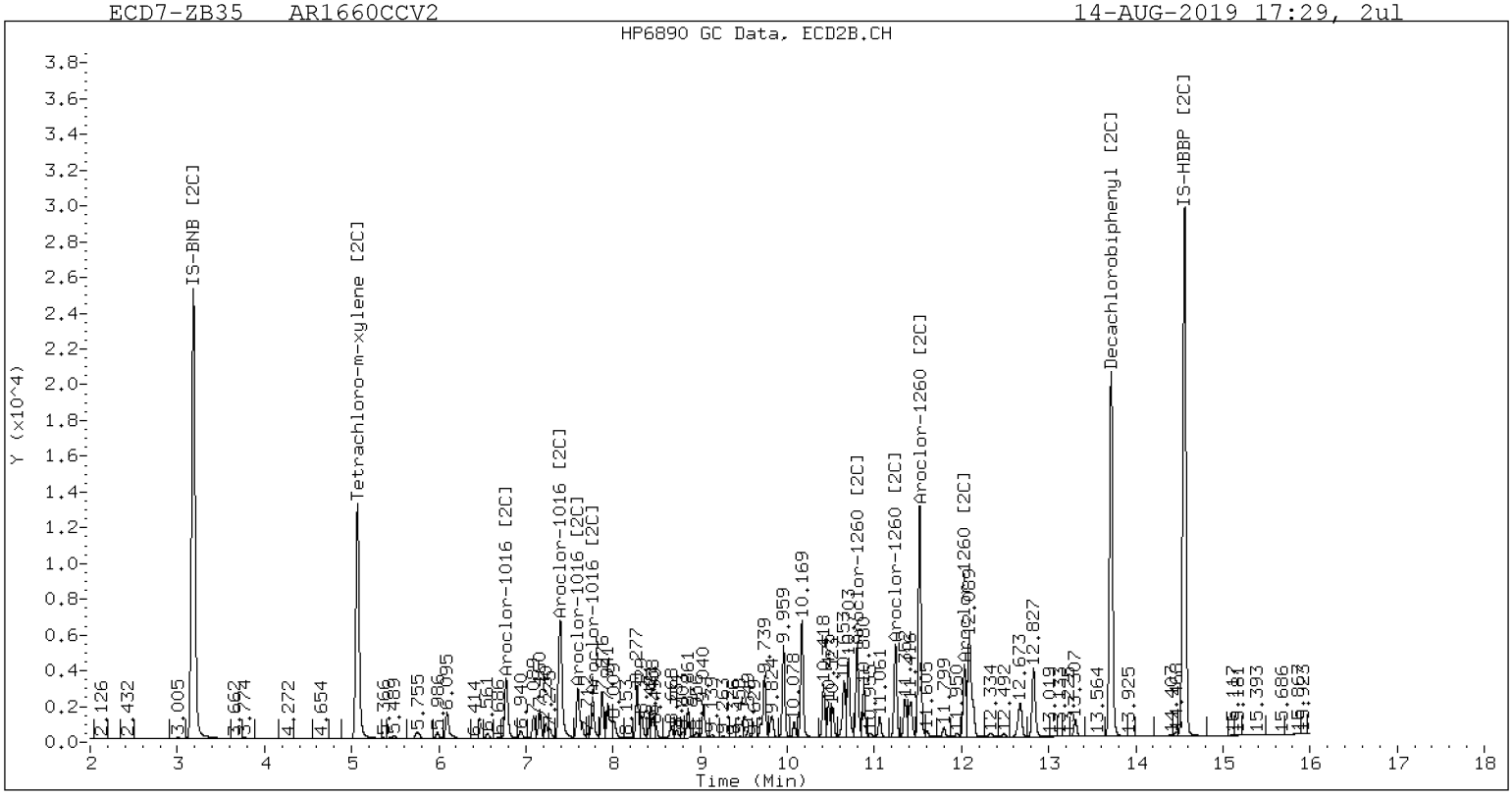
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV2 14-AUG-2019 17:29, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV2 14-AUG-2019 17:29, 2ul



ZB-35 Manual Integration: NO

CONTINUING CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19081423ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHH0216	Injection Date:	08/14/19
Lab Sample ID:	SHH0216-CCV3	Injection Time:	22:31
Sequence Name:	AR1242CCV3		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1242	A	250.00	240	0.0368638	0.0355374		-4.1	20
Aroclor 1242 [2C]	A	250.00	243	0.0354710	0.0348363		-2.8	20
Decachlorobiphenyl	A	40.000	39.8	0.9063338	0.9022195		-0.5	20
Tetrachlorometaxylene	A	40.000	42.9	1.0254730	1.0989370		7.3	20
Decachlorobiphenyl [2C]	A	40.000	36.9	1.5040840	1.3886350		-7.8	20
Tetrachlorometaxylene [2C]	A	40.000	40.4	0.9978530	1.0083280		1.0	20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081423ECD7.D
Data file 2: /20190814.b/20190814.b/19081423ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242CCV3
Client ID:
Injection Date: 14-AUG-2019 22:31
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.314	0.001	128196	5.069	0.001	480365	42.9	40.4	5.9	Tetrachloro-m-xylene
13.617	0.000	67906	13.716	0.001	404583	39.8	36.9	7.5	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	107.2	101.0
Decachlorobiphenyl	99.5	92.3

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	233309	-46.0
Hexabromobiphenyl	517563	150531	-70.9 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	952795	-36.4
Hexabromobiphenyl	1404015	582706	-58.5 <-

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1242	1	6.909	0.000	15853	260.5	1	6.774	0.000	96554	255.6
Aroclor-1242	2	7.297	0.000	53922	245.7	2	7.395	0.000	206303	248.0
Aroclor-1242	3	8.623	0.000	16536	227.7	3	7.766	0.000	52231	243.2
Aroclor-1242	4	8.911	0.000	17329	224.9	4	8.802	0.000	59810	225.2
Total Col1Ave (4 peaks):					239.7	Total Col2Ave (4 peaks):				243.0 RPD = 1
Corrected Ave (3 peaks):					232.7	Corrected Ave (3 peaks):				238.8 RPD = 3
CalAmt %D:					-4.1	CalAmt %D:				-2.8

Total PCB Area Col1 (5.413 - 13.516) = 380001 Col1 Total PCB = 0.2 ppm*

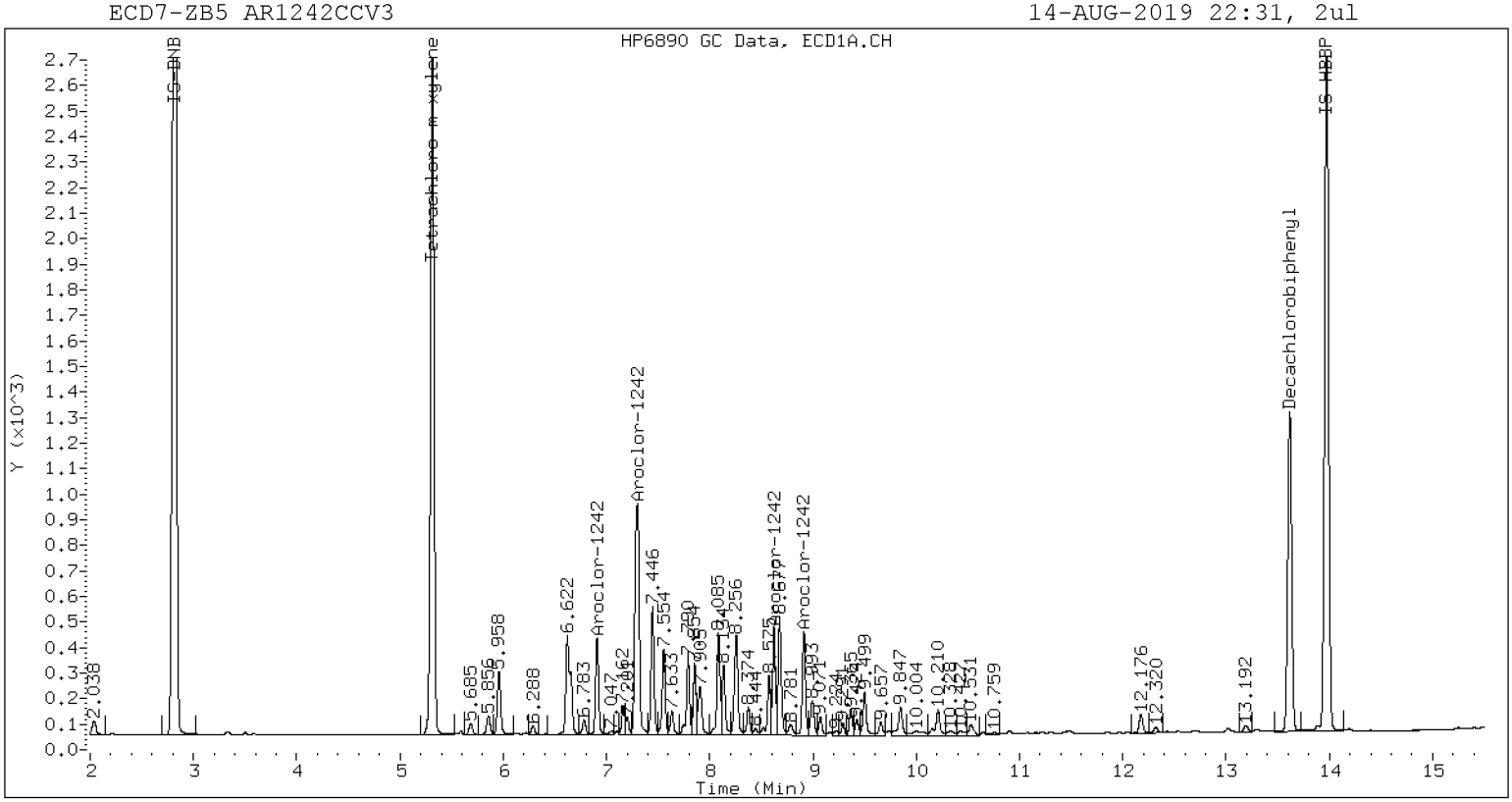
Total PCB Area Col2 (5.413 - 13.516) = 1391203 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

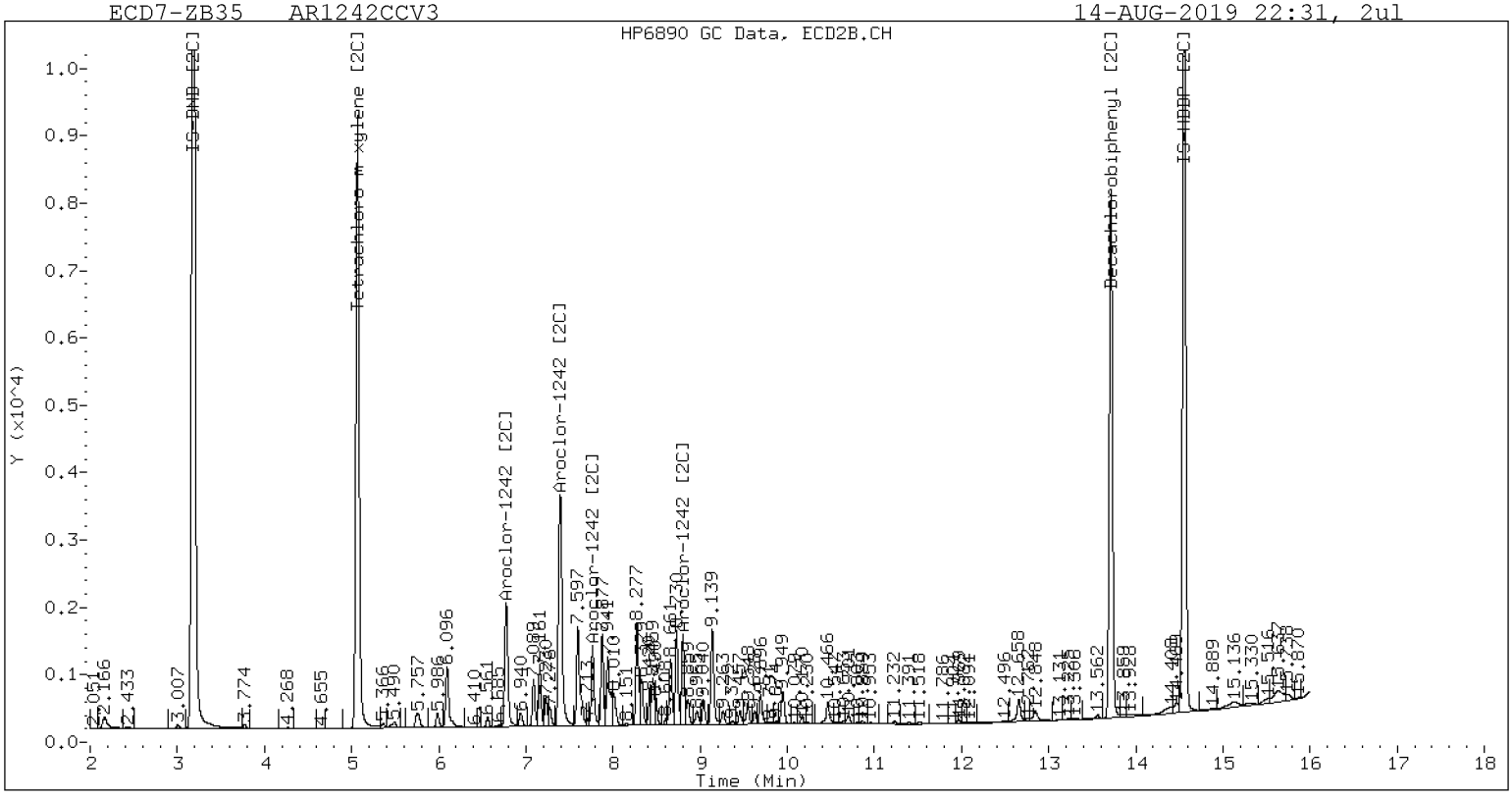
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242CCV3 14-AUG-2019 22:31, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242CCV3 14-AUG-2019 22:31, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID:	ECD7	Calibration:	CG00087
Lab File ID:	19081424ECD7.D	Calibration Date:	07/30/19 00:00
Sequence:	SHH0216	Injection Date:	08/14/19
Lab Sample ID:	SHH0216-CCV4	Injection Time:	22:53
Sequence Name:	AR1660CCV4		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Aroclor 1016	A	250.00	255	0.0440053	0.0451702		1.8	20	
Aroclor 1016 [2C]	A	250.00	260	0.0453338	0.0468966		3.8	20	
Aroclor 1260	A	250.00	321	0.0520836	0.0672449		28.5	20	*
Aroclor 1260 [2C]	A	250.00	275	0.0716386	0.0782986		10.0	20	
Decachlorobiphenyl	A	40.000	40.2	0.9063338	0.9114709		0.5	20	
Tetrachlorometaxylene	A	40.000	41.3	1.0254730	1.0578250		3.3	20	
Decachlorobiphenyl [2C]	A	40.000	38.2	1.5040840	1.4373920		-4.5	20	
Tetrachlorometaxylene [2C]	A	40.000	39.1	0.9978530	0.9765082		-2.3	20	

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /20190814.b/19081424ECD7.D
Data file 2: /20190814.b/20190814.b/19081424ECD7.D
Method: \\target\share\chem4\ecd7.i\20190814.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV4
Client ID:
Injection Date: 14-AUG-2019 22:53
Report Date: 08/15/2019 16:00
Matrix: NONE
Dilution Factor: 1.0

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.313	0.000	137651	5.068	0.000	514736	41.3	39.1	5.3	Tetrachloro-m-xylene
13.616	0.000	85959	13.715	0.000	513387	40.2	38.2	5.1	Decachlorobiphenyl

* Indicates RPD > 40%
M Indicates Column 1 peak was manually integrated
N Indicates Column 2 peak was manually integrated

SURROGATE PERCENT RECOVERY

SURROGATE	Col1	Col2
Tetrachloro-m-xylene	103.2	97.9
Decachlorobiphenyl	100.6	95.6

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	432392	260253	-39.8
Hexabromobiphenyl	517563	188616	-63.6 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	1497303	1054238	-29.6
Hexabromobiphenyl	1404015	714331	-49.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 30-JUL-2019
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	6.909	0.000	20863	254.7	1	6.774	0.000	133514	259.9
Aroclor-1016	2	7.299	0.000	75509	260.4	2	7.395	0.000	292751	257.3
Aroclor-1016	3	7.445	0.000	28186	255.2	3	7.596	0.000	116690	257.4
Aroclor-1016	4	8.257	0.000	22388	248.0	4	7.766	0.000	75047	263.6
Total Col1Ave (4 peaks):					254.6	Total Col2Ave (4 peaks):				259.5 RPD = 2
Corrected Ave (3 peaks):					252.7	Corrected Ave (3 peaks):				258.2 RPD = 2
CalAmt %D:					1.8	CalAmt %D:				3.8
Aroclor-1260	1	10.761	0.000	35372	348.3	1	10.802	0.000	136528	289.6
Aroclor-1260	2	11.078	0.000	33499	340.1	2	11.242	0.000	132517	282.5
Aroclor-1260	3	11.448	0.000	78353	321.7	3	11.519	0.000	328995	267.2
Aroclor-1260	4	11.848	0.000	34471	300.6	4	12.033	0.000	101099	261.5
Aroclor-1260	5	11.965	0.000	16484	296.0	NS	---			----
Total Col1Ave (5 peaks):					321.3	Total Col2Ave (4 peaks):				275.2 RPD = 15
Corrected Ave (4 peaks):					314.6	Corrected Ave (3 peaks):				270.4 RPD = 15
CalAmt %D:					28.5	CalAmt %D:				10.1

Total PCB Area Col1 (5.413 - 13.516) = 958102 Col1 Total PCB = 0.4 ppm*

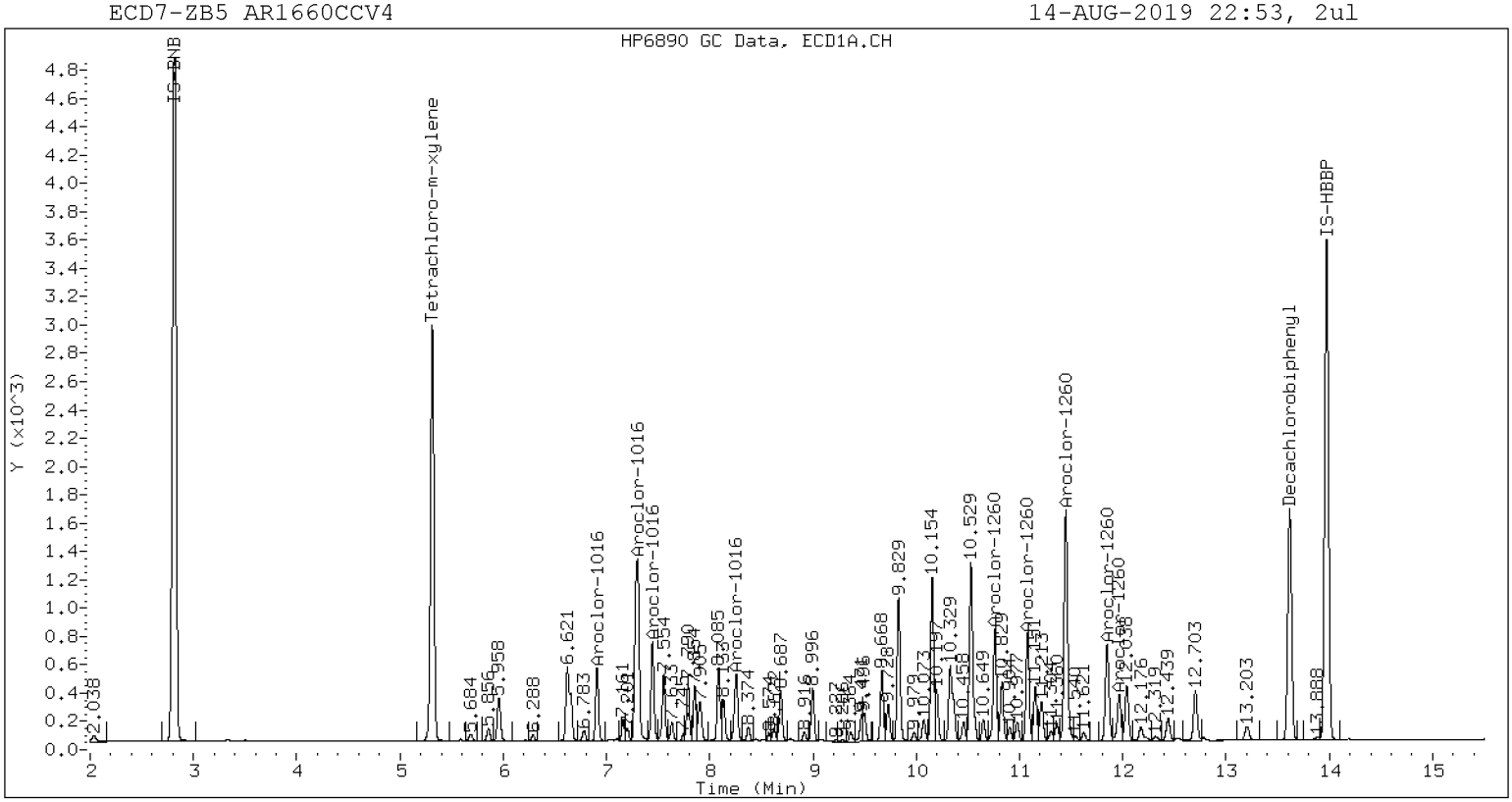
Total PCB Area Col2 (5.413 - 13.516) = 3753959 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

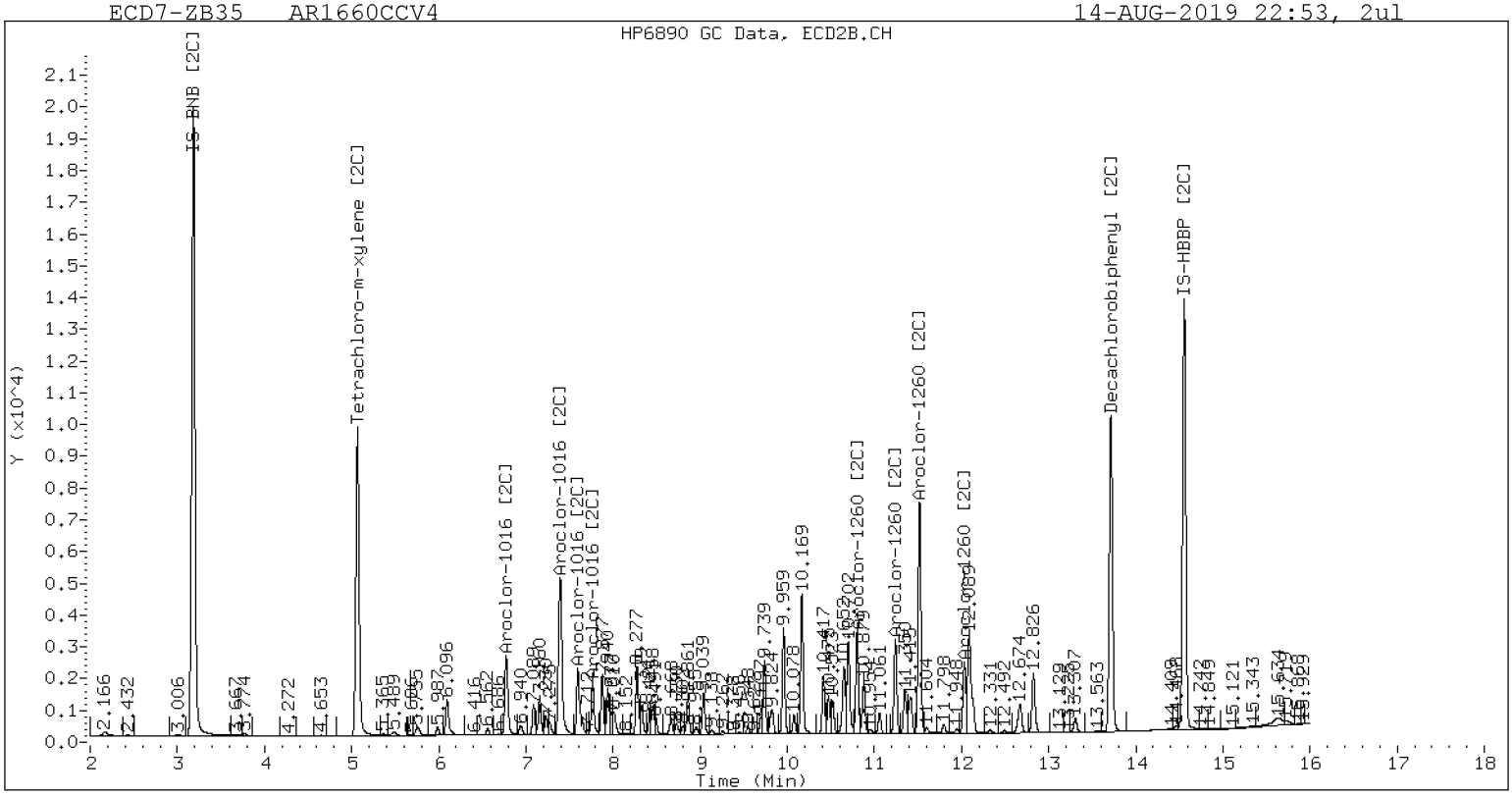
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV4 14-AUG-2019 22:53, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV4 14-AUG-2019 22:53, 2ul



ZB-35 Manual Integration: NO

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHG0411
Instrument: ECD7
Calibration: CG00087

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Cal Standard	SHG0411-CAL1	19073007ECD7.D	19073007ECD7.D	NA	07/30/19 17:20
Cal Standard	SHG0411-CAL2	19073008ECD7.D	19073008ECD7.D	NA	07/30/19 17:41
Cal Standard	SHG0411-CAL3	19073009ECD7.D	19073009ECD7.D	NA	07/30/19 18:01
Cal Standard	SHG0411-CAL4	19073010ECD7.D	19073010ECD7.D	NA	07/30/19 18:22
Cal Standard	SHG0411-CAL5	19073011ECD7.D	19073011ECD7.D	NA	07/30/19 18:43
Cal Standard	SHG0411-CAL6	19073012ECD7.D	19073012ECD7.D	NA	07/30/19 19:04
Cal Standard	SHG0411-CAL7	19073013ECD7.D	19073013ECD7.D	NA	07/30/19 19:25
Cal Standard	SHG0411-CAL8	19073014ECD7.D	19073014ECD7.D	NA	07/30/19 19:46
Cal Standard	SHG0411-CAL9	19073015ECD7.D	19073015ECD7.D	NA	07/30/19 20:07
Cal Standard	SHG0411-CALA	19073016ECD7.D	19073016ECD7.D	NA	07/30/19 20:28
Cal Standard	SHG0411-CALB	19073017ECD7.D	19073017ECD7.D	NA	07/30/19 20:48
Secondary Cal Check	SHG0411-SCV1	19073018ECD7.D	19073018ECD7.D	NA	07/30/19 21:09
Secondary Cal Check	SHG0411-SCV2	19073019ECD7.D	19073019ECD7.D	NA	07/30/19 21:30
Secondary Cal Check	SHG0411-SCV3	19073020ECD7.D	19073020ECD7.D	NA	07/30/19 21:51
Secondary Cal Check	SHG0411-SCV4	19073021ECD7.D	19073021ECD7.D	NA	07/30/19 22:12
Secondary Cal Check	SHG0411-SCV5	19073022ECD7.D	19073022ECD7.D	NA	07/30/19 22:33
Secondary Cal Check	SHG0411-SCV6	19073023ECD7.D	19073023ECD7.D	NA	07/30/19 22:54

Printed: 7/31/2019 3:27:15PM

ANALYSIS SEQUENCE

SHG0411

Instrument: ECD7 Element Column ID: G2294/G2295
Calibration ID: CG00087

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHG0411-CAL1	0.25PPM AR1660	QC		1	G010781	H001058	
SHG0411-CAL2	0.02PPM AR1660	QC		2	G010784	H001058	
SHG0411-CAL3	0.05PPM AR1660	QC		3	G010783	H001058	
SHG0411-CAL4	1.0PPM AR1660	QC		4	G010124	H001058	
SHG0411-CAL5	0.1PPM AR1660	QC		5	G010782	H001058	
SHG0411-CAL6	0.5PPM AR1660	QC		6	G010780	H001058	
SHG0411-CAL7	0.25PPM AR1242	QC		7	G010125	H001058	
SHG0411-CAL8	0.25PPM AR1248	QC		8	G010126	H001058	
SHG0411-CAL9	0.25PPM AR1254	QC		9	G010127	H001058	
SHG0411-CALA	0.25PPM AR2162	QC		10	H006284	H001058	
SHG0411-CALB	0.25PPM AR3268	QC		11	G010129	H001058	
SHG0411-SCV1	AR1660SCV1	QC		12	H004289	H001058	
SHG0411-SCV2	AR1242SCV2	QC		13	H004290	H001058	
SHG0411-SCV3	AR1248SCV3	QC		14	H004291	H001058	
SHG0411-SCV4	AR1254SCV4	QC		15	H004292	H001058	
SHG0411-SCV5	AR2162SCV5	QC		16	H004293	H001058	
SHG0411-SCV6	AR3268SCV6	QC		17	H004294	H001058	

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190730.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	30-JUL-2019 13:16	19073001ECD7.D	1	DDTS	
2	30-JUL-2019 13:37	19073002ECD7.D	1	AR1254ICV1	
3	30-JUL-2019 13:58	19073003ECD7.D	1	AR1660ICV2	
4	30-JUL-2019 16:17	19073004ECD7.D	1	RINSE	
5	30-JUL-2019 16:38	19073005ECD7.D	1	RINSE	
6	30-JUL-2019 16:59	19073006ECD7.D	1	IB	
7	30-JUL-2019 17:20	19073007ECD7.D	1	0.25PPMAR1660	
8	30-JUL-2019 17:41	19073008ECD7.D	1	0.02PPMAR1660	
9	30-JUL-2019 18:01	19073009ECD7.D	1	0.05PPMAR1660	
10	30-JUL-2019 18:22	19073010ECD7.D	1	1PPMAR1660	
11	30-JUL-2019 18:43	19073011ECD7.D	1	0.1PPMAR1660	
12	30-JUL-2019 19:04	19073012ECD7.D	1	0.5PPMAR1660	
13	30-JUL-2019 19:25	19073013ECD7.D	1	AR1242	
14	30-JUL-2019 19:46	19073014ECD7.D	1	AR1248	
15	30-JUL-2019 20:07	19073015ECD7.D	1	AR1254	
16	30-JUL-2019 20:28	19073016ECD7.D	1	AR2162	
17	30-JUL-2019 20:48	19073017ECD7.D	1	AR3268	
18	30-JUL-2019 21:09	19073018ECD7.D	1	AR1660SCV1	
19	30-JUL-2019 21:30	19073019ECD7.D	1	AR1242SCV2	
20	30-JUL-2019 21:51	19073020ECD7.D	1	AR1248SCV3	
21	30-JUL-2019 22:12	19073021ECD7.D	1	AR1254SCV4	
22	30-JUL-2019 22:33	19073022ECD7.D	1	AR2162SCV5	
23	30-JUL-2019 22:54	19073023ECD7.D	1	AR3268SCV6	
24	30-JUL-2019 23:15	19073024ECD7.D	1	0.1PPMDDTS	
25	30-JUL-2019 23:35	19073025ECD7.D	1	DDT BD	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190730.b

ARI Job No.: DDTS Method: PCB.m Instrument: ecd7.i Date: 30-JUL-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1316	19073001ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1337	19073002ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1358	19073003ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1617	19073004ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1638	19073005ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1659	19073006ECD7.D	IB		1	NO MANUAL INTEGRATION
1720	19073007ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1741	19073008ECD7.D	0.02PPMAR1660		1	Aroclor-1260,
1801	19073009ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1822	19073010ECD7.D	1PPMAR1660		1	NO MANUAL INTEGRATION
1843	19073011ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1904	19073012ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1925	19073013ECD7.D	AR1242		1	NO MANUAL INTEGRATION
1946	19073014ECD7.D	AR1248		1	NO MANUAL INTEGRATION
2007	19073015ECD7.D	AR1254		1	NO MANUAL INTEGRATION
2028	19073016ECD7.D	AR2162		1	NO MANUAL INTEGRATION
2048	19073017ECD7.D	AR3268		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190730.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2109	19073018ECD7.D	AR1660SCV1		1	NO MANUAL INTEGRATION
2130	19073019ECD7.D	AR1242SCV2		1	NO MANUAL INTEGRATION
2151	19073020ECD7.D	AR1248SCV3		1	NO MANUAL INTEGRATION
2212	19073021ECD7.D	AR1254SCV4		1	NO MANUAL INTEGRATION
2233	19073022ECD7.D	AR2162SCV5		1	NO MANUAL INTEGRATION
2254	19073023ECD7.D	AR3268SCV6		1	NO MANUAL INTEGRATION
2315	19073024ECD7.D	0.1PPMDDTS		1	NO MANUAL INTEGRATION
2335	19073025ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1316	19073001ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1337	19073002ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1358	19073003ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1617	19073004ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1638	19073005ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1659	19073006ECD7.D	IB		1	NO MANUAL INTEGRATION
1720	19073007ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1741	19073008ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1801	19073009ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1822	19073010ECD7.D	1PPMAR1660		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190730.b\20190730.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1843	19073011ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1904	19073012ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1925	19073013ECD7.D	AR1242		1	NO MANUAL INTEGRATION
1946	19073014ECD7.D	AR1248		1	NO MANUAL INTEGRATION
2007	19073015ECD7.D	AR1254		1	NO MANUAL INTEGRATION
2028	19073016ECD7.D	AR2162		1	NO MANUAL INTEGRATION
2048	19073017ECD7.D	AR3268		1	NO MANUAL INTEGRATION
2109	19073018ECD7.D	AR1660SCV1		1	NO MANUAL INTEGRATION
2130	19073019ECD7.D	AR1242SCV2		1	NO MANUAL INTEGRATION
2151	19073020ECD7.D	AR1248SCV3		1	NO MANUAL INTEGRATION
2212	19073021ECD7.D	AR1254SCV4		1	NO MANUAL INTEGRATION
2233	19073022ECD7.D	AR2162SCV5		1	NO MANUAL INTEGRATION
2254	19073023ECD7.D	AR3268SCV6		1	NO MANUAL INTEGRATION
2315	19073024ECD7.D	0.1PPMDDTS		1	NO MANUAL INTEGRATION
2335	19073025ECD7.D	DDT BD		1	NO MANUAL INTEGRATION

Security Status Report

Date: 31-Jul-2019 13:51

19073001ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073002ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073003ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073004ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073005ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073006ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073007ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073008ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073009ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073010ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073011ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073012ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073013ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073014ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073015ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073016ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073017ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073018ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073019ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073020ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073021ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073022ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073023ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073024ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23
19073025ECD7.D	Data Locked	jrains, 31-Jul-2019 13:23

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0183
Instrument: ECD7
Calibration: CG00087

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Initial Cal Check	SHH0183-ICV1	19081003ECD7.D	19081003ECD7.D	NA	08/10/19 12:51
Initial Cal Check	SHH0183-ICV2	19081004ECD7.D	19081004ECD7.D	NA	08/10/19 13:12
Blank	BHH0159-BLK1	19081005ECD7.D	19081005ECD7.D	Wipes	08/10/19 16:30
LCS	BHH0159-BS1	19081006ECD7.D	19081006ECD7.D	Wipes	08/10/19 16:52
SL4-SG-WC3-FW-2019	19H0024-02	19081007ECD7.D	19081007ECD7.D	Wipes	08/10/19 17:13
Calibration Check	SHH0183-CCV1	19081008ECD7.D	19081008ECD7.D	NA	08/10/19 17:35
Calibration Check	SHH0183-CCV2	19081009ECD7.D	19081009ECD7.D	NA	08/10/19 17:56

Printed: 8/14/2019 10:22:06AM

ANALYSIS SEQUENCE

SHH0183

Instrument: ECD7 Element Column ID: G2294G2295
Calibration ID: CG00087

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHH0183-ICV1	AR1248ICV1	QC		1	G010126	H001058	
SHH0183-ICV2	AR1660ICV2	QC		2	G010781	H001058	
BHH0159-BLK1	Blank	QC		3		H001058	
BHH0159-BS1	LCS	QC		4		H001058	
19H0024-02	SL4-SG-WC3-FW-2019	8082A PCB Wipes	B 01	5		H001058	
SHH0183-CCV1	AR1254CCV1	QC		6	G010127	H001058	
SHH0183-CCV2	AR1660CCV2	QC		7	G010781	H001058	

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190810.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	10-AUG-2019 12:08	19081001ECD7.D	1	BHH224BLKNOISCHK	
2	10-AUG-2019 12:29	19081002ECD7.D	1	DDTS	
3	10-AUG-2019 12:51	19081003ECD7.D	1	AR1254ICV1	
4	10-AUG-2019 13:12	19081004ECD7.D	1	AR1660ICV2	
5	10-AUG-2019 16:30	19081005ECD7.D	1	BHH0159-BLK1	
6	10-AUG-2019 16:52	19081006ECD7.D	1	BHH0159-BS1	
7	10-AUG-2019 17:13	19081007ECD7.D	1	19H0024-02	
8	10-AUG-2019 17:35	19081008ECD7.D	1	AR1248CCV1	
9	10-AUG-2019 17:56	19081009ECD7.D	1	AR1660CCV2	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190810.b

ARI Job No.: BHH2 Method: PCB.m Instrument: ecd7.i Date: 10-AUG-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1208	19081001ECD7.D	BHH224BLKNOISCHK		1	NO MANUAL INTEGRATION
1229	19081002ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1251	19081003ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1312	19081004ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1630	19081005ECD7.D	BHH0159-BLK1		1	NO MANUAL INTEGRATION
1652	19081006ECD7.D	BHH0159-BS1		1	NO MANUAL INTEGRATION
1713	19081007ECD7.D	19H0024-02		1	NO MANUAL INTEGRATION
1735	19081008ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
1756	19081009ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1208	19081001ECD7.D	BHH224BLKNOISCHK		1	NO MANUAL INTEGRATION
1229	19081002ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1251	19081003ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1312	19081004ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1630	19081005ECD7.D	BHH0159-BLK1		1	NO MANUAL INTEGRATION
1652	19081006ECD7.D	BHH0159-BS1		1	NO MANUAL INTEGRATION
1713	19081007ECD7.D	19H0024-02		1	NO MANUAL INTEGRATION
1735	19081008ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190810.b\20190810.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1756	19081009ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION

Security Status Report

Date: 14-Aug-2019 10:23

19081001ECD7.D	Data Locked	jrains, 14-Aug-2019 10:22
19081002ECD7.D	Data Locked	jrains, 14-Aug-2019 10:22
19081003ECD7.D	Data Locked	jrains, 14-Aug-2019 10:22
19081004ECD7.D	Data Locked	jrains, 14-Aug-2019 10:22
19081005ECD7.D	Data Locked	jrains, 14-Aug-2019 10:22
19081006ECD7.D	Data Locked	jrains, 14-Aug-2019 10:22
19081007ECD7.D	Data Locked	jrains, 14-Aug-2019 10:22
19081008ECD7.D	Data Locked	jrains, 14-Aug-2019 10:22
19081009ECD7.D	Data Locked	jrains, 14-Aug-2019 10:22

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0216
Instrument: ECD7
Calibration: CG00087

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Initial Cal Check	SHH0216-ICV1	19081403ECD7.D	19081403ECD7.D	NA	08/14/19 15:00
Initial Cal Check	SHH0216-ICV2	19081404ECD7.D	19081404ECD7.D	NA	08/14/19 15:22
Calibration Check	SHH0216-CCV1	19081408ECD7.D	19081408ECD7.D	NA	08/14/19 17:08
Calibration Check	SHH0216-CCV2	19081409ECD7.D	19081409ECD7.D	NA	08/14/19 17:29
Blank	BHH0288-BLK1	19081410ECD7.D	19081410ECD7.D	Solid	08/14/19 17:51
LCS	BHH0288-BS1	19081411ECD7.D	19081411ECD7.D	Solid	08/14/19 18:12
SL4-SG-WC3-2019	19H0024-03	19081412ECD7.D	19081412ECD7.D	Solid	08/14/19 18:34
SL4-SG-WC3-2019	BHH0288-MS1	19081413ECD7.D	19081413ECD7.D	Solid	08/14/19 18:56
SL4-SG-WC3-2019	BHH0288-MSD1	19081414ECD7.D	19081414ECD7.D	Solid	08/14/19 19:17
SL4-SG-WC7-2019	19H0024-04	19081415ECD7.D	19081415ECD7.D	Solid	08/14/19 19:39
SL4-SG-WC7-FD-2019	19H0024-05	19081416ECD7.D	19081416ECD7.D	Solid	08/14/19 20:00
SL4-SG-WC8-2019	19H0024-06	19081417ECD7.D	19081417ECD7.D	Solid	08/14/19 20:22
SL4-SG-WC4-2019	19H0024-07	19081418ECD7.D	19081418ECD7.D	Solid	08/14/19 20:43
SL4-SG-WC2-2019	19H0024-08	19081419ECD7.D	19081419ECD7.D	Solid	08/14/19 21:05
SL4-SG-WC1-2019	19H0024-09	19081420ECD7.D	19081420ECD7.D	Solid	08/14/19 21:26
SL4-IC-SC2-2019	19H0024-10	19081421ECD7.D	19081421ECD7.D	Solid	08/14/19 21:48
SL4-IC-SC3-2019	19H0024-11	19081422ECD7.D	19081422ECD7.D	Solid	08/14/19 22:09
Calibration Check	SHH0216-CCV3	19081423ECD7.D	19081423ECD7.D	NA	08/14/19 22:31
Calibration Check	SHH0216-CCV4	19081424ECD7.D	19081424ECD7.D	NA	08/14/19 22:53

Printed: 8/16/2019 11:50:28AM

ANALYSIS SEQUENCE

SHH0216

Instrument: ECD7 Element Column ID: g2294g2295
Calibration ID: CG00087

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHH0216-ICV1	AR1254ICV1	QC		1	G010127	H001058	
SHH0216-ICV2	AR1660ICV2	QC		2	G010781	H001058	
BHH0288-BLK1	Blank	QC		3		H001058	
BHH0288-BS1	LCS	QC		4		H001058	
BHH0288-MS1	Matrix Spike	QC		5		H001058	
BHH0288-MSD1	Matrix Spike Dup	QC		6		H001058	
19H0024-03	SL4-SG-WC3-2019	8082A PCB Solid 4	C 01	7		H001058	
19H0024-04	SL4-SG-WC7-2019	8082A PCB Solid 4	C 01	8		H001058	
19H0024-05	SL4-SG-WC7-FD-2019	8082A PCB Solid 4	C 01	9		H001058	
19H0024-06	SL4-SG-WC8-2019	8082A PCB Solid 4	C 01	10		H001058	
19H0024-07	SL4-SG-WC4-2019	8082A PCB Solid 4	C 01	11		H001058	
19H0024-08	SL4-SG-WC2-2019	8082A PCB Solid 4	B 01	12		H001058	
19H0024-09	SL4-SG-WC1-2019	8082A PCB Solid 4	C 01	13		H001058	
19H0024-10	SL4-1C-SC2-2019	8082A PCB Solid 4	C 01	14		H001058	
19H0024-11	SL4-1C-SC3-2019	8082A PCB Solid 4	C 01	15		H001058	
SHH0216-CCV1	AR1248CCV1	QC		16	G010126	H001058	
SHH0216-CCV2	AR1660CCV2	QC		17	G010781	H001058	

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190814.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	14-AUG-2019 14:17	19081401ECD7.D	1	RINSE	
2	14-AUG-2019 14:39	19081402ECD7.D	1	DDTS	
3	14-AUG-2019 15:00	19081403ECD7.D	1	AR1254ICV1	
4	14-AUG-2019 15:22	19081404ECD7.D	1	AR1660ICV2	
5	14-AUG-2019 16:03	19081405ECD7.D	1	BHH0273-BLK1	
6	14-AUG-2019 16:25	19081406ECD7.D	1	BHH0273-BS1	
7	14-AUG-2019 16:46	19081407ECD7.D	1	19H0139-01	
8	14-AUG-2019 17:08	19081408ECD7.D	1	AR1248CCV1	
9	14-AUG-2019 17:29	19081409ECD7.D	1	AR1660CCV2	
10	14-AUG-2019 17:51	19081410ECD7.D	1	BHH0288-BLK1	
11	14-AUG-2019 18:12	19081411ECD7.D	1	BHH0288-BS1	
12	14-AUG-2019 18:34	19081412ECD7.D	1	19H0024-03	
13	14-AUG-2019 18:56	19081413ECD7.D	1	BHH0288-MS1	
14	14-AUG-2019 19:17	19081414ECD7.D	1	BHH0288-MSD1	
15	14-AUG-2019 19:39	19081415ECD7.D	1	19H0024-04	
16	14-AUG-2019 20:00	19081416ECD7.D	1	19H0024-05	
17	14-AUG-2019 20:22	19081417ECD7.D	1	19H0024-06	
18	14-AUG-2019 20:43	19081418ECD7.D	1	19H0024-07	
19	14-AUG-2019 21:05	19081419ECD7.D	1	19H0024-08	
20	14-AUG-2019 21:26	19081420ECD7.D	1	19H0024-09	
21	14-AUG-2019 21:48	19081421ECD7.D	1	19H0024-10	
22	14-AUG-2019 22:09	19081422ECD7.D	1	19H0024-11	
23	14-AUG-2019 22:31	19081423ECD7.D	1	AR1242CCV3	
24	14-AUG-2019 22:53	19081424ECD7.D	1	AR1660CCV4	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190814.b

ARI Job No.: RINS Method: PCB.m Instrument: ecd7.i Date: 14-AUG-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1417	19081401ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1439	19081402ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1500	19081403ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1522	19081404ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1603	19081405ECD7.D	BHH0273-BLK1		1	NO MANUAL INTEGRATION
1625	19081406ECD7.D	BHH0273-BS1		1	NO MANUAL INTEGRATION
1646	19081407ECD7.D	19H0139-01		1	NO MANUAL INTEGRATION
1708	19081408ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
1729	19081409ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1751	19081410ECD7.D	BHH0288-BLK1		1	NO MANUAL INTEGRATION
1812	19081411ECD7.D	BHH0288-BS1		1	NO MANUAL INTEGRATION
1834	19081412ECD7.D	19H0024-03		1	NO MANUAL INTEGRATION
1856	19081413ECD7.D	BHH0288-MS1		1	NO MANUAL INTEGRATION
1917	19081414ECD7.D	BHH0288-MSD1		1	NO MANUAL INTEGRATION
1939	19081415ECD7.D	19H0024-04		1	NO MANUAL INTEGRATION
2000	19081416ECD7.D	19H0024-05		1	NO MANUAL INTEGRATION
2022	19081417ECD7.D	19H0024-06		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190814.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2043	19081418ECD7.D	19H0024-07		1	NO MANUAL INTEGRATION
2105	19081419ECD7.D	19H0024-08		1	NO MANUAL INTEGRATION
2126	19081420ECD7.D	19H0024-09		1	NO MANUAL INTEGRATION
2148	19081421ECD7.D	19H0024-10		1	NO MANUAL INTEGRATION
2209	19081422ECD7.D	19H0024-11		1	NO MANUAL INTEGRATION
2231	19081423ECD7.D	AR1242CCV3		1	NO MANUAL INTEGRATION
2253	19081424ECD7.D	AR1660CCV4		1	NO MANUAL INTEGRATION
1417	19081401ECD7.D	RINSE		1	NO MANUAL INTEGRATION
1439	19081402ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1500	19081403ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1522	19081404ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1603	19081405ECD7.D	BHH0273-BLK1		1	NO MANUAL INTEGRATION
1625	19081406ECD7.D	BHH0273-BS1		1	NO MANUAL INTEGRATION
1646	19081407ECD7.D	19H0139-01		1	NO MANUAL INTEGRATION
1708	19081408ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
1729	19081409ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1751	19081410ECD7.D	BHH0288-BLK1		1	NO MANUAL INTEGRATION
1812	19081411ECD7.D	BHH0288-BS1		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\20190814.b\20190814.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1834	19081412ECD7.D	19H0024-03		1	NO MANUAL INTEGRATION
1856	19081413ECD7.D	BHH0288-MS1		1	NO MANUAL INTEGRATION
1917	19081414ECD7.D	BHH0288-MSD1		1	NO MANUAL INTEGRATION
1939	19081415ECD7.D	19H0024-04		1	NO MANUAL INTEGRATION
2000	19081416ECD7.D	19H0024-05		1	NO MANUAL INTEGRATION
2022	19081417ECD7.D	19H0024-06		1	NO MANUAL INTEGRATION
2043	19081418ECD7.D	19H0024-07		1	NO MANUAL INTEGRATION
2105	19081419ECD7.D	19H0024-08		1	NO MANUAL INTEGRATION
2126	19081420ECD7.D	19H0024-09		1	NO MANUAL INTEGRATION
2148	19081421ECD7.D	19H0024-10		1	NO MANUAL INTEGRATION
2209	19081422ECD7.D	19H0024-11		1	NO MANUAL INTEGRATION
2231	19081423ECD7.D	AR1242CCV3		1	NO MANUAL INTEGRATION
2253	19081424ECD7.D	AR1660CCV4		1	NO MANUAL INTEGRATION

Security Status Report

Date: 16-Aug-2019 11:42

19081401ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081402ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081403ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081404ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081405ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081406ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081407ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081408ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081409ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081410ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081411ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081412ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081413ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081414ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081415ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081416ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081417ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081418ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081419ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081420ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081421ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081422ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081423ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37
19081424ECD7.D	Data Locked	jrains, 16-Aug-2019 11:37

SURROGATE RECOVERY AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHG0411
Instrument: ECD7
Calibration: CG00087
Calibration Date: 07/30/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHG0411-SCV1 (Water)			Lab File ID: 19073018ECD7.D			Analyzed: 07/30/19 21:09		
Decachlorobiphenyl	40.000	89.3	80 - 120	13.618	13.61767	0.0003	N/A	
Tetrachlorometaxylene	40.000	104	80 - 120	5.329	5.33	-0.0010	N/A	
Decachlorobiphenyl [2C]	40.000	88.7	80 - 120	13.723	13.72633	-0.0033	N/A	
Tetrachlorometaxylene [2C]	40.000	97.4	80 - 120	5.094	5.0945	-0.0005	N/A	
SHG0411-SCV2 (Water)			Lab File ID: 19073019ECD7.D			Analyzed: 07/30/19 21:30		
Decachlorobiphenyl	40.000	89.8	80 - 120	13.618	13.61767	0.0003	N/A	
Tetrachlorometaxylene	40.000	102	80 - 120	5.33	5.33	0.0000	N/A	
Decachlorobiphenyl [2C]	40.000	84.2	80 - 120	13.723	13.72633	-0.0033	N/A	
Tetrachlorometaxylene [2C]	40.000	95.9	80 - 120	5.094	5.0945	-0.0005	N/A	
SHG0411-SCV3 (Water)			Lab File ID: 19073020ECD7.D			Analyzed: 07/30/19 21:51		
Decachlorobiphenyl	40.000	88.7	80 - 120	13.618	13.61767	0.0003	N/A	
Tetrachlorometaxylene	40.000	104	80 - 120	5.327	5.33	-0.0030	N/A	
Decachlorobiphenyl [2C]	40.000	80.5	80 - 120	13.725	13.72633	-0.0013	N/A	
Tetrachlorometaxylene [2C]	40.000	90.7	80 - 120	5.09	5.0945	-0.0045	N/A	
SHG0411-SCV4 (Water)			Lab File ID: 19073021ECD7.D			Analyzed: 07/30/19 22:12		
Decachlorobiphenyl	40.000	89.6	80 - 120	13.618	13.61767	0.0003	N/A	
Tetrachlorometaxylene	40.000	104	80 - 120	5.328	5.33	-0.0020	N/A	
Decachlorobiphenyl [2C]	40.000	83.1	80 - 120	13.724	13.72633	-0.0023	N/A	
Tetrachlorometaxylene [2C]	40.000	90.0	80 - 120	5.092	5.0945	-0.0025	N/A	
SHG0411-SCV5 (Water)			Lab File ID: 19073022ECD7.D			Analyzed: 07/30/19 22:33		
Decachlorobiphenyl	40.000	88.7	80 - 120	13.617	13.61767	-0.0007	N/A	
Tetrachlorometaxylene	40.000	105	80 - 120	5.33	5.33	0.0000	N/A	
Decachlorobiphenyl [2C]	40.000	88.3	80 - 120	13.722	13.72633	-0.0043	N/A	
Tetrachlorometaxylene [2C]	40.000	102	80 - 120	5.094	5.0945	-0.0005	N/A	
SHG0411-SCV6 (Water)			Lab File ID: 19073023ECD7.D			Analyzed: 07/30/19 22:54		
Decachlorobiphenyl	40.000	122	80 - 200	13.618	13.61767	0.0003	N/A	
Tetrachlorometaxylene	40.000	99.9	80 - 120	5.329	5.33	-0.0010	N/A	
Decachlorobiphenyl [2C]	40.000	117	80 - 120	13.725	13.72633	-0.0013	N/A	
Tetrachlorometaxylene [2C]	40.000	95.1	80 - 120	5.093	5.0945	-0.0015	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0183
Instrument: ECD7
Calibration: CG00087
Calibration Date: 07/30/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHH0183-ICV1 (Wipes)			Lab File ID: 19081003ECD7.D			Analyzed: 08/10/19 12:51		
Decachlorobiphenyl	40.000	94.0	80 - 120	13.614	13.61767	-0.0037	N/A	
Tetrachlorometaxylene	40.000	103	80 - 120	5.305	5.33	-0.0250	N/A	
Decachlorobiphenyl [2C]	40.000	93.3	80 - 120	13.713	13.72633	-0.0133	N/A	
Tetrachlorometaxylene [2C]	40.000	99.0	80 - 120	5.062	5.0945	-0.0325	N/A	
SHH0183-ICV2 (Wipes)			Lab File ID: 19081004ECD7.D			Analyzed: 08/10/19 13:12		
Decachlorobiphenyl	40.000	98.3	80 - 120	13.615	13.61767	-0.0027	N/A	
Tetrachlorometaxylene	40.000	103	80 - 120	5.305	5.33	-0.0250	N/A	
Decachlorobiphenyl [2C]	40.000	97.0	80 - 120	13.714	13.72633	-0.0123	N/A	
Tetrachlorometaxylene [2C]	40.000	98.3	80 - 120	5.063	5.0945	-0.0315	N/A	
BHH0159-BLK1 (Wipes)			Lab File ID: 19081005ECD7.D			Analyzed: 08/10/19 16:30		
Decachlorobiphenyl	0.40000	97.0	30 - 160	13.622	13.61767	0.0043	N/A	
Tetrachlorometaxylene	0.40000	102	30 - 160	5.309	5.33	-0.0210	N/A	
Decachlorobiphenyl [2C]	0.40000	100	30 - 160	13.715	13.72633	-0.0113	N/A	
Tetrachlorometaxylene [2C]	0.40000	94.1	30 - 160	5.045	5.0945	-0.0495	N/A	
BHH0159-BS1 (Wipes)			Lab File ID: 19081006ECD7.D			Analyzed: 08/10/19 16:52		
Decachlorobiphenyl	0.40000	105	30 - 160	13.615	13.61767	-0.0027	N/A	
Tetrachlorometaxylene	0.40000	104	30 - 160	5.3	5.33	-0.0300	N/A	
Decachlorobiphenyl [2C]	0.40000	109	30 - 160	13.712	13.72633	-0.0143	N/A	
Tetrachlorometaxylene [2C]	0.40000	97.9	30 - 160	5.056	5.0945	-0.0385	N/A	
19H0024-02 (Wipes)			Lab File ID: 19081007ECD7.D			Analyzed: 08/10/19 17:13		
Decachlorobiphenyl	0.40000	105	30 - 160	13.615	13.61767	-0.0027	N/A	
Tetrachlorometaxylene	0.40000	105	30 - 160	5.3	5.33	-0.0300	N/A	
Decachlorobiphenyl [2C]	0.40000	106	30 - 160	13.714	13.72633	-0.0123	N/A	
Tetrachlorometaxylene [2C]	0.40000	101	30 - 160	5.056	5.0945	-0.0385	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0216
Instrument: ECD7
Calibration: CG00087
Calibration Date: 07/30/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHH0216-ICV1 (Solid)			Lab File ID: 19081403ECD7.D			Analyzed: 08/14/19 15:00		
Decachlorobiphenyl	40.000	97.0	80 - 120	13.616	13.61767	-0.0017	N/A	
Tetrachlorometaxylene	40.000	106	80 - 120	5.301	5.33	-0.0290	N/A	
Decachlorobiphenyl [2C]	40.000	91.5	80 - 120	13.715	13.72633	-0.0113	N/A	
Tetrachlorometaxylene [2C]	40.000	100	80 - 120	5.056	5.0945	-0.0385	N/A	
SHH0216-ICV2 (Solid)			Lab File ID: 19081404ECD7.D			Analyzed: 08/14/19 15:22		
Decachlorobiphenyl	40.000	100	80 - 120	13.616	13.61767	-0.0017	N/A	
Tetrachlorometaxylene	40.000	105	80 - 120	5.305	5.33	-0.0250	N/A	
Decachlorobiphenyl [2C]	40.000	93.3	80 - 120	13.716	13.72633	-0.0103	N/A	
Tetrachlorometaxylene [2C]	40.000	99.5	80 - 120	5.061	5.0945	-0.0335	N/A	
BHH0288-BLK1 (Solid)			Lab File ID: 19081410ECD7.D			Analyzed: 08/14/19 17:51		
Decachlorobiphenyl	8.0000	91.1	40 - 126	13.615	13.61767	-0.0027	N/A	
Tetrachlorometaxylene	8.0000	82.5	44 - 120	5.309	5.33	-0.0210	N/A	
Decachlorobiphenyl [2C]	8.0000	83.3	40 - 126	13.715	13.72633	-0.0113	N/A	
Tetrachlorometaxylene [2C]	8.0000	74.5	44 - 120	5.064	5.0945	-0.0305	N/A	
BHH0288-BS1 (Solid)			Lab File ID: 19081411ECD7.D			Analyzed: 08/14/19 18:12		
Decachlorobiphenyl	8.0000	89.8	40 - 126	13.615	13.61767	-0.0027	N/A	
Tetrachlorometaxylene	8.0000	83.9	44 - 120	5.31	5.33	-0.0200	N/A	
Decachlorobiphenyl [2C]	8.0000	80.7	40 - 126	13.715	13.72633	-0.0113	N/A	
Tetrachlorometaxylene [2C]	8.0000	74.1	44 - 120	5.065	5.0945	-0.0295	N/A	
19H0024-03 (Solid)			Lab File ID: 19081412ECD7.D			Analyzed: 08/14/19 18:34		
Decachlorobiphenyl	7.9869		40 - 126	13.609	13.61767	-0.0087	N/A	NRS
Tetrachlorometaxylene	7.9869	68.9	44 - 120	5.308	5.33	-0.0220	N/A	
Decachlorobiphenyl [2C]	7.9869	73.2	40 - 126	13.71	13.72633	-0.0163	N/A	
Tetrachlorometaxylene [2C]	7.9869	66.2	44 - 120	5.062	5.0945	-0.0325	N/A	
BHH0288-MS1 (Solid)			Lab File ID: 19081413ECD7.D			Analyzed: 08/14/19 18:56		
Decachlorobiphenyl	7.9919	83.1	40 - 126	13.61	13.61767	-0.0077	N/A	
Tetrachlorometaxylene	7.9919	72.6	44 - 120	5.312	5.33	-0.0180	N/A	
Decachlorobiphenyl [2C]	7.9919	70.1	40 - 126	13.71	13.72633	-0.0163	N/A	
Tetrachlorometaxylene [2C]	7.9919	67.2	44 - 120	5.066	5.0945	-0.0285	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0216
Instrument: ECD7
Calibration: CG00087
Calibration Date: 07/30/2019

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
BHH0288-MSD1 (Solid)			Lab File ID: 19081414ECD7.D			Analyzed: 08/14/19 19:17		
Decachlorobiphenyl	7.9894	84.5	40 - 126	13.611	13.61767	-0.0067	N/A	
Tetrachlorometaxylene	7.9894	74.8	44 - 120	5.312	5.33	-0.0180	N/A	
Decachlorobiphenyl [2C]	7.9894	71.7	40 - 126	13.711	13.72633	-0.0153	N/A	
Tetrachlorometaxylene [2C]	7.9894	69.5	44 - 120	5.066	5.0945	-0.0285	N/A	
19H0024-04 (Solid)			Lab File ID: 19081415ECD7.D			Analyzed: 08/14/19 19:39		
Decachlorobiphenyl	7.9915		40 - 126	13.607	13.61767	-0.0107	N/A	NRS
Tetrachlorometaxylene	7.9915	75.0	44 - 120	5.307	5.33	-0.0230	N/A	
Decachlorobiphenyl [2C]	7.9915	70.9	40 - 126	13.708	13.72633	-0.0183	N/A	
Tetrachlorometaxylene [2C]	7.9915	73.1	44 - 120	5.061	5.0945	-0.0335	N/A	
19H0024-05 (Solid)			Lab File ID: 19081416ECD7.D			Analyzed: 08/14/19 20:00		
Decachlorobiphenyl	7.9914		40 - 126	13.607	13.61767	-0.0107	N/A	NRS
Tetrachlorometaxylene	7.9914	73.9	44 - 120	5.307	5.33	-0.0230	N/A	
Decachlorobiphenyl [2C]	7.9914	70.4	40 - 126	13.71	13.72633	-0.0163	N/A	
Tetrachlorometaxylene [2C]	7.9914	70.7	44 - 120	5.061	5.0945	-0.0335	N/A	
19H0024-06 (Solid)			Lab File ID: 19081417ECD7.D			Analyzed: 08/14/19 20:22		
Decachlorobiphenyl	7.9975		40 - 126	13.608	13.61767	-0.0097	N/A	NRS
Tetrachlorometaxylene	7.9975	82.3	44 - 120	5.306	5.33	-0.0240	N/A	
Decachlorobiphenyl [2C]	7.9975	71.3	40 - 126	13.71	13.72633	-0.0163	N/A	
Tetrachlorometaxylene [2C]	7.9975	74.1	44 - 120	5.059	5.0945	-0.0355	N/A	
19H0024-07 (Solid)			Lab File ID: 19081418ECD7.D			Analyzed: 08/14/19 20:43		
Decachlorobiphenyl	7.9792		40 - 126	13.608	13.61767	-0.0097	N/A	NRS
Tetrachlorometaxylene	7.9792	79.5	44 - 120	5.31	5.33	-0.0200	N/A	
Decachlorobiphenyl [2C]	7.9792	69.5	40 - 126	13.709	13.72633	-0.0173	N/A	
Tetrachlorometaxylene [2C]	7.9792	72.8	44 - 120	5.063	5.0945	-0.0315	N/A	
19H0024-08 (Solid)			Lab File ID: 19081419ECD7.D			Analyzed: 08/14/19 21:05		
Decachlorobiphenyl	7.9690		40 - 126	13.61	13.61767	-0.0077	N/A	NRS
Tetrachlorometaxylene	7.9690	76.2	44 - 120	5.314	5.33	-0.0160	N/A	
Decachlorobiphenyl [2C]	7.9690	71.5	40 - 126	13.709	13.72633	-0.0173	N/A	
Tetrachlorometaxylene [2C]	7.9690	71.2	44 - 120	5.069	5.0945	-0.0255	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0216
Instrument: ECD7
Calibration: CG00087
Calibration Date: 07/30/2019

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
19H0024-09 (Solid)			Lab File ID: 19081420ECD7.D			Analyzed: 08/14/19 21:26		
Decachlorobiphenyl	7.9830		40 - 126	13.614	13.61767	-0.0037	N/A	NRS
Tetrachlorometaxylene	7.9830	63.7	44 - 120	5.314	5.33	-0.0160	N/A	
Decachlorobiphenyl [2C]	7.9830	63.5	40 - 126	13.713	13.72633	-0.0133	N/A	
Tetrachlorometaxylene [2C]	7.9830	60.1	44 - 120	5.069	5.0945	-0.0255	N/A	
19H0024-10 (Solid)			Lab File ID: 19081421ECD7.D			Analyzed: 08/14/19 21:48		
Decachlorobiphenyl	7.9782		40 - 126	13.609	13.61767	-0.0087	N/A	NRS
Tetrachlorometaxylene	7.9782	79.6	44 - 120	5.309	5.33	-0.0210	N/A	
Decachlorobiphenyl [2C]	7.9782	67.8	40 - 126	13.708	13.72633	-0.0183	N/A	
Tetrachlorometaxylene [2C]	7.9782	76.3	44 - 120	5.063	5.0945	-0.0315	N/A	
19H0024-11 (Solid)			Lab File ID: 19081422ECD7.D			Analyzed: 08/14/19 22:09		
Decachlorobiphenyl	7.9921		40 - 126	13.608	13.61767	-0.0097	N/A	NRS
Tetrachlorometaxylene	7.9921	77.2	44 - 120	5.313	5.33	-0.0170	N/A	
Decachlorobiphenyl [2C]	7.9921	71.4	40 - 126	13.707	13.72633	-0.0193	N/A	
Tetrachlorometaxylene [2C]	7.9921	73.7	44 - 120	5.068	5.0945	-0.0265	N/A	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHG0411
Instrument: ECD7
Calibration: CG00087

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Secondary Cal Check (SHG0411-SCV1)		(Water)	Lab File ID: 19073018ECD7.D				Analyzed: 07/30/19 21:09		
1-Bromo-2-Nitrobenzene	441179	2.829	432392	2.829	102	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	527747	13.975	517563	13.974	102	50 - 200	0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1513984	3.209	1497303	3.208	101	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	1510538	14.566	1404015	14.565	108	50 - 200	0.001	+/-0.50	
Secondary Cal Check (SHG0411-SCV2)		(Water)	Lab File ID: 19073019ECD7.D				Analyzed: 07/30/19 21:30		
1-Bromo-2-Nitrobenzene	444229	2.831	432392	2.829	103	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl	540153	13.975	517563	13.974	104	50 - 200	0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1522513	3.21	1497303	3.208	102	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl [2C]	1594760	14.569	1404015	14.565	114	50 - 200	0.004	+/-0.50	
Secondary Cal Check (SHG0411-SCV3)		(Water)	Lab File ID: 19073020ECD7.D				Analyzed: 07/30/19 21:51		
1-Bromo-2-Nitrobenzene	581426	2.826	432392	2.829	134	50 - 200	-0.003	+/-0.50	
Hexabromobiphenyl	714222	13.976	517563	13.974	138	50 - 200	0.002	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	2126264	3.205	1497303	3.208	142	50 - 200	-0.003	+/-0.50	
Hexabromobiphenyl [2C]	2236045	14.567	1404015	14.565	159	50 - 200	0.002	+/-0.50	
Secondary Cal Check (SHG0411-SCV4)		(Water)	Lab File ID: 19073021ECD7.D				Analyzed: 07/30/19 22:12		
1-Bromo-2-Nitrobenzene	578235	2.828	432392	2.829	134	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	704892	13.976	517563	13.974	136	50 - 200	0.002	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	2119499	3.208	1497303	3.208	142	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	2210243	14.567	1404015	14.565	157	50 - 200	0.002	+/-0.50	
Secondary Cal Check (SHG0411-SCV5)		(Water)	Lab File ID: 19073022ECD7.D				Analyzed: 07/30/19 22:33		
1-Bromo-2-Nitrobenzene	438711	2.83	432392	2.829	101	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	524678	13.975	517563	13.974	101	50 - 200	0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1438957	3.209	1497303	3.208	96	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	1528087	14.566	1404015	14.565	109	50 - 200	0.001	+/-0.50	
Secondary Cal Check (SHG0411-SCV6)		(Water)	Lab File ID: 19073023ECD7.D				Analyzed: 07/30/19 22:54		
1-Bromo-2-Nitrobenzene	452459	2.829	432392	2.829	105	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	538642	13.975	517563	13.974	104	50 - 200	0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1516016	3.208	1497303	3.208	101	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	1641829	14.569	1404015	14.565	117	50 - 200	0.004	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0183
Instrument: ECD7
Calibration: CG00087

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SHH0183-ICV1)		(Wipes)	Lab File ID: 19081003ECD7.D				Analyzed: 08/10/19 12:51		
1-Bromo-2-Nitrobenzene	304826	2.812	303285	2.811	101	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	372009	13.972	373498	13.971	100	50 - 200	0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1122937	3.182	1118070	3.181	100	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	1088931	14.556	1114800	14.556	98	50 - 200	0.000	+/-0.50	
Initial Cal Check (SHH0183-ICV2)		(Wipes)	Lab File ID: 19081004ECD7.D				Analyzed: 08/10/19 13:12		
1-Bromo-2-Nitrobenzene	303285	2.811	303285	2.811	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	373498	13.971	373498	13.971	100	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1118070	3.181	1118070	3.181	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	1114800	14.556	1114800	14.556	100	50 - 200	0.000	+/-0.50	
Blank (BHH0159-BLK1)		(Wipes)	Lab File ID: 19081005ECD7.D				Analyzed: 08/10/19 16:30		
1-Bromo-2-Nitrobenzene	467943	2.807	303285	2.811	154	50 - 200	-0.004	+/-0.50	
Hexabromobiphenyl	508687	13.979	373498	13.971	136	50 - 200	0.008	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1737733	3.168	1118070	3.181	155	50 - 200	-0.013	+/-0.50	
Hexabromobiphenyl [2C]	1343741	14.556	1114800	14.556	121	50 - 200	0.000	+/-0.50	
LCS (BHH0159-BS1)		(Wipes)	Lab File ID: 19081006ECD7.D				Analyzed: 08/10/19 16:52		
1-Bromo-2-Nitrobenzene	307366	2.807	303285	2.811	101	50 - 200	-0.004	+/-0.50	
Hexabromobiphenyl	348902	13.973	373498	13.971	93	50 - 200	0.002	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1096884	3.176	1118070	3.181	98	50 - 200	-0.005	+/-0.50	
Hexabromobiphenyl [2C]	898710	14.555	1114800	14.556	81	50 - 200	-0.001	+/-0.50	
SL4-SG-WC3-FW-2019 (19H0024-02)		(Wipes)	Lab File ID: 19081007ECD7.D				Analyzed: 08/10/19 17:13		
1-Bromo-2-Nitrobenzene	426362	2.805	303285	2.811	141	50 - 200	-0.006	+/-0.50	
Hexabromobiphenyl	509520	13.972	373498	13.971	136	50 - 200	0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1511181	3.176	1118070	3.181	135	50 - 200	-0.005	+/-0.50	
Hexabromobiphenyl [2C]	1395640	14.557	1114800	14.556	125	50 - 200	0.001	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0216
Instrument: ECD7
Calibration: CG00087

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SHH0216-ICV1)		(Solid)	Lab File ID: 19081403ECD7.D				Analyzed: 08/14/19 15:00		
1-Bromo-2-Nitrobenzene	361520	2.805	399051	2.809	91	50 - 200	-0.004	+/-0.50	
Hexabromobiphenyl	417794	13.973	459826	13.974	91	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1290971	3.175	1442698	3.18	89	50 - 200	-0.005	+/-0.50	
Hexabromobiphenyl [2C]	1232869	14.556	1428542	14.559	86	50 - 200	-0.003	+/-0.50	
Initial Cal Check (SHH0216-ICV2)		(Solid)	Lab File ID: 19081404ECD7.D				Analyzed: 08/14/19 15:22		
1-Bromo-2-Nitrobenzene	399051	2.809	399051	2.809	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	459826	13.974	459826	13.974	100	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1442698	3.18	1442698	3.18	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	1428542	14.559	1428542	14.559	100	50 - 200	0.000	+/-0.50	
Blank (BHH0288-BLK1)		(Solid)	Lab File ID: 19081410ECD7.D				Analyzed: 08/14/19 17:51		
1-Bromo-2-Nitrobenzene	385396	2.81	399051	2.809	97	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	474257	13.972	459826	13.974	103	50 - 200	-0.002	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1469126	3.182	1442698	3.18	102	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl [2C]	1617271	14.559	1428542	14.559	113	50 - 200	0.000	+/-0.50	
LCS (BHH0288-BS1)		(Solid)	Lab File ID: 19081411ECD7.D				Analyzed: 08/14/19 18:12		
1-Bromo-2-Nitrobenzene	389576	2.812	399051	2.809	98	50 - 200	0.003	+/-0.50	
Hexabromobiphenyl	473096	13.972	459826	13.974	103	50 - 200	-0.002	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1489993	3.184	1442698	3.18	103	50 - 200	0.004	+/-0.50	
Hexabromobiphenyl [2C]	1634720	14.558	1428542	14.559	114	50 - 200	-0.001	+/-0.50	
SL4-SG-WC3-2019 (19H0024-03)		(Solid)	Lab File ID: 19081412ECD7.D				Analyzed: 08/14/19 18:34		
1-Bromo-2-Nitrobenzene	389675	2.809	399051	2.809	98	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	234348	13.971	459826	13.974	51	50 - 200	-0.003	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1292234	3.179	1442698	3.18	90	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	1174133	14.555	1428542	14.559	82	50 - 200	-0.004	+/-0.50	
Matrix Spike (BHH0288-MS1)		(Solid)	Lab File ID: 19081413ECD7.D				Analyzed: 08/14/19 18:56		
1-Bromo-2-Nitrobenzene	350982	2.812	399051	2.809	88	50 - 200	0.003	+/-0.50	
Hexabromobiphenyl	214272	13.97	459826	13.974	47	50 - 200	-0.004	+/-0.50	*
1-Bromo-2-Nitrobenzene [2C]	1234313	3.182	1442698	3.18	86	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl [2C]	1067753	14.555	1428542	14.559	75	50 - 200	-0.004	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0216
Instrument: ECD7
Calibration: CG00087

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (BHH0288-MSD1)		(Solid)	Lab File ID: 19081414ECD7.D				Analyzed: 08/14/19 19:17		
1-Bromo-2-Nitrobenzene	351801	2.811	399051	2.809	88	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl	215455	13.972	459826	13.974	47	50 - 200	-0.002	+/-0.50	*
1-Bromo-2-Nitrobenzene [2C]	1251908	3.181	1442698	3.18	87	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	1079048	14.555	1428542	14.559	76	50 - 200	-0.004	+/-0.50	
SL4-SG-WC7-2019 (19H0024-04)		(Solid)	Lab File ID: 19081415ECD7.D				Analyzed: 08/14/19 19:39		
1-Bromo-2-Nitrobenzene	346231	2.808	399051	2.809	87	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	217260	13.967	459826	13.974	47	50 - 200	-0.007	+/-0.50	*
1-Bromo-2-Nitrobenzene [2C]	1281136	3.178	1442698	3.18	89	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl [2C]	1077531	14.552	1428542	14.559	75	50 - 200	-0.007	+/-0.50	
SL4-SG-WC7-FD-2019 (19H0024-05)		(Solid)	Lab File ID: 19081416ECD7.D				Analyzed: 08/14/19 20:00		
1-Bromo-2-Nitrobenzene	357383	2.807	399051	2.809	90	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl	230486	13.967	459826	13.974	50	50 - 200	-0.007	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1328521	3.177	1442698	3.18	92	50 - 200	-0.003	+/-0.50	
Hexabromobiphenyl [2C]	1143961	14.553	1428542	14.559	80	50 - 200	-0.006	+/-0.50	
SL4-SG-WC8-2019 (19H0024-06)		(Solid)	Lab File ID: 19081417ECD7.D				Analyzed: 08/14/19 20:22		
1-Bromo-2-Nitrobenzene	365906	2.805	399051	2.809	92	50 - 200	-0.004	+/-0.50	
Hexabromobiphenyl	239622	13.967	459826	13.974	52	50 - 200	-0.007	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1441446	3.176	1442698	3.18	100	50 - 200	-0.004	+/-0.50	
Hexabromobiphenyl [2C]	1085719	14.553	1428542	14.559	76	50 - 200	-0.006	+/-0.50	
SL4-SG-WC4-2019 (19H0024-07)		(Solid)	Lab File ID: 19081418ECD7.D				Analyzed: 08/14/19 20:43		
1-Bromo-2-Nitrobenzene	367083	2.809	399051	2.809	92	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	251601	13.968	459826	13.974	55	50 - 200	-0.006	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	1438330	3.18	1442698	3.18	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	1176154	14.554	1428542	14.559	82	50 - 200	-0.005	+/-0.50	
SL4-SG-WC2-2019 (19H0024-08)		(Solid)	Lab File ID: 19081419ECD7.D				Analyzed: 08/14/19 21:05		
1-Bromo-2-Nitrobenzene	248282	2.818	399051	2.809	62	50 - 200	0.009	+/-0.50	
Hexabromobiphenyl	161151	13.971	459826	13.974	35	50 - 200	-0.003	+/-0.50	*
1-Bromo-2-Nitrobenzene [2C]	894572	3.188	1442698	3.18	62	50 - 200	0.008	+/-0.50	
Hexabromobiphenyl [2C]	768557	14.554	1428542	14.559	54	50 - 200	-0.005	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0216
Instrument: ECD7
Calibration: CG00087

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SL4-SG-WC1-2019 (19H0024-09)		(Solid)	Lab File ID: 19081420ECD7.D				Analyzed: 08/14/19 21:26		
1-Bromo-2-Nitrobenzene	258008	2.82	399051	2.809	65	50 - 200	0.011	+/-0.50	
Hexabromobiphenyl	161591	13.976	459826	13.974	35	50 - 200	0.002	+/-0.50	*
1-Bromo-2-Nitrobenzene [2C]	915806	3.189	1442698	3.18	63	50 - 200	0.009	+/-0.50	
Hexabromobiphenyl [2C]	782893	14.558	1428542	14.559	55	50 - 200	-0.001	+/-0.50	
SL4-IC-SC2-2019 (19H0024-10)		(Solid)	Lab File ID: 19081421ECD7.D				Analyzed: 08/14/19 21:48		
1-Bromo-2-Nitrobenzene	243722	2.812	399051	2.809	61	50 - 200	0.003	+/-0.50	
Hexabromobiphenyl	148182	13.967	459826	13.974	32	50 - 200	-0.007	+/-0.50	*
1-Bromo-2-Nitrobenzene [2C]	945564	3.182	1442698	3.18	66	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl [2C]	709758	14.552	1428542	14.559	50	50 - 200	-0.007	+/-0.50	
SL4-IC-SC3-2019 (19H0024-11)		(Solid)	Lab File ID: 19081422ECD7.D				Analyzed: 08/14/19 22:09		
1-Bromo-2-Nitrobenzene	249622	2.817	399051	2.809	63	50 - 200	0.008	+/-0.50	
Hexabromobiphenyl	158176	13.967	459826	13.974	34	50 - 200	-0.007	+/-0.50	*
1-Bromo-2-Nitrobenzene [2C]	923726	3.187	1442698	3.18	64	50 - 200	0.007	+/-0.50	
Hexabromobiphenyl [2C]	726383	14.552	1428542	14.559	51	50 - 200	-0.007	+/-0.50	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC			Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Laboratory ID:	19H0024-03	File ID:	19081412ECD7.D
Sampled:	08/01/19 08:16	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 18:34
Solids:	39.71	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BHH0288	Sequence:	SHH0216		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1248	1	9.491	9.504	0.013	57744.75	31.8	13.5
	* 2	9.125	9.152	0.027	145057.8	36.4	
Aroclor 1254	1	10.196	10.21	0.014	82761.8	64.2	11.6
	* 2	10.461	10.48	0.019	284853.6	72.1	
Aroclor 1260	1	11.956	11.967	0.011	47018	37.6	.
	* 2	12.026	12.0425	0.0165	224568.3	37.6	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC			Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Laboratory ID:	19H0024-04	File ID:	19081415ECD7.D
Sampled:	08/01/19 08:39	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 19:39
Solids:	41.60	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BHH0288	Sequence:	SHH0216		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1248	1	9.492	9.504	0.012	45968	30.7	15.9
	* 2	9.126	9.152	0.026	133610	36.0	
Aroclor 1254	1	10.196	10.21	0.014	63503	55.2	1.3
	* 2	10.461	10.48	0.019	219851	55.9	
Aroclor 1260	1	11.956	11.967	0.011	40244	45.0	.
	* 2	12.026	12.0425	0.0165	210605.5	45.0	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC			Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Laboratory ID:	19H0024-05	File ID:	19081416ECD7.D
Sampled:	08/01/19 08:39	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 20:00
Solids:	40.84	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BHH0288	Sequence:	SHH0216		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1248	1	9.492	9.504	0.012	46643.75	30.0	15.4
	* 2	9.125	9.152	0.027	135883.5	35.0	
Aroclor 1254	* 1	10.198	10.21	0.012	64401.6	54.4	.2
	2	10.461	10.48	0.019	222651	54.3	
Aroclor 1260	1	11.955	11.967	0.012	39041.2	36.3	.
	* 2	12.025	12.0425	0.0175	202390.8	36.3	

* Column used for quantitation

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC			Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Laboratory ID:	19H0024-06	File ID:	19081417ECD7.D
Sampled:	08/01/19 09:08	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 20:22
Solids:	56.63	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BHH0288	Sequence:	SHH0216		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1248	1	9.493	9.504	0.011	14708.75	8.9	22.
	* 2	9.127	9.152	0.025	47983.5	11.1	
Aroclor 1254	* 1	10.198	10.21	0.012	20779	17.4	4.7
	2	10.462	10.48	0.018	75480.2	16.6	
Aroclor 1260	1	11.955	11.967	0.012	14201.8	14.7	.
	* 2	12.025	12.0425	0.0175	68777.75	14.7	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC			Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Laboratory ID:	19H0024-07	File ID:	19081418ECD7.D
Sampled:	08/01/19 10:08	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 20:43
Solids:	71.82	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BHH0288	Sequence:	SHH0216		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1248	1	9.493	9.504	0.011	22419	11.2	5.2
	* 2	9.125	9.152	0.027	54042	11.8	
Aroclor 1254	1	10.196	10.21	0.014	31701.6	22.9	7.6
	* 2	10.463	10.48	0.017	111438.6	24.7	
Aroclor 1260	1	11.956	11.967	0.011	17563.6	14.6	.
	* 2	12.025	12.0425	0.0175	85714.75	14.6	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC			Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Laboratory ID:	19H0024-08	File ID:	19081419ECD7.D
Sampled:	08/01/19 10:30	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 21:05
Solids:	44.53	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BHH0288	Sequence:	SHH0216		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1248	* 1	9.493	9.504	0.011	48607	43.1	5.2
	2	9.125	9.152	0.027	102626.5	40.9	
Aroclor 1254	1	10.197	10.21	0.013	69145.4	80.5	19.1
	* 2	10.462	10.48	0.018	240941.2	97.5	
Aroclor 1260	1	11.958	11.967	0.009	43184.2	49.1	.
	* 2	12.026	12.0425	0.0165	203617	49.1	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC			Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Laboratory ID:	19H0024-09	File ID:	19081420ECD7.D
Sampled:	08/01/19 10:43	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 21:26
Solids:	40.99	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BHH0288	Sequence:	SHH0216		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1248	1	9.494	9.504	0.01	44933.75	38.8	11.4
	* 2	9.126	9.152	0.026	100415.3	43.5	
Aroclor 1254	1	10.198	10.21	0.012	60467.6	67.6	30.7
	* 2	10.463	10.48	0.017	534897.6	92.1	
Aroclor 1260	1	11.96	11.967	0.007	37265.4	52.2	.
	* 2	12.03	12.0425	0.0125	206441.5	52.2	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC			Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Laboratory ID:	19H0024-10	File ID:	19081421ECD7.D
Sampled:	08/01/19 11:45	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 21:48
Solids:	82.03	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BHH0288	Sequence:	SHH0216		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1248	* 1	9.492	9.504	0.012	8470.5	8.3	3.7
	2	9.125	9.152	0.027	19198.5	8.0	
Aroclor 1254	1	10.196	10.21	0.014	10608	12.5	13.4
	* 2	10.462	10.48	0.018	36554	14.3	
Aroclor 1260	1	11.956	11.967	0.011	9600	11.8	.
	* 2	12.025	12.0425	0.0175	36361.5	11.8	

* Column used for quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, Inc.			SDG:	19H0024
Client:	Windward Environmental, LLC			Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Laboratory ID:	19H0024-11	File ID:	19081422ECD7.D
Sampled:	08/01/19 12:10	Prepared:	08/13/19 15:35	Analyzed:	08/14/19 22:09
Solids:	65.51	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BHH0288	Sequence:	SHH0216		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1248	* 1	9.493	9.504	0.011	11806.75	8.8	3.5
	2	9.125	9.152	0.027	26220	8.5	
Aroclor 1254	1	10.196	10.21	0.014	17230.6	19.9	10.5
	* 2	10.463	10.48	0.017	61311	22.1	
Aroclor 1260	1	11.956	11.967	0.011	13406.8	17.3	.
	* 2	12.025	12.0425	0.0175	63340	17.3	

* Column used for quantitation

HOLDING TIME SUMMARY

Analysis: EPA 8082A

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
SL4-SG-WC3-FW-2019 19H0024-02	08/01/19 07:30	08/01/19 13:05	08/07/19 11:00	6	14	08/10/19 17:13	3	40	
SL4-SG-WC3-2019 19H0024-03	08/01/19 08:16	08/01/19 13:05	08/13/19 15:35	12	14	08/14/19 18:34	1	40	
SL4-SG-WC7-2019 19H0024-04	08/01/19 08:39	08/01/19 13:05	08/13/19 15:35	12	14	08/14/19 19:39	1	40	
SL4-SG-WC7-FD-2019 19H0024-05	08/01/19 08:39	08/01/19 13:05	08/13/19 15:35	12	14	08/14/19 20:00	1	40	
SL4-SG-WC8-2019 19H0024-06	08/01/19 09:08	08/01/19 13:05	08/13/19 15:35	12	14	08/14/19 20:22	1	40	
SL4-SG-WC4-2019 19H0024-07	08/01/19 10:08	08/01/19 13:05	08/13/19 15:35	12	14	08/14/19 20:43	1	40	
SL4-SG-WC2-2019 19H0024-08	08/01/19 10:30	08/01/19 13:05	08/13/19 15:35	12	14	08/14/19 21:05	1	40	
SL4-SG-WC1-2019 19H0024-09	08/01/19 10:43	08/01/19 13:05	08/13/19 15:35	12	14	08/14/19 21:26	1	40	
SL4-IC-SC2-2019 19H0024-10	08/01/19 11:45	08/01/19 13:05	08/13/19 15:35	12	14	08/14/19 21:48	1	40	
SL4-IC-SC3-2019 19H0024-11	08/01/19 12:10	08/01/19 13:05	08/13/19 15:35	12	14	08/14/19 22:09	1	40	
Matrix Spike BHH0288-MS1	08/01/19 08:16	08/01/19 13:05	08/13/19 15:35	12	14	08/14/19 18:56	1	40	
Matrix Spike Dup BHH0288-MSD1	08/01/19 08:16	08/01/19 13:05	08/13/19 15:35	12	14	08/14/19 19:17	1	40	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 8082A

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix: Solid Instrument: ECD7

Analyte	MDL	RL	Units
Aroclor 1016	1.6	4.0	ug/kg
Aroclor 1016 [2C]	1.6	4.0	ug/kg
Aroclor 1221	1.6	4.0	ug/kg
Aroclor 1221 [2C]	1.6	4.0	ug/kg
Aroclor 1232	1.6	4.0	ug/kg
Aroclor 1232 [2C]	1.6	4.0	ug/kg
Aroclor 1242	1.6	4.0	ug/kg
Aroclor 1242 [2C]	1.6	4.0	ug/kg
Aroclor 1248	1.6	4.0	ug/kg
Aroclor 1248 [2C]	1.6	4.0	ug/kg
Aroclor 1254	1.6	4.0	ug/kg
Aroclor 1254 [2C]	1.6	4.0	ug/kg
Aroclor 1260	0.6	4.0	ug/kg
Aroclor 1260 [2C]	0.6	4.0	ug/kg
Aroclor 1262	0.6	4.0	ug/kg
Aroclor 1262 [2C]	0.6	4.0	ug/kg
Aroclor 1268	0.6	4.0	ug/kg
Aroclor 1268 [2C]	0.6	4.0	ug/kg

METHOD DETECTION AND REPORTING LIMITS

EPA 8082A

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix: Water Instrument: ECD7

Analyte	MDL	RL	Units
Aroclor 1016	1.56	4.00	ug/kg
Aroclor 1016 [2C]	1.56	4.00	ug/kg
Aroclor 1221	1.56	4.00	ug/kg
Aroclor 1221 [2C]	1.56	4.00	ug/kg
Aroclor 1232	1.56	4.00	ug/kg
Aroclor 1232 [2C]	1.56	4.00	ug/kg
Aroclor 1242	1.56	4.00	ug/kg
Aroclor 1242 [2C]	1.56	4.00	ug/kg
Aroclor 1248	1.56	4.00	ug/kg
Aroclor 1248 [2C]	1.56	4.00	ug/kg
Aroclor 1254	1.56	4.00	ug/kg
Aroclor 1254 [2C]	1.56	4.00	ug/kg
Aroclor 1260	0.589	4.00	ug/kg
Aroclor 1260 [2C]	0.589	4.00	ug/kg
Aroclor 1262	0.589	4.00	ug/kg
Aroclor 1262 [2C]	0.589	4.00	ug/kg
Aroclor 1268	0.589	4.00	ug/kg
Aroclor 1268 [2C]	0.589	4.00	ug/kg

METHOD DETECTION AND REPORTING LIMITS

EPA 8082A

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Matrix: Wipes
Instrument: ECD7

Analyte	MDL	RL	Units
Aroclor 1016	0.06	0.20	ug/Wipe
Aroclor 1016 [2C]	0.06	0.20	ug/Wipe
Aroclor 1221	0.06	0.20	ug/Wipe
Aroclor 1221 [2C]	0.06	0.20	ug/Wipe
Aroclor 1232	0.06	0.20	ug/Wipe
Aroclor 1232 [2C]	0.06	0.20	ug/Wipe
Aroclor 1242	0.06	0.20	ug/Wipe
Aroclor 1242 [2C]	0.06	0.20	ug/Wipe
Aroclor 1248	0.06	0.20	ug/Wipe
Aroclor 1248 [2C]	0.06	0.20	ug/Wipe
Aroclor 1254	0.06	0.20	ug/Wipe
Aroclor 1254 [2C]	0.06	0.20	ug/Wipe
Aroclor 1260	0.12	0.20	ug/Wipe
Aroclor 1260 [2C]	0.12	0.20	ug/Wipe
Aroclor 1262	0.12	0.20	ug/Wipe
Aroclor 1262 [2C]	0.12	0.20	ug/Wipe
Aroclor 1268	0.12	0.20	ug/Wipe
Aroclor 1268 [2C]	0.12	0.20	ug/Wipe

AccuStandard
125 Market Street
New Haven, CT 06513
(203) 786-5290

CERTIFICATE OF PRODUCT DATA

PRODUCT: S-279N
DESCRIPTION: Volatile Organic Compound (TCMx)
LOT #: 0052481B-1
SOLVENT: N/A

EXPIRATION: July 28, 2015

This product is guaranteed accurate to ±0.5% of the Certified Analyte concentration through the Expiration Date on the Label.

Component	CAS #	Purity % (GC/FID)	Prepared Concentration[1]	Certified Analyte Concentration[2]
Tetrachloro-meta-xylene (TCMX)	877-09-8	96.0	N/A	N/A

Te

* I1769A

Certified by: R. Cooper

Please note: AccuStandard follows the U.S. conventions in reporting numerical values, on both certificates and labels.

A comma (,) is used to separate units of one-thousand or greater.
A period (.) is used as a decimal place marker.

1. All weights are traceable through National Institute of Standards & Technology, Test No. 822/254480
2. Certified Analyte Concentration = Purity x Prepared Concentration. The Uncertainty calculated for this product is ±4% which is the Combined Uncertainty uc(y). It represents an estimated standard deviation equal to the positive square root of the total variance of the uncertainty of components. The Expanded Uncertainty is U which is Uc(y) *k where K is the coverage factor at the 95% confidence level (K=2).
3. A product with a suffix (-1A, -2B, etc.) on its lot# has had its expiration date extended and is identical to the same lot# without the suffix.

This product was manufactured in accordance to quality system requirements of ISO 9001:2000 and ISO 17025

* Recertified ~ 4-6-09 (8)

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Standard Record

Standard ID: C000147 **Printed: 4/23/2015 11:52:09AM**

Description:	tetrachlormetaxylene	Expires:	15-Jan-2020
Standard Type:	Other	Prepared:	15-Jan-2014
Solvent:	n/a	Prepared By:	Joshua Rains
Final Volume (mls):	1	Department:	Organics
Vials:	1	Last Edit:	27-Feb-2015 13:01 by JGR
Vendor:	Accustandard	Lot #:	0052481b-1
Vendor Catalog #:			

Comments

see I1769a
updated for calibration TCX DCBP 06/12/14 sdrd

Analyte	CAS Number	Concentration	Units
Tetrachlorometaxylene [2C]	877-09-8	1000000	ug/mL
Tetrachlorometaxylene	877-09-8	1000000	ug/mL
TCX 1660 [2C]	877-09-8	1000000	ug/mL
TCX 1660	877-09-8	1000000	ug/mL
TCX [2C]	877-09-8	1000000	ug/mL
TCX (A) [2C]	877-09-8	1000000	ug/mL
TCX (A)	877-09-8	1000000	ug/mL
TCX	877-09-8	1000000	ug/mL

Reviewed By Date

AccuStandard
125 Market Street
New Haven, CT 06513
(203) 786-5290

CERTIFICATE OF PRODUCT DATA

PRODUCT: C-209N **EXPIRATION:** Jul 28, 2015
DESCRIPTION: 2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl
LOT #: 990521LB-AC
SOLVENT: N/A

This product is guaranteed accurate to ±0.5% of the Certified Analyte concentration through the Expiration Date on the Label.

Component	CAS #	Purity % (GC/MS)	Prepared Concentration[1]	Certified Analyte Concentration[2]
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	2051-24-3	100	N/A	N/A

2,

* I1768A

Certified by: R. Cooper

1. All weights are traceable through National Institute of Standards & Technology, Test No. 822/264480
2. Certified Analyte Concentration = Purity x Prepared Concentration. The Uncertainty calculated for this product is ±4% which is the Combined Uncertainty uc(y). It represents an estimated standard deviation equal to the positive square root of the total variance of the uncertainty of components. The Expanded Uncertainty is U which is Uc(y) *K where K is the coverage factor at the 95% confidence level (K=2).
3. A product with a suffix (-1A, -2B, etc.) on its lot# has had its expiration date extended and is identical to the same lot# without the suffix.

Please note: AccuStandard follows the U.S. conventions in reporting numerical values, on both certificates and labels.

A comma (,) is used to separate units of one-thousand or greater.
A period (.) is used as a decimal place marker.

This product was manufactured in accordance to quality system requirements of ISO 9001:2000 and ISO 17025

* Recertified 2 4-6-09 JS

Analytical Standard Record

Standard ID: C000148 **Printed: 4/23/2015 11:54:44AM**

Description:	decachlorbiphenyl	Expires:	15-Jan-2020
Standard Type:	Other	Prepared:	15-Jan-2014
Solvent:	na/a	Prepared By:	Joshua Rains
Final Volume (mls):	1	Department:	Organics
Vials:	1	Last Edit:	27-Feb-2015 13:03 by JGR
Vendor:	Accustandard	Lot #:	990521lb-ac
Vendor Catalog #:			

Comments

see i1768a
SOM calibrations added 06/12/14 sdrd

Analyte	CAS Number	Concentration	Units
Decachlorobiphenyl [2C]	2051-24-3	1000000	ug/mL
Decachlorobiphenyl	2051-24-3	1000000	ug/mL
DCB 1660 [2C]	2051-24-3	1000000	ug/mL
DCB 1660	2051-24-3	1000000	ug/mL
DCB [2C]	2051-24-3	1000000	ug/mL
DCB (A) [2C]	2051-24-3	1000000	ug/mL
DCB (A)	2051-24-3	1000000	ug/mL
DCB	2051-24-3	1000000	ug/mL

Reviewed By Date

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Certificate of Analysis

Description: Aroclor 1232, 1x1ml, 200µg/ml in methanol

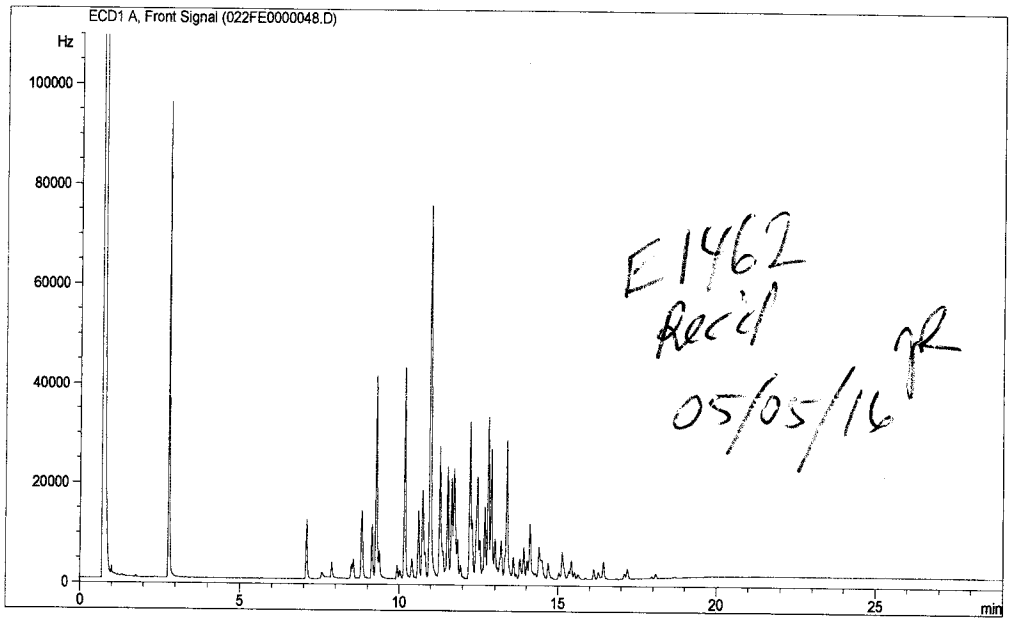
Part Number: 48702

Lot Number: XA16630V

Expiration Date: October 2020

Storage: Room Temperature

Analytical Method Parameters:
Column: SPB-608 30m x 0.53mm x 0.5µm
100°C to 290°C (10 min) at 10°C/min
Detector: ECD, 310°C
Injection Volume: 1µL



Elution	Analyte	Lot Number	CAS Number	Chromatographic Purity %	Certified Gravimetric Conc. µg/ml	Expanded Uncertainty µg/ml	Analytical Conc. µg/ml
	Internal Standard	N/A	N/A	N/A	N/A	N/A	N/A
2.	Aroclor 1232	LA38829	11141-16-5	N/A	200.4	±21	194.7

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Certificate of Analysis

Description: Aroclor 1221, 1x1ml, 200µg/ml in methanol

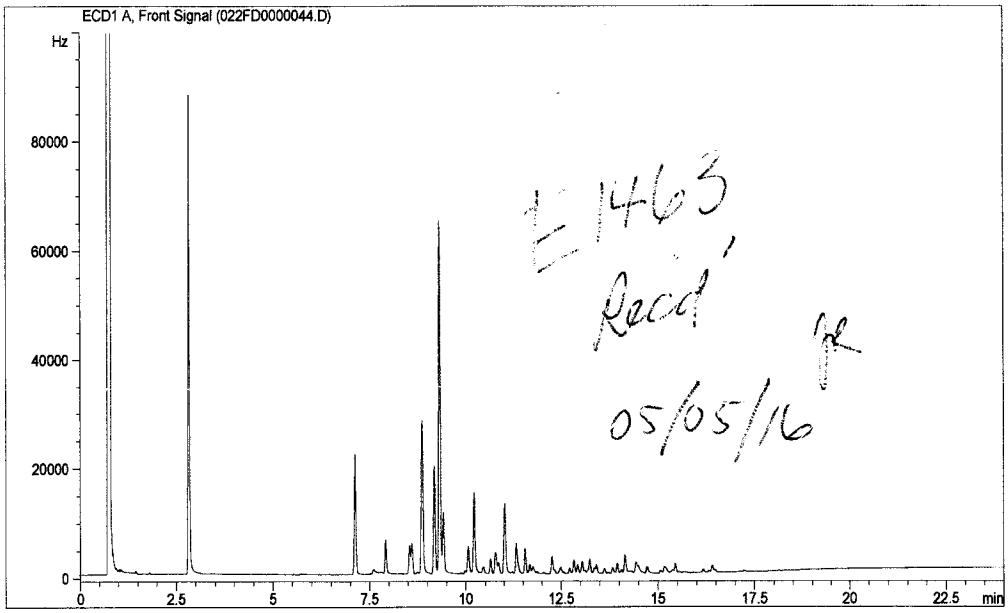
Part Number: 48705

Lot Number: XA17039V

Expiration Date: October 2020

Storage: Room Temperature

Analytical Method Parameters:
Column: SPB-608 30m x 0.53mm x .5µm df
100°C to 290°C (5 min) at 10°C/min
Detector: ECD, 310°C
Injection Volume: 1 µl



E1463
Recd
05/05/16

Elution	Analyte	Lot Number	CAS Number	Chromatographic Purity %	Certified Gravimetric Conc. µg/ml	Expanded Uncertainty µg/ml	Analytical Conc. µg/ml
	Internal Standard	N/A	N/A	N/A	N/A	N/A	N/A
2.	Aroclor 1221	LC05426	11104-28-2	N/A	199.6	±15	203.1

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Certificate of Analysis

Description: Aroclor 1254, 1x1ml, 200µg/ml in methanol

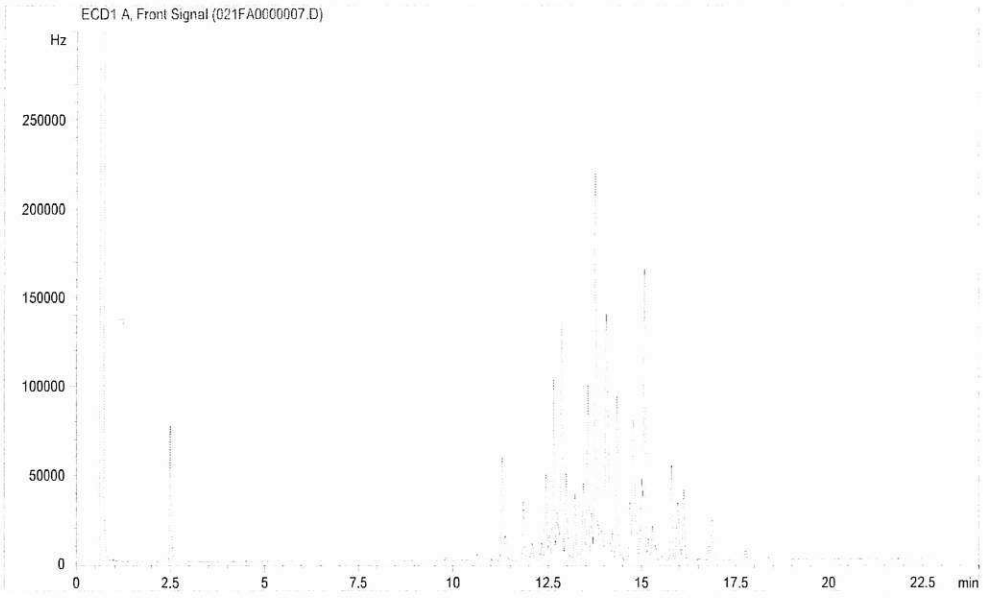
Part Number: 48707

Lot Number: XA14566V

Expiration Date: June 2020

Storage: Room Temperature

Analytical Method Parameters:
Column: SPB-608 30m x 0.53mm x .5µm df
100°C to 290°C (5min) at 10°C/min
Detector: ECD, 310°C
Injection Volume: 1µl



E002094

Elution	Analyte	Lot Number	CAS Number	Chromatographic Purity %	Certified Gravimetric Conc. µg/ml	Expanded Uncertainty µg/ml	Analytical Conc. µg/ml
	Internal Standard	N/A	N/A	N/A	N/A	N/A	N/A
2.	Aroclor 1254	LA39006	11097-69-1	N/A	200.8	±12	192.2

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ISO Guide 34

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Notes:

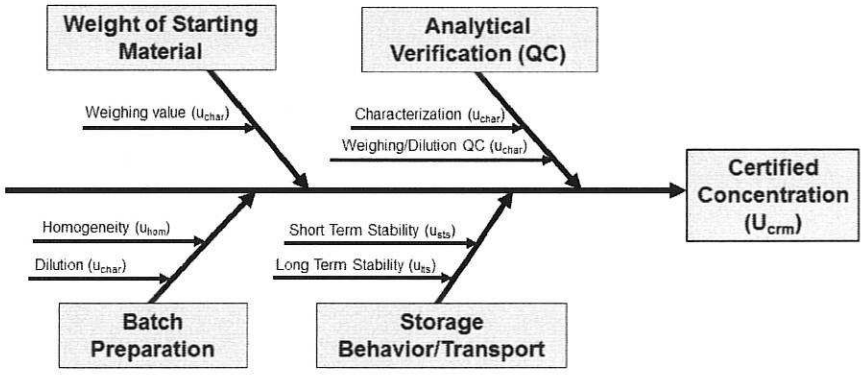
• NIST traceable weights are used to verify balance calibration with the preparation of each lot. Concentration of analyte in solution is µg/ml.

• Certified value is the gravimetric concentration weighed at room temperature and verified analytically by comparison to an independently prepared Quality Control Standard. Uncertainty of the gravimetric concentration in this document is expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k = 2. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long-term stability and short-term stability. The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies.

• Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared by Single Factor Analysis of Variance (ANOVA). The uncertainty due to homogeneity was derived from the ANOVA. Heterogeneity was not detected under the conditions of the ANOVA.

• Product intended for laboratory use only. Supelco warrants that its products conform to the information contained in this publication. Purchaser must determine the suitability of the product for its particular use. Please see the latest catalog or order invoice and packing slip for additional terms and conditions of sale.

Cause-Effect Diagram for Uncertainty Contributions



$$U_{crm} = k\sqrt{u_{char}^2 + u_{hom}^2 + u_{sts}^2 + u_{lts}^2}$$

Test Date: December 15, 2015
Form: 48707

Duane Funk
QC Manager

Cert# AT-1607 Cert# AR-1606

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Certificate of Analysis

2,2',4,4',5,5'-Hexabromobiphenyl Solution

Product Number: RBF-094S **Page:** 1 of 1

Lot Number: CP-0016 **Lot Issue Date:** 11-Jan-2016 **Expiration Date:** 29-Feb-2020

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
2,2',4,4',5,5'-hexabromobiphenyl	059080-40-9	RM01053	100.2 ± 0.5 µg/mL

Matrix: hexane

Storage: Store at Room Temperature (15° to 30°C).

E 00 3458
Reid
08/12/16 ML

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

ISO 9001
Registered
TUV USA, Inc.

William J. Leary
Quality Assurance Manager

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Certificate of Analysis

Description: Aroclor 1242, 1x1.0ml, 1000µg/ml in isooctane

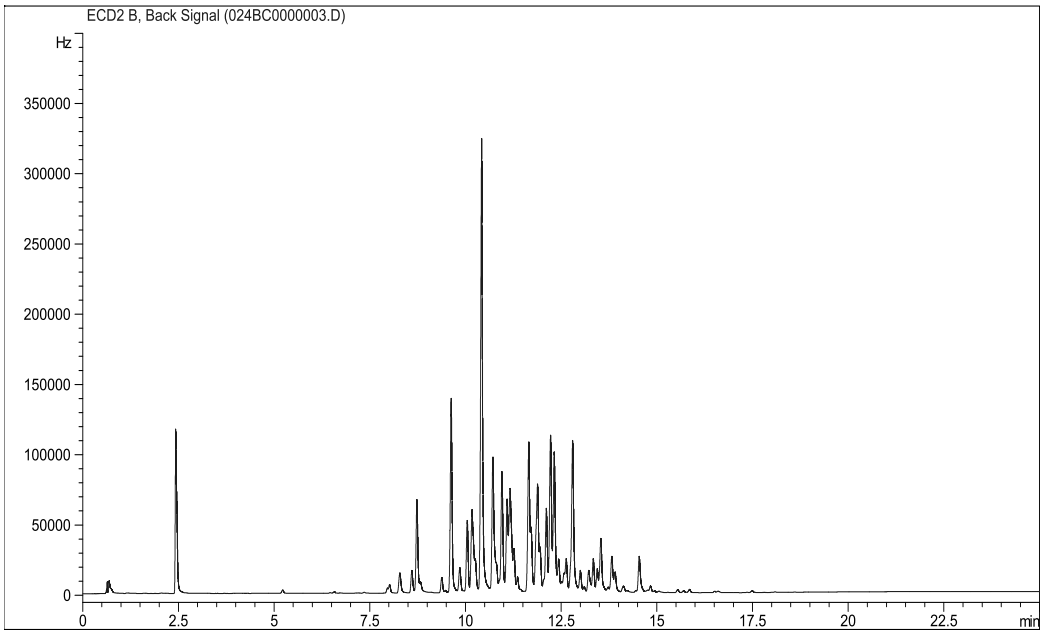
Part Number: 44806

Lot Number: XA26286V

Expiration Date: April 2020

Storage: Room Temperature

Analytical Method Parameters:
Column: SPB-608 30m x 0.53mm x 0.5µm df
100°C to 290°C for 6 min at 10°C/min
Detector: ECD, 310°C
Injection Volume: 1µL



Elution	Analyte	Lot Number	CAS Number	Chromatographic Purity %	Certified Gravimetric Conc. µg/ml	Ucrm µg/ml	Analytical Conc. µg/ml
	Internal Standard	N/A	N/A	N/A	N/A	N/A	N/A
2.	Aroclor 1242	LA39419	53469-21-9	N/A	1000.1	±110	979.4

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ISO Guide 34

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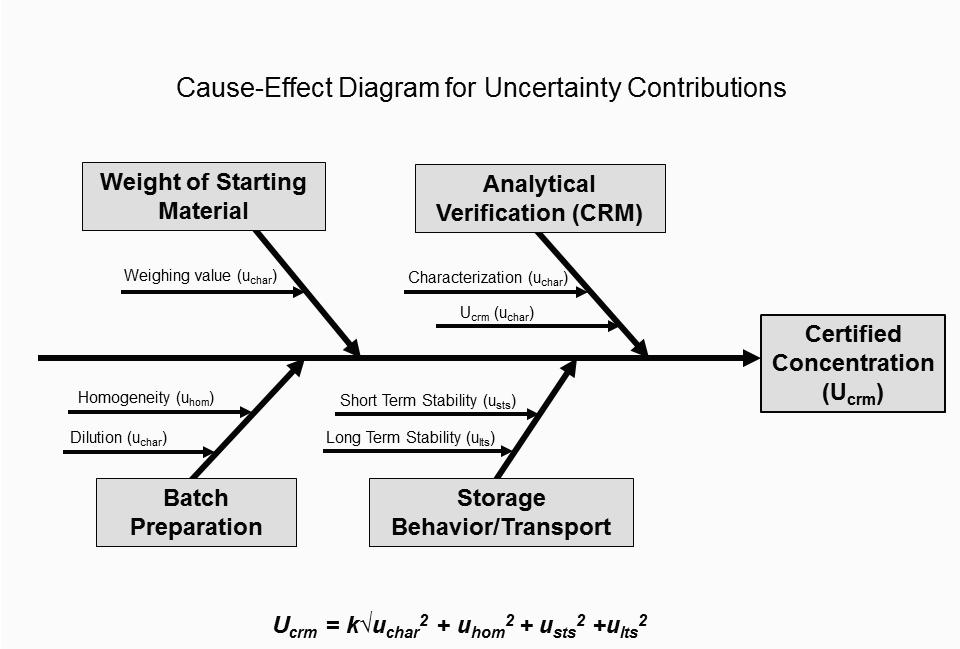
Notes:

• NIST traceable weights are used to verify balance calibration with the preparation of each lot. Concentration of analyte in solution is µg/ml.

• Certified value is the gravimetric concentration weighed at room temperature and verified analytically by comparison to an independent Certified Reference Material. Uncertainty of the gravimetric concentration in this document is expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k = 2. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long-term stability and short-term stability. The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies.

• Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared by Single Factor Analysis of Variance (ANOVA). The uncertainty due to homogeneity was derived from the ANOVA. Heterogeneity was not detected under the conditions of the ANOVA.

• Product intended for laboratory use only. Supelco warrants that its products conform to the information contained in this publication. Purchaser must determine the suitability of the product for its particular use. Please see the latest catalog or order invoice and packing slip for additional terms and conditions of sale.



Test Date: May 04, 2017
Form: 44806

Duane Funk
QC Manager

Cert# AT-1607 Cert# AR-1606

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Certificate of Analysis

Description: Aroclor 1016, 1x1ml, 1000µg/ml in isooctane

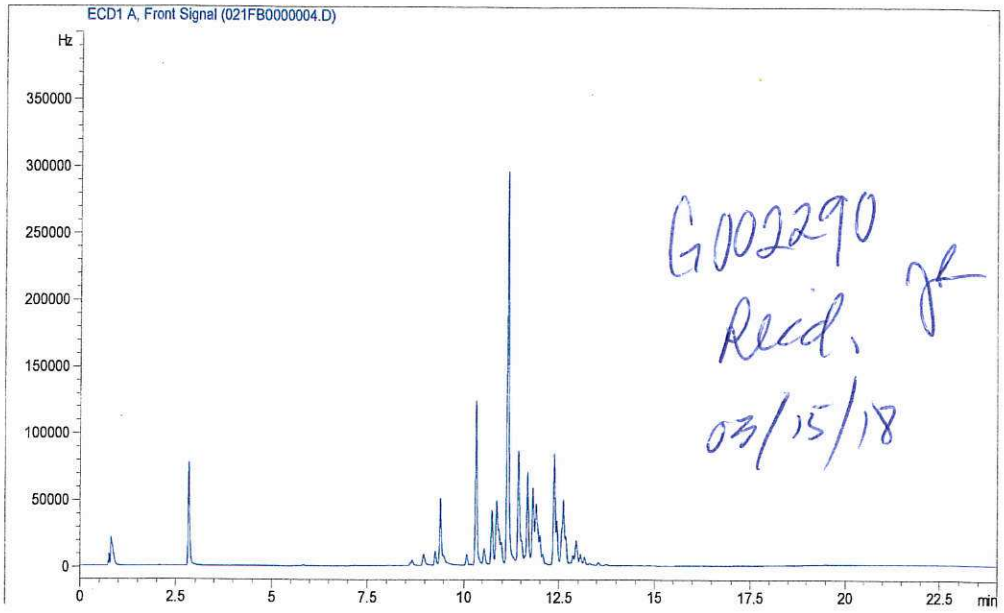
Part Number: 48097

Lot Number: XA23753V

Expiration Date: November 2019

Storage: Room Temperature

Analytical Method Parameters:
Column: SPB-608 30m x 0.53mm x 0.5µm df
100°C to 290°C for 5 min at 10°C/min
Detector: ECD, 310°C
Injection Volume: 1 µL



G002290
Recd.
03/15/18

Elution	Analyte	Lot Number	CAS Number	Chromatographic Purity %	Certified Gravimetric Conc. µg/ml	Ucrm µg/ml	Analytical Conc. µg/ml
	Internal Standard	N/A	N/A	N/A	N/A	N/A	N/A
2.	Aroclor 1016	LA39061	12674-11-2	N/A	1000.2	±170	982.4

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ISO Guide 34

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Notes:

• NIST traceable weights are used to verify balance calibration with the preparation of each lot. Concentration of analyte in solution is µg/ml.

• Certified value is the gravimetric concentration weighed at room temperature and verified analytically by comparison to an independent Certified Reference Material. Uncertainty of the gravimetric concentration in this document is expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k = 2. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long-term stability and short-term stability. The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies.

• Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared by Single Factor Analysis of Variance (ANOVA). The uncertainty due to homogeneity was derived from the ANOVA. Heterogeneity was not detected under the conditions of the ANOVA.

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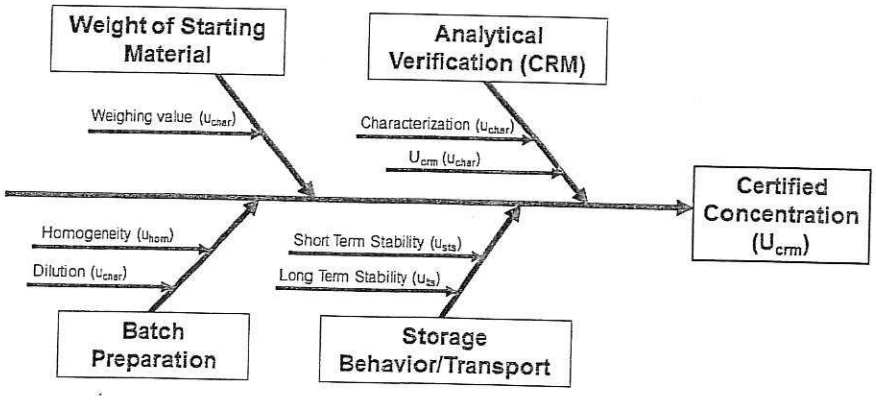
Cause-Effect Diagram for Uncertainty Contributions



$$U_{crm} = k\sqrt{u_{char}^2 + u_{hom}^2 + u_{sts}^2 + u_{lts}^2}$$

Test Date: November 09, 2016
Form: 48097

Duane Funk
QC Manager

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ANAB ACCREDITED REFERENCE MATERIAL PRODUCER Cert# AR-1606

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Certificate of Analysis

Description: Aroclor 1260, 1x1mL, 1000µg/mL in isooctane

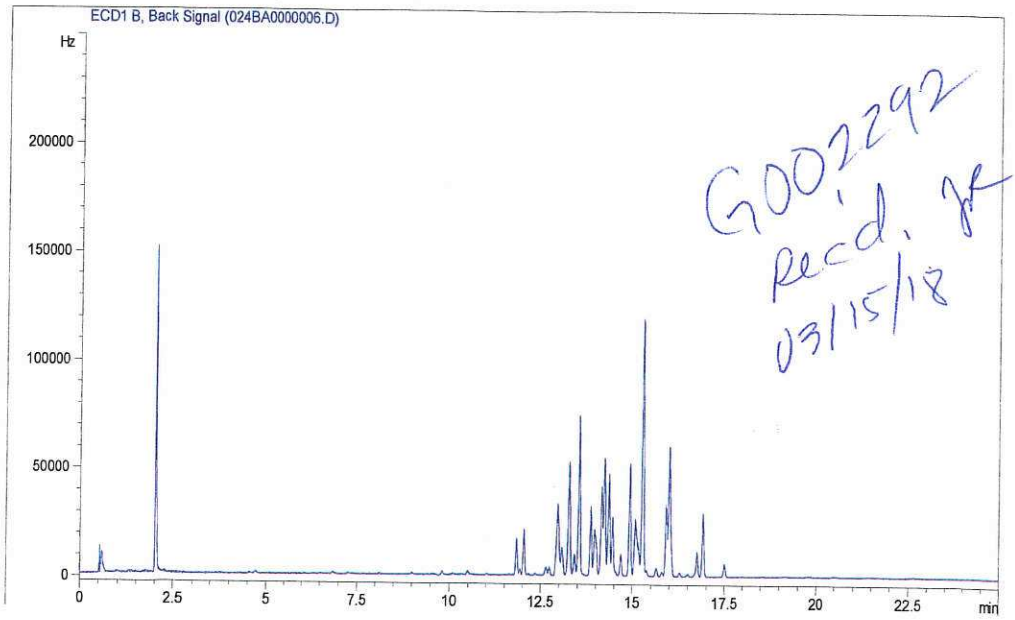
Part Number: 44809

Lot Number: XA25133V

Expiration Date: February 2020

Storage: Room Temperature

Analytical Method Parameters:
Column: SPB-608 30m x 0.53mm x 0.5µm df
100°C to 290°C (6 min) at 10°C/min
Detector: ECD, 310°C
Injection Volume: 1µl



Elution	Analyte	Lot Number	CAS Number	Chromatographic Purity %	Certified Gravimetric Conc. µg/ml	Ucrm µg/ml	Analytical Conc. µg/ml
	Internal Standard	N/A	N/A	N/A	N/A	N/A	N/A
2.	Aroclor 1260	LC11406	11096-82-5	N/A	1000.0	±270	1081.9

ANAB ACCREDITED TESTING LABORATORY Cert# AT-1607

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER Cert# AR-1606

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ISO Guide 34

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Notes:

• NIST traceable weights are used to verify balance calibration with the preparation of each lot. Concentration of analyte in solution is µg/ml.

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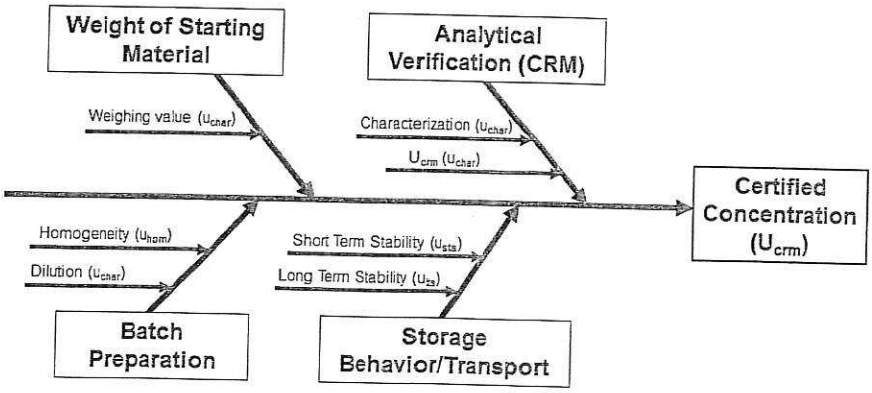
Cause-Effect Diagram for Uncertainty Contributions



$$U_{crm} = k\sqrt{u_{char}^2 + u_{hom}^2 + u_{sts}^2 + u_{lts}^2}$$

Test Date: November 09, 2016
Form: 48097

Duane Funk

Duane Funk
QC Manager

ANAB ACCREDITED TESTING LABORATORY Cert# AT-1607

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER Cert# AR-1606

Produced in double accredited laboratory fulfulling ISO/IEC 17025 and ISO Guide 34

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 32279 **Lot No.:** A0130784

Description : 1-Bromo-2-nitrobenzene Standard

1-Bromo-2-nitrobenzene Standard 1000 µg/mL, Acetone, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : December 31, 2020 **Storage:** 10°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)		
1	1-Bromo-2-nitrobenzene	1,000.0 µg/mL	+/- 5.9397	µg/mL	Gravimetric
	CAS # 577-19-5 (Lot 643872/1)		+/- 56.0822	µg/mL	Unstressed
	Purity 99%		+/- 57.3938	µg/mL	Stressed

Solvent: Acetone
CAS # 67-64-1
Purity 99%

GD02623
Recd. JF
03/27/18

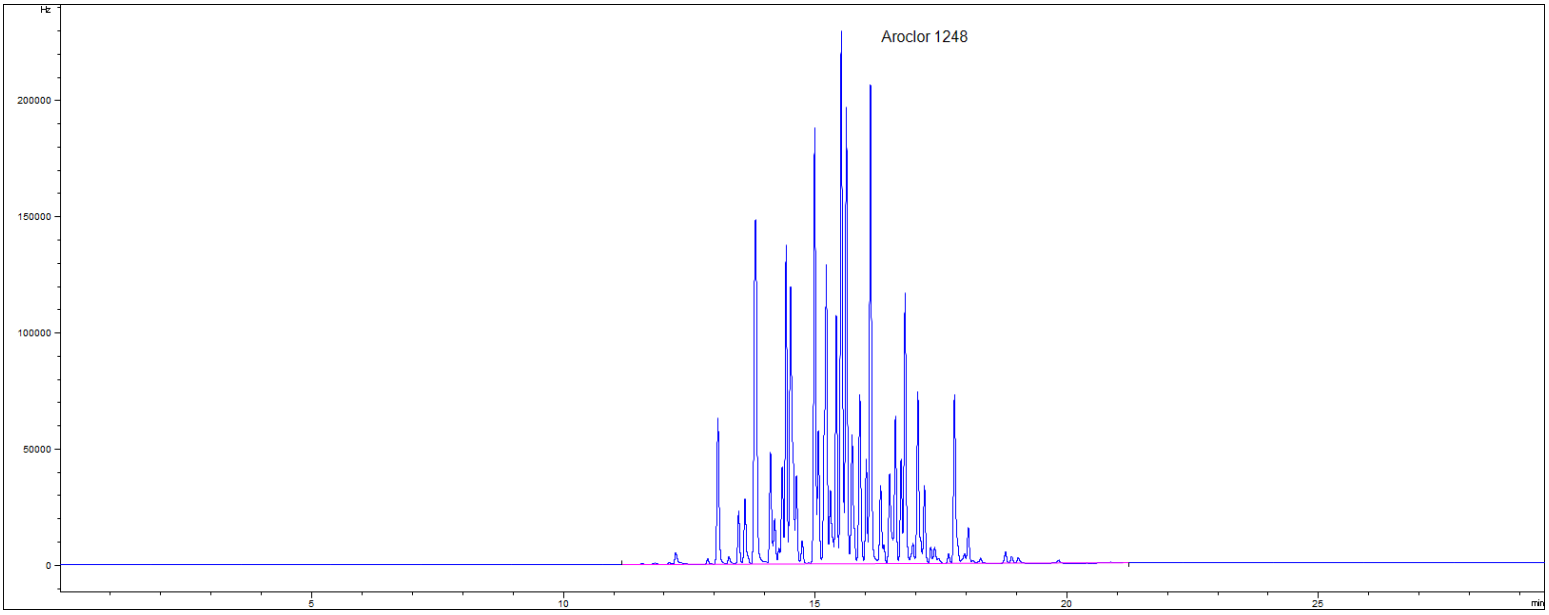
Certificate of Analysis

AROCLOR 1248,1X1ML,1000UG/ML,ISOOCTANE

Certified Reference Material

Product ID 44807
Lot **LRAB9083**
Expiration Date June 2021
MFG Date June 2018
Storage Conditions Room Temperature
Solvent/Matrix ISO-OCTANE

Analyte	*Units*	*Certified Value* [1,4]	*Analytical Value*	*Raw Material Purity,%*	*Raw Material lot*	*Elution order*	*CAS*
AROCLOR 1248	ug/ml	1000 ± 60	980	100	LC09042	1	12672-29-6



Additional Information:

Analytical Method Parameters:
Column: SPB-608 30m x 0.53mm x .5µm df
100°C to 290°C (5min) at 10°C/min
Detector: ECD, 310°C
Injection Volume: 1µl

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307-742-5452
rtctechgroup@sial.com www.sigma-aldrich.com

Lot	**LRAB9083**
Expiration Date	June 2021
MFG Date	June 2018
Storage Conditions	Room Temperature
Solvent/Matrix	ISO-OCTANE

1 Certified value - based on the gravimetric preparation and analytically verified by RTC with associated uncertainties from the preparation and analytical procedures.

4 Ucrm - Uncertainty values in this document are expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k, which is obtained from a *t*-distribution and degrees of freedom. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long term stability, and short term stability (transport). The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies. The mathematical representation of the Ucrm calculation is as follows:

$$u_{crm} = \sqrt{u_{char}^2 + u_{hom}^2 + u_{lts}^2 + u_{sts}^2}$$

Traceability: The standard was manufactured under an ISO/IEC 17025:2005 certified quality system. The balance used to weigh raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All dilutions were preformed gravimetrically. Additionally, individual analytes are traceable to NIST SRMs where available and specified above.

Homogeneity: Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared using a one-way analysis of variance approach as described by TNI EL-V3-2009 Appendix A.2. See Instructions for minimum sub-sample size.

Expiration is at end of month given on certificate and label.

THIS PRODUCT WAS DESIGNED, PRODUCED AND VERIFIED FOR ACCURACY AND STABILITY IN ACCORDANCE WITH ISO/IEC 17025:2005 (ANAB Cert AT-1467) and ISO GUIDE 34:2009 (ANAB Cert AR-1470).

MSDS reports for components comprising greater than 1.0% of the solution or 0.1% for components known to be carcinogens are available upon request.

Robert O'Brien - QC Supervisor

Mark Pooler - QA Supervisor

Certification Date	July 20, 2018
Version	-7202018

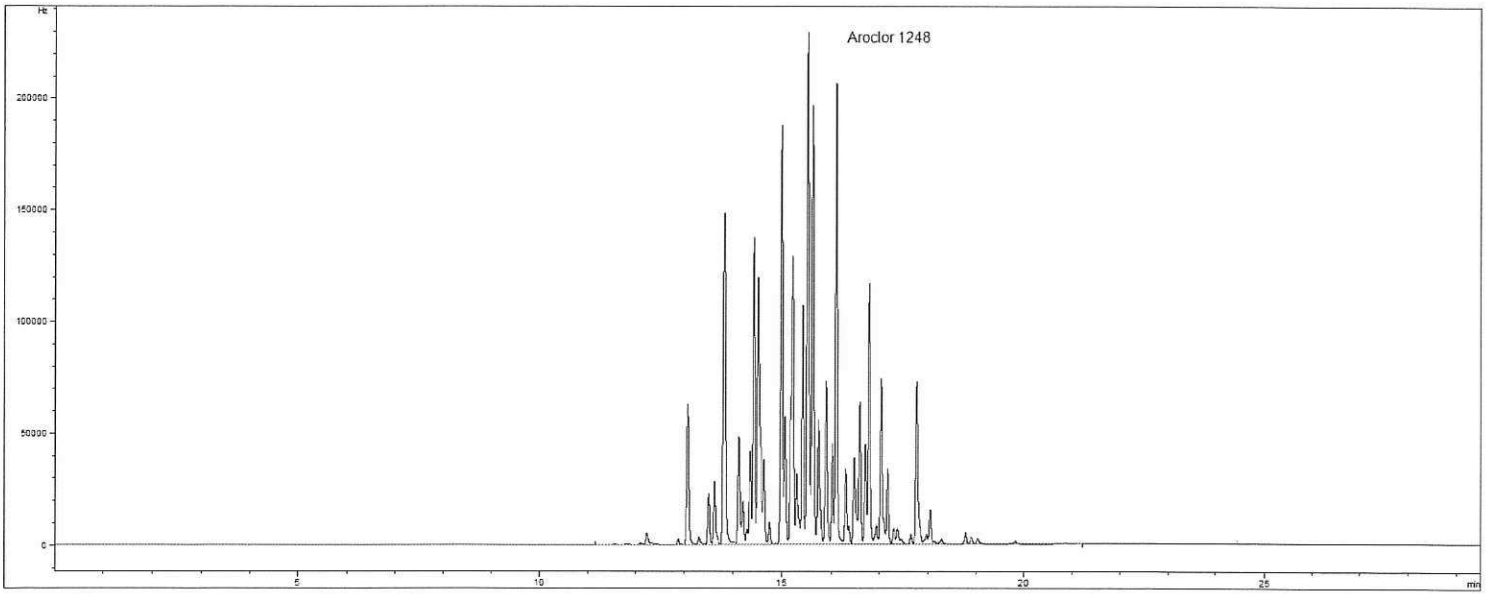
Certificate of Analysis

AROCLOR 1248,1X1ML,1000UG/ML,ISOOCTANE

Certified Reference Material

Product ID 44807
Lot **LRAB9083**
Expiration Date June 2021
MFG Date June 2018
Storage Conditions Room Temperature
Solvent/Matrix ISO-OCTANE

Analyte	*Units*	*Certified Value* [1,4]	*Analytical Value*	*Raw Material Purity,%*	*Raw Material lot*	*Elution order*	*CAS*
AROCLOR 1248	ug/ml	1000 ± 60	980	100	LC09042	1	12672-29-6



Additional Information:

Analytical Method Parameters:
Column: SPB-608 30m x 0.53mm x .5µm df
100°C to 290°C (5min) at 10°C/min
Detector: ECD, 310°C
Injection Volume: 1µl

G 8575

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ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

SIGMA-ALDRICH®
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307-742-5452
rtctechgroup@sial.com www.sigma-aldrich.com

Lot	**LRAB9083**
Expiration Date	June 2021
MFG Date	June 2018
Storage Conditions	Room Temperature
Solvent/Matrix	ISO-OCTANE

1 Certified value - based on the gravimetric preparation and analytically verified by RTC with associated uncertainties from the preparation and analytical procedures.

4 Ucrm - Uncertainty values in this document are expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k, which is obtained from a *t*-distribution and degrees of freedom. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long term stability, and short term stability (transport). The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies. The mathematical representation of the Ucrm calculation is as follows:

$$u_{crm} = \sqrt{u_{char}^2 + u_{hom}^2 + u_{stab}^2}$$

Traceability: The standard was manufactured under an ISO/IEC 17025:2005 certified quality system. The balance used to weigh raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All dilutions were preformed gravimetrically. Additionally, individual analytes are traceable to NIST SRMs where available and specified above.

Homogeneity: Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared using a one-way analysis of variance approach as described by TNI EL-V3-2009 Appendix A.2. See Instructions for minimum sub-sample size.

Expiration is at end of month given on certificate and label.

THIS PRODUCT WAS DESIGNED, PRODUCED AND VERIFIED FOR ACCURACY AND STABILITY IN ACCORDANCE WITH ISO/IEC 17025:2005 (ANAB Cert AT-1467) and ISO GUIDE 34:2009 (ANAB Cert AR-1470).

MSDS reports for components comprising greater than 1.0% of the solution or 0.1% for components known to be carcinogens are available upon request.

Robert O'Brien - QC Supervisor

Mark Pooler - QA Supervisor

Certification Date	July 20, 2018
Version	-7202018

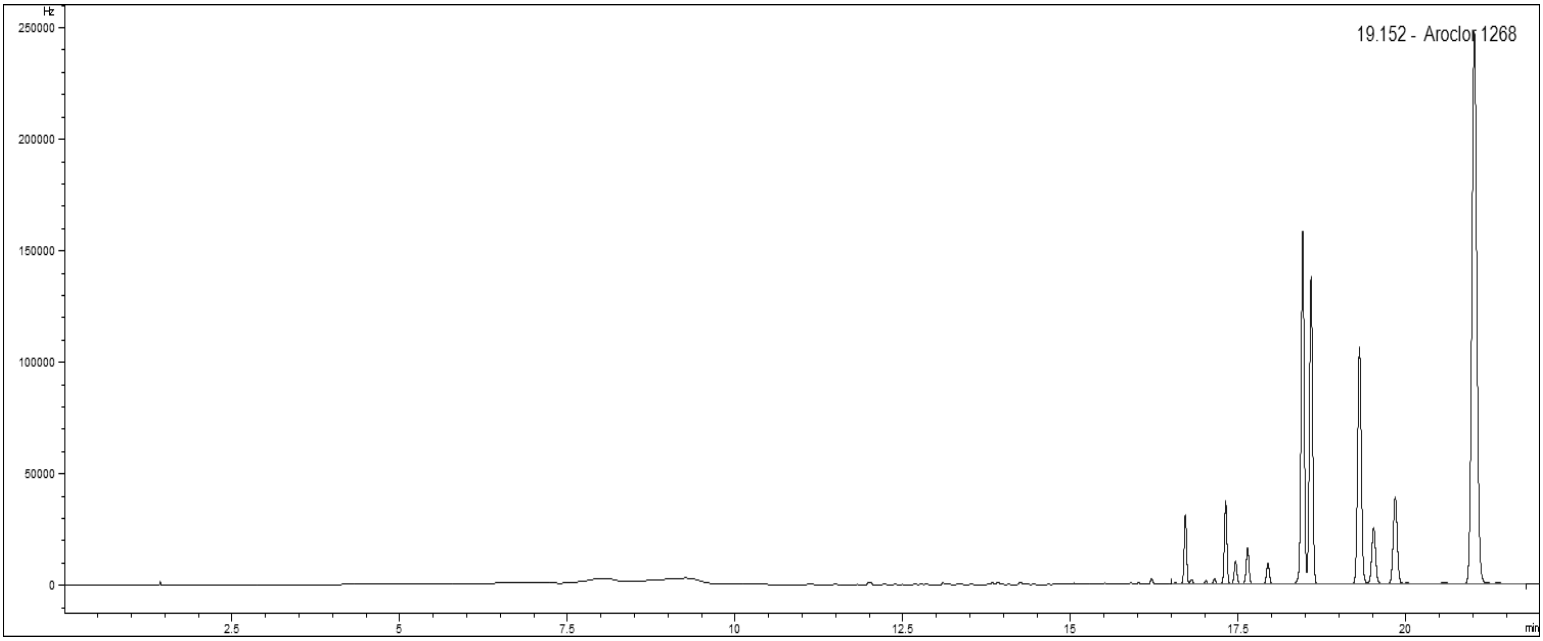
Certificate of Analysis

AROCLOR 1268,1X1ML,1000UG/ML,ISOOCTANE

Certified Reference Material

Product ID 502146
Lot **LRAC0621**
Expiration Date September 2021
MFG Date September 2018
Storage Conditions Room Temperature
Solvent/Matrix ISOOCTANE

Analyte	*Units*	*Certified Value* [1,4]	*Analytical Value*	*Raw Material Purity,%*	*Raw Material lot*	*CAS*
AROCLOR 1268	µg/ml	1001 ± 170	1015	100	14171	11100-14-4



Additional Information:

Analytical Method Parameters:

Column: SPB-5, 30 m x 0.53 mm x 1.5 µm df
120°C to 290°C (5 min) at 10°C/min
Detector: ECD, 300°C
Injection Volume: 1 µL

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rtctechgroup@sial.com www.sigma-aldrich.com

Lot	**LRAC0621**
Expiration Date	September 2021
MFG Date	September 2018
Storage Conditions	Room Temperature
Solvent/Matrix	ISOOCTANE

1 Certified value - based on the gravimetric preparation and analytically verified by RTC with associated uncertainties from the preparation and analytical procedures.

4 Ucrm - Uncertainty values in this document are expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k, which is obtained from a *t*-distribution and degrees of freedom. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long term stability, and short term stability (transport). The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies. The mathematical representation of the Ucrm calculation is as follows:

$$u_{CRM} = \sqrt{u_{char}^2 + u_{\text{hom}\ ogeneity}^2 + u_{stability}^2}$$

Traceability: The standard was manufactured under an ISO/IEC 17025:2005 certified quality system. The balance used to weigh raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All dilutions were preformed gravimetrically. Additionally, individual analytes are traceable to NIST SRMs where available and specified above.

Homogeneity: Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared using a one-way analysis of variance approach as described by TNI EL-V3-2009 Appendix A.2. See Instructions for minimum sub-sample size.

Expiration is at end of month given on certificate and label.

THIS PRODUCT WAS DESIGNED, PRODUCED AND VERIFIED FOR ACCURACY AND STABILITY IN ACCORDANCE WITH ISO/IEC 17025:2005 (ANAB Cert AT-1467) and ISO GUIDE 34:2009 (ANAB Cert AR-1470).

MSDS reports for components comprising greater than 1.0% of the solution or 0.1% for components known to be carcinogens are available upon request.

Robert O'Brien - QC Supervisor

Mark Pooler - QA Supervisor

Certification Date	October 09, 2018
Version	-1092018

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Certificate of Analysis

Description: Aroclor 1016, 1x1ml, 1000µg/ml in isooctane

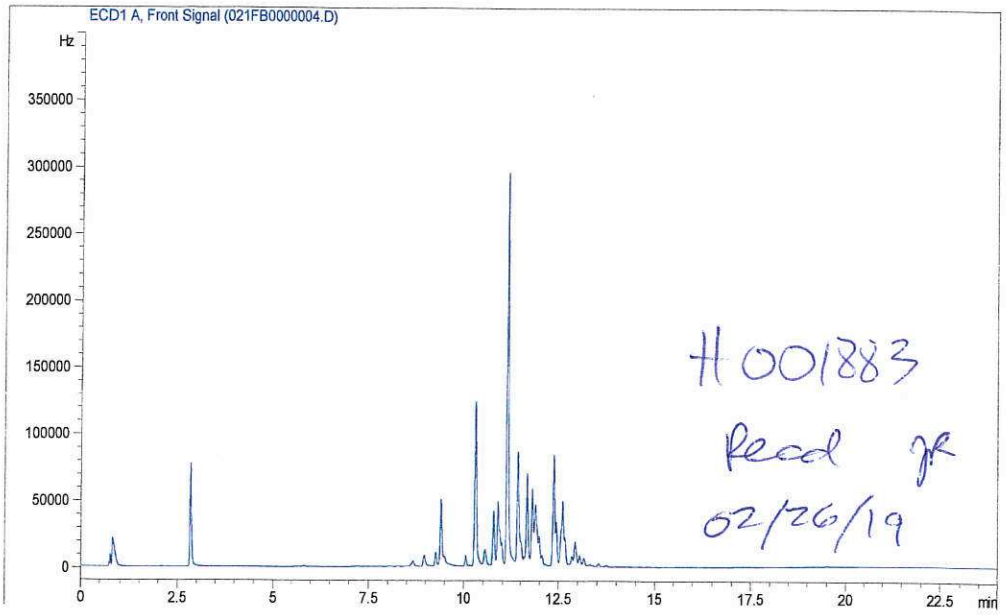
Part Number: 48097

Lot Number: XA23753V

Expiration Date: November 2019

Storage: Room Temperature

Analytical Method Parameters:
Column: SPB-608 30m x 0.53mm x 0.5µm df
100°C to 290°C for 5 min at 10°C/min
Detector: ECD, 310°C
Injection Volume: 1 µL



Elution	Analyte	Lot Number	CAS Number	Chromatographic Purity %	Certified Gravimetric Conc. µg/ml	Ucrm µg/ml	Analytical Conc. µg/ml
	Internal Standard	N/A	N/A	N/A	N/A	N/A	N/A
2.	Aroclor 1016	LA39061	12674-11-2	N/A	1000.2	±170	982.4

ANAB ACCREDITED TESTING LABORATORY Cert# AT-1607

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER Cert# AR-1606

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ISO/IEC 17025 and
ISO Guide 34

SIGMA-ALDRICH®

Notes:

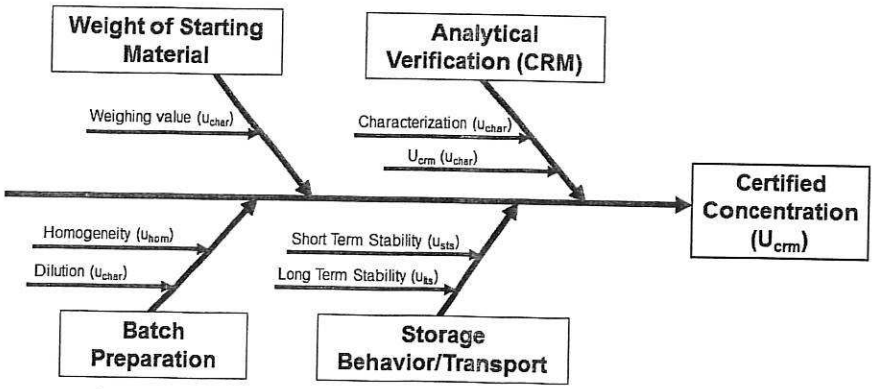
• NIST traceable weights are used to verify balance calibration with the preparation of each lot. Concentration of analyte in solution is µg/ml.

• Certified value is the gravimetric concentration weighed at room temperature and verified analytically by comparison to an independent Certified Reference Material. Uncertainty of the gravimetric concentration in this document is expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k = 2. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long-term stability and short-term stability. The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies.

• Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared by Single Factor Analysis of Variance (ANOVA). The uncertainty due to homogeneity was derived from the ANOVA. Heterogeneity was not detected under the conditions of the ANOVA.

• Product intended for laboratory use only. Supelco warrants that its products conform to the information contained in this publication. Purchaser must determine the suitability of the product for its particular use. Please see the latest catalog or order invoice and packing slip for additional terms and conditions of sale.

Cause-Effect Diagram for Uncertainty Contributions



$$U_{crm} = k\sqrt{u_{char}^2 + u_{hom}^2 + u_{sts}^2 + u_{lts}^2}$$

Test Date: November 09, 2016
Form: 48097

Duane Funk

Duane Funk
QC Manager

ANAB ACCREDITED TESTING LABORATORY Cert# AT-1607

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER Cert# AR-1606

Produced in double accredited laboratory fulfulling ISO/IEC 17025 and ISO Guide 34

SIGMA-ALDRICH®

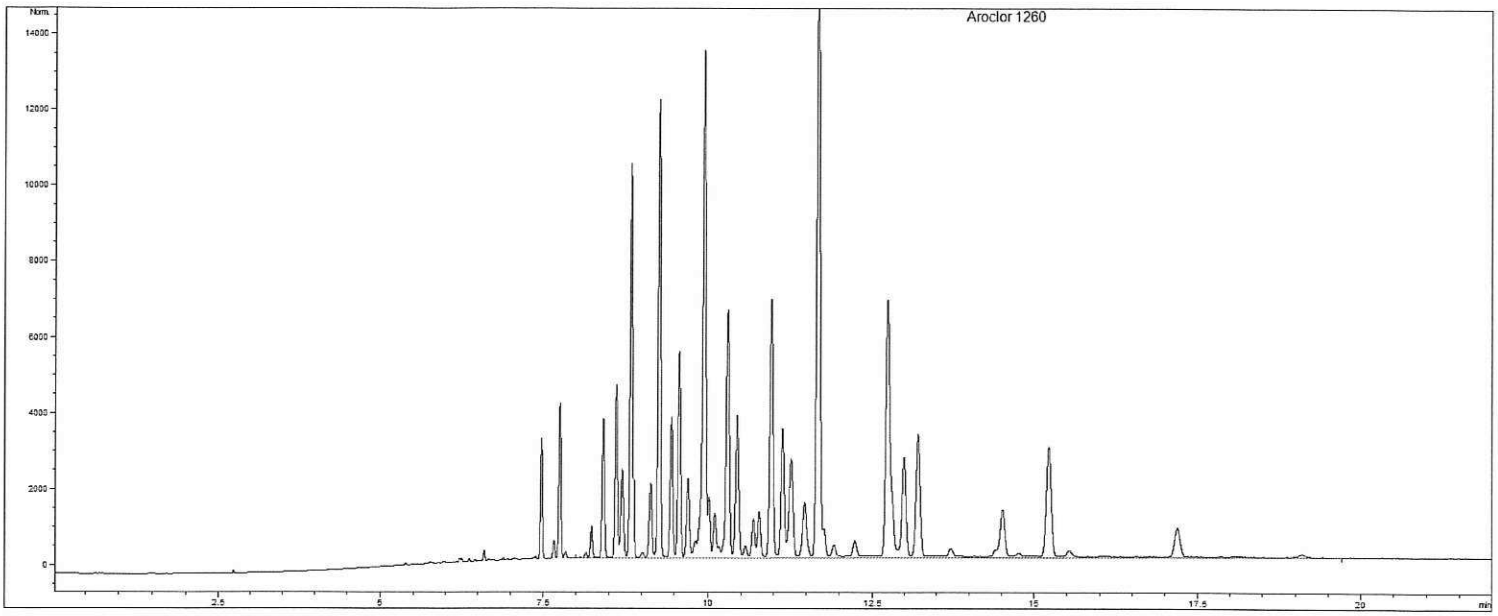
Certificate of Analysis

AROCLOR 1260,1X1ML,1000UG/ML,ISOOCTANE

Certified Reference Material

Product ID 44809
Lot **LRAC0055**
Expiration Date August 2021
MFG Date August 2018
Storage Conditions Room Temperature
Solvent/Matrix ISOOCTANE

Analyte	*Units*	*Certified Value* [1,4]	*Analytical Value*	*Raw Material Purity,%*	*Raw Material lot*	*Elution order*	*CAS*
Aroclor 1260	µg/ml	1000 ± 60	1090	100	LC12015		11096-82-5



Additional Information:

Analytical Method Parameters:

Column: SPB-5, 60 m x 0.53 mm x 1.5 µm df
200°C to 300°C (17 min) at 20°C/min
Detector: ECD, 310°C
Injection Volume: 0.5 µL

H 001884 JR
Read
02/26/19

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ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

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307-742-5452
rtctechgroup@sial.com www.sigma-aldrich.com

Lot	**LRAC0055**
Expiration Date	August 2021
MFG Date	August 2018
Storage Conditions	Room Temperature
Solvent/Matrix	ISOOCTANE

1 Certified value - based on the gravimetric preparation and analytically verified by RTC with associated uncertainties from the preparation and analytical procedures.

4 Ucrm - Uncertainty values in this document are expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k, which is obtained from a *t*-distribution and degrees of freedom. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long term stability, and short term stability (transport). The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies. The mathematical representation of the Ucrm calculation is as follows:

$$u_{CRM} = \sqrt{u_{char}^2 + u_{hom\ ogeneity}^2 + u_{stability}^2}$$

Traceability: The standard was manufactured under an ISO/IEC 17025:2005 certified quality system. The balance used to weigh raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All dilutions were preformed gravimetrically. Additionally, individual analytes are traceable to NIST SRMs where available and specified above.

Homogeneity: Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared using a one-way analysis of variance approach as described by TNI EL-V3-2009 Appendix A.2. See Instructions for minimum sub-sample size.

Expiration is at end of month given on certificate and label.

THIS PRODUCT WAS DESIGNED, PRODUCED AND VERIFIED FOR ACCURACY AND STABILITY IN ACCORDANCE WITH ISO/IEC 17025:2005 (ANAB Cert AT-1467) and ISO GUIDE 34:2009 (ANAB Cert AR-1470).

MSDS reports for components comprising greater than 1.0% of the solution or 0.1% for components known to be carcinogens are available upon request.

Robert O'Brien - QC Supervisor

Mark Pooler - QA Supervisor

Certification Date	September 13, 2018
Version	-9132018

Certificate of Analysis

Agilent

Aroclor 1016 Solution

Product Number: PP-282 **Page:** 1 of 1

Lot Number: CR-0761 **Lot Issue Date:** 28-Feb-2017 **Expiration Date:** 31-Mar-2025

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1016	012674-11-2	NT01016	100.2 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

H004099
aroclor 1016 scv100ug/mL
Solvent / Lot: isooctane/CR-0761
Prep: 4/26/2019 by VS
Exp: 3/31/2025
Location:

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001
Registered
TUV USA, Inc.

Certificate of Analysis

Agilent

Aroclor 1221 Solution

Product Number: PP-292 **Page:** 1 of 1

Lot Number: CR-0211 **Lot Issue Date:** 24-Jan-2017 **Expiration Date:** 28-Feb-2021

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1221	011104-28-2	NT01017	100.0 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

H004100
aroclor 1221 scv100ug/mL
Solvent / Lot: isooctane/CR-0211
Prep: 4/26/2019 by VS
Exp: 2/28/2021
Location: GC

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001
Registered
TUV USA, Inc.

Certificate of Analysis

Agilent

Aroclor 1232 Solution

Product Number: PP-302 **Page:** 1 of 1

Lot Number: CF-2197A **Lot Issue Date:** 05-Jul-2016 **Expiration Date:** 31-Aug-2023

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1232	011141-16-5	NT01717	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

H004101
aroclor 1232 scv100ug/mL
Solvent / Lot: isooctane/CF-2197A
Prep: 4/26/2019 by VS
Exp: 8/31/2023
Location:

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

ISO 9001 Registered Quality System – TUV USA

Agilent

Certificate of Analysis
ISO Guide 34

Aroclor 1242 Solution

Product Number: PP-312 **Page:** 1 of 1

Lot Number: CS-6293 **Lot Issue Date:** 04-Jan-2019 **Expiration Date:** 31-Jan-2023

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with Agilent's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1242	053469-21-9	NT01020	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

H004102
aroclor 1242 scv100ug/mL
Solvent / Lot: isooctane/CS-6293
Prep: 4/26/2019 by VS
Exp: 1/31/2023
Location: GC

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ISO Guide 34 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Management System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO17025 Cert No. AT-1937

Agilent

Certificate of Analysis
ISO Guide 34

Aroclor 1248 Standard

Product Number: PP-342 **Page:** 1 of 1

Lot Number: CT-0774 **Lot Issue Date:** 08-Mar-2019 **Expiration Date:** 31-Mar-2023

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with Agilent's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1248	012672-29-6	NT01718	100.3 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

H004103
aroclor 1248 scv100ug/mL
Solvent / Lot: isooctane/CT-0774
Prep: 4/26/2019 by VS
Exp: 3/31/2023
Location: GC

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ISO Guide 34 Cert No.
AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026
registered ISO 9001 Quality Management System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO17025 Cert No.
AT-1937

Certificate of Analysis

Aroclor 1254 Solution

Product Number:	PP-352			**Page:**	1 of 1
Lot Number:	CK-4250	**Lot Issue Date:**	31-Dec-2013	**Expiration Date:**	31-Jan-2022

This certified Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1254	011097-69-1	RM00922	100.0 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15-30°C).

H004104
aroclor 1254 scv100ug/mL
Solvent / Lot: isooctane/CK-4250
Prep: 4/26/2019 by VS
Exp: 1/31/2022
Location: GC

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

ACCREDITED
ISO 17025:2005 Accredited A2LA Cert. No. 0851-01
ISO 9001:2008 Registered TUV USA, Inc. Cert. No. 09-1009

250 Smith Street, North Kingstown, RI 02852 USA
401-294-9400 Fax: 295-2330
wwww.ultrasci.com

William J. Leary
Quality Assurance Manager

Certificate of Analysis

Agilent

Aroclor 1260 Solution

Product Number: PP-362 **Page:** 1 of 1

Lot Number: CP-3739 **Lot Issue Date:** 02-Aug-2016 **Expiration Date:** 30-Sep-2020

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1260	011096-82-5	NT01023	100.0 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

H004105
aroclor 1260 scv100ug/mL
Solvent / Lot: isooctane/CP-3739
Prep: 4/26/2019 by VS
Exp: 9/30/2020
Location: GC

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

ISO 9001 Registered Quality System – TUV USA

Agilent

Certificate of Analysis

Aroclor 1262 Solution

Product Number PP-372 **Page:** 1 of 1

Lot Number: CJ-0264Z **Lot Issue Date:** 12-May-2017 **Expiration Date:** 30-Jun-2021

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1262	037324-23-5	NT01025-03	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

H004106
aroclor 1262 scv100ug/mL
Solvent / Lot: isooctane/CJ-0264Z
Prep: 4/26/2019 by VS
Exp: 6/30/2021
Location: GC

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001
Registered
TUV USA, Inc.

John Russo
President

Monica Bourgeois
Director of QA/RA

Agilent

Certificate of Analysis

Aroclor 1268 Solution

Product Number PP-382 **Page:** 1 of 1

Lot Number: CE-0585A **Lot Issue Date:** 16-Apr-2015 **Expiration Date:** 31-May-2022

This certified Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1268	011100-14-4	E-0988	100.2 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15-30°C).

H004107
aroclor 1268 scv100ug/mL
Solvent / Lot: isooctane/CE-0585A
Prep: 4/26/2019 by VS
Exp: 5/31/2022
Location: GC

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001
Registered
TUV USA, Inc.

William J. Leahy
Quality Assurance Manager

Certificate of Analysis

Phenova Certified Reference Materials are sold by Phenomenex.
411 Madrid Ave., Torrance, CA 90501 USA ▪ Tel: 310-212-0555 ▪ Fax: 310-328-7768 ▪ info@phenomenex.com
Access your MSDS and digital C of A at **www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards**

Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.: AL0-101463
Description: Aroclor 1262
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Hexane

Lot Number: CL11320
Certification Date: May 18, 2015
Expiration Date: April 30, 2023

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty (%)
Aroclor 1262	37324-23-5	1000	± 0.516%

H006192
AROCLOR 1262
Solvent / Lot: HEXANE
Prep: 6/26/2019 by VS
Exp: 4/30/2023
Location:

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

phenova Certified Reference Materials

Manufactured by Phenova, Inc.

Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ilac-MRA ACCREDITED
Chemical Testing Laboratory
Certificate No. 2427.03

IL111110613_us

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 7471B

Total Metals

SL4-SG-WC3-FW-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Wipes	Laboratory ID:	19H0024-02 A 01	SDG:	19H0024
Sampled:	08/01/19 07:30	Prepared:	08/13/19 09:42	File ID:	TWM 08-14-19-015
% Solids:	0.00	Preparation:	PHM Digestion of Wipe for Hg	Analyzed:	08/14/19 15:13
Batch:	BHH0313	Sequence:	SHH0190	Initial/Final:	0.25 Wipe Wet / 20 mL
Instrument:	CVAA			Calibration:	CH00045

CAS NO.	Analyte	Concentration (ug/Wipe)	Dilution Factor	MDL	MRL	Q
7439-97-6	Mercury	0.050	1	0.004	0.050	U

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 7471B

Total Metals

SL4-SG-WC3-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-03 E	SDG:	19H0024
Sampled:	08/01/19 08:16	Prepared:	08/12/19 08:02	File ID:	SMM 08-13-19-019
% Solids:	32.96	Preparation:	SMM EPA 7471B	Analyzed:	08/13/19 15:08
Batch:	BHH0272	Sequence:	SHH0177	Initial/Final:	0.24 g Wet / 50 mL
Instrument:	CVAA			Calibration:	CH00042

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7439-97-6	Mercury	0.191	1	0.0133	0.0632	

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 7471B

Total Metals

SL4-SG-WC7-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-04 B	SDG:	19H0024
Sampled:	08/01/19 08:39	Prepared:	08/12/19 08:02	File ID:	SMM 08-13-19-025
% Solids:	41.09	Preparation:	SMM EPA 7471B	Analyzed:	08/13/19 15:22
Batch:	BHH0272	Sequence:	SHH0177	Initial/Final:	0.278 g Wet / 50 mL
Instrument:	CVAA			Calibration:	CH00042

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7439-97-6	Mercury	0.220	1	0.00919	0.0438	

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 7471B

Total Metals

SL4-SG-WC7-FD-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-05 B	SDG:	19H0024
Sampled:	08/01/19 08:39	Prepared:	08/12/19 08:02	File ID:	SMM 08-13-19-026
% Solids:	41.29	Preparation:	SMM EPA 7471B	Analyzed:	08/13/19 15:24
Batch:	BHH0272	Sequence:	SHH0177	Initial/Final:	0.23 g Wet / 50 mL
Instrument:	CVAA			Calibration:	CH00042

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7439-97-6	Mercury	0.207	1	0.0111	0.0527	

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 7471B

Total Metals

SL4-SG-WC8-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-06 B	SDG:	19H0024
Sampled:	08/01/19 09:08	Prepared:	08/12/19 08:02	File ID:	SMM 08-13-19-027
% Solids:	57.54	Preparation:	SMM EPA 7471B	Analyzed:	08/13/19 15:26
Batch:	BHH0272	Sequence:	SHH0177	Initial/Final:	0.289 g Wet / 50 mL
Instrument:	CVAA			Calibration:	CH00042

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7439-97-6	Mercury	0.0743	1	0.00631	0.0301	

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 7471B

Total Metals

SL4-SG-WC4-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-07 B	SDG:	19H0024
Sampled:	08/01/19 10:08	Prepared:	08/12/19 08:02	File ID:	SMM 08-13-19-028
% Solids:	66.66	Preparation:	SMM EPA 7471B	Analyzed:	08/13/19 15:29
Batch:	BHH0272	Sequence:	SHH0177	Initial/Final:	0.292 g Wet / 50 mL
Instrument:	CVAA			Calibration:	CH00042

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7439-97-6	Mercury	0.0793	1	0.00539	0.0257	

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 7471B

Total Metals

SL4-SG-WC2-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-08 C	SDG:	19H0024
Sampled:	08/01/19 10:30	Prepared:	08/12/19 08:02	File ID:	SMM 08-13-19-029
% Solids:	46.21	Preparation:	SMM EPA 7471B	Analyzed:	08/13/19 15:31
Batch:	BHH0272	Sequence:	SHH0177	Initial/Final:	0.228 g Wet / 50 mL
Instrument:	CVAA			Calibration:	CH00042

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7439-97-6	Mercury	0.0923	1	0.00996	0.0475	

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 7471B

Total Metals

SL4-SG-WC1-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-09 B	SDG:	19H0024
Sampled:	08/01/19 10:43	Prepared:	08/12/19 08:02	File ID:	SMM 08-13-19-030
% Solids:	42.54	Preparation:	SMM EPA 7471B	Analyzed:	08/13/19 15:33
Batch:	BHH0272	Sequence:	SHH0177	Initial/Final:	0.213 g Wet / 50 mL
Instrument:	CVAA			Calibration:	CH00042

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7439-97-6	Mercury	0.129	1	0.0116	0.0552	

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 7471B

SL4-IC-SC2-2019

Total Metals

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-10 B	SDG:	19H0024
Sampled:	08/01/19 11:45	Prepared:	08/12/19 08:02	File ID:	SMM 08-13-19-031
% Solids:	72.09	Preparation:	SMM EPA 7471B	Analyzed:	08/13/19 15:35
Batch:	BHH0272	Sequence:	SHH0177	Initial/Final:	0.297 g Wet / 50 mL
Instrument:	CVAA			Calibration:	CH00042

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7439-97-6	Mercury	0.0452	1	0.00490	0.0234	

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 7471B

SL4-IC-SC3-2019

Total Metals

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-11 B	SDG:	19H0024
Sampled:	08/01/19 12:10	Prepared:	08/12/19 08:02	File ID:	SMM 08-13-19-032
% Solids:	67.53	Preparation:	SMM EPA 7471B	Analyzed:	08/13/19 15:38
Batch:	BHH0272	Sequence:	SHH0177	Initial/Final:	0.294 g Wet / 50 mL
Instrument:	CVAA			Calibration:	CH00042

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7439-97-6	Mercury	0.0729	1	0.00529	0.0252	

PREPARATION BATCH SUMMARY

EPA 7471B

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Batch: BHH0272 Batch Matrix: Solid Preparation: SMM EPA 7471B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC3-2019	19H0024-03	SMM 08-13-19-019	08/12/19 08:02	
SL4-SG-WC7-2019	19H0024-04	SMM 08-13-19-025	08/12/19 08:02	
SL4-SG-WC7-FD-2019	19H0024-05	SMM 08-13-19-026	08/12/19 08:02	
SL4-SG-WC8-2019	19H0024-06	SMM 08-13-19-027	08/12/19 08:02	
SL4-SG-WC4-2019	19H0024-07	SMM 08-13-19-028	08/12/19 08:02	
SL4-SG-WC2-2019	19H0024-08	SMM 08-13-19-029	08/12/19 08:02	
SL4-SG-WC1-2019	19H0024-09	SMM 08-13-19-030	08/12/19 08:02	
SL4-IC-SC2-2019	19H0024-10	SMM 08-13-19-031	08/12/19 08:02	
SL4-IC-SC3-2019	19H0024-11	SMM 08-13-19-032	08/12/19 08:02	
Blank	BHH0272-BLK1	SMM 08-13-19-013	08/12/19 08:02	
LCS	BHH0272-BS1	SMM 08-13-19-014	08/12/19 08:02	
SL4-SG-WC3-2019	BHH0272-DUP2	SMM 08-13-19-020	08/12/19 08:02	
SL4-SG-WC3-2019	BHH0272-MS2	SMM 08-13-19-021	08/12/19 08:02	
SL4-SG-WC3-2019	BHH0272-MSD2	SMM 08-13-19-022	08/12/19 08:02	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

BHH272

Mercury Digestion Log

Prep Code: SMM Matrix: Soil

Analyst: JW Date: 8/12/19

Bath Temp: 91°C Start Time: 1015 End Time: 1100

ARI Sample ID	Sample Bottle #	pH<2	Initial Weight (g) Volume (mL)	Final Volume (mL)	# $KMnO_4$ Aliquots	CLP	Comments
19H24-3	E	-	0.240	50	1		QC2
" -4	B	-	0.278				
" -5	B	-	0.230				
" -6	B	-	0.289				
" -7	B	-	0.292				
" -8	C	-	0.228				
" -9	B	-	0.213				
" -10	B	-	0.297				
" -11	B	-	0.294				
19H39-6	A	-	0.227				
19H69-1	C	-	0.284				
19H79-1	A	-	0.227				
19H89-1	B	-	0.225				QC1
19H90-1	B	-	0.224				
19H119-1	A	-	0.225				
19H128-1	A	-	0.208				
BHH272-BLK1	-	-	-				
" -BS1	-	-	-				
" -DUP1	-	-	0.228				19H89-1
" -DUP2	-	-	0.237				19H24-3
" -MS1	-	-	0.221				19H89-1
" -MS2	-	-	0.236				19H24-3
" -MSD1	-	-	0.223				19H89-1
" -MSD2	-	-	0.241	50	1		19H24-3

8/12/19 JW

Chemical/Reagent ID:

HNO_3: _____ H_2SO_4: _____ HCl: _____

5% $K_2S_2O_8$: _____ 5% $KMnO_4$: _____ Digest Tube Lot: _____

PREPARATION BATCH SUMMARY

EPA 7471B

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Batch: BHH0313
Batch Matrix: Wipes
Preparation: PHM Digestion of Wipe for Hg

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC3-FW-2019	19H0024-02	TWM 08-14-19-015	08/13/19 09:42	
Blank	BHH0313-BLK1	TWM 08-14-19-013	08/13/19 09:42	
LCS	BHH0313-BS1	TWM 08-14-19-014	08/13/19 09:42	

Form I

METHOD BLANK DATA SHEET

EPA 7471B

Total Metals

Blank

Batch: BHH0272 Laboratory ID: BHH0272-BLK1 Prepared: 08/12/19 08:02

Matrix: Solid Preparation: SMM EPA 7471B Analyzed: 08/13/19 14:54

Sequence: SHH0177 Calibration: CH00042 Instrument: CVAA

CAS NO.	Analyte	Concentration (mg/kg wet)	Dilution Factor	MDL	MRL	Q
7439-97-6	Mercury	ND	1	0.00525	0.0250	U

Form I

METHOD BLANK DATA SHEET

EPA 7471B

Total Metals

Blank

Batch: BHH0313 Laboratory ID: BHH0313-BLK1 Prepared: 08/13/19 09:42

Matrix: Wipes Preparation: PHM Digestion of Wipe fc Analyzed: 08/14/19 15:08

Sequence: SHH0190 Calibration: CH00045 Instrument: CVAA

CAS NO.	Analyte	Concentration (ug/Wipe)	Dilution Factor	MDL	MRL	Q
7439-97-6	Mercury	ND	1	0.001	0.013	U

SL4-SG-WC3-2019

DUPLICATES

EPA 7471B

Total Metals

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Matrix: Solid
Laboratory ID: BHH0272-DUP2
Batch: BHH0272
Lab Source ID: 19H0024-03
Preparation: SMM EPA 7471B
Initial/Final: 0.237 g / 50 mL
Source Sample Name: SL4-SG-WC3-2019
% Solids: 32.96

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
Mercury	20	0.191	0.174	9.34	

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

INSTRUMENT BLANKS
EPA 7471B

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: CVAA
Calibration: CH00042
Sequence: SHH0177
Date Analyzed: 08/13/19 14:44

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SHH0177-ICB1	Mercury	-0.000014	0.000021	0.000100	mg/L	
SHH0177-CCB1	Mercury	0.000007	0.000021	0.000100	mg/L	
SHH0177-CCB2	Mercury	0.000006	0.000021	0.000100	mg/L	
SHH0177-CCB3	Mercury	0.000010	0.000021	0.000100	mg/L	
SHH0177-CCB4	Mercury	0.000005	0.000021	0.000100	mg/L	

LCS / LCS DUPLICATE RECOVERY

EPA 7471B

Total Metals

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/13/19 14:56
Batch:	BHH0272	Laboratory ID:	BHH0272-BS1
Preparation:	SMM EPA 7471B	Sequence Name:	LCS
Initial/Final:	0.2 g / 50 mL		

COMPOUND	SPIKE ADDED (mg/kg wet)	LCS CONCENTRATION (mg/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Mercury	0.500	0.496		99.1	80 - 120

* Indicates values outside of QC limits

LCS / LCS DUPLICATE RECOVERY

EPA 7471B

Total Metals

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Wipes	Analyzed:	08/14/19 15:11
Batch:	BHH0313	Laboratory ID:	BHH0313-BS1
Preparation:	PHM Digestion of Wipe for Hg	Sequence Name:	LCS
Initial/Final:	1 Wipe / 20 mL		

COMPOUND	SPIKE ADDED (ug/Wipe)	LCS CONCENTRATION (ug/Wipe)	Q	LCS % REC. #	QC LIMITS REC.
Mercury	0.0400	0.0405		101	80 - 120

* Indicates values outside of QC limits

MS / MS DUPLICATE RECOVERY

EPA 7471B

Total Metals

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/13/19 15:12
Batch:	BHH0272	Laboratory ID:	BHH0272-MS2
Preparation:	SMM EPA 7471B	Sequence Name:	Matrix Spike
Initial/Final:	0.236 g / 50 mL	Source Sample:	SL4-SG-WC3-2019

COMPOUND	SPIKE ADDED (mg/kg dry)	SAMPLE CONCENTRATION (mg/kg dry)	Q	MS CONCENTRATION (mg/kg dry)	Q	MS % REC. #	QC LIMITS REC.
Mercury	0.643	0.191		1.06		134 *	75 - 125

* Values outside of QC limits

MS / MS DUPLICATE RECOVERY

EPA 7471B

Total Metals

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/13/19 15:15
Batch:	BHH0272	Laboratory ID:	BHH0272-MSD2
Preparation:	SMM EPA 7471B	Sequence Name:	Matrix Spike Dup
Initial/Final:	0.241 g / 50 mL	Source Sample:	SL4-SG-WC3-2019

COMPOUND	SPIKE ADDED (mg/kg dry)	MSD CONCENTRATION (mg/kg dry)	Q	MSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Mercury	0.629	0.953		121	10.2	20	75 - 125

* Values outside of QC limits

INITIAL CALIBRATION DATA

EPA 7471B

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CH00042	Instrument:	CVAA
Calibration Date:	08/13/2019 16:20		

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Mercury	0	0	0.0001	5550000	0.0005	5174000	0.001	5076000	0.002	5152000	0.005	5100000

INITIAL CALIBRATION DATA

EPA 7471B

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CH00042	Instrument:	CVAA
Calibration Date:	08/13/2019 16:20		

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF
Mercury	0.01	5115500										

INITIAL CALIBRATION DATA

EPA 7471B

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CH00042	Instrument:	CVAA
Calibration Date:	08/13/2019 16:20		

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	COD Limit	Q
Mercury	4452500	44.2	1.0000		0.99	

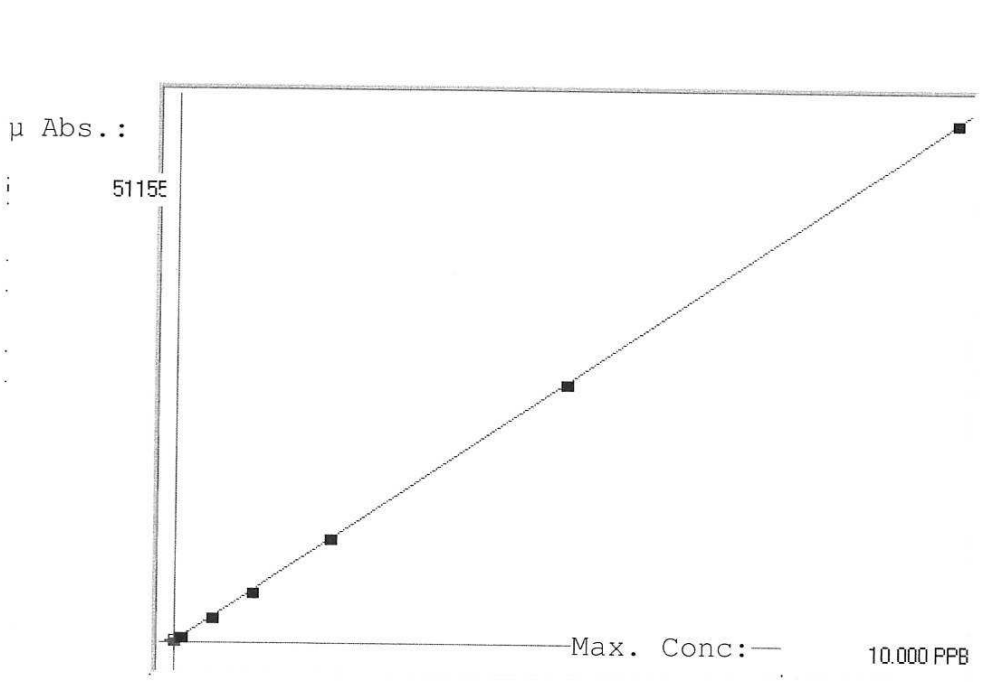
SHH0177
CH00042

SMM 08-13-19

Method: ARI 10 ppb Operator: Admin Date of Analysis: 13 Aug 2019 13:11:41

Sample ID	Mean	Units		Date	Method
SEQ-CAL2	555	PPB		13 Aug 2019 13:14:16	ARI 10 ppb
SEQ-CAL3	2587	PPB		13 Aug 2019 13:16:35	ARI 10 ppb
SEQ-CAL4	5076	PPB		13 Aug 2019 13:18:55	ARI 10 ppb
SEQ-CAL5	10304	PPB		13 Aug 2019 13:21:13	ARI 10 ppb
SEQ-CAL6	25500	PPB		13 Aug 2019 13:23:32	ARI 10 ppb
SEQ-CAL7	51155	PPB		13 Aug 2019 13:25:52	ARI 10 ppb
SEQ-CAL1	335	PPB		13 Aug 2019 13:43:39	ARI 10 ppb
SEQ-ICV	101.8% 8.1467	PPB	✓	13 Aug 2019 14:42:41	ARI 10 ppb
SEQ-ICB	-0.0136	PPB	✓	13 Aug 2019 14:44:59	ARI 10 ppb
SEQ-CRL	89.1% 0.0891	PPB	✓	13 Aug 2019 14:47:23	ARI 10 ppb
SEQ-CCV	103.5% 4.1389	PPB	✓	13 Aug 2019 14:49:43	ARI 10 ppb
SEQ-CCB	0.0066	PPB	✓	13 Aug 2019 14:51:59	ARI 10 ppb
BHH0272-BLK1	-0.0197	PPB	✓	13 Aug 2019 14:54:22	ARI 10 ppb
BHH0272-BS1	1.9820	PPB	✓	13 Aug 2019 14:56:39	ARI 10 ppb
19H0089-01	0.0257	PPB		13 Aug 2019 14:58:57	ARI 10 ppb
BHH0272-DUP1	0.0047	PPB	NO RPD	13 Aug 2019 15:01:17	ARI 10 ppb
BHH0272-MS1	1.0880	PPB	✓	13 Aug 2019 15:03:34	ARI 10 ppb
BHH0272-MSD1	1.1295	PPB	✓	13 Aug 2019 15:05:52	ARI 10 ppb
19H0024-03	0.3022	PPB		13 Aug 2019 15:08:11	ARI 10 ppb
BHH0272-DUP2	0.2718	PPB	✓	13 Aug 2019 15:10:30	ARI 10 ppb
BHH0272-MS2	1.6414	PPB	X High	13 Aug 2019 15:12:48	ARI 10 ppb
BHH0272-MSD2	1.5141	PPB	✓	13 Aug 2019 15:15:07	ARI 10 ppb
SEQ-CCV	102.8% 4.1126	PPB	✓	13 Aug 2019 15:17:27	ARI 10 ppb
SEQ-CCB	0.0061	PPB	✓	13 Aug 2019 15:19:45	ARI 10 ppb
19H0024-04	0.5035	PPB		13 Aug 2019 15:22:07	ARI 10 ppb
19H0024-05	0.3937	PPB		13 Aug 2019 15:24:27	ARI 10 ppb
19H0024-06	0.2471	PPB		13 Aug 2019 15:26:47	ARI 10 ppb
19H0024-07	0.3086	PPB		13 Aug 2019 15:29:05	ARI 10 ppb
19H0024-08	0.1946	PPB		13 Aug 2019 15:31:22	ARI 10 ppb
19H0024-09	0.2332	PPB		13 Aug 2019 15:33:40	ARI 10 ppb
19H0024-10	0.1936	PPB		13 Aug 2019 15:35:59	ARI 10 ppb
19H0024-11	0.2896	PPB		13 Aug 2019 15:38:16	ARI 10 ppb
19H0039-06	0.0030	PPB		13 Aug 2019 15:40:33	ARI 10 ppb
19H0069-01	0.0235	PPB		13 Aug 2019 15:42:51	ARI 10 ppb
SEQ-CCV	102.1% 4.0826	PPB	✓	13 Aug 2019 15:45:09	ARI 10 ppb
SEQ-CCB	0.0100	PPB	✓	13 Aug 2019 15:47:26	ARI 10 ppb
19H0079-01	0.2101	PPB		13 Aug 2019 15:49:49	ARI 10 ppb
19H0090-01	0.0337	PPB		13 Aug 2019 15:52:07	ARI 10 ppb
19H0114-01	-0.0044	PPB		13 Aug 2019 15:54:26	ARI 10 ppb
19H0128-01	0.0715	PPB		13 Aug 2019 15:56:46	ARI 10 ppb
SEQ-CCV	103.2% 4.1288	PPB	✓	13 Aug 2019 15:59:06	ARI 10 ppb
SEQ-CCB	0.0049	PPB	✓	13 Aug 2019 16:01:23	ARI 10 ppb

ARI 10 ppb



Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4
SEQ-CAL1 - Blank	0.000	0.048	0.048	335	2.828	331	337	337	
SEQ-CAL2 - 0.1 PPB	0.100	0.091	-0.009	555	0.9 %	548	557	560	
SEQ-CAL3 - 0.5 PPB	0.500	0.489	-0.011	2586	1.1 %	2546	2607	2607	
SEQ-CAL4 - 1.0 PPB	1.000	0.977	-0.023	5076	0.9 %	5033	5135	5060	
SEQ-CAL5 - 2.0 PPB	2.000	2.002	0.002	10304	0.2 %	10328	10288	10297	
SEQ-CAL6 - 5.0 PPB	5.000	4.982	-0.018	25500	0.3 %	25605	25481	25415	
SEQ-CAL7 - 10.0 PPB	10.000	10.011	0.011	51154	0.5 %	51381	50759	51324	

Mercury Analysis Log

SEQ: SHH0177

Analyst: SM
Instrument: Hydra

Date: 8/13/19
Page: 1 of 2

ARI Sample ID	Prep Code	Dilution	QC Data (ppb)	Comments
SEQ-CAL1	SMM	1X		
-CAL2	"	"		
-CAL3	"	"		
-CAL4	"	"		
-CAL5	"	"		
-CAL6	"	"		
-CAL7	"	"		
-ICV	"	"	8.15	✓
-ICB	"	"	-0.0136	✓
-CRL	"	"	0.90	✓
-CCV	"	"	4.14	✓
-CCB	"	"	0.0066	✓
BHH272-BLK1	"	"	-0.0197	✓
" -BS1	"	"	1.98	✓
19H89-1	"	"	0.03	
BHH272-DUP1	"	"	0.00	NO RPD
-MS1	"	"	1.09	✓
-MSD1	"	"	1.13	✓
19H24-3	"	"	0.30	
BHH272-DUP2	"	"	0.27	✓
-MS2	"	"	1.64	x High
-MSD2	"	"	1.51	✓
SEQ-CCV	"	"	4.11	✓
" -CCB	"	"	0.0061	✓
19H24-4	"	"	0.50	
-5	"	"	0.39	
-6	"	"	0.25	
-7	"	"	0.31	
-8	"	"	0.19	
-9	SMM	1X	0.23	

Chemical/Reagent ID:
10% $SnCl_2$: H7599

14% NH_2OH/NaCl: H7469

Standard ID:
Standard: H7723-H7729

ICV/CCV: H7730/H7731

Mercury Analysis Log

Analyst: SM

Instrument: Hydra

Date: 8/13/19

Page: 2 of 2

ARI Sample ID	Prep Code	Dilution	QC Data (ppb)	Comments
19H24-10	SMM	1x	0.19	
" -11	"	"	0.29	
19H39-6	"	"	0.00	
19H69-1	"	"	0.02	
SEQ-CCV	"	"	4.08	✓
" -CCB	"	"	0.0100	✓
19H79-1	"	"	0.21	
19H90-1	"	"	0.03	
19H114-1	"	"	-0.00	
19H128-1	"	"	0.07	
SEQ-CCV	↓	↓	4.13	✓
" -CCB	SMM	1x	0.0049	✓

SM 8/13/19

Chemical/Reagent ID:

10% $SnCl_2$: _____

14% NH_2OH/NaCl: _____

Standard ID:

Standard: _____

ICV/CCV: _____

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 7471B

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: CVAA
Calibration: CH00042
Control Limt: +/- 20.00%
Sequence: SHH0177

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SHH0177-ICV1	Mercury	0.0080000	0.00815	102	mg/L	EPA 7471B
SHH0177-CCV1	Mercury	0.0040000	0.00414	103	mg/L	EPA 7471B
SHH0177-CCV2	Mercury	0.0040000	0.00411	103	mg/L	EPA 7471B
SHH0177-CCV3	Mercury	0.0040000	0.00408	102	mg/L	EPA 7471B
SHH0177-CCV4	Mercury	0.0040000	0.00413	103	mg/L	EPA 7471B

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 7471B

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0177
Instrument: CVAA
Calibration: CH00042

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Cal Standard	SHH0177-CAL2	SMM 08-13-19-001	NA	08/13/19 13:14
Cal Standard	SHH0177-CAL3	SMM 08-13-19-002	NA	08/13/19 13:16
Cal Standard	SHH0177-CAL4	SMM 08-13-19-003	NA	08/13/19 13:18
Cal Standard	SHH0177-CAL5	SMM 08-13-19-004	NA	08/13/19 13:21
Cal Standard	SHH0177-CAL6	SMM 08-13-19-005	NA	08/13/19 13:23
Cal Standard	SHH0177-CAL7	SMM 08-13-19-006	NA	08/13/19 13:25
Cal Standard	SHH0177-CAL1	SMM 08-13-19-007	NA	08/13/19 13:43
Initial Cal Check	SHH0177-ICV1	SMM 08-13-19-008	NA	08/13/19 14:42
Initial Cal Blank	SHH0177-ICB1	SMM 08-13-19-009	NA	08/13/19 14:44
Instrument RL Check	SHH0177-CRL1	SMM 08-13-19-010	NA	08/13/19 14:47
Calibration Check	SHH0177-CCV1	SMM 08-13-19-011	NA	08/13/19 14:49
Calibration Blank	SHH0177-CCB1	SMM 08-13-19-012	NA	08/13/19 14:51
Blank	BHH0272-BLK1	SMM 08-13-19-013	Solid	08/13/19 14:54
LCS	BHH0272-BS1	SMM 08-13-19-014	Solid	08/13/19 14:56
SL4-SG-WC3-2019	19H0024-03	SMM 08-13-19-019	Solid	08/13/19 15:08
SL4-SG-WC3-2019	BHH0272-DUP2	SMM 08-13-19-020	Solid	08/13/19 15:10
SL4-SG-WC3-2019	BHH0272-MS2	SMM 08-13-19-021	Solid	08/13/19 15:12
SL4-SG-WC3-2019	BHH0272-MSD2	SMM 08-13-19-022	Solid	08/13/19 15:15
Calibration Check	SHH0177-CCV2	SMM 08-13-19-023	NA	08/13/19 15:17
Calibration Blank	SHH0177-CCB2	SMM 08-13-19-024	NA	08/13/19 15:19
SL4-SG-WC7-2019	19H0024-04	SMM 08-13-19-025	Solid	08/13/19 15:22
SL4-SG-WC7-FD-2019	19H0024-05	SMM 08-13-19-026	Solid	08/13/19 15:24
SL4-SG-WC8-2019	19H0024-06	SMM 08-13-19-027	Solid	08/13/19 15:26
SL4-SG-WC4-2019	19H0024-07	SMM 08-13-19-028	Solid	08/13/19 15:29
SL4-SG-WC2-2019	19H0024-08	SMM 08-13-19-029	Solid	08/13/19 15:31
SL4-SG-WC1-2019	19H0024-09	SMM 08-13-19-030	Solid	08/13/19 15:33
SL4-IC-SC2-2019	19H0024-10	SMM 08-13-19-031	Solid	08/13/19 15:35
SL4-IC-SC3-2019	19H0024-11	SMM 08-13-19-032	Solid	08/13/19 15:38
Calibration Check	SHH0177-CCV3	SMM 08-13-19-035	NA	08/13/19 15:45
Calibration Blank	SHH0177-CCB3	SMM 08-13-19-036	NA	08/13/19 15:47

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 7471B

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Sequence:	SHH0177	Instrument:	CVAA
		Calibration:	CH00042

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Calibration Check	SHH0177-CCV4	SMM 08-13-19-041	NA	08/13/19 15:59
Calibration Blank	SHH0177-CCB4	SMM 08-13-19-042	NA	08/13/19 16:01

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 7471B

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Sequence:	SHH0190	Instrument:	CVAA
		Calibration:	CH00045

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Blank	BHH0313-BLK1	TWM 08-14-19-013	Wipes	08/14/19 15:08
LCS	BHH0313-BS1	TWM 08-14-19-014	Wipes	08/14/19 15:11
SL4-SG-WC3-FW-2019	19H0024-02	TWM 08-14-19-015	Wipes	08/14/19 15:13

DETECTION LEVEL STANDARD
EPA 7471B

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: CVAA
Calibration: CH00042
Sequence: SHH0177
Lab Sample ID: SHH0177-CRL1

Analyte	True	Found	%R	Units	QC Limts
Mercury	0.000100	0.000089	89.1	mg/L	70 - 130

* Values outside of QC limits

HOLDING TIME SUMMARY

Analysis: EPA 7471B

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
SL4-SG-WC3-FW-2019 19H0024-02	08/01/19 07:30	08/01/19 13:05	08/13/19 09:42	12	28	08/14/19 15:13	13	28	
SL4-SG-WC3-2019 19H0024-03	08/01/19 08:16	08/01/19 13:05	08/12/19 08:02	10	28	08/13/19 15:08	12	28	
SL4-SG-WC7-2019 19H0024-04	08/01/19 08:39	08/01/19 13:05	08/12/19 08:02	10	28	08/13/19 15:22	12	28	
SL4-SG-WC7-FD-2019 19H0024-05	08/01/19 08:39	08/01/19 13:05	08/12/19 08:02	10	28	08/13/19 15:24	12	28	
SL4-SG-WC8-2019 19H0024-06	08/01/19 09:08	08/01/19 13:05	08/12/19 08:02	10	28	08/13/19 15:26	12	28	
SL4-SG-WC4-2019 19H0024-07	08/01/19 10:08	08/01/19 13:05	08/12/19 08:02	10	28	08/13/19 15:29	12	28	
SL4-SG-WC2-2019 19H0024-08	08/01/19 10:30	08/01/19 13:05	08/12/19 08:02	10	28	08/13/19 15:31	12	28	
SL4-SG-WC1-2019 19H0024-09	08/01/19 10:43	08/01/19 13:05	08/12/19 08:02	10	28	08/13/19 15:33	12	28	
SL4-IC-SC2-2019 19H0024-10	08/01/19 11:45	08/01/19 13:05	08/12/19 08:02	10	28	08/13/19 15:35	12	28	
SL4-IC-SC3-2019 19H0024-11	08/01/19 12:10	08/01/19 13:05	08/12/19 08:02	10	28	08/13/19 15:38	12	28	
Duplicate BHH0272-DUP2	08/01/19 08:16	08/01/19 13:05	08/12/19 08:02	10	28	08/13/19 15:10	12	28	
Matrix Spike BHH0272-MS2	08/01/19 08:16	08/01/19 13:05	08/12/19 08:02	10	28	08/13/19 15:12	12	28	
Matrix Spike Dup BHH0272-MSD2	08/01/19 08:16	08/01/19 13:05	08/12/19 08:02	10	28	08/13/19 15:15	12	28	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 7471B

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Matrix: Solid
Instrument: CVAA

Analyte	MDL	RL	Units
Mercury	0.00525	0.0250	mg/kg

METHOD DETECTION AND REPORTING LIMITS

EPA 7471B

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Matrix: Wipes
Instrument: CVAA

Analyte	MDL	RL	Units
Mercury	0.001	0.013	ug/Wipe

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGHG1
Lot Number:	N2-HG669550
Matrix:	5% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Mercury
Starting Material:	Hg metal
Starting Material Lot#:	1959
Starting Material Purity:	99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 3 µg/mL

Density: 1.026 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **999 ± 5 µg/mL**
ICP Assay NIST SRM 3133 Lot Number: 061204

Assay Method #2 **1003 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{1/2}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag		0.001159	M	Eu	<	0.000201	O	Na		0.000435	M	Se	<	0.015915	O	Zn	<	0.001510
O	Al		0.000090	O	Fe		0.000113	M	Nb	<	0.000201	O	Si		0.000526	M	Zr	<	0.000201
M	As	<	0.000402	M	Ga	<	0.000201	M	Nd	<	0.000201	M	Sm	<	0.000201				
M	Au	<	0.003631	M	Gd	<	0.000201	M	Ni	<	0.000402	M	Sn	<	0.001007				
M	B	<	0.001208	M	Ge	<	0.000201	M	Os	<	0.000605	M	Sr	<	0.000201				
M	Ba	<	0.000201	M	Hf	<	0.000201	O	P	<	0.032370	M	Ta	<	0.000201				
M	Be	<	0.000201	s	Hg	<		M	Pb	<	0.000201	M	Tb	<	0.000201				
M	Bi	<	0.000201	M	Ho	<	0.000201	M	Pd	<	0.000403	M	Te	<	0.002216				
O	Ca		0.000746	M	In	<	0.000201	M	Pr	<	0.000201	M	Th	<	0.000201				
M	Cd	<	0.000201	M	Ir	<	0.000201	M	Pt	<	0.000402	M	Ti	<	0.000402				
M	Ce	<	0.000201	O	K		0.002008	M	Rb	<	0.000201	O	Tl	<	0.016508				
M	Co	<	0.000201	M	La	<	0.000201	M	Re	<	0.000201	M	Tm	<	0.000201				
O	Cr	<	0.003021	O	Li	<	0.000107	M	Rh	<	0.000201	M	U	<	0.008058				
M	Cs	<	0.001208	M	Lu	<	0.000201	M	Ru	<	0.000201	M	V	<	0.000201				
M	Cu	<	0.000402	O	Mg		0.000096	O	S	<	0.053950	M	W	<	0.000604				
M	Dy	<	0.000201	M	Mn	<	0.000604	M	Sb	<	0.001208	M	Y	<	0.000201				
M	Er	<	0.000201	M	Mo		0.000971	M	Sc	<	0.000201	M	Yb	<	0.000201				

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+
Chemical Compatibility - Stable in HNO3. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.
Stability - 2-100 ppb levels not stable in 1% HNO3 / LDPE container, stable in 10% HNO3 packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO3 packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO3 / LDPE container.
Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO3); Oxide (Soluble in HNO3); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th ,Rh , Fe, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 10, 2018

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **August 10, 2022**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	QCP-QCS-4
Lot Number:	M2-MEB663298
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	5 µg/mL ea: Mercury

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Mercury, Hg	**5.000 ± 0.022 µg/mL**		

Density: 1.034 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	061204
Hg	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{½}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 17, 2017

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 17, 2021**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 6010C

Total Metals

SL4-SG-WC3-FW-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Wipes	Laboratory ID:	19H0024-02 A	SDG:	19H0024
Sampled:	08/01/19 07:30	Prepared:	08/13/19 09:31	File ID:	I2190813-023
% Solids:	0.00	Preparation:	PHN Wipe	Analyzed:	08/13/19 14:15
Batch:	BHH0311	Sequence:	SHH0173	Initial/Final:	1 Wipe Wet / 50 mL
Instrument:	ICP2			Calibration:	CH00043

CAS NO.	Analyte	Concentration (ug/Wipe)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic	0.2	1	0.1	2.5	J
7440-43-9	Cadmium	0.10	1	0.006	0.10	U
7440-47-3	Chromium	0.36	1	0.02	0.25	
7440-50-8	Copper	0.38	1	0.01	0.10	
7439-92-1	Lead	0.1	1	0.07	1.0	J
7440-22-4	Silver	0.15	1	0.02	0.15	U
7440-66-6	Zinc	2.57	1	0.08	0.50	

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Total Metals

SL4-SG-WC3-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-03 E	SDG:	19H0024
Sampled:	08/01/19 08:16	Prepared:	08/07/19 08:29	File ID:	I2190809-061
% Solids:	32.96	Preparation:	SWC EPA 3050B	Analyzed:	08/09/19 14:27
Batch:	BHH0169	Sequence:	SHH0141	Initial/Final:	1.009 g Wet / 50 mL
Instrument:	ICP2			Calibration:	CH00036

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic	18.7	2	1.41	15.0	
7440-43-9	Cadmium	0.928	2	0.102	0.601	
7440-47-3	Chromium	35.2	2	0.397	1.50	
7440-50-8	Copper	84.0	2	0.198	0.601	
7439-92-1	Lead	38.8	2	0.571	6.01	
7440-22-4	Silver	0.902	2	0.162	0.902	U
7440-66-6	Zinc	241	2	0.631	3.01	

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Total Metals

SL4-SG-WC7-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-04 B	SDG:	19H0024
Sampled:	08/01/19 08:39	Prepared:	08/07/19 08:29	File ID:	I2190809-054
% Solids:	41.09	Preparation:	SWC EPA 3050B	Analyzed:	08/09/19 13:59
Batch:	BHH0169	Sequence:	SHH0141	Initial/Final:	1.092 g Wet / 50 mL
Instrument:	ICP2			Calibration:	CH00036

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic	16.9	2	1.05	11.1	
7440-43-9	Cadmium	0.693	2	0.0758	0.446	
7440-47-3	Chromium	29.8	2	0.294	1.11	
7440-50-8	Copper	59.3	2	0.147	0.446	
7439-92-1	Lead	25.9	2	0.423	4.46	
7440-22-4	Silver	0.669	2	0.120	0.669	U
7440-66-6	Zinc	134	2	0.468	2.23	

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Total Metals

SL4-SG-WC7-FD-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-05 B	SDG:	19H0024
Sampled:	08/01/19 08:39	Prepared:	08/07/19 08:29	File ID:	I2190809-055
% Solids:	41.29	Preparation:	SWC EPA 3050B	Analyzed:	08/09/19 14:03
Batch:	BHH0169	Sequence:	SHH0141	Initial/Final:	1.088 g Wet / 50 mL
Instrument:	ICP2			Calibration:	CH00036

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic	17.3	2	1.05	11.1	
7440-43-9	Cadmium	0.807	2	0.0757	0.445	
7440-47-3	Chromium	31.9	2	0.294	1.11	
7440-50-8	Copper	63.2	2	0.147	0.445	
7439-92-1	Lead	27.7	2	0.423	4.45	
7440-22-4	Silver	0.668	2	0.120	0.668	U
7440-66-6	Zinc	144	2	0.467	2.23	

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Total Metals

SL4-SG-WC8-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-06 B	SDG:	19H0024
Sampled:	08/01/19 09:08	Prepared:	08/07/19 08:29	File ID:	I2190809-056
% Solids:	57.54	Preparation:	SWC EPA 3050B	Analyzed:	08/09/19 14:07
Batch:	BHH0169	Sequence:	SHH0141	Initial/Final:	1.058 g Wet / 50 mL
Instrument:	ICP2			Calibration:	CH00036

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic	11.8	2	0.772	8.21	
7440-43-9	Cadmium	0.333	2	0.0559	0.329	
7440-47-3	Chromium	19.0	2	0.217	0.821	
7440-50-8	Copper	29.8	2	0.108	0.329	
7439-92-1	Lead	12.2	2	0.312	3.29	
7440-22-4	Silver	0.493	2	0.0887	0.493	U
7440-66-6	Zinc	75.2	2	0.345	1.64	

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Total Metals

SL4-SG-WC4-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-07 B	SDG:	19H0024
Sampled:	08/01/19 10:08	Prepared:	08/07/19 08:29	File ID:	I2190809-057
% Solids:	66.66	Preparation:	SWC EPA 3050B	Analyzed:	08/09/19 14:11
Batch:	BHH0169	Sequence:	SHH0141	Initial/Final:	1.083 g Wet / 50 mL
Instrument:	ICP2			Calibration:	CH00036

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic	8.74	2	0.651	6.93	
7440-43-9	Cadmium	0.445	2	0.0471	0.277	
7440-47-3	Chromium	25.6	2	0.183	0.693	
7440-50-8	Copper	34.1	2	0.0914	0.277	
7439-92-1	Lead	14.6	2	0.263	2.77	
7440-22-4	Silver	0.416	2	0.0748	0.416	U
7440-66-6	Zinc	97.6	2	0.291	1.39	

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Total Metals

SL4-SG-WC2-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-08 C	SDG:	19H0024
Sampled:	08/01/19 10:30	Prepared:	08/07/19 08:29	File ID:	I2190809-058
% Solids:	46.21	Preparation:	SWC EPA 3050B	Analyzed:	08/09/19 14:15
Batch:	BHH0169	Sequence:	SHH0141	Initial/Final:	1.097 g Wet / 50 mL
Instrument:	ICP2			Calibration:	CH00036

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic	13.2	2	0.927	9.86	
7440-43-9	Cadmium	0.749	2	0.0671	0.394	
7440-47-3	Chromium	32.5	2	0.260	0.986	
7440-50-8	Copper	61.1	2	0.130	0.394	
7439-92-1	Lead	35.1	2	0.375	3.94	
7440-22-4	Silver	0.592	2	0.107	0.592	U
7440-66-6	Zinc	220	2	0.414	1.97	

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EPA 6010C

Total Metals

SL4-SG-WC1-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-09 B	SDG:	19H0024
Sampled:	08/01/19 10:43	Prepared:	08/07/19 08:29	File ID:	I2190809-059
% Solids:	42.54	Preparation:	SWC EPA 3050B	Analyzed:	08/09/19 14:19
Batch:	BHH0169	Sequence:	SHH0141	Initial/Final:	1.032 g Wet / 50 mL
Instrument:	ICP2			Calibration:	CH00036

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic	16.5	2	1.07	11.4	
7440-43-9	Cadmium	1.39	2	0.0774	0.456	
7440-47-3	Chromium	46.2	2	0.301	1.14	
7439-92-1	Lead	71.0	2	0.433	4.56	
7440-22-4	Silver	0.683	2	0.123	0.683	U
7440-66-6	Zinc	497	2	0.478	2.28	

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Total Metals

SL4-SG-WC1-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-09 B	SDG:	19H0024
Sampled:	08/01/19 10:43	Prepared:	08/07/19 08:29	File ID:	I2190812-049
% Solids:	42.54	Preparation:	SWC EPA 3050B	Analyzed:	08/12/19 13:18
Batch:	BHH0169	Sequence:	SHH0143	Initial/Final:	1.032 g Wet / 50 mL
Instrument:	ICP2			Calibration:	CH00038

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7440-50-8	Copper	116	10	0.752	2.28	D

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Total Metals

SL4-IC-SC2-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-10 B	SDG:	19H0024
Sampled:	08/01/19 11:45	Prepared:	08/07/19 08:29	File ID:	I2190809-066
% Solids:	72.09	Preparation:	SWC EPA 3050B	Analyzed:	08/09/19 14:48
Batch:	BHH0169	Sequence:	SHH0141	Initial/Final:	1.063 g Wet / 50 mL
Instrument:	ICP2			Calibration:	CH00036

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic	6.85	2	0.613	6.52	
7440-43-9	Cadmium	0.417	2	0.0444	0.261	
7440-47-3	Chromium	44.7	2	0.172	0.652	
7440-50-8	Copper	30.7	2	0.0861	0.261	
7439-92-1	Lead	11.7	2	0.248	2.61	
7440-22-4	Silver	0.391	2	0.0705	0.391	U
7440-66-6	Zinc	106	2	0.274	1.30	

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 6010C

Total Metals

SL4-IC-SC3-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-11 B	SDG:	19H0024
Sampled:	08/01/19 12:10	Prepared:	08/07/19 08:29	File ID:	I2190809-067
% Solids:	67.53	Preparation:	SWC EPA 3050B	Analyzed:	08/09/19 14:52
Batch:	BHH0169	Sequence:	SHH0141	Initial/Final:	1.033 g Wet / 50 mL
Instrument:	ICP2			Calibration:	CH00036

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic	7.93	2	0.674	7.17	
7440-43-9	Cadmium	0.605	2	0.0487	0.287	
7440-47-3	Chromium	25.2	2	0.189	0.717	
7440-50-8	Copper	30.0	2	0.0946	0.287	
7439-92-1	Lead	13.4	2	0.272	2.87	
7440-22-4	Silver	0.430	2	0.0774	0.430	U
7440-66-6	Zinc	120	2	0.301	1.43	

PREPARATION BATCH SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Batch: BHH0169 Batch Matrix: Solid Preparation: SWC EPA 3050B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC3-2019	19H0024-03	I2190809-061	08/07/19 08:29	
SL4-SG-WC7-2019	19H0024-04	I2190809-054	08/07/19 08:29	
SL4-SG-WC7-FD-2019	19H0024-05	I2190809-055	08/07/19 08:29	
SL4-SG-WC8-2019	19H0024-06	I2190809-056	08/07/19 08:29	
SL4-SG-WC4-2019	19H0024-07	I2190809-057	08/07/19 08:29	
SL4-SG-WC2-2019	19H0024-08	I2190809-058	08/07/19 08:29	
SL4-SG-WC1-2019	19H0024-09	I2190809-059	08/07/19 08:29	
SL4-SG-WC1-2019	19H0024-09	I2190812-049	08/07/19 08:29	
SL4-IC-SC2-2019	19H0024-10	I2190809-066	08/07/19 08:29	
SL4-IC-SC3-2019	19H0024-11	I2190809-067	08/07/19 08:29	
Blank	BHH0169-BLK1	I2190808-078	08/07/19 08:29	
Blank	BHH0169-BLK2	I2190809-018	08/07/19 08:29	Added 8/12/2019 by TCH
LCS	BHH0169-BS1	I2190808-087	08/07/19 08:29	
LCS	BHH0169-BS2	I2190809-050	08/07/19 08:29	Added 8/12/2019 by TCH
SL4-SG-WC3-2019	BHH0169-DUP1	I2190809-060	08/07/19 08:29	
SL4-SG-WC3-2019	BHH0169-MS1	I2190809-062	08/07/19 08:29	
SL4-SG-WC3-2019	BHH0169-MSD1	I2190809-063	08/07/19 08:29	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

BHH169

Digestion Log

Analyst: W Date: 8/7/19 Time: 1330

Matrix: Soil Block ID: #4 Block Temp: 91°C Thermometer: 20-2

ARI Sample ID	Btl #	pH<2	Prep Code: SWC Initial Wt (g) Vol (mL)	Prep Code: SWC Final Vol (mL)	Prep Code: Initial Wt (g) Vol (mL)	Prep Code: Final Vol (mL)	Comments
19G387-1RE1	A		1.008	50.0			
19H24-3	E		1.009				QC
" -4	B		1.092				
" -5	B		1.088				
" -6	B		1.058				
" -7	B		1.083				
" -8	C		1.097				
" -9	B		1.032				
" -10	B		1.063				
" -11	B		1.033				
19H69-1	C		1.047				
19H71-1	A		1.021				
19H39-6	A		1.011				
BHH169-BLK1	-		-				
" -BS1	-		-				
" -DUP1	-		1.010				19H24-3
" -MS1	-		1.009				" "
" -MSD1	-		1.009	50.0			" "
				8/8/19 W			

Chemical/Reagent ID:

HNO_3: _____ HCl: _____ H_2O_2: _____ Tube Lot #: _____

PREPARATION BATCH SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Batch: BHH0311
Batch Matrix: Wipes
Preparation: PHN Wipe

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC3-FW-2019	19H0024-02	I2190813-023	08/13/19 09:31	0.690 g
Blank	BHH0311-BLK1	I2190813-022	08/13/19 09:31	
LCS	BHH0311-BS1	I2190813-024	08/13/19 09:31	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

BHH311

Digestion Log

Analyst: [signature] **Date:** 8/13/19 **Time:** 1000

Matrix: Wipes **Block ID:** #4 **Block Temp:** 97°C **Thermometer:** 20-2

ARI Sample ID	Btl #	pH<2	Prep Code: PHN Initial Wt (g) ~~Vol (mL)~~	Prep Code: PHN Final Vol (mL)	Prep Code: Initial Wt (g) Vol (mL)	Prep Code: Final Vol (mL)	Comments
19H24-1	A	-	0.690	50			1 wipe
BHH311-BLK1	-	-	-	50			
" -BS1	-	-	-	50			

8/13/19 [signature]

Chemical/Reagent ID:

HNO_3: _____ **HCl:** _____ **H_2O_2:** _____ **Tube Lot #:** _____

Form I

METHOD BLANK DATA SHEET

EPA 6010C

Total Metals

Blank

Batch: BHH0169 Laboratory ID: BHH0169-BLK1 Prepared: 08/07/19 08:29

Matrix: Solid Preparation: SWC EPA 3050B Analyzed: 08/08/19 17:03

Sequence: SHH0109 Calibration: CH00031 Instrument: ICP2

CAS NO.	Analyte	Concentration (mg/kg wet)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic	ND	2	0.470	5.00	U
7440-43-9	Cadmium	ND	2	0.0340	0.200	U
7440-50-8	Copper	ND	2	0.0660	0.200	U
7439-92-1	Lead	ND	2	0.190	2.00	U
7440-22-4	Silver	ND	2	0.0540	0.300	U
7440-66-6	Zinc	0.391	2	0.210	1.00	J

Form I

METHOD BLANK DATA SHEET

EPA 6010C

Total Metals

Blank

Batch: BHH0169 Laboratory ID: BHH0169-BLK2 Prepared: 08/07/19 08:29

Matrix: Solid Preparation: SWC EPA 3050B Analyzed: 08/09/19 11:24

Sequence: SHH0141 Calibration: CH00036 Instrument: ICP2

CAS NO.	Analyte	Concentration (mg/kg wet)	Dilution Factor	MDL	MRL	Q
7440-47-3	Chromium	ND	2	0.132	0.500	U

Form I

METHOD BLANK DATA SHEET

EPA 6010C

Total Metals

Blank

Batch: BHH0311 Laboratory ID: BHH0311-BLK1 Prepared: 08/13/19 09:31

Matrix: Wipes Preparation: PHN Wipe Analyzed: 08/13/19 14:11

Sequence: SHH0173 Calibration: CH00043 Instrument: ICP2

CAS NO.	Analyte	Concentration (ug/Wipe)	Dilution Factor	MDL	MRL	Q
7440-38-2	Arsenic	ND	1	0.1	2.5	U
7440-43-9	Cadmium	ND	1	0.006	0.10	U
7440-47-3	Chromium	0.17	1	0.02	0.25	J
7440-50-8	Copper	ND	1	0.01	0.10	U
7439-92-1	Lead	ND	1	0.07	1.0	U
7440-22-4	Silver	ND	1	0.02	0.15	U
7440-66-6	Zinc	0.14	1	0.08	0.50	J

SL4-SG-WC3-2019

DUPLICATES

EPA 6010C

Total Metals

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Matrix: Solid
Laboratory ID: BHH0169-DUP1
Batch: BHH0169
Lab Source ID: 19H0024-03
Preparation: SWC EPA 3050B
Initial/Final: 1.01 g / 50 mL
Source Sample Name: SL4-SG-WC3-2019
% Solids: 32.96

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
Arsenic	20	18.7	18.3	2.41	
Cadmium	20	0.928	0.928	0.0413	
Chromium	20	35.2	35.4	0.341	
Copper	20	84.0	82.8	1.34	
Lead	20	38.8	39.3	1.23	
Silver	20	ND	ND		
Zinc	20	241	238	1.19	

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

INSTRUMENT BLANKS
EPA 6010C

Laboratory: Analytical Resources, Inc.
Client: Windward Environmental, LLC
Instrument ID: ICP2
Sequence: SHH0109

SDG: 19H0024
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CH00031
Date Analyzed: 08/08/19 12:15

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SHH0109-ICB1	Arsenic	0.000009	0.0047	0.0500	mg/L	
SHH0109-ICB1	Cadmium	0.0002	0.0003	0.0020	mg/L	
SHH0109-ICB1	Chromium	-0.0008	0.0013	0.0050	mg/L	
SHH0109-ICB1	Copper	0.00006	0.0007	0.0020	mg/L	
SHH0109-ICB1	Lead	0.0006	0.0019	0.0200	mg/L	
SHH0109-ICB1	Silver	0.0002	0.0005	0.0030	mg/L	
SHH0109-ICB1	Zinc	-0.0019	0.0021	0.0100	mg/L	
SHH0109-CCB1	Arsenic	0.0020	0.0047	0.0500	mg/L	
SHH0109-CCB1	Cadmium	0.0001	0.0003	0.0020	mg/L	
SHH0109-CCB1	Chromium	-0.0007	0.0013	0.0050	mg/L	
SHH0109-CCB1	Copper	0.0003	0.0007	0.0020	mg/L	
SHH0109-CCB1	Lead	0.0006	0.0019	0.0200	mg/L	
SHH0109-CCB1	Silver	0.0003	0.0005	0.0030	mg/L	
SHH0109-CCB1	Zinc	-0.0015	0.0021	0.0100	mg/L	
SHH0109-CCB2	Arsenic	0.0016	0.0047	0.0500	mg/L	
SHH0109-CCB2	Cadmium	0.0003	0.0003	0.0020	mg/L	
SHH0109-CCB2	Chromium	-0.0003	0.0013	0.0050	mg/L	
SHH0109-CCB2	Copper	0.0003	0.0007	0.0020	mg/L	
SHH0109-CCB2	Lead	0.0019	0.0019	0.0200	mg/L	
SHH0109-CCB2	Silver	0.0002	0.0005	0.0030	mg/L	
SHH0109-CCB2	Zinc	-0.0008	0.0021	0.0100	mg/L	
SHH0109-CCB3	Arsenic	0.0016	0.0047	0.0500	mg/L	
SHH0109-CCB3	Cadmium	0.0002	0.0003	0.0020	mg/L	
SHH0109-CCB3	Chromium	-0.0007	0.0013	0.0050	mg/L	
SHH0109-CCB3	Copper	0.0003	0.0007	0.0020	mg/L	
SHH0109-CCB3	Lead	0.0012	0.0019	0.0200	mg/L	
SHH0109-CCB3	Silver	-0.00004	0.0005	0.0030	mg/L	
SHH0109-CCB3	Zinc	-0.0017	0.0021	0.0100	mg/L	
SHH0109-CCB4	Arsenic	0.0003	0.0047	0.0500	mg/L	
SHH0109-CCB4	Cadmium	0.0003	0.0003	0.0020	mg/L	
SHH0109-CCB4	Chromium	0.00006	0.0013	0.0050	mg/L	
SHH0109-CCB4	Copper	0.0003	0.0007	0.0020	mg/L	
SHH0109-CCB4	Lead	0.0001	0.0019	0.0200	mg/L	
SHH0109-CCB4	Silver	0.00003	0.0005	0.0030	mg/L	

INSTRUMENT BLANKS
EPA 6010C

Laboratory: Analytical Resources, Inc.
Client: Windward Environmental, LLC
Instrument ID: ICP2
Sequence: SHH0109

SDG: 19H0024
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CH00031
Date Analyzed: 08/08/19 15:18

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SHH0109-CCB4	Zinc	-0.0015	0.0021	0.0100	mg/L	
SHH0109-CCB5	Arsenic	0.0015	0.0047	0.0500	mg/L	
SHH0109-CCB5	Cadmium	0.0004	0.0003	0.0020	mg/L	
SHH0109-CCB5	Chromium	-0.0013	0.0013	0.0050	mg/L	
SHH0109-CCB5	Copper	0.0004	0.0007	0.0020	mg/L	
SHH0109-CCB5	Lead	0.0008	0.0019	0.0200	mg/L	
SHH0109-CCB5	Silver	0.0001	0.0005	0.0030	mg/L	
SHH0109-CCB5	Zinc	-0.0025	0.0021	0.0100	mg/L	
SHH0109-CCB6	Arsenic	0.0009	0.0047	0.0500	mg/L	
SHH0109-CCB6	Cadmium	0.0004	0.0003	0.0020	mg/L	
SHH0109-CCB6	Chromium	-0.0019	0.0013	0.0050	mg/L	
SHH0109-CCB6	Copper	0.0004	0.0007	0.0020	mg/L	
SHH0109-CCB6	Lead	0.0002	0.0019	0.0200	mg/L	
SHH0109-CCB6	Silver	0.0001	0.0005	0.0030	mg/L	
SHH0109-CCB6	Zinc	-0.0022	0.0021	0.0100	mg/L	
SHH0109-IBL1	Arsenic	0.0005	0.0047	0.0500	mg/L	
SHH0109-IBL1	Cadmium	0.0007	0.0003	0.0020	mg/L	
SHH0109-IBL1	Chromium	-0.0056	0.0013	0.0050	mg/L	
SHH0109-IBL1	Copper	0.0016	0.0007	0.0020	mg/L	
SHH0109-IBL1	Lead	0.0016	0.0019	0.0200	mg/L	
SHH0109-IBL1	Silver	0.0003	0.0005	0.0030	mg/L	
SHH0109-IBL1	Zinc	0.0007	0.0021	0.0100	mg/L	
SHH0109-CCB7	Arsenic	0.00008	0.0047	0.0500	mg/L	
SHH0109-CCB7	Cadmium	0.0007	0.0003	0.0020	mg/L	
SHH0109-CCB7	Chromium	-0.0063	0.0013	0.0050	mg/L	
SHH0109-CCB7	Copper	0.0013	0.0007	0.0020	mg/L	
SHH0109-CCB7	Lead	0.0007	0.0019	0.0200	mg/L	
SHH0109-CCB7	Silver	0.0004	0.0005	0.0030	mg/L	
SHH0109-CCB7	Zinc	-0.0028	0.0021	0.0100	mg/L	
SHH0109-CCB8	Arsenic	0.0004	0.0047	0.0500	mg/L	
SHH0109-CCB8	Cadmium	-0.00009	0.0003	0.0020	mg/L	
SHH0109-CCB8	Chromium	-0.0004	0.0013	0.0050	mg/L	
SHH0109-CCB8	Copper	-0.00004	0.0007	0.0020	mg/L	
SHH0109-CCB8	Lead	0.0003	0.0019	0.0200	mg/L	

INSTRUMENT BLANKS
EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00031
Sequence: SHH0109
Date Analyzed: 08/08/19 18:34

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SHH0109-CCB8	Silver	-0.0002	0.0005	0.0030	mg/L	
SHH0109-CCB8	Zinc	-0.0003	0.0021	0.0100	mg/L	
SHH0109-CCB9	Arsenic	0.00002	0.0047	0.0500	mg/L	
SHH0109-CCB9	Cadmium	0.00007	0.0003	0.0020	mg/L	
SHH0109-CCB9	Chromium	-0.00009	0.0013	0.0050	mg/L	
SHH0109-CCB9	Copper	0.00007	0.0007	0.0020	mg/L	
SHH0109-CCB9	Lead	0.0005	0.0019	0.0200	mg/L	
SHH0109-CCB9	Silver	0.0001	0.0005	0.0030	mg/L	
SHH0109-CCB9	Zinc	-0.0006	0.0021	0.0100	mg/L	
SHH0109-IBL6	Arsenic	0.0014	0.0047	0.0500	mg/L	
SHH0109-IBL6	Cadmium	0.000008	0.0003	0.0020	mg/L	
SHH0109-IBL6	Chromium	-0.0016	0.0013	0.0050	mg/L	
SHH0109-IBL6	Copper	0.0002	0.0007	0.0020	mg/L	
SHH0109-IBL6	Lead	0.0006	0.0019	0.0200	mg/L	
SHH0109-IBL6	Silver	-0.0002	0.0005	0.0030	mg/L	
SHH0109-IBL6	Zinc	0.0008	0.0021	0.0100	mg/L	
SHH0109-CCBA	Arsenic	-0.0010	0.0047	0.0500	mg/L	
SHH0109-CCBA	Cadmium	-0.0000002	0.0003	0.0020	mg/L	
SHH0109-CCBA	Chromium	0.0012	0.0013	0.0050	mg/L	
SHH0109-CCBA	Copper	0.00005	0.0007	0.0020	mg/L	
SHH0109-CCBA	Lead	0.0014	0.0019	0.0200	mg/L	
SHH0109-CCBA	Silver	-0.0001	0.0005	0.0030	mg/L	
SHH0109-CCBA	Zinc	-0.0002	0.0021	0.0100	mg/L	

INSTRUMENT BLANKS
EPA 6010C

Laboratory: Analytical Resources, Inc.
Client: Windward Environmental, LLC
Instrument ID: ICP2
Sequence: SHH0141

SDG: 19H0024
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CH00036
Date Analyzed: 08/09/19 10:58

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SHH0141-ICB1	Arsenic	0.0004	0.0047	0.0500	mg/L	
SHH0141-ICB1	Cadmium	0.0001	0.0003	0.0020	mg/L	
SHH0141-ICB1	Chromium	0.0002	0.0013	0.0050	mg/L	
SHH0141-ICB1	Copper	0.0002	0.0007	0.0020	mg/L	
SHH0141-ICB1	Lead	0.0002	0.0019	0.0200	mg/L	
SHH0141-ICB1	Silver	-0.0002	0.0005	0.0030	mg/L	
SHH0141-ICB1	Zinc	0.0010	0.0021	0.0100	mg/L	
SHH0141-CCB1	Arsenic	-0.0009	0.0047	0.0500	mg/L	
SHH0141-CCB1	Cadmium	0.0001	0.0003	0.0020	mg/L	
SHH0141-CCB1	Chromium	-0.0025	0.0013	0.0050	mg/L	
SHH0141-CCB1	Copper	0.0003	0.0007	0.0020	mg/L	
SHH0141-CCB1	Lead	0.0007	0.0019	0.0200	mg/L	
SHH0141-CCB1	Silver	0.00002	0.0005	0.0030	mg/L	
SHH0141-CCB1	Zinc	0.0001	0.0021	0.0100	mg/L	
SHH0141-IBL1	Arsenic	0.0010	0.0047	0.0500	mg/L	
SHH0141-IBL1	Cadmium	0.0003	0.0003	0.0020	mg/L	
SHH0141-IBL1	Chromium	-0.0011	0.0013	0.0050	mg/L	
SHH0141-IBL1	Copper	0.0006	0.0007	0.0020	mg/L	
SHH0141-IBL1	Lead	0.0002	0.0019	0.0200	mg/L	
SHH0141-IBL1	Silver	0.0003	0.0005	0.0030	mg/L	
SHH0141-IBL1	Zinc	0.0007	0.0021	0.0100	mg/L	
SHH0141-CCB2	Arsenic	-0.0015	0.0047	0.0500	mg/L	
SHH0141-CCB2	Cadmium	0.0003	0.0003	0.0020	mg/L	
SHH0141-CCB2	Chromium	-0.0019	0.0013	0.0050	mg/L	
SHH0141-CCB2	Copper	0.0005	0.0007	0.0020	mg/L	
SHH0141-CCB2	Lead	0.0001	0.0019	0.0200	mg/L	
SHH0141-CCB2	Silver	0.0003	0.0005	0.0030	mg/L	
SHH0141-CCB2	Zinc	0.0011	0.0021	0.0100	mg/L	
SHH0141-CCB3	Arsenic	-0.0015	0.0047	0.0500	mg/L	
SHH0141-CCB3	Cadmium	0.0003	0.0003	0.0020	mg/L	
SHH0141-CCB3	Chromium	-0.0007	0.0013	0.0050	mg/L	
SHH0141-CCB3	Copper	0.0007	0.0007	0.0020	mg/L	
SHH0141-CCB3	Lead	-0.0001	0.0019	0.0200	mg/L	
SHH0141-CCB3	Silver	0.00003	0.0005	0.0030	mg/L	

INSTRUMENT BLANKS
EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00036
Sequence: SHH0141
Date Analyzed: 08/09/19 13:07

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SHH0141-CCB3	Zinc	0.0009	0.0021	0.0100	mg/L	
SHH0141-CCB4	Arsenic	-0.0017	0.0047	0.0500	mg/L	
SHH0141-CCB4	Cadmium	0.0002	0.0003	0.0020	mg/L	
SHH0141-CCB4	Chromium	-0.0007	0.0013	0.0050	mg/L	
SHH0141-CCB4	Copper	0.0005	0.0007	0.0020	mg/L	
SHH0141-CCB4	Lead	0.0001	0.0019	0.0200	mg/L	
SHH0141-CCB4	Silver	0.00007	0.0005	0.0030	mg/L	
SHH0141-CCB4	Zinc	0.0008	0.0021	0.0100	mg/L	
SHH0141-CCB5	Arsenic	-0.0021	0.0047	0.0500	mg/L	
SHH0141-CCB5	Cadmium	0.0001	0.0003	0.0020	mg/L	
SHH0141-CCB5	Chromium	-0.0026	0.0013	0.0050	mg/L	
SHH0141-CCB5	Copper	0.0004	0.0007	0.0020	mg/L	
SHH0141-CCB5	Lead	0.0005	0.0019	0.0200	mg/L	
SHH0141-CCB5	Silver	0.0001	0.0005	0.0030	mg/L	
SHH0141-CCB5	Zinc	0.0009	0.0021	0.0100	mg/L	
SHH0141-CCB6	Arsenic	-0.0019	0.0047	0.0500	mg/L	
SHH0141-CCB6	Cadmium	0.0002	0.0003	0.0020	mg/L	
SHH0141-CCB6	Chromium	-0.0016	0.0013	0.0050	mg/L	
SHH0141-CCB6	Copper	0.0004	0.0007	0.0020	mg/L	
SHH0141-CCB6	Lead	0.0013	0.0019	0.0200	mg/L	
SHH0141-CCB6	Silver	0.0002	0.0005	0.0030	mg/L	
SHH0141-CCB6	Zinc	0.0010	0.0021	0.0100	mg/L	

INSTRUMENT BLANKS
EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00038
Sequence: SHH0143
Date Analyzed: 08/12/19 10:35

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SHH0143-ICB1	Copper	0.0002	0.0007	0.0020	mg/L	
SHH0143-CCB1	Copper	0.0002	0.0007	0.0020	mg/L	
SHH0143-CCB2	Copper	0.0002	0.0007	0.0020	mg/L	
SHH0143-IBL1	Copper	0.0004	0.0007	0.0020	mg/L	
SHH0143-CCB3	Copper	0.0001	0.0007	0.0020	mg/L	
SHH0143-CCB4	Copper	0.0005	0.0007	0.0020	mg/L	
SHH0143-CCB5	Copper	0.0004	0.0007	0.0020	mg/L	
SHH0143-IBL2	Copper	0.0007	0.0007	0.0020	mg/L	
SHH0143-IBL3	Copper	0.0015	0.0007	0.0020	mg/L	
SHH0143-CCB6	Copper	0.0016	0.0007	0.0020	mg/L	
SHH0143-CCB7	Copper	-0.0002	0.0007	0.0020	mg/L	
SHH0143-IBL4	Copper	-0.00008	0.0007	0.0020	mg/L	
SHH0143-CCB8	Copper	-0.0001	0.0007	0.0020	mg/L	

INSTRUMENT BLANKS
EPA 6010C

Laboratory: Analytical Resources, Inc.
Client: Windward Environmental, LLC
Instrument ID: ICP2
Sequence: SHH0173

SDG: 19H0024
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CH00043
Date Analyzed: 08/13/19 13:41

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SHH0173-ICB1	Arsenic	0.0005	0.0047	0.0500	mg/L	
SHH0173-ICB1	Cadmium	0.0003	0.0003	0.0020	mg/L	
SHH0173-ICB1	Chromium	0.0018	0.0013	0.0050	mg/L	
SHH0173-ICB1	Copper	0.0002	0.0007	0.0020	mg/L	
SHH0173-ICB1	Lead	0.0004	0.0019	0.0200	mg/L	
SHH0173-ICB1	Silver	0.00005	0.0005	0.0030	mg/L	
SHH0173-ICB1	Zinc	-0.0008	0.0021	0.0100	mg/L	
SHH0173-CCB1	Arsenic	0.0007	0.0047	0.0500	mg/L	
SHH0173-CCB1	Cadmium	0.0003	0.0003	0.0020	mg/L	
SHH0173-CCB1	Chromium	0.0031	0.0013	0.0050	mg/L	
SHH0173-CCB1	Copper	0.0003	0.0007	0.0020	mg/L	
SHH0173-CCB1	Lead	-0.0011	0.0019	0.0200	mg/L	
SHH0173-CCB1	Silver	-0.000004	0.0005	0.0030	mg/L	
SHH0173-CCB1	Zinc	0.00008	0.0021	0.0100	mg/L	
SHH0173-CCB2	Arsenic	-0.0013	0.0047	0.0500	mg/L	
SHH0173-CCB2	Cadmium	0.0002	0.0003	0.0020	mg/L	
SHH0173-CCB2	Chromium	0.0022	0.0013	0.0050	mg/L	
SHH0173-CCB2	Copper	0.0005	0.0007	0.0020	mg/L	
SHH0173-CCB2	Lead	0.00008	0.0019	0.0200	mg/L	
SHH0173-CCB2	Silver	0.0003	0.0005	0.0030	mg/L	
SHH0173-CCB2	Zinc	-0.0011	0.0021	0.0100	mg/L	
SHH0173-CCB3	Arsenic	0.0006	0.0047	0.0500	mg/L	
SHH0173-CCB3	Cadmium	0.0002	0.0003	0.0020	mg/L	
SHH0173-CCB3	Chromium	0.0018	0.0013	0.0050	mg/L	
SHH0173-CCB3	Copper	0.0004	0.0007	0.0020	mg/L	
SHH0173-CCB3	Lead	0.0008	0.0019	0.0200	mg/L	
SHH0173-CCB3	Silver	0.0001	0.0005	0.0030	mg/L	
SHH0173-CCB3	Zinc	0.00005	0.0021	0.0100	mg/L	
SHH0173-CCB4	Arsenic	0.0005	0.0047	0.0500	mg/L	
SHH0173-CCB4	Cadmium	0.0004	0.0003	0.0020	mg/L	
SHH0173-CCB4	Chromium	0.00008	0.0013	0.0050	mg/L	
SHH0173-CCB4	Copper	0.0003	0.0007	0.0020	mg/L	
SHH0173-CCB4	Lead	-0.0002	0.0019	0.0200	mg/L	
SHH0173-CCB4	Silver	-0.0001	0.0005	0.0030	mg/L	

INSTRUMENT BLANKS
EPA 6010C

Laboratory: Analytical Resources, Inc.
Client: Windward Environmental, LLC
Instrument ID: ICP2
Sequence: SHH0173

SDG: 19H0024
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CH00043
Date Analyzed: 08/13/19 16:10

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SHH0173-CCB4	Zinc	-0.00002	0.0021	0.0100	mg/L	
SHH0173-CCB5	Arsenic	0.0017	0.0047	0.0500	mg/L	
SHH0173-CCB5	Cadmium	0.0001	0.0003	0.0020	mg/L	
SHH0173-CCB5	Chromium	0.0026	0.0013	0.0050	mg/L	
SHH0173-CCB5	Copper	0.0001	0.0007	0.0020	mg/L	
SHH0173-CCB5	Lead	-0.0006	0.0019	0.0200	mg/L	
SHH0173-CCB5	Silver	0.0002	0.0005	0.0030	mg/L	
SHH0173-CCB5	Zinc	0.0002	0.0021	0.0100	mg/L	
SHH0173-CCB6	Arsenic	0.0003	0.0047	0.0500	mg/L	
SHH0173-CCB6	Cadmium	0.0003	0.0003	0.0020	mg/L	
SHH0173-CCB6	Chromium	0.0017	0.0013	0.0050	mg/L	
SHH0173-CCB6	Copper	0.0002	0.0007	0.0020	mg/L	
SHH0173-CCB6	Lead	-0.0007	0.0019	0.0200	mg/L	
SHH0173-CCB6	Silver	0.0003	0.0005	0.0030	mg/L	
SHH0173-CCB6	Zinc	-0.0004	0.0021	0.0100	mg/L	
SHH0173-CCB7	Arsenic	0.0008	0.0047	0.0500	mg/L	
SHH0173-CCB7	Cadmium	0.0003	0.0003	0.0020	mg/L	
SHH0173-CCB7	Chromium	-0.0002	0.0013	0.0050	mg/L	
SHH0173-CCB7	Copper	0.0004	0.0007	0.0020	mg/L	
SHH0173-CCB7	Lead	-0.0010	0.0019	0.0200	mg/L	
SHH0173-CCB7	Silver	0.0001	0.0005	0.0030	mg/L	
SHH0173-CCB7	Zinc	-0.0001	0.0021	0.0100	mg/L	
SHH0173-CCB8	Arsenic	-0.0002	0.0047	0.0500	mg/L	
SHH0173-CCB8	Cadmium	0.0005	0.0003	0.0020	mg/L	
SHH0173-CCB8	Chromium	0.0018	0.0013	0.0050	mg/L	
SHH0173-CCB8	Copper	0.0005	0.0007	0.0020	mg/L	
SHH0173-CCB8	Lead	-0.0006	0.0019	0.0200	mg/L	
SHH0173-CCB8	Silver	0.00002	0.0005	0.0030	mg/L	
SHH0173-CCB8	Zinc	0.0006	0.0021	0.0100	mg/L	
SHH0173-CCB9	Arsenic	-0.0003	0.0047	0.0500	mg/L	
SHH0173-CCB9	Cadmium	0.0005	0.0003	0.0020	mg/L	
SHH0173-CCB9	Chromium	0.0002	0.0013	0.0050	mg/L	
SHH0173-CCB9	Copper	0.0006	0.0007	0.0020	mg/L	
SHH0173-CCB9	Lead	0.0008	0.0019	0.0200	mg/L	

INSTRUMENT BLANKS
EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00043
Sequence: SHH0173
Date Analyzed: 08/13/19 21:09

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SHH0173-CCB9	Silver	0.00002	0.0005	0.0030	mg/L	
SHH0173-CCB9	Zinc	0.0014	0.0021	0.0100	mg/L	
SHH0173-CCBA	Arsenic	0.0020	0.0047	0.0500	mg/L	
SHH0173-CCBA	Cadmium	0.0006	0.0003	0.0020	mg/L	
SHH0173-CCBA	Chromium	0.0018	0.0013	0.0050	mg/L	
SHH0173-CCBA	Copper	0.0005	0.0007	0.0020	mg/L	
SHH0173-CCBA	Lead	-0.0008	0.0019	0.0200	mg/L	
SHH0173-CCBA	Silver	-0.00005	0.0005	0.0030	mg/L	
SHH0173-CCBA	Zinc	0.0013	0.0021	0.0100	mg/L	
SHH0173-IBL1	Arsenic	0.0027	0.0047	0.0500	mg/L	
SHH0173-IBL1	Cadmium	0.0005	0.0003	0.0020	mg/L	
SHH0173-IBL1	Chromium	0.0020	0.0013	0.0050	mg/L	
SHH0173-IBL1	Copper	0.0006	0.0007	0.0020	mg/L	
SHH0173-IBL1	Lead	-0.0012	0.0019	0.0200	mg/L	
SHH0173-IBL1	Silver	0.0002	0.0005	0.0030	mg/L	
SHH0173-IBL1	Zinc	0.0008	0.0021	0.0100	mg/L	
SHH0173-CCBB	Arsenic	0.0014	0.0047	0.0500	mg/L	
SHH0173-CCBB	Cadmium	0.0007	0.0003	0.0020	mg/L	
SHH0173-CCBB	Chromium	-0.0008	0.0013	0.0050	mg/L	
SHH0173-CCBB	Copper	0.0011	0.0007	0.0020	mg/L	
SHH0173-CCBB	Lead	-0.0002	0.0019	0.0200	mg/L	
SHH0173-CCBB	Silver	0.00005	0.0005	0.0030	mg/L	
SHH0173-CCBB	Zinc	0.0012	0.0021	0.0100	mg/L	
SHH0173-IBL2	Arsenic	0.0006	0.0047	0.0500	mg/L	
SHH0173-IBL2	Cadmium	0.0006	0.0003	0.0020	mg/L	
SHH0173-IBL2	Chromium	0.0019	0.0013	0.0050	mg/L	
SHH0173-IBL2	Copper	0.0010	0.0007	0.0020	mg/L	
SHH0173-IBL2	Lead	-0.0010	0.0019	0.0200	mg/L	
SHH0173-IBL2	Silver	-0.00008	0.0005	0.0030	mg/L	
SHH0173-IBL2	Zinc	0.0003	0.0021	0.0100	mg/L	
SHH0173-IBL3	Arsenic	-0.0013	0.0047	0.0500	mg/L	
SHH0173-IBL3	Cadmium	0.0006	0.0003	0.0020	mg/L	
SHH0173-IBL3	Chromium	-0.0027	0.0013	0.0050	mg/L	
SHH0173-IBL3	Copper	0.0015	0.0007	0.0020	mg/L	

INSTRUMENT BLANKS
EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00043
Sequence: SHH0173
Date Analyzed: 08/13/19 23:01

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SHH0173-IBL3	Lead	-0.0016	0.0019	0.0200	mg/L	
SHH0173-IBL3	Silver	-0.00004	0.0005	0.0030	mg/L	
SHH0173-IBL3	Zinc	0.0003	0.0021	0.0100	mg/L	
SHH0173-IBL4	Arsenic	0.00006	0.0047	0.0500	mg/L	
SHH0173-IBL4	Cadmium	0.0006	0.0003	0.0020	mg/L	
SHH0173-IBL4	Chromium	-0.0030	0.0013	0.0050	mg/L	
SHH0173-IBL4	Copper	0.0014	0.0007	0.0020	mg/L	
SHH0173-IBL4	Lead	-0.0009	0.0019	0.0200	mg/L	
SHH0173-IBL4	Silver	-0.0003	0.0005	0.0030	mg/L	
SHH0173-IBL4	Zinc	-0.0004	0.0021	0.0100	mg/L	
SHH0173-IBL5	Arsenic	-0.00009	0.0047	0.0500	mg/L	
SHH0173-IBL5	Cadmium	0.0008	0.0003	0.0020	mg/L	
SHH0173-IBL5	Chromium	-0.0021	0.0013	0.0050	mg/L	
SHH0173-IBL5	Copper	0.0013	0.0007	0.0020	mg/L	
SHH0173-IBL5	Lead	-0.0006	0.0019	0.0200	mg/L	
SHH0173-IBL5	Silver	-0.00003	0.0005	0.0030	mg/L	
SHH0173-IBL5	Zinc	0.0005	0.0021	0.0100	mg/L	
SHH0173-CCBC	Arsenic	0.0005	0.0047	0.0500	mg/L	
SHH0173-CCBC	Cadmium	0.0005	0.0003	0.0020	mg/L	
SHH0173-CCBC	Chromium	-0.0034	0.0013	0.0050	mg/L	
SHH0173-CCBC	Copper	0.0013	0.0007	0.0020	mg/L	
SHH0173-CCBC	Lead	-0.0010	0.0019	0.0200	mg/L	
SHH0173-CCBC	Silver	-0.0003	0.0005	0.0030	mg/L	
SHH0173-CCBC	Zinc	0.0009	0.0021	0.0100	mg/L	

LCS / LCS DUPLICATE RECOVERY

EPA 6010C

Total Metals

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/08/19 17:48
Batch:	BHH0169	Laboratory ID:	BHH0169-BS1
Preparation:	SWC EPA 3050B	Sequence Name:	LCS
Initial/Final:	1 g / 50 mL		

COMPOUND	SPIKE ADDED (mg/kg wet)	LCS CONCENTRATION (mg/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Arsenic	200	203		101	80 - 120
Cadmium	50.0	50.4		101	80 - 120
Copper	50.0	50.8		102	80 - 120
Lead	200	199		99.3	80 - 120
Silver	50.0	53.0		106	80 - 120
Zinc	50.0	49.5		99.0	80 - 120

* Indicates values outside of QC limits

* Indicates values outside of QC limits

LCS / LCS DUPLICATE RECOVERY

EPA 6010C

Total Metals

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/09/19 13:42
Batch:	BHH0169	Laboratory ID:	BHH0169-BS2
Preparation:	SWC EPA 3050B	Sequence Name:	LCS
Initial/Final:	1 g / 50 mL		

COMPOUND	SPIKE ADDED (mg/kg wet)	LCS CONCENTRATION (mg/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Chromium	50.0	50.2		100	80 - 120

* Indicates values outside of QC limits

LCS / LCS DUPLICATE RECOVERY

EPA 6010C

Total Metals

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Wipes	Analyzed:	08/13/19 14:19
Batch:	BHH0311	Laboratory ID:	BHH0311-BS1
Preparation:	PHN Wipe	Sequence Name:	LCS
Initial/Final:	1 Wipe / 50 mL		

COMPOUND	SPIKE ADDED (ug/Wipe)	LCS CONCENTRATION (ug/Wipe)	Q	LCS % REC. #	QC LIMITS REC.
Arsenic	200	211	E	106	80 - 120
Cadmium	50.0	52.8	E	106	80 - 120
Chromium	50.0	53.3		107	80 - 120
Copper	50.0	50.9	E	102	80 - 120
Lead	200	212		106	80 - 120
Silver	50.0	52.1	E	104	80 - 120
Zinc	50.0	51.9		104	80 - 120

* Indicates values outside of QC limits

MS / MS DUPLICATE RECOVERY

EPA 6010C

Total Metals

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/09/19 14:31
Batch:	BHH0169	Laboratory ID:	BHH0169-MS1
Preparation:	SWC EPA 3050B	Sequence Name:	Matrix Spike
Initial/Final:	1.009 g / 50 mL	Source Sample:	SL4-SG-WC3-2019

COMPOUND	SPIKE ADDED (mg/kg dry)	SAMPLE CONCENTRATION (mg/kg dry)	Q	MS CONCENTRATION (mg/kg dry)	Q	MS % REC. #	QC LIMITS REC.
Arsenic	601	18.7		614		99.0	75 - 125
Cadmium	150	0.928		148		97.6	75 - 125
Chromium	150	35.2		180		96.5	75 - 125
Copper	150	84.0		220		90.7	75 - 125
Lead	601	38.8		628		98.0	75 - 125
Silver	150	ND	U	143		95.0	75 - 125
Zinc	150	241		397		104	75 - 125

* Values outside of QC limits

MS / MS DUPLICATE RECOVERY

EPA 6010C

Total Metals

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/09/19 14:35
Batch:	BHH0169	Laboratory ID:	BHH0169-MSD1
Preparation:	SWC EPA 3050B	Sequence Name:	Matrix Spike Dup
Initial/Final:	1.009 g / 50 mL	Source Sample:	SL4-SG-WC3-2019

COMPOUND	SPIKE ADDED (mg/kg dry)	MSD CONCENTRATION (mg/kg dry)	Q	MSD % REC. #	% RPD #	QC LIMITS	
						RPD	REC.
Arsenic	601	616		99.4	0.336	20	75 - 125
Cadmium	150	148		97.8	0.268	20	75 - 125
Chromium	150	185		99.5	2.40	20	75 - 125
Copper	150	223		92.8	1.43	20	75 - 125
Lead	601	630		98.3	0.378	20	75 - 125
Silver	150	145		96.7	1.73	20	75 - 125
Zinc	150	393		101	1.14	20	75 - 125

* Values outside of QC limits

INITIAL CALIBRATION DATA

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CH00031
Instrument: ICP2
Calibration Date: 08/08/2019 11:58

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Silver	0	0	0		1	150926.5	0		0			
Arsenic	0	0	0		10	1459.718	0		0			
Cadmium	0	0	10	24959.27	0		0		0			
Chromium	0	0	10	3963.491	0		0		0			
Copper	0	0	10	198641.4	0		0		0			
Lead	0	0	0		10	7578.87	0		0			
Zinc	0	0	0		10	2308.691	0		0			

INITIAL CALIBRATION DATA

EPA 6010C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CH00031	Instrument:	ICP2
Calibration Date:	08/08/2019 11:58		

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	COD Limit	Q
Silver	75463.25	141.4	1.0000			
Arsenic	729.859	141.4	1.0000			
Cadmium	12479.64	141.4	1.0000			
Chromium	1981.746	141.4	1.0000			
Copper	99320.7	141.4	1.0000			
Lead	3789.435	141.4	1.0000			
Zinc	1154.346	141.4	1.0000			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: 4-26-19 Analysis Date: 8-8-19 Analyst: TH

LR Date: 4-26-19 Sequence: SHH0109 Page: 1 of 5

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		SEQ-CAL1	H6894		
		-CAL2	H7435		
		-CAL3	H7436		
		-CAL4	H7437		
		-CAL5	H7438		
		-ICV1	H5329		
		-ICB1	H6894		
		-CRL1	H6960		
		-IFA1	H5485		
		-IFB1	H5486		
		-CCV1	H5329		
		-CCB1	H6894		
		BHH0176-BLK1	TWL		
		BHH0136-BLK1	LEN	5	
		-DUP1	↓	↓	
		19H0022-01			
		BHH0136-MS1	↓	↓	
		19H0073-04	TWL	20	
		BHH0176-DUP1	↓	↓	
		19H0073-01			
		BHH0176-MS1		↓	
		-ICSA1	↓		
		SEQ-CCV2			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: — Analysis Date: 8-8-19 Analyst: TH

LR Date: — Sequence: — Page: 2 of 5

All corrections made by analyst unless otherwise noted. TH 8-8-19

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		SEQ-CC32			
		BHH0088-BLK1	SWC	2	
	✓	1960416-01			Al, Fe 7LR
		-02			
	✓	-03			ScA noisy
	↓	-04		↓	ScR, ~~As~~, Pb noisy. ScA Si. noisy
	✓	↓ -05		5	RR Zx Dil.
		BHH0088-BS1	↓	2	
	✓	1960341-01	TWC	200	ScR noisy
	↓	-01	↓	1000	FF ScR
		↓ -01		500	
		SEQ-CC33			
		↓ -CC33			
		1960416-06	SWC	2	
		-10			
	✓	-11			ScA noisy
	↓	-12			ScA, ScR noisy
	↓	↓ -13		↓	ScA, ScR noisy
BHH		BHH0088-SRL1		10	
		1960416-16		2	
BHH		BHH0088-DUP1			
↓		-MS1			
↓		↓ -MSD1	↓	↓	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: — Analysis Date: 8-8-19 Analyst: TH

LR Date: — Sequence: — Page: 3 of 5

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		SEQ-CCV4			
		↓ -CCB4			
		1960416-07	SWC	2	Scr noisy
		-08			Pb noisy As only
		-09			Scr Sl. noisy
		-14			Scr noisy
		-15			
		-17			
	✓	-18			ScA noisy
		-19			Scr noisy
		-20			
	✓	BHH0088-PS1			0.080 mL HS250 ScA, Pb noisy
		SEQ-CCV5			
		↓ -CCB5			
		1960416-01	SWC	5	
		-03			Pb Sl. noisy
	✓	-04			ScA noisy
	↓	-08RE1			↓
		-11			
	✓	-12			ScA noisy
		-13			
		-18			
		-05		2	Scr noisy

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: — Analysis Date: 8-8-19 Analyst: TH

LR Date: — Sequence: — Page: 4 of 5

All corrections made by analyst unless otherwise noted. TH 8-8-19

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		BHH0088-PS1	SWC	2	0.080mL HS250
		SEQ-CCV6			
		↓ -CCB6			
		BHH0169-BLK1	SWC	2	No Cr
		BHH0228-BLK1	WMN		↓
		19G0372-04	↓		
		BHH0228-DUP1			Scr noisy Cu,Pb only; Cr,Zn ND
		19G0372-02			↓ ↓ ↓
		BHH0228-MS1			0.080mL HS250
		↓ -BS1			↓ No Cr
		SEQ-ICBL1	—		Co↓, Mn↑
		19H0071-01	SWC	20	
		BHH0169-BS1	↓	2	No Cr
		SEQ-CCV7			
		↓ -CCB7			Co↓, Mn↑
		SEQ-CAL1			Scr noisy
		-CAL1			Scr noisy
		-ICBL2-ICBL5			Rinse
		-CAL1			
		-CCV8			
		↓ -CCB8			
		BHH0198-BLK1	LEN	5	
		19H0062-01	↓	↓	

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IEC Date: — Analysis Date: 8-8-19 Analyst: TH

LR Date: — Sequence: — Page: 5 of 5

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		19H0062-02	LEN	5	
		↓ -03	↓	↓	
		19H0063-01			
		BHH0198-DUP1			Ba Diff 7 IRL (ER)
		19H0071-01			
		BHH0198-MS1	↓	↓	
	✓	19G0387-01	SWC	50	Z radial noisy
		SEQ-CCV9			
		↓ -CCB9			
		BHH0228-DUP2	WMN	5	Cr, Zn only
		19G0372-02RE1	↓	↓	↓
	✓	BHH0228-MS2	↓	↓	Results noisy
		SEQ-ICBL6			
		↓ -CCVA			
		↓ -CCBA			
		Rinse/DI			
		TH	8-8-19		

Nebulizer Parameters: Hg_ReAlign

Analyte	Back Pressure	Flow
All	162.0 kPa	0.65 L/min

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8/8/2019 11:36:39 AM Hg ReAlign... Actual peak offset (nm): 0.003
Drift (nm): -0.000 Slit adjustment: 0

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Analysis Begun

Start Time: 8/8/2019 11:37:41 AM **Plasma On Time: 8/8/2019 10:53:47 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\BLKS.sif
Batch ID:
Results Data Set: I2190808
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Method Loaded
Method Name: ELMT7300bcESI2FAST **Method Last Saved: 7/22/2019 11:31:54 AM**
IEC File: IEC042619A.iec **MSF File:**
Method Description: 12Axial Elements

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Ag 328.068	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Al 308.215	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
As 188.979	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
B 249.677	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ba 233.527	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Be 313.042	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ca 317.933	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Cd 228.802	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Co 228.616	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Cr 267.716	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Cu 324.752	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Fe 273.955	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
K 766.490	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Mg 279.077	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Mn 257.610	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Mo 202.031	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Na 589.592	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Na 330.237	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ni 231.604	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Pb 220.353	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Sb 206.836	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Se 196.026	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Si 288.158	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Sn 189.927	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Sr 421.552	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Ti 334.903	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Tl 190.801	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
V 292.402	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Zn 206.200	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
ScA 357.253	Lin, Calc Int	Peak Area	Axial	n/a	n/a
ScR 361.383	Lin, Calc Int	Peak Area	Radial	n/a	n/a

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~~**Sequence No.: 1**~~ ~~**Autosampler Location: 1**~~
~~**Sample ID: B1**~~ TH 08-08-19 ~~**Date Collected: 8/8/2019 11:37:50 AM**~~
~~**Data Type: Original**~~

~~**Dilution: 1X**~~

==========

~~**Nebulizer Parameters: B1**~~

~~Analyte~~	~~Back Pressure~~	~~Flow~~
~~All~~	~~162.0 kPa~~	~~0.65 L/min~~

==========

Analysis Begun

Start Time: 8/8/2019 11:58:06 AM **Plasma On Time: 8/8/2019 10:53:47 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\ 0808.sif
Batch ID:
Results Data Set: I2190808
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: SEQ-CAL1 **Date Collected: 8/8/2019 11:58:13 AM**
Data Type: Original

Nebulizer Parameters: SEQ-CAL1

Analyte	Back Pressure	Flow
All	162.0 kPa	0.65 L/min

Mean Data: SEQ-CAL1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2052005.2	11989.12	0.58%	100.0	%
ScR 361.383	207925.7	1140.53	0.55%	100.0	%
Ag 328.068†	-118.5	56.50	47.66%	[0.00]	mg/L
Al 308.215†	251.3	11.53	4.59%	[0.00]	mg/L
As 188.979†	-9.8	4.14	42.34%	[0.00]	mg/L
B 249.677†	51.2	8.53	16.66%	[0.00]	mg/L
Ba 233.527†	24.4	6.26	25.64%	[0.00]	mg/L
Be 313.042†	1336.5	23.20	1.74%	[0.00]	mg/L
Ca 317.933†	194.0	18.67	9.62%	[0.00]	mg/L
Cd 228.802†	258.3	5.55	2.15%	[0.00]	mg/L
Co 228.616†	-37.3	5.24	14.06%	[0.00]	mg/L
Cr 267.716†	-199.5	9.00	4.51%	[0.00]	mg/L
Cu 324.752†	1874.0	39.94	2.13%	[0.00]	mg/L
Fe 273.955†	29.9	2.40	8.03%	[0.00]	mg/L
K 766.490†	336.5	16.21	4.82%	[0.00]	mg/L
Mg 279.077†	68.5	8.99	13.13%	[0.00]	mg/L
Mn 257.610†	225.1	3.31	1.47%	[0.00]	mg/L
Mo 202.031†	47.9	1.53	3.20%	[0.00]	mg/L
Na 589.592†	187.9	24.75	13.18%	[0.00]	mg/L
Na 330.237†	-183.1	6.06	3.31%	[0.00]	mg/L
Ni 231.604†	-35.1	4.98	14.18%	[0.00]	mg/L
Pb 220.353†	13.4	3.10	23.08%	[0.00]	mg/L
Sb 206.836†	60.7	4.40	7.25%	[0.00]	mg/L
Se 196.026†	-35.4	1.18	3.33%	[0.00]	mg/L
Si 288.158†	14.0	11.32	81.09%	[0.00]	mg/L
Sn 189.927†	-14.5	1.13	7.79%	[0.00]	mg/L
Sr 421.552†	885.3	29.35	3.32%	[0.00]	mg/L
Ti 334.903†	-10.7	4.36	40.80%	[0.00]	mg/L
Tl 190.801†	-29.9	3.98	13.29%	[0.00]	mg/L
V 292.402†	210.3	20.04	9.53%	[0.00]	mg/L
Zn 206.200†	10.2	0.95	9.27%	[0.00]	mg/L

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: SEQ-CAL2 **Date Collected: 8/8/2019 12:02:17 PM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL2

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: SEQ-CAL2

Analyte	Mean Corrected				Calib

Analyte	Intensity	Std.Dev.	RSD	Conc.	Units
ScA 357.253	2040995.3	11190.26	0.55%	99.46	%
ScR 361.383	205312.3	4138.40	2.02%	98.74	%
Ba 233.527†	41977.4	803.27	1.91%	[10]	mg/L
Cd 228.802†	249592.7	1225.57	0.49%	[10]	mg/L
Co 228.616†	334637.6	1871.09	0.56%	[10]	mg/L
Cr 267.716†	39634.9	1034.81	2.61%	[10]	mg/L
Cu 324.752†	1986413.9	6177.27	0.31%	[10]	mg/L
Mn 257.610†	328601.7	6658.12	2.03%	[10]	mg/L
V 292.402†	847217.0	3410.02	0.40%	[10]	mg/L

==========

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: SEQ-CAL3 **Date Collected: 8/8/2019 12:04:01 PM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL3

Analyte	Back Pressure	Flow
All	161.0 kPa	0.65 L/min

Mean Data: SEQ-CAL3

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2022273.2	15105.52	0.75%	98.55	%
ScR 361.383	206196.0	473.46	0.23%	99.17	%
Ag 328.068†	150926.5	429.09	0.28%	[1.0]	mg/L
As 188.979†	14597.2	131.54	0.90%	[10]	mg/L
B 249.677†	66380.5	165.14	0.25%	[10]	mg/L
Be 313.042†	2158575.4	17982.92	0.83%	[5.0]	mg/L
Na 589.592†	410137.1	1756.80	0.43%	[50]	mg/L
Ni 231.604†	32822.5	81.61	0.25%	[10]	mg/L
Pb 220.353†	75788.7	794.86	1.05%	[10]	mg/L
Se 196.026†	10938.4	131.18	1.20%	[10]	mg/L
Sr 421.552†	1279840.2	10537.37	0.82%	[5]	mg/L
Tl 190.801†	19817.9	282.38	1.42%	[10]	mg/L
Zn 206.200†	23086.9	91.77	0.40%	[10]	mg/L

==========

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: SEQ-CAL4 **Date Collected: 8/8/2019 12:06:15 PM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL4

Analyte	Back Pressure	Flow
All	162.0 kPa	0.65 L/min

Mean Data: SEQ-CAL4

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2066015.0	17339.01	0.84%	100.7	%
ScR 361.383	204580.1	1019.05	0.50%	98.39	%
Mo 202.031†	168397.3	1174.57	0.70%	[10]	mg/L
Sb 206.836†	26517.6	183.15	0.69%	[10]	mg/L
Si 288.158†	9370.1	139.27	1.49%	[10]	mg/L
Sn 189.927†	35474.1	389.98	1.10%	[10]	mg/L
Ti 334.903†	137926.2	517.32	0.38%	[10]	mg/L

==========

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: SEQ-CAL5 **Date Collected: 8/8/2019 12:08:28 PM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL5

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: SEQ-CAL5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	1937929.7	8274.82	0.43%	94.44	%
ScR 361.383	209129.5	2111.15	1.01%	100.6	%
Al 308.215†	34060.0	456.53	1.34%	[30]	mg/L
Ca 317.933†	291582.7	3426.40	1.18%	[30]	mg/L
Fe 273.955†	98447.2	1317.57	1.34%	[100]	mg/L
K 766.490†	106963.7	1569.59	1.47%	[100]	mg/L
Mg 279.077†	30377.6	434.58	1.43%	[30]	mg/L
Na 330.237†	1865.9	16.32	0.87%	[100]	mg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	1	Lin Thru 0	0.0	150900	0.00000	1.000000	
Al 308.215	1	Lin Thru 0	0.0	1135	0.00000	1.000000	
As 188.979	1	Lin Thru 0	0.0	1460	0.00000	1.000000	
B 249.677	1	Lin Thru 0	0.0	6638	0.00000	1.000000	
Ba 233.527	1	Lin Thru 0	0.0	4198	0.00000	1.000000	
Be 313.042	1	Lin Thru 0	0.0	431700	0.00000	1.000000	
Ca 317.933	1	Lin Thru 0	0.0	9719	0.00000	1.000000	
Cd 228.802	1	Lin Thru 0	0.0	24960	0.00000	1.000000	
Co 228.616	1	Lin Thru 0	0.0	33460	0.00000	1.000000	
Cr 267.716	1	Lin Thru 0	0.0	3963	0.00000	1.000000	
Cu 324.752	1	Lin Thru 0	0.0	198600	0.00000	1.000000	
Fe 273.955	1	Lin Thru 0	0.0	984.5	0.00000	1.000000	
K 766.490	1	Lin Thru 0	0.0	1070	0.00000	1.000000	
Mg 279.077	1	Lin Thru 0	0.0	1013	0.00000	1.000000	
Mn 257.610	1	Lin Thru 0	0.0	32860	0.00000	1.000000	
Mo 202.031	1	Lin Thru 0	0.0	16840	0.00000	1.000000	
Na 589.592	1	Lin Thru 0	0.0	8203	0.00000	1.000000	
Na 330.237	1	Lin Thru 0	0.0	18.66	0.00000	1.000000	
Ni 231.604	1	Lin Thru 0	0.0	3282	0.00000	1.000000	
Pb 220.353	1	Lin Thru 0	0.0	7579	0.00000	1.000000	
Sb 206.836	1	Lin Thru 0	0.0	2652	0.00000	1.000000	
Se 196.026	1	Lin Thru 0	0.0	1094	0.00000	1.000000	
Si 288.158	1	Lin Thru 0	0.0	937.0	0.00000	1.000000	
Sn 189.927	1	Lin Thru 0	0.0	3547	0.00000	1.000000	
Sr 421.552	1	Lin Thru 0	0.0	256000	0.00000	1.000000	
Ti 334.903	1	Lin Thru 0	0.0	13790	0.00000	1.000000	
Tl 190.801	1	Lin Thru 0	0.0	1982	0.00000	1.000000	
V 292.402	1	Lin Thru 0	0.0	84720	0.00000	1.000000	
Zn 206.200	1	Lin Thru 0	0.0	2309	0.00000	1.000000	

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Analysis Begun

Start Time: 8/8/2019 12:11:03 PM **Plasma On Time: 8/8/2019 10:53:47 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0808.sif
Batch ID:
Results Data Set: I2190808
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

==========

Sequence No.: 1 **Autosampler Location: 7**
Sample ID: SEQ-ICV1 **Date Collected: 8/8/2019 12:11:10 PM**
Data Type: Original

Dilution: 1X

Nebulizer Parameters: SEQ-ICV1

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: SEQ-ICV1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2055493.6	100.2	%	0.15				0.15%
ScR 361.383	208148.2	100.1	%	0.05				0.05%
Ag 328.068†	152875.9	1.013	mg/L	0.0018	1.013	mg/L	0.0018	0.18%
Al 308.215†	2323.0	2.008	mg/L	0.0076	2.008	mg/L	0.0076	0.38%
As 188.979†	2859.9	1.982	mg/L	0.0124	1.982	mg/L	0.0124	0.62%
B 249.677†	6787.8	1.022	mg/L	0.0014	1.022	mg/L	0.0014	0.14%
Ba 233.527†	4268.7	1.015	mg/L	0.0017	1.015	mg/L	0.0017	0.17%
Be 313.042†	433164.4	0.9991	mg/L	0.00093	0.9991	mg/L	0.00093	0.09%
Ca 317.933†	20061.5	2.051	mg/L	0.0036	2.051	mg/L	0.0036	0.18%
Cd 228.802†	25421.1	1.006	mg/L	0.0021	1.006	mg/L	0.0021	0.21%
Co 228.616†	33149.2	0.9887	mg/L	0.00247	0.9887	mg/L	0.00247	0.25%
Cr 267.716†	4018.3	1.014	mg/L	0.0102	1.014	mg/L	0.0102	1.01%
Cu 324.752†	200039.8	1.007	mg/L	0.0007	1.007	mg/L	0.0007	0.07%
Fe 273.955†	1981.5	2.005	mg/L	0.0061	2.005	mg/L	0.0061	0.30%
K 766.490†	21690.6	20.28	mg/L	0.264	20.28	mg/L	0.264	1.30%
Mg 279.077†	2046.3	2.032	mg/L	0.0033	2.032	mg/L	0.0033	0.16%
Mn 257.610†	33529.2	1.021	mg/L	0.0011	1.021	mg/L	0.0011	0.11%
Mo 202.031†	16755.0	0.9949	mg/L	0.00350	0.9949	mg/L	0.00350	0.35%
Na 589.592†	413079.8	50.36	mg/L	0.182	50.36	mg/L	0.182	0.36%
Na 330.237†	963.0	51.39	mg/L	0.186	51.39	mg/L	0.186	0.36%
Ni 231.604†	3324.7	1.014	mg/L	0.0059	1.014	mg/L	0.0059	0.58%
Pb 220.353†	14912.9	1.969	mg/L	0.0011	1.969	mg/L	0.0011	0.06%
Sb 206.836†	5551.1	2.089	mg/L	0.0101	2.089	mg/L	0.0101	0.49%
Se 196.026†	2221.8	2.030	mg/L	0.0073	2.030	mg/L	0.0073	0.36%
Si 288.158†	1884.7	2.013	mg/L	0.0038	2.013	mg/L	0.0038	0.19%
Sn 189.927†	3530.4	0.9969	mg/L	0.00545	0.9969	mg/L	0.00545	0.55%
Sr 421.552†	259553.7	1.014	mg/L	0.0048	1.014	mg/L	0.0048	0.47%
Ti 334.903†	13452.7	0.9741	mg/L	0.00588	0.9741	mg/L	0.00588	0.60%
Tl 190.801†	3969.6	1.995	mg/L	0.0108	1.995	mg/L	0.0108	0.54%
V 292.402†	84675.8	1.007	mg/L	0.0094	1.007	mg/L	0.0094	0.93%
Zn 206.200†	2339.1	1.012	mg/L	0.0014	1.012	mg/L	0.0014	0.13%

==========

Sequence No.: 2
Sample ID: SEQ-ICB1

Autosampler Location: 1
Date Collected: 8/8/2019 12:15:15 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-ICB1

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

Mean Data: SEQ-ICB1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2057412.7	100.3	%	0.45				0.45%
ScR 361.383	207661.8	99.87	%	0.663				0.66%
Ag 328.068†	27.2	0.00018	mg/L	0.000182	0.00018	mg/L	0.000182	100.68%
Al 308.215†	-12.5	-0.01100	mg/L	0.008981	-0.01100	mg/L	0.008981	81.67%
As 188.979†	0.1	0.00001	mg/L	0.000735	0.00001	mg/L	0.000735	>999.9%
B 249.677†	32.6	0.00491	mg/L	0.000944	0.00491	mg/L	0.000944	19.23%
Ba 233.527†	3.0	0.00072	mg/L	0.000298	0.00072	mg/L	0.000298	41.17%
Be 313.042†	27.8	0.00007	mg/L	0.000056	0.00007	mg/L	0.000056	86.12%
Ca 317.933†	24.2	0.00247	mg/L	0.001093	0.00247	mg/L	0.001093	44.25%
Cd 228.802†	5.5	0.00022	mg/L	0.000097	0.00022	mg/L	0.000097	44.30%
Co 228.616†	6.1	0.00019	mg/L	0.000152	0.00019	mg/L	0.000152	82.18%
Cr 267.716†	-3.3	-0.00083	mg/L	0.000951	-0.00083	mg/L	0.000951	114.61%
Cu 324.752†	11.2	0.00006	mg/L	0.000170	0.00006	mg/L	0.000170	303.37%
Fe 273.955†	2.5	0.00256	mg/L	0.002243	0.00256	mg/L	0.002243	87.71%
K 766.490†	46.6	0.04361	mg/L	0.043326	0.04361	mg/L	0.043326	99.35%
Mg 279.077†	7.0	0.00688	mg/L	0.002861	0.00688	mg/L	0.002861	41.57%
Mn 257.610†	3.4	0.00010	mg/L	0.000094	0.00010	mg/L	0.000094	89.33%
Mo 202.031†	16.5	0.00098	mg/L	0.000485	0.00098	mg/L	0.000485	49.41%
Na 589.592†	-44.1	-0.00537	mg/L	0.001776	-0.00537	mg/L	0.001776	33.05%
Na 330.237†	19.2	1.030	mg/L	0.2010	1.030	mg/L	0.2010	19.51%
Ni 231.604†	-2.5	-0.00074	mg/L	0.001157	-0.00074	mg/L	0.001157	155.45%
Pb 220.353†	4.3	0.00057	mg/L	0.000740	0.00057	mg/L	0.000740	130.43%
Sb 206.836†	8.1	0.00308	mg/L	0.000542	0.00308	mg/L	0.000542	17.57%
Se 196.026†	-2.7	-0.00246	mg/L	0.005917	-0.00246	mg/L	0.005917	240.51%
Si 288.158†	5.5	0.00590	mg/L	0.001084	0.00590	mg/L	0.001084	18.37%
Sn 189.927†	0.5	0.00014	mg/L	0.000477	0.00014	mg/L	0.000477	348.06%
Sr 421.552†	26.0	0.00010	mg/L	0.000064	0.00010	mg/L	0.000064	63.16%
Ti 334.903†	-15.4	-0.00112	mg/L	0.002026	-0.00112	mg/L	0.002026	180.75%
Tl 190.801†	1.3	0.00066	mg/L	0.001986	0.00066	mg/L	0.001986	301.87%
V 292.402†	-14.0	-0.00017	mg/L	0.000306	-0.00017	mg/L	0.000306	179.29%
Zn 206.200†	-4.3	-0.00188	mg/L	0.000836	-0.00188	mg/L	0.000836	44.57%

Sequence No.: 3
Sample ID: SEQ-CRL1

Autosampler Location: 301
Date Collected: 8/8/2019 12:19:13 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CRL1

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: SEQ-CRL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2053836.8	100.1	%	0.14				0.14%
ScR 361.383	207206.2	99.65	%	0.518				0.52%
Ag 328.068†	483.1	0.00320	mg/L	0.000115	0.00320	mg/L	0.000115	3.59%
Al 308.215†	67.7	0.05943	mg/L	0.014000	0.05943	mg/L	0.014000	23.56%
As 188.979†	76.1	0.05227	mg/L	0.002846	0.05227	mg/L	0.002846	5.45%
B 249.677†	148.6	0.02240	mg/L	0.000640	0.02240	mg/L	0.000640	2.86%
Ba 233.527†	13.4	0.00318	mg/L	0.000492	0.00318	mg/L	0.000492	15.44%
Be 313.042†	443.4	0.00102	mg/L	0.000089	0.00102	mg/L	0.000089	8.75%
Ca 317.933†	461.8	0.04747	mg/L	0.000946	0.04747	mg/L	0.000946	1.99%
Cd 228.802†	64.4	0.00225	mg/L	0.000057	0.00225	mg/L	0.000057	2.54%
Co 228.616†	104.3	0.00310	mg/L	0.000057	0.00310	mg/L	0.000057	1.83%
Cr 267.716†	22.8	0.00575	mg/L	0.001771	0.00575	mg/L	0.001771	30.78%
Cu 324.752†	387.2	0.00195	mg/L	0.000081	0.00195	mg/L	0.000081	4.14%
Fe 273.955†	48.1	0.04889	mg/L	0.001625	0.04889	mg/L	0.001625	3.32%
K 766.490†	591.2	0.5527	mg/L	0.01203	0.5527	mg/L	0.01203	2.18%
Mg 279.077†	51.6	0.05097	mg/L	0.010861	0.05097	mg/L	0.010861	21.31%
Mn 257.610†	38.3	0.00117	mg/L	0.000068	0.00117	mg/L	0.000068	5.80%
Mo 202.031†	89.6	0.00532	mg/L	0.000120	0.00532	mg/L	0.000120	2.26%
Na 589.592†	3908.8	0.4765	mg/L	0.00420	0.4765	mg/L	0.00420	0.88%
Na 330.237†	13.7	0.7329	mg/L	0.26875	0.7329	mg/L	0.26875	36.67%
Ni 231.604†	32.2	0.00986	mg/L	0.002511	0.00986	mg/L	0.002511	25.46%
Pb 220.353†	162.4	0.02146	mg/L	0.000803	0.02146	mg/L	0.000803	3.74%
Sb 206.836†	144.6	0.05453	mg/L	0.001866	0.05453	mg/L	0.001866	3.42%
Se 196.026†	55.2	0.05044	mg/L	0.002100	0.05044	mg/L	0.002100	4.16%
Si 288.158†	56.9	0.06069	mg/L	0.003235	0.06069	mg/L	0.003235	5.33%
Sn 189.927†	31.5	0.00892	mg/L	0.001097	0.00892	mg/L	0.001097	12.29%
Sr 421.552†	257.3	0.00101	mg/L	0.000141	0.00101	mg/L	0.000141	14.06%
Ti 334.903†	76.7	0.00555	mg/L	0.001311	0.00555	mg/L	0.001311	23.62%
Tl 190.801†	99.3	0.05010	mg/L	0.000485	0.05010	mg/L	0.000485	0.97%
V 292.402†	205.5	0.00247	mg/L	0.000146	0.00247	mg/L	0.000146	5.92%
Zn 206.200†	17.5	0.00755	mg/L	0.000447	0.00755	mg/L	0.000447	5.93%

Sequence No.: 4
Sample ID: SEQ-IFA1

Autosampler Location: 302
Date Collected: 8/8/2019 12:23:12 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IFA1

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: SEQ-IFA1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1985084.6	96.74	%	0.825				0.85%
ScR 361.383	204437.8	98.32	%	0.580				0.59%
Ag 328.068†	-190.3	-0.00126	mg/L	0.000260	-0.00126	mg/L	0.000260	20.59%
Al 308.215†	231174.0	203.6	mg/L	0.78	203.6	mg/L	0.78	0.38%
As 188.979†	33.4	0.01562	mg/L	0.002676	0.01562	mg/L	0.002676	17.13%
B 249.677†	-57.8	0.01161	mg/L	0.000766	0.01161	mg/L	0.000766	6.60%
Ba 233.527†	114.0	0.00202	mg/L	0.001850	0.00202	mg/L	0.001850	91.61%
Be 313.042†	122.0	0.00031	mg/L	0.000033	0.00031	mg/L	0.000033	10.60%
Ca 317.933†	993035.1	102.2	mg/L	0.42	102.2	mg/L	0.42	0.41%
Cd 228.802†	25.4	0.00087	mg/L	0.000120	0.00087	mg/L	0.000120	13.80%
Co 228.616†	95.9	-0.00050	mg/L	0.000027	-0.00050	mg/L	0.000027	5.38%
Cr 267.716†	0.2	-0.00117	mg/L	0.000397	-0.00117	mg/L	0.000397	33.94%
Cu 324.752†	-1446.1	0.00154	mg/L	0.000153	0.00154	mg/L	0.000153	9.97%
Fe 273.955†	197462.1	200.6	mg/L	1.28	200.6	mg/L	1.28	0.64%
K 766.490†	101.3	0.09469	mg/L	0.009965	0.09469	mg/L	0.009965	10.52%
Mg 279.077†	106465.5	105.0	mg/L	0.30	105.0	mg/L	0.30	0.29%
Mn 257.610†	48.9	0.00100	mg/L	0.000227	0.00100	mg/L	0.000227	22.63%
Mo 202.031†	70.1	0.00248	mg/L	0.000329	0.00248	mg/L	0.000329	13.31%
Na 589.592†	-27.9	-0.00341	mg/L	0.004644	-0.00341	mg/L	0.004644	136.34%
Na 330.237†	-7.4	-0.3953	mg/L	0.10828	-0.3953	mg/L	0.10828	27.39%
Ni 231.604†	-6.8	-0.00206	mg/L	0.001296	-0.00206	mg/L	0.001296	62.78%
Pb 220.353†	-320.8	0.00357	mg/L	0.000899	0.00357	mg/L	0.000899	25.19%
Sb 206.836†	59.2	0.02214	mg/L	0.003478	0.02214	mg/L	0.003478	15.71%
Se 196.026†	-22.0	-0.01825	mg/L	0.004830	-0.01825	mg/L	0.004830	26.46%
Si 288.158†	-36.1	-0.02616	mg/L	0.007094	-0.02616	mg/L	0.007094	27.12%
Sn 189.927†	-87.3	-0.00738	mg/L	0.000886	-0.00738	mg/L	0.000886	12.00%
Sr 421.552†	97.8	0.00038	mg/L	0.000050	0.00038	mg/L	0.000050	12.99%
Ti 334.903†	132.4	0.00330	mg/L	0.001120	0.00330	mg/L	0.001120	33.98%
Tl 190.801†	-37.1	-0.01873	mg/L	0.000627	-0.01873	mg/L	0.000627	3.35%
V 292.402†	-519.8	0.00491	mg/L	0.000114	0.00491	mg/L	0.000114	2.32%
Zn 206.200†	0.6	0.00027	mg/L	0.000465	0.00027	mg/L	0.000465	173.95%

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Sequence No.: 5
Sample ID: SEQ-IFB1

Autosampler Location: 303
Date Collected: 8/8/2019 12:27:26 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IFB1

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: SEQ-IFB1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1986605.7	96.81	%	0.596				0.62%
ScR 361.383	204032.6	98.13	%	0.335				0.34%
Ag 328.068†	154363.8	1.023	mg/L	0.0039	1.023	mg/L	0.0039	0.38%
Al 308.215†	229905.1	202.5	mg/L	1.29	202.5	mg/L	1.29	0.64%
As 188.979†	1531.0	1.041	mg/L	0.0043	1.041	mg/L	0.0043	0.41%
B 249.677†	-45.7	0.01108	mg/L	0.001127	0.01108	mg/L	0.001127	10.18%
Ba 233.527†	4387.1	1.018	mg/L	0.0073	1.018	mg/L	0.0073	0.72%
Be 313.042†	445826.5	1.029	mg/L	0.0069	1.029	mg/L	0.0069	0.67%
Ca 317.933†	1001359.3	103.0	mg/L	0.75	103.0	mg/L	0.75	0.73%
Cd 228.802†	25267.2	1.006	mg/L	0.0047	1.006	mg/L	0.0047	0.46%
Co 228.616†	32738.2	0.9747	mg/L	0.00412	0.9747	mg/L	0.00412	0.42%
Cr 267.716†	4048.9	1.021	mg/L	0.0071	1.021	mg/L	0.0071	0.69%
Cu 324.752†	199818.3	1.015	mg/L	0.0035	1.015	mg/L	0.0035	0.34%
Fe 273.955†	197687.4	200.8	mg/L	0.66	200.8	mg/L	0.66	0.33%
K 766.490†	176.6	0.1651	mg/L	0.02206	0.1651	mg/L	0.02206	13.36%
Mg 279.077†	103149.0	101.7	mg/L	0.56	101.7	mg/L	0.56	0.55%
Mn 257.610†	33872.0	1.030	mg/L	0.0082	1.030	mg/L	0.0082	0.80%
Mo 202.031†	79.2	0.00293	mg/L	0.000281	0.00293	mg/L	0.000281	9.59%
Na 589.592†	-19.5	-0.00238	mg/L	0.004324	-0.00238	mg/L	0.004324	182.05%
Na 330.237†	-0.6	-0.4470	mg/L	0.57677	-0.4470	mg/L	0.57677	129.02%
Ni 231.604†	3236.7	0.9866	mg/L	0.00926	0.9866	mg/L	0.00926	0.94%
Pb 220.353†	7201.2	0.9969	mg/L	0.00387	0.9969	mg/L	0.00387	0.39%
Sb 206.836†	2873.8	1.070	mg/L	0.0055	1.070	mg/L	0.0055	0.52%
Se 196.026†	1121.5	1.026	mg/L	0.0058	1.026	mg/L	0.0058	0.57%
Si 288.158†	-48.1	-0.03798	mg/L	0.007665	-0.03798	mg/L	0.007665	20.18%
Sn 189.927†	-100.8	-0.01055	mg/L	0.001418	-0.01055	mg/L	0.001418	13.45%
Sr 421.552†	76.1	0.00030	mg/L	0.000115	0.00030	mg/L	0.000115	38.56%
Ti 334.903†	140.5	0.00363	mg/L	0.001469	0.00363	mg/L	0.001469	40.49%
Tl 190.801†	1883.0	0.9417	mg/L	0.00384	0.9417	mg/L	0.00384	0.41%
V 292.402†	82191.5	0.9882	mg/L	0.00946	0.9882	mg/L	0.00946	0.96%
Zn 206.200†	2278.2	0.9865	mg/L	0.00850	0.9865	mg/L	0.00850	0.86%

Sequence No.: 6 **Autosampler Location: 7**
Sample ID: SEQ-CCV1 **Date Collected: 8/8/2019 12:32:35 PM**
Data Type: Original

Dilution: 1X
Wash Time: 120 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCV1

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: SEQ-CCV1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2038053.4	99.32	%	0.336				0.34%
ScR 361.383	205292.4	98.73	%	0.492				0.50%
Ag 328.068†	155452.3	1.030	mg/L	0.0118	1.030	mg/L	0.0118	1.14%
Al 308.215†	2377.9	2.056	mg/L	0.0188	2.056	mg/L	0.0188	0.92%
As 188.979†	2928.0	2.029	mg/L	0.0066	2.029	mg/L	0.0066	0.33%
B 249.677†	6937.8	1.044	mg/L	0.0047	1.044	mg/L	0.0047	0.45%
Ba 233.527†	4380.9	1.042	mg/L	0.0074	1.042	mg/L	0.0074	0.71%
Be 313.042†	440501.5	1.016	mg/L	0.0042	1.016	mg/L	0.0042	0.41%
Ca 317.933†	20600.7	2.106	mg/L	0.0087	2.106	mg/L	0.0087	0.42%
Cd 228.802†	25805.9	1.022	mg/L	0.0128	1.022	mg/L	0.0128	1.25%
Co 228.616†	33797.5	1.008	mg/L	0.0096	1.008	mg/L	0.0096	0.95%
Cr 267.716†	4097.3	1.034	mg/L	0.0111	1.034	mg/L	0.0111	1.08%
Cu 324.752†	203155.1	1.022	mg/L	0.0103	1.022	mg/L	0.0103	1.00%
Fe 273.955†	2029.6	2.054	mg/L	0.0117	2.054	mg/L	0.0117	0.57%
K 766.490†	21933.6	20.51	mg/L	0.031	20.51	mg/L	0.031	0.15%
Mg 279.077†	2104.1	2.089	mg/L	0.0196	2.089	mg/L	0.0196	0.94%
Mn 257.610†	34401.9	1.047	mg/L	0.0056	1.047	mg/L	0.0056	0.54%
Mo 202.031†	17073.6	1.014	mg/L	0.0080	1.014	mg/L	0.0080	0.79%
Na 589.592†	419378.8	51.13	mg/L	0.095	51.13	mg/L	0.095	0.19%
Na 330.237†	979.9	52.28	mg/L	0.428	52.28	mg/L	0.428	0.82%
Ni 231.604†	3406.0	1.039	mg/L	0.0099	1.039	mg/L	0.0099	0.95%
Pb 220.353†	15227.3	2.011	mg/L	0.0193	2.011	mg/L	0.0193	0.96%
Sb 206.836†	5660.8	2.130	mg/L	0.0018	2.130	mg/L	0.0018	0.09%
Se 196.026†	2280.3	2.084	mg/L	0.0082	2.084	mg/L	0.0082	0.39%
Si 288.158†	1930.8	2.062	mg/L	0.0233	2.062	mg/L	0.0233	1.13%
Sn 189.927†	3622.2	1.023	mg/L	0.0017	1.023	mg/L	0.0017	0.17%
Sr 421.552†	267574.5	1.045	mg/L	0.0060	1.045	mg/L	0.0060	0.57%
Ti 334.903†	13677.7	0.9903	mg/L	0.00206	0.9903	mg/L	0.00206	0.21%
Tl 190.801†	4057.9	2.040	mg/L	0.0062	2.040	mg/L	0.0062	0.30%
V 292.402†	86063.4	1.023	mg/L	0.0053	1.023	mg/L	0.0053	0.52%
Zn 206.200†	2412.8	1.044	mg/L	0.0064	1.044	mg/L	0.0064	0.61%

Sequence No.: 7 **Autosampler Location: 1**
Sample ID: SEQ-CCB1 **Date Collected: 8/8/2019 12:37:38 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB1

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: SEQ-CCB1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2051302.9	99.97	%	0.254				0.25%
ScR 361.383	208330.5	100.2	%	0.27				0.27%
Ag 328.068†	41.3	0.00027	mg/L	0.000255	0.00027	mg/L	0.000255	93.24%
Al 308.215†	14.2	0.01251	mg/L	0.009397	0.01251	mg/L	0.009397	75.12%
As 188.979†	2.8	0.00197	mg/L	0.001104	0.00197	mg/L	0.001104	56.07%
B 249.677†	14.9	0.00225	mg/L	0.001709	0.00225	mg/L	0.001709	76.10%
Ba 233.527†	-0.3	-0.00007	mg/L	0.001539	-0.00007	mg/L	0.001539	>999.9%
Be 313.042†	5.3	0.00001	mg/L	0.000045	0.00001	mg/L	0.000045	345.30%
Ca 317.933†	18.7	0.00191	mg/L	0.000630	0.00191	mg/L	0.000630	32.98%
Cd 228.802†	2.8	0.00010	mg/L	0.000164	0.00010	mg/L	0.000164	163.81%
Co 228.616†	3.7	0.00011	mg/L	0.000168	0.00011	mg/L	0.000168	155.27%
Cr 267.716†	-2.9	-0.00072	mg/L	0.000228	-0.00072	mg/L	0.000228	31.45%
Cu 324.752†	51.3	0.00026	mg/L	0.000124	0.00026	mg/L	0.000124	48.14%
Fe 273.955†	3.1	0.00320	mg/L	0.001430	0.00320	mg/L	0.001430	44.76%
K 766.490†	89.9	0.08406	mg/L	0.052537	0.08406	mg/L	0.052537	62.50%
Mg 279.077†	14.4	0.01426	mg/L	0.008933	0.01426	mg/L	0.008933	62.66%
Mn 257.610†	4.2	0.00013	mg/L	0.000124	0.00013	mg/L	0.000124	96.69%
Mo 202.031†	15.8	0.00094	mg/L	0.000356	0.00094	mg/L	0.000356	37.91%
Na 589.592†	-100.5	-0.01225	mg/L	0.003004	-0.01225	mg/L	0.003004	24.51%
Na 330.237†	9.5	0.5089	mg/L	0.47006	0.5089	mg/L	0.47006	92.36%
Ni 231.604†	-3.6	-0.00110	mg/L	0.001004	-0.00110	mg/L	0.001004	91.35%
Pb 220.353†	4.9	0.00064	mg/L	0.000579	0.00064	mg/L	0.000579	89.81%
Sb 206.836†	4.3	0.00164	mg/L	0.002349	0.00164	mg/L	0.002349	142.79%
Se 196.026†	-4.7	-0.00429	mg/L	0.005608	-0.00429	mg/L	0.005608	130.66%
Si 288.158†	-4.0	-0.00422	mg/L	0.005443	-0.00422	mg/L	0.005443	128.98%
Sn 189.927†	-3.2	-0.00089	mg/L	0.000327	-0.00089	mg/L	0.000327	36.69%
Sr 421.552†	14.0	0.00005	mg/L	0.000170	0.00005	mg/L	0.000170	310.86%
Ti 334.903†	19.6	0.00142	mg/L	0.000598	0.00142	mg/L	0.000598	42.10%
Tl 190.801†	0.4	0.00020	mg/L	0.001909	0.00020	mg/L	0.001909	947.01%
V 292.402†	-13.6	-0.00017	mg/L	0.000240	-0.00017	mg/L	0.000240	144.77%
Zn 206.200†	-3.4	-0.00149	mg/L	0.000620	-0.00149	mg/L	0.000620	41.65%

Sequence No.: 8
Sample ID: BHH0176-BLK1

Autosampler Location: 304
Date Collected: 8/8/2019 12:41:37 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0176-BLK1

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

Mean Data: BHH0176-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2056710.0	100.2	%	0.32				0.32%
ScR 361.383	209949.7	101.0	%	0.55				0.55%
Ag 328.068†	51.0	0.00034	mg/L	0.000494	0.00034	mg/L	0.000494	146.29%
Al 308.215†	19.9	0.01755	mg/L	0.003759	0.01755	mg/L	0.003759	21.42%
As 188.979†	0.0	-0.00001	mg/L	0.002307	-0.00001	mg/L	0.002307	>999.9%
B 249.677†	19.2	0.00289	mg/L	0.000524	0.00289	mg/L	0.000524	18.16%
Ba 233.527†	2.3	0.00054	mg/L	0.000760	0.00054	mg/L	0.000760	140.34%
Be 313.042†	1.4	0.00000	mg/L	0.000038	0.00000	mg/L	0.000038	893.40%
Ca 317.933†	61.0	0.00626	mg/L	0.001333	0.00626	mg/L	0.001333	21.30%
Cd 228.802†	3.0	0.00012	mg/L	0.000135	0.00012	mg/L	0.000135	112.93%
Co 228.616†	5.1	0.00015	mg/L	0.000075	0.00015	mg/L	0.000075	48.51%
Cr 267.716†	-1.7	-0.00043	mg/L	0.001214	-0.00043	mg/L	0.001214	284.84%
Cu 324.752†	35.9	0.00018	mg/L	0.000073	0.00018	mg/L	0.000073	40.59%
Fe 273.955†	-1.3	-0.00130	mg/L	0.001993	-0.00130	mg/L	0.001993	152.85%
K 766.490†	83.2	0.07781	mg/L	0.037954	0.07781	mg/L	0.037954	48.78%
Mg 279.077†	-0.9	-0.00089	mg/L	0.009757	-0.00089	mg/L	0.009757	>999.9%
Mn 257.610†	4.2	0.00013	mg/L	0.000127	0.00013	mg/L	0.000127	98.51%
Mo 202.031†	4.1	0.00024	mg/L	0.000205	0.00024	mg/L	0.000205	84.08%
Na 589.592†	-121.8	-0.01485	mg/L	0.001294	-0.01485	mg/L	0.001294	8.71%
Na 330.237†	13.8	0.7403	mg/L	1.25059	0.7403	mg/L	1.25059	168.93%
Ni 231.604†	-4.3	-0.00130	mg/L	0.001051	-0.00130	mg/L	0.001051	80.77%
Pb 220.353†	3.9	0.00052	mg/L	0.000583	0.00052	mg/L	0.000583	112.61%
Sb 206.836†	5.8	0.00218	mg/L	0.000854	0.00218	mg/L	0.000854	39.11%
Se 196.026†	-1.1	-0.00105	mg/L	0.003798	-0.00105	mg/L	0.003798	363.34%
Si 288.158†	-2.8	-0.00304	mg/L	0.002185	-0.00304	mg/L	0.002185	71.91%
Sn 189.927†	-0.6	-0.00017	mg/L	0.001148	-0.00017	mg/L	0.001148	666.26%
Sr 421.552†	-17.2	-0.00007	mg/L	0.000103	-0.00007	mg/L	0.000103	153.24%
Ti 334.903†	-7.0	-0.00051	mg/L	0.001196	-0.00051	mg/L	0.001196	235.92%
Tl 190.801†	-0.5	-0.00025	mg/L	0.002420	-0.00025	mg/L	0.002420	955.84%
V 292.402†	-23.2	-0.00028	mg/L	0.000072	-0.00028	mg/L	0.000072	25.93%
Zn 206.200†	7.8	0.00337	mg/L	0.001065	0.00337	mg/L	0.001065	31.63%

Sequence No.: 9
Sample ID: BHH0136-BLK1

Dilution: 5X
Wash Time: 37

Autosampler Location: 305
Date Collected: 8/8/2019 12:45:36 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0136-BLK1

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: BHH0136-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2076103.2	101.2	%	0.49				0.49%
ScR 361.383	209538.1	100.8	%	0.65				0.64%
Ag 328.068†	42.9	0.00028	mg/L	0.000071	0.00142	mg/L	0.000355	25.00%
Al 308.215†	5.1	0.00443	mg/L	0.010307	0.02217	mg/L	0.051535	232.44%
As 188.979†	1.5	0.00098	mg/L	0.000553	0.00491	mg/L	0.002766	56.30%
B 249.677†	349.0	0.05258	mg/L	0.000449	0.2629	mg/L	0.00225	0.85%
Ba 233.527†	10.2	0.00243	mg/L	0.000724	0.01215	mg/L	0.003618	29.78%
Be 313.042†	-16.9	-0.00004	mg/L	0.000008	-0.00019	mg/L	0.000041	22.02%
Ca 317.933†	3366.5	0.3463	mg/L	0.00149	1.732	mg/L	0.0074	0.43%
Cd 228.802†	3.3	0.00013	mg/L	0.000220	0.00063	mg/L	0.001102	175.28%
Co 228.616†	3.9	0.00012	mg/L	0.000127	0.00058	mg/L	0.000634	109.53%
Cr 267.716†	-1.9	-0.00049	mg/L	0.001545	-0.00247	mg/L	0.007724	313.05%
Cu 324.752†	43.6	0.00022	mg/L	0.000045	0.00109	mg/L	0.000225	20.69%
Fe 273.955†	-0.3	-0.00026	mg/L	0.004817	-0.00131	mg/L	0.024087	>999.9%
K 766.490†	132.9	0.1243	mg/L	0.02257	0.6214	mg/L	0.11287	18.16%
Mg 279.077†	76.3	0.07527	mg/L	0.008357	0.3764	mg/L	0.04178	11.10%
Mn 257.610†	6.5	0.00020	mg/L	0.000064	0.00099	mg/L	0.000318	32.05%
Mo 202.031†	4.8	0.00028	mg/L	0.000074	0.00140	mg/L	0.000370	26.46%
Na 589.592†	18479.8	2.253	mg/L	0.0117	11.26	mg/L	0.059	0.52%
Na 330.237†	51.7	2.768	mg/L	0.4287	13.84	mg/L	2.144	15.49%
Ni 231.604†	-2.7	-0.00082	mg/L	0.001076	-0.00409	mg/L	0.005381	131.54%
Pb 220.353†	4.7	0.00062	mg/L	0.001449	0.00310	mg/L	0.007247	233.97%
Sb 206.836†	2.5	0.00092	mg/L	0.001588	0.00462	mg/L	0.007941	171.87%
Se 196.026†	-0.9	-0.00086	mg/L	0.000191	-0.00432	mg/L	0.000957	22.13%
Si 288.158†	52.8	0.05641	mg/L	0.001660	0.2820	mg/L	0.00830	2.94%
Sn 189.927†	-3.9	-0.00103	mg/L	0.000614	-0.00517	mg/L	0.003072	59.48%
Sr 421.552†	59.8	0.00023	mg/L	0.000077	0.00117	mg/L	0.000384	32.85%
Ti 334.903†	3.5	0.00023	mg/L	0.001057	0.00115	mg/L	0.005286	458.74%
Tl 190.801†	-2.9	-0.00145	mg/L	0.000646	-0.00724	mg/L	0.003232	44.62%
V 292.402†	-39.9	-0.00047	mg/L	0.000127	-0.00237	mg/L	0.000635	26.83%
Zn 206.200†	5.2	0.00224	mg/L	0.000443	0.01121	mg/L	0.002215	19.76%

Sequence No.: 10
Sample ID: BHH0136-DUP1

Autosampler Location: 306
Date Collected: 8/8/2019 12:49:34 PM
Data Type: Original

Dilution: 5X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0136-DUP1

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: BHH0136-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2009629.1	97.93	%	0.484				0.49%
ScR 361.383	210476.9	101.2	%	0.23				0.23%
Ag 328.068†	-110.8	-0.00073	mg/L	0.000113	-0.00367	mg/L	0.000567	15.45%
Al 308.215†	96.4	0.08481	mg/L	0.002659	0.4240	mg/L	0.01330	3.14%
As 188.979†	46.9	0.01943	mg/L	0.001355	0.09716	mg/L	0.006775	6.97%
B 249.677†	218.9	0.03908	mg/L	0.001395	0.1954	mg/L	0.00698	3.57%
Ba 233.527†	247.2	0.05127	mg/L	0.000810	0.2564	mg/L	0.00405	1.58%
Be 313.042†	70.9	0.00017	mg/L	0.000005	0.00087	mg/L	0.000023	2.65%
Ca 317.933†	1872098.2	192.6	mg/L	2.39	963.1	mg/L	11.95	1.24%
Cd 228.802†	25.3	0.00095	mg/L	0.000262	0.00476	mg/L	0.001312	27.59%
Co 228.616†	687.9	0.01948	mg/L	0.000246	0.09742	mg/L	0.001228	1.26%
Cr 267.716†	51.6	0.01242	mg/L	0.000348	0.06210	mg/L	0.001742	2.81%
Cu 324.752†	-417.5	0.00071	mg/L	0.000146	0.00353	mg/L	0.000732	20.75%
Fe 273.955†	59767.6	60.71	mg/L	0.332	303.6	mg/L	1.66	0.55%
K 766.490†	1334.1	1.247	mg/L	0.0025	6.236	mg/L	0.0125	0.20%
Mg 279.077†	14879.8	14.64	mg/L	0.075	73.21	mg/L	0.377	0.52%
Mn 257.610†	66369.3	2.020	mg/L	0.0094	10.10	mg/L	0.047	0.47%
Mo 202.031†	95.4	0.00248	mg/L	0.000354	0.01240	mg/L	0.001771	14.29%
Na 589.592†	8625.5	1.052	mg/L	0.0059	5.258	mg/L	0.0295	0.56%
Na 330.237†	32.0	1.223	mg/L	0.3223	6.116	mg/L	1.6115	26.35%
Ni 231.604†	503.9	0.1535	mg/L	0.00099	0.7676	mg/L	0.00495	0.65%
Pb 220.353†	21.8	-0.00004	mg/L	0.000805	-0.00018	mg/L	0.004023	>999.9%
Sb 206.836†	6.7	0.00215	mg/L	0.001279	0.01074	mg/L	0.006393	59.50%
Se 196.026†	-32.3	-0.02432	mg/L	0.005487	-0.1216	mg/L	0.02743	22.56%
Si 288.158†	7792.7	8.318	mg/L	0.1049	41.59	mg/L	0.525	1.26%
Sn 189.927†	-95.3	0.00560	mg/L	0.000757	0.02802	mg/L	0.003785	13.51%
Sr 421.552†	104704.4	0.4091	mg/L	0.00148	2.045	mg/L	0.0074	0.36%
Ti 334.903†	241.8	0.00565	mg/L	0.000074	0.02825	mg/L	0.000369	1.31%
Tl 190.801†	-11.0	-0.00328	mg/L	0.000891	-0.01641	mg/L	0.004454	27.14%
V 292.402†	-198.6	0.00145	mg/L	0.000192	0.00725	mg/L	0.000959	13.23%
Zn 206.200†	2717.4	1.177	mg/L	0.0073	5.885	mg/L	0.0363	0.62%

Sequence No.: 11
Sample ID: 19H0022-01

Dilution: 5X
Wash Time: 37

Autosampler Location: 307
Date Collected: 8/8/2019 12:53:48 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0022-01

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: 19H0022-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2006881.8	97.80	%	0.533				0.54%
ScR 361.383	209006.3	100.5	%	0.11				0.11%
Ag 328.068†	-127.2	-0.00084	mg/L	0.000426	-0.00422	mg/L	0.002128	50.46%
Al 308.215†	101.5	0.08930	mg/L	0.003061	0.4465	mg/L	0.01531	3.43%
As 188.979†	44.2	0.01754	mg/L	0.003354	0.08771	mg/L	0.016770	19.12%
B 249.677†	220.1	0.03917	mg/L	0.000631	0.1958	mg/L	0.00316	1.61%
Ba 233.527†	247.9	0.05154	mg/L	0.000239	0.2577	mg/L	0.00119	0.46%
Be 313.042†	91.4	0.00022	mg/L	0.000014	0.00111	mg/L	0.000069	6.19%
Ca 317.933†	1868941.9	192.3	mg/L	0.62	961.4	mg/L	3.11	0.32%
Cd 228.802†	20.9	0.00078	mg/L	0.000100	0.00392	mg/L	0.000500	12.76%
Co 228.616†	682.5	0.01934	mg/L	0.000186	0.09671	mg/L	0.000931	0.96%
Cr 267.716†	57.2	0.01382	mg/L	0.002104	0.06912	mg/L	0.010521	15.22%
Cu 324.752†	-376.5	0.00087	mg/L	0.000078	0.00434	mg/L	0.000390	8.98%
Fe 273.955†	58830.2	59.76	mg/L	0.285	298.8	mg/L	1.43	0.48%
K 766.490†	1350.3	1.262	mg/L	0.0244	6.312	mg/L	0.1219	1.93%
Mg 279.077†	14634.7	14.40	mg/L	0.027	72.00	mg/L	0.134	0.19%
Mn 257.610†	65087.4	1.981	mg/L	0.0064	9.903	mg/L	0.0318	0.32%
Mo 202.031†	93.4	0.00236	mg/L	0.000226	0.01181	mg/L	0.001129	9.56%
Na 589.592†	8589.3	1.047	mg/L	0.0040	5.236	mg/L	0.0200	0.38%
Na 330.237†	36.5	1.470	mg/L	0.1354	7.348	mg/L	0.6770	9.21%
Ni 231.604†	490.3	0.1494	mg/L	0.00135	0.7469	mg/L	0.00676	0.90%
Pb 220.353†	21.8	0.00002	mg/L	0.000684	0.00012	mg/L	0.003419	>999.9%
Sb 206.836†	9.2	0.00305	mg/L	0.001862	0.01525	mg/L	0.009310	61.03%
Se 196.026†	-23.8	-0.01657	mg/L	0.002498	-0.08287	mg/L	0.012490	15.07%
Si 288.158†	6859.3	7.322	mg/L	0.0877	36.61	mg/L	0.439	1.20%
Sn 189.927†	-92.6	0.00631	mg/L	0.001237	0.03156	mg/L	0.006186	19.60%
Sr 421.552†	103732.8	0.4053	mg/L	0.00297	2.026	mg/L	0.0148	0.73%
Ti 334.903†	229.9	0.00481	mg/L	0.000335	0.02404	mg/L	0.001676	6.97%
Tl 190.801†	-15.1	-0.00541	mg/L	0.004021	-0.02707	mg/L	0.020106	74.29%
V 292.402†	-215.8	0.00120	mg/L	0.000097	0.00598	mg/L	0.000486	8.12%
Zn 206.200†	2678.7	1.160	mg/L	0.0032	5.801	mg/L	0.0159	0.27%

Sequence No.: 12
Sample ID: BHH0136-MS1

Dilution: 5X
Wash Time: 37

Autosampler Location: 308
Date Collected: 8/8/2019 12:58:02 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0136-MS1

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

Mean Data: BHH0136-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1976249.8	96.31	%	0.144				0.15%
ScR 361.383	201778.8	97.04	%	0.500				0.52%
Ag 328.068†	31840.3	0.2110	mg/L	0.00020	1.055	mg/L	0.0010	0.09%
Al 308.215†	1055.4	0.9265	mg/L	0.01035	4.633	mg/L	0.0517	1.12%
As 188.979†	1280.1	0.8632	mg/L	0.00892	4.316	mg/L	0.0446	1.03%
B 249.677†	230.3	0.04044	mg/L	0.000553	0.2022	mg/L	0.00277	1.37%
Ba 233.527†	3705.6	0.8746	mg/L	0.00489	4.373	mg/L	0.0245	0.56%
Be 313.042†	88704.0	0.2046	mg/L	0.00067	1.023	mg/L	0.0033	0.33%
Ca 317.933†	1990017.9	204.7	mg/L	1.09	1024	mg/L	5.43	0.53%
Cd 228.802†	5374.7	0.2099	mg/L	0.00041	1.049	mg/L	0.0020	0.19%
Co 228.616†	7449.2	0.2214	mg/L	0.00095	1.107	mg/L	0.0047	0.43%
Cr 267.716†	872.9	0.2189	mg/L	0.00125	1.095	mg/L	0.0063	0.57%
Cu 324.752†	40444.9	0.2065	mg/L	0.00048	1.032	mg/L	0.0024	0.23%
Fe 273.955†	61020.5	61.98	mg/L	0.262	309.9	mg/L	1.31	0.42%
K 766.490†	5938.5	5.552	mg/L	0.0199	27.76	mg/L	0.099	0.36%
Mg 279.077†	20227.8	19.92	mg/L	0.152	99.61	mg/L	0.762	0.77%
Mn 257.610†	73813.3	2.246	mg/L	0.0042	11.23	mg/L	0.021	0.19%
Mo 202.031†	100.2	0.00255	mg/L	0.000061	0.01274	mg/L	0.000304	2.39%
Na 589.592†	43596.2	5.315	mg/L	0.0056	26.57	mg/L	0.028	0.11%
Na 330.237†	112.3	5.427	mg/L	0.2610	27.14	mg/L	1.305	4.81%
Ni 231.604†	1174.3	0.3577	mg/L	0.00196	1.788	mg/L	0.0098	0.55%
Pb 220.353†	6151.1	0.8091	mg/L	0.00335	4.045	mg/L	0.0167	0.41%
Sb 206.836†	17.9	0.00373	mg/L	0.002263	0.01864	mg/L	0.011315	60.70%
Se 196.026†	906.6	0.8340	mg/L	0.00337	4.170	mg/L	0.0168	0.40%
Si 288.158†	8208.6	8.763	mg/L	0.1501	43.82	mg/L	0.751	1.71%
Sn 189.927†	-93.8	0.00808	mg/L	0.000805	0.04042	mg/L	0.004027	9.96%
Sr 421.552†	164681.6	0.6434	mg/L	0.00579	3.217	mg/L	0.0289	0.90%
Ti 334.903†	240.2	0.00474	mg/L	0.000319	0.02372	mg/L	0.001597	6.73%
Tl 190.801†	1573.8	0.7947	mg/L	0.00362	3.973	mg/L	0.0181	0.46%
V 292.402†	16829.2	0.2039	mg/L	0.00043	1.020	mg/L	0.0021	0.21%
Zn 206.200†	3254.6	1.409	mg/L	0.0092	7.047	mg/L	0.0462	0.66%

Sequence No.: 13
Sample ID: 19H0073-04

Autosampler Location: 309
Date Collected: 8/8/2019 1:02:02 PM
Data Type: Original

Dilution: 20X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0073-04

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: 19H0073-04

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2064134.2	100.6	%	0.43				0.42%
ScR 361.383	209489.6	100.8	%	0.30				0.30%
Ag 328.068†	19.1	0.00013	mg/L	0.000105	0.00253	mg/L	0.002092	82.56%
Al 308.215†	60.0	0.05285	mg/L	0.005265	1.057	mg/L	0.1053	9.96%
As 188.979†	3.1	0.00209	mg/L	0.000989	0.04190	mg/L	0.019778	47.21%
B 249.677†	24.8	0.00373	mg/L	0.001304	0.07464	mg/L	0.026087	34.95%
Ba 233.527†	0.6	0.00014	mg/L	0.000768	0.00289	mg/L	0.015360	531.03%
Be 313.042†	6.7	0.00002	mg/L	0.000054	0.00035	mg/L	0.001082	311.24%
Ca 317.933†	626.7	0.06445	mg/L	0.000824	1.289	mg/L	0.0165	1.28%
Cd 228.802†	8.4	0.00032	mg/L	0.000085	0.00650	mg/L	0.001708	26.29%
Co 228.616†	9.5	0.00028	mg/L	0.000030	0.00567	mg/L	0.000607	10.69%
Cr 267.716†	1.9	0.00048	mg/L	0.000884	0.00961	mg/L	0.017679	184.05%
Cu 324.752†	1098.1	0.00553	mg/L	0.000141	0.1106	mg/L	0.00283	2.56%
Fe 273.955†	27.5	0.02793	mg/L	0.001542	0.5585	mg/L	0.03084	5.52%
K 766.490†	626.1	0.5853	mg/L	0.02229	11.71	mg/L	0.446	3.81%
Mg 279.077†	9.5	0.00937	mg/L	0.001911	0.1874	mg/L	0.03822	20.39%
Mn 257.610†	29.4	0.00089	mg/L	0.000093	0.01789	mg/L	0.001861	10.40%
Mo 202.031†	5.9	0.00035	mg/L	0.000288	0.00700	mg/L	0.005752	82.15%
Na 589.592†	9648.9	1.176	mg/L	0.0088	23.53	mg/L	0.176	0.75%
Na 330.237†	27.6	1.474	mg/L	0.2197	29.49	mg/L	4.393	14.90%
Ni 231.604†	6.3	0.00192	mg/L	0.001457	0.03843	mg/L	0.029148	75.85%
Pb 220.353†	5.6	0.00074	mg/L	0.000465	0.01482	mg/L	0.009294	62.71%
Sb 206.836†	3.0	0.00114	mg/L	0.001255	0.02273	mg/L	0.025105	110.47%
Se 196.026†	-0.8	-0.00069	mg/L	0.002400	-0.01387	mg/L	0.047998	346.09%
Si 288.158†	102.3	0.1092	mg/L	0.00300	2.183	mg/L	0.0599	2.75%
Sn 189.927†	4.6	0.00132	mg/L	0.000692	0.02645	mg/L	0.013847	52.36%
Sr 421.552†	72.1	0.00028	mg/L	0.000079	0.00563	mg/L	0.001572	27.91%
Ti 334.903†	5.8	0.00042	mg/L	0.001375	0.00831	mg/L	0.027492	330.64%
Tl 190.801†	2.1	0.00105	mg/L	0.000938	0.02105	mg/L	0.018763	89.13%
V 292.402†	-34.8	-0.00041	mg/L	0.000266	-0.00812	mg/L	0.005311	65.45%
Zn 206.200†	34.6	0.01495	mg/L	0.000515	0.2990	mg/L	0.01029	3.44%

Sequence No.: 14
Sample ID: BHH0176-DUP1

Dilution: 20X
Wash Time: 37

Autosampler Location: 310
Date Collected: 8/8/2019 1:06:00 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0176-DUP1

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

Mean Data: BHH0176-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2010660.1	97.99	%	0.547				0.56%
ScR 361.383	205224.6	98.70	%	1.079				1.09%
Ag 328.068†	16.3	0.00011	mg/L	0.000049	0.00215	mg/L	0.000985	45.74%
Al 308.215†	48.7	0.04168	mg/L	0.005251	0.8336	mg/L	0.10502	12.60%
As 188.979†	2.5	0.00173	mg/L	0.003016	0.03463	mg/L	0.060325	174.20%
B 249.677†	81.7	0.01232	mg/L	0.001606	0.2464	mg/L	0.03212	13.03%
Ba 233.527†	11.9	0.00281	mg/L	0.000564	0.05618	mg/L	0.011281	20.08%
Be 313.042†	70.6	0.00017	mg/L	0.000074	0.00333	mg/L	0.001478	44.43%
Ca 317.933†	1707.4	0.1736	mg/L	0.00092	3.473	mg/L	0.0184	0.53%
Cd 228.802†	13.2	0.00052	mg/L	0.000119	0.01039	mg/L	0.002376	22.86%
Co 228.616†	5.3	0.00015	mg/L	0.000174	0.00305	mg/L	0.003488	114.26%
Cr 267.716†	6.0	0.00153	mg/L	0.003408	0.03054	mg/L	0.068163	223.17%
Cu 324.752†	15917.7	0.08008	mg/L	0.000811	1.602	mg/L	0.0162	1.01%
Fe 273.955†	163.3	0.1659	mg/L	0.00470	3.318	mg/L	0.0940	2.83%
K 766.490†	3022.9	2.826	mg/L	0.0303	56.52	mg/L	0.606	1.07%
Mg 279.077†	61.7	0.06085	mg/L	0.006366	1.217	mg/L	0.1273	10.46%
Mn 257.610†	56.9	0.00173	mg/L	0.000168	0.03462	mg/L	0.003361	9.71%
Mo 202.031†	14.6	0.00087	mg/L	0.000181	0.01734	mg/L	0.003621	20.89%
Na 589.592†	1062248.0	129.5	mg/L	0.90	2590	mg/L	18.06	0.70%
Na 330.237†	2392.0	128.2	mg/L	0.82	2564	mg/L	16.43	0.64%
Ni 231.604†	11.9	0.00361	mg/L	0.001206	0.07225	mg/L	0.024126	33.39%
Pb 220.353†	11.4	0.00141	mg/L	0.000695	0.02815	mg/L	0.013908	49.41%
Sb 206.836†	1.5	0.00053	mg/L	0.001139	0.01059	mg/L	0.022788	215.28%
Se 196.026†	-1.0	-0.00090	mg/L	0.002342	-0.01792	mg/L	0.046838	261.33%
Si 288.158†	672.7	0.7180	mg/L	0.00757	14.36	mg/L	0.151	1.05%
Sn 189.927†	2.9	0.00086	mg/L	0.000578	0.01718	mg/L	0.011560	67.27%
Sr 421.552†	452.6	0.00177	mg/L	0.000091	0.03536	mg/L	0.001822	5.15%
Ti 334.903†	16.8	0.00120	mg/L	0.000899	0.02406	mg/L	0.017988	74.76%
Tl 190.801†	0.0	0.00001	mg/L	0.001139	0.00010	mg/L	0.022784	>999.9%
V 292.402†	-56.2	-0.00064	mg/L	0.000175	-0.01288	mg/L	0.003500	27.17%
Zn 206.200†	14.1	0.00594	mg/L	0.000930	0.1189	mg/L	0.01860	15.65%

Sequence No.: 15
Sample ID: 19H0073-01

Autosampler Location: 311
Date Collected: 8/8/2019 1:10:13 PM
Data Type: Original

Dilution: 20X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0073-01

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: 19H0073-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2015138.9	98.20	%	0.340				0.35%
ScR 361.383	204035.7	98.13	%	0.618				0.63%
Ag 328.068†	30.6	0.00020	mg/L	0.000342	0.00405	mg/L	0.006848	168.87%
Al 308.215†	42.8	0.03639	mg/L	0.012647	0.7279	mg/L	0.25294	34.75%
As 188.979†	2.7	0.00188	mg/L	0.001273	0.03753	mg/L	0.025463	67.84%
B 249.677†	86.1	0.01299	mg/L	0.000415	0.2598	mg/L	0.00830	3.20%
Ba 233.527†	14.0	0.00332	mg/L	0.000048	0.06633	mg/L	0.000968	1.46%
Be 313.042†	60.8	0.00014	mg/L	0.000046	0.00284	mg/L	0.000919	32.40%
Ca 317.933†	1728.8	0.1758	mg/L	0.00092	3.516	mg/L	0.0184	0.52%
Cd 228.802†	10.7	0.00042	mg/L	0.000106	0.00839	mg/L	0.002114	25.21%
Co 228.616†	9.9	0.00029	mg/L	0.000059	0.00578	mg/L	0.001190	20.58%
Cr 267.716†	-0.5	-0.00014	mg/L	0.002016	-0.00275	mg/L	0.040327	>999.9%
Cu 324.752†	16136.9	0.08118	mg/L	0.000569	1.624	mg/L	0.0114	0.70%
Fe 273.955†	167.8	0.1704	mg/L	0.00329	3.409	mg/L	0.0657	1.93%
K 766.490†	3048.1	2.850	mg/L	0.0324	56.99	mg/L	0.649	1.14%
Mg 279.077†	65.2	0.06426	mg/L	0.006102	1.285	mg/L	0.1220	9.50%
Mn 257.610†	55.3	0.00168	mg/L	0.000195	0.03369	mg/L	0.003903	11.59%
Mo 202.031†	14.5	0.00086	mg/L	0.000273	0.01714	mg/L	0.005467	31.89%
Na 589.592†	1074721.1	131.0	mg/L	0.08	2620	mg/L	1.59	0.06%
Na 330.237†	2444.5	131.0	mg/L	1.43	2620	mg/L	28.61	1.09%
Ni 231.604†	12.6	0.00383	mg/L	0.001620	0.07650	mg/L	0.032399	42.35%
Pb 220.353†	9.9	0.00120	mg/L	0.000802	0.02403	mg/L	0.016044	66.77%
Sb 206.836†	3.2	0.00121	mg/L	0.001888	0.02427	mg/L	0.037760	155.59%
Se 196.026†	-3.6	-0.00329	mg/L	0.000932	-0.06579	mg/L	0.018645	28.34%
Si 288.158†	695.5	0.7423	mg/L	0.00368	14.85	mg/L	0.074	0.50%
Sn 189.927†	0.5	0.00016	mg/L	0.000330	0.00327	mg/L	0.006591	201.44%
Sr 421.552†	459.6	0.00180	mg/L	0.000114	0.03591	mg/L	0.002288	6.37%
Ti 334.903†	23.7	0.00171	mg/L	0.000829	0.03417	mg/L	0.016588	48.55%
Tl 190.801†	-5.0	-0.00251	mg/L	0.000543	-0.05024	mg/L	0.010862	21.62%
V 292.402†	-20.5	-0.00023	mg/L	0.000277	-0.00466	mg/L	0.005540	118.75%
Zn 206.200†	17.4	0.00741	mg/L	0.000937	0.1481	mg/L	0.01874	12.65%

Sequence No.: 16
Sample ID: BHH0176-MS1

Autosampler Location: 312
Date Collected: 8/8/2019 1:14:26 PM
Data Type: Original

Dilution: 20X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0176-MS1

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: BHH0176-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1987759.2	96.87	%	0.205				0.21%
ScR 361.383	202559.1	97.42	%	1.076				1.10%
Ag 328.068†	4028.7	0.02670	mg/L	0.000363	0.5340	mg/L	0.00726	1.36%
Al 308.215†	159.1	0.1385	mg/L	0.00517	2.770	mg/L	0.1033	3.73%
As 188.979†	155.6	0.1065	mg/L	0.00167	2.131	mg/L	0.0334	1.57%
B 249.677†	86.8	0.01304	mg/L	0.000574	0.2607	mg/L	0.01147	4.40%
Ba 233.527†	469.4	0.1117	mg/L	0.00173	2.235	mg/L	0.0346	1.55%
Be 313.042†	11667.2	0.02691	mg/L	0.000321	0.5383	mg/L	0.00643	1.19%
Ca 317.933†	6942.4	0.7119	mg/L	0.00733	14.24	mg/L	0.147	1.03%
Cd 228.802†	702.5	0.02747	mg/L	0.000268	0.5494	mg/L	0.00536	0.98%
Co 228.616†	892.8	0.02666	mg/L	0.000127	0.5331	mg/L	0.00254	0.48%
Cr 267.716†	111.9	0.02817	mg/L	0.001895 ✓	0.5634	mg/L	0.03790	6.73%
Cu 324.752†	21689.9	0.1091	mg/L	0.00079	2.183	mg/L	0.0158	0.72%
Fe 273.955†	274.0	0.2781	mg/L	0.00710	5.562	mg/L	0.1420	2.55%
K 766.490†	3655.4	3.417	mg/L	0.0582	68.35	mg/L	1.164	1.70%
Mg 279.077†	633.5	0.6255	mg/L	0.01426	12.51	mg/L	0.285	2.28%
Mn 257.610†	963.4	0.02933	mg/L	0.000447	0.5867	mg/L	0.00895	1.53%
Mo 202.031†	15.9	0.00093	mg/L	0.000229	0.01861	mg/L	0.004571	24.56%
Na 589.592†	1084496.6	132.2	mg/L	0.52	2644	mg/L	10.43	0.39%
Na 330.237†	2458.3	131.7	mg/L	0.90 ✓	2635	mg/L	17.96	0.68%
Ni 231.604†	101.8	0.03101	mg/L	0.001426 ✓	0.6202	mg/L	0.02853	4.60%
Pb 220.353†	793.0	0.1046	mg/L	0.00078	2.092	mg/L	0.0157	0.75%
Sb 206.836†	8.7	0.00290	mg/L	0.000714	0.05802	mg/L	0.014272	24.60%
Se 196.026†	114.8	0.1049	mg/L	0.00249	2.098	mg/L	0.0498	2.37%
Si 288.158†	696.9	0.7439	mg/L	0.01161	14.88	mg/L	0.232	1.56%
Sn 189.927†	-1.9	-0.00040	mg/L	0.000820	-0.00807	mg/L	0.016395	203.09%
Sr 421.552†	7787.1	0.03042	mg/L	0.000683	0.6084	mg/L	0.01365	2.24%
Ti 334.903†	8.9	0.00059	mg/L	0.000788	0.01186	mg/L	0.015767	132.97%
Tl 190.801†	164.6	0.08282	mg/L	0.001621	1.656	mg/L	0.0324	1.96%
V 292.402†	2211.7	0.02631	mg/L	0.000155	0.5263	mg/L	0.00309	0.59%
Zn 206.200†	78.9	0.03400	mg/L	0.000460	0.6801	mg/L	0.00921	1.35%

Sequence No.: 17
Sample ID: BHH0176-BS1

Autosampler Location: 313
Date Collected: 8/8/2019 1:18:39 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0176-BS1

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

Mean Data: BHH0176-BS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2048253.3	99.82	%	0.697				0.70%
ScR 361.383	209680.7	100.8	%	0.67				0.67%
Ag 328.068†	81198.8	0.5382	mg/L	0.00391	0.5382	mg/L	0.00391	0.73%
Al 308.215†	2362.8	2.074	mg/L	0.0143	2.074	mg/L	0.0143	0.69%
As 188.979†	3056.6	2.093	mg/L	0.0229	2.093	mg/L	0.0229	1.10%
B 249.677†	14.4	0.00113	mg/L	0.001933	0.00113	mg/L	0.001933	171.02%
Ba 233.527†	8695.2	2.070	mg/L	0.0129	2.070	mg/L	0.0129	0.62%
Be 313.042†	223509.8	0.5155	mg/L	0.00084	0.5155	mg/L	0.00084	0.16%
Ca 317.933†	98579.0	10.14	mg/L	0.028	10.14	mg/L	0.028	0.28%
Cd 228.802†	13220.3	0.5163	mg/L	0.00501	0.5163	mg/L	0.00501	0.97%
Co 228.616†	17192.2	0.5134	mg/L	0.00422	0.5134	mg/L	0.00422	0.82%
Cr 267.716†	2075.9	0.5225	mg/L	0.00534	0.5225	mg/L	0.00534	1.02%
Cu 324.752†	98282.1	0.4949	mg/L	0.00355	0.4949	mg/L	0.00355	0.72%
Fe 273.955†	2018.8	2.047	mg/L	0.0193	2.047	mg/L	0.0193	0.94%
K 766.490†	10814.4	10.11	mg/L	0.047	10.11	mg/L	0.047	0.47%
Mg 279.077†	10734.0	10.60	mg/L	0.077	10.60	mg/L	0.077	0.73%
Mn 257.610†	16556.6	0.5042	mg/L	0.00275	0.5042	mg/L	0.00275	0.55%
Mo 202.031†	25.3	0.00130	mg/L	0.000082	0.00130	mg/L	0.000082	6.30%
Na 589.592†	83395.7	10.17	mg/L	0.012	10.17	mg/L	0.012	0.12%
Na 330.237†	204.3	10.73	mg/L	0.104	10.73	mg/L	0.104	0.97%
Ni 231.604†	1685.9	0.5135	mg/L	0.00563	0.5135	mg/L	0.00563	1.10%
Pb 220.353†	15472.8	2.043	mg/L	0.0175	2.043	mg/L	0.0175	0.86%
Sb 206.836†	15.7	-0.00077	mg/L	0.001764	-0.00077	mg/L	0.001764	227.66%
Se 196.026†	2298.8	2.101	mg/L	0.0188	2.101	mg/L	0.0188	0.89%
Si 288.158†	4.1	0.00630	mg/L	0.005690	0.00630	mg/L	0.005690	90.32%
Sn 189.927†	-18.5	-0.00349	mg/L	0.000517	-0.00349	mg/L	0.000517	14.83%
Sr 421.552†	137252.2	0.5362	mg/L	0.00123	0.5362	mg/L	0.00123	0.23%
Ti 334.903†	28.1	0.00130	mg/L	0.000704	0.00130	mg/L	0.000704	54.00%
Tl 190.801†	4169.6	2.099	mg/L	0.0201	2.099	mg/L	0.0201	0.96%
V 292.402†	43963.0	0.5226	mg/L	0.00600	0.5226	mg/L	0.00600	1.15%
Zn 206.200†	1184.4	0.5124	mg/L	0.00512	0.5124	mg/L	0.00512	1.00%

Sequence No.: 18
Sample ID: SEQ-CCV2

Autosampler Location: 7
Date Collected: 8/8/2019 1:22:37 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV2

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

Mean Data: SEQ-CCV2

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2043576.8	99.59	%	0.386				0.39%
ScR 361.383	207144.4	99.62	%	0.299				0.30%
Ag 328.068†	155823.7	1.033	mg/L	0.0053	1.033	mg/L	0.0053	0.52%
Al 308.215†	2339.6	2.022	mg/L	0.0091	2.022	mg/L	0.0091	0.45%
As 188.979†	2909.6	2.017	mg/L	0.0116	2.017	mg/L	0.0116	0.58%
B 249.677†	6876.9	1.035	mg/L	0.0028	1.035	mg/L	0.0028	0.27%
Ba 233.527†	4317.1	1.027	mg/L	0.0021	1.027	mg/L	0.0021	0.21%
Be 313.042†	441830.2	1.019	mg/L	0.0037	1.019	mg/L	0.0037	0.37%
Ca 317.933†	20399.1	2.085	mg/L	0.0059	2.085	mg/L	0.0059	0.28%
Cd 228.802†	25621.6	1.014	mg/L	0.0090	1.014	mg/L	0.0090	0.89%
Co 228.616†	33823.6	1.009	mg/L	0.0057	1.009	mg/L	0.0057	0.56%
Cr 267.716†	4014.1	1.013	mg/L	0.0045	1.013	mg/L	0.0045	0.45%
Cu 324.752†	203375.1	1.024	mg/L	0.0057	1.024	mg/L	0.0057	0.56%
Fe 273.955†	1990.8	2.015	mg/L	0.0028	2.015	mg/L	0.0028	0.14%
K 766.490†	21819.1	20.40	mg/L	0.124	20.40	mg/L	0.124	0.61%
Mg 279.077†	2077.1	2.062	mg/L	0.0025	2.062	mg/L	0.0025	0.12%
Mn 257.610†	34160.0	1.040	mg/L	0.0035	1.040	mg/L	0.0035	0.33%
Mo 202.031†	17054.4	1.013	mg/L	0.0076	1.013	mg/L	0.0076	0.75%
Na 589.592†	419055.8	51.09	mg/L	0.073	51.09	mg/L	0.073	0.14%
Na 330.237†	971.1	51.81	mg/L	0.302	51.81	mg/L	0.302	0.58%
Ni 231.604†	3340.9	1.019	mg/L	0.0028	1.019	mg/L	0.0028	0.27%
Pb 220.353†	15224.2	2.010	mg/L	0.0133	2.010	mg/L	0.0133	0.66%
Sb 206.836†	5637.8	2.122	mg/L	0.0119	2.122	mg/L	0.0119	0.56%
Se 196.026†	2267.9	2.072	mg/L	0.0276	2.072	mg/L	0.0276	1.33%
Si 288.158†	1933.5	2.065	mg/L	0.0065	2.065	mg/L	0.0065	0.32%
Sn 189.927†	3613.8	1.020	mg/L	0.0083	1.020	mg/L	0.0083	0.82%
Sr 421.552†	272735.6	1.066	mg/L	0.0077	1.066	mg/L	0.0077	0.72%
Ti 334.903†	13598.6	0.9846	mg/L	0.00458	0.9846	mg/L	0.00458	0.46%
Tl 190.801†	4053.7	2.038	mg/L	0.0113	2.038	mg/L	0.0113	0.56%
V 292.402†	85545.6	1.017	mg/L	0.0120	1.017	mg/L	0.0120	1.18%
Zn 206.200†	2380.5	1.030	mg/L	0.0019	1.030	mg/L	0.0019	0.19%

Sequence No.: 19 **Autosampler Location: 1**
Sample ID: SEQ-CCB2 **Date Collected: 8/8/2019 1:27:40 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB2

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: SEQ-CCB2

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2046756.6	99.74	%	0.451				0.45%
ScR 361.383	207616.4	99.85	%	0.276				0.28%
Ag 328.068†	32.0	0.00021	mg/L	0.000161	0.00021	mg/L	0.000161	75.88%
Al 308.215†	23.4	0.02062	mg/L	0.007372	0.02062	mg/L	0.007372	35.75%
As 188.979†	2.3	0.00157	mg/L	0.000668	0.00157	mg/L	0.000668	42.50%
B 249.677†	15.6	0.00235	mg/L	0.001560	0.00235	mg/L	0.001560	66.40%
Ba 233.527†	1.9	0.00044	mg/L	0.000596	0.00044	mg/L	0.000596	134.98%
Be 313.042†	19.8	0.00005	mg/L	0.000049	0.00005	mg/L	0.000049	105.47%
Ca 317.933†	31.5	0.00323	mg/L	0.000183	0.00323	mg/L	0.000183	5.66%
Cd 228.802†	6.6	0.00026	mg/L	0.000153	0.00026	mg/L	0.000153	60.15%
Co 228.616†	7.7	0.00023	mg/L	0.000044	0.00023	mg/L	0.000044	19.15%
Cr 267.716†	-1.1	-0.00028	mg/L	0.000594	-0.00028	mg/L	0.000594	210.29%
Cu 324.752†	57.0	0.00029	mg/L	0.000022	0.00029	mg/L	0.000022	7.83%
Fe 273.955†	-0.2	-0.00016	mg/L	0.002547	-0.00016	mg/L	0.002547	>999.9%
K 766.490†	57.9	0.05414	mg/L	0.011462	0.05414	mg/L	0.011462	21.17%
Mg 279.077†	8.6	0.00852	mg/L	0.001364	0.00852	mg/L	0.001364	16.01%
Mn 257.610†	5.1	0.00016	mg/L	0.000115	0.00016	mg/L	0.000115	73.65%
Mo 202.031†	15.8	0.00094	mg/L	0.000626	0.00094	mg/L	0.000626	66.82%
Na 589.592†	-85.2	-0.01038	mg/L	0.004522	-0.01038	mg/L	0.004522	43.55%
Na 330.237†	13.0	0.6971	mg/L	0.26266	0.6971	mg/L	0.26266	37.68%
Ni 231.604†	-2.8	-0.00085	mg/L	0.000335	-0.00085	mg/L	0.000335	39.44%
Pb 220.353†	14.4	0.00190	mg/L	0.000315	0.00190	mg/L	0.000315	16.59%
Sb 206.836†	1.5	0.00056	mg/L	0.000528	0.00056	mg/L	0.000528	94.61%
Se 196.026†	-1.1	-0.00105	mg/L	0.001333	-0.00105	mg/L	0.001333	126.93%
Si 288.158†	-4.4	-0.00464	mg/L	0.006957	-0.00464	mg/L	0.006957	149.84%
Sn 189.927†	0.9	0.00024	mg/L	0.000784	0.00024	mg/L	0.000784	325.49%
Sr 421.552†	32.5	0.00013	mg/L	0.000091	0.00013	mg/L	0.000091	72.02%
Ti 334.903†	-1.9	-0.00014	mg/L	0.000991	-0.00014	mg/L	0.000991	711.54%
Tl 190.801†	1.0	0.00051	mg/L	0.001571	0.00051	mg/L	0.001571	307.46%
V 292.402†	-8.5	-0.00010	mg/L	0.000238	-0.00010	mg/L	0.000238	233.91%
Zn 206.200†	-1.8	-0.00078	mg/L	0.001536	-0.00078	mg/L	0.001536	197.73%

Sequence No.: 20
Sample ID: BHH0088-BLK1

Autosampler Location: 314
Date Collected: 8/8/2019 1:31:38 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0088-BLK1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: BHH0088-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2079154.6	101.3	%	0.43				0.43%
ScR 361.383	209369.1	100.7	%	0.40				0.39%
Ag 328.068†	44.1	0.00029	mg/L	0.000232	0.00058	mg/L	0.000465	79.62%
Al 308.215†	37.2	0.03279	mg/L	0.010954	0.06558	mg/L	0.021907	33.40%
As 188.979†	-0.2	-0.00008	mg/L	0.000134	-0.00017	mg/L	0.000268	161.73%
B 249.677†	13.5	0.00203	mg/L	0.000678	0.00407	mg/L	0.001356	33.32%
Ba 233.527†	4.9	0.00117	mg/L	0.000141	0.00234	mg/L	0.000281	12.02%
Be 313.042†	-6.0	-0.00001	mg/L	0.000051	-0.00003	mg/L	0.000102	391.00%
Ca 317.933†	158.3	0.01628	mg/L	0.000913	0.03256	mg/L	0.001827	5.61%
Cd 228.802†	6.2	0.00025	mg/L	0.000074	0.00050	mg/L	0.000148	29.89%
Co 228.616†	2.4	0.00007	mg/L	0.000189	0.00013	mg/L	0.000378	281.10%
Cr 267.716†	2.0	0.00050	mg/L	0.001274	0.00100	mg/L	0.002548	255.98%
Cu 324.752†	77.4	0.00039	mg/L	0.000063	0.00078	mg/L	0.000126	16.18%
Fe 273.955†	27.0	0.02742	mg/L	0.004786	0.05484	mg/L	0.009572	17.46%
K 766.490†	66.1	0.06181	mg/L	0.029353	0.1236	mg/L	0.05871	47.49%
Mg 279.077†	8.1	0.00795	mg/L	0.002653	0.01591	mg/L	0.005306	33.35%
Mn 257.610†	31.7	0.00096	mg/L	0.000148	0.00193	mg/L	0.000296	15.36%
Mo 202.031†	6.2	0.00037	mg/L	0.000085	0.00074	mg/L	0.000170	22.98%
Na 589.592†	-42.8	-0.00521	mg/L	0.001581	-0.01043	mg/L	0.003161	30.31%
Na 330.237†	7.2	0.3887	mg/L	0.35928	0.7774	mg/L	0.71856	92.43%
Ni 231.604†	-1.0	-0.00030	mg/L	0.001019	-0.00060	mg/L	0.002038	340.26%
Pb 220.353†	3.1	0.00042	mg/L	0.000499	0.00083	mg/L	0.000998	119.57%
Sb 206.836†	1.9	0.00070	mg/L	0.001169	0.00141	mg/L	0.002337	165.90%
Se 196.026†	-1.7	-0.00156	mg/L	0.000505	-0.00313	mg/L	0.001009	32.25%
Si 288.158†	14.1	0.01501	mg/L	0.009040	0.03003	mg/L	0.018080	60.21%
Sn 189.927†	-0.3	-0.00008	mg/L	0.000729	-0.00016	mg/L	0.001458	886.21%
Sr 421.552†	47.3	0.00018	mg/L	0.000030	0.00037	mg/L	0.000060	16.30%
Ti 334.903†	38.2	0.00277	mg/L	0.000536	0.00554	mg/L	0.001072	19.36%
Tl 190.801†	-1.4	-0.00071	mg/L	0.003024	-0.00141	mg/L	0.006048	427.57%
V 292.402†	-16.6	-0.00019	mg/L	0.000243	-0.00038	mg/L	0.000487	127.35%
Zn 206.200†	-2.4	-0.00103	mg/L	0.001348	-0.00206	mg/L	0.002695	130.95%

Sequence No.: 21
Sample ID: 19G0416-01
DEL
Dilution: 2X
Wash Time: 37

Autosampler Location: 315
Date Collected: 8/8/2019 1:35:37 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-01

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0416-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2056717.1	100.2	%	0.36				0.36%
ScR 361.383	212747.8	102.3	%	0.49				0.48%
Ag 328.068†	-109.4	-0.00051	mg/L	0.000315	-0.00102	mg/L	0.000629	61.73%
Al 308.215†	268551.9	236.5	mg/L	1.60	473.0	mg/L	3.20	0.68%
As 188.979†	-35.6	0.1857	mg/L	0.00547	0.3714	mg/L	0.01094	2.95%
B 249.677†	15.7	0.03723	mg/L	0.000242	0.07446	mg/L	0.000484	0.65%
Ba 233.527†	5780.9	1.333	mg/L	0.0059	2.666	mg/L	0.0119	0.45%
Be 313.042†	4263.4	0.00675	mg/L	0.000080	0.01350	mg/L	0.000160	1.18%
Ca 317.933†	256729.5	26.41	mg/L	0.100	52.83	mg/L	0.200	0.38%
Cd 228.802†	159.4	0.00677	mg/L	0.000207	0.01354	mg/L	0.000414	3.05%
Co 228.616†	4366.2	0.1115	mg/L	0.00044	0.2231	mg/L	0.00087	0.39%
Cr 267.716†	1217.5	0.3241	mg/L	0.00054	0.6482	mg/L	0.00108	0.17%
Cu 324.752†	47445.8	0.2540	mg/L	0.00141	0.5081	mg/L	0.00283	0.56%
Fe 273.955†	342480.5	347.9	mg/L	2.22	695.8	mg/L	4.45	0.64%
K 766.490†	5088.6	4.757	mg/L	0.0726	9.515	mg/L	0.1452	1.53%
Mg 279.077†	36762.3	36.15	mg/L	0.146	72.31	mg/L	0.292	0.40%
Mn 257.610†	718408.2	21.86	mg/L	0.161	43.73	mg/L	0.321	0.74%
Mo 202.031†	102.2	0.00561	mg/L	0.000125	0.01122	mg/L	0.000249	2.22%
Na 589.592†	10920.5	1.331	mg/L	0.0038	2.663	mg/L	0.0075	0.28%
Na 330.237†	1.1	1.308	mg/L	0.4878	2.616	mg/L	0.9755	37.28%
Ni 231.604†	995.7	0.3033	mg/L	0.00065	0.6067	mg/L	0.00130	0.21%
Pb 220.353†	2431.4	0.3689	mg/L	0.00140	0.7378	mg/L	0.00280	0.38%
Sb 206.836†	68.4	0.03423	mg/L	0.001974	0.06847	mg/L	0.003948	5.77%
Se 196.026†	-11.6	-0.01445	mg/L	0.005479	-0.02890	mg/L	0.010957	37.91%
Si 288.158†	1325.0	1.419	mg/L	0.0057	2.838	mg/L	0.0114	0.40%
Sn 189.927†	-51.4	-0.00678	mg/L	0.000868	-0.01356	mg/L	0.001736	12.81%
Sr 421.552†	55912.9	0.2184	mg/L	0.00039	0.4369	mg/L	0.00077	0.18%
Ti 334.903†	100521.2	7.286	mg/L	0.0432	14.57	mg/L	0.086	0.59%
Tl 190.801†	-105.1	-0.03064	mg/L	0.001272	-0.06128	mg/L	0.002543	4.15%
V 292.402†	60412.3	0.7371	mg/L	0.00233	1.474	mg/L	0.0047	0.32%
Zn 206.200†	1590.8	0.6888	mg/L	0.00404	1.378	mg/L	0.0081	0.59%

Sequence No.: 22
Sample ID: 19G0416-02

Dilution: 2X
Wash Time: 37

Autosampler Location: 316
Date Collected: 8/8/2019 1:39:21 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-02

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0416-02

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2029823.2	98.92	%	0.956				0.97%
ScR 361.383	212471.8	102.2	%	1.22				1.20%
Ag 328.068†	-239.6	-0.00146	mg/L	0.000039	-0.00292	mg/L	0.000078	2.67%
Al 308.215†	212712.3	187.3	mg/L	0.84	374.7	mg/L	1.69	0.45%
As 188.979†	-249.1	0.06337	mg/L	0.003055	0.1267	mg/L	0.00611	4.82%
B 249.677†	85.9	0.03106	mg/L	0.001214	0.06213	mg/L	0.002428	3.91%
Ba 233.527†	2992.2	0.6898	mg/L	0.00225	1.380	mg/L	0.0045	0.33%
Be 313.042†	2394.9	0.00367	mg/L	0.000056	0.00735	mg/L	0.000113	1.54%
Ca 317.933†	313733.4	32.28	mg/L	0.246	64.56	mg/L	0.493	0.76%
Cd 228.802†	54.5	0.00352	mg/L	0.000177	0.00705	mg/L	0.000354	5.02%
Co 228.616†	2722.5	0.06368	mg/L	0.001020	0.1274	mg/L	0.00204	1.60%
Cr 267.716†	912.9	0.2348	mg/L	0.00026	0.4696	mg/L	0.00053	0.11%
Cu 324.752†	31201.7	0.1639	mg/L	0.00068	0.3278	mg/L	0.00136	0.41%
Fe 273.955†	178530.0	181.3	mg/L	0.58	362.7	mg/L	1.15	0.32%
K 766.490†	6250.3	5.843	mg/L	0.0841	11.69	mg/L	0.168	1.44%
Mg 279.077†	54850.9	54.07	mg/L	0.328	108.1	mg/L	0.66	0.61%
Mn 257.610†	113114.4	3.442	mg/L	0.0158	6.884	mg/L	0.0316	0.46%
Mo 202.031†	66.1	0.00337	mg/L	0.000216	0.00675	mg/L	0.000433	6.41%
Na 589.592†	9969.0	1.215	mg/L	0.0085	2.431	mg/L	0.0170	0.70%
Na 330.237†	-0.9	1.488	mg/L	0.0945	2.975	mg/L	0.1889	6.35%
Ni 231.604†	891.9	0.2717	mg/L	0.00191	0.5434	mg/L	0.00383	0.70%
Pb 220.353†	390.5	0.09422	mg/L	0.001398	0.1884	mg/L	0.00280	1.48%
Sb 206.836†	26.8	0.02000	mg/L	0.001355	0.04001	mg/L	0.002711	6.77%
Se 196.026†	-9.7	-0.01060	mg/L	0.003308	-0.02121	mg/L	0.006615	31.19%
Si 288.158†	1059.4	1.137	mg/L	0.0079	2.275	mg/L	0.0159	0.70%
Sn 189.927†	-54.6	-0.00629	mg/L	0.000686	-0.01259	mg/L	0.001372	10.90%
Sr 421.552†	43647.6	0.1705	mg/L	0.00294	0.3410	mg/L	0.00588	1.72%
Ti 334.903†	112899.2	8.183	mg/L	0.0353	16.37	mg/L	0.071	0.43%
Tl 190.801†	-36.5	-0.01640	mg/L	0.003138	-0.03279	mg/L	0.006276	19.14%
V 292.402†	35506.6	0.4300	mg/L	0.00282	0.8601	mg/L	0.00564	0.66%
Zn 206.200†	1050.1	0.4545	mg/L	0.00144	0.9091	mg/L	0.00289	0.32%

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Analysis Begun

Start Time: 8/8/2019 1:47:53 PM **Plasma On Time: 8/8/2019 10:53:47 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0808.sif
Batch ID:
Results Data Set: I2190808
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 317**
Sample ID: 19G0416-03 **Date Collected: 8/8/2019 1:48:00 PM**
DEL **Data Type: Original**
Dilution: 2X

Nebulizer Parameters: 19G0416-03

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0416-03

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1995340.4	97.24	%	3.721				3.83%
ScR 361.383	209299.1	100.7	%	1.58				1.57%
Ag 328.068†	-167.9	-0.00098	mg/L	0.000216	-0.00196	mg/L	0.000431	22.01%
Al 308.215†	181796.6	160.1	mg/L	0.12	320.2	mg/L	0.25	0.08%
As 188.979†	-221.6	0.09211	mg/L	0.010060	0.1842	mg/L	0.02012	10.92%
B 249.677†	199.5	0.04820	mg/L	0.000828	0.09640	mg/L	0.001657	1.72%
Ba 233.527†	3874.5	0.8999	mg/L	0.00773	1.800	mg/L	0.0155	0.86%
Be 313.042†	2328.4	0.00342	mg/L	0.000063	0.00685	mg/L	0.000125	1.83%
Ca 317.933†	467392.2	48.09	mg/L	0.118	96.18	mg/L	0.237	0.25%
Cd 228.802†	152.9	0.00734	mg/L	0.000492	0.01468	mg/L	0.000984	6.70%
Co 228.616†	3046.2	0.07267	mg/L	0.002664	0.1453	mg/L	0.00533	3.67%
Cr 267.716†	1088.2	0.2794	mg/L	0.00140	0.5588	mg/L	0.00280	0.50%
Cu 324.752†	52081.1	0.2690	mg/L	0.00311	0.5380	mg/L	0.00622	1.16%
Fe 273.955†	178937.8	181.8	mg/L	0.76	363.5	mg/L	1.52	0.42%
K 766.490†	8076.5	7.551	mg/L	0.0989	15.10	mg/L	0.198	1.31%
Mg 279.077†	50295.5	49.57	mg/L	0.159	99.14	mg/L	0.317	0.32%
Mn 257.610†	113642.2	3.458	mg/L	0.0030	6.917	mg/L	0.0060	0.09%
Mo 202.031†	97.6	0.00498	mg/L	0.000788	0.00997	mg/L	0.001575	15.81%
Na 589.592†	28773.3	3.508	mg/L	0.0072	7.016	mg/L	0.0143	0.20%
Na 330.237†	40.9	3.579	mg/L	0.2364	7.158	mg/L	0.4729	6.61%
Ni 231.604†	894.9	0.2726	mg/L	0.00232	0.5453	mg/L	0.00464	0.85%
Pb 220.353†	7514.0	1.027	mg/L	0.0278	2.053	mg/L	0.0556	2.71%
Sb 206.836†	29.4	0.02097	mg/L	0.002219	0.04193	mg/L	0.004438	10.58%
Se 196.026†	-13.4	-0.01110	mg/L	0.006908	-0.02219	mg/L	0.013816	62.26%
Si 288.158†	1027.5	1.103	mg/L	0.0060	2.206	mg/L	0.0121	0.55%
Sn 189.927†	-32.5	0.00277	mg/L	0.001477	0.00554	mg/L	0.002955	53.37%
Sr 421.552†	117540.3	0.4592	mg/L	0.00277	0.9184	mg/L	0.00554	0.60%
Ti 334.903†	117990.4	8.552	mg/L	0.0152	17.10	mg/L	0.030	0.18%
Tl 190.801†	-37.4	-0.01701	mg/L	0.003279	-0.03401	mg/L	0.006558	19.28%
V 292.402†	37327.5	0.4518	mg/L	0.00251	0.9036	mg/L	0.00501	0.55%
Zn 206.200†	2285.6	0.9896	mg/L	0.00689	1.979	mg/L	0.0138	0.70%

Sequence No.: 2
Sample ID: 19G0416-04

DEL

Dilution: 2X
Wash Time: 37

Autosampler Location: 318
Date Collected: 8/8/2019 1:51:50 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-04

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0416-04

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1962609.8	95.64	%	3.003				3.14%
ScR 361.383	197181.6	94.83	%	5.785				6.10%
Ag 328.068†	-148.9	-0.00087	mg/L	0.000107	-0.00174	mg/L	0.000213	12.26%
Al 308.215†	223935.8	197.2	mg/L	0.36	394.4	mg/L	0.73	0.18%
As 188.979†	-115.8	0.1260	mg/L	0.00475	0.2519	mg/L	0.00950	3.77%
B 249.677†	62.5	0.02545	mg/L	0.000557	0.05090	mg/L	0.001113	2.19%
Ba 233.527†	3367.1	0.7817	mg/L	0.04353	1.563	mg/L	0.0871	5.57%
Be 313.042†	2604.4	0.00431	mg/L	0.000467	0.00861	mg/L	0.000935	10.85%
Ca 317.933†	347140.8	35.72	mg/L	0.250	71.43	mg/L	0.500	0.70%
Cd 228.802†	83.3	0.00406	mg/L	0.000643	0.00811	mg/L	0.001285	15.84%
Co 228.616†	2381.1	0.05554	mg/L	0.003647	0.1111	mg/L	0.00729	6.57%
Cr 267.716†	867.5	0.2237	mg/L	0.00741	0.4474	mg/L	0.01483	3.31%
Cu 324.752†	36219.5	0.1884	mg/L	0.00027	0.3769	mg/L	0.00053	0.14%
Fe 273.955†	157859.0	160.3	mg/L	1.84	320.7	mg/L	3.69	1.15%
K 766.490†	4539.4	4.244	mg/L	0.0297	8.488	mg/L	0.0594	0.70%
Mg 279.077†	40036.7	39.45	mg/L	0.286	78.91	mg/L	0.573	0.73%
Mn 257.610†	142836.2	4.346	mg/L	0.0285	8.693	mg/L	0.0569	0.65%
Mo 202.031†	83.9	0.00438	mg/L	0.000748	0.00875	mg/L	0.001496	17.10%
Na 589.592†	18432.2	2.247	mg/L	0.0065	4.494	mg/L	0.0130	0.29%
Na 330.237†	2.2	1.437	mg/L	0.5278	2.874	mg/L	1.0555	36.72%
Ni 231.604†	796.9	0.2428	mg/L	0.01154	0.4855	mg/L	0.02308	4.75%
Pb 220.353†	2688.4	0.4011	mg/L	0.02022	0.8022	mg/L	0.04045	5.04%
Sb 206.836†	31.0	0.02022	mg/L	0.001159	0.04043	mg/L	0.002319	5.74%
Se 196.026†	-5.0	-0.01059	mg/L	0.005475	-0.02117	mg/L	0.010949	51.72%
Si 288.158†	1019.7	1.093	mg/L	0.0450	2.186	mg/L	0.0901	4.12%
Sn 189.927†	-55.9	-0.00652	mg/L	0.003086	-0.01304	mg/L	0.006173	47.33%
Sr 421.552†	46828.1	0.1829	mg/L	0.00040	0.3659	mg/L	0.00080	0.22%
Ti 334.903†	99528.8	7.214	mg/L	0.0440	14.43	mg/L	0.088	0.61%
Tl 190.801†	-34.0	-0.01391	mg/L	0.005492	-0.02781	mg/L	0.010985	39.50%
V 292.402†	32763.0	0.3967	mg/L	0.00246	0.7935	mg/L	0.00491	0.62%
Zn 206.200†	1113.9	0.4823	mg/L	0.02459	0.9646	mg/L	0.04917	5.10%

Sequence No.: 3
Sample ID: 19G0416-05 DEL
Dilution: 5X
Wash Time: 37

Autosampler Location: 319
Date Collected: 8/8/2019 1:55:34 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-05

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0416-05

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2054591.7	100.1	%	0.49				0.49%
ScR 361.383	206385.9	99.26	%	1.451				1.46%
Ag 328.068†	-16.9	-0.00007	mg/L	0.000315	-0.00034	mg/L	0.001574	457.01%
Al 308.215†	86543.6	76.22	mg/L	0.218	381.1	mg/L	1.09	0.29%
As 188.979†	-44.1	0.04857	mg/L	0.002102	0.2429	mg/L	0.01051	4.33%
B 249.677†	47.2	0.01301	mg/L	0.002124	0.06504	mg/L	0.010620	16.33%
Ba 233.527†	2261.3	0.5312	mg/L	0.01966	2.656	mg/L	0.0983	3.70%
Be 313.042†	1058.0	0.00181	mg/L	0.000143	0.00905	mg/L	0.000714	7.88%
Ca 317.933†	171555.7	17.65	mg/L	0.104	88.25	mg/L	0.521	0.59%
Cd 228.802†	43.0	0.00198	mg/L	0.000341	0.00991	mg/L	0.001704	17.20%
Co 228.616†	908.1	0.02114	mg/L	0.000507	0.1057	mg/L	0.00253	2.40%
Cr 267.716†	310.8	0.08026	mg/L	0.001108	0.4013	mg/L	0.00554	1.38%
Cu 324.752†	15632.5	0.08093	mg/L	0.001163	0.4047	mg/L	0.00581	1.44%
Fe 273.955†	58119.1	59.03	mg/L	0.596	295.2	mg/L	2.98	1.01%
K 766.490†	2774.3	2.594	mg/L	0.0238	12.97	mg/L	0.119	0.92%
Mg 279.077†	13626.9	13.43	mg/L	0.043	67.13	mg/L	0.215	0.32%
Mn 257.610†	74489.7	2.267	mg/L	0.0092	11.33	mg/L	0.046	0.41%
Mo 202.031†	47.8	0.00254	mg/L	0.000198	0.01271	mg/L	0.000992	7.81%
Na 589.592†	7780.1	0.9485	mg/L	0.00699	4.742	mg/L	0.0349	0.74%
Na 330.237†	8.2	0.9001	mg/L	0.20855	4.500	mg/L	1.0428	23.17%
Ni 231.604†	249.8	0.07610	mg/L	0.002632	0.3805	mg/L	0.01316	3.46%
Pb 220.353†	752.1	0.1173	mg/L	0.00152	0.5864	mg/L	0.00760	1.30%
Sb 206.836†	13.8	0.00855	mg/L	0.001241	0.04276	mg/L	0.006203	14.51%
Se 196.026†	-6.0	-0.00866	mg/L	0.002898	-0.04332	mg/L	0.014489	33.44%
Si 288.158†	374.2	0.4010	mg/L	0.01590	2.005	mg/L	0.0795	3.96%
Sn 189.927†	-29.5	-0.00410	mg/L	0.000790	-0.02049	mg/L	0.003949	19.28%
Sr 421.552†	37803.6	0.1477	mg/L	0.00035	0.7384	mg/L	0.00174	0.24%
Ti 334.903†	38343.7	2.779	mg/L	0.0103	13.89	mg/L	0.052	0.37%
Tl 190.801†	-10.1	-0.00311	mg/L	0.000682	-0.01556	mg/L	0.003408	21.90%
V 292.402†	12122.8	0.1469	mg/L	0.00399	0.7343	mg/L	0.01997	2.72%
Zn 206.200†	689.3	0.2984	mg/L	0.01314	1.492	mg/L	0.0657	4.40%

Sequence No.: 4
Sample ID: BHH0088-BS1

Autosampler Location: 320
Date Collected: 8/8/2019 1:59:32 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0088-BS1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: BHH0088-BS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2056984.8	100.2	%	0.31				0.31%
ScR 361.383	209267.4	100.6	%	0.31				0.31%
Ag 328.068†	79717.2	0.5283	mg/L	0.00554	1.057	mg/L	0.0111	1.05%
Al 308.215†	2269.5	1.991	mg/L	0.0190	3.983	mg/L	0.0379	0.95%
As 188.979†	3016.6	2.065	mg/L	0.0131	4.131	mg/L	0.0262	0.64%
B 249.677†	14.7	0.00119	mg/L	0.000176	0.00237	mg/L	0.000351	14.80%
Ba 233.527†	8294.0	1.975	mg/L	0.0241	3.949	mg/L	0.0481	1.22%
Be 313.042†	212319.0	0.4896	mg/L	0.00127	0.9792	mg/L	0.00253	0.26%
Ca 317.933†	94663.0	9.733	mg/L	0.0281	19.47	mg/L	0.056	0.29%
Cd 228.802†	13008.1	0.5080	mg/L	0.00629	1.016	mg/L	0.0126	1.24%
Co 228.616†	16935.9	0.5058	mg/L	0.00426	1.012	mg/L	0.0085	0.84%
Cr 267.716†	1999.9	0.5034	mg/L	0.00473	1.007	mg/L	0.0095	0.94%
Cu 324.752†	96018.9	0.4835	mg/L	0.00498	0.9670	mg/L	0.00996	1.03%
Fe 273.955†	1942.3	1.969	mg/L	0.0279	3.938	mg/L	0.0558	1.42%
K 766.490†	10233.9	9.568	mg/L	0.0494	19.14	mg/L	0.099	0.52%
Mg 279.077†	10294.2	10.17	mg/L	0.112	20.33	mg/L	0.223	1.10%
Mn 257.610†	15695.8	0.4780	mg/L	0.00172	0.9560	mg/L	0.00344	0.36%
Mo 202.031†	19.9	0.00099	mg/L	0.000013	0.00198	mg/L	0.000026	1.30%
Na 589.592†	78710.9	9.596	mg/L	0.0251	19.19	mg/L	0.050	0.26%
Na 330.237†	193.5	10.16	mg/L	0.339	20.33	mg/L	0.679	3.34%
Ni 231.604†	1620.0	0.4934	mg/L	0.00772	0.9868	mg/L	0.01543	1.56%
Pb 220.353†	15290.5	2.019	mg/L	0.0181	4.037	mg/L	0.0362	0.90%
Sb 206.836†	16.4	-0.00023	mg/L	0.001066	-0.00047	mg/L	0.002132	454.48%
Se 196.026†	2268.6	2.074	mg/L	0.0186	4.147	mg/L	0.0372	0.90%
Si 288.158†	-3.9	-0.00234	mg/L	0.007559	-0.00468	mg/L	0.015118	323.06%
Sn 189.927†	-15.1	-0.00262	mg/L	0.000768	-0.00524	mg/L	0.001535	29.29%
Sr 421.552†	130312.5	0.5091	mg/L	0.00158	1.018	mg/L	0.0032	0.31%
Ti 334.903†	19.7	0.00073	mg/L	0.000175	0.00145	mg/L	0.000349	24.01%
Tl 190.801†	4107.4	2.068	mg/L	0.0149	4.136	mg/L	0.0298	0.72%
V 292.402†	43288.3	0.5145	mg/L	0.00441	1.029	mg/L	0.0088	0.86%
Zn 206.200†	1130.0	0.4889	mg/L	0.00471	0.9778	mg/L	0.00943	0.96%

Sequence No.: 5
Sample ID: 19G0341-01
DEL
Dilution: 200X
Wash Time: 37

Autosampler Location: 321
Date Collected: 8/8/2019 2:03:31 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0341-01

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0341-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1930297.5	94.07	%	2.387				2.54%
ScR 361.383	202219.4	97.26	%	6.029				6.20%
Ag 328.068†	41.0	0.00027	mg/L	0.000177	0.05443	mg/L	0.035423	65.08%
Al 308.215†	31.0	0.02711	mg/L	0.028338	5.422	mg/L	5.6677	104.54%
As 188.979†	4.6	0.00328	mg/L	0.002321	0.6561	mg/L	0.46412	70.74%
B 249.677†	556.2	0.08379	mg/L	0.003703	16.76	mg/L	0.741	4.42%
Ba 233.527†	30.4	0.00724	mg/L	0.000671	1.448	mg/L	0.1343	9.27%
Be 313.042†	56.3	0.00013	mg/L	0.000172	0.02557	mg/L	0.034426	134.61%
Ca 317.933†	2878.2	0.2959	mg/L	0.00070	59.18	mg/L	0.140	0.24%
Cd 228.802†	5.2	0.00019	mg/L	0.000368	0.03806	mg/L	0.073643	193.50%
Co 228.616†	12.4	0.00036	mg/L	0.000092	0.07153	mg/L	0.018359	25.67%
Cr 267.716†	-0.7	-0.00023	mg/L	0.001682	-0.04566	mg/L	0.336332	736.56%
Cu 324.752†	114.7	0.00057	mg/L	0.000508	0.1136	mg/L	0.10158	89.39%
Fe 273.955†	23.2	0.02355	mg/L	0.006753	4.710	mg/L	1.3506	28.67%
K 766.490†	4517.5	4.223	mg/L	0.0964	844.7	mg/L	19.27	2.28%
Mg 279.077†	334.2	0.3300	mg/L	0.01316	66.00	mg/L	2.632	3.99%
Mn 257.610†	57.3	0.00174	mg/L	0.000509	0.3486	mg/L	0.10181	29.21%
Mo 202.031†	14.1	0.00083	mg/L	0.000259	0.1663	mg/L	0.05180	31.15%
Na 589.592†	109914.6	13.40	mg/L	0.124	2680	mg/L	24.86	0.93%
Na 330.237†	242.0	12.97	mg/L	0.654	2594	mg/L	130.73	5.04%
Ni 231.604†	2.5	0.00078	mg/L	0.001181	0.1554	mg/L	0.23629	152.09%
Pb 220.353†	8.6	0.00113	mg/L	0.000611	0.2267	mg/L	0.12211	53.86%
Sb 206.836†	5.9	0.00226	mg/L	0.000851	0.4517	mg/L	0.17026	37.70%
Se 196.026†	-5.1	-0.00464	mg/L	0.001012	-0.9287	mg/L	0.20233	21.79%
Si 288.158†	90.1	0.09623	mg/L	0.006679	19.25	mg/L	1.336	6.94%
Sn 189.927†	0.8	0.00028	mg/L	0.000145	0.05631	mg/L	0.028934	51.38%
Sr 421.552†	2728.7	0.01066	mg/L	0.000209	2.132	mg/L	0.0417	1.96%
Ti 334.903†	82.6	0.00597	mg/L	0.001541	1.194	mg/L	0.3082	25.81%
Tl 190.801†	-0.4	-0.00019	mg/L	0.002757	-0.03744	mg/L	0.551422	>999.9%
V 292.402†	50.0	0.00059	mg/L	0.000161	0.1179	mg/L	0.03213	27.24%
Zn 206.200†	-3.2	-0.00162	mg/L	0.000355	-0.3231	mg/L	0.07105	21.99%

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Analysis Begun

Start Time: 8/8/2019 2:14:20 PM **Plasma On Time: 8/8/2019 10:53:47 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0808.sif
Batch ID:
Results Data Set: I2190808
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 322**
Sample ID: 19G0341-01 DEL **Date Collected: 8/8/2019 2:14:27 PM**
Data Type: Original

Dilution: 1000X

Nebulizer Parameters: 19G0341-01

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0341-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2052717.3	100.0	%	0.89				0.89%
ScR 361.383	209245.8	100.6	%	0.83				0.82%
Ag 328.068†	44.7	0.00030	mg/L	0.000147	0.2959	mg/L	0.14722	49.75%
Al 308.215†	12.4	0.01090	mg/L	0.009659	10.90	mg/L	9.659	88.61%
As 188.979†	3.6	0.00247	mg/L	0.001490	2.470	mg/L	1.4902	60.34%
B 249.677†	122.5	0.01845	mg/L	0.001585	18.45	mg/L	1.585	8.59%
Ba 233.527†	9.0	0.00214	mg/L	0.001262	2.140	mg/L	1.2616	58.96%
Be 313.042†	4.6	0.00001	mg/L	0.000037	0.01082	mg/L	0.036909	341.22%
Ca 317.933†	706.3	0.07260	mg/L	0.002875	72.60	mg/L	2.875	3.96%
Cd 228.802†	3.3	0.00012	mg/L	0.000084	0.1183	mg/L	0.08362	70.71%
Co 228.616†	5.2	0.00016	mg/L	0.000142	0.1556	mg/L	0.14193	91.20%
Cr 267.716†	-0.6	-0.00016	mg/L	0.001079	-0.1642	mg/L	1.07860	657.01%
Cu 324.752†	13.6	0.00007	mg/L	0.000059	0.06626	mg/L	0.059235	89.40%
Fe 273.955†	6.1	0.00616	mg/L	0.003485	6.163	mg/L	3.4854	56.56%
K 766.490†	1068.2	0.9986	mg/L	0.02816	998.6	mg/L	28.16	2.82%
Mg 279.077†	80.1	0.07906	mg/L	0.004507	79.06	mg/L	4.507	5.70%
Mn 257.610†	18.3	0.00056	mg/L	0.000232	0.5572	mg/L	0.23176	41.59%
Mo 202.031†	6.5	0.00038	mg/L	0.000257	0.3826	mg/L	0.25747	67.29%
Na 589.592†	24833.4	3.027	mg/L	0.0560	3027	mg/L	56.02	1.85%
Na 330.237†	66.5	3.563	mg/L	0.3961	3563	mg/L	396.11	11.12%
Ni 231.604†	3.0	0.00092	mg/L	0.000908	0.9155	mg/L	0.90781	99.16%
Pb 220.353†	1.2	0.00017	mg/L	0.000780	0.1664	mg/L	0.77966	468.66%
Sb 206.836†	4.2	0.00158	mg/L	0.000625	1.580	mg/L	0.6251	39.56%
Se 196.026†	-2.3	-0.00207	mg/L	0.004052	-2.074	mg/L	4.0517	195.36%
Si 288.158†	20.0	0.02138	mg/L	0.002662	21.38	mg/L	2.662	12.45%
Sn 189.927†	-2.0	-0.00055	mg/L	0.000196	-0.5473	mg/L	0.19630	35.87%
Sr 421.552†	630.9	0.00246	mg/L	0.000119	2.465	mg/L	0.1186	4.81%
Ti 334.903†	5.4	0.00039	mg/L	0.001167	0.3882	mg/L	1.16746	300.77%
Tl 190.801†	2.4	0.00119	mg/L	0.001009	1.194	mg/L	1.0089	84.47%
V 292.402†	-5.1	-0.00006	mg/L	0.000018	-0.06090	mg/L	0.018438	30.28%
Zn 206.200†	-2.6	-0.00119	mg/L	0.000356	-1.195	mg/L	0.3559	29.78%

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Analysis Begun

Start Time: 8/8/2019 2:21:18 PM
Logged In Analyst: Metals Instrument Controller
Spectrometer: Optima 7300 DV, S/N 077C8121202
Plasma On Time: 8/8/2019 10:53:47 AM
Technique: ICP Continuous
Autosampler: ESI

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0808.sif
Batch ID:
Results Data Set: I2190808
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1
Sample ID: 19G0341-01
Autosampler Location: 322
Date Collected: 8/8/2019 2:21:25 PM
Data Type: Original

Dilution: 500X

Nebulizer Parameters: 19G0341-01

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0341-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1908400.4	93.00	%	3.321				3.57%
ScR 361.383	210179.3	101.1	%	1.94				1.92%
Ag 328.068†	26.5	0.00018	mg/L	0.000192	0.08781	mg/L	0.096249	109.62%
Al 308.215†	25.2	0.02210	mg/L	0.010713	11.05	mg/L	5.357	48.48%
As 188.979†	2.8	0.00200	mg/L	0.000382	0.9977	mg/L	0.19089	19.13%
B 249.677†	210.2	0.03167	mg/L	0.000866	15.83	mg/L	0.433	2.73%
Ba 233.527†	9.1	0.00217	mg/L	0.000254	1.085	mg/L	0.1270	11.70%
Be 313.042†	13.6	0.00003	mg/L	0.000056	0.01521	mg/L	0.028025	184.21%
Ca 317.933†	1160.2	0.1193	mg/L	0.00105	59.64	mg/L	0.527	0.88%
Cd 228.802†	4.6	0.00017	mg/L	0.000349	0.08545	mg/L	0.174526	204.24%
Co 228.616†	4.1	0.00012	mg/L	0.000175	0.05878	mg/L	0.087740	149.27%
Cr 267.716†	-5.6	-0.00143	mg/L	0.001249	-0.7140	mg/L	0.62445	87.46%
Cu 324.752†	124.8	0.00062	mg/L	0.000489	0.3123	mg/L	0.24431	78.24%
Fe 273.955†	7.1	0.00716	mg/L	0.003132	3.579	mg/L	1.5660	43.76%
K 766.490†	1794.7	1.678	mg/L	0.0233	838.9	mg/L	11.65	1.39%
Mg 279.077†	129.9	0.1282	mg/L	0.00730	64.12	mg/L	3.649	5.69%
Mn 257.610†	22.8	0.00069	mg/L	0.000108	0.3466	mg/L	0.05418	15.63%
Mo 202.031†	5.6	0.00033	mg/L	0.000451	0.1642	mg/L	0.22525	137.21%
Na 589.592†	42836.9	5.222	mg/L	0.0262	2611	mg/L	13.12	0.50%
Na 330.237†	95.1	5.096	mg/L	0.3496	2548	mg/L	174.82	6.86%
Ni 231.604†	1.9	0.00059	mg/L	0.002446	0.2958	mg/L	1.22316	413.46%
Pb 220.353†	0.8	0.00011	mg/L	0.001462	0.05685	mg/L	0.731047	>999.9%
Sb 206.836†	4.6	0.00175	mg/L	0.001849	0.8748	mg/L	0.92458	105.69%
Se 196.026†	-7.2	-0.00658	mg/L	0.005805	-3.288	mg/L	2.9023	88.26%
Si 288.158†	30.5	0.03255	mg/L	0.005287	16.27	mg/L	2.643	16.24%
Sn 189.927†	-4.5	-0.00125	mg/L	0.000532	-0.6238	mg/L	0.26598	42.64%
Sr 421.552†	1065.1	0.00416	mg/L	0.000078	2.080	mg/L	0.0392	1.88%
Ti 334.903†	35.4	0.00256	mg/L	0.000400	1.280	mg/L	0.2001	15.63%
Tl 190.801†	-3.5	-0.00174	mg/L	0.001598	-0.8723	mg/L	0.79897	91.60%
V 292.402†	20.3	0.00023	mg/L	0.000238	0.1155	mg/L	0.11879	102.87%
Zn 206.200†	0.6	0.00019	mg/L	0.000300	0.09609	mg/L	0.149778	155.88%

Sequence No.: 2
Sample ID: SEQ-CCV3

Autosampler Location: 7
Date Collected: 8/8/2019 2:26:31 PM
Data Type: Original

Dilution: 1X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV3

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: SEQ-CCV3

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2046776.3	99.75	%	0.564				0.57%
ScR 361.383	208495.9	100.3	%	0.57				0.57%
Ag 328.068†	155784.4	1.032	mg/L	0.0104	1.032	mg/L	0.0104	1.01%
Al 308.215†	2329.5	2.013	mg/L	0.0103	2.013	mg/L	0.0103	0.51%
As 188.979†	2929.9	2.030	mg/L	0.0064	2.030	mg/L	0.0064	0.32%
B 249.677†	6811.0	1.025	mg/L	0.0033	1.025	mg/L	0.0033	0.32%
Ba 233.527†	4277.4	1.017	mg/L	0.0056	1.017	mg/L	0.0056	0.55%
Be 313.042†	441306.1	1.018	mg/L	0.0033	1.018	mg/L	0.0033	0.33%
Ca 317.933†	20282.6	2.073	mg/L	0.0084	2.073	mg/L	0.0084	0.41%
Cd 228.802†	25622.7	1.014	mg/L	0.0072	1.014	mg/L	0.0072	0.71%
Co 228.616†	33861.5	1.010	mg/L	0.0083	1.010	mg/L	0.0083	0.82%
Cr 267.716†	3980.6	1.004	mg/L	0.0064	1.004	mg/L	0.0064	0.63%
Cu 324.752†	202131.2	1.017	mg/L	0.0069	1.017	mg/L	0.0069	0.68%
Fe 273.955†	1976.1	2.000	mg/L	0.0123	2.000	mg/L	0.0123	0.62%
K 766.490†	21465.1	20.07	mg/L	0.113	20.07	mg/L	0.113	0.56%
Mg 279.077†	2065.4	2.051	mg/L	0.0094	2.051	mg/L	0.0094	0.46%
Mn 257.610†	33753.6	1.028	mg/L	0.0047	1.028	mg/L	0.0047	0.45%
Mo 202.031†	17023.4	1.011	mg/L	0.0067	1.011	mg/L	0.0067	0.66%
Na 589.592†	415312.2	50.63	mg/L	0.053	50.63	mg/L	0.053	0.10%
Na 330.237†	961.3	51.29	mg/L	0.118	51.29	mg/L	0.118	0.23%
Ni 231.604†	3312.4	1.010	mg/L	0.0032	1.010	mg/L	0.0032	0.32%
Pb 220.353†	15214.5	2.009	mg/L	0.0189	2.009	mg/L	0.0189	0.94%
Sb 206.836†	5651.3	2.127	mg/L	0.0104	2.127	mg/L	0.0104	0.49%
Se 196.026†	2289.0	2.092	mg/L	0.0162	2.092	mg/L	0.0162	0.78%
Si 288.158†	1912.0	2.042	mg/L	0.0194	2.042	mg/L	0.0194	0.95%
Sn 189.927†	3631.5	1.025	mg/L	0.0060	1.025	mg/L	0.0060	0.58%
Sr 421.552†	273078.4	1.067	mg/L	0.0056	1.067	mg/L	0.0056	0.53%
Ti 334.903†	13480.4	0.9761	mg/L	0.00348	0.9761	mg/L	0.00348	0.36%
Tl 190.801†	4055.5	2.039	mg/L	0.0134	2.039	mg/L	0.0134	0.66%
V 292.402†	84739.6	1.007	mg/L	0.0055	1.007	mg/L	0.0055	0.55%
Zn 206.200†	2369.6	1.025	mg/L	0.0033	1.025	mg/L	0.0033	0.33%

Sequence No.: 3 **Autosampler Location: 1**
Sample ID: SEQ-CCB3 **Date Collected: 8/8/2019 2:31:35 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB3

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: SEQ-CCB3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2068008.3	100.8	%	0.17				0.17%
ScR 361.383	210901.8	101.4	%	0.73				0.72%
Ag 328.068†	-6.1	-0.00004	mg/L	0.000295	-0.00004	mg/L	0.000295	732.64%
Al 308.215†	29.6	0.02610	mg/L	0.010568	0.02610	mg/L	0.010568	40.49%
As 188.979†	2.3	0.00159	mg/L	0.002330	0.00159	mg/L	0.002330	146.09%
B 249.677†	5.5	0.00083	mg/L	0.000404	0.00083	mg/L	0.000404	48.67%
Ba 233.527†	0.6	0.00013	mg/L	0.000080	0.00013	mg/L	0.000080	60.67%
Be 313.042†	8.1	0.00002	mg/L	0.000048	0.00002	mg/L	0.000048	240.49%
Ca 317.933†	14.3	0.00147	mg/L	0.000875	0.00147	mg/L	0.000875	59.48%
Cd 228.802†	6.4	0.00025	mg/L	0.000220	0.00025	mg/L	0.000220	89.44%
Co 228.616†	7.0	0.00021	mg/L	0.000131	0.00021	mg/L	0.000131	62.24%
Cr 267.716†	-2.7	-0.00069	mg/L	0.001408	-0.00069	mg/L	0.001408	203.27%
Cu 324.752†	50.8	0.00026	mg/L	0.000059	0.00026	mg/L	0.000059	22.99%
Fe 273.955†	1.9	0.00192	mg/L	0.001879	0.00192	mg/L	0.001879	97.90%
K 766.490†	59.6	0.05575	mg/L	0.023860	0.05575	mg/L	0.023860	42.80%
Mg 279.077†	6.4	0.00636	mg/L	0.008225	0.00636	mg/L	0.008225	129.24%
Mn 257.610†	1.6	0.00005	mg/L	0.000053	0.00005	mg/L	0.000053	107.45%
Mo 202.031†	13.4	0.00080	mg/L	0.000564	0.00080	mg/L	0.000564	70.85%
Na 589.592†	-180.5	-0.02201	mg/L	0.006044	-0.02201	mg/L	0.006044	27.46%
Na 330.237†	5.2	0.2779	mg/L	0.67470	0.2779	mg/L	0.67470	242.78%
Ni 231.604†	-3.4	-0.00105	mg/L	0.002374	-0.00105	mg/L	0.002374	226.18%
Pb 220.353†	8.9	0.00118	mg/L	0.000403	0.00118	mg/L	0.000403	34.14%
Sb 206.836†	4.4	0.00168	mg/L	0.000597	0.00168	mg/L	0.000597	35.54%
Se 196.026†	-5.5	-0.00505	mg/L	0.002094	-0.00505	mg/L	0.002094	41.44%
Si 288.158†	-1.7	-0.00184	mg/L	0.002659	-0.00184	mg/L	0.002659	144.66%
Sn 189.927†	-0.4	-0.00010	mg/L	0.000379	-0.00010	mg/L	0.000379	382.72%
Sr 421.552†	26.6	0.00010	mg/L	0.000093	0.00010	mg/L	0.000093	89.23%
Ti 334.903†	-2.3	-0.00017	mg/L	0.000390	-0.00017	mg/L	0.000390	233.00%
Tl 190.801†	-0.9	-0.00047	mg/L	0.003092	-0.00047	mg/L	0.003092	660.15%
V 292.402†	-28.2	-0.00034	mg/L	0.000174	-0.00034	mg/L	0.000174	51.50%
Zn 206.200†	-3.9	-0.00167	mg/L	0.000329	-0.00167	mg/L	0.000329	19.69%

Sequence No.: 4
Sample ID: 19G0416-06

Dilution: 2X
Wash Time: 37

Autosampler Location: 323
Date Collected: 8/8/2019 2:35:34 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-06

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0416-06

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2050665.5	99.93	%	1.657				1.66%
ScR 361.383	212696.1	102.3	%	1.09				1.06%
Ag 328.068†	-125.7	-0.00074	mg/L	0.000155	-0.00149	mg/L	0.000310	20.83%
Al 308.215†	146023.7	128.6	mg/L	0.96	257.2	mg/L	1.92	0.75%
As 188.979†	-157.2	0.08682	mg/L	0.002995	0.1736	mg/L	0.00599	3.45%
B 249.677†	122.9	0.03080	mg/L	0.001357	0.06159	mg/L	0.002713	4.41%
Ba 233.527†	2505.5	0.5812	mg/L	0.00748	1.162	mg/L	0.0150	1.29%
Be 313.042†	1592.7	0.00236	mg/L	0.000097	0.00472	mg/L	0.000195	4.13%
Ca 317.933†	430892.0	44.33	mg/L	0.195	88.67	mg/L	0.389	0.44%
Cd 228.802†	53.0	0.00297	mg/L	0.000350	0.00595	mg/L	0.000699	11.75%
Co 228.616†	2237.8	0.05257	mg/L	0.001516	0.1051	mg/L	0.00303	2.88%
Cr 267.716†	585.0	0.1511	mg/L	0.00300	0.3021	mg/L	0.00600	1.99%
Cu 324.752†	30179.8	0.1564	mg/L	0.00406	0.3128	mg/L	0.00812	2.60%
Fe 273.955†	121168.9	123.1	mg/L	0.45	246.2	mg/L	0.91	0.37%
K 766.490†	3778.0	3.532	mg/L	0.0523	7.064	mg/L	0.1046	1.48%
Mg 279.077†	30787.4	30.33	mg/L	0.153	60.67	mg/L	0.305	0.50%
Mn 257.610†	71050.7	2.162	mg/L	0.0166	4.324	mg/L	0.0331	0.77%
Mo 202.031†	72.5	0.00356	mg/L	0.000295	0.00712	mg/L	0.000591	8.29%
Na 589.592†	10137.8	1.236	mg/L	0.0156	2.472	mg/L	0.0313	1.27%
Na 330.237†	3.8	1.521	mg/L	0.1073	3.041	mg/L	0.2145	7.05%
Ni 231.604†	595.2	0.1813	mg/L	0.00306	0.3626	mg/L	0.00612	1.69%
Pb 220.353†	1093.8	0.1736	mg/L	0.00315	0.3472	mg/L	0.00629	1.81%
Sb 206.836†	11.0	0.01295	mg/L	0.000385	0.02589	mg/L	0.000770	2.97%
Se 196.026†	-15.9	-0.01571	mg/L	0.001873	-0.03142	mg/L	0.003747	11.92%
Si 288.158†	961.8	1.030	mg/L	0.0232	2.061	mg/L	0.0465	2.26%
Sn 189.927†	-58.1	-0.00587	mg/L	0.001186	-0.01174	mg/L	0.002373	20.21%
Sr 421.552†	87796.5	0.3430	mg/L	0.00451	0.6860	mg/L	0.00903	1.32%
Ti 334.903†	94408.4	6.842	mg/L	0.0362	13.68	mg/L	0.072	0.53%
Tl 190.801†	-29.5	-0.01382	mg/L	0.004840	-0.02764	mg/L	0.009679	35.01%
V 292.402†	25013.1	0.3024	mg/L	0.00587	0.6048	mg/L	0.01175	1.94%
Zn 206.200†	703.3	0.3044	mg/L	0.00398	0.6089	mg/L	0.00795	1.31%

Sequence No.: 5
Sample ID: 19G0416-10

Dilution: 2X
Wash Time: 37

Autosampler Location: 324
Date Collected: 8/8/2019 2:39:34 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-10

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0416-10

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2078454.7	101.3	%	0.67				0.66%
ScR 361.383	214395.9	103.1	%	0.17				0.16%
Ag 328.068†	-149.5	-0.00089	mg/L	0.000123	-0.00178	mg/L	0.000247	13.86%
Al 308.215†	169232.0	149.0	mg/L	0.41	298.1	mg/L	0.82	0.28%
As 188.979†	-156.4	0.08829	mg/L	0.003117	0.1766	mg/L	0.00623	3.53%
B 249.677†	112.7	0.03347	mg/L	0.001162	0.06694	mg/L	0.002325	3.47%
Ba 233.527†	3603.9	0.8376	mg/L	0.00621	1.675	mg/L	0.0124	0.74%
Be 313.042†	1940.4	0.00301	mg/L	0.000059	0.00603	mg/L	0.000119	1.97%
Ca 317.933†	418973.6	43.11	mg/L	0.039	86.21	mg/L	0.077	0.09%
Cd 228.802†	88.5	0.00437	mg/L	0.000071	0.00875	mg/L	0.000142	1.62%
Co 228.616†	2352.3	0.05524	mg/L	0.000514	0.1105	mg/L	0.00103	0.93%
Cr 267.716†	581.7	0.1514	mg/L	0.00169	0.3028	mg/L	0.00339	1.12%
Cu 324.752†	43699.2	0.2263	mg/L	0.00083	0.4527	mg/L	0.00166	0.37%
Fe 273.955†	162125.9	164.7	mg/L	0.74	329.4	mg/L	1.49	0.45%
K 766.490†	6420.1	6.002	mg/L	0.0941	12.00	mg/L	0.188	1.57%
Mg 279.077†	43015.7	42.39	mg/L	0.047	84.78	mg/L	0.094	0.11%
Mn 257.610†	136089.9	4.141	mg/L	0.0145	8.283	mg/L	0.0289	0.35%
Mo 202.031†	87.2	0.00446	mg/L	0.000805	0.00891	mg/L	0.001609	18.06%
Na 589.592†	12949.0	1.579	mg/L	0.0016	3.157	mg/L	0.0032	0.10%
Na 330.237†	9.8	1.709	mg/L	0.2031	3.419	mg/L	0.4062	11.88%
Ni 231.604†	539.6	0.1644	mg/L	0.00346	0.3288	mg/L	0.00693	2.11%
Pb 220.353†	2033.1	0.3010	mg/L	0.00478	0.6021	mg/L	0.00956	1.59%
Sb 206.836†	18.4	0.01591	mg/L	0.001074	0.03181	mg/L	0.002148	6.75%
Se 196.026†	-8.1	-0.00765	mg/L	0.005077	-0.01529	mg/L	0.010154	66.40%
Si 288.158†	958.0	1.028	mg/L	0.0094	2.055	mg/L	0.0189	0.92%
Sn 189.927†	-53.8	-0.00486	mg/L	0.000908	-0.00971	mg/L	0.001815	18.69%
Sr 421.552†	96014.0	0.3751	mg/L	0.00284	0.7502	mg/L	0.00569	0.76%
Ti 334.903†	94665.9	6.861	mg/L	0.0189	13.72	mg/L	0.038	0.28%
Tl 190.801†	-38.0	-0.01593	mg/L	0.002504	-0.03186	mg/L	0.005007	15.72%
V 292.402†	27977.2	0.3400	mg/L	0.00611	0.6800	mg/L	0.01222	1.80%
Zn 206.200†	1455.7	0.6302	mg/L	0.00294	1.260	mg/L	0.0059	0.47%

Sequence No.: 6
Sample ID: 19G0416-11

DEL

Dilution: 2X
Wash Time: 37

Autosampler Location: 325
Date Collected: 8/8/2019 2:43:18 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-11

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0416-11

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1988419.0	96.90	%	4.164				4.30%
ScR 361.383	215071.8	103.4	%	0.90				0.87%
Ag 328.068†	-240.1	-0.00146	mg/L	0.000156	-0.00292	mg/L	0.000312	10.69%
Al 308.215†	195454.4	172.1	mg/L	0.73	344.3	mg/L	1.45	0.42%
As 188.979†	-259.9	0.04826	mg/L	0.016431	0.09652	mg/L	0.032863	34.05%
B 249.677†	60.8	0.02698	mg/L	0.001147	0.05397	mg/L	0.002294	4.25%
Ba 233.527†	3261.2	0.7542	mg/L	0.00720	1.508	mg/L	0.0144	0.95%
Be 313.042†	2302.5	0.00341	mg/L	0.000041	0.00682	mg/L	0.000081	1.19%
Ca 317.933†	286333.5	29.46	mg/L	0.086	58.92	mg/L	0.173	0.29%
Cd 228.802†	58.1	0.00368	mg/L	0.000964	0.00736	mg/L	0.001928	26.20%
Co 228.616†	2728.6	0.06441	mg/L	0.006335	0.1288	mg/L	0.01267	9.84%
Cr 267.716†	777.4	0.2011	mg/L	0.00062	0.4023	mg/L	0.00124	0.31%
Cu 324.752†	32178.4	0.1688	mg/L	0.00100	0.3376	mg/L	0.00199	0.59%
Fe 273.955†	175540.1	178.3	mg/L	0.91	356.6	mg/L	1.82	0.51%
K 766.490†	6281.8	5.873	mg/L	0.0417	11.75	mg/L	0.083	0.71%
Mg 279.077†	48946.5	48.24	mg/L	0.203	96.48	mg/L	0.407	0.42%
Mn 257.610†	98592.0	3.000	mg/L	0.0072	6.000	mg/L	0.0143	0.24%
Mo 202.031†	59.7	0.00304	mg/L	0.000272	0.00609	mg/L	0.000544	8.94%
Na 589.592†	12441.4	1.517	mg/L	0.0067	3.033	mg/L	0.0134	0.44%
Na 330.237†	1.7	1.598	mg/L	0.3326	3.195	mg/L	0.6651	20.82%
Ni 231.604†	760.1	0.2316	mg/L	0.00186	0.4631	mg/L	0.00372	0.80%
Pb 220.353†	670.0	0.1270	mg/L	0.00602	0.2540	mg/L	0.01203	4.74%
Sb 206.836†	21.5	0.01821	mg/L	0.002033	0.03642	mg/L	0.004067	11.17%
Se 196.026†	-11.6	-0.01071	mg/L	0.002902	-0.02142	mg/L	0.005804	27.10%
Si 288.158†	944.7	1.014	mg/L	0.0092	2.028	mg/L	0.0185	0.91%
Sn 189.927†	-56.7	-0.00749	mg/L	0.002337	-0.01498	mg/L	0.004674	31.21%
Sr 421.552†	41724.5	0.1630	mg/L	0.00159	0.3260	mg/L	0.00318	0.98%
Ti 334.903†	109017.4	7.902	mg/L	0.0326	15.80	mg/L	0.065	0.41%
Tl 190.801†	-39.2	-0.01833	mg/L	0.004634	-0.03667	mg/L	0.009268	25.28%
V 292.402†	36580.2	0.4423	mg/L	0.00647	0.8845	mg/L	0.01294	1.46%
Zn 206.200†	895.6	0.3876	mg/L	0.00473	0.7752	mg/L	0.00946	1.22%

Sequence No.: 7
Sample ID: 19G0416-12

Autosampler Location: 326
Date Collected: 8/8/2019 2:47:02 PM
Data Type: Original

Dilution: 2X DEL
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-12

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0416-12

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1900255.5	92.60	%	3.161				3.41%
ScR 361.383	207391.9	99.74	%	4.247				4.26%
Ag 328.068†	-236.1	-0.00144	mg/L	0.000085	-0.00287	mg/L	0.000169	5.88%
Al 308.215†	234045.1	206.1	mg/L	1.38	412.2	mg/L	2.77	0.67%
As 188.979†	-265.1	0.04420	mg/L	0.014392	0.08840	mg/L	0.028784	32.56%
B 249.677†	63.3	0.03063	mg/L	0.000665	0.06127	mg/L	0.001330	2.17%
Ba 233.527†	3729.4	0.8617	mg/L	0.02965	1.723	mg/L	0.0593	3.44%
Be 313.042†	2604.4	0.00416	mg/L	0.000318	0.00831	mg/L	0.000636	7.66%
Ca 317.933†	349786.3	35.99	mg/L	0.216	71.98	mg/L	0.432	0.60%
Cd 228.802†	72.9	0.00425	mg/L	0.000602	0.00851	mg/L	0.001204	14.15%
Co 228.616†	3117.1	0.07547	mg/L	0.003432	0.1509	mg/L	0.00686	4.55%
Cr 267.716†	699.4	0.1832	mg/L	0.00556	0.3664	mg/L	0.01113	3.04%
Cu 324.752†	41752.3	0.2185	mg/L	0.00077	0.4370	mg/L	0.00153	0.35%
Fe 273.955†	207488.5	210.8	mg/L	1.98	421.5	mg/L	3.96	0.94%
K 766.490†	8281.4	7.742	mg/L	0.0447	15.48	mg/L	0.089	0.58%
Mg 279.077†	50669.3	49.94	mg/L	0.341	99.87	mg/L	0.683	0.68%
Mn 257.610†	316418.4	9.629	mg/L	0.0713	19.26	mg/L	0.143	0.74%
Mo 202.031†	87.7	0.00460	mg/L	0.000369	0.00921	mg/L	0.000737	8.01%
Na 589.592†	19689.4	2.400	mg/L	0.0132	4.801	mg/L	0.0264	0.55%
Na 330.237†	13.6	2.193	mg/L	0.4666	4.385	mg/L	0.9331	21.28%
Ni 231.604†	620.9	0.1892	mg/L	0.00473	0.3783	mg/L	0.00946	2.50%
Pb 220.353†	721.4	0.1414	mg/L	0.00411	0.2828	mg/L	0.00821	2.90%
Sb 206.836†	34.8	0.02352	mg/L	0.003285	0.04703	mg/L	0.006570	13.97%
Se 196.026†	-6.7	-0.01190	mg/L	0.002960	-0.02379	mg/L	0.005920	24.88%
Si 288.158†	854.7	0.9183	mg/L	0.03051	1.837	mg/L	0.0610	3.32%
Sn 189.927†	-59.1	-0.00707	mg/L	0.001357	-0.01415	mg/L	0.002714	19.18%
Sr 421.552†	63927.1	0.2497	mg/L	0.00143	0.4995	mg/L	0.00287	0.57%
Ti 334.903†	108992.7	7.900	mg/L	0.0657	15.80	mg/L	0.131	0.83%
Tl 190.801†	-61.0	-0.02151	mg/L	0.001311	-0.04302	mg/L	0.002622	6.09%
V 292.402†	35620.8	0.4338	mg/L	0.00385	0.8676	mg/L	0.00769	0.89%
Zn 206.200†	1127.4	0.4879	mg/L	0.01727	0.9759	mg/L	0.03454	3.54%

Sequence No.: 8
Sample ID: 19G0416-13

Autosampler Location: 327
Date Collected: 8/8/2019 2:50:46 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

DEL

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-13

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0416-13

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1921898.3	93.66	%	4.297				4.59%
ScR 361.383	200616.3	96.48	%	5.976				6.19%
Ag 328.068†	-225.3	-0.00137	mg/L	0.000122	-0.00274	mg/L	0.000244	8.93%
Al 308.215†	220318.2	194.0	mg/L	1.35	388.1	mg/L	2.70	0.70%
As 188.979†	-215.0	0.08015	mg/L	0.007185	0.1603	mg/L	0.01437	8.96%
B 249.677†	72.3	0.02847	mg/L	0.001497	0.05694	mg/L	0.002993	5.26%
Ba 233.527†	3472.2	0.8048	mg/L	0.03331	1.610	mg/L	0.0666	4.14%
Be 313.042†	2500.4	0.00395	mg/L	0.000412	0.00790	mg/L	0.000825	10.44%
Ca 317.933†	324002.0	33.34	mg/L	0.327	66.67	mg/L	0.654	0.98%
Cd 228.802†	66.5	0.00384	mg/L	0.000669	0.00767	mg/L	0.001339	17.45%
Co 228.616†	2689.7	0.06317	mg/L	0.003102	0.1263	mg/L	0.00620	4.91%
Cr 267.716†	899.6	0.2319	mg/L	0.00726	0.4638	mg/L	0.01452	3.13%
Cu 324.752†	30267.3	0.1590	mg/L	0.00047	0.3181	mg/L	0.00093	0.29%
Fe 273.955†	173202.3	175.9	mg/L	2.05	351.9	mg/L	4.10	1.16%
K 766.490†	5261.8	4.919	mg/L	0.0386	9.839	mg/L	0.0772	0.78%
Mg 279.077†	47769.5	47.08	mg/L	0.441	94.16	mg/L	0.883	0.94%
Mn 257.610†	126764.4	3.857	mg/L	0.0317	7.715	mg/L	0.0635	0.82%
Mo 202.031†	73.3	0.00379	mg/L	0.000377	0.00758	mg/L	0.000754	9.95%
Na 589.592†	11962.4	1.458	mg/L	0.0130	2.917	mg/L	0.0259	0.89%
Na 330.237†	-13.2	0.7954	mg/L	1.20796	1.591	mg/L	2.4159	151.87%
Ni 231.604†	831.7	0.2534	mg/L	0.00953	0.5067	mg/L	0.01905	3.76%
Pb 220.353†	1037.0	0.1816	mg/L	0.00661	0.3632	mg/L	0.01322	3.64%
Sb 206.836†	31.2	0.02138	mg/L	0.000658	0.04277	mg/L	0.001317	3.08%
Se 196.026†	-14.1	-0.01632	mg/L	0.006537	-0.03263	mg/L	0.013075	40.07%
Si 288.158†	1036.4	1.112	mg/L	0.0430	2.224	mg/L	0.0859	3.86%
Sn 189.927†	-60.2	-0.00779	mg/L	0.001313	-0.01558	mg/L	0.002625	16.85%
Sr 421.552†	56348.9	0.2201	mg/L	0.00256	0.4403	mg/L	0.00512	1.16%
Ti 334.903†	109864.7	7.963	mg/L	0.0752	15.93	mg/L	0.150	0.94%
Tl 190.801†	-42.9	-0.01912	mg/L	0.004893	-0.03824	mg/L	0.009787	25.60%
V 292.402†	34885.2	0.4225	mg/L	0.00445	0.8450	mg/L	0.00889	1.05%
Zn 206.200†	970.6	0.4201	mg/L	0.01575	0.8403	mg/L	0.03150	3.75%

Sequence No.: 9
Sample ID: ~~BHG0088-SRL1~~ BHH0088-SRL1
TH 08-08-19
Dilution: 10X
Wash Time: 37

Autosampler Location: 328
Date Collected: 8/8/2019 2:54:30 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: ~~BHG0088-SRL1~~ BHH0088-SRL1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: ~~BHG0088-SRL1~~ BHH0088-SRL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2069819.5	100.9	%	1.49				1.48%
ScR 361.383	208989.8	100.5	%	1.49				1.48%
Ag 328.068†	-21.9	-0.00012	mg/L	0.000261	-0.00122	mg/L	0.002613	214.58%
Al 308.215†	41629.0	36.66	mg/L	0.119	366.6	mg/L	1.19	0.32%
As 188.979†	-42.9	0.01031	mg/L	0.002582	0.1031	mg/L	0.02582	25.06%
B 249.677†	9.2	0.00481	mg/L	0.001168	0.04811	mg/L	0.011675	24.27%
Ba 233.527†	672.2	0.1558	mg/L	0.00489	1.558	mg/L	0.0489	3.14%
Be 313.042†	568.4	0.00097	mg/L	0.000046	0.00972	mg/L	0.000463	4.76%
Ca 317.933†	46310.2	4.765	mg/L	0.0217	47.65	mg/L	0.217	0.45%
Cd 228.802†	18.7	0.00099	mg/L	0.000313	0.00986	mg/L	0.003127	31.70%
Co 228.616†	559.1	0.01365	mg/L	0.000252	0.1365	mg/L	0.00252	1.85%
Cr 267.716†	169.3	0.04363	mg/L	0.001643	0.4363	mg/L	0.01643	3.77%
Cu 324.752†	6139.6	0.03223	mg/L	0.000526	0.3223	mg/L	0.00526	1.63%
Fe 273.955†	33760.5	34.29	mg/L	0.124	342.9	mg/L	1.24	0.36%
K 766.490†	1133.8	1.060	mg/L	0.0289	10.60	mg/L	0.289	2.72%
Mg 279.077†	9847.8	9.707	mg/L	0.0057	97.07	mg/L	0.057	0.06%
Mn 257.610†	21760.7	0.6622	mg/L	0.00265	6.622	mg/L	0.0265	0.40%
Mo 202.031†	17.0	0.00093	mg/L	0.000375	0.00928	mg/L	0.003750	40.43%
Na 589.592†	1306.7	0.1593	mg/L	0.00252	1.593	mg/L	0.0252	1.58%
Na 330.237†	-4.6	0.01143	mg/L	0.568847	0.1143	mg/L	5.68847	>999.9%
Ni 231.604†	174.4	0.05312	mg/L	0.001218	0.5312	mg/L	0.01218	2.29%
Pb 220.353†	106.6	0.02248	mg/L	0.000683	0.2248	mg/L	0.00683	3.04%
Sb 206.836†	10.8	0.00571	mg/L	0.001617	0.05715	mg/L	0.016174	28.30%
Se 196.026†	1.5	0.00090	mg/L	0.002273	0.00896	mg/L	0.022729	253.74%
Si 288.158†	181.0	0.1944	mg/L	0.00615	1.944	mg/L	0.0615	3.16%
Sn 189.927†	-11.3	-0.00176	mg/L	0.000665	-0.01761	mg/L	0.006647	37.74%
Sr 421.552†	8142.7	0.03181	mg/L	0.000113	0.3181	mg/L	0.00113	0.36%
Ti 334.903†	19140.5	1.387	mg/L	0.0049	13.87	mg/L	0.049	0.35%
Tl 190.801†	-8.2	-0.00372	mg/L	0.001955	-0.03723	mg/L	0.019550	52.50%
V 292.402†	6544.2	0.07933	mg/L	0.000480	0.7933	mg/L	0.00480	0.60%
Zn 206.200†	187.3	0.08108	mg/L	0.003282	0.8108	mg/L	0.03282	4.05%

Sequence No.: 10
Sample ID: 19G0416-16

Dilution: 2X
Wash Time: 37

Autosampler Location: 329
Date Collected: 8/8/2019 2:58:28 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-16

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: 19G0416-16

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2050027.9	99.90	%	2.174				2.18%
ScR 361.383	214794.7	103.3	%	0.91				0.88%
Ag 328.068†	-222.0	-0.00135	mg/L	0.000080	-0.00271	mg/L	0.000160	5.91%
Al 308.215†	215895.6	190.1	mg/L	1.45	380.3	mg/L	2.91	0.76%
As 188.979†	-212.5	0.05842	mg/L	0.002971	0.1168	mg/L	0.00594	5.09%
B 249.677†	45.4	0.02420	mg/L	0.001026	0.04841	mg/L	0.002052	4.24%
Ba 233.527†	3349.1	0.7758	mg/L	0.01669	1.552	mg/L	0.0334	2.15%
Be 313.042†	2347.9	0.00371	mg/L	0.000148	0.00742	mg/L	0.000296	3.99%
Ca 317.933†	238163.1	24.50	mg/L	0.098	49.01	mg/L	0.195	0.40%
Cd 228.802†	54.7	0.00336	mg/L	0.000035	0.00671	mg/L	0.000070	1.04%
Co 228.616†	2705.3	0.06515	mg/L	0.001360	0.1303	mg/L	0.00272	2.09%
Cr 267.716†	884.4	0.2277	mg/L	0.00217	0.4555	mg/L	0.00433	0.95%
Cu 324.752†	30254.6	0.1590	mg/L	0.00022	0.3180	mg/L	0.00044	0.14%
Fe 273.955†	171016.4	173.7	mg/L	0.79	347.4	mg/L	1.59	0.46%
K 766.490†	5347.8	5.000	mg/L	0.0379	9.999	mg/L	0.0758	0.76%
Mg 279.077†	50521.6	49.80	mg/L	0.277	99.60	mg/L	0.553	0.56%
Mn 257.610†	111419.0	3.390	mg/L	0.0232	6.781	mg/L	0.0464	0.68%
Mo 202.031†	51.6	0.00264	mg/L	0.000428	0.00528	mg/L	0.000855	16.19%
Na 589.592†	7547.9	0.9202	mg/L	0.00864	1.840	mg/L	0.0173	0.94%
Na 330.237†	-6.0	1.011	mg/L	0.2387	2.023	mg/L	0.4774	23.60%
Ni 231.604†	844.2	0.2572	mg/L	0.00644	0.5144	mg/L	0.01288	2.50%
Pb 220.353†	457.0	0.1041	mg/L	0.00016	0.2083	mg/L	0.00032	0.15%
Sb 206.836†	33.1	0.02086	mg/L	0.000569	0.04171	mg/L	0.001138	2.73%
Se 196.026†	-11.9	-0.01372	mg/L	0.003110	-0.02743	mg/L	0.006220	22.67%
Si 288.158†	981.4	1.054	mg/L	0.0195	2.107	mg/L	0.0389	1.85%
Sn 189.927†	-47.4	-0.00605	mg/L	0.001059	-0.01210	mg/L	0.002118	17.50%
Sr 421.552†	41228.8	0.1611	mg/L	0.00225	0.3221	mg/L	0.00450	1.40%
Ti 334.903†	98385.3	7.132	mg/L	0.0418	14.26	mg/L	0.084	0.59%
Tl 190.801†	-42.8	-0.01952	mg/L	0.002488	-0.03905	mg/L	0.004976	12.74%
V 292.402†	32849.5	0.3983	mg/L	0.00081	0.7967	mg/L	0.00163	0.20%
Zn 206.200†	938.8	0.4064	mg/L	0.00941	0.8128	mg/L	0.01883	2.32%

Sequence No.: 11
Sample ID: ~~BHG0088-DUP1~~ BHH0088-DUP1
Dilution: 2X
Wash Time: 37

Autosampler Location: 330
Date Collected: 8/8/2019 3:02:12 PM
Data Type: Original

Auto Dilution Factor: 1

TH 08-08-19

Nebulizer Parameters: ~~BHG0088-DUP1~~ BHH0088-DUP1

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: ~~BHG0088-DUP1~~ BHH0088-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2057863.3	100.3	%	1.58				1.57%
ScR 361.383	211801.1	101.9	%	1.61				1.58%
Ag 328.068†	-212.5	-0.00129	mg/L	0.000154	-0.00257	mg/L	0.000307	11.94%
Al 308.215†	226890.0	199.8	mg/L	1.09	399.6	mg/L	2.18	0.55%
As 188.979†	-214.3	0.06624	mg/L	0.002590	0.1325	mg/L	0.00518	3.91%
B 249.677†	54.8	0.02657	mg/L	0.000514	0.05315	mg/L	0.001027	1.93%
Ba 233.527†	3533.8	0.8185	mg/L	0.01063	1.637	mg/L	0.0213	1.30%
Be 313.042†	2540.1	0.00409	mg/L	0.000085	0.00818	mg/L	0.000171	2.09%
Ca 317.933†	260945.4	26.85	mg/L	0.034	53.70	mg/L	0.067	0.13%
Cd 228.802†	46.9	0.00306	mg/L	0.000054	0.00613	mg/L	0.000109	1.78%
Co 228.616†	2698.2	0.06421	mg/L	0.000457	0.1284	mg/L	0.00091	0.71%
Cr 267.716†	886.3	0.2286	mg/L	0.00080	0.4571	mg/L	0.00159	0.35%
Cu 324.752†	31888.6	0.1676	mg/L	0.00025	0.3352	mg/L	0.00050	0.15%
Fe 273.955†	180401.1	183.2	mg/L	1.04	366.5	mg/L	2.09	0.57%
K 766.490†	5661.8	5.293	mg/L	0.0544	10.59	mg/L	0.109	1.03%
Mg 279.077†	52493.4	51.74	mg/L	0.181	103.5	mg/L	0.36	0.35%
Mn 257.610†	113767.1	3.462	mg/L	0.0245	6.924	mg/L	0.0489	0.71%
Mo 202.031†	51.8	0.00262	mg/L	0.000048	0.00523	mg/L	0.000096	1.83%
Na 589.592†	7902.1	0.9633	mg/L	0.00776	1.927	mg/L	0.0155	0.81%
Na 330.237†	-7.0	1.015	mg/L	0.1028	2.030	mg/L	0.2056	10.13%
Ni 231.604†	878.1	0.2675	mg/L	0.00178	0.5350	mg/L	0.00356	0.67%
Pb 220.353†	435.2	0.1034	mg/L	0.00127	0.2068	mg/L	0.00253	1.23%
Sb 206.836†	33.4	0.02146	mg/L	0.002838	0.04293	mg/L	0.005677	13.22%
Se 196.026†	-12.3	-0.01405	mg/L	0.001337	-0.02809	mg/L	0.002674	9.52%
Si 288.158†	1104.2	1.185	mg/L	0.0179	2.370	mg/L	0.0357	1.51%
Sn 189.927†	-48.2	-0.00574	mg/L	0.001678	-0.01147	mg/L	0.003355	29.24%
Sr 421.552†	42458.1	0.1659	mg/L	0.00164	0.3317	mg/L	0.00328	0.99%
Ti 334.903†	102776.1	7.450	mg/L	0.0201	14.90	mg/L	0.040	0.27%
Tl 190.801†	-40.9	-0.01855	mg/L	0.003444	-0.03710	mg/L	0.006888	18.57%
V 292.402†	34091.3	0.4135	mg/L	0.00311	0.8270	mg/L	0.00623	0.75%
Zn 206.200†	990.0	0.4285	mg/L	0.00548	0.8571	mg/L	0.01095	1.28%

Sequence No.: 12
Sample ID: ~~BHG0088-MS1~~ BHH0088-MS1
Dilution: 2X
Wash Time: 37

TH 08-08-19

Autosampler Location: 331
Date Collected: 8/8/2019 3:05:56 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: ~~BHG0088-MS1~~ BHH0088-MS1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: ~~BHG0088-MS1~~ BHH0088-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2059286.2	100.4	%	0.68				0.68%
ScR 361.383	215435.5	103.6	%	0.76				0.73%
Ag 328.068†	71108.4	0.4714	mg/L	0.00260	0.9428	mg/L	0.00520	0.55%
Al 308.215†	216738.3	190.9	mg/L	1.86	381.8	mg/L	3.72	0.97%
As 188.979†	2564.4	1.952	mg/L	0.0135	3.905	mg/L	0.0271	0.69%
B 249.677†	58.9	0.02539	mg/L	0.001871	0.05079	mg/L	0.003742	7.37%
Ba 233.527†	11021.7	2.602	mg/L	0.0408	5.205	mg/L	0.0817	1.57%
Be 313.042†	211599.9	0.4865	mg/L	0.00466	0.9729	mg/L	0.00933	0.96%
Ca 317.933†	350620.6	36.07	mg/L	0.431	72.14	mg/L	0.863	1.20%
Cd 228.802†	12440.7	0.4875	mg/L	0.00599	0.9749	mg/L	0.01197	1.23%
Co 228.616†	18310.3	0.5316	mg/L	0.00534	1.063	mg/L	0.0107	1.01%
Cr 267.716†	2729.8	0.6924	mg/L	0.01525	1.385	mg/L	0.0305	2.20%
Cu 324.752†	123250.6	0.6274	mg/L	0.00422	1.255	mg/L	0.0084	0.67%
Fe 273.955†	173867.3	176.6	mg/L	2.29	353.2	mg/L	4.58	1.30%
K 766.490†	14864.8	13.90	mg/L	0.146	27.79	mg/L	0.292	1.05%
Mg 279.077†	59326.5	58.49	mg/L	0.534	117.0	mg/L	1.07	0.91%
Mn 257.610†	122263.2	3.721	mg/L	0.0292	7.441	mg/L	0.0583	0.78%
Mo 202.031†	69.9	0.00351	mg/L	0.000291	0.00703	mg/L	0.000581	8.27%
Na 589.592†	87508.4	10.67	mg/L	0.101	21.34	mg/L	0.201	0.94%
Na 330.237†	183.3	10.92	mg/L	0.122	21.83	mg/L	0.244	1.12%
Ni 231.604†	2295.5	0.6992	mg/L	0.00960	1.398	mg/L	0.0192	1.37%
Pb 220.353†	14669.1	1.980	mg/L	0.0198	3.960	mg/L	0.0396	1.00%
Sb 206.836†	40.6	0.01731	mg/L	0.000702	0.03461	mg/L	0.001405	4.06%
Se 196.026†	2146.3	1.959	mg/L	0.0207	3.919	mg/L	0.0413	1.05%
Si 288.158†	1056.5	1.135	mg/L	0.0212	2.271	mg/L	0.0424	1.87%
Sn 189.927†	-56.5	-0.00677	mg/L	0.000844	-0.01353	mg/L	0.001688	12.48%
Sr 421.552†	170300.6	0.6653	mg/L	0.00520	1.331	mg/L	0.0104	0.78%
Ti 334.903†	94897.2	6.878	mg/L	0.0747	13.76	mg/L	0.149	1.09%
Tl 190.801†	3639.8	1.835	mg/L	0.0187	3.669	mg/L	0.0373	1.02%
V 292.402†	71265.2	0.8551	mg/L	0.00842	1.710	mg/L	0.0168	0.98%
Zn 206.200†	1986.3	0.8596	mg/L	0.01253	1.719	mg/L	0.0251	1.46%

Sequence No.: 13
Sample ID: ~~BHG0088-MSD1~~ BHH0088-MSD1
TH 08-08-19
Dilution: 2X
Wash Time: 37

Autosampler Location: 332
Date Collected: 8/8/2019 3:09:41 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: ~~BHG0088-MSD1~~ BHH0088-MSD1

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: ~~BHG0088-MSD1~~ BHH0088-MSD1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2080511.2	101.4	%	0.76				0.75%
ScR 361.383	212962.8	102.4	%	0.22				0.22%
Ag 328.068†	72886.7	0.4832	mg/L	0.00316	0.9664	mg/L	0.00631	0.65%
Al 308.215†	221302.6	194.9	mg/L	0.60	389.8	mg/L	1.20	0.31%
As 188.979†	2648.6	2.012	mg/L	0.0152	4.024	mg/L	0.0303	0.75%
B 249.677†	52.4	0.02504	mg/L	0.001268	0.05008	mg/L	0.002536	5.06%
Ba 233.527†	11562.6	2.730	mg/L	0.0084	5.461	mg/L	0.0169	0.31%
Be 313.042†	219499.4	0.5047	mg/L	0.00089	1.009	mg/L	0.0018	0.18%
Ca 317.933†	354665.8	36.48	mg/L	0.112	72.97	mg/L	0.223	0.31%
Cd 228.802†	12745.4	0.4993	mg/L	0.00510	0.9987	mg/L	0.01019	1.02%
Co 228.616†	18861.7	0.5478	mg/L	0.00497	1.096	mg/L	0.0099	0.91%
Cr 267.716†	2843.1	0.7209	mg/L	0.00348	1.442	mg/L	0.0070	0.48%
Cu 324.752†	126550.9	0.6443	mg/L	0.00389	1.289	mg/L	0.0078	0.60%
Fe 273.955†	180376.9	183.2	mg/L	0.16	366.4	mg/L	0.31	0.09%
K 766.490†	14691.1	13.73	mg/L	0.095	27.47	mg/L	0.190	0.69%
Mg 279.077†	63507.3	62.62	mg/L	0.019	125.2	mg/L	0.04	0.03%
Mn 257.610†	129491.6	3.941	mg/L	0.0054	7.881	mg/L	0.0108	0.14%
Mo 202.031†	75.5	0.00383	mg/L	0.000305	0.00767	mg/L	0.000609	7.94%
Na 589.592†	87723.2	10.69	mg/L	0.015	21.39	mg/L	0.030	0.14%
Na 330.237†	179.5	10.70	mg/L	0.168	21.41	mg/L	0.336	1.57%
Ni 231.604†	2446.9	0.7453	mg/L	0.00345	1.491	mg/L	0.0069	0.46%
Pb 220.353†	15155.0	2.045	mg/L	0.0165	4.090	mg/L	0.0331	0.81%
Sb 206.836†	47.4	0.01959	mg/L	0.002627	0.03919	mg/L	0.005254	13.41%
Se 196.026†	2191.3	2.001	mg/L	0.0064	4.001	mg/L	0.0128	0.32%
Si 288.158†	1197.5	1.286	mg/L	0.0074	2.573	mg/L	0.0149	0.58%
Sn 189.927†	-60.6	-0.00783	mg/L	0.001421	-0.01565	mg/L	0.002841	18.15%
Sr 421.552†	175383.5	0.6852	mg/L	0.00526	1.370	mg/L	0.0105	0.77%
Ti 334.903†	95771.0	6.941	mg/L	0.0188	13.88	mg/L	0.038	0.27%
Tl 190.801†	3724.6	1.877	mg/L	0.0153	3.755	mg/L	0.0306	0.82%
V 292.402†	73038.2	0.8766	mg/L	0.00588	1.753	mg/L	0.0118	0.67%
Zn 206.200†	2088.2	0.9037	mg/L	0.00653	1.807	mg/L	0.0131	0.72%

Sequence No.: 14
Sample ID: SEQ-CCV4

Autosampler Location: 7
Date Collected: 8/8/2019 3:13:26 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV4

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-CCV4

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2093642.6	102.0	%	0.33				0.33%
ScR 361.383	211753.3	101.8	%	0.49				0.48%
Ag 328.068†	153928.6	1.020	mg/L	0.0019	1.020	mg/L	0.0019	0.18%
Al 308.215†	2296.1	1.984	mg/L	0.0119	1.984	mg/L	0.0119	0.60%
As 188.979†	2926.8	2.028	mg/L	0.0099	2.028	mg/L	0.0099	0.49%
B 249.677†	6769.5	1.019	mg/L	0.0069	1.019	mg/L	0.0069	0.68%
Ba 233.527†	4270.9	1.016	mg/L	0.0054	1.016	mg/L	0.0054	0.53%
Be 313.042†	437740.1	1.010	mg/L	0.0031	1.010	mg/L	0.0031	0.31%
Ca 317.933†	20358.8	2.081	mg/L	0.0170	2.081	mg/L	0.0170	0.82%
Cd 228.802†	25277.7	1.000	mg/L	0.0033	1.000	mg/L	0.0033	0.33%
Co 228.616†	33737.7	1.006	mg/L	0.0017	1.006	mg/L	0.0017	0.17%
Cr 267.716†	3967.7	1.001	mg/L	0.0054	1.001	mg/L	0.0054	0.54%
Cu 324.752†	199139.6	1.002	mg/L	0.0018	1.002	mg/L	0.0018	0.18%
Fe 273.955†	1970.4	1.994	mg/L	0.0128	1.994	mg/L	0.0128	0.64%
K 766.490†	20955.3	19.59	mg/L	0.119	19.59	mg/L	0.119	0.61%
Mg 279.077†	2077.4	2.063	mg/L	0.0225	2.063	mg/L	0.0225	1.09%
Mn 257.610†	33804.1	1.029	mg/L	0.0059	1.029	mg/L	0.0059	0.57%
Mo 202.031†	16919.1	1.005	mg/L	0.0034	1.005	mg/L	0.0034	0.34%
Na 589.592†	409408.1	49.91	mg/L	0.210	49.91	mg/L	0.210	0.42%
Na 330.237†	945.3	50.43	mg/L	0.341	50.43	mg/L	0.341	0.68%
Ni 231.604†	3322.8	1.014	mg/L	0.0092	1.014	mg/L	0.0092	0.91%
Pb 220.353†	15201.9	2.007	mg/L	0.0033	2.007	mg/L	0.0033	0.16%
Sb 206.836†	5594.2	2.106	mg/L	0.0123	2.106	mg/L	0.0123	0.58%
Se 196.026†	2286.4	2.089	mg/L	0.0060	2.089	mg/L	0.0060	0.29%
Si 288.158†	1912.8	2.043	mg/L	0.0064	2.043	mg/L	0.0064	0.32%
Sn 189.927†	3636.3	1.027	mg/L	0.0036	1.027	mg/L	0.0036	0.35%
Sr 421.552†	271365.4	1.060	mg/L	0.0068	1.060	mg/L	0.0068	0.64%
Ti 334.903†	13354.2	0.9669	mg/L	0.00324	0.9669	mg/L	0.00324	0.34%
Tl 190.801†	4054.0	2.038	mg/L	0.0059	2.038	mg/L	0.0059	0.29%
V 292.402†	84265.7	1.002	mg/L	0.0049	1.002	mg/L	0.0049	0.49%
Zn 206.200†	2397.9	1.037	mg/L	0.0059	1.037	mg/L	0.0059	0.57%

Sequence No.: 15
Sample ID: SEQ-CCB4
Autosampler Location: 1
Date Collected: 8/8/2019 3:18:29 PM
Data Type: Original
Dilution: 1X
Wash Time: 100
Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCB4

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-CCB4

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2110824.8	102.9	%	0.53				0.52%
ScR 361.383	214580.9	103.2	%	0.29				0.28%
Ag 328.068†	3.8	0.00003	mg/L	0.000084	0.00003	mg/L	0.000084	330.62%
Al 308.215†	7.5	0.00655	mg/L	0.023293	0.00655	mg/L	0.023293	355.83%
As 188.979†	0.3	0.00027	mg/L	0.002692	0.00027	mg/L	0.002692	991.67%
B 249.677†	14.1	0.00213	mg/L	0.001058	0.00213	mg/L	0.001058	49.63%
Ba 233.527†	-1.5	-0.00036	mg/L	0.000948	-0.00036	mg/L	0.000948	260.88%
Be 313.042†	-3.7	-0.00001	mg/L	0.000073	-0.00001	mg/L	0.000073	>999.9%
Ca 317.933†	24.6	0.00252	mg/L	0.000587	0.00252	mg/L	0.000587	23.32%
Cd 228.802†	7.7	0.00031	mg/L	0.000424	0.00031	mg/L	0.000424	137.15%
Co 228.616†	6.3	0.00019	mg/L	0.000249	0.00019	mg/L	0.000249	133.30%
Cr 267.716†	0.2	0.00006	mg/L	0.001401	0.00006	mg/L	0.001401	>999.9%
Cu 324.752†	53.5	0.00027	mg/L	0.000095	0.00027	mg/L	0.000095	35.54%
Fe 273.955†	2.3	0.00232	mg/L	0.000253	0.00232	mg/L	0.000253	10.92%
K 766.490†	57.4	0.05370	mg/L	0.019155	0.05370	mg/L	0.019155	35.67%
Mg 279.077†	3.0	0.00299	mg/L	0.003659	0.00299	mg/L	0.003659	122.35%
Mn 257.610†	6.4	0.00020	mg/L	0.000166	0.00020	mg/L	0.000166	84.98%
Mo 202.031†	11.4	0.00068	mg/L	0.000339	0.00068	mg/L	0.000339	50.06%
Na 589.592†	-200.5	-0.02444	mg/L	0.003493	-0.02444	mg/L	0.003493	14.29%
Na 330.237†	12.0	0.6444	mg/L	0.32238	0.6444	mg/L	0.32238	50.03%
Ni 231.604†	3.0	0.00093	mg/L	0.002602	0.00093	mg/L	0.002602	279.79%
Pb 220.353†	0.8	0.00010	mg/L	0.001068	0.00010	mg/L	0.001068	>999.9%
Sb 206.836†	3.2	0.00120	mg/L	0.001013	0.00120	mg/L	0.001013	84.33%
Se 196.026†	-3.4	-0.00310	mg/L	0.000987	-0.00310	mg/L	0.000987	31.80%
Si 288.158†	-4.7	-0.00497	mg/L	0.004100	-0.00497	mg/L	0.004100	82.51%
Sn 189.927†	-1.0	-0.00028	mg/L	0.000814	-0.00028	mg/L	0.000814	286.39%
Sr 421.552†	20.9	0.00008	mg/L	0.000083	0.00008	mg/L	0.000083	101.29%
Ti 334.903†	18.7	0.00136	mg/L	0.000149	0.00136	mg/L	0.000149	11.01%
Tl 190.801†	0.1	0.00004	mg/L	0.001241	0.00004	mg/L	0.001241	>999.9%
V 292.402†	-33.6	-0.00040	mg/L	0.000013	-0.00040	mg/L	0.000013	3.30%
Zn 206.200†	-3.3	-0.00145	mg/L	0.000817	-0.00145	mg/L	0.000817	56.17%

Sequence No.: 16
Sample ID: 19G0416-07

Dilution: 2X
Wash Time: 37

Autosampler Location: 333
Date Collected: 8/8/2019 3:22:27 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-07

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: 19G0416-07

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1930954.3	94.10	%	1.674				1.78%
ScR 361.383	211417.3	101.7	%	3.84				3.78%
Ag 328.068†	-90.3	-0.00047	mg/L	0.000173	-0.00094	mg/L	0.000345	36.65%
Al 308.215†	228230.1	201.0	mg/L	0.65	402.0	mg/L	1.30	0.32%
As 188.979†	-128.0	0.1391	mg/L	0.00496	0.2782	mg/L	0.00992	3.57%
B 249.677†	93.8	0.03105	mg/L	0.000991	0.06209	mg/L	0.001983	3.19%
Ba 233.527†	3278.6	0.7595	mg/L	0.01135	1.519	mg/L	0.0227	1.50%
Be 313.042†	2622.6	0.00419	mg/L	0.000102	0.00838	mg/L	0.000203	2.43%
Ca 317.933†	291248.0	29.97	mg/L	0.186	59.93	mg/L	0.373	0.62%
Cd 228.802†	174.3	0.00772	mg/L	0.000258	0.01544	mg/L	0.000516	3.34%
Co 228.616†	2771.3	0.06577	mg/L	0.002024	0.1315	mg/L	0.00405	3.08%
Cr 267.716†	941.6	0.2429	mg/L	0.00426	0.4858	mg/L	0.00852	1.75%
Cu 324.752†	52541.7	0.2709	mg/L	0.00046	0.5418	mg/L	0.00091	0.17%
Fe 273.955†	166824.7	169.5	mg/L	0.43	338.9	mg/L	0.86	0.25%
K 766.490†	4766.7	4.456	mg/L	0.0206	8.913	mg/L	0.0413	0.46%
Mg 279.077†	41538.2	40.93	mg/L	0.110	81.86	mg/L	0.220	0.27%
Mn 257.610†	121831.9	3.707	mg/L	0.0053	7.415	mg/L	0.0105	0.14%
Mo 202.031†	95.8	0.00518	mg/L	0.000327	0.01036	mg/L	0.000654	6.32%
Na 589.592†	16763.3	2.044	mg/L	0.0078	4.087	mg/L	0.0156	0.38%
Na 330.237†	14.2	2.149	mg/L	0.3700	4.298	mg/L	0.7401	17.22%
Ni 231.604†	686.9	0.2093	mg/L	0.00207	0.4185	mg/L	0.00413	0.99%
Pb 220.353†	5969.3	0.8345	mg/L	0.01930	1.669	mg/L	0.0386	2.31%
Sb 206.836†	40.3	0.02473	mg/L	0.000372	0.04945	mg/L	0.000744	1.50%
Se 196.026†	-6.0	-0.01023	mg/L	0.003914	-0.02046	mg/L	0.007828	38.27%
Si 288.158†	1099.1	1.178	mg/L	0.0069	2.356	mg/L	0.0139	0.59%
Sn 189.927†	-8.7	0.00615	mg/L	0.000644	0.01230	mg/L	0.001289	10.48%
Sr 421.552†	47837.0	0.1869	mg/L	0.00133	0.3738	mg/L	0.00266	0.71%
Ti 334.903†	109553.4	7.941	mg/L	0.0075	15.88	mg/L	0.015	0.09%
Tl 190.801†	-45.3	-0.02054	mg/L	0.003769	-0.04108	mg/L	0.007537	18.35%
V 292.402†	35757.2	0.4325	mg/L	0.00576	0.8649	mg/L	0.01151	1.33%
Zn 206.200†	1580.2	0.6843	mg/L	0.00863	1.369	mg/L	0.0173	1.26%

Sequence No.: 17
Sample ID: 19G0416-08

Dilution: 2X
Wash Time: 37

Autosampler Location: 334
Date Collected: 8/8/2019 3:26:12 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-08

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: 19G0416-08

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1946819.5	94.87	%	2.357				2.48%
ScR 361.383	211170.1	101.6	%	2.43				2.39%
Ag 328.068†	-196.6	-0.00118	mg/L	0.000257	-0.00236	mg/L	0.000514	21.82%
Al 308.215†	218148.0	192.1	mg/L	1.41	384.2	mg/L	2.83	0.74%
As 188.979†	-168.3	0.08342	mg/L	0.007922	0.1668	mg/L	0.01584	9.50%
B 249.677†	121.9	0.03442	mg/L	0.001233	0.06883	mg/L	0.002466	3.58%
Ba 233.527†	2878.1	0.6652	mg/L	0.02143	1.330	mg/L	0.0429	3.22%
Be 313.042†	2381.1	0.00369	mg/L	0.000122	0.00738	mg/L	0.000245	3.32%
Ca 317.933†	482208.9	49.61	mg/L	0.382	99.23	mg/L	0.763	0.77%
Cd 228.802†	119.5	0.00569	mg/L	0.000562	0.01138	mg/L	0.001124	9.87%
Co 228.616†	2382.3	0.05594	mg/L	0.002605	0.1119	mg/L	0.00521	4.66%
Cr 267.716†	766.9	0.1977	mg/L	0.00852	0.3953	mg/L	0.01704	4.31%
Cu 324.752†	46110.5	0.2383	mg/L	0.00130	0.4765	mg/L	0.00259	0.54%
Fe 273.955†	158044.4	160.5	mg/L	0.62	321.1	mg/L	1.24	0.39%
K 766.490†	5827.9	5.448	mg/L	0.0077	10.90	mg/L	0.015	0.14%
Mg 279.077†	44250.3	43.61	mg/L	0.337	87.22	mg/L	0.673	0.77%
Mn 257.610†	125683.3	3.824	mg/L	0.0439	7.649	mg/L	0.0877	1.15%
Mo 202.031†	110.3	0.00572	mg/L	0.000320	0.01143	mg/L	0.000639	5.59%
Na 589.592†	11702.0	1.427	mg/L	0.0121	2.853	mg/L	0.0242	0.85%
Na 330.237†	2.6	1.349	mg/L	0.2124	2.699	mg/L	0.4247	15.74%
Ni 231.604†	637.2	0.1941	mg/L	0.00702	0.3883	mg/L	0.01405	3.62%
Pb 220.353†	2386.8	0.3598	mg/L	0.01260	0.7196	mg/L	0.02521	3.50%
Sb 206.836†	27.0	0.01892	mg/L	0.001493	0.03785	mg/L	0.002986	7.89%
Se 196.026†	-11.6	-0.01556	mg/L	0.005419	-0.03111	mg/L	0.010838	34.84%
Si 288.158†	1020.8	1.095	mg/L	0.0344	2.190	mg/L	0.0687	3.14%
Sn 189.927†	-59.8	-0.00536	mg/L	0.000982	-0.01072	mg/L	0.001964	18.31%
Sr 421.552†	55856.8	0.2182	mg/L	0.00367	0.4364	mg/L	0.00734	1.68%
Ti 334.903†	96801.5	7.015	mg/L	0.0437	14.03	mg/L	0.087	0.62%
Tl 190.801†	-34.6	-0.01491	mg/L	0.001290	-0.02981	mg/L	0.002580	8.65%
V 292.402†	34770.4	0.4202	mg/L	0.00224	0.8404	mg/L	0.00448	0.53%
Zn 206.200†	1483.1	0.6421	mg/L	0.02278	1.284	mg/L	0.0456	3.55%

Sequence No.: 18
Sample ID: 19G0416-09

Dilution: 2X
Wash Time: 37

Autosampler Location: 335
Date Collected: 8/8/2019 3:29:56 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-09

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: 19G0416-09

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2094055.0	102.0	%	1.76				1.72%
ScR 361.383	212141.8	102.0	%	3.43				3.36%
Ag 328.068†	-229.6	-0.00139	mg/L	0.000108	-0.00278	mg/L	0.000215	7.76%
Al 308.215†	212594.0	187.2	mg/L	0.62	374.5	mg/L	1.24	0.33%
As 188.979†	-216.2	0.06510	mg/L	0.004220	0.1302	mg/L	0.00844	6.48%
B 249.677†	91.3	0.03183	mg/L	0.001240	0.06367	mg/L	0.002479	3.89%
Ba 233.527†	3738.9	0.8677	mg/L	0.01650	1.735	mg/L	0.0330	1.90%
Be 313.042†	2635.0	0.00414	mg/L	0.000207	0.00828	mg/L	0.000414	5.00%
Ca 317.933†	381468.0	39.25	mg/L	0.172	78.50	mg/L	0.344	0.44%
Cd 228.802†	113.2	0.00572	mg/L	0.000251	0.01145	mg/L	0.000502	4.38%
Co 228.616†	2740.8	0.06546	mg/L	0.001454	0.1309	mg/L	0.00291	2.22%
Cr 267.716†	901.9	0.2324	mg/L	0.00207	0.4647	mg/L	0.00414	0.89%
Cu 324.752†	40413.5	0.2104	mg/L	0.00035	0.4208	mg/L	0.00070	0.17%
Fe 273.955†	178009.8	180.8	mg/L	1.10	361.6	mg/L	2.20	0.61%
K 766.490†	6095.5	5.699	mg/L	0.0231	11.40	mg/L	0.046	0.40%
Mg 279.077†	50854.3	50.12	mg/L	0.228	100.2	mg/L	0.46	0.46%
Mn 257.610†	113716.1	3.460	mg/L	0.0112	6.921	mg/L	0.0223	0.32%
Mo 202.031†	80.0	0.00409	mg/L	0.000178	0.00817	mg/L	0.000356	4.36%
Na 589.592†	12651.4	1.542	mg/L	0.0076	3.085	mg/L	0.0152	0.49%
Na 330.237†	5.1	1.530	mg/L	0.4582	3.059	mg/L	0.9163	29.95%
Ni 231.604†	888.0	0.2705	mg/L	0.00157	0.5411	mg/L	0.00314	0.58%
Pb 220.353†	2116.6	0.3219	mg/L	0.00757	0.6438	mg/L	0.01514	2.35%
Sb 206.836†	25.6	0.01867	mg/L	0.000889	0.03733	mg/L	0.001778	4.76%
Se 196.026†	-4.9	-0.00627	mg/L	0.006749	-0.01253	mg/L	0.013498	107.72%
Si 288.158†	1281.4	1.374	mg/L	0.0364	2.747	mg/L	0.0728	2.65%
Sn 189.927†	-52.5	-0.00485	mg/L	0.001941	-0.00971	mg/L	0.003883	40.00%
Sr 421.552†	80525.3	0.3146	mg/L	0.00152	0.6292	mg/L	0.00304	0.48%
Ti 334.903†	103226.7	7.482	mg/L	0.0217	14.96	mg/L	0.043	0.29%
Tl 190.801†	-39.8	-0.01816	mg/L	0.002919	-0.03632	mg/L	0.005838	16.08%
V 292.402†	37449.7	0.4530	mg/L	0.00380	0.9061	mg/L	0.00760	0.84%
Zn 206.200†	1779.9	0.7707	mg/L	0.01333	1.541	mg/L	0.0267	1.73%

Sequence No.: 19
Sample ID: 19G0416-14

Dilution: 2X
Wash Time: 37

Autosampler Location: 336
Date Collected: 8/8/2019 3:33:40 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-14

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: 19G0416-14

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2027530.4	98.81	%	0.779				0.79%
ScR 361.383	211713.1	101.8	%	6.05				5.94%
Ag 328.068†	-152.4	-0.00089	mg/L	0.000039	-0.00178	mg/L	0.000079	4.43%
Al 308.215†	175145.1	154.2	mg/L	0.41	308.5	mg/L	0.82	0.27%
As 188.979†	-152.8	0.08864	mg/L	0.002786	0.1773	mg/L	0.00557	3.14%
B 249.677†	180.7	0.04371	mg/L	0.002295	0.08743	mg/L	0.004589	5.25%
Ba 233.527†	3718.1	0.8648	mg/L	0.03312	1.730	mg/L	0.0662	3.83%
Be 313.042†	2189.5	0.00331	mg/L	0.000349	0.00663	mg/L	0.000698	10.54%
Ca 317.933†	283402.1	29.16	mg/L	0.103	58.32	mg/L	0.206	0.35%
Cd 228.802†	215.3	0.00947	mg/L	0.000362	0.01895	mg/L	0.000724	3.82%
Co 228.616†	2488.1	0.05947	mg/L	0.000615	0.1189	mg/L	0.00123	1.03%
Cr 267.716†	726.7	0.1875	mg/L	0.00513	0.3750	mg/L	0.01026	2.74%
Cu 324.752†	38637.5	0.2008	mg/L	0.00042	0.4017	mg/L	0.00084	0.21%
Fe 273.955†	162319.0	164.9	mg/L	0.69	329.8	mg/L	1.38	0.42%
K 766.490†	5369.7	5.020	mg/L	0.0234	10.04	mg/L	0.047	0.47%
Mg 279.077†	49137.6	48.44	mg/L	0.198	96.87	mg/L	0.396	0.41%
Mn 257.610†	103648.0	3.154	mg/L	0.0159	6.309	mg/L	0.0317	0.50%
Mo 202.031†	66.7	0.00347	mg/L	0.000256	0.00693	mg/L	0.000512	7.38%
Na 589.592†	15673.2	1.911	mg/L	0.0043	3.821	mg/L	0.0086	0.22%
Na 330.237†	54.0	1.909	mg/L	0.4817	3.818	mg/L	0.9634	25.24%
Ni 231.604†	675.6	0.2058	mg/L	0.00841	0.4116	mg/L	0.01683	4.09%
Pb 220.353†	12621.2	1.700	mg/L	0.0134	3.399	mg/L	0.0267	0.79%
Sb 206.836†	22.7	0.01708	mg/L	0.001328	0.03416	mg/L	0.002656	7.77%
Se 196.026†	-10.5	-0.00949	mg/L	0.008069	-0.01898	mg/L	0.016137	85.01%
Si 288.158†	903.3	0.9700	mg/L	0.02996	1.940	mg/L	0.0599	3.09%
Sn 189.927†	-33.0	-0.00137	mg/L	0.001472	-0.00274	mg/L	0.002944	107.30%
Sr 421.552†	73308.1	0.2864	mg/L	0.00272	0.5728	mg/L	0.00544	0.95%
Ti 334.903†	93234.1	6.758	mg/L	0.0181	13.52	mg/L	0.036	0.27%
Tl 190.801†	-40.2	-0.01850	mg/L	0.003409	-0.03699	mg/L	0.006818	18.43%
V 292.402†	33490.3	0.4052	mg/L	0.00152	0.8104	mg/L	0.00303	0.37%
Zn 206.200†	13182.9	5.710	mg/L	0.1995	11.42	mg/L	0.399	3.49%

Sequence No.: 20
Sample ID: 19G0416-15

Autosampler Location: 337
Date Collected: 8/8/2019 3:37:24 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-15

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: 19G0416-15

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1957210.2	95.38	%	2.110				2.21%
ScR 361.383	212859.7	102.4	%	2.24				2.19%
Ag 328.068†	-223.7	-0.00134	mg/L	0.000083	-0.00267	mg/L	0.000166	6.19%
Al 308.215†	198317.4	174.7	mg/L	0.53	349.3	mg/L	1.05	0.30%
As 188.979†	-271.9	0.09100	mg/L	0.000476	0.1820	mg/L	0.00095	0.52%
B 249.677†	159.8	0.04610	mg/L	0.000799	0.09220	mg/L	0.001597	1.73%
Ba 233.527†	2494.3	0.5662	mg/L	0.00536	1.132	mg/L	0.0107	0.95%
Be 313.042†	2311.7	0.00319	mg/L	0.000109	0.00638	mg/L	0.000217	3.40%
Ca 317.933†	536023.8	55.15	mg/L	0.100	110.3	mg/L	0.20	0.18%
Cd 228.802†	70.9	0.00426	mg/L	0.000234	0.00851	mg/L	0.000469	5.51%
Co 228.616†	3879.1	0.09489	mg/L	0.001539	0.1898	mg/L	0.00308	1.62%
Cr 267.716†	1012.5	0.2611	mg/L	0.00378	0.5223	mg/L	0.00755	1.45%
Cu 324.752†	48296.0	0.2515	mg/L	0.00039	0.5030	mg/L	0.00078	0.16%
Fe 273.955†	217169.2	220.6	mg/L	1.53	441.2	mg/L	3.06	0.69%
K 766.490†	7817.2	7.308	mg/L	0.0789	14.62	mg/L	0.158	1.08%
Mg 279.077†	62621.1	61.72	mg/L	0.230	123.4	mg/L	0.46	0.37%
Mn 257.610†	140988.2	4.290	mg/L	0.0099	8.581	mg/L	0.0197	0.23%
Mo 202.031†	93.8	0.00464	mg/L	0.000295	0.00928	mg/L	0.000591	6.36%
Na 589.592†	15408.9	1.879	mg/L	0.0026	3.757	mg/L	0.0052	0.14%
Na 330.237†	-5.9	1.535	mg/L	0.5088	3.069	mg/L	1.0175	33.15%
Ni 231.604†	829.7	0.2527	mg/L	0.00383	0.5055	mg/L	0.00766	1.52%
Pb 220.353†	490.5	0.1020	mg/L	0.00136	0.2040	mg/L	0.00272	1.33%
Sb 206.836†	25.8	0.02173	mg/L	0.001575	0.04346	mg/L	0.003151	7.25%
Se 196.026†	-26.9	-0.02118	mg/L	0.002514	-0.04236	mg/L	0.005028	11.87%
Si 288.158†	999.6	1.074	mg/L	0.0116	2.149	mg/L	0.0231	1.08%
Sn 189.927†	-73.2	-0.00701	mg/L	0.000787	-0.01402	mg/L	0.001574	11.23%
Sr 421.552†	46138.8	0.1803	mg/L	0.00126	0.3605	mg/L	0.00251	0.70%
Ti 334.903†	133935.2	9.707	mg/L	0.0233	19.41	mg/L	0.047	0.24%
Tl 190.801†	-49.7	-0.02255	mg/L	0.002039	-0.04509	mg/L	0.004077	9.04%
V 292.402†	40930.4	0.4963	mg/L	0.00458	0.9926	mg/L	0.00916	0.92%
Zn 206.200†	1086.4	0.4702	mg/L	0.00518	0.9404	mg/L	0.01036	1.10%

Sequence No.: 21
Sample ID: 19G0416-17

Autosampler Location: 338
Date Collected: 8/8/2019 3:41:09 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-17

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: 19G0416-17

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1982631.6	96.62	%	0.882				0.91%
ScR 361.383	217598.6	104.7	%	2.16				2.06%
Ag 328.068†	-245.2	-0.00150	mg/L	0.000131	-0.00299	mg/L	0.000262	8.75%
Al 308.215†	195154.6	171.9	mg/L	0.84	343.7	mg/L	1.69	0.49%
As 188.979†	-224.4	0.07673	mg/L	0.002407	0.1535	mg/L	0.00481	3.14%
B 249.677†	105.4	0.03471	mg/L	0.002087	0.06943	mg/L	0.004174	6.01%
Ba 233.527†	2934.8	0.6752	mg/L	0.02415	1.350	mg/L	0.0483	3.58%
Be 313.042†	2214.8	0.00323	mg/L	0.000192	0.00646	mg/L	0.000383	5.93%
Ca 317.933†	349808.6	35.99	mg/L	0.173	71.98	mg/L	0.346	0.48%
Cd 228.802†	121.9	0.00608	mg/L	0.000031	0.01215	mg/L	0.000062	0.51%
Co 228.616†	2914.4	0.06952	mg/L	0.000306	0.1390	mg/L	0.00061	0.44%
Cr 267.716†	875.0	0.2254	mg/L	0.00545	0.4509	mg/L	0.01090	2.42%
Cu 324.752†	62051.0	0.3196	mg/L	0.00164	0.6391	mg/L	0.00328	0.51%
Fe 273.955†	185485.2	188.4	mg/L	0.86	376.8	mg/L	1.71	0.45%
K 766.490†	5981.7	5.592	mg/L	0.0163	11.18	mg/L	0.033	0.29%
Mg 279.077†	56479.7	55.67	mg/L	0.232	111.3	mg/L	0.46	0.42%
Mn 257.610†	108406.4	3.299	mg/L	0.0139	6.598	mg/L	0.0279	0.42%
Mo 202.031†	82.3	0.00428	mg/L	0.000647	0.00856	mg/L	0.001293	15.11%
Na 589.592†	13580.8	1.656	mg/L	0.0101	3.311	mg/L	0.0203	0.61%
Na 330.237†	10.9	1.959	mg/L	0.0915	3.918	mg/L	0.1829	4.67%
Ni 231.604†	768.8	0.2342	mg/L	0.00755	0.4684	mg/L	0.01509	3.22%
Pb 220.353†	6351.7	0.8760	mg/L	0.00742	1.752	mg/L	0.0148	0.85%
Sb 206.836†	21.5	0.01806	mg/L	0.002178	0.03612	mg/L	0.004355	12.06%
Se 196.026†	-14.6	-0.01248	mg/L	0.004434	-0.02497	mg/L	0.008868	35.52%
Si 288.158†	1231.3	1.321	mg/L	0.0383	2.642	mg/L	0.0766	2.90%
Sn 189.927†	-38.8	-0.00129	mg/L	0.002700	-0.00259	mg/L	0.005399	208.61%
Sr 421.552†	57550.3	0.2248	mg/L	0.00246	0.4497	mg/L	0.00492	1.09%
Ti 334.903†	111162.5	8.057	mg/L	0.0301	16.11	mg/L	0.060	0.37%
Tl 190.801†	-44.0	-0.02041	mg/L	0.004346	-0.04082	mg/L	0.008692	21.30%
V 292.402†	36028.2	0.4365	mg/L	0.00433	0.8730	mg/L	0.00867	0.99%
Zn 206.200†	1791.3	0.7756	mg/L	0.02899	1.551	mg/L	0.0580	3.74%

Sequence No.: 22
Sample ID: 19G0416-18 DEL
Dilution: 2X
Wash Time: 37

Autosampler Location: 339
Date Collected: 8/8/2019 3:44:53 PM
Data Type: Original
Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-18

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: 19G0416-18

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1929207.6	94.02	%	3.107				3.31%
ScR 361.383	210194.0	101.1	%	3.03				3.00%
Ag 328.068†	-247.5	-0.00152	mg/L	0.000126	-0.00303	mg/L	0.000251	8.29%
Al 308.215†	209282.9	184.3	mg/L	0.67	368.6	mg/L	1.34	0.36%
As 188.979†	-250.4	0.05462	mg/L	0.003341	0.1092	mg/L	0.00668	6.12%
B 249.677†	71.4	0.02821	mg/L	0.000978	0.05642	mg/L	0.001957	3.47%
Ba 233.527†	3545.3	0.8223	mg/L	0.00089	1.645	mg/L	0.0018	0.11%
Be 313.042†	2421.9	0.00378	mg/L	0.000088	0.00756	mg/L	0.000176	2.33%
Ca 317.933†	287684.9	29.60	mg/L	0.218	59.20	mg/L	0.437	0.74%
Cd 228.802†	70.6	0.00417	mg/L	0.000177	0.00833	mg/L	0.000353	4.24%
Co 228.616†	2801.6	0.06663	mg/L	0.000372	0.1333	mg/L	0.00074	0.56%
Cr 267.716†	933.1	0.2402	mg/L	0.00218	0.4804	mg/L	0.00436	0.91%
Cu 324.752†	31987.5	0.1676	mg/L	0.00065	0.3353	mg/L	0.00131	0.39%
Fe 273.955†	172097.1	174.8	mg/L	0.91	349.6	mg/L	1.82	0.52%
K 766.490†	6576.7	6.149	mg/L	0.0583	12.30	mg/L	0.117	0.95%
Mg 279.077†	49039.1	48.33	mg/L	0.319	96.67	mg/L	0.638	0.66%
Mn 257.610†	106150.1	3.230	mg/L	0.0219	6.460	mg/L	0.0438	0.68%
Mo 202.031†	61.6	0.00315	mg/L	0.000324	0.00631	mg/L	0.000648	10.27%
Na 589.592†	10942.4	1.334	mg/L	0.0041	2.668	mg/L	0.0082	0.31%
Na 330.237†	-10.0	0.9565	mg/L	0.44847	1.913	mg/L	0.8969	46.89%
Ni 231.604†	855.9	0.2608	mg/L	0.00319	0.5215	mg/L	0.00638	1.22%
Pb 220.353†	843.0	0.1534	mg/L	0.00246	0.3069	mg/L	0.00491	1.60%
Sb 206.836†	26.1	0.01923	mg/L	0.001276	0.03845	mg/L	0.002552	6.64%
Se 196.026†	-7.7	-0.00900	mg/L	0.006910	-0.01800	mg/L	0.013820	76.77%
Si 288.158†	990.3	1.063	mg/L	0.0073	2.126	mg/L	0.0146	0.69%
Sn 189.927†	-55.7	-0.00720	mg/L	0.000869	-0.01439	mg/L	0.001738	12.08%
Sr 421.552†	60501.9	0.2364	mg/L	0.00064	0.4727	mg/L	0.00128	0.27%
Ti 334.903†	109066.2	7.906	mg/L	0.0449	15.81	mg/L	0.090	0.57%
Tl 190.801†	-42.3	-0.01959	mg/L	0.002375	-0.03919	mg/L	0.004751	12.12%
V 292.402†	34692.4	0.4201	mg/L	0.00120	0.8402	mg/L	0.00240	0.29%
Zn 206.200†	961.0	0.4159	mg/L	0.00216	0.8318	mg/L	0.00433	0.52%

Sequence No.: 23
Sample ID: 19G0416-19

Dilution: 2X
Wash Time: 37

Autosampler Location: 340
Date Collected: 8/8/2019 3:48:37 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-19

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: 19G0416-19

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1995341.9	97.24	%	1.119				1.15%
ScR 361.383	208260.9	100.2	%	4.12				4.11%
Ag 328.068†	-114.5	-0.00064	mg/L	0.000166	-0.00128	mg/L	0.000332	25.93%
Al 308.215†	203707.5	179.4	mg/L	1.21	358.8	mg/L	2.42	0.67%
As 188.979†	-176.4	0.08266	mg/L	0.000561	0.1653	mg/L	0.00112	0.68%
B 249.677†	74.6	0.02781	mg/L	0.000843	0.05561	mg/L	0.001686	3.03%
Ba 233.527†	3095.9	0.7164	mg/L	0.02578	1.433	mg/L	0.0516	3.60%
Be 313.042†	2408.4	0.00382	mg/L	0.000297	0.00764	mg/L	0.000593	7.76%
Ca 317.933†	256437.7	26.38	mg/L	0.160	52.77	mg/L	0.321	0.61%
Cd 228.802†	129.4	0.00619	mg/L	0.000218	0.01238	mg/L	0.000435	3.52%
Co 228.616†	2559.6	0.06095	mg/L	0.000385	0.1219	mg/L	0.00077	0.63%
Cr 267.716†	1251.2	0.3204	mg/L	0.00902	0.6407	mg/L	0.01804	2.82%
Cu 324.752†	32233.6	0.1686	mg/L	0.00106	0.3373	mg/L	0.00211	0.63%
Fe 273.955†	163507.0	166.1	mg/L	2.35	332.2	mg/L	4.71	1.42%
K 766.490†	5371.4	5.022	mg/L	0.0916	10.04	mg/L	0.183	1.82%
Mg 279.077†	45614.7	44.96	mg/L	0.326	89.91	mg/L	0.651	0.72%
Mn 257.610†	106384.0	3.237	mg/L	0.0088	6.474	mg/L	0.0177	0.27%
Mo 202.031†	76.3	0.00407	mg/L	0.000376	0.00815	mg/L	0.000753	9.23%
Na 589.592†	8653.5	1.055	mg/L	0.0111	2.110	mg/L	0.0223	1.06%
Na 330.237†	-7.6	0.8694	mg/L	0.36021	1.739	mg/L	0.7204	41.43%
Ni 231.604†	845.8	0.2577	mg/L	0.00748	0.5153	mg/L	0.01495	2.90%
Pb 220.353†	2194.8	0.3310	mg/L	0.00156	0.6621	mg/L	0.00313	0.47%
Sb 206.836†	32.6	0.01915	mg/L	0.001561	0.03831	mg/L	0.003122	8.15%
Se 196.026†	-1.4	-0.00375	mg/L	0.001613	-0.00751	mg/L	0.003226	42.97%
Si 288.158†	1148.9	1.232	mg/L	0.0464	2.464	mg/L	0.0928	3.77%
Sn 189.927†	-38.7	-0.00327	mg/L	0.002286	-0.00655	mg/L	0.004571	69.79%
Sr 421.552†	37182.4	0.1453	mg/L	0.00015	0.2905	mg/L	0.00029	0.10%
Ti 334.903†	98255.1	7.122	mg/L	0.0492	14.24	mg/L	0.098	0.69%
Tl 190.801†	-36.9	-0.01680	mg/L	0.001879	-0.03359	mg/L	0.003757	11.18%
V 292.402†	33394.8	0.4050	mg/L	0.00541	0.8099	mg/L	0.01082	1.34%
Zn 206.200†	1231.3	0.5331	mg/L	0.01844	1.066	mg/L	0.0369	3.46%

Sequence No.: 24
Sample ID: 19G0416-20

Dilution: 2X
Wash Time: 37

Autosampler Location: 341
Date Collected: 8/8/2019 3:52:21 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-20

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: 19G0416-20

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1970800.3	96.04	%	2.667				2.78%
ScR 361.383	214051.9	102.9	%	2.73				2.65%
Ag 328.068†	-248.8	-0.00151	mg/L	0.000107	-0.00301	mg/L	0.000214	7.09%
Al 308.215†	238766.2	210.3	mg/L	0.85	420.6	mg/L	1.69	0.40%
As 188.979†	-190.5	0.09338	mg/L	0.003970	0.1868	mg/L	0.00794	4.25%
B 249.677†	61.2	0.02953	mg/L	0.001904	0.05906	mg/L	0.003808	6.45%
Ba 233.527†	3144.5	0.7232	mg/L	0.01745	1.446	mg/L	0.0349	2.41%
Be 313.042†	2628.9	0.00401	mg/L	0.000195	0.00801	mg/L	0.000390	4.87%
Ca 317.933†	283383.3	29.16	mg/L	0.060	58.31	mg/L	0.121	0.21%
Cd 228.802†	137.2	0.00657	mg/L	0.000502	0.01314	mg/L	0.001003	7.64%
Co 228.616†	3224.8	0.07896	mg/L	0.002554	0.1579	mg/L	0.00511	3.23%
Cr 267.716†	981.5	0.2531	mg/L	0.00645	0.5062	mg/L	0.01290	2.55%
Cu 324.752†	45754.1	0.2383	mg/L	0.00227	0.4765	mg/L	0.00454	0.95%
Fe 273.955†	200106.2	203.3	mg/L	1.02	406.5	mg/L	2.04	0.50%
K 766.490†	6031.4	5.639	mg/L	0.0335	11.28	mg/L	0.067	0.59%
Mg 279.077†	58615.1	57.78	mg/L	0.035	115.6	mg/L	0.07	0.06%
Mn 257.610†	128488.7	3.910	mg/L	0.0085	7.820	mg/L	0.0169	0.22%
Mo 202.031†	82.8	0.00442	mg/L	0.000183	0.00884	mg/L	0.000365	4.13%
Na 589.592†	12277.8	1.497	mg/L	0.0108	2.994	mg/L	0.0215	0.72%
Na 330.237†	5.8	1.568	mg/L	0.0518	3.136	mg/L	0.1037	3.31%
Ni 231.604†	893.7	0.2723	mg/L	0.00507	0.5445	mg/L	0.01015	1.86%
Pb 220.353†	10051.8	1.374	mg/L	0.0377	2.748	mg/L	0.0754	2.74%
Sb 206.836†	31.9	0.02132	mg/L	0.000561	0.04265	mg/L	0.001123	2.63%
Se 196.026†	-14.3	-0.01510	mg/L	0.003673	-0.03020	mg/L	0.007346	24.33%
Si 288.158†	1516.0	1.625	mg/L	0.0296	3.250	mg/L	0.0593	1.82%
Sn 189.927†	-54.6	-0.00700	mg/L	0.003375	-0.01400	mg/L	0.006749	48.23%
Sr 421.552†	40693.9	0.1590	mg/L	0.00115	0.3180	mg/L	0.00230	0.72%
Ti 334.903†	107954.5	7.825	mg/L	0.0223	15.65	mg/L	0.045	0.28%
Tl 190.801†	-46.0	-0.02095	mg/L	0.003407	-0.04190	mg/L	0.006813	16.26%
V 292.402†	39708.6	0.4811	mg/L	0.00804	0.9622	mg/L	0.01607	1.67%
Zn 206.200†	2146.1	0.9293	mg/L	0.02295	1.859	mg/L	0.0459	2.47%

Sequence No.: 25
Sample ID: BHH0088-PS1

DEL

Dilution: 2X
Wash Time: 37

Autosampler Location: 342
Date Collected: 8/8/2019 3:56:06 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0088-PS1

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: BHH0088-PS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1967201.5	95.87	%	3.106				3.24%
ScR 361.383	214953.4	103.4	%	2.95				2.86%
Ag 328.068†	75316.3	0.4993	mg/L	0.00410	0.9986	mg/L	0.00820	0.82%
Al 308.215†	219794.5	193.6	mg/L	1.14	387.1	mg/L	2.28	0.59%
As 188.979†	2767.4	2.100	mg/L	0.0543	4.200	mg/L	0.1085	2.58%
B 249.677†	56.2	0.02510	mg/L	0.001065	0.05020	mg/L	0.002131	4.24%
Ba 233.527†	11643.5	2.750	mg/L	0.1031	5.501	mg/L	0.2063	3.75%
Be 313.042†	225026.3	0.5175	mg/L	0.00563	1.035	mg/L	0.0113	1.09%
Ca 317.933†	339153.6	34.89	mg/L	0.280	69.78	mg/L	0.561	0.80%
Cd 228.802†	13097.7	0.5129	mg/L	0.01615	1.026	mg/L	0.0323	3.15%
Co 228.616†	19336.0	0.5617	mg/L	0.01825	1.123	mg/L	0.0365	3.25%
Cr 267.716†	2823.9	0.7160	mg/L	0.02357	1.432	mg/L	0.0471	3.29%
Cu 324.752†	128136.4	0.6520	mg/L	0.00515	1.304	mg/L	0.0103	0.79%
Fe 273.955†	175758.4	178.5	mg/L	1.39	357.0	mg/L	2.77	0.78%
K 766.490†	15741.0	14.72	mg/L	0.033	29.43	mg/L	0.066	0.22%
Mg 279.077†	61294.2	60.44	mg/L	0.425	120.9	mg/L	0.85	0.70%
Mn 257.610†	128086.8	3.898	mg/L	0.0355	7.796	mg/L	0.0711	0.91%
Mo 202.031†	58.5	0.00285	mg/L	0.000359	0.00571	mg/L	0.000717	12.56%
Na 589.592†	89766.9	10.94	mg/L	0.045	21.89	mg/L	0.090	0.41%
Na 330.237†	184.4	11.02	mg/L	0.309	22.04	mg/L	0.619	2.81%
Ni 231.604†	2419.6	0.7370	mg/L	0.02531	1.474	mg/L	0.0506	3.43%
Pb 220.353†	15462.0	2.085	mg/L	0.0648	4.170	mg/L	0.1295	3.11%
Sb 206.836†	48.5	0.02043	mg/L	0.002109	0.04085	mg/L	0.004218	10.33%
Se 196.026†	2288.2	2.089	mg/L	0.0655	4.178	mg/L	0.1311	3.14%
Si 288.158†	997.0	1.072	mg/L	0.0477	2.144	mg/L	0.0954	4.45%
Sn 189.927†	-59.5	-0.00769	mg/L	0.002538	-0.01538	mg/L	0.005076	33.00%
Sr 421.552†	177438.3	0.6932	mg/L	0.00538	1.386	mg/L	0.0108	0.78%
Ti 334.903†	98964.4	7.173	mg/L	0.0560	14.35	mg/L	0.112	0.78%
Tl 190.801†	3813.3	1.922	mg/L	0.0629	3.844	mg/L	0.1258	3.27%
V 292.402†	73277.6	0.8791	mg/L	0.00604	1.758	mg/L	0.0121	0.69%
Zn 206.200†	2074.9	0.8979	mg/L	0.03483	1.796	mg/L	0.0697	3.88%

Sequence No.: 26
Sample ID: SEQ-CCV5
Autosampler Location: 7
Date Collected: 8/8/2019 4:02:34 PM
Data Type: Original
Dilution: 1X
Wash Time: 200
Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV5

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: SEQ-CCV5

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2099202.3	102.3	%	1.05				1.03%
ScR 361.383	213456.3	102.7	%	0.10				0.09%
Ag 328.068†	155465.4	1.030	mg/L	0.0109	1.030	mg/L	0.0109	1.05%
Al 308.215†	2300.6	1.988	mg/L	0.0030	1.988	mg/L	0.0030	0.15%
As 188.979†	2950.3	2.044	mg/L	0.0163	2.044	mg/L	0.0163	0.80%
B 249.677†	6813.2	1.026	mg/L	0.0017	1.026	mg/L	0.0017	0.16%
Ba 233.527†	4259.7	1.013	mg/L	0.0032	1.013	mg/L	0.0032	0.31%
Be 313.042†	444396.8	1.025	mg/L	0.0140	1.025	mg/L	0.0140	1.36%
Ca 317.933†	20529.7	2.099	mg/L	0.0046	2.099	mg/L	0.0046	0.22%
Cd 228.802†	25705.0	1.017	mg/L	0.0123	1.017	mg/L	0.0123	1.21%
Co 228.616†	34158.7	1.019	mg/L	0.0108	1.019	mg/L	0.0108	1.06%
Cr 267.716†	3980.0	1.004	mg/L	0.0055	1.004	mg/L	0.0055	0.55%
Cu 324.752†	200701.8	1.010	mg/L	0.0108	1.010	mg/L	0.0108	1.07%
Fe 273.955†	1963.9	1.987	mg/L	0.0086	1.987	mg/L	0.0086	0.43%
K 766.490†	20919.9	19.56	mg/L	0.117	19.56	mg/L	0.117	0.60%
Mg 279.077†	2081.8	2.067	mg/L	0.0077	2.067	mg/L	0.0077	0.37%
Mn 257.610†	33858.7	1.031	mg/L	0.0032	1.031	mg/L	0.0032	0.31%
Mo 202.031†	17131.1	1.017	mg/L	0.0104	1.017	mg/L	0.0104	1.02%
Na 589.592†	410805.7	50.08	mg/L	0.197	50.08	mg/L	0.197	0.39%
Na 330.237†	946.6	50.49	mg/L	0.222	50.49	mg/L	0.222	0.44%
Ni 231.604†	3319.0	1.012	mg/L	0.0030	1.012	mg/L	0.0030	0.30%
Pb 220.353†	15411.6	2.035	mg/L	0.0200	2.035	mg/L	0.0200	0.98%
Sb 206.836†	5655.7	2.129	mg/L	0.0201	2.129	mg/L	0.0201	0.94%
Se 196.026†	2318.2	2.118	mg/L	0.0226	2.118	mg/L	0.0226	1.06%
Si 288.158†	1931.0	2.062	mg/L	0.0102	2.062	mg/L	0.0102	0.49%
Sn 189.927†	3679.8	1.039	mg/L	0.0086	1.039	mg/L	0.0086	0.83%
Sr 421.552†	272753.9	1.066	mg/L	0.0068	1.066	mg/L	0.0068	0.64%
Ti 334.903†	13384.8	0.9691	mg/L	0.00467	0.9691	mg/L	0.00467	0.48%
Tl 190.801†	4091.0	2.056	mg/L	0.0146	2.056	mg/L	0.0146	0.71%
V 292.402†	84857.8	1.009	mg/L	0.0138	1.009	mg/L	0.0138	1.37%
Zn 206.200†	2404.1	1.040	mg/L	0.0061	1.040	mg/L	0.0061	0.58%

Sequence No.: 27
Sample ID: SEQ-CCB5

Autosampler Location: 1
Date Collected: 8/8/2019 4:07:37 PM
Data Type: Original

Dilution: 1X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCB5

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: SEQ-CCB5

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2106383.4	102.7	%	1.06				1.03%
ScR 361.383	213284.8	102.6	%	1.03				1.00%
Ag 328.068†	19.7	0.00013	mg/L	0.000147	0.00013	mg/L	0.000147	112.92%
Al 308.215†	26.1	0.02295	mg/L	0.004175	0.02295	mg/L	0.004175	18.19%
As 188.979†	2.3	0.00153	mg/L	0.001019	0.00153	mg/L	0.001019	66.47%
B 249.677†	12.0	0.00182	mg/L	0.000698	0.00182	mg/L	0.000698	38.41%
Ba 233.527†	2.2	0.00051	mg/L	0.001439	0.00051	mg/L	0.001439	279.48%
Be 313.042†	14.2	0.00003	mg/L	0.000027	0.00003	mg/L	0.000027	82.05%
Ca 317.933†	18.0	0.00185	mg/L	0.002220	0.00185	mg/L	0.002220	119.89%
Cd 228.802†	9.6	0.00037	mg/L	0.000217	0.00037	mg/L	0.000217	58.11%
Co 228.616†	7.0	0.00021	mg/L	0.000025	0.00021	mg/L	0.000025	11.78%
Cr 267.716†	-5.1	-0.00129	mg/L	0.001431	-0.00129	mg/L	0.001431	111.04%
Cu 324.752†	70.6	0.00035	mg/L	0.000078	0.00035	mg/L	0.000078	22.01%
Fe 273.955†	0.9	0.00089	mg/L	0.001561	0.00089	mg/L	0.001561	176.41%
K 766.490†	42.1	0.03937	mg/L	0.041219	0.03937	mg/L	0.041219	104.69%
Mg 279.077†	8.7	0.00858	mg/L	0.009273	0.00858	mg/L	0.009273	108.08%
Mn 257.610†	9.5	0.00029	mg/L	0.000242	0.00029	mg/L	0.000242	84.23%
Mo 202.031†	17.4	0.00103	mg/L	0.000499	0.00103	mg/L	0.000499	48.27%
Na 589.592†	-190.6	-0.02324	mg/L	0.006172	-0.02324	mg/L	0.006172	26.56%
Na 330.237†	1.9	0.1017	mg/L	0.37763	0.1017	mg/L	0.37763	371.39%
Ni 231.604†	-4.0	-0.00123	mg/L	0.000855	-0.00123	mg/L	0.000855	69.30%
Pb 220.353†	5.9	0.00078	mg/L	0.000253	0.00078	mg/L	0.000253	32.48%
Sb 206.836†	-0.6	-0.00021	mg/L	0.000686	-0.00021	mg/L	0.000686	331.95%
Se 196.026†	-1.0	-0.00092	mg/L	0.005933	-0.00092	mg/L	0.005933	644.70%
Si 288.158†	-5.1	-0.00544	mg/L	0.004463	-0.00544	mg/L	0.004463	82.02%
Sn 189.927†	-1.3	-0.00037	mg/L	0.000700	-0.00037	mg/L	0.000700	188.14%
Sr 421.552†	23.8	0.00009	mg/L	0.000045	0.00009	mg/L	0.000045	48.28%
Ti 334.903†	-5.4	-0.00039	mg/L	0.001367	-0.00039	mg/L	0.001367	349.62%
Tl 190.801†	-0.9	-0.00045	mg/L	0.001832	-0.00045	mg/L	0.001832	407.29%
V 292.402†	-12.6	-0.00016	mg/L	0.000458	-0.00016	mg/L	0.000458	291.14%
Zn 206.200†	-5.8	-0.00251	mg/L	0.000449	-0.00251	mg/L	0.000449	17.91%

Sequence No.: 28
Sample ID: 19G0416-01

Dilution: 5X
Wash Time: 37

Autosampler Location: 343
Date Collected: 8/8/2019 4:11:35 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-01

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: 19G0416-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2123563.0	103.5	%	1.00				0.97%
ScR 361.383	218208.3	104.9	%	0.77				0.74%
Ag 328.068†	-26.9	-0.00010	mg/L	0.000167	-0.00048	mg/L	0.000835	172.80%
Al 308.215†	98844.4	87.05	mg/L	0.522	435.3	mg/L	2.61	0.60%
As 188.979†	-12.6	0.06962	mg/L	0.000386	0.3481	mg/L	0.00193	0.55%
B 249.677†	6.9	0.01415	mg/L	0.001197	0.07076	mg/L	0.005983	8.46%
Ba 233.527†	2191.0	0.5053	mg/L	0.00116	2.527	mg/L	0.0058	0.23%
Be 313.042†	1665.7	0.00267	mg/L	0.000038	0.01337	mg/L	0.000188	1.40%
Ca 317.933†	97586.1	10.04	mg/L	0.065	50.20	mg/L	0.327	0.65%
Cd 228.802†	65.5	0.00277	mg/L	0.000074	0.01384	mg/L	0.000368	2.66%
Co 228.616†	1726.6	0.04452	mg/L	0.000227	0.2226	mg/L	0.00113	0.51%
Cr 267.716†	460.2	0.1225	mg/L	0.00166	0.6126	mg/L	0.00832	1.36%
Cu 324.752†	17967.4	0.09617	mg/L	0.001295	0.4809	mg/L	0.00647	1.35%
Fe 273.955†	128786.9	130.8	mg/L	1.06	654.1	mg/L	5.31	0.81%
K 766.490†	1926.3	1.801	mg/L	0.0256	9.004	mg/L	0.1279	1.42%
Mg 279.077†	13392.2	13.17	mg/L	0.098	65.84	mg/L	0.488	0.74%
Mn 257.610†	273676.4	8.329	mg/L	0.0450	41.64	mg/L	0.225	0.54%
Mo 202.031†	44.1	0.00244	mg/L	0.000284	0.01222	mg/L	0.001418	11.60%
Na 589.592†	3942.7	0.4807	mg/L	0.00439	2.403	mg/L	0.0219	0.91%
Na 330.237†	0.2	0.4731	mg/L	0.32092	2.365	mg/L	1.6046	67.84%
Ni 231.604†	378.7	0.1154	mg/L	0.00156	0.5768	mg/L	0.00782	1.36%
Pb 220.353†	968.8	0.1454	mg/L	0.00120	0.7270	mg/L	0.00600	0.83%
Sb 206.836†	21.0	0.01107	mg/L	0.002892	0.05537	mg/L	0.014460	26.12%
Se 196.026†	-2.8	-0.00395	mg/L	0.002648	-0.01976	mg/L	0.013239	67.00%
Si 288.158†	446.6	0.4783	mg/L	0.00534	2.392	mg/L	0.0267	1.12%
Sn 189.927†	-18.5	-0.00231	mg/L	0.001414	-0.01154	mg/L	0.007072	61.27%
Sr 421.552†	21560.9	0.08423	mg/L	0.000330	0.4212	mg/L	0.00165	0.39%
Ti 334.903†	37427.3	2.713	mg/L	0.0162	13.56	mg/L	0.081	0.60%
Tl 190.801†	-39.5	-0.01142	mg/L	0.000672	-0.05709	mg/L	0.003361	5.89%
V 292.402†	22910.6	0.2795	mg/L	0.00619	1.398	mg/L	0.0309	2.21%
Zn 206.200†	612.9	0.2654	mg/L	0.00040	1.327	mg/L	0.0020	0.15%

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Analysis Begun

Start Time: 8/8/2019 4:16:58 PM **Plasma On Time: 8/8/2019 10:53:47 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0808.sif
Batch ID:
Results Data Set: I2190808
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 344**
Sample ID: 19G0416-03 **Date Collected: 8/8/2019 4:17:06 PM**
Data Type: Original

Dilution: 5X

Nebulizer Parameters: 19G0416-03

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: 19G0416-03

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2130601.6	103.8	%	1.60				1.54%
ScR 361.383	219845.8	105.7	%	0.69				0.65%
Ag 328.068†	-66.2	-0.00039	mg/L	0.000240	-0.00193	mg/L	0.001200	62.30%
Al 308.215†	71642.3	63.09	mg/L	0.602	315.5	mg/L	3.01	0.95%
As 188.979†	-88.5	0.03689	mg/L	0.001917	0.1845	mg/L	0.00959	5.20%
B 249.677†	83.4	0.01985	mg/L	0.001381	0.09927	mg/L	0.006905	6.96%
Ba 233.527†	1574.7	0.3658	mg/L	0.00420	1.829	mg/L	0.0210	1.15%
Be 313.042†	968.7	0.00145	mg/L	0.000042	0.00726	mg/L	0.000208	2.87%
Ca 317.933†	189602.4	19.51	mg/L	0.138	97.54	mg/L	0.689	0.71%
Cd 228.802†	57.9	0.00281	mg/L	0.000334	0.01404	mg/L	0.001669	11.89%
Co 228.616†	1248.8	0.02997	mg/L	0.001089	0.1498	mg/L	0.00544	3.63%
Cr 267.716†	453.8	0.1164	mg/L	0.00236	0.5820	mg/L	0.01178	2.02%
Cu 324.752†	20827.4	0.1076	mg/L	0.00387	0.5380	mg/L	0.01937	3.60%
Fe 273.955†	71864.1	73.00	mg/L	0.517	365.0	mg/L	2.58	0.71%
K 766.490†	3162.8	2.957	mg/L	0.0417	14.78	mg/L	0.209	1.41%
Mg 279.077†	20304.9	20.01	mg/L	0.189	100.1	mg/L	0.94	0.94%
Mn 257.610†	45990.7	1.400	mg/L	0.0150	6.998	mg/L	0.0749	1.07%
Mo 202.031†	51.6	0.00274	mg/L	0.000409	0.01368	mg/L	0.002045	14.95%
Na 589.592†	11208.4	1.366	mg/L	0.0137	6.832	mg/L	0.0686	1.00%
Na 330.237†	19.9	1.614	mg/L	0.4036	8.069	mg/L	2.0180	25.01%
Ni 231.604†	372.0	0.1133	mg/L	0.00154	0.5667	mg/L	0.00768	1.35%
Pb 220.353†	3027.9	0.4133	mg/L	0.01397✓	2.067	mg/L	0.0698	3.38%
Sb 206.836†	5.0	0.00573	mg/L	0.001684	0.02865	mg/L	0.008421	29.39%
Se 196.026†	-1.0	-0.00034	mg/L	0.004151	-0.00171	mg/L	0.020757	>999.9%
Si 288.158†	413.6	0.4439	mg/L	0.00533	2.220	mg/L	0.0266	1.20%
Sn 189.927†	-17.8	-0.00020	mg/L	0.000416	-0.00098	mg/L	0.002078	211.64%
Sr 421.552†	48324.3	0.1888	mg/L	0.00345	0.9440	mg/L	0.01725	1.83%
Ti 334.903†	47179.7	3.419	mg/L	0.0254	17.10	mg/L	0.127	0.74%
Tl 190.801†	-15.2	-0.00691	mg/L	0.002718	-0.03456	mg/L	0.013590	39.32%
V 292.402†	15022.4	0.1818	mg/L	0.00611	0.9092	mg/L	0.03056	3.36%
Zn 206.200†	945.1	0.4092	mg/L	0.00534	2.046	mg/L	0.0267	1.30%

Sequence No.: 2
Sample ID: 19G0416-04
DEL
Dilution: 5X
Wash Time: 37

Autosampler Location: 345
Date Collected: 8/8/2019 4:21:09 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-04

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19G0416-04

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2034715.8	99.16	%	4.222				4.26%
ScR 361.383	217962.1	104.8	%	2.11				2.02%
Ag 328.068†	-11.3	-0.00003	mg/L	0.000301	-0.00016	mg/L	0.001504	970.37%
Al 308.215†	86710.4	76.37	mg/L	0.911	381.8	mg/L	4.56	1.19%
As 188.979†	-39.4	0.05401	mg/L	0.003788	0.2701	mg/L	0.01894	7.01%
B 249.677†	18.2	0.00905	mg/L	0.001036	0.04527	mg/L	0.005182	11.45%
Ba 233.527†	1282.9	0.2976	mg/L	0.01121	1.488	mg/L	0.0560	3.77%
Be 313.042†	1008.6	0.00168	mg/L	0.000134	0.00842	mg/L	0.000668	7.93%
Ca 317.933†	140545.6	14.46	mg/L	0.102	72.30	mg/L	0.510	0.71%
Cd 228.802†	36.0	0.00170	mg/L	0.000609	0.00849	mg/L	0.003043	35.84%
Co 228.616†	982.6	0.02321	mg/L	0.000999	0.1160	mg/L	0.00499	4.30%
Cr 267.716†	339.0	0.08740	mg/L	0.002940	0.4370	mg/L	0.01470	3.36%
Cu 324.752†	13653.0	0.07114	mg/L	0.003448	0.3557	mg/L	0.01724	4.85%
Fe 273.955†	62201.4	63.18	mg/L	0.680	315.9	mg/L	3.40	1.08%
K 766.490†	1748.9	1.635	mg/L	0.0270	8.175	mg/L	0.1351	1.65%
Mg 279.077†	16014.3	15.78	mg/L	0.166	78.91	mg/L	0.831	1.05%
Mn 257.610†	57117.3	1.738	mg/L	0.0205	8.690	mg/L	0.1027	1.18%
Mo 202.031†	46.4	0.00251	mg/L	0.000270	0.01256	mg/L	0.001351	10.75%
Na 589.592†	7032.7	0.8574	mg/L	0.01076	4.287	mg/L	0.0538	1.26%
Na 330.237†	11.7	1.147	mg/L	0.3907	5.736	mg/L	1.9534	34.05%
Ni 231.604†	311.1	0.09479	mg/L	0.005116	0.4740	mg/L	0.02558	5.40%
Pb 220.353†	1106.9	0.1640	mg/L	0.00812	0.8198	mg/L	0.04059	4.95%
Sb 206.836†	10.7	0.00740	mg/L	0.003803	0.03701	mg/L	0.019017	51.39%
Se 196.026†	-3.7	-0.00565	mg/L	0.001600	-0.02823	mg/L	0.008000	28.34%
Si 288.158†	386.1	0.4141	mg/L	0.01090	2.070	mg/L	0.0545	2.63%
Sn 189.927†	-25.2	-0.00340	mg/L	0.001480	-0.01700	mg/L	0.007402	43.54%
Sr 421.552†	19124.3	0.07471	mg/L	0.001063	0.3736	mg/L	0.00531	1.42%
Ti 334.903†	39270.3	2.846	mg/L	0.0268	14.23	mg/L	0.134	0.94%
Tl 190.801†	-20.8	-0.00917	mg/L	0.002567	-0.04585	mg/L	0.012835	28.00%
V 292.402†	12362.1	0.1499	mg/L	0.00773	0.7493	mg/L	0.03867	5.16%
Zn 206.200†	433.0	0.1875	mg/L	0.00746	0.9373	mg/L	0.03729	3.98%

Sequence No.: 3
Sample ID: 19G0416-08RE1

Autosampler Location: 346
Date Collected: 8/8/2019 4:25:07 PM
Data Type: Original

Dilution: 5X DEL
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-08RE1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19G0416-08RE1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2031943.0	99.02	%	3.898				3.94%
ScR 361.383	218742.9	105.2	%	1.98				1.88%
Ag 328.068†	-42.9	-0.00024	mg/L	0.000034	-0.00119	mg/L	0.000172	14.41%
Al 308.215†	77228.6	68.02	mg/L	0.448	340.1	mg/L	2.24	0.66%
As 188.979†	-62.9	0.02764	mg/L	0.005314	0.1382	mg/L	0.02657	19.23%
B 249.677†	41.4	0.01203	mg/L	0.001175	0.06016	mg/L	0.005873	9.76%
Ba 233.527†	1092.4	0.2529	mg/L	0.00313	1.264	mg/L	0.0157	1.24%
Be 313.042†	928.0	0.00148	mg/L	0.000054	0.00738	mg/L	0.000271	3.68%
Ca 317.933†	175722.2	18.08	mg/L	0.169	90.40	mg/L	0.846	0.94%
Cd 228.802†	52.4	0.00244	mg/L	0.000400	0.01220	mg/L	0.002002	16.41%
Co 228.616†	932.4	0.02242	mg/L	0.000776	0.1121	mg/L	0.00388	3.46%
Cr 267.716†	299.9	0.07717	mg/L	0.001346	0.3859	mg/L	0.00673	1.74%
Cu 324.752†	17043.0	0.08802	mg/L	0.005013	0.4401	mg/L	0.02507	5.70%
Fe 273.955†	57081.3	57.98	mg/L	0.286	289.9	mg/L	1.43	0.49%
K 766.490†	2133.9	1.995	mg/L	0.0392	9.975	mg/L	0.1961	1.97%
Mg 279.077†	16005.1	15.77	mg/L	0.115	78.87	mg/L	0.574	0.73%
Mn 257.610†	45762.0	1.392	mg/L	0.0118	6.962	mg/L	0.0592	0.85%
Mo 202.031†	54.3	0.00292	mg/L	0.000219	0.01460	mg/L	0.001096	7.51%
Na 589.592†	4081.9	0.4976	mg/L	0.00592	2.488	mg/L	0.0296	1.19%
Na 330.237†	6.8	0.7886	mg/L	0.33083	3.943	mg/L	1.6541	41.95%
Ni 231.604†	247.9	0.07551	mg/L	0.001187	0.3776	mg/L	0.00593	1.57%
Pb 220.353†	932.8	0.1389	mg/L	0.00315	0.6946	mg/L	0.01574	2.27%
Sb 206.836†	11.5	0.00735	mg/L	0.000626	0.03675	mg/L	0.003128	8.51%
Se 196.026†	-1.6	-0.00311	mg/L	0.003031	-0.01553	mg/L	0.015153	97.55%
Si 288.158†	354.0	0.3798	mg/L	0.00484	1.899	mg/L	0.0242	1.27%
Sn 189.927†	-29.7	-0.00420	mg/L	0.001000	-0.02101	mg/L	0.005002	23.81%
Sr 421.552†	20574.0	0.08038	mg/L	0.000995	0.4019	mg/L	0.00498	1.24%
Ti 334.903†	34464.3	2.498	mg/L	0.0142	12.49	mg/L	0.071	0.57%
Tl 190.801†	-14.0	-0.00616	mg/L	0.000961	-0.03079	mg/L	0.004803	15.60%
V 292.402†	12852.7	0.1553	mg/L	0.00732	0.7764	mg/L	0.03658	4.71%
Zn 206.200†	566.9	0.2455	mg/L	0.00204	1.227	mg/L	0.0102	0.83%

Sequence No.: 4
Sample ID: 19G0416-11

Dilution: 5X
Wash Time: 37

Autosampler Location: 347
Date Collected: 8/8/2019 4:29:05 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-11

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19G0416-11

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2136510.7	104.1	%	0.82				0.79%
ScR 361.383	221077.6	106.3	%	0.54				0.51%
Ag 328.068†	-50.3	-0.00028	mg/L	0.000179	-0.00140	mg/L	0.000896	63.93%
Al 308.215†	77468.7	68.23	mg/L	0.426	341.1	mg/L	2.13	0.62%
As 188.979†	-106.3	0.01776	mg/L	0.001704	0.08882	mg/L	0.008522	9.59%
B 249.677†	17.4	0.00978	mg/L	0.000322	0.04892	mg/L	0.001610	3.29%
Ba 233.527†	1345.0	0.3113	mg/L	0.00103	1.556	mg/L	0.0052	0.33%
Be 313.042†	967.3	0.00146	mg/L	0.000049	0.00730	mg/L	0.000247	3.38%
Ca 317.933†	115693.4	11.90	mg/L	0.094	59.52	mg/L	0.469	0.79%
Cd 228.802†	19.7	0.00135	mg/L	0.000139	0.00673	mg/L	0.000693	10.31%
Co 228.616†	1135.4	0.02706	mg/L	0.000280	0.1353	mg/L	0.00140	1.03%
Cr 267.716†	316.9	0.08196	mg/L	0.001073	0.4098	mg/L	0.00537	1.31%
Cu 324.752†	13020.5	0.06828	mg/L	0.000330	0.3414	mg/L	0.00165	0.48%
Fe 273.955†	70620.5	71.73	mg/L	0.540	358.7	mg/L	2.70	0.75%
K 766.490†	2506.1	2.343	mg/L	0.0417	11.71	mg/L	0.209	1.78%
Mg 279.077†	19724.5	19.44	mg/L	0.133	97.20	mg/L	0.663	0.68%
Mn 257.610†	39897.5	1.214	mg/L	0.0072	6.070	mg/L	0.0358	0.59%
Mo 202.031†	24.2	0.00124	mg/L	0.000281	0.00618	mg/L	0.001406	22.74%
Na 589.592†	4789.2	0.5838	mg/L	0.00506	2.919	mg/L	0.0253	0.87%
Na 330.237†	6.7	0.9583	mg/L	0.14807	4.792	mg/L	0.7403	15.45%
Ni 231.604†	320.1	0.09752	mg/L	0.001300	0.4876	mg/L	0.00650	1.33%
Pb 220.353†	278.1	0.05195	mg/L	0.001507	0.2598	mg/L	0.00753	2.90%
Sb 206.836†	3.8	0.00544	mg/L	0.002660	0.02722	mg/L	0.013301	48.86%
Se 196.026†	-9.2	-0.00839	mg/L	0.005308	-0.04195	mg/L	0.026538	63.25%
Si 288.158†	383.0	0.4112	mg/L	0.00797	2.056	mg/L	0.0398	1.94%
Sn 189.927†	-26.5	-0.00406	mg/L	0.000952	-0.02029	mg/L	0.004761	23.47%
Sr 421.552†	17063.3	0.06666	mg/L	0.000845	0.3333	mg/L	0.00422	1.27%
Ti 334.903†	43641.8	3.163	mg/L	0.0195	15.82	mg/L	0.098	0.62%
Tl 190.801†	-13.0	-0.00597	mg/L	0.002016	-0.02983	mg/L	0.010081	33.80%
V 292.402†	14849.6	0.1795	mg/L	0.00048	0.8976	mg/L	0.00239	0.27%
Zn 206.200†	372.9	0.1614	mg/L	0.00212	0.8069	mg/L	0.01061	1.31%

Sequence No.: 5
Sample ID: 19G0416-12
DEL
Dilution: 5X
Wash Time: 37

Autosampler Location: 348
Date Collected: 8/8/2019 4:33:03 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-12

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: 19G0416-12

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2063978.3	100.6	%	3.72				3.70%
ScR 361.383	218130.3	104.9	%	1.00				0.95%
Ag 328.068†	-49.3	-0.00028	mg/L	0.000142	-0.00138	mg/L	0.000709	51.25%
Al 308.215†	89935.4	79.21	mg/L	0.419	396.0	mg/L	2.10	0.53%
As 188.979†	-102.5	0.01751	mg/L	0.000784	0.08755	mg/L	0.003922	4.48%
B 249.677†	16.3	0.01079	mg/L	0.001059	0.05397	mg/L	0.005296	9.81%
Ba 233.527†	1455.5	0.3362	mg/L	0.00900	1.681	mg/L	0.0450	2.68%
Be 313.042†	1010.7	0.00160	mg/L	0.000077	0.00802	mg/L	0.000387	4.83%
Ca 317.933†	137199.1	14.12	mg/L	0.125	70.58	mg/L	0.623	0.88%
Cd 228.802†	28.1	0.00164	mg/L	0.000459	0.00820	mg/L	0.002297	28.02%
Co 228.616†	1233.4	0.02997	mg/L	0.001018	0.1498	mg/L	0.00509	3.40%
Cr 267.716†	270.5	0.07091	mg/L	0.002151	0.3546	mg/L	0.01076	3.03%
Cu 324.752†	16412.2	0.08592	mg/L	0.000710	0.4296	mg/L	0.00355	0.83%
Fe 273.955†	81932.9	83.22	mg/L	0.666	416.1	mg/L	3.33	0.80%
K 766.490†	3226.5	3.016	mg/L	0.0209	15.08	mg/L	0.105	0.69%
Mg 279.077†	19826.1	19.54	mg/L	0.122	97.70	mg/L	0.609	0.62%
Mn 257.610†	124303.9	3.783	mg/L	0.0274	18.91	mg/L	0.137	0.72%
Mo 202.031†	41.3	0.00222	mg/L	0.000178	0.01108	mg/L	0.000891	8.04%
Na 589.592†	7359.7	0.8972	mg/L	0.00541	4.486	mg/L	0.0270	0.60%
Na 330.237†	15.5	1.398	mg/L	0.4621	6.988	mg/L	2.3104	33.06%
Ni 231.604†	242.5	0.07387	mg/L	0.003351	0.3694	mg/L	0.01675	4.54%
Pb 220.353†	286.4	0.05544	mg/L	0.001845	0.2772	mg/L	0.00922	3.33%
Sb 206.836†	12.5	0.00875	mg/L	0.002614	0.04374	mg/L	0.013069	29.88%
Se 196.026†	-5.4	-0.00700	mg/L	0.002620	-0.03499	mg/L	0.013100	37.44%
Si 288.158†	320.3	0.3442	mg/L	0.00614	1.721	mg/L	0.0307	1.78%
Sn 189.927†	-23.7	-0.00293	mg/L	0.000726	-0.01465	mg/L	0.003628	24.77%
Sr 421.552†	24967.8	0.09754	mg/L	0.001034	0.4877	mg/L	0.00517	1.06%
Ti 334.903†	42340.1	3.069	mg/L	0.0207	15.34	mg/L	0.103	0.67%
Tl 190.801†	-21.0	-0.00697	mg/L	0.003148	-0.03485	mg/L	0.015741	45.18%
V 292.402†	13997.2	0.1705	mg/L	0.00143	0.8524	mg/L	0.00717	0.84%
Zn 206.200†	442.3	0.1914	mg/L	0.00600	0.9572	mg/L	0.03001	3.13%

Sequence No.: 6
Sample ID: 19G0416-13

Dilution: 5X
Wash Time: 37

Autosampler Location: 349
Date Collected: 8/8/2019 4:37:01 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-13

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: 19G0416-13

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2051134.7	99.96	%	1.568				1.57%
ScR 361.383	217761.3	104.7	%	2.29				2.18%
Ag 328.068†	-58.0	-0.00033	mg/L	0.000329	-0.00166	mg/L	0.001643	98.81%
Al 308.215†	87874.5	77.39	mg/L	0.470	387.0	mg/L	2.35	0.61%
As 188.979†	-91.4	0.02919	mg/L	0.003207	0.1460	mg/L	0.01603	10.99%
B 249.677†	23.5	0.01064	mg/L	0.000573	0.05318	mg/L	0.002867	5.39%
Ba 233.527†	1397.1	0.3238	mg/L	0.00996	1.619	mg/L	0.0498	3.08%
Be 313.042†	1004.9	0.00157	mg/L	0.000107	0.00783	mg/L	0.000536	6.84%
Ca 317.933†	132465.3	13.63	mg/L	0.089	68.14	mg/L	0.444	0.65%
Cd 228.802†	32.7	0.00180	mg/L	0.000253	0.00902	mg/L	0.001264	14.02%
Co 228.616†	1132.8	0.02690	mg/L	0.000744	0.1345	mg/L	0.00372	2.77%
Cr 267.716†	372.9	0.09606	mg/L	0.002658	0.4803	mg/L	0.01329	2.77%
Cu 324.752†	12439.8	0.06531	mg/L	0.001616	0.3266	mg/L	0.00808	2.47%
Fe 273.955†	69916.4	71.02	mg/L	0.615	355.1	mg/L	3.08	0.87%
K 766.490†	2119.3	1.981	mg/L	0.0322	9.907	mg/L	0.1610	1.63%
Mg 279.077†	19465.7	19.19	mg/L	0.130	95.93	mg/L	0.650	0.68%
Mn 257.610†	51947.7	1.581	mg/L	0.0080	7.904	mg/L	0.0401	0.51%
Mo 202.031†	35.6	0.00188	mg/L	0.000459	0.00942	mg/L	0.002296	24.37%
Na 589.592†	4641.0	0.5658	mg/L	0.00509	2.829	mg/L	0.0254	0.90%
Na 330.237†	5.4	0.8979	mg/L	0.63536	4.489	mg/L	3.1768	70.76%
Ni 231.604†	340.9	0.1039	mg/L	0.00412	0.5193	mg/L	0.02061	3.97%
Pb 220.353†	443.4	0.07633	mg/L	0.001163	0.3816	mg/L	0.00581	1.52%
Sb 206.836†	10.7	0.00789	mg/L	0.001548	0.03947	mg/L	0.007742	19.62%
Se 196.026†	-3.7	-0.00473	mg/L	0.008768	-0.02365	mg/L	0.043839	185.35%
Si 288.158†	405.2	0.4348	mg/L	0.01531	2.174	mg/L	0.0765	3.52%
Sn 189.927†	-29.1	-0.00448	mg/L	0.000690	-0.02241	mg/L	0.003451	15.40%
Sr 421.552†	23334.3	0.09116	mg/L	0.000585	0.4558	mg/L	0.00292	0.64%
Ti 334.903†	44352.8	3.215	mg/L	0.0179	16.07	mg/L	0.089	0.56%
Tl 190.801†	-18.0	-0.00805	mg/L	0.002433	-0.04027	mg/L	0.012164	30.20%
V 292.402†	14463.2	0.1751	mg/L	0.00486	0.8753	mg/L	0.02429	2.77%
Zn 206.200†	398.1	0.1723	mg/L	0.00566	0.8616	mg/L	0.02828	3.28%

Sequence No.: 7
Sample ID: 19G0416-18

Dilution: 5X
Wash Time: 37

Autosampler Location: 350
Date Collected: 8/8/2019 4:40:59 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-18

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: 19G0416-18

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2112339.9	102.9	%	1.17				1.14%
ScR 361.383	223314.2	107.4	%	0.87				0.81%
Ag 328.068†	-86.4	-0.00052	mg/L	0.000259	-0.00262	mg/L	0.001297	49.49%
Al 308.215†	82287.9	72.47	mg/L	0.292	362.4	mg/L	1.46	0.40%
As 188.979†	-95.8	0.02435	mg/L	0.005294	0.1217	mg/L	0.02647	21.74%
B 249.677†	22.4	0.01036	mg/L	0.001425	0.05181	mg/L	0.007126	13.76%
Ba 233.527†	1401.8	0.3250	mg/L	0.00217	1.625	mg/L	0.0108	0.67%
Be 313.042†	972.7	0.00153	mg/L	0.000068	0.00767	mg/L	0.000339	4.42%
Ca 317.933†	115644.2	11.90	mg/L	0.052	59.49	mg/L	0.258	0.43%
Cd 228.802†	29.5	0.00170	mg/L	0.000138	0.00848	mg/L	0.000689	8.12%
Co 228.616†	1158.6	0.02782	mg/L	0.000621	0.1391	mg/L	0.00311	2.23%
Cr 267.716†	379.7	0.09772	mg/L	0.002113	0.4886	mg/L	0.01057	2.16%
Cu 324.752†	12409.9	0.06512	mg/L	0.003610	0.3256	mg/L	0.01805	5.54%
Fe 273.955†	68838.5	69.92	mg/L	0.187	349.6	mg/L	0.93	0.27%
K 766.490†	2656.8	2.484	mg/L	0.0045	12.42	mg/L	0.023	0.18%
Mg 279.077†	19514.0	19.23	mg/L	0.055	96.17	mg/L	0.277	0.29%
Mn 257.610†	42406.9	1.290	mg/L	0.0056	6.452	mg/L	0.0282	0.44%
Mo 202.031†	30.7	0.00162	mg/L	0.000039	0.00811	mg/L	0.000194	2.40%
Na 589.592†	4178.2	0.5094	mg/L	0.00199	2.547	mg/L	0.0100	0.39%
Na 330.237†	9.4	1.077	mg/L	0.1018	5.385	mg/L	0.5090	9.45%
Ni 231.604†	343.1	0.1045	mg/L	0.00147	0.5226	mg/L	0.00734	1.40%
Pb 220.353†	343.7	0.06190	mg/L	0.000832	0.3095	mg/L	0.00416	1.34%
Sb 206.836†	6.6	0.00618	mg/L	0.002065	0.03090	mg/L	0.010326	33.42%
Se 196.026†	-8.0	-0.00798	mg/L	0.004119	-0.03991	mg/L	0.020596	51.61%
Si 288.158†	378.2	0.4060	mg/L	0.00753	2.030	mg/L	0.0376	1.85%
Sn 189.927†	-23.4	-0.00320	mg/L	0.000592	-0.01599	mg/L	0.002959	18.51%
Sr 421.552†	24051.1	0.09396	mg/L	0.000349	0.4698	mg/L	0.00174	0.37%
Ti 334.903†	43391.0	3.145	mg/L	0.0100	15.73	mg/L	0.050	0.32%
Tl 190.801†	-17.0	-0.00788	mg/L	0.001649	-0.03941	mg/L	0.008245	20.92%
V 292.402†	13608.8	0.1649	mg/L	0.00922	0.8244	mg/L	0.04611	5.59%
Zn 206.200†	506.3	0.2192	mg/L	0.00149	1.096	mg/L	0.0074	0.68%

Sequence No.: 8
Sample ID: 19G0416-05

Autosampler Location: 351
Date Collected: 8/8/2019 4:44:57 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-05

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19G0416-05

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1907599.7	92.96	%	2.418				2.60%
ScR 361.383	208629.1	100.3	%	7.31				7.28%
Ag 328.068†	-116.0	-0.00066	mg/L	0.000257	-0.00132	mg/L	0.000514	38.93%
Al 308.215†	214221.2	188.7	mg/L	0.28	377.3	mg/L	0.57	0.15%
As 188.979†	-102.7	0.1232	mg/L	0.00272	0.2464	mg/L	0.00544	2.21%
B 249.677†	104.8	0.03009	mg/L	0.000602	0.06017	mg/L	0.001204	2.00%
Ba 233.527†	5350.7	1.256	mg/L	0.0719	2.513	mg/L	0.1438	5.72%
Be 313.042†	2365.8	0.00388	mg/L	0.000460	0.00777	mg/L	0.000919	11.83%
Ca 317.933†	426848.8	43.92	mg/L	0.311	87.83	mg/L	0.623	0.71%
Cd 228.802†	117.6	0.00531	mg/L	0.000283	0.01062	mg/L	0.000565	5.32%
Co 228.616†	2215.3	0.05151	mg/L	0.001417	0.1030	mg/L	0.00283	2.75%
Cr 267.716†	743.3	0.1918	mg/L	0.00776	0.3837	mg/L	0.01551	4.04%
Cu 324.752†	40243.3	0.2080	mg/L	0.00475	0.4160	mg/L	0.00950	2.28%
Fe 273.955†	140831.6	143.0	mg/L	1.27	286.1	mg/L	2.54	0.89%
K 766.490†	6592.9	6.164	mg/L	0.0994	12.33	mg/L	0.199	1.61%
Mg 279.077†	34437.1	33.93	mg/L	1.865	67.87	mg/L	3.730	5.50%
Mn 257.610†	184235.8	5.606	mg/L	0.0352	11.21	mg/L	0.070	0.63%
Mo 202.031†	97.6	0.00506	mg/L	0.000277	0.01011	mg/L	0.000553	5.47%
Na 589.592†	19673.6	2.398	mg/L	0.0058	4.797	mg/L	0.0115	0.24%
Na 330.237†	20.0	2.212	mg/L	0.6761	4.423	mg/L	1.3523	30.57%
Ni 231.604†	587.3	0.1789	mg/L	0.00979	0.3578	mg/L	0.01959	5.47%
Pb 220.353†	1833.7	0.2867	mg/L	0.00586	0.5735	mg/L	0.01171	2.04%
Sb 206.836†	31.8	0.02034	mg/L	0.000772	0.04069	mg/L	0.001545	3.80%
Se 196.026†	-8.6	-0.01607	mg/L	0.005690	-0.03215	mg/L	0.011380	35.40%
Si 288.158†	915.7	0.9815	mg/L	0.05422	1.963	mg/L	0.1084	5.52%
Sn 189.927†	-60.8	-0.00669	mg/L	0.000780	-0.01337	mg/L	0.001561	11.67%
Sr 421.552†	96704.8	0.3778	mg/L	0.00327	0.7556	mg/L	0.00654	0.86%
Ti 334.903†	94246.5	6.830	mg/L	0.0320	13.66	mg/L	0.064	0.47%
Tl 190.801†	-42.0	-0.01631	mg/L	0.007849	-0.03262	mg/L	0.015698	48.13%
V 292.402†	30274.9	0.3665	mg/L	0.00650	0.7330	mg/L	0.01301	1.77%
Zn 206.200†	1648.1	0.7136	mg/L	0.04007	1.427	mg/L	0.0801	5.62%

Sequence No.: 9
Sample ID: BHH0088-PS1

Dilution: 2X
Wash Time: 100

Autosampler Location: 352
Date Collected: 8/8/2019 4:49:59 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0088-PS1

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: BHH0088-PS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2066306.0	100.7	%	2.04				2.02%
ScR 361.383	217369.7	104.5	%	2.91				2.78%
Ag 328.068†	76860.2	0.5095	mg/L	0.00128	1.019	mg/L	0.0026	0.25%
Al 308.215†	225761.9	198.8	mg/L	0.31	397.6	mg/L	0.63	0.16%
As 188.979†	2749.0	2.093	mg/L	0.0417	4.186	mg/L	0.0835	1.99%
B 249.677†	54.9	0.02529	mg/L	0.000407	0.05058	mg/L	0.000814	1.61%
Ba 233.527†	11842.1	2.797	mg/L	0.0611	5.594	mg/L	0.1222	2.19%
Be 313.042†	230688.4	0.5305	mg/L	0.00168	1.061	mg/L	0.0034	0.32%
Ca 317.933†	349487.8	35.95	mg/L	0.101	71.90	mg/L	0.201	0.28%
Cd 228.802†	12914.2	0.5056	mg/L	0.01196	1.011	mg/L	0.0239	2.37%
Co 228.616†	19230.3	0.5581	mg/L	0.01360	1.116	mg/L	0.0272	2.44%
Cr 267.716†	2868.4	0.7272	mg/L	0.01670	1.454	mg/L	0.0334	2.30%
Cu 324.752†	130776.4	0.6654	mg/L	0.00158	1.331	mg/L	0.0032	0.24%
Fe 273.955†	179386.1	182.2	mg/L	0.21	364.4	mg/L	0.42	0.12%
K 766.490†	16111.8	15.06	mg/L	0.080	30.13	mg/L	0.160	0.53%
Mg 279.077†	63002.1	62.12	mg/L	0.035	124.2	mg/L	0.07	0.06%
Mn 257.610†	131876.3	4.013	mg/L	0.0038	8.026	mg/L	0.0076	0.09%
Mo 202.031†	68.6	0.00343	mg/L	0.000074	0.00687	mg/L	0.000147	2.14%
Na 589.592†	91831.2	11.20	mg/L	0.026	22.39	mg/L	0.051	0.23%
Na 330.237†	186.1	11.15	mg/L	0.710	22.29	mg/L	1.421	6.37%
Ni 231.604†	2456.6	0.7483	mg/L	0.01564	1.497	mg/L	0.0313	2.09%
Pb 220.353†	15309.1	2.066	mg/L	0.0494	4.133	mg/L	0.0988	2.39%
Sb 206.836†	42.6	0.01841	mg/L	0.002367	0.03682	mg/L	0.004734	12.86%
Se 196.026†	2281.6	2.083	mg/L	0.0529	4.165	mg/L	0.1058	2.54%
Si 288.158†	1094.1	1.176	mg/L	0.0268	2.352	mg/L	0.0535	2.27%
Sn 189.927†	-58.3	-0.00708	mg/L	0.002539	-0.01415	mg/L	0.005079	35.89%
Sr 421.552†	184078.2	0.7191	mg/L	0.00552	1.438	mg/L	0.0110	0.77%
Ti 334.903†	101772.5	7.376	mg/L	0.0021	14.75	mg/L	0.004	0.03%
Tl 190.801†	3783.7	1.907	mg/L	0.0446	3.814	mg/L	0.0892	2.34%
V 292.402†	75160.2	0.9016	mg/L	0.00174	1.803	mg/L	0.0035	0.19%
Zn 206.200†	2114.5	0.9150	mg/L	0.02114	1.830	mg/L	0.0423	2.31%

Sequence No.: 10
Sample ID: SEQ-CCV6

Autosampler Location: 7
Date Collected: 8/8/2019 4:54:47 PM
Data Type: Original

Dilution: 1X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV6

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: SEQ-CCV6

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2107066.8	102.7	%	0.14				0.14%
ScR 361.383	212841.6	102.4	%	0.64				0.63%
Ag 328.068†	155787.9	1.033	mg/L	0.0071	1.033	mg/L	0.0071	0.69%
Al 308.215†	2325.2	2.009	mg/L	0.0152	2.009	mg/L	0.0152	0.76%
As 188.979†	2963.6	2.053	mg/L	0.0037	2.053	mg/L	0.0037	0.18%
B 249.677†	6846.4	1.031	mg/L	0.0038	1.031	mg/L	0.0038	0.37%
Ba 233.527†	4307.1	1.024	mg/L	0.0039	1.024	mg/L	0.0039	0.38%
Be 313.042†	446947.0	1.031	mg/L	0.0031	1.031	mg/L	0.0031	0.30%
Ca 317.933†	20690.6	2.115	mg/L	0.0134	2.115	mg/L	0.0134	0.63%
Cd 228.802†	25543.9	1.011	mg/L	0.0053	1.011	mg/L	0.0053	0.52%
Co 228.616†	34278.5	1.022	mg/L	0.0022	1.022	mg/L	0.0022	0.21%
Cr 267.716†	4013.2	1.012	mg/L	0.0111	1.012	mg/L	0.0111	1.10%
Cu 324.752†	201115.0	1.012	mg/L	0.0016	1.012	mg/L	0.0016	0.16%
Fe 273.955†	1993.8	2.018	mg/L	0.0133	2.018	mg/L	0.0133	0.66%
K 766.490†	21064.5	19.69	mg/L	0.091	19.69	mg/L	0.091	0.46%
Mg 279.077†	2093.7	2.079	mg/L	0.0134	2.079	mg/L	0.0134	0.64%
Mn 257.610†	34189.6	1.041	mg/L	0.0056	1.041	mg/L	0.0056	0.54%
Mo 202.031†	17187.5	1.021	mg/L	0.0028	1.021	mg/L	0.0028	0.27%
Na 589.592†	412613.0	50.30	mg/L	0.135	50.30	mg/L	0.135	0.27%
Na 330.237†	952.7	50.82	mg/L	0.214	50.82	mg/L	0.214	0.42%
Ni 231.604†	3362.9	1.026	mg/L	0.0060	1.026	mg/L	0.0060	0.58%
Pb 220.353†	15429.5	2.037	mg/L	0.0075	2.037	mg/L	0.0075	0.37%
Sb 206.836†	5679.8	2.138	mg/L	0.0029	2.138	mg/L	0.0029	0.14%
Se 196.026†	2332.1	2.131	mg/L	0.0038	2.131	mg/L	0.0038	0.18%
Si 288.158†	1936.6	2.068	mg/L	0.0158	2.068	mg/L	0.0158	0.76%
Sn 189.927†	3704.8	1.046	mg/L	0.0037	1.046	mg/L	0.0037	0.35%
Sr 421.552†	275415.0	1.076	mg/L	0.0013	1.076	mg/L	0.0013	0.12%
Ti 334.903†	13480.8	0.9761	mg/L	0.00304	0.9761	mg/L	0.00304	0.31%
Tl 190.801†	4115.1	2.069	mg/L	0.0024	2.069	mg/L	0.0024	0.11%
V 292.402†	84964.0	1.010	mg/L	0.0074	1.010	mg/L	0.0074	0.74%
Zn 206.200†	2429.8	1.051	mg/L	0.0057	1.051	mg/L	0.0057	0.54%

Sequence No.: 11
Sample ID: SEQ-CCB6
Autosampler Location: 1
Date Collected: 8/8/2019 4:59:50 PM
Data Type: Original
Dilution: 1X
Wash Time: 100
Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCB6

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: SEQ-CCB6

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2110144.6	102.8	%	0.71				0.69%
ScR 361.383	212567.7	102.2	%	0.67				0.65%
Ag 328.068†	20.5	0.00014	mg/L	0.000125	0.00014	mg/L	0.000125	92.39%
Al 308.215†	32.6	0.02872	mg/L	0.001676	0.02872	mg/L	0.001676	5.83%
As 188.979†	1.3	0.00089	mg/L	0.000941	0.00089	mg/L	0.000941	106.10%
B 249.677†	12.3	0.00186	mg/L	0.001089	0.00186	mg/L	0.001089	58.56%
Ba 233.527†	3.6	0.00086	mg/L	0.000280	0.00086	mg/L	0.000280	32.40%
Be 313.042†	7.5	0.00002	mg/L	0.000075	0.00002	mg/L	0.000075	423.92%
Ca 317.933†	9.9	0.00102	mg/L	0.000083	0.00102	mg/L	0.000083	8.11%
Cd 228.802†	9.1	0.00036	mg/L	0.000068	0.00036	mg/L	0.000068	19.27%
Co 228.616†	5.1	0.00015	mg/L	0.000255	0.00015	mg/L	0.000255	166.35%
Cr 267.716†	-7.7	-0.00195	mg/L	0.001492	-0.00195	mg/L	0.001492	76.73%
Cu 324.752†	79.5	0.00040	mg/L	0.000198	0.00040	mg/L	0.000198	49.38%
Fe 273.955†	3.4	0.00345	mg/L	0.002556	0.00345	mg/L	0.002556	74.05%
K 766.490†	57.2	0.05345	mg/L	0.013083	0.05345	mg/L	0.013083	24.48%
Mg 279.077†	10.1	0.00994	mg/L	0.002984	0.00994	mg/L	0.002984	30.00%
Mn 257.610†	11.1	0.00034	mg/L	0.000262	0.00034	mg/L	0.000262	77.68%
Mo 202.031†	12.7	0.00075	mg/L	0.000231	0.00075	mg/L	0.000231	30.62%
Na 589.592†	-227.2	-0.02769	mg/L	0.000705	-0.02769	mg/L	0.000705	2.55%
Na 330.237†	5.4	0.2921	mg/L	0.97217	0.2921	mg/L	0.97217	332.80%
Ni 231.604†	-6.9	-0.00209	mg/L	0.001958	-0.00209	mg/L	0.001958	93.56%
Pb 220.353†	1.6	0.00021	mg/L	0.001130	0.00021	mg/L	0.001130	540.31%
Sb 206.836†	4.4	0.00168	mg/L	0.001636	0.00168	mg/L	0.001636	97.59%
Se 196.026†	-1.6	-0.00147	mg/L	0.004780	-0.00147	mg/L	0.004780	324.83%
Si 288.158†	-4.8	-0.00512	mg/L	0.004674	-0.00512	mg/L	0.004674	91.32%
Sn 189.927†	-1.9	-0.00053	mg/L	0.000731	-0.00053	mg/L	0.000731	138.65%
Sr 421.552†	47.4	0.00019	mg/L	0.000091	0.00019	mg/L	0.000091	48.90%
Ti 334.903†	-4.4	-0.00032	mg/L	0.000263	-0.00032	mg/L	0.000263	82.42%
Tl 190.801†	1.2	0.00058	mg/L	0.000604	0.00058	mg/L	0.000604	103.80%
V 292.402†	-8.0	-0.00011	mg/L	0.000244	-0.00011	mg/L	0.000244	228.27%
Zn 206.200†	-5.1	-0.00221	mg/L	0.001086	-0.00221	mg/L	0.001086	49.14%

Sequence No.: 12
Sample ID: BHH0169-BLK1

Dilution: 2X
Wash Time: 37

Autosampler Location: 301
Date Collected: 8/8/2019 5:03:48 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0169-BLK1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0169-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2145822.4	104.6	%	0.21				0.20%
ScR 361.383	217339.7	104.5	%	0.65				0.62%
Ag 328.068†	29.1	0.00019	mg/L	0.000150	0.00038	mg/L	0.000300	77.97%
Al 308.215†	0.6	0.00055	mg/L	0.005014	0.00110	mg/L	0.010028	911.25%
As 188.979†	1.1	0.00079	mg/L	0.000444	0.00159	mg/L	0.000887	55.89%
B 249.677†	4.1	0.00062	mg/L	0.001206	0.00123	mg/L	0.002412	195.63%
Ba 233.527†	-0.4	-0.00011	mg/L	0.001813	-0.00022	mg/L	0.003626	>999.9%
Be 313.042†	-10.4	-0.00002	mg/L	0.000032	-0.00005	mg/L	0.000065	139.75%
Ca 317.933†	66.3	0.00681	mg/L	0.000882	0.01361	mg/L	0.001763	12.96%
Cd 228.802†	6.6	0.00026	mg/L	0.000034	0.00052	mg/L	0.000069	13.28%
Co 228.616†	2.8	0.00008	mg/L	0.000039	0.00016	mg/L	0.000078	48.37%
Cr 267.716†	4.3	0.00107	mg/L	0.001159	0.00215	mg/L	0.002318	107.84%
Cu 324.752†	68.6	0.00034	mg/L	0.000194	0.00069	mg/L	0.000388	56.28%
Fe 273.955†	3.2	0.00327	mg/L	0.002557	0.00653	mg/L	0.005114	78.27%
K 766.490†	45.9	0.04294	mg/L	0.025638	0.08589	mg/L	0.051275	59.70%
Mg 279.077†	7.4	0.00734	mg/L	0.003962	0.01468	mg/L	0.007924	53.98%
Mn 257.610†	5.5	0.00017	mg/L	0.000036	0.00034	mg/L	0.000072	21.46%
Mo 202.031†	3.3	0.00019	mg/L	0.000118	0.00039	mg/L	0.000236	60.99%
Na 589.592†	-228.4	-0.02785	mg/L	0.000943	-0.05570	mg/L	0.001886	3.39%
Na 330.237†	10.5	0.5629	mg/L	0.23327	1.126	mg/L	0.4665	41.44%
Ni 231.604†	1.7	0.00052	mg/L	0.000380	0.00104	mg/L	0.000761	73.29%
Pb 220.353†	1.1	0.00015	mg/L	0.000213	0.00030	mg/L	0.000426	143.62%
Sb 206.836†	0.5	0.00016	mg/L	0.000548	0.00033	mg/L	0.001096	332.52%
Se 196.026†	-6.2	-0.00570	mg/L	0.004799	-0.01140	mg/L	0.009598	84.22%
Si 288.158†	2.0	0.00216	mg/L	0.002756	0.00433	mg/L	0.005512	127.32%
Sn 189.927†	-0.2	-0.00006	mg/L	0.000066	-0.00011	mg/L	0.000131	118.82%
Sr 421.552†	-19.9	-0.00008	mg/L	0.000128	-0.00016	mg/L	0.000256	165.22%
Ti 334.903†	20.9	0.00152	mg/L	0.000755	0.00303	mg/L	0.001511	49.84%
Tl 190.801†	1.9	0.00098	mg/L	0.002035	0.00196	mg/L	0.004070	207.77%
V 292.402†	-17.0	-0.00019	mg/L	0.000240	-0.00039	mg/L	0.000479	123.83%
Zn 206.200†	9.0	0.00391	mg/L	0.000425	0.00782	mg/L	0.000851	10.88%

Sequence No.: 13
Sample ID: BHH0228-BLK1

Autosampler Location: 302
Date Collected: 8/8/2019 5:07:48 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0228-BLK1

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: BHH0228-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2180817.5	106.3	%	0.93				0.88%
ScR 361.383	222288.5	106.9	%	0.85				0.80%
Ag 328.068†	18.9	0.00013	mg/L	0.000190	0.00013	mg/L	0.000190	151.58%
Al 308.215†	7.6	0.00670	mg/L	0.015802	0.00670	mg/L	0.015802	235.97%
As 188.979†	1.8	0.00125	mg/L	0.001594	0.00125	mg/L	0.001594	127.97%
B 249.677†	2.8	0.00041	mg/L	0.000259	0.00041	mg/L	0.000259	62.48%
Ba 233.527†	1.5	0.00035	mg/L	0.000890	0.00035	mg/L	0.000890	253.62%
Be 313.042†	-27.6	-0.00006	mg/L	0.000059	-0.00006	mg/L	0.000059	95.33%
Ca 317.933†	1.9	0.00019	mg/L	0.001024	0.00019	mg/L	0.001024	548.01%
Cd 228.802†	12.2	0.00048	mg/L	0.000042	0.00048	mg/L	0.000042	8.80%
Co 228.616†	11.8	0.00035	mg/L	0.000094	0.00035	mg/L	0.000094	26.72%
Cr 267.716†	2.9	0.00073	mg/L	0.002100	0.00073	mg/L	0.002100	285.92%
Cu 324.752†	0.6	0.00000	mg/L	0.000048	0.00000	mg/L	0.000048	>999.9%
Fe 273.955†	1.1	0.00115	mg/L	0.003325	0.00115	mg/L	0.003325	288.02%
K 766.490†	39.9	0.03730	mg/L	0.025321	0.03730	mg/L	0.025321	67.88%
Mg 279.077†	-1.2	-0.00121	mg/L	0.004708	-0.00121	mg/L	0.004708	388.74%
Mn 257.610†	-4.3	-0.00013	mg/L	0.000051	-0.00013	mg/L	0.000051	39.44%
Mo 202.031†	-1.4	-0.00008	mg/L	0.000127	-0.00008	mg/L	0.000127	152.01%
Na 589.592†	-175.7	-0.02142	mg/L	0.004094	-0.02142	mg/L	0.004094	19.11%
Na 330.237†	13.0	0.6986	mg/L	0.46989	0.6986	mg/L	0.46989	67.26%
Ni 231.604†	3.7	0.00112	mg/L	0.002204	0.00112	mg/L	0.002204	196.52%
Pb 220.353†	8.4	0.00111	mg/L	0.001019	0.00111	mg/L	0.001019	91.90%
Sb 206.836†	-4.3	-0.00162	mg/L	0.001900	-0.00162	mg/L	0.001900	117.39%
Se 196.026†	0.6	0.00052	mg/L	0.001064	0.00052	mg/L	0.001064	205.00%
Si 288.158†	-0.5	-0.00049	mg/L	0.006718	-0.00049	mg/L	0.006718	>999.9%
Sn 189.927†	0.3	0.00009	mg/L	0.000635	0.00009	mg/L	0.000635	739.71%
Sr 421.552†	-0.7	-0.00000	mg/L	0.000080	-0.00000	mg/L	0.000080	>999.9%
Ti 334.903†	4.4	0.00032	mg/L	0.000890	0.00032	mg/L	0.000890	280.61%
Tl 190.801†	2.1	0.00106	mg/L	0.002190	0.00106	mg/L	0.002190	207.13%
V 292.402†	-38.9	-0.00045	mg/L	0.000265	-0.00045	mg/L	0.000265	58.40%
Zn 206.200†	-4.4	-0.00189	mg/L	0.000709	-0.00189	mg/L	0.000709	37.51%

Sequence No.: 14
Sample ID: 19G0372-04

Autosampler Location: 303
Date Collected: 8/8/2019 5:11:46 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0372-04

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19G0372-04

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2119516.4	103.3	%	1.11				1.07%
ScR 361.383	219444.4	105.5	%	0.76				0.72%
Ag 328.068†	-16.6	-0.00011	mg/L	0.000244	-0.00011	mg/L	0.000244	222.89%
Al 308.215†	18.4	0.01599	mg/L	0.009807	0.01599	mg/L	0.009807	61.34%
As 188.979†	15.7	0.00913	mg/L	0.003169	0.00913	mg/L	0.003169	34.72%
B 249.677†	270.8	0.04081	mg/L	0.000769	0.04081	mg/L	0.000769	1.88%
Ba 233.527†	34.8	0.00829	mg/L	0.000192	0.00829	mg/L	0.000192	2.31%
Be 313.042†	-12.3	-0.00004	mg/L	0.000106	-0.00004	mg/L	0.000106	275.96%
Ca 317.933†	215202.2	22.14	mg/L	0.116	22.14	mg/L	0.116	0.52%
Cd 228.802†	6.1	0.00017	mg/L	0.000238	0.00017	mg/L	0.000238	137.07%
Co 228.616†	9.3	0.00027	mg/L	0.000018	0.00027	mg/L	0.000018	6.62%
Cr 267.716†	15.0	0.00166	mg/L	0.002439	0.00166	mg/L	0.002439	146.87%
Cu 324.752†	178.4	0.00077	mg/L	0.000164	0.00077	mg/L	0.000164	21.41%
Fe 273.955†	76.3	0.07745	mg/L	0.001929	0.07745	mg/L	0.001929	2.49%
K 766.490†	3060.6	2.861	mg/L	0.0183	2.861	mg/L	0.0183	0.64%
Mg 279.077†	15995.7	15.79	mg/L	0.047	15.79	mg/L	0.047	0.29%
Mn 257.610†	1106.4	0.03362	mg/L	0.000122	0.03362	mg/L	0.000122	0.36%
Mo 202.031†	51.7	0.00270	mg/L	0.000133	0.00270	mg/L	0.000133	4.94%
Na 589.592†	94132.5	11.48	mg/L	0.065	11.48	mg/L	0.065	0.57%
Na 330.237†	213.0	11.42	mg/L	0.642	11.42	mg/L	0.642	5.62%
Ni 231.604†	1.3	0.00040	mg/L	0.001028	0.00040	mg/L	0.001028	255.55%
Pb 220.353†	4.1	0.00054	mg/L	0.000864	0.00054	mg/L	0.000864	159.02%
Sb 206.836†	-1.4	-0.00065	mg/L	0.000551	-0.00065	mg/L	0.000551	85.00%
Se 196.026†	0.5	0.00044	mg/L	0.004674	0.00044	mg/L	0.004674	>999.9%
Si 288.158†	16049.5	17.13	mg/L	0.020	17.13	mg/L	0.020	0.12%
Sn 189.927†	-29.1	-0.00447	mg/L	0.000712	-0.00447	mg/L	0.000712	15.93%
Sr 421.552†	32157.1	0.1256	mg/L	0.00133	0.1256	mg/L	0.00133	1.06%
Ti 334.903†	16.3	-0.00018	mg/L	0.001682	-0.00018	mg/L	0.001682	916.54%
Tl 190.801†	2.7	0.00142	mg/L	0.001163	0.00142	mg/L	0.001163	82.02%
V 292.402†	191.4	0.00230	mg/L	0.000028	0.00230	mg/L	0.000028	1.23%
Zn 206.200†	10.5	0.00440	mg/L	0.000933	0.00440	mg/L	0.000933	21.18%

Sequence No.: 15
Sample ID: BHH0228-DUP1

Autosampler Location: 304
Date Collected: 8/8/2019 5:15:44 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0228-DUP1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0228-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1838432.0	89.59	%	1.759				1.96%
ScR 361.383	205808.4	98.98	%	8.450				8.54%
Ag 328.068†	-11.1	-0.00007	mg/L	0.000295	-0.00007	mg/L	0.000295	406.39%
Al 308.215†	27.8	0.02399	mg/L	0.014060	0.02399	mg/L	0.014060	58.60%
As 188.979†	16.0	0.00939	mg/L	0.002842	0.00939	mg/L	0.002842	30.28%
B 249.677†	331.9	0.05003	mg/L	0.003937	0.05003	mg/L	0.003937	7.87%
Ba 233.527†	28.8	0.00684	mg/L	0.000750	0.00684	mg/L	0.000750	10.96%
Be 313.042†	97.3	0.00021	mg/L	0.000280	0.00021	mg/L	0.000280	131.18%
Ca 317.933†	213223.7	21.94	mg/L	0.062	21.94	mg/L	0.062	0.28%
Cd 228.802†	9.8	0.00032	mg/L	0.000150	0.00032	mg/L	0.000150	47.15%
Co 228.616†	5.9	0.00017	mg/L	0.000085	0.00017	mg/L	0.000085	50.51%
Cr 267.716†	1.3	-0.00211	mg/L	0.004158	-0.00211	mg/L	0.004158	197.21%
Cu 324.752†	363.8	0.00167	mg/L	0.000282	0.00167	mg/L	0.000282	16.91%
Fe 273.955†	156.2	0.1586	mg/L	0.00733	0.1586	mg/L	0.00733	4.62%
K 766.490†	4210.2	3.936	mg/L	0.1208	3.936	mg/L	0.1208	3.07%
Mg 279.077†	18732.7	18.50	mg/L	0.254	18.50	mg/L	0.254	1.38%
Mn 257.610†	1122.2	0.03411	mg/L	0.001831	0.03411	mg/L	0.001831	5.37%
Mo 202.031†	63.1	0.00339	mg/L	0.000150	0.00339	mg/L	0.000150	4.43%
Na 589.592†	287838.3	35.09	mg/L	0.353	35.09	mg/L	0.353	1.01%
Na 330.237†	634.9	34.02	mg/L	0.557	34.02	mg/L	0.557	1.64%
Ni 231.604†	0.6	0.00020	mg/L	0.000247	0.00020	mg/L	0.000247	125.36%
Pb 220.353†	11.0	0.00145	mg/L	0.000521	0.00145	mg/L	0.000521	35.83%
Sb 206.836†	2.1	0.00074	mg/L	0.003422	0.00074	mg/L	0.003422	461.34%
Se 196.026†	-5.4	-0.00498	mg/L	0.003535	-0.00498	mg/L	0.003535	70.99%
Si 288.158†	16055.3	17.14	mg/L	0.452	17.14	mg/L	0.452	2.64%
Sn 189.927†	-32.8	-0.00554	mg/L	0.000451	-0.00554	mg/L	0.000451	8.15%
Sr 421.552†	36400.5	0.1422	mg/L	0.00073	0.1422	mg/L	0.00073	0.51%
Ti 334.903†	33.1	0.00105	mg/L	0.001809	0.00105	mg/L	0.001809	173.06%
Tl 190.801†	-0.5	-0.00021	mg/L	0.001694	-0.00021	mg/L	0.001694	797.11%
V 292.402†	234.5	0.00279	mg/L	0.000108	0.00279	mg/L	0.000108	3.87%
Zn 206.200†	-0.7	-0.00053	mg/L	0.000283	-0.00053	mg/L	0.000283	53.81%

Sequence No.: 16
Sample ID: 19G0372-02

Autosampler Location: 305
Date Collected: 8/8/2019 5:19:57 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0372-02

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19G0372-02

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1761308.2	85.83	%	0.980				1.14%
ScR 361.383	190887.2	91.81	%	4.498				4.90%
Ag 328.068†	-35.6	-0.00024	mg/L	0.000208	-0.00024	mg/L	0.000208	88.27%
Al 308.215†	43.3	0.03767	mg/L	0.006456	0.03767	mg/L	0.006456	17.14%
As 188.979†	20.9	0.01279	mg/L	0.001378	0.01279	mg/L	0.001378	10.78%
B 249.677†	344.5	0.05193	mg/L	0.001032	0.05193	mg/L	0.001032	1.99%
Ba 233.527†	31.5	0.00748	mg/L	0.000979	0.00748	mg/L	0.000979	13.10%
Be 313.042†	200.5	0.00045	mg/L	0.000228	0.00045	mg/L	0.000228	50.47%
Ca 317.933†	210642.4	21.67	mg/L	0.168	21.67	mg/L	0.168	0.78%
Cd 228.802†	16.1	0.00055	mg/L	0.000094	0.00055	mg/L	0.000094	17.10%
Co 228.616†	4.9	0.00014	mg/L	0.000080	0.00014	mg/L	0.000080	57.48%
Cr 267.716†	-7.9	-0.00442	mg/L	0.002989	-0.00442	mg/L	0.002989	67.68%
Cu 324.752†	447.1	0.00209	mg/L	0.000288	0.00209	mg/L	0.000288	13.76%
Fe 273.955†	163.8	0.1664	mg/L	0.00416	0.1664	mg/L	0.00416	2.50%
K 766.490†	4234.6	3.959	mg/L	0.0845	3.959	mg/L	0.0845	2.13%
Mg 279.077†	18577.9	18.34	mg/L	0.235	18.34	mg/L	0.235	1.28%
Mn 257.610†	1142.6	0.03472	mg/L	0.000843	0.03472	mg/L	0.000843	2.43%
Mo 202.031†	68.9	0.00374	mg/L	0.000111	0.00374	mg/L	0.000111	2.97%
Na 589.592†	288379.1	35.16	mg/L	0.282	35.16	mg/L	0.282	0.80%
Na 330.237†	624.0	33.44	mg/L	0.930	33.44	mg/L	0.930	2.78%
Ni 231.604†	-7.3	-0.00222	mg/L	0.000578	-0.00222	mg/L	0.000578	26.08%
Pb 220.353†	16.5	0.00218	mg/L	0.000570	0.00218	mg/L	0.000570	26.17%
Sb 206.836†	5.9	0.00221	mg/L	0.002047	0.00221	mg/L	0.002047	92.42%
Se 196.026†	-1.2	-0.00108	mg/L	0.002219	-0.00108	mg/L	0.002219	204.68%
Si 288.158†	15983.1	17.06	mg/L	0.278	17.06	mg/L	0.278	1.63%
Sn 189.927†	-32.0	-0.00538	mg/L	0.000972	-0.00538	mg/L	0.000972	18.07%
Sr 421.552†	36128.2	0.1411	mg/L	0.00124	0.1411	mg/L	0.00124	0.88%
Ti 334.903†	35.9	0.00126	mg/L	0.001021	0.00126	mg/L	0.001021	81.01%
Tl 190.801†	-2.0	-0.00097	mg/L	0.000912	-0.00097	mg/L	0.000912	94.51%
V 292.402†	232.7	0.00275	mg/L	0.000291	0.00275	mg/L	0.000291	10.59%
Zn 206.200†	-2.9	-0.00145	mg/L	0.000481	-0.00145	mg/L	0.000481	33.25%

Sequence No.: 17
Sample ID: BHH0228-MS1

Autosampler Location: 306
Date Collected: 8/8/2019 5:24:10 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0228-MS1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0228-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1739572.3	84.77	%	0.668				0.79%
ScR 361.383	184622.0	88.79	%	2.570				2.89%
Ag 328.068†	79935.1	0.5298	mg/L	0.01046	0.5298	mg/L	0.01046	1.97%
Al 308.215†	2332.9	2.047	mg/L	0.0262	2.047	mg/L	0.0262	1.28%
As 188.979†	3179.6	2.176	mg/L	0.0362	2.176	mg/L	0.0362	1.66%
B 249.677†	354.4	0.05240	mg/L	0.000950	0.05240	mg/L	0.000950	1.81%
Ba 233.527†	8304.0	1.977	mg/L	0.0214	1.977	mg/L	0.0214	1.08%
Be 313.042†	215630.7	0.4973	mg/L	0.00443	0.4973	mg/L	0.00443	0.89%
Ca 317.933†	306872.1	31.57	mg/L	0.122	31.57	mg/L	0.122	0.39%
Cd 228.802†	13549.7	0.5289	mg/L	0.00942	0.5289	mg/L	0.00942	1.78%
Co 228.616†	16901.1	0.5047	mg/L	0.01093	0.5047	mg/L	0.01093	2.17%
Cr 267.716†	1945.9	0.4874	mg/L	0.00532	0.4874	mg/L	0.00532	1.09%
Cu 324.752†	100070.9	0.5037	mg/L	0.00961	0.5037	mg/L	0.00961	1.91%
Fe 273.955†	2074.2	2.103	mg/L	0.0226	2.103	mg/L	0.0226	1.07%
K 766.490†	14924.0	13.95	mg/L	0.150	13.95	mg/L	0.150	1.07%
Mg 279.077†	28136.9	27.78	mg/L	0.088	27.78	mg/L	0.088	0.32%
Mn 257.610†	17052.9	0.5192	mg/L	0.00335	0.5192	mg/L	0.00335	0.64%
Mo 202.031†	78.6	0.00412	mg/L	0.000088	0.00412	mg/L	0.000088	2.14%
Na 589.592†	374738.1	45.68	mg/L	0.119	45.68	mg/L	0.119	0.26%
Na 330.237†	824.9	44.00	mg/L	0.118	44.00	mg/L	0.118	0.27%
Ni 231.604†	1571.4	0.4786	mg/L	0.00651	0.4786	mg/L	0.00651	1.36%
Pb 220.353†	15277.9	2.017	mg/L	0.0433	2.017	mg/L	0.0433	2.15%
Sb 206.836†	22.3	0.00219	mg/L	0.001496	0.00219	mg/L	0.001496	68.35%
Se 196.026†	2727.2	2.493	mg/L	0.0420	2.493	mg/L	0.0420	1.69%
Si 288.158†	15937.0	17.01	mg/L	0.130	17.01	mg/L	0.130	0.76%
Sn 189.927†	-47.9	-0.00817	mg/L	0.001602	-0.00817	mg/L	0.001602	19.61%
Sr 421.552†	173562.5	0.6781	mg/L	0.00696	0.6781	mg/L	0.00696	1.03%
Ti 334.903†	47.1	0.00136	mg/L	0.000844	0.00136	mg/L	0.000844	61.85%
Tl 190.801†	4166.2	2.098	mg/L	0.0334	2.098	mg/L	0.0334	1.59%
V 292.402†	43276.5	0.5143	mg/L	0.01364	0.5143	mg/L	0.01364	2.65%
Zn 206.200†	1136.1	0.4913	mg/L	0.00556	0.4913	mg/L	0.00556	1.13%

Sequence No.: 18
Sample ID: BHH0228-BS1

Autosampler Location: 307
Date Collected: 8/8/2019 5:30:52 PM
Data Type: Original

Dilution: 1X
Wash Time: 200

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0228-BS1

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: BHH0228-BS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1771918.4	86.35	%	0.945				1.09%
ScR 361.383	187240.8	90.05	%	1.902				2.11%
Ag 328.068†	84631.5	0.5609	mg/L	0.00219	0.5609	mg/L	0.00219	0.39%
Al 308.215†	2325.4	2.041	mg/L	0.0149	2.041	mg/L	0.0149	0.73%
As 188.979†	3022.6	2.070	mg/L	0.0180	2.070	mg/L	0.0180	0.87%
B 249.677†	6.5	-0.00004	mg/L	0.001551	-0.00004	mg/L	0.001551	>999.9%
Ba 233.527†	8352.1	1.989	mg/L	0.0056	1.989	mg/L	0.0056	0.28%
Be 313.042†	220183.5	0.5079	mg/L	0.00267	0.5079	mg/L	0.00267	0.53%
Ca 317.933†	97689.2	10.04	mg/L	0.046	10.04	mg/L	0.046	0.45%
Cd 228.802†	13589.6	0.5313	mg/L	0.00462	0.5313	mg/L	0.00462	0.87%
Co 228.616†	16979.9	0.5071	mg/L	0.00267	0.5071	mg/L	0.00267	0.53%
Cr 267.716†	1954.0	0.4918	mg/L	0.00386	0.4918	mg/L	0.00386	0.79%
Cu 324.752†	99080.1	0.4989	mg/L	0.00279	0.4989	mg/L	0.00279	0.56%
Fe 273.955†	1930.5	1.957	mg/L	0.0137	1.957	mg/L	0.0137	0.70%
K 766.490†	10891.7	10.18	mg/L	0.103	10.18	mg/L	0.103	1.01%
Mg 279.077†	10451.4	10.32	mg/L	0.028	10.32	mg/L	0.028	0.27%
Mn 257.610†	16253.4	0.4950	mg/L	0.00221	0.4950	mg/L	0.00221	0.45%
Mo 202.031†	28.6	0.00150	mg/L	0.000378	0.00150	mg/L	0.000378	25.16%
Na 589.592†	82998.5	10.12	mg/L	0.060	10.12	mg/L	0.060	0.60%
Na 330.237†	164.8	8.621	mg/L	0.0597	8.621	mg/L	0.0597	0.69%
Ni 231.604†	1619.8	0.4934	mg/L	0.00182	0.4934	mg/L	0.00182	0.37%
Pb 220.353†	15339.0	2.025	mg/L	0.0144	2.025	mg/L	0.0144	0.71%
Sb 206.836†	16.5	-0.00002	mg/L	0.001400	-0.00002	mg/L	0.001400	>999.9%
Se 196.026†	2629.4	2.403	mg/L	0.0250	2.403	mg/L	0.0250	1.04%
Si 288.158†	-0.7	0.00111	mg/L	0.007597	0.00111	mg/L	0.007597	687.37%
Sn 189.927†	-16.3	-0.00289	mg/L	0.000887	-0.00289	mg/L	0.000887	30.72%
Sr 421.552†	138077.4	0.5394	mg/L	0.00808	0.5394	mg/L	0.00808	1.50%
Ti 334.903†	27.0	0.00123	mg/L	0.000565	0.00123	mg/L	0.000565	45.79%
Tl 190.801†	4185.8	2.108	mg/L	0.0194	2.108	mg/L	0.0194	0.92%
V 292.402†	42473.9	0.5048	mg/L	0.00158	0.5048	mg/L	0.00158	0.31%
Zn 206.200†	1151.1	0.4980	mg/L	0.00100	0.4980	mg/L	0.00100	0.20%

Sequence No.: 19
Sample ID: SEQ-IBL1

Autosampler Location: 308
Date Collected: 8/8/2019 5:37:33 PM
Data Type: Original

Dilution: 1X
Wash Time: 200

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IBL1

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: SEQ-IBL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1739151.2	84.75	%	0.647				0.76%
ScR 361.383	181227.4	87.16	%	1.582				1.81%
Ag 328.068†	44.1	0.00029	mg/L	0.000407	0.00029	mg/L	0.000407	139.27%
Al 308.215†	42.5	0.03741	mg/L	0.015482	0.03741	mg/L	0.015482	41.39%
As 188.979†	0.7	0.00048	mg/L	0.001583	0.00048	mg/L	0.001583	328.45%
B 249.677†	-3.5	-0.00053	mg/L	0.000688	-0.00053	mg/L	0.000688	129.92%
Ba 233.527†	5.0	0.00120	mg/L	0.000622	0.00120	mg/L	0.000622	51.85%
Be 313.042†	204.0	0.00047	mg/L	0.000058	0.00047	mg/L	0.000058	12.25%
Ca 317.933†	93.4	0.00962	mg/L	0.001471	0.00962	mg/L	0.001471	15.29%
Cd 228.802†	18.0	0.00072	mg/L	0.000064	0.00072	mg/L	0.000064	8.94%
Co 228.616†	-5.6	-0.00017	mg/L	0.000107	-0.00017	mg/L	0.000107	63.19%
Cr 267.716†	-22.4	-0.00564	mg/L	0.000794	-0.00564	mg/L	0.000794	14.07%
Cu 324.752†	308.2	0.00155	mg/L	0.000090	0.00155	mg/L	0.000090	5.77%
Fe 273.955†	13.0	0.01315	mg/L	0.002643	0.01315	mg/L	0.002643	20.09%
K 766.490†	129.9	0.1214	mg/L	0.02144	0.1214	mg/L	0.02144	17.66%
Mg 279.077†	14.6	0.01443	mg/L	0.002830	0.01443	mg/L	0.002830	19.61%
Mn 257.610†	46.7	0.00142	mg/L	0.000158	0.00142	mg/L	0.000158	11.10%
Mo 202.031†	10.0	0.00059	mg/L	0.000295	0.00059	mg/L	0.000295	49.85%
Na 589.592†	-182.8	-0.02228	mg/L	0.004308	-0.02228	mg/L	0.004308	19.33%
Na 330.237†	-10.1	-0.5387	mg/L	0.46292	-0.5387	mg/L	0.46292	85.93%
Ni 231.604†	-4.5	-0.00135	mg/L	0.001865	-0.00135	mg/L	0.001865	137.74%
Pb 220.353†	12.2	0.00160	mg/L	0.000635	0.00160	mg/L	0.000635	39.58%
Sb 206.836†	11.2	0.00431	mg/L	0.001101	0.00431	mg/L	0.001101	25.56%
Se 196.026†	-8.4	-0.00770	mg/L	0.003020	-0.00770	mg/L	0.003020	39.21%
Si 288.158†	-9.4	-0.01008	mg/L	0.010839	-0.01008	mg/L	0.010839	107.50%
Sn 189.927†	-4.4	-0.00124	mg/L	0.000634	-0.00124	mg/L	0.000634	50.94%
Sr 421.552†	187.0	0.00073	mg/L	0.000193	0.00073	mg/L	0.000193	26.46%
Ti 334.903†	11.3	0.00082	mg/L	0.000269	0.00082	mg/L	0.000269	32.96%
Tl 190.801†	-2.8	-0.00140	mg/L	0.000777	-0.00140	mg/L	0.000777	55.64%
V 292.402†	17.6	0.00017	mg/L	0.000577	0.00017	mg/L	0.000577	336.93%
Zn 206.200†	1.6	0.00069	mg/L	0.001232	0.00069	mg/L	0.001232	177.64%

Sequence No.: 20
Sample ID: 19H0071-01

Dilution: 20X
Wash Time: 200

Autosampler Location: 309
Date Collected: 8/8/2019 5:44:14 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0071-01

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19H0071-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1787788.0	87.12	%	0.754				0.87%
ScR 361.383	185536.5	89.23	%	1.215				1.36%
Ag 328.068†	36.6	0.00024	mg/L	0.000156	0.00481	mg/L	0.003127	65.02%
Al 308.215†	22817.1	20.09	mg/L	0.023	401.9	mg/L	0.45	0.11%
As 188.979†	-23.5	0.00371	mg/L	0.003132	0.07417	mg/L	0.062649	84.47%
B 249.677†	105.5	0.01416	mg/L	0.000418	0.2831	mg/L	0.00836	2.95%
Ba 233.527†	58.2	0.01291	mg/L	0.001486	0.2581	mg/L	0.02972	11.51%
Be 313.042†	232.8	0.00056	mg/L	0.000042	0.01118	mg/L	0.000830	7.43%
Ca 317.933†	28810.6	2.958	mg/L	0.0107	59.17	mg/L	0.215	0.36%
Cd 228.802†	30.1	0.00135	mg/L	0.000261	0.02692	mg/L	0.005216	19.38%
Co 228.616†	144.3	0.00212	mg/L	0.000284	0.04231	mg/L	0.005684	13.43%
Cr 267.716†	29728.7	7.497	mg/L	0.0579	149.9	mg/L	1.16	0.77%
Cu 324.752†	51205.9	0.2578	mg/L	0.00054	5.157	mg/L	0.0107	0.21%
Fe 273.955†	5025.9	5.117	mg/L	0.0280	102.3	mg/L	0.56	0.55%
K 766.490†	292.2	0.2732	mg/L	0.05739	5.464	mg/L	1.1478	21.01%
Mg 279.077†	31216.9	30.83	mg/L	0.128	616.7	mg/L	2.55	0.41%
Mn 257.610†	6264.9	0.1905	mg/L	0.00224	3.811	mg/L	0.0447	1.17%
Mo 202.031†	90.1	0.00483	mg/L	0.000270	0.09665	mg/L	0.005395	5.58%
Na 589.592†	3687.6	0.4496	mg/L	0.00711	8.991	mg/L	0.1421	1.58%
Na 330.237†	-10.5	-0.6263	mg/L	0.42757	-12.53	mg/L	8.551	68.27%
Ni 231.604†	121.0	0.03695	mg/L	0.001270	0.7390	mg/L	0.02540	3.44%
Pb 220.353†	-80.0	0.01080	mg/L	0.000664	0.2160	mg/L	0.01327	6.15%
Sb 206.836†	300.6	-0.00907	mg/L	0.001855	-0.1815	mg/L	0.03711	20.45%
Se 196.026†	-7.2	-0.00830	mg/L	0.002455	-0.1659	mg/L	0.04911	29.59%
Si 288.158†	61.3	0.07899	mg/L	0.005496	1.580	mg/L	0.1099	6.96%
Sn 189.927†	12.1	0.00448	mg/L	0.000525	0.08964	mg/L	0.010494	11.71%
Sr 421.552†	6698.1	0.02617	mg/L	0.000464	0.5234	mg/L	0.00929	1.77%
Ti 334.903†	16348.4	1.184	mg/L	0.0009	23.67	mg/L	0.017	0.07%
Tl 190.801†	-4.4	-0.00465	mg/L	0.000666	-0.09296	mg/L	0.013313	14.32%
V 292.402†	-621.0	0.04270	mg/L	0.000707	0.8540	mg/L	0.01414	1.66%
Zn 206.200†	1709.6	0.7405	mg/L	0.00254	14.81	mg/L	0.051	0.34%

Sequence No.: 21
Sample ID: BHH0169-BS1

Autosampler Location: 310
Date Collected: 8/8/2019 5:48:12 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0169-BS1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0169-BS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1783355.6	86.91	%	0.547				0.63%
ScR 361.383	186832.4	89.86	%	0.968				1.08%
Ag 328.068†	79973.0	0.5300	mg/L	0.00076	1.060	mg/L	0.0015	0.14%
Al 308.215†	2341.9	2.055	mg/L	0.0238	4.111	mg/L	0.0476	1.16%
As 188.979†	2958.1	2.025	mg/L	0.0060	4.051	mg/L	0.0120	0.30%
B 249.677†	9.5	0.00042	mg/L	0.000337	0.00084	mg/L	0.000674	79.87%
Ba 233.527†	8434.1	2.008	mg/L	0.0221	4.016	mg/L	0.0442	1.10%
Be 313.042†	221679.4	0.5113	mg/L	0.00268	1.023	mg/L	0.0054	0.52%
Ca 317.933†	97311.9	10.01	mg/L	0.029	20.01	mg/L	0.058	0.29%
Cd 228.802†	12902.7	0.5040	mg/L	0.00284	1.008	mg/L	0.0057	0.56%
Co 228.616†	16846.8	0.5031	mg/L	0.00252	1.006	mg/L	0.0050	0.50%
Cr 267.716†	1984.7	0.4995	mg/L	0.00345	0.9991	mg/L	0.00690	0.69%
Cu 324.752†	100804.9	0.5076	mg/L	0.00096	1.015	mg/L	0.0019	0.19%
Fe 273.955†	1956.4	1.983	mg/L	0.0197	3.967	mg/L	0.0395	1.00%
K 766.490†	10658.3	9.964	mg/L	0.0202	19.93	mg/L	0.040	0.20%
Mg 279.077†	10507.7	10.38	mg/L	0.111	20.75	mg/L	0.222	1.07%
Mn 257.610†	16325.6	0.4971	mg/L	0.00147	0.9943	mg/L	0.00293	0.29%
Mo 202.031†	30.3	0.00160	mg/L	0.000394	0.00321	mg/L	0.000789	24.60%
Na 589.592†	82408.2	10.05	mg/L	0.027	20.09	mg/L	0.054	0.27%
Na 330.237†	171.4	8.977	mg/L	0.1465	17.95	mg/L	0.293	1.63%
Ni 231.604†	1625.9	0.4968	mg/L	0.00388	0.9936	mg/L	0.00777	0.78%
Pb 220.353†	15042.9	1.986	mg/L	0.0058	3.972	mg/L	0.0115	0.29%
Sb 206.836†	5550.5	2.087	mg/L	0.0108	4.173	mg/L	0.0215	0.52%
Se 196.026†	2255.5	2.062	mg/L	0.0013	4.123	mg/L	0.0027	0.06%
Si 288.158†	-10.2	-0.00896	mg/L	0.009439	-0.01792	mg/L	0.018878	105.36%
Sn 189.927†	-27.3	-0.00506	mg/L	0.000357	-0.01012	mg/L	0.000714	7.05%
Sr 421.552†	139119.4	0.5435	mg/L	0.00170	1.087	mg/L	0.0034	0.31%
Ti 334.903†	36.5	0.00193	mg/L	0.000587	0.00385	mg/L	0.001174	30.49%
Tl 190.801†	4101.2	2.065	mg/L	0.0121	4.130	mg/L	0.0242	0.59%
V 292.402†	42453.5	0.5046	mg/L	0.00595	1.009	mg/L	0.0119	1.18%
Zn 206.200†	1144.6	0.4952	mg/L	0.00752	0.9904	mg/L	0.01505	1.52%

Sequence No.: 22
Sample ID: SEQ-CCV7

Autosampler Location: 7
Date Collected: 8/8/2019 5:52:10 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV7

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: SEQ-CCV7

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1813833.4	88.39	%	1.013				1.15%
ScR 361.383	185145.1	89.04	%	1.551				1.74%
Ag 328.068†	155053.3	1.028	mg/L	0.0142	1.028	mg/L	0.0142	1.39%
Al 308.215†	2343.5	2.026	mg/L	0.0406	2.026	mg/L	0.0406	2.01%
As 188.979†	2842.3	1.970	mg/L	0.0220	1.970	mg/L	0.0220	1.12%
B 249.677†	6818.6	1.027	mg/L	0.0184	1.027	mg/L	0.0184	1.79%
Ba 233.527†	4251.1	1.011	mg/L	0.0162	1.011	mg/L	0.0162	1.60%
Be 313.042†	443979.4	1.024	mg/L	0.0051	1.024	mg/L	0.0051	0.50%
Ca 317.933†	20183.3	2.063	mg/L	0.0356	2.063	mg/L	0.0356	1.72%
Cd 228.802†	25401.7	1.006	mg/L	0.0188	1.006	mg/L	0.0188	1.87%
Co 228.616†	33314.9	0.9936	mg/L	0.01260	0.9936	mg/L	0.01260	1.27%
Cr 267.716†	3912.5	0.9870	mg/L	0.01465	0.9870	mg/L	0.01465	1.48%
Cu 324.752†	200231.7	1.008	mg/L	0.0138	1.008	mg/L	0.0138	1.37%
Fe 273.955†	1957.0	1.980	mg/L	0.0345	1.980	mg/L	0.0345	1.74%
K 766.490†	21640.7	20.23	mg/L	0.149	20.23	mg/L	0.149	0.74%
Mg 279.077†	2068.4	2.054	mg/L	0.0379	2.054	mg/L	0.0379	1.84%
Mn 257.610†	33721.9	1.027	mg/L	0.0162	1.027	mg/L	0.0162	1.58%
Mo 202.031†	16819.3	0.9987	mg/L	0.01569	0.9987	mg/L	0.01569	1.57%
Na 589.592†	420727.4	51.29	mg/L	0.287	51.29	mg/L	0.287	0.56%
Na 330.237†	940.5	50.18	mg/L	0.732	50.18	mg/L	0.732	1.46%
Ni 231.604†	3276.5	0.9995	mg/L	0.01592	0.9995	mg/L	0.01592	1.59%
Pb 220.353†	14961.4	1.976	mg/L	0.0333	1.976	mg/L	0.0333	1.69%
Sb 206.836†	5550.4	2.089	mg/L	0.0226	2.089	mg/L	0.0226	1.08%
Se 196.026†	2249.1	2.055	mg/L	0.0186	2.055	mg/L	0.0186	0.90%
Si 288.158†	1936.7	2.068	mg/L	0.0423	2.068	mg/L	0.0423	2.05%
Sn 189.927†	3563.6	1.006	mg/L	0.0093	1.006	mg/L	0.0093	0.93%
Sr 421.552†	280068.9	1.094	mg/L	0.0175	1.094	mg/L	0.0175	1.60%
Ti 334.903†	13479.9	0.9760	mg/L	0.00485	0.9760	mg/L	0.00485	0.50%
Tl 190.801†	4015.7	2.019	mg/L	0.0174	2.019	mg/L	0.0174	0.86%
V 292.402†	83256.6	0.9898	mg/L	0.01287	0.9898	mg/L	0.01287	1.30%
Zn 206.200†	2347.7	1.015	mg/L	0.0164	1.015	mg/L	0.0164	1.61%

Sequence No.: 23
Sample ID: SEQ-CCB7

Autosampler Location: 1
Date Collected: 8/8/2019 5:57:13 PM
Data Type: Original

Dilution: 1X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCB7

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: SEQ-CCB7

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1788014.0	87.13	%	1.275				1.46%
ScR 361.383	184220.5	88.60	%	0.489				0.55%
Ag 328.068†	56.9	0.00038	mg/L	0.000065	0.00038	mg/L	0.000065	17.30%
Al 308.215†	48.1	0.04236	mg/L	0.014085	0.04236	mg/L	0.014085	33.25%
As 188.979†	0.0	0.00008	mg/L	0.001266	0.00008	mg/L	0.001266	>999.9%
B 249.677†	17.6	0.00266	mg/L	0.000590	0.00266	mg/L	0.000590	22.20%
Ba 233.527†	5.7	0.00135	mg/L	0.001111	0.00135	mg/L	0.001111	82.17%
Be 313.042†	165.5	0.00038	mg/L	0.000033	0.00038	mg/L	0.000033	8.66%
Ca 317.933†	25.9	0.00268	mg/L	0.000266	0.00268	mg/L	0.000266	9.93%
Cd 228.802†	17.5	0.00070	mg/L	0.000248	0.00070	mg/L	0.000248	35.37%
Co 228.616†	-0.8	-0.00003	mg/L	0.000078	-0.00003	mg/L	0.000078	295.13%
Cr 267.716†	-25.1	-0.00633	mg/L	0.001481	-0.00633	mg/L	0.001481	23.40%
Cu 324.752†	260.1	0.00131	mg/L	0.000221	0.00131	mg/L	0.000221	16.90%
Fe 273.955†	1.6	0.00157	mg/L	0.001920	0.00157	mg/L	0.001920	122.14%
K 766.490†	136.4	0.1275	mg/L	0.02878	0.1275	mg/L	0.02878	22.57%
Mg 279.077†	7.5	0.00746	mg/L	0.006292	0.00746	mg/L	0.006292	84.39%
Mn 257.610†	37.6	0.00114	mg/L	0.000220	0.00114	mg/L	0.000220	19.25%
Mo 202.031†	19.2	0.00114	mg/L	0.000540	0.00114	mg/L	0.000540	47.45%
Na 589.592†	-193.4	-0.02358	mg/L	0.001674	-0.02358	mg/L	0.001674	7.10%
Na 330.237†	-14.2	-0.7598	mg/L	0.75195	-0.7598	mg/L	0.75195	98.96%
Ni 231.604†	-5.9	-0.00181	mg/L	0.001463	-0.00181	mg/L	0.001463	80.95%
Pb 220.353†	5.3	0.00070	mg/L	0.000402	0.00070	mg/L	0.000402	57.66%
Sb 206.836†	5.3	0.00212	mg/L	0.001411	0.00212	mg/L	0.001411	66.61%
Se 196.026†	-5.3	-0.00489	mg/L	0.002428	-0.00489	mg/L	0.002428	49.68%
Si 288.158†	-5.5	-0.00586	mg/L	0.003410	-0.00586	mg/L	0.003410	58.22%
Sn 189.927†	-2.8	-0.00079	mg/L	0.000555	-0.00079	mg/L	0.000555	70.49%
Sr 421.552†	110.5	0.00043	mg/L	0.000040	0.00043	mg/L	0.000040	9.20%
Ti 334.903†	26.4	0.00192	mg/L	0.000623	0.00192	mg/L	0.000623	32.52%
Tl 190.801†	-3.8	-0.00193	mg/L	0.002160	-0.00193	mg/L	0.002160	111.90%
V 292.402†	4.3	0.00001	mg/L	0.000108	0.00001	mg/L	0.000108	>999.9%
Zn 206.200†	-6.3	-0.00276	mg/L	0.000943	-0.00276	mg/L	0.000943	34.21%

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Analysis Begun

Start Time: 8/8/2019 6:01:30 PM **Plasma On Time: 8/8/2019 10:53:47 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\ 0808.sif
Batch ID:
Results Data Set: I2190808
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1
Sample ID: SEQ-CAL1 **Date Collected: 8/8/2019 6:01:32 PM**
Data Type: Original

Nebulizer Parameters: SEQ-CAL1

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: SEQ-CAL1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	1834165.3	14278.59	0.78%	89.38	%
ScR 361.383	196931.6	8398.25	4.26%	94.71	%
Ag 328.068†	-89.6	55.11	61.48%	[0.00]	mg/L
Al 308.215†	271.2	11.67	4.30%	[0.00]	mg/L
As 188.979†	-7.4	2.20	29.70%	[0.00]	mg/L
B 249.677†	57.2	7.66	13.38%	[0.00]	mg/L
Ba 233.527†	27.4	4.86	17.73%	[0.00]	mg/L
Be 313.042†	1414.1	53.47	3.78%	[0.00]	mg/L
Ca 317.933†	211.6	15.77	7.45%	[0.00]	mg/L
Cd 228.802†	279.5	0.92	0.33%	[0.00]	mg/L
Co 228.616†	-37.9	4.71	12.43%	[0.00]	mg/L
Cr 267.716†	-216.4	10.81	4.99%	[0.00]	mg/L
Cu 324.752†	2105.5	14.82	0.70%	[0.00]	mg/L
Fe 273.955†	30.2	2.11	7.01%	[0.00]	mg/L
K 766.490†	430.9	40.39	9.37%	[0.00]	mg/L
Mg 279.077†	77.8	8.63	11.09%	[0.00]	mg/L
Mn 257.610†	243.4	8.52	3.50%	[0.00]	mg/L
Mo 202.031†	61.2	3.85	6.30%	[0.00]	mg/L
Na 589.592†	-51.7	8.39	16.22%	[0.00]	mg/L
Na 330.237†	-183.5	10.10	5.50%	[0.00]	mg/L
Ni 231.604†	-38.5	5.99	15.56%	[0.00]	mg/L
Pb 220.353†	14.0	1.98	14.18%	[0.00]	mg/L
Sb 206.836†	67.1	3.20	4.77%	[0.00]	mg/L
Se 196.026†	-41.6	4.35	10.46%	[0.00]	mg/L
Si 288.158†	12.4	8.44	68.11%	[0.00]	mg/L
Sn 189.927†	-14.9	3.61	24.32%	[0.00]	mg/L
Sr 421.552†	994.7	51.03	5.13%	[0.00]	mg/L
Ti 334.903†	-18.7	18.76	100.07%	[0.00]	mg/L
Tl 190.801†	-41.3	2.73	6.59%	[0.00]	mg/L
V 292.402†	212.9	11.08	5.21%	[0.00]	mg/L
Zn 206.200†	8.5	2.37	27.92%	[0.00]	mg/L

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Sequence No.: 2
Sample ID: SEQ-CAL1 **Date Collected: 8/8/2019 6:05:11 PM**
Data Type: Original

Nebulizer Parameters: SEQ-CAL1

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: SEQ-CAL1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	1963031.1	74369.42	3.79%	95.66	%
ScR 361.383	194235.7	2037.61	1.05%	93.42	%
Ag 328.068†	-71.8	9.10	12.68%	[0.00]	mg/L
Al 308.215†	281.5	17.79	6.32%	[0.00]	mg/L
As 188.979†	-10.2	2.07	20.27%	[0.00]	mg/L
B 249.677†	49.1	11.29	23.00%	[0.00]	mg/L
Ba 233.527†	24.2	3.20	13.23%	[0.00]	mg/L
Be 313.042†	1434.0	43.48	3.03%	[0.00]	mg/L
Ca 317.933†	211.4	11.31	5.35%	[0.00]	mg/L
Cd 228.802†	266.5	11.34	4.25%	[0.00]	mg/L
Co 228.616†	-35.0	3.30	9.42%	[0.00]	mg/L
Cr 267.716†	-218.2	3.75	1.72%	[0.00]	mg/L
Cu 324.752†	2013.2	50.93	2.53%	[0.00]	mg/L
Fe 273.955†	33.2	2.86	8.60%	[0.00]	mg/L
K 766.490†	463.1	32.99	7.12%	[0.00]	mg/L
Mg 279.077†	76.5	3.23	4.22%	[0.00]	mg/L
Mn 257.610†	252.0	4.49	1.78%	[0.00]	mg/L
Mo 202.031†	52.6	5.97	11.36%	[0.00]	mg/L
Na 589.592†	-40.7	32.93	80.92%	[0.00]	mg/L
Na 330.237†	-192.9	14.52	7.53%	[0.00]	mg/L
Ni 231.604†	-37.7	5.04	13.37%	[0.00]	mg/L
Pb 220.353†	17.3	2.66	15.36%	[0.00]	mg/L
Sb 206.836†	67.9	2.97	4.37%	[0.00]	mg/L
Se 196.026†	-39.5	1.21	3.08%	[0.00]	mg/L
Si 288.158†	9.9	3.67	37.28%	[0.00]	mg/L
Sn 189.927†	-17.8	1.12	6.30%	[0.00]	mg/L
Sr 421.552†	999.7	16.07	1.61%	[0.00]	mg/L
Ti 334.903†	3.2	19.47	608.58%	[0.00]	mg/L
Tl 190.801†	-33.9	5.07	14.97%	[0.00]	mg/L
V 292.402†	177.0	10.51	5.94%	[0.00]	mg/L
Zn 206.200†	4.9	1.63	33.08%	[0.00]	mg/L

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Analysis Begun

Start Time: 8/8/2019 6:10:42 PM **Plasma On Time: 8/8/2019 10:53:47 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\ 0808.sif
Batch ID:
Results Data Set: I2190808
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 9**
Sample ID: SEQ-IBL2 **Date Collected: 8/8/2019 6:10:43 PM**
Data Type: Original

Dilution: 1X

Nebulizer Parameters: SEQ-IBL2

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: SEQ-IBL2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	14872.6	0.7248	%	0.15447				21.31%
ScR 361.383	134427.2	64.65	%	54.227				83.88%
Ag 328.068†	-9264.8	-0.06130	mg/L	0.036933	-0.06130	mg/L	0.036933	60.25%
Al 308.215†	4361.7	3.831	mg/L	6.6478	3.831	mg/L	6.6478	173.55%
As 188.979†	-1285.9	-0.8815	mg/L	0.45527	-0.8815	mg/L	0.45527	51.64%
B 249.677†	733.6	0.1118	mg/L	0.19179	0.1118	mg/L	0.19179	171.56%
Ba 233.527†	364.9	0.08674	mg/L	0.148899	0.08674	mg/L	0.148899	171.66%
Be 313.042†	21222.9	0.04795	mg/L	0.085348	0.04795	mg/L	0.085348	177.99%
Ca 317.933†	3884.3	0.4036	mg/L	0.68573	0.4036	mg/L	0.68573	169.90%
Cd 228.802†	7900.2	0.3221	mg/L	0.05471	0.3221	mg/L	0.05471	16.98%
Co 228.616†	-5072.3	-0.1515	mg/L	0.02387	-0.1515	mg/L	0.02387	15.75%
Cr 267.716†	-3196.8	-0.8067	mg/L	1.40208	-0.8067	mg/L	1.40208	173.81%
Cu 324.752†	275502.8	1.387	mg/L	0.2673	1.387	mg/L	0.2673	19.27%
Fe 273.955†	613.2	0.6190	mg/L	1.06553	0.6190	mg/L	1.06553	172.15%
K 766.490†	6922.9	6.472	mg/L	11.2962	6.472	mg/L	11.2962	174.53%
Mg 279.077†	1176.7	1.164	mg/L	2.0125	1.164	mg/L	2.0125	172.84%
Mn 257.610†	3917.4	0.1193	mg/L	0.20691	0.1193	mg/L	0.20691	173.49%
Mo 202.031†	6908.0	0.4103	mg/L	0.08477	0.4103	mg/L	0.08477	20.66%
Na 589.592†	357.7	0.04361	mg/L	0.067446	0.04361	mg/L	0.067446	154.68%
Na 330.237†	-3092.4	-165.8	mg/L	287.82	-165.8	mg/L	287.82	173.64%
Ni 231.604†	-557.5	-0.1672	mg/L	0.29122	-0.1672	mg/L	0.29122	174.20%
Pb 220.353†	2998.2	0.3931	mg/L	0.13481	0.3931	mg/L	0.13481	34.30%
Sb 206.836†	9368.1	3.543	mg/L	0.8930	3.543	mg/L	0.8930	25.21%
Se 196.026†	-5595.5	-5.116	mg/L	1.4164	-5.116	mg/L	1.4164	27.69%
Si 288.158†	145.5	0.1544	mg/L	0.25217	0.1544	mg/L	0.25217	163.35%
Sn 189.927†	-2245.8	-0.6314	mg/L	0.09441	-0.6314	mg/L	0.09441	14.95%
Sr 421.552†	15372.7	0.06006	mg/L	0.104195	0.06006	mg/L	0.104195	173.49%
Ti 334.903†	-63.2	-0.00484	mg/L	0.004753	-0.00484	mg/L	0.004753	98.29%
Tl 190.801†	-4186.2	-2.112	mg/L	0.5344	-2.112	mg/L	0.5344	25.31%
V 292.402†	23914.3	0.2771	mg/L	0.04007	0.2771	mg/L	0.04007	14.46%
Zn 206.200†	145.8	0.06263	mg/L	0.103972	0.06263	mg/L	0.103972	166.01%

Sequence No.: 2
Sample ID: SEQ-IBL3

Autosampler Location: 9
Date Collected: 8/8/2019 6:14:26 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IBL3

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: SEQ-IBL3

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	12823.9	0.6249	%	0.00767				1.23%
ScR 361.383	-538.1	-0.2588	%	0.00716				2.77%
Ag 328.068†	-21998.6	-0.1457	mg/L	0.04238	-0.1457	mg/L	0.04238	29.09%
Al 308.215†	-103316.0	-91.05	mg/L	0.762	-91.05	mg/L	0.762	0.84%
As 188.979†	-906.3	-0.6565	mg/L	0.06974	-0.6565	mg/L	0.06974	10.62%
B 249.677†	-16029.1	-2.421	mg/L	0.1637	-2.421	mg/L	0.1637	6.76%
Ba 233.527†	-10699.3	-2.548	mg/L	0.1222	-2.548	mg/L	0.1222	4.80%
Be 313.042†	-510758.3	-1.184	mg/L	0.0193	-1.184	mg/L	0.0193	1.63%
Ca 317.933†	-104311.5	-10.80	mg/L	0.745	-10.80	mg/L	0.745	6.90%
Cd 228.802†	9190.9	0.3765	mg/L	0.00661	0.3765	mg/L	0.00661	1.76%
Co 228.616†	-5140.6	-0.1538	mg/L	0.01845	-0.1538	mg/L	0.01845	12.00%
Cr 267.716†	76437.5	19.29	mg/L	0.137	19.29	mg/L	0.137	0.71%
Cu 324.752†	305474.9	1.536	mg/L	0.0171	1.536	mg/L	0.0171	1.11%
Fe 273.955†	-13680.3	-13.87	mg/L	1.009	-13.87	mg/L	1.009	7.27%
K 766.490†	-173574.3	-162.3	mg/L	11.65	-162.3	mg/L	11.65	7.18%
Mg 279.077†	-28254.1	-27.88	mg/L	0.481	-27.88	mg/L	0.481	1.73%
Mn 257.610†	-91081.6	-2.771	mg/L	0.0832	-2.771	mg/L	0.0832	3.00%
Mo 202.031†	8544.5	0.5064	mg/L	0.03335	0.5064	mg/L	0.03335	6.59%
Na 589.592†	-6766.4	-0.8249	mg/L	1.18848	-0.8249	mg/L	1.18848	144.08%
Na 330.237†	66735.1	3577	mg/L	95.16	3577	mg/L	95.16	2.66%
Ni 231.604†	14084.2	4.294	mg/L	0.1119	4.294	mg/L	0.1119	2.61%
Pb 220.353†	2676.5	0.3692	mg/L	0.04231	0.3692	mg/L	0.04231	11.46%
Sb 206.836†	10057.9	3.470	mg/L	0.3394	3.470	mg/L	0.3394	9.78%
Se 196.026†	-6000.0	-5.475	mg/L	1.0009	-5.475	mg/L	1.0009	18.28%
Si 288.158†	-4312.2	-4.580	mg/L	2.4629	-4.580	mg/L	2.4629	53.78%
Sn 189.927†	-2292.1	-0.6462	mg/L	0.16140	-0.6462	mg/L	0.16140	24.98%
Sr 421.552†	-351799.7	-1.374	mg/L	0.0396	-1.374	mg/L	0.0396	2.88%
Ti 334.903†	458.3	0.02949	mg/L	0.564913	0.02949	mg/L	0.564913	>999.9%
Tl 190.801†	-4431.2	-2.246	mg/L	0.1948	-2.246	mg/L	0.1948	8.67%
V 292.402†	27221.8	0.4485	mg/L	0.01506	0.4485	mg/L	0.01506	3.36%
Zn 206.200†	-3944.6	-1.700	mg/L	0.1579	-1.700	mg/L	0.1579	9.29%

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Sequence No.: 3
Sample ID: SEQ-IBL4

Autosampler Location: 9
Date Collected: 8/8/2019 6:18:08 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IBL4

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: SEQ-IBL4

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	12751.4	0.6214	%	0.00197				0.32%
ScR 361.383	-540.0	-0.2597	%	0.00890				3.43%
Ag 328.068†	-13217.7	-0.08749	mg/L	0.045594	-0.08749	mg/L	0.045594	52.12%
Al 308.215†	-104912.2	-92.45	mg/L	5.836	-92.45	mg/L	5.836	6.31%
As 188.979†	-827.4	-0.6273	mg/L	0.20928	-0.6273	mg/L	0.20928	33.36%
B 249.677†	-17299.9	-2.612	mg/L	0.1916	-2.612	mg/L	0.1916	7.33%
Ba 233.527†	-9835.2	-2.343	mg/L	0.4866	-2.343	mg/L	0.4866	20.77%
Be 313.042†	-515934.0	-1.196	mg/L	0.0380	-1.196	mg/L	0.0380	3.18%
Ca 317.933†	-97767.3	-10.13	mg/L	1.013	-10.13	mg/L	1.013	10.00%
Cd 228.802†	9167.0	0.3745	mg/L	0.00137	0.3745	mg/L	0.00137	0.36%
Co 228.616†	-5949.5	-0.1763	mg/L	0.02820	-0.1763	mg/L	0.02820	15.99%
Cr 267.716†	76831.2	19.39	mg/L	0.694	19.39	mg/L	0.694	3.58%
Cu 324.752†	304107.3	1.529	mg/L	0.0114	1.529	mg/L	0.0114	0.74%
Fe 273.955†	-13704.2	-13.89	mg/L	0.311	-13.89	mg/L	0.311	2.24%
K 766.490†	-186423.2	-174.3	mg/L	3.62	-174.3	mg/L	3.62	2.08%
Mg 279.077†	-24456.6	-24.13	mg/L	2.211	-24.13	mg/L	2.211	9.16%
Mn 257.610†	-89757.5	-2.731	mg/L	0.0876	-2.731	mg/L	0.0876	3.21%
Mo 202.031†	7667.3	0.4543	mg/L	0.03591	0.4543	mg/L	0.03591	7.90%
Na 589.592†	-2626.4	-0.3202	mg/L	1.06560	-0.3202	mg/L	1.06560	332.80%
Na 330.237†	70001.8	3752	mg/L	241.56	3752	mg/L	241.56	6.44%
Ni 231.604†	11891.8	3.626	mg/L	0.4821	3.626	mg/L	0.4821	13.30%
Pb 220.353†	2964.1	0.4070	mg/L	0.01962	0.4070	mg/L	0.01962	4.82%
Sb 206.836†	10593.8	3.669	mg/L	0.2316	3.669	mg/L	0.2316	6.31%
Se 196.026†	-6386.8	-5.828	mg/L	0.8048	-5.828	mg/L	0.8048	13.81%
Si 288.158†	-5769.4	-6.134	mg/L	3.7078	-6.134	mg/L	3.7078	60.44%
Sn 189.927†	-2355.7	-0.6643	mg/L	0.02847	-0.6643	mg/L	0.02847	4.29%
Sr 421.552†	-354631.7	-1.385	mg/L	0.0535	-1.385	mg/L	0.0535	3.86%
Ti 334.903†	-11412.2	-0.8312	mg/L	0.38928	-0.8312	mg/L	0.38928	46.83%
Tl 190.801†	-4642.5	-2.352	mg/L	0.1274	-2.352	mg/L	0.1274	5.42%
V 292.402†	25219.3	0.4256	mg/L	0.01643	0.4256	mg/L	0.01643	3.86%
Zn 206.200†	-3956.8	-1.705	mg/L	0.0408	-1.705	mg/L	0.0408	2.39%

Sequence No.: 4 **Autosampler Location: 9**
Sample ID: SEQ-IBL5 **Date Collected: 8/8/2019 6:21:50 PM**
Data Type: Original
Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-IBL5

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: SEQ-IBL5

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	41237.1	2.010	%	1.1878				59.11%
Saturated within auto integration window (code 4)								
ScR 361.383	-540.6	-0.2600	%	0.00477				1.83%
Ag 328.068†	-8174.2	-0.05412	mg/L	0.054310	-0.05412	mg/L	0.054310	100.36%
Al 308.215†	-99854.2	-87.99	mg/L	3.202	-87.99	mg/L	3.202	3.64%
As 188.979†	-595.2	-0.4343	mg/L	0.45799	-0.4343	mg/L	0.45799	105.46%
B 249.677†	-16702.6	-2.523	mg/L	0.1146	-2.523	mg/L	0.1146	4.54%
Ba 233.527†	-10344.6	-2.464	mg/L	0.0667	-2.464	mg/L	0.0667	2.71%
Be 313.042†	-515927.9	-1.196	mg/L	0.0131	-1.196	mg/L	0.0131	1.09%
Ca 317.933†	-98220.1	-10.17	mg/L	0.412	-10.17	mg/L	0.412	4.05%
Cd 228.802†	17648.2	0.7135	mg/L	0.54894	0.7135	mg/L	0.54894	76.94%
Co 228.616†	-2810.9	-0.08460	mg/L	0.085952	-0.08460	mg/L	0.085952	101.60%
Cr 267.716†	77742.4	19.62	mg/L	0.273	19.62	mg/L	0.273	1.39%
Cu 324.752†	152446.1	0.7658	mg/L	0.69328	0.7658	mg/L	0.69328	90.53%
Fe 273.955†	-14793.9	-15.00	mg/L	1.392	-15.00	mg/L	1.392	9.28%
K 766.490†	-170111.2	-159.0	mg/L	22.77	-159.0	mg/L	22.77	14.32%
Mg 279.077†	-26906.3	-26.55	mg/L	3.398	-26.55	mg/L	3.398	12.80%
Mn 257.610†	-90452.4	-2.752	mg/L	0.0649	-2.752	mg/L	0.0649	2.36%
Mo 202.031†	3357.5	0.1983	mg/L	0.16864	0.1983	mg/L	0.16864	85.03%
Na 589.592†	-7311.9	-0.8914	mg/L	0.84746	-0.8914	mg/L	0.84746	95.07%
Na 330.237†	63929.0	3427	mg/L	224.87	3427	mg/L	224.87	6.56%
Ni 231.604†	12544.3	3.823	mg/L	0.5348	3.823	mg/L	0.5348	13.99%
Pb 220.353†	942.0	0.1430	mg/L	0.09860	0.1430	mg/L	0.09860	68.96%
Sb 206.836†	4312.9	1.300	mg/L	1.2848	1.300	mg/L	1.2848	98.80%
Se 196.026†	-2699.3	-2.458	mg/L	2.3895	-2.458	mg/L	2.3895	97.23%
Si 288.158†	-4049.3	-4.299	mg/L	0.5140	-4.299	mg/L	0.5140	11.96%
Sn 189.927†	-1125.5	-0.3181	mg/L	0.30062	-0.3181	mg/L	0.30062	94.51%
Sr 421.552†	-344241.2	-1.345	mg/L	0.0244	-1.345	mg/L	0.0244	1.82%
Ti 334.903†	4467.1	0.3203	mg/L	0.36608	0.3203	mg/L	0.36608	114.28%
Tl 190.801†	-1996.7	-1.018	mg/L	0.8203	-1.018	mg/L	0.8203	80.61%
V 292.402†	12569.4	0.2775	mg/L	0.12176	0.2775	mg/L	0.12176	43.88%
Zn 206.200†	-4778.2	-2.062	mg/L	0.2715	-2.062	mg/L	0.2715	13.17%

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Analysis Begun

Start Time: 8/8/2019 6:25:23 PM **Plasma On Time: 8/8/2019 10:53:47 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0808.sif
Batch ID:
Results Data Set: I2190808
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1
Sample ID: SEQ-CAL1 **Date Collected: 8/8/2019 6:25:24 PM**
Data Type: Original

Nebulizer Parameters: SEQ-CAL1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: SEQ-CAL1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2124933.6	14666.89	0.69%	103.6	%
ScR 361.383	214950.0	316.82	0.15%	103.4	%
Ag 328.068†	-80.3	22.94	28.58%	[0.00]	mg/L
Al 308.215†	251.0	17.10	6.81%	[0.00]	mg/L
As 188.979†	-8.0	1.77	22.16%	[0.00]	mg/L
B 249.677†	43.9	6.04	13.76%	[0.00]	mg/L
Ba 233.527†	25.2	0.95	3.76%	[0.00]	mg/L
Be 313.042†	1308.4	20.98	1.60%	[0.00]	mg/L
Ca 317.933†	202.3	10.65	5.26%	[0.00]	mg/L
Cd 228.802†	266.3	3.15	1.18%	[0.00]	mg/L
Co 228.616†	-34.5	3.68	10.67%	[0.00]	mg/L
Cr 267.716†	-201.6	3.93	1.95%	[0.00]	mg/L
Cu 324.752†	1930.4	28.82	1.49%	[0.00]	mg/L
Fe 273.955†	29.6	0.51	1.73%	[0.00]	mg/L
K 766.490†	416.1	9.06	2.18%	[0.00]	mg/L
Mg 279.077†	71.7	9.63	13.42%	[0.00]	mg/L
Mn 257.610†	226.8	3.13	1.38%	[0.00]	mg/L
Mo 202.031†	49.8	2.33	4.67%	[0.00]	mg/L
Na 589.592†	-12.8	41.60	324.06%	[0.00]	mg/L
Na 330.237†	-174.2	15.06	8.65%	[0.00]	mg/L
Ni 231.604†	-35.4	2.81	7.92%	[0.00]	mg/L
Pb 220.353†	14.5	2.28	15.73%	[0.00]	mg/L
Sb 206.836†	64.0	3.98	6.22%	[0.00]	mg/L
Se 196.026†	-37.8	3.59	9.50%	[0.00]	mg/L
Si 288.158†	14.8	3.52	23.71%	[0.00]	mg/L
Sn 189.927†	-17.1	4.64	27.08%	[0.00]	mg/L
Sr 421.552†	866.4	9.55	1.10%	[0.00]	mg/L
Ti 334.903†	-17.5	26.59	151.51%	[0.00]	mg/L
Tl 190.801†	-29.3	4.27	14.57%	[0.00]	mg/L
V 292.402†	166.1	23.91	14.39%	[0.00]	mg/L
Zn 206.200†	5.5	2.73	49.21%	[0.00]	mg/L

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Analysis Begun

Start Time: 8/8/2019 6:29:11 PM **Plasma On Time: 8/8/2019 10:53:47 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0808.sif
Batch ID:
Results Data Set: I2190808
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 7**
Sample ID: SEQ-CCV8 **Date Collected: 8/8/2019 6:29:12 PM**
Data Type: Original

Dilution: 1X

Nebulizer Parameters: SEQ-CCV8

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: SEQ-CCV8

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2105256.8	102.6	%	0.83				0.81%
ScR 361.383	216246.4	104.0	%	0.17				0.17%
Ag 328.068†	153037.9	1.014	mg/L	0.0056	1.014	mg/L	0.0056	0.55%
Al 308.215†	2267.7	1.959	mg/L	0.0133	1.959	mg/L	0.0133	0.68%
As 188.979†	2878.0	1.994	mg/L	0.0118	1.994	mg/L	0.0118	0.59%
B 249.677†	6739.7	1.015	mg/L	0.0052	1.015	mg/L	0.0052	0.51%
Ba 233.527†	4175.8	0.9929	mg/L	0.00438	0.9929	mg/L	0.00438	0.44%
Be 313.042†	441451.6	1.018	mg/L	0.0069	1.018	mg/L	0.0069	0.68%
Ca 317.933†	20118.7	2.057	mg/L	0.0123	2.057	mg/L	0.0123	0.60%
Cd 228.802†	25009.9	0.9899	mg/L	0.00766	0.9899	mg/L	0.00766	0.77%
Co 228.616†	33473.4	0.9984	mg/L	0.00520	0.9984	mg/L	0.00520	0.52%
Cr 267.716†	3890.5	0.9814	mg/L	0.00293	0.9814	mg/L	0.00293	0.30%
Cu 324.752†	197844.4	0.9957	mg/L	0.00477	0.9957	mg/L	0.00477	0.48%
Fe 273.955†	1919.4	1.942	mg/L	0.0078	1.942	mg/L	0.0078	0.40%
K 766.490†	20567.0	19.23	mg/L	0.035	19.23	mg/L	0.035	0.18%
Mg 279.077†	2029.9	2.016	mg/L	0.0056	2.016	mg/L	0.0056	0.28%
Mn 257.610†	33312.9	1.014	mg/L	0.0057	1.014	mg/L	0.0057	0.56%
Mo 202.031†	16859.3	1.001	mg/L	0.0070	1.001	mg/L	0.0070	0.70%
Na 589.592†	407418.3	49.67	mg/L	0.072	49.67	mg/L	0.072	0.14%
Na 330.237†	921.1	49.13	mg/L	0.047	49.13	mg/L	0.047	0.10%
Ni 231.604†	3242.5	0.9891	mg/L	0.00812	0.9891	mg/L	0.00812	0.82%
Pb 220.353†	15099.5	1.994	mg/L	0.0138	1.994	mg/L	0.0138	0.69%
Sb 206.836†	5536.8	2.084	mg/L	0.0159	2.084	mg/L	0.0159	0.76%
Se 196.026†	2274.1	2.078	mg/L	0.0122	2.078	mg/L	0.0122	0.59%
Si 288.158†	1892.3	2.021	mg/L	0.0067	2.021	mg/L	0.0067	0.33%
Sn 189.927†	3596.6	1.016	mg/L	0.0083	1.016	mg/L	0.0083	0.82%
Sr 421.552†	271676.5	1.061	mg/L	0.0052	1.061	mg/L	0.0052	0.49%
Ti 334.903†	13207.8	0.9563	mg/L	0.00263	0.9563	mg/L	0.00263	0.27%
Tl 190.801†	4015.1	2.018	mg/L	0.0168	2.018	mg/L	0.0168	0.83%
V 292.402†	83265.9	0.9899	mg/L	0.00541	0.9899	mg/L	0.00541	0.55%
Zn 206.200†	2353.9	1.018	mg/L	0.0067	1.018	mg/L	0.0067	0.65%

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Sequence No.: 2
Sample ID: SEQ-CCB8

Autosampler Location: 1
Date Collected: 8/8/2019 6:34:15 PM
Data Type: Original

Dilution: 1X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCB8

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: SEQ-CCB8

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2115296.6	103.1	%	0.17				0.16%
ScR 361.383	213615.1	102.7	%	0.65				0.63%
Ag 328.068†	-29.6	-0.00020	mg/L	0.000115	-0.00020	mg/L	0.000115	58.66%
Al 308.215†	8.9	0.00780	mg/L	0.007706	0.00780	mg/L	0.007706	98.77%
As 188.979†	0.5	0.00038	mg/L	0.002002	0.00038	mg/L	0.002002	522.84%
B 249.677†	15.2	0.00229	mg/L	0.001242	0.00229	mg/L	0.001242	54.24%
Ba 233.527†	-0.4	-0.00009	mg/L	0.001327	-0.00009	mg/L	0.001327	>999.9%
Be 313.042†	34.8	0.00008	mg/L	0.000035	0.00008	mg/L	0.000035	43.88%
Ca 317.933†	-1.3	-0.00013	mg/L	0.000123	-0.00013	mg/L	0.000123	92.87%
Cd 228.802†	-2.1	-0.00009	mg/L	0.000063	-0.00009	mg/L	0.000063	71.78%
Co 228.616†	1.7	0.00005	mg/L	0.000072	0.00005	mg/L	0.000072	149.78%
Cr 267.716†	-1.5	-0.00037	mg/L	0.000535	-0.00037	mg/L	0.000535	142.99%
Cu 324.752†	-7.1	-0.00004	mg/L	0.000156	-0.00004	mg/L	0.000156	436.18%
Fe 273.955†	1.4	0.00137	mg/L	0.002301	0.00137	mg/L	0.002301	167.50%
K 766.490†	-26.7	-0.02500	mg/L	0.042930	-0.02500	mg/L	0.042930	171.71%
Mg 279.077†	-4.9	-0.00479	mg/L	0.011954	-0.00479	mg/L	0.011954	249.35%
Mn 257.610†	5.6	0.00017	mg/L	0.000207	0.00017	mg/L	0.000207	120.72%
Mo 202.031†	10.9	0.00064	mg/L	0.000169	0.00064	mg/L	0.000169	26.14%
Na 589.592†	17.7	0.00216	mg/L	0.003529	0.00216	mg/L	0.003529	163.55%
Na 330.237†	-2.2	-0.1150	mg/L	0.39684	-0.1150	mg/L	0.39684	345.21%
Ni 231.604†	1.8	0.00055	mg/L	0.001333	0.00055	mg/L	0.001333	243.39%
Pb 220.353†	2.5	0.00033	mg/L	0.000745	0.00033	mg/L	0.000745	227.28%
Sb 206.836†	-1.8	-0.00066	mg/L	0.001863	-0.00066	mg/L	0.001863	281.30%
Se 196.026†	1.8	0.00166	mg/L	0.003250	0.00166	mg/L	0.003250	195.74%
Si 288.158†	2.0	0.00216	mg/L	0.001885	0.00216	mg/L	0.001885	87.36%
Sn 189.927†	1.7	0.00047	mg/L	0.000228	0.00047	mg/L	0.000228	48.66%
Sr 421.552†	22.7	0.00009	mg/L	0.000070	0.00009	mg/L	0.000070	78.57%
Ti 334.903†	19.1	0.00138	mg/L	0.001305	0.00138	mg/L	0.001305	94.40%
Tl 190.801†	-1.5	-0.00074	mg/L	0.001024	-0.00074	mg/L	0.001024	138.70%
V 292.402†	22.6	0.00026	mg/L	0.000111	0.00026	mg/L	0.000111	42.14%
Zn 206.200†	-0.7	-0.00031	mg/L	0.002073	-0.00031	mg/L	0.002073	678.12%

Sequence No.: 3
Sample ID: BHH0198-BLK1

Autosampler Location: 311
Date Collected: 8/8/2019 6:38:13 PM
Data Type: Original

Dilution: 5X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0198-BLK1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0198-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2024679.7	98.67	%	0.415				0.42%
ScR 361.383	207769.8	99.93	%	0.305				0.30%
Ag 328.068†	8.0	0.00005	mg/L	0.000199	0.00026	mg/L	0.000996	377.05%
Al 308.215†	42.0	0.03400	mg/L	0.006163	0.1700	mg/L	0.03081	18.13%
As 188.979†	0.3	0.00021	mg/L	0.000682	0.00105	mg/L	0.003410	324.39%
B 249.677†	173.8	0.02619	mg/L	0.001245	0.1309	mg/L	0.00623	4.76%
Ba 233.527†	8.1	0.00193	mg/L	0.000812	0.00966	mg/L	0.004059	42.00%
Be 313.042†	82.8	0.00019	mg/L	0.000094	0.00095	mg/L	0.000468	49.26%
Ca 317.933†	2635.3	0.2662	mg/L	0.00126	1.331	mg/L	0.0063	0.47%
Cd 228.802†	3.8	0.00015	mg/L	0.000036	0.00077	mg/L	0.000182	23.70%
Co 228.616†	6.1	0.00018	mg/L	0.000146	0.00089	mg/L	0.000729	81.55%
Cr 267.716†	-5.1	-0.00129	mg/L	0.002198	-0.00643	mg/L	0.010990	170.86%
Cu 324.752†	155.3	0.00063	mg/L	0.000262	0.00315	mg/L	0.001312	41.60%
Fe 273.955†	6.2	0.00634	mg/L	0.001478	0.03171	mg/L	0.007390	23.30%
K 766.490†	109.0	0.1019	mg/L	0.01901	0.5097	mg/L	0.09507	18.65%
Mg 279.077†	71.6	0.07064	mg/L	0.002156	0.3532	mg/L	0.01078	3.05%
Mn 257.610†	13.7	0.00042	mg/L	0.000096	0.00208	mg/L	0.000481	23.09%
Mo 202.031†	6.4	0.00037	mg/L	0.000329	0.00187	mg/L	0.001646	88.00%
Na 589.592†	2488124.1	303.3	mg/L	0.72	1517	mg/L	3.62	0.24%
Na 330.237†	5728.8	307.0	mg/L	1.65	1535	mg/L	8.25	0.54%
Ni 231.604†	3.7	0.00113	mg/L	0.000204	0.00564	mg/L	0.001022	18.13%
Pb 220.353†	4.0	0.00053	mg/L	0.001146	0.00264	mg/L	0.005728	217.15%
Sb 206.836†	-0.9	-0.00029	mg/L	0.002166	-0.00146	mg/L	0.010832	743.88%
Se 196.026†	4.3	0.00393	mg/L	0.000722	0.01963	mg/L	0.003609	18.38%
Si 288.158†	33.1	0.03537	mg/L	0.008778	0.1769	mg/L	0.04389	24.82%
Sn 189.927†	3.5	0.00103	mg/L	0.000353	0.00514	mg/L	0.001767	34.36%
Sr 421.552†	91.9	0.00036	mg/L	0.000122	0.00179	mg/L	0.000609	33.94%
Ti 334.903†	14.2	0.00101	mg/L	0.000872	0.00506	mg/L	0.004358	86.17%
Tl 190.801†	0.7	0.00035	mg/L	0.001308	0.00177	mg/L	0.006540	368.47%
V 292.402†	34.0	0.00039	mg/L	0.000303	0.00197	mg/L	0.001517	77.14%
Zn 206.200†	5.7	0.00245	mg/L	0.000988	0.01226	mg/L	0.004942	40.30%

Sequence No.: 4
Sample ID: 19H0062-01

Dilution: 5X
Wash Time: 37

Autosampler Location: 312
Date Collected: 8/8/2019 6:42:28 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0062-01

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19H0062-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2021530.0	98.51	%	0.437				0.44%
ScR 361.383	205987.8	99.07	%	0.529				0.53%
Ag 328.068†	44.7	0.00030	mg/L	0.000251	0.00148	mg/L	0.001254	84.57%
Al 308.215†	44.5	0.03617	mg/L	0.012528	0.1809	mg/L	0.06264	34.63%
As 188.979†	26.8	0.01678	mg/L	0.002166	0.08392	mg/L	0.010830	12.91%
B 249.677†	523.5	0.07887	mg/L	0.000408	0.3944	mg/L	0.00204	0.52%
Ba 233.527†	102.8	0.02448	mg/L	0.000360	0.1224	mg/L	0.00180	1.47%
Be 313.042†	90.4	0.00021	mg/L	0.000047	0.00103	mg/L	0.000237	23.05%
Ca 317.933†	223250.9	22.96	mg/L	0.154	114.8	mg/L	0.77	0.67%
Cd 228.802†	2.7	-0.00001	mg/L	0.000316	-0.00006	mg/L	0.001581	>999.9%
Co 228.616†	59.0	0.00176	mg/L	0.000191	0.00878	mg/L	0.000956	10.89%
Cr 267.716†	36.9	0.00058	mg/L	0.000207	0.00289	mg/L	0.001035	35.85%
Cu 324.752†	348.2	0.00102	mg/L	0.000112	0.00508	mg/L	0.000562	11.07%
Fe 273.955†	4.3	0.00439	mg/L	0.001007	0.02194	mg/L	0.005037	22.96%
K 766.490†	1013.9	0.9479	mg/L	0.02912	4.739	mg/L	0.1456	3.07%
Mg 279.077†	73205.0	72.29	mg/L	0.833	361.5	mg/L	4.17	1.15%
Mn 257.610†	10911.5	0.3320	mg/L	0.00376	1.660	mg/L	0.0188	1.13%
Mo 202.031†	71.5	0.00387	mg/L	0.000154	0.01933	mg/L	0.000772	3.99%
Na 589.592†	2485782.0	303.0	mg/L	1.31	1515	mg/L	6.53	0.43%
Na 330.237†	5688.2	304.8	mg/L	4.03	1524	mg/L	20.16	1.32%
Ni 231.604†	0.6	0.00018	mg/L	0.000265	0.00092	mg/L	0.001325	143.27%
Pb 220.353†	76.8	0.01016	mg/L	0.001242	0.05080	mg/L	0.006210	12.22%
Sb 206.836†	0.6	0.00001	mg/L	0.002530	0.00006	mg/L	0.012648	>999.9%
Se 196.026†	-8.3	-0.00787	mg/L	0.003910	-0.03935	mg/L	0.019552	49.69%
Si 288.158†	649.8	0.7020	mg/L	0.00942	3.510	mg/L	0.0471	1.34%
Sn 189.927†	-34.0	-0.00570	mg/L	0.000236	-0.02852	mg/L	0.001178	4.13%
Sr 421.552†	24377.7	0.09524	mg/L	0.001128	0.4762	mg/L	0.00564	1.18%
Ti 334.903†	46.8	0.00197	mg/L	0.001912	0.00985	mg/L	0.009559	97.07%
Tl 190.801†	-4.6	-0.00195	mg/L	0.001980	-0.00973	mg/L	0.009899	101.72%
V 292.402†	65.2	0.00089	mg/L	0.000146	0.00446	mg/L	0.000732	16.41%
Zn 206.200†	21.4	0.00920	mg/L	0.000372	0.04599	mg/L	0.001862	4.05%

Sequence No.: 5
Sample ID: 19H0062-02

Dilution: 5X
Wash Time: 37

Autosampler Location: 313
Date Collected: 8/8/2019 6:46:42 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0062-02

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: 19H0062-02

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2029686.0	98.91	%	0.343				0.35%
ScR 361.383	207527.4	99.81	%	0.513				0.51%
Ag 328.068†	18.2	0.00012	mg/L	0.000528	0.00060	mg/L	0.002639	437.44%
Al 308.215†	26.3	0.02017	mg/L	0.026106	0.1009	mg/L	0.13053	129.41%
As 188.979†	14.7	0.00854	mg/L	0.003716	0.04272	mg/L	0.018580	43.49%
B 249.677†	146.2	0.02203	mg/L	0.001421	0.1102	mg/L	0.00710	6.45%
Ba 233.527†	37.8	0.00900	mg/L	0.000381	0.04501	mg/L	0.001907	4.24%
Be 313.042†	83.7	0.00019	mg/L	0.000049	0.00095	mg/L	0.000243	25.70%
Ca 317.933†	207673.1	21.36	mg/L	0.078	106.8	mg/L	0.39	0.37%
Cd 228.802†	2.0	0.00001	mg/L	0.000109	0.00007	mg/L	0.000545	771.21%
Co 228.616†	6.1	0.00018	mg/L	0.000233	0.00088	mg/L	0.001167	132.83%
Cr 267.716†	53.4	0.00104	mg/L	0.001125	0.00520	mg/L	0.005623	108.07%
Cu 324.752†	398.5	0.00101	mg/L	0.000071	0.00507	mg/L	0.000354	6.99%
Fe 273.955†	6.9	0.00707	mg/L	0.002079	0.03536	mg/L	0.010397	29.41%
K 766.490†	1144.6	1.070	mg/L	0.0386	5.350	mg/L	0.1930	3.61%
Mg 279.077†	105682.8	104.4	mg/L	0.77	521.8	mg/L	3.83	0.73%
Mn 257.610†	123.6	0.00371	mg/L	0.000094	0.01857	mg/L	0.000471	2.54%
Mo 202.031†	94.4	0.00525	mg/L	0.000251	0.02624	mg/L	0.001256	4.79%
Na 589.592†	2395502.0	292.0	mg/L	1.02	1460	mg/L	5.12	0.35%
Na 330.237†	5485.9	294.0	mg/L	1.86	1470	mg/L	9.28	0.63%
Ni 231.604†	2.7	0.00083	mg/L	0.000580	0.00415	mg/L	0.002900	69.83%
Pb 220.353†	10.0	0.00136	mg/L	0.000661	0.00678	mg/L	0.003306	48.78%
Sb 206.836†	5.1	0.00165	mg/L	0.000700	0.00823	mg/L	0.003501	42.53%
Se 196.026†	-0.4	-0.00036	mg/L	0.002065	-0.00179	mg/L	0.010324	576.64%
Si 288.158†	177.7	0.2020	mg/L	0.00665	1.010	mg/L	0.0333	3.29%
Sn 189.927†	-32.4	-0.00553	mg/L	0.000417	-0.02764	mg/L	0.002087	7.55%
Sr 421.552†	13297.1	0.05195	mg/L	0.000425	0.2597	mg/L	0.00213	0.82%
Ti 334.903†	53.0	0.00252	mg/L	0.001740	0.01259	mg/L	0.008699	69.09%
Tl 190.801†	-7.5	-0.00378	mg/L	0.002124	-0.01892	mg/L	0.010620	56.14%
V 292.402†	93.2	0.00119	mg/L	0.000044	0.00596	mg/L	0.000218	3.67%
Zn 206.200†	5.0	0.00209	mg/L	0.000339	0.01047	mg/L	0.001695	16.19%

Sequence No.: 6
Sample ID: 19H0062-03

Dilution: 5X
Wash Time: 37

Autosampler Location: 314
Date Collected: 8/8/2019 6:50:56 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0062-03

Analyte	Back Pressure	Flow
All	172.0 kPa	0.65 L/min

Mean Data: 19H0062-03

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2051007.5	99.95	%	0.295				0.29%
ScR 361.383	208975.1	100.5	%	0.95				0.94%
Ag 328.068†	-10.9	-0.00007	mg/L	0.000091	-0.00036	mg/L	0.000455	126.32%
Al 308.215†	28.7	0.02229	mg/L	0.005132	0.1115	mg/L	0.02566	23.02%
As 188.979†	20.1	0.01189	mg/L	0.000914	0.05943	mg/L	0.004570	7.69%
B 249.677†	150.9	0.02274	mg/L	0.001890	0.1137	mg/L	0.00945	8.31%
Ba 233.527†	49.4	0.01177	mg/L	0.001455	0.05883	mg/L	0.007276	12.37%
Be 313.042†	102.3	0.00023	mg/L	0.000027	0.00117	mg/L	0.000134	11.52%
Ca 317.933†	256590.0	26.39	mg/L	0.003	132.0	mg/L	0.02	0.01%
Cd 228.802†	6.1	0.00016	mg/L	0.000298	0.00078	mg/L	0.001488	191.20%
Co 228.616†	12.8	0.00038	mg/L	0.000047	0.00188	mg/L	0.000236	12.58%
Cr 267.716†	55.0	-0.00187	mg/L	0.000730	-0.00935	mg/L	0.003649	39.04%
Cu 324.752†	433.5	0.00096	mg/L	0.000168	0.00481	mg/L	0.000842	17.52%
Fe 273.955†	7.2	0.00731	mg/L	0.001610	0.03654	mg/L	0.008049	22.03%
K 766.490†	1145.3	1.071	mg/L	0.0326	5.353	mg/L	0.1629	3.04%
Mg 279.077†	133985.5	132.3	mg/L	1.09	661.6	mg/L	5.43	0.82%
Mn 257.610†	922.7	0.02802	mg/L	0.000242	0.1401	mg/L	0.00121	0.86%
Mo 202.031†	104.1	0.00574	mg/L	0.000103	0.02871	mg/L	0.000516	1.80%
Na 589.592†	2409196.7	293.7	mg/L	0.91	1469	mg/L	4.55	0.31%
Na 330.237†	5540.4	296.9	mg/L	1.09	1485	mg/L	5.46	0.37%
Ni 231.604†	0.2	0.00005	mg/L	0.001287	0.00025	mg/L	0.006435	>999.9%
Pb 220.353†	11.4	0.00154	mg/L	0.000465	0.00770	mg/L	0.002324	30.19%
Sb 206.836†	1.4	0.00024	mg/L	0.001212	0.00121	mg/L	0.006058	499.38%
Se 196.026†	-3.3	-0.00302	mg/L	0.001139	-0.01510	mg/L	0.005697	37.74%
Si 288.158†	161.0	0.1875	mg/L	0.00819	0.9374	mg/L	0.04093	4.37%
Sn 189.927†	-36.2	-0.00575	mg/L	0.000957	-0.02873	mg/L	0.004786	16.66%
Sr 421.552†	18037.8	0.07047	mg/L	0.000718	0.3523	mg/L	0.00359	1.02%
Ti 334.903†	39.8	0.00125	mg/L	0.000637	0.00624	mg/L	0.003185	51.05%
Tl 190.801†	-11.3	-0.00569	mg/L	0.000859	-0.02844	mg/L	0.004297	15.11%
V 292.402†	76.9	0.00101	mg/L	0.000183	0.00504	mg/L	0.000913	18.13%
Zn 206.200†	2.2	0.00090	mg/L	0.001051	0.00449	mg/L	0.005253	117.08%

Sequence No.: 7
Sample ID: 19H0063-01

Autosampler Location: 315
Date Collected: 8/8/2019 6:55:10 PM
Data Type: Original

Dilution: 5X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0063-01

Analyte	Back Pressure	Flow
All	173.0 kPa	0.65 L/min

Mean Data: 19H0063-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2117220.6	103.2	%	0.56				0.54%
ScR 361.383	211792.4	101.9	%	0.42				0.41%
Ag 328.068†	-9.6	-0.00006	mg/L	0.000206	-0.00032	mg/L	0.001031	325.90%
Al 308.215†	147.5	0.1269	mg/L	0.00867	0.6347	mg/L	0.04337	6.83%
As 188.979†	14.4	0.00869	mg/L	0.003631	0.04343	mg/L	0.018155	41.80%
B 249.677†	276.6	0.04167	mg/L	0.001180	0.2084	mg/L	0.00590	2.83%
Ba 233.527†	229.8	0.05474	mg/L	0.001157	0.2737	mg/L	0.00578	2.11%
Be 313.042†	82.8	0.00019	mg/L	0.000032	0.00095	mg/L	0.000159	16.74%
Ca 317.933†	174246.6	17.92	mg/L	0.021	89.61	mg/L	0.105	0.12%
Cd 228.802†	1.1	-0.00002	mg/L	0.000116	-0.00010	mg/L	0.000582	570.76%
Co 228.616†	162.7	0.00485	mg/L	0.000397	0.02423	mg/L	0.001985	8.19%
Cr 267.716†	0.7	-0.00026	mg/L	0.000964	-0.00130	mg/L	0.004821	371.11%
Cu 324.752†	531.0	0.00251	mg/L	0.000134	0.01257	mg/L	0.000670	5.33%
Fe 273.955†	47.7	0.04845	mg/L	0.003009	0.2422	mg/L	0.01504	6.21%
K 766.490†	818.8	0.7655	mg/L	0.03004	3.827	mg/L	0.1502	3.92%
Mg 279.077†	1708.8	1.687	mg/L	0.0089	8.433	mg/L	0.0443	0.53%
Mn 257.610†	15754.4	0.4794	mg/L	0.00125	2.397	mg/L	0.0062	0.26%
Mo 202.031†	28.1	0.00137	mg/L	0.000082	0.00687	mg/L	0.000411	5.97%
Na 589.592†	2461150.4	300.0	mg/L	0.19	1500	mg/L	0.93	0.06%
Na 330.237†	5626.8	301.6	mg/L	1.02	1508	mg/L	5.12	0.34%
Ni 231.604†	5.7	0.00174	mg/L	0.001111	0.00869	mg/L	0.005553	63.92%
Pb 220.353†	273.9	0.03617	mg/L	0.000240	0.1808	mg/L	0.00120	0.66%
Sb 206.836†	-1.9	-0.00076	mg/L	0.001864	-0.00379	mg/L	0.009321	245.62%
Se 196.026†	-2.1	-0.00235	mg/L	0.002522	-0.01173	mg/L	0.012609	107.47%
Si 288.158†	1029.7	1.099	mg/L	0.0109	5.495	mg/L	0.0545	0.99%
Sn 189.927†	-23.7	-0.00364	mg/L	0.000983	-0.01822	mg/L	0.004917	27.00%
Sr 421.552†	23617.1	0.09227	mg/L	0.000070	0.4613	mg/L	0.00035	0.08%
Ti 334.903†	63.3	0.00348	mg/L	0.000464	0.01742	mg/L	0.002320	13.32%
Tl 190.801†	-1.2	-0.00007	mg/L	0.001540	-0.00036	mg/L	0.007700	>999.9%
V 292.402†	45.2	0.00062	mg/L	0.000245	0.00312	mg/L	0.001224	39.22%
Zn 206.200†	30.9	0.01336	mg/L	0.001033	0.06680	mg/L	0.005166	7.73%

Sequence No.: 8
Sample ID: BHH0198-DUP1

Autosampler Location: 316
Date Collected: 8/8/2019 6:59:24 PM
Data Type: Original

Dilution: 5X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0198-DUP1

Analyte	Back Pressure	Flow
All	174.0 kPa	0.65 L/min

Mean Data: BHH0198-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2039075.9	99.37	%	1.293				1.30%
ScR 361.383	212225.3	102.1	%	0.56				0.55%
Ag 328.068†	35.0	0.00023	mg/L	0.000337	0.00116	mg/L	0.001684	144.83%
Al 308.215†	41.1	0.03330	mg/L	0.009911	0.1665	mg/L	0.04955	29.76%
As 188.979†	5.5	0.00316	mg/L	0.003589	0.01579	mg/L	0.017944	113.60%
B 249.677†	250.9	0.03780	mg/L	0.000988	0.1890	mg/L	0.00494	2.61%
Ba 233.527†	6.7	0.00160	mg/L	0.000639	0.00801	mg/L	0.003193	39.85%
Be 313.042†	53.9	0.00012	mg/L	0.000052	0.00059	mg/L	0.000261	43.97%
Ca 317.933†	78469.1	8.069	mg/L	0.0674	40.34	mg/L	0.337	0.84%
Cd 228.802†	-4.6	-0.00020	mg/L	0.000198	-0.00098	mg/L	0.000988	100.88%
Co 228.616†	5.6	0.00016	mg/L	0.000228	0.00082	mg/L	0.001139	139.59%
Cr 267.716†	38.2	0.00041	mg/L	0.001640	0.00206	mg/L	0.008200	398.30%
Cu 324.752†	480.3	0.00164	mg/L	0.000153	0.00818	mg/L	0.000764	9.33%
Fe 273.955†	5.9	0.00601	mg/L	0.002591	0.03003	mg/L	0.012953	43.13%
K 766.490†	1160.1	1.085	mg/L	0.0257	5.423	mg/L	0.1286	2.37%
Mg 279.077†	79443.8	78.46	mg/L	0.486	392.3	mg/L	2.43	0.62%
Mn 257.610†	2579.8	0.07849	mg/L	0.000291	0.3925	mg/L	0.00145	0.37%
Mo 202.031†	64.8	0.00372	mg/L	0.000141	0.01858	mg/L	0.000705	3.80%
Na 589.592†	2378641.4	290.0	mg/L	0.33	1450	mg/L	1.65	0.11%
Na 330.237†	5468.9	293.1	mg/L	1.84	1465	mg/L	9.18	0.63%
Ni 231.604†	42.5	0.01293	mg/L	0.002057	0.06467	mg/L	0.010285	15.90%
Pb 220.353†	6.0	0.00082	mg/L	0.000529	0.00412	mg/L	0.002646	64.30%
Sb 206.836†	-4.0	-0.00168	mg/L	0.000469	-0.00838	mg/L	0.002346	28.00%
Se 196.026†	1.3	0.00114	mg/L	0.006265	0.00568	mg/L	0.031327	551.91%
Si 288.158†	928.3	0.9999	mg/L	0.00752	5.000	mg/L	0.0376	0.75%
Sn 189.927†	-14.7	-0.00278	mg/L	0.001242	-0.01391	mg/L	0.006212	44.65%
Sr 421.552†	10331.5	0.04036	mg/L	0.000391	0.2018	mg/L	0.00195	0.97%
Ti 334.903†	18.7	0.00085	mg/L	0.002588	0.00425	mg/L	0.012941	304.29%
Tl 190.801†	-4.8	-0.00232	mg/L	0.000939	-0.01161	mg/L	0.004694	40.43%
V 292.402†	117.9	0.00147	mg/L	0.000553	0.00736	mg/L	0.002767	37.62%
Zn 206.200†	2.6	0.00107	mg/L	0.001232	0.00537	mg/L	0.006158	114.70%

Sequence No.: 9
Sample ID: 19H0071-01

Dilution: 5X
Wash Time: 37

Autosampler Location: 317
Date Collected: 8/8/2019 7:03:39 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0071-01

Analyte	Back Pressure	Flow
All	174.0 kPa	0.65 L/min

Mean Data: 19H0071-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2036971.0	99.27	%	0.363				0.37%
ScR 361.383	204950.6	98.57	%	1.010				1.02%
Ag 328.068†	29.3	0.00019	mg/L	0.000281	0.00097	mg/L	0.001407	144.92%
Al 308.215†	39.4	0.03173	mg/L	0.031802	0.1586	mg/L	0.15901	100.23%
As 188.979†	3.7	0.00192	mg/L	0.001841	0.00960	mg/L	0.009205	95.86%
B 249.677†	280.5	0.04227	mg/L	0.001250	0.2113	mg/L	0.00625	2.96%
Ba 233.527†	28.5	0.00678	mg/L	0.000956	0.03392	mg/L	0.004782	14.10%
Be 313.042†	106.9	0.00024	mg/L	0.000086	0.00121	mg/L	0.000428	35.33%
Ca 317.933†	84656.4	8.705	mg/L	0.0965	43.53	mg/L	0.483	1.11%
Cd 228.802†	5.7	0.00022	mg/L	0.000085	0.00111	mg/L	0.000423	38.09%
Co 228.616†	6.8	0.00020	mg/L	0.000194	0.00099	mg/L	0.000970	97.72%
Cr 267.716†	34.6	-0.00056	mg/L	0.000172	-0.00281	mg/L	0.000859	30.57%
Cu 324.752†	451.1	0.00148	mg/L	0.000271	0.00742	mg/L	0.001355	18.26%
Fe 273.955†	10.9	0.01105	mg/L	0.001090	0.05527	mg/L	0.005448	9.86%
K 766.490†	1217.9	1.139	mg/L	0.0181	5.693	mg/L	0.0903	1.59%
Mg 279.077†	79898.5	78.90	mg/L	0.847	394.5	mg/L	4.23	1.07%
Mn 257.610†	2572.7	0.07827	mg/L	0.000798	0.3914	mg/L	0.00399	1.02%
Mo 202.031†	63.0	0.00360	mg/L	0.000213	0.01798	mg/L	0.001066	5.93%
Na 589.592†	2416704.1	294.6	mg/L	2.14	1473	mg/L	10.69	0.73%
Na 330.237†	5533.8	296.6	mg/L	2.60	1483	mg/L	13.01	0.88%
Ni 231.604†	34.5	0.01051	mg/L	0.001791	0.05257	mg/L	0.008957	17.04%
Pb 220.353†	8.2	0.00111	mg/L	0.001137	0.00554	mg/L	0.005683	102.54%
Sb 206.836†	-0.4	-0.00030	mg/L	0.001261	-0.00151	mg/L	0.006303	416.83%
Se 196.026†	2.6	0.00228	mg/L	0.006138	0.01139	mg/L	0.030688	269.53%
Si 288.158†	959.6	1.033	mg/L	0.0088	5.167	mg/L	0.0440	0.85%
Sn 189.927†	-14.1	-0.00251	mg/L	0.001225	-0.01253	mg/L	0.006123	48.88%
Sr 421.552†	10536.3	0.04116	mg/L	0.000782	0.2058	mg/L	0.00391	1.90%
Ti 334.903†	29.6	0.00160	mg/L	0.000075	0.00800	mg/L	0.000375	4.69%
Tl 190.801†	-4.5	-0.00216	mg/L	0.000888	-0.01080	mg/L	0.004440	41.10%
V 292.402†	110.4	0.00138	mg/L	0.000201	0.00689	mg/L	0.001007	14.62%
Zn 206.200†	5.8	0.00247	mg/L	0.000539	0.01237	mg/L	0.002695	21.79%

Sequence No.: 10
Sample ID: BHH0198-MS1

Dilution: 5X
Wash Time: 37

Autosampler Location: 318
Date Collected: 8/8/2019 7:07:54 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0198-MS1

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: BHH0198-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2010511.4	97.98	%	0.993				1.01%
ScR 361.383	211046.8	101.5	%	0.61				0.60%
Ag 328.068†	32107.3	0.2128	mg/L	0.00100	1.064	mg/L	0.0050	0.47%
Al 308.215†	946.7	0.8280	mg/L	0.00717	4.140	mg/L	0.0359	0.87%
As 188.979†	1245.3	0.8521	mg/L	0.01133	4.261	mg/L	0.0566	1.33%
B 249.677†	239.0	0.03561	mg/L	0.000535	0.1780	mg/L	0.00267	1.50%
Ba 233.527†	3384.4	0.8058	mg/L	0.00272	4.029	mg/L	0.0136	0.34%
Be 313.042†	87741.2	0.2024	mg/L	0.00139	1.012	mg/L	0.0070	0.69%
Ca 317.933†	115403.5	11.87	mg/L	0.069	59.33	mg/L	0.346	0.58%
Cd 228.802†	5164.1	0.2015	mg/L	0.00213	1.007	mg/L	0.0106	1.06%
Co 228.616†	6580.2	0.1965	mg/L	0.00095	0.9825	mg/L	0.00473	0.48%
Cr 267.716†	834.3	0.2012	mg/L	0.00288	1.006	mg/L	0.0144	1.43%
Cu 324.752†	40391.6	0.2026	mg/L	0.00202	1.013	mg/L	0.0101	1.00%
Fe 273.955†	782.5	0.7934	mg/L	0.00410	3.967	mg/L	0.0205	0.52%
K 766.490†	5312.4	4.967	mg/L	0.0523	24.83	mg/L	0.262	1.05%
Mg 279.077†	80058.5	79.06	mg/L	0.405	395.3	mg/L	2.02	0.51%
Mn 257.610†	8904.5	0.2711	mg/L	0.00158	1.355	mg/L	0.0079	0.58%
Mo 202.031†	65.3	0.00367	mg/L	0.000230	0.01833	mg/L	0.001148	6.26%
Na 589.592†	2379333.1	290.1	mg/L	1.32	1450	mg/L	6.61	0.46%
Na 330.237†	5367.4	287.6	mg/L	2.22	1438	mg/L	11.08	0.77%
Ni 231.604†	680.0	0.2071	mg/L	0.00166	1.036	mg/L	0.0083	0.80%
Pb 220.353†	5946.6	0.7851	mg/L	0.00525	3.925	mg/L	0.0263	0.67%
Sb 206.836†	5.2	-0.00078	mg/L	0.001289	-0.00388	mg/L	0.006443	166.18%
Se 196.026†	965.6	0.8825	mg/L	0.00442	4.413	mg/L	0.0221	0.50%
Si 288.158†	897.5	0.9675	mg/L	0.01374	4.837	mg/L	0.0687	1.42%
Sn 189.927†	-19.4	-0.00347	mg/L	0.000868	-0.01734	mg/L	0.004340	25.04%
Sr 421.552†	66101.9	0.2582	mg/L	0.00143	1.291	mg/L	0.0072	0.55%
Ti 334.903†	33.6	0.00166	mg/L	0.000717	0.00830	mg/L	0.003583	43.15%
Tl 190.801†	1567.1	0.7891	mg/L	0.00518	3.945	mg/L	0.0259	0.66%
V 292.402†	17255.3	0.2052	mg/L	0.00295	1.026	mg/L	0.0147	1.44%
Zn 206.200†	468.7	0.2027	mg/L	0.00072	1.014	mg/L	0.0036	0.35%

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Sequence No.: 11
Sample ID: 19G0387-01

DEL

Dilution: 50X
Wash Time: 37

Autosampler Location: 319
Date Collected: 8/8/2019 7:12:09 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0387-01

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: 19G0387-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1822043.0	88.79	%	0.840				0.95%
ScR 361.383	200023.1	96.20	%	7.535				7.83%
Ag 328.068†	-36.3	-0.00024	mg/L	0.000270	-0.01211	mg/L	0.013509	111.54%
Al 308.215†	649.3	0.5719	mg/L	0.04045	28.59	mg/L	2.022	7.07%
As 188.979†	14.6	0.00753	mg/L	0.003878	0.3766	mg/L	0.19390	51.49%
B 249.677†	26.0	0.00681	mg/L	0.000820	0.3406	mg/L	0.04101	12.04%
Ba 233.527†	239.6	0.05303	mg/L	0.003669	2.652	mg/L	0.1835	6.92%
Be 313.042†	136.1	0.00033	mg/L	0.000242	0.01675	mg/L	0.012079	72.12%
Ca 317.933†	201496.1	20.73	mg/L	0.200	1037	mg/L	9.98	0.96%
Cd 228.802†	120.6	0.00478	mg/L	0.000327	0.2389	mg/L	0.01633	6.84%
Co 228.616†	92.6	0.00218	mg/L	0.000184	0.1091	mg/L	0.00918	8.42%
Cr 267.716†	4542.0	1.148	mg/L	0.0207	57.38	mg/L	1.035	1.80%
Cu 324.752†	5321.8	0.02836	mg/L	0.000572	1.418	mg/L	0.0286	2.02%
Fe 273.955†	31454.1	31.95	mg/L	0.316	1598	mg/L	15.82	0.99%
K 766.490†	97.3	0.09096	mg/L	0.035786	4.548	mg/L	1.7893	39.34%
Mg 279.077†	1077.4	1.045	mg/L	0.0543	52.24	mg/L	2.714	5.19%
Mn 257.610†	5457.4	0.1662	mg/L	0.00821	8.309	mg/L	0.4107	4.94%
Mo 202.031†	49.9	0.00255	mg/L	0.000185	0.1274	mg/L	0.00926	7.27%
Na 589.592†	1448.4	0.1766	mg/L	0.01144	8.829	mg/L	0.5719	6.48%
Na 330.237†	-12.8	-0.9150	mg/L	0.86619	-45.75	mg/L	43.309	94.67%
Ni 231.604†	44.9	0.01369	mg/L	0.001383	0.6847	mg/L	0.06914	10.10%
Pb 220.353†	12.9	0.00277	mg/L	0.000722	0.1386	mg/L	0.03612	26.07%
Sb 206.836†	51.6	0.00046	mg/L	0.002131	0.02298	mg/L	0.106536	463.61%
Se 196.026†	-11.3	-0.00686	mg/L	0.001741	-0.3432	mg/L	0.08704	25.36%
Si 288.158†	104.9	0.1136	mg/L	0.01210	5.679	mg/L	0.6052	10.66%
Sn 189.927†	-23.8	-0.00319	mg/L	0.001705	-0.1593	mg/L	0.08523	53.51%
Sr 421.552†	10243.6	0.04002	mg/L	0.000392	2.001	mg/L	0.0196	0.98%
Ti 334.903†	348.6	0.02376	mg/L	0.000808	1.188	mg/L	0.0404	3.40%
Tl 190.801†	-10.4	-0.00545	mg/L	0.002152	-0.2723	mg/L	0.10761	39.52%
V 292.402†	-392.8	0.00477	mg/L	0.000206	0.2386	mg/L	0.01032	4.33%
Zn 206.200†	1272.7	0.5512	mg/L	0.02583	27.56	mg/L	1.291	4.69%

Sequence No.: 12
Sample ID: SEQ-CCV9

Autosampler Location: 7
Date Collected: 8/8/2019 7:16:07 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV9

Analyte	Back Pressure	Flow
All	174.0 kPa	0.65 L/min

Mean Data: SEQ-CCV9

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2108546.3	102.8	%	0.31				0.30%
ScR 361.383	210623.9	101.3	%	1.57				1.55%
Ag 328.068†	152959.2	1.014	mg/L	0.0078	1.014	mg/L	0.0078	0.77%
Al 308.215†	2297.9	1.986	mg/L	0.0311	1.986	mg/L	0.0311	1.57%
As 188.979†	2878.4	1.995	mg/L	0.0155	1.995	mg/L	0.0155	0.78%
B 249.677†	6761.3	1.018	mg/L	0.0138	1.018	mg/L	0.0138	1.36%
Ba 233.527†	4226.8	1.005	mg/L	0.0184	1.005	mg/L	0.0184	1.83%
Be 313.042†	439647.5	1.014	mg/L	0.0048	1.014	mg/L	0.0048	0.47%
Ca 317.933†	20269.6	2.072	mg/L	0.0345	2.072	mg/L	0.0345	1.66%
Cd 228.802†	24811.0	0.9819	mg/L	0.01047	0.9819	mg/L	0.01047	1.07%
Co 228.616†	33391.4	0.9959	mg/L	0.00305	0.9959	mg/L	0.00305	0.31%
Cr 267.716†	3894.5	0.9825	mg/L	0.02047	0.9825	mg/L	0.02047	2.08%
Cu 324.752†	197036.9	0.9917	mg/L	0.00532	0.9917	mg/L	0.00532	0.54%
Fe 273.955†	1936.6	1.960	mg/L	0.0314	1.960	mg/L	0.0314	1.60%
K 766.490†	20833.2	19.48	mg/L	0.231	19.48	mg/L	0.231	1.18%
Mg 279.077†	2058.2	2.044	mg/L	0.0315	2.044	mg/L	0.0315	1.54%
Mn 257.610†	33733.5	1.027	mg/L	0.0169	1.027	mg/L	0.0169	1.65%
Mo 202.031†	16726.2	0.9932	mg/L	0.00618	0.9932	mg/L	0.00618	0.62%
Na 589.592†	411696.4	50.19	mg/L	0.163	50.19	mg/L	0.163	0.32%
Na 330.237†	935.0	49.88	mg/L	0.821	49.88	mg/L	0.821	1.65%
Ni 231.604†	3262.3	0.9952	mg/L	0.01725	0.9952	mg/L	0.01725	1.73%
Pb 220.353†	14973.1	1.977	mg/L	0.0131	1.977	mg/L	0.0131	0.66%
Sb 206.836†	5529.7	2.082	mg/L	0.0083	2.082	mg/L	0.0083	0.40%
Se 196.026†	2281.3	2.085	mg/L	0.0033	2.085	mg/L	0.0033	0.16%
Si 288.158†	1933.3	2.065	mg/L	0.0259	2.065	mg/L	0.0259	1.25%
Sn 189.927†	3609.3	1.019	mg/L	0.0055	1.019	mg/L	0.0055	0.54%
Sr 421.552†	277582.5	1.084	mg/L	0.0117	1.084	mg/L	0.0117	1.08%
Ti 334.903†	13263.5	0.9603	mg/L	0.00049	0.9603	mg/L	0.00049	0.05%
Tl 190.801†	4017.5	2.020	mg/L	0.0034	2.020	mg/L	0.0034	0.17%
V 292.402†	82401.2	0.9797	mg/L	0.00524	0.9797	mg/L	0.00524	0.54%
Zn 206.200†	2377.5	1.028	mg/L	0.0135	1.028	mg/L	0.0135	1.31%

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Sequence No.: 13 **Autosampler Location: 1**
Sample ID: SEQ-CCB9 **Date Collected: 8/8/2019 7:21:10 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB9

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: SEQ-CCB9

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2131711.8	103.9	%	0.69				0.67%
ScR 361.383	216574.3	104.2	%	0.23				0.22%
Ag 328.068†	21.0	0.00014	mg/L	0.000228	0.00014	mg/L	0.000228	163.18%
Al 308.215†	9.0	0.00786	mg/L	0.011337	0.00786	mg/L	0.011337	144.23%
As 188.979†	-0.0	0.00002	mg/L	0.001699	0.00002	mg/L	0.001699	>999.9%
B 249.677†	5.7	0.00085	mg/L	0.001383	0.00085	mg/L	0.001383	162.02%
Ba 233.527†	-0.8	-0.00019	mg/L	0.000631	-0.00019	mg/L	0.000631	331.00%
Be 313.042†	0.2	-0.00000	mg/L	0.000027	-0.00000	mg/L	0.000027	>999.9%
Ca 317.933†	-6.0	-0.00062	mg/L	0.000657	-0.00062	mg/L	0.000657	105.93%
Cd 228.802†	1.7	0.00007	mg/L	0.000214	0.00007	mg/L	0.000214	321.26%
Co 228.616†	2.6	0.00008	mg/L	0.000160	0.00008	mg/L	0.000160	209.84%
Cr 267.716†	-0.4	-0.00009	mg/L	0.000952	-0.00009	mg/L	0.000952	>999.9%
Cu 324.752†	13.8	0.00007	mg/L	0.000095	0.00007	mg/L	0.000095	138.64%
Fe 273.955†	1.7	0.00169	mg/L	0.001768	0.00169	mg/L	0.001768	104.63%
K 766.490†	8.4	0.00789	mg/L	0.022404	0.00789	mg/L	0.022404	283.80%
Mg 279.077†	-5.6	-0.00550	mg/L	0.001699	-0.00550	mg/L	0.001699	30.91%
Mn 257.610†	1.4	0.00004	mg/L	0.000112	0.00004	mg/L	0.000112	260.77%
Mo 202.031†	11.7	0.00070	mg/L	0.000139	0.00070	mg/L	0.000139	19.99%
Na 589.592†	414.3	0.05050	mg/L	0.001094	0.05050	mg/L	0.001094	2.17%
Na 330.237†	6.1	0.3286	mg/L	0.41730	0.3286	mg/L	0.41730	126.99%
Ni 231.604†	-1.4	-0.00042	mg/L	0.001377	-0.00042	mg/L	0.001377	326.12%
Pb 220.353†	3.6	0.00048	mg/L	0.000546	0.00048	mg/L	0.000546	113.80%
Sb 206.836†	0.5	0.00020	mg/L	0.000269	0.00020	mg/L	0.000269	135.71%
Se 196.026†	2.3	0.00213	mg/L	0.001534	0.00213	mg/L	0.001534	72.14%
Si 288.158†	-1.8	-0.00194	mg/L	0.005546	-0.00194	mg/L	0.005546	285.70%
Sn 189.927†	3.4	0.00097	mg/L	0.000534	0.00097	mg/L	0.000534	55.32%
Sr 421.552†	-8.6	-0.00003	mg/L	0.000054	-0.00003	mg/L	0.000054	159.47%
Ti 334.903†	22.1	0.00161	mg/L	0.000433	0.00161	mg/L	0.000433	26.97%
Tl 190.801†	-1.1	-0.00058	mg/L	0.000880	-0.00058	mg/L	0.000880	151.64%
V 292.402†	15.0	0.00018	mg/L	0.000226	0.00018	mg/L	0.000226	128.07%
Zn 206.200†	-1.3	-0.00055	mg/L	0.000638	-0.00055	mg/L	0.000638	115.64%

Sequence No.: 14
Sample ID: BHH0228-DUP2

Autosampler Location: 320
Date Collected: 8/8/2019 7:25:08 PM
Data Type: Original

Dilution: 5X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0228-DUP2

Analyte	Back Pressure	Flow
All	174.0 kPa	0.65 L/min

Mean Data: BHH0228-DUP2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2148831.0	104.7	%	0.50				0.48%
ScR 361.383	219471.7	105.6	%	0.54				0.51%
Ag 328.068†	2.1	0.00001	mg/L	0.000205	0.00007	mg/L	0.001023	>999.9%
Al 308.215†	8.6	0.00744	mg/L	0.005288	0.03720	mg/L	0.026439	71.08%
As 188.979†	2.9	0.00169	mg/L	0.001492	0.00845	mg/L	0.007458	88.23%
B 249.677†	74.4	0.01121	mg/L	0.000858	0.05607	mg/L	0.004288	7.65%
Ba 233.527†	3.1	0.00073	mg/L	0.000563	0.00364	mg/L	0.002814	77.28%
Be 313.042†	-27.6	-0.00007	mg/L	0.000044	-0.00034	mg/L	0.000218	64.69%
Ca 317.933†	41674.5	4.288	mg/L	0.0235	21.44	mg/L	0.117	0.55%
Cd 228.802†	0.2	-0.00001	mg/L	0.000313	-0.00004	mg/L	0.001564	>999.9%
Co 228.616†	1.5	0.00004	mg/L	0.000177	0.00022	mg/L	0.000885	399.76%
Cr 267.716†	6.2	0.00109	mg/L	0.001945	0.00544	mg/L	0.009725	178.86%
Cu 324.752†	26.2	0.00010	mg/L	0.000144	0.00050	mg/L	0.000720	142.57%
Fe 273.955†	34.1	0.03461	mg/L	0.002131	0.1730	mg/L	0.01066	6.16%
K 766.490†	725.9	0.6786	mg/L	0.02386	3.393	mg/L	0.1193	3.52%
Mg 279.077†	3586.7	3.542	mg/L	0.0130	17.71	mg/L	0.065	0.37%
Mn 257.610†	229.4	0.00697	mg/L	0.000100	0.03486	mg/L	0.000502	1.44%
Mo 202.031†	13.7	0.00074	mg/L	0.000035	0.00370	mg/L	0.000175	4.74%
Na 589.592†	56164.7	6.847	mg/L	0.0314	34.24	mg/L	0.157	0.46%
Na 330.237†	127.2	6.819	mg/L	0.6616	34.10	mg/L	3.308	9.70%
Ni 231.604†	-0.9	-0.00029	mg/L	0.000869	-0.00144	mg/L	0.004346	301.14%
Pb 220.353†	8.6	0.00114	mg/L	0.000329	0.00568	mg/L	0.001643	28.93%
Sb 206.836†	-6.8	-0.00262	mg/L	0.000855	-0.01309	mg/L	0.004274	32.65%
Se 196.026†	-1.3	-0.00117	mg/L	0.002615	-0.00587	mg/L	0.013073	222.86%
Si 288.158†	3133.3	3.344	mg/L	0.0237	16.72	mg/L	0.119	0.71%
Sn 189.927†	-6.7	-0.00117	mg/L	0.000413	-0.00586	mg/L	0.002066	35.23%
Sr 421.552†	7368.3	0.02879	mg/L	0.000080	0.1439	mg/L	0.00040	0.28%
Ti 334.903†	6.3	0.00019	mg/L	0.000871	0.00094	mg/L	0.004353	463.64%
Tl 190.801†	-3.7	-0.00188	mg/L	0.001855	-0.00942	mg/L	0.009273	98.43%
V 292.402†	68.6	0.00082	mg/L	0.000279	0.00411	mg/L	0.001396	33.92%
Zn 206.200†	-2.1	-0.00097	mg/L	0.001797	-0.00483	mg/L	0.008984	186.19%

Sequence No.: 15
Sample ID: 19G0372-02RE1

Autosampler Location: 321
Date Collected: 8/8/2019 7:30:10 PM
Data Type: Original

Dilution: 5X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0372-02RE1

Analyte	Back Pressure	Flow
All	174.0 kPa	0.65 L/min

Mean Data: 19G0372-02RE1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2128481.0	103.7	%	1.98				1.91%
ScR 361.383	218025.1	104.9	%	1.24				1.18%
Ag 328.068†	-12.5	-0.00008	mg/L	0.000225	-0.00041	mg/L	0.001123	270.79%
Al 308.215†	8.6	0.00744	mg/L	0.011889	0.03718	mg/L	0.059446	159.89%
As 188.979†	3.3	0.00199	mg/L	0.002325	0.00997	mg/L	0.011627	116.61%
B 249.677†	73.6	0.01109	mg/L	0.001829	0.05543	mg/L	0.009144	16.50%
Ba 233.527†	3.9	0.00091	mg/L	0.000433	0.00457	mg/L	0.002166	47.42%
Be 313.042†	-18.7	-0.00005	mg/L	0.000051	-0.00023	mg/L	0.000256	109.56%
Ca 317.933†	42498.1	4.372	mg/L	0.0174	21.86	mg/L	0.087	0.40%
Cd 228.802†	-0.6	-0.00004	mg/L	0.000374	-0.00019	mg/L	0.001870	985.08%
Co 228.616†	-1.5	-0.00005	mg/L	0.000063	-0.00025	mg/L	0.000316	125.56%
Cr 267.716†	9.7	0.00197	mg/L	0.000265	0.00984	mg/L	0.001324	13.45%
Cu 324.752†	40.7	0.00017	mg/L	0.000105	0.00087	mg/L	0.000526	60.67%
Fe 273.955†	32.4	0.03295	mg/L	0.002354	0.1647	mg/L	0.01177	7.15%
K 766.490†	791.8	0.7402	mg/L	0.01486	3.701	mg/L	0.0743	2.01%
Mg 279.077†	3673.7	3.628	mg/L	0.0060	18.14	mg/L	0.030	0.16%
Mn 257.610†	232.3	0.00706	mg/L	0.000109	0.03530	mg/L	0.000545	1.55%
Mo 202.031†	10.5	0.00055	mg/L	0.000048	0.00275	mg/L	0.000242	8.80%
Na 589.592†	57314.2	6.987	mg/L	0.0334	34.94	mg/L	0.167	0.48%
Na 330.237†	129.2	6.927	mg/L	0.1374	34.64	mg/L	0.687	1.98%
Ni 231.604†	0.6	0.00019	mg/L	0.002019	0.00093	mg/L	0.010094	>999.9%
Pb 220.353†	9.8	0.00129	mg/L	0.000930	0.00646	mg/L	0.004649	71.95%
Sb 206.836†	-1.6	-0.00064	mg/L	0.002285	-0.00320	mg/L	0.011424	357.06%
Se 196.026†	-2.5	-0.00227	mg/L	0.001983	-0.01133	mg/L	0.009915	87.48%
Si 288.158†	3203.2	3.419	mg/L	0.0564	17.10	mg/L	0.282	1.65%
Sn 189.927†	-7.1	-0.00126	mg/L	0.000968	-0.00628	mg/L	0.004841	77.12%
Sr 421.552†	7534.9	0.02944	mg/L	0.000497	0.1472	mg/L	0.00248	1.69%
Ti 334.903†	28.2	0.00177	mg/L	0.001242	0.00885	mg/L	0.006212	70.18%
Tl 190.801†	-2.5	-0.00125	mg/L	0.000833	-0.00626	mg/L	0.004167	66.56%
V 292.402†	64.0	0.00077	mg/L	0.000242	0.00387	mg/L	0.001212	31.28%
Zn 206.200†	1.0	0.00039	mg/L	0.000389	0.00193	mg/L	0.001943	100.86%

Sequence No.: 16
Sample ID: BHH0228-MS2

Autosampler Location: 322
Date Collected: 8/8/2019 7:35:11 PM
Data Type: Original

Dilution: 5X
Wash Time: 100

DEL

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0228-MS2

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: BHH0228-MS2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1855337.8	90.42	%	3.625				4.01%
ScR 361.383	195665.0	94.10	%	5.113				5.43%
Ag 328.068†	81586.6	0.5407	mg/L	0.01507	2.704	mg/L	0.0753	2.79%
Al 308.215†	2377.6	2.087	mg/L	0.1134	10.43	mg/L	0.567	5.43%
As 188.979†	2947.5	2.018	mg/L	0.0626	10.09	mg/L	0.313	3.10%
B 249.677†	82.1	0.01134	mg/L	0.001098	0.05670	mg/L	0.005488	9.68%
Ba 233.527†	8586.0	2.044	mg/L	0.1083	10.22	mg/L	0.541	5.30%
Be 313.042†	228520.5	0.5271	mg/L	0.00808	2.636	mg/L	0.0404	1.53%
Ca 317.933†	142214.6	14.63	mg/L	0.240	73.13	mg/L	1.198	1.64%
Cd 228.802†	13223.7	0.5169	mg/L	0.01422	2.585	mg/L	0.0711	2.75%
Co 228.616†	17202.1	0.5137	mg/L	0.01301	2.569	mg/L	0.0651	2.53%
Cr 267.716†	2005.4	0.5042	mg/L	0.02715	2.521	mg/L	0.1358	5.38%
Cu 324.752†	95438.9	0.4805	mg/L	0.01288	2.403	mg/L	0.0644	2.68%
Fe 273.955†	2005.3	2.033	mg/L	0.1003	10.17	mg/L	0.501	4.93%
K 766.490†	11452.3	10.71	mg/L	0.040	53.53	mg/L	0.202	0.38%
Mg 279.077†	14541.5	14.36	mg/L	0.747	71.80	mg/L	3.734	5.20%
Mn 257.610†	16951.8	0.5162	mg/L	0.00519	2.581	mg/L	0.0260	1.01%
Mo 202.031†	42.8	0.00227	mg/L	0.000227	0.01135	mg/L	0.001136	10.01%
Na 589.592†	143839.4	17.54	mg/L	0.099	87.68	mg/L	0.493	0.56%
Na 330.237†	312.4	16.53	mg/L	0.324	82.64	mg/L	1.622	1.96%
Ni 231.604†	1642.0	0.5001	mg/L	0.02754	2.501	mg/L	0.1377	5.51%
Pb 220.353†	15493.1	2.045	mg/L	0.0469	10.23	mg/L	0.235	2.29%
Sb 206.836†	18.6	0.00056	mg/L	0.000959	0.00281	mg/L	0.004794	170.81%
Se 196.026†	2308.5	2.110	mg/L	0.0711	10.55	mg/L	0.356	3.37%
Si 288.158†	3313.5	3.539	mg/L	0.1990	17.69	mg/L	0.995	5.62%
Sn 189.927†	-21.0	-0.00344	mg/L	0.000360	-0.01722	mg/L	0.001799	10.45%
Sr 421.552†	154237.4	0.6026	mg/L	0.00184	3.013	mg/L	0.0092	0.31%
Ti 334.903†	47.0	0.00240	mg/L	0.000723	0.01199	mg/L	0.003616	30.16%
Tl 190.801†	4044.2	2.036	mg/L	0.0711	10.18	mg/L	0.355	3.49%
V 292.402†	43247.7	0.5140	mg/L	0.01481	2.570	mg/L	0.0740	2.88%
Zn 206.200†	1170.3	0.5063	mg/L	0.02791	2.532	mg/L	0.1396	5.51%

Sequence No.: 17
Sample ID: SEQ-IBL6

Autosampler Location: 323
Date Collected: 8/8/2019 7:41:53 PM
Data Type: Original

Dilution: 1X
Wash Time: 200

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IBL6

Analyte	Back Pressure	Flow
All	174.0 kPa	0.65 L/min

Mean Data: SEQ-IBL6

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2109251.7	102.8	%	0.56				0.55%
ScR 361.383	211112.5	101.5	%	1.74				1.71%
Ag 328.068†	-31.1	-0.00021	mg/L	0.000220	-0.00021	mg/L	0.000220	106.81%
Al 308.215†	12.5	0.01096	mg/L	0.009403	0.01096	mg/L	0.009403	85.76%
As 188.979†	2.0	0.00139	mg/L	0.002219	0.00139	mg/L	0.002219	160.17%
B 249.677†	1.5	0.00023	mg/L	0.000231	0.00023	mg/L	0.000231	100.88%
Ba 233.527†	0.1	0.00002	mg/L	0.000729	0.00002	mg/L	0.000729	>999.9%
Be 313.042†	27.9	0.00006	mg/L	0.000102	0.00006	mg/L	0.000102	160.67%
Ca 317.933†	27.4	0.00283	mg/L	0.000634	0.00283	mg/L	0.000634	22.44%
Cd 228.802†	0.4	0.00001	mg/L	0.000084	0.00001	mg/L	0.000084	995.76%
Co 228.616†	1.7	0.00005	mg/L	0.000135	0.00005	mg/L	0.000135	281.23%
Cr 267.716†	-6.3	-0.00159	mg/L	0.001824	-0.00159	mg/L	0.001824	114.44%
Cu 324.752†	38.3	0.00019	mg/L	0.000302	0.00019	mg/L	0.000302	156.59%
Fe 273.955†	4.1	0.00417	mg/L	0.001455	0.00417	mg/L	0.001455	34.87%
K 766.490†	-2.3	-0.00219	mg/L	0.021431	-0.00219	mg/L	0.021431	979.27%
Mg 279.077†	-2.4	-0.00241	mg/L	0.005765	-0.00241	mg/L	0.005765	239.05%
Mn 257.610†	6.9	0.00021	mg/L	0.000159	0.00021	mg/L	0.000159	76.14%
Mo 202.031†	-0.1	-0.00000	mg/L	0.000331	-0.00000	mg/L	0.000331	>999.9%
Na 589.592†	166.7	0.02033	mg/L	0.004636	0.02033	mg/L	0.004636	22.80%
Na 330.237†	-8.0	-0.4299	mg/L	0.21671	-0.4299	mg/L	0.21671	50.40%
Ni 231.604†	-1.5	-0.00045	mg/L	0.000788	-0.00045	mg/L	0.000788	174.04%
Pb 220.353†	4.8	0.00063	mg/L	0.000102	0.00063	mg/L	0.000102	16.07%
Sb 206.836†	-1.4	-0.00051	mg/L	0.000160	-0.00051	mg/L	0.000160	31.52%
Se 196.026†	-1.0	-0.00096	mg/L	0.002696	-0.00096	mg/L	0.002696	282.15%
Si 288.158†	-1.2	-0.00133	mg/L	0.001611	-0.00133	mg/L	0.001611	121.05%
Sn 189.927†	0.3	0.00007	mg/L	0.000631	0.00007	mg/L	0.000631	877.43%
Sr 421.552†	77.9	0.00030	mg/L	0.000159	0.00030	mg/L	0.000159	52.12%
Ti 334.903†	13.2	0.00096	mg/L	0.001560	0.00096	mg/L	0.001560	162.41%
Tl 190.801†	0.2	0.00011	mg/L	0.002068	0.00011	mg/L	0.002068	>999.9%
V 292.402†	27.9	0.00032	mg/L	0.000254	0.00032	mg/L	0.000254	79.61%
Zn 206.200†	1.9	0.00082	mg/L	0.000605	0.00082	mg/L	0.000605	74.19%

Sequence No.: 18
Sample ID: SEQ-CCVA

Autosampler Location: 7
Date Collected: 8/8/2019 7:48:34 PM
Data Type: Original

Dilution: 1X
Wash Time: 200

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCVA

Analyte	Back Pressure	Flow
All	174.0 kPa	0.65 L/min

Mean Data: SEQ-CCVA

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2119058.1	103.3	%	0.30				0.29%
ScR 361.383	213616.6	102.7	%	0.11				0.11%
Ag 328.068†	154210.8	1.022	mg/L	0.0039	1.022	mg/L	0.0039	0.38%
Al 308.215†	2306.0	1.993	mg/L	0.0061	1.993	mg/L	0.0061	0.31%
As 188.979†	2883.6	1.998	mg/L	0.0073	1.998	mg/L	0.0073	0.36%
B 249.677†	6794.5	1.023	mg/L	0.0026	1.023	mg/L	0.0026	0.25%
Ba 233.527†	4230.8	1.006	mg/L	0.0035	1.006	mg/L	0.0035	0.35%
Be 313.042†	443442.3	1.023	mg/L	0.0045	1.023	mg/L	0.0045	0.44%
Ca 317.933†	20296.7	2.075	mg/L	0.0036	2.075	mg/L	0.0036	0.17%
Cd 228.802†	24931.1	0.9867	mg/L	0.00551	0.9867	mg/L	0.00551	0.56%
Co 228.616†	33366.2	0.9952	mg/L	0.00237	0.9952	mg/L	0.00237	0.24%
Cr 267.716†	3907.1	0.9856	mg/L	0.00775	0.9856	mg/L	0.00775	0.79%
Cu 324.752†	198291.8	0.9980	mg/L	0.00280	0.9980	mg/L	0.00280	0.28%
Fe 273.955†	1934.9	1.958	mg/L	0.0096	1.958	mg/L	0.0096	0.49%
K 766.490†	20764.5	19.41	mg/L	0.122	19.41	mg/L	0.122	0.63%
Mg 279.077†	2054.6	2.040	mg/L	0.0132	2.040	mg/L	0.0132	0.65%
Mn 257.610†	33857.1	1.031	mg/L	0.0023	1.031	mg/L	0.0023	0.23%
Mo 202.031†	16751.2	0.9946	mg/L	0.00622	0.9946	mg/L	0.00622	0.63%
Na 589.592†	413545.7	50.42	mg/L	0.104	50.42	mg/L	0.104	0.21%
Na 330.237†	941.2	50.21	mg/L	0.388	50.21	mg/L	0.388	0.77%
Ni 231.604†	3273.4	0.9986	mg/L	0.00370	0.9986	mg/L	0.00370	0.37%
Pb 220.353†	14976.8	1.978	mg/L	0.0071	1.978	mg/L	0.0071	0.36%
Sb 206.836†	5564.0	2.094	mg/L	0.0077	2.094	mg/L	0.0077	0.37%
Se 196.026†	2297.9	2.100	mg/L	0.0135	2.100	mg/L	0.0135	0.64%
Si 288.158†	1938.7	2.071	mg/L	0.0071	2.071	mg/L	0.0071	0.34%
Sn 189.927†	3631.1	1.025	mg/L	0.0032	1.025	mg/L	0.0032	0.32%
Sr 421.552†	280630.4	1.096	mg/L	0.0079	1.096	mg/L	0.0079	0.73%
Ti 334.903†	13301.7	0.9631	mg/L	0.00200	0.9631	mg/L	0.00200	0.21%
Tl 190.801†	4044.3	2.033	mg/L	0.0116	2.033	mg/L	0.0116	0.57%
V 292.402†	81884.1	0.9736	mg/L	0.00379	0.9736	mg/L	0.00379	0.39%
Zn 206.200†	2374.1	1.027	mg/L	0.0027	1.027	mg/L	0.0027	0.26%

Sequence No.: 19 **Autosampler Location: 1**
Sample ID: SEQ-CCBA **Date Collected: 8/8/2019 7:53:37 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCBA

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: SEQ-CCBA

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2138867.4	104.2	%	1.57				1.51%
ScR 361.383	217523.4	104.6	%	0.20				0.19%
Ag 328.068†	-21.8	-0.00014	mg/L	0.000254	-0.00014	mg/L	0.000254	176.18%
Al 308.215†	13.6	0.01195	mg/L	0.003912	0.01195	mg/L	0.003912	32.75%
As 188.979†	-1.4	-0.00096	mg/L	0.000285	-0.00096	mg/L	0.000285	29.77%
B 249.677†	14.4	0.00217	mg/L	0.000473	0.00217	mg/L	0.000473	21.84%
Ba 233.527†	-2.1	-0.00050	mg/L	0.000684	-0.00050	mg/L	0.000684	136.72%
Be 313.042†	-25.1	-0.00006	mg/L	0.000049	-0.00006	mg/L	0.000049	82.64%
Ca 317.933†	-3.2	-0.00034	mg/L	0.002074	-0.00034	mg/L	0.002074	607.93%
Cd 228.802†	-0.1	-0.00000	mg/L	0.000096	-0.00000	mg/L	0.000096	>999.9%
Co 228.616†	4.3	0.00013	mg/L	0.000128	0.00013	mg/L	0.000128	100.42%
Cr 267.716†	4.6	0.00117	mg/L	0.001942	0.00117	mg/L	0.001942	166.04%
Cu 324.752†	9.4	0.00005	mg/L	0.000136	0.00005	mg/L	0.000136	288.94%
Fe 273.955†	0.8	0.00085	mg/L	0.000776	0.00085	mg/L	0.000776	90.83%
K 766.490†	-46.0	-0.04305	mg/L	0.029567	-0.04305	mg/L	0.029567	68.68%
Mg 279.077†	0.0	0.00004	mg/L	0.008693	0.00004	mg/L	0.008693	>999.9%
Mn 257.610†	3.5	0.00011	mg/L	0.000110	0.00011	mg/L	0.000110	103.60%
Mo 202.031†	8.7	0.00052	mg/L	0.000135	0.00052	mg/L	0.000135	25.91%
Na 589.592†	108.8	0.01327	mg/L	0.006449	0.01327	mg/L	0.006449	48.60%
Na 330.237†	9.3	0.4982	mg/L	0.75592	0.4982	mg/L	0.75592	151.74%
Ni 231.604†	-5.4	-0.00165	mg/L	0.001119	-0.00165	mg/L	0.001119	67.70%
Pb 220.353†	10.8	0.00143	mg/L	0.000797	0.00143	mg/L	0.000797	55.89%
Sb 206.836†	2.4	0.00089	mg/L	0.002563	0.00089	mg/L	0.002563	288.22%
Se 196.026†	-0.5	-0.00043	mg/L	0.004748	-0.00043	mg/L	0.004748	>999.9%
Si 288.158†	-5.6	-0.00600	mg/L	0.002385	-0.00600	mg/L	0.002385	39.75%
Sn 189.927†	1.7	0.00049	mg/L	0.000661	0.00049	mg/L	0.000661	135.10%
Sr 421.552†	11.5	0.00004	mg/L	0.000107	0.00004	mg/L	0.000107	237.05%
Ti 334.903†	6.3	0.00046	mg/L	0.001247	0.00046	mg/L	0.001247	272.35%
Tl 190.801†	-3.3	-0.00166	mg/L	0.000228	-0.00166	mg/L	0.000228	13.79%
V 292.402†	24.6	0.00030	mg/L	0.000186	0.00030	mg/L	0.000186	62.21%
Zn 206.200†	-0.5	-0.00020	mg/L	0.000177	-0.00020	mg/L	0.000177	90.14%

Sequence No.: 20
Sample ID: RINSE - 1

Autosampler Location: 9
Date Collected: 8/8/2019 7:57:35 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: RINSE - 1

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: RINSE - 1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2133818.0	104.0	%	0.88				0.85%
ScR 361.383	214373.5	103.1	%	0.79				0.77%
Ag 328.068†	11.2	0.00007	mg/L	0.000184	0.00007	mg/L	0.000184	247.90%
Al 308.215†	14.5	0.01277	mg/L	0.006217	0.01277	mg/L	0.006217	48.69%
As 188.979†	-1.1	-0.00073	mg/L	0.000472	-0.00073	mg/L	0.000472	64.94%
B 249.677†	6.9	0.00104	mg/L	0.000358	0.00104	mg/L	0.000358	34.44%
Ba 233.527†	-1.0	-0.00024	mg/L	0.000145	-0.00024	mg/L	0.000145	60.17%
Be 313.042†	2.4	0.00000	mg/L	0.000074	0.00000	mg/L	0.000074	>999.9%
Ca 317.933†	48.7	0.00500	mg/L	0.000436	0.00500	mg/L	0.000436	8.71%
Cd 228.802†	-4.7	-0.00018	mg/L	0.000168	-0.00018	mg/L	0.000168	91.45%
Co 228.616†	0.5	0.00002	mg/L	0.000129	0.00002	mg/L	0.000129	857.96%
Cr 267.716†	6.0	0.00151	mg/L	0.001080	0.00151	mg/L	0.001080	71.69%
Cu 324.752†	31.5	0.00016	mg/L	0.000095	0.00016	mg/L	0.000095	59.78%
Fe 273.955†	6.8	0.00692	mg/L	0.000522	0.00692	mg/L	0.000522	7.55%
K 766.490†	24.7	0.02306	mg/L	0.013363	0.02306	mg/L	0.013363	57.95%
Mg 279.077†	0.6	0.00059	mg/L	0.005506	0.00059	mg/L	0.005506	935.05%
Mn 257.610†	-1.3	-0.00004	mg/L	0.000133	-0.00004	mg/L	0.000133	347.05%
Mo 202.031†	4.3	0.00025	mg/L	0.000234	0.00025	mg/L	0.000234	92.68%
Na 589.592†	156.1	0.01902	mg/L	0.002020	0.01902	mg/L	0.002020	10.62%
Na 330.237†	0.7	0.03938	mg/L	0.081237	0.03938	mg/L	0.081237	206.28%
Ni 231.604†	-0.8	-0.00025	mg/L	0.001443	-0.00025	mg/L	0.001443	583.13%
Pb 220.353†	-2.6	-0.00034	mg/L	0.000994	-0.00034	mg/L	0.000994	294.85%
Sb 206.836†	-2.7	-0.00104	mg/L	0.001490	-0.00104	mg/L	0.001490	143.72%
Se 196.026†	1.2	0.00111	mg/L	0.003652	0.00111	mg/L	0.003652	328.13%
Si 288.158†	5.1	0.00545	mg/L	0.004492	0.00545	mg/L	0.004492	82.37%
Sn 189.927†	3.9	0.00109	mg/L	0.001119	0.00109	mg/L	0.001119	102.35%
Sr 421.552†	26.9	0.00011	mg/L	0.000148	0.00011	mg/L	0.000148	140.37%
Ti 334.903†	4.1	0.00030	mg/L	0.000470	0.00030	mg/L	0.000470	157.79%
Tl 190.801†	0.2	0.00010	mg/L	0.001687	0.00010	mg/L	0.001687	>999.9%
V 292.402†	17.0	0.00021	mg/L	0.000147	0.00021	mg/L	0.000147	69.51%
Zn 206.200†	3.6	0.00157	mg/L	0.000322	0.00157	mg/L	0.000322	20.50%

Sequence No.: 21
Sample ID: RINSE - 2

Autosampler Location: 9
Date Collected: 8/8/2019 8:01:33 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: RINSE - 2

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: RINSE - 2

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2117430.3	103.2	%	0.83				0.80%
ScR 361.383	216044.8	103.9	%	0.53				0.51%
Ag 328.068†	4.9	0.00003	mg/L	0.000174	0.00003	mg/L	0.000174	532.70%
Al 308.215†	30.7	0.02703	mg/L	0.010613	0.02703	mg/L	0.010613	39.27%
As 188.979†	-1.4	-0.00089	mg/L	0.002930	-0.00089	mg/L	0.002930	328.75%
B 249.677†	4.5	0.00068	mg/L	0.000769	0.00068	mg/L	0.000769	113.07%
Ba 233.527†	0.0	0.00001	mg/L	0.000253	0.00001	mg/L	0.000253	>999.9%
Be 313.042†	-9.3	-0.00002	mg/L	0.000035	-0.00002	mg/L	0.000035	153.77%
Ca 317.933†	39.4	0.00404	mg/L	0.000721	0.00404	mg/L	0.000721	17.84%
Cd 228.802†	-0.3	-0.00001	mg/L	0.000101	-0.00001	mg/L	0.000101	>999.9%
Co 228.616†	-3.2	-0.00010	mg/L	0.000050	-0.00010	mg/L	0.000050	51.45%
Cr 267.716†	2.6	0.00065	mg/L	0.001484	0.00065	mg/L	0.001484	229.01%
Cu 324.752†	14.0	0.00007	mg/L	0.000080	0.00007	mg/L	0.000080	112.98%
Fe 273.955†	7.5	0.00764	mg/L	0.002038	0.00764	mg/L	0.002038	26.68%
K 766.490†	-30.6	-0.02861	mg/L	0.016879	-0.02861	mg/L	0.016879	59.00%
Mg 279.077†	-3.3	-0.00325	mg/L	0.003577	-0.00325	mg/L	0.003577	110.10%
Mn 257.610†	2.5	0.00008	mg/L	0.000049	0.00008	mg/L	0.000049	63.18%
Mo 202.031†	2.0	0.00012	mg/L	0.000257	0.00012	mg/L	0.000257	220.96%
Na 589.592†	145.6	0.01776	mg/L	0.002254	0.01776	mg/L	0.002254	12.69%
Na 330.237†	11.9	0.6361	mg/L	0.68563	0.6361	mg/L	0.68563	107.79%
Ni 231.604†	-3.8	-0.00115	mg/L	0.000815	-0.00115	mg/L	0.000815	70.71%
Pb 220.353†	-0.2	-0.00002	mg/L	0.000626	-0.00002	mg/L	0.000626	>999.9%
Sb 206.836†	0.3	0.00013	mg/L	0.001343	0.00013	mg/L	0.001343	>999.9%
Se 196.026†	1.2	0.00112	mg/L	0.004627	0.00112	mg/L	0.004627	412.83%
Si 288.158†	-1.5	-0.00160	mg/L	0.003331	-0.00160	mg/L	0.003331	208.71%
Sn 189.927†	3.3	0.00094	mg/L	0.000584	0.00094	mg/L	0.000584	62.00%
Sr 421.552†	2.6	0.00001	mg/L	0.000120	0.00001	mg/L	0.000120	>999.9%
Ti 334.903†	18.0	0.00131	mg/L	0.001962	0.00131	mg/L	0.001962	150.15%
Tl 190.801†	-0.6	-0.00032	mg/L	0.002181	-0.00032	mg/L	0.002181	677.91%
V 292.402†	20.7	0.00025	mg/L	0.000042	0.00025	mg/L	0.000042	16.94%
Zn 206.200†	3.8	0.00167	mg/L	0.000642	0.00167	mg/L	0.000642	38.46%

Sequence No.: 22 **Autosampler Location: 9**
Sample ID: RINSE - 3 **Date Collected: 8/8/2019 8:05:31 PM**
Data Type: Original

Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: RINSE - 3

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: RINSE - 3

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2129883.3	103.8	%	0.21				0.21%
ScR 361.383	214330.3	103.1	%	0.68				0.66%
Ag 328.068†	-3.1	-0.00002	mg/L	0.000103	-0.00002	mg/L	0.000103	494.97%
Al 308.215†	16.3	0.01431	mg/L	0.003239	0.01431	mg/L	0.003239	22.64%
As 188.979†	-0.2	-0.00016	mg/L	0.000891	-0.00016	mg/L	0.000891	573.85%
B 249.677†	-0.4	-0.00006	mg/L	0.001210	-0.00006	mg/L	0.001210	>999.9%
Ba 233.527†	-1.2	-0.00029	mg/L	0.000162	-0.00029	mg/L	0.000162	55.89%
Be 313.042†	-13.2	-0.00003	mg/L	0.000054	-0.00003	mg/L	0.000054	173.47%
Ca 317.933†	44.6	0.00459	mg/L	0.001231	0.00459	mg/L	0.001231	26.85%
Cd 228.802†	-1.1	-0.00005	mg/L	0.000149	-0.00005	mg/L	0.000149	326.12%
Co 228.616†	-0.2	-0.00001	mg/L	0.000125	-0.00001	mg/L	0.000125	>999.9%
Cr 267.716†	6.6	0.00166	mg/L	0.002705	0.00166	mg/L	0.002705	162.62%
Cu 324.752†	29.9	0.00015	mg/L	0.000075	0.00015	mg/L	0.000075	49.93%
Fe 273.955†	5.6	0.00570	mg/L	0.001799	0.00570	mg/L	0.001799	31.56%
K 766.490†	-0.3	-0.00032	mg/L	0.028304	-0.00032	mg/L	0.028304	>999.9%
Mg 279.077†	2.0	0.00198	mg/L	0.001767	0.00198	mg/L	0.001767	89.40%
Mn 257.610†	4.1	0.00013	mg/L	0.000136	0.00013	mg/L	0.000136	108.09%
Mo 202.031†	2.4	0.00014	mg/L	0.000089	0.00014	mg/L	0.000089	61.17%
Na 589.592†	79.0	0.00964	mg/L	0.001757	0.00964	mg/L	0.001757	18.24%
Na 330.237†	-1.8	-0.1001	mg/L	0.46500	-0.1001	mg/L	0.46500	464.40%
Ni 231.604†	-2.8	-0.00085	mg/L	0.000714	-0.00085	mg/L	0.000714	84.33%
Pb 220.353†	4.5	0.00060	mg/L	0.000615	0.00060	mg/L	0.000615	102.77%
Sb 206.836†	-5.4	-0.00206	mg/L	0.000932	-0.00206	mg/L	0.000932	45.19%
Se 196.026†	0.9	0.00087	mg/L	0.006612	0.00087	mg/L	0.006612	762.49%
Si 288.158†	1.0	0.00107	mg/L	0.003666	0.00107	mg/L	0.003666	341.59%
Sn 189.927†	3.2	0.00091	mg/L	0.000347	0.00091	mg/L	0.000347	37.99%
Sr 421.552†	37.6	0.00015	mg/L	0.000046	0.00015	mg/L	0.000046	31.32%
Ti 334.903†	1.8	0.00013	mg/L	0.000843	0.00013	mg/L	0.000843	644.15%
Tl 190.801†	0.1	0.00007	mg/L	0.001011	0.00007	mg/L	0.001011	>999.9%
V 292.402†	5.4	0.00008	mg/L	0.000262	0.00008	mg/L	0.000262	348.96%
Zn 206.200†	5.6	0.00245	mg/L	0.000952	0.00245	mg/L	0.000952	38.94%

Sequence No.: 23 **Autosampler Location: 9**
Sample ID: RINSE - 4 **Date Collected: 8/8/2019 8:09:29 PM**
Data Type: Original

Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: RINSE - 4

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: RINSE - 4

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2133641.2	104.0	%	0.28				0.27%
ScR 361.383	215459.8	103.6	%	0.33				0.32%
Ag 328.068†	4.1	0.00003	mg/L	0.000229	0.00003	mg/L	0.000229	831.43%
Al 308.215†	11.7	0.01034	mg/L	0.037668	0.01034	mg/L	0.037668	364.25%
As 188.979†	1.0	0.00073	mg/L	0.000788	0.00073	mg/L	0.000788	107.93%
B 249.677†	-6.3	-0.00094	mg/L	0.000750	-0.00094	mg/L	0.000750	79.42%
Ba 233.527†	-2.9	-0.00068	mg/L	0.000518	-0.00068	mg/L	0.000518	75.84%
Be 313.042†	-2.6	-0.00001	mg/L	0.000029	-0.00001	mg/L	0.000029	404.94%
Ca 317.933†	45.3	0.00466	mg/L	0.000246	0.00466	mg/L	0.000246	5.28%
Cd 228.802†	-3.0	-0.00013	mg/L	0.000126	-0.00013	mg/L	0.000126	100.60%
Co 228.616†	-2.6	-0.00008	mg/L	0.000126	-0.00008	mg/L	0.000126	158.64%
Cr 267.716†	1.3	0.00032	mg/L	0.000997	0.00032	mg/L	0.000997	313.43%
Cu 324.752†	37.2	0.00019	mg/L	0.000080	0.00019	mg/L	0.000080	42.65%
Fe 273.955†	4.9	0.00498	mg/L	0.001724	0.00498	mg/L	0.001724	34.64%
K 766.490†	-1.2	-0.00115	mg/L	0.025747	-0.00115	mg/L	0.025747	>999.9%
Mg 279.077†	0.3	0.00032	mg/L	0.009103	0.00032	mg/L	0.009103	>999.9%
Mn 257.610†	4.0	0.00012	mg/L	0.000135	0.00012	mg/L	0.000135	111.30%
Mo 202.031†	-2.7	-0.00016	mg/L	0.000111	-0.00016	mg/L	0.000111	68.38%
Na 589.592†	88.0	0.01073	mg/L	0.001533	0.01073	mg/L	0.001533	14.29%
Na 330.237†	0.4	0.02067	mg/L	0.497464	0.02067	mg/L	0.497464	>999.9%
Ni 231.604†	2.5	0.00077	mg/L	0.001937	0.00077	mg/L	0.001937	252.10%
Pb 220.353†	1.1	0.00015	mg/L	0.000460	0.00015	mg/L	0.000460	313.76%
Sb 206.836†	-5.5	-0.00208	mg/L	0.001408	-0.00208	mg/L	0.001408	67.59%
Se 196.026†	-0.1	-0.00007	mg/L	0.001478	-0.00007	mg/L	0.001478	>999.9%
Si 288.158†	-4.8	-0.00513	mg/L	0.011879	-0.00513	mg/L	0.011879	231.44%
Sn 189.927†	2.6	0.00073	mg/L	0.000207	0.00073	mg/L	0.000207	28.47%
Sr 421.552†	37.4	0.00015	mg/L	0.000028	0.00015	mg/L	0.000028	19.19%
Ti 334.903†	12.0	0.00087	mg/L	0.000358	0.00087	mg/L	0.000358	41.18%
Tl 190.801†	-1.2	-0.00063	mg/L	0.000531	-0.00063	mg/L	0.000531	84.96%
V 292.402†	20.6	0.00024	mg/L	0.000264	0.00024	mg/L	0.000264	108.03%
Zn 206.200†	4.0	0.00175	mg/L	0.000190	0.00175	mg/L	0.000190	10.86%

Sequence No.: 24
Sample ID: DI - 1

Autosampler Location: 10
Date Collected: 8/8/2019 8:13:27 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: DI - 1

Analyte	Back Pressure	Flow
All	174.0 kPa	0.65 L/min

Mean Data: DI - 1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2186885.5	106.6	%	0.40				0.37%
ScR 361.383	223093.1	107.3	%	0.92				0.86%
Ag 328.068†	27.5	0.00018	mg/L	0.000281	0.00018	mg/L	0.000281	154.11%
Al 308.215†	1.9	0.00168	mg/L	0.004374	0.00168	mg/L	0.004374	260.72%
As 188.979†	3.5	0.00244	mg/L	0.003395	0.00244	mg/L	0.003395	139.40%
B 249.677†	-6.0	-0.00090	mg/L	0.000543	-0.00090	mg/L	0.000543	60.45%
Ba 233.527†	-3.7	-0.00087	mg/L	0.000702	-0.00087	mg/L	0.000702	80.61%
Be 313.042†	-45.8	-0.00011	mg/L	0.000088	-0.00011	mg/L	0.000088	82.04%
Ca 317.933†	-44.8	-0.00461	mg/L	0.001348	-0.00461	mg/L	0.001348	29.22%
Cd 228.802†	0.2	-0.00001	mg/L	0.000048	-0.00001	mg/L	0.000048	510.90%
Co 228.616†	4.2	0.00013	mg/L	0.000061	0.00013	mg/L	0.000061	48.09%
Cr 267.716†	13.6	0.00344	mg/L	0.000578	0.00344	mg/L	0.000578	16.79%
Cu 324.752†	-44.7	-0.00022	mg/L	0.000201	-0.00022	mg/L	0.000201	89.19%
Fe 273.955†	-0.5	-0.00047	mg/L	0.001115	-0.00047	mg/L	0.001115	237.56%
K 766.490†	-38.5	-0.03598	mg/L	0.004464	-0.03598	mg/L	0.004464	12.41%
Mg 279.077†	-3.3	-0.00330	mg/L	0.005039	-0.00330	mg/L	0.005039	152.80%
Mn 257.610†	-9.5	-0.00029	mg/L	0.000252	-0.00029	mg/L	0.000252	87.20%
Mo 202.031†	-2.3	-0.00014	mg/L	0.000147	-0.00014	mg/L	0.000147	106.32%
Na 589.592†	93.5	0.01139	mg/L	0.004679	0.01139	mg/L	0.004679	41.06%
Na 330.237†	-2.4	-0.1300	mg/L	0.65013	-0.1300	mg/L	0.65013	499.97%
Ni 231.604†	-0.4	-0.00011	mg/L	0.000825	-0.00011	mg/L	0.000825	718.30%
Pb 220.353†	0.5	0.00007	mg/L	0.000858	0.00007	mg/L	0.000858	>999.9%
Sb 206.836†	-4.6	-0.00177	mg/L	0.000509	-0.00177	mg/L	0.000509	28.78%
Se 196.026†	7.7	0.00708	mg/L	0.003184	0.00708	mg/L	0.003184	44.99%
Si 288.158†	1.4	0.00154	mg/L	0.003304	0.00154	mg/L	0.003304	214.72%
Sn 189.927†	3.0	0.00085	mg/L	0.000903	0.00085	mg/L	0.000903	105.82%
Sr 421.552†	-12.1	-0.00005	mg/L	0.000102	-0.00005	mg/L	0.000102	215.64%
Ti 334.903†	6.7	0.00049	mg/L	0.001133	0.00049	mg/L	0.001133	232.10%
Tl 190.801†	0.3	0.00017	mg/L	0.001541	0.00017	mg/L	0.001541	895.78%
V 292.402†	15.9	0.00021	mg/L	0.000197	0.00021	mg/L	0.000197	93.82%
Zn 206.200†	1.8	0.00078	mg/L	0.001514	0.00078	mg/L	0.001514	192.99%

Sequence No.: 25
Sample ID: DI - 2

Autosampler Location: 10
Date Collected: 8/8/2019 8:17:24 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: DI - 2

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: DI - 2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2181739.5	106.3	%	0.19				0.18%
ScR 361.383	222912.5	107.2	%	1.70				1.59%
Ag 328.068†	-22.3	-0.00015	mg/L	0.000158	-0.00015	mg/L	0.000158	107.04%
Al 308.215†	-2.9	-0.00256	mg/L	0.018692	-0.00256	mg/L	0.018692	729.48%
As 188.979†	2.2	0.00157	mg/L	0.001349	0.00157	mg/L	0.001349	86.02%
B 249.677†	0.3	0.00004	mg/L	0.001565	0.00004	mg/L	0.001565	>999.9%
Ba 233.527†	-1.1	-0.00025	mg/L	0.000544	-0.00025	mg/L	0.000544	214.09%
Be 313.042†	-46.9	-0.00011	mg/L	0.000093	-0.00011	mg/L	0.000093	85.34%
Ca 317.933†	-38.0	-0.00392	mg/L	0.000890	-0.00392	mg/L	0.000890	22.72%
Cd 228.802†	0.3	0.00000	mg/L	0.000092	0.00000	mg/L	0.000092	>999.9%
Co 228.616†	3.7	0.00011	mg/L	0.000055	0.00011	mg/L	0.000055	50.15%
Cr 267.716†	7.6	0.00191	mg/L	0.001988	0.00191	mg/L	0.001988	104.13%
Cu 324.752†	-36.4	-0.00018	mg/L	0.000073	-0.00018	mg/L	0.000073	39.74%
Fe 273.955†	-1.0	-0.00103	mg/L	0.001694	-0.00103	mg/L	0.001694	164.60%
K 766.490†	-43.3	-0.04045	mg/L	0.021297	-0.04045	mg/L	0.021297	52.65%
Mg 279.077†	-4.8	-0.00475	mg/L	0.002766	-0.00475	mg/L	0.002766	58.24%
Mn 257.610†	-9.4	-0.00029	mg/L	0.000091	-0.00029	mg/L	0.000091	31.85%
Mo 202.031†	-4.5	-0.00027	mg/L	0.000410	-0.00027	mg/L	0.000410	152.35%
Na 589.592†	90.3	0.01101	mg/L	0.001752	0.01101	mg/L	0.001752	15.90%
Na 330.237†	7.1	0.3808	mg/L	0.67292	0.3808	mg/L	0.67292	176.70%
Ni 231.604†	1.1	0.00032	mg/L	0.002443	0.00032	mg/L	0.002443	754.09%
Pb 220.353†	3.9	0.00052	mg/L	0.000390	0.00052	mg/L	0.000390	75.11%
Sb 206.836†	-8.8	-0.00335	mg/L	0.001582	-0.00335	mg/L	0.001582	47.26%
Se 196.026†	3.6	0.00328	mg/L	0.003581	0.00328	mg/L	0.003581	109.33%
Si 288.158†	1.6	0.00175	mg/L	0.007422	0.00175	mg/L	0.007422	423.01%
Sn 189.927†	0.0	0.00001	mg/L	0.000921	0.00001	mg/L	0.000921	>999.9%
Sr 421.552†	21.6	0.00008	mg/L	0.000158	0.00008	mg/L	0.000158	186.87%
Ti 334.903†	17.9	0.00130	mg/L	0.001270	0.00130	mg/L	0.001270	97.72%
Tl 190.801†	1.2	0.00059	mg/L	0.002585	0.00059	mg/L	0.002585	437.71%
V 292.402†	3.8	0.00006	mg/L	0.000108	0.00006	mg/L	0.000108	188.36%
Zn 206.200†	-2.4	-0.00104	mg/L	0.000933	-0.00104	mg/L	0.000933	89.87%

Sequence No.: 26
Sample ID: DI - 3

Autosampler Location: 10
Date Collected: 8/8/2019 8:21:22 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: DI - 3

Analyte	Back Pressure	Flow
All	174.0 kPa	0.65 L/min

Mean Data: DI - 3

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2149764.2	104.8	%	0.38				0.36%
ScR 361.383	219246.6	105.4	%	0.47				0.45%
Ag 328.068†	-25.6	-0.00017	mg/L	0.000173	-0.00017	mg/L	0.000173	101.96%
Al 308.215†	-7.0	-0.00613	mg/L	0.003644	-0.00613	mg/L	0.003644	59.40%
As 188.979†	2.8	0.00190	mg/L	0.003188	0.00190	mg/L	0.003188	167.80%
B 249.677†	-5.1	-0.00077	mg/L	0.000749	-0.00077	mg/L	0.000749	96.71%
Ba 233.527†	-0.7	-0.00017	mg/L	0.000712	-0.00017	mg/L	0.000712	423.38%
Be 313.042†	-29.8	-0.00007	mg/L	0.000014	-0.00007	mg/L	0.000014	20.10%
Ca 317.933†	-41.5	-0.00426	mg/L	0.000810	-0.00426	mg/L	0.000810	19.00%
Cd 228.802†	5.4	0.00020	mg/L	0.000138	0.00020	mg/L	0.000138	67.80%
Co 228.616†	7.2	0.00022	mg/L	0.000125	0.00022	mg/L	0.000125	57.59%
Cr 267.716†	8.3	0.00210	mg/L	0.000971	0.00210	mg/L	0.000971	46.24%
Cu 324.752†	-19.7	-0.00010	mg/L	0.000045	-0.00010	mg/L	0.000045	45.27%
Fe 273.955†	-1.6	-0.00161	mg/L	0.001949	-0.00161	mg/L	0.001949	121.37%
K 766.490†	-56.5	-0.05280	mg/L	0.005738	-0.05280	mg/L	0.005738	10.87%
Mg 279.077†	2.4	0.00240	mg/L	0.010320	0.00240	mg/L	0.010320	430.18%
Mn 257.610†	-8.1	-0.00025	mg/L	0.000128	-0.00025	mg/L	0.000128	51.84%
Mo 202.031†	-5.8	-0.00035	mg/L	0.000161	-0.00035	mg/L	0.000161	46.76%
Na 589.592†	97.7	0.01191	mg/L	0.007325	0.01191	mg/L	0.007325	61.51%
Na 330.237†	-11.5	-0.6142	mg/L	0.25616	-0.6142	mg/L	0.25616	41.71%
Ni 231.604†	-0.1	-0.00004	mg/L	0.001068	-0.00004	mg/L	0.001068	>999.9%
Pb 220.353†	4.8	0.00063	mg/L	0.000475	0.00063	mg/L	0.000475	75.20%
Sb 206.836†	-6.6	-0.00250	mg/L	0.001107	-0.00250	mg/L	0.001107	44.31%
Se 196.026†	7.5	0.00684	mg/L	0.004164	0.00684	mg/L	0.004164	60.85%
Si 288.158†	-4.8	-0.00513	mg/L	0.006801	-0.00513	mg/L	0.006801	132.69%
Sn 189.927†	3.4	0.00095	mg/L	0.001163	0.00095	mg/L	0.001163	122.10%
Sr 421.552†	17.7	0.00007	mg/L	0.000125	0.00007	mg/L	0.000125	180.30%
Ti 334.903†	-2.4	-0.00017	mg/L	0.001296	-0.00017	mg/L	0.001296	750.51%
Tl 190.801†	-0.2	-0.00011	mg/L	0.001127	-0.00011	mg/L	0.001127	>999.9%
V 292.402†	32.0	0.00039	mg/L	0.000391	0.00039	mg/L	0.000391	99.84%
Zn 206.200†	-2.5	-0.00110	mg/L	0.000832	-0.00110	mg/L	0.000832	75.82%

Sequence No.: 27
Sample ID: DI - 4

Autosampler Location: 10
Date Collected: 8/8/2019 8:25:20 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: DI - 4

Analyte	Back Pressure	Flow
All	174.0 kPa	0.65 L/min

Mean Data: DI - 4

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2162622.1	105.4	%	0.77				0.73%
ScR 361.383	220420.4	106.0	%	1.04				0.98%
Ag 328.068†	-20.4	-0.00014	mg/L	0.000153	-0.00014	mg/L	0.000153	113.23%
Al 308.215†	-2.7	-0.00238	mg/L	0.008706	-0.00238	mg/L	0.008706	366.29%
As 188.979†	-0.2	-0.00009	mg/L	0.001341	-0.00009	mg/L	0.001341	>999.9%
B 249.677†	-5.7	-0.00085	mg/L	0.000729	-0.00085	mg/L	0.000729	85.42%
Ba 233.527†	-1.0	-0.00023	mg/L	0.000402	-0.00023	mg/L	0.000402	176.65%
Be 313.042†	-48.2	-0.00011	mg/L	0.000054	-0.00011	mg/L	0.000054	47.80%
Ca 317.933†	-23.6	-0.00243	mg/L	0.000743	-0.00243	mg/L	0.000743	30.55%
Cd 228.802†	4.8	0.00019	mg/L	0.000196	0.00019	mg/L	0.000196	101.63%
Co 228.616†	6.5	0.00019	mg/L	0.000080	0.00019	mg/L	0.000080	42.01%
Cr 267.716†	10.9	0.00275	mg/L	0.002044	0.00275	mg/L	0.002044	74.24%
Cu 324.752†	-24.3	-0.00012	mg/L	0.000044	-0.00012	mg/L	0.000044	36.21%
Fe 273.955†	-1.0	-0.00099	mg/L	0.002042	-0.00099	mg/L	0.002042	205.47%
K 766.490†	-40.0	-0.03735	mg/L	0.014447	-0.03735	mg/L	0.014447	38.68%
Mg 279.077†	-5.5	-0.00547	mg/L	0.006899	-0.00547	mg/L	0.006899	126.22%
Mn 257.610†	-8.4	-0.00026	mg/L	0.000161	-0.00026	mg/L	0.000161	62.83%
Mo 202.031†	-2.5	-0.00015	mg/L	0.000090	-0.00015	mg/L	0.000090	60.57%
Na 589.592†	84.8	0.01034	mg/L	0.003237	0.01034	mg/L	0.003237	31.32%
Na 330.237†	-0.1	-0.00260	mg/L	0.558119	-0.00260	mg/L	0.558119	>999.9%
Ni 231.604†	4.7	0.00142	mg/L	0.001748	0.00142	mg/L	0.001748	122.79%
Pb 220.353†	-0.8	-0.00009	mg/L	0.000670	-0.00009	mg/L	0.000670	714.16%
Sb 206.836†	-6.7	-0.00257	mg/L	0.001489	-0.00257	mg/L	0.001489	58.01%
Se 196.026†	6.4	0.00585	mg/L	0.006427	0.00585	mg/L	0.006427	109.86%
Si 288.158†	-1.2	-0.00129	mg/L	0.006124	-0.00129	mg/L	0.006124	474.07%
Sn 189.927†	4.0	0.00112	mg/L	0.000920	0.00112	mg/L	0.000920	82.02%
Sr 421.552†	2.2	0.00001	mg/L	0.000108	0.00001	mg/L	0.000108	>999.9%
Ti 334.903†	19.8	0.00144	mg/L	0.000638	0.00144	mg/L	0.000638	44.44%
Tl 190.801†	-2.1	-0.00104	mg/L	0.000610	-0.00104	mg/L	0.000610	58.49%
V 292.402†	12.1	0.00016	mg/L	0.000390	0.00016	mg/L	0.000390	242.69%
Zn 206.200†	-0.8	-0.00034	mg/L	0.000878	-0.00034	mg/L	0.000878	254.55%

INITIAL CALIBRATION DATA

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CH00036
Instrument: ICP2
Calibration Date: 08/09/2019 10:41

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Silver	0	0	0		1	154111.7	0		0			
Arsenic	0	0	0		10	1502.335	0		0			
Cadmium	0	0	10	26106.43	0		0		0			
Chromium	0	0	10	4142.729	0		0		0			
Copper	0	0	10	206570.3	0		0		0			
Lead	0	0	0		10	7673.421	0		0			
Zinc	0	0	0		10	2349.934	0		0			

INITIAL CALIBRATION DATA

EPA 6010C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CH00036	Instrument:	ICP2
Calibration Date:	08/09/2019 10:41		

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	COD Limit	Q
Silver	77055.85	141.4	1.0000			
Arsenic	751.1675	141.4	1.0000			
Cadmium	13053.21	141.4	1.0000			
Chromium	2071.364	141.4	1.0000			
Copper	103285.2	141.4	1.0000			
Lead	3836.711	141.4	1.0000			
Zinc	1174.967	141.4	1.0000			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: 4-26-19 Analysis Date: 8-9-19 Analyst: TH

LR Date: 4-26-19 Sequence: 5HH0141 Page: 1 of 3

All corrections made by analyst unless otherwise noted. TH 8-9-19

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		SEQ-CAL1	H6894		
		-CAL2	H7435		
		-CAL3	H7436		
		-CAL4	H7437		
		-CAL5	H7438		
		-ICV1	H5329		
		-ICB1	H6894		
		-CRL1	H6960		
		-IFA1	H5485		
		-IFB1	H5486		
		-CCV1	H5329		
		-CCB1	H6894		
		BHH0169-BLK2	SWC	2	Cr only
		BHH0228-BLK2	WMN		↓
		19G0372-04	↓		
RE1		19H0021-01RE1	LEN	5	
		19H0069-01	↓	↓	
		BHH0228-MS2	WMN	5	0.080mL HS2SO Cr, Zn only
		↓ -BS2	↓	↓	Cr only
		SEQ-ISL1			
	✓	BHH0169-BS2	SWC	2	Autosampler error ~~Cr only~~
		19G0387-01	↓	50	Radial elements
		SEQ-CCV2			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: — Analysis Date: 8-9-19 Analyst: TH

LR Date: — Sequence: — Page: 2 of 3

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		SEQ-CCV2			
		BHH0091-BLK1	SWC	2	
	✓	19G0416-40			Al 790% LR, ScA noisy
		↓ -41		↓	Pb SI. noisy
	✓	BHH0091-SRL1		10	
	↓	19G0416-49		2	ScR, Pb noisy
		BHH0091-DUP1		↓	↓
	↓	-MS1			
	✓	-MSD1			ScA, ScR, Pb, As noisy
	↓	-PS1			0.080mL HSCSO As, Pb noisy
	↓	-BS1	↓	↓	As, Pb 'in R ↓
		SEQ-CCV3			
		↓ -CCB3			
	✓	19G0416-42	SWC	2	ScA, ScR, Pb noisy
	↓	-43			ScA noisy
		-44			ScR noisy
	✓	-45			Pb noisy, ScA SI. noisy
	↓	-46			ScA, Pb noisy
		-47			
		↓ -48		↓	
		19G0387-01RE1		50	Sb only
		BHG0169-BSZ		2	Cr only
		BHH0091-BS1	↓	↓	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: — Analysis Date: 8-9-19 Analyst: TH

LR Date: — Sequence: — Page: 3 of 3

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		SEQ-CCV4			
		↓ -CCB4			
		19H0024-04	SWC	2	
		-05	↓	↓	
		-06			
		-07			
		-08			
		-09			Cu noisy No Cu
		BHH0169-DUP1			
		19H0024-03			SEA Sl. noisy, analytes OK
		BHH0169-MS1			Al, Fe, Na STL Sb %R↓ (ER)
		↓ -MSD1	↓	↓	↓ ↓
		SEQ-CCV5			
		↓ -CCB5			
		19H0024-10	SWC	2	
		↓ -11	↓	↓	
		19H0039-06		↓	
		19H0069-01	↓	50	Sc R noisy Axial only
		SEQ-CCV6			
		↓ -CCB6			
		Rinse/DI			
		TH	8-9-19		

Nebulizer Parameters: Hg_ReAlign

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

==========

8/9/2019 10:18:58 AM Hg ReAlign... Actual peak offset (nm): 0.003
Drift (nm): -0.000 Slit adjustment: 0

==========

Analysis Begun

Start Time: 8/9/2019 10:20:20 AM **Plasma On Time: 8/9/2019 9:31:51 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\BLKS.sif
Batch ID:
Results Data Set: I2190809
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

==========

Method Loaded
Method Name: ELMT7300bcESI2FAST **Method Last Saved: 7/22/2019 11:31:54 AM**
IEC File: IEC042619A.iec **MSF File:**
Method Description: 12Axial Elements

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Ag 328.068	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Al 308.215	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
As 188.979	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
B 249.677	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ba 233.527	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Be 313.042	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ca 317.933	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Cd 228.802	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Co 228.616	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Cr 267.716	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Cu 324.752	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Fe 273.955	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
K 766.490	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Mg 279.077	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Mn 257.610	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Mo 202.031	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Na 589.592	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Na 330.237	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ni 231.604	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Pb 220.353	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Sb 206.836	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Se 196.026	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Si 288.158	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Sn 189.927	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Sr 421.552	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Ti 334.903	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Tl 190.801	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
V 292.402	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Zn 206.200	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
ScA 357.253	Lin, Calc Int	Peak Area	Axial	n/a	n/a
ScR 361.383	Lin, Calc Int	Peak Area	Radial	n/a	n/a

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~~**Sequence No.: 1**~~ ~~**Autosampler Location: 1**~~
~~**Sample ID: B1**~~ TH 08-09-19 ~~**Date Collected: 8/9/2019 10:20:30 AM**~~
~~**Data Type: Original**~~

~~**Dilution: 1X**~~

==========

~~**Nebulizer Parameters: B1**~~

~~Analyte~~	~~Back Pressure~~	~~Flow~~
~~All~~	~~164.0 kPa~~	~~0.65 L/min~~

==========

Analysis Begun

Start Time: 8/9/2019 10:41:34 AM **Plasma On Time: 8/9/2019 9:31:51 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\ 0809.sif
Batch ID:
Results Data Set: I2190809
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: SEQ-CAL1 **Date Collected: 8/9/2019 10:41:42 AM**
Data Type: Original

Nebulizer Parameters: SEQ-CAL1

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

Mean Data: SEQ-CAL1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2117938.7	14686.03	0.69%	100.0	%
ScR 361.383	213535.9	1968.53	0.92%	100.0	%
Ag 328.068†	-107.8	47.54	44.09%	[0.00]	mg/L
Al 308.215†	262.4	19.15	7.30%	[0.00]	mg/L
As 188.979†	-6.0	1.37	22.82%	[0.00]	mg/L
B 249.677†	35.1	3.92	11.16%	[0.00]	mg/L
Ba 233.527†	24.5	1.30	5.33%	[0.00]	mg/L
Be 313.042†	1336.4	18.22	1.36%	[0.00]	mg/L
Ca 317.933†	187.6	7.70	4.10%	[0.00]	mg/L
Cd 228.802†	264.9	1.71	0.65%	[0.00]	mg/L
Co 228.616†	-33.5	8.62	25.71%	[0.00]	mg/L
Cr 267.716†	-200.8	8.07	4.02%	[0.00]	mg/L
Cu 324.752†	1911.0	23.15	1.21%	[0.00]	mg/L
Fe 273.955†	30.2	2.23	7.38%	[0.00]	mg/L
K 766.490†	397.9	23.34	5.87%	[0.00]	mg/L
Mg 279.077†	73.5	5.06	6.89%	[0.00]	mg/L
Mn 257.610†	226.4	3.80	1.68%	[0.00]	mg/L
Mo 202.031†	54.3	2.02	3.72%	[0.00]	mg/L
Na 589.592†	-50.8	34.25	67.40%	[0.00]	mg/L
Na 330.237†	-182.3	6.19	3.39%	[0.00]	mg/L
Ni 231.604†	-35.0	5.86	16.77%	[0.00]	mg/L
Pb 220.353†	17.8	4.63	26.09%	[0.00]	mg/L
Sb 206.836†	64.6	3.41	5.28%	[0.00]	mg/L
Se 196.026†	-39.8	2.97	7.47%	[0.00]	mg/L
Si 288.158†	9.0	7.67	84.84%	[0.00]	mg/L
Sn 189.927†	-12.9	2.85	22.09%	[0.00]	mg/L
Sr 421.552†	915.1	22.13	2.42%	[0.00]	mg/L
Ti 334.903†	-9.8	8.36	85.35%	[0.00]	mg/L
Tl 190.801†	-29.8	3.42	11.48%	[0.00]	mg/L
V 292.402†	181.4	21.16	11.67%	[0.00]	mg/L
Zn 206.200†	4.5	2.33	51.18%	[0.00]	mg/L

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: SEQ-CAL2 **Date Collected: 8/9/2019 10:45:46 AM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL2

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

Mean Data: SEQ-CAL2

Analyte	Mean Corrected	Calib

Analyte	Intensity	Std.Dev.	RSD	Conc.	Units
ScA 357.253	2061181.5	11245.71	0.55%	97.32	%
ScR 361.383	206657.2	2164.05	1.05%	96.78	%
Ba 233.527†	43971.6	579.53	1.32%	[10]	mg/L
Cd 228.802†	261064.3	800.00	0.31%	[10]	mg/L
Co 228.616†	349690.4	741.01	0.21%	[10]	mg/L
Cr 267.716†	41427.3	812.85	1.96%	[10]	mg/L
Cu 324.752†	2065702.8	1733.23	0.08%	[10]	mg/L
Mn 257.610†	343663.4	4334.08	1.26%	[10]	mg/L
V 292.402†	891544.3	4247.22	0.48%	[10]	mg/L

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: SEQ-CAL3 **Date Collected: 8/9/2019 10:47:30 AM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL3

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: SEQ-CAL3

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2070026.3	8176.19	0.39%	97.74	%
ScR 361.383	209945.8	458.17	0.22%	98.32	%
Ag 328.068†	154111.7	240.44	0.16%	[1.0]	mg/L
As 188.979†	15023.3	91.62	0.61%	[10]	mg/L
B 249.677†	67518.4	278.35	0.41%	[10]	mg/L
Be 313.042†	2185309.4	23253.11	1.06%	[5.0]	mg/L
Na 589.592†	416267.6	2708.13	0.65%	[50]	mg/L
Ni 231.604†	33549.1	212.63	0.63%	[10]	mg/L
Pb 220.353†	76734.2	146.86	0.19%	[10]	mg/L
Se 196.026†	11352.9	68.35	0.60%	[10]	mg/L
Sr 421.552†	1286352.5	22748.16	1.77%	[5]	mg/L
Tl 190.801†	20421.0	106.95	0.52%	[10]	mg/L
Zn 206.200†	23499.3	112.33	0.48%	[10]	mg/L

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: SEQ-CAL4 **Date Collected: 8/9/2019 10:49:44 AM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL4

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: SEQ-CAL4

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2101234.2	9836.00	0.47%	99.21	%
ScR 361.383	208211.8	1818.04	0.87%	97.51	%
Mo 202.031†	176051.2	884.01	0.50%	[10]	mg/L
Sb 206.836†	27633.3	194.10	0.70%	[10]	mg/L
Si 288.158†	9417.6	105.56	1.12%	[10]	mg/L
Sn 189.927†	37012.1	46.13	0.12%	[10]	mg/L
Ti 334.903†	140095.0	87.00	0.06%	[10]	mg/L

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: SEQ-CAL5 **Date Collected: 8/9/2019 10:51:57 AM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL5

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-CAL5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	1972897.2	3461.54	0.18%	93.15	%
ScR 361.383	208596.5	1785.71	0.86%	97.69	%
Al 308.215†	34776.7	188.35	0.54%	[30]	mg/L
Ca 317.933†	297658.6	669.22	0.22%	[30]	mg/L
Fe 273.955†	101346.7	435.12	0.43%	[100]	mg/L
K 766.490†	110044.0	811.77	0.74%	[100]	mg/L
Mg 279.077†	31002.3	42.66	0.14%	[30]	mg/L
Na 330.237†	1924.8	20.30	1.05%	[100]	mg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	1	Lin Thru 0	0.0	154100	0.00000	1.000000	
Al 308.215	1	Lin Thru 0	0.0	1159	0.00000	1.000000	
As 188.979	1	Lin Thru 0	0.0	1502	0.00000	1.000000	
B 249.677	1	Lin Thru 0	0.0	6752	0.00000	1.000000	
Ba 233.527	1	Lin Thru 0	0.0	4397	0.00000	1.000000	
Be 313.042	1	Lin Thru 0	0.0	437100	0.00000	1.000000	
Ca 317.933	1	Lin Thru 0	0.0	9922	0.00000	1.000000	
Cd 228.802	1	Lin Thru 0	0.0	26110	0.00000	1.000000	
Co 228.616	1	Lin Thru 0	0.0	34970	0.00000	1.000000	
Cr 267.716	1	Lin Thru 0	0.0	4143	0.00000	1.000000	
Cu 324.752	1	Lin Thru 0	0.0	206600	0.00000	1.000000	
Fe 273.955	1	Lin Thru 0	0.0	1013	0.00000	1.000000	
K 766.490	1	Lin Thru 0	0.0	1100	0.00000	1.000000	
Mg 279.077	1	Lin Thru 0	0.0	1033	0.00000	1.000000	
Mn 257.610	1	Lin Thru 0	0.0	34370	0.00000	1.000000	
Mo 202.031	1	Lin Thru 0	0.0	17610	0.00000	1.000000	
Na 589.592	1	Lin Thru 0	0.0	8325	0.00000	1.000000	
Na 330.237	1	Lin Thru 0	0.0	19.25	0.00000	1.000000	
Ni 231.604	1	Lin Thru 0	0.0	3355	0.00000	1.000000	
Pb 220.353	1	Lin Thru 0	0.0	7673	0.00000	1.000000	
Sb 206.836	1	Lin Thru 0	0.0	2763	0.00000	1.000000	
Se 196.026	1	Lin Thru 0	0.0	1135	0.00000	1.000000	
Si 288.158	1	Lin Thru 0	0.0	941.8	0.00000	1.000000	
Sn 189.927	1	Lin Thru 0	0.0	3701	0.00000	1.000000	
Sr 421.552	1	Lin Thru 0	0.0	257300	0.00000	1.000000	
Ti 334.903	1	Lin Thru 0	0.0	14010	0.00000	1.000000	
Tl 190.801	1	Lin Thru 0	0.0	2042	0.00000	1.000000	
V 292.402	1	Lin Thru 0	0.0	89150	0.00000	1.000000	
Zn 206.200	1	Lin Thru 0	0.0	2350	0.00000	1.000000	

==========

Analysis Begun

Start Time: 8/9/2019 10:54:07 AM **Plasma On Time: 8/9/2019 9:31:51 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0809.sif
Batch ID:
Results Data Set: I2190809
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

==========

Sequence No.: 1 **Autosampler Location: 7**
Sample ID: SEQ-ICV1 **Date Collected: 8/9/2019 10:54:15 AM**
Data Type: Original

Dilution: 1X

Nebulizer Parameters: SEQ-ICV1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: SEQ-ICV1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2091711.1	98.76	%	0.292				0.30%
ScR 361.383	209270.4	98.00	%	0.827				0.84%
Ag 328.068†	154819.1	1.005	mg/L	0.0096	1.005	mg/L	0.0096	0.96%
Al 308.215†	2348.5	1.989	mg/L	0.0130	1.989	mg/L	0.0130	0.65%
As 188.979†	2926.3	1.971	mg/L	0.0088	1.971	mg/L	0.0088	0.45%
B 249.677†	6870.2	1.017	mg/L	0.0023	1.017	mg/L	0.0023	0.23%
Ba 233.527†	4375.1	0.9931	mg/L	0.00322	0.9931	mg/L	0.00322	0.32%
Be 313.042†	432192.5	0.9847	mg/L	0.00254	0.9847	mg/L	0.00254	0.26%
Ca 317.933†	20245.0	2.027	mg/L	0.0062	2.027	mg/L	0.0062	0.31%
Cd 228.802†	25773.6	0.9753	mg/L	0.01190	0.9753	mg/L	0.01190	1.22%
Co 228.616†	33648.4	0.9603	mg/L	0.01005	0.9603	mg/L	0.01005	1.05%
Cr 267.716†	4096.8	0.9888	mg/L	0.00441	0.9888	mg/L	0.00441	0.45%
Cu 324.752†	202544.8	0.9803	mg/L	0.00882	0.9803	mg/L	0.00882	0.90%
Fe 273.955†	2041.4	2.007	mg/L	0.0048	2.007	mg/L	0.0048	0.24%
K 766.490†	22081.7	20.07	mg/L	0.085	20.07	mg/L	0.085	0.43%
Mg 279.077†	2071.1	2.015	mg/L	0.0029	2.015	mg/L	0.0029	0.14%
Mn 257.610†	34083.9	0.9921	mg/L	0.00435	0.9921	mg/L	0.00435	0.44%
Mo 202.031†	17130.5	0.9729	mg/L	0.00989	0.9729	mg/L	0.00989	1.02%
Na 589.592†	417612.5	50.16	mg/L	0.094	50.16	mg/L	0.094	0.19%
Na 330.237†	981.1	50.75	mg/L	0.210	50.75	mg/L	0.210	0.41%
Ni 231.604†	3399.6	1.015	mg/L	0.0026	1.015	mg/L	0.0026	0.25%
Pb 220.353†	15203.7	1.983	mg/L	0.0227	1.983	mg/L	0.0227	1.15%
Sb 206.836†	5689.7	2.055	mg/L	0.0060	2.055	mg/L	0.0060	0.29%
Se 196.026†	2293.9	2.020	mg/L	0.0097	2.020	mg/L	0.0097	0.48%
Si 288.158†	1899.4	2.018	mg/L	0.0250	2.018	mg/L	0.0250	1.24%
Sn 189.927†	3623.7	0.9808	mg/L	0.00437	0.9808	mg/L	0.00437	0.45%
Sr 421.552†	261690.9	1.017	mg/L	0.0024	1.017	mg/L	0.0024	0.24%
Ti 334.903†	13635.6	0.9720	mg/L	0.00476	0.9720	mg/L	0.00476	0.49%
Tl 190.801†	4074.4	1.988	mg/L	0.0108	1.988	mg/L	0.0108	0.54%
V 292.402†	85622.5	0.9675	mg/L	0.00654	0.9675	mg/L	0.00654	0.68%
Zn 206.200†	2385.6	1.014	mg/L	0.0041	1.014	mg/L	0.0041	0.40%

Sequence No.: 2 **Autosampler Location: 1**
Sample ID: SEQ-ICB1 **Date Collected: 8/9/2019 10:58:20 AM**
Data Type: Original

Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-ICB1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: SEQ-ICB1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2108794.3	99.57	%	0.300				0.30%
ScR 361.383	210752.5	98.70	%	0.157				0.16%
Ag 328.068†	-26.6	-0.00017	mg/L	0.000444	-0.00017	mg/L	0.000444	257.31%
Al 308.215†	-6.5	-0.00564	mg/L	0.002392	-0.00564	mg/L	0.002392	42.41%
As 188.979†	0.6	0.00043	mg/L	0.002140	0.00043	mg/L	0.002140	494.44%
B 249.677†	34.2	0.00506	mg/L	0.000776	0.00506	mg/L	0.000776	15.33%
Ba 233.527†	0.4	0.00008	mg/L	0.000453	0.00008	mg/L	0.000453	547.64%
Be 313.042†	42.6	0.00010	mg/L	0.000044	0.00010	mg/L	0.000044	44.91%
Ca 317.933†	9.4	0.00094	mg/L	0.001580	0.00094	mg/L	0.001580	167.55%
Cd 228.802†	3.7	0.00014	mg/L	0.000209	0.00014	mg/L	0.000209	151.51%
Co 228.616†	3.8	0.00011	mg/L	0.000063	0.00011	mg/L	0.000063	59.88%
Cr 267.716†	0.9	0.00023	mg/L	0.001506	0.00023	mg/L	0.001506	668.64%
Cu 324.752†	39.1	0.00019	mg/L	0.000042	0.00019	mg/L	0.000042	22.32%
Fe 273.955†	2.9	0.00286	mg/L	0.001451	0.00286	mg/L	0.001451	50.75%
K 766.490†	38.7	0.03515	mg/L	0.049680	0.03515	mg/L	0.049680	141.34%
Mg 279.077†	0.9	0.00086	mg/L	0.005778	0.00086	mg/L	0.005778	674.40%
Mn 257.610†	10.0	0.00029	mg/L	0.000099	0.00029	mg/L	0.000099	34.07%
Mo 202.031†	16.2	0.00092	mg/L	0.000294	0.00092	mg/L	0.000294	31.94%
Na 589.592†	137.7	0.01654	mg/L	0.003455	0.01654	mg/L	0.003455	20.89%
Na 330.237†	11.5	0.5965	mg/L	0.34821	0.5965	mg/L	0.34821	58.38%
Ni 231.604†	-0.9	-0.00025	mg/L	0.001065	-0.00025	mg/L	0.001065	418.85%
Pb 220.353†	1.7	0.00022	mg/L	0.000361	0.00022	mg/L	0.000361	161.15%
Sb 206.836†	2.4	0.00085	mg/L	0.000106	0.00085	mg/L	0.000106	12.40%
Se 196.026†	2.9	0.00259	mg/L	0.002782	0.00259	mg/L	0.002782	107.35%
Si 288.158†	3.5	0.00370	mg/L	0.003948	0.00370	mg/L	0.003948	106.60%
Sn 189.927†	-4.2	-0.00114	mg/L	0.000230	-0.00114	mg/L	0.000230	20.11%
Sr 421.552†	13.1	0.00005	mg/L	0.000082	0.00005	mg/L	0.000082	161.28%
Ti 334.903†	12.4	0.00088	mg/L	0.000926	0.00088	mg/L	0.000926	104.70%
Tl 190.801†	0.2	0.00008	mg/L	0.001589	0.00008	mg/L	0.001589	>999.9%
V 292.402†	8.5	0.00010	mg/L	0.000129	0.00010	mg/L	0.000129	132.61%
Zn 206.200†	2.4	0.00101	mg/L	0.000778	0.00101	mg/L	0.000778	77.09%

Sequence No.: 3 **Autosampler Location: 301**
Sample ID: SEQ-CRL1 **Date Collected: 8/9/2019 11:02:19 AM**
Data Type: Original
Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CRL1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: SEQ-CRL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2114061.3	99.82	%	0.721				0.72%
ScR 361.383	210964.5	98.80	%	0.366				0.37%
Ag 328.068†	456.1	0.00296	mg/L	0.000239	0.00296	mg/L	0.000239	8.08%
Al 308.215†	55.3	0.04751	mg/L	0.006080	0.04751	mg/L	0.006080	12.80%
As 188.979†	71.2	0.04751	mg/L	0.000772	0.04751	mg/L	0.000772	1.62%
B 249.677†	151.2	0.02240	mg/L	0.000214	0.02240	mg/L	0.000214	0.95%
Ba 233.527†	12.4	0.00281	mg/L	0.000731	0.00281	mg/L	0.000731	26.06%
Be 313.042†	409.9	0.00093	mg/L	0.000017	0.00093	mg/L	0.000017	1.81%
Ca 317.933†	479.5	0.04828	mg/L	0.002024	0.04828	mg/L	0.002024	4.19%
Cd 228.802†	61.8	0.00207	mg/L	0.000129	0.00207	mg/L	0.000129	6.22%
Co 228.616†	98.7	0.00281	mg/L	0.000050	0.00281	mg/L	0.000050	1.79%
Cr 267.716†	13.3	0.00321	mg/L	0.000842	0.00321	mg/L	0.000842	26.23%
Cu 324.752†	425.1	0.00206	mg/L	0.000218	0.00206	mg/L	0.000218	10.58%
Fe 273.955†	51.7	0.05104	mg/L	0.004613	0.05104	mg/L	0.004613	9.04%
K 766.490†	546.0	0.4961	mg/L	0.03147	0.4961	mg/L	0.03147	6.34%
Mg 279.077†	51.7	0.05005	mg/L	0.004653	0.05005	mg/L	0.004653	9.30%
Mn 257.610†	40.6	0.00119	mg/L	0.000119	0.00119	mg/L	0.000119	10.02%
Mo 202.031†	89.0	0.00505	mg/L	0.000293	0.00505	mg/L	0.000293	5.79%
Na 589.592†	4032.1	0.4843	mg/L	0.00044	0.4843	mg/L	0.00044	0.09%
Na 330.237†	16.0	0.8284	mg/L	0.94510	0.8284	mg/L	0.94510	114.08%
Ni 231.604†	30.3	0.00907	mg/L	0.001189	0.00907	mg/L	0.001189	13.11%
Pb 220.353†	150.3	0.01960	mg/L	0.001146	0.01960	mg/L	0.001146	5.85%
Sb 206.836†	145.2	0.05259	mg/L	0.000540	0.05259	mg/L	0.000540	1.03%
Se 196.026†	57.1	0.05025	mg/L	0.002288	0.05025	mg/L	0.002288	4.55%
Si 288.158†	59.2	0.06288	mg/L	0.006980	0.06288	mg/L	0.006980	11.10%
Sn 189.927†	34.7	0.00941	mg/L	0.000726	0.00941	mg/L	0.000726	7.71%
Sr 421.552†	263.9	0.00103	mg/L	0.000087	0.00103	mg/L	0.000087	8.50%
Ti 334.903†	61.7	0.00440	mg/L	0.002729	0.00440	mg/L	0.002729	62.07%
Tl 190.801†	100.6	0.04922	mg/L	0.000872	0.04922	mg/L	0.000872	1.77%
V 292.402†	251.5	0.00285	mg/L	0.000074	0.00285	mg/L	0.000074	2.61%
Zn 206.200†	22.4	0.00950	mg/L	0.000605	0.00950	mg/L	0.000605	6.37%

Sequence No.: 4 **Autosampler Location: 302**
Sample ID: SEQ-IFA1 **Date Collected: 8/9/2019 11:06:18 AM**
Data Type: Original

Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-IFA1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: SEQ-IFA1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2036816.7	96.17	%	0.705				0.73%
ScR 361.383	207308.6	97.08	%	0.374				0.39%
Ag 328.068†	-165.4	-0.00108	mg/L	0.000127	-0.00108	mg/L	0.000127	11.81%
Al 308.215†	231179.8	199.4	mg/L	1.28	199.4	mg/L	1.28	0.64%
As 188.979†	26.9	0.01080	mg/L	0.004055	0.01080	mg/L	0.004055	37.56%
B 249.677†	-54.6	0.01188	mg/L	0.001965	0.01188	mg/L	0.001965	16.55%
Ba 233.527†	117.5	0.00201	mg/L	0.002368	0.00201	mg/L	0.002368	117.56%
Be 313.042†	159.4	0.00039	mg/L	0.000009	0.00039	mg/L	0.000009	2.30%
Ca 317.933†	992506.9	100.0	mg/L	0.66	100.0	mg/L	0.66	0.66%
Cd 228.802†	19.8	0.00064	mg/L	0.000110	0.00064	mg/L	0.000110	17.18%
Co 228.616†	92.7	-0.00066	mg/L	0.000192	-0.00066	mg/L	0.000192	29.09%
Cr 267.716†	0.4	-0.00108	mg/L	0.000782	-0.00108	mg/L	0.000782	72.31%
Cu 324.752†	-1456.6	0.00162	mg/L	0.000083	0.00162	mg/L	0.000083	5.17%
Fe 273.955†	199746.1	197.1	mg/L	1.19	197.1	mg/L	1.19	0.61%
K 766.490†	50.4	0.04581	mg/L	0.035584	0.04581	mg/L	0.035584	77.69%
Mg 279.077†	106538.4	103.0	mg/L	0.36	103.0	mg/L	0.36	0.35%
Mn 257.610†	42.5	0.00077	mg/L	0.000092	0.00077	mg/L	0.000092	12.02%
Mo 202.031†	69.0	0.00226	mg/L	0.000221	0.00226	mg/L	0.000221	9.74%
Na 589.592†	89.1	0.01070	mg/L	0.002712	0.01070	mg/L	0.002712	25.35%
Na 330.237†	-5.5	-0.2843	mg/L	0.17385	-0.2843	mg/L	0.17385	61.15%
Ni 231.604†	-7.0	-0.00207	mg/L	0.000150	-0.00207	mg/L	0.000150	7.26%
Pb 220.353†	-327.0	0.00231	mg/L	0.000952	0.00231	mg/L	0.000952	41.27%
Sb 206.836†	64.0	0.02298	mg/L	0.002582	0.02298	mg/L	0.002582	11.24%
Se 196.026†	-14.7	-0.01105	mg/L	0.003985	-0.01105	mg/L	0.003985	36.06%
Si 288.158†	-30.3	-0.02002	mg/L	0.006478	-0.02002	mg/L	0.006478	32.35%
Sn 189.927†	-90.1	-0.00748	mg/L	0.001305	-0.00748	mg/L	0.001305	17.45%
Sr 421.552†	79.1	0.00031	mg/L	0.000091	0.00031	mg/L	0.000091	29.64%
Ti 334.903†	139.6	0.00380	mg/L	0.000467	0.00380	mg/L	0.000467	12.30%
Tl 190.801†	-45.3	-0.02219	mg/L	0.002233	-0.02219	mg/L	0.002233	10.06%
V 292.402†	-509.3	0.00514	mg/L	0.000246	0.00514	mg/L	0.000246	4.79%
Zn 206.200†	5.3	0.00224	mg/L	0.000419	0.00224	mg/L	0.000419	18.70%

Sequence No.: 5
Sample ID: SEQ-IFB1

Autosampler Location: 303
Date Collected: 8/9/2019 11:10:32 AM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IFB1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: SEQ-IFB1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2022106.0	95.48	%	0.582				0.61%
ScR 361.383	206291.5	96.61	%	0.573				0.59%
Ag 328.068†	155936.5	1.012	mg/L	0.0022	1.012	mg/L	0.0022	0.21%
Al 308.215†	231583.8	199.8	mg/L	2.43	199.8	mg/L	2.43	1.22%
As 188.979†	1574.3	1.040	mg/L	0.0059	1.040	mg/L	0.0059	0.57%
B 249.677†	-45.4	0.01114	mg/L	0.002098	0.01114	mg/L	0.002098	18.84%
Ba 233.527†	4489.8	0.9944	mg/L	0.01123	0.9944	mg/L	0.01123	1.13%
Be 313.042†	442333.4	1.008	mg/L	0.0127	1.008	mg/L	0.0127	1.26%
Ca 317.933†	1006670.2	101.4	mg/L	1.43	101.4	mg/L	1.43	1.41%
Cd 228.802†	25882.3	0.9853	mg/L	0.00553	0.9853	mg/L	0.00553	0.56%
Co 228.616†	33463.4	0.9533	mg/L	0.00439	0.9533	mg/L	0.00439	0.46%
Cr 267.716†	4166.4	1.005	mg/L	0.0125	1.005	mg/L	0.0125	1.25%
Cu 324.752†	203275.4	0.9931	mg/L	0.00167	0.9931	mg/L	0.00167	0.17%
Fe 273.955†	202115.0	199.4	mg/L	2.81	199.4	mg/L	2.81	1.41%
K 766.490†	84.5	0.07676	mg/L	0.031561	0.07676	mg/L	0.031561	41.12%
Mg 279.077†	103886.8	100.4	mg/L	1.32	100.4	mg/L	1.32	1.32%
Mn 257.610†	34354.6	0.9994	mg/L	0.01110	0.9994	mg/L	0.01110	1.11%
Mo 202.031†	72.1	0.00235	mg/L	0.000225	0.00235	mg/L	0.000225	9.56%
Na 589.592†	97.8	0.01174	mg/L	0.004256	0.01174	mg/L	0.004256	36.24%
Na 330.237†	0.9	-0.3712	mg/L	0.13997	-0.3712	mg/L	0.13997	37.71%
Ni 231.604†	3327.5	0.9923	mg/L	0.01202	0.9923	mg/L	0.01202	1.21%
Pb 220.353†	7424.2	1.014	mg/L	0.0037	1.014	mg/L	0.0037	0.36%
Sb 206.836†	2958.5	1.057	mg/L	0.0015	1.057	mg/L	0.0015	0.14%
Se 196.026†	1149.7	1.014	mg/L	0.0081	1.014	mg/L	0.0081	0.80%
Si 288.158†	-40.3	-0.02965	mg/L	0.009347	-0.02965	mg/L	0.009347	31.52%
Sn 189.927†	-99.2	-0.00919	mg/L	0.000528	-0.00919	mg/L	0.000528	5.75%
Sr 421.552†	87.7	0.00034	mg/L	0.000055	0.00034	mg/L	0.000055	16.04%
Ti 334.903†	135.2	0.00319	mg/L	0.001075	0.00319	mg/L	0.001075	33.71%
Tl 190.801†	1931.4	0.9376	mg/L	0.00729	0.9376	mg/L	0.00729	0.78%
V 292.402†	85090.6	0.9723	mg/L	0.00381	0.9723	mg/L	0.00381	0.39%
Zn 206.200†	2331.4	0.9918	mg/L	0.01119	0.9918	mg/L	0.01119	1.13%

Sequence No.: 6 **Autosampler Location: 7**
Sample ID: SEQ-CCV1 **Date Collected: 8/9/2019 11:15:41 AM**
Data Type: Original

Dilution: 1X
Wash Time: 120 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCV1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: SEQ-CCV1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2117875.3	100.00	%	0.377				0.38%
ScR 361.383	210894.4	98.76	%	1.437				1.46%
Ag 328.068†	154165.6	1.001	mg/L	0.0015	1.001	mg/L	0.0015	0.15%
Al 308.215†	2353.7	1.993	mg/L	0.0192	1.993	mg/L	0.0192	0.96%
As 188.979†	2921.8	1.968	mg/L	0.0059	1.968	mg/L	0.0059	0.30%
B 249.677†	6858.2	1.015	mg/L	0.0034	1.015	mg/L	0.0034	0.34%
Ba 233.527†	4401.5	0.9991	mg/L	0.00661	0.9991	mg/L	0.00661	0.66%
Be 313.042†	432366.3	0.9851	mg/L	0.01050	0.9851	mg/L	0.01050	1.07%
Ca 317.933†	20323.3	2.035	mg/L	0.0153	2.035	mg/L	0.0153	0.75%
Cd 228.802†	25767.8	0.9751	mg/L	0.00647	0.9751	mg/L	0.00647	0.66%
Co 228.616†	33587.9	0.9586	mg/L	0.00680	0.9586	mg/L	0.00680	0.71%
Cr 267.716†	4098.9	0.9893	mg/L	0.00615	0.9893	mg/L	0.00615	0.62%
Cu 324.752†	201582.2	0.9756	mg/L	0.00671	0.9756	mg/L	0.00671	0.69%
Fe 273.955†	2042.8	2.008	mg/L	0.0046	2.008	mg/L	0.0046	0.23%
K 766.490†	21975.4	19.97	mg/L	0.076	19.97	mg/L	0.076	0.38%
Mg 279.077†	2085.1	2.028	mg/L	0.0102	2.028	mg/L	0.0102	0.50%
Mn 257.610†	34283.0	0.9979	mg/L	0.00633	0.9979	mg/L	0.00633	0.63%
Mo 202.031†	17087.5	0.9705	mg/L	0.00898	0.9705	mg/L	0.00898	0.93%
Na 589.592†	415990.5	49.97	mg/L	0.319	49.97	mg/L	0.319	0.64%
Na 330.237†	981.3	50.75	mg/L	0.287	50.75	mg/L	0.287	0.57%
Ni 231.604†	3414.6	1.019	mg/L	0.0084	1.019	mg/L	0.0084	0.82%
Pb 220.353†	15214.7	1.984	mg/L	0.0159	1.984	mg/L	0.0159	0.80%
Sb 206.836†	5657.3	2.043	mg/L	0.0070	2.043	mg/L	0.0070	0.34%
Se 196.026†	2284.4	2.011	mg/L	0.0148	2.011	mg/L	0.0148	0.73%
Si 288.158†	1907.9	2.027	mg/L	0.0208	2.027	mg/L	0.0208	1.03%
Sn 189.927†	3616.3	0.9788	mg/L	0.00756	0.9788	mg/L	0.00756	0.77%
Sr 421.552†	262438.1	1.020	mg/L	0.0124	1.020	mg/L	0.0124	1.22%
Ti 334.903†	13671.2	0.9746	mg/L	0.00348	0.9746	mg/L	0.00348	0.36%
Tl 190.801†	4062.0	1.982	mg/L	0.0107	1.982	mg/L	0.0107	0.54%
V 292.402†	85775.0	0.9692	mg/L	0.01981	0.9692	mg/L	0.01981	2.04%
Zn 206.200†	2423.6	1.030	mg/L	0.0060	1.030	mg/L	0.0060	0.59%

Sequence No.: 7
Sample ID: SEQ-CCB1

Autosampler Location: 1
Date Collected: 8/9/2019 11:20:44 AM
Data Type: Original

Dilution: 1X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCB1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: SEQ-CCB1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2124839.6	100.3	%	0.48				0.48%
ScR 361.383	210091.7	98.39	%	0.434				0.44%
Ag 328.068†	3.2	0.00002	mg/L	0.000253	0.00002	mg/L	0.000253	>999.9%
Al 308.215†	10.4	0.00897	mg/L	0.019921	0.00897	mg/L	0.019921	222.21%
As 188.979†	-1.4	-0.00093	mg/L	0.000794	-0.00093	mg/L	0.000794	85.26%
B 249.677†	26.3	0.00390	mg/L	0.000580	0.00390	mg/L	0.000580	14.87%
Ba 233.527†	2.9	0.00066	mg/L	0.001301	0.00066	mg/L	0.001301	196.68%
Be 313.042†	60.7	0.00014	mg/L	0.000038	0.00014	mg/L	0.000038	27.69%
Ca 317.933†	22.6	0.00228	mg/L	0.000497	0.00228	mg/L	0.000497	21.80%
Cd 228.802†	2.6	0.00010	mg/L	0.000174	0.00010	mg/L	0.000174	166.20%
Co 228.616†	2.2	0.00006	mg/L	0.000235	0.00006	mg/L	0.000235	371.54%
Cr 267.716†	-10.2	-0.00247	mg/L	0.000663	-0.00247	mg/L	0.000663	26.83%
Cu 324.752†	55.4	0.00027	mg/L	0.000189	0.00027	mg/L	0.000189	70.55%
Fe 273.955†	3.2	0.00315	mg/L	0.002213	0.00315	mg/L	0.002213	70.25%
K 766.490†	39.6	0.03601	mg/L	0.034499	0.03601	mg/L	0.034499	95.80%
Mg 279.077†	-0.5	-0.00049	mg/L	0.004990	-0.00049	mg/L	0.004990	>999.9%
Mn 257.610†	12.6	0.00037	mg/L	0.000009	0.00037	mg/L	0.000009	2.36%
Mo 202.031†	7.7	0.00043	mg/L	0.000435	0.00043	mg/L	0.000435	100.07%
Na 589.592†	85.3	0.01024	mg/L	0.001449	0.01024	mg/L	0.001449	14.14%
Na 330.237†	2.7	0.1379	mg/L	0.47970	0.1379	mg/L	0.47970	347.85%
Ni 231.604†	0.5	0.00016	mg/L	0.000842	0.00016	mg/L	0.000842	537.72%
Pb 220.353†	5.4	0.00070	mg/L	0.001038	0.00070	mg/L	0.001038	149.29%
Sb 206.836†	-0.9	-0.00030	mg/L	0.001234	-0.00030	mg/L	0.001234	413.61%
Se 196.026†	-0.8	-0.00075	mg/L	0.000454	-0.00075	mg/L	0.000454	60.77%
Si 288.158†	5.7	0.00601	mg/L	0.004071	0.00601	mg/L	0.004071	67.75%
Sn 189.927†	-3.5	-0.00094	mg/L	0.000354	-0.00094	mg/L	0.000354	37.82%
Sr 421.552†	32.1	0.00012	mg/L	0.000055	0.00012	mg/L	0.000055	44.10%
Ti 334.903†	-14.2	-0.00101	mg/L	0.000875	-0.00101	mg/L	0.000875	86.59%
Tl 190.801†	2.4	0.00119	mg/L	0.003071	0.00119	mg/L	0.003071	257.63%
V 292.402†	23.5	0.00025	mg/L	0.000171	0.00025	mg/L	0.000171	69.05%
Zn 206.200†	0.2	0.00010	mg/L	0.000517	0.00010	mg/L	0.000517	503.90%

Sequence No.: 8
Sample ID: BHH0169-BLK2

Dilution: 2X
Wash Time: 37

Autosampler Location: 304
Date Collected: 8/9/2019 11:24:43 AM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0169-BLK2

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: BHH0169-BLK2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2149318.1	101.5	%	0.18				0.17%
ScR 361.383	214218.1	100.3	%	1.50				1.49%
Ag 328.068†	40.1	0.00026	mg/L	0.000123	0.00052	mg/L	0.000246	47.25%
Al 308.215†	22.0	0.01895	mg/L	0.007829	0.03789	mg/L	0.015659	41.32%
As 188.979†	-2.4	-0.00154	mg/L	0.000779	-0.00308	mg/L	0.001558	50.63%
B 249.677†	18.9	0.00280	mg/L	0.000826	0.00559	mg/L	0.001651	29.53%
Ba 233.527†	1.8	0.00041	mg/L	0.000634	0.00082	mg/L	0.001267	155.35%
Be 313.042†	20.7	0.00005	mg/L	0.000075	0.00010	mg/L	0.000150	158.13%
Ca 317.933†	117.6	0.01184	mg/L	0.000072	0.02368	mg/L	0.000145	0.61%
Cd 228.802†	4.5	0.00018	mg/L	0.000046	0.00037	mg/L	0.000092	25.10%
Co 228.616†	-2.8	-0.00009	mg/L	0.000069	-0.00017	mg/L	0.000138	80.10%
Cr 267.716†	-1.7	-0.00042	mg/L	0.000575	-0.00084	mg/L	0.001150	136.85%
Cu 324.752†	46.5	0.00023	mg/L	0.000080	0.00045	mg/L	0.000160	35.39%
Fe 273.955†	23.0	0.02269	mg/L	0.002715	0.04538	mg/L	0.005429	11.96%
K 766.490†	-29.6	-0.02689	mg/L	0.020913	-0.05378	mg/L	0.041825	77.78%
Mg 279.077†	7.1	0.00689	mg/L	0.012138	0.01378	mg/L	0.024277	176.11%
Mn 257.610†	17.0	0.00050	mg/L	0.000041	0.00099	mg/L	0.000082	8.22%
Mo 202.031†	-0.8	-0.00004	mg/L	0.000175	-0.00009	mg/L	0.000350	407.24%
Na 589.592†	68.0	0.00816	mg/L	0.004248	0.01633	mg/L	0.008495	52.03%
Na 330.237†	11.4	0.5927	mg/L	0.77736	1.185	mg/L	1.5547	131.15%
Ni 231.604†	1.8	0.00055	mg/L	0.000635	0.00109	mg/L	0.001269	116.38%
Pb 220.353†	1.6	0.00021	mg/L	0.000391	0.00043	mg/L	0.000782	182.67%
Sb 206.836†	-0.2	-0.00007	mg/L	0.001747	-0.00013	mg/L	0.003495	>999.9%
Se 196.026†	-2.1	-0.00188	mg/L	0.004856	-0.00376	mg/L	0.009712	258.55%
Si 288.158†	5.9	0.00622	mg/L	0.006006	0.01243	mg/L	0.012012	96.61%
Sn 189.927†	-0.1	-0.00002	mg/L	0.000861	-0.00004	mg/L	0.001723	>999.9%
Sr 421.552†	-28.4	-0.00011	mg/L	0.000008	-0.00022	mg/L	0.000017	7.64%
Ti 334.903†	37.9	0.00270	mg/L	0.001379	0.00541	mg/L	0.002759	51.04%
Tl 190.801†	-0.4	-0.00019	mg/L	0.001982	-0.00037	mg/L	0.003964	>999.9%
V 292.402†	-4.2	-0.00005	mg/L	0.000043	-0.00010	mg/L	0.000086	86.61%
Zn 206.200†	12.9	0.00547	mg/L	0.000761	0.01094	mg/L	0.001521	13.90%

Sequence No.: 9
Sample ID: BHH0228-BLK2

Autosampler Location: 305
Date Collected: 8/9/2019 11:28:42 AM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0228-BLK2

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: BHH0228-BLK2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2194435.6	103.6	%	0.10				0.09%
ScR 361.383	222679.1	104.3	%	0.88				0.85%
Ag 328.068†	21.2	0.00014	mg/L	0.000394	0.00014	mg/L	0.000394	285.46%
Al 308.215†	-4.5	-0.00386	mg/L	0.005212	-0.00386	mg/L	0.005212	135.00%
As 188.979†	-0.8	-0.00055	mg/L	0.001783	-0.00055	mg/L	0.001783	322.44%
B 249.677†	12.9	0.00191	mg/L	0.000856	0.00191	mg/L	0.000856	44.74%
Ba 233.527†	2.7	0.00062	mg/L	0.000683	0.00062	mg/L	0.000683	110.14%
Be 313.042†	-36.3	-0.00008	mg/L	0.000034	-0.00008	mg/L	0.000034	40.55%
Ca 317.933†	-9.7	-0.00099	mg/L	0.000263	-0.00099	mg/L	0.000263	26.48%
Cd 228.802†	2.8	0.00011	mg/L	0.000107	0.00011	mg/L	0.000107	97.63%
Co 228.616†	9.7	0.00028	mg/L	0.000150	0.00028	mg/L	0.000150	53.81%
Cr 267.716†	4.6	0.00111	mg/L	0.002507	0.00111	mg/L	0.002507	225.48%
Cu 324.752†	-35.2	-0.00017	mg/L	0.000165	-0.00017	mg/L	0.000165	96.67%
Fe 273.955†	-0.8	-0.00083	mg/L	0.003385	-0.00083	mg/L	0.003385	407.65%
K 766.490†	-16.2	-0.01476	mg/L	0.012743	-0.01476	mg/L	0.012743	86.33%
Mg 279.077†	3.3	0.00315	mg/L	0.004591	0.00315	mg/L	0.004591	145.73%
Mn 257.610†	-7.2	-0.00021	mg/L	0.000149	-0.00021	mg/L	0.000149	71.01%
Mo 202.031†	-1.8	-0.00010	mg/L	0.000067	-0.00010	mg/L	0.000067	63.72%
Na 589.592†	118.6	0.01424	mg/L	0.002960	0.01424	mg/L	0.002960	20.78%
Na 330.237†	13.1	0.6797	mg/L	0.53724	0.6797	mg/L	0.53724	79.04%
Ni 231.604†	-2.9	-0.00087	mg/L	0.002645	-0.00087	mg/L	0.002645	304.32%
Pb 220.353†	2.0	0.00027	mg/L	0.000195	0.00027	mg/L	0.000195	72.83%
Sb 206.836†	-5.7	-0.00207	mg/L	0.000664	-0.00207	mg/L	0.000664	32.12%
Se 196.026†	5.7	0.00504	mg/L	0.004682	0.00504	mg/L	0.004682	92.85%
Si 288.158†	4.6	0.00485	mg/L	0.008659	0.00485	mg/L	0.008659	178.36%
Sn 189.927†	0.7	0.00020	mg/L	0.000211	0.00020	mg/L	0.000211	107.88%
Sr 421.552†	-32.1	-0.00012	mg/L	0.000167	-0.00012	mg/L	0.000167	133.89%
Ti 334.903†	-5.1	-0.00037	mg/L	0.001279	-0.00037	mg/L	0.001279	348.49%
Tl 190.801†	3.3	0.00161	mg/L	0.001341	0.00161	mg/L	0.001341	83.42%
V 292.402†	15.7	0.00018	mg/L	0.000115	0.00018	mg/L	0.000115	62.84%
Zn 206.200†	0.8	0.00034	mg/L	0.000996	0.00034	mg/L	0.000996	289.88%

Sequence No.: 10
Sample ID: 19G0372-04

Autosampler Location: 306
Date Collected: 8/9/2019 11:32:40 AM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0372-04

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0372-04

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2164849.0	102.2	%	0.19				0.19%
ScR 361.383	218772.1	102.5	%	0.48				0.47%
Ag 328.068†	29.0	0.00019	mg/L	0.000078	0.00019	mg/L	0.000078	41.10%
Al 308.215†	-3.5	-0.00326	mg/L	0.017212	-0.00326	mg/L	0.017212	527.91%
As 188.979†	16.0	0.00910	mg/L	0.002408	0.00910	mg/L	0.002408	26.46%
B 249.677†	278.3	0.04123	mg/L	0.000735	0.04123	mg/L	0.000735	1.78%
Ba 233.527†	36.8	0.00835	mg/L	0.000394	0.00835	mg/L	0.000394	4.72%
Be 313.042†	3.4	-0.00000	mg/L	0.000032	-0.00000	mg/L	0.000032	>999.9%
Ca 317.933†	214834.8	21.65	mg/L	0.114	21.65	mg/L	0.114	0.52%
Cd 228.802†	-2.1	-0.00015	mg/L	0.000062	-0.00015	mg/L	0.000062	41.26%
Co 228.616†	8.5	0.00024	mg/L	0.000106	0.00024	mg/L	0.000106	44.59%
Cr 267.716†	11.8	0.00076	mg/L	0.001053	0.00076	mg/L	0.001053	138.99%
Cu 324.752†	168.6	0.00069	mg/L	0.000086	0.00069	mg/L	0.000086	12.52%
Fe 273.955†	80.0	0.07894	mg/L	0.002413	0.07894	mg/L	0.002413	3.06%
K 766.490†	3092.9	2.811	mg/L	0.0555	2.811	mg/L	0.0555	1.97%
Mg 279.077†	15995.9	15.48	mg/L	0.129	15.48	mg/L	0.129	0.84%
Mn 257.610†	1109.4	0.03223	mg/L	0.000314	0.03223	mg/L	0.000314	0.97%
Mo 202.031†	41.6	0.00200	mg/L	0.000295	0.00200	mg/L	0.000295	14.72%
Na 589.592†	95799.1	11.51	mg/L	0.102	11.51	mg/L	0.102	0.89%
Na 330.237†	216.9	11.26	mg/L	0.818	11.26	mg/L	0.818	7.26%
Ni 231.604†	2.8	0.00082	mg/L	0.001552	0.00082	mg/L	0.001552	188.34%
Pb 220.353†	1.8	0.00023	mg/L	0.000896	0.00023	mg/L	0.000896	381.55%
Sb 206.836†	-4.6	-0.00178	mg/L	0.000513	-0.00178	mg/L	0.000513	28.78%
Se 196.026†	1.7	0.00145	mg/L	0.005923	0.00145	mg/L	0.005923	409.41%
Si 288.158†	15894.4	16.88	mg/L	0.095	16.88	mg/L	0.095	0.56%
Sn 189.927†	-34.6	-0.00569	mg/L	0.000511	-0.00569	mg/L	0.000511	8.98%
Sr 421.552†	30824.0	0.1198	mg/L	0.00168	0.1198	mg/L	0.00168	1.40%
Ti 334.903†	17.8	-0.00007	mg/L	0.001269	-0.00007	mg/L	0.001269	>999.9%
Tl 190.801†	2.6	0.00132	mg/L	0.000222	0.00132	mg/L	0.000222	16.75%
V 292.402†	226.6	0.00257	mg/L	0.000057	0.00257	mg/L	0.000057	2.21%
Zn 206.200†	17.5	0.00731	mg/L	0.000594	0.00731	mg/L	0.000594	8.14%

Sequence No.: 11
Sample ID: 19H0021-01RE1

Dilution: 5X
Wash Time: 37

TH 08-09-19

Autosampler Location: 307
Date Collected: 8/9/2019 11:36:38 AM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0021-01 RE1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19H0021-01 RE1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2077836.6	98.11	%	0.619				0.63%
ScR 361.383	208326.0	97.56	%	0.247				0.25%
Ag 328.068†	-21.4	-0.00014	mg/L	0.000063	-0.00069	mg/L	0.000314	45.20%
Al 308.215†	50.0	0.04208	mg/L	0.015916	0.2104	mg/L	0.07958	37.82%
As 188.979†	2.7	0.00116	mg/L	0.000421	0.00582	mg/L	0.002104	36.15%
B 249.677†	1334.6	0.1977	mg/L	0.00222	0.9883	mg/L	0.01110	1.12%
Ba 233.527†	51.9	0.01179	mg/L	0.000297	0.05896	mg/L	0.001483	2.52%
Be 313.042†	71.6	0.00016	mg/L	0.000039	0.00081	mg/L	0.000197	24.20%
Ca 317.933†	99972.8	10.07	mg/L	0.058	50.37	mg/L	0.291	0.58%
Cd 228.802†	4.9	0.00017	mg/L	0.000174	0.00087	mg/L	0.000869	99.81%
Co 228.616†	10.9	0.00031	mg/L	0.000112	0.00153	mg/L	0.000559	36.49%
Cr 267.716†	-6.3	-0.00177	mg/L	0.001299	-0.00886	mg/L	0.006496	73.34%
Cu 324.752†	314.1	0.00146	mg/L	0.000156	0.00729	mg/L	0.000781	10.71%
Fe 273.955†	4.8	0.00474	mg/L	0.002099	0.02372	mg/L	0.010494	44.23%
K 766.490†	347.9	0.3161	mg/L	0.00990	1.581	mg/L	0.0495	3.13%
Mg 279.077†	1077.8	1.042	mg/L	0.0127	5.209	mg/L	0.0636	1.22%
Mn 257.610†	352.2	0.01023	mg/L	0.000155	0.05113	mg/L	0.000774	1.51%
Mo 202.031†	16.8	0.00079	mg/L	0.000198	0.00394	mg/L	0.000989	25.09%
Na 589.592†	908478.7	109.1	mg/L	0.49	545.6	mg/L	2.47	0.45%
Na 330.237†	2076.9	107.9	mg/L	0.66	539.5	mg/L	3.32	0.62%
Ni 231.604†	0.4	0.00012	mg/L	0.000744	0.00058	mg/L	0.003720	637.77%
Pb 220.353†	1.1	0.00015	mg/L	0.001183	0.00074	mg/L	0.005914	800.15%
Sb 206.836†	0.1	0.00003	mg/L	0.002188	0.00014	mg/L	0.010938	>999.9%
Se 196.026†	-2.3	-0.00201	mg/L	0.002336	-0.01007	mg/L	0.011682	116.01%
Si 288.158†	2420.6	2.570	mg/L	0.0246	12.85	mg/L	0.123	0.96%
Sn 189.927†	-19.2	-0.00350	mg/L	0.001230	-0.01748	mg/L	0.006151	35.20%
Sr 421.552†	1827.0	0.00710	mg/L	0.000110	0.03551	mg/L	0.000548	1.54%
Ti 334.903†	33.9	0.00180	mg/L	0.000584	0.00900	mg/L	0.002918	32.44%
Tl 190.801†	-2.3	-0.00113	mg/L	0.001908	-0.00563	mg/L	0.009542	169.41%
V 292.402†	19.6	0.00021	mg/L	0.000146	0.00106	mg/L	0.000728	68.54%
Zn 206.200†	32.0	0.01360	mg/L	0.001310	0.06799	mg/L	0.006549	9.63%

Sequence No.: 12
Sample ID: 19H0069-01

Autosampler Location: 308
Date Collected: 8/9/2019 11:40:52 AM
Data Type: Original

Dilution: 5X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0069-01

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: 19H0069-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1996689.4	94.28	%	0.279				0.30%
ScR 361.383	206603.5	96.75	%	0.184				0.19%
Ag 328.068†	-62.4	-0.00040	mg/L	0.000141	-0.00202	mg/L	0.000707	34.93%
Al 308.215†	14.1	0.00908	mg/L	0.014435	0.04542	mg/L	0.072174	158.90%
As 188.979†	40.1	0.01736	mg/L	0.001741	0.08681	mg/L	0.008703	10.02%
B 249.677†	200.2	0.02967	mg/L	0.000150	0.1484	mg/L	0.00075	0.50%
Ba 233.527†	69.6	0.01578	mg/L	0.001227	0.07891	mg/L	0.006134	7.77%
Be 313.042†	61.9	0.00014	mg/L	0.000048	0.00071	mg/L	0.000238	33.60%
Ca 317.933†	1319658.4	133.0	mg/L	0.27	665.0	mg/L	1.33	0.20%
Cd 228.802†	-13.1	-0.00062	mg/L	0.000172	-0.00308	mg/L	0.000860	27.93%
Co 228.616†	268.2	0.00763	mg/L	0.000261	0.03815	mg/L	0.001305	3.42%
Cr 267.716†	11.6	0.00042	mg/L	0.002713	0.00209	mg/L	0.013566	650.39%
Cu 324.752†	288.9	0.00122	mg/L	0.000070	0.00612	mg/L	0.000349	5.71%
Fe 273.955†	340.9	0.3363	mg/L	0.00545	1.682	mg/L	0.0272	1.62%
K 766.490†	388.4	0.3530	mg/L	0.02468	1.765	mg/L	0.1234	6.99%
Mg 279.077†	5153.6	4.974	mg/L	0.0413	24.87	mg/L	0.206	0.83%
Mn 257.610†	39432.6	1.147	mg/L	0.0050	5.736	mg/L	0.0252	0.44%
Mo 202.031†	92.4	0.00305	mg/L	0.000452	0.01523	mg/L	0.002262	14.85%
Na 589.592†	2493992.9	299.6	mg/L	0.80	1498	mg/L	3.98	0.27%
Na 330.237†	5792.2	300.9	mg/L	1.51	1505	mg/L	7.56	0.50%
Ni 231.604†	215.6	0.06427	mg/L	0.001599	0.3214	mg/L	0.00799	2.49%
Pb 220.353†	4.9	0.00064	mg/L	0.000776	0.00318	mg/L	0.003879	121.80%
Sb 206.836†	0.8	0.00010	mg/L	0.000211	0.00049	mg/L	0.001057	215.07%
Se 196.026†	-10.1	-0.00990	mg/L	0.005147	-0.04950	mg/L	0.025737	51.99%
Si 288.158†	2838.8	3.015	mg/L	0.0054	15.07	mg/L	0.027	0.18%
Sn 189.927†	-90.1	-0.00190	mg/L	0.000682	-0.00952	mg/L	0.003409	35.80%
Sr 421.552†	46108.3	0.1792	mg/L	0.00083	0.8961	mg/L	0.00413	0.46%
Ti 334.903†	178.4	0.00453	mg/L	0.001061	0.02264	mg/L	0.005305	23.43%
Tl 190.801†	-0.6	0.00104	mg/L	0.001401	0.00522	mg/L	0.007005	134.23%
V 292.402†	-3.7	0.00020	mg/L	0.000150	0.00102	mg/L	0.000752	74.02%
Zn 206.200†	65.4	0.02780	mg/L	0.001107	0.1390	mg/L	0.00554	3.98%

Sequence No.: 13
Sample ID: BHH0228-MS2

Dilution: 5X
Wash Time: 37

Autosampler Location: 309
Date Collected: 8/9/2019 11:45:08 AM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0228-MS2

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: BHH0228-MS2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2096678.8	99.00	%	0.185				0.19%
ScR 361.383	211872.2	99.22	%	0.334				0.34%
Ag 328.068†	81805.0	0.5310	mg/L	0.00342	2.655	mg/L	0.0171	0.64%
Al 308.215†	2391.4	2.055	mg/L	0.0066	10.28	mg/L	0.033	0.32%
As 188.979†	3173.5	2.111	mg/L	0.0077	10.56	mg/L	0.038	0.36%
B 249.677†	86.5	0.01181	mg/L	0.001135	0.05907	mg/L	0.005676	9.61%
Ba 233.527†	8862.3	2.014	mg/L	0.0058	10.07	mg/L	0.029	0.29%
Be 313.042†	222301.4	0.5065	mg/L	0.00463	2.532	mg/L	0.0232	0.91%
Ca 317.933†	143417.0	14.45	mg/L	0.015	72.24	mg/L	0.077	0.11%
Cd 228.802†	13464.4	0.5023	mg/L	0.00301	2.511	mg/L	0.0150	0.60%
Co 228.616†	17384.3	0.4968	mg/L	0.00304	2.484	mg/L	0.0152	0.61%
Cr 267.716†	2098.8	0.5050	mg/L	0.00446	2.525	mg/L	0.0223	0.88%
Cu 324.752†	99048.6	0.4796	mg/L	0.00198	2.398	mg/L	0.0099	0.41%
Fe 273.955†	2097.3	2.066	mg/L	0.0025	10.33	mg/L	0.013	0.12%
K 766.490†	11767.3	10.69	mg/L	0.117	53.47	mg/L	0.587	1.10%
Mg 279.077†	14000.9	13.55	mg/L	0.010	67.74	mg/L	0.051	0.07%
Mn 257.610†	16946.7	0.4934	mg/L	0.00204	2.467	mg/L	0.0102	0.41%
Mo 202.031†	32.2	0.00156	mg/L	0.000225	0.00780	mg/L	0.001123	14.39%
Na 589.592†	143859.9	17.28	mg/L	0.059	86.40	mg/L	0.295	0.34%
Na 330.237†	339.5	17.42	mg/L	0.278	87.10	mg/L	1.391	1.60%
Ni 231.604†	1705.9	0.5083	mg/L	0.00340	2.542	mg/L	0.0170	0.67%
Pb 220.353†	15726.4	2.051	mg/L	0.0177	10.25	mg/L	0.089	0.86%
Sb 206.836†	14.4	-0.00126	mg/L	0.001032	-0.00629	mg/L	0.005162	82.01%
Se 196.026†	2457.9	2.165	mg/L	0.0067	10.82	mg/L	0.034	0.31%
Si 288.158†	3350.0	3.559	mg/L	0.0187	17.80	mg/L	0.093	0.52%
Sn 189.927†	-23.1	-0.00380	mg/L	0.000991	-0.01900	mg/L	0.004957	26.08%
Sr 421.552†	142290.7	0.5531	mg/L	0.00414	2.765	mg/L	0.0207	0.75%
Ti 334.903†	37.3	0.00167	mg/L	0.000301	0.00834	mg/L	0.001505	18.05%
Tl 190.801†	4261.8	2.083	mg/L	0.0104	10.41	mg/L	0.052	0.50%
V 292.402†	44913.8	0.5073	mg/L	0.00682	2.537	mg/L	0.0341	1.34%
Zn 206.200†	1203.9	0.5117	mg/L	0.00175	2.558	mg/L	0.0087	0.34%

Sequence No.: 14 **Autosampler Location: 310**
Sample ID: BHH0228-BS2 **Date Collected: 8/9/2019 11:50:29 AM**
Data Type: Original

Dilution: 1X
Wash Time: 120 **Auto Dilution Factor: 1**

Nebulizer Parameters: BHH0228-BS2

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0228-BS2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2119323.3	100.1	%	0.33				0.33%
ScR 361.383	216454.2	101.4	%	0.81				0.80%
Ag 328.068†	85050.1	0.5520	mg/L	0.01220	0.5520	mg/L	0.01220	2.21%
Al 308.215†	2319.7	1.994	mg/L	0.0354	1.994	mg/L	0.0354	1.78%
As 188.979†	3276.4	2.180	mg/L	0.0618	2.180	mg/L	0.0618	2.83%
B 249.677†	10.9	0.00058	mg/L	0.000249	0.00058	mg/L	0.000249	43.15%
Ba 233.527†	8568.7	1.948	mg/L	0.0245	1.948	mg/L	0.0245	1.26%
Be 313.042†	214286.8	0.4881	mg/L	0.00444	0.4881	mg/L	0.00444	0.91%
Ca 317.933†	95617.6	9.630	mg/L	0.1218	9.630	mg/L	0.1218	1.27%
Cd 228.802†	14205.8	0.5302	mg/L	0.01128	0.5302	mg/L	0.01128	2.13%
Co 228.616†	17927.3	0.5123	mg/L	0.01252	0.5123	mg/L	0.01252	2.44%
Cr 267.716†	2042.3	0.4918	mg/L	0.00542	0.4918	mg/L	0.00542	1.10%
Cu 324.752†	98703.2	0.4779	mg/L	0.01189	0.4779	mg/L	0.01189	2.49%
Fe 273.955†	1988.0	1.958	mg/L	0.0242	1.958	mg/L	0.0242	1.24%
K 766.490†	10791.3	9.806	mg/L	0.1231	9.806	mg/L	0.1231	1.26%
Mg 279.077†	10514.1	10.17	mg/L	0.180	10.17	mg/L	0.180	1.77%
Mn 257.610†	16124.5	0.4695	mg/L	0.00514	0.4695	mg/L	0.00514	1.09%
Mo 202.031†	18.6	0.00087	mg/L	0.000260	0.00087	mg/L	0.000260	29.90%
Na 589.592†	82194.0	9.873	mg/L	0.0756	9.873	mg/L	0.0756	0.77%
Na 330.237†	197.3	10.04	mg/L	0.109	10.04	mg/L	0.109	1.08%
Ni 231.604†	1666.2	0.4965	mg/L	0.00421	0.4965	mg/L	0.00421	0.85%
Pb 220.353†	16267.0	2.121	mg/L	0.0462	2.121	mg/L	0.0462	2.18%
Sb 206.836†	10.9	-0.00226	mg/L	0.001014	-0.00226	mg/L	0.001014	44.85%
Se 196.026†	2796.6	2.463	mg/L	0.0674	2.463	mg/L	0.0674	2.74%
Si 288.158†	-2.8	-0.00113	mg/L	0.006762	-0.00113	mg/L	0.006762	596.26%
Sn 189.927†	-15.0	-0.00242	mg/L	0.000287	-0.00242	mg/L	0.000287	11.85%
Sr 421.552†	130912.9	0.5089	mg/L	0.00291	0.5089	mg/L	0.00291	0.57%
Ti 334.903†	30.9	0.00151	mg/L	0.000398	0.00151	mg/L	0.000398	26.39%
Tl 190.801†	4432.4	2.166	mg/L	0.0574	2.166	mg/L	0.0574	2.65%
V 292.402†	45349.3	0.5121	mg/L	0.01174	0.5121	mg/L	0.01174	2.29%
Zn 206.200†	1177.1	0.5003	mg/L	0.01137	0.5003	mg/L	0.01137	2.27%

Sequence No.: 15
Sample ID: SEQ-IBL1
Autosampler Location: 311
Date Collected: 8/9/2019 11:57:10 AM
Data Type: Original
Dilution: 1X
Wash Time: 200
Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IBL1

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: SEQ-IBL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2100359.5	99.17	%	0.287				0.29%
ScR 361.383	213759.7	100.1	%	0.70				0.70%
Ag 328.068†	38.8	0.00025	mg/L	0.000205	0.00025	mg/L	0.000205	81.36%
Al 308.215†	7.0	0.00599	mg/L	0.013372	0.00599	mg/L	0.013372	223.15%
As 188.979†	1.5	0.00100	mg/L	0.002178	0.00100	mg/L	0.002178	217.66%
B 249.677†	6.1	0.00091	mg/L	0.001902	0.00091	mg/L	0.001902	209.27%
Ba 233.527†	0.9	0.00020	mg/L	0.000085	0.00020	mg/L	0.000085	41.60%
Be 313.042†	10.8	0.00002	mg/L	0.000090	0.00002	mg/L	0.000090	367.94%
Ca 317.933†	27.8	0.00279	mg/L	0.001886	0.00279	mg/L	0.001886	67.56%
Cd 228.802†	7.7	0.00029	mg/L	0.000115	0.00029	mg/L	0.000115	39.75%
Co 228.616†	-3.1	-0.00009	mg/L	0.000104	-0.00009	mg/L	0.000104	115.17%
Cr 267.716†	-4.4	-0.00107	mg/L	0.001141	-0.00107	mg/L	0.001141	106.57%
Cu 324.752†	125.7	0.00061	mg/L	0.000192	0.00061	mg/L	0.000192	31.57%
Fe 273.955†	2.2	0.00219	mg/L	0.000405	0.00219	mg/L	0.000405	18.53%
K 766.490†	15.2	0.01377	mg/L	0.032278	0.01377	mg/L	0.032278	234.45%
Mg 279.077†	0.6	0.00057	mg/L	0.005028	0.00057	mg/L	0.005028	874.63%
Mn 257.610†	10.6	0.00031	mg/L	0.000168	0.00031	mg/L	0.000168	54.61%
Mo 202.031†	-1.4	-0.00008	mg/L	0.000223	-0.00008	mg/L	0.000223	285.02%
Na 589.592†	121.0	0.01453	mg/L	0.005174	0.01453	mg/L	0.005174	35.61%
Na 330.237†	13.6	0.7075	mg/L	0.41233	0.7075	mg/L	0.41233	58.28%
Ni 231.604†	-2.3	-0.00068	mg/L	0.001308	-0.00068	mg/L	0.001308	191.40%
Pb 220.353†	1.7	0.00023	mg/L	0.000927	0.00023	mg/L	0.000927	411.43%
Sb 206.836†	2.2	0.00080	mg/L	0.000235	0.00080	mg/L	0.000235	29.20%
Se 196.026†	4.3	0.00380	mg/L	0.004253	0.00380	mg/L	0.004253	111.95%
Si 288.158†	2.9	0.00303	mg/L	0.005126	0.00303	mg/L	0.005126	169.15%
Sn 189.927†	-0.7	-0.00018	mg/L	0.000583	-0.00018	mg/L	0.000583	318.95%
Sr 421.552†	-12.0	-0.00005	mg/L	0.000051	-0.00005	mg/L	0.000051	108.79%
Ti 334.903†	2.2	0.00016	mg/L	0.000857	0.00016	mg/L	0.000857	550.78%
Tl 190.801†	0.7	0.00037	mg/L	0.001189	0.00037	mg/L	0.001189	324.04%
V 292.402†	4.9	0.00005	mg/L	0.000428	0.00005	mg/L	0.000428	882.96%
Zn 206.200†	1.5	0.00065	mg/L	0.000924	0.00065	mg/L	0.000924	141.19%

Sequence No.: 16
Sample ID: BHH0169-BS2

Dilution: 2X
Wash Time: 100

DEL
A/S ERROR
TH 08-09-19

Autosampler Location: 312
Date Collected: 8/9/2019 12:02:10 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0169-BS2

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: BHH0169-BS2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1625264.4	76.74	%	64.782				84.42%
ScR 361.383	237374.1	111.2	%	2.60				2.34%
Ag 328.068†	21279.5	0.1381	mg/L	0.25104	0.2762	mg/L	0.50207	181.75%
Al 308.215†	1862.3	1.604	mg/L	0.0570	3.207	mg/L	0.1141	3.56%
As 188.979†	362.6	0.2401	mg/L	0.21701	0.4802	mg/L	0.43403	90.39%
B 249.677†	6.2	0.00073	mg/L	0.001171	0.00146	mg/L	0.002342	160.11%
Ba 233.527†	6979.2	1.587	mg/L	0.0459	3.173	mg/L	0.0918	2.89%
Be 313.042†	176604.2	0.4034	mg/L	0.02099	0.8069	mg/L	0.04199	5.20%
Ca 317.933†	79137.2	7.974	mg/L	0.4341	15.95	mg/L	0.868	5.44%
Cd 228.802†	4049.1	0.1539	mg/L	0.22311	0.3078	mg/L	0.44621	144.98%
Co 228.616†	4402.0	0.1256	mg/L	0.24083	0.2512	mg/L	0.48166	191.71%
Cr 267.716†	1686.1	0.4060	mg/L	0.01393	0.8121	mg/L	0.02785	3.43%
Cu 324.752†	38563.3	0.1867	mg/L	0.20651	0.3734	mg/L	0.41302	110.60%
Fe 273.955†	1626.6	1.604	mg/L	0.0466	3.209	mg/L	0.0933	2.91%
K 766.490†	8742.3	7.944	mg/L	0.4814	15.89	mg/L	0.963	6.06%
Mg 279.077†	8538.5	8.262	mg/L	0.2327	16.52	mg/L	0.465	2.82%
Mn 257.610†	13191.0	0.3839	mg/L	0.02022	0.7678	mg/L	0.04043	5.27%
Mo 202.031†	534.1	0.03018	mg/L	0.053363	0.06036	mg/L	0.106727	176.83%
Na 589.592†	67195.7	8.071	mg/L	0.4228	16.14	mg/L	0.846	5.24%
Na 330.237†	186.3	9.511	mg/L	0.1059	19.02	mg/L	0.212	1.11%
Ni 231.604†	1357.6	0.4051	mg/L	0.01421	0.8101	mg/L	0.02842	3.51%
Pb 220.353†	4352.2	0.5682	mg/L	0.93172	1.136	mg/L	1.8634	163.97%
Sb 206.836†	1635.5	0.5853	mg/L	0.69024	1.171	mg/L	1.3805	117.92%
Se 196.026†	-94.9	-0.08389	mg/L	0.563396	-0.1678	mg/L	1.12679	671.59%
Si 288.158†	-6.8	-0.00565	mg/L	0.002166	-0.01131	mg/L	0.004332	38.31%
Sn 189.927†	-176.2	-0.04599	mg/L	0.082108	-0.09197	mg/L	0.164216	178.55%
Sr 421.552†	107119.2	0.4164	mg/L	0.02202	0.8327	mg/L	0.04403	5.29%
Ti 334.903†	23.4	0.00106	mg/L	0.000624	0.00213	mg/L	0.001248	58.61%
Tl 190.801†	410.8	0.2003	mg/L	0.21449	0.4005	mg/L	0.42898	107.11%
V 292.402†	13064.3	0.1494	mg/L	0.22032	0.2988	mg/L	0.44063	147.46%
Zn 206.200†	944.5	0.4015	mg/L	0.01195	0.8030	mg/L	0.02390	2.98%

Sequence No.: 17
Sample ID: 19G0387-01

Dilution: 50X
Wash Time: 37

Autosampler Location: 313
Date Collected: 8/9/2019 12:06:08 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0387-01

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: 19G0387-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2108219.8	99.54	%	0.746				0.75%
ScR 361.383	210545.4	98.60	%	0.367				0.37%
Ag 328.068†	25.6	0.00016	mg/L	0.000069	0.00823	mg/L	0.003447	41.91%
Al 308.215†	655.4	0.5654	mg/L	0.00107	28.27	mg/L	0.053	0.19%
As 188.979†	13.3	0.00641	mg/L	0.002865	0.3203	mg/L	0.14324	44.73%
B 249.677†	39.3	0.00871	mg/L	0.000635	0.4354	mg/L	0.03175	7.29%
Ba 233.527†	249.4	0.05268	mg/L	0.000954	2.634	mg/L	0.0477	1.81%
Be 313.042†	90.4	0.00023	mg/L	0.000042	0.01129	mg/L	0.002104	18.64%
Ca 317.933†	202159.5	20.37	mg/L	0.134	1019	mg/L	6.71	0.66%
Cd 228.802†	115.6	0.00439	mg/L	0.000619	0.2193	mg/L	0.03094	14.11%
Co 228.616†	101.1	0.00230	mg/L	0.000527	0.1152	mg/L	0.02633	22.85%
Cr 267.716†	4680.1	1.131	mg/L	0.0074	56.56	mg/L	0.372	0.66%
Cu 324.752†	5294.4	0.02720	mg/L	0.000367	1.360	mg/L	0.0183	1.35%
Fe 273.955†	32319.4	31.89	mg/L	0.065	1595	mg/L	3.26	0.20%
K 766.490†	83.3	0.07567	mg/L	0.011636	3.784	mg/L	0.5818	15.38%
Mg 279.077†	1100.8	1.046	mg/L	0.0061	52.30	mg/L	0.305	0.58%
Mn 257.610†	5665.0	0.1650	mg/L	0.00211	8.248	mg/L	0.1053	1.28%
Mo 202.031†	41.0	0.00192	mg/L	0.000319	0.09607	mg/L	0.015965	16.62%
Na 589.592†	335.0	0.04024	mg/L	0.001010	2.012	mg/L	0.0505	2.51%
Na 330.237†	7.9	0.1775	mg/L	0.10284	8.874	mg/L	5.1422	57.95%
Ni 231.604†	52.9	0.01578	mg/L	0.001367	0.7892	mg/L	0.06833	8.66%
Pb 220.353†	6.5	0.00189	mg/L	0.001546	0.09450	mg/L	0.077285	81.78%
Sb 206.836†	57.9	0.00220	mg/L	0.003523	0.1098	mg/L	0.17617	160.45%
Se 196.026†	-9.0	-0.00444	mg/L	0.000897	-0.2222	mg/L	0.04487	20.20%
Si 288.158†	124.5	0.1338	mg/L	0.01081	6.692	mg/L	0.5404	8.08%
Sn 189.927†	-29.4	-0.00449	mg/L	0.000340	-0.2245	mg/L	0.01698	7.57%
Sr 421.552†	9761.0	0.03794	mg/L	0.000638	1.897	mg/L	0.0319	1.68%
Ti 334.903†	360.5	0.02424	mg/L	0.000370	1.212	mg/L	0.0185	1.53%
Tl 190.801†	-2.6	-0.00147	mg/L	0.001798	-0.07338	mg/L	0.089919	122.53%
V 292.402†	-398.6	0.00483	mg/L	0.000157	0.2413	mg/L	0.00783	3.24%
Zn 206.200†	1324.5	0.5636	mg/L	0.00585	28.18	mg/L	0.292	1.04%

Sequence No.: 18
Sample ID: SEQ-CCV2
Autosampler Location: 7
Date Collected: 8/9/2019 12:11:09 PM
Data Type: Original
Dilution: 1X
Wash Time: 100
Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV2

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: SEQ-CCV2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2083694.4	98.38	%	0.206				0.21%
ScR 361.383	210022.6	98.35	%	0.511				0.52%
Ag 328.068†	155893.1	1.012	mg/L	0.0070	1.012	mg/L	0.0070	0.69%
Al 308.215†	2329.7	1.973	mg/L	0.0299	1.973	mg/L	0.0299	1.51%
As 188.979†	2909.1	1.959	mg/L	0.0078	1.959	mg/L	0.0078	0.40%
B 249.677†	6840.7	1.013	mg/L	0.0106	1.013	mg/L	0.0106	1.05%
Ba 233.527†	4315.2	0.9795	mg/L	0.01088	0.9795	mg/L	0.01088	1.11%
Be 313.042†	434360.4	0.9897	mg/L	0.01564	0.9897	mg/L	0.01564	1.58%
Ca 317.933†	20197.5	2.022	mg/L	0.0203	2.022	mg/L	0.0203	1.00%
Cd 228.802†	25534.2	0.9661	mg/L	0.00129	0.9661	mg/L	0.00129	0.13%
Co 228.616†	33853.1	0.9662	mg/L	0.00292	0.9662	mg/L	0.00292	0.30%
Cr 267.716†	3995.8	0.9644	mg/L	0.00895	0.9644	mg/L	0.00895	0.93%
Cu 324.752†	203268.4	0.9838	mg/L	0.00096	0.9838	mg/L	0.00096	0.10%
Fe 273.955†	1992.1	1.958	mg/L	0.0220	1.958	mg/L	0.0220	1.12%
K 766.490†	21607.8	19.64	mg/L	0.377	19.64	mg/L	0.377	1.92%
Mg 279.077†	2058.3	2.002	mg/L	0.0169	2.002	mg/L	0.0169	0.84%
Mn 257.610†	34048.7	0.9911	mg/L	0.01042	0.9911	mg/L	0.01042	1.05%
Mo 202.031†	17185.8	0.9761	mg/L	0.00133	0.9761	mg/L	0.00133	0.14%
Na 589.592†	415787.3	49.94	mg/L	0.648	49.94	mg/L	0.648	1.30%
Na 330.237†	971.6	50.25	mg/L	0.532	50.25	mg/L	0.532	1.06%
Ni 231.604†	3333.3	0.9948	mg/L	0.00983	0.9948	mg/L	0.00983	0.99%
Pb 220.353†	15249.1	1.989	mg/L	0.0057	1.989	mg/L	0.0057	0.29%
Sb 206.836†	5675.7	2.050	mg/L	0.0007	2.050	mg/L	0.0007	0.03%
Se 196.026†	2314.5	2.038	mg/L	0.0117	2.038	mg/L	0.0117	0.57%
Si 288.158†	1927.7	2.048	mg/L	0.0153	2.048	mg/L	0.0153	0.74%
Sn 189.927†	3635.0	0.9838	mg/L	0.00150	0.9838	mg/L	0.00150	0.15%
Sr 421.552†	268673.0	1.044	mg/L	0.0158	1.044	mg/L	0.0158	1.51%
Ti 334.903†	13469.6	0.9602	mg/L	0.01266	0.9602	mg/L	0.01266	1.32%
Tl 190.801†	4069.7	1.985	mg/L	0.0059	1.985	mg/L	0.0059	0.30%
V 292.402†	85601.5	0.9671	mg/L	0.01401	0.9671	mg/L	0.01401	1.45%
Zn 206.200†	2381.9	1.012	mg/L	0.0111	1.012	mg/L	0.0111	1.09%

Sequence No.: 19 **Autosampler Location: 1**
Sample ID: SEQ-CCB2 **Date Collected: 8/9/2019 12:16:12 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB2

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: SEQ-CCB2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2115905.1	99.90	%	0.441				0.44%
ScR 361.383	212756.3	99.63	%	0.817				0.82%
Ag 328.068†	41.7	0.00027	mg/L	0.000391	0.00027	mg/L	0.000391	144.56%
Al 308.215†	-4.3	-0.00371	mg/L	0.014751	-0.00371	mg/L	0.014751	397.07%
As 188.979†	-2.3	-0.00149	mg/L	0.002995	-0.00149	mg/L	0.002995	200.39%
B 249.677†	14.9	0.00221	mg/L	0.000191	0.00221	mg/L	0.000191	8.66%
Ba 233.527†	1.6	0.00037	mg/L	0.000787	0.00037	mg/L	0.000787	213.79%
Be 313.042†	37.5	0.00009	mg/L	0.000081	0.00009	mg/L	0.000081	94.74%
Ca 317.933†	17.0	0.00171	mg/L	0.000678	0.00171	mg/L	0.000678	39.63%
Cd 228.802†	6.8	0.00027	mg/L	0.000030	0.00027	mg/L	0.000030	11.00%
Co 228.616†	-3.2	-0.00009	mg/L	0.000138	-0.00009	mg/L	0.000138	146.78%
Cr 267.716†	-8.1	-0.00195	mg/L	0.000901	-0.00195	mg/L	0.000901	46.23%
Cu 324.752†	102.1	0.00049	mg/L	0.000091	0.00049	mg/L	0.000091	18.35%
Fe 273.955†	1.3	0.00126	mg/L	0.001164	0.00126	mg/L	0.001164	92.03%
K 766.490†	-20.3	-0.01847	mg/L	0.027667	-0.01847	mg/L	0.027667	149.79%
Mg 279.077†	-3.0	-0.00286	mg/L	0.005363	-0.00286	mg/L	0.005363	187.68%
Mn 257.610†	12.7	0.00037	mg/L	0.000082	0.00037	mg/L	0.000082	22.30%
Mo 202.031†	8.1	0.00046	mg/L	0.000172	0.00046	mg/L	0.000172	37.41%
Na 589.592†	121.5	0.01460	mg/L	0.002889	0.01460	mg/L	0.002889	19.79%
Na 330.237†	4.5	0.2346	mg/L	0.37477	0.2346	mg/L	0.37477	159.76%
Ni 231.604†	2.7	0.00081	mg/L	0.001283	0.00081	mg/L	0.001283	159.00%
Pb 220.353†	1.2	0.00015	mg/L	0.000114	0.00015	mg/L	0.000114	78.19%
Sb 206.836†	2.7	0.00102	mg/L	0.001626	0.00102	mg/L	0.001626	160.12%
Se 196.026†	1.2	0.00105	mg/L	0.000405	0.00105	mg/L	0.000405	38.55%
Si 288.158†	2.7	0.00284	mg/L	0.007249	0.00284	mg/L	0.007249	255.09%
Sn 189.927†	-1.6	-0.00043	mg/L	0.000121	-0.00043	mg/L	0.000121	27.95%
Sr 421.552†	20.6	0.00008	mg/L	0.000141	0.00008	mg/L	0.000141	176.56%
Ti 334.903†	12.3	0.00088	mg/L	0.000765	0.00088	mg/L	0.000765	87.04%
Tl 190.801†	1.5	0.00073	mg/L	0.000293	0.00073	mg/L	0.000293	40.11%
V 292.402†	8.8	0.00009	mg/L	0.000182	0.00009	mg/L	0.000182	212.92%
Zn 206.200†	2.6	0.00110	mg/L	0.000833	0.00110	mg/L	0.000833	75.64%

Sequence No.: 20
Sample ID: BHH0091-BLK1

Autosampler Location: 314
Date Collected: 8/9/2019 12:20:11 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-BLK1

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: BHH0091-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2163239.3	102.1	%	0.45				0.44%
ScR 361.383	217957.3	102.1	%	0.68				0.66%
Ag 328.068†	15.9	0.00010	mg/L	0.000229	0.00021	mg/L	0.000459	222.37%
Al 308.215†	15.6	0.01347	mg/L	0.008236	0.02694	mg/L	0.016473	61.15%
As 188.979†	-2.0	-0.00129	mg/L	0.002232	-0.00257	mg/L	0.004465	173.39%
B 249.677†	5.6	0.00082	mg/L	0.001493	0.00165	mg/L	0.002985	180.98%
Ba 233.527†	-0.2	-0.00006	mg/L	0.000194	-0.00011	mg/L	0.000388	343.88%
Be 313.042†	-28.4	-0.00006	mg/L	0.000010	-0.00013	mg/L	0.000021	16.03%
Ca 317.933†	161.1	0.01622	mg/L	0.001228	0.03244	mg/L	0.002456	7.57%
Cd 228.802†	3.1	0.00013	mg/L	0.000058	0.00025	mg/L	0.000115	45.26%
Co 228.616†	3.3	0.00009	mg/L	0.000221	0.00018	mg/L	0.000443	243.33%
Cr 267.716†	4.6	0.00110	mg/L	0.001192	0.00220	mg/L	0.002383	108.18%
Cu 324.752†	109.3	0.00053	mg/L	0.000110	0.00106	mg/L	0.000220	20.77%
Fe 273.955†	8.4	0.00828	mg/L	0.001438	0.01655	mg/L	0.002876	17.37%
K 766.490†	19.4	0.01766	mg/L	0.032521	0.03532	mg/L	0.065042	184.13%
Mg 279.077†	-4.7	-0.00456	mg/L	0.005628	-0.00913	mg/L	0.011255	123.29%
Mn 257.610†	11.1	0.00032	mg/L	0.000085	0.00065	mg/L	0.000169	26.11%
Mo 202.031†	-1.3	-0.00007	mg/L	0.000142	-0.00015	mg/L	0.000285	191.09%
Na 589.592†	155.6	0.01869	mg/L	0.002938	0.03737	mg/L	0.005876	15.72%
Na 330.237†	16.5	0.8542	mg/L	0.53826	1.708	mg/L	1.0765	63.01%
Ni 231.604†	2.1	0.00064	mg/L	0.001158	0.00127	mg/L	0.002317	182.28%
Pb 220.353†	-0.8	-0.00009	mg/L	0.000558	-0.00019	mg/L	0.001116	600.91%
Sb 206.836†	-2.9	-0.00107	mg/L	0.001667	-0.00213	mg/L	0.003334	156.33%
Se 196.026†	2.6	0.00225	mg/L	0.003191	0.00451	mg/L	0.006382	141.52%
Si 288.158†	9.6	0.01020	mg/L	0.005645	0.02039	mg/L	0.011291	55.36%
Sn 189.927†	-2.3	-0.00061	mg/L	0.000443	-0.00123	mg/L	0.000886	72.25%
Sr 421.552†	-40.8	-0.00016	mg/L	0.000128	-0.00032	mg/L	0.000256	80.75%
Ti 334.903†	26.7	0.00191	mg/L	0.000834	0.00382	mg/L	0.001668	43.71%
Tl 190.801†	2.6	0.00126	mg/L	0.001907	0.00251	mg/L	0.003814	151.95%
V 292.402†	-8.5	-0.00009	mg/L	0.000292	-0.00017	mg/L	0.000585	334.53%
Zn 206.200†	9.4	0.00401	mg/L	0.000737	0.00803	mg/L	0.001473	18.35%

Sequence No.: 21
Sample ID: 19G0416-40
DEL
Dilution: 2X
Wash Time: 37

Autosampler Location: 315
Date Collected: 8/9/2019 12:24:10 PM
Data Type: Original
Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-40

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: 19G0416-40

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1854311.6	87.55	%	10.454				11.94%
ScR 361.383	216813.9	101.5	%	3.09				3.04%
Ag 328.068†	-143.6	-0.00082	mg/L	0.000052	-0.00165	mg/L	0.000105	6.35%
Al 308.215†	289683.5	249.9	mg/L	0.66	499.7	mg/L	1.31	0.26%
As 188.979†	-177.1	0.1209	mg/L	0.00684	0.2417	mg/L	0.01368	5.66%
B 249.677†	51.8	0.02748	mg/L	0.000756	0.05497	mg/L	0.001512	2.75%
Ba 233.527†	4180.1	0.9256	mg/L	0.03801	1.851	mg/L	0.0760	4.11%
Be 313.042†	2920.7	0.00505	mg/L	0.000288	0.01011	mg/L	0.000576	5.70%
Ca 317.933†	276124.2	27.83	mg/L	0.105	55.66	mg/L	0.210	0.38%
Cd 228.802†	127.8	0.00581	mg/L	0.001150	0.01161	mg/L	0.002300	19.81%
Co 228.616†	2736.9	0.06000	mg/L	0.004680	0.1200	mg/L	0.00936	7.80%
Cr 267.716†	689.5	0.1738	mg/L	0.00747	0.3477	mg/L	0.01495	4.30%
Cu 324.752†	42442.3	0.2132	mg/L	0.00125	0.4264	mg/L	0.00249	0.58%
Fe 273.955†	200405.8	197.7	mg/L	0.59	395.5	mg/L	1.17	0.30%
K 766.490†	3937.1	3.578	mg/L	0.0121	7.155	mg/L	0.0242	0.34%
Mg 279.077†	39499.9	38.12	mg/L	0.088	76.24	mg/L	0.175	0.23%
Mn 257.610†	181204.8	5.272	mg/L	0.0059	10.54	mg/L	0.012	0.11%
Mo 202.031†	78.6	0.00400	mg/L	0.000401	0.00799	mg/L	0.000802	10.04%
Na 589.592†	9933.2	1.193	mg/L	0.0025	2.386	mg/L	0.0049	0.21%
Na 330.237†	-2.5	1.445	mg/L	0.1567	2.891	mg/L	0.3135	10.84%
Ni 231.604†	604.6	0.1802	mg/L	0.00786	0.3604	mg/L	0.01571	4.36%
Pb 220.353†	2443.3	0.3772	mg/L	0.01930	0.7544	mg/L	0.03859	5.12%
Sb 206.836†	41.9	0.02618	mg/L	0.005352	0.05236	mg/L	0.010704	20.44%
Se 196.026†	-3.2	-0.01084	mg/L	0.009610	-0.02169	mg/L	0.019221	88.62%
Si 288.158†	1059.8	1.130	mg/L	0.0450	2.260	mg/L	0.0900	3.98%
Sn 189.927†	-54.0	-0.00617	mg/L	0.002370	-0.01235	mg/L	0.004741	38.40%
Sr 421.552†	38399.2	0.1493	mg/L	0.00099	0.2985	mg/L	0.00199	0.67%
Ti 334.903†	117059.9	8.354	mg/L	0.0090	16.71	mg/L	0.018	0.11%
Tl 190.801†	-60.1	-0.02504	mg/L	0.004346	-0.05007	mg/L	0.008692	17.36%
V 292.402†	32236.1	0.3733	mg/L	0.00437	0.7466	mg/L	0.00874	1.17%
Zn 206.200†	1049.2	0.4463	mg/L	0.02190	0.8926	mg/L	0.04380	4.91%

Sequence No.: 22
Sample ID: 19G0416-41

Dilution: 2X
Wash Time: 37

Autosampler Location: 316
Date Collected: 8/9/2019 12:27:54 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-41

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: 19G0416-41

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2132903.7	100.7	%	1.10				1.09%
ScR 361.383	219239.5	102.7	%	1.50				1.46%
Ag 328.068†	-54.0	-0.00027	mg/L	0.000153	-0.00055	mg/L	0.000306	55.88%
Al 308.215†	205681.9	177.4	mg/L	2.91	354.8	mg/L	5.82	1.64%
As 188.979†	0.3	0.1910	mg/L	0.00227	0.3820	mg/L	0.00454	1.19%
B 249.677†	89.0	0.02879	mg/L	0.000397	0.05758	mg/L	0.000794	1.38%
Ba 233.527†	5485.2	1.228	mg/L	0.0748	2.455	mg/L	0.1495	6.09%
Be 313.042†	2149.9	0.00376	mg/L	0.000389	0.00752	mg/L	0.000777	10.33%
Ca 317.933†	331593.7	33.42	mg/L	0.499	66.84	mg/L	0.997	1.49%
Cd 228.802†	213.5	0.00832	mg/L	0.000577	0.01665	mg/L	0.001154	6.93%
Co 228.616†	2280.8	0.05056	mg/L	0.002351	0.1011	mg/L	0.00470	4.65%
Cr 267.716†	635.6	0.1587	mg/L	0.00732	0.3175	mg/L	0.01463	4.61%
Cu 324.752†	49605.7	0.2462	mg/L	0.00700	0.4924	mg/L	0.01399	2.84%
Fe 273.955†	158020.2	155.9	mg/L	2.00	311.8	mg/L	4.01	1.29%
K 766.490†	6781.5	6.163	mg/L	0.1149	12.33	mg/L	0.230	1.86%
Mg 279.077†	34487.6	33.30	mg/L	0.503	66.60	mg/L	1.007	1.51%
Mn 257.610†	283264.2	8.242	mg/L	0.1233	16.48	mg/L	0.247	1.50%
Mo 202.031†	72.9	0.00358	mg/L	0.000170	0.00716	mg/L	0.000341	4.76%
Na 589.592†	9905.3	1.190	mg/L	0.0157	2.380	mg/L	0.0314	1.32%
Na 330.237†	5.5	1.487	mg/L	0.0689	2.975	mg/L	0.1377	4.63%
Ni 231.604†	608.2	0.1813	mg/L	0.01014	0.3625	mg/L	0.02028	5.59%
Pb 220.353†	3303.7	0.4715	mg/L	0.01553 ✓	0.9430	mg/L	0.03106	3.29%
Sb 206.836†	25.1	0.01746	mg/L	0.002752	0.03492	mg/L	0.005505	15.76%
Se 196.026†	2.4	-0.00574	mg/L	0.002280	-0.01147	mg/L	0.004560	39.75%
Si 288.158†	1319.3	1.405	mg/L	0.0801	2.810	mg/L	0.1602	5.70%
Sn 189.927†	-38.8	-0.00188	mg/L	0.000297	-0.00375	mg/L	0.000594	15.81%
Sr 421.552†	77312.4	0.3005	mg/L	0.00386	0.6010	mg/L	0.00771	1.28%
Ti 334.903†	93831.2	6.696	mg/L	0.0981	13.39	mg/L	0.196	1.46%
Tl 190.801†	-48.3	-0.01529	mg/L	0.010054	-0.03058	mg/L	0.020109	65.75%
V 292.402†	22732.9	0.2651	mg/L	0.00843	0.5302	mg/L	0.01686	3.18%
Zn 206.200†	1195.2	0.5083	mg/L	0.03218	1.017	mg/L	0.0644	6.33%

Sequence No.: 23
Sample ID: BHH0091-SRL1

Autosampler Location: 317
Date Collected: 8/9/2019 12:31:53 PM
Data Type: Original

Dilution: 10X
Wash Time: 37

DEL

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-SRL1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0091-SRL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2176715.4	102.8	%	0.06				0.06%
ScR 361.383	221285.6	103.6	%	0.33				0.32%
Ag 328.068†	-13.6	-0.00007	mg/L	0.000357	-0.00073	mg/L	0.003569	490.03%
Al 308.215†	33153.7	28.60	mg/L	0.064	286.0	mg/L	0.64	0.22%
As 188.979†	71.5	0.07968	mg/L	0.000715	0.7968	mg/L	0.00715	0.90%
B 249.677†	5.4	0.00313	mg/L	0.000791	0.03127	mg/L	0.007908	25.29%
Ba 233.527†	493.9	0.1094	mg/L	0.00226	1.094	mg/L	0.0226	2.07%
Be 313.042†	322.4	0.00050	mg/L	0.000047	0.00504	mg/L	0.000471	9.34%
Ca 317.933†	20900.3	2.106	mg/L	0.0043	21.06	mg/L	0.043	0.21%
Cd 228.802†	32.1	0.00094	mg/L	0.000041	0.00941	mg/L	0.000405	4.31%
Co 228.616†	339.4	0.00732	mg/L	0.000154	0.07317	mg/L	0.001537	2.10%
Cr 267.716†	121.4	0.03026	mg/L	0.000777	0.3026	mg/L	0.00777	2.57%
Cu 324.752†	19447.9	0.09503	mg/L	0.000307	0.9503	mg/L	0.00307	0.32%
Fe 273.955†	23539.7	23.23	mg/L	0.186	232.3	mg/L	1.86	0.80%
K 766.490†	524.8	0.4769	mg/L	0.02015	4.769	mg/L	0.2015	4.23%
Mg 279.077†	4072.2	3.928	mg/L	0.0093	39.28	mg/L	0.093	0.24%
Mn 257.610†	14861.5	0.4324	mg/L	0.00044	4.324	mg/L	0.0044	0.10%
Mo 202.031†	13.0	0.00070	mg/L	0.000224	0.00701	mg/L	0.002242	31.96%
Na 589.592†	1154.9	0.1387	mg/L	0.00377	1.387	mg/L	0.0377	2.72%
Na 330.237†	12.3	0.8479	mg/L	0.58766	8.479	mg/L	5.8766	69.31%
Ni 231.604†	93.2	0.02778	mg/L	0.000751	0.2778	mg/L	0.00751	2.70%
Pb 220.353†	1527.7	0.2057	mg/L	0.00199	2.057	mg/L	0.0199	0.97%
Sb 206.836†	4.3	0.00295	mg/L	0.001185	0.02946	mg/L	0.011847	40.21%
Se 196.026†	1.3	0.00043	mg/L	0.000482	0.00428	mg/L	0.004824	112.79%
Si 288.158†	231.7	0.2465	mg/L	0.00532	2.465	mg/L	0.0532	2.16%
Sn 189.927†	5.2	0.00226	mg/L	0.000539	0.02260	mg/L	0.005387	23.84%
Sr 421.552†	3435.6	0.01335	mg/L	0.000188	0.1335	mg/L	0.00188	1.41%
Ti 334.903†	15667.2	1.118	mg/L	0.0035	11.18	mg/L	0.035	0.32%
Tl 190.801†	-7.4	-0.00338	mg/L	0.001786	-0.03377	mg/L	0.017861	52.89%
V 292.402†	4638.3	0.05341	mg/L	0.000443	0.5341	mg/L	0.00443	0.83%
Zn 206.200†	138.2	0.05880	mg/L	0.001415	0.5880	mg/L	0.01415	2.41%

Sequence No.: 24
Sample ID: 19G0416-49
DEL
Dilution: 2X
Wash Time: 37

Autosampler Location: 318
Date Collected: 8/9/2019 12:35:51 PM
Data Type: Original
Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-49

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19G0416-49

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2053727.6	96.97	%	1.706				1.76%
ScR 361.383	202781.7	94.96	%	11.327				11.93%
Ag 328.068†	-71.1	-0.00038	mg/L	0.000204	-0.00075	mg/L	0.000408	54.27%
Al 308.215†	194142.5	167.5	mg/L	1.51	334.9	mg/L	3.02	0.90%
As 188.979†	389.7	0.4433	mg/L	0.01745	0.8867	mg/L	0.03490	3.94%
B 249.677†	64.3	0.02269	mg/L	0.000670	0.04538	mg/L	0.001339	2.95%
Ba 233.527†	2917.4	0.6468	mg/L	0.05382	1.294	mg/L	0.1076	8.32%
Be 313.042†	2403.8	0.00422	mg/L	0.000814	0.00845	mg/L	0.001627	19.26%
Ca 317.933†	119378.5	12.03	mg/L	0.161	24.06	mg/L	0.322	1.34%
Cd 228.802†	158.5	0.00450	mg/L	0.000726	0.00900	mg/L	0.001453	16.13%
Co 228.616†	1737.6	0.03601	mg/L	0.003558	0.07201	mg/L	0.007116	9.88%
Cr 267.716†	681.2	0.1698	mg/L	0.00863	0.3396	mg/L	0.01725	5.08%
Cu 324.752†	106720.6	0.5216	mg/L	0.00464	1.043	mg/L	0.0093	0.89%
Fe 273.955†	133315.1	131.5	mg/L	1.85	263.1	mg/L	3.70	1.41%
K 766.490†	3063.9	2.784	mg/L	0.0977	5.568	mg/L	0.1954	3.51%
Mg 279.077†	22911.2	22.10	mg/L	0.120	44.20	mg/L	0.241	0.54%
Mn 257.610†	84135.7	2.448	mg/L	0.0135	4.896	mg/L	0.0270	0.55%
Mo 202.031†	80.2	0.00434	mg/L	0.000689	0.00869	mg/L	0.001377	15.85%
Na 589.592†	6481.4	0.7785	mg/L	0.01310	1.557	mg/L	0.0262	1.68%
Na 330.237†	-17.2	0.3180	mg/L	1.70754	0.6360	mg/L	3.41509	536.93%
Ni 231.604†	546.3	0.1628	mg/L	0.01088	0.3257	mg/L	0.02176	6.68%
Pb 220.353†	7911.3	1.070	mg/L	0.0732	2.140	mg/L	0.1464	6.84%
Sb 206.836†	67.0	0.03225	mg/L	0.002226	0.06450	mg/L	0.004452	6.90%
Se 196.026†	10.8	0.00495	mg/L	0.007457	0.00990	mg/L	0.014915	150.72%
Si 288.158†	1436.5	1.528	mg/L	0.1190	3.056	mg/L	0.2381	7.79%
Sn 189.927†	18.8	0.00996	mg/L	0.000472	0.01992	mg/L	0.000944	4.74%
Sr 421.552†	19791.8	0.07693	mg/L	0.001199	0.1539	mg/L	0.00240	1.56%
Ti 334.903†	89888.3	6.415	mg/L	0.0230	12.83	mg/L	0.046	0.36%
Tl 190.801†	-29.9	-0.01313	mg/L	0.004143	-0.02626	mg/L	0.008285	31.55%
V 292.402†	25271.2	0.2913	mg/L	0.00371	0.5826	mg/L	0.00743	1.27%
Zn 206.200†	793.6	0.3376	mg/L	0.02462	0.6753	mg/L	0.04923	7.29%

Sequence No.: 25
Sample ID: BHH0091-DUP1
DEL
Dilution: 2X
Wash Time: 37

Autosampler Location: 319
Date Collected: 8/9/2019 12:39:35 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-DUP1

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: BHH0091-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2026789.0	95.70	%	2.859				2.99%
ScR 361.383	209685.0	98.20	%	5.218				5.31%
Ag 328.068†	38.6	0.00035	mg/L	0.000047	0.00071	mg/L	0.000093	13.24%
Al 308.215†	234074.8	201.9	mg/L	2.10	403.8	mg/L	4.20	1.04%
As 188.979†	574.2	0.5843	mg/L	0.03456	1.169	mg/L	0.0691	5.92%
B 249.677†	89.5	0.02739	mg/L	0.001095	0.05479	mg/L	0.002190	4.00%
Ba 233.527†	3485.8	0.7748	mg/L	0.00691	1.550	mg/L	0.0138	0.89%
Be 313.042†	2517.7	0.00424	mg/L	0.000078	0.00848	mg/L	0.000156	1.84%
Ca 317.933†	132628.1	13.37	mg/L	0.061	26.73	mg/L	0.121	0.45%
Cd 228.802†	214.9	0.00585	mg/L	0.001208	0.01170	mg/L	0.002416	20.65%
Co 228.616†	1980.2	0.04163	mg/L	0.004701	0.08327	mg/L	0.009402	11.29%
Cr 267.716†	587.1	0.1472	mg/L	0.00102	0.2944	mg/L	0.00205	0.70%
Cu 324.752†	136554.5	0.6664	mg/L	0.00129	1.333	mg/L	0.0026	0.19%
Fe 273.955†	143033.0	141.1	mg/L	1.60	282.3	mg/L	3.21	1.14%
K 766.490†	3377.5	3.069	mg/L	0.0588	6.138	mg/L	0.1175	1.91%
Mg 279.077†	27229.7	26.27	mg/L	0.231	52.55	mg/L	0.462	0.88%
Mn 257.610†	101479.2	2.953	mg/L	0.0190	5.905	mg/L	0.0380	0.64%
Mo 202.031†	104.5	0.00571	mg/L	0.000435	0.01141	mg/L	0.000871	7.63%
Na 589.592†	6769.6	0.8131	mg/L	0.00994	1.626	mg/L	0.0199	1.22%
Na 330.237†	-16.2	0.4977	mg/L	0.20178	0.9955	mg/L	0.40357	40.54%
Ni 231.604†	548.8	0.1636	mg/L	0.00226	0.3272	mg/L	0.00452	1.38%
Pb 220.353†	10641.4	1.435	mg/L	0.1197	2.869	mg/L	0.2394	8.34%
Sb 206.836†	94.7	0.04383	mg/L	0.004118	0.08766	mg/L	0.008237	9.40%
Se 196.026†	10.7	0.00189	mg/L	0.004198	0.00377	mg/L	0.008396	222.60%
Si 288.158†	1528.6	1.626	mg/L	0.0120	3.253	mg/L	0.0241	0.74%
Sn 189.927†	31.1	0.01380	mg/L	0.001491	0.02759	mg/L	0.002982	10.81%
Sr 421.552†	27617.7	0.1073	mg/L	0.00081	0.2147	mg/L	0.00162	0.75%
Ti 334.903†	98840.3	7.054	mg/L	0.0467	14.11	mg/L	0.093	0.66%
Tl 190.801†	-35.6	-0.01555	mg/L	0.004373	-0.03111	mg/L	0.008746	28.12%
V 292.402†	30188.5	0.3468	mg/L	0.00266	0.6936	mg/L	0.00531	0.77%
Zn 206.200†	842.3	0.3583	mg/L	0.00240	0.7167	mg/L	0.00480	0.67%

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Sequence No.: 26
Sample ID: BHH0091-MS1

DEL

Autosampler Location: 320
Date Collected: 8/9/2019 12:43:19 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-MS1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0091-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2054427.6	97.00	%	1.842				1.90%
ScR 361.383	213747.8	100.1	%	1.61				1.61%
Ag 328.068†	72817.1	0.4727	mg/L	0.00145	0.9455	mg/L	0.00289	0.31%
Al 308.215†	230731.1	199.0	mg/L	0.09	398.0	mg/L	0.18	0.05%
As 188.979†	3289.2	2.384	mg/L	0.0585	4.769	mg/L	0.1170	2.45%
B 249.677†	62.9	0.02352	mg/L	0.000486	0.04704	mg/L	0.000972	2.07%
Ba 233.527†	11067.7	2.497	mg/L	0.0756	4.994	mg/L	0.1513	3.03%
Be 313.042†	213509.5	0.4852	mg/L	0.00400	0.9703	mg/L	0.00800	0.82%
Ca 317.933†	241529.7	24.34	mg/L	0.107	48.67	mg/L	0.213	0.44%
Cd 228.802†	12629.2	0.4699	mg/L	0.00891	0.9398	mg/L	0.01782	1.90%
Co 228.616†	17690.7	0.4908	mg/L	0.01190	0.9817	mg/L	0.02381	2.43%
Cr 267.716†	2545.8	0.6192	mg/L	0.01880	1.238	mg/L	0.0376	3.04%
Cu 324.752†	237237.7	1.154	mg/L	0.0024	2.309	mg/L	0.0047	0.20%
Fe 273.955†	154695.3	152.6	mg/L	1.82	305.3	mg/L	3.64	1.19%
K 766.490†	13506.7	12.27	mg/L	0.023	24.55	mg/L	0.046	0.19%
Mg 279.077†	39585.6	38.22	mg/L	0.151	76.45	mg/L	0.301	0.39%
Mn 257.610†	122019.6	3.551	mg/L	0.0063	7.101	mg/L	0.0125	0.18%
Mo 202.031†	116.0	0.00615	mg/L	0.000167	0.01230	mg/L	0.000334	2.72%
Na 589.592†	86889.0	10.44	mg/L	0.009	20.87	mg/L	0.018	0.08%
Na 330.237†	172.2	10.04	mg/L	0.112	20.07	mg/L	0.225	1.12%
Ni 231.604†	2074.9	0.6183	mg/L	0.01760	1.237	mg/L	0.0352	2.85%
Pb 220.353†	23502.7	3.110	mg/L	0.0721	6.220	mg/L	0.1442	2.32%
Sb 206.836†	89.6	0.03547	mg/L	0.001696	0.07093	mg/L	0.003392	4.78%
Se 196.026†	2187.9	1.921	mg/L	0.0552	3.842	mg/L	0.1103	2.87%
Si 288.158†	1082.3	1.155	mg/L	0.0221	2.309	mg/L	0.0442	1.91%
Sn 189.927†	10.5	0.00999	mg/L	0.000220	0.01997	mg/L	0.000441	2.21%
Sr 421.552†	154201.7	0.5994	mg/L	0.00413	1.199	mg/L	0.0083	0.69%
Ti 334.903†	95840.0	6.839	mg/L	0.0206	13.68	mg/L	0.041	0.30%
Tl 190.801†	3611.5	1.767	mg/L	0.0437	3.533	mg/L	0.0874	2.47%
V 292.402†	68604.5	0.7816	mg/L	0.00338	1.563	mg/L	0.0068	0.43%
Zn 206.200†	1960.2	0.8335	mg/L	0.02795	1.667	mg/L	0.0559	3.35%

Sequence No.: 27
Sample ID: BHH0091-MSD1

Autosampler Location: 321
Date Collected: 8/9/2019 12:47:04 PM
Data Type: Original

Dilution: 2X DEL
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-MSD1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0091-MSD1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1847928.8	87.25	%	10.932				12.53%
ScR 361.383	201324.6	94.28	%	8.564				9.08%
Ag 328.068†	82917.0	0.5383	mg/L	0.07809	1.077	mg/L	0.1562	14.51%
Al 308.215†	202747.2	174.9	mg/L	1.46	349.7	mg/L	2.92	0.84%
As 188.979†	3374.6	2.416	mg/L	0.2953	4.833	mg/L	0.5907	12.22%
B 249.677†	64.8	0.02133	mg/L	0.002603	0.04266	mg/L	0.005207	12.20%
Ba 233.527†	11151.0	2.519	mg/L	0.1932	5.037	mg/L	0.3864	7.67%
Be 313.042†	216332.4	0.4913	mg/L	0.00465	0.9827	mg/L	0.00930	0.95%
Ca 317.933†	204131.5	20.57	mg/L	0.224	41.13	mg/L	0.447	1.09%
Cd 228.802†	13983.7	0.5214	mg/L	0.07947	1.043	mg/L	0.1589	15.24%
Co 228.616†	19326.2	0.5395	mg/L	0.08168	1.079	mg/L	0.1634	15.14%
Cr 267.716†	2485.8	0.6038	mg/L	0.04236	1.208	mg/L	0.0847	7.02%
Cu 324.752†	237392.8	1.154	mg/L	0.1712	2.308	mg/L	0.3425	14.84%
Fe 273.955†	130849.9	129.1	mg/L	1.74	258.2	mg/L	3.49	1.35%
K 766.490†	15593.8	14.17	mg/L	0.179	28.34	mg/L	0.358	1.26%
Mg 279.077†	35540.9	34.32	mg/L	2.651	68.65	mg/L	5.302	7.72%
Mn 257.610†	100719.6	2.931	mg/L	0.0201	5.862	mg/L	0.0402	0.69%
Mo 202.031†	102.0	0.00542	mg/L	0.000958	0.01084	mg/L	0.001916	17.69%
Na 589.592†	88120.5	10.58	mg/L	0.102	21.17	mg/L	0.203	0.96%
Na 330.237†	171.1	9.815	mg/L	0.5569	19.63	mg/L	1.114	5.67%
Ni 231.604†	2058.8	0.6135	mg/L	0.04487	1.227	mg/L	0.0897	7.31%
Pb 220.353†	24864.3	3.282	mg/L	0.4925	6.564	mg/L	0.9851	15.01%
Sb 206.836†	81.8	0.03181	mg/L	0.006618	0.06361	mg/L	0.013235	20.81%
Se 196.026†	2272.0	1.995	mg/L	0.2519	3.990	mg/L	0.5037	12.62%
Si 288.158†	1102.6	1.176	mg/L	0.0848	2.351	mg/L	0.1696	7.21%
Sn 189.927†	0.0	0.00615	mg/L	0.001070	0.01229	mg/L	0.002140	17.41%
Sr 421.552†	147180.0	0.5721	mg/L	0.00386	1.144	mg/L	0.0077	0.67%
Ti 334.903†	83708.3	5.974	mg/L	0.0499	11.95	mg/L	0.100	0.84%
Tl 190.801†	3844.1	1.879	mg/L	0.2411	3.759	mg/L	0.4823	12.83%
V 292.402†	74367.3	0.8449	mg/L	0.12860	1.690	mg/L	0.2572	15.22%
Zn 206.200†	1862.3	0.7918	mg/L	0.06032	1.584	mg/L	0.1206	7.62%

Sequence No.: 28
Sample ID: BHH0091-PS1

DEL

Dilution: 2X
Wash Time: 37

Autosampler Location: 322
Date Collected: 8/9/2019 12:51:03 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-PS1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0091-PS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2043460.1	96.48	%	1.998				2.07%
ScR 361.383	213918.4	100.2	%	2.21				2.21%
Ag 328.068†	77635.6	0.5040	mg/L	0.00343	1.008	mg/L	0.0069	0.68%
Al 308.215†	191582.8	165.2	mg/L	0.78	330.5	mg/L	1.55	0.47%
As 188.979†	3375.4	2.427	mg/L	0.1376	4.853	mg/L	0.2751	5.67%
B 249.677†	58.7	0.02089	mg/L	0.000583	0.04177	mg/L	0.001166	2.79%
Ba 233.527†	11091.3	2.505	mg/L	0.0760	5.009	mg/L	0.1520	3.03%
Be 313.042†	227336.9	0.5168	mg/L	0.00511	1.034	mg/L	0.0102	0.99%
Ca 317.933†	219914.5	22.16	mg/L	0.179	44.32	mg/L	0.358	0.81%
Cd 228.802†	13252.5	0.4934	mg/L	0.02912	0.9868	mg/L	0.05825	5.90%
Co 228.616†	18459.2	0.5141	mg/L	0.03027	1.028	mg/L	0.0605	5.89%
Cr 267.716†	2608.7	0.6339	mg/L	0.02143	1.268	mg/L	0.0429	3.38%
Cu 324.752†	209950.3	1.021	mg/L	0.0044	2.043	mg/L	0.0088	0.43%
Fe 273.955†	135082.7	133.3	mg/L	1.01	266.6	mg/L	2.02	0.76%
K 766.490†	13822.0	12.56	mg/L	0.091	25.12	mg/L	0.182	0.72%
Mg 279.077†	33568.5	32.41	mg/L	0.921	64.82	mg/L	1.842	2.84%
Mn 257.610†	99384.4	2.892	mg/L	0.0149	5.784	mg/L	0.0298	0.52%
Mo 202.031†	99.1	0.00522	mg/L	0.000117	0.01045	mg/L	0.000235	2.25%
Na 589.592†	90585.0	10.88	mg/L	0.058	21.76	mg/L	0.116	0.53%
Na 330.237†	185.3	10.62	mg/L	0.312	21.24	mg/L	0.624	2.94%
Ni 231.604†	2133.2	0.6357	mg/L	0.01984	1.271	mg/L	0.0397	3.12%
Pb 220.353†	23079.7	3.047	mg/L	0.1788	6.093	mg/L	0.3576	5.87%
Sb 206.836†	84.4	0.03250	mg/L	0.002240	0.06500	mg/L	0.004480	6.89%
Se 196.026†	2347.4	2.063	mg/L	0.1208	4.126	mg/L	0.2416	5.85%
Si 288.158†	1296.6	1.381	mg/L	0.0385	2.763	mg/L	0.0769	2.78%
Sn 189.927†	3.6	0.00753	mg/L	0.001703	0.01505	mg/L	0.003406	22.63%
Sr 421.552†	154057.5	0.5988	mg/L	0.00566	1.198	mg/L	0.0113	0.95%
Ti 334.903†	88362.7	6.306	mg/L	0.0296	12.61	mg/L	0.059	0.47%
Tl 190.801†	3858.8	1.887	mg/L	0.1036	3.774	mg/L	0.2073	5.49%
V 292.402†	67786.7	0.7715	mg/L	0.00205	1.543	mg/L	0.0041	0.27%
Zn 206.200†	1875.0	0.7973	mg/L	0.02387	1.595	mg/L	0.0477	2.99%

Sequence No.: 29
Sample ID: BHH0091-BS1

Autosampler Location: 323
Date Collected: 8/9/2019 12:57:31 PM
Data Type: Original

Dilution: 2X DEL
Wash Time: 200

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-BS1

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: BHH0091-BS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2153620.8	101.7	%	0.99				0.97%
ScR 361.383	217152.7	101.7	%	1.09				1.07%
Ag 328.068†	63756.6	0.4138	mg/L	0.00467	0.8276	mg/L	0.00935	1.13%
Al 308.215†	1669.5	1.435	mg/L	0.0204	2.870	mg/L	0.0408	1.42%
As 188.979†	2270.2	1.510	mg/L	0.0088	3.021	mg/L	0.0175	0.58%
B 249.677†	11.7	0.00102	mg/L	0.001513	0.00204	mg/L	0.003026	148.31%
Ba 233.527†	6266.5	1.424	mg/L	0.0106	2.849	mg/L	0.0212	0.74%
Be 313.042†	157879.7	0.3597	mg/L	0.00244	0.7195	mg/L	0.00488	0.68%
Ca 317.933†	70849.4	7.136	mg/L	0.0556	14.27	mg/L	0.111	0.78%
Cd 228.802†	9733.0	0.3632	mg/L	0.00711	0.7264	mg/L	0.01421	1.96%
Co 228.616†	12301.0	0.3515	mg/L	0.00275	0.7031	mg/L	0.00549	0.78%
Cr 267.716†	1473.0	0.3547	mg/L	0.00456	0.7094	mg/L	0.00912	1.29%
Cu 324.752†	72305.4	0.3501	mg/L	0.00335	0.7002	mg/L	0.00670	0.96%
Fe 273.955†	1463.0	1.441	mg/L	0.0151	2.882	mg/L	0.0302	1.05%
K 766.490†	7925.9	7.202	mg/L	0.0243	14.40	mg/L	0.049	0.34%
Mg 279.077†	7623.5	7.377	mg/L	0.0616	14.75	mg/L	0.123	0.84%
Mn 257.610†	12303.3	0.3583	mg/L	0.00308	0.7165	mg/L	0.00617	0.86%
Mo 202.031†	20.6	0.00103	mg/L	0.000107	0.00206	mg/L	0.000214	10.40%
Na 589.592†	60220.3	7.233	mg/L	0.0172	14.47	mg/L	0.034	0.24%
Na 330.237†	145.1	7.383	mg/L	0.1355	14.77	mg/L	0.271	1.84%
Ni 231.604†	1212.3	0.3613	mg/L	0.00117	0.7225	mg/L	0.00234	0.32%
Pb 220.353†	11518.5	1.502	mg/L	0.0184	3.004	mg/L	0.0368	1.22%
Sb 206.836†	8.5	-0.00150	mg/L	0.002501	-0.00300	mg/L	0.005002	166.73%
Se 196.026†	1775.5	1.564	mg/L	0.0140	3.127	mg/L	0.0280	0.90%
Si 288.158†	5.4	0.00711	mg/L	0.007387	0.01423	mg/L	0.014774	103.86%
Sn 189.927†	-14.2	-0.00263	mg/L	0.001309	-0.00526	mg/L	0.002617	49.76%
Sr 421.552†	95733.5	0.3721	mg/L	0.00326	0.7442	mg/L	0.00653	0.88%
Ti 334.903†	38.2	0.00222	mg/L	0.001133	0.00443	mg/L	0.002266	51.13%
Tl 190.801†	3250.1	1.589	mg/L	0.0099	3.177	mg/L	0.0198	0.62%
V 292.402†	31077.6	0.3511	mg/L	0.00379	0.7022	mg/L	0.00758	1.08%
Zn 206.200†	856.6	0.3641	mg/L	0.00386	0.7282	mg/L	0.00771	1.06%

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Sequence No.: 30
Sample ID: SEQ-CCV3

Autosampler Location: 7
Date Collected: 8/9/2019 1:02:32 PM
Data Type: Original

Dilution: 1X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV3

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: SEQ-CCV3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2123517.6	100.3	%	0.30				0.30%
ScR 361.383	213067.1	99.78	%	0.877				0.88%
Ag 328.068†	154358.4	1.002	mg/L	0.0059	1.002	mg/L	0.0059	0.59%
Al 308.215†	2323.3	1.967	mg/L	0.0091	1.967	mg/L	0.0091	0.46%
As 188.979†	2925.8	1.970	mg/L	0.0093	1.970	mg/L	0.0093	0.47%
B 249.677†	6830.0	1.011	mg/L	0.0029	1.011	mg/L	0.0029	0.29%
Ba 233.527†	4325.5	0.9818	mg/L	0.00208	0.9818	mg/L	0.00208	0.21%
Be 313.042†	434443.2	0.9899	mg/L	0.00479	0.9899	mg/L	0.00479	0.48%
Ca 317.933†	20322.9	2.035	mg/L	0.0065	2.035	mg/L	0.0065	0.32%
Cd 228.802†	25489.1	0.9644	mg/L	0.00429	0.9644	mg/L	0.00429	0.44%
Co 228.616†	33799.5	0.9647	mg/L	0.00701	0.9647	mg/L	0.00701	0.73%
Cr 267.716†	4018.9	0.9700	mg/L	0.00462	0.9700	mg/L	0.00462	0.48%
Cu 324.752†	201028.1	0.9729	mg/L	0.00565	0.9729	mg/L	0.00565	0.58%
Fe 273.955†	1995.5	1.962	mg/L	0.0075	1.962	mg/L	0.0075	0.38%
K 766.490†	21328.1	19.38	mg/L	0.080	19.38	mg/L	0.080	0.41%
Mg 279.077†	2068.7	2.012	mg/L	0.0052	2.012	mg/L	0.0052	0.26%
Mn 257.610†	34084.3	0.9921	mg/L	0.00394	0.9921	mg/L	0.00394	0.40%
Mo 202.031†	17115.6	0.9721	mg/L	0.00583	0.9721	mg/L	0.00583	0.60%
Na 589.592†	409334.8	49.17	mg/L	0.166	49.17	mg/L	0.166	0.34%
Na 330.237†	964.0	49.85	mg/L	0.186	49.85	mg/L	0.186	0.37%
Ni 231.604†	3356.0	1.002	mg/L	0.0033	1.002	mg/L	0.0033	0.33%
Pb 220.353†	15252.7	1.989	mg/L	0.0099	1.989	mg/L	0.0099	0.50%
Sb 206.836†	5661.3	2.045	mg/L	0.0117	2.045	mg/L	0.0117	0.57%
Se 196.026†	2325.2	2.047	mg/L	0.0084	2.047	mg/L	0.0084	0.41%
Si 288.158†	1920.3	2.041	mg/L	0.0217	2.041	mg/L	0.0217	1.06%
Sn 189.927†	3652.5	0.9885	mg/L	0.00514	0.9885	mg/L	0.00514	0.52%
Sr 421.552†	259763.7	1.010	mg/L	0.0048	1.010	mg/L	0.0048	0.48%
Ti 334.903†	13406.1	0.9557	mg/L	0.00461	0.9557	mg/L	0.00461	0.48%
Tl 190.801†	4082.7	1.992	mg/L	0.0104	1.992	mg/L	0.0104	0.52%
V 292.402†	85376.9	0.9646	mg/L	0.01078	0.9646	mg/L	0.01078	1.12%
Zn 206.200†	2408.2	1.023	mg/L	0.0061	1.023	mg/L	0.0061	0.60%

Sequence No.: 31 **Autosampler Location: 1**
Sample ID: SEQ-CCB3 **Date Collected: 8/9/2019 1:07:35 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB3

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: SEQ-CCB3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2139149.9	101.0	%	0.10				0.10%
ScR 361.383	214280.9	100.3	%	1.30				1.30%
Ag 328.068†	4.0	0.00003	mg/L	0.000220	0.00003	mg/L	0.000220	851.46%
Al 308.215†	11.5	0.00990	mg/L	0.011384	0.00990	mg/L	0.011384	114.95%
As 188.979†	-2.3	-0.00154	mg/L	0.000697	-0.00154	mg/L	0.000697	45.33%
B 249.677†	16.1	0.00239	mg/L	0.000855	0.00239	mg/L	0.000855	35.77%
Ba 233.527†	1.4	0.00031	mg/L	0.000075	0.00031	mg/L	0.000075	24.00%
Be 313.042†	28.6	0.00007	mg/L	0.000016	0.00007	mg/L	0.000016	24.57%
Ca 317.933†	14.2	0.00142	mg/L	0.001916	0.00142	mg/L	0.001916	134.88%
Cd 228.802†	7.8	0.00031	mg/L	0.000048	0.00031	mg/L	0.000048	15.37%
Co 228.616†	-1.9	-0.00005	mg/L	0.000098	-0.00005	mg/L	0.000098	178.90%
Cr 267.716†	-2.9	-0.00069	mg/L	0.000335	-0.00069	mg/L	0.000335	48.56%
Cu 324.752†	140.1	0.00068	mg/L	0.000182	0.00068	mg/L	0.000182	26.80%
Fe 273.955†	2.7	0.00268	mg/L	0.006027	0.00268	mg/L	0.006027	224.73%
K 766.490†	3.4	0.00308	mg/L	0.027313	0.00308	mg/L	0.027313	886.17%
Mg 279.077†	-8.6	-0.00830	mg/L	0.006260	-0.00830	mg/L	0.006260	75.41%
Mn 257.610†	12.4	0.00036	mg/L	0.000034	0.00036	mg/L	0.000034	9.44%
Mo 202.031†	7.3	0.00041	mg/L	0.000244	0.00041	mg/L	0.000244	58.89%
Na 589.592†	52.7	0.00633	mg/L	0.001150	0.00633	mg/L	0.001150	18.15%
Na 330.237†	7.7	0.4015	mg/L	0.19458	0.4015	mg/L	0.19458	48.47%
Ni 231.604†	2.2	0.00064	mg/L	0.001345	0.00064	mg/L	0.001345	209.44%
Pb 220.353†	-0.8	-0.00010	mg/L	0.001182	-0.00010	mg/L	0.001182	>999.9%
Sb 206.836†	-0.0	-0.00000	mg/L	0.001257	-0.00000	mg/L	0.001257	>999.9%
Se 196.026†	4.3	0.00381	mg/L	0.002195	0.00381	mg/L	0.002195	57.67%
Si 288.158†	4.1	0.00440	mg/L	0.011914	0.00440	mg/L	0.011914	270.65%
Sn 189.927†	-1.2	-0.00033	mg/L	0.000518	-0.00033	mg/L	0.000518	158.80%
Sr 421.552†	-11.0	-0.00004	mg/L	0.000051	-0.00004	mg/L	0.000051	118.22%
Ti 334.903†	10.8	0.00077	mg/L	0.001137	0.00077	mg/L	0.001137	147.07%
Tl 190.801†	0.4	0.00018	mg/L	0.000231	0.00018	mg/L	0.000231	126.85%
V 292.402†	10.4	0.00011	mg/L	0.000222	0.00011	mg/L	0.000222	198.36%
Zn 206.200†	2.0	0.00086	mg/L	0.000537	0.00086	mg/L	0.000537	62.31%

Sequence No.: 32
Sample ID: 19G0416-42
DEL
Dilution: 2X
Wash Time: 37

Autosampler Location: 324
Date Collected: 8/9/2019 1:11:34 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-42

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19G0416-42

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1641084.1	77.48	%	3.829				4.94%
ScR 361.383	211885.2	99.23	%	4.461				4.50%
Ag 328.068†	-147.9	-0.00085	mg/L	0.000465	-0.00171	mg/L	0.000930	54.49%
Al 308.215†	225375.9	194.4	mg/L	1.72	388.8	mg/L	3.43	0.88%
As 188.979†	106.8	0.2540	mg/L	0.00782	0.5080	mg/L	0.01565	3.08%
B 249.677†	69.7	0.02482	mg/L	0.000661	0.04964	mg/L	0.001322	2.66%
Ba 233.527†	2560.4	0.5639	mg/L	0.03942	1.128	mg/L	0.0788	6.99%
Be 313.042†	2392.1	0.00390	mg/L	0.000446	0.00781	mg/L	0.000892	11.43%
Ca 317.933†	188095.2	18.96	mg/L	0.069	37.91	mg/L	0.139	0.37%
Cd 228.802†	155.8	0.00562	mg/L	0.000650	0.01124	mg/L	0.001300	11.56%
Co 228.616†	2086.9	0.04580	mg/L	0.002761	0.09161	mg/L	0.005522	6.03%
Cr 267.716†	632.2	0.1579	mg/L	0.01147	0.3157	mg/L	0.02295	7.27%
Cu 324.752†	62591.6	0.3086	mg/L	0.01637	0.6172	mg/L	0.03273	5.30%
Fe 273.955†	146765.0	144.8	mg/L	0.20	289.6	mg/L	0.41	0.14%
K 766.490†	3334.5	3.030	mg/L	0.0378	6.060	mg/L	0.0756	1.25%
Mg 279.077†	30597.8	29.53	mg/L	0.104	59.07	mg/L	0.207	0.35%
Mn 257.610†	138509.5	4.030	mg/L	0.0296	8.060	mg/L	0.0591	0.73%
Mo 202.031†	110.3	0.00594	mg/L	0.000602	0.01188	mg/L	0.001204	10.13%
Na 589.592†	7646.5	0.9185	mg/L	0.00441	1.837	mg/L	0.0088	0.48%
Na 330.237†	-6.2	0.8581	mg/L	0.26842	1.716	mg/L	0.5368	31.28%
Ni 231.604†	533.9	0.1591	mg/L	0.01031	0.3183	mg/L	0.02062	6.48%
Pb 220.353†	9597.0	1.297	mg/L	0.0586	2.593	mg/L	0.1173	4.52%
Sb 206.836†	52.0	0.02715	mg/L	0.003294	0.05430	mg/L	0.006588	12.13%
Se 196.026†	-1.3	-0.00841	mg/L	0.009410	-0.01683	mg/L	0.018821	111.86%
Si 288.158†	1057.7	1.127	mg/L	0.0556	2.254	mg/L	0.1113	4.94%
Sn 189.927†	-33.9	-0.00311	mg/L	0.001197	-0.00621	mg/L	0.002394	38.54%
Sr 421.552†	29907.6	0.1162	mg/L	0.00143	0.2325	mg/L	0.00286	1.23%
Ti 334.903†	89706.3	6.402	mg/L	0.0308	12.80	mg/L	0.062	0.48%
Tl 190.801†	-43.1	-0.01801	mg/L	0.004424	-0.03601	mg/L	0.008848	24.57%
V 292.402†	31375.8	0.3607	mg/L	0.02483	0.7214	mg/L	0.04965	6.88%
Zn 206.200†	948.3	0.4034	mg/L	0.03105	0.8069	mg/L	0.06209	7.70%

Sequence No.: 33
Sample ID: 19G0416-43

Autosampler Location: 325
Date Collected: 8/9/2019 1:15:33 PM
Data Type: Original

Dilution: 2X DEL
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-43

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19G0416-43

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1967276.6	92.89	%	5.591				6.02%
ScR 361.383	213931.9	100.2	%	1.55				1.54%
Ag 328.068†	-158.3	-0.00093	mg/L	0.000110	-0.00186	mg/L	0.000220	11.83%
Al 308.215†	200991.1	173.4	mg/L	0.80	346.7	mg/L	1.60	0.46%
As 188.979†	-87.8	0.1435	mg/L	0.00585	0.2869	mg/L	0.01170	4.08%
B 249.677†	97.8	0.03081	mg/L	0.000406	0.06161	mg/L	0.000812	1.32%
Ba 233.527†	4022.3	0.8941	mg/L	0.00269	1.788	mg/L	0.0054	0.30%
Be 313.042†	2098.1	0.00335	mg/L	0.000028	0.00669	mg/L	0.000056	0.83%
Ca 317.933†	542716.4	54.70	mg/L	0.364	109.4	mg/L	0.73	0.66%
Cd 228.802†	121.0	0.00515	mg/L	0.000488	0.01030	mg/L	0.000977	9.48%
Co 228.616†	2454.5	0.05469	mg/L	0.002641	0.1094	mg/L	0.00528	4.83%
Cr 267.716†	617.1	0.1540	mg/L	0.00194	0.3080	mg/L	0.00388	1.26%
Cu 324.752†	46529.8	0.2315	mg/L	0.00203	0.4630	mg/L	0.00407	0.88%
Fe 273.955†	165129.0	162.9	mg/L	1.78	325.9	mg/L	3.56	1.09%
K 766.490†	5099.3	4.634	mg/L	0.0428	9.268	mg/L	0.0856	0.92%
Mg 279.077†	38214.7	36.89	mg/L	0.226	73.78	mg/L	0.451	0.61%
Mn 257.610†	165640.5	4.820	mg/L	0.0118	9.639	mg/L	0.0236	0.24%
Mo 202.031†	106.3	0.00513	mg/L	0.000188	0.01025	mg/L	0.000376	3.66%
Na 589.592†	25231.4	3.031	mg/L	0.0208	6.061	mg/L	0.0416	0.69%
Na 330.237†	24.2	2.550	mg/L	0.2890	5.100	mg/L	0.5781	11.33%
Ni 231.604†	561.2	0.1673	mg/L	0.00106	0.3345	mg/L	0.00212	0.63%
Pb 220.353†	3311.1	0.4710	mg/L	0.01575	0.9420	mg/L	0.03149	3.34%
Sb 206.836†	23.5	0.01783	mg/L	0.002624	0.03566	mg/L	0.005248	14.72%
Se 196.026†	-10.6	-0.01299	mg/L	0.005030	-0.02599	mg/L	0.010061	38.71%
Si 288.158†	1256.5	1.339	mg/L	0.0012	2.678	mg/L	0.0023	0.09%
Sn 189.927†	-52.5	-0.00179	mg/L	0.000641	-0.00358	mg/L	0.001282	35.82%
Sr 421.552†	105206.2	0.4089	mg/L	0.00338	0.8179	mg/L	0.00675	0.83%
Ti 334.903†	99859.7	7.125	mg/L	0.0399	14.25	mg/L	0.080	0.56%
Tl 190.801†	-45.8	-0.01834	mg/L	0.001644	-0.03667	mg/L	0.003287	8.96%
V 292.402†	28833.4	0.3332	mg/L	0.00146	0.6664	mg/L	0.00292	0.44%
Zn 206.200†	1185.3	0.5042	mg/L	0.00144	1.008	mg/L	0.0029	0.29%

Sequence No.: 34
Sample ID: 19G0416-44

Dilution: 2X
Wash Time: 37

Autosampler Location: 326
Date Collected: 8/9/2019 1:19:18 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-44

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19G0416-44

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2113342.7	99.78	%	1.073				1.08%
ScR 361.383	213864.4	100.2	%	5.30				5.29%
Ag 328.068†	-220.6	-0.00132	mg/L	0.000064	-0.00265	mg/L	0.000129	4.86%
Al 308.215†	260121.6	224.4	mg/L	1.92	448.7	mg/L	3.85	0.86%
As 188.979†	-203.7	0.09393	mg/L	0.001558	0.1879	mg/L	0.00312	1.66%
B 249.677†	49.0	0.02369	mg/L	0.000595	0.04737	mg/L	0.001190	2.51%
Ba 233.527†	3452.8	0.7644	mg/L	0.00853	1.529	mg/L	0.0171	1.12%
Be 313.042†	2751.7	0.00469	mg/L	0.000167	0.00938	mg/L	0.000334	3.56%
Ca 317.933†	235270.2	23.71	mg/L	0.066	47.42	mg/L	0.133	0.28%
Cd 228.802†	61.7	0.00341	mg/L	0.000252	0.00681	mg/L	0.000505	7.41%
Co 228.616†	2460.5	0.05325	mg/L	0.001862	0.1065	mg/L	0.00372	3.50%
Cr 267.716†	691.3	0.1722	mg/L	0.00290	0.3444	mg/L	0.00580	1.68%
Cu 324.752†	35970.4	0.1803	mg/L	0.00107	0.3606	mg/L	0.00214	0.59%
Fe 273.955†	166365.8	164.2	mg/L	0.11	328.3	mg/L	0.22	0.07%
K 766.490†	5511.9	5.009	mg/L	0.0582	10.02	mg/L	0.116	1.16%
Mg 279.077†	39988.0	38.61	mg/L	0.137	77.21	mg/L	0.275	0.36%
Mn 257.610†	113585.3	3.305	mg/L	0.0134	6.609	mg/L	0.0267	0.40%
Mo 202.031†	66.1	0.00335	mg/L	0.000059	0.00670	mg/L	0.000119	1.77%
Na 589.592†	12870.2	1.546	mg/L	0.0129	3.092	mg/L	0.0258	0.84%
Na 330.237†	-3.9	1.329	mg/L	0.2637	2.659	mg/L	0.5274	19.84%
Ni 231.604†	651.1	0.1941	mg/L	0.00163	0.3881	mg/L	0.00326	0.84%
Pb 220.353†	1276.8	0.2199	mg/L	0.00361	0.4398	mg/L	0.00722	1.64%
Sb 206.836†	23.5	0.01900	mg/L	0.002397	0.03800	mg/L	0.004793	12.61%
Se 196.026†	13.5	0.00442	mg/L	0.002016	0.00885	mg/L	0.004032	45.56%
Si 288.158†	1211.3	1.291	mg/L	0.0234	2.582	mg/L	0.0469	1.82%
Sn 189.927†	-48.4	-0.00551	mg/L	0.001784	-0.01102	mg/L	0.003568	32.37%
Sr 421.552†	64365.3	0.2502	mg/L	0.00182	0.5004	mg/L	0.00364	0.73%
Ti 334.903†	112515.0	8.030	mg/L	0.0335	16.06	mg/L	0.067	0.42%
Tl 190.801†	-39.9	-0.01738	mg/L	0.003991	-0.03476	mg/L	0.007982	22.96%
V 292.402†	31820.5	0.3665	mg/L	0.00439	0.7330	mg/L	0.00878	1.20%
Zn 206.200†	897.3	0.3816	mg/L	0.00322	0.7632	mg/L	0.00644	0.84%

Sequence No.: 35
Sample ID: 19G0416-45
DEL
Dilution: 2X
Wash Time: 37

Autosampler Location: 327
Date Collected: 8/9/2019 1:23:02 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-45

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19G0416-45

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1936432.6	91.43	%	2.903				3.18%
ScR 361.383	211484.1	99.04	%	2.720				2.75%
Ag 328.068†	-12.8	0.00001	mg/L	0.000055	0.00002	mg/L	0.000110	600.67%
Al 308.215†	245943.5	212.1	mg/L	1.04	424.3	mg/L	2.08	0.49%
As 188.979†	60.6	0.2031	mg/L	0.00521	0.4061	mg/L	0.01043	2.57%
B 249.677†	75.5	0.02646	mg/L	0.002042	0.05292	mg/L	0.004085	7.72%
Ba 233.527†	6217.7	1.395	mg/L	0.1182	2.789	mg/L	0.2364	8.48%
Be 313.042†	2276.3	0.00384	mg/L	0.000477	0.00768	mg/L	0.000953	12.41%
Ca 317.933†	493206.5	49.71	mg/L	0.244	99.42	mg/L	0.488	0.49%
Cd 228.802†	172.8	0.00646	mg/L	0.001024	0.01291	mg/L	0.002048	15.86%
Co 228.616†	2113.2	0.04743	mg/L	0.004656	0.09486	mg/L	0.009313	9.82%
Cr 267.716†	741.7	0.1847	mg/L	0.01255	0.3694	mg/L	0.02510	6.79%
Cu 324.752†	40733.1	0.2033	mg/L	0.00564	0.4066	mg/L	0.01128	2.77%
Fe 273.955†	154656.3	152.6	mg/L	1.12	305.2	mg/L	2.24	0.73%
K 766.490†	4566.5	4.150	mg/L	0.0622	8.299	mg/L	0.1244	1.50%
Mg 279.077†	27331.5	26.38	mg/L	0.122	52.77	mg/L	0.245	0.46%
Mn 257.610†	450875.8	13.12	mg/L	0.066	26.24	mg/L	0.131	0.50%
Mo 202.031†	95.2	0.00457	mg/L	0.000639	0.00914	mg/L	0.001278	13.97%
Na 589.592†	33781.9	4.058	mg/L	0.0227	8.115	mg/L	0.0455	0.56%
Na 330.237†	58.0	4.003	mg/L	0.4310	8.006	mg/L	0.8620	10.77%
Ni 231.604†	465.5	0.1387	mg/L	0.01330	0.2775	mg/L	0.02659	9.58%
Pb 220.353†	2567.2	0.3853	mg/L	0.02424	0.7706	mg/L	0.04848	6.29%
Sb 206.836†	39.8	0.02116	mg/L	0.002031	0.04232	mg/L	0.004063	9.60%
Se 196.026†	7.6	-0.00953	mg/L	0.005929	-0.01905	mg/L	0.011859	62.24%
Si 288.158†	979.9	1.044	mg/L	0.0865	2.088	mg/L	0.1730	8.29%
Sn 189.927†	-53.4	-0.00346	mg/L	0.001760	-0.00693	mg/L	0.003519	50.79%
Sr 421.552†	96205.9	0.3739	mg/L	0.00244	0.7479	mg/L	0.00487	0.65%
Ti 334.903†	81092.0	5.785	mg/L	0.0328	11.57	mg/L	0.066	0.57%
Tl 190.801†	-61.9	-0.01634	mg/L	0.008241	-0.03267	mg/L	0.016481	50.45%
V 292.402†	27284.1	0.3171	mg/L	0.00791	0.6343	mg/L	0.01582	2.49%
Zn 206.200†	1299.8	0.5529	mg/L	0.05076	1.106	mg/L	0.1015	9.18%

Sequence No.: 36
Sample ID: 19G0416-46
DEL
Dilution: 2X
Wash Time: 37

Autosampler Location: 328
Date Collected: 8/9/2019 1:27:01 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-46

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19G0416-46

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1870089.5	88.30	%	7.769				8.80%
ScR 361.383	217438.5	101.8	%	2.58				2.53%
Ag 328.068†	-148.5	-0.00089	mg/L	0.000313	-0.00177	mg/L	0.000626	35.30%
Al 308.215†	210753.9	181.8	mg/L	0.89	363.6	mg/L	1.77	0.49%
As 188.979†	7.3	0.1823	mg/L	0.00720	0.3646	mg/L	0.01439	3.95%
B 249.677†	39.2	0.02107	mg/L	0.002136	0.04213	mg/L	0.004272	10.14%
Ba 233.527†	2908.4	0.6421	mg/L	0.03970	1.284	mg/L	0.0794	6.18%
Be 313.042†	2050.3	0.00354	mg/L	0.000300	0.00708	mg/L	0.000601	8.49%
Ca 317.933†	166250.7	16.76	mg/L	0.041	33.51	mg/L	0.082	0.24%
Cd 228.802†	180.8	0.00702	mg/L	0.001577	0.01404	mg/L	0.003154	22.47%
Co 228.616†	2429.1	0.05582	mg/L	0.006216	0.1116	mg/L	0.01243	11.14%
Cr 267.716†	463.2	0.1175	mg/L	0.00452	0.2349	mg/L	0.00904	3.85%
Cu 324.752†	59362.0	0.2934	mg/L	0.04059	0.5867	mg/L	0.08118	13.84%
Fe 273.955†	154472.4	152.4	mg/L	0.29	304.8	mg/L	0.58	0.19%
K 766.490†	3058.5	2.779	mg/L	0.0060	5.559	mg/L	0.0120	0.22%
Mg 279.077†	31731.6	30.62	mg/L	0.030	61.25	mg/L	0.060	0.10%
Mn 257.610†	100671.7	2.929	mg/L	0.0093	5.858	mg/L	0.0186	0.32%
Mo 202.031†	75.7	0.00402	mg/L	0.000979	0.00803	mg/L	0.001958	24.37%
Na 589.592†	7451.6	0.8951	mg/L	0.00801	1.790	mg/L	0.0160	0.89%
Na 330.237†	-1.9	1.059	mg/L	0.5282	2.117	mg/L	1.0564	49.90%
Ni 231.604†	532.7	0.1588	mg/L	0.00959	0.3175	mg/L	0.01919	6.04%
Pb 220.353†	2399.6	0.3549	mg/L	0.02811	0.7098	mg/L	0.05621	7.92%
Sb 206.836†	56.4	0.02872	mg/L	0.006388	0.05745	mg/L	0.012776	22.24%
Se 196.026†	-7.9	-0.01103	mg/L	0.002223	-0.02205	mg/L	0.004446	20.16%
Si 288.158†	1228.0	1.308	mg/L	0.0639	2.615	mg/L	0.1278	4.88%
Sn 189.927†	-29.8	-0.00245	mg/L	0.001590	-0.00490	mg/L	0.003180	64.85%
Sr 421.552†	25338.5	0.09849	mg/L	0.000200	0.1970	mg/L	0.00040	0.20%
Ti 334.903†	86783.9	6.194	mg/L	0.0181	12.39	mg/L	0.036	0.29%
Tl 190.801†	-41.0	-0.01800	mg/L	0.007055	-0.03600	mg/L	0.014111	39.19%
V 292.402†	22723.9	0.2636	mg/L	0.04103	0.5273	mg/L	0.08206	15.56%
Zn 206.200†	834.8	0.3551	mg/L	0.02333	0.7102	mg/L	0.04666	6.57%

Sequence No.: 37
Sample ID: 19G0416-47

Dilution: 2X
Wash Time: 37

Autosampler Location: 329
Date Collected: 8/9/2019 1:30:59 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-47

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19G0416-47

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2130871.2	100.6	%	0.18				0.18%
ScR 361.383	218236.8	102.2	%	0.43				0.42%
Ag 328.068†	-35.3	-0.00014	mg/L	0.000323	-0.00028	mg/L	0.000647	230.66%
Al 308.215†	151948.5	131.1	mg/L	1.27	262.1	mg/L	2.54	0.97%
As 188.979†	221.8	0.3282	mg/L	0.00198	0.6563	mg/L	0.00395	0.60%
B 249.677†	92.7	0.02815	mg/L	0.001216	0.05630	mg/L	0.002432	4.32%
Ba 233.527†	3791.3	0.8439	mg/L	0.01034	1.688	mg/L	0.0207	1.23%
Be 313.042†	1904.9	0.00304	mg/L	0.000079	0.00607	mg/L	0.000157	2.59%
Ca 317.933†	347951.2	35.07	mg/L	0.375	70.14	mg/L	0.751	1.07%
Cd 228.802†	313.3	0.01117	mg/L	0.000266	0.02233	mg/L	0.000533	2.38%
Co 228.616†	2103.4	0.04639	mg/L	0.000701	0.09278	mg/L	0.001402	1.51%
Cr 267.716†	557.5	0.1388	mg/L	0.00238	0.2776	mg/L	0.00476	1.71%
Cu 324.752†	76606.0	0.3764	mg/L	0.00360	0.7527	mg/L	0.00720	0.96%
Fe 273.955†	145978.5	144.0	mg/L	1.87	288.1	mg/L	3.74	1.30%
K 766.490†	5598.6	5.088	mg/L	0.0461	10.18	mg/L	0.092	0.91%
Mg 279.077†	37278.0	36.00	mg/L	0.354	71.99	mg/L	0.708	0.98%
Mn 257.610†	155431.1	4.523	mg/L	0.0452	9.046	mg/L	0.0903	1.00%
Mo 202.031†	87.1	0.00436	mg/L	0.000261	0.00872	mg/L	0.000522	5.99%
Na 589.592†	9319.3	1.119	mg/L	0.0170	2.239	mg/L	0.0341	1.52%
Na 330.237†	-2.6	0.9551	mg/L	0.11253	1.910	mg/L	0.2251	11.78%
Ni 231.604†	559.8	0.1668	mg/L	0.00124	0.3337	mg/L	0.00248	0.74%
Pb 220.353†	7266.9	0.9757	mg/L	0.01083	1.951	mg/L	0.0217	1.11%
Sb 206.836†	30.7	0.01941	mg/L	0.001343	0.03882	mg/L	0.002685	6.92%
Se 196.026†	-6.5	-0.00679	mg/L	0.003041	-0.01358	mg/L	0.006083	44.78%
Si 288.158†	1057.9	1.128	mg/L	0.0182	2.256	mg/L	0.0364	1.61%
Sn 189.927†	-20.8	0.00311	mg/L	0.000473	0.00622	mg/L	0.000946	15.21%
Sr 421.552†	64170.8	0.2494	mg/L	0.00222	0.4989	mg/L	0.00444	0.89%
Ti 334.903†	88656.9	6.326	mg/L	0.0698	12.65	mg/L	0.140	1.10%
Tl 190.801†	-38.5	-0.01498	mg/L	0.002823	-0.02996	mg/L	0.005647	18.85%
V 292.402†	26237.1	0.3030	mg/L	0.00169	0.6060	mg/L	0.00339	0.56%
Zn 206.200†	1361.7	0.5793	mg/L	0.00896	1.159	mg/L	0.0179	1.55%

Sequence No.: 38
Sample ID: 19G0416-48

Dilution: 2X
Wash Time: 37

Autosampler Location: 330
Date Collected: 8/9/2019 1:34:58 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-48

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: 19G0416-48

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2083408.7	98.37	%	1.875				1.91%
ScR 361.383	218439.9	102.3	%	2.79				2.73%
Ag 328.068†	-131.6	-0.00075	mg/L	0.000097	-0.00150	mg/L	0.000193	12.88%
Al 308.215†	233848.2	201.7	mg/L	1.44	403.4	mg/L	2.88	0.71%
As 188.979†	-55.9	0.1815	mg/L	0.00205	0.3629	mg/L	0.00410	1.13%
B 249.677†	76.5	0.02806	mg/L	0.000956	0.05613	mg/L	0.001912	3.41%
Ba 233.527†	3324.7	0.7349	mg/L	0.00660	1.470	mg/L	0.0132	0.90%
Be 313.042†	2658.9	0.00452	mg/L	0.000104	0.00904	mg/L	0.000208	2.30%
Ca 317.933†	294742.0	29.71	mg/L	0.304	59.41	mg/L	0.608	1.02%
Cd 228.802†	111.5	0.00465	mg/L	0.000239	0.00931	mg/L	0.000478	5.13%
Co 228.616†	2328.3	0.05009	mg/L	0.001667	0.1002	mg/L	0.00333	3.33%
Cr 267.716†	695.0	0.1734	mg/L	0.00131	0.3468	mg/L	0.00261	0.75%
Cu 324.752†	50373.9	0.2502	mg/L	0.00039	0.5005	mg/L	0.00078	0.15%
Fe 273.955†	169268.6	167.0	mg/L	1.29	334.0	mg/L	2.58	0.77%
K 766.490†	5027.1	4.568	mg/L	0.0352	9.137	mg/L	0.0705	0.77%
Mg 279.077†	37896.7	36.58	mg/L	0.275	73.17	mg/L	0.549	0.75%
Mn 257.610†	180546.2	5.253	mg/L	0.0492	10.51	mg/L	0.098	0.94%
Mo 202.031†	74.4	0.00372	mg/L	0.000248	0.00745	mg/L	0.000497	6.67%
Na 589.592†	12866.5	1.545	mg/L	0.0107	3.091	mg/L	0.0213	0.69%
Na 330.237†	1.7	1.529	mg/L	0.1048	3.059	mg/L	0.2097	6.86%
Ni 231.604†	590.0	0.1759	mg/L	0.00063	0.3517	mg/L	0.00125	0.36%
Pb 220.353†	2355.9	0.3541	mg/L	0.00742	0.7082	mg/L	0.01484	2.10%
Sb 206.836†	28.2	0.02013	mg/L	0.003290	0.04026	mg/L	0.006581	16.35%
Se 196.026†	-1.8	-0.00813	mg/L	0.004063	-0.01625	mg/L	0.008126	50.00%
Si 288.158†	1057.6	1.128	mg/L	0.0154	2.255	mg/L	0.0308	1.37%
Sn 189.927†	-47.0	-0.00427	mg/L	0.001493	-0.00855	mg/L	0.002986	34.92%
Sr 421.552†	48761.7	0.1895	mg/L	0.00211	0.3791	mg/L	0.00422	1.11%
Ti 334.903†	107308.4	7.658	mg/L	0.0600	15.32	mg/L	0.120	0.78%
Tl 190.801†	-42.1	-0.01613	mg/L	0.005228	-0.03225	mg/L	0.010455	32.42%
V 292.402†	30973.7	0.3576	mg/L	0.00288	0.7151	mg/L	0.00575	0.80%
Zn 206.200†	971.8	0.4133	mg/L	0.00363	0.8266	mg/L	0.00726	0.88%

Sequence No.: 39
Sample ID: 19G0387-01RE1

Dilution: 50X
Wash Time: 37

Autosampler Location: 331
Date Collected: 8/9/2019 1:38:42 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0387-01RE1

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19G0387-01RE1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2164906.4	102.2	%	0.54				0.52%
ScR 361.383	219332.3	102.7	%	0.16				0.16%
Ag 328.068†	-50.3	-0.00033	mg/L	0.000277	-0.01638	mg/L	0.013861	84.61%
Al 308.215†	562.2	0.4849	mg/L	0.00259	24.25	mg/L	0.129	0.53%
As 188.979†	12.4	0.00614	mg/L	0.002139	0.3071	mg/L	0.10694	34.83%
B 249.677†	32.5	0.00724	mg/L	0.000328	0.3619	mg/L	0.01642	4.54%
Ba 233.527†	214.8	0.04543	mg/L	0.000637	2.271	mg/L	0.0319	1.40%
Be 313.042†	86.3	0.00022	mg/L	0.000045	0.01076	mg/L	0.002252	20.93%
Ca 317.933†	174256.5	17.56	mg/L	0.030	878.1	mg/L	1.50	0.17%
Cd 228.802†	101.3	0.00384	mg/L	0.000199	0.1920	mg/L	0.00995	5.18%
Co 228.616†	77.4	0.00171	mg/L	0.000138	0.08569	mg/L	0.006910	8.06%
Cr 267.716†	4174.0	1.009	mg/L	0.0027	50.44	mg/L	0.134	0.27%
Cu 324.752†	4439.4	0.02282	mg/L	0.000238	1.141	mg/L	0.0119	1.04%
Fe 273.955†	27369.1	27.01	mg/L	0.090	1350	mg/L	4.48	0.33%
K 766.490†	11.8	0.01071	mg/L	0.026937	0.5357	mg/L	1.34685	251.40%
Mg 279.077†	948.3	0.9014	mg/L	0.00702	45.07	mg/L	0.351	0.78%
Mn 257.610†	4732.9	0.1378	mg/L	0.00083	6.891	mg/L	0.0414	0.60%
Mo 202.031†	28.6	0.00127	mg/L	0.000074	0.06351	mg/L	0.003680	5.80%
Na 589.592†	233.2	0.02801	mg/L	0.001304	1.401	mg/L	0.0652	4.65%
Na 330.237†	9.9	0.3270	mg/L	0.41874	16.35	mg/L	20.937	128.07%
Ni 231.604†	43.1	0.01285	mg/L	0.000115	0.6423	mg/L	0.00573	0.89%
Pb 220.353†	3.4	0.00144	mg/L	0.000570	0.07207	mg/L	0.028477	39.51%
Sb 206.836†	39.9	-0.00227	mg/L	0.001546	-0.1137	mg/L	0.07732	68.01%
Se 196.026†	-5.1	-0.00150	mg/L	0.005087	-0.07492	mg/L	0.254358	339.49%
Si 288.158†	21.7	0.02449	mg/L	0.001072	1.224	mg/L	0.0536	4.38%
Sn 189.927†	-22.5	-0.00309	mg/L	0.000437	-0.1547	mg/L	0.02184	14.11%
Sr 421.552†	8122.4	0.03157	mg/L	0.000486	1.579	mg/L	0.0243	1.54%
Ti 334.903†	330.0	0.02227	mg/L	0.000777	1.113	mg/L	0.0388	3.49%
Tl 190.801†	-8.5	-0.00437	mg/L	0.001548	-0.2186	mg/L	0.07742	35.42%
V 292.402†	-372.8	0.00403	mg/L	0.000234	0.2014	mg/L	0.01171	5.81%
Zn 206.200†	1078.7	0.4590	mg/L	0.00283	22.95	mg/L	0.141	0.62%

Sequence No.: 40
Sample ID: BHH0169-BS2

Dilution: 2X
Wash Time: 37

Autosampler Location: 332
Date Collected: 8/9/2019 1:42:40 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0169-BS2

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: BHH0169-BS2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2140787.3	101.1	%	0.17				0.17%
ScR 361.383	215191.6	100.8	%	1.24				1.23%
Ag 328.068†	80713.3	0.5239	mg/L	0.00293	1.048	mg/L	0.0059	0.56%
Al 308.215†	2346.3	2.017	mg/L	0.0305	4.034	mg/L	0.0611	1.51%
As 188.979†	3078.1	2.048	mg/L	0.0104	4.096	mg/L	0.0209	0.51%
B 249.677†	18.1	0.00169	mg/L	0.000061	0.00338	mg/L	0.000123	3.64%
Ba 233.527†	8762.4	1.992	mg/L	0.0202	3.983	mg/L	0.0404	1.01%
Be 313.042†	221974.3	0.5058	mg/L	0.00133	1.012	mg/L	0.0027	0.26%
Ca 317.933†	98734.0	9.944	mg/L	0.0507	19.89	mg/L	0.101	0.51%
Cd 228.802†	13200.0	0.4926	mg/L	0.00252	0.9852	mg/L	0.00504	0.51%
Co 228.616†	17313.1	0.4948	mg/L	0.00173	0.9895	mg/L	0.00345	0.35%
Cr 267.716†	2084.4	0.5019	mg/L	0.00332	1.004	mg/L	0.0066	0.66%
Cu 324.752†	97718.6	0.4732	mg/L	0.00074	0.9463	mg/L	0.00149	0.16%
Fe 273.955†	2057.6	2.027	mg/L	0.0262	4.053	mg/L	0.0524	1.29%
K 766.490†	10642.0	9.671	mg/L	0.0555	19.34	mg/L	0.111	0.57%
Mg 279.077†	10778.2	10.43	mg/L	0.107	20.86	mg/L	0.215	1.03%
Mn 257.610†	16480.4	0.4799	mg/L	0.00231	0.9598	mg/L	0.00461	0.48%
Mo 202.031†	21.8	0.00105	mg/L	0.000136	0.00209	mg/L	0.000273	13.04%
Na 589.592†	82138.4	9.866	mg/L	0.0309	19.73	mg/L	0.062	0.31%
Na 330.237†	195.8	9.955	mg/L	0.2076	19.91	mg/L	0.415	2.09%
Ni 231.604†	1704.9	0.5096	mg/L	0.00508	1.019	mg/L	0.0102	1.00%
Pb 220.353†	15627.1	2.038	mg/L	0.0088	4.075	mg/L	0.0177	0.43%
Sb 206.836†	5698.5	2.056	mg/L	0.0069	4.111	mg/L	0.0138	0.34%
Se 196.026†	2361.9	2.080	mg/L	0.0065	4.160	mg/L	0.0131	0.31%
Si 288.158†	-0.9	0.00091	mg/L	0.006246	0.00183	mg/L	0.012493	683.27%
Sn 189.927†	-26.6	-0.00458	mg/L	0.000436	-0.00915	mg/L	0.000873	9.54%
Sr 421.552†	135243.3	0.5257	mg/L	0.00404	1.051	mg/L	0.0081	0.77%
Ti 334.903†	28.8	0.00134	mg/L	0.000650	0.00268	mg/L	0.001300	48.44%
Tl 190.801†	4199.4	2.052	mg/L	0.0093	4.104	mg/L	0.0185	0.45%
V 292.402†	43681.0	0.4935	mg/L	0.00292	0.9870	mg/L	0.00583	0.59%
Zn 206.200†	1202.0	0.5110	mg/L	0.00369	1.022	mg/L	0.0074	0.72%

Sequence No.: 41
Sample ID: BHH0091-BS1

Dilution: 2X
Wash Time: 37

Autosampler Location: 333
Date Collected: 8/9/2019 1:46:39 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-BS1

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: BHH0091-BS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2173741.9	102.6	%	1.31				1.28%
ScR 361.383	216482.3	101.4	%	1.07				1.06%
Ag 328.068†	70916.2	0.4603	mg/L	0.00626	0.9206	mg/L	0.01252	1.36%
Al 308.215†	1863.6	1.602	mg/L	0.0073	3.204	mg/L	0.0146	0.45%
As 188.979†	2515.7	1.674	mg/L	0.0300	3.347	mg/L	0.0599	1.79%
B 249.677†	19.2	0.00205	mg/L	0.000812	0.00410	mg/L	0.001623	39.58%
Ba 233.527†	7070.1	1.607	mg/L	0.0128	3.214	mg/L	0.0255	0.79%
Be 313.042†	179456.5	0.4089	mg/L	0.00100	0.8179	mg/L	0.00201	0.25%
Ca 317.933†	81005.7	8.159	mg/L	0.0248	16.32	mg/L	0.050	0.30%
Cd 228.802†	10853.2	0.4051	mg/L	0.00737	0.8101	mg/L	0.01474	1.82%
Co 228.616†	13723.1	0.3922	mg/L	0.00555	0.7843	mg/L	0.01111	1.42%
Cr 267.716†	1669.0	0.4019	mg/L	0.00428	0.8038	mg/L	0.00856	1.07%
Cu 324.752†	80831.8	0.3914	mg/L	0.00659	0.7828	mg/L	0.01319	1.68%
Fe 273.955†	1641.5	1.617	mg/L	0.0191	3.234	mg/L	0.0382	1.18%
K 766.490†	8846.4	8.039	mg/L	0.0688	16.08	mg/L	0.138	0.86%
Mg 279.077†	8604.1	8.326	mg/L	0.0708	16.65	mg/L	0.142	0.85%
Mn 257.610†	13349.4	0.3887	mg/L	0.00181	0.7774	mg/L	0.00362	0.47%
Mo 202.031†	19.2	0.00093	mg/L	0.000120	0.00186	mg/L	0.000240	12.94%
Na 589.592†	68037.2	8.172	mg/L	0.0302	16.34	mg/L	0.060	0.37%
Na 330.237†	166.9	8.495	mg/L	0.1803	16.99	mg/L	0.361	2.12%
Ni 231.604†	1375.4	0.4098	mg/L	0.00237	0.8197	mg/L	0.00474	0.58%
Pb 220.353†	12871.3	1.678	mg/L	0.0292	3.356	mg/L	0.0583	1.74%
Sb 206.836†	11.1	-0.00118	mg/L	0.000691	-0.00237	mg/L	0.001382	58.33%
Se 196.026†	1951.8	1.719	mg/L	0.0189	3.438	mg/L	0.0379	1.10%
Si 288.158†	-1.3	0.00018	mg/L	0.009008	0.00036	mg/L	0.018016	>999.9%
Sn 189.927†	-16.4	-0.00305	mg/L	0.000262	-0.00609	mg/L	0.000524	8.60%
Sr 421.552†	109220.6	0.4245	mg/L	0.00121	0.8491	mg/L	0.00241	0.28%
Ti 334.903†	22.5	0.00102	mg/L	0.000826	0.00204	mg/L	0.001651	81.04%
Tl 190.801†	3575.6	1.748	mg/L	0.0245	3.495	mg/L	0.0491	1.40%
V 292.402†	34375.3	0.3884	mg/L	0.00959	0.7768	mg/L	0.01919	2.47%
Zn 206.200†	968.6	0.4117	mg/L	0.00435	0.8235	mg/L	0.00869	1.06%

Sequence No.: 42
Sample ID: SEQ-CCV4
Autosampler Location: 7
Date Collected: 8/9/2019 1:50:37 PM
Data Type: Original
Dilution: 1X
Wash Time: 37
Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV4

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: SEQ-CCV4

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2121124.9	100.2	%	0.17				0.17%
ScR 361.383	211927.7	99.25	%	1.107				1.12%
Ag 328.068†	155472.3	1.009	mg/L	0.0023	1.009	mg/L	0.0023	0.22%
Al 308.215†	2357.0	1.996	mg/L	0.0240	1.996	mg/L	0.0240	1.20%
As 188.979†	2964.8	1.997	mg/L	0.0070	1.997	mg/L	0.0070	0.35%
B 249.677†	6931.3	1.026	mg/L	0.0080	1.026	mg/L	0.0080	0.78%
Ba 233.527†	4389.8	0.9965	mg/L	0.01059	0.9965	mg/L	0.01059	1.06%
Be 313.042†	442523.4	1.008	mg/L	0.0037	1.008	mg/L	0.0037	0.37%
Ca 317.933†	20690.1	2.072	mg/L	0.0177	2.072	mg/L	0.0177	0.85%
Cd 228.802†	25689.5	0.9719	mg/L	0.00315	0.9719	mg/L	0.00315	0.32%
Co 228.616†	34071.4	0.9724	mg/L	0.00341	0.9724	mg/L	0.00341	0.35%
Cr 267.716†	4094.9	0.9883	mg/L	0.00731	0.9883	mg/L	0.00731	0.74%
Cu 324.752†	202116.2	0.9782	mg/L	0.00255	0.9782	mg/L	0.00255	0.26%
Fe 273.955†	2038.0	2.004	mg/L	0.0219	2.004	mg/L	0.0219	1.09%
K 766.490†	21718.5	19.74	mg/L	0.088	19.74	mg/L	0.088	0.45%
Mg 279.077†	2107.4	2.050	mg/L	0.0208	2.050	mg/L	0.0208	1.02%
Mn 257.610†	34563.6	1.006	mg/L	0.0097	1.006	mg/L	0.0097	0.97%
Mo 202.031†	17250.8	0.9798	mg/L	0.00296	0.9798	mg/L	0.00296	0.30%
Na 589.592†	416865.7	50.07	mg/L	0.275	50.07	mg/L	0.275	0.55%
Na 330.237†	970.6	50.19	mg/L	0.514	50.19	mg/L	0.514	1.03%
Ni 231.604†	3407.5	1.017	mg/L	0.0100	1.017	mg/L	0.0100	0.98%
Pb 220.353†	15426.1	2.012	mg/L	0.0057	2.012	mg/L	0.0057	0.28%
Sb 206.836†	5715.4	2.064	mg/L	0.0045	2.064	mg/L	0.0045	0.22%
Se 196.026†	2338.0	2.058	mg/L	0.0095	2.058	mg/L	0.0095	0.46%
Si 288.158†	1937.5	2.059	mg/L	0.0219	2.059	mg/L	0.0219	1.07%
Sn 189.927†	3682.6	0.9967	mg/L	0.00321	0.9967	mg/L	0.00321	0.32%
Sr 421.552†	270041.8	1.050	mg/L	0.0043	1.050	mg/L	0.0043	0.41%
Ti 334.903†	13624.0	0.9712	mg/L	0.00803	0.9712	mg/L	0.00803	0.83%
Tl 190.801†	4111.5	2.006	mg/L	0.0033	2.006	mg/L	0.0033	0.16%
V 292.402†	85716.8	0.9685	mg/L	0.00802	0.9685	mg/L	0.00802	0.83%
Zn 206.200†	2450.9	1.041	mg/L	0.0126	1.041	mg/L	0.0126	1.21%

Sequence No.: 43 **Autosampler Location: 1**
Sample ID: SEQ-CCB4 **Date Collected: 8/9/2019 1:55:40 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB4

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: SEQ-CCB4

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2188376.5	103.3	%	0.22				0.21%
ScR 361.383	217006.3	101.6	%	1.22				1.20%
Ag 328.068†	10.6	0.00007	mg/L	0.000144	0.00007	mg/L	0.000144	209.21%
Al 308.215†	7.5	0.00642	mg/L	0.009660	0.00642	mg/L	0.009660	150.44%
As 188.979†	-2.6	-0.00170	mg/L	0.001706	-0.00170	mg/L	0.001706	100.60%
B 249.677†	17.5	0.00260	mg/L	0.000669	0.00260	mg/L	0.000669	25.75%
Ba 233.527†	2.7	0.00061	mg/L	0.000548	0.00061	mg/L	0.000548	89.25%
Be 313.042†	12.2	0.00003	mg/L	0.000070	0.00003	mg/L	0.000070	259.80%
Ca 317.933†	13.6	0.00135	mg/L	0.001098	0.00135	mg/L	0.001098	81.45%
Cd 228.802†	3.7	0.00015	mg/L	0.000034	0.00015	mg/L	0.000034	22.52%
Co 228.616†	7.0	0.00020	mg/L	0.000062	0.00020	mg/L	0.000062	31.44%
Cr 267.716†	-3.0	-0.00074	mg/L	0.000269	-0.00074	mg/L	0.000269	36.64%
Cu 324.752†	94.8	0.00046	mg/L	0.000132	0.00046	mg/L	0.000132	28.76%
Fe 273.955†	0.6	0.00058	mg/L	0.003880	0.00058	mg/L	0.003880	674.56%
K 766.490†	1.6	0.00144	mg/L	0.022595	0.00144	mg/L	0.022595	>999.9%
Mg 279.077†	3.8	0.00372	mg/L	0.009774	0.00372	mg/L	0.009774	262.82%
Mn 257.610†	6.8	0.00020	mg/L	0.000135	0.00020	mg/L	0.000135	67.93%
Mo 202.031†	3.4	0.00019	mg/L	0.000258	0.00019	mg/L	0.000258	135.39%
Na 589.592†	47.0	0.00565	mg/L	0.001823	0.00565	mg/L	0.001823	32.26%
Na 330.237†	21.8	1.130	mg/L	0.6552	1.130	mg/L	0.6552	57.99%
Ni 231.604†	-0.3	-0.00008	mg/L	0.000511	-0.00008	mg/L	0.000511	660.52%
Pb 220.353†	1.1	0.00014	mg/L	0.000842	0.00014	mg/L	0.000842	598.49%
Sb 206.836†	-2.8	-0.00101	mg/L	0.000297	-0.00101	mg/L	0.000297	29.45%
Se 196.026†	-3.7	-0.00330	mg/L	0.002900	-0.00330	mg/L	0.002900	87.85%
Si 288.158†	5.5	0.00583	mg/L	0.005611	0.00583	mg/L	0.005611	96.19%
Sn 189.927†	-3.9	-0.00106	mg/L	0.000724	-0.00106	mg/L	0.000724	68.28%
Sr 421.552†	4.4	0.00002	mg/L	0.000078	0.00002	mg/L	0.000078	451.72%
Ti 334.903†	12.6	0.00090	mg/L	0.000540	0.00090	mg/L	0.000540	60.20%
Tl 190.801†	1.4	0.00069	mg/L	0.000544	0.00069	mg/L	0.000544	79.08%
V 292.402†	19.9	0.00022	mg/L	0.000307	0.00022	mg/L	0.000307	140.64%
Zn 206.200†	1.8	0.00076	mg/L	0.000718	0.00076	mg/L	0.000718	95.02%

Sequence No.: 44
Sample ID: 19H0024-04

Autosampler Location: 334
Date Collected: 8/9/2019 1:59:39 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0024-04

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: 19H0024-04

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2110567.8	99.65	%	1.718				1.72%
ScR 361.383	217666.1	101.9	%	0.40				0.39%
Ag 328.068†	-64.0	-0.00033	mg/L	0.000250	-0.00066	mg/L	0.000499	75.32%
Al 308.215†	108893.9	93.92	mg/L	0.879	187.8	mg/L	1.76	0.94%
As 188.979†	-90.6	0.07575	mg/L	0.005245	0.1515	mg/L	0.01049	6.92%
B 249.677†	1007.6	0.1640	mg/L	0.00045	0.3280	mg/L	0.00090	0.27%
Ba 233.527†	1302.4	0.2776	mg/L	0.00068	0.5551	mg/L	0.00136	0.24%
Be 313.042†	1391.4	0.00194	mg/L	0.000040	0.00388	mg/L	0.000080	2.06%
Ca 317.933†	270794.7	27.29	mg/L	0.416	54.58	mg/L	0.832	1.52%
Cd 228.802†	69.1	0.00311	mg/L	0.000272	0.00622	mg/L	0.000545	8.75%
Co 228.616†	1687.0	0.03731	mg/L	0.000946	0.07462	mg/L	0.001892	2.54%
Cr 267.716†	535.7	0.1338	mg/L	0.00290	0.2675	mg/L	0.00580	2.17%
Cu 324.752†	53778.9	0.2662	mg/L	0.00488	0.5325	mg/L	0.00975	1.83%
Fe 273.955†	148884.5	146.9	mg/L	1.71	293.8	mg/L	3.42	1.17%
K 766.490†	14271.0	12.97	mg/L	0.112	25.94	mg/L	0.225	0.87%
Mg 279.077†	37785.5	36.48	mg/L	0.478	72.96	mg/L	0.956	1.31%
Mn 257.610†	43566.3	1.268	mg/L	0.0125	2.536	mg/L	0.0250	0.98%
Mo 202.031†	84.2	0.00432	mg/L	0.000258	0.00864	mg/L	0.000515	5.96%
Na 589.592†	554166.3	66.56	mg/L	0.648	133.1	mg/L	1.30	0.97%
Na 330.237†	1283.4	67.42	mg/L	0.599	134.8	mg/L	1.20	0.89%
Ni 231.604†	330.5	0.09850	mg/L	0.001714	0.1970	mg/L	0.00343	1.74%
Pb 220.353†	750.2	0.1162	mg/L	0.00229	0.2325	mg/L	0.00457	1.97%
Sb 206.836†	14.6	0.01130	mg/L	0.002561	0.02261	mg/L	0.005122	22.66%
Se 196.026†	-12.0	-0.00455	mg/L	0.010342	-0.00910	mg/L	0.020683	227.33%
Si 288.158†	1481.3	1.577	mg/L	0.0109	3.155	mg/L	0.0218	0.69%
Sn 189.927†	-6.9	0.00484	mg/L	0.000339	0.00968	mg/L	0.000678	7.00%
Sr 421.552†	115357.9	0.4484	mg/L	0.00362	0.8968	mg/L	0.00723	0.81%
Ti 334.903†	66569.3	4.750	mg/L	0.0603	9.500	mg/L	0.1206	1.27%
Tl 190.801†	-28.0	-0.01353	mg/L	0.003153	-0.02707	mg/L	0.006306	23.30%
V 292.402†	24884.8	0.2876	mg/L	0.00362	0.5752	mg/L	0.00723	1.26%
Zn 206.200†	1418.4	0.6029	mg/L	0.00098	1.206	mg/L	0.0020	0.16%

Sequence No.: 45
Sample ID: 19H0024-05

Dilution: 2X
Wash Time: 37

Autosampler Location: 335
Date Collected: 8/9/2019 2:03:40 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0024-05

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19H0024-05

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2094184.0	98.88	%	0.427				0.43%
ScR 361.383	218212.9	102.2	%	0.89				0.87%
Ag 328.068†	-27.3	-0.00009	mg/L	0.000274	-0.00017	mg/L	0.000548	315.28%
Al 308.215†	119489.2	103.1	mg/L	0.50	206.1	mg/L	0.99	0.48%
As 188.979†	-106.9	0.07759	mg/L	0.002964	0.1552	mg/L	0.00593	3.82%
B 249.677†	1042.5	0.1705	mg/L	0.00110	0.3410	mg/L	0.00221	0.65%
Ba 233.527†	1392.0	0.2962	mg/L	0.00267	0.5925	mg/L	0.00535	0.90%
Be 313.042†	1460.4	0.00201	mg/L	0.000070	0.00402	mg/L	0.000139	3.46%
Ca 317.933†	293468.1	29.58	mg/L	0.176	59.15	mg/L	0.351	0.59%
Cd 228.802†	80.6	0.00363	mg/L	0.000257	0.00725	mg/L	0.000514	7.09%
Co 228.616†	1825.7	0.04026	mg/L	0.000439	0.08052	mg/L	0.000878	1.09%
Cr 267.716†	574.0	0.1434	mg/L	0.00095	0.2868	mg/L	0.00191	0.66%
Cu 324.752†	57324.8	0.2839	mg/L	0.00476	0.5679	mg/L	0.00952	1.68%
Fe 273.955†	162446.7	160.3	mg/L	0.56	320.6	mg/L	1.13	0.35%
K 766.490†	15288.6	13.89	mg/L	0.026	27.79	mg/L	0.051	0.18%
Mg 279.077†	41326.1	39.90	mg/L	0.269	79.80	mg/L	0.537	0.67%
Mn 257.610†	47517.8	1.383	mg/L	0.0074	2.766	mg/L	0.0149	0.54%
Mo 202.031†	92.7	0.00477	mg/L	0.000228	0.00954	mg/L	0.000455	4.77%
Na 589.592†	589546.5	70.81	mg/L	0.434	141.6	mg/L	0.87	0.61%
Na 330.237†	1350.8	71.00	mg/L	0.589	142.0	mg/L	1.18	0.83%
Ni 231.604†	350.5	0.1045	mg/L	0.00088	0.2090	mg/L	0.00176	0.84%
Pb 220.353†	797.2	0.1242	mg/L	0.00146	0.2484	mg/L	0.00292	1.18%
Sb 206.836†	21.3	0.01430	mg/L	0.001086	0.02861	mg/L	0.002172	7.59%
Se 196.026†	-16.9	-0.00837	mg/L	0.003248	-0.01673	mg/L	0.006496	38.83%
Si 288.158†	1866.1	1.986	mg/L	0.0506	3.973	mg/L	0.1011	2.55%
Sn 189.927†	-9.3	0.00479	mg/L	0.000654	0.00957	mg/L	0.001308	13.66%
Sr 421.552†	123617.2	0.4805	mg/L	0.00676	0.9610	mg/L	0.01353	1.41%
Ti 334.903†	72784.9	5.194	mg/L	0.0273	10.39	mg/L	0.055	0.53%
Tl 190.801†	-35.0	-0.01693	mg/L	0.001991	-0.03387	mg/L	0.003981	11.76%
V 292.402†	26619.8	0.3078	mg/L	0.00482	0.6156	mg/L	0.00964	1.57%
Zn 206.200†	1518.2	0.6454	mg/L	0.00521	1.291	mg/L	0.0104	0.81%

Sequence No.: 46
Sample ID: 19H0024-06

Autosampler Location: 336
Date Collected: 8/9/2019 2:07:40 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0024-06

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19H0024-06

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2113259.1	99.78	%	1.591				1.59%
ScR 361.383	214806.4	100.6	%	0.28				0.28%
Ag 328.068†	-84.7	-0.00047	mg/L	0.000221	-0.00095	mg/L	0.000442	46.51%
Al 308.215†	91632.4	79.03	mg/L	0.476	158.1	mg/L	0.95	0.60%
As 188.979†	-87.6	0.07170	mg/L	0.000432	0.1434	mg/L	0.00086	0.60%
B 249.677†	491.6	0.08611	mg/L	0.000785	0.1722	mg/L	0.00157	0.91%
Ba 233.527†	924.2	0.1934	mg/L	0.00349	0.3868	mg/L	0.00699	1.81%
Be 313.042†	1243.0	0.00173	mg/L	0.000093	0.00347	mg/L	0.000186	5.37%
Ca 317.933†	276032.9	27.82	mg/L	0.276	55.64	mg/L	0.553	0.99%
Cd 228.802†	41.2	0.00203	mg/L	0.000311	0.00406	mg/L	0.000622	15.35%
Co 228.616†	1567.6	0.03451	mg/L	0.000837	0.06902	mg/L	0.001674	2.43%
Cr 267.716†	462.2	0.1156	mg/L	0.00301	0.2311	mg/L	0.00602	2.61%
Cu 324.752†	36370.1	0.1813	mg/L	0.00279	0.3627	mg/L	0.00557	1.54%
Fe 273.955†	134240.6	132.5	mg/L	1.61	264.9	mg/L	3.22	1.22%
K 766.490†	11005.6	10.00	mg/L	0.081	20.00	mg/L	0.162	0.81%
Mg 279.077†	33855.5	32.69	mg/L	0.310	65.38	mg/L	0.621	0.95%
Mn 257.610†	94968.9	2.764	mg/L	0.0191	5.527	mg/L	0.0381	0.69%
Mo 202.031†	119.5	0.00632	mg/L	0.000429	0.01264	mg/L	0.000859	6.79%
Na 589.592†	392198.7	47.11	mg/L	0.388	94.22	mg/L	0.776	0.82%
Na 330.237†	887.8	46.89	mg/L	0.426	93.78	mg/L	0.851	0.91%
Ni 231.604†	320.8	0.09560	mg/L	0.001753	0.1912	mg/L	0.00351	1.83%
Pb 220.353†	452.6	0.07415	mg/L	0.001535	0.1483	mg/L	0.00307	2.07%
Sb 206.836†	12.9	0.01051	mg/L	0.002922	0.02102	mg/L	0.005844	27.80%
Se 196.026†	-9.5	-0.00380	mg/L	0.006083	-0.00761	mg/L	0.012166	159.90%
Si 288.158†	1424.2	1.516	mg/L	0.0243	3.033	mg/L	0.0487	1.61%
Sn 189.927†	-20.0	0.00130	mg/L	0.000226	0.00260	mg/L	0.000452	17.41%
Sr 421.552†	88782.0	0.3451	mg/L	0.00364	0.6902	mg/L	0.00728	1.05%
Ti 334.903†	63664.6	4.543	mg/L	0.0316	9.085	mg/L	0.0632	0.70%
Tl 190.801†	-30.7	-0.01296	mg/L	0.000302	-0.02593	mg/L	0.000605	2.33%
V 292.402†	22173.6	0.2566	mg/L	0.00349	0.5132	mg/L	0.00698	1.36%
Zn 206.200†	1077.6	0.4580	mg/L	0.00686	0.9161	mg/L	0.01371	1.50%

Sequence No.: 47
Sample ID: 19H0024-07

Dilution: 2X
Wash Time: 37

Autosampler Location: 337
Date Collected: 8/9/2019 2:11:40 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0024-07

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19H0024-07

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2085469.4	98.47	%	2.299				2.34%
ScR 361.383	219515.3	102.8	%	1.27				1.24%
Ag 328.068†	-112.1	-0.00063	mg/L	0.000211	-0.00127	mg/L	0.000423	33.35%
Al 308.215†	113703.5	98.07	mg/L	0.319	196.1	mg/L	0.64	0.33%
As 188.979†	-126.5	0.06307	mg/L	0.002384	0.1261	mg/L	0.00477	3.78%
B 249.677†	346.8	0.06706	mg/L	0.000551	0.1341	mg/L	0.00110	0.82%
Ba 233.527†	1246.5	0.2636	mg/L	0.00191	0.5272	mg/L	0.00382	0.72%
Be 313.042†	1416.9	0.00187	mg/L	0.000032	0.00373	mg/L	0.000065	1.74%
Ca 317.933†	403632.2	40.68	mg/L	0.129	81.36	mg/L	0.258	0.32%
Cd 228.802†	66.4	0.00321	mg/L	0.000206	0.00642	mg/L	0.000412	6.41%
Co 228.616†	1976.0	0.04466	mg/L	0.000564	0.08931	mg/L	0.001127	1.26%
Cr 267.716†	746.7	0.1850	mg/L	0.00154	0.3700	mg/L	0.00308	0.83%
Cu 324.752†	49576.6	0.2463	mg/L	0.00475	0.4926	mg/L	0.00951	1.93%
Fe 273.955†	158701.8	156.6	mg/L	1.21	313.2	mg/L	2.43	0.77%
K 766.490†	10886.3	9.893	mg/L	0.0428	19.79	mg/L	0.086	0.43%
Mg 279.077†	38984.9	37.64	mg/L	0.069	75.27	mg/L	0.137	0.18%
Mn 257.610†	79027.2	2.300	mg/L	0.0025	4.599	mg/L	0.0049	0.11%
Mo 202.031†	160.5	0.00843	mg/L	0.000311	0.01686	mg/L	0.000622	3.69%
Na 589.592†	247548.1	29.73	mg/L	0.074	59.47	mg/L	0.147	0.25%
Na 330.237†	555.5	29.66	mg/L	0.211	59.31	mg/L	0.422	0.71%
Ni 231.604†	499.6	0.1489	mg/L	0.00147	0.2978	mg/L	0.00294	0.99%
Pb 220.353†	663.1	0.1057	mg/L	0.00150	0.2114	mg/L	0.00300	1.42%
Sb 206.836†	27.6	0.01588	mg/L	0.001411	0.03176	mg/L	0.002822	8.89%
Se 196.026†	-15.2	-0.00758	mg/L	0.002233	-0.01517	mg/L	0.004466	29.44%
Si 288.158†	1426.0	1.519	mg/L	0.0028	3.038	mg/L	0.0055	0.18%
Sn 189.927†	-18.8	0.00410	mg/L	0.002388	0.00819	mg/L	0.004776	58.32%
Sr 421.552†	92079.0	0.3579	mg/L	0.00576	0.7158	mg/L	0.01152	1.61%
Ti 334.903†	72471.8	5.170	mg/L	0.0196	10.34	mg/L	0.039	0.38%
Tl 190.801†	-34.9	-0.01587	mg/L	0.001255	-0.03174	mg/L	0.002510	7.91%
V 292.402†	27601.0	0.3191	mg/L	0.00656	0.6381	mg/L	0.01313	2.06%
Zn 206.200†	1657.8	0.7050	mg/L	0.00502	1.410	mg/L	0.0100	0.71%

Sequence No.: 48
Sample ID: 19H0024-08

Dilution: 2X
Wash Time: 37

Autosampler Location: 338
Date Collected: 8/9/2019 2:15:39 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0024-08

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: 19H0024-08

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2100602.7	99.18	%	1.287				1.30%
ScR 361.383	214288.5	100.4	%	2.84				2.83%
Ag 328.068†	-36.3	-0.00016	mg/L	0.000278	-0.00032	mg/L	0.000556	174.04%
Al 308.215†	77726.8	67.04	mg/L	0.668	134.1	mg/L	1.34	1.00%
As 188.979†	-68.9	0.06716	mg/L	0.003249	0.1343	mg/L	0.00650	4.84%
B 249.677†	664.4	0.1116	mg/L	0.00305	0.2233	mg/L	0.00609	2.73%
Ba 233.527†	1608.7	0.3491	mg/L	0.00695	0.6982	mg/L	0.01390	1.99%
Be 313.042†	1148.3	0.00151	mg/L	0.000152	0.00303	mg/L	0.000304	10.04%
Ca 317.933†	276323.7	27.85	mg/L	0.078	55.70	mg/L	0.156	0.28%
Cd 228.802†	89.3	0.00380	mg/L	0.000198	0.00760	mg/L	0.000396	5.21%
Co 228.616†	1380.1	0.03019	mg/L	0.000456	0.06038	mg/L	0.000913	1.51%
Cr 267.716†	665.6	0.1648	mg/L	0.00376	0.3296	mg/L	0.00752	2.28%
Cu 324.752†	62915.6	0.3099	mg/L	0.00661	0.6199	mg/L	0.01321	2.13%
Fe 273.955†	133623.9	131.8	mg/L	0.71	263.7	mg/L	1.41	0.54%
K 766.490†	10254.9	9.319	mg/L	0.1895	18.64	mg/L	0.379	2.03%
Mg 279.077†	32302.7	31.18	mg/L	0.619	62.37	mg/L	1.237	1.98%
Mn 257.610†	49317.0	1.435	mg/L	0.0124	2.870	mg/L	0.0247	0.86%
Mo 202.031†	230.3	0.01261	mg/L	0.000285	0.02522	mg/L	0.000569	2.26%
Na 589.592†	439257.0	52.76	mg/L	0.523	105.5	mg/L	1.05	0.99%
Na 330.237†	1005.4	52.60	mg/L	0.822	105.2	mg/L	1.64	1.56%
Ni 231.604†	355.7	0.1060	mg/L	0.00072	0.2120	mg/L	0.00144	0.68%
Pb 220.353†	1273.7	0.1779	mg/L	0.00270	0.3557	mg/L	0.00540	1.52%
Sb 206.836†	30.6	0.01530	mg/L	0.001239	0.03060	mg/L	0.002478	8.10%
Se 196.026†	-20.0	-0.01061	mg/L	0.005687	-0.02121	mg/L	0.011375	53.62%
Si 288.158†	1537.6	1.637	mg/L	0.0297	3.273	mg/L	0.0595	1.82%
Sn 189.927†	12.4	0.00981	mg/L	0.000550	0.01962	mg/L	0.001099	5.60%
Sr 421.552†	97742.2	0.3799	mg/L	0.00401	0.7598	mg/L	0.00802	1.06%
Ti 334.903†	55424.5	3.954	mg/L	0.0295	7.909	mg/L	0.0590	0.75%
Tl 190.801†	-32.6	-0.01544	mg/L	0.001975	-0.03088	mg/L	0.003951	12.79%
V 292.402†	22379.2	0.2590	mg/L	0.00632	0.5181	mg/L	0.01263	2.44%
Zn 206.200†	2627.1	1.117	mg/L	0.0208	2.235	mg/L	0.0415	1.86%

Sequence No.: 49
Sample ID: 19H0024-09

Dilution: 2X
Wash Time: 37

Autosampler Location: 339
Date Collected: 8/9/2019 2:19:38 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0024-09

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: 19H0024-09

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2123273.7	100.3	%	1.05				1.05%
ScR 361.383	219937.1	103.0	%	1.19				1.16%
Ag 328.068†	-22.3	-0.00006	mg/L	0.000054	-0.00013	mg/L	0.000107	83.87%
Al 308.215†	85606.2	73.83	mg/L	0.567	147.7	mg/L	1.13	0.77%
As 188.979†	-81.0	0.07254	mg/L	0.001372	0.1451	mg/L	0.00274	1.89%
B 249.677†	689.1	0.1178	mg/L	0.00349	0.2357	mg/L	0.00698	2.96%
Ba 233.527†	2031.7	0.4422	mg/L	0.00999	0.8843	mg/L	0.01999	2.26%
Be 313.042†	1187.1	0.00153	mg/L	0.000164	0.00306	mg/L	0.000327	10.71%
Ca 317.933†	272029.8	27.42	mg/L	0.110	54.83	mg/L	0.219	0.40%
Cd 228.802†	147.0	0.00609	mg/L	0.000285	0.01217	mg/L	0.000571	4.69%
Co 228.616†	1680.0	0.03752	mg/L	0.000690	0.07505	mg/L	0.001380	1.84%
Cr 267.716†	818.8	0.2030	mg/L	0.00420	0.4059	mg/L	0.00841	2.07%
Cu 324.752†	97310.6	0.4775	mg/L	0.02431	0.9551	mg/L	0.04862	5.09%
Fe 273.955†	158996.2	156.9	mg/L	0.80	313.8	mg/L	1.60	0.51%
K 766.490†	11225.0	10.20	mg/L	0.080	20.40	mg/L	0.161	0.79%
Mg 279.077†	35736.2	34.49	mg/L	0.716	68.98	mg/L	1.432	2.08%
Mn 257.610†	36284.7	1.056	mg/L	0.0073	2.112	mg/L	0.0146	0.69%
Mo 202.031†	446.2	0.02488	mg/L	0.000308	0.04976	mg/L	0.000616	1.24%
Na 589.592†	455785.5	54.75	mg/L	0.422	109.5	mg/L	0.84	0.77%
Na 330.237†	1058.0	54.98	mg/L	1.195	110.0	mg/L	2.39	2.17%
Ni 231.604†	435.8	0.1299	mg/L	0.00376	0.2598	mg/L	0.00752	2.90%
Pb 220.353†	2297.7	0.3118	mg/L	0.00282	0.6236	mg/L	0.00563	0.90%
Sb 206.836†	37.3	0.01802	mg/L	0.000636	0.03605	mg/L	0.001272	3.53%
Se 196.026†	-17.0	-0.00551	mg/L	0.003244	-0.01101	mg/L	0.006489	58.93%
Si 288.158†	1509.3	1.607	mg/L	0.0279	3.214	mg/L	0.0557	1.73%
Sn 189.927†	87.3	0.03016	mg/L	0.000725	0.06033	mg/L	0.001449	2.40%
Sr 421.552†	99036.5	0.3850	mg/L	0.00260	0.7699	mg/L	0.00521	0.68%
Ti 334.903†	61806.0	4.410	mg/L	0.0284	8.820	mg/L	0.0568	0.64%
Tl 190.801†	-30.8	-0.01512	mg/L	0.004952	-0.03024	mg/L	0.009903	32.75%
V 292.402†	23845.8	0.2770	mg/L	0.01554	0.5539	mg/L	0.03108	5.61%
Zn 206.200†	5128.8	2.182	mg/L	0.0483	4.364	mg/L	0.0966	2.21%

Sequence No.: 50
Sample ID: BHH0169-DUP1

Dilution: 2X
Wash Time: 37

Autosampler Location: 340
Date Collected: 8/9/2019 2:23:37 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0169-DUP1

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: BHH0169-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2086012.7	98.49	%	1.209				1.23%
ScR 361.383	213863.3	100.2	%	0.18				0.18%
Ag 328.068†	-16.4	-0.00004	mg/L	0.000227	-0.00007	mg/L	0.000454	632.57%
Al 308.215†	79516.4	68.58	mg/L	0.307	137.2	mg/L	0.61	0.45%
As 188.979†	-68.3	0.06087	mg/L	0.004999	0.1217	mg/L	0.01000	8.21%
B 249.677†	841.1	0.1375	mg/L	0.00243	0.2750	mg/L	0.00485	1.77%
Ba 233.527†	1053.2	0.2232	mg/L	0.00647	0.4464	mg/L	0.01294	2.90%
Be 313.042†	1128.6	0.00155	mg/L	0.000086	0.00310	mg/L	0.000171	5.52%
Ca 317.933†	266736.4	26.88	mg/L	0.116	53.76	mg/L	0.232	0.43%
Cd 228.802†	71.4	0.00309	mg/L	0.000156	0.00618	mg/L	0.000312	5.05%
Co 228.616†	1338.4	0.02948	mg/L	0.000408	0.05896	mg/L	0.000816	1.38%
Cr 267.716†	471.5	0.1177	mg/L	0.00200	0.2354	mg/L	0.00400	1.70%
Cu 324.752†	55880.9	0.2758	mg/L	0.00406	0.5515	mg/L	0.00813	1.47%
Fe 273.955†	130518.6	128.8	mg/L	1.26	257.6	mg/L	2.51	0.98%
K 766.490†	10884.5	9.891	mg/L	0.0999	19.78	mg/L	0.200	1.01%
Mg 279.077†	32941.2	31.80	mg/L	0.667	63.60	mg/L	1.333	2.10%
Mn 257.610†	37594.3	1.094	mg/L	0.0046	2.188	mg/L	0.0091	0.42%
Mo 202.031†	125.0	0.00665	mg/L	0.000417	0.01330	mg/L	0.000834	6.27%
Na 589.592†	512974.6	61.62	mg/L	0.220	123.2	mg/L	0.44	0.36%
Na 330.237†	1162.9	60.87	mg/L	1.218	121.7	mg/L	2.44	2.00%
Ni 231.604†	277.8	0.08279	mg/L	0.002860	0.1656	mg/L	0.00572	3.45%
Pb 220.353†	908.6	0.1308	mg/L	0.00094	0.2616	mg/L	0.00188	0.72%
Sb 206.836†	21.1	0.01222	mg/L	0.000797	0.02443	mg/L	0.001594	6.52%
Se 196.026†	-10.9	-0.00281	mg/L	0.005344	-0.00561	mg/L	0.010687	190.44%
Si 288.158†	1756.9	1.869	mg/L	0.0392	3.739	mg/L	0.0783	2.10%
Sn 189.927†	11.3	0.00924	mg/L	0.001569	0.01847	mg/L	0.003138	16.99%
Sr 421.552†	99605.9	0.3872	mg/L	0.00443	0.7743	mg/L	0.00886	1.14%
Ti 334.903†	52107.6	3.718	mg/L	0.0213	7.436	mg/L	0.0426	0.57%
Tl 190.801†	-28.2	-0.01363	mg/L	0.002165	-0.02726	mg/L	0.004330	15.89%
V 292.402†	20766.4	0.2404	mg/L	0.00316	0.4809	mg/L	0.00631	1.31%
Zn 206.200†	1865.5	0.7933	mg/L	0.01955	1.587	mg/L	0.0391	2.46%

Sequence No.: 51
Sample ID: 19H0024-03

Autosampler Location: 341
Date Collected: 8/9/2019 2:27:36 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0024-03

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: 19H0024-03

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2057567.7	97.15	%	3.558				3.66%
ScR 361.383	213990.8	100.2	%	0.56				0.56%
Ag 328.068†	-48.0	-0.00024	mg/L	0.000108	-0.00048	mg/L	0.000217	45.02%
Al 308.215†	82905.0	71.51	mg/L	0.104	143.0	mg/L	0.21	0.15%
As 188.979†	-69.6	0.06229	mg/L	0.003130	0.1246	mg/L	0.00626	5.02%
B 249.677†	868.5	0.1416	mg/L	0.00035	0.2831	mg/L	0.00070	0.25%
Ba 233.527†	1163.0	0.2482	mg/L	0.00127	0.4964	mg/L	0.00255	0.51%
Be 313.042†	1127.1	0.00153	mg/L	0.000013	0.00307	mg/L	0.000026	0.86%
Ca 317.933†	231018.4	23.28	mg/L	0.001	46.57	mg/L	0.003	0.01%
Cd 228.802†	71.1	0.00309	mg/L	0.000265	0.00617	mg/L	0.000531	8.60%
Co 228.616†	1322.1	0.02889	mg/L	0.000402	0.05778	mg/L	0.000805	1.39%
Cr 267.716†	469.2	0.1172	mg/L	0.00177	0.2344	mg/L	0.00355	1.51%
Cu 324.752†	56599.0	0.2792	mg/L	0.00367	0.5585	mg/L	0.00735	1.32%
Fe 273.955†	130392.5	128.7	mg/L	0.60	257.3	mg/L	1.19	0.46%
K 766.490†	11214.3	10.19	mg/L	0.062	20.38	mg/L	0.125	0.61%
Mg 279.077†	32970.1	31.83	mg/L	0.115	63.66	mg/L	0.230	0.36%
Mn 257.610†	37413.7	1.089	mg/L	0.0016	2.178	mg/L	0.0032	0.15%
Mo 202.031†	116.8	0.00624	mg/L	0.000443	0.01248	mg/L	0.000885	7.09%
Na 589.592†	508951.9	61.13	mg/L	0.019	122.3	mg/L	0.04	0.03%
Na 330.237†	1168.6	61.17	mg/L	0.744	122.3	mg/L	1.49	1.22%
Ni 231.604†	280.0	0.08345	mg/L	0.000791	0.1669	mg/L	0.00158	0.95%
Pb 220.353†	889.3	0.1291	mg/L	0.00176	0.2581	mg/L	0.00351	1.36%
Sb 206.836†	26.8	0.01443	mg/L	0.000863	0.02886	mg/L	0.001726	5.98%
Se 196.026†	-11.2	-0.00345	mg/L	0.003411	-0.00691	mg/L	0.006822	98.74%
Si 288.158†	1477.1	1.572	mg/L	0.0165	3.145	mg/L	0.0331	1.05%
Sn 189.927†	12.1	0.00888	mg/L	0.000990	0.01777	mg/L	0.001981	11.15%
Sr 421.552†	100590.7	0.3910	mg/L	0.00478	0.7820	mg/L	0.00956	1.22%
Ti 334.903†	53120.7	3.790	mg/L	0.0084	7.581	mg/L	0.0169	0.22%
Tl 190.801†	-31.0	-0.01498	mg/L	0.003262	-0.02996	mg/L	0.006525	21.78%
V 292.402†	20992.3	0.2429	mg/L	0.00296	0.4859	mg/L	0.00593	1.22%
Zn 206.200†	1886.1	0.8021	mg/L	0.00234	1.604	mg/L	0.0047	0.29%

Sequence No.: 52
Sample ID: BHH0169-MS1

Autosampler Location: 342
Date Collected: 8/9/2019 2:31:35 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0169-MS1

Analyte	Back Pressure	Flow
All	172.0 kPa	0.65 L/min

Mean Data: BHH0169-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units		Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2100695.4	99.19	%		1.699				1.71%
ScR 361.383	217154.1	101.7	%		0.30				0.30%
Ag 328.068†	73162.7	0.4749	mg/L		0.00129	0.9499	mg/L	0.00259	0.27%
Al 308.215†	82122.7	70.82	mg/L	STL	0.285	141.6	mg/L	0.57	0.40%
As 188.979†	2914.5	2.043	mg/L		0.0445	4.086	mg/L	0.0890	2.18%
B 249.677†	872.1	0.1410	mg/L		0.00166	0.2820	mg/L	0.00332	1.18%
Ba 233.527†	9615.2	2.170	mg/L		0.0168	4.339	mg/L	0.0337	0.78%
Be 313.042†	216716.2	0.4929	mg/L		0.00286	0.9859	mg/L	0.00572	0.58%
Ca 317.933†	327630.7	33.01	mg/L		0.110	66.03	mg/L	0.220	0.33%
Cd 228.802†	13135.1	0.4908	mg/L		0.01195	0.9817	mg/L	0.02389	2.43%
Co 228.616†	17941.3	0.5041	mg/L		0.01140	1.008	mg/L	0.0228	2.26%
Cr 267.716†	2473.2	0.5999	mg/L		0.00475	1.200	mg/L	0.0095	0.79%
Cu 324.752†	150222.3	0.7325	mg/L		0.00258	1.465	mg/L	0.0052	0.35%
Fe 273.955†	130931.8	129.2	mg/L	STL	0.47	258.4	mg/L	0.94	0.36%
K 766.490†	21154.4	19.22	mg/L		0.062	38.45	mg/L	0.124	0.32%
Mg 279.077†	41429.1	40.02	mg/L		0.160	80.03	mg/L	0.320	0.40%
Mn 257.610†	53244.7	1.550	mg/L		0.0063	3.100	mg/L	0.0127	0.41%
Mo 202.031†	128.1	0.00669	mg/L		0.000242	0.01338	mg/L	0.000485	3.62%
Na 589.592†	595930.8	71.58	mg/L		0.280	143.2	mg/L	0.56	0.39%
Na 330.237†	1382.4	72.03	mg/L	STL	0.725	144.1	mg/L	1.45	1.01%
Ni 231.604†	1909.7	0.5694	mg/L		0.00500	1.139	mg/L	0.0100	0.88%
Pb 220.353†	15919.2	2.088	mg/L		0.0478	4.176	mg/L	0.0955	2.29%
Sb 206.836†	1117.3	0.4025	mg/L		0.01010	0.8050	mg/L	0.02019	2.51%
Se 196.026†	2283.5	2.018	mg/L		0.0526	4.035	mg/L	0.1053	2.61%
Si 288.158†	1966.0	2.093	mg/L		0.0253	4.186	mg/L	0.0505	1.21%
Sn 189.927†	-0.6	0.00720	mg/L		0.000426	0.01440	mg/L	0.000851	5.91%
Sr 421.552†	228868.2	0.8896	mg/L		0.00383	1.779	mg/L	0.0077	0.43%
Ti 334.903†	50810.6	3.625	mg/L		0.0082	7.249	mg/L	0.0164	0.23%
Tl 190.801†	3835.6	1.874	mg/L		0.0404	3.749	mg/L	0.0808	2.16%
V 292.402†	59976.9	0.6836	mg/L		0.00612	1.367	mg/L	0.0122	0.89%
Zn 206.200†	3106.5	1.321	mg/L		0.0097	2.642	mg/L	0.0195	0.74%

Sequence No.: 53
Sample ID: BHH0169-MSD1

Dilution: 2X
Wash Time: 37

Autosampler Location: 343
Date Collected: 8/9/2019 2:35:21 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0169-MSD1

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: BHH0169-MSD1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units		Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2105222.0	99.40	%		2.188				2.20%
ScR 361.383	218711.0	102.4	%		1.02				1.00%
Ag 328.068†	74442.7	0.4833	mg/L		0.00279	0.9665	mg/L	0.00558	0.58%
Al 308.215†	82696.3	71.32	mg/L	STL	0.566	142.6	mg/L	1.13	0.79%
As 188.979†	2926.3	2.050	mg/L		0.0301	4.099	mg/L	0.0602	1.47%
B 249.677†	872.9	0.1411	mg/L		0.00193	0.2823	mg/L	0.00386	1.37%
Ba 233.527†	9604.3	2.167	mg/L		0.0303	4.334	mg/L	0.0606	1.40%
Be 313.042†	218521.3	0.4970	mg/L		0.00383	0.9940	mg/L	0.00765	0.77%
Ca 317.933†	334538.2	33.71	mg/L		0.209	67.42	mg/L	0.418	0.62%
Cd 228.802†	13170.7	0.4922	mg/L		0.00827	0.9843	mg/L	0.01655	1.68%
Co 228.616†	18067.9	0.5078	mg/L		0.00942	1.016	mg/L	0.0188	1.85%
Cr 267.716†	2533.6	0.6145	mg/L		0.00860	1.229	mg/L	0.0172	1.40%
Cu 324.752†	152396.2	0.7431	mg/L		0.00556	1.486	mg/L	0.0111	0.75%
Fe 273.955†	131446.8	129.7	mg/L	STL	0.93	259.4	mg/L	1.86	0.72%
K 766.490†	21354.8	19.41	mg/L		0.097	38.81	mg/L	0.195	0.50%
Mg 279.077†	41654.9	40.23	mg/L		0.257	80.47	mg/L	0.513	0.64%
Mn 257.610†	53167.5	1.548	mg/L		0.0119	3.095	mg/L	0.0238	0.77%
Mo 202.031†	132.3	0.00692	mg/L		0.000196	0.01383	mg/L	0.000392	2.83%
Na 589.592†	598622.2	71.90	mg/L		0.496	143.8	mg/L	0.99	0.69%
Na 330.237†	1392.4	72.55	mg/L	STL	1.080	145.1	mg/L	2.16	1.49%
Ni 231.604†	1934.6	0.5768	mg/L		0.00886	1.154	mg/L	0.0177	1.54%
Pb 220.353†	15978.9	2.096	mg/L		0.0351	4.192	mg/L	0.0702	1.67%
Sb 206.836†	1065.2	0.3834	mg/L		0.00656	0.7668	mg/L	0.01311	1.71%
Se 196.026†	2278.9	2.013	mg/L		0.0386	4.027	mg/L	0.0773	1.92%
Si 288.158†	1733.8	1.847	mg/L		0.0352	3.693	mg/L	0.0704	1.91%
Sn 189.927†	-1.3	0.00710	mg/L		0.001203	0.01421	mg/L	0.002405	16.93%
Sr 421.552†	230346.9	0.8953	mg/L		0.00635	1.791	mg/L	0.0127	0.71%
Ti 334.903†	50391.9	3.595	mg/L		0.0276	7.190	mg/L	0.0551	0.77%
Tl 190.801†	3837.6	1.875	mg/L		0.0336	3.751	mg/L	0.0672	1.79%
V 292.402†	61133.2	0.6967	mg/L		0.00839	1.393	mg/L	0.0168	1.20%
Zn 206.200†	3071.4	1.306	mg/L		0.0161	2.612	mg/L	0.0323	1.24%

Sequence No.: 54
Sample ID: SEQ-CCV5

Autosampler Location: 7
Date Collected: 8/9/2019 2:39:07 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV5

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: SEQ-CCV5

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2146559.8	101.4	%	0.23				0.23%
ScR 361.383	215434.5	100.9	%	0.61				0.60%
Ag 328.068†	154891.3	1.005	mg/L	0.0025	1.005	mg/L	0.0025	0.24%
Al 308.215†	2323.4	1.967	mg/L	0.0085	1.967	mg/L	0.0085	0.43%
As 188.979†	2965.8	1.997	mg/L	0.0054	1.997	mg/L	0.0054	0.27%
B 249.677†	6865.4	1.016	mg/L	0.0008	1.016	mg/L	0.0008	0.07%
Ba 233.527†	4368.9	0.9917	mg/L	0.00329	0.9917	mg/L	0.00329	0.33%
Be 313.042†	440820.8	1.004	mg/L	0.0059	1.004	mg/L	0.0059	0.59%
Ca 317.933†	20664.1	2.070	mg/L	0.0065	2.070	mg/L	0.0065	0.31%
Cd 228.802†	25733.7	0.9736	mg/L	0.00422	0.9736	mg/L	0.00422	0.43%
Co 228.616†	34187.5	0.9757	mg/L	0.00252	0.9757	mg/L	0.00252	0.26%
Cr 267.716†	4099.2	0.9894	mg/L	0.00822	0.9894	mg/L	0.00822	0.83%
Cu 324.752†	201095.5	0.9733	mg/L	0.00236	0.9733	mg/L	0.00236	0.24%
Fe 273.955†	2045.0	2.011	mg/L	0.0131	2.011	mg/L	0.0131	0.65%
K 766.490†	21510.8	19.55	mg/L	0.031	19.55	mg/L	0.031	0.16%
Mg 279.077†	2104.1	2.047	mg/L	0.0137	2.047	mg/L	0.0137	0.67%
Mn 257.610†	34287.0	0.9980	mg/L	0.00279	0.9980	mg/L	0.00279	0.28%
Mo 202.031†	17292.6	0.9822	mg/L	0.00298	0.9822	mg/L	0.00298	0.30%
Na 589.592†	413179.6	49.63	mg/L	0.160	49.63	mg/L	0.160	0.32%
Na 330.237†	965.3	49.91	mg/L	0.124	49.91	mg/L	0.124	0.25%
Ni 231.604†	3419.1	1.020	mg/L	0.0050	1.020	mg/L	0.0050	0.49%
Pb 220.353†	15485.8	2.020	mg/L	0.0074	2.020	mg/L	0.0074	0.37%
Sb 206.836†	5706.8	2.061	mg/L	0.0023	2.061	mg/L	0.0023	0.11%
Se 196.026†	2339.9	2.060	mg/L	0.0085	2.060	mg/L	0.0085	0.41%
Si 288.158†	1912.2	2.032	mg/L	0.0029	2.032	mg/L	0.0029	0.14%
Sn 189.927†	3680.5	0.9961	mg/L	0.00295	0.9961	mg/L	0.00295	0.30%
Sr 421.552†	268164.4	1.042	mg/L	0.0039	1.042	mg/L	0.0039	0.37%
Ti 334.903†	13528.2	0.9644	mg/L	0.00344	0.9644	mg/L	0.00344	0.36%
Tl 190.801†	4112.2	2.006	mg/L	0.0011	2.006	mg/L	0.0011	0.05%
V 292.402†	85705.9	0.9684	mg/L	0.00881	0.9684	mg/L	0.00881	0.91%
Zn 206.200†	2457.9	1.044	mg/L	0.0026	1.044	mg/L	0.0026	0.25%

Sequence No.: 55 **Autosampler Location: 1**
Sample ID: SEQ-CCB5 **Date Collected: 8/9/2019 2:44:10 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB5

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: SEQ-CCB5

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2158897.4	101.9	%	0.62				0.61%
ScR 361.383	214331.0	100.4	%	1.32				1.32%
Ag 328.068†	18.4	0.00012	mg/L	0.000089	0.00012	mg/L	0.000089	74.43%
Al 308.215†	29.6	0.02552	mg/L	0.006596	0.02552	mg/L	0.006596	25.84%
As 188.979†	-3.2	-0.00214	mg/L	0.001940	-0.00214	mg/L	0.001940	90.75%
B 249.677†	21.3	0.00316	mg/L	0.000031	0.00316	mg/L	0.000031	0.99%
Ba 233.527†	0.2	0.00005	mg/L	0.000631	0.00005	mg/L	0.000631	>999.9%
Be 313.042†	65.6	0.00015	mg/L	0.000131	0.00015	mg/L	0.000131	87.53%
Ca 317.933†	38.0	0.00383	mg/L	0.001060	0.00383	mg/L	0.001060	27.71%
Cd 228.802†	3.5	0.00015	mg/L	0.000136	0.00015	mg/L	0.000136	91.43%
Co 228.616†	6.7	0.00019	mg/L	0.000071	0.00019	mg/L	0.000071	36.94%
Cr 267.716†	-10.7	-0.00258	mg/L	0.003217	-0.00258	mg/L	0.003217	124.85%
Cu 324.752†	90.8	0.00044	mg/L	0.000126	0.00044	mg/L	0.000126	28.59%
Fe 273.955†	2.2	0.00214	mg/L	0.002227	0.00214	mg/L	0.002227	103.90%
K 766.490†	-6.7	-0.00606	mg/L	0.049146	-0.00606	mg/L	0.049146	810.46%
Mg 279.077†	-7.6	-0.00734	mg/L	0.003894	-0.00734	mg/L	0.003894	53.07%
Mn 257.610†	12.8	0.00037	mg/L	0.000114	0.00037	mg/L	0.000114	30.62%
Mo 202.031†	3.4	0.00019	mg/L	0.000178	0.00019	mg/L	0.000178	92.14%
Na 589.592†	145.1	0.01743	mg/L	0.005905	0.01743	mg/L	0.005905	33.88%
Na 330.237†	0.6	0.03194	mg/L	0.246935	0.03194	mg/L	0.246935	773.05%
Ni 231.604†	1.1	0.00031	mg/L	0.001847	0.00031	mg/L	0.001847	587.82%
Pb 220.353†	4.1	0.00054	mg/L	0.000397	0.00054	mg/L	0.000397	74.00%
Sb 206.836†	1.0	0.00040	mg/L	0.002560	0.00040	mg/L	0.002560	647.01%
Se 196.026†	0.6	0.00051	mg/L	0.007281	0.00051	mg/L	0.007281	>999.9%
Si 288.158†	11.3	0.01202	mg/L	0.009008	0.01202	mg/L	0.009008	74.91%
Sn 189.927†	-1.8	-0.00050	mg/L	0.000266	-0.00050	mg/L	0.000266	53.47%
Sr 421.552†	29.4	0.00011	mg/L	0.000185	0.00011	mg/L	0.000185	162.48%
Ti 334.903†	8.9	0.00064	mg/L	0.001382	0.00064	mg/L	0.001382	216.36%
Tl 190.801†	-1.0	-0.00047	mg/L	0.000846	-0.00047	mg/L	0.000846	180.30%
V 292.402†	0.7	-0.00001	mg/L	0.000168	-0.00001	mg/L	0.000168	>999.9%
Zn 206.200†	2.2	0.00094	mg/L	0.000595	0.00094	mg/L	0.000595	63.16%

Sequence No.: 56
Sample ID: 19H0024-10

Dilution: 2X
Wash Time: 37

Autosampler Location: 344
Date Collected: 8/9/2019 2:48:09 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0024-10

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: 19H0024-10

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2050441.6	96.81	%	0.890				0.92%
ScR 361.383	216146.0	101.2	%	1.33				1.31%
Ag 328.068†	-212.6	-0.00127	mg/L	0.000154	-0.00253	mg/L	0.000308	12.16%
Al 308.215†	124355.3	107.3	mg/L	0.77	214.5	mg/L	1.55	0.72%
As 188.979†	-190.1	0.05253	mg/L	0.001885	0.1051	mg/L	0.00377	3.59%
B 249.677†	220.6	0.04977	mg/L	0.001894	0.09954	mg/L	0.003789	3.81%
Ba 233.527†	2032.0	0.4404	mg/L	0.00422	0.8807	mg/L	0.00843	0.96%
Be 313.042†	1766.7	0.00237	mg/L	0.000031	0.00474	mg/L	0.000063	1.33%
Ca 317.933†	546945.6	55.12	mg/L	0.293	110.2	mg/L	0.59	0.53%
Cd 228.802†	55.8	0.00320	mg/L	0.000106	0.00639	mg/L	0.000213	3.33%
Co 228.616†	2602.7	0.06026	mg/L	0.001323	0.1205	mg/L	0.00265	2.19%
Cr 267.716†	1403.1	0.3423	mg/L	0.00311	0.6847	mg/L	0.00623	0.91%
Cu 324.752†	47157.2	0.2350	mg/L	0.00438	0.4699	mg/L	0.00876	1.86%
Fe 273.955†	173478.3	171.2	mg/L	0.81	342.3	mg/L	1.63	0.48%
K 766.490†	12999.5	11.81	mg/L	0.073	23.63	mg/L	0.146	0.62%
Mg 279.077†	54883.7	53.01	mg/L	0.307	106.0	mg/L	0.61	0.58%
Mn 257.610†	114646.1	3.336	mg/L	0.0184	6.672	mg/L	0.0368	0.55%
Mo 202.031†	198.2	0.01032	mg/L	0.000646	0.02065	mg/L	0.001291	6.25%
Na 589.592†	101384.6	12.18	mg/L	0.073	24.36	mg/L	0.146	0.60%
Na 330.237†	211.9	12.00	mg/L	0.263	24.00	mg/L	0.526	2.19%
Ni 231.604†	915.3	0.2728	mg/L	0.00334	0.5456	mg/L	0.00668	1.22%
Pb 220.353†	521.8	0.08945	mg/L	0.001805	0.1789	mg/L	0.00361	2.02%
Sb 206.836†	28.7	0.01557	mg/L	0.001913	0.03115	mg/L	0.003827	12.29%
Se 196.026†	-24.9	-0.01629	mg/L	0.003102	-0.03259	mg/L	0.006205	19.04%
Si 288.158†	954.5	1.020	mg/L	0.0125	2.040	mg/L	0.0249	1.22%
Sn 189.927†	-46.9	-0.00056	mg/L	0.000863	-0.00112	mg/L	0.001725	154.25%
Sr 421.552†	66655.0	0.2591	mg/L	0.00127	0.5182	mg/L	0.00253	0.49%
Ti 334.903†	88500.8	6.314	mg/L	0.0368	12.63	mg/L	0.074	0.58%
Tl 190.801†	-44.0	-0.01950	mg/L	0.002520	-0.03900	mg/L	0.005040	12.92%
V 292.402†	33579.0	0.3880	mg/L	0.00706	0.7760	mg/L	0.01412	1.82%
Zn 206.200†	1914.4	0.8141	mg/L	0.00698	1.628	mg/L	0.0140	0.86%

Sequence No.: 57
Sample ID: 19H0024-11

Autosampler Location: 345
Date Collected: 8/9/2019 2:52:09 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0024-11

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: 19H0024-11

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2102694.1	99.28	%	0.125				0.13%
ScR 361.383	212388.2	99.46	%	2.125				2.14%
Ag 328.068†	-117.8	-0.00067	mg/L	0.000124	-0.00134	mg/L	0.000248	18.54%
Al 308.215†	104728.1	90.33	mg/L	0.092	180.7	mg/L	0.18	0.10%
As 188.979†	-130.0	0.05530	mg/L	0.003980	0.1106	mg/L	0.00796	7.20%
B 249.677†	398.4	0.07760	mg/L	0.001071	0.1552	mg/L	0.00214	1.38%
Ba 233.527†	1387.2	0.2920	mg/L	0.00650	0.5840	mg/L	0.01300	2.23%
Be 313.042†	1520.1	0.00207	mg/L	0.000102	0.00415	mg/L	0.000205	4.93%
Ca 317.933†	364702.1	36.76	mg/L	0.131	73.51	mg/L	0.262	0.36%
Cd 228.802†	91.6	0.00422	mg/L	0.000123	0.00844	mg/L	0.000247	2.93%
Co 228.616†	1954.6	0.04395	mg/L	0.000290	0.08789	mg/L	0.000580	0.66%
Cr 267.716†	702.4	0.1756	mg/L	0.00280	0.3513	mg/L	0.00560	1.59%
Cu 324.752†	41690.3	0.2095	mg/L	0.00203	0.4190	mg/L	0.00406	0.97%
Fe 273.955†	187576.4	185.1	mg/L	0.59	370.2	mg/L	1.19	0.32%
K 766.490†	11509.2	10.46	mg/L	0.046	20.92	mg/L	0.093	0.44%
Mg 279.077†	43204.1	41.71	mg/L	0.157	83.41	mg/L	0.315	0.38%
Mn 257.610†	146815.7	4.272	mg/L	0.0072	8.545	mg/L	0.0143	0.17%
Mo 202.031†	152.3	0.00803	mg/L	0.000356	0.01606	mg/L	0.000711	4.43%
Na 589.592†	277305.7	33.31	mg/L	0.052	66.62	mg/L	0.103	0.16%
Na 330.237†	636.4	33.76	mg/L	0.176	67.51	mg/L	0.351	0.52%
Ni 231.604†	587.9	0.1752	mg/L	0.00085	0.3504	mg/L	0.00170	0.48%
Pb 220.353†	595.8	0.09343	mg/L	0.000482	0.1869	mg/L	0.00096	0.52%
Sb 206.836†	28.7	0.01616	mg/L	0.001545	0.03231	mg/L	0.003089	9.56%
Se 196.026†	-21.6	-0.01083	mg/L	0.008316	-0.02166	mg/L	0.016632	76.81%
Si 288.158†	1949.1	2.075	mg/L	0.0487	4.150	mg/L	0.0973	2.34%
Sn 189.927†	-24.5	0.00178	mg/L	0.000630	0.00356	mg/L	0.001261	35.41%
Sr 421.552†	84550.0	0.3286	mg/L	0.00100	0.6573	mg/L	0.00200	0.30%
Ti 334.903†	69448.0	4.955	mg/L	0.0092	9.910	mg/L	0.0184	0.19%
Tl 190.801†	-49.6	-0.02078	mg/L	0.000311	-0.04157	mg/L	0.000621	1.49%
V 292.402†	28227.5	0.3280	mg/L	0.00511	0.6560	mg/L	0.01022	1.56%
Zn 206.200†	1975.8	0.8402	mg/L	0.01359	1.680	mg/L	0.0272	1.62%

Sequence No.: 58
Sample ID: 19H0039-06

Dilution: 2X
Wash Time: 37

Autosampler Location: 346
Date Collected: 8/9/2019 2:56:08 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0039-06

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: 19H0039-06

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2165778.7	102.3	%	0.40				0.39%
ScR 361.383	221889.2	103.9	%	0.73				0.71%
Ag 328.068†	-451.8	-0.00286	mg/L	0.000200	-0.00571	mg/L	0.000401	7.01%
Al 308.215†	123293.7	106.3	mg/L	0.96	212.7	mg/L	1.93	0.91%
As 188.979†	-127.4	0.08830	mg/L	0.003147	0.1766	mg/L	0.00629	3.56%
B 249.677†	-25.3	0.01766	mg/L	0.002409	0.03531	mg/L	0.004817	13.64%
Ba 233.527†	3051.7	0.6671	mg/L	0.01136	1.334	mg/L	0.0227	1.70%
Be 313.042†	2273.1	0.00407	mg/L	0.000082	0.00815	mg/L	0.000164	2.02%
Ca 317.933†	188414.3	18.99	mg/L	0.097	37.98	mg/L	0.193	0.51%
Cd 228.802†	51.5	0.00260	mg/L	0.000139	0.00519	mg/L	0.000278	5.36%
Co 228.616†	2883.6	0.06819	mg/L	0.001035	0.1364	mg/L	0.00207	1.52%
Cr 267.716†	480.6	0.1235	mg/L	0.00317	0.2470	mg/L	0.00635	2.57%
Cu 324.752†	22779.2	0.1191	mg/L	0.00308	0.2382	mg/L	0.00616	2.59%
Fe 273.955†	216267.2	213.4	mg/L	0.76	426.8	mg/L	1.52	0.36%
K 766.490†	15488.1	14.07	mg/L	0.134	28.15	mg/L	0.268	0.95%
Mg 279.077†	48310.2	46.63	mg/L	0.183	93.26	mg/L	0.365	0.39%
Mn 257.610†	125798.5	3.661	mg/L	0.0282	7.322	mg/L	0.0563	0.77%
Mo 202.031†	47.6	0.00238	mg/L	0.000363	0.00476	mg/L	0.000726	15.23%
Na 589.592†	4705.7	0.5652	mg/L	0.00647	1.130	mg/L	0.0129	1.15%
Na 330.237†	-15.2	0.3058	mg/L	0.04085	0.6116	mg/L	0.08169	13.36%
Ni 231.604†	330.3	0.09845	mg/L	0.001495	0.1969	mg/L	0.00299	1.52%
Pb 220.353†	392.8	0.06998	mg/L	0.000143	0.1400	mg/L	0.00029	0.20%
Sb 206.836†	21.9	0.01584	mg/L	0.002861	0.03167	mg/L	0.005721	18.06%
Se 196.026†	-20.3	-0.00750	mg/L	0.003297	-0.01501	mg/L	0.006593	43.93%
Si 288.158†	1525.6	1.626	mg/L	0.0340	3.251	mg/L	0.0680	2.09%
Sn 189.927†	-41.4	-0.00531	mg/L	0.000730	-0.01063	mg/L	0.001461	13.75%
Sr 421.552†	34126.3	0.1326	mg/L	0.00073	0.2653	mg/L	0.00146	0.55%
Ti 334.903†	83808.0	5.981	mg/L	0.0427	11.96	mg/L	0.085	0.71%
Tl 190.801†	-41.7	-0.01754	mg/L	0.003032	-0.03508	mg/L	0.006064	17.29%
V 292.402†	22269.9	0.2621	mg/L	0.00464	0.5242	mg/L	0.00928	1.77%
Zn 206.200†	927.2	0.3938	mg/L	0.00739	0.7877	mg/L	0.01478	1.88%

Sequence No.: 59
Sample ID: 19H0069-01

Dilution: 50X
Wash Time: 37

Autosampler Location: 347
Date Collected: 8/9/2019 3:00:06 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0069-01

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: 19H0069-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2061079.8	97.32	%	3.070				3.15%
ScR 361.383	199966.6	93.65	%	15.153				16.18%
Ag 328.068†	25.7	0.00017	mg/L	0.000119	0.00833	mg/L	0.005968	71.68%
Al 308.215†	503.8	0.4346	mg/L	0.09387	21.73	mg/L	4.693	21.60%
As 188.979†	-1.3	-0.00042	mg/L	0.003712	-0.02114	mg/L	0.185599	877.76%
B 249.677†	4.0	0.00481	mg/L	0.000470	0.2405	mg/L	0.02352	9.78%
Ba 233.527†	128.9	0.02406	mg/L	0.005958	1.203	mg/L	0.2979	24.76%
Be 313.042†	238.1	0.00054	mg/L	0.000607	0.02719	mg/L	0.030363	111.67%
Ca 317.933†	79006.4	7.963	mg/L	0.0931	398.1	mg/L	4.65	1.17%
Cd 228.802†	90.0	0.00348	mg/L	0.001094	0.1739	mg/L	0.05469	31.45%
Co 228.616†	104.8	0.00226	mg/L	0.000323	0.1132	mg/L	0.01616	14.27%
Cr 267.716†	96.3	0.02569	mg/L	0.004550	1.285	mg/L	0.2275	17.71%
Cu 324.752†	5695.6	0.02958	mg/L	0.001034✓	1.479	mg/L	0.0517	3.49%
Fe 273.955†	42351.9	41.79	mg/L	0.484	2089	mg/L	24.20	1.16%
K 766.490†	93.2	0.08468	mg/L	0.042258	4.234	mg/L	2.1129	49.90%
Mg 279.077†	365.8	0.3295	mg/L	0.06167	16.48	mg/L	3.084	18.72%
Mn 257.610†	5828.9	0.1698	mg/L	0.00078	8.490	mg/L	0.0392	0.46%
Mo 202.031†	21.6	0.00109	mg/L	0.000121	0.05468	mg/L	0.006040	11.05%
Na 589.592†	367.6	0.04415	mg/L	0.005963	2.208	mg/L	0.2982	13.51%
Na 330.237†	3.3	-0.2740	mg/L	1.11944	-13.70	mg/L	55.972	408.59%
Ni 231.604†	82.9	0.02471	mg/L	0.002288	1.235	mg/L	0.1144	9.26%
Pb 220.353†	22.6	0.00104	mg/L	0.000783	0.05215	mg/L	0.039134	75.04%
Sb 206.836†	7.7	0.00239	mg/L	0.001112	0.1196	mg/L	0.05560	46.47%
Se 196.026†	-4.4	0.00080	mg/L	0.002775	0.03984	mg/L	0.138742	348.22%
Si 288.158†	15.6	0.01667	mg/L	0.007405	0.8333	mg/L	0.37025	44.43%
Sn 189.927†	-9.0	-0.00108	mg/L	0.001239	-0.05416	mg/L	0.061972	114.43%
Sr 421.552†	4073.7	0.01583	mg/L	0.001016	0.7917	mg/L	0.05080	6.42%
Ti 334.903†	218.3	0.01509	mg/L	0.002430	0.7544	mg/L	0.12150	16.11%
Tl 190.801†	-9.9	-0.00467	mg/L	0.000689	-0.2336	mg/L	0.03444	14.74%
V 292.402†	15.2	0.00266	mg/L	0.000042	0.1328	mg/L	0.00208	1.57%
Zn 206.200†	2497.6	1.063	mg/L	0.1415	53.14	mg/L	7.074	13.31%

Sequence No.: 60
Sample ID: SEQ-CCV6
Autosampler Location: 7
Date Collected: 8/9/2019 3:04:04 PM
Data Type: Original
Dilution: 1X
Wash Time: 37
Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV6

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: SEQ-CCV6

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2164375.4	102.2	%	0.75				0.73%
ScR 361.383	216017.0	101.2	%	1.97				1.95%
Ag 328.068†	151859.0	0.9857	mg/L	0.00914	0.9857	mg/L	0.00914	0.93%
Al 308.215†	2295.5	1.944	mg/L	0.0512	1.944	mg/L	0.0512	2.63%
As 188.979†	2930.1	1.973	mg/L	0.0143	1.973	mg/L	0.0143	0.72%
B 249.677†	6796.3	1.006	mg/L	0.0179	1.006	mg/L	0.0179	1.78%
Ba 233.527†	4321.6	0.9810	mg/L	0.02007	0.9810	mg/L	0.02007	2.05%
Be 313.042†	434099.0	0.9892	mg/L	0.00783	0.9892	mg/L	0.00783	0.79%
Ca 317.933†	20439.9	2.047	mg/L	0.0408	2.047	mg/L	0.0408	1.99%
Cd 228.802†	25392.0	0.9606	mg/L	0.00666	0.9606	mg/L	0.00666	0.69%
Co 228.616†	33483.8	0.9556	mg/L	0.00736	0.9556	mg/L	0.00736	0.77%
Cr 267.716†	4068.8	0.9820	mg/L	0.02058	0.9820	mg/L	0.02058	2.10%
Cu 324.752†	197189.1	0.9544	mg/L	0.00677	0.9544	mg/L	0.00677	0.71%
Fe 273.955†	2015.5	1.982	mg/L	0.0404	1.982	mg/L	0.0404	2.04%
K 766.490†	21266.3	19.33	mg/L	0.098	19.33	mg/L	0.098	0.51%
Mg 279.077†	2073.4	2.017	mg/L	0.0436	2.017	mg/L	0.0436	2.16%
Mn 257.610†	33860.7	0.9856	mg/L	0.02031	0.9856	mg/L	0.02031	2.06%
Mo 202.031†	16992.4	0.9651	mg/L	0.00742	0.9651	mg/L	0.00742	0.77%
Na 589.592†	407765.0	48.98	mg/L	0.444	48.98	mg/L	0.444	0.91%
Na 330.237†	949.1	49.07	mg/L	0.902	49.07	mg/L	0.902	1.84%
Ni 231.604†	3383.8	1.010	mg/L	0.0178	1.010	mg/L	0.0178	1.76%
Pb 220.353†	15182.6	1.980	mg/L	0.0152	1.980	mg/L	0.0152	0.77%
Sb 206.836†	5628.8	2.033	mg/L	0.0157	2.033	mg/L	0.0157	0.77%
Se 196.026†	2310.8	2.035	mg/L	0.0138	2.035	mg/L	0.0138	0.68%
Si 288.158†	1871.8	1.989	mg/L	0.0372	1.989	mg/L	0.0372	1.87%
Sn 189.927†	3635.7	0.9840	mg/L	0.00448	0.9840	mg/L	0.00448	0.45%
Sr 421.552†	263618.2	1.025	mg/L	0.0082	1.025	mg/L	0.0082	0.81%
Ti 334.903†	13364.3	0.9527	mg/L	0.01083	0.9527	mg/L	0.01083	1.14%
Tl 190.801†	4052.9	1.977	mg/L	0.0140	1.977	mg/L	0.0140	0.71%
V 292.402†	83998.7	0.9492	mg/L	0.00655	0.9492	mg/L	0.00655	0.69%
Zn 206.200†	2428.7	1.032	mg/L	0.0184	1.032	mg/L	0.0184	1.79%

Sequence No.: 61 **Autosampler Location: 1**
Sample ID: SEQ-CCB6 **Date Collected: 8/9/2019 3:09:07 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB6

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: SEQ-CCB6

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2182498.4	103.0	%	0.61				0.59%
ScR 361.383	218638.6	102.4	%	1.69				1.65%
Ag 328.068†	33.0	0.00021	mg/L	0.000254	0.00021	mg/L	0.000254	118.53%
Al 308.215†	11.1	0.00953	mg/L	0.005580	0.00953	mg/L	0.005580	58.54%
As 188.979†	-2.8	-0.00190	mg/L	0.000711	-0.00190	mg/L	0.000711	37.53%
B 249.677†	21.1	0.00312	mg/L	0.001435	0.00312	mg/L	0.001435	46.01%
Ba 233.527†	0.7	0.00015	mg/L	0.000309	0.00015	mg/L	0.000309	207.64%
Be 313.042†	86.2	0.00020	mg/L	0.000072	0.00020	mg/L	0.000072	36.36%
Ca 317.933†	25.2	0.00253	mg/L	0.001100	0.00253	mg/L	0.001100	43.45%
Cd 228.802†	4.1	0.00017	mg/L	0.000228	0.00017	mg/L	0.000228	133.95%
Co 228.616†	6.9	0.00020	mg/L	0.000023	0.00020	mg/L	0.000023	11.56%
Cr 267.716†	-6.7	-0.00162	mg/L	0.001595	-0.00162	mg/L	0.001595	98.69%
Cu 324.752†	81.5	0.00039	mg/L	0.000060	0.00039	mg/L	0.000060	15.30%
Fe 273.955†	4.0	0.00394	mg/L	0.002352	0.00394	mg/L	0.002352	59.63%
K 766.490†	28.0	0.02545	mg/L	0.024054	0.02545	mg/L	0.024054	94.53%
Mg 279.077†	-8.1	-0.00781	mg/L	0.010619	-0.00781	mg/L	0.010619	136.01%
Mn 257.610†	11.6	0.00034	mg/L	0.000130	0.00034	mg/L	0.000130	38.24%
Mo 202.031†	4.0	0.00023	mg/L	0.000441	0.00023	mg/L	0.000441	195.89%
Na 589.592†	91.0	0.01093	mg/L	0.003320	0.01093	mg/L	0.003320	30.36%
Na 330.237†	11.3	0.5883	mg/L	0.39678	0.5883	mg/L	0.39678	67.45%
Ni 231.604†	-3.6	-0.00106	mg/L	0.002032	-0.00106	mg/L	0.002032	191.43%
Pb 220.353†	9.8	0.00128	mg/L	0.000561	0.00128	mg/L	0.000561	43.78%
Sb 206.836†	2.9	0.00107	mg/L	0.001030	0.00107	mg/L	0.001030	96.28%
Se 196.026†	-2.7	-0.00239	mg/L	0.004630	-0.00239	mg/L	0.004630	194.00%
Si 288.158†	1.9	0.00198	mg/L	0.006435	0.00198	mg/L	0.006435	325.47%
Sn 189.927†	-0.9	-0.00024	mg/L	0.000493	-0.00024	mg/L	0.000493	209.37%
Sr 421.552†	15.4	0.00006	mg/L	0.000061	0.00006	mg/L	0.000061	101.60%
Ti 334.903†	-11.1	-0.00079	mg/L	0.000277	-0.00079	mg/L	0.000277	35.13%
Tl 190.801†	2.2	0.00107	mg/L	0.001383	0.00107	mg/L	0.001383	128.89%
V 292.402†	-10.8	-0.00013	mg/L	0.000467	-0.00013	mg/L	0.000467	354.31%
Zn 206.200†	2.5	0.00105	mg/L	0.000181	0.00105	mg/L	0.000181	17.26%

Sequence No.: 62 **Autosampler Location: 9**
Sample ID: RINSE - 1 **Date Collected: 8/9/2019 3:13:06 PM**
Data Type: Original
Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: RINSE - 1

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: RINSE - 1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2214643.0	104.6	%	0.36				0.35%
ScR 361.383	221412.0	103.7	%	1.28				1.23%
Ag 328.068†	43.7	0.00028	mg/L	0.000197	0.00028	mg/L	0.000197	69.45%
Al 308.215†	1.3	0.00114	mg/L	0.020613	0.00114	mg/L	0.020613	>999.9%
As 188.979†	-3.6	-0.00237	mg/L	0.000305	-0.00237	mg/L	0.000305	12.84%
B 249.677†	9.1	0.00136	mg/L	0.000943	0.00136	mg/L	0.000943	69.59%
Ba 233.527†	1.0	0.00022	mg/L	0.000217	0.00022	mg/L	0.000217	99.29%
Be 313.042†	27.8	0.00006	mg/L	0.000128	0.00006	mg/L	0.000128	204.18%
Ca 317.933†	25.0	0.00251	mg/L	0.000506	0.00251	mg/L	0.000506	20.13%
Cd 228.802†	1.5	0.00007	mg/L	0.000075	0.00007	mg/L	0.000075	102.46%
Co 228.616†	-0.2	-0.00001	mg/L	0.000103	-0.00001	mg/L	0.000103	>999.9%
Cr 267.716†	-2.9	-0.00070	mg/L	0.001157	-0.00070	mg/L	0.001157	164.36%
Cu 324.752†	63.0	0.00030	mg/L	0.000102	0.00030	mg/L	0.000102	33.58%
Fe 273.955†	2.3	0.00231	mg/L	0.004666	0.00231	mg/L	0.004666	201.76%
K 766.490†	-18.8	-0.01705	mg/L	0.016067	-0.01705	mg/L	0.016067	94.25%
Mg 279.077†	5.7	0.00547	mg/L	0.010328	0.00547	mg/L	0.010328	188.82%
Mn 257.610†	7.3	0.00021	mg/L	0.000132	0.00021	mg/L	0.000132	61.79%
Mo 202.031†	-5.1	-0.00029	mg/L	0.000185	-0.00029	mg/L	0.000185	63.45%
Na 589.592†	31.3	0.00376	mg/L	0.004560	0.00376	mg/L	0.004560	121.40%
Na 330.237†	6.8	0.3533	mg/L	0.40907	0.3533	mg/L	0.40907	115.78%
Ni 231.604†	-4.3	-0.00127	mg/L	0.001526	-0.00127	mg/L	0.001526	119.72%
Pb 220.353†	-3.0	-0.00039	mg/L	0.000486	-0.00039	mg/L	0.000486	124.82%
Sb 206.836†	-3.3	-0.00118	mg/L	0.001876	-0.00118	mg/L	0.001876	158.31%
Se 196.026†	4.8	0.00424	mg/L	0.005158	0.00424	mg/L	0.005158	121.79%
Si 288.158†	6.0	0.00641	mg/L	0.002527	0.00641	mg/L	0.002527	39.42%
Sn 189.927†	-0.7	-0.00019	mg/L	0.000523	-0.00019	mg/L	0.000523	273.75%
Sr 421.552†	11.2	0.00004	mg/L	0.000126	0.00004	mg/L	0.000126	289.82%
Ti 334.903†	13.9	0.00099	mg/L	0.000565	0.00099	mg/L	0.000565	56.96%
Tl 190.801†	2.3	0.00111	mg/L	0.001410	0.00111	mg/L	0.001410	126.59%
V 292.402†	16.8	0.00018	mg/L	0.000042	0.00018	mg/L	0.000042	22.69%
Zn 206.200†	3.4	0.00144	mg/L	0.000720	0.00144	mg/L	0.000720	50.14%

Sequence No.: 63 **Autosampler Location: 9**
Sample ID: RINSE - 2 **Date Collected: 8/9/2019 3:17:05 PM**
Data Type: Original

Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: RINSE - 2

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: RINSE - 2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2190217.1	103.4	%	0.14				0.13%
ScR 361.383	219331.0	102.7	%	2.16				2.11%
Ag 328.068†	0.1	0.00000	mg/L	0.000297	0.00000	mg/L	0.000297	>999.9%
Al 308.215†	17.0	0.01465	mg/L	0.014516	0.01465	mg/L	0.014516	99.11%
As 188.979†	-0.6	-0.00041	mg/L	0.001156	-0.00041	mg/L	0.001156	282.70%
B 249.677†	7.4	0.00110	mg/L	0.000400	0.00110	mg/L	0.000400	36.43%
Ba 233.527†	-0.4	-0.00009	mg/L	0.000944	-0.00009	mg/L	0.000944	>999.9%
Be 313.042†	47.3	0.00011	mg/L	0.000061	0.00011	mg/L	0.000061	57.11%
Ca 317.933†	26.9	0.00270	mg/L	0.001348	0.00270	mg/L	0.001348	49.87%
Cd 228.802†	2.0	0.00008	mg/L	0.000008	0.00008	mg/L	0.000008	9.44%
Co 228.616†	2.3	0.00006	mg/L	0.000032	0.00006	mg/L	0.000032	49.55%
Cr 267.716†	0.6	0.00015	mg/L	0.002992	0.00015	mg/L	0.002992	>999.9%
Cu 324.752†	85.8	0.00042	mg/L	0.000185	0.00042	mg/L	0.000185	44.44%
Fe 273.955†	4.4	0.00437	mg/L	0.003289	0.00437	mg/L	0.003289	75.22%
K 766.490†	-25.6	-0.02329	mg/L	0.018837	-0.02329	mg/L	0.018837	80.88%
Mg 279.077†	-4.1	-0.00400	mg/L	0.009121	-0.00400	mg/L	0.009121	228.28%
Mn 257.610†	8.7	0.00025	mg/L	0.000296	0.00025	mg/L	0.000296	116.61%
Mo 202.031†	-0.0	-0.00000	mg/L	0.000328	-0.00000	mg/L	0.000328	>999.9%
Na 589.592†	60.6	0.00728	mg/L	0.001547	0.00728	mg/L	0.001547	21.23%
Na 330.237†	3.4	0.1756	mg/L	0.29026	0.1756	mg/L	0.29026	165.31%
Ni 231.604†	-0.7	-0.00021	mg/L	0.000736	-0.00021	mg/L	0.000736	342.60%
Pb 220.353†	-3.9	-0.00050	mg/L	0.000841	-0.00050	mg/L	0.000841	167.55%
Sb 206.836†	2.8	0.00100	mg/L	0.000523	0.00100	mg/L	0.000523	52.54%
Se 196.026†	3.1	0.00269	mg/L	0.002696	0.00269	mg/L	0.002696	100.10%
Si 288.158†	4.0	0.00427	mg/L	0.007420	0.00427	mg/L	0.007420	173.79%
Sn 189.927†	-2.2	-0.00060	mg/L	0.000132	-0.00060	mg/L	0.000132	21.99%
Sr 421.552†	-3.3	-0.00001	mg/L	0.000046	-0.00001	mg/L	0.000046	358.10%
Ti 334.903†	6.0	0.00043	mg/L	0.000603	0.00043	mg/L	0.000603	141.69%
Tl 190.801†	-2.1	-0.00101	mg/L	0.001169	-0.00101	mg/L	0.001169	115.40%
V 292.402†	14.8	0.00017	mg/L	0.000281	0.00017	mg/L	0.000281	167.77%
Zn 206.200†	3.0	0.00128	mg/L	0.000979	0.00128	mg/L	0.000979	76.50%

Sequence No.: 64
Sample ID: RINSE - 3

Autosampler Location: 9
Date Collected: 8/9/2019 3:21:04 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: RINSE - 3

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: RINSE - 3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2176936.3	102.8	%	0.85				0.83%
ScR 361.383	219201.8	102.7	%	1.24				1.20%
Ag 328.068†	31.6	0.00021	mg/L	0.000210	0.00021	mg/L	0.000210	102.21%
Al 308.215†	4.0	0.00346	mg/L	0.003688	0.00346	mg/L	0.003688	106.62%
As 188.979†	-2.9	-0.00192	mg/L	0.000517	-0.00192	mg/L	0.000517	26.87%
B 249.677†	12.6	0.00187	mg/L	0.001648	0.00187	mg/L	0.001648	87.97%
Ba 233.527†	3.8	0.00085	mg/L	0.000978	0.00085	mg/L	0.000978	114.49%
Be 313.042†	49.7	0.00011	mg/L	0.000047	0.00011	mg/L	0.000047	41.30%
Ca 317.933†	17.8	0.00179	mg/L	0.001773	0.00179	mg/L	0.001773	99.03%
Cd 228.802†	3.2	0.00013	mg/L	0.000191	0.00013	mg/L	0.000191	142.88%
Co 228.616†	0.9	0.00003	mg/L	0.000102	0.00003	mg/L	0.000102	373.23%
Cr 267.716†	-4.1	-0.00099	mg/L	0.000890	-0.00099	mg/L	0.000890	90.24%
Cu 324.752†	102.6	0.00050	mg/L	0.000178	0.00050	mg/L	0.000178	35.88%
Fe 273.955†	1.4	0.00141	mg/L	0.002013	0.00141	mg/L	0.002013	142.49%
K 766.490†	13.0	0.01182	mg/L	0.019121	0.01182	mg/L	0.019121	161.81%
Mg 279.077†	-5.4	-0.00527	mg/L	0.004658	-0.00527	mg/L	0.004658	88.40%
Mn 257.610†	9.8	0.00028	mg/L	0.000034	0.00028	mg/L	0.000034	11.91%
Mo 202.031†	-1.9	-0.00011	mg/L	0.000131	-0.00011	mg/L	0.000131	123.68%
Na 589.592†	35.1	0.00421	mg/L	0.003583	0.00421	mg/L	0.003583	85.02%
Na 330.237†	6.7	0.3464	mg/L	0.36393	0.3464	mg/L	0.36393	105.07%
Ni 231.604†	1.6	0.00046	mg/L	0.000539	0.00046	mg/L	0.000539	115.94%
Pb 220.353†	-9.0	-0.00118	mg/L	0.000684	-0.00118	mg/L	0.000684	58.19%
Sb 206.836†	-2.7	-0.00096	mg/L	0.001484	-0.00096	mg/L	0.001484	154.84%
Se 196.026†	-0.1	-0.00011	mg/L	0.000805	-0.00011	mg/L	0.000805	718.65%
Si 288.158†	5.8	0.00617	mg/L	0.010123	0.00617	mg/L	0.010123	164.07%
Sn 189.927†	-2.9	-0.00077	mg/L	0.000069	-0.00077	mg/L	0.000069	8.91%
Sr 421.552†	-44.5	-0.00017	mg/L	0.000195	-0.00017	mg/L	0.000195	112.89%
Ti 334.903†	-6.2	-0.00044	mg/L	0.001489	-0.00044	mg/L	0.001489	336.97%
Tl 190.801†	-2.9	-0.00142	mg/L	0.000465	-0.00142	mg/L	0.000465	32.72%
V 292.402†	0.2	-0.00000	mg/L	0.000170	-0.00000	mg/L	0.000170	>999.9%
Zn 206.200†	1.2	0.00052	mg/L	0.001639	0.00052	mg/L	0.001639	312.53%

Sequence No.: 65
Sample ID: RINSE - 4

Autosampler Location: 9
Date Collected: 8/9/2019 3:25:03 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: RINSE - 4

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: RINSE - 4

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2161290.8	102.0	%	0.23				0.23%
ScR 361.383	216551.5	101.4	%	1.88				1.86%
Ag 328.068†	-1.6	-0.00001	mg/L	0.000332	-0.00001	mg/L	0.000332	>999.9%
Al 308.215†	11.7	0.01010	mg/L	0.005902	0.01010	mg/L	0.005902	58.41%
As 188.979†	0.2	0.00012	mg/L	0.001941	0.00012	mg/L	0.001941	>999.9%
B 249.677†	5.3	0.00079	mg/L	0.000110	0.00079	mg/L	0.000110	13.98%
Ba 233.527†	1.3	0.00031	mg/L	0.000860	0.00031	mg/L	0.000860	281.61%
Be 313.042†	51.2	0.00012	mg/L	0.000054	0.00012	mg/L	0.000054	46.33%
Ca 317.933†	38.0	0.00383	mg/L	0.001000	0.00383	mg/L	0.001000	26.15%
Cd 228.802†	3.1	0.00012	mg/L	0.000097	0.00012	mg/L	0.000097	82.35%
Co 228.616†	2.0	0.00006	mg/L	0.000140	0.00006	mg/L	0.000140	248.61%
Cr 267.716†	-5.7	-0.00137	mg/L	0.002034	-0.00137	mg/L	0.002034	148.96%
Cu 324.752†	91.5	0.00044	mg/L	0.000187	0.00044	mg/L	0.000187	42.21%
Fe 273.955†	3.1	0.00305	mg/L	0.000699	0.00305	mg/L	0.000699	22.94%
K 766.490†	-29.9	-0.02720	mg/L	0.007662	-0.02720	mg/L	0.007662	28.16%
Mg 279.077†	-1.3	-0.00122	mg/L	0.001915	-0.00122	mg/L	0.001915	157.26%
Mn 257.610†	12.5	0.00036	mg/L	0.000202	0.00036	mg/L	0.000202	55.56%
Mo 202.031†	-1.1	-0.00006	mg/L	0.000334	-0.00006	mg/L	0.000334	530.96%
Na 589.592†	-11.3	-0.00135	mg/L	0.002027	-0.00135	mg/L	0.002027	149.67%
Na 330.237†	4.2	0.2192	mg/L	0.42634	0.2192	mg/L	0.42634	194.53%
Ni 231.604†	-0.8	-0.00024	mg/L	0.001485	-0.00024	mg/L	0.001485	627.75%
Pb 220.353†	-1.0	-0.00012	mg/L	0.000503	-0.00012	mg/L	0.000503	402.95%
Sb 206.836†	1.2	0.00044	mg/L	0.003065	0.00044	mg/L	0.003065	689.72%
Se 196.026†	-1.9	-0.00169	mg/L	0.004668	-0.00169	mg/L	0.004668	275.86%
Si 288.158†	-0.9	-0.00097	mg/L	0.004148	-0.00097	mg/L	0.004148	427.92%
Sn 189.927†	-2.6	-0.00069	mg/L	0.000509	-0.00069	mg/L	0.000509	73.52%
Sr 421.552†	22.0	0.00009	mg/L	0.000246	0.00009	mg/L	0.000246	287.38%
Ti 334.903†	6.6	0.00047	mg/L	0.001473	0.00047	mg/L	0.001473	314.64%
Tl 190.801†	-3.4	-0.00165	mg/L	0.002944	-0.00165	mg/L	0.002944	178.75%
V 292.402†	13.4	0.00014	mg/L	0.000078	0.00014	mg/L	0.000078	55.52%
Zn 206.200†	3.9	0.00166	mg/L	0.001199	0.00166	mg/L	0.001199	72.02%

Sequence No.: 66
Sample ID: DI - 1

Autosampler Location: 10
Date Collected: 8/9/2019 3:29:02 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: DI - 1

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: DI - 1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2241006.7	105.8	%	0.57				0.54%
ScR 361.383	227113.7	106.4	%	1.30				1.22%
Ag 328.068†	13.7	0.00009	mg/L	0.000189	0.00009	mg/L	0.000189	212.87%
Al 308.215†	-12.9	-0.01110	mg/L	0.009890	-0.01110	mg/L	0.009890	89.11%
As 188.979†	-0.9	-0.00056	mg/L	0.000901	-0.00056	mg/L	0.000901	160.10%
B 249.677†	3.6	0.00053	mg/L	0.000706	0.00053	mg/L	0.000706	132.16%
Ba 233.527†	0.8	0.00019	mg/L	0.000478	0.00019	mg/L	0.000478	256.08%
Be 313.042†	-13.3	-0.00003	mg/L	0.000043	-0.00003	mg/L	0.000043	140.11%
Ca 317.933†	-15.7	-0.00158	mg/L	0.001549	-0.00158	mg/L	0.001549	97.83%
Cd 228.802†	2.1	0.00008	mg/L	0.000123	0.00008	mg/L	0.000123	147.69%
Co 228.616†	8.4	0.00024	mg/L	0.000103	0.00024	mg/L	0.000103	42.98%
Cr 267.716†	-0.9	-0.00023	mg/L	0.001350	-0.00023	mg/L	0.001350	597.32%
Cu 324.752†	33.6	0.00016	mg/L	0.000163	0.00016	mg/L	0.000163	100.25%
Fe 273.955†	1.6	0.00156	mg/L	0.002864	0.00156	mg/L	0.002864	183.78%
K 766.490†	-28.9	-0.02624	mg/L	0.033480	-0.02624	mg/L	0.033480	127.59%
Mg 279.077†	-10.2	-0.00986	mg/L	0.001523	-0.00986	mg/L	0.001523	15.44%
Mn 257.610†	-5.8	-0.00017	mg/L	0.000120	-0.00017	mg/L	0.000120	71.01%
Mo 202.031†	-9.2	-0.00052	mg/L	0.000362	-0.00052	mg/L	0.000362	69.28%
Na 589.592†	18.3	0.00220	mg/L	0.002058	0.00220	mg/L	0.002058	93.72%
Na 330.237†	0.4	0.01942	mg/L	0.037270	0.01942	mg/L	0.037270	191.91%
Ni 231.604†	0.6	0.00018	mg/L	0.002183	0.00018	mg/L	0.002183	>999.9%
Pb 220.353†	6.0	0.00078	mg/L	0.000815	0.00078	mg/L	0.000815	104.66%
Sb 206.836†	-4.8	-0.00175	mg/L	0.001375	-0.00175	mg/L	0.001375	78.45%
Se 196.026†	4.7	0.00412	mg/L	0.003227	0.00412	mg/L	0.003227	78.41%
Si 288.158†	0.8	0.00085	mg/L	0.007635	0.00085	mg/L	0.007635	897.19%
Sn 189.927†	-2.1	-0.00057	mg/L	0.000396	-0.00057	mg/L	0.000396	69.16%
Sr 421.552†	-43.5	-0.00017	mg/L	0.000115	-0.00017	mg/L	0.000115	67.96%
Ti 334.903†	5.5	0.00039	mg/L	0.002280	0.00039	mg/L	0.002280	579.02%
Tl 190.801†	1.5	0.00074	mg/L	0.002919	0.00074	mg/L	0.002919	394.96%
V 292.402†	1.2	0.00001	mg/L	0.000161	0.00001	mg/L	0.000161	>999.9%
Zn 206.200†	-3.8	-0.00161	mg/L	0.000129	-0.00161	mg/L	0.000129	8.04%

Sequence No.: 67
Sample ID: DI - 2

Autosampler Location: 10
Date Collected: 8/9/2019 3:33:00 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: DI - 2

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: DI - 2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2226111.5	105.1	%	0.34				0.32%
ScR 361.383	223801.3	104.8	%	0.75				0.72%
Ag 328.068†	15.1	0.00010	mg/L	0.000093	0.00010	mg/L	0.000093	95.05%
Al 308.215†	1.5	0.00134	mg/L	0.003930	0.00134	mg/L	0.003930	293.93%
As 188.979†	-1.3	-0.00084	mg/L	0.001225	-0.00084	mg/L	0.001225	145.44%
B 249.677†	8.7	0.00129	mg/L	0.001692	0.00129	mg/L	0.001692	131.22%
Ba 233.527†	1.4	0.00031	mg/L	0.000825	0.00031	mg/L	0.000825	263.12%
Be 313.042†	17.6	0.00004	mg/L	0.000050	0.00004	mg/L	0.000050	119.52%
Ca 317.933†	-11.9	-0.00121	mg/L	0.000289	-0.00121	mg/L	0.000289	23.87%
Cd 228.802†	3.9	0.00016	mg/L	0.000182	0.00016	mg/L	0.000182	117.03%
Co 228.616†	5.3	0.00015	mg/L	0.000215	0.00015	mg/L	0.000215	143.93%
Cr 267.716†	-1.7	-0.00041	mg/L	0.000925	-0.00041	mg/L	0.000925	227.88%
Cu 324.752†	41.7	0.00020	mg/L	0.000156	0.00020	mg/L	0.000156	77.54%
Fe 273.955†	-0.2	-0.00017	mg/L	0.002825	-0.00017	mg/L	0.002825	>999.9%
K 766.490†	-10.0	-0.00910	mg/L	0.015168	-0.00910	mg/L	0.015168	166.70%
Mg 279.077†	-2.0	-0.00189	mg/L	0.002779	-0.00189	mg/L	0.002779	146.95%
Mn 257.610†	-1.3	-0.00004	mg/L	0.000023	-0.00004	mg/L	0.000023	62.26%
Mo 202.031†	-8.1	-0.00046	mg/L	0.000233	-0.00046	mg/L	0.000233	50.37%
Na 589.592†	-25.0	-0.00300	mg/L	0.004827	-0.00300	mg/L	0.004827	160.98%
Na 330.237†	13.2	0.6860	mg/L	0.96971	0.6860	mg/L	0.96971	141.35%
Ni 231.604†	-4.6	-0.00136	mg/L	0.002359	-0.00136	mg/L	0.002359	172.95%
Pb 220.353†	7.3	0.00096	mg/L	0.000316	0.00096	mg/L	0.000316	33.03%
Sb 206.836†	-1.6	-0.00058	mg/L	0.001678	-0.00058	mg/L	0.001678	288.06%
Se 196.026†	5.6	0.00490	mg/L	0.002635	0.00490	mg/L	0.002635	53.74%
Si 288.158†	2.4	0.00254	mg/L	0.003017	0.00254	mg/L	0.003017	118.77%
Sn 189.927†	-3.6	-0.00096	mg/L	0.000902	-0.00096	mg/L	0.000902	93.77%
Sr 421.552†	-28.4	-0.00011	mg/L	0.000150	-0.00011	mg/L	0.000150	135.39%
Ti 334.903†	10.1	0.00072	mg/L	0.000714	0.00072	mg/L	0.000714	98.92%
Tl 190.801†	5.0	0.00246	mg/L	0.002181	0.00246	mg/L	0.002181	88.61%
V 292.402†	-24.8	-0.00028	mg/L	0.000210	-0.00028	mg/L	0.000210	74.61%
Zn 206.200†	0.1	0.00004	mg/L	0.000704	0.00004	mg/L	0.000704	>999.9%

Sequence No.: 68 **Autosampler Location: 10**
Sample ID: DI - 3 **Date Collected: 8/9/2019 3:36:59 PM**
Data Type: Original

Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: DI - 3

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: DI - 3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2231765.0	105.4	%	0.24				0.22%
ScR 361.383	226040.4	105.9	%	1.33				1.26%
Ag 328.068†	-16.9	-0.00011	mg/L	0.000045	-0.00011	mg/L	0.000045	40.87%
Al 308.215†	3.9	0.00335	mg/L	0.010189	0.00335	mg/L	0.010189	303.80%
As 188.979†	-1.6	-0.00108	mg/L	0.001371	-0.00108	mg/L	0.001371	127.09%
B 249.677†	5.0	0.00073	mg/L	0.000760	0.00073	mg/L	0.000760	103.82%
Ba 233.527†	2.6	0.00060	mg/L	0.000187	0.00060	mg/L	0.000187	31.49%
Be 313.042†	-8.3	-0.00002	mg/L	0.000006	-0.00002	mg/L	0.000006	33.80%
Ca 317.933†	-23.2	-0.00234	mg/L	0.000559	-0.00234	mg/L	0.000559	23.84%
Cd 228.802†	3.1	0.00012	mg/L	0.000091	0.00012	mg/L	0.000091	73.72%
Co 228.616†	8.9	0.00026	mg/L	0.000035	0.00026	mg/L	0.000035	13.59%
Cr 267.716†	-3.8	-0.00091	mg/L	0.001568	-0.00091	mg/L	0.001568	172.19%
Cu 324.752†	72.3	0.00035	mg/L	0.000077	0.00035	mg/L	0.000077	22.02%
Fe 273.955†	-0.4	-0.00044	mg/L	0.000596	-0.00044	mg/L	0.000596	134.35%
K 766.490†	-9.8	-0.00890	mg/L	0.020252	-0.00890	mg/L	0.020252	227.61%
Mg 279.077†	2.9	0.00282	mg/L	0.003820	0.00282	mg/L	0.003820	135.54%
Mn 257.610†	-4.2	-0.00012	mg/L	0.000018	-0.00012	mg/L	0.000018	14.23%
Mo 202.031†	-8.5	-0.00048	mg/L	0.000115	-0.00048	mg/L	0.000115	23.82%
Na 589.592†	32.2	0.00387	mg/L	0.004448	0.00387	mg/L	0.004448	114.89%
Na 330.237†	8.8	0.4597	mg/L	0.59840	0.4597	mg/L	0.59840	130.18%
Ni 231.604†	-1.1	-0.00032	mg/L	0.001421	-0.00032	mg/L	0.001421	438.00%
Pb 220.353†	8.2	0.00107	mg/L	0.000800	0.00107	mg/L	0.000800	74.89%
Sb 206.836†	-5.9	-0.00211	mg/L	0.000860	-0.00211	mg/L	0.000860	40.67%
Se 196.026†	8.7	0.00770	mg/L	0.002169	0.00770	mg/L	0.002169	28.18%
Si 288.158†	-0.8	-0.00085	mg/L	0.004859	-0.00085	mg/L	0.004859	570.16%
Sn 189.927†	-2.7	-0.00074	mg/L	0.000469	-0.00074	mg/L	0.000469	63.40%
Sr 421.552†	-19.3	-0.00008	mg/L	0.000066	-0.00008	mg/L	0.000066	88.43%
Ti 334.903†	-5.3	-0.00037	mg/L	0.001742	-0.00037	mg/L	0.001742	464.68%
Tl 190.801†	-1.3	-0.00063	mg/L	0.000672	-0.00063	mg/L	0.000672	106.40%
V 292.402†	-1.7	-0.00003	mg/L	0.000276	-0.00003	mg/L	0.000276	>999.9%
Zn 206.200†	-0.2	-0.00007	mg/L	0.001607	-0.00007	mg/L	0.001607	>999.9%

Sequence No.: 69
Sample ID: DI - 4
Autosampler Location: 10
Date Collected: 8/9/2019 3:40:57 PM
Data Type: Original
Dilution: 1X
Wash Time: 37
Auto Dilution Factor: 1

Nebulizer Parameters: DI - 4

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: DI - 4

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2199771.6	103.9	%	0.78				0.75%
ScR 361.383	222523.4	104.2	%	1.34				1.29%
Ag 328.068†	-34.4	-0.00022	mg/L	0.000045	-0.00022	mg/L	0.000045	20.35%
Al 308.215†	-0.6	-0.00049	mg/L	0.008087	-0.00049	mg/L	0.008087	>999.9%
As 188.979†	0.3	0.00021	mg/L	0.002285	0.00021	mg/L	0.002285	>999.9%
B 249.677†	-1.1	-0.00017	mg/L	0.000832	-0.00017	mg/L	0.000832	503.36%
Ba 233.527†	0.2	0.00005	mg/L	0.000434	0.00005	mg/L	0.000434	892.65%
Be 313.042†	12.6	0.00003	mg/L	0.000027	0.00003	mg/L	0.000027	95.73%
Ca 317.933†	-17.4	-0.00176	mg/L	0.000294	-0.00176	mg/L	0.000294	16.74%
Cd 228.802†	5.3	0.00020	mg/L	0.000034	0.00020	mg/L	0.000034	16.81%
Co 228.616†	8.2	0.00023	mg/L	0.000141	0.00023	mg/L	0.000141	60.22%
Cr 267.716†	-1.6	-0.00039	mg/L	0.001309	-0.00039	mg/L	0.001309	333.39%
Cu 324.752†	43.0	0.00021	mg/L	0.000097	0.00021	mg/L	0.000097	46.49%
Fe 273.955†	0.1	0.00014	mg/L	0.001041	0.00014	mg/L	0.001041	742.30%
K 766.490†	-17.2	-0.01563	mg/L	0.037472	-0.01563	mg/L	0.037472	239.72%
Mg 279.077†	-5.6	-0.00545	mg/L	0.005865	-0.00545	mg/L	0.005865	107.70%
Mn 257.610†	2.0	0.00006	mg/L	0.000150	0.00006	mg/L	0.000150	254.52%
Mo 202.031†	-7.8	-0.00044	mg/L	0.000256	-0.00044	mg/L	0.000256	57.89%
Na 589.592†	4.1	0.00049	mg/L	0.000742	0.00049	mg/L	0.000742	150.34%
Na 330.237†	12.0	0.6245	mg/L	0.39369	0.6245	mg/L	0.39369	63.04%
Ni 231.604†	-0.8	-0.00025	mg/L	0.000398	-0.00025	mg/L	0.000398	157.91%
Pb 220.353†	9.1	0.00119	mg/L	0.000325	0.00119	mg/L	0.000325	27.35%
Sb 206.836†	-2.8	-0.00103	mg/L	0.000672	-0.00103	mg/L	0.000672	65.43%
Se 196.026†	5.0	0.00440	mg/L	0.000107	0.00440	mg/L	0.000107	2.42%
Si 288.158†	-1.1	-0.00120	mg/L	0.005066	-0.00120	mg/L	0.005066	420.79%
Sn 189.927†	-4.4	-0.00118	mg/L	0.001099	-0.00118	mg/L	0.001099	92.90%
Sr 421.552†	-31.9	-0.00012	mg/L	0.000100	-0.00012	mg/L	0.000100	80.31%
Ti 334.903†	7.3	0.00052	mg/L	0.000267	0.00052	mg/L	0.000267	51.30%
Tl 190.801†	3.2	0.00154	mg/L	0.000559	0.00154	mg/L	0.000559	36.24%
V 292.402†	3.7	0.00004	mg/L	0.000111	0.00004	mg/L	0.000111	287.14%
Zn 206.200†	-0.8	-0.00035	mg/L	0.000593	-0.00035	mg/L	0.000593	170.56%

INITIAL CALIBRATION DATA

EPA 6010C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CH00038	Instrument:	ICP2
Calibration Date:	08/12/2019 10:18		

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Copper	0	0	10	204053.3	0		0		0			

INITIAL CALIBRATION DATA

EPA 6010C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CH00038	Instrument:	ICP2
Calibration Date:	08/12/2019 10:18		

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	COD Limit	Q
Copper	102026.7	141.4	1.0000			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: 4-26-19 Analysis Date: 8-12-19 Analyst: TH/MB

LR Date: 4-26-19 Sequence: SHH0143 Page: 1 of 3

All corrections made by analyst unless otherwise noted. TH 8-12-19

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		SEQ-CAL1	H6894		
		-CAL2	~~H7435~~ H7671		
		-CAL3	~~H7436~~ H7672		
		-CAL4	~~H7437~~ H7673		
		-CAL5	~~H7438~~ H7674		
		-ICV1	HS329		
		-ICB1	H6894		
	✓	-CRL1	H6960		CrT
		-CRL1	↓		
		-IFA1	HS485		
		-IFB1	HS486		
		DI Check	—		
		SEQ-CCV1	HS329		
		-CCB1	H6894		
BHH		~~BHH~~0241-BLK1	LEN	5	0.00387 Ba (EIZ)
BHH		~~BHH~~0243-BLK1			0.00539 Ba (EIZ)
		19H0087-01			
		19H0096-01			
		BHH0243-DUP1			
		19H0015-01			
		BHH0243-MS1			
		BHH0241-DUP1			
		19H0079-01			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: — Analysis Date: 8-12-19 Analyst: TH/MB

LR Date: — Sequence: — Page: 2 of 3

All corrections made by analyst unless otherwise noted. TH 8-12-19

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		BHH0241-MS1	LEN	5	
		SEQ-~~CCV3~~ CCV2			
		↓ -~~CCB3~~ CCB2			
		BHH0186-BLK1	WMN		
		19H0018-02			
		↓ -04			
		↓ -06			
		19H0045-01			
		BHH0186-DUP1			
		19H0045-06			
		BHH0186-MS1			0.080mL HS250 NA STL
		↓ -ICS1	↓		↓
		SEQ-ICBL1	—		
		↓ -CCV3			
		↓ -CCB3			
		19H0045-02	WMN		
		↓ -03	↓		
		↓ -04			
		↓ -05			
		↓ -08	↓		
		19H0024-09	SWC	10	Cu only
	✓	19H0069-01	↓	50	SCR noisy
		SEQ-CCV4			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: — Analysis Date: 8-12-19 Analyst: TH/MS

LR Date: — Sequence: — Page: 3 of 3

All corrections made by analyst unless otherwise noted. 8/12/19 MS

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		SEQ-CCB4			
		↓ -CCV5			ScR sl. noisy (Break in analysis) - Analytes OK
		↓ -CCB5			
		BHH0242-BLK1	TWC		No Cr
		-BS1	↓		↓
TH	8-13-19 ✓	19H0103-01		20	ScR noisy Pb only
	✓	19H0103-01		5	↓
	↓	BHH0242-DUP1		↓	
	↓	↓ -MS1	↓	↓	Sc↑ noisy
		SEQ-IBL2			
	✓	19H0103-01	TWC	20	ScR noisy
	✓	↓ -01	↓	50	Cr↓
		SEQ-IBL3			
		↓ -CCV6			Sr↑
		-CCB6			Cr↓
		-CAL1			
		-CCV7			Sr↑
		↓ -CCB7			
RE1		19H0103-01RE1	TWC	50	No Pb
		SEQ-IBL4			
		↓ -CCV8			~~Sc~~ Sr↑
		↓ -CCB8			
		Rinse/IDI			

Nebulizer Parameters: Hg_ReAlign

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

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8/12/2019 9:44:37 AM Hg ReAlign... Actual peak offset (nm): 0.003
Drift (nm): 0.000 Slit adjustment: 0

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Analysis Begun

Start Time: 8/12/2019 9:46:15 AM **Plasma On Time: 8/12/2019 9:01:24 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\BLKS.sif
Batch ID:
Results Data Set: I2190812
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Method Loaded
Method Name: ELMT7300bcESI2FAST **Method Last Saved: 7/22/2019 11:31:54 AM**
IEC File: IEC042619A.iec **MSF File:**
Method Description: 12Axial Elements

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Ag 328.068	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Al 308.215	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
As 188.979	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
B 249.677	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ba 233.527	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Be 313.042	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ca 317.933	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Cd 228.802	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Co 228.616	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Cr 267.716	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Cu 324.752	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Fe 273.955	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
K 766.490	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Mg 279.077	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Mn 257.610	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Mo 202.031	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Na 589.592	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Na 330.237	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ni 231.604	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Pb 220.353	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Sb 206.836	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Se 196.026	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Si 288.158	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Sn 189.927	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Sr 421.552	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Ti 334.903	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Tl 190.801	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
V 292.402	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Zn 206.200	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
ScA 357.253	Lin, Calc Int	Peak Area	Axial	n/a	n/a
ScR 361.383	Lin, Calc Int	Peak Area	Radial	n/a	n/a

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~~**Sequence No.: 1**~~ ~~**Autosampler Location: 1**~~
~~**Sample ID: B1**~~ TH 08-12-19 ~~**Date Collected: 8/12/2019 9:46:25 AM**~~
~~**Data Type: Original**~~

~~**Dilution: 1X**~~

==========

~~**Nebulizer Parameters: B1**~~

~~Analyte~~	~~Back Pressure~~	~~Flow~~
~~All~~	~~165.0 kPa~~	~~0.65 L/min~~

==========

Analysis Begun

Start Time: 8/12/2019 10:18:05 AM **Plasma On Time: 8/12/2019 9:01:24 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\ 0812.sif
Batch ID:
Results Data Set: I2190812
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 1**
Sample ID: SEQ-CAL1 **Date Collected: 8/12/2019 10:18:13 AM**
Data Type: Original

Nebulizer Parameters: SEQ-CAL1

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-CAL1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2107201.0	13903.18	0.66%	100.0	%
ScR 361.383	210556.1	911.55	0.43%	100.0	%
Ag 328.068†	-113.0	31.70	28.05%	[0.00]	mg/L
Al 308.215†	266.3	3.44	1.29%	[0.00]	mg/L
As 188.979†	-8.3	3.91	46.78%	[0.00]	mg/L
B 249.677†	21.9	3.24	14.75%	[0.00]	mg/L
Ba 233.527†	23.6	1.47	6.22%	[0.00]	mg/L
Be 313.042†	1325.3	13.87	1.05%	[0.00]	mg/L
Ca 317.933†	197.7	10.84	5.48%	[0.00]	mg/L
Cd 228.802†	274.0	1.84	0.67%	[0.00]	mg/L
Co 228.616†	-42.5	0.79	1.85%	[0.00]	mg/L
Cr 267.716†	-216.6	1.20	0.55%	[0.00]	mg/L
Cu 324.752†	2142.8	8.68	0.41%	[0.00]	mg/L
Fe 273.955†	34.1	2.20	6.44%	[0.00]	mg/L
K 766.490†	434.0	39.41	9.08%	[0.00]	mg/L
Mg 279.077†	71.4	3.31	4.63%	[0.00]	mg/L
Mn 257.610†	243.1	7.48	3.08%	[0.00]	mg/L
Mo 202.031†	55.6	2.42	4.35%	[0.00]	mg/L
Na 589.592†	-15.7	30.82	196.65%	[0.00]	mg/L
Na 330.237†	-186.1	3.70	1.99%	[0.00]	mg/L
Ni 231.604†	-33.9	5.01	14.80%	[0.00]	mg/L
Pb 220.353†	13.3	6.49	48.66%	[0.00]	mg/L
Sb 206.836†	62.2	2.44	3.92%	[0.00]	mg/L
Se 196.026†	-41.1	3.02	7.34%	[0.00]	mg/L
Si 288.158†	11.5	2.68	23.33%	[0.00]	mg/L
Sn 189.927†	-16.7	1.41	8.43%	[0.00]	mg/L
Sr 421.552†	956.4	30.57	3.20%	[0.00]	mg/L
Ti 334.903†	9.6	3.45	35.83%	[0.00]	mg/L
Tl 190.801†	-33.3	1.07	3.21%	[0.00]	mg/L
V 292.402†	182.6	9.75	5.34%	[0.00]	mg/L
Zn 206.200†	4.3	1.96	45.22%	[0.00]	mg/L

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Sequence No.: 2 **Autosampler Location: 2**
Sample ID: SEQ-CAL2 **Date Collected: 8/12/2019 10:22:17 AM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL2

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: SEQ-CAL2

Analyte	Mean Corrected	Calib

Analyte	Intensity	Std.Dev.	RSD	Conc.	Units
ScA 357.253	2111487.1	3554.80	0.17%	100.2	%
ScR 361.383	211343.4	551.54	0.26%	100.4	%
Ba 233.527†	43662.9	167.07	0.38%	[10]	mg/L
Cd 228.802†	250195.4	1854.95	0.74%	[10]	mg/L
Co 228.616†	356301.4	1520.02	0.43%	[10]	mg/L
Cr 267.716†	39764.0	446.53	1.12%	[10]	mg/L
Cu 324.752†	2040533.2	6049.39	0.30%	[10]	mg/L
Mn 257.610†	353350.8	258.76	0.07%	[10]	mg/L
V 292.402†	846657.9	2771.00	0.33%	[10]	mg/L

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: SEQ-CAL3 **Date Collected: 8/12/2019 10:24:01 AM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL3

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-CAL3

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2085677.5	3835.39	0.18%	98.98	%
ScR 361.383	212941.9	228.58	0.11%	101.1	%
Ag 328.068†	160315.7	370.26	0.23%	[1.0]	mg/L
As 188.979†	15441.6	127.71	0.83%	[10]	mg/L
B 249.677†	68492.2	124.47	0.18%	[10]	mg/L
Be 313.042†	2285600.7	8765.12	0.38%	[5.0]	mg/L
Na 589.592†	415846.1	1565.29	0.38%	[50]	mg/L
Ni 231.604†	33263.4	256.76	0.77%	[10]	mg/L
Pb 220.353†	79005.2	149.56	0.19%	[10]	mg/L
Se 196.026†	12235.0	29.13	0.24%	[10]	mg/L
Sr 421.552†	1391316.4	20657.53	1.48%	[5]	mg/L
Tl 190.801†	21335.9	92.09	0.43%	[10]	mg/L
Zn 206.200†	24301.2	26.50	0.11%	[10]	mg/L

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: SEQ-CAL4 **Date Collected: 8/12/2019 10:26:15 AM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL4

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-CAL4

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2137006.6	11671.15	0.55%	101.4	%
ScR 361.383	212542.0	466.63	0.22%	100.9	%
Mo 202.031†	178131.4	1763.95	0.99%	[10]	mg/L
Sb 206.836†	27869.7	209.16	0.75%	[10]	mg/L
Si 288.158†	9980.9	125.63	1.26%	[10]	mg/L
Sn 189.927†	39017.0	469.89	1.20%	[10]	mg/L
Ti 334.903†	139590.7	364.86	0.26%	[10]	mg/L

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: SEQ-CAL5 **Date Collected: 8/12/2019 10:28:28 AM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL5

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: SEQ-CAL5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	1953827.6	6727.06	0.34%	92.72	%
ScR 361.383	210115.2	1217.68	0.58%	99.79	%
Al 308.215†	34871.4	218.45	0.63%	[30]	mg/L
Ca 317.933†	308387.8	1343.44	0.44%	[30]	mg/L
Fe 273.955†	99577.8	321.24	0.32%	[100]	mg/L
K 766.490†	107572.0	1044.57	0.97%	[100]	mg/L
Mg 279.077†	31773.4	121.38	0.38%	[30]	mg/L
Na 330.237†	1925.1	12.10	0.63%	[100]	mg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	1	Lin Thru 0	0.0	160300	0.00000	1.000000	
Al 308.215	1	Lin Thru 0	0.0	1162	0.00000	1.000000	
As 188.979	1	Lin Thru 0	0.0	1544	0.00000	1.000000	
B 249.677	1	Lin Thru 0	0.0	6849	0.00000	1.000000	
Ba 233.527	1	Lin Thru 0	0.0	4366	0.00000	1.000000	
Be 313.042	1	Lin Thru 0	0.0	457100	0.00000	1.000000	
Ca 317.933	1	Lin Thru 0	0.0	10280	0.00000	1.000000	
Cd 228.802	1	Lin Thru 0	0.0	25020	0.00000	1.000000	
Co 228.616	1	Lin Thru 0	0.0	35630	0.00000	1.000000	
Cr 267.716	1	Lin Thru 0	0.0	3976	0.00000	1.000000	
Cu 324.752	1	Lin Thru 0	0.0	204100	0.00000	1.000000	
Fe 273.955	1	Lin Thru 0	0.0	995.8	0.00000	1.000000	
K 766.490	1	Lin Thru 0	0.0	1076	0.00000	1.000000	
Mg 279.077	1	Lin Thru 0	0.0	1059	0.00000	1.000000	
Mn 257.610	1	Lin Thru 0	0.0	35340	0.00000	1.000000	
Mo 202.031	1	Lin Thru 0	0.0	17810	0.00000	1.000000	
Na 589.592	1	Lin Thru 0	0.0	8317	0.00000	1.000000	
Na 330.237	1	Lin Thru 0	0.0	19.25	0.00000	1.000000	
Ni 231.604	1	Lin Thru 0	0.0	3326	0.00000	1.000000	
Pb 220.353	1	Lin Thru 0	0.0	7901	0.00000	1.000000	
Sb 206.836	1	Lin Thru 0	0.0	2787	0.00000	1.000000	
Se 196.026	1	Lin Thru 0	0.0	1224	0.00000	1.000000	
Si 288.158	1	Lin Thru 0	0.0	998.1	0.00000	1.000000	
Sn 189.927	1	Lin Thru 0	0.0	3902	0.00000	1.000000	
Sr 421.552	1	Lin Thru 0	0.0	278300	0.00000	1.000000	
Ti 334.903	1	Lin Thru 0	0.0	13960	0.00000	1.000000	
Tl 190.801	1	Lin Thru 0	0.0	2134	0.00000	1.000000	
V 292.402	1	Lin Thru 0	0.0	84670	0.00000	1.000000	
Zn 206.200	1	Lin Thru 0	0.0	2430	0.00000	1.000000	

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Analysis Begun

Start Time: 8/12/2019 10:31:46 AM **Plasma On Time: 8/12/2019 9:01:24 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0812.sif
Batch ID:
Results Data Set: I2190812
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 7**
Sample ID: SEQ-ICV1 **Date Collected: 8/12/2019 10:31:54 AM**
Data Type: Original

Dilution: 1X

Nebulizer Parameters: SEQ-ICV1

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-ICV1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2054137.4	97.48	%	0.375				0.38%
ScR 361.383	206369.6	98.01	%	0.712				0.73%
Ag 328.068†	165679.4	1.034	mg/L	0.0016	1.034	mg/L	0.0016	0.15%
Al 308.215†	2408.2	2.033	mg/L	0.0249	2.033	mg/L	0.0249	1.22%
As 188.979†	3078.8	2.018	mg/L	0.0201	2.018	mg/L	0.0201	1.00%
B 249.677†	7181.5	1.048	mg/L	0.0082	1.048	mg/L	0.0082	0.78%
Ba 233.527†	4496.9	1.028	mg/L	0.0063	1.028	mg/L	0.0063	0.61%
Be 313.042†	466549.9	1.016	mg/L	0.0077	1.016	mg/L	0.0077	0.76%
Ca 317.933†	21272.7	2.056	mg/L	0.0137	2.056	mg/L	0.0137	0.66%
Cd 228.802†	26120.8	1.032	mg/L	0.0034	1.032	mg/L	0.0034	0.33%
Co 228.616†	36128.2	1.012	mg/L	0.0031	1.012	mg/L	0.0031	0.31%
Cr 267.716†	4084.2	1.027	mg/L	0.0114	1.027	mg/L	0.0114	1.11%
Cu 324.752†	210622.5	1.032	mg/L	0.0013	1.032	mg/L	0.0013	0.12%
Fe 273.955†	2030.8	2.032	mg/L	0.0082	2.032	mg/L	0.0082	0.40%
K 766.490†	21770.6	20.24	mg/L	0.072	20.24	mg/L	0.072	0.35%
Mg 279.077†	2165.4	2.056	mg/L	0.0130	2.056	mg/L	0.0130	0.63%
Mn 257.610†	36332.1	1.029	mg/L	0.0083	1.029	mg/L	0.0083	0.81%
Mo 202.031†	18036.5	1.012	mg/L	0.0022	1.012	mg/L	0.0022	0.22%
Na 589.592†	431551.9	51.89	mg/L	0.356	51.89	mg/L	0.356	0.69%
Na 330.237†	999.9	51.71	mg/L	0.278	51.71	mg/L	0.278	0.54%
Ni 231.604†	3447.3	1.038	mg/L	0.0093	1.038	mg/L	0.0093	0.89%
Pb 220.353†	16137.2	2.044	mg/L	0.0016	2.044	mg/L	0.0016	0.08%
Sb 206.836†	5974.5	2.140	mg/L	0.0161	2.140	mg/L	0.0161	0.75%
Se 196.026†	2530.7	2.067	mg/L	0.0096	2.067	mg/L	0.0096	0.47%
Si 288.158†	2098.0	2.104	mg/L	0.0282	2.104	mg/L	0.0282	1.34%
Sn 189.927†	3960.2	1.017	mg/L	0.0077	1.017	mg/L	0.0077	0.76%
Sr 421.552†	291571.2	1.048	mg/L	0.0131	1.048	mg/L	0.0131	1.25%
Ti 334.903†	14054.1	1.005	mg/L	0.0059	1.005	mg/L	0.0059	0.58%
Tl 190.801†	4347.7	2.030	mg/L	0.0179	2.030	mg/L	0.0179	0.88%
V 292.402†	86961.7	1.034	mg/L	0.0028	1.034	mg/L	0.0028	0.27%
Zn 206.200†	2530.4	1.040	mg/L	0.0073	1.040	mg/L	0.0073	0.70%

==========

Sequence No.: 2
Sample ID: SEQ-ICB1

Autosampler Location: 1
Date Collected: 8/12/2019 10:35:58 AM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-ICB1

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-ICB1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2101078.1	99.71	%	0.830				0.83%
ScR 361.383	211783.6	100.6	%	0.49				0.49%
Ag 328.068†	10.4	0.00007	mg/L	0.000078	0.00007	mg/L	0.000078	119.90%
Al 308.215†	1.2	0.00102	mg/L	0.013166	0.00102	mg/L	0.013166	>999.9%
As 188.979†	0.7	0.00051	mg/L	0.001159	0.00051	mg/L	0.001159	228.10%
B 249.677†	36.8	0.00538	mg/L	0.001332	0.00538	mg/L	0.001332	24.76%
Ba 233.527†	2.5	0.00057	mg/L	0.001496	0.00057	mg/L	0.001496	260.93%
Be 313.042†	13.5	0.00003	mg/L	0.000053	0.00003	mg/L	0.000053	183.74%
Ca 317.933†	11.9	0.00114	mg/L	0.000682	0.00114	mg/L	0.000682	59.73%
Cd 228.802†	1.8	0.00007	mg/L	0.000399	0.00007	mg/L	0.000399	596.04%
Co 228.616†	7.3	0.00020	mg/L	0.000204	0.00020	mg/L	0.000204	100.31%
Cr 267.716†	3.5	0.00087	mg/L	0.001437	0.00087	mg/L	0.001437	165.29%
Cu 324.752†	33.9	0.00017	mg/L	0.000081	0.00017	mg/L	0.000081	49.33%
Fe 273.955†	-4.1	-0.00411	mg/L	0.000840	-0.00411	mg/L	0.000840	20.43%
K 766.490†	-21.9	-0.02034	mg/L	0.007828	-0.02034	mg/L	0.007828	38.49%
Mg 279.077†	3.3	0.00315	mg/L	0.005077	0.00315	mg/L	0.005077	161.14%
Mn 257.610†	4.2	0.00012	mg/L	0.000047	0.00012	mg/L	0.000047	39.44%
Mo 202.031†	15.3	0.00086	mg/L	0.000567	0.00086	mg/L	0.000567	66.16%
Na 589.592†	60.5	0.00727	mg/L	0.003893	0.00727	mg/L	0.003893	53.52%
Na 330.237†	12.7	0.6616	mg/L	0.71952	0.6616	mg/L	0.71952	108.76%
Ni 231.604†	-3.2	-0.00096	mg/L	0.000338	-0.00096	mg/L	0.000338	35.32%
Pb 220.353†	9.3	0.00118	mg/L	0.001622	0.00118	mg/L	0.001622	137.02%
Sb 206.836†	-0.0	-0.00002	mg/L	0.001307	-0.00002	mg/L	0.001307	>999.9%
Se 196.026†	3.3	0.00272	mg/L	0.003352	0.00272	mg/L	0.003352	123.36%
Si 288.158†	9.4	0.00937	mg/L	0.004603	0.00937	mg/L	0.004603	49.13%
Sn 189.927†	2.5	0.00064	mg/L	0.000464	0.00064	mg/L	0.000464	72.64%
Sr 421.552†	11.3	0.00004	mg/L	0.000077	0.00004	mg/L	0.000077	189.87%
Ti 334.903†	22.9	0.00164	mg/L	0.000253	0.00164	mg/L	0.000253	15.44%
Tl 190.801†	1.1	0.00052	mg/L	0.002873	0.00052	mg/L	0.002873	549.84%
V 292.402†	12.3	0.00015	mg/L	0.000249	0.00015	mg/L	0.000249	164.90%
Zn 206.200†	1.7	0.00069	mg/L	0.000428	0.00069	mg/L	0.000428	61.98%

Sequence No.: 3
Sample ID: SEQ-CRL1

DEL

Dilution: 1X
Wash Time: 37

Autosampler Location: 301
Date Collected: 8/12/2019 10:39:57 AM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CRL1

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-CRL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2119472.1	100.6	%	0.53				0.53%
ScR 361.383	211827.0	100.6	%	0.92				0.92%
Ag 328.068†	530.7	0.00331	mg/L	0.000140	0.00331	mg/L	0.000140	4.23%
Al 308.215†	48.1	0.04119	mg/L	0.003752	0.04119	mg/L	0.003752	9.11%
As 188.979†	75.0	0.04867	mg/L	0.001520	0.04867	mg/L	0.001520	3.12%
B 249.677†	164.8	0.02407	mg/L	0.001130	0.02407	mg/L	0.001130	4.70%
Ba 233.527†	13.6	0.00310	mg/L	0.000335	0.00310	mg/L	0.000335	10.82%
Be 313.042†	435.8	0.00094	mg/L	0.000004	0.00094	mg/L	0.000004	0.46%
Ca 317.933†	478.5	0.04649	mg/L	0.002456	0.04649	mg/L	0.002456	5.28%
Cd 228.802†	58.5	0.00203	mg/L	0.000135	0.00203	mg/L	0.000135	6.68%
Co 228.616†	111.5	0.00312	mg/L	0.000045	0.00312	mg/L	0.000045	1.46%
Cr 267.716†	30.0	0.00755	mg/L	0.000912	0.00755	mg/L	0.000912	12.09%
Cu 324.752†	403.5	0.00198	mg/L	0.000006	0.00198	mg/L	0.000006	0.33%
Fe 273.955†	50.8	0.05100	mg/L	0.004013	0.05100	mg/L	0.004013	7.87%
K 766.490†	512.9	0.4768	mg/L	0.04474	0.4768	mg/L	0.04474	9.38%
Mg 279.077†	49.2	0.04650	mg/L	0.000557	0.04650	mg/L	0.000557	1.20%
Mn 257.610†	35.8	0.00102	mg/L	0.000104	0.00102	mg/L	0.000104	10.23%
Mo 202.031†	87.8	0.00493	mg/L	0.000232	0.00493	mg/L	0.000232	4.71%
Na 589.592†	4031.7	0.4848	mg/L	0.00242	0.4848	mg/L	0.00242	0.50%
Na 330.237†	22.1	1.146	mg/L	0.1811	1.146	mg/L	0.1811	15.80%
Ni 231.604†	30.0	0.00906	mg/L	0.001294	0.00906	mg/L	0.001294	14.27%
Pb 220.353†	159.1	0.02016	mg/L	0.000852	0.02016	mg/L	0.000852	4.22%
Sb 206.836†	148.8	0.05335	mg/L	0.000444	0.05335	mg/L	0.000444	0.83%
Se 196.026†	61.5	0.05023	mg/L	0.003424	0.05023	mg/L	0.003424	6.82%
Si 288.158†	63.7	0.06384	mg/L	0.007963	0.06384	mg/L	0.007963	12.47%
Sn 189.927†	36.0	0.00925	mg/L	0.000312	0.00925	mg/L	0.000312	3.37%
Sr 421.552†	239.8	0.00086	mg/L	0.000097	0.00086	mg/L	0.000097	11.20%
Ti 334.903†	60.2	0.00431	mg/L	0.001613	0.00431	mg/L	0.001613	37.45%
Tl 190.801†	105.5	0.04943	mg/L	0.000990	0.04943	mg/L	0.000990	2.00%
V 292.402†	226.6	0.00273	mg/L	0.000176	0.00273	mg/L	0.000176	6.44%
Zn 206.200†	22.1	0.00906	mg/L	0.000907	0.00906	mg/L	0.000907	10.00%

User canceled analysis.

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Analysis Begun

Start Time: 8/12/2019 10:44:38 AM **Plasma On Time: 8/12/2019 9:01:24 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\ 0812.sif
Batch ID:
Results Data Set: I2190812
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 3 **Autosampler Location: 301**
Sample ID: SEQ-CRL1 **Date Collected: 8/12/2019 10:44:39 AM**
Data Type: Original
Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CRL1

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: SEQ-CRL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2104505.1	99.87	%	0.564				0.56%
ScR 361.383	212753.4	101.0	%	0.48				0.48%
Ag 328.068†	527.2	0.00329	mg/L	0.000265	0.00329	mg/L	0.000265	8.06%
Al 308.215†	58.0	0.04975	mg/L	0.006910	0.04975	mg/L	0.006910	13.89%
As 188.979†	78.3	0.05076	mg/L	0.002165	0.05076	mg/L	0.002165	4.27%
B 249.677†	172.3	0.02516	mg/L	0.000083	0.02516	mg/L	0.000083	0.33%
Ba 233.527†	14.7	0.00336	mg/L	0.000290	0.00336	mg/L	0.000290	8.62%
Be 313.042†	431.8	0.00093	mg/L	0.000007	0.00093	mg/L	0.000007	0.73%
Ca 317.933†	487.9	0.04740	mg/L	0.001710	0.04740	mg/L	0.001710	3.61%
Cd 228.802†	61.2	0.00212	mg/L	0.000223	0.00212	mg/L	0.000223	10.48%
Co 228.616†	114.9	0.00322	mg/L	0.000207	0.00322	mg/L	0.000207	6.45%
Cr 267.716†	18.2	0.00456	mg/L	0.000526	0.00456	mg/L	0.000526	11.54%
Cu 324.752†	426.9	0.00209	mg/L	0.000108	0.00209	mg/L	0.000108	5.16%
Fe 273.955†	48.1	0.04829	mg/L	0.002932	0.04829	mg/L	0.002932	6.07%
K 766.490†	492.1	0.4575	mg/L	0.02380	0.4575	mg/L	0.02380	5.20%
Mg 279.077†	50.5	0.04766	mg/L	0.006733	0.04766	mg/L	0.006733	14.13%
Mn 257.610†	33.2	0.00094	mg/L	0.000025	0.00094	mg/L	0.000025	2.68%
Mo 202.031†	88.6	0.00497	mg/L	0.000254	0.00497	mg/L	0.000254	5.11%
Na 589.592†	4071.4	0.4895	mg/L	0.00668	0.4895	mg/L	0.00668	1.37%
Na 330.237†	29.1	1.509	mg/L	0.4715	1.509	mg/L	0.4715	31.24%
Ni 231.604†	30.7	0.00925	mg/L	0.000988	0.00925	mg/L	0.000988	10.68%
Pb 220.353†	169.1	0.02143	mg/L	0.001125	0.02143	mg/L	0.001125	5.25%
Sb 206.836†	146.5	0.05258	mg/L	0.001990	0.05258	mg/L	0.001990	3.79%
Se 196.026†	62.0	0.05069	mg/L	0.002693	0.05069	mg/L	0.002693	5.31%
Si 288.158†	65.2	0.06535	mg/L	0.007694	0.06535	mg/L	0.007694	11.77%
Sn 189.927†	39.7	0.01020	mg/L	0.001103	0.01020	mg/L	0.001103	10.81%
Sr 421.552†	249.2	0.00090	mg/L	0.000134	0.00090	mg/L	0.000134	14.99%
Ti 334.903†	50.6	0.00361	mg/L	0.000501	0.00361	mg/L	0.000501	13.87%
Tl 190.801†	109.5	0.05131	mg/L	0.002011	0.05131	mg/L	0.002011	3.92%
V 292.402†	258.2	0.00308	mg/L	0.000277	0.00308	mg/L	0.000277	8.99%
Zn 206.200†	23.4	0.00960	mg/L	0.000524	0.00960	mg/L	0.000524	5.46%

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Sequence No.: 4
Sample ID: SEQ-IFA1

Autosampler Location: 302
Date Collected: 8/12/2019 10:48:37 AM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IFA1

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-IFA1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2036890.3	96.66	%	0.376				0.39%
ScR 361.383	208510.5	99.03	%	0.195				0.20%
Ag 328.068†	-137.1	-0.00086	mg/L	0.000100	-0.00086	mg/L	0.000100	11.71%
Al 308.215†	232978.0	200.4	mg/L	1.20	200.4	mg/L	1.20	0.60%
As 188.979†	30.8	0.01284	mg/L	0.002522	0.01284	mg/L	0.002522	19.65%
B 249.677†	-69.2	0.00985	mg/L	0.002596	0.00985	mg/L	0.002596	26.36%
Ba 233.527†	128.5	0.00474	mg/L	0.001618	0.00474	mg/L	0.001618	34.14%
Be 313.042†	113.9	0.00028	mg/L	0.000024	0.00028	mg/L	0.000024	8.55%
Ca 317.933†	1028824.1	100.1	mg/L	0.52	100.1	mg/L	0.52	0.52%
Cd 228.802†	16.9	0.00054	mg/L	0.000025	0.00054	mg/L	0.000025	4.65%
Co 228.616†	100.1	-0.00050	mg/L	0.000261	-0.00050	mg/L	0.000261	52.47%
Cr 267.716†	-3.1	-0.00196	mg/L	0.002445	-0.00196	mg/L	0.002445	124.74%
Cu 324.752†	-1405.3	0.00177	mg/L	0.000119	0.00177	mg/L	0.000119	6.68%
Fe 273.955†	196165.4	197.0	mg/L	1.28	197.0	mg/L	1.28	0.65%
K 766.490†	50.0	0.04645	mg/L	0.025373	0.04645	mg/L	0.025373	54.62%
Mg 279.077†	109368.4	103.1	mg/L	0.43	103.1	mg/L	0.43	0.42%
Mn 257.610†	29.0	0.00034	mg/L	0.000148	0.00034	mg/L	0.000148	43.00%
Mo 202.031†	80.8	0.00288	mg/L	0.000288	0.00288	mg/L	0.000288	10.01%
Na 589.592†	131.9	0.01586	mg/L	0.002736	0.01586	mg/L	0.002736	17.26%
Na 330.237†	-4.0	-0.2071	mg/L	0.11135	-0.2071	mg/L	0.11135	53.77%
Ni 231.604†	-9.7	-0.00289	mg/L	0.000771	-0.00289	mg/L	0.000771	26.71%
Pb 220.353†	-357.3	-0.00003	mg/L	0.000229	-0.00003	mg/L	0.000229	794.87%
Sb 206.836†	56.1	0.01995	mg/L	0.001095	0.01995	mg/L	0.001095	5.49%
Se 196.026†	-19.0	-0.01377	mg/L	0.004312	-0.01377	mg/L	0.004312	31.32%
Si 288.158†	-34.7	-0.02256	mg/L	0.004298	-0.02256	mg/L	0.004298	19.05%
Sn 189.927†	-99.2	-0.00855	mg/L	0.000611	-0.00855	mg/L	0.000611	7.15%
Sr 421.552†	90.2	0.00032	mg/L	0.000008	0.00032	mg/L	0.000008	2.58%
Ti 334.903†	129.6	0.00311	mg/L	0.000574	0.00311	mg/L	0.000574	18.46%
Tl 190.801†	-44.5	-0.02085	mg/L	0.005238	-0.02085	mg/L	0.005238	25.11%
V 292.402†	-617.0	0.00356	mg/L	0.000305	0.00356	mg/L	0.000305	8.57%
Zn 206.200†	7.0	0.00286	mg/L	0.001319	0.00286	mg/L	0.001319	46.09%

Sequence No.: 5
Sample ID: SEQ-IFB1

Autosampler Location: 303
Date Collected: 8/12/2019 10:52:51 AM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IFB1

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-IFB1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2048344.6	97.21	%	0.756				0.78%
ScR 361.383	210951.7	100.2	%	0.41				0.40%
Ag 328.068†	162432.7	1.013	mg/L	0.0073	1.013	mg/L	0.0073	0.72%
Al 308.215†	232032.1	199.6	mg/L	0.87	199.6	mg/L	0.87	0.44%
As 188.979†	1603.2	1.030	mg/L	0.0095	1.030	mg/L	0.0095	0.92%
B 249.677†	-58.8	0.00907	mg/L	0.000555	0.00907	mg/L	0.000555	6.12%
Ba 233.527†	4511.6	1.007	mg/L	0.0045	1.007	mg/L	0.0045	0.44%
Be 313.042†	466966.1	1.017	mg/L	0.0058	1.017	mg/L	0.0058	0.57%
Ca 317.933†	1033328.2	100.5	mg/L	0.47	100.5	mg/L	0.47	0.47%
Cd 228.802†	25299.5	1.005	mg/L	0.0033	1.005	mg/L	0.0033	0.33%
Co 228.616†	34787.1	0.9728	mg/L	0.00503	0.9728	mg/L	0.00503	0.52%
Cr 267.716†	4003.2	1.006	mg/L	0.0079	1.006	mg/L	0.0079	0.79%
Cu 324.752†	204988.8	1.014	mg/L	0.0061	1.014	mg/L	0.0061	0.60%
Fe 273.955†	196970.4	197.8	mg/L	0.53	197.8	mg/L	0.53	0.27%
K 766.490†	61.3	0.05694	mg/L	0.013176	0.05694	mg/L	0.013176	23.14%
Mg 279.077†	105974.9	99.94	mg/L	0.326	99.94	mg/L	0.326	0.33%
Mn 257.610†	35598.7	1.007	mg/L	0.0048	1.007	mg/L	0.0048	0.48%
Mo 202.031†	72.1	0.00232	mg/L	0.000524	0.00232	mg/L	0.000524	22.61%
Na 589.592†	139.5	0.01678	mg/L	0.003384	0.01678	mg/L	0.003384	20.17%
Na 330.237†	6.3	-0.08845	mg/L	0.133036	-0.08845	mg/L	0.133036	150.40%
Ni 231.604†	3269.3	0.9834	mg/L	0.00729	0.9834	mg/L	0.00729	0.74%
Pb 220.353†	7568.4	1.004	mg/L	0.0070	1.004	mg/L	0.0070	0.70%
Sb 206.836†	3021.9	1.071	mg/L	0.0080	1.071	mg/L	0.0080	0.74%
Se 196.026†	1233.7	1.009	mg/L	0.0105	1.009	mg/L	0.0105	1.04%
Si 288.158†	-37.9	-0.02480	mg/L	0.008034	-0.02480	mg/L	0.008034	32.39%
Sn 189.927†	-102.4	-0.00881	mg/L	0.000886	-0.00881	mg/L	0.000886	10.05%
Sr 421.552†	61.1	0.00022	mg/L	0.000005	0.00022	mg/L	0.000005	2.48%
Ti 334.903†	123.8	0.00246	mg/L	0.000384	0.00246	mg/L	0.000384	15.59%
Tl 190.801†	2000.1	0.9290	mg/L	0.00128	0.9290	mg/L	0.00128	0.14%
V 292.402†	82478.4	0.9919	mg/L	0.00992	0.9919	mg/L	0.00992	1.00%
Zn 206.200†	2395.9	0.9856	mg/L	0.00677	0.9856	mg/L	0.00677	0.69%

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Sequence No.: 6
Sample ID: DI CHECK

Autosampler Location: 304
Date Collected: 8/12/2019 10:58:00 AM
Data Type: Original

Dilution: 1X
Wash Time: 120

Auto Dilution Factor: 1

Nebulizer Parameters: DI CHECK

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: DI CHECK

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2193920.7	104.1	%	0.19				0.18%
ScR 361.383	224563.1	106.7	%	0.80				0.75%
Ag 328.068†	62.8	0.00039	mg/L	0.000143	0.00039	mg/L	0.000143	36.48%
Al 308.215†	8.1	0.00699	mg/L	0.014611	0.00699	mg/L	0.014611	209.17%
As 188.979†	1.0	0.00065	mg/L	0.000717	0.00065	mg/L	0.000717	110.47%
B 249.677†	11.8	0.00172	mg/L	0.000946	0.00172	mg/L	0.000946	55.04%
Ba 233.527†	6.3	0.00145	mg/L	0.000765	0.00145	mg/L	0.000765	52.70%
Be 313.042†	-12.4	-0.00003	mg/L	0.000019	-0.00003	mg/L	0.000019	67.49%
Ca 317.933†	110.3	0.01071	mg/L	0.009690	0.01071	mg/L	0.009690	90.48%
Cd 228.802†	0.8	0.00003	mg/L	0.000151	0.00003	mg/L	0.000151	573.53%
Co 228.616†	11.5	0.00032	mg/L	0.000069	0.00032	mg/L	0.000069	21.36%
Cr 267.716†	14.2	0.00356	mg/L	0.002438	0.00356	mg/L	0.002438	68.42%
Cu 324.752†	-46.9	-0.00023	mg/L	0.000091	-0.00023	mg/L	0.000091	39.81%
Fe 273.955†	6.0	0.00599	mg/L	0.011036	0.00599	mg/L	0.011036	184.38%
K 766.490†	-18.5	-0.01721	mg/L	0.015577	-0.01721	mg/L	0.015577	90.50%
Mg 279.077†	4.1	0.00389	mg/L	0.010455	0.00389	mg/L	0.010455	269.04%
Mn 257.610†	-16.3	-0.00046	mg/L	0.000102	-0.00046	mg/L	0.000102	22.12%
Mo 202.031†	-4.2	-0.00024	mg/L	0.000070	-0.00024	mg/L	0.000070	29.72%
Na 589.592†	33.9	0.00408	mg/L	0.005099	0.00408	mg/L	0.005099	125.04%
Na 330.237†	15.3	0.7966	mg/L	0.42352	0.7966	mg/L	0.42352	53.17%
Ni 231.604†	-1.0	-0.00031	mg/L	0.001604	-0.00031	mg/L	0.001604	517.90%
Pb 220.353†	1.0	0.00013	mg/L	0.000321	0.00013	mg/L	0.000321	241.36%
Sb 206.836†	-2.4	-0.00093	mg/L	0.000267	-0.00093	mg/L	0.000267	28.71%
Se 196.026†	7.1	0.00581	mg/L	0.003778	0.00581	mg/L	0.003778	64.97%
Si 288.158†	9.2	0.00919	mg/L	0.001771	0.00919	mg/L	0.001771	19.28%
Sn 189.927†	-1.4	-0.00037	mg/L	0.000949	-0.00037	mg/L	0.000949	256.82%
Sr 421.552†	-51.5	-0.00019	mg/L	0.000057	-0.00019	mg/L	0.000057	31.01%
Ti 334.903†	-0.6	-0.00004	mg/L	0.001241	-0.00004	mg/L	0.001241	>999.9%
Tl 190.801†	5.0	0.00236	mg/L	0.000962	0.00236	mg/L	0.000962	40.73%
V 292.402†	29.6	0.00037	mg/L	0.000224	0.00037	mg/L	0.000224	59.89%
Zn 206.200†	-0.6	-0.00023	mg/L	0.000653	-0.00023	mg/L	0.000653	278.99%

Sequence No.: 7
Sample ID: SEQ-CCV1
Autosampler Location: 7
Date Collected: 8/12/2019 11:01:58 AM
Data Type: Original
Dilution: 1X
Wash Time: 37
Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV1

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-CCV1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2103520.4	99.83	%	0.335				0.34%
ScR 361.383	211070.1	100.2	%	0.19				0.18%
Ag 328.068†	164006.2	1.023	mg/L	0.0023	1.023	mg/L	0.0023	0.23%
Al 308.215†	2372.3	2.003	mg/L	0.0245	2.003	mg/L	0.0245	1.22%
As 188.979†	3050.3	1.999	mg/L	0.0077	1.999	mg/L	0.0077	0.39%
B 249.677†	7079.5	1.033	mg/L	0.0084	1.033	mg/L	0.0084	0.82%
Ba 233.527†	4424.7	1.011	mg/L	0.0056	1.011	mg/L	0.0056	0.56%
Be 313.042†	462798.5	1.008	mg/L	0.0045	1.008	mg/L	0.0045	0.44%
Ca 317.933†	21138.1	2.043	mg/L	0.0133	2.043	mg/L	0.0133	0.65%
Cd 228.802†	25701.8	1.015	mg/L	0.0023	1.015	mg/L	0.0023	0.23%
Co 228.616†	35750.2	1.001	mg/L	0.0006	1.001	mg/L	0.0006	0.06%
Cr 267.716†	4019.9	1.011	mg/L	0.0068	1.011	mg/L	0.0068	0.68%
Cu 324.752†	207667.3	1.017	mg/L	0.0009	1.017	mg/L	0.0009	0.09%
Fe 273.955†	2015.3	2.016	mg/L	0.0234	2.016	mg/L	0.0234	1.16%
K 766.490†	21231.0	19.74	mg/L	0.021	19.74	mg/L	0.021	0.11%
Mg 279.077†	2138.7	2.030	mg/L	0.0101	2.030	mg/L	0.0101	0.50%
Mn 257.610†	35820.8	1.014	mg/L	0.0054	1.014	mg/L	0.0054	0.53%
Mo 202.031†	17776.6	0.9979	mg/L	0.00100	0.9979	mg/L	0.00100	0.10%
Na 589.592†	422910.6	50.85	mg/L	0.155	50.85	mg/L	0.155	0.31%
Na 330.237†	982.4	50.80	mg/L	0.364	50.80	mg/L	0.364	0.72%
Ni 231.604†	3402.3	1.024	mg/L	0.0103	1.024	mg/L	0.0103	1.00%
Pb 220.353†	15950.6	2.020	mg/L	0.0024	2.020	mg/L	0.0024	0.12%
Sb 206.836†	5897.3	2.112	mg/L	0.0091	2.112	mg/L	0.0091	0.43%
Se 196.026†	2506.5	2.048	mg/L	0.0177	2.048	mg/L	0.0177	0.87%
Si 288.158†	2059.5	2.065	mg/L	0.0136	2.065	mg/L	0.0136	0.66%
Sn 189.927†	3921.4	1.007	mg/L	0.0058	1.007	mg/L	0.0058	0.57%
Sr 421.552†	289695.8	1.041	mg/L	0.0084	1.041	mg/L	0.0084	0.81%
Ti 334.903†	13768.2	0.9850	mg/L	0.00325	0.9850	mg/L	0.00325	0.33%
Tl 190.801†	4295.7	2.006	mg/L	0.0126	2.006	mg/L	0.0126	0.63%
V 292.402†	84892.4	1.010	mg/L	0.0069	1.010	mg/L	0.0069	0.68%
Zn 206.200†	2513.9	1.033	mg/L	0.0033	1.033	mg/L	0.0033	0.32%

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Sequence No.: 8 **Autosampler Location: 1**
Sample ID: SEQ-CCB1 **Date Collected: 8/12/2019 11:07:01 AM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB1

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-CCB1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2136324.9	101.4	%	0.45				0.45%
ScR 361.383	214557.8	101.9	%	0.55				0.54%
Ag 328.068†	54.0	0.00034	mg/L	0.000109	0.00034	mg/L	0.000109	32.25%
Al 308.215†	12.2	0.01048	mg/L	0.009101	0.01048	mg/L	0.009101	86.86%
As 188.979†	0.2	0.00008	mg/L	0.000661	0.00008	mg/L	0.000661	813.40%
B 249.677†	31.1	0.00455	mg/L	0.000472	0.00455	mg/L	0.000472	10.39%
Ba 233.527†	0.1	0.00001	mg/L	0.000476	0.00001	mg/L	0.000476	>999.9%
Be 313.042†	-17.8	-0.00004	mg/L	0.000033	-0.00004	mg/L	0.000033	83.11%
Ca 317.933†	0.9	0.00007	mg/L	0.000510	0.00007	mg/L	0.000510	682.88%
Cd 228.802†	2.6	0.00010	mg/L	0.000051	0.00010	mg/L	0.000051	48.54%
Co 228.616†	7.3	0.00021	mg/L	0.000036	0.00021	mg/L	0.000036	17.53%
Cr 267.716†	5.1	0.00129	mg/L	0.001287	0.00129	mg/L	0.001287	100.06%
Cu 324.752†	35.4	0.00017	mg/L	0.000107	0.00017	mg/L	0.000107	61.57%
Fe 273.955†	-1.4	-0.00140	mg/L	0.001577	-0.00140	mg/L	0.001577	112.88%
K 766.490†	-21.3	-0.01980	mg/L	0.023037	-0.01980	mg/L	0.023037	116.34%
Mg 279.077†	1.1	0.00105	mg/L	0.009428	0.00105	mg/L	0.009428	898.32%
Mn 257.610†	-3.5	-0.00010	mg/L	0.000031	-0.00010	mg/L	0.000031	30.87%
Mo 202.031†	8.3	0.00047	mg/L	0.000120	0.00047	mg/L	0.000120	25.76%
Na 589.592†	42.4	0.00510	mg/L	0.001422	0.00510	mg/L	0.001422	27.88%
Na 330.237†	14.9	0.7757	mg/L	0.21977	0.7757	mg/L	0.21977	28.33%
Ni 231.604†	1.0	0.00031	mg/L	0.000993	0.00031	mg/L	0.000993	321.45%
Pb 220.353†	6.3	0.00081	mg/L	0.000425	0.00081	mg/L	0.000425	52.69%
Sb 206.836†	3.2	0.00112	mg/L	0.000692	0.00112	mg/L	0.000692	61.99%
Se 196.026†	1.7	0.00137	mg/L	0.002930	0.00137	mg/L	0.002930	213.40%
Si 288.158†	3.3	0.00331	mg/L	0.006916	0.00331	mg/L	0.006916	208.67%
Sn 189.927†	-1.1	-0.00029	mg/L	0.000871	-0.00029	mg/L	0.000871	305.49%
Sr 421.552†	-20.5	-0.00007	mg/L	0.000115	-0.00007	mg/L	0.000115	155.88%
Ti 334.903†	-12.6	-0.00090	mg/L	0.001315	-0.00090	mg/L	0.001315	145.81%
Tl 190.801†	0.8	0.00037	mg/L	0.002792	0.00037	mg/L	0.002792	761.67%
V 292.402†	19.4	0.00024	mg/L	0.000286	0.00024	mg/L	0.000286	120.16%
Zn 206.200†	0.2	0.00008	mg/L	0.000260	0.00008	mg/L	0.000260	322.60%

Sequence No.: 9
Sample ID: ~~BHB0241-BLK1~~ BHH0241-BLK1

Autosampler Location: 305
Date Collected: 8/12/2019 11:11:00 AM
Data Type: Original

Dilution: 5X
Wash Time: 37

TH 08-12-19

Auto Dilution Factor: 1

Nebulizer Parameters: ~~BHB0241-BLK1~~ BHH0241-BLK1

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: ~~BHB0241-BLK1~~ BHH0241-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2131998.3	101.2	%	0.62				0.61%
ScR 361.383	215809.2	102.5	%	0.29				0.28%
Ag 328.068†	39.7	0.00025	mg/L	0.000147	0.00124	mg/L	0.000733	59.15%
Al 308.215†	-1.7	-0.00150	mg/L	0.013783	-0.00750	mg/L	0.068913	919.14%
As 188.979†	-0.5	-0.00039	mg/L	0.001752	-0.00193	mg/L	0.008760	454.91%
B 249.677†	234.0	0.03416	mg/L	0.001545	0.1708	mg/L	0.00773	4.52%
Ba 233.527†	16.9	0.00387	mg/L	0.000999	0.01936	mg/L	0.004993	25.79%
Be 313.042†	-16.2	-0.00004	mg/L	0.000091	-0.00018	mg/L	0.000453	255.36%
Ca 317.933†	3722.5	0.3621	mg/L	0.00442	1.810	mg/L	0.0221	1.22%
Cd 228.802†	2.4	0.00010	mg/L	0.000052	0.00049	mg/L	0.000262	53.70%
Co 228.616†	5.4	0.00015	mg/L	0.000040	0.00076	mg/L	0.000198	26.09%
Cr 267.716†	8.4	0.00210	mg/L	0.001086	0.01048	mg/L	0.005431	51.80%
Cu 324.752†	53.0	0.00026	mg/L	0.000099	0.00129	mg/L	0.000494	38.31%
Fe 273.955†	-0.6	-0.00059	mg/L	0.006236	-0.00294	mg/L	0.031180	>999.9%
K 766.490†	59.7	0.05551	mg/L	0.007070	0.2775	mg/L	0.03535	12.74%
Mg 279.077†	58.2	0.05491	mg/L	0.002940	0.2746	mg/L	0.01470	5.35%
Mn 257.610†	5.1	0.00014	mg/L	0.000052	0.00071	mg/L	0.000262	36.74%
Mo 202.031†	7.2	0.00040	mg/L	0.000362	0.00200	mg/L	0.001812	90.52%
Na 589.592†	16330.1	1.963	mg/L	0.0165	9.817	mg/L	0.0827	0.84%
Na 330.237†	57.9	3.005	mg/L	0.7377	15.02	mg/L	3.688	24.55%
Ni 231.604†	-4.6	-0.00138	mg/L	0.000429	-0.00689	mg/L	0.002146	31.13%
Pb 220.353†	2.0	0.00026	mg/L	0.000817	0.00131	mg/L	0.004085	311.13%
Sb 206.836†	1.7	0.00056	mg/L	0.001039	0.00280	mg/L	0.005196	185.43%
Se 196.026†	6.0	0.00491	mg/L	0.002507	0.02455	mg/L	0.012535	51.06%
Si 288.158†	38.6	0.03867	mg/L	0.009971	0.1934	mg/L	0.04986	25.78%
Sn 189.927†	-1.7	-0.00038	mg/L	0.001169	-0.00188	mg/L	0.005846	310.82%
Sr 421.552†	297.9	0.00107	mg/L	0.000176	0.00535	mg/L	0.000878	16.41%
Ti 334.903†	-10.9	-0.00081	mg/L	0.001175	-0.00403	mg/L	0.005873	145.60%
Tl 190.801†	4.7	0.00220	mg/L	0.000685	0.01100	mg/L	0.003427	31.14%
V 292.402†	3.1	0.00005	mg/L	0.000209	0.00025	mg/L	0.001047	413.72%
Zn 206.200†	9.4	0.00385	mg/L	0.000897	0.01923	mg/L	0.004486	23.33%

Sequence No.: 10
Sample ID: ~~BHB0243-BLK1~~ BHH0243-BLK1

Dilution: 5X
Wash Time: 37

TH 08-12-19

Autosampler Location: 306
Date Collected: 8/12/2019 11:15:00 AM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: ~~BHB0243-BLK1~~ BHH0243-BLK1

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: ~~BHB0243-BLK1~~ BHH0243-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2055150.0	97.53	%	0.332				0.34%
ScR 361.383	210139.8	99.80	%	0.312				0.31%
Ag 328.068†	49.4	0.00031	mg/L	0.000222	0.00154	mg/L	0.001110	71.97%
Al 308.215†	8.8	0.00456	mg/L	0.020956	0.02279	mg/L	0.104781	459.79%
As 188.979†	-0.3	-0.00022	mg/L	0.002745	-0.00112	mg/L	0.013726	>999.9%
B 249.677†	284.7	0.04157	mg/L	0.001251	0.2078	mg/L	0.00625	3.01%
Ba 233.527†	23.6	0.00539	mg/L	0.000395	0.02696	mg/L	0.001976	7.33%
Be 313.042†	16.4	0.00004	mg/L	0.000039	0.00018	mg/L	0.000193	109.95%
Ca 317.933†	6868.0	0.6631	mg/L	0.00148	3.316	mg/L	0.0074	0.22%
Cd 228.802†	8.0	0.00032	mg/L	0.000105	0.00160	mg/L	0.000527	32.95%
Co 228.616†	4.3	0.00012	mg/L	0.000195	0.00060	mg/L	0.000974	162.04%
Cr 267.716†	0.2	0.00002	mg/L	0.000297	0.00009	mg/L	0.001486	>999.9%
Cu 324.752†	225.6	0.00095	mg/L	0.000101	0.00476	mg/L	0.000504	10.57%
Fe 273.955†	14.5	0.01451	mg/L	0.001686	0.07256	mg/L	0.008429	11.62%
K 766.490†	159.5	0.1482	mg/L	0.03869	0.7412	mg/L	0.19344	26.10%
Mg 279.077†	108.6	0.1025	mg/L	0.00767	0.5123	mg/L	0.03836	7.49%
Mn 257.610†	44.5	0.00126	mg/L	0.000036	0.00629	mg/L	0.000178	2.82%
Mo 202.031†	1.1	0.00005	mg/L	0.000242	0.00025	mg/L	0.001208	491.52%
Na 589.592†	2622378.5	315.3	mg/L	1.09	1577	mg/L	5.44	0.35%
Na 330.237†	6004.6	311.9	mg/L	0.17	1560	mg/L	0.84	0.05%
Ni 231.604†	0.0	0.00000	mg/L	0.001952	0.00002	mg/L	0.009760	>999.9%
Pb 220.353†	2.6	0.00032	mg/L	0.000220	0.00162	mg/L	0.001098	67.91%
Sb 206.836†	3.5	0.00127	mg/L	0.000739	0.00636	mg/L	0.003694	58.08%
Se 196.026†	5.7	0.00467	mg/L	0.002298	0.02337	mg/L	0.011488	49.15%
Si 288.158†	41.7	0.04178	mg/L	0.004699	0.2089	mg/L	0.02350	11.25%
Sn 189.927†	0.2	0.00016	mg/L	0.000682	0.00080	mg/L	0.003408	423.36%
Sr 421.552†	166.6	0.00060	mg/L	0.000100	0.00299	mg/L	0.000498	16.63%
Ti 334.903†	-0.5	-0.00007	mg/L	0.000672	-0.00037	mg/L	0.003358	896.40%
Tl 190.801†	2.5	0.00119	mg/L	0.000633	0.00594	mg/L	0.003164	53.30%
V 292.402†	13.9	0.00017	mg/L	0.000187	0.00083	mg/L	0.000937	113.19%
Zn 206.200†	12.7	0.00522	mg/L	0.002175	0.02610	mg/L	0.010875	41.66%

Sequence No.: 11
Sample ID: 19H0087-01

Dilution: 5X
Wash Time: 37

Autosampler Location: 307
Date Collected: 8/12/2019 11:19:15 AM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0087-01

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19H0087-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2043956.2	97.00	%	0.430				0.44%
ScR 361.383	215972.3	102.6	%	0.72				0.70%
Ag 328.068†	13.4	0.00008	mg/L	0.000132	0.00042	mg/L	0.000661	155.96%
Al 308.215†	1015.4	0.8705	mg/L	0.01004	4.353	mg/L	0.0502	1.15%
As 188.979†	253.1	0.1613	mg/L	0.00108	0.8063	mg/L	0.00542	0.67%
B 249.677†	454.3	0.06633	mg/L	0.001027	0.3317	mg/L	0.00514	1.55%
Ba 233.527†	317.4	0.07267	mg/L	0.000639	0.3633	mg/L	0.00320	0.88%
Be 313.042†	129.8	0.00027	mg/L	0.000024	0.00135	mg/L	0.000120	8.88%
Ca 317.933†	397528.7	38.67	mg/L	0.516	193.3	mg/L	2.58	1.33%
Cd 228.802†	44.2	0.00069	mg/L	0.000262	0.00346	mg/L	0.001311	37.87%
Co 228.616†	211.8	0.00592	mg/L	0.000087	0.02960	mg/L	0.000435	1.47%
Cr 267.716†	20.3	0.00356	mg/L	0.001504	0.01781	mg/L	0.007522	42.23%
Cu 324.752†	1200.4	0.00567	mg/L	0.000072	0.02836	mg/L	0.000359	1.27%
Fe 273.955†	144.3	0.1449	mg/L	0.00106	0.7244	mg/L	0.00530	0.73%
K 766.490†	1438.7	1.337	mg/L	0.0342	6.687	mg/L	0.1711	2.56%
Mg 279.077†	9320.8	8.797	mg/L	0.0760	43.98	mg/L	0.380	0.86%
Mn 257.610†	12109.7	0.3426	mg/L	0.00386	1.713	mg/L	0.0193	1.13%
Mo 202.031†	71.4	0.00337	mg/L	0.000261	0.01684	mg/L	0.001303	7.74%
Na 589.592†	2501647.6	300.8	mg/L	3.81	1504	mg/L	19.04	1.27%
Na 330.237†	5719.4	297.0	mg/L	2.40	1485	mg/L	11.98	0.81%
Ni 231.604†	11.9	0.00360	mg/L	0.000844	0.01802	mg/L	0.004220	23.41%
Pb 220.353†	390.4	0.04965	mg/L	0.000506	0.2483	mg/L	0.00253	1.02%
Sb 206.836†	163.2	0.05838	mg/L	0.001294	0.2919	mg/L	0.00647	2.22%
Se 196.026†	-5.3	-0.00475	mg/L	0.004066	-0.02375	mg/L	0.020332	85.63%
Si 288.158†	8433.2	8.450	mg/L	0.1011	42.25	mg/L	0.506	1.20%
Sn 189.927†	-57.6	-0.00822	mg/L	0.000560	-0.04110	mg/L	0.002800	6.81%
Sr 421.552†	29399.0	0.1057	mg/L	0.00133	0.5283	mg/L	0.00663	1.26%
Ti 334.903†	96.5	0.00452	mg/L	0.000615	0.02262	mg/L	0.003076	13.60%
Tl 190.801†	1.1	0.00089	mg/L	0.001679	0.00445	mg/L	0.008396	188.70%
V 292.402†	276.2	0.00337	mg/L	0.000084	0.01684	mg/L	0.000418	2.48%
Zn 206.200†	367.5	0.1511	mg/L	0.00099	0.7557	mg/L	0.00494	0.65%

Sequence No.: 12
Sample ID: 19H0096-01

Autosampler Location: 308
Date Collected: 8/12/2019 11:23:30 AM
Data Type: Original

Dilution: 5X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0096-01

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19H0096-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2055140.4	97.53	%	0.578				0.59%
ScR 361.383	209035.8	99.28	%	0.127				0.13%
Ag 328.068†	-104.4	-0.00065	mg/L	0.000259	-0.00326	mg/L	0.001293	39.67%
Al 308.215†	152.2	0.1308	mg/L	0.00456	0.6540	mg/L	0.02280	3.49%
As 188.979†	49.8	0.01922	mg/L	0.001152	0.09610	mg/L	0.005759	5.99%
B 249.677†	404.1	0.06202	mg/L	0.000598	0.3101	mg/L	0.00299	0.96%
Ba 233.527†	222.3	0.04710	mg/L	0.001248	0.2355	mg/L	0.00624	2.65%
Be 313.042†	93.0	0.00021	mg/L	0.000011	0.00105	mg/L	0.000057	5.37%
Ca 317.933†	1959060.0	190.6	mg/L	0.96	952.9	mg/L	4.82	0.51%
Cd 228.802†	13.9	0.00053	mg/L	0.000261	0.00264	mg/L	0.001306	49.44%
Co 228.616†	846.3	0.02318	mg/L	0.000313	0.1159	mg/L	0.00156	1.35%
Cr 267.716†	119.8	0.02744	mg/L	0.001661	0.1372	mg/L	0.00830	6.05%
Cu 324.752†	-94.5	0.00086	mg/L	0.000078	0.00430	mg/L	0.000389	9.04%
Fe 273.955†	30135.0	30.26	mg/L	0.377	151.3	mg/L	1.89	1.25%
K 766.490†	813.6	0.7563	mg/L	0.03045	3.782	mg/L	0.1523	4.03%
Mg 279.077†	17690.2	16.67	mg/L	0.079	83.35	mg/L	0.396	0.47%
Mn 257.610†	84884.1	2.402	mg/L	0.0076	12.01	mg/L	0.038	0.32%
Mo 202.031†	101.1	0.00252	mg/L	0.000476	0.01261	mg/L	0.002378	18.86%
Na 589.592†	28216.8	3.393	mg/L	0.0083	16.96	mg/L	0.041	0.24%
Na 330.237†	84.1	3.660	mg/L	0.4939	18.30	mg/L	2.470	13.49%
Ni 231.604†	641.6	0.1929	mg/L	0.00399	0.9644	mg/L	0.01997	2.07%
Pb 220.353†	18.0	0.00090	mg/L	0.000397	0.00452	mg/L	0.001985	43.91%
Sb 206.836†	3.4	0.00054	mg/L	0.002418	0.00271	mg/L	0.012089	446.86%
Se 196.026†	-18.4	-0.01369	mg/L	0.001627	-0.06844	mg/L	0.008134	11.88%
Si 288.158†	10407.3	10.43	mg/L	0.059	52.15	mg/L	0.294	0.56%
Sn 189.927†	-109.4	0.00410	mg/L	0.000770	0.02051	mg/L	0.003852	18.78%
Sr 421.552†	119441.5	0.4292	mg/L	0.00203	2.146	mg/L	0.0102	0.47%
Ti 334.903†	228.1	0.00458	mg/L	0.001148	0.02291	mg/L	0.005741	25.06%
Tl 190.801†	-7.2	-0.00068	mg/L	0.002373	-0.00341	mg/L	0.011863	347.87%
V 292.402†	-147.9	0.00055	mg/L	0.000023	0.00276	mg/L	0.000113	4.09%
Zn 206.200†	4091.0	1.683	mg/L	0.0113	8.417	mg/L	0.0563	0.67%

Sequence No.: 13
Sample ID: BHH0243-DUP1

Autosampler Location: 309
Date Collected: 8/12/2019 11:27:44 AM
Data Type: Original

Dilution: 5X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0243-DUP1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0243-DUP1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2053340.9	97.44	%	0.668				0.69%
ScR 361.383	214583.8	101.9	%	0.30				0.30%
Ag 328.068†	35.2	0.00022	mg/L	0.000276	0.00110	mg/L	0.001380	125.59%
Al 308.215†	158.7	0.1335	mg/L	0.00966	0.6673	mg/L	0.04831	7.24%
As 188.979†	28.3	0.01573	mg/L	0.000608	0.07863	mg/L	0.003041	3.87%
B 249.677†	264.2	0.03862	mg/L	0.000728	0.1931	mg/L	0.00364	1.89%
Ba 233.527†	885.1	0.2026	mg/L	0.00190	1.013	mg/L	0.0095	0.94%
Be 313.042†	62.8	0.00013	mg/L	0.000048	0.00067	mg/L	0.000242	35.82%
Ca 317.933†	379103.3	36.87	mg/L	0.168	184.4	mg/L	0.84	0.46%
Cd 228.802†	36.8	0.00140	mg/L	0.000049	0.00699	mg/L	0.000247	3.54%
Co 228.616†	722.0	0.02021	mg/L	0.000226	0.1011	mg/L	0.00113	1.12%
Cr 267.716†	25.9	0.00525	mg/L	0.001061	0.02626	mg/L	0.005307	20.21%
Cu 324.752†	356.0	0.00158	mg/L	0.000083	0.00790	mg/L	0.000414	5.23%
Fe 273.955†	884.4	0.8881	mg/L	0.00303	4.441	mg/L	0.0151	0.34%
K 766.490†	2236.5	2.079	mg/L	0.0080	10.40	mg/L	0.040	0.39%
Mg 279.077†	7286.5	6.878	mg/L	0.0343	34.39	mg/L	0.172	0.50%
Mn 257.610†	42230.3	1.195	mg/L	0.0035	5.975	mg/L	0.0174	0.29%
Mo 202.031†	56.6	0.00257	mg/L	0.000046	0.01285	mg/L	0.000230	1.79%
Na 589.592†	2537505.7	305.1	mg/L	1.17	1526	mg/L	5.83	0.38%
Na 330.237†	6007.6	310.9	mg/L	1.29	1555	mg/L	6.45	0.41%
Ni 231.604†	167.8	0.05044	mg/L	0.000736	0.2522	mg/L	0.00368	1.46%
Pb 220.353†	20.1	0.00256	mg/L	0.001053	0.01278	mg/L	0.005263	41.18%
Sb 206.836†	10.5	0.00355	mg/L	0.000767	0.01773	mg/L	0.003833	21.63%
Se 196.026†	-4.7	-0.00477	mg/L	0.003748	-0.02386	mg/L	0.018738	78.53%
Si 288.158†	5101.2	5.112	mg/L	0.0143	25.56	mg/L	0.072	0.28%
Sn 189.927†	-56.9	-0.00837	mg/L	0.000699	-0.04187	mg/L	0.003494	8.35%
Sr 421.552†	44740.1	0.1608	mg/L	0.00136	0.8039	mg/L	0.00682	0.85%
Ti 334.903†	53.4	0.00155	mg/L	0.000445	0.00773	mg/L	0.002226	28.78%
Tl 190.801†	2.1	0.00226	mg/L	0.000654	0.01130	mg/L	0.003270	28.94%
V 292.402†	49.3	0.00089	mg/L	0.000280	0.00445	mg/L	0.001402	31.50%
Zn 206.200†	6519.9	2.683	mg/L	0.0191	13.41	mg/L	0.096	0.71%

Sequence No.: 14
Sample ID: 19H0015-01

Dilution: 5X
Wash Time: 37

Autosampler Location: 310
Date Collected: 8/12/2019 11:31:58 AM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0015-01

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19H0015-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2044216.5	97.01	%	0.618				0.64%
ScR 361.383	214988.1	102.1	%	0.57				0.56%
Ag 328.068†	-2.3	-0.00001	mg/L	0.000155	-0.00007	mg/L	0.000774	>999.9%
Al 308.215†	154.7	0.1300	mg/L	0.00953	0.6502	mg/L	0.04767	7.33%
As 188.979†	27.6	0.01533	mg/L	0.002413	0.07667	mg/L	0.012066	15.74%
B 249.677†	263.6	0.03854	mg/L	0.001211	0.1927	mg/L	0.00606	3.14%
Ba 233.527†	874.5	0.2002	mg/L	0.00094	1.001	mg/L	0.0047	0.47%
Be 313.042†	61.9	0.00013	mg/L	0.000022	0.00067	mg/L	0.000108	15.99%
Ca 317.933†	372747.0	36.26	mg/L	0.064	181.3	mg/L	0.32	0.18%
Cd 228.802†	39.5	0.00151	mg/L	0.000118	0.00754	mg/L	0.000588	7.80%
Co 228.616†	721.7	0.02020	mg/L	0.000206	0.1010	mg/L	0.00103	1.02%
Cr 267.716†	18.3	0.00337	mg/L	0.001141	0.01684	mg/L	0.005703	33.86%
Cu 324.752†	355.5	0.00158	mg/L	0.000186	0.00790	mg/L	0.000930	11.77%
Fe 273.955†	874.0	0.8777	mg/L	0.00706	4.388	mg/L	0.0353	0.80%
K 766.490†	2237.0	2.080	mg/L	0.0366	10.40	mg/L	0.183	1.76%
Mg 279.077†	7190.9	6.788	mg/L	0.0521	33.94	mg/L	0.260	0.77%
Mn 257.610†	41816.2	1.183	mg/L	0.0024	5.917	mg/L	0.0122	0.21%
Mo 202.031†	58.7	0.00269	mg/L	0.000167	0.01347	mg/L	0.000836	6.20%
Na 589.592†	2502586.1	300.9	mg/L	0.80	1505	mg/L	3.98	0.26%
Na 330.237†	5932.7	307.1	mg/L	2.42	1535	mg/L	12.12	0.79%
Ni 231.604†	167.7	0.05040	mg/L	0.000907	0.2520	mg/L	0.00453	1.80%
Pb 220.353†	21.5	0.00272	mg/L	0.000476	0.01362	mg/L	0.002379	17.47%
Sb 206.836†	8.2	0.00278	mg/L	0.002135	0.01392	mg/L	0.010673	76.69%
Se 196.026†	-4.4	-0.00459	mg/L	0.006621	-0.02293	mg/L	0.033105	144.35%
Si 288.158†	5006.8	5.017	mg/L	0.0321	25.09	mg/L	0.160	0.64%
Sn 189.927†	-49.3	-0.00651	mg/L	0.000897	-0.03257	mg/L	0.004484	13.77%
Sr 421.552†	44755.4	0.1608	mg/L	0.00089	0.8042	mg/L	0.00443	0.55%
Ti 334.903†	50.6	0.00138	mg/L	0.000250	0.00692	mg/L	0.001249	18.05%
Tl 190.801†	-3.8	-0.00049	mg/L	0.001430	-0.00245	mg/L	0.007149	291.27%
V 292.402†	15.1	0.00047	mg/L	0.000290	0.00236	mg/L	0.001451	61.58%
Zn 206.200†	6437.3	2.649	mg/L	0.0209	13.24	mg/L	0.105	0.79%

Sequence No.: 15
Sample ID: BHH0243-MS1

Autosampler Location: 311
Date Collected: 8/12/2019 11:36:12 AM
Data Type: Original

Dilution: 5X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0243-MS1

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: BHH0243-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2035392.2	96.59	%	0.200				0.21%
ScR 361.383	213688.7	101.5	%	0.97				0.95%
Ag 328.068†	35165.6	0.2194	mg/L	0.00249	1.097	mg/L	0.0125	1.13%
Al 308.215†	1125.5	0.9620	mg/L	0.01623	4.810	mg/L	0.0811	1.69%
As 188.979†	1399.9	0.9034	mg/L	0.00541	4.517	mg/L	0.0271	0.60%
B 249.677†	273.5	0.03955	mg/L	0.000415	0.1977	mg/L	0.00207	1.05%
Ba 233.527†	4422.7	1.012	mg/L	0.0166	5.062	mg/L	0.0828	1.64%
Be 313.042†	96745.7	0.2107	mg/L	0.00149	1.054	mg/L	0.0075	0.71%
Ca 317.933†	438471.4	42.65	mg/L	0.400	213.2	mg/L	2.00	0.94%
Cd 228.802†	5720.3	0.2229	mg/L	0.00091	1.114	mg/L	0.0046	0.41%
Co 228.616†	8356.8	0.2344	mg/L	0.00094	1.172	mg/L	0.0047	0.40%
Cr 267.716†	840.7	0.2097	mg/L	0.00239	1.048	mg/L	0.0120	1.14%
Cu 324.752†	44697.3	0.2189	mg/L	0.00238	1.095	mg/L	0.0119	1.09%
Fe 273.955†	1675.9	1.681	mg/L	0.0297	8.407	mg/L	0.1485	1.77%
K 766.490†	6644.4	6.177	mg/L	0.0549	30.88	mg/L	0.274	0.89%
Mg 279.077†	11666.7	11.01	mg/L	0.176	55.07	mg/L	0.879	1.60%
Mn 257.610†	48991.6	1.387	mg/L	0.0091	6.933	mg/L	0.0456	0.66%
Mo 202.031†	64.5	0.00290	mg/L	0.000203	0.01452	mg/L	0.001015	6.99%
Na 589.592†	2609795.8	313.8	mg/L	4.50	1569	mg/L	22.50	1.43%
Na 330.237†	6069.8	314.1	mg/L	5.28	1571	mg/L	26.39	1.68%
Ni 231.604†	841.0	0.2527	mg/L	0.00566	1.264	mg/L	0.0283	2.24%
Pb 220.353†	6772.5	0.8576	mg/L	0.00460	4.288	mg/L	0.0230	0.54%
Sb 206.836†	18.2	0.00376	mg/L	0.003030	0.01882	mg/L	0.015149	80.50%
Se 196.026†	1091.9	0.8913	mg/L	0.00268	4.457	mg/L	0.0134	0.30%
Si 288.158†	5041.7	5.053	mg/L	0.0806	25.26	mg/L	0.403	1.59%
Sn 189.927†	-61.7	-0.00863	mg/L	0.000477	-0.04315	mg/L	0.002383	5.52%
Sr 421.552†	106297.4	0.3820	mg/L	0.00529	1.910	mg/L	0.0265	1.39%
Ti 334.903†	57.2	0.00142	mg/L	0.001193	0.00710	mg/L	0.005965	83.98%
Tl 190.801†	1742.6	0.8162	mg/L	0.00219	4.081	mg/L	0.0110	0.27%
V 292.402†	18253.7	0.2173	mg/L	0.00146	1.087	mg/L	0.0073	0.67%
Zn 206.200†	6871.6	2.827	mg/L	0.0434	14.14	mg/L	0.217	1.53%

Sequence No.: 16
Sample ID: BHH0241-DUP1

Autosampler Location: 312
Date Collected: 8/12/2019 11:40:27 AM
Data Type: Original

Dilution: 5X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0241-DUP1

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: BHH0241-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2031123.1	96.39	%	0.307				0.32%
ScR 361.383	214031.8	101.7	%	0.56				0.56%
Ag 328.068†	-246.1	-0.00153	mg/L	0.000136	-0.00767	mg/L	0.000679	8.85%
Al 308.215†	18.6	0.01564	mg/L	0.005391	0.07822	mg/L	0.026957	34.46%
As 188.979†	59.0	0.01244	mg/L	0.001241	0.06222	mg/L	0.006206	9.98%
B 249.677†	280.4	0.04095	mg/L	0.001696	0.2047	mg/L	0.00848	4.14%
Ba 233.527†	149.1	0.03414	mg/L	0.000650	0.1707	mg/L	0.00325	1.91%
Be 313.042†	66.2	0.00014	mg/L	0.000012	0.00068	mg/L	0.000059	8.67%
Ca 317.933†	3740319.2	363.9	mg/L	4.05	1819	mg/L	20.24	1.11%
Cd 228.802†	-12.2	-0.00073	mg/L	0.000027	-0.00367	mg/L	0.000136	3.70%
Co 228.616†	79.7	0.00218	mg/L	0.000156	0.01092	mg/L	0.000781	7.15%
Cr 267.716†	28.0	-0.00031	mg/L	0.001035	-0.00157	mg/L	0.005175	330.48%
Cu 324.752†	615.3	0.00284	mg/L	0.000161	0.01418	mg/L	0.000803	5.66%
Fe 273.955†	2.1	0.00209	mg/L	0.001448	0.01043	mg/L	0.007239	69.38%
K 766.490†	1034.3	0.9615	mg/L	0.00905	4.807	mg/L	0.0453	0.94%
Mg 279.077†	21509.7	20.27	mg/L	0.261	101.3	mg/L	1.30	1.29%
Mn 257.610†	10649.1	0.3006	mg/L	0.00418	1.503	mg/L	0.0209	1.39%
Mo 202.031†	129.0	0.00123	mg/L	0.000106	0.00613	mg/L	0.000528	8.62%
Na 589.592†	115065.6	13.84	mg/L	0.163	69.18	mg/L	0.814	1.18%
Na 330.237†	263.7	13.70	mg/L	0.395	68.49	mg/L	1.977	2.89%
Ni 231.604†	14.4	0.00432	mg/L	0.000903	0.02158	mg/L	0.004515	20.92%
Pb 220.353†	-1.7	-0.00019	mg/L	0.000789	-0.00096	mg/L	0.003944	409.44%
Sb 206.836†	0.6	-0.00009	mg/L	0.002029	-0.00044	mg/L	0.010144	>999.9%
Se 196.026†	-18.1	-0.01502	mg/L	0.004192	-0.07511	mg/L	0.020962	27.91%
Si 288.158†	1382.3	1.387	mg/L	0.0398	6.937	mg/L	0.1988	2.87%
Sn 189.927†	-134.6	0.02687	mg/L	0.000828	0.1343	mg/L	0.00414	3.08%
Sr 421.552†	1049484.3	3.772	mg/L	0.0677	18.86	mg/L	0.339	1.80%
Ti 334.903†	395.1	0.00587	mg/L	0.000076	0.02936	mg/L	0.000381	1.30%
Tl 190.801†	2.3	0.00141	mg/L	0.001302	0.00706	mg/L	0.006508	92.14%
V 292.402†	164.9	0.00205	mg/L	0.000216	0.01024	mg/L	0.001078	10.52%
Zn 206.200†	25.5	0.01043	mg/L	0.000995	0.05215	mg/L	0.004977	9.54%

Sequence No.: 17
Sample ID: 19H0079-01

Autosampler Location: 313
Date Collected: 8/12/2019 11:44:41 AM
Data Type: Original

Dilution: 5X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0079-01

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19H0079-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2063086.1	97.91	%	0.073				0.08%
ScR 361.383	209098.1	99.31	%	0.404				0.41%
Ag 328.068†	-237.8	-0.00148	mg/L	0.000207	-0.00741	mg/L	0.001036	13.97%
Al 308.215†	14.9	0.01245	mg/L	0.009445	0.06225	mg/L	0.047225	75.86%
As 188.979†	59.2	0.01222	mg/L	0.002326	0.06110	mg/L	0.011632	19.04%
B 249.677†	284.8	0.04159	mg/L	0.000533	0.2079	mg/L	0.00266	1.28%
Ba 233.527†	158.7	0.03635	mg/L	0.000598	0.1818	mg/L	0.00299	1.65%
Be 313.042†	30.2	0.00006	mg/L	0.000057	0.00029	mg/L	0.000283	98.02%
Ca 317.933†	3793937.8	369.1	mg/L	2.62	1845	mg/L	13.10	0.71%
Cd 228.802†	-10.5	-0.00067	mg/L	0.000244	-0.00333	mg/L	0.001222	36.74%
Co 228.616†	78.6	0.00215	mg/L	0.000104	0.01076	mg/L	0.000521	4.84%
Cr 267.716†	36.0	0.00155	mg/L	0.002849	0.00773	mg/L	0.014245	184.20%
Cu 324.752†	761.2	0.00355	mg/L	0.000136	0.01773	mg/L	0.000679	3.83%
Fe 273.955†	3.2	0.00323	mg/L	0.003501	0.01617	mg/L	0.017505	108.25%
K 766.490†	1076.9	1.001	mg/L	0.0280	5.005	mg/L	0.1399	2.79%
Mg 279.077†	22224.7	20.94	mg/L	0.165	104.7	mg/L	0.83	0.79%
Mn 257.610†	10885.4	0.3073	mg/L	0.00263	1.536	mg/L	0.0131	0.86%
Mo 202.031†	131.7	0.00129	mg/L	0.000196	0.00644	mg/L	0.000982	15.24%
Na 589.592†	115647.7	13.91	mg/L	0.078	69.53	mg/L	0.388	0.56%
Na 330.237†	254.5	13.22	mg/L	0.693	66.10	mg/L	3.466	5.24%
Ni 231.604†	15.3	0.00459	mg/L	0.001442	0.02293	mg/L	0.007209	31.44%
Pb 220.353†	-0.3	-0.00002	mg/L	0.002194	-0.00009	mg/L	0.010972	>999.9%
Sb 206.836†	-0.4	-0.00050	mg/L	0.004567	-0.00252	mg/L	0.022833	904.35%
Se 196.026†	-14.6	-0.01218	mg/L	0.003977	-0.06091	mg/L	0.019883	32.64%
Si 288.158†	1338.7	1.344	mg/L	0.0107	6.719	mg/L	0.0535	0.80%
Sn 189.927†	-132.9	0.02817	mg/L	0.001301	0.1408	mg/L	0.00650	4.62%
Sr 421.552†	1062720.7	3.819	mg/L	0.0274	19.10	mg/L	0.137	0.72%
Ti 334.903†	391.7	0.00530	mg/L	0.001569	0.02651	mg/L	0.007844	29.58%
Tl 190.801†	-1.4	-0.00032	mg/L	0.000749	-0.00162	mg/L	0.003743	231.46%
V 292.402†	159.4	0.00200	mg/L	0.000126	0.00999	mg/L	0.000630	6.31%
Zn 206.200†	24.6	0.01006	mg/L	0.000714	0.05031	mg/L	0.003570	7.10%

Sequence No.: 18
Sample ID: BHH0241-MS1

Autosampler Location: 314
Date Collected: 8/12/2019 11:48:56 AM
Data Type: Original

Dilution: 5X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0241-MS1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0241-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2053488.6	97.45	%	0.369				0.38%
ScR 361.383	216575.0	102.9	%	0.26				0.26%
Ag 328.068†	34500.5	0.2153	mg/L	0.00091	1.076	mg/L	0.0046	0.42%
Al 308.215†	967.6	0.8291	mg/L	0.00852	4.145	mg/L	0.0426	1.03%
As 188.979†	1386.5	0.8725	mg/L	0.01027	4.362	mg/L	0.0513	1.18%
B 249.677†	275.8	0.03985	mg/L	0.000774	0.1993	mg/L	0.00387	1.94%
Ba 233.527†	3576.5	0.8187	mg/L	0.00526	4.093	mg/L	0.0263	0.64%
Be 313.042†	90182.2	0.1964	mg/L	0.00132	0.9820	mg/L	0.00661	0.67%
Ca 317.933†	3670785.7	357.1	mg/L	4.07	1785	mg/L	20.33	1.14%
Cd 228.802†	5548.8	0.2160	mg/L	0.00280	1.080	mg/L	0.0140	1.30%
Co 228.616†	7305.6	0.2049	mg/L	0.00247	1.024	mg/L	0.0124	1.21%
Cr 267.716†	830.2	0.2012	mg/L	0.00253	1.006	mg/L	0.0126	1.26%
Cu 324.752†	43200.9	0.2116	mg/L	0.00158	1.058	mg/L	0.0079	0.75%
Fe 273.955†	778.9	0.7807	mg/L	0.00646	3.903	mg/L	0.0323	0.83%
K 766.490†	5306.5	4.933	mg/L	0.0470	24.66	mg/L	0.235	0.95%
Mg 279.077†	24978.1	23.54	mg/L	0.193	117.7	mg/L	0.96	0.82%
Mn 257.610†	17031.6	0.4814	mg/L	0.00416	2.407	mg/L	0.0208	0.86%
Mo 202.031†	131.4	0.00146	mg/L	0.000307	0.00730	mg/L	0.001536	21.04%
Na 589.592†	145703.5	17.52	mg/L	0.163	87.59	mg/L	0.813	0.93%
Na 330.237†	341.0	17.63	mg/L	0.365	88.17	mg/L	1.827	2.07%
Ni 231.604†	655.4	0.1970	mg/L	0.00166	0.9848	mg/L	0.00829	0.84%
Pb 220.353†	6610.4	0.8371	mg/L	0.01180	4.186	mg/L	0.0590	1.41%
Sb 206.836†	5.7	-0.00081	mg/L	0.000933	-0.00405	mg/L	0.004667	115.37%
Se 196.026†	1061.7	0.8674	mg/L	0.00572	4.337	mg/L	0.0286	0.66%
Si 288.158†	1335.0	1.341	mg/L	0.0124	6.703	mg/L	0.0622	0.93%
Sn 189.927†	-132.3	0.02629	mg/L	0.002007	0.1315	mg/L	0.01003	7.63%
Sr 421.552†	1067119.8	3.835	mg/L	0.0261	19.17	mg/L	0.131	0.68%
Ti 334.903†	391.2	0.00597	mg/L	0.000314	0.02983	mg/L	0.001570	5.26%
Tl 190.801†	1716.1	0.8029	mg/L	0.01305	4.014	mg/L	0.0653	1.63%
V 292.402†	17531.4	0.2086	mg/L	0.00407	1.043	mg/L	0.0203	1.95%
Zn 206.200†	494.0	0.2030	mg/L	0.00131	1.015	mg/L	0.0065	0.64%

Sequence No.: 19 **Autosampler Location: 7**
Sample ID: SEQ-CCV2 **Date Collected: 8/12/2019 11:53:10 AM**
Data Type: Original
Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCV2

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: SEQ-CCV2

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2160599.9	102.5	%	0.30				0.29%
ScR 361.383	217469.4	103.3	%	0.48				0.46%
Ag 328.068†	161579.9	1.008	mg/L	0.0053	1.008	mg/L	0.0053	0.52%
Al 308.215†	2304.9	1.945	mg/L	0.0085	1.945	mg/L	0.0085	0.44%
As 188.979†	3007.4	1.971	mg/L	0.0063	1.971	mg/L	0.0063	0.32%
B 249.677†	6968.0	1.017	mg/L	0.0076	1.017	mg/L	0.0076	0.75%
Ba 233.527†	4335.0	0.9910	mg/L	0.00634	0.9910	mg/L	0.00634	0.64%
Be 313.042†	457542.0	0.9967	mg/L	0.00948	0.9967	mg/L	0.00948	0.95%
Ca 317.933†	21037.7	2.033	mg/L	0.0095	2.033	mg/L	0.0095	0.47%
Cd 228.802†	24971.9	0.9861	mg/L	0.00688	0.9861	mg/L	0.00688	0.70%
Co 228.616†	35361.0	0.9905	mg/L	0.00702	0.9905	mg/L	0.00702	0.71%
Cr 267.716†	3922.0	0.9862	mg/L	0.00516	0.9862	mg/L	0.00516	0.52%
Cu 324.752†	203650.7	0.9978	mg/L	0.00547	0.9978	mg/L	0.00547	0.55%
Fe 273.955†	1956.6	1.957	mg/L	0.0105	1.957	mg/L	0.0105	0.53%
K 766.490†	20853.3	19.39	mg/L	0.206	19.39	mg/L	0.206	1.06%
Mg 279.077†	2104.3	1.998	mg/L	0.0161	1.998	mg/L	0.0161	0.81%
Mn 257.610†	35209.9	0.9968	mg/L	0.00560	0.9968	mg/L	0.00560	0.56%
Mo 202.031†	17523.0	0.9836	mg/L	0.00824	0.9836	mg/L	0.00824	0.84%
Na 589.592†	417950.2	50.25	mg/L	0.386	50.25	mg/L	0.386	0.77%
Na 330.237†	966.5	49.98	mg/L	0.319	49.98	mg/L	0.319	0.64%
Ni 231.604†	3323.3	1.000	mg/L	0.0053	1.000	mg/L	0.0053	0.53%
Pb 220.353†	15788.6	2.000	mg/L	0.0171	2.000	mg/L	0.0171	0.86%
Sb 206.836†	5798.4	2.077	mg/L	0.0075	2.077	mg/L	0.0075	0.36%
Se 196.026†	2486.4	2.031	mg/L	0.0110	2.031	mg/L	0.0110	0.54%
Si 288.158†	2046.6	2.052	mg/L	0.0181	2.052	mg/L	0.0181	0.88%
Sn 189.927†	3886.5	0.9978	mg/L	0.00487	0.9978	mg/L	0.00487	0.49%
Sr 421.552†	292418.7	1.051	mg/L	0.0205	1.051	mg/L	0.0205	1.95%
Ti 334.903†	13528.5	0.9679	mg/L	0.00379	0.9679	mg/L	0.00379	0.39%
Tl 190.801†	4237.1	1.978	mg/L	0.0097	1.978	mg/L	0.0097	0.49%
V 292.402†	83247.7	0.9903	mg/L	0.01362	0.9903	mg/L	0.01362	1.37%
Zn 206.200†	2470.3	1.015	mg/L	0.0057	1.015	mg/L	0.0057	0.56%

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Sequence No.: 20 **Autosampler Location: 1**
Sample ID: SEQ-CCB2 **Date Collected: 8/12/2019 11:58:13 AM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB2

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: SEQ-CCB2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2158490.7	102.4	%	0.37				0.36%
ScR 361.383	218415.9	103.7	%	0.63				0.61%
Ag 328.068†	43.9	0.00027	mg/L	0.000153	0.00027	mg/L	0.000153	55.96%
Al 308.215†	2.0	0.00170	mg/L	0.005109	0.00170	mg/L	0.005109	301.14%
As 188.979†	0.4	0.00022	mg/L	0.001718	0.00022	mg/L	0.001718	777.11%
B 249.677†	29.5	0.00431	mg/L	0.000957	0.00431	mg/L	0.000957	22.22%
Ba 233.527†	4.4	0.00100	mg/L	0.000212	0.00100	mg/L	0.000212	21.20%
Be 313.042†	-21.8	-0.00005	mg/L	0.000005	-0.00005	mg/L	0.000005	9.55%
Ca 317.933†	40.9	0.00396	mg/L	0.002265	0.00396	mg/L	0.002265	57.19%
Cd 228.802†	7.9	0.00031	mg/L	0.000083	0.00031	mg/L	0.000083	26.40%
Co 228.616†	8.7	0.00025	mg/L	0.000296	0.00025	mg/L	0.000296	120.06%
Cr 267.716†	0.9	0.00021	mg/L	0.002509	0.00021	mg/L	0.002509	>999.9%
Cu 324.752†	49.5	0.00024	mg/L	0.000195	0.00024	mg/L	0.000195	80.57%
Fe 273.955†	-1.3	-0.00132	mg/L	0.001759	-0.00132	mg/L	0.001759	132.93%
K 766.490†	-32.3	-0.03000	mg/L	0.038648	-0.03000	mg/L	0.038648	128.83%
Mg 279.077†	0.6	0.00060	mg/L	0.007629	0.00060	mg/L	0.007629	>999.9%
Mn 257.610†	-1.7	-0.00005	mg/L	0.000178	-0.00005	mg/L	0.000178	378.44%
Mo 202.031†	6.0	0.00033	mg/L	0.000463	0.00033	mg/L	0.000463	138.57%
Na 589.592†	278.4	0.03348	mg/L	0.007475	0.03348	mg/L	0.007475	22.33%
Na 330.237†	12.6	0.6519	mg/L	0.65519	0.6519	mg/L	0.65519	100.50%
Ni 231.604†	0.6	0.00017	mg/L	0.001772	0.00017	mg/L	0.001772	>999.9%
Pb 220.353†	4.9	0.00062	mg/L	0.000481	0.00062	mg/L	0.000481	78.18%
Sb 206.836†	4.7	0.00169	mg/L	0.001918	0.00169	mg/L	0.001918	113.42%
Se 196.026†	6.2	0.00510	mg/L	0.002163	0.00510	mg/L	0.002163	42.40%
Si 288.158†	5.3	0.00535	mg/L	0.008166	0.00535	mg/L	0.008166	152.63%
Sn 189.927†	3.7	0.00094	mg/L	0.000814	0.00094	mg/L	0.000814	86.50%
Sr 421.552†	-40.8	-0.00015	mg/L	0.000116	-0.00015	mg/L	0.000116	78.81%
Ti 334.903†	-13.2	-0.00095	mg/L	0.000268	-0.00095	mg/L	0.000268	28.26%
Tl 190.801†	2.8	0.00129	mg/L	0.001074	0.00129	mg/L	0.001074	83.43%
V 292.402†	12.6	0.00015	mg/L	0.000119	0.00015	mg/L	0.000119	79.02%
Zn 206.200†	-0.2	-0.00007	mg/L	0.000789	-0.00007	mg/L	0.000789	>999.9%

Sequence No.: 21
Sample ID: BHH0186-BLK1

Autosampler Location: 315
Date Collected: 8/12/2019 12:02:12 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0186-BLK1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0186-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2233581.9	106.0	%	0.33				0.31%
ScR 361.383	226053.8	107.4	%	0.66				0.62%
Ag 328.068†	-9.7	-0.00006	mg/L	0.000240	-0.00006	mg/L	0.000240	397.02%
Al 308.215†	-11.6	-0.00998	mg/L	0.005789	-0.00998	mg/L	0.005789	58.00%
As 188.979†	0.5	0.00027	mg/L	0.001961	0.00027	mg/L	0.001961	739.16%
B 249.677†	10.2	0.00149	mg/L	0.001007	0.00149	mg/L	0.001007	67.63%
Ba 233.527†	1.3	0.00029	mg/L	0.001062	0.00029	mg/L	0.001062	366.64%
Be 313.042†	-50.3	-0.00011	mg/L	0.000048	-0.00011	mg/L	0.000048	42.94%
Ca 317.933†	66.5	0.00646	mg/L	0.003260	0.00646	mg/L	0.003260	50.43%
Cd 228.802†	-0.8	-0.00003	mg/L	0.000087	-0.00003	mg/L	0.000087	276.68%
Co 228.616†	18.5	0.00052	mg/L	0.000235	0.00052	mg/L	0.000235	45.12%
Cr 267.716†	8.4	0.00210	mg/L	0.001019	0.00210	mg/L	0.001019	48.43%
Cu 324.752†	-31.6	-0.00015	mg/L	0.000081	-0.00015	mg/L	0.000081	52.54%
Fe 273.955†	-4.0	-0.00404	mg/L	0.000645	-0.00404	mg/L	0.000645	15.97%
K 766.490†	-65.4	-0.06082	mg/L	0.008372	-0.06082	mg/L	0.008372	13.77%
Mg 279.077†	-3.8	-0.00356	mg/L	0.009035	-0.00356	mg/L	0.009035	253.76%
Mn 257.610†	-14.4	-0.00041	mg/L	0.000145	-0.00041	mg/L	0.000145	35.55%
Mo 202.031†	-5.4	-0.00031	mg/L	0.000307	-0.00031	mg/L	0.000307	100.68%
Na 589.592†	144.8	0.01741	mg/L	0.004062	0.01741	mg/L	0.004062	23.33%
Na 330.237†	10.1	0.5222	mg/L	0.17330	0.5222	mg/L	0.17330	33.18%
Ni 231.604†	4.1	0.00124	mg/L	0.001651	0.00124	mg/L	0.001651	133.67%
Pb 220.353†	-1.3	-0.00016	mg/L	0.000257	-0.00016	mg/L	0.000257	157.52%
Sb 206.836†	-2.7	-0.00101	mg/L	0.001501	-0.00101	mg/L	0.001501	148.36%
Se 196.026†	4.6	0.00377	mg/L	0.001990	0.00377	mg/L	0.001990	52.79%
Si 288.158†	-0.9	-0.00094	mg/L	0.006432	-0.00094	mg/L	0.006432	680.93%
Sn 189.927†	2.5	0.00064	mg/L	0.000229	0.00064	mg/L	0.000229	35.77%
Sr 421.552†	-61.6	-0.00022	mg/L	0.000166	-0.00022	mg/L	0.000166	74.82%
Ti 334.903†	-17.7	-0.00127	mg/L	0.000858	-0.00127	mg/L	0.000858	67.56%
Tl 190.801†	3.6	0.00169	mg/L	0.001221	0.00169	mg/L	0.001221	72.41%
V 292.402†	12.3	0.00016	mg/L	0.000170	0.00016	mg/L	0.000170	106.68%
Zn 206.200†	1.1	0.00044	mg/L	0.000537	0.00044	mg/L	0.000537	121.47%

Sequence No.: 22
Sample ID: 19H0018-02

Autosampler Location: 316
Date Collected: 8/12/2019 12:06:11 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0018-02

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19H0018-02

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2227971.0	105.7	%	0.23				0.22%
ScR 361.383	227587.8	108.1	%	0.61				0.56%
Ag 328.068†	2.8	0.00002	mg/L	0.000114	0.00002	mg/L	0.000114	642.49%
Al 308.215†	-3.4	-0.00299	mg/L	0.012207	-0.00299	mg/L	0.012207	408.40%
As 188.979†	12.4	0.00677	mg/L	0.000874	0.00677	mg/L	0.000874	12.91%
B 249.677†	88.7	0.01295	mg/L	0.000683	0.01295	mg/L	0.000683	5.28%
Ba 233.527†	10.0	0.00229	mg/L	0.000989	0.00229	mg/L	0.000989	43.26%
Be 313.042†	-76.3	-0.00017	mg/L	0.000042	-0.00017	mg/L	0.000042	24.60%
Ca 317.933†	177826.6	17.30	mg/L	0.122	17.30	mg/L	0.122	0.70%
Cd 228.802†	-4.7	-0.00024	mg/L	0.000128	-0.00024	mg/L	0.000128	53.33%
Co 228.616†	23.8	0.00067	mg/L	0.000122	0.00067	mg/L	0.000122	18.41%
Cr 267.716†	18.5	0.00390	mg/L	0.001017	0.00390	mg/L	0.001017	26.09%
Cu 324.752†	35.4	0.00013	mg/L	0.000018	0.00013	mg/L	0.000018	13.42%
Fe 273.955†	-1.1	-0.00110	mg/L	0.002083	-0.00110	mg/L	0.002083	189.85%
K 766.490†	852.4	0.7924	mg/L	0.03891	0.7924	mg/L	0.03891	4.91%
Mg 279.077†	4817.9	4.547	mg/L	0.0079	4.547	mg/L	0.0079	0.17%
Mn 257.610†	13.5	0.00034	mg/L	0.000097	0.00034	mg/L	0.000097	28.11%
Mo 202.031†	30.7	0.00144	mg/L	0.000207	0.00144	mg/L	0.000207	14.39%
Na 589.592†	38129.6	4.585	mg/L	0.0143	4.585	mg/L	0.0143	0.31%
Na 330.237†	105.9	5.500	mg/L	0.2236	5.500	mg/L	0.2236	4.07%
Ni 231.604†	-0.4	-0.00012	mg/L	0.001804	-0.00012	mg/L	0.001804	>999.9%
Pb 220.353†	8.4	0.00107	mg/L	0.001458	0.00107	mg/L	0.001458	136.50%
Sb 206.836†	-9.8	-0.00362	mg/L	0.001048	-0.00362	mg/L	0.001048	28.96%
Se 196.026†	2.5	0.00208	mg/L	0.002927	0.00208	mg/L	0.002927	140.82%
Si 288.158†	9455.3	9.474	mg/L	0.0272	9.474	mg/L	0.0272	0.29%
Sn 189.927†	-25.0	-0.00349	mg/L	0.000866	-0.00349	mg/L	0.000866	24.85%
Sr 421.552†	18206.4	0.06543	mg/L	0.000417	0.06543	mg/L	0.000417	0.64%
Ti 334.903†	15.7	0.00006	mg/L	0.001786	0.00006	mg/L	0.001786	>999.9%
Tl 190.801†	5.6	0.00261	mg/L	0.001714	0.00261	mg/L	0.001714	65.68%
V 292.402†	71.5	0.00088	mg/L	0.000228	0.00088	mg/L	0.000228	26.01%
Zn 206.200†	1.4	0.00054	mg/L	0.000932	0.00054	mg/L	0.000932	172.68%

Sequence No.: 23
Sample ID: 19H0018-04

Autosampler Location: 317
Date Collected: 8/12/2019 12:10:09 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0018-04

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19H0018-04

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2229299.5	105.8	%	0.55				0.52%
ScR 361.383	228234.4	108.4	%	1.00				0.92%
Ag 328.068†	10.2	0.00006	mg/L	0.000041	0.00006	mg/L	0.000041	63.72%
Al 308.215†	-17.5	-0.01515	mg/L	0.015647	-0.01515	mg/L	0.015647	103.25%
As 188.979†	9.1	0.00467	mg/L	0.001341	0.00467	mg/L	0.001341	28.72%
B 249.677†	94.1	0.01374	mg/L	0.000654	0.01374	mg/L	0.000654	4.76%
Ba 233.527†	11.6	0.00266	mg/L	0.000278	0.00266	mg/L	0.000278	10.44%
Be 313.042†	-46.2	-0.00011	mg/L	0.000123	-0.00011	mg/L	0.000123	117.07%
Ca 317.933†	177682.8	17.28	mg/L	0.117	17.28	mg/L	0.117	0.68%
Cd 228.802†	-4.3	-0.00021	mg/L	0.000031	-0.00021	mg/L	0.000031	14.68%
Co 228.616†	17.0	0.00047	mg/L	0.000108	0.00047	mg/L	0.000108	22.77%
Cr 267.716†	22.4	0.00486	mg/L	0.001474	0.00486	mg/L	0.001474	30.35%
Cu 324.752†	32.3	0.00012	mg/L	0.000096	0.00012	mg/L	0.000096	80.95%
Fe 273.955†	-3.2	-0.00324	mg/L	0.002042	-0.00324	mg/L	0.002042	62.95%
K 766.490†	824.1	0.7661	mg/L	0.03797	0.7661	mg/L	0.03797	4.96%
Mg 279.077†	4820.2	4.549	mg/L	0.0294	4.549	mg/L	0.0294	0.65%
Mn 257.610†	8.6	0.00021	mg/L	0.000104	0.00021	mg/L	0.000104	50.67%
Mo 202.031†	28.1	0.00129	mg/L	0.000147	0.00129	mg/L	0.000147	11.43%
Na 589.592†	38351.9	4.611	mg/L	0.0070	4.611	mg/L	0.0070	0.15%
Na 330.237†	97.9	5.087	mg/L	0.2223	5.087	mg/L	0.2223	4.37%
Ni 231.604†	0.5	0.00014	mg/L	0.000492	0.00014	mg/L	0.000492	348.92%
Pb 220.353†	1.2	0.00016	mg/L	0.001733	0.00016	mg/L	0.001733	>999.9%
Sb 206.836†	-4.6	-0.00179	mg/L	0.002003	-0.00179	mg/L	0.002003	112.11%
Se 196.026†	3.6	0.00291	mg/L	0.002027	0.00291	mg/L	0.002027	69.69%
Si 288.158†	9420.0	9.439	mg/L	0.0434	9.439	mg/L	0.0434	0.46%
Sn 189.927†	-27.3	-0.00409	mg/L	0.000986	-0.00409	mg/L	0.000986	24.10%
Sr 421.552†	18377.3	0.06604	mg/L	0.000556	0.06604	mg/L	0.000556	0.84%
Ti 334.903†	26.4	0.00082	mg/L	0.001124	0.00082	mg/L	0.001124	136.66%
Tl 190.801†	3.3	0.00156	mg/L	0.000450	0.00156	mg/L	0.000450	28.88%
V 292.402†	80.4	0.00099	mg/L	0.000130	0.00099	mg/L	0.000130	13.16%
Zn 206.200†	-0.3	-0.00017	mg/L	0.001065	-0.00017	mg/L	0.001065	639.30%

Sequence No.: 24
Sample ID: 19H0018-06

Autosampler Location: 318
Date Collected: 8/12/2019 12:14:07 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0018-06

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19H0018-06

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2204608.6	104.6	%	0.70				0.67%
ScR 361.383	225249.3	107.0	%	1.20				1.12%
Ag 328.068†	13.0	0.00008	mg/L	0.000145	0.00008	mg/L	0.000145	178.94%
Al 308.215†	-6.3	-0.00543	mg/L	0.006277	-0.00543	mg/L	0.006277	115.50%
As 188.979†	-1.2	-0.00082	mg/L	0.001580	-0.00082	mg/L	0.001580	192.95%
B 249.677†	20.9	0.00305	mg/L	0.000929	0.00305	mg/L	0.000929	30.50%
Ba 233.527†	5.5	0.00125	mg/L	0.000711	0.00125	mg/L	0.000711	56.97%
Be 313.042†	-48.1	-0.00011	mg/L	0.000092	-0.00011	mg/L	0.000092	86.76%
Ca 317.933†	744.7	0.07243	mg/L	0.001458	0.07243	mg/L	0.001458	2.01%
Cd 228.802†	6.4	0.00026	mg/L	0.000082	0.00026	mg/L	0.000082	31.36%
Co 228.616†	21.4	0.00060	mg/L	0.000167	0.00060	mg/L	0.000167	27.83%
Cr 267.716†	13.4	0.00337	mg/L	0.001772	0.00337	mg/L	0.001772	52.62%
Cu 324.752†	122.9	0.00060	mg/L	0.000112	0.00060	mg/L	0.000112	18.53%
Fe 273.955†	-2.2	-0.00217	mg/L	0.001092	-0.00217	mg/L	0.001092	50.32%
K 766.490†	-26.6	-0.02472	mg/L	0.035934	-0.02472	mg/L	0.035934	145.35%
Mg 279.077†	5.8	0.00544	mg/L	0.006373	0.00544	mg/L	0.006373	117.10%
Mn 257.610†	4.7	0.00013	mg/L	0.000115	0.00013	mg/L	0.000115	87.46%
Mo 202.031†	-5.8	-0.00033	mg/L	0.000133	-0.00033	mg/L	0.000133	40.50%
Na 589.592†	3148.9	0.3786	mg/L	0.00223	0.3786	mg/L	0.00223	0.59%
Na 330.237†	15.9	0.8265	mg/L	0.45770	0.8265	mg/L	0.45770	55.38%
Ni 231.604†	0.8	0.00025	mg/L	0.000521	0.00025	mg/L	0.000521	206.74%
Pb 220.353†	2.4	0.00031	mg/L	0.000595	0.00031	mg/L	0.000595	192.20%
Sb 206.836†	-2.5	-0.00096	mg/L	0.000891	-0.00096	mg/L	0.000891	92.64%
Se 196.026†	5.1	0.00418	mg/L	0.005408	0.00418	mg/L	0.005408	129.51%
Si 288.158†	140.6	0.1409	mg/L	0.01518	0.1409	mg/L	0.01518	10.78%
Sn 189.927†	-0.2	-0.00005	mg/L	0.000822	-0.00005	mg/L	0.000822	>999.9%
Sr 421.552†	19.7	0.00007	mg/L	0.000151	0.00007	mg/L	0.000151	214.25%
Ti 334.903†	-2.0	-0.00015	mg/L	0.001007	-0.00015	mg/L	0.001007	677.03%
Tl 190.801†	5.0	0.00233	mg/L	0.001817	0.00233	mg/L	0.001817	78.07%
V 292.402†	10.0	0.00014	mg/L	0.000374	0.00014	mg/L	0.000374	265.88%
Zn 206.200†	2.4	0.00100	mg/L	0.000945	0.00100	mg/L	0.000945	94.36%

Sequence No.: 25
Sample ID: 19H0045-01

Autosampler Location: 319
Date Collected: 8/12/2019 12:18:05 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0045-01

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19H0045-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2214898.3	105.1	%	0.34				0.33%
ScR 361.383	225189.2	106.9	%	0.98				0.92%
Ag 328.068†	-22.5	-0.00014	mg/L	0.000244	-0.00014	mg/L	0.000244	174.53%
Al 308.215†	66.1	0.05640	mg/L	0.005313	0.05640	mg/L	0.005313	9.42%
As 188.979†	9.9	0.00608	mg/L	0.001971	0.00608	mg/L	0.001971	32.40%
B 249.677†	1528.8	0.2239	mg/L	0.00439	0.2239	mg/L	0.00439	1.96%
Ba 233.527†	13.2	0.00210	mg/L	0.001090	0.00210	mg/L	0.001090	51.80%
Be 313.042†	29.2	0.00006	mg/L	0.000062	0.00006	mg/L	0.000062	104.71%
Ca 317.933†	70351.4	6.843	mg/L	0.0727	6.843	mg/L	0.0727	1.06%
Cd 228.802†	-13.2	-0.00014	mg/L	0.000127	-0.00014	mg/L	0.000127	87.69%
Co 228.616†	665.9	0.01850	mg/L	0.000130	0.01850	mg/L	0.000130	0.70%
Cr 267.716†	11.2	0.00291	mg/L	0.000813	0.00291	mg/L	0.000813	27.91%
Cu 324.752†	62.1	0.00060	mg/L	0.000034	0.00060	mg/L	0.000034	5.61%
Fe 273.955†	6901.4	6.931	mg/L	0.0826	6.931	mg/L	0.0826	1.19%
K 766.490†	1515.8	1.409	mg/L	0.0388	1.409	mg/L	0.0388	2.75%
Mg 279.077†	2122.9	2.000	mg/L	0.0071	2.000	mg/L	0.0071	0.35%
Mn 257.610†	8294.3	0.2348	mg/L	0.00174	0.2348	mg/L	0.00174	0.74%
Mo 202.031†	21.7	0.00111	mg/L	0.000226	0.00111	mg/L	0.000226	20.43%
Na 589.592†	409407.8	49.23	mg/L	0.315	49.23	mg/L	0.315	0.64%
Na 330.237†	921.5	47.87	mg/L	0.585	47.87	mg/L	0.585	1.22%
Ni 231.604†	1456.5	0.4379	mg/L	0.00276	0.4379	mg/L	0.00276	0.63%
Pb 220.353†	0.6	-0.00024	mg/L	0.000607	-0.00024	mg/L	0.000607	248.89%
Sb 206.836†	-3.0	-0.00113	mg/L	0.000359	-0.00113	mg/L	0.000359	31.72%
Se 196.026†	10.2	0.00896	mg/L	0.000923	0.00896	mg/L	0.000923	10.30%
Si 288.158†	35022.4	35.09	mg/L	0.195	35.09	mg/L	0.195	0.56%
Sn 189.927†	-13.4	-0.00228	mg/L	0.000615	-0.00228	mg/L	0.000615	27.01%
Sr 421.552†	7435.1	0.02672	mg/L	0.000355	0.02672	mg/L	0.000355	1.33%
Ti 334.903†	38.7	0.00235	mg/L	0.000172	0.00235	mg/L	0.000172	7.34%
Tl 190.801†	2.2	0.00121	mg/L	0.001489	0.00121	mg/L	0.001489	122.62%
V 292.402†	87.7	0.00148	mg/L	0.000137	0.00148	mg/L	0.000137	9.28%
Zn 206.200†	8.1	0.00326	mg/L	0.001297	0.00326	mg/L	0.001297	39.84%

Sequence No.: 26
Sample ID: BHH0186-DUP1

Autosampler Location: 320
Date Collected: 8/12/2019 12:22:19 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0186-DUP1

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: BHH0186-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2200631.7	104.4	%	0.10				0.09%
ScR 361.383	223641.0	106.2	%	1.10				1.03%
Ag 328.068†	19.6	0.00012	mg/L	0.000103	0.00012	mg/L	0.000103	83.81%
Al 308.215†	129.3	0.1103	mg/L	0.02677	0.1103	mg/L	0.02677	24.27%
As 188.979†	9.2	0.00578	mg/L	0.002828	0.00578	mg/L	0.002828	48.89%
B 249.677†	3631.5	0.5303	mg/L	0.00369	0.5303	mg/L	0.00369	0.70%
Ba 233.527†	13.8	0.00277	mg/L	0.000918	0.00277	mg/L	0.000918	33.11%
Be 313.042†	35.8	0.00007	mg/L	0.000062	0.00007	mg/L	0.000062	92.61%
Ca 317.933†	59706.5	5.807	mg/L	0.0709	5.807	mg/L	0.0709	1.22%
Cd 228.802†	-48.5	-0.00019	mg/L	0.000172	-0.00019	mg/L	0.000172	89.07%
Co 228.616†	242.3	0.00649	mg/L	0.000264	0.00649	mg/L	0.000264	4.08%
Cr 267.716†	9.0	0.00207	mg/L	0.000667	0.00207	mg/L	0.000667	32.21%
Cu 324.752†	412.2	0.00204	mg/L	0.000040	0.00204	mg/L	0.000040	1.95%
Fe 273.955†	1502.6	1.509	mg/L	0.0139	1.509	mg/L	0.0139	0.92%
K 766.490†	3219.5	2.993	mg/L	0.0142	2.993	mg/L	0.0142	0.47%
Mg 279.077†	1824.7	1.722	mg/L	0.0148	1.722	mg/L	0.0148	0.86%
Mn 257.610†	3995.4	0.1131	mg/L	0.00079	0.1131	mg/L	0.00079	0.70%
Mo 202.031†	30.9	0.00164	mg/L	0.000036	0.00164	mg/L	0.000036	2.18%
Na 589.592†	755913.0	90.89	mg/L	0.109	90.89	mg/L	0.109	0.12%
Na 330.237†	1700.8	88.35	mg/L	0.850	88.35	mg/L	0.850	0.96%
Ni 231.604†	6067.2	1.824	mg/L	0.0192	1.824	mg/L	0.0192	1.05%
Pb 220.353†	-5.5	-0.00074	mg/L	0.000371	-0.00074	mg/L	0.000371	50.18%
Sb 206.836†	-6.2	-0.00226	mg/L	0.001395	-0.00226	mg/L	0.001395	61.67%
Se 196.026†	11.0	0.00904	mg/L	0.003224	0.00904	mg/L	0.003224	35.64%
Si 288.158†	44226.7	44.31	mg/L	0.328	44.31	mg/L	0.328	0.74%
Sn 189.927†	-11.0	-0.00183	mg/L	0.000631	-0.00183	mg/L	0.000631	34.40%
Sr 421.552†	9327.3	0.03352	mg/L	0.000163	0.03352	mg/L	0.000163	0.49%
Ti 334.903†	100.6	0.00685	mg/L	0.001048	0.00685	mg/L	0.001048	15.30%
Tl 190.801†	3.5	0.00173	mg/L	0.000035	0.00173	mg/L	0.000035	2.02%
V 292.402†	230.8	0.00284	mg/L	0.000004	0.00284	mg/L	0.000004	0.14%
Zn 206.200†	13.5	0.00539	mg/L	0.000891	0.00539	mg/L	0.000891	16.53%

Sequence No.: 27
Sample ID: 19H0045-06

Autosampler Location: 321
Date Collected: 8/12/2019 12:26:33 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0045-06

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19H0045-06

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2196605.8	104.2	%	0.35				0.34%
ScR 361.383	224338.1	106.5	%	0.68				0.63%
Ag 328.068†	4.0	0.00003	mg/L	0.000271	0.00003	mg/L	0.000271	>999.9%
Al 308.215†	126.8	0.1081	mg/L	0.01752	0.1081	mg/L	0.01752	16.20%
As 188.979†	14.7	0.00933	mg/L	0.003032	0.00933	mg/L	0.003032	32.51%
B 249.677†	3653.4	0.5335	mg/L	0.00175	0.5335	mg/L	0.00175	0.33%
Ba 233.527†	15.5	0.00317	mg/L	0.000488	0.00317	mg/L	0.000488	15.39%
Be 313.042†	26.0	0.00004	mg/L	0.000035	0.00004	mg/L	0.000035	79.70%
Ca 317.933†	59770.0	5.813	mg/L	0.0120	5.813	mg/L	0.0120	0.21%
Cd 228.802†	-49.5	-0.00026	mg/L	0.000063	-0.00026	mg/L	0.000063	24.07%
Co 228.616†	245.1	0.00657	mg/L	0.000095	0.00657	mg/L	0.000095	1.45%
Cr 267.716†	13.5	0.00320	mg/L	0.000503	0.00320	mg/L	0.000503	15.73%
Cu 324.752†	424.5	0.00210	mg/L	0.000054	0.00210	mg/L	0.000054	2.56%
Fe 273.955†	1497.1	1.503	mg/L	0.0076	1.503	mg/L	0.0076	0.51%
K 766.490†	3209.8	2.984	mg/L	0.0161	2.984	mg/L	0.0161	0.54%
Mg 279.077†	1818.9	1.716	mg/L	0.0165	1.716	mg/L	0.0165	0.96%
Mn 257.610†	4019.0	0.1137	mg/L	0.00121	0.1137	mg/L	0.00121	1.06%
Mo 202.031†	34.1	0.00182	mg/L	0.000208	0.00182	mg/L	0.000208	11.42%
Na 589.592†	755177.2	90.80	mg/L	0.127	90.80	mg/L	0.127	0.14%
Na 330.237†	1698.3	88.22	mg/L	0.325	88.22	mg/L	0.325	0.37%
Ni 231.604†	6057.0	1.821	mg/L	0.0099	1.821	mg/L	0.0099	0.54%
Pb 220.353†	-6.6	-0.00088	mg/L	0.000252	-0.00088	mg/L	0.000252	28.71%
Sb 206.836†	-5.5	-0.00204	mg/L	0.001626	-0.00204	mg/L	0.001626	79.62%
Se 196.026†	9.7	0.00803	mg/L	0.006117	0.00803	mg/L	0.006117	76.21%
Si 288.158†	44822.8	44.91	mg/L	0.707	44.91	mg/L	0.707	1.57%
Sn 189.927†	-13.0	-0.00235	mg/L	0.001281	-0.00235	mg/L	0.001281	54.59%
Sr 421.552†	9470.0	0.03403	mg/L	0.000614	0.03403	mg/L	0.000614	1.80%
Ti 334.903†	95.2	0.00646	mg/L	0.000830	0.00646	mg/L	0.000830	12.84%
Tl 190.801†	4.0	0.00196	mg/L	0.004019	0.00196	mg/L	0.004019	205.13%
V 292.402†	252.6	0.00311	mg/L	0.000150	0.00311	mg/L	0.000150	4.82%
Zn 206.200†	12.5	0.00497	mg/L	0.000632	0.00497	mg/L	0.000632	12.71%

Sequence No.: 28
Sample ID: BHH0186-MS1

Autosampler Location: 322
Date Collected: 8/12/2019 12:30:47 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0186-MS1

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: BHH0186-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units		Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2168899.9	102.9	%		0.22				0.21%
ScR 361.383	227783.0	108.2	%		0.64				0.59%
Ag 328.068†	79094.4	0.4935	mg/L		0.00331	0.4935	mg/L	0.00331	0.67%
Al 308.215†	2435.0	2.087	mg/L		0.0171	2.087	mg/L	0.0171	0.82%
As 188.979†	3297.5	2.134	mg/L		0.0064	2.134	mg/L	0.0064	0.30%
B 249.677†	3659.5	0.5334	mg/L		0.00486	0.5334	mg/L	0.00486	0.91%
Ba 233.527†	8621.3	1.973	mg/L		0.0141	1.973	mg/L	0.0141	0.71%
Be 313.042†	232162.6	0.5057	mg/L		0.00284	0.5057	mg/L	0.00284	0.56%
Ca 317.933†	158463.3	15.41	mg/L		0.137	15.41	mg/L	0.137	0.89%
Cd 228.802†	13292.9	0.5194	mg/L		0.00152	0.5194	mg/L	0.00152	0.29%
Co 228.616†	18109.6	0.5076	mg/L		0.00237	0.5076	mg/L	0.00237	0.47%
Cr 267.716†	1974.9	0.4953	mg/L		0.00443	0.4953	mg/L	0.00443	0.89%
Cu 324.752†	104167.9	0.5106	mg/L		0.00160	0.5106	mg/L	0.00160	0.31%
Fe 273.955†	3420.5	3.431	mg/L		0.0301	3.431	mg/L	0.0301	0.88%
K 766.490†	13399.5	12.46	mg/L		0.014	12.46	mg/L	0.014	0.11%
Mg 279.077†	12589.0	11.88	mg/L		0.084	11.88	mg/L	0.084	0.70%
Mn 257.610†	20856.9	0.5906	mg/L		0.00278	0.5906	mg/L	0.00278	0.47%
Mo 202.031†	51.1	0.00258	mg/L		0.000410	0.00258	mg/L	0.000410	15.86%
Na 589.592†	822067.7	98.84	mg/L		0.678	98.84	mg/L	0.678	0.69%
Na 330.237†	1898.8	98.42	mg/L	STL	0.180	98.42	mg/L	0.180	0.18%
Ni 231.604†	7625.0	2.292	mg/L		0.0227	2.292	mg/L	0.0227	0.99%
Pb 220.353†	15794.8	2.000	mg/L		0.0013	2.000	mg/L	0.0013	0.07%
Sb 206.836†	8.8	-0.00315	mg/L		0.000896	-0.00315	mg/L	0.000896	28.41%
Se 196.026†	2918.5	2.385	mg/L		0.0071	2.385	mg/L	0.0071	0.30%
Si 288.158†	43733.2	43.82	mg/L		0.208	43.82	mg/L	0.208	0.47%
Sn 189.927†	-31.6	-0.00550	mg/L		0.000241	-0.00550	mg/L	0.000241	4.38%
Sr 421.552†	160605.7	0.5772	mg/L		0.00548	0.5772	mg/L	0.00548	0.95%
Ti 334.903†	121.5	0.00765	mg/L		0.000145	0.00765	mg/L	0.000145	1.89%
Tl 190.801†	4317.9	2.019	mg/L		0.0109	2.019	mg/L	0.0109	0.54%
V 292.402†	42646.8	0.5073	mg/L		0.00387	0.5073	mg/L	0.00387	0.76%
Zn 206.200†	1269.3	0.5216	mg/L		0.00609	0.5216	mg/L	0.00609	1.17%

Sequence No.: 29
Sample ID: BHH0186-BS1

Dilution: 1X
Wash Time: 120

Autosampler Location: 323
Date Collected: 8/12/2019 12:36:25 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0186-BS1

Analyte	Back Pressure	Flow
All	172.0 kPa	0.65 L/min

Mean Data: BHH0186-BS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2193547.4	104.1	%	0.17				0.16%
ScR 361.383	227770.6	108.2	%	2.01				1.86%
Ag 328.068†	89713.2	0.5598	mg/L	0.00367	0.5598	mg/L	0.00367	0.66%
Al 308.215†	2340.3	2.006	mg/L	0.0336	2.006	mg/L	0.0336	1.67%
As 188.979†	3296.1	2.134	mg/L	0.0078	2.134	mg/L	0.0078	0.37%
B 249.677†	24.8	0.00256	mg/L	0.002067	0.00256	mg/L	0.002067	80.61%
Ba 233.527†	8754.3	2.004	mg/L	0.0322	2.004	mg/L	0.0322	1.61%
Be 313.042†	235138.6	0.5122	mg/L	0.00590	0.5122	mg/L	0.00590	1.15%
Ca 317.933†	101842.3	9.900	mg/L	0.1058	9.900	mg/L	0.1058	1.07%
Cd 228.802†	13840.7	0.5396	mg/L	0.00047	0.5396	mg/L	0.00047	0.09%
Co 228.616†	18532.7	0.5198	mg/L	0.00278	0.5198	mg/L	0.00278	0.54%
Cr 267.716†	2032.8	0.5100	mg/L	0.00486	0.5100	mg/L	0.00486	0.95%
Cu 324.752†	99585.0	0.4882	mg/L	0.00128	0.4882	mg/L	0.00128	0.26%
Fe 273.955†	1991.4	1.996	mg/L	0.0284	1.996	mg/L	0.0284	1.42%
K 766.490†	10500.6	9.761	mg/L	0.0816	9.761	mg/L	0.0816	0.84%
Mg 279.077†	10954.9	10.34	mg/L	0.176	10.34	mg/L	0.176	1.70%
Mn 257.610†	17139.6	0.4854	mg/L	0.00535	0.4854	mg/L	0.00535	1.10%
Mo 202.031†	19.6	0.00090	mg/L	0.000326	0.00090	mg/L	0.000326	36.10%
Na 589.592†	84731.9	10.19	mg/L	0.044	10.19	mg/L	0.044	0.43%
Na 330.237†	205.7	10.47	mg/L	0.254	10.47	mg/L	0.254	2.42%
Ni 231.604†	1686.0	0.5067	mg/L	0.00733	0.5067	mg/L	0.00733	1.45%
Pb 220.353†	16706.4	2.116	mg/L	0.0086	2.116	mg/L	0.0086	0.41%
Sb 206.836†	12.8	-0.00186	mg/L	0.000618	-0.00186	mg/L	0.000618	33.17%
Se 196.026†	2912.8	2.380	mg/L	0.0020	2.380	mg/L	0.0020	0.09%
Si 288.158†	-3.0	-0.00114	mg/L	0.005074	-0.00114	mg/L	0.005074	444.50%
Sn 189.927†	-17.0	-0.00269	mg/L	0.000913	-0.00269	mg/L	0.000913	34.02%
Sr 421.552†	150364.5	0.5404	mg/L	0.00313	0.5404	mg/L	0.00313	0.58%
Ti 334.903†	13.0	0.00022	mg/L	0.000546	0.00022	mg/L	0.000546	249.75%
Tl 190.801†	4538.1	2.122	mg/L	0.0063	2.122	mg/L	0.0063	0.30%
V 292.402†	44079.5	0.5242	mg/L	0.00563	0.5242	mg/L	0.00563	1.07%
Zn 206.200†	1250.8	0.5141	mg/L	0.00977	0.5141	mg/L	0.00977	1.90%

Sequence No.: 30
Sample ID: SEQ-IBL1

Autosampler Location: 324
Date Collected: 8/12/2019 12:43:07 PM
Data Type: Original

Dilution: 1X
Wash Time: 200

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IBL1

Analyte	Back Pressure	Flow
All	172.0 kPa	0.65 L/min

Mean Data: SEQ-IBL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2181278.9	103.5	%	0.33				0.32%
ScR 361.383	222263.1	105.6	%	1.04				0.98%
Ag 328.068†	115.3	0.00072	mg/L	0.000147	0.00072	mg/L	0.000147	20.39%
Al 308.215†	1.9	0.00160	mg/L	0.001789	0.00160	mg/L	0.001789	111.68%
As 188.979†	0.9	0.00054	mg/L	0.000252	0.00054	mg/L	0.000252	46.94%
B 249.677†	25.0	0.00365	mg/L	0.000556	0.00365	mg/L	0.000556	15.24%
Ba 233.527†	-0.7	-0.00016	mg/L	0.000842	-0.00016	mg/L	0.000842	530.37%
Be 313.042†	-49.7	-0.00011	mg/L	0.000033	-0.00011	mg/L	0.000033	30.11%
Ca 317.933†	33.6	0.00324	mg/L	0.001110	0.00324	mg/L	0.001110	34.19%
Cd 228.802†	-0.8	-0.00004	mg/L	0.000159	-0.00004	mg/L	0.000159	449.55%
Co 228.616†	8.4	0.00024	mg/L	0.000046	0.00024	mg/L	0.000046	19.58%
Cr 267.716†	6.6	0.00165	mg/L	0.000486	0.00165	mg/L	0.000486	29.42%
Cu 324.752†	73.1	0.00036	mg/L	0.000073	0.00036	mg/L	0.000073	20.45%
Fe 273.955†	2.0	0.00205	mg/L	0.001788	0.00205	mg/L	0.001788	87.28%
K 766.490†	-31.5	-0.02925	mg/L	0.007064	-0.02925	mg/L	0.007064	24.15%
Mg 279.077†	3.1	0.00296	mg/L	0.012775	0.00296	mg/L	0.012775	432.26%
Mn 257.610†	-3.9	-0.00011	mg/L	0.000164	-0.00011	mg/L	0.000164	147.97%
Mo 202.031†	-4.2	-0.00024	mg/L	0.000242	-0.00024	mg/L	0.000242	102.42%
Na 589.592†	123.0	0.01479	mg/L	0.002206	0.01479	mg/L	0.002206	14.91%
Na 330.237†	12.0	0.6243	mg/L	0.59117	0.6243	mg/L	0.59117	94.70%
Ni 231.604†	0.8	0.00025	mg/L	0.000565	0.00025	mg/L	0.000565	223.69%
Pb 220.353†	6.1	0.00077	mg/L	0.000803	0.00077	mg/L	0.000803	104.07%
Sb 206.836†	-4.4	-0.00163	mg/L	0.002718	-0.00163	mg/L	0.002718	167.21%
Se 196.026†	7.6	0.00624	mg/L	0.001327	0.00624	mg/L	0.001327	21.25%
Si 288.158†	4.8	0.00478	mg/L	0.003083	0.00478	mg/L	0.003083	64.53%
Sn 189.927†	-0.5	-0.00014	mg/L	0.000511	-0.00014	mg/L	0.000511	374.66%
Sr 421.552†	-21.0	-0.00008	mg/L	0.000064	-0.00008	mg/L	0.000064	83.98%
Ti 334.903†	-17.9	-0.00128	mg/L	0.000846	-0.00128	mg/L	0.000846	65.84%
Tl 190.801†	3.4	0.00161	mg/L	0.001809	0.00161	mg/L	0.001809	112.46%
V 292.402†	-13.0	-0.00014	mg/L	0.000327	-0.00014	mg/L	0.000327	229.28%
Zn 206.200†	4.6	0.00189	mg/L	0.000441	0.00189	mg/L	0.000441	23.29%

Sequence No.: 31
Sample ID: SEQ-CCV3

Autosampler Location: 7
Date Collected: 8/12/2019 12:48:28 PM
Data Type: Original

Dilution: 1X
Wash Time: 120

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV3

Analyte	Back Pressure	Flow
All	172.0 kPa	0.65 L/min

Mean Data: SEQ-CCV3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2183487.8	103.6	%	0.99				0.95%
ScR 361.383	223918.2	106.3	%	0.34				0.32%
Ag 328.068†	159374.5	0.9944	mg/L	0.00567	0.9944	mg/L	0.00567	0.57%
Al 308.215†	2241.3	1.891	mg/L	0.0416	1.891	mg/L	0.0416	2.20%
As 188.979†	2969.6	1.946	mg/L	0.0212	1.946	mg/L	0.0212	1.09%
B 249.677†	6834.5	0.9972	mg/L	0.01341	0.9972	mg/L	0.01341	1.34%
Ba 233.527†	4224.7	0.9657	mg/L	0.01342	0.9657	mg/L	0.01342	1.39%
Be 313.042†	454778.6	0.9907	mg/L	0.00456	0.9907	mg/L	0.00456	0.46%
Ca 317.933†	19481.3	1.882	mg/L	0.0087	1.882	mg/L	0.0087	0.46%
Cd 228.802†	24787.5	0.9789	mg/L	0.00495	0.9789	mg/L	0.00495	0.51%
Co 228.616†	34770.9	0.9740	mg/L	0.00507	0.9740	mg/L	0.00507	0.52%
Cr 267.716†	3859.8	0.9705	mg/L	0.01291	0.9705	mg/L	0.01291	1.33%
Cu 324.752†	201426.5	0.9869	mg/L	0.00365	0.9869	mg/L	0.00365	0.37%
Fe 273.955†	1900.1	1.901	mg/L	0.0183	1.901	mg/L	0.0183	0.96%
K 766.490†	20387.5	18.95	mg/L	0.023	18.95	mg/L	0.023	0.12%
Mg 279.077†	2043.8	1.940	mg/L	0.0351	1.940	mg/L	0.0351	1.81%
Mn 257.610†	33278.5	0.9421	mg/L	0.00429	0.9421	mg/L	0.00429	0.46%
Mo 202.031†	17233.0	0.9673	mg/L	0.00569	0.9673	mg/L	0.00569	0.59%
Na 589.592†	413542.6	49.72	mg/L	0.176	49.72	mg/L	0.176	0.35%
Na 330.237†	951.9	49.23	mg/L	0.624	49.23	mg/L	0.624	1.27%
Ni 231.604†	3251.4	0.9787	mg/L	0.01352	0.9787	mg/L	0.01352	1.38%
Pb 220.353†	15471.1	1.960	mg/L	0.0140	1.960	mg/L	0.0140	0.71%
Sb 206.836†	5728.1	2.052	mg/L	0.0229	2.052	mg/L	0.0229	1.11%
Se 196.026†	2452.8	2.004	mg/L	0.0202	2.004	mg/L	0.0202	1.01%
Si 288.158†	1983.6	1.989	mg/L	0.0409	1.989	mg/L	0.0409	2.05%
Sn 189.927†	3819.2	0.9805	mg/L	0.00997	0.9805	mg/L	0.00997	1.02%
Sr 421.552†	293067.1	1.053	mg/L	0.0056	1.053	mg/L	0.0056	0.53%
Ti 334.903†	13367.8	0.9564	mg/L	0.00306	0.9564	mg/L	0.00306	0.32%
Tl 190.801†	4182.3	1.953	mg/L	0.0213	1.953	mg/L	0.0213	1.09%
V 292.402†	82158.5	0.9773	mg/L	0.00531	0.9773	mg/L	0.00531	0.54%
Zn 206.200†	2405.4	0.9884	mg/L	0.01529	0.9884	mg/L	0.01529	1.55%

Sequence No.: 32 **Autosampler Location: 1**
Sample ID: SEQ-CCB3 **Date Collected: 8/12/2019 12:53:31 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB3

Analyte	Back Pressure	Flow
All	172.0 kPa	0.65 L/min

Mean Data: SEQ-CCB3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2223475.2	105.5	%	0.42				0.40%
ScR 361.383	225511.6	107.1	%	0.54				0.51%
Ag 328.068†	102.7	0.00064	mg/L	0.000049	0.00064	mg/L	0.000049	7.59%
Al 308.215†	-4.1	-0.00352	mg/L	0.004262	-0.00352	mg/L	0.004262	121.09%
As 188.979†	0.9	0.00055	mg/L	0.002706	0.00055	mg/L	0.002706	491.79%
B 249.677†	22.3	0.00326	mg/L	0.000776	0.00326	mg/L	0.000776	23.83%
Ba 233.527†	1.9	0.00043	mg/L	0.000073	0.00043	mg/L	0.000073	16.89%
Be 313.042†	-48.5	-0.00011	mg/L	0.000016	-0.00011	mg/L	0.000016	15.04%
Ca 317.933†	2.3	0.00019	mg/L	0.000933	0.00019	mg/L	0.000933	483.76%
Cd 228.802†	-0.2	-0.00001	mg/L	0.000146	-0.00001	mg/L	0.000146	>999.9%
Co 228.616†	7.4	0.00021	mg/L	0.000063	0.00021	mg/L	0.000063	30.49%
Cr 267.716†	13.4	0.00336	mg/L	0.001074	0.00336	mg/L	0.001074	31.95%
Cu 324.752†	27.2	0.00013	mg/L	0.000061	0.00013	mg/L	0.000061	46.25%
Fe 273.955†	-3.0	-0.00297	mg/L	0.003513	-0.00297	mg/L	0.003513	118.33%
K 766.490†	-51.7	-0.04806	mg/L	0.022556	-0.04806	mg/L	0.022556	46.94%
Mg 279.077†	1.1	0.00101	mg/L	0.002306	0.00101	mg/L	0.002306	228.79%
Mn 257.610†	-9.9	-0.00028	mg/L	0.000061	-0.00028	mg/L	0.000061	21.77%
Mo 202.031†	10.0	0.00056	mg/L	0.000354	0.00056	mg/L	0.000354	63.01%
Na 589.592†	140.8	0.01693	mg/L	0.003598	0.01693	mg/L	0.003598	21.25%
Na 330.237†	22.1	1.147	mg/L	0.7546	1.147	mg/L	0.7546	65.80%
Ni 231.604†	6.0	0.00181	mg/L	0.002500	0.00181	mg/L	0.002500	137.91%
Pb 220.353†	10.8	0.00138	mg/L	0.000353	0.00138	mg/L	0.000353	25.60%
Sb 206.836†	-1.0	-0.00043	mg/L	0.000669	-0.00043	mg/L	0.000669	153.79%
Se 196.026†	-0.2	-0.00014	mg/L	0.001968	-0.00014	mg/L	0.001968	>999.9%
Si 288.158†	4.1	0.00408	mg/L	0.004561	0.00408	mg/L	0.004561	111.69%
Sn 189.927†	-1.9	-0.00050	mg/L	0.000843	-0.00050	mg/L	0.000843	169.25%
Sr 421.552†	-49.5	-0.00018	mg/L	0.000133	-0.00018	mg/L	0.000133	74.64%
Ti 334.903†	-2.2	-0.00016	mg/L	0.001645	-0.00016	mg/L	0.001645	>999.9%
Tl 190.801†	3.2	0.00150	mg/L	0.000198	0.00150	mg/L	0.000198	13.23%
V 292.402†	-4.3	-0.00003	mg/L	0.000178	-0.00003	mg/L	0.000178	634.25%
Zn 206.200†	1.9	0.00079	mg/L	0.001301	0.00079	mg/L	0.001301	165.22%

Sequence No.: 33
Sample ID: 19H0045-02

Autosampler Location: 325
Date Collected: 8/12/2019 12:57:30 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0045-02

Analyte	Back Pressure	Flow
All	172.0 kPa	0.65 L/min

Mean Data: 19H0045-02

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2200386.9	104.4	%	0.47				0.45%
ScR 361.383	225851.7	107.3	%	1.90				1.77%
Ag 328.068†	3.9	0.00002	mg/L	0.000156	0.00002	mg/L	0.000156	625.97%
Al 308.215†	80.3	0.06827	mg/L	0.017795	0.06827	mg/L	0.017795	26.07%
As 188.979†	10.9	0.00648	mg/L	0.002198	0.00648	mg/L	0.002198	33.93%
B 249.677†	3033.9	0.4430	mg/L	0.00486	0.4430	mg/L	0.00486	1.10%
Ba 233.527†	25.5	0.00562	mg/L	0.000928	0.00562	mg/L	0.000928	16.53%
Be 313.042†	29.0	0.00006	mg/L	0.000089	0.00006	mg/L	0.000089	156.75%
Ca 317.933†	100739.5	9.799	mg/L	0.0649	9.799	mg/L	0.0649	0.66%
Cd 228.802†	-26.8	-0.00022	mg/L	0.000099	-0.00022	mg/L	0.000099	44.77%
Co 228.616†	330.5	0.00912	mg/L	0.000075	0.00912	mg/L	0.000075	0.82%
Cr 267.716†	15.5	0.00352	mg/L	0.000952	0.00352	mg/L	0.000952	27.08%
Cu 324.752†	285.8	0.00139	mg/L	0.000156	0.00139	mg/L	0.000156	11.25%
Fe 273.955†	947.1	0.9511	mg/L	0.01745	0.9511	mg/L	0.01745	1.84%
K 766.490†	4180.9	3.887	mg/L	0.0409	3.887	mg/L	0.0409	1.05%
Mg 279.077†	2890.3	2.728	mg/L	0.0336	2.728	mg/L	0.0336	1.23%
Mn 257.610†	6087.3	0.1723	mg/L	0.00220	0.1723	mg/L	0.00220	1.28%
Mo 202.031†	27.6	0.00139	mg/L	0.000250	0.00139	mg/L	0.000250	18.03%
Na 589.592†	693893.4	83.43	mg/L	0.283	83.43	mg/L	0.283	0.34%
Na 330.237†	1548.7	80.45	mg/L	0.453	80.45	mg/L	0.453	0.56%
Ni 231.604†	3057.0	0.9190	mg/L	0.01569	0.9190	mg/L	0.01569	1.71%
Pb 220.353†	-7.3	-0.00094	mg/L	0.000173	-0.00094	mg/L	0.000173	18.40%
Sb 206.836†	-6.9	-0.00256	mg/L	0.000612	-0.00256	mg/L	0.000612	23.90%
Se 196.026†	10.6	0.00862	mg/L	0.001635	0.00862	mg/L	0.001635	18.97%
Si 288.158†	41680.3	41.76	mg/L	0.259	41.76	mg/L	0.259	0.62%
Sn 189.927†	-18.4	-0.00305	mg/L	0.000997	-0.00305	mg/L	0.000997	32.66%
Sr 421.552†	15414.1	0.05539	mg/L	0.000389	0.05539	mg/L	0.000389	0.70%
Ti 334.903†	53.9	0.00326	mg/L	0.000882	0.00326	mg/L	0.000882	27.09%
Tl 190.801†	5.9	0.00292	mg/L	0.002121	0.00292	mg/L	0.002121	72.64%
V 292.402†	130.2	0.00165	mg/L	0.000257	0.00165	mg/L	0.000257	15.58%
Zn 206.200†	10.2	0.00400	mg/L	0.001105	0.00400	mg/L	0.001105	27.64%

Sequence No.: 34
Sample ID: 19H0045-03

Autosampler Location: 326
Date Collected: 8/12/2019 1:01:45 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0045-03

Analyte	Back Pressure	Flow
All	174.0 kPa	0.65 L/min

Mean Data: 19H0045-03

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2150146.0	102.0	%	0.44				0.43%
ScR 361.383	228977.7	108.7	%	1.49				1.37%
Ag 328.068†	8.0	0.00005	mg/L	0.000292	0.00005	mg/L	0.000292	576.97%
Al 308.215†	12.1	0.00562	mg/L	0.007609	0.00562	mg/L	0.007609	135.36%
As 188.979†	11.3	0.00659	mg/L	0.001431	0.00659	mg/L	0.001431	21.71%
B 249.677†	1262.2	0.1849	mg/L	0.00288	0.1849	mg/L	0.00288	1.56%
Ba 233.527†	60.5	0.01303	mg/L	0.000938	0.01303	mg/L	0.000938	7.20%
Be 313.042†	-83.0	-0.00020	mg/L	0.000076	-0.00020	mg/L	0.000076	38.91%
Ca 317.933†	137900.9	13.41	mg/L	0.111	13.41	mg/L	0.111	0.83%
Cd 228.802†	-7.3	-0.00033	mg/L	0.000333	-0.00033	mg/L	0.000333	101.23%
Co 228.616†	167.4	0.00457	mg/L	0.000184	0.00457	mg/L	0.000184	4.03%
Cr 267.716†	24.2	0.00484	mg/L	0.000285	0.00484	mg/L	0.000285	5.90%
Cu 324.752†	237.1	0.00114	mg/L	0.000201	0.00114	mg/L	0.000201	17.66%
Fe 273.955†	6460.4	6.488	mg/L	0.0362	6.488	mg/L	0.0362	0.56%
K 766.490†	9042.4	8.406	mg/L	0.1114	8.406	mg/L	0.1114	1.33%
Mg 279.077†	13289.2	12.54	mg/L	0.076	12.54	mg/L	0.076	0.61%
Mn 257.610†	8764.9	0.2481	mg/L	0.00210	0.2481	mg/L	0.00210	0.85%
Mo 202.031†	96.9	0.00522	mg/L	0.000163	0.00522	mg/L	0.000163	3.12%
Na 589.592†	4011584.7	482.3	mg/L	9.44	482.3	mg/L	9.44	1.96%
Na 330.237†	9155.7	475.6	mg/L	5.16	475.6	mg/L	5.16	1.08%
Ni 231.604†	36.7	0.01102	mg/L	0.002309	0.01102	mg/L	0.002309	20.95%
Pb 220.353†	15.1	0.00161	mg/L	0.000922	0.00161	mg/L	0.000922	57.39%
Sb 206.836†	-7.5	-0.00279	mg/L	0.000324	-0.00279	mg/L	0.000324	11.63%
Se 196.026†	25.3	0.02125	mg/L	0.001156	0.02125	mg/L	0.001156	5.44%
Si 288.158†	24067.4	24.11	mg/L	0.323	24.11	mg/L	0.323	1.34%
Sn 189.927†	-7.3	0.00040	mg/L	0.000261	0.00040	mg/L	0.000261	66.01%
Sr 421.552†	29403.6	0.1057	mg/L	0.00139	0.1057	mg/L	0.00139	1.32%
Ti 334.903†	102.4	0.00650	mg/L	0.000870	0.00650	mg/L	0.000870	13.37%
Tl 190.801†	6.4	0.00324	mg/L	0.002116	0.00324	mg/L	0.002116	65.22%
V 292.402†	287.0	0.00383	mg/L	0.000325	0.00383	mg/L	0.000325	8.47%
Zn 206.200†	0.6	-0.00019	mg/L	0.000494	-0.00019	mg/L	0.000494	262.24%

Sequence No.: 35
Sample ID: 19H0045-04

Autosampler Location: 327
Date Collected: 8/12/2019 1:06:01 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0045-04

Analyte	Back Pressure	Flow
All	174.0 kPa	0.65 L/min

Mean Data: 19H0045-04

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2230012.4	105.8	%	0.37				0.35%
ScR 361.383	229463.5	109.0	%	1.34				1.23%
Ag 328.068†	-51.9	-0.00032	mg/L	0.000248	-0.00032	mg/L	0.000248	76.61%
Al 308.215†	1721.7	1.481	mg/L	0.0325	1.481	mg/L	0.0325	2.19%
As 188.979†	17.0	0.00884	mg/L	0.002712	0.00884	mg/L	0.002712	30.69%
B 249.677†	14461.0	2.111	mg/L	0.0361	2.111	mg/L	0.0361	1.71%
Ba 233.527†	40.3	0.00776	mg/L	0.000652	0.00776	mg/L	0.000652	8.41%
Be 313.042†	371.4	0.00081	mg/L	0.000112	0.00081	mg/L	0.000112	13.81%
Ca 317.933†	315403.8	30.68	mg/L	0.303	30.68	mg/L	0.303	0.99%
Cd 228.802†	-305.2	-0.00128	mg/L	0.000310	-0.00128	mg/L	0.000310	24.31%
Co 228.616†	1382.0	0.03706	mg/L	0.000325	0.03706	mg/L	0.000325	0.88%
Cr 267.716†	27.3	0.00561	mg/L	0.000916	0.00561	mg/L	0.000916	16.33%
Cu 324.752†	2468.6	0.01211	mg/L	0.000111	0.01211	mg/L	0.000111	0.92%
Fe 273.955†	1782.9	1.790	mg/L	0.0273	1.790	mg/L	0.0273	1.53%
K 766.490†	8501.1	7.903	mg/L	0.0119	7.903	mg/L	0.0119	0.15%
Mg 279.077†	8629.4	8.144	mg/L	0.1236	8.144	mg/L	0.1236	1.52%
Mn 257.610†	16631.0	0.4706	mg/L	0.00647	0.4706	mg/L	0.00647	1.38%
Mo 202.031†	55.3	0.00260	mg/L	0.000214	0.00260	mg/L	0.000214	8.26%
Na 589.592†	323760.6	38.93	mg/L	0.064	38.93	mg/L	0.064	0.16%
Na 330.237†	731.4	37.97	mg/L	0.261	37.97	mg/L	0.261	0.69%
Ni 231.604†	37418.9	11.25	mg/L	0.156	11.25	mg/L	0.156	1.39%
Pb 220.353†	-2.5	0.00000	mg/L	0.000488	0.00000	mg/L	0.000488	>999.9%
Sb 206.836†	-16.0	-0.00592	mg/L	0.001795	-0.00592	mg/L	0.001795	30.33%
Se 196.026†	7.5	0.00576	mg/L	0.004783	0.00576	mg/L	0.004783	83.09%
Si 288.158†	47299.4	47.39	mg/L	0.633	47.39	mg/L	0.633	1.33%
Sn 189.927†	-46.0	-0.00663	mg/L	0.001041	-0.00663	mg/L	0.001041	15.71%
Sr 421.552†	55119.1	0.1981	mg/L	0.00125	0.1981	mg/L	0.00125	0.63%
Ti 334.903†	30.1	0.00026	mg/L	0.000573	0.00026	mg/L	0.000573	220.73%
Tl 190.801†	5.4	0.00284	mg/L	0.000255	0.00284	mg/L	0.000255	8.98%
V 292.402†	13.2	0.00039	mg/L	0.000057	0.00039	mg/L	0.000057	14.81%
Zn 206.200†	149.8	0.06125	mg/L	0.001249	0.06125	mg/L	0.001249	2.04%

Sequence No.: 36
Sample ID: 19H0045-05

Autosampler Location: 328
Date Collected: 8/12/2019 1:10:15 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0045-05

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: 19H0045-05

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2181567.8	103.5	%	1.24				1.20%
ScR 361.383	227996.6	108.3	%	1.47				1.36%
Ag 328.068†	1.1	0.00001	mg/L	0.000175	0.00001	mg/L	0.000175	>999.9%
Al 308.215†	376.1	0.3230	mg/L	0.01223	0.3230	mg/L	0.01223	3.79%
As 188.979†	10.6	0.00575	mg/L	0.000835	0.00575	mg/L	0.000835	14.51%
B 249.677†	9094.9	1.329	mg/L	0.0098	1.329	mg/L	0.0098	0.74%
Ba 233.527†	25.7	0.00392	mg/L	0.000082	0.00392	mg/L	0.000082	2.10%
Be 313.042†	249.6	0.00054	mg/L	0.000094	0.00054	mg/L	0.000094	17.41%
Ca 317.933†	189857.7	18.47	mg/L	0.068	18.47	mg/L	0.068	0.37%
Cd 228.802†	-121.8	-0.00036	mg/L	0.000066	-0.00036	mg/L	0.000066	18.52%
Co 228.616†	1380.7	0.03785	mg/L	0.000387	0.03785	mg/L	0.000387	1.02%
Cr 267.716†	16.9	0.00405	mg/L	0.001883	0.00405	mg/L	0.001883	46.47%
Cu 324.752†	58.7	0.00078	mg/L	0.000057	0.00078	mg/L	0.000057	7.28%
Fe 273.955†	11465.6	11.51	mg/L	0.095	11.51	mg/L	0.095	0.82%
K 766.490†	3600.5	3.347	mg/L	0.0289	3.347	mg/L	0.0289	0.86%
Mg 279.077†	5917.8	5.580	mg/L	0.0490	5.580	mg/L	0.0490	0.88%
Mn 257.610†	17379.4	0.4919	mg/L	0.00478	0.4919	mg/L	0.00478	0.97%
Mo 202.031†	33.7	0.00159	mg/L	0.000027	0.00159	mg/L	0.000027	1.68%
Na 589.592†	403084.7	48.47	mg/L	0.330	48.47	mg/L	0.330	0.68%
Na 330.237†	911.5	47.34	mg/L	0.127	47.34	mg/L	0.127	0.27%
Ni 231.604†	15512.4	4.663	mg/L	0.0438	4.663	mg/L	0.0438	0.94%
Pb 220.353†	-6.4	-0.00127	mg/L	0.000428	-0.00127	mg/L	0.000428	33.66%
Sb 206.836†	-3.5	-0.00138	mg/L	0.001113	-0.00138	mg/L	0.001113	80.52%
Se 196.026†	1.7	0.00225	mg/L	0.004459	0.00225	mg/L	0.004459	198.38%
Si 288.158†	41822.2	41.90	mg/L	0.363	41.90	mg/L	0.363	0.87%
Sn 189.927†	-31.7	-0.00501	mg/L	0.000765	-0.00501	mg/L	0.000765	15.25%
Sr 421.552†	26419.5	0.09494	mg/L	0.001302	0.09494	mg/L	0.001302	1.37%
Ti 334.903†	27.9	0.00085	mg/L	0.001017	0.00085	mg/L	0.001017	119.01%
Tl 190.801†	-2.1	-0.00065	mg/L	0.002172	-0.00065	mg/L	0.002172	332.98%
V 292.402†	76.4	0.00165	mg/L	0.000238	0.00165	mg/L	0.000238	14.40%
Zn 206.200†	65.2	0.02668	mg/L	0.000152	0.02668	mg/L	0.000152	0.57%

Sequence No.: 37
Sample ID: 19H0045-08

Autosampler Location: 329
Date Collected: 8/12/2019 1:14:29 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0045-08

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: 19H0045-08

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2192405.9	104.0	%	1.88				1.81%
ScR 361.383	228886.7	108.7	%	0.57				0.52%
Ag 328.068†	19.6	0.00012	mg/L	0.000138	0.00012	mg/L	0.000138	113.00%
Al 308.215†	544.0	0.4674	mg/L	0.01851	0.4674	mg/L	0.01851	3.96%
As 188.979†	7.6	0.00413	mg/L	0.002256	0.00413	mg/L	0.002256	54.69%
B 249.677†	5841.1	0.8529	mg/L	0.00957	0.8529	mg/L	0.00957	1.12%
Ba 233.527†	24.9	0.00506	mg/L	0.000631	0.00506	mg/L	0.000631	12.46%
Be 313.042†	176.9	0.00039	mg/L	0.000040	0.00039	mg/L	0.000040	10.38%
Ca 317.933†	116927.2	11.37	mg/L	0.040	11.37	mg/L	0.040	0.36%
Cd 228.802†	-110.9	-0.00046	mg/L	0.000146	-0.00046	mg/L	0.000146	31.74%
Co 228.616†	685.2	0.01859	mg/L	0.000200	0.01859	mg/L	0.000200	1.08%
Cr 267.716†	19.0	0.00434	mg/L	0.002137	0.00434	mg/L	0.002137	49.27%
Cu 324.752†	918.2	0.00452	mg/L	0.000256	0.00452	mg/L	0.000256	5.68%
Fe 273.955†	1404.4	1.410	mg/L	0.0148	1.410	mg/L	0.0148	1.05%
K 766.490†	6434.1	5.981	mg/L	0.0546	5.981	mg/L	0.0546	0.91%
Mg 279.077†	3388.2	3.197	mg/L	0.0350	3.197	mg/L	0.0350	1.10%
Mn 257.610†	6786.8	0.1920	mg/L	0.00186	0.1920	mg/L	0.00186	0.97%
Mo 202.031†	24.0	0.00116	mg/L	0.000277	0.00116	mg/L	0.000277	23.89%
Na 589.592†	500547.8	60.18	mg/L	0.243	60.18	mg/L	0.243	0.40%
Na 330.237†	1125.2	58.44	mg/L	1.598	58.44	mg/L	1.598	2.73%
Ni 231.604†	13631.8	4.098	mg/L	0.0556	4.098	mg/L	0.0556	1.36%
Pb 220.353†	2.9	0.00043	mg/L	0.000531	0.00043	mg/L	0.000531	122.26%
Sb 206.836†	-5.4	-0.00205	mg/L	0.001298	-0.00205	mg/L	0.001298	63.42%
Se 196.026†	5.6	0.00450	mg/L	0.003075	0.00450	mg/L	0.003075	68.29%
Si 288.158†	34192.7	34.26	mg/L	0.323	34.26	mg/L	0.323	0.94%
Sn 189.927†	-26.2	-0.00480	mg/L	0.001050	-0.00480	mg/L	0.001050	21.88%
Sr 421.552†	21365.6	0.07678	mg/L	0.000517	0.07678	mg/L	0.000517	0.67%
Ti 334.903†	6.0	-0.00027	mg/L	0.001134	-0.00027	mg/L	0.001134	414.46%
Tl 190.801†	3.6	0.00179	mg/L	0.000232	0.00179	mg/L	0.000232	12.93%
V 292.402†	19.7	0.00038	mg/L	0.000235	0.00038	mg/L	0.000235	62.13%
Zn 206.200†	80.4	0.03279	mg/L	0.000547	0.03279	mg/L	0.000547	1.67%

Sequence No.: 38
Sample ID: 19H0024-09

Dilution: 10X
Wash Time: 37

Autosampler Location: 330
Date Collected: 8/12/2019 1:18:43 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0024-09

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: 19H0024-09

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2099474.0	99.63	%	0.572				0.57%
ScR 361.383	220282.7	104.6	%	0.62				0.59%
Ag 328.068†	15.5	0.00011	mg/L	0.000420	0.00114	mg/L	0.004198	369.75%
Al 308.215†	16886.0	14.52	mg/L	0.027	145.2	mg/L	0.27	0.19%
As 188.979†	-17.6	0.01418	mg/L	0.001005	0.1418	mg/L	0.01005	7.09%
B 249.677†	192.7	0.03127	mg/L	0.001302	0.3127	mg/L	0.01302	4.16%
Ba 233.527†	408.0	0.08947	mg/L	0.000888	0.8947	mg/L	0.00888	0.99%
Be 313.042†	271.6	0.00034	mg/L	0.000024	0.00343	mg/L	0.000241	7.03%
Ca 317.933†	56311.6	5.478	mg/L	0.0148	54.78	mg/L	0.148	0.27%
Cd 228.802†	29.4	0.00127	mg/L	0.000275	0.01270	mg/L	0.002753	21.68%
Co 228.616†	360.4	0.00799	mg/L	0.000252	0.07994	mg/L	0.002519	3.15%
Cr 267.716†	173.2	0.04463	mg/L	0.001611	0.4463	mg/L	0.01611	3.61%
Cu 324.752†	20574.2	0.1021	mg/L	0.00130	1.021	mg/L	0.0130	1.27%
Fe 273.955†	31143.1	31.27	mg/L	0.078	312.7	mg/L	0.78	0.25%
K 766.490†	2163.2	2.011	mg/L	0.0180	20.11	mg/L	0.180	0.90%
Mg 279.077†	7231.5	6.810	mg/L	0.0981	68.10	mg/L	0.981	1.44%
Mn 257.610†	7773.1	0.2200	mg/L	0.00300	2.200	mg/L	0.0300	1.37%
Mo 202.031†	99.1	0.00547	mg/L	0.000151	0.05471	mg/L	0.001506	2.75%
Na 589.592†	92745.3	11.15	mg/L	0.008	111.5	mg/L	0.08	0.07%
Na 330.237†	223.9	11.63	mg/L	0.242	116.3	mg/L	2.42	2.08%
Ni 231.604†	83.0	0.02496	mg/L	0.001304	0.2496	mg/L	0.01304	5.22%
Pb 220.353†	488.9	0.06430	mg/L	0.001196	0.6430	mg/L	0.01196	1.86%
Sb 206.836†	3.7	0.00218	mg/L	0.000287	0.02175	mg/L	0.002870	13.20%
Se 196.026†	-0.9	0.00114	mg/L	0.001367	0.01145	mg/L	0.013670	119.42%
Si 288.158†	309.0	0.3105	mg/L	0.00736	3.105	mg/L	0.0736	2.37%
Sn 189.927†	18.6	0.00609	mg/L	0.000383	0.06089	mg/L	0.003825	6.28%
Sr 421.552†	21952.4	0.07889	mg/L	0.000392	0.7889	mg/L	0.00392	0.50%
Ti 334.903†	12464.8	0.8926	mg/L	0.00316	8.926	mg/L	0.0316	0.35%
Tl 190.801†	-5.5	-0.00260	mg/L	0.001254	-0.02600	mg/L	0.012537	48.21%
V 292.402†	4794.1	0.05855	mg/L	0.000915	0.5855	mg/L	0.00915	1.56%
Zn 206.200†	1050.2	0.4320	mg/L	0.00691	4.320	mg/L	0.0691	1.60%

Sequence No.: 39
Sample ID: 19H0069-01

DEL

Dilution: 50X
Wash Time: 37

Autosampler Location: 331
Date Collected: 8/12/2019 1:22:41 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0069-01

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: 19H0069-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1902384.8	90.28	%	1.120				1.24%
ScR 361.383	207706.4	98.65	%	5.996				6.08%
Ag 328.068†	17.8	0.00011	mg/L	0.000066	0.00554	mg/L	0.003283	59.24%
Al 308.215†	455.5	0.3918	mg/L	0.02008	19.59	mg/L	1.004	5.13%
As 188.979†	1.6	0.00132	mg/L	0.003575	0.06586	mg/L	0.178732	271.37%
B 249.677†	28.0	0.00828	mg/L	0.001135	0.4141	mg/L	0.05677	13.71%
Ba 233.527†	123.6	0.02309	mg/L	0.000198	1.155	mg/L	0.0099	0.86%
Be 313.042†	97.4	0.00021	mg/L	0.000177	0.01067	mg/L	0.008871	83.16%
Ca 317.933†	82793.9	8.054	mg/L	0.0409	402.7	mg/L	2.05	0.51%
Cd 228.802†	116.6	0.00468	mg/L	0.000171	0.2338	mg/L	0.00853	3.65%
Co 228.616†	111.8	0.00242	mg/L	0.000310	0.1208	mg/L	0.01549	12.82%
Cr 267.716†	114.5	0.03121	mg/L	0.003748	1.561	mg/L	0.1874	12.01%
Cu 324.752†	6274.4	0.03275	mg/L	0.000296	1.637	mg/L	0.0148	0.90%
Fe 273.955†	41310.5	41.49	mg/L	0.221	2074	mg/L	11.06	0.53%
K 766.490†	20.0	0.01856	mg/L	0.004860	0.9281	mg/L	0.24301	26.18%
Mg 279.077†	346.4	0.3028	mg/L	0.00528	15.14	mg/L	0.264	1.74%
Mn 257.610†	6200.1	0.1757	mg/L	0.00145	8.783	mg/L	0.0723	0.82%
Mo 202.031†	31.5	0.00163	mg/L	0.000364	0.08168	mg/L	0.018209	22.29%
Na 589.592†	552.5	0.06644	mg/L	0.002118	3.322	mg/L	0.1059	3.19%
Na 330.237†	9.7	0.08571	mg/L	0.419880	4.286	mg/L	20.9940	489.87%
Ni 231.604†	78.9	0.02373	mg/L	0.000113	1.186	mg/L	0.0057	0.48%
Pb 220.353†	30.6	0.00198	mg/L	0.000405	0.09900	mg/L	0.020273	20.48%
Sb 206.836†	15.2	0.00497	mg/L	0.001262	0.2487	mg/L	0.06312	25.38%
Se 196.026†	-9.1	-0.00282	mg/L	0.001300	-0.1411	mg/L	0.06502	46.08%
Si 288.158†	31.9	0.03201	mg/L	0.006630	1.600	mg/L	0.3315	20.71%
Sn 189.927†	-9.4	-0.00104	mg/L	0.000469	-0.05208	mg/L	0.023439	45.00%
Sr 421.552†	4566.0	0.01641	mg/L	0.000436	0.8205	mg/L	0.02179	2.66%
Ti 334.903†	170.7	0.01172	mg/L	0.000674	0.5861	mg/L	0.03369	5.75%
Tl 190.801†	-8.1	-0.00360	mg/L	0.001205	-0.1799	mg/L	0.06024	33.48%
V 292.402†	-9.4	0.00240	mg/L	0.000272	0.1198	mg/L	0.01361	11.36%
Zn 206.200†	2426.4	0.9985	mg/L	0.00708	49.92	mg/L	0.354	0.71%

Sequence No.: 40
Sample ID: SEQ-CCV4

Autosampler Location: 7
Date Collected: 8/12/2019 1:28:02 PM
Data Type: Original

Dilution: 1X
Wash Time: 120

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV4

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: SEQ-CCV4

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2078641.2	98.64	%	1.685				1.71%
ScR 361.383	212580.0	101.0	%	1.13				1.12%
Ag 328.068†	163521.2	1.020	mg/L	0.0161	1.020	mg/L	0.0161	1.58%
Al 308.215†	2314.4	1.953	mg/L	0.0179	1.953	mg/L	0.0179	0.92%
As 188.979†	3064.6	2.008	mg/L	0.0433	2.008	mg/L	0.0433	2.16%
B 249.677†	7093.1	1.035	mg/L	0.0092	1.035	mg/L	0.0092	0.89%
Ba 233.527†	4268.6	0.9757	mg/L	0.00563	0.9757	mg/L	0.00563	0.58%
Be 313.042†	469649.1	1.023	mg/L	0.0047	1.023	mg/L	0.0047	0.46%
Ca 317.933†	21277.3	2.057	mg/L	0.0138	2.057	mg/L	0.0138	0.67%
Cd 228.802†	25591.4	1.011	mg/L	0.0172	1.011	mg/L	0.0172	1.71%
Co 228.616†	35755.4	1.002	mg/L	0.0177	1.002	mg/L	0.0177	1.77%
Cr 267.716†	3976.7	0.9999	mg/L	0.00613	0.9999	mg/L	0.00613	0.61%
Cu 324.752†	207096.6	1.015	mg/L	0.0168	1.015	mg/L	0.0168	1.65%
Fe 273.955†	1938.4	1.939	mg/L	0.0124	1.939	mg/L	0.0124	0.64%
K 766.490†	20997.8	19.52	mg/L	0.116	19.52	mg/L	0.116	0.59%
Mg 279.077†	2108.3	2.001	mg/L	0.0098	2.001	mg/L	0.0098	0.49%
Mn 257.610†	34939.4	0.9892	mg/L	0.00811	0.9892	mg/L	0.00811	0.82%
Mo 202.031†	17782.7	0.9982	mg/L	0.01969	0.9982	mg/L	0.01969	1.97%
Na 589.592†	423355.6	50.90	mg/L	0.194	50.90	mg/L	0.194	0.38%
Na 330.237†	956.0	49.44	mg/L	0.415	49.44	mg/L	0.415	0.84%
Ni 231.604†	3305.0	0.9949	mg/L	0.00454	0.9949	mg/L	0.00454	0.46%
Pb 220.353†	15967.2	2.023	mg/L	0.0375	2.023	mg/L	0.0375	1.86%
Sb 206.836†	5909.4	2.116	mg/L	0.0541	2.116	mg/L	0.0541	2.56%
Se 196.026†	2523.3	2.061	mg/L	0.0491	2.061	mg/L	0.0491	2.38%
Si 288.158†	2040.3	2.046	mg/L	0.0221	2.046	mg/L	0.0221	1.08%
Sn 189.927†	3936.1	1.011	mg/L	0.0215	1.011	mg/L	0.0215	2.12%
Sr 421.552†	297027.7	1.067	mg/L	0.0131	1.067	mg/L	0.0131	1.23%
Ti 334.903†	13538.7	0.9686	mg/L	0.00290	0.9686	mg/L	0.00290	0.30%
Tl 190.801†	4303.2	2.009	mg/L	0.0488	2.009	mg/L	0.0488	2.43%
V 292.402†	84563.7	1.006	mg/L	0.0200	1.006	mg/L	0.0200	1.98%
Zn 206.200†	2442.5	1.004	mg/L	0.0061	1.004	mg/L	0.0061	0.61%

Sequence No.: 41 **Autosampler Location: 1**
Sample ID: SEQ-CCB4 **Date Collected: 8/12/2019 1:33:05 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB4

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: SEQ-CCB4

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2114051.9	100.3	%	0.98				0.97%
ScR 361.383	219902.9	104.4	%	2.38				2.28%
Ag 328.068†	71.1	0.00044	mg/L	0.000130	0.00044	mg/L	0.000130	29.26%
Al 308.215†	3.2	0.00276	mg/L	0.012080	0.00276	mg/L	0.012080	437.67%
As 188.979†	-0.9	-0.00062	mg/L	0.001015	-0.00062	mg/L	0.001015	162.67%
B 249.677†	38.4	0.00560	mg/L	0.000667	0.00560	mg/L	0.000667	11.91%
Ba 233.527†	1.5	0.00035	mg/L	0.000224	0.00035	mg/L	0.000224	64.49%
Be 313.042†	-5.2	-0.00001	mg/L	0.000065	-0.00001	mg/L	0.000065	561.11%
Ca 317.933†	22.6	0.00218	mg/L	0.001708	0.00218	mg/L	0.001708	78.31%
Cd 228.802†	2.8	0.00012	mg/L	0.000268	0.00012	mg/L	0.000268	231.84%
Co 228.616†	9.0	0.00025	mg/L	0.000114	0.00025	mg/L	0.000114	45.04%
Cr 267.716†	8.4	0.00212	mg/L	0.000456	0.00212	mg/L	0.000456	21.54%
Cu 324.752†	97.8	0.00048	mg/L	0.000157	0.00048	mg/L	0.000157	32.70%
Fe 273.955†	-1.5	-0.00155	mg/L	0.001114	-0.00155	mg/L	0.001114	72.10%
K 766.490†	-35.1	-0.03260	mg/L	0.024626	-0.03260	mg/L	0.024626	75.54%
Mg 279.077†	-3.9	-0.00367	mg/L	0.003462	-0.00367	mg/L	0.003462	94.24%
Mn 257.610†	-7.1	-0.00020	mg/L	0.000294	-0.00020	mg/L	0.000294	145.68%
Mo 202.031†	11.4	0.00064	mg/L	0.000476	0.00064	mg/L	0.000476	74.03%
Na 589.592†	163.2	0.01962	mg/L	0.001925	0.01962	mg/L	0.001925	9.81%
Na 330.237†	9.6	0.4983	mg/L	0.46808	0.4983	mg/L	0.46808	93.94%
Ni 231.604†	2.1	0.00063	mg/L	0.000774	0.00063	mg/L	0.000774	122.95%
Pb 220.353†	7.7	0.00098	mg/L	0.000359	0.00098	mg/L	0.000359	36.54%
Sb 206.836†	0.0	-0.00004	mg/L	0.000643	-0.00004	mg/L	0.000643	>999.9%
Se 196.026†	0.7	0.00058	mg/L	0.006131	0.00058	mg/L	0.006131	>999.9%
Si 288.158†	0.3	0.00027	mg/L	0.004827	0.00027	mg/L	0.004827	>999.9%
Sn 189.927†	-1.2	-0.00030	mg/L	0.000701	-0.00030	mg/L	0.000701	233.43%
Sr 421.552†	-49.9	-0.00018	mg/L	0.000102	-0.00018	mg/L	0.000102	56.96%
Ti 334.903†	-3.0	-0.00022	mg/L	0.001614	-0.00022	mg/L	0.001614	746.57%
Tl 190.801†	3.4	0.00161	mg/L	0.000827	0.00161	mg/L	0.000827	51.20%
V 292.402†	5.7	0.00008	mg/L	0.000032	0.00008	mg/L	0.000032	39.69%
Zn 206.200†	2.7	0.00111	mg/L	0.000557	0.00111	mg/L	0.000557	50.08%

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Analysis Begun

Start Time: 8/12/2019 2:07:40 PM **Plasma On Time: 8/12/2019 9:01:24 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\ 0812.sif
Batch ID:
Results Data Set: I2190812
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 7**
Sample ID: SEQ-CCV5 **Date Collected: 8/12/2019 2:07:48 PM**
Data Type: Original

Dilution: 1X

Nebulizer Parameters: SEQ-CCV5

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: SEQ-CCV5

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1997451.1	94.79	%	1.711				1.80%
ScR 361.383	213346.5	101.3	%	3.63				3.58%
Ag 328.068†	167163.9	1.043	mg/L	0.0216	1.043	mg/L	0.0216	2.08%
Al 308.215†	2294.4	1.935	mg/L	0.0342	1.935	mg/L	0.0342	1.77%
As 188.979†	3138.0	2.055	mg/L	0.0325	2.055	mg/L	0.0325	1.58%
B 249.677†	6977.0	1.018	mg/L	0.0108	1.018	mg/L	0.0108	1.06%
Ba 233.527†	4283.9	0.9792	mg/L	0.00836	0.9792	mg/L	0.00836	0.85%
Be 313.042†	465634.5	1.014	mg/L	0.0070	1.014	mg/L	0.0070	0.69%
Ca 317.933†	19972.8	1.929	mg/L	0.0084	1.929	mg/L	0.0084	0.43%
Cd 228.802†	26364.8	1.041	mg/L	0.0227	1.041	mg/L	0.0227	2.18%
Co 228.616†	36529.1	1.023	mg/L	0.0189	1.023	mg/L	0.0189	1.84%
Cr 267.716†	3902.8	0.9814	mg/L	0.00925	0.9814	mg/L	0.00925	0.94%
Cu 324.752†	212202.8	1.040	mg/L	0.0214	1.040	mg/L	0.0214	2.06%
Fe 273.955†	1939.7	1.940	mg/L	0.0167	1.940	mg/L	0.0167	0.86%
K 766.490†	20812.3	19.35	mg/L	0.188	19.35	mg/L	0.188	0.97%
Mg 279.077†	2087.0	1.982	mg/L	0.0212	1.982	mg/L	0.0212	1.07%
Mn 257.610†	33741.8	0.9553	mg/L	0.00631	0.9553	mg/L	0.00631	0.66%
Mo 202.031†	18212.4	1.022	mg/L	0.0197	1.022	mg/L	0.0197	1.93%
Na 589.592†	421623.2	50.69	mg/L	0.484	50.69	mg/L	0.484	0.96%
Na 330.237†	955.6	49.42	mg/L	0.340	49.42	mg/L	0.340	0.69%
Ni 231.604†	3296.7	0.9924	mg/L	0.00920	0.9924	mg/L	0.00920	0.93%
Pb 220.353†	16351.4	2.071	mg/L	0.0406	2.071	mg/L	0.0406	1.96%
Sb 206.836†	6075.6	2.177	mg/L	0.0344	2.177	mg/L	0.0344	1.58%
Se 196.026†	2579.2	2.107	mg/L	0.0299	2.107	mg/L	0.0299	1.42%
Si 288.158†	2019.1	2.024	mg/L	0.0209	2.024	mg/L	0.0209	1.03%
Sn 189.927†	4037.6	1.037	mg/L	0.0178	1.037	mg/L	0.0178	1.71%
Sr 421.552†	299992.4	1.078	mg/L	0.0091	1.078	mg/L	0.0091	0.84%
Ti 334.903†	13619.3	0.9743	mg/L	0.00673	0.9743	mg/L	0.00673	0.69%
Tl 190.801†	4425.1	2.066	mg/L	0.0333	2.066	mg/L	0.0333	1.61%
V 292.402†	86684.5	1.031	mg/L	0.0182	1.031	mg/L	0.0182	1.77%
Zn 206.200†	2446.9	1.005	mg/L	0.0082	1.005	mg/L	0.0082	0.81%

Sequence No.: 2 **Autosampler Location: 1**
Sample ID: SEQ-CCB5 **Date Collected: 8/12/2019 2:12:57 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB5

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: SEQ-CCB5

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2137563.5	101.4	%	0.84				0.83%
ScR 361.383	219549.0	104.3	%	1.46				1.40%
Ag 328.068†	25.6	0.00016	mg/L	0.000259	0.00016	mg/L	0.000259	161.93%
Al 308.215†	-5.5	-0.00475	mg/L	0.017824	-0.00475	mg/L	0.017824	375.16%
As 188.979†	-1.3	-0.00082	mg/L	0.001153	-0.00082	mg/L	0.001153	140.38%
B 249.677†	34.8	0.00508	mg/L	0.000331	0.00508	mg/L	0.000331	6.51%
Ba 233.527†	5.1	0.00117	mg/L	0.000841	0.00117	mg/L	0.000841	71.79%
Be 313.042†	-7.9	-0.00002	mg/L	0.000084	-0.00002	mg/L	0.000084	481.63%
Ca 317.933†	3.4	0.00031	mg/L	0.000540	0.00031	mg/L	0.000540	174.62%
Cd 228.802†	-1.5	-0.00006	mg/L	0.000314	-0.00006	mg/L	0.000314	558.85%
Co 228.616†	4.9	0.00014	mg/L	0.000156	0.00014	mg/L	0.000156	112.42%
Cr 267.716†	-0.2	-0.00004	mg/L	0.001716	-0.00004	mg/L	0.001716	>999.9%
Cu 324.752†	83.7	0.00041	mg/L	0.000109	0.00041	mg/L	0.000109	26.68%
Fe 273.955†	-5.0	-0.00504	mg/L	0.002357	-0.00504	mg/L	0.002357	46.75%
K 766.490†	15.5	0.01440	mg/L	0.015068	0.01440	mg/L	0.015068	104.64%
Mg 279.077†	-0.4	-0.00037	mg/L	0.002512	-0.00037	mg/L	0.002512	684.01%
Mn 257.610†	-6.2	-0.00018	mg/L	0.000063	-0.00018	mg/L	0.000063	35.93%
Mo 202.031†	11.1	0.00062	mg/L	0.000447	0.00062	mg/L	0.000447	71.73%
Na 589.592†	81.6	0.00982	mg/L	0.002976	0.00982	mg/L	0.002976	30.32%
Na 330.237†	19.3	1.004	mg/L	0.7770	1.004	mg/L	0.7770	77.37%
Ni 231.604†	-4.6	-0.00138	mg/L	0.001256	-0.00138	mg/L	0.001256	91.17%
Pb 220.353†	8.0	0.00102	mg/L	0.000798	0.00102	mg/L	0.000798	78.67%
Sb 206.836†	-0.2	-0.00007	mg/L	0.000630	-0.00007	mg/L	0.000630	931.60%
Se 196.026†	3.8	0.00314	mg/L	0.002842	0.00314	mg/L	0.002842	90.36%
Si 288.158†	5.4	0.00542	mg/L	0.003321	0.00542	mg/L	0.003321	61.32%
Sn 189.927†	-0.5	-0.00012	mg/L	0.000875	-0.00012	mg/L	0.000875	725.52%
Sr 421.552†	-25.7	-0.00009	mg/L	0.000091	-0.00009	mg/L	0.000091	98.57%
Ti 334.903†	2.4	0.00017	mg/L	0.001127	0.00017	mg/L	0.001127	648.95%
Tl 190.801†	0.7	0.00034	mg/L	0.001058	0.00034	mg/L	0.001058	308.37%
V 292.402†	3.8	0.00004	mg/L	0.000065	0.00004	mg/L	0.000065	145.88%
Zn 206.200†	2.3	0.00096	mg/L	0.000610	0.00096	mg/L	0.000610	63.39%

Sequence No.: 3
Sample ID: BHH0242-BLK1

Autosampler Location: 332
Date Collected: 8/12/2019 2:16:56 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0242-BLK1

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: BHH0242-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2170534.6	103.0	%	0.75				0.73%
ScR 361.383	228191.7	108.4	%	0.71				0.65%
Ag 328.068†	-16.4	-0.00010	mg/L	0.000155	-0.00010	mg/L	0.000155	151.53%
Al 308.215†	17.3	0.01485	mg/L	0.019721	0.01485	mg/L	0.019721	132.77%
As 188.979†	-1.3	-0.00086	mg/L	0.001045	-0.00086	mg/L	0.001045	121.20%
B 249.677†	32.6	0.00476	mg/L	0.000872	0.00476	mg/L	0.000872	18.31%
Ba 233.527†	3.7	0.00085	mg/L	0.000353	0.00085	mg/L	0.000353	41.70%
Be 313.042†	-24.5	-0.00005	mg/L	0.000029	-0.00005	mg/L	0.000029	55.66%
Ca 317.933†	90.7	0.00881	mg/L	0.000243	0.00881	mg/L	0.000243	2.76%
Cd 228.802†	-2.2	-0.00008	mg/L	0.000294	-0.00008	mg/L	0.000294	361.85%
Co 228.616†	6.5	0.00018	mg/L	0.000182	0.00018	mg/L	0.000182	98.68%
Cr 267.716†	15.7	0.00395	mg/L	0.000277	0.00395	mg/L	0.000277	7.01%
Cu 324.752†	12.5	0.00006	mg/L	0.000064	0.00006	mg/L	0.000064	104.24%
Fe 273.955†	-1.1	-0.00105	mg/L	0.000874	-0.00105	mg/L	0.000874	83.56%
K 766.490†	-52.7	-0.04899	mg/L	0.038925	-0.04899	mg/L	0.038925	79.46%
Mg 279.077†	2.3	0.00216	mg/L	0.003527	0.00216	mg/L	0.003527	163.35%
Mn 257.610†	-13.4	-0.00038	mg/L	0.000196	-0.00038	mg/L	0.000196	51.62%
Mo 202.031†	1.8	0.00010	mg/L	0.000304	0.00010	mg/L	0.000304	305.59%
Na 589.592†	102.7	0.01235	mg/L	0.002346	0.01235	mg/L	0.002346	18.99%
Na 330.237†	20.1	1.043	mg/L	0.6598	1.043	mg/L	0.6598	63.27%
Ni 231.604†	-0.8	-0.00025	mg/L	0.001746	-0.00025	mg/L	0.001746	691.26%
Pb 220.353†	7.4	0.00095	mg/L	0.000154	0.00095	mg/L	0.000154	16.26%
Sb 206.836†	-1.4	-0.00058	mg/L	0.001589	-0.00058	mg/L	0.001589	272.46%
Se 196.026†	4.3	0.00353	mg/L	0.001699	0.00353	mg/L	0.001699	48.12%
Si 288.158†	16.4	0.01644	mg/L	0.008589	0.01644	mg/L	0.008589	52.26%
Sn 189.927†	-0.9	-0.00023	mg/L	0.000697	-0.00023	mg/L	0.000697	301.91%
Sr 421.552†	-51.5	-0.00018	mg/L	0.000107	-0.00018	mg/L	0.000107	57.78%
Ti 334.903†	-19.7	-0.00141	mg/L	0.001162	-0.00141	mg/L	0.001162	82.13%
Tl 190.801†	3.1	0.00147	mg/L	0.000786	0.00147	mg/L	0.000786	53.64%
V 292.402†	-17.1	-0.00018	mg/L	0.000171	-0.00018	mg/L	0.000171	96.95%
Zn 206.200†	14.5	0.00599	mg/L	0.000555	0.00599	mg/L	0.000555	9.27%

Sequence No.: 4
Sample ID: BHH0242-BS1

Autosampler Location: 333
Date Collected: 8/12/2019 2:20:55 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0242-BS1

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: BHH0242-BS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2182152.3	103.6	%	0.75				0.73%
ScR 361.383	223384.0	106.1	%	1.83				1.73%
Ag 328.068†	81108.7	0.5061	mg/L	0.00519	0.5061	mg/L	0.00519	1.03%
Al 308.215†	2249.3	1.917	mg/L	0.0386	1.917	mg/L	0.0386	2.02%
As 188.979†	3091.4	1.999	mg/L	0.0073	1.999	mg/L	0.0073	0.37%
B 249.677†	24.4	0.00335	mg/L	0.000626	0.00335	mg/L	0.000626	18.65%
Ba 233.527†	8416.5	1.927	mg/L	0.0341	1.927	mg/L	0.0341	1.77%
Be 313.042†	227104.4	0.4947	mg/L	0.00214	0.4947	mg/L	0.00214	0.43%
Ca 317.933†	98369.6	9.563	mg/L	0.0286	9.563	mg/L	0.0286	0.30%
Cd 228.802†	12802.6	0.4989	mg/L	0.00571	0.4989	mg/L	0.00571	1.14%
Co 228.616†	17544.1	0.4921	mg/L	0.00608	0.4921	mg/L	0.00608	1.24%
Cr 267.716†	1984.0	0.4978	mg/L	0.00660	0.4978	mg/L	0.00660	1.33%
Cu 324.752†	95624.4	0.4686	mg/L	0.00277	0.4686	mg/L	0.00277	0.59%
Fe 273.955†	1929.1	1.934	mg/L	0.0381	1.934	mg/L	0.0381	1.97%
K 766.490†	10023.3	9.318	mg/L	0.0596	9.318	mg/L	0.0596	0.64%
Mg 279.077†	10506.4	9.924	mg/L	0.1716	9.924	mg/L	0.1716	1.73%
Mn 257.610†	16421.5	0.4651	mg/L	0.00075	0.4651	mg/L	0.00075	0.16%
Mo 202.031†	9010.8	0.5057	mg/L	0.00523	0.5057	mg/L	0.00523	1.03%
Na 589.592†	80844.7	9.721	mg/L	0.0254	9.721	mg/L	0.0254	0.26%
Na 330.237†	206.8	10.54	mg/L	0.369	10.54	mg/L	0.369	3.50%
Ni 231.604†	1626.1	0.4887	mg/L	0.00796	0.4887	mg/L	0.00796	1.63%
Pb 220.353†	15713.9	1.990	mg/L	0.0222	1.990	mg/L	0.0222	1.11%
Sb 206.836†	14.9	-0.00102	mg/L	0.000656	-0.00102	mg/L	0.000656	64.19%
Se 196.026†	2458.4	2.009	mg/L	0.0027	2.009	mg/L	0.0027	0.13%
Si 288.158†	1.6	0.00342	mg/L	0.003298	0.00342	mg/L	0.003298	96.39%
Sn 189.927†	-14.7	-0.00215	mg/L	0.000775	-0.00215	mg/L	0.000775	36.01%
Sr 421.552†	147937.8	0.5316	mg/L	0.00263	0.5316	mg/L	0.00263	0.50%
Ti 334.903†	10.3	-0.00044	mg/L	0.000537	-0.00044	mg/L	0.000537	122.05%
Tl 190.801†	4237.3	1.982	mg/L	0.0088	1.982	mg/L	0.0088	0.44%
V 292.402†	41991.6	0.4997	mg/L	0.00501	0.4997	mg/L	0.00501	1.00%
Zn 206.200†	1194.3	0.4908	mg/L	0.00556	0.4908	mg/L	0.00556	1.13%

Sequence No.: 5
Sample ID: 19H0103-01

Dilution: 20X
Wash Time: 37

Autosampler Location: 334
Date Collected: 8/12/2019 2:24:54 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0103-01

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: 19H0103-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1781319.5	84.53	%	0.693				0.82%
ScR 361.383	193539.0	91.92	%	8.344				9.08%
Ag 328.068†	-23.2	-0.00014	mg/L	0.000053	-0.00290	mg/L	0.001067	36.84%
Al 308.215†	48.9	0.04045	mg/L	0.016218	0.8091	mg/L	0.32437	40.09%
As 188.979†	-2.5	-0.00160	mg/L	0.002746	-0.03196	mg/L	0.054918	171.81%
B 249.677†	128.2	0.01874	mg/L	0.002966	0.3749	mg/L	0.05931	15.82%
Ba 233.527†	18.2	0.00414	mg/L	0.001123	0.08287	mg/L	0.022457	27.10%
Be 313.042†	156.0	0.00034	mg/L	0.000177	0.00679	mg/L	0.003549	52.29%
Ca 317.933†	1982.3	0.1902	mg/L	0.00317	3.804	mg/L	0.0635	1.67%
Cd 228.802†	17.3	0.00070	mg/L	0.000318	0.01408	mg/L	0.006361	45.19%
Co 228.616†	3.3	0.00009	mg/L	0.000062	0.00176	mg/L	0.001245	70.61%
Cr 267.716†	-19.5	-0.00490	mg/L	0.003588	-0.09801	mg/L	0.071752	73.21%
Cu 324.752†	17307.1	0.08474	mg/L	0.000653	1.695	mg/L	0.0131	0.77%
Fe 273.955†	188.3	0.1891	mg/L	0.01291	3.782	mg/L	0.2582	6.83%
K 766.490†	2940.2	2.733	mg/L	0.1135	54.67	mg/L	2.271	4.15%
Mg 279.077†	73.4	0.06921	mg/L	0.005959	1.384	mg/L	0.1192	8.61%
Mn 257.610†	70.2	0.00199	mg/L	0.000643	0.03975	mg/L	0.012864	32.36%
Mo 202.031†	16.7	0.00093	mg/L	0.000247	0.01865	mg/L	0.004943	26.51%
Na 589.592†	1449173.9	174.2	mg/L	1.22	3485	mg/L	24.43	0.70%
Na 330.237†	3191.8	165.8	mg/L	2.15	3316	mg/L	43.05	1.30%
Ni 231.604†	11.5	0.00345	mg/L	0.000778	0.06907	mg/L	0.015559	22.53%
Pb 220.353†	11.7	0.00136	mg/L	0.000871	0.02722	mg/L	0.017426	64.02%
Sb 206.836†	2.5	0.00099	mg/L	0.000517	0.01976	mg/L	0.010343	52.34%
Se 196.026†	1.2	0.00099	mg/L	0.004138	0.01981	mg/L	0.082765	417.85%
Si 288.158†	695.7	0.6971	mg/L	0.03324	13.94	mg/L	0.665	4.77%
Sn 189.927†	-0.9	-0.00019	mg/L	0.001432	-0.00381	mg/L	0.028639	752.63%
Sr 421.552†	667.3	0.00240	mg/L	0.000203	0.04796	mg/L	0.004065	8.48%
Ti 334.903†	-0.7	-0.00006	mg/L	0.000901	-0.00125	mg/L	0.018029	>999.9%
Tl 190.801†	-4.4	-0.00208	mg/L	0.003539	-0.04162	mg/L	0.070788	170.07%
V 292.402†	36.8	0.00041	mg/L	0.000320	0.00826	mg/L	0.006397	77.46%
Zn 206.200†	25.5	0.01033	mg/L	0.000250	0.2066	mg/L	0.00501	2.42%

Sequence No.: 6
Sample ID: 19H0108-01

DEL

Autosampler Location: 335
Date Collected: 8/12/2019 2:30:11 PM
Data Type: Original

Dilution: 5X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0108-01

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: 19H0108-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1957784.9	92.91	%	0.459				0.49%
ScR 361.383	209253.8	99.38	%	4.015				4.04%
Ag 328.068†	45.7	0.00028	mg/L	0.000187	0.00142	mg/L	0.000935	65.68%
Al 308.215†	151.6	-0.02582	mg/L	0.007040	-0.1291	mg/L	0.03520	27.27%
As 188.979†	48.2	0.00053	mg/L	0.004191	0.00267	mg/L	0.020955	784.80%
B 249.677†	98.7	0.02586	mg/L	0.002065	0.1293	mg/L	0.01033	7.99%
Ba 233.527†	13.1	0.00299	mg/L	0.001111	0.01495	mg/L	0.005557	37.17%
Be 313.042†	61.4	0.00014	mg/L	0.000042	0.00071	mg/L	0.000212	29.72%
Ca 317.933†	32281.8	3.140	mg/L	0.0071	15.70	mg/L	0.035	0.23%
Cd 228.802†	10.4	0.00021	mg/L	0.000032	0.00106	mg/L	0.000161	15.22%
Co 228.616†	-26.5	-0.00002	mg/L	0.000105	-0.00009	mg/L	0.000527	606.86%
Cr 267.716†	2.2	0.00045	mg/L	0.003945	0.00226	mg/L	0.019726	872.58%
Cu 324.752†	1596.4	0.00529	mg/L	0.000274	0.02644	mg/L	0.001369	5.18%
Fe 273.955†	25.3	0.02540	mg/L	0.001351	0.1270	mg/L	0.00675	5.32%
K 766.490†	508.3	0.4725	mg/L	0.02193	2.363	mg/L	0.1097	4.64%
Mg 279.077†	631.9	0.6560	mg/L	0.01750	3.280	mg/L	0.0875	2.67%
Mn 257.610†	360.7	0.01020	mg/L	0.000246	0.05100	mg/L	0.001232	2.42%
Mo 202.031†	130028.2	7.300	mg/L	0.2021	36.50	mg/L	1.011	2.77%
Na 589.592†	303124.7	36.45	mg/L	0.877	182.2	mg/L	4.38	2.41%
Na 330.237†	668.7	34.72	mg/L	0.418	173.6	mg/L	2.09	1.20%
Ni 231.604†	-1.8	-0.00053	mg/L	0.001084	-0.00266	mg/L	0.005419	203.62%
Pb 220.353†	-3.9	-0.00046	mg/L	0.000215	-0.00232	mg/L	0.001073	46.16%
Sb 206.836†	8.4	0.00300	mg/L	0.001446	0.01501	mg/L	0.007231	48.19%
Se 196.026†	-0.9	-0.00079	mg/L	0.002966	-0.00394	mg/L	0.014831	376.89%
Si 288.158†	7015.5	7.029	mg/L	0.1792	35.15	mg/L	0.896	2.55%
Sn 189.927†	-6.9	-0.00123	mg/L	0.000289	-0.00616	mg/L	0.001446	23.47%
Sr 421.552†	3063.4	0.01101	mg/L	0.000251	0.05505	mg/L	0.001256	2.28%
Ti 334.903†	69.3	-0.00228	mg/L	0.001385	-0.01141	mg/L	0.006926	60.71%
Tl 190.801†	-16.8	-0.00112	mg/L	0.000453	-0.00558	mg/L	0.002267	40.60%
V 292.402†	-162.9	0.00088	mg/L	0.000301	0.00441	mg/L	0.001507	34.17%
Zn 206.200†	85.0	0.03288	mg/L	0.001235	0.1644	mg/L	0.00618	3.76%

Sequence No.: 7 **Autosampler Location: 336**
Sample ID: BHH0242-DUP1 **Date Collected: 8/12/2019 2:34:24 PM**
DEL **Data Type: Original**
Dilution: 5X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: BHH0242-DUP1

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: BHH0242-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1969788.8	93.48	%	1.824				1.95%
ScR 361.383	208406.1	98.98	%	3.146				3.18%
Ag 328.068†	33.7	0.00021	mg/L	0.000328	0.00105	mg/L	0.001638	156.50%
Al 308.215†	144.4	-0.00841	mg/L	0.003880	-0.04205	mg/L	0.019401	46.14%
As 188.979†	40.4	0.00011	mg/L	0.002790	0.00057	mg/L	0.013949	>999.9%
B 249.677†	90.0	0.02287	mg/L	0.001731	0.1144	mg/L	0.00865	7.57%
Ba 233.527†	8.7	0.00199	mg/L	0.000411	0.00996	mg/L	0.002054	20.63%
Be 313.042†	90.9	0.00021	mg/L	0.000090	0.00104	mg/L	0.000452	43.52%
Ca 317.933†	28344.2	2.757	mg/L	0.0277	13.78	mg/L	0.139	1.01%
Cd 228.802†	6.5	0.00009	mg/L	0.000108	0.00044	mg/L	0.000539	123.50%
Co 228.616†	-21.3	0.00002	mg/L	0.000183	0.00011	mg/L	0.000914	860.08%
Cr 267.716†	-4.1	-0.00112	mg/L	0.002540	-0.00560	mg/L	0.012700	226.72%
Cu 324.752†	1364.4	0.00453	mg/L	0.000484	0.02266	mg/L	0.002419	10.67%
Fe 273.955†	23.3	0.02343	mg/L	0.002503	0.1172	mg/L	0.01252	10.68%
K 766.490†	466.9	0.4340	mg/L	0.04843	2.170	mg/L	0.2422	11.16%
Mg 279.077†	544.7	0.5647	mg/L	0.01052	2.823	mg/L	0.0526	1.86%
Mn 257.610†	313.9	0.00888	mg/L	0.000276	0.04438	mg/L	0.001382	3.11%
Mo 202.031†	110426.5	6.199	mg/L	0.2446	31.00	mg/L	1.223	3.95%
Na 589.592†	270677.6	32.55	mg/L	0.442	162.7	mg/L	2.21	1.36%
Na 330.237†	599.7	31.14	mg/L	0.386	155.7	mg/L	1.93	1.24%
Ni 231.604†	-5.3	-0.00159	mg/L	0.000786	-0.00793	mg/L	0.003930	49.56%
Pb 220.353†	-5.3	-0.00064	mg/L	0.001310	-0.00322	mg/L	0.006551	203.66%
Sb 206.836†	5.8	0.00207	mg/L	0.001835	0.01037	mg/L	0.009177	88.49%
Se 196.026†	-6.0	-0.00492	mg/L	0.004396	-0.02460	mg/L	0.021980	89.35%
Si 288.158†	6494.0	6.506	mg/L	0.1210	32.53	mg/L	0.605	1.86%
Sn 189.927†	-5.0	-0.00080	mg/L	0.000217	-0.00401	mg/L	0.001084	27.05%
Sr 421.552†	2694.5	0.00968	mg/L	0.000177	0.04842	mg/L	0.000887	1.83%
Ti 334.903†	59.1	-0.00192	mg/L	0.000908	-0.00962	mg/L	0.004542	47.21%
Tl 190.801†	-8.5	0.00173	mg/L	0.001554	0.00864	mg/L	0.007772	89.96%
V 292.402†	-177.6	0.00028	mg/L	0.000200	0.00138	mg/L	0.000999	72.58%
Zn 206.200†	69.9	0.02697	mg/L	0.000320	0.1349	mg/L	0.00160	1.19%

Sequence No.: 8
Sample ID: BHH0242-MS1
DEL
Dilution: 5X
Wash Time: 37

Autosampler Location: 337
Date Collected: 8/12/2019 2:38:37 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0242-MS1

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: BHH0242-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1923544.0	91.28	%	3.233				3.54%
ScR 361.383	208734.8	99.13	%	3.181				3.21%
Ag 328.068†	14814.9	0.09244	mg/L	0.001029	0.4622	mg/L	0.00514	1.11%
Al 308.215†	584.6	0.3647	mg/L	0.01004	1.823	mg/L	0.0502	2.75%
As 188.979†	646.0	0.3913	mg/L	0.01505	1.956	mg/L	0.0753	3.85%
B 249.677†	95.4	0.02376	mg/L	0.000642	0.1188	mg/L	0.00321	2.70%
Ba 233.527†	1624.9	0.3719	mg/L	0.00803	1.860	mg/L	0.0402	2.16%
Be 313.042†	44355.7	0.09663	mg/L	0.000257	0.4832	mg/L	0.00128	0.27%
Ca 317.933†	48074.9	4.675	mg/L	0.0102	23.38	mg/L	0.051	0.22%
Cd 228.802†	2623.0	0.1022	mg/L	0.00478	0.5108	mg/L	0.02391	4.68%
Co 228.616†	3555.3	0.1004	mg/L	0.00404	0.5018	mg/L	0.02021	4.03%
Cr 267.716†	384.1	0.09627	mg/L	0.001231	0.4814	mg/L	0.00615	1.28%
Cu 324.752†	21415.6	0.1028	mg/L	0.00133	0.5138	mg/L	0.00665	1.29%
Fe 273.955†	399.5	0.4005	mg/L	0.00734	2.003	mg/L	0.0367	1.83%
K 766.490†	2477.2	2.303	mg/L	0.0374	11.51	mg/L	0.187	1.62%
Mg 279.077†	2598.6	2.506	mg/L	0.0454	12.53	mg/L	0.227	1.81%
Mn 257.610†	3634.5	0.1029	mg/L	0.00218	0.5146	mg/L	0.01088	2.11%
Mo 202.031†	113943.9	6.397	mg/L	0.0774	31.98	mg/L	0.387	1.21%
Na 589.592†	300339.0	36.11	mg/L	0.114	180.6	mg/L	0.57	0.32%
Na 330.237†	671.0	34.79	mg/L	0.619	174.0	mg/L	3.09	1.78%
Ni 231.604†	319.1	0.09589	mg/L	0.001768	0.4794	mg/L	0.00884	1.84%
Pb 220.353†	3145.7	0.3984	mg/L	0.01662	1.992	mg/L	0.0831	4.17%
Sb 206.836†	9.8	0.00226	mg/L	0.001618	0.01130	mg/L	0.008090	71.61%
Se 196.026†	471.0	0.3849	mg/L	0.01482	1.924	mg/L	0.0741	3.85%
Si 288.158†	6693.4	6.707	mg/L	0.1006	33.53	mg/L	0.503	1.50%
Sn 189.927†	-10.6	-0.00193	mg/L	0.000241	-0.00966	mg/L	0.001205	12.48%
Sr 421.552†	32385.3	0.1164	mg/L	0.00054	0.5819	mg/L	0.00271	0.47%
Ti 334.903†	77.3	-0.00095	mg/L	0.000223	-0.00475	mg/L	0.001113	23.41%
Tl 190.801†	835.5	0.3966	mg/L	0.01328	1.983	mg/L	0.0664	3.35%
V 292.402†	7939.8	0.09691	mg/L	0.001541	0.4846	mg/L	0.00771	1.59%
Zn 206.200†	357.4	0.1451	mg/L	0.00378	0.7256	mg/L	0.01892	2.61%

Sequence No.: 9
Sample ID: SEQ-IBL2

Autosampler Location: 9
Date Collected: 8/12/2019 2:45:18 PM
Data Type: Original

Dilution: 1X
Wash Time: 200

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IBL2

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: SEQ-IBL2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1993262.9	94.59	%	0.959				1.01%
ScR 361.383	203701.3	96.74	%	0.743				0.77%
Ag 328.068†	56.2	0.00035	mg/L	0.000055	0.00035	mg/L	0.000055	15.68%
Al 308.215†	16.3	0.01386	mg/L	0.008101	0.01386	mg/L	0.008101	58.45%
As 188.979†	-1.7	-0.00116	mg/L	0.002731	-0.00116	mg/L	0.002731	235.73%
B 249.677†	19.8	0.00290	mg/L	0.001106	0.00290	mg/L	0.001106	38.12%
Ba 233.527†	6.5	0.00150	mg/L	0.000384	0.00150	mg/L	0.000384	25.60%
Be 313.042†	44.3	0.00010	mg/L	0.000074	0.00010	mg/L	0.000074	76.33%
Ca 317.933†	27.9	0.00270	mg/L	0.000775	0.00270	mg/L	0.000775	28.68%
Cd 228.802†	7.5	0.00030	mg/L	0.000286	0.00030	mg/L	0.000286	93.89%
Co 228.616†	-2.7	-0.00007	mg/L	0.000189	-0.00007	mg/L	0.000189	253.79%
Cr 267.716†	-5.0	-0.00127	mg/L	0.001287	-0.00127	mg/L	0.001287	101.51%
Cu 324.752†	149.4	0.00073	mg/L	0.000101	0.00073	mg/L	0.000101	13.89%
Fe 273.955†	-1.4	-0.00139	mg/L	0.000200	-0.00139	mg/L	0.000200	14.36%
K 766.490†	7.4	0.00684	mg/L	0.025418	0.00684	mg/L	0.025418	371.39%
Mg 279.077†	6.1	0.00586	mg/L	0.003802	0.00586	mg/L	0.003802	64.86%
Mn 257.610†	9.5	0.00027	mg/L	0.000056	0.00027	mg/L	0.000056	20.90%
Mo 202.031†	123.0	0.00690	mg/L	0.002922	0.00690	mg/L	0.002922	42.32%
Na 589.592†	109.0	0.01311	mg/L	0.006518	0.01311	mg/L	0.006518	49.73%
Na 330.237†	9.8	0.5061	mg/L	0.44076	0.5061	mg/L	0.44076	87.09%
Ni 231.604†	-5.6	-0.00169	mg/L	0.001231	-0.00169	mg/L	0.001231	72.85%
Pb 220.353†	1.9	0.00025	mg/L	0.000869	0.00025	mg/L	0.000869	354.44%
Sb 206.836†	4.8	0.00175	mg/L	0.000305	0.00175	mg/L	0.000305	17.45%
Se 196.026†	2.8	0.00225	mg/L	0.003072	0.00225	mg/L	0.003072	136.48%
Si 288.158†	22.2	0.02226	mg/L	0.009322	0.02226	mg/L	0.009322	41.88%
Sn 189.927†	0.7	0.00018	mg/L	0.000743	0.00018	mg/L	0.000743	423.08%
Sr 421.552†	58.4	0.00021	mg/L	0.000066	0.00021	mg/L	0.000066	31.43%
Ti 334.903†	-12.2	-0.00088	mg/L	0.000401	-0.00088	mg/L	0.000401	45.64%
Tl 190.801†	0.8	0.00036	mg/L	0.002265	0.00036	mg/L	0.002265	627.43%
V 292.402†	-9.0	-0.00011	mg/L	0.000203	-0.00011	mg/L	0.000203	181.30%
Zn 206.200†	4.0	0.00166	mg/L	0.000509	0.00166	mg/L	0.000509	30.73%

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Analysis Begun

Start Time: 8/12/2019 2:52:39 PM **Plasma On Time: 8/12/2019 9:01:24 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0812.sif
Batch ID:
Results Data Set: I2190812
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 338**
Sample ID: 19H0103-01 **Date Collected: 8/12/2019 2:52:46 PM**
DEL **Data Type: Original**
Dilution: 20X

Nebulizer Parameters: 19H0103-01

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: 19H0103-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1755956.8	83.33	%	0.237				0.28%
ScR 361.383	187061.4	88.84	%	5.258				5.92%
Ag 328.068†	16.6	0.00010	mg/L	0.000313	0.00207	mg/L	0.006256	302.44%
Al 308.215†	73.4	0.06145	mg/L	0.018934	1.229	mg/L	0.3787	30.81%
As 188.979†	-1.8	-0.00119	mg/L	0.001900	-0.02384	mg/L	0.037998	159.41%
B 249.677†	136.0	0.01989	mg/L	0.001796	0.3977	mg/L	0.03593	9.03%
Ba 233.527†	21.2	0.00483	mg/L	0.001019	0.09652	mg/L	0.020371	21.10%
Be 313.042†	175.6	0.00038	mg/L	0.000151	0.00767	mg/L	0.003015	39.32%
Ca 317.933†	2208.8	0.2121	mg/L	0.00651	4.243	mg/L	0.1303	3.07%
Cd 228.802†	14.1	0.00057	mg/L	0.000080	0.01149	mg/L	0.001597	13.90%
Co 228.616†	-7.2	-0.00021	mg/L	0.000043	-0.00410	mg/L	0.000862	21.00%
Cr 267.716†	-16.6	-0.00418	mg/L	0.002248	-0.08356	mg/L	0.044960	53.80%
Cu 324.752†	18553.3	0.09085	mg/L	0.000125	1.817	mg/L	0.0025	0.14%
Fe 273.955†	202.0	0.2028	mg/L	0.00469	4.057	mg/L	0.0938	2.31%
K 766.490†	3053.9	2.839	mg/L	0.0368	56.78	mg/L	0.735	1.30%
Mg 279.077†	79.0	0.07449	mg/L	0.011037	1.490	mg/L	0.2207	14.82%
Mn 257.610†	83.8	0.00237	mg/L	0.000510	0.04742	mg/L	0.010203	21.52%
Mo 202.031†	25.2	0.00141	mg/L	0.000272	0.02824	mg/L	0.005448	19.29%
Na 589.592†	1492119.6	179.4	mg/L	2.27	3588	mg/L	45.31	1.26%
Na 330.237†	3326.7	172.8	mg/L	2.51	3456	mg/L	50.16	1.45%
Ni 231.604†	10.9	0.00327	mg/L	0.001261	0.06539	mg/L	0.025218	38.57%
Pb 220.353†	13.8	0.00163	mg/L	0.001260	0.03254	mg/L	0.025193	77.43%
Sb 206.836†	13.4	0.00488	mg/L	0.001064	0.09762	mg/L	0.021281	21.80%
Se 196.026†	-4.2	-0.00346	mg/L	0.007102	-0.06916	mg/L	0.142050	205.40%
Si 288.158†	711.8	0.7132	mg/L	0.02149	14.26	mg/L	0.430	3.01%
Sn 189.927†	-2.0	-0.00047	mg/L	0.000794	-0.00941	mg/L	0.015877	168.76%
Sr 421.552†	666.7	0.00240	mg/L	0.000098	0.04792	mg/L	0.001961	4.09%
Ti 334.903†	-17.9	-0.00130	mg/L	0.001388	-0.02591	mg/L	0.027768	107.17%
Tl 190.801†	-2.8	-0.00130	mg/L	0.000556	-0.02592	mg/L	0.011113	42.87%
V 292.402†	14.8	0.00016	mg/L	0.000460	0.00318	mg/L	0.009209	289.70%
Zn 206.200†	37.7	0.01534	mg/L	0.000852	0.3069	mg/L	0.01705	5.55%

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Analysis Begun

Start Time: 8/12/2019 3:04:55 PM **Plasma On Time: 8/12/2019 9:01:24 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0812.sif
Batch ID:
Results Data Set: I2190812
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 339**
Sample ID: 19H0103-01 **Date Collected: 8/12/2019 3:05:03 PM**
DEL **Data Type: Original**
Dilution: 50X

Nebulizer Parameters: 19H0103-01

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: 19H0103-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1818052.3	86.28	%	0.162				0.19%
ScR 361.383	190166.0	90.32	%	2.665				2.95%
Ag 328.068†	28.6	0.00018	mg/L	0.000257	0.00892	mg/L	0.012839	143.98%
Al 308.215†	35.1	0.02953	mg/L	0.010249	1.477	mg/L	0.5125	34.70%
As 188.979†	-1.3	-0.00084	mg/L	0.003926	-0.04216	mg/L	0.196324	465.63%
B 249.677†	61.7	0.00902	mg/L	0.001678	0.4510	mg/L	0.08392	18.61%
Ba 233.527†	10.4	0.00237	mg/L	0.000156	0.1184	mg/L	0.00781	6.60%
Be 313.042†	178.2	0.00039	mg/L	0.000097	0.01940	mg/L	0.004831	24.90%
Ca 317.933†	872.4	0.08387	mg/L	0.002159	4.193	mg/L	0.1079	2.57%
Cd 228.802†	9.9	0.00040	mg/L	0.000183	0.02001	mg/L	0.009150	45.73%
Co 228.616†	-1.5	-0.00004	mg/L	0.000114	-0.00221	mg/L	0.005698	258.16%
Cr 267.716†	-21.2	-0.00532	mg/L	0.001258	-0.2661	mg/L	0.06292	23.64%
Cu 324.752†	6761.8	0.03311	mg/L	0.000230	1.655	mg/L	0.0115	0.70%
Fe 273.955†	75.8	0.07610	mg/L	0.002930	3.805	mg/L	0.1465	3.85%
K 766.490†	1184.4	1.101	mg/L	0.0269	55.05	mg/L	1.345	2.44%
Mg 279.077†	34.3	0.03236	mg/L	0.008923	1.618	mg/L	0.4461	27.57%
Mn 257.610†	47.5	0.00134	mg/L	0.000226	0.06716	mg/L	0.011287	16.81%
Mo 202.031†	14.7	0.00082	mg/L	0.000172	0.04115	mg/L	0.008606	20.91%
Na 589.592†	554563.4	66.68	mg/L	0.379	3334	mg/L	18.95	0.57%
Na 330.237†	1208.6	62.78	mg/L	0.364	3139	mg/L	18.20	0.58%
Ni 231.604†	0.1	0.00004	mg/L	0.002202	0.00222	mg/L	0.110123	>999.9%
Pb 220.353†	8.3	0.00100	mg/L	0.000852	0.04987	mg/L	0.042610	85.45%
Sb 206.836†	8.1	0.00299	mg/L	0.001713	0.1495	mg/L	0.08565	57.28%
Se 196.026†	-3.1	-0.00257	mg/L	0.006239	-0.1285	mg/L	0.31196	242.86%
Si 288.158†	269.9	0.2704	mg/L	0.00942	13.52	mg/L	0.471	3.48%
Sn 189.927†	-3.0	-0.00075	mg/L	0.000597	-0.03749	mg/L	0.029855	79.63%
Sr 421.552†	305.5	0.00110	mg/L	0.000080	0.05489	mg/L	0.003995	7.28%
Ti 334.903†	5.6	0.00039	mg/L	0.001368	0.01963	mg/L	0.068420	348.47%
Tl 190.801†	-3.1	-0.00145	mg/L	0.001320	-0.07235	mg/L	0.065995	91.22%
V 292.402†	36.9	0.00041	mg/L	0.000096	0.02026	mg/L	0.004809	23.73%
Zn 206.200†	9.4	0.00381	mg/L	0.000327	0.1907	mg/L	0.01635	8.57%

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Analysis Begun

Start Time: 8/12/2019 3:10:52 PM **Plasma On Time: 8/12/2019 9:01:24 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0812.sif
Batch ID:
Results Data Set: I2190812
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 9**
Sample ID: SEQ-IBL3 **Date Collected: 8/12/2019 3:11:00 PM**
Data Type: Original

Dilution: 1X

Nebulizer Parameters: SEQ-IBL3

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: SEQ-IBL3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1834914.1	87.08	%	0.691				0.79%
ScR 361.383	192634.2	91.49	%	1.285				1.40%
Ag 328.068†	9.0	0.00006	mg/L	0.000563	0.00006	mg/L	0.000563	>999.9%
Al 308.215†	29.1	0.02503	mg/L	0.005558	0.02503	mg/L	0.005558	22.20%
As 188.979†	-3.4	-0.00225	mg/L	0.003087	-0.00225	mg/L	0.003087	137.06%
B 249.677†	15.4	0.00225	mg/L	0.000789	0.00225	mg/L	0.000789	35.06%
Ba 233.527†	4.3	0.00098	mg/L	0.001000	0.00098	mg/L	0.001000	101.61%
Be 313.042†	115.9	0.00025	mg/L	0.000009	0.00025	mg/L	0.000009	3.74%
Ca 317.933†	43.0	0.00419	mg/L	0.000603	0.00419	mg/L	0.000603	14.39%
Cd 228.802†	7.6	0.00032	mg/L	0.000175	0.00032	mg/L	0.000175	55.19%
Co 228.616†	-2.7	-0.00007	mg/L	0.000156	-0.00007	mg/L	0.000156	213.58%
Cr 267.716†	-22.4	-0.00564	mg/L	0.001362	-0.00564	mg/L	0.001362	24.15%
Cu 324.752†	312.7	0.00153	mg/L	0.000101	0.00153	mg/L	0.000101	6.61%
Fe 273.955†	2.2	0.00215	mg/L	0.000757	0.00215	mg/L	0.000757	35.16%
K 766.490†	32.1	0.02984	mg/L	0.018716	0.02984	mg/L	0.018716	62.71%
Mg 279.077†	5.3	0.00496	mg/L	0.004855	0.00496	mg/L	0.004855	97.95%
Mn 257.610†	24.3	0.00069	mg/L	0.000102	0.00069	mg/L	0.000102	14.88%
Mo 202.031†	7.7	0.00043	mg/L	0.000123	0.00043	mg/L	0.000123	28.34%
Na 589.592†	159.8	0.01921	mg/L	0.004614	0.01921	mg/L	0.004614	24.02%
Na 330.237†	-9.6	-0.5009	mg/L	0.51175	-0.5009	mg/L	0.51175	102.18%
Ni 231.604†	-5.6	-0.00169	mg/L	0.001512	-0.00169	mg/L	0.001512	89.66%
Pb 220.353†	-0.8	-0.00011	mg/L	0.000651	-0.00011	mg/L	0.000651	605.01%
Sb 206.836†	7.9	0.00293	mg/L	0.001977	0.00293	mg/L	0.001977	67.45%
Se 196.026†	-2.7	-0.00224	mg/L	0.002511	-0.00224	mg/L	0.002511	111.98%
Si 288.158†	6.3	0.00626	mg/L	0.002585	0.00626	mg/L	0.002585	41.29%
Sn 189.927†	-1.2	-0.00030	mg/L	0.000873	-0.00030	mg/L	0.000873	286.61%
Sr 421.552†	65.0	0.00023	mg/L	0.000070	0.00023	mg/L	0.000070	29.84%
Ti 334.903†	-15.8	-0.00113	mg/L	0.000824	-0.00113	mg/L	0.000824	73.01%
Tl 190.801†	-7.3	-0.00344	mg/L	0.001089	-0.00344	mg/L	0.001089	31.68%
V 292.402†	28.1	0.00030	mg/L	0.000245	0.00030	mg/L	0.000245	83.06%
Zn 206.200†	3.6	0.00148	mg/L	0.000040	0.00148	mg/L	0.000040	2.67%

Sequence No.: 2
Sample ID: SEQ-CCV6

Autosampler Location: 7
Date Collected: 8/12/2019 3:15:27 PM
Data Type: Original

Dilution: 1X
Wash Time: 60

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV6

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: SEQ-CCV6

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1821217.3	86.43	%	0.716				0.83%
ScR 361.383	187597.9	89.10	%	2.473				2.78%
Ag 328.068†	166513.9	1.039	mg/L	0.0064	1.039	mg/L	0.0064	0.62%
Al 308.215†	2389.1	2.017	mg/L	0.0304	2.017	mg/L	0.0304	1.51%
As 188.979†	3017.2	1.978	mg/L	0.0107	1.978	mg/L	0.0107	0.54%
B 249.677†	7167.6	1.046	mg/L	0.0091	1.046	mg/L	0.0091	0.87%
Ba 233.527†	4376.9	1.001	mg/L	0.0078	1.001	mg/L	0.0078	0.78%
Be 313.042†	476042.2	1.037	mg/L	0.0105	1.037	mg/L	0.0105	1.01%
Ca 317.933†	21227.2	2.051	mg/L	0.0115	2.051	mg/L	0.0115	0.56%
Cd 228.802†	25835.9	1.021	mg/L	0.0077	1.021	mg/L	0.0077	0.75%
Co 228.616†	35776.3	1.002	mg/L	0.0090	1.002	mg/L	0.0090	0.90%
Cr 267.716†	3950.3	0.9933	mg/L	0.00318	0.9933	mg/L	0.00318	0.32%
Cu 324.752†	210145.3	1.030	mg/L	0.0083	1.030	mg/L	0.0083	0.81%
Fe 273.955†	1971.3	1.972	mg/L	0.0149	1.972	mg/L	0.0149	0.75%
K 766.490†	21596.4	20.08	mg/L	0.114	20.08	mg/L	0.114	0.57%
Mg 279.077†	2129.8	2.022	mg/L	0.0118	2.022	mg/L	0.0118	0.58%
Mn 257.610†	35651.5	1.009	mg/L	0.0068	1.009	mg/L	0.0068	0.67%
Mo 202.031†	17816.1	1.000	mg/L	0.0107	1.000	mg/L	0.0107	1.07%
Na 589.592†	438473.9	52.72	mg/L	0.192	52.72	mg/L	0.192	0.36%
Na 330.237†	966.2	49.97	mg/L	0.690	49.97	mg/L	0.690	1.38%
Ni 231.604†	3346.5	1.007	mg/L	0.0062	1.007	mg/L	0.0062	0.62%
Pb 220.353†	15920.8	2.017	mg/L	0.0182	2.017	mg/L	0.0182	0.90%
Sb 206.836†	5907.9	2.116	mg/L	0.0118	2.116	mg/L	0.0118	0.56%
Se 196.026†	2518.0	2.057	mg/L	0.0110	2.057	mg/L	0.0110	0.53%
Si 288.158†	2092.7	2.098	mg/L	0.0232	2.098	mg/L	0.0232	1.11%
Sn 189.927†	3909.8	1.004	mg/L	0.0078	1.004	mg/L	0.0078	0.78%
Sr 421.552†	315399.8	1.133	mg/L	0.0156	1.133	mg/L	0.0156	1.37%
Ti 334.903†	13959.8	0.9988	mg/L	0.00721	0.9988	mg/L	0.00721	0.72%
Tl 190.801†	4327.2	2.020	mg/L	0.0131	2.020	mg/L	0.0131	0.65%
V 292.402†	84314.1	1.003	mg/L	0.0170	1.003	mg/L	0.0170	1.70%
Zn 206.200†	2475.9	1.017	mg/L	0.0070	1.017	mg/L	0.0070	0.68%

Sequence No.: 3
Sample ID: SEQ-CCB6
Autosampler Location: 1
Date Collected: 8/12/2019 3:19:50 PM
Data Type: Original
Dilution: 1X
Wash Time: 60
Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCB6

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: SEQ-CCB6

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1838146.8	87.23	%	0.729				0.84%
ScR 361.383	188146.3	89.36	%	0.891				1.00%
Ag 328.068†	-27.4	-0.00017	mg/L	0.000226	-0.00017	mg/L	0.000226	132.34%
Al 308.215†	29.6	0.02545	mg/L	0.011406	0.02545	mg/L	0.011406	44.83%
As 188.979†	-1.0	-0.00067	mg/L	0.003050	-0.00067	mg/L	0.003050	455.02%
B 249.677†	38.9	0.00568	mg/L	0.000528	0.00568	mg/L	0.000528	9.30%
Ba 233.527†	5.1	0.00116	mg/L	0.000387	0.00116	mg/L	0.000387	33.31%
Be 313.042†	143.3	0.00031	mg/L	0.000029	0.00031	mg/L	0.000029	9.17%
Ca 317.933†	27.2	0.00266	mg/L	0.002018	0.00266	mg/L	0.002018	75.88%
Cd 228.802†	10.7	0.00043	mg/L	0.000027	0.00043	mg/L	0.000027	6.17%
Co 228.616†	1.6	0.00005	mg/L	0.000091	0.00005	mg/L	0.000091	199.92%
Cr 267.716†	-21.7	-0.00546	mg/L	0.000706	-0.00546	mg/L	0.000706	12.93%
Cu 324.752†	334.8	0.00164	mg/L	0.000030	0.00164	mg/L	0.000030	1.83%
Fe 273.955†	2.1	0.00210	mg/L	0.001583	0.00210	mg/L	0.001583	75.42%
K 766.490†	40.4	0.03757	mg/L	0.027683	0.03757	mg/L	0.027683	73.69%
Mg 279.077†	7.2	0.00680	mg/L	0.006417	0.00680	mg/L	0.006417	94.44%
Mn 257.610†	26.9	0.00076	mg/L	0.000090	0.00076	mg/L	0.000090	11.83%
Mo 202.031†	15.2	0.00085	mg/L	0.000151	0.00085	mg/L	0.000151	17.71%
Na 589.592†	99.4	0.01195	mg/L	0.002863	0.01195	mg/L	0.002863	23.95%
Na 330.237†	-13.6	-0.7085	mg/L	0.52904	-0.7085	mg/L	0.52904	74.67%
Ni 231.604†	-4.5	-0.00136	mg/L	0.002137	-0.00136	mg/L	0.002137	156.65%
Pb 220.353†	4.6	0.00058	mg/L	0.000330	0.00058	mg/L	0.000330	57.12%
Sb 206.836†	11.7	0.00429	mg/L	0.001294	0.00429	mg/L	0.001294	30.15%
Se 196.026†	-2.6	-0.00214	mg/L	0.000395	-0.00214	mg/L	0.000395	18.45%
Si 288.158†	5.9	0.00593	mg/L	0.007245	0.00593	mg/L	0.007245	122.10%
Sn 189.927†	2.6	0.00067	mg/L	0.000498	0.00067	mg/L	0.000498	74.31%
Sr 421.552†	117.2	0.00042	mg/L	0.000138	0.00042	mg/L	0.000138	32.82%
Ti 334.903†	-3.3	-0.00023	mg/L	0.002030	-0.00023	mg/L	0.002030	870.11%
Tl 190.801†	-1.7	-0.00079	mg/L	0.001266	-0.00079	mg/L	0.001266	159.81%
V 292.402†	44.9	0.00049	mg/L	0.000125	0.00049	mg/L	0.000125	25.27%
Zn 206.200†	-0.3	-0.00013	mg/L	0.000606	-0.00013	mg/L	0.000606	473.08%

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Analysis Begun

Start Time: 8/12/2019 3:30:05 PM **Plasma On Time: 8/12/2019 9:01:24 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\ 0812.sif
Batch ID:
Results Data Set: I2190812
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1
Sample ID: SEQ-CAL1 **Date Collected: 8/12/2019 3:30:06 PM**
Data Type: Original

Nebulizer Parameters: SEQ-CAL1

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: SEQ-CAL1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	1812923.0	13141.19	0.72%	86.03	%
ScR 361.383	185846.1	2642.34	1.42%	88.26	%
Ag 328.068†	-122.8	24.94	20.31%	[0.00]	mg/L
Al 308.215†	294.3	12.58	4.27%	[0.00]	mg/L
As 188.979†	-12.0	3.21	26.70%	[0.00]	mg/L
B 249.677†	44.6	9.62	21.59%	[0.00]	mg/L
Ba 233.527†	28.2	3.26	11.55%	[0.00]	mg/L
Be 313.042†	1477.1	20.93	1.42%	[0.00]	mg/L
Ca 317.933†	235.7	8.80	3.73%	[0.00]	mg/L
Cd 228.802†	283.8	1.51	0.53%	[0.00]	mg/L
Co 228.616†	-45.7	4.00	8.76%	[0.00]	mg/L
Cr 267.716†	-251.0	10.85	4.32%	[0.00]	mg/L
Cu 324.752†	2466.3	38.48	1.56%	[0.00]	mg/L
Fe 273.955†	36.1	1.95	5.41%	[0.00]	mg/L
K 766.490†	496.8	27.23	5.48%	[0.00]	mg/L
Mg 279.077†	85.8	9.86	11.49%	[0.00]	mg/L
Mn 257.610†	269.6	4.44	1.65%	[0.00]	mg/L
Mo 202.031†	62.6	1.54	2.46%	[0.00]	mg/L
Na 589.592†	76.4	22.66	29.66%	[0.00]	mg/L
Na 330.237†	-192.2	5.89	3.07%	[0.00]	mg/L
Ni 231.604†	-40.9	7.82	19.10%	[0.00]	mg/L
Pb 220.353†	19.4	6.80	35.08%	[0.00]	mg/L
Sb 206.836†	70.8	1.90	2.68%	[0.00]	mg/L
Se 196.026†	-50.1	9.10	18.15%	[0.00]	mg/L
Si 288.158†	24.2	9.79	40.45%	[0.00]	mg/L
Sn 189.927†	-17.1	3.68	21.46%	[0.00]	mg/L
Sr 421.552†	1089.5	16.96	1.56%	[0.00]	mg/L
Ti 334.903†	10.6	12.30	115.82%	[0.00]	mg/L
Tl 190.801†	-40.5	6.95	17.13%	[0.00]	mg/L
V 292.402†	209.5	17.60	8.40%	[0.00]	mg/L
Zn 206.200†	7.5	2.21	29.29%	[0.00]	mg/L

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Analysis Begun

Start Time: 8/12/2019 3:34:48 PM **Plasma On Time: 8/12/2019 9:01:24 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0812.sif
Batch ID:
Results Data Set: I2190812
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 7**
Sample ID: SEQ-CCV7 **Date Collected: 8/12/2019 3:34:49 PM**
Data Type: Original

Dilution: 1X

Nebulizer Parameters: SEQ-CCV7

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: SEQ-CCV7

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1823681.2	86.55	%	0.967				1.12%
ScR 361.383	187631.7	89.11	%	0.789				0.89%
Ag 328.068†	166940.3	1.042	mg/L	0.0059	1.042	mg/L	0.0059	0.57%
Al 308.215†	2353.9	1.987	mg/L	0.0085	1.987	mg/L	0.0085	0.43%
As 188.979†	3024.4	1.982	mg/L	0.0113	1.982	mg/L	0.0113	0.57%
B 249.677†	7131.1	1.040	mg/L	0.0071	1.040	mg/L	0.0071	0.68%
Ba 233.527†	4363.2	0.9974	mg/L	0.00754	0.9974	mg/L	0.00754	0.76%
Be 313.042†	476113.3	1.037	mg/L	0.0054	1.037	mg/L	0.0054	0.52%
Ca 317.933†	21115.3	2.041	mg/L	0.0164	2.041	mg/L	0.0164	0.81%
Cd 228.802†	25845.0	1.021	mg/L	0.0052	1.021	mg/L	0.0052	0.51%
Co 228.616†	35890.6	1.005	mg/L	0.0050	1.005	mg/L	0.0050	0.50%
Cr 267.716†	3956.0	0.9947	mg/L	0.00786	0.9947	mg/L	0.00786	0.79%
Cu 324.752†	209820.5	1.028	mg/L	0.0052	1.028	mg/L	0.0052	0.50%
Fe 273.955†	1963.1	1.964	mg/L	0.0205	1.964	mg/L	0.0205	1.04%
K 766.490†	21301.6	19.80	mg/L	0.101	19.80	mg/L	0.101	0.51%
Mg 279.077†	2111.0	2.004	mg/L	0.0207	2.004	mg/L	0.0207	1.03%
Mn 257.610†	35584.3	1.007	mg/L	0.0074	1.007	mg/L	0.0074	0.73%
Mo 202.031†	17822.8	1.000	mg/L	0.0052	1.000	mg/L	0.0052	0.52%
Na 589.592†	437584.4	52.61	mg/L	0.176	52.61	mg/L	0.176	0.33%
Na 330.237†	966.2	49.97	mg/L	0.342	49.97	mg/L	0.342	0.69%
Ni 231.604†	3337.8	1.005	mg/L	0.0083	1.005	mg/L	0.0083	0.82%
Pb 220.353†	15958.3	2.021	mg/L	0.0117	2.021	mg/L	0.0117	0.58%
Sb 206.836†	5885.9	2.108	mg/L	0.0044	2.108	mg/L	0.0044	0.21%
Se 196.026†	2513.5	2.053	mg/L	0.0084	2.053	mg/L	0.0084	0.41%
Si 288.158†	2075.8	2.081	mg/L	0.0113	2.081	mg/L	0.0113	0.54%
Sn 189.927†	3902.0	1.002	mg/L	0.0022	1.002	mg/L	0.0022	0.22%
Sr 421.552†	314962.4	1.132	mg/L	0.0135	1.132	mg/L	0.0135	1.19%
Ti 334.903†	13945.7	0.9978	mg/L	0.00185	0.9978	mg/L	0.00185	0.19%
Tl 190.801†	4317.4	2.016	mg/L	0.0088	2.016	mg/L	0.0088	0.44%
V 292.402†	83845.3	0.9975	mg/L	0.00234	0.9975	mg/L	0.00234	0.23%
Zn 206.200†	2464.6	1.013	mg/L	0.0110	1.013	mg/L	0.0110	1.09%

Sequence No.: 2
Sample ID: SEQ-CCB7

Autosampler Location: 1
Date Collected: 8/12/2019 3:39:13 PM
Data Type: Original

Dilution: 1X
Wash Time: 60

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCB7

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: SEQ-CCB7

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1822768.4	86.50	%	0.876				1.01%
ScR 361.383	190011.5	90.24	%	0.998				1.11%
Ag 328.068†	15.5	0.00010	mg/L	0.000189	0.00010	mg/L	0.000189	196.09%
Al 308.215†	-14.5	-0.01253	mg/L	0.011132	-0.01253	mg/L	0.011132	88.87%
As 188.979†	1.2	0.00079	mg/L	0.003346	0.00079	mg/L	0.003346	424.89%
B 249.677†	16.6	0.00242	mg/L	0.000836	0.00242	mg/L	0.000836	34.56%
Ba 233.527†	3.4	0.00078	mg/L	0.001258	0.00078	mg/L	0.001258	160.46%
Be 313.042†	-12.8	-0.00003	mg/L	0.000064	-0.00003	mg/L	0.000064	235.66%
Ca 317.933†	-4.3	-0.00043	mg/L	0.000463	-0.00043	mg/L	0.000463	108.51%
Cd 228.802†	-0.5	-0.00002	mg/L	0.000033	-0.00002	mg/L	0.000033	143.85%
Co 228.616†	-1.4	-0.00004	mg/L	0.000287	-0.00004	mg/L	0.000287	740.17%
Cr 267.716†	15.9	0.00400	mg/L	0.000373	0.00400	mg/L	0.000373	9.33%
Cu 324.752†	-31.6	-0.00015	mg/L	0.000145	-0.00015	mg/L	0.000145	93.93%
Fe 273.955†	-2.8	-0.00280	mg/L	0.003267	-0.00280	mg/L	0.003267	116.84%
K 766.490†	-14.3	-0.01327	mg/L	0.045980	-0.01327	mg/L	0.045980	346.42%
Mg 279.077†	-15.0	-0.01412	mg/L	0.001445	-0.01412	mg/L	0.001445	10.24%
Mn 257.610†	-2.3	-0.00007	mg/L	0.000102	-0.00007	mg/L	0.000102	155.00%
Mo 202.031†	11.7	0.00066	mg/L	0.000179	0.00066	mg/L	0.000179	27.13%
Na 589.592†	23.0	0.00277	mg/L	0.001182	0.00277	mg/L	0.001182	42.72%
Na 330.237†	1.3	0.06525	mg/L	0.563323	0.06525	mg/L	0.563323	863.39%
Ni 231.604†	2.7	0.00080	mg/L	0.002326	0.00080	mg/L	0.002326	290.32%
Pb 220.353†	3.7	0.00048	mg/L	0.000501	0.00048	mg/L	0.000501	105.02%
Sb 206.836†	0.4	0.00006	mg/L	0.002657	0.00006	mg/L	0.002657	>999.9%
Se 196.026†	2.5	0.00201	mg/L	0.000746	0.00201	mg/L	0.000746	37.17%
Si 288.158†	-7.2	-0.00723	mg/L	0.007224	-0.00723	mg/L	0.007224	99.98%
Sn 189.927†	-3.8	-0.00097	mg/L	0.000168	-0.00097	mg/L	0.000168	17.44%
Sr 421.552†	-22.8	-0.00008	mg/L	0.000145	-0.00008	mg/L	0.000145	177.64%
Ti 334.903†	0.5	0.00004	mg/L	0.000495	0.00004	mg/L	0.000495	>999.9%
Tl 190.801†	3.5	0.00162	mg/L	0.001682	0.00162	mg/L	0.001682	103.50%
V 292.402†	-18.9	-0.00020	mg/L	0.000138	-0.00020	mg/L	0.000138	70.25%
Zn 206.200†	-1.7	-0.00068	mg/L	0.001435	-0.00068	mg/L	0.001435	210.87%

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Analysis Begun

Start Time: 8/12/2019 3:45:59 PM **Plasma On Time: 8/12/2019 9:01:24 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0812.sif
Batch ID:
Results Data Set: I2190812
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 340**
Sample ID: 19H0103-01 RE1 **Date Collected: 8/12/2019 3:46:06 PM**
Data Type: Original

Dilution: 50X TH 08-12-19

Nebulizer Parameters: 19H0103-01 RE1

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: 19H0103-01 RE1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1824004.9	86.56	%	0.125				0.14%
ScR 361.383	188491.6	89.52	%	1.148				1.28%
Ag 328.068†	3.4	0.00002	mg/L	0.000141	0.00105	mg/L	0.007057	669.46%
Al 308.215†	23.2	0.01935	mg/L	0.013680	0.9675	mg/L	0.68402	70.70%
As 188.979†	5.5	0.00351	mg/L	0.000743	0.1754	mg/L	0.03717	21.20%
B 249.677†	46.7	0.00682	mg/L	0.000339	0.3411	mg/L	0.01695	4.97%
Ba 233.527†	7.0	0.00159	mg/L	0.000409	0.07934	mg/L	0.020460	25.79%
Be 313.042†	32.2	0.00007	mg/L	0.000037	0.00355	mg/L	0.001850	52.05%
Ca 317.933†	875.9	0.08420	mg/L	0.001876	4.210	mg/L	0.0938	2.23%
Cd 228.802†	5.0	0.00018	mg/L	0.000150	0.00899	mg/L	0.007480	83.17%
Co 228.616†	-1.5	-0.00004	mg/L	0.000057	-0.00212	mg/L	0.002856	134.84%
Cr 267.716†	16.3	0.00410	mg/L	0.001068	0.2050	mg/L	0.05342	26.06%
Cu 324.752†	6320.3	0.03095	mg/L	0.000420	1.547	mg/L	0.0210	1.36%
Fe 273.955†	71.8	0.07209	mg/L	0.000634	3.605	mg/L	0.0317	0.88%
K 766.490†	1152.1	1.071	mg/L	0.0444	53.55	mg/L	2.222	4.15%
Mg 279.077†	14.5	0.01367	mg/L	0.007785	0.6834	mg/L	0.38926	56.96%
Mn 257.610†	17.9	0.00051	mg/L	0.000196	0.02530	mg/L	0.009790	38.70%
Mo 202.031†	6.7	0.00038	mg/L	0.000464	0.01881	mg/L	0.023191	123.28%
Na 589.592†	554111.3	66.62	mg/L	0.489	3331	mg/L	24.46	0.73%
Na 330.237†	1216.4	63.18	mg/L	0.849	3159	mg/L	42.45	1.34%
Ni 231.604†	10.2	0.00306	mg/L	0.000807	0.1532	mg/L	0.04036	26.35%
~~Pb 220.353†~~	~~-5.9~~	~~-0.00078~~	~~mg~~/L	0.000789	-0.03902	mg/L	0.039444	101.10%
Sb 206.836†	0.2	-0.00000	mg/L	0.002584	-0.00012	mg/L	0.129192	>999.9%
Se 196.026†	7.0	0.00574	mg/L	0.002993	0.2868	mg/L	0.14963	52.18%
Si 288.158†	258.6	0.2591	mg/L	0.00631	12.96	mg/L	0.315	2.43%
Sn 189.927†	-2.7	-0.00068	mg/L	0.000909	-0.03380	mg/L	0.045435	134.41%
Sr 421.552†	163.2	0.00059	mg/L	0.000095	0.02933	mg/L	0.004763	16.24%
Ti 334.903†	-21.5	-0.00155	mg/L	0.000529	-0.07741	mg/L	0.026453	34.17%
Tl 190.801†	0.2	0.00008	mg/L	0.001199	0.00397	mg/L	0.059944	>999.9%
V 292.402†	-12.9	-0.00012	mg/L	0.000106	-0.00603	mg/L	0.005276	87.56%
Zn 206.200†	6.6	0.00265	mg/L	0.001583	0.1324	mg/L	0.07914	59.77%

No Pb

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Analysis Begun

Start Time: 8/12/2019 3:52:49 PM **Plasma On Time: 8/12/2019 9:01:24 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\ 0812.sif
Batch ID:
Results Data Set: I2190812
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 9**
Sample ID: SEQ-IBL4 **Date Collected: 8/12/2019 3:52:56 PM**
Data Type: Original

Dilution: 1X

Nebulizer Parameters: SEQ-IBL4

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: SEQ-IBL4

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1800322.4	85.44	%	0.522				0.61%
ScR 361.383	186124.2	88.40	%	0.938				1.06%
Ag 328.068†	35.0	0.00022	mg/L	0.000301	0.00022	mg/L	0.000301	137.75%
Al 308.215†	-7.5	-0.00645	mg/L	0.012891	-0.00645	mg/L	0.012891	199.80%
As 188.979†	2.9	0.00189	mg/L	0.002133	0.00189	mg/L	0.002133	112.77%
B 249.677†	8.7	0.00127	mg/L	0.000147	0.00127	mg/L	0.000147	11.54%
Ba 233.527†	3.1	0.00070	mg/L	0.000489	0.00070	mg/L	0.000489	69.57%
Be 313.042†	-4.3	-0.00001	mg/L	0.000087	-0.00001	mg/L	0.000087	903.41%
Ca 317.933†	1.9	0.00019	mg/L	0.002292	0.00019	mg/L	0.002292	>999.9%
Cd 228.802†	-4.4	-0.00019	mg/L	0.000174	-0.00019	mg/L	0.000174	93.71%
Co 228.616†	-2.0	-0.00006	mg/L	0.000245	-0.00006	mg/L	0.000245	416.76%
Cr 267.716†	13.4	0.00337	mg/L	0.001588	0.00337	mg/L	0.001588	47.12%
Cu 324.752†	-16.9	-0.00008	mg/L	0.000194	-0.00008	mg/L	0.000194	235.07%
Fe 273.955†	1.0	0.00097	mg/L	0.000977	0.00097	mg/L	0.000977	100.21%
K 766.490†	-10.7	-0.00991	mg/L	0.025059	-0.00991	mg/L	0.025059	252.85%
Mg 279.077†	1.3	0.00121	mg/L	0.009156	0.00121	mg/L	0.009156	758.52%
Mn 257.610†	4.4	0.00012	mg/L	0.000026	0.00012	mg/L	0.000026	20.61%
Mo 202.031†	-2.8	-0.00016	mg/L	0.000064	-0.00016	mg/L	0.000064	39.88%
Na 589.592†	6.3	0.00076	mg/L	0.003619	0.00076	mg/L	0.003619	479.28%
Na 330.237†	-8.0	-0.4133	mg/L	0.24361	-0.4133	mg/L	0.24361	58.94%
Ni 231.604†	9.0	0.00270	mg/L	0.001134	0.00270	mg/L	0.001134	42.07%
Pb 220.353†	-3.0	-0.00038	mg/L	0.001138	-0.00038	mg/L	0.001138	299.98%
Sb 206.836†	7.4	0.00258	mg/L	0.002436	0.00258	mg/L	0.002436	94.29%
Se 196.026†	5.6	0.00455	mg/L	0.003257	0.00455	mg/L	0.003257	71.59%
Si 288.158†	-3.6	-0.00361	mg/L	0.007499	-0.00361	mg/L	0.007499	207.50%
Sn 189.927†	-1.8	-0.00045	mg/L	0.000497	-0.00045	mg/L	0.000497	110.53%
Sr 421.552†	-26.2	-0.00009	mg/L	0.000076	-0.00009	mg/L	0.000076	80.73%
Ti 334.903†	22.3	0.00160	mg/L	0.001018	0.00160	mg/L	0.001018	63.64%
Tl 190.801†	4.8	0.00224	mg/L	0.002156	0.00224	mg/L	0.002156	96.10%
V 292.402†	6.2	0.00010	mg/L	0.000172	0.00010	mg/L	0.000172	180.22%
Zn 206.200†	1.4	0.00056	mg/L	0.001104	0.00056	mg/L	0.001104	198.37%

Sequence No.: 2
Sample ID: SEQ-CCV8

Autosampler Location: 7
Date Collected: 8/12/2019 3:57:23 PM
Data Type: Original

Dilution: 1X
Wash Time: 60

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV8

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: SEQ-CCV8

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1776348.6	84.30	%	0.708				0.84%
ScR 361.383	182980.2	86.90	%	0.661				0.76%
Ag 328.068†	169313.3	1.056	mg/L	0.0034	1.056	mg/L	0.0034	0.32%
Al 308.215†	2383.7	2.012	mg/L	0.0164	2.012	mg/L	0.0164	0.82%
As 188.979†	3082.1	2.020	mg/L	0.0156	2.020	mg/L	0.0156	0.77%
B 249.677†	7148.1	1.043	mg/L	0.0036	1.043	mg/L	0.0036	0.35%
Ba 233.527†	4370.2	0.9990	mg/L	0.00795	0.9990	mg/L	0.00795	0.80%
Be 313.042†	474579.2	1.034	mg/L	0.0021	1.034	mg/L	0.0021	0.20%
Ca 317.933†	21168.3	2.046	mg/L	0.0143	2.046	mg/L	0.0143	0.70%
Cd 228.802†	26200.3	1.035	mg/L	0.0045	1.035	mg/L	0.0045	0.44%
Co 228.616†	36347.5	1.018	mg/L	0.0023	1.018	mg/L	0.0023	0.23%
Cr 267.716†	3966.8	0.9975	mg/L	0.00434	0.9975	mg/L	0.00434	0.44%
Cu 324.752†	213205.1	1.045	mg/L	0.0051	1.045	mg/L	0.0051	0.49%
Fe 273.955†	1965.8	1.967	mg/L	0.0148	1.967	mg/L	0.0148	0.75%
K 766.490†	21419.1	19.91	mg/L	0.201	19.91	mg/L	0.201	1.01%
Mg 279.077†	2116.1	2.009	mg/L	0.0078	2.009	mg/L	0.0078	0.39%
Mn 257.610†	35567.7	1.007	mg/L	0.0058	1.007	mg/L	0.0058	0.57%
Mo 202.031†	18105.9	1.016	mg/L	0.0064	1.016	mg/L	0.0064	0.63%
Na 589.592†	438651.6	52.74	mg/L	0.118	52.74	mg/L	0.118	0.22%
Na 330.237†	966.2	49.98	mg/L	0.564	49.98	mg/L	0.564	1.13%
Ni 231.604†	3351.6	1.009	mg/L	0.0089	1.009	mg/L	0.0089	0.88%
Pb 220.353†	16178.3	2.049	mg/L	0.0072	2.049	mg/L	0.0072	0.35%
Sb 206.836†	6002.0	2.150	mg/L	0.0099	2.150	mg/L	0.0099	0.46%
Se 196.026†	2567.6	2.098	mg/L	0.0117	2.098	mg/L	0.0117	0.56%
Si 288.158†	2071.3	2.077	mg/L	0.0138	2.077	mg/L	0.0138	0.67%
Sn 189.927†	3978.3	1.021	mg/L	0.0071	1.021	mg/L	0.0071	0.69%
Sr 421.552†	317987.1	1.143	mg/L	0.0042	1.143	mg/L	0.0042	0.37%
Ti 334.903†	13913.6	0.9954	mg/L	0.00454	0.9954	mg/L	0.00454	0.46%
Tl 190.801†	4404.1	2.056	mg/L	0.0109	2.056	mg/L	0.0109	0.53%
V 292.402†	85426.6	1.016	mg/L	0.0048	1.016	mg/L	0.0048	0.47%
Zn 206.200†	2458.2	1.010	mg/L	0.0082	1.010	mg/L	0.0082	0.81%

Sequence No.: 3 **Autosampler Location: 1**
Sample ID: SEQ-CCB8 **Date Collected: 8/12/2019 4:01:46 PM**
Data Type: Original

Dilution: 1X
Wash Time: 60 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB8

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: SEQ-CCB8

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1819129.7	86.33	%	0.751				0.87%
ScR 361.383	187966.4	89.27	%	1.527				1.71%
Ag 328.068†	80.3	0.00050	mg/L	0.000295	0.00050	mg/L	0.000295	58.86%
Al 308.215†	17.8	0.01528	mg/L	0.014777	0.01528	mg/L	0.014777	96.68%
As 188.979†	1.4	0.00087	mg/L	0.002205	0.00087	mg/L	0.002205	254.62%
B 249.677†	22.1	0.00323	mg/L	0.000617	0.00323	mg/L	0.000617	19.13%
Ba 233.527†	2.4	0.00055	mg/L	0.001235	0.00055	mg/L	0.001235	223.15%
Be 313.042†	20.4	0.00005	mg/L	0.000082	0.00005	mg/L	0.000082	180.10%
Ca 317.933†	-17.3	-0.00169	mg/L	0.000321	-0.00169	mg/L	0.000321	19.07%
Cd 228.802†	6.4	0.00025	mg/L	0.000181	0.00025	mg/L	0.000181	73.08%
Co 228.616†	0.1	0.00000	mg/L	0.000118	0.00000	mg/L	0.000118	>999.9%
Cr 267.716†	11.9	0.00299	mg/L	0.000897	0.00299	mg/L	0.000897	30.05%
Cu 324.752†	-24.8	-0.00012	mg/L	0.000086	-0.00012	mg/L	0.000086	71.12%
Fe 273.955†	-0.6	-0.00059	mg/L	0.004154	-0.00059	mg/L	0.004154	699.51%
K 766.490†	-5.3	-0.00494	mg/L	0.021653	-0.00494	mg/L	0.021653	438.58%
Mg 279.077†	-1.2	-0.00109	mg/L	0.002772	-0.00109	mg/L	0.002772	254.14%
Mn 257.610†	5.2	0.00015	mg/L	0.000209	0.00015	mg/L	0.000209	142.15%
Mo 202.031†	10.2	0.00057	mg/L	0.000179	0.00057	mg/L	0.000179	31.29%
Na 589.592†	24.6	0.00296	mg/L	0.004079	0.00296	mg/L	0.004079	137.67%
Na 330.237†	-9.2	-0.4777	mg/L	0.58434	-0.4777	mg/L	0.58434	122.33%
Ni 231.604†	-1.9	-0.00058	mg/L	0.001307	-0.00058	mg/L	0.001307	223.83%
Pb 220.353†	0.3	0.00005	mg/L	0.000469	0.00005	mg/L	0.000469	904.06%
Sb 206.836†	-2.4	-0.00093	mg/L	0.001657	-0.00093	mg/L	0.001657	177.99%
Se 196.026†	2.1	0.00175	mg/L	0.004021	0.00175	mg/L	0.004021	229.47%
Si 288.158†	-5.5	-0.00551	mg/L	0.003352	-0.00551	mg/L	0.003352	60.88%
Sn 189.927†	-0.6	-0.00015	mg/L	0.000406	-0.00015	mg/L	0.000406	268.71%
Sr 421.552†	2.4	0.00001	mg/L	0.000085	0.00001	mg/L	0.000085	994.80%
Ti 334.903†	-17.0	-0.00122	mg/L	0.000426	-0.00122	mg/L	0.000426	34.99%
Tl 190.801†	-0.6	-0.00028	mg/L	0.001327	-0.00028	mg/L	0.001327	471.99%
V 292.402†	-14.4	-0.00015	mg/L	0.000162	-0.00015	mg/L	0.000162	107.62%
Zn 206.200†	-1.7	-0.00069	mg/L	0.000342	-0.00069	mg/L	0.000342	49.77%

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Analysis Begun

Start Time: 8/12/2019 4:08:11 PM **Plasma On Time: 8/12/2019 9:01:24 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\ RINSE-DI X4.sif
Batch ID:
Results Data Set: I2190812
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 9**
Sample ID: RINSE - 1 **Date Collected: 8/12/2019 4:08:19 PM**
Data Type: Original

Dilution: 1X

Nebulizer Parameters: RINSE - 1

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: RINSE - 1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	14198.4	0.6738	%	0.00257				0.38%
ScR 361.383	3640.2	1.729	%	2.6075				150.82%
Ag 328.068†	-12207.5	-0.07605	mg/L	0.008506	-0.07605	mg/L	0.008506	11.19%
Al 308.215†	-52259.1	-44.99	mg/L	112.857	-44.99	mg/L	112.857	250.85%
As 188.979†	-1393.1	-0.9351	mg/L	0.32338	-0.9351	mg/L	0.32338	34.58%
B 249.677†	-11006.0	-1.610	mg/L	3.9042	-1.610	mg/L	3.9042	242.53%
Ba 233.527†	-5308.3	-1.216	mg/L	3.2258	-1.216	mg/L	3.2258	265.31%
Be 313.042†	-287983.5	-0.6314	mg/L	1.57920	-0.6314	mg/L	1.57920	250.11%
Ca 317.933†	-46411.5	-4.551	mg/L	11.5124	-4.551	mg/L	11.5124	252.94%
Cd 228.802†	8489.6	0.3471	mg/L	0.01225	0.3471	mg/L	0.01225	3.53%
Co 228.616†	-5330.3	-0.1489	mg/L	0.01495	-0.1489	mg/L	0.01495	10.04%
Cr 267.716†	43827.6	11.02	mg/L	27.897	11.02	mg/L	27.897	253.08%
Cu 324.752†	311339.0	1.525	mg/L	0.0195	1.525	mg/L	0.0195	1.28%
Fe 273.955†	-6151.5	-6.163	mg/L	15.9608	-6.163	mg/L	15.9608	258.99%
K 766.490†	-113422.5	-105.4	mg/L	263.23	-105.4	mg/L	263.23	249.65%
Mg 279.077†	-14738.2	-13.90	mg/L	32.954	-13.90	mg/L	32.954	237.06%
Mn 257.610†	-49407.3	-1.398	mg/L	3.5318	-1.398	mg/L	3.5318	252.64%
Mo 202.031†	8326.4	0.4668	mg/L	0.02415	0.4668	mg/L	0.02415	5.17%
Na 589.592†	-15749.1	-1.894	mg/L	4.9539	-1.894	mg/L	4.9539	261.61%
Na 330.237†	34792.2	1807	mg/L	4858.31	1807	mg/L	4858.31	268.79%
Ni 231.604†	6360.6	1.915	mg/L	4.9671	1.915	mg/L	4.9671	259.41%
Pb 220.353†	1752.5	0.2320	mg/L	0.14077	0.2320	mg/L	0.14077	60.67%
Sb 206.836†	9463.2	3.209	mg/L	0.5984	3.209	mg/L	0.5984	18.64%
Se 196.026†	-6209.3	-5.070	mg/L	0.5290	-5.070	mg/L	0.5290	10.43%
Si 288.158†	-832.6	-0.8212	mg/L	3.79424	-0.8212	mg/L	3.79424	462.03%
Sn 189.927†	-2393.2	-0.6128	mg/L	0.03232	-0.6128	mg/L	0.03232	5.27%
Sr 421.552†	-213540.2	-0.7674	mg/L	1.87592	-0.7674	mg/L	1.87592	244.45%
Ti 334.903†	-5323.0	-0.3837	mg/L	0.60534	-0.3837	mg/L	0.60534	157.75%
Tl 190.801†	-4842.5	-2.275	mg/L	0.2105	-2.275	mg/L	0.2105	9.25%
V 292.402†	27722.9	0.4004	mg/L	0.19564	0.4004	mg/L	0.19564	48.86%
Zn 206.200†	-1345.3	-0.5483	mg/L	1.61480	-0.5483	mg/L	1.61480	294.50%

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Sequence No.: 2
Sample ID: RINSE - 2

Dilution: 1X
Wash Time: 37

Autosampler Location: 9
Date Collected: 8/12/2019 4:12:08 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: RINSE - 2

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: RINSE - 2

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	14114.8	0.6698	%	0.00202				0.30%
ScR 361.383	-439.0	-0.2085	%	0.00137				0.66%
Ag 328.068†	-17653.6	-0.1100	mg/L	0.03103	-0.1100	mg/L	0.03103	28.20%
Al 308.215†	-129948.8	-111.9	mg/L	5.77	-111.9	mg/L	5.77	5.16%
As 188.979†	-1842.4	-1.246	mg/L	0.1586	-1.246	mg/L	0.1586	12.73%
B 249.677†	-19096.2	-2.796	mg/L	0.5951	-2.796	mg/L	0.5951	21.28%
Ba 233.527†	-13040.5	-2.986	mg/L	0.2675	-2.986	mg/L	0.2675	8.96%
Be 313.042†	-637339.4	-1.396	mg/L	0.0264	-1.396	mg/L	0.0264	1.89%
Ca 317.933†	-96737.3	-9.499	mg/L	0.6628	-9.499	mg/L	0.6628	6.98%
Cd 228.802†	8749.9	0.3623	mg/L	0.01501	0.3623	mg/L	0.01501	4.14%
Co 228.616†	-6091.4	-0.1708	mg/L	0.00961	-0.1708	mg/L	0.00961	5.63%
Cr 267.716†	102306.0	25.73	mg/L	0.317	25.73	mg/L	0.317	1.23%
Cu 324.752†	313640.1	1.535	mg/L	0.0045	1.535	mg/L	0.0045	0.29%
Fe 273.955†	-16846.7	-16.88	mg/L	0.789	-16.88	mg/L	0.789	4.67%
K 766.490†	-231459.7	-215.2	mg/L	18.97	-215.2	mg/L	18.97	8.81%
Mg 279.077†	-35349.1	-33.35	mg/L	3.214	-33.35	mg/L	3.214	9.64%
Mn 257.610†	-114721.1	-3.246	mg/L	0.0390	-3.246	mg/L	0.0390	1.20%
Mo 202.031†	8029.3	0.4493	mg/L	0.01171	0.4493	mg/L	0.01171	2.61%
Na 589.592†	-12597.5	-1.515	mg/L	1.9578	-1.515	mg/L	1.9578	129.25%
Na 330.237†	83706.6	4349	mg/L	304.29	4349	mg/L	304.29	7.00%
Ni 231.604†	16088.1	4.839	mg/L	0.9851	4.839	mg/L	0.9851	20.36%
Pb 220.353†	1155.8	0.1710	mg/L	0.10814	0.1710	mg/L	0.10814	63.25%
Sb 206.836†	9598.7	3.015	mg/L	0.1940	3.015	mg/L	0.1940	6.44%
Se 196.026†	-6341.1	-5.170	mg/L	0.3480	-5.170	mg/L	0.3480	6.73%
Si 288.158†	-5558.7	-5.539	mg/L	2.8708	-5.539	mg/L	2.8708	51.83%
Sn 189.927†	-2174.2	-0.5573	mg/L	0.11301	-0.5573	mg/L	0.11301	20.28%
Sr 421.552†	-437773.3	-1.573	mg/L	0.0439	-1.573	mg/L	0.0439	2.79%
Ti 334.903†	-2137.3	-0.1582	mg/L	0.38118	-0.1582	mg/L	0.38118	240.96%
Tl 190.801†	-4466.3	-2.106	mg/L	0.0813	-2.106	mg/L	0.0813	3.86%
V 292.402†	27701.7	0.4970	mg/L	0.00890	0.4970	mg/L	0.00890	1.79%
Zn 206.200†	-2871.6	-1.171	mg/L	0.0976	-1.171	mg/L	0.0976	8.34%

Sequence No.: 3
Sample ID: RINSE - 3

Autosampler Location: 9
Date Collected: 8/12/2019 4:15:51 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: RINSE - 3

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: RINSE - 3

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	14102.2	0.6692	%	0.00207				0.31%
ScR 361.383	-425.8	-0.2022	%	0.00433				2.14%
Ag 328.068†	-18006.7	-0.1122	mg/L	0.04301	-0.1122	mg/L	0.04301	38.32%
Al 308.215†	-127766.5	-110.0	mg/L	7.80	-110.0	mg/L	7.80	7.09%
As 188.979†	-1184.2	-0.8298	mg/L	0.34310	-0.8298	mg/L	0.34310	41.35%
B 249.677†	-17134.7	-2.510	mg/L	0.1532	-2.510	mg/L	0.1532	6.10%
Ba 233.527†	-13840.0	-3.169	mg/L	0.1644	-3.169	mg/L	0.1644	5.19%
Be 313.042†	-665279.3	-1.457	mg/L	0.0351	-1.457	mg/L	0.0351	2.41%
Ca 317.933†	-107509.3	-10.55	mg/L	0.432	-10.55	mg/L	0.432	4.09%
Cd 228.802†	8601.7	0.3537	mg/L	0.02205	0.3537	mg/L	0.02205	6.23%
Co 228.616†	-5686.7	-0.1588	mg/L	0.01671	-0.1588	mg/L	0.01671	10.52%
Cr 267.716†	104767.2	26.35	mg/L	0.309	26.35	mg/L	0.309	1.17%
Cu 324.752†	318692.2	1.560	mg/L	0.0180	1.560	mg/L	0.0180	1.15%
Fe 273.955†	-16363.6	-16.39	mg/L	0.360	-16.39	mg/L	0.360	2.20%
K 766.490†	-243039.8	-225.9	mg/L	9.12	-225.9	mg/L	9.12	4.04%
Mg 279.077†	-37505.3	-35.38	mg/L	2.235	-35.38	mg/L	2.235	6.32%
Mn 257.610†	-118189.3	-3.344	mg/L	0.0485	-3.344	mg/L	0.0485	1.45%
Mo 202.031†	7780.7	0.4353	mg/L	0.00839	0.4353	mg/L	0.00839	1.93%
Na 589.592†	-19280.0	-2.318	mg/L	1.8376	-2.318	mg/L	1.8376	79.27%
Na 330.237†	81612.3	4240	mg/L	379.16	4240	mg/L	379.16	8.94%
Ni 231.604†	16417.9	4.938	mg/L	0.9496	4.938	mg/L	0.9496	19.23%
Pb 220.353†	2869.3	0.3897	mg/L	0.09735	0.3897	mg/L	0.09735	24.98%
Sb 206.836†	9364.0	2.919	mg/L	0.1632	2.919	mg/L	0.1632	5.59%
Se 196.026†	-6013.5	-4.902	mg/L	0.1129	-4.902	mg/L	0.1129	2.30%
Si 288.158†	-4912.9	-4.891	mg/L	0.8300	-4.891	mg/L	0.8300	16.97%
Sn 189.927†	-2628.4	-0.6741	mg/L	0.10472	-0.6741	mg/L	0.10472	15.53%
Sr 421.552†	-462018.1	-1.660	mg/L	0.0262	-1.660	mg/L	0.0262	1.58%
Ti 334.903†	-6558.5	-0.4750	mg/L	0.24779	-0.4750	mg/L	0.24779	52.17%
Tl 190.801†	-4550.8	-2.146	mg/L	0.1888	-2.146	mg/L	0.1888	8.80%
V 292.402†	24932.3	0.4684	mg/L	0.04292	0.4684	mg/L	0.04292	9.16%
Zn 206.200†	-1885.4	-0.7642	mg/L	0.54404	-0.7642	mg/L	0.54404	71.19%

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Sequence No.: 4
Sample ID: RINSE - 4

Dilution: 1X
Wash Time: 37

Autosampler Location: 9
Date Collected: 8/12/2019 4:19:34 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: RINSE - 4

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: RINSE - 4

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	14040.4	0.6663	%	0.00132				0.20%
ScR 361.383	-439.4	-0.2087	%	0.00480				2.30%
Ag 328.068†	-13558.3	-0.08448	mg/L	0.040674	-0.08448	mg/L	0.040674	48.15%
Al 308.215†	-125328.0	-107.9	mg/L	4.42	-107.9	mg/L	4.42	4.10%
As 188.979†	-1053.6	-0.7255	mg/L	0.09419	-0.7255	mg/L	0.09419	12.98%
B 249.677†	-22062.8	-3.230	mg/L	0.1755	-3.230	mg/L	0.1755	5.43%
Ba 233.527†	-11218.5	-2.569	mg/L	0.2618	-2.569	mg/L	0.2618	10.19%
Be 313.042†	-637749.3	-1.396	mg/L	0.0499	-1.396	mg/L	0.0499	3.58%
Ca 317.933†	-111052.9	-10.89	mg/L	0.610	-10.89	mg/L	0.610	5.59%
Cd 228.802†	8276.3	0.3404	mg/L	0.01010	0.3404	mg/L	0.01010	2.97%
Co 228.616†	-6044.4	-0.1702	mg/L	0.02220	-0.1702	mg/L	0.02220	13.04%
Cr 267.716†	103133.0	25.94	mg/L	0.620	25.94	mg/L	0.620	2.39%
Cu 324.752†	318022.2	1.557	mg/L	0.0110	1.557	mg/L	0.0110	0.70%
Fe 273.955†	-15175.0	-15.20	mg/L	1.585	-15.20	mg/L	1.585	10.43%
K 766.490†	-230284.5	-214.1	mg/L	14.47	-214.1	mg/L	14.47	6.76%
Mg 279.077†	-34537.5	-32.58	mg/L	1.050	-32.58	mg/L	1.050	3.22%
Mn 257.610†	-113327.2	-3.207	mg/L	0.1148	-3.207	mg/L	0.1148	3.58%
Mo 202.031†	7626.0	0.4267	mg/L	0.03975	0.4267	mg/L	0.03975	9.32%
Na 589.592†	-26010.1	-3.127	mg/L	1.7893	-3.127	mg/L	1.7893	57.21%
Na 330.237†	86225.8	4480	mg/L	61.89	4480	mg/L	61.89	1.38%
Ni 231.604†	17625.1	5.301	mg/L	0.4191	5.301	mg/L	0.4191	7.90%
Pb 220.353†	2395.3	0.3293	mg/L	0.02569	0.3293	mg/L	0.02569	7.80%
Sb 206.836†	9754.0	3.067	mg/L	0.1703	3.067	mg/L	0.1703	5.55%
Se 196.026†	-5825.9	-4.749	mg/L	0.3156	-4.749	mg/L	0.3156	6.64%
Si 288.158†	-11513.6	-11.50	mg/L	0.894	-11.50	mg/L	0.894	7.77%
Sn 189.927†	-2413.7	-0.6188	mg/L	0.04489	-0.6188	mg/L	0.04489	7.25%
Sr 421.552†	-450943.9	-1.621	mg/L	0.0233	-1.621	mg/L	0.0233	1.44%
Ti 334.903†	2579.5	0.1798	mg/L	0.67172	0.1798	mg/L	0.67172	373.64%
Tl 190.801†	-4470.6	-2.108	mg/L	0.0384	-2.108	mg/L	0.0384	1.82%
V 292.402†	25453.2	0.4718	mg/L	0.06634	0.4718	mg/L	0.06634	14.06%
Zn 206.200†	-3119.1	-1.273	mg/L	0.1971	-1.273	mg/L	0.1971	15.49%

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Sequence No.: 5
Sample ID: DI - 1

Autosampler Location: 10
Date Collected: 8/12/2019 4:23:17 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: DI - 1

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: DI - 1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	13447.2	0.6382	%	0.00404				0.63%
ScR 361.383	-538.7	-0.2558	%	0.01041				4.07%
Ag 328.068†	-21788.9	-0.1358	mg/L	0.07324	-0.1358	mg/L	0.07324	53.93%
Al 308.215†	-105265.5	-90.61	mg/L	3.192	-90.61	mg/L	3.192	3.52%
As 188.979†	-1489.4	-1.009	mg/L	0.4052	-1.009	mg/L	0.4052	40.17%
B 249.677†	-13038.2	-1.910	mg/L	0.2930	-1.910	mg/L	0.2930	15.34%
Ba 233.527†	-9964.2	-2.282	mg/L	0.2207	-2.282	mg/L	0.2207	9.67%
Be 313.042†	-528668.8	-1.158	mg/L	0.0353	-1.158	mg/L	0.0353	3.04%
Ca 317.933†	-70872.2	-6.971	mg/L	0.1077	-6.971	mg/L	0.1077	1.55%
Cd 228.802†	8230.0	0.3394	mg/L	0.01137	0.3394	mg/L	0.01137	3.35%
Co 228.616†	-5345.9	-0.1499	mg/L	0.01747	-0.1499	mg/L	0.01747	11.66%
Cr 267.716†	82220.0	20.68	mg/L	0.873	20.68	mg/L	0.873	4.22%
Cu 324.752†	328760.2	1.609	mg/L	0.0272	1.609	mg/L	0.0272	1.69%
Fe 273.955†	-12011.8	-12.03	mg/L	0.475	-12.03	mg/L	0.475	3.95%
K 766.490†	-188074.2	-174.8	mg/L	15.06	-174.8	mg/L	15.06	8.61%
Mg 279.077†	-29487.7	-27.82	mg/L	1.908	-27.82	mg/L	1.908	6.86%
Mn 257.610†	-91748.4	-2.596	mg/L	0.1127	-2.596	mg/L	0.1127	4.34%
Mo 202.031†	7907.4	0.4427	mg/L	0.02575	0.4427	mg/L	0.02575	5.82%
Na 589.592†	-30248.8	-3.637	mg/L	0.7346	-3.637	mg/L	0.7346	20.20%
Na 330.237†	74606.4	3876	mg/L	190.50	3876	mg/L	190.50	4.92%
Ni 231.604†	14124.3	4.249	mg/L	0.6080	4.249	mg/L	0.6080	14.31%
Pb 220.353†	2732.5	0.3649	mg/L	0.12108	0.3649	mg/L	0.12108	33.18%
Sb 206.836†	10226.7	3.324	mg/L	0.2620	3.324	mg/L	0.2620	7.88%
Se 196.026†	-4849.4	-3.953	mg/L	0.1868	-3.953	mg/L	0.1868	4.73%
Si 288.158†	-5108.9	-5.094	mg/L	1.1484	-5.094	mg/L	1.1484	22.54%
Sn 189.927†	-2505.7	-0.6418	mg/L	0.10596	-0.6418	mg/L	0.10596	16.51%
Sr 421.552†	-371782.1	-1.336	mg/L	0.0819	-1.336	mg/L	0.0819	6.13%
Ti 334.903†	-2480.9	-0.1819	mg/L	0.78250	-0.1819	mg/L	0.78250	430.11%
Tl 190.801†	-4602.4	-2.167	mg/L	0.1678	-2.167	mg/L	0.1678	7.74%
V 292.402†	28462.0	0.4727	mg/L	0.04425	0.4727	mg/L	0.04425	9.36%
Zn 206.200†	-470.7	-0.1848	mg/L	0.10743	-0.1848	mg/L	0.10743	58.15%

Sequence No.: 6
Sample ID: DI - 2

Autosampler Location: 10
Date Collected: 8/12/2019 4:26:59 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: DI - 2

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: DI - 2

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	13531.7	0.6422	%	0.00161				0.25%
ScR 361.383	-535.5	-0.2543	%	0.00277				1.09%
Ag 328.068†	-10970.9	-0.06834	mg/L	0.026116	-0.06834	mg/L	0.026116	38.22%
Al 308.215†	-100657.8	-86.65	mg/L	3.656	-86.65	mg/L	3.656	4.22%
As 188.979†	-1243.4	-0.8369	mg/L	0.11151	-0.8369	mg/L	0.11151	13.33%
B 249.677†	-15420.3	-2.258	mg/L	0.3388	-2.258	mg/L	0.3388	15.01%
Ba 233.527†	-10695.7	-2.450	mg/L	0.1636	-2.450	mg/L	0.1636	6.68%
Be 313.042†	-536198.2	-1.174	mg/L	0.0163	-1.174	mg/L	0.0163	1.39%
Ca 317.933†	-74193.4	-7.290	mg/L	0.6723	-7.290	mg/L	0.6723	9.22%
Cd 228.802†	9068.1	0.3719	mg/L	0.02947	0.3719	mg/L	0.02947	7.93%
Co 228.616†	-5757.0	-0.1622	mg/L	0.02548	-0.1622	mg/L	0.02548	15.71%
Cr 267.716†	82859.6	20.84	mg/L	0.467	20.84	mg/L	0.467	2.24%
Cu 324.752†	334111.2	1.636	mg/L	0.0257	1.636	mg/L	0.0257	1.57%
Fe 273.955†	-11646.2	-11.66	mg/L	0.132	-11.66	mg/L	0.132	1.13%
K 766.490†	-191013.0	-177.6	mg/L	9.88	-177.6	mg/L	9.88	5.56%
Mg 279.077†	-28142.9	-26.55	mg/L	1.289	-26.55	mg/L	1.289	4.85%
Mn 257.610†	-92996.6	-2.631	mg/L	0.0567	-2.631	mg/L	0.0567	2.16%
Mo 202.031†	7647.2	0.4281	mg/L	0.01412	0.4281	mg/L	0.01412	3.30%
Na 589.592†	-16242.8	-1.953	mg/L	2.5313	-1.953	mg/L	2.5313	129.61%
Na 330.237†	68838.3	3576	mg/L	92.29	3576	mg/L	92.29	2.58%
Ni 231.604†	14128.8	4.250	mg/L	0.6158	4.250	mg/L	0.6158	14.49%
Pb 220.353†	2569.7	0.3457	mg/L	0.05418	0.3457	mg/L	0.05418	15.67%
Sb 206.836†	9783.8	3.163	mg/L	0.1692	3.163	mg/L	0.1692	5.35%
Se 196.026†	-5392.0	-4.397	mg/L	0.7962	-4.397	mg/L	0.7962	18.11%
Si 288.158†	-4845.5	-4.830	mg/L	0.7469	-4.830	mg/L	0.7469	15.46%
Sn 189.927†	-2471.8	-0.6330	mg/L	0.08944	-0.6330	mg/L	0.08944	14.13%
Sr 421.552†	-363899.9	-1.308	mg/L	0.1004	-1.308	mg/L	0.1004	7.68%
Ti 334.903†	3752.0	0.2646	mg/L	0.54984	0.2646	mg/L	0.54984	207.81%
Tl 190.801†	-4801.7	-2.261	mg/L	0.2363	-2.261	mg/L	0.2363	10.45%
V 292.402†	27427.3	0.4615	mg/L	0.03616	0.4615	mg/L	0.03616	7.84%
Zn 206.200†	-1980.7	-0.8060	mg/L	0.24152	-0.8060	mg/L	0.24152	29.96%

Sequence No.: 7
Sample ID: DI - 3

Autosampler Location: 10
Date Collected: 8/12/2019 4:30:42 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: DI - 3

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: DI - 3

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	13911.5	0.6602	%	0.00237				0.36%
ScR 361.383	-558.6	-0.2653	%	0.00199				0.75%
Ag 328.068†	-22733.3	-0.1417	mg/L	0.05866	-0.1417	mg/L	0.05866	41.40%
Al 308.215†	-107385.6	-92.43	mg/L	0.250	-92.43	mg/L	0.250	0.27%
As 188.979†	-1314.7	-0.8900	mg/L	0.46554	-0.8900	mg/L	0.46554	52.31%
B 249.677†	-10820.5	-1.586	mg/L	0.3587	-1.586	mg/L	0.3587	22.61%
Ba 233.527†	-10316.5	-2.363	mg/L	0.1228	-2.363	mg/L	0.1228	5.20%
Be 313.042†	-527749.5	-1.156	mg/L	0.0141	-1.156	mg/L	0.0141	1.22%
Ca 317.933†	-70641.7	-6.945	mg/L	0.6224	-6.945	mg/L	0.6224	8.96%
Cd 228.802†	8231.3	0.3382	mg/L	0.02897	0.3382	mg/L	0.02897	8.56%
Co 228.616†	-5045.4	-0.1417	mg/L	0.00883	-0.1417	mg/L	0.00883	6.23%
Cr 267.716†	84050.2	21.14	mg/L	0.668	21.14	mg/L	0.668	3.16%
Cu 324.752†	347317.2	1.701	mg/L	0.0391	1.701	mg/L	0.0391	2.30%
Fe 273.955†	-12330.9	-12.35	mg/L	0.463	-12.35	mg/L	0.463	3.75%
K 766.490†	-190637.8	-177.2	mg/L	11.39	-177.2	mg/L	11.39	6.43%
Mg 279.077†	-27566.7	-26.00	mg/L	1.037	-26.00	mg/L	1.037	3.99%
Mn 257.610†	-91599.5	-2.592	mg/L	0.0598	-2.592	mg/L	0.0598	2.31%
Mo 202.031†	7708.3	0.4315	mg/L	0.00995	0.4315	mg/L	0.00995	2.30%
Na 589.592†	-26907.2	-3.235	mg/L	1.0247	-3.235	mg/L	1.0247	31.67%
Na 330.237†	69895.0	3631	mg/L	64.98	3631	mg/L	64.98	1.79%
Ni 231.604†	12418.2	3.736	mg/L	0.2763	3.736	mg/L	0.2763	7.40%
Pb 220.353†	2471.7	0.3324	mg/L	0.04236	0.3324	mg/L	0.04236	12.75%
Sb 206.836†	9188.2	2.943	mg/L	0.0950	2.943	mg/L	0.0950	3.23%
Se 196.026†	-4997.7	-4.074	mg/L	0.2649	-4.074	mg/L	0.2649	6.50%
Si 288.158†	-5060.5	-5.045	mg/L	1.3122	-5.045	mg/L	1.3122	26.01%
Sn 189.927†	-2653.1	-0.6796	mg/L	0.06026	-0.6796	mg/L	0.06026	8.87%
Sr 421.552†	-356190.4	-1.280	mg/L	0.0180	-1.280	mg/L	0.0180	1.41%
Ti 334.903†	663.2	0.04322	mg/L	0.243936	0.04322	mg/L	0.243936	564.39%
Tl 190.801†	-4332.0	-2.041	mg/L	0.1403	-2.041	mg/L	0.1403	6.88%
V 292.402†	28538.8	0.4767	mg/L	0.03028	0.4767	mg/L	0.03028	6.35%
Zn 206.200†	-2134.6	-0.8693	mg/L	0.33996	-0.8693	mg/L	0.33996	39.11%

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Sequence No.: 8
Sample ID: DI - 4

Autosampler Location: 10
Date Collected: 8/12/2019 4:34:25 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: DI - 4

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: DI - 4

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	13865.0	0.6580	%	0.00133				0.20%
ScR 361.383	-558.0	-0.2650	%	0.00333				1.26%
Ag 328.068†	-14038.2	-0.08747	mg/L	0.026484	-0.08747	mg/L	0.026484	30.28%
Al 308.215†	-107831.2	-92.82	mg/L	4.958	-92.82	mg/L	4.958	5.34%
As 188.979†	-1034.1	-0.7045	mg/L	0.25415	-0.7045	mg/L	0.25415	36.07%
B 249.677†	-14405.4	-2.110	mg/L	0.1479	-2.110	mg/L	0.1479	7.01%
Ba 233.527†	-10430.4	-2.389	mg/L	0.3044	-2.389	mg/L	0.3044	12.74%
Be 313.042†	-532319.0	-1.166	mg/L	0.0286	-1.166	mg/L	0.0286	2.45%
Ca 317.933†	-69423.2	-6.828	mg/L	0.1338	-6.828	mg/L	0.1338	1.96%
Cd 228.802†	8840.6	0.3616	mg/L	0.00675	0.3616	mg/L	0.00675	1.87%
Co 228.616†	-5323.8	-0.1498	mg/L	0.01090	-0.1498	mg/L	0.01090	7.27%
Cr 267.716†	84748.4	21.32	mg/L	0.510	21.32	mg/L	0.510	2.39%
Cu 324.752†	339503.5	1.662	mg/L	0.0206	1.662	mg/L	0.0206	1.24%
Fe 273.955†	-11985.9	-12.01	mg/L	0.112	-12.01	mg/L	0.112	0.93%
K 766.490†	-183868.2	-170.9	mg/L	14.30	-170.9	mg/L	14.30	8.36%
Mg 279.077†	-26211.0	-24.72	mg/L	1.238	-24.72	mg/L	1.238	5.01%
Mn 257.610†	-91393.3	-2.586	mg/L	0.0461	-2.586	mg/L	0.0461	1.78%
Mo 202.031†	7406.6	0.4146	mg/L	0.02532	0.4146	mg/L	0.02532	6.11%
Na 589.592†	-30765.3	-3.699	mg/L	1.9816	-3.699	mg/L	1.9816	53.57%
Na 330.237†	71205.8	3699	mg/L	250.62	3699	mg/L	250.62	6.78%
Ni 231.604†	13035.1	3.921	mg/L	0.6876	3.921	mg/L	0.6876	17.54%
Pb 220.353†	2313.6	0.3126	mg/L	0.15039	0.3126	mg/L	0.15039	48.10%
Sb 206.836†	9034.8	2.885	mg/L	0.0677	2.885	mg/L	0.0677	2.35%
Se 196.026†	-5913.5	-4.823	mg/L	0.5046	-4.823	mg/L	0.5046	10.46%
Si 288.158†	-6101.7	-6.088	mg/L	0.4974	-6.088	mg/L	0.4974	8.17%
Sn 189.927†	-2717.8	-0.6961	mg/L	0.11370	-0.6961	mg/L	0.11370	16.33%
Sr 421.552†	-366000.7	-1.315	mg/L	0.0190	-1.315	mg/L	0.0190	1.44%
Ti 334.903†	2566.5	0.1795	mg/L	0.25344	0.1795	mg/L	0.25344	141.16%
Tl 190.801†	-4857.1	-2.287	mg/L	0.3159	-2.287	mg/L	0.3159	13.81%
V 292.402†	27403.1	0.4644	mg/L	0.01292	0.4644	mg/L	0.01292	2.78%
Zn 206.200†	-1683.3	-0.6840	mg/L	0.59240	-0.6840	mg/L	0.59240	86.61%

INITIAL CALIBRATION DATA

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Calibration: CH00043
Instrument: ICP2
Calibration Date: 08/13/2019 13:23

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Silver	0	0	0		1	146528.7	0		0			
Arsenic	0	0	0		10	1398.98	0		0			
Cadmium	0	0	10	23349.44	0		0		0			
Chromium	0	0	10	3684.162	0		0		0			
Copper	0	0	10	187779.6	0		0		0			
Lead	0	0	0		10	7255.469	0		0			
Zinc	0	0	0		10	2178.377	0		0			

INITIAL CALIBRATION DATA

EPA 6010C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CH00043	Instrument:	ICP2
Calibration Date:	08/13/2019 13:23		

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	COD Limit	Q
Silver	73264.35	141.4	1.0000			
Arsenic	699.49	141.4	1.0000			
Cadmium	11674.72	141.4	1.0000			
Chromium	1842.081	141.4	1.0000			
Copper	93889.8	141.4	1.0000			
Lead	3627.734	141.4	1.0000			
Zinc	1089.188	141.4	1.0000			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: 4-26-19 Analysis Date: 8-13-19 Analyst: TH

LR Date: 4-26-19 Sequence: SHH0173 Page: 1 of 5

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		SEQ-CAL1	H6894		
		-CAL2	H7671		
		-CAL3	H7672		
		-CAL4	H7673		
		-CAL5	H7674		
		-ICV1	HS329		
		-ICB1	H6894		
		-CRL1	H6960		
		-IFA1	HS485		
		-IFB1	HS486		
		-CCV1	HS329		
		-CCB1	H6894		
BHH		BHH0242-BLK2	TWC		Cr only
		BHH0311-BLK1	PHN		
		19H0024-02	↓		
		BHH0311-BS1	↓		
		BHH0242-BS2	TWC		Cr only
		SEQ-CCV2			
		↓ -CCB2			
		BHH0090-BLK1	SWC	2	
		19H0416-21	↓	↓	
		↓ -22	↓	↓	SiR noisy
		BHH0090-SRL1	↓	10	

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: — Analysis Date: 8-13-19 Analyst: TH

LR Date: — Sequence: — Page: 2 of 5

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		19G0416-30	SWC	2	SCR noisy
		BHH0090-DUP1	↓	↓	↓
		-MS1			
		-MSD1			SCR noisy
		-PS1			0.060mL HSZSD ↓
		-ISS1	↓	↓	
		SEQ-CCV3			
		↓ -CCB3			
		19G0416-23	SWC	2	SCR noisy
		-24	↓	↓	
		-25			SCR noisy
		-26			
		-27			SCR noisy
		-28			
		-29			
		-31			
		-32			
	✓	-33	↓	↓	A17901.LR
		SEQ-CCV4			
		↓ -CCB4			
		19G0416-34	SWC	2	SCR noisy
		-35	↓	↓	↓
		-36	↓	↓	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: — Analysis Date: 8-13-19 Analyst: TH

LR Date: — Sequence: — Page: 3 of 5

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		19G0416-37	SWL	2	
		-38	↓	↓	
		-39			SCR noisy
		-04		5	↓
		-08		↓	Pb only
		-12			SCR noisy
		-40	↓	↓	
		SEQ-CCV5			
		↓ -CCB5			
		19G0416-42	SWL	5	SCR noisy
		-43	↓	↓	
		-45			SCR noisy
		-46			↓
	✓	BHH0091-SRL1		25	ZR 10x Dil.
↓	↓	19G0416-49		5	ZR 2x Dil.
		BHH0091-DUP1		↓	↓
		-MS1			
		-MSD1			
		-PS1	↓	↓	0.080mL HS250
		SEQ-CCV6			
		↓ -CCB6			
		Rinse x4			
		SEQ-CCV7			(Break in analysis) Be, Sb, Si, Sr ↑

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: — Analysis Date: 8-13-19 Analyst: TH

LR Date: — Sequence: — Page: 4 of 5

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		SEQ-CCB7			
		19G0416-33	SWC	5	SCR noisy
		BHH0091-SRL1	↓	10	
		19G0416-49		2	SCR noisy
		BHH0091-DUP1		↓	↓ As, Pb RPD ↑ (E2)
		↓ -MS1			SCR noisy
		-MSD1			↓ As noisy No As
		-PS1	↓	↓	0.080mL HS250
		SEQ-CCV8			Sb, Si, Sr ↑
		↓ -CCB8			
		SEQ-CAL3			
		↓ -CCV9			Si ↑
		↓ -CCB9			
		BHH0317-BLK1	TWC		
		↓ -SRL1	↓	5	
		19G0415-01			
		BHH0317-DUP1			
		↓ -MS1			
		↓ -BS1	↓		
		SEQ-CCV9			Si ↑
		↓ -CCB9			
		BHH0296-BLK1	TWC		
	✓	19H0104-01	↓	2	SCR noisy

Analytical Resources, Incorporated
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SAMPLE RUN LOG-ICP-OES-02
Perkin Elmer OPTIMA 7300
Serial No. – 077C8121202

IEC Date: — Analysis Date: 8-13-19 Analyst: TH

LR Date: — Sequence: — Page: 5 of 5

All corrections made by analyst unless otherwise noted.

Edit Label	Delete Data	ARI Sample ID	Prep. Code	Dilution	Comments
		19H0140-01	TWC		
		↓ -02	↓		
	✓	19H0078-01	↓	10	RR 2x Dil
		SEQ-IBL1	—		
		BHH0296-DUP1	TWC		
		19H0140-03	↓		
		BHH0296-MS1	↓		Ca STL
		↓ -BS1	↓		
		SEQ-CCVB			Si ↑
		↓ -CCBB			
		19H0137-01	TWC	5	
		SEQ-IBL2			B C.O.
		19H0078-01	TWC	2	SCR noisy No Ba, Cr
		SEQ-IBL3			B C.O.
		↓ -IBL4			↓
		BHH0242-DUP1	TWC	5	
		19H0108-01	↓	↓	
		BHH0242-MS1	↓	↓	Mo STL
		SEQ-IBL5			
		↓ -CCVC			Si ↑
		↓ -CCBC			
		Rinse/DI			
			TH 8-13-19		

Nebulizer Parameters: Hg_ReAlign

Analyte	Back Pressure	Flow
All	161.0 kPa	0.65 L/min

8/13/2019 12:35:05 PM Hg ReAlign... Actual peak offset (nm): 0.003
Drift (nm): -0.000 Slit adjustment: 0

Analysis Begun

Start Time: 8/13/2019 12:36:47 PM **Plasma On Time: 8/13/2019 11:49:16 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\BLKS.sif
Batch ID:
Results Data Set: I2190813
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

Method Loaded
Method Name: ELMT7300bcESI2FAST **Method Last Saved: 7/22/2019 11:31:54 AM**
IEC File: IEC042619A.iec **MSF File:**
Method Description: 12Axial Elements

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Ag 328.068	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Al 308.215	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
As 188.979	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
B 249.677	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ba 233.527	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Be 313.042	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ca 317.933	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Cd 228.802	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Co 228.616	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Cr 267.716	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Cu 324.752	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Fe 273.955	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
K 766.490	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Mg 279.077	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Mn 257.610	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Mo 202.031	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Na 589.592	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Na 330.237	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Ni 231.604	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Pb 220.353	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Sb 206.836	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Se 196.026	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Si 288.158	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Sn 189.927	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Sr 421.552	Lin Thru 0	Peak Area	Radial	ScR 361.383	No
Ti 334.903	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
Tl 190.801	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
V 292.402	Lin Thru 0	Peak Area	Axial	ScA 357.253	Yes
Zn 206.200	Lin Thru 0	Peak Area	Radial	ScR 361.383	Yes
ScA 357.253	Lin, Calc Int	Peak Area	Axial	n/a	n/a
ScR 361.383	Lin, Calc Int	Peak Area	Radial	n/a	n/a

~~**Sequence No.: 1**~~ ~~**Autosampler Location: 1**~~
~~**Sample ID: B1**~~ TH 09-13-19 ~~**Date Collected: 8/13/2019 12:36:56 PM**~~
~~**Data Type: Original**~~

~~**Dilution: 1X**~~

~~**Nebulizer Parameters: B1**~~

~~Analyte~~	~~Back Pressure~~	~~Flow~~
~~All~~	~~162.0 kPa~~	~~0.65 L/min~~

==========

Analysis Begun

Start Time: 8/13/2019 1:23:09 PM **Plasma On Time: 8/13/2019 11:49:16 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\ 0813.sif
Batch ID:
Results Data Set: I2190813
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: SEQ-CAL1 **Date Collected: 8/13/2019 1:23:16 PM**
Data Type: Original

Nebulizer Parameters: SEQ-CAL1

Analyte	Back Pressure	Flow
All	160.0 kPa	0.65 L/min

Mean Data: SEQ-CAL1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2057672.1	6700.67	0.33%	100.0	%
ScR 361.383	205283.0	1234.52	0.60%	100.0	%
Ag 328.068†	-84.9	42.67	50.24%	[0.00]	mg/L
Al 308.215†	275.2	6.49	2.36%	[0.00]	mg/L
As 188.979†	-10.1	0.37	3.67%	[0.00]	mg/L
B 249.677†	32.6	3.31	10.14%	[0.00]	mg/L
Ba 233.527†	26.9	4.68	17.39%	[0.00]	mg/L
Be 313.042†	1391.3	12.89	0.93%	[0.00]	mg/L
Ca 317.933†	206.3	15.25	7.39%	[0.00]	mg/L
Cd 228.802†	260.3	1.78	0.68%	[0.00]	mg/L
Co 228.616†	-34.3	1.24	3.62%	[0.00]	mg/L
Cr 267.716†	-216.4	7.44	3.44%	[0.00]	mg/L
Cu 324.752†	2074.2	34.53	1.66%	[0.00]	mg/L
Fe 273.955†	31.6	1.65	5.22%	[0.00]	mg/L
K 766.490†	427.6	22.22	5.20%	[0.00]	mg/L
Mg 279.077†	71.8	2.68	3.73%	[0.00]	mg/L
Mn 257.610†	243.1	5.85	2.41%	[0.00]	mg/L
Mo 202.031†	54.8	2.90	5.29%	[0.00]	mg/L
Na 589.592†	358.0	69.78	19.49%	[0.00]	mg/L
Na 330.237†	-174.6	18.92	10.84%	[0.00]	mg/L
Ni 231.604†	-33.5	6.32	18.85%	[0.00]	mg/L
Pb 220.353†	20.4	12.07	59.31%	[0.00]	mg/L
Sb 206.836†	65.5	2.13	3.24%	[0.00]	mg/L
Se 196.026†	-39.0	1.17	3.01%	[0.00]	mg/L
Si 288.158†	13.1	2.01	15.31%	[0.00]	mg/L
Sn 189.927†	-17.0	0.72	4.22%	[0.00]	mg/L
Sr 421.552†	973.7	24.44	2.51%	[0.00]	mg/L
Ti 334.903†	-1.8	30.76	>999.9%	[0.00]	mg/L
Tl 190.801†	-36.9	4.38	11.88%	[0.00]	mg/L
V 292.402†	174.0	12.23	7.03%	[0.00]	mg/L
Zn 206.200†	5.0	1.22	24.32%	[0.00]	mg/L

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: SEQ-CAL2 **Date Collected: 8/13/2019 1:27:21 PM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL2

Analyte	Back Pressure	Flow
All	161.0 kPa	0.65 L/min

Mean Data: SEQ-CAL2

Analyte	Mean Corrected	Calib

Analyte	Intensity	Std.Dev.	RSD	Conc.	Units
ScA 357.253	2077181.8	6065.10	0.29%	100.9	%
ScR 361.383	208510.7	851.36	0.41%	101.6	%
Ba 233.527†	39420.7	5.13	0.01%	[10]	mg/L
Cd 228.802†	233494.4	762.60	0.33%	[10]	mg/L
Co 228.616†	328310.8	308.44	0.09%	[10]	mg/L
Cr 267.716†	36841.6	355.71	0.97%	[10]	mg/L
Cu 324.752†	1877795.9	2292.84	0.12%	[10]	mg/L
Mn 257.610†	315639.2	998.60	0.32%	[10]	mg/L
V 292.402†	797147.3	4302.14	0.54%	[10]	mg/L

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: SEQ-CAL3 **Date Collected: 8/13/2019 1:29:05 PM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL3

Analyte	Back Pressure	Flow
All	162.0 kPa	0.65 L/min

Mean Data: SEQ-CAL3

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2075209.1	8112.19	0.39%	100.9	%
ScR 361.383	210518.7	356.64	0.17%	102.6	%
Ag 328.068†	146528.6	199.58	0.14%	[1.0]	mg/L
As 188.979†	13989.8	58.70	0.42%	[10]	mg/L
B 249.677†	61740.1	243.02	0.39%	[10]	mg/L
Be 313.042†	2061353.0	20388.05	0.99%	[5.0]	mg/L
Na 589.592†	377930.2	2819.80	0.75%	[50]	mg/L
Ni 231.604†	30551.3	159.09	0.52%	[10]	mg/L
Pb 220.353†	72554.7	89.81	0.12%	[10]	mg/L
Se 196.026†	11129.9	62.82	0.56%	[10]	mg/L
Sr 421.552†	1315704.4	12032.54	0.91%	[5]	mg/L
Tl 190.801†	19580.8	68.55	0.35%	[10]	mg/L
Zn 206.200†	21783.8	117.07	0.54%	[10]	mg/L

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: SEQ-CAL4 **Date Collected: 8/13/2019 1:31:20 PM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL4

Analyte	Back Pressure	Flow
All	162.0 kPa	0.65 L/min

Mean Data: SEQ-CAL4

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2082411.2	8453.07	0.41%	101.2	%
ScR 361.383	209384.3	777.48	0.37%	102.0	%
Mo 202.031†	165271.3	925.07	0.56%	[10]	mg/L
Sb 206.836†	25633.7	144.83	0.57%	[10]	mg/L
Si 288.158†	8623.9	87.37	1.01%	[10]	mg/L
Sn 189.927†	35457.1	347.33	0.98%	[10]	mg/L
Ti 334.903†	126132.3	261.19	0.21%	[10]	mg/L

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: SEQ-CAL5 **Date Collected: 8/13/2019 1:33:33 PM**
Data Type: Original
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CAL5

Analyte	Back Pressure	Flow
All	162.0 kPa	0.65 L/min

Mean Data: SEQ-CAL5

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	1949148.9	5276.20	0.27%	94.73	%
ScR 361.383	208393.2	1142.91	0.55%	101.5	%
Al 308.215†	31084.1	281.23	0.90%	[30]	mg/L
Ca 317.933†	281186.0	802.35	0.29%	[30]	mg/L
Fe 273.955†	90624.2	467.20	0.52%	[100]	mg/L
K 766.490†	97593.2	323.89	0.33%	[100]	mg/L
Mg 279.077†	28328.7	293.29	1.04%	[30]	mg/L
Na 330.237†	1729.8	20.05	1.16%	[100]	mg/L

Calibration Summary

Analyte	Stds.	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag 328.068	1	Lin Thru 0	0.0	146500	0.00000	1.000000	
Al 308.215	1	Lin Thru 0	0.0	1036	0.00000	1.000000	
As 188.979	1	Lin Thru 0	0.0	1399	0.00000	1.000000	
B 249.677	1	Lin Thru 0	0.0	6174	0.00000	1.000000	
Ba 233.527	1	Lin Thru 0	0.0	3942	0.00000	1.000000	
Be 313.042	1	Lin Thru 0	0.0	412300	0.00000	1.000000	
Ca 317.933	1	Lin Thru 0	0.0	9373	0.00000	1.000000	
Cd 228.802	1	Lin Thru 0	0.0	23350	0.00000	1.000000	
Co 228.616	1	Lin Thru 0	0.0	32830	0.00000	1.000000	
Cr 267.716	1	Lin Thru 0	0.0	3684	0.00000	1.000000	
Cu 324.752	1	Lin Thru 0	0.0	187800	0.00000	1.000000	
Fe 273.955	1	Lin Thru 0	0.0	906.2	0.00000	1.000000	
K 766.490	1	Lin Thru 0	0.0	975.9	0.00000	1.000000	
Mg 279.077	1	Lin Thru 0	0.0	944.3	0.00000	1.000000	
Mn 257.610	1	Lin Thru 0	0.0	31560	0.00000	1.000000	
Mo 202.031	1	Lin Thru 0	0.0	16530	0.00000	1.000000	
Na 589.592	1	Lin Thru 0	0.0	7559	0.00000	1.000000	
Na 330.237	1	Lin Thru 0	0.0	17.30	0.00000	1.000000	
Ni 231.604	1	Lin Thru 0	0.0	3055	0.00000	1.000000	
Pb 220.353	1	Lin Thru 0	0.0	7255	0.00000	1.000000	
Sb 206.836	1	Lin Thru 0	0.0	2563	0.00000	1.000000	
Se 196.026	1	Lin Thru 0	0.0	1113	0.00000	1.000000	
Si 288.158	1	Lin Thru 0	0.0	862.4	0.00000	1.000000	
Sn 189.927	1	Lin Thru 0	0.0	3546	0.00000	1.000000	
Sr 421.552	1	Lin Thru 0	0.0	263100	0.00000	1.000000	
Ti 334.903	1	Lin Thru 0	0.0	12610	0.00000	1.000000	
Tl 190.801	1	Lin Thru 0	0.0	1958	0.00000	1.000000	
V 292.402	1	Lin Thru 0	0.0	79710	0.00000	1.000000	
Zn 206.200	1	Lin Thru 0	0.0	2178	0.00000	1.000000	

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Analysis Begun

Start Time: 8/13/2019 1:36:56 PM **Plasma On Time: 8/13/2019 11:49:16 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0813.sif
Batch ID:
Results Data Set: I2190813
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 7**
Sample ID: SEQ-ICV1 **Date Collected: 8/13/2019 1:37:03 PM**
Data Type: Original

Dilution: 1X

Nebulizer Parameters: SEQ-ICV1

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: SEQ-ICV1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2078749.9	101.0	%	0.67				0.67%
ScR 361.383	207323.1	101.0	%	0.43				0.43%
Ag 328.068†	149656.6	1.022	mg/L	0.0043	1.022	mg/L	0.0043	0.42%
Al 308.215†	2117.6	2.006	mg/L	0.0038	2.006	mg/L	0.0038	0.19%
As 188.979†	2743.3	1.985	mg/L	0.0131	1.985	mg/L	0.0131	0.66%
B 249.677†	6434.4	1.042	mg/L	0.0018	1.042	mg/L	0.0018	0.17%
Ba 233.527†	3988.9	1.010	mg/L	0.0013	1.010	mg/L	0.0013	0.13%
Be 313.042†	419155.1	1.012	mg/L	0.0032	1.012	mg/L	0.0032	0.31%
Ca 317.933†	19316.9	2.048	mg/L	0.0052	2.048	mg/L	0.0052	0.25%
Cd 228.802†	23691.5	1.003	mg/L	0.0124	1.003	mg/L	0.0124	1.23%
Co 228.616†	32536.0	0.9890	mg/L	0.00465	0.9890	mg/L	0.00465	0.47%
Cr 267.716†	3757.3	1.020	mg/L	0.0063	1.020	mg/L	0.0063	0.61%
Cu 324.752†	190807.9	1.016	mg/L	0.0075	1.016	mg/L	0.0075	0.74%
Fe 273.955†	1826.5	2.008	mg/L	0.0086	2.008	mg/L	0.0086	0.43%
K 766.490†	19752.8	20.24	mg/L	0.154	20.24	mg/L	0.154	0.76%
Mg 279.077†	1913.2	2.037	mg/L	0.0040	2.037	mg/L	0.0040	0.20%
Mn 257.610†	32021.1	1.015	mg/L	0.0010	1.015	mg/L	0.0010	0.10%
Mo 202.031†	16420.2	0.9934	mg/L	0.00685	0.9934	mg/L	0.00685	0.69%
Na 589.592†	389368.5	51.51	mg/L	0.151	51.51	mg/L	0.151	0.29%
Na 330.237†	891.2	51.30	mg/L	0.703	51.30	mg/L	0.703	1.37%
Ni 231.604†	3109.9	1.019	mg/L	0.0049	1.019	mg/L	0.0049	0.48%
Pb 220.353†	14628.7	2.018	mg/L	0.0135	2.018	mg/L	0.0135	0.67%
Sb 206.836†	5360.8	2.087	mg/L	0.0153	2.087	mg/L	0.0153	0.73%
Se 196.026†	2262.0	2.031	mg/L	0.0181	2.031	mg/L	0.0181	0.89%
Si 288.158†	1815.9	2.107	mg/L	0.0024	2.107	mg/L	0.0024	0.11%
Sn 189.927†	3543.6	1.001	mg/L	0.0093	1.001	mg/L	0.0093	0.93%
Sr 421.552†	272400.9	1.035	mg/L	0.0051	1.035	mg/L	0.0051	0.49%
Ti 334.903†	12591.3	0.9970	mg/L	0.00280	0.9970	mg/L	0.00280	0.28%
Tl 190.801†	3927.4	1.998	mg/L	0.0150	1.998	mg/L	0.0150	0.75%
V 292.402†	78901.9	0.9971	mg/L	0.00870	0.9971	mg/L	0.00870	0.87%
Zn 206.200†	2236.7	1.025	mg/L	0.0038	1.025	mg/L	0.0038	0.37%

Sequence No.: 2
Sample ID: SEQ-ICB1

Autosampler Location: 1
Date Collected: 8/13/2019 1:41:08 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-ICB1

Analyte	Back Pressure	Flow
All	162.0 kPa	0.65 L/min

Mean Data: SEQ-ICB1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2079421.9	101.1	%	0.37				0.36%
ScR 361.383	210598.8	102.6	%	0.78				0.76%
Ag 328.068†	7.5	0.00005	mg/L	0.000127	0.00005	mg/L	0.000127	248.40%
Al 308.215†	-22.5	-0.02176	mg/L	0.019479	-0.02176	mg/L	0.019479	89.50%
As 188.979†	0.7	0.00054	mg/L	0.002244	0.00054	mg/L	0.002244	413.58%
B 249.677†	26.4	0.00427	mg/L	0.000708	0.00427	mg/L	0.000708	16.56%
Ba 233.527†	2.2	0.00056	mg/L	0.000790	0.00056	mg/L	0.000790	142.15%
Be 313.042†	-46.3	-0.00011	mg/L	0.000022	-0.00011	mg/L	0.000022	19.84%
Ca 317.933†	-14.0	-0.00151	mg/L	0.000723	-0.00151	mg/L	0.000723	47.96%
Cd 228.802†	6.5	0.00027	mg/L	0.000155	0.00027	mg/L	0.000155	56.80%
Co 228.616†	-2.5	-0.00008	mg/L	0.000100	-0.00008	mg/L	0.000100	128.23%
Cr 267.716†	6.5	0.00178	mg/L	0.000736	0.00178	mg/L	0.000736	41.46%
Cu 324.752†	28.9	0.00015	mg/L	0.000034	0.00015	mg/L	0.000034	21.99%
Fe 273.955†	-1.4	-0.00150	mg/L	0.002814	-0.00150	mg/L	0.002814	187.67%
K 766.490†	-59.0	-0.06045	mg/L	0.026517	-0.06045	mg/L	0.026517	43.86%
Mg 279.077†	4.3	0.00459	mg/L	0.001623	0.00459	mg/L	0.001623	35.39%
Mn 257.610†	-6.2	-0.00020	mg/L	0.000111	-0.00020	mg/L	0.000111	56.27%
Mo 202.031†	11.6	0.00070	mg/L	0.000113	0.00070	mg/L	0.000113	16.09%
Na 589.592†	-74.7	-0.00989	mg/L	0.004417	-0.00989	mg/L	0.004417	44.68%
Na 330.237†	8.5	0.4898	mg/L	0.42874	0.4898	mg/L	0.42874	87.53%
Ni 231.604†	-0.1	-0.00004	mg/L	0.000043	-0.00004	mg/L	0.000043	101.14%
Pb 220.353†	3.0	0.00041	mg/L	0.000594	0.00041	mg/L	0.000594	146.71%
Sb 206.836†	-2.4	-0.00097	mg/L	0.000589	-0.00097	mg/L	0.000589	60.73%
Se 196.026†	1.8	0.00165	mg/L	0.002663	0.00165	mg/L	0.002663	161.16%
Si 288.158†	5.3	0.00616	mg/L	0.007520	0.00616	mg/L	0.007520	122.09%
Sn 189.927†	1.4	0.00039	mg/L	0.000473	0.00039	mg/L	0.000473	120.05%
Sr 421.552†	-49.5	-0.00019	mg/L	0.000084	-0.00019	mg/L	0.000084	44.60%
Ti 334.903†	6.4	0.00050	mg/L	0.000397	0.00050	mg/L	0.000397	78.98%
Tl 190.801†	5.9	0.00304	mg/L	0.001318	0.00304	mg/L	0.001318	43.43%
V 292.402†	13.3	0.00018	mg/L	0.000300	0.00018	mg/L	0.000300	168.30%
Zn 206.200†	-1.8	-0.00081	mg/L	0.000996	-0.00081	mg/L	0.000996	123.30%

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Sequence No.: 3
Sample ID: SEQ-CRL1

Autosampler Location: 301
Date Collected: 8/13/2019 1:45:07 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CRL1

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: SEQ-CRL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2068552.7	100.5	%	0.84				0.84%
ScR 361.383	207958.0	101.3	%	0.23				0.22%
Ag 328.068†	438.2	0.00299	mg/L	0.000260	0.00299	mg/L	0.000260	8.70%
Al 308.215†	40.6	0.03901	mg/L	0.013832	0.03901	mg/L	0.013832	35.46%
As 188.979†	71.0	0.05084	mg/L	0.002186	0.05084	mg/L	0.002186	4.30%
B 249.677†	141.8	0.02297	mg/L	0.001270	0.02297	mg/L	0.001270	5.53%
Ba 233.527†	12.0	0.00302	mg/L	0.001073	0.00302	mg/L	0.001073	35.50%
Be 313.042†	344.1	0.00082	mg/L	0.000016	0.00082	mg/L	0.000016	1.90%
Ca 317.933†	433.8	0.04623	mg/L	0.000649	0.04623	mg/L	0.000649	1.40%
Cd 228.802†	58.3	0.00217	mg/L	0.000093	0.00217	mg/L	0.000093	4.30%
Co 228.616†	96.6	0.00293	mg/L	0.000184	0.00293	mg/L	0.000184	6.28%
Cr 267.716†	21.7	0.00590	mg/L	0.001499	0.00590	mg/L	0.001499	25.42%
Cu 324.752†	419.5	0.00223	mg/L	0.000169	0.00223	mg/L	0.000169	7.57%
Fe 273.955†	44.0	0.04850	mg/L	0.001595	0.04850	mg/L	0.001595	3.29%
K 766.490†	467.3	0.4789	mg/L	0.03544	0.4789	mg/L	0.03544	7.40%
Mg 279.077†	43.0	0.04559	mg/L	0.011123	0.04559	mg/L	0.011123	24.40%
Mn 257.610†	21.6	0.00069	mg/L	0.000120	0.00069	mg/L	0.000120	17.52%
Mo 202.031†	81.8	0.00495	mg/L	0.000113	0.00495	mg/L	0.000113	2.28%
Na 589.592†	3550.3	0.4697	mg/L	0.00284	0.4697	mg/L	0.00284	0.60%
Na 330.237†	14.3	0.8250	mg/L	0.38235	0.8250	mg/L	0.38235	46.35%
Ni 231.604†	33.2	0.01091	mg/L	0.001465	0.01091	mg/L	0.001465	13.42%
Pb 220.353†	145.6	0.02008	mg/L	0.000963	0.02008	mg/L	0.000963	4.80%
Sb 206.836†	136.1	0.05308	mg/L	0.002137	0.05308	mg/L	0.002137	4.03%
Se 196.026†	56.8	0.05100	mg/L	0.004593	0.05100	mg/L	0.004593	9.01%
Si 288.158†	55.7	0.06455	mg/L	0.008981	0.06455	mg/L	0.008981	13.91%
Sn 189.927†	35.4	0.01003	mg/L	0.000435	0.01003	mg/L	0.000435	4.34%
Sr 421.552†	223.6	0.00085	mg/L	0.000088	0.00085	mg/L	0.000088	10.32%
Ti 334.903†	63.7	0.00504	mg/L	0.001553	0.00504	mg/L	0.001553	30.78%
Tl 190.801†	105.0	0.05362	mg/L	0.002545	0.05362	mg/L	0.002545	4.75%
V 292.402†	230.5	0.00294	mg/L	0.000187	0.00294	mg/L	0.000187	6.39%
Zn 206.200†	20.5	0.00937	mg/L	0.001188	0.00937	mg/L	0.001188	12.69%

Sequence No.: 4
Sample ID: SEQ-IFA1

Autosampler Location: 302
Date Collected: 8/13/2019 1:49:06 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IFA1

Analyte	Back Pressure	Flow
All	162.0 kPa	0.65 L/min

Mean Data: SEQ-IFA1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2010450.6	97.71	%	0.790				0.81%
ScR 361.383	208283.9	101.5	%	0.45				0.44%
Ag 328.068†	-184.4	-0.00126	mg/L	0.000065	-0.00126	mg/L	0.000065	5.17%
Al 308.215†	207950.0	200.7	mg/L	0.33	200.7	mg/L	0.33	0.16%
As 188.979†	30.2	0.01442	mg/L	0.002874	0.01442	mg/L	0.002874	19.93%
B 249.677†	-58.7	0.01036	mg/L	0.001302	0.01036	mg/L	0.001302	12.56%
Ba 233.527†	104.2	0.00185	mg/L	0.000320	0.00185	mg/L	0.000320	17.28%
Be 313.042†	40.9	0.00013	mg/L	0.000018	0.00013	mg/L	0.000018	14.05%
Ca 317.933†	942326.7	100.5	mg/L	0.55	100.5	mg/L	0.55	0.55%
Cd 228.802†	21.6	0.00078	mg/L	0.000085	0.00078	mg/L	0.000085	10.92%
Co 228.616†	88.6	-0.00060	mg/L	0.000277	-0.00060	mg/L	0.000277	46.57%
Cr 267.716†	4.5	-0.00006	mg/L	0.001385	-0.00006	mg/L	0.001385	>999.9%
Cu 324.752†	-1358.7	0.00138	mg/L	0.000255	0.00138	mg/L	0.000255	18.44%
Fe 273.955†	177813.7	196.2	mg/L	0.17	196.2	mg/L	0.17	0.08%
K 766.490†	2.3	0.00234	mg/L	0.018908	0.00234	mg/L	0.018908	808.20%
Mg 279.077†	97825.7	103.5	mg/L	0.10	103.5	mg/L	0.10	0.09%
Mn 257.610†	18.6	0.00011	mg/L	0.000111	0.00011	mg/L	0.000111	104.46%
Mo 202.031†	72.2	0.00271	mg/L	0.000255	0.00271	mg/L	0.000255	9.40%
Na 589.592†	-153.1	-0.02025	mg/L	0.002345	-0.02025	mg/L	0.002345	11.58%
Na 330.237†	-5.5	-0.3139	mg/L	0.51359	-0.3139	mg/L	0.51359	163.63%
Ni 231.604†	-7.1	-0.00232	mg/L	0.000962	-0.00232	mg/L	0.000962	41.44%
Pb 220.353†	-319.8	0.00123	mg/L	0.000275	0.00123	mg/L	0.000275	22.32%
Sb 206.836†	50.8	0.01959	mg/L	0.002377	0.01959	mg/L	0.002377	12.13%
Se 196.026†	-21.5	-0.01770	mg/L	0.003268	-0.01770	mg/L	0.003268	18.46%
Si 288.158†	-25.0	-0.01680	mg/L	0.009013	-0.01680	mg/L	0.009013	53.63%
Sn 189.927†	-97.4	-0.01050	mg/L	0.001341	-0.01050	mg/L	0.001341	12.77%
Sr 421.552†	13.7	0.00005	mg/L	0.000074	0.00005	mg/L	0.000074	141.50%
Ti 334.903†	130.1	0.00411	mg/L	0.000971	0.00411	mg/L	0.000971	23.62%
Tl 190.801†	-37.1	-0.01895	mg/L	0.001801	-0.01895	mg/L	0.001801	9.50%
V 292.402†	-542.1	0.00402	mg/L	0.000227	0.00402	mg/L	0.000227	5.67%
Zn 206.200†	0.5	0.00022	mg/L	0.001731	0.00022	mg/L	0.001731	794.66%

Sequence No.: 5
Sample ID: SEQ-IFB1

Autosampler Location: 303
Date Collected: 8/13/2019 1:53:20 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IFB1

Analyte	Back Pressure	Flow
All	162.0 kPa	0.65 L/min

Mean Data: SEQ-IFB1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1992684.4	96.84	%	0.406				0.42%
ScR 361.383	204125.5	99.44	%	0.401				0.40%
Ag 328.068†	152472.3	1.041	mg/L	0.0033	1.041	mg/L	0.0033	0.31%
Al 308.215†	212534.6	205.1	mg/L	1.08	205.1	mg/L	1.08	0.53%
As 188.979†	1493.2	1.059	mg/L	0.0102	1.059	mg/L	0.0102	0.96%
B 249.677†	-54.8	0.00911	mg/L	0.001034	0.00911	mg/L	0.001034	11.35%
Ba 233.527†	4111.3	1.016	mg/L	0.0066	1.016	mg/L	0.0066	0.65%
Be 313.042†	439364.5	1.062	mg/L	0.0087	1.062	mg/L	0.0087	0.82%
Ca 317.933†	968552.8	103.3	mg/L	0.19	103.3	mg/L	0.19	0.19%
Cd 228.802†	23920.0	1.018	mg/L	0.0065	1.018	mg/L	0.0065	0.64%
Co 228.616†	32600.1	0.9893	mg/L	0.00314	0.9893	mg/L	0.00314	0.32%
Cr 267.716†	3792.3	1.028	mg/L	0.0135	1.028	mg/L	0.0135	1.31%
Cu 324.752†	193865.7	1.042	mg/L	0.0019	1.042	mg/L	0.0019	0.18%
Fe 273.955†	182555.6	201.4	mg/L	1.18	201.4	mg/L	1.18	0.58%
K 766.490†	62.0	0.06349	mg/L	0.028886	0.06349	mg/L	0.028886	45.50%
Mg 279.077†	97075.4	102.7	mg/L	0.56	102.7	mg/L	0.56	0.55%
Mn 257.610†	32482.4	1.029	mg/L	0.0055	1.029	mg/L	0.0055	0.53%
Mo 202.031†	79.4	0.00303	mg/L	0.000566	0.00303	mg/L	0.000566	18.68%
Na 589.592†	-114.6	-0.01516	mg/L	0.002527	-0.01516	mg/L	0.002527	16.67%
Na 330.237†	4.2	-0.1775	mg/L	0.29141	-0.1775	mg/L	0.29141	164.13%
Ni 231.604†	3029.9	0.9923	mg/L	0.00801	0.9923	mg/L	0.00801	0.81%
Pb 220.353†	7133.1	1.030	mg/L	0.0032	1.030	mg/L	0.0032	0.31%
Sb 206.836†	2833.4	1.092	mg/L	0.0043	1.092	mg/L	0.0043	0.39%
Se 196.026†	1159.8	1.043	mg/L	0.0091	1.043	mg/L	0.0091	0.87%
Si 288.158†	-39.6	-0.03243	mg/L	0.007802	-0.03243	mg/L	0.007802	24.06%
Sn 189.927†	-103.6	-0.01128	mg/L	0.000729	-0.01128	mg/L	0.000729	6.46%
Sr 421.552†	55.4	0.00021	mg/L	0.000070	0.00021	mg/L	0.000070	33.31%
Ti 334.903†	131.8	0.00387	mg/L	0.000307	0.00387	mg/L	0.000307	7.92%
Tl 190.801†	1894.5	0.9590	mg/L	0.00486	0.9590	mg/L	0.00486	0.51%
V 292.402†	78553.5	1.004	mg/L	0.0061	1.004	mg/L	0.0061	0.60%
Zn 206.200†	2167.8	0.9949	mg/L	0.00663	0.9949	mg/L	0.00663	0.67%

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Sequence No.: 6
Sample ID: SEQ-CCV1

Autosampler Location: 7
Date Collected: 8/13/2019 1:58:29 PM
Data Type: Original

Dilution: 1X
Wash Time: 120

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV1

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: SEQ-CCV1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2067023.5	100.5	%	0.63				0.62%
ScR 361.383	208884.4	101.8	%	0.15				0.15%
Ag 328.068†	151463.6	1.034	mg/L	0.0104	1.034	mg/L	0.0104	1.01%
Al 308.215†	2125.4	2.013	mg/L	0.0095	2.013	mg/L	0.0095	0.47%
As 188.979†	2785.7	2.015	mg/L	0.0134	2.015	mg/L	0.0134	0.67%
B 249.677†	6418.0	1.039	mg/L	0.0070	1.039	mg/L	0.0070	0.67%
Ba 233.527†	3993.9	1.011	mg/L	0.0060	1.011	mg/L	0.0060	0.60%
Be 313.042†	423809.7	1.024	mg/L	0.0082	1.024	mg/L	0.0082	0.80%
Ca 317.933†	19374.1	2.054	mg/L	0.0150	2.054	mg/L	0.0150	0.73%
Cd 228.802†	23836.1	1.009	mg/L	0.0111	1.009	mg/L	0.0111	1.11%
Co 228.616†	32913.5	1.001	mg/L	0.0074	1.001	mg/L	0.0074	0.74%
Cr 267.716†	3726.7	1.011	mg/L	0.0122	1.011	mg/L	0.0122	1.21%
Cu 324.752†	192947.7	1.027	mg/L	0.0079	1.027	mg/L	0.0079	0.77%
Fe 273.955†	1836.8	2.019	mg/L	0.0098	2.019	mg/L	0.0098	0.48%
K 766.490†	19747.5	20.23	mg/L	0.185	20.23	mg/L	0.185	0.91%
Mg 279.077†	1919.4	2.044	mg/L	0.0108	2.044	mg/L	0.0108	0.53%
Mn 257.610†	32107.0	1.018	mg/L	0.0067	1.018	mg/L	0.0067	0.66%
Mo 202.031†	16578.0	1.003	mg/L	0.0064	1.003	mg/L	0.0064	0.63%
Na 589.592†	390584.0	51.67	mg/L	0.288	51.67	mg/L	0.288	0.56%
Na 330.237†	895.3	51.53	mg/L	0.239	51.53	mg/L	0.239	0.46%
Ni 231.604†	3091.0	1.013	mg/L	0.0110	1.013	mg/L	0.0110	1.08%
Pb 220.353†	14746.7	2.034	mg/L	0.0114	2.034	mg/L	0.0114	0.56%
Sb 206.836†	5419.7	2.110	mg/L	0.0156	2.110	mg/L	0.0156	0.74%
Se 196.026†	2289.4	2.056	mg/L	0.0105	2.056	mg/L	0.0105	0.51%
Si 288.158†	1822.0	2.114	mg/L	0.0114	2.114	mg/L	0.0114	0.54%
Sn 189.927†	3583.6	1.012	mg/L	0.0075	1.012	mg/L	0.0075	0.74%
Sr 421.552†	277353.7	1.054	mg/L	0.0118	1.054	mg/L	0.0118	1.12%
Ti 334.903†	12572.4	0.9955	mg/L	0.00583	0.9955	mg/L	0.00583	0.59%
Tl 190.801†	3968.2	2.019	mg/L	0.0176	2.019	mg/L	0.0176	0.87%
V 292.402†	79597.7	1.006	mg/L	0.0014	1.006	mg/L	0.0014	0.14%
Zn 206.200†	2239.8	1.027	mg/L	0.0092	1.027	mg/L	0.0092	0.90%

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Sequence No.: 7
Sample ID: SEQ-CCB1

Autosampler Location: 1
Date Collected: 8/13/2019 2:03:32 PM
Data Type: Original

Dilution: 1X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCB1

Analyte	Back Pressure	Flow
All	162.0 kPa	0.65 L/min

Mean Data: SEQ-CCB1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2042683.8	99.27	%	0.461				0.46%
ScR 361.383	207964.0	101.3	%	1.64				1.62%
Ag 328.068†	-0.6	-0.00000	mg/L	0.000096	-0.00000	mg/L	0.000096	>999.9%
Al 308.215†	0.8	0.00080	mg/L	0.014240	0.00080	mg/L	0.014240	>999.9%
As 188.979†	0.9	0.00067	mg/L	0.001685	0.00067	mg/L	0.001685	251.05%
B 249.677†	22.0	0.00357	mg/L	0.001615	0.00357	mg/L	0.001615	45.22%
Ba 233.527†	-0.5	-0.00012	mg/L	0.000345	-0.00012	mg/L	0.000345	293.23%
Be 313.042†	-58.2	-0.00014	mg/L	0.000047	-0.00014	mg/L	0.000047	32.71%
Ca 317.933†	-24.8	-0.00265	mg/L	0.000890	-0.00265	mg/L	0.000890	33.55%
Cd 228.802†	6.0	0.00025	mg/L	0.000170	0.00025	mg/L	0.000170	67.29%
Co 228.616†	-3.1	-0.00010	mg/L	0.000092	-0.00010	mg/L	0.000092	95.02%
Cr 267.716†	11.3	0.00305	mg/L	0.001408	0.00305	mg/L	0.001408	46.10%
Cu 324.752†	60.9	0.00032	mg/L	0.000139	0.00032	mg/L	0.000139	42.79%
Fe 273.955†	-0.6	-0.00071	mg/L	0.003281	-0.00071	mg/L	0.003281	460.15%
K 766.490†	-30.2	-0.03093	mg/L	0.010074	-0.03093	mg/L	0.010074	32.57%
Mg 279.077†	2.4	0.00254	mg/L	0.008819	0.00254	mg/L	0.008819	347.35%
Mn 257.610†	-10.2	-0.00032	mg/L	0.000195	-0.00032	mg/L	0.000195	60.23%
Mo 202.031†	9.4	0.00057	mg/L	0.000030	0.00057	mg/L	0.000030	5.22%
Na 589.592†	-163.6	-0.02165	mg/L	0.002844	-0.02165	mg/L	0.002844	13.13%
Na 330.237†	2.0	0.1142	mg/L	0.74161	0.1142	mg/L	0.74161	649.41%
Ni 231.604†	-2.4	-0.00078	mg/L	0.002696	-0.00078	mg/L	0.002696	347.80%
Pb 220.353†	-7.7	-0.00105	mg/L	0.000147	-0.00105	mg/L	0.000147	13.99%
Sb 206.836†	5.5	0.00209	mg/L	0.001282	0.00209	mg/L	0.001282	61.30%
Se 196.026†	-2.7	-0.00240	mg/L	0.006734	-0.00240	mg/L	0.006734	280.37%
Si 288.158†	-0.4	-0.00051	mg/L	0.004057	-0.00051	mg/L	0.004057	790.83%
Sn 189.927†	-0.8	-0.00023	mg/L	0.000111	-0.00023	mg/L	0.000111	48.88%
Sr 421.552†	-28.2	-0.00011	mg/L	0.000157	-0.00011	mg/L	0.000157	146.66%
Ti 334.903†	15.4	0.00122	mg/L	0.000303	0.00122	mg/L	0.000303	24.85%
Tl 190.801†	1.1	0.00054	mg/L	0.002201	0.00054	mg/L	0.002201	404.00%
V 292.402†	38.6	0.00051	mg/L	0.000098	0.00051	mg/L	0.000098	19.41%
Zn 206.200†	0.2	0.00008	mg/L	0.000281	0.00008	mg/L	0.000281	349.07%

Sequence No.: 8
Sample ID: ~~BHB0242-BLK2~~ BHH0242-BLK2

Dilution: 1X
Wash Time: 37

TH 08-13-19

Autosampler Location: 304
Date Collected: 8/13/2019 2:07:31 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: ~~BHB0242-BLK2~~ BHH0242-BLK2

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: ~~BHB0242-BLK2~~ BHH0242-BLK2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2051716.3	99.71	%	0.422				0.42%
ScR 361.383	210252.2	102.4	%	0.62				0.60%
Ag 328.068†	38.1	0.00026	mg/L	0.000323	0.00026	mg/L	0.000323	124.32%
Al 308.215†	7.4	0.00714	mg/L	0.006379	0.00714	mg/L	0.006379	89.32%
As 188.979†	-0.7	-0.00050	mg/L	0.001123	-0.00050	mg/L	0.001123	225.07%
B 249.677†	26.2	0.00425	mg/L	0.001393	0.00425	mg/L	0.001393	32.78%
Ba 233.527†	2.2	0.00057	mg/L	0.000871	0.00057	mg/L	0.000871	153.59%
Be 313.042†	-37.9	-0.00009	mg/L	0.000022	-0.00009	mg/L	0.000022	23.62%
Ca 317.933†	57.2	0.00609	mg/L	0.000445	0.00609	mg/L	0.000445	7.32%
Cd 228.802†	5.7	0.00025	mg/L	0.000258	0.00025	mg/L	0.000258	104.22%
Co 228.616†	-2.0	-0.00006	mg/L	0.000067	-0.00006	mg/L	0.000067	106.77%
Cr 267.716†	9.3	0.00252	mg/L	0.002129	0.00252	mg/L	0.002129	84.34%
Cu 324.752†	84.6	0.00045	mg/L	0.000112	0.00045	mg/L	0.000112	24.87%
Fe 273.955†	0.1	0.00017	mg/L	0.001110	0.00017	mg/L	0.001110	663.09%
K 766.490†	1.4	0.00147	mg/L	0.009182	0.00147	mg/L	0.009182	624.86%
Mg 279.077†	-1.4	-0.00153	mg/L	0.002258	-0.00153	mg/L	0.002258	147.47%
Mn 257.610†	-7.0	-0.00022	mg/L	0.000076	-0.00022	mg/L	0.000076	33.94%
Mo 202.031†	2.1	0.00013	mg/L	0.000058	0.00013	mg/L	0.000058	45.83%
Na 589.592†	-181.7	-0.02404	mg/L	0.004172	-0.02404	mg/L	0.004172	17.35%
Na 330.237†	8.7	0.5022	mg/L	1.14761	0.5022	mg/L	1.14761	228.53%
Ni 231.604†	-0.7	-0.00022	mg/L	0.000791	-0.00022	mg/L	0.000791	362.09%
Pb 220.353†	-3.4	-0.00046	mg/L	0.000119	-0.00046	mg/L	0.000119	25.96%
Sb 206.836†	2.5	0.00092	mg/L	0.001949	0.00092	mg/L	0.001949	211.76%
Se 196.026†	2.3	0.00206	mg/L	0.004164	0.00206	mg/L	0.004164	201.89%
Si 288.158†	4.8	0.00562	mg/L	0.005168	0.00562	mg/L	0.005168	91.87%
Sn 189.927†	0.9	0.00026	mg/L	0.000815	0.00026	mg/L	0.000815	316.71%
Sr 421.552†	-73.6	-0.00028	mg/L	0.000080	-0.00028	mg/L	0.000080	28.67%
Ti 334.903†	16.3	0.00129	mg/L	0.001786	0.00129	mg/L	0.001786	138.71%
Tl 190.801†	3.9	0.00198	mg/L	0.000136	0.00198	mg/L	0.000136	6.88%
V 292.402†	18.7	0.00025	mg/L	0.000151	0.00025	mg/L	0.000151	60.24%
Zn 206.200†	13.2	0.00605	mg/L	0.000778	0.00605	mg/L	0.000778	12.86%

Sequence No.: 9
Sample ID: BHH0311-BLK1

Autosampler Location: 305
Date Collected: 8/13/2019 2:11:30 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0311-BLK1

Analyte	Back Pressure	Flow
All	162.0 kPa	0.65 L/min

Mean Data: BHH0311-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2078320.4	101.0	%	0.94				0.93%
ScR 361.383	210322.8	102.5	%	1.53				1.49%
Ag 328.068†	0.8	0.00001	mg/L	0.000179	0.00001	mg/L	0.000179	>999.9%
Al 308.215†	-2.3	-0.00222	mg/L	0.018452	-0.00222	mg/L	0.018452	830.65%
As 188.979†	1.3	0.00092	mg/L	0.001206	0.00092	mg/L	0.001206	131.80%
B 249.677†	9.2	0.00148	mg/L	0.001171	0.00148	mg/L	0.001171	78.93%
Ba 233.527†	-3.6	-0.00092	mg/L	0.000846	-0.00092	mg/L	0.000846	92.06%
Be 313.042†	-94.9	-0.00023	mg/L	0.000015	-0.00023	mg/L	0.000015	6.62%
Ca 317.933†	42.3	0.00449	mg/L	0.001204	0.00449	mg/L	0.001204	26.81%
Cd 228.802†	1.9	0.00008	mg/L	0.000263	0.00008	mg/L	0.000263	337.54%
Co 228.616†	-10.0	-0.00031	mg/L	0.000127	-0.00031	mg/L	0.000127	41.64%
Cr 267.716†	12.6	0.00342	mg/L	0.002594	0.00342	mg/L	0.002594	75.87%
Cu 324.752†	16.2	0.00009	mg/L	0.000095	0.00009	mg/L	0.000095	110.37%
Fe 273.955†	-0.6	-0.00065	mg/L	0.001141	-0.00065	mg/L	0.001141	176.11%
K 766.490†	-26.7	-0.02732	mg/L	0.040124	-0.02732	mg/L	0.040124	146.88%
Mg 279.077†	-1.9	-0.00201	mg/L	0.002848	-0.00201	mg/L	0.002848	141.58%
Mn 257.610†	-7.9	-0.00025	mg/L	0.000124	-0.00025	mg/L	0.000124	49.48%
Mo 202.031†	3.2	0.00019	mg/L	0.000173	0.00019	mg/L	0.000173	90.61%
Na 589.592†	-194.8	-0.02577	mg/L	0.002715	-0.02577	mg/L	0.002715	10.53%
Na 330.237†	19.7	1.135	mg/L	0.3688	1.135	mg/L	0.3688	32.49%
Ni 231.604†	2.4	0.00079	mg/L	0.000469	0.00079	mg/L	0.000469	59.11%
Pb 220.353†	-5.0	-0.00068	mg/L	0.000969	-0.00068	mg/L	0.000969	142.11%
Sb 206.836†	-0.2	-0.00013	mg/L	0.001208	-0.00013	mg/L	0.001208	940.53%
Se 196.026†	-0.2	-0.00021	mg/L	0.003898	-0.00021	mg/L	0.003898	>999.9%
Si 288.158†	4.8	0.00562	mg/L	0.004466	0.00562	mg/L	0.004466	79.54%
Sn 189.927†	1.6	0.00045	mg/L	0.000188	0.00045	mg/L	0.000188	41.65%
Sr 421.552†	-63.6	-0.00024	mg/L	0.000135	-0.00024	mg/L	0.000135	55.73%
Ti 334.903†	4.8	0.00038	mg/L	0.000645	0.00038	mg/L	0.000645	168.32%
Tl 190.801†	5.3	0.00270	mg/L	0.002607	0.00270	mg/L	0.002607	96.50%
V 292.402†	13.4	0.00019	mg/L	0.000257	0.00019	mg/L	0.000257	134.41%
Zn 206.200†	6.2	0.00286	mg/L	0.000810	0.00286	mg/L	0.000810	28.31%

Sequence No.: 10
Sample ID: 19H0024-02

Autosampler Location: 306
Date Collected: 8/13/2019 2:15:28 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0024-02

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: 19H0024-02

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2137156.1	103.9	%	0.31				0.29%
ScR 361.383	217771.5	106.1	%	0.67				0.64%
Ag 328.068†	7.0	0.00005	mg/L	0.000028	0.00005	mg/L	0.000028	57.64%
Al 308.215†	-13.4	-0.01301	mg/L	0.000560	-0.01301	mg/L	0.000560	4.31%
As 188.979†	5.0	0.00354	mg/L	0.002293	0.00354	mg/L	0.002293	64.73%
B 249.677†	119.6	0.01938	mg/L	0.000703	0.01938	mg/L	0.000703	3.63%
Ba 233.527†	10.5	0.00264	mg/L	0.000801	0.00264	mg/L	0.000801	30.32%
Be 313.042†	-111.9	-0.00027	mg/L	0.000041	-0.00027	mg/L	0.000041	14.90%
Ca 317.933†	5960.4	0.6359	mg/L	0.00357	0.6359	mg/L	0.00357	0.56%
Cd 228.802†	-1.4	-0.00008	mg/L	0.000113	-0.00008	mg/L	0.000113	143.36%
Co 228.616†	-0.1	-0.00000	mg/L	0.000087	-0.00000	mg/L	0.000087	>999.9%
Cr 267.716†	26.2	0.00710	mg/L	0.000972	0.00710	mg/L	0.000972	13.69%
Cu 324.752†	1444.1	0.00769	mg/L	0.000166	0.00769	mg/L	0.000166	2.16%
Fe 273.955†	78.2	0.08634	mg/L	0.003652	0.08634	mg/L	0.003652	4.23%
K 766.490†	59.9	0.06140	mg/L	0.035382	0.06140	mg/L	0.035382	57.62%
Mg 279.077†	116.5	0.1233	mg/L	0.00674	0.1233	mg/L	0.00674	5.47%
Mn 257.610†	-1.3	-0.00004	mg/L	0.000033	-0.00004	mg/L	0.000033	79.79%
Mo 202.031†	57.9	0.00349	mg/L	0.000246	0.00349	mg/L	0.000246	7.03%
Na 589.592†	18579.2	2.458	mg/L	0.0062	2.458	mg/L	0.0062	0.25%
Na 330.237†	52.3	3.000	mg/L	0.4664	3.000	mg/L	0.4664	15.55%
Ni 231.604†	14.5	0.00475	mg/L	0.001304	0.00475	mg/L	0.001304	27.44%
Pb 220.353†	18.5	0.00255	mg/L	0.000184	0.00255	mg/L	0.000184	7.20%
Sb 206.836†	-5.1	-0.00204	mg/L	0.001050	-0.00204	mg/L	0.001050	51.46%
Se 196.026†	27.3	0.02453	mg/L	0.005428	0.02453	mg/L	0.005428	22.13%
Si 288.158†	384.3	0.4457	mg/L	0.01366	0.4457	mg/L	0.01366	3.07%
Sn 189.927†	24.1	0.00690	mg/L	0.000453	0.00690	mg/L	0.000453	6.57%
Sr 421.552†	1820.7	0.00692	mg/L	0.000215	0.00692	mg/L	0.000215	3.11%
Ti 334.903†	6.1	0.00044	mg/L	0.001063	0.00044	mg/L	0.001063	243.81%
Tl 190.801†	8.1	0.00412	mg/L	0.001881	0.00412	mg/L	0.001881	45.64%
V 292.402†	5.9	0.00013	mg/L	0.000089	0.00013	mg/L	0.000089	70.10%
Zn 206.200†	111.8	0.05130	mg/L	0.000704	0.05130	mg/L	0.000704	1.37%

Sequence No.: 11
Sample ID: BHH0311-BS1

Autosampler Location: 307
Date Collected: 8/13/2019 2:19:26 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0311-BS1

Analyte	Back Pressure	Flow
All	162.0 kPa	0.65 L/min

Mean Data: BHH0311-BS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2040540.4	99.17	%	0.072				0.07%
ScR 361.383	206716.8	100.7	%	0.51				0.51%
Ag 328.068†	152725.4	1.043	mg/L	0.0041	1.043	mg/L	0.0041	0.39%
Al 308.215†	4333.6	4.167	mg/L	0.0165	4.167	mg/L	0.0165	0.40%
As 188.979†	5907.6	4.221	mg/L	0.0162	4.221	mg/L	0.0162	0.38%
B 249.677†	15.1	0.00033	mg/L	0.001057	0.00033	mg/L	0.001057	318.30%
Ba 233.527†	16382.5	4.154	mg/L	0.0050	4.154	mg/L	0.0050	0.12%
Be 313.042†	439596.6	1.062	mg/L	0.0036	1.062	mg/L	0.0036	0.34%
Ca 317.933†	192780.2	20.55	mg/L	0.051	20.55	mg/L	0.051	0.25%
Cd 228.802†	25278.7	1.056	mg/L	0.0106	1.056	mg/L	0.0106	1.00%
Co 228.616†	34340.1	1.045	mg/L	0.0042	1.045	mg/L	0.0042	0.41%
Cr 267.716†	3933.6	1.065	mg/L	0.0035	1.065	mg/L	0.0035	0.33%
Cu 324.752†	191067.9	1.018	mg/L	0.0040	1.018	mg/L	0.0040	0.39%
Fe 273.955†	3755.1	4.136	mg/L	0.0057	4.136	mg/L	0.0057	0.14%
K 766.490†	20254.4	20.75	mg/L	0.184	20.75	mg/L	0.184	0.89%
Mg 279.077†	20247.0	21.44	mg/L	0.030	21.44	mg/L	0.030	0.14%
Mn 257.610†	33063.1	1.048	mg/L	0.0024	1.048	mg/L	0.0024	0.23%
Mo 202.031†	44.5	0.00229	mg/L	0.000256	0.00229	mg/L	0.000256	11.21%
Na 589.592†	161014.8	21.30	mg/L	0.041	21.30	mg/L	0.041	0.19%
Na 330.237†	374.3	21.20	mg/L	0.229	21.20	mg/L	0.229	1.08%
Ni 231.604†	3167.1	1.036	mg/L	0.0058	1.036	mg/L	0.0058	0.56%
Pb 220.353†	30781.2	4.245	mg/L	0.0222	4.245	mg/L	0.0222	0.52%
Sb 206.836†	30.4	-0.00174	mg/L	0.002059	-0.00174	mg/L	0.002059	118.31%
Se 196.026†	4646.8	4.174	mg/L	0.0154	4.174	mg/L	0.0154	0.37%
Si 288.158†	-5.1	-0.00195	mg/L	0.000648	-0.00195	mg/L	0.000648	33.21%
Sn 189.927†	-32.1	-0.00559	mg/L	0.001831	-0.00559	mg/L	0.001831	32.79%
Sr 421.552†	289976.9	1.102	mg/L	0.0073	1.102	mg/L	0.0073	0.66%
Ti 334.903†	39.5	0.00165	mg/L	0.000399	0.00165	mg/L	0.000399	24.22%
Tl 190.801†	8109.6	4.132	mg/L	0.0221	4.132	mg/L	0.0221	0.53%
V 292.402†	85049.7	1.074	mg/L	0.0057	1.074	mg/L	0.0057	0.53%
Zn 206.200†	2264.5	1.038	mg/L	0.0032	1.038	mg/L	0.0032	0.31%

Sequence No.: 12
Sample ID: BHH0242-BS2

Autosampler Location: 308
Date Collected: 8/13/2019 2:23:26 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0242-BS2

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: BHH0242-BS2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2035627.7	98.93	%	0.386				0.39%
ScR 361.383	207829.1	101.2	%	0.04				0.04%
Ag 328.068†	79933.7	0.5457	mg/L	0.00380	0.5457	mg/L	0.00380	0.70%
Al 308.215†	2169.1	2.075	mg/L	0.0069	2.075	mg/L	0.0069	0.33%
As 188.979†	2936.5	2.096	mg/L	0.0126	2.096	mg/L	0.0126	0.60%
B 249.677†	13.5	0.00198	mg/L	0.001917	0.00198	mg/L	0.001917	96.99%
Ba 233.527†	8133.5	2.062	mg/L	0.0020	2.062	mg/L	0.0020	0.10%
Be 313.042†	219047.7	0.5291	mg/L	0.00161	0.5291	mg/L	0.00161	0.30%
Ca 317.933†	95256.4	10.16	mg/L	0.021	10.16	mg/L	0.021	0.20%
Cd 228.802†	12408.3	0.5180	mg/L	0.00372	0.5180	mg/L	0.00372	0.72%
Co 228.616†	16887.1	0.5141	mg/L	0.00342	0.5141	mg/L	0.00342	0.66%
Cr 267.716†	1961.6	0.5312	mg/L	0.00326	0.5312	mg/L	0.00326	0.61%
Cu 324.752†	94724.5	0.5044	mg/L	0.00444	0.5044	mg/L	0.00444	0.88%
Fe 273.955†	1879.7	2.070	mg/L	0.0050	2.070	mg/L	0.0050	0.24%
K 766.490†	9955.0	10.20	mg/L	0.054	10.20	mg/L	0.054	0.53%
Mg 279.077†	10068.8	10.67	mg/L	0.020	10.67	mg/L	0.020	0.19%
Mn 257.610†	15758.2	0.4996	mg/L	0.00206	0.4996	mg/L	0.00206	0.41%
Mo 202.031†	8789.2	0.5316	mg/L	0.00165	0.5316	mg/L	0.00165	0.31%
Na 589.592†	78781.8	10.42	mg/L	0.020	10.42	mg/L	0.020	0.19%
Na 330.237†	186.1	10.54	mg/L	0.402	10.54	mg/L	0.402	3.81%
Ni 231.604†	1582.5	0.5178	mg/L	0.00101	0.5178	mg/L	0.00101	0.20%
Pb 220.353†	15121.1	2.085	mg/L	0.0091	2.085	mg/L	0.0091	0.43%
Sb 206.836†	16.2	-0.00050	mg/L	0.001682	-0.00050	mg/L	0.001682	339.64%
Se 196.026†	2335.4	2.098	mg/L	0.0116	2.098	mg/L	0.0116	0.55%
Si 288.158†	3.9	0.00645	mg/L	0.010777	0.00645	mg/L	0.010777	167.16%
Sn 189.927†	-18.8	-0.00358	mg/L	0.000846	-0.00358	mg/L	0.000846	23.63%
Sr 421.552†	141611.0	0.5382	mg/L	0.00444	0.5382	mg/L	0.00444	0.82%
Ti 334.903†	29.9	0.00113	mg/L	0.000663	0.00113	mg/L	0.000663	58.86%
Tl 190.801†	4105.2	2.093	mg/L	0.0127	2.093	mg/L	0.0127	0.61%
V 292.402†	41467.0	0.5241	mg/L	0.00087	0.5241	mg/L	0.00087	0.17%
Zn 206.200†	1131.3	0.5186	mg/L	0.00206	0.5186	mg/L	0.00206	0.40%

Sequence No.: 13 **Autosampler Location: 7**
Sample ID: SEQ-CCV2 **Date Collected: 8/13/2019 2:27:25 PM**
Data Type: Original

Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCV2

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

Mean Data: SEQ-CCV2

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2055822.6	99.91	%	0.305				0.31%
ScR 361.383	207876.3	101.3	%	0.14				0.14%
Ag 328.068†	152930.3	1.044	mg/L	0.0014	1.044	mg/L	0.0014	0.14%
Al 308.215†	2148.7	2.035	mg/L	0.0047	2.035	mg/L	0.0047	0.23%
As 188.979†	2818.0	2.039	mg/L	0.0072	2.039	mg/L	0.0072	0.36%
B 249.677†	6523.3	1.056	mg/L	0.0016	1.056	mg/L	0.0016	0.15%
Ba 233.527†	4056.3	1.027	mg/L	0.0050	1.027	mg/L	0.0050	0.49%
Be 313.042†	432255.9	1.044	mg/L	0.0034	1.044	mg/L	0.0034	0.33%
Ca 317.933†	19685.6	2.087	mg/L	0.0049	2.087	mg/L	0.0049	0.24%
Cd 228.802†	24030.3	1.017	mg/L	0.0016	1.017	mg/L	0.0016	0.16%
Co 228.616†	33115.8	1.007	mg/L	0.0017	1.007	mg/L	0.0017	0.17%
Cr 267.716†	3803.0	1.032	mg/L	0.0053	1.032	mg/L	0.0053	0.51%
Cu 324.752†	195067.2	1.039	mg/L	0.0019	1.039	mg/L	0.0019	0.18%
Fe 273.955†	1852.8	2.037	mg/L	0.0158	2.037	mg/L	0.0158	0.78%
K 766.490†	20054.8	20.55	mg/L	0.094	20.55	mg/L	0.094	0.46%
Mg 279.077†	1943.3	2.069	mg/L	0.0088	2.069	mg/L	0.0088	0.43%
Mn 257.610†	32638.4	1.034	mg/L	0.0006	1.034	mg/L	0.0006	0.06%
Mo 202.031†	16745.9	1.013	mg/L	0.0021	1.013	mg/L	0.0021	0.20%
Na 589.592†	398100.7	52.67	mg/L	0.143	52.67	mg/L	0.143	0.27%
Na 330.237†	906.6	52.18	mg/L	0.404	52.18	mg/L	0.404	0.77%
Ni 231.604†	3151.0	1.033	mg/L	0.0039	1.033	mg/L	0.0039	0.37%
Pb 220.353†	14858.8	2.050	mg/L	0.0010	2.050	mg/L	0.0010	0.05%
Sb 206.836†	5505.1	2.143	mg/L	0.0088	2.143	mg/L	0.0088	0.41%
Se 196.026†	2327.2	2.090	mg/L	0.0033	2.090	mg/L	0.0033	0.16%
Si 288.158†	1854.5	2.152	mg/L	0.0118	2.152	mg/L	0.0118	0.55%
Sn 189.927†	3632.7	1.026	mg/L	0.0028	1.026	mg/L	0.0028	0.27%
Sr 421.552†	284765.7	1.082	mg/L	0.0122	1.082	mg/L	0.0122	1.13%
Ti 334.903†	12835.5	1.016	mg/L	0.0027	1.016	mg/L	0.0027	0.26%
Tl 190.801†	4031.6	2.051	mg/L	0.0059	2.051	mg/L	0.0059	0.29%
V 292.402†	80108.2	1.012	mg/L	0.0046	1.012	mg/L	0.0046	0.46%
Zn 206.200†	2272.7	1.042	mg/L	0.0017	1.042	mg/L	0.0017	0.16%

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Sequence No.: 14
Sample ID: SEQ-CCB2

Autosampler Location: 1
Date Collected: 8/13/2019 2:32:28 PM
Data Type: Original

Dilution: 1X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCB2

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

Mean Data: SEQ-CCB2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2040149.5	99.15	%	0.127				0.13%
ScR 361.383	207172.3	100.9	%	0.60				0.60%
Ag 328.068†	38.9	0.00027	mg/L	0.000144	0.00027	mg/L	0.000144	54.28%
Al 308.215†	-11.7	-0.01127	mg/L	0.011557	-0.01127	mg/L	0.011557	102.54%
As 188.979†	-1.9	-0.00132	mg/L	0.000872	-0.00132	mg/L	0.000872	66.21%
B 249.677†	20.3	0.00329	mg/L	0.000682	0.00329	mg/L	0.000682	20.76%
Ba 233.527†	0.3	0.00008	mg/L	0.000809	0.00008	mg/L	0.000809	>999.9%
Be 313.042†	-72.3	-0.00018	mg/L	0.000061	-0.00018	mg/L	0.000061	34.59%
Ca 317.933†	-4.0	-0.00043	mg/L	0.000499	-0.00043	mg/L	0.000499	115.48%
Cd 228.802†	4.9	0.00022	mg/L	0.000137	0.00022	mg/L	0.000137	63.32%
Co 228.616†	-0.4	-0.00002	mg/L	0.000138	-0.00002	mg/L	0.000138	910.32%
Cr 267.716†	8.3	0.00225	mg/L	0.000503	0.00225	mg/L	0.000503	22.36%
Cu 324.752†	93.4	0.00050	mg/L	0.000145	0.00050	mg/L	0.000145	29.21%
Fe 273.955†	1.4	0.00159	mg/L	0.001126	0.00159	mg/L	0.001126	70.98%
K 766.490†	-46.8	-0.04793	mg/L	0.010526	-0.04793	mg/L	0.010526	21.96%
Mg 279.077†	-7.4	-0.00788	mg/L	0.001449	-0.00788	mg/L	0.001449	18.38%
Mn 257.610†	-7.3	-0.00023	mg/L	0.000205	-0.00023	mg/L	0.000205	88.57%
Mo 202.031†	9.0	0.00055	mg/L	0.000085	0.00055	mg/L	0.000085	15.67%
Na 589.592†	-245.2	-0.03244	mg/L	0.002072	-0.03244	mg/L	0.002072	6.39%
Na 330.237†	0.5	0.02903	mg/L	0.215545	0.02903	mg/L	0.215545	742.50%
Ni 231.604†	-1.9	-0.00062	mg/L	0.001586	-0.00062	mg/L	0.001586	256.44%
Pb 220.353†	0.6	0.00008	mg/L	0.001795	0.00008	mg/L	0.001795	>999.9%
Sb 206.836†	5.0	0.00193	mg/L	0.003175	0.00193	mg/L	0.003175	164.55%
Se 196.026†	-1.6	-0.00146	mg/L	0.004293	-0.00146	mg/L	0.004293	294.42%
Si 288.158†	-3.2	-0.00366	mg/L	0.007527	-0.00366	mg/L	0.007527	205.49%
Sn 189.927†	-0.1	-0.00004	mg/L	0.000533	-0.00004	mg/L	0.000533	>999.9%
Sr 421.552†	-55.7	-0.00021	mg/L	0.000106	-0.00021	mg/L	0.000106	50.24%
Ti 334.903†	11.9	0.00094	mg/L	0.000940	0.00094	mg/L	0.000940	99.91%
Tl 190.801†	3.5	0.00179	mg/L	0.000374	0.00179	mg/L	0.000374	20.92%
V 292.402†	-2.5	-0.00002	mg/L	0.000149	-0.00002	mg/L	0.000149	921.64%
Zn 206.200†	-2.4	-0.00108	mg/L	0.000297	-0.00108	mg/L	0.000297	27.43%

Sequence No.: 15
Sample ID: BHH0090-BLK1

Autosampler Location: 309
Date Collected: 8/13/2019 2:36:27 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0090-BLK1

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

Mean Data: BHH0090-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2051732.9	99.71	%	1.307				1.31%
ScR 361.383	209173.2	101.9	%	0.11				0.10%
Ag 328.068†	10.6	0.00007	mg/L	0.000324	0.00014	mg/L	0.000649	448.87%
Al 308.215†	-11.1	-0.01070	mg/L	0.009761	-0.02140	mg/L	0.019522	91.21%
As 188.979†	2.7	0.00197	mg/L	0.001956	0.00394	mg/L	0.003913	99.30%
B 249.677†	14.4	0.00234	mg/L	0.000578	0.00467	mg/L	0.001156	24.74%
Ba 233.527†	1.1	0.00028	mg/L	0.000759	0.00056	mg/L	0.001518	270.96%
Be 313.042†	-50.3	-0.00012	mg/L	0.000055	-0.00025	mg/L	0.000110	44.86%
Ca 317.933†	60.3	0.00643	mg/L	0.001026	0.01286	mg/L	0.002052	15.95%
Cd 228.802†	6.3	0.00026	mg/L	0.000191	0.00052	mg/L	0.000382	73.75%
Co 228.616†	-3.2	-0.00010	mg/L	0.000182	-0.00020	mg/L	0.000363	183.92%
Cr 267.716†	6.9	0.00187	mg/L	0.001948	0.00375	mg/L	0.003896	103.99%
Cu 324.752†	295.6	0.00157	mg/L	0.000147	0.00315	mg/L	0.000294	9.34%
Fe 273.955†	7.6	0.00839	mg/L	0.002828	0.01677	mg/L	0.005656	33.72%
K 766.490†	-40.7	-0.04166	mg/L	0.007953	-0.08332	mg/L	0.015906	19.09%
Mg 279.077†	-0.6	-0.00066	mg/L	0.006319	-0.00132	mg/L	0.012638	954.46%
Mn 257.610†	4.4	0.00014	mg/L	0.000154	0.00028	mg/L	0.000307	110.75%
Mo 202.031†	2.9	0.00017	mg/L	0.000232	0.00035	mg/L	0.000463	132.62%
Na 589.592†	-233.8	-0.03093	mg/L	0.000917	-0.06185	mg/L	0.001834	2.97%
Na 330.237†	5.4	0.3128	mg/L	0.36020	0.6257	mg/L	0.72039	115.14%
Ni 231.604†	3.2	0.00103	mg/L	0.000454	0.00206	mg/L	0.000908	44.04%
Pb 220.353†	-3.5	-0.00048	mg/L	0.000281	-0.00096	mg/L	0.000562	58.27%
Sb 206.836†	-1.2	-0.00048	mg/L	0.000655	-0.00097	mg/L	0.001309	135.53%
Se 196.026†	-5.2	-0.00466	mg/L	0.001471	-0.00932	mg/L	0.002941	31.57%
Si 288.158†	3.6	0.00418	mg/L	0.008730	0.00835	mg/L	0.017459	209.04%
Sn 189.927†	1.8	0.00052	mg/L	0.000283	0.00103	mg/L	0.000566	54.77%
Sr 421.552†	-55.8	-0.00021	mg/L	0.000158	-0.00042	mg/L	0.000317	74.80%
Ti 334.903†	11.0	0.00087	mg/L	0.000254	0.00175	mg/L	0.000508	29.06%
Tl 190.801†	5.0	0.00255	mg/L	0.000805	0.00510	mg/L	0.001609	31.57%
V 292.402†	11.7	0.00016	mg/L	0.000459	0.00032	mg/L	0.000917	288.40%
Zn 206.200†	1.3	0.00062	mg/L	0.000667	0.00123	mg/L	0.001333	108.22%

Sequence No.: 16
Sample ID: 19G0416-21

Dilution: 2X
Wash Time: 37

Autosampler Location: 310
Date Collected: 8/13/2019 2:40:26 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-21

Analyte	Back Pressure	Flow
All	163.0 kPa	0.65 L/min

Mean Data: 19G0416-21

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1956402.2	95.08	%	1.570				1.65%
ScR 361.383	210675.7	102.6	%	2.03				1.97%
Ag 328.068†	-289.4	-0.00184	mg/L	0.000142	-0.00367	mg/L	0.000284	7.74%
Al 308.215†	185723.9	179.2	mg/L	1.61	358.4	mg/L	3.22	0.90%
As 188.979†	-277.7	0.05335	mg/L	0.006527	0.1067	mg/L	0.01305	12.23%
B 249.677†	62.4	0.02917	mg/L	0.000792	0.05834	mg/L	0.001583	2.71%
Ba 233.527†	2631.6	0.6433	mg/L	0.01072	1.287	mg/L	0.0214	1.67%
Be 313.042†	2238.7	0.00339	mg/L	0.000112	0.00678	mg/L	0.000224	3.30%
Ca 317.933†	420801.8	44.90	mg/L	0.597	89.79	mg/L	1.194	1.33%
Cd 228.802†	70.4	0.00453	mg/L	0.000233	0.00906	mg/L	0.000467	5.16%
Co 228.616†	2878.2	0.06870	mg/L	0.001443	0.1374	mg/L	0.00289	2.10%
Cr 267.716†	879.2	0.2434	mg/L	0.00352	0.4867	mg/L	0.00704	1.45%
Cu 324.752†	31338.2	0.1740	mg/L	0.00046	0.3481	mg/L	0.00093	0.27%
Fe 273.955†	172814.2	190.7	mg/L	2.70	381.4	mg/L	5.40	1.41%
K 766.490†	7080.4	7.255	mg/L	0.0845	14.51	mg/L	0.169	1.16%
Mg 279.077†	52381.1	55.36	mg/L	0.627	110.7	mg/L	1.25	1.13%
Mn 257.610†	102842.8	3.258	mg/L	0.0258	6.516	mg/L	0.0515	0.79%
Mo 202.031†	72.7	0.00364	mg/L	0.000112	0.00728	mg/L	0.000223	3.06%
Na 589.592†	15003.2	1.985	mg/L	0.0192	3.970	mg/L	0.0384	0.97%
Na 330.237†	7.5	2.006	mg/L	0.5691	4.011	mg/L	1.1383	28.38%
Ni 231.604†	810.9	0.2654	mg/L	0.00536	0.5308	mg/L	0.01072	2.02%
Pb 220.353†	1728.7	0.2783	mg/L	0.00274	0.5566	mg/L	0.00548	0.98%
Sb 206.836†	25.1	0.02065	mg/L	0.000966	0.04129	mg/L	0.001933	4.68%
Se 196.026†	-21.0	-0.01849	mg/L	0.004620	-0.03697	mg/L	0.009241	24.99%
Si 288.158†	1876.6	2.183	mg/L	0.0271	4.366	mg/L	0.0542	1.24%
Sn 189.927†	-66.2	-0.00717	mg/L	0.002335	-0.01434	mg/L	0.004671	32.57%
Sr 421.552†	49721.9	0.1890	mg/L	0.00119	0.3779	mg/L	0.00237	0.63%
Ti 334.903†	111309.8	8.822	mg/L	0.0807	17.64	mg/L	0.161	0.91%
Tl 190.801†	-41.1	-0.01939	mg/L	0.002698	-0.03878	mg/L	0.005397	13.92%
V 292.402†	36397.4	0.4680	mg/L	0.00357	0.9360	mg/L	0.00715	0.76%
Zn 206.200†	1489.8	0.6835	mg/L	0.01122	1.367	mg/L	0.0224	1.64%

Sequence No.: 17
Sample ID: 19G0416-22

Dilution: 2X
Wash Time: 37

Autosampler Location: 311
Date Collected: 8/13/2019 2:44:10 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-22

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

Mean Data: 19G0416-22

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2015168.7	97.93	%	0.400				0.41%
ScR 361.383	210294.7	102.4	%	3.51				3.42%
Ag 328.068†	-217.6	-0.00137	mg/L	0.000077	-0.00274	mg/L	0.000153	5.60%
Al 308.215†	180869.4	174.5	mg/L	0.11	349.1	mg/L	0.22	0.06%
As 188.979†	-200.0	0.08219	mg/L	0.002994	0.1644	mg/L	0.00599	3.64%
B 249.677†	34.8	0.02486	mg/L	0.001226	0.04973	mg/L	0.002451	4.93%
Ba 233.527†	7501.5	1.879	mg/L	0.0605	3.757	mg/L	0.1211	3.22%
Be 313.042†	1796.2	0.00266	mg/L	0.000258	0.00531	mg/L	0.000516	9.70%
Ca 317.933†	416314.5	44.42	mg/L	0.257	88.83	mg/L	0.514	0.58%
Cd 228.802†	85.4	0.00470	mg/L	0.000190	0.00941	mg/L	0.000380	4.04%
Co 228.616†	2754.2	0.06644	mg/L	0.001492	0.1329	mg/L	0.00298	2.25%
Cr 267.716†	543.7	0.1534	mg/L	0.00366	0.3068	mg/L	0.00732	2.39%
Cu 324.752†	47035.2	0.2579	mg/L	0.00265	0.5159	mg/L	0.00529	1.03%
Fe 273.955†	174052.7	192.1	mg/L	0.46	384.1	mg/L	0.92	0.24%
K 766.490†	8081.0	8.280	mg/L	0.0887	16.56	mg/L	0.177	1.07%
Mg 279.077†	44156.0	46.65	mg/L	0.097	93.31	mg/L	0.194	0.21%
Mn 257.610†	94046.3	2.979	mg/L	0.0149	5.959	mg/L	0.0299	0.50%
Mo 202.031†	66.0	0.00325	mg/L	0.000286	0.00650	mg/L	0.000571	8.78%
Na 589.592†	28761.1	3.805	mg/L	0.0026	7.610	mg/L	0.0053	0.07%
Na 330.237†	37.5	3.375	mg/L	0.4744	6.749	mg/L	0.9488	14.06%
Ni 231.604†	465.8	0.1525	mg/L	0.00615	0.3049	mg/L	0.01230	4.03%
Pb 220.353†	5941.5	0.8573	mg/L	0.01494	1.715	mg/L	0.0299	1.74%
Sb 206.836†	22.9	0.01961	mg/L	0.001046	0.03922	mg/L	0.002092	5.33%
Se 196.026†	-14.0	-0.01130	mg/L	0.005130	-0.02260	mg/L	0.010260	45.39%
Si 288.158†	1476.7	1.718	mg/L	0.0371	3.436	mg/L	0.0742	2.16%
Sn 189.927†	-62.7	-0.00667	mg/L	0.000936	-0.01334	mg/L	0.001871	14.03%
Sr 421.552†	189115.7	0.7187	mg/L	0.00834	1.437	mg/L	0.0167	1.16%
Ti 334.903†	99550.2	7.890	mg/L	0.0096	15.78	mg/L	0.019	0.12%
Tl 190.801†	-37.4	-0.01750	mg/L	0.001180	-0.03501	mg/L	0.002359	6.74%
V 292.402†	30218.5	0.3900	mg/L	0.00107	0.7800	mg/L	0.00214	0.27%
Zn 206.200†	2360.6	1.083	mg/L	0.0359	2.167	mg/L	0.0718	3.31%

Sequence No.: 18
Sample ID: BHH0090-SRL1

Dilution: 10X
Wash Time: 37

Autosampler Location: 312
Date Collected: 8/13/2019 2:47:54 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0090-SRL1

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

Mean Data: BHH0090-SRL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2053227.6	99.78	%	0.499				0.50%
ScR 361.383	210066.9	102.3	%	0.36				0.35%
Ag 328.068†	-39.5	-0.00025	mg/L	0.000313	-0.00246	mg/L	0.003134	127.54%
Al 308.215†	39551.9	38.17	mg/L	0.047	381.7	mg/L	0.47	0.12%
As 188.979†	-34.7	0.02300	mg/L	0.002117	0.2300	mg/L	0.02117	9.20%
B 249.677†	41.6	0.01033	mg/L	0.001090	0.1033	mg/L	0.01090	10.55%
Ba 233.527†	740.3	0.1832	mg/L	0.00081	1.832	mg/L	0.0081	0.44%
Be 313.042†	457.7	0.00076	mg/L	0.000034	0.00758	mg/L	0.000336	4.43%
Ca 317.933†	73525.3	7.844	mg/L	0.0040	78.44	mg/L	0.040	0.05%
Cd 228.802†	27.3	0.00138	mg/L	0.000104	0.01380	mg/L	0.001041	7.54%
Co 228.616†	543.9	0.01296	mg/L	0.000066	0.1296	mg/L	0.00066	0.51%
Cr 267.716†	166.4	0.04615	mg/L	0.000673	0.4615	mg/L	0.00673	1.46%
Cu 324.752†	7724.5	0.04249	mg/L	0.000359	0.4249	mg/L	0.00359	0.84%
Fe 273.955†	32619.1	35.99	mg/L	0.145	359.9	mg/L	1.45	0.40%
K 766.490†	1036.5	1.062	mg/L	0.0238	10.62	mg/L	0.238	2.24%
Mg 279.077†	9119.8	9.638	mg/L	0.0135	96.38	mg/L	0.135	0.14%
Mn 257.610†	28121.2	0.8909	mg/L	0.00104	8.909	mg/L	0.0104	0.12%
Mo 202.031†	22.7	0.00124	mg/L	0.000374	0.01241	mg/L	0.003742	30.16%
Na 589.592†	1194.5	0.1580	mg/L	0.00082	1.580	mg/L	0.0082	0.52%
Na 330.237†	-1.3	0.2341	mg/L	0.20856	2.341	mg/L	2.0856	89.08%
Ni 231.604†	176.1	0.05764	mg/L	0.000942	0.5764	mg/L	0.00942	1.63%
Pb 220.353†	242.5	0.04216	mg/L	0.001185	0.4216	mg/L	0.01185	2.81%
Sb 206.836†	1.9	0.00276	mg/L	0.000680	0.02760	mg/L	0.006796	24.62%
Se 196.026†	-3.9	-0.00410	mg/L	0.000943	-0.04103	mg/L	0.009429	22.98%
Si 288.158†	321.6	0.3741	mg/L	0.00207	3.741	mg/L	0.0207	0.55%
Sn 189.927†	-15.5	-0.00231	mg/L	0.000153	-0.02314	mg/L	0.001531	6.62%
Sr 421.552†	15531.2	0.05902	mg/L	0.000288	0.5902	mg/L	0.00288	0.49%
Ti 334.903†	21127.0	1.674	mg/L	0.0035	16.74	mg/L	0.035	0.21%
Tl 190.801†	-6.9	-0.00287	mg/L	0.000678	-0.02871	mg/L	0.006775	23.60%
V 292.402†	6254.3	0.08066	mg/L	0.001052	0.8066	mg/L	0.01052	1.30%
Zn 206.200†	226.9	0.1041	mg/L	0.00068	1.041	mg/L	0.0068	0.66%

Sequence No.: 19
Sample ID: 19G0416-30

Autosampler Location: 313
Date Collected: 8/13/2019 2:51:52 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-30

Analyte	Back Pressure	Flow
All	164.0 kPa	0.65 L/min

Mean Data: 19G0416-30

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1819324.9	88.42	%	1.095				1.24%
ScR 361.383	203115.4	98.94	%	4.222				4.27%
Ag 328.068†	-197.4	-0.00123	mg/L	0.000204	-0.00247	mg/L	0.000409	16.54%
Al 308.215†	196507.4	189.6	mg/L	1.20	379.3	mg/L	2.40	0.63%
As 188.979†	-176.2	0.1071	mg/L	0.00517	0.2143	mg/L	0.01035	4.83%
B 249.677†	138.2	0.03983	mg/L	0.000832	0.07966	mg/L	0.001665	2.09%
Ba 233.527†	3534.0	0.8743	mg/L	0.02456	1.749	mg/L	0.0491	2.81%
Be 313.042†	2178.7	0.00361	mg/L	0.000113	0.00722	mg/L	0.000227	3.14%
Ca 317.933†	358765.8	38.28	mg/L	0.373	76.55	mg/L	0.746	0.97%
Cd 228.802†	124.2	0.00637	mg/L	0.000289	0.01274	mg/L	0.000578	4.53%
Co 228.616†	2577.7	0.06096	mg/L	0.001498	0.1219	mg/L	0.00300	2.46%
Cr 267.716†	760.3	0.2112	mg/L	0.00714	0.4223	mg/L	0.01427	3.38%
Cu 324.752†	33723.1	0.1861	mg/L	0.00006	0.3723	mg/L	0.00011	0.03%
Fe 273.955†	158039.0	174.4	mg/L	1.89	348.8	mg/L	3.79	1.09%
K 766.490†	5197.9	5.326	mg/L	0.0586	10.65	mg/L	0.117	1.10%
Mg 279.077†	44486.4	47.02	mg/L	0.302	94.03	mg/L	0.603	0.64%
Mn 257.610†	136816.0	4.334	mg/L	0.0300	8.668	mg/L	0.0600	0.69%
Mo 202.031†	98.1	0.00529	mg/L	0.000674	0.01058	mg/L	0.001349	12.74%
Na 589.592†	7132.6	0.9436	mg/L	0.01211	1.887	mg/L	0.0242	1.28%
Na 330.237†	-17.5	0.5167	mg/L	0.51181	1.033	mg/L	1.0236	99.04%
Ni 231.604†	824.4	0.2698	mg/L	0.00778	0.5397	mg/L	0.01556	2.88%
Pb 220.353†	1098.1	0.1949	mg/L	0.00401	0.3899	mg/L	0.00802	2.06%
Sb 206.836†	28.6	0.02123	mg/L	0.002715	0.04246	mg/L	0.005429	12.78%
Se 196.026†	-15.8	-0.01779	mg/L	0.006415	-0.03558	mg/L	0.012830	36.06%
Si 288.158†	1441.3	1.677	mg/L	0.0357	3.354	mg/L	0.0714	2.13%
Sn 189.927†	-62.7	-0.00759	mg/L	0.000957	-0.01517	mg/L	0.001914	12.61%
Sr 421.552†	76151.6	0.2894	mg/L	0.00376	0.5788	mg/L	0.00753	1.30%
Ti 334.903†	103068.2	8.169	mg/L	0.0561	16.34	mg/L	0.112	0.69%
Tl 190.801†	-43.8	-0.01911	mg/L	0.002822	-0.03822	mg/L	0.005645	14.77%
V 292.402†	29696.8	0.3831	mg/L	0.00119	0.7662	mg/L	0.00238	0.31%
Zn 206.200†	1020.8	0.4683	mg/L	0.01639	0.9366	mg/L	0.03278	3.50%

Sequence No.: 20
Sample ID: BHH0090-DUP1

Dilution: 2X
Wash Time: 37

Autosampler Location: 314
Date Collected: 8/13/2019 2:55:36 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0090-DUP1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: BHH0090-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1867044.4	90.74	%	0.938				1.03%
ScR 361.383	205542.7	100.1	%	5.95				5.95%
Ag 328.068†	-187.9	-0.00115	mg/L	0.000185	-0.00231	mg/L	0.000370	16.04%
Al 308.215†	210495.0	203.1	mg/L	3.58	406.2	mg/L	7.17	1.76%
As 188.979†	-280.4	0.1178	mg/L	0.00864	0.2355	mg/L	0.01727	7.33%
B 249.677†	144.9	0.04280	mg/L	0.001258	0.08560	mg/L	0.002516	2.94%
Ba 233.527†	3485.4	0.8596	mg/L	0.00950	1.719	mg/L	0.0190	1.11%
Be 313.042†	2072.1	0.00309	mg/L	0.000189	0.00618	mg/L	0.000379	6.13%
Ca 317.933†	428490.3	45.72	mg/L	0.653	91.43	mg/L	1.305	1.43%
Cd 228.802†	119.6	0.00669	mg/L	0.000420	0.01338	mg/L	0.000839	6.27%
Co 228.616†	3135.8	0.07239	mg/L	0.002967	0.1448	mg/L	0.00593	4.10%
Cr 267.716†	768.9	0.2140	mg/L	0.00121	0.4280	mg/L	0.00242	0.57%
Cu 324.752†	48716.2	0.2663	mg/L	0.00031	0.5326	mg/L	0.00063	0.12%
Fe 273.955†	175218.1	193.3	mg/L	2.02	386.7	mg/L	4.05	1.05%
K 766.490†	5563.5	5.701	mg/L	0.1943	11.40	mg/L	0.389	3.41%
Mg 279.077†	49217.9	52.02	mg/L	0.785	104.0	mg/L	1.57	1.51%
Mn 257.610†	137499.1	4.356	mg/L	0.0687	8.712	mg/L	0.1373	1.58%
Mo 202.031†	81.5	0.00416	mg/L	0.000279	0.00833	mg/L	0.000559	6.71%
Na 589.592†	11536.2	1.526	mg/L	0.0291	3.052	mg/L	0.0583	1.91%
Na 330.237†	-12.8	1.410	mg/L	0.3399	2.820	mg/L	0.6799	24.11%
Ni 231.604†	945.3	0.3094	mg/L	0.00300	0.6187	mg/L	0.00600	0.97%
Pb 220.353†	1151.9	0.2050	mg/L	0.00351	0.4100	mg/L	0.00701	1.71%
Sb 206.836†	17.9	0.02162	mg/L	0.001851	0.04323	mg/L	0.003702	8.56%
Se 196.026†	-17.6	-0.01859	mg/L	0.004277	-0.03718	mg/L	0.008555	23.01%
Si 288.158†	7117.7	8.260	mg/L	0.1229	16.52	mg/L	0.246	1.49%
Sn 189.927†	-76.2	-0.00883	mg/L	0.002397	-0.01765	mg/L	0.004794	27.16%
Sr 421.552†	78901.1	0.2998	mg/L	0.00737	0.5997	mg/L	0.01475	2.46%
Ti 334.903†	140345.8	11.12	mg/L	0.156	22.25	mg/L	0.312	1.40%
Tl 190.801†	-42.9	-0.01894	mg/L	0.001822	-0.03788	mg/L	0.003643	9.62%
V 292.402†	34034.1	0.4381	mg/L	0.00210	0.8763	mg/L	0.00420	0.48%
Zn 206.200†	1020.0	0.4679	mg/L	0.00622	0.9359	mg/L	0.01244	1.33%

Sequence No.: 21
Sample ID: BHH0090-MS1

Autosampler Location: 315
Date Collected: 8/13/2019 2:59:20 PM
Data Type: Original

Dilution: 2X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0090-MS1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: BHH0090-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1931702.1	93.88	%	2.070				2.21%
ScR 361.383	203944.8	99.35	%	1.756				1.77%
Ag 328.068†	75211.7	0.5136	mg/L	0.00277	1.027	mg/L	0.0055	0.54%
Al 308.215†	203210.1	196.1	mg/L	1.20	392.2	mg/L	2.40	0.61%
As 188.979†	2659.8	2.134	mg/L	0.0301	4.267	mg/L	0.0603	1.41%
B 249.677†	148.6	0.04141	mg/L	0.001665	0.08283	mg/L	0.003329	4.02%
Ba 233.527†	11477.7	2.887	mg/L	0.0443	5.774	mg/L	0.0887	1.54%
Be 313.042†	218595.6	0.5263	mg/L	0.00280	1.053	mg/L	0.0056	0.53%
Ca 317.933†	520016.4	55.47	mg/L	0.350	110.9	mg/L	0.70	0.63%
Cd 228.802†	12531.3	0.5248	mg/L	0.00792	1.050	mg/L	0.0158	1.51%
Co 228.616†	19072.1	0.5628	mg/L	0.00818	1.126	mg/L	0.0164	1.45%
Cr 267.716†	2540.7	0.6931	mg/L	0.00920	1.386	mg/L	0.0184	1.33%
Cu 324.752†	130639.7	0.7028	mg/L	0.00438	1.406	mg/L	0.0088	0.62%
Fe 273.955†	168022.6	185.4	mg/L	0.32	370.8	mg/L	0.63	0.17%
K 766.490†	14913.6	15.28	mg/L	0.102	30.56	mg/L	0.204	0.67%
Mg 279.077†	58716.2	62.08	mg/L	0.252	124.2	mg/L	0.50	0.41%
Mn 257.610†	162215.4	5.139	mg/L	0.0340	10.28	mg/L	0.068	0.66%
Mo 202.031†	93.9	0.00472	mg/L	0.000228	0.00944	mg/L	0.000456	4.83%
Na 589.592†	88288.6	11.68	mg/L	0.070	23.36	mg/L	0.140	0.60%
Na 330.237†	165.6	10.89	mg/L	0.423	21.77	mg/L	0.846	3.89%
Ni 231.604†	2288.8	0.7490	mg/L	0.01323	1.498	mg/L	0.0265	1.77%
Pb 220.353†	16124.9	2.268	mg/L	0.0305	4.535	mg/L	0.0610	1.34%
Sb 206.836†	39.0	0.01935	mg/L	0.003846	0.03869	mg/L	0.007692	19.88%
Se 196.026†	2287.2	2.051	mg/L	0.0302	4.103	mg/L	0.0603	1.47%
Si 288.158†	1537.8	1.791	mg/L	0.0243	3.583	mg/L	0.0485	1.36%
Sn 189.927†	-78.3	-0.00908	mg/L	0.000327	-0.01816	mg/L	0.000655	3.61%
Sr 421.552†	231352.3	0.8792	mg/L	0.01333	1.758	mg/L	0.0267	1.52%
Ti 334.903†	103420.3	8.196	mg/L	0.0262	16.39	mg/L	0.052	0.32%
Tl 190.801†	3829.1	1.955	mg/L	0.0274	3.909	mg/L	0.0548	1.40%
V 292.402†	71278.0	0.9087	mg/L	0.00752	1.817	mg/L	0.0150	0.83%
Zn 206.200†	2159.0	0.9903	mg/L	0.01665	1.981	mg/L	0.0333	1.68%

Sequence No.: 22
Sample ID: BHH0090-MSD1

Dilution: 2X
Wash Time: 37

Autosampler Location: 316
Date Collected: 8/13/2019 3:03:05 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0090-MSD1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: BHH0090-MSD1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1809044.4	87.92	%	0.927				1.05%
ScR 361.383	197949.8	96.43	%	7.093				7.36%
Ag 328.068†	75069.9	0.5126	mg/L	0.00030	1.025	mg/L	0.0006	0.06%
Al 308.215†	197972.9	191.0	mg/L	1.13	382.1	mg/L	2.27	0.59%
As 188.979†	2574.0	2.034	mg/L	0.0406	4.067	mg/L	0.0812	2.00%
B 249.677†	159.7	0.03978	mg/L	0.001117	0.07956	mg/L	0.002234	2.81%
Ba 233.527†	12444.3	3.137	mg/L	0.1129	6.274	mg/L	0.2258	3.60%
Be 313.042†	211630.2	0.5099	mg/L	0.00173	1.020	mg/L	0.0035	0.34%
Ca 317.933†	523131.3	55.81	mg/L	0.460	111.6	mg/L	0.92	0.82%
Cd 228.802†	12088.7	0.5062	mg/L	0.00949	1.012	mg/L	0.0190	1.87%
Co 228.616†	17876.5	0.5293	mg/L	0.01026	1.059	mg/L	0.0205	1.94%
Cr 267.716†	2424.3	0.6604	mg/L	0.02330	1.321	mg/L	0.0466	3.53%
Cu 324.752†	123663.2	0.6643	mg/L	0.00069	1.329	mg/L	0.0014	0.10%
Fe 273.955†	136608.3	150.7	mg/L	0.70	301.5	mg/L	1.41	0.47%
K 766.490†	14506.1	14.86	mg/L	0.120	29.73	mg/L	0.240	0.81%
Mg 279.077†	50124.8	53.00	mg/L	0.078	106.0	mg/L	0.16	0.15%
Mn 257.610†	140659.2	4.456	mg/L	0.0166	8.912	mg/L	0.0332	0.37%
Mo 202.031†	96.2	0.00485	mg/L	0.000367	0.00971	mg/L	0.000733	7.55%
Na 589.592†	87730.4	11.61	mg/L	0.076	23.21	mg/L	0.151	0.65%
Na 330.237†	162.2	10.45	mg/L	0.418	20.89	mg/L	0.836	4.00%
Ni 231.604†	2230.8	0.7300	mg/L	0.02721	1.460	mg/L	0.0544	3.73%
Pb 220.353†	15440.0	2.174	mg/L	0.0428	4.347	mg/L	0.0855	1.97%
Sb 206.836†	40.2	0.01792	mg/L	0.002117	0.03584	mg/L	0.004233	11.81%
Se 196.026†	2220.2	1.988	mg/L	0.0471	3.977	mg/L	0.0942	2.37%
Si 288.158†	1537.0	1.789	mg/L	0.0770	3.579	mg/L	0.1540	4.30%
Sn 189.927†	-79.7	-0.01000	mg/L	0.001544	-0.01999	mg/L	0.003089	15.45%
Sr 421.552†	234757.7	0.8921	mg/L	0.01084	1.784	mg/L	0.0217	1.22%
Ti 334.903†	86709.1	6.871	mg/L	0.0022	13.74	mg/L	0.004	0.03%
Tl 190.801†	3720.8	1.899	mg/L	0.0340	3.798	mg/L	0.0681	1.79%
V 292.402†	62249.0	0.7934	mg/L	0.00207	1.587	mg/L	0.0041	0.26%
Zn 206.200†	1972.7	0.9048	mg/L	0.03307	1.810	mg/L	0.0661	3.66%

Sequence No.: 23
Sample ID: BHH0090-PS1

Dilution: 2X
Wash Time: 37

Autosampler Location: 317
Date Collected: 8/13/2019 3:06:50 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0090-PS1

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: BHH0090-PS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1793856.5	87.18	%	1.828				2.10%
ScR 361.383	198753.5	96.82	%	5.724				5.91%
Ag 328.068†	76048.9	0.5193	mg/L	0.00308	1.039	mg/L	0.0062	0.59%
Al 308.215†	201902.5	194.8	mg/L	0.86	389.7	mg/L	1.72	0.44%
As 188.979†	2699.7	2.166	mg/L	0.0458	4.332	mg/L	0.0916	2.11%
B 249.677†	135.3	0.03859	mg/L	0.001582	0.07718	mg/L	0.003165	4.10%
Ba 233.527†	11302.1	2.844	mg/L	0.0346	5.687	mg/L	0.0691	1.22%
Be 313.042†	221091.8	0.5325	mg/L	0.00410	1.065	mg/L	0.0082	0.77%
Ca 317.933†	461446.0	49.23	mg/L	0.353	98.45	mg/L	0.707	0.72%
Cd 228.802†	12560.5	0.5259	mg/L	0.01307	1.052	mg/L	0.0261	2.49%
Co 228.616†	19112.2	0.5640	mg/L	0.01448	1.128	mg/L	0.0290	2.57%
Cr 267.716†	2564.8	0.6998	mg/L	0.01025	1.400	mg/L	0.0205	1.46%
Cu 324.752†	130734.9	0.7030	mg/L	0.00466	1.406	mg/L	0.0093	0.66%
Fe 273.955†	162073.5	178.8	mg/L	0.25	357.7	mg/L	0.49	0.14%
K 766.490†	15077.9	15.45	mg/L	0.086	30.90	mg/L	0.172	0.56%
Mg 279.077†	55039.7	58.19	mg/L	0.300	116.4	mg/L	0.60	0.52%
Mn 257.610†	154754.8	4.903	mg/L	0.0362	9.806	mg/L	0.0723	0.74%
Mo 202.031†	101.9	0.00531	mg/L	0.000135	0.01061	mg/L	0.000271	2.55%
Na 589.592†	87312.7	11.55	mg/L	0.072	23.10	mg/L	0.143	0.62%
Na 330.237†	158.0	10.49	mg/L	0.499	20.97	mg/L	0.999	4.76%
Ni 231.604†	2288.2	0.7488	mg/L	0.01117	1.498	mg/L	0.0223	1.49%
Pb 220.353†	15919.4	2.239	mg/L	0.0533	4.479	mg/L	0.1065	2.38%
Sb 206.836†	50.3	0.02371	mg/L	0.001932	0.04741	mg/L	0.003864	8.15%
Se 196.026†	2334.4	2.093	mg/L	0.0552	4.187	mg/L	0.1104	2.64%
Si 288.158†	1581.3	1.841	mg/L	0.0230	3.683	mg/L	0.0460	1.25%
Sn 189.927†	-81.9	-0.01108	mg/L	0.002639	-0.02216	mg/L	0.005278	23.81%
Sr 421.552†	220064.8	0.8363	mg/L	0.00886	1.673	mg/L	0.0177	1.06%
Ti 334.903†	104865.5	8.311	mg/L	0.0296	16.62	mg/L	0.059	0.36%
Tl 190.801†	3803.7	1.942	mg/L	0.0378	3.883	mg/L	0.0756	1.95%
V 292.402†	68994.7	0.8797	mg/L	0.00159	1.759	mg/L	0.0032	0.18%
Zn 206.200†	2073.6	0.9511	mg/L	0.00852	1.902	mg/L	0.0170	0.90%

Sequence No.: 24
Sample ID: BHH0090-BS1

Dilution: 2X
Wash Time: 200

Autosampler Location: 318
Date Collected: 8/13/2019 3:13:18 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0090-BS1

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: BHH0090-BS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2063700.8	100.3	%	0.84				0.84%
ScR 361.383	209824.7	102.2	%	0.55				0.53%
Ag 328.068†	81114.7	0.5537	mg/L	0.00539	1.107	mg/L	0.0108	0.97%
Al 308.215†	2217.1	2.132	mg/L	0.0093	4.264	mg/L	0.0187	0.44%
As 188.979†	3003.3	2.146	mg/L	0.0221	4.291	mg/L	0.0441	1.03%
B 249.677†	13.4	0.00110	mg/L	0.001161	0.00221	mg/L	0.002322	105.07%
Ba 233.527†	8253.0	2.092	mg/L	0.0098	4.185	mg/L	0.0197	0.47%
Be 313.042†	223124.0	0.5390	mg/L	0.00324	1.078	mg/L	0.0065	0.60%
Ca 317.933†	96800.8	10.32	mg/L	0.030	20.64	mg/L	0.061	0.29%
Cd 228.802†	12588.2	0.5254	mg/L	0.00616	1.051	mg/L	0.0123	1.17%
Co 228.616†	17307.5	0.5268	mg/L	0.00467	1.054	mg/L	0.0093	0.89%
Cr 267.716†	1966.2	0.5324	mg/L	0.00102	1.065	mg/L	0.0020	0.19%
Cu 324.752†	95499.7	0.5087	mg/L	0.00388	1.017	mg/L	0.0078	0.76%
Fe 273.955†	1910.0	2.104	mg/L	0.0029	4.207	mg/L	0.0059	0.14%
K 766.490†	9839.9	10.08	mg/L	0.096	20.17	mg/L	0.192	0.95%
Mg 279.077†	10261.1	10.87	mg/L	0.048	21.73	mg/L	0.097	0.44%
Mn 257.610†	16032.0	0.5083	mg/L	0.00301	1.017	mg/L	0.0060	0.59%
Mo 202.031†	22.8	0.00118	mg/L	0.000202	0.00235	mg/L	0.000403	17.15%
Na 589.592†	78985.1	10.45	mg/L	0.045	20.90	mg/L	0.089	0.43%
Na 330.237†	193.2	10.94	mg/L	0.234	21.88	mg/L	0.468	2.14%
Ni 231.604†	1600.1	0.5236	mg/L	0.00447	1.047	mg/L	0.0089	0.85%
Pb 220.353†	15525.5	2.141	mg/L	0.0268	4.282	mg/L	0.0536	1.25%
Sb 206.836†	16.3	-0.00048	mg/L	0.000641	-0.00097	mg/L	0.001282	132.55%
Se 196.026†	2404.5	2.160	mg/L	0.0186	4.320	mg/L	0.0373	0.86%
Si 288.158†	-2.4	-0.00078	mg/L	0.004813	-0.00156	mg/L	0.009626	618.27%
Sn 189.927†	-15.4	-0.00260	mg/L	0.000479	-0.00520	mg/L	0.000959	18.43%
Sr 421.552†	146763.8	0.5577	mg/L	0.00516	1.115	mg/L	0.0103	0.92%
Ti 334.903†	40.9	0.00250	mg/L	0.000871	0.00499	mg/L	0.001743	34.90%
Tl 190.801†	4188.5	2.135	mg/L	0.0219	4.269	mg/L	0.0438	1.03%
V 292.402†	41695.7	0.5268	mg/L	0.00826	1.054	mg/L	0.0165	1.57%
Zn 206.200†	1165.8	0.5346	mg/L	0.00185	1.069	mg/L	0.0037	0.35%

Sequence No.: 25
Sample ID: SEQ-CCV3

Autosampler Location: 7
Date Collected: 8/13/2019 3:17:17 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV3

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-CCV3

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2083830.4	101.3	%	1.27				1.25%
ScR 361.383	208209.4	101.4	%	0.32				0.32%
Ag 328.068†	152997.5	1.044	mg/L	0.0204	1.044	mg/L	0.0204	1.95%
Al 308.215†	2158.1	2.044	mg/L	0.0117	2.044	mg/L	0.0117	0.57%
As 188.979†	2814.7	2.036	mg/L	0.0372	2.036	mg/L	0.0372	1.83%
B 249.677†	6572.9	1.064	mg/L	0.0014	1.064	mg/L	0.0014	0.13%
Ba 233.527†	4065.1	1.029	mg/L	0.0026	1.029	mg/L	0.0026	0.25%
Be 313.042†	439949.0	1.063	mg/L	0.0019	1.063	mg/L	0.0019	0.18%
Ca 317.933†	19889.5	2.108	mg/L	0.0011	2.108	mg/L	0.0011	0.05%
Cd 228.802†	23849.9	1.009	mg/L	0.0204	1.009	mg/L	0.0204	2.03%
Co 228.616†	33267.7	1.011	mg/L	0.0167	1.011	mg/L	0.0167	1.65%
Cr 267.716†	3762.5	1.021	mg/L	0.0038	1.021	mg/L	0.0038	0.37%
Cu 324.752†	193793.5	1.032	mg/L	0.0195	1.032	mg/L	0.0195	1.89%
Fe 273.955†	1853.9	2.038	mg/L	0.0160	2.038	mg/L	0.0160	0.79%
K 766.490†	19826.0	20.31	mg/L	0.140	20.31	mg/L	0.140	0.69%
Mg 279.077†	1966.9	2.094	mg/L	0.0160	2.094	mg/L	0.0160	0.76%
Mn 257.610†	32925.5	1.043	mg/L	0.0038	1.043	mg/L	0.0038	0.36%
Mo 202.031†	16677.4	1.009	mg/L	0.0161	1.009	mg/L	0.0161	1.59%
Na 589.592†	398425.2	52.71	mg/L	0.139	52.71	mg/L	0.139	0.26%
Na 330.237†	903.4	52.00	mg/L	0.507	52.00	mg/L	0.507	0.98%
Ni 231.604†	3136.8	1.028	mg/L	0.0015	1.028	mg/L	0.0015	0.15%
Pb 220.353†	14866.4	2.051	mg/L	0.0360	2.051	mg/L	0.0360	1.76%
Sb 206.836†	5480.6	2.134	mg/L	0.0413	2.134	mg/L	0.0413	1.93%
Se 196.026†	2339.7	2.101	mg/L	0.0372	2.101	mg/L	0.0372	1.77%
Si 288.158†	1885.9	2.188	mg/L	0.0197	2.188	mg/L	0.0197	0.90%
Sn 189.927†	3645.8	1.030	mg/L	0.0183	1.030	mg/L	0.0183	1.78%
Sr 421.552†	288584.8	1.097	mg/L	0.0055	1.097	mg/L	0.0055	0.50%
Ti 334.903†	12855.0	1.018	mg/L	0.0041	1.018	mg/L	0.0041	0.40%
Tl 190.801†	4033.9	2.052	mg/L	0.0364	2.052	mg/L	0.0364	1.77%
V 292.402†	78681.2	0.9944	mg/L	0.01425	0.9944	mg/L	0.01425	1.43%
Zn 206.200†	2303.8	1.056	mg/L	0.0046	1.056	mg/L	0.0046	0.44%

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Sequence No.: 26 **Autosampler Location: 1**
Sample ID: SEQ-CCB3 **Date Collected: 8/13/2019 3:22:20 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB3

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: SEQ-CCB3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2098805.6	102.0	%	0.39				0.39%
ScR 361.383	212963.5	103.7	%	0.53				0.51%
Ag 328.068†	19.7	0.00013	mg/L	0.000249	0.00013	mg/L	0.000249	185.22%
Al 308.215†	-20.2	-0.01950	mg/L	0.024961	-0.01950	mg/L	0.024961	127.97%
As 188.979†	0.9	0.00061	mg/L	0.002499	0.00061	mg/L	0.002499	409.88%
B 249.677†	14.0	0.00227	mg/L	0.001254	0.00227	mg/L	0.001254	55.16%
Ba 233.527†	-2.2	-0.00056	mg/L	0.001168	-0.00056	mg/L	0.001168	210.12%
Be 313.042†	-81.2	-0.00020	mg/L	0.000010	-0.00020	mg/L	0.000010	4.82%
Ca 317.933†	-13.9	-0.00150	mg/L	0.000676	-0.00150	mg/L	0.000676	45.10%
Cd 228.802†	4.7	0.00020	mg/L	0.000138	0.00020	mg/L	0.000138	69.61%
Co 228.616†	-7.1	-0.00022	mg/L	0.000069	-0.00022	mg/L	0.000069	31.93%
Cr 267.716†	6.6	0.00179	mg/L	0.000851	0.00179	mg/L	0.000851	47.50%
Cu 324.752†	66.6	0.00035	mg/L	0.000146	0.00035	mg/L	0.000146	41.03%
Fe 273.955†	0.2	0.00017	mg/L	0.003093	0.00017	mg/L	0.003093	>999.9%
K 766.490†	-32.0	-0.03281	mg/L	0.052833	-0.03281	mg/L	0.052833	161.01%
Mg 279.077†	-6.1	-0.00644	mg/L	0.005059	-0.00644	mg/L	0.005059	78.50%
Mn 257.610†	-12.5	-0.00040	mg/L	0.000083	-0.00040	mg/L	0.000083	20.98%
Mo 202.031†	3.5	0.00021	mg/L	0.000256	0.00021	mg/L	0.000256	119.37%
Na 589.592†	-290.7	-0.03846	mg/L	0.001967	-0.03846	mg/L	0.001967	5.11%
Na 330.237†	9.9	0.5735	mg/L	0.23290	0.5735	mg/L	0.23290	40.61%
Ni 231.604†	-1.0	-0.00034	mg/L	0.001962	-0.00034	mg/L	0.001962	580.20%
Pb 220.353†	5.8	0.00079	mg/L	0.000944	0.00079	mg/L	0.000944	119.18%
Sb 206.836†	-4.6	-0.00182	mg/L	0.002244	-0.00182	mg/L	0.002244	123.62%
Se 196.026†	-3.4	-0.00305	mg/L	0.004893	-0.00305	mg/L	0.004893	160.57%
Si 288.158†	1.8	0.00204	mg/L	0.002976	0.00204	mg/L	0.002976	145.56%
Sn 189.927†	3.3	0.00093	mg/L	0.000661	0.00093	mg/L	0.000661	70.83%
Sr 421.552†	-55.5	-0.00021	mg/L	0.000057	-0.00021	mg/L	0.000057	26.90%
Ti 334.903†	-2.7	-0.00021	mg/L	0.000368	-0.00021	mg/L	0.000368	172.07%
Tl 190.801†	5.0	0.00254	mg/L	0.001988	0.00254	mg/L	0.001988	78.27%
V 292.402†	8.4	0.00012	mg/L	0.000324	0.00012	mg/L	0.000324	275.08%
Zn 206.200†	0.1	0.00005	mg/L	0.000524	0.00005	mg/L	0.000524	967.90%

Sequence No.: 27
Sample ID: 19G0416-23

Dilution: 2X
Wash Time: 37

Autosampler Location: 319
Date Collected: 8/13/2019 3:26:19 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-23

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: 19G0416-23

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1857818.4	90.29	%	1.509				1.67%
ScR 361.383	200396.5	97.62	%	6.873				7.04%
Ag 328.068†	-96.7	-0.00057	mg/L	0.000200	-0.00113	mg/L	0.000401	35.39%
Al 308.215†	131902.3	127.3	mg/L	0.76	254.6	mg/L	1.53	0.60%
As 188.979†	-53.3	0.1225	mg/L	0.00699	0.2450	mg/L	0.01398	5.71%
B 249.677†	188.1	0.04306	mg/L	0.001250	0.08611	mg/L	0.002499	2.90%
Ba 233.527†	4688.9	1.173	mg/L	0.0075	2.347	mg/L	0.0150	0.64%
Be 313.042†	1704.5	0.00276	mg/L	0.000193	0.00551	mg/L	0.000387	7.01%
Ca 317.933†	358518.5	38.25	mg/L	0.084	76.50	mg/L	0.168	0.22%
Cd 228.802†	111.5	0.00515	mg/L	0.000432	0.01030	mg/L	0.000865	8.40%
Co 228.616†	1919.8	0.04618	mg/L	0.001620	0.09235	mg/L	0.003240	3.51%
Cr 267.716†	533.7	0.1483	mg/L	0.00432	0.2966	mg/L	0.00864	2.91%
Cu 324.752†	179739.7	0.9620	mg/L	0.01516	1.924	mg/L	0.0303	1.58%
Fe 273.955†	114094.7	125.9	mg/L	0.58	251.8	mg/L	1.15	0.46%
K 766.490†	7368.2	7.550	mg/L	0.1061	15.10	mg/L	0.212	1.40%
Mg 279.077†	31366.6	33.15	mg/L	0.189	66.30	mg/L	0.379	0.57%
Mn 257.610†	96278.2	3.050	mg/L	0.0085	6.100	mg/L	0.0170	0.28%
Mo 202.031†	116.5	0.00641	mg/L	0.000312	0.01282	mg/L	0.000625	4.87%
Na 589.592†	10571.5	1.399	mg/L	0.0093	2.797	mg/L	0.0187	0.67%
Na 330.237†	5.5	1.157	mg/L	0.6180	2.315	mg/L	1.2360	53.40%
Ni 231.604†	491.0	0.1607	mg/L	0.00137	0.3214	mg/L	0.00275	0.85%
Pb 220.353†	3727.5	0.5415	mg/L	0.01459	1.083	mg/L	0.0292	2.69%
Sb 206.836†	20.2	0.01505	mg/L	0.003714	0.03009	mg/L	0.007427	24.68%
Se 196.026†	-11.9	-0.01216	mg/L	0.008189	-0.02432	mg/L	0.016378	67.35%
Si 288.158†	1218.8	1.417	mg/L	0.0226	2.835	mg/L	0.0453	1.60%
Sn 189.927†	-38.5	-0.00188	mg/L	0.001265	-0.00377	mg/L	0.002530	67.16%
Sr 421.552†	182815.7	0.6947	mg/L	0.00830	1.389	mg/L	0.0166	1.19%
Ti 334.903†	71339.3	5.654	mg/L	0.0019	11.31	mg/L	0.004	0.03%
Tl 190.801†	-24.1	-0.01021	mg/L	0.002008	-0.02043	mg/L	0.004015	19.66%
V 292.402†	24620.0	0.3165	mg/L	0.00440	0.6329	mg/L	0.00881	1.39%
Zn 206.200†	1826.4	0.8380	mg/L	0.00500	1.676	mg/L	0.0100	0.60%

Sequence No.: 28
Sample ID: 19G0416-24

Dilution: 2X
Wash Time: 37

Autosampler Location: 320
Date Collected: 8/13/2019 3:30:19 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-24

Analyte	Back Pressure	Flow
All	165.0 kPa	0.65 L/min

Mean Data: 19G0416-24

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1867530.1	90.76	%	0.235				0.26%
ScR 361.383	197281.1	96.10	%	2.573				2.68%
Ag 328.068†	-246.9	-0.00156	mg/L	0.000094	-0.00313	mg/L	0.000189	6.04%
Al 308.215†	158463.2	152.9	mg/L	0.36	305.8	mg/L	0.72	0.24%
As 188.979†	-277.8	0.04908	mg/L	0.004706	0.09815	mg/L	0.009411	9.59%
B 249.677†	38.8	0.02515	mg/L	0.000922	0.05031	mg/L	0.001843	3.66%
Ba 233.527†	2489.3	0.6075	mg/L	0.00243	1.215	mg/L	0.0049	0.40%
Be 313.042†	1952.2	0.00294	mg/L	0.000081	0.00588	mg/L	0.000163	2.77%
Ca 317.933†	430812.4	45.96	mg/L	0.144	91.93	mg/L	0.289	0.31%
Cd 228.802†	45.5	0.00343	mg/L	0.000313	0.00686	mg/L	0.000625	9.12%
Co 228.616†	2869.1	0.06875	mg/L	0.000272	0.1375	mg/L	0.00054	0.40%
Cr 267.716†	713.6	0.1988	mg/L	0.00129	0.3975	mg/L	0.00258	0.65%
Cu 324.752†	35064.5	0.1939	mg/L	0.00040	0.3877	mg/L	0.00080	0.21%
Fe 273.955†	170986.8	188.7	mg/L	0.91	377.3	mg/L	1.81	0.48%
K 766.490†	7527.1	7.713	mg/L	0.0455	15.43	mg/L	0.091	0.59%
Mg 279.077†	48521.0	51.28	mg/L	0.146	102.6	mg/L	0.29	0.28%
Mn 257.610†	95311.6	3.020	mg/L	0.0097	6.039	mg/L	0.0193	0.32%
Mo 202.031†	76.4	0.00385	mg/L	0.000290	0.00770	mg/L	0.000580	7.54%
Na 589.592†	20819.2	2.754	mg/L	0.0102	5.509	mg/L	0.0203	0.37%
Na 330.237†	3.4	1.857	mg/L	0.2872	3.715	mg/L	0.5744	15.46%
Ni 231.604†	691.0	0.2261	mg/L	0.00195	0.4523	mg/L	0.00390	0.86%
Pb 220.353†	116.9	0.04891	mg/L	0.001067	0.09783	mg/L	0.002135	2.18%
Sb 206.836†	22.9	0.02006	mg/L	0.003614	0.04013	mg/L	0.007228	18.01%
Se 196.026†	-25.0	-0.01932	mg/L	0.009643	-0.03863	mg/L	0.019285	49.92%
Si 288.158†	1183.5	1.379	mg/L	0.0052	2.757	mg/L	0.0104	0.38%
Sn 189.927†	-74.1	-0.00930	mg/L	0.001291	-0.01860	mg/L	0.002582	13.88%
Sr 421.552†	105674.1	0.4016	mg/L	0.00069	0.8032	mg/L	0.00138	0.17%
Ti 334.903†	109324.3	8.665	mg/L	0.0282	17.33	mg/L	0.056	0.33%
Tl 190.801†	-42.8	-0.02032	mg/L	0.003793	-0.04064	mg/L	0.007586	18.67%
V 292.402†	31863.8	0.4107	mg/L	0.00165	0.8214	mg/L	0.00331	0.40%
Zn 206.200†	863.1	0.3958	mg/L	0.00314	0.7916	mg/L	0.00627	0.79%

Sequence No.: 29
Sample ID: 19G0416-25

Dilution: 2X
Wash Time: 37

Autosampler Location: 321
Date Collected: 8/13/2019 3:34:03 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-25

Analyte	Back Pressure	Flow
All	166.0 kPa	0.65 L/min

Mean Data: 19G0416-25

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1813494.1	88.13	%	1.158				1.31%
ScR 361.383	198096.2	96.50	%	7.022				7.28%
Ag 328.068†	-104.3	-0.00063	mg/L	0.000171	-0.00125	mg/L	0.000342	27.31%
Al 308.215†	182655.3	176.3	mg/L	0.74	352.5	mg/L	1.48	0.42%
As 188.979†	-5.1	0.1678	mg/L	0.00161	0.3357	mg/L	0.00323	0.96%
B 249.677†	185.6	0.04391	mg/L	0.002241	0.08781	mg/L	0.004481	5.10%
Ba 233.527†	6325.2	1.587	mg/L	0.0544	3.174	mg/L	0.1088	3.43%
Be 313.042†	1990.7	0.00357	mg/L	0.000367	0.00713	mg/L	0.000734	10.29%
Ca 317.933†	669432.8	71.42	mg/L	0.400	142.8	mg/L	0.80	0.56%
Cd 228.802†	168.6	0.00742	mg/L	0.000357	0.01484	mg/L	0.000715	4.82%
Co 228.616†	2316.5	0.05713	mg/L	0.000376	0.1143	mg/L	0.00075	0.66%
Cr 267.716†	849.0	0.2334	mg/L	0.00526	0.4668	mg/L	0.01052	2.25%
Cu 324.752†	40122.3	0.2189	mg/L	0.00112	0.4379	mg/L	0.00225	0.51%
Fe 273.955†	125746.1	138.8	mg/L	0.73	277.5	mg/L	1.46	0.53%
K 766.490†	5498.0	5.634	mg/L	0.0755	11.27	mg/L	0.151	1.34%
Mg 279.077†	37771.0	39.94	mg/L	0.150	79.87	mg/L	0.299	0.37%
Mn 257.610†	339865.4	10.77	mg/L	0.052	21.53	mg/L	0.104	0.48%
Mo 202.031†	111.8	0.00557	mg/L	0.000218	0.01114	mg/L	0.000436	3.92%
Na 589.592†	7104.6	0.9399	mg/L	0.00703	1.880	mg/L	0.0141	0.75%
Na 330.237†	-12.4	0.3099	mg/L	0.66876	0.6197	mg/L	1.33751	215.83%
Ni 231.604†	645.8	0.2114	mg/L	0.00699	0.4227	mg/L	0.01397	3.30%
Pb 220.353†	3910.9	0.5807	mg/L	0.00226	1.161	mg/L	0.0045	0.39%
Sb 206.836†	36.5	0.02054	mg/L	0.001373	0.04107	mg/L	0.002746	6.69%
Se 196.026†	-13.2	-0.02383	mg/L	0.003943	-0.04766	mg/L	0.007886	16.55%
Si 288.158†	4462.2	5.179	mg/L	0.2061	10.36	mg/L	0.412	3.98%
Sn 189.927†	-76.0	-0.00664	mg/L	0.000382	-0.01329	mg/L	0.000765	5.76%
Sr 421.552†	144654.2	0.5497	mg/L	0.00523	1.099	mg/L	0.0105	0.95%
Ti 334.903†	77441.7	6.135	mg/L	0.0183	12.27	mg/L	0.037	0.30%
Tl 190.801†	-47.3	-0.01292	mg/L	0.005068	-0.02585	mg/L	0.010136	39.22%
V 292.402†	22370.1	0.2908	mg/L	0.00340	0.5817	mg/L	0.00679	1.17%
Zn 206.200†	1389.6	0.6377	mg/L	0.01963	1.275	mg/L	0.0393	3.08%

Sequence No.: 30
Sample ID: 19G0416-26

Dilution: 2X
Wash Time: 37

Autosampler Location: 322
Date Collected: 8/13/2019 3:38:03 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-26

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: 19G0416-26

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1832233.0	89.04	%	1.170				1.31%
ScR 361.383	192959.1	94.00	%	2.310				2.46%
Ag 328.068†	-334.2	-0.00216	mg/L	0.000356	-0.00432	mg/L	0.000713	16.49%
Al 308.215†	171988.7	166.0	mg/L	0.43	331.9	mg/L	0.86	0.26%
As 188.979†	-151.2	0.09852	mg/L	0.000727	0.1970	mg/L	0.00145	0.74%
B 249.677†	46.1	0.02397	mg/L	0.000425	0.04793	mg/L	0.000851	1.77%
Ba 233.527†	2249.4	0.5496	mg/L	0.01303	1.099	mg/L	0.0261	2.37%
Be 313.042†	1985.3	0.00304	mg/L	0.000130	0.00608	mg/L	0.000260	4.28%
Ca 317.933†	320011.9	34.14	mg/L	0.049	68.28	mg/L	0.097	0.14%
Cd 228.802†	76.1	0.00415	mg/L	0.000376	0.00830	mg/L	0.000751	9.06%
Co 228.616†	2642.0	0.06477	mg/L	0.000719	0.1295	mg/L	0.00144	1.11%
Cr 267.716†	703.9	0.1956	mg/L	0.00193	0.3912	mg/L	0.00387	0.99%
Cu 324.752†	34020.6	0.1875	mg/L	0.00209	0.3749	mg/L	0.00419	1.12%
Fe 273.955†	149577.8	165.0	mg/L	0.05	330.1	mg/L	0.11	0.03%
K 766.490†	5895.2	6.041	mg/L	0.0434	12.08	mg/L	0.087	0.72%
Mg 279.077†	42029.2	44.42	mg/L	0.060	88.83	mg/L	0.120	0.14%
Mn 257.610†	78243.9	2.479	mg/L	0.0059	4.957	mg/L	0.0118	0.24%
Mo 202.031†	76.0	0.00402	mg/L	0.000199	0.00804	mg/L	0.000399	4.96%
Na 589.592†	15144.3	2.004	mg/L	0.0067	4.007	mg/L	0.0134	0.33%
Na 330.237†	2.5	1.302	mg/L	0.4416	2.604	mg/L	0.8832	33.91%
Ni 231.604†	686.9	0.2248	mg/L	0.00403	0.4496	mg/L	0.00806	1.79%
Pb 220.353†	470.2	0.1023	mg/L	0.00140	0.2047	mg/L	0.00280	1.37%
Sb 206.836†	24.2	0.01847	mg/L	0.002447	0.03695	mg/L	0.004895	13.25%
Se 196.026†	-17.7	-0.01640	mg/L	0.010873	-0.03281	mg/L	0.021746	66.28%
Si 288.158†	2104.1	2.445	mg/L	0.0518	4.891	mg/L	0.1035	2.12%
Sn 189.927†	-63.0	-0.00878	mg/L	0.002203	-0.01757	mg/L	0.004406	25.08%
Sr 421.552†	40256.3	0.1530	mg/L	0.00077	0.3060	mg/L	0.00154	0.50%
Ti 334.903†	91266.6	7.234	mg/L	0.0121	14.47	mg/L	0.024	0.17%
Tl 190.801†	-37.1	-0.01800	mg/L	0.000720	-0.03599	mg/L	0.001441	4.00%
V 292.402†	31728.7	0.4078	mg/L	0.00490	0.8155	mg/L	0.00981	1.20%
Zn 206.200†	1917.2	0.8798	mg/L	0.02232	1.760	mg/L	0.0446	2.54%

Sequence No.: 31
Sample ID: 19G0416-27

Dilution: 2X
Wash Time: 37

Autosampler Location: 323
Date Collected: 8/13/2019 3:42:02 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-27

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19G0416-27

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1824813.9	88.68	%	0.435				0.49%
ScR 361.383	194714.7	94.85	%	4.696				4.95%
Ag 328.068†	-198.9	-0.00125	mg/L	0.000121	-0.00250	mg/L	0.000242	9.66%
Al 308.215†	172488.1	166.4	mg/L	0.83	332.9	mg/L	1.66	0.50%
As 188.979†	-228.2	0.08631	mg/L	0.005989	0.1726	mg/L	0.01198	6.94%
B 249.677†	4663.7	0.7729	mg/L	0.02257	1.546	mg/L	0.0451	2.92%
Ba 233.527†	3240.0	0.7996	mg/L	0.02581	1.599	mg/L	0.0516	3.23%
Be 313.042†	2474.8	0.00439	mg/L	0.000321	0.00878	mg/L	0.000643	7.32%
Ca 317.933†	675938.2	72.12	mg/L	0.303	144.2	mg/L	0.61	0.42%
Cd 228.802†	129.1	0.00673	mg/L	0.000094	0.01345	mg/L	0.000188	1.39%
Co 228.616†	2495.7	0.05732	mg/L	0.000252	0.1146	mg/L	0.00050	0.44%
Cr 267.716†	1006.4	0.2784	mg/L	0.00697	0.5568	mg/L	0.01394	2.50%
Cu 324.752†	55692.0	0.3031	mg/L	0.00049	0.6062	mg/L	0.00098	0.16%
Fe 273.955†	158859.3	175.3	mg/L	1.13	350.6	mg/L	2.25	0.64%
K 766.490†	4863.7	4.984	mg/L	0.0533	9.967	mg/L	0.1065	1.07%
Mg 279.077†	37337.5	39.44	mg/L	0.091	78.88	mg/L	0.182	0.23%
Mn 257.610†	88421.5	2.801	mg/L	0.0081	5.602	mg/L	0.0161	0.29%
Mo 202.031†	138.8	0.00719	mg/L	0.000113	0.01438	mg/L	0.000225	1.57%
Na 589.592†	87093.0	11.52	mg/L	0.066	23.04	mg/L	0.132	0.57%
Na 330.237†	150.9	10.31	mg/L	0.472	20.62	mg/L	0.945	4.58%
Ni 231.604†	514.5	0.1684	mg/L	0.00339	0.3368	mg/L	0.00678	2.01%
Pb 220.353†	7807.0	1.113	mg/L	0.0052	2.226	mg/L	0.0103	0.46%
Sb 206.836†	28.5	0.02096	mg/L	0.000544	0.04193	mg/L	0.001089	2.60%
Se 196.026†	-13.1	-0.01141	mg/L	0.002844	-0.02281	mg/L	0.005688	24.93%
Si 288.158†	1392.8	1.620	mg/L	0.0479	3.240	mg/L	0.0958	2.96%
Sn 189.927†	-80.6	-0.00665	mg/L	0.002444	-0.01329	mg/L	0.004887	36.77%
Sr 421.552†	216005.4	0.8209	mg/L	0.00137	1.642	mg/L	0.0027	0.17%
Ti 334.903†	111185.2	8.810	mg/L	0.0122	17.62	mg/L	0.024	0.14%
Tl 190.801†	-33.0	-0.01534	mg/L	0.003856	-0.03069	mg/L	0.007712	25.13%
V 292.402†	28399.5	0.3669	mg/L	0.00256	0.7339	mg/L	0.00513	0.70%
Zn 206.200†	1427.1	0.6549	mg/L	0.01875	1.310	mg/L	0.0375	2.86%

Sequence No.: 32
Sample ID: 19G0416-28

Dilution: 2X
Wash Time: 37

Autosampler Location: 324
Date Collected: 8/13/2019 3:45:47 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-28

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: 19G0416-28

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1839418.4	89.39	%	0.432				0.48%
ScR 361.383	197586.2	96.25	%	2.381				2.47%
Ag 328.068†	-259.2	-0.00162	mg/L	0.000395	-0.00324	mg/L	0.000790	24.39%
Al 308.215†	189254.5	182.6	mg/L	0.35	365.3	mg/L	0.71	0.19%
As 188.979†	-178.3	0.07787	mg/L	0.002206	0.1557	mg/L	0.00441	2.83%
B 249.677†	48.8	0.02910	mg/L	0.002219	0.05820	mg/L	0.004439	7.63%
Ba 233.527†	3258.7	0.7998	mg/L	0.01676	1.600	mg/L	0.0335	2.10%
Be 313.042†	2368.6	0.00357	mg/L	0.000160	0.00714	mg/L	0.000320	4.48%
Ca 317.933†	326018.3	34.78	mg/L	0.221	69.57	mg/L	0.442	0.64%
Cd 228.802†	72.9	0.00415	mg/L	0.000302	0.00831	mg/L	0.000603	7.26%
Co 228.616†	2799.1	0.06885	mg/L	0.000209	0.1377	mg/L	0.00042	0.30%
Cr 267.716†	685.0	0.1932	mg/L	0.00622	0.3865	mg/L	0.01243	3.22%
Cu 324.752†	41281.0	0.2284	mg/L	0.00131	0.4568	mg/L	0.00263	0.58%
Fe 273.955†	191687.7	211.5	mg/L	1.61	423.0	mg/L	3.21	0.76%
K 766.490†	7318.0	7.498	mg/L	0.0496	15.00	mg/L	0.099	0.66%
Mg 279.077†	42898.6	45.31	mg/L	0.154	90.62	mg/L	0.307	0.34%
Mn 257.610†	94413.3	2.991	mg/L	0.0056	5.982	mg/L	0.0113	0.19%
Mo 202.031†	68.8	0.00358	mg/L	0.000525	0.00715	mg/L	0.001049	14.66%
Na 589.592†	14835.7	1.963	mg/L	0.0092	3.926	mg/L	0.0185	0.47%
Na 330.237†	0.8	1.398	mg/L	0.1973	2.796	mg/L	0.3945	14.11%
Ni 231.604†	769.2	0.2518	mg/L	0.00472	0.5035	mg/L	0.00944	1.88%
Pb 220.353†	677.5	0.1331	mg/L	0.00036	0.2663	mg/L	0.00072	0.27%
Sb 206.836†	31.7	0.02180	mg/L	0.001923	0.04359	mg/L	0.003847	8.83%
Se 196.026†	-21.9	-0.01705	mg/L	0.006919	-0.03409	mg/L	0.013838	40.59%
Si 288.158†	1462.6	1.702	mg/L	0.0176	3.403	mg/L	0.0351	1.03%
Sn 189.927†	-64.1	-0.00902	mg/L	0.000212	-0.01805	mg/L	0.000424	2.35%
Sr 421.552†	47345.6	0.1799	mg/L	0.00152	0.3599	mg/L	0.00305	0.85%
Ti 334.903†	90538.3	7.176	mg/L	0.0115	14.35	mg/L	0.023	0.16%
Tl 190.801†	-43.1	-0.02083	mg/L	0.001498	-0.04165	mg/L	0.002995	7.19%
V 292.402†	39234.9	0.5046	mg/L	0.00286	1.009	mg/L	0.0057	0.57%
Zn 206.200†	841.7	0.3860	mg/L	0.00961	0.7720	mg/L	0.01922	2.49%

Sequence No.: 33
Sample ID: 19G0416-29

Dilution: 2X
Wash Time: 37

Autosampler Location: 325
Date Collected: 8/13/2019 3:49:46 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-29

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19G0416-29

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1841186.4	89.48	%	0.652				0.73%
ScR 361.383	193712.4	94.36	%	1.842				1.95%
Ag 328.068†	-126.5	-0.00073	mg/L	0.000227	-0.00146	mg/L	0.000454	31.01%
Al 308.215†	216249.3	208.7	mg/L	0.06	417.4	mg/L	0.11	0.03%
As 188.979†	-5.2	0.2348	mg/L	0.00319	0.4695	mg/L	0.00637	1.36%
B 249.677†	119.5	0.03929	mg/L	0.001747	0.07857	mg/L	0.003493	4.45%
Ba 233.527†	3960.5	0.9794	mg/L	0.00558	1.959	mg/L	0.0112	0.57%
Be 313.042†	2554.8	0.00425	mg/L	0.000069	0.00850	mg/L	0.000137	1.61%
Ca 317.933†	380921.1	40.64	mg/L	0.087	81.28	mg/L	0.174	0.21%
Cd 228.802†	184.8	0.00811	mg/L	0.000277	0.01622	mg/L	0.000555	3.42%
Co 228.616†	2853.2	0.06859	mg/L	0.000812	0.1372	mg/L	0.00162	1.18%
Cr 267.716†	715.5	0.2010	mg/L	0.00166	0.4020	mg/L	0.00331	0.82%
Cu 324.752†	54017.2	0.2954	mg/L	0.00254	0.5908	mg/L	0.00508	0.86%
Fe 273.955†	180497.3	199.2	mg/L	0.37	398.3	mg/L	0.74	0.19%
K 766.490†	4173.8	4.277	mg/L	0.0101	8.553	mg/L	0.0202	0.24%
Mg 279.077†	40406.5	42.69	mg/L	0.109	85.38	mg/L	0.218	0.25%
Mn 257.610†	251305.7	7.962	mg/L	0.0272	15.92	mg/L	0.054	0.34%
Mo 202.031†	98.0	0.00525	mg/L	0.000394	0.01050	mg/L	0.000789	7.52%
Na 589.592†	10892.7	1.441	mg/L	0.0079	2.882	mg/L	0.0157	0.55%
Na 330.237†	-15.9	0.6150	mg/L	0.34183	1.230	mg/L	0.6837	55.59%
Ni 231.604†	676.4	0.2214	mg/L	0.00263	0.4428	mg/L	0.00527	1.19%
Pb 220.353†	3471.3	0.5259	mg/L	0.00434	1.052	mg/L	0.0087	0.83%
Sb 206.836†	42.7	0.02749	mg/L	0.001736	0.05499	mg/L	0.003472	6.31%
Se 196.026†	-13.0	-0.01763	mg/L	0.001399	-0.03526	mg/L	0.002798	7.94%
Si 288.158†	1394.6	1.622	mg/L	0.0048	3.245	mg/L	0.0096	0.30%
Sn 189.927†	-56.3	-0.00531	mg/L	0.002148	-0.01062	mg/L	0.004295	40.44%
Sr 421.552†	58916.6	0.2239	mg/L	0.00283	0.4478	mg/L	0.00566	1.26%
Ti 334.903†	105451.4	8.358	mg/L	0.0055	16.72	mg/L	0.011	0.07%
Tl 190.801†	-54.3	-0.02047	mg/L	0.001630	-0.04094	mg/L	0.003259	7.96%
V 292.402†	34751.6	0.4484	mg/L	0.00415	0.8968	mg/L	0.00830	0.93%
Zn 206.200†	1198.4	0.5499	mg/L	0.00464	1.100	mg/L	0.0093	0.84%

Sequence No.: 34
Sample ID: 19G0416-31

Dilution: 2X
Wash Time: 37

Autosampler Location: 326
Date Collected: 8/13/2019 3:53:45 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-31

Analyte	Back Pressure	Flow
All	167.0 kPa	0.65 L/min

Mean Data: 19G0416-31

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1866700.0	90.72	%	0.580				0.64%
ScR 361.383	195637.8	95.30	%	1.031				1.08%
Ag 328.068†	-230.6	-0.00145	mg/L	0.000105	-0.00289	mg/L	0.000210	7.25%
Al 308.215†	222906.8	215.1	mg/L	0.49	430.2	mg/L	0.97	0.23%
As 188.979†	-211.4	0.08498	mg/L	0.005938	0.1700	mg/L	0.01188	6.99%
B 249.677†	76.4	0.03210	mg/L	0.000734	0.06420	mg/L	0.001468	2.29%
Ba 233.527†	3086.5	0.7579	mg/L	0.01352	1.516	mg/L	0.0270	1.78%
Be 313.042†	2553.0	0.00430	mg/L	0.000078	0.00860	mg/L	0.000156	1.81%
Ca 317.933†	333531.8	35.58	mg/L	0.043	71.17	mg/L	0.086	0.12%
Cd 228.802†	83.2	0.00473	mg/L	0.000303	0.00946	mg/L	0.000607	6.42%
Co 228.616†	2831.9	0.06817	mg/L	0.000793	0.1363	mg/L	0.00159	1.16%
Cr 267.716†	715.1	0.1997	mg/L	0.00508	0.3994	mg/L	0.01015	2.54%
Cu 324.752†	40045.5	0.2208	mg/L	0.00072	0.4417	mg/L	0.00144	0.33%
Fe 273.955†	178577.8	197.0	mg/L	0.39	394.1	mg/L	0.78	0.20%
K 766.490†	7239.8	7.418	mg/L	0.0226	14.84	mg/L	0.045	0.30%
Mg 279.077†	49631.9	52.45	mg/L	0.156	104.9	mg/L	0.31	0.30%
Mn 257.610†	142495.2	4.514	mg/L	0.0147	9.028	mg/L	0.0294	0.33%
Mo 202.031†	72.0	0.00376	mg/L	0.000173	0.00751	mg/L	0.000346	4.60%
Na 589.592†	14118.6	1.868	mg/L	0.0053	3.736	mg/L	0.0107	0.29%
Na 330.237†	-6.8	1.121	mg/L	0.2196	2.242	mg/L	0.4391	19.59%
Ni 231.604†	677.3	0.2217	mg/L	0.00365	0.4433	mg/L	0.00731	1.65%
Pb 220.353†	998.7	0.1870	mg/L	0.00255	0.3741	mg/L	0.00509	1.36%
Sb 206.836†	35.8	0.02460	mg/L	0.002844	0.04919	mg/L	0.005689	11.56%
Se 196.026†	-17.2	-0.01920	mg/L	0.006948	-0.03840	mg/L	0.013896	36.19%
Si 288.158†	1636.5	1.904	mg/L	0.0354	3.808	mg/L	0.0708	1.86%
Sn 189.927†	-62.8	-0.00802	mg/L	0.000704	-0.01603	mg/L	0.001409	8.79%
Sr 421.552†	48349.7	0.1837	mg/L	0.00081	0.3675	mg/L	0.00162	0.44%
Ti 334.903†	104284.9	8.266	mg/L	0.0153	16.53	mg/L	0.031	0.19%
Tl 190.801†	-44.7	-0.01958	mg/L	0.004033	-0.03917	mg/L	0.008065	20.59%
V 292.402†	33727.3	0.4348	mg/L	0.00304	0.8697	mg/L	0.00608	0.70%
Zn 206.200†	1198.3	0.5497	mg/L	0.01216	1.099	mg/L	0.0243	2.21%

Sequence No.: 35
Sample ID: 19G0416-32

Dilution: 2X
Wash Time: 37

Autosampler Location: 327
Date Collected: 8/13/2019 3:57:29 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-32

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19G0416-32

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1826798.7	88.78	%	0.480				0.54%
ScR 361.383	192363.2	93.71	%	1.793				1.91%
Ag 328.068†	-206.7	-0.00130	mg/L	0.000393	-0.00260	mg/L	0.000787	30.20%
Al 308.215†	217964.8	210.3	mg/L	0.69	420.7	mg/L	1.38	0.33%
As 188.979†	-81.5	0.1540	mg/L	0.00059	0.3080	mg/L	0.00118	0.38%
B 249.677†	73.0	0.02769	mg/L	0.001741	0.05538	mg/L	0.003482	6.29%
Ba 233.527†	2660.3	0.6547	mg/L	0.00624	1.309	mg/L	0.0125	0.95%
Be 313.042†	2364.7	0.00412	mg/L	0.000091	0.00824	mg/L	0.000181	2.20%
Ca 317.933†	234077.5	24.97	mg/L	0.103	49.95	mg/L	0.207	0.41%
Cd 228.802†	113.1	0.00537	mg/L	0.000300	0.01075	mg/L	0.000601	5.59%
Co 228.616†	2306.3	0.05430	mg/L	0.000201	0.1086	mg/L	0.00040	0.37%
Cr 267.716†	568.3	0.1589	mg/L	0.00259	0.3178	mg/L	0.00518	1.63%
Cu 324.752†	40129.1	0.2197	mg/L	0.00192	0.4393	mg/L	0.00385	0.88%
Fe 273.955†	143732.7	158.6	mg/L	0.47	317.2	mg/L	0.94	0.30%
K 766.490†	4472.8	4.583	mg/L	0.1008	9.166	mg/L	0.2015	2.20%
Mg 279.077†	39436.9	41.68	mg/L	0.048	83.36	mg/L	0.097	0.12%
Mn 257.610†	115331.8	3.653	mg/L	0.0077	7.307	mg/L	0.0155	0.21%
Mo 202.031†	81.0	0.00448	mg/L	0.000296	0.00895	mg/L	0.000591	6.61%
Na 589.592†	7973.7	1.055	mg/L	0.0038	2.110	mg/L	0.0076	0.36%
Na 330.237†	-20.0	0.2425	mg/L	0.46509	0.4849	mg/L	0.93017	191.83%
Ni 231.604†	580.2	0.1899	mg/L	0.00178	0.3798	mg/L	0.00357	0.94%
Pb 220.353†	1483.9	0.2544	mg/L	0.00262	0.5088	mg/L	0.00524	1.03%
Sb 206.836†	32.0	0.02234	mg/L	0.003552	0.04468	mg/L	0.007104	15.90%
Se 196.026†	-7.3	-0.01352	mg/L	0.002134	-0.02704	mg/L	0.004267	15.78%
Si 288.158†	1207.5	1.405	mg/L	0.0172	2.811	mg/L	0.0345	1.23%
Sn 189.927†	-43.7	-0.00480	mg/L	0.001071	-0.00959	mg/L	0.002142	22.32%
Sr 421.552†	42520.1	0.1616	mg/L	0.00010	0.3232	mg/L	0.00021	0.06%
Ti 334.903†	93739.0	7.430	mg/L	0.0086	14.86	mg/L	0.017	0.12%
Tl 190.801†	-37.0	-0.01633	mg/L	0.001182	-0.03266	mg/L	0.002365	7.24%
V 292.402†	28735.5	0.3698	mg/L	0.00464	0.7396	mg/L	0.00928	1.25%
Zn 206.200†	881.0	0.4042	mg/L	0.00366	0.8084	mg/L	0.00732	0.91%

Sequence No.: 36
Sample ID: 19G0416-33

DEL

Dilution: 2X
Wash Time: 37

Autosampler Location: 328
Date Collected: 8/13/2019 4:01:27 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-33

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19G0416-33

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1840897.1	89.47	%	0.311				0.35%
ScR 361.383	194018.3	94.51	%	2.156				2.28%
Ag 328.068†	-16.2	0.00001	mg/L	0.000444	0.00001	mg/L	0.000888	>999.9%
Al 308.215†	235609.6	227.4	mg/L	0.71	454.7	mg/L	1.42	0.31%
As 188.979†	176.8	0.3463	mg/L	0.00281	0.6925	mg/L	0.00562	0.81%
B 249.677†	64.1	0.02785	mg/L	0.001221	0.05569	mg/L	0.002443	4.39%
Ba 233.527†	4906.6	1.222	mg/L	0.0186	2.445	mg/L	0.0372	1.52%
Be 313.042†	2453.1	0.00422	mg/L	0.000167	0.00843	mg/L	0.000333	3.95%
Ca 317.933†	342237.7	36.51	mg/L	0.115	73.03	mg/L	0.230	0.32%
Cd 228.802†	234.0	0.00937	mg/L	0.000085	0.01874	mg/L	0.000170	0.91%
Co 228.616†	2508.9	0.05961	mg/L	0.000143	0.1192	mg/L	0.00029	0.24%
Cr 267.716†	750.5	0.2094	mg/L	0.00132	0.4188	mg/L	0.00264	0.63%
Cu 324.752†	50596.0	0.2761	mg/L	0.00149	0.5523	mg/L	0.00298	0.54%
Fe 273.955†	158162.4	174.5	mg/L	1.18	349.0	mg/L	2.35	0.67%
K 766.490†	7849.4	8.043	mg/L	0.0790	16.09	mg/L	0.158	0.98%
Mg 279.077†	37147.8	39.26	mg/L	0.022	78.51	mg/L	0.044	0.06%
Mn 257.610†	295803.4	9.371	mg/L	0.0214	18.74	mg/L	0.043	0.23%
Mo 202.031†	103.1	0.00562	mg/L	0.000041	0.01124	mg/L	0.000082	0.73%
Na 589.592†	12013.9	1.589	mg/L	0.0050	3.179	mg/L	0.0101	0.32%
Na 330.237†	-9.9	0.8518	mg/L	0.06790	1.704	mg/L	0.1358	7.97%
Ni 231.604†	686.2	0.2246	mg/L	0.00368	0.4492	mg/L	0.00736	1.64%
Pb 220.353†	2577.1	0.4090	mg/L	0.00050	0.8180	mg/L	0.00100	0.12%
Sb 206.836†	47.2	0.02797	mg/L	0.003350	0.05595	mg/L	0.006701	11.98%
Se 196.026†	-3.1	-0.01479	mg/L	0.003964	-0.02958	mg/L	0.007928	26.81%
Si 288.158†	1602.6	1.863	mg/L	0.0187	3.726	mg/L	0.0375	1.01%
Sn 189.927†	-59.5	-0.00717	mg/L	0.000897	-0.01435	mg/L	0.001794	12.50%
Sr 421.552†	74777.8	0.2842	mg/L	0.00273	0.5683	mg/L	0.00546	0.96%
Ti 334.903†	97495.4	7.727	mg/L	0.0192	15.45	mg/L	0.038	0.25%
Tl 190.801†	-52.9	-0.01787	mg/L	0.007109	-0.03575	mg/L	0.014219	39.77%
V 292.402†	30870.6	0.3988	mg/L	0.00361	0.7976	mg/L	0.00723	0.91%
Zn 206.200†	1085.5	0.4979	mg/L	0.00496	0.9958	mg/L	0.00993	1.00%

Sequence No.: 37 **Autosampler Location: 7**
Sample ID: SEQ-CCV4 **Date Collected: 8/13/2019 4:05:26 PM**
Data Type: Original
Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCV4

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: SEQ-CCV4

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1889390.7	91.82	%	1.883				2.05%
ScR 361.383	187584.9	91.38	%	1.231				1.35%
Ag 328.068†	151270.3	1.033	mg/L	0.0148	1.033	mg/L	0.0148	1.43%
Al 308.215†	2127.9	2.016	mg/L	0.0341	2.016	mg/L	0.0341	1.69%
As 188.979†	2732.3	1.977	mg/L	0.0486	1.977	mg/L	0.0486	2.46%
B 249.677†	6375.6	1.032	mg/L	0.0134	1.032	mg/L	0.0134	1.30%
Ba 233.527†	3927.9	0.9945	mg/L	0.00823	0.9945	mg/L	0.00823	0.83%
Be 313.042†	421441.5	1.018	mg/L	0.0040	1.018	mg/L	0.0040	0.39%
Ca 317.933†	19117.7	2.026	mg/L	0.0204	2.026	mg/L	0.0204	1.01%
Cd 228.802†	23523.5	0.9954	mg/L	0.01724	0.9954	mg/L	0.01724	1.73%
Co 228.616†	32433.9	0.9859	mg/L	0.01367	0.9859	mg/L	0.01367	1.39%
Cr 267.716†	3604.4	0.9782	mg/L	0.00995	0.9782	mg/L	0.00995	1.02%
Cu 324.752†	190225.4	1.013	mg/L	0.0160	1.013	mg/L	0.0160	1.58%
Fe 273.955†	1791.7	1.970	mg/L	0.0256	1.970	mg/L	0.0256	1.30%
K 766.490†	19576.4	20.06	mg/L	0.045	20.06	mg/L	0.045	0.23%
Mg 279.077†	1910.7	2.034	mg/L	0.0231	2.034	mg/L	0.0231	1.14%
Mn 257.610†	31855.3	1.010	mg/L	0.0111	1.010	mg/L	0.0111	1.10%
Mo 202.031†	16278.6	0.9849	mg/L	0.01618	0.9849	mg/L	0.01618	1.64%
Na 589.592†	391797.4	51.83	mg/L	0.291	51.83	mg/L	0.291	0.56%
Na 330.237†	859.4	49.46	mg/L	0.570	49.46	mg/L	0.570	1.15%
Ni 231.604†	3020.8	0.9900	mg/L	0.01324	0.9900	mg/L	0.01324	1.34%
Pb 220.353†	14481.8	1.997	mg/L	0.0341	1.997	mg/L	0.0341	1.71%
Sb 206.836†	5362.1	2.088	mg/L	0.0493	2.088	mg/L	0.0493	2.36%
Se 196.026†	2290.7	2.057	mg/L	0.0463	2.057	mg/L	0.0463	2.25%
Si 288.158†	1838.6	2.134	mg/L	0.0294	2.134	mg/L	0.0294	1.38%
Sn 189.927†	3566.4	1.008	mg/L	0.0244	1.008	mg/L	0.0244	2.42%
Sr 421.552†	279256.4	1.061	mg/L	0.0093	1.061	mg/L	0.0093	0.87%
Ti 334.903†	12506.2	0.9902	mg/L	0.00322	0.9902	mg/L	0.00322	0.33%
Tl 190.801†	3960.8	2.015	mg/L	0.0431	2.015	mg/L	0.0431	2.14%
V 292.402†	76436.7	0.9659	mg/L	0.01781	0.9659	mg/L	0.01781	1.84%
Zn 206.200†	2200.2	1.008	mg/L	0.0117	1.008	mg/L	0.0117	1.16%

Sequence No.: 38 **Autosampler Location: 1**
Sample ID: SEQ-CCB4 **Date Collected: 8/13/2019 4:10:29 PM**
Data Type: Original
Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB4

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: SEQ-CCB4

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2085931.0	101.4	%	0.13				0.13%
ScR 361.383	209698.2	102.2	%	0.16				0.16%
Ag 328.068†	-19.0	-0.00013	mg/L	0.000280	-0.00013	mg/L	0.000280	215.47%
Al 308.215†	-18.6	-0.01796	mg/L	0.010224	-0.01796	mg/L	0.010224	56.91%
As 188.979†	0.7	0.00051	mg/L	0.000902	0.00051	mg/L	0.000902	176.83%
B 249.677†	17.7	0.00286	mg/L	0.000861	0.00286	mg/L	0.000861	30.09%
Ba 233.527†	1.7	0.00042	mg/L	0.000827	0.00042	mg/L	0.000827	194.71%
Be 313.042†	-75.9	-0.00018	mg/L	0.000013	-0.00018	mg/L	0.000013	7.13%
Ca 317.933†	2.5	0.00026	mg/L	0.001665	0.00026	mg/L	0.001665	642.35%
Cd 228.802†	9.8	0.00042	mg/L	0.000173	0.00042	mg/L	0.000173	41.42%
Co 228.616†	-3.0	-0.00009	mg/L	0.000319	-0.00009	mg/L	0.000319	344.81%
Cr 267.716†	0.3	0.00008	mg/L	0.000765	0.00008	mg/L	0.000765	>999.9%
Cu 324.752†	63.6	0.00034	mg/L	0.000067	0.00034	mg/L	0.000067	19.70%
Fe 273.955†	1.3	0.00140	mg/L	0.001911	0.00140	mg/L	0.001911	136.31%
K 766.490†	-10.7	-0.01092	mg/L	0.020552	-0.01092	mg/L	0.020552	188.18%
Mg 279.077†	0.2	0.00020	mg/L	0.007135	0.00020	mg/L	0.007135	>999.9%
Mn 257.610†	-2.0	-0.00006	mg/L	0.000101	-0.00006	mg/L	0.000101	156.71%
Mo 202.031†	8.0	0.00049	mg/L	0.000358	0.00049	mg/L	0.000358	73.69%
Na 589.592†	-332.4	-0.04398	mg/L	0.002246	-0.04398	mg/L	0.002246	5.11%
Na 330.237†	5.8	0.3358	mg/L	0.42517	0.3358	mg/L	0.42517	126.61%
Ni 231.604†	-0.3	-0.00010	mg/L	0.002065	-0.00010	mg/L	0.002065	>999.9%
Pb 220.353†	-1.4	-0.00020	mg/L	0.000795	-0.00020	mg/L	0.000795	392.73%
Sb 206.836†	-3.8	-0.00146	mg/L	0.003630	-0.00146	mg/L	0.003630	247.86%
Se 196.026†	-0.0	0.00000	mg/L	0.003492	0.00000	mg/L	0.003492	>999.9%
Si 288.158†	-2.5	-0.00284	mg/L	0.011029	-0.00284	mg/L	0.011029	387.82%
Sn 189.927†	0.2	0.00006	mg/L	0.000736	0.00006	mg/L	0.000736	>999.9%
Sr 421.552†	-40.7	-0.00015	mg/L	0.000112	-0.00015	mg/L	0.000112	72.56%
Ti 334.903†	10.8	0.00086	mg/L	0.000727	0.00086	mg/L	0.000727	84.74%
Tl 190.801†	0.4	0.00022	mg/L	0.000946	0.00022	mg/L	0.000946	428.88%
V 292.402†	4.8	0.00006	mg/L	0.000111	0.00006	mg/L	0.000111	181.51%
Zn 206.200†	-0.0	-0.00002	mg/L	0.000654	-0.00002	mg/L	0.000654	>999.9%

Sequence No.: 39
Sample ID: 19G0416-34

Dilution: 2X
Wash Time: 37

Autosampler Location: 329
Date Collected: 8/13/2019 4:14:28 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-34

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19G0416-34

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1842969.5	89.57	%	0.849				0.95%
ScR 361.383	200622.1	97.73	%	7.657				7.83%
Ag 328.068†	-140.9	-0.00085	mg/L	0.000156	-0.00169	mg/L	0.000311	18.40%
Al 308.215†	198517.6	191.6	mg/L	1.08	383.1	mg/L	2.15	0.56%
As 188.979†	51.3	0.2630	mg/L	0.00231	0.5260	mg/L	0.00461	0.88%
B 249.677†	67.5	0.02719	mg/L	0.000878	0.05438	mg/L	0.001756	3.23%
Ba 233.527†	3318.7	0.8212	mg/L	0.03584	1.642	mg/L	0.0717	4.36%
Be 313.042†	2312.9	0.00389	mg/L	0.000435	0.00778	mg/L	0.000869	11.17%
Ca 317.933†	364415.9	38.88	mg/L	0.204	77.76	mg/L	0.408	0.53%
Cd 228.802†	176.8	0.00748	mg/L	0.000273	0.01496	mg/L	0.000546	3.65%
Co 228.616†	2433.9	0.05719	mg/L	0.001033	0.1144	mg/L	0.00207	1.81%
Cr 267.716†	645.9	0.1808	mg/L	0.00305	0.3616	mg/L	0.00610	1.69%
Cu 324.752†	54004.6	0.2937	mg/L	0.00083	0.5874	mg/L	0.00166	0.28%
Fe 273.955†	147211.2	162.4	mg/L	0.54	324.9	mg/L	1.07	0.33%
K 766.490†	4621.5	4.735	mg/L	0.0629	9.471	mg/L	0.1257	1.33%
Mg 279.077†	32562.8	34.40	mg/L	0.018	68.80	mg/L	0.035	0.05%
Mn 257.610†	192238.9	6.090	mg/L	0.0081	12.18	mg/L	0.016	0.13%
Mo 202.031†	93.0	0.00497	mg/L	0.000520	0.00995	mg/L	0.001039	10.45%
Na 589.592†	10696.8	1.415	mg/L	0.0075	2.830	mg/L	0.0150	0.53%
Na 330.237†	-4.0	1.259	mg/L	0.7264	2.518	mg/L	1.4527	57.69%
Ni 231.604†	588.8	0.1927	mg/L	0.00667	0.3854	mg/L	0.01335	3.46%
Pb 220.353†	3932.9	0.5865	mg/L	0.00663	1.173	mg/L	0.0133	1.13%
Sb 206.836†	43.3	0.02722	mg/L	0.000867	0.05444	mg/L	0.001733	3.18%
Se 196.026†	-16.6	-0.02161	mg/L	0.002363	-0.04322	mg/L	0.004727	10.94%
Si 288.158†	1632.3	1.897	mg/L	0.0936	3.794	mg/L	0.1873	4.94%
Sn 189.927†	-48.4	-0.00355	mg/L	0.001680	-0.00711	mg/L	0.003360	47.29%
Sr 421.552†	71434.6	0.2715	mg/L	0.00072	0.5429	mg/L	0.00143	0.26%
Ti 334.903†	100218.1	7.943	mg/L	0.0076	15.89	mg/L	0.015	0.10%
Tl 190.801†	-44.9	-0.01762	mg/L	0.003184	-0.03524	mg/L	0.006369	18.07%
V 292.402†	30574.2	0.3936	mg/L	0.00362	0.7872	mg/L	0.00725	0.92%
Zn 206.200†	974.2	0.4470	mg/L	0.01734	0.8939	mg/L	0.03468	3.88%

Sequence No.: 40
Sample ID: 19G0416-35

Dilution: 2X
Wash Time: 37

Autosampler Location: 330
Date Collected: 8/13/2019 4:18:28 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-35

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19G0416-35

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1807027.0	87.82	%	0.277				0.32%
ScR 361.383	194913.9	94.95	%	3.341				3.52%
Ag 328.068†	-5.9	0.00007	mg/L	0.000042	0.00014	mg/L	0.000084	62.01%
Al 308.215†	198914.6	192.0	mg/L	0.93	383.9	mg/L	1.86	0.48%
As 188.979†	131.0	0.3002	mg/L	0.00405	0.6004	mg/L	0.00810	1.35%
B 249.677†	126.1	0.03581	mg/L	0.001220	0.07162	mg/L	0.002440	3.41%
Ba 233.527†	7747.5	1.946	mg/L	0.0200	3.892	mg/L	0.0401	1.03%
Be 313.042†	2489.5	0.00444	mg/L	0.000110	0.00887	mg/L	0.000220	2.47%
Ca 317.933†	523202.0	55.82	mg/L	0.151	111.6	mg/L	0.30	0.27%
Cd 228.802†	249.9	0.01026	mg/L	0.000261	0.02053	mg/L	0.000521	2.54%
Co 228.616†	2489.9	0.06004	mg/L	0.000675	0.1201	mg/L	0.00135	1.12%
Cr 267.716†	648.4	0.1818	mg/L	0.00074	0.3635	mg/L	0.00147	0.41%
Cu 324.752†	41695.2	0.2279	mg/L	0.00181	0.4559	mg/L	0.00362	0.79%
Fe 273.955†	139418.2	153.8	mg/L	0.30	307.7	mg/L	0.61	0.20%
K 766.490†	4459.1	4.569	mg/L	0.0667	9.138	mg/L	0.1334	1.46%
Mg 279.077†	24135.1	25.50	mg/L	0.074	51.00	mg/L	0.147	0.29%
Mn 257.610†	488691.6	15.48	mg/L	0.039	30.96	mg/L	0.078	0.25%
Mo 202.031†	116.9	0.00614	mg/L	0.000688	0.01228	mg/L	0.001376	11.20%
Na 589.592†	8722.8	1.154	mg/L	0.0108	2.308	mg/L	0.0216	0.93%
Na 330.237†	-14.7	0.4324	mg/L	0.50230	0.8648	mg/L	1.00459	116.17%
Ni 231.604†	672.3	0.2200	mg/L	0.00093	0.4401	mg/L	0.00185	0.42%
Pb 220.353†	3466.5	0.5229	mg/L	0.00236	1.046	mg/L	0.0047	0.45%
Sb 206.836†	33.1	0.02214	mg/L	0.001529	0.04427	mg/L	0.003058	6.91%
Se 196.026†	-3.7	-0.01943	mg/L	0.003878	-0.03886	mg/L	0.007756	19.96%
Si 288.158†	1766.5	2.052	mg/L	0.0145	4.103	mg/L	0.0290	0.71%
Sn 189.927†	-68.8	-0.00674	mg/L	0.000828	-0.01349	mg/L	0.001656	12.28%
Sr 421.552†	145504.2	0.5530	mg/L	0.00343	1.106	mg/L	0.0069	0.62%
Ti 334.903†	92202.5	7.306	mg/L	0.0193	14.61	mg/L	0.039	0.26%
Tl 190.801†	-65.2	-0.01678	mg/L	0.001438	-0.03356	mg/L	0.002877	8.57%
V 292.402†	28483.6	0.3687	mg/L	0.00156	0.7374	mg/L	0.00311	0.42%
Zn 206.200†	1354.1	0.6214	mg/L	0.00401	1.243	mg/L	0.0080	0.65%

Sequence No.: 41
Sample ID: 19G0416-36

Dilution: 2X
Wash Time: 37

Autosampler Location: 331
Date Collected: 8/13/2019 4:22:27 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-36

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19G0416-36

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1904766.1	92.57	%	1.396				1.51%
ScR 361.383	195179.2	95.08	%	1.326				1.39%
Ag 328.068†	-44.6	-0.00020	mg/L	0.000146	-0.00040	mg/L	0.000291	71.92%
Al 308.215†	177790.7	171.6	mg/L	1.02	343.1	mg/L	2.04	0.60%
As 188.979†	16.7	0.2099	mg/L	0.00351	0.4198	mg/L	0.00703	1.67%
B 249.677†	61.0	0.02387	mg/L	0.002140	0.04773	mg/L	0.004279	8.96%
Ba 233.527†	2086.5	0.5115	mg/L	0.00481	1.023	mg/L	0.0096	0.94%
Be 313.042†	1933.4	0.00318	mg/L	0.000061	0.00636	mg/L	0.000122	1.92%
Ca 317.933†	164009.5	17.50	mg/L	0.013	35.00	mg/L	0.025	0.07%
Cd 228.802†	96.9	0.00418	mg/L	0.000376	0.00835	mg/L	0.000752	9.00%
Co 228.616†	2281.9	0.05483	mg/L	0.001165	0.1097	mg/L	0.00233	2.13%
Cr 267.716†	474.1	0.1345	mg/L	0.00159	0.2690	mg/L	0.00318	1.18%
Cu 324.752†	52777.6	0.2864	mg/L	0.00357	0.5728	mg/L	0.00714	1.25%
Fe 273.955†	126695.2	139.8	mg/L	0.61	279.6	mg/L	1.21	0.43%
K 766.490†	4084.5	4.185	mg/L	0.0623	8.370	mg/L	0.1246	1.49%
Mg 279.077†	20997.9	22.16	mg/L	0.069	44.33	mg/L	0.137	0.31%
Mn 257.610†	124179.7	3.934	mg/L	0.0213	7.868	mg/L	0.0425	0.54%
Mo 202.031†	87.9	0.00502	mg/L	0.000654	0.01004	mg/L	0.001308	13.03%
Na 589.592†	11025.4	1.459	mg/L	0.0081	2.917	mg/L	0.0162	0.55%
Na 330.237†	-9.3	0.7789	mg/L	0.12710	1.558	mg/L	0.2542	16.32%
Ni 231.604†	434.1	0.1421	mg/L	0.00133	0.2841	mg/L	0.00265	0.93%
Pb 220.353†	3927.9	0.5814	mg/L	0.00970	1.163	mg/L	0.0194	1.67%
Sb 206.836†	38.8	0.02459	mg/L	0.002463	0.04918	mg/L	0.004926	10.02%
Se 196.026†	-0.8	-0.00606	mg/L	0.004648	-0.01213	mg/L	0.009295	76.64%
Si 288.158†	2631.8	3.055	mg/L	0.0210	6.109	mg/L	0.0420	0.69%
Sn 189.927†	-19.5	0.00054	mg/L	0.001021	0.00108	mg/L	0.002041	188.91%
Sr 421.552†	26885.3	0.1022	mg/L	0.00067	0.2043	mg/L	0.00133	0.65%
Ti 334.903†	87142.3	6.908	mg/L	0.0282	13.82	mg/L	0.056	0.41%
Tl 190.801†	-25.3	-0.00995	mg/L	0.004603	-0.01989	mg/L	0.009205	46.27%
V 292.402†	26829.5	0.3448	mg/L	0.00501	0.6896	mg/L	0.01002	1.45%
Zn 206.200†	721.0	0.3308	mg/L	0.00202	0.6616	mg/L	0.00404	0.61%

Sequence No.: 42
Sample ID: 19G0416-37

Dilution: 2X
Wash Time: 37

Autosampler Location: 332
Date Collected: 8/13/2019 4:26:25 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-37

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19G0416-37

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1898866.5	92.28	%	1.132				1.23%
ScR 361.383	200647.0	97.74	%	1.776				1.82%
Ag 328.068†	42.5	0.00036	mg/L	0.000225	0.00072	mg/L	0.000449	62.57%
Al 308.215†	101962.6	98.39	mg/L	0.591	196.8	mg/L	1.18	0.60%
As 188.979†	523.8	0.5124	mg/L	0.01330	1.025	mg/L	0.0266	2.60%
B 249.677†	60.6	0.02083	mg/L	0.001079	0.04166	mg/L	0.002157	5.18%
Ba 233.527†	5364.6	1.347	mg/L	0.0191	2.694	mg/L	0.0382	1.42%
Be 313.042†	1148.5	0.00177	mg/L	0.000103	0.00354	mg/L	0.000206	5.82%
Ca 317.933†	198097.3	21.14	mg/L	0.044	42.27	mg/L	0.089	0.21%
Cd 228.802†	191.8	0.00583	mg/L	0.000070	0.01166	mg/L	0.000141	1.21%
Co 228.616†	1195.3	0.02585	mg/L	0.000513	0.05170	mg/L	0.001026	1.98%
Cr 267.716†	386.0	0.1095	mg/L	0.00160	0.2189	mg/L	0.00320	1.46%
Cu 324.752†	80842.9	0.4348	mg/L	0.00411	0.8696	mg/L	0.00821	0.94%
Fe 273.955†	99470.8	109.8	mg/L	1.13	219.5	mg/L	2.25	1.03%
K 766.490†	2564.8	2.628	mg/L	0.0115	5.256	mg/L	0.0230	0.44%
Mg 279.077†	14590.6	15.39	mg/L	0.077	30.79	mg/L	0.154	0.50%
Mn 257.610†	111809.9	3.542	mg/L	0.0138	7.085	mg/L	0.0276	0.39%
Mo 202.031†	79.8	0.00447	mg/L	0.000364	0.00894	mg/L	0.000729	8.15%
Na 589.592†	4947.3	0.6545	mg/L	0.00589	1.309	mg/L	0.0118	0.90%
Na 330.237†	-11.4	0.2344	mg/L	0.21023	0.4688	mg/L	0.42046	89.70%
Ni 231.604†	292.9	0.09586	mg/L	0.002200	0.1917	mg/L	0.00440	2.30%
Pb 220.353†	2949.2	0.4277	mg/L	0.00550	0.8555	mg/L	0.01100	1.29%
Sb 206.836†	39.2	0.02161	mg/L	0.002169	0.04322	mg/L	0.004338	10.04%
Se 196.026†	-7.3	-0.00734	mg/L	0.002417	-0.01467	mg/L	0.004834	32.95%
Si 288.158†	1767.1	2.051	mg/L	0.0152	4.102	mg/L	0.0303	0.74%
Sn 189.927†	-17.1	0.00088	mg/L	0.000490	0.00176	mg/L	0.000980	55.71%
Sr 421.552†	48926.6	0.1859	mg/L	0.00071	0.3719	mg/L	0.00143	0.38%
Ti 334.903†	60810.3	4.820	mg/L	0.0228	9.640	mg/L	0.0456	0.47%
Tl 190.801†	-23.7	-0.00900	mg/L	0.002287	-0.01800	mg/L	0.004574	25.41%
V 292.402†	18072.9	0.2334	mg/L	0.00197	0.4668	mg/L	0.00395	0.85%
Zn 206.200†	639.6	0.2935	mg/L	0.00424	0.5870	mg/L	0.00849	1.45%

Sequence No.: 43
Sample ID: 19G0416-38

Dilution: 2X
Wash Time: 37

Autosampler Location: 333
Date Collected: 8/13/2019 4:30:23 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-38

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19G0416-38

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1915074.8	93.07	%	0.281				0.30%
ScR 361.383	199394.7	97.13	%	2.152				2.22%
Ag 328.068†	-223.5	-0.00143	mg/L	0.000257	-0.00286	mg/L	0.000515	18.02%
Al 308.215†	125702.4	121.3	mg/L	0.59	242.6	mg/L	1.19	0.49%
As 188.979†	44.6	0.1784	mg/L	0.00268	0.3568	mg/L	0.00535	1.50%
B 249.677†	30.7	0.02275	mg/L	0.002487	0.04551	mg/L	0.004973	10.93%
Ba 233.527†	2668.5	0.6545	mg/L	0.00878	1.309	mg/L	0.0176	1.34%
Be 313.042†	1811.0	0.00296	mg/L	0.000166	0.00593	mg/L	0.000333	5.61%
Ca 317.933†	413077.1	44.07	mg/L	0.224	88.14	mg/L	0.448	0.51%
Cd 228.802†	147.0	0.00620	mg/L	0.000211	0.01241	mg/L	0.000423	3.41%
Co 228.616†	2012.4	0.04909	mg/L	0.000133	0.09819	mg/L	0.000267	0.27%
Cr 267.716†	381.0	0.1099	mg/L	0.00214	0.2197	mg/L	0.00429	1.95%
Cu 324.752†	49325.8	0.2700	mg/L	0.00123	0.5400	mg/L	0.00247	0.46%
Fe 273.955†	160495.7	177.1	mg/L	1.77	354.2	mg/L	3.54	1.00%
K 766.490†	8687.0	8.901	mg/L	0.0402	17.80	mg/L	0.080	0.45%
Mg 279.077†	31814.4	33.59	mg/L	0.160	67.18	mg/L	0.320	0.48%
Mn 257.610†	81158.5	2.571	mg/L	0.0058	5.143	mg/L	0.0116	0.22%
Mo 202.031†	89.1	0.00465	mg/L	0.000364	0.00931	mg/L	0.000728	7.82%
Na 589.592†	19971.7	2.642	mg/L	0.0161	5.284	mg/L	0.0322	0.61%
Na 330.237†	19.4	2.000	mg/L	0.3681	4.000	mg/L	0.7361	18.40%
Ni 231.604†	469.5	0.1537	mg/L	0.00257	0.3074	mg/L	0.00513	1.67%
Pb 220.353†	2936.5	0.4292	mg/L	0.00026	0.8583	mg/L	0.00051	0.06%
Sb 206.836†	36.1	0.02118	mg/L	0.001282	0.04235	mg/L	0.002563	6.05%
Se 196.026†	-22.6	-0.01480	mg/L	0.004374	-0.02960	mg/L	0.008749	29.56%
Si 288.158†	1741.7	2.024	mg/L	0.0364	4.047	mg/L	0.0729	1.80%
Sn 189.927†	-60.0	-0.00719	mg/L	0.000811	-0.01437	mg/L	0.001623	11.29%
Sr 421.552†	58139.0	0.2209	mg/L	0.00147	0.4419	mg/L	0.00293	0.66%
Ti 334.903†	65005.9	5.151	mg/L	0.0312	10.30	mg/L	0.062	0.61%
Tl 190.801†	-29.3	-0.01351	mg/L	0.003648	-0.02701	mg/L	0.007297	27.01%
V 292.402†	25689.8	0.3324	mg/L	0.00177	0.6648	mg/L	0.00354	0.53%
Zn 206.200†	1069.2	0.4904	mg/L	0.00899	0.9808	mg/L	0.01798	1.83%

Sequence No.: 44
Sample ID: 19G0416-39

Dilution: 2X
Wash Time: 37

Autosampler Location: 334
Date Collected: 8/13/2019 4:34:22 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-39

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19G0416-39

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1913366.1	92.99	%	0.358				0.38%
ScR 361.383	202925.4	98.85	%	3.354				3.39%
Ag 328.068†	-120.2	-0.00072	mg/L	0.000643	-0.00144	mg/L	0.001287	89.53%
Al 308.215†	203403.4	196.3	mg/L	1.24	392.6	mg/L	2.49	0.63%
As 188.979†	-98.2	0.1335	mg/L	0.00265	0.2671	mg/L	0.00529	1.98%
B 249.677†	60.8	0.02546	mg/L	0.000736	0.05091	mg/L	0.001472	2.89%
Ba 233.527†	3048.1	0.7534	mg/L	0.01229	1.507	mg/L	0.0246	1.63%
Be 313.042†	2325.7	0.00413	mg/L	0.000196	0.00826	mg/L	0.000391	4.74%
Ca 317.933†	294407.3	31.41	mg/L	0.067	62.82	mg/L	0.133	0.21%
Cd 228.802†	99.8	0.00489	mg/L	0.000063	0.00977	mg/L	0.000125	1.28%
Co 228.616†	2284.2	0.05416	mg/L	0.000668	0.1083	mg/L	0.00134	1.23%
Cr 267.716†	575.5	0.1611	mg/L	0.00177	0.3221	mg/L	0.00355	1.10%
Cu 324.752†	38083.7	0.2087	mg/L	0.00233	0.4175	mg/L	0.00465	1.11%
Fe 273.955†	141396.1	156.0	mg/L	0.98	312.0	mg/L	1.96	0.63%
K 766.490†	3569.8	3.658	mg/L	0.0833	7.316	mg/L	0.1666	2.28%
Mg 279.077†	35605.1	37.62	mg/L	0.076	75.24	mg/L	0.152	0.20%
Mn 257.610†	128473.8	4.070	mg/L	0.0249	8.140	mg/L	0.0497	0.61%
Mo 202.031†	81.2	0.00438	mg/L	0.000503	0.00876	mg/L	0.001007	11.49%
Na 589.592†	10266.9	1.358	mg/L	0.0136	2.717	mg/L	0.0271	1.00%
Na 330.237†	-4.6	1.066	mg/L	0.5492	2.132	mg/L	1.0985	51.53%
Ni 231.604†	577.0	0.1888	mg/L	0.00254	0.3777	mg/L	0.00507	1.34%
Pb 220.353†	1710.1	0.2819	mg/L	0.00173	0.5637	mg/L	0.00345	0.61%
Sb 206.836†	32.8	0.02209	mg/L	0.001453	0.04418	mg/L	0.002906	6.58%
Se 196.026†	-8.8	-0.01407	mg/L	0.004261	-0.02814	mg/L	0.008522	30.29%
Si 288.158†	1645.4	1.913	mg/L	0.0333	3.825	mg/L	0.0667	1.74%
Sn 189.927†	-49.9	-0.00560	mg/L	0.000805	-0.01121	mg/L	0.001610	14.37%
Sr 421.552†	59454.5	0.2259	mg/L	0.00254	0.4519	mg/L	0.00509	1.13%
Ti 334.903†	90160.7	7.146	mg/L	0.0198	14.29	mg/L	0.040	0.28%
Tl 190.801†	-40.5	-0.01756	mg/L	0.004949	-0.03512	mg/L	0.009897	28.18%
V 292.402†	26870.3	0.3464	mg/L	0.00513	0.6928	mg/L	0.01025	1.48%
Zn 206.200†	922.0	0.4231	mg/L	0.00470	0.8461	mg/L	0.00939	1.11%

Sequence No.: 45
Sample ID: 19G0416-04

Dilution: 5X
Wash Time: 37

Autosampler Location: 335
Date Collected: 8/13/2019 4:38:21 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-04

Analyte	Back Pressure	Flow
All	172.0 kPa	0.65 L/min

Mean Data: 19G0416-04

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1879623.7	91.35	%	1.874				2.05%
ScR 361.383	204154.5	99.45	%	5.290				5.32%
Ag 328.068†	-56.9	-0.00034	mg/L	0.000111	-0.00170	mg/L	0.000553	32.58%
Al 308.215†	82597.0	79.71	mg/L	0.594	398.5	mg/L	2.97	0.75%
As 188.979†	-55.5	0.05196	mg/L	0.004066	0.2598	mg/L	0.02033	7.83%
B 249.677†	21.0	0.00996	mg/L	0.001557	0.04981	mg/L	0.007783	15.63%
Ba 233.527†	1220.3	0.3012	mg/L	0.00885	1.506	mg/L	0.0442	2.94%
Be 313.042†	922.9	0.00152	mg/L	0.000212	0.00761	mg/L	0.001061	13.94%
Ca 317.933†	139305.3	14.86	mg/L	0.051	74.31	mg/L	0.255	0.34%
Cd 228.802†	40.7	0.00208	mg/L	0.000206	0.01040	mg/L	0.001031	9.92%
Co 228.616†	999.5	0.02359	mg/L	0.000603	0.1179	mg/L	0.00301	2.56%
Cr 267.716†	321.1	0.08913	mg/L	0.002057	0.4456	mg/L	0.01029	2.31%
Cu 324.752†	14434.6	0.07932	mg/L	0.002156	0.3966	mg/L	0.01078	2.72%
Fe 273.955†	59475.4	65.63	mg/L	0.328	328.1	mg/L	1.64	0.50%
K 766.490†	1640.8	1.681	mg/L	0.0524	8.407	mg/L	0.2622	3.12%
Mg 279.077†	15298.9	16.17	mg/L	0.008	80.83	mg/L	0.040	0.05%
Mn 257.610†	55691.0	1.764	mg/L	0.0070	8.821	mg/L	0.0350	0.40%
Mo 202.031†	39.4	0.00213	mg/L	0.000690	0.01067	mg/L	0.003452	32.35%
Na 589.592†	6969.6	0.9221	mg/L	0.00999	4.610	mg/L	0.0499	1.08%
Na 330.237†	0.2	0.6084	mg/L	0.76851	3.042	mg/L	3.8426	126.31%
Ni 231.604†	291.1	0.09526	mg/L	0.002290	0.4763	mg/L	0.01145	2.40%
Pb 220.353†	1091.6	0.1691	mg/L	0.00496	0.8457	mg/L	0.02481	2.93%
Sb 206.836†	12.5	0.00879	mg/L	0.003217	0.04396	mg/L	0.016083	36.59%
Se 196.026†	-6.5	-0.00820	mg/L	0.001921	-0.04100	mg/L	0.009604	23.42%
Si 288.158†	1764.3	2.048	mg/L	0.0602	10.24	mg/L	0.301	2.94%
Sn 189.927†	-30.6	-0.00470	mg/L	0.001964	-0.02352	mg/L	0.009818	41.75%
Sr 421.552†	20300.5	0.07715	mg/L	0.001243	0.3857	mg/L	0.00622	1.61%
Ti 334.903†	40578.5	3.216	mg/L	0.0099	16.08	mg/L	0.049	0.31%
Tl 190.801†	-20.3	-0.00907	mg/L	0.002267	-0.04535	mg/L	0.011333	24.99%
V 292.402†	12757.4	0.1641	mg/L	0.00403	0.8204	mg/L	0.02015	2.46%
Zn 206.200†	411.5	0.1888	mg/L	0.00513	0.9442	mg/L	0.02567	2.72%

Sequence No.: 46
Sample ID: 19G0416-08

Dilution: 5X
Wash Time: 37

Autosampler Location: 336
Date Collected: 8/13/2019 4:42:19 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-08

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19G0416-08

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1903329.0	92.50	%	0.237				0.26%
ScR 361.383	200907.3	97.87	%	2.001				2.04%
Ag 328.068†	-80.4	-0.00050	mg/L	0.000170	-0.00250	mg/L	0.000850	34.01%
Al 308.215†	77129.1	74.43	mg/L	0.180	372.2	mg/L	0.90	0.24%
As 188.979†	-70.4	0.02953	mg/L	0.002481	0.1477	mg/L	0.01241	8.40%
B 249.677†	44.9	0.01355	mg/L	0.001346	0.06775	mg/L	0.006732	9.94%
Ba 233.527†	1105.1	0.2723	mg/L	0.00230	1.362	mg/L	0.0115	0.84%
Be 313.042†	973.6	0.00164	mg/L	0.000041	0.00820	mg/L	0.000207	2.52%
Ca 317.933†	181952.4	19.41	mg/L	0.041	97.06	mg/L	0.205	0.21%
Cd 228.802†	49.8	0.00253	mg/L	0.000060	0.01263	mg/L	0.000300	2.37%
Co 228.616†	949.7	0.02283	mg/L	0.000600	0.1141	mg/L	0.00300	2.63%
Cr 267.716†	292.1	0.08092	mg/L	0.002268	0.4046	mg/L	0.01134	2.80%
Cu 324.752†	17718.5	0.09674	mg/L	0.000658	0.4837	mg/L	0.00329	0.68%
Fe 273.955†	56835.2	62.71	mg/L	0.636	313.6	mg/L	3.18	1.01%
K 766.490†	2153.3	2.206	mg/L	0.0092	11.03	mg/L	0.046	0.42%
Mg 279.077†	16105.8	17.02	mg/L	0.051	85.11	mg/L	0.253	0.30%
Mn 257.610†	47043.8	1.490	mg/L	0.0036	7.451	mg/L	0.0179	0.24%
Mo 202.031†	56.7	0.00311	mg/L	0.000755	0.01553	mg/L	0.003774	24.31%
Na 589.592†	4136.3	0.5472	mg/L	0.00377	2.736	mg/L	0.0188	0.69%
Na 330.237†	-4.8	0.2061	mg/L	0.11014	1.030	mg/L	0.5507	53.45%
Ni 231.604†	242.2	0.07927	mg/L	0.001424	0.3964	mg/L	0.00712	1.80%
Pb 220.353†	966.8	0.1506	mg/L	0.00199	0.7530	mg/L	0.00993	1.32%
Sb 206.836†	10.4	0.00750	mg/L	0.001269	0.03751	mg/L	0.006345	16.92%
Se 196.026†	-6.6	-0.00780	mg/L	0.003788	-0.03898	mg/L	0.018942	48.59%
Si 288.158†	768.8	0.8936	mg/L	0.01913	4.468	mg/L	0.0957	2.14%
Sn 189.927†	-30.6	-0.00411	mg/L	0.001514	-0.02056	mg/L	0.007572	36.82%
Sr 421.552†	22779.8	0.08657	mg/L	0.001046	0.4328	mg/L	0.00523	1.21%
Ti 334.903†	35575.2	2.819	mg/L	0.0068	14.10	mg/L	0.034	0.24%
Tl 190.801†	-9.5	-0.00386	mg/L	0.001574	-0.01929	mg/L	0.007871	40.80%
V 292.402†	12914.3	0.1658	mg/L	0.00106	0.8292	mg/L	0.00530	0.64%
Zn 206.200†	578.2	0.2653	mg/L	0.00207	1.327	mg/L	0.0104	0.78%

Sequence No.: 47
Sample ID: 19G0416-12

Dilution: 5X
Wash Time: 37

Autosampler Location: 337
Date Collected: 8/13/2019 4:46:17 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-12

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: 19G0416-12

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1907232.7	92.69	%	0.438				0.47%
ScR 361.383	203868.6	99.31	%	4.086				4.11%
Ag 328.068†	-100.1	-0.00063	mg/L	0.000067	-0.00314	mg/L	0.000333	10.59%
Al 308.215†	88611.5	85.51	mg/L	0.553	427.6	mg/L	2.76	0.65%
As 188.979†	-107.9	0.02057	mg/L	0.001363	0.1029	mg/L	0.00682	6.63%
B 249.677†	28.4	0.01351	mg/L	0.002076	0.06753	mg/L	0.010381	15.37%
Ba 233.527†	1476.5	0.3633	mg/L	0.00585	1.816	mg/L	0.0293	1.61%
Be 313.042†	1054.8	0.00176	mg/L	0.000153	0.00879	mg/L	0.000766	8.72%
Ca 317.933†	142386.5	15.19	mg/L	0.018	75.96	mg/L	0.089	0.12%
Cd 228.802†	32.8	0.00197	mg/L	0.000082	0.00985	mg/L	0.000412	4.18%
Co 228.616†	1292.9	0.03178	mg/L	0.000144	0.1589	mg/L	0.00072	0.45%
Cr 267.716†	272.4	0.07678	mg/L	0.001814	0.3839	mg/L	0.00907	2.36%
Cu 324.752†	17180.8	0.09500	mg/L	0.000247	0.4750	mg/L	0.00123	0.26%
Fe 273.955†	80675.0	89.02	mg/L	0.344	445.1	mg/L	1.72	0.39%
K 766.490†	3320.5	3.402	mg/L	0.0871	17.01	mg/L	0.435	2.56%
Mg 279.077†	19896.1	21.03	mg/L	0.106	105.1	mg/L	0.53	0.51%
Mn 257.610†	127015.9	4.024	mg/L	0.0187	20.12	mg/L	0.094	0.47%
Mo 202.031†	42.2	0.00229	mg/L	0.000188	0.01147	mg/L	0.000938	8.18%
Na 589.592†	7714.3	1.021	mg/L	0.0117	5.103	mg/L	0.0587	1.15%
Na 330.237†	3.2	0.8161	mg/L	0.81514	4.080	mg/L	4.0757	99.89%
Ni 231.604†	240.7	0.07878	mg/L	0.001727	0.3939	mg/L	0.00863	2.19%
Pb 220.353†	307.1	0.06142	mg/L	0.000381	0.3071	mg/L	0.00190	0.62%
Sb 206.836†	16.0	0.01077	mg/L	0.000988	0.05384	mg/L	0.004940	9.17%
Se 196.026†	-3.6	-0.00544	mg/L	0.005615	-0.02720	mg/L	0.028073	103.20%
Si 288.158†	716.3	0.8331	mg/L	0.02246	4.166	mg/L	0.1123	2.70%
Sn 189.927†	-30.3	-0.00446	mg/L	0.000503	-0.02228	mg/L	0.002513	11.28%
Sr 421.552†	27786.7	0.1056	mg/L	0.00102	0.5280	mg/L	0.00509	0.96%
Ti 334.903†	43096.4	3.416	mg/L	0.0107	17.08	mg/L	0.054	0.31%
Tl 190.801†	-21.4	-0.00709	mg/L	0.001384	-0.03546	mg/L	0.006920	19.51%
V 292.402†	14282.4	0.1848	mg/L	0.00058	0.9239	mg/L	0.00292	0.32%
Zn 206.200†	456.9	0.2096	mg/L	0.00241	1.048	mg/L	0.0120	1.15%

Sequence No.: 48
Sample ID: 19G0416-40

Dilution: 5X
Wash Time: 37

Autosampler Location: 338
Date Collected: 8/13/2019 4:50:15 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-40

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: 19G0416-40

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1979755.3	96.21	%	1.467				1.52%
ScR 361.383	207674.3	101.2	%	3.15				3.12%
Ag 328.068†	-80.5	-0.00050	mg/L	0.000151	-0.00251	mg/L	0.000756	30.18%
Al 308.215†	107554.2	103.8	mg/L	0.48	519.0	mg/L	2.41	0.46%
As 188.979†	-73.2	0.05024	mg/L	0.001661	0.2512	mg/L	0.00830	3.31%
B 249.677†	9.1	0.00995	mg/L	0.000409	0.04974	mg/L	0.002046	4.11%
Ba 233.527†	1638.1	0.4048	mg/L	0.00626	2.024	mg/L	0.0313	1.55%
Be 313.042†	1186.9	0.00216	mg/L	0.000149	0.01081	mg/L	0.000747	6.91%
Ca 317.933†	111354.0	11.88	mg/L	0.046	59.40	mg/L	0.229	0.38%
Cd 228.802†	52.2	0.00264	mg/L	0.000190	0.01320	mg/L	0.000952	7.21%
Co 228.616†	1149.0	0.02716	mg/L	0.000306	0.1358	mg/L	0.00153	1.13%
Cr 267.716†	272.3	0.07708	mg/L	0.000908	0.3854	mg/L	0.00454	1.18%
Cu 324.752†	16510.9	0.09123	mg/L	0.001278	0.4561	mg/L	0.00639	1.40%
Fe 273.955†	76678.2	84.61	mg/L	0.654	423.0	mg/L	3.27	0.77%
K 766.490†	1471.6	1.508	mg/L	0.0234	7.540	mg/L	0.1171	1.55%
Mg 279.077†	15352.9	16.21	mg/L	0.112	81.07	mg/L	0.559	0.69%
Mn 257.610†	71238.0	2.257	mg/L	0.0098	11.28	mg/L	0.049	0.44%
Mo 202.031†	40.0	0.00222	mg/L	0.000367	0.01111	mg/L	0.001835	16.52%
Na 589.592†	3291.5	0.4355	mg/L	0.00168	2.177	mg/L	0.0084	0.39%
Na 330.237†	-6.5	0.2984	mg/L	0.44395	1.492	mg/L	2.2198	148.76%
Ni 231.604†	238.4	0.07804	mg/L	0.001459	0.3902	mg/L	0.00730	1.87%
Pb 220.353†	1024.2	0.1655	mg/L	0.00161	0.8274	mg/L	0.00803	0.97%
Sb 206.836†	12.4	0.00954	mg/L	0.003039	0.04770	mg/L	0.015197	31.86%
Se 196.026†	-1.9	-0.00485	mg/L	0.005591	-0.02426	mg/L	0.027957	115.24%
Si 288.158†	801.0	0.9308	mg/L	0.02620	4.654	mg/L	0.1310	2.82%
Sn 189.927†	-29.0	-0.00458	mg/L	0.000647	-0.02291	mg/L	0.003237	14.13%
Sr 421.552†	16642.5	0.06325	mg/L	0.000530	0.3162	mg/L	0.00265	0.84%
Ti 334.903†	45251.5	3.587	mg/L	0.0150	17.93	mg/L	0.075	0.42%
Tl 190.801†	-15.4	-0.00602	mg/L	0.001580	-0.03009	mg/L	0.007902	26.27%
V 292.402†	12681.1	0.1641	mg/L	0.00188	0.8206	mg/L	0.00939	1.14%
Zn 206.200†	423.8	0.1945	mg/L	0.00311	0.9724	mg/L	0.01554	1.60%

Sequence No.: 49
Sample ID: SEQ-CCV5

Autosampler Location: 7
Date Collected: 8/13/2019 4:54:13 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV5

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: SEQ-CCV5

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2116412.2	102.9	%	0.20				0.20%
ScR 361.383	213890.2	104.2	%	1.04				1.00%
Ag 328.068†	151957.8	1.037	mg/L	0.0076	1.037	mg/L	0.0076	0.73%
Al 308.215†	2095.3	1.984	mg/L	0.0176	1.984	mg/L	0.0176	0.89%
As 188.979†	2802.1	2.027	mg/L	0.0114	2.027	mg/L	0.0114	0.56%
B 249.677†	6410.7	1.038	mg/L	0.0066	1.038	mg/L	0.0066	0.63%
Ba 233.527†	3982.6	1.008	mg/L	0.0059	1.008	mg/L	0.0059	0.58%
Be 313.042†	427681.7	1.033	mg/L	0.0037	1.033	mg/L	0.0037	0.36%
Ca 317.933†	19467.4	2.063	mg/L	0.0070	2.063	mg/L	0.0070	0.34%
Cd 228.802†	23859.8	1.009	mg/L	0.0123	1.009	mg/L	0.0123	1.21%
Co 228.616†	33223.5	1.010	mg/L	0.0071	1.010	mg/L	0.0071	0.71%
Cr 267.716†	3701.8	1.005	mg/L	0.0024	1.005	mg/L	0.0024	0.24%
Cu 324.752†	192569.2	1.025	mg/L	0.0072	1.025	mg/L	0.0072	0.70%
Fe 273.955†	1816.7	1.997	mg/L	0.0129	1.997	mg/L	0.0129	0.65%
K 766.490†	19308.5	19.78	mg/L	0.111	19.78	mg/L	0.111	0.56%
Mg 279.077†	1917.0	2.041	mg/L	0.0123	2.041	mg/L	0.0123	0.60%
Mn 257.610†	32123.7	1.018	mg/L	0.0036	1.018	mg/L	0.0036	0.35%
Mo 202.031†	16679.6	1.009	mg/L	0.0057	1.009	mg/L	0.0057	0.56%
Na 589.592†	386473.0	51.13	mg/L	0.088	51.13	mg/L	0.088	0.17%
Na 330.237†	882.0	50.76	mg/L	0.154	50.76	mg/L	0.154	0.30%
Ni 231.604†	3092.4	1.013	mg/L	0.0014	1.013	mg/L	0.0014	0.14%
Pb 220.353†	14886.3	2.053	mg/L	0.0162	2.053	mg/L	0.0162	0.79%
Sb 206.836†	5435.0	2.116	mg/L	0.0114	2.116	mg/L	0.0114	0.54%
Se 196.026†	2324.6	2.088	mg/L	0.0229	2.088	mg/L	0.0229	1.10%
Si 288.158†	1829.5	2.123	mg/L	0.0161	2.123	mg/L	0.0161	0.76%
Sn 189.927†	3616.3	1.022	mg/L	0.0062	1.022	mg/L	0.0062	0.61%
Sr 421.552†	280238.3	1.065	mg/L	0.0092	1.065	mg/L	0.0092	0.86%
Ti 334.903†	12511.5	0.9906	mg/L	0.00415	0.9906	mg/L	0.00415	0.42%
Tl 190.801†	3994.4	2.032	mg/L	0.0147	2.032	mg/L	0.0147	0.72%
V 292.402†	78958.4	0.9977	mg/L	0.00534	0.9977	mg/L	0.00534	0.54%
Zn 206.200†	2266.7	1.039	mg/L	0.0029	1.039	mg/L	0.0029	0.28%

Sequence No.: 50 **Autosampler Location: 1**
Sample ID: SEQ-CCB5 **Date Collected: 8/13/2019 4:59:16 PM**
Data Type: Original
Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB5

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: SEQ-CCB5

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2137389.4	103.9	%	0.66				0.64%
ScR 361.383	217518.5	106.0	%	0.41				0.39%
Ag 328.068†	22.5	0.00015	mg/L	0.000282	0.00015	mg/L	0.000282	183.29%
Al 308.215†	14.3	0.01376	mg/L	0.017705	0.01376	mg/L	0.017705	128.63%
As 188.979†	2.3	0.00166	mg/L	0.002571	0.00166	mg/L	0.002571	155.02%
B 249.677†	23.3	0.00378	mg/L	0.000955	0.00378	mg/L	0.000955	25.29%
Ba 233.527†	-1.2	-0.00030	mg/L	0.000999	-0.00030	mg/L	0.000999	328.92%
Be 313.042†	-71.3	-0.00017	mg/L	0.000043	-0.00017	mg/L	0.000043	25.06%
Ca 317.933†	-5.3	-0.00059	mg/L	0.001195	-0.00059	mg/L	0.001195	203.70%
Cd 228.802†	3.3	0.00013	mg/L	0.000233	0.00013	mg/L	0.000233	177.59%
Co 228.616†	-6.1	-0.00019	mg/L	0.000111	-0.00019	mg/L	0.000111	58.76%
Cr 267.716†	9.6	0.00262	mg/L	0.001142	0.00262	mg/L	0.001142	43.62%
Cu 324.752†	20.2	0.00011	mg/L	0.000285	0.00011	mg/L	0.000285	267.23%
Fe 273.955†	2.0	0.00224	mg/L	0.004186	0.00224	mg/L	0.004186	186.71%
K 766.490†	-1.1	-0.00114	mg/L	0.061444	-0.00114	mg/L	0.061444	>999.9%
Mg 279.077†	-7.3	-0.00772	mg/L	0.001684	-0.00772	mg/L	0.001684	21.81%
Mn 257.610†	-9.3	-0.00029	mg/L	0.000163	-0.00029	mg/L	0.000163	55.45%
Mo 202.031†	8.6	0.00052	mg/L	0.000065	0.00052	mg/L	0.000065	12.47%
Na 589.592†	-346.8	-0.04588	mg/L	0.006598	-0.04588	mg/L	0.006598	14.38%
Na 330.237†	14.7	0.8472	mg/L	0.51446	0.8472	mg/L	0.51446	60.72%
Ni 231.604†	-2.3	-0.00074	mg/L	0.001221	-0.00074	mg/L	0.001221	164.44%
Pb 220.353†	-4.6	-0.00063	mg/L	0.000595	-0.00063	mg/L	0.000595	94.57%
Sb 206.836†	4.1	0.00155	mg/L	0.001143	0.00155	mg/L	0.001143	73.75%
Se 196.026†	-2.6	-0.00231	mg/L	0.002127	-0.00231	mg/L	0.002127	92.10%
Si 288.158†	-2.1	-0.00241	mg/L	0.008555	-0.00241	mg/L	0.008555	355.31%
Sn 189.927†	1.9	0.00054	mg/L	0.000363	0.00054	mg/L	0.000363	67.45%
Sr 421.552†	-60.3	-0.00023	mg/L	0.000113	-0.00023	mg/L	0.000113	49.16%
Ti 334.903†	21.3	0.00169	mg/L	0.000129	0.00169	mg/L	0.000129	7.65%
Tl 190.801†	6.8	0.00348	mg/L	0.001413	0.00348	mg/L	0.001413	40.58%
V 292.402†	8.9	0.00013	mg/L	0.000154	0.00013	mg/L	0.000154	118.46%
Zn 206.200†	0.5	0.00021	mg/L	0.000034	0.00021	mg/L	0.000034	15.96%

Sequence No.: 51
Sample ID: 19G0416-42

Dilution: 5X
Wash Time: 37

Autosampler Location: 339
Date Collected: 8/13/2019 5:03:15 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-42

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19G0416-42

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1932414.5	93.91	%	1.666				1.77%
ScR 361.383	208114.7	101.4	%	5.22				5.15%
Ag 328.068†	-31.4	-0.00017	mg/L	0.000214	-0.00085	mg/L	0.001068	125.60%
Al 308.215†	83316.4	80.40	mg/L	0.374	402.0	mg/L	1.87	0.47%
As 188.979†	40.5	0.1082	mg/L	0.00048	0.5412	mg/L	0.00241	0.45%
B 249.677†	35.7	0.01189	mg/L	0.001658	0.05945	mg/L	0.008292	13.95%
Ba 233.527†	1034.2	0.2546	mg/L	0.00377	1.273	mg/L	0.0188	1.48%
Be 313.042†	984.7	0.00174	mg/L	0.000154	0.00869	mg/L	0.000768	8.84%
Ca 317.933†	75849.1	8.092	mg/L	0.0455	40.46	mg/L	0.228	0.56%
Cd 228.802†	60.0	0.00244	mg/L	0.000039	0.01218	mg/L	0.000194	1.59%
Co 228.616†	862.4	0.02028	mg/L	0.000386	0.1014	mg/L	0.00193	1.90%
Cr 267.716†	261.6	0.07320	mg/L	0.003139	0.3660	mg/L	0.01570	4.29%
Cu 324.752†	23114.0	0.1254	mg/L	0.00153	0.6272	mg/L	0.00765	1.22%
Fe 273.955†	55375.4	61.10	mg/L	0.334	305.5	mg/L	1.67	0.55%
K 766.490†	1310.2	1.342	mg/L	0.0159	6.712	mg/L	0.0795	1.18%
Mg 279.077†	11914.4	12.59	mg/L	0.066	62.93	mg/L	0.330	0.52%
Mn 257.610†	54277.5	1.719	mg/L	0.0113	8.597	mg/L	0.0563	0.66%
Mo 202.031†	43.4	0.00249	mg/L	0.000208	0.01244	mg/L	0.001039	8.35%
Na 589.592†	2727.6	0.3609	mg/L	0.00248	1.804	mg/L	0.0124	0.69%
Na 330.237†	-3.7	0.2938	mg/L	0.54104	1.469	mg/L	2.7052	184.14%
Ni 231.604†	217.7	0.07127	mg/L	0.002269	0.3564	mg/L	0.01134	3.18%
Pb 220.353†	3955.4	0.5642	mg/L	0.00638	2.821	mg/L	0.0319	1.13%
Sb 206.836†	19.7	0.01119	mg/L	0.001085	0.05595	mg/L	0.005423	9.69%
Se 196.026†	-7.3	-0.00946	mg/L	0.006571	-0.04728	mg/L	0.032854	69.48%
Si 288.158†	1034.7	1.201	mg/L	0.0118	6.007	mg/L	0.0592	0.99%
Sn 189.927†	-16.0	-0.00190	mg/L	0.001054	-0.00949	mg/L	0.005272	55.57%
Sr 421.552†	13176.4	0.05007	mg/L	0.000322	0.2504	mg/L	0.00161	0.64%
Ti 334.903†	34996.1	2.774	mg/L	0.0063	13.87	mg/L	0.032	0.23%
Tl 190.801†	-12.7	-0.00514	mg/L	0.001637	-0.02571	mg/L	0.008184	31.83%
V 292.402†	11618.8	0.1495	mg/L	0.00157	0.7475	mg/L	0.00785	1.05%
Zn 206.200†	392.4	0.1801	mg/L	0.00200	0.9004	mg/L	0.01002	1.11%

Sequence No.: 52
Sample ID: 19G0416-43

Dilution: 5X
Wash Time: 37

Autosampler Location: 340
Date Collected: 8/13/2019 5:07:14 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-43

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19G0416-43

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2101252.0	102.1	%	0.51				0.50%
ScR 361.383	216446.0	105.4	%	1.04				0.99%
Ag 328.068†	-80.6	-0.00051	mg/L	0.000288	-0.00255	mg/L	0.001438	56.43%
Al 308.215†	71786.9	69.28	mg/L	0.205	346.4	mg/L	1.02	0.30%
As 188.979†	-32.6	0.05919	mg/L	0.001411	0.2960	mg/L	0.00706	2.38%
B 249.677†	30.7	0.01149	mg/L	0.000455	0.05744	mg/L	0.002274	3.96%
Ba 233.527†	1487.0	0.3690	mg/L	0.00195	1.845	mg/L	0.0098	0.53%
Be 313.042†	763.3	0.00125	mg/L	0.000023	0.00625	mg/L	0.000117	1.87%
Ca 317.933†	208746.6	22.27	mg/L	0.077	111.4	mg/L	0.38	0.35%
Cd 228.802†	40.1	0.00192	mg/L	0.000318	0.00961	mg/L	0.001592	16.57%
Co 228.616†	937.3	0.02224	mg/L	0.000781	0.1112	mg/L	0.00390	3.51%
Cr 267.716†	232.3	0.06503	mg/L	0.000661	0.3252	mg/L	0.00330	1.02%
Cu 324.752†	17387.5	0.09509	mg/L	0.003318	0.4754	mg/L	0.01659	3.49%
Fe 273.955†	58980.6	65.08	mg/L	0.108	325.4	mg/L	0.54	0.17%
K 766.490†	1790.1	1.834	mg/L	0.0329	9.171	mg/L	0.1647	1.80%
Mg 279.077†	14141.5	14.94	mg/L	0.075	74.70	mg/L	0.373	0.50%
Mn 257.610†	62897.5	1.993	mg/L	0.0083	9.963	mg/L	0.0413	0.41%
Mo 202.031†	44.1	0.00229	mg/L	0.000452	0.01147	mg/L	0.002261	19.71%
Na 589.592†	9249.3	1.224	mg/L	0.0082	6.118	mg/L	0.0409	0.67%
Na 330.237†	15.6	1.429	mg/L	0.2805	7.145	mg/L	1.4025	19.63%
Ni 231.604†	208.5	0.06822	mg/L	0.000682	0.3411	mg/L	0.00341	1.00%
Pb 220.353†	1264.3	0.1901	mg/L	0.00371	0.9503	mg/L	0.01854	1.95%
Sb 206.836†	9.3	0.00742	mg/L	0.000101	0.03709	mg/L	0.000507	1.37%
Se 196.026†	-5.5	-0.00641	mg/L	0.003257	-0.03206	mg/L	0.016285	50.80%
Si 288.158†	718.7	0.8352	mg/L	0.01556	4.176	mg/L	0.0778	1.86%
Sn 189.927†	-23.0	-0.00143	mg/L	0.001161	-0.00717	mg/L	0.005803	80.93%
Sr 421.552†	45014.6	0.1711	mg/L	0.00049	0.8553	mg/L	0.00243	0.28%
Ti 334.903†	36740.3	2.911	mg/L	0.0065	14.56	mg/L	0.032	0.22%
Tl 190.801†	-7.1	-0.00196	mg/L	0.000654	-0.00978	mg/L	0.003268	33.43%
V 292.402†	10681.6	0.1379	mg/L	0.00605	0.6897	mg/L	0.03025	4.39%
Zn 206.200†	444.9	0.2041	mg/L	0.00185	1.021	mg/L	0.0093	0.91%

Sequence No.: 53
Sample ID: 19G0416-45

Dilution: 5X
Wash Time: 37

Autosampler Location: 341
Date Collected: 8/13/2019 5:11:12 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-45

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19G0416-45

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1945604.6	94.55	%	2.500				2.64%
ScR 361.383	211205.3	102.9	%	4.02				3.91%
Ag 328.068†	1.0	0.00005	mg/L	0.000363	0.00023	mg/L	0.001813	779.55%
Al 308.215†	91160.8	87.97	mg/L	0.468	439.9	mg/L	2.34	0.53%
As 188.979†	22.0	0.08505	mg/L	0.000899	0.4252	mg/L	0.00450	1.06%
B 249.677†	24.9	0.01041	mg/L	0.001535	0.05207	mg/L	0.007677	14.74%
Ba 233.527†	2449.0	0.6131	mg/L	0.01323	3.066	mg/L	0.0661	2.16%
Be 313.042†	890.7	0.00158	mg/L	0.000121	0.00789	mg/L	0.000607	7.69%
Ca 317.933†	197050.0	21.02	mg/L	0.019	105.1	mg/L	0.09	0.09%
Cd 228.802†	80.1	0.00337	mg/L	0.000303	0.01687	mg/L	0.001517	8.99%
Co 228.616†	892.7	0.02167	mg/L	0.000457	0.1084	mg/L	0.00229	2.11%
Cr 267.716†	286.1	0.08002	mg/L	0.002247	0.4001	mg/L	0.01123	2.81%
Cu 324.752†	15666.2	0.08597	mg/L	0.001612	0.4298	mg/L	0.00806	1.88%
Fe 273.955†	57733.4	63.71	mg/L	0.535	318.5	mg/L	2.68	0.84%
K 766.490†	1722.9	1.765	mg/L	0.0456	8.827	mg/L	0.2279	2.58%
Mg 279.077†	10531.0	11.13	mg/L	0.066	55.63	mg/L	0.329	0.59%
Mn 257.610†	177193.9	5.614	mg/L	0.0050	28.07	mg/L	0.025	0.09%
Mo 202.031†	49.6	0.00265	mg/L	0.000366	0.01325	mg/L	0.001830	13.81%
Na 589.592†	13119.4	1.736	mg/L	0.0083	8.678	mg/L	0.0414	0.48%
Na 330.237†	22.0	1.689	mg/L	0.5383	8.443	mg/L	2.6915	31.88%
Ni 231.604†	183.1	0.05993	mg/L	0.001318	0.2997	mg/L	0.00659	2.20%
Pb 220.353†	1082.9	0.1703	mg/L	0.00340	0.8514	mg/L	0.01702	2.00%
Sb 206.836†	15.7	0.00895	mg/L	0.000173	0.04477	mg/L	0.000864	1.93%
Se 196.026†	-3.0	-0.00958	mg/L	0.008709	-0.04791	mg/L	0.043546	90.89%
Si 288.158†	646.3	0.7508	mg/L	0.01689	3.754	mg/L	0.0844	2.25%
Sn 189.927†	-32.7	-0.00459	mg/L	0.001226	-0.02294	mg/L	0.006129	26.71%
Sr 421.552†	42681.5	0.1622	mg/L	0.00099	0.8110	mg/L	0.00493	0.61%
Ti 334.903†	31094.7	2.464	mg/L	0.0086	12.32	mg/L	0.043	0.35%
Tl 190.801†	-17.9	-0.00315	mg/L	0.000384	-0.01576	mg/L	0.001918	12.17%
V 292.402†	10394.3	0.1351	mg/L	0.00241	0.6754	mg/L	0.01206	1.79%
Zn 206.200†	522.4	0.2397	mg/L	0.00538	1.199	mg/L	0.0269	2.25%

Sequence No.: 54
Sample ID: 19G0416-46

Dilution: 5X
Wash Time: 37

Autosampler Location: 342
Date Collected: 8/13/2019 5:15:10 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-46

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19G0416-46

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2013899.3	97.87	%	1.377				1.41%
ScR 361.383	212985.7	103.8	%	4.83				4.66%
Ag 328.068†	-56.2	-0.00035	mg/L	0.000189	-0.00176	mg/L	0.000945	53.78%
Al 308.215†	75204.2	72.57	mg/L	0.359	362.9	mg/L	1.80	0.49%
As 188.979†	-2.2	0.07207	mg/L	0.001619	0.3604	mg/L	0.00810	2.25%
B 249.677†	10.8	0.00798	mg/L	0.000960	0.03989	mg/L	0.004799	12.03%
Ba 233.527†	1161.2	0.2867	mg/L	0.00691	1.433	mg/L	0.0346	2.41%
Be 313.042†	811.9	0.00149	mg/L	0.000151	0.00746	mg/L	0.000753	10.09%
Ca 317.933†	63911.4	6.819	mg/L	0.0329	34.09	mg/L	0.165	0.48%
Cd 228.802†	59.6	0.00262	mg/L	0.000351	0.01310	mg/L	0.001753	13.38%
Co 228.616†	887.5	0.02139	mg/L	0.000737	0.1069	mg/L	0.00369	3.45%
Cr 267.716†	180.8	0.05139	mg/L	0.002154	0.2569	mg/L	0.01077	4.19%
Cu 324.752†	21830.8	0.1187	mg/L	0.00304	0.5935	mg/L	0.01519	2.56%
Fe 273.955†	56407.6	62.24	mg/L	0.068	311.2	mg/L	0.34	0.11%
K 766.490†	1141.1	1.169	mg/L	0.0379	5.846	mg/L	0.1894	3.24%
Mg 279.077†	11824.3	12.49	mg/L	0.040	62.44	mg/L	0.198	0.32%
Mn 257.610†	38053.2	1.205	mg/L	0.0050	6.027	mg/L	0.0252	0.42%
Mo 202.031†	24.8	0.00139	mg/L	0.000312	0.00693	mg/L	0.001561	22.51%
Na 589.592†	2518.6	0.3332	mg/L	0.00274	1.666	mg/L	0.0137	0.82%
Na 330.237†	-3.8	0.2583	mg/L	0.34854	1.291	mg/L	1.7427	134.96%
Ni 231.604†	210.2	0.06878	mg/L	0.002540	0.3439	mg/L	0.01270	3.69%
Pb 220.353†	871.2	0.1369	mg/L	0.00232	0.6843	mg/L	0.01161	1.70%
Sb 206.836†	11.1	0.00775	mg/L	0.003561	0.03877	mg/L	0.017807	45.93%
Se 196.026†	-3.5	-0.00465	mg/L	0.001884	-0.02326	mg/L	0.009422	40.51%
Si 288.158†	784.2	0.9108	mg/L	0.01630	4.554	mg/L	0.0815	1.79%
Sn 189.927†	-7.1	0.00031	mg/L	0.001054	0.00153	mg/L	0.005272	344.58%
Sr 421.552†	10741.1	0.04082	mg/L	0.000378	0.2041	mg/L	0.00189	0.93%
Ti 334.903†	32418.8	2.570	mg/L	0.0074	12.85	mg/L	0.037	0.29%
Tl 190.801†	-13.2	-0.00586	mg/L	0.000575	-0.02928	mg/L	0.002875	9.82%
V 292.402†	8419.4	0.1092	mg/L	0.00235	0.5461	mg/L	0.01173	2.15%
Zn 206.200†	341.0	0.1565	mg/L	0.00363	0.7823	mg/L	0.01815	2.32%

Sequence No.: 55
Sample ID: BHH0091-SRL1
DEL
Dilution: 25X
Wash Time: 37

Autosampler Location: 343
Date Collected: 8/13/2019 5:19:08 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-SRL1

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: BHH0091-SRL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2146569.4	104.3	%	0.68				0.65%
ScR 361.383	218581.5	106.5	%	0.74				0.69%
Ag 328.068†	-8.2	-0.00005	mg/L	0.000273	-0.00119	mg/L	0.006835	574.58%
Al 308.215†	14667.7	14.15	mg/L	0.062	353.9	mg/L	1.54	0.44%
As 188.979†	35.3	0.04213	mg/L	0.001318	1.053	mg/L	0.0330	3.13%
B 249.677†	1.3	0.00139	mg/L	0.000407	0.03465	mg/L	0.010170	29.35%
Ba 233.527†	227.2	0.05614	mg/L	0.000811	1.404	mg/L	0.0203	1.44%
Be 313.042†	56.9	0.00002	mg/L	0.000058	0.00042	mg/L	0.001449	347.51%
Ca 317.933†	10352.5	1.104	mg/L	0.0049	27.61	mg/L	0.123	0.45%
Cd 228.802†	18.7	0.00065	mg/L	0.000154	0.01625	mg/L	0.003847	23.68%
Co 228.616†	162.8	0.00371	mg/L	0.000333	0.09272	mg/L	0.008335	8.99%
Cr 267.716†	64.2	0.01791	mg/L	0.000975	0.4477	mg/L	0.02438	5.45%
Cu 324.752†	8938.7	0.04804	mg/L	0.000207	1.201	mg/L	0.0052	0.43%
Fe 273.955†	10609.0	11.71	mg/L	0.081	292.7	mg/L	2.03	0.69%
K 766.490†	176.9	0.1812	mg/L	0.05151	4.530	mg/L	1.2878	28.43%
Mg 279.077†	1869.2	1.973	mg/L	0.0186	49.33	mg/L	0.465	0.94%
Mn 257.610†	6854.4	0.2171	mg/L	0.00090	5.429	mg/L	0.0224	0.41%
Mo 202.031†	2.9	0.00016	mg/L	0.000116	0.00398	mg/L	0.002891	72.73%
Na 589.592†	131.8	0.01743	mg/L	0.005742	0.4358	mg/L	0.14355	32.94%
Na 330.237†	17.9	1.144	mg/L	0.2207	28.61	mg/L	5.518	19.29%
Ni 231.604†	47.3	0.01547	mg/L	0.000875	0.3867	mg/L	0.02188	5.66%
Pb 220.353†	722.5	0.1029	mg/L	0.00059	2.571	mg/L	0.0147	0.57%
Sb 206.836†	-1.2	0.00023	mg/L	0.001301	0.00577	mg/L	0.032533	563.41%
Se 196.026†	-1.9	-0.00205	mg/L	0.003675	-0.05120	mg/L	0.091879	179.44%
Si 288.158†	291.9	0.3388	mg/L	0.00700	8.469	mg/L	0.1749	2.07%
Sn 189.927†	2.4	0.00112	mg/L	0.000444	0.02794	mg/L	0.011101	39.73%
Sr 421.552†	1731.2	0.00658	mg/L	0.000066	0.1645	mg/L	0.00166	1.01%
Ti 334.903†	7433.5	0.5893	mg/L	0.00429	14.73	mg/L	0.107	0.73%
Tl 190.801†	2.8	0.00157	mg/L	0.000792	0.03921	mg/L	0.019796	50.48%
V 292.402†	2152.8	0.02772	mg/L	0.000221	0.6930	mg/L	0.00553	0.80%
Zn 206.200†	63.2	0.02901	mg/L	0.000408	0.7253	mg/L	0.01021	1.41%

Sequence No.: 56
Sample ID: 19G0416-49
DEL
Dilution: 5X
Wash Time: 37

Autosampler Location: 344
Date Collected: 8/13/2019 5:23:06 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-49

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19G0416-49

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2116485.4	102.9	%	1.88				1.83%
ScR 361.383	219789.8	107.1	%	0.89				0.83%
Ag 328.068†	-16.5	-0.00008	mg/L	0.000123	-0.00038	mg/L	0.000614	160.28%
Al 308.215†	67061.3	64.72	mg/L	0.282	323.6	mg/L	1.41	0.44%
As 188.979†	155.7	0.1865	mg/L	0.00238	0.9326	mg/L	0.01191	1.28%
B 249.677†	19.5	0.00848	mg/L	0.000513	0.04240	mg/L	0.002564	6.05%
Ba 233.527†	1022.3	0.2526	mg/L	0.00146	1.263	mg/L	0.0073	0.58%
Be 313.042†	786.7	0.00137	mg/L	0.000048	0.00684	mg/L	0.000240	3.50%
Ca 317.933†	46274.3	4.937	mg/L	0.0084	24.68	mg/L	0.042	0.17%
Cd 228.802†	68.2	0.00224	mg/L	0.000453	0.01120	mg/L	0.002267	20.24%
Co 228.616†	731.3	0.01670	mg/L	0.000344	0.08348	mg/L	0.001719	2.06%
Cr 267.716†	250.5	0.07018	mg/L	0.000794	0.3509	mg/L	0.00397	1.13%
Cu 324.752†	41027.6	0.2205	mg/L	0.00181	1.103	mg/L	0.0091	0.82%
Fe 273.955†	48269.2	53.26	mg/L	0.361	266.3	mg/L	1.81	0.68%
K 766.490†	1080.8	1.107	mg/L	0.0330	5.537	mg/L	0.1652	2.98%
Mg 279.077†	8478.1	8.950	mg/L	0.0427	44.75	mg/L	0.214	0.48%
Mn 257.610†	31418.8	0.9953	mg/L	0.00270	4.977	mg/L	0.0135	0.27%
Mo 202.031†	35.1	0.00204	mg/L	0.000408	0.01019	mg/L	0.002042	20.04%
Na 589.592†	2034.8	0.2692	mg/L	0.00741	1.346	mg/L	0.0370	2.75%
Na 330.237†	3.3	0.6874	mg/L	0.14697	3.437	mg/L	0.7349	21.38%
Ni 231.604†	193.0	0.06317	mg/L	0.002378	0.3158	mg/L	0.01189	3.76%
Pb 220.353†	3341.2	0.4755	mg/L	0.00773	2.377	mg/L	0.0386	1.63%
Sb 206.836†	25.5	0.01321	mg/L	0.002226	0.06604	mg/L	0.011128	16.85%
Se 196.026†	1.0	-0.00061	mg/L	0.004160	-0.00306	mg/L	0.020800	679.93%
Si 288.158†	977.8	1.135	mg/L	0.0062	5.675	mg/L	0.0311	0.55%
Sn 189.927†	7.3	0.00407	mg/L	0.000845	0.02036	mg/L	0.004226	20.76%
Sr 421.552†	8205.1	0.03118	mg/L	0.000241	0.1559	mg/L	0.00120	0.77%
Ti 334.903†	33053.0	2.620	mg/L	0.0086	13.10	mg/L	0.043	0.33%
Tl 190.801†	-5.3	-0.00209	mg/L	0.000810	-0.01046	mg/L	0.004050	38.72%
V 292.402†	9581.9	0.1234	mg/L	0.00156	0.6169	mg/L	0.00782	1.27%
Zn 206.200†	289.1	0.1327	mg/L	0.00181	0.6634	mg/L	0.00904	1.36%

Sequence No.: 57
Sample ID: BHH0091-DUP1
DEL
Dilution: 5X
Wash Time: 37

Autosampler Location: 345
Date Collected: 8/13/2019 5:27:04 PM
Data Type: Original
Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-DUP1

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: BHH0091-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1976925.3	96.08	%	1.809				1.88%
ScR 361.383	214087.2	104.3	%	3.42				3.28%
Ag 328.068†	16.8	0.00016	mg/L	0.000139	0.00080	mg/L	0.000693	87.00%
Al 308.215†	83730.1	80.80	mg/L	0.585	404.0	mg/L	2.93	0.72%
As 188.979†	226.9	0.2455	mg/L	0.00631	1.227	mg/L	0.0315	2.57%
B 249.677†	34.1	0.01136	mg/L	0.000719	0.05682	mg/L	0.003593	6.32%
Ba 233.527†	1328.3	0.3295	mg/L	0.00339	1.648	mg/L	0.0170	1.03%
Be 313.042†	958.4	0.00167	mg/L	0.000048	0.00833	mg/L	0.000240	2.88%
Ca 317.933†	51991.5	5.547	mg/L	0.0212	27.73	mg/L	0.106	0.38%
Cd 228.802†	93.0	0.00297	mg/L	0.000166	0.01486	mg/L	0.000829	5.58%
Co 228.616†	817.2	0.01871	mg/L	0.000437	0.09355	mg/L	0.002186	2.34%
Cr 267.716†	233.9	0.06577	mg/L	0.002818	0.3288	mg/L	0.01409	4.28%
Cu 324.752†	53844.2	0.2889	mg/L	0.00858	1.445	mg/L	0.0429	2.97%
Fe 273.955†	52811.7	58.27	mg/L	0.444	291.4	mg/L	2.22	0.76%
K 766.490†	1242.7	1.273	mg/L	0.0338	6.366	mg/L	0.1691	2.66%
Mg 279.077†	10246.7	10.82	mg/L	0.069	54.10	mg/L	0.344	0.64%
Mn 257.610†	38503.0	1.220	mg/L	0.0085	6.099	mg/L	0.0424	0.69%
Mo 202.031†	47.9	0.00280	mg/L	0.000222	0.01401	mg/L	0.001110	7.92%
Na 589.592†	2188.4	0.2895	mg/L	0.00729	1.448	mg/L	0.0365	2.52%
Na 330.237†	-1.5	0.4657	mg/L	0.49705	2.329	mg/L	2.4853	106.72%
Ni 231.604†	215.2	0.07045	mg/L	0.001308	0.3522	mg/L	0.00654	1.86%
Pb 220.353†	4401.6	0.6257	mg/L	0.00549	3.128	mg/L	0.0274	0.88%
Sb 206.836†	37.4	0.01847	mg/L	0.000117	0.09233	mg/L	0.000584	0.63%
Se 196.026†	3.2	0.00008	mg/L	0.001460	0.00039	mg/L	0.007301	>999.9%
Si 288.158†	908.1	1.054	mg/L	0.0129	5.272	mg/L	0.0647	1.23%
Sn 189.927†	14.0	0.00619	mg/L	0.001056	0.03093	mg/L	0.005278	17.06%
Sr 421.552†	11797.6	0.04483	mg/L	0.001128	0.2242	mg/L	0.00564	2.52%
Ti 334.903†	36671.1	2.907	mg/L	0.0111	14.53	mg/L	0.056	0.38%
Tl 190.801†	-8.0	-0.00334	mg/L	0.001247	-0.01670	mg/L	0.006235	37.34%
V 292.402†	11750.1	0.1508	mg/L	0.00553	0.7541	mg/L	0.02764	3.66%
Zn 206.200†	328.9	0.1510	mg/L	0.00110	0.7549	mg/L	0.00551	0.73%

Sequence No.: 58
Sample ID: BHH0091-MS1
DEL
Dilution: 5X
Wash Time: 37

Autosampler Location: 346
Date Collected: 8/13/2019 5:31:02 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-MS1

Analyte	Back Pressure	Flow
All	172.0 kPa	0.65 L/min

Mean Data: BHH0091-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2020361.2	98.19	%	0.506				0.52%
ScR 361.383	212357.9	103.4	%	5.08				4.91%
Ag 328.068†	28822.6	0.1968	mg/L	0.00335	0.9840	mg/L	0.01673	1.70%
Al 308.215†	81489.0	78.64	mg/L	0.436	393.2	mg/L	2.18	0.55%
As 188.979†	1278.3	0.9929	mg/L	0.00765	4.965	mg/L	0.0383	0.77%
B 249.677†	18.9	0.00877	mg/L	0.000797	0.04384	mg/L	0.003985	9.09%
Ba 233.527†	4215.9	1.061	mg/L	0.0406	5.307	mg/L	0.2029	3.82%
Be 313.042†	82194.9	0.1980	mg/L	0.00036	0.9899	mg/L	0.00182	0.18%
Ca 317.933†	92765.6	9.895	mg/L	0.0184	49.47	mg/L	0.092	0.19%
Cd 228.802†	4827.3	0.2010	mg/L	0.00161	1.005	mg/L	0.0081	0.80%
Co 228.616†	7174.3	0.2124	mg/L	0.00219	1.062	mg/L	0.0109	1.03%
Cr 267.716†	982.1	0.2684	mg/L	0.00775	1.342	mg/L	0.0387	2.89%
Cu 324.752†	89434.3	0.4787	mg/L	0.00785	2.393	mg/L	0.0393	1.64%
Fe 273.955†	55854.5	61.63	mg/L	0.112	308.2	mg/L	0.56	0.18%
K 766.490†	4943.2	5.065	mg/L	0.0681	25.33	mg/L	0.340	1.34%
Mg 279.077†	14638.0	15.47	mg/L	0.031	77.34	mg/L	0.155	0.20%
Mn 257.610†	45895.8	1.454	mg/L	0.0098	7.270	mg/L	0.0490	0.67%
Mo 202.031†	49.8	0.00283	mg/L	0.000158	0.01417	mg/L	0.000789	5.57%
Na 589.592†	32244.5	4.266	mg/L	0.0208	21.33	mg/L	0.104	0.49%
Na 330.237†	65.2	4.209	mg/L	0.6178	21.05	mg/L	3.089	14.68%
Ni 231.604†	802.6	0.2626	mg/L	0.00837	1.313	mg/L	0.0419	3.19%
Pb 220.353†	9583.7	1.339	mg/L	0.0141	6.697	mg/L	0.0706	1.05%
Sb 206.836†	35.9	0.01500	mg/L	0.000668	0.07500	mg/L	0.003340	4.45%
Se 196.026†	884.3	0.7921	mg/L	0.00465	3.961	mg/L	0.0232	0.59%
Si 288.158†	665.0	0.7733	mg/L	0.02957	3.866	mg/L	0.1478	3.82%
Sn 189.927†	3.0	0.00376	mg/L	0.000570	0.01882	mg/L	0.002850	15.14%
Sr 421.552†	65224.9	0.2479	mg/L	0.00180	1.239	mg/L	0.0090	0.72%
Ti 334.903†	35042.9	2.778	mg/L	0.0105	13.89	mg/L	0.053	0.38%
Tl 190.801†	1525.6	0.7783	mg/L	0.00826	3.892	mg/L	0.0413	1.06%
V 292.402†	25427.2	0.3240	mg/L	0.00432	1.620	mg/L	0.0216	1.33%
Zn 206.200†	769.8	0.3531	mg/L	0.01373	1.766	mg/L	0.0687	3.89%

Sequence No.: 59
Sample ID: BHH0091-MSD1
DEL
Dilution: 5X
Wash Time: 37

Autosampler Location: 347
Date Collected: 8/13/2019 5:35:00 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-MSD1

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: BHH0091-MSD1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1958554.7	95.18	%	0.807				0.85%
ScR 361.383	212048.7	103.3	%	3.79				3.67%
Ag 328.068†	30135.2	0.2058	mg/L	0.00129	1.029	mg/L	0.0064	0.62%
Al 308.215†	75577.9	72.93	mg/L	0.227	364.7	mg/L	1.14	0.31%
As 188.979†	1313.9	1.012	mg/L	0.0075	5.062	mg/L	0.0375	0.74%
B 249.677†	16.9	0.00774	mg/L	0.001045	0.03869	mg/L	0.005226	13.51%
Ba 233.527†	4219.2	1.063	mg/L	0.0061	5.315	mg/L	0.0304	0.57%
Be 313.042†	86278.9	0.2079	mg/L	0.00061	1.039	mg/L	0.0031	0.30%
Ca 317.933†	81530.9	8.696	mg/L	0.0219	43.48	mg/L	0.110	0.25%
Cd 228.802†	5070.5	0.2112	mg/L	0.00244	1.056	mg/L	0.0122	1.16%
Co 228.616†	7489.6	0.2225	mg/L	0.00205	1.112	mg/L	0.0102	0.92%
Cr 267.716†	934.4	0.2552	mg/L	0.00479	1.276	mg/L	0.0240	1.88%
Cu 324.752†	83805.9	0.4484	mg/L	0.00207	2.242	mg/L	0.0103	0.46%
Fe 273.955†	49745.5	54.89	mg/L	0.290	274.4	mg/L	1.45	0.53%
K 766.490†	5794.4	5.937	mg/L	0.0715	29.69	mg/L	0.358	1.21%
Mg 279.077†	13380.9	14.14	mg/L	0.092	70.71	mg/L	0.459	0.65%
Mn 257.610†	40007.4	1.268	mg/L	0.0040	6.338	mg/L	0.0201	0.32%
Mo 202.031†	41.8	0.00237	mg/L	0.000280	0.01184	mg/L	0.001399	11.82%
Na 589.592†	33240.1	4.398	mg/L	0.0184	21.99	mg/L	0.092	0.42%
Na 330.237†	71.1	4.516	mg/L	0.3459	22.58	mg/L	1.730	7.66%
Ni 231.604†	778.6	0.2548	mg/L	0.00142	1.274	mg/L	0.0071	0.56%
Pb 220.353†	9540.0	1.332	mg/L	0.0116	6.661	mg/L	0.0579	0.87%
Sb 206.836†	34.8	0.01447	mg/L	0.001452	0.07233	mg/L	0.007259	10.04%
Se 196.026†	923.4	0.8272	mg/L	0.00406	4.136	mg/L	0.0203	0.49%
Si 288.158†	783.9	0.9110	mg/L	0.00646	4.555	mg/L	0.0323	0.71%
Sn 189.927†	-1.9	0.00209	mg/L	0.000655	0.01046	mg/L	0.003274	31.32%
Sr 421.552†	65761.4	0.2499	mg/L	0.00174	1.250	mg/L	0.0087	0.70%
Ti 334.903†	32448.1	2.572	mg/L	0.0082	12.86	mg/L	0.041	0.32%
Tl 190.801†	1580.4	0.8060	mg/L	0.00942	4.030	mg/L	0.0471	1.17%
V 292.402†	25847.8	0.3288	mg/L	0.00311	1.644	mg/L	0.0155	0.94%
Zn 206.200†	719.0	0.3298	mg/L	0.00282	1.649	mg/L	0.0141	0.85%

Sequence No.: 60
Sample ID: BHH0091-PS1

DEL

Dilution: 5X
Wash Time: 37

Autosampler Location: 348
Date Collected: 8/13/2019 5:38:58 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-PS1

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: BHH0091-PS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2085317.1	101.3	%	0.73				0.72%
ScR 361.383	218210.8	106.3	%	0.24				0.22%
Ag 328.068†	78949.6	0.5390	mg/L	0.00483	2.695	mg/L	0.0241	0.90%
Al 308.215†	69528.0	67.09	mg/L	0.198	335.4	mg/L	0.99	0.30%
As 188.979†	3137.6	2.317	mg/L	0.0297	11.59	mg/L	0.148	1.28%
B 249.677†	20.2	0.00761	mg/L	0.000897	0.03804	mg/L	0.004485	11.79%
Ba 233.527†	8995.5	2.274	mg/L	0.0194	11.37	mg/L	0.097	0.85%
Be 313.042†	221193.1	0.5338	mg/L	0.00129	2.669	mg/L	0.0065	0.24%
Ca 317.933†	143471.8	15.30	mg/L	0.010	76.50	mg/L	0.049	0.06%
Cd 228.802†	12465.9	0.5196	mg/L	0.00553	2.598	mg/L	0.0277	1.06%
Co 228.616†	17708.1	0.5334	mg/L	0.00692	2.667	mg/L	0.0346	1.30%
Cr 267.716†	2155.0	0.5859	mg/L	0.00272	2.930	mg/L	0.0136	0.46%
Cu 324.752†	141658.5	0.7566	mg/L	0.00841	3.783	mg/L	0.0421	1.11%
Fe 273.955†	50538.9	55.76	mg/L	0.152	278.8	mg/L	0.76	0.27%
K 766.490†	10879.6	11.15	mg/L	0.049	55.74	mg/L	0.245	0.44%
Mg 279.077†	18162.5	19.20	mg/L	0.041	96.02	mg/L	0.204	0.21%
Mn 257.610†	47240.4	1.497	mg/L	0.0052	7.485	mg/L	0.0261	0.35%
Mo 202.031†	52.7	0.00290	mg/L	0.000487	0.01449	mg/L	0.002436	16.81%
Na 589.592†	80249.2	10.62	mg/L	0.025	53.08	mg/L	0.127	0.24%
Na 330.237†	176.4	10.48	mg/L	0.550	52.42	mg/L	2.749	5.24%
Ni 231.604†	1748.1	0.5720	mg/L	0.00180	2.860	mg/L	0.0090	0.31%
Pb 220.353†	18569.5	2.575	mg/L	0.0346	12.88	mg/L	0.173	1.34%
Sb 206.836†	39.4	0.01210	mg/L	0.001591	0.06048	mg/L	0.007954	13.15%
Se 196.026†	2418.8	2.171	mg/L	0.0341	10.86	mg/L	0.170	1.57%
Si 288.158†	967.3	1.125	mg/L	0.0110	5.623	mg/L	0.0551	0.98%
Sn 189.927†	-6.0	0.00206	mg/L	0.001790	0.01030	mg/L	0.008948	86.86%
Sr 421.552†	150057.5	0.5703	mg/L	0.00686	2.851	mg/L	0.0343	1.20%
Ti 334.903†	33305.1	2.639	mg/L	0.0024	13.20	mg/L	0.012	0.09%
Tl 190.801†	4026.3	2.052	mg/L	0.0311	10.26	mg/L	0.156	1.52%
V 292.402†	50619.1	0.6418	mg/L	0.01046	3.209	mg/L	0.0523	1.63%
Zn 206.200†	1392.1	0.6384	mg/L	0.00365	3.192	mg/L	0.0183	0.57%

Sequence No.: 61 **Autosampler Location: 7**
Sample ID: SEQ-CCV6 **Date Collected: 8/13/2019 5:45:40 PM**
Data Type: Original

Dilution: 1X
Wash Time: 200 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCV6

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: SEQ-CCV6

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2101620.9	102.1	%	0.20				0.20%
ScR 361.383	212533.8	103.5	%	0.23				0.23%
Ag 328.068†	151965.6	1.037	mg/L	0.0013	1.037	mg/L	0.0013	0.13%
Al 308.215†	2121.2	2.009	mg/L	0.0018	2.009	mg/L	0.0018	0.09%
As 188.979†	2815.6	2.036	mg/L	0.0062	2.036	mg/L	0.0062	0.30%
B 249.677†	6485.2	1.050	mg/L	0.0008	1.050	mg/L	0.0008	0.08%
Ba 233.527†	4001.2	1.013	mg/L	0.0011	1.013	mg/L	0.0011	0.11%
Be 313.042†	434091.6	1.049	mg/L	0.0050	1.049	mg/L	0.0050	0.48%
Ca 317.933†	19697.0	2.088	mg/L	0.0004	2.088	mg/L	0.0004	0.02%
Cd 228.802†	23877.8	1.010	mg/L	0.0042	1.010	mg/L	0.0042	0.42%
Co 228.616†	33218.8	1.010	mg/L	0.0043	1.010	mg/L	0.0043	0.43%
Cr 267.716†	3748.4	1.017	mg/L	0.0025	1.017	mg/L	0.0025	0.24%
Cu 324.752†	192837.7	1.027	mg/L	0.0034	1.027	mg/L	0.0034	0.33%
Fe 273.955†	1829.3	2.011	mg/L	0.0039	2.011	mg/L	0.0039	0.19%
K 766.490†	19413.5	19.89	mg/L	0.126	19.89	mg/L	0.126	0.63%
Mg 279.077†	1927.8	2.053	mg/L	0.0010	2.053	mg/L	0.0010	0.05%
Mn 257.610†	32381.9	1.026	mg/L	0.0025	1.026	mg/L	0.0025	0.24%
Mo 202.031†	16715.0	1.011	mg/L	0.0052	1.011	mg/L	0.0052	0.51%
Na 589.592†	391584.8	51.81	mg/L	0.217	51.81	mg/L	0.217	0.42%
Na 330.237†	888.7	51.14	mg/L	0.330	51.14	mg/L	0.330	0.65%
Ni 231.604†	3109.1	1.019	mg/L	0.0011	1.019	mg/L	0.0011	0.11%
Pb 220.353†	14896.7	2.055	mg/L	0.0102	2.055	mg/L	0.0102	0.49%
Sb 206.836†	5462.3	2.127	mg/L	0.0078	2.127	mg/L	0.0078	0.37%
Se 196.026†	2331.1	2.094	mg/L	0.0043	2.094	mg/L	0.0043	0.20%
Si 288.158†	1839.5	2.135	mg/L	0.0177	2.135	mg/L	0.0177	0.83%
Sn 189.927†	3638.7	1.028	mg/L	0.0023	1.028	mg/L	0.0023	0.23%
Sr 421.552†	284264.7	1.080	mg/L	0.0086	1.080	mg/L	0.0086	0.80%
Ti 334.903†	12592.9	0.9971	mg/L	0.00440	0.9971	mg/L	0.00440	0.44%
Tl 190.801†	4015.8	2.043	mg/L	0.0062	2.043	mg/L	0.0062	0.30%
V 292.402†	79152.6	1.000	mg/L	0.0124	1.000	mg/L	0.0124	1.24%
Zn 206.200†	2280.8	1.045	mg/L	0.0038	1.045	mg/L	0.0038	0.36%

Sequence No.: 62 **Autosampler Location: 1**
Sample ID: SEQ-CCB6 **Date Collected: 8/13/2019 5:50:43 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB6

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: SEQ-CCB6

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2105214.7	102.3	%	0.63				0.62%
ScR 361.383	212832.5	103.7	%	0.29				0.28%
Ag 328.068†	44.3	0.00030	mg/L	0.000081	0.00030	mg/L	0.000081	26.65%
Al 308.215†	-23.8	-0.02295	mg/L	0.005427	-0.02295	mg/L	0.005427	23.65%
As 188.979†	0.4	0.00026	mg/L	0.000516	0.00026	mg/L	0.000516	197.85%
B 249.677†	18.2	0.00294	mg/L	0.001257	0.00294	mg/L	0.001257	42.69%
Ba 233.527†	0.3	0.00009	mg/L	0.000442	0.00009	mg/L	0.000442	514.82%
Be 313.042†	-61.4	-0.00015	mg/L	0.000084	-0.00015	mg/L	0.000084	56.31%
Ca 317.933†	-1.2	-0.00014	mg/L	0.000546	-0.00014	mg/L	0.000546	392.55%
Cd 228.802†	7.0	0.00030	mg/L	0.000089	0.00030	mg/L	0.000089	30.08%
Co 228.616†	-1.3	-0.00004	mg/L	0.000020	-0.00004	mg/L	0.000020	53.28%
Cr 267.716†	6.1	0.00166	mg/L	0.001367	0.00166	mg/L	0.001367	82.10%
Cu 324.752†	45.7	0.00024	mg/L	0.000047	0.00024	mg/L	0.000047	19.24%
Fe 273.955†	1.0	0.00114	mg/L	0.001230	0.00114	mg/L	0.001230	108.11%
K 766.490†	-30.2	-0.03090	mg/L	0.030014	-0.03090	mg/L	0.030014	97.15%
Mg 279.077†	-4.5	-0.00471	mg/L	0.004611	-0.00471	mg/L	0.004611	97.91%
Mn 257.610†	-8.0	-0.00025	mg/L	0.000041	-0.00025	mg/L	0.000041	16.29%
Mo 202.031†	9.8	0.00059	mg/L	0.000453	0.00059	mg/L	0.000453	76.28%
Na 589.592†	-357.9	-0.04736	mg/L	0.004669	-0.04736	mg/L	0.004669	9.86%
Na 330.237†	1.6	0.09505	mg/L	0.087135	0.09505	mg/L	0.087135	91.67%
Ni 231.604†	0.2	0.00006	mg/L	0.001853	0.00006	mg/L	0.001853	>999.9%
Pb 220.353†	-5.0	-0.00069	mg/L	0.000456	-0.00069	mg/L	0.000456	65.97%
Sb 206.836†	3.9	0.00151	mg/L	0.003062	0.00151	mg/L	0.003062	203.24%
Se 196.026†	4.3	0.00385	mg/L	0.002881	0.00385	mg/L	0.002881	74.84%
Si 288.158†	-2.9	-0.00342	mg/L	0.004838	-0.00342	mg/L	0.004838	141.62%
Sn 189.927†	0.7	0.00019	mg/L	0.001168	0.00019	mg/L	0.001168	628.42%
Sr 421.552†	-38.7	-0.00015	mg/L	0.000054	-0.00015	mg/L	0.000054	37.05%
Ti 334.903†	-0.7	-0.00005	mg/L	0.001012	-0.00005	mg/L	0.001012	>999.9%
Tl 190.801†	3.9	0.00197	mg/L	0.001170	0.00197	mg/L	0.001170	59.45%
V 292.402†	7.7	0.00011	mg/L	0.000157	0.00011	mg/L	0.000157	146.15%
Zn 206.200†	-0.8	-0.00037	mg/L	0.000445	-0.00037	mg/L	0.000445	121.84%

Sequence No.: 63 **Autosampler Location: 9**
Sample ID: RINSE - 1 **Date Collected: 8/13/2019 5:54:42 PM**
Data Type: Original

Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: RINSE - 1

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: RINSE - 1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2098822.4	102.0	%	0.32				0.32%
ScR 361.383	212344.1	103.4	%	0.89				0.86%
Ag 328.068†	30.3	0.00021	mg/L	0.000469	0.00021	mg/L	0.000469	226.90%
Al 308.215†	-15.3	-0.01475	mg/L	0.031731	-0.01475	mg/L	0.031731	215.18%
As 188.979†	0.6	0.00041	mg/L	0.003610	0.00041	mg/L	0.003610	874.45%
B 249.677†	13.3	0.00215	mg/L	0.000593	0.00215	mg/L	0.000593	27.57%
Ba 233.527†	-3.2	-0.00081	mg/L	0.000376	-0.00081	mg/L	0.000376	46.49%
Be 313.042†	-83.4	-0.00020	mg/L	0.000091	-0.00020	mg/L	0.000091	44.99%
Ca 317.933†	12.4	0.00130	mg/L	0.000263	0.00130	mg/L	0.000263	20.16%
Cd 228.802†	7.8	0.00033	mg/L	0.000151	0.00033	mg/L	0.000151	45.35%
Co 228.616†	-8.5	-0.00026	mg/L	0.000131	-0.00026	mg/L	0.000131	50.44%
Cr 267.716†	12.9	0.00349	mg/L	0.001871	0.00349	mg/L	0.001871	53.63%
Cu 324.752†	60.9	0.00032	mg/L	0.000137	0.00032	mg/L	0.000137	42.27%
Fe 273.955†	1.2	0.00135	mg/L	0.003609	0.00135	mg/L	0.003609	266.43%
K 766.490†	-4.4	-0.00455	mg/L	0.008293	-0.00455	mg/L	0.008293	182.32%
Mg 279.077†	-3.1	-0.00327	mg/L	0.002851	-0.00327	mg/L	0.002851	87.23%
Mn 257.610†	-4.9	-0.00016	mg/L	0.000153	-0.00016	mg/L	0.000153	98.35%
Mo 202.031†	2.0	0.00012	mg/L	0.000219	0.00012	mg/L	0.000219	178.83%
Na 589.592†	-365.1	-0.04830	mg/L	0.002373	-0.04830	mg/L	0.002373	4.91%
Na 330.237†	15.5	0.8954	mg/L	0.21658	0.8954	mg/L	0.21658	24.19%
Ni 231.604†	3.4	0.00112	mg/L	0.000649	0.00112	mg/L	0.000649	58.09%
Pb 220.353†	-2.3	-0.00032	mg/L	0.000394	-0.00032	mg/L	0.000394	123.35%
Sb 206.836†	0.5	0.00015	mg/L	0.002340	0.00015	mg/L	0.002340	>999.9%
Se 196.026†	-1.5	-0.00135	mg/L	0.005313	-0.00135	mg/L	0.005313	393.86%
Si 288.158†	2.5	0.00290	mg/L	0.003316	0.00290	mg/L	0.003316	114.38%
Sn 189.927†	0.8	0.00021	mg/L	0.001224	0.00021	mg/L	0.001224	573.53%
Sr 421.552†	-64.7	-0.00025	mg/L	0.000167	-0.00025	mg/L	0.000167	68.14%
Ti 334.903†	-1.8	-0.00014	mg/L	0.001650	-0.00014	mg/L	0.001650	>999.9%
Tl 190.801†	6.0	0.00305	mg/L	0.001690	0.00305	mg/L	0.001690	55.35%
V 292.402†	-4.8	-0.00004	mg/L	0.000206	-0.00004	mg/L	0.000206	562.14%
Zn 206.200†	0.8	0.00039	mg/L	0.000576	0.00039	mg/L	0.000576	148.38%

Sequence No.: 64
Sample ID: RINSE - 2
Autosampler Location: 9
Date Collected: 8/13/2019 5:58:41 PM
Data Type: Original
Dilution: 1X
Wash Time: 37
Auto Dilution Factor: 1

Nebulizer Parameters: RINSE - 2

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: RINSE - 2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2099964.0	102.1	%	0.44				0.43%
ScR 361.383	213392.5	104.0	%	0.22				0.21%
Ag 328.068†	-35.0	-0.00024	mg/L	0.000222	-0.00024	mg/L	0.000222	92.82%
Al 308.215†	-28.3	-0.02729	mg/L	0.002520	-0.02729	mg/L	0.002520	9.23%
As 188.979†	1.1	0.00077	mg/L	0.002970	0.00077	mg/L	0.002970	383.28%
B 249.677†	4.0	0.00064	mg/L	0.001130	0.00064	mg/L	0.001130	176.40%
Ba 233.527†	-1.0	-0.00026	mg/L	0.001327	-0.00026	mg/L	0.001327	509.82%
Be 313.042†	-61.3	-0.00015	mg/L	0.000061	-0.00015	mg/L	0.000061	40.32%
Ca 317.933†	27.4	0.00292	mg/L	0.000770	0.00292	mg/L	0.000770	26.33%
Cd 228.802†	5.8	0.00025	mg/L	0.000140	0.00025	mg/L	0.000140	57.00%
Co 228.616†	-1.8	-0.00005	mg/L	0.000062	-0.00005	mg/L	0.000062	115.70%
Cr 267.716†	7.7	0.00209	mg/L	0.001899	0.00209	mg/L	0.001899	91.01%
Cu 324.752†	72.5	0.00039	mg/L	0.000126	0.00039	mg/L	0.000126	32.75%
Fe 273.955†	1.6	0.00175	mg/L	0.000928	0.00175	mg/L	0.000928	52.91%
K 766.490†	-19.1	-0.01953	mg/L	0.048635	-0.01953	mg/L	0.048635	249.08%
Mg 279.077†	-4.4	-0.00464	mg/L	0.003521	-0.00464	mg/L	0.003521	75.83%
Mn 257.610†	-10.6	-0.00034	mg/L	0.000122	-0.00034	mg/L	0.000122	36.35%
Mo 202.031†	1.6	0.00009	mg/L	0.000462	0.00009	mg/L	0.000462	489.28%
Na 589.592†	-383.4	-0.05072	mg/L	0.002488	-0.05072	mg/L	0.002488	4.90%
Na 330.237†	3.1	0.1784	mg/L	0.84474	0.1784	mg/L	0.84474	473.40%
Ni 231.604†	2.2	0.00073	mg/L	0.001794	0.00073	mg/L	0.001794	246.88%
Pb 220.353†	-7.8	-0.00107	mg/L	0.000627	-0.00107	mg/L	0.000627	58.39%
Sb 206.836†	-2.4	-0.00096	mg/L	0.001562	-0.00096	mg/L	0.001562	162.03%
Se 196.026†	-3.7	-0.00329	mg/L	0.004760	-0.00329	mg/L	0.004760	144.85%
Si 288.158†	-2.0	-0.00229	mg/L	0.001693	-0.00229	mg/L	0.001693	73.89%
Sn 189.927†	0.7	0.00018	mg/L	0.000233	0.00018	mg/L	0.000233	126.47%
Sr 421.552†	-66.3	-0.00025	mg/L	0.000028	-0.00025	mg/L	0.000028	10.92%
Ti 334.903†	0.7	0.00005	mg/L	0.002003	0.00005	mg/L	0.002003	>999.9%
Tl 190.801†	4.5	0.00231	mg/L	0.001838	0.00231	mg/L	0.001838	79.53%
V 292.402†	25.9	0.00034	mg/L	0.000156	0.00034	mg/L	0.000156	46.05%
Zn 206.200†	1.9	0.00086	mg/L	0.001659	0.00086	mg/L	0.001659	193.08%

Sequence No.: 65 **Autosampler Location: 9**
Sample ID: RINSE - 3 **Date Collected: 8/13/2019 6:02:40 PM**
Data Type: Original

Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: RINSE - 3

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: RINSE - 3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2112113.7	102.6	%	0.25				0.24%
ScR 361.383	213624.7	104.1	%	0.53				0.51%
Ag 328.068†	26.1	0.00018	mg/L	0.000179	0.00018	mg/L	0.000179	100.32%
Al 308.215†	-21.5	-0.02077	mg/L	0.024274	-0.02077	mg/L	0.024274	116.88%
As 188.979†	1.9	0.00137	mg/L	0.003027	0.00137	mg/L	0.003027	221.00%
B 249.677†	-0.3	-0.00004	mg/L	0.000530	-0.00004	mg/L	0.000530	>999.9%
Ba 233.527†	-1.3	-0.00032	mg/L	0.000557	-0.00032	mg/L	0.000557	171.57%
Be 313.042†	-96.2	-0.00023	mg/L	0.000045	-0.00023	mg/L	0.000045	19.20%
Ca 317.933†	19.3	0.00205	mg/L	0.001223	0.00205	mg/L	0.001223	59.58%
Cd 228.802†	3.8	0.00016	mg/L	0.000077	0.00016	mg/L	0.000077	49.49%
Co 228.616†	-0.7	-0.00002	mg/L	0.000155	-0.00002	mg/L	0.000155	665.52%
Cr 267.716†	6.1	0.00165	mg/L	0.000888	0.00165	mg/L	0.000888	53.90%
Cu 324.752†	82.6	0.00044	mg/L	0.000084	0.00044	mg/L	0.000084	19.01%
Fe 273.955†	-0.1	-0.00013	mg/L	0.000760	-0.00013	mg/L	0.000760	579.67%
K 766.490†	4.3	0.00444	mg/L	0.041157	0.00444	mg/L	0.041157	925.93%
Mg 279.077†	-1.3	-0.00141	mg/L	0.002067	-0.00141	mg/L	0.002067	146.28%
Mn 257.610†	-5.8	-0.00018	mg/L	0.000127	-0.00018	mg/L	0.000127	69.30%
Mo 202.031†	-1.8	-0.00011	mg/L	0.000168	-0.00011	mg/L	0.000168	157.43%
Na 589.592†	-379.2	-0.05017	mg/L	0.005940	-0.05017	mg/L	0.005940	11.84%
Na 330.237†	9.3	0.5373	mg/L	0.85849	0.5373	mg/L	0.85849	159.77%
Ni 231.604†	3.4	0.00112	mg/L	0.002026	0.00112	mg/L	0.002026	180.45%
Pb 220.353†	-0.5	-0.00007	mg/L	0.000405	-0.00007	mg/L	0.000405	604.80%
Sb 206.836†	2.8	0.00105	mg/L	0.001525	0.00105	mg/L	0.001525	144.84%
Se 196.026†	-3.0	-0.00267	mg/L	0.003395	-0.00267	mg/L	0.003395	127.25%
Si 288.158†	-1.5	-0.00174	mg/L	0.007426	-0.00174	mg/L	0.007426	427.83%
Sn 189.927†	1.2	0.00034	mg/L	0.000253	0.00034	mg/L	0.000253	73.79%
Sr 421.552†	-62.7	-0.00024	mg/L	0.000084	-0.00024	mg/L	0.000084	35.29%
Ti 334.903†	3.6	0.00029	mg/L	0.000427	0.00029	mg/L	0.000427	149.27%
Tl 190.801†	5.2	0.00268	mg/L	0.001777	0.00268	mg/L	0.001777	66.31%
V 292.402†	7.7	0.00011	mg/L	0.000043	0.00011	mg/L	0.000043	39.53%
Zn 206.200†	-0.6	-0.00028	mg/L	0.001285	-0.00028	mg/L	0.001285	461.36%

Sequence No.: 66 **Autosampler Location: 9**
Sample ID: RINSE - 4 **Date Collected: 8/13/2019 6:06:39 PM**
Data Type: Original

Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: RINSE - 4

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: RINSE - 4

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2103450.8	102.2	%	0.19				0.18%
ScR 361.383	213786.6	104.1	%	0.30				0.28%
Ag 328.068†	-0.7	-0.00001	mg/L	0.000275	-0.00001	mg/L	0.000275	>999.9%
Al 308.215†	4.4	0.00428	mg/L	0.010044	0.00428	mg/L	0.010044	234.68%
As 188.979†	0.2	0.00018	mg/L	0.001918	0.00018	mg/L	0.001918	>999.9%
B 249.677†	5.1	0.00083	mg/L	0.001106	0.00083	mg/L	0.001106	133.95%
Ba 233.527†	0.1	0.00002	mg/L	0.000494	0.00002	mg/L	0.000494	>999.9%
Be 313.042†	-85.1	-0.00021	mg/L	0.000050	-0.00021	mg/L	0.000050	23.91%
Ca 317.933†	10.7	0.00113	mg/L	0.001199	0.00113	mg/L	0.001199	105.92%
Cd 228.802†	8.2	0.00035	mg/L	0.000131	0.00035	mg/L	0.000131	37.78%
Co 228.616†	-2.0	-0.00006	mg/L	0.000105	-0.00006	mg/L	0.000105	169.39%
Cr 267.716†	7.5	0.00203	mg/L	0.002515	0.00203	mg/L	0.002515	123.89%
Cu 324.752†	105.6	0.00056	mg/L	0.000211	0.00056	mg/L	0.000211	37.54%
Fe 273.955†	1.6	0.00171	mg/L	0.001505	0.00171	mg/L	0.001505	87.82%
K 766.490†	-13.3	-0.01361	mg/L	0.017138	-0.01361	mg/L	0.017138	125.94%
Mg 279.077†	-5.2	-0.00549	mg/L	0.006406	-0.00549	mg/L	0.006406	116.62%
Mn 257.610†	-9.6	-0.00030	mg/L	0.000129	-0.00030	mg/L	0.000129	42.53%
Mo 202.031†	-0.1	-0.00001	mg/L	0.000353	-0.00001	mg/L	0.000353	>999.9%
Na 589.592†	-352.2	-0.04659	mg/L	0.005811	-0.04659	mg/L	0.005811	12.47%
Na 330.237†	4.7	0.2735	mg/L	0.53589	0.2735	mg/L	0.53589	195.90%
Ni 231.604†	-1.6	-0.00052	mg/L	0.000881	-0.00052	mg/L	0.000881	170.56%
Pb 220.353†	-8.2	-0.00112	mg/L	0.001527	-0.00112	mg/L	0.001527	136.21%
Sb 206.836†	-0.8	-0.00033	mg/L	0.001546	-0.00033	mg/L	0.001546	465.65%
Se 196.026†	-0.1	-0.00013	mg/L	0.004812	-0.00013	mg/L	0.004812	>999.9%
Si 288.158†	1.0	0.00121	mg/L	0.013323	0.00121	mg/L	0.013323	>999.9%
Sn 189.927†	-0.1	-0.00003	mg/L	0.000885	-0.00003	mg/L	0.000885	>999.9%
Sr 421.552†	-54.9	-0.00021	mg/L	0.000030	-0.00021	mg/L	0.000030	14.41%
Ti 334.903†	2.3	0.00018	mg/L	0.000234	0.00018	mg/L	0.000234	130.40%
Tl 190.801†	5.2	0.00264	mg/L	0.002386	0.00264	mg/L	0.002386	90.48%
V 292.402†	21.8	0.00029	mg/L	0.000152	0.00029	mg/L	0.000152	53.01%
Zn 206.200†	0.7	0.00033	mg/L	0.000821	0.00033	mg/L	0.000821	247.74%

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Analysis Begun

Start Time: 8/13/2019 8:04:23 PM **Plasma On Time: 8/13/2019 11:49:16 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\ 0813.sif
Batch ID:
Results Data Set: I2190813
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 7**
Sample ID: SEQ-CCV7 **Date Collected: 8/13/2019 8:04:30 PM**
Data Type: Original

Dilution: 1X

Nebulizer Parameters: SEQ-CCV7

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: SEQ-CCV7

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2012179.7	97.79	%	0.140				0.14%
ScR 361.383	204287.4	99.52	%	0.341				0.34%
Ag 328.068†	161355.6	1.101	mg/L	0.0032	1.101	mg/L	0.0032	0.29%
Al 308.215†	2187.8	2.071	mg/L	0.0141	2.071	mg/L	0.0141	0.68%
As 188.979†	2922.1	2.113	mg/L	0.0064	2.113	mg/L	0.0064	0.30%
B 249.677†	6736.5	1.090	mg/L	0.0087	1.090	mg/L	0.0087	0.79%
Ba 233.527†	4061.3	1.028	mg/L	0.0040	1.028	mg/L	0.0040	0.39%
Be 313.042†	458141.7	1.107	mg/L	0.0034	1.107	mg/L	0.0034	0.31%
Ca 317.933†	20363.4	2.158	mg/L	0.0067	2.158	mg/L	0.0067	0.31%
Cd 228.802†	24759.5	1.047	mg/L	0.0025	1.047	mg/L	0.0025	0.24%
Co 228.616†	34917.9	1.062	mg/L	0.0046	1.062	mg/L	0.0046	0.43%
Cr 267.716†	3812.3	1.035	mg/L	0.0027	1.035	mg/L	0.0027	0.26%
Cu 324.752†	203669.9	1.084	mg/L	0.0025	1.084	mg/L	0.0025	0.24%
Fe 273.955†	1842.3	2.025	mg/L	0.0146	2.025	mg/L	0.0146	0.72%
K 766.490†	20346.0	20.85	mg/L	0.221	20.85	mg/L	0.221	1.06%
Mg 279.077†	1994.4	2.124	mg/L	0.0061	2.124	mg/L	0.0061	0.29%
Mn 257.610†	33288.0	1.055	mg/L	0.0047	1.055	mg/L	0.0047	0.45%
Mo 202.031†	17468.9	1.057	mg/L	0.0024	1.057	mg/L	0.0024	0.23%
Na 589.592†	412848.8	54.62	mg/L	0.227	54.62	mg/L	0.227	0.42%
Na 330.237†	905.4	52.11	mg/L	0.243	52.11	mg/L	0.243	0.47%
Ni 231.604†	3145.5	1.031	mg/L	0.0029	1.031	mg/L	0.0029	0.28%
Pb 220.353†	15496.4	2.137	mg/L	0.0084	2.137	mg/L	0.0084	0.39%
Sb 206.836†	5715.8	2.226	mg/L	0.0058	2.226	mg/L	0.0058	0.26%
Se 196.026†	2441.4	2.193	mg/L	0.0035	2.193	mg/L	0.0035	0.16%
Si 288.158†	1933.5	2.244	mg/L	0.0175	2.244	mg/L	0.0175	0.78%
Sn 189.927†	3817.9	1.079	mg/L	0.0023	1.079	mg/L	0.0023	0.21%
Sr 421.552†	297251.8	1.130	mg/L	0.0082	1.130	mg/L	0.0082	0.73%
Ti 334.903†	13089.9	1.036	mg/L	0.0040	1.036	mg/L	0.0040	0.39%
Tl 190.801†	4212.8	2.143	mg/L	0.0071	2.143	mg/L	0.0071	0.33%
V 292.402†	81491.4	1.030	mg/L	0.0067	1.030	mg/L	0.0067	0.65%
Zn 206.200†	2299.4	1.054	mg/L	0.0040	1.054	mg/L	0.0040	0.38%

Sequence No.: 2
Sample ID: SEQ-CCB7

Autosampler Location: 1
Date Collected: 8/13/2019 8:09:38 PM
Data Type: Original

Dilution: 1X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCB7

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: SEQ-CCB7

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2033317.1	98.82	%	0.743				0.75%
ScR 361.383	207009.3	100.8	%	0.29				0.29%
Ag 328.068†	17.4	0.00012	mg/L	0.000079	0.00012	mg/L	0.000079	66.52%
Al 308.215†	-12.8	-0.01236	mg/L	0.014214	-0.01236	mg/L	0.014214	115.00%
As 188.979†	1.1	0.00082	mg/L	0.002845	0.00082	mg/L	0.002845	348.86%
B 249.677†	15.2	0.00246	mg/L	0.002058	0.00246	mg/L	0.002058	83.71%
Ba 233.527†	-2.7	-0.00069	mg/L	0.001330	-0.00069	mg/L	0.001330	191.65%
Be 313.042†	-68.2	-0.00017	mg/L	0.000053	-0.00017	mg/L	0.000053	31.94%
Ca 317.933†	2.7	0.00029	mg/L	0.001022	0.00029	mg/L	0.001022	350.89%
Cd 228.802†	8.2	0.00035	mg/L	0.000170	0.00035	mg/L	0.000170	49.02%
Co 228.616†	-6.3	-0.00019	mg/L	0.000261	-0.00019	mg/L	0.000261	135.80%
Cr 267.716†	-0.9	-0.00024	mg/L	0.001351	-0.00024	mg/L	0.001351	558.60%
Cu 324.752†	70.7	0.00038	mg/L	0.000221	0.00038	mg/L	0.000221	58.82%
Fe 273.955†	-2.8	-0.00313	mg/L	0.002926	-0.00313	mg/L	0.002926	93.36%
K 766.490†	15.9	0.01625	mg/L	0.002826	0.01625	mg/L	0.002826	17.39%
Mg 279.077†	-3.6	-0.00378	mg/L	0.006794	-0.00378	mg/L	0.006794	179.67%
Mn 257.610†	-2.7	-0.00008	mg/L	0.000106	-0.00008	mg/L	0.000106	125.51%
Mo 202.031†	9.8	0.00059	mg/L	0.000362	0.00059	mg/L	0.000362	61.29%
Na 589.592†	-375.0	-0.04961	mg/L	0.002378	-0.04961	mg/L	0.002378	4.79%
Na 330.237†	-0.0	0.00009	mg/L	0.983481	0.00009	mg/L	0.983481	>999.9%
Ni 231.604†	2.8	0.00093	mg/L	0.001677	0.00093	mg/L	0.001677	181.04%
Pb 220.353†	-7.4	-0.00103	mg/L	0.000628	-0.00103	mg/L	0.000628	61.13%
Sb 206.836†	-0.7	-0.00028	mg/L	0.000694	-0.00028	mg/L	0.000694	245.60%
Se 196.026†	-1.8	-0.00162	mg/L	0.002961	-0.00162	mg/L	0.002961	182.48%
Si 288.158†	-4.4	-0.00510	mg/L	0.004827	-0.00510	mg/L	0.004827	94.57%
Sn 189.927†	0.5	0.00014	mg/L	0.000386	0.00014	mg/L	0.000386	278.72%
Sr 421.552†	-34.6	-0.00013	mg/L	0.000165	-0.00013	mg/L	0.000165	125.50%
Ti 334.903†	2.6	0.00021	mg/L	0.000444	0.00021	mg/L	0.000444	214.81%
Tl 190.801†	1.3	0.00066	mg/L	0.002226	0.00066	mg/L	0.002226	336.19%
V 292.402†	-2.8	-0.00004	mg/L	0.000295	-0.00004	mg/L	0.000295	796.74%
Zn 206.200†	-0.3	-0.00012	mg/L	0.000248	-0.00012	mg/L	0.000248	206.61%

Sequence No.: 3
Sample ID: 19G0416-33

Dilution: 5X
Wash Time: 37

Autosampler Location: 301
Date Collected: 8/13/2019 8:13:37 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-33

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: 19G0416-33

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1879127.6	91.32	%	0.932				1.02%
ScR 361.383	203666.0	99.21	%	3.148				3.17%
Ag 328.068†	7.9	0.00010	mg/L	0.000128	0.00051	mg/L	0.000638	124.61%
Al 308.215†	98849.1	95.39	mg/L	0.048	477.0	mg/L	0.24	0.05%
As 188.979†	70.5	0.1437	mg/L	0.00143	0.7186	mg/L	0.00715	1.00%
B 249.677†	29.8	0.01223	mg/L	0.001371	0.06115	mg/L	0.006856	11.21%
Ba 233.527†	2094.2	0.5218	mg/L	0.00564	2.609	mg/L	0.0282	1.08%
Be 313.042†	1045.1	0.00182	mg/L	0.000055	0.00909	mg/L	0.000273	3.00%
Ca 317.933†	144920.3	15.46	mg/L	0.071	77.31	mg/L	0.357	0.46%
Cd 228.802†	100.8	0.00406	mg/L	0.000376	0.02032	mg/L	0.001882	9.26%
Co 228.616†	1076.8	0.02566	mg/L	0.000770	0.1283	mg/L	0.00385	3.00%
Cr 267.716†	326.1	0.09096	mg/L	0.003923	0.4548	mg/L	0.01961	4.31%
Cu 324.752†	20826.9	0.1138	mg/L	0.00294	0.5688	mg/L	0.01468	2.58%
Fe 273.955†	67081.5	74.02	mg/L	0.311	370.1	mg/L	1.56	0.42%
K 766.490†	3259.0	3.339	mg/L	0.0175	16.70	mg/L	0.088	0.53%
Mg 279.077†	15641.8	16.53	mg/L	0.022	82.65	mg/L	0.110	0.13%
Mn 257.610†	126119.1	3.995	mg/L	0.0092	19.98	mg/L	0.046	0.23%
Mo 202.031†	48.7	0.00269	mg/L	0.000532	0.01343	mg/L	0.002660	19.81%
Na 589.592†	4788.9	0.6336	mg/L	0.00117	3.168	mg/L	0.0058	0.18%
Na 330.237†	-4.7	0.3313	mg/L	0.18429	1.656	mg/L	0.9214	55.63%
Ni 231.604†	289.0	0.09458	mg/L	0.002258	0.4729	mg/L	0.01129	2.39%
Pb 220.353†	1108.7	0.1753	mg/L	0.00371	0.8767	mg/L	0.01853	2.11%
Sb 206.836†	17.5	0.01083	mg/L	0.003647	0.05415	mg/L	0.018233	33.67%
Se 196.026†	-5.1	-0.00956	mg/L	0.001181	-0.04779	mg/L	0.005907	12.36%
Si 288.158†	689.0	0.8010	mg/L	0.01471	4.005	mg/L	0.0735	1.84%
Sn 189.927†	-30.8	-0.00461	mg/L	0.000858	-0.02303	mg/L	0.004290	18.63%
Sr 421.552†	32014.5	0.1217	mg/L	0.00100	0.6083	mg/L	0.00500	0.82%
Ti 334.903†	41378.1	3.280	mg/L	0.0037	16.40	mg/L	0.018	0.11%
Tl 190.801†	-17.8	-0.00515	mg/L	0.000862	-0.02575	mg/L	0.004311	16.74%
V 292.402†	12769.4	0.1651	mg/L	0.00348	0.8255	mg/L	0.01741	2.11%
Zn 206.200†	467.6	0.2145	mg/L	0.00391	1.072	mg/L	0.0196	1.83%

Sequence No.: 4
Sample ID: BHH0091-SRL1

Dilution: 10X
Wash Time: 37

Autosampler Location: 302
Date Collected: 8/13/2019 8:17:36 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-SRL1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0091-SRL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	2046970.3	99.48	%	0.348				0.35%
ScR 361.383	209328.3	102.0	%	0.44				0.43%
Ag 328.068†	-5.0	-0.00001	mg/L	0.000222	-0.00015	mg/L	0.002216	>999.9%
Al 308.215†	35080.4	33.85	mg/L	0.095	338.5	mg/L	0.95	0.28%
As 188.979†	78.4	0.09609	mg/L	0.002414	0.9609	mg/L	0.02414	2.51%
B 249.677†	6.7	0.00382	mg/L	0.001327	0.03820	mg/L	0.013269	34.73%
Ba 233.527†	527.7	0.1304	mg/L	0.00146	1.304	mg/L	0.0146	1.12%
Be 313.042†	332.2	0.00052	mg/L	0.000051	0.00518	mg/L	0.000505	9.75%
Ca 317.933†	24017.5	2.562	mg/L	0.0098	25.62	mg/L	0.098	0.38%
Cd 228.802†	41.4	0.00143	mg/L	0.000066	0.01431	mg/L	0.000659	4.61%
Co 228.616†	387.7	0.00886	mg/L	0.000074	0.08855	mg/L	0.000737	0.83%
Cr 267.716†	135.4	0.03785	mg/L	0.001708	0.3785	mg/L	0.01708	4.51%
Cu 324.752†	21881.5	0.1176	mg/L	0.00083	1.176	mg/L	0.0083	0.71%
Fe 273.955†	24728.6	27.29	mg/L	0.152	272.9	mg/L	1.52	0.56%
K 766.490†	579.7	0.5940	mg/L	0.01594	5.940	mg/L	0.1594	2.68%
Mg 279.077†	4441.9	4.689	mg/L	0.0282	46.89	mg/L	0.282	0.60%
Mn 257.610†	16329.3	0.5173	mg/L	0.00207	5.173	mg/L	0.0207	0.40%
Mo 202.031†	20.1	0.00117	mg/L	0.000146	0.01168	mg/L	0.001460	12.49%
Na 589.592†	854.2	0.1130	mg/L	0.00225	1.130	mg/L	0.0225	1.99%
Na 330.237†	6.9	0.6634	mg/L	0.58768	6.634	mg/L	5.8768	88.59%
Ni 231.604†	93.6	0.03065	mg/L	0.001520	0.3065	mg/L	0.01520	4.96%
Pb 220.353†	1740.4	0.2477	mg/L	0.00120	2.477	mg/L	0.0120	0.48%
Sb 206.836†	14.7	0.00747	mg/L	0.001648	0.07465	mg/L	0.016477	22.07%
Se 196.026†	0.6	-0.00034	mg/L	0.002976	-0.00336	mg/L	0.029764	885.51%
Si 288.158†	646.7	0.7505	mg/L	0.00999	7.505	mg/L	0.0999	1.33%
Sn 189.927†	1.8	0.00156	mg/L	0.000502	0.01565	mg/L	0.005021	32.08%
Sr 421.552†	4312.1	0.01639	mg/L	0.000184	0.1639	mg/L	0.00184	1.13%
Ti 334.903†	17607.0	1.396	mg/L	0.0052	13.96	mg/L	0.052	0.38%
Tl 190.801†	-0.4	0.00011	mg/L	0.001153	0.00112	mg/L	0.011528	>999.9%
V 292.402†	5094.1	0.06554	mg/L	0.000460	0.6554	mg/L	0.00460	0.70%
Zn 206.200†	152.6	0.07002	mg/L	0.000860	0.7002	mg/L	0.00860	1.23%

Sequence No.: 5
Sample ID: 19G0416-49

Dilution: 2X
Wash Time: 37

Autosampler Location: 303
Date Collected: 8/13/2019 8:21:34 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0416-49

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: 19G0416-49

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1805378.7	87.74	%	1.223				1.39%
ScR 361.383	197053.5	95.99	%	6.650				6.93%
Ag 328.068†	-21.6	-0.00005	mg/L	0.000168	-0.00010	mg/L	0.000336	329.85%
Al 308.215†	186260.8	179.7	mg/L	1.21	359.5	mg/L	2.41	0.67%
As 188.979†	387.3	0.4879	mg/L	0.00863	0.9757	mg/L	0.01727	1.77%
B 249.677†	58.0	0.02364	mg/L	0.000319	0.04728	mg/L	0.000639	1.35%
Ba 233.527†	2633.7	0.6500	mg/L	0.01177	1.300	mg/L	0.0235	1.81%
Be 313.042†	2192.0	0.00388	mg/L	0.000231	0.00776	mg/L	0.000462	5.96%
Ca 317.933†	124687.2	13.30	mg/L	0.039	26.61	mg/L	0.078	0.29%
Cd 228.802†	184.5	0.00621	mg/L	0.000288	0.01243	mg/L	0.000577	4.64%
Co 228.616†	1916.2	0.04283	mg/L	0.000734	0.08566	mg/L	0.001468	1.71%
Cr 267.716†	615.3	0.1728	mg/L	0.00326	0.3457	mg/L	0.00652	1.89%
Cu 324.752†	112153.9	0.6026	mg/L	0.01073	1.205	mg/L	0.0215	1.78%
Fe 273.955†	128974.3	142.3	mg/L	1.30	284.6	mg/L	2.59	0.91%
K 766.490†	2997.4	3.071	mg/L	0.0870	6.143	mg/L	0.1740	2.83%
Mg 279.077†	22747.6	24.01	mg/L	0.035	48.03	mg/L	0.071	0.15%
Mn 257.610†	84551.0	2.679	mg/L	0.0030	5.357	mg/L	0.0060	0.11%
Mo 202.031†	93.8	0.00544	mg/L	0.000189	0.01089	mg/L	0.000379	3.48%
Na 589.592†	6110.9	0.8085	mg/L	0.01180	1.617	mg/L	0.0236	1.46%
Na 330.237†	-24.2	0.01222	mg/L	0.950834	0.02444	mg/L	1.901668	>999.9%
Ni 231.604†	493.2	0.1614	mg/L	0.00117	0.3229	mg/L	0.00234	0.73%
Pb 220.353†	8383.9	1.197	mg/L	0.0157	2.395	mg/L	0.0314	1.31%
Sb 206.836†	74.8	0.03865	mg/L	0.005945	0.07731	mg/L	0.011891	15.38%
Se 196.026†	-0.1	-0.00484	mg/L	0.006034	-0.00967	mg/L	0.012068	124.74%
Si 288.158†	3726.0	4.324	mg/L	0.1074	8.647	mg/L	0.2148	2.48%
Sn 189.927†	20.7	0.01136	mg/L	0.001341	0.02272	mg/L	0.002681	11.80%
Sr 421.552†	22448.5	0.08531	mg/L	0.001518	0.1706	mg/L	0.00304	1.78%
Ti 334.903†	92778.6	7.355	mg/L	0.0092	14.71	mg/L	0.018	0.13%
Tl 190.801†	-29.9	-0.01366	mg/L	0.003854	-0.02732	mg/L	0.007708	28.22%
V 292.402†	25444.6	0.3275	mg/L	0.00436	0.6551	mg/L	0.00872	1.33%
Zn 206.200†	738.3	0.3388	mg/L	0.00358	0.6776	mg/L	0.00717	1.06%

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Analysis Begun

Start Time: 8/13/2019 8:30:54 PM **Plasma On Time: 8/13/2019 11:49:16 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0813.sif
Batch ID:
Results Data Set: I2190813
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 304**
Sample ID: BHH0091-DUP1 **Date Collected: 8/13/2019 8:31:02 PM**
Data Type: Original

Dilution: 2X

Nebulizer Parameters: BHH0091-DUP1

Analyte	Back Pressure	Flow
All	168.0 kPa	0.65 L/min

Mean Data: BHH0091-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1731072.0	84.13	%	0.556				0.66%
ScR 361.383	191304.2	93.19	%	8.951				9.61%
Ag 328.068†	25.7	0.00029	mg/L	0.000098	0.00057	mg/L	0.000196	34.34%
Al 308.215†	223521.9	215.7	mg/L	2.51	431.4	mg/L	5.01	1.16%
As 188.979†	564.9	0.6228	mg/L	0.00363	1.246	mg/L	0.0073	0.58%
B 249.677†	79.9	0.02776	mg/L	0.001209	0.05553	mg/L	0.002417	4.35%
Ba 233.527†	3346.6	0.8301	mg/L	0.02983	1.660	mg/L	0.0597	3.59%
Be 313.042†	2496.6	0.00441	mg/L	0.000433	0.00883	mg/L	0.000867	9.82%
Ca 317.933†	132965.2	14.19	mg/L	0.059	28.37	mg/L	0.118	0.42%
Cd 228.802†	229.8	0.00732	mg/L	0.000476	0.01465	mg/L	0.000951	6.49%
Co 228.616†	2007.1	0.04497	mg/L	0.000633	0.08994	mg/L	0.001266	1.41%
Cr 267.716†	547.8	0.1544	mg/L	0.00496	0.3088	mg/L	0.00993	3.22%
Cu 324.752†	137379.7	0.7371	mg/L	0.00216	1.474	mg/L	0.0043	0.29%
Fe 273.955†	134100.1	148.0	mg/L	1.12	295.9	mg/L	2.24	0.76%
K 766.490†	3313.1	3.395	mg/L	0.0792	6.790	mg/L	0.1585	2.33%
Mg 279.077†	26485.0	27.97	mg/L	0.009	55.94	mg/L	0.018	0.03%
Mn 257.610†	100763.7	3.192	mg/L	0.0127	6.384	mg/L	0.0254	0.40%
Mo 202.031†	107.0	0.00623	mg/L	0.000460	0.01246	mg/L	0.000921	7.39%
Na 589.592†	6391.3	0.8456	mg/L	0.01173	1.691	mg/L	0.0235	1.39%
Na 330.237†	-12.3	0.7470	mg/L	0.76719	1.494	mg/L	1.5344	102.71%
Ni 231.604†	522.8	0.1711	mg/L	0.00383	0.3422	mg/L	0.00766	2.24%
Pb 220.353†	10752.2	1.533	mg/L	0.0090	3.066	mg/L	0.0179	0.59%
Sb 206.836†	98.0	0.04867	mg/L	0.003269	0.09733	mg/L	0.006538	6.72%
Se 196.026†	12.0	0.00239	mg/L	0.001686	0.00478	mg/L	0.003371	70.47%
Si 288.158†	2868.5	3.330	mg/L	0.1320	6.660	mg/L	0.2640	3.96%
Sn 189.927†	25.8	0.01309	mg/L	0.000496	0.02618	mg/L	0.000993	3.79%
Sr 421.552†	31508.9	0.1197	mg/L	0.00242	0.2395	mg/L	0.00483	2.02%
Ti 334.903†	96452.6	7.646	mg/L	0.0227	15.29	mg/L	0.045	0.30%
Tl 190.801†	-35.2	-0.01591	mg/L	0.003369	-0.03182	mg/L	0.006737	21.17%
V 292.402†	29190.0	0.3748	mg/L	0.00463	0.7495	mg/L	0.00927	1.24%
Zn 206.200†	816.7	0.3748	mg/L	0.01038	0.7496	mg/L	0.02076	2.77%

Sequence No.: 2
Sample ID: BHH0091-MS1

Autosampler Location: 305
Date Collected: 8/13/2019 8:35:54 PM
Data Type: Original

Dilution: 2X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-MS1

Analyte	Back Pressure	Flow
All	169.0 kPa	0.65 L/min

Mean Data: BHH0091-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1782601.2	86.63	%	1.522				1.76%
ScR 361.383	188465.7	91.81	%	9.426				10.27%
Ag 328.068†	75153.2	0.5131	mg/L	0.00226	1.026	mg/L	0.0045	0.44%
Al 308.215†	220573.9	212.9	mg/L	1.31	425.7	mg/L	2.63	0.62%
As 188.979†	3291.1	2.564	mg/L	0.0028	5.128	mg/L	0.0056	0.11%
B 249.677†	54.9	0.02367	mg/L	0.000226	0.04735	mg/L	0.000452	0.96%
Ba 233.527†	10619.8	2.673	mg/L	0.1361	5.346	mg/L	0.2723	5.09%
Be 313.042†	217114.4	0.5231	mg/L	0.00222	1.046	mg/L	0.0044	0.42%
Ca 317.933†	240258.3	25.63	mg/L	0.264	51.25	mg/L	0.529	1.03%
Cd 228.802†	12489.1	0.5199	mg/L	0.00317	1.040	mg/L	0.0063	0.61%
Co 228.616†	18402.9	0.5443	mg/L	0.00169	1.089	mg/L	0.0034	0.31%
Cr 267.716†	2355.4	0.6441	mg/L	0.03041	1.288	mg/L	0.0608	4.72%
Cu 324.752†	235522.4	1.260	mg/L	0.0043	2.521	mg/L	0.0085	0.34%
Fe 273.955†	144538.9	159.5	mg/L	1.00	319.0	mg/L	2.01	0.63%
K 766.490†	12897.6	13.22	mg/L	0.176	26.43	mg/L	0.352	1.33%
Mg 279.077†	38468.2	40.65	mg/L	0.193	81.31	mg/L	0.386	0.47%
Mn 257.610†	121098.6	3.837	mg/L	0.0082	7.673	mg/L	0.0165	0.21%
Mo 202.031†	127.1	0.00723	mg/L	0.000431	0.01445	mg/L	0.000863	5.97%
Na 589.592†	87215.1	11.54	mg/L	0.099	23.08	mg/L	0.198	0.86%
Na 330.237†	154.0	10.10	mg/L	0.666	20.21	mg/L	1.331	6.59%
Ni 231.604†	1950.9	0.6384	mg/L	0.03302	1.277	mg/L	0.0660	5.17%
Pb 220.353†	24256.6	3.394	mg/L	0.0113	6.787	mg/L	0.0227	0.33%
Sb 206.836†	99.2	0.04238	mg/L	0.003453	0.08477	mg/L	0.006906	8.15%
Se 196.026†	2338.8	2.094	mg/L	0.0068	4.188	mg/L	0.0135	0.32%
Si 288.158†	2421.7	2.814	mg/L	0.1536	5.628	mg/L	0.3072	5.46%
Sn 189.927†	11.0	0.01074	mg/L	0.002033	0.02149	mg/L	0.004067	18.93%
Sr 421.552†	174728.7	0.6640	mg/L	0.00396	1.328	mg/L	0.0079	0.60%
Ti 334.903†	93705.1	7.427	mg/L	0.0247	14.85	mg/L	0.049	0.33%
Tl 190.801†	3818.1	1.948	mg/L	0.0076	3.896	mg/L	0.0152	0.39%
V 292.402†	64637.6	0.8235	mg/L	0.00382	1.647	mg/L	0.0076	0.46%
Zn 206.200†	1904.8	0.8737	mg/L	0.03810	1.747	mg/L	0.0762	4.36%

Sequence No.: 3
Sample ID: BHH0091-MSD1

Dilution: 2X
Wash Time: 100

Autosampler Location: 306
Date Collected: 8/13/2019 8:40:42 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-MSD1

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: BHH0091-MSD1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1810689.7	88.00	%	0.991				1.13%
ScR 361.383	193577.4	94.30	%	7.044				7.47%
Ag 328.068†	79890.6	0.5455	mg/L	0.01370	1.091	mg/L	0.0274	2.51%
Al 308.215†	199809.2	192.8	mg/L	1.55	385.6	mg/L	3.10	0.80%
As 188.979†	3389.7	2.613	mg/L	0.1094	5.226	mg/L	0.2188	4.19%
B 249.677†	47.1	0.02037	mg/L	0.001449	0.04074	mg/L	0.002897	7.11%
Ba 233.527†	10891.1	2.744	mg/L	0.1509	5.488	mg/L	0.3019	5.50%
Be 313.042†	221860.5	0.5345	mg/L	0.00204	1.069	mg/L	0.0041	0.38%
Ca 317.933†	207541.5	22.14	mg/L	0.044	44.27	mg/L	0.088	0.20%
Cd 228.802†	12520.5	0.5208	mg/L	0.01698	1.042	mg/L	0.0340	3.26%
Co 228.616†	18400.3	0.5459	mg/L	0.01630	1.092	mg/L	0.0326	2.99%
Cr 267.716†	2318.4	0.6333	mg/L	0.02688	1.267	mg/L	0.0538	4.24%
Cu 324.752†	220951.0	1.182	mg/L	0.0342	2.364	mg/L	0.0683	2.89%
Fe 273.955†	126248.0	139.3	mg/L	1.41	278.6	mg/L	2.83	1.01%
K 766.490†	14850.3	15.22	mg/L	0.195	30.43	mg/L	0.390	1.28%
Mg 279.077†	34496.9	36.46	mg/L	1.972	72.92	mg/L	3.944	5.41%
Mn 257.610†	103842.3	3.290	mg/L	0.0133	6.580	mg/L	0.0266	0.40%
Mo 202.031†	110.4	0.00627	mg/L	0.000126	0.01255	mg/L	0.000251	2.00%
Na 589.592†	88385.0	11.69	mg/L	0.117	23.39	mg/L	0.234	1.00%
Na 330.237†	167.1	10.71	mg/L	0.248	21.43	mg/L	0.495	2.31%
Ni 231.604†	1970.5	0.6448	mg/L	0.03198	1.290	mg/L	0.0640	4.96%
Pb 220.353†	23347.1	3.264	mg/L	0.0922	6.528	mg/L	0.1844	2.83%
Sb 206.836†	84.9	0.03589	mg/L	0.003237	0.07178	mg/L	0.006474	9.02%
Se 196.026†	2412.2	2.160	mg/L	0.1055	4.321	mg/L	0.2110	4.88%
Si 288.158†	2358.4	2.740	mg/L	0.1508	5.480	mg/L	0.3017	5.51%
Sn 189.927†	1.8	0.00721	mg/L	0.000721	0.01443	mg/L	0.001443	10.00%
Sr 421.552†	173565.1	0.6596	mg/L	0.00951	1.319	mg/L	0.0190	1.44%
Ti 334.903†	84223.1	6.676	mg/L	0.0101	13.35	mg/L	0.020	0.15%
Tl 190.801†	3970.4	2.025	mg/L	0.0838	4.050	mg/L	0.1676	4.14%
V 292.402†	66082.0	0.8405	mg/L	0.03136	1.681	mg/L	0.0627	3.73%
Zn 206.200†	1843.3	0.8454	mg/L	0.04258	1.691	mg/L	0.0852	5.04%

Sequence No.: 4
Sample ID: BHH0091-PS1

Autosampler Location: 307
Date Collected: 8/13/2019 8:45:44 PM
Data Type: Original

Dilution: 2X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0091-PS1

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: BHH0091-PS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1967285.8	95.61	%	0.757				0.79%
ScR 361.383	204119.0	99.43	%	1.951				1.96%
Ag 328.068†	79116.1	0.5402	mg/L	0.00107	1.080	mg/L	0.0021	0.20%
Al 308.215†	184966.4	178.5	mg/L	0.23	357.0	mg/L	0.46	0.13%
As 188.979†	3450.9	2.670	mg/L	0.0227	5.340	mg/L	0.0454	0.85%
B 249.677†	44.4	0.02012	mg/L	0.001630	0.04025	mg/L	0.003261	8.10%
Ba 233.527†	10851.9	2.734	mg/L	0.0514	5.468	mg/L	0.1028	1.88%
Be 313.042†	232261.6	0.5598	mg/L	0.00292	1.120	mg/L	0.0058	0.52%
Ca 317.933†	221945.2	23.67	mg/L	0.020	47.35	mg/L	0.041	0.09%
Cd 228.802†	13057.9	0.5436	mg/L	0.00509	1.087	mg/L	0.0102	0.94%
Co 228.616†	19503.9	0.5786	mg/L	0.00446	1.157	mg/L	0.0089	0.77%
Cr 267.716†	2479.7	0.6774	mg/L	0.01380	1.355	mg/L	0.0276	2.04%
Cu 324.752†	209264.4	1.120	mg/L	0.0041	2.240	mg/L	0.0083	0.37%
Fe 273.955†	128763.9	142.1	mg/L	1.00	284.2	mg/L	2.00	0.70%
K 766.490†	12936.9	13.26	mg/L	0.028	26.51	mg/L	0.057	0.21%
Mg 279.077†	33595.8	35.50	mg/L	0.712	71.00	mg/L	1.425	2.01%
Mn 257.610†	100339.0	3.179	mg/L	0.0015	6.358	mg/L	0.0030	0.05%
Mo 202.031†	101.8	0.00573	mg/L	0.000780	0.01145	mg/L	0.001560	13.62%
Na 589.592†	89131.2	11.79	mg/L	0.016	23.58	mg/L	0.032	0.14%
Na 330.237†	170.3	10.98	mg/L	0.111	21.97	mg/L	0.223	1.02%
Ni 231.604†	2049.6	0.6707	mg/L	0.01258	1.341	mg/L	0.0252	1.88%
Pb 220.353†	24128.9	3.368	mg/L	0.0289	6.735	mg/L	0.0579	0.86%
Sb 206.836†	86.9	0.03656	mg/L	0.002537	0.07313	mg/L	0.005074	6.94%
Se 196.026†	2529.2	2.267	mg/L	0.0248	4.535	mg/L	0.0497	1.10%
Si 288.158†	3335.4	3.873	mg/L	0.0649	7.746	mg/L	0.1298	1.68%
Sn 189.927†	5.8	0.00882	mg/L	0.001419	0.01764	mg/L	0.002839	16.09%
Sr 421.552†	174538.7	0.6633	mg/L	0.00499	1.327	mg/L	0.0100	0.75%
Ti 334.903†	89921.6	7.128	mg/L	0.0208	14.26	mg/L	0.042	0.29%
Tl 190.801†	4065.4	2.073	mg/L	0.0124	4.147	mg/L	0.0248	0.60%
V 292.402†	64910.1	0.8261	mg/L	0.00734	1.652	mg/L	0.0147	0.89%
Zn 206.200†	1881.2	0.8629	mg/L	0.01527	1.726	mg/L	0.0305	1.77%

Sequence No.: 5
Sample ID: SEQ-CCV8

Autosampler Location: 7
Date Collected: 8/13/2019 8:52:12 PM
Data Type: Original

Dilution: 1X
Wash Time: 200

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCV8

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: SEQ-CCV8

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2000052.1	97.20	%	0.174				0.18%
ScR 361.383	202154.7	98.48	%	0.182				0.18%
Ag 328.068†	160602.8	1.096	mg/L	0.0037	1.096	mg/L	0.0037	0.34%
Al 308.215†	2243.8	2.126	mg/L	0.0088	2.126	mg/L	0.0088	0.41%
As 188.979†	2910.5	2.106	mg/L	0.0062	2.106	mg/L	0.0062	0.29%
B 249.677†	6778.4	1.097	mg/L	0.0046	1.097	mg/L	0.0046	0.42%
Ba 233.527†	4206.0	1.065	mg/L	0.0027	1.065	mg/L	0.0027	0.26%
Be 313.042†	452407.5	1.093	mg/L	0.0067	1.093	mg/L	0.0067	0.61%
Ca 317.933†	20318.4	2.154	mg/L	0.0015	2.154	mg/L	0.0015	0.07%
Cd 228.802†	24649.9	1.043	mg/L	0.0068	1.043	mg/L	0.0068	0.66%
Co 228.616†	34519.7	1.049	mg/L	0.0040	1.049	mg/L	0.0040	0.38%
Cr 267.716†	3800.0	1.031	mg/L	0.0086	1.031	mg/L	0.0086	0.83%
Cu 324.752†	202028.0	1.076	mg/L	0.0047	1.076	mg/L	0.0047	0.44%
Fe 273.955†	1890.8	2.079	mg/L	0.0049	2.079	mg/L	0.0049	0.24%
K 766.490†	20197.6	20.70	mg/L	0.047	20.70	mg/L	0.047	0.23%
Mg 279.077†	2016.9	2.147	mg/L	0.0033	2.147	mg/L	0.0033	0.15%
Mn 257.610†	34254.4	1.086	mg/L	0.0032	1.086	mg/L	0.0032	0.29%
Mo 202.031†	17302.0	1.047	mg/L	0.0027	1.047	mg/L	0.0027	0.26%
Na 589.592†	413472.6	54.70	mg/L	0.215	54.70	mg/L	0.215	0.39%
Na 330.237†	929.8	53.51	mg/L	0.201	53.51	mg/L	0.201	0.38%
Ni 231.604†	3216.8	1.054	mg/L	0.0065	1.054	mg/L	0.0065	0.61%
Pb 220.353†	15367.8	2.120	mg/L	0.0057	2.120	mg/L	0.0057	0.27%
Sb 206.836†	5707.9	2.223	mg/L	0.0105	2.223	mg/L	0.0105	0.47%
Se 196.026†	2450.2	2.201	mg/L	0.0091	2.201	mg/L	0.0091	0.42%
Si 288.158†	1985.3	2.304	mg/L	0.0114	2.304	mg/L	0.0114	0.49%
Sn 189.927†	3824.0	1.080	mg/L	0.0044	1.080	mg/L	0.0044	0.41%
Sr 421.552†	305694.5	1.162	mg/L	0.0168	1.162	mg/L	0.0168	1.44%
Ti 334.903†	13269.6	1.051	mg/L	0.0057	1.051	mg/L	0.0057	0.54%
Tl 190.801†	4217.9	2.146	mg/L	0.0035	2.146	mg/L	0.0035	0.16%
V 292.402†	80819.0	1.021	mg/L	0.0083	1.021	mg/L	0.0083	0.81%
Zn 206.200†	2380.0	1.091	mg/L	0.0003	1.091	mg/L	0.0003	0.03%

Sequence No.: 6 **Autosampler Location: 1**
Sample ID: SEQ-CCB8 **Date Collected: 8/13/2019 8:57:15 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCB8

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: SEQ-CCB8

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2054195.8	99.83	%	0.601				0.60%
ScR 361.383	206445.7	100.6	%	0.34				0.34%
Ag 328.068†	3.5	0.00002	mg/L	0.000467	0.00002	mg/L	0.000467	>999.9%
Al 308.215†	7.8	0.00749	mg/L	0.022469	0.00749	mg/L	0.022469	299.96%
As 188.979†	-0.3	-0.00023	mg/L	0.000683	-0.00023	mg/L	0.000683	295.96%
B 249.677†	12.8	0.00208	mg/L	0.000599	0.00208	mg/L	0.000599	28.86%
Ba 233.527†	-0.3	-0.00007	mg/L	0.000809	-0.00007	mg/L	0.000809	>999.9%
Be 313.042†	-74.0	-0.00018	mg/L	0.000062	-0.00018	mg/L	0.000062	34.15%
Ca 317.933†	-10.3	-0.00110	mg/L	0.000705	-0.00110	mg/L	0.000705	64.22%
Cd 228.802†	11.2	0.00048	mg/L	0.000183	0.00048	mg/L	0.000183	38.17%
Co 228.616†	-9.1	-0.00028	mg/L	0.000113	-0.00028	mg/L	0.000113	40.54%
Cr 267.716†	6.6	0.00178	mg/L	0.001343	0.00178	mg/L	0.001343	75.53%
Cu 324.752†	95.5	0.00051	mg/L	0.000045	0.00051	mg/L	0.000045	8.88%
Fe 273.955†	-2.7	-0.00303	mg/L	0.001224	-0.00303	mg/L	0.001224	40.42%
K 766.490†	19.0	0.01942	mg/L	0.030232	0.01942	mg/L	0.030232	155.66%
Mg 279.077†	4.4	0.00462	mg/L	0.003096	0.00462	mg/L	0.003096	66.98%
Mn 257.610†	-4.7	-0.00015	mg/L	0.000196	-0.00015	mg/L	0.000196	132.94%
Mo 202.031†	11.4	0.00069	mg/L	0.000268	0.00069	mg/L	0.000268	38.86%
Na 589.592†	-359.3	-0.04754	mg/L	0.003229	-0.04754	mg/L	0.003229	6.79%
Na 330.237†	-5.4	-0.3139	mg/L	0.32619	-0.3139	mg/L	0.32619	103.91%
Ni 231.604†	-2.5	-0.00082	mg/L	0.000847	-0.00082	mg/L	0.000847	103.87%
Pb 220.353†	-4.4	-0.00060	mg/L	0.001416	-0.00060	mg/L	0.001416	238.02%
Sb 206.836†	-4.9	-0.00193	mg/L	0.001431	-0.00193	mg/L	0.001431	73.97%
Se 196.026†	0.6	0.00056	mg/L	0.002567	0.00056	mg/L	0.002567	457.70%
Si 288.158†	5.0	0.00580	mg/L	0.012550	0.00580	mg/L	0.012550	216.52%
Sn 189.927†	-0.1	-0.00002	mg/L	0.000777	-0.00002	mg/L	0.000777	>999.9%
Sr 421.552†	-34.7	-0.00013	mg/L	0.000103	-0.00013	mg/L	0.000103	78.31%
Ti 334.903†	-5.9	-0.00047	mg/L	0.000525	-0.00047	mg/L	0.000525	112.40%
Tl 190.801†	0.9	0.00047	mg/L	0.002458	0.00047	mg/L	0.002458	524.16%
V 292.402†	21.3	0.00028	mg/L	0.000153	0.00028	mg/L	0.000153	54.63%
Zn 206.200†	1.4	0.00063	mg/L	0.000519	0.00063	mg/L	0.000519	82.27%

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Analysis Begun

Start Time: 8/13/2019 9:00:59 PM **Plasma On Time: 8/13/2019 11:49:16 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\ 0813.sif
Batch ID:
Results Data Set: I2190813
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1
Sample ID: SEQ-CAL3 **Date Collected: 8/13/2019 9:01:01 PM**
Data Type: Original

Nebulizer Parameters: SEQ-CAL3

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: SEQ-CAL3

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
ScA 357.253	2032729.6	16901.29	0.83%	98.79	%
ScR 361.383	208705.5	1175.51	0.56%	101.7	%
Ag 328.068†	153022.3	510.33	0.33%	[1.0]	mg/L
As 188.979†	14360.5	122.77	0.85%	[10]	mg/L
B 249.677†	63708.7	195.21	0.31%	[10]	mg/L
Be 313.042†	2155602.0	4169.95	0.19%	[5.0]	mg/L
Na 589.592†	388864.4	1837.57	0.47%	[50]	mg/L
Ni 231.604†	29934.8	131.92	0.44%	[10]	mg/L
Pb 220.353†	74062.0	236.14	0.32%	[10]	mg/L
Se 196.026†	11677.3	123.70	1.06%	[10]	mg/L
Sr 421.552†	1427303.5	12816.68	0.90%	[5]	mg/L
Tl 190.801†	20288.2	160.96	0.79%	[10]	mg/L
Zn 206.200†	22079.7	104.24	0.47%	[10]	mg/L

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Analysis Begun

Start Time: 8/13/2019 9:04:22 PM **Plasma On Time: 8/13/2019 11:49:16 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0813.sif
Batch ID:
Results Data Set: I2190813
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 7**
Sample ID: SEQ-CCV9 **Date Collected: 8/13/2019 9:04:23 PM**
Data Type: Original

Dilution: 1X

Nebulizer Parameters: SEQ-CCV9

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: SEQ-CCV9

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2019050.3	98.12	%	0.396				0.40%
ScR 361.383	205615.2	100.2	%	0.91				0.91%
Ag 328.068†	158117.6	1.034	mg/L	0.0094	1.034	mg/L	0.0094	0.91%
Al 308.215†	2155.2	2.041	mg/L	0.0253	2.041	mg/L	0.0253	1.24%
As 188.979†	2861.8	2.017	mg/L	0.0050	2.017	mg/L	0.0050	0.25%
B 249.677†	6857.5	1.076	mg/L	0.0139	1.076	mg/L	0.0139	1.29%
Ba 233.527†	4051.7	1.026	mg/L	0.0126	1.026	mg/L	0.0126	1.22%
Be 313.042†	438960.3	1.014	mg/L	0.0020	1.014	mg/L	0.0020	0.20%
Ca 317.933†	19663.9	2.084	mg/L	0.0245	2.084	mg/L	0.0245	1.17%
Cd 228.802†	24221.8	1.025	mg/L	0.0089	1.025	mg/L	0.0089	0.87%
Co 228.616†	34033.7	1.035	mg/L	0.0066	1.035	mg/L	0.0066	0.64%
Cr 267.716†	3690.2	1.002	mg/L	0.0116	1.002	mg/L	0.0116	1.16%
Cu 324.752†	199295.2	1.061	mg/L	0.0081	1.061	mg/L	0.0081	0.77%
Fe 273.955†	1822.4	2.003	mg/L	0.0244	2.003	mg/L	0.0244	1.22%
K 766.490†	19718.4	20.20	mg/L	0.253	20.20	mg/L	0.253	1.25%
Mg 279.077†	1951.7	2.078	mg/L	0.0377	2.078	mg/L	0.0377	1.81%
Mn 257.610†	33003.9	1.046	mg/L	0.0130	1.046	mg/L	0.0130	1.24%
Mo 202.031†	17104.1	1.035	mg/L	0.0038	1.035	mg/L	0.0038	0.37%
Na 589.592†	401671.6	51.65	mg/L	0.308	51.65	mg/L	0.308	0.60%
Na 330.237†	895.9	51.57	mg/L	0.962	51.57	mg/L	0.962	1.87%
Ni 231.604†	3101.2	1.037	mg/L	0.0131	1.037	mg/L	0.0131	1.27%
Pb 220.353†	15196.9	2.053	mg/L	0.0149	2.053	mg/L	0.0149	0.72%
Sb 206.836†	5592.5	2.178	mg/L	0.0148	2.178	mg/L	0.0148	0.68%
Se 196.026†	2397.9	2.053	mg/L	0.0086	2.053	mg/L	0.0086	0.42%
Si 288.158†	1911.9	2.219	mg/L	0.0329	2.219	mg/L	0.0329	1.48%
Sn 189.927†	3741.4	1.057	mg/L	0.0061	1.057	mg/L	0.0061	0.58%
Sr 421.552†	295976.6	1.037	mg/L	0.0092	1.037	mg/L	0.0092	0.89%
Ti 334.903†	12815.5	1.015	mg/L	0.0037	1.015	mg/L	0.0037	0.36%
Tl 190.801†	4136.2	2.031	mg/L	0.0127	2.031	mg/L	0.0127	0.63%
V 292.402†	79928.3	1.010	mg/L	0.0065	1.010	mg/L	0.0065	0.64%
Zn 206.200†	2286.4	1.034	mg/L	0.0147	1.034	mg/L	0.0147	1.42%

Sequence No.: 2
Sample ID: SEQ-CCB9

Autosampler Location: 1
Date Collected: 8/13/2019 9:09:26 PM
Data Type: Original

Dilution: 1X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCB9

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: SEQ-CCB9

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2024943.1	98.41	%	0.779				0.79%
ScR 361.383	204391.8	99.57	%	0.710				0.71%
Ag 328.068†	3.5	0.00002	mg/L	0.000358	0.00002	mg/L	0.000358	>999.9%
Al 308.215†	-3.0	-0.00294	mg/L	0.017555	-0.00294	mg/L	0.017555	596.55%
As 188.979†	-0.4	-0.00027	mg/L	0.000717	-0.00027	mg/L	0.000717	269.17%
B 249.677†	96.0	0.01508	mg/L	0.001502	0.01508	mg/L	0.001502	9.96%
Ba 233.527†	1.4	0.00036	mg/L	0.000980	0.00036	mg/L	0.000980	273.32%
Be 313.042†	-47.2	-0.00011	mg/L	0.000007	-0.00011	mg/L	0.000007	6.31%
Ca 317.933†	17.2	0.00183	mg/L	0.000621	0.00183	mg/L	0.000621	34.00%
Cd 228.802†	11.6	0.00050	mg/L	0.000047	0.00050	mg/L	0.000047	9.49%
Co 228.616†	-7.3	-0.00022	mg/L	0.000131	-0.00022	mg/L	0.000131	59.08%
Cr 267.716†	0.8	0.00021	mg/L	0.001391	0.00021	mg/L	0.001391	649.57%
Cu 324.752†	110.7	0.00059	mg/L	0.000089	0.00059	mg/L	0.000089	15.08%
Fe 273.955†	2.4	0.00270	mg/L	0.003451	0.00270	mg/L	0.003451	127.68%
K 766.490†	4.6	0.00475	mg/L	0.017272	0.00475	mg/L	0.017272	363.29%
Mg 279.077†	3.5	0.00370	mg/L	0.002873	0.00370	mg/L	0.002873	77.60%
Mn 257.610†	4.7	0.00015	mg/L	0.000183	0.00015	mg/L	0.000183	121.98%
Mo 202.031†	11.2	0.00068	mg/L	0.000174	0.00068	mg/L	0.000174	25.76%
Na 589.592†	-303.6	-0.03903	mg/L	0.000956	-0.03903	mg/L	0.000956	2.45%
Na 330.237†	4.4	0.2538	mg/L	0.21836	0.2538	mg/L	0.21836	86.03%
Ni 231.604†	-1.1	-0.00035	mg/L	0.002004	-0.00035	mg/L	0.002004	571.47%
Pb 220.353†	5.9	0.00079	mg/L	0.001202	0.00079	mg/L	0.001202	151.43%
Sb 206.836†	1.7	0.00065	mg/L	0.000905	0.00065	mg/L	0.000905	138.42%
Se 196.026†	0.3	0.00022	mg/L	0.001890	0.00022	mg/L	0.001890	860.80%
Si 288.158†	-1.3	-0.00150	mg/L	0.004040	-0.00150	mg/L	0.004040	269.69%
Sn 189.927†	0.1	0.00003	mg/L	0.000566	0.00003	mg/L	0.000566	>999.9%
Sr 421.552†	-2.9	-0.00001	mg/L	0.000079	-0.00001	mg/L	0.000079	775.82%
Ti 334.903†	11.0	0.00087	mg/L	0.001124	0.00087	mg/L	0.001124	128.49%
Tl 190.801†	8.5	0.00418	mg/L	0.000637	0.00418	mg/L	0.000637	15.25%
V 292.402†	1.3	0.00002	mg/L	0.000167	0.00002	mg/L	0.000167	943.93%
Zn 206.200†	3.0	0.00136	mg/L	0.000805	0.00136	mg/L	0.000805	59.09%

Sequence No.: 3
Sample ID: BHH0317-BLK1

Autosampler Location: 308
Date Collected: 8/13/2019 9:13:25 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0317-BLK1

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: BHH0317-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2058331.9	100.0	%	0.41				0.41%
ScR 361.383	207095.1	100.9	%	1.01				1.00%
Ag 328.068†	-13.3	-0.00009	mg/L	0.000083	-0.00009	mg/L	0.000083	95.32%
Al 308.215†	-12.8	-0.01238	mg/L	0.012645	-0.01238	mg/L	0.012645	102.13%
As 188.979†	-0.1	-0.00005	mg/L	0.001428	-0.00005	mg/L	0.001428	>999.9%
B 249.677†	58.4	0.00916	mg/L	0.000315	0.00916	mg/L	0.000315	3.44%
Ba 233.527†	-2.2	-0.00055	mg/L	0.000555	-0.00055	mg/L	0.000555	100.95%
Be 313.042†	-113.9	-0.00027	mg/L	0.000046	-0.00027	mg/L	0.000046	17.32%
Ca 317.933†	19.5	0.00208	mg/L	0.000653	0.00208	mg/L	0.000653	31.47%
Cd 228.802†	10.5	0.00045	mg/L	0.000063	0.00045	mg/L	0.000063	14.07%
Co 228.616†	-8.6	-0.00026	mg/L	0.000072	-0.00026	mg/L	0.000072	27.28%
Cr 267.716†	11.3	0.00307	mg/L	0.000767	0.00307	mg/L	0.000767	24.97%
Cu 324.752†	85.4	0.00045	mg/L	0.000093	0.00045	mg/L	0.000093	20.40%
Fe 273.955†	-1.3	-0.00144	mg/L	0.001324	-0.00144	mg/L	0.001324	92.18%
K 766.490†	5.6	0.00569	mg/L	0.015942	0.00569	mg/L	0.015942	279.97%
Mg 279.077†	-4.0	-0.00428	mg/L	0.011038	-0.00428	mg/L	0.011038	257.70%
Mn 257.610†	-7.0	-0.00022	mg/L	0.000120	-0.00022	mg/L	0.000120	53.78%
Mo 202.031†	1.0	0.00006	mg/L	0.000544	0.00006	mg/L	0.000544	945.82%
Na 589.592†	-381.1	-0.04900	mg/L	0.004627	-0.04900	mg/L	0.004627	9.44%
Na 330.237†	3.3	0.1857	mg/L	0.20362	0.1857	mg/L	0.20362	109.68%
Ni 231.604†	3.9	0.00131	mg/L	0.000248	0.00131	mg/L	0.000248	18.91%
Pb 220.353†	-6.9	-0.00093	mg/L	0.000831	-0.00093	mg/L	0.000831	89.48%
Sb 206.836†	-3.9	-0.00158	mg/L	0.001136	-0.00158	mg/L	0.001136	72.01%
Se 196.026†	-0.4	-0.00037	mg/L	0.000371	-0.00037	mg/L	0.000371	99.48%
Si 288.158†	9.2	0.01064	mg/L	0.003444	0.01064	mg/L	0.003444	32.35%
Sn 189.927†	0.4	0.00013	mg/L	0.000722	0.00013	mg/L	0.000722	571.77%
Sr 421.552†	-45.3	-0.00016	mg/L	0.000025	-0.00016	mg/L	0.000025	15.44%
Ti 334.903†	2.9	0.00023	mg/L	0.000991	0.00023	mg/L	0.000991	439.36%
Tl 190.801†	0.2	0.00009	mg/L	0.001337	0.00009	mg/L	0.001337	>999.9%
V 292.402†	24.0	0.00032	mg/L	0.000149	0.00032	mg/L	0.000149	46.43%
Zn 206.200†	12.1	0.00546	mg/L	0.001387	0.00546	mg/L	0.001387	25.38%

Sequence No.: 4
Sample ID: BHH0317-SRL1

Dilution: 5X
Wash Time: 37

Autosampler Location: 309
Date Collected: 8/13/2019 9:17:24 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0317-SRL1

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: BHH0317-SRL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2041972.5	99.24	%	0.258				0.26%
ScR 361.383	207693.4	101.2	%	0.26				0.26%
Ag 328.068†	-17.5	-0.00011	mg/L	0.000252	-0.00057	mg/L	0.001260	220.26%
Al 308.215†	19.3	0.01863	mg/L	0.017012	0.09317	mg/L	0.085059	91.30%
As 188.979†	5.1	0.00343	mg/L	0.000685	0.01714	mg/L	0.003426	19.99%
B 249.677†	65.4	0.01029	mg/L	0.000489	0.05144	mg/L	0.002446	4.76%
Ba 233.527†	0.2	0.00002	mg/L	0.000209	0.00009	mg/L	0.001044	>999.9%
Be 313.042†	-88.9	-0.00021	mg/L	0.000094	-0.00104	mg/L	0.000469	44.98%
Ca 317.933†	21741.7	2.320	mg/L	0.0078	11.60	mg/L	0.039	0.33%
Cd 228.802†	5.9	0.00023	mg/L	0.000086	0.00116	mg/L	0.000429	37.07%
Co 228.616†	-5.1	-0.00016	mg/L	0.000110	-0.00081	mg/L	0.000551	67.80%
Cr 267.716†	9.7	0.00252	mg/L	0.002382	0.01258	mg/L	0.011908	94.69%
Cu 324.752†	134.5	0.00072	mg/L	0.000042	0.00360	mg/L	0.000210	5.83%
Fe 273.955†	223.2	0.2463	mg/L	0.00497	1.231	mg/L	0.0248	2.02%
K 766.490†	143.1	0.1466	mg/L	0.01745	0.7329	mg/L	0.08724	11.90%
Mg 279.077†	822.2	0.8703	mg/L	0.00438	4.352	mg/L	0.0219	0.50%
Mn 257.610†	73.9	0.00234	mg/L	0.000146	0.01168	mg/L	0.000728	6.23%
Mo 202.031†	2.4	0.00011	mg/L	0.000030	0.00053	mg/L	0.000148	27.88%
Na 589.592†	8569.2	1.102	mg/L	0.0020	5.509	mg/L	0.0100	0.18%
Na 330.237†	14.0	0.8098	mg/L	1.07311	4.049	mg/L	5.3655	132.52%
Ni 231.604†	5.4	0.00181	mg/L	0.000917	0.00907	mg/L	0.004583	50.50%
Pb 220.353†	-5.9	-0.00080	mg/L	0.001255	-0.00401	mg/L	0.006273	156.30%
Sb 206.836†	-3.1	-0.00124	mg/L	0.000637	-0.00621	mg/L	0.003184	51.23%
Se 196.026†	-3.9	-0.00335	mg/L	0.004793	-0.01675	mg/L	0.023966	143.10%
Si 288.158†	1918.8	2.225	mg/L	0.0100	11.13	mg/L	0.050	0.45%
Sn 189.927†	-6.3	-0.00138	mg/L	0.000802	-0.00690	mg/L	0.004008	58.05%
Sr 421.552†	3556.2	0.01246	mg/L	0.000211	0.06229	mg/L	0.001053	1.69%
Ti 334.903†	30.6	0.00228	mg/L	0.001184	0.01140	mg/L	0.005918	51.91%
Tl 190.801†	4.4	0.00219	mg/L	0.001777	0.01093	mg/L	0.008884	81.27%
V 292.402†	39.0	0.00052	mg/L	0.000181	0.00260	mg/L	0.000906	34.86%
Zn 206.200†	4.9	0.00223	mg/L	0.000338	0.01117	mg/L	0.001692	15.15%

Sequence No.: 5
Sample ID: 19G0415-01

Autosampler Location: 310
Date Collected: 8/13/2019 9:21:21 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19G0415-01

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: 19G0415-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2043616.8	99.32	%	0.326				0.33%
ScR 361.383	207672.9	101.2	%	0.73				0.72%
Ag 328.068†	-25.7	-0.00017	mg/L	0.000252	-0.00017	mg/L	0.000252	150.77%
Al 308.215†	95.8	0.09236	mg/L	0.004818	0.09236	mg/L	0.004818	5.22%
As 188.979†	9.9	0.00618	mg/L	0.000957	0.00618	mg/L	0.000957	15.47%
B 249.677†	169.4	0.02672	mg/L	0.001393	0.02672	mg/L	0.001393	5.21%
Ba 233.527†	16.2	0.00395	mg/L	0.000584	0.00395	mg/L	0.000584	14.78%
Be 313.042†	-94.2	-0.00023	mg/L	0.000034	-0.00023	mg/L	0.000034	14.97%
Ca 317.933†	109690.9	11.70	mg/L	0.037	11.70	mg/L	0.037	0.32%
Cd 228.802†	5.7	0.00020	mg/L	0.000104	0.00020	mg/L	0.000104	51.63%
Co 228.616†	-12.2	-0.00040	mg/L	0.000081	-0.00040	mg/L	0.000081	20.31%
Cr 267.716†	11.2	0.00247	mg/L	0.002125	0.00247	mg/L	0.002125	86.13%
Cu 324.752†	313.9	0.00169	mg/L	0.000050	0.00169	mg/L	0.000050	2.95%
Fe 273.955†	1081.5	1.193	mg/L	0.0101	1.193	mg/L	0.0101	0.85%
K 766.490†	770.0	0.7890	mg/L	0.02044	0.7890	mg/L	0.02044	2.59%
Mg 279.077†	3844.3	4.069	mg/L	0.0266	4.069	mg/L	0.0266	0.65%
Mn 257.610†	380.4	0.01203	mg/L	0.000197	0.01203	mg/L	0.000197	1.63%
Mo 202.031†	19.3	0.00097	mg/L	0.000195	0.00097	mg/L	0.000195	20.03%
Na 589.592†	44476.2	5.719	mg/L	0.0361	5.719	mg/L	0.0361	0.63%
Na 330.237†	103.7	5.991	mg/L	0.1464	5.991	mg/L	0.1464	2.44%
Ni 231.604†	3.2	0.00106	mg/L	0.001321	0.00106	mg/L	0.001321	124.22%
Pb 220.353†	2.6	0.00033	mg/L	0.000265	0.00033	mg/L	0.000265	81.53%
Sb 206.836†	0.1	-0.00004	mg/L	0.003627	-0.00004	mg/L	0.003627	>999.9%
Se 196.026†	-6.7	-0.00566	mg/L	0.005876	-0.00566	mg/L	0.005876	103.79%
Si 288.158†	9533.2	11.05	mg/L	0.081	11.05	mg/L	0.081	0.74%
Sn 189.927†	-21.1	-0.00398	mg/L	0.000280	-0.00398	mg/L	0.000280	7.05%
Sr 421.552†	17908.7	0.06274	mg/L	0.000571	0.06274	mg/L	0.000571	0.91%
Ti 334.903†	58.7	0.00393	mg/L	0.000293	0.00393	mg/L	0.000293	7.45%
Tl 190.801†	4.0	0.00200	mg/L	0.002295	0.00200	mg/L	0.002295	114.57%
V 292.402†	124.8	0.00165	mg/L	0.000335	0.00165	mg/L	0.000335	20.27%
Zn 206.200†	14.3	0.00645	mg/L	0.001136	0.00645	mg/L	0.001136	17.61%

Sequence No.: 6
Sample ID: BHH0317-DUP1

Autosampler Location: 311
Date Collected: 8/13/2019 9:25:19 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0317-DUP1

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: BHH0317-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2042009.9	99.24	%	0.346				0.35%
ScR 361.383	208089.0	101.4	%	0.51				0.50%
Ag 328.068†	16.7	0.00011	mg/L	0.000154	0.00011	mg/L	0.000154	139.94%
Al 308.215†	86.6	0.08344	mg/L	0.006410	0.08344	mg/L	0.006410	7.68%
As 188.979†	11.2	0.00712	mg/L	0.001637	0.00712	mg/L	0.001637	22.99%
B 249.677†	159.8	0.02520	mg/L	0.002186	0.02520	mg/L	0.002186	8.68%
Ba 233.527†	16.4	0.00401	mg/L	0.000456	0.00401	mg/L	0.000456	11.39%
Be 313.042†	-100.0	-0.00024	mg/L	0.000024	-0.00024	mg/L	0.000024	10.07%
Ca 317.933†	107598.9	11.48	mg/L	0.046	11.48	mg/L	0.046	0.40%
Cd 228.802†	3.5	0.00010	mg/L	0.000162	0.00010	mg/L	0.000162	165.41%
Co 228.616†	-9.7	-0.00032	mg/L	0.000048	-0.00032	mg/L	0.000048	15.06%
Cr 267.716†	16.0	0.00379	mg/L	0.001140	0.00379	mg/L	0.001140	30.08%
Cu 324.752†	273.8	0.00148	mg/L	0.000181	0.00148	mg/L	0.000181	12.28%
Fe 273.955†	1048.1	1.157	mg/L	0.0091	1.157	mg/L	0.0091	0.79%
K 766.490†	719.6	0.7374	mg/L	0.03319	0.7374	mg/L	0.03319	4.50%
Mg 279.077†	3764.1	3.984	mg/L	0.0156	3.984	mg/L	0.0156	0.39%
Mn 257.610†	371.3	0.01174	mg/L	0.000252	0.01174	mg/L	0.000252	2.15%
Mo 202.031†	18.3	0.00092	mg/L	0.000086	0.00092	mg/L	0.000086	9.34%
Na 589.592†	44003.4	5.658	mg/L	0.0321	5.658	mg/L	0.0321	0.57%
Na 330.237†	98.9	5.717	mg/L	0.8408	5.717	mg/L	0.8408	14.71%
Ni 231.604†	1.0	0.00034	mg/L	0.001158	0.00034	mg/L	0.001158	338.92%
Pb 220.353†	6.6	0.00086	mg/L	0.000269	0.00086	mg/L	0.000269	31.28%
Sb 206.836†	-5.6	-0.00230	mg/L	0.000988	-0.00230	mg/L	0.000988	42.92%
Se 196.026†	-2.6	-0.00212	mg/L	0.000063	-0.00212	mg/L	0.000063	2.97%
Si 288.158†	9389.8	10.89	mg/L	0.083	10.89	mg/L	0.083	0.76%
Sn 189.927†	-23.9	-0.00481	mg/L	0.000400	-0.00481	mg/L	0.000400	8.32%
Sr 421.552†	17572.3	0.06156	mg/L	0.001102	0.06156	mg/L	0.001102	1.79%
Ti 334.903†	56.1	0.00374	mg/L	0.002084	0.00374	mg/L	0.002084	55.75%
Tl 190.801†	0.3	0.00013	mg/L	0.001984	0.00013	mg/L	0.001984	>999.9%
V 292.402†	126.9	0.00169	mg/L	0.000166	0.00169	mg/L	0.000166	9.85%
Zn 206.200†	14.9	0.00672	mg/L	0.000207	0.00672	mg/L	0.000207	3.09%

Sequence No.: 7
Sample ID: BHH0317-MS1

Autosampler Location: 312
Date Collected: 8/13/2019 9:29:17 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0317-MS1

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: BHH0317-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2032134.4	98.76	%	0.483				0.49%
ScR 361.383	207509.5	101.1	%	1.48				1.46%
Ag 328.068†	80966.0	0.5293	mg/L	0.00030	0.5293	mg/L	0.00030	0.06%
Al 308.215†	2272.0	2.185	mg/L	0.0469	2.185	mg/L	0.0469	2.15%
As 188.979†	2933.2	2.041	mg/L	0.0180	2.041	mg/L	0.0180	0.88%
B 249.677†	157.5	0.02380	mg/L	0.001277	0.02380	mg/L	0.001277	5.37%
Ba 233.527†	8158.1	2.068	mg/L	0.0303	2.068	mg/L	0.0303	1.46%
Be 313.042†	223283.6	0.5157	mg/L	0.00515	0.5157	mg/L	0.00515	1.00%
Ca 317.933†	204544.3	21.82	mg/L	0.132	21.82	mg/L	0.132	0.60%
Cd 228.802†	12216.9	0.5102	mg/L	0.00132	0.5102	mg/L	0.00132	0.26%
Co 228.616†	16907.1	0.5146	mg/L	0.00100	0.5146	mg/L	0.00100	0.19%
Cr 267.716†	1885.4	0.5099	mg/L	0.00532	0.5099	mg/L	0.00532	1.04%
Cu 324.752†	95332.9	0.5078	mg/L	0.00018	0.5078	mg/L	0.00018	0.04%
Fe 273.955†	2878.6	3.172	mg/L	0.0628	3.172	mg/L	0.0628	1.98%
K 766.490†	10499.9	10.76	mg/L	0.114	10.76	mg/L	0.114	1.06%
Mg 279.077†	14118.8	14.95	mg/L	0.237	14.95	mg/L	0.237	1.59%
Mn 257.610†	16499.4	0.5230	mg/L	0.00703	0.5230	mg/L	0.00703	1.34%
Mo 202.031†	38.7	0.00195	mg/L	0.000575	0.00195	mg/L	0.000575	29.50%
Na 589.592†	125580.6	16.15	mg/L	0.164	16.15	mg/L	0.164	1.02%
Na 330.237†	287.0	16.38	mg/L	0.218	16.38	mg/L	0.218	1.33%
Ni 231.604†	1544.9	0.5159	mg/L	0.00542	0.5159	mg/L	0.00542	1.05%
Pb 220.353†	15056.7	2.034	mg/L	0.0055	2.034	mg/L	0.0055	0.27%
Sb 206.836†	12.3	-0.00174	mg/L	0.002049	-0.00174	mg/L	0.002049	117.57%
Se 196.026†	2376.1	2.034	mg/L	0.0169	2.034	mg/L	0.0169	0.83%
Si 288.158†	9824.0	11.39	mg/L	0.131	11.39	mg/L	0.131	1.15%
Sn 189.927†	-34.9	-0.00617	mg/L	0.001169	-0.00617	mg/L	0.001169	18.95%
Sr 421.552†	169102.4	0.5924	mg/L	0.01302	0.5924	mg/L	0.01302	2.20%
Ti 334.903†	65.5	0.00375	mg/L	0.000420	0.00375	mg/L	0.000420	11.21%
Tl 190.801†	4131.8	2.032	mg/L	0.0162	2.032	mg/L	0.0162	0.79%
V 292.402†	41030.0	0.5184	mg/L	0.00532	0.5184	mg/L	0.00532	1.03%
Zn 206.200†	1130.7	0.5115	mg/L	0.00595	0.5115	mg/L	0.00595	1.16%

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Analysis Begun

Start Time: 8/13/2019 9:36:30 PM **Plasma On Time: 8/13/2019 11:49:16 AM**
Logged In Analyst: Metals Instrument Controller **Technique: ICP Continuous**
Spectrometer: Optima 7300 DV, S/N 077C8121202 **Autosampler: ESI**

Sample Information File: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Sample Information\0813.sif
Batch ID:
Results Data Set: I2190813
Results Library: C:\Documents and Settings\All Users\PerkinElmer\ICP\Data\Results\Results.mdb

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Sequence No.: 1 **Autosampler Location: 313**
Sample ID: BHH0317-BS1 **Date Collected: 8/13/2019 9:36:38 PM**
Data Type: Original

Dilution: 1X

Nebulizer Parameters: BHH0317-BS1

Analyte	Back Pressure	Flow
All	170.0 kPa	0.65 L/min

Mean Data: BHH0317-BS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2031977.1	98.75	%	0.175				0.18%
ScR 361.383	204546.0	99.64	%	0.342				0.34%
Ag 328.068†	79576.3	0.5202	mg/L	0.00215	0.5202	mg/L	0.00215	0.41%
Al 308.215†	2156.8	2.074	mg/L	0.0054	2.074	mg/L	0.0054	0.26%
As 188.979†	2886.6	2.009	mg/L	0.0056	2.009	mg/L	0.0056	0.28%
B 249.677†	22.9	0.00256	mg/L	0.000789	0.00256	mg/L	0.000789	30.79%
Ba 233.527†	8083.3	2.049	mg/L	0.0075	2.049	mg/L	0.0075	0.37%
Be 313.042†	217957.5	0.5034	mg/L	0.00209	0.5034	mg/L	0.00209	0.41%
Ca 317.933†	93848.7	10.01	mg/L	0.058	10.01	mg/L	0.058	0.58%
Cd 228.802†	12026.6	0.5023	mg/L	0.00117	0.5023	mg/L	0.00117	0.23%
Co 228.616†	16668.4	0.5074	mg/L	0.00149	0.5074	mg/L	0.00149	0.29%
Cr 267.716†	1883.4	0.5100	mg/L	0.00288	0.5100	mg/L	0.00288	0.56%
Cu 324.752†	93691.2	0.4991	mg/L	0.00174	0.4991	mg/L	0.00174	0.35%
Fe 273.955†	1831.5	2.017	mg/L	0.0042	2.017	mg/L	0.0042	0.21%
K 766.490†	9640.3	9.878	mg/L	0.1077	9.878	mg/L	0.1077	1.09%
Mg 279.077†	9995.9	10.59	mg/L	0.046	10.59	mg/L	0.046	0.43%
Mn 257.610†	15830.6	0.5019	mg/L	0.00265	0.5019	mg/L	0.00265	0.53%
Mo 202.031†	22.9	0.00119	mg/L	0.000215	0.00119	mg/L	0.000215	18.08%
Na 589.592†	78443.9	10.09	mg/L	0.034	10.09	mg/L	0.034	0.34%
Na 330.237†	187.9	10.65	mg/L	0.265	10.65	mg/L	0.265	2.49%
Ni 231.604†	1546.8	0.5166	mg/L	0.00391	0.5166	mg/L	0.00391	0.76%
Pb 220.353†	14875.8	2.010	mg/L	0.0096	2.010	mg/L	0.0096	0.48%
Sb 206.836†	12.9	-0.00152	mg/L	0.001952	-0.00152	mg/L	0.001952	128.10%
Se 196.026†	2346.8	2.009	mg/L	0.0112	2.009	mg/L	0.0112	0.56%
Si 288.158†	1.4	0.00354	mg/L	0.002917	0.00354	mg/L	0.002917	82.41%
Sn 189.927†	-18.4	-0.00351	mg/L	0.001273	-0.00351	mg/L	0.001273	36.28%
Sr 421.552†	148402.0	0.5199	mg/L	0.00685	0.5199	mg/L	0.00685	1.32%
Ti 334.903†	23.9	0.00118	mg/L	0.000435	0.00118	mg/L	0.000435	37.04%
Tl 190.801†	4104.4	2.019	mg/L	0.0105	2.019	mg/L	0.0105	0.52%
V 292.402†	40216.2	0.5081	mg/L	0.00692	0.5081	mg/L	0.00692	1.36%
Zn 206.200†	1129.0	0.5108	mg/L	0.00489	0.5108	mg/L	0.00489	0.96%

Sequence No.: 2
Sample ID: SEQ-CCVA

Autosampler Location: 7
Date Collected: 8/13/2019 9:40:42 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCVA

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: SEQ-CCVA

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2015704.9	97.96	%	0.266				0.27%
ScR 361.383	204455.3	99.60	%	0.085				0.08%
Ag 328.068†	156909.8	1.026	mg/L	0.0063	1.026	mg/L	0.0063	0.62%
Al 308.215†	2158.3	2.044	mg/L	0.0135	2.044	mg/L	0.0135	0.66%
As 188.979†	2803.6	1.977	mg/L	0.0046	1.977	mg/L	0.0046	0.23%
B 249.677†	6585.9	1.033	mg/L	0.0061	1.033	mg/L	0.0061	0.59%
Ba 233.527†	4016.9	1.017	mg/L	0.0056	1.017	mg/L	0.0056	0.55%
Be 313.042†	437614.5	1.011	mg/L	0.0049	1.011	mg/L	0.0049	0.48%
Ca 317.933†	19603.8	2.078	mg/L	0.0092	2.078	mg/L	0.0092	0.44%
Cd 228.802†	23905.7	1.012	mg/L	0.0091	1.012	mg/L	0.0091	0.90%
Co 228.616†	33462.9	1.017	mg/L	0.0052	1.017	mg/L	0.0052	0.51%
Cr 267.716†	3679.6	0.9986	mg/L	0.00123	0.9986	mg/L	0.00123	0.12%
Cu 324.752†	197453.9	1.051	mg/L	0.0055	1.051	mg/L	0.0055	0.52%
Fe 273.955†	1800.5	1.979	mg/L	0.0085	1.979	mg/L	0.0085	0.43%
K 766.490†	19680.1	20.17	mg/L	0.141	20.17	mg/L	0.141	0.70%
Mg 279.077†	1939.4	2.065	mg/L	0.0113	2.065	mg/L	0.0113	0.54%
Mn 257.610†	32877.6	1.042	mg/L	0.0064	1.042	mg/L	0.0064	0.61%
Mo 202.031†	16849.6	1.019	mg/L	0.0050	1.019	mg/L	0.0050	0.49%
Na 589.592†	402583.7	51.76	mg/L	0.088	51.76	mg/L	0.088	0.17%
Na 330.237†	895.9	51.58	mg/L	0.178	51.58	mg/L	0.178	0.35%
Ni 231.604†	3080.1	1.030	mg/L	0.0008	1.030	mg/L	0.0008	0.08%
Pb 220.353†	14918.7	2.016	mg/L	0.0144	2.016	mg/L	0.0144	0.71%
Sb 206.836†	5519.9	2.150	mg/L	0.0026	2.150	mg/L	0.0026	0.12%
Se 196.026†	2354.8	2.016	mg/L	0.0054	2.016	mg/L	0.0054	0.27%
Si 288.158†	1922.2	2.231	mg/L	0.0166	2.231	mg/L	0.0166	0.74%
Sn 189.927†	3689.3	1.042	mg/L	0.0018	1.042	mg/L	0.0018	0.17%
Sr 421.552†	295077.8	1.034	mg/L	0.0044	1.034	mg/L	0.0044	0.43%
Ti 334.903†	12791.0	1.013	mg/L	0.0031	1.013	mg/L	0.0031	0.30%
Tl 190.801†	4079.1	2.003	mg/L	0.0003	2.003	mg/L	0.0003	0.01%
V 292.402†	78877.8	0.9967	mg/L	0.00209	0.9967	mg/L	0.00209	0.21%
Zn 206.200†	2259.5	1.022	mg/L	0.0051	1.022	mg/L	0.0051	0.50%

Sequence No.: 3 **Autosampler Location: 1**
Sample ID: SEQ-CCBA **Date Collected: 8/13/2019 9:45:45 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCBA

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: SEQ-CCBA

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2018339.3	98.09	%	0.888				0.91%
ScR 361.383	204609.1	99.67	%	0.333				0.33%
Ag 328.068†	-7.9	-0.00005	mg/L	0.000250	-0.00005	mg/L	0.000250	483.36%
Al 308.215†	0.2	0.00020	mg/L	0.013827	0.00020	mg/L	0.013827	>999.9%
As 188.979†	2.8	0.00197	mg/L	0.002543	0.00197	mg/L	0.002543	128.86%
B 249.677†	22.3	0.00350	mg/L	0.001296	0.00350	mg/L	0.001296	36.97%
Ba 233.527†	-0.5	-0.00013	mg/L	0.000184	-0.00013	mg/L	0.000184	138.36%
Be 313.042†	-53.6	-0.00013	mg/L	0.000044	-0.00013	mg/L	0.000044	35.12%
Ca 317.933†	32.2	0.00344	mg/L	0.000417	0.00344	mg/L	0.000417	12.14%
Cd 228.802†	13.8	0.00058	mg/L	0.000205	0.00058	mg/L	0.000205	35.61%
Co 228.616†	-7.2	-0.00022	mg/L	0.000034	-0.00022	mg/L	0.000034	15.60%
Cr 267.716†	6.6	0.00179	mg/L	0.002746	0.00179	mg/L	0.002746	153.24%
Cu 324.752†	95.5	0.00051	mg/L	0.000148	0.00051	mg/L	0.000148	29.07%
Fe 273.955†	-0.5	-0.00060	mg/L	0.003794	-0.00060	mg/L	0.003794	634.90%
K 766.490†	43.4	0.04443	mg/L	0.029070	0.04443	mg/L	0.029070	65.43%
Mg 279.077†	-5.6	-0.00598	mg/L	0.004750	-0.00598	mg/L	0.004750	79.45%
Mn 257.610†	-3.6	-0.00011	mg/L	0.000081	-0.00011	mg/L	0.000081	70.94%
Mo 202.031†	5.7	0.00034	mg/L	0.000078	0.00034	mg/L	0.000078	22.64%
Na 589.592†	-318.7	-0.04098	mg/L	0.002109	-0.04098	mg/L	0.002109	5.15%
Na 330.237†	-3.4	-0.1989	mg/L	0.86178	-0.1989	mg/L	0.86178	433.21%
Ni 231.604†	-2.4	-0.00081	mg/L	0.001496	-0.00081	mg/L	0.001496	185.41%
Pb 220.353†	-5.8	-0.00079	mg/L	0.000843	-0.00079	mg/L	0.000843	107.20%
Sb 206.836†	-0.8	-0.00035	mg/L	0.000532	-0.00035	mg/L	0.000532	151.99%
Se 196.026†	-5.8	-0.00495	mg/L	0.006592	-0.00495	mg/L	0.006592	133.17%
Si 288.158†	-1.3	-0.00156	mg/L	0.004414	-0.00156	mg/L	0.004414	282.78%
Sn 189.927†	0.4	0.00012	mg/L	0.000582	0.00012	mg/L	0.000582	472.80%
Sr 421.552†	-44.4	-0.00016	mg/L	0.000038	-0.00016	mg/L	0.000038	24.36%
Ti 334.903†	9.3	0.00074	mg/L	0.000839	0.00074	mg/L	0.000839	114.03%
Tl 190.801†	6.5	0.00320	mg/L	0.001499	0.00320	mg/L	0.001499	46.88%
V 292.402†	25.2	0.00033	mg/L	0.000096	0.00033	mg/L	0.000096	29.15%
Zn 206.200†	3.0	0.00135	mg/L	0.001599	0.00135	mg/L	0.001599	118.71%

Sequence No.: 4
Sample ID: BHH0296-BLK1

Autosampler Location: 314
Date Collected: 8/13/2019 9:49:44 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0296-BLK1

Analyte	Back Pressure	Flow
All	172.0 kPa	0.65 L/min

Mean Data: BHH0296-BLK1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	2042920.8	99.28	%	0.643				0.65%
ScR 361.383	206339.8	100.5	%	0.62				0.61%
Ag 328.068†	-4.9	-0.00003	mg/L	0.000153	-0.00003	mg/L	0.000153	482.67%
Al 308.215†	-4.9	-0.00478	mg/L	0.018781	-0.00478	mg/L	0.018781	392.82%
As 188.979†	-1.7	-0.00111	mg/L	0.000898	-0.00111	mg/L	0.000898	81.26%
B 249.677†	28.1	0.00441	mg/L	0.000511	0.00441	mg/L	0.000511	11.59%
Ba 233.527†	1.2	0.00031	mg/L	0.000172	0.00031	mg/L	0.000172	55.96%
Be 313.042†	-118.4	-0.00028	mg/L	0.000044	-0.00028	mg/L	0.000044	15.81%
Ca 317.933†	24.9	0.00264	mg/L	0.000314	0.00264	mg/L	0.000314	11.88%
Cd 228.802†	12.0	0.00052	mg/L	0.000173	0.00052	mg/L	0.000173	33.23%
Co 228.616†	-9.7	-0.00030	mg/L	0.000075	-0.00030	mg/L	0.000075	25.00%
Cr 267.716†	10.6	0.00287	mg/L	0.000833	0.00287	mg/L	0.000833	28.99%
Cu 324.752†	80.1	0.00043	mg/L	0.000126	0.00043	mg/L	0.000126	29.65%
Fe 273.955†	-0.1	-0.00012	mg/L	0.001971	-0.00012	mg/L	0.001971	>999.9%
K 766.490†	-26.9	-0.02759	mg/L	0.025083	-0.02759	mg/L	0.025083	90.90%
Mg 279.077†	-1.3	-0.00134	mg/L	0.002147	-0.00134	mg/L	0.002147	160.43%
Mn 257.610†	-9.9	-0.00031	mg/L	0.000033	-0.00031	mg/L	0.000033	10.56%
Mo 202.031†	2.5	0.00015	mg/L	0.000173	0.00015	mg/L	0.000173	113.68%
Na 589.592†	-395.3	-0.05082	mg/L	0.003443	-0.05082	mg/L	0.003443	6.77%
Na 330.237†	11.9	0.6842	mg/L	0.96098	0.6842	mg/L	0.96098	140.46%
Ni 231.604†	1.8	0.00059	mg/L	0.001296	0.00059	mg/L	0.001296	218.09%
Pb 220.353†	0.2	0.00003	mg/L	0.000210	0.00003	mg/L	0.000210	632.47%
Sb 206.836†	-5.7	-0.00228	mg/L	0.001787	-0.00228	mg/L	0.001787	78.50%
Se 196.026†	-1.8	-0.00158	mg/L	0.001352	-0.00158	mg/L	0.001352	85.52%
Si 288.158†	5.2	0.00604	mg/L	0.004218	0.00604	mg/L	0.004218	69.79%
Sn 189.927†	3.3	0.00092	mg/L	0.000349	0.00092	mg/L	0.000349	37.91%
Sr 421.552†	-48.5	-0.00017	mg/L	0.000094	-0.00017	mg/L	0.000094	55.51%
Ti 334.903†	26.8	0.00213	mg/L	0.000626	0.00213	mg/L	0.000626	29.45%
Tl 190.801†	-2.2	-0.00110	mg/L	0.001403	-0.00110	mg/L	0.001403	128.04%
V 292.402†	13.8	0.00019	mg/L	0.000204	0.00019	mg/L	0.000204	106.49%
Zn 206.200†	10.9	0.00496	mg/L	0.000491	0.00496	mg/L	0.000491	9.90%

Sequence No.: 5
Sample ID: 19H0104-01
DEL
Dilution: 2X
Wash Time: 37

Autosampler Location: 315
Date Collected: 8/13/2019 9:53:43 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0104-01

Analyte	Back Pressure	Flow
All	172.0 kPa	0.65 L/min

Mean Data: 19H0104-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1803057.3	87.63	%	1.711				1.95%
ScR 361.383	183790.8	89.53	%	7.573				8.46%
Ag 328.068†	25.0	0.00016	mg/L	0.000292	0.00033	mg/L	0.000584	178.23%
Al 308.215†	83.4	0.07986	mg/L	0.024625	0.1597	mg/L	0.04925	30.84%
As 188.979†	2.1	0.00144	mg/L	0.003418	0.00288	mg/L	0.006837	237.37%
B 249.677†	148.9	0.02337	mg/L	0.001322	0.04674	mg/L	0.002644	5.66%
Ba 233.527†	7.0	0.00177	mg/L	0.000735	0.00354	mg/L	0.001470	41.53%
Be 313.042†	35.1	0.00008	mg/L	0.000214	0.00016	mg/L	0.000428	273.63%
Ca 317.933†	838.4	0.08849	mg/L	0.000903	0.1770	mg/L	0.00181	1.02%
Cd 228.802†	17.0	0.00072	mg/L	0.000547	0.00144	mg/L	0.001093	76.08%
Co 228.616†	89.4	0.00272	mg/L	0.000144	0.00544	mg/L	0.000288	5.29%
Cr 267.716†	-13.1	-0.00356	mg/L	0.006000	-0.00712	mg/L	0.012001	168.49%
Cu 324.752†	1315.8	0.00698	mg/L	0.000278	0.01396	mg/L	0.000557	3.99%
Fe 273.955†	40.9	0.04512	mg/L	0.003392	0.09023	mg/L	0.006784	7.52%
K 766.490†	134.2	0.1375	mg/L	0.03980	0.2751	mg/L	0.07960	28.94%
Mg 279.077†	15.2	0.01621	mg/L	0.008068	0.03242	mg/L	0.016137	49.77%
Mn 257.610†	1327.8	0.04207	mg/L	0.002758	0.08413	mg/L	0.005517	6.56%
Mo 202.031†	13.5	0.00082	mg/L	0.000247	0.00164	mg/L	0.000493	30.14%
Na 589.592†	483736.1	62.20	mg/L	0.632	124.4	mg/L	1.26	1.02%
Na 330.237†	1046.1	60.47	mg/L	1.254	120.9	mg/L	2.51	2.07%
Ni 231.604†	2.5	0.00083	mg/L	0.002682	0.00167	mg/L	0.005364	321.83%
Pb 220.353†	5.2	0.00070	mg/L	0.001001	0.00140	mg/L	0.002002	143.18%
Sb 206.836†	1.8	0.00077	mg/L	0.001259	0.00153	mg/L	0.002518	164.53%
Se 196.026†	-2.8	-0.00248	mg/L	0.001604	-0.00496	mg/L	0.003207	64.65%
Si 288.158†	18247.7	21.16	mg/L	0.246	42.32	mg/L	0.492	1.16%
Sn 189.927†	-4.6	-0.00127	mg/L	0.000297	-0.00255	mg/L	0.000593	23.29%
Sr 421.552†	106.6	0.00037	mg/L	0.000185	0.00075	mg/L	0.000371	49.62%
Ti 334.903†	5.3	0.00041	mg/L	0.001488	0.00082	mg/L	0.002976	361.14%
Tl 190.801†	2.1	0.00109	mg/L	0.001575	0.00217	mg/L	0.003149	144.83%
V 292.402†	61.0	0.00075	mg/L	0.000272	0.00150	mg/L	0.000544	36.20%
Zn 206.200†	53.5	0.02423	mg/L	0.001565	0.04845	mg/L	0.003129	6.46%

Sequence No.: 6
Sample ID: 19H0140-01

Autosampler Location: 316
Date Collected: 8/13/2019 9:57:56 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0140-01

Analyte	Back Pressure	Flow
All	171.0 kPa	0.65 L/min

Mean Data: 19H0140-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1954951.1	95.01	%	1.062				1.12%
ScR 361.383	194141.7	94.57	%	2.636				2.79%
Ag 328.068†	-148.1	-0.00097	mg/L	0.000195	-0.00097	mg/L	0.000195	20.07%
Al 308.215†	5945.7	5.738	mg/L	0.1376	5.738	mg/L	0.1376	2.40%
As 188.979†	36.3	0.01959	mg/L	0.001748	0.01959	mg/L	0.001748	8.92%
B 249.677†	121.1	0.03455	mg/L	0.001905	0.03455	mg/L	0.001905	5.51%
Ba 233.527†	141.0	0.01644	mg/L	0.002304	0.01644	mg/L	0.002304	14.01%
Be 313.042†	122.8	0.00032	mg/L	0.000070	0.00032	mg/L	0.000070	22.34%
Ca 317.933†	1051937.2	112.2	mg/L	0.67	112.2	mg/L	0.67	0.60%
Cd 228.802†	159.7	0.00670	mg/L	0.000276	0.00670	mg/L	0.000276	4.12%
Co 228.616†	1072.3	0.03006	mg/L	0.000164	0.03006	mg/L	0.000164	0.55%
Cr 267.716†	-33.0	-0.00322	mg/L	0.000468	-0.00322	mg/L	0.000468	14.56%
Cu 324.752†	12151.3	0.07199	mg/L	0.001087	0.07199	mg/L	0.001087	1.51%
Fe 273.955†	139713.8	154.2	mg/L	0.85	154.2	mg/L	0.85	0.55%
K 766.490†	11520.8	11.80	mg/L	0.275	11.80	mg/L	0.275	2.33%
Mg 279.077†	18274.7	19.26	mg/L	0.288	19.26	mg/L	0.288	1.49%
Mn 257.610†	93372.2	2.959	mg/L	0.0474	2.959	mg/L	0.0474	1.60%
Mo 202.031†	63.4	0.00198	mg/L	0.000113	0.00198	mg/L	0.000113	5.72%
Na 589.592†	59873.9	7.699	mg/L	0.1302	7.699	mg/L	0.1302	1.69%
Na 330.237†	142.1	7.229	mg/L	0.2864	7.229	mg/L	0.2864	3.96%
Ni 231.604†	77.5	0.02588	mg/L	0.002304	0.02588	mg/L	0.002304	8.90%
Pb 220.353†	51.0	0.00083	mg/L	0.000416	0.00083	mg/L	0.000416	50.23%
Sb 206.836†	25.1	0.00975	mg/L	0.001297	0.00975	mg/L	0.001297	13.30%
Se 196.026†	-37.0	-0.01697	mg/L	0.003960	-0.01697	mg/L	0.003960	23.34%
Si 288.158†	12855.1	14.91	mg/L	0.230	14.91	mg/L	0.230	1.55%
Sn 189.927†	-94.1	-0.00761	mg/L	0.002042	-0.00761	mg/L	0.002042	26.84%
Sr 421.552†	78105.8	0.2736	mg/L	0.00117	0.2736	mg/L	0.00117	0.43%
Ti 334.903†	142.6	0.00439	mg/L	0.000839	0.00439	mg/L	0.000839	19.12%
Tl 190.801†	-33.1	-0.01300	mg/L	0.001632	-0.01300	mg/L	0.001632	12.56%
V 292.402†	-565.0	0.00188	mg/L	0.000014	0.00188	mg/L	0.000014	0.73%
Zn 206.200†	5163.6	2.338	mg/L	0.0514	2.338	mg/L	0.0514	2.20%

Sequence No.: 7
Sample ID: 19H0140-02

Autosampler Location: 317
Date Collected: 8/13/2019 10:02:10 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0140-02

Analyte	Back Pressure	Flow
All	174.0 kPa	0.65 L/min

Mean Data: 19H0140-02

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2028061.7	98.56	%	0.568				0.58%
ScR 361.383	202406.0	98.60	%	0.961				0.97%
Ag 328.068†	-89.9	-0.00059	mg/L	0.000217	-0.00059	mg/L	0.000217	36.98%
Al 308.215†	7264.9	7.011	mg/L	0.0332	7.011	mg/L	0.0332	0.47%
As 188.979†	45.8	0.02165	mg/L	0.001195	0.02165	mg/L	0.001195	5.52%
B 249.677†	1037.1	0.1645	mg/L	0.00344	0.1645	mg/L	0.00344	2.09%
Ba 233.527†	61.1	0.01333	mg/L	0.000257	0.01333	mg/L	0.000257	1.93%
Be 313.042†	153.7	0.00036	mg/L	0.000036	0.00036	mg/L	0.000036	9.93%
Ca 317.933†	1388975.2	148.2	mg/L	0.65	148.2	mg/L	0.65	0.44%
Cd 228.802†	2235.5	0.09554	mg/L	0.000509	0.09554	mg/L	0.000509	0.53%
Co 228.616†	431.4	0.01282	mg/L	0.000090	0.01282	mg/L	0.000090	0.70%
Cr 267.716†	18.6	0.00250	mg/L	0.001552	0.00250	mg/L	0.001552	61.99%
Cu 324.752†	272915.0	1.454	mg/L	0.0087	1.454	mg/L	0.0087	0.60%
Fe 273.955†	15724.4	17.35	mg/L	0.101	17.35	mg/L	0.101	0.58%
K 766.490†	6820.9	6.989	mg/L	0.0573	6.989	mg/L	0.0573	0.82%
Mg 279.077†	12816.0	13.55	mg/L	0.049	13.55	mg/L	0.049	0.36%
Mn 257.610†	33399.3	1.058	mg/L	0.0065	1.058	mg/L	0.0065	0.61%
Mo 202.031†	75.9	0.00214	mg/L	0.000140	0.00214	mg/L	0.000140	6.52%
Na 589.592†	116680.4	15.00	mg/L	0.037	15.00	mg/L	0.037	0.25%
Na 330.237†	495.9	15.97	mg/L	0.607	15.97	mg/L	0.607	3.80%
Ni 231.604†	41.7	0.01393	mg/L	0.001762	0.01393	mg/L	0.001762	12.65%
Pb 220.353†	311.8	0.04135	mg/L	0.000519	0.04135	mg/L	0.000519	1.26%
Sb 206.836†	-2.7	-0.00134	mg/L	0.000998	-0.00134	mg/L	0.000998	74.63%
Se 196.026†	-22.1	-0.01863	mg/L	0.001319	-0.01863	mg/L	0.001319	7.08%
Si 288.158†	12515.1	14.51	mg/L	0.166	14.51	mg/L	0.166	1.15%
Sn 189.927†	-102.2	-0.00383	mg/L	0.001946	-0.00383	mg/L	0.001946	50.77%
Sr 421.552†	113976.2	0.3993	mg/L	0.00287	0.3993	mg/L	0.00287	0.72%
Ti 334.903†	181.1	0.00522	mg/L	0.000465	0.00522	mg/L	0.000465	8.91%
Tl 190.801†	0.8	0.00157	mg/L	0.003900	0.00157	mg/L	0.003900	247.93%
V 292.402†	-57.6	0.00046	mg/L	0.000207	0.00046	mg/L	0.000207	45.40%
Zn 206.200†	66435.5	30.09	mg/L	0.090	30.09	mg/L	0.090	0.30%

Sequence No.: 8
Sample ID: 19H0078-01

DEL

Dilution: 10X
Wash Time: 37

Autosampler Location: 318
Date Collected: 8/13/2019 10:06:25 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0078-01

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: 19H0078-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1954342.6	94.98	%	1.707				1.80%
ScR 361.383	207104.7	100.9	%	1.36				1.35%
Ag 328.068†	6.0	0.00004	mg/L	0.000117	0.00040	mg/L	0.001168	295.51%
Al 308.215†	-9.8	-0.00982	mg/L	0.008428	-0.09821	mg/L	0.084284	85.82%
As 188.979†	11.3	0.00787	mg/L	0.000632	0.07868	mg/L	0.006319	8.03%
B 249.677†	28078.5	4.407	mg/L	0.0320	44.07	mg/L	0.320	0.73%
Ba 233.527†	-2.4	-0.00063	mg/L	0.001284	-0.00630	mg/L	0.012844	203.84%
Be 313.042†	-125.0	-0.00029	mg/L	0.000066	-0.00291	mg/L	0.000658	22.61%
Ca 317.933†	163.8	0.01700	mg/L	0.002712	0.1700	mg/L	0.02712	15.95%
Cd 228.802†	8.5	0.00032	mg/L	0.000133	0.00316	mg/L	0.001334	42.28%
Co 228.616†	-12.8	-0.00039	mg/L	0.000150	-0.00394	mg/L	0.001498	37.99%
Cr 267.716†	13.5	0.00366	mg/L	0.001832	0.03664	mg/L	0.018321	50.00%
Cu 324.752†	7415.8	0.03948	mg/L	0.000508	0.3948	mg/L	0.00508	1.29%
Fe 273.955†	122.4	0.1351	mg/L	0.00096	1.351	mg/L	0.0096	0.71%
K 766.490†	9004.5	9.227	mg/L	0.0924	92.27	mg/L	0.924	1.00%
Mg 279.077†	-4.4	-0.00475	mg/L	0.007005	-0.04746	mg/L	0.070050	147.60%
Mn 257.610†	78.5	0.00249	mg/L	0.000169	0.02488	mg/L	0.001688	6.79%
Mo 202.031†	71.6	0.00433	mg/L	0.000294	0.04330	mg/L	0.002936	6.78%
Na 589.592†	228008.7	29.32	mg/L	0.083	293.2	mg/L	0.83	0.28%
Na 330.237†	513.0	29.63	mg/L	0.168	296.3	mg/L	1.68	0.57%
Ni 231.604†	6.6	0.00221	mg/L	0.000811	0.02206	mg/L	0.008111	36.77%
Pb 220.353†	7.8	0.00101	mg/L	0.000614	0.01008	mg/L	0.006137	60.86%
Sb 206.836†	4.6	0.00180	mg/L	0.002682	0.01800	mg/L	0.026825	149.06%
Se 196.026†	29.5	0.02525	mg/L	0.004614	0.2525	mg/L	0.04614	18.28%
Si 288.158†	841.7	0.9760	mg/L	0.01077	9.760	mg/L	0.1077	1.10%
Sn 189.927†	24.4	0.00688	mg/L	0.001366	0.06882	mg/L	0.013661	19.85%
Sr 421.552†	-76.5	-0.00027	mg/L	0.000043	-0.00268	mg/L	0.000429	16.03%
Ti 334.903†	20.2	0.00159	mg/L	0.000719	0.01593	mg/L	0.007193	45.16%
Tl 190.801†	5.6	0.00277	mg/L	0.001884	0.02771	mg/L	0.018839	67.99%
V 292.402†	22.6	0.00032	mg/L	0.000177	0.00317	mg/L	0.001775	56.00%
Zn 206.200†	112.8	0.05061	mg/L	0.001662	0.5061	mg/L	0.01662	3.28%

Sequence No.: 9
Sample ID: SEQ-IBL1

Autosampler Location: 319
Date Collected: 8/13/2019 10:12:01 PM
Data Type: Original

Dilution: 1X
Wash Time: 120

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IBL1

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: SEQ-IBL1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	2028382.9	98.58	%	0.372				0.38%
ScR 361.383	205232.3	99.98	%	0.175				0.18%
Ag 328.068†	37.1	0.00024	mg/L	0.000168	0.00024	mg/L	0.000168	69.27%
Al 308.215†	-26.8	-0.02585	mg/L	0.012464	-0.02585	mg/L	0.012464	48.22%
As 188.979†	3.8	0.00268	mg/L	0.001973	0.00268	mg/L	0.001973	73.54%
B 249.677†	67.9	0.01065	mg/L	0.001417	0.01065	mg/L	0.001417	13.31%
Ba 233.527†	2.0	0.00049	mg/L	0.001315	0.00049	mg/L	0.001315	265.96%
Be 313.042†	-103.4	-0.00024	mg/L	0.000045	-0.00024	mg/L	0.000045	18.76%
Ca 317.933†	19.8	0.00210	mg/L	0.001376	0.00210	mg/L	0.001376	65.40%
Cd 228.802†	11.9	0.00049	mg/L	0.000092	0.00049	mg/L	0.000092	18.74%
Co 228.616†	-9.8	-0.00030	mg/L	0.000205	-0.00030	mg/L	0.000205	68.42%
Cr 267.716†	7.4	0.00202	mg/L	0.001384	0.00202	mg/L	0.001384	68.64%
Cu 324.752†	103.4	0.00055	mg/L	0.000135	0.00055	mg/L	0.000135	24.62%
Fe 273.955†	0.0	0.00002	mg/L	0.005290	0.00002	mg/L	0.005290	>999.9%
K 766.490†	-34.8	-0.03562	mg/L	0.026070	-0.03562	mg/L	0.026070	73.19%
Mg 279.077†	-5.3	-0.00566	mg/L	0.003472	-0.00566	mg/L	0.003472	61.37%
Mn 257.610†	-6.9	-0.00022	mg/L	0.000095	-0.00022	mg/L	0.000095	43.69%
Mo 202.031†	0.6	0.00003	mg/L	0.000232	0.00003	mg/L	0.000232	683.96%
Na 589.592†	-386.2	-0.04966	mg/L	0.005983	-0.04966	mg/L	0.005983	12.05%
Na 330.237†	6.2	0.3607	mg/L	0.57605	0.3607	mg/L	0.57605	159.69%
Ni 231.604†	-0.8	-0.00028	mg/L	0.001589	-0.00028	mg/L	0.001589	560.49%
Pb 220.353†	-8.7	-0.00118	mg/L	0.000982	-0.00118	mg/L	0.000982	83.32%
Sb 206.836†	-6.9	-0.00272	mg/L	0.003126	-0.00272	mg/L	0.003126	114.93%
Se 196.026†	-0.2	-0.00018	mg/L	0.000500	-0.00018	mg/L	0.000500	278.51%
Si 288.158†	1.0	0.00112	mg/L	0.008284	0.00112	mg/L	0.008284	741.74%
Sn 189.927†	-0.9	-0.00025	mg/L	0.000569	-0.00025	mg/L	0.000569	226.65%
Sr 421.552†	-64.4	-0.00023	mg/L	0.000078	-0.00023	mg/L	0.000078	34.42%
Ti 334.903†	7.6	0.00060	mg/L	0.001241	0.00060	mg/L	0.001241	206.62%
Tl 190.801†	4.5	0.00223	mg/L	0.000528	0.00223	mg/L	0.000528	23.68%
V 292.402†	4.4	0.00007	mg/L	0.000387	0.00007	mg/L	0.000387	569.48%
Zn 206.200†	1.8	0.00080	mg/L	0.000827	0.00080	mg/L	0.000827	103.33%

Sequence No.: 10
Sample ID: BHH0296-DUP1

Autosampler Location: 320
Date Collected: 8/13/2019 10:15:59 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0296-DUP1

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: BHH0296-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1902392.2	92.45	%	0.668				0.72%
ScR 361.383	196441.0	95.69	%	1.109				1.16%
Ag 328.068†	-183.0	-0.00120	mg/L	0.000271	-0.00120	mg/L	0.000271	22.66%
Al 308.215†	33.5	0.03207	mg/L ✓	0.002819	0.03207	mg/L	0.002819	8.79%
As 188.979†	56.0	0.02110	mg/L	0.002093	0.02110	mg/L	0.002093	9.92%
B 249.677†	419.8	0.06592	mg/L	0.001196	0.06592	mg/L	0.001196	1.81%
Ba 233.527†	17.8	0.00449	mg/L ✓	0.000534	0.00449	mg/L	0.000534	11.89%
Be 313.042†	-53.1	-0.00012	mg/L	0.000006	-0.00012	mg/L	0.000006	5.17%
Ca 317.933†	2372185.4	253.1	mg/L	0.60	253.1	mg/L	0.60	0.24%
Cd 228.802†	-10.6	-0.00071	mg/L	0.000250	-0.00071	mg/L	0.000250	35.43%
Co 228.616†	51.6	0.00153	mg/L	0.000209	0.00153	mg/L	0.000209	13.67%
Cr 267.716†	22.0	0.00067	mg/L	0.002161	0.00067	mg/L	0.002161	321.37%
Cu 324.752†	357.9	0.00177	mg/L	0.000143	0.00177	mg/L	0.000143	8.07%
Fe 273.955†	108.4	0.1196	mg/L	0.00733	0.1196	mg/L	0.00733	6.13%
K 766.490†	10244.7	10.50	mg/L	0.031	10.50	mg/L	0.031	0.29%
Mg 279.077†	14851.9	15.70	mg/L	0.073	15.70	mg/L	0.073	0.47%
Mn 257.610†	22847.9	0.7233	mg/L	0.00244	0.7233	mg/L	0.00244	0.34%
Mo 202.031†	109.0	0.00241	mg/L	0.000220	0.00241	mg/L	0.000220	9.15%
Na 589.592†	92104.6	11.84	mg/L	0.056	11.84	mg/L	0.056	0.47%
Na 330.237†	212.8	12.29	mg/L	0.643	12.29	mg/L	0.643	5.24%
Ni 231.604†	4.7	0.00155	mg/L	0.001813	0.00155	mg/L	0.001813	116.75%
Pb 220.353†	-2.8	-0.00036	mg/L	0.000673	-0.00036	mg/L	0.000673	184.90%
Sb 206.836†	-3.0	-0.00147	mg/L	0.001051	-0.00147	mg/L	0.001051	71.50%
Se 196.026†	-26.6	-0.02337	mg/L	0.001214	-0.02337	mg/L	0.001214	5.19%
Si 288.158†	1521.5	1.766	mg/L	0.0080	1.766	mg/L	0.0080	0.46%
Sn 189.927†	-113.6	0.01064	mg/L	0.001418	0.01064	mg/L	0.001418	13.33%
Sr 421.552†	138880.7	0.4865	mg/L	0.00303	0.4865	mg/L	0.00303	0.62%
Ti 334.903†	270.4	0.00583	mg/L	0.002377	0.00583	mg/L	0.002377	40.74%
Tl 190.801†	3.8	0.00274	mg/L	0.001627	0.00274	mg/L	0.001627	59.38%
V 292.402†	15.6	0.00037	mg/L	0.000205	0.00037	mg/L	0.000205	55.22%
Zn 206.200†	86.4	0.03860	mg/L	0.000635	0.03860	mg/L	0.000635	1.64%

Sequence No.: 11
Sample ID: 19H0140-03

Autosampler Location: 321
Date Collected: 8/13/2019 10:20:13 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0140-03

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: 19H0140-03

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1891998.6	91.95	%	1.971				2.14%
ScR 361.383	196622.0	95.78	%	1.197				1.25%
Ag 328.068†	-126.1	-0.00082	mg/L	0.000237	-0.00082	mg/L	0.000237	28.71%
Al 308.215†	73.6	0.07072	mg/L	0.008506	0.07072	mg/L	0.008506	12.03%
As 188.979†	56.5	0.02109	mg/L	0.001271	0.02109	mg/L	0.001271	6.03%
B 249.677†	400.5	0.06288	mg/L	0.001206	0.06288	mg/L	0.001206	1.92%
Ba 233.527†	24.0	0.00607	mg/L	0.000732	0.00607	mg/L	0.000732	12.05%
Be 313.042†	0.4	0.00000	mg/L	0.000062	0.00000	mg/L	0.000062	>999.9%
Ca 317.933†	2428822.4	259.1	mg/L	0.62	259.1	mg/L	0.62	0.24%
Cd 228.802†	-7.7	-0.00059	mg/L	0.000275	-0.00059	mg/L	0.000275	46.93%
Co 228.616†	52.4	0.00155	mg/L	0.000117	0.00155	mg/L	0.000117	7.52%
Cr 267.716†	26.7	0.00184	mg/L	0.000429	0.00184	mg/L	0.000429	23.33%
Cu 324.752†	371.9	0.00184	mg/L	0.000083	0.00184	mg/L	0.000083	4.48%
Fe 273.955†	105.8	0.1168	mg/L	0.00390	0.1168	mg/L	0.00390	3.34%
K 766.490†	10430.5	10.69	mg/L	0.201	10.69	mg/L	0.201	1.88%
Mg 279.077†	15128.3	15.99	mg/L	0.364	15.99	mg/L	0.364	2.28%
Mn 257.610†	23192.0	0.7342	mg/L	0.01611	0.7342	mg/L	0.01611	2.19%
Mo 202.031†	117.2	0.00281	mg/L	0.000327	0.00281	mg/L	0.000327	11.67%
Na 589.592†	94209.0	12.11	mg/L	0.033	12.11	mg/L	0.033	0.28%
Na 330.237†	211.5	12.22	mg/L	0.262	12.22	mg/L	0.262	2.14%
Ni 231.604†	1.9	0.00063	mg/L	0.000429	0.00063	mg/L	0.000429	67.83%
Pb 220.353†	2.9	0.00042	mg/L	0.000603	0.00042	mg/L	0.000603	143.97%
Sb 206.836†	-3.1	-0.00155	mg/L	0.002030	-0.00155	mg/L	0.002030	131.06%
Se 196.026†	-24.5	-0.02164	mg/L	0.002341	-0.02164	mg/L	0.002341	10.82%
Si 288.158†	1604.6	1.862	mg/L	0.0295	1.862	mg/L	0.0295	1.58%
Sn 189.927†	-123.0	0.00900	mg/L	0.000892	0.00900	mg/L	0.000892	9.91%
Sr 421.552†	143246.3	0.5018	mg/L	0.00240	0.5018	mg/L	0.00240	0.48%
Ti 334.903†	292.6	0.00722	mg/L	0.000438	0.00722	mg/L	0.000438	6.07%
Tl 190.801†	3.9	0.00276	mg/L	0.001417	0.00276	mg/L	0.001417	51.27%
V 292.402†	12.6	0.00034	mg/L	0.000175	0.00034	mg/L	0.000175	50.99%
Zn 206.200†	91.9	0.04106	mg/L	0.001113	0.04106	mg/L	0.001113	2.71%

Sequence No.: 12
Sample ID: BHH0296-MS1

Autosampler Location: 322
Date Collected: 8/13/2019 10:24:27 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0296-MS1

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: BHH0296-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1723546.4	83.76	%	0.853				1.02%
ScR 361.383	185516.3	90.37	%	3.054				3.38%
Ag 328.068†	80300.4	0.5249	mg/L	0.00977	0.5249	mg/L	0.00977	1.86%
Al 308.215†	2228.0	2.143	mg/L	0.0235	2.143	mg/L	0.0235	1.10%
As 188.979†	2877.1	1.986	mg/L	0.0253	1.986	mg/L	0.0253	1.27%
B 249.677†	3638.7	0.5702	mg/L	0.00480	0.5702	mg/L	0.00480	0.84%
Ba 233.527†	7674.0	1.946	mg/L	0.0125	1.946	mg/L	0.0125	0.64%
Be 313.042†	212360.2	0.4905	mg/L	0.00419	0.4905	mg/L	0.00419	0.85%
Ca 317.933†	2338006.1	249.4	mg/L STL	3.82	249.4	mg/L	3.82	1.53%
Cd 228.802†	11937.4	0.4985	mg/L	0.01031	0.4985	mg/L	0.01031	2.07%
Co 228.616†	16097.4	0.4899	mg/L	0.00584	0.4899	mg/L	0.00584	1.19%
Cr 267.716†	1767.7	0.4736	mg/L	0.00218	0.4736	mg/L	0.00218	0.46%
Cu 324.752†	100378.6	0.5345	mg/L	0.01055	0.5345	mg/L	0.01055	1.97%
Fe 273.955†	1814.3	1.998	mg/L	0.0227	1.998	mg/L	0.0227	1.14%
K 766.490†	19728.7	20.22	mg/L	0.028	20.22	mg/L	0.028	0.14%
Mg 279.077†	23443.3	24.80	mg/L	0.137	24.80	mg/L	0.137	0.55%
Mn 257.610†	37234.1	1.179	mg/L	0.0058	1.179	mg/L	0.0058	0.49%
Mo 202.031†	127.3	0.00354	mg/L	0.000260	0.00354	mg/L	0.000260	7.34%
Na 589.592†	171071.5	22.00	mg/L	0.106	22.00	mg/L	0.106	0.48%
Na 330.237†	367.5	21.04	mg/L	0.162	21.04	mg/L	0.162	0.77%
Ni 231.604†	1431.1	0.4779	mg/L	0.00173	0.4779	mg/L	0.00173	0.36%
Pb 220.353†	14319.2	1.934	mg/L	0.0232	1.934	mg/L	0.0232	1.20%
Sb 206.836†	11.5	-0.00182	mg/L	0.002756	-0.00182	mg/L	0.002756	151.42%
Se 196.026†	2251.8	1.927	mg/L	0.0286	1.927	mg/L	0.0286	1.49%
Si 288.158†	1501.9	1.745	mg/L	0.0233	1.745	mg/L	0.0233	1.33%
Sn 189.927†	-128.6	0.00579	mg/L	0.001553	0.00579	mg/L	0.001553	26.83%
Sr 421.552†	280916.0	0.9841	mg/L	0.01564	0.9841	mg/L	0.01564	1.59%
Ti 334.903†	291.0	0.00759	mg/L	0.000609	0.00759	mg/L	0.000609	8.02%
Tl 190.801†	3827.2	1.883	mg/L	0.0231	1.883	mg/L	0.0231	1.23%
V 292.402†	38679.7	0.4887	mg/L	0.01303	0.4887	mg/L	0.01303	2.67%
Zn 206.200†	1112.8	0.5029	mg/L	0.00499	0.5029	mg/L	0.00499	0.99%

Sequence No.: 13
Sample ID: BHH0296-BS1

Autosampler Location: 323
Date Collected: 8/13/2019 10:28:41 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0296-BS1

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: BHH0296-BS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1744301.8	84.77	%	0.047				0.06%
ScR 361.383	179511.7	87.45	%	0.613				0.70%
Ag 328.068†	81333.0	0.5317	mg/L	0.00393	0.5317	mg/L	0.00393	0.74%
Al 308.215†	2204.4	2.120	mg/L	0.0078	2.120	mg/L	0.0078	0.37%
As 188.979†	2804.1	1.952	mg/L	0.0130	1.952	mg/L	0.0130	0.66%
B 249.677†	3293.6	0.5160	mg/L	0.00189	0.5160	mg/L	0.00189	0.37%
Ba 233.527†	7957.9	2.018	mg/L	0.0107	2.018	mg/L	0.0107	0.53%
Be 313.042†	215859.9	0.4986	mg/L	0.00060	0.4986	mg/L	0.00060	0.12%
Ca 317.933†	92136.0	9.823	mg/L	0.0170	9.823	mg/L	0.0170	0.17%
Cd 228.802†	12047.5	0.5035	mg/L	0.00325	0.5035	mg/L	0.00325	0.65%
Co 228.616†	16564.3	0.5042	mg/L	0.00635	0.5042	mg/L	0.00635	1.26%
Cr 267.716†	1800.4	0.4875	mg/L	0.00241	0.4875	mg/L	0.00241	0.49%
Cu 324.752†	99195.5	0.5284	mg/L	0.00423	0.5284	mg/L	0.00423	0.80%
Fe 273.955†	1778.2	1.958	mg/L	0.0164	1.958	mg/L	0.0164	0.84%
K 766.490†	9807.5	10.05	mg/L	0.023	10.05	mg/L	0.023	0.23%
Mg 279.077†	9839.0	10.42	mg/L	0.068	10.42	mg/L	0.068	0.65%
Mn 257.610†	15818.0	0.5015	mg/L	0.00187	0.5015	mg/L	0.00187	0.37%
Mo 202.031†	21.3	0.00110	mg/L	0.000432	0.00110	mg/L	0.000432	39.37%
Na 589.592†	79888.7	10.27	mg/L	0.022	10.27	mg/L	0.022	0.22%
Na 330.237†	167.6	9.482	mg/L	0.0484	9.482	mg/L	0.0484	0.51%
Ni 231.604†	1501.1	0.5013	mg/L	0.00108	0.5013	mg/L	0.00108	0.22%
Pb 220.353†	14672.9	1.982	mg/L	0.0163	1.982	mg/L	0.0163	0.82%
Sb 206.836†	12.1	-0.00146	mg/L	0.003537	-0.00146	mg/L	0.003537	241.80%
Se 196.026†	2294.0	1.964	mg/L	0.0107	1.964	mg/L	0.0107	0.54%
Si 288.158†	8.6	0.01185	mg/L	0.002857	0.01185	mg/L	0.002857	24.10%
Sn 189.927†	-21.0	-0.00427	mg/L	0.000544	-0.00427	mg/L	0.000544	12.73%
Sr 421.552†	149515.4	0.5238	mg/L	0.00087	0.5238	mg/L	0.00087	0.17%
Ti 334.903†	19.4	0.00083	mg/L	0.000778	0.00083	mg/L	0.000778	93.22%
Tl 190.801†	4064.9	1.999	mg/L	0.0083	1.999	mg/L	0.0083	0.42%
V 292.402†	39931.6	0.5044	mg/L	0.00527	0.5044	mg/L	0.00527	1.05%
Zn 206.200†	1081.3	0.4891	mg/L	0.00240	0.4891	mg/L	0.00240	0.49%

Sequence No.: 14
Sample ID: SEQ-CCVB

Autosampler Location: 7
Date Collected: 8/13/2019 10:32:39 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCVB

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: SEQ-CCVB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1880653.7	91.40	%	0.104				0.11%
ScR 361.383	180925.1	88.13	%	1.060				1.20%
Ag 328.068†	155602.3	1.017	mg/L	0.0022	1.017	mg/L	0.0022	0.22%
Al 308.215†	2214.0	2.099	mg/L	0.0244	2.099	mg/L	0.0244	1.16%
As 188.979†	2686.4	1.896	mg/L	0.0048	1.896	mg/L	0.0048	0.25%
B 249.677†	6626.3	1.039	mg/L	0.0179	1.039	mg/L	0.0179	1.72%
Ba 233.527†	4018.0	1.017	mg/L	0.0124	1.017	mg/L	0.0124	1.22%
Be 313.042†	429448.4	0.9920	mg/L	0.00417	0.9920	mg/L	0.00417	0.42%
Ca 317.933†	19301.8	2.046	mg/L	0.0275	2.046	mg/L	0.0275	1.34%
Cd 228.802†	23250.8	0.9843	mg/L	0.00846	0.9843	mg/L	0.00846	0.86%
Co 228.616†	32638.7	0.9921	mg/L	0.00203	0.9921	mg/L	0.00203	0.20%
Cr 267.716†	3583.2	0.9725	mg/L	0.01020	0.9725	mg/L	0.01020	1.05%
Cu 324.752†	194582.6	1.036	mg/L	0.0018	1.036	mg/L	0.0018	0.17%
Fe 273.955†	1780.0	1.957	mg/L	0.0256	1.957	mg/L	0.0256	1.31%
K 766.490†	19821.4	20.31	mg/L	0.054	20.31	mg/L	0.054	0.26%
Mg 279.077†	1922.0	2.046	mg/L	0.0372	2.046	mg/L	0.0372	1.82%
Mn 257.610†	33001.0	1.046	mg/L	0.0168	1.046	mg/L	0.0168	1.61%
Mo 202.031†	16420.9	0.9935	mg/L	0.00324	0.9935	mg/L	0.00324	0.33%
Na 589.592†	407796.3	52.43	mg/L	0.113	52.43	mg/L	0.113	0.22%
Na 330.237†	890.5	51.28	mg/L	0.628	51.28	mg/L	0.628	1.22%
Ni 231.604†	3027.8	1.013	mg/L	0.0117	1.013	mg/L	0.0117	1.16%
Pb 220.353†	14446.9	1.952	mg/L	0.0104	1.952	mg/L	0.0104	0.53%
Sb 206.836†	5361.9	2.088	mg/L	0.0082	2.088	mg/L	0.0082	0.39%
Se 196.026†	2290.7	1.961	mg/L	0.0110	1.961	mg/L	0.0110	0.56%
Si 288.158†	1961.9	2.276	mg/L	0.0378	2.276	mg/L	0.0378	1.66%
Sn 189.927†	3576.9	1.011	mg/L	0.0048	1.011	mg/L	0.0048	0.47%
Sr 421.552†	299013.2	1.047	mg/L	0.0046	1.047	mg/L	0.0046	0.44%
Ti 334.903†	13293.4	1.053	mg/L	0.0148	1.053	mg/L	0.0148	1.41%
Tl 190.801†	3991.8	1.960	mg/L	0.0045	1.960	mg/L	0.0045	0.23%
V 292.402†	76672.3	0.9688	mg/L	0.00331	0.9688	mg/L	0.00331	0.34%
Zn 206.200†	2215.9	1.002	mg/L	0.0154	1.002	mg/L	0.0154	1.54%

Sequence No.: 15 **Autosampler Location: 1**
Sample ID: SEQ-CCBB **Date Collected: 8/13/2019 10:37:42 PM**
Data Type: Original

Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCBB

Analyte	Back Pressure	Flow
All	177.0 kPa	0.65 L/min

Mean Data: SEQ-CCBB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1909362.1	92.79	%	0.616				0.66%
ScR 361.383	191795.5	93.43	%	0.847				0.91%
Ag 328.068†	8.4	0.00005	mg/L	0.000050	0.00005	mg/L	0.000050	90.80%
Al 308.215†	-4.3	-0.00417	mg/L	0.008153	-0.00417	mg/L	0.008153	195.36%
As 188.979†	1.9	0.00135	mg/L	0.001401	0.00135	mg/L	0.001401	103.58%
B 249.677†	31.6	0.00497	mg/L	0.000997	0.00497	mg/L	0.000997	20.07%
Ba 233.527†	2.0	0.00049	mg/L	0.000889	0.00049	mg/L	0.000889	179.62%
Be 313.042†	-67.3	-0.00016	mg/L	0.000035	-0.00016	mg/L	0.000035	22.34%
Ca 317.933†	39.0	0.00416	mg/L	0.001020	0.00416	mg/L	0.001020	24.50%
Cd 228.802†	15.7	0.00066	mg/L	0.000047	0.00066	mg/L	0.000047	7.16%
Co 228.616†	-12.4	-0.00038	mg/L	0.000272	-0.00038	mg/L	0.000272	71.64%
Cr 267.716†	-2.9	-0.00079	mg/L	0.000690	-0.00079	mg/L	0.000690	87.49%
Cu 324.752†	198.6	0.00106	mg/L	0.000105	0.00106	mg/L	0.000105	9.90%
Fe 273.955†	4.7	0.00516	mg/L	0.001488	0.00516	mg/L	0.001488	28.87%
K 766.490†	3.2	0.00325	mg/L	0.025316	0.00325	mg/L	0.025316	779.76%
Mg 279.077†	0.3	0.00036	mg/L	0.009735	0.00036	mg/L	0.009735	>999.9%
Mn 257.610†	7.6	0.00024	mg/L	0.000222	0.00024	mg/L	0.000222	91.67%
Mo 202.031†	11.6	0.00070	mg/L	0.000393	0.00070	mg/L	0.000393	56.05%
Na 589.592†	-377.4	-0.04852	mg/L	0.006809	-0.04852	mg/L	0.006809	14.03%
Na 330.237†	-3.7	-0.2115	mg/L	0.27636	-0.2115	mg/L	0.27636	130.67%
Ni 231.604†	0.3	0.00009	mg/L	0.001057	0.00009	mg/L	0.001057	>999.9%
Pb 220.353†	-1.6	-0.00022	mg/L	0.000919	-0.00022	mg/L	0.000919	422.50%
Sb 206.836†	2.0	0.00079	mg/L	0.001200	0.00079	mg/L	0.001200	150.99%
Se 196.026†	-3.8	-0.00326	mg/L	0.004057	-0.00326	mg/L	0.004057	124.47%
Si 288.158†	1.8	0.00213	mg/L	0.006809	0.00213	mg/L	0.006809	319.82%
Sn 189.927†	-0.4	-0.00011	mg/L	0.000852	-0.00011	mg/L	0.000852	761.96%
Sr 421.552†	6.1	0.00002	mg/L	0.000044	0.00002	mg/L	0.000044	207.17%
Ti 334.903†	4.8	0.00038	mg/L	0.001010	0.00038	mg/L	0.001010	268.40%
Tl 190.801†	2.4	0.00116	mg/L	0.000592	0.00116	mg/L	0.000592	50.86%
V 292.402†	10.4	0.00013	mg/L	0.000314	0.00013	mg/L	0.000314	250.45%
Zn 206.200†	2.6	0.00118	mg/L	0.001436	0.00118	mg/L	0.001436	121.84%

Sequence No.: 16
Sample ID: 19H0137-01

Autosampler Location: 324
Date Collected: 8/13/2019 10:41:41 PM
Data Type: Original

Dilution: 5X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0137-01

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: 19H0137-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1798182.5	87.39	%	1.458				1.67%
ScR 361.383	193602.7	94.31	%	2.118				2.25%
Ag 328.068†	-17.0	-0.00011	mg/L	0.000327	-0.00055	mg/L	0.001634	294.87%
Al 308.215†	21.5	0.00946	mg/L	0.011245	0.04729	mg/L	0.056224	118.89%
As 188.979†	26.1	0.01529	mg/L	0.002079	0.07644	mg/L	0.010393	13.60%
B 249.677†	143497.5	22.52	mg/L	0.035	112.6	mg/L	0.18	0.16%
Ba 233.527†	12.9	0.00323	mg/L	0.000683	0.01615	mg/L	0.003413	21.13%
Be 313.042†	-41.3	-0.00010	mg/L	0.000093	-0.00048	mg/L	0.000463	95.86%
Ca 317.933†	357318.2	38.11	mg/L	0.334	190.5	mg/L	1.67	0.88%
Cd 228.802†	13.5	0.00048	mg/L	0.000056	0.00242	mg/L	0.000280	11.57%
Co 228.616†	19.1	0.00057	mg/L	0.000194	0.00286	mg/L	0.000968	33.81%
Cr 267.716†	-0.2	-0.00070	mg/L	0.000901	-0.00349	mg/L	0.004504	128.89%
Cu 324.752†	599.2	0.00266	mg/L	0.000335	0.01331	mg/L	0.001674	12.57%
Fe 273.955†	258.0	0.2847	mg/L	0.00810	1.423	mg/L	0.0405	2.85%
K 766.490†	1587.1	1.626	mg/L	0.0267	8.131	mg/L	0.1334	1.64%
Mg 279.077†	1064.6	1.124	mg/L	0.0258	5.618	mg/L	0.1290	2.30%
Mn 257.610†	3890.8	0.1232	mg/L	0.00110	0.6159	mg/L	0.00549	0.89%
Mo 202.031†	870.0	0.05201	mg/L	0.001115	0.2600	mg/L	0.00557	2.14%
Na 589.592†	7695104.5	989.4	mg/L	25.15	4947	mg/L	125.77	2.54%
Na 330.237†	18174.3	1051	mg/L	13.48	5253	mg/L	67.41	1.28%
Ni 231.604†	84.1	0.02808	mg/L	0.000501	0.1404	mg/L	0.00250	1.78%
Pb 220.353†	46.5	0.00626	mg/L	0.000807	0.03132	mg/L	0.004034	12.88%
Sb 206.836†	-5.1	-0.00209	mg/L	0.001447	-0.01043	mg/L	0.007236	69.38%
Se 196.026†	-13.7	-0.01185	mg/L	0.004659	-0.05923	mg/L	0.023296	39.33%
Si 288.158†	95.4	0.1108	mg/L	0.00662	0.5540	mg/L	0.03310	5.97%
Sn 189.927†	-52.2	-0.00831	mg/L	0.000174	-0.04153	mg/L	0.000872	2.10%
Sr 421.552†	10695.2	0.03747	mg/L	0.000520	0.1873	mg/L	0.00260	1.39%
Ti 334.903†	46.8	0.00131	mg/L	0.001599	0.00653	mg/L	0.007994	122.38%
Tl 190.801†	5.5	0.00289	mg/L	0.001546	0.01444	mg/L	0.007730	53.53%
V 292.402†	16.3	0.00026	mg/L	0.000097	0.00131	mg/L	0.000487	37.33%
Zn 206.200†	48.9	0.02204	mg/L	0.001936	0.1102	mg/L	0.00968	8.79%

Sequence No.: 17
Sample ID: SEQ-IBL2

Autosampler Location: 325
Date Collected: 8/13/2019 10:48:56 PM
Data Type: Original

Dilution: 1X
Wash Time: 200

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IBL2

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: SEQ-IBL2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1901745.5	92.42	%	0.852				0.92%
ScR 361.383	194224.7	94.61	%	0.268				0.28%
Ag 328.068†	-12.7	-0.00008	mg/L	0.000047	-0.00008	mg/L	0.000047	56.49%
Al 308.215†	-24.5	-0.02368	mg/L	0.016048	-0.02368	mg/L	0.016048	67.78%
As 188.979†	0.8	0.00058	mg/L	0.001063	0.00058	mg/L	0.001063	183.91%
B 249.677†	262.3	0.04117	mg/L	0.003987	0.04117	mg/L	0.003987	9.69%
Ba 233.527†	1.0	0.00025	mg/L	0.001693	0.00025	mg/L	0.001693	664.66%
Be 313.042†	-83.5	-0.00019	mg/L	0.000030	-0.00019	mg/L	0.000030	15.61%
Ca 317.933†	16.8	0.00180	mg/L	0.000786	0.00180	mg/L	0.000786	43.67%
Cd 228.802†	14.4	0.00061	mg/L	0.000099	0.00061	mg/L	0.000099	16.14%
Co 228.616†	-15.3	-0.00047	mg/L	0.000179	-0.00047	mg/L	0.000179	38.29%
Cr 267.716†	7.0	0.00189	mg/L	0.002003	0.00189	mg/L	0.002003	105.96%
Cu 324.752†	185.8	0.00099	mg/L	0.000314	0.00099	mg/L	0.000314	31.77%
Fe 273.955†	3.2	0.00349	mg/L	0.004792	0.00349	mg/L	0.004792	137.37%
K 766.490†	43.0	0.04404	mg/L	0.026614	0.04404	mg/L	0.026614	60.43%
Mg 279.077†	4.2	0.00447	mg/L	0.002639	0.00447	mg/L	0.002639	59.06%
Mn 257.610†	6.0	0.00019	mg/L	0.000108	0.00019	mg/L	0.000108	56.39%
Mo 202.031†	3.1	0.00019	mg/L	0.000257	0.00019	mg/L	0.000257	136.14%
Na 589.592†	77.6	0.00998	mg/L	0.011103	0.00998	mg/L	0.011103	111.28%
Na 330.237†	-7.7	-0.4426	mg/L	0.52891	-0.4426	mg/L	0.52891	119.50%
Ni 231.604†	0.9	0.00030	mg/L	0.001686	0.00030	mg/L	0.001686	561.76%
Pb 220.353†	-7.3	-0.00099	mg/L	0.000765	-0.00099	mg/L	0.000765	77.17%
Sb 206.836†	1.9	0.00073	mg/L	0.002007	0.00073	mg/L	0.002007	276.14%
Se 196.026†	-4.1	-0.00350	mg/L	0.003298	-0.00350	mg/L	0.003298	94.15%
Si 288.158†	-3.8	-0.00443	mg/L	0.001859	-0.00443	mg/L	0.001859	41.96%
Sn 189.927†	1.4	0.00040	mg/L	0.000642	0.00040	mg/L	0.000642	162.28%
Sr 421.552†	-29.9	-0.00010	mg/L	0.000068	-0.00010	mg/L	0.000068	64.80%
Ti 334.903†	2.9	0.00023	mg/L	0.000609	0.00023	mg/L	0.000609	262.78%
Tl 190.801†	-3.2	-0.00158	mg/L	0.003220	-0.00158	mg/L	0.003220	203.54%
V 292.402†	9.2	0.00013	mg/L	0.000064	0.00013	mg/L	0.000064	50.01%
Zn 206.200†	0.6	0.00025	mg/L	0.000344	0.00025	mg/L	0.000344	137.07%

Sequence No.: 18
Sample ID: 19H0078-01

Autosampler Location: 326
Date Collected: 8/13/2019 10:54:17 PM
Data Type: Original

Dilution: 2X
Wash Time: 120

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0078-01

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: 19H0078-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1800074.1	87.48	%	2.056				2.35%
ScR 361.383	187021.2	91.10	%	4.207				4.62%
Ag 328.068†	-56.7	-0.00037	mg/L	0.000223	-0.00074	mg/L	0.000446	60.26%
Al 308.215†	29.7	0.02687	mg/L	0.015432	0.05374	mg/L	0.030863	57.43%
As 188.979†	50.5	0.03520	mg/L	0.004220	0.07039	mg/L	0.008440	11.99%
B 249.677†	139386.2	21.88	mg/L	0.098	43.76	mg/L	0.196	0.45%
Ba 233.527†	10.3	0.00254	mg/L	0.000858	0.00507	mg/L	0.001716	33.83%
Be 313.042†	-14.2	-0.00003	mg/L	0.000121	-0.00007	mg/L	0.000242	354.99%
Ca 317.933†	932.1	0.09713	mg/L	0.004345	0.1943	mg/L	0.00869	4.47%
Cd 228.802†	5.9	0.00002	mg/L	0.000337	0.00004	mg/L	0.000674	>999.9%
Co 228.616†	-17.8	-0.00056	mg/L	0.000088	-0.00112	mg/L	0.000177	15.85%
Cr 267.716†	12.7	0.00349	mg/L	0.002588	0.00699	mg/L	0.005175	74.07%
Cu 324.752†	36232.4	0.1929	mg/L	0.00207	0.3858	mg/L	0.00414	1.07%
Fe 273.955†	588.7	0.6496	mg/L	0.02136	1.299	mg/L	0.0427	3.29%
K 766.490†	44536.4	45.63	mg/L	0.668	91.27	mg/L	1.337	1.46%
Mg 279.077†	15.0	0.01564	mg/L	0.003830	0.03127	mg/L	0.007660	24.49%
Mn 257.610†	439.7	0.01394	mg/L	0.000856	0.02787	mg/L	0.001711	6.14%
Mo 202.031†	284.5	0.01721	mg/L	0.000747	0.03443	mg/L	0.001493	4.34%
Na 589.592†	1181168.6	151.9	mg/L	1.04	303.7	mg/L	2.08	0.68%
Na 330.237†	2511.6	145.1	mg/L	1.97	290.2	mg/L	3.94	1.36%
Ni 231.604†	-1.3	-0.00044	mg/L	0.000770	-0.00089	mg/L	0.001541	173.91%
Pb 220.353†	57.5	0.00750	mg/L	0.000696	0.01500	mg/L	0.001393	9.28%
Sb 206.836†	-6.0	-0.00215	mg/L	0.001862	-0.00430	mg/L	0.003723	86.58%
Se 196.026†	154.2	0.1321	mg/L	0.00519	0.2643	mg/L	0.01038	3.93%
Si 288.158†	4252.6	4.931	mg/L	0.1892	9.862	mg/L	0.3784	3.84%
Sn 189.927†	127.2	0.03589	mg/L	0.001246	0.07179	mg/L	0.002493	3.47%
Sr 421.552†	31.5	0.00011	mg/L	0.000074	0.00022	mg/L	0.000148	67.18%
Ti 334.903†	42.1	0.00332	mg/L	0.001368	0.00663	mg/L	0.002736	41.25%
Tl 190.801†	16.3	0.00807	mg/L	0.000845	0.01614	mg/L	0.001690	10.47%
V 292.402†	21.7	0.00034	mg/L	0.000304	0.00068	mg/L	0.000607	89.43%
Zn 206.200†	544.4	0.2442	mg/L	0.00938	0.4883	mg/L	0.01876	3.84%

Sequence No.: 19
Sample ID: SEQ-IBL3

Autosampler Location: 327
Date Collected: 8/13/2019 11:01:14 PM
Data Type: Original

Dilution: 1X
Wash Time: 200

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IBL3

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: SEQ-IBL3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1799196.3	87.44	%	1.326				1.52%
ScR 361.383	181593.0	88.46	%	0.725				0.82%
Ag 328.068†	-6.2	-0.00004	mg/L	0.000395	-0.00004	mg/L	0.000395	979.83%
Al 308.215†	22.3	0.02150	mg/L	0.016968	0.02150	mg/L	0.016968	78.91%
As 188.979†	-1.9	-0.00134	mg/L	0.000686	-0.00134	mg/L	0.000686	51.33%
B 249.677†	316.7	0.04971	mg/L	0.004412	0.04971	mg/L	0.004412	8.87%
Ba 233.527†	0.6	0.00015	mg/L	0.000468	0.00015	mg/L	0.000468	306.30%
Be 313.042†	-12.3	-0.00003	mg/L	0.000057	-0.00003	mg/L	0.000057	187.63%
Ca 317.933†	18.1	0.00195	mg/L	0.001161	0.00195	mg/L	0.001161	59.47%
Cd 228.802†	13.5	0.00059	mg/L	0.000477	0.00059	mg/L	0.000477	81.32%
Co 228.616†	-22.3	-0.00068	mg/L	0.000042	-0.00068	mg/L	0.000042	6.20%
Cr 267.716†	-10.1	-0.00274	mg/L	0.002672	-0.00274	mg/L	0.002672	97.49%
Cu 324.752†	283.2	0.00151	mg/L	0.000321	0.00151	mg/L	0.000321	21.29%
Fe 273.955†	4.3	0.00469	mg/L	0.002077	0.00469	mg/L	0.002077	44.25%
K 766.490†	90.0	0.09218	mg/L	0.076065	0.09218	mg/L	0.076065	82.52%
Mg 279.077†	4.8	0.00505	mg/L	0.004541	0.00505	mg/L	0.004541	89.97%
Mn 257.610†	12.4	0.00039	mg/L	0.000065	0.00039	mg/L	0.000065	16.66%
Mo 202.031†	-0.7	-0.00004	mg/L	0.000372	-0.00004	mg/L	0.000372	941.60%
Na 589.592†	-229.7	-0.02953	mg/L	0.007346	-0.02953	mg/L	0.007346	24.87%
Na 330.237†	-16.7	-0.9632	mg/L	0.63137	-0.9632	mg/L	0.63137	65.55%
Ni 231.604†	-7.5	-0.00250	mg/L	0.000088	-0.00250	mg/L	0.000088	3.53%
Pb 220.353†	-11.8	-0.00159	mg/L	0.000673	-0.00159	mg/L	0.000673	42.18%
Sb 206.836†	3.0	0.00121	mg/L	0.001269	0.00121	mg/L	0.001269	105.07%
Se 196.026†	-1.6	-0.00140	mg/L	0.003019	-0.00140	mg/L	0.003019	215.22%
Si 288.158†	8.9	0.01034	mg/L	0.002799	0.01034	mg/L	0.002799	27.08%
Sn 189.927†	-2.6	-0.00072	mg/L	0.000442	-0.00072	mg/L	0.000442	61.11%
Sr 421.552†	23.3	0.00008	mg/L	0.000129	0.00008	mg/L	0.000129	157.55%
Ti 334.903†	3.5	0.00028	mg/L	0.001065	0.00028	mg/L	0.001065	386.59%
Tl 190.801†	1.7	0.00085	mg/L	0.001224	0.00085	mg/L	0.001224	144.34%
V 292.402†	27.9	0.00033	mg/L	0.000146	0.00033	mg/L	0.000146	43.89%
Zn 206.200†	0.8	0.00034	mg/L	0.000353	0.00034	mg/L	0.000353	105.22%

Sequence No.: 20
Sample ID: SEQ-IBL4

Autosampler Location: 328
Date Collected: 8/13/2019 11:07:55 PM
Data Type: Original

Dilution: 1X
Wash Time: 200

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IBL4

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: SEQ-IBL4

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1811907.8	88.06	%	1.204				1.37%
ScR 361.383	183798.9	89.53	%	2.242				2.50%
Ag 328.068†	-52.5	-0.00034	mg/L	0.000316	-0.00034	mg/L	0.000316	92.16%
Al 308.215†	14.6	0.01404	mg/L	0.012285	0.01404	mg/L	0.012285	87.47%
As 188.979†	0.0	0.00006	mg/L	0.001068	0.00006	mg/L	0.001068	>999.9%
B 249.677†	163.2	0.02562	mg/L	0.000242	0.02562	mg/L	0.000242	0.95%
Ba 233.527†	1.3	0.00032	mg/L	0.000857	0.00032	mg/L	0.000857	265.37%
Be 313.042†	-28.8	-0.00007	mg/L	0.000073	-0.00007	mg/L	0.000073	105.00%
Ca 317.933†	17.0	0.00184	mg/L	0.002757	0.00184	mg/L	0.002757	149.96%
Cd 228.802†	15.0	0.00064	mg/L	0.000233	0.00064	mg/L	0.000233	36.37%
Co 228.616†	-18.2	-0.00056	mg/L	0.000039	-0.00056	mg/L	0.000039	7.08%
Cr 267.716†	-10.9	-0.00295	mg/L	0.000497	-0.00295	mg/L	0.000497	16.83%
Cu 324.752†	261.3	0.00139	mg/L	0.000444	0.00139	mg/L	0.000444	31.92%
Fe 273.955†	1.9	0.00208	mg/L	0.003413	0.00208	mg/L	0.003413	164.33%
K 766.490†	78.8	0.08078	mg/L	0.056890	0.08078	mg/L	0.056890	70.42%
Mg 279.077†	4.5	0.00480	mg/L	0.008134	0.00480	mg/L	0.008134	169.48%
Mn 257.610†	10.6	0.00034	mg/L	0.000368	0.00034	mg/L	0.000368	109.07%
Mo 202.031†	4.2	0.00026	mg/L	0.000455	0.00026	mg/L	0.000455	177.30%
Na 589.592†	-322.1	-0.04142	mg/L	0.003049	-0.04142	mg/L	0.003049	7.36%
Na 330.237†	-19.2	-1.110	mg/L	0.8496	-1.110	mg/L	0.8496	76.50%
Ni 231.604†	1.1	0.00037	mg/L	0.002780	0.00037	mg/L	0.002780	747.38%
Pb 220.353†	-6.4	-0.00087	mg/L	0.000546	-0.00087	mg/L	0.000546	62.81%
Sb 206.836†	-3.0	-0.00113	mg/L	0.001452	-0.00113	mg/L	0.001452	129.00%
Se 196.026†	-5.2	-0.00449	mg/L	0.002761	-0.00449	mg/L	0.002761	61.44%
Si 288.158†	7.4	0.00861	mg/L	0.008337	0.00861	mg/L	0.008337	96.80%
Sn 189.927†	-2.5	-0.00071	mg/L	0.001092	-0.00071	mg/L	0.001092	153.05%
Sr 421.552†	25.8	0.00009	mg/L	0.000162	0.00009	mg/L	0.000162	178.43%
Ti 334.903†	19.5	0.00155	mg/L	0.000662	0.00155	mg/L	0.000662	42.74%
Tl 190.801†	-1.9	-0.00092	mg/L	0.001538	-0.00092	mg/L	0.001538	167.46%
V 292.402†	48.5	0.00059	mg/L	0.000140	0.00059	mg/L	0.000140	23.85%
Zn 206.200†	-0.8	-0.00036	mg/L	0.000896	-0.00036	mg/L	0.000896	251.89%

Sequence No.: 21
Sample ID: BHH0242-DUP1

Autosampler Location: 329
Date Collected: 8/13/2019 11:14:36 PM
Data Type: Original

Dilution: 5X
Wash Time: 200

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0242-DUP1

Analyte	Back Pressure	Flow
All	174.0 kPa	0.65 L/min

Mean Data: BHH0242-DUP1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1791019.8	87.04	%	1.143				1.31%
ScR 361.383	183870.2	89.57	%	0.270				0.30%
Ag 328.068†	-10.9	-0.00007	mg/L	0.000230	-0.00036	mg/L	0.001148	319.00%
Al 308.215†	140.0	-0.01314	mg/L	0.021683	-0.06572	mg/L	0.108416	164.96%
As 188.979†	45.1	0.00230	mg/L	0.002265	0.01148	mg/L	0.011324	98.62%
B 249.677†	191.4	0.04093	mg/L	0.001189	0.2047	mg/L	0.00594	2.90%
Ba 233.527†	9.0	0.00228	mg/L	0.000373	0.01140	mg/L	0.001863	16.34%
Be 313.042†	-11.0	-0.00002	mg/L	0.000074	-0.00009	mg/L	0.000370	414.91%
Ca 317.933†	29447.5	3.141	mg/L	0.0228	15.71	mg/L	0.114	0.73%
Cd 228.802†	24.3	0.00083	mg/L	0.000327	0.00416	mg/L	0.001635	39.25%
Co 228.616†	-45.2	-0.00069	mg/L	0.000075	-0.00344	mg/L	0.000375	10.89%
Cr 267.716†	-16.8	-0.00467	mg/L	0.000771	-0.02334	mg/L	0.003853	16.51%
Cu 324.752†	1532.8	0.00575	mg/L	0.000552	0.02877	mg/L	0.002762	9.60%
Fe 273.955†	31.9	0.03519	mg/L	0.001900	0.1760	mg/L	0.00950	5.40%
K 766.490†	551.8	0.5654	mg/L	0.02302	2.827	mg/L	0.1151	4.07%
Mg 279.077†	591.4	0.6827	mg/L	0.00254	3.413	mg/L	0.0127	0.37%
Mn 257.610†	359.3	0.01138	mg/L	0.000205	0.05688	mg/L	0.001023	1.80%
Mo 202.031†	114507.0	6.928	mg/L	0.0757	34.64	mg/L	0.378	1.09%
Na 589.592†	296734.7	38.15	mg/L	0.018	190.8	mg/L	0.09	0.05%
Na 330.237†	632.0	36.52	mg/L	0.876	182.6	mg/L	4.38	2.40%
Ni 231.604†	-2.4	-0.00081	mg/L	0.002477	-0.00404	mg/L	0.012387	306.56%
Pb 220.353†	-8.6	-0.00115	mg/L	0.001000	-0.00574	mg/L	0.004998	87.11%
Sb 206.836†	5.8	0.00234	mg/L	0.002144	0.01172	mg/L	0.010719	91.46%
Se 196.026†	-9.1	-0.00782	mg/L	0.006584	-0.03910	mg/L	0.032918	84.19%
Si 288.158†	7267.6	8.427	mg/L	0.0788	42.14	mg/L	0.394	0.94%
Sn 189.927†	-5.7	-0.00106	mg/L	0.000119	-0.00532	mg/L	0.000595	11.18%
Sr 421.552†	3112.4	0.01090	mg/L	0.000082	0.05452	mg/L	0.000410	0.75%
Ti 334.903†	63.7	-0.00184	mg/L	0.001215	-0.00918	mg/L	0.006076	66.18%
Tl 190.801†	-8.4	0.00228	mg/L	0.003018	0.01138	mg/L	0.015089	132.55%
V 292.402†	-146.1	0.00080	mg/L	0.000164	0.00399	mg/L	0.000818	20.52%
Zn 206.200†	80.3	0.03437	mg/L	0.001264	0.1719	mg/L	0.00632	3.68%

Sequence No.: 22
Sample ID: 19H0108-01

Dilution: 5X
Wash Time: 100

Autosampler Location: 330
Date Collected: 8/13/2019 11:19:52 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: 19H0108-01

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: 19H0108-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
ScA 357.253	1791099.7	87.04	%	0.532				0.61%
ScR 361.383	184769.7	90.01	%	2.038				2.26%
Ag 328.068†	32.8	0.00021	mg/L	0.000248	0.00107	mg/L	0.001239	115.83%
Al 308.215†	136.1	-0.01955	mg/L	0.014470	-0.09774	mg/L	0.072348	74.02%
As 188.979†	43.5	0.00068	mg/L	0.001727	0.00339	mg/L	0.008637	255.08%
B 249.677†	172.2	0.03811	mg/L	0.001698	0.1905	mg/L	0.00849	4.46%
Ba 233.527†	4.7	0.00120	mg/L	0.000889	0.00599	mg/L	0.004446	74.26%
Be 313.042†	15.8	0.00004	mg/L	0.000083	0.00022	mg/L	0.000413	183.85%
Ca 317.933†	29949.7	3.195	mg/L	0.0864	15.97	mg/L	0.432	2.71%
Cd 228.802†	25.4	0.00089	mg/L	0.000275	0.00444	mg/L	0.001377	31.03%
Co 228.616†	-45.1	-0.00067	mg/L	0.000150	-0.00335	mg/L	0.000750	22.34%
Cr 267.716†	-15.6	-0.00435	mg/L	0.001921	-0.02173	mg/L	0.009603	44.19%
Cu 324.752†	1592.3	0.00603	mg/L	0.000375	0.03014	mg/L	0.001873	6.21%
Fe 273.955†	27.9	0.03077	mg/L	0.001972	0.1539	mg/L	0.00986	6.41%
K 766.490†	545.5	0.5590	mg/L	0.04328	2.795	mg/L	0.2164	7.74%
Mg 279.077†	601.3	0.6941	mg/L	0.02193	3.471	mg/L	0.1096	3.16%
Mn 257.610†	358.0	0.01133	mg/L	0.000653	0.05666	mg/L	0.003263	5.76%
Mo 202.031†	116510.3	7.050	mg/L	0.1279	35.25	mg/L	0.639	1.81%
Na 589.592†	301379.9	38.75	mg/L	0.247	193.8	mg/L	1.24	0.64%
Na 330.237†	649.5	37.54	mg/L	0.529	187.7	mg/L	2.65	1.41%
Ni 231.604†	-6.6	-0.00221	mg/L	0.001685	-0.01107	mg/L	0.008426	76.10%
Pb 220.353†	-11.4	-0.00152	mg/L	0.001316	-0.00760	mg/L	0.006579	86.58%
Sb 206.836†	4.6	0.00186	mg/L	0.001443	0.00929	mg/L	0.007217	77.66%
Se 196.026†	-8.0	-0.00685	mg/L	0.003412	-0.03427	mg/L	0.017059	49.78%
Si 288.158†	7367.6	8.543	mg/L	0.2343	42.72	mg/L	1.172	2.74%
Sn 189.927†	-11.6	-0.00274	mg/L	0.001123	-0.01369	mg/L	0.005613	40.99%
Sr 421.552†	3110.8	0.01090	mg/L	0.000316	0.05449	mg/L	0.001580	2.90%
Ti 334.903†	68.6	-0.00157	mg/L	0.000792	-0.00785	mg/L	0.003962	50.47%
Tl 190.801†	-7.8	0.00267	mg/L	0.003616	0.01337	mg/L	0.018080	135.21%
V 292.402†	-157.3	0.00070	mg/L	0.000201	0.00352	mg/L	0.001003	28.47%
Zn 206.200†	78.3	0.03344	mg/L	0.001108	0.1672	mg/L	0.00554	3.31%

Sequence No.: 23
Sample ID: BHH0242-MS1

Dilution: 5X
Wash Time: 100

Autosampler Location: 331
Date Collected: 8/13/2019 11:25:08 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: BHH0242-MS1

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: BHH0242-MS1

Analyte	Mean Corrected Intensity	Calib. Conc.	Units		Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
ScA 357.253	1797213.3	87.34	%		0.986				1.13%
ScR 361.383	186436.2	90.82	%		1.078				1.19%
Ag 328.068†	16995.8	0.1111	mg/L		0.00197	0.5555	mg/L	0.00984	1.77%
Al 308.215†	602.4	0.4278	mg/L		0.00809	2.139	mg/L	0.0404	1.89%
As 188.979†	622.2	0.4032	mg/L		0.00373	2.016	mg/L	0.0187	0.93%
B 249.677†	149.3	0.03437	mg/L		0.000506	0.1719	mg/L	0.00253	1.47%
Ba 233.527†	1668.4	0.4230	mg/L		0.00222	2.115	mg/L	0.0111	0.53%
Be 313.042†	43898.1	0.1014	mg/L		0.00072	0.5070	mg/L	0.00362	0.71%
Ca 317.933†	46889.1	5.001	mg/L		0.0192	25.00	mg/L	0.096	0.38%
Cd 228.802†	2555.5	0.1067	mg/L		0.00072	0.5334	mg/L	0.00359	0.67%
Co 228.616†	3483.9	0.1068	mg/L		0.00102	0.5338	mg/L	0.00511	0.96%
Cr 267.716†	371.2	0.1004	mg/L		0.00085	0.5019	mg/L	0.00423	0.84%
Cu 324.752†	22575.1	0.1178	mg/L		0.00270	0.5889	mg/L	0.01350	2.29%
Fe 273.955†	399.2	0.4398	mg/L		0.00370	2.199	mg/L	0.0185	0.84%
K 766.490†	2532.4	2.595	mg/L		0.0674	12.97	mg/L	0.337	2.60%
Mg 279.077†	2635.2	2.848	mg/L		0.0080	14.24	mg/L	0.040	0.28%
Mn 257.610†	3785.4	0.1200	mg/L		0.00062	0.5999	mg/L	0.00310	0.52%
Mo 202.031†	117447.0	7.106	mg/L	STL	0.1501	35.53	mg/L	0.751	2.11%
Na 589.592†	308345.0	39.65	mg/L		0.220	198.2	mg/L	1.10	0.55%
Na 330.237†	687.8	39.71	mg/L		0.333	198.5	mg/L	1.67	0.84%
Ni 231.604†	314.5	0.1050	mg/L		0.00064	0.5251	mg/L	0.00322	0.61%
Pb 220.353†	3066.9	0.4143	mg/L		0.00410	2.072	mg/L	0.0205	0.99%
Sb 206.836†	3.8	0.00017	mg/L		0.003019	0.00084	mg/L	0.015096	>999.9%
Se 196.026†	458.5	0.3925	mg/L		0.00337	1.963	mg/L	0.0168	0.86%
Si 288.158†	7089.1	8.221	mg/L		0.0829	41.10	mg/L	0.414	1.01%
Sn 189.927†	-13.3	-0.00290	mg/L		0.000664	-0.01451	mg/L	0.003322	22.90%
Sr 421.552†	34297.7	0.1201	mg/L		0.00108	0.6007	mg/L	0.00542	0.90%
Ti 334.903†	85.2	-0.00044	mg/L		0.000381	-0.00218	mg/L	0.001904	87.33%
Tl 190.801†	833.2	0.4164	mg/L		0.00632	2.082	mg/L	0.0316	1.52%
V 292.402†	7950.6	0.1032	mg/L		0.00250	0.5159	mg/L	0.01248	2.42%
Zn 206.200†	301.7	0.1345	mg/L		0.00167	0.6725	mg/L	0.00834	1.24%

Sequence No.: 24
Sample ID: SEQ-IBL5

Autosampler Location: 332
Date Collected: 8/13/2019 11:30:09 PM
Data Type: Original

Dilution: 1X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-IBL5

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: SEQ-IBL5

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1832428.1	89.05	%	1.211				1.36%
ScR 361.383	187653.3	91.41	%	2.135				2.34%
Ag 328.068†	-4.7	-0.00003	mg/L	0.000049	-0.00003	mg/L	0.000049	159.67%
Al 308.215†	-5.7	-0.00566	mg/L	0.021038	-0.00566	mg/L	0.021038	371.58%
As 188.979†	-0.1	-0.00009	mg/L	0.000811	-0.00009	mg/L	0.000811	950.80%
B 249.677†	58.7	0.00922	mg/L	0.002067	0.00922	mg/L	0.002067	22.41%
Ba 233.527†	1.7	0.00044	mg/L	0.001311	0.00044	mg/L	0.001311	297.93%
Be 313.042†	-20.1	-0.00005	mg/L	0.000055	-0.00005	mg/L	0.000055	117.25%
Ca 317.933†	30.8	0.00329	mg/L	0.000117	0.00329	mg/L	0.000117	3.55%
Cd 228.802†	17.6	0.00076	mg/L	0.000367	0.00076	mg/L	0.000367	48.46%
Co 228.616†	-20.7	-0.00063	mg/L	0.000075	-0.00063	mg/L	0.000075	11.87%
Cr 267.716†	-7.7	-0.00210	mg/L	0.002313	-0.00210	mg/L	0.002313	110.35%
Cu 324.752†	248.4	0.00132	mg/L	0.000473	0.00132	mg/L	0.000473	35.79%
Fe 273.955†	3.7	0.00405	mg/L	0.003341	0.00405	mg/L	0.003341	82.44%
K 766.490†	10.2	0.01049	mg/L	0.038987	0.01049	mg/L	0.038987	371.61%
Mg 279.077†	2.7	0.00292	mg/L	0.009550	0.00292	mg/L	0.009550	326.55%
Mn 257.610†	2.7	0.00009	mg/L	0.000100	0.00009	mg/L	0.000100	115.98%
Mo 202.031†	106.0	0.00641	mg/L	0.002972	0.00641	mg/L	0.002972	46.34%
Na 589.592†	-306.0	-0.03935	mg/L	0.002014	-0.03935	mg/L	0.002014	5.12%
Na 330.237†	-2.7	-0.1562	mg/L	0.29830	-0.1562	mg/L	0.29830	190.91%
Ni 231.604†	1.1	0.00036	mg/L	0.001968	0.00036	mg/L	0.001968	550.65%
Pb 220.353†	-4.4	-0.00061	mg/L	0.001441	-0.00061	mg/L	0.001441	237.65%
Sb 206.836†	5.0	0.00199	mg/L	0.002517	0.00199	mg/L	0.002517	126.58%
Se 196.026†	-1.6	-0.00133	mg/L	0.004829	-0.00133	mg/L	0.004829	362.70%
Si 288.158†	21.6	0.02502	mg/L	0.005385	0.02502	mg/L	0.005385	21.52%
Sn 189.927†	-5.6	-0.00159	mg/L	0.000316	-0.00159	mg/L	0.000316	19.87%
Sr 421.552†	31.6	0.00011	mg/L	0.000079	0.00011	mg/L	0.000079	71.61%
Ti 334.903†	13.3	0.00105	mg/L	0.000681	0.00105	mg/L	0.000681	64.82%
Tl 190.801†	2.4	0.00120	mg/L	0.000463	0.00120	mg/L	0.000463	38.68%
V 292.402†	6.0	0.00006	mg/L	0.000438	0.00006	mg/L	0.000438	682.95%
Zn 206.200†	1.0	0.00046	mg/L	0.001023	0.00046	mg/L	0.001023	224.08%

Sequence No.: 25
Sample ID: SEQ-CCVC

Autosampler Location: 7
Date Collected: 8/13/2019 11:35:10 PM
Data Type: Original

Dilution: 1X
Wash Time: 100

Auto Dilution Factor: 1

Nebulizer Parameters: SEQ-CCVC

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: SEQ-CCVC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1843648.8	89.60	%	0.278				0.31%
ScR 361.383	191317.8	93.20	%	1.993				2.14%
Ag 328.068†	158546.3	1.036	mg/L	0.0114	1.036	mg/L	0.0114	1.10%
Al 308.215†	2134.2	2.022	mg/L	0.0479	2.022	mg/L	0.0479	2.37%
As 188.979†	2717.2	1.916	mg/L	0.0179	1.916	mg/L	0.0179	0.93%
B 249.677†	6568.7	1.030	mg/L	0.0197	1.030	mg/L	0.0197	1.92%
Ba 233.527†	3883.1	0.9832	mg/L	0.01959	0.9832	mg/L	0.01959	1.99%
Be 313.042†	429831.0	0.9929	mg/L	0.00556	0.9929	mg/L	0.00556	0.56%
Ca 317.933†	19097.8	2.024	mg/L	0.0419	2.024	mg/L	0.0419	2.07%
Cd 228.802†	23327.7	0.9874	mg/L	0.01662	0.9874	mg/L	0.01662	1.68%
Co 228.616†	33146.2	1.008	mg/L	0.0133	1.008	mg/L	0.0133	1.32%
Cr 267.716†	3514.1	0.9537	mg/L	0.02325	0.9537	mg/L	0.02325	2.44%
Cu 324.752†	197483.4	1.051	mg/L	0.0136	1.051	mg/L	0.0136	1.30%
Fe 273.955†	1722.8	1.894	mg/L	0.0314	1.894	mg/L	0.0314	1.66%
K 766.490†	19442.2	19.92	mg/L	0.066	19.92	mg/L	0.066	0.33%
Mg 279.077†	1891.4	2.014	mg/L	0.0394	2.014	mg/L	0.0394	1.96%
Mn 257.610†	32163.4	1.019	mg/L	0.0208	1.019	mg/L	0.0208	2.04%
Mo 202.031†	16630.3	1.006	mg/L	0.0115	1.006	mg/L	0.0115	1.14%
Na 589.592†	402477.9	51.75	mg/L	0.137	51.75	mg/L	0.137	0.26%
Na 330.237†	873.6	50.30	mg/L	0.847	50.30	mg/L	0.847	1.68%
Ni 231.604†	2928.5	0.9796	mg/L	0.01973	0.9796	mg/L	0.01973	2.01%
Pb 220.353†	14587.6	1.971	mg/L	0.0342	1.971	mg/L	0.0342	1.74%
Sb 206.836†	5447.6	2.122	mg/L	0.0226	2.122	mg/L	0.0226	1.06%
Se 196.026†	2321.1	1.987	mg/L	0.0206	1.987	mg/L	0.0206	1.04%
Si 288.158†	1938.1	2.249	mg/L	0.0509	2.249	mg/L	0.0509	2.26%
Sn 189.927†	3635.6	1.027	mg/L	0.0115	1.027	mg/L	0.0115	1.12%
Sr 421.552†	289975.6	1.016	mg/L	0.0044	1.016	mg/L	0.0044	0.43%
Ti 334.903†	12496.8	0.9895	mg/L	0.00200	0.9895	mg/L	0.00200	0.20%
Tl 190.801†	4026.6	1.977	mg/L	0.0222	1.977	mg/L	0.0222	1.12%
V 292.402†	77188.5	0.9752	mg/L	0.00860	0.9752	mg/L	0.00860	0.88%
Zn 206.200†	2155.1	0.9745	mg/L	0.01756	0.9745	mg/L	0.01756	1.80%

Sequence No.: 26 **Autosampler Location: 1**
Sample ID: SEQ-CCBC **Date Collected: 8/13/2019 11:40:13 PM**
Data Type: Original
Dilution: 1X
Wash Time: 100 **Auto Dilution Factor: 1**

Nebulizer Parameters: SEQ-CCBC

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: SEQ-CCBC

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1836391.7	89.25	%	1.301				1.46%
ScR 361.383	185046.1	90.14	%	1.861				2.06%
Ag 328.068†	-38.3	-0.00025	mg/L	0.000373	-0.00025	mg/L	0.000373	149.03%
Al 308.215†	7.2	0.00695	mg/L	0.010866	0.00695	mg/L	0.010866	156.32%
As 188.979†	0.6	0.00048	mg/L	0.002811	0.00048	mg/L	0.002811	585.65%
B 249.677†	71.4	0.01122	mg/L	0.001045	0.01122	mg/L	0.001045	9.32%
Ba 233.527†	6.3	0.00159	mg/L	0.000489	0.00159	mg/L	0.000489	30.75%
Be 313.042†	-37.0	-0.00009	mg/L	0.000025	-0.00009	mg/L	0.000025	29.09%
Ca 317.933†	29.6	0.00317	mg/L	0.000845	0.00317	mg/L	0.000845	26.64%
Cd 228.802†	12.3	0.00052	mg/L	0.000245	0.00052	mg/L	0.000245	46.71%
Co 228.616†	-14.2	-0.00043	mg/L	0.000248	-0.00043	mg/L	0.000248	57.02%
Cr 267.716†	-12.6	-0.00341	mg/L	0.001637	-0.00341	mg/L	0.001637	48.01%
Cu 324.752†	244.8	0.00130	mg/L	0.000258	0.00130	mg/L	0.000258	19.83%
Fe 273.955†	3.9	0.00427	mg/L	0.002828	0.00427	mg/L	0.002828	66.29%
K 766.490†	46.7	0.04783	mg/L	0.043815	0.04783	mg/L	0.043815	91.61%
Mg 279.077†	-1.1	-0.00119	mg/L	0.016740	-0.00119	mg/L	0.016740	>999.9%
Mn 257.610†	14.0	0.00044	mg/L	0.000042	0.00044	mg/L	0.000042	9.38%
Mo 202.031†	16.3	0.00099	mg/L	0.000437	0.00099	mg/L	0.000437	44.18%
Na 589.592†	-304.7	-0.03918	mg/L	0.001225	-0.03918	mg/L	0.001225	3.13%
Na 330.237†	-5.6	-0.3233	mg/L	0.44979	-0.3233	mg/L	0.44979	139.14%
Ni 231.604†	-1.3	-0.00043	mg/L	0.002304	-0.00043	mg/L	0.002304	537.77%
Pb 220.353†	-7.0	-0.00096	mg/L	0.000699	-0.00096	mg/L	0.000699	73.13%
Sb 206.836†	1.1	0.00050	mg/L	0.003306	0.00050	mg/L	0.003306	658.06%
Se 196.026†	0.2	0.00021	mg/L	0.002868	0.00021	mg/L	0.002868	>999.9%
Si 288.158†	6.2	0.00715	mg/L	0.007734	0.00715	mg/L	0.007734	108.17%
Sn 189.927†	1.2	0.00033	mg/L	0.000952	0.00033	mg/L	0.000952	284.98%
Sr 421.552†	29.0	0.00010	mg/L	0.000063	0.00010	mg/L	0.000063	62.29%
Ti 334.903†	12.8	0.00101	mg/L	0.002594	0.00101	mg/L	0.002594	256.72%
Tl 190.801†	4.1	0.00201	mg/L	0.000948	0.00201	mg/L	0.000948	47.20%
V 292.402†	14.5	0.00016	mg/L	0.000392	0.00016	mg/L	0.000392	246.05%
Zn 206.200†	2.1	0.00093	mg/L	0.001432	0.00093	mg/L	0.001432	153.67%

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Sequence No.: 27
Sample ID: RINSE - 1

Autosampler Location: 9
Date Collected: 8/13/2019 11:44:12 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: RINSE - 1

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: RINSE - 1

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1839918.2	89.42	%	1.766				1.97%
ScR 361.383	193822.9	94.42	%	2.571				2.72%
Ag 328.068†	-22.6	-0.00015	mg/L	0.000141	-0.00015	mg/L	0.000141	95.24%
Al 308.215†	-14.2	-0.01369	mg/L	0.012990	-0.01369	mg/L	0.012990	94.90%
As 188.979†	-0.6	-0.00041	mg/L	0.004339	-0.00041	mg/L	0.004339	>999.9%
B 249.677†	51.3	0.00805	mg/L	0.001442	0.00805	mg/L	0.001442	17.91%
Ba 233.527†	-2.0	-0.00050	mg/L	0.000907	-0.00050	mg/L	0.000907	182.94%
Be 313.042†	-55.8	-0.00013	mg/L	0.000041	-0.00013	mg/L	0.000041	31.35%
Ca 317.933†	45.0	0.00481	mg/L	0.000983	0.00481	mg/L	0.000983	20.43%
Cd 228.802†	20.5	0.00088	mg/L	0.000044	0.00088	mg/L	0.000044	4.99%
Co 228.616†	-15.9	-0.00048	mg/L	0.000142	-0.00048	mg/L	0.000142	29.36%
Cr 267.716†	3.1	0.00084	mg/L	0.001864	0.00084	mg/L	0.001864	220.61%
Cu 324.752†	249.3	0.00133	mg/L	0.000225	0.00133	mg/L	0.000225	16.93%
Fe 273.955†	3.5	0.00381	mg/L	0.000485	0.00381	mg/L	0.000485	12.72%
K 766.490†	49.5	0.05071	mg/L	0.037998	0.05071	mg/L	0.037998	74.93%
Mg 279.077†	-0.9	-0.00098	mg/L	0.012708	-0.00098	mg/L	0.012708	>999.9%
Mn 257.610†	1.2	0.00004	mg/L	0.000319	0.00004	mg/L	0.000319	856.53%
Mo 202.031†	3.4	0.00020	mg/L	0.000395	0.00020	mg/L	0.000395	192.77%
Na 589.592†	-281.5	-0.03620	mg/L	0.003994	-0.03620	mg/L	0.003994	11.03%
Na 330.237†	-9.9	-0.5707	mg/L	0.28626	-0.5707	mg/L	0.28626	50.16%
Ni 231.604†	1.4	0.00046	mg/L	0.000546	0.00046	mg/L	0.000546	117.47%
Pb 220.353†	-5.0	-0.00068	mg/L	0.000687	-0.00068	mg/L	0.000687	100.36%
Sb 206.836†	5.0	0.00193	mg/L	0.001150	0.00193	mg/L	0.001150	59.59%
Se 196.026†	-7.4	-0.00631	mg/L	0.003379	-0.00631	mg/L	0.003379	53.59%
Si 288.158†	0.5	0.00062	mg/L	0.006110	0.00062	mg/L	0.006110	989.02%
Sn 189.927†	1.0	0.00028	mg/L	0.000420	0.00028	mg/L	0.000420	148.09%
Sr 421.552†	-19.5	-0.00007	mg/L	0.000171	-0.00007	mg/L	0.000171	249.61%
Ti 334.903†	-3.1	-0.00025	mg/L	0.001085	-0.00025	mg/L	0.001085	440.52%
Tl 190.801†	4.0	0.00198	mg/L	0.002473	0.00198	mg/L	0.002473	125.13%
V 292.402†	14.4	0.00019	mg/L	0.000128	0.00019	mg/L	0.000128	68.74%
Zn 206.200†	3.8	0.00172	mg/L	0.000632	0.00172	mg/L	0.000632	36.79%

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Sequence No.: 28
Sample ID: RINSE - 2

Dilution: 1X
Wash Time: 37

Autosampler Location: 9
Date Collected: 8/13/2019 11:48:11 PM
Data Type: Original

Auto Dilution Factor: 1

Nebulizer Parameters: RINSE - 2

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: RINSE - 2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1840582.9	89.45	%	1.389				1.55%
ScR 361.383	190270.5	92.69	%	2.246				2.42%
Ag 328.068†	-12.9	-0.00008	mg/L	0.000221	-0.00008	mg/L	0.000221	263.17%
Al 308.215†	-8.4	-0.00814	mg/L	0.019845	-0.00814	mg/L	0.019845	243.65%
As 188.979†	-2.9	-0.00202	mg/L	0.002595	-0.00202	mg/L	0.002595	128.39%
B 249.677†	42.6	0.00669	mg/L	0.000887	0.00669	mg/L	0.000887	13.25%
Ba 233.527†	1.3	0.00032	mg/L	0.001210	0.00032	mg/L	0.001210	378.51%
Be 313.042†	-67.7	-0.00016	mg/L	0.000076	-0.00016	mg/L	0.000076	47.69%
Ca 317.933†	40.2	0.00429	mg/L	0.001547	0.00429	mg/L	0.001547	36.05%
Cd 228.802†	18.0	0.00078	mg/L	0.000181	0.00078	mg/L	0.000181	23.15%
Co 228.616†	-17.4	-0.00053	mg/L	0.000136	-0.00053	mg/L	0.000136	25.55%
Cr 267.716†	-2.5	-0.00069	mg/L	0.002401	-0.00069	mg/L	0.002401	347.88%
Cu 324.752†	260.3	0.00139	mg/L	0.000122	0.00139	mg/L	0.000122	8.81%
Fe 273.955†	3.4	0.00371	mg/L	0.004278	0.00371	mg/L	0.004278	115.23%
K 766.490†	42.1	0.04315	mg/L	0.049047	0.04315	mg/L	0.049047	113.67%
Mg 279.077†	8.6	0.00907	mg/L	0.008878	0.00907	mg/L	0.008878	97.87%
Mn 257.610†	7.3	0.00023	mg/L	0.000216	0.00023	mg/L	0.000216	93.38%
Mo 202.031†	8.9	0.00054	mg/L	0.000157	0.00054	mg/L	0.000157	29.34%
Na 589.592†	-332.2	-0.04272	mg/L	0.004642	-0.04272	mg/L	0.004642	10.87%
Na 330.237†	1.4	0.08102	mg/L	0.416574	0.08102	mg/L	0.416574	514.16%
Ni 231.604†	-5.1	-0.00169	mg/L	0.002506	-0.00169	mg/L	0.002506	148.22%
Pb 220.353†	-11.4	-0.00154	mg/L	0.000356	-0.00154	mg/L	0.000356	23.06%
Sb 206.836†	-3.4	-0.00132	mg/L	0.002705	-0.00132	mg/L	0.002705	205.33%
Se 196.026†	-10.0	-0.00860	mg/L	0.002034	-0.00860	mg/L	0.002034	23.65%
Si 288.158†	1.6	0.00183	mg/L	0.008086	0.00183	mg/L	0.008086	441.25%
Sn 189.927†	-1.4	-0.00041	mg/L	0.000656	-0.00041	mg/L	0.000656	160.72%
Sr 421.552†	11.0	0.00004	mg/L	0.000072	0.00004	mg/L	0.000072	187.95%
Ti 334.903†	10.6	0.00084	mg/L	0.000674	0.00084	mg/L	0.000674	80.20%
Tl 190.801†	-1.4	-0.00067	mg/L	0.001449	-0.00067	mg/L	0.001449	216.81%
V 292.402†	34.6	0.00043	mg/L	0.000255	0.00043	mg/L	0.000255	59.34%
Zn 206.200†	3.1	0.00140	mg/L	0.000605	0.00140	mg/L	0.000605	43.36%

Sequence No.: 29 **Autosampler Location: 9**
Sample ID: RINSE - 3 **Date Collected: 8/13/2019 11:52:10 PM**
Data Type: Original

Dilution: 1X
Wash Time: 37 **Auto Dilution Factor: 1**

Nebulizer Parameters: RINSE - 3

Analyte	Back Pressure	Flow
All	176.0 kPa	0.65 L/min

Mean Data: RINSE - 3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1873918.3	91.07	%	1.950				2.14%
ScR 361.383	192990.3	94.01	%	1.278				1.36%
Ag 328.068†	-24.4	-0.00016	mg/L	0.000366	-0.00016	mg/L	0.000366	229.47%
Al 308.215†	-2.2	-0.00213	mg/L	0.006111	-0.00213	mg/L	0.006111	286.73%
As 188.979†	0.3	0.00020	mg/L	0.000728	0.00020	mg/L	0.000728	366.72%
B 249.677†	39.0	0.00612	mg/L	0.001997	0.00612	mg/L	0.001997	32.64%
Ba 233.527†	-0.3	-0.00008	mg/L	0.000226	-0.00008	mg/L	0.000226	287.91%
Be 313.042†	-78.4	-0.00018	mg/L	0.000007	-0.00018	mg/L	0.000007	4.02%
Ca 317.933†	38.2	0.00409	mg/L	0.001430	0.00409	mg/L	0.001430	34.99%
Cd 228.802†	19.0	0.00081	mg/L	0.000247	0.00081	mg/L	0.000247	30.36%
Co 228.616†	-14.1	-0.00043	mg/L	0.000108	-0.00043	mg/L	0.000108	25.23%
Cr 267.716†	-4.1	-0.00111	mg/L	0.001901	-0.00111	mg/L	0.001901	170.84%
Cu 324.752†	218.3	0.00116	mg/L	0.000367	0.00116	mg/L	0.000367	31.61%
Fe 273.955†	1.7	0.00184	mg/L	0.001756	0.00184	mg/L	0.001756	95.47%
K 766.490†	19.7	0.02024	mg/L	0.036602	0.02024	mg/L	0.036602	180.88%
Mg 279.077†	3.0	0.00315	mg/L	0.004772	0.00315	mg/L	0.004772	151.41%
Mn 257.610†	8.4	0.00026	mg/L	0.000128	0.00026	mg/L	0.000128	48.34%
Mo 202.031†	5.3	0.00032	mg/L	0.000133	0.00032	mg/L	0.000133	41.30%
Na 589.592†	-353.9	-0.04551	mg/L	0.002145	-0.04551	mg/L	0.002145	4.71%
Na 330.237†	-4.4	-0.2542	mg/L	1.66007	-0.2542	mg/L	1.66007	652.95%
Ni 231.604†	2.6	0.00086	mg/L	0.001887	0.00086	mg/L	0.001887	219.42%
Pb 220.353†	-8.0	-0.00108	mg/L	0.001004	-0.00108	mg/L	0.001004	92.95%
Sb 206.836†	-2.3	-0.00088	mg/L	0.000906	-0.00088	mg/L	0.000906	103.05%
Se 196.026†	-4.1	-0.00355	mg/L	0.002408	-0.00355	mg/L	0.002408	67.86%
Si 288.158†	4.7	0.00548	mg/L	0.003976	0.00548	mg/L	0.003976	72.55%
Sn 189.927†	-0.2	-0.00005	mg/L	0.000215	-0.00005	mg/L	0.000215	453.55%
Sr 421.552†	-15.3	-0.00005	mg/L	0.000080	-0.00005	mg/L	0.000080	148.42%
Ti 334.903†	6.3	0.00050	mg/L	0.001893	0.00050	mg/L	0.001893	379.97%
Tl 190.801†	1.5	0.00074	mg/L	0.001954	0.00074	mg/L	0.001954	262.68%
V 292.402†	3.5	0.00004	mg/L	0.000175	0.00004	mg/L	0.000175	475.90%
Zn 206.200†	1.6	0.00070	mg/L	0.000753	0.00070	mg/L	0.000753	107.20%

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Sequence No.: 30
Sample ID: RINSE - 4

Autosampler Location: 9
Date Collected: 8/13/2019 11:56:09 PM
Data Type: Original

Dilution: 1X
Wash Time: 37

Auto Dilution Factor: 1

Nebulizer Parameters: RINSE - 4

Analyte	Back Pressure	Flow
All	175.0 kPa	0.65 L/min

Mean Data: RINSE - 4

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
ScA 357.253	1853607.5	90.08	%	1.334				1.48%
ScR 361.383	192473.9	93.76	%	1.857				1.98%
Ag 328.068†	-26.7	-0.00017	mg/L	0.000130	-0.00017	mg/L	0.000130	74.45%
Al 308.215†	-0.6	-0.00056	mg/L	0.010689	-0.00056	mg/L	0.010689	>999.9%
As 188.979†	0.5	0.00035	mg/L	0.001201	0.00035	mg/L	0.001201	341.61%
B 249.677†	40.6	0.00638	mg/L	0.000211	0.00638	mg/L	0.000211	3.30%
Ba 233.527†	1.5	0.00038	mg/L	0.000169	0.00038	mg/L	0.000169	44.52%
Be 313.042†	-94.0	-0.00022	mg/L	0.000029	-0.00022	mg/L	0.000029	13.31%
Ca 317.933†	33.4	0.00357	mg/L	0.001813	0.00357	mg/L	0.001813	50.72%
Cd 228.802†	21.7	0.00093	mg/L	0.000016	0.00093	mg/L	0.000016	1.73%
Co 228.616†	-13.6	-0.00041	mg/L	0.000153	-0.00041	mg/L	0.000153	36.96%
Cr 267.716†	1.2	0.00034	mg/L	0.002463	0.00034	mg/L	0.002463	731.38%
Cu 324.752†	251.3	0.00134	mg/L	0.000334	0.00134	mg/L	0.000334	24.98%
Fe 273.955†	4.6	0.00511	mg/L	0.001637	0.00511	mg/L	0.001637	32.06%
K 766.490†	48.9	0.05010	mg/L	0.027786	0.05010	mg/L	0.027786	55.46%
Mg 279.077†	0.4	0.00045	mg/L	0.005183	0.00045	mg/L	0.005183	>999.9%
Mn 257.610†	8.2	0.00026	mg/L	0.000138	0.00026	mg/L	0.000138	53.15%
Mo 202.031†	1.8	0.00011	mg/L	0.000209	0.00011	mg/L	0.000209	189.34%
Na 589.592†	-360.3	-0.04633	mg/L	0.003532	-0.04633	mg/L	0.003532	7.62%
Na 330.237†	-5.3	-0.3062	mg/L	0.61471	-0.3062	mg/L	0.61471	200.74%
Ni 231.604†	-2.2	-0.00074	mg/L	0.000448	-0.00074	mg/L	0.000448	60.89%
Pb 220.353†	-10.8	-0.00146	mg/L	0.000857	-0.00146	mg/L	0.000857	58.59%
Sb 206.836†	-3.1	-0.00122	mg/L	0.002944	-0.00122	mg/L	0.002944	240.44%
Se 196.026†	-1.5	-0.00129	mg/L	0.002075	-0.00129	mg/L	0.002075	161.16%
Si 288.158†	4.2	0.00484	mg/L	0.005472	0.00484	mg/L	0.005472	113.00%
Sn 189.927†	-0.9	-0.00024	mg/L	0.001081	-0.00024	mg/L	0.001081	441.91%
Sr 421.552†	12.5	0.00004	mg/L	0.000159	0.00004	mg/L	0.000159	361.22%
Ti 334.903†	8.9	0.00070	mg/L	0.001204	0.00070	mg/L	0.001204	171.25%
Tl 190.801†	2.6	0.00130	mg/L	0.001355	0.00130	mg/L	0.001355	104.36%
V 292.402†	12.5	0.00016	mg/L	0.000297	0.00016	mg/L	0.000297	185.71%
Zn 206.200†	5.2	0.00236	mg/L	0.001217	0.00236	mg/L	0.001217	51.61%

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00031
Control Limt: +/- 10.00%
Sequence: SHH0109

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SHH0109-ICV1	Arsenic	2.0000	1.98	99.1	mg/L	EPA 6010C
	Cadmium	1.0000	1.01	101	mg/L	EPA 6010C
	Chromium	1.0000	1.01	101	mg/L	EPA 6010C
	Copper	1.0000	1.01	101	mg/L	EPA 6010C
	Lead	2.0000	1.97	98.5	mg/L	EPA 6010C
	Silver	1.0000	1.01	101	mg/L	EPA 6010C
	Zinc	1.0000	1.01	101	mg/L	EPA 6010C
SHH0109-CCV1	Arsenic	2.0000	2.03	101	mg/L	EPA 6010C
	Cadmium	1.0000	1.02	102	mg/L	EPA 6010C
	Chromium	1.0000	1.03	103	mg/L	EPA 6010C
	Copper	1.0000	1.02	102	mg/L	EPA 6010C
	Lead	2.0000	2.01	101	mg/L	EPA 6010C
	Silver	1.0000	1.03	103	mg/L	EPA 6010C
	Zinc	1.0000	1.04	104	mg/L	EPA 6010C
SHH0109-CCV2	Arsenic	2.0000	2.02	101	mg/L	EPA 6010C
	Cadmium	1.0000	1.01	101	mg/L	EPA 6010C
	Chromium	1.0000	1.01	101	mg/L	EPA 6010C
	Copper	1.0000	1.02	102	mg/L	EPA 6010C
	Lead	2.0000	2.01	101	mg/L	EPA 6010C
	Silver	1.0000	1.03	103	mg/L	EPA 6010C
	Zinc	1.0000	1.03	103	mg/L	EPA 6010C
SHH0109-CCV3	Arsenic	2.0000	2.03	102	mg/L	EPA 6010C
	Cadmium	1.0000	1.01	101	mg/L	EPA 6010C
	Chromium	1.0000	1.00	100	mg/L	EPA 6010C
	Copper	1.0000	1.02	102	mg/L	EPA 6010C
	Lead	2.0000	2.01	100	mg/L	EPA 6010C
	Silver	1.0000	1.03	103	mg/L	EPA 6010C
	Zinc	1.0000	1.02	102	mg/L	EPA 6010C
SHH0109-CCV4	Arsenic	2.0000	2.03	101	mg/L	EPA 6010C
	Cadmium	1.0000	1.00	100	mg/L	EPA 6010C
	Chromium	1.0000	1.00	100	mg/L	EPA 6010C
	Copper	1.0000	1.00	100	mg/L	EPA 6010C
	Lead	2.0000	2.01	100	mg/L	EPA 6010C
	Silver	1.0000	1.02	102	mg/L	EPA 6010C

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00031
Control Limt: +/- 10.00%
Sequence: SHH0109

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SHH0109-CCV4	Zinc	1.0000	1.04	104	mg/L	EPA 6010C
SHH0109-CCV5	Arsenic	2.0000	2.04	102	mg/L	EPA 6010C
	Cadmium	1.0000	1.02	102	mg/L	EPA 6010C
	Chromium	1.0000	1.00	100	mg/L	EPA 6010C
	Copper	1.0000	1.01	101	mg/L	EPA 6010C
	Lead	2.0000	2.04	102	mg/L	EPA 6010C
	Silver	1.0000	1.03	103	mg/L	EPA 6010C
	Zinc	1.0000	1.04	104	mg/L	EPA 6010C
SHH0109-CCV6	Arsenic	2.0000	2.05	103	mg/L	EPA 6010C
	Cadmium	1.0000	1.01	101	mg/L	EPA 6010C
	Chromium	1.0000	1.01	101	mg/L	EPA 6010C
	Copper	1.0000	1.01	101	mg/L	EPA 6010C
	Lead	2.0000	2.04	102	mg/L	EPA 6010C
	Silver	1.0000	1.03	103	mg/L	EPA 6010C
	Zinc	1.0000	1.05	105	mg/L	EPA 6010C
SHH0109-CCV7	Arsenic	2.0000	1.97	98.5	mg/L	EPA 6010C
	Cadmium	1.0000	1.01	101	mg/L	EPA 6010C
	Chromium	1.0000	0.987	98.7	mg/L	EPA 6010C
	Copper	1.0000	1.01	101	mg/L	EPA 6010C
	Lead	2.0000	1.98	98.8	mg/L	EPA 6010C
	Silver	1.0000	1.03	103	mg/L	EPA 6010C
	Zinc	1.0000	1.02	102	mg/L	EPA 6010C
SHH0109-CCV8	Arsenic	2.0000	1.99	99.7	mg/L	EPA 6010C
	Cadmium	1.0000	0.990	99.0	mg/L	EPA 6010C
	Chromium	1.0000	0.981	98.1	mg/L	EPA 6010C
	Copper	1.0000	0.996	99.6	mg/L	EPA 6010C
	Lead	2.0000	1.99	99.7	mg/L	EPA 6010C
	Silver	1.0000	1.01	101	mg/L	EPA 6010C
	Zinc	1.0000	1.02	102	mg/L	EPA 6010C
SHH0109-CCV9	Arsenic	2.0000	1.99	99.7	mg/L	EPA 6010C
	Cadmium	1.0000	0.982	98.2	mg/L	EPA 6010C
	Chromium	1.0000	0.982	98.2	mg/L	EPA 6010C
	Copper	1.0000	0.992	99.2	mg/L	EPA 6010C
	Lead	2.0000	1.98	98.9	mg/L	EPA 6010C

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00031
Control Limt: +/- 10.00%
Sequence: SHH0109

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SHH0109-CCV9	Silver	1.0000	1.01	101	mg/L	EPA 6010C
	Zinc	1.0000	1.03	103	mg/L	EPA 6010C
SHH0109-CCVA	Arsenic	2.0000	2.00	99.9	mg/L	EPA 6010C
	Cadmium	1.0000	0.987	98.7	mg/L	EPA 6010C
	Chromium	1.0000	0.986	98.6	mg/L	EPA 6010C
	Copper	1.0000	0.998	99.8	mg/L	EPA 6010C
	Lead	2.0000	1.98	98.9	mg/L	EPA 6010C
	Silver	1.0000	1.02	102	mg/L	EPA 6010C
	Zinc	1.0000	1.03	103	mg/L	EPA 6010C

* Values outside of QC limits

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00036
Control Limt: +/- 10.00%
Sequence: SHH0141

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SHH0141-ICV1	Arsenic	2.0000	1.97	98.6	mg/L	EPA 6010C
	Cadmium	1.0000	0.975	97.5	mg/L	EPA 6010C
	Chromium	1.0000	0.989	98.9	mg/L	EPA 6010C
	Copper	1.0000	0.980	98.0	mg/L	EPA 6010C
	Lead	2.0000	1.98	99.1	mg/L	EPA 6010C
	Silver	1.0000	1.00	100	mg/L	EPA 6010C
	Zinc	1.0000	1.01	101	mg/L	EPA 6010C
SHH0141-CCV1	Arsenic	2.0000	1.97	98.4	mg/L	EPA 6010C
	Cadmium	1.0000	0.975	97.5	mg/L	EPA 6010C
	Chromium	1.0000	0.989	98.9	mg/L	EPA 6010C
	Copper	1.0000	0.976	97.6	mg/L	EPA 6010C
	Lead	2.0000	1.98	99.2	mg/L	EPA 6010C
	Silver	1.0000	1.00	100	mg/L	EPA 6010C
	Zinc	1.0000	1.03	103	mg/L	EPA 6010C
SHH0141-CCV2	Arsenic	2.0000	1.96	98.0	mg/L	EPA 6010C
	Cadmium	1.0000	0.966	96.6	mg/L	EPA 6010C
	Chromium	1.0000	0.964	96.4	mg/L	EPA 6010C
	Copper	1.0000	0.984	98.4	mg/L	EPA 6010C
	Lead	2.0000	1.99	99.4	mg/L	EPA 6010C
	Silver	1.0000	1.01	101	mg/L	EPA 6010C
	Zinc	1.0000	1.01	101	mg/L	EPA 6010C
SHH0141-CCV3	Arsenic	2.0000	1.97	98.5	mg/L	EPA 6010C
	Cadmium	1.0000	0.964	96.4	mg/L	EPA 6010C
	Chromium	1.0000	0.970	97.0	mg/L	EPA 6010C
	Copper	1.0000	0.973	97.3	mg/L	EPA 6010C
	Lead	2.0000	1.99	99.5	mg/L	EPA 6010C
	Silver	1.0000	1.00	100	mg/L	EPA 6010C
	Zinc	1.0000	1.02	102	mg/L	EPA 6010C
SHH0141-CCV4	Arsenic	2.0000	2.00	99.8	mg/L	EPA 6010C
	Cadmium	1.0000	0.972	97.2	mg/L	EPA 6010C
	Chromium	1.0000	0.988	98.8	mg/L	EPA 6010C
	Copper	1.0000	0.978	97.8	mg/L	EPA 6010C
	Lead	2.0000	2.01	101	mg/L	EPA 6010C
	Silver	1.0000	1.01	101	mg/L	EPA 6010C

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00036
Control Limt: +/- 10.00%
Sequence: SHH0141

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SHH0141-CCV4	Zinc	1.0000	1.04	104	mg/L	EPA 6010C
SHH0141-CCV5	Arsenic	2.0000	2.00	99.9	mg/L	EPA 6010C
	Cadmium	1.0000	0.974	97.4	mg/L	EPA 6010C
	Chromium	1.0000	0.989	98.9	mg/L	EPA 6010C
	Copper	1.0000	0.973	97.3	mg/L	EPA 6010C
	Lead	2.0000	2.02	101	mg/L	EPA 6010C
	Silver	1.0000	1.01	101	mg/L	EPA 6010C
	Zinc	1.0000	1.04	104	mg/L	EPA 6010C
SHH0141-CCV6	Arsenic	2.0000	1.97	98.7	mg/L	EPA 6010C
	Cadmium	1.0000	0.961	96.1	mg/L	EPA 6010C
	Chromium	1.0000	0.982	98.2	mg/L	EPA 6010C
	Copper	1.0000	0.954	95.4	mg/L	EPA 6010C
	Lead	2.0000	1.98	99.0	mg/L	EPA 6010C
	Silver	1.0000	0.986	98.6	mg/L	EPA 6010C
	Zinc	1.0000	1.03	103	mg/L	EPA 6010C

* Values outside of QC limits

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00038
Control Limt: +/- 10.00%
Sequence: SHH0143

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SHH0143-ICV1	Copper	1.0000	1.03	103	mg/L	EPA 6010C
SHH0143-CCV1	Copper	1.0000	1.02	102	mg/L	EPA 6010C
SHH0143-CCV2	Copper	1.0000	0.998	99.8	mg/L	EPA 6010C
SHH0143-CCV3	Copper	1.0000	0.987	98.7	mg/L	EPA 6010C
SHH0143-CCV4	Copper	1.0000	1.01	101	mg/L	EPA 6010C
SHH0143-CCV5	Copper	1.0000	1.04	104	mg/L	EPA 6010C
SHH0143-CCV6	Copper	1.0000	1.03	103	mg/L	EPA 6010C
SHH0143-CCV7	Copper	1.0000	1.03	103	mg/L	EPA 6010C
SHH0143-CCV8	Copper	1.0000	1.04	104	mg/L	EPA 6010C

* Values outside of QC limits

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00043
Control Limt: +/- 10.00%
Sequence: SHH0173

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SHH0173-ICV1	Arsenic	2.0000	1.98	99.2	mg/L	EPA 6010C
	Cadmium	1.0000	1.00	100	mg/L	EPA 6010C
	Chromium	1.0000	1.02	102	mg/L	EPA 6010C
	Copper	1.0000	1.02	102	mg/L	EPA 6010C
	Lead	2.0000	2.02	101	mg/L	EPA 6010C
	Silver	1.0000	1.02	102	mg/L	EPA 6010C
	Zinc	1.0000	1.03	103	mg/L	EPA 6010C
SHH0173-CCV1	Arsenic	2.0000	2.02	101	mg/L	EPA 6010C
	Cadmium	1.0000	1.01	101	mg/L	EPA 6010C
	Chromium	1.0000	1.01	101	mg/L	EPA 6010C
	Copper	1.0000	1.03	103	mg/L	EPA 6010C
	Lead	2.0000	2.03	102	mg/L	EPA 6010C
	Silver	1.0000	1.03	103	mg/L	EPA 6010C
	Zinc	1.0000	1.03	103	mg/L	EPA 6010C
SHH0173-CCV2	Arsenic	2.0000	2.04	102	mg/L	EPA 6010C
	Cadmium	1.0000	1.02	102	mg/L	EPA 6010C
	Chromium	1.0000	1.03	103	mg/L	EPA 6010C
	Copper	1.0000	1.04	104	mg/L	EPA 6010C
	Lead	2.0000	2.05	102	mg/L	EPA 6010C
	Silver	1.0000	1.04	104	mg/L	EPA 6010C
	Zinc	1.0000	1.04	104	mg/L	EPA 6010C
SHH0173-CCV3	Arsenic	2.0000	2.04	102	mg/L	EPA 6010C
	Cadmium	1.0000	1.01	101	mg/L	EPA 6010C
	Chromium	1.0000	1.02	102	mg/L	EPA 6010C
	Copper	1.0000	1.03	103	mg/L	EPA 6010C
	Lead	2.0000	2.05	103	mg/L	EPA 6010C
	Silver	1.0000	1.04	104	mg/L	EPA 6010C
	Zinc	1.0000	1.06	106	mg/L	EPA 6010C
SHH0173-CCV4	Arsenic	2.0000	1.98	98.8	mg/L	EPA 6010C
	Cadmium	1.0000	0.995	99.5	mg/L	EPA 6010C
	Chromium	1.0000	0.978	97.8	mg/L	EPA 6010C
	Copper	1.0000	1.01	101	mg/L	EPA 6010C
	Lead	2.0000	2.00	99.9	mg/L	EPA 6010C
	Silver	1.0000	1.03	103	mg/L	EPA 6010C

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00043
Control Limt: +/- 10.00%
Sequence: SHH0173

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SHH0173-CCV4	Zinc	1.0000	1.01	101	mg/L	EPA 6010C
SHH0173-CCV5	Arsenic	2.0000	2.03	101	mg/L	EPA 6010C
	Cadmium	1.0000	1.01	101	mg/L	EPA 6010C
	Chromium	1.0000	1.00	100	mg/L	EPA 6010C
	Copper	1.0000	1.03	103	mg/L	EPA 6010C
	Lead	2.0000	2.05	103	mg/L	EPA 6010C
	Silver	1.0000	1.04	104	mg/L	EPA 6010C
	Zinc	1.0000	1.04	104	mg/L	EPA 6010C
SHH0173-CCV6	Arsenic	2.0000	2.04	102	mg/L	EPA 6010C
	Cadmium	1.0000	1.01	101	mg/L	EPA 6010C
	Chromium	1.0000	1.02	102	mg/L	EPA 6010C
	Copper	1.0000	1.03	103	mg/L	EPA 6010C
	Lead	2.0000	2.05	103	mg/L	EPA 6010C
	Silver	1.0000	1.04	104	mg/L	EPA 6010C
	Zinc	1.0000	1.05	105	mg/L	EPA 6010C
SHH0173-CCV7	Arsenic	2.0000	2.11	106	mg/L	EPA 6010C
	Cadmium	1.0000	1.05	105	mg/L	EPA 6010C
	Chromium	1.0000	1.03	103	mg/L	EPA 6010C
	Copper	1.0000	1.08	108	mg/L	EPA 6010C
	Lead	2.0000	2.14	107	mg/L	EPA 6010C
	Silver	1.0000	1.10	110	mg/L	EPA 6010C
	Zinc	1.0000	1.05	105	mg/L	EPA 6010C
SHH0173-CCV8	Arsenic	2.0000	2.11	105	mg/L	EPA 6010C
	Cadmium	1.0000	1.04	104	mg/L	EPA 6010C
	Chromium	1.0000	1.03	103	mg/L	EPA 6010C
	Copper	1.0000	1.08	108	mg/L	EPA 6010C
	Lead	2.0000	2.12	106	mg/L	EPA 6010C
	Silver	1.0000	1.10	110	mg/L	EPA 6010C
	Zinc	1.0000	1.09	109	mg/L	EPA 6010C
SHH0173-CCV9	Arsenic	2.0000	2.02	101	mg/L	EPA 6010C
	Cadmium	1.0000	1.03	103	mg/L	EPA 6010C
	Chromium	1.0000	1.00	100	mg/L	EPA 6010C
	Copper	1.0000	1.06	106	mg/L	EPA 6010C
	Lead	2.0000	2.05	103	mg/L	EPA 6010C

INITIAL AND CONTINUING CALIBRATION CHECK

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00043
Control Limt: +/- 10.00%
Sequence: SHH0173

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SHH0173-CCV9	Silver	1.0000	1.03	103	mg/L	EPA 6010C
	Zinc	1.0000	1.03	103	mg/L	EPA 6010C
SHH0173-CCVA	Arsenic	2.0000	1.98	98.8	mg/L	EPA 6010C
	Cadmium	1.0000	1.01	101	mg/L	EPA 6010C
	Chromium	1.0000	0.999	99.9	mg/L	EPA 6010C
	Copper	1.0000	1.05	105	mg/L	EPA 6010C
	Lead	2.0000	2.02	101	mg/L	EPA 6010C
	Silver	1.0000	1.03	103	mg/L	EPA 6010C
	Zinc	1.0000	1.02	102	mg/L	EPA 6010C
SHH0173-CCVB	Arsenic	2.0000	1.90	94.8	mg/L	EPA 6010C
	Cadmium	1.0000	0.984	98.4	mg/L	EPA 6010C
	Chromium	1.0000	0.972	97.2	mg/L	EPA 6010C
	Copper	1.0000	1.04	104	mg/L	EPA 6010C
	Lead	2.0000	1.95	97.6	mg/L	EPA 6010C
	Silver	1.0000	1.02	102	mg/L	EPA 6010C
	Zinc	1.0000	1.00	100	mg/L	EPA 6010C
SHH0173-CCVC	Arsenic	2.0000	1.92	95.8	mg/L	EPA 6010C
	Cadmium	1.0000	0.987	98.7	mg/L	EPA 6010C
	Chromium	1.0000	0.954	95.4	mg/L	EPA 6010C
	Copper	1.0000	1.05	105	mg/L	EPA 6010C
	Lead	2.0000	1.97	98.6	mg/L	EPA 6010C
	Silver	1.0000	1.04	104	mg/L	EPA 6010C
	Zinc	1.0000	0.975	97.5	mg/L	EPA 6010C

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0109
Instrument: ICP2
Calibration: CH00031

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CAL 0	SHH0109-CAL1	I2190808-006	NA	08/08/19 11:58
CAL 1 - LOW CHECK	SHH0109-CAL2	I2190808-007	NA	08/08/19 12:02
CAL 2	SHH0109-CAL3	I2190808-008	NA	08/08/19 12:04
CAL 3	SHH0109-CAL4	I2190808-009	NA	08/08/19 12:06
CAL 4	SHH0109-CAL5	I2190808-010	NA	08/08/19 12:08
Initial Cal Check	SHH0109-ICV1	I2190808-011	NA	08/08/19 12:11
Initial Cal Blank	SHH0109-ICB1	I2190808-012	NA	08/08/19 12:15
Instrument RL Check	SHH0109-CRL1	I2190808-013	NA	08/08/19 12:19
Interference Check A	SHH0109-IFA1	I2190808-014	NA	08/08/19 12:23
Interference Check B	SHH0109-IFB1	I2190808-015	NA	08/08/19 12:27
Calibration Check	SHH0109-CCV1	I2190808-016	NA	08/08/19 12:32
Calibration Blank	SHH0109-CCB1	I2190808-017	NA	08/08/19 12:37
ZZZZZ	19H0022-01	I2190808-021	Solid	08/08/19 12:53
ZZZZZ	19H0022-01	I2190808-021	Solid	08/08/19 12:53
ZZZZZ	19H0022-01	I2190808-021	Solid	08/08/19 12:53
ZZZZZ	19H0022-01	I2190808-021	Solid	08/08/19 12:53
ZZZZZ	19H0022-01	I2190808-021	Solid	08/08/19 12:53
Calibration Check	SHH0109-CCV2	I2190808-028	NA	08/08/19 13:22
Calibration Blank	SHH0109-CCB2	I2190808-029	NA	08/08/19 13:27
ZZZZZ	BHH0088-BLK1	I2190808-030	Solid	08/08/19 13:31
ZZZZZ	19G0416-02	I2190808-032	Solid	08/08/19 13:39
ZZZZZ	19G0416-02	I2190808-032	Solid	08/08/19 13:39
ZZZZZ	BHH0088-BS1	I2190808-036	Solid	08/08/19 13:59
ZZZZZ	19G0341-01	I2190808-039	Water	08/08/19 14:21
ZZZZZ	19G0341-01	I2190808-039	Water	08/08/19 14:21
ZZZZZ	19G0341-01	I2190808-039	Water	08/08/19 14:21
ZZZZZ	19G0341-01	I2190808-039	Water	08/08/19 14:21
ZZZZZ	19G0341-01	I2190808-039	Water	08/08/19 14:21
Calibration Check	SHH0109-CCV3	I2190808-040	NA	08/08/19 14:26
Calibration Blank	SHH0109-CCB3	I2190808-041	NA	08/08/19 14:31

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0109
Instrument: ICP2
Calibration: CH00031

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	19G0416-06	I2190808-042	Solid	08/08/19 14:35
ZZZZZ	19G0416-06	I2190808-042	Solid	08/08/19 14:35
ZZZZZ	19G0416-10	I2190808-043	Solid	08/08/19 14:39
ZZZZZ	19G0416-10	I2190808-043	Solid	08/08/19 14:39
ZZZZZ	BHH0088-SRL1	I2190808-047	Solid	08/08/19 14:54
ZZZZZ	19G0416-16	I2190808-048	Solid	08/08/19 14:58
ZZZZZ	19G0416-16	I2190808-048	Solid	08/08/19 14:58
Calibration Check	SHH0109-CCV4	I2190808-052	NA	08/08/19 15:13
Calibration Blank	SHH0109-CCB4	I2190808-053	NA	08/08/19 15:18
ZZZZZ	19G0416-07	I2190808-054	Solid	08/08/19 15:22
ZZZZZ	19G0416-07	I2190808-054	Solid	08/08/19 15:22
ZZZZZ	19G0416-08	I2190808-055	Solid	08/08/19 15:26
ZZZZZ	19G0416-09	I2190808-056	Solid	08/08/19 15:29
ZZZZZ	19G0416-09	I2190808-056	Solid	08/08/19 15:29
ZZZZZ	19G0416-14	I2190808-057	Solid	08/08/19 15:33
ZZZZZ	19G0416-14	I2190808-057	Solid	08/08/19 15:33
ZZZZZ	19G0416-15	I2190808-058	Solid	08/08/19 15:37
ZZZZZ	19G0416-15	I2190808-058	Solid	08/08/19 15:37
ZZZZZ	19G0416-17	I2190808-059	Solid	08/08/19 15:41
ZZZZZ	19G0416-17	I2190808-059	Solid	08/08/19 15:41
ZZZZZ	19G0416-19	I2190808-061	Solid	08/08/19 15:48
ZZZZZ	19G0416-19	I2190808-061	Solid	08/08/19 15:48
ZZZZZ	19G0416-20	I2190808-062	Solid	08/08/19 15:52
ZZZZZ	19G0416-20	I2190808-062	Solid	08/08/19 15:52
Calibration Check	SHH0109-CCV5	I2190808-064	NA	08/08/19 16:02
Calibration Blank	SHH0109-CCB5	I2190808-065	NA	08/08/19 16:07
ZZZZZ	19G0416-01	I2190808-066	Solid	08/08/19 16:11
ZZZZZ	19G0416-01	I2190808-066	Solid	08/08/19 16:11
ZZZZZ	19G0416-03	I2190808-067	Solid	08/08/19 16:17
ZZZZZ	19G0416-03	I2190808-067	Solid	08/08/19 16:17

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0109
Instrument: ICP2
Calibration: CH00031

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	19G0416-11	I2190808-070	Solid	08/08/19 16:29
ZZZZZ	19G0416-11	I2190808-070	Solid	08/08/19 16:29
ZZZZZ	19G0416-13	I2190808-072	Solid	08/08/19 16:37
ZZZZZ	19G0416-13	I2190808-072	Solid	08/08/19 16:37
ZZZZZ	19G0416-18	I2190808-073	Solid	08/08/19 16:40
ZZZZZ	19G0416-18	I2190808-073	Solid	08/08/19 16:40
ZZZZZ	19G0416-05	I2190808-074	Solid	08/08/19 16:44
ZZZZZ	19G0416-05	I2190808-074	Solid	08/08/19 16:44
Calibration Check	SHH0109-CCV6	I2190808-076	NA	08/08/19 16:54
Calibration Blank	SHH0109-CCB6	I2190808-077	NA	08/08/19 16:59
Blank	BHH0169-BLK1	I2190808-078	Solid	08/08/19 17:03
RINSE	SHH0109-IBL1	I2190808-085	NA	08/08/19 17:37
LCS	BHH0169-BS1	I2190808-087	Solid	08/08/19 17:48
Calibration Check	SHH0109-CCV7	I2190808-088	NA	08/08/19 17:52
Calibration Blank	SHH0109-CCB7	I2190808-089	NA	08/08/19 17:57
Calibration Check	SHH0109-CCV8	I2190808-097	NA	08/08/19 18:29
Calibration Blank	SHH0109-CCB8	I2190808-098	NA	08/08/19 18:34
ZZZZZ	19H0062-01	I2190808-100	Water	08/08/19 18:42
ZZZZZ	19H0062-01	I2190808-100	Water	08/08/19 18:42
ZZZZZ	19H0062-02	I2190808-101	Water	08/08/19 18:46
ZZZZZ	19H0062-02	I2190808-101	Water	08/08/19 18:46
ZZZZZ	19H0062-03	I2190808-102	Water	08/08/19 18:50
ZZZZZ	19H0062-03	I2190808-102	Water	08/08/19 18:50
ZZZZZ	19H0063-01	I2190808-103	Water	08/08/19 18:55
ZZZZZ	19H0063-01	I2190808-103	Water	08/08/19 18:55
ZZZZZ	19H0071-01	I2190808-105	Water	08/08/19 19:03
ZZZZZ	19H0071-01	I2190808-105	Water	08/08/19 19:03
ZZZZZ	19H0071-01	I2190808-105	Water	08/08/19 19:03
ZZZZZ	19H0071-01	I2190808-105	Water	08/08/19 19:03
ZZZZZ	19H0071-01	I2190808-105	Water	08/08/19 19:03

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0109
Instrument: ICP2
Calibration: CH00031

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	19H0071-01	I2190808-105	Water	08/08/19 19:03
ZZZZZ	19H0071-01	I2190808-105	Water	08/08/19 19:03
ZZZZZ	19H0071-01	I2190808-105	Water	08/08/19 19:03
Calibration Check	SHH0109-CCV9	I2190808-108	NA	08/08/19 19:16
Calibration Blank	SHH0109-CCB9	I2190808-109	NA	08/08/19 19:21
Instrument Blank	SHH0109-IBL6	I2190808-113	NA	08/08/19 19:41
Calibration Check	SHH0109-CCVA	I2190808-114	NA	08/08/19 19:48
Calibration Blank	SHH0109-CCBA	I2190808-115	NA	08/08/19 19:53

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0141
Instrument: ICP2
Calibration: CH00036

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CAL 0	SHH0141-CAL1	I2190809-006	NA	08/09/19 10:41
CAL 1 - LOW CHECK	SHH0141-CAL2	I2190809-007	NA	08/09/19 10:45
CAL 2	SHH0141-CAL3	I2190809-008	NA	08/09/19 10:47
CAL 3	SHH0141-CAL4	I2190809-009	NA	08/09/19 10:49
CAL 4	SHH0141-CAL5	I2190809-010	NA	08/09/19 10:51
Initial Cal Check	SHH0141-ICV1	I2190809-011	NA	08/09/19 10:54
Initial Cal Blank	SHH0141-ICB1	I2190809-012	NA	08/09/19 10:58
Instrument RL Check	SHH0141-CRL1	I2190809-013	NA	08/09/19 11:02
Interference Check A	SHH0141-IFA1	I2190809-014	NA	08/09/19 11:06
Interference Check B	SHH0141-IFB1	I2190809-015	NA	08/09/19 11:10
Calibration Check	SHH0141-CCV1	I2190809-016	NA	08/09/19 11:15
Calibration Blank	SHH0141-CCB1	I2190809-017	NA	08/09/19 11:20
Blank	BHH0169-BLK2	I2190809-018	Solid	08/09/19 11:24
ZZZZZ	19H0021-01RE1	I2190809-021	Water	08/09/19 11:36
ZZZZZ	19H0021-01RE1	I2190809-021	Water	08/09/19 11:36
ZZZZZ	19H0021-01RE1	I2190809-021	Water	08/09/19 11:36
ZZZZZ	19H0021-01RE1	I2190809-021	Water	08/09/19 11:36
ZZZZZ	19H0021-01RE1	I2190809-021	Water	08/09/19 11:36
ZZZZZ	19H0021-01RE1	I2190809-021	Water	08/09/19 11:36
ZZZZZ	19H0021-01RE1	I2190809-021	Water	08/09/19 11:36
ZZZZZ	19H0069-01	I2190809-022	Water	08/09/19 11:40
ZZZZZ	19H0069-01	I2190809-022	Water	08/09/19 11:40
ZZZZZ	19H0069-01	I2190809-022	Water	08/09/19 11:40
RINSE	SHH0141-IBL1	I2190809-025	NA	08/09/19 11:57
ZZZZZ	19G0387-01	I2190809-027	Solid	08/09/19 12:06
ZZZZZ	19G0387-01	I2190809-027	Solid	08/09/19 12:06
ZZZZZ	19G0387-01	I2190809-027	Solid	08/09/19 12:06
ZZZZZ	19G0387-01	I2190809-027	Solid	08/09/19 12:06
ZZZZZ	19G0387-01	I2190809-027	Solid	08/09/19 12:06
ZZZZZ	19G0387-01	I2190809-027	Solid	08/09/19 12:06

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0141
Instrument: ICP2
Calibration: CH00036

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	19G0387-01	I2190809-027	Solid	08/09/19 12:06
ZZZZZ	19G0387-01	I2190809-027	Solid	08/09/19 12:06
ZZZZZ	19G0387-01	I2190809-027	Solid	08/09/19 12:06
ZZZZZ	19G0387-01	I2190809-027	Solid	08/09/19 12:06
ZZZZZ	19G0387-01	I2190809-027	Solid	08/09/19 12:06
ZZZZZ	19G0387-01	I2190809-027	Solid	08/09/19 12:06
Calibration Check	SHH0141-CCV2	I2190809-028	NA	08/09/19 12:11
Calibration Blank	SHH0141-CCB2	I2190809-029	NA	08/09/19 12:16
ZZZZZ	BHH0091-BLK1	I2190809-030	Solid	08/09/19 12:20
ZZZZZ	19G0416-41	I2190809-032	Solid	08/09/19 12:27
ZZZZZ	19G0416-41	I2190809-032	Solid	08/09/19 12:27
Calibration Check	SHH0141-CCV3	I2190809-040	NA	08/09/19 13:02
Calibration Blank	SHH0141-CCB3	I2190809-041	NA	08/09/19 13:07
ZZZZZ	19G0416-44	I2190809-044	Solid	08/09/19 13:19
ZZZZZ	19G0416-44	I2190809-044	Solid	08/09/19 13:19
ZZZZZ	19G0416-47	I2190809-047	Solid	08/09/19 13:30
ZZZZZ	19G0416-47	I2190809-047	Solid	08/09/19 13:30
ZZZZZ	19G0416-48	I2190809-048	Solid	08/09/19 13:34
ZZZZZ	19G0416-48	I2190809-048	Solid	08/09/19 13:34
ZZZZZ	19G0387-01RE1	I2190809-049	Solid	08/09/19 13:38
LCS	BHH0169-BS2	I2190809-050	Solid	08/09/19 13:42
ZZZZZ	BHH0091-BS1	I2190809-051	Solid	08/09/19 13:46
Calibration Check	SHH0141-CCV4	I2190809-052	NA	08/09/19 13:50
Calibration Blank	SHH0141-CCB4	I2190809-053	NA	08/09/19 13:55
SL4-SG-WC7-2019	19H0024-04	I2190809-054	Solid	08/09/19 13:59
SL4-SG-WC7-2019	19H0024-04	I2190809-054	Solid	08/09/19 13:59
SL4-SG-WC7-2019	19H0024-04	I2190809-054	Solid	08/09/19 13:59
SL4-SG-WC7-2019	19H0024-04	I2190809-054	Solid	08/09/19 13:59
SL4-SG-WC7-2019	19H0024-04	I2190809-054	Solid	08/09/19 13:59
SL4-SG-WC7-2019	19H0024-04	I2190809-054	Solid	08/09/19 13:59

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0141
Instrument: ICP2
Calibration: CH00036

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
SL4-SG-WC7-2019	19H0024-04	I2190809-054	Solid	08/09/19 13:59
SL4-SG-WC7-FD-2019	19H0024-05	I2190809-055	Solid	08/09/19 14:03
SL4-SG-WC7-FD-2019	19H0024-05	I2190809-055	Solid	08/09/19 14:03
SL4-SG-WC7-FD-2019	19H0024-05	I2190809-055	Solid	08/09/19 14:03
SL4-SG-WC7-FD-2019	19H0024-05	I2190809-055	Solid	08/09/19 14:03
SL4-SG-WC7-FD-2019	19H0024-05	I2190809-055	Solid	08/09/19 14:03
SL4-SG-WC7-FD-2019	19H0024-05	I2190809-055	Solid	08/09/19 14:03
SL4-SG-WC7-FD-2019	19H0024-05	I2190809-055	Solid	08/09/19 14:03
SL4-SG-WC8-2019	19H0024-06	I2190809-056	Solid	08/09/19 14:07
SL4-SG-WC8-2019	19H0024-06	I2190809-056	Solid	08/09/19 14:07
SL4-SG-WC8-2019	19H0024-06	I2190809-056	Solid	08/09/19 14:07
SL4-SG-WC8-2019	19H0024-06	I2190809-056	Solid	08/09/19 14:07
SL4-SG-WC8-2019	19H0024-06	I2190809-056	Solid	08/09/19 14:07
SL4-SG-WC8-2019	19H0024-06	I2190809-056	Solid	08/09/19 14:07
SL4-SG-WC8-2019	19H0024-06	I2190809-056	Solid	08/09/19 14:07
SL4-SG-WC4-2019	19H0024-07	I2190809-057	Solid	08/09/19 14:11
SL4-SG-WC4-2019	19H0024-07	I2190809-057	Solid	08/09/19 14:11
SL4-SG-WC4-2019	19H0024-07	I2190809-057	Solid	08/09/19 14:11
SL4-SG-WC4-2019	19H0024-07	I2190809-057	Solid	08/09/19 14:11
SL4-SG-WC4-2019	19H0024-07	I2190809-057	Solid	08/09/19 14:11
SL4-SG-WC4-2019	19H0024-07	I2190809-057	Solid	08/09/19 14:11
SL4-SG-WC4-2019	19H0024-07	I2190809-057	Solid	08/09/19 14:11
SL4-SG-WC2-2019	19H0024-08	I2190809-058	Solid	08/09/19 14:15
SL4-SG-WC2-2019	19H0024-08	I2190809-058	Solid	08/09/19 14:15
SL4-SG-WC2-2019	19H0024-08	I2190809-058	Solid	08/09/19 14:15
SL4-SG-WC2-2019	19H0024-08	I2190809-058	Solid	08/09/19 14:15
SL4-SG-WC2-2019	19H0024-08	I2190809-058	Solid	08/09/19 14:15
SL4-SG-WC2-2019	19H0024-08	I2190809-058	Solid	08/09/19 14:15
SL4-SG-WC2-2019	19H0024-08	I2190809-058	Solid	08/09/19 14:15
SL4-SG-WC1-2019	19H0024-09	I2190809-059	Solid	08/09/19 14:19

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0141
Instrument: ICP2
Calibration: CH00036

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
SL4-SG-WC1-2019	19H0024-09	I2190809-059	Solid	08/09/19 14:19
SL4-SG-WC1-2019	19H0024-09	I2190809-059	Solid	08/09/19 14:19
SL4-SG-WC1-2019	19H0024-09	I2190809-059	Solid	08/09/19 14:19
SL4-SG-WC1-2019	19H0024-09	I2190809-059	Solid	08/09/19 14:19
SL4-SG-WC1-2019	19H0024-09	I2190809-059	Solid	08/09/19 14:19
SL4-SG-WC3-2019	BHH0169-DUP1	I2190809-060	Solid	08/09/19 14:23
SL4-SG-WC3-2019	BHH0169-DUP1	I2190809-060	Solid	08/09/19 14:23
SL4-SG-WC3-2019	BHH0169-DUP1	I2190809-060	Solid	08/09/19 14:23
SL4-SG-WC3-2019	BHH0169-DUP1	I2190809-060	Solid	08/09/19 14:23
SL4-SG-WC3-2019	BHH0169-DUP1	I2190809-060	Solid	08/09/19 14:23
SL4-SG-WC3-2019	BHH0169-DUP1	I2190809-060	Solid	08/09/19 14:23
SL4-SG-WC3-2019	BHH0169-DUP1	I2190809-060	Solid	08/09/19 14:23
SL4-SG-WC3-2019	19H0024-03	I2190809-061	Solid	08/09/19 14:27
SL4-SG-WC3-2019	19H0024-03	I2190809-061	Solid	08/09/19 14:27
SL4-SG-WC3-2019	19H0024-03	I2190809-061	Solid	08/09/19 14:27
SL4-SG-WC3-2019	19H0024-03	I2190809-061	Solid	08/09/19 14:27
SL4-SG-WC3-2019	19H0024-03	I2190809-061	Solid	08/09/19 14:27
SL4-SG-WC3-2019	19H0024-03	I2190809-061	Solid	08/09/19 14:27
SL4-SG-WC3-2019	19H0024-03	I2190809-061	Solid	08/09/19 14:27
SL4-SG-WC3-2019	BHH0169-MS1	I2190809-062	Solid	08/09/19 14:31
SL4-SG-WC3-2019	BHH0169-MS1	I2190809-062	Solid	08/09/19 14:31
SL4-SG-WC3-2019	BHH0169-MS1	I2190809-062	Solid	08/09/19 14:31
SL4-SG-WC3-2019	BHH0169-MS1	I2190809-062	Solid	08/09/19 14:31
SL4-SG-WC3-2019	BHH0169-MS1	I2190809-062	Solid	08/09/19 14:31
SL4-SG-WC3-2019	BHH0169-MS1	I2190809-062	Solid	08/09/19 14:31
SL4-SG-WC3-2019	BHH0169-MS1	I2190809-062	Solid	08/09/19 14:31
SL4-SG-WC3-2019	BHH0169-MSD1	I2190809-063	Solid	08/09/19 14:35
SL4-SG-WC3-2019	BHH0169-MSD1	I2190809-063	Solid	08/09/19 14:35
SL4-SG-WC3-2019	BHH0169-MSD1	I2190809-063	Solid	08/09/19 14:35
SL4-SG-WC3-2019	BHH0169-MSD1	I2190809-063	Solid	08/09/19 14:35

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0141
Instrument: ICP2
Calibration: CH00036

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
SL4-SG-WC3-2019	BHH0169-MSD1	I2190809-063	Solid	08/09/19 14:35
SL4-SG-WC3-2019	BHH0169-MSD1	I2190809-063	Solid	08/09/19 14:35
SL4-SG-WC3-2019	BHH0169-MSD1	I2190809-063	Solid	08/09/19 14:35
Calibration Check	SHH0141-CCV5	I2190809-064	NA	08/09/19 14:39
Calibration Blank	SHH0141-CCB5	I2190809-065	NA	08/09/19 14:44
SL4-IC-SC2-2019	19H0024-10	I2190809-066	Solid	08/09/19 14:48
SL4-IC-SC2-2019	19H0024-10	I2190809-066	Solid	08/09/19 14:48
SL4-IC-SC2-2019	19H0024-10	I2190809-066	Solid	08/09/19 14:48
SL4-IC-SC2-2019	19H0024-10	I2190809-066	Solid	08/09/19 14:48
SL4-IC-SC2-2019	19H0024-10	I2190809-066	Solid	08/09/19 14:48
SL4-IC-SC2-2019	19H0024-10	I2190809-066	Solid	08/09/19 14:48
SL4-IC-SC2-2019	19H0024-10	I2190809-066	Solid	08/09/19 14:48
SL4-IC-SC3-2019	19H0024-11	I2190809-067	Solid	08/09/19 14:52
SL4-IC-SC3-2019	19H0024-11	I2190809-067	Solid	08/09/19 14:52
SL4-IC-SC3-2019	19H0024-11	I2190809-067	Solid	08/09/19 14:52
SL4-IC-SC3-2019	19H0024-11	I2190809-067	Solid	08/09/19 14:52
SL4-IC-SC3-2019	19H0024-11	I2190809-067	Solid	08/09/19 14:52
SL4-IC-SC3-2019	19H0024-11	I2190809-067	Solid	08/09/19 14:52
SL4-IC-SC3-2019	19H0024-11	I2190809-067	Solid	08/09/19 14:52
ZZZZZ	19H0039-06	I2190809-068	Solid	08/09/19 14:56
ZZZZZ	19H0039-06	I2190809-068	Solid	08/09/19 14:56
ZZZZZ	19H0039-06	I2190809-068	Solid	08/09/19 14:56
ZZZZZ	19H0039-06	I2190809-068	Solid	08/09/19 14:56
ZZZZZ	19H0039-06	I2190809-068	Solid	08/09/19 14:56
ZZZZZ	19H0039-06	I2190809-068	Solid	08/09/19 14:56
ZZZZZ	19H0039-06	I2190809-068	Solid	08/09/19 14:56
ZZZZZ	19H0069-01	I2190809-069	Solid	08/09/19 15:00
ZZZZZ	19H0069-01	I2190809-069	Solid	08/09/19 15:00
ZZZZZ	19H0069-01	I2190809-069	Solid	08/09/19 15:00
ZZZZZ	19H0069-01	I2190809-069	Solid	08/09/19 15:00

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0141
Instrument: ICP2
Calibration: CH00036

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	19H0069-01	I2190809-069	Solid	08/09/19 15:00
ZZZZZ	19H0069-01	I2190809-069	Solid	08/09/19 15:00
ZZZZZ	19H0069-01	I2190809-069	Solid	08/09/19 15:00
ZZZZZ	19H0069-01	I2190809-069	Solid	08/09/19 15:00
ZZZZZ	19H0069-01	I2190809-069	Solid	08/09/19 15:00
ZZZZZ	19H0069-01	I2190809-069	Solid	08/09/19 15:00
Calibration Check	SHH0141-CCV6	I2190809-070	NA	08/09/19 15:04
Calibration Blank	SHH0141-CCB6	I2190809-071	NA	08/09/19 15:09

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0143
Instrument: ICP2
Calibration: CH00038

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CAL 0	SHH0143-CAL1	I2190812-006	NA	08/12/19 10:18
CAL 1 - LOW CHECK	SHH0143-CAL2	I2190812-007	NA	08/12/19 10:22
CAL 2	SHH0143-CAL3	I2190812-008	NA	08/12/19 10:24
CAL 3	SHH0143-CAL4	I2190812-009	NA	08/12/19 10:26
CAL 4	SHH0143-CAL5	I2190812-010	NA	08/12/19 10:28
Initial Cal Check	SHH0143-ICV1	I2190812-011	NA	08/12/19 10:31
Initial Cal Blank	SHH0143-ICB1	I2190812-012	NA	08/12/19 10:35
Instrument RL Check	SHH0143-CRL1	I2190812-014	NA	08/12/19 10:44
Interference Check A	SHH0143-IFA1	I2190812-015	NA	08/12/19 10:48
Interference Check B	SHH0143-IFB1	I2190812-016	NA	08/12/19 10:52
Calibration Check	SHH0143-CCV1	I2190812-018	NA	08/12/19 11:01
Calibration Blank	SHH0143-CCB1	I2190812-019	NA	08/12/19 11:07
ZZZZZ	19H0087-01	I2190812-022	Solid	08/12/19 11:19
ZZZZZ	19H0087-01	I2190812-022	Solid	08/12/19 11:19
ZZZZZ	19H0096-01	I2190812-023	Solid	08/12/19 11:23
ZZZZZ	19H0096-01	I2190812-023	Solid	08/12/19 11:23
ZZZZZ	19H0096-01	I2190812-023	Solid	08/12/19 11:23
ZZZZZ	19H0096-01	I2190812-023	Solid	08/12/19 11:23
ZZZZZ	19H0096-01	I2190812-023	Solid	08/12/19 11:23
ZZZZZ	19H0015-01	I2190812-025	Solid	08/12/19 11:31
ZZZZZ	19H0015-01	I2190812-025	Solid	08/12/19 11:31
ZZZZZ	19H0015-01	I2190812-025	Solid	08/12/19 11:31
ZZZZZ	19H0015-01	I2190812-025	Solid	08/12/19 11:31
ZZZZZ	19H0015-01	I2190812-025	Solid	08/12/19 11:31
ZZZZZ	19H0015-01	I2190812-025	Solid	08/12/19 11:31
ZZZZZ	19H0015-01	I2190812-025	Solid	08/12/19 11:31
ZZZZZ	19H0079-01	I2190812-028	Solid	08/12/19 11:44
ZZZZZ	19H0079-01	I2190812-028	Solid	08/12/19 11:44
ZZZZZ	19H0079-01	I2190812-028	Solid	08/12/19 11:44
ZZZZZ	19H0079-01	I2190812-028	Solid	08/12/19 11:44

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0143
Instrument: ICP2
Calibration: CH00038

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	19H0079-01	I2190812-028	Solid	08/12/19 11:44
ZZZZZ	19H0079-01	I2190812-028	Solid	08/12/19 11:44
ZZZZZ	19H0079-01	I2190812-028	Solid	08/12/19 11:44
ZZZZZ	19H0079-01	I2190812-028	Solid	08/12/19 11:44
Calibration Check	SHH0143-CCV2	I2190812-030	NA	08/12/19 11:53
Calibration Blank	SHH0143-CCB2	I2190812-031	NA	08/12/19 11:58
ZZZZZ	19H0018-02	I2190812-033	Water	08/12/19 12:06
ZZZZZ	19H0018-02	I2190812-033	Water	08/12/19 12:06
ZZZZZ	19H0018-04	I2190812-034	Water	08/12/19 12:10
ZZZZZ	19H0018-04	I2190812-034	Water	08/12/19 12:10
ZZZZZ	19H0018-06	I2190812-035	Water	08/12/19 12:14
ZZZZZ	19H0018-06	I2190812-035	Water	08/12/19 12:14
ZZZZZ	19H0045-01	I2190812-036	Water	08/12/19 12:18
ZZZZZ	19H0045-01	I2190812-036	Water	08/12/19 12:18
ZZZZZ	19H0045-01	I2190812-036	Water	08/12/19 12:18
ZZZZZ	19H0045-01	I2190812-036	Water	08/12/19 12:18
ZZZZZ	19H0045-01	I2190812-036	Water	08/12/19 12:18
ZZZZZ	19H0045-01	I2190812-036	Water	08/12/19 12:18
ZZZZZ	19H0045-06	I2190812-038	Water	08/12/19 12:26
ZZZZZ	19H0045-06	I2190812-038	Water	08/12/19 12:26
ZZZZZ	19H0045-06	I2190812-038	Water	08/12/19 12:26
ZZZZZ	19H0045-06	I2190812-038	Water	08/12/19 12:26
ZZZZZ	19H0045-06	I2190812-038	Water	08/12/19 12:26
ZZZZZ	19H0045-06	I2190812-038	Water	08/12/19 12:26
RINSE	SHH0143-IBL1	I2190812-041	NA	08/12/19 12:43
Calibration Check	SHH0143-CCV3	I2190812-042	NA	08/12/19 12:48
Calibration Blank	SHH0143-CCB3	I2190812-043	NA	08/12/19 12:53
ZZZZZ	19H0045-02	I2190812-044	Water	08/12/19 12:57
ZZZZZ	19H0045-02	I2190812-044	Water	08/12/19 12:57
ZZZZZ	19H0045-02	I2190812-044	Water	08/12/19 12:57

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0143
Instrument: ICP2
Calibration: CH00038

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	19H0045-02	I2190812-044	Water	08/12/19 12:57
ZZZZZ	19H0045-02	I2190812-044	Water	08/12/19 12:57
ZZZZZ	19H0045-02	I2190812-044	Water	08/12/19 12:57
ZZZZZ	19H0045-03	I2190812-045	Water	08/12/19 13:01
ZZZZZ	19H0045-03	I2190812-045	Water	08/12/19 13:01
ZZZZZ	19H0045-03	I2190812-045	Water	08/12/19 13:01
ZZZZZ	19H0045-03	I2190812-045	Water	08/12/19 13:01
ZZZZZ	19H0045-03	I2190812-045	Water	08/12/19 13:01
ZZZZZ	19H0045-03	I2190812-045	Water	08/12/19 13:01
ZZZZZ	19H0045-04	I2190812-046	Water	08/12/19 13:06
ZZZZZ	19H0045-04	I2190812-046	Water	08/12/19 13:06
ZZZZZ	19H0045-04	I2190812-046	Water	08/12/19 13:06
ZZZZZ	19H0045-04	I2190812-046	Water	08/12/19 13:06
ZZZZZ	19H0045-04	I2190812-046	Water	08/12/19 13:06
ZZZZZ	19H0045-04	I2190812-046	Water	08/12/19 13:06
ZZZZZ	19H0045-05	I2190812-047	Water	08/12/19 13:10
ZZZZZ	19H0045-05	I2190812-047	Water	08/12/19 13:10
ZZZZZ	19H0045-05	I2190812-047	Water	08/12/19 13:10
ZZZZZ	19H0045-05	I2190812-047	Water	08/12/19 13:10
ZZZZZ	19H0045-05	I2190812-047	Water	08/12/19 13:10
ZZZZZ	19H0045-05	I2190812-047	Water	08/12/19 13:10
ZZZZZ	19H0045-08	I2190812-048	Water	08/12/19 13:14
ZZZZZ	19H0045-08	I2190812-048	Water	08/12/19 13:14
ZZZZZ	19H0045-08	I2190812-048	Water	08/12/19 13:14
ZZZZZ	19H0045-08	I2190812-048	Water	08/12/19 13:14
ZZZZZ	19H0045-08	I2190812-048	Water	08/12/19 13:14
ZZZZZ	19H0045-08	I2190812-048	Water	08/12/19 13:14
SL4-SG-WC1-2019	19H0024-09	I2190812-049	Solid	08/12/19 13:18
Calibration Check	SHH0143-CCV4	I2190812-051	NA	08/12/19 13:28
Calibration Blank	SHH0143-CCB4	I2190812-052	NA	08/12/19 13:33

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Sequence:	SHH0143	Instrument:	ICP2
		Calibration:	CH00038

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Calibration Check	SHH0143-CCV5	I2190812-053	NA	08/12/19 14:07
Calibration Blank	SHH0143-CCB5	I2190812-054	NA	08/12/19 14:12
Instrument Blank	SHH0143-IBL2	I2190812-061	NA	08/12/19 14:45
Instrument Blank	SHH0143-IBL3	I2190812-064	NA	08/12/19 15:11
Calibration Check	SHH0143-CCV6	I2190812-065	NA	08/12/19 15:15
Calibration Blank	SHH0143-CCB6	I2190812-066	NA	08/12/19 15:19
Calibration Check	SHH0143-CCV7	I2190812-068	NA	08/12/19 15:34
Calibration Blank	SHH0143-CCB7	I2190812-069	NA	08/12/19 15:39
Instrument Blank	SHH0143-IBL4	I2190812-071	NA	08/12/19 15:52
Calibration Check	SHH0143-CCV8	I2190812-072	NA	08/12/19 15:57
Calibration Blank	SHH0143-CCB8	I2190812-073	NA	08/12/19 16:01

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0173
Instrument: ICP2
Calibration: CH00043

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CAL 0	SHH0173-CAL1	I2190813-009	NA	08/13/19 13:23
CAL 1 - LOW CHECK	SHH0173-CAL2	I2190813-010	NA	08/13/19 13:27
CAL 2	SHH0173-CAL3	I2190813-011	NA	08/13/19 13:29
CAL 3	SHH0173-CAL4	I2190813-012	NA	08/13/19 13:31
CAL 4	SHH0173-CAL5	I2190813-013	NA	08/13/19 13:33
Initial Cal Check	SHH0173-ICV1	I2190813-014	NA	08/13/19 13:37
Initial Cal Blank	SHH0173-ICB1	I2190813-015	NA	08/13/19 13:41
Instrument RL Check	SHH0173-CRL1	I2190813-016	NA	08/13/19 13:45
Interference Check A	SHH0173-IFA1	I2190813-017	NA	08/13/19 13:49
Interference Check B	SHH0173-IFB1	I2190813-018	NA	08/13/19 13:53
Calibration Check	SHH0173-CCV1	I2190813-019	NA	08/13/19 13:58
Calibration Blank	SHH0173-CCB1	I2190813-020	NA	08/13/19 14:03
ZZZZZ	BHH0242-BLK2	I2190813-021	Water	08/13/19 14:07
Blank	BHH0311-BLK1	I2190813-022	Wipes	08/13/19 14:11
SL4-SG-WC3-FW-2019	19H0024-02	I2190813-023	Wipes	08/13/19 14:15
SL4-SG-WC3-FW-2019	19H0024-02	I2190813-023	Wipes	08/13/19 14:15
SL4-SG-WC3-FW-2019	19H0024-02	I2190813-023	Wipes	08/13/19 14:15
SL4-SG-WC3-FW-2019	19H0024-02	I2190813-023	Wipes	08/13/19 14:15
SL4-SG-WC3-FW-2019	19H0024-02	I2190813-023	Wipes	08/13/19 14:15
SL4-SG-WC3-FW-2019	19H0024-02	I2190813-023	Wipes	08/13/19 14:15
SL4-SG-WC3-FW-2019	19H0024-02	I2190813-023	Wipes	08/13/19 14:15
LCS	BHH0311-BS1	I2190813-024	Wipes	08/13/19 14:19
ZZZZZ	BHH0242-BS2	I2190813-025	Water	08/13/19 14:23
Calibration Check	SHH0173-CCV2	I2190813-026	NA	08/13/19 14:27
Calibration Blank	SHH0173-CCB2	I2190813-027	NA	08/13/19 14:32
ZZZZZ	BHH0090-BLK1	I2190813-028	Solid	08/13/19 14:36
ZZZZZ	19G0416-21	I2190813-029	Solid	08/13/19 14:40
ZZZZZ	19G0416-21	I2190813-029	Solid	08/13/19 14:40
ZZZZZ	19G0416-22	I2190813-030	Solid	08/13/19 14:44
ZZZZZ	19G0416-22	I2190813-030	Solid	08/13/19 14:44

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0173
Instrument: ICP2
Calibration: CH00043

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	BHH0090-SRL1	I2190813-031	Solid	08/13/19 14:47
ZZZZZ	19G0416-30	I2190813-032	Solid	08/13/19 14:51
ZZZZZ	19G0416-30	I2190813-032	Solid	08/13/19 14:51
ZZZZZ	BHH0090-BS1	I2190813-037	Solid	08/13/19 15:13
Calibration Check	SHH0173-CCV3	I2190813-038	NA	08/13/19 15:17
Calibration Blank	SHH0173-CCB3	I2190813-039	NA	08/13/19 15:22
ZZZZZ	19G0416-23	I2190813-040	Solid	08/13/19 15:26
ZZZZZ	19G0416-23	I2190813-040	Solid	08/13/19 15:26
ZZZZZ	19G0416-24	I2190813-041	Solid	08/13/19 15:30
ZZZZZ	19G0416-24	I2190813-041	Solid	08/13/19 15:30
ZZZZZ	19G0416-25	I2190813-042	Solid	08/13/19 15:34
ZZZZZ	19G0416-25	I2190813-042	Solid	08/13/19 15:34
ZZZZZ	19G0416-26	I2190813-043	Solid	08/13/19 15:38
ZZZZZ	19G0416-26	I2190813-043	Solid	08/13/19 15:38
ZZZZZ	19G0416-27	I2190813-044	Solid	08/13/19 15:42
ZZZZZ	19G0416-27	I2190813-044	Solid	08/13/19 15:42
ZZZZZ	19G0416-28	I2190813-045	Solid	08/13/19 15:45
ZZZZZ	19G0416-28	I2190813-045	Solid	08/13/19 15:45
ZZZZZ	19G0416-29	I2190813-046	Solid	08/13/19 15:49
ZZZZZ	19G0416-29	I2190813-046	Solid	08/13/19 15:49
ZZZZZ	19G0416-31	I2190813-047	Solid	08/13/19 15:53
ZZZZZ	19G0416-31	I2190813-047	Solid	08/13/19 15:53
ZZZZZ	19G0416-32	I2190813-048	Solid	08/13/19 15:57
ZZZZZ	19G0416-32	I2190813-048	Solid	08/13/19 15:57
Calibration Check	SHH0173-CCV4	I2190813-050	NA	08/13/19 16:05
Calibration Blank	SHH0173-CCB4	I2190813-051	NA	08/13/19 16:10
ZZZZZ	19G0416-34	I2190813-052	Solid	08/13/19 16:14
ZZZZZ	19G0416-34	I2190813-052	Solid	08/13/19 16:14
ZZZZZ	19G0416-35	I2190813-053	Solid	08/13/19 16:18
ZZZZZ	19G0416-35	I2190813-053	Solid	08/13/19 16:18

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0173
Instrument: ICP2
Calibration: CH00043

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	19G0416-36	I2190813-054	Solid	08/13/19 16:22
ZZZZZ	19G0416-36	I2190813-054	Solid	08/13/19 16:22
ZZZZZ	19G0416-37	I2190813-055	Solid	08/13/19 16:26
ZZZZZ	19G0416-37	I2190813-055	Solid	08/13/19 16:26
ZZZZZ	19G0416-38	I2190813-056	Solid	08/13/19 16:30
ZZZZZ	19G0416-38	I2190813-056	Solid	08/13/19 16:30
ZZZZZ	19G0416-39	I2190813-057	Solid	08/13/19 16:34
ZZZZZ	19G0416-39	I2190813-057	Solid	08/13/19 16:34
ZZZZZ	19G0416-04	I2190813-058	Solid	08/13/19 16:38
ZZZZZ	19G0416-04	I2190813-058	Solid	08/13/19 16:38
ZZZZZ	19G0416-08	I2190813-059	Solid	08/13/19 16:42
ZZZZZ	19G0416-12	I2190813-060	Solid	08/13/19 16:46
ZZZZZ	19G0416-12	I2190813-060	Solid	08/13/19 16:46
ZZZZZ	19G0416-40	I2190813-061	Solid	08/13/19 16:50
ZZZZZ	19G0416-40	I2190813-061	Solid	08/13/19 16:50
Calibration Check	SHH0173-CCV5	I2190813-062	NA	08/13/19 16:54
Calibration Blank	SHH0173-CCB5	I2190813-063	NA	08/13/19 16:59
ZZZZZ	19G0416-42	I2190813-064	Solid	08/13/19 17:03
ZZZZZ	19G0416-42	I2190813-064	Solid	08/13/19 17:03
ZZZZZ	19G0416-43	I2190813-065	Solid	08/13/19 17:07
ZZZZZ	19G0416-43	I2190813-065	Solid	08/13/19 17:07
ZZZZZ	19G0416-45	I2190813-066	Solid	08/13/19 17:11
ZZZZZ	19G0416-45	I2190813-066	Solid	08/13/19 17:11
ZZZZZ	19G0416-46	I2190813-067	Solid	08/13/19 17:15
ZZZZZ	19G0416-46	I2190813-067	Solid	08/13/19 17:15
Calibration Check	SHH0173-CCV6	I2190813-074	NA	08/13/19 17:45
Calibration Blank	SHH0173-CCB6	I2190813-075	NA	08/13/19 17:50
Calibration Check	SHH0173-CCV7	I2190813-080	NA	08/13/19 20:04
Calibration Blank	SHH0173-CCB7	I2190813-081	NA	08/13/19 20:09
ZZZZZ	19G0416-33	I2190813-082	Solid	08/13/19 20:13

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0173
Instrument: ICP2
Calibration: CH00043

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	19G0416-33	I2190813-082	Solid	08/13/19 20:13
ZZZZZ	BHH0091-SRL1	I2190813-083	Solid	08/13/19 20:17
ZZZZZ	19G0416-49	I2190813-084	Solid	08/13/19 20:21
ZZZZZ	19G0416-49	I2190813-084	Solid	08/13/19 20:21
Calibration Check	SHH0173-CCV8	I2190813-089	NA	08/13/19 20:52
Calibration Blank	SHH0173-CCB8	I2190813-090	NA	08/13/19 20:57
Calibration Check	SHH0173-CCV9	I2190813-092	NA	08/13/19 21:04
Calibration Blank	SHH0173-CCB9	I2190813-093	NA	08/13/19 21:09
ZZZZZ	19G0415-01	I2190813-096	Water	08/13/19 21:21
ZZZZZ	19G0415-01	I2190813-096	Water	08/13/19 21:21
Calibration Check	SHH0173-CCVA	I2190813-100	NA	08/13/19 21:40
Calibration Blank	SHH0173-CCBA	I2190813-101	NA	08/13/19 21:45
ZZZZZ	BHH0296-BLK1	I2190813-102	Water	08/13/19 21:49
RINSE	SHH0173-IBL1	I2190813-107	NA	08/13/19 22:12
ZZZZZ	19H0140-03	I2190813-109	Water	08/13/19 22:20
ZZZZZ	19H0140-03	I2190813-109	Water	08/13/19 22:20
ZZZZZ	19H0140-03	I2190813-109	Water	08/13/19 22:20
ZZZZZ	19H0140-03	I2190813-109	Water	08/13/19 22:20
ZZZZZ	19H0140-03	I2190813-109	Water	08/13/19 22:20
ZZZZZ	19H0140-03	I2190813-109	Water	08/13/19 22:20
ZZZZZ	19H0140-03	I2190813-109	Water	08/13/19 22:20
ZZZZZ	19H0140-03	I2190813-109	Water	08/13/19 22:20
ZZZZZ	19H0140-03	I2190813-109	Water	08/13/19 22:20
ZZZZZ	BHH0296-BS1	I2190813-111	Water	08/13/19 22:28
Calibration Check	SHH0173-CCVB	I2190813-112	NA	08/13/19 22:32
Calibration Blank	SHH0173-CCBB	I2190813-113	NA	08/13/19 22:37
ZZZZZ	19H0137-01	I2190813-114	Water	08/13/19 22:41
ZZZZZ	19H0137-01	I2190813-114	Water	08/13/19 22:41
ZZZZZ	19H0137-01	I2190813-114	Water	08/13/19 22:41
Instrument Blank	SHH0173-IBL2	I2190813-115	NA	08/13/19 22:48

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0173
Instrument: ICP2
Calibration: CH00043

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	19H0078-01	I2190813-116	Water	08/13/19 22:54
ZZZZZ	19H0078-01	I2190813-116	Water	08/13/19 22:54
ZZZZZ	19H0078-01	I2190813-116	Water	08/13/19 22:54
ZZZZZ	19H0078-01	I2190813-116	Water	08/13/19 22:54
ZZZZZ	19H0078-01	I2190813-116	Water	08/13/19 22:54
Instrument Blank	SHH0173-IBL3	I2190813-117	NA	08/13/19 23:01
Instrument Blank	SHH0173-IBL4	I2190813-118	NA	08/13/19 23:07
ZZZZZ	19H0108-01	I2190813-120	Water	08/13/19 23:19
ZZZZZ	19H0108-01	I2190813-120	Water	08/13/19 23:19
ZZZZZ	19H0108-01	I2190813-120	Water	08/13/19 23:19
ZZZZZ	19H0108-01	I2190813-120	Water	08/13/19 23:19
ZZZZZ	19H0108-01	I2190813-120	Water	08/13/19 23:19
ZZZZZ	19H0108-01	I2190813-120	Water	08/13/19 23:19
ZZZZZ	19H0108-01	I2190813-120	Water	08/13/19 23:19
ZZZZZ	19H0108-01	I2190813-120	Water	08/13/19 23:19
ZZZZZ	19H0108-01	I2190813-120	Water	08/13/19 23:19
Instrument Blank	SHH0173-IBL5	I2190813-122	NA	08/13/19 23:30
Calibration Check	SHH0173-CCVC	I2190813-123	NA	08/13/19 23:35
Calibration Blank	SHH0173-CCBC	I2190813-124	NA	08/13/19 23:40

ICP INTERFERENCE CHECK SAMPLE

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00031
Sequence: SHH0109
Standard ID: H005485

Lab Sample ID	Analyte	True	Found	%R	Units
SHH0109-IFA1	Arsenic	0	0.0156		mg/L
	Cadmium	0	0.0009		mg/L
	Chromium	0	-0.0012		mg/L
	Copper	0	0.0015		mg/L
	Lead	0	0.0036		mg/L
	Silver	0	-0.0013		mg/L
	Zinc	0	0.0003		mg/L

* Indicates %R outside of QC limits
NOTE: True value and %R are populated only for analytes found in the interference check standards, and will be seen only if those analytes were requested.

ICP INTERFERENCE CHECK SAMPLE

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00031
Sequence: SHH0109
Standard ID: H005485

Lab Sample ID	Analyte	True	Found	%R	Units
SHH0109-IFB1	Arsenic	1.0000	1.0408	104	mg/L
	Cadmium	1.0000	1.0062	101	mg/L
	Chromium	1.0000	1.0207	102	mg/L
	Copper	1.0000	1.0150	102	mg/L
	Lead	1.0000	0.9969	99.7	mg/L
	Silver	1.0000	1.0231	102	mg/L
	Zinc	1.0000	0.9865	98.7	mg/L

* Indicates %R outside of QC limits

NOTE: True value and %R are populated only for analytes found in the interference check standards, and will be seen only if those analytes were requested.

ICP INTERFERENCE CHECK SAMPLE

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00036
Sequence: SHH0141
Standard ID: H005485

Lab Sample ID	Analyte	True	Found	%R	Units
SHH0141-IFA1	Arsenic	0	0.0108		mg/L
	Cadmium	0	0.0006		mg/L
	Chromium	0	-0.0011		mg/L
	Copper	0	0.0016		mg/L
	Lead	0	0.0023		mg/L
	Silver	0	-0.0011		mg/L
	Zinc	0	0.0022		mg/L

* Indicates %R outside of QC limits
NOTE: True value and %R are populated only for analytes found in the interference check standards, and will be seen only if those analytes were requested.

ICP INTERFERENCE CHECK SAMPLE

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00036
Sequence: SHH0141
Standard ID: H005485

Lab Sample ID	Analyte	True	Found	%R	Units
SHH0141-IFB1	Arsenic	1.0000	1.0399	104	mg/L
	Cadmium	1.0000	0.9853	98.5	mg/L
	Chromium	1.0000	1.0050	100	mg/L
	Copper	1.0000	0.9931	99.3	mg/L
	Lead	1.0000	1.0135	101	mg/L
	Silver	1.0000	1.0121	101	mg/L
	Zinc	1.0000	0.9918	99.2	mg/L

* Indicates %R outside of QC limits
NOTE: True value and %R are populated only for analytes found in the interference check standards, and will be seen only if those analytes were requested.

ICP INTERFERENCE CHECK SAMPLE

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00038
Sequence: SHH0143
Standard ID: H005485

Lab Sample ID	Analyte	True	Found	%R	Units
SHH0143-IFA1	Copper	0	0.0018		mg/L

* Indicates %R outside of QC limits
NOTE: True value and %R are populated only for analytes found in the interference check standards, and will be seen only if those analytes were requested.

ICP INTERFERENCE CHECK SAMPLE

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00038
Sequence: SHH0143
Standard ID: H005485

Lab Sample ID	Analyte	True	Found	%R	Units
SHH0143-IFB1	Copper	1.0000	1.0135	101	mg/L

* Indicates %R outside of QC limits
NOTE: True value and %R are populated only for analytes found in the interference check standards, and will be seen only if those analytes were requested.

ICP INTERFERENCE CHECK SAMPLE

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00043
Sequence: SHH0173
Standard ID: H005485

Lab Sample ID	Analyte	True	Found	%R	Units
SHH0173-IFA1	Arsenic	0	0.0144		mg/L
	Cadmium	0	0.0008		mg/L
	Chromium	0	-0.0001		mg/L
	Copper	0	0.0014		mg/L
	Lead	0	0.0012		mg/L
	Silver	0	-0.0013		mg/L
	Zinc	0	0.0002		mg/L

* Indicates %R outside of QC limits
NOTE: True value and %R are populated only for analytes found in the interference check standards, and will be seen only if those analytes were requested.

ICP INTERFERENCE CHECK SAMPLE

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00043
Sequence: SHH0173
Standard ID: H005485

Lab Sample ID	Analyte	True	Found	%R	Units
SHH0173-IFB1	Arsenic	1.0000	1.0592	106	mg/L
	Cadmium	1.0000	1.0182	102	mg/L
	Chromium	1.0000	1.0284	103	mg/L
	Copper	1.0000	1.0415	104	mg/L
	Lead	1.0000	1.0305	103	mg/L
	Silver	1.0000	1.0409	104	mg/L
	Zinc	1.0000	0.9949	99.5	mg/L

* Indicates %R outside of QC limits
NOTE: True value and %R are populated only for analytes found in the interference check standards, and will be seen only if those analytes were requested.

INTER-ELEMENT CORRECTION FACTORS

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument:	ICP2	IEC Date:	04/26/2019

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	Sb
Aluminum	308.22					
Antimony	206.84	0.11113				
Arsenic	188.98		0.032374			
Barium	233.53			0.060018		
Beryllium	313.04					
Cadmium	228.8					
Chromium	267.72			-0.046264	0.065811	
Cobalt	228.62					
Copper	324.75			-0.04141	0.008071	
Iron	273.96					
Lead	220.35	-0.215392		0.056765		
Magnesium	279.08			0.732007		
Manganese	257.61	0.006929				
Molybdenum			0.012839			
Nickel	231.6					-0.665647
Selenium	196.03		0.108354	-0.135881	0.117255	
Silicon					-0.165979	
Silver	328.07					
Sodium	330.24		7.292129			
Thallium	190.8		0.109844	-0.112443		
Titanium			0.115395			
Vanadium	292.4			0.043044		
Zinc	206.2					0.372282

INTER-ELEMENT CORRECTION FACTORS

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument:	ICP2	IEC Date:	04/26/2019

Analyte	Wave-length (nm)	Interelement Correction Factors for: As	Ba	Cd	Cr	Co
Aluminum	308.22					
Antimony	206.84				16.92517	
Arsenic	188.98				1.867997	-1.045097
Barium	233.53					-0.193624
Beryllium	313.04					
Cadmium	228.8	6.78389				0.141972
Chromium	267.72					
Cobalt	228.62		0.086497			
Copper	324.75				-0.02196	-0.150139
Iron	273.96				-1.111711	
Lead	220.35				-2.835826	0
Magnesium	279.08				-0.985888	-1.311775
Manganese	257.61					0
Molybdenum						
Nickel	231.6					
Selenium	196.03					0
Silicon				0		
Silver	328.07					
Sodium	330.24					
Thallium	190.8				0.419431	6.097803
Titanium					0.199392	
Vanadium	292.4				-4.227219	
Zinc	206.2			0	-0.445119	

INTER-ELEMENT CORRECTION FACTORS

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument:	ICP2	IEC Date:	04/26/2019

Analyte	Wave-length (nm)	Interelement Correction Factors for: Cu	Pb	Mn	Mo	Ni
Aluminum	308.22				15.81688	
Antimony	206.84					
Arsenic	188.98				4.047051	
Barium	233.53					0.12491
Beryllium	313.04					
Cadmium	228.8					-0.844665
Chromium	267.72		0	0.124714		
Cobalt	228.62				-0.34424	0.136384
Copper	324.75				0.360089	
Iron	273.96	0				
Lead	220.35	1.572459				0
Magnesium	279.08			0	-2.740694	
Manganese	257.61	0	-0.257807			
Molybdenum						
Nickel	231.6					
Selenium	196.03					
Silicon					-1.685855	
Silver	328.07	0.086706				
Sodium	330.24					
Thallium	190.8			0	0.838699	
Titanium					0.838699	
Vanadium	292.4			-0.118367	-0.407752	
Zinc	206.2		-0.115122		0.328676	0.174959

INTER-ELEMENT CORRECTION FACTORS

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument:	ICP2	IEC Date:	04/26/2019

Analyte	Wave-length (nm)	Interelement Correction Factors for: K	Si	Ag	Tl	Sn
Aluminum	308.22					
Antimony	206.84					-10.08495
Arsenic	188.98					
Barium	233.53					
Beryllium	313.04					
Cadmium	228.8					
Chromium	267.72					
Cobalt	228.62					
Copper	324.75					
Iron	273.96					
Lead	220.35			0		
Magnesium	279.08					
Manganese	257.61					
Molybdenum						
Nickel	231.6				0.374587	
Selenium	196.03					
Silicon						
Silver	328.07					
Sodium	330.24					
Thallium	190.8					
Titanium						
Vanadium	292.4					
Zinc	206.2		-0.117183			2.176557

INTER-ELEMENT CORRECTION FACTORS

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Instrument:	ICP2	IEC Date:	04/26/2019

Analyte	Wave-length (nm)	Interelement Correction Factors for: Ti	V	Zn		
Aluminum	308.22	1.789848	15.57622			
Antimony	206.84	0	-4.265888			
Arsenic	188.98	-9.166767	0.198781			
Barium	233.53		0.600361			
Beryllium	313.04	0	4.676363			
Cadmium	228.8		0.079966			
Chromium	267.72		0.16953			
Cobalt	228.62	1.879473				
Copper	324.75	0.182233				
Iron	273.96		11.17715			
Lead	220.35					
Magnesium	279.08					
Manganese	257.61					
Molybdenum						
Nickel	231.6					
Selenium	196.03		0			
Silicon		9.877803				
Silver	328.07		-0.267651			
Sodium	330.24	-181.9295		392.7569		
Thallium	190.8		3.727268			
Titanium						
Vanadium	292.4	0.537028				
Zinc	206.2		0			

DETECTION LEVEL STANDARD
EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00031
Sequence: SHH0109
Lab Sample ID: SHH0109-CRL1

Analyte	True	Found	%R	Units	QC Limts
Arsenic	0.0500	0.0523	105	mg/L	50 - 150
Cadmium	0.0020	0.0022	112	mg/L	50 - 150
Chromium	0.0050	0.0058	115	mg/L	50 - 150
Copper	0.0020	0.0019	97.4	mg/L	50 - 150
Lead	0.0200	0.0215	107	mg/L	50 - 150
Silver	0.0030	0.0032	107	mg/L	50 - 150
Zinc	0.0100	0.0075	75.5	mg/L	50 - 150

* Values outside of QC limits

DETECTION LEVEL STANDARD
EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00036
Sequence: SHH0141
Lab Sample ID: SHH0141-CRL1

Analyte	True	Found	%R	Units	QC Limts
Arsenic	0.0500	0.0475	95.0	mg/L	50 - 150
Cadmium	0.0020	0.0021	103	mg/L	50 - 150
Chromium	0.0050	0.0032	64.2	mg/L	50 - 150
Copper	0.0020	0.0021	103	mg/L	50 - 150
Lead	0.0200	0.0196	98.0	mg/L	50 - 150
Silver	0.0030	0.0030	98.7	mg/L	50 - 150
Zinc	0.0100	0.0095	95.0	mg/L	50 - 150

* Values outside of QC limits

DETECTION LEVEL STANDARD
EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00038
Sequence: SHH0143
Lab Sample ID: SHH0143-CRL1

Analyte	True	Found	%R	Units	QC Limts
Copper	0.0020	0.0021	105	mg/L	50 - 150

* Values outside of QC limits

DETECTION LEVEL STANDARD
EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: ICP2
Calibration: CH00043
Sequence: SHH0173
Lab Sample ID: SHH0173-CRL1

Analyte	True	Found	%R	Units	QC Limts
Arsenic	0.0500	0.0508	102	mg/L	50 - 150
Cadmium	0.0020	0.0022	109	mg/L	50 - 150
Chromium	0.0050	0.0059	118	mg/L	50 - 150
Copper	0.0020	0.0022	112	mg/L	50 - 150
Lead	0.0200	0.0201	100	mg/L	50 - 150
Silver	0.0030	0.0030	99.7	mg/L	50 - 150
Zinc	0.0100	0.0094	93.7	mg/L	50 - 150

* Values outside of QC limits

HOLDING TIME SUMMARY

Analysis: EPA 6010C

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
SL4-SG-WC3-FW-2019 19H0024-02	08/01/19 07:30	08/01/19 13:05	08/13/19 09:31	12	180	08/13/19 14:15	12	180	
SL4-SG-WC3-2019 19H0024-03	08/01/19 08:16	08/01/19 13:05	08/07/19 08:29	6	180	08/09/19 14:27	8	180	
SL4-SG-WC7-2019 19H0024-04	08/01/19 08:39	08/01/19 13:05	08/07/19 08:29	5	180	08/09/19 13:59	8	180	
SL4-SG-WC7-FD-2019 19H0024-05	08/01/19 08:39	08/01/19 13:05	08/07/19 08:29	5	180	08/09/19 14:03	8	180	
SL4-SG-WC8-2019 19H0024-06	08/01/19 09:08	08/01/19 13:05	08/07/19 08:29	5	180	08/09/19 14:07	8	180	
SL4-SG-WC4-2019 19H0024-07	08/01/19 10:08	08/01/19 13:05	08/07/19 08:29	5	180	08/09/19 14:11	8	180	
SL4-SG-WC2-2019 19H0024-08	08/01/19 10:30	08/01/19 13:05	08/07/19 08:29	5	180	08/09/19 14:15	8	180	
SL4-SG-WC1-2019 19H0024-09	08/01/19 10:43	08/01/19 13:05	08/07/19 08:29	5	180	08/12/19 13:18	11	180	
SL4-SG-WC1-2019 19H0024-09	08/01/19 10:43	08/01/19 13:05	08/07/19 08:29	5	180	08/09/19 14:19	8	180	
SL4-IC-SC2-2019 19H0024-10	08/01/19 11:45	08/01/19 13:05	08/07/19 08:29	5	180	08/09/19 14:48	8	180	
SL4-IC-SC3-2019 19H0024-11	08/01/19 12:10	08/01/19 13:05	08/07/19 08:29	5	180	08/09/19 14:52	8	180	
Duplicate BHH0169-DUP1	08/01/19 08:16	08/01/19 13:05	08/07/19 08:29	6	180	08/09/19 14:23	8	180	
Matrix Spike BHH0169-MS1	08/01/19 08:16	08/01/19 13:05	08/07/19 08:29	6	180	08/09/19 14:31	8	180	
Matrix Spike Dup BHH0169-MSD1	08/01/19 08:16	08/01/19 13:05	08/07/19 08:29	6	180	08/09/19 14:35	8	180	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Matrix: Solid
Instrument: ICP2

Analyte	MDL	RL	Units
Arsenic	0.470	5.00	mg/kg
Cadmium	0.0340	0.200	mg/kg
Chromium	0.132	0.500	mg/kg
Copper	0.0660	0.200	mg/kg
Lead	0.190	2.00	mg/kg
Silver	0.0540	0.300	mg/kg
Zinc	0.210	1.00	mg/kg

METHOD DETECTION AND REPORTING LIMITS

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Matrix: Water
Instrument: ICP2

Analyte	MDL	RL	Units
Arsenic	0.0047	0.0500	mg/L
Cadmium	0.0003	0.0020	mg/L
Chromium	0.0013	0.0050	mg/L
Copper	0.0007	0.0020	mg/L
Lead	0.0019	0.0200	mg/L
Silver	0.0005	0.0030	mg/L
Zinc	0.0021	0.0100	mg/L

METHOD DETECTION AND REPORTING LIMITS

EPA 6010C

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Matrix: Wipes
Instrument: ICP2

Analyte	MDL	RL	Units
Arsenic	0.1	2.5	ug/Wipe
Cadmium	0.006	0.10	ug/Wipe
Chromium	0.02	0.25	ug/Wipe
Copper	0.01	0.10	ug/Wipe
Lead	0.07	1.0	ug/Wipe
Silver	0.02	0.15	ug/Wipe
Zinc	0.08	0.50	ug/Wipe

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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	AR-ICPCV-2
Lot Number:	N2-MEB668114
Matrix:	3% (v/v) HNO3 tr. HF
Value / Analyte(s):	200 µg/mL ea: Antimony, Silicon, 100 µg/mL ea: Tin, Titanium, Molybdenum

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	**200.0 ± 1.2 µg/mL**	**Molybdenum, Mo**	**100.0 ± 0.5 µg/mL**
Silicon, Si	**200.0 ± 1.2 µg/mL**	**Tin, Sn**	**100.0 ± 0.5 µg/mL**
Titanium, Ti	**100.0 ± 0.5 µg/mL**		

Density: 1.016 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Sb	ICP Assay	3102a	140911
Si	ICP Assay	3150	130912
Si	Calculated		See Sec. 4.2
Sn	ICP Assay	3161a	070330
Ti	ICP Assay	3162a	130925
Ti	Calculated		See Sec. 4.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{½}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 17, 2018

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 17, 2021**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

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ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGAG10
Lot Number:	N2-AG667988
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Silver
Starting Material:	Ag Shot
Starting Material Lot#:	2042 and 1575
Starting Material Purity:	99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10034 ± 30 µg/mL

Density: 1.050 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10040 ± 39 µg/mL**
ICP Assay NIST SRM 3151 Lot Number: 160729

Assay Method #2 **10030 ± 28 µg/mL**
Volhard NIST SRM 999c Lot Number: 999c

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{1/2}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

s	Ag	<		M	Eu	<	0.000253	O	Na		0.008457	M	Se	<	0.001010	O	Zn		0.005581
O	Al		0.001545	O	Fe		0.002919	M	Nb	<	0.000253	O	Si		0.009402	M	Zr	<	0.000507
M	As	<	0.001776	M	Ga	<	0.000253	M	Nd	<	0.000253	M	Sm	<	0.000253				
M	Au	<	0.001010	M	Gd	<	0.000253	O	Ni		0.002146	M	Sn		0.002362				
O	B		0.002404	M	Ge	<	0.000507	n	Os	<		O	Sr		0.000171				
M	Ba	<	0.001269	M	Hf	<	0.000253	O	P	<	0.021220	M	Ta	<	0.000253				
O	Be	<	0.000318	M	Hg	<	0.002525	M	Pb		0.002875	M	Tb	<	0.000253				
M	Bi		0.001437	M	Ho	<	0.000253	M	Pd		0.001737	M	Te	<	0.006346				
O	Ca		0.008715	M	In	<	0.002538	M	Pr	<	0.000253	M	Th	<	0.000253				
M	Cd	<	0.000253	M	Ir	<	0.001010	M	Pt	<	0.000253	O	Ti	<	0.002864				
M	Ce	<	0.000253	O	K	<	0.006366	M	Rb	<	0.000507	M	Tl	<	0.000253				
O	Co	<	0.002228	M	La	<	0.000253	M	Re	<	0.000253	M	Tm	<	0.000253				
O	Cr	<	0.002122	O	Li	<	0.000212	M	Rh	<	0.000253	M	U	<	0.000253				
M	Cs	<	0.000253	M	Lu	<	0.000253	M	Ru	<	0.000252	M	V	<	0.001776				
O	Cu		0.005881	O	Mg		0.001030	O	S	<	0.045623	M	W	<	0.000253				
M	Dy	<	0.000253	O	Mn	<	0.001061	M	Sb	<	0.009138	M	Y	<	0.000253				
M	Er	<	0.000253	M	Mo	<	0.001015	M	Sc	<	0.000761	M	Yb	<	0.000253				

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 107.87 +1 6 Ag(H2O)6+
Chemical Compatibility -Stable in HNO3, and HF. Avoid basic media. Ag forms more insoluble salts than any other metal. It also is subject to photochemical reduction to the metal in HCl media although 10 µg/mL solutions in 10% HCl [AgClx1-x] are commonly used in the analytical laboratory. The most common solubility problems exist with arsenate, arsenite , bromide, chloride, iodide, carbonate , chromate, cyanide, iodate, oxalate, oxide, sulfate, sulfide, tartrate, and thiocyanate in aqueous media. The addition of nitric acid renders many of these salts soluble.
Stability - 2-100 ppb levels stable for 75+ days when mixed with equivalent levels of all other elements including the precious metals (where chloride is present) when in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO3 / LDPE container.
Ag Containing Samples (Preparation and Solution) -Metal (Soluble in HNO3); Oxides (Soluble in HNO3); Ores (Digestion with conc. HNO3).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 107 amu	1 ppt	N/A	91Zr16O
ICP-OES 243.779 nm	0.12/0.01 µg/mL	1	Mn, Th, Ni, Rh
ICP-OES 328.068 nm	0.007/0.0007 µg/mL	1	Ce, Rh, V
ICP-OES 338.289 nm	0.013/0.001 µg/mL	1	Ce, Cr, Th

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 29, 2018

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 29, 2022**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGAS10
Lot Number:	N2-AS666653
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Arsenic
Starting Material:	As Metal
Starting Material Lot#:	1971 and 1851
Starting Material Purity:	99.9991%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10050 ± 42 µg/mL

Density: 1.029 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10066 ± 48 µg/mL**
ICP Assay NIST SRM 3103a Lot Number: 100818

Assay Method #2 **10006 ± 80 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{½}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag	<	0.002234	M	Eu	<	0.000466	O	Na		0.007590	M	Se	<	0.002797	O	Zn		0.003664
O	Al		0.019629	O	Fe		0.000785	O	Nb	<	0.005585	O	Si		0.041876	M	Zr	<	0.001865
s	As	<		M	Ga	<	0.000466	M	Nd	<	0.000466	M	Sm	<	0.000466				
M	Au	<	0.002796	M	Gd	<	0.000466	M	Ni		0.004807	M	Sn	<	0.000932				
O	B		0.005496	M	Ge	<	0.000932	M	Os	<	0.000466	M	Sr	<	0.001865				
O	Ba	<	0.000670	M	Hf	<	0.000466	O	P	<	0.027925	M	Ta	<	0.000466				
O	Be	<	0.000111	M	Hg	<	0.009321	M	Pb	<	0.002797	M	Tb	<	0.000466				
M	Bi	<	0.000466	M	Ho	<	0.000466	M	Pd	<	0.000466	M	Te	<	0.004663				
O	Ca		0.004972	M	In	<	0.023315	M	Pr	<	0.000466	M	Th	<	0.000466				
M	Cd	<	0.000466	M	Ir	<	0.000466	M	Pt	<	0.000466	O	Ti		0.000523				
M	Ce	<	0.000466	O	K		0.001832	M	Rb	<	0.001865	M	Tl	<	0.000466				
M	Co	<	0.000466	M	La	<	0.000466	M	Re	<	0.000466	M	Tm	<	0.000466				
O	Cr	<	0.002122	O	Li	<	0.000111	M	Rh	<	0.000466	M	U	<	0.000466				
M	Cs	<	0.000932	M	Lu	<	0.000466	M	Ru	<	0.000466	M	V	<	0.001865				
O	Cu	<	0.002904	O	Mg		0.000340	O	S	<	0.017872	M	W	<	0.004663				
M	Dy	<	0.000466	O	Mn		0.000182	M	Sb	<	0.000466	O	Y	<	0.000558				
M	Er	<	0.000466	M	Mo	<	0.000466	O	Sc	<	0.001005	M	Yb	<	0.000466				

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 74.92 ; mix of +3 and +5 ; 6 ; H3AsO4 and HAsO2
Chemical Compatibility - Arsenic has no cationic chemistry. It is soluble in HCl, HNO3,H3PO4, H2SO4 and HF aqueous matrices water and NH4OH . It is stable with most inorganic anions (forms arsenate when boiled with chromate) but many cationic metals form the insoluble arsenates under pH neutral conditions. When fluorinated and / or under acidic conditions arsenate formation is typically not a problem at moderate to low concentrations.
Stability - 2-100 ppb levels stable for months alone or mixed with other elements at equivalent levels in 1% HNO3 / LDPE container.
As Containing Samples (Preparation and Solution) - Metal (soluble in 1:1 H2O / HNO3); Oxides (the oxide exists in crystalline and amorphous forms where the amorphic form is more water soluble. The oxides typically dissolve in dilute acidic solutions when boiled); Minerals (one gram of powered sample is fused in a Ni crucible with 10 grams of a 1:1 mix of K2CO3 and KNO3 and the melt extracted with hot water); Organic Matrices (0.2 to 0.5 grams of sample are fused with 15 grams of a 1:1 Na2CO3 / Na2O2 mix in a Ni crucible. The fuseate is extracted with water and acidified with HNO3).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 75 amu	20 ppt	N/A	40Ar35Cl, 59Co16O, 36Ar38Ar1H,8Ar37Cl,Ar39K, 150Nd2+,150Sm2+
ICP-OES 189.042 nm	0.05/0.005 µg/mL	1	Cr
ICP-OES 193.696 nm	0.1/0.01 µg/mL	1	V, Ge
ICP-OES 228.812 nm	0.1/0.01 µg/mL	1	Cd, Pt, Ir, Co

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 09, 2018

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **April 09, 2022**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

INORGANIC VENTURES
300 Technology Drive
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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCD10
Lot Number:	P2-CD675954
Matrix:	3% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Cadmium
Starting Material:	Cd Shot
Starting Material Lot#:	1954
Starting Material Purity:	99.9998%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10014 ± 30 µg/mL

Density: 1.029 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10021 ± 32 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #2 **10038 ± 43 µg/mL**
ICP Assay NIST SRM 3108 Lot Number: 130116

Assay Method #3 **9996 ± 30 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag		0.000834	O	Eu	<	0.002146	O	Na		0.003359	M	Se	<	0.003997	O	Zn		0.000251
O	Al		0.002435	O	Fe	<	0.001180	M	Nb	<	0.000399	O	Si		0.009519	M	Zr	<	0.000399
M	As	<	0.003997	M	Ga	<	0.000399	M	Nd	<	0.000399	M	Sm	<	0.000799				
M	Au	<	0.002809	M	Gd	<	0.000399	M	Ni	<	0.002398	M	Sn	<	0.000799				
M	B	<	0.005197	M	Ge	<	0.004397	M	Os	<	0.000401	O	Sr	<	0.000107				
M	Ba	<	0.000399	M	Hf	<	0.000399	O	P	<	0.023606	M	Ta	<	0.000399				
O	Be	<	0.000107	O	Hg	<	0.010730	M	Pb	<	0.001599	M	Tb	<	0.000399				
M	Bi	<	0.000399	M	Ho	<	0.000399	M	Pd	<	0.000799	M	Te	<	0.005596				
O	Ca		0.001399	O	In	<	0.015558	M	Pr	<	0.000399	M	Th	<	0.000399				
s	Cd	<		M	Ir	<	0.000401	M	Pt	<	0.000399	O	Ti	<	0.000536				
M	Ce	<	0.000399	O	K		0.004479	M	Rb	<	0.000399	M	Tl		0.000625				
M	Co	<	0.000399	M	La	<	0.000399	M	Re	<	0.000399	M	Tm	<	0.000399				
M	Cr	<	0.001199	O	Li	<	0.000214	M	Rh	<	0.000399	M	U	<	0.000399				
M	Cs	<	0.000399	M	Lu	<	0.000399	M	Ru	<	0.000401	M	V	<	0.001599				
O	Cu	<	0.003219	O	Mg		0.000083	O	S	<	0.021460	M	W	<	0.000799				
M	Dy	<	0.000399	O	Mn	<	0.000429	M	Sb	<	0.001599	M	Y	<	0.000399				
M	Er	<	0.000399	M	Mo	<	0.000399	O	Sc	<	0.000429	M	Yb	<	0.000399				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 112.41 +2 4 Cd2(OH) (aq)3+ and Cd(OH)(aq)
Chemical Compatibility -Stable in HCl, HNO3, H2SO4 , and HF. Avoid basic media forming insoluble carbonate and hydroxide.
Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5 % HNO3 / LDPE container.
Cd Containing Samples (Preparation and Solution) -Metal (soluble in HNO3); Oxides (soluble in HCl or HNO3); Ores (dissolve in HCl /HNO3 then take to fumes with H2SO4. The silica and lead sulfate are filtered off after the addition of water); Organic based (dry ash at 450°C and dissolve ash in HCl), (sulfuric / peroxide acid digestion).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 111 amu	11 ppt	n/a	95Mo16O
ICP-OES 214.438 nm	0.003 / 0.0003 µg/mL	1	Pt, Ir
ICP-OES 226.502 nm	0.003 / 0.0003 µg/mL	1	Ir
ICP-OES 228.802 nm	0.003 / 0.0003 µg/mL	1	Co, Ir, As, Pt

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 07, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **March 07, 2023**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

INORGANIC VENTURES
300 Technology Drive
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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCR(3)10
Lot Number:	P2-CR675291
Matrix:	10% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Chromium
Starting Material:	Cr Metal
Starting Material Lot#:	2077
Starting Material Purity:	99.9927%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10030 ± 46 µg/mL

Density: 1.081 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10030 ± 44 µg/mL**
ICP Assay NIST SRM 3112a Lot Number: 170630

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.001095	M	Eu	<	0.002191	O	Na		0.045322	M	Se	<	0.019719	O	Zn	<	0.007572
O	Al		0.006744	O	Fe		0.561134	M	Nb	<	0.076688	n	Si	<		M	Zr	<	0.003286
M	As	<	0.008764	O	Ga	<	0.025240	M	Nd	<	0.000547	M	Sm	<	0.000547				
M	Au	<	0.005475	M	Gd	<	0.000547	M	Ni		0.030210	M	Sn	<	0.028484				
O	B	<	0.025240	M	Ge	<	0.005477	M	Os	<	0.001095	M	Sr	<	0.010955				
M	Ba		0.001756	M	Hf	<	0.000547	i	P	<		M	Ta	<	0.000547				
M	Be	<	0.004382	M	Hg	<	0.003285	M	Pb		0.001756	M	Tb	<	0.000547				
M	Bi	<	0.000547	M	Ho	<	0.000547	M	Pd	<	0.015885	M	Te	<	0.003834				
O	Ca		0.000323	M	In	<	0.002191	M	Pr	<	0.000547	M	Th	<	0.000547				
M	Cd	<	0.001095	M	Ir	<	0.000547	M	Pt	<	0.000547	M	Ti		0.008899				
M	Ce	<	0.000547	O	K		0.035880	i	Rb	<		M	Tl	<	0.000547				
M	Co		0.001287	M	La	<	0.003286	M	Re	<	0.000547	O	Tm	<	0.012620				
s	Cr	<		O	Li	<	0.001514	M	Rh	<	0.025197	M	U	<	0.000547				
M	Cs	<	0.000547	M	Lu	<	0.000547	M	Ru	<	0.021903	O	V		0.047480				
M	Cu		0.002458	O	Mg		0.000728	i	S	<		M	W		0.019555				
M	Dy	<	0.000547	O	Mn		0.005962	M	Sb	<	0.003286	M	Y	<	0.000547				
M	Er	<	0.021910	M	Mo		0.095434	M	Sc	<	0.006573	M	Yb	<	0.000547				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 52.00 +3 6 $Cr(H_2O)_6^{3+}$
Chemical Compatibility -Stable in HCl, HNO_3, H_2SO_4, HF, H_3PO_4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.
Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.
Cr3 Containing Samples (Preparation and Solution) -Metal (soluble in HCl); Oxides/Ores (Chrome ore/oxides are very difficult to dissolve. The following procedures [A-D] are commonly used: A. Fusion with $KHSO_4$ and extraction with hot KCl. The residue fused with Na_2CO_3 and $KClO_3$, 3:1. B. Fusion with $NaKSO_4$ and NaF 2:1, C. Fusion with magnesia or lime and sodium or potassium carbonates, 4:1. D. Fusion with Na_2O_2 or NaOH and KNO_3 or NaOH and Na_2O_2. Nickel, iron, copper, or silver crucibles should be used for D. Platinum may be used for A, B, C); Organic Matrices (ash at 4500C followed by one of the fusion methods above or sulfuric/hydrogen peroxide acid digestions may be applicable to non oxide containing samples).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 52 amu	40 ppt	N/A	36S16O, 36Ar16O - The 50Cr, 53Cr, 54Cr lines suffer from many more potential interferences from sulfur, chlorine and argon compounds of oxygen, nitrogen and carbon.
ICP-OES 205.552 nm	0.006/0.0008 µg/mL	1	Os
ICP-OES 276.654 nm	0.01/0.001 µg/mL	1	Cu, Ta, V
ICP-OES 284.325 nm	0.008/0.0007 µg/mL	1	

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 22, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **January 22, 2023**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

INORGANIC VENTURES
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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCU10
Lot Number:	N2-CU672484
Matrix:	3% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Copper
Starting Material:	Cu Metal
Starting Material Lot#:	2095
Starting Material Purity:	99.9996%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9997 ± 22 µg/mL

Density: 1.032 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **9983 ± 38 µg/mL**
ICP Assay NIST SRM 3114 Lot Number: 121207

Assay Method #2 **10004 ± 26 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{1/2}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.007542	M	Eu	<	0.000942	O	Na		0.001431	M	Se	<	0.016971	M	Zn	<	0.005657
O	Al	<	0.000609	O	Fe		0.008683	M	Nb	<	0.000942	O	Si		0.003046	M	Zr	<	0.000942
M	As	<	0.010371	M	Ga	<	0.000942	M	Nd	<	0.000942	M	Sm	<	0.000942				
M	Au	<	0.001885	M	Gd	<	0.000942	M	Ni		0.003773	M	Sn	<	0.005657				
O	B		0.003656	M	Ge	<	0.005657	M	Os	<	0.000942	M	Sr	<	0.000942				
M	Ba		0.004245	M	Hf	<	0.000942	O	P	<	0.031668	M	Ta	<	0.000942				
M	Be	<	0.000942	O	Hg	<	0.007064	M	Pb		0.005778	M	Tb	<	0.000942				
M	Bi	<	0.000942	M	Ho	<	0.000942	M	Pd	<	0.000942	M	Te	<	0.004714				
O	Ca		0.002300	M	In	<	0.000942	M	Pr	<	0.000942	M	Th	<	0.000942				
M	Cd	<	0.000942	M	Ir	<	0.000942	M	Pt	<	0.000942	O	Ti	<	0.002801				
M	Ce	<	0.000942	O	K		0.000761	M	Rb	<	0.000942	M	Tl	<	0.000942				
M	Co		0.001886	M	La	<	0.000942	M	Re	<	0.000942	M	Tm	<	0.000942				
M	Cr	<	0.005657	O	Li	<	0.000243	i	Rh	<		M	U	<	0.000942				
M	Cs	<	0.000942	M	Lu	<	0.000942	M	Ru	<	0.039588	M	V	<	0.003771				
s	Cu	<		O	Mg		0.000319	O	S		0.007160	M	W	<	0.005657				
M	Dy	<	0.000942	O	Mn		0.000792	M	Sb	<	0.001885	M	Y	<	0.000942				
M	Er	<	0.000942	M	Mo	<	0.005657	M	Sc	<	0.000942	M	Yb	<	0.000942				

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 63.55 +2 6 $Cu(H_2O)_6^{2+}$
Chemical Compatibility -Stable in HCl, HNO_3, H_2SO_4, HF, H_3PO_4. Avoid basic media. Stable with most metals and inorganic anions in acidic media.
Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO_3 / LDPE container.
Cu Containing Samples (Preparation and Solution) -Metal (soluble in HNO_3); Oxides (Soluble in HCl); Ores (Dissolve in HCl / HNO_3).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 63 amu	10 ppt	n/a	40Ar23Na 47Ti16O, 14N12C37Cl, 16O12C35Cl, 23Na40Ca
ICP-OES 219.958 nm	0.01/.002 µg/mL	1	Th, Ta, Nb, U, Hf
ICP-OES 224.700 nm	0.01/.001 µg/mL	1	Pb, Ir, Ni, W
ICP-OES 324.754 nm	0.06/.001 µg/mL		Nb, U, Th, Mo, Hf

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 12, 2018

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 12, 2022**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGMO10
Lot Number:	N2-MO670050
Matrix:	H2O tr NH4OH
Value / Analyte(s):	10 000 µg/mL ea: Molybdenum
Starting Material:	Ammonium Molybdate
Starting Material Lot#:	2197
Starting Material Purity:	99.9921%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10013 ± 31 µg/mL

Density: 1.011 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10006 ± 42 µg/mL**
ICP Assay NIST SRM 3134 Lot Number: 130418

Assay Method #2 **10021 ± 44 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{1/2}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000631	M	Eu	<	0.000315	O	Na		0.006415	M	Se	<	0.010742	M	Zn		0.009510	
M	Al		0.003279	M	Fe	<	0.006634	M	Nb	<	0.025907	i	Si	<		M	Zr	<	0.001263	
M	As		0.104451	M	Ga	<	0.000315	i	Nd	<		M	Sm	<	0.000315					
M	Au	<	0.003161	M	Gd	<	0.000315	M	Ni	<	0.001895	M	Sn		0.004481					
M	B	<	0.050867	M	Ge	<	0.001263	M	Os	<	0.000632	M	Sr		0.000436					
i	Ba	<		M	Hf	<	0.000315	i	P	<		M	Ta	<	0.001263					
M	Be	<	0.000315	M	Hg	<	0.006954	M	Pb	<	0.001263	M	Tb	<	0.000315					
M	Bi	<	0.005055	M	Ho	<	0.000315	M	Pd	<	0.000631	i	Te	<						
O	Ca		0.011541	M	In		0.003935	M	Pr	<	0.061294	M	Th	<	0.000315					
O	Cd	<	0.118155	M	Ir	<	0.003161	M	Pt	<	0.000631	O	Ti	<	0.103600					
M	Ce	<	0.071404	O	K		0.181442	M	Rb	<	0.005687	M	Tl		0.000983					
M	Co	<	0.003159	M	La	<	0.000315	M	Re		0.050830	M	Tm	<	0.000315					
M	Cr		0.051377	O	Li		0.001182	M	Rh	<	0.000315	M	U	<	0.000315					
M	Cs	<	0.005055	M	Lu	<	0.000315	M	Ru	<	0.088514	M	V	<	0.012006					
M	Cu		0.004809	M	Mg		0.010712	i	S	<		M	W		1.251642					
M	Dy	<	0.001263	M	Mn		0.003279	M	Sb		0.003169	M	Y	<	0.000315					
M	Er	<	0.000315	s	Mo	<		M	Sc	<	0.000631	M	Yb	<	0.000315					

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 95.94 +6 6,7,8,9 [MoO4] -2(chemical form as received)
Chemical Compatibility -Mo is received in a NH4OH matrix giving the operator the option of using HCl or HF to stabilize acidic solutions. The [MoO4]-2 is soluble in concentrated HCl [MoOCl5]-2, dilute HF / HNO3 [MoOF5] -2 and basic media [MoO4]-2. Stable at ppm levels with some metals provided it is fluorinated. Do not mix with Alkaline or Rare Earths when HF is present. Stable with most inorganic anions provided it is in the [MoO4]-2 chemical form.
Stability - 2-100 ppb levels stable (alone or mixed with all other metals that are at comparable levels) as the [MoOF5]-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the [MoO4] -2 chemically stable for years in 1% NH4OH in a LDPE container.
Mo Containing Samples (Preparation and Solution) -Metal (Soluble in HF / HNO3 or hot dilute HCl); Oxide (soluble in HF or NH4OH) ; Organic Matrices (Dry ash at 450EC in Pt0 and dissolve oxide with HF or HCl).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 95 amu	3 ppt	n/a	40Ar39K16O,79Br16O,190Os2+,190Pt2+
ICP-OES 202.030 nm	0.008 / 0.0002 µg/mL	1	Os, Hf
ICP-OES 203.844 nm	0.012 / 0.002 µg/mL	1	
ICP-OES 204.598 nm	0.012 / 0.001 µg/mL	1	Ir, Ta

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 10, 2018

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **August 10, 2022**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

INORGANIC VENTURES
300 Technology Drive
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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGPB10
Lot Number:	P2-PB675595
Matrix:	0.5% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Lead
Starting Material:	Lead Nitrate
Starting Material Lot#:	2121
Starting Material Purity:	99.9997%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10014 ± 31 µg/mL

Density: 1.015 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10039 ± 42 µg/mL**
ICP Assay NIST SRM 3128 Lot Number: 101026

Assay Method #2 **10000 ± 32 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000601	M	Eu	<	0.000300	O	Na		0.001397	M	Se	<	0.008727	M	Zn		0.002362
O	Al		0.015976	O	Fe		0.003222	M	Nb	<	0.000300	O	Si		0.011009	M	Zr	<	0.000601
M	As	<	0.001504	M	Ga	<	0.000300	M	Nd	<	0.000300	M	Sm	<	0.000300				
M	Au	<	0.003307	M	Gd	<	0.000300	O	Ni	<	0.001442	M	Sn	<	0.000300				
M	B	<	0.003310	M	Ge	<	0.000300	M	Os	<	0.000300	M	Sr	<	0.000601				
O	Ba		0.003790	M	Hf	<	0.000300	O	P	<	0.020249	M	Ta	<	0.000300				
O	Be	<	0.000156	M	Hg	<	0.000300	s	Pb	<		M	Tb	<	0.000300				
O	Bi	<	0.041600	M	Ho	<	0.000300	M	Pd	<	0.000300	M	Te	<	0.005718				
O	Ca		0.009209	M	In	<	0.001805	M	Pr	<	0.000300	M	Th	<	0.000300				
M	Cd	<	0.000300	M	Ir	<	0.000300	M	Pt	<	0.000300	O	Ti		0.001074				
M	Ce	<	0.000300	O	K		0.003056	M	Rb	<	0.000300	M	Tl	<	0.005417				
M	Co	<	0.000300	M	La	<	0.000300	M	Re	<	0.000300	M	Tm	<	0.000300				
M	Cr	<	0.000902	O	Li	<	0.000225	O	Rh	<	0.011648	M	U	<	0.000300				
M	Cs		0.000924	M	Lu	<	0.000300	M	Ru	<	0.000300	M	V	<	0.000300				
M	Cu	<	0.000300	O	Mg		0.001031	O	S	<	0.031200	M	W	<	0.000601				
M	Dy	<	0.000300	M	Mn	<	0.000601	M	Sb	<	0.000601	M	Y	<	0.000300				
M	Er	<	0.000300	M	Mo	<	0.000300	M	Sc	<	0.000300	M	Yb	<	0.000300				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 207.20 +2 6 $Pb(H_2O)_6^{+2}$
Chemical Compatibility - Soluble in HCl, HF and HNO_3. Avoid H_2SO_4. Stable with most metals and inorganic anions forming insoluble carbonate, borate, sulfate, sulfite, sulfide, phosphate, oxalate, chromate, tannate, iodate, and cyanide in neutral aqueous media.
Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO_3 / LDPE container.
Pb Containing Samples (Preparation and Solution) -Metal (Best dissolved in 1:1 H_2O / HNO_3); Oxides (The many different Pb oxides are soluble in HNO_3 with the exception of PbO_2 which is soluble in HCl or HF); Ores and Alloys (Best attacked using 1:1 H_2O / HNO_3); Organic Matrices (Dry ash and dissolve in dilute HCl).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 208 amu	5 ppt	n/a	192Pt16O, 192Os16O
ICP-OES 168.215 nm	0.03 / 0.003 µg/mL	1	Co
ICP-OES 217.000 nm	0.09 / 0.03 µg/mL	1	W, Ir, Hf, Sb, Th
ICP-OES 220.353 nm	0.04 / 0.006 µg/mL	1	Bi, Nb

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 25, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **January 25, 2023**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

INORGANIC VENTURES
300 Technology Drive
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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGSI10
Lot Number:	P2-SI675601
Matrix:	1% (v/v) HNO3 1.4% (v/v) HF
Value / Analyte(s):	10 000 µg/mL ea: Silicon
Starting Material:	Fumed Silica
Starting Material Lot#:	1771
Starting Material Purity:	99.9908%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10039 ± 55 µg/mL

Density: 1.048 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10077 ± 78 µg/mL**
ICP Assay NIST SRM 3150 Lot Number: 130912

Assay Method #2 **10019 ± 57 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.001488	M	Eu	<	0.000248	O	Na		0.016917	M	Se	<	0.002977	O	Zn	<	0.012935
O	Al		0.112225	M	Fe		0.026904	O	Nb	<	0.005610	s	Si	<		O	Zr	<	0.001122
M	As	<	0.003953	M	Ga	<	0.000248	M	Nd	<	0.000248	M	Sm	<	0.000248				
M	Au	<	0.029405	M	Gd	<	0.000248	M	Ni	<	0.003225	M	Sn	<	0.000744				
O	B		0.143648	M	Ge	<	0.001240	M	Os	<	0.000247	O	Sr		0.001080				
O	Ba		0.002652	M	Hf		0.001985	i	P	<		M	Ta		0.014990				
O	Be	<	0.000336	M	Hg	<	0.001482	M	Pb	<	0.000744	M	Tb	<	0.000248				
M	Bi		0.007743	M	Ho	<	0.000248	M	Pd	<	0.000248	M	Te	<	0.000744				
O	Ca		0.210983	M	In	<	0.000496	M	Pr	<	0.000248	M	Th	<	0.007940				
M	Cd	<	0.000248	M	Ir	<	0.000247	M	Pt	<	0.000248	O	Ti		0.004300				
M	Ce	<	0.000992	O	K		0.027460	M	Rb	<	0.068983	M	Tl	<	0.007940				
M	Co	<	0.000248	M	La	<	0.000248	M	Re	<	0.000248	M	Tm	<	0.000248				
O	Cr	<	0.004488	O	Li		0.000096	M	Rh	<	0.000248	M	U	<	0.000248				
M	Cs	<	0.006451	M	Lu	<	0.000248	M	Ru	<	0.000247	M	V	<	0.005459				
O	Cu	<	0.001945	O	Mg		0.013350	O	S		1.362737	M	W	<	0.005459				
M	Dy	<	0.000248	M	Mn	<	0.002481	M	Sb	<	0.003970	M	Y	<	0.000248				
M	Er	<	0.000248	M	Mo	<	0.002233	O	Sc	<	0.000235	M	Yb	<	0.000248				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 28.09 +4 6 Si(OH)x(F)y2- **Chemical Compatibility -**Soluble in HCl, HF, H3PO4 H2SO4 and HNO3 as the Si(OH)x(F)y2-. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths, or high levels of transition elements unless they are fluorinated. Stable with most inorganic anions with a tendency to hydrolyze forming silicic acid (silicic acid is soluble up to ∼100 ppm in water) in all dilute acids except HF.
Stability - 2-100 ppb levels - stability unknown - (alone or mixed with all other metals) as the Si(OH)x(F)y2-. 1-10,000 ppm single element solutions as the Si(OH)x(F)y2- chemically stable for years in 2-5 % HNO3 / trace HF in a LDPE container.
Si Containing Samples (Preparation and Solution) -Metal (Soluble in 1:1:1 H2O / HF / HNO3); Oxide - SiO2, amorphic (dissolve by heating in 1:1:1 H2O / HF / HNO3); Oxide - quartz (fuse in Pt0 with Na2CO3); Geological Samples(fuse in Pt0with Na2CO3 followed by HCl solution of the fuseate); Organic Matrices containing silicates and non volatile silicon compounds (dry ash at 4500C in Pt0 and dissolve by gently warming with 1:1:1 H2O / HF / H2SO4 or fuse / ash with Na2CO3 and dissolve fuseate with HCl / H2O); Silicone Oils - dimethyl silicones depolymerize to form volatile monomer units when heated (Measure directly in alcoholic KOH / xylene mixture where sample is treated first with the KOH at 60-1000C to "unzip" the Si-O-Si polymeric structure or digest with conc. H2SO4 / H2O2 followed by cooling and dissolution of the dehydrated silica with HF.) Note that the direct analysis of silicone oils in an organic solvent will result in false high results due to high vapor pressure of volatile monomer units like hexamethylcyclotrisiloxane. The KOH forms the K2+Si(CH3)2O= salt which is not volatile at room temperature.
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 28 amu	4000 - 8000 ppt	N/A	N2, 12C16O
ICP-OES 212.412 nm	0.02/0.01 µg/mL	1	Hf, Os, Mo, Ta
ICP-OES 251.611 nm	0.012/0.003 µg/mL	1	Ta, U, Zn, Th
ICP-OES 288.158 nm	0.03/0.004 µg/mL	1	Ta, Ce, Cr, Cd, Th

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 06, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **February 06, 2023**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

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ACCREDITED
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Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGTI10
Lot Number:	N2-TI674975
Matrix:	0.5% (v/v) HNO3 tr. HF
Value / Analyte(s):	10 000 µg/mL ea: Titanium
Starting Material:	Ti Metal
Starting Material Lot#:	2094
Starting Material Purity:	99.9975%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10024 ± 46 µg/mL

Density: 1.033 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **10040 ± 52 µg/mL**
ICP Assay NIST SRM 3162a Lot Number: 130925

Assay Method #2 **10009 ± 51 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000536	M	Eu	<	0.000268	O	Na	<	0.032670	M	Se		0.011800	O	Zn	<	0.003267
O	Al		0.008552	O	Fe		0.031601	O	Nb	<	0.043560	O	Si		0.046397	O	Zr	<	0.043560
M	As	<	0.008586	M	Ga	<	0.000268	M	Nd	<	0.000268	M	Sm	<	0.000268				
M	Au	<	0.004577	M	Gd	<	0.000268	O	Ni	<	0.010890	M	Sn		0.000947				
O	B	<	0.008929	M	Ge	<	0.002146	M	Os	<	0.000269	O	Sr		0.000940				
M	Ba	<	0.002683	M	Hf		0.021177	O	P	<	0.054450	M	Ta		0.103464				
M	Be	<	0.005366	M	Hg	<	0.003231	M	Pb	<	0.001073	M	Tb	<	0.000268				
M	Bi	<	0.001609	M	Ho	<	0.000268	M	Pd	<	0.000268	M	Te	<	0.001341				
O	Ca		0.006628	M	In	<	0.002683	M	Pr	<	0.000268	M	Th	<	0.053663				
M	Cd	<	0.000268	M	Ir	<	0.000269	M	Pt	<	0.000536	s	Ti	<					
M	Ce	<	0.000268	M	K		0.011484	M	Rb	<	0.000268	M	Tl	<	0.000268				
M	Co	<	0.004293	M	La	<	0.000268	M	Re	<	0.000268	M	Tm	<	0.000268				
M	Cr		0.007375	O	Li	<	0.027225	M	Rh	<	0.000268	M	U	<	0.000268				
M	Cs	<	0.000268	M	Lu	<	0.000268	M	Ru	<	0.000269	M	V	<	0.019855				
O	Cu	<	0.010890	O	Mg	<	0.005445	i	S	<		M	W		0.004635				
M	Dy	<	0.000268	O	Mn	<	0.003267	M	Sb	<	0.006976	M	Y	<	0.002146				
M	Er	<	0.000268	M	Mo		0.007585	O	Sc	<	0.004900	M	Yb	<	0.000536				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 47.87 +4 6 Ti(F)6-2
Chemical Compatibility - Soluble in concentrated HCl, HF, H3PO4 H2SO4 and HNO3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.
Stability - 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)6-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the Ti(F)6-2 chemically stable for years in 2-5% HNO3 / trace HF in an LDPE container.
Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H2O / HF caution -powder reacts violently); Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H2O / HF / H2SO4); Oxide - high temperature history (~800EC) brookite (fuse in Pt0 with K2S2O7); Ores (fuse in Pt0 with KF + K2S2O7 - no KF if silica not present); Organic Matrices (Dry ash at 450EC in Pt0 and dissolve by heating with 1:1:1 H2O / HF / H2SO4 or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystalline form).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 48 amu	14 ppt	N/A	32S16O, 32S14N, 14N16O18O, 14N17N2, 36Ar12C, 48Ca, [96X=2 (where X = Zr, Mo, Ru)]
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	Ce, Ar, Ni
ICP-OES 334.941 nm	0.0038 / 0.000028 µg/mL	1	Nb, Ta, Cr, U
ICP-OES 336.121 nm	0.0053 / 0.000034 µg/mL	1	W, Mo, Co

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 10, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **January 10, 2023**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

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CERTIFICATE OF ANALYSIS

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ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGZN10
Lot Number:	P2-ZN675596
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Zinc
Starting Material:	Zn Metal
Starting Material Lot#:	580919
Starting Material Purity:	99.9998%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9968 ± 28 µg/mL

Density: 1.028 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **9968 ± 41 µg/mL**
ICP Assay NIST SRM 3168a Lot Number: 120629

Assay Method #2 **9967 ± 32 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag		0.007113	M	Eu	<	0.000500	O	Na		0.018593	O	Se	<	0.020160	s	Zn	<	
O	Al		0.005347	O	Fe		0.047195	M	Nb	<	0.000500	O	Si		0.012264	M	Zr	<	0.000500
M	As	<	0.005009	M	Ga	<	0.008015	M	Nd	<	0.000500	M	Sm	<	0.000500				
M	Au	<	0.001497	M	Gd	<	0.000500	O	Ni		0.026737	M	Sn	<	0.004007				
O	B	<	0.044800	M	Ge	<	0.004508	M	Os	<	0.011977	O	Sr		0.000220				
M	Ba		0.000767	M	Hf	<	0.000500	O	P	<	0.022400	M	Ta	<	0.000500				
M	Be	<	0.000500	M	Hg	<	0.002994	M	Pb		0.118279	M	Tb	<	0.000500				
M	Bi	<	0.001502	M	Ho	<	0.000500	M	Pd	<	0.001001	M	Te	<	0.000500				
O	Ca		0.024848	M	In	<	0.002003	M	Pr	<	0.000500	M	Th	<	0.000500				
M	Cd		0.005376	M	Ir	<	0.002495	M	Pt	<	0.000500	O	Ti	<	0.001568				
M	Ce	<	0.000500	M	K		0.007131	M	Rb	<	0.004007	M	Tl	<	0.002003				
M	Co	<	0.005009	M	La	<	0.000500	M	Re	<	0.000500	M	Tm	<	0.000500				
M	Cr	<	0.001001	O	Li	<	0.000112	M	Rh	<	0.000500	M	U	<	0.000500				
M	Cs	<	0.000500	M	Lu	<	0.000500	O	Ru	<	0.007840	M	V	<	0.001001				
O	Cu		0.045993	O	Mg		0.005396	O	S	<	0.044800	M	W	<	0.001001				
M	Dy	<	0.000500	O	Mn		0.014043	M	Sb	<	0.009017	M	Y	<	0.000500				
M	Er	<	0.000500	M	Mo	<	0.003506	M	Sc	<	0.002003	M	Yb	<	0.000500				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 65.39 +2 4 Zn(OH)(aq)1+
Chemical Compatibility -Stable in HCl, HNO3, H2SO4 ,HF, H3PO4. Avoid basic media forming insoluble carbonate and hydroxide. Stable with most metals and inorganic anions in acidic media.
Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1-5% HNO3 / LDPE container.
Zn Containing Samples (Preparation and Solution) -Metal (soluble in HNO3); Oxides (Soluble in HCl); Ores (Dissolve in HCl / HNO3); Organic based (dry ash at 4500C and dissolve ash in HCl) (sulfuric/peroxide acid digestion)
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 66 amu	7 ppt	N/A	50Ti16O,50Cr16O, 50V16O, 34S16O2, 32S16O18O, 32S17O2, 33S16O17O, 32S34S, 33S2
ICP-OES 202.548 nm	0.004/0.0002 µg/mL	1	Nb, Cu, Co, Hf
ICP-OES 206.200 nm	0.006/0.0006 µg/mL	1	Sb, Ta, Bi, Os
ICP-OES 213.856 nm	0.002/0.0004 µg/mL	1	Ni, Cu, V

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 25, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **January 25, 2023**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	AR-ICPCV-5
Lot Number:	P2-MEB679843
Matrix:	5% (v/v) HNO3
Value / Analyte(s):	5 000 µg/mL ea: Sodium,
	2 000 µg/mL ea: Potassium,
	200 µg/mL ea: Magnesium, Iron, Lead, Selenium, Aluminum, Arsenic, Calcium, Thallium,
	100 µg/mL ea: Vanadium, Zinc, Cadmium, Cobalt, Chromium, Copper, Boron, Barium, Beryllium, Strontium, Nickel, Silver, Manganese

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	200.0 ± 0.7 µg/mL	Arsenic, As	200.1 ± 1.1 µg/mL
Barium, Ba	100.0 ± 0.4 µg/mL	Beryllium, Be	100.0 ± 0.4 µg/mL
Boron, B	100.0 ± 0.7 µg/mL	Cadmium, Cd	100.0 ± 0.4 µg/mL
Calcium, Ca	200.0 ± 0.8 µg/mL	Chromium, Cr	100.0 ± 0.6 µg/mL
Cobalt, Co	100.0 ± 0.5 µg/mL	Copper, Cu	100.0 ± 0.4 µg/mL
Iron, Fe	200.0 ± 0.9 µg/mL	Lead, Pb	200.1 ± 0.9 µg/mL
Magnesium, Mg	200.0 ± 0.8 µg/mL	Manganese, Mn	100.0 ± 0.4 µg/mL
Nickel, Ni	100.1 ± 0.4 µg/mL	Potassium, K	2 000 ± 7 µg/mL
Selenium, Se	200.0 ± 1.2 µg/mL	Silver, Ag	100.0 ± 0.4 µg/mL
Sodium, Na	5 000 ± 18 µg/mL	Strontium, Sr	100.0 ± 0.4 µg/mL
Thallium, Tl	200.1 ± 1.0 µg/mL	Vanadium, V	100.0 ± 0.4 µg/mL
Zinc, Zn	100.0 ± 0.4 µg/mL		

Density: 1.055 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
As	ICP Assay	3103a	100818
As	Calculated		See Sec. 4.2
B	ICP Assay	3107	110830
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Co	EDTA	928	928
Co	ICP Assay	traceable to 3113	M2-CO661665
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
Fe	Calculated		See Sec. 4.2
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	EDTA	928	928
Mn	ICP Assay	Traceable to 3132	N2-MN665236
Mn	Calculated		See Sec. 4.2
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Se	Calculated		See Sec. 4.2
Sr	EDTA	928	928
Sr	ICP Assay	Traceable to 3153a	K2-SR650985
Tl	ICP Assay	3158	151215
Tl	Calculated		See Sec. 4.2
V	EDTA	928	928
V	ICP Assay	3165	992706
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 13, 2019

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 13, 2023**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

Form I
INORGANIC ANALYSIS DATA SHEET
Plumb 1981, Combustion IR

SL4-SG-WC3-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-03 E	SDG:	19H0024
Sampled:	08/01/19 08:16	Prepared:	08/13/19 14:22	File ID:	CubeData_08142019@1025-053
% Solids:	32.96	Preparation:	No Prep Wet Chem	Analyzed:	08/13/19 14:22
Batch:	BHH0302	Sequence:	SHH0111	Initial/Final:	0.2852 g Wet / 0.2852 g
Instrument:	TOC Cube			Calibration:	CE00054

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	4.90	1	0.02	0.02	

Form I
INORGANIC ANALYSIS DATA SHEET
Plumb 1981, Combustion IR

SL4-SG-WC7-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-04 D	SDG:	19H0024
Sampled:	08/01/19 08:39	Prepared:	08/13/19 16:57	File ID:	CubeData_08142019@1025-058
% Solids:	41.09	Preparation:	No Prep Wet Chem	Analyzed:	08/13/19 16:57
Batch:	BHH0302	Sequence:	SHH0111	Initial/Final:	0.1831 g Wet / 0.1831 g
Instrument:	TOC Cube			Calibration:	CE00054

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	3.28	1	0.02	0.02	

Form I
INORGANIC ANALYSIS DATA SHEET
Plumb 1981, Combustion IR

SL4-SG-WC7-FD-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-05RE2 D	SDG:	19H0024
Sampled:	08/01/19 08:39	Prepared:	08/20/19 15:24	File ID:	CubeData_08202019@1701-005
% Solids:	41.29	Preparation:	No Prep Wet Chem	Analyzed:	08/20/19 15:24
Batch:	BHH0302	Sequence:	SHH0246	Initial/Final:	0.3814 g Wet / 0.3814 g
Instrument:	TOC Cube			Calibration:	UNASSIGNED

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	3.15	1	0.02	0.02	H

Form I
INORGANIC ANALYSIS DATA SHEET
Plumb 1981, Combustion IR

SL4-SG-WC8-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-06 D	SDG:	19H0024
Sampled:	08/01/19 09:08	Prepared:	08/13/19 18:30	File ID:	CubeData_08142019@1025-060
% Solids:	57.54	Preparation:	No Prep Wet Chem	Analyzed:	08/13/19 18:30
Batch:	BHH0302	Sequence:	SHH0111	Initial/Final:	0.2618 g Wet / 0.2618 g
Instrument:	TOC Cube			Calibration:	CE00054

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	1.51	1	0.02	0.02	

Form I
INORGANIC ANALYSIS DATA SHEET
Plumb 1981, Combustion IR

SL4-SG-WC4-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-07 D	SDG:	19H0024
Sampled:	08/01/19 10:08	Prepared:	08/13/19 19:01	File ID:	CubeData_08142019@1025-061
% Solids:	66.66	Preparation:	No Prep Wet Chem	Analyzed:	08/13/19 19:01
Batch:	BHH0302	Sequence:	SHH0111	Initial/Final:	0.2319 g Wet / 0.2319 g
Instrument:	TOC Cube			Calibration:	CE00054

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	2.27	1	0.02	0.02	

Form I
INORGANIC ANALYSIS DATA SHEET
Plumb 1981, Combustion IR

SL4-SG-WC2-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-08 D	SDG:	19H0024
Sampled:	08/01/19 10:30	Prepared:	08/13/19 19:32	File ID:	CubeData_08142019@1025-062
% Solids:	46.21	Preparation:	No Prep Wet Chem	Analyzed:	08/13/19 19:32
Batch:	BHH0302	Sequence:	SHH0111	Initial/Final:	0.3003 g Wet / 0.3003 g
Instrument:	TOC Cube			Calibration:	CE00054

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	4.68	1	0.02	0.02	

Form I
INORGANIC ANALYSIS DATA SHEET
Plumb 1981, Combustion IR

SL4-SG-WC1-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-09 D	SDG:	19H0024
Sampled:	08/01/19 10:43	Prepared:	08/13/19 21:05	File ID:	CubeData_08142019@1025-065
% Solids:	42.54	Preparation:	No Prep Wet Chem	Analyzed:	08/13/19 21:05
Batch:	BHH0302	Sequence:	SHH0111	Initial/Final:	0.2379 g Wet / 0.2379 g
Instrument:	TOC Cube			Calibration:	CE00054

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	8.63	1	0.02	0.02	

Form I
INORGANIC ANALYSIS DATA SHEET
Plumb 1981, Combustion IR

SL4-IC-SC2-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-10 D	SDG:	19H0024
Sampled:	08/01/19 11:45	Prepared:	08/13/19 21:36	File ID:	CubeData_08142019@1025-066
% Solids:	72.09	Preparation:	No Prep Wet Chem	Analyzed:	08/13/19 21:36
Batch:	BHH0302	Sequence:	SHH0111	Initial/Final:	0.5734 g Wet / 0.5734 g
Instrument:	TOC Cube			Calibration:	CE00054

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	2.43	1	0.02	0.02	

Form I
INORGANIC ANALYSIS DATA SHEET
Plumb 1981, Combustion IR

SL4-IC-SC3-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-11 D	SDG:	19H0024
Sampled:	08/01/19 12:10	Prepared:	08/13/19 22:07	File ID:	CubeData_08142019@1025-067
% Solids:	67.53	Preparation:	No Prep Wet Chem	Analyzed:	08/13/19 22:07
Batch:	BHH0302	Sequence:	SHH0111	Initial/Final:	0.234 g Wet / 0.234 g
Instrument:	TOC Cube			Calibration:	CE00054

CAS NO.	Analyte	Concentration (% dry)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	1.64	1	0.02	0.02	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

PREPARATION BATCH SUMMARY

Plumb 1981, Combustion IR

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Batch: BHH0302 Batch Matrix: Solid
Preparation: No Prep Wet Chem

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC3-2019	19H0024-03	eData_08142019@1025-	08/13/19 14:22	
SL4-SG-WC7-2019	19H0024-04	eData_08142019@1025-	08/13/19 16:57	
SL4-SG-WC7-FD-2019	19H0024-05RE2	eData_08202019@1701-	08/20/19 15:24	Added 8/16/2019 By CDE
SL4-SG-WC8-2019	19H0024-06	eData_08142019@1025-	08/13/19 18:30	
SL4-SG-WC4-2019	19H0024-07	eData_08142019@1025-	08/13/19 19:01	
SL4-SG-WC2-2019	19H0024-08	eData_08142019@1025-	08/13/19 19:32	
SL4-SG-WC1-2019	19H0024-09	eData_08142019@1025-	08/13/19 21:05	
SL4-IC-SC2-2019	19H0024-10	eData_08142019@1025-	08/13/19 21:36	
SL4-IC-SC3-2019	19H0024-11	eData_08142019@1025-	08/13/19 22:07	
Blank	BHH0302-BLK1	eData_08132019@1701-	08/13/19 12:17	
LCS	BHH0302-BS1	eData_08132019@1701-	08/13/19 12:48	
SL4-SG-WC3-2019	BHH0302-DUP1	eData_08142019@1025-	08/13/19 14:53	
SL4-SG-WC3-2019	BHH0302-DUP2	eData_08142019@1025-	08/13/19 15:24	
MRL Check	BHH0302-MRL1	eData_08132019@1701-	08/13/19 11:46	
SL4-SG-WC3-2019	BHH0302-MS1	eData_08142019@1025-	08/13/19 15:55	
SL4-SG-WC3-2019	BHH0302-MS2	eData_08142019@1025-	08/13/19 16:26	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Conventionals Laboratory Analyst Notes

BMH0302

ARI Job No.: 19H0024

Client ID:

Parameter: TOC

Client Project:

List problems, concerns, corrective actions and any other pertinent information
Sample-05 was run in hold with reportable re-analysis out of hold.

Analyst Initials:		Date:	8-20-19

Form I

METHOD BLANK DATA SHEET

Plumb 1981, Combustion IR

TotalAnalytes

Blank

Batch: BHH0302 Laboratory ID: BHH0302-BLK1 Prepared: 08/13/19 12:17

Matrix: Solid Preparation: No Prep Wet Chem Analyzed: 08/13/19 12:17

Sequence: SHH0111 Calibration: CE00054 Instrument: TOC Cube

CAS NO.	Analyte	Concentration (% wet)	Dilution Factor	MDL	MRL	Q
	Total Organic Carbon	ND	1	0.02	0.02	U

SL4-SG-WC3-2019

DUPLICATES

Plumb 1981, Combustion IR

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Matrix: Solid
Laboratory ID: BHH0302-DUP1
Batch: BHH0302
Lab Source ID: 19H0024-03
Preparation: No Prep Wet Chem
Initial/Final: 0.2304 g / 0.2304 g
Source Sample Name: SL4-SG-WC3-2019
% Solids: 32.96

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
Total Organic Carbon	20	4.90	5.08	3.59	

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

SL4-SG-WC3-2019

DUPLICATES

Plumb 1981, Combustion IR

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Matrix: Solid
Laboratory ID: BHH0302-DUP2
Batch: BHH0302
Lab Source ID: 19H0024-03
Preparation: No Prep Wet Chem
Initial/Final: 0.269 g / 0.269 g
Source Sample Name: SL4-SG-WC3-2019
% Solids: 32.96

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
Total Organic Carbon	20	4.90	4.97	1.29	

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

MS / MS DUPLICATE RECOVERY
Plumb 1981, Combustion IR

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/13/19 15:55
Batch:	BHH0302	Laboratory ID:	BHH0302-MS1
Preparation:	No Prep Wet Chem	Sequence Name:	Matrix Spike
Initial/Final:	0.2421 g / 0.2421 g	Source Sample:	SL4-SG-WC3-2019

COMPOUND	SPIKE ADDED (% dry)	SAMPLE CONCENTRATION (% dry)	Q	MS CONCENTRATION (% dry)	Q	MS % REC. #	QC LIMITS REC.
Total Organic Carbon	4.51	4.90		9.84		109	75 - 125

* Values outside of QC limits

MS / MS DUPLICATE RECOVERY
Plumb 1981, Combustion IR

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/13/19 16:26
Batch:	BHH0302	Laboratory ID:	BHH0302-MS2
Preparation:	No Prep Wet Chem	Sequence Name:	Matrix Spike
Initial/Final:	0.2545 g / 0.2545 g	Source Sample:	SL4-SG-WC3-2019

COMPOUND	SPIKE ADDED (% dry)	SAMPLE CONCENTRATION (% dry)	Q	MS CONCENTRATION (% dry)	Q	MS % REC. #	QC LIMITS REC.
Total Organic Carbon	4.56	4.90		9.80		107	75 - 125

* Values outside of QC limits

LCS / LCS DUPLICATE RECOVERY

Plumb 1981, Combustion IR

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Matrix:	Solid	Analyzed:	08/13/19 12:48
Batch:	BHH0302	Laboratory ID:	BHH0302-BS1
Preparation:	No Prep Wet Chem	Sequence Name:	LCS
Initial/Final:	0.0236 g / 0.0236 g		

COMPOUND	SPIKE ADDED (% wet)	LCS CONCENTRATION (% wet)	Q	LCS % REC. #	QC LIMITS REC.
Total Organic Carbon	44.4	45.3		102	80 - 120

* Indicates values outside of QC limits

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

Plumb 1981, Combustion IR

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Sequence:	SHE0340	Instrument:	TOC Cube
		Calibration:	CE00054

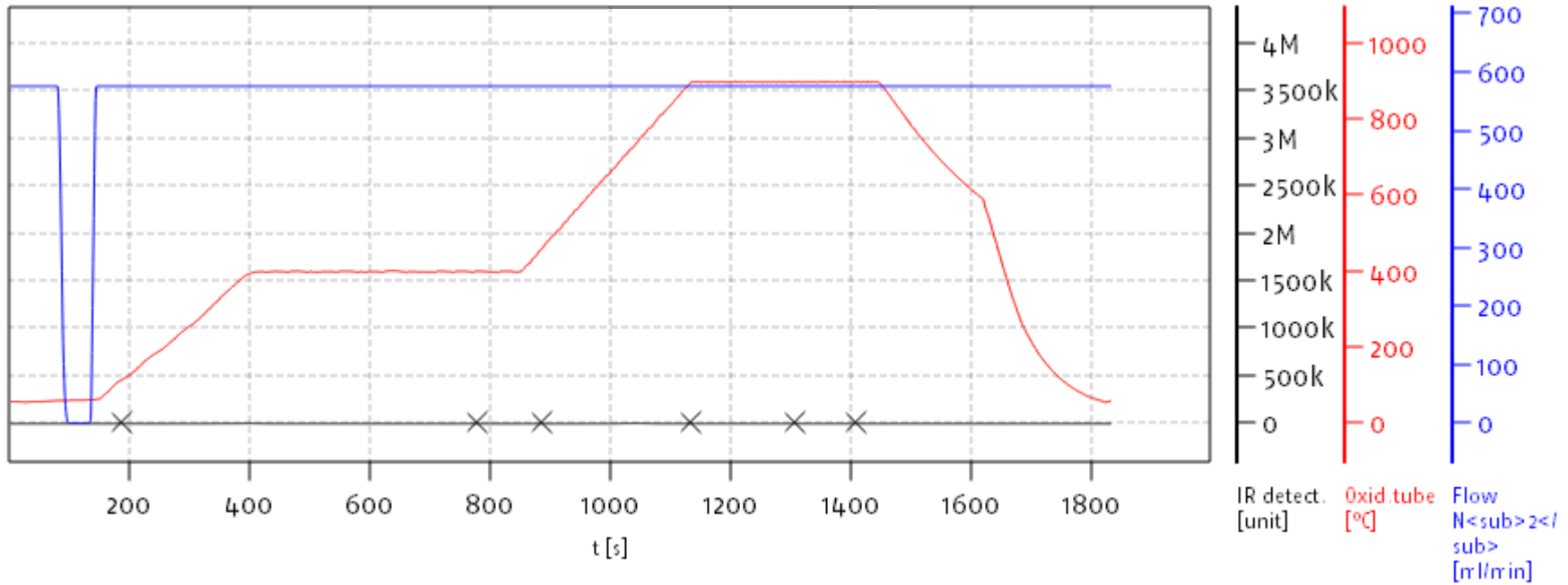
Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
	SHE0340-CAL1	peData_05222019@1016-(	NA	05/17/19 13:36
	SHE0340-CAL2	peData_05222019@1016-(	NA	05/17/19 14:07
	SHE0340-CAL3	peData_05222019@1016-(	NA	05/17/19 14:38
	SHE0340-CAL4	peData_05222019@1016-(	NA	05/17/19 15:09
	SHE0340-CAL5	peData_05222019@1016-(	NA	05/17/19 15:40
	SHE0340-CAL6	peData_05222019@1016-(	NA	05/17/19 16:11
	SHE0340-CAL7	peData_05222019@1016-(	NA	05/17/19 16:41
	SHE0340-CAL8	peData_05222019@1016-(	NA	05/17/19 17:12
	SHE0340-CAL9	peData_05222019@1016-(	NA	05/17/19 17:43
	SHE0340-CALA	peData_05222019@1016-(	NA	05/17/19 18:14
	SHE0340-CALB	peData_05222019@1016-(	NA	05/17/19 18:45
	SHE0340-CALC	peData_05222019@1016-(	NA	05/17/19 19:16
	SHE0340-CALD	peData_05222019@1016-(	NA	05/17/19 19:47
	SHE0340-CALE	peData_05222019@1016-(	NA	05/17/19 20:18
	SHE0340-CALF	peData_05222019@1016-(	NA	05/17/19 20:48
	SHE0340-CALG	peData_05222019@1016-(	NA	05/17/19 21:19
	SHE0340-CALH	peData_05222019@1016-(	NA	05/17/19 21:50
	SHE0340-CALI	peData_05222019@1016-(	NA	05/17/19 22:21
	SHE0340-CALJ	peData_05222019@1016-(	NA	05/17/19 22:52
	SHE0340-CALK	peData_05222019@1016-(	NA	05/17/19 23:23
	SHE0340-CALL	peData_05222019@1016-(	NA	05/17/19 23:54
	SHE0340-CALM	peData_05222019@1016-(	NA	05/18/19 00:25
	SHE0340-CALN	peData_05222019@1016-(	NA	05/18/19 00:56
	SHE0340-CALO	peData_05222019@1016-(	NA	05/18/19 01:27
	SHE0340-ICV1	peData_05222019@1016-(	NA	05/18/19 01:58
	SHE0340-ICB1	peData_05222019@1016-(	NA	05/18/19 02:28

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
3	3	SEQ-CAL1	200.0	1.00	CARBON	5/17/2019 1:36PM	0.000	0.007	bl,C1u,C3u,C2u	7 688	7 592	270	1.0000	1.0000

5/22/19 CDE



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

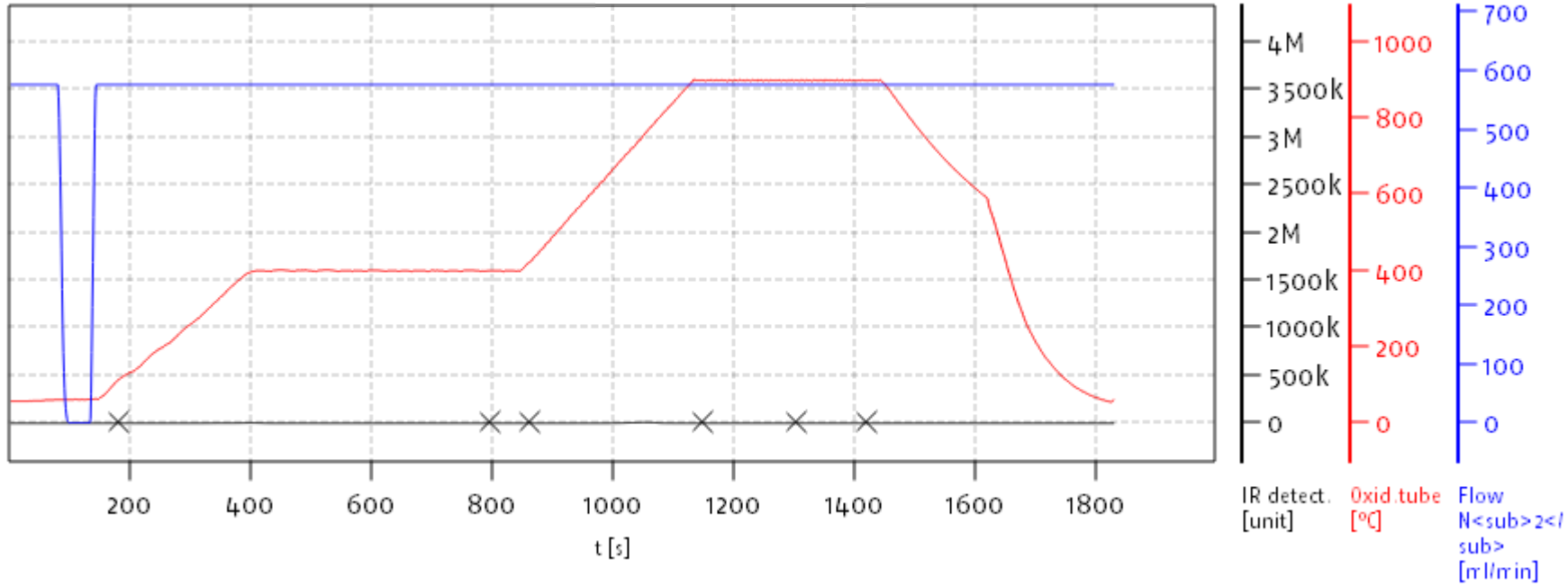
Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
4	4	SEQ-CAL2	200.0	1.00	CARBON	5/17/2019 2:07PM	0.000	0.017	bl,C2u	8 982	17 712	269	1.0000	1.0000

5/22/19 CDE



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

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Serial No: 0300.181017
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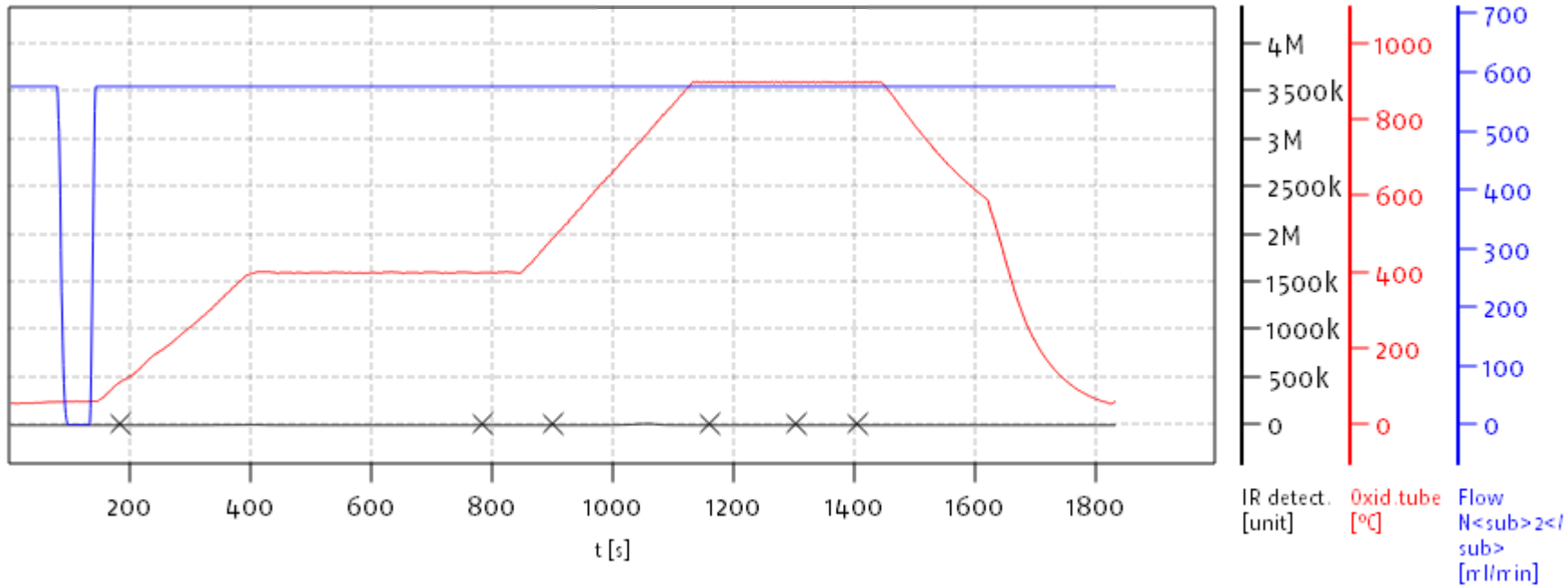
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
5	5	SEQ-CAL3	200.0	1.00	CARBON	5/17/2019 2:38PM	0.000	0.022	bl,C2u	10 433	25 160	307	1.0000	1.0000

5/22/19 CDE



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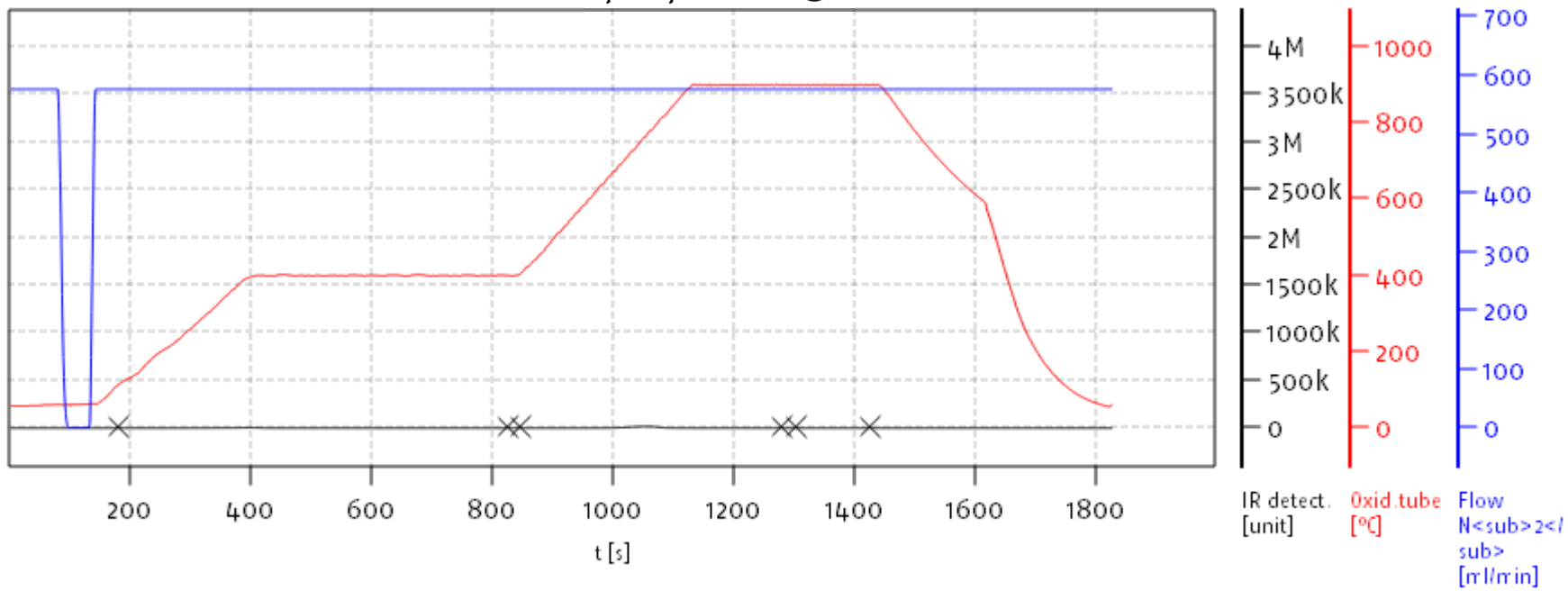
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
6	6	SEQ-CAL4	200.0	1.00	CARBON	5/17/2019 3:09PM	0.000	0.032	bl,C2u	11 105	37 762	447	1.0000	1.0000

5/22/19 CDE



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

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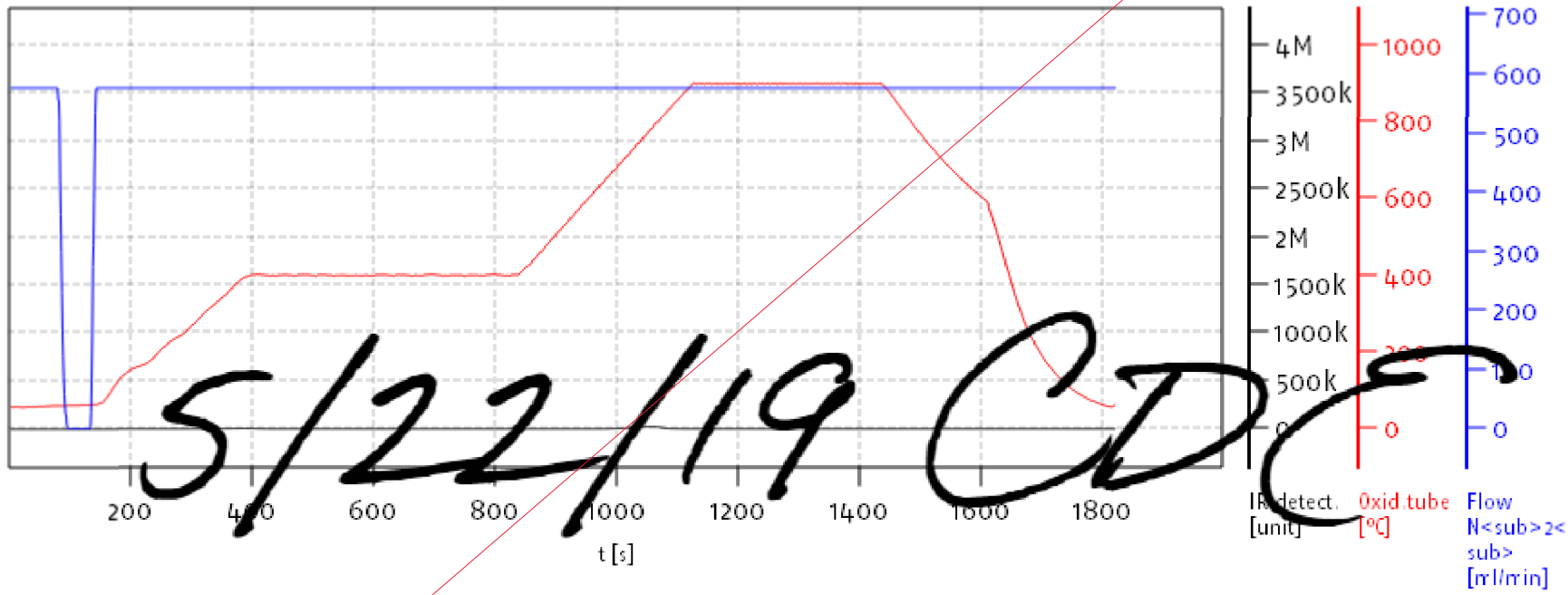
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
7	7	SEQ-CAL5	200.0	1.00	CARBON	5/17/2019 3:40 PM	0.000	0.046		0	0	0	1.0000	1.0000



5/22/19 CD

Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
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EXCELLENCE IN ELEMENTS

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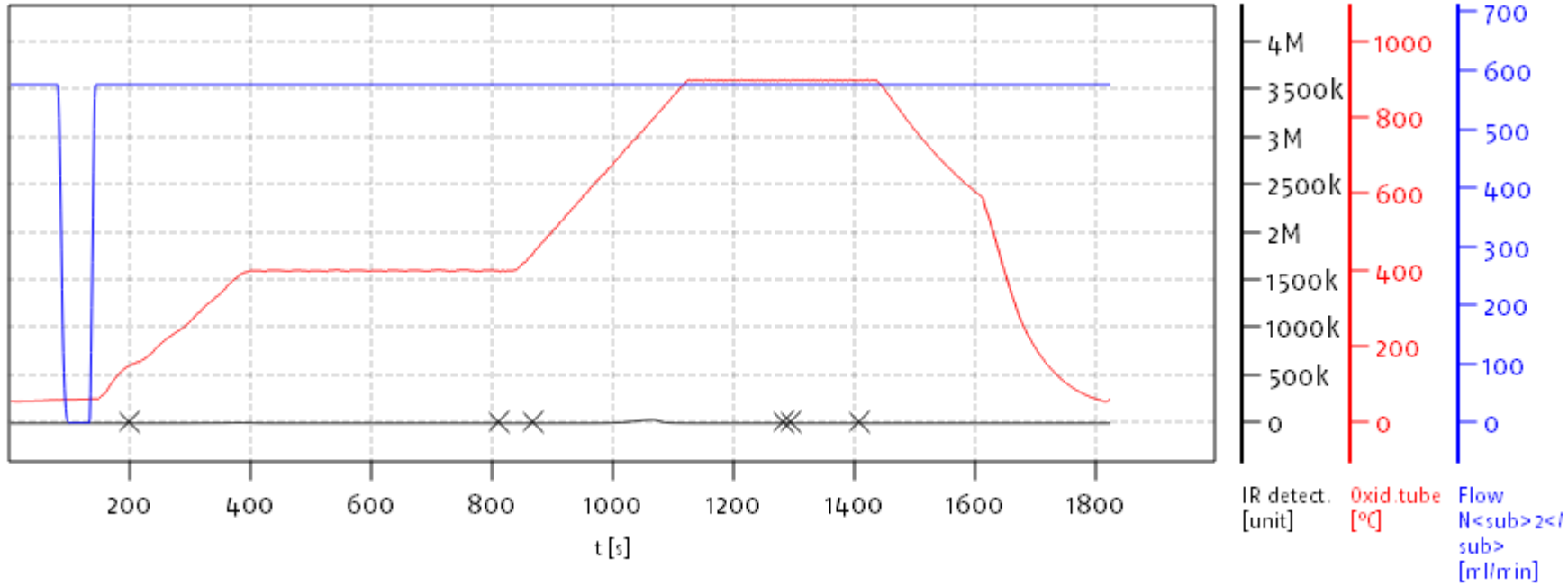
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
8	8	SEQ-CAL6	200.0	1.00	CARBON	5/17/2019 4:11 PM	0.000	0.060	bl,C2u	12 657	71 522	267	1.0000	1.0000



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Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

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Serial No: 0300.181017
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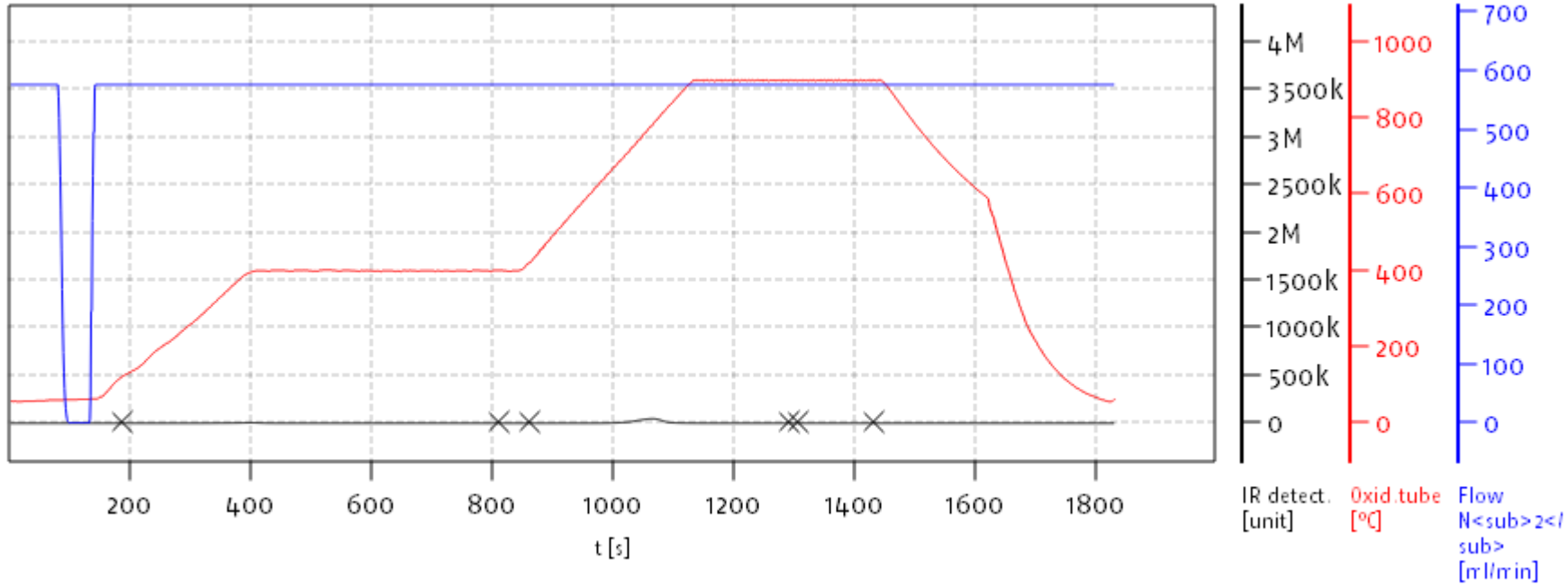
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
9	9	SEQ-CAL7	200.0	1.00	CARBON	5/17/2019 4:41 PM	0.000	0.076	bl,C2u	11 536	92 344	271	1.0000	1.0000



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Date: Wed May 22 09:18:30 2019

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Serial No: 0300.181017
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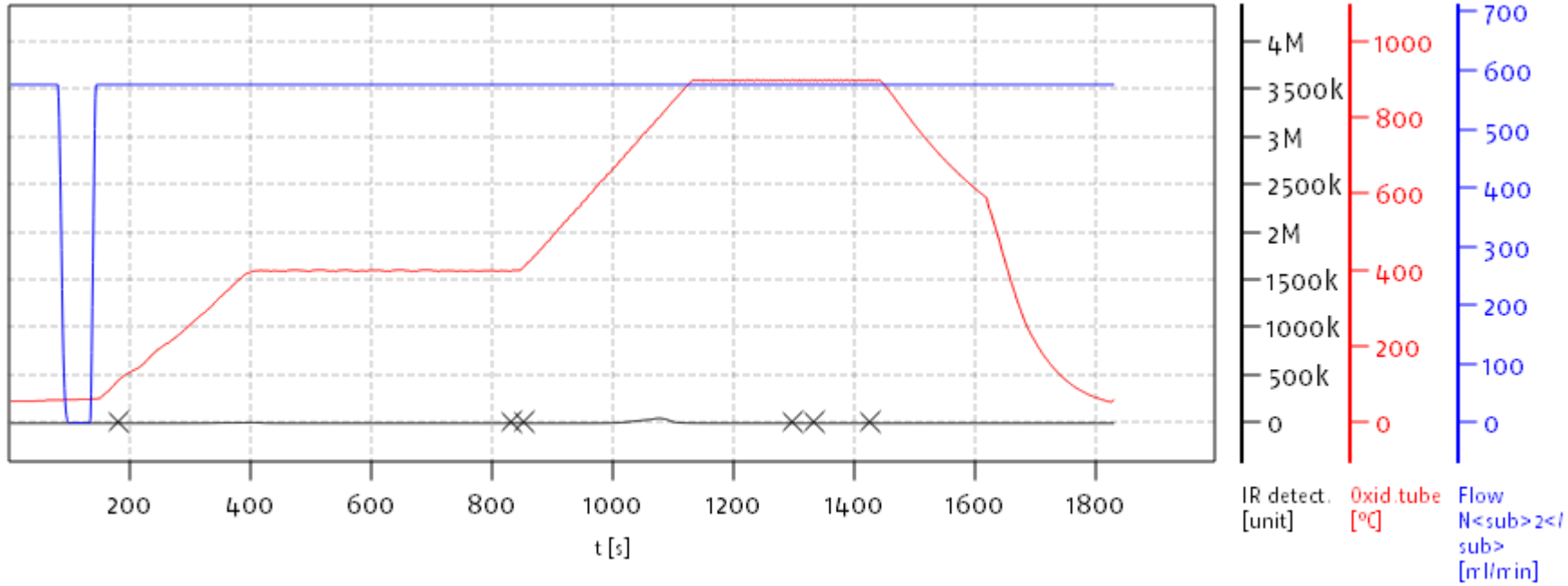
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
10	10	SEQ-CAL8	200.0	1.00	CARBON	5/17/2019 5:12 PM	0.000	0.090	bl,C2u	18 078	110 269	374	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

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Serial No: 0300.181017
Mode CCC

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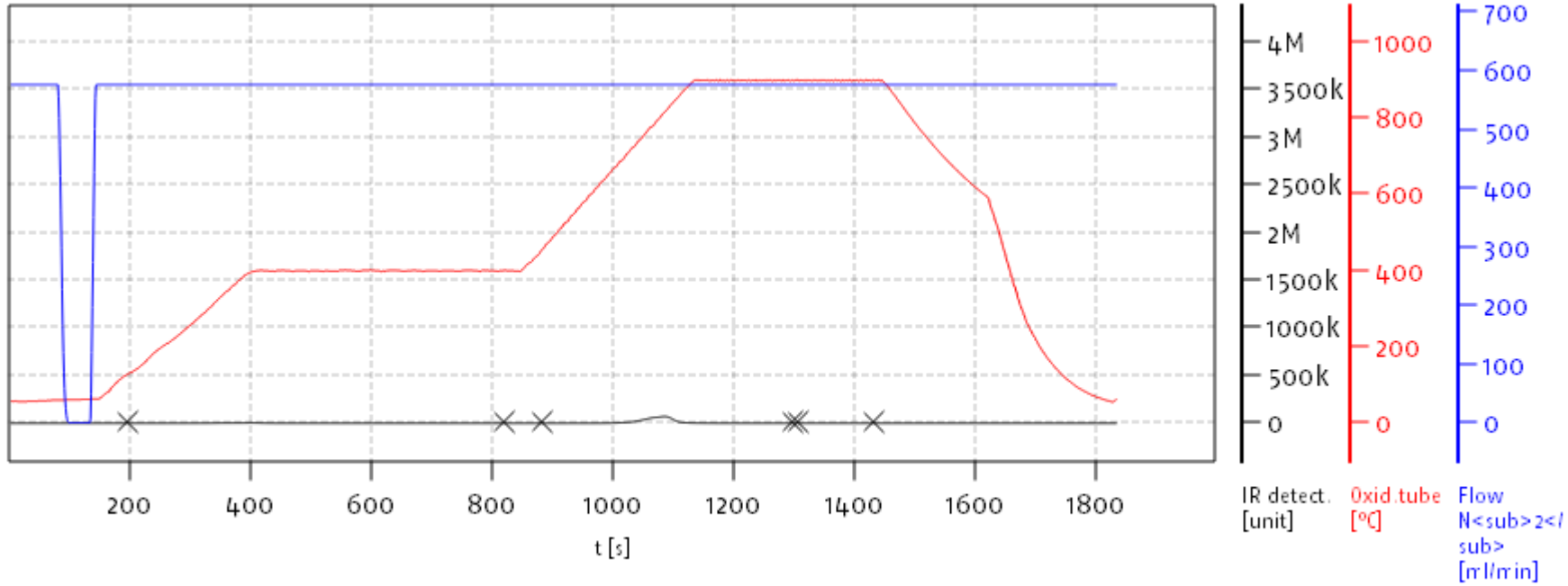
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
11	11	SEQ-CAL9	200.0	1.00	CARBON	5/17/2019 5:43 PM	0.000	0.121	bl,C2u	11 001	149 544	275	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

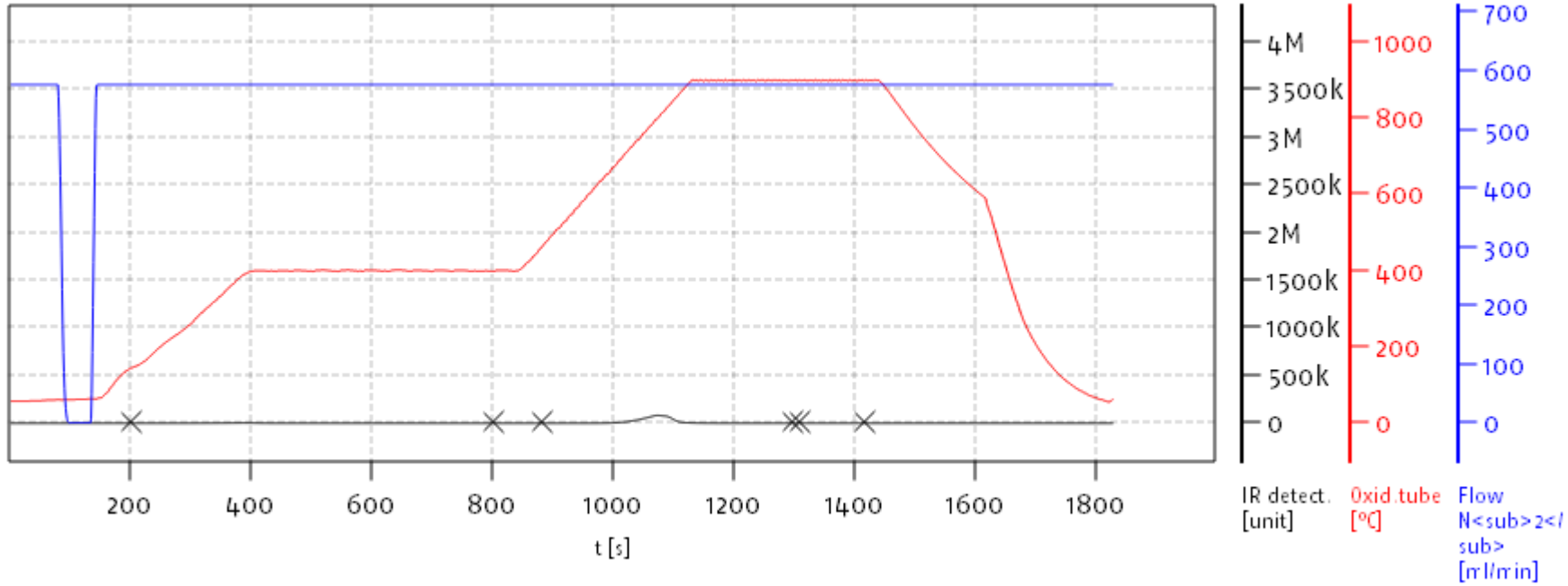
elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
12	12	SEQ-CALA	200.0	1.00	CARBON	5/17/2019 6:14 PM	0.000	0.150	bl,C2u	9 370	186 123	177	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

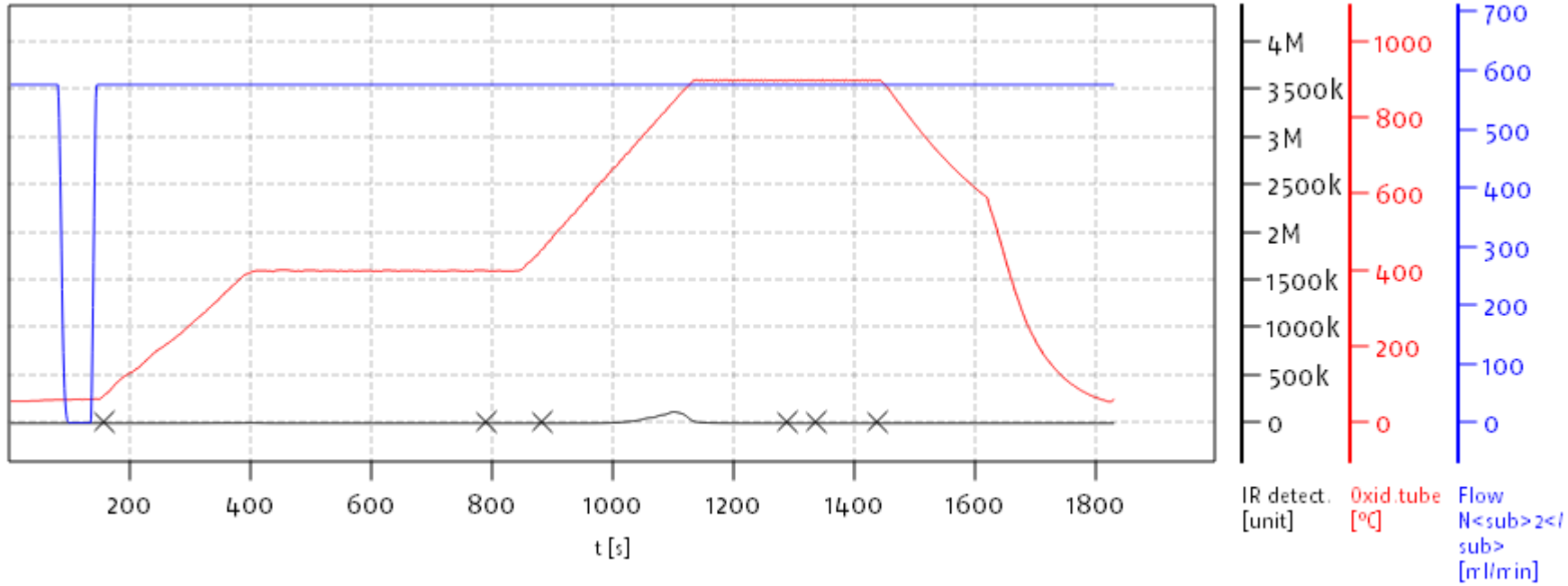
elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
13	13	SEQ-CALB	200.0	1.00	CARBON	5/17/2019 6:45 PM	0.000	0.240	bl,C2u	9 615	297 875	322	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

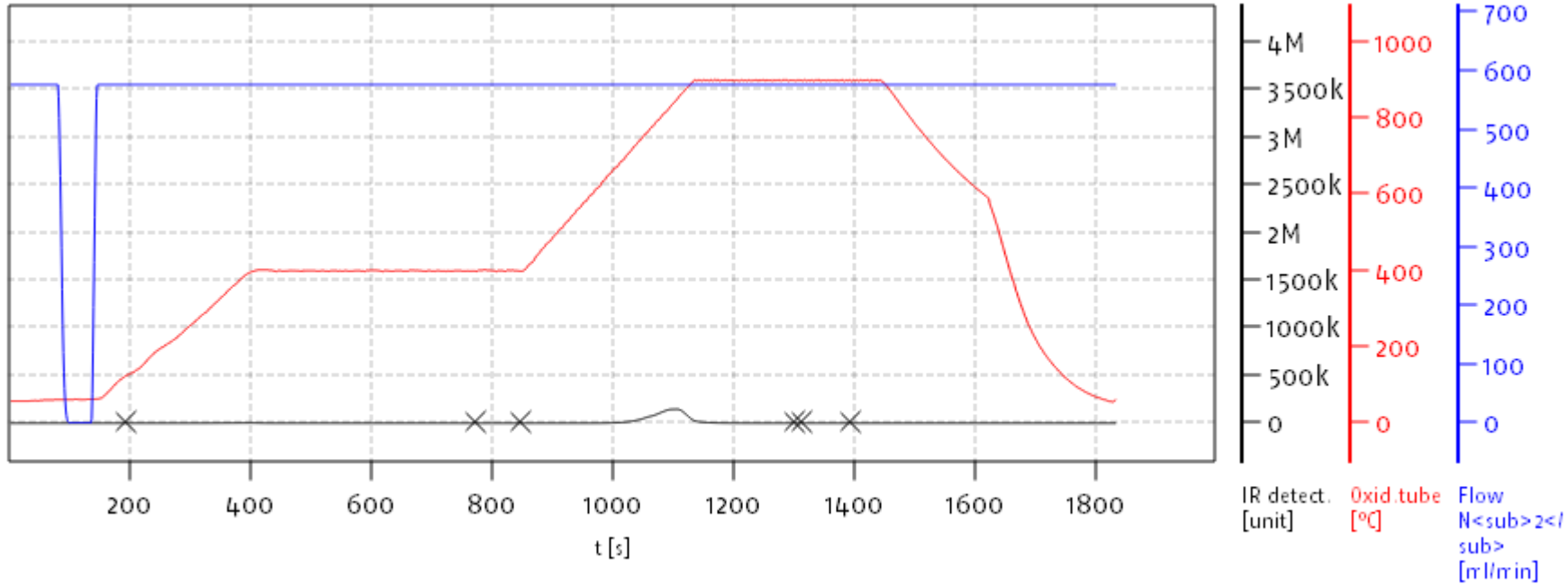
elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
14	14	SEQ-CALC	200.0	1.00	CARBON	5/17/2019 7:16 PM	0.000	0.300	bl,C1u, C2u	7 592	373 528	199	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

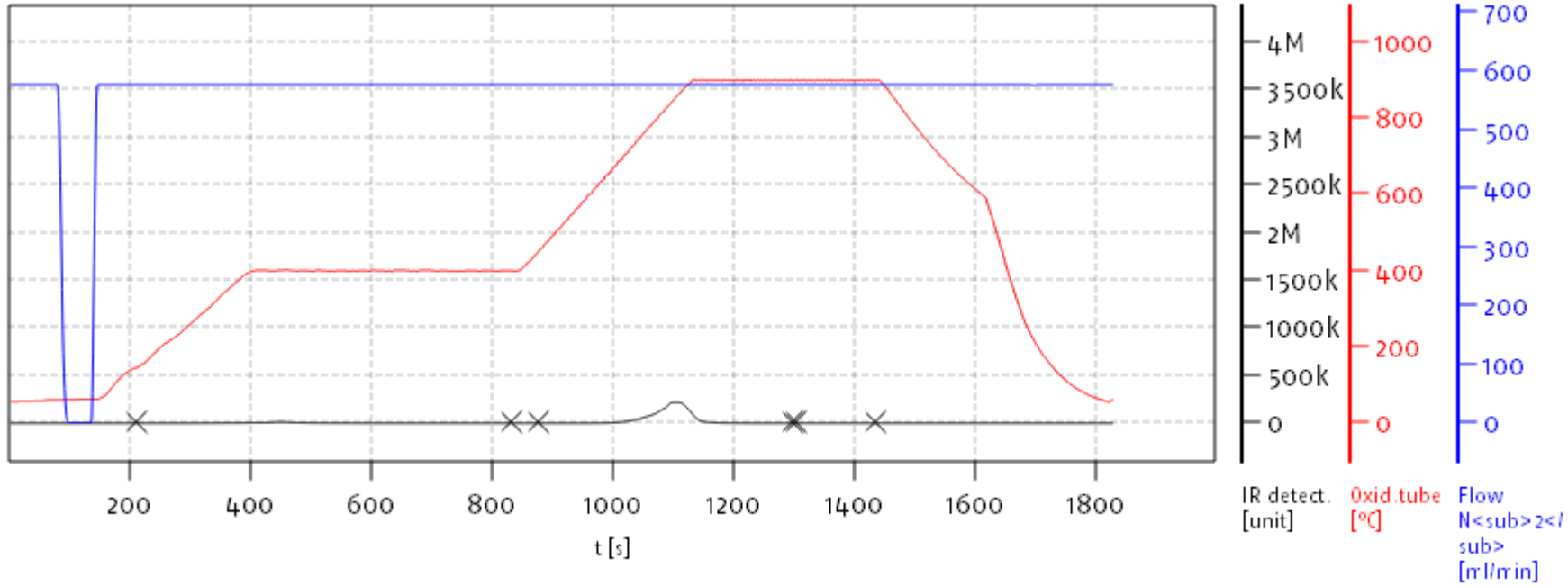
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
15	15	SEQ-CALD	200.0	1.00	CARBON	5/17/2019 7:47 PM	0.000	0.438	bl,C2u	39 734	548 318	350	1.0000	1.0000



Name:

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soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

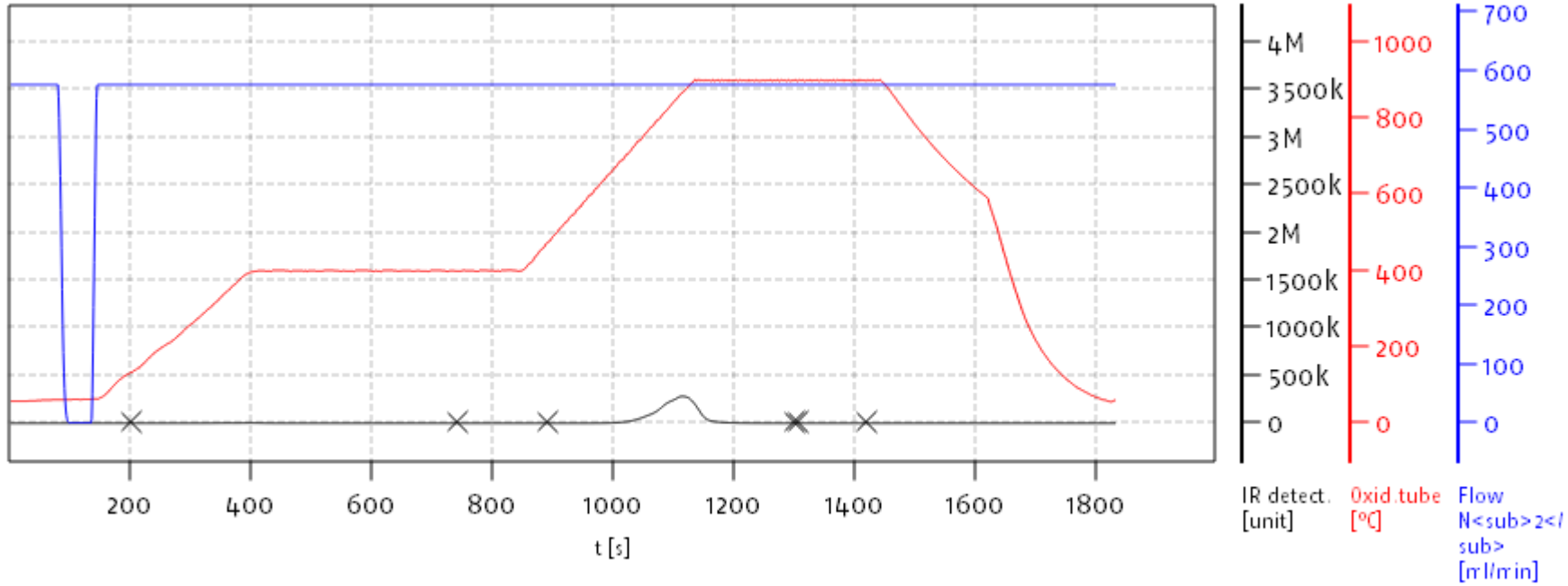
elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
16	16	SEQ-CALE	200.0	1.00	CARBON	5/17/2019 8:18 PM	0.000	0.612	bl,C2u	8 805	777 030	332	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
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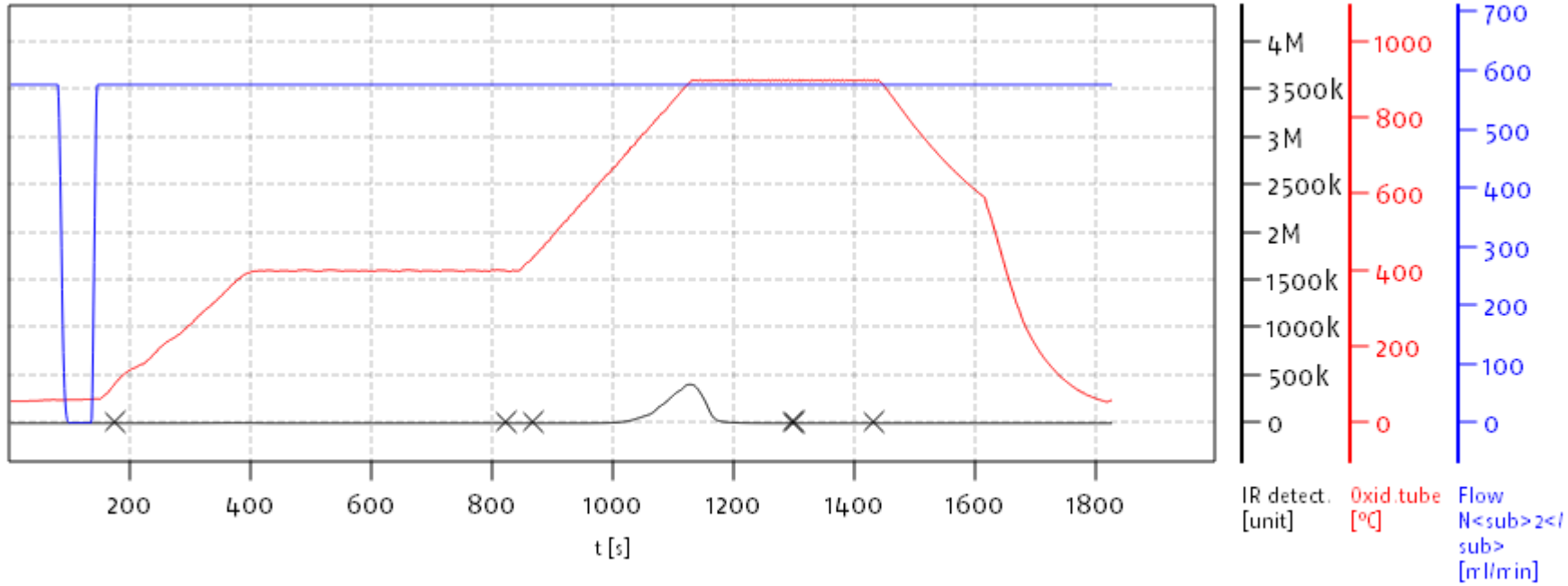
Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
17	17	SEQ-CALF	200.0	1.00	CARBON	5/17/2019 8:48 PM	0.000	0.906	bl,C2u	9 032	1 162 720	498	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

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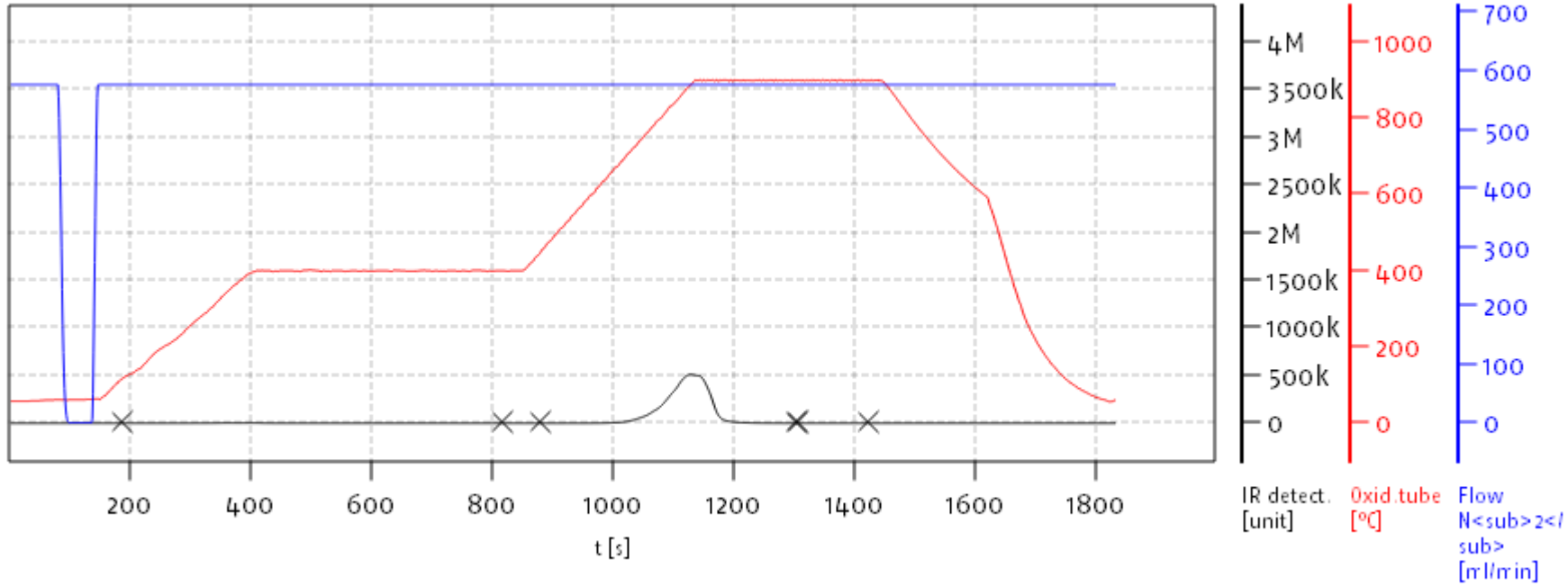
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
18	18	SEQ-CALG	200.0	1.00	CARBON	5/17/2019 9:19 PM	0.000	1.212	bl,C2u	10 013	1 542 430	658	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
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Mode CCC

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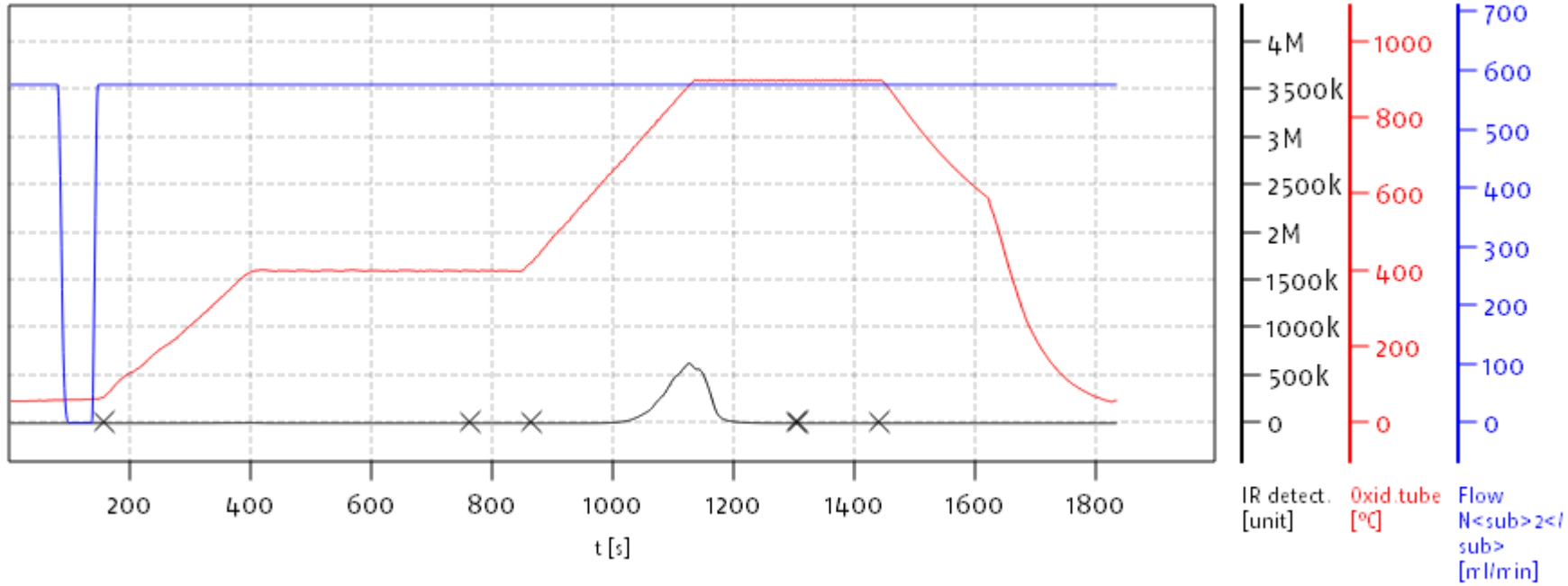
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
19	19	SEQ-CALH	200.0	1.00	CARBON	5/17/2019 9:50 PM	0.000	1.506	bl,C2u	10 625	1 900 100	1 089	1.0000	1.0000



Name:

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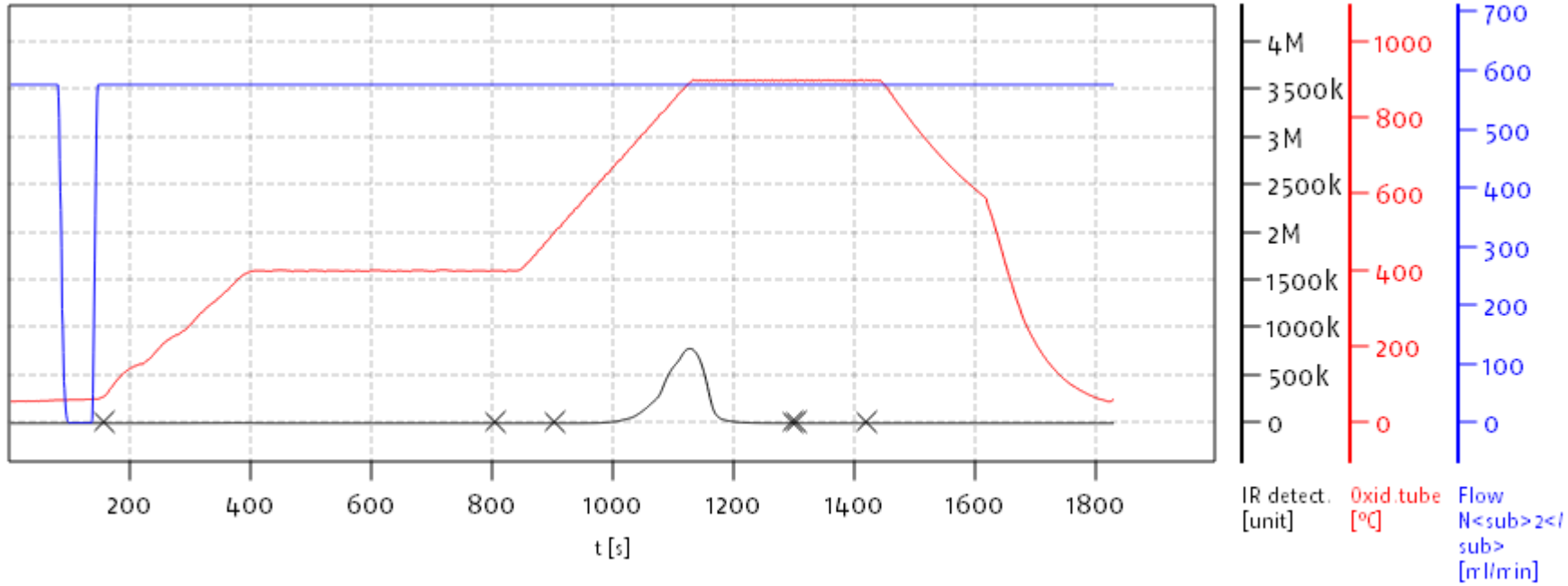
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
20	20	SEQ-CALI	200.0	1.00	CARBON	5/17/2019 10:21 PM	0.000	1.836	bl,C2u	8 781	2 316 120	796	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
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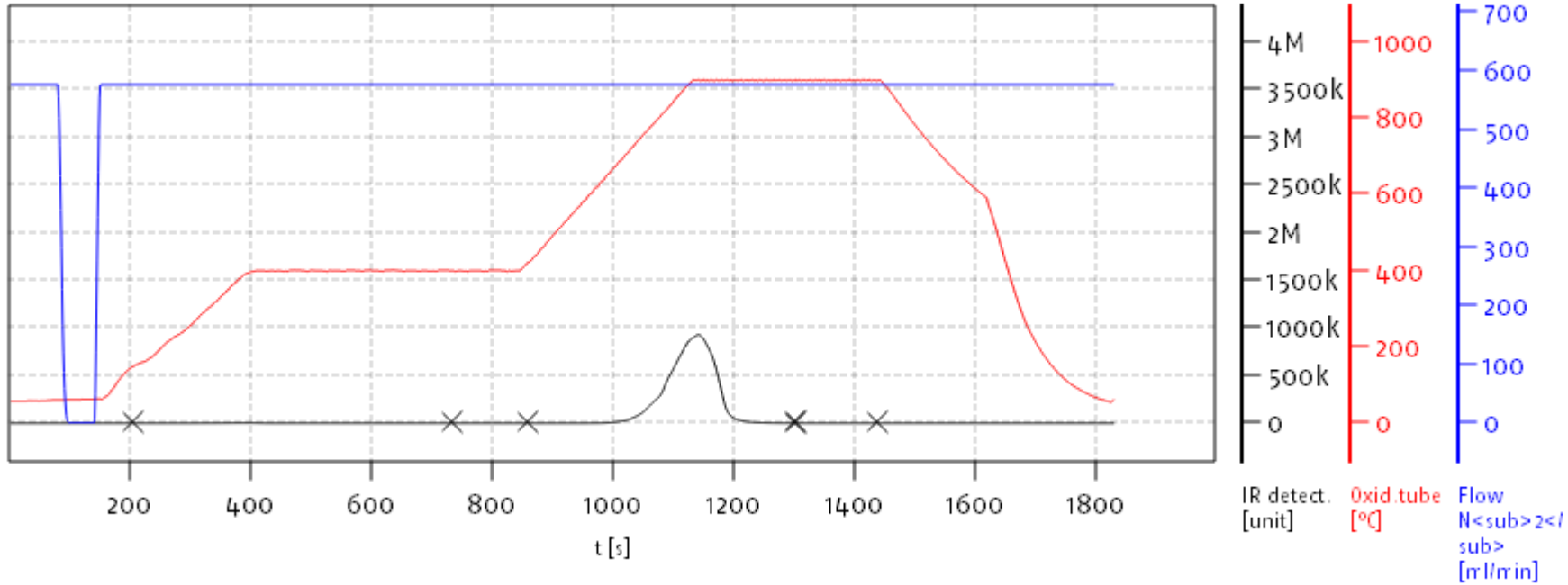
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
21	21	SEQ-CALJ	200.0	1.00	CARBON	5/17/2019 10:52 PM	0.000	2.412	bl,C1u, C2u	8 290	3 068 340	1 313	1.0000	1.0000



Name:

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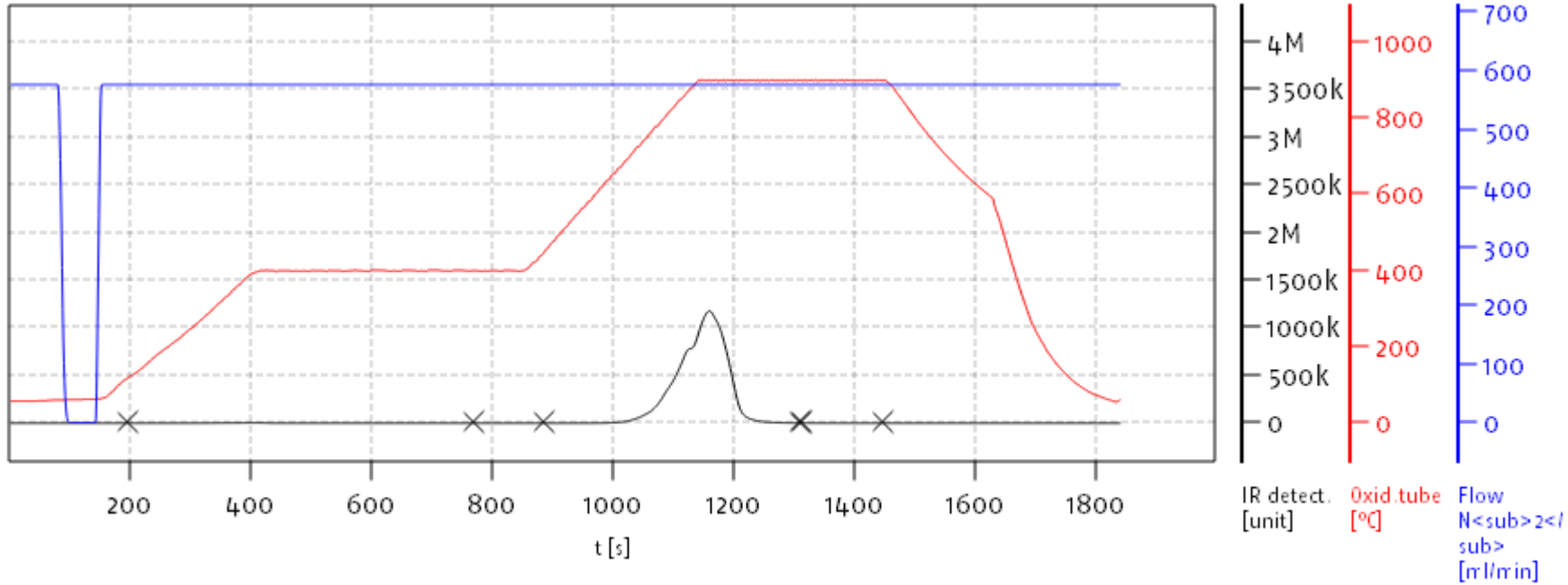
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
22	22	SEQ-CALK	200.0	1.00	CARBON	5/17/2019 11:23 PM	0.000	3.054	bl,C2u	11 769	3 845 430	2 750	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
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EXCELLENCE IN ELEMENTS

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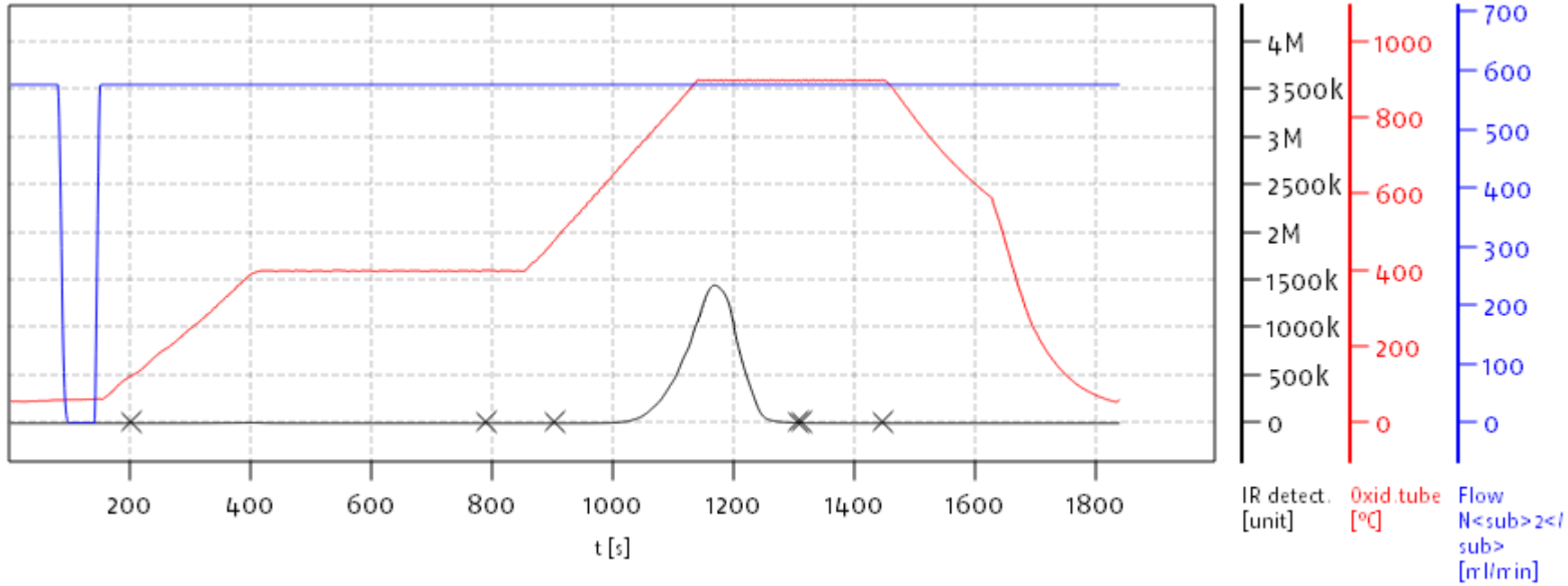
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
23	23	SEQ-CALL	200.0	1.00	CARBON	5/17/2019 11:54 PM	0.000	4.272	bl,C2u	13 596	5 448 560	4 766	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
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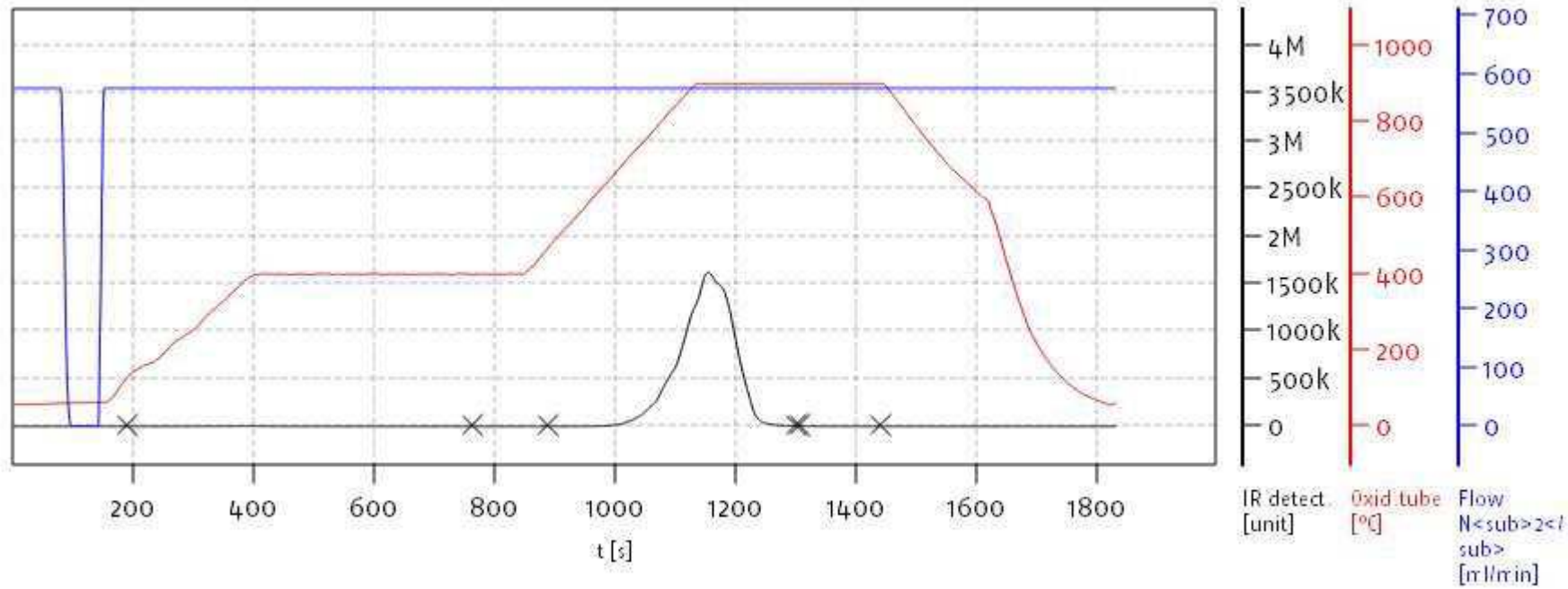
Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
24	24	SEQ-CALM	200.0	1.00	CARBON	5/18/2019 12:25 AM	0.000	4.908	bl,C2u	11 045	6 169 860	4 824	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

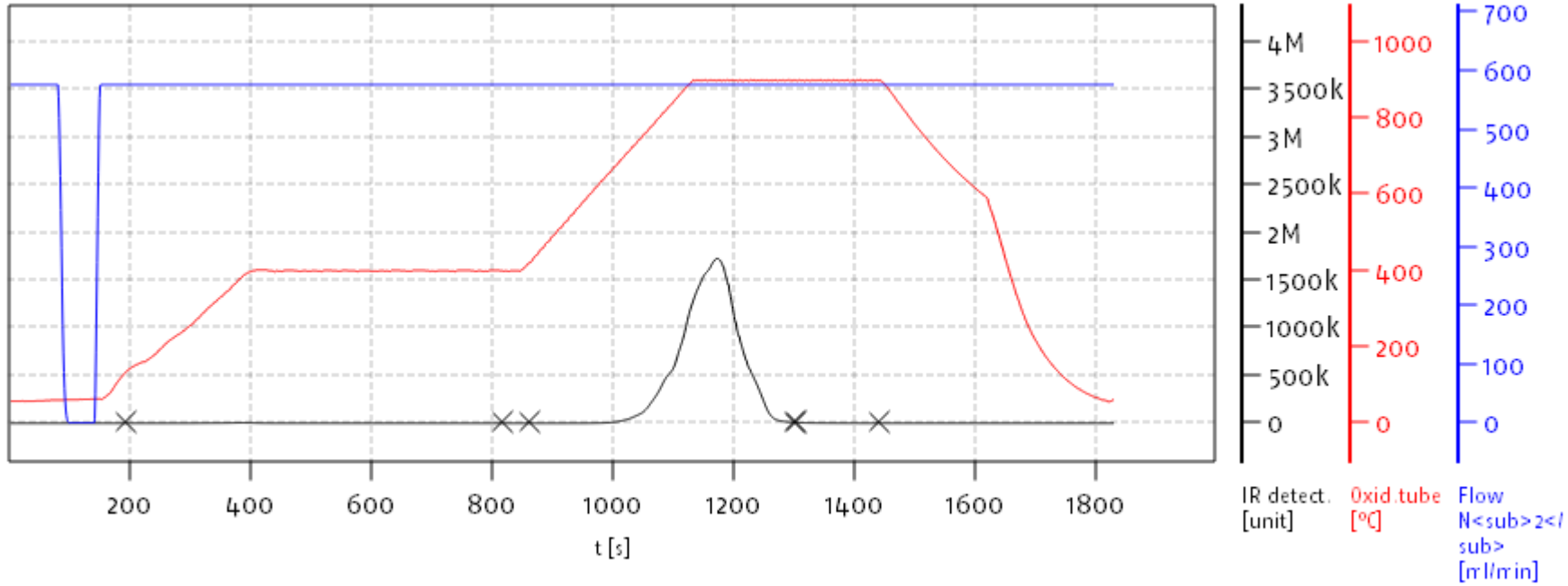
elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
25	25	SEQ-CALN	200.0	1.00	CARBON	5/18/2019 12:56 AM	0.000	5.484	bl,C2u	12 828	6 996 600	8 578	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

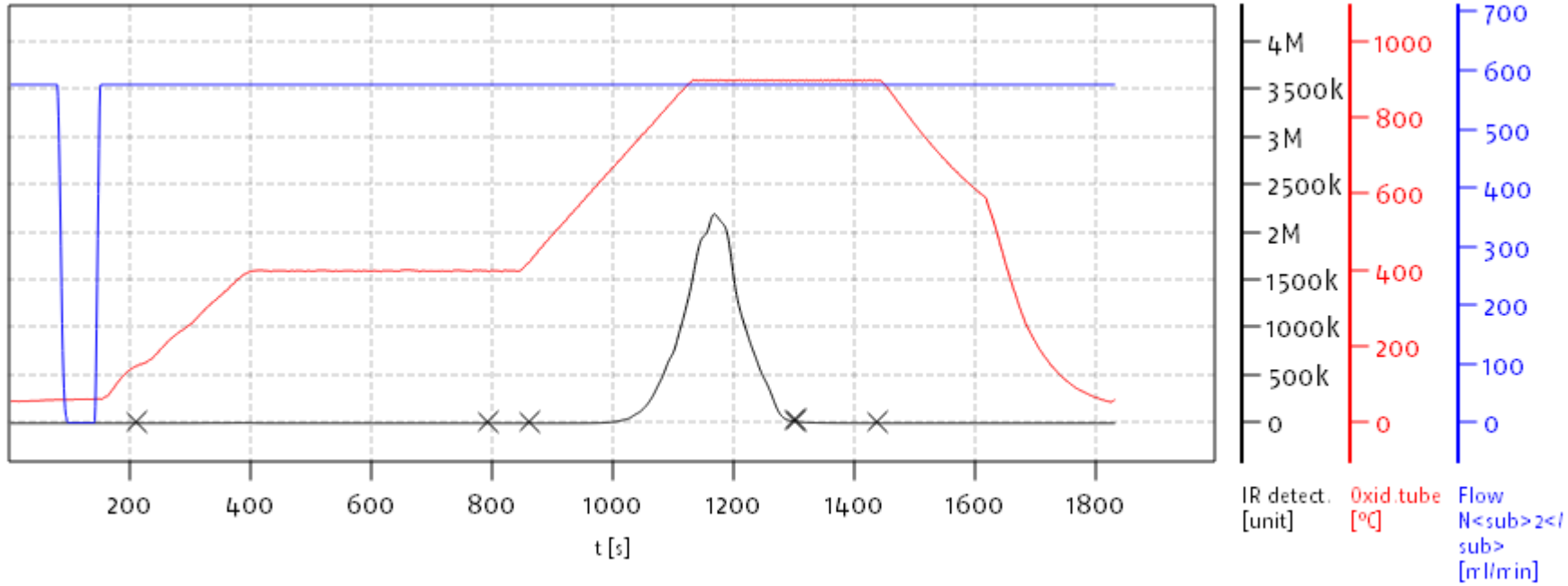
elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
26	26	SEQ-CALO	200.0	1.00	CARBON	5/18/2019 1:27 AM	0.000	7.254	bl,C3o	9 093	9 268 610	16 749	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

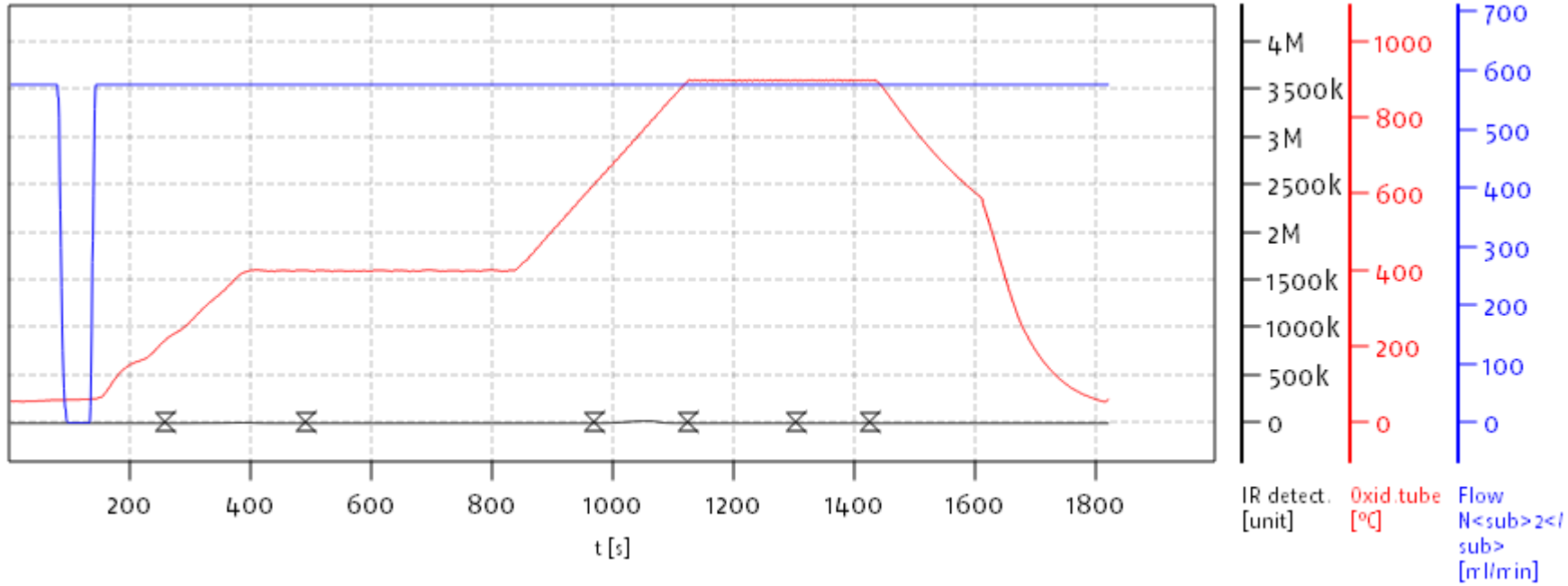
elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
7	7	SEQ-CAL5	200.0	1.00	CARBON	5/22/2019 10:03 AM	0.014	0.050		6 842	39 455	0	1.0000	1.0000



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Access: soliTOC superuser

Date: Wed May 22 10:04:12 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 10:03 AM

ANALYSIS BATCH (SEQUENCE) SUMMARY

Plumb 1981, Combustion IR

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Sequence: SHH0111
Instrument: TOC Cube
Calibration: CE00054

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Initial Cal Check	SHH0111-ICV1	peData_08132019@1214-(	NA	08/12/19 12:32
Initial Cal Blank	SHH0111-ICB1	peData_08132019@1214-(	NA	08/12/19 13:03
Calibration Check	SHH0111-CCV1	peData_08132019@1214-(	NA	08/12/19 18:43
Calibration Blank	SHH0111-CCB1	peData_08132019@1214-(	NA	08/12/19 19:14
Calibration Check	SHH0111-CCV2	peData_08132019@1214-(	NA	08/13/19 00:55
Calibration Blank	SHH0111-CCB2	peData_08132019@1214-(	NA	08/13/19 01:26
Calibration Check	SHH0111-CCV3	peData_08132019@1214-(	NA	08/13/19 07:07
Calibration Blank	SHH0111-CCB3	peData_08132019@1214-(	NA	08/13/19 07:38
MRL Check	BHH0302-MRL1	peData_08132019@1701-(	Solid	08/13/19 11:46
Blank	BHH0302-BLK1	peData_08132019@1701-(	Solid	08/13/19 12:17
LCS	BHH0302-BS1	peData_08132019@1701-(	Solid	08/13/19 12:48
Calibration Check	SHH0111-CCV4	peData_08132019@1701-(	NA	08/13/19 13:19
Calibration Blank	SHH0111-CCB4	peData_08132019@1701-(	NA	08/13/19 13:50
SL4-SG-WC3-2019	19H0024-03	peData_08142019@1025-(	Solid	08/13/19 14:22
SL4-SG-WC3-2019	BHH0302-DUP1	peData_08142019@1025-(	Solid	08/13/19 14:53
SL4-SG-WC3-2019	BHH0302-DUP2	peData_08142019@1025-(	Solid	08/13/19 15:24
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SL4-SG-WC3-2019	BHH0302-MS2	peData_08142019@1025-(	Solid	08/13/19 16:26
SL4-SG-WC7-2019	19H0024-04	peData_08142019@1025-(	Solid	08/13/19 16:57
SL4-SG-WC8-2019	19H0024-06	peData_08142019@1025-(	Solid	08/13/19 18:30
SL4-SG-WC4-2019	19H0024-07	peData_08142019@1025-(	Solid	08/13/19 19:01
SL4-SG-WC2-2019	19H0024-08	peData_08142019@1025-(	Solid	08/13/19 19:32
Calibration Check	SHH0111-CCV5	peData_08142019@1025-(	NA	08/13/19 20:03
Calibration Blank	SHH0111-CCB5	peData_08142019@1025-(	NA	08/13/19 20:34
SL4-SG-WC1-2019	19H0024-09	peData_08142019@1025-(	Solid	08/13/19 21:05
SL4-IC-SC2-2019	19H0024-10	peData_08142019@1025-(	Solid	08/13/19 21:36
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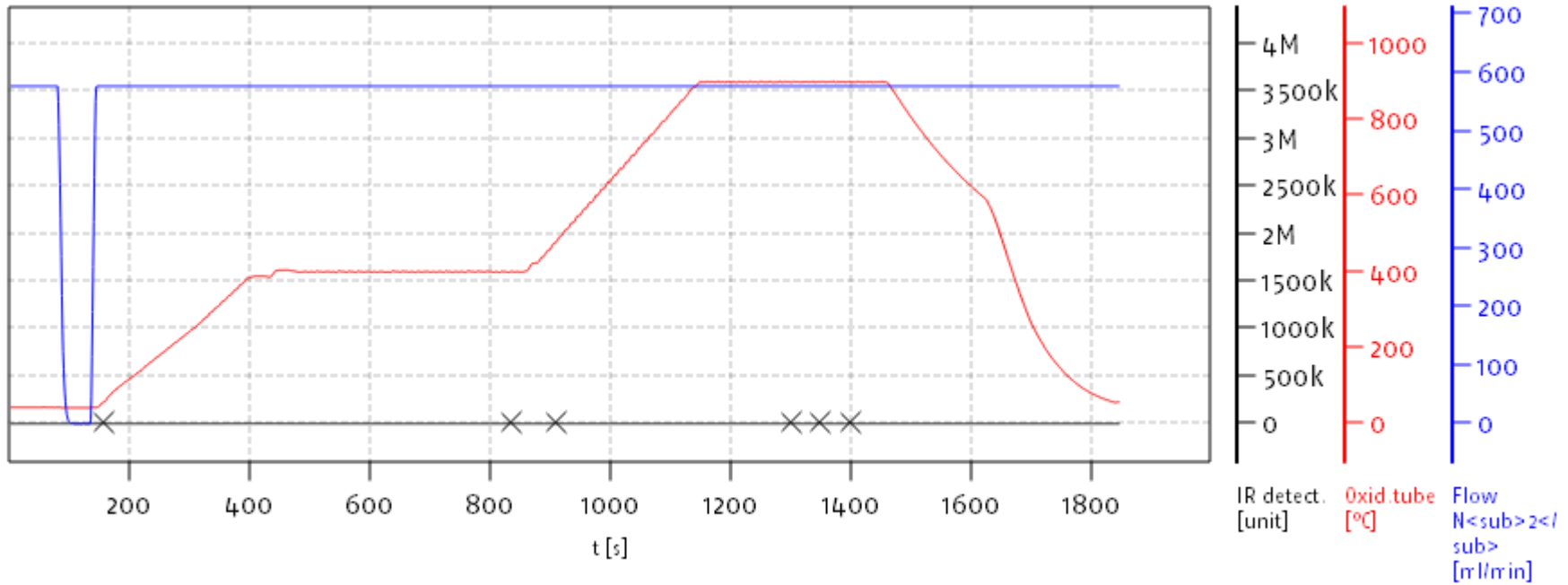
Calibration Blank	SHH0111-CCB6	peData_08142019@1025-(	NA	08/13/19 23:09

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
1	1	BLANK	1.0		1.00	CARBON	8/12/2019 11:00 AM	0.000	0.000	0.000	0.000	bl	9 137	3 588	569	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed Aug 14 10:36:05 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
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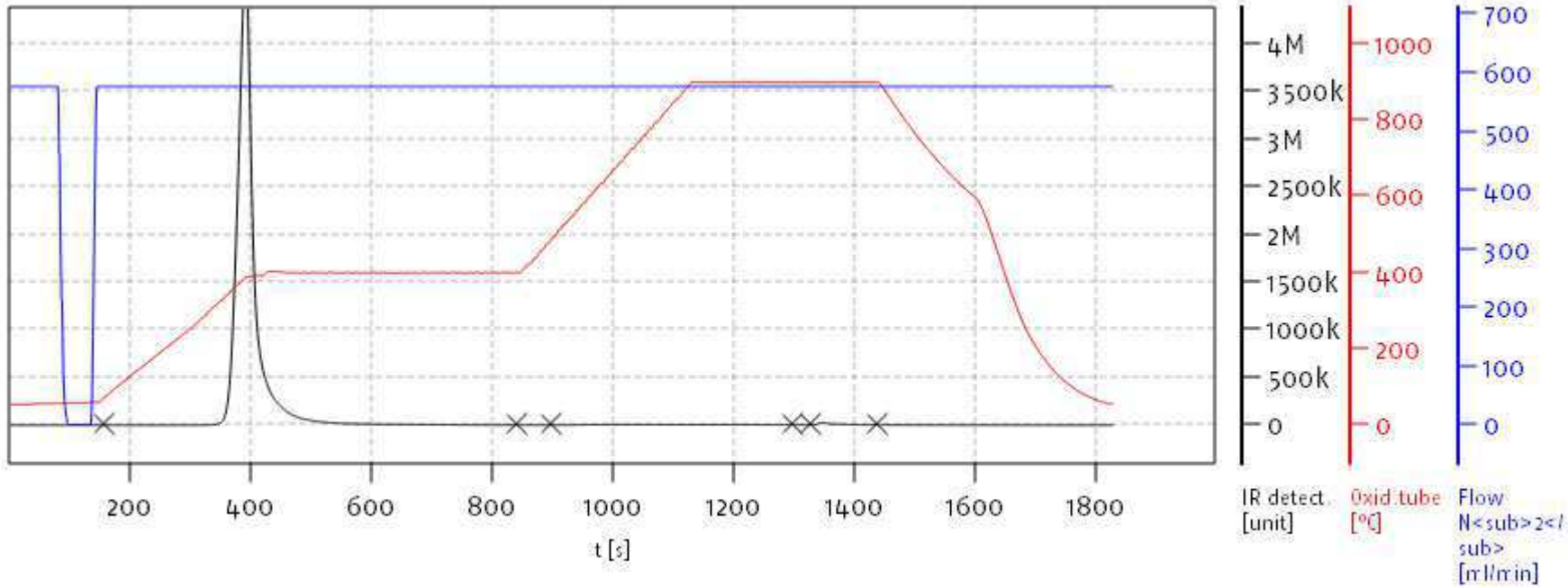
Document: 0812c19CDE from: 8/14/2019 10:23 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
2	2	Dfactor	20.7		1.00	CARBON	8/12/2019 11:31 AM	44.809	0.621	0.364	45.431	bl	5 602 190	71 365	37 452	1.0436	1.0000



Name:

Access: soliTOC superuser

Date: Wed Aug 14 10:36:05 2019

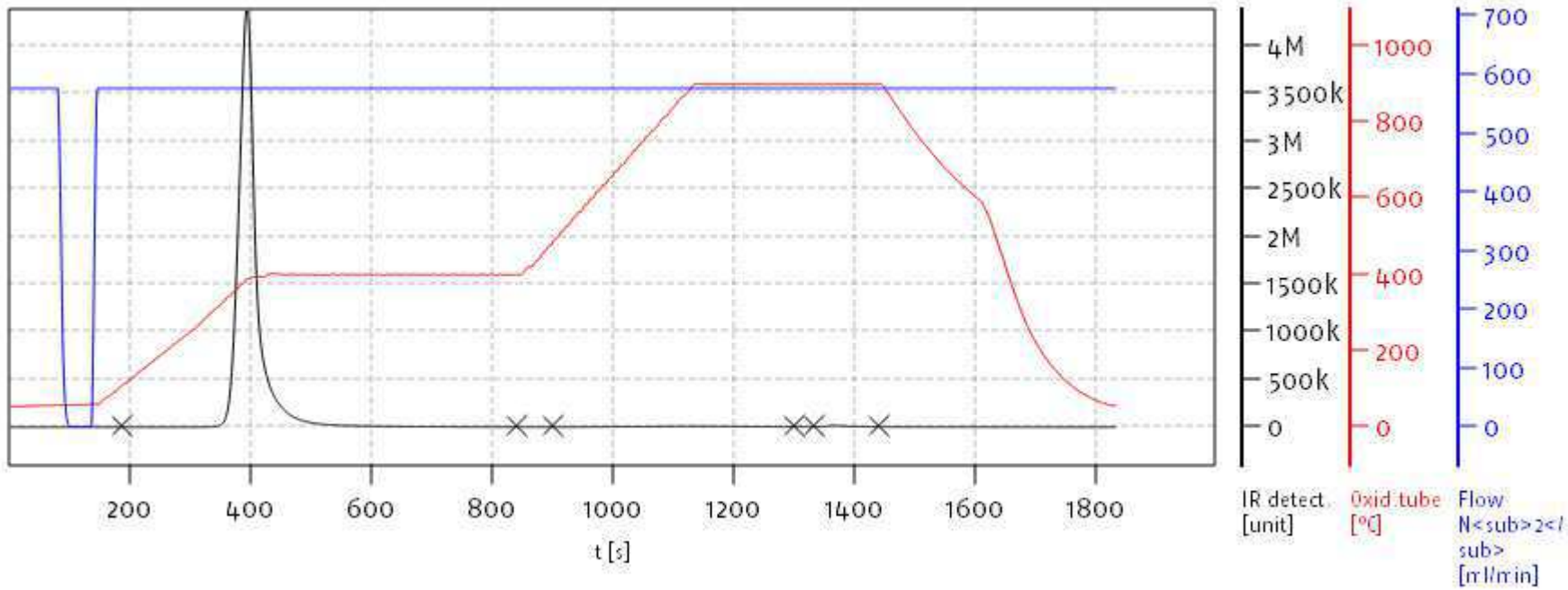
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: 0812c19CDE from: 8/14/2019 10:23 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
3	3	Dfactor	20.6		1.00	CARBON	8/12/2019 12:01 PM	44.746	0.674	0.300	45.419	bl	5 608 000	77 881	28 833	1.0375	1.0000



Name:

Access: soliTOC superuser

Date: Wed Aug 14 10:36:05 2019

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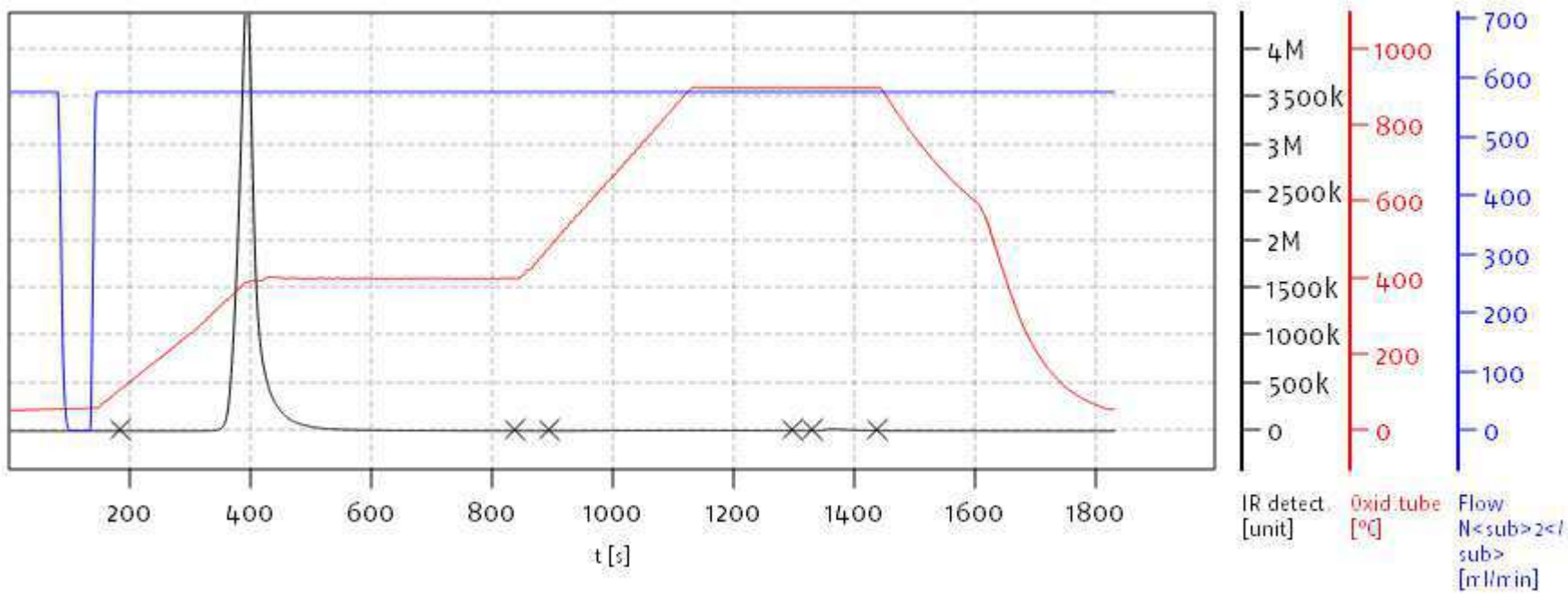
Document: 0812c19CDE from: 8/14/2019 10:23 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
4	4	SHH 0111 - ICV1	20.6		1.00	CARBON	8/12/2019 12:32 PM	44.788	0.574	0.370	45.363	bl	5 588 010	64 811	38 084	1.0406	1.0000



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Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

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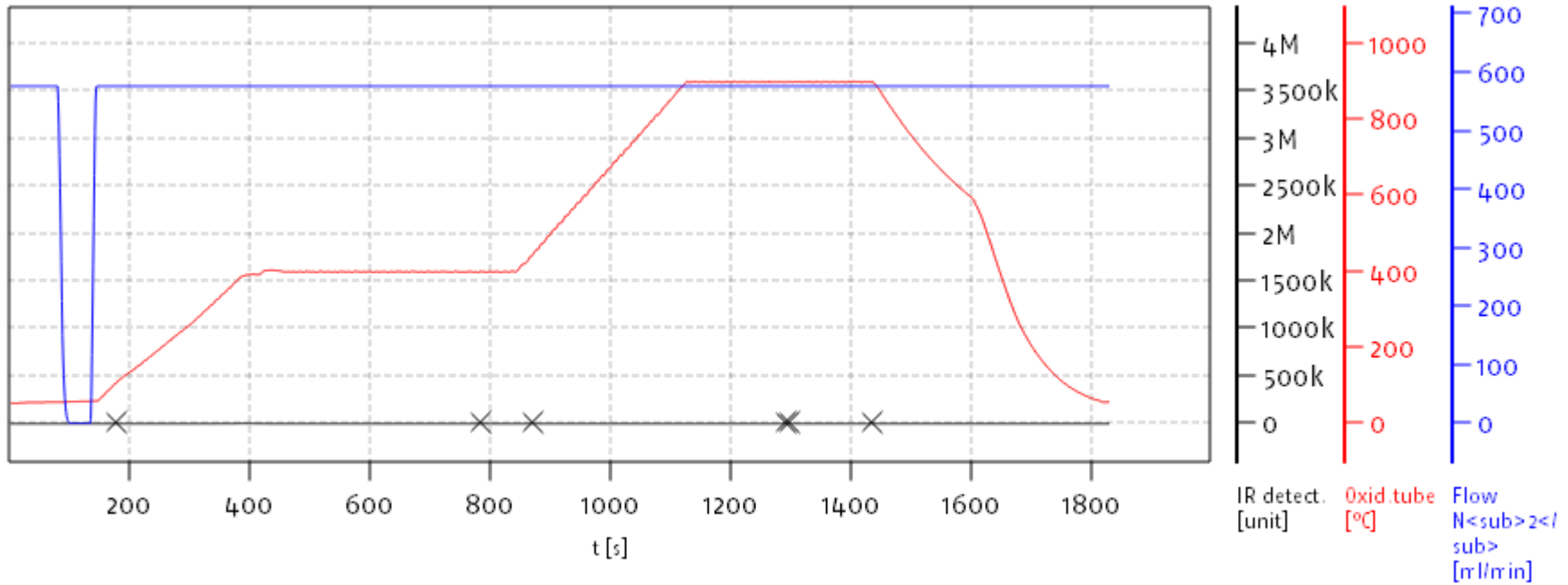
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
5	5	SHH 0111 - ICB1	596.5		1.00	CARBON	8/12/2019 1:03 PM	0.007	0.000	0.003	0.007	bl,C2u	5 132	0	561	1.0406	1.0000



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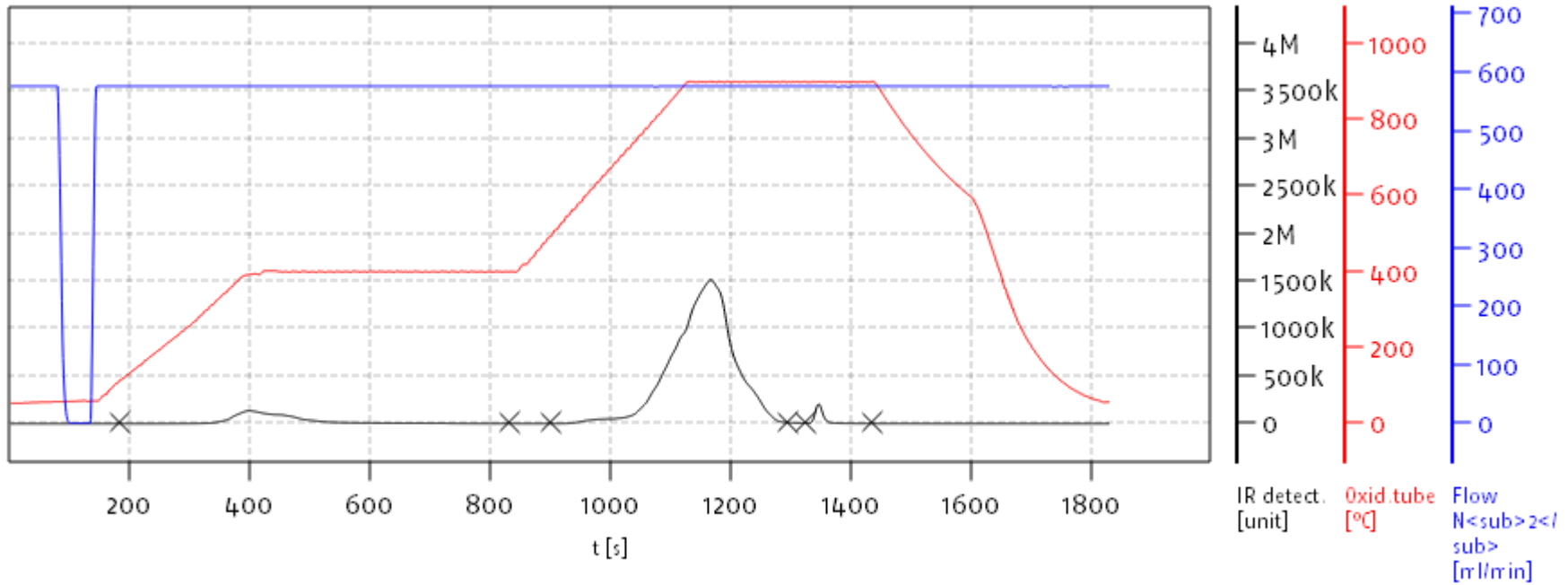
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
6	6	19H0001-01RE1	356.5		1.00	CARBON	8/12/2019 1:34 PM	0.330	2.826	0.059	3.156	bl	581 418	6 403 730	122 339	1.0406	1.0000



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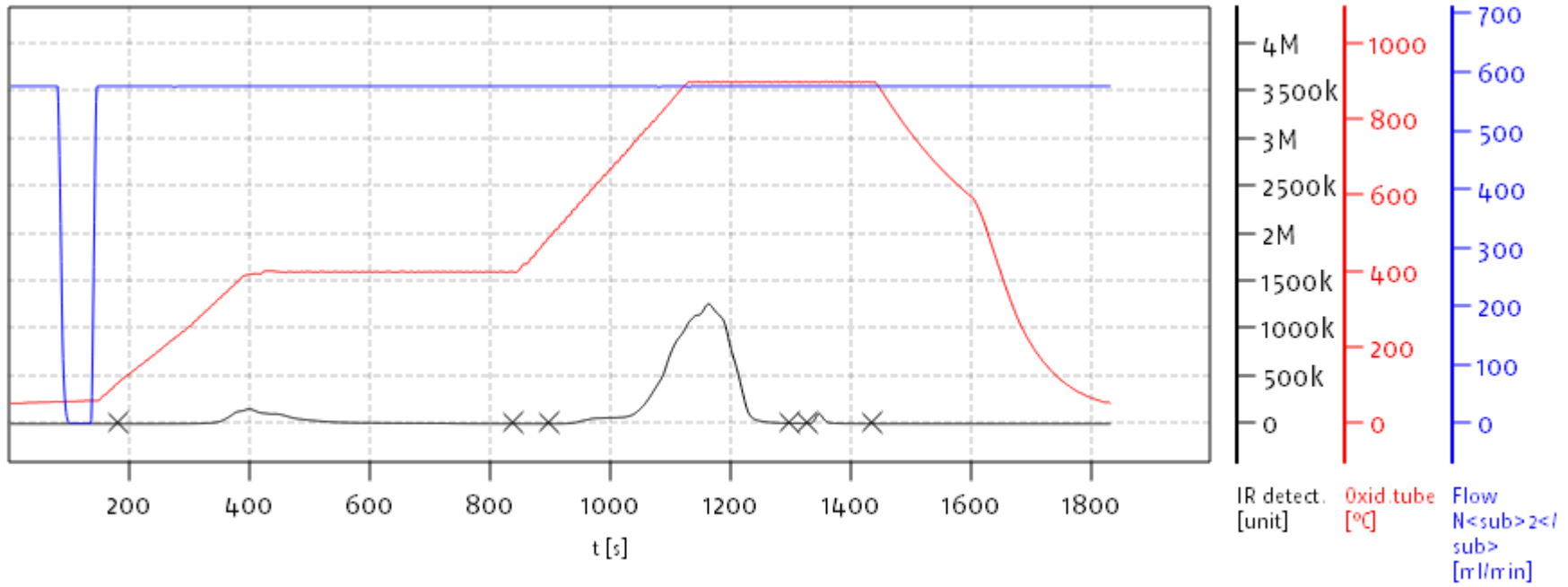
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
7	7	BHH0055-DUP2	373.8		1.00	CARBON	8/12/2019 2:05 PM	0.321	2.346	0.033	2.667	bl	646 727	5 572 780	68 841	1.0406	1.0000



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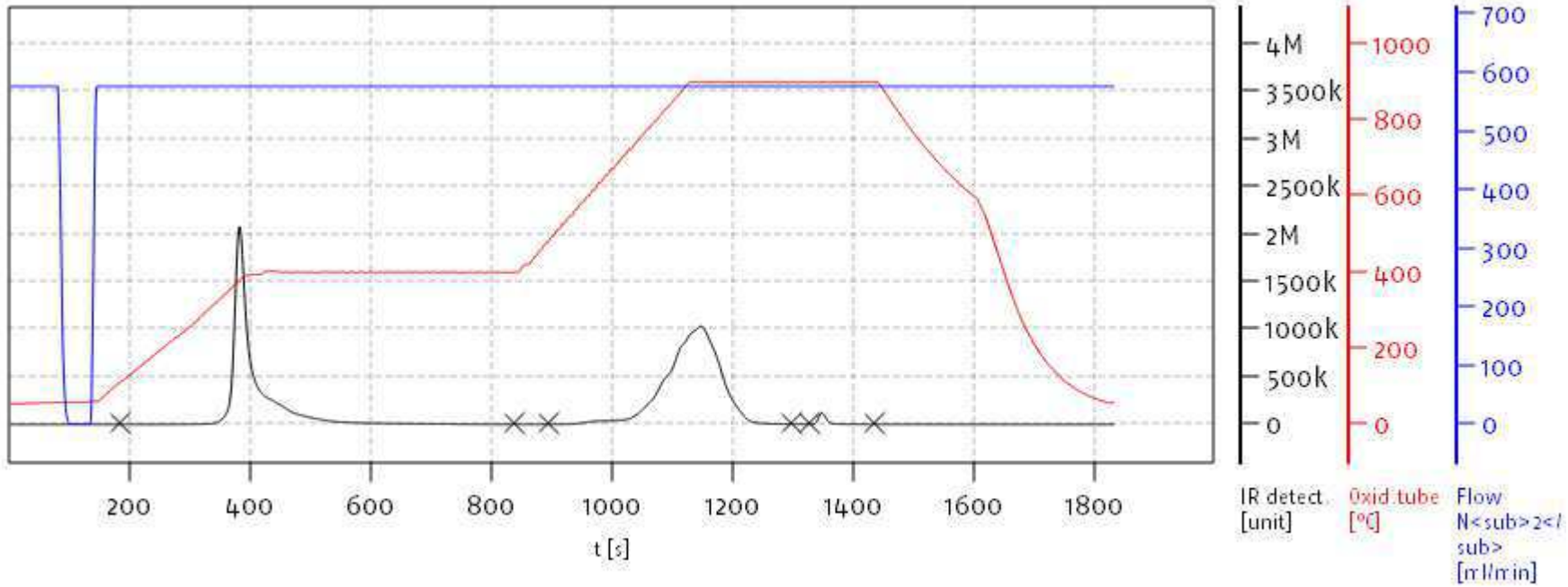
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
8	8	BHH0055-MS2	330.3	.0079	1.00	CARBON	8/12/2019 2:36 PM	1.380	1.860	0.040	3.240	bl	2 698 760	3 900 130	72 754	1.0406	1.0000



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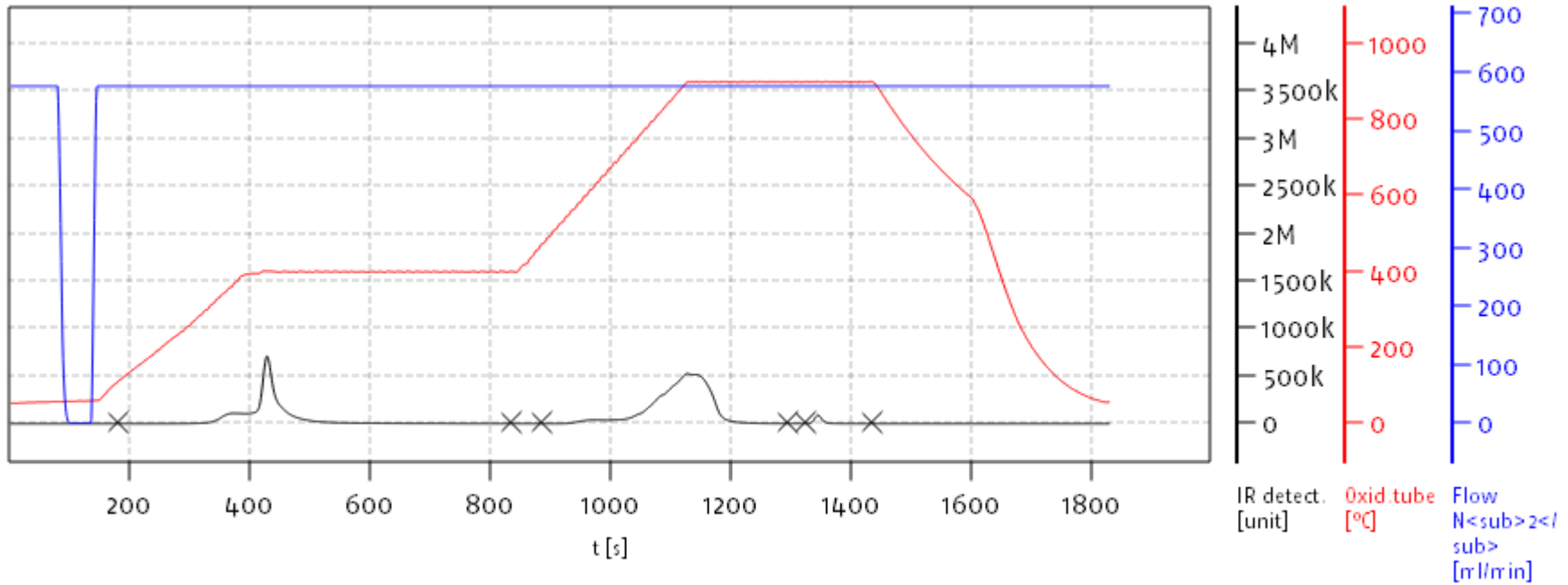
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
9	9	19H0001-14RE1	208.9		1.00	CARBON	8/12/2019 3:07 PM	0.887	1.500	0.046	2.387	bl	1 063 840	1 985 060	50 658	1.0406	1.0000



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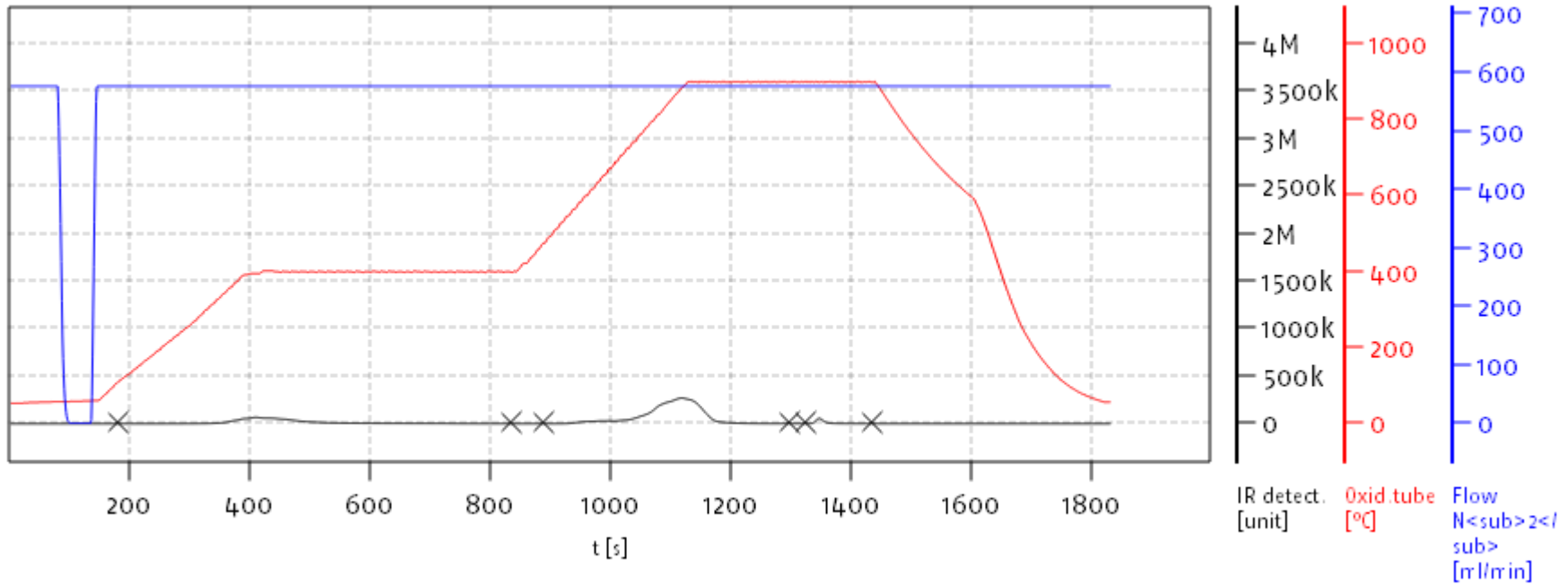
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
10	10	19H0006-05RE1	443.2		1.00	CARBON	8/12/2019 3:38 PM	0.126	0.357	0.016	0.483	bl	288 871	995 648	34 608	1.0406	1.0000



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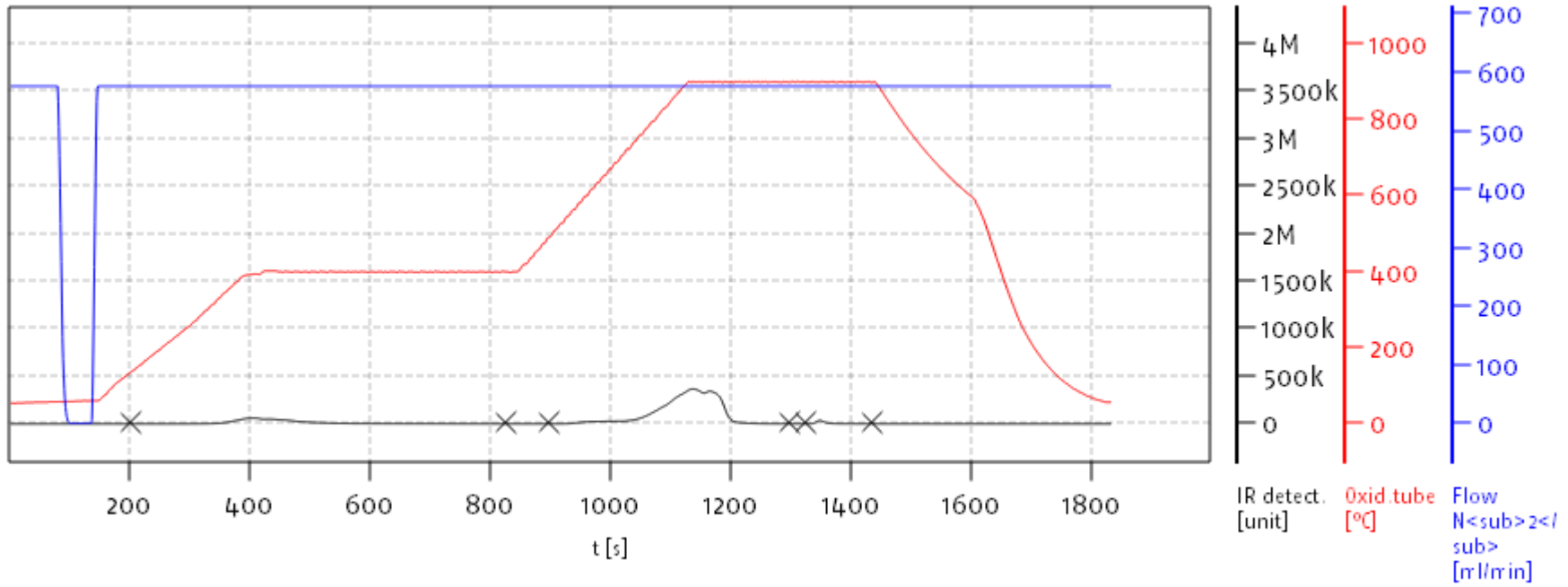
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
11	11	BHH0056-DUP2	458.7		1.00	CARBON	8/12/2019 4:08 PM	0.106	0.514	0.012	0.620	bl	252 335	1 491 030	24 434	1.0406	1.0000



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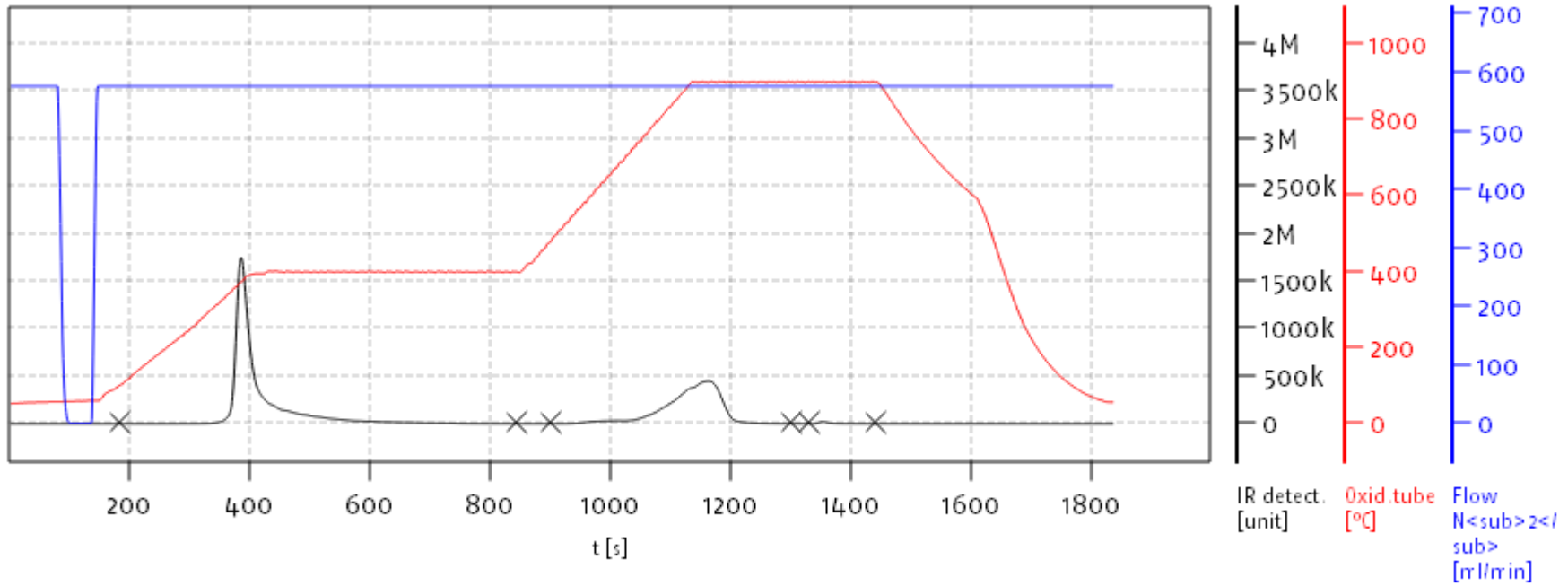
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
12	12	BHH0056-MS2	454.7	. 0078	1.00	CARBON	8/12/2019 4:39 PM	0.889	0.567	0.009	1.456	bl	2 436 290	1 631 720	16 886	1.0406	1.0000



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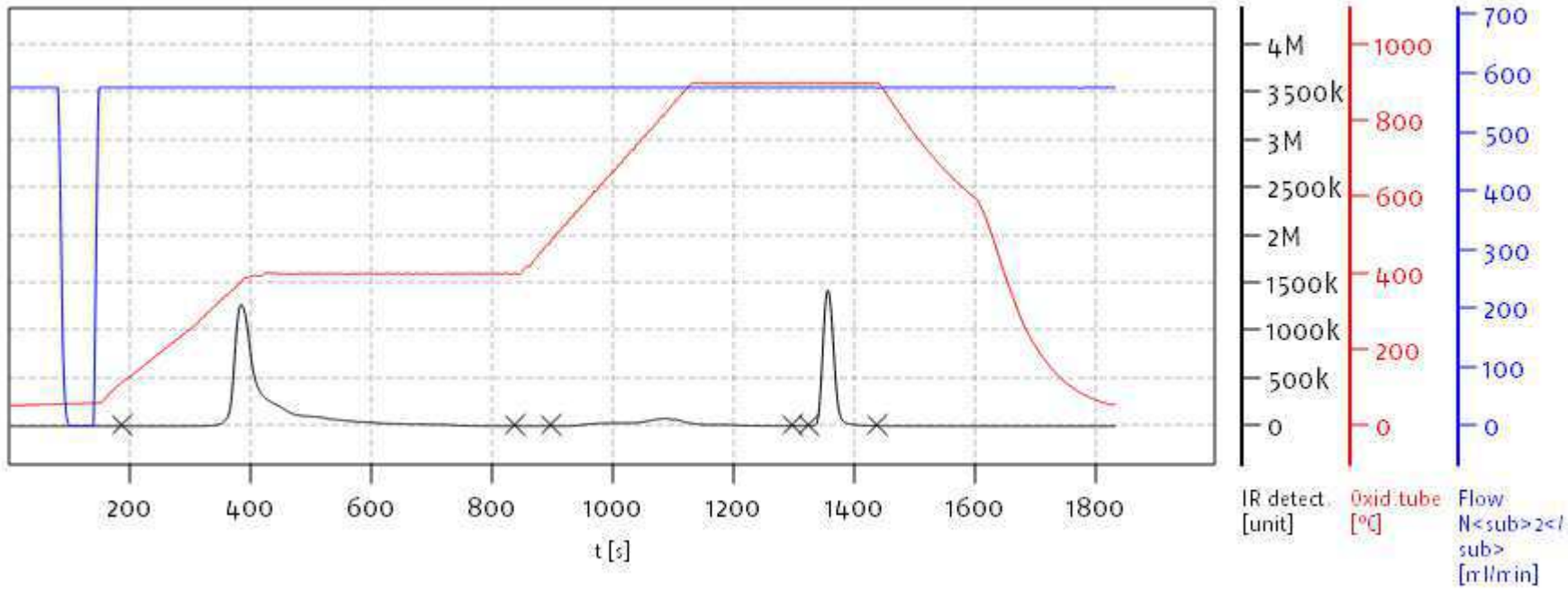
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
13	13	BHH0056-MSD2	494.7	.0079	1.00	CARBON	8/12/2019 5:10 PM	1.197	0.120	0.363	1.318	bl	2 515 720	367 526	1 132 390	1.0406	1.0000



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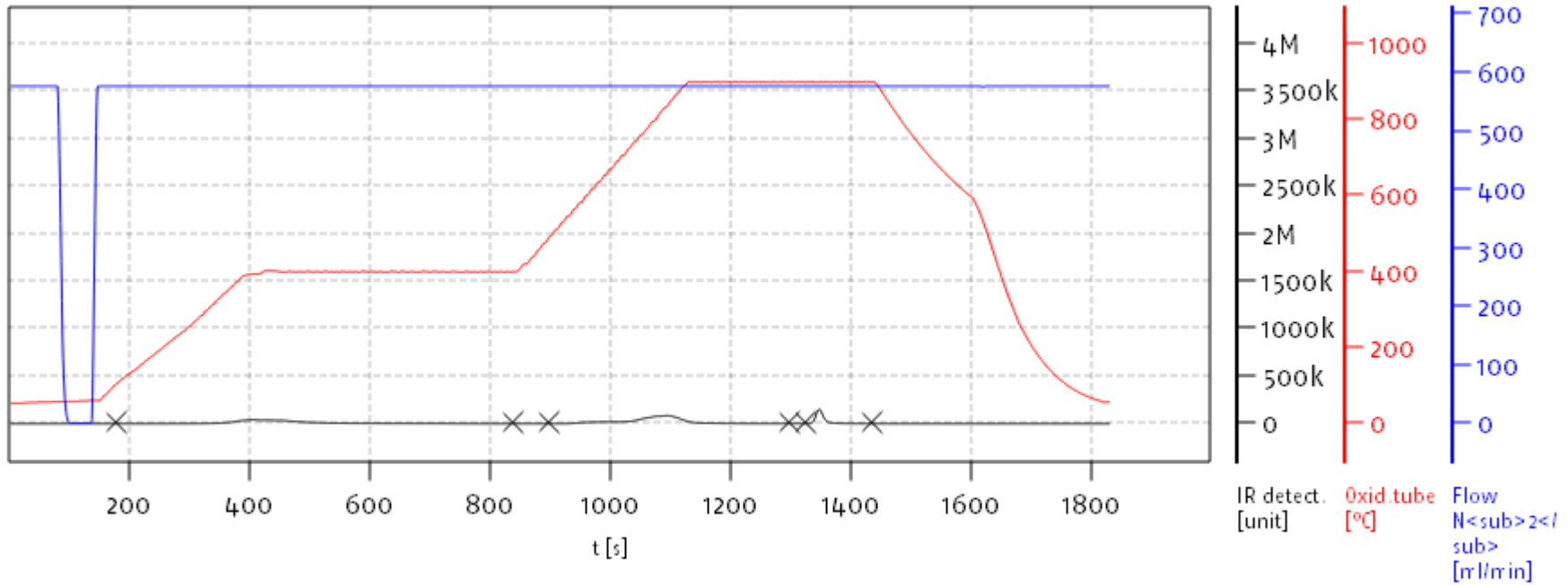
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
14	14	19H0006-14RE1	271.7		1.00	CARBON	8/12/2019 5:41 PM	0.181	0.175	0.056	0.356	bl	196 677	292 854	87 147	1.0406	1.0000



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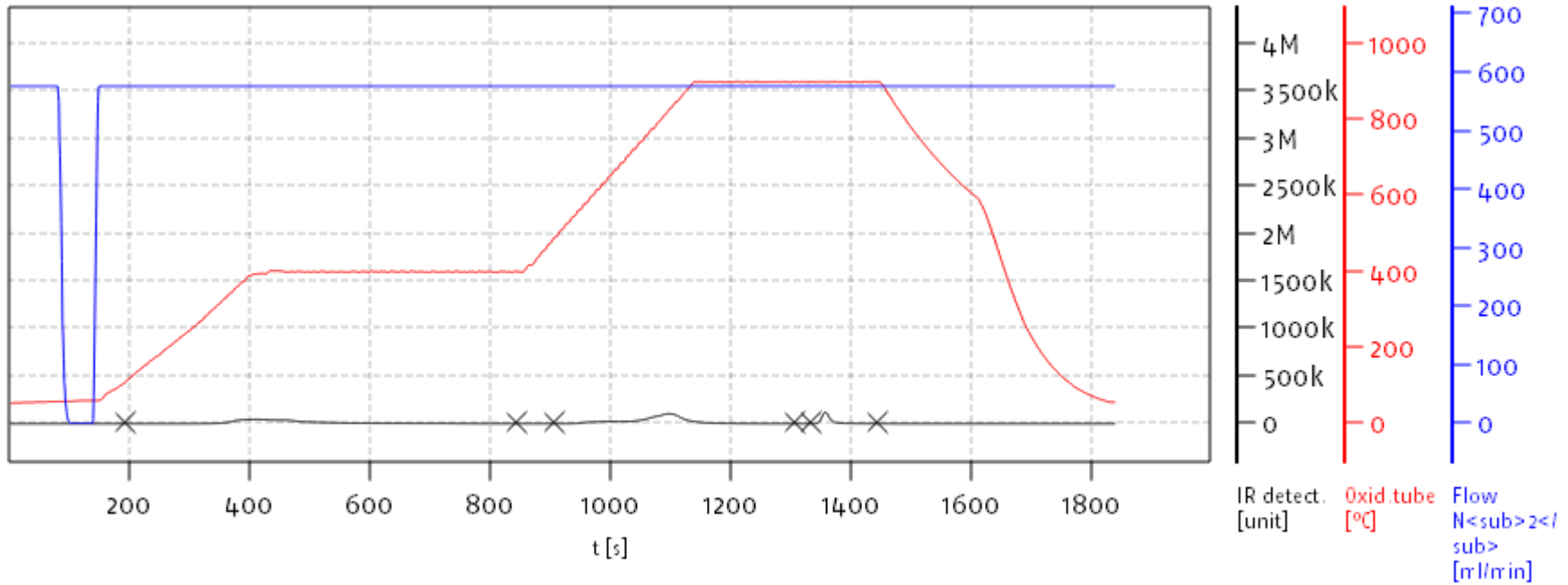
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
15	15	19H0006-23RE1	284.1		1.00	CARBON	8/12/2019 6:12 PM	0.191	0.187	0.047	0.378	bl	240 076	327 856	74 258	1.0406	1.0000



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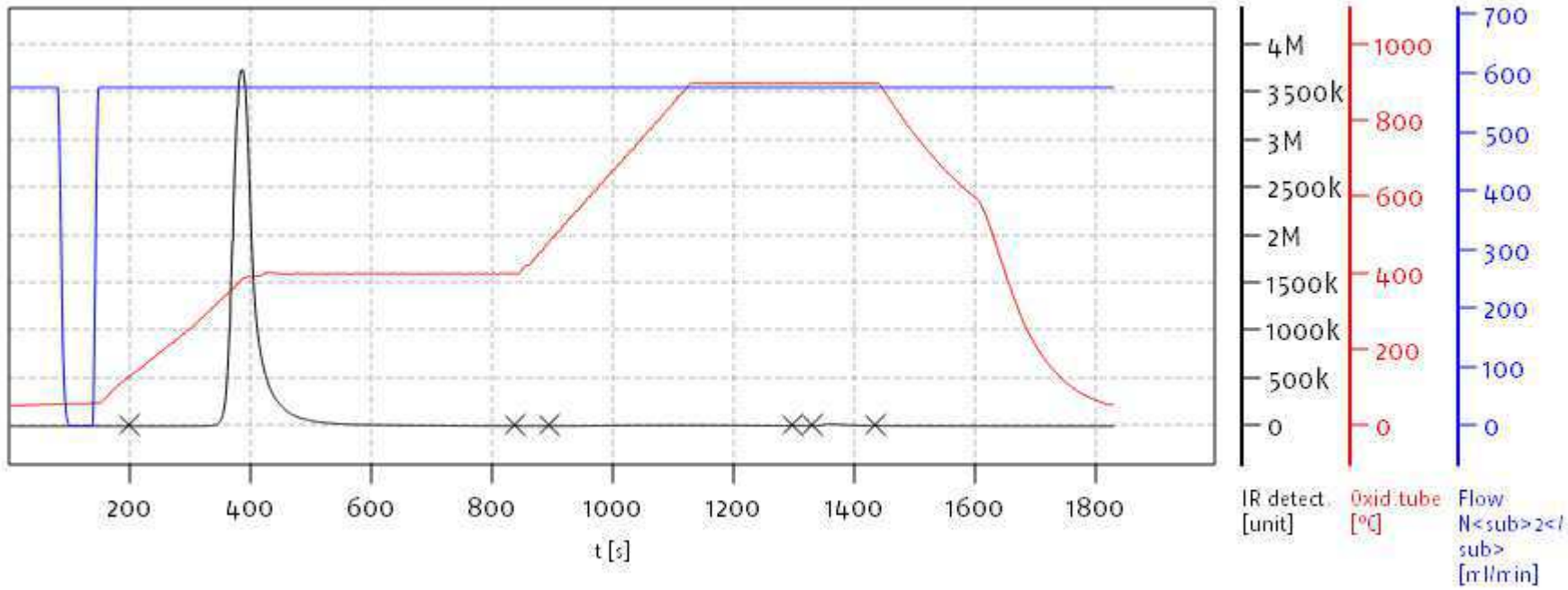
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
16	16	SHH 0111 - CCV 1	21.5		1.00	CARBON	8/12/2019 6:43 PM	44.218	0.801	0.376	45.018	bl	5 756 750	99 089	40 998	1.0406	1.0000



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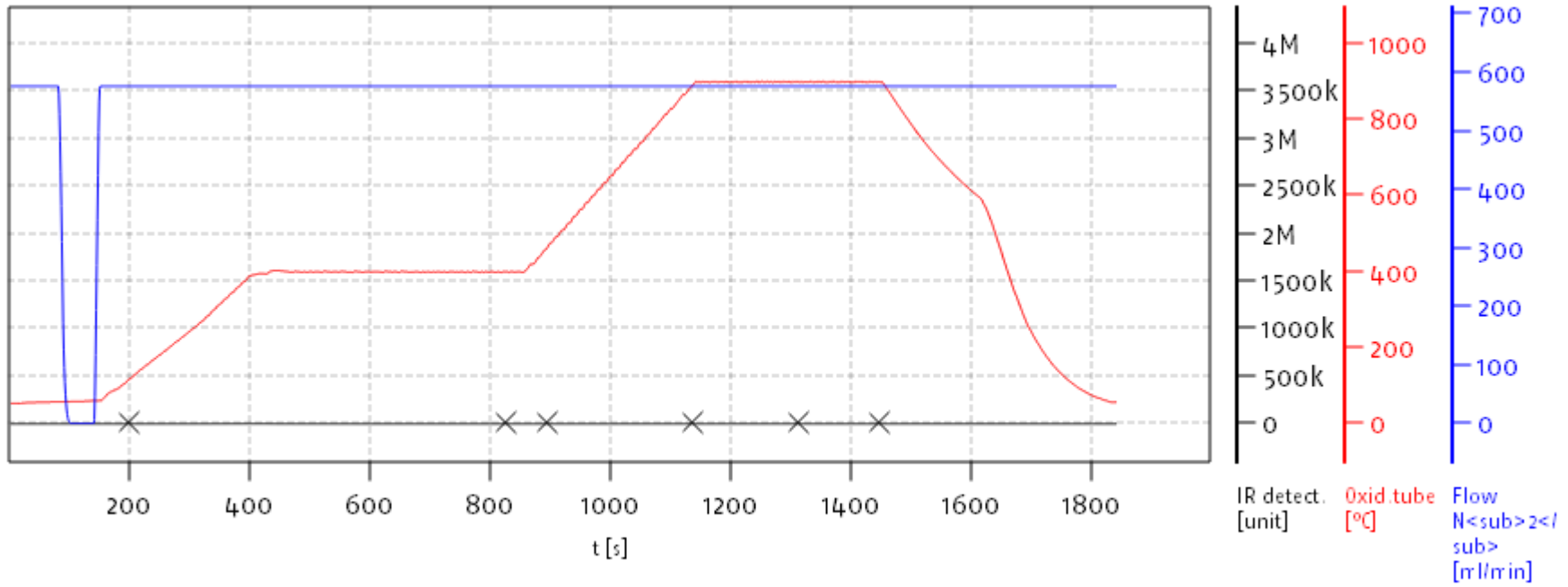
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
17	17	SHH 0111 - CCB 1	596.0		1.00	CARBON	8/12/2019 7:14 PM	0.007	0.003	0.003	0.010	bl,C3u,C2u	5 513	1	453	1.0406	1.0000



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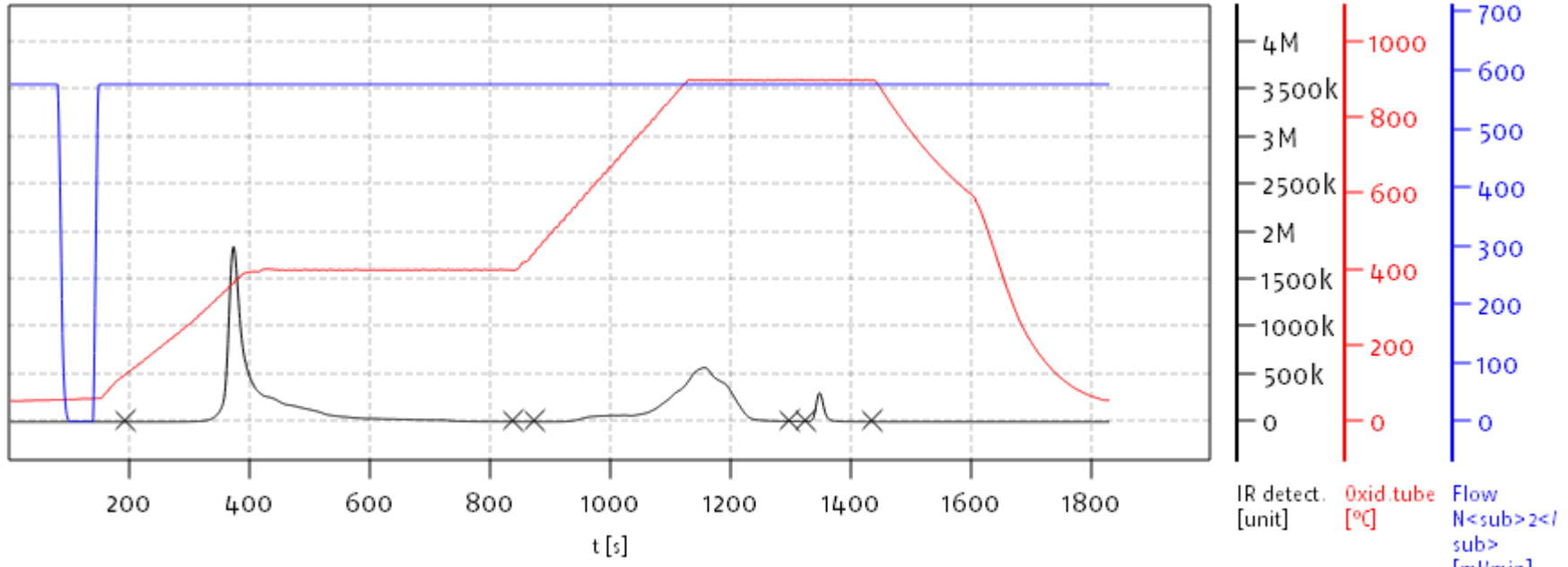
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
18	18	BHH0057-MS2	490.7	.0076	1.00	CARBON	8/12/2019 7:45 PM	1.058	0.768	0.060	1.827	bl	2 988 100	2 389 620	175 847	1.0406	1.0000



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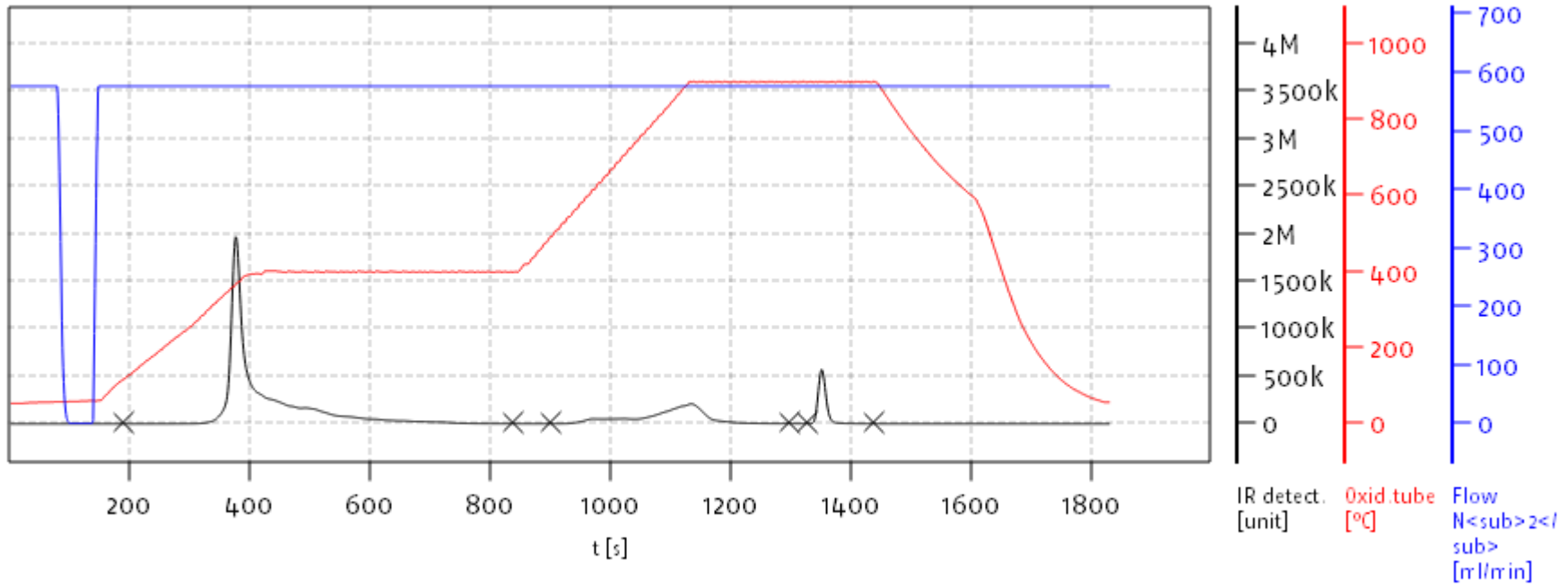
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
19	19	BHH0057-MSD2	475.9	.0080	1.00	CARBON	8/12/2019 8:16 PM	1.153	0.276	0.111	1.429	bl	3 024 380	824 286	325 797	1.0406	1.0000



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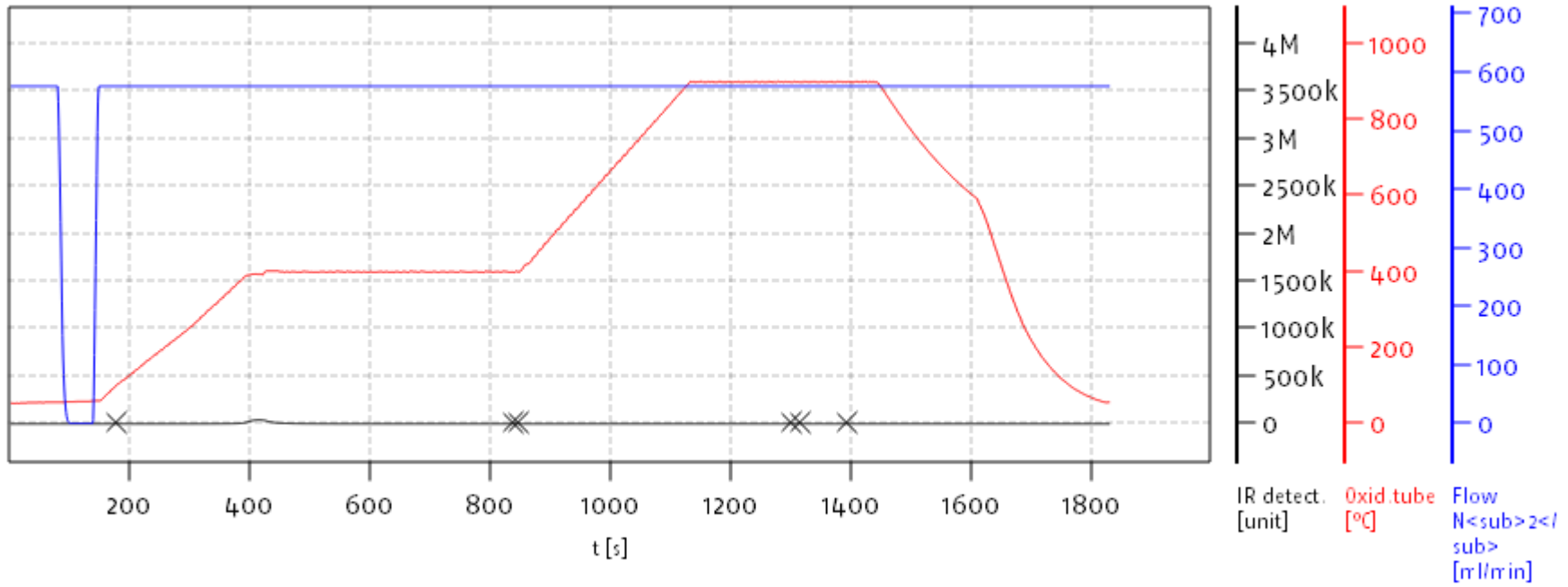
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
20	20	BHH 0301 - MRL 1	522.7		1.00	CARBON	8/12/2019 8:47 PM	0.030	0.004	0.003	0.034	bl,C3u,C2u	74 521	2 313	627	1.0406	1.0000



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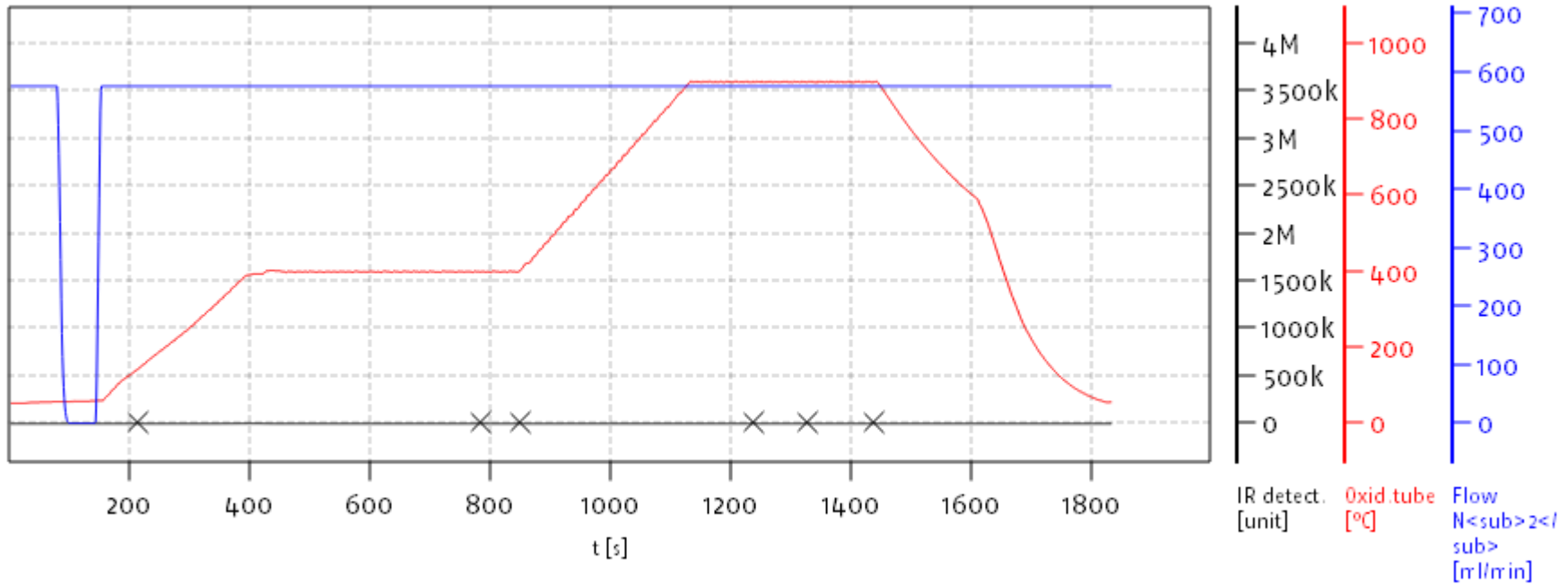
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
21	21	BHH 0301 - BLK1	580.9		1.00	CARBON	8/ 12/2019 9:18 PM	0.007	0.003	0.003	0.010	bl,C3u,C2u	5 657	294	241	1.0406	1.0000



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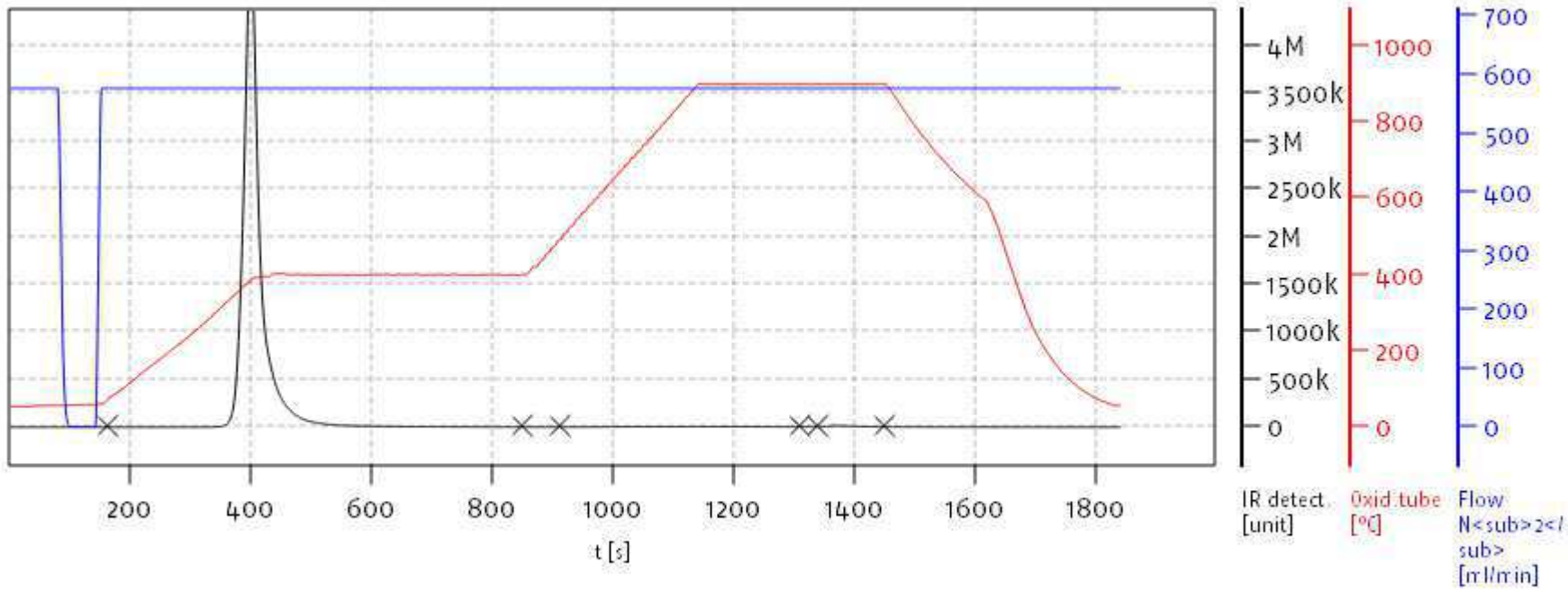
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
22	22	BHH 0301 -BS1	21.8		1.00	CARBON	8/ 12/2019 9:49 PM	44.749	0.539	0.293	45.287	bl	5 919 180	64 261	30 134	1.0406	1.0000



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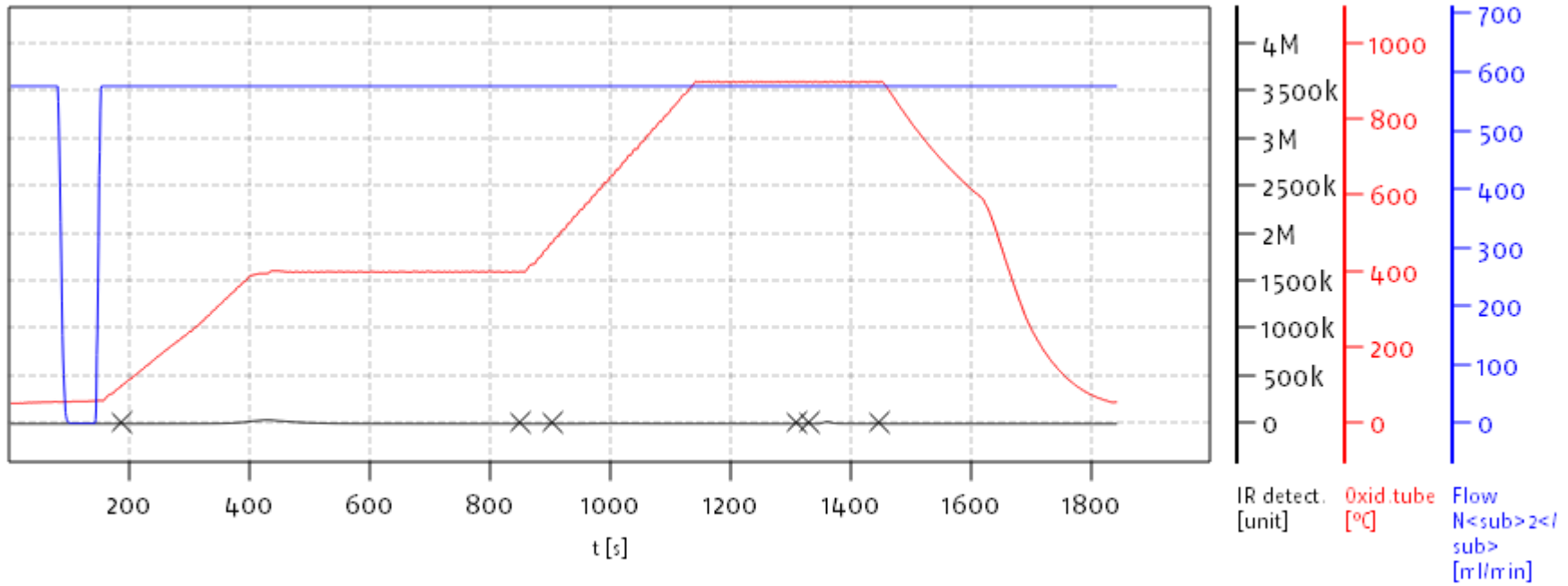
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
23	23	19G0407-01	1004.4		1.00	CARBON	8/12/2019 10:20 PM	0.028	0.004	0.004	0.032	bl	134 899	15 160	14 638	1.0406	1.0000



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Date: Wed Aug 14 10:36:05 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
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Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

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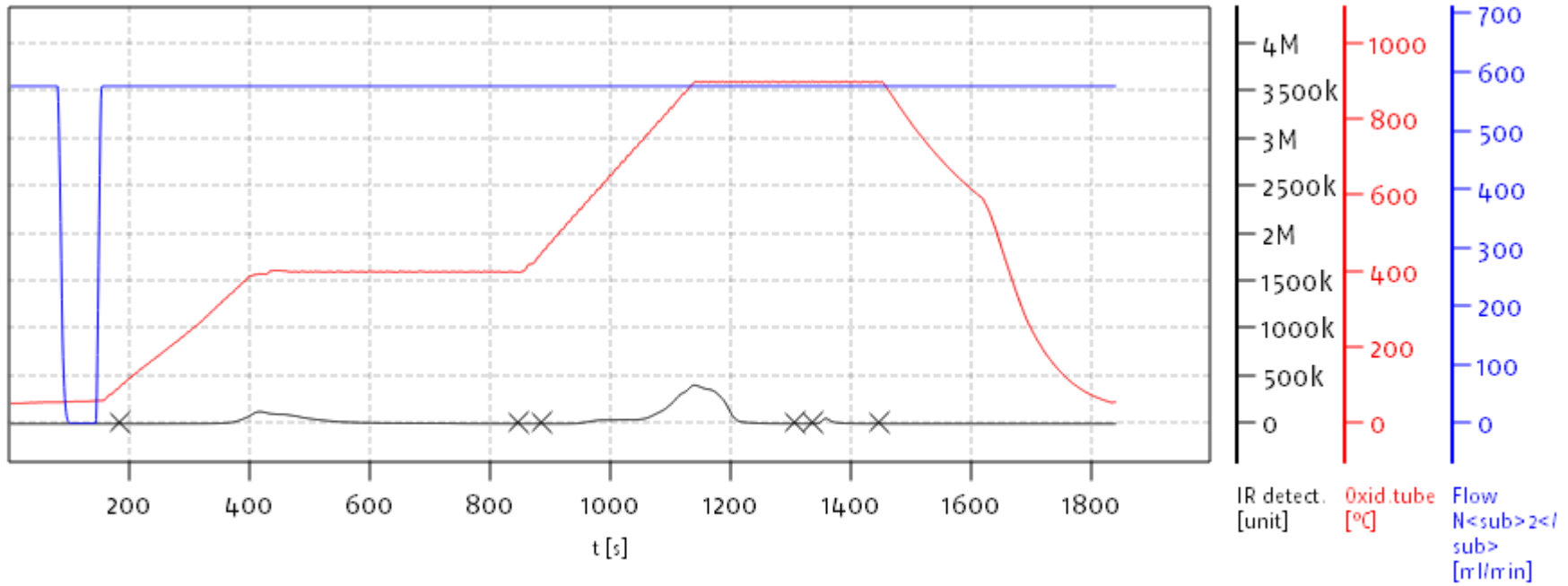
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
24	24	19H0048-01	569.7		1.00	CARBON	8/12/2019 10:51 PM	0.173	0.437	0.015	0.611	bl	542 431	1 575 240	43 009	1.0406	1.0000



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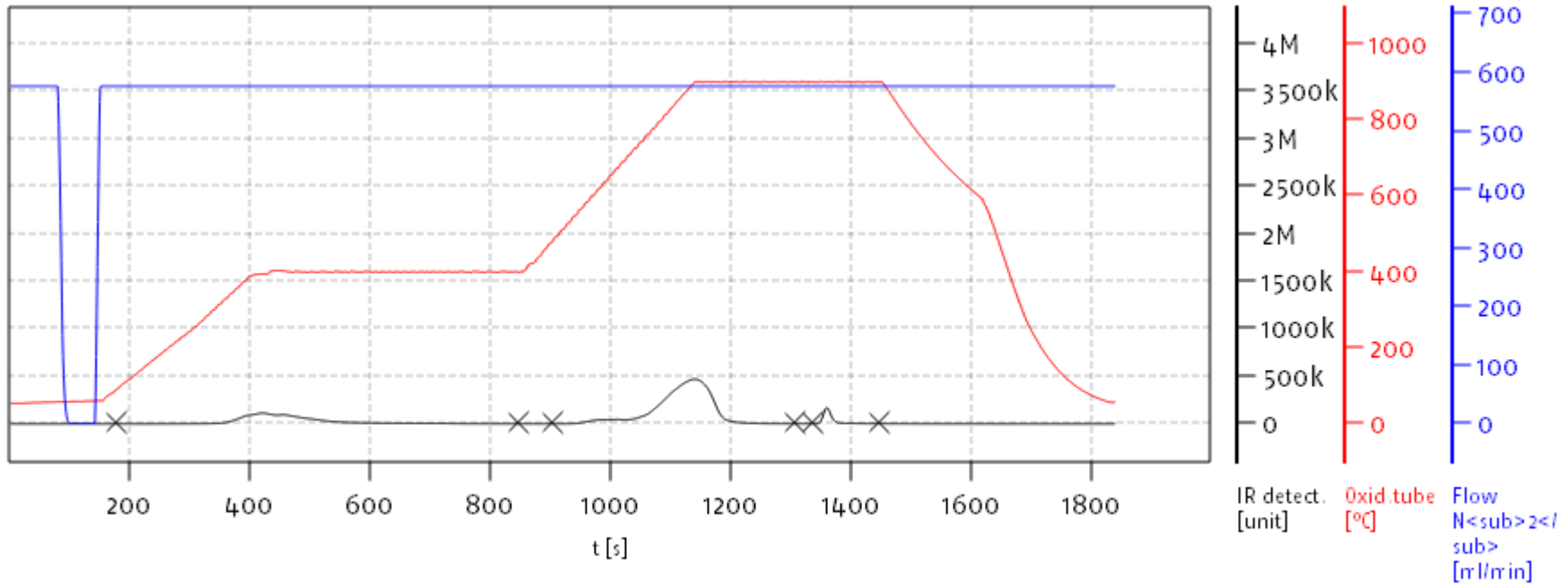
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
25	25	BHH0301-DUP1	538.7		1.00	CARBON	8/12/2019 11:22 PM	0.202	0.498	0.034	0.700	bl	543 052	1 697 990	106 156	1.0406	1.0000



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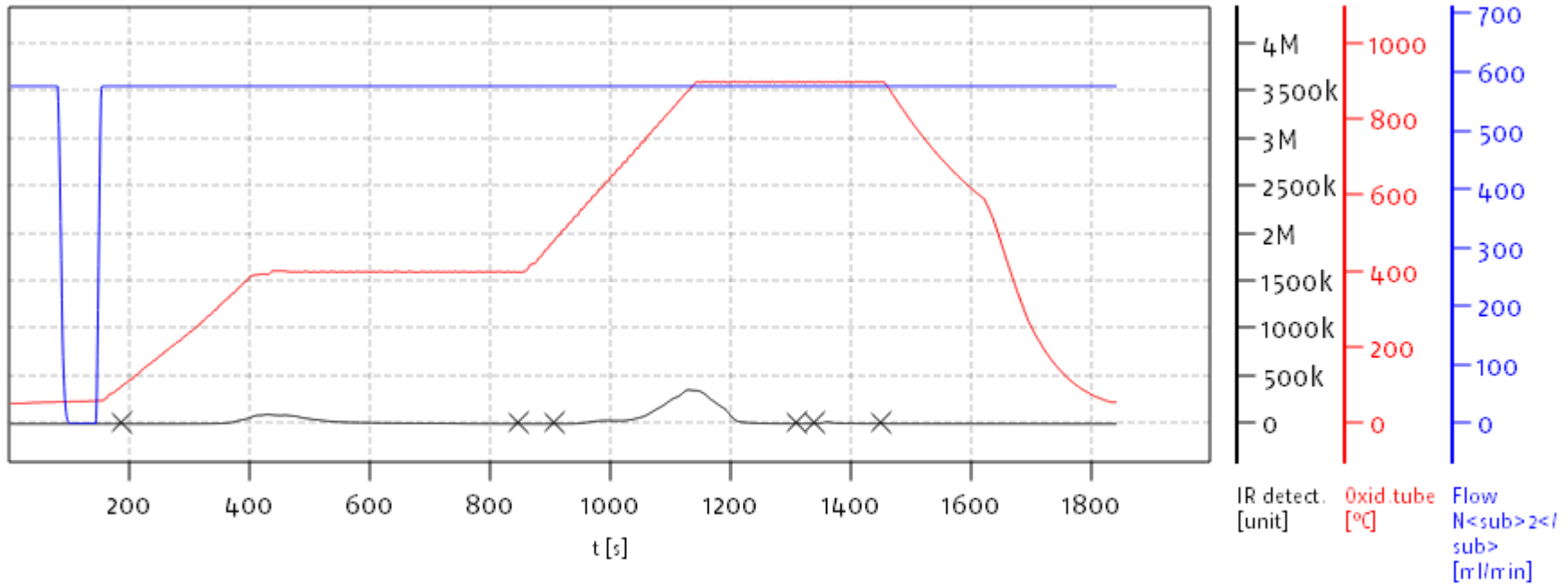
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
26	26	BHH 0301 - DUP 2	554.9		1.00	CARBON	8/12/2019 11:53 PM	0.156	0.418	0.009	0.574	bl	487 677	1 466 020	22 614	1.0406	1.0000



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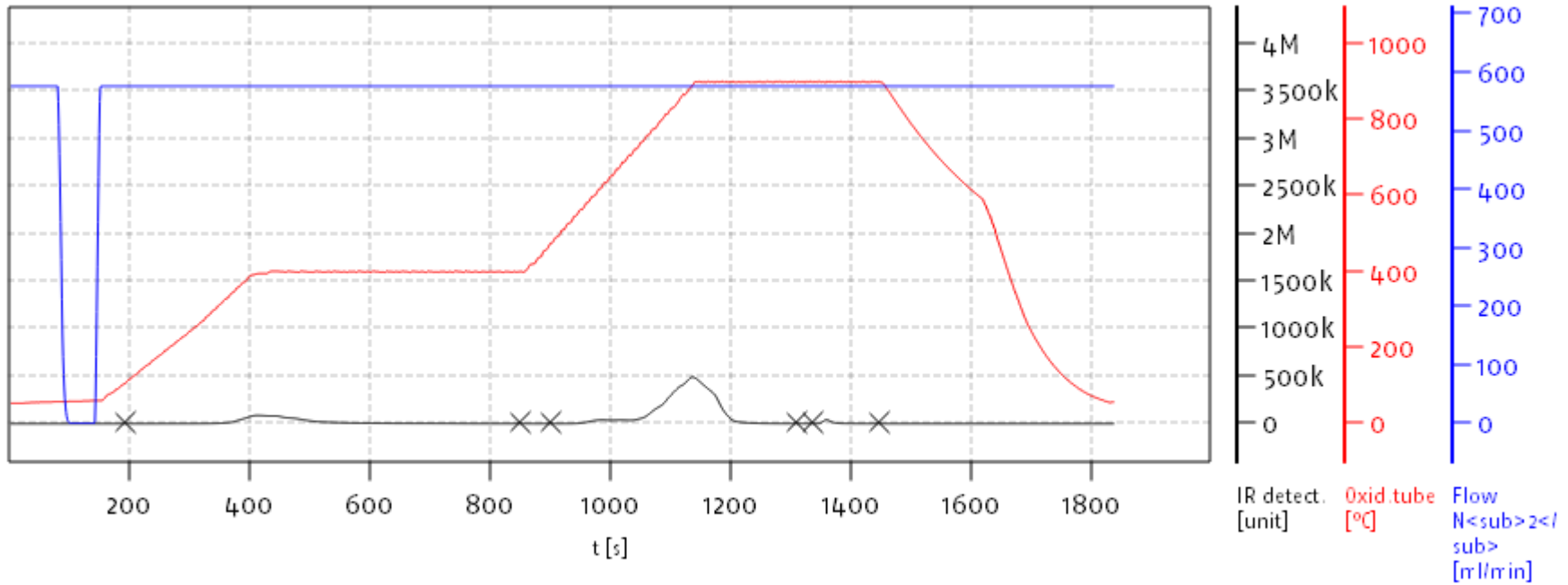
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
27	27	19H0048-02	420.0		1.00	CARBON	8/13/2019 12:24 AM	0.167	0.648	0.014	0.815	bl	380 830	1 722 680	28 160	1.0406	1.0000



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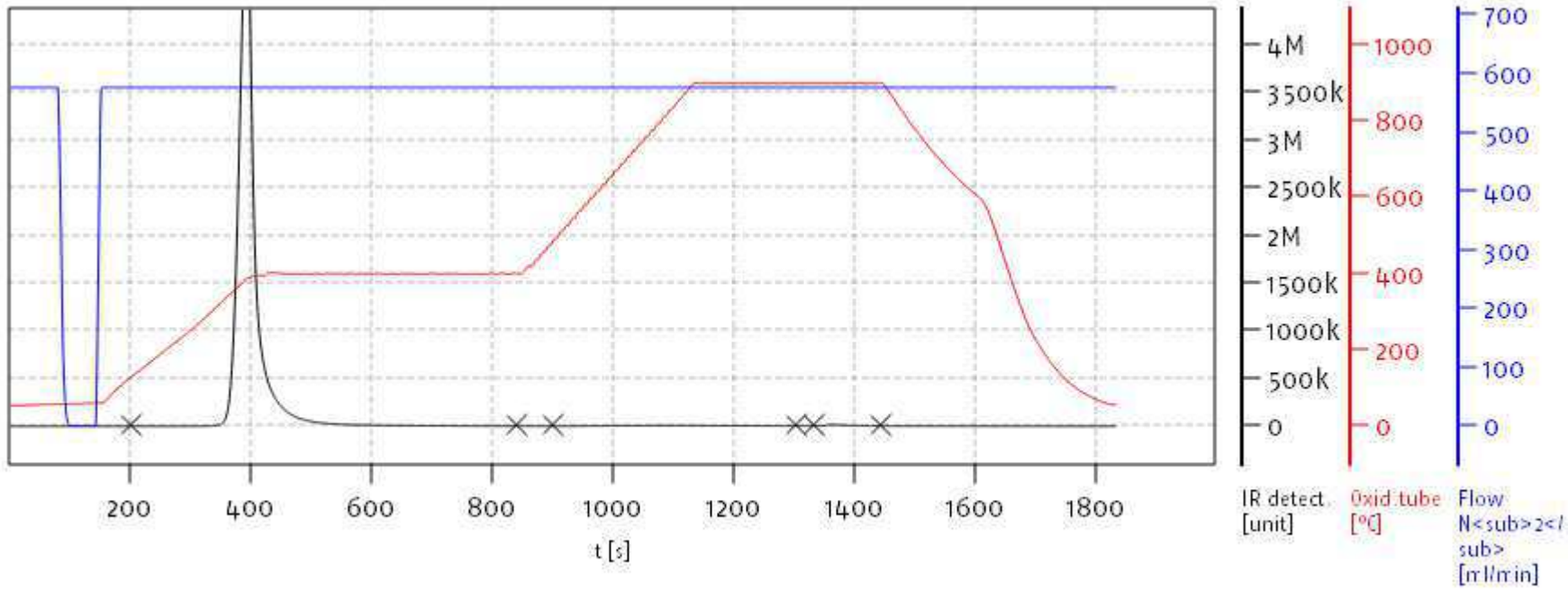
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
28	28	SHH 0111 - CCV 2	22.6		1.00	CARBON	8/13/2019 12:55 AM	45.045	0.599	0.283	45.645	bl	6 179 230	75 743	30 149	1.0406	1.0000



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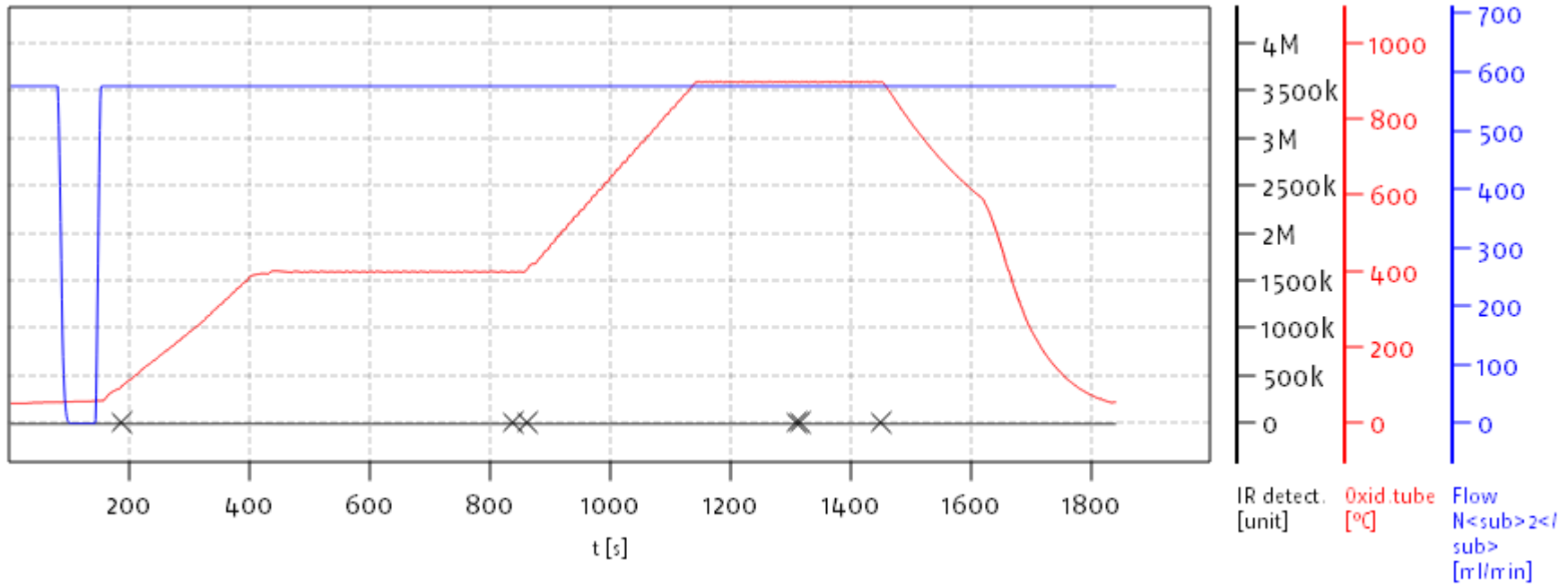
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
29	29	SHH 0111 - CCB 2	515.5		1.00	CARBON	8/13/2019 1:26 AM	0.008	0.000	0.003	0.008	bl,C2u	4 514	0	284	1.0406	1.0000



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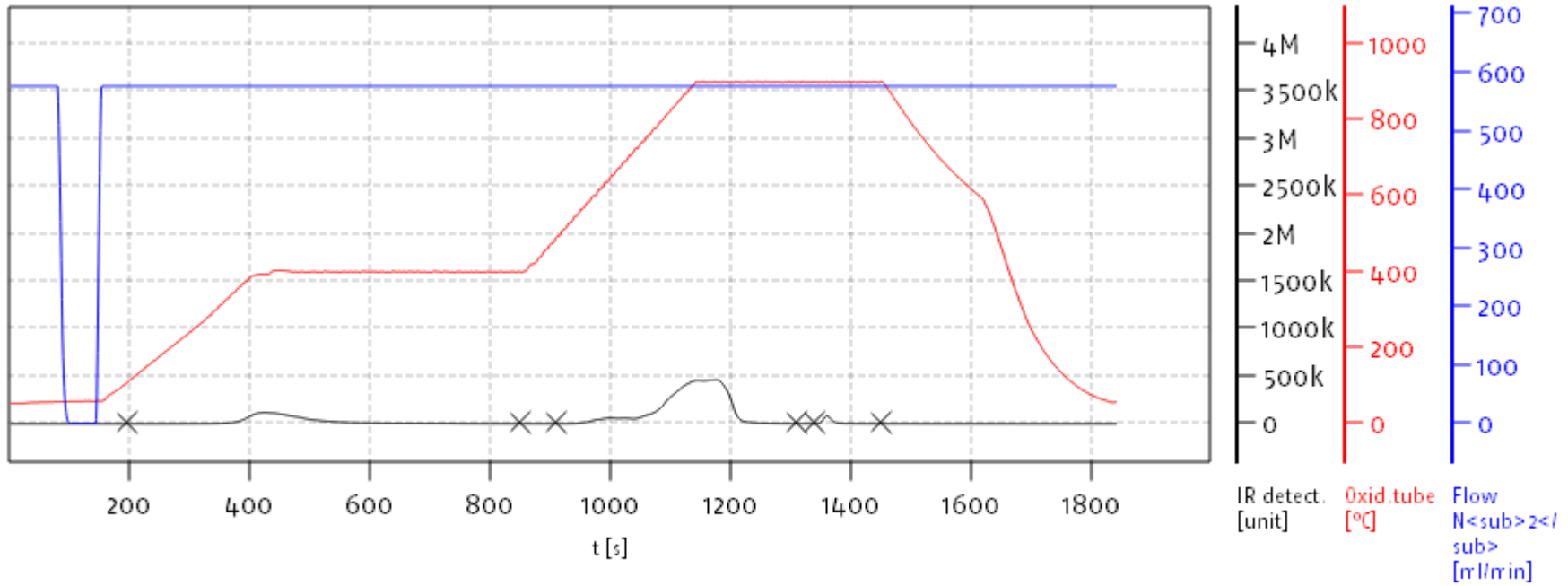
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
30	30	19H0048-03	633.2		1.00	CARBON	8/13/2019 1:57 AM	0.146	0.522	0.016	0.668	bl	496 498	2 092 700	52 520	1.0406	1.0000



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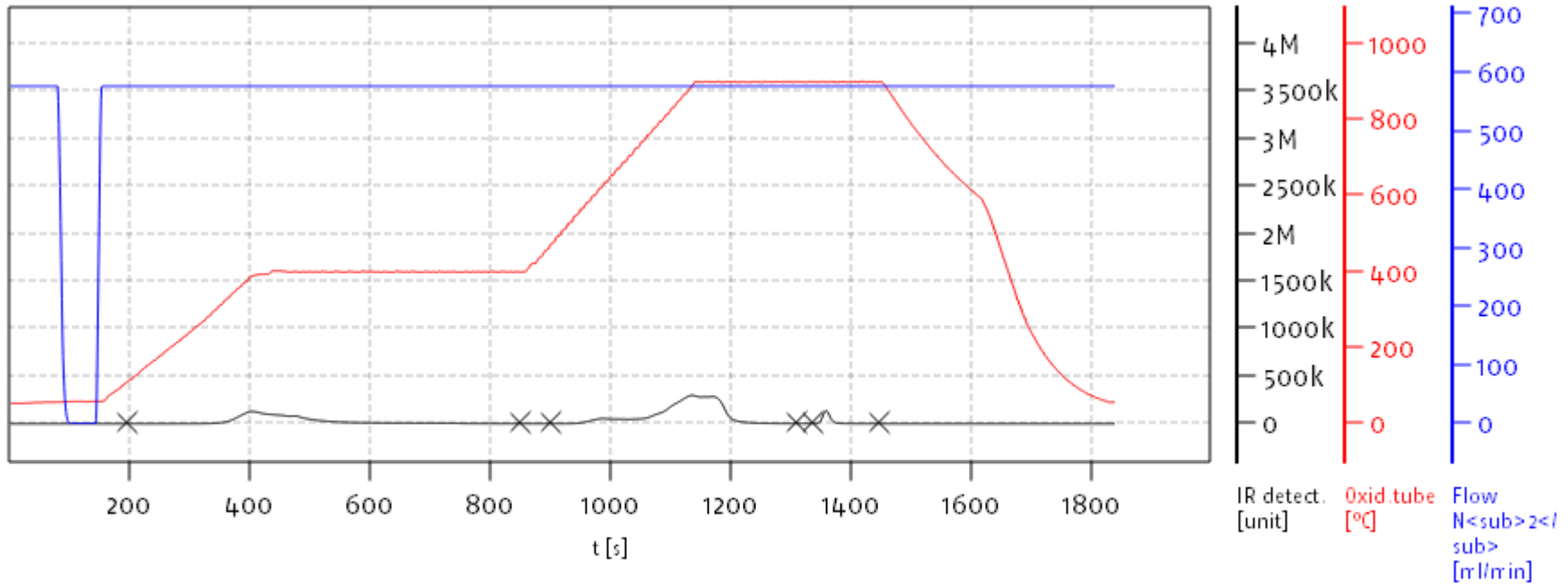
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
31	31	19H0048-04	399.6		1.00	CARBON	8/13/2019 2:28 AM	0.277	0.518	0.035	0.795	bl	581 489	1 307 720	77 811	1.0406	1.0000



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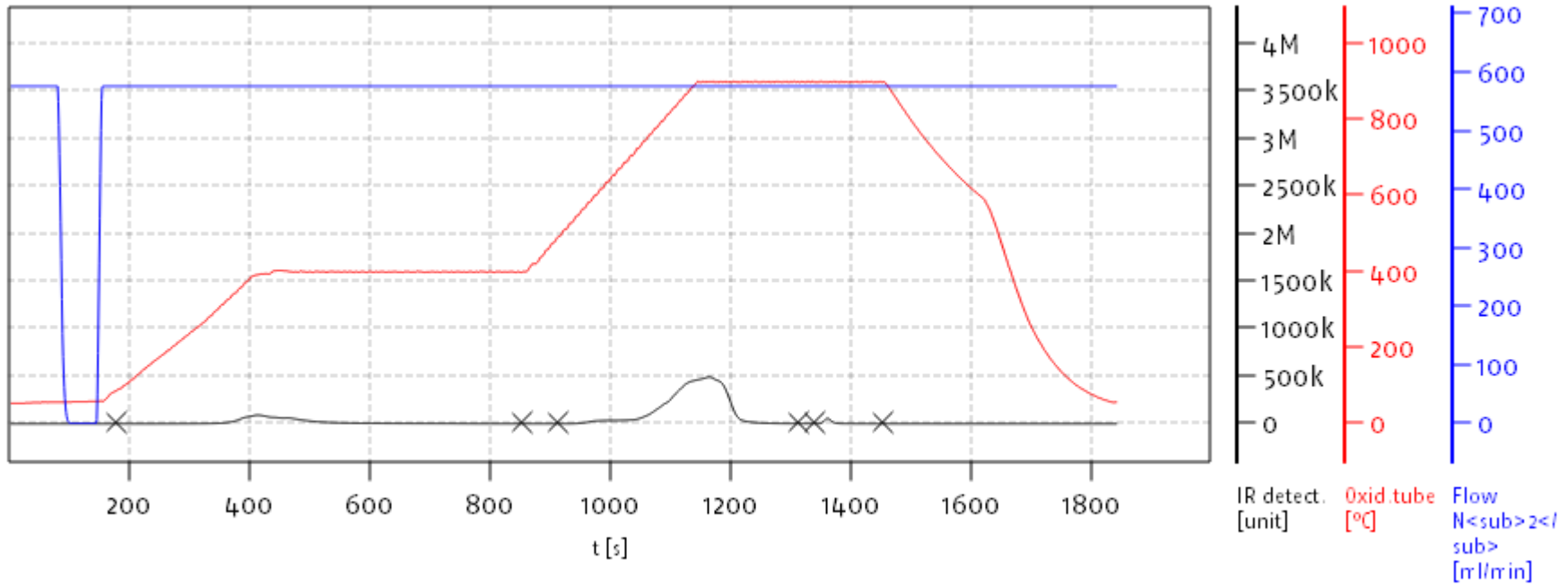
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
32	32	19H0048-05	344.2		1.00	CARBON	8/13/2019 2:59 AM	0.200	0.939	0.019	1.139	bl	370 493	2 047 240	32 029	1.0406	1.0000



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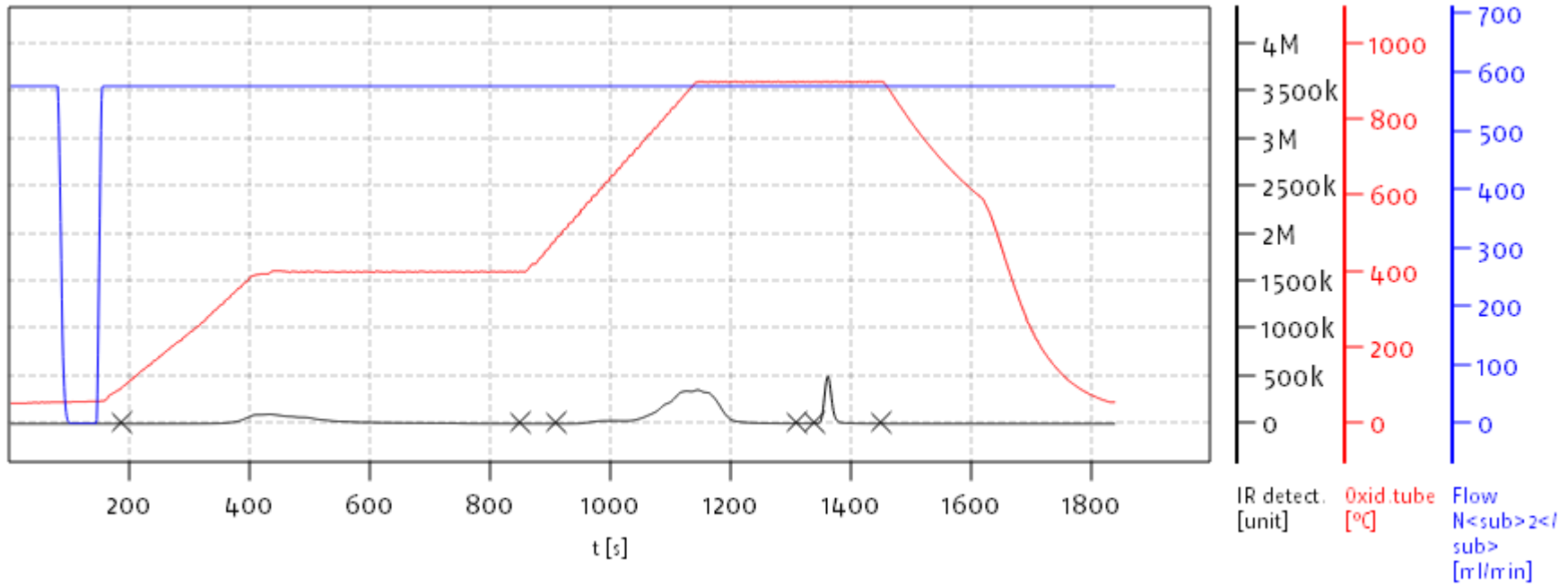
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
33	33	19H0048-06	645.2		1.00	CARBON	8/13/2019 3:30 AM	0.203	0.349	0.068	0.552	bl	520 135	1 425 040	269 748	1.0406	1.0000



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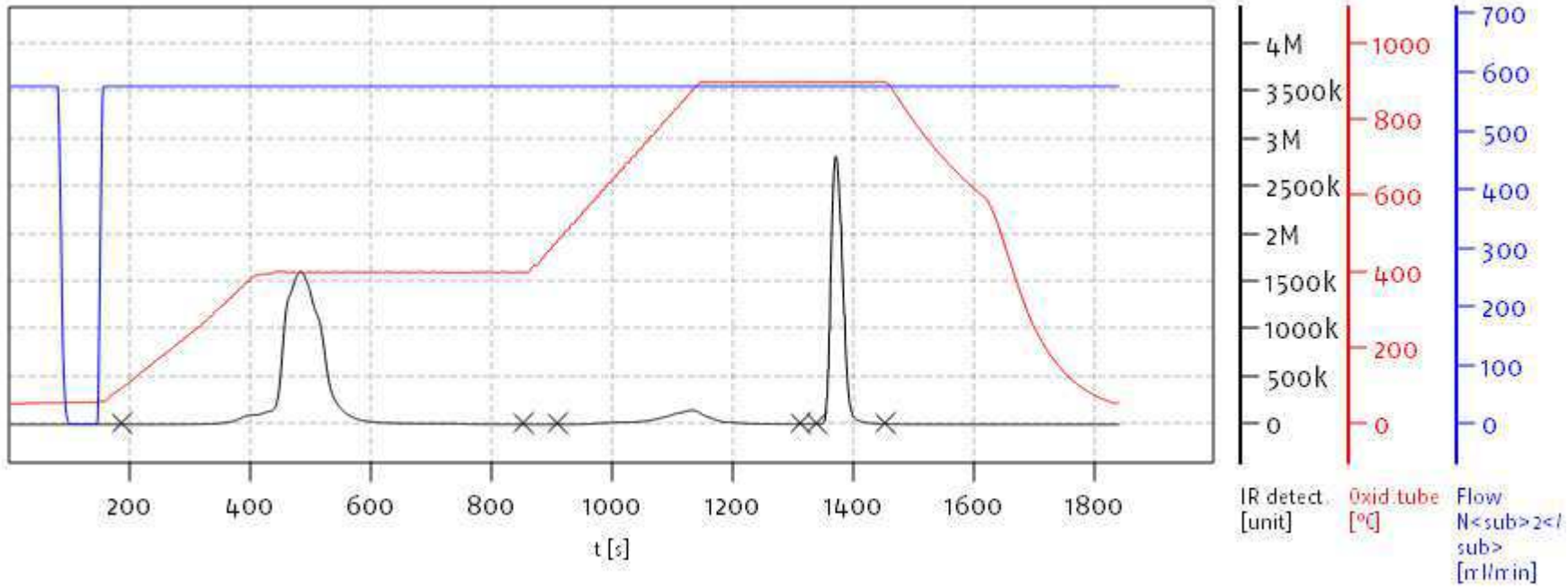
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
34	34	19H0048-07	328.8		1.00	CARBON	8/13/2019 4:01 AM	3.383	0.264	1.149	3.648	bl	4 484 690	542 473	2 394 790	1.0406	1.0000



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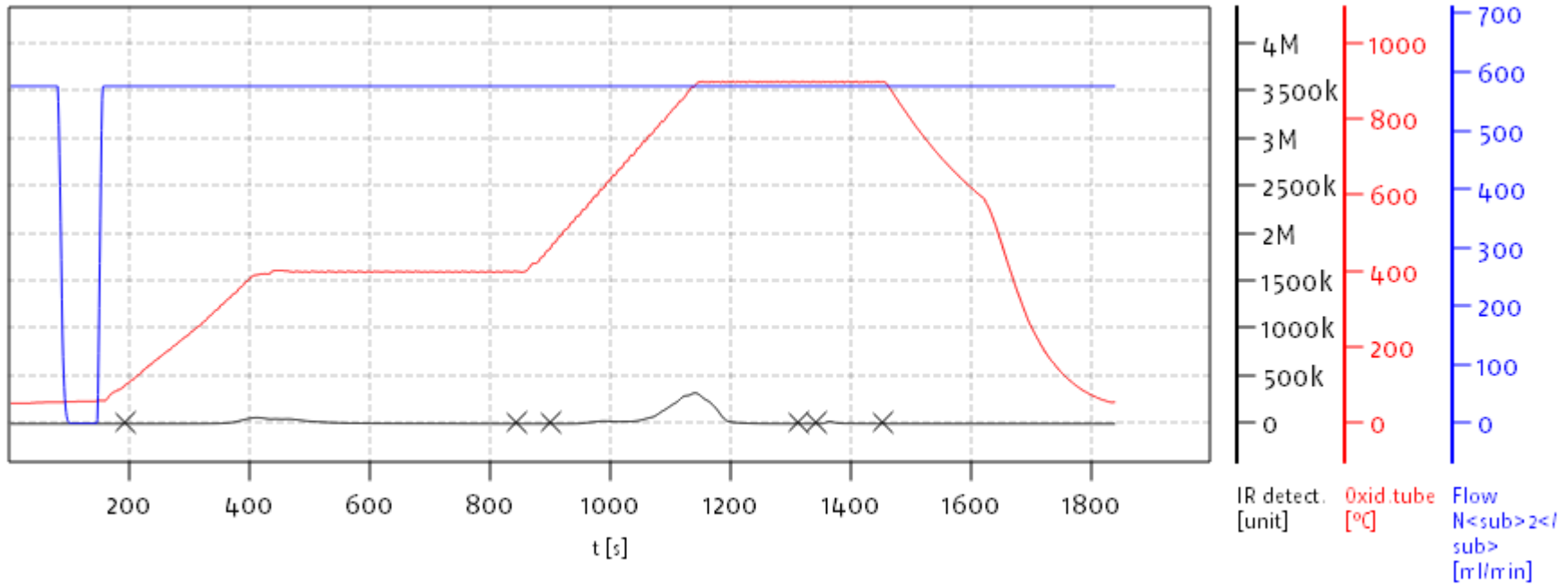
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
35	35	19H0048-08	326.0		1.00	CARBON	8/13/2019 4:32 AM	0.163	0.528	0.014	0.691	bl	285 887	1 085 390	19 486	1.0406	1.0000



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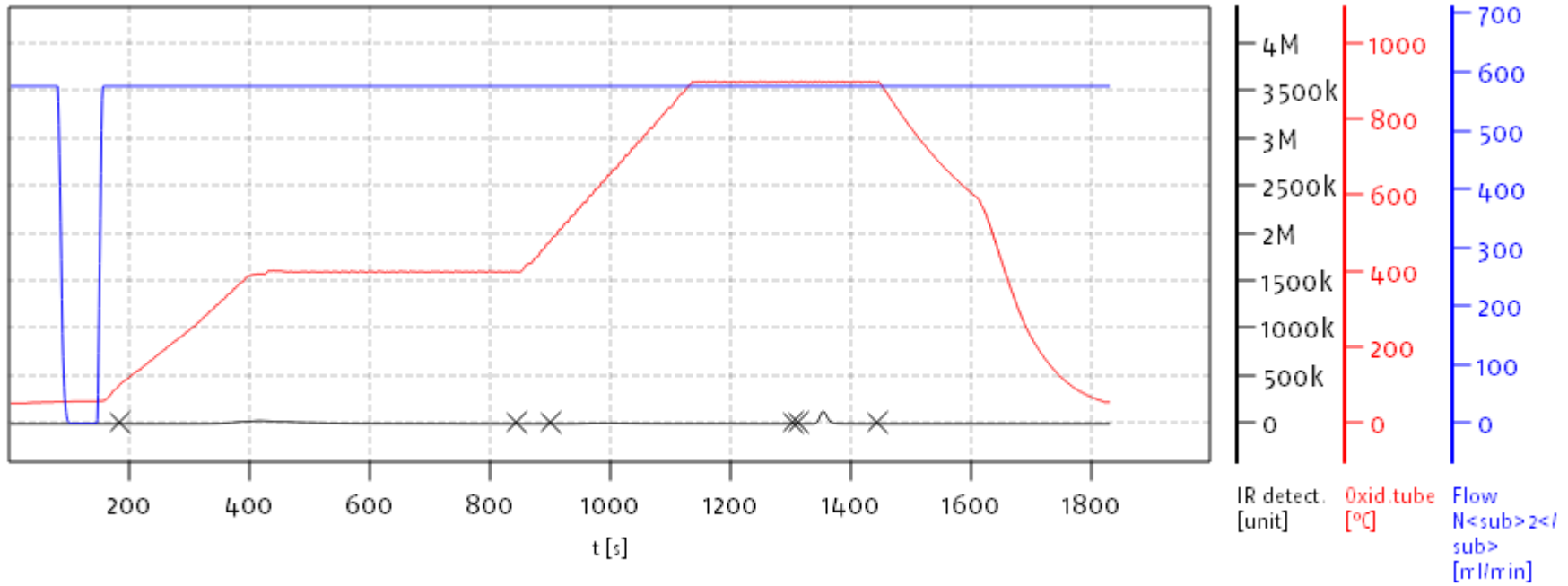
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
36	36	19H0048-10	202.9		1.00	CARBON	8/13/2019 5:03 AM	0.187	0.034	0.065	0.221	bl	141 161	33 556	73 041	1.0406	1.0000



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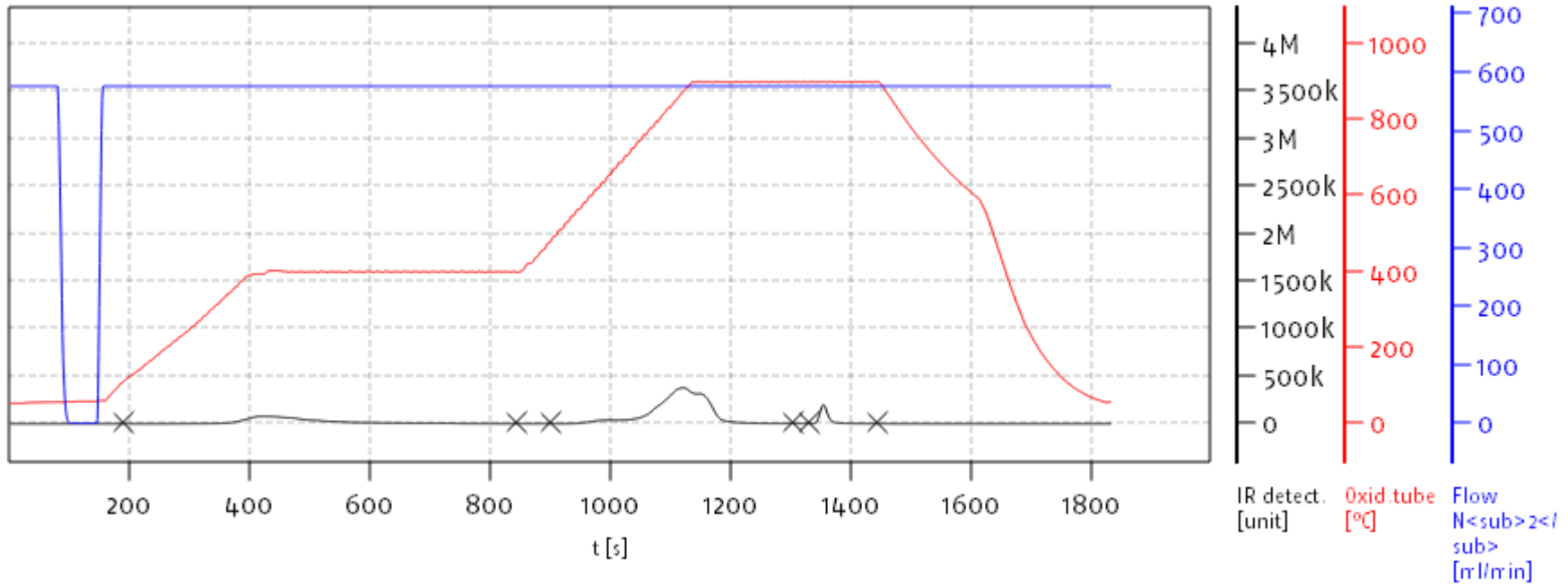
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
37	37	19H0048-11	609.7		1.00	CARBON	8/13/2019 5:34 AM	0.146	0.357	0.033	0.503	bl	408 877	1 377 060	119 365	1.0406	1.0000



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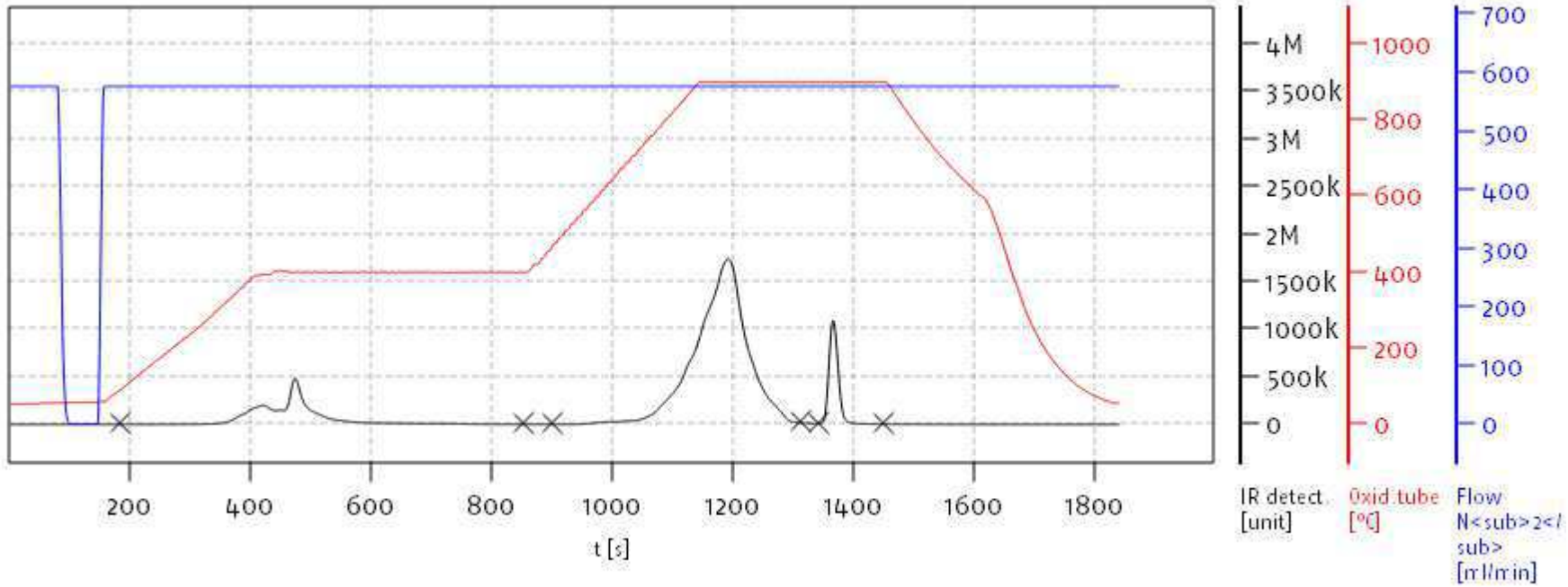
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
38	38	19H0048-12	549.3		1.00	CARBON	8/13/2019 6:05 AM	0.584	1.799	0.214	2.383	bl	1 235 300	6 281 210	736 893	1.0406	1.0000



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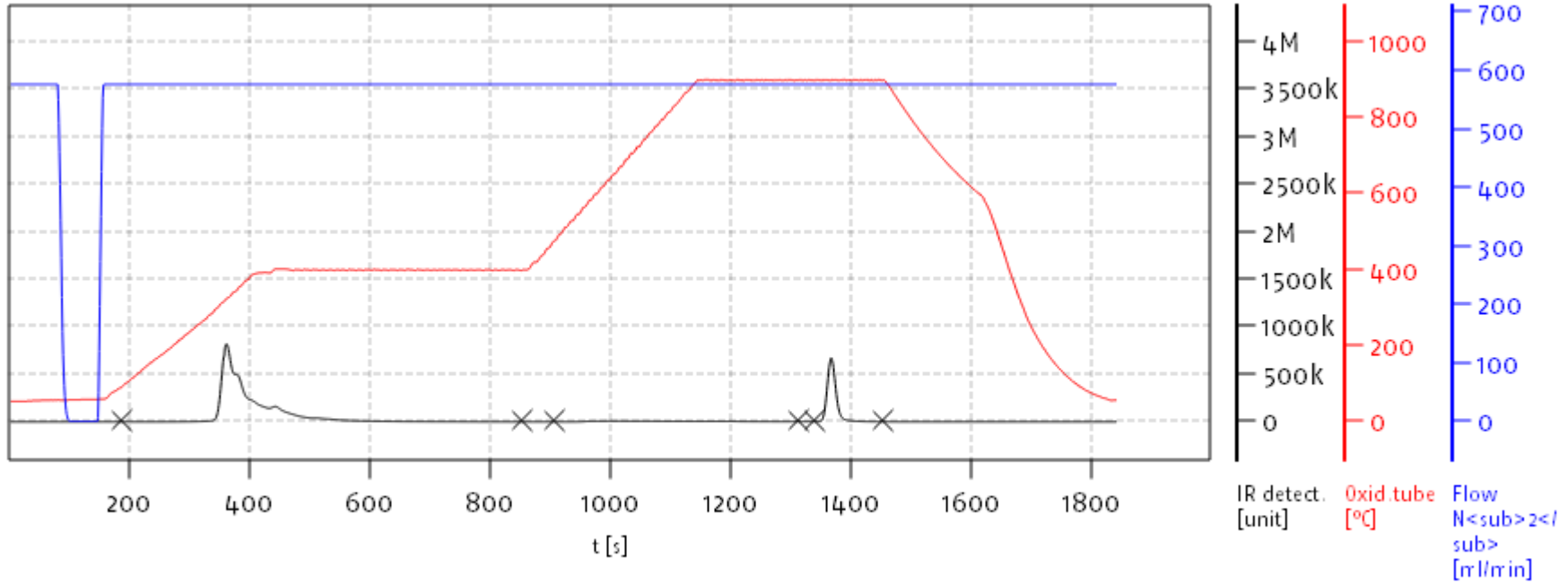
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
39	39	19H0089-01	601.5		1.00	CARBON	8/13/2019 6:36 AM	0.531	0.021	0.113	0.551	bl	1 528 930	68 398	420 367	1.0406	1.0000



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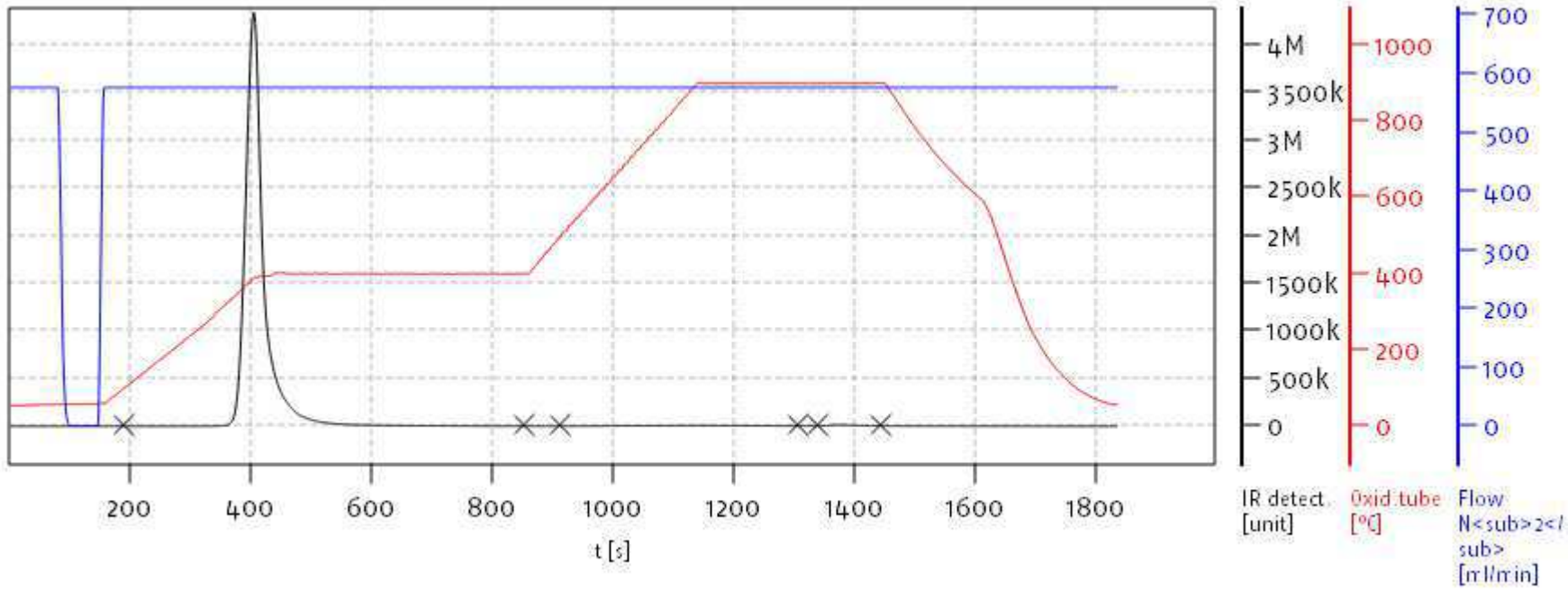
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
40	40	SHH 0111 - CCV 3	20.6		1.00	CARBON	8/13/2019 7:07 AM	44.991	0.620	0.315	45.611	bl	5 620 570	70 802	30 771	1.0406	1.0000



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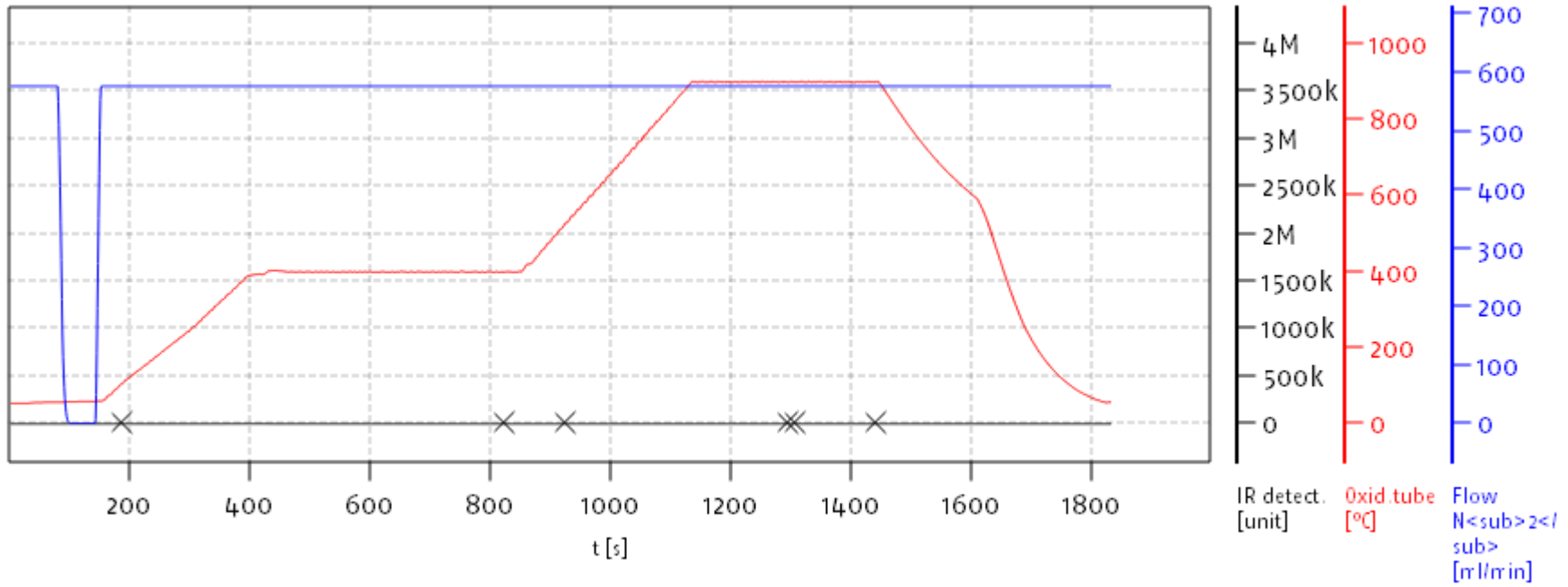
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
41	41	SHH0111-CCB3	507.5		1.00	CARBON	8/13/2019 7:38 AM	0.008	0.000	0.003	0.008	bl,C1u,C2u	3 238	0	377	1.0406	1.0000



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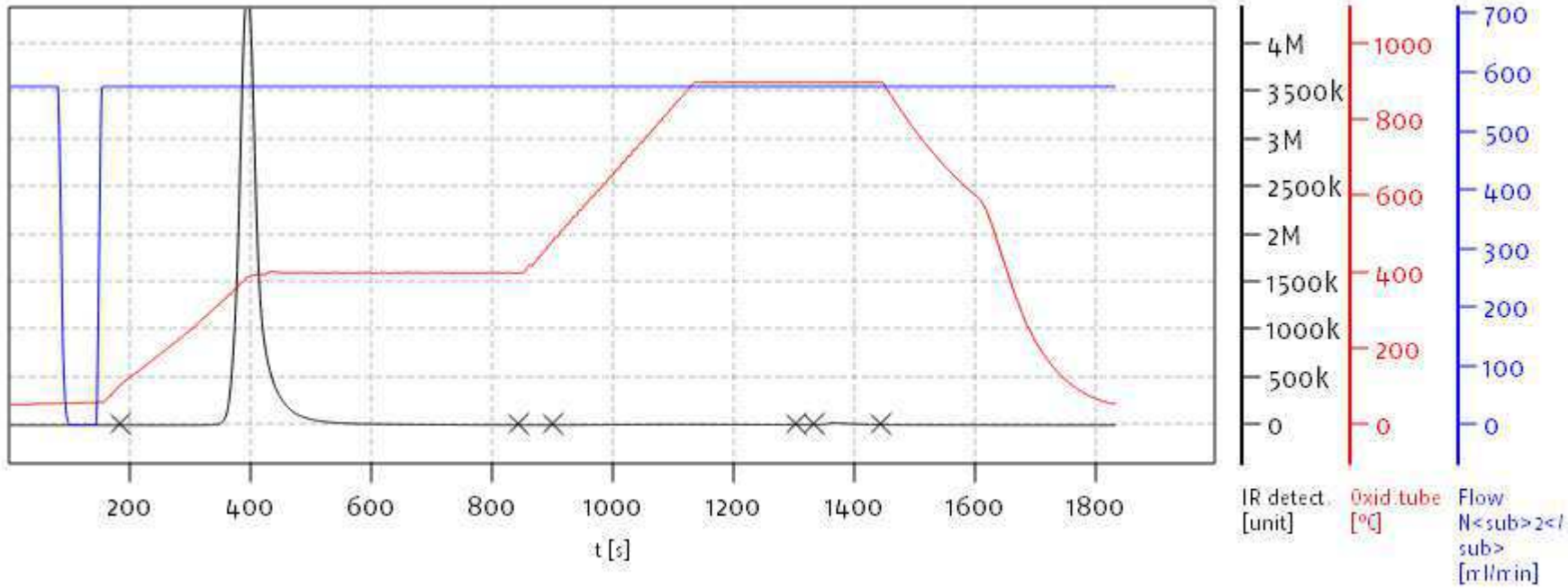
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
42	42	Dfactor	23.2		1.00	CARBON	8/13/2019 8:09 AM	44.831	0.622	0.385	45.452	bl	6 280 480	81 300	46 351	1.0435	1.0000



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Date: Wed Aug 14 10:36:05 2019

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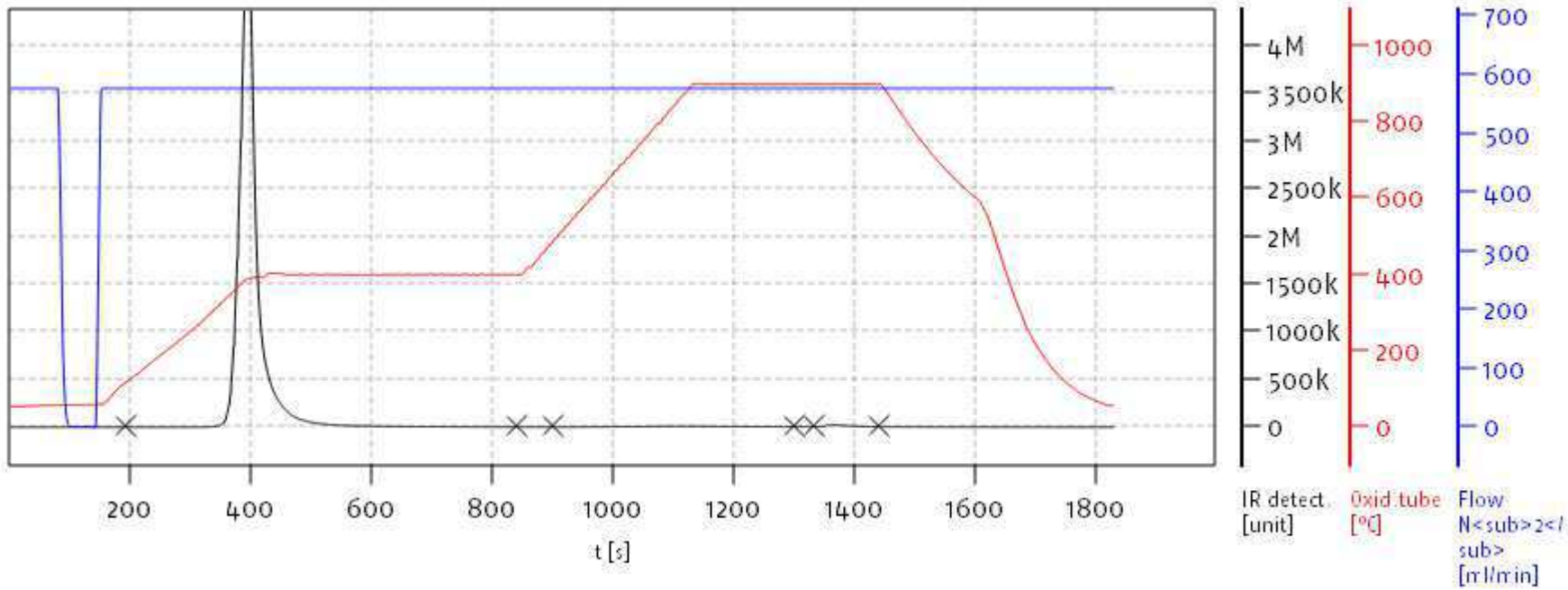
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
43	43	Dfactor	22.8		1.00	CARBON	8/13/2019 8:40 AM	44.823	0.616	0.378	45.440	bl	6 237 350	78 973	44 332	1.0326	1.0000



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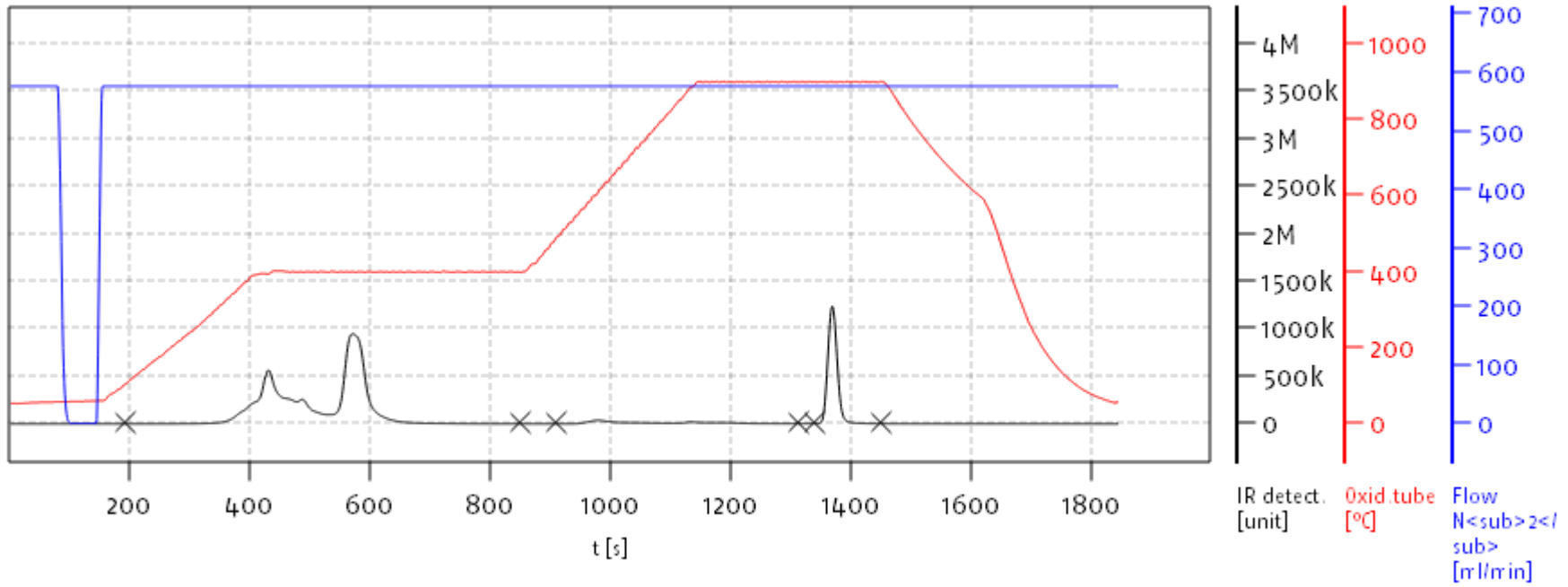
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
44	44	BHH0301-DUP3	732.1		1.00	CARBON	8/13/2019 9:11 AM	0.838	0.034	0.183	0.872	bl	2 929 260	149 345	842 806	1.0381	1.0000



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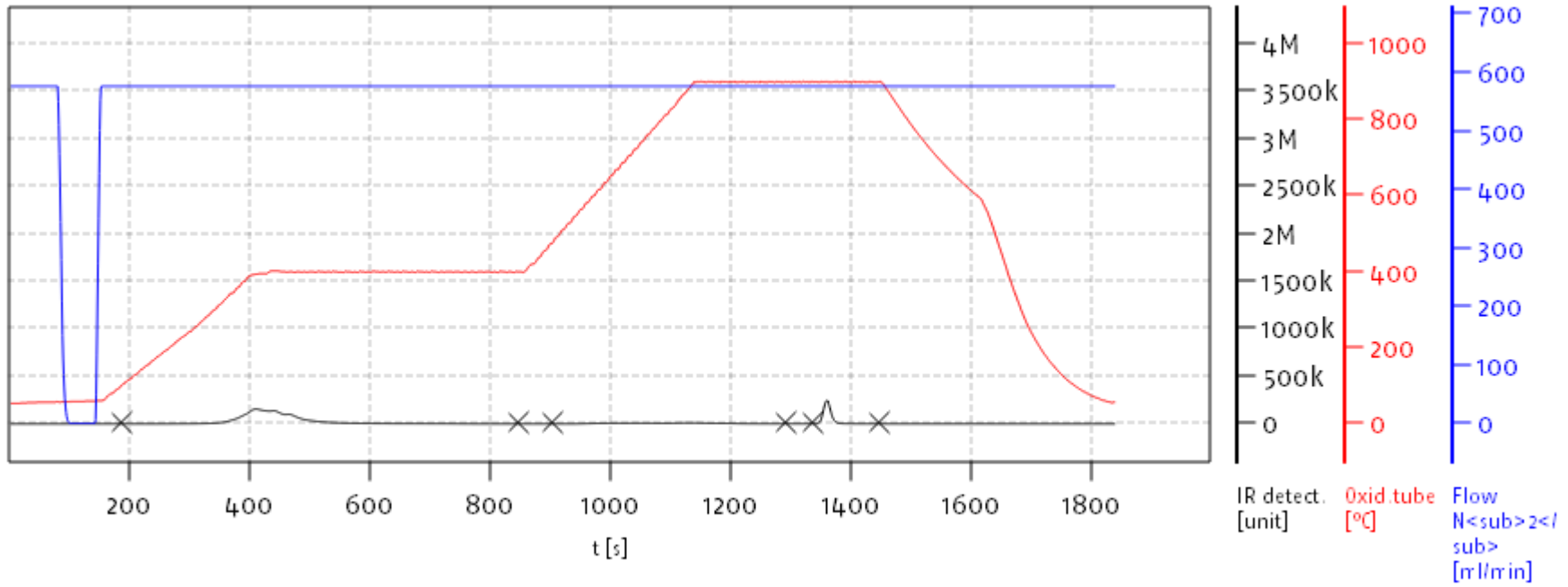
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
45	45	BHH0301-DUP4	622.1		1.00	CARBON	8/13/2019 9:42 AM	0.191	0.020	0.037	0.211	bl	578 784	67 762	135 562	1.0381	1.0000



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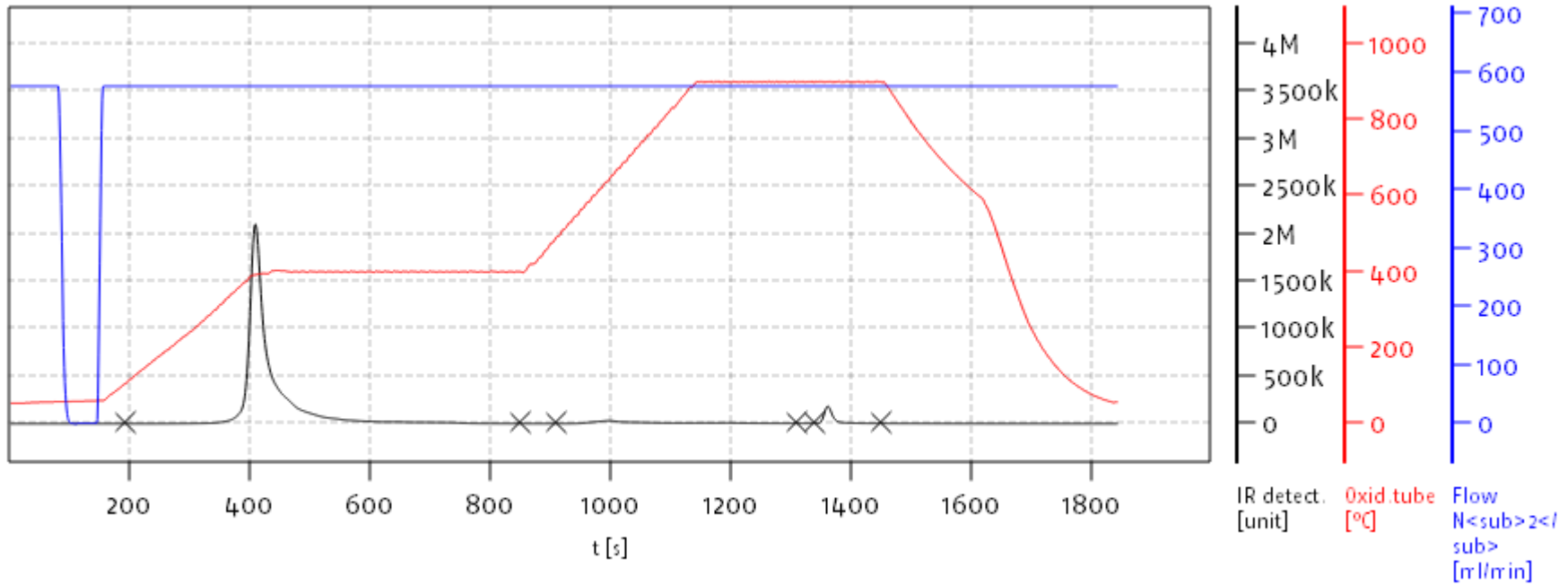
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
46	46	BHH 0301 -MS1	642.7	0. 0088	1.00	CAR BON	8/ 13/2019 10:13 AM	0.783	0.035	0.032	0.818	bl	2 949 640	133 180	122 084	1.0381	1.0000



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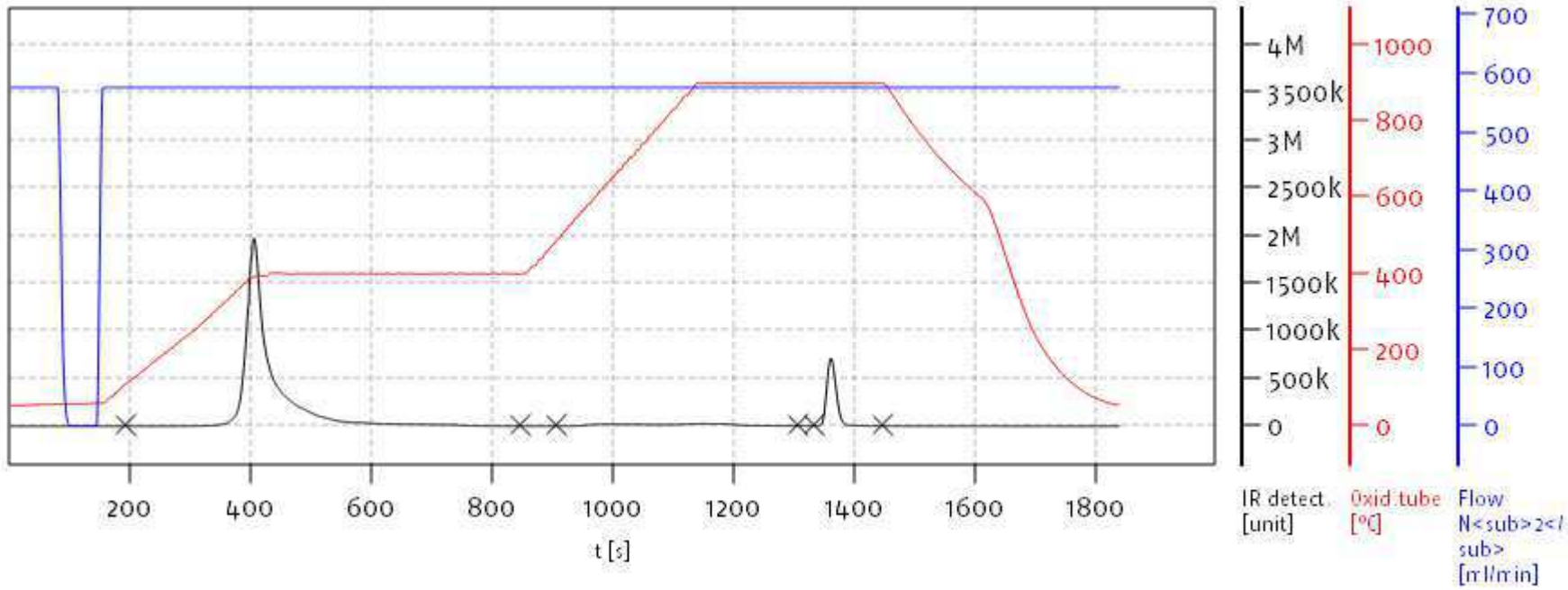
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
47	47	BHH 0301 - MSD 1	668.0	0. 0087	1.00	CAR BON	8/ 13/2019 10:44 AM	0.936	0.051	0.118	0.987	bl	3 342 360	206 417	489 608	1.0381	1.0000



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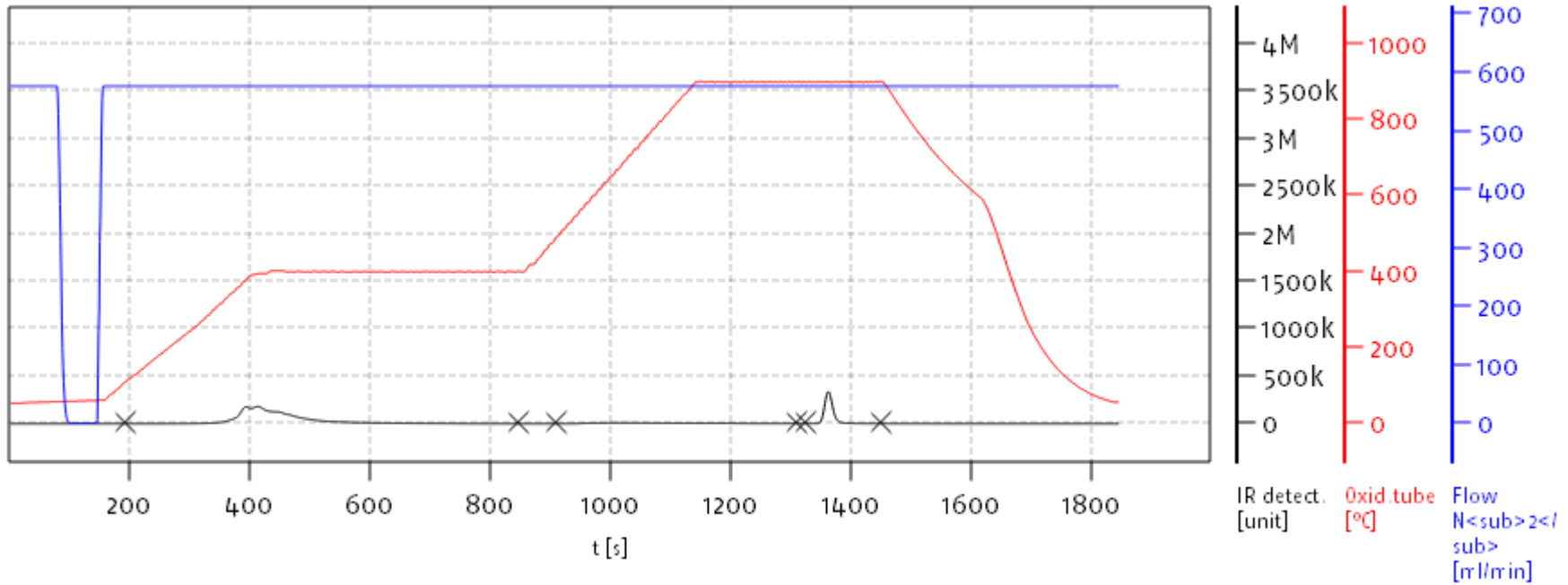
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
48	48	19H0090-01	692.6		1.00	CARBON	8/13/2019 11:15 AM	0.212	0.018	0.049	0.230	bl	685 150	67 542	203 416	1.0381	1.0000



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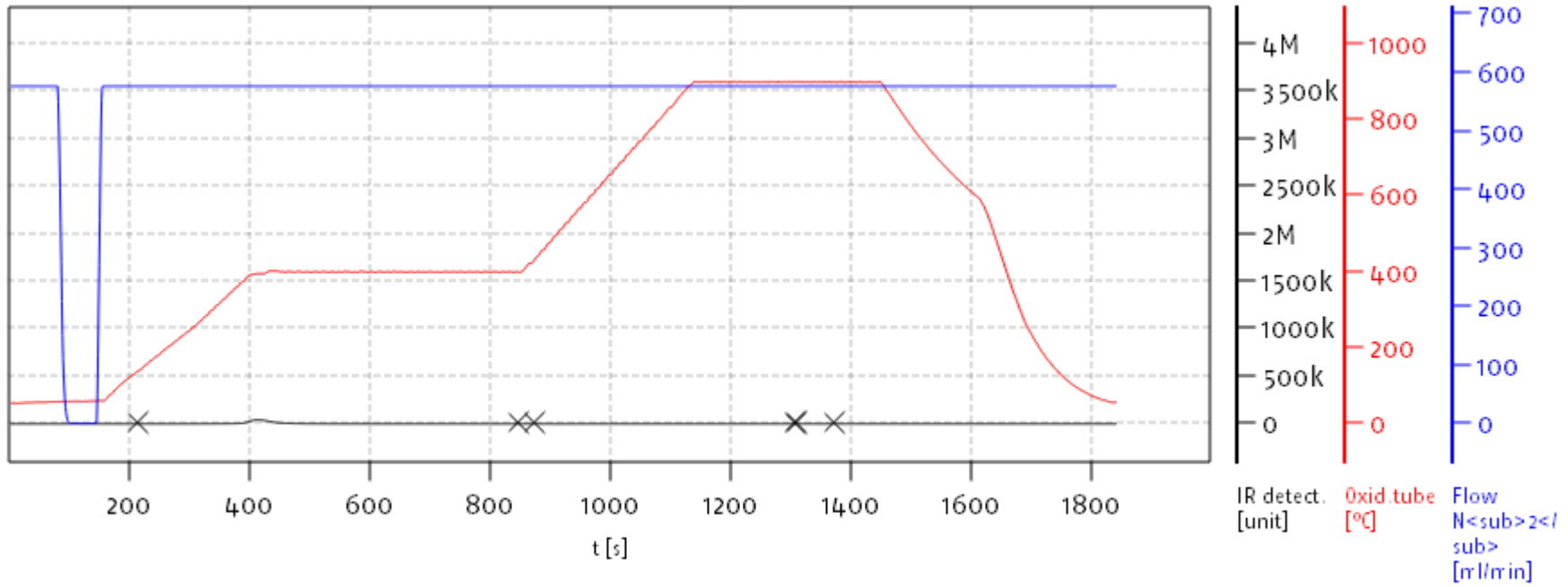
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
49	49	BHH0302-MRL1	529.4		1.00	CARBON	8/13/2019 11:46 AM	0.031	0.004	0.003	0.034	bl,C3u,C2u	78 746	1 966	268	1.0381	1.0000



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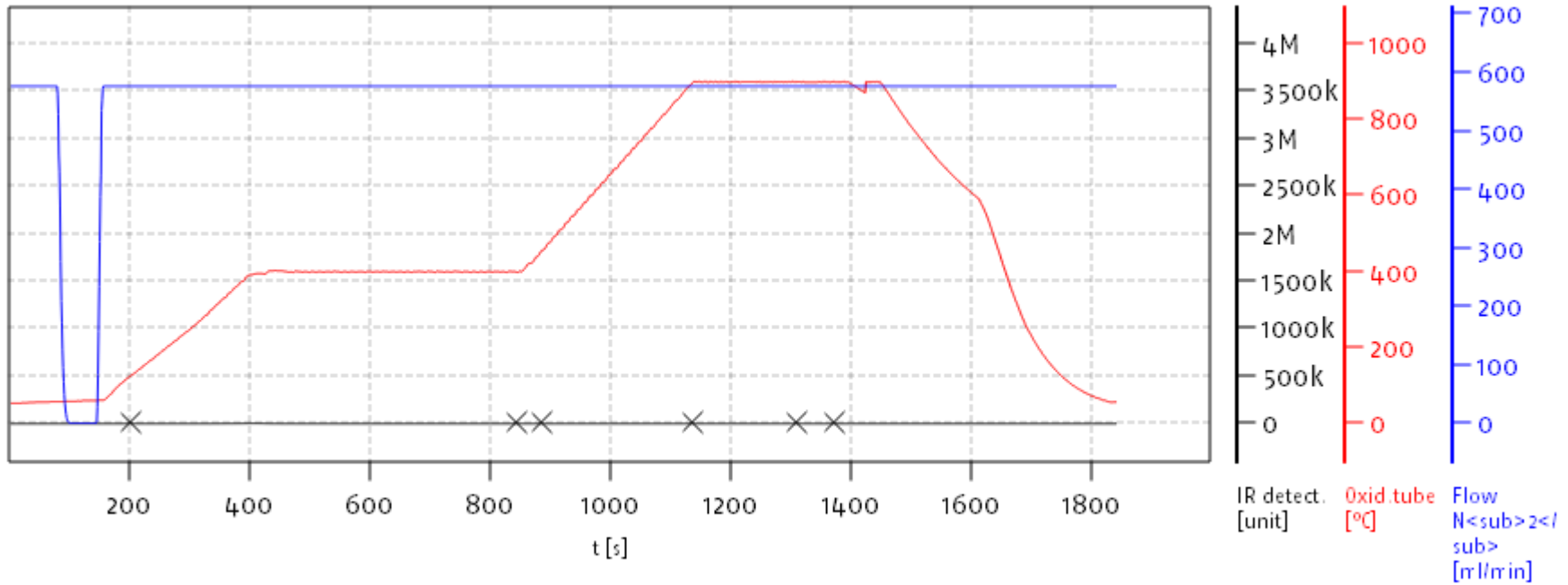
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
50	50	BHH0302-BLK1	513.7		1.00	CARBON	8/13/2019 12:17 PM	0.009	0.003	0.003	0.013	bl,C3u,C2u	8 887	428	211	1.0381	1.0000



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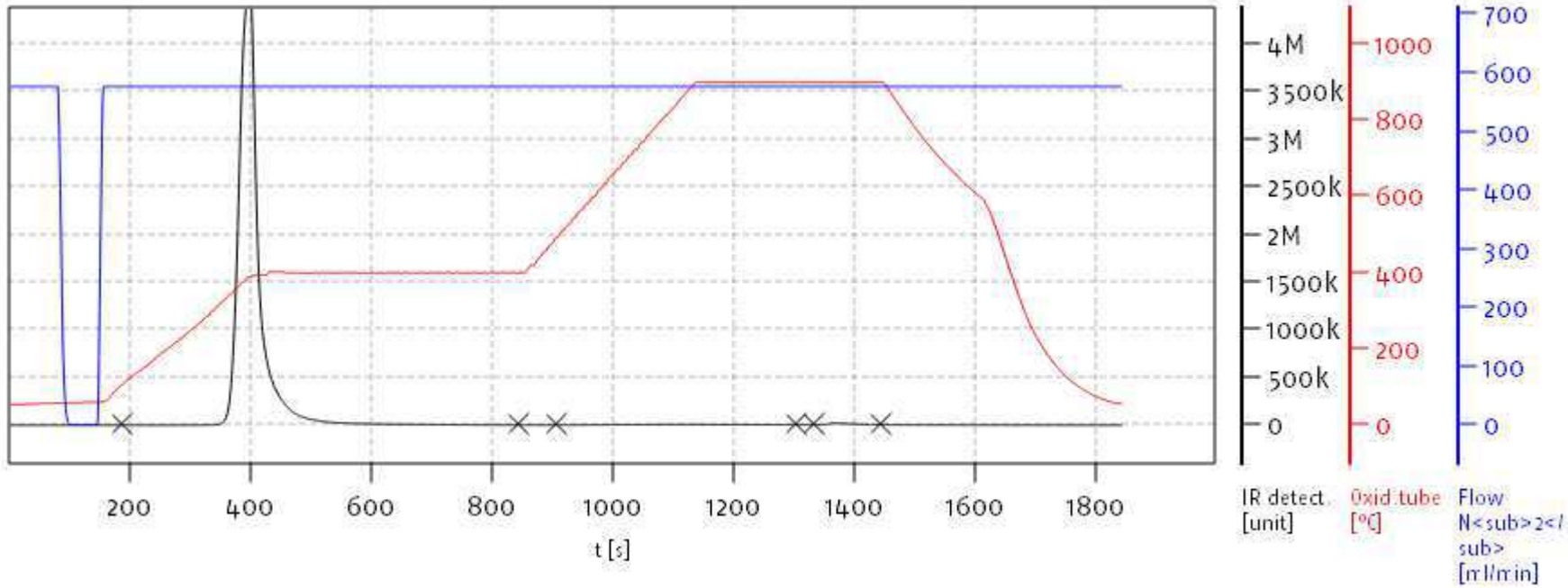
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
51	51	BHH 0302 -BS1	23.6		1.00	CARBON	8/ 13/2019 12:48 PM	45.331	0.559	0.351	45.890	bl	6 499 870	73 476	42 298	1.0381	1.0000



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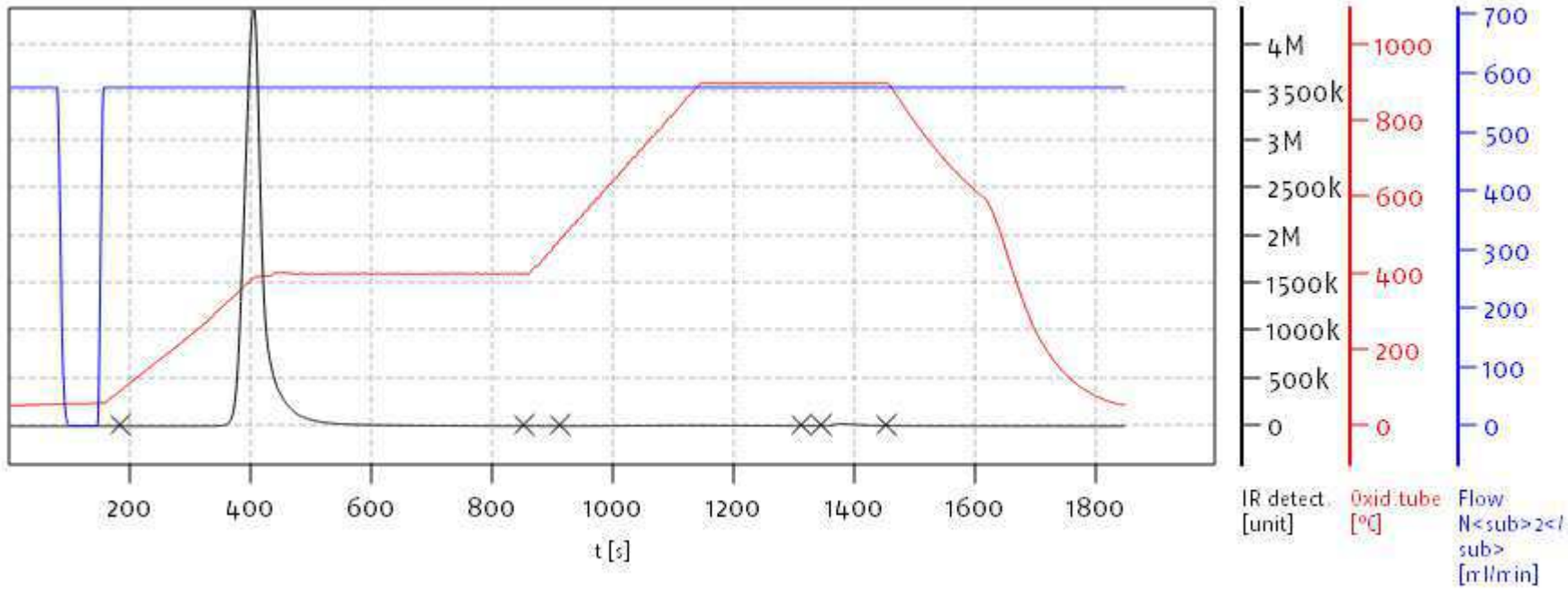
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
52	52	SHH 0111 - CCV 4	21.7		1.00	CARBON	8/13/2019 1:19 PM	44.400	0.605	0.424	45.005	bl	5 842 110	73 075	48 080	1.0381	1.0000



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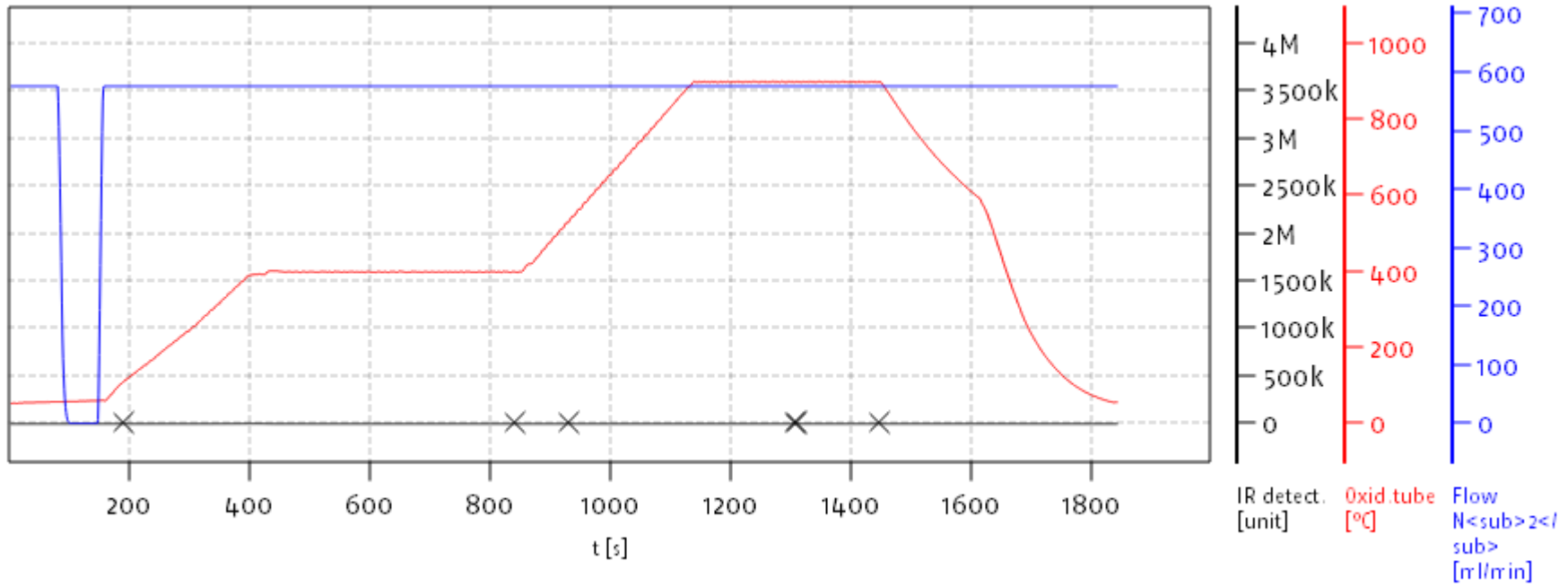
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
53	53	SHH 0111 - CCB 4	515.2		1.00	CARBON	8/13/2019 1:50 PM	0.008	0.000	0.003	0.008	bl,C2u	5 520	0	515	1.0381	1.0000



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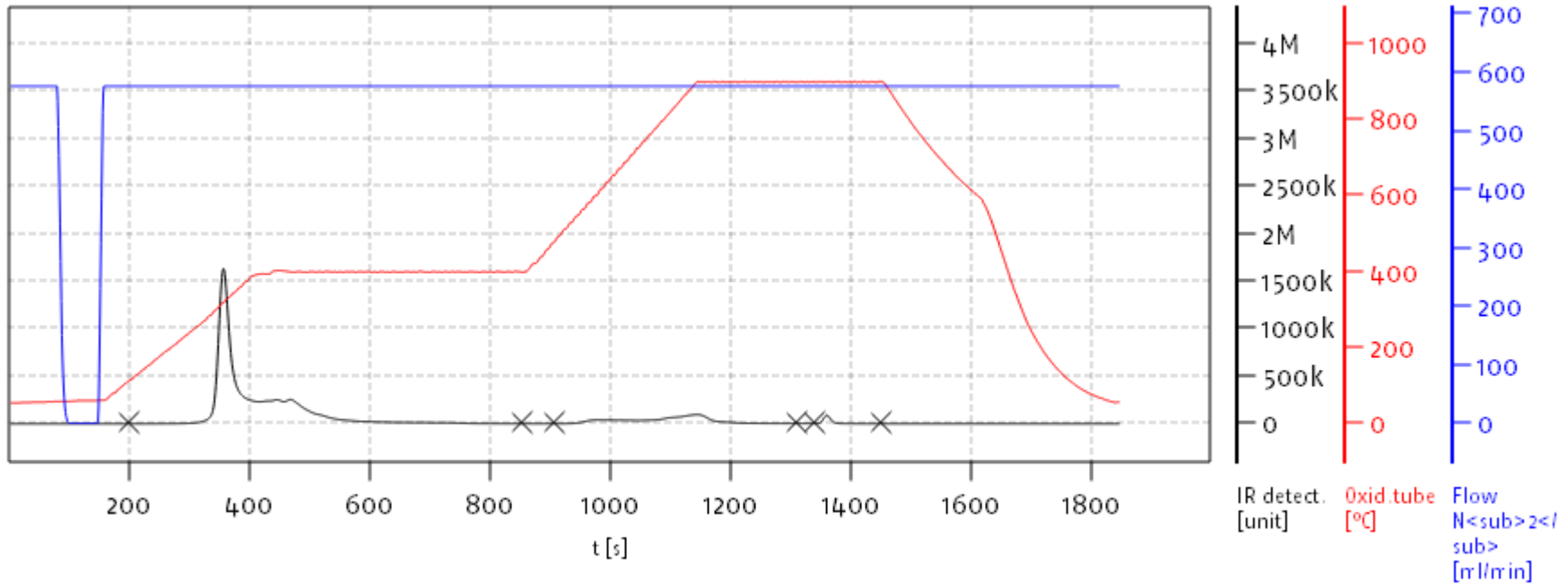
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
54	54	19H0024-03	285.2		1.00	CARBON	8/13/2019 2:22 PM	1.616	0.262	0.034	1.878	bl	2 756 180	465 064	51 060	1.0381	1.0000



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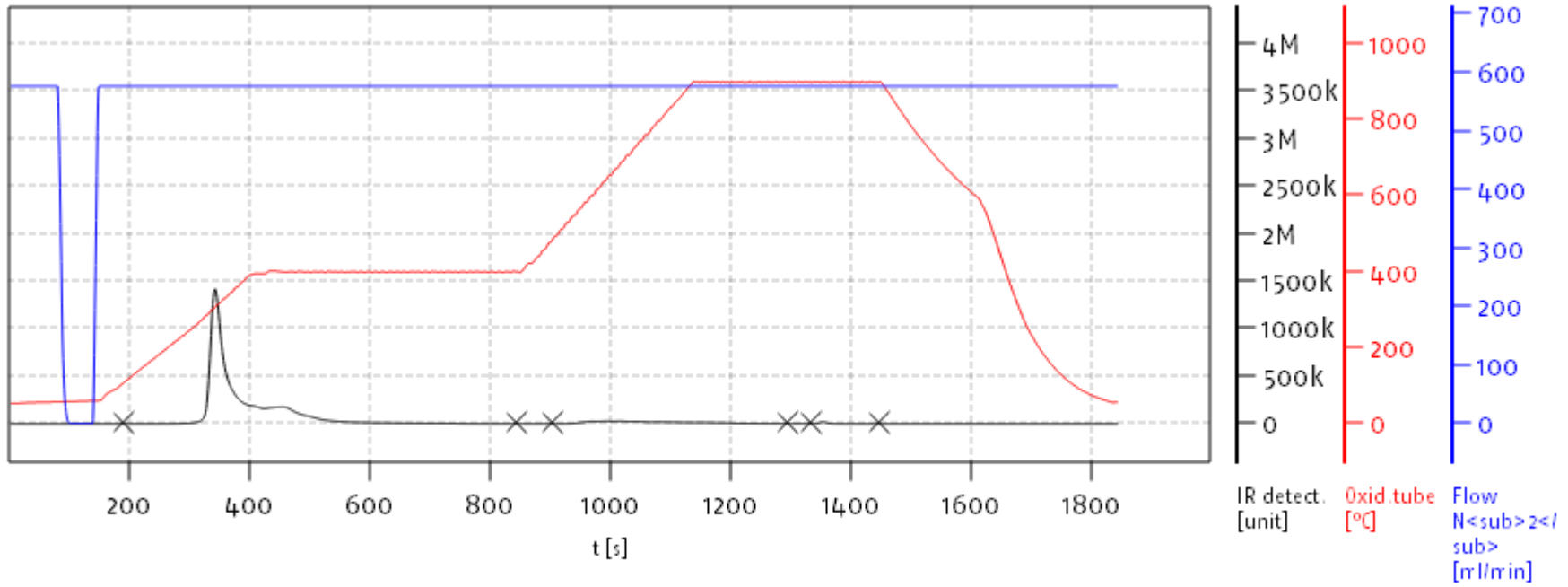
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
55	55	BHH 0302 - DUP 1	230.4		1.00	CARBON	8/13/2019 2:53 PM	1.675	0.143	0.016	1.818	bl	2 332 880	199 667	13 324	1.0381	1.0000



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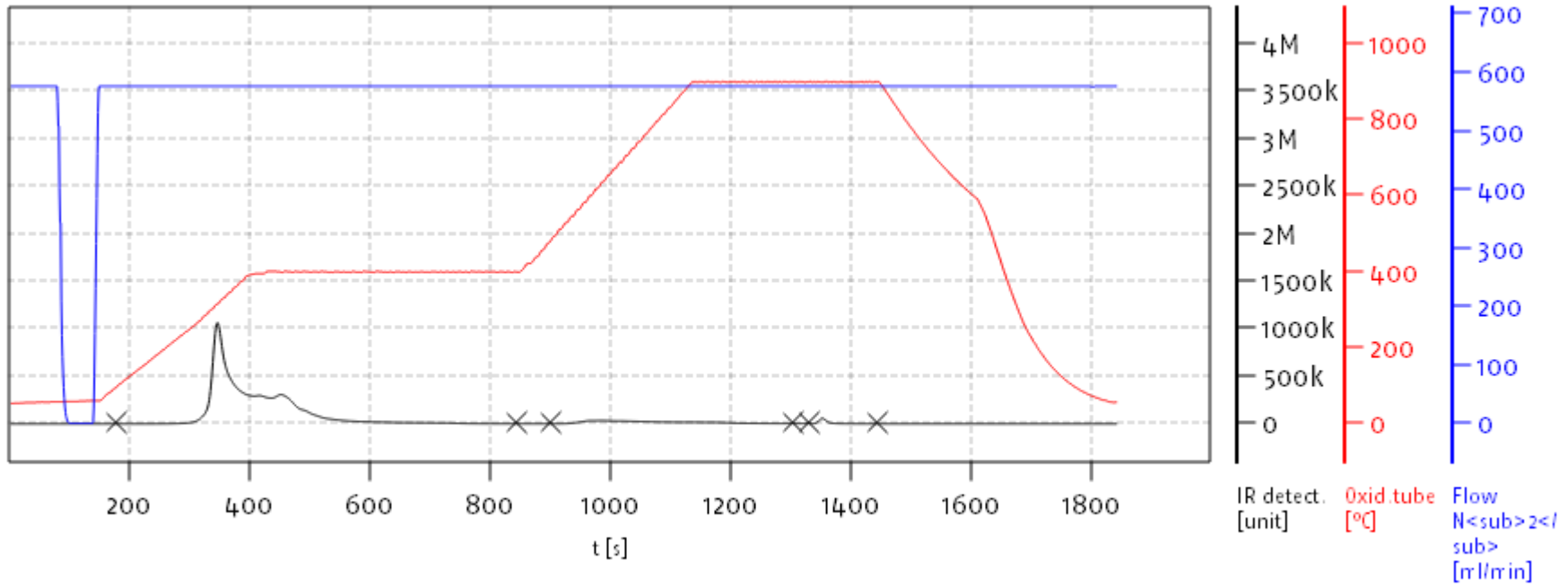
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
56	56	BHH 0302 - DUP 2	269.0		1.00	CARBON	8/13/2019 3:24 PM	1.637	0.141	0.027	1.779	bl	2 646 210	231 066	35 973	1.0381	1.0000



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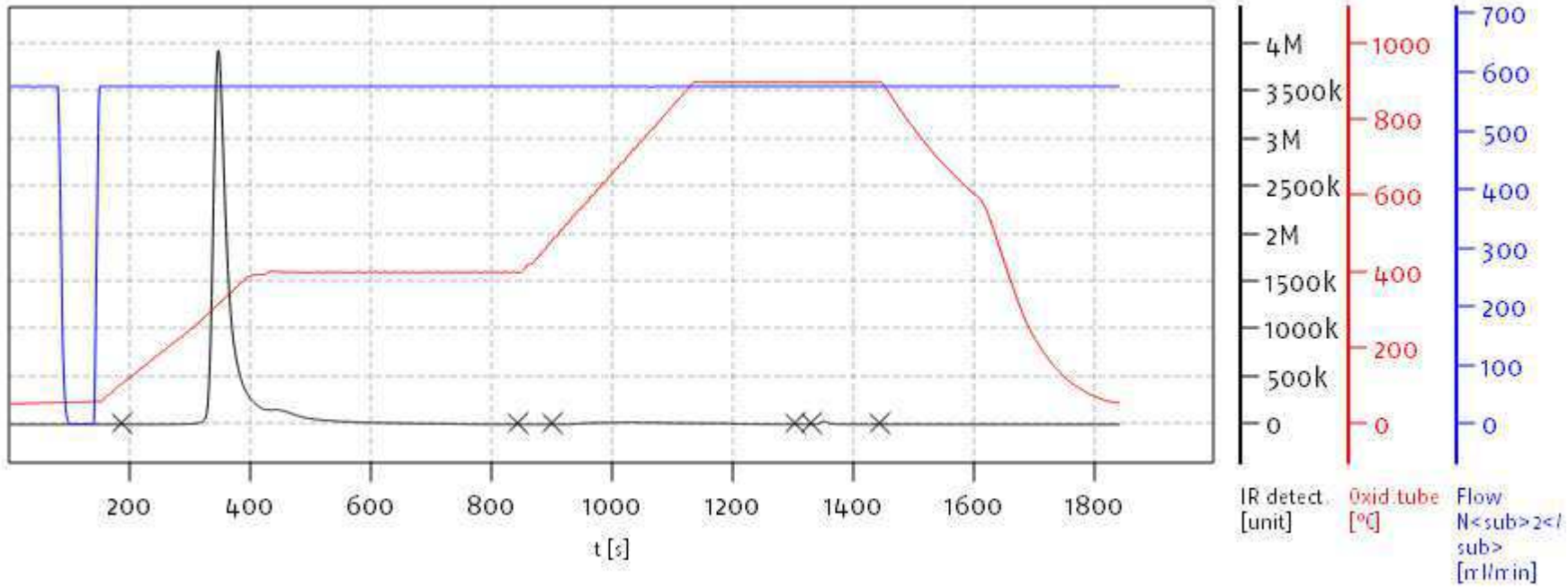
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
57	57	BHH 0302 -MS1	242.1	0. 0081	1.00	CAR BON	8/ 13/2019 3:55 PM	3.244	0.111	0.021	3.355	bl	4 775 510	160 546	21 750	1.0381	1.0000



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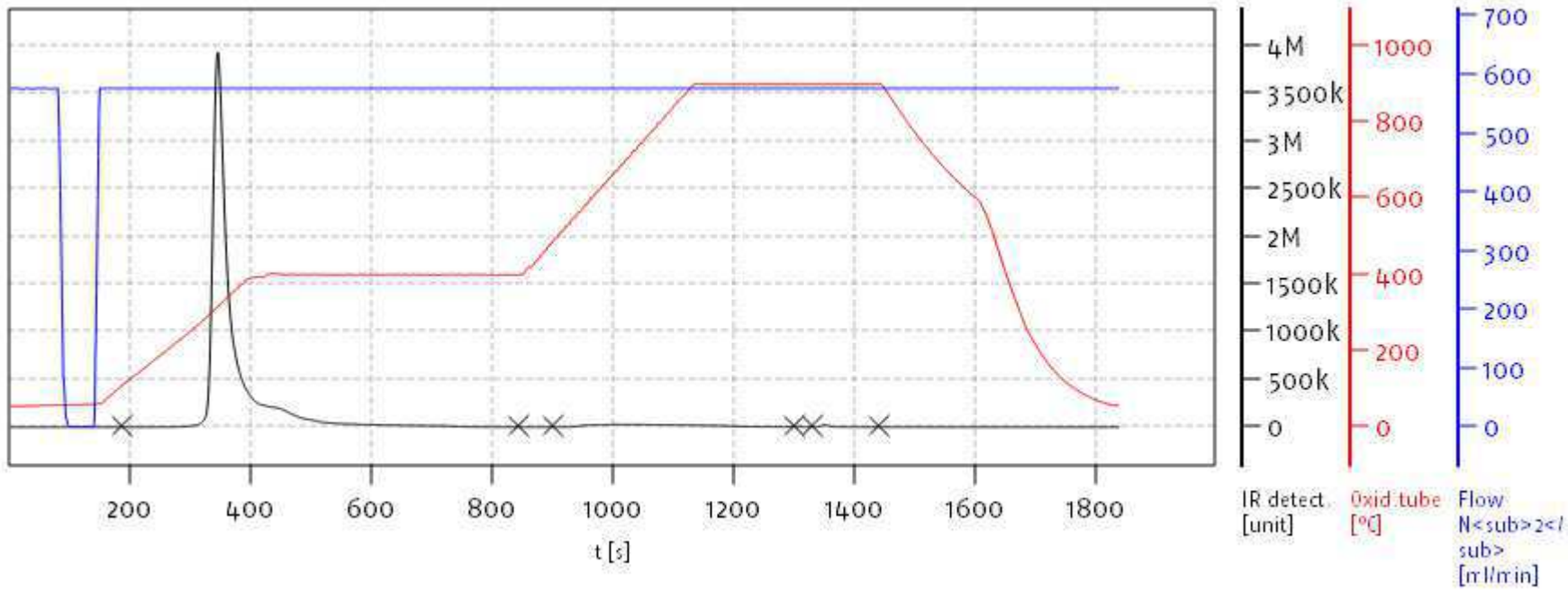
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
58	58	BHH 0302 -MS2	254.5	0. 0086	1.00	CARBON	8/ 13/2019 4:26 PM	3.230	0.144	0.016	3.374	bl	5 006 490	222 250	15 766	1.0381	1.0000



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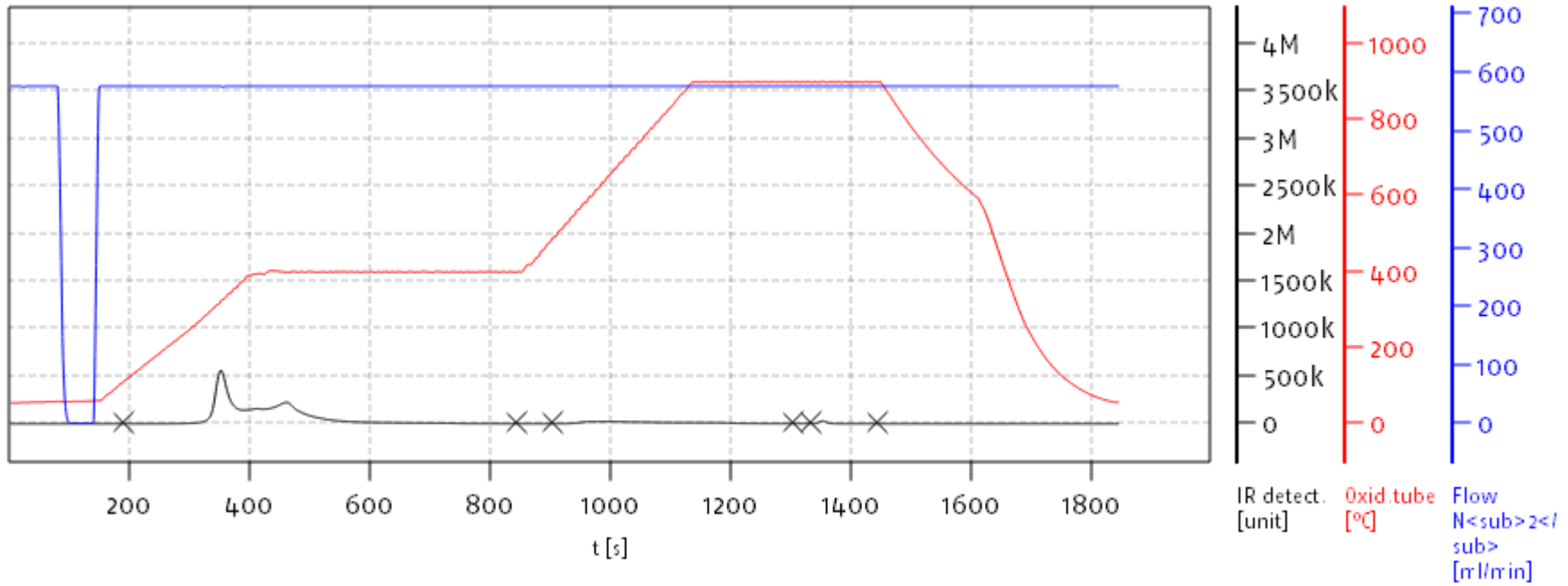
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
59	59	19H0024-04	183.1		1.00	CARBON	8/13/2019 4:57 PM	1.347	0.142	0.024	1.488	bl	1 475 070	154 813	17 152	1.0381	1.0000



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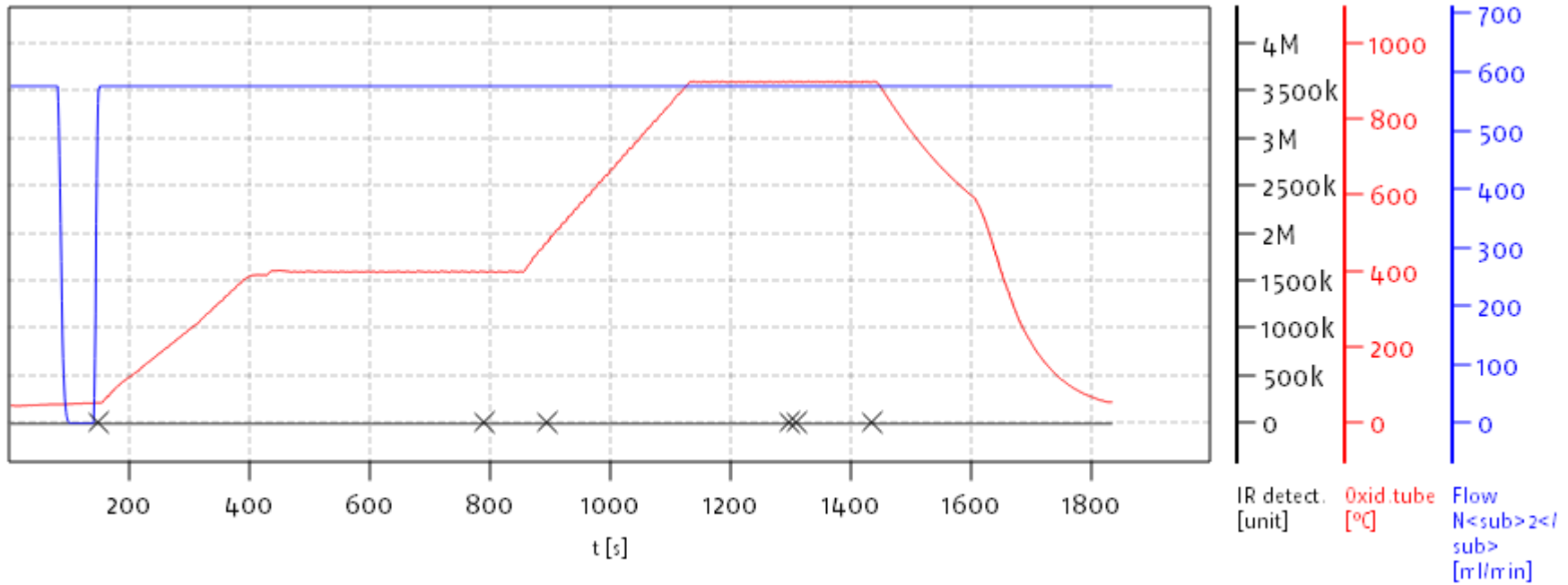
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
60	60	19H0024-05	348.3	MISS INJECT	1.00	CARBON	8/13/2019 5:59 PM	0.010	0.005	0.005	0.015	bl,C1u,C3u,C2u	133	179	226	1.0381	1.0000



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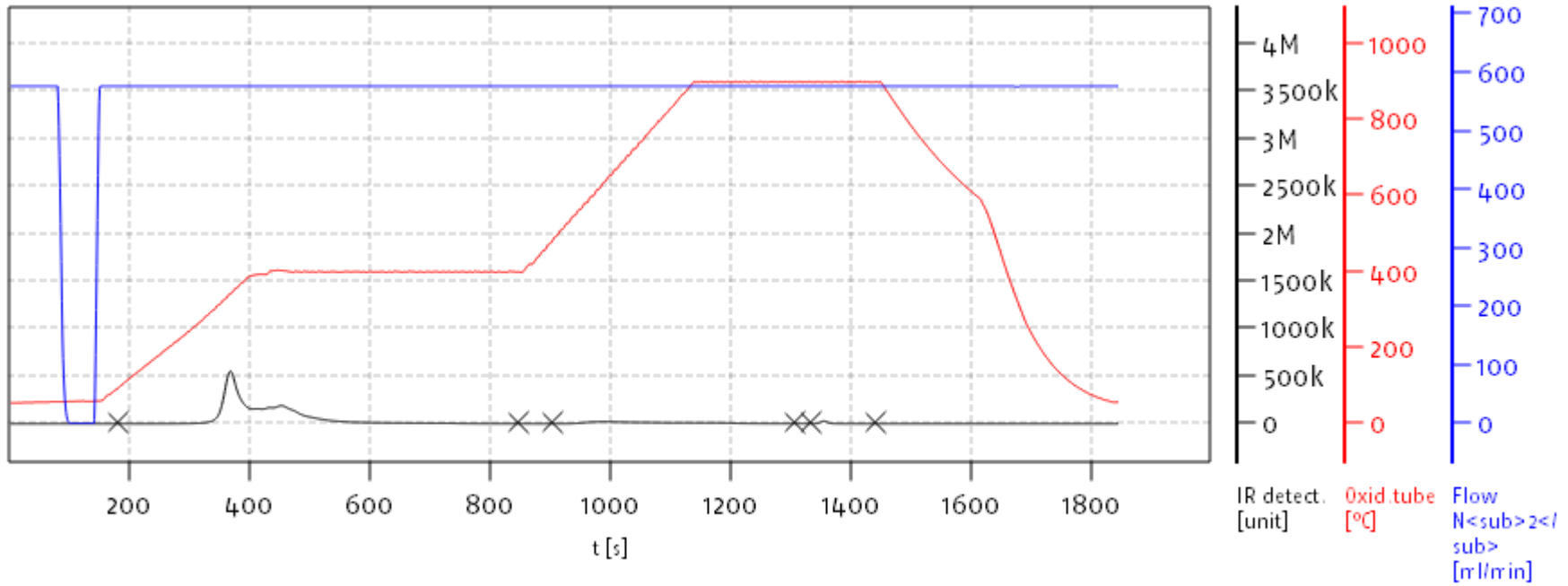
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
61	61	19H0024-06	261.8		1.00	CARBON	8/13/2019 6:30 PM	0.871	0.087	0.016	0.958	bl	1 362 660	134 153	16 087	1.0381	1.0000



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Access: soliTOC superuser

Date: Wed Aug 14 10:36:05 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
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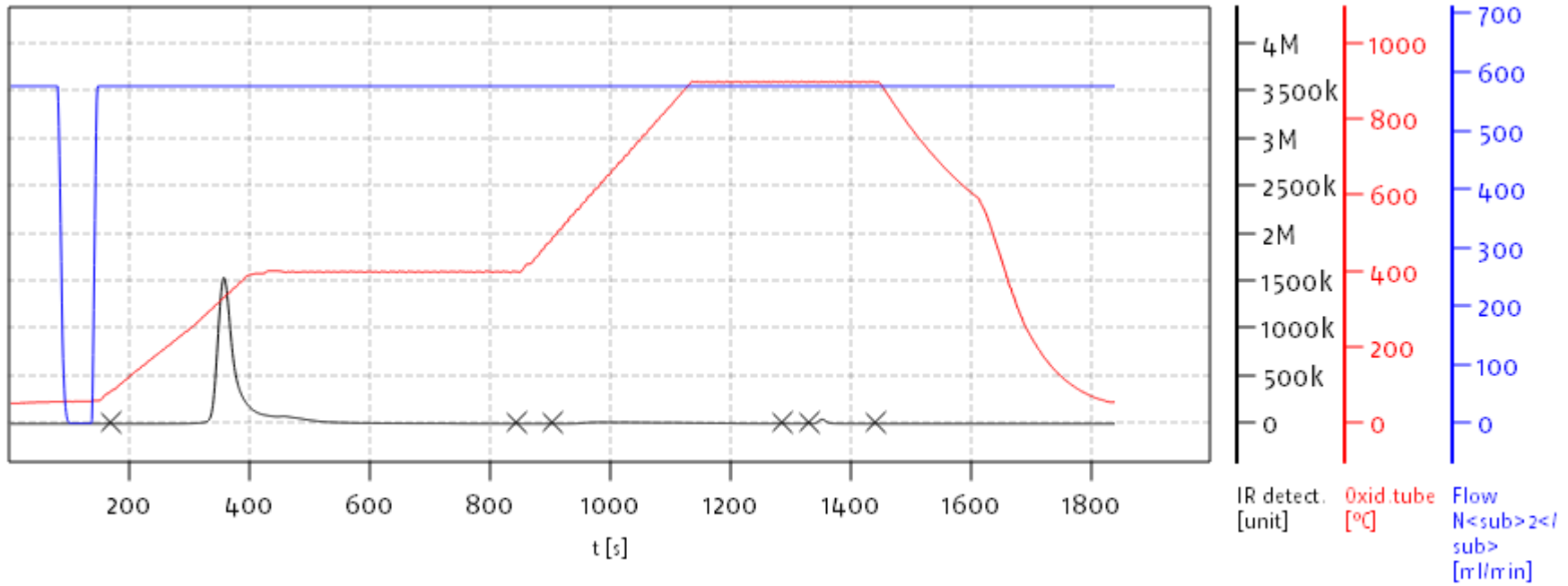
Document: 0812c19CDE from: 8/14/2019 10:23 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
62	62	19H0024-07	231.9		1.00	CARBON	8/13/2019 7:01 PM	1.514	0.078	0.026	1.592	bl	2 105 360	104 739	27 872	1.0381	1.0000



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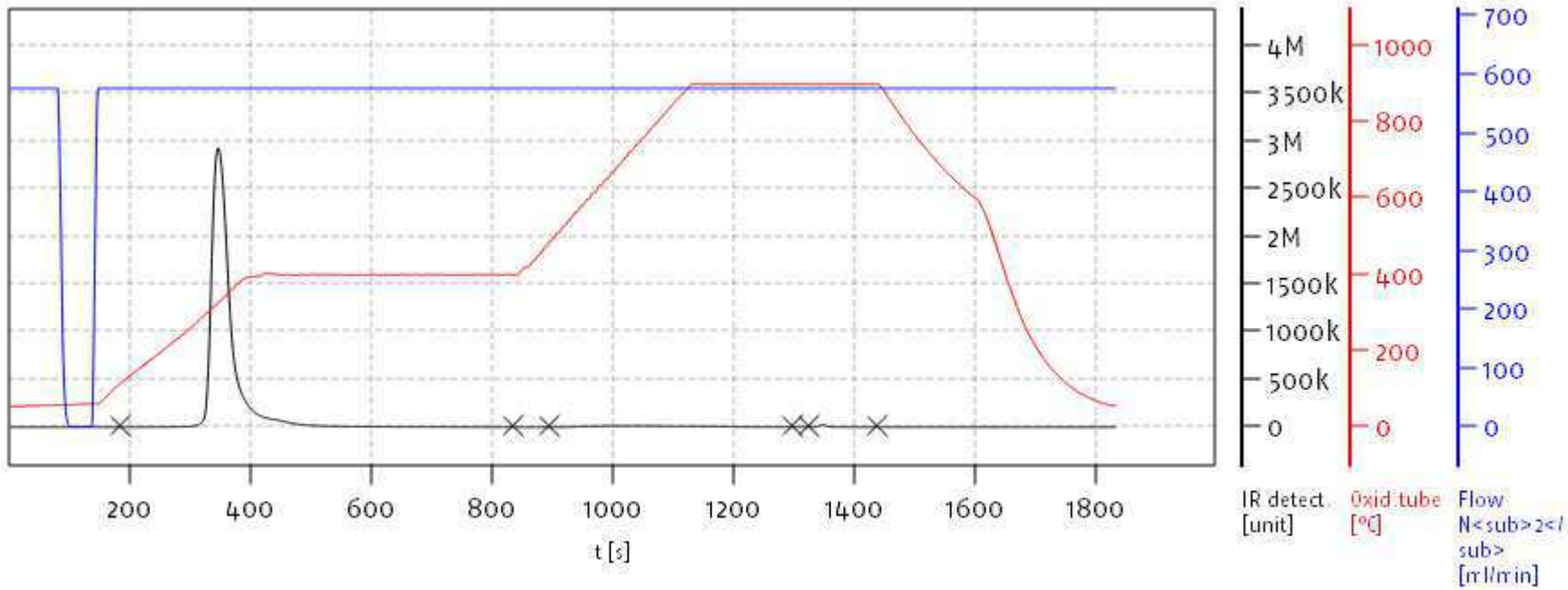
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
63	63	19H0024-08	300.3		1.00	CARBON	8/13/2019 7:32 PM	2.161	0.058	0.014	2.219	bl	3 945 110	100 809	15 330	1.0381	1.0000



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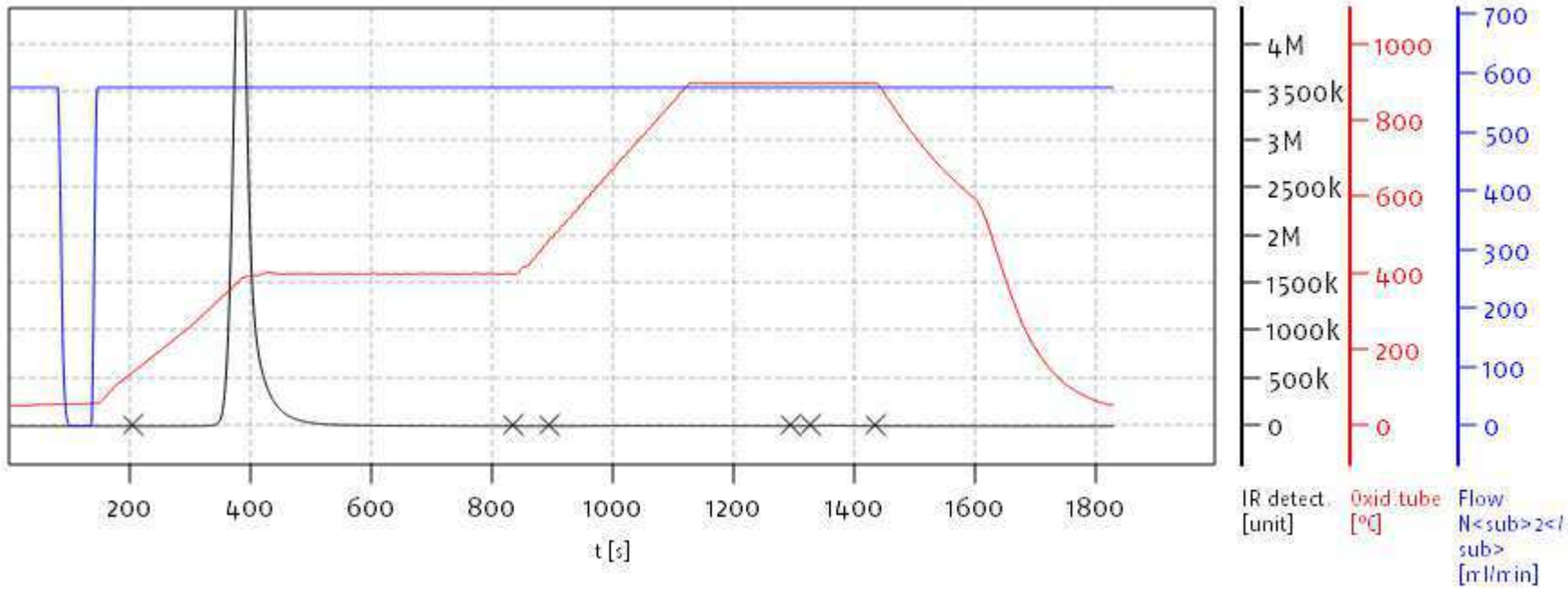
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
64	64	SHH0111-CCV5	24.0		1.00	CARBON	8/13/2019 8:03 PM	46.120	0.357	0.170	46.478	bl	6 753 070	44 086	15 501	1.0381	1.0000



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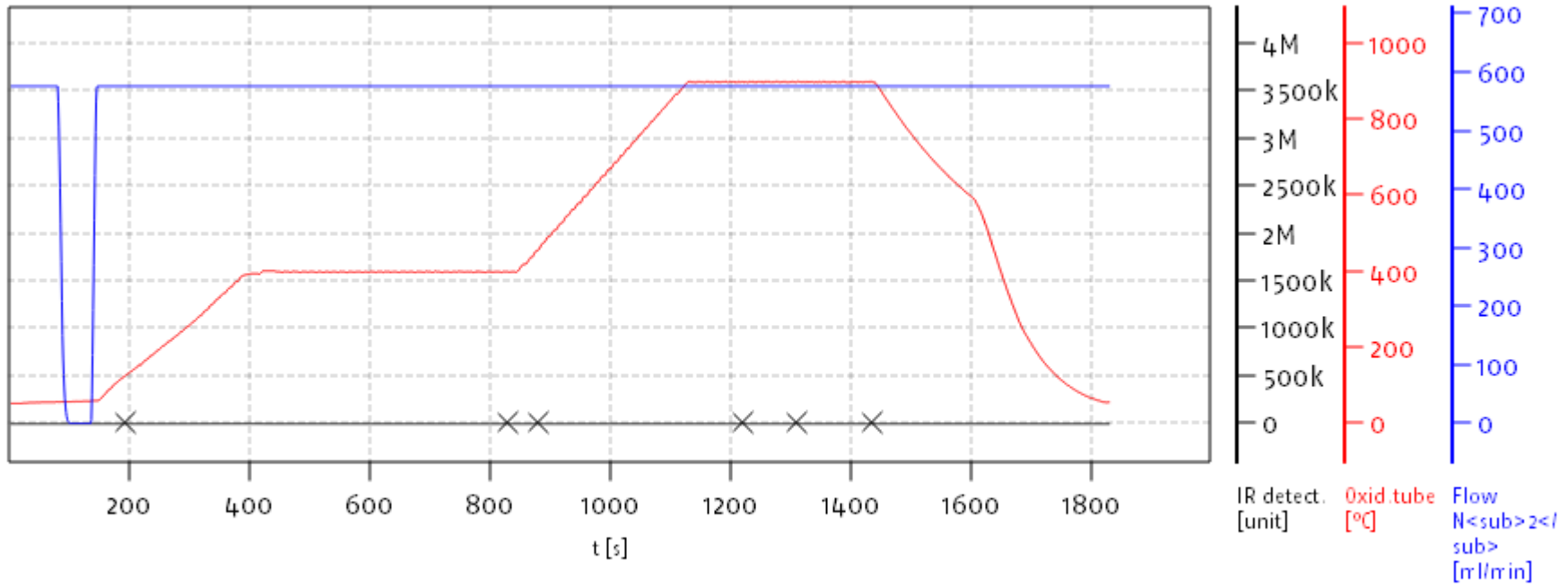
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
65	65	SHH 0111 - CCB 5	540.9		1.00	CARBON	8/13/2019 8:34 PM	0.008	0.003	0.003	0.011	bl,C3u,C2u	4 694	102	323	1.0381	1.0000



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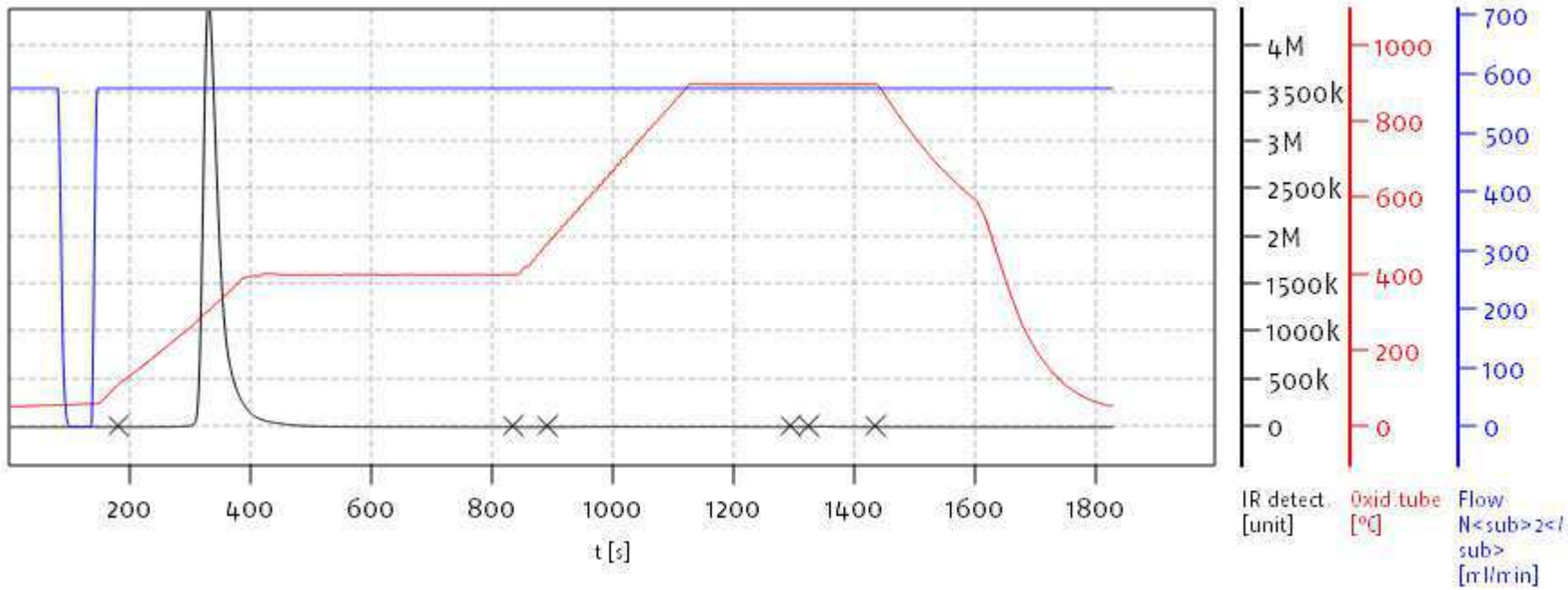
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
66	66	19H0024-09	237.9		1.00	CARBON	8/13/2019 9:05 PM	3.671	0.030	0.013	3.701	bl	5 325 690	35 194	9 653	1.0381	1.0000



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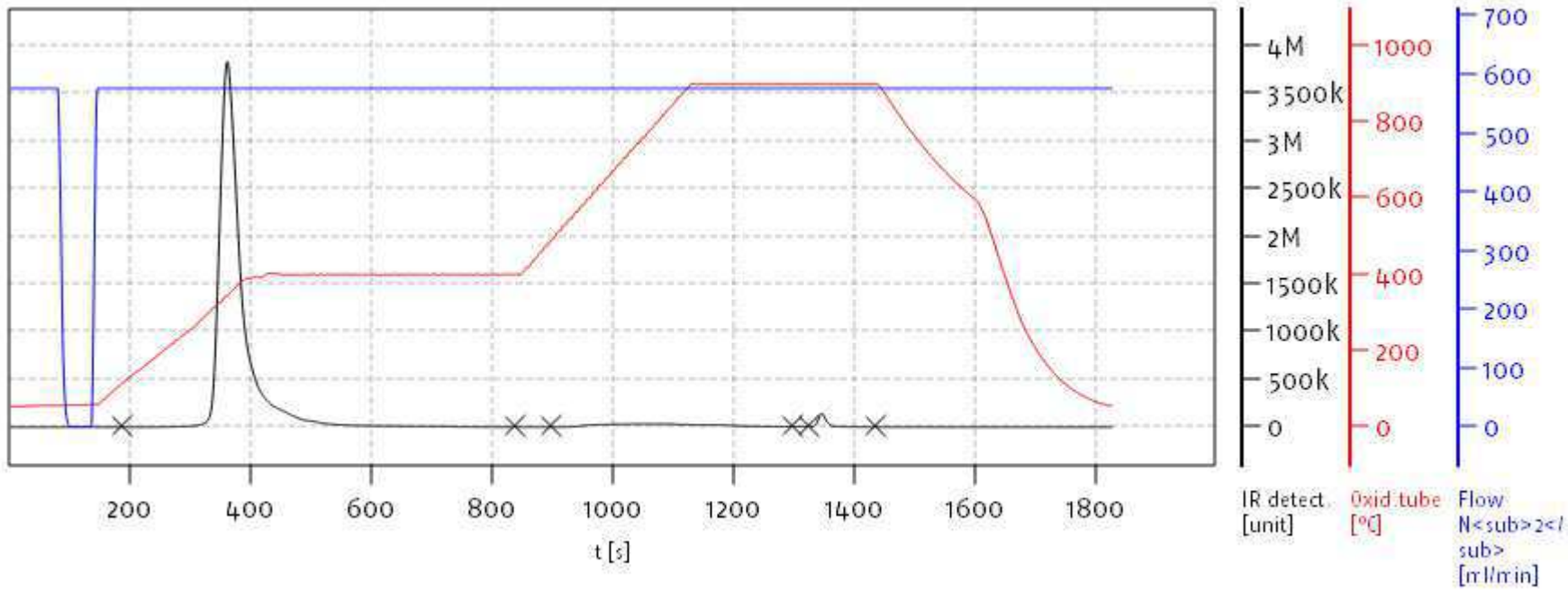
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
67	67	19H0024-10	573.4		1.00	CARBON	8/13/2019 9:36 PM	1.750	0.081	0.027	1.831	bl	6 048 490	285 011	89 003	1.0381	1.0000



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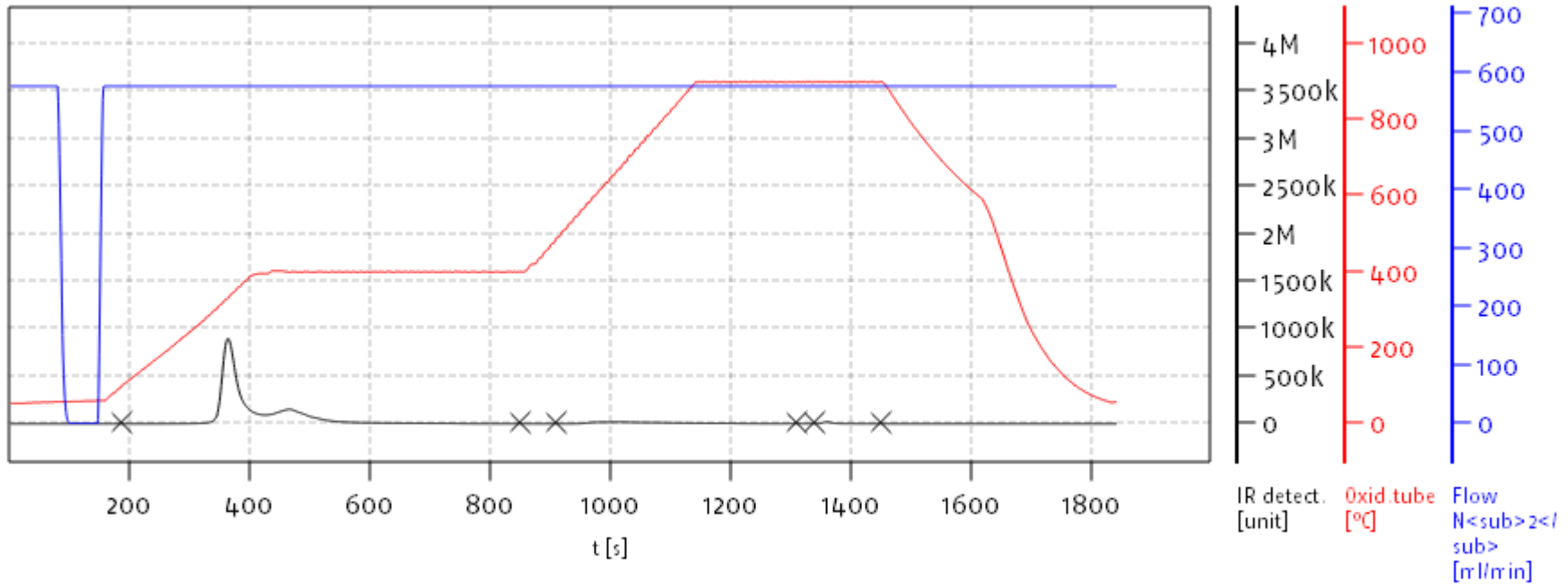
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
68	68	19H0024-11	234.0		1.00	CARBON	8/13/2019 10:07 PM	1.106	0.079	0.017	1.185	bl	1 551 840	107 617	14 825	1.0381	1.0000



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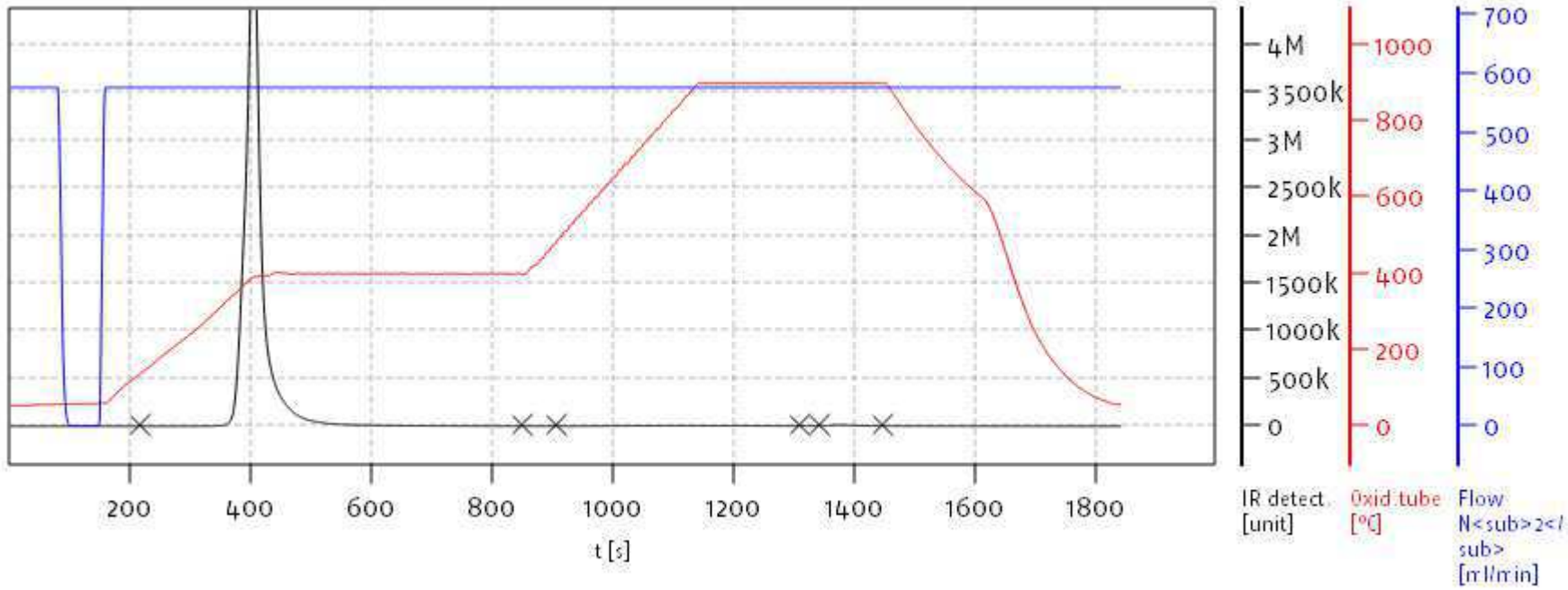
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
69	69	SHH 0111 - CCV 6	22.3		1.00	CARBON	8/13/2019 10:38 PM	44.188	0.510	0.263	44.698	bl	5 997 050	61 888	26 815	1.0381	1.0000



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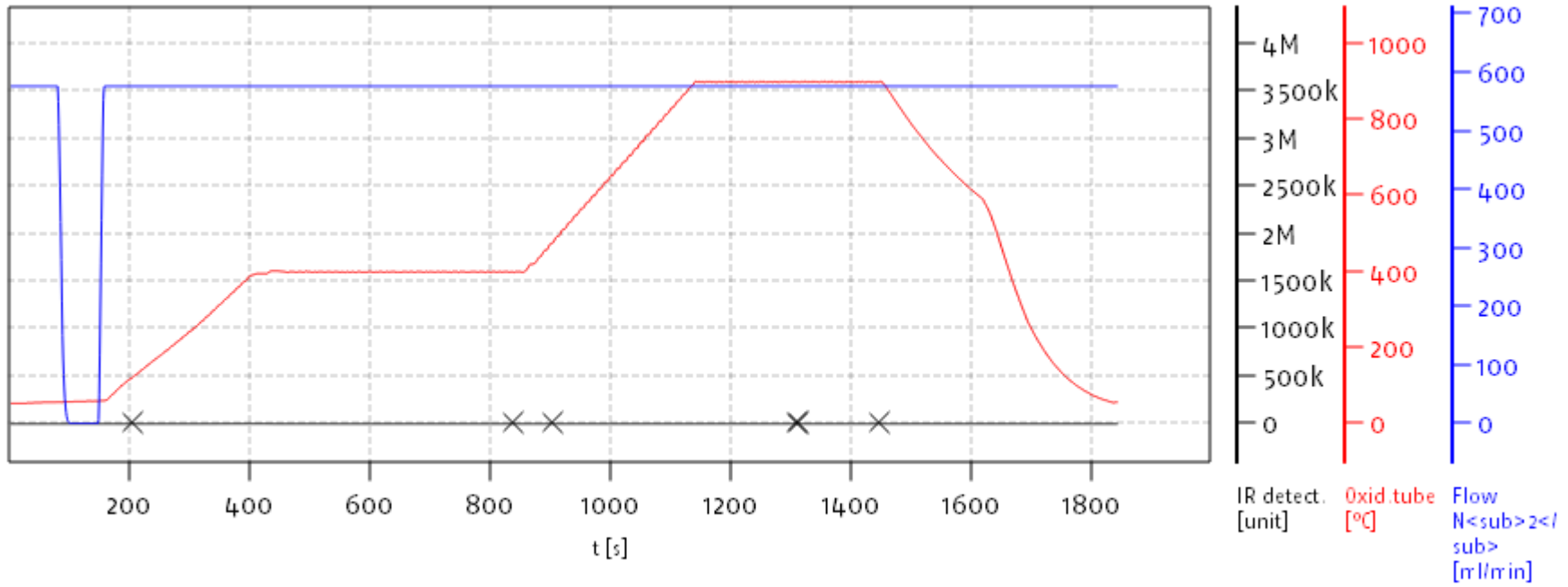
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
70	70	SHH 0111 - CCB 6	533.5		1.00	CARBON	8/13/2019 11:09 PM	0.008	0.000	0.003	0.008	bl,C2u	4 522	0	376	1.0381	1.0000



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ANALYSIS BATCH (SEQUENCE) SUMMARY

Plumb 1981, Combustion IR

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Sequence:	SHH0246	Instrument:	TOC Cube
		Calibration:	UNASSIGNED

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Initial Cal Check	SHH0246-ICV1	peData_08202019@1701-(	NA	08/20/19 13:52
Initial Cal Blank	SHH0246-ICB1	peData_08202019@1701-(	NA	08/20/19 14:23
SL4-SG-WC7-FD-2019	19H0024-05RE2	peData_08202019@1701-(	Solid	08/20/19 15:24
Calibration Check	SHH0246-CCV1	peData_08202019@1701-(	NA	08/20/19 15:55
Calibration Blank	SHH0246-CCB1	peData_08202019@1701-(	NA	08/20/19 16:26

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

Analytical Resources, Incorporated
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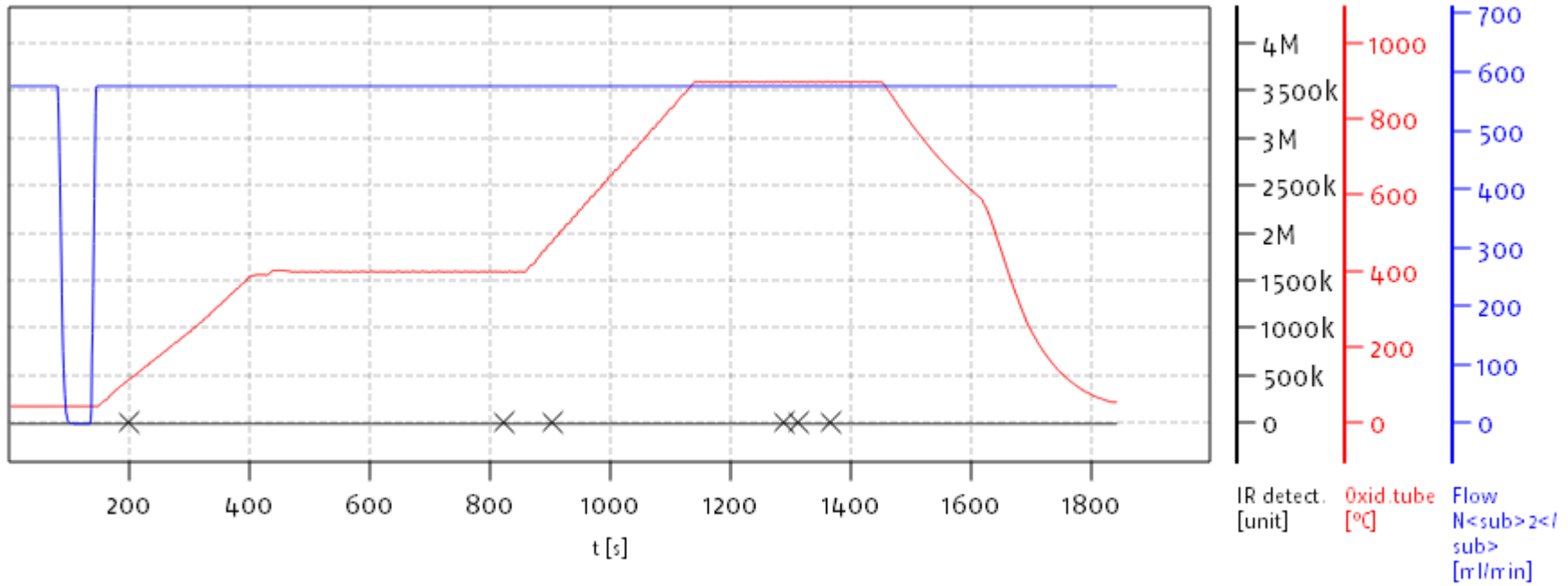
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
1	1	BLANK	1.0		1.00	CARBON	8/20/2019 12:19 PM	0.000	0.000	0.000	0.000	bl	4 515	2 444	385	1.0000	1.0000



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Date: Tue Aug 20 16:39:22 2019

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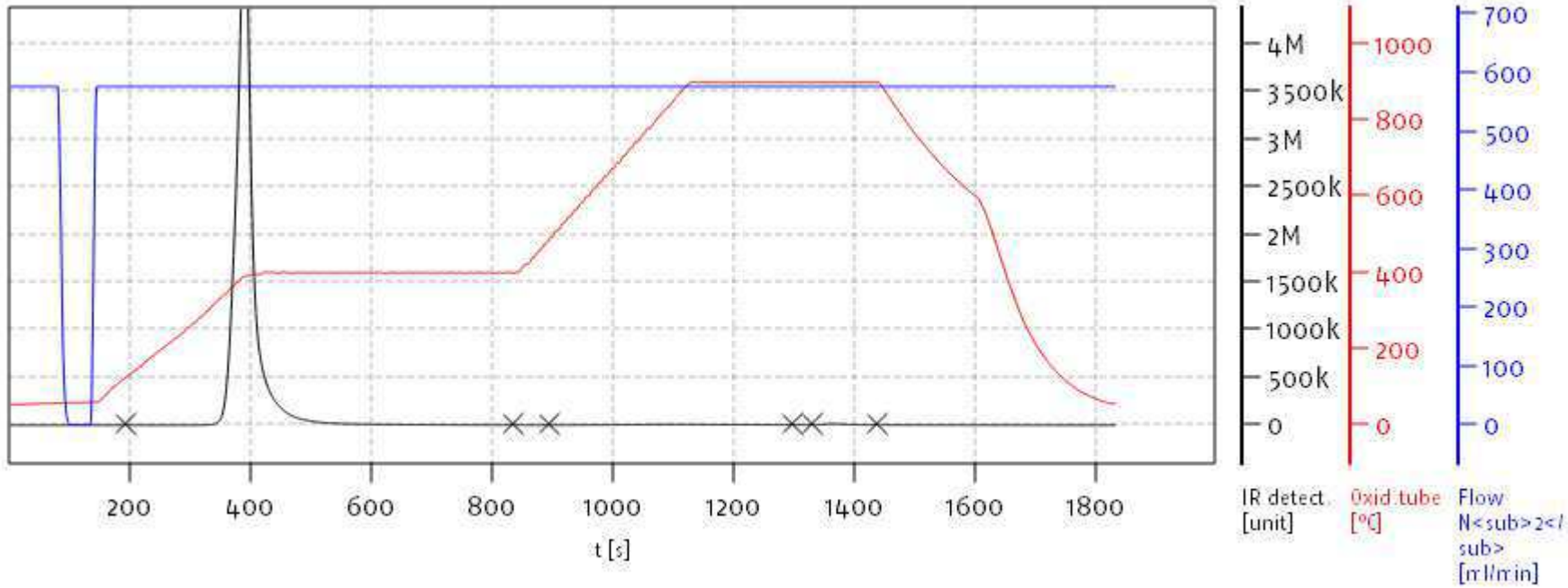
Analytical Resources, Incorporated
Analytical Chemists and Consultants

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
2	2	Dfactor	23.0		1.00	CARBON	8/20/2019 12:50 PM	44.704	0.554	0.259	45.259	bl	6 314 897	70 663	27 386	1.0289	1.0000



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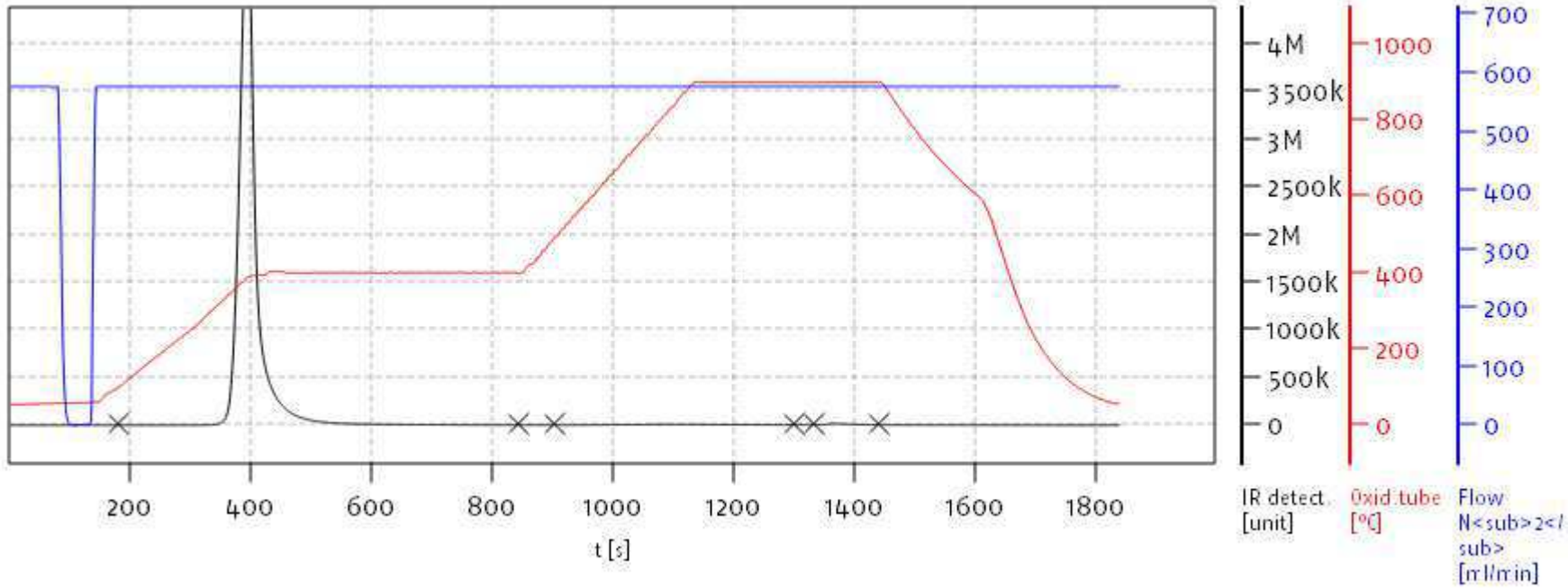
Balance: BAL3
Analyst: CDE

	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
3	3	Dfactor	23.2		1.00	CARBON	8/20/2019 1:21 PM	44.726	0.557	0.280	45.283	bl	6 331 351	71 785	30 886	1.0352	1.0000



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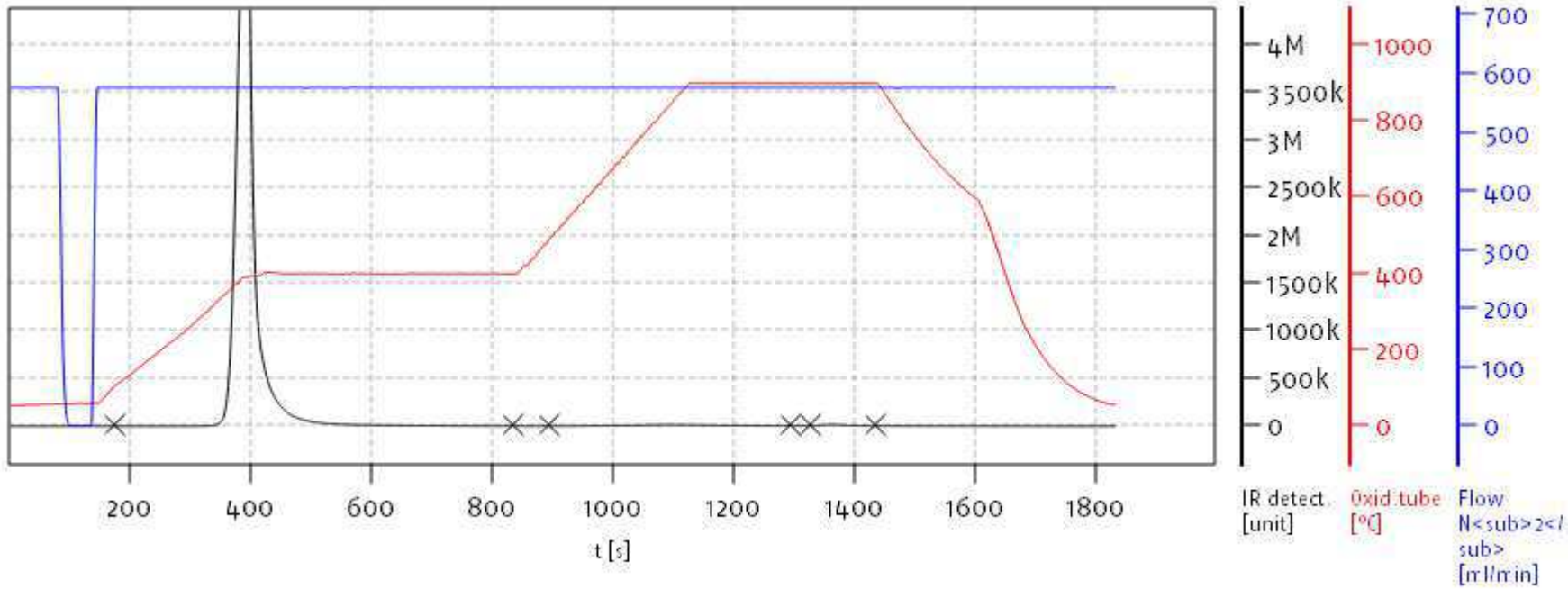
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
4	4	SHH 0246 - ICV1	26.7		1.00	CARBON	8/20/2019 1:52 PM	45.178	0.615	0.235	45.793	bl	7 392 154	94 049	29 400	1.0320	1.0000



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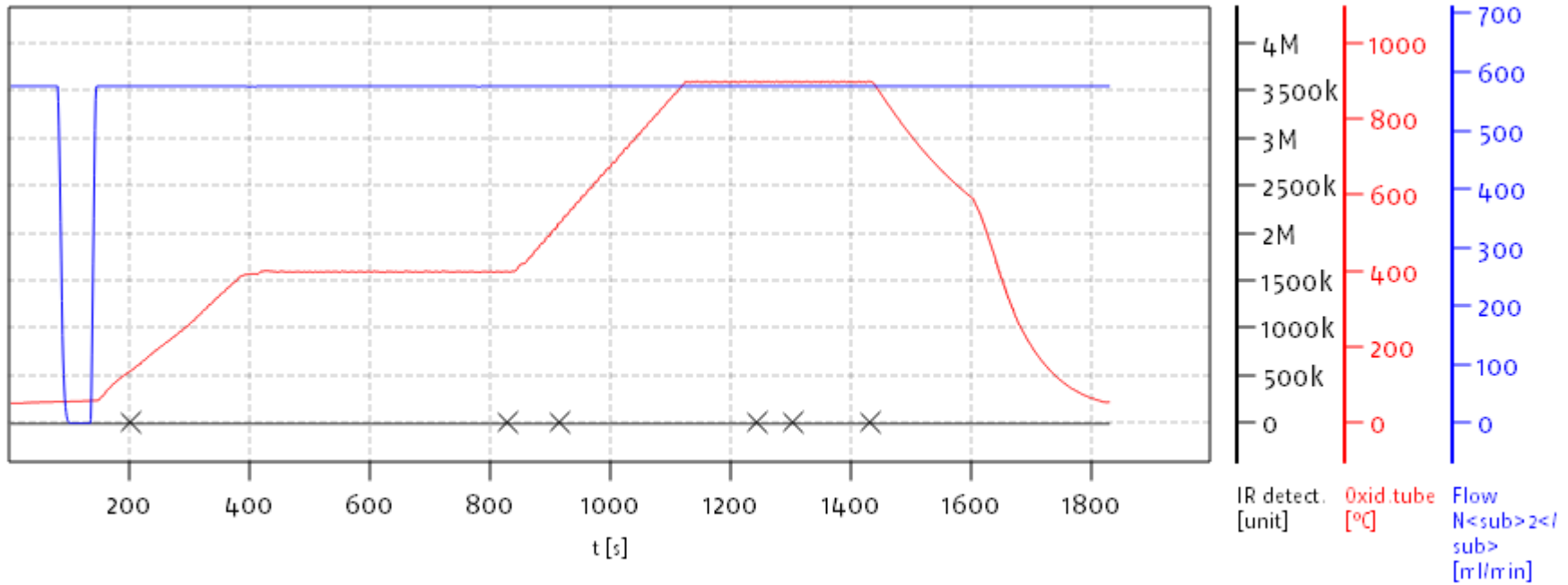
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
5	5	SHH 0246 - ICB1	519.1		1.00	CARBON	8/20/2019 2:23 PM	0.007	0.003	0.003	0.010	bl,C1u,C3u,C2u	1 340	119	495	1.0320	1.0000



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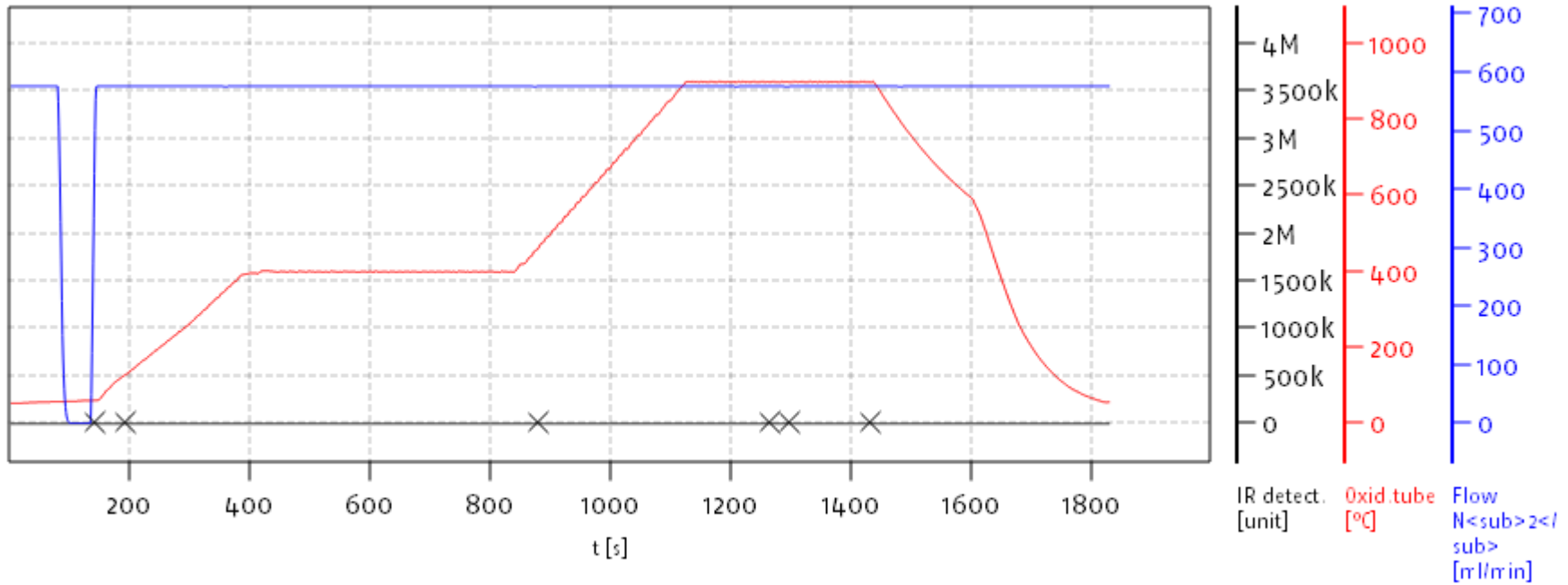
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
6	6	MISS INJECT	381.4		1.00	CARBON	8/20/2019 2:53 PM	0.009	0.005	0.005	0.014	bl,C1u,C3u,C2u	74	497	441	1.0320	1.0000



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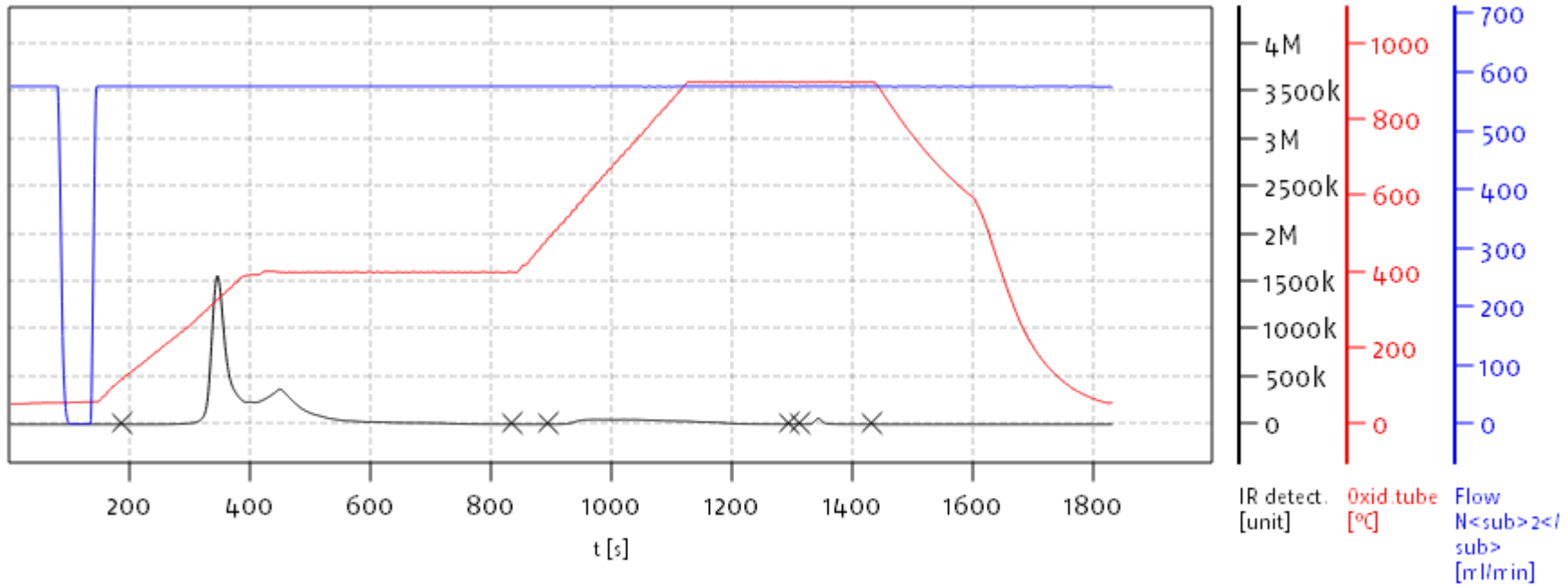
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
7	6	19H0024-05RE2	381.4		1.00	CARBON	8/20/2019 3:24 PM	1.301	0.165	0.020	1.465	bl	3 099 312	389 118	37 738	1.0000	1.0000



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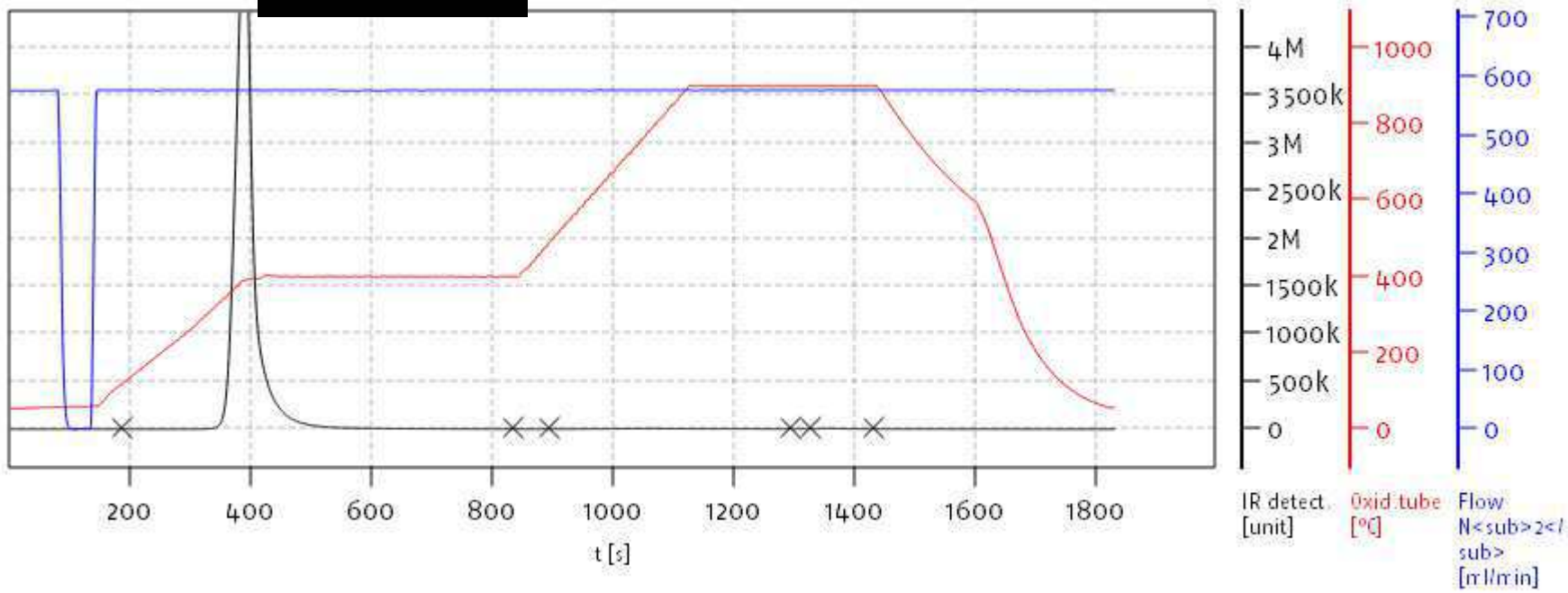
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
8	7	SHH0246-CCV2 1	24.7	[redacted]	1.00	CARBON	8/20/2019 3:55 PM	45.655	0.422	0.170	46.077	bl	6 920 181	55 888	16 232	1.0320	1.0000



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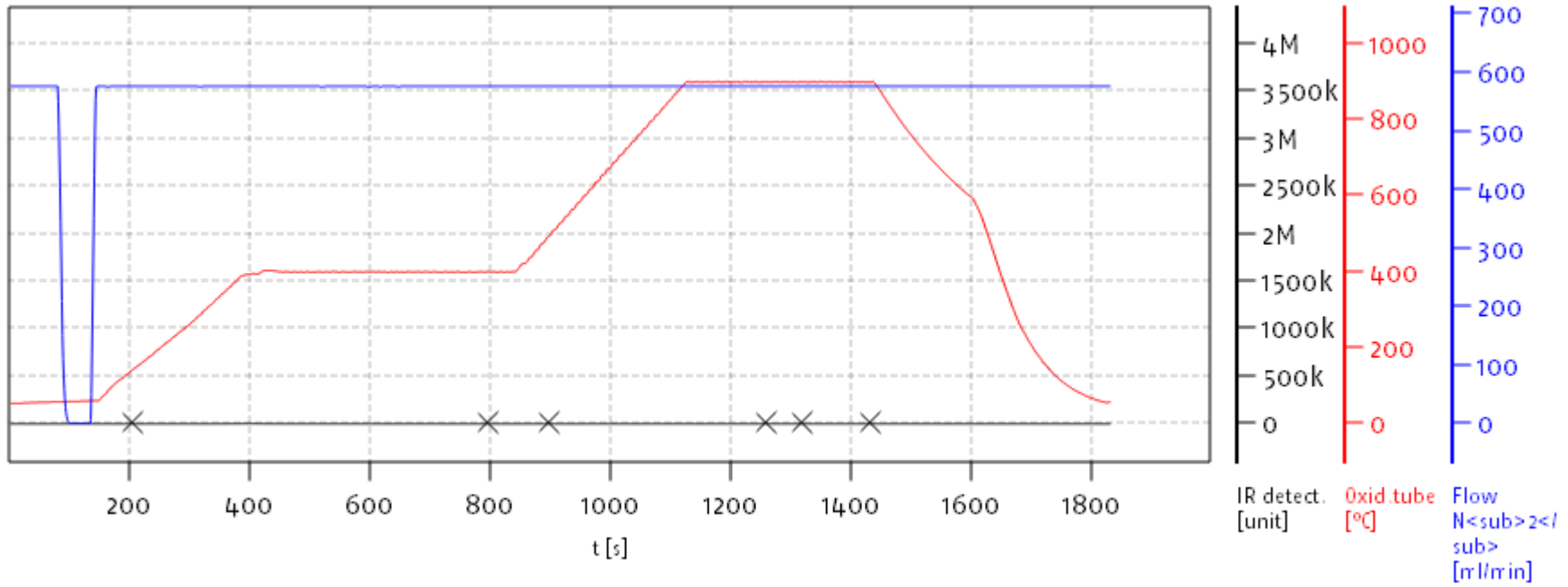
	Pos.	Name	Weight [mg]	Memo	Dilut. Factor	Method	Date Time	TOC [%]	TIC900 [%]	ROC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
9	8	SHH 0246 - CCB 1	553.6		1.00	CARBON	8/20/2019 4:26 PM	0.008	0.003	0.003	0.011	bl,C3u,C2u	6 826	633	278	1.0320	1.0000



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Document: 082019CDE from: 8/20/2019 4:39 PM

INITIAL CALIBRATION DATA

Plumb 1981, Combustion IR

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CE00054	Instrument:	TOC Cube
Calibration Date:	05/17/2019 13:36		

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Total Organic Carbon	0.0071993	1054547	0.016798	1054411	0.022198	1133436	0.032397	1165602	0.045595	865336.1	0.059994	1192153

INITIAL CALIBRATION DATA

Plumb 1981, Combustion IR

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CE00054	Instrument:	TOC Cube
Calibration Date:	05/17/2019 13:36		

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF
Total Organic Carbon	0.075592	1221611	0.090291	1221262	0.12059	1240103	0.14998	1240986	0.24	1241146	0.3	1245093

INITIAL CALIBRATION DATA

Plumb 1981, Combustion IR

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CE00054	Instrument:	TOC Cube
Calibration Date:	05/17/2019 13:36		

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
		RF		RF		RF		RF		RF		RF
Total Organic Carbon	0.438	1251868	0.612	1269657	0.906	1283355	1.212	1272632	1.506	1261687	1.836	1261503

INITIAL CALIBRATION DATA

Plumb 1981, Combustion IR

Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CE00054	Instrument:	TOC Cube
Calibration Date:	05/17/2019 13:36		

Compound	Level 19		Level 20		Level 21		Level 22		Level 23		Level 24	
		RF		RF		RF		RF		RF		RF
Total Organic Carbon	2.412	1272114	3.054	1259145	4.272	1275412	4.908	1257103	5.484	1275821	7.254	1277724

INITIAL CALIBRATION DATA

Plumb 1981, Combustion IR

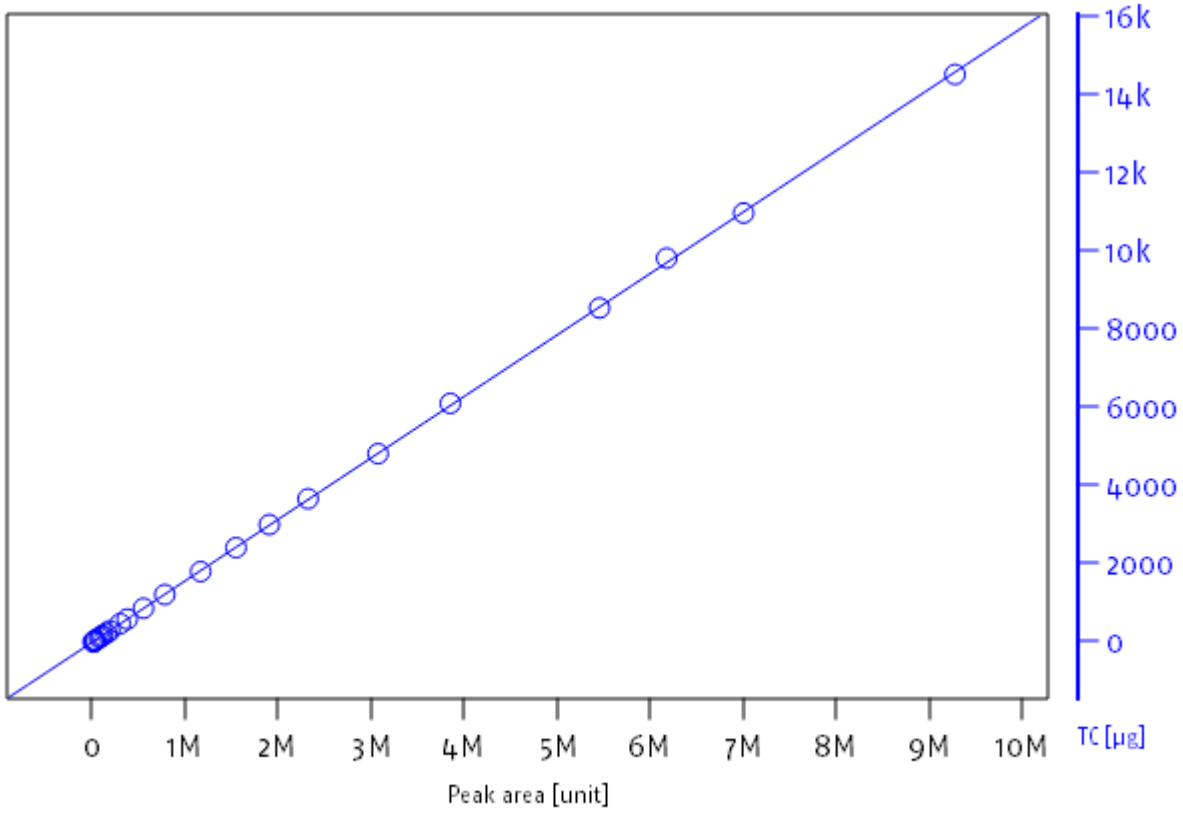
Laboratory:	Analytical Resources, Inc.	SDG:	19H0024
Client:	Windward Environmental, LLC	Project:	Slip 4 LTM (Yr 5) / City of Seattle
Calibration:	CE00054	Instrument:	TOC Cube
Calibration Date:	05/17/2019 13:36		

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	COD Limit	Q
Total Organic Carbon	1212238	8.1	0.9999			

Calibration parameters TC, Whole range

a	+1.650153e-02
b	+1.570679e-06
c	+0.000000e+00
d	+0.000000e+00
e	+0.000000e+00
r	0.999938
r_old	0.999938
Proc.-SD	32.739237 µg

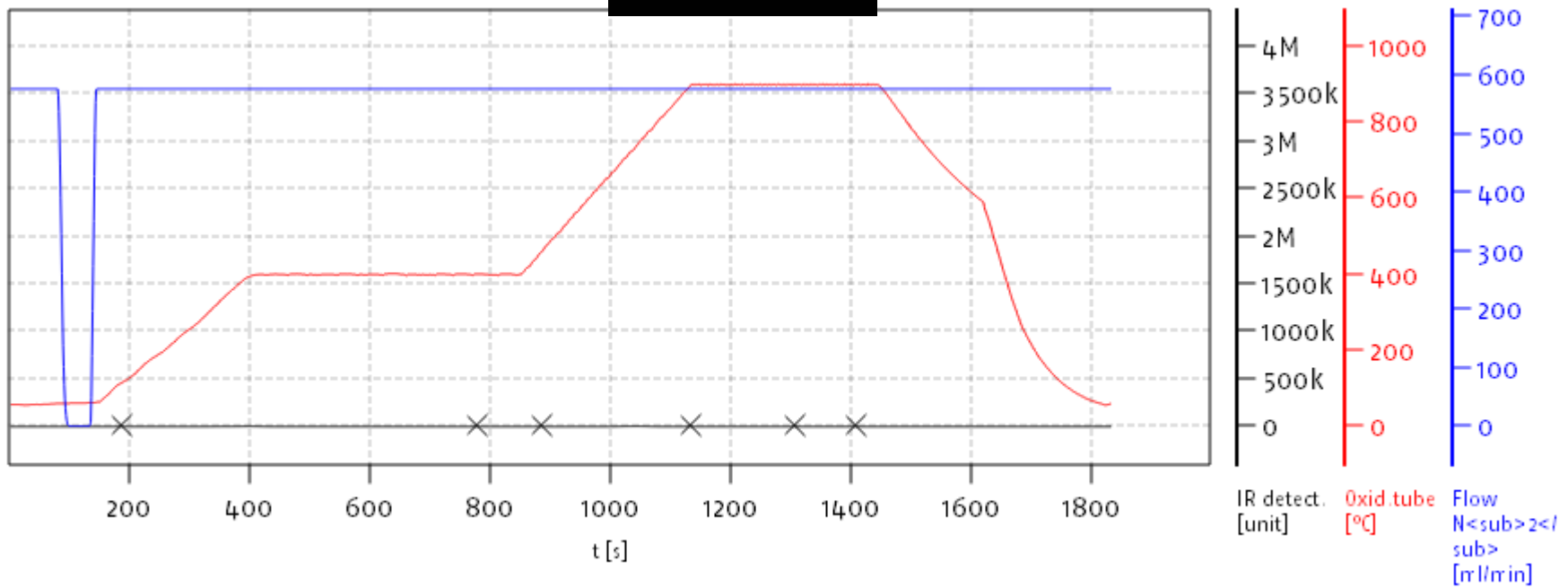
Calibration graph TC, Whole range



Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
3	3	SEQ-CAL1	200.0	1.00	CARBON	[redacted]		0.007	bl,C1u, C3u,C2u	7 688	7 592	270	1.0000	1.0000



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Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

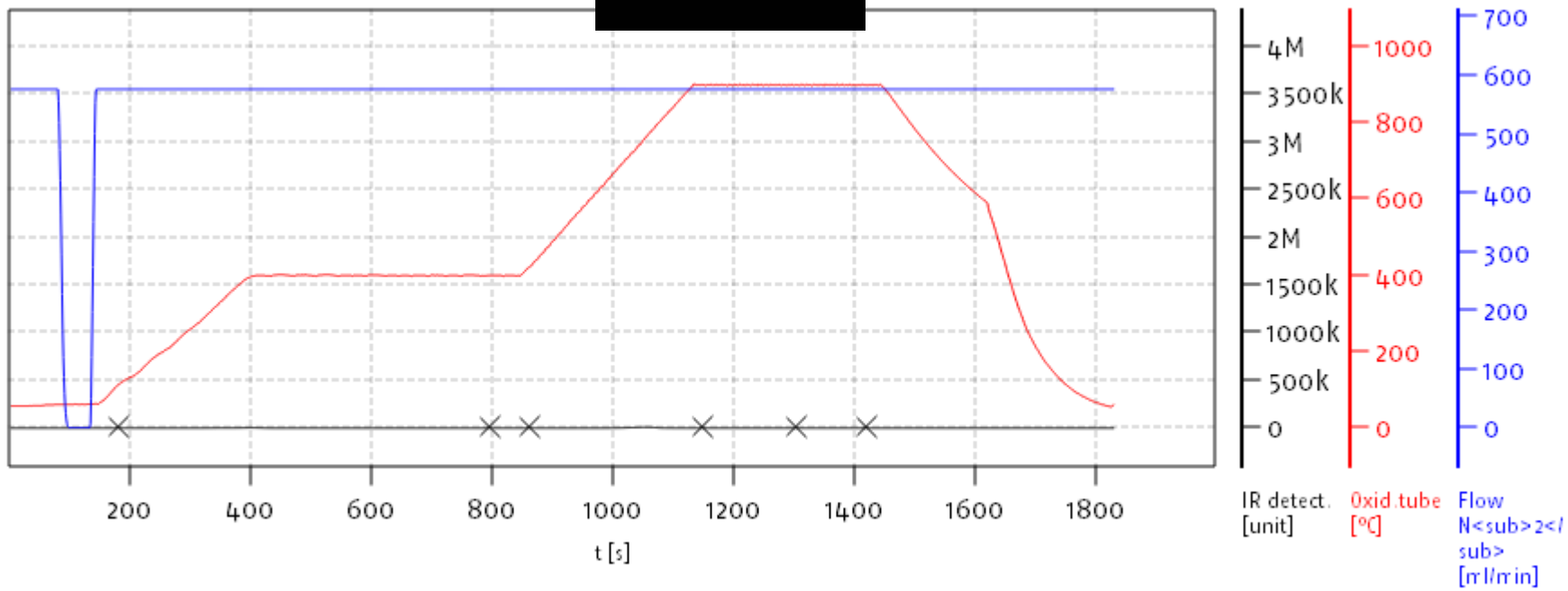
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
4	4	SEQ-CAL2	200.0	1.00	CAR	5/17/2019 2:07PM		0.017	bl,C2u	8 982	17 712	269	1.0000	1.0000



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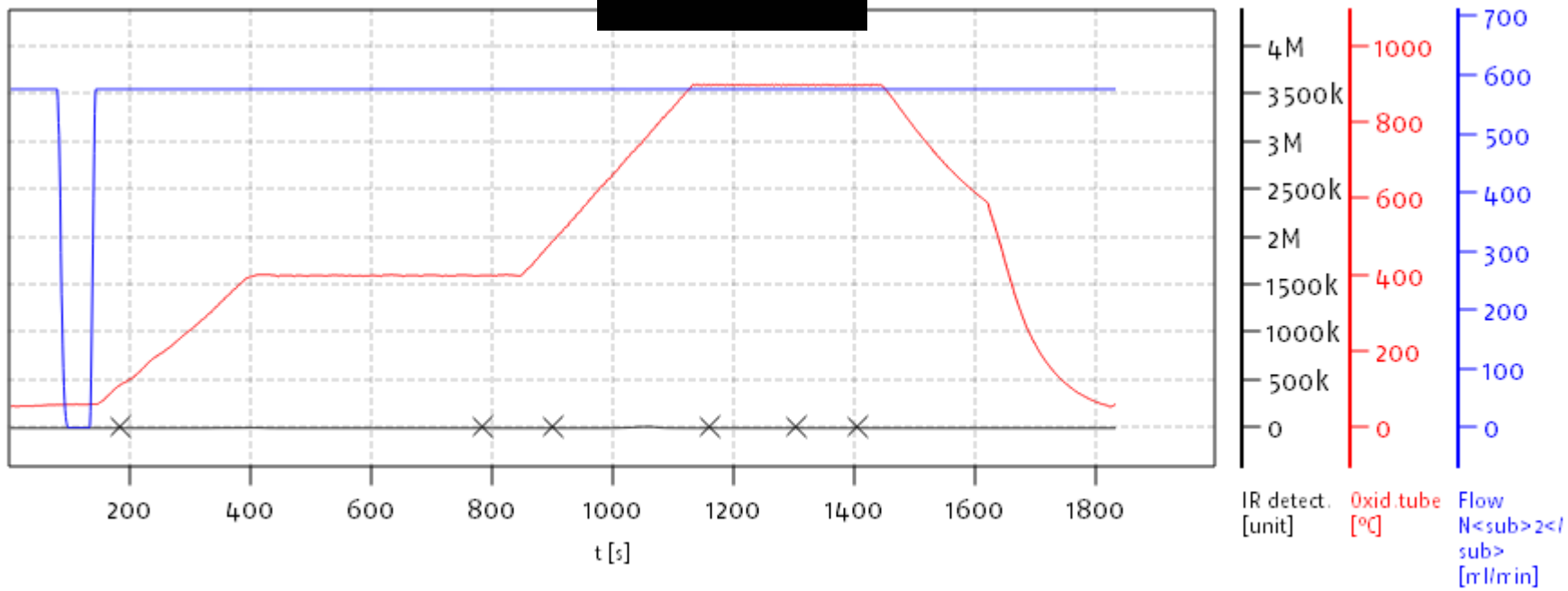
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
5	5	SEQ-CAL3	200.0	1.00	CAR	5/17/2019 2:38PM		0.022	bl,C2u	10 433	25 160	307	1.0000	1.0000



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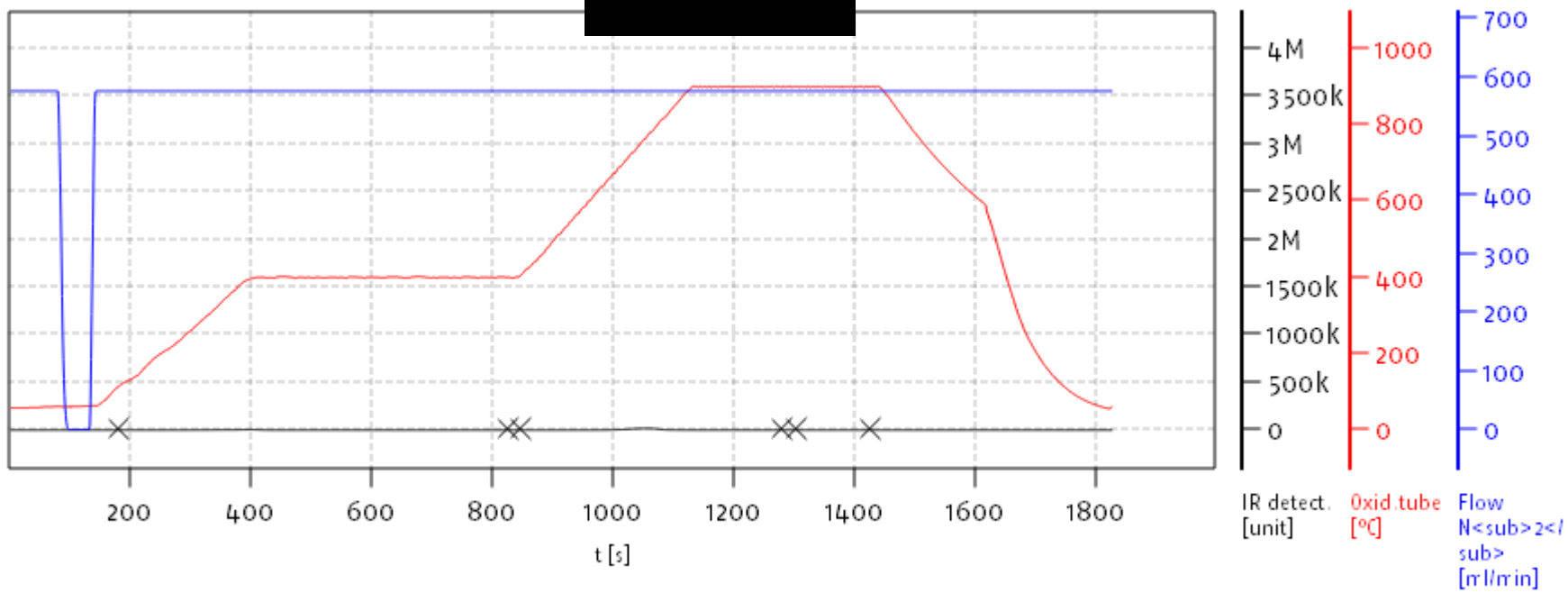
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
6	6	SEQ-CAL4	200.0	1.00	CA	5/17/2019 3:09PM		0.032	bl,C2u	11 105	37 762	447	1.0000	1.0000



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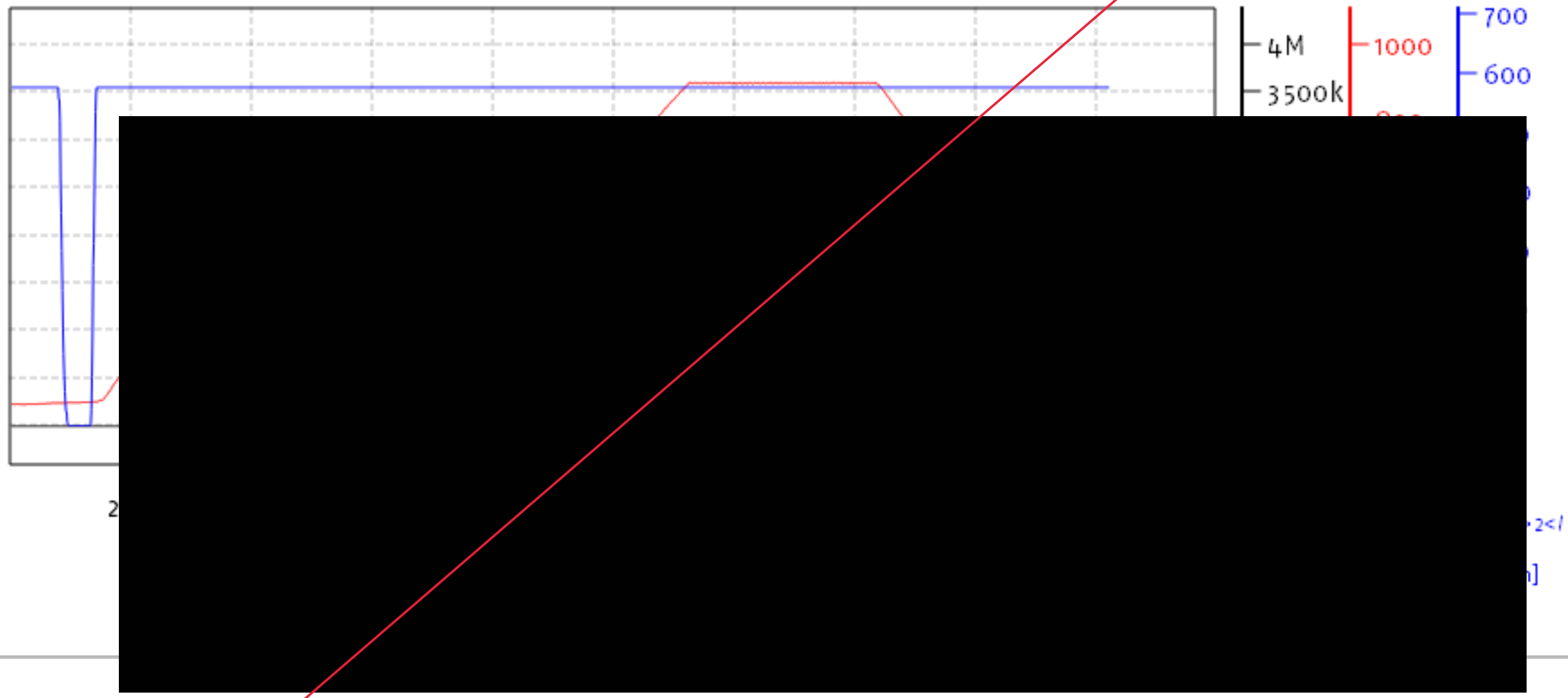
	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
7	7	SEQ-CAL5	200.0	1.00	CARBON	5/17/2019 3:40 PM	0.000	0.046		0	0	0	1.0000	1.0000



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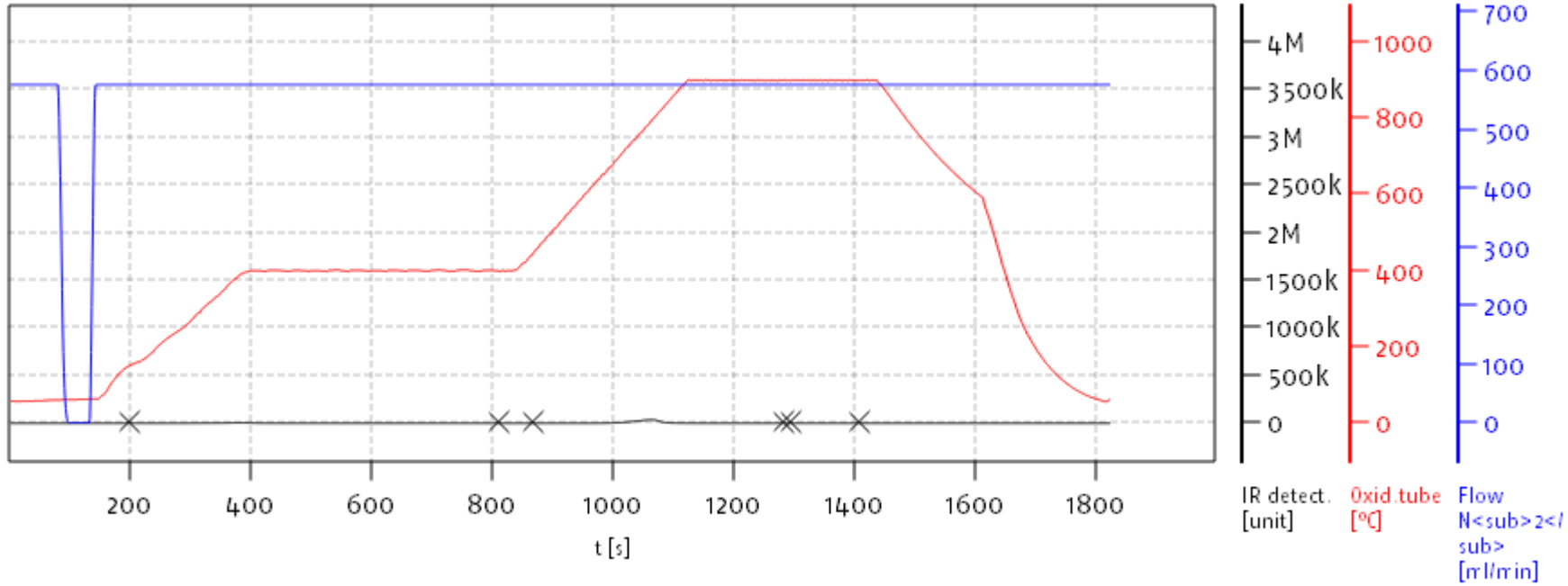
	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
8	8	SEQ-CAL6	200.0	1.00	CARBON	5/17/2019 4:11 PM	0.000	0.060	bl,C2u	12 657	71 522	267	1.0000	1.0000



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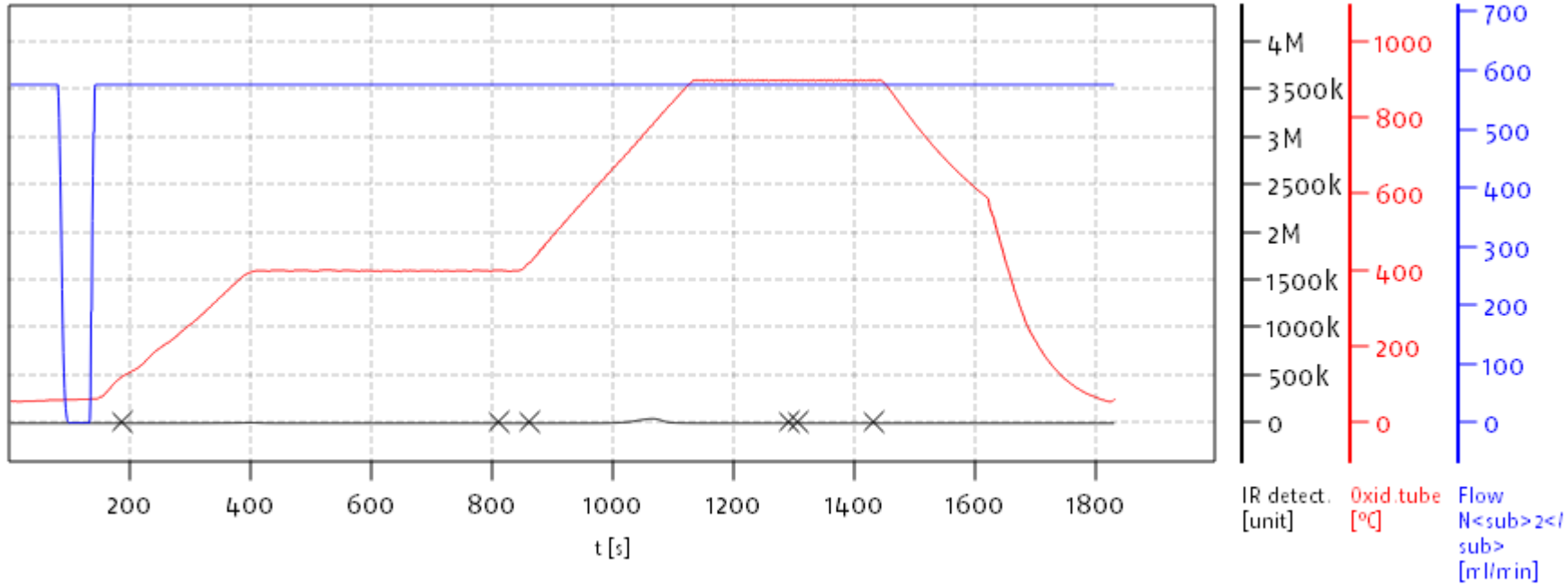
	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
9	9	SEQ-CAL7	200.0	1.00	CARBON	5/17/2019 4:41 PM	0.000	0.076	bl,C2u	11 536	92 344	271	1.0000	1.0000



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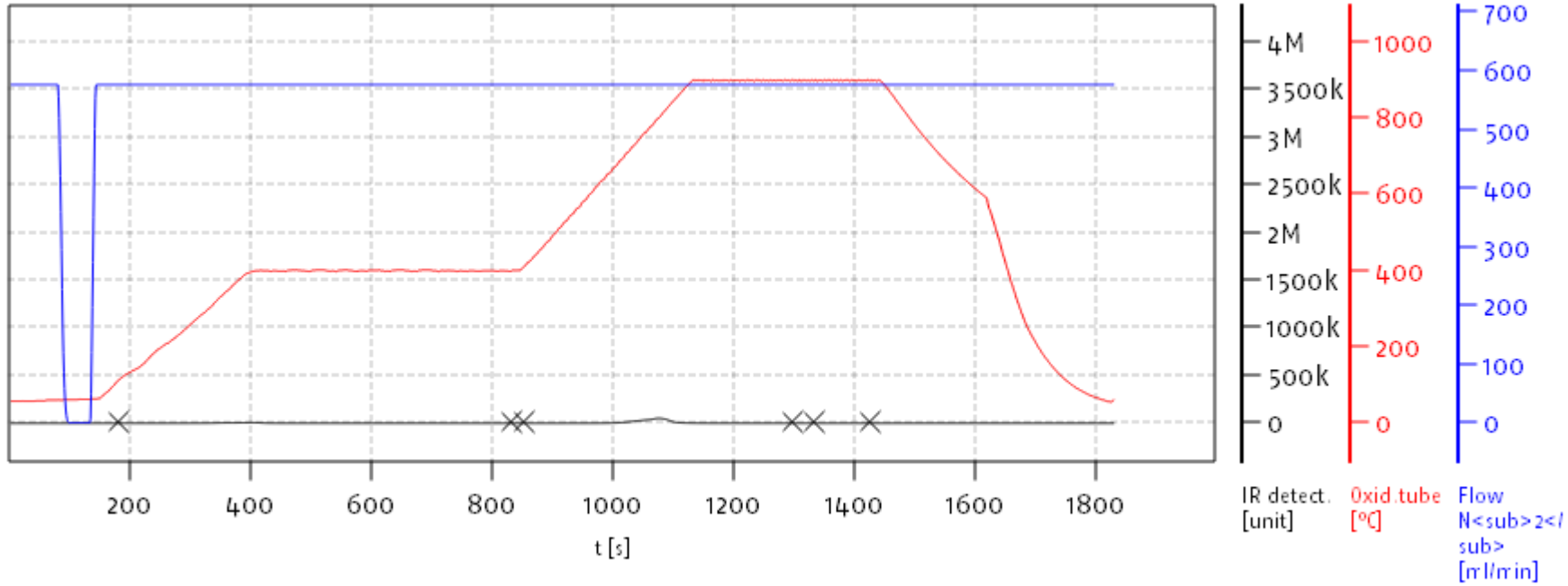
	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
10	10	SEQ-CAL8	200.0	1.00	CARBON	5/17/2019 5:12 PM	0.000	0.090	bl,C2u	18 078	110 269	374	1.0000	1.0000



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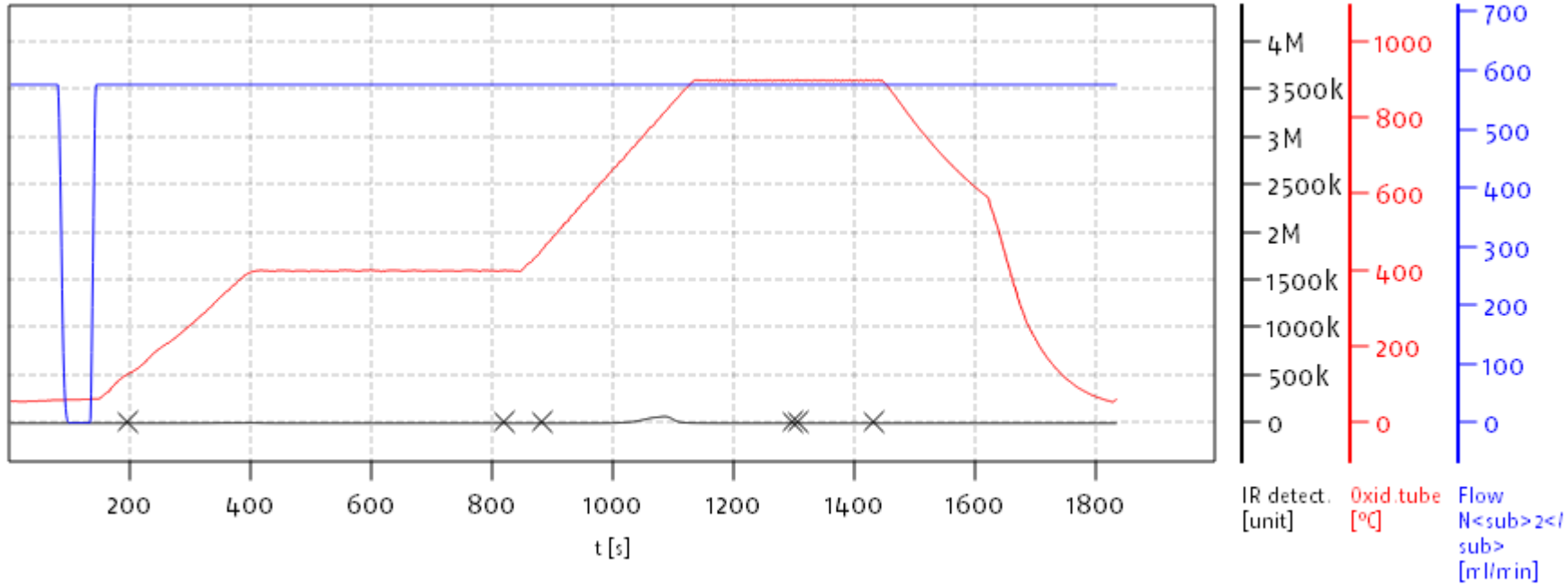
	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
11	11	SEQ-CAL9	200.0	1.00	CARBON	5/17/2019 5:43 PM	0.000	0.121	bl,C2u	11 001	149 544	275	1.0000	1.0000



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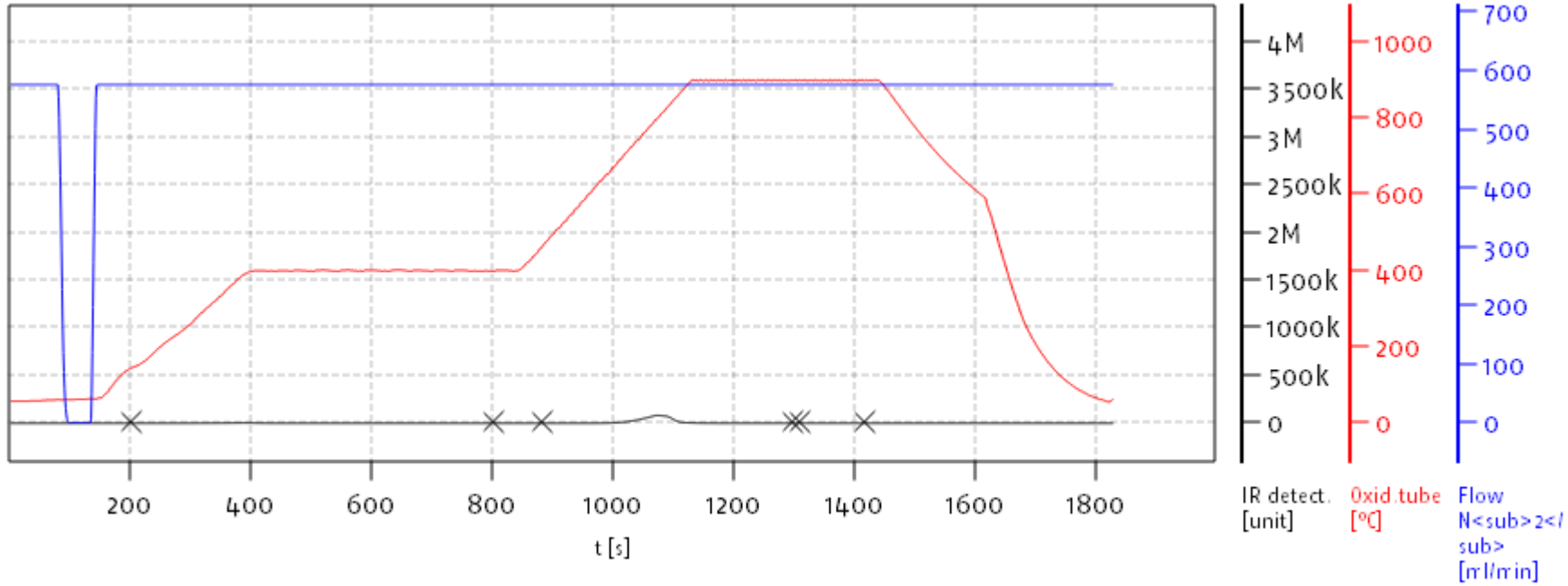
	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
12	12	SEQ-CALA	200.0	1.00	CARBON	5/17/2019 6:14 PM	0.000	0.150	bl,C2u	9 370	186 123	177	1.0000	1.0000



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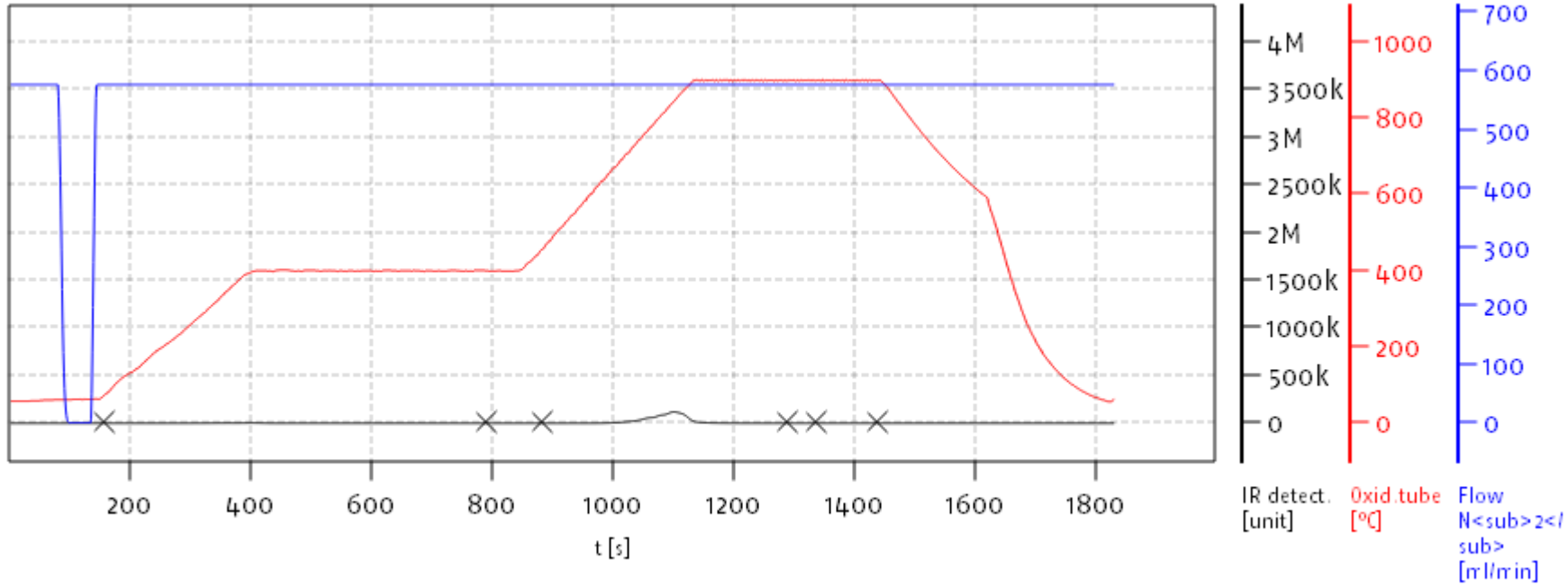
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
13	13	SEQ-CALB	200.0	1.00	CARBON	5/17/2019 6:45 PM	0.000	0.240	bl,C2u	9 615	297 875	322	1.0000	1.0000



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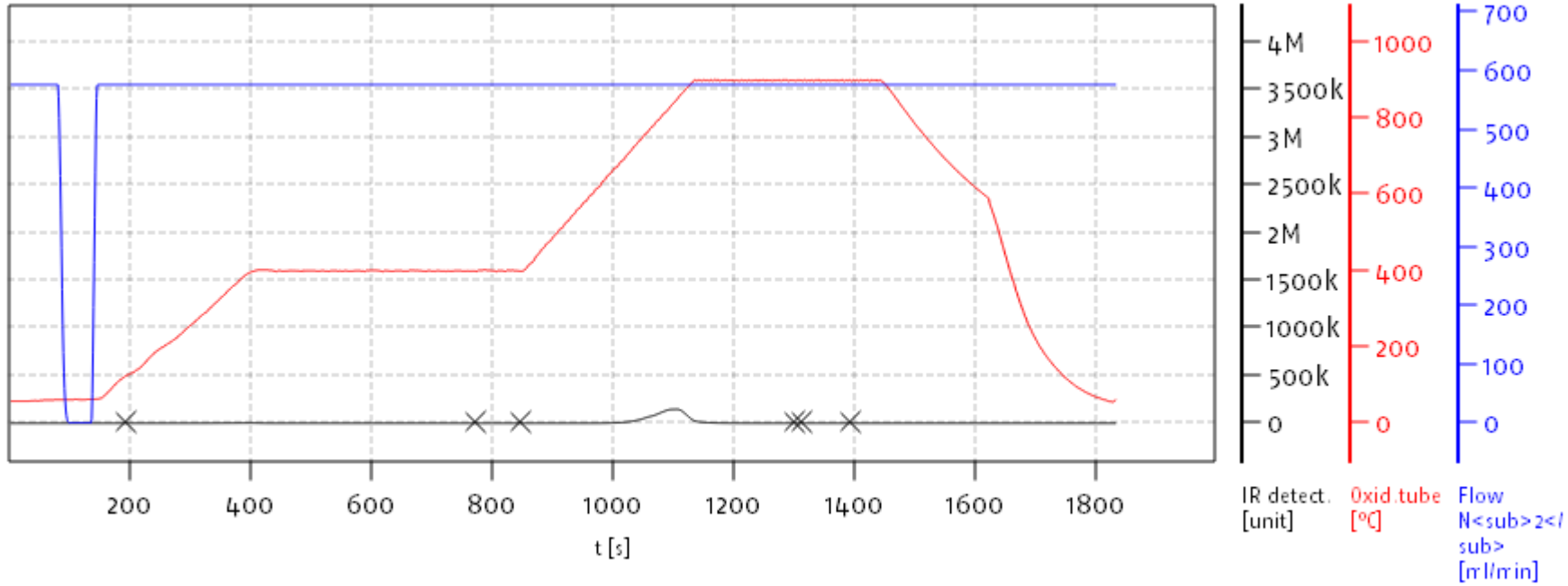
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
14	14	SEQ-CALC	200.0	1.00	CARBON	5/17/2019 7:16 PM	0.000	0.300	bl,C1u, C2u	7 592	373 528	199	1.0000	1.0000



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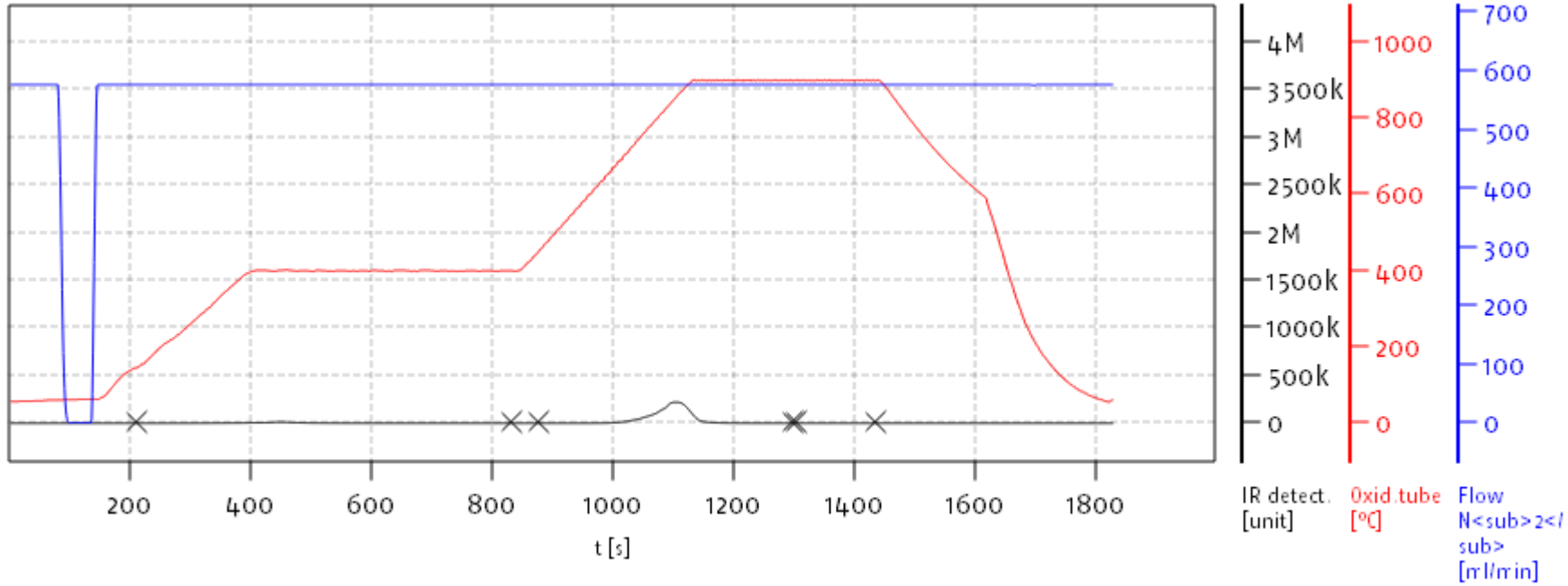
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
15	15	SEQ-CALD	200.0	1.00	CARBON	5/17/2019 7:47 PM	0.000	0.438	bl,C2u	39 734	548 318	350	1.0000	1.0000



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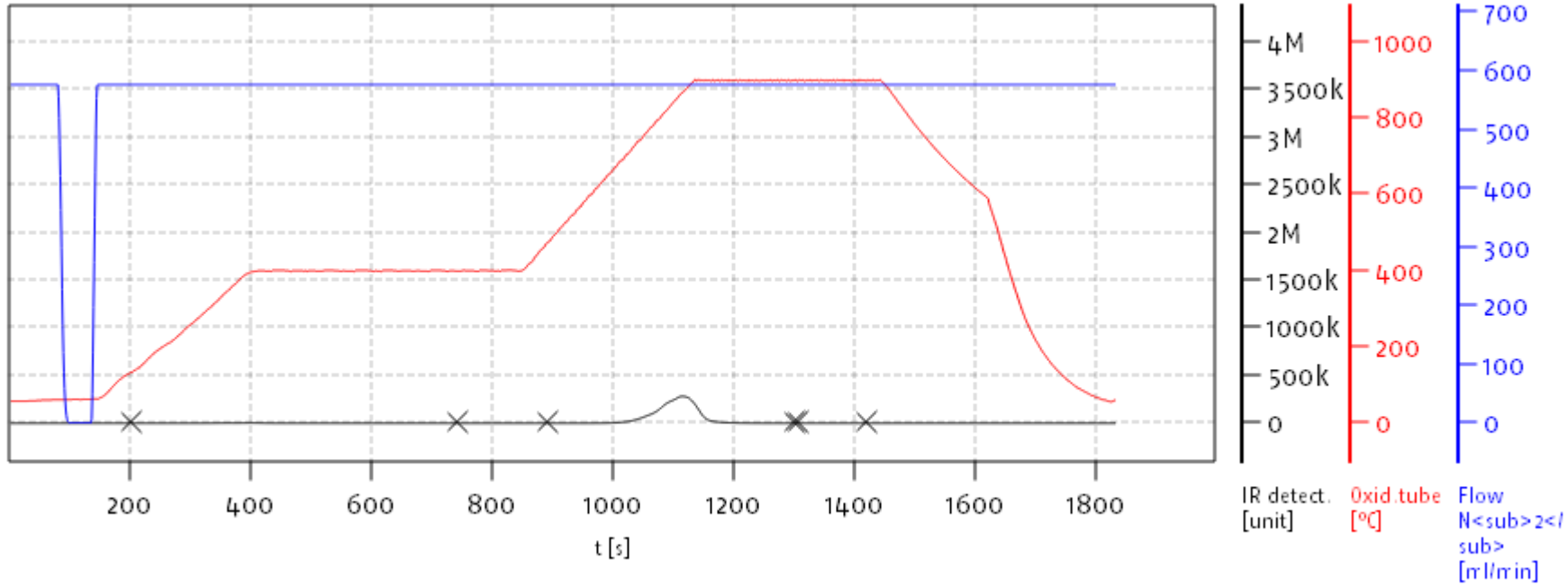
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
16	16	SEQ-CALE	200.0	1.00	CARBON	5/17/2019 8:18 PM	0.000	0.612	bl,C2u	8 805	777 030	332	1.0000	1.0000



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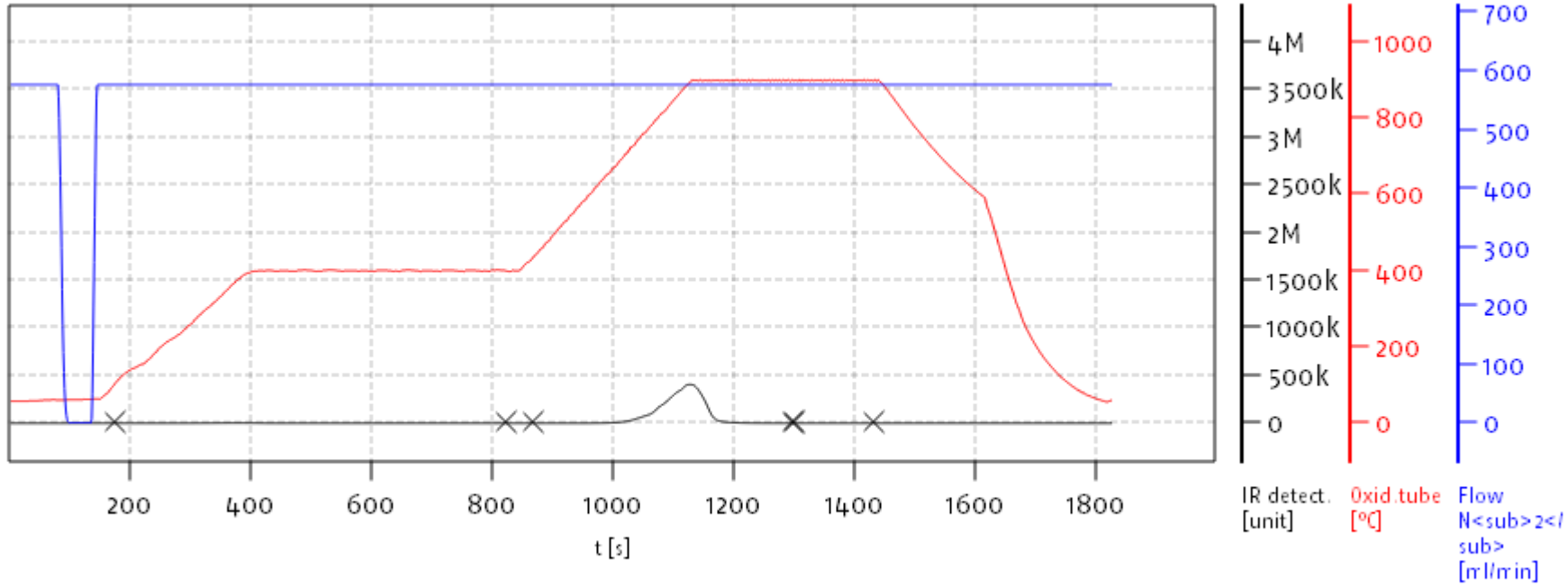
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
17	17	SEQ-CALF	200.0	1.00	CARBON	5/17/2019 8:48 PM	0.000	0.906	bl,C2u	9 032	1 162 720	498	1.0000	1.0000



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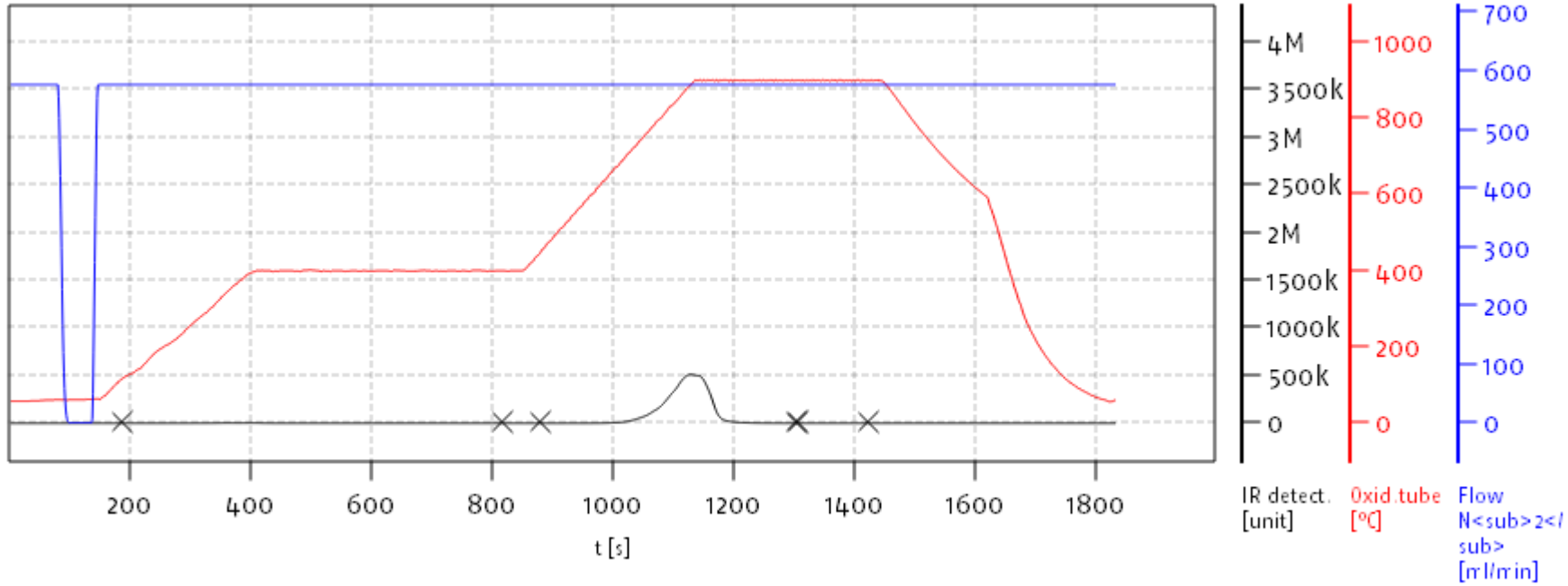
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
18	18	SEQ-CALG	200.0	1.00	CARBON	5/17/2019 9:19 PM	0.000	1.212	bl,C2u	10 013	1 542 430	658	1.0000	1.0000



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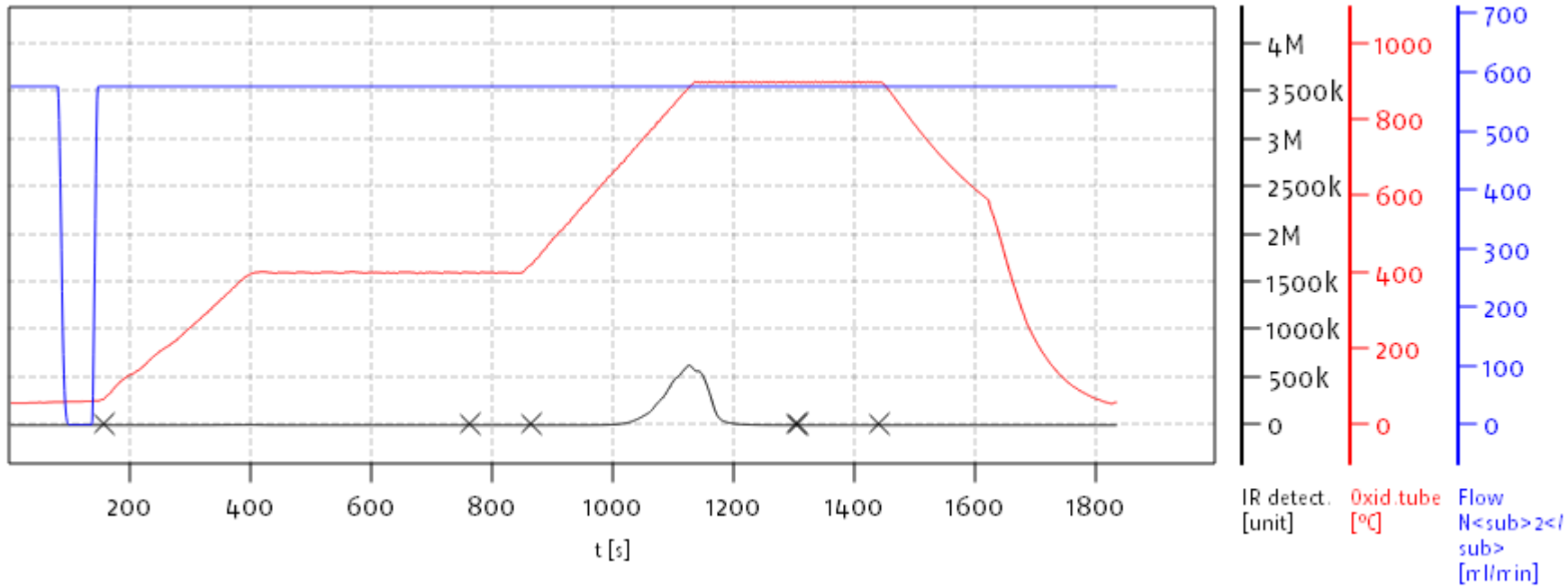
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
19	19	SEQ-CALH	200.0	1.00	CARBON	5/17/2019 9:50 PM	0.000	1.506	bl,C2u	10 625	1 900 100	1 089	1.0000	1.0000



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Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

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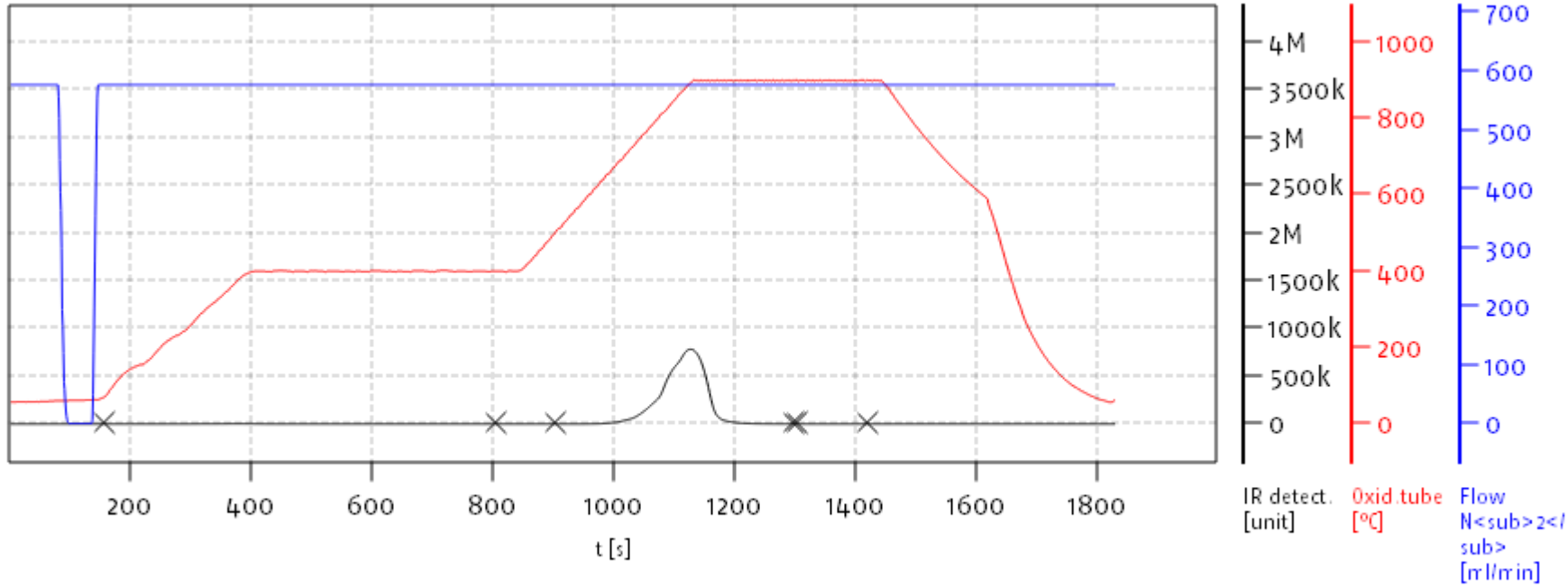
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
20	20	SEQ-CALI	200.0	1.00	CARBON	5/17/2019 10:21 PM	0.000	1.836	bl,C2u	8 781	2 316 120	796	1.0000	1.0000



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Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

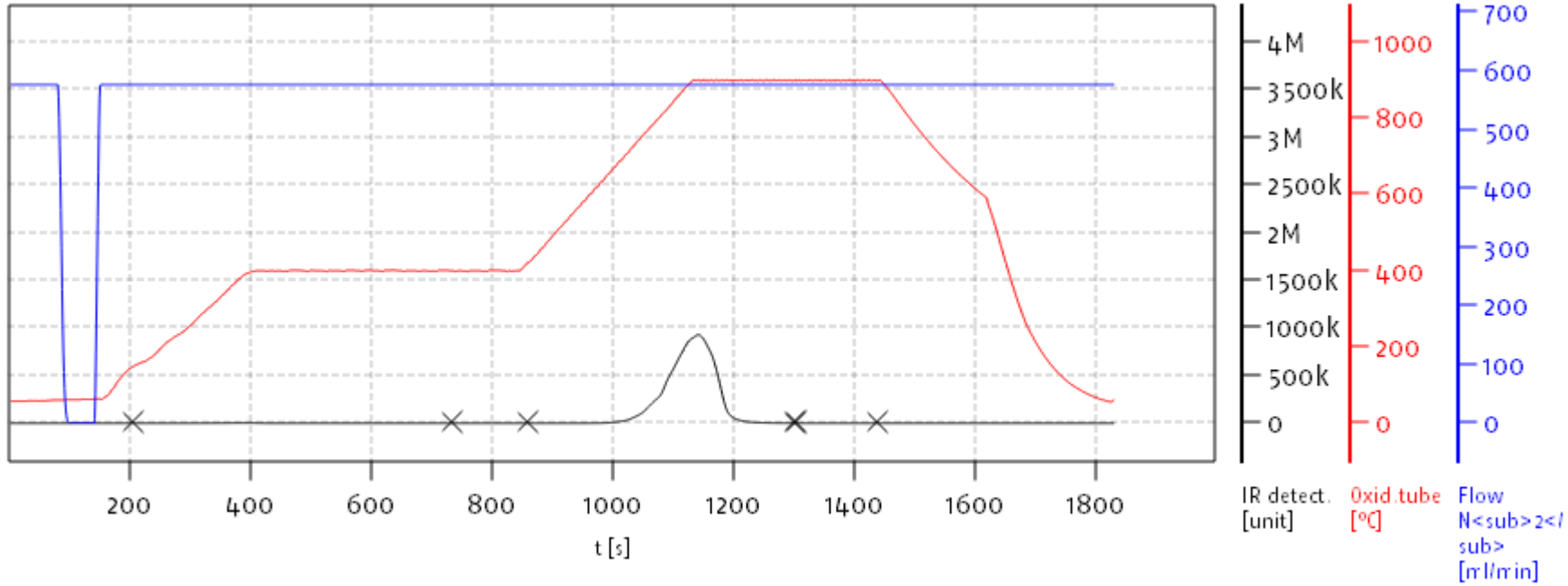
soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
21	21	SEQ-CALJ	200.0	1.00	CARBON	5/17/2019 10:52 PM	0.000	2.412	bl,C1u, C2u	8 290	3 068 340	1 313	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

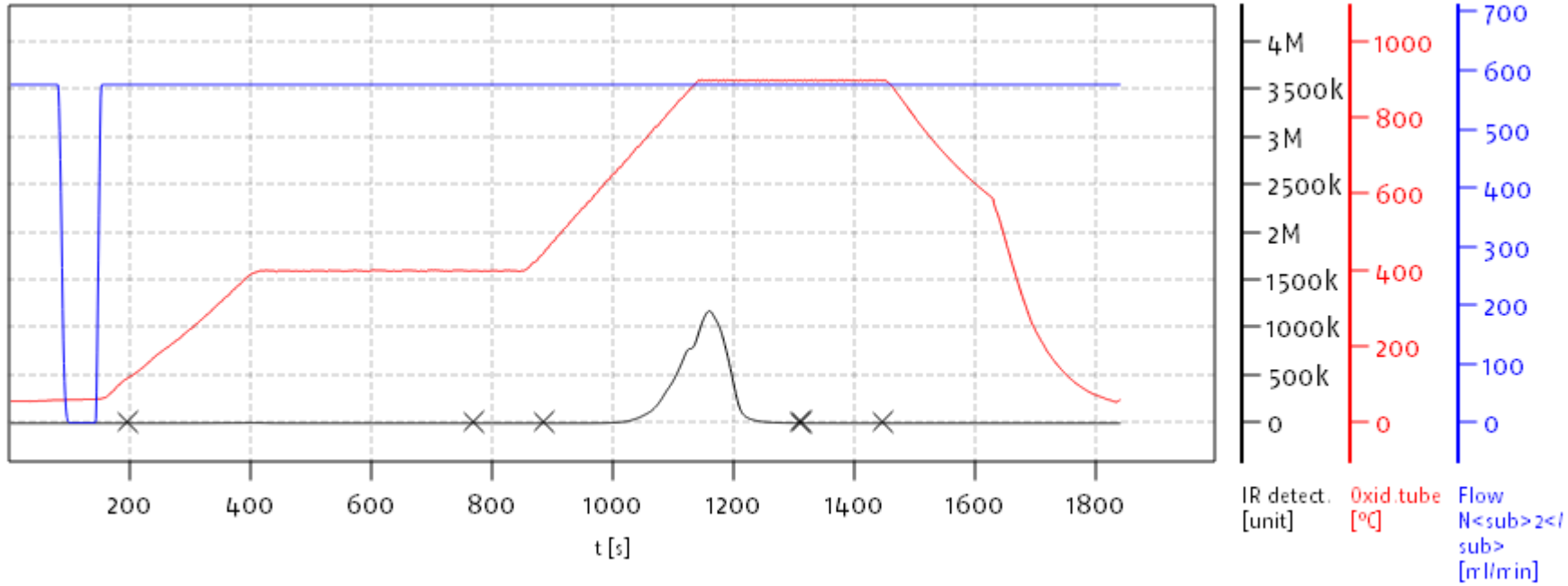
elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
22	22	SEQ-CALK	200.0	1.00	CARBON	5/17/2019 11:23 PM	0.000	3.054	bl,C2u	11 769	3 845 430	2 750	1.0000	1.0000



Name:

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EXCELLENCE IN ELEMENTS

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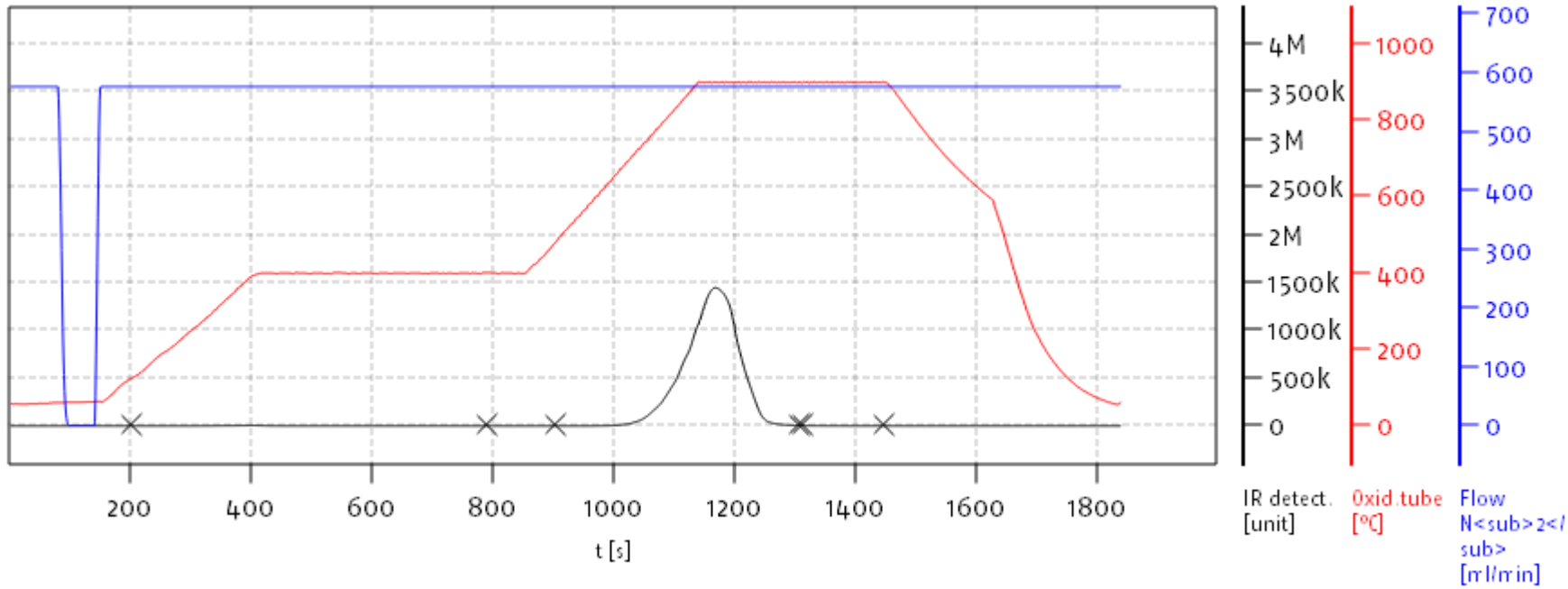
Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
23	23	SEQ-CALL	200.0	1.00	CARBON	5/17/2019 11:54 PM	0.000	4.272	bl,C2u	13 596	5 448 560	4 766	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

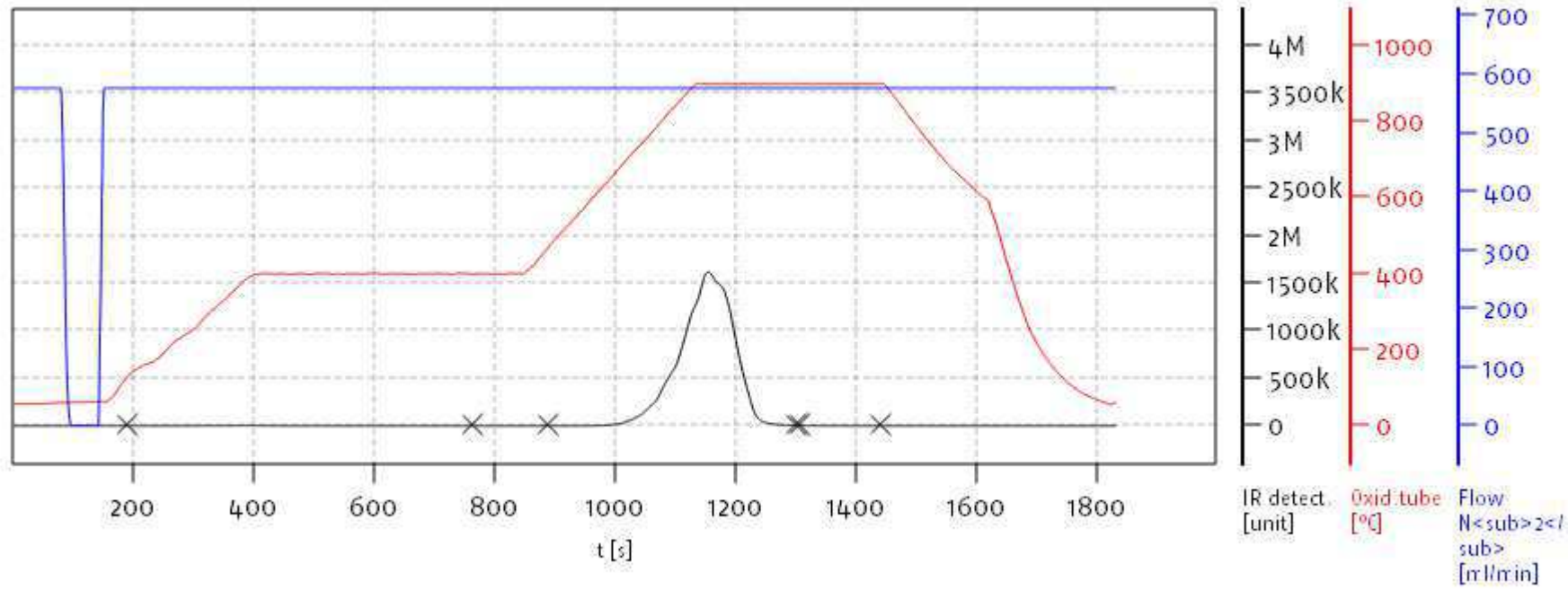
elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
24	24	SEQ-CALM	200.0	1.00	CARBON	5/18/2019 12:25 AM	0.000	4.908	bl,C2u	11 045	6 169 860	4 824	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

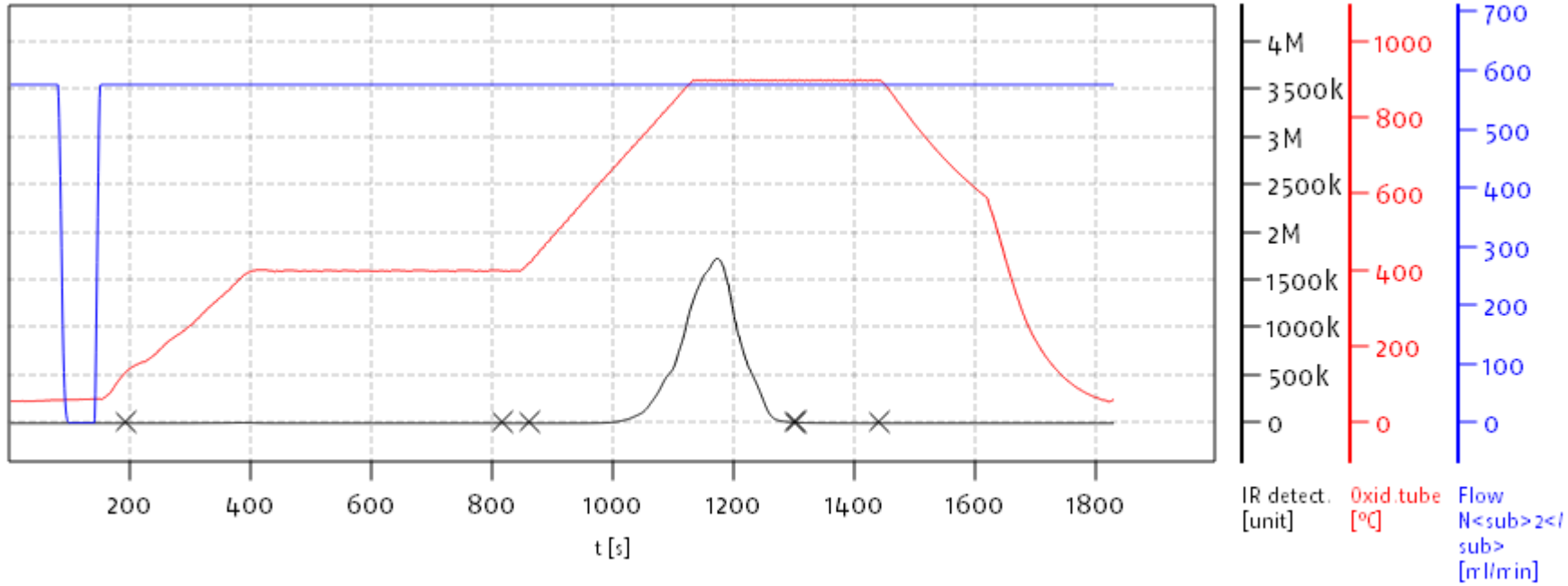
elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
25	25	SEQ-CALN	200.0	1.00	CARBON	5/18/2019 12:56 AM	0.000	5.484	bl,C2u	12 828	6 996 600	8 578	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

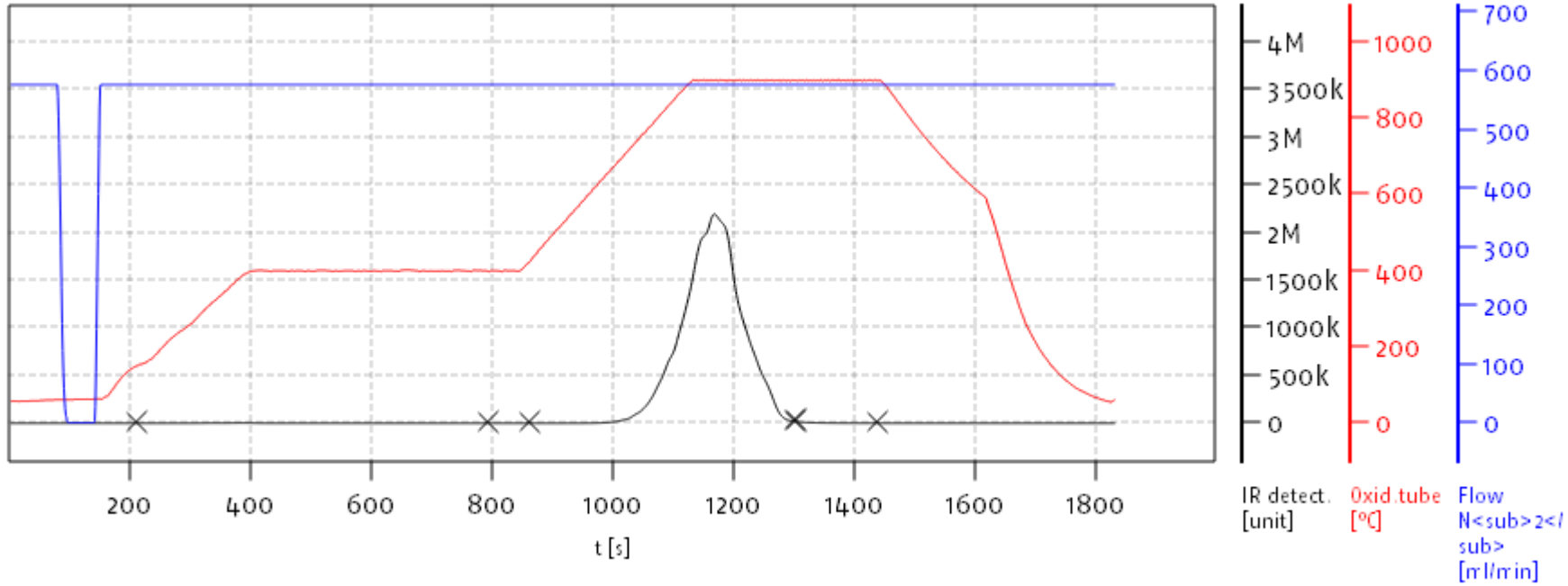
elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
26	26	SEQ-CALO	200.0	1.00	CARBON	5/18/2019 1:27 AM	0.000	7.254	bl,C3o	9 093	9 268 610	16 749	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 09:18:30 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

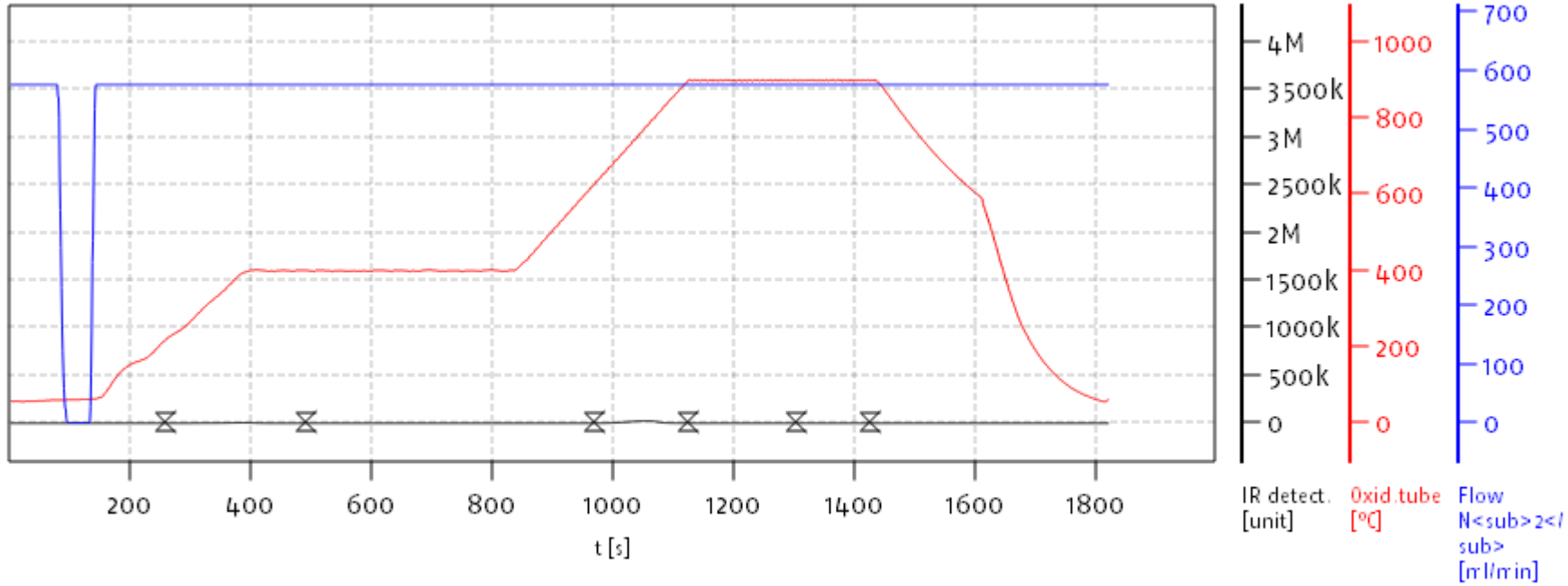
elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 9:16 AM

Soli TOC Cube, Carbon
Balance: BAL3
Analyst: BF

Analytical Resources, Incorporated
Analytical Chemists and Consultants

	Pos.	Name	Weight [mg]	Dilut. Factor	Method	Date Time	TOC [%]	TC [%]	Info	TOC400 Area	TIC900 Area	ROC Area	TOC400 Factor	TIC900 Factor
7	7	SEQ-CAL5	200.0	1.00	CARBON	5/22/2019 10:03 AM	0.014	0.050		6 842	39 455	0	1.0000	1.0000



Name:

Access: soliTOC superuser

Date: Wed May 22 10:04:12 2019

soliTOC V2.0.2 (31015f9) 2018-11-19
Serial No: 0300.181017
Mode CCC

elementar
EXCELLENCE IN ELEMENTS

Document: 051719BF_CALb from: 5/22/2019 10:03 AM

INSTRUMENT BLANKS
Plumb 1981, Combustion IR

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: TOC Cube
Calibration: CE00054
Sequence: SHE0340
Date Analyzed: 05/18/19 02:28

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SHE0340-ICB1	Total Organic Carbon	0.01	0.02	0.02	%	

INSTRUMENT BLANKS
Plumb 1981, Combustion IR

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: TOC Cube
Calibration: CE00054
Sequence: SHH0111
Date Analyzed: 08/12/19 13:03

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SHH0111-ICB1	Total Organic Carbon	0.007	0.02	0.02	%	
SHH0111-CCB1	Total Organic Carbon	0.007	0.02	0.02	%	
SHH0111-CCB2	Total Organic Carbon	0.008	0.02	0.02	%	
SHH0111-CCB3	Total Organic Carbon	0.008	0.02	0.02	%	
SHH0111-CCB4	Total Organic Carbon	0.008	0.02	0.02	%	
SHH0111-CCB5	Total Organic Carbon	0.008	0.02	0.02	%	
SHH0111-CCB6	Total Organic Carbon	0.008	0.02	0.02	%	

INSTRUMENT BLANKS
Plumb 1981, Combustion IR

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: TOC Cube
Calibration: UNASSIGNED
Sequence: SHH0246
Date Analyzed: 08/20/19 14:23

Lab Sample ID	Analyte	Found	MDL	MRL	Units	C
SHH0246-ICB1	Total Organic Carbon	0.007	0.02	0.02	%	
SHH0246-CCB1	Total Organic Carbon	0.008	0.02	0.02	%	

INITIAL AND CONTINUING CALIBRATION CHECK

Plumb 1981, Combustion IR

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: TOC Cube
Calibration: CE00054
Control Limt: +/- 10.00%
Sequence: SHE0340

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SHE0340-ICV1	Total Organic Carbon	44.446	43.3	97.3	%	mb 1981, Combustio

* Values outside of QC limits

INITIAL AND CONTINUING CALIBRATION CHECK

Plumb 1981, Combustion IR

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: TOC Cube
Calibration: CE00054
Control Limt: +/- 10.00%
Sequence: SHH0111

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SHH0111-ICV1	Total Organic Carbon	44.446	44.8	101	%	mb 1981, Combustio
SHH0111-CCV1	Total Organic Carbon	44.446	44.2	99.5	%	mb 1981, Combustio
SHH0111-CCV2	Total Organic Carbon	44.446	45.0	101	%	mb 1981, Combustio
SHH0111-CCV3	Total Organic Carbon	44.446	45.0	101	%	mb 1981, Combustio
SHH0111-CCV4	Total Organic Carbon	44.446	44.4	99.9	%	mb 1981, Combustio
SHH0111-CCV5	Total Organic Carbon	44.446	46.1	104	%	mb 1981, Combustio
SHH0111-CCV6	Total Organic Carbon	44.446	44.2	99.4	%	mb 1981, Combustio

* Values outside of QC limits

INITIAL AND CONTINUING CALIBRATION CHECK

Plumb 1981, Combustion IR

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Instrument ID: TOC Cube
Calibration: UNASSIGNED
Control Limt: +/- 10.00%
Sequence: SHH0246

Lab Sample ID	Analyte	True	Found	%R	Units	Method
SHH0246-ICV1	Total Organic Carbon	44.446	45.2	102	%	mb 1981, Combustio
SHH0246-CCV1	Total Organic Carbon	44.446	45.7	103	%	mb 1981, Combustio

* Values outside of QC limits

HOLDING TIME SUMMARY

Analysis: Plumb 1981, Combustion IR

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
SL4-SG-WC3-2019 19H0024-03	08/01/19 08:16	08/01/19 13:05	08/13/19 14:22	12	14	08/13/19 14:22			
SL4-SG-WC7-2019 19H0024-04	08/01/19 08:39	08/01/19 13:05	08/13/19 16:57	12	14	08/13/19 16:57			
SL4-SG-WC7-FD-2019 19H0024-05RE2	08/01/19 08:39	08/01/19 13:05	08/20/19 15:24	19	14	08/20/19 15:24			*
SL4-SG-WC8-2019 19H0024-06	08/01/19 09:08	08/01/19 13:05	08/13/19 18:30	12	14	08/13/19 18:30			
SL4-SG-WC4-2019 19H0024-07	08/01/19 10:08	08/01/19 13:05	08/13/19 19:01	12	14	08/13/19 19:01			
SL4-SG-WC2-2019 19H0024-08	08/01/19 10:30	08/01/19 13:05	08/13/19 19:32	12	14	08/13/19 19:32			
SL4-SG-WC1-2019 19H0024-09	08/01/19 10:43	08/01/19 13:05	08/13/19 21:05	12	14	08/13/19 21:05			
SL4-IC-SC2-2019 19H0024-10	08/01/19 11:45	08/01/19 13:05	08/13/19 21:36	12	14	08/13/19 21:36			
SL4-IC-SC3-2019 19H0024-11	08/01/19 12:10	08/01/19 13:05	08/13/19 22:07	12	14	08/13/19 22:07			
Duplicate BHH0302-DUP1	08/01/19 08:16	08/01/19 13:05	08/13/19 14:53	12	14	08/13/19 14:53			
Duplicate BHH0302-DUP2	08/01/19 08:16	08/01/19 13:05	08/13/19 15:24	12	14	08/13/19 15:24			
Matrix Spike BHH0302-MS1	08/01/19 08:16	08/01/19 13:05	08/13/19 15:55	12	14	08/13/19 15:55			
Matrix Spike BHH0302-MS2	08/01/19 08:16	08/01/19 13:05	08/13/19 16:26	12	14	08/13/19 16:26			

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

Plumb 1981, Combustion IR

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Matrix: Solid
Instrument: TOC Cube

Analyte	MDL	RL	Units
Total Organic Carbon	0.02	0.02	%

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

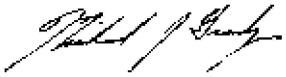
Certificate of Analysis

Product Name:
Carbon - glassy, spherical powder, 2-12 µm, 99.95% trace metals basis

C

Product Number:	**484164**
Batch Number:	**MKCC3049**
Brand:	ALDRICH
CAS Number:	7440-44-0
MDL Number:	MFCD00133992
Formula:	C
Formula Weight:	12.01 g/mol
Quality Release Date:	24 FEB 2017

Test	Specification	Result
Appearance (Color)	Dark Grey to Black	Black
Appearance (Form)	Powder	Powder
Particle Size	Confirmed	Confirmed
2 - 12 Micron, Average		
Purity	Meets Requirements	Meets Requirements
99.95 % Based on Trace Metals Analysis		
Trace Metal Analysis	≤ 600.0 ppm	145.6 ppm
Aluminum (Al)		20.0 ppm
Boron (B)		4.0 ppm
Calcium (Ca)		70.0 ppm
Chromium (Cr)		3.0 ppm
Iron (Fe)		20.0 ppm
Potassium (K)		3.0 ppm
Lithium (Li)		0.6 ppm
Magnesium (Mg)		1.0 ppm
Manganese (Mn)		1.0 ppm
Sodium (Na)		19.0 ppm
Nickel (Ni)		4.0 ppm
Vanadium (V)		1.0 ppm



Michael Grady, Manager
Quality Control

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Number: **484164**
Batch Number: **MKCC3049**

Milwaukee, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

SL4-SG-WC3-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-03 E	SDG:	19H0024
Sampled:	08/01/19 08:16	Prepared:	08/06/19 19:07	File ID:	
% Solids:	32.96	Preparation:	No Prep Wet Chem	Analyzed:	08/06/19 20:20
Batch:	BHH0164	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	32.96	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

SL4-SG-WC7-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-04 D	SDG:	19H0024
Sampled:	08/01/19 08:39	Prepared:	08/06/19 19:07	File ID:	
% Solids:	41.09	Preparation:	No Prep Wet Chem	Analyzed:	08/06/19 20:20
Batch:	BHH0164	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	41.09	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

SL4-SG-WC7-FD-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-05 D	SDG:	19H0024
Sampled:	08/01/19 08:39	Prepared:	08/06/19 19:07	File ID:	
% Solids:	41.29	Preparation:	No Prep Wet Chem	Analyzed:	08/06/19 20:20
Batch:	BHH0164	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	41.29	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

SL4-SG-WC8-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-06 D	SDG:	19H0024
Sampled:	08/01/19 09:08	Prepared:	08/06/19 19:07	File ID:	
% Solids:	57.54	Preparation:	No Prep Wet Chem	Analyzed:	08/06/19 20:20
Batch:	BHH0164	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	57.54	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

SL4-SG-WC4-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-07 D	SDG:	19H0024
Sampled:	08/01/19 10:08	Prepared:	08/06/19 19:07	File ID:	
% Solids:	66.66	Preparation:	No Prep Wet Chem	Analyzed:	08/06/19 20:20
Batch:	BHH0164	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	66.66	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

SL4-SG-WC2-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-08 D	SDG:	19H0024
Sampled:	08/01/19 10:30	Prepared:	08/06/19 19:07	File ID:	
% Solids:	46.21	Preparation:	No Prep Wet Chem	Analyzed:	08/06/19 20:20
Batch:	BHH0164	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	46.21	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

SL4-SG-WC1-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-09 D	SDG:	19H0024
Sampled:	08/01/19 10:43	Prepared:	08/06/19 19:07	File ID:	
% Solids:	42.54	Preparation:	No Prep Wet Chem	Analyzed:	08/06/19 20:20
Batch:	BHH0164	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	42.54	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

SL4-IC-SC2-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-10 D	SDG:	19H0024
Sampled:	08/01/19 11:45	Prepared:	08/06/19 19:07	File ID:	
% Solids:	72.09	Preparation:	No Prep Wet Chem	Analyzed:	08/06/19 20:20
Batch:	BHH0164	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	72.09	1	0.04	0.04	

Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

SL4-IC-SC3-2019

Laboratory:	Analytical Resources, Inc.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-11 D	SDG:	19H0024
Sampled:	08/01/19 12:10	Prepared:	08/06/19 19:07	File ID:	
% Solids:	67.53	Preparation:	No Prep Wet Chem	Analyzed:	08/06/19 20:20
Batch:	BHH0164	Sequence:		Initial/Final:	10 g Wet / 10 g
Instrument:	BAL2			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	67.53	1	0.04	0.04	

PREPARATION BATCH SUMMARY

SM 2540 G-97

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Batch: BHH0164 Batch Matrix: Solid
Preparation: No Prep Wet Chem

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC3-2019	19H0024-03		08/06/19 19:07	
SL4-SG-WC7-2019	19H0024-04		08/06/19 19:07	
SL4-SG-WC7-FD-2019	19H0024-05		08/06/19 19:07	
SL4-SG-WC8-2019	19H0024-06		08/06/19 19:07	
SL4-SG-WC4-2019	19H0024-07		08/06/19 19:07	
SL4-SG-WC2-2019	19H0024-08		08/06/19 19:07	
SL4-SG-WC1-2019	19H0024-09		08/06/19 19:07	
SL4-IC-SC2-2019	19H0024-10		08/06/19 19:07	
SL4-IC-SC3-2019	19H0024-11		08/06/19 19:07	
Blank	BHH0164-BLK1		08/06/19 19:07	
SL4-SG-WC3-2019	BHH0164-DUP1		08/06/19 19:07	
SL4-SG-WC3-2019	BHH0164-DUP2		08/06/19 19:07	

TOTAL SOLIDS/VOLATILE SOLIDS (TS / TVS) BENCHSHEET for Solid samples

Method: PSEP 1986, SM2540, EPA 160.1

(dry at 104 (12-24 hr) then combust at 550 (30 min))

Batch:	BHH0164
Date:	8/6/2019 20:20
Analyst:	KLE

Instrumentation

Drying Ovens:	12	**Analytical Balance:**	BAL2
Muffle Furnace:	N / A		

Batch drying time

record times as mm/dd/yy hh:mm

date/time in oven:	8/6/2019 20:20	
date/time out:	8/7/2019 14:32	
elapsed hrs =	18.2	OK

TS (%) calculated as:
Final dry wt (g) = (Dry Wt - Tare Wt)
TS = (Final Dry Wt)/ (grams Sample-Tare)

TVS (mg/kg dry wt) calculated as:
Final ash wt (g) = (min ash wt - tare wt)
TVS (mg/kg) = [(Dry wt-Ash wt)/ (dry weight)] *1,000,000
if ash wt > dry wt, "Chk for Err"
if dry wt-ash wt < 0.001 g, "< (1/dry wt)*1,000,000

Balance Calibration Check

Record weights to 4 places

Cal Weight ID:	CV-02	CV-02	CV-02	CV-02	CV-02		CV-02	CV-02	CV-02
Date & Time:	8/6/19 19:09	8/6/19 19:54	8/7/19 15:00						
Cal Wt (g): 10.0000	9.9999	9.9999	9.9999						
	Cal OK!	Cal OK!	Cal OK!						

Sample ID	Dish #	Tare Wt. (g)	Dish & Sample (g)	Dry Wt 104C (grams) 1	2	3	dry Wt (g)	TS (%)	Notes	ASH WT 550C (grams) 1	2	3	Ash Wt (g)	TVS (mg/kg)	TVS (%)	Notes	Fixed (%)
BHH0164-BLK1	1	1.0838	0.0000	1.0838			0.0000	0.00%									
19G0407-01	2	1.0839	7.1302	6.8388			5.7549	95.18%									
19H0024-03	3	1.0810	6.0675	2.7246			1.6436	32.96%									
BHH0164-DUP1	4	1.0807	6.4085	2.8348			1.7541	32.92%	RPD=0.1								
BHH0164-DUP2	5	1.0604	6.9439	2.9817			1.9213	32.66%	RSD=0.5								
19H0024-04	6	1.0803	6.1939	3.1815			2.1012	41.09%									
19H0024-05	7	1.0772	6.3297	3.2459			2.1687	41.29%									
19H0024-06	8	1.0686	6.5349	4.2138			3.1452	57.54%									
19H0024-07	9	1.0871	6.7156	4.8391			3.7520	66.66%									
19H0024-08	10	1.0917	6.3463	3.5201			2.4284	46.21%									
19H0024-09	11	1.0743	6.0208	3.1786			2.1043	42.54%									
19H0024-10	12	1.0788	6.3511	4.8797			3.8009	72.09%									
19H0024-11	13	1.0917	6.3436	4.6383			3.5466	67.53%									
19H0067-01	14	1.0770	11.6081	10.9860			9.9090	94.09%									

Form I

METHOD BLANK DATA SHEET

SM 2540 G-97

TotalAnalytes

Blank

Batch: BHH0164 Laboratory ID: BHH0164-BLK1 Prepared: 08/06/19 19:07

Matrix: Solid Preparation: No Prep Wet Chem Analyzed: 08/06/19 20:20

Sequence: Calibration: Instrument: BAL2

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	ND	1	0.04	0.04	U

SL4-SG-WC3-2019

DUPLICATES

SM 2540 G-97

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Matrix: Solid
Laboratory ID: BHH0164-DUP1
Batch: BHH0164
Lab Source ID: 19H0024-03
Preparation: No Prep Wet Chem
Initial/Final: 10 g / 10 g
Source Sample Name: SL4-SG-WC3-2019
% Solids: 32.96

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
Total Solids	20	32.96	32.92	0.114	

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

DUPLICATES

SM 2540 G-97

Laboratory: Analytical Resources, Inc.
SDG: 19H0024

Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix: Solid
Laboratory ID: BHH0164-DUP2

Batch: BHH0164
Lab Source ID: 19H0024-03

Preparation: No Prep Wet Chem
Initial/Final: 10 g / 10 g

Source Sample Name: SL4-SG-WC3-2019
% Solids: 32.96

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD %	Q
Total Solids	20	32.96	32.66	0.930	

*: Values outside of QC limits
L: Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to Dup = +/- RL instead of 20% RPD

HOLDING TIME SUMMARY

Analysis: SM 2540 G-97

Laboratory: Analytical Resources, Inc. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
SL4-SG-WC3-2019 19H0024-03	08/01/19 08:16	08/01/19 13:05	08/06/19 19:07	5	28	08/06/19 20:20	6	28	
SL4-SG-WC7-2019 19H0024-04	08/01/19 08:39	08/01/19 13:05	08/06/19 19:07	5	28	08/06/19 20:20	5	28	
SL4-SG-WC7-FD-2019 19H0024-05	08/01/19 08:39	08/01/19 13:05	08/06/19 19:07	5	28	08/06/19 20:20	5	28	
SL4-SG-WC8-2019 19H0024-06	08/01/19 09:08	08/01/19 13:05	08/06/19 19:07	5	28	08/06/19 20:20	5	28	
SL4-SG-WC4-2019 19H0024-07	08/01/19 10:08	08/01/19 13:05	08/06/19 19:07	5	28	08/06/19 20:20	5	28	
SL4-SG-WC2-2019 19H0024-08	08/01/19 10:30	08/01/19 13:05	08/06/19 19:07	5	28	08/06/19 20:20	5	28	
SL4-SG-WC1-2019 19H0024-09	08/01/19 10:43	08/01/19 13:05	08/06/19 19:07	5	28	08/06/19 20:20	5	28	
SL4-IC-SC2-2019 19H0024-10	08/01/19 11:45	08/01/19 13:05	08/06/19 19:07	5	28	08/06/19 20:20	5	28	
SL4-IC-SC3-2019 19H0024-11	08/01/19 12:10	08/01/19 13:05	08/06/19 19:07	5	28	08/06/19 20:20	5	28	
Duplicate BHH0164-DUP1	08/01/19 08:16	08/01/19 13:05	08/06/19 19:07	5	28	08/06/19 20:20	6	28	
Duplicate BHH0164-DUP2	08/01/19 08:16	08/01/19 13:05	08/06/19 19:07	5	28	08/06/19 20:20	6	28	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

SM 2540 G-97

Laboratory: Analytical Resources, Inc.
SDG: 19H0024
Client: Windward Environmental, LLC
Project: Slip 4 LTM (Yr 5) / City of Seattle
Matrix: Solid
Instrument:

Analyte	MDL	RL	Units
Total Solids	0.04	0.04	%

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Instrumentation

Batch:	BHH0309
Date:	8/13/2019 8:46
Analyst:	YEN
Drying Oven:	15
Analytical Balance:	B146462614

Batch drying time	
record times as mm/dd/yy hh:mm	
date/time in oven:	8/12/2019 16:40
date/time out:	8/13/2019 8:43
elapsed hrs:	16.0

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
19H0024-03	1.0900	11.5900	5.2600	4.17	**39.71%**	Yes
19H0024-04	1.0800	11.5600	5.4400	4.36	**41.60%**	Yes
19H0024-05	1.0900	12.0600	5.5700	4.48	**40.84%**	Yes
19H0024-06	1.0900	11.7200	7.1100	6.02	**56.63%**	Yes
19H0024-07	1.0800	11.6200	8.6500	7.57	**71.82%**	No
19H0024-08	1.0800	12.1500	6.0100	4.93	**44.53%**	Yes
19H0024-09	1.1000	11.8600	5.5100	4.41	**40.99%**	No
19H0024-10	1.1000	11.5600	9.6800	8.58	**82.03%**	No
19H0024-11	1.0900	11.4700	7.8900	6.80	**65.51%**	No

TOTAL SOLIDS BENCHSHEET
Method: PSEP 1986
(dry at 103-105 C)
Instrumentation

Batch:	
Date:	08/12/19
Analyst:	YL
Drying Oven:	015
Analytical Balance:	B146462614

Batch drying time		
record times as mm/dd/yy hh:mm		
date/time in oven:	08/12/19	16:40
date/time out:	08/13/19	08:43
elapsed hrs:	0.0	

TS (%) calculated as:
Final dry wt (g) = (Dry Wt - Tare Wt)
TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
19H0024-03C	1.09	11.59	5.26			~~No~~ yes
-04C	1.08	11.56	5.44			~~No~~ yes
-05C	1.09	12.06	5.57			~~No~~ yes
-06C	1.09	11.72	7.11			~~No~~ yes
-07C	1.08	11.62	8.65			No
-08B	1.08	12.415	6.01			~~No~~ yes
-09C	1.08	11.86	5.51			No
-10C	1.10	11.56	9.68			No
-11C	1.09	11.47	7.29			No
						No
						No
						No
						No
						No
						No
						No
						No
						No
						No
						No
						No
						No
						No

PREPARATION BATCH SUMMARY

PSEP-PS

Laboratory: Harold L. Benny & Associates, LLC. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Batch: B081919 Batch Matrix: Solid Preparation: No Prep Geo

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SL4-SG-WC3-2019	19H0024-03		08/01/19 00:00	
SL4-SG-WC3-2019	19H0024-03		08/01/19 00:00	
SL4-SG-WC7-2019	19H0024-04		08/01/19 00:00	
SL4-SG-WC7-2019	19H0024-04		08/01/19 00:00	
SL4-SG-WC7-FD-2019	19H0024-05		08/01/19 00:00	
SL4-SG-WC7-FD-2019	19H0024-05		08/01/19 00:00	
SL4-SG-WC8-2019	19H0024-06		08/01/19 00:00	
SL4-SG-WC8-2019	19H0024-06		08/01/19 00:00	
SL4-SG-WC4-2019	19H0024-07		08/01/19 00:00	
SL4-SG-WC4-2019	19H0024-07		08/01/19 00:00	
SL4-SG-WC2-2019	19H0024-08		08/01/19 00:00	
SL4-SG-WC2-2019	19H0024-08		08/01/19 00:00	
SL4-SG-WC1-2019	19H0024-09		08/01/19 00:00	
SL4-SG-WC1-2019	19H0024-09		08/01/19 00:00	
SL4-IC-SC2-2019	19H0024-10		08/01/19 00:00	
SL4-IC-SC2-2019	19H0024-10		08/01/19 00:00	
SL4-IC-SC3-2019	19H0024-11		08/01/19 00:00	
SL4-IC-SC3-2019	19H0024-11		08/01/19 00:00	
SL4-SG-WC3-2019	B081919-DUP1			
SL4-SG-WC3-2019	B081919-DUP1			
SL4-SG-WC3-2019	B081919-DUP2			
SL4-SG-WC3-2019	B081919-DUP2			

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INORGANIC ANALYSIS DATA SHEET
PSEP-PS

SL4-SG-WC3-2019

Laboratory:	Harold L. Benny & Associates, LLC.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-03	SDG:	19H0024
Sampled:	08/01/19 08:16	Prepared:	08/01/19 00:00	File ID:	
% Solids:	0.00	Preparation:	No Prep Geo	Analyzed:	
Batch:	B081919	Sequence:		Initial/Final:	/
Instrument:	HLB			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
GS_GRAVEL	Phi Size <-1	1.2	1	0.1	0.1	
GS_VCS	Phi Size -1 to 0	6.9	1	0.1	0.1	
GS_CS	Phi Size 0 to 1	3.6	1	0.1	0.1	
GS_MS	Phi Size 1 to 2	3.1	1	0.1	0.1	
GS_FS	Phi Size 2 to 3	3	1	0.1	0.1	
GS_VFS	Phi Size 3 to 4	3.4	1	0.1	0.1	
GS_CSILT	Phi Size 4 to 5	15.3	1	0.1	0.1	
GS_MSILT	Phi Size 5 to 6	22.3	1	0.1	0.1	
GS_FSILT	Phi Size 6 to 7	16.3	1	0.1	0.1	
GS_VFSILT	Phi Size 7 to 8	9	1	0.1	0.1	
GS_CCLAY	Phi Size 8 to 9	4.5	1	0.1	0.1	
GS_MCLAY	Phi Size 9 to 10	2.9	1	0.1	0.1	
GS_FCLAY	Phi Size >10	8.6	1	0.1	0.1	
GS_TOTFINES	Total Fines	78.9	1	0.1	0.1	

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SL4-SG-WC7-2019

Laboratory:	Harold L. Benny & Associates, LLC.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-04	SDG:	19H0024
Sampled:	08/01/19 08:39	Prepared:	08/01/19 00:00	File ID:	
% Solids:	0.00	Preparation:	No Prep Geo	Analyzed:	
Batch:	B081919	Sequence:		Initial/Final:	/
Instrument:	HLB			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
GS_GRAVEL	Phi Size <-1	0.1	1	0.1	0.1	
GS_VCS	Phi Size -1 to 0	2.4	1	0.1	0.1	
GS_CS	Phi Size 0 to 1	1.3	1	0.1	0.1	
GS_MS	Phi Size 1 to 2	1.2	1	0.1	0.1	
GS_FS	Phi Size 2 to 3	1.1	1	0.1	0.1	
GS_VFS	Phi Size 3 to 4	3	1	0.1	0.1	
GS_CSILT	Phi Size 4 to 5	14.2	1	0.1	0.1	
GS_MSILT	Phi Size 5 to 6	25.4	1	0.1	0.1	
GS_FSILT	Phi Size 6 to 7	21.7	1	0.1	0.1	
GS_VFSILT	Phi Size 7 to 8	11.3	1	0.1	0.1	
GS_CCLAY	Phi Size 8 to 9	5.4	1	0.1	0.1	
GS_MCLAY	Phi Size 9 to 10	4.1	1	0.1	0.1	
GS_FCLAY	Phi Size >10	8.8	1	0.1	0.1	
GS_TOTFINES	Total Fines	90.9	1	0.1	0.1	

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SL4-SG-WC7-FD-2019

Laboratory:	Harold L. Benny & Associates, LLC.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-05	SDG:	19H0024
Sampled:	08/01/19 08:39	Prepared:	08/01/19 00:00	File ID:	
% Solids:	0.00	Preparation:	No Prep Geo	Analyzed:	
Batch:	B081919	Sequence:		Initial/Final:	/
Instrument:	HLB			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
GS_GRAVEL	Phi Size <-1	0.1	1	0.1	0.1	
GS_VCS	Phi Size -1 to 0	2.2	1	0.1	0.1	
GS_CS	Phi Size 0 to 1	1.5	1	0.1	0.1	
GS_MS	Phi Size 1 to 2	1.4	1	0.1	0.1	
GS_FS	Phi Size 2 to 3	1.1	1	0.1	0.1	
GS_VFS	Phi Size 3 to 4	2.7	1	0.1	0.1	
GS_CSILT	Phi Size 4 to 5	13.5	1	0.1	0.1	
GS_MSILT	Phi Size 5 to 6	24.8	1	0.1	0.1	
GS_FSILT	Phi Size 6 to 7	22.7	1	0.1	0.1	
GS_VFSILT	Phi Size 7 to 8	11	1	0.1	0.1	
GS_CCLAY	Phi Size 8 to 9	6.1	1	0.1	0.1	
GS_MCLAY	Phi Size 9 to 10	4.1	1	0.1	0.1	
GS_FCLAY	Phi Size >10	8.9	1	0.1	0.1	
GS_TOTFINES	Total Fines	91.1	1	0.1	0.1	

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SL4-SG-WC8-2019

Laboratory:	Harold L. Benny & Associates, LLC.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-06	SDG:	19H0024
Sampled:	08/01/19 09:08	Prepared:	08/01/19 00:00	File ID:	
% Solids:	0.00	Preparation:	No Prep Geo	Analyzed:	
Batch:	B081919	Sequence:		Initial/Final:	/
Instrument:	HLB			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
GS_GRAVEL	Phi Size <-1	67.9	1	0.1	0.1	
GS_VCS	Phi Size -1 to 0	6.6	1	0.1	0.1	
GS_CS	Phi Size 0 to 1	4.7	1	0.1	0.1	
GS_MS	Phi Size 1 to 2	3.7	1	0.1	0.1	
GS_FS	Phi Size 2 to 3	2.5	1	0.1	0.1	
GS_VFS	Phi Size 3 to 4	1.9	1	0.1	0.1	
GS_CSILT	Phi Size 4 to 5	0.4	1	0.1	0.1	
GS_MSILT	Phi Size 5 to 6	3.6	1	0.1	0.1	
GS_FSILT	Phi Size 6 to 7	2.5	1	0.1	0.1	
GS_VFSILT	Phi Size 7 to 8	1.9	1	0.1	0.1	
GS_CCLAY	Phi Size 8 to 9	1.4	1	0.1	0.1	
GS_MCLAY	Phi Size 9 to 10	1	1	0.1	0.1	
GS_FCLAY	Phi Size >10	2.1	1	0.1	0.1	
GS_TOTFINES	Total Fines	12.7	1	0.1	0.1	

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INORGANIC ANALYSIS DATA SHEET
PSEP-PS

SL4-SG-WC4-2019

Laboratory:	Harold L. Benny & Associates, LLC.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-07	SDG:	19H0024
Sampled:	08/01/19 10:08	Prepared:	08/01/19 00:00	File ID:	
% Solids:	0.00	Preparation:	No Prep Geo	Analyzed:	
Batch:	B081919	Sequence:		Initial/Final:	/
Instrument:	HLB			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
GS_GRAVEL	Phi Size <-1	59.6	1	0.1	0.1	
GS_VCS	Phi Size -1 to 0	9.5	1	0.1	0.1	
GS_CS	Phi Size 0 to 1	7.9	1	0.1	0.1	
GS_MS	Phi Size 1 to 2	4.6	1	0.1	0.1	
GS_FS	Phi Size 2 to 3	2	1	0.1	0.1	
GS_VFS	Phi Size 3 to 4	1.4	1	0.1	0.1	
GS_CSILT	Phi Size 4 to 5	1.5	1	0.1	0.1	
GS_MSILT	Phi Size 5 to 6	3.1	1	0.1	0.1	
GS_FSILT	Phi Size 6 to 7	3.9	1	0.1	0.1	
GS_VFSILT	Phi Size 7 to 8	2.6	1	0.1	0.1	
GS_CCLAY	Phi Size 8 to 9	1.2	1	0.1	0.1	
GS_MCLAY	Phi Size 9 to 10	1	1	0.1	0.1	
GS_FCLAY	Phi Size >10	1.6	1	0.1	0.1	
GS_TOTFINES	Total Fines	15	1	0.1	0.1	

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INORGANIC ANALYSIS DATA SHEET
PSEP-PS

SL4-SG-WC2-2019

Laboratory:	Harold L. Benny & Associates, LLC.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-08	SDG:	19H0024
Sampled:	08/01/19 10:30	Prepared:	08/01/19 00:00	File ID:	
% Solids:	0.00	Preparation:	No Prep Geo	Analyzed:	
Batch:	B081919	Sequence:		Initial/Final:	/
Instrument:	HLB			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
GS_GRAVEL	Phi Size <-1	54.4	1	0.1	0.1	
GS_VCS	Phi Size -1 to 0	2.7	1	0.1	0.1	
GS_CS	Phi Size 0 to 1	3.5	1	0.1	0.1	
GS_MS	Phi Size 1 to 2	5.4	1	0.1	0.1	
GS_FS	Phi Size 2 to 3	8.7	1	0.1	0.1	
GS_VFS	Phi Size 3 to 4	5.6	1	0.1	0.1	
GS_CSILT	Phi Size 4 to 5	6.3	1	0.1	0.1	
GS_MSILT	Phi Size 5 to 6	3.7	1	0.1	0.1	
GS_FSILT	Phi Size 6 to 7	3.2	1	0.1	0.1	
GS_VFSILT	Phi Size 7 to 8	2.2	1	0.1	0.1	
GS_CCLAY	Phi Size 8 to 9	1.2	1	0.1	0.1	
GS_MCLAY	Phi Size 9 to 10	0.9	1	0.1	0.1	
GS_FCLAY	Phi Size >10	2.2	1	0.1	0.1	
GS_TOTFINES	Total Fines	19.7	1	0.1	0.1	

Form I
INORGANIC ANALYSIS DATA SHEET
PSEP-PS

SL4-SG-WC1-2019

Laboratory:	Harold L. Benny & Associates, LLC.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-09	SDG:	19H0024
Sampled:	08/01/19 10:43	Prepared:	08/01/19 00:00	File ID:	
% Solids:	0.00	Preparation:	No Prep Geo	Analyzed:	
Batch:	B081919	Sequence:		Initial/Final:	/
Instrument:	HLB			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
GS_GRAVEL	Phi Size <-1	1.1	1	0.1	0.1	
GS_VCS	Phi Size -1 to 0	5.8	1	0.1	0.1	
GS_CS	Phi Size 0 to 1	6.4	1	0.1	0.1	
GS_MS	Phi Size 1 to 2	7.8	1	0.1	0.1	
GS_FS	Phi Size 2 to 3	11.1	1	0.1	0.1	
GS_VFS	Phi Size 3 to 4	14.9	1	0.1	0.1	
GS_CSILT	Phi Size 4 to 5	11.5	1	0.1	0.1	
GS_MSILT	Phi Size 5 to 6	26.5	1	0.1	0.1	
GS_FSILT	Phi Size 6 to 7	5.8	1	0.1	0.1	
GS_VFSILT	Phi Size 7 to 8	2.8	1	0.1	0.1	
GS_CCLAY	Phi Size 8 to 9	1.3	1	0.1	0.1	
GS_MCLAY	Phi Size 9 to 10	0.9	1	0.1	0.1	
GS_FCLAY	Phi Size >10	4.2	1	0.1	0.1	
GS_TOTFINES	Total Fines	53.1	1	0.1	0.1	

Form I
INORGANIC ANALYSIS DATA SHEET
PSEP-PS

SL4-IC-SC2-2019

Laboratory:	Harold L. Benny & Associates, LLC.				
Client:	Windward Environmental, LLC				
Project:	Slip 4 LTM (Yr 5) / City of Seattle				
Matrix:	Solid	Laboratory ID:	19H0024-10	SDG:	19H0024
Sampled:	08/01/19 11:45	Prepared:	08/01/19 00:00	File ID:	
% Solids:	0.00	Preparation:	No Prep Geo	Analyzed:	
Batch:	B081919	Sequence:		Initial/Final:	/
Instrument:	HLB			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
GS_GRAVEL	Phi Size <-1	18.7	1	0.1	0.1	
GS_VCS	Phi Size -1 to 0	14.2	1	0.1	0.1	
GS_CS	Phi Size 0 to 1	20.9	1	0.1	0.1	
GS_MS	Phi Size 1 to 2	23.7	1	0.1	0.1	
GS_FS	Phi Size 2 to 3	8.5	1	0.1	0.1	
GS_VFS	Phi Size 3 to 4	2.8	1	0.1	0.1	
GS_CSILT	Phi Size 4 to 5	1.5	1	0.1	0.1	
GS_MSILT	Phi Size 5 to 6	2.3	1	0.1	0.1	
GS_FSILT	Phi Size 6 to 7	2.2	1	0.1	0.1	
GS_VFSILT	Phi Size 7 to 8	2.1	1	0.1	0.1	
GS_CCLAY	Phi Size 8 to 9	1.1	1	0.1	0.1	
GS_MCLAY	Phi Size 9 to 10	0.8	1	0.1	0.1	
GS_FCLAY	Phi Size >10	1.1	1	0.1	0.1	
GS_TOTFINES	Total Fines	11.3	1	0.1	0.1	

Form I
INORGANIC ANALYSIS DATA SHEET
PSEP-PS

SL4-IC-SC3-2019

Laboratory: Harold L. Benny & Associates, LLC.

Client: Windward Environmental, LLC

Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix:	Solid	Laboratory ID:	19H0024-11	SDG:	19H0024
Sampled:	08/01/19 12:10	Prepared:	08/01/19 00:00	File ID:	
% Solids:	0.00	Preparation:	No Prep Geo	Analyzed:	
Batch:	B081919	Sequence:		Initial/Final:	/
Instrument:	HLB			Calibration:	

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
GS_GRAVEL	Phi Size <-1	16.5	1	0.1	0.1	
GS_VCS	Phi Size -1 to 0	17.2	1	0.1	0.1	
GS_CS	Phi Size 0 to 1	18.9	1	0.1	0.1	
GS_MS	Phi Size 1 to 2	17.4	1	0.1	0.1	
GS_FS	Phi Size 2 to 3	9.4	1	0.1	0.1	
GS_VFS	Phi Size 3 to 4	3.5	1	0.1	0.1	
GS_CSILT	Phi Size 4 to 5	0.2	1	0.1	0.1	
GS_MSILT	Phi Size 5 to 6	7.3	1	0.1	0.1	
GS_FSILT	Phi Size 6 to 7	4.7	1	0.1	0.1	
GS_VFSILT	Phi Size 7 to 8	1.5	1	0.1	0.1	
GS_CCLAY	Phi Size 8 to 9	0.7	1	0.1	0.1	
GS_MCLAY	Phi Size 9 to 10	0.7	1	0.1	0.1	
GS_FCLAY	Phi Size >10	2	1	0.1	0.1	
GS_TOTFINES	Total Fines	17	1	0.1	0.1	

METHOD DETECTION AND REPORTING LIMITS

PSEP-PS

Laboratory: Harold L. Benny & Associates, LLC. SDG: 19H0024

Client: Windward Environmental, LLC Project: Slip 4 LTM (Yr 5) / City of Seattle

Matrix: Solid Instrument:

Analyte	MDL	RL	Units
Phi Size <-1	0.1	0.1	%
Phi Size -1 to 0	0.1	0.1	%
Phi Size 0 to 1	0.1	0.1	%
Phi Size 1 to 2	0.1	0.1	%
Phi Size 2 to 3	0.1	0.1	%
Phi Size 3 to 4	0.1	0.1	%
Phi Size 4 to 5	0.1	0.1	%
Phi Size 5 to 6	0.1	0.1	%
Phi Size 6 to 7	0.1	0.1	%
Phi Size 7 to 8	0.1	0.1	%
Phi Size 8 to 9	0.1	0.1	%
Phi Size 9 to 10	0.1	0.1	%
Phi Size >10	0.1	0.1	%
Total Fines	0.1	0.1	%

Data Rules

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Acronyms

AET	apparent effects threshold
AOC	Administrative Order on Consent
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CSL	cleanup screening level
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
EPA	US Environmental Protection Agency
HPAH	high-molecular-weight polycyclic aromatic hydrocarbon
HpCDD	heptachlorodibenzo-*p*-dioxin
HpCDF	heptachlorodibenzofuran
HxCDD	hexachlorodibenzo-*p*-dioxin
HxCDF	hexachlorodibenzofuran
LAET	lowest apparent effects threshold
LDW	Lower Duwamish Waterway
LPAH	low-molecular-weight polycyclic aromatic hydrocarbon
OCDD	octachlorodibenzo-*p*-dioxin
OCDF	octachlorodibenzofuran
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl

PeCDD	pentachlorodibenzo-*p*-dioxin
PeCDF	pentachlorodibenzofuran
PEF	potency equivalency factor
QC	quality control
RI/FS	remedial investigation/feasibility study
RL	reporting limit
SCO	sediment cleanup objective
SIM	selected ion monitoring
SMS	Washington State Sediment Management Standards
SQS	sediment quality standards
SVOC	semivolatile organic compound
TCDD	tetrachlorodibenzo-*p*-dioxin
TCDF	tetrachlorodibenzofuran
TEF	toxic equivalency factor
TEQ	toxic equivalent
TOC	total organic carbon
WAC	Washington Administrative Code
WHO	World Health Organization

Data Management Rules

Data management rules being followed for the Slip 4 sediment data are the same as those applied to the LDW RI/FS dataset, except as noted in this appendix.

Averaging Laboratory Duplicate or Replicate Samples

Contaminant concentrations obtained from the analysis of laboratory duplicates or replicates (i.e., two or more analyses on the same sample) will be averaged for a closer representation of the "true" concentration than that provided by the results of a single analysis. Averaging rules will be dependent on whether the individual results are detected concentrations or reporting limits (RLs) for non-detected analytes. If all concentrations are detected for a given parameter, the values will be simply averaged arithmetically. If all concentrations are non-detected for a given parameter, the minimum RL will be reported. If the concentrations are a mixture of detected concentrations and RLs, any two or more detected concentrations will be averaged arithmetically, and RLs will be ignored. If there is one detected concentration and one or more RLs, the detected concentration will be reported. The latter two rules will be applied regardless of whether the RLs are higher or lower than the detected concentration.

Selection of Preferred Results

In some instances, the laboratory will generate more than one result for a chemical for a given sample. Multiple results can occur for several reasons, including:

- The original result does not meet the laboratory's internal quality control (QC) guidelines, and a reanalysis is performed.
- The original result does not meet other project data quality objectives, such as a sufficiently low RL, and a reanalysis is performed.
- Two different analytical methods are used for that chemical.

In each case, a single result will be selected for use. The procedures for selecting the preferred result will differ depending on whether a single or multiple analytical methods are used for that chemical.

For the same analytical method, the results will be selected using the following guidance:

- If the results are detected and not qualified, then the result from the lowest dilution will be selected, unless multiple results from the same dilution are available, in which case the result with the highest concentration will be selected.
- If the results are a combination of estimated and unqualified detected results, then the unqualified result will be selected. This situation most commonly

occurs when the original result is outside of the calibration range, thus requiring a dilution. The diluted result within the calibration range will be preferentially selected.

- If the results are all estimated, then the result will be selected using best professional judgment and considering the rationale for qualification. For example, a result qualified based on laboratory replicate results outside of QC objectives for precision will be preferred to a qualified result that is outside the calibration range.
- If the results are a combination of detected and non-detected results, then the detected result will be selected. If there are more than one detected result, the applicable rules for multiple results (as discussed above) will be followed.
- If the results are all non-detected, then the lowest RL will be selected.

For different analytical methods (i.e., when a specific chemical is analyzed in the same sample using different methods), the following rules will be applied:

- For results analyzed using the semivolatile organic compound (SVOC) full-scan (EPA 8270) and selected ion monitoring (SIM) (EPA 8270-SIM) methods, the SIM results will be selected.
- For results analyzed using EPA Method 8081A and any 8270 method (i.e., hexachlorobenzene and hexachlorocyclopentadiene), the 8081A result will be selected.

The RI/FS database rules for the selection of preferred results between two methods (as described above) are revised for the compilation of the pre-design data. In the RI/FS, the preferred result was selected based on a comparison between the methods of the detection status, RL, and data qualifiers. The revised rules select the preferred result based on a preference for method.

SIGNIFICANT FIGURES AND ROUNDING

The analytical laboratories report results with various numbers of significant figures depending on the instrument, parameter, and concentration relative to the RL. The reported (or assessed) precision of each observation will be explicitly stored in the project database as a record of the number of significant figures assigned by the laboratory. The tracking of significant figures will become important when calculating averages and performing other data summaries.

When a calculation involves addition, such as totaling PCBs or polycyclic aromatic hydrocarbons (PAHs), the calculation will be only as precise as the least precise number that goes into the calculation. For example (assuming two significant figures):

> 210 + 19 = 229 will be reported as 230 because 19 is only reported to 2 significant digits, and the enhanced precision of the trailing 0 in the number 210 is not significant.

When a calculation involves multiplication or division, such as carbon normalization, the original figures for each value are carried through the calculation (i.e., individual values are not adjusted to a standard number of significant figures; instead, the appropriate adjustment is made to the resultant value at the end of the calculation). The result is rounded at the end of the calculation to reflect the value with the fewest significant figures used in the calculation. For example:

> 59.9 x 1.2 = 71.88 will be reported as 72 because there are 2 significant figures in the number 1.2.

When rounding, if the number following the last significant figure is less than 5, the digit will be left unchanged. If the number following the last significant figure is equal to or greater than 5, the digit will be increased by 1.

CALCULATING TOTALS

Total PCBs will be calculated by summing the detected values for the individual components (e.g., Aroclor mixtures or individual congeners for total PCBs). For samples in which none of the individual components are detected, the total value will be given as the highest RL of any individual component, and assigned a U-qualifier (no detected concentrations). No sum will be calculated in cases where 50% or less of the components are analyzed. Concentrations for analyte sums will be calculated using the following components:

- Total PCBs will be calculated, in accordance with the methods of the SMS, using only detected values for all Aroclor mixtures. For individual samples in which none of the Aroclor mixtures are detected, total PCBs will be given a value equal to the highest RL of the Aroclors and assigned a U-qualifier (no detected concentrations).
- Total high-molecular-weight PAHs (HPAHs), PAHs, and benzofluoranthenes will also be calculated in accordance with the methods of the SMS. Total HPAHs were the sum of detected concentrations for fluoranthene, pyrene, benzo(a)anthracene, chrysene, total benzofluoranthenes, benzo(a)pyrene, indeno(1,2,3,-c,d)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene. Total benzofluoranthenes will be the sum of the b (i.e., benzo(b)fluoranthene), j, and k isomers.

  Because the j isomer is rarely quantified, the total benzofluoranthenes sum will be typically calculated with only the b and k isomers. In cases where the laboratory provides total benzofluoranthenes instead of or in addition to the b and k isomers, the laboratory result will be reported, and no sum will be calculated. For samples in which all individual compounds within any of the three groups described above are non-detected, the highest RL for that sample will be reported and assigned a U-qualifier.

TOC NORMALIZATION

For comparison to benthic cleanup goals, sediment samples with TOC content < 0.5% or > 3.5% will not be TOC normalized for comparison to the organic carbon-normalized RALs and SMS criteria (Ecology 2015). When TOC normalization is not possible and the dry weight concentration is greater than lowest apparent effects threshold (LAET) and less than or equal to 2LAET, the concentration will be considered to be greater than sediment cleanup objectives (SCOs)[1] and less than or equal to cleanup screening levels (CSLs).

References

AECOM. 2012. Final feasibility study, Lower Duwamish Waterway. Prepared for Lower Duwamish Waterway Group. AECOM, Seattle, WA.

Ecology. 2015. Sediment cleanup users manual II. Guidance for implementing the Cleanup Provisions of the Sediment Management Standards, Chapter 173-204 WAC. March 2015. Pub. no. 12-09-057. Toxics Cleanup Program, Washington State Department of Ecology, Olympia, WA.

Windward. 2010. Lower Duwamish Waterway remedial investigation. Remedial investigation report. Final. Prepared for Lower Duwamish Waterway Group. Windward Environmental LLC, Seattle, WA.

[1] SCO, as defined in the 2013 SMS Rule (Washington Administrative Code [WAC] 173-204-562), is equivalent to the term sediment quality standard (SQS) used in the RI/FS (Windward 2010; AECOM 2012).

Data Validation Report

DATA VALIDATION REPORT
City of Seattle
Lower Duwamish Waterway - Slip 4 Early Action Area

Prepared for:

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Prepared by:

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EcoChem Project: C22032-2

September 17, 2019

Approved for Release:

Christina Mott Frans
Project Manager
EcoChem, Inc.

PROJECT NARRATIVE

Basis for the Data Validation

This report presents the results of Summary and Full Validation (EPA Stage 2A and EPA Stage 4) performed on sediment, filter wipe, and quality control sample data for the City of Seattle Slip 4 Long-Term Monitoring sampling. A complete list of samples is provided in the **Sample Index**.

Samples were analyzed by Analytical Resources, Inc. (ARI), Tukwila, Washington. The analytical methods and EcoChem project chemists are listed below.

ANALYSIS	METHOD	PRIMARY REVIEW	SECONDARY REVIEW
Semivolatile Organic Compounds	EPA 8270D & 8270D SIM	R. Frans	C. Frans
PCB Aroclors	EPA 8082A		
Metals	EPA 6010C		
Mercury	EPA 7471A		
Total Organic Carbon	Plumb 1981		
Total Solids	SM 2540 G-97		
Grain Size	PSEP 1986		

The data were reviewed using guidance and quality control criteria documented in the analytical methods; *Lower Duwamish Waterway Slip 4 Early Action Area Long-Term Monitoring and Reporting Plan Appendix A: Quality Assurance Project Plan* (Integral Consulting, Inc., March 21, 2013*); National Functional Guidelines for Organic Data Review* (USEPA 2008 & 2014); and *National Functional Guidelines for Inorganic Data Review* (USEPA 2010).

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents and methods referenced previously.

Data qualifier definitions, reason codes, and validation criteria are included as Appendix A. A Qualified Data Summary Table is included in Appendix B. Data Validation Worksheets will be kept on file at EcoChem, Inc. A qualified laboratory electronic data deliverable (EDD) is also submitted with this report.

Sample Index
City of Seattle - Slip EAA 4 LTM

SDG	Sample ID	Laboratory ID	PCB	SVOC	Metals	Conventional
19H0024	SL4-SG-WC3-FW-2019	19H0024-02	✓	✓	✓	
	SL4-SG-WC3-2019	19H0024-03	✓	✓	✓	✓
	SL4-SG-WC7-2019	19H0024-04	✓	✓	✓	✓
	SL4-SG-WC7-FD-2019	19H0024-05	✓	✓	✓	✓
	SL4-SG-WC8-2019	19H0024-06	✓	✓	✓	✓
	SL4-SG-WC4-2019	19H0024-07	✓	✓	✓	✓
	SL4-SG-WC2-2019	19H0024-08	✓	✓	✓	✓
	SL4-SG-WC1-2019	19H0024-09	✓	✓	✓	✓
	SL4-1C-SC2-2019	19H0024-10	✓	✓	✓	✓
	SL4-1C-SC3-2019	19H0024-11	✓	✓	✓	✓

DATA VALIDATION REPORT
CITY OF SEATTLE – SLIP 4
Semivolatile Compounds by EPA SW8270D

This report documents the review of analytical data from the analysis of sediment samples and the associated laboratory quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc. (ARI), Tukwila, Washington. Refer to the Sample Index for a complete list of samples.

SDG	NUMBER OF SAMPLES	VALIDATION LEVEL
19H0024	9 Sediment & 1 Filter Blank	EPA Stage 4

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

The laboratory report was missing the calibration information and had errors in the analyte list. The laboratory was contacted and submitted the missing documentation and corrected the analyte list.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (100% verification) by comparing the EDD to the hardcopy laboratory data package. Ten percent (10%) of the laboratory QC results were also verified.

TECHNICAL DATA VALIDATION

The quality control (QC) requirements that were reviewed are listed in the following table:

1	Sample Receipt, Preservation, and Holding Times	1	Field Duplicates
✓	GC/MS Instrument Performance	✓	Target Analyte List
✓	Initial Calibration (ICAL)	✓	Internal Standards
2	Continuing Calibration (CCAL)	1	Certified Reference Material
✓	Laboratory Blanks	1	Reporting Limits
1	Field Blanks	✓	Reported Results
1	Surrogate Compounds	✓	Compound Identification
✓	Laboratory Control Samples (LCS/LCSD)	✓	Calculation Verification
2	Matrix Spike/Matrix Spike Duplicates (MS/MSD)		

✓ Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.
[1] Quality control results are discussed below, but no data were qualified.
[2] Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Receipt, Preservation, Holding Times

As stated in validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of ≤6°C. The laboratory received the sample coolers within the advisory temperature range at 2.6°C and 4.0°C.

Filter blank sample SL4-SG-WC3-FB-2019 was received by the laboratory but was placed on hold per client request.

Continuing Calibration

Continuing calibration verification (CCV) standards were analyzed at the required frequency. Relative response factors (RRF) were greater than or equal to 0.05 for all compounds except for poorly responding compounds with RRF values greater than or equal to 0.01. The percent difference (%D) values were less than or equal to 25% for all compounds except for poorly responding compounds were less than or equal to 40.0%. When the CCV %D values indicate a potential low bias, associated results are estimated (J/UJ-5BL). Only the associated positive results are estimated (J-5BH) if the %D value indicates a potential high bias.

Although several analytes exhibited percent difference (%D) values outside of the acceptance criteria, only the following analytes were estimated (J/UJ-5BL):

CCAL Date	Analyte	Potential Bias	Action
8/21/2019	Phenol	Low	J-5BL
	Benzyl Alcohol	Low	J/UJ-5BL
	Benzo(g,h,i)perylene	Low	J/UJ-5BL
	Dibenz(ah)anthracene	Low	UJ-5BL
	Indeno(1,2,3-cd)pyrene	Low	UJ-5BL

Field Blanks

Sample SL4-SG-WC3-FW-2019 was identified as a filter wipe blank. No target analytes were detected.

Surrogate Compounds

The surrogate compounds 2,4,6-tribromophenol, 2-fluorobiphenyl, 2-fluorophenol, nitrobenzene-d5, phenol-d5, terphenyl-d14,1,2-dichlorobenzene-d4, and 2-chlorphenol d4 were added to all samples. When two or more surrogate %R values are below the control limits and indicate a potential low bias, associated results for the affected fraction are estimated (J/UJ-13L). When two or more surrogate %R values are greater than the control limit and indicate a potential high bias, only the positive results in a fraction for a sample are estimated (J-13H). If there is one surrogate outlier in a fraction that is less than 10% recovery, the reporting limits for that fraction are rejected (R-13L) and the detections are estimated (J-13L). With the exceptions noted below, all surrogate spike recoveries were within the laboratory control limits.

Terphenyl-d14 was greater than the upper control limit in Sample SL4-SG-WC2-2019 and the matrix spike and matrix spike duplicate for Sample SL4-SG-WC3-2019; no results were qualified for these single outliers.

Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples were analyzed at the appropriate frequency. No action is taken unless both the MS and MSD %R values are outside the control limits for MS/MSD %R outliers. Precision is evaluated using the RPD values calculated between the MS and MSD results. Any RPD values outside the control limits indicate uncertainty in the measured results for the sample. Qualifiers were only issued to the parent sample.

When the MS/MSD %R values indicate a potential low bias, associated results are estimated (J/UJ-8). Only the associated positive results are estimated (J-8) if the %R values indicate a potential high bias. Associated positive results are estimated (J-9) if the RPD values indicate uncertainty.

The matrix spike/matrix spike duplicate (MS/MSD) analyses were performed using Sample SL4-SG-WC3-2019. The MS and MSD %R values for pyrene were greater than the upper control limit indicating a potential high bias. The result for this analyte was estimated (J-8H) in the parent sample.

The RPD values for benzo(g,h,i)perylene, dibenzo(a,h)anthracene, di-n-octyl phthalate, indeno(1,2,3-cd)pyrene and total benzofluoranthenes were greater than the control limit; detections for these compounds were qualified (J-9) in the parent sample.

Field Duplicates

For sediment samples, the QAPP RPD control limit is 50% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than 2x the RL. No data were qualified based on field duplicate precision outliers. Users of the data should consider the impact of field precision outliers on the reported results.

Samples SL4-SG-WC7-2019 and SL4-SG-WC7-FD-2019 were submitted as field duplicates. The difference values for butyl benzyl phthalate and di-n-octyl phthalate were greater than 2x the RLs.

Certified Reference Material

No certified reference materials were analyzed with this analytical data set.

Reported Results

The concentration of bis(2-ethylhexyl)phthalate exceeded the calibrated range of the instrument in the initial analyses of Samples SL4-SG-WC3-2019 and SL4-SG-WC1-2019 and were flagged "E" by the laboratory. These samples were re-analyzed at dilution; both sets of data were reported. The initial results for bis(2-ethylhexyl) phthalate were flagged as do-not-report (DNR-20) in favor of the results from the dilution. All other results from the re-analysis were flagged (DNR-11) to show which result from multiple analyses should be not used.

Internal Standards

Internal standards were added to all samples as required by the method. The internal standard recovery for perylene-d12 was less than the lower control limit for Samples SL4-1C-SC3-2019 and SL4-1C-SC2-2019; the samples were re-analyzed with the internal standard recovery for both sample within the control limit; no results qualified.

Reporting Limits

Reporting limits were elevated due to required dilutions.

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were found.

OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable as demonstrated by the surrogate, LCS, and MS/MSD recovery values. Precision was acceptable as demonstrated by the MS/MSD and field duplicate relative percent difference values.

Results were estimated due to calibration verification percent difference outliers and MS/MSD recovery and precision outliers.

Data were flagged as do-not-report (DNR) to indicate which data from multiple reported analyses should not be used. Results qualified DNR should not be used for any purpose.

All other data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
City of Seattle – Slip 4
PCB Aroclors by EPA 8082A

This report documents the review of analytical data from the analyses of sediment and filter wipe samples and the associated laboratory quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington. Refer to the Sample Index for a list of the individual samples.

SDG	NUMBER OF SAMPLES	VALIDATION LEVEL
19H0024	9 Sediment & 1 Filter Wipe	EPA Stage 4

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (100% verification) by comparing the EDD to the hardcopy laboratory data package. Ten percent (10%) of the laboratory QC results were also verified. No discrepancies were found.

TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

1	Sample Receipt, Preservation, and Holding Times	✓	Matrix Spikes/Matrix Spike Duplicates (MS/MSD)
✓	Initial Calibration (ICAL)	1	Field Duplicates
✓	Continuing Calibration (CCAL)	1	Internal Standard
✓	Laboratory Blanks	✓	Target Analyte List
1	Field Blanks	✓	Reporting Limits
✓	Surrogate Compounds	✓	Compound Identification
✓	Laboratory Control Samples (LCS)	✓	Reported Results
1	Reference Material	1	Calculation Verification (Full validation only)

✓ ***Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.***
[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Sample Receipt, Preservation, Holding Times

As stated in validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of ≤6°C. The laboratory received the sample coolers within the advisory temperature range at 2.6°C and 4.0°C.

Filter blank sample SL4-SG-WC3-FB-2019 was received by the laboratory but was placed on hold per client request.

Field Blanks

Sample SL4-SG-WC3-FW-2019 was identified as a filter wipe. No target analytes were detected.

Reference Material

No reference material was analyzed with this analytical data set.

Internal Standards

Internal standard compounds 1-bromo-nitrobenzene and hexabromobiphenyl were added to all samples. With the following exceptions, all internal standard responses were within the control limits of 50%-200% of the response in the associated calibration verification standard.

The internal standard recovery for hexabromobiphenyl in the Samples SL4-SG-WC2-2019, SL4-SG-WC1-2019, SL4-1C-SC2-2019, and SL4-1C-SC3-2019 were less than the lower control limit in the primary column affecting Aroclors 1248, 1254, and 1260. The internal standard areas in the secondary column were within control limits; the laboratory reported the results from the secondary column; no results were qualified.

Field Duplicates

For sediment samples, the RPD control limit is 50% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than 2x the RL.

Samples SL4-SG-WC7-2019 and SL4-SG-WC7-FD-2019 were submitted as field duplicates. Field precision was acceptable.

Calculation Verification

Calculation verifications were performed for this SDG. No calculation or transcription errors were found.

OVERALL ASSESSMENT

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the surrogate, LCS and MS/MSD recovery values. Precision was acceptable as demonstrated by the MS/MSD and field duplicate relative percent difference (RPD) values.

No data were qualified for any reason.

All data, as reported, are acceptable for use.

DATA VALIDATION REPORT
City of Seattle – Slip 4
Metals by EPA 6010C and SW7471B

This report documents the review of analytical data from the analysis of sediment and filter wipe samples and the associated laboratory quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc. (ARI), Tukwila, Washington. Refer to the Sample Index for a list of the samples reviewed.

SDG	NUMBER OF SAMPLES	VALIDATION LEVEL
19H0024	9 Sediment & 1 Filter Wipe	EPA Stage 3

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

For Sample FB0902, the laboratory reported lead, silver, arsenic, and copper. This sample was placed on hold per client request pending the review of the filter wipes results. The filter blank was subsequently analyzed and reported.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results reported in the electronic data deliverable (EDD) were verified (100% verification) by comparing the EDD to the hardcopy laboratory data package. Ten percent (10%) of the laboratory QC results were also verified.

TECHNICAL DATA VALIDATION

The quality control (QC) requirements for review are listed below.

1	Sample Receipt, Preservation, and Holding Times	1	Field Duplicates
✓	Initial Calibration (ICAL)	✓	Laboratory Duplicates
✓	Calibration Verification	1	Reference Material
✓	Reporting Limit Standards	✓	Interference Check Samples
2	Laboratory Blanks	**1**	Serial Dilutions
1	Field Blanks	**1**	Reporting Limits
✓	Laboratory Control Samples (LCS)	✓	Reported Results
2	Matrix Spikes (MS)	✓	Calculation Verification

· ***Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.***
[1] ***Quality control results are discussed below, but no data were qualified.***
[2] ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Sample Receipt, Preservation, Holding Times

As stated in validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of ≤6°C. The laboratory received the sample coolers within the advisory temperature range at 2.6°C and 4.0°C.

Filter blank sample SL4-SG-WC3-FB-2019 was received by the laboratory but was placed on hold per client request.

Laboratory Blanks

To assess the impact of any blank contaminant on the reported sample results, an action level is established at five times (5x) the concentration reported in the blank. If a contaminant is reported in an associated field sample and the concentration is less than the action level, the result is qualified as not detected (U-7). No action is taken if the sample result is greater than the action level, or for non-detected results. For laboratory blanks that are less than the negative MDL, positive results less than the action level of five times the absolute value of the blank concentration are estimated (J-7) and non-detects are estimated (UJ-7) to indicate a potential low bias.

Laboratory blanks were analyzed at the appropriate frequency. Contaminant levels, associated samples, and action levels are documented in the data validation worksheets.

In the method blank associated with the filter wipe batch, chromium and zinc were detected. The result for chromium in Sample SL4-SG-WC3-FW-2019 was less than the action limit; the result was qualified (U-7).

In the method blank associated with the sediment batch, zinc was detected. All associate sample results were greater than the action level; no results were qualified

Field Blanks

Sample SL4-SG-WC3-FW-2019 was identified as a filter wipe blank sample and was evaluated for impact of any contaminant on the reported sample results. Action levels were established at five times (5x) the concentration reported in the field blank. If a contaminant is reported in an associated field sample and the concentration is less than the action level, the result is qualified as not detected (U-6). No action is taken if the sample result is greater than the action level, or for non-detected results.

Zinc, copper, chromium, arsenic, and lead were detected and after evaluating the method blank, all elements remained except chromium. For the remaining elements, the associated sample results were greater than the action levels; no results were qualified.

Matrix Spikes

Matrix spike samples (MS) were analyzed at the proper frequency of one per 20 samples or one per batch for soil samples. Where analyte concentrations were less than 4x the spike amount, the percent recovery (%R) and relative percent difference (RPD) values were evaluated. If the percent recovery

values indicate a potential low bias, associated results are estimated (J/UJ-8). If the %R values indicate a potential high bias, only the associated positive results are estimated (J-8).

Sample SL4-SG-WC3-2019 was analyzed as the matrix spike. The %R value for mercury was greater than the upper control limit of 125% at 134%. Results for mercury in all samples were estimated (J-8H) to indicate a potential high bias.

Field Duplicates

For sediment samples, the QAPP RPD control limit is 35% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than 2x the RL.

Samples SL4-SG-WC7-2019 and SL4-SG-WC7-FD-2019 were submitted as field duplicates. Field precision was acceptable.

Reference Material

No standard reference material was analyzed with this analytical data set.

Serial Dilutions

A serial dilution was not performed with this analytical data set.

Reporting Limits

The reporting limits for all analytes in some samples exceeded the QAPP limits due to dilutions.

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were noted.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical methods. With the exceptions noted above, accuracy was acceptable as demonstrated by the laboratory control sample and matrix spike percent recoveries. With the exception noted previously, precision was acceptable as indicated by the laboratory and field duplicate RPD values.

One chromium result was flagged as not detected at the reported concentration due to method blank contamination and all sediment mercury results were estimated based on a matrix spike recovery outlier.

All data, as qualified, are acceptable for use.

DATA VALIDATION REPORT
City of Seattle – Slip 4
Conventional Analyses

This report documents the review of analytical data from the analysis of sediment samples and the associated laboratory quality control (QC) samples. Analytical Resources, Inc., Tukwila, Washington, analyzed the samples. Refer to the Sample Index for a list of samples reviewed.

SDG	Number of Samples	Validation Level
19H0024	9 Sediment	EPA Stage 3

The analytical tests that were performed are summarized below:

Parameter	Method
Total Solids	SM 2540 G-97
Total Organic Carbon (TOC)	Plumb, 1981
Grain Size	PSEP 1986

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

All sample IDs and results (100% verification) reported in the electronic data deliverable (EDD) were verified by comparing the EDD to the hardcopy laboratory data package. Ten percent (10%) of the laboratory QC results were also verified.

TECHNICAL DATA VALIDATION

The QC requirements for review are listed below.

2	Sample Receipt, Preservation, and Holding Times	1	Field Duplicates
✓	Laboratory Blanks	✓	Laboratory Replicates
✓	Laboratory Control Samples (LCS)	1	Reporting Limits
1	Reference Materials	✓	Reported Results
✓	Matrix Spike (MS)	1	Calculation Verification (Full validation only)

✓ Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.
[1] Quality control results are discussed below, but no data were qualified.
[2] Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.

Sample Receipt, Preservation, Holding Times

As stated in validation guidance documents, sample shipping coolers should arrive at the laboratory within the advisory temperature range of ≤6°C. The laboratory received the sample coolers within the advisory temperature range at 2.6°C and 4.0°C.

Sample SL4-SG-WC7-FD-2019 was analyzed for TOC beyond the analysis holding time of 14 days at 19 days. The result was estimated (J-1).

Reference Material

A reference material sample was not analyzed with this data set.

Field Duplicates

For sediment samples, the RPD control limit is 50% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the absolute difference between the sample and replicate must be less than 2x the RL.

Samples SL4-SG-WC7-2019 and SL4-SG-WC7-FD-2019 were submitted as field duplicates. Field precision was acceptable.

Reporting Limits

The reporting limit reported for total solids exceeded the QAPP limits.

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were found.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical methods. Accuracy was acceptable as demonstrated by the laboratory control sample and matrix spike recoveries and precision was acceptable as indicated by the laboratory and field duplicate RPD values and laboratory triplicate percent relative standard deviation values.

One TOC result was estimated based on a holding time outlier.

All data, as qualified, are acceptable for use.

ECOCHEM
Data Quality

APPENDIX A

DATA QUALIFIER DEFINITIONS
REASON CODES
AND CRITERIA TABLES

DATA VALIDATION QUALIFIER CODES
Based on National Functional Guidelines

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents the approximate concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

The following is an EcoChem qualifier that may also be assigned during the data review process:

DNR	Do not report; a more appropriate result is reported from another analysis or dilution.

DATA QUALIFIER REASON CODES

Group	Code	Reason for Qualification
Sample Handling	1	Improper Sample Handling or Sample Preservation (i.e., headspace, cooler temperature, pH, summa canister pressure); Exceeded Holding Times
Instrument Performance	24	Instrument Performance (i.e., tune, resolution, retention time window, endrin breakdown, lock-mass)
	5A	Initial Calibration (RF, %RSD, r^2)
	5B	Calibration Verification (CCV, CCAL; RF, %D, %R) Use bias flags (H,L)[1] where appropriate
	5C	Initial Calibration Verification (ICV %D, %R) Use bias flags (H,L)[1] where appropriate
Blank Contamination	6	Field Blank Contamination (Equipment Rinsate, Trip Blank, etc.)
	7	Lab Blank Contamination (i.e., method blank, instrument blank, etc.) Use low bias flag (L)[1] for negative instrument blanks
Precision and Accuracy	8	Matrix Spike (MS and/or MSD) Recoveries Use bias flags (H,L)[1] where appropriate
	9	Precision (all replicates: LCS/LCSD, MS/MSD, Lab Replicate, Field Replicate)
	10	Laboratory Control Sample Recoveries (a.k.a. Blank Spikes) Use bias flags (H,L)[1] where appropriate
	12	Reference Material Use bias flags (H,L)[1] where appropriate
	13	Surrogate Spike Recoveries (a.k.a. labeled compounds, recovery standards) Use bias flags (H,L)[1] where appropriate
Interferences	16	ICP/ICP-MS Serial Dilution Percent Difference
	17	ICP/ICP-MS Interference Check Standard Recovery Use bias flags (H,L)[1] where appropriate
	19	Internal Standard Performance (i.e., area, retention time, recovery)
	22	Elevated Detection Limit due to Interference (i.e., chemical and/or matrix)
	23	Bias from Matrix Interference (i.e. diphenyl ether, PCB/pesticides)
Identification and Quantitation	2	Chromatographic pattern in sample does not match pattern of calibration standard
	3	2nd column confirmation (RPD or %D)
	4	Tentatively Identified Compound (TIC) (associated with NJ only)
	20	Calibration Range or Linear Range Exceeded
	25	Compound Identification (i.e., ion ratio, retention time, relative abundance, etc.)
Miscellaneous	11	A more appropriate result is reported (multiple reported analyses i.e., dilutions, re-extractions, etc. Associated with "R" and "DNR" only)
	14	Other (See DV report for details)
	26	Method QC information not provided

[1] H = high bias indicated
L = low bias indicated

Semivolatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8270D)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	4°C±2°C sediment/tissues may require storage at -20°C	NFG (1) Method (3)	**If required by project:** J (pos)/UJ (ND) if greater than 6° C	1	Use **PJ** for temp outliers; see **TM20** Current SW846 criterion is ≤ 6° C (3)
Holding Time	**Extraction Aqueous:** 7 days from collection **Extraction Solid:** 14 days from collection **Analysis (all matrices)**: 40 days from extraction Holding time may be extended to 1 year for frozen sediments/tissues	NFG (1) Method (3)	J (pos)/UJ (ND) if HT exceeded J (pos)/R (ND) if gross exceedance (> 2x HT)	1	Gross exceedance = > 2x HT, as per 1999 NFG
Instrument Performance					
Tuning	DFTPP Beginning of each 12 hour period Use method or project acceptance criteria	NFG (1) Method (3)	R (pos/ND) all analytes in all samples associated with the tune	24	
Initial Calibration **Sensitivity**	RRF ≥ 0.05 except: RRF ≥ 0.01 poor responders *	NFG (1) Method (3)	Use **PJ** to qualify J (pos)/UJ (ND)	5A	**TM-06** EcoChem Policy for the Evaluation and Qualification of GCMS Instrument Performance **PJ** - no action if response is stable (ICAL RSD and CCAL %D acceptable)
Initial Calibration **Stability**	Minimum 5 standards %RSD ≤ 20.0% except: %RSD ≤ 40.0% poor responders * **or** co-efficient of determination (r^2) > 0.99	NFG (1) Method (3)	J (pos) if %RSD > limit **or** r^2 value <0.99	5A	
Initial Calibration Verification Check	Prepared from second source; analyze after each ICAL Percent recovery limits = 70-130%	Method (3)	J (pos) %R > UCL J (pos)/UJ (ND) %R < LCL	5A (H,L)[4]	QAPP may have overriding accuracy limits.

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Semivolatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8270D)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Instrument Performance (continued)					
Continuing Calibration **Sensitivity**	RRF ≥ 0.05 except: RRF ≥ 0.01 poor responders *	NFG (1) Method (3)	Use **PJ** to qualify J (pos)/UJ (ND)	5B	see ICAL RRF guidance
Continuing Calibration **Stability**	Prior to sample analysis and every 12 hours %D ≤ 25% except: %D ≤ 40.0% poor responders *	NFG (1) Method (3)	J (pos) - %D > control limit (high bias) J (pos)/UJ (ND) - %D < -control limit (low bias)	5B (H,L)[4]	
Blank Contamination					
Method Blank (MB)	MB: One per matrix per batch of (of ≤ 20 samples) No detected compounds > MDL	NFG (2) Method (3)	U(pos) if result is < 5X or 10X action level	7	10X action level applies to phthalates only. 5X for all other target analytes **Hierarchy of blank review:** **#1 - Review MB, qualify as needed** **#2 - Review FB , qualify as needed** **Note: Actions as per 1999 NFG**
	No TICs present		R (pos) TICs using 10X rule	7	
Field Blank (FB)	No detected compounds > MDL	NFG (2) Method (3)	U (pos) if result is < 5X or 10X action level	6	
Precision and Accuracy					
LCS/LCSD (recovery)	One per matrix per batch (of ≤ 20 samples) LCSD not required by NFG or method Use method acceptance criteria/laboratory limits	Method (3)	J (pos) if %R > UCL J (pos)/UJ (ND) if %R < LCL J (pos)/R (ND)%R < 10%	10 (H,L)[4]	No action if only one spike %R is outside criteria when LCSD is analyzed, unless one recovery is <10%. QAPP may have overriding accuracy limits. Qualify all associated samples.
LCS/LCSD (RPD)	If LCSD analyzed RPD < lab limits	Method (3)	J (pos)	9	Qualify all associated samples. QAPP may have overriding precision limits.

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Semivolatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8270D)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy (continued)					
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[4]	QAPP may have overriding accuracy limits. Some manufacturers have different RM control limits
MS/MSD (recovery)	One per matrix per batch (of ≤ 20 samples) Use method acceptance criteria/laboratory limits	NFG (1) Method (3)	J (pos) %R > UCL J (pos)/UJ (ND) if both %R < LCL J (pos)/R (ND) if both %R < 10% J (pos)/UJ (ND) if one > UCL & one < LCL, with no bias	8 (H,L)[4]	No action if only one spike %R is outside criteria. No action if parent concentration is >4x the amount spiked. Qualify parent sample only.
MS/MSD (RPD)	One per matrix per batch (of ≤ 20 samples) Use method acceptance criteria/laboratory limits	NFG (1) Method (2)	J (pos) in parent sample if RPD > CL	9	Qualify parent sample only
Surrogates	Minimum of 3 acid & 3 base/neutral (B/N) compounds added to all samples Within method control limits	NFG (1) Method (3)	J (pos) if %R > UCL J (pos)/UJ (ND) if %R < LCL J (pos)/R (ND) if %R < 10%	13 (H,L)[4]	Qualify all compounds in associated fraction. Do not qualify if only 1 acid and/or 1 B/N surrogate is out, unless <10%. If 1 surrogate outlier < 10% then J (pos)/R (ND)
Internal Standards	Added to all samples Acceptable Range: IS area 50% to 200% of CCAL area RT within 30 seconds of CC RT	NFG (1) Method (3)	J (pos) if > 200% J (pos)/UJ (ND) if < 50% J (pos)/R (ND) if < 25% if RT >30 seconds use **PJ**	19	Qualify compounds quantified using particular internal standard
Field Duplicates	**Solids:** RPD < 50% OR difference < 2X RL (for results < 5X RL) **Aqueous:** RPD < 35% OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	J (pos)/UJ (ND) Qualify only parent and field duplicate samples	9	Use project limits if specified

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Semivolatile Organic Compounds by Gas Chromatography-Mass Spectroscopy (GC-MS)
(Based on NFG 1999 & 2008 and SW-846 Method 8270D)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Compound Identification and Quantitation and Calculation					
Retention times and relative ion intensities	RRT within 0.06 of standard RRT Ion relative intensity within 20% of standard All ions in std. at > 10% intensity must be present in sample	NFG [(1)] Method [(3)]	U (pos) if identification criteria not met	25	
TICs	Major ions (>10%) in reference must be present in sample; intensities agree within 20%; check identification	NFG [(1)] Method [(3)]	NJ the TIC unless: R (pos) common laboratory contaminants	4	
Calibration Range	Results greater than highest calibration standard	EcoChem standard policy	Qualify J (pos)	20	If result from dilution analysis is not reported.
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	**TM-04** EcoChem Policy for Rejection/Selection Process for Multiple Results

[1] National Functional Guidelines for Organic Data Review, June, 2008
[2] National Functional Guidelines for Organic Data Review, October, 1999
[3] Method SW846 8270D Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 4, February 2007.
[4] NFG 2013 suggests using "+ / -" to indicate bias; EcoChem has chosen "H" = high bias indicated; "L" = low bias indicated.

(pos): Positive Result(s)
(ND): Non-detects

* "Poor responder" compounds: acetophenone, atrazine, benzaldehyde, 1,1'-biphenyl, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, caprolactam, carbazole, 4-chloroaniline, diethylphthalate, di-n-butylphthalate, 3-3'-dichlorobenzidine, dimethylphthalate, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, di-n-octylphthalate, hexachlorobutadiene, hexachlorocyclopentadiene, 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, 4-nitrophenol, N-nitrosodiphenylamine, 2,2'-oxybis-(1-chloropropane), 1,2,4,5-tetrachlorobenzene use a 0.010 RRF criterion.

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PCB Aroclors by GC
(Based on Organic NFG 2008 and SW-846 Method 8082A)

QC Element	Acceptance Criteria (NFG)	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample					
Cooler/Storage Temperature Preservation	4°C ± 2°C Tissue/sediments (may be frozen -20°C)	NFG [1] Method [2]	**If required by project:** J (pos)/UJ (ND) if greater than 6° C	1	Use Professional Judgment (PJ) to qualify for temperature outlier. Current SW846 criterion is ≤ 6° C [3]
Holding Time	**Extraction Aqueous:** 7 days from collection **Extraction Solid:** 14 days from collection **Exraction Tissue/Sediment (frozen):** 1 year **Analysis (all matrices)**: 40 days from extraction	NFG [1] Method [2]	**If required by project:** J (pos)/UJ (ND) if ext/analyzed > HT J (pos)/R (ND) if gross exceedance (> 2x HT)	1	Use PJ to qualify for holding time outlier. ***Current SW846 does not have an extraction holding time limit.*** [3] Gross exceedance > 2x HT, as per NFG 1999
Instrument Performance					
Retention Times	Surrogates: TCMX (± 0.05); DCB (± 0.10) Aroclors (± 0.07)	NFG [1]	NJ (pos)/R (ND) results for analytes with RT shifts	24	
Initial Calibration	Minimum 5 point with RSD ≤ 20% OR correlation coefficient (r-value) ≥ 0.995 OR Minimum 6-point with co-efficient of determination (r2-value) ≥ 0.99	NFG [1] Method [4]	J (pos) if %RSD greater than 20% OR r-value < 0.995 OR r^2-value < 0.99	5A	Refer to TM-01 for additional information. Use bias flags (H,L)[5] where appropriate
Initial Calibration Verification (ICV)	No NFG criteria. Project specific.	Project	J (pos) if > UCL J (pos)/UJ (ND) if < LCL	5B	Use bias flags (H,L) where appropriate
Continuing Calibration (Prior to each 12 hr. shift)	%D ± 20%	Method [2]	If > 20% (high bias): J (pos) If <20% (low bias: J (pos)/UJ (ND)	5B	Refer to TM-01 for additional information. Use bias flags (H,L) where appropriate
Blank Contamination					
Method Blank (MB)	MB: One per matrix per batch of (of ≤ 20 samples) No detected compounds > RL	NFG [1] Method [2]	U (pos) if result is less than appropriate 5X action level.	7	**Hierarchy of blank review:** **#1 - Review MB and IB, qualify as needed** **#2 - Review FB , qualify as needed** Note: Actions as per NFG 1999 Note: IB not required by method
Field Blank (FB)	FB: frequency as per QAPP No detected compounds > RL	NFG [1] Method [2]	U (pos) if result is less than appropriate 5X action level.	6	
Instrument Blanks (IB)	Analyzed at the beginning and end of every 12 hour sequence No analyte > CRQL	NFG [1]	U (pos) if result is less than appropriate 5X action level.	7	

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PCB Aroclors by GC
(Based on Organic NFG 2008 and SW-846 Method 8082A)

QC Element	Acceptance Criteria (NFG)	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy					
MS/MSD (recovery)	One set per matrix per batch (of ≤ 20 samples) AR1016 and AR1260: %R = 29% - 135%, or project limits	NFG (1) Method (2)	Qualify parent only unless other QC indicates systematic problems. J (pos) if both %R > upper control limit (UCL) J (pos)/UJ (ND) if both %R < lower control limit (LCL) J (pos)/R (ND) if both %R < 10%	8	No action if only one spike %R is outside criteria. No action if native analyte conc. > 5x the amount spiked. Use bias flags (H,L) where appropriate. Actions apply to all Aroclors in parent sample.
MS/MSD (RPD)	One set per matrix per batch (of ≤ 20 samples) AR1016: RPD < 15%, AR1260: RPD < 20% or project limits	NFG (1) Method (2)	Qualify parent only unless other QC indicates systematic problems. J (pos) if RPD > control limit	9	No action if parent is ND.
LCS	One per lab batch (of ≤ 20 samples) AR1016 and AR1260: %R = 50% - 150%, or project limits	NFG (1)	J (pos) if %R > UCL J (pos)/UJ (ND) if %R < LCL J (pos)/R (ND) if %R < 10%	10	Use bias flags (H,L) where appropriate. Actions apply to all Aroclors in associated samples.
LCS/LCSD (RPD)	if analyzed use MS/MSD RPD criteria	NFG (1)	J (pos) assoc. compound in all samples	9	LCSD not required by method or NFG
Precision and Accuracy					
Surrogates	TCMX and DCBP added to every sample %R = 30% - 150% or project limits	NFG (1) Method (2)	J (pos) if either %R > UCL J (pos)/UJ (ND) if either %R < LCL J (pos)/R (ND) if either %R < 10%	13	If %R < 10% (sample dilution is a factor), use PJ Use bias flags (H,L) where appropriate
Internal Standards (if used)	Acceptable Range: IS area = 50% to 200% of CCAL area RT within 30 seconds of CC RT	Method (2)	J (pos) if area > 200% J (pos)/UJ (ND) if area < 50% J (pos)/R (ND) if area < 25% RT > 30 seconds, narrate	19	
Field Duplicates	**Solids:** RPD < 50% OR difference < 2X RL (for results < 5X RL) **Aqueous:** RPD < 35% OR difference < 1X RL (for results < 5X RL)	EcoChem	J (pos)/UJ (ND) Qualify only parent and field duplicate samples	9	use project limits if specified

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PCB Aroclors by GC
(Based on Organic NFG 2008 and SW-846 Method 8082A)

QC Element	Acceptance Criteria (NFG)	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Compound Identification/Quantification					
Quantitation/ Identification	Between two columns: RPD < 40% or %D < 25% Within Retention Time Windows on both columns.	NFG [1] Method [2]	J (pos) if RPD = 40% - 60% (25% - 60% for %D) NJ (pos) if > 60% R (pos) if RTW criterion not met	3	See TM-08 for additional info.
Calibration Range	on column concentration < high calibration standard	NFG [1] Method [2]	J (pos) if conc > high standard and sample was not diluted	20	
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	Standard reporting policy	Use "DNR" to flag results that will not be reported.	11	TM-04 Rev. 1 for additional info.
Sample Clean-up					
GPC/Sulfur/ Florisil/Acid	No criteria - cleanups are optional	NFG [1] Method [2]	Use Professional Judgment	14	special cleanups may be required for project cleanup standards may be associated with GPC/florisil cleanups

[1] National Functional Guidelines for Organic Data Review, June, 2008
[2] Polychlorinated Biphenyls (PCBs) by Gas Chromatography USEPA Method SW846 8082A, Feb 2007, Rev. 1
[3] SW846, Chapter 4, Organic Analytes
[4] Determinative Chromatographic Separations , Method 8000C , March 2003, Rev.3
[5] "H" = high bias indicated; "L" = low bias indicated

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Metals by ICP-AES
(Based on Inorganic NFG 2010 and SW-846 6010C)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler / Storage Temperature Preservation	**Solid:** Cooler temperature 4°C±2°C **Aqueous:** Nitric Acid to pH < 2 **Dissolved Metals:** 0.45 µm filter, preserve to pH < 2 after filtration	NFG (1) Method (2)	Cooler Temps: **If required by project** J (pos)/UJ (ND) if greater than 6° C Aqueous: J (pos)/UJ (ND) if pH > 2	1	Use **PJ** to qualify for temperature outlier. Current SW846 criterion is ≤ 6° C (4) No quals for pH if samples preserved by lab upon receipt and within 1 day of collection.
Holding Time	All matrices: 180 days from date sampled Frozen soils, sediments, tissues (-20°C) - HT extended to 1 year	NFG (1) Method (2) EcoChem standard policy	J (pos)/UJ (ND) if holding time exceeded	1	
Instrument Performance					
Initial Calibration (ICAL)	Based on instrument requirements, blank + 1 standard minimum requirement for calibration If more than 1 standard used, r ≥ 0.995	NFG (1) Method (2)	J (pos)/UJ (ND) if r < 0.995	5A	
Initial Calibration Verification (ICV)	Independent source analyzed immediately after calibration %R within ± 10% of true value	NFG (1) Method (2)	R (pos/ND) if %R < 75% J (pos)/UJ (ND) if %R 75% - 89% J (pos) if %R >111%	5A (H,L)[3]	Qualify all samples in run
Reporting Limit (RL) Standard Low Level ICV/CCV	concentration at RL %R = 70%-130%	Method (2)	J (pos) < 2x RL / R (ND) if %R <50% J (pos) < 2x RL / UJ (ND) if %R 50 - 69% J (pos) < 2x RL if %R > 130%	5A (H,L)[3]	Qualify all samples in run
Continuing Calibration Verification (CCV)	Immediately following ICV/ICB, then every two hours or ten samples, and at end of run. %R within ± 10% of true value	NFG (1) Method (2)	R (pos/ND) if %R < 75% J (pos)/UJ (ND) if %R 75% - 89% J (pos) if %R >111%	5B (H,L)[3]	Qualify samples bracketed by CCV outliers
Interference Check Samples (ICSA / ICSAB)	ICSAB %R 80% - 120% for all spiked elements | ICSA | < MDL for all unspiked elements	NFG (1) Method (2)	For samples with Al, Ca, Fe, Mg > ICS levels: **ICSAB**: J(pos)/R (ND) if %R < 50% J (pos)/UJ (ND) if %R = 50% - 79% J (pos) if %R > 120% **ICSA:** J (pos)< 2x ICSA/UJ (ND) for ICSA <Neg MDL J (pos) < 2x ICSA for ICSA > MDL	17 (H,L)[3]	Use **PJ** and inter-element correction factors to evaluate ICSA to determine if bias is present. Refer to **TM-09** for additional information.

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Metals by ICP-AES
(Based on Inorganic NFG 2010 and SW-846 6010C)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Blank Contamination					
Method Blank (MB)	One per matrix per batch of (of ≤ 20 samples) Blank conc < MDL	NFG [1] Method [2]	U (pos) if result is < 5X method blank concentration	7	Refer to **TM-02** for additional information. Blank Evaluation based on NFG 1994
Instrument Blanks (ICB/CCB)	After each ICV & CCV | blank concentration | < MDL	NFG [1] Method [2]	Action level is 5x absolute value of blank conc. For positive blanks: U (pos) results < action level For negative blanks: J (pos)/UJ (ND) results < action level	Pos Blanks: 7 Neg Blanks: 7L[3]	Use blanks bracketing samples for Qualification Refer to **TM-02** for additional information. **Hierarchy of blank review:** **#1 - Review MB, quaify as needed** **#2 - Review IB , qualify as needed** **#3 - Review FB , qualify as needed**
Field Blank (FB)	Blank conc < MDL	EcoChem standard policy	U (pos) if result is < 5x action level, as per analyte.	6	Qualify in associated field samples only. Refer to **TM-02** for additional information.
Precision and Accuracy					
LCS (recovery)	One per matrix per batch (of ≤ 20 samples); LCSD not required %R between 80-120%	Method [2]	J (pos)/R (ND) if %R <50% J (pos)/UJ (ND) if %R 50% - 79% J (pos) if %R > 120%	10 (H,L)[3]	Qualify all samples in batch QAPP may have overriding accuracy limits. NFG Limits 70% -130% (50% - 150% Ab, Ag)
LCS/LCSD (RPD)	LCSD not required, if analyzed: RPD ≤ 20%	Method [2]	J (pos)/UJ (ND) if RPD > 20%	9	Qualify all samples in batch QAPP may have overriding precision limits.
MS/MSD (recovery)	One per matrix per batch (of ≤ 20 samples); MSD not required %R between 75-125%	NFG [1] Method [2]	J (pos) if %R > 125% J (pos)/UJ (ND) if %R <75% J (pos)/R (ND) if %R < 30%, unless post digestion spike analyzed, J (pos)/UJ (ND) if post digestion spike %R OK	8 (H,L)[3]	No action if only one spike %R is outside criteria. NA if parent concentration >4x the amount spiked. Qualify all samples in batch. QAPP may have overriding accuracy limits.

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Metals by ICP-AES
(Based on Inorganic NFG 2010 and SW-846 6010C)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy con't					
Post Digestion Spikes	If MS is outside 75-125%, post-spike should be analyzed %R 80%-120% (method); 75%-125% (NFG)	NFG [1] Method [2]	Only used to support MS qualification decisions	NA	No qualifiers assigned based solely on this element.
MS/MSD (RPD)	MSD not required, if analyzed: RPD ≤ 20%	NFG [1] Method [2]	J (pos)/UJ (ND) if RPD > 20%	9	QAPP may have overriding precision limits.
Laboratory Duplicate	One per matrix per batch (of ≤ 20 samples) RPD ≤ 20% for results ≥ 5x RL Solids: difference < 2X RL for results < 5X RL Aqueous: difference < 1X RL for results < 5X RL	NFG [1] Method [2]	J (pos)/UJ (ND) if RPD > 20% or if difference > control limit	9	Qualify all samples in batch. QAPP may have overriding precision limits.
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[3]	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits
Serial Dilution	Analyze one sample per matrix at a 5x dilution %D <10% for original sample conc. > 50x MDL	NFG [1] Method [2]	J (pos)/UJ (ND) if %D > 10% and native sample concentration > 50x MDL	16	Qualify all samples in batch.
Field Duplicate	Solids: RPD <50% (for results ≥ 5x RL) OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% (for results ≥ 5x RL) OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	Qualify only parent and field duplicate samples J (pos)/UJ (ND)	9	QAPP may have overriding precision limits. Client/QAPP may not require qualification based on field precision.

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Metals by ICP-AES
(Based on Inorganic NFG 2010 and SW-846 6010C)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Compound Quantitation					
Total and Dissolved Comparison	Total > Dissolved	EcoChem standard policy	J (pos)/UJ (ND) if Dissolved > Total and results fall outside of standard duplicate precision criteria	14	
Calibration Range	Results < instrument linear range	NFG [1] Method [2]	J (pos) if result exceeds linear range and sample was not diluted	20	
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	**TM-04** EcoChem Policy for Rejection/Selection Process for Multiple Results

[1] National Functional Guidelines for Inorganic Superfund Data Review, January 2010.

[2] Method SW846 6010C Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES), Revision 3, February 2007.

[3] "H" = high bias indicated; "L" = low bias indicated

[4] SW846, Chapter 3, Inorganic Analytes

(pos): Positive Result
(ND): Not Detected

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Mercury by CVAA
(Based on Inorganic NFG 2010 and SW846 7470A & 7471B)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler / Storage Temperature Preservation	**Solid:** Cooler temperature 4°C±2°C **Aqueous:** Nitric Acid to pH < 2 **Dissolved Metals:** 0.45 µm filter, preserve to pH < 2 after filtration	NFG (1) Method (2)	Cooler Temps: **If required by project** J (pos)/UJ (ND) if greater than 6° C Aqueous: J (pos)/UJ (ND) if pH > 2	1	Use **PJ** to qualify for temperature outlier. Current SW846 criterion is ≤ 6° C (4) No quals for pH if samples preserved by lab immediately upon receipt and within 1 day of collection.
Holding Time	28 days from date sampled Frozen solids and tissues HT extended to 6 months	NFG (1) Method (2) EcoChem standard policy	J (pos)/UJ (ND) if HT exceeded	1	
Instrument Performance					
Initial Calibration (ICAL)	Daily Calibration Blank + 5 standards, one ≤ RL Correlation coefficient (r) ≥ 0.995	NFG (1) Method (2)	J (pos)/UJ (ND) if r < 0.995	5A (H,L)[3]	
Initial Calibration Verification (ICV)	Independent source analyzed immediately after ICAL %R within ± 15% of true value	NFG (1) Method (2)	R(pos/ND) if %R <70% J(pos)/UJ(ND) if %R = 70-84% J(pos) if %R = > 116%	5A (H,L)[3]	Qualify all samples in run
Reporting Limit (RL) Standard	Conc = RL %R = 70-130%	Method (2)	J (pos) < 2x RL / R (ND) if %R <50% J (pos) < 2x RL / UJ (ND) if %R 50 - 69% J (pos) < 2x RL if %R > 130%	5A (H,L)[3]	Qualify all samples in run
Continuing Calibration Verification (CCV)	At beginning of run, every ten samples, and again after last sample. %R within ± 15% of true value	NFG (1) Method (2)	R(pos/ND) if %R <70% J(pos)/UJ(ND) if %R = 70-84% J(pos) if %R = > 116%	5B (H,L)[3]	Qualify samples bracketed by CCV outliers
Blank Contamination					
Method Blank (MB)	One per matrix per batch of (of ≤ 20 samples) Blank conc < MDL	NFG (1) Method (2)	U (pos) if result is < 5X method blank concentration	7	Refer to **TM-02** for additional information. Blank Evaluation based on NFG 1994

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Mercury by CVAA
(Based on Inorganic NFG 2010 and SW846 7470A & 7471B)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Instrument Blanks (ICB/CCB)	After each ICV & CCV | blank concentration | < MDL	NFG (1) Method (2)	Action level is 5x absolute value of blank conc. For positive blanks: U (pos) results < action level For negative blanks: J (pos)/UJ (ND) results < action level	Pos Blanks: 7 Neg Blanks: 7L[3]	Use blanks bracketing samples for Qualification Refer to **TM-02** for additional information. **Hierarchy of blank review:** **#1 - Review MB, quaify as needed** **#2 - Review IB , qualify as needed** **#3 - Review FB , qualify as needed**
Field Blank (FB)	Blank conc < MDL	EcoChem standard policy	U (pos) if result is < 5x action level, as per analyte.	6	Qualify in associated field samples only. Refer to **TM-02** for additional information.
Precision and Accuracy					
Laboratroy Control Sample (recovery)	One per matrix per batch (of ≤ 20 samples); LCSD not required %R between 80-120%	Method (2)	J (pos)/R (ND) if %R <50% J (pos)/UJ (ND) if %R 50% - 79% J (pos) if %R > 120%	10 (H,L)[3]	Qualify all samples in batch QAPP may have overriding accuracy limits. NFG does not address LCS
LCS/LCSD (RPD)	LCSD not required, if analyzed: RPD ≤ 20%	Method (2)	J (pos)/UJ (ND) if RPD > 20%	9	Qualify all samples in batch QAPP may have overriding precision limits.
Matris Spike/Matrix Spike Duplicate MS/MSD (recovery)	One per matrix per batch (of ≤ 20 samples); MSD not required %R between 75-125%	NFG (1) Method (2)	J (pos) if %R > 125% J (pos)/UJ (ND) if %R <75% J (pos)/R (ND) if %R < 30%	8 (H,L)[3]	No action if only one spike %R is outside criteria. NA if parent concentration >4x the amount spiked. Qualify all samples in batch. QAPP may have overriding accuracy limits.
MS/MSD (RPD)	MSD not required, if analyzed: RPD ≤ 20%	NFG (1) Method (2)	J (pos)/UJ (ND) if RPD > 20%	9	QAPP may have overriding precision limits.
Laboratory Duplicate	One per matrix per batch (of ≤ 20 samples) RPD ≤ 20% for results ≥ 5x RL Solids: difference < 2X RL for results < 5X RL Aqueous: difference < 1X RL for results < 5X RL	NFG (1) Method (2)	J (pos)/UJ (ND) if RPD > 20% or if difference > control limit	9	Qualify all samples in batch. QAPP may have overriding precision limits.

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Mercury by CVAA
(Based on Inorganic NFG 2010 and SW846 7470A & 7471B)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[3]	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits
Field Duplicate	Solids: RPD <50% (for results ≥ 5x RL) OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% (for results ≥ 5x RL) OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	Qualify only parent and field duplicate samples J (pos)/UJ (ND)	9	QAPP may have overriding precision limits. Client/QAPP may not require qualification based on field precision.
Compound Quantitation					
Total and Dissolved Comparison	Total > Dissolved	EcoChem standard policy	J (pos)/UJ (ND) if Dissolved > Total and results fall outside of standard duplicate precision criteria	14	
Calibration Range	Results < instrument linear range	NFG (1) Method (2)	if result exceeds linear range and sample was not diluted J (pos)	20	
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	**TM-04** EcoChem Policy for Rejection/Selection Process for Multiple Results

[1] National Functional Guidelines for Inorganic Superfund Data Review, January 2010.

[2] Method SW846 7470A Mercury in Liquid Waste (Manual Cold-Vapor Technique), Revision 1, September 1994.
Method SW846 7471B Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique), Revision 2, February 2007.

[3] "H" = high bias indicated; "L" = low bias indicated

[4] SW846, Chapter 3, Inorganic Analytes

(pos): Positive Result
(ND): Not Detected

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Conventional Methods with Instrument Calibrations (i.e., Ion Chromatography, Total Organic Carbon)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	Cooler temperature: 4°C±2°C Preservation: Analyte/Method Specific	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) if preservation requirements not met	1	Use **PJ** to qualify for cooler temp outliers.
Holding Time	Analyte/Method Specific	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) if holding time exceeded	1	
Instrument Performance					
Initial Calibration (ICAL)	blank + multiple standards as per method requirements r ≥ 0.995	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) for r < 0.995	5A	
Initial Calibration Verification (ICV)	Independent source analyzed immediately after calibration %R method specific	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) if %R < lower control limit (LCL) J (pos) if %R > upper control limit (UCL)	5A (H,L)[3]	Qualify all samples in run
Continuing Calibration Verification (CCV)	Immediately following ICV, every 10 samples, and end of run %R method specific	NFG [(1)] Method [(2)]	J(pos)/UJ(ND) if %R < LCL J(pos) if %R > UCL	5B (H,L)[3]	Qualify samples bracketed by CCV outliers
Blank Contamination					
Method Blank (MB)	One per matrix per batch of (of ≤ 20 samples) Blank conc < MDL	NFG [(1)] Method [(2)]	U (pos) if result is < 5X method blank concentration	7	Refer to **TM-02** for additional information. Blank Evaluation based on NFG 1994

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Conventional Methods with Instrument Calibrations (i.e., Ion Chromatography, Total Organic Carbon)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Instrument Blanks (ICB/CCB)	After each ICV & CCV | blank concentration | < MDL	NFG [(1)] Method [(2)]	Action level is 5x absolute value of blank conc. For positive blanks: U (pos) results < action level For negative blanks: J (pos)/UJ (ND) results < action level	Pos Blanks: 7 Neg Blanks: 7L[3]	Use blanks bracketing samples for Qualification Refer to **TM-02** for additional information. **Hierarchy of blank review:** **#1 - Review MB, quaify as needed** **#2 - Review IB , qualify as needed** **#3 - Review FB , qualify as needed**
Field Blank (FB)	Blank conc < MDL	EcoChem standard policy	U (pos) if result is < 5x action level, as per analyte.	6	Qualify in associated field samples only. Refer to **TM-02** for additional information.
Precision and Accuracy					
Laboratory Control Sample (LCS)	One per matrix per batch (of ≤ 20 samples) %R within Method control limits (or Laboratory control limtis if none specified in method)	NFG [(1)] Method [(2)]	J (pos)/UJ (ND) if %R < LCL J (pos) if %R > UCL	10 (H,L)[3]	Qualify all samples in batch QAPP may have overriding accuracy limits.
Reference Materials (RM, CRM, SRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[3]	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits

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Conventional Methods with Instrument Calibrations (i.e., Ion Chromatography, Total Organic Carbon)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Where applicable to method; MSD may not be required One per matrix per batch (of ≤ 20 samples) For samples <4x spike level, %R within method control limits (or Laboratory control limtis if none specified in method)	NFG [1] Method [2]	J (pos)/UJ (ND) if %R < LCL J (pos) if %R > UCL	8 (H,L)3	Qualify all samples in batch No action if native analyte concentration ≥ 4x spike added. Qualify all samples in batch. QAPP may have overriding accuracy limits.
Laboratory Duplicate (or MS/MSD)	One per matrix per batch (of ≤ 20 samples) RPD ≤ 20% for results ≥ 5x RL Solids: difference < 2X RL for results < 5X RL Aqueous: difference < 1X RL for results < 5X RL	NFG [1] Method [2]	J (pos)/UJ (ND) if RPD > 20% or if difference > control limit	9	Qualify all samples in batch. QAPP may have overriding precision limits.
Field Duplicate	Solids: RPD <50% (for results ≥ 5x RL) OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% (for results ≥ 5x RL) OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	Qualify only parent and field duplicate samples J (pos)/UJ (ND)	9	QAPP may have overriding precision limits. Client/QAPP may not require qualification based on field precision.
Compound Quantitation					
Linear Range	Sample concentrations less than highest calibration standard	NFG [1] Method [2]	If result exceeds linear range & sample was not diluted J (pos)	20	
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	**TM-04** EcoChem Policy for Rejection/Selection Process for Multiple Results

[1] National Functional Guidelines for Inorganic Superfund Data Review, January 2010.
[2] SW846 or EPA Standard Methods
[3] "H" = high bias indicated; "L" = low bias indicated

(pos): Positive Result
(ND): Not Detected

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Conventional Methods by Gravimetric Analysis
(i.e., Total Solids, Total Dissolved Solids, Total Suspended Solids, Grain Size)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	Cooler temperature: 4°C±2°C Preservation: Analyte/Method Specific	Method [1] NFG[2]	J (pos)/UJ (ND) if preservation requirements not met	1	Use **PJ** to qualify for cooler temp outliers.
Holding Time	Analyte/Method Specific	Method NFG[2]	J (pos)/UJ (ND) if holding time exceeded	1	
Blank Contamination					
Method Blank (MB)	If required by method,one per matrix per batch of (of ≤ 20 samples) Blank conc < MDL	NFG [1] Method [2]	U (pos) if result is < 5X method blank concentration	7	Refer to **TM-02** for additional information. Blank Evaluation based on NFG 1994
Precision and Accuracy					
LCS (If appropriate to method)	One per matrix per batch (of ≤ 20 samples) %R between 80-120%	Method [2]	J (pos)/R (ND) if %R <50% J (pos)/UJ (ND) if %R 50% - 79% J (pos) if %R > 120%	10 (H,L)[3]	Qualify all samples in batch QAPP may have overriding accuracy limits.
Reference Material (RM, SRM, or CRM)	Result ±20% of the 95% confidence interval of the true value for analytes	EcoChem standard policy	J (pos)/UJ (ND) if < LCL J (pos) if > UCL	12 (H,L)[3]	QAPP may have overriding accuracy limits. Some manufacturers may have different RM control limits

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Conventional Methods by Gravimetric Analysis
(i.e., Total Solids, Total Dissolved Solids, Total Suspended Solids, Grain Size)
(Based on Inorganic NFG 2010 and EPA methods)

QC Element	EcoChem Acceptance Criteria	Source of Criteria	EcoChem Action for Non-Conformance	Reason Code	Discussion and Comments
Laboratory Duplicate	One per matrix per batch (of ≤ 20 samples) RPD ≤ 20% for results ≥ 5x RL Solids: difference < 2X RL for results < 5X RL Aqueous: difference < 1X RL for results < 5X RL	NFG [1] Method [2]	J (pos)/UJ (ND) if RPD > 20% For Grain Size, no action if results for fraction are less than 5%	9	Qualify all samples in batch, except Grain Size - qualify parent only. QAPP may have overriding precision limits.
Field Duplicate	Solids: RPD <50% (for results ≥ 5x RL) OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% (for results ≥ 5x RL) OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy	Qualify only parent and field duplicate samples J (pos)/UJ (ND)	9	QAPP may have overriding precision limits. Client/QAPP may not require qualification based on field precision.
Compound Quantitation					
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte per sample	EcoChem standard policy	Use "DNR" to flag results that will not be reported.	11	

[1] National Functional Guidelines for Inorganic Superfund Data Review, January 2010.
[2] SW846 or EPA Standard Methods
[3] "H" = high bias indicated; "L" = low bias indicated

(pos): Positive Result
(ND): Not Detected

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Data Quality

APPENDIX B

QUALIFIED DATA SUMMARY TABLE

Qualified Data Summary Table
City of Seattle - Slip 4 EAA LTM

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Laboratory Qualifier	Validation Qualifier	Validation Reason
19H0024	SL4-1C-SC2-2019	19H0024-10	EPA 7471B	Mercury	0.0452	mg/kg		J	8H
19H0024	SL4-1C-SC2-2019	19H0024-10	EPA 8270D	Benzyl alcohol		ug/kg	U	UJ	5BL
19H0024	SL4-1C-SC2-2019	19H0024-10	EPA 8270D	Phenol		ug/kg	U	DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10	EPA 8270D	Benzo(g,h,i)perylene		ug/kg	U	DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10	EPA 8270D	Indeno(1,2,3-cd)pyrene		ug/kg	U	DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10	EPA 8270D	Benzo(a)pyrene	94.8	ug/kg		DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	U	DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10	EPA 8270D	Total benzofluoranthenes	297	ug/kg		DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10RE1	EPA 8270D	Benzyl alcohol		ug/kg	D U	DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10RE1	EPA 8270D	Bis(2-ethylhexyl)phthalate	866	ug/kg	D	DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10RE1	EPA 8270D	Di-n-octyl phthalate		ug/kg	D U	DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10RE1	EPA 8270D	Pyrene	286	ug/kg	D	DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10RE1	EPA 8270D	Fluoranthene	305	ug/kg	D	DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10RE1	EPA 8270D	Chrysene	137	ug/kg	D	DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10RE1	EPA 8270D	Benzo(a)anthracene	77.9	ug/kg	D	DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10RE1	EPA 8270D	Benzoic acid		ug/kg	D U	DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10RE1	EPA 8270D	Phenanthrene	70.7	ug/kg	D	DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10RE1	EPA 8270D	Butyl benzyl phthalate		ug/kg	D U	DNR	11
19H0024	SL4-1C-SC2-2019	19H0024-10RE1	EPA 8270D	n-Nitrosodiphenylamine		ug/kg	D U	DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11	EPA 7471B	Mercury	0.0729	mg/kg		J	8H
19H0024	SL4-1C-SC3-2019	19H0024-11	EPA 8270D	Benzyl alcohol	17.4	ug/kg	J	J	5BL
19H0024	SL4-1C-SC3-2019	19H0024-11	EPA 8270D	Phenol	20.9	ug/kg	Q	J	5BL
19H0024	SL4-1C-SC3-2019	19H0024-11	EPA 8270D	Benzo(g,h,i)perylene		ug/kg	U	DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11	EPA 8270D	Indeno(1,2,3-cd)pyrene		ug/kg	U	DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11	EPA 8270D	Benzo(a)pyrene	275	ug/kg		DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	U	DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11	EPA 8270D	Total benzofluoranthenes	687	ug/kg		DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11RE1	EPA 8270D	Benzyl alcohol		ug/kg	D U	DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11RE1	EPA 8270D	Phenol		ug/kg	D U	DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11RE1	EPA 8270D	Bis(2-ethylhexyl)phthalate	886	ug/kg	D	DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11RE1	EPA 8270D	Di-n-octyl phthalate	53.3	ug/kg	D J	DNR	11

Qualified Data Summary Table
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SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Laboratory Qualifier	Validation Qualifier	Validation Reason
19H0024	SL4-1C-SC3-2019	19H0024-11RE1	EPA 8270D	Pyrene	483	ug/kg	D	DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11RE1	EPA 8270D	Fluoranthene	665	ug/kg	D	DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11RE1	EPA 8270D	Chrysene	219	ug/kg	D	DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11RE1	EPA 8270D	Benzo(a)anthracene	115	ug/kg	D	DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11RE1	EPA 8270D	Benzoic acid		ug/kg	D U	DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11RE1	EPA 8270D	Phenanthrene	216	ug/kg	D	DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11RE1	EPA 8270D	Butyl benzyl phthalate		ug/kg	D U	DNR	11
19H0024	SL4-1C-SC3-2019	19H0024-11RE1	EPA 8270D	n-Nitrosodiphenylamine		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09	EPA 7471B	Mercury	0.129	mg/kg		J	8H
19H0024	SL4-SG-WC1-2019	19H0024-09	EPA 8270D	Benzyl alcohol		ug/kg	D U	UJ	5BL
19H0024	SL4-SG-WC1-2019	19H0024-09	EPA 8270D	Phenol		ug/kg	D U	UJ	5BL
19H0024	SL4-SG-WC1-2019	19H0024-09	EPA 8270D	Bis(2-ethylhexyl)phthalate	7530	ug/kg	D E	DNR	20
19H0024	SL4-SG-WC1-2019	19H0024-09	EPA 8270D	Benzo(g,h,i)perylene		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09	EPA 8270D	Indeno(1,2,3-cd)pyrene		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	D U	UJ	5BL
19H0024	SL4-SG-WC1-2019	19H0024-09RE1	EPA 8270D	Benzyl alcohol		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09RE1	EPA 8270D	Phenol		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09RE1	EPA 8270D	Di-n-octyl phthalate	293	ug/kg	D	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09RE1	EPA 8270D	Pyrene	1300	ug/kg	D	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09RE1	EPA 8270D	Fluoranthene	1530	ug/kg	D	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09RE1	EPA 8270D	Chrysene	925	ug/kg	D	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09RE1	EPA 8270D	Benzo(a)pyrene	394	ug/kg	D	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09RE1	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09RE1	EPA 8270D	Benzo(a)anthracene	339	ug/kg	D	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09RE1	EPA 8270D	Benzoic acid		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09RE1	EPA 8270D	Phenanthrene	336	ug/kg	D	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09RE1	EPA 8270D	Butyl benzyl phthalate	905	ug/kg	D	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09RE1	EPA 8270D	n-Nitrosodiphenylamine		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC1-2019	19H0024-09RE1	EPA 8270D	Total benzofluoranthenes	1010	ug/kg	D	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08	EPA 7471B	Mercury	0.0923	mg/kg		J	8H
19H0024	SL4-SG-WC2-2019	19H0024-08	EPA 8270D	Benzyl alcohol		ug/kg	D U	UJ	5BL

Qualified Data Summary Table
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SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Laboratory Qualifier	Validation Qualifier	Validation Reason
19H0024	SL4-SG-WC2-2019	19H0024-08	EPA 8270D	Phenol	117	ug/kg	Q D	J	5BL
19H0024	SL4-SG-WC2-2019	19H0024-08	EPA 8270D	Benzo(g,h,i)perylene		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08	EPA 8270D	Indeno(1,2,3-cd)pyrene		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	D U	UJ	5BL
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	Benzyl alcohol		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	Phenol		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	Bis(2-ethylhexyl)phthalate	2570	ug/kg	D	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	Di-n-octyl phthalate	214	ug/kg	D	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	Pyrene	970	ug/kg	D	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	Fluoranthene	1150	ug/kg	D	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	Chrysene	556	ug/kg	D	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	Benzo(a)pyrene	366	ug/kg	D	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	Benzo(a)anthracene	338	ug/kg	D	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	Benzoic acid		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	Phenanthrene	248	ug/kg	D	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	Butyl benzyl phthalate	233	ug/kg	D	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	n-Nitrosodiphenylamine		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC2-2019	19H0024-08RE1	EPA 8270D	Total benzofluoranthenes	1020	ug/kg	D	DNR	11
19H0024	SL4-SG-WC3-2019	19H0024-03	EPA 7471B	Mercury	0.191	mg/kg		J	8H
19H0024	SL4-SG-WC3-2019	19H0024-03	EPA 8270D	Benzyl alcohol	16.7	ug/kg	J	J	5BL
19H0024	SL4-SG-WC3-2019	19H0024-03	EPA 8270D	Phenol	48.4	ug/kg	Q	DNR	11
19H0024	SL4-SG-WC3-2019	19H0024-03	EPA 8270D	Bis(2-ethylhexyl)phthalate	2090	ug/kg	E	DNR	20
19H0024	SL4-SG-WC3-2019	19H0024-03	EPA 8270D	Pyrene	1020	ug/kg		J	8H
19H0024	SL4-SG-WC3-2019	19H0024-03	EPA 8270D	Benzo(g,h,i)perylene	124	ug/kg		DNR	11
19H0024	SL4-SG-WC3-2019	19H0024-03	EPA 8270D	Indeno(1,2,3-cd)pyrene	147	ug/kg		DNR	11
19H0024	SL4-SG-WC3-2019	19H0024-03	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	U	DNR	11
19H0024	SL4-SG-WC3-2019	19H0024-03	EPA 8270D	Total benzofluoranthenes	819	ug/kg		J	9
19H0024	SL4-SG-WC3-2019	19H0024-03RE1	EPA 8270D	Benzyl alcohol		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC3-2019	19H0024-03RE1	EPA 8270D	Di-n-octyl phthalate		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC3-2019	19H0024-03RE1	EPA 8270D	Pyrene	817	ug/kg	D	DNR	11

Qualified Data Summary Table
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SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Laboratory Qualifier	Validation Qualifier	Validation Reason
19H0024	SL4-SG-WC3-2019	19H0024-03RE1	EPA 8270D	Benzo(g,h,i)perylene	230	ug/kg	D	J	9
19H0024	SL4-SG-WC3-2019	19H0024-03RE1	EPA 8270D	Indeno(1,2,3-cd)pyrene	153	ug/kg	D	J	9
19H0024	SL4-SG-WC3-2019	19H0024-03RE1	EPA 8270D	Fluoranthene	1050	ug/kg	D	DNR	11
19H0024	SL4-SG-WC3-2019	19H0024-03RE1	EPA 8270D	Chrysene	401	ug/kg	D	DNR	11
19H0024	SL4-SG-WC3-2019	19H0024-03RE1	EPA 8270D	Benzo(a)pyrene	240	ug/kg	D	DNR	11
19H0024	SL4-SG-WC3-2019	19H0024-03RE1	EPA 8270D	Dibenzo(a,h)anthracene	40.6	ug/kg	D J	J	9
19H0024	SL4-SG-WC3-2019	19H0024-03RE1	EPA 8270D	Benzo(a)anthracene	251	ug/kg	D	DNR	11
19H0024	SL4-SG-WC3-2019	19H0024-03RE1	EPA 8270D	Benzoic acid		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC3-2019	19H0024-03RE1	EPA 8270D	Phenanthrene	291	ug/kg	D	DNR	11
19H0024	SL4-SG-WC3-2019	19H0024-03RE1	EPA 8270D	n-Nitrosodiphenylamine		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC3-2019	19H0024-03RE1	EPA 8270D	Total benzofluoranthenes	674	ug/kg	D	DNR	11
19H0024	SL4-SG-WC3-FW-2019	19H0024-02	EPA 6010C	Chromium	0.36	ug/wipe	B	U	7
19H0024	SL4-SG-WC3-FW-2019	19H0024-02	EPA 8270D	Benzyl alcohol		ug/wipe	U	UJ	5BL
19H0024	SL4-SG-WC3-FW-2019	19H0024-02	EPA 8270D	Phenol		ug/wipe	U	UJ	5BL
19H0024	SL4-SG-WC3-FW-2019	19H0024-02	EPA 8270D	Benzo(g,h,i)perylene		ug/wipe	U	UJ	5BL
19H0024	SL4-SG-WC3-FW-2019	19H0024-02	EPA 8270D	Indeno(1,2,3-cd)pyrene		ug/wipe	U	UJ	5BL
19H0024	SL4-SG-WC3-FW-2019	19H0024-02	EPA 8270D	Dibenzo(a,h)anthracene		ug/wipe	U	UJ	5BL
19H0024	SL4-SG-WC4-2019	19H0024-07	EPA 7471B	Mercury	0.0793	mg/kg		J	8H
19H0024	SL4-SG-WC4-2019	19H0024-07	EPA 8270D	Benzyl alcohol		ug/kg	U	DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07	EPA 8270D	Phenol	12.5	ug/kg	J	J	5BL
19H0024	SL4-SG-WC4-2019	19H0024-07	EPA 8270D	Benzo(g,h,i)perylene	106	ug/kg		J	5BL
19H0024	SL4-SG-WC4-2019	19H0024-07	EPA 8270D	Indeno(1,2,3-cd)pyrene	102	ug/kg		DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	U	UJ	5BL
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	Benzyl alcohol		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	Phenol		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	Bis(2-ethylhexyl)phthalate	513	ug/kg	D	DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	Di-n-octyl phthalate		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	Pyrene	285	ug/kg	D	DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	Fluoranthene	364	ug/kg	D	DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	Chrysene	155	ug/kg	D	DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	Benzo(a)pyrene	126	ug/kg	D	DNR	11

Qualified Data Summary Table
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SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Laboratory Qualifier	Validation Qualifier	Validation Reason
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	Benzo(a)anthracene	93.3	ug/kg	D	DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	Benzoic acid		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	Phenanthrene	79.3	ug/kg	D	DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	Butyl benzyl phthalate		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	n-Nitrosodiphenylamine		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC4-2019	19H0024-07RE1	EPA 8270D	Total benzofluoranthenes	325	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04	EPA 7471B	Mercury	0.22	mg/kg		J	8H
19H0024	SL4-SG-WC7-2019	19H0024-04	EPA 8270D	Benzyl alcohol	26.1	ug/kg	Q	J	5BL
19H0024	SL4-SG-WC7-2019	19H0024-04	EPA 8270D	Phenol	18.3	ug/kg	J	J	5BL
19H0024	SL4-SG-WC7-2019	19H0024-04	EPA 8270D	Benzo(g,h,i)perylene	104	ug/kg		DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04	EPA 8270D	Indeno(1,2,3-cd)pyrene	100	ug/kg		DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	U	UJ	5BL
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	Benzyl alcohol		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	Phenol		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	Bis(2-ethylhexyl)phthalate	536	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	Di-n-octyl phthalate		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	Pyrene	534	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	Fluoranthene	688	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	Chrysene	263	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	Benzo(a)pyrene	144	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	Benzo(a)anthracene	183	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	Benzoic acid		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	Phenanthrene	106	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	Butyl benzyl phthalate		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	n-Nitrosodiphenylamine		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC7-2019	19H0024-04RE1	EPA 8270D	Total benzofluoranthenes	426	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05	EPA 7471B	Mercury	0.207	mg/kg		J	8H
19H0024	SL4-SG-WC7-FD-2019	19H0024-05	EPA 8270D	Benzyl alcohol	16.8	ug/kg	J	J	5BL
19H0024	SL4-SG-WC7-FD-2019	19H0024-05	EPA 8270D	Phenol	16.7	ug/kg	J	J	5BL

Qualified Data Summary Table
City of Seattle - Slip 4 EAA LTM

SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Laboratory Qualifier	Validation Qualifier	Validation Reason
19H0024	SL4-SG-WC7-FD-2019	19H0024-05	EPA 8270D	Benzo(g,h,i)perylene	77.3	ug/kg		DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05	EPA 8270D	Indeno(1,2,3-cd)pyrene	74.3	ug/kg		DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	U	UJ	5BL
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	Benzyl alcohol		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	Phenol		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	Bis(2-ethylhexyl)phthalate	562	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	Di-n-octyl phthalate	33.2	ug/kg	D J	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	Pyrene	567	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	Fluoranthene	687	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	Chrysene	293	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	Benzo(a)pyrene	187	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	Benzo(a)anthracene	182	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	Benzoic acid		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	Phenanthrene	110	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	Butyl benzyl phthalate		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	n-Nitrosodiphenylamine		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE1	EPA 8270D	Total benzofluoranthenes	435	ug/kg	D	DNR	11
19H0024	SL4-SG-WC7-FD-2019	19H0024-05RE2	PLUMB, 1981	Total Organic carbon (TOC)	3.15	%	H	J	1
19H0024	SL4-SG-WC8-2019	19H0024-06	EPA 7471B	Mercury	0.0743	mg/kg		J	8H
19H0024	SL4-SG-WC8-2019	19H0024-06	EPA 8270D	Benzyl alcohol		ug/kg	U	UJ	5BL
19H0024	SL4-SG-WC8-2019	19H0024-06	EPA 8270D	Phenol	16.5	ug/kg	J	J	5BL
19H0024	SL4-SG-WC8-2019	19H0024-06	EPA 8270D	Benzo(g,h,i)perylene	55.9	ug/kg		DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06	EPA 8270D	Indeno(1,2,3-cd)pyrene	51.2	ug/kg		DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	U	UJ	5BL
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	Benzyl alcohol		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	Phenol		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	Bis(2-ethylhexyl)phthalate	108	ug/kg	D J	DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	Di-n-octyl phthalate		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	Pyrene	122	ug/kg	D	DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	Fluoranthene	130	ug/kg	D	DNR	11

Qualified Data Summary Table
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SDG	Sample ID	Laboratory ID	Method	Analyte	Result	Units	Laboratory Qualifier	Validation Qualifier	Validation Reason
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	Chrysene	80.9	ug/kg	D	DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	Benzo(a)pyrene	68.4	ug/kg	D	DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	Dibenzo(a,h)anthracene		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	Benzo(a)anthracene	59.2	ug/kg	D J	DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	Benzoic acid		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	Phenanthrene	36.7	ug/kg	D J	DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	Butyl benzyl phthalate		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	n-Nitrosodiphenylamine		ug/kg	D U	DNR	11
19H0024	SL4-SG-WC8-2019	19H0024-06RE1	EPA 8270D	Total benzofluoranthenes	148	ug/kg	D	DNR	11